BEFORE THE

FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D.C.

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of	)	
	)	
Redesignation of the 17.7-19.7 GHz Frequency	)	Docket No. 98-172
Band, Blanket Licensing of Satellite	)	
Earth Stations in the 17.7-20.2 GHz and	)	
27.5-30.0 GHz Frequency Bands, and the	)	RM-9005
Allocation of Additional Spectrum	)	RM-9118
in the 17.3-17.8 GHz and 24.75-25.25 GHz	)	
Frequency Bands for Broadcast	)	
Satellite Service Use	)	

COMMENTS OF GE AMERICAN COMMUNICATIONS, INC.

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SUMMARY

GE Americom urges the Commission to revise the band plan proposed in the *Notice* in order to meet the requirements of GSO/FSS systems for 1000 MHz of usable downlink spectrum. GSO/FSS currently has primary or co-primary access to 1600 MHz in the 17.7-20.2 GHz bands. However, the proposed plan would leave GSO/FSS sole primary status with respect to less than 1000 MHz in those bands. Moreover, the *Notice* proposes that currently-licensed fixed services would be grandfathered as co-primary, which further diminishes the amount of usable spectrum the current proposal would leave to GSO/FSS systems. The proposed band plan does not spread the pain of spectrum reallocation equally; instead, GSO/FSS systems bear the brunt of the Commission's proposal. Because the Commission's plan fails to provide GSO/FSS the 1000 MHz of clean spectrum it needs and fails to treat all services fairly, the proposed redesignation of the 18 GHz bands requires substantial readjustment.

As for the technical matters discussed in the *Notice,* GE Americom generally endorses the conclusions of the GSO Ka-Band Blanket Licensing Industry Working Group. However, GE Americom, objects to one aspect of the report of that group. Specifically, GE Americom urges the Commission to make clear that an established coordination agreement among satellite licensees cannot be nullified simply because the Commission reassigns an orbit location relevant to that agreement to another licensee.

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BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C.

In the Matter of	)	
	)	
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	)	Docket No. 98-172
	)	RM-9005
	)	RM-9118

To: The Commission

COMMENTS OF GE AMERICAN COMMUNICATIONS, INC.

GE American Communications, Inc. ("GE Americom") hereby submits its comments in response to the *Notice of Proposed Rulemaking* in the above-captioned matter, FCC 98-235 (released September 18, 1998) ("*Notice*").

INTRODUCTION

In the *Notice*, the Commission proposed revisions to the allocation of spectrum in the bands between 17.7 and 20.2 GHz in an attempt to better accommodate the spectrum requirements of a variety of services, including downlinks for Ka-band geostationary fixed satellite services ("GSO/FSS"). To accomplish this aim, the *Notice* generally proposed to adopt separate allocations for bands to be used by satellites and terrestrial systems. *See Notice* at ¶ 19. Also, the Commission took the necessary step of protecting the use of these bands for satellite

services by immediately making clear that terrestrial applications in these bands that were filed after the issuance of the *Notice* would not be guaranteed primary or co-primary status. *See Notice* at ¶ 40.

GE Americom has been authorized by the Commission to launch and operate the GE*Star geostationary satellite system in the Ka-band.[1] GE Americom's access to sufficient, usable downlink spectrum is critical to ensure the viability of the GE*Star system and that of other GSO/FSS systems licensed in that band.

As a result, the outcome of this proceeding is crucial to GE Americom's business plans and its ability to satisfy customer requirements. The Commission has recognized that satellite operations in the Ka-band promise substantial public interest benefits:

> [Such services] have the potential to provide global Internet access, two-way digital communications, videoconferencing, interactive multimedia, telemedicine and residential voice and data communications services. Within the next five to ten years, we anticipate that these services will be provided to millions of United States business and consumers using small antenna Ka-band satellite earth stations. *Notice* at ¶ 9.

Accordingly, any final redesignation of the Ka-band must provide GSO/FSS services, with their ability to reach any terrestrial location without the need for extensive ground infrastructure, the spectrum needed to provide commercially feasible services to a wide variety of users.

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1 *GE American Communications, Inc.*, DA-970 (Int'l Bur. rel. May 9, 1997).

The Commission's proposed band plan fails to meet this requirement. Currently, GSO/FSS has primary or co-primary access to 1600 MHz in the 17.7-20.2 GHz bands, with 500 MHz of that spectrum already exclusively designated on a primary basis for GSO/FSS. The Commission's proposed band plan would leave GSO/FSS sole primary status with respect to less than 1000 MHz in those bands. In contrast, under the current proposal, fixed ("FS" or "terrestrial") services retain access, on a primary or co-primary basis, to 1250 MHz, and non-geostationary fixed satellite services ("NGSO/FSS") would receive exclusive primary status with respect to all the spectrum they currently share on a co-primary basis. Moreover, the *Notice* proposes that currently-licensed fixed services would be grandfathered as co-primary, which further diminishes the amount of usable spectrum the current proposal would leave to GSO/FSS systems. The Commission's failure to provide GSO/FSS the 1000 MHz of usable downlink spectrum it needs and to treat all services fairly in the *Notice* underscores that the proposed redesignation of these bands requires substantial readjustment.

The *Notice* also addresses a number of technical issues relating to GSO/FSS operations. GE Americom has been an active participant in the efforts of the GSO Ka-Band Blanket Licensing Industry Working Group (the "BL/WG") to develop industry-wide solutions to these technical questions. GE Americom endorses the conclusions set out in the report being submitted by the BL/WG, with one exception. GE Americom objects to the provision in the BL/WG report that suggests that an established coordination agreement among satellite licensees

should be nullified simply because the Commission reassigns an orbit location relevant to that agreement to another licensee.

Accordingly, GE Americom respectfully asks the Commission to adopt nearly all of the solutions proposed by the BL/WG, but urges the Commission to develop and propose another band designation plan in a second *Notice of Proposed Rulemaking*.

I. AS THE COMMISSION HAS DETERMINED, A MINIMUM OF 1000 MHZ OF UNENCUMBERED DOWNLINK SPECTRUM IS NEEDED FOR KA-BAND GSO/FSS SYSTEMS.

Despite a highly efficient use of frequency, including frequency reuse due to polarization diversity, the GSO/FSS services market is reaching saturation. Demand for domestic C-band capacity has exceeded the available supply, and Ku-band capacity also has been in high demand.

In July 1996, the Commission issued a Ka-band spectrum plan that was intended to satisfy the immediate spectrum needs of GSO/FSS services, as well as other services.[2] In that proceeding, the Commission correctly determined that "1000 MHz of spectrum is needed to support multiple [Ka]-band GSO/FSS systems." *See id.* at 19029. Furthermore, the broadband applications proposed for the Ka-

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[2] *See* 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, *First Report and Order and Fourth Notice of Proposed Rulemaking*, CC Docket No. 92-297, 11 FCC Rcd 19005 (1996) ("*28 GHz Order*").

band "require more bandwidth than current data operations." *Id.* As a result, 1000 MHz of spectrum was considered to be the absolute minimum necessary for Ka-band GSO/FSS service. *See id.*

Accordingly, the Commission allocated 1000 MHz of uplink spectrum for the primary use of GSO/FSS systems in that proceeding. *See id.* Three-quarters of this spectrum was designated solely to GSO/FSS systems on a primary basis. Another 250 MHz was designated on a co-primary basis between FSS and MSS, but the Commission explicitly stated that it would not license "any MSS system" in this band unless it can establish "that it can co-exist and share the frequency band with GSO/FSS systems." If no MSS system were able to show that it could protect GSO/FSS systems in the band, the entire 250 MHz of co-primary spectrum would be dedicated solely to GSO/FSS. *See id.* at 19039.

At that time, however, the Commission did not designate 1000 MHz of matching downlink spectrum. Instead, the Commission allocated 1600 MHz of downlink spectrum to GSO/FSS services, a portion of which the Commission expected GSO/FSS to share on a co-primary basis with fixed services. By allocating more than 1000 MHz of downlink spectrum to FSS, the Commission clearly anticipated that GSO/FSS systems would be able to obtain at least the 1000 MHz required to pair with the GSO/FSS uplink segment. *See Notice* at ¶ 25 (noting that satellite systems virtually always require "equal blocks of uplink and downlink spectrum").

II. REASON AND FUNDAMENTAL FAIRNESS DEMAND THAT THE COMMISSION AMEND ITS CURRENT PROPOSAL.

In light of the Ka-band plan imposed in the *28 GHz Order*, the currently proposed plan is neither reasonable nor fair. The current proposal denies GSO/FSS systems any realistic opportunity to obtain the downlink spectrum necessary for Ka-band operations. Moreover, the proposal does not spread the pain of redesignation equally. Instead, NGSO/FSS systems gain exclusive primary rights to a portion of the band without losing even one megahertz of that spectrum. Fixed services gain sole primary rights with respect to 600 MHz of the 1100 MHz that fixed services initially was to share with GSO/FSS, as well as maintaining co-primary rights with GSO/FSS for half of the remaining 500 MHz.

A. As Proposed, The Commission's Frequency Plan Is Inconsistent with Its Prior Actions And Does Not Meet the Minimum Spectrum Needs of GSO/FSS.

Despite the accepted understanding of the Commission's *28 GHz Order* -- that GSO/FSS systems would have access to approximately 1000 MHz of downlink spectrum -- the currently proposed band plan would reduce the amount of downlink spectrum realistically available to GSO/FSS systems to less than 1000 MHz. First, the proposed plan would designate GSO/FSS as exclusive primary users of only 750 MHz of spectrum (from 18.3 to 18.55 GHz and from 19.7 to 20.2 GHz). Second, even this "exclusive" spectrum would not be available solely to GSO/FSS under the proposed plan because GSO/FSS systems would be required to protect "grandfathered" fixed systems that already are widespread in portions of

these bands. *See Notice* at ¶ 40. Third, the long-term planning involved in any satellite project is likely to foreclose much, if not all, of the remaining 250 MHz to be allocated to GSO/FSS systems on a co-primary basis with fixed services.

Such a result is directly contrary to the Commission's reasoning in the *28 GHz Order*. In that proceeding, the Commission recognized that GSO/FSS required at least 1000 MHz of spectrum, and was willing to allow any other service to share any of the uplink spectrum designated for GSO/FSS only if the operator could show that it could co-exist with GSO/FSS. In this proceeding, however, the *Notice* has proposed that GSO/FSS not only must share on a co-primary basis one-quarter of its allotted 1000 MHz of downlink spectrum with FS systems, but also must protect "grandfathered" FS links that already exist throughout 250 MHz that is nominally reserved in its entirety for GSO/FSS.

It is impossible for GSO/FSS systems to access the 1000 MHz of unencumbered downlink spectrum they need under such a proposal. Of the 750 MHz ostensibly exclusively designated for GSO/FSS systems primary use, at least one-third -- the 250 MHz between 18.3 and 18.55 GHz -- would be subject to the *Notice*'s proposal to grandfather existing fixed services. As fixed service representatives already have stated in this proceeding, the ubiquity and strict interference requirements of existing fixed systems in this span of spectrum will make it unfeasible for satellite services to use most, if any, of this band if grandfathering is required. *See* Fixed Point-to-Point Communications Section, Wireless Communications Division of the Telecommunications Industry

Association, Petition for Interim Relief at 3, 5 (submitted Nov. 2, 1998) ("TIA Petition"); Independent Cable & Telecommunications Association, Emergency Request for Immediate Relief at 5-6, Attachment A ("ICTA Request"). In fact, according to the TIA Petition, the "density of 18 GHz terrestrial links" is already "quite high in certain urban areas." TIA Petition at 5. Studies in the separate filing by ICTA make it even more plain that any grandfathering requirement would slash the amount of spectrum available for satellite use. *See, e.g.*, ICTA Request at 5 (noting that private cable operators can cause interference to satellite operators within a 45-mile oblong area *from each cable transmitter site*") (emphasis added).

Similarly, it is unlikely that GSO/FSS systems can expect to be able to utilize any significant amount of the 250 MHz of spectrum that the Commission expects these systems to share, on a co-primary basis, with fixed services (the "Co-Primary Band"). The Commission is aware that fixed systems, given their earth-bound nature, may more quickly occupy spectrum than space-based satellite systems. As a result, any spectrum that is designated as co-primary is likely to be occupied by fixed services before any satellite system can be implemented.[3] In fact, given the filings by ICTA and TIA already in this proceeding, it is apparent that terrestrial services seem to be more than ready to occupy large segments of the

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[3] Perhaps as a result, the Commission has suggested that FSS users would be able to provide limited "gateway" type services in any such Co-Primary Band. *Id.* at ¶ 32. Even assuming such a "gateway" service is economically viable, the ubiquity of fixed services in the 18 GHz band, as described above, may make it impossible to establish an FSS gateway station at a site where interference to such existing earth-based operations will not result.

nominally Co-Primary Band. *See, e.g.*, ICTA Request at Attachment A. Additionally, government restrictions on the major portion of the Co-Primary band significantly reduce the usefulness of this band for GSO/FSS downlinks of any type.

For all the above reasons, it is even more doubtful that GSO/FSS systems will be able to make substantial use of any spectrum allocated to it on a secondary basis. Accordingly, the Commission cannot assume that GSO/FSS systems will be able to obtain the remaining spectrum they need through operation on a secondary basis in the 17.7-18.3 GHz, 18.8-19.3 GHz, and 19.3-19.7 GHz sub-bands where terrestrial services, NGSO/FSS or MSS feeder links are proposed to have primary status. *See Notice* at ¶ 37.

B. The Commission's Frequency Plan Unfairly Places the Burdens of the Proposed Redesignation on GSO/FSS Systems.

The current proposal's failure to provide 1000 MHz of unencumbered downlink spectrum not only contradicts the *28 GHz Order*, but unfairly takes spectrum from GSO/FSS in order to provide more or cleaner spectrum to other services. Under the existing plan, as noted, GSO/FSS has an exclusive primary designation with respect to 500 MHz, and has a co-primary designation with respect to 1.1 GHz. Under the proposed plan, GSO/FSS would lose any type of primary designation with respect to 600 MHz of the existing allocation, and in exchange would receive a new exclusive primary designation with regard to only 250 MHz. Moreover, that 250 MHz would be further made unusable by the various

grandfathered terrestrial services that GSO/FSS would be obligated to protect in that band.

The contrast with the proposal's treatment of NGSO/FSS could not be more stark. NGSO/FSS, in the existing plan, shares a co-primary designation with FS with respect to 500 MHz in the 17.7 to 20.2 GHz band. However, under the current proposal, NGSO/FSS services would gain an exclusive primary designation with respect to *all* of this spectrum. Equivalent treatment of GSO/FSS would result in GSO/FSS being designated as the exclusive primary user of 1.6 GHz of spectrum. Instead, the Commission proposes to take away primary access to 600 MHz of spectrum from GSO/FSS and to make GSO/FSS non-exclusive in 500 MHz. The inequity of the actual proposal is itself reason for the Commission to revise the proposed band plan to ensure more unencumbered downlink spectrum for GSO/FSS systems.

A comparison with the treatment of fixed services also demonstrates the inequity of the Commission's proposal. Under the proposal, FS systems lost co-primary rights with regard to a maximum of 750 MHz of spectrum in the 17.7 to 20.2 GHz band, but gained an additional 600 MHz of spectrum in which it was the exclusive primary designee. Similar treatment of GSO/FSS, which has co-primary rights with regard to 1.1 GHz of spectrum under the existing plan, would result in GSO/FSS receiving an additional 600 MHz of clean, unencumbered spectrum, for a total of 1.1 GHz of clean downlink spectrum designated for GSO/FSS.

III. WITH REGARD TO OTHER TECHNICAL ELEMENTS OF THE NOTICE, THE COMMISSION SHOULD RELY LARGELY ON THE PROPOSED SOLUTIONS OF THE 18 GHZ BLANKET LICENSING GROUP.

Since May 1997, U.S. Ka-band GSO/FSS applicants -- including GE Americom -- have worked together in the Blanket Licensing Working Group to develop operational parameters for small Ka-band GSO/FSS earth stations in order to make blanket licensing of these stations feasible in a two-degree orbital spacing environment. As a result of these efforts, the BL/WG has completed a report that summarizes the issues on which the applicants were largely able to come to an agreement or reach a significant majority position. *See* Report of the GSO Ka-Band Blanket Licensing Industry Working Group (to be submitted November 19, 1998) (the "*BL/WG Report*"). The *BL/WG Report* analyzes several technical issues, including downlink power flux spectral density ("PFD") limits, uplink off-axis EIRP density limits, uplink power control, earth station antenna pointing accuracy, and earth station cross-polar performance.

On downlink PFD limits, the report concludes that PFD limits should have two reference bandwidths for clear-sky operation-- -118 dBW per square meter per megahertz and -120 dBW per square meter per megahertz -- which would protect both narrow and wide band carriers. *See id.* On uplink off-axis EIRP density limits, the *BL/WG Report* endorses a common value of 25.0 dBW/MHz, which closely corresponds to the proposed European Telecommunication Standards Institute limits. *See id.* The BL/WG also concluded that worst-case pointing errors of transmit earth stations must comply with the levels it proposes for uplink off-axis

EIRP density limits. *See id.* GE Americom endorses the conclusions of the BL/WG with respect to each of these issues.

GE Americom also supports BL/WG's conclusion that a U.S.-licensed satellite operator may exceed the blanket licensing limits if it successfully coordinates the proposed operation with all U.S.-licensed satellite networks. However, GE Americom would not require that such an operator must again coordinate its operations if the Commission reassigns one of the orbit locations involved in such an agreement to another licensee. As the Commission is aware, a coordination agreement involves a substantial investment of time and resources on the part of the operator that proposes the agreement. Once such an agreement is reached, that operator (and other affected operators) would rely on that agreement in designing their offerings to customers, making substantial investments in related equipment. Such reliance would be impossible if the agreement were subject to nullification any time there is a change in the orbital assignments in the relevant part of the arc. Accordingly, GE Americom urges the Commission to make clear that any new orbital assignments would be subject to existing coordination agreements.

GE Americom also reminds the Commission that the BL/WG is still a work in progress. Because of the intensity of the work required on each of the above issues, the BL/WG was unable to resolve issues relating to uplink power control and earth station cross-polar performance. *See id.* As a result, GE Americom requests

the Commission postpone any action on these and other unresolved matters until the BL/WG has had an opportunity to study these matters further.

CONCLUSION

GE Americom urges the Commission to take the steps outlined above to ensure that sufficient unencumbered spectrum is available for GSO/FSS systems in the Ka-band. The Commission must resolve these issues so that GSO/FSS providers can continue the process of initiating Ka-band service in order to alleviate current spectrum shortages in the satellite services market.

Respectfully submitted,

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November 19, 1998

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I hereby certify that I caused copies of the foregoing Comments to be hand delivered on this 19th day of November to the following persons:

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