

Before the
Federal Communications Commission
Washington, D.C. 20554

)	
	)	File No. 3-DSS-P/LA-94
	)	IBFS No. SAT-LOA-19931203-00040
In the Matter of	)	File No. 4-DSS-P/LA-94
	)	IBFS No. SAT-LOA-19931203-00041
Hughes Communications Galaxy, Inc.	)	File No. 174-SAT-P/LA-95
	)	IBFS No. SAT-LOA-19950929-00125
Application for Authority to Construct, Launch,	)	File No. 175-SAT-P/LA-95
and Operate a Ka-band Satellite System in the	)	IBFS No. SAT-LOA-19950929-00126
Fixed-Satellite Service	)	File No. 176-SAT-P/LA-95
	)	IBFS No. SAT-LOA-19950929-00127
	)	File No. 177-SAT-P/LA-95
	)	IBFS No. SAT-LOA-19950929-00128
	)	File No. 178-SAT-P/LA-95
	)	IBFS No. SAT-LOA-19950929-00129
	)	File No. 179-SAT-P/LA-95
	)	IBFS No. SAT-LOA-19950929-00137

ORDER AND AUTHORIZATION

Adopted: January 30, 2001

Released: January 31, 2001

By the Chief, International Bureau:

I. INTRODUCTION

1. By this Order, we modify Hughes Communications Galaxy, Inc.’s (“Hughes”) license¹ to launch and operate a satellite system in the geostationary-satellite orbit (“GSO”) to provide fixed-satellite service (“FSS”) in a portion of the Ka-band.² In particular, we authorize Hughes to operate inter-satellite links (“ISLs”) and specify additional downlink operating frequencies for satellite-to-user transmissions.³ Further, we assign milestone requirements for construction, launch, and operation of the satellite system. This will ensure that Hughes will make timely progress toward launching its satellites and making its

¹ See *In the Matter of Hughes Communications Galaxy Inc. Application for Authority to Construct, Launch, and Operate a Ka-band Satellite System in the Fixed Satellite Service and a Ku-band Broadcast Communications Satellite System*, 13 FCC Rcd 1351 (1997) (“Hughes Authorization Order”).

² The term "Ka-band" generally refers to the space-to-earth (downlink) frequencies at 17.7-20.2 GHz and the corresponding earth-to-space (uplink) frequencies at 27.5-30.0 GHz.

³ ISLs are communication links between in-orbit satellites. ISLs operate in spectrum allocated to the inter-satellite service. International Telecommunication Union (“ITU”) Radio Regulation S1.22.

advanced broadband communication services available to businesses and consumers around the world. Failure by Hughes to meet its milestones will render this authorization null and void.

II. BACKGROUND

The Hughes License

2. In May 1997, as part of the first Ka-band processing round, the International Bureau (“Bureau”) authorized Hughes to launch and operate a GSO satellite system to provide FSS in the Ka-band.⁴ Hughes intends to use this system to provide direct-to-home services and high-speed personal computer access to the Internet and on-line services, telephony, narrow-band data, high-speed data, video conferencing, and high capacity two-way communications. The system, Spaceway, consists of satellites assigned to eight orbit locations.⁵ The *Authorization Order* permits Hughes to operate its service links--satellite transmission links to and from user units--in the 28.35-28.6 GHz and the 29.25-30.0 GHz bands for uplink transmissions and the 19.7-20.2 GHz band for its downlink transmissions.⁶ Hughes’s May 1997 *Authorization Order* did not include operating authority for inter-satellite link service, nor did it include additional downlink spectrum requested by Hughes.⁷

Inter-Satellite Links

4. By employing ISLs, Hughes’s satellites will be able to communicate directly with each other, which, according to Hughes, will extend the coverage regions of satellite systems from different orbit locations.⁸ In its original application, Hughes proposed to use ISLs in portions of the 22.55-23.55 GHz, 32.0-33.0 GHz, 54.25-58.2 GHz and 59.0-64.0 GHz frequency bands. When the Bureau awarded Hughes its license we deferred assigning ISL frequencies because none of these bands were then suitable for inter-satellite link service.

5. The bands initially requested by Hughes are shared on a co-equal basis with U.S.

⁴ *Hughes Authorization Order*, 13 FCC Rcd 1351. In the *Authorization Order*, we granted Hughes licenses for twenty GSO FSS satellites at 15 orbit locations. As the result of a subsequent merger between Hughes and PanAmSat Corporation (“PAS”), Hughes assigned the licenses associated with seven orbit locations to PAS. See letter from John P. Janka to Secretary, FCC (June 9, 1997). See *In the Matter of Hughes Communications, Inc. and Affiliated Companies and Anselmo Group Voting Trust/PanAmSat Licensee Corp. and Affiliated Companies*, 12 FCC Rcd 7534 (1997).

⁵ These are the 101° W.L., 99° W.L., 49° W.L., 54° E.L., 101° E.L., 111° E.L., and 164° E.L., 25° E.L. orbital locations.

⁶ *Hughes Authorization Order*, 13 FCC Rcd 1351 at ¶ 7.

⁷ In its application, Hughes also requested to use additional frequencies to provide service outside of the United States. We will consider Hughes’s request for additional frequencies in a separate Order at the same time we handle Hughes’s Petition for Reconsideration or Clarification of the Ka-Band Service Rules. We also note that Hughes has filed an application in the second Ka-band processing round to add additional orbit locations to its licensed first-round system. See Public Notice, Satellite Policy Branch Information, Ka-band Satellite Applications Accepted for Filing, Report No. SAT-00012 (dated March 16, 1999).

⁸ *Hughes Authorization Order*, 13 FCC Rcd 1351 at ¶ 29.

Government operations, including ongoing operations in the inter-satellite and Earth exploration-satellite services. The National Telecommunications and Information Administration (“NTIA”) expressed concern regarding potential harmful interference between commercial ISL operations and these government services. In 1997, the United States presented proposals to the then-upcoming World Radiocommunication Conference (“WRC-97”) concerning ISL operations in the 54.25-59.3 GHz and 64.0-71.0 GHz bands.⁹ These proposals were designed to allow us to assign ISLs to all first-round Ka-band system applicants requesting them, while addressing NTIA’s interference concerns. In view of the uncertainty surrounding this issue, we deferred awarding ISL frequencies pending the outcome of WRC-97.

6. The WRC-97 allocated an additional band at 64.0-71.0 GHz for ISLs for both non-geostationary orbit (“NGSO”) and GSO systems, including those operating in the FSS.¹⁰ The WRC also limited ISL operations in the 54.25-59.3 GHz band to communications between GSO satellites.¹¹ Additionally, ITU Radio Regulation S5.556A states that satellites operating in the 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz bands shall meet the specified power flux-density (“p.f.d.”) limit at all altitudes from 0 km to 1000 km above the Earth’s surface.¹² In June 1998, the Bureau requested that each Ka-band FSS licensee requesting ISL spectrum update its ISL request in light of the actions taken at WRC-97.¹³ In addition, the Bureau asked each licensee to provide the Bureau with the specific frequency bands on which it proposes to operate its ISL service and to coordinate its proposed frequency bands with the other Ka-band licensees before it presented its proposal to the Commission. In response, the GSO FSS Ka-band licensees submitted a report in October 1998 (hereinafter the “*GSO FSS Sharing Report*”), concluding that ISLs of the licensed GSO FSS systems could share the same frequencies with few constraints.¹⁴

7. At the same time, Teledesic L.L.C. (“Teledesic”), the only NGSO licensee employing ISLs

⁹ See *United States Proposals for the Work of the [WRC-97] Conference*, Document USWRC-97.10-E, dated July 24, 1997, Proposals for Agenda Item 1.9.4.3, entitled “The Existing Frequency Allocations Near 60 GHz and, if Necessary, Their Respective Allocation, with a View to Protecting the Earth Exploration-Satellite (passive) Service Systems Operating in the Unique Oxygen Absorption Frequency Band from About 50 GHz to About 70 GHz. (A Consequential Allocation to the Inter-Satellite Service in the 65-71 GHz Bands) (JPDP 12).”

¹⁰ See Final Acts of the 1997 World Radiocommunication Conference, Geneva (1997); ITU Radio Regulations Article S5 (frequency allocations).

¹¹ See ITU Radio Regulation S5.556A (“Use of the bands 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit.”).

¹² *Id.* (“The single-entry power flux-density at all altitudes from 0 km to 1000 km above the Earth’s surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed -147dB(W/m²/100 MHz) for all angles of arrival.”).

¹³ See, e.g., Letter from Thomas S. Tycz, Chief, Satellite and Radiocommunication Division, FCC to John P. Janka, Counsel for Hughes Communications Galaxy Inc. (June 10, 1998).

¹⁴ *Sharing of Various Frequency Bands Allocated to the Inter-Satellite Service* (October 9, 1998). The study did not examine sharing between GSO and NGSO systems sharing the same ISL frequencies. See also Letter from John P. Janka and Arthur S. Landerholm, Counsel for Hughes Communications Galaxy Inc. to Magalie Roman Salas, Secretary, Federal Communications Commission (October 9, 1998) (Hughes specifying bands for ISL operation.)

in the same frequency bands, also submitted a sharing report (hereinafter the “*Teledesic Sharing Report*”).¹⁵ The *Teledesic Sharing Report* concluded that its ISLs could operate on the same frequencies as the GSO system ISLs, except for possible mutual interference in the limited case of GSO networks using ISLs among satellites that are separated by 157 to 162 longitudinal degrees.

8. After reviewing the *GSO FSS Sharing Report*, the Bureau concluded that it needed additional information to support the report’s findings. Accordingly, the Bureau sent a letter to the parties, including Hughes, requesting a description of the proposed ISL arrangement, including which satellites at which licensed orbital locations would communicate with each other through the ISLs, the amount of ISL spectrum required by each satellite, and a justification for the amount of the ISL spectrum requested.¹⁶ In its letter, the Bureau noted that there are additional requests from licensees requesting ISL spectrum in the 40 GHz band, and that several of the applicants in the second Ka-band processing round also proposed systems using ISLs.¹⁷ To maximize the number of systems that could operate in the bands available for ISLs, the Bureau said it will only authorize first round Ka-band licensees for the specific amount of ISL spectrum actually required for ISL operations.¹⁸ In response, Hughes requests to use ISL spectrum within the 54.25-58.2 GHz and 65.0-68.95 GHz frequency bands for ISLs.¹⁹

Service Downlink Bands

9. In addition to the remaining issue regarding its ISL frequencies, there is also an outstanding issue regarding Hughes’s satellite-to-user frequencies. In its original application, Hughes requested 1000 MHz of spectrum at 19.2-20.2 GHz for its service downlink bands.²⁰ The Ka-band arrangement in effect at that time, however, designated only the 17.7-18.8 GHz and 19.7-20.2 GHz bands for GSO FSS downlink operations.²¹ Consistent with the then-existing band arrangement, we authorized Hughes to operate on 500 MHz at 19.7-20.2 GHz for its service downlinks. We stated that Hughes could make up the remaining 500 MHz by operating in a portion of the 17.7-18.8 GHz frequency band. Nevertheless, because Hughes had not applied for specific operating frequencies in this band, and because

¹⁵ *Interference between Teledesic and GSO Inter-Satellite Links* (October 8, 1998).

¹⁶ *See, e.g.*, Letter from Thomas S. Tycz, Chief, Satellite and Radiocommunication Division, to John P. Janka, Counsel for Hughes Communications Galaxy, Inc. (December 9, 1999).

¹⁷ These parties include four from the second Ka-band processing round and five from the 40 GHz processing round. The 40 GHz service links are in segments contained in the 36-51.4 GHz band.

¹⁸ *See, e.g.*, Letter from Thomas S. Tycz, Chief, Satellite and Radiocommunication Division, to John P. Janka, Counsel for Hughes Communications Galaxy, Inc. (December 9, 1999).

¹⁹ *See* Letter from Arthur S. Landerholm, Counsel for Hughes Communications Galaxy Inc., to Magalie Roman Salas, Secretary, Federal Communications Commission (January 19, 2000). Hughes will not pursue the 22.55-23.55 GHz and 32.0-33.0 GHz bands as originally requested.

²⁰ *Hughes Authorization Order* at 13 FCC Rcd 1351 at ¶ 20.

²¹ *Rulemaking to Amend Parts 1, 2, 21 and 25 of the Commission’s Rules to Redesignate the 27.5 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, 11 FCC Rcd. 19005 (1996).

the Ka-band arrangement in effect at that time required GSO FSS operations in the 17.7-18.8 GHz band to be conducted on a co-primary basis with the fixed service (“FS”), we found it was premature to grant Hughes operating authority in any portion of this band.²² Rather, we directed Hughes to file a license modification application when it determined which 500 MHz it wished to use in the 17.7-18.8 GHz band.²³ Since that time, the Commission has released the *18 GHz Report and Order*, which allows GSO FSS operators to use the 18.3-18.8 GHz band and 19.7-20.2 GHz band for downlink operations, subject to coordination with other co-primary services.²⁴ Consequently, we are now in a position to assign additional downlink spectrum to Hughes.

III. DISCUSSION

A. *Inter-Satellite Service*

10. In view of the sharing studies conducted by the licensees, and the actions, noted above, taken at WRC-97, we can now assign specific ISL spectrum to Hughes’s system. First, the ISL sharing analyses performed by the GSO FSS licensees and Teledesic reasonably accommodate all of the first round licensees that requested ISLs. Second, WRC-97 addressed the technical issues with respect Hughes’s requested 54.25-58.2 GHz band. Specifically, the WRC-97 adopted a provision to limit these bands to GSO satellite transmissions and to establish a p.f.d. limit for ISL operations in these bands.²⁵ These p.f.d. limits are intended to protect Government and non-Government NGSO satellites operating in the space research (passive) and Earth exploration-satellite (passive) services. Any non-Government systems requesting to operate ISLs in these bands will be required to coordinate with U.S. Government systems through NTIA’s Interdepartment Radio Advisory Committee’s Frequency Assignment Subcommittee (“FAS”). In addition, the WRC-97 allocated Hughes’s requested band at 65.0-71.0 GHz for ISLs for both NGSO and GSO systems operating in the FSS. Recognizing that this band was allocated on a co-primary basis for various Government services, NTIA suggested that implementing the WRC-97 allocations domestically would better accommodate existing Government and proposed non-Government satellite systems. Therefore, the Commission conducted a rulemaking proceeding to implement the WRC-97 Final Acts with respect to the 50.2-71.0 GHz frequency bands.²⁶ In that Order, the Commission also addressed

²² *Hughes Authorization Order* at 13 FCC Rcd 1351 ¶ 20.

²³ *Id.*

²⁴ *See 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, Report and Order, 15 FCC Rcd 13430 (2000) (“*18 GHz Report and Order*”), petition for review pending, *Teledesic LLC v. FCC*, D.C. Cir. No. 00-1466 (filed November 6, 2000).

²⁵ ITU-RR 5.556A establishes a single entry p.f.d. at an altitude between 0 km to 1000 km above the Earth’s surface produced by a space station in the inter-satellite service.

²⁶ *See Amendment of Part 2 of the Commission’s Rules to Allocate Additional Spectrum to the Inter-Satellite, Fixed, and Mobile Services and to Permit Unlicensed Devices to Use Certain Segments in the 50.2-50.4 GHz and 51.4-71.0 GHz Bands*, ET Docket No. 99-261, Report and Order, FCC 00-442, at ¶ 45 (rel. December 22, 2000) at ¶ 46.

allocations in this band. In this regard, the Commission deleted the non-Federal government allocation from the 56.9-57.0 GHz band, giving Federal agencies exclusive access to this spectrum. It also allocated the 65.0-71.0 GHz band for non-Federal government ISLs.²⁷

11. As noted above, Hughes proposed to conduct ISL operations within the 54.25-58.2 GHz and 65.0-68.95 GHz bands. It intends to use both narrow and wide beam antennas. For the narrow beams, Hughes states that it will employ multiple 125 MHz spot beam transponders for each orbital location. According to Hughes, this will allow each satellite to reuse the spectrum assigned to it approximately twelve times. For the wide area beam antennas, Hughes asserts that each satellite could effectively reuse the spectrum eight times, depending on the orbital location. Hughes notes that because its system is comprised of co-located satellites at eight orbital locations, its constellation can form two ISL rings. Each satellite within each ring will communicate with the satellites located to the east and west. Hughes further indicated that in order to allow for reconfiguration of the constellation and the incremental constellation deployment, it is necessary that each satellite have access to the entire spectrum available.

12. Based on Hughes's representations, we find that its request for two ISL rings, with each operating on 3.95 gigahertz of spectrum is reasonable. Nevertheless, we cannot authorize Hughes to operate in the 100 megahertz of spectrum from 56.9-57.0 GHz because that spectrum is allocated for exclusive Federal government use.²⁸ Consequently, to make up this 100 megahertz shortfall, we authorize Hughes to conduct ISL operations in the 54.25-56.90 GHz, 57.0-58.2 GHz, and 65.0-69.05 GHz bands, subject to coordination among the licensees pursuant to the *GSO FSS Sharing Report* and the *Teledesic Sharing Report*, and subject to coordination with government users in shared bands.

B. Downlink Frequency Bands

13. Recently, the Commission adopted rules for the deployment of services in the 17.7-20.2 GHz band ("18 GHz band").²⁹ These rules are designed to reduce potential interference among the terrestrial and satellite services allocated in the band. The new band arrangement redesignates much of the spectrum that had been designated for co-primary satellite and terrestrial use as exclusive spectrum for either service. This should reduce the need to coordinate with other services. Under the band arrangement adopted in the *18 GHz Report and Order*, the Commission retained the 19.7-20.2 GHz band for GSO FSS primary use, and split the 17.7-18.8 GHz band, originally shared on a co-primary basis by GSO FSS and FS, into three designations. Specifically, the Commission designated 500 megahertz to FS for primary use in the 17.7-18.3 GHz band, 280 megahertz for co-primary use by GSO FSS and FS in the 18.3-18.58 GHz band, and 220 megahertz to GSO FSS for primary use in the 18.58-18.8 GHz band.³⁰ In adopting this band arrangement, the Commission stated that a total 720 megahertz of unshared GSO FSS downlink spectrum (the 18.58-18.8 GHz band along with the 19.7-20.2 GHz band), and the flexible rules that permit sharing of 280 megahertz at 18.3-18.58 GHz, will enable each system to have ample spectrum and allow

²⁷ *Id.* at ¶ 46.

²⁸ *Id.* at ¶ 46.

²⁹ *See 18 GHz Report and Order*, 15 FCC Rcd 13430.

³⁰ *Id.* at ¶ 28.

multiple systems to operate.³¹

14. In its application, Hughes requested 1000 MHz of downlink spectrum. We authorized Hughes to operate using 500 MHz at 19.7-20.2 GHz.³² At that time, we stated that we were not in a position to grant the additional 500 MHz of downlink spectrum that it requested in the 17.7-18.8 GHz band. The *18 GHz Report and Order* designated 500 megahertz of spectrum at 18.3-18.8 GHz for GSO FSS operations. Consequently, on our own motion, we grant Hughes an additional 500 MHz of downlink spectrum in the 18.3-18.8 GHz band in accordance with the *18 GHz Report and Order*.³³

15. In addition, Hughes must coordinate with the U.S. Government systems operating in the 17.7-18.8 GHz band in accordance with footnote US 334 to the Table of Frequency Allocations.³⁴ We note that Government GSO and NGSO FSS networks are presently operating in the 18.3-18.6 GHz and 19.7-20.2 GHz bands, and plan to operate in accordance with the p.f.d. limits contained in the current ITU Radio Regulations.³⁵ Additionally, we note that Hughes must also comply with footnote US 255 to the Table of Frequency Allocations which contains power flux-density limits to protect the Earth exploration-satellite service (passive) for the 18.6-18.8 GHz band.³⁶

C. *Milestones*

16. When we granted Hughes its license in 1997, we were not in a position to assign it to a specific range of ISL frequencies. Consequently, we did not require Hughes to begin building its satellite system by including implementation milestones in its license. We did, however, state that we would impose a strict milestone schedule once ISL frequencies were authorized.

³¹ *Id.* at ¶ 30.

³² *See Hughes Authorization Order*, 13 FCC Rcd 1351 at ¶ 20.

³³ *See Hughes Authorization Order* at ¶ 20. Where the Bureau requested Hughes to determine exactly which 500 MHz it wishes to use in the 17.7-18.8 GHz band and file a modification application to operate in these frequency bands.

³⁴ 47 C.F.R. § 2.106 US 334 (as revised in the *18 GHz Report and Order*, 15 FCC Rcd at 13489). This footnote requires coordination of non-Government systems with U.S. Government GSO and NGSO FSS systems in the 17.8-20.2 GHz band.

³⁵ *See 18 GHz Report and Order*, 15 FCC Rcd at 13473 ¶ 90. These power flux-density limits in the 18.3-18.6 GHz band are -115/-105 dB (W/m²) in any 1 megahertz, depending upon the angle of arrival. There are currently no power flux-density limits in the 19.7-20.2 GHz band. *See* Letter from William T. Hatch, NTIA to Dale Hatfield, Chief, Office of Engineering and Technology, FCC (March 29, 2000).

³⁶ 47 C.F.R. § 2.106 US 255 (as revised in the *18 GHz Report and Order*, 15 FCC Rcd 13489) states:

In addition to any other applicable limits, the power flux-density across the 200 MHz band 18.6-18.8 GHz produced at the surface of the Earth by emissions from a space station under assumed free-space propagation conditions shall not exceed -95 dB(W/m²) for all angles of arrival. This limit may be exceeded by up to 3 dB for no more than 5% of the time.

17. In authorizing ISL frequencies in this Order, we are now in a position to impose system implementation milestones as a condition of Hughes's modified license. Requiring licensees to adhere to implementation deadlines prevents the valuable orbit-spectrum resource from being held indefinitely by licensees who are unable or unwilling to proceed with their plans. Specifically, Section 25.145(f) of the Commission's rules requires Ka-band GSO FSS licensees "[1] to begin construction of its first satellite within one year of grant, [2] to begin construction of the remainder within two years of grant, [3] to launch at least one satellite into each of its assigned orbit locations within five years of grant, and [4] to launch the remainder of its satellites by the date required by the International Telecommunication Union [ITU] to assure international recognition and protection of those satellites."³⁷ Failure to meet any of these construction milestones will render those satellite authorizations null and void.

18. The dates by which the Hughes licensed satellites must be "brought into use" to protect the date priority of the U.S. ITU filings for its service links are June and July 2005, except for the satellite licensed at 111° E.L., which must be "brought into use" in October 2004.³⁸ We recognize that, in this case, applying this ITU "bringing into use" dates to the last implementation milestone has the incongruous result of our rules requiring Hughes to launch one satellite into each of its assigned orbit locations by January 2006, *i.e.*, after the date Hughes is required to bring *all* of its satellite locations "into use" to protect the date priority of the U.S. ITU filings for its orbital locations. To address this misalignment, we require Hughes to launch a satellite to each licensed orbit location which "brings into use" all of the frequency assignments it plans to operate at that orbit location by the appropriate October 2004 and June and July 2005 ITU "bringing into use" date. At those orbit locations where more than one satellite is authorized to operate, the second co-located satellite, if not launched by the appropriate ITU "bringing into use" date, would be required to operate on the same frequencies that are used by the first satellite that met the ITU deadline. This will protect the United States' and thus, Hughes's ability to coordinate and gain international recognition for satellites at each of its assigned orbit locations. Moreover, we do not anticipate that meeting this milestone will present undue difficulties. First, it is consistent with Hughes's business plan.³⁹ Second, Hughes has had almost four years since we granted its license in May 1997 to

³⁷ 47 C.F.R. § 25.145(f). *See also* 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, CC Docket No. 92-297, Third Report and Order, 12 FCC Rcd 22310, 22334-35 ¶ 61 & n.77 (1997).

³⁸ The exact date is nine years after the date the ITU publishes the Advanced Publication Information for the concerned frequency assignment at each orbit location. *See* ITU Radio Regulations S.11.44, as modified by Final Acts of the 2000 World Radiocommunication Conference, Istanbul (2000). Thus, the ITU Radio Regulations require that:

the USA satellite network advanced published at 101° W.L. be brought into use by June 25, 2005;
the USA satellite network advanced published at 99° W.L. be brought into use by June 25, 2005;
the USA satellite network advanced published at 49° W.L. be brought into use by July 2, 2005;
the USA satellite network advanced published at 25° E.L. be brought into use by October 10, 2004;
the USA satellite network advanced published at 54° E.L. be brought into use by July 9, 2005;
the USA satellite network advanced published at 101° E.L. be brought into use by July 16, 2005;
the USA satellite network advanced published at 111° E.L. be brought into use by October 10, 2004; and
the USA satellite network advanced published at 164° E.L. be brought into use by July 23, 2005.

³⁹ *See* Annual Statement from Frank A. Taormina, President, Hughes Communications Galaxy, Inc. (dated

refine its system design for everything except its ISLs. Third, the launch milestone imposed here still provides Hughes with at least three and one half years in which to incorporate ISLs into its system and launch the satellites.⁴⁰ Further, in light of the actions taken at WRC-97 regarding ISLs and the licensees' 1998 studies demonstrating that they can share ISL spectrum, we expect that Hughes will have already made significant progress in incorporating its requested ISL frequencies in its system.

IV. CONCLUSION

19. Accordingly, upon review, we modify Hughes's Ka-band system license to include ISL frequencies and additional downlink frequencies. In addition, we assign milestone requirements for construction, launch, and operation of the satellite system. This action provides Hughes with the opportunity to provide a variety of advanced broadband communication services to businesses and consumers around the world.

V. ORDERING CLAUSES

20. IT IS ORDERED that the license granted by *Order and Authorization*, 13 FCC Rcd 1351 (Int'l Bur. 1997) IS MODIFIED to assign the 54.25-56.90 GHz, 57.0-58.2 GHz and 65.0-69.05 GHz bands for inter-satellite link operations, in accordance with *Amendment of Part 2 of the Commission's Rules to Allocate Additional Spectrum to the Inter-Satellite, Fixed, and Mobile Services and to Permit Unlicensed Devices to Use Certain Segments in the 50.2-50.4 GHz and 51.4-71.0 GHz Bands*, ET Docket No. 99-261, Report and Order, FCC 00-442 (rel. December 22, 2000).

21. IT IS FURTHER ORDERED that Hughes Communications Galaxy, Inc. must coordinate its inter-satellite link operations in accordance with the reports submitted to the Commission entitled, "Sharing of Various Frequency Bands Allocated to the Inter-Satellite Service" (October 9, 1998) and "Interference Between Teledesic and GSO Inter-Satellite Links" (October 9, 1998), with the other Ka-band licensees that are included in the referenced reports.

22. IT IS FURTHER ORDERED that, Hughes Communications Galaxy, Inc shall coordinate the inter-satellite link operations in the 54.25-56.90 GHz, 57.0-58.2 GHz, and 65.0-69.05 GHz bands through NTIA's Interdepartment Radio Advisory Committee's Frequency Assignment Subcommittee.

23. IT IS FURTHER ORDERED that Hughes Communications Galaxy, Inc. is authorized for an additional 500 MHz for its downlink operations in the 18.3-18.8 GHz band in accordance with the Report and Order, *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*

June 30, 1999).

⁴⁰ Hughes indicates that in its initial stage of deployment its first satellites at the 101° W.L. and 99° W.L. orbital locations will not be equipped with ISLs. Hughes states that it plans to use ISLs for the rest of the operating satellites in its constellation, including additional operating satellites at those orbital locations. We remind Hughes that it must bring its ISL frequencies into use in order to protect the date priority of the U.S. ITU filings for these frequencies. See ITU RR S11.44.

Broadcast Satellite Use, Report and Order, 15 FCC Rcd 13430 (2000).

24. IT IS FURTHER ORDERED that Hughes Communications Galaxy, Inc. must coordinate all of its Ka-band downlink operations with the U.S. government systems in accordance with footnote US 334 to the Table of Frequency Allocations, 47 C.F.R. § 2.106.

25. IT IS FURTHER ORDERED that Hughes Communications Galaxy, Inc.'s authorization shall become NULL and VOID with no further action on the Commission's part in the event the space station is not constructed, launched, and placed into operation in accordance with the technical parameters and terms and conditions of the authorization by the following dates:

Commence Construction

First Satellite	January 2002
Remaining Satellites	January 2003

Launch and Operate

Satellite licensed at 101° W.L.	June 25, 2005
Satellite licensed at 99° W.L.	June 25, 2005
Satellite licensed at 49° W.L.	July 2, 2005
Satellite licensed at 25° E.L.	October 10, 2004
Satellite licensed at 54° E.L.	July 9, 2005
Satellite licensed at 101° E.L.	July 16, 2005
Satellite licensed at 111° E.L.	October 10, 2004
Satellite licensed at 164° E.L.	July 23, 2005

At those orbit locations where more than one satellite is authorized to operate, the second co-located satellite, if not launched by the appropriate ITU "bringing into use" date, would be required to operate on the same frequencies that are used by the first satellite.

26. IT IS FURTHER ORDERED that Hughes Communications Galaxy, Inc. is subject to all terms and conditions in its original Authorization Order, 13 FCC Rcd 1351 (1997).

27. IT IS FURTHER ORDERED that the license term for a space station is ten years and that each license will begin to run on the date Hughes Communications Galaxy, Inc. certifies to the Commission that a satellite has been successfully placed into orbit and the operations fully conform to the terms and conditions of this authorization.

28. IT IS FURTHER ORDERED that Hughes Communications Galaxy, Inc. is afforded thirty days from the date of the release of this order and authorization to decline this authorization as conditioned. Failure to respond within that period will constitute formal acceptance of the authorization as conditioned.

29. This Order is issued pursuant to Section 0.261 of the Commission's rule on delegations of authority, 47 C.F.R. § 0.261, and is effective upon release. Petitions for reconsideration under Section 1.106 or applications for review under Section 1.115 of the Commission's rules, 47 C.F.R. §§ 1.106, 1.115, may be filed within 30 days of the date of public notice of this Order (*see* 47 C.F.R. § 1.4(b)(2)).

FEDERAL COMMUNICATIONS COMMISSION

Donald Abelson
Chief, International Bureau