

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

In the Matter of)	
)	
Teledesic Corporation)	
Petition for Clarification And/Or)	CC Docket No. 92-297
Reconsideration)	
)	
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)	
)	

Memorandum Opinion and Order

Adopted: January 11, 2002

Released: February 6, 2002

By the Commission:

I. INTRODUCTION

1. By this Order we address a petition for clarification and/or reconsideration filed by Teledesic Corporation (Teledesic)¹ of the Commission's *Third Report and Order*,² which established technical requirements and service rules for geostationary fixed satellite services (GSO FSS) and non-geostationary fixed satellite services (NGSO FSS) in the Ka-band.³ For the reasons set forth below, we deny Teledesic's request for clarification of the *Third Report and Order* and decline to state that the Commission will not subdivide spectrum between or among licensed NGSO FSS systems. We also deny Teledesic's request that we reconsider this statement if indeed it was the Commission's intent. We do,

¹ In January 1998, Teledesic changed its name to Teledesic LLC by pro forma assignment of its license. See Letter from Thomas S. Tycz, Chief, Satellite Radiocommunication Division, to Mark A. Grannis, Counsel for Teledesic LLC, dated January 26, 1998.

² 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, *Third Report and Order*, 12 FCC Rcd 22310 (1997) ("*Third Report and Order*"). In May 2001, the Commission issued a Memorandum Opinion and Order disposing of petitions for clarification or reconsideration of the *Third Report and Order* filed by Motorola Global Communications, Inc. and Hughes Communications Galaxy, Inc. In the order, the Commission noted that Teledesic's petition for clarification and/or reconsideration of the *Third Report and Order* would be addressed in proceedings pertaining to the second licensing round for Ka-band satellite systems. 16 FCC Rcd 11464 (2001).

³ The term "Ka-band" generally refers to the space-to-Earth (downlink) frequencies at 17.70-20.20 GHz and the corresponding Earth-to-space (uplink) frequencies at 27.50-30.00 GHz.

however, grant Teledesic's request to clarify the extent to which first round NGSO FSS systems are protected from interference from future licensees.

II. BACKGROUND

2. In 1997, the International Bureau licensed 13 applicants to launch and operate GSO FSS systems in the first Ka-band processing round (first round). The Bureau also licensed one NGSO FSS Ka-band system, Teledesic, to provide domestic and international service in the Ka-band.⁴ Teledesic was the only applicant proposing an NGSO FSS system in the first round. In October 1997, the Bureau initiated a second processing round (second round) inviting interested parties to file applications for consideration in that round. In response, 12 applicants filed for GSO systems.⁵ These were granted on August 3, 2001. In addition, five applicants applied for licenses to operate systems in spectrum designated on a primary basis to NGSO FSS Ka-band systems.⁶ The second NGSO FSS round remains pending subject to a Notice of Proposed Rulemaking released concurrently with this Order.⁷ In the Notice, the Commission seeks to determine the means for multiple NGSO FSS systems to operate in the Ka-band and proposes various options for spectrum sharing, bearing in mind Teledesic's authorization to operate domestically in the spectrum designated for primary NGSO FSS services.

3. In conjunction with the first Ka-band processing round, the Commission issued the *Third Report and Order*, adopting technical requirements, licensing qualifications, and service rules for GSO and NGSO FSS systems in the Ka-band. In addressing technical qualifications for NGSO FSS systems, the Commission considered the operation of multiple NGSO FSS systems in the spectrum designated for these systems. While the Commission stated that it was not then in a position to determine how many non-Government NGSO systems may eventually operate in the primary NGSO FSS bands, it did state it seeks to "foster a climate that maximizes competition and promotes multiple entry of systems."⁸

4. In discussing multiple NGSO FSS systems, the Commission recognized several possible sharing options involving either homogenous NGSO FSS systems or non-homogenous NGSO FSS systems.⁹ In non-homogenous NGSO FSS systems, the Commission stated that the systems may have to employ certain mitigation techniques. It also stated that "further division of the spectrum, which would result in a reduction of each system's capacity, is also a feasible alternative if sharing proves to be

⁴ Teledesic Corporation Application for Authority to Construct, Launch, and Operate a Low Earth Orbit Satellite System in the Domestic and International Fixed Satellite Service, *Order and Authorization*, 12 FCC Rcd 3154 (1997) ("*Teledesic Order*"). The authorized system consisted of a constellation of 840 satellites. In 1999, Teledesic was authorized to modify its system to a 288 satellite constellation. Teledesic, *Order and Authorization*, 14 FCC Rcd 2261 (1999) ("*Teledesic Modification*").

⁵ This includes a Letter of Intent filed by Pacific Century Group, Inc. See Pacific Century Group, Inc., Letter of Intent as a Foreign Satellite Operator to Provide Fixed Satellite Services in the Ka-band to the United States, *Order*, DA 01-1690 (rel. Aug. 3, 2001).

⁶ A sixth applicant subsequently amended its application to seek use of only primary GSO-designated frequencies in the Ka-band. See Motorola, Inc., Amendment for Authority to Construct, Launch, and Operate Celestri Multimedia LEO system, A Global Non-Geostationary Orbit Satellite System in the Fixed Satellite Service, File No. 79-SAT-P/LA-97(63), filed July 29, 1998.

⁷ Establishment of Policies and Service Rules for the Non-Geostationary Satellite Orbit, Fixed Satellite Service in the Ka-band, *Notice of Proposed Rulemaking*, FCC 02-30 (rel. Feb. 6, 2002).

⁸ *Third Report and Order*, 12 FCC Rcd at 22324.

⁹ With "homogeneous" NGSO FSS orbital systems, several systems can share the same frequency band when they employ nearly identical orbital parameters (*i.e.*, apogee, perigee and inclination, etc.) and their orbital planes are in phase, or are coincident while their satellites within a plane are in phase, or both. "Non-homogeneous" NGSO FSS systems are those having completely independent orbital characteristics.

unacceptable to any particular NGSO FSS system.”¹⁰ The Commission concluded that it expected “all non-Government NGSO systems to be responsible for some portion of the burden-sharing.”¹¹

5. Teledesic filed a petition for clarification and/or reconsideration of the *Third Report and Order*. Specifically, Teledesic asks the Commission to clarify certain statements made concerning the feasibility of NGSO sharing using non-coordinated orbits. First, Teledesic asks the Commission to clarify that it will not subdivide the frequency bands that are allocated to NGSO FSS on a priority basis. According to Teledesic, the statement that “further division of the spectrum ... is a feasible alternative if sharing proves to be unacceptable to any particular NGSO FSS system” is open to misinterpretation.¹² Teledesic claims that there is no evidence that an NGSO FSS system will be economically viable with less than 500 megahertz.¹³ In addition, Teledesic states that since there are studies indicating that sharing is possible through the use of coordinated orbits, the Commission’s rationale for subdividing the spectrum is not clear. If, however, this was the Commission’s intent, Teledesic asks the Commission to reconsider the statement.

6. Second, Teledesic asks that the Commission clarify the relationship between licensees and applicants in future processing rounds. According to Teledesic, the Commission’s statements that it “expects all NGSO FSS licensees to bear some portion of the technical and operational constraints necessary to accommodate multiple non-homogeneous systems” and that it “may be appropriate to consider factors such as whether a particular NGSO FSS satellite is already in-orbit and operational” are confusing, because they fail to distinguish between licensed operators and applicants. Teledesic asserts that it should not have to significantly alter its system to accommodate later applicants. Teledesic states that historically, the FCC has granted licensees the authority to operate within the scope of their authorizations without the threat of interference from other operators.¹⁴ To hold otherwise, Teledesic asserts, violates settled domestic law as well as U.S. treaty obligations.¹⁵

III. DISCUSSION

7. Regarding the first point of clarification, we deny Teledesic’s request to clarify the statement that a “feasible alternative” for sharing would be to subdivide the 500 megahertz of spectrum allocated to NGSO FSS systems on a primary basis.¹⁶ In the *Third Report and Order*, the Commission clearly stated that it expected multiple NGSO systems to operate in the Ka-band.¹⁷ Teledesic has not objected to this requirement. The Commission also plainly stated it was not then mandating any specific sharing principles or mitigation techniques to be used in coordination between or among non-Government

¹⁰ *Third Report and Order*, 12 FCC Rcd at 22325.

¹¹ *Id.*

¹² *Teledesic Petition* at 11.

¹³ *Id.*

¹⁴ *Teledesic Petition* at 17.

¹⁵ *Id.* at 21.

¹⁶ In its petition, Teledesic also asked the Commission to clarify that it has not yet adopted any specific rules on NGSO/NGSO sharing. Teledesic claimed that certain statements implied a “binding conclusion on sharing principles.” *Teledesic Petition* at p. 7. Subsequently, however, Teledesic informed the Commission that it no longer wished to pursue this point of clarification. Teledesic advised that studies done by the FCC and International Telecommunication Union Study Groups subsequent to the *Third Report and Order* indicate that co-frequency sharing between NGSO FSS systems is feasible, even when the systems do not use coordinated orbits. See Letter from Mark A. Grannis, Counsel for Teledesic, LLC, to Magalie Roman Salas, Secretary, Federal Communications Commission, dated October 9, 2001.

¹⁷ *Third Report and Order*, 12 FCC Rcd at 22324.

NGSO FSS systems.¹⁸ The Commission did, however, set forth several possible sharing scenarios for multiple NGSO FSS systems. One scenario addressed dividing the spectrum if sharing proves to be unacceptable for any particular system. We find this statement sets forth a reasonable alternative based on the information then available and needs no clarification or reconsideration.¹⁹ The Commission has the authority and the responsibility to provide alternatives for future entry when possible.

8. In addition, Teledesic requests clarification that, as a first round licensee, it would be protected from interference from future licensees. In the *Third Report and Order*, the Commission stated that it expected all NGSO FSS licensees to bear some portion of the burden sharing.²⁰ The Commission also stated that in apportioning this burden, it would take into consideration factors such as whether a particular NGSO FSS satellite is in orbit and operational.²¹ Once in orbit and operational, system operators could understandably be limited in their ability to incorporate design changes. Thus, the degree of burden sharing for NGSO FSS systems depends in large part on where the licensee is in implementing its system.

9. We agree that licensees that have made progress in system implementation should not have to significantly alter or redesign their systems to accommodate later applicants. We recognize that, for example, a licensee that has already contracted for and constructed major components into its authorized system would not have the same degree of flexibility to redesign its system as would entities not yet or newly licensed. Consequently, to the extent Teledesic is proceeding with the construction of its licensed system, subsequently licensed systems would be obligated to coordinate with Teledesic. Conversely, in the event that Teledesic should seek to modify its system's parameters instead of constructing its system as authorized, we would find that Teledesic would be in a much better position to make changes to facilitate coordination and accommodate new entrants. If Teledesic were to significantly alter its system design at this point, it would indicate that Teledesic has not made the kind of progress that would limit its flexibility to incorporate design changes into its system. In this case, sharing the burden equally with new entrants may not impede its progress in implementing its system.

10. Regardless of Teledesic's status, however, we expect Teledesic to coordinate in good faith and accommodate the subsequently licensed systems to ensure that more than one system will be able to offer service in the 500 megahertz of NGSO FSS primary spectrum.²² The Commission has always expected multiple NGSO FSS systems to operate in the Ka-band and Teledesic is required to

¹⁸ *Third Report and Order*, 12 FCC Rcd at 22325.

¹⁹ We also find that Teledesic failed to support its claim that NGSO FSS systems are not economically feasible with less than 500 MHz of spectrum. *Teledesic Petition* at 11. Instead, Teledesic relies on a statement based on a preliminary technical analysis made by the Commission in the context of a Notice of Proposed Rulemaking from over six years ago. 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 Fixed Satellite Services, *Third Notice of Proposed Rulemaking and Supplemental Tentative Decision*, 11 FCC Rcd 53, 106 (1995). We note that in determining a means for multiple NGSO FSS systems to operate in the 500 megahertz of spectrum designated for primary NGSO FSS use, the Commission is seeking comment on whether any of the proposed options provide sufficient spectrum capacity. Commenters are invited to specify the minimum amount of spectrum necessary to support such a system, supported by a concrete technical and economic analysis. See *The Establishment of Policies and Service Rules for the Non-Geostationary Satellite Orbit, Fixed Satellite Service in the Ka-Band, Notice of Proposed Rulemaking*, FCC 02-30 (rel. Feb. 6, 2002).

²⁰ *Third Report and Order*, 12 FCC Rcd at 22325.

²¹ *Id.*

²² In its Petition, Teledesic acknowledges this obligation and agrees to "make every effort to accommodate later entrants who are capable of sharing the spectrum." *Teledesic Petition* at 15.

support this goal. Indeed, Teledesic's license provides that grant of its authorization does not preclude use of the band by other NGSO FSS systems.²³

IV. CONCLUSION AND ORDERING CLAUSES

11. Based on the foregoing, we deny in part and grant in part Teledesic LLC's Petition for Clarification And/Or Reconsideration. Accordingly, IT IS ORDERED, that the Petition for Clarification And/Or Reconsideration filed by Teledesic LLC on December 18, 1997 is denied to the extent it seeks clarification that the Commission will not subdivide the spectrum designated for primary use for NGSO FSS Ka-band systems.

12. IT IS FURTHER ORDERED that Teledesic LLC's request for clarification of the relationship between first and second round NGSO FSS systems is granted to the extent indicated herein.

13. This Memorandum Opinion and Order is effective upon release.

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

²³ *Teledesic Order*, 12 FCC Rcd at 3166; *see also Teledesic Modification*, 14 FCC Rcd at 3165 ("we expect Teledesic to share the burden of coordination with other NGSO FSS systems and to coordinate in good faith).