

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

ICO Satellite Services G.P.)	
)	
Application for Modification of 2 GHz LOI Authorization)	IBFS Nos. SAT-MOD-20050110-00004 SAT-LOI-19970926-00163
)	
Petition for Declaratory Ruling or Waiver)	IBFS No. SAT-PDR-20050110-00024

MEMORANDUM OPINION AND ORDER

Adopted: May 24, 2005

Released: May 24, 2005

By the Chief, International Bureau:

I. INTRODUCTION

1. By this Order, we grant a petition for declaratory ruling filed by ICO Satellite Services G.P. ("ICO") and modify its reservation of spectrum for provision of 2 GHz Mobile Satellite Service ("MSS") in the United States.¹ Specifically, we modify ICO's reservation of spectrum to provide for operation with a single geostationary-satellite-orbit ("GSO") satellite, to be known as ICO-G, at the 91° W.L. orbital location, instead of non-geostationary-satellite-orbit ("NGSO") satellites. We also revise ICO's implementation milestone schedule, authorize use of Ka-band frequencies for feeder-link and on-station telemetry, tracking, and command ("TT&C") transmissions, re-specify the amount of spectrum reserved for service-link assignments, and deny a request for a rule waiver to reserve C-band frequencies for TT&C use. This action will enable ICO to proceed with implementation of a 2 GHz MSS system on a schedule that will result in timely institution of new service.

II. BACKGROUND

2. On July 17, 2001, the Commission granted eight requests for 2 GHz MSS licenses or reservations of spectrum, including an application by ICO's predecessor-in-interest² for a non-geostationary-satellite-orbit ("NGSO") system with feeder-link frequencies in the 5150-5250 MHz and 6975-7075 MHz bands.³ The licenses and spectrum reservations for NGSO systems were granted subject to conditions that required adherence to the following implementation "milestone" schedule:⁴

¹ "2 GHz MSS" refers to MSS using frequencies in the 2000-2020 MHz uplink band and 2180-2200 MHz downlink band for service-link transmission, *i.e.*, transmission between the satellite(s) and mobile earth stations. See *Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band* (Report and Order), FCC 00-302, 15 FCC Rcd 16127 (2000) ("2 GHz MSS Report and Order").

² Namely, ICO Services Limited. Hereafter, we will simply refer to ICO Satellite Services G.P. and its predecessors-in-interest as "ICO", without distinction.

³ *ICO Services Limited*, DA 01-1635, 16 FCC Rcd 13762 (IB/OET 2001) ("*ICO Authorization Order*"). ICO's parent company had previously obtained provisional authority from the government of the United Kingdom for construction, launch, and operation of the proposed NGSO constellation.

⁴ *Id.* at ¶34.

Milestone	Deadline
Execute non-contingent satellite manufacturing contract	July 17, 2002
Complete Critical Design Review	July 17, 2003
Begin physical construction of all satellites	January 17, 2004
Launch two completely-constructed satellites	January 17, 2005
Certify that entire system is operational	July 17, 2007.

The milestone schedule for GSO 2 GHz MSS systems specified a July 17, 2004 deadline for beginning physical construction and a July 17, 2006 launch deadline but was otherwise identical to the schedule for NGSO systems.⁵

3. In October 2001, ICO filed an affidavit certifying that it had met the first milestone deadline by signing a non-contingent contract with Hughes Space and Communications International, Inc. (now Boeing Satellite Systems International, Inc.) for construction of twelve NGSO satellites on a schedule consistent with the milestone requirements in its authorization.⁶ ICO also certified that critical design review for its MSS system had been completed and that "physical" construction of all twelve satellites had begun and was well under way.⁷ Further, ICO reported that Boeing Satellite Systems International ("BSI") had already completed construction of two of its satellites, and that both had been launched, one in March 2000 and the other in June 2001. ICO indicated, however, that only one of the satellites had been placed in orbit, the other having been destroyed due to failure of the launch vehicle.⁸

4. After examining relevant contractual documents, the International Bureau confirmed that ICO had, in fact, met the requirement to execute a non-contingent satellite-construction contract on or before July 17, 2002.⁹ Based on examination of other documentary evidence, the Bureau later confirmed that ICO had also satisfied the requirement to complete critical design review for its authorized satellites by July 17, 2003.¹⁰

5. On January 10, 2005, ICO filed a statement certifying compliance with the requirement to launch two satellites on or before January 17, 2005, and requested either a declaratory ruling that it met that requirement or a waiver of the requirement.¹¹ At the same time, ICO also applied for modification of its reservation of 2 GHz MSS spectrum to reflect use of a single geostationary-orbit ("GSO") satellite, rather than a constellation of NGSO satellites. ICO also requested reservation of Ka-band frequencies for feeder-link and TT&C transmission, and reservation of C-Band frequencies for emergency TT&C operation.¹² ICO also requested a waiver of the policy requiring the launch of a GSO

⁵ See *TMI Communications and Company, Limited Partnership*, DA 01-1638, 16 FCC Rcd 13808 (IB/OET 2001) at ¶24.

⁶ Letter with attachments from Cheryl A. Tritt, Counsel to ICO, to the FCC Secretary (Oct. 15, 2001) ("October 2001 Certification Letter").

⁷ *Id.*

⁸ *Id.*, second attachment.

⁹ See Public Notice Report No. SAT-00135, DA 03-386, 18 FCC Rcd 1732 (Feb. 10, 2003) (announcing that Celsat, Iridium LLC, and ICO Services Limited met the first milestone requirement).

¹⁰ See Public Notice Report No. SPB-203, DA 04-778, 19 FCC Rcd 5330 (March 25, 2004).

¹¹ Petition for Declaratory Ruling or, Alternatively, for a Waiver, filed Jan. 10, 2005.

¹² Application to Modify Letter of Intent Authorization of ICO Satellite Services G.P., filed Jan. 10, 2005 ("ICO

satellite within five years following an initial reservation of spectrum, arguing that such a waiver was warranted because contractual difficulties with BSI had delayed unavoidably its implementation of an NGSO system. The Boeing Company, BSI's corporate parent, filed comments on both the petition and the modification application, contending that ICO's account of a contractual dispute with BSI was inaccurate.¹³

III. DISCUSSION

A. Compliance with Milestone Requirements in Current Authorization

6. There is no need to consider ICO's application for modification if its spectrum reservation is void for failure to meet a past milestone deadline. Therefore, before discussing ICO's application for modification, we address unresolved issues pertaining to compliance with milestone requirements that fell due under the existing terms of ICO's spectrum reservation.

7. We determined previously that ICO met the initial milestone requirement to enter into a non-contingent satellite construction contract by July 17, 2002, and the requirement to complete critical design review by July 17, 2003. It remains to be determined whether ICO also met the requirement to commence physical construction of all of the authorized NGSO satellites by January 17, 2004, and the requirement to launch two of them by January 17, 2005.

1. Commencement of Physical Construction by January 17, 2004

8. As noted above, ICO certified in October 2001 that two of its proposed satellites had been completely constructed, delivered, and launched and that physical construction of ten more satellites was in progress. More specifically, ICO reported that six assembled satellites were undergoing testing and that four more were partially assembled.¹⁴ ICO later submitted an affidavit letter from BSI confirming that all long-lead items necessary for construction of ICO's satellites had been ordered and that "construction of the ICO system has long [ago] commenced."¹⁵ Based on these representations, we find that ICO met the requirement to begin physical construction of all of its authorized NGSO satellites on or before January 17, 2004.

2. Launch of Two NGSO Satellites by January 17, 2005

9. In its petition for declaratory ruling, ICO contends that it should be credited with meeting the deadline for launching two NGSO satellites, although only one ICO NGSO satellite went into orbit. ICO maintains that "launch" is commonly used in the satellite industry in a way that does not depend on whether a payload reaches orbit. For instance, ICO stresses that its NGSO-satellite-construction contract with BSI defines launch as "the point in time when there is ... intentional ignition of any first stage motor of the Launch Vehicle by the Launch Services Provider" and that "launch" was similarly defined in an

Modification Application").

¹³ Comments of The Boeing Company, filed March 7, 2005. *Also see* Response of ICO Satellite Services, G.P., filed March 22, 2005, and Reply of The Boeing Company filed March 29, 2005.

¹⁴ ICO Services Limited Section 25.143(e) Report, filed as attachment to October 2001 Certification Letter.

¹⁵ Letter dated July 25, 2003 from Donald M. MacKenzie, ICO Program Manager, Boeing Satellite Systems International, Inc., to the President of ICO Global Communications (Operations) Limited, filed as Attachment 3 to Request for Confidential Treatment filed July 28, 2003 in IBFS File No. SAT-LOI-19970926-00163.

insurance policy for its NGSO satellites as "Intentional Ignition not followed by Terminated Ignition."¹⁶

10. ICO's understanding of the deadline for launching two NGSO satellites is consistent with the ordinary vernacular meaning of "launch." In common parlance, the word simply refers to the initial act of setting something in motion. As there is no clear indication in the *ICO Authorization Order* or the Commission's rules that the word is used in a non-ordinary sense in the milestone condition in question, we agree with ICO that it should be understood in its plain-English sense in that context. Hence, we find that ICO met the requirement to launch two NGSO satellites on or before January 17, 2005.¹⁷

B. Application for Modification

1. General Principle

11. In order to promote competition, flexibility, and technical innovation, the Commission leaves spacecraft design decisions to the system operators insofar as possible consistent with basic regulatory objectives.¹⁸ Accordingly, the Commission has consistently granted applications for modification of systems in satellite services when the proposed modifications present no significant interference problem and are otherwise consistent with Commission policies.¹⁹

2. Interference

12. The modifications that ICO proposes do not present a significant interference problem with respect to service-link operation, feeder-link operation, or on-station TT&C operation. ICO's proposal to use C-Band spectrum for transfer-orbit TT&C presents a significant interference problem, as there is currently an authorized spacecraft operating in the C-Band at 91° W.L.

13. Service Links The changes that ICO proposes have no bearing on assignment of service-link frequencies, and the proposed change from NGSO to GSO orbital architecture does not raise any interference or coordination issues with respect to service-link operation.

14. Feeder Links and On-Station TT&C ICO's reservation of spectrum currently provides for use of 100 megahertz of C-Band spectrum for feeder-link transmission in each direction between satellites and gateway earth stations in the United States. In the application for modification, ICO requests authority to use the 29.25-30 GHz band for feeder uplinks and the 18.55-18.8 GHz and 19.7-20.2 GHz bands for feeder downlinks between ICO-G and a single U.S. gateway station.²⁰ ICO also proposes

¹⁶ *Id.*

¹⁷ Since the ICO authorization was issued, the Commission's rules have changed, so that new authorizations will specify a milestone requiring a licensee to "launch and operate" the first satellite in the system. See 47 C.F.R. § 25.164(b).

¹⁸ See *AMSC Subsidiary Corp.*, DA 98-493, 13 FCC Rcd 12316 (Int'l Bur. 1998), citing earlier decisions.

¹⁹ See, e.g., *The Boeing Company*, DA 03-2073, 18 FCC Rcd 12317 (Int'l Bur. 2003) ("*Boeing Modification Order*") at ¶7; *Sirius Satellite Radio Inc.*, DA 01-639, 16 FCC Rcd 5419 (Int'l Bur. 2001) at ¶4; *GTE Spacenet Corp.*, DA 90-928, 5 FCC Rcd 4112 (CC Bur. 1990) at ¶4; and *Teledesic LLC*, DA 99-267, 14 FCC Rcd 2261 (Int'l Bur. 1999) at ¶5.

²⁰ *ICO Modification Application* at 11. ICO indicates that it will incorporate guard bands into its system, such that the necessary bandwidth of its operations will be 625 MHz in each direction of transmission.

to use frequencies within these bands for on-station TT&C transmissions between ICO-G and a control earth station in the United States, transmitting command/ranging signals at 29.999 GHz and telemetry/ranging signals at 20.199 GHz.²¹

15. In the *Ka-Band Fixed Satellite Service Rules Order*, the Commission extended its two-degree spacing requirements between in-orbit satellites to space stations in the Ka-band. These rule requirements facilitate maximum interference-free use of the geostationary satellite orbit.²² ICO has submitted the technical information required for assessment under these rules.²³ From review of this information, we find that ICO's proposal for Ka-band feeder-link and on-station TT&C operation is two-degree compliant and meets all other pertinent technical requirements in the Commission's rules.

16. Future U.S.-licensed Ka-band earth stations that communicate with ICO-G must coordinate with U.S. Government systems in accordance with Footnote US334 to the Table of Frequency Allocations.²⁴ This footnote requires coordination of commercial systems with U.S. Government GSO and NGSO satellite systems that are presently operating in the 17.8-20.2 GHz frequency band. These Government systems operate in accordance with the power flux-density limits prescribed in the ITU Radio Regulations.²⁵

17. ICO must also comply with Footnote US255 to the Table of Frequency Allocations, which prescribes power flux-density limits for the 18.6-18.8 GHz band to protect the Earth Exploration Satellite Service (passive).²⁶

18. *Emergency TT&C* ICO requests authority to use C-band frequencies for TT&C operation in the event its Ka-band TT&C links are not functioning. Specifically, ICO proposes to transmit Earth-to-space command/ranging signals at 5926 MHz and 6424 MHz and space-to-Earth telemetry/ranging signals at 3701 MHz and 4196 MHz in such emergencies.²⁷ The proposed emergency

²¹ *ICO Modification Application*, Appendix A at 31.

²² *Ka-Band FSS Rules Order*, 12 FCC Rcd at 22320 ¶ 23.

²³ See 47 C.F.R. §§ 25.114 and 25.210

²⁴ See 47 C.F.R. § 2.106 US334. Government GSO space stations have been authorized by the National Telecommunications and Information Administration at 144° W.L., 141° W.L., 127° W.L., 69° W.L., 65° W.L., 60° W.L., 30° W.L., 24° W.L., 13° W.L., 10° W.L., 0° E.L., 44° E.L., 75° E.L., 82° E.L., 92° E.L., and 110° E.L.

²⁵ 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*, Report and Order, IB Docket No. 98-172, 15 FCC Rcd 13430, 13473 ¶90 (2000) ("18 GHz Band Report and Order"). The power flux-density limits in the 18.3-18.6 GHz band are -115/-105 dB (W/m²) in any one megahertz band, depending upon the angle of arrival. There are currently no power flux-density limits for the 19.7- 20.2 GHz band. See Letter from William T. Hatch, National Telecommunications and Information Administration, to Dale Hatfield, Chief, Office of Engineering and Technology, Federal Communications Commission (Mar. 29, 2000).

²⁶ 47 C.F.R. § 2.106 US255 (as revised in the *18 GHz Band Report and Order*, 15 FCC Rcd at 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 -95db(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.

²⁷ ICO also intends to use C-band frequencies for transfer-orbit TT&C, but the transfer-orbit operation would not

use of C-band frequencies would involve communication with one or two U.S. earth stations.

19. In connection with this proposal, ICO requests a waiver of Section 25.202(g) of the Commission's rules,²⁸ which requires satellite operators to use frequencies for TT&C that are within their assigned bands for linking with fixed earth stations.²⁹ The rule serves the purpose of simplifying the intersystem coordination process by limiting the number of potentially affected operators. It also provides an incentive for an operator to maximize the spectral efficiency of a system's TT&C operations, since the greatest impact of any inefficiency in TT&C operations is likely to be on the services offered by the operator's own satellite.

20. The Commission may grant a waiver of its rules if the relief requested would not undermine the policy objective of the rule in question and would otherwise serve the public interest.³⁰ We conclude that a waiver is not warranted in this instance. Panamsat is authorized to, and currently does, operate a C-band spacecraft at the 91° W.L. orbital location. Therefore, we cannot conclude that allowing ICO to operate TT&C in the C-band at the 91° W.L. orbital location would not adversely affect operations of co-located and neighboring C-band U.S.-licensed satellites. Accordingly, we deny ICO's waiver request.

3. Policy Concerning Change of Orbital Architecture

21. Under the Commission's licensing rules for 2 GHz MSS, applicants were free to specify either GSO or NGSO systems, and the Commission did not indicate a preference for either type of orbital architecture over the other.³¹ Hence, there is no Commission rule or policy that precludes modification of a 2 GHz MSS spectrum reservation to change the orbital-architecture specification from NGSO to GSO.³²

4. Milestone Policy

22. ICO has met all of the milestone requirements in its authorization that have fallen due so far. Although the steps taken to satisfy those past milestone requirements went toward implementation of an NGSO system, ICO has also taken significant steps toward implementation of the GSO system that it is now proposing. On January 10, 2005, ICO executed a contract with Space Systems/Loral, Inc. providing for construction of the proposed GSO satellite on a schedule consistent with the ultimate requirement to commence operation by July 17, 2007.³³ We have examined the GSO satellite-

involve communication with a U.S. earth station and is therefore beyond the FCC's jurisdiction.

²⁸ See 47 C.F.R. § 25.202(g).

²⁹ *Amendment of the Commission's Rules With Regard to the 3650-3700 MHz Government Transfer Band*, FCC 00-363, 15 FCC Rcd 20488 (2000), at ¶129.

³⁰ See *WAIT Radio*, 418 F.2d at 1157.

³¹ See *2 GHz MSS Report and Order* at ¶¶ 13-15.

³² The Bureau has accordingly granted a previous request for modification of a 2 GHz MSS license that originally provided for operation of an NGSO system to authorize operation with a single GSO satellite instead. See *Boeing Modification Order*, *supra*. Cf. *Sirius Satellite Radio Inc.*, *supra* (granting request for modification from GSO to NGSO).

³³ ICO filed redacted and un-redacted copies of the construction contract with a request for confidential treatment of the latter. See Request for Confidential Treatment filed May 9, 2005.

construction contract and find that it is "non-contingent," as that term has been defined in previous decisions.³⁴

23. ICO indicated in the modification application that Critical Design Review ("CDR") for the GSO satellite would be completed before the end of May 2005 and has since certified that the CDR was completed.³⁵ In a confirming letter, Space Systems/Loral's Senior Vice President reported that the CDR was completed on April 29, 2005 and that Space Systems/Loral had received all payments due so far under the contract with ICO.³⁶ Based on examination of the CDR documents,³⁷ we find that CDR for the proposed GSO satellite has, in fact, been completed.

24. ICO indicated in the modification application that physical construction of the GSO satellite will begin in July 2005, that satellite construction will be completed in May 2007, that the satellite will be launched by July 1, 2007, and that the entire system will be operational by July 17, 2007. This timeline is consistent with the performance and payment schedule in the contract with Space Systems/Loral, which requires major long-lead components to be ordered by August 15, 2005, final assembly and pre-delivery testing by May 1, 2007, and launch by July 1, 2007. Although this contractual post-CDR performance schedule is shorter than usual, we believe that it is achievable, in view of the fact that ICO has met all previous milestone deadlines in its current authorization, the construction contractor is an experienced satellite manufacturer, the proposed GSO satellite is of a relatively simple bent-pipe design, and most of the components are "legacy" equipment that has been used or developed for previous projects.

25. ICO's post-CDR timeline is inconsistent in two respects with the Commission's milestone schedule for 2 GHz MSS systems with GSO architecture, which requires physical construction to begin within three years after initial grant, *i.e.*, by July 17, 2004, and launch to occur within five years, *i.e.*, by July 17, 2006.³⁸ Granting the modification application with the milestone schedule that ICO proposes would extend the time allowed for starting physical construction and the time allowed for launch by approximately one year. We conclude that granting such extensions in this case is warranted in view of the following: i) ICO has met all of the past-due milestone requirements in its current authorization, including completing construction of two satellites and launching them, within the time periods originally prescribed; ii) ICO has demonstrated, by entering into a non-contingent satellite construction contract and completing CDR for the proposed GSO satellite prior to disposition of its modification application, that it is committed to rapid implementation of the proposed GSO satellite system; iii) both parties to the GSO construction contract have certified that it is in full effect and that all performance and payment obligations arising under it to date have been met; and iv) the GSO construction contract specifies an achievable performance schedule consistent with the previously-

³⁴ See *TMI Communications and Company, Limited Partnership, and TerreStar Networks, Inc. Application for Review and Request for Stay*, FCC 04-144, 19 FCC Rcd 12603 (2004) ("*TMI Reinstatement Order*"), at ¶¶ 4-7.

³⁵ Affidavit filed as Attachment 1 to Request for Confidential Treatment filed May 10, 2005.

³⁶ Letter dated May 6, 2005 from Christopher F. Hoerber, Senior Vice President, Space Systems/Loral, to Dennis Schmitt, President, ICO Satellite Management LLC, filed as Attachment 2 to Request for Confidential Treatment filed May 10, 2005.

³⁷ See Request for Confidential Treatment filed May 10, 2005.

³⁸ See *2 GHz MSS Report and Order* at ¶106.

specified milestone deadline for commencing operation.³⁹

26. Although the Commission said when adopting service rules for 2 GHz MSS that licensees should "identify any system modification needing prior FCC approval well in advance of the CDR milestone," that language was precatory in nature and does not necessarily preclude grant of applications for modification of space-station design filed after the two-year CDR deadline.⁴⁰ In light of ICO's substantial compliance efforts to date, including completion of CDR for the modification at issue, and its proposed course of action to meet the ultimate deadline for commencing service, ICO's requested modification will be granted despite the fact that it was filed after the CDR deadline.

27. Because ICO's timetable for completing construction is extremely ambitious, and because any significant slippage in system implementation will likely result in ICO missing the ultimate date for having a system in operation, the grant of ICO's modification will be conditioned on a number of intermediate milestones consistent with the performance schedule in its satellite-construction contract. We will also require ICO to report any significant deviations from the current contractual schedule for completion of satellite construction.⁴¹

5. Coverage

28. Section 25.143(b)(2) of the Commission's rules requires 2 GHz MSS GSO systems to be capable of providing continuous coverage throughout all 50 states, Puerto Rico and the U.S. Virgin Islands, if technically feasible.⁴² As described in the application for modification, the ICO-G satellite will be equipped with a phased-array 2 GHz antenna generating 56 flexible spot beams, which will enable provision of continuous coverage in the continental United States, Hawaii, Puerto Rico, and the U.S. Virgin Islands to the extent possible from a geostationary satellite at 91° W.L. We conclude that ICO's showing comports with the GSO-system coverage requirement in Section 25.143(b)(2).

6. Station-Keeping

29. ICO's modification proposal is consistent with FCC rules pertaining to station-keeping.

30. *East-West Tolerance* The application indicates that the ICO satellite will be maintained in longitude within $\pm 0.05^\circ$ of its nominal orbital location for all latitudes within $\pm 0.05^\circ$ of the equator.⁴³ Thus, with respect to operations at or near the nodal points of its orbit, the satellite's operations would be consistent with Section 25.210(j) of our rules, which requires that GSO space stations be maintained within 0.05° of their assigned orbital longitude in the east/west direction, unless specifically authorized

³⁹ We do not place any reliance, however, in ICO's contention that unforeseeable "contractual difficulties" beyond its control prevent complete implementation of the originally-authorized NGSO system by July 17, 2007. ICO has not explained in sufficient detail what the nature of the contractual problem is or how the problem arose to support a finding that the problem was either unforeseeable or beyond ICO's control.

⁴⁰ The Commission did not adopt a rule provision barring grant of such applications if filed after the CDR deadline. See *2 GHz MSS Report and Order* at ¶108.

⁴¹ See *R/L DBS Company, LLC*, DA 00-2852, 16 FCC Rcd 9 (Int'l Bur. 2000).

⁴² 47 C.F.R. § 25.143(b)(2)(iv).

⁴³ *ICO Modification Application*, Appendix A at 27.

by the Commission to operate with a different longitudinal tolerance.⁴⁴

31. North-South Tolerance To save station keeping fuel, ICO indicates that it will operate its satellite with an initial north-south inclination⁴⁵ of as much as six degrees. The inclination would initially decrease under the influence of gravitational forces of the sun and moon and would gradually fluctuate between about zero and six degrees⁴⁶ during the expected service lifetime of the satellite. ICO states that its satellite will operate in compliance with the requirements for inclined orbit satellites in Section 25.280 of the Commission's rules.⁴⁷ This proposal does not present any cause for concern. We remind ICO, however, that under the ITU Radio Regulations, operation of a GSO satellite in an allocated FSS band is entitled to protection against interference from co-frequency NGSO satellites only if the GSO satellite's north-south inclination is 4.5° or less.⁴⁸ Thus, during periods in which ICO-G operates at an inclination of more than 4.5°, its operations will not be protected from interfering co-frequency NGSO operations, unless ICO secures protection for operation at such higher inclinations through coordination.

7. Orbital Debris Mitigation

32. Section 25.143(b) of the Commission's rules requires applicants to submit a narrative statement describing their strategies for Orbital Debris mitigation.⁴⁹ ICO submitted a narrative statement with its application, describing the orbital debris mitigation design strategies for ICO-G. We have reviewed these submissions and conclude that they raise no substantial concerns that would call into question whether spectrum should be reserved for ICO. ICO indicates, however, that there are four other satellites operating within 0.1 degree of the 91° W.L. orbital location.⁵⁰ ICO indicates that it will begin coordinating location issues with those satellites two years before the expected launch of its satellite, will explore a number of potential flight dynamic solutions, and will seek any necessary modifications to its spectrum reservation necessitated by such coordination. In order to ensure that this issue is addressed on a timely basis, we will specify milestones for commencement of coordination of the physical location of the spacecraft, as well as for completion of such coordination and the filing of any necessary modification requests by ICO.

⁴⁴ 47 C.F.R. § 25.283 (b). See *Mitigation of Orbital Debris*, Second Report and Order, IB Docket No. 02-54, 19 FCC Rcd 11567 (2004).

⁴⁵ The inclination of an orbit is the angle between the orbital plane and the Earth's equatorial plane, measured counter-clockwise. A zero inclination orbit would mean the satellite is orbiting directly over the equator; an inclination of 90 degrees is a perfectly polar orbit.

⁴⁶ Operations at an inclination of less than 5 degrees, may, under certain circumstances, require operations such that, at points away from the nodal points, the station-keeping tolerance would exceed $\pm 0.1^\circ$ in the east-west direction. The ITU Radio Regulations permit such operations by Ka-band FSS space stations, subject to the requirement that those operations must not cause unacceptable interference. See ITU Radio Regulations Article 22, Section III, footnote 27, and Radio Regulations 22.6, 22.8, and 22.10.

⁴⁷ 47 C.F.R. § 25.280. See *ICO Modification Application*, Appendix A at 27-28.

⁴⁸ See ITU Radio Regulations, Article 22.51, Table 22-4B.

⁴⁹ 47 C.F.R. § 25.143(b).

⁵⁰ Galaxy 9, Galaxy 11, Nimiq 1, and DirecTV-3. ICO Application at 41-42.

8. Eligibility for First-Come-First-Served Grant of Ka-Band Request

33. A request for reservation of spectrum for provision of service in the United States via a non-U.S.-licensed GSO satellite that has yet to be launched can be granted pursuant to the Commission's first-come, first-served licensing procedure⁵¹ if the satellite system has been submitted for coordination to the International Telecommunication Union ("ITU").⁵² ICO reports that the government of the United Kingdom has filed an Advanced Publication Information with the ITU on its behalf for the ICO-G system. The report is confirmed by a letter from an official of the U.K. Office of Communications that ICO filed with its application for modification.⁵³ We therefore find that ICO has met this prerequisite for grant of its request for reservation of Ka-band spectrum pursuant to the first-come-first-served procedure.

C. Conforming Modification of Service-Link Reservation

34. ICO's current spectrum reservation provides for selection of blocks of five megahertz of spectrum in each direction of transmission for service-link operation in the 2 GHz MSS bands.⁵⁴ However, this reservation was made subject to the outcome of a then-pending application for review of a determination that TMI's 2 GHz MSS spectrum reservation was void. The Commission later granted the application for review and reinstated TMI's spectrum reservation.⁵⁵ In doing so, the Commission indicated that TMI would receive four megahertz in each direction of transmission and delegated authority to the International Bureau to modify the other remaining 2 GHz MSS authorizations to re-specify Selected Assignment bandwidth accordingly.⁵⁶ Accordingly, this *Order* modifies ICO's license to specify four megahertz of spectrum in each direction of transmission for service-link operation.⁵⁷

II. CONCLUSION

35. We conclude that ICO is legally and technically qualified and that grant of its modification application, subject to the conditions specified herein, will serve the public interest, convenience, and necessity.

⁵¹ See 47 C.F.R. § 25.158.

⁵² See 47 C.F.R. § 25.137(b).

⁵³ Letter dated Jan. 6, 2005 from R.O. Phillips, Head of Satellite Unit, Office of Communications, to the FCC International Bureau.

⁵⁴ *ICO Satellite Services G.P.*, DA 03-2077, 18 FCC Rcd 12339 (2003) ("*First ICO Bandwidth Adjustment Order*"); *Celsat America, Inc.*, DA 03-2076, 18 FCC Rcd 12337 (2003); *The Boeing Company*, DA 03-2073, 18 FCC Rcd (2003); *Iridium 2GHz LLC*, DA 03-2075, 18 FCC Rcd 12335 (2003).

⁵⁵ *TMI Reinstatement Order*, *supra*.

⁵⁶ *Id.* at n.105.

⁵⁷ This action is without prejudice to the possible assignment of additional spectrum to ICO, as a result of the cancellation of licenses that have occurred subsequent to the grant of TMI's application for review.

III. ORDERING CLAUSES

36. Accordingly, IT IS ORDERED that ICO Satellite Services, G.P.'s Application, SAT-MOD-20050110-0004 (Call Sign S2651), IS GRANTED, and ICO Satellite Services, G.P., IS RESERVED radio-frequency spectrum for a single geostationary-satellite-orbit satellite to operate at 91° W.L., in the 2000-2020/2180-2200 MHz bands in the United States, in accordance with the technical specifications set forth in its application, the conditions set forth in this order and consistent with our rules, unless specifically waived herein, and subject to the following conditions:

- a. ICO Satellite Services, G.P. shall choose a Selected Assignment in each of the 2000-2020 MHz and 2180-2200 MHz frequency bands upon commencing operation of a 2 GHz MSS satellite in its authorized orbit location;
- b. The Selected Assignments will give ICO Satellite Services, G.P. access to 4 megahertz of contiguous spectrum in each direction of transmission on a primary basis;⁵⁸
- c. Each Selected Assignment shall be chosen such that a band edge of the assignment coincides with an edge of the encompassing 2 GHz MSS band or is an integer multiple of 4 megahertz from an edge of the 2 GHz MSS band; and
- d. Operations in frequencies in these bands outside the Selected Assignments shall be on a secondary basis to operations of other 2 GHz MSS systems.

37. IT IS FURTHER ORDERED that ICO Satellite Services, G.P., IS RESERVED radio-frequency spectrum in the 29.25-30.0 GHz (space-to-Earth) and 18.55-18.8/19.7-20.2 GHz (Earth-to-space) frequency bands, for feeder link transmissions and for on-station Tracking, Telemetry and Control transmissions at 29.999 GHz and 20.199 GHz, in accordance with the technical specifications set forth in its application, and consistent with our rules unless specifically waived herein, and subject to the following conditions:

- a. All Ka-band downlink operations must be coordinated with U.S. government systems in accordance with footnote US 334 to the Table of Frequency Allocations, 47 C.F.R. § 2.106.
- b. Ka-Band downlink operations in the 18.6-18.8 GHz frequency band must comply with the power flux density limits specified in footnote US255 to the Table of Frequency Allocations, 47 C.F.R. § 2.106.

38. IT IS FURTHER ORDERED that this *Order* shall become NULL AND VOID in the event the space station authorized herein 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:

⁵⁸ This specification of additional service-link spectrum may be subject to adjustment after disposition of pending petitions for reconsideration and judicial review, and is without prejudice to resolution of further milestone issues or disposition of pending applications.

Implementation Milestone	Deadline
Commence coordination of the physical operation of the satellite	July 17, 2005
Place order for TWTAs	September 15, 2005
Complete bus wire harness fabrication	January 15, 2006
Start communications panel/payload integration	March 1, 2006
Complete propulsion integration	May 1, 2006
Complete bus integration	July 1, 2006
Complete coordination of the physical operations of the satellite, and file any modification applications necessitated thereby	July 17, 2006
Complete main body integration	October 1, 2006
Complete reference performance test	January 1, 2007
Complete thermal vacuum test	March 1, 2007
Launch satellite	July 1, 2007
Certify that satellite is operational	July 17, 2007

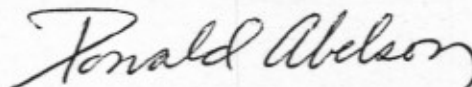
39. IT IS FURTHER ORDERED that ICO Satellite Service, G.P. shall file a notification with the Commission in the event that any of the contractual milestones listed in Appendix F of its satellite manufacturing agreement will be completed later than 14 calendar days following the scheduled completion dates listed in Appendix F.

40. IT IS FURTHER ORDERED that ICO Satellite Services, G.P. must file a bond with the Commission in the amount of \$3,000,000.00, pursuant to the procedures set forth in Public Notice, DA 03-2602, 18 FCC Rcd 16283 (2003), by June 24, 2005.

41. IT IS FURTHER ORDERED that ICO Satellite Services, G.P.'s request for a waiver of Section 25.202(g) of the Commission's rules to conduct TT&C during on-orbit spacecraft emergencies, using 5926 MHz, 6424 MHz, 3701 MHz, and 4196 MHz, IS DENIED.

42. This *Order and Authorization* is issued pursuant to Section 0.261 of the Commission's rules on delegations of authority, 47 C.F.R. § 0.261, and is effective upon release.

FEDERAL COMMUNICATIONS COMMISSION



Donald Abelson
Chief, International Bureau