

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

In the Matter of )
Intelsat North America LLC )
File Nos. SAT-LOA-20050210-00030
SAT-AMD-20051118-00239
SAT-AMD-20080114-00009
SAT-AMD-20080617-00124
SAT-AMD-20080701-00137
Call Sign: S2661

ORDER AND AUTHORIZATION

Adopted: May 26, 2009

Released: May 26, 2009

By the Chief, Satellite Division, International Bureau:

I. INTRODUCTION

1. By this Order, we grant Intelsat North America LLC (Intelsat) authority to construct, launch, and operate a 17/24 GHz Broadcasting-Satellite Service (BSS) space station at the 95.15° W.L. orbital location, which is offset 0.15° from the 95° W.L. orbital location specified in Appendix F to the 17/24 GHz Report and Order, at a reduced power and without full interference protection. Specifically, Intelsat is authorized to use the 24.75-25.25 GHz frequency band (Earth-to-space) and the 17.3-17.8 GHz frequency band (space-to-Earth), with the 17.7-17.8 GHz (space-to-Earth) frequency band limited to international service only. We also grant, in part, Intelsat's request for a waiver of Section 25.202(g) of the Commission's rules to allow it to use C-band frequencies for Launch and Early Orbit Phase (LEOP) transmissions. We deny without prejudice to refiling, however, Intelsat's request for a waiver of Section 25.202(g) to allow the use of C-band frequencies for emergency on-station Telemetry, Tracking, and Telecommand (TT&C) operations. Intelsat intends to provide a mix of domestic, international, and local services, including direct-to-home services. Grant of this application will stimulate competition in the

1 For a complete explanation of the rules and policies regarding the spacing framework and interference protections in the 17/24 GHz BSS Band, see Establishment of Policies and Service Rules for the Broadcasting-Satellite Service at the 17.3-17.7 GHz Frequency Band and at the 17.7-17.8 GHz Frequency Band Internationally, and at the 24.75-25.25 GHz Frequency Band for Fixed Satellite Services Providing Feeder Links to the Broadcasting-Satellite Service and for the Satellite Services Operating Bi-directionally in the 17.3-17.8 GHz Frequency Band, IB Docket No. 06-123, Report and Order and Further Notice of Proposed Rulemaking, 22 FCC Rcd 8842, 8902 (para. 147), 8920 (paras. 204-05) (2007) (17/24 GHz BSS Report and Order), petitions for reconsideration pending; Order on Reconsideration, 22 FCC Rcd 17951 (2007) (17/24 GHz BSS Reconsideration Order), petitions for reconsideration pending.

2 The conventional C-band frequencies are 3700-4200 MHz (space-to-Earth) and 5925-6425 MHz (Earth-to-space).

United States and provide consumers more alternatives in choosing communications providers and services.

## II. BACKGROUND

2. *Service Rules Proceeding.* In May 2007, the Commission released a Report and Order adopting processing and service rules for the 17/24 GHz BSS. The *17/24 GHz BSS Report and Order* included a framework in which 17/24 GHz BSS space stations would operate at orbital locations spaced at four degree intervals, as set forth in Appendix F (known as Appendix F locations). The Commission also determined to apply the first-come, first-served licensing process to applications in this service. In addition, the Commission adopted geographic service rules to require space station licensees to provide service to Alaska and Hawaii, a minimum antenna diameter, and antenna performance standards. Further, the Commission established limits for uplink and downlink power levels to minimize the possibility of harmful interference, and stipulated criteria to facilitate sharing in the 24.75-25.25 GHz and 17.3-17.8 GHz bands. At the same time, the Commission issued a Further Notice of Proposed Rulemaking seeking comment on coordination parameters relating to space-path and ground-path interference in the 17 GHz band, also called the “reverse band.”<sup>3</sup> In September 2007, the Commission, *sua sponte*, released an Order on Reconsideration to provide space station operators additional flexibility to operate full power space stations at orbital locations offset by up to one degree from an Appendix F location, in instances where there are no licensed or prior-filed applications for 17/24 GHz BSS space stations less than four degrees away from the proposed offset space station.<sup>4</sup>

3. *Application Processing.* At the time the Commission issued its *17/24 GHz BSS Report and Order*, there were 22 pending applications for 17/24 GHz BSS space station authorizations.<sup>5</sup> To implement its decision, the Commission directed the Bureau to release a Public Notice shortly after the rules became effective, establishing a deadline for pending applicants to amend pending applications to make them consistent with the newly adopted rules.<sup>6</sup> The 17/24 GHz BSS rules, as modified by the *Reconsideration Order*, became effective on November 23, 2007.<sup>7</sup> The Bureau released the *Public Notice* on December 5, 2007, and conforming amendments were filed in early 2008.

4. *Intelsat’s Application.* Intelsat originally filed an application to provide service from the 97° W.L. orbital location.<sup>8</sup> Intelsat subsequently filed conforming amendments to its application in

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<sup>3</sup> *17/24 GHz BSS Report and Order.* We note that authorizations for systems in the 17/24 GHz BSS band may be subject to conditions adopted as a result of the Further Notice of Proposed Rulemaking. The 17 GHz band is known as the “reverse band” because the BSS downlink is conducted in the same band as the Direct Broadcast Satellite (DBS) service uplink. Specifically, 17.3-17.8 GHz band is allocated for BSS in the space-to Earth direction and is co-primary with DBS for feeder links in the Earth-to-space direction.

<sup>4</sup> *17/24 GHz BSS Reconsideration Order*, 22 FCC Rcd 17951.

<sup>5</sup> *17/24 GHz BSS Report and Order* at Appendix E.

<sup>6</sup> *Public Notice*, International Bureau Establishes Deadline for Amendments to Pending 17/24 GHz BSS Applications, Report No. SPB-223, DA 07-4895 (December 5, 2007).

<sup>7</sup> 72 Fed. Reg. 60272 (Oct. 24, 2007).

<sup>8</sup> Intelsat North America LLC, File No. SAT-LOA-20050210-00030 (*Intelsat Application*).

which it now seeks authority to operate its 17/24 GHz BSS space station, Galaxy BSS-2, at the 95.15° W.L. orbital location. The space station will be capable of providing video distribution and direct-to-home services using point-to-point, point-to-multi-point, and broadcast transmissions.<sup>9</sup> Intelsat states the space station will have the capability to cover both North and South America.<sup>10</sup>

5. The application, as amended, was placed on Public Notice as accepted for filing on July 2, 2008.<sup>11</sup> Comments were filed by SES Americom Inc. (SES) and Pegasus Development DBS Corporation (Pegasus). No petitions to deny were filed. In its comments, SES sought to have additional conditions relating to Intelsat's international coordination responsibilities placed on the license. In comments filed on all pending 17/24 GHz BSS applications, including its own applications, Pegasus sought a "clarification" regarding Commission policies relating to Section 25.158(c) (prohibition on transfer of place in application queue) and Section 25.165 (bond requirement).<sup>12</sup>

### III. DISCUSSION

6. In the *17/24 GHz BSS Report and Order*, the Commission adopted the "first-come, first-served" procedure for 17/24 GHz BSS applications.<sup>13</sup> Under this approach, an application will be granted if the applicant meets the standards set forth in Section 25.156(a), and if the proposed space station will not cause harmful interference to a previously licensed space station, or to a space station proposed in a previously filed application.<sup>14</sup> The standards in Section 25.156(a) measure whether the applicant is legally, technically and otherwise qualified, and whether the proposed facilities and operations comply with all applicable rules, regulations, and policies, and, in light of those assessments, whether grant of the application will serve the public interest, convenience and necessity.<sup>15</sup> Further, the Commission said it would treat all pending 17/24 GHz BSS applications as amended by the February deadline as "simultaneously filed." We review Intelsat's application on this basis.

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<sup>9</sup> Intelsat North America LLC, File No. SAT-AMD-20080114-00009 (*Intelsat Amendment*), Technical Description at 11.

<sup>10</sup> *Intelsat Amendment*, Technical Description at 10.

<sup>11</sup> Policy Branch Information, Satellite Space Applications Accepted for Filing, Public Notice, Report No. SAT-00535 (rel. July 2, 2008); Policy Branch Information, Satellite Space Applications Accepted for Filing, Public Notice Report No. SAT-00537 (rel. July 11, 2008) (corrections).

<sup>12</sup> The issues raised by Pegasus are not relevant to the processing of this application, but, instead, relate to a request to assign an application to Pegasus to DIRECTV Enterprises, LLC (DIRECTV). IBFS File No. SAT-AMD-20080916-00188. Accordingly, we will not address Pegasus's comment in this Order. These comments will be addressed in our decision on IBFS File No. SAT-AMD-20080916-00188.

<sup>13</sup> Amendment of the Commission's Space Station Licensing Rules and Policies, *First Report and Order and Further Notice of Proposed Rulemaking*, IB Docket No. 02-34, 18 FCC Red at 10804-18 (paras. 108-50) (2003) (*First Space Station Reform Order*).

<sup>14</sup> 47 C.F.R. § 25.158(b)(3).

<sup>15</sup> 47 C.F.R. § 25.156(a).

## A. Legal Qualifications

7. We have previously determined that Intelsat is legally qualified to hold a space station authorization to provide satellite services to the United States.<sup>16</sup> Furthermore, nothing in the record raises concerns about Intelsat's legal qualifications to provide space station services in the United States. Thus, we find that Intelsat is legally qualified to provide BSS service to the United States using the 17/24 GHz band.

## B. Financial Qualifications

8. In the *First Space Station Reform Order*, the Commission eliminated the financial requirements then in place and replaced them with a bond requirement.<sup>17</sup> The bond requirement is intended to ensure that licensees are financially able and committed to implementing their licensed systems in a timely manner. Under this requirement, any entity awarded a space station license must execute a bond, payable to the United States Treasury, within 30 days of the license grant. The bond is payable upon failure to meet any implementation milestone in the license, where good cause for extending that milestone is not provided.<sup>18</sup> Licensees may reduce the amount of the bond upon meeting each milestone.<sup>19</sup>

## C. Technical Qualifications

### i. Four-Degree Spacing and Reduced Power

9. The Commission's space station licensing policy for the 17/24 GHz BSS is predicated upon four-degree orbital spacing between geostationary space stations. The 17/24 GHz BSS service rules allow space station operators to operate full-power space stations at orbital locations offset by up to one-degree from an Appendix F location in cases where there are no licensed or previously filed applications for 17/24 GHz BSS space stations less than four degrees away from the proposed offset space station. Intelsat seeks to operate at 95.15° W.L., which is offset by 0.15 degrees from the Appendix F location of 95° W.L. Intelsat states the offset is necessary to minimize the risk of collision with other existing space stations operating at or near 95° W.L.<sup>20</sup> In addition, Intelsat states that the nearest co-frequency adjacent space stations would be located at 91° W.L. and 99° W.L.<sup>21</sup> Thus, the

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<sup>16</sup> See Intelsat, Ltd and Zeus Holdings Limited, *Order and Authorization*, 19 FCC Rcd 24280, 24822 (Int'l Bur. 2004).

<sup>17</sup> *First Space Station Reform Order*, 18 FCC Rcd at 10826-27 (paras. 170-72), and 47 C.F.R. § 25.165.

<sup>18</sup> *First Space Station Reform Order*, 18 FCC Rcd at 10826 (para. 170).

<sup>19</sup> *First Space Station Reform Order*, 18 FCC Rcd at 10826-27 (para. 172).

<sup>20</sup> *Intelsat Amendment*, Technical Description at 16.

<sup>21</sup> The applications for the adjacent orbital locations are considered filed at the exact same time as the instant Intelsat application. *17/24 GHz BSS Report and Order*, 22 FCC Rcd at 8900 (para. 143). See Applications of DIRECTV Enterprises, LLC for 99.175° (Call Sign S2711); Intelsat North America LLC for 99.1° (Call Sign S2660); Pegasus Development DBS Corporation, for 91° W.L. (Call Sign S2698), and Intelsat North America for 90.9° W.L. (Call Sign S2662).

smallest orbital separation between its BSS space station and either of the two co-frequency adjacent Appendix F orbital location would be 3.85 degrees. To ensure that the Galaxy BSS-2 space station will not cause more interference to other co-frequency adjacent space stations, Intelsat states it will limit the uplink power density of its transmissions below the limits specified in Section 25.223(b) of the Commission's rules.<sup>22</sup> It also states it will reduce the downlink Effective Isotropically Radiated Power (EIRP) levels of its transmissions so that the corresponding power flux density (PFD) limits produced at the earth's surface will be below the limits specified in Sections 25.208(c) and 25.208(w) of the Commission's rules.<sup>23</sup>

10. Intelsat provided an interference analysis as required by Section 25.140(b)(4)(iii), demonstrating that its proposed space station will not cause more interference to the adjacent 17/24 GHz BSS satellite networks operating in compliance with the technical requirements of this rule, than if its space station were located at the 95° W.L. Appendix F orbital location.<sup>24</sup> Intelsat calculated its required PFD reduction based on the geocentric angular separation between its proposed orbital location and the nearest adjacent Appendix F location, 99° W.L., which is 3.85° away. Intelsat also utilized the consumer antenna characteristics specified in Section 25.224(a).<sup>25</sup> The geocentric angular separation between two satellite orbital locations in geostationary orbit is the angle between the two orbital locations as measured with respect to the center of the Earth. We find, however, that because the consumer antennas will be located on the Earth's surface, topocentric angular separations should be used in making the PFD reduction calculations. The topocentric angular separation between two satellite orbital locations in geostationary orbit is the angle between the two orbital locations as measured with respect to an earth station located on the surface of the Earth. For the analysis required under Section 25.224, a calculation using topocentric angular separation will always result in a larger angle, and therefore a greater PFD reduction, than the same calculation using a geocentric angular separation.

11. We have calculated the Section 25.224 antenna gains based on the topocentric angles between Intelsat's requested orbital location of 95.15° W.L. and the 99° W.L. Appendix F orbital location. We also calculated the antenna gains based on the topocentric angles between the 95° W.L. Appendix F orbital location and the 99° W.L. Appendix F orbital location. Subtracting the second set of location-dependent antenna gain values from the first set, we find that the maximum potential PFD levels that could be provided from the 95.15° W.L. offset orbital location range from 0.4 to 0.44 dB less than those specified in Sections 25.208(c) and (w), depending on the location on the surface of the Earth from which the angles between the orbital locations are measured.<sup>26</sup> Accordingly, we will condition Intelsat's

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<sup>22</sup> *Intelsat Amendment*, Technical Description at 17.

<sup>23</sup> 47 C.F.R. §§ 25.208(c) and 25.208(w).

<sup>24</sup> 47 C.F.R. § 25.140(b)(4)(iii). See *Intelsat Amendment*, Technical Description at 16-17.

<sup>25</sup> 47 C.F.R. § 25.224(a).

<sup>26</sup> The PFD reduction required for Intelsat's 17/24 GHz BSS space station at each location on the surface of the Earth should be calculated according to the following procedure:

- a. Set the angle 'φ' in the equations of Section 25.224(a)(1) to the topocentric angle between the 95° W.L. and 99° W.L. orbital locations, as measured at the earth station, and calculate the antenna gain  $G_{CO1}(\phi)$  in dBi;
- b. Set the angle 'φ' in the equations of Section 25.224(a)(1) to the topocentric angle between the 95.15° W.L. and 99° W.L. orbital locations, as measured at the earth station, and calculate the antenna gain  $G_{CO2}(\phi)$  in dBi; and

(continued...)

license for the Galaxy BSS-2 space station on a reduction in PFD corresponding to the methodology described above. In no case shall the PFD levels for the Galaxy BSS-2 space station exceed the power levels stated in its application.

## ii. Technical Waivers

### a. Section 25.202(g)

12. Intelsat requests a waiver of Section 25.202(g) of the Commission's rules to allow LEOP transmissions for its space station in the C-and Ku-bands, instead of the 17/24 GHz bands. Section 25.202(g) limits space station operators to TT&C links in the same frequency bands as their primary service operations.<sup>27</sup> The purpose of this rule is to simplify the coordination process among space stations at adjacent orbit locations, to provide an incentive for a space station operator to maximize the efficiency of its system's TT&C operations, and to minimize the constraints placed on other space station operations.<sup>28</sup> Intelsat maintains that a waiver is warranted because it already operates a network of facilities in the C-band that can provide the required LEOP support, or alternatively, it can contract for the services of similar networks operating in the Ku-band.<sup>29</sup> Intelsat states that, because LEOP transmissions take place before a space station reaches its final destination, any potential for interference into other satellite operations will be limited in duration and will cease once Galaxy BSS-2 reaches its assigned orbital location.<sup>30</sup>

13. The Commission's rules may be waived when good cause is demonstrated.<sup>31</sup> It is well established that a waiver is appropriate when granting such relief will not undermine the purpose of the rule and would better serve the public interest than strict compliance with the rule.<sup>32</sup> Because the 17/24 GHz BSS is a new radiocommunication service, there are no global TT&C networks available in the 17.3-17.8 GHz (space-to-Earth) and the 24.75-25.25 GHz (Earth-to-space) frequency bands. In contrast, Intelsat is already licensed to use frequencies in the C-band that can provide the required LEOP support. The Commission has recognized the present lack of 17/24 GHz ground facilities to support launch, transfer, and testing operations, and stated it would consider waivers for alternate TT&C frequencies on a

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c. Perform the subtraction  $G_{CO2}(\varphi) - G_{CO1}(\varphi)$ . The result is the required PFD reduction in dB.

For the purposes of this calculation, the antenna diameter 'D' should be assumed to be 0.45 meters, which is the minimum-diameter antenna for which 17/24 GHz licensees may claim protection from interference, according to Section 25.224(a), the wavelength ' $\lambda$ ' should be assumed to be 0.017131 meters, corresponding to a frequency of 17.5 gigahertz, and the value of ' $\eta$ ' can be assumed to be 0.65, as stated in Section 25.224.

<sup>27</sup> 47 C.F.R. § 25.202(g).

<sup>28</sup> Amendment of the Commission's Rules with Regard to the 3650-3700 MHz Government Transfer Band, *First Report and Order and Second Notice of Proposed Rulemaking*, 15 FCC Rcd 20488, 20538 (2000).

<sup>29</sup> *Intelsat Application*, Attachment at 10, and *Intelsat Amendment*, Exhibit D.

<sup>30</sup> *Intelsat Application*, Attachment at 10-11.

<sup>31</sup> 47 C.F.R. § 1.3.

<sup>32</sup> *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969).



case-by-case basis.<sup>33</sup> The record suggests that Intelsat will be able to coordinate its limited term LEOP operations with all potentially-affected space station operators.<sup>34</sup> We find that Intelsat has shown that special circumstances exist --specifically: 1) the lack of 17/24 GHz TT&C facilities around the world; 2) the limited duration of the operations; and 3) the ability to coordinate C or Ku-band LEOP operations -- that warrant a waiver of Section 25.202(g) for the limited scope and duration of LEOP operations. Accordingly, Intelsat is authorized to use one megahertz of bandwidth at each of the 5925.5 MHz and 6424.5 MHz center frequencies (Earth-to-space) and 350 kilohertz of bandwidth at each of the 4197.0 MHz and 4198.5 MHz center frequencies (space-to-Earth) for LEOP transmissions. As a condition of granting this waiver, Intelsat shall coordinate all of its LEOP operations with all potentially-affected operators of other radiocommunication systems. In the absence of a coordination agreement regarding such operations, Intelsat's operations shall be on a non-harmful interference basis (*i.e.*, Intelsat shall not cause harmful interference to, and shall not claim protection from interference caused to it by, any other lawfully operating radiocommunication system).

14. Intelsat also requests a waiver of Section 25.202(g) to use C-band frequencies for on-station TT&C. In its initial application, Intelsat requested authority to operate its space station at the 97° W.L. orbital location, noting that it is currently licensed to use C-band frequencies at this orbital location. Intelsat requested a waiver of Section 25.202(g) to allow it to transmit TT&C carriers for its 17/24 GHz BSS space station system at the edges of its authorized C-band frequencies.<sup>35</sup> Intelsat maintained that a waiver was warranted because it is the only entity authorized to operate in the C-band at the 97° W.L. orbital location, and therefore no other entity would be affected by the proposed TT&C operations. Intelsat subsequently amended its application to request authority to operate at the 95.15° W.L. orbital location. In the amendment, Intelsat clarified that its on-orbit TT&C transmissions will be limited to emergency situations. Intelsat, however, did not revise its waiver request to include a demonstration relevant to the 95.15° W.L. orbital location.

15. The technical rules for the C-band are predicated upon two-degree orbital spacing between space stations.<sup>36</sup> Thus, the technical showing relating to the 97° W.L. orbital location is irrelevant for evaluating the risk of harmful interference from the 95.15° W.L. orbital location. In addition, any proposed use of C-band frequencies for emergency mode operations would not be limited in duration. To be effective for emergency use, frequencies must be set aside for use at any time for the life of the space station, effectively precluding or conflicting with the use of spectrum by other operators on a long-term basis. Thus, we find that Intelsat has failed to show good cause justifying a waiver of Section 25.202(g) for emergency on-station TT&C. We therefore deny the request.

#### **b. Section 25.114**

16. Intelsat requests a partial waiver of Section 25.114(d)(3), which requires the applicant to

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<sup>33</sup> *17/24 GHz BSS Report and Order*, 22 FCC Rcd at 8885 (para. 106).

<sup>34</sup> *Intelsat Application*, Attachment at 10; *Intelsat Amendment*, Technical Description at 11.

<sup>35</sup> *Intelsat Application*, Attachment at 10.

<sup>36</sup> In 1983, the Commission established a two-degree orbital spacing policy to maximize the number of in-orbit satellites serving the United States in either the C-band or the Ku-band. See *Licensing of Space Stations in the Domestic Fixed-Satellite Service and Related Revisions of Part 25 of the Rules and Regulations*, CC Docket No. 81-704, *Report and Order*, FCC 83-184, 54 Rad. Reg. 2d (P & F) 577 (1983).

submit predicted space station antenna gain contour(s) for each transmit and receive antenna beam. The rule also requires this information to be submitted in .gxt format.<sup>37</sup> The main purpose of the antenna gain contour diagrams is to allow evaluation of the potential for harmful interference with other operators and services in the frequency band.<sup>38</sup> It also facilitates the applicant's preparation of information that may be required for submission to the International Telecommunication Union (ITU) to initiate and complete coordination procedures.<sup>39</sup> Intelsat complied with the rule for all beams except its 24 gateway receive (GR) and 24 ubiquitous transmit (UT) spot beams.<sup>40</sup> For each of the GR and UT beams, Intelsat provided the antenna gain contour information in .pdf format, instead of the required .gxt format, with one exception.<sup>41</sup> Intelsat maintains that providing the information in .gxt format for each of the 48 beams in Schedule S would pose an undue hardship.<sup>42</sup> While Intelsat's .pdf format submission was not in compliance with the rule, in this limited instance, we were able to complete our technical review of the antenna gain contour information and determine that the Galaxy BSS-2 space station meets the Commission's technical requirements. Accordingly, we grant Intelsat a partial waiver of Section 25.114(d)(3). Nonetheless, obtaining the antenna beam pattern information in the .gxt file format greatly facilitates the space station ITU coordination process. Consequently, as a condition of granting this waiver, any antenna beam diagrams submitted by Intelsat for purposes of its ITU submissions for this space station must be provided in .gxt format.

17. Finally, Intelsat requested waivers of Sections 25.114(c)(4)(i), 25.114(c)(4)(iii), 25.114(c)(8), and 25.114(d)(5) of the Commission's rules, to the extent they request technical information in a particular format.<sup>43</sup> Our review of the application, however, shows that no waivers are necessary because Intelsat submitted the information in the format required by the Commission's rules.<sup>44</sup> Consequently, we dismiss these waiver requests as moot.

#### **D. Coordination Obligations**

18. It is longstanding Commission policy that grant of a license to launch and operate a space station carries with it the responsibility to coordinate with other potentially affected space station

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<sup>37</sup> 47 C.F.R. § 25.114(d)(3).

<sup>38</sup> See SES Americom, Inc., Application for Modification of Space Station Authorization, *Order and Authorization*, 19 FCC Rcd 20377, 20377-78 (paras. 4-8) (Int'l Bur., Sat. Div. 2004).

<sup>39</sup> The .gxt format is compatible with the ITU's Radiocommunication Bureau's Graphical Interference Management (GIMS) software used to perform interference and PFD analyses using GIMS. A description of the GIMS software package can be found on the Internet at <http://www.itu.int/ITU-R/software/space/gims/index.html> (April 17, 2009).

<sup>40</sup> Intelsat North America LLC, File No. SAT-AMD-20080617-00124, Exhibit A, at 1

<sup>41</sup> Intelsat did file one representative GR and UT beam in the required .gxt format.

<sup>42</sup> Intelsat North America LLC, File No. SAT-AMD-20080701-00137, Exhibit A, at 1.

<sup>43</sup> Intelsat North America LLC, SAT-AMD-20080701-00137, Exhibit A.

<sup>44</sup> See *Intelsat* North America LLC, SAT-AMD-20080701-00137, Sections S9 and S10 of Schedule S, and *Intelsat* North America LLC, SAT-AMD-20080114-00009, Exhibit 8.



operators.<sup>45</sup> The United States is under a treaty obligation, in connection with its membership in the ITU, to adhere to the ITU procedures regarding coordination and notification of space station systems licensed by the United States.<sup>46</sup> The coordination procedures are intended to ensure that the operations of one country's space stations do not cause harmful interference to the operations of another country's radiocommunication network frequency assignments. The international coordination and notification responsibilities, codified in Section 25.111(b) of the Commission's rules, specifically provide that a licensee is not protected from harmful interference caused by foreign licensed space stations until it has successfully completed the ITU notification process.<sup>47</sup> This provision is also typically imposed as a condition on the license.<sup>48</sup>

19. In its comments, SES Americom requests that certain conditions relating to ITU procedures be included in each 17/24 GHz BSS authorization. Most of the conditions sought by SES are included in the standard licensing condition drawn from Section 25.111(b). SES, however, also requests that we place a customer notification requirement - that 17/24 GHz BSS space station operators inform their customers that space station operations may need to be modified or terminated to effect coordination of frequency assignments with other licensing Administrations - as a condition of the license. We see no reason to impose such a condition on this authorization at this time.

#### IV. CONCLUSION AND ORDERING CLAUSES

20. Upon review of Intelsat North America, LLC's application, as amended, File Nos. SAT-LOA-20050210-00030; SAT-AMD-20051118-00239; SAT-AMD-20080617-00124; SAT-AMD-20080701-

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<sup>45</sup> The 17/24 GHz BSS is a non-planned broadcasting satellite service. Thus, the procedures for coordinating this service are contained in Article 9 of the ITU Radio Regulations (RR), and procedures for notification of the bringing into use of a new satellite network in this service are contained in Article 11. The coordination procedure is based on the principle of "first come - first served."

<sup>46</sup> See Final Acts of the World Administrative Radio Conference for Space Telecommunications, Geneva, 1971. Because orbital locations and spectrum must be shared among nations and because satellite coverage areas cross national boundaries, international procedures have been developed to ensure that interference levels remain acceptable when accessing the orbit-spectrum resource. See also Amendment Of Parts 2, 22 and 25 of the Commission's Rules to Allocate Spectrum for and to Establish Other Rules and Policies Pertaining to the Mobile Satellite Service for the Provision of Various Common Carrier Services, Applications of Global Land Mobile Satellite, Inc., *Tentative Decision*, 6 FCC Rcd 4900 (1991) (describing the international coordination process).

<sup>47</sup> 47 C.F.R. § 25.111(b) ("Applicants, permittees and licensees of radio stations governed by this part shall provide the Commission with all information it requires for the Advance Publication, Coordination and Notification of frequency assignments pursuant to the International Radio Regulations. No protection from interference caused by radio stations authorized by other Administrations is guaranteed unless coordination procedures are timely completed or, with respect to individual administrations, by successfully completing coordination agreements. Any radio station authorization for which coordination has not been completed may be subject to additional terms and conditions as required to effect coordination of the frequency assignments with other Administrations.")

<sup>48</sup> See Pegasus Development DBS Corporation, File Nos. SAT-LOA-20060412-00044 and SAT-AMD-20080114-00023, granted with conditions on December 17, 2008; EchoStar Satellite Operating Corp., File Nos. SAT-LOA-20070115-00001 and SAT-AMD-20080114-00021, grant stamped with conditions on March 13, 2009; and EchoStar Satellite Operating Corporation, File Nos. SAT-LOA-20070105-00003, SAT-AMD-2008011400022-00022, and SAT-AMD-20080213-00045, grant stamped with conditions on March 18, 2009.

00137; and SAT-AMD-20080114-00009 (Call Sign S2661), we find that Intelsat North America LLC is qualified to be a Commission licensee and that, pursuant to Section 309 of the Communications Act of 1934, as amended, 47 U.S.C. § 309, grant of these applications will serve the public interest, convenience and necessity.

21. Accordingly, IT IS ORDERED that Intelsat North America LLC is authorized to construct, launch, and operate the Galaxy BSS-2 space station at the 95.15° W.L. orbital location using the 17.3-17.8 GHz (space-to-Earth) and the 24.75-25.25 GHz (Earth-to-space) frequency bands, with the 17.7-17.8 GHz (space-to-Earth) frequency band limited to international service only. Accordingly, Intelsat may operate its space station up to PFD levels that are reduced from those specified in Sections 25.208(c) and 25.208(w) of the Commission's rules in accordance with the following calculation methodology: For a given location on the surface of the Earth at which the required PFD reduction value needs to be determined, calculate the topocentric angular separation ' $\phi$ ' of the 99° W.L. and 95° W.L. geostationary orbital locations, and the corresponding off-axis gain  $G_{CO1}(\phi)$  of the antenna specified in Section 25.224(a)(1) of the Commission's rules at that angular separation. For the same location on the surface of the Earth, also calculate the topocentric angular separation of the 99° W.L. and 95.15° W.L. geostationary orbital locations, and the gain of the antenna ' $G_{CO2}(\phi)$ ' specified in Section 25.224(a)(1) of the Commission's rules at that angular separation. Then, perform the subtraction  $G_{CO2}(\phi) - G_{CO1}(\phi)$ . The result is the required reduction in PFD from the value specified in the applicable subsection of Section 25.208(c), or in Section 25.208(w). Intelsat North America LLC's Galaxy BSS-2 space station transmissions shall meet the reduced PFD limits under all atmospheric conditions. The PFD levels of Galaxy BSS-2's transmissions shall not exceed the maximum PFD levels stated in its application.

22. IT IS FURTHER ORDERED that Intelsat North America LLC is authorized to operate the on-station command links of the Galaxy BSS-2 space station using one megahertz of occupied bandwidth at each of the uplink center frequencies 24751.5 MHz (right-hand circular polarization) and 25248.5 MHz (left-hand circular polarization); and operate the on-station telemetry links of the Galaxy BSS-2 space station using 350 kilohertz of occupied bandwidth at each of the downlink center frequencies 17303.0 MHz (right-hand circular polarization) and 17303.5 MHz (left-hand circular polarization). Intelsat North America LLC is also authorized to operate the pointing beacon links of the Galaxy BSS-2 space station using 50 kilohertz of occupied bandwidth at each of the downlink center frequencies 17301.0 MHz (right-hand circular polarization) and 17301.5 MHz (left-hand circular polarization).

23. IT IS FURTHER ORDERED that Intelsat North America LLC's request for a limited waiver of 47 C.F.R. § 25.202(g) for launch and early orbit (LEOP) operations is GRANTED. Intelsat is authorized to use the center frequencies 5925.5 MHz (vertical polarization) and 6424.5 MHz (horizontal polarization) for LEOP global telecommand transmissions (Earth-to-space), with one megahertz of bandwidth at each center frequency. Intelsat is also authorized to use the center frequencies 4197.0 MHz (vertical polarization) and 4198.5 MHz (vertical polarization) for LEOP global telemetry transmissions (space-to-Earth), with 350 kilohertz of bandwidth at each center frequency. As a condition of this waiver, Intelsat shall coordinate all the LEOP operations with all potentially-affected operators of other authorized radiocommunication systems. In the absence of a coordination agreement regarding such operations, Intelsat's operations shall be on a non-harmful interference basis *i.e.*, Intelsat shall not cause harmful interference to, and shall not claim protection from interference caused to it by, any other lawfully operating radiocommunication system. Further, Intelsat must terminate operations immediately upon notification of harmful interference to a lawfully operating radiocommunication system.

24. IT IS FURTHER ORDERED that Intelsat North America LLC's request for a waiver of 47 C.F.R. § 25.202(g) to use C-band frequencies for on-orbit emergency operations is DENIED.

25. IT IS FURTHER ORDERED that Intelsat North America LLC's request for a partial waiver of Section 47 C.F.R. 25.114(d)(3) is GRANTED. For purposes of its International Telecommunication Union submissions for this space station, any antenna beam diagrams submitted must be provided in .gxt format.

26. IT IS FURTHER ORDERED, that Intelsat North America LLC's request for a waiver of 47 C.F.R. §§ Sections 25.114(c)(4)(i), 25.114(c)(4)(iii), 25.114(c)(8), and 25.114(d)(5) are DISMISSED as moot.

27. IT IS FURTHER ORDERED that Intelsat North America LLC shall maintain its 17/24 GHz BSS space station with an east-west longitudinal station-keeping tolerance of  $\pm 0.05^\circ$  of the assigned  $95.15^\circ$  W.L. orbital location.

28. IT IS FURTHER ORDERED that when designing its space station system, Intelsat North America LLC is reminded to take into consideration the geographic service requirements of Section 25.225 of the Commission's rules, 47 C.F.R. § 25.225.

29. IT IS FURTHER ORDERED that Intelsat North America LLC's authorization to construct, launch, and operate its Galaxy BSS-2 space station at the  $95.15^\circ$  W.L. orbital location will be null and void with no further action on the Commission's part if the space station is not constructed, launched, and placed into operation in accordance with the technical parameters, terms and conditions of this authorization by these specified time periods following the date of authorization:

- a. Execute a binding contract for construction within one year (May 26, 2010);
- b. Complete the Critical Design Review of the space station within two years (May 26, 2011);
- c. Commence Construction of the space station within three years (May 26, 2012);
- d. Launch and begin operations on the space station within five years (May 26, 2014);
- e. Intelsat North America LLC must file a bond with the Commission in the amount of \$3 million, pursuant to the procedures set forth in 47 C.F.R. § 25.165, within 30 days of the grant of this authorization.

30. IT IS FURTHER ORDERED that the license term for Intelsat North America LLC's 17/24 GHz BSS space station (Call Sign S2661) is fifteen years, the term for non-broadcast 17/24 GHz BSS space station licensees. The license term begins to run on the date that Intelsat North America LLC certifies to the Commission that the space station has been successfully placed into orbit and its operation fully conforms to the terms and conditions of this authorization. 47 C.F.R. § 25.121(a). Intelsat North America LLC shall file this certification with the Chief, Satellite Division, International Bureau, within ten business days of the space station being put into operation.

31. IT IS FURTHER ORDERED that on June 30<sup>th</sup> of each year, Intelsat North America LLC must file a report with the International Bureau and the Commission's Columbia Operations Center in Columbia, Maryland, containing the information current as of May 31<sup>st</sup> of that year, pursuant to Section 25.210(l) of the Commission's rules. 47 C.F.R. § 25.210(l).

32. IT IS FURTHER ORDERED that Intelsat North America LLC shall prepare all necessary information that may be required for submission to the International Telecommunication Union (ITU) to initiate and complete the advance publication, international coordination, due diligence, and notification procedures for this space station, in accordance with the ITU Radio Regulations. Intelsat North America LLC shall be held responsible for all cost recovery fees associated with these ITU filings. No protection from interference caused by radio stations authorized by other administrations is guaranteed unless coordination and notification procedures are timely completed or, with respect to individual Administrations, by successfully completing coordination agreements. Any radio station authorization for which coordination has not been completed may be subject to additional terms and conditions as required to effect coordination of the frequency assignments of other Administrations. 47 C.F.R. § 25.111(b).

33. IT IS FURTHER ORDERED that this authorization and all conditions contained herein are subject to the final outcome of the Commission's rulemaking in IB Docket No. 06-123 and any requirements subsequently adopted therein.

34. IT IS FURTHER ORDERED that Intelsat North America LLC has thirty days from the date of release of this authorization to decline the authorization as conditioned. Failure to respond within this period will constitute formal acceptance of the authorization as conditioned.

35. This Order is issued pursuant to Section 0.261 of the Commission's rule on delegated 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 this order.

FEDERAL COMMUNICATIONS COMMISSION

Robert G. Nelson  
Chief, Satellite Division  
International Bureau