



File # SAT-MPL-20120406-00065

Call Sign S2828 Grant Date 03/05/12

(or other identifier)

Term Dates

From 03/05/12

To: \_\_\_\_\_

Approved: \_\_\_\_\_

*Stephen J. Dwall*

Stephen J. Dwall

Chief, Satellite Policy Branch

Approved by OMB  
3060-0678

Date & Time Filed: Apr 6 2012 2:03:25:643PM  
File Number: SAT-MPL-20120406-00065

\*subject to conditions  
placed in SAT-PPL-20110620-00112,  
granted 03/15/12 (as corrected)

FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD – MAIN FORM	FCC Use Only
FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:  
Modification to declaratory ruling and U.S. market access authorization for SES-4

1-8. Legal Name of Applicant

<b>Name:</b>	New Skies Satellites B.V.	<b>Phone Number:</b>	202-478-7183
<b>DBA Name:</b>		<b>Fax Number:</b>	202-478-7101
<b>Street:</b>	1129 20th St. NW Suite 1000	<b>E-Mail:</b>	
<b>City:</b>	Washington	<b>State:</b>	DC
<b>Country:</b>	USA	<b>Zipcode:</b>	20036 -
<b>Attention:</b>	Ms. Joslyn Read		

9-16. Name of Contact Representative

<b>Name:</b>	John K. Hane	<b>Phone Number:</b>	202-663-8000
<b>Company:</b>	Pillsbury Winthrop Shaw Pittman	<b>Fax Number:</b>	202-663-8007
<b>Street:</b>	2300 N St. NW	<b>E-Mail:</b>	john.hane@pillsburylaw.com
<b>City:</b>	Washington	<b>State:</b>	DC
<b>Country:</b>	USA	<b>Zipcode:</b>	20037-
<b>Attention:</b>		<b>Relationship:</b>	Legal Counsel

CLASSIFICATION OF FILING

17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.

- a1. Earth Station
- a2. Space Station

- (N/A) b1. Application for License of New Station
- (N/A) b2. Application for Registration of New Domestic Receive-Only Station
- b3. Amendment to a Pending Application
- b4. Modification of License or Registration
- b5. Assignment of License or Registration
- b6. Transfer of Control of License or Registration
- b7. Notification of Minor Modification
- (N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite
- (N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States
- (N/A) b10. Other (Please specify)
- (N/A) b11. Application for Earth Station to Access a Non-U.S. satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States
- (N/A) b12. Application for Database Entry
- b13. Amendment to a Pending Database Entry Application
- b14. Modification of Database Entry

<p>17c. Is a fee submitted with this application?</p> <p><input type="radio"/> If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).</p> <p><input type="radio"/> Governmental Entity    <input type="radio"/> Noncommercial educational licensee</p> <p><input checked="" type="radio"/> Other (please explain):    Modification to Permitted Space Station List and Market Access Petition</p>	
<p>17d.</p> <p>Fee Classification    BFY – Space Station Modification (Geostationary)</p>	
<p>18. If this filing is in reference to an existing station, enter:</p> <p>(a) Call sign of station: S2828</p>	<p>19. If this filing is an amendment to a pending application enter both fields, if this filing is a modification please enter only the file number:</p> <p>(a) Date pending application was filed:</p> <p>(b) File number: SATPPL2011062000112</p>

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:	
<input checked="" type="checkbox"/> a. Fixed Satellite <input type="checkbox"/> b. Mobile Satellite <input type="checkbox"/> c. Radiodetermination Satellite <input type="checkbox"/> d. Earth Exploration Satellite <input checked="" type="checkbox"/> e. Direct to Home Fixed Satellite <input type="checkbox"/> f. Digital Audio Radio Service <input type="checkbox"/> g. Other (please specify)	
21. STATUS: Choose the button next to the applicable status. Choose only one. <input type="radio"/> Common Carrier <input checked="" type="radio"/> Non-Common Carrier	22. If earth station applicant, check all that apply. <input type="checkbox"/> Using U.S. licensed satellites <input type="checkbox"/> Using Non-U.S. licensed satellites
23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities: <input type="radio"/> Connected to a Public Switched Network <input type="radio"/> Not connected to a Public Switched Network <input checked="" type="radio"/> N/A	
24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s). <input checked="" type="checkbox"/> a. C-Band (4/6 GHz) <input checked="" type="checkbox"/> b. Ku-Band (12/14 GHz) <input checked="" type="checkbox"/> c. Other (Please specify upper and lower frequencies in MHz.) Frequency Lower:    Frequency Upper: (Please specify additional frequencies in an attachment)	

TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.

- a. Fixed Earth Station
- b. Temporary-Fixed Earth Station
- c. 12/14 GHz VSAT Network
- d. Mobile Earth Station
- e. Geostationary Space Station
- f. Non-Geostationary Space Station
- g. Other (please specify)

26. TYPE OF EARTH STATION FACILITY:

- Transmit/Receive     Transmit-Only     Receive-Only     N/A

"For Space Station applications, select N/A."

PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)

- a -- authorization to add new emission designator and related service
- b -- authorization to change emission designator and related service
- c -- authorization to increase EIRP and EIRP density
- d -- authorization to replace antenna
- e -- authorization to add antenna
- f -- authorization to relocate fixed station
- g -- authorization to change frequency(ies)
- h -- authorization to add frequency
- i -- authorization to add Points of Communication (satellites & countries)
- j -- authorization to change Points of Communication (satellites & countries)
- k -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
- l -- authorization to change orbit location
- m -- authorization to perform fleet management
- n -- authorization to extend milestones
- o -- Other (Please specify)

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. 1.1308 and 1.1311, as an exhibit to this application. A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.  Yes  No

ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30–34.

29. Is the applicant a foreign government or the representative of any foreign government?  Yes  No

30. Is the applicant an alien or the representative of an alien?  Yes  No  N/A

31. Is the applicant a corporation organized under the laws of any foreign government?  Yes  No  N/A

32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?  Yes  No  N/A

33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?  Yes  No  N/A

34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote. Exhibit B

#### BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules?  Yes  No  
If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.

36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explanation of circumstances.  Yes  No



<p>37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explanation of circumstances.</p>	<p><input type="radio"/> Yes    <input checked="" type="radio"/> No</p>
<p>38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of circumstances</p>	<p><input type="radio"/> Yes    <input checked="" type="radio"/> No</p>
<p>39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhibit, an explanation of the circumstances.</p>	<p><input type="radio"/> Yes    <input checked="" type="radio"/> No</p>
<p>40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.    Exhibit C</p>	

41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.

Yes  No

42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate. If No, proceed to question 43.

Yes  No

42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station? The Netherlands

43. Description. (Summarize the nature of the application and the services to be provided). (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

Applicant seeks to modify the declaratory ruling adding SES-4 to the Permitted Space Station List and the grant of U.S. market access for the satellite.

Modification

43a. Geographic Service Rule Certification

By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.

A

By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.

B

By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.

C

**CERTIFICATION**

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- Individual
- Unincorporated Association
- Partnership
- Corporation
- Governmental Entity
- Other (please specify)

45. Name of Person Signing  
Daniel C.H. Mah

-->

46. Title of Person Signing  
Regulatory Counsel

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT  
(U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION  
(U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

**FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT**

The public reporting for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PER, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PRA@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

Remember – You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

**THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.**

## DESCRIPTION OF MODIFICATION APPLICATION

New Skies Satellites B.V. (doing business as “SES”) hereby applies to modify the declaratory ruling adding the SES-4 satellite at 22° W.L. to the Permitted Space Station List, and the grant of U.S. market access for extended C- and Ku-band payloads on that satellite, to update certain operating parameters previously filed with the Commission.<sup>1</sup> Specifically, SES updates the telemetry parameters for the SES-4 satellite to reflect two operating modes – *i.e.*, a nominal on-station mode and an emergency mode – with maximum EIRPs of 16 dBW and 21 dBW, respectively.<sup>2</sup> In addition, the parameters of the C-band beacon on SES-4 is updated to reflect a maximum EIRP of 19.2 dBW. These changes are more fully described herein. For the avoidance of doubt, SES is not seeking authority in this application to use SES-4’s two 12.5 GHz telemetry carriers in the U.S. for nominal on-station TT&C, but may seek temporary authority to do so during drift maneuvers or in the event of an emergency. A complete, revised Schedule S reflecting these changes is provided with this application. No other changes are being requested at this time.

Grant of this application would serve the public interest by facilitating SES’s ability to conduct TT&C operations with SES-4 from the United States and ensure the continued safe collocation of SES-4 with NSS-7 at 22° W.L. SES-4’s telemetry functions will continue to meet applicable power flux density (“pfd”) limits on the Earth’s surface for the protection of co-primary services.

---

<sup>1</sup> See Stamp Grant, File No. SAT-PPL-20110620-00112 (Call Sign S2828) (granted March 15, 2012) (“SES-4 Access Order”).

<sup>2</sup> An affiliate of SES, SES Americom Inc., has obtained special temporary authority (“STA”) to conduct TT&C operations with SES-4, consistent with this application. See Application, File No. SES-STA-20120329-00321 (granted April 3, 2012).

*Modification to operating parameters of authorized telemetry carriers.* Listed below are the specific changes to the Technical Appendix sought in this application with respect to the nominal on-station and emergency operating modes for the authorized telemetry carriers for SES-4. The satellite will be operating its TT&C in nominal on-station mode while at the 22° W.L. orbital location. Emergency mode will only be used in the event of an emergency or during relocation maneuvers.

- In Section 5.3, Table 5.5 should be replaced as follows (with the new text underlined):

Carrier	Frequency, MHz	Polarization
Telecommand 1	14496.0	RHCP
Telecommand 2	14499.0	RHCP
Telemetry 1	11451.0	RHCP
Telemetry 2	11454.0	RHCP
Telemetry 3	12500.5	LHCP
Telemetry 4	12502.0	LHCP
<u>Telemetry 1 (emergency mode)</u>	<u>11451.0</u>	<u>LHCP</u>
<u>Telemetry 2 (emergency mode)</u>	<u>11454.0</u>	<u>LHCP</u>
<u>Telemetry 3 (emergency mode)</u>	<u>12500.5</u>	<u>RHCP</u>
<u>Telemetry 4 (emergency mode)</u>	<u>12502.0</u>	<u>RHCP</u>
Tracking Beacon	4199.75	V

**Table 5-5. SES-4 TT&C Frequency and Polarization Plan**

- In Section 5.3, the text immediately following Table 5-5 should read as follows: “It should be noted that Telemetry frequencies 1 through 4 can also be used as tracking beacon signals and switch to the opposite polarization when operated in emergency mode (i.e. through a high-power, wide angle omni-antenna). As an operational matter, SES notes that Telemetry 2 and Telemetry 3 are back-up frequencies for Telemetry 1 and Telemetry 4, respectively, and will be used only in the event that there are problems with the respective primary telemetry frequencies.”
- In Section 5.3, the last two sentences of the section should read as follows: “The emission designators associated with the TT&C subsystem are 800KF9D for command, 300KF9D for telemetry and the Ku-band beacon, and 25K0N0N for the C-band tracking beacons. The associated allocated bandwidth is 800 kHz, 300 kHz and 25 kHz for each of these emissions, respectively.”
- In Section 7.3, the paragraph should read as follows: “The TT&C coverage for nominal on-station operation will be provided by the receive communications antenna for command and by the earth facing horn transmit communications antenna for telemetry.

In emergency mode, the telemetry will be provided in the opposite polarization through a high-power, wide-angle omni antenna. There are two such omni antennas on the spacecraft, one on the nominal, earth facing side and another on the opposite side of the spacecraft. The receive and transmit antenna beam patterns for nominal on-station and emergency operations are given in GXT format in the accompanying Schedule S (see also Sections 7.1 and 7.2 above)."

- In Section 10, Tables 10-80, 10-81, and 10-82 should be revised as follows:

Angle of Arrival	Applicable PFD Limit for Angle of Arrival (dBW/m <sup>2</sup> /4 kHz)	Spreading Loss (dBW/m <sup>2</sup> )	Gain Contour (dB)	Worst Case PFD Level at Angle of Arrival (dBW/m <sup>2</sup> /4kHz)	PFD Margin (dB)
0°	-150.0	-163.4	-3.8	-170.0	20.0
5°	-150.0	-163.3	-3.7	-169.8	19.8
10°	-147.5	-163.2	-3.6	-169.6	22.1
15°	-145.0	-163.0	-3.5	-169.3	24.3
20°	-142.5	-162.9	-3.4	-169.1	26.6
25°	-140.0	-162.8	-3.2	-168.8	28.8
90° (Peak)	-140.0	-162.1	0.0	-164.9	24.9

**Table 10-80. Max. PFD Levels, TLM beam, Nominal, Telemetry (300KF9D)**

Angle of Arrival	Applicable PFD Limit for Angle of Arrival (dBW/m <sup>2</sup> /4 kHz)	Spreading Loss (dBW/m <sup>2</sup> )	Gain Contour (dB)	Worst Case PFD Level at Angle of Arrival (dBW/m <sup>2</sup> /4kHz)	PFD Margin (dB)
0°	-150.0	-163.4	-1.0	-162.2	12.2
5°	-150.0	-163.3	-1.0	-162.1	12.1
10°	-147.5	-163.2	-1.0	-162.0	14.5
15°	-145.0	-163.0	-0.9	-161.7	16.7
20°	-142.5	-162.9	-0.8	-161.5	19.0
25°	-140.0	-162.8	-0.8	-161.4	21.4
90° (Peak)	-140.0	-162.1	0.0	-159.9	19.9

**Table 10-81. Max. PFD Levels, OMNI beam, Emergency, Telemetry (300KF9D)**



Angle of Arrival	Applicable PFD Limit for Angle of Arrival (dBW/m <sup>2</sup> /4 kHz)	Spreading Loss (dBW/m <sup>2</sup> )	Gain Contour (dB)	Worst Case PFD Level at Angle of Arrival (dBW/m <sup>2</sup> /4kHz)	PFD Margin (dB)
0°	<u>-152.0</u>	-163.4	<u>-2.5</u>	<u>-154.7</u>	<u>2.7</u>
5°	<u>-152.0</u>	-163.3	<u>-2.4</u>	<u>-154.5</u>	<u>2.5</u>
10°	<u>-149.5</u>	-163.2	<u>-2.3</u>	<u>-154.3</u>	<u>4.8</u>
15°	<u>-147.0</u>	-163.0	<u>-2.2</u>	<u>-154.0</u>	<u>7.0</u>
20°	<u>-144.5</u>	-162.9	<u>-2.1</u>	<u>-153.8</u>	<u>9.3</u>
25°	<u>-142.0</u>	-162.8	<u>-1.9</u>	<u>-153.5</u>	<u>11.5</u>
90° (Peak)	<u>-142.0</u>	-162.1	0.0	<u>-150.9</u>	<u>8.9</u>

**Table 10-82. Max. PFD Levels, BNC beam, Tracking Beacon (25K0N0N)**

- In Section 17.5, Table 17-130 should be replaced with the following:<sup>3</sup>

Satellite	Carrier name	Channel ID (from Sched. S)	Frequency (MHz)	Polarisation	BW (kHz)	Frequency separation from closest SES-4 TTC (MHz)
SES-4	Telecommand 1	CM1	14496.0	RHCP	800	
	Telecommand 2	CM2	14499.0	RHCP	800	
	Telemetry 1	TM1	11451.0	RHCP	300	
	Telemetry 2	TM2	11454.0	RHCP	300	
	Telemetry 3	TM3	12500.5	LHCP	300	
	Telemetry 4	TM4	12502.0	LHCP	300	
	Tracking Beacon	BNC1	4199.75	V	25	
NSS-5	Telecommand 1	CM1	6173.7	LHCP	800	8322.30
	Telecommand 2	CM2	6176.3	LHCP	800	8319.70
	Telemetry 1	TM1	3947.5	RHCP	300	252.25
	Telemetry 2	TM2	3948.0	RHCP	300	251.75
	Telemetry 3	TM3	3952.0	RHCP	300	247.75
	Telemetry 4	TM4	3952.5	RHCP	300	247.25
	Beacon 1	BCN1	3950.0	V	25	249.75
	Beacon 2	BCN2	11198.0	RHCP	25	253.00
	Beacon 3	BCN3	11452.0	RHCP	25	1.00
	Beacon 4	BCN4	11701.0	V	25	247.00
Beacon 5	BCN5	12501.0	V	25	0.50	

<sup>3</sup> Because of the software used for creating the following replacement tables and diagrams, SES was unable to underline or otherwise highlight the changes for the FCC's convenience.

**Table 17-130. TT&C carrier frequencies of SES-4 and NSS-5 and the closest frequency separation of each NSS-5 TT&C carrier from the SES-4 TT&C carriers**

- In Section 17.5, the paragraph following Table 17-130 should be revised as follows: “It can be seen from the Table that there are no direct frequency overlaps between any of the TT&C carriers. Nevertheless there are two cases where the frequency separation between some telemetry/beacon frequencies of SES-4 (TM1 and TM3) are separated by 1 MHz or less from some NSS-5 beacon frequencies (BCN3 and BCN5). Therefore a C/I analysis is provided in Table 17-131 for a worse case scenario, where it is assumed that the telemetry/beacon frequencies are co-frequency and operating in the same polarization. For this analysis a C/N threshold for the beacon operations was assumed to be 0 dB and the C/I protection criteria was assumed to be 14 dB (based on NSS-5 Schedule S information). Receive antenna sizes of 1.8m and 2.4 were assumed. From the Schedule S information for NSS-5, it can be derived that the downlink EIRP of the beacon signals is 6 dBW for EOC, whereas for the SES-4 telemetry/beacon the downlink is 11.6 dBW at EOC. A difference in downlink EIRP of 5.6 dB is therefore assumed between these two beacons.”
- In Section 17.5, Table 17-131 should be replaced as follows:

		Frequency (MHz)			
		11452		12501	
Rx Antenna Size	(m)	1.8	2.4	1.8	2.4
Rx Antenna Gain	(dBi)	44.8	47.3	45.6	48.1
Off-Axis gain	(dBi)	21.0	21.0	21.0	21.0
Discrimination	(dB)	23.8	26.3	24.6	27.1
Delta EIRP	(dB)	-5.6	-5.6	-5.6	-5.6
C/I	(dB)	18.2	20.7	19.0	21.5
Threshold	(dB)	14.0	14.0	14.0	14.0
<b>Margin</b>	<b>(dB)</b>	<b>4.2</b>	<b>6.7</b>	<b>5.0</b>	<b>7.5</b>

**Table 17-131. Overview of C/I margins (dB) for SES-4 beacon interference into NSS-5 beacons in Ku-band**

- In Section 17.5, the paragraph following Table 17-131 should be revised as follows: “It can be seen from the analysis in the above table that all C/I margins are positive, and that there is therefore no interference from the SES-4 TT&C carriers at 22° W.L. in nominal on-station mode into the NSS-5 TT&C carriers at 20° W.L. If it becomes necessary to operate temporarily in emergency mode (e.g., during drift or in an emergency), the C/I margins will be negative, and SES will coordinate with adjacent satellite operators, as necessary.”
- The heading of Section 17.8 should read as follows: “**Analysis of the interference of the SES-4 TT&C carriers into the communication and TT&C carriers of a hypothetical satellite at 24°W.L. having the same transmission parameters as the SES-4 satellite**”

- In Section 17.8, the paragraph immediately before Table 17-138 should be revised as follows: “It is assumed that SES-4 has a hypothetical neighbor at an orbital separation of 2°, with the same TT&C transmission parameters as the SES-4 satellite. The interference between the two systems then is only in the TT&C carriers. Table 17-138 shows the interference analysis for the telecommand carriers whereas Table 17-139 shows the interference analyses for the telemetry and beacon carriers operating in nominal on-station mode and emergency mode. All C/I margins in the analyses are positive.”
- In Section 17.8, Table 17-139 should be replaced as follows:

SES-4		TM1 (TLM) Nominal	TM1 (OMNI) emergency	TM1 (OMNI) emergency	BNC1
Downlink EIRP (EOC)	(dBW)	11.6	20.0	20.0	16.1
Hypothetical satellite		TM1 (TLM) Nominal	TM1 (TLM) Nominal	TM1 (OMNI) emergency	BNC1
Downlink EIRP (EOC)	(dBW)	11.6	11.6	20.0	16.1
Receive earth station size	(m)	9.0	9.0	9.0	3.7
Receive earth station gain	(dBi)	58.8	58.8	58.8	41.9
Receive earth station off-axis	(dBi)	21.0	21.0	21.0	21.0
Required C/N	(dB)	0.0	0.0	0.0	0.0
Required C/I	(dB)	14.0	14.0	14.0	14.0
Interference analysis					
Calculated C/I	(dB)	37.8	29.4	37.8	20.9
Margin	(dB)	<b>23.8</b>	<b>15.4</b>	<b>23.8</b>	<b>6.9</b>

**Table 17-139. Interference calculations for the SES-4 telemetry and beacon carrier into the hypothetical satellite telemetry and beacon carrier**

- In Appendix B, Figures B-16, B-17, and B-18 and the accompanying technical data should be revised as follows:



**Figure B-16.**  
**Telemetry Carrier Earth Facing Transmit Horn<sup>12</sup>**  
**Maximum EIRP = 16 dBW**  
**Maximum transmit gain = 22 dBi**  
**Polarization LHCP and RHCP**  
**Schedule S beam designator: TLM**

<sup>12</sup> Additional gain contours, as requested in Section 25.114(d)(3), are not provided because they do not intersect with the Earth's surface. SES WORLD SKIES requests a waiver of this rule to the extent necessary.



**Figure B-17.**  
**Telemetry Carrier Earth Facing Omni Antenna (Emergency)**<sup>13</sup>  
**Maximum EIRP = 21 dBW**  
**Maximum transmit gain = 8 dBi**  
**Polarization LHCP and RHCP**  
**Schedule S beam designator: OMNI**

<sup>13</sup> Additional gain contours, as requested in Section 25.114(d)(3), are not provided because they do not intersect with the Earth's surface. SES WORLD SKIES requests a waiver of this rule to the extent necessary.



**Figure B-18.**  
**C-band Tracking Beacon Earth Facing Transmit Horn**<sup>14</sup>  
**Maximum EIRP = 19.2 dBW**  
**Maximum transmit gain = 19.6 dBi**  
**Polarization Vertical Linear**  
**Schedule S beam designator: BNC**

<sup>14</sup> Additional gain contours, as requested in Section 25.114(d)(3), are not provided because they do not intersect with the Earth's surface. SES WORLD SKIES requests a waiver of this rule to the extent necessary. The contours for the telemetry beacons for nominal on-station and emergency modes are shown in Figures B-16 and B-17.

- In Appendix C, Tables C-2A and C-2B should be replaced as follows:

Link Parameters	Units	300KF9D
Downlink Frequency	GHz	11.451
Carrier Allocated Bandwidth	kHz	300.0
<b>Downlink:</b>		
Downlink e.i.r.p. (EOC)*	dBW	11.6
Free Space Loss	dB	205.4
Atmospheric and Polarization Losses	dB	1.0
Rain Fade	dB	5.0
Receive E/S Pointing Loss	dB	0.3
Receive E/S G/T	dB/K	38.4
Downlink C/No	dB	66.9
Required C/No	dB	50.0
Margin	dB	16.9

\* This is the specified minimum e.i.r.p. at the edge of Earth

**Table C-2A. Link budget, Telemetry Carrier, 300KF9D (11 GHz)<sup>16</sup>**

Link Parameters	Units	300KF9D
Downlink Frequency	GHz	12.502
Carrier Allocated Bandwidth	kHz	300.0
<b>Downlink:</b>		
Downlink e.i.r.p. (EOC)*	dBW	11.6
Free Space Loss	dB	205.8
Atmospheric and Polarization Losses	dB	1.0
Rain Fade	dB	5.5
Receive E/S Pointing Loss	dB	0.3
Receive E/S G/T	dB/K	39.1
Downlink C/No	dB	66.7
Required C/No	dB	50.0
Margin	dB	16.7

\* This is the specified minimum e.i.r.p. at the edge of Earth

**TABLE C-2B. LINK BUDGET, TELEMETRY CARRIER, 300KF9D (12 GHz)<sup>17</sup>**

<sup>16</sup> The link budget for the telemetry carrier at frequency 11454.0 MHz would be identical and is therefore not displayed separately.

<sup>17</sup> The link budget for the telemetry carrier at frequency 12500.5 MHz would be identical and is therefore not displayed separately.

- In Appendix C, new Tables C-2C and C-2D should be inserted after Table C-2B, as follows:

Link Parameters	Units	300KF9D
Downlink Frequency	GHz	11.451
Carrier Allocated Bandwidth	kHz	300.0
<b>Downlink:</b>		
Downlink e.i.r.p. (EOC)*	dBW	20.0
Free Space Loss	dB	205.4
Atmospheric and Polarization Losses	dB	1.0
Rain Fade	dB	5.0
Receive E/S Pointing Loss	dB	0.3
Receive E/S G/T	dB/K	38.4
Downlink C/No	dB	75.3
Required C/No	dB	50.0
Margin	dB	25.3

\* This is the specified minimum e.i.r.p. at the edge of Earth

**TABLE C-2C. LINK BUDGET, TELEMETRY CARRIER (EMERGENCY), 300KF9D (11 GHz)\***

Link Parameters	Units	300KF9D
Downlink Frequency	GHz	12.502
Carrier Allocated Bandwidth	kHz	300.0
<b>Downlink:</b>		
Downlink e.i.r.p. (EOC)*	dBW	20.0
Free Space Loss	dB	205.8
Atmospheric and Polarization Losses	dB	1.0
Rain Fade	dB	5.5
Receive E/S Pointing Loss	dB	0.3
Receive E/S G/T	dB/K	39.1
Downlink C/No	dB	75.1
Required C/No	dB	50.0
Margin	dB	25.1

\* This is the specified minimum e.i.r.p. at the edge of Earth

**TABLE C-2D. LINK BUDGET, TELEMETRY CARRIER (EMERGENCY), 300KF9D (12 GHz)\*\***

\* The link budget for the telemetry carrier at frequency 11454.0 MHz would be identical and is therefore not displayed separately.

\*\* The link budget for the telemetry carrier at frequency 12500.5 MHz would be identical and is therefore not displayed separately.



- In Appendix C, Table C-3 should be replaced with the following, and Table C-4 should be deleted:

<b>Link Parameters</b>	<b>Units</b>	<b>25K0N0N</b>
Downlink Frequency	GHz	4199.750
Carrier Allocated Bandwidth	kHz	25.0
<b>Downlink:</b>		
Downlink e.i.r.p. (EOC)*	dBW	16.1
Free Space Loss	dB	197.0
Atmospheric and Polarization Losses	dB	0.4
Rain Fade	dB	0.2
Receive E/S Pointing Loss	dB	0.1
Receive E/S G/T	dB/K	27.1
Downlink C/No	dB	74.1
Required C/No	dB	47.0
Margin	dB	27.1

\* This is the e.i.r.p. at the edge of Earth

**TABLE C-3. TRACKING BEACON BUDGET, BNC BEAM, 25K0N0N**

## ENGINEERING CERTIFICATION

The undersigned hereby certifies to the Federal Communications Commission as follows:

1. I am the technically qualified person responsible for the engineering information contained in the foregoing modification;
2. I am familiar with Part 25 of the Commission's rules; and
3. I have either prepared or reviewed the engineering information contained in the foregoing modification, and it is complete and accurate to the best of my knowledge and belief.

Signed:

/s/  
Patrick van Niftrik  
Director, Spectrum Development  
New Skies Satellites B.V.

April 6, 2012  
Date