

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
DIRECTV Enterprises, LLC	)	File No. SAT-A/O-20120817-00137
	)	Call Sign S2369
Application as Amended for	)	File Nos. SAT-AMD-20120824-00142 &
Authorization to Operate	)	SAT-AMD-20120913-00148
DIRECTV 1R at 55.8° E.L.	)	Call Sign S2872

**COMMENTS OF NEW SKIES SATELLITES B.V.**

New Skies Satellites B.V. (doing business as “SES”) hereby comments on the above-captioned application of DIRECTV Enterprises, LLC (“DIRECTV”) as amended for Commission authority to operate DIRECTV 1R at 55.8° E.L. “consistent with the technical characteristics of the Russian Administration’s ITU AP 30/30A satellite networks RST-2 and RST-2A” (the “DIRECTV 1R Application”).<sup>1</sup> Before acting on the DIRECTV 1R Application, the Commission must determine whether the proposed operations are compatible with those of adjacent spacecraft including SES’s NSS-12 satellite. Furthermore, any grant of the DIRECTV 1R Application should be subject to appropriate conditions to ensure that DIRECTV 1R operates in a manner consistent with Commission rules, international regulations, and the terms of existing and future coordination agreements.

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<sup>1</sup> See *DIRECTV Enterprises, LLC*, Call Sign S2369, File Nos. SAT-A/O-20120817-00137, SAT-AMD-20120824-00142, SAT-AMD-20120913-00148. DIRECTV initially requested authority to relocate DIRECTV 1R to 56.16° E.L., but later amended the application to specify 55.8° E.L. as the destination for the spacecraft and to propose repointing of the satellite’s beams. See *DIRECTV Enterprises, LLC*, Call Sign S2872, File No. SAT-AMD-20120913-00148 (“September DIRECTV Amendment”), Narrative at 1. DIRECTV indicated that the change was being made for a variety of reasons “including considerations related to international spectrum coordination.” *Id.*

## BACKGROUND

DIRECTV 1R is a Direct Broadcast Satellite (“DBS”) spacecraft that at one time operated under U.S. license at 101° W.L., later operated pursuant to Canadian authorization at 72.5° W.L., and most recently was positioned at the nominal 110° W.L. orbital location pursuant to a Commission grant of special temporary authority.<sup>2</sup> DIRECTV states that it had been planning to deorbit the spacecraft, but subsequently entered into an agreement with Intelsat, which in turn has an agreement with the Russian Satellite Communications Company (“RSCC”), to use the spacecraft at the nominal 56° E.L. orbital location.<sup>3</sup> Originally, DIRECTV proposed to operate the spacecraft at 56.16° E.L., but has since amended its proposal to operate the spacecraft at 58.8° E.L.<sup>4</sup> SES understands that DIRECTV 1R is currently being drifted toward this position pursuant to a Commission grant of special temporary authority.<sup>5</sup> This drift authority was granted without prejudice to the Commission’s consideration of the DIRECTV 1R Application.<sup>6</sup>

Following arrival of DIRECTV 1R, DIRECTV proposes to operate the satellite under a U.S. license but pursuant to the International Telecommunication Union (“ITU”) filings of the Russian Administration.<sup>7</sup> Although the satellite is capable of operating throughout the DBS band (12.2-12.7 GHz downlink and 17.3-17.8 GHz uplink), DIRECTV is currently seeking

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<sup>2</sup> See *DIRECTV Enterprises, LLC*, Call Sign S2369, File No. SAT-A/O-20120817-00137, Narrative (“DIRECTV 1R Narrative”) at 2.

<sup>3</sup> See *id.* at 1-2; *DIRECTV Enterprises LLC*, Call Sign S2369, File No. SAT-AMD-20120824-00142, Narrative (“August DIRECTV Amendment”) at 2 n.2.

<sup>4</sup> See September DIRECTV Amendment.

<sup>5</sup> See *DIRECTV Enterprises, LLC*, Call Sign S2369, File No. SAT-STA-20120817-00138 (the “DIRECTV 1R STA Request”), grant-stamped Aug. 28, 2012 (“DIRECTV 1R STA Grant”). SES previously filed comments on the DIRECTV 1R STA Request. See Comments of New Skies Satellites B.V., File Nos. SAT-STA-20120817-00138 *et al.*, Aug. 28, 2012 (“SES STA Comments”).

<sup>6</sup> See DIRECTV 1R STA Grant, Attachment to Grant at 1, ¶ 5.

<sup>7</sup> DIRECTV 1R Narrative at 1.

authority to operate only in the portion of that band that is designated for broadcasting-satellite service (“BSS”) in ITU Region 1 (12.2-12.5 GHz downlink and 17.3-17.6 GHz uplink).<sup>8</sup>

DIRECTV explains that it has entered into a contract under which DIRECTV 1R would be used to provide interim service pending replacement by RSCC of the aging Bonum 1 spacecraft.<sup>9</sup>

SES has a strong interest in the DIRECTV proposal because SES operates the NSS-12 spacecraft in the 12.25-12.75 GHz downlink spectrum and other frequency bands at 57° E.L., just 1.2 degrees away from the location at which DIRECTV seeks to place DIRECTV 1R. NSS-12 is licensed by the Netherlands and operates under ITU filings of the Netherlands Administration. NSS-12 operates in the 12.25-12.75 GHz frequency band in the Fixed Satellite Service (“FSS”) in ITU Region 3, in accordance with the ITU Table of Allocations for that Region. Both the proposed operation of DIRECTV 1R in the 12.2-12.5 GHz band and DIRECTV’s telemetry frequencies at 12698.25 and 12699.25 MHz potentially impact NSS-12’s existing operations at 57° E.L.

### **COMPATIBILITY WITH ADJACENT SATELLITES**

In its comments on the DIRECTV 1R STA Request, SES raised concerns regarding compatibility of the planned DIRECTV 1R BSS operations in ITU Region 1 with the existing FSS operations of NSS-12 in ITU Region 3. In particular, SES noted that its review indicated that the technical parameters proposed for operations of DIRECTV 1R would substantially exceed both those specified in the Russian ITU filings on which DIRECTV plans to rely and the levels described in applicable coordination agreements.<sup>10</sup> We also observed that the DIRECTV 1R Application as originally filed did not include an analysis to show compliance

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<sup>8</sup> *Id.* at 4-5.

<sup>9</sup> *See id.* at 2-3.

<sup>10</sup> SES STA Comments at 2 & n.2.

with the power flux density (“PFD”) limits applicable under the ITU Radio Regulations to Region 1 BSS networks in order to protect co-frequency FSS networks in Region 3.<sup>11</sup> Finally, we highlighted the absence of any demonstration that DIRECTV 1R’s telemetry operations would be compatible with operation of NSS-12.<sup>12</sup>

In its subsequently-filed amendment proposing to modify the DIRECTV 1R orbital location and beam pointings, DIRECTV did not address any of the issues raised in the SES STA Comments. The minor increase in orbital separation to NSS-12 resulting from the amendment slightly mitigates, but does not resolve, the SES concerns.

First, even with the change in requested orbital location, SES’s analysis indicates that the power levels proposed for DIRECTV 1R would exceed those described in the RST-2 and RST-2A ITU filings,<sup>13</sup> notwithstanding DIRECTV’s claim that operations of DIRECTV 1R would be “consistent with the technical characteristics of the Russian Administration’s ITU AP 30/30A satellite networks RST-2 and RST-2A.”<sup>14</sup> DIRECTV has made no attempt to reconcile this commitment with the as-filed parameters of DIRECTV 1R.

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<sup>11</sup> *Id.* at 2-3.

<sup>12</sup> *Id.* at 3.

<sup>13</sup> For example, if one considers coverage of India, RST-2A has an EIRP of approximately 18 dBW/33 MHz at the northernmost tip of India (peak EIRP of 55 dBW – 37 dBi roll-off of its antenna gain contours as shown in Attachment A). In comparison, based on the data submitted by DIRECTV, DIRECTV 1R at 55.8° E.L. will have an EIRP of approximately 40.8 dBW/24 MHz (peak EIRP of 57.8 dBW – 17 dBi roll-off of its antenna gain contours) over the northernmost tip of India. DIRECTV 1R’s EIRP in this area in ITU Region 3 is approximately 22 dB higher than that of the RST-2A filing. Such a difference in EIRP levels deserves further evaluation for the potential impact to operational FSS systems in Region 3, such as NSS-12. Similarly, the contours in Attachment A show that RST-2 has an EIRP of approximately 29 dBW/27 MHz over northernmost India (peak EIRP of 55 dBW – 26 dBi roll-off of its antenna gain contours), which is more than 11 dB less than that planned for DIRECTV 1R.

<sup>14</sup> DIRECTV 1R Narrative at 7.

More importantly, SES's analysis indicates that DIRECTV's proposed operations would exceed the levels agreed and specified in Section 2.2.3 of the Summary Record of the fourth satellite coordination meeting between the delegations of the Russian Federation and the Netherlands held in The Hague from June 20-24, 2011, relating to operations under the RST-2 and RST-2A filings. In this regard, it is particularly troubling that DIRECTV does not even acknowledge such agreements, let alone commit to complying with them.

DIRECTV also has not cured its failure to demonstrate that operations of DIRECTV 1R will conform to Appendix 30 PFD limits for the protection of Region 3 FSS networks.<sup>15</sup> The only discussion in the DIRECTV 1R Application of power flux density values analyzes PFD with respect to the limits in No. 21.16 of the ITU Radio Regulations for FSS operations in ITU Region 3, which are designed to protect terrestrial operations.<sup>16</sup> As DIRECTV itself acknowledges, the Article 21 limits do not apply to BSS operations.<sup>17</sup>

However, DIRECTV's statement that there are "no power flux density limits in the DBS bands"<sup>18</sup> is not accurate – operations of DIRECTV 1R under the Russian ITU Region 1 BSS network filings must comply with the limits in Annex 1, Section 6 of Appendix 30 for the protection of FSS systems operating in ITU Region 3. Because the DIRECTV 1R technical parameters differ from those described in the ITU filings on which DIRECTV relies, Section 25.114(d)(13)(ii) of the Commission's rules requires an analysis "of the proposed system with respect to the limits in Annex 1 to Appendices 30 and 30A."<sup>19</sup>

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<sup>15</sup> As SES explained previously, such a showing is required under both the Commission's rules and the ITU Radio Regulations. *See* SES STA Comments at 3 & n.3, citing 47 C.F.R. § 25.114(d)(13) and Appendix 30, Annex 1, Section 6 of the ITU Radio Regulations.

<sup>16</sup> DIRECTV 1R Narrative at 8 and Appendix C.

<sup>17</sup> *Id.* at 8.

<sup>18</sup> *Id.*

<sup>19</sup> 47 C.F.R. § 25.114(d)(13)(ii).

SES has performed its own calculation of the DIRECTV 1R power flux density levels using the ITU's GIMS software and based on the data in the DIRECTV 1R Application. Those calculations indicate that the Annex 1 PFD limits would be exceeded by DIRECTV 1R throughout the spacecraft's Region 3 coverage area.<sup>20</sup> DIRECTV 1R's transmissions will also exceed the applicable limits in the Russia-Netherlands coordination agreement for ITU Region 3.

DIRECTV also has not provided any analysis of whether the DIRECTV 1R telemetry frequencies are compatible with the operations of NSS-12. The NSS-12 transponder plan is designed in accordance with the allocations for FSS in ITU Regions 1 and 3, which go up to 12.75 GHz. As a result, there is frequency overlap between the DIRECTV 1R telemetry frequencies at 12698.25 and 12699.25 MHz and the communication transponders of NSS-12. DIRECTV provides no adjacent satellite interference analysis at all, asserting again that DIRECTV 1R will "operate within the technical envelope of the RST-2 and RST-2A ITU filings."<sup>21</sup> As discussed above, however, that claim is not supported by the technical data provided regarding the proposed DIRECTV 1R operations. The Commission has previously found that the failure to provide an interference analysis for TT&C frequencies requires dismissal of an application.<sup>22</sup>

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<sup>20</sup> See Attachment A, Figure A3.

<sup>21</sup> DIRECTV 1R Narrative at 9.

<sup>22</sup> See Letter from Robert G. Nelson, Chief, Satellite Division, to Joslyn R. Read and Karis A. Hastings, File No. SAT-MOD-20100421-00081 (Call Sign S2135), DA 10-1106, dated June 21, 2010 ("AMC-4 Letter") at 2 ("All r.f. carriers, regardless of purpose, have the potential to cause harmful interference to existing or proposed adjacent space stations" and therefore the failure to provide an interference analysis relating to proposed C-band telecommand and telemetry operations renders the AMC-4 modification application incomplete) (emphasis in original). The AMC-4 Letter also suggests that a waiver of Section 25.202(g) may be needed when the TT&C frequencies are outside the band to be used for communications operations. See *id.* at 2-3. DIRECTV did not request such a waiver for DIRECTV 1R.

In short, the record before the Commission does not justify granting operating authority for DIRECTV 1R at this time. Additional information is needed regarding the compatibility of the proposed operations with existing networks such as NSS-12.

### **REQUEST FOR CONDITIONS**

In the event the Commission ultimately decides to grant the DIRECTV 1R Application, it must impose appropriate conditions to protect adjacent satellite operations.

First, the Commission should impose a condition requiring DIRECTV to comply with existing and future coordination agreements with respect to operation of DIRECTV 1R. Such a condition has previously been adopted in similar circumstances where compliance with applicable coordination agreements was raised as an issue.<sup>23</sup> Such a condition is particularly important in this case as DIRECTV is completely independent of the party (Intelsat) that is directly contracting with the Russian operator for the deployment of DIRECTV 1R to the nominal 56° E.L. orbital position (specifically, 55.8° E.L.).<sup>24</sup>

In addition, the Commission's practice when a U.S. licensee seeks to operate under a foreign administration's ITU filings is to impose a set of conditions that includes specifying that all operations will be on an unprotected and non-harmful interference basis.<sup>25</sup>

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<sup>23</sup> See *DIRECTV Enterprises, LLC*, Call Sign S2861, File Nos. SAT-LOA-20120316-00051 & SAT-AMD-20120420-00071, grant-stamped July 12, 2012, Attachment to Grant at 1 & n.1 (requiring DIRECTV to operate "in compliance with all existing and future coordination agreements" to address concerns raised by the Argentine Administration that the proposed power limits exceeded those stipulated in a U.S.-Argentina coordination agreement); see also *Intelsat License LLC*, Call Sign S2469, File No. SAT-MOD-20110420-00073, grant-stamped Mar. 2, 2012 ("Galaxy 26 50° E.L. Grant"), Attachment to Grant at 2-3 (requiring operation of Galaxy 26 at 50° E.L. to comply with terms of agreement with Yahsat).

<sup>24</sup> August DIRECTV Amendment at 2 n.2 ("RSCC's letter is addressed to Intelsat, which is the party from which it is leasing the satellite. Intelsat, in turn, has a separate agreement with DIRECTV for relocation and operation of the satellite at 56° E.L. for use by RSCC.").

<sup>25</sup> See, e.g., *SES Americom, Inc.*, Call Sign S2162, File No. SAT-MOD-20111220-00243, grant-stamped June 28, 2012, Attachment to Grant at 1-2 (imposing conditions on operation of

Furthermore, the Commission should impose a condition requiring DIRECTV to comply with relevant PFD limits in Appendix 30 of the ITU Radio Regulations unless higher levels have been successfully coordinated. In similar circumstances involving a U.S.-licensed satellite operating at a location that straddled ITU Regions 1 and 3, the Commission included language addressing the Appendix 30 PFD limits.<sup>26</sup> While that case involved limits applicable to Region 1 BSS frequencies for the protection of Region 3 BSS operations, this case is essentially the same as it involves PFD limits on Region 1 BSS satellites for the protection of Region 3 FSS satellites in the 12.2-12.5 GHz band. Consistent with those precedents, the Commission should impose comparable conditions here.

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AMC-3 pursuant to ITU filings of Colombia on behalf of the Andean Community); Galaxy 26 50° E.L. Grant, Attachment to Grant at 1-3 (imposing conditions on operation of Galaxy 26 pursuant to ITU filings of Turkey).

<sup>26</sup> See *Intelsat North America LLC*, Call Sign S2469, File No. SAT-MOD-20090309-00034, grant-stamped June 17, 2009, Attachment to Grant at 2, ¶ 3.b (“Intelsat must operate Galaxy 26 in accordance with the BSS PFD limits specified in the ITU Radio Regulations, Appendix 30, Annex 1, Sections 1(a) and 4, for protection of co-frequency BSS and terrestrial operators.”).



For the foregoing reasons, SES submits that further information is required before the Commission can act on the DIRECTV 1R Application and requests that any grant of that application be subject to appropriate conditions to protect adjacent satellite operations and ensure compliance with coordination agreements.

Respectfully submitted,

NEW SKIES SATELLITES B.V.

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Dated: October 31, 2012

Attachment A

Figure A-1: RST-2 downlink gain contours, peak EIRP of 55 dBW/27 MHz

Notice ID : 100551017  
Administration : RUS  
Satellite Network : RST-2  
Beam : E001  
Emission / Reception : E  
Polarization : C  
Service Area Number : 0  
Service Area Name :  
Reason : B  
Satellite Position : 56.000

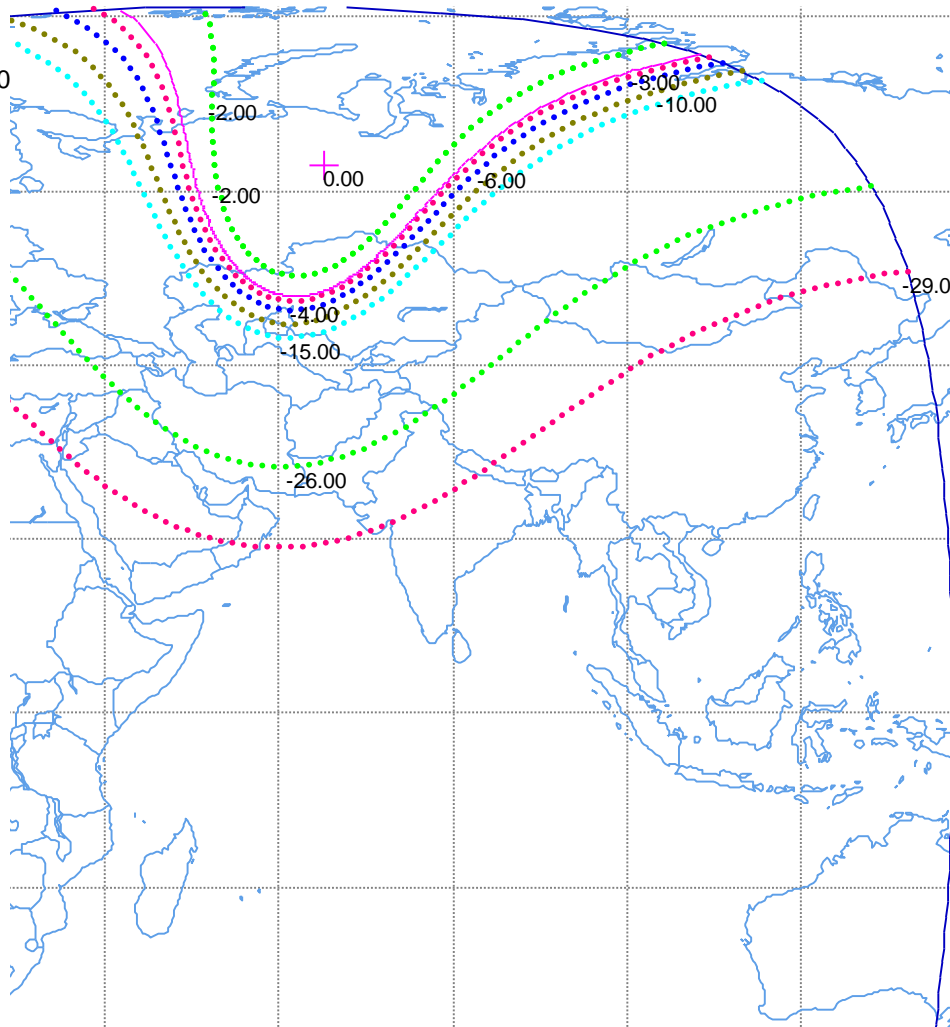


Figure A2: RST-2A downlink gain contours, peak EIRP of 55 dBW/33 MHz

Notice ID : 108552012  
Administration : RUS  
Satellite Network : RST-2A  
Beam : RUD  
Emission / Reception : E  
Polarization : C  
Service Area Number : 1  
Service Area Name : RST-2A RUD  
Reason : B  
Satellite Position : 56.000

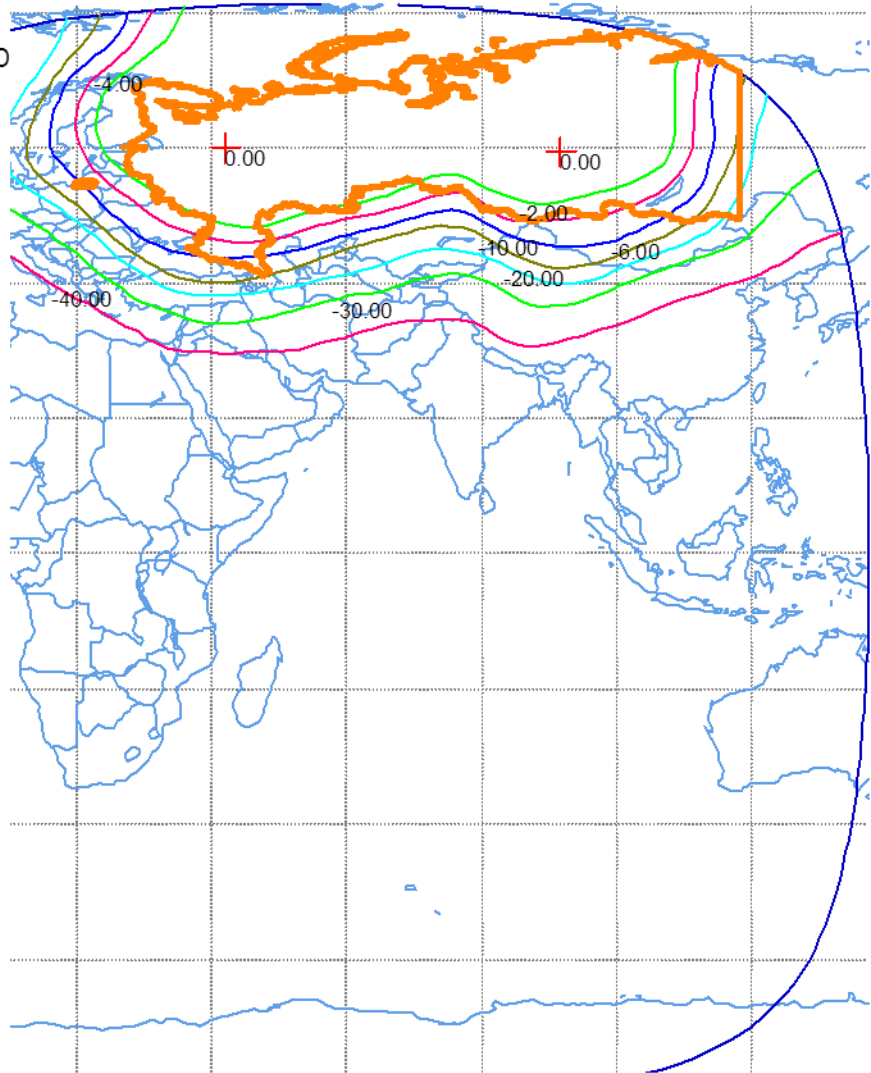
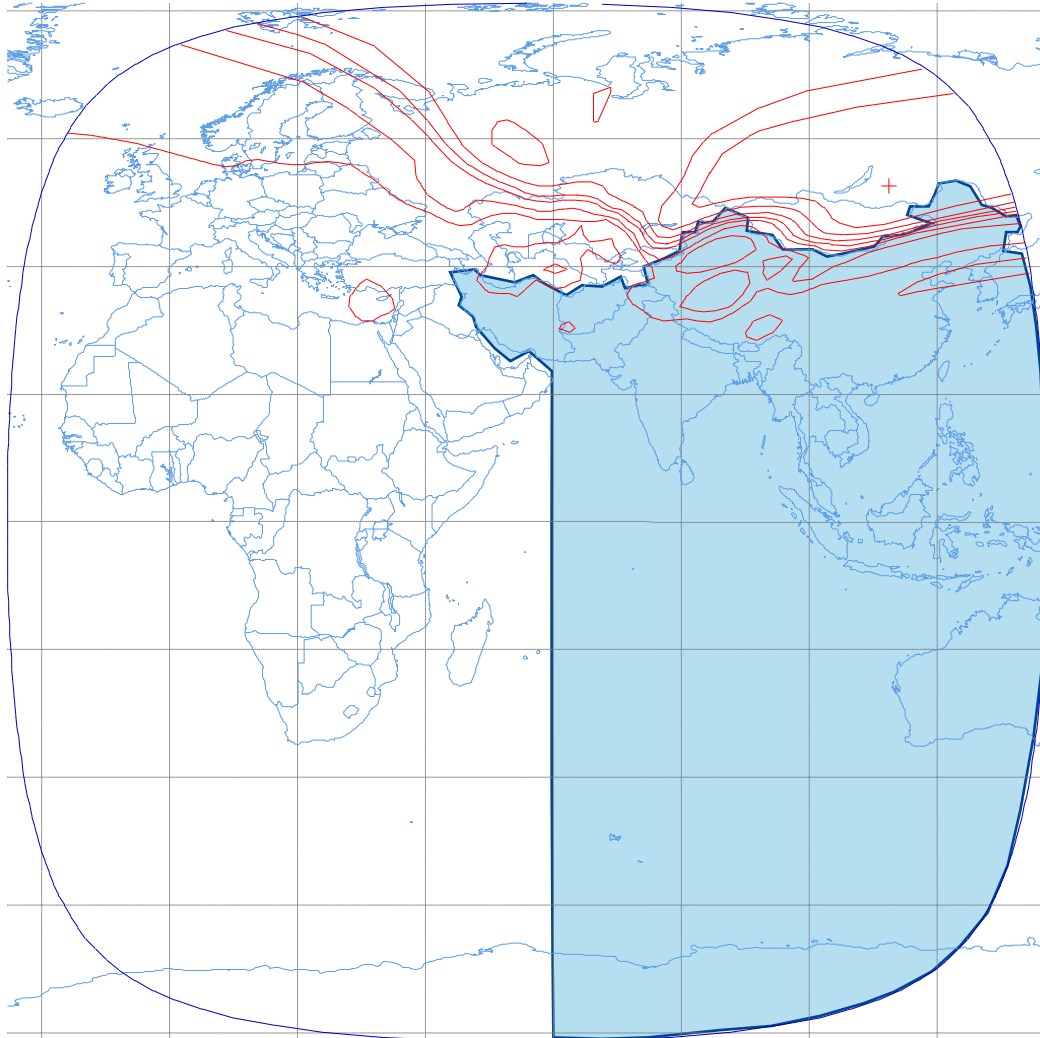


Figure A3: DIRECTV 1R at 55.8° E.L. PFD Levels



Assumptions

- Stationkeeping: +/- 0.05 deg
- Antenna gain: 36.3 dBi
- Downlink power: 16.51 dBW
- Carrier (noise) bandwidth: 20 MHz
- Minimum orbital separation with respect to 57° E.L.: 1.1 degrees
- PFD limit: -163.27 dBW/m<sup>2</sup>/40kHz (exceeded in shaded area – all of Region 3)

**CERTIFICATE OF SERVICE**

I hereby certify that on this 31st day of October, 2012, a copy of the foregoing  
“Comments of New Skies Satellites B.V.” was served on the following party by first class mail:

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