

# Efficient and Equitable Use of Orbit by Satellite Systems: “Paper Satellite” Issues Revisited

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## Abstract

This article introduces a new type of “paper satellite” issue trying to be addressed in the ITU and considers if and how the efficient and equitable use of geostationary satellite orbit could be ensured under the present international space law frameworks. First, the difficulty in resolving “paper satellite” problem is confirmed using the 20th century cases and corresponding amendments of Radio Regulations (RR) of the ITU. Then, the case of Zohrer-1/ Zoher-2 is studied as a leading case of present day “paper satellite” or even “phantom satellite” issue. Concluding remarks include a few recommendations to mitigate a “paper satellite” issue while the prospect is not so rosy.

## I. Introduction

This article studies how the efficient and equitable use of the geostationary satellite orbit (GSO) could be ensured under the present international space law frameworks.

The problem of ‘paper satellite’ was first recognized in 1990 when the Tongan government applied to the International Telecommunication Union (ITU) as many as 16 geostationary orbiting positions without a specific and realistic plan of launching its own satellites.<sup>1</sup> Tonga eventually obtained six slots the next year and used those slots to lease to foreign satellite operators for financial gain, instead of using them to satisfy the telecommunication needs of its nationals.<sup>2</sup> Not nearly as spectacular as the example of Tongan case,

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1 Anthony van Fossen, “Globalization, Stateless Capitalism, and the International Political Economy of Tonga’s Satellite Venture”, *Pacific Studies*, vol.22, no.2 (1999), p.2; Francis Lyall, “The International Telecommunication Union: a World Communications Commission?”, *Proceedings of the Thirty-Seventh Colloquium on the Law of Outer Space* (1994), p.43.

2 Van Fossen, *supra* note 1, p. 6. Tonga obtained three more slots by 1998. *Space News*, 2-8 Nov. 1998, pp. 3 & 18; *Space News*, 1 Feb. 1999, p. 6.

continuing practices have been noticed since around mid-1990s which exploit the regulatory flaws of the ITU filing process and lack of the enforcing power of the ITU. As the satellite telecommunication proved to be tremendously beneficial to the humanity and thus becoming the most successful space business, it is natural that frequencies and GSO should become a target to obtain through a fierce competition in accordance with filing process specified in the Radio Regulations (RR) of the ITU.

Of course it is true that “paper satellite” is being overcome through the continuing efforts in the ITU,<sup>3</sup> but entering the second decade of the 21st century, international community is experiencing similar but more complicated “virtual satellite”<sup>4</sup> issue. Taking an example of so-called “phantom satellite”, Zohrer-1 and Zohrer-2, this article considers a possible solution under the letter and the spirit of the ITU Constitution which provides that “radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources and that they must be used rationally, efficiently and economically” so that “countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of the developing countries”.<sup>5</sup>

## II. The 20th Century Type of a “Paper Satellite” Issue

### 1. Why “Paper Satellite” Made Its Appearance

Rapid development of space application technology and the renunciation of “the aim of achieving a single global commercial telecommunications satellite system”<sup>6</sup> by the INTELSAT enabled private companies to embark on the international satellite telecommunication business in the late 1980s,<sup>7</sup> which

3 Francis Lyall and Paul B. Larsen, *Space Law: A Treatise* (Ashgate, 2009), p. 236.

4 Audrey L. Allison, *Paper Satellites, Virtual Satellites: Managing Satellite Orbital and Spectrum Resources in an Increasingly Competitive and Congested Environment* (ISU EMBA12 Module E- Thesis) (2012), p.24.

5 Art.44, para. 2 of the Constitution of the International Telecommunication Union (ITU Constitution).

6 Preface, The Agreement Relating to the International Telecommunications Satellite Organization, 20 Aug. 1971. 23 U.S.T. 3813; T.I.A.S. No.5546.

7 The U.S. Federal Communications Commission (FCC) granted a permission to Pan American Satellite Corp. (PanAmSat) (application filed in 1984) to operate an international telecommunication satellite independent of the INTELSAT in 1985 in line with the deregulation policies of the Regan Administration, and its first satellite PAS-1 was placed into orbit in 1988. Orion Satellite Corporation (Orion) was the first company which filed to the FCC in 1983 and the permission was granted in the same year as PanAmSat with yet other three U.S. companies. Orion Atlantic (formed in 1991) launched its first satellite Orion Atlantic-1 in 1994. PanAmSat became a part of the privatized INTELSAT in 2004. About the early filings of the five U.S. companies to the FCC, see, e.g., Julianne McKenna, “Bypassing Intelsat: Fair Competition

was followed by the privatization of international governmental organizations in this field including INMARSAT (1999), INTELSAT (2001) and EUTELSAT (2001). Likewise, even the symbol of the eastern block cooperation during the Cold War era, INTERSPUTNIK established a joint venture company Lockheed Martin Intersputnik (LMI) in 1997 together with U.S. aerospace giant, Lockheed Martin Corporation.<sup>8</sup>

Currently, Intelsat and Eutelsat are positioned world top and third fixed satellite service (FSS) operators in revenue as well as the number of satellites in orbit.<sup>9</sup> Not only private companies, but also increasing number of sovereign States started owning and operating application satellites, especially telecommunication and broadcasting satellites since the last decade of the 20th century. As of June 2013, 44 states plus two international governmental organizations have registered their satellites in the UN registry.<sup>10</sup> Considering at least several States have not furnished their registration information to the UN Secretary General<sup>11</sup>, and also increased nations lease a certain amount of the capacity of communication and/or broadcasting satellites, the record of which is outside the UN registration, it is not an exaggeration to say that about 70-80 nations are now recognized as emerging spacefaring nations.

Logically, increased satellite operators, governmental and otherwise, which predominantly use GSO, have contributed to create a more competitive environment in the ITU for acquiring orbital slots and associated frequencies.<sup>12</sup>

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or Violation of the Intelsat Agreements?”, *Fordham Int’l L. R.*, vol.8, Issue 3 (1984), pp. 477-512, esp. pp.490-501.

- 8 Asia Broadcast Satellite (ABS), headquartered in Hong Kong, was established in September 2006 through the acquisition of Lockheed Martin Space Communications Ventures (LMSCV) and LMI from Lockheed Martin Global Telecommunications (LMGT). LMI-1 was renamed as ABS-1.
- 9 Intelsat (54 satellites in orbit with five on order) earned \$2.61 billion, and Eutelsat (31 satellites in orbit with six on order), earned \$1.48 billion. Intelsat and SES (Luxembourg) (53 satellites in orbit with six on order), earned \$2.41 billion, are the two giants with Eutelsat being the distant third among the FSS operators. See, *Space News*, 8 Jul. 2013, p.11.
- 10 <[www.oosa.unvienna.org/oosa/en/SORegister/index.html](http://www.oosa.unvienna.org/oosa/en/SORegister/index.html)> (accessed on 2 July 2013).
- 11 Reasons for non-registration could be diverse. Some States are not a party to the Registration Convention (1975). Also, as it is unclear in some cases if a State becomes the “[s]tate which procures the launching”, a prerequisite for the registration, a State party to the Convention also could fail to register. Needless to say, States are recommended to register their space objects in accordance with the UNGA Resolution 1721 B (1961), but failure to do so is not a breach of an internationally legally binding rule. In other cases, it is possible that a State does not have the knowledge of its national’s operating a satellite especially when a micro satellite of a university or research institute is launched outside its territory.
- 12 No reference was made about the ‘paper satellite’ in monographs and articles written in 1980’s due to its nonexistence See, e.g., Francis Lyall, *Law & Space Telecommunications* (Dartmouth, 1989).

It was reported that 138 satellites were operated in the GSO in 1984 and it was speculated in the mid 1990's that the number would be increased to around 300 by 2006.<sup>13</sup> One private operator published that 305 commercial communications satellites were placed in the GSO in 2013.<sup>14</sup> Facing the increasing deficiency of the orbital slots, the filing system of frequency and GSO spot of ITU, which is characterized by the "first-come, first-served" and the strong respect of the sovereign States, has become increasingly inadequate to block the acquisition of an orbital slot other than the real telecommunications needs of a member State. Without changing ITU filing system, it was only a matter of time that a so-called "paper satellite" problem, defined as obtaining a GSO location for preserving it for its own future use or leasing it for economic proceeds, made its appearance.<sup>15</sup>

Tonga's action was not explicitly against the relevant provisions of the RR while it was widely considered against the spirit of the International space law including the Outer Space Treaty (OST),<sup>16</sup> ITU Convention (later the ITU Constitution)<sup>17</sup> and other related instruments.<sup>18</sup> However, that Tonga being a developing country complicated the situation. The provision that coun-

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- 13 Han Hwangbo, "A Proposal on the Peaceful and Efficient Use of Space Resources for Meeting Increased Satellite Demand in the Asia-Pacific Region", *Proceedings of the International Conference on Air and Space Policy, Law and Industry for the 21st Century* (1997), pp.3 & 11.
  - 14 Boeing, *Commercial Communications Satellites in Geosynchronous Orbit* (2013). In 2012, it was 299 satellites according to the Boeing annual survey.
  - 15 Not exactly a paper satellite issue, but similarly serious problem is the operation of a geostationary satellite without the coordination in accordance with the RR. Examples include the launch of Apstar-1 (APT Satellite of Hong Kong) to the 131 degrees east without the ITU coordination, which resulted in the interference with CS-3A of Japan (132 degrees east) and Rimsat of the USA (130 degrees east) both of which had been coordinated within the ITU/RR framework. Eventually, it was solved when Apstar-1 was moved to 138 degrees east by leasing that slot from Tonga. Likewise, the start of the operation of Apstar-1A in the 134 degrees east in the summer of 1997 interfered with Palapa Pacificstar which had been already in operation. Yet another example is the use of Ku-band without the coordination at 144 degree east by Agila 2 (Mabuhay Philippine Satellite Corporation) in 1997 which interfered with the use of Ku-band for Superbird C (Japanese company). Lyall, *supra* note 1, pp.42-47; Francis Lyall, "Telecommunications and the Outer Space Treaty", *Proceedings of the Fortieth Colloquium on the Law of Outer Space* (1998), p.388; *Space News*, 27 Jan.-2 Feb. 1997, p.3; *Space News*, 28 Jul.-3 Aug. 1997, p.7; *Space News*, 18-31 Aug. 1997, p.17; *Space News*, 8-14 Dec. 1997, pp.3 & 42.
  - 16 18 U.S.T. 2410; T.I.A.S. 6347; 610 U.N.T.S. 205.
  - 17 When Tonga filed GSO slots to the ITU, the 1982 ITU Convention (Nairobi) was effective, which was superseded by the 1994 ITU Constitution (Kyoto).
  - 18 See, e.g., Jannet C. Thompson, "Space for Rent: the International Telecommunications Union, Space Law and Orbit/Spectrum Leasing", *J. Air L. & Commerce*, vol.62 (1996), pp.279-311.

tries "may have equitable access" to "radio frequencies and the geostationary satellite orbit" could be construed in multiple ways depending on the interpretation of the phrase they (radio frequencies and GSO) "must be used efficiently and economically" and "taking into account the special needs of the developing countries".<sup>19</sup> In this connection, it has to be also noted that ITU had made a considerable effort especially in two sessions of the World Administrative Radiocommunication Conference (WARC)<sup>20</sup> in 1985 and 1988 to satisfy developing countries including through an allotment plan to guarantee some spectrum and GSO spots for mainly broadcasting satellites for all member States of the ITU at the expense of a certain economic efficiency.<sup>21</sup> The efforts to clarify the meaning of the efficient and equitable use seem to be a key to alleviate "paper satellite" problem from a Tongasat experience.

## 2. Variation of "Paper Satellite" Issue

Since late 1990s, increasing cases have been found which pose a fundamental question of what kind of actions mean the "bringing into use"<sup>22</sup> of the assigned GSO location. Previously, it did not have to be considered for it was self-evident: to "use" GSO spot meant to launch its own satellite to a certain spot. In order to keep priceless spot, in the commercialization era, the unclear definition of the "brought into use"<sup>23</sup> and/or "brought into regular operation"<sup>24</sup> in the RR became an issue, as a variation and more serious "paper satellite" problem. Below is one of the earliest examples of such issue.

When Eutelsat was still an international governmental organization, Eutelsat planned to launch Europesat-1 in 1989, and 29 degrees east and associated frequencies was successfully recorded in the Master International Frequency Register (MIFR) by France.<sup>25</sup> However, Europesat-1 was not placed into orbit yet when 1997 was nearing. It meant that France was likely to lose the 29 degrees east for the other State which was second in line for that position and associated frequencies. According to the RR in force when France had its GSO spot recorded, or RR 1982, a certain GSO position was reserved up to five

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19 Art.33 para.2 of the 1982 ITU Convention (Nairobi). The phrase "taking into account the special needs of the developing countries and geographical situation of particular countries" was added by the 1982 ITU Convention. The 1973 ITU Convention (Malaga-Torremolinos) instead provided that "in conformity with the provisions of the Radio Regulations according to their needs and the technical facilities at their disposal."

20 WARC-Orb-85; WARC-Orb-88. Lyall, *supra* note 12, pp.380-381.

21 Lyall & Larsen, *supra* note 3, p.233.

22 See, e.g., RR (1998), S11.44.

23 See, e.g., RR (1990), revised in 1994), Art. 12-30 (No.1383 (3)).

24 See, e.g., RR (2008), 13.6.

25 Not a private operator or international organization, but a sovereign State shall take initiative for obtaining and keeping orbital positions. Thus, the orbital position of Eutelsat was obtained by France, the country in which its headquarters was located.

years since its first filing action.<sup>26</sup> Due to the amendment of RR in 1990, three-year extension was allowed at the request of the notifying administration.<sup>27</sup> In Europesat-1's case, France got eight years period before bringing into use of the 29 degrees east.

When the expiry date was nearing, Eutelsat test-operated Hotbird-2 at 29 degrees east for several weeks and claimed that it had satisfied the condition of "bringing into use" of assigned frequencies and GSO location within eight years.<sup>28</sup> Without that test, that recorded position had to be removed from MIFR by May 1997 only to give Luxembourg (SES) the status to use 29 degrees east.<sup>29</sup> Eutelsat again tested Hotbird-4 at 29 degrees east starting 12 March 1998 for a few days before moving it to its usually-operating 13 degrees east. Against Eutelsat, SES moved its Astra-1D, launched in 1994, to 28.2 degrees east on 16 March 1998 and also launched Astra-2A to 28.2 degrees east in August 1998. Besides, SES leased Sirius-3 of the Nordik Corporation (Sweden) for one year so as to operate it at 28.2 degrees east to demonstrate that this position was in the hand of SES (Luxembourg).<sup>30</sup>

Radio Regulations Board (RRB) unanimously "decided"<sup>31</sup> that France (Eutelsat) had lost its entitlement to keep its position as it did not "use" the slot and should be withdrawn from the broadcasting satellite plan on 14 July 1998.<sup>32</sup> France contested the decision,<sup>33</sup> but RRB upheld its ruling on 8 December 1998.<sup>34</sup> France contested again.<sup>35</sup> RRB interpreted the phrase "bringing into use" as meaning that "a satellite with the technical characteristics matching those previously notified, is in service and operating at that designated orbital position."<sup>36</sup> RRB, noting that the meaning of "bringing into use" was at the heart of the dispute, recommended that France put the case to WRC-2000 as a body competent to judge.<sup>37</sup>

26 RR (1982), Art.11-1 (No.1042). It became six years by RR (1990), Art.11-2 (No.1042) (Orb.88).

27 RR (1990), Art. 13-12 (No.1550) (Orb-88).

28 *Space News*, 2-8 Feb. 1998, p.8; *Space News*, 27 Apr.- 3 May 1998, p.3.

29 *Space News*, 27 Apr. - 3 May, *supra* note 28, p.26; *Space News* 20-26 Jul. 1998, pp. 1 & 19.

30 *Space News*, 6-12 Jul. 1998, p.10. Sirius 3 was launched in October 1998 and after operating at 28.2 degrees east for one year, it moved to 5 degrees east for the operation to the UK and Ireland. *Space News*, 9-15 Nov. 1998, p.28.

31 RRB's authority to issue the "decision" was contested by France. RRB98/139-E (20 Nov. 1998).

32 *Space News*, 20-26 Jul. 1998, pp.1 & 19.

33 See, e.g., RRB/98/139-E, *supra* note 31; RRB/98/140-E (17 Nov. 1998).

34 Minutes of the 14th RRB, December 1998, paras. 20.10-20.42 (Annex ), cited in RRB/99/157-E (26 Feb. 1999).

35 *Space News*, 14-20 Sept. 1998, p.7; *Space News*, 14-20 Dec. 1998, p.6.

36 RRB99/166-E (3 May 1999), p.1.

37 *Ibid.*

Eventually, Europesat-1, named as Eurobird-1 was launched in 2001 and has been in operation as renamed Eutelsat 28A until today at 28.5 degrees east.<sup>38</sup> It seems that there must have been some kind of coordination between France and Luxembourg.

### III. **Efforts to Address "Paper Satellite" Issue through the Amendments of RR and Administrative Due Diligence**

ITU tries to address "paper satellite" issue through more appropriate measures taken by the RR. Therefore, the procedure to obtain the exclusive right to use a certain frequencies and GSO slot is explained in some detail below, taking note of a series of the amendments of RR (from 1982 RR to 2012 RR).

Orbital position, which is treated as "limited natural resources" since the 1973 ITU Convention<sup>39</sup> can be obtained by a particular administration based on the "first-come, first-served" three-stage process: informing, coordinating and recording.<sup>40</sup>

#### 1. **First Step: Advance Publication of Information (API)41**

##### (1) **The Critical Importance of the Reservation Years**

An administration which intends to "bring into use a satellite network" shall, prior to the coordination procedure with other administrations, shall provide general description of the planned satellite network or system<sup>42</sup> to the Radio-communication Bureau (BR)<sup>43</sup> for advance publication in the International Frequency Information Circular (BR IFIC) not earlier than "a certain years". Such number has been changed in the RR over the last two decades with an aim to mitigating the abuse of the reservation of frequencies and a GSO position. More concretely, the number of years concerning the starting years for API changed from five to six to five to seven years over the last two decades. As such specific number is the years that basically an administration which seeks frequencies and GSO location can reserve that spot until its start of the "use", the number is of critical importance.

38 The dispute concerning 28.2 degrees east continues between Eutelsat and SES. See, Space News, 8 Oct. 2012, pp.1 & 4.

39 Art. 33 para. 2 of the 1973 ITU Convention.

40 This applies to FSS in the unplanned spectrum bands and different from "allotment" regime of particular orbit locations and frequencies of broadcasting satellite service which are given each member State.

41 See, RR (2012), Art.9, Section I.

42 Appendix 4 of the RR (2012).

43 Note that between 1947-1993, it was named International Frequency Registration Board (IFRB).

## (2) Administrative Due Diligence

During the early years that the “paper satellite” problem was recognized, the GSO position obtained by an administration could be reserved for five years (No.1042, RR (1982)) or six years (No.1042 RR (1990))<sup>44</sup> with the possible extension of three years<sup>45</sup> as mentioned in the *Eutelsat v. SES* case. It has to be noted that three-year extension was at that time almost automatic if it was requested.<sup>46</sup> World Radiocommunication Conference 1997 (WRC-97) changed that practice by reducing the basic reservation period to five years<sup>47</sup> plus two-year extension. Far from automatic, the extension has come to be granted provided that the conditions specified in the 1998 RR are met.<sup>48</sup> Those are: (i) “due diligence” information required by Resolution 49 (WRC-97) is adequately furnished, etc.; and (ii) the administration certifies that the reason of the extension is one or more of the specific circumstances provided for in the RR.<sup>49</sup> Resolution 49 provides that if the expiry date for bringing the satellite network into use including the period of any extension which shall not exceed three years is before 1 July 1998, responsible administration shall submit to the BR the complete due diligence information specified in Annex 2 to this Resolution 49.<sup>50</sup> Annex 2 to Resolution 2 includes: A. identity of the satellite network; B. spacecraft manufacturer; and C. launch service provider. Complete replies with respect to 18 items in total, specified in A to C have to be submitted before the deadline to prove that the satellite network plan is real in order to keep a slot. If the complete due diligence information is not received by the BR, the satellite network concerned shall not be recorded anymore in the MIFR.<sup>51</sup>

Based on the decision of WRC-03, the 2004 RR changed the reservation period to seven years.<sup>52</sup> It is longer than before, but since the 2004 RR, it is decided

44 Six years was specified in RR (1990), Art.11-2 (No.1042) (Orb-88) and RR (1990 revised in 1994), Art. 11-2 (No.1550) (Orb-88).

45 RR (1990), Art. 13-12 (No.1550) (Orb-88).

46 Art.13-12 (No.1550) of the RR (1990) provides that “[t]he notified date of bringing into use of the first assignment of a satellite network shall not be later than six years following the date of publication of the special section of the weekly circular referred to in No.1044. This notified date of bringing into use will be extended at the request of the notifying administration by no more than three years.”

47 RR (1998), S.9.1.

48 RR (1998), S.11.44.

49 RR (1998), S.11.44B to S. 11.44.I.

50 Resolution 49 (WRC-97) “Administrative due diligence applicable to some satellite communication services”.

51 RR (1998), S.11.48; Annex I to Resolution 49 (WRC-97), para.11.

52 RR (2004), 9.1.



that no extension would be granted.<sup>53</sup> The 2008 RR<sup>54</sup> and the current 2012 RR retain the same period as the 2004 RR.<sup>55</sup>

### (3) Period to Enter into the Coordination

On receipt of the complete information with respect to API, the BR shall publish it in a special section of its BR IFIC within three months.<sup>56</sup> Then, any administration which believes that unacceptable interference may be caused to its existing or planned satellite networks or systems shall request coordination of the frequency and GSO location within four months after the date of the receipt of the information publicized in the BR IFIC.<sup>57</sup>

## 2. Second Step: Coordination

Then, requested administration will enter into negotiations with the requesting administration. The administration that sent API shall submit the notification to the BR when the coordination is successfully completed.<sup>58</sup> The information on the coordinated results may be communicated to the BR no earlier than six months after the date of receipt of the API by the BR.<sup>59</sup>

## 3. Third Step: Notification

Notices relating to assignment of a satellite network shall reach the BR not earlier than three years before the assignments are "brought into use".<sup>60</sup> The BR shall publish that notice in the BR IFIC which ensures that all other administrations are duly informed of the assignments of the frequencies. Pending the finding by the BR of the coordination result being in conformity with the provisions of the RR and other relevant conditions, the frequencies and the orbital slot is to be recorded in the MIFR, which implies international recognition to the use of frequencies and GSO location as well as the protection from harmful interference.<sup>61</sup> Such notifying administration for recording in the MIFR shall send the BR, as early as possible and before the end of the period established as

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53 RR (2004), 11.44. Note that the footnote of 11.44 provides that "[i]n the case of satellite networks for which relevant advance publication information has been received prior to 22 November 1997, the corresponding period will be nine years from the date of publication of this information. (WRC-2000)".

54 RR (2008), 9.1, 11.44, 11.45 & 11.47 (WRC-07).

55 RR (2012), 9.1, 11.44, 11.45 & 11.47.

56 RR (2012), 9.2B (WRC-2000).

57 RR (1990), Art.11-2 (No.1047 (Orb-88)); RR (1990 revised in 1994), Art.11-2 (No.1047) (Orb-88); RR (1998), S9-3; RR (2012), 9.3. Note that at the time of Tongan filing, however, it was called as the weekly circular, not BR IFIC.

58 RR (2012), Art. 9 section II (procedure for effecting coordination) & Appendix-5.

59 RR (2012), 9.1 & 9.5D. As an old example, see, e.g., RR (1990), Art. 11-5 (No.1058E) (Orb-88)).

60 RR (2012), 11. 25.

61 RR (2012), Art.11 (notification and recording of frequency assignments), section II (11.27 *et seq.*).

a limit of bringing them into use, due diligence information relating to the satellite network, spacecraft manufacture, and the launch services provider which are specified in Annex 2 of Appendix-4 attached to the RR. If notice to the BR is ahead of the actual bringing into use of a satellite network, recording of the MIFR is provisional in status.<sup>62</sup> If complete due diligence information is not received by the BR within the seven year time limits (as mentioned above, in late 1980's five years plus three years extension, early 1990's, six years plus three-year extension since the date of API,<sup>63</sup> then reduced to five years plus maximum three years extension<sup>64</sup> and then five years plus two<sup>65</sup> before the current seven-year limit) it is basically removed from the MIFR.

#### IV. Zohrer-1 and Zohrer-2 as "Phantom Satellite"

##### 1. Background

Iran announced its plan to launch two communications satellites Zohrer-1, and Zohrer-2 at 34 degrees east and 26 degrees east longitude respectively and successfully obtained the frequencies associated with GSO positions in the MIFR.<sup>66</sup> However, the deadline to keep the two positions and frequencies was approaching when neither satellite were not yet launched. When and if at all Zohrer-1 and Zohrer-2 as Iranian satellites were launched remain unclear. According to Iran, after the suspension of the use, Zohrer-1 had been "brought back into operation" on 10 June 2010 and their operation had been suspended again after 34 days as from 14 July 2010.<sup>67</sup> Iran also indicated that Zohrer-2 was "brought back into use" in July 2010 after the suspension from 21 May 2009.<sup>68</sup> The problems is that BADR-5 of Arabsat, launched in June 2010 to 34 degrees east and moved to 26 degrees east in July 2010 seemed to have been regarded as Zohrer-1 and Zohrer-2. That is why Zohrer-1 and Zohrer-2 are sometimes cynically called "phantom satellites". It is doubted that one foreign satellite BADR-5 is used to retain two GSO spots obtained by Iran.<sup>69</sup> Concerned with continuous and even shrewder "paper satellite" trick, ITU-R started a fact-finding survey in 2009 of how many satellites had been really

62 For instance, RR (2012), 11.47; RR (2008), 11.47; RR (2004), 11.47.

63 RR (1990), Art.11-2 (No.1042) (Orb-88) & Art. 13-12 (No.1550) (Orb-88).

64 RR (1990) Art. 13-12 (No.1550) (Orb-88). See, also *supra* note 50, Annex 1 (To Resolution 49 (WARC-97)), para. 11.

65 RR (1998), S.9.1 & S.11.44. WARC-97 decided that three-year extension be shortened to two years, and the extension shall be granted only when all due diligence is proved to be observed, which is reflected in RR in 1998.

66 It is reported that Iran had an agreement with Rosaviakosmos on the design, consultation, testing and the launch of the "Zohrer" satellite in January 2005. <[www.spacedaily.com/news/iran-05d.html](http://www.spacedaily.com/news/iran-05d.html)> (accessed 3 Aug. 2013).

67 RRB11-3/14 (Rev.1)-E (15 May 2012), agenda item 6 (RRB13/7).

68 RRB10-3/7 (Rev.1)-E (29 Mar. 2011), agenda item 4 (RRB10-3/1 + Add. 1-3).

69 *Space News*, 8 Apr. 2011, p.1.

launched and in operation at a position filed in the MIFR.<sup>70</sup> ITU, consequently, succeeded in removing 145 satellites networks from the MIFR among suspected 325 based on the failure of "bringing into use" and the continuity of operation of networks. The percentage of the inappropriate recording proved to be about 45 percent of the investigated satellite networks.<sup>71</sup> As Zohrer-1 and Zohrer-2 are regarded as a conspicuously serious case among such less-than-genuine uses of satellites, ITU decided to address this phantom satellite case.

## 2. Case of Zohrer-1

### (1) 58th RRB (31 October to 4 November 2011)

With respect to 34 degree east, as it seemed that Iran had not launched its satellite within seven years from the time its API, BR notified to Iran the deletion of its recording from MIFR in July 2011.<sup>72</sup> Iran sent a letter to the RRB to withdraw that decision and demanded to record its exclusive right of 34 degrees east again in the MIFR.

At the 58th RRB, Iran's demand was rejected. RRB ruled that Iran had already lost its position not because of its failure to "brought into regular operation" at all,<sup>73</sup> but because the suspension of the use of a recorded assignment to a space station continued more than two years.<sup>74</sup>

The reason that RRB chose the reason of the exceeding suspension instead of non-use seems as the following: first, Iran declared the start of the "use" and it is the ITU tradition that the word of a sovereign State is not contested; and second, the definition of the "bringing into use" is not clear. It was not only Iran so claimed but also found in the Eutelsat v. SES case in II.2 of this article. However, Iran's action was regarded as seriously against the spirit of the Preamble<sup>75</sup> and Art.44 para. 2 of the ITU Constitution. Thus, it seems that RRB drew the attention of the fact that (i) ABDR-5 (Zohrer-1) stayed at 34 degrees

70 Circular Letter CR.301 (1 May 2009).

71 <[www.itu.int/net/newsroom/wrc/2012/features/satellite\\_matters.aspx](http://www.itu.int/net/newsroom/wrc/2012/features/satellite_matters.aspx)> (accessed on 2 Jul. 2013).

72 BR-IFIC 2698 & BR-IFIC2699 (Jul. 2011).

73 It provides that in that case, "the Bureau shall consult the notifying administration and, subject to its agreement or in the event of non-response after the dispatch of two consecutive reminders, each within a three-month period, shall either cancel, or suitably modify- " (RR (2008) 13.2 (No.13.6 b)).

74 RR (2008),11.10 (No.11.49) provides that "[w]here the use of a recorded assignment to a space station is suspended for a period of exceeding eighteen months, the notifying administration shall, as soon as possible, inform the Bureau of the date on which such use was suspended and the date on which the assignment is to be brought back into regular use. This latter date shall not exceed two years from the date of suspension."

75 "—with the object of facilitating peaceful relations, international cooperation among peoples and economic and social development by means of efficient telecommunication services, having agreed as follows:".

east only one month and also that (ii) since one borrowed foreign satellite, or ABDR-5, was used to occupy two GSO spots, it inevitably resulted in the suspension of the either of the positions and such period shall not exceed two years under RR (2008) 11.49.

**(2) WRC-12 (23 January to 17 February 2012)**

Iran contended RRB ruling based mainly on the following two points: one was that the unclear meaning and non clear definition of “bringing into use”. The other point was that a special consideration had to be granted to a developing country which was how Iran described itself in a correspondence to ITU.<sup>76</sup> France, Australia and Israel supported the ruling of the 58th RRB to remove Iran’s assignment from the MIFR. However, Iraq and Indonesia supported that Iran retain frequencies at 34 degrees east. Chairman of the Working Group 5B divided the subject-matter of the issue into two under such circumstances: the first is if the decision by the BR and BBR to remove 34 degrees east from Iran was correctly applied and the other was the justifiability of a special treatment to a developing country. The former was declared in the affirmative. With respect to the latter, without prejudice to this confirmation, it was decided that Iran could retain the GSO spot and frequencies provided that other administrations whose present and planned operations would be affected by Iran retaining 34 degrees east would also endorse it.<sup>77</sup> France was adamantly against to reinstate Iran’s position, but later accepted it.<sup>78</sup> Thus, eventually, Iran was allowed to maintain 34 degrees east but not later than 14 July 2012. In other words, Iran had to make its Zohrer-1 satellite “brought back into regular use” by that day.<sup>79</sup>

<sup>76</sup> ITU, WRC-12, Doc.74 (Iran).

<sup>77</sup> Discussions of WRC-12. See, e.g., Ad-Hoc\_WG5B\_8.1\_Doc74.

<sup>78</sup> Afghanistan, Algeria, Belarus, Cuba, Ecuador, India, Iraq, Lebanon, Nigeria, Pakistan, Sri Lanka and Vietnam supported Iran’s maintenance of its spots. Israel was against it. The UK stated that special treatment under a certain circumstances should not be granted only to developing countries, but extended to any country which is under the same situation. Norway underlined the importance to set necessary conditions a special treatment be granted without being against a special treatment itself.

<sup>79</sup> The conclusion in the WG 5B mentioned above was endorsed at the COM 5 and later also at Plenary as follows: 1. the decision of BR and RRB was correctly taken when it had removed Iran’s frequencies and 34 degrees east from the MIFR; 2. In accordance with Art. 14 of the RR, any administration, developing countries or otherwise, may request a review of a finding, result, or any other decision by BBR and BR; and 3. Based on 1. and 2., as Iran’s argument was not rejected by any administration, a special measure could be taken as for the Zohrer-1 case. Notes were taken, however, that such special measure shall not affect in any way to the argument of agenda item 7. Agenda item 7 dealt with possible changes about API, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks (including the definition of “bringing into use”) in response to Resolu-

**(3) 60th RRB (10-14 September 2012)**

According to Iran, it almost purchased or leased a foreign satellite to place at 34 degrees east in June 2012. Iran previously stated that it would disclose the name of the company from which it would buy a satellite as an element of "due diligence" actions adopted in Resolution 49, but eventually it failed to do that.<sup>80</sup> Explaining that such plan was eventually blocked due to the economic sanctions imposed by the UN (Security Council resolutions) and the U.S. (unilateral sanctions), Iran claimed this as "exceptional prevailing circumstance"<sup>81</sup> which amounted to the "force majeure" and therefore the further extension of the deadline shall be granted up to 14 February 2013.

RRB did not support Iran's position; consequently, it lost the frequencies and 34 degrees east.<sup>82</sup>

**(4) 61st RRB (12-16 November 2012)**

Iran maintained that the interpretation of "force majeure" by RRB was not correct and repeated to request further extension of the 34 degrees east<sup>83</sup>, but the Board decided that it was unable to accede to such request. Iran lost its 34 degrees east.<sup>84</sup>

**3. Case of Zohrer-2****(1) 55th RRB (29 November to 3 December 2010)**

The situation at 26 degrees east is more complicated.

Iran notified the BR that assigned frequencies had been "brought into regular operation"<sup>85</sup> on 7 June 1995 and has been in use except the suspension period of (i) 4 June 2002 to 17 September 2003; and (ii) 21 May 2009 to 14 July 2010, both of which is less than two years and therefore it retains the position under the RR (2008) 11.49. However, irrespective of the BR's repeated requests, "reli-

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tion 86 originally adopted as a countermeasure to "paper satellites" in Marrakesh Plenipotentiary Conference in 2002.

80 RRB12-2/5 (2012); *Space News*, 17 Sept. 2012, p.4.

81 RRB12-2/7(Rev.1)-E (13 Nov. 2012), p.31; *Space News*, 10 Sept. 2012, pp.1 & 4.

82 RRB12-2/7 (Rev.1)-E, *supra* note 81, pp. 32-33.

83 RRB12-3/3 & RRB/12-3/4 (2012).

84 RRB12-3/13-E (18 Mar. 2013), pp.18-19.

85 PP (2008), 13.6 provides that "b) whenever it appears from reliable information available that a recorded assignment has not been brought into regular operation in accordance with the notified required characteristics as specified in Appendix 4, or is not being used in accordance with those characteristics, the Bureau shall consult the notifying administration and, subject to its agreement or in the event of no-response after the dispatch of two consecutive reminders, each within three-month period, shall either cancel, or suitably modify, or retain the basic characteristics of the entity. A decision of the Bureau to cancel the entry in the event of non-response shall be confirmed by the Board." Appendix 4 (Rev WRC-97) means "Consolidated list and tables of characteristics for use in the application of the procedures of Chapter III."

able information,”<sup>86</sup> or evidence about the start of its use was not furnished by Iran. Yet worse, as an essential problem, there has been no physically existent Zohrer-2, and 26 degrees east has been used by a series of different satellites including most recent BADR-5 of Arabsat since July 2010.<sup>87</sup> France, second in line around 26 degrees east including 25.8 degrees and 25.5 degrees indicated that Iran had lost the spot due to the exceeding suspension (RR 11.49)<sup>88</sup> if not the failure of “bringing into use” at all (RR13.6).

RRB was asked to address the situation. Predominant views at the 55th RRB were that “the Board should not go into the question of leasing”<sup>89</sup> and “huge commercial interests”<sup>90</sup> had to be respected. Thus, accepting the statement of a sovereign State, BBR decided that Zohrer-2 satellite network should be retained in the MIFR based on RR. 13.6, and requested the coordination of Ka- and Ku-band among Iran, France and Saudi Arabia in conformity with the spirit of Art. 44 of the ITU Constitution and Resolution 2 (Rev. WRC-03). Resolution 2 provides that the use of frequencies for space telecommunication services does not provide any permanent priority for any individual country and it does not provide any permanent obstacle to the establishment of space systems by other countries (para. 1) and that a country needs to take all practicable measures to facilitate the use of new space systems by other countries (para. 2).<sup>91</sup>

**(2) 56th RRB (28 March to 1 April 2011)**

At the 56th RRB, however, the coordination among Iran, France and Saudi Arabia did not take place. Noting the importance that all stakeholders around 26 degrees east should act in accordance with decisions of the 55th RRB, the Board instructed the BR to convene bilateral and multilateral meetings and negotiations with utmost goodwill and mutual respect in accordance with the spirit of Art.44 of the ITU Constitution and Resolution 2 (Rev. WRC-03).

**(3) 58th RRB (31 October to 4 November 2011)**

There was no discussion at the 57th RRB. At the 58th RRB, the Board expressed the concerns about the absence of progress at the satellite network coordination meetings of the parties and urged to reach a mutually satisfactory

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<sup>86</sup> RR (2008), 13.6.

<sup>87</sup> Contradicting information was furnished by various administrations. But Iran indicated that Gorizon-38 and another satellite were used from 1995 up to the end of 2004, followed by the EUROIRD TM-2 up to 2007 in parallel with BADR-C (Intelsat 5), also known as PAS-5 and Arabsat 2C up to October 2008 and BADR-6 up to May 2009 before BADR-5 was launched. RRB/11-1/9 (Rev.1)-E (13 Jun. 2011), p.18. France and the USA denied that EIROIRD TM-2 and PAS-5 were used through Arabsat leasing their capacity.

<sup>88</sup> According to France, no satellite was used at 26 degrees east between March 2007 to July 2010, more than 24 months limits of suspension.

<sup>89</sup> RRB/10-3/7 (Rev.1)-E, *supra* note 68, p.15.

<sup>90</sup> *Ibid.*

<sup>91</sup> Resolution 2 (Rev. WRC-03), paras. 1 & 2.

compromise at positions 25.5 degrees east (France) and 26 degrees east (Iran and Saudi Arabia).<sup>92</sup> Considering the exceptional situation, the Board suggested that the coordination might be pursued by splitting in two equal parts of the frequency bands 14-14.5 GHz, 10.95-11.2 GHz and 11.45-11.7 GHz between the satellite networks.<sup>93</sup>

**(4) WRC-12 (23 January to 17 February 2012)**

Plenary of the WRC-12 noted that frequencies should be coordinated among them under the RRB decisions.<sup>94</sup> Iran and Saudi Arabia proposed to France that each administration will have one third of the frequency bands. With France opposing it, eventually, Saudi Arabia agreed that France would have 50 percent and Iran and Saudi Arabia would coordinate among themselves of the remaining 50 percent.<sup>95</sup>

**(5) 60th RRB (10-14 September 2012)**

Although Iran sent a document to blame France claiming the latter deliberately delaying in reaching a consensus,<sup>96</sup> RRB confirmed that a slow but a steady progress had been made including an agreement reached by WRC-12 and the half-day meeting on 11 July 2012 which decided a fifty/fifty sharing of spectrum among parties. However, it was also reported in the 60th RRB that a difference could not be solved about what capacity had to be shared on the satellites which involved the leasing capability, which had more financial aspects than the technical ones.<sup>97</sup> Since France and Saudi Arabia did not submit any report, the Board urged three countries to accelerate the coordination.<sup>98</sup>

**(6) 61st RRB (12-16 November 2012)**

Iran and France submitted a document to report the Board about its progress. While Iran expressed its "frustration at its slowness" of the coordination,<sup>99</sup> France reassured a slow but steady progress.<sup>100</sup> RRB left the settlement of this problem to the agreement of the three countries.<sup>101</sup>

**(7) Present Situation**

It is reported that Iran and Saudi Arabia had an agreement under which Saudi Arabia hosted Iranian broadcast and helped Iranian claim that it had used

92 RRB11-3/14 (Rev.1)-E, *supra* note 67, pp.29-30.

93 *Ibid.*, p.30.

94 See, also, Doc.218 (2012).

95 *Space News*, 30 Jan. 2012, p.1; *Space News*, 16 Mar. 2012, p.1.

96 RRB12-2/4 (2012).

97 RRB12-2/7 (Rev.1)-E, *supra* note 81, pp.28-29.

98 *Ibid.*, p.30.

99 RRB12-3/13E, *supra* note 84, pp.23-24.

100 *Ibid.*, p.24.

101 *Ibid.*

26 degrees east and that three states' accord was said to be reached in early 2013. Eutelsat 70A was moved to 25.5 degrees east and renamed as Eutelsat 25C, which was regarded perhaps as a sign of the advancing frequency sharing agreement.<sup>102</sup>

Then, Estelsat and Es'hailSat, a newly-established Qatar satellite operator, announced to jointly own a Eutelsat 25B/Es'hailSat 1 satellite at the 25.5 degrees east. That satellite was launched on 30 August 2013 and replaced Eutelsat 25C.<sup>103</sup> In addition, Es'hailSat and Arabsat signed a strategic partnership agreement for two actors to share the capacity of 26 degrees east in August 2013. Es'hailSat will acquire the rights of 500 MHz of Ku-band bandwidth for its Es'hailSat 2 planned to be launched in 2015, which would be perhaps on board BADR-7 of Arabsat. By using both 25.5 and 26 degrees east, Es'hailsat has already strengthened its operational capability as a startup company.<sup>104</sup>

In the end, that was turned to be a sophisticated frequency sharing between sophisticated entities.

## **V. Toward a More Efficient and Equitable Use of the Frequencies Assigned in a GSO Spot**

### **1. Efforts at WRC-12**

Taking into account the new type of "paper satellite" issue, the WRC-12 streamlined the issues such as "bringing into use" and "bringing into the usual operation" as well as the reasonable suspension period. Plenary minutes also noted that notifying administration should report the BR the position and frequencies of a satellite just before it was moved to a new GSO position if that satellite was declared "bringing into use" at that new position.<sup>105</sup> Both would ameliorate the present situation.

The amended and newly introduced provisions based on the WRC-12 decisions are as follows: first, the term "brought into use" was defined in a new provision that "[a] frequency assignment to a space station in the geostationary-satellite orbit shall be considered as having been brought into use when a space station in the geostationary-satellite orbit with capability of transmitting or receiving that frequency assignment has been deployed and maintained at the notified orbital position for a continuous period of ninety days. The notifying administration shall so inform the Bureau within thirty days from the end of the ninety-day period."<sup>106</sup> Thus, at least "ninety-day period" use is required for a

102 See, e.g., *Space News*, 1 Apr. 2013, p.11.

103 See, e.g., Eutelsat, PR/60/13 (30 Aug. 2013).

104 See, e.g., *Space News*, 25 Feb.2013, p.9; *Space News*, 30 Aug. 2013, p.1.

105 See, e.g., <[www.satellitetoday.com/telecom/2012/03/01/wrc-12-satellite-issues/](http://www.satellitetoday.com/telecom/2012/03/01/wrc-12-satellite-issues/)> (accessed on 12 Aug. 2013).

106 RR (2012), 11.44B (WRC-12). Before WRC-12, the speculation was that any specific number could not be agreed if it is 15 days, 30 days or 90 days. The unexpected success might show the deep concerns about the "paper satellite" issue.



State to be decided in the ITU that a frequency assignment to a space station in GSO is "brought back into use" after the suspension.<sup>107</sup>

Second, RR.11.49 was changed from two years suspension period to three years. New provision provides that "[w]henver the use of recorded frequency assignment to a space station is suspended for period exceeding six months the notifying administration shall, as soon as possible, but no later than six months from the date on which the use was suspended, inform the Bureau of the date on which such use was suspended. ---The date on which the recorded assignment is brought back into use shall be not later than three years from the date of suspension". Prior to the WRC-12 amendment, RR(2008) 11.49 specified that if a suspension period exceeds eighteen months, the notifying administration shall, as soon as possible, inform the Bureau of the date on which the suspension started and the date to be brought back into the regular use, and that the latter date of which shall not exceed two years from the former date.<sup>108</sup>

By the WRC-12 amendment, the notification obligation is strengthened in two respects: first, the threshold of the notification period has become one third, from 18 months to six months; and second, once a frequency assignment is brought back into use, it has to be notified to the BR within 30 days from the end of the ninety-day period.<sup>109</sup> The defined date was not provided for before the WRC-12 amendment. Instead, as a package of a compromise, the allowable suspension period has extended from two to three years.

Third, transparency of the transfer of the place of the operation of a satellite was upgraded by the agreement at a plenary while it is not made into a resolution or reflected into the amended RR.<sup>110</sup>

## 2. Conclusion

Addressing the new type of "paper satellite" seems more difficult than that of the first-generation, for multiple names are accorded to one physical satellite and more complicated rights of frequencies exist based on the delicate and sophisticated coordination.

Under the circumstances, the present author would like to refer to the following three modest points as a conclusion: first, the role of the ITU has to be respected by the other fields of international space law. A series of amendments of RR and related resolutions, especially those newly introduced in RR (2012) as a result of WRC-12 have produced a reasonable compromise based on a delicate balance between efficient use and equitable use. The considerable efforts taken in the ITU is highly praiseworthy. Having recognized that, the operation of RR could be ameliorated by the help outside of the ITU. One example is to improve monitoring capability. Open source documents and information through space situational awareness (SAA) capability voluntarily provided might be able to

107 RR (2012), 11.49.1(WRC.12). This provision also defines the "use" of a specific frequency assignment in a GSO spot.

108 See, *supra* note 74.

109 RR (2012), 11.49.1.

110 Nigeria proposed that agreement should be made into a resolution.

help set up a moderate monitoring system on the transfer of the position of a satellite.

Second, it has to be recognized that huge commercial benefits depend on the frequencies and GSO spots as a reality that cannot be ignored. Thus, in addressing present-time “paper satellite” issue, a new concept has to be introduced which bridges between the benefits and interests of all countries and pursuit of commercial benefits. To introduce a new concept, the special needs of developing countries may have to be redefined, and the special needs of “less privileged peoples” may have to be elaborated, for the increasing difference of the two is being noticed.

Third, a “paper satellite” issue is related to the transfer of ownership and supervision of satellites, which is closely related to the responsibility and liability of international space law. Therefore, so as to prevent the fragmentation of space law, the “paper satellite” issue should be addressed in line with the recent developments of the interpretation and application of the UN treaties on outer space.