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# Legal Aspects of Satellite Communications—A Mini Handbook

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## Legal Aspects of Satellite Communications—A Mini Handbook

FRANS G. VON DER DUNK\*

**ABSTRACT.** *Satellite communications, the most extensive, commercialized and applications-oriented of outer space activities, is not a sector ruled by a single, coherent legal regime even at the international level. Already at present at least ten regimes would potentially or actually impact any particular satellite operation, service or scenario. The current contribution, intended as a 'Mini-Handbook' excerpted from the 2015 Handbook of Space Law published by the present author, only addresses the three generally most important ones of those regimes: the generic body of international space law, the regime developed in the context of the International Telecommunication Union (ITU), and the trade regime applied in the context of the World Trade Organization (WTO). After all, the three most important parameters for successful satellite communication operations are, respectively, the availability of and legitimate entitlement to use 'geographical' locations in outer space for the satellites used, the availability of and lack of interference with radio frequencies for the communication activities proper, and access to the international markets for the services to be offered for commercial purposes.*

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## 1. INTRODUCTION

Satellite communications, whilst within the larger sector of telecommunications perhaps a relatively minor sector, is beyond doubt as of today the most extensive, commercialized and applications-oriented of outer space activities – and, by virtue of those space-related aspects, also a rather special telecommunications sector *per se*. This notably includes the legal aspects. As a matter of fact, as a consequence of the various different aspects and activities which have to be combined to make satellite communications a reality, there is not one single legal regime encompassing all of its relevant legal aspects; rather, there are a number of legal regimes of lesser or greater importance all applicable. As the recently published *Handbook of Space Law*<sup>1</sup> makes clear, following such a holistic approach at the international level at least ten regimes would have to be addressed for any truly comprehensive overview and analysis.

In view of the limited scope of the present contribution however, in the *modus* of a ‘Mini-Handbook’ only the three most important ones of those will be assessed here, consisting of the generic body of international space law, the regime developed in the context of the International Telecommunication Union (ITU), and the trade regime applied in the context of the World Trade Organization (WTO), since the three most important parameters for successful satellite communication operations arguably are, respectively, the availability of and legitimate entitlement to use ‘geographical’ locations in outer space for the satellites used, the availability of and lack of interference with radio frequencies for the communication activities proper, and access to the international markets for the services to be offered for commercial purposes.

For the impact of national space law,<sup>2</sup> European (space) law,<sup>3</sup> the law relevant to intergovernmental organizations in space,<sup>4</sup> the regime addressing the environmental aspects of space activities,<sup>5</sup> the commercial financing of space activities,<sup>6</sup> the insurance regime<sup>7</sup> and dispute resolution<sup>8</sup> in the realm of satellite communications reference should be had to the respective chapters in the aforementioned *Handbook*, which also include a wealth of references to other seminal works on those respective topics.

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1. Edward Elgar, *Handbook of Space Law* (F.G. von der Dunk, F. Tronchetti, 2015); for more information see the Annex to this article. The three substantive paragraphs of the present contribution essentially are high-level summaries of the respective chapters in the *Handbook*; for further information, analysis and references to legal writings recourse should be had to the respective chapters.
  2. See I. Marboe, *Handbook of Space Law*, Chapter 3 (2015).
  3. See F.G. von der Dunk, *Handbook of Space Law*, Chapter 4 (2015).
  4. See F.G. von der Dunk, *Handbook of Space Law*, Chapter 5 (2015).
  5. See L. Viikari, *Handbook of Space Law*, Chapter 13 (2015).
  6. See M.J. Sundahl, *Handbook of Space Law*, Chapter 16 (2015).
  7. See Gaubert, *Handbook of Space Law*, Chapter 17 (2015).
  8. See M. Williams, *Handbook of Space Law*, Chapter 19 (2015).

## 2. GENERAL INTERNATIONAL SPACE LAW AND SATELLITE COMMUNICATIONS<sup>9</sup>

The original core of international space law, a branch of general public international law directly and forcefully addressing in particular the *satellite* (operations) aspects of satellite communications in a throughout rather general fashion, consists in particular of a handful of UN-originating treaties of general scope, UN Resolutions and other essentially UN-derived legal developments.

Due to the overarching character of this core regime, all human activities in outer space, whether effectively conducted from earth or involving presence of humans in outer space, are implicated in a principled and legal sense by whatever applicable rules, rights and obligations it may provide. This certainly also includes satellite communications, as the most extended space sector from an applications-perspective. Within the current perspective, the first four of the treaties mentioned are by far the most important, and will therefore be briefly analysed here.

### 2.1. The 1967 Outer Space Treaty<sup>10</sup>

The Outer Space Treaty<sup>11</sup> represents the most fundamental and all-encompassing of the space treaties, and hence the foundation for all of space law. As it is ratified by currently 103 states, including all space-faring nations of relevance,<sup>12</sup> it is generally perceived to comprise customary international law, applicable also to those countries that have not yet gotten around to ratifying the treaty. Its main provisions, as far as satellite communications is concerned, could be summarized as follows.

Most fundamentally, outer space was confirmed to constitute a ‘global commons’, a ‘*res communis*’ or ‘*territorium extra commercium*’. Article II of the Outer Space Treaty determines that “[o]uter space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means”. It thereby establishes outer space as a realm beyond national territorial jurisdiction, essentially akin to the high seas.<sup>13</sup> One consequence thereof is that no state may extend the scope of its territorial

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9. See F.G. von der Dunk, *Handbook of Space Law*, Chapter 2 (2015).

10. See §§ 2.2.2, 2.3.1, *Handbook of Space Law*, (2015).

11. *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (hereafter Outer Space Treaty)*, 27 January 1967, entered into force 10 October 1967; 610 UNTS 205; TIAS 6347; 18 UST 2410; UKTS 1968 No. 10; Cmnd. 3198; ATS 1967 No. 24; 6 ILM 386 (1967).

12. See A/AC.105/C.2/2015/CRP.8, status as at 1 January 2015, at 10.

13. See Arts. 86-120, United Nations Convention on the Law of the Sea, Montego Bay, done 10 December 1982, entered into force 16 November 1994; 1833 UNTS 3 & 1835 UNTS 261; UKTS 1999 No. 81; Cmnd. 8941; ATS 1994 No. 31; 21 ILM 1261 (1982); S. Treaty Doc. No. 103-39.

jurisdiction to outer space, for example regarding the operation of a communication satellite in outer space.<sup>14</sup>

This obviously does not mean states cannot exercise *any* jurisdiction in outer space. Non-manned space activities are usually controlled from some earthly territory where national sovereign territorial jurisdiction would apply to anyone undertaking those activities including of course satellite communications, and even in respect of manned space activities states remain entitled to exercise jurisdiction over their nationals (the so-called ‘personal jurisdiction’).<sup>15</sup>

The nature of outer space as being beyond the individual territorial jurisdiction of states is further confirmed by the fundamental freedom of activities there: “Outer space, including the Moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law.”<sup>16</sup>

As a consequence of this legal status of outer space as a realm, any limits to the freedom to operate satellites there would have to be imposed by general international consensus, read international treaties with more or less global application – of which the Outer Space Treaty itself provided the most immediate example – and customary international law, rather than by one state or group of states alone.

Specifically, the Outer Space Treaty provided for further limitations to any potentially unfettered freedom to act in outer space by requiring all space activities to be conducted in accordance with general international law,<sup>17</sup> by imposing certain limitations on military uses,<sup>18</sup> and by imposing certain coordination and consultation requirements in case of potentially harmful space activities.<sup>19</sup>

Second, as a counterpart to this general freedom of space activity the traditional ‘state-centricity’ of the human endeavour in outer space was reflected almost one-on-one in the Outer Space Treaty. Thus, the ‘classical’ concept of state responsibility, which under general public international law applied only directly to acts of a state itself violating its international legal obligations towards another state, was widened in the space law-context to include *all* space activities as long as qualifying as “*national* activities in outer space”.<sup>20</sup> Article VI of the Outer Space

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14. See the Statements of the Board of Directors of the International Institute of Space Law (IISL) of 2004 and 2009, at [http://www.iislweb.org/docs/IISL\\_Outter\\_Space\\_Treaty\\_Statement.pdf](http://www.iislweb.org/docs/IISL_Outter_Space_Treaty_Statement.pdf) resp. <http://www.iislweb.org/docs/Statement%20BoD.pdf>.

15. Supra 11, at Art. III.

16. Supra 11, at Art. I.

17. Supra 11, at Art. III.

18. Supra 11, at Art. IV.

19. Supra 11, at Art. IX.

20. Supra 11, at Art. VI.

Treaty uses the phrase ‘international responsibility’ instead of the more common ‘state responsibility’, but as such responsibility under Article VI is attributed to states, the former actually constitutes an extension of the latter in order to encompass full responsibility of the state also for activities by ‘non-governmental entities’ and of international organizations. If space activities such as satellite communications happen to be conducted by ‘non-governmental entities’, the states concerned furthermore were committed to provide for “authorization and continuing supervision” of such activities to guarantee conformity with the rules of the Outer Space Treaty.<sup>21</sup> This provided a clear impetus for relevant states to establish domestic legal regimes ensuring substantial control over private space activities, notably by national licensing schemes and assorted provisions ensuring compliance with safety- and security-related requirements and with the relevant state’s international obligations in general. Indeed, as of now more than a dozen states have such national licensing schemes for private space activities in place.

Third, along similar lines states were squarely going to be held liable for damage caused by space objects (to be) launched into outer space – even if built, launched and operated exclusively by private entities.<sup>22</sup> Thereby, Article VII of the Outer Space Treaty (and its elaboration, the Liability Convention drafted a few years later) constituted an even larger extension of state-centricity as compared to more traditional public international law, where the concept of state liability was only found in a handful of treaties addressing specific circumstances.

Fourth, in line with the responsibility and liability generally attributed to states even for purely private space activities – which would comprise most of today’s satellite communication operations – the Outer Space Treaty offers such states one further tool to actually exercise the jurisdiction and control generally required: “A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body.”<sup>23</sup>

## 2.2. The 1972 Liability Convention<sup>24</sup>

Whilst Article VII of the Outer Space Treaty had introduced the essential principle of states being held liable for damage caused by space objects launched or procured by them or launched from their territory or facility, it was the Liability

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21. Supra 11, at Art. VI.

22. See Supra 11, at Art. VII & Arts. I(c), II-V, Liability Convention, *infra* n. 25, where international liability is allocated to the state(s) qualifying as ‘launching State(s)’ regardless of any private involvement on launch or operation of the space object in question.

23. Supra 11, at Art. VIII.

24. See § 2.3.3, *Handbook of Space Law*.

Convention<sup>25</sup> which elaborated the liability regime actually applicable to such damage. The Liability Convention took almost five years to be finalized from the entry into force of the Outer Space Treaty, and is currently ratified broadly, by as much as 92 states.<sup>26</sup> Essentially, the Convention entailed nine key elements from the perspective of satellite communications.

First, it reiterates that the liable entity for relevant damage caused – even if, say, by a private satellite operator – is the “launching State”, meaning “(i) A State which launches or procures the launching of a space object; (ii) A State from whose territory or facility a space object is launched”.<sup>27</sup> Consequently, in particular cases more than one state can be held liable for a particular instance of damage, giving rise to joint and several liability.<sup>28</sup>

Second, the damage that is compensable under the Convention’s regime was delineated as “loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations”.<sup>29</sup> Thus, for example consequential and indirect damage was not included – obviously an important point for commercial satellite communication operators.

Third, the Liability Convention provided for what in essence amounts to unlimited liability.<sup>30</sup> To some, the phrasing of the relevant clause suggests that compensation also of indirect and consecutive damage could possibly still be awarded, in spite of the aforementioned limited definition of ‘damage’, but most authors tend to agree that this is too broad an interpretation.

Fourth, application of the Convention is limited to ‘damage caused by a space object’,<sup>31</sup> which is commonly agreed to include all damages resulting from physical collision of that space object with the damaged items. This, however, in the context of for instance satellite communications, also means that damage caused by radio interference is not compensable under this regime.

Fifth, the Liability Convention makes a fundamental distinction between absolute liability of a state, applicable in cases where “damage [is] caused by its space object on the surface of the Earth or to aircraft in flight,”<sup>32</sup> and fault liability,

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25. Convention on International Liability for Damage Caused by Space Objects (hereafter Liability Convention), London/Moscow/Washington, done 29 March 1972, entered into force 1 September 1972; 961 UNTS 187; TIAS 7762; 24 UST 2389; UKTS 1974 No. 16; Cmnd. 5068; ATS 1975 No. 5; 10 ILM 965 (1971); also Resolution 2777(XXVI), of 29 November 1971.

26. See A/AC.105/C.2/2015/CRP.8, status as at 1 January 2015, at 10.

27. Supra 25, at Art. I(c).

28. Supra 25, at Arts. IV, V.

29. Supra 25, at Art. I(a).

30. Supra 25, at Art. XII.

31. Supra 25, at Arts. II, III.

32. Supra 25, at Art. II.



applicable “[i]n the event of damage being caused elsewhere than on the surface of the Earth to a space object of one launching State or to persons or property on board such a space object”.<sup>33</sup> ‘Fault’ as such, however, has not been defined any further, which may give rise to considerable discussions, as happened for example in the case of the 2009 collision between the Cosmos-2251 and Iridium-33 satellites. Exoneration from absolute liability is possible to the extent of “gross negligence or (...) an act or omission done with intent to cause damage on the part of a claimant State or of natural or juridical persons it represents”.<sup>34</sup>

Sixth, it should be noted that the Liability Convention only addresses ‘international liability’, that is liability involving one or more states on the one side and one or more states on the other. Thus, it does not deal with damage caused to nationals of the launching state of the space object at issue – that is something exclusively for national law to deal with – or foreign nationals who were essentially participating in or invited to the launch.<sup>35</sup> Consequently, also the Convention explicitly does not exclude individuals from pursuing other means for obtaining compensation for any damage suffered, for example by suing in the courts of a launching state.<sup>36</sup> If such individuals choose to try and have their state invoke the Liability Convention on the other hand, they are not required to first exhaust local remedies, something which is otherwise the default route for claims relating to private rights, obligations or damage under public international law.<sup>37</sup>

Seventh, claims under the Convention itself can only be brought by states. The state suffering damage or whose nationals suffer damage has the primary right of claiming, a state on whose territory damage has occurred a subsidiary right, and a state whose permanent residents suffer the damage an again subsidiary right in this respect.<sup>38</sup>

Eighth, the Convention provides for a rudimentary procedure for handling disputes on claims. The first stage is comprised of diplomatic negotiations, which only if not successful within a year, may give rise to a second stage where the dispute settlement system specifically provided for by the Convention is triggered into operation.<sup>39</sup> In the first stage express time limits apply as regards the allowable elapsed time between damage and assertion of claim.<sup>40</sup> The second stage is comprised

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33. Supra 25, at Art. III.

34. Supra 25, at Art. VI(1).

35. Supra 25, at Art. VII.

36. Supra 25, at Art. XI(2).

37. Supra 25, at Art. XI(1).

38. Supra 25, at Art. VIII.

39. Supra 25, at Arts. IX, resp. XIV.

40. Supra 25, at Art. X, notably taking into account that the moments of reasonable identification of damage respectively liable state(s) may differ considerably from the moment of actual occurrence of the damage.

by instalment of a Claims Commission<sup>41</sup> similar to standard international arbitration procedures except for the absence of binding force of a decision unless both parties in advance agree otherwise.<sup>42</sup>

Ninth and final, the Convention offers the possibility for international intergovernmental organizations to become *de facto* parties to the Convention, following an explicit declaration and presuming a majority of members of the organization is party to both the Convention itself and the Outer Space Treaty.<sup>43</sup> Such ‘partisanship’ remains essentially secondary however.<sup>44</sup>

### 2.3. The 1975 Registration Convention<sup>45</sup>

Almost nine years after entry into force of the Outer Space Treaty, the Registration Convention<sup>46</sup> came to pass. Though – with as of yet 62 states parties<sup>47</sup> – not as widely ratified as the Outer Space Treaty and the Liability Convention, its partisanship still comprises almost all of the important space-faring states. With regard to communication satellites as much as with regard to other space objects, the Convention requires registration of any such satellite launched. This general obligation of registration is further specified along two particular lines.

On the one hand, the Convention requires states to establish a national register in which to register any space objects for which they qualified as the launching state.<sup>48</sup> The ‘launching State’ is defined in identical terms as in the Liability Convention.<sup>49</sup> The state of registry then has to inform the UN Secretary-General of the establishment of such a national register, of which otherwise the contents and conditions are at the discretion of the state concerned.<sup>50</sup> In cases where two or more states qualify as a launching state, those states “shall jointly determine which one of them shall register the object”, and this “without prejudice to appropriate agreements concluded or to be concluded among the launching States on

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41. Supra 25, at Arts. XV-XX.

42. Supra 25, at Art. XIX(2).

43. Supra 25, at Art. XXII(1).

44. Supra 25, at Arts. XXII in conjunction with XXV & XXVII.

45. See § 2.3.4, *Handbook of Space Law*.

46. Convention on Registration of Objects Launched into Outer Space (hereafter Registration Convention), New York, done 14 January 1975, entered into force 15 September 1976; 1023 UNTS 15; TIAS 8480; 28 UST 695; UKTS 1978 No. 70; Cmnd. 6256; ATS 1986 No. 5; 14 ILM 43 (1975); also Resolution 3235(XXIX), of 12 November 1974.

47. See A/AC.105/C.2/2015/CRP.8, status as at 1 January 2015, at 10.

48. Supra 46, at Art. II(1).

49. Supra 46, at Art. I(a).

50. Supra 46, at Art. II(1), resp. (3). In practice, it makes a lot of sense for such states to, as a minimum, include in the contents the parameters which the Convention prescribes for the international register; see Art. IV(1) and *infra*, text at n. 53.

jurisdiction and control over the space object and over any personnel thereof.”<sup>51</sup> In other words: a state of registry is always also liable under the Liability Convention, whereas the opposite is not necessarily true.

On the other hand, the Registration Convention provides for the establishment of an international register under the auspices of the UN Secretary-General.<sup>52</sup> The Convention then, firstly, provides for a minimum set of data to be provided on each space object launched, as follows: “(a) Name of launching State or States; (b) An appropriate designator of the space object or its registration number; (c) Date and territory or location of launch; (d) Basic orbital parameters, including: (i) Nodal period; (ii) Inclination; (iii) Apogee; (iv) Perigee; [and] (e) General function of the space object”.<sup>53</sup> Whilst in itself a binding obligation, the qualification “as soon as practicable” has unfortunately opened the door to a considerable, presumably even increasing measure of non-registration. Secondly, the suggestion is made for states to, “from time to time”, provide “additional information concerning a space object carried” on the national register.<sup>54</sup> Similarly, “[e]ach State of registry shall notify the Secretary-General of the United Nations, to the greatest extent feasible and as soon as practicable, of space objects concerning which it has previously transmitted information, and which have been but no longer are in Earth orbit”.<sup>55</sup>

Finally, the Registration Convention has a clause almost identical to that of the Liability Convention in allowing intergovernmental organizations to become *de jure* bearers of rights and duties under the Convention, read become *de facto* parties to it.<sup>56</sup>

### 3. THE REGIME DEVELOPED IN THE CONTEXT OF THE ITU AND SATELLITE COMMUNICATIONS<sup>57</sup>

The second major international legal regime applicable to satellite communications focuses, by contrast to general international space law, on the *communications* aspects of the sector, read essentially the need of interference-free

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51. Supra 46, at Art. II(2).

52. Supra 46, at Art. III. The UN Secretary-General has delegated these responsibilities to the Vienna-based Office for Outer Space Affairs (OOSA), where it is electronically accessible at <http://www.unoosa.org/oosa/en/SORegister/index.html>.

53. Supra 46, at Art. IV(1).

54. Supra 46, at Art. IV(2). With a view to state practice, this may in particular refer to information on private owners and operators of the space objects involved, changes in orbital parameters or geostationary slot occupied or even the change of actual jurisdiction over the satellite, in spite of the *de jure* absence of a possibility of re-registration.

55. Supra 46, at Art. IV(3).

56. Supra 46, at Art. VII.

57. For a full-fledged analysis of the international satellite communications law regime developed under ITU auspices, see F.G. von der Dunk, Legal aspects of satellite communications, Chapter 8, *Handbook of Space Law*.

usage of radio waves at certain frequencies and other important issues following therefrom. Once it became clear that wireless telecommunications could make good use of relay and transmission stations in outer space, it also quickly became clear that the International Telecommunication Union (ITU),<sup>58</sup> which had already since almost a century handled international communications *per se*, should also address satellite communications to that extent. Thus, at the 1959 World Administrative Radio Conference in Geneva it was fundamentally decided that also space communications – read in particular the frequencies to be used therefore – would have to be handled by the ITU. The Radio Regulations henceforth generically defined ‘space radiocommunication’ as “[a]ny radiocommunication involving the use of one or more space stations or the use of one or more other reflecting satellites or other objects in space”.<sup>59</sup>

### 3.1. The ITU and general coordination and regulation of international frequency usage<sup>60</sup>

The ITU was, in general terms, targeted to work on the main issues involved in international telecommunications, notably including – as far as the various telecommunication modes using radio waves were concerned – the minimization of unintentional cross-border interference by various technical and legal means. Thus the ITU was to:

“a) effect *allocation* of bands of the radio-frequency spectrum, the *allotment* of radio frequencies and the registration of radio-frequency *assignments* (...) in order to avoid harmful interference between radio stations of different countries; [and]

b) coordinate efforts to eliminate harmful interference between radio stations of different countries and to improve the use made of the radio-frequency spectrum for radiocommunication services”.<sup>61</sup>

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58. In its present iteration, the ITU, its operation and the regime developed under its *aegis* are essentially based on the Constitution of the International Telecommunication Union (hereafter ITU Constitution), Geneva, done 22 December 1992, entered into force 1 July 1994; 1825 UNTS 1; UKTS 1996 No. 24; Cm. 2539; ATS 1994 No. 28; Final Acts of the Additional Plenipotentiary Conference, Geneva, 1992 (1993), at 1; the Convention of the International Telecommunication Union (hereafter ITU Convention), Geneva, done 22 December 1992, entered into force 1 July 1994; 1825 UNTS 1; UKTS 1996 No. 24; Cm. 2539; ATS 1994 No. 28; Final Acts of the Additional Plenipotentiary Conference, Geneva, 1992 (1993), at 71; and the Radio Regulations Articles, Edition of 2012 (hereafter Radio Regulations); <http://www.itu.int/pub/R-REG-RR-2012>. See further § 8.2.2, *Handbook of Space Law*.

59. *Supra* 58, at Art. 1(8).

60. See § 8.2.3, *Handbook of Space Law*.

61. *Supra* 58, at Art. 1(2).

This clause already lays down the blue-print for an elaborate process of two alternatively three steps, involving ‘allocation’, ‘allotment’ and ‘assignment’ of radio frequencies to, in the end, allow individual radio operators to use certain frequencies in an interference-free manner. This system was further elaborated in the Radio Regulations.

In this context the ITU Constitution provides for the main principles to be adhered to in implementing this process:

“Member States shall bear in mind that radio frequencies (...) are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries may have equitable access to those (...) frequencies, taking into account the special needs of the developing countries and the geographical situation of particular countries”.<sup>62</sup>

Even more specific, “Member States shall endeavour to limit the number of frequencies and the spectrum used to the minimum essential to provide in a satisfactory manner the necessary services. To that end, they shall endeavour to apply the latest technical advances as soon as possible”.<sup>63</sup>

Other important principles ruling international frequency management in the ITU context concern the principled obligation to avoid harmful interference with other authorized radio traffic,<sup>64</sup> priority for distress calls and messages,<sup>65</sup> complete freedom of operation for military radio installations as far as the ITU regime was concerned,<sup>66</sup> a right to cut off private telecommunication activities which threaten national security<sup>67</sup> and an obligation for states to safeguard channels and operations within their jurisdiction or control.<sup>68</sup>

The first step in the overall process of internationally managing frequency usage is the aforementioned ‘allocation’, which refers to the ‘reservation’ at the international level of frequency *bands* to *categories* of services using radio waves. The Radio Regulations in this respect define “allocation (of a frequency band)” as “[e]ntry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specified conditions. This term shall also be

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62. Supra 58, at Art. 44(2).

63. Supra 58, at Art. 44(1), Art. 4(1).

64. Supra 58, at Art. 45.

65. Supra 58, at Art. 46.

66. Supra 58, at Art. 48.

67. Supra 58, at Art. 34(2).

68. Supra 58, at Art. 38(3) & (4).

applied to the frequency band concerned.”<sup>69</sup> The Radio Regulations currently recognize no less than 42 specific services for the purpose of allocation,<sup>70</sup> and by further distinguishing between three ITU regions, primary from secondary allocations, and footnote allocations deviating from the more general allocations, result in a very complex system fine-tuned to the needs and interests of the member states.<sup>71</sup>

The allocation of frequency bands is usually handled by way of the World Radio Conferences (WRCs), previously the World Administrative Radio Conferences (WARCs), which take place usually every two or three years.<sup>72</sup> Here, the ITU member states “may partially or, in exceptional cases, completely, revise the Radio Regulations”.<sup>73</sup> In effect, this means that, as technical, economic and other developments change the (perceived) need for certain bandwidth, at the WRCs it will be decided to ‘reserve’ new frequency bands for specific services and/or ‘take away’ certain bandwidth from others apparently not so much in need thereof – all in conformity with the need to use radio frequencies “rationally, efficiently and economically”.<sup>74</sup>

The result of actual allocations following the above process and principles as applied by the various WRCs is laid down in the Table of Frequency Allocations, incorporated in the Radio Regulations by way of Section IV of Article 5 – for a total of 136 pages.<sup>75</sup> The Table of Frequency Allocations itself encompasses all frequencies practically useful for telecommunication purposes, currently running from 8.3 kHz to 275 GHz,<sup>76</sup> which largely for convenience’s sake have been subdivided in a number of frequency bands.

The second step in the process of arranging the international use of the radio frequency spectrum effectively concerns ‘allotment’, which refers to the ‘reservation’ of specific *frequencies to states* for the purpose of specific telecommunication *services* intended to be provided. The Radio Regulations define “allotment (of a radio frequency or radio frequency channel)” as “[e]ntry of a designated frequency channel in an agreed plan, adopted by a competent conference, for use by one or more administrations for a terrestrial or space radiocommunication service in one or more

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69. Supra 58, at Art. 1(16).

70. Supra 58, at Art. 1(19)-(60). Of those, exactly half are ‘space services’.

71. See further § 8.2.3.2, *Handbook of Space Law*.

72. Supra 58, at Art. 13(1), (2). The *modus operandi* of the WRCs is further established by Art. 7, ITU Convention, supra 58.

73. Supra 58, at Art. 13(1), Art. 7(2.1.a).

74. Supra 58, at Art. 44(2).

75. Supra 58, at Art. 5(53)-(565) p. 43-178.

76. The bands below 8.3 kHz are “not allocated”, and so are those between 275 and 3,000 GHz; Radio Regulations, supra 58, at pp. 43 resp. 178.

identified countries or geographical areas and under specified conditions.”<sup>77</sup> ‘Administration’ here refers to “[a]ny *governmental department or service* responsible for discharging the obligations undertaken in the Constitution of the International Telecommunication Union, in the Convention of the International Telecommunication Union and in the Administrative Regulations”.<sup>78</sup>

In order to realize allotment in a manner not interfering with other lawful international usage of the frequency spectrum within the ITU framework, each time such interference-free access to a frequency or set of frequencies was requested an extended coordination process entered into operation. The ITU Radio Regulations Board would receive requests from states for frequency allotments on a continuing basis. Obviously, such requests for allotment would have to fit within the legal parameters provided by the Table of Frequency Allocations, and a request for the allotment of frequencies in bands not allocated to the service for which they are intended to be used would thus *ab initio* be defeated, unless it is itself not causing any harmful interference whilst accepting any interference from duly authorized other assignments.<sup>79</sup> If, for instance, the proposed satellite system was intended for a radio-navigation service, the specific frequencies whose allotment was requested should in principle fit within the frequency bands allocated to that type of service.

If indeed the radio frequencies thus allotted were to be used by the state concerned itself, read a public operator somehow part of the governmental system, the step of ‘assignment’ properly speaking would converge almost automatically with ‘allotment’ – as dictated by national rules and principles. ‘Assignment’ in other words concerns the ‘reservation’ of specific frequencies to specific *operators* for purposes of the services these intended to provide – many of the clauses discussed above with respect to allotment actually (also) already refer to assignment.

If, by contrast, the actual intended operator would either be an intergovernmental organization or a private operator, neither of those having independent competence to ask for ‘allotment’ of frequencies, ‘assignment’ would effectively constitute a distinct third step whereby the state to which the frequencies were allotted would formally permit that operator to use them – or, as the Radio Regulations provide: the “assignment (of a radio frequency or radio frequency channel)” refers to “[a]uthorization given by an administration for a radio station to use a radio frequency or radio frequency channel under specified conditions”.<sup>80</sup> In the case of an intergovernmental organization, that would normally be the host state

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77. *Supra* 58, at Art. 1(17).

78. *Supra* 58, at Art. 1(2).

79. *Supra* 58, at Art. 4(4).

80. *Supra* 58, at Art. 1(18). The reference to ‘administration’ (see also *supra*, text at n. 78) makes clear that assignment thus takes place at a national level.

of that organization; in the case of a private operator, it would likely be the state under whose (territorial) jurisdiction that operator falls.

In practice the above system meant that a state could request allotment of certain frequencies either for its own purposes or for specific assignment to a private or intergovernmental operator at any one particular time. Such an assignment obviously was a matter for national state sovereignty, and not subject to any international obligations further to those outlined above as to the coordination process and related obligations under the ITU regime.

Once following the above extended coordination process no other ITU member state could reasonably claim its communication operations to be at risk by the newly proposed system, the frequencies in question would be allotted/assigned and by way of a Notification Request included in the Master International Frequency Register, and by that token would be legally protected against interference by others.

### 3.2. The ITU and satellite communications specifically<sup>81</sup>

The entire system discussed above in principle applied to *any* telecommunication activities using radio waves in an international context. Until Sputnik-1 the inclusion of a relay station in outer space as part of a telecommunication network requiring uplink and downlink radio transmissions using certain frequencies had largely remained science fiction, but the small Soviet satellite changed that radically.

Following the 1959 WARC, ITU would therefore also constitute the appropriate forum to discuss frequency usage and radio interference in the particular context of satellite communications. Satellite communications, however, do not only require coordination of frequencies just like any terrestrial wireless operation; they also require some coordination of the physical position of the satellites in outer space.

It must be noted that ITU was not as such given formal authority by its member states to 'license' or 'authorize' the physical occupation of positions in the global commons of outer space as such by individual states, for example through the allocation of orbits or geostationary slots along the lines of allocation of frequencies.<sup>82</sup> At the same time, there is an inherent relationship between the (interference-free) usage of frequencies by satellites and the positions they occupy: using the same frequency in neighbouring positions results in white noise for both operators, but if the satellites find themselves on opposite ends of the geostationary orbit there is no risk of interference whatsoever.

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81. See § 8.2.4, *Handbook of Space Law*.

82. Note that outer space constitutes a 'global commons' with a baseline regime of free exploration and use of outer space, only to be limited by the global community of states as such; See *Supra* 13, 14.



Thus, almost as if through the backdoor the ITU frequency coordination process also took into consideration the actual respectively intended satellite positions: at first only in the geostationary orbit, later as they became popular also in other orbits:

“In using frequency bands for radio services, Member States *shall bear in mind* 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, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries *may have equitable access to those orbits and frequencies*”.<sup>83</sup>

Consequently, the ITU process streamlining international use of radio frequencies discussed above also refers to the need to “effect (...) the *registration* of radio-frequency assignments and, *for space services, of any associated orbital position in the geostationary-satellite orbit or of any associated characteristics of satellites in other orbits*, in order to avoid harmful interference between radio stations of different countries”<sup>84</sup> and to “*coordinate* efforts (...) to improve the use made of the radio-frequency spectrum for radiocommunication services and *of the geostationary-satellite and other satellite orbits*.”<sup>85</sup>

The 1959 WARC had essentially treated space communication services as comprising two new services, the ‘space service’ (the uplink) and the ‘earth service’ (the downlink), and allocated the first frequency bands to those services. As the use of space, however, continuously expanded, the simple concept of one downlink and one uplink service had to be constantly refined, more bandwidth had to be allocated and the principles guiding the actual allocation and allotment had to be refined.

Thus, an Extra-ordinary Administrative Radio Conference (EARC) in 1963, exclusively dedicated to space communications, amongst others promulgated the ‘first-come, first-served’ principle as the leading one in allowing space system operations to use certain frequencies, and also introduced specific procedures for filing, consultation and coordination. This referred to, for example, the need to include in the advance publication the orbital slots, respectively orbits, intended for the prospective satellite operations in addition to the requested frequencies. At the WARC of 1971, similarly dedicated to space communications, it was decided in 1971 to separate ‘space services’ into fixed satellite services (FSS), mobile satellite services (MSS) and broadcasting satellite services (BSS), with appropriate amounts of (ever more) bandwidth set aside for each of them. In the end, as said, amongst the 42 services now distinguished no less than 21 separate specific space services had

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83. Supra 58, at Art. 44(2).

84. Supra 58, at Art. 1(2.a).

85. Supra 58, at Art. 1(2.b).

become recognized by the Radio Regulations, most of them satellite-specific versions of services more broadly defined.

Following the straightforward focus on rational, efficient and economic use of radio frequencies demanded by Article 44(2) of the ITU Constitution, ‘first-come, first-served’ was the natural default principle for prioritization of potential competing or interfering requests for frequency usage. After all, every day a frequency was *not* used was lost for eternity. Whilst this principle however was inherently considered fair as between a set of similarly-minded developed liberal market economies with roughly equal levels of technology, and not considered unduly burdensome as long as the geostationary orbit would remain far from overcrowded, such underlying assumptions quickly began to change with the entry of more and more satellites into orbit and the growing interest of more and more lesser-developed and least-developed states in benefitting from satellite communications.

The latter especially became concerned that the geostationary orbit would be full, or that at least the most beneficial slots and frequencies would be occupied, by the time they themselves might have obtained the technological and financial wherewithal to launch a satellite there. Closely related, there were also political and ideological issues, in that domination of the geostationary orbit by the developed, read Western, world would translate into Western control over telecommunications and Western cultural dominance full-stop.

This happened in particular with respect to the most politically-sensitive of the original triad of space services developed at the 1963 EARC: satellite broadcasting (BSS) was viewed by developing states as an instrument for the developed states to ‘impose’ their cultural and social values. Developing states were therefore particularly interested in, at some point in the future, running their own systems to counteract such ‘imperialist’ influences, but might not be able to do so beneficially by that time as a consequence of the hitherto applied ‘first-come, first-served’ principle – which consequently came under heavy criticism for the first time.

The ITU Plenipotentiary Conference of 1973 in this respect came up with a first compromise, that in addition to efficient and economic use (which dictated allocation and allotment as soon as some state was seriously interested) also equitable access (which should somehow guarantee to developing states they would not find all positions gone by the time they would be ready to launch) was to be taken into consideration.

At the 1977 WARC this general compromise was then worked out in that so-called *a priori*-plans for BSS would apply for two out of the three global ITU Regions: Europe-plus-Africa respectively Asia-plus-Oceania; for the Americas the old system of ‘first-come, first-served’ would continue to apply. These *a priori*-plans

meant effectively a few satellite slots plus assorted frequencies would be reserved for each state, regardless of whether that state was in a position to immediately start using them. At the so-called 1985 WARC-ORB, again dedicated to space services, also some FSS frequency bands were allocated for *a priori*-allotment. The discussion on 'first-come, first-served' *versus a priori*-planning continued at another space-dedicated WARC-ORB in 1988. For FSS some frequency bands and slots were now reserved for some groups of states, while allowing 'first-come, first-served' to continue to apply for other parts of the spectrum, and for BSS *a priori*-planning rules were drafted – and by contrast for MSS 'first-come, first-served' continued to apply squarely.

In view of the special character of satellite communications as opposed to telecommunications *largo sensu*, with the attendant need to deal with specific issues of satellite orbital slots and orbits a special coordination process was established in the context of the ITU. This coordination process for a particular set of frequencies, satellite system and service taking place under auspices of the Radio Regulations Board starts with the advance publication of information on the proposed satellite system, effectively a formal filing, including requested slots/orbits and frequencies.<sup>86</sup> Such a proposal had to be forwarded to the ITU not earlier than seven years prior to the intended date of bringing the satellite system into use (in order to preclude efforts to 'reserve' frequencies and slots/orbits overly long in advance), and preferably not later than two years.<sup>87</sup>

The proposal for allotment/assignment would allow all other ITU member states than the one requesting the allotment/assignment to report threats of possible interference with their respective systems or those of operators falling within their jurisdictions (whether actual or intended, in the latter case of course having formally entered the ITU process before the system whose allotment/assignment was now at issue). If such potential interference was reported, the requesting state had the primary obligation to accommodate, which usually meant that it had to propose alternative frequencies (in which case the process would basically start all over again) or other methods by which such interference would be avoided.

As of today, for all the space systems for which frequency bands were allocated and frequencies allotted and assigned, the on-line Space Network Systems (SNS) Database contains, in addition to a brief overview of the Radio Regulations referring to space services (and general information concerning statistics), data on more than 10,600 geostationary satellite filings, 1,070 non-geostationary satellite filings and 7,900 earth station filings. Within this database, a freely navigable query system allows searching for specific information.

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86. *Supra* 58, at Art. 9(1).

87. *Supra* 58, at Art. 9(1).

#### 4. THE REGIME DEVELOPED IN THE CONTEXT OF THE WTO AND SATELLITE COMMUNICATIONS<sup>88</sup>

Whilst for many years the general international space law regime and the regime developed in the context of the ITU constituted the two major axes along which the legal regulation of international satellite communication activities developed, with the increasing and still on-going liberalization, privatization and in particular commercialization of the sector, a third international regime became of major importance as well: that addressing the international trade in services developed in the context of the World Trade Organization (WTO), now becoming applied to cross-border satellite communication services.

##### 4.1. The general international trade law regime and the WTO<sup>89</sup>

In 1947 the General Agreement on Tariffs and Trade (GATT)<sup>90</sup> was concluded, a treaty of potential (and hoped-for) global application providing a framework for the breaking down of barriers to international trade in goods, notably import tariffs and quota. Though formally not an intergovernmental organization, a secretariat in Geneva started functioning as a *de facto* permanent institutional basis to promote and support the actual undertakings to lower such trade barriers, as the GATT itself provided for the framework and the principles, but not for the details and the implementation of trade liberalization. Those actual undertakings in short amounted to application of the generic regime of the GATT rules and obligations to sets or categories of goods, as agreed upon in long and complicated international negotiations, the so-called 'Rounds'.<sup>91</sup>

In the early 1990s the overall success of the GATT gave rise to a desire to broaden trade liberalization, which resulted most prominently in 1994 in the agreement on a similar framework regime for trade in services to complement the trade in goods, the General Agreement on Trade in Services (GATS),<sup>92</sup> and an agreement to underpin and institutionalize the whole range of trade liberalization efforts by establishing a proper intergovernmental organization, the World Trade Organization (WTO).<sup>93</sup>

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88. For a full-fledged analysis of international trade law developed under WTO auspices as relevant to space activities, see F.G. von der Dunk, International trade aspects of space services, Chapter 15, *Handbook of Space Law*.

89. See § 15.2, *Handbook of Space Law*.

90. General Agreement on Tariffs and Trade (hereafter GATT 1947), Geneva, done 30 October 1947, entered into force 1 January 1948; 55 UNTS 194; TIAS 1700; ATS 1948 No. 23.

91. See *GATT*, Wikipedia, [http://en.wikipedia.org/wiki/General\\_Agreement\\_on\\_Tariffs\\_and\\_Trade](http://en.wikipedia.org/wiki/General_Agreement_on_Tariffs_and_Trade).

92. General Agreement on Trade in Services (hereafter GATS), Marrakesh, done 15 April 1994, entered into force 1 January 1995; 1869 UNTS 183; UKTS 1996 No. 58; Cm. 3276; ATS 1995 No. 8.

93. Agreement Establishing the World Trade Organization (hereafter WTO Agreement), Marrakesh, done 15 April 1994, entered into force 1 January 1995; 1867 UNTS 154; UKTS 1996 No. 57; ATS 1995 No. 8; 33 ILM 1125, 1144 (1994).

Underneath the WTO Agreement as the overarching legal document, Multilateral Trade Agreements<sup>94</sup> and Plurilateral Trade Agreements,<sup>95</sup> a range of specific agreements provided the bulk of the substantive trade regimes, by applying – following the negotiations in Ministerial Conferences or the various ‘Rounds’ referred to earlier – the general trade-liberalization regime to specific issues or specific sectors.

When the GATS in 1994 essentially transposed the main elements of the GATT regime to the context of services, it did not define services, but only listed the categories of (international) services in principle subject to its regime, as respectively being

“the supply of a service

- (a) from the territory of one Member into the territory of any other Member;
- (b) in the territory of one Member to the service consumer of any other Member;
- (c) by a service supplier of one Member, through commercial presence in the territory of any other Member; [or]
- (d) by a service supplier of one Member, through presence of natural persons of a Member in the territory of any other Member.”<sup>96</sup>

The GATS applies a ‘positive list approach’, whereby member states collectively negotiate commitments to open and keep open service sectors. Such trade liberalization is generally equated to firstly breaking down trade barriers at national borders, most simply in the form of import duties or quantitative trade barriers such as maximum import quota,<sup>97</sup> and secondly levelling the playing field for international trade transactions within such national borders. Increasingly then, it also encompasses more sophisticated instruments to obstruct free trade such as taxes having equivalent effects or legislation using technological, operational, safety or security criteria to provide obstacles to such free trade.

Another key element of the GATS is ‘non-discrimination’: the general conception that international trade and, indeed, the international community would be best served by the broad abolishment of favours for specific trade partners and the introduction of a maximum achievable level of global non-discrimination in this respect. A corollary of non-discrimination in terms of nationality of producers,

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94. Supra 95, at Art. II(2).

95. Supra 95, at Art. II(3).

96. Supra 94, at Art. I(2). Usually, those four categories are respectively referred to as cross-border supply, consumption abroad, commercial presence and presence of natural persons.

97. Supra 92, at Art. XI, GATT 1947.

service providers and consumers is the concept of ‘technical neutrality’, whereby the principled requirement not to promote or favour in any manner one technology over another is considered a key component of establishing a true level playing field and a truly liberalized international trade environment.

Two specific legal instruments are central in the application of the international trade laws regime: Most-Favoured Nation (MFN) clauses and National Treatment (NT) clauses.

As to the first, these provide a specific economic form of ‘non-discrimination’ which imposes an obligation to treat any external trade partner and its companies not worse than it treats its ‘most-favoured nation’ and *its* companies. In the GATS this is phrased as follows: “With respect to any measure covered by this Agreement, each Member shall accord immediately and unconditionally to services and service suppliers of any other Member treatment no less favourable than that it accords to like services and service suppliers of any other country.”<sup>1</sup> In other words, the discrimination of services and service suppliers from different foreign countries is prohibited if they can be considered a ‘like’ service. Exemptions from this straightforward regime are possible, but under the GATS only as far as allowed by the Annex on Article II Exemptions.<sup>2</sup>

As to the second, this in essence goes one step further than the MFN clauses in applying non-discrimination: now also discrimination between foreign providers of products or services and national providers of the same goods respectively services is in principle outlawed. As this applies only once a product, service or item subject to intellectual property has entered a national market, charging customs duties on importation as such does not constitute a violation of NT even if locally-produced products are not charged an equivalent duty: it is *after* having entered a specific national market that foreign goods are entitled to be treated equal to domestic goods. Thus, following the GATS, “each Member shall accord to services and service suppliers of any other Member, in respect of all measures affecting the supply of services, treatment no less favourable than that it accords to its own like services and service suppliers,”<sup>3</sup> however, this was prefaced by “[i]n the sectors inscribed in its Schedule, and subject to any conditions and qualifications set out therein”.<sup>4</sup> This meant that NT was not a general obligation *ipso facto* stemming from WTO and GATS membership but was dependent on market access as per schedules of specific commitments being offered per sector.

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1. Supra 94, at Art. II(1).

2. Supra 94, at See Art. II(2).

3. Supra 94, at Art. XVII(1).

4. Supra 94, at Art. XVII(1).

Thus, the specifics of substantive liberalization measures to be taken falls to these 'Schedules of Commitment'. They determine the level of access to foreign markets that service providers are to be allowed under the MFN principle for specific service sectors, including lists of types of services where individual states can opt out of applying MFN treatment,<sup>5</sup> as well as possibly going one step further by applying NT to the service sector by way of specific commitments: "With respect to market access through the modes of supply identified in Article I, each Member shall accord services and service suppliers of any other Member treatment no less favourable than that provided for under the terms, limitations and conditions agreed and specified in its Schedule."<sup>6</sup>

Further liberalization is then to be achieved by way of additional and specific commitments:

"Each Member shall set out in a schedule the specific commitments it undertakes under Part III of this Agreement. With respect to sectors where such commitments are undertaken, each Schedule shall specify:

- (a) terms, limitations and conditions on market access;
- (b) conditions and qualifications on national treatment;
- (c) undertakings relating to additional commitments;
- (d) where appropriate the time-frame for implementation of such commitments; and
- (e) the date of entry into force of such commitments."<sup>7</sup>

Whilst it remains for sovereign states also to withdraw concessions earlier agreed upon through the GATT, GATS and Schedules of Concessions and Commitment, the treaties at least require an extended procedure allowing other affected states to exert strong pressure, even use arbitration in certain cases, to try and prevent a member state from taking such a unilateral anti-liberalization measure.<sup>8</sup>

#### **4.2. The WTO and satellite communications specifically<sup>9</sup>**

Following a major paradigm change in telecommunications, including satellite communications, at least in the developed countries moving away from a government-dominated public service environment to a private-enterprise-oriented commercial business environment, questions arose as to the desirability, feasibility and likelihood of achieving liberalization in the trade in those telecommunication

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5. *Supra* 94, at Art. II(1), resp. (2).

6. *Supra* 94, at Art. XVI(1); See § (2) for detailed obligations for compliance with NT in this respect.

7. *Supra* 94, at Art. XX, GATS; See also Arts. XVII, XVIII.

8. *Supra* 94, at Art. XXI(2), (3).

9. See § 15.4, *Handbook of Space Law*.

services, originally comprising a government-exclusive and domestically fenced-off economic sector. This was evidenced by such developments as the appearance on the scene of major private satellite communication service providers, the pressure to privatize the international satellite operators, and the domestic liberalization of markets and privatization of operators, such as in Europe as per the 1994 Satellite Directive<sup>10</sup> and in the United States ultimately as per the 2000 ORBIT Act.<sup>11</sup>

At the international level, first the GATS Annex on Telecommunications, which entered into force concurrently with the GATS itself, provided for some baseline obligations concerning transparency, general access to infrastructure and markets, and public service-related conditions – without, however, as of yet applying the key principles of MFN and/or NT in that context and thereby actually liberalizing those markets, as that was made dependent on actual Schedules of Commitment.<sup>12</sup>

Within a few years however 54 WTO member states plus the European Commission on behalf of the then-fifteen EU member states came to a more substantive agreement to liberalize the global markets for basic telecommunication services. For the purpose of efficiency and coherence, telecommunication services were classified in fifteen categories which unequivocally included several categories of satellite communication services. At the time, these 69 states together accounted for more than 90% of global telecommunications revenues.

The agreement to liberalize international telecommunication markets, often referred to as the ‘Agreement on Basic Telecommunications’ or ‘Agreement on Basic Telecommunication Services’, formally comprised the Fourth Protocol to the GATS<sup>13</sup> plus the required individual Schedules of Specific Commitments and a list of exemptions from Article II of the GATS. By now, the number of WTO members having made such commitments in their schedules to allow international trade in telecommunication services within their territories has risen to 108. In addition, 82 WTO member states have now committed to the regulatory principles of the WTO Reference Paper of 24 April 1996,<sup>14</sup> the policy paper which provided a major

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10. Commission Directive amending Directive 88/301/EEC and Directive 90/388/EEC in particular with regard to satellite communications, 94/46/EC, of 13 October 1994; OJ L 268/15 (1994).

11. Open-market Reorganization for the Betterment of International Telecommunications Act, Public Law 106-180, 106th Congress, 17 March 2000.

12. See *GATS Annex on Telecommunications*, WTO, available at [http://www.wto.org/english/docs\\_e/legal\\_e/26-gats\\_02\\_e.htm#anntel](http://www.wto.org/english/docs_e/legal_e/26-gats_02_e.htm#anntel).

13. Fourth Protocol to the General Agreement on Trade and Services of 15 April 1994 (hereafter Fourth Protocol to the GATS), Geneva, done 15 April 1997, entered into force 5 February 1998; WTO Doc. S/L/20 of 30 April 1996 (96-1750); 2061 UNTS 209; ATS 1998 No. 9; 33 ILM 1167 (1994); 36 ILM 354 (1997).

14. Telecommunications Services; Reference Paper, Negotiating group on basic telecommunications, 24 April 1996; at [http://www.wto.org/english/tratop\\_e/serv\\_e/telecom\\_e/tel23\\_e.htm](http://www.wto.org/english/tratop_e/serv_e/telecom_e/tel23_e.htm).



impetus to the establishment of the Fourth Protocol and the attendant schedules of commitments.

By way of the Fourth Protocol to the GATS these states agreed that

“a Schedule of Specific Commitments and a List of Exemptions from Article II concerning basic telecommunications annexed to this Protocol relating to a Member shall, in accordance with the terms specified therein, supplement or modify the Schedule of Specific Commitments and the List of Article II Exemptions of that Member”.<sup>15</sup>

In terms of satellite communications, the Schedules of Specific Commitments thus provided the substance of the liberalization achieved. In sum, 51 states (by way of 37 Schedules) committed themselves to allow foreign operators to offer some or all types of mobile satellite services or the related transport capacity in their national markets, while 50 states (by way of 36 Schedules) did so with respect to fixed satellite services or the transport capacity involved therein.

The Schedules of Commitments were generally structured by way of a matrix, with horizontal rows also encompassing other communication services but ‘Telecommunication Services’ (Category 2.C) being the relevant category here. Within Category 2.C a range of services are further distinguished, of which for example ‘public voice telephone services’ (a) may also implicitly involve satellite communications whilst – if applicable – specific arrangements on, or explicit mentioning of satellite services could be found either within specific boxes, or as a subset of (o), ‘other services’.

The vertical columns of the matrix in turn, for each of the sectors respectively sub-sectors as described above, refer to limitations on market access and limitations on national treatment, as reflecting the main GATS principles applied here, plus additional comments and notes as appropriate.

Within each ‘box’ of the matrix then the relevant commitments are set out, subdivided into the four generic modes of international service provision that the GATS recognizes; cross-border supply, consumption abroad, commercial presence and presence of natural persons. Finally, horizontal commitments – that is, applicable not just to the communications sector, but to all service sectors falling within the scope of the GATS – are referenced; they pertain to such general aspects of appropriate corporate behaviour and respect for local, sub-national or national law and regulations applicable to economic operations and service provision on a broad range of subjects.<sup>16</sup>

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15. Supra 112, at Art. 1.

16. Supra 115.

In sum, over the past decades within the framework established by the GATS and WTO regimes a largely liberalized international trade environment for satellite services has evolved including the largest economies of the world, in turn also including leading developing nations. At the same time, it was a somewhat haphazard process leaving many individual idiosyncratic elements intact, due to the Specific Schedules of Commitments and the fact that generally four modes of foreign service provision are at issue.<sup>17</sup> Sometimes satellite communications are implicitly included in all or most of such commitments to liberalize foreign access to national markets, as per the MFN and NT principles; sometimes they are expressly singled out. In the latter case moreover they are often subject to specific but varying limitations concerning foreign equity in terms of commercial presence or obligatory use of national operators and/or facilities. In many cases therefore only extended investigation and close inspection and analysis of the relevant commitment in the light of general GATS obligations allows for a final determination of the actual legal situation concerning the rights of foreign satellite service providers to a certain national market.

## 5. CONCLUSION

Already the above summary analysis of three key legal regimes in the field of satellite communications makes clear that operators in this sector and their governments have to maintain a broad perspective when it comes to ensuring that they operate within the boundaries of the law. So far, major inconsistencies or even contradictions have been avoided, *inter alia* because the United Nations Committee on the Peaceful Uses of Outer Space, responsible for the main space law treaties, and the ITU, responsible for the legal regime applicable to frequency usage, have been in frequent consultation with each other to ensure the required minimum of consistency. On the other hand, the ITU and the WTO have already come close to crossing each other's paths, where for instance the ITU has addressed the free movement of mobile telecommunication terminals across boundaries by way of a 1997 Memorandum of Understanding on Global Mobile Personal Communications by Satellites where it belongs to the core domain of the WTO regime to address such trade aspects of operating satellite communications terminals. And with the proposed establishment of a register of space assets following the UNIDROIT Space Assets Protocol<sup>18</sup> a third registration system pertinent to space operations, next to the Registration Convention and the ITU's Master International Frequency Register, could potentially introduce (further) confusion, even contradictions, into the

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17. See § 15.4.3, *Handbook of Space Law*.

18. Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets (hereafter Space Assets Protocol); UNIDROIT Doc., DCME-SP-Doc. 43, of 9 March 2012.

existing legal environment – albeit that the Protocol currently does not seem to garner sufficient support for entry into force in the short term.

Nevertheless, it will be clear that with the increasing complexity, extension and impact of satellite communications in today's world also the set of legal rules applicable to it is stemming from an increasing variety of sources. Whilst this 'Mini-Handbook' represents an effort to at least explain the three most important amongst those resources in a summary and coherent yet comprehensive fashion, the main message to take home is probably precisely that: all-round satellite communication lawyers should be aware at the outset of the multiplicity of regimes at least potentially applicable to a particular satellite communication operation, service or scenario and of their likely complicated interaction, if their employers or clients are to stay reasonably assured that all requisite legal angles are covered in a given instance.