INTERNATIONAL INSTITUTE FOR THE UNIFICATION OF PRIVATE LAW
INSTITUT INTERNATIONAL POUR L'UNIFICATION DU DROIT PRIVE

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GOVERNING COUNCIL
90th session
Rome, 9 - 11 May 2011

UNIDROIT 2011
C.D. (90) 6 rev.
Original: English
April 2011

Item No. 7 on the agenda: Third party liability for Global Navigation Satellite System (GNSS) services

(Memorandum prepared by the Secretariat)

Summary	*Information on work conducted in the year 2010-2011*
Action to be taken	*The Council is encouraged to further endorse the decisions taken by the General Assembly in December 2010.*
Mandate	*C.D.(88) 17, p. 13*
Priority level	*Medium / Low*
Related documents	*C.D.(86) 20, 22; C.D. (87) 23; C.D. (88) 7 Add. 4; C.D. (89) 7 Add. 1*

I. INTRODUCTION

1. At its 88th session (Rome, 20-23 April 2009), the Governing Council mandated the Secretariat to prepare a detailed feasibility study focusing in particular on gaps in liability resulting from malfunction of satellite-based navigation systems under existing Conventions on carriage of goods and passengers by air, rail, road and sea, as well as Conventions governing liability for environmental damage and third party liability by those modes of transport, including related insurance and reinsurance arrangements, for consideration by the Council at its 89th session in 2010 (C.D. (88) 17, para. 75).

2. In the study prepared pursuant to that request (document C.D.(89)7 Add. 1), the Secretariat described the types of GNSS services currently in operation and illustrated the various applications of GNSS technology. It emerged that none of the current international rules governing liability for space activities applied to third party liability for accidents caused by GNSS failure or malfunction in transmitting the signal. The study, therefore, proceeded to examine the extent to which the special liability regimes established by the various international Conventions on the carriage of goods or persons might apply to liability connected with GNSS failure or malfunction. The study in particular identified numerous gaps in those regimes which warranted further investigation.

3. The Council examined that study at its 89th session (Rome, 10 - 12 May 2010), when three clear views emerged among Council members. The first reflected a strong persuasion about the usefulness of the project and, holding that there was no obstacle for it to do so, advocated that UNIDROIT should at least examine the issue. A second view denied all these assumptions, noting, in particular, the different military and civilian natures of the various existing GNSS programmes which would lead to complications in the application of any instrument dealing with third-party liability. The third was the middle view that it would be unfortunate if UNIDROIT were to discard such a potentially important topic and that further consultations should, therefore, be carried out.

4. The Secretariat, accordingly, proposed that the topic be included in the Work Programme for the triennium 2011-2013 and that:

> "the Secretariat be mandated to organise consultations with a broader spectrum of participants, including the European Union Commission, the International Civil Aviation Organization (ICAO), satellite operators and insurers and individual Governments that expressed an interest (as, for example, the Russian Federation already had) with a view to clarifying the issues and further identifying the scope. From a practical point of view, such consultations might be held in parallel with the meetings related to the future Space Protocol, where experts in the field would be on hand" (Governing Council, Report on the 89th session, paragraph 94).

5. The Council endorsed this proposal. In view of the overall workload of the Secretariat, including ongoing projects and projects proposed for the triennium 2011-2013, the Council decided that this project should be assigned a medium/low level of priority (*ibid*., para. 96)

II. EXISTING INSTRUMENTS

6. With respect to the use of GNSS applications in the transportation sector, the research conducted by the Secretariat concluded as follows:

> "Notwithstanding the existence of a variety of instruments in the transport sector, a number of accidents provoked by GNSS failure or malfunction could fall outside their scope of application. The transport operator would maintain a right of recourse of the transport operator in respect of the GNSS signal provider. These instruments all provide for a limitation of compensation; in the absence of such a limitation for GNSS activities, the plaintiffs might be induced to address the GNSS provider directly in order to obtain higher compensation. The existing regimes can present gaps in protection, and leave open the questions of the subsidiary direct action against the GNSS provider for these "gaps"." None of the carriage Conventions would apply as such to GNSS failure; neither would they apply to a recourse action of the carrier/ insurer against the signal provider." (Governing Council, UNIDROIT 2010 - C.D. (89)7 Add. 1, p- 42)

7. In particular, the research carried out by the Secretariat has shown that:

(a) it is not entirely clear to what extent a carrier may be exempt from liability for damage ultimately attributable to GNSS failure and, if so, whether the passenger or cargo owner may sue the signal provider directly;

(b) it is not entirely clear to what extent a claimant that has been compensated within the limits of an existing Convention may sue the provider of a GNSS signal for the amount not compensated by the carrier, even if the answer may be probably in the negative for lack of privity of contract; and

(c) it is not entirely clear, in either case, whether the insurer (cargo or carrier) may have such a direct course of action against the signal provider.

8. Besides highlighting the current legal uncertainty, those findings suggest that, depending on whether and to what extent any existing carriage Convention (or domestic legislation instead) applies, there may be instances of liability that are left uncovered, leading potentially to either unlimited liability or no liability at all, whilst in other instances the liability would be limited to a set amount and no further compensation could be directly or indirectly obtained.

9. A new instrument on GNSS-related liability could be either superimposed on the existing instruments, as a form of overarching liability that could be engaged either as a redress after satisfaction of a claim under any of the carriage Conventions, or as a supplement to those Conventions for the amount of damage that exceeds their respective liability limits. Such new regime could also be conceived to co-exist with current carriage Conventions, attracting directly all claims based on personal injury, or material loss or damage resulting from GNSS failure. In either scenario, it would appear that such a special regime would not disturb the operation of existing carrier liability regimes and might in fact help fill gaps left by the various Conventions and their varying substantive and geographic scopes of application.

III. CONSULTATIONS

(a) Scope of consultations

10. As noted earlier, at its 89th session, the Governing Council, based on these findings, mandated the Secretariat to organise consultations with a broader spectrum of participants. In the light of the considerations set out above, the following paragraphs provide information on the strategy employed by the Secretariat for those consultations.

(i) Service providers

11. Currently, the space parts of GNSS consist of two core constellations: the NAVSTAR Global Positioning System (GPS) of the United States, which is currently the world's most utilised satellite navigation system, and the Global Navigation Satellite System (GLONASS) of the Russian Federation. However, it is expected that, in the near future, other similar systems will be operational. Two of them are designed to have a global coverage (i.e. the European Union's Galileo and the proposed COMPASS-Beidou 2 Navigation System of China), while others will be regional, i.e. the Indian Regional Navigation Satellite System (IRNSS) and the Japanese Quasi-Zenith Satellite System (QZSS).

12. Both GPS and GLONASS were originally developed for military purposes but have been made available for civilian use by means of open access to their civilian navigation signals free of charge and without limitation to both national and foreign consumers. Whilst it is unlikely that the countries responsible for these systems subject themselves to an international liability regime that was the outcome of international negotiations, the Secretariat intends to seek the input of operators and other stakeholders of both GPS and GLONASS in the consultation process, in view of the value of their technical expertise on the various types of GNSS services and risks involved.

13. The European Union's Galileo project will serve essentially civilian purposes. Galileo is, therefore, the system most likely to be susceptible to being subject to a civil liability regime in the near future. The consultations conducted by the Secretariat, which have so far included contacts with representatives of the European Union (EU), will also include the European Space Agency (ESA) and Spaceopal, the company selected by the ESA to provide ground-based services needed to operate the Galileo constellation.

14. The Secretariat also proposes to consult stakeholders involved in the implementation of the Beidou 2 - COMPASS, QZSS and IRNSS. Informal contacts with representatives of the interested circles in both China and Japan during the consultations held so far by the Secretariat indicate an interest for examining further the possibility of developing an international framework for third

party liability for GNSS services. The Secretariat has not yet had an opportunity to seek the views of the Government of India on this matter.

15. Irrespective of the region, the Secretariat proposes to extend its consultations also to representatives of satellite and component manufacturers, satellite operators and the relevant segment of the insurance industry.

(ii) Service recipients

16. GNSS allows receivers to determine their location – longitude, latitude and altitude – using time signals transmitted along a line-of-sight by radio signals from satellites. GNSS is used in three main areas: *navigation*, *positioning* and *timing*. As indicated in the research carried out by the Secretariat (document C.D.(89)7 Add. 1, paragraphs 56-81), depending on the industry or activity concerned, each of these areas involves a variety of applications and all three areas may be combined through different applications, as briefly summarised below.

17. In all modes of *transportation* (maritime, air, rail or road), different types of GNSS services may be combined to improve navigation and increase passenger and cargo safety - for instance by providing accurate information on position, course and speed of the vessel or vehicle, for more efficient traffic routing; enhancing efficiency and economy for cargo management in ports, warehouses, or storage facilities; increasing safety and security by allowing the monitoring of routes through automatic vehicle or vessel identification systems; improving the accuracy of transportation schedules by means of exact positioning and timing information; allowing for more efficient fleet deployment through equipment location awareness.

18. The use of navigation and positioning applications are not limited to the transportation sector, as they may support a number of activities in the *fishing* industry (following schools of fish), *agriculture* (yield data monitoring; precision soil sampling, data collection and data analysis; accurate navigation during field preparation); *geodesy* (accurate surveying and mapping) and *building* (accurate machine navigation and positioning in tunnel digging).

19. Although navigation and positioning applications are more widely known, timing by GNSS is applied to many economic activities, such as *telecommunication* systems (synchronisation of base stations supporting wireless telephone and data networks; data encryption); *banking and financial services* (time-stamping, computer network synchronisation; data encryption; tracking, updating and managing of transactions).

20. Apart from business applications, all areas of GNSS service may be used to support *disaster relief operations* (mapping of disaster regions, enhanced capabilities for flood prediction; better monitoring of seismic precursors and events); *public order and public safety* (tracking of stolen vehicles or individuals); *research and science* (geography, environmental sciences, earth dynamics), *recreational activities* (biking, trekking, fishing, etc.).

21. The wide variety of activities for which GNSS applications may be used leads to two conclusions as regards the spectrum of Organisations and business interests that the Secretariat should consult:

(a) as regards international Organisations with interests in the areas of application of GNSS technologies, consultations should involve, apart from ICAO and the European Civil Aviation Conference (ECAC), other Organisations such as the International Maritime Organization (IMO), the Intergovernmental Organisation for International Carriage by Rail (OTIF), the International Telecommunication Union (I.T.U.) and possibly the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), including the International Committee on GNSS, an organ of COPUOS;

(b) the industries and groups that may become direct or indirect customers of GNSS services are too disparate to allow for meaningful and efficient consultations. The Secretariat, therefore, proposes to adopt a selective approach and to seek the views, firstly, of air carriers and the shipping industry, through their representative organisations (the International Air Transport Association, the International Chamber of Shipping, the International Road Transport Union), as well as of the cargo and carrier insurance industry (for example, the P&I Clubs). Secondly, the Secretariat proposes to seek in due course the views of representatives of the telecommunications (possibly through the ITU, where private sector and operators are also represented) and banking communities (as manager of the interbank payment system, SWIFT would be a natural candidate).

(b) Summary of consultations

22. This section summarises the activities undertaken by the Secretariat since the 89th session of the Council.

(i) Informal consultation meeting on "Third Party Liability For Global Navigation Satellite Systems (GNSS) Services

23. On 22 October 2010, immediately following the intersessional meetings on the preliminary draft Protocol to the Cape Town Convention on Matters specific to Space Assets (Rome, 18-21 October 2010), the UNIDROIT Secretariat organised an informal consultation meeting to assess possible interest in the negotiation of an international instrument on third party liability for GNSS Services. The meeting was attended by representatives of the Governments of China, the Czech Republic, Germany, Italy, the Russian Federation, the United States of America, and the Commission of the European Union, and by academics and members of the international space communities (the list of participants is contained in Annex I).

24. The opening presentations made by the Secretariat illustrated the basic notions of the proposed project, what GNSS is and what it does, what ground-based augmentation systems are, the notion of interoperability and applications of GNSS. Ms Matxalen Sánchez Aranzamendi, Resident Fellow at the European Space Policy Institute (ESPI) in Vienna, made a presentation on "Policy Aspects of Third Party Liability in Satellite Navigation: Preparing a Roadmap for Europe", which was followed by a presentation by Mr Walter Vasselli, Legal Counsel, Finmeccanica, on "A Legal Regime for Third Party Claims relating to the Malfunctioning of GNSS in Europe" and a presentation by Professor Lesley Jane Smith of the Leuphana Universität Lüneburg on the legal framework for third party liability for GNSS.

25. The participants discussed in particular whether an international instrument might, following the example of most liability instruments, set a liability limit which would also help the insurability of satellite activities and cover aspects such as liability channelling, provision for supplementary compensation to guarantee satisfactory recovery of losses and provide criteria for identifying the competent jurisdiction. Whilst expressing differing views on the topic, notably by reason of the legal and political complexities involved, the participants conveyed their general interest in continuing consultations.

(ii) Presentation and discussions in connection with the fifth session of the Committee of governmental experts for the preparation of a draft Space Protocol

26. On the occasion of the fifth session of the Committee of governmental experts for the preparation of a draft Protocol to the Convention on International Interests in Mobile Equipment on Matters specific to Space Assets (Rome, 21-25 February 2011), the Secretariat organised a briefing session, on the morning of 24 February 2011, to inform participants in the session about the basic elements of the proposed project on third party liability for GNSS and to seek their views on its desirability and feasibility. Attendants included members of the delegations of Canada, China,

Colombia, the Czech Republic, Germany, Hungary, Indonesia, Italy, Japan, Kenya, Mexico, Saudi Arabia, Slovenia, the United Kingdom and the United States. Also present were representatives of the European Centre for Space Law, ESA, the International Bar Association (IBA) and the International Institute of Space Law.

27. The first presentation illustrating the proposal originally made by the Italian Government was made by Professor Sergio Carbone, who stressed the need for an international regime since the present regime was inadequate to give positive and complete answers to the questions raised. Professor Carbone referred to two Conventions: the *1972 Convention on International Liability for Damage Caused by Space Objects,* which was inadequate because it treated only physical damage, meaning that there was a problem for damage which was not direct physical damage, and the *1944 Chicago Convention on International Civil Aviation*, Article 28[1] of which was inadequate as it related only to navigation and not to all other areas in which satellites were utilised. Professor Carbone referred further to the question of sovereign immunity, highlighting the inadequacy of the relevant rules of public international law, in the context of the provision of GNSS services by States or State-owned entities and stressing the importance of developing a uniform and mandatory regime for sovereign immunity. As regards possible claims against operators themselves, he explained the difficulties that arose from conflicts of jurisdiction and uncertainty as to the applicable law. Recalling that the studies conducted by ICAO had shown that the problem of liability existed and that the solutions given by domestic law were both conflicting and insufficient, he concluded that an international instrument was the only solutions that could usefully create an adequate regime.

28. The second presentation was made by Mr Walter Vasselli, and was centred around the EU Galileo project, its creation and development. In the context of shared legal and financial responsibility (public-private partnership) between private industry (not only the space sector but all sectors) and public entities (e.g. States participating in GNSS programmes), which was an essential feature of the Galileo project, he argued that a specific legal regime was needed to achieve a balance between the economic sustainability required by operators and adequate compensation to which the victims of accidents or malfunction might be entitled

29. Mr Vasselli suggested that such a specific legal regime might include the following features:

(a) certification of providers of GNSS Services as "qualified providers", either under contract with the relevant GNSS Operator, or by regulations in local jurisdictions;

(b) channelling of liability to qualified providers for the malfunctioning of signal or equipment;

(c) strict liability for damage resulting from failure or malfunction of GNSS services, subject to a limitation ceiling covered by compulsory insurance, with the possibility of breaking the limitations for special instances of negligence;

(d) liability limits could be established according to various criteria, including global limitation per year, per incident or *per capita,* with the ceilings possibly set at different levels

[1] Article 28 (*Air navigation facilities and standard systems)* "Each contracting State undertakes, so far as it may find practicable, to: *a)* Provide, in its territory, airports, radio services, meteorological services and other air navigation facilities to facilitate international air navigation, in accordance with the standards and practices recommended or established from time to time, pursuant to this Convention; *b)* Adopt and put into operation the appropriate standard systems of communications procedure, codes, markings, signals, lighting and other operational practices and rules which may be recommended or established from time to time, pursuant to this Convention; *c)* Collaborate in international measures to secure the publication of aeronautical maps and charts in accordance with standards which may be recommended or established from time to time, pursuant to this Convention".

depending upon the services provided (open service, safety of life, search and rescue, commercial services, public regulated services);

(e) supplementary compensation could be made available in the relevant jurisdiction for amounts in excess of the cap, but up to a limited amount, by recourse to a fund (e.g. financed by public entities and/or private industry) and/or to direct contributions of States;

(f) a special regime could be established for open services, distinguishing between open services as a free common utility (at user risk) and open services for commercial exploitation (which would be subject to the same rules as other GNSS services);

(g) the GNSS operator should be subject to the rules applicable to qualified providers only when it supplied services to providers and end-users in the market-place;

(h) immunities for public regulated services could be provided in certain circumstances (specific defence or security applications), in any event subject to rules established at EU/international level;

(i) measures should be adopted against unqualified providers and producers of uncertified equipment.

30. It was suggested that claimants in third countries could be attracted by the scheme contemplated in the EU Regulation (e.g. strict liability of the GNSS operator or service providers based in the EU). However, they would not be prevented from seeking compensation on legal grounds applicable in the local jurisdictions, with potential conflicts of laws (e.g. different remedies might apply at the place where the damage had occurred). As an alternative, the EU Commission might enter into bilateral agreements in order to extend the application of the EU Regulation, but this process would be complex by reason of the high number of jurisdictions involved, given the global coverage of the GNSS. A global instrument, it was argued, was, therefore, necessary.

31. In the discussion that followed the presentations, a number of participants expressed interest in the project, welcoming the clarification given by the speakers. Questions raised by the participants at times came within the purview of a future Study Group, such as that of intentional interference with specific signals and the question of damage related to specific circumstances that were beyond control (Canada), proof of damage and whether there could be an application to third parties who might be compensated, or the question of certified equipment and minimum standards of service providers and requirements for end-users to have an acceptable level of equipment (USA). A question concerned the work of ICAO and whether it was possible that minimum standards for aviation might differ from minimum standards applicable to other uses of GNSS (Indonesia).

32. The Secretariat has since contacted all participants in the fifth session of the Committee of governmental experts to solicit their comments on the desirability and feasibility of the project.

(iii) Forthcoming consultations

33. At the end of May, UNIDROIT will participate in the *McGill Institute of Air and Space Law/Eutralex Aerospace Consulting International Galileo and Liability Workshop* (Brussels, 26/27 May 2011). On that occasion, the UNIDROIT representative will explain the rationale of the proposed new project, the status of the debate within the Organisation and the preliminary work that has been conducted so far by the Secretariat. The UNIDROIT representative intends also to seize this opportunity for informal consultations with the European Commission.

III. KEY FEATURES OF THE POSSIBLE APPROACHES THAT HAVE EMERGED

34. An analysis of the debate that has taken place so far within various international Organisations, including UNIDROIT, on liability aspects relating to GNSS and/or to the assessment of possible regulations in the relevant sectors reveals three possible approaches to the issue of third party liability:

(i) a *strict approach*, which considers that the current liability regime under domestic law adequately addresses GNSS liability issues and that the development of a universal liability system is neither feasible nor desirable;

(ii) a *broad approach*, which deems that a universal liability system or convention should be worked out; and

(iii) a *middle ground approach*, which proposes a contractual approach accompanied by a framework agreement containing some uniform rules, including rules on liability. Advocates of this middle ground approach include those who deem that these common rules should be mandatory for all parties concerned, and others who lean towards mere recommendations.

35. Proponents of the *strict approach* stress the political difficulty of developing a legal framework to address even civil liability claims arising from the malfunctioning of satellite navigation systems, given the notable military dimension of the existing technology, and anticipate opposition from the countries that have developed these systems to subjecting themselves to an international liability Convention resulting from international negotiations. They also fear protracted negotiations, since signal-provider countries would naturally favour a regime based on the limitation of liability consistent with the insurability of such liability (such criteria being essential prerequisites for finding private investors and stimulating the presence of privately-operated companies in this industry), while end-user countries would prefer to have only limited restrictions on the imposition of liability on the signal provider and, eventually, in the event of limitation of compensation, for that compensation to be very high. Those circumstances would, therefore, make it more realistic to rely on the contractual provisions for liability and claims settlement that would normally link GNSS services users all the way up to the system operators.

36. Proponents of the *broad approach* argue that, in the light of the various objections to the suitability of the present legal framework relating to GNSS services, and since a great number of States would have to authorise the use of signals over which they have no control, the only way to secure confidence in GNSS and to encourage private bodies to invest in this technology would be to oblige both providers and users to act and operate under a binding international legal instrument an international Convention (for the proposed elements of such a Convention, see above, paragraph 28).

37. Lastly, the proponents of the so-called "*middle-ground approach*" advocate a solution that would comprise two separate and distinct options: a flexible approach and a binding approach. Under the flexible approach, a number of model clauses would be drafted and it would be up to the negotiating parties to decide whether or not to use them in their contract. Under the binding approach, on the other hand, the contractual framework would include a number of mandatory standard clauses binding on all parties. In order to define such mandatory elements, a framework agreement among States at the Governmental level is envisaged.

38. UNIDROIT has not yet finally decided whether or not it should prepare an international instrument on third party liability for GNSS failure. Thus, the possibility that no new instrument is to be developed cannot be excluded and is presented as one of the options under consideration. Nevertheless, the Secretariat believes that even such an option is best considered on the basis of a discussion structured around a concrete proposal. The Secretariat would, therefore, suggest that its consultations should continue to aim at testing the rationale as well as the assumptions and feasibility of the various types of provisions that have been mentioned as desirable or necessary elements of a binding international instrument on liability arising out of GNSS failure (see above,

paragraph 29). To that end, the Secretariat submits that a sharp distinction between a "broad" or a "middle-ground" approach is not essential and that the scope and form of a possible instrument should not be prejudged at the present stage.

IV. FUTURE ACTIVITIES

39. The Secretariat plans to organise another informal consultations meeting with representatives of interested Governments, international Organisations, industry and other stakeholders in the second half of 2011, with a view to defining the possible scope of a future project and clarifying its essential features.

CONCLUSION

In the light of the progress made in the year 2010 – 2011, the Council is kindly requested to reiterate its interest in the project and to encourage the Secretariat to continue its consultations with member States and experts, as instructed by the General Assembly.

ANNEX 1

INFORMAL CONSULTATION MEETING

ON

"THIRD PARTY LIABILITY FOR GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) SERVICES

(Rome, 22 October 2010)

LIST OF PARTICIPANTS

STATES AND INTERGOVERNMENTAL ORGANISATION

CHINA (PEOPLE'S REPUBLIC OF)	Ms ZHANG Shaoping Director State Administration of Science, Technology and Industry for National Defence Ministry of Foreign Affairs *Beijing*
	Mr ZHOU Lipeng Department of Treaty and Law Ministry of Foreign Affairs *Beijing*
	Mr WU Cong Economic and Commercial Counsellor's Office Embassy of the People's Republic of China in Italy *Rome*
CZECH REPUBLIC	Mr Michal FRIDRICH Department of Cosmic Technologies and Satellite Systems Ministry of Transport *Prague*
EUROPEAN UNION COMMISSION	Mr David SEÏTE Enterprise and Industry Directorate General EU satellite navigation programmes unit *Brussels*
	Mrs Giedre VALENTAITE Enterprise and Industry Directorate General EU satellite navigation programmes unit *Brussels*

GERMANY	Ms Soledad BENDER Legal Adviser Federal Ministry of Justice Berlin
	Mr Simon SCHULTHEISS Legal Adviser Federal Ministry of Justice *Berlin*
ITALY	Mr Sergio CARBONE Professor of Law University of Genoa *Genoa*
	Mr Sergio MARCHISIO Professor of Law; Director Institute of International Legal Studies *Rome*
RUSSIAN FEDERATION	Mr Valery FEDCHUK Legal Adviser Trade Representation of the Russian Federation in Italy *Rome*
UNITED STATES OF AMERICA	Mr Harold S. BURMAN Executive Director Office of the Legal Adviser Department of State *Washington, D.C.*
	Mr Henry D. GABRIEL Visiting Professor of Law School of Law Elon University *Greensboro, North Carolina*
	Mr Martin JACOBSON Office of the Legal Adviser Department of State *Washington, D.C.*

REPRESENTATIVES OF THE INTERNATIONAL SPACE COMMUNITIES

Mr Michel BOURBONNIERE	Legal Counsel Canadian Space Agency *Saint-Hubert (Canada)*
Mr Claude DUMAIS	Vice President Corporate and Legal Affairs SES ASTRA S.A. *Chateau de Betzdorf (Luxembourg)*
Mr Oliver HEINRICH	Partner BHO Legal *Cologne (Germany)*
Mr Souichirou KOZUKA	Professor of Law Gakushuin University *Tokyo (Japan)*
Ms Martine LEIMBACH	Chargée de mission Direction des affaires juridiques Crédit Agricole S.A. *Paris (France)*
Ms Matxalen SÁNCHEZ ARANZAMENDI	European Space Policy Institute *Vienna (Austria)*
Mr Bernhard SCHMIDT-TEDD	Head of Legal Support German Space Agency *Bonn (Germany)*
Ms Lesley Jane SMITH	Professor of International and European Economic Law University of Leuphana *Lüneburg (Germany)*
Mr Walter VASSELLI	Senior Manager Legal and Corporate Affairs Finmeccanica *Rome (Italy)*

UNIDROIT

Mr José Angelo ESTRELLA FARIA	Secretary-General
Ms Alessandra ZANOBETTI	Deputy Secretary-General
Ms Frédérique MESTRE	Senior Officer
Ms Lena PETERS	Senior Officer
Mr Daniel PORRAS	Associate Officer