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

- (a) Report on the informal meeting on “Risk Management in GNSS Malfunctioning” (Rome, 11 November 2011)**
- (b) Proposed future work**

(Memorandum prepared by the Secretariat)

<i>Summary</i>	<i>Information on work conducted in the year 2011-2012</i>
<i>Action to be taken</i>	<i>The Council is encouraged to further endorse the decisions taken by the General Assembly in December 2010</i>
<i>Mandate</i>	<i>C.D.(88) 17, p. 13</i>
<i>Priority level</i>	<i>Medium / Low</i>
<i>Related documents</i>	<i>C.D.(86) 20, 22; C.D. (87) 23; C.D. (88) 7 Add. 4; C.D. (89) 7 Add. 1; C.D. (90) 6</i>

**Report on the informal meeting on “Risk Management in GNSS Malfunctioning”  
(Rome, 11 November 2011)**

1. On 11 November 2011, the UNIDROIT Secretariat organised an informal consultation meeting on “*Risk Management in GNSS Malfunctioning*”, a meeting held in the context of the proposed project on *Third party liability for Global Navigation Satellite System (GNSS) Services*. The meeting was held with a view to defining the possible scope of a future project and clarifying its essential features. The programme of the meeting, which closed with a round table discussion on whether the question of liability for GNSS malfunctioning is a European or global problem, is set out in Annex I.

## A. INTRODUCTION

2. In 2005, the Governing Council of UNIDROIT was seized of a proposal to examine the possibility of preparing an international instrument for liability resulting from GNSS malfunctioning.

3. In the years that followed, the proposal was explained in more detail. The positions for and against were explained respectively by Messrs Sergio Carbone<sup>1</sup> and Hans-Georg Bollweg,<sup>2</sup> both members of the UNIDROIT Governing Council. The UNIDROIT Secretariat subsequently prepared a background document which illustrated the situation as regards the different services available and the work that had already been done by other organisations such as the ICAO.<sup>3</sup>

4. At its 88<sup>th</sup> session (2009), the Governing Council entrusted the Secretariat with the preparation of a feasibility study focusing on gaps in liability resulting from the malfunctioning of satellite-based navigation systems.<sup>4</sup> The Governing Council considered that study at its 89<sup>th</sup> session (Rome, 10 – 12 May 2010). After a discussion, the Council confirmed the interest of the subject and recommended its inclusion in the triennial Work Programme of the Institute. The Council further invited the Secretariat to conduct informal consultations with the Governments and other Organisations concerned, with a view to ascertaining the feasibility of the project.<sup>5</sup> The UNIDROIT Secretariat has since organised informal consultation meetings on the desirability and feasibility of the proposed project.

5. The First Informal Consultation Meeting on "*Third Party Liability For Global Navigation Satellite Systems (GNSS) Services*" was held in Rome on 22 October 2010.

6. The second informal meeting was held 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).

## B. THE THIRD INFORMAL MEETING ON "RISK MANAGEMENT IN GNSS MALFUNCTIONING" (ROME, 11 NOVEMBER 2011)

7. The third informal consultation meeting was held on 11 November 2011, with a view to defining the possible scope of a future project and clarifying its essential features. The meeting was attended by representatives of States, inter-governmental organisations, non-governmental organisations, international trade associations, industry, insurance, and law firms.<sup>6</sup>

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<sup>1</sup> Carbone S.M. - E. De Maestri, "The Rationale for an International Convention on Third Party Liability for Satellite Navigation Signals", in: *Uniform Law Review*, 2009, 38

<sup>2</sup> Bollweg H.G., "Initial considerations regarding the feasibility of an international UNIDROIT instrument to cover liability for damage caused by malfunctions in global (navigation) satellite systems", in: *Uniform Law Review*, 2008, 917

<sup>3</sup> UNIDROIT Secretariat, "An instrument on third party liability for damages caused by Global Navigation Satellite System services: a preliminary study", (Study LXXIX – Preliminary Study (2010), also issue as Document CD(89)7 Add. 1 (2010)).

<sup>4</sup> C.D.(88) 17, para. 65.

<sup>5</sup> C.D.(89) 17, para. 96.

<sup>6</sup> For the list of participants, see Annex II. A full report is to be found at: <http://www.unidroit.org/english/workprogramme/study079/main.htm>.

**(1) THE PRESENTATIONS****(a) Presentation of the proposal to examine the possibility of preparing an international instrument for liability resulting from GNSS malfunctioning: reasons, why the current system is insufficient (Ms Anna Masutti, Professor of Law, University of Bologna, Italy)**

8. In her presentation of the proposal, Ms MASUTTI detailed the services that will be available from GALILEO and proceeded to illustrate the damage that can be caused by GNSS signal malfunctioning.

9. In this connection she made a number of considerations:

- that the current major utilisation of GNSS was the Air Navigation Service (ANS);
- that most countries will not provide the GNSS signal directly, but will receive the service from other countries;
- that accidents caused by the malfunctioning of a GNSS signal would involve a number of parties of different countries (the GNSS operator, air navigation service providers, air carriers). Harmonised legislation was therefore necessary;
- that it was necessary to identify who was a victim and who ultimately was responsible for the damage, to see for what kind of damage it was necessary to compensate victims and in what way that compensation should be paid.

10. From these considerations Ms Masutti identified the following legal issues identified related to conflicts of laws and of jurisdictions, State immunity, the definition of 'damage compensation' and the civil liability regime for catastrophic events as a consequence of the use of the systems.

11. Ms Masutti suggested that it would be desirable to establish a two-tier liability system that comprised a *first tier* funded by compulsory contributions and a *second tier* that could be made available when necessary.

12. She submitted that international practice had led to the conclusion that only an international convention could regulate effectively:

- the responsibility of the liable party;
- the form of indemnity for the victims of catastrophic incidents (also if they lived in different countries);
- the prevention of disparity of treatment arising from paying different indemnities to victims of the same incident; and
- the need to protect the parties involved in the GNSS (and the continuity of the services) from being obliged to answer unlimited claims for compensation.

**(b) A Presentation of the Technical Data (Mr Renato Filjar, member of the Council of the Royal Institute of Navigation)**

13. Mr Renato FILJAR, representing the *Royal Institute of Navigation*, described the GNSS from the engineering point of view. There were a number of what could be termed "vulnerabilities" and risks of the GNSS. There were positioning errors, which were divided into dilution of precision (in essence this referred to the number of satellites), and user equivalent ranging errors. Under these came satellite ephemeris, satellite clocks, multipath, receiver noise, ionospheric and tropospheric delay.

14. The reduced service availability was divided into natural causes (geomagnetic storms, ionospheric storms, volcanic eruptions and earthquakes) and artificial causes (e.g. intentional jamming and non-intentional artificial causes).

**(c) Risk Management: the EUROCONTROL system (Ms Caroline Mantl, Senior Legal Expert, EUROCONTROL)**

15. Ms Caroline MANTL stated that, for GNSS, there were multiple providers, extra-territorial ownership and control, and it was multi-purpose and multi-modal. Most States were not involved in the operation of the GNSS, they were relying on facilities outside their control. She stressed that in air catastrophes, it was not just one element, for example GNSS, that would cause an accident, it was usually a number of accumulated factors that came together at one time.

16. With a view to a convention, EUROCONTROL had always been very much in favour and would still favour a convention, but that idea had not progressed very far in the ICAO legal task force and they did not see it happening in the near, even long term, future. It had been clear that Europe and the US had a different viewpoint regarding liability for GNSS. She recognised the work of UNIDROIT and thought that it was important to look at that issue now, because it had lost much of its momentum in ICAO, but she wondered if the mind-set had changed in the US and if any progress had been made in Europe in the thinking.

17. The solution EUROCONTROL had put forward with the ECAC States as an alternative to a convention was a contractual framework, where they tried to create a contractual set-up between parties simply to clarify matters, after which a solution might be found either by means of the law as it stood, or by means of arbitration.

**(d) How the maritime insurers deal with questions of liability for GNSS malfunctioning (Mr David Bolomini, International Group of P&I Clubs)**

18. Mr David BOLOMINI stated that claims for clean-up and third-party damages ran into the category of 200 million US\$ plus. Had these incidents been caused by failures in GNSS for which the provider would be liable, there would be a need for enormous reserves of the insurance. The conventions established in the IMO worked on the principle that ship-owners accepted the doctrine of strict liability in prescribed circumstances, and that there was a *quid pro quo*: they were entitled to limit their liability as established in the conventions, and the conventions conferred the right of direct action against the ship-owner and the ship-owner's insurer. These conventions would apply even in cases where the GNSS failed and such failure had resulted in damage. The issue for insurers was to maintain the current systems because in general terms the extent of liability was a known entity and reinsurance could be purchased on the basis that overall exposure to such liabilities was available in the market.

19. If strict liability backed by compulsory insurance of the GNSS service provider was being considered, it was necessary to think about really significant sums of money and the insurance industry would need to think very carefully about how it would structure that reinsurance programme.

**(e) A developed system and how it deals with risk management: the GPS. Could the GPS non-liability system apply equally to the other GNSS systems? (Mr Henry Gabriel, Professor of Law, Elon University, Greensboro, North Carolina, USA)**

20. Mr Henry GABRIEL stated that by providing a free service the US Government was not liable from a contractual point of view as there was no contract, and because there was no direct contractual liability, there was no third party contractual liability – by definition, as there were no

contracts. Given the diffuse risk in the unknown number of users, there was no practical argument for an implied contract.

21. If the contract layer of liability were taken out, what was left was some potential tort liability. Under US law the US Government took sovereign immunity as the starting position, i.e. the Government could not be sued, but there were statutes that provided for certain circumstances when the US Government could be sued, such as the Federal Tort Claims Act (FTCA), which however was limited to pure negligence actions, to an employee of the US, and for the application of which the tort had to occur in the US. It was only possible to get personal injury and property damages, it was not possible to get economic losses.

22. As to the question of whether the US system would be a good model for other potential GNSS systems, the answer was probably not, it depended on the structure of the system. When liability was considered, the issues would be: should liability be limited? Would there be third party beneficiaries? Would direct contractual liability be provided for? Would the liability provided for be negligence liability? Would it be strict liability? Should liability be capped?

23. Turning to conflict of laws issues, which law applied would probably depend on where the accident had occurred, and that was not necessarily clear. If a contractual or quasi contractual or even a tortious basis of liability were used, the law was not the same in all jurisdictions and therefore all of those questions had to be resolved.

24. Considering the question of an international convention, Mr Gabriel stated that the systems had evolved even without a convention. He did not know if that was the best solution, but it had been possible to adapt commercially to GNSS systems and to use them on a day to day basis even without this external convention.

## **(2) QUESTIONS AND DISCUSSION**

25. In the course of the discussion a number of questions were raised and debated. These ranged from the need of an international instrument on third party liability to the prospects for the adoption of such an instrument.

26. In the context of the need for an international instrument for third party liability, participants were reminded that the *1999 Montreal Convention for the Unification of Certain Rules for International Carriage by Air*, but also the *2009 Montreal Conventions on Compensation for Damage Caused by Aircraft to Third Parties* and on *Compensation for Damage to Third Parties, Resulting from Acts of Unlawful Interference Involving Aircraft* covered third party liability. The necessity of having a new convention covering damage caused by GNSS malfunctioning was questioned, if that same damage was already covered by the 1999 and 2009 Conventions in the aviation sector, which had been indicated as the sector with the major utilisation of GNSS.

27. It was however pointed out that although the 1999 Montreal Convention did deal with both the contractual and non-contractual liability of the air carrier, it was applicable only in case of the death or injury of passengers and therefore did not cover all the damage that could be caused by a malfunctioning of GNSS systems to people on the surface or to property. Furthermore, the 2009 Montreal Conventions were only applicable in particular cases, such as terrorist attacks.

28. As regarded the scope of application of a new international instrument, it was suggested that it had to be stated clearly that what was being discussed was not liability for free services, but for regulated and safety of life (SOL) services, when there was a clear, written agreement and the service was paid for.

29. It was pointed out that something being offered free of charge did not mean that there was no liability. If an incident was sufficiently serious, resulting in a sufficiently large number of claimants, efforts would be made to circumvent the issue of no one being liable because there was no contract, and to find a basis on which to argue that there was an implied contract because of expected use. It could only safely be assumed that there was no liability in a jurisdiction where that matter had been litigated, or where there was a clear, affirmative statute declaring that there could be no liability.

30. The possibility of an implied contract might arise in many instances. Thus, for example, it could be argued that there was a contractual relationship between the tom-tom user and tom-tom. Similarly, in some instances the case could arguably be a products liability case. If GNSS satellites broadcast what they were expected to broadcast, without any failure, then the problems could arise in the environment nearest to the user. In that way, it became the problem of the GNSS receiver manufacturer and service provider.

31. As regarded the different types of liability, it was observed that the situation was not that clear-cut: in practice what might happen was that there might be a combination of one action regulated by strict liability and several regulated by fault liability. The question was how a competition or interaction between different liability regimes could be regulated sensibly.

32. It was pointed out that almost all satellite navigation systems were operated by States or State entities. When the question of State immunity in party liability in satellite navigation systems came up, how would it be possible to deal with this issue from the point of view of international private law?

33. It was observed that there were many discussions about the compatibility of the different global systems and that there was a huge expectation that in the future there might be receivers which received GLONASS, GPS, GALILEO and BeiDoo at the same time. A question raised was what system GLONASS had, whether it was set up in a way similar to GPS in liability terms. It was replied that liability issues had not yet been discussed in Russia in relation to GNSS malfunctioning, and that there were only general rules on civil liability.

34. A question on how a case clearly attributable to the failure of a satellite signal would be handled under existing liability and insurance schemes, elicited the reply as regarded the maritime sector that there was a limitation of liability, and also an enormous reinsurance programme behind the clubs. When there was an opportunity for recourse action, it was taken, but there was not an international convention that regulated the liability and compensation of pilots, there was just the law. As regarded the aviation sector, it was stated that there already was a comprehensive legal regime and a comprehensive insurance regime attached to that, which basically fairly compensated any victim of an accident.

35. It was observed that a recourse action in the main area of GNSS services would relate to the aviation area. The victims in the aircraft were compensated by the 1999 Montreal Convention, the victims on the surface were compensated by the 2009 Montreal Convention and the person liable most of the time was the airline, the aircraft operator. If the airline or aircraft operator was liable, it was possible to have a recourse action against the service provider of the GNSS signal, but if there was a commercial system like GALILEO, the airline or the aircraft operator would be bound by contract to the signal service provider and this signal service provider could protect itself by limiting its liability by means of this contract.

36. It was observed that an operator ran the risk of being faced with an unlimited recourse action. The operator in the US was fairly well covered, in Europe not. The operator in the EU would *de facto* be the EU, which would be the owner of the GALILEO system.

37. Attention was drawn to the fact that although most comments had related to the aviation and maritime sectors, the risk was that in most cases the damage would be at the level of the financial services that used GNSS services for timing functions to synchronise transactions.

38. Considering the prospects for the preparation of an international instrument, it was observed that, given the absence of clarity as to what kind of multilateral instrument might be workable, people in the US had said that this was not the time in which there was sufficient clarity even to make a decision on negotiating a multilateral instrument. In other words, the process would have to get much further along in terms of potential focus in results for that kind of decision even to be approached. Furthermore, there had not yet been a line of substantial cases that would identify the likely areas of liability and the kinds of circumstances that led to them. That had led some to say that there was not yet a demonstrated need, and until there was a demonstrated level of actual problems, of actual liability issues, it was hard to know which approach might best fit the circumstances.

39. In this connection participants were informed that the EU Commission was preparing an impact assessment on the need for a European regulation on the liability of GALILEO and this would be issued in the first semester of 2012. The decision of the Commission whether or not to proceed with the drafting of a regulation would be based on that impact assessment.

40. In reply to a question on the contractual framework elaborated by EUROCONTROL, Ms Mantl explained that in the contractual framework a contract that regulated certain matters would be entered into by air navigation service providers and the satellite operator. There would be mandatory recourse to arbitration, and mandatory insurance. It was relatively simple, the intention was to channel liability and to overcome the jurisdictional problems through the mandatory recourse to arbitration. It had lost its momentum in ICAO because it had been seen as a regional solution and ICAO was more interested in preparing conventions. EUROCONTROL had eventually decided to ask the air navigation service providers whether they would enter into such a contractual framework, to channel liability, to identify a certain place as the place to go to for arbitration to overcome the jurisdictional issues, and the answer had been no. The EU Commission had supported EUROCONTROL's efforts. However, EUROCONTROL and ECAC had backed off, as the EU was the legislator and should take the lead. Things were therefore on hold, awaiting the European Commission.

41. In reply to a question asked of the non-European participants on whether they felt that third party liability was a European problem or, considering future inter-operability, whether the idea of developing an international regulatory framework would be of interest to them, the Chinese participant indicated that it was not possible to say if it was only a European problem. There were at least four different satellite navigator systems, and the questions were what the real problems were, what the market mechanisms were, and what the needs of the market were. GALILEO and BeiDou were not operational, so it was difficult to say if it was a European or world-wide issue. As regarded Russia, as in Russia the internal level of regulation was not clear, it was likely that in the first instance the Russian authorities would like to prepare an internal instrument. Before the issue had been made clear internally, it was difficult to discuss something at international level. However, the internal work could go in parallel with the international work, as the ideas elaborated at international level were very interesting for the internal development. This view was shared by the Chinese participant, as at national level they would be able to benefit from good ideas prepared at international level.

## C. CONCLUSION

42. Concluding the meeting, the *Secretary-General* summarised the discussion as follows: part of industry saw no immediate need for an international instrument, as they felt the current framework to be adequate; other industry representatives agreed, but felt that the issue was being considered only from the narrow perspective of particular industries, and there were other concerns that the current framework might not be addressing properly: there were still questions open. Yet other industry representatives preferred to wait and see and not to express a position at this point in time. Some practising lawyers pointed to the potential difficulties with the future interoperability, as did some representatives of academia. Some questioned very deeply the rationale for any work in this area. No one had said that UNIDROIT should stop talking about third party liability for GNSS malfunctioning, on the contrary, there had seemed to be some interest, even if the conclusion at a certain point in time were to be that there was nothing at international or global level to be done in the nature of an instrument, as it was felt that the discussion might be a fruitful one even for cross-fertilisation of the domestic environment that was being developed. The fact that an impact assessment by the EU Commission would be available by the first semester of 2012 would certainly provide useful material for the discussions to continue. The Secretariat would prepare a Report for the Governing Council of the Institute on the outcome of these consultations, trying to continue to identify potentially interested parties, and maybe then, after that impact assessment by EU had become available, the Secretariat might organise another round of consultations of informal nature, unless the Governing Council decided that they wanted to have another round of consultations even before that study had become available, but that did not seem very likely.

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### Possible future work

43. Since the meeting held on 11 November 2011, monitoring of developments has continued. On 13 to 15 March 2012 UNIDROIT was represented at the *Munich Satellite Navigation Summit 2012* on "GNSS and Security". While the participants were almost exclusively engineers, whose interest in the legal aspects of GNSS was understandably limited more to the information the representative of the EU presented on intellectual property, the meeting permitted the work so far conducted at UNIDROIT to be explained to participants. In addition, information on the increasing number of uses to which GNSS services are put was made available to participants.

44. In this context, the session on *GNSS in Land Applications* confirmed the unexpected interest of farmers in GNSS applications for what is known as "precision agriculture", to the point where reports had it that farmers do not work their tractors if the GNSS device does not work. The increasing importance of *Global Monitoring for Environment and Security (GMES)* was also explained.

45. In 2010 the *European GNSS Agency (GSA)* published the first "GNSS Market Report" which illustrates the predictions for the growth of the GNSS market. According to this Report, in the years 2010-2020, 56.4% of the Global Core GNSS Market will be represented by the road sector, 42.8% by LBS (location based services – mobile phones and the like), 0.6% by agriculture and 0.2% by the aviation sector.



46. The predictions of this Report and the increased number of uses of GNSS services lead to the conclusion that to have a complete picture permitting a final decision on whether or not work should be brought a stage further in UNIDROIT, it is necessary to sound out a number of other sectors: the road sector, agriculture, financial services, but also LBS. It is therefore suggested that a further informal meeting be held, inviting first and foremost representatives of the sectors that were not represented at the meeting of 11 November 2011.

47. In addition, other aspects of the problems raised by GNSS services need to be further investigated, such as the problem of the schematized identification of the defendant (channelling), the questions of competence, applicable law, the lifting of State judicial immunity and the rights of (internal) recourse.<sup>7</sup>

48. It is suggested that the next informal meeting could be held either at the end of 2012 or the beginning of 2013, if the results of the impact assessment of the European Commission are to be taken into account: it has become clear that there will be a delay in the presentation of the impact assessment, which at the time of writing (March 2012) is estimated to be the latter part of the year, possibly November.

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<sup>7</sup> See Julien Subilia, *Institutional and Legal Aspects of the Global Navigation Satellite System* *Institutional and Legal Aspects of the Global Navigation Satellite System*, in ACEXC . Aviation Centre of Excellence, at <http://www.acexc.com/cmcategory.php?catid=54&sublist=&divshow=>: "Seen from the legal point of view (i.e., as far as questions of civil liability are concerned), things are also relatively clear: the legal means at the injured parties' disposal (be they passengers, carriers, operators, subrogate insurers or third parties on the ground) are currently not sufficient, taking into account the current and future widespread use of this new technology. In particular, the bringing into play of the liability of the GNSS user States (i.e., that is, States having authorized the use of the GNSS) requires the adoption of specific rules dealing, besides the problem of the schematized identification of the defendant (channelling), with the questions of competence, the applicable law, the lifting of State judicial immunity and the rights of (internal) recourse.

In a system where the technology becomes global (covering the entire earth, it is the same for all users alike), but where the States, individually, remain the guarantors of the proper functioning of their airspace, whatever the operational arrangements made [...], the question of the provision of internal means of recourse against the satellite signals provider(s) is fundamental for States bound to remain users (and not providers) of the system."

**AGENDA****RISK MANAGEMENT IN GNSS MALFUNCTIONING****Friday, 11 November****UNIDROIT, Via Panisperna 28, Rome***Session 1: 10.00 – 12.30 hrs*

10.00 – 10.15 General Presentation of the proposal to examine the possibility of preparing an international instrument for liability resulting from GNSS malfunctioning: reasons, why the current system is insufficient

*(Prof. Anna Masutti, Senior Partner, Studio Legale AS&T (Rome), and University of Bologna, Italy, member of the team preparing the original proposal made to UNIDROIT)*

10.15 – 10.30 General presentation of technical data: what can go wrong and what are the risks?

*(Dr Renato Flijar, member of the Council of the Royal Institute of Navigation, and external Assistant Professor at the Faculty of Engineering and the Faculty of Maritime Studies, University of Rijeka, Croatia)*

10.30 – 11.00 Discussion

11.00 – 11.15 *Coffee break*

11.15 – 11.30 A developed system and how it deals with risk management: GPS. Can the GPS Non-Liability System apply equally to the other GNSS systems?

*(Professor Henry Gabriel, Elon University, Greensboro, North Carolina (USA) and member of the UNIDROIT Governing Council)*

11.30 – 11.45 Commercial risk management: Insurance. How do the insurers deal with questions of liability for GNSS malfunctioning? How would the situation change if there were an international instrument, convention or less binding?

*(Mr David Bolomini, International Group of P&I Clubs)*

11.45 – 12.00 Commercial risk management: the European System

*(Ms Caroline Mantl, Senior Legal Expert, EUROCONTROL)*

12.00 – 12.30 Discussion

12.30 – 14.00 *Lunch break*

*Session 2: 14.00 – 16.00 hrs*

Round table discussion: Is the Question of Liability for GNSS Malfunctioning a European Problem?

**Annex II**

**THIRD PARTY LIABILITY FOR GLOBAL NAVIGATION SATELLITE SYSTEM  
(GNSS) SERVICES  
RISK MANAGEMENT IN GNSS MALFUNCTIONING  
*Informal meeting*  
(Rome, 11 November 2011)  
LIST OF PARTICIPANTS**

**STATES**

## CHINA

Ms WANG Jilian  
International Cooperation Center  
Office of China's Satellite Navigation System  
Beijing (China)

Ms DUAN Kang  
International Cooperation Center  
Office of China's Satellite Navigation System  
Beijing (China)

Mr WU Cong  
Attaché  
Economic and Commercial Counsellor's Office  
Embassy of the People's Republic of China in  
Italy  
Rome (Italy)

## GERMANY

Dr Hans-Georg BOLLWEG  
Head of Division Law of Compensation, Law  
of Environmental Liability, Law and Civil  
Aviation  
Federal Ministry of Justice  
Berlin (Germany)  
*Member of the UNIDROIT Governing Council*

## ITALY

Professor Anna MASUTTI  
Senior Partner  
Studio Legale AS&T (Rome), and  
University of Bologna (Italy)  
*(Speaker)*

## RUSSIA

Ms Julia CHERTKOVA  
Legal Division  
Russian Federal Space Agency  
Moscow (Russia)

USA

Mr Harold S. BURMAN  
 Executive Director  
 Office of the Legal Adviser (L/PIL)  
 Department of State  
 Washington, DC (USA)

Professor Henry GABRIEL,  
 Elon University,  
 Greensboro, North Carolina (USA)  
*Member of the UNIDROIT Governing Council  
 (Speaker)*

### **INTER-GOVERNMENTAL ORGANISATIONS**

European Organisation  
 for the Safety of Air  
 Navigation  
 (EUROCONTROL)

Ms Caroline MANTL  
 Senior Legal Expert  
 European Organisation for the Safety of Air  
 Navigation (EUROCONTROL)  
 Brussels (Belgium)  
*(Speaker)*

European Space Agency  
 (ESA)

Mr Thierry HERMAN  
 Legal Administrator  
 Legal Department  
 ESA  
 Paris (France)

International  
 Telecommunications  
 Union (ITU)

Mr Attila MATAS  
 Head of Space Publications and Registration  
 Division  
 ITU  
 Geneva (Switzerland)

### **NON-GOVERNMENTAL ORGANISATIONS**

European Space Policy  
 Institute (ESPI)

Mr Peter HULSROJ  
 Director  
 European Space Policy Institute (ESPI)  
 Vienna (Austria)

Royal Institute of  
 Navigation

Dr Renato FILJAR  
 Member of the Council  
 Royal Institute of Navigation  
 Rijeka (Croatia)  
*(Speaker)*

**INDUSTRY**

EADS Astrium

Ms Floriane PATACCHINI  
Regulatory Analyst  
EADS Astrium  
Paris (France)

NIS GLONASS

Ms Evgeniya FILATOVA  
Legal advisor on international law  
Joint Stock Company «Navigation-  
Information Systems» (NIS GLONASS)  
Moscow (Russia)

SES Astra S.A.

Mr Claude DUMAIS  
Vice President - Corporate and Legal Affairs  
SES Astra S.A.  
(Luxembourg)

Thales Alenia Space

Mr Federico CARMOSINO  
Legal Counsel  
Contracts and Cooperations Unit  
Thales Alenia Space Italia S.p.A.  
Rome (Italy)

**INSURANCE**

Marsh S.A.

Ms Cécile GAUBERT  
Head of Contracts and Claims - Aviation and  
Space Department  
Paris (France)

International Union of  
Aerospace Insurers  
(IUA)

Mr David GASSON  
Secretary General  
International Union of Aerospace Insurers -  
I.U.A.I  
London (United Kingdom)

Mr Denis BENSOUSSAN  
Space insurance underwriter

Mr Stefano GUAZZONE  
Space insurance underwriter

P&amp;I Clubs

Mr David BOLOMINI  
International Group of P&I Clubs  
London (United Kingdom)  
(*Speaker*)

**INTERNATIONAL TRADE ASSOCIATIONS**

International Air  
Transport Association  
(IATA)

Mr Michael GILL  
Senior Legal Counsel  
International Air Transport Association (IATA)  
Geneva (Switzerland)

International Chamber  
of Shipping (ICS)

Ms Laurence MARTIN  
Confederazione italiana armatori  
(CONFITARMA)  
Capo Servizio Relazioni Internazionali,  
Rome (Italy)

**LAW FIRMS**

BHO Legal

Dr Oliver HEINRICH  
Partner  
BHO Legal  
Cologne (Germany)

Dr Ingo BAUMANN  
Rechtsanwalt  
BHO Legal  
Cologne (Germany)

**UNIDROIT**

Mr José Angelo ESTRELLA FARIA  
Secretary-General

Ms Lena PETERS  
Senior Officer

Mr Daniel PORRAS  
Associate Officer