

APPLICABLE JURISDICTION CONFLICTS IN THE INTERNATIONAL SPACE STATION

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Abstract

The partial commercialisation of the International Space Station is a necessity felt by several Partner States.

Private companies, on the other hand, cannot finance researches in outer space without foreseeing a return on their investment compatible with the undertaken financial risk. Profit is possible with the attribution of exclusive and protected rights of intellectual property even if limited in time and space.

The paper wishes to verify if this purely financial necessity may not be in conflict with the rules dictated by the Outer Space Treaty concerning the public disclosure of new discoveries.

The criterion of "quasi-territoriality" adopted by art. 21 of the IGA, for the application of the regulations for the protection of intellectual property could cause a conflict between national regulations based on different protection systems or referring to criteria which have been interpreted in dissimilar ways.

The need to harmonise laws and to facilitate the acknowledgement of a copyright obtained in other countries is always a major necessity during the realisation of joint ventures such as the ISS. The problem could be solved on an international level in the specialised

headquarters of the competent International organisations.

Solutions to problems arising from the peculiarity of the location where research is taking place can be at present only found in the agreements among Partner States.

The paper will then focus on the rules of the Intergovernmental Agreement concerning the protection of intellectual property and those specified in the Code of Conduct for the crew of the International Space Station relevant to the duty to protect information.

Other than in the regulations adopted in the agreements between Agencies and private users, more appropriate adaptations could be found in the code of conduct concerning the "Space Station Procedures for the Protection of User Intellectual Property" currently being discussed by Partner States.

1. Conflict between the rules of space law and the necessity to protect intellectual property for research carried out in the ISS

First of all, it is appropriate to briefly recall those rules of international space law which could be in conflict with national regulations applicable to the protection of intellectual property for researches carried out in the International Space Station (ISS).

Art. I of the Outer Space Treaty (OST) states that "exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries...and shall be free for exploration and use by all States".

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The first disposition, soliciting a widespread disclosure of the results of researches carried out in space for the benefit and in the interest of all States, seems to be in contrast with the right to intellectual property which is a competitive system ensuring the owner a temporary monopoly¹.

The second disposition, allowing the States a free use and exploration of outer space and celestial bodies, without any discrimination and in accordance with international law, does not however hinder the use of the resources of outer space which is often carried out in co-operation among more States².

The use of resources, especially in the research field, is increasingly carried out by the private sector, thus requiring adequate guarantees for the protection of its interests, according to national and international legislation. This process, which is expanding rapidly, must also consider other rules of space law regulating in specific ways, the relations between States and privates in space.

Art. VI of the OST allows privates to conduct activities in space even if subject to the authorisation and constant surveillance by the State of belonging. The State is responsible not only for the activities carried out by governmental organisations, but also by non-governmental organisation. The launching State's jurisdiction is exercised, according to art. VIII of the OST, over the launched object, even when it is located in outer space, and the State may establish its own legislation within the object.

These regulations, which are by now guidelines governing the activities of States in outer space, must also be applied for the development of the research activity which will be carried out in the space laboratories of the International Space Station.

The International Space Station is currently the largest project of international scientific co-operation being realised by the United States (NASA), Russia (RKA), Canada (CSA), Japan (NASDA) and the European Space Agency (ESA). The first two components, Russian and American, have been in orbit since 1998 and on July

12th 2000 the Russian service module "Zvezda" was launched from Baikonur. This module, built in Russia, carries the first equipment realised by the ESA, the main information system, and will serve as a habitation module for the first crews who will shortly begin to reside permanently in the Station. Once completed, the International Space Station will be an exceptional innovative instrument especially in the field of scientific research (medical, biological and material), other than for the technical development and commercialisation of outer space.

The application of the regulations of the launching State or of the European Space Agency, especially with reference to the protection of intellectual property for the discoveries carried out in the module, could be in conflict with the above mentioned rules of space law or with the rules of other countries. The causes of possible conflicts and their eventual solutions will be examined, in the light of the Inter Governmental Agreement (IGA) stipulated among Partner States, in the version revised in Washington on January 28th 1998, of the International Conventions regulating intellectual property, of some national regulations and of the agreements established by the Agencies with the users.

2. Commercialisation of the ISS and protection of users

The commercialisation, of at least one part of the station, is a necessity felt by partners who also consider it to be a financial resource to further the progress of the realisation of the project.

The Director General of the ESA confirmed the decision that the commercialisation of a third of the European part of the ISS will be subject to approval at the next European council for space affairs in 2001. A consortium of industrials, already linked to the ISS programme, will take care of the commercialisation³.

Already back in 1998 the American Congress had stated to be in favour of use of the ISS by privates in order to lighten the burden on tax-payers and in order to be able

to relocate funds for new missions. NASA recently published a study indicating the rates which could be suggested to laboratories and institutions interested in carrying out experiences in the American part of the ISS. This policy was clearly stated in section 101 of the Commercial Space Act, dated October 28 1998⁴. This section concerns the possibility of commercialising the ISS and in particular it requests an evaluation, on the basis of various studies and a report, of the potential interest on the part of industries for the supply of goods and commercial services and for the use of the Space Station.

On the other hand, it would be unlikely to think that private industries could finance research in outer space without considering a return on the investment which should be compatible with the amount of the undertaken financial risk⁵. Profit is only possible with the attribution of exclusive rights, and the latter, being limited in time and space, are not equivalent to appropriation.

It is therefore impossible to consider a direct broadcast of the results of researches carried out in outer space, it is more realistic to consider the legitimate expectations and needs of the industries by determining an appropriate protection of intellectual property. To obtain the recognition of the right of intellectual property would lead private industries to being more competitive for future contracts and avoid that third parties may use the innovation. A patent or another form of protection of intellectual property will protect the innovation from possible infringements and the holder will be free to grant, and obtain from other parties, licences for exploitation. By ensuring that the advantages deriving from the creation will benefit the inventor, the protection of intellectual property incentives investments and creativity in outer space.

This economic necessity, however, must not contrast the principle stated in art. I of the OST, establishing that the use and exploitation of outer space and celestial bodies must be carried out for the benefit and in the interest of all countries. The equal repartition of the advantages would

however be satisfied if support was granted for an easier publication, distribution and broadcast to the public of the invention, once protected in accordance with national and international regulation.

Similar conclusions have been reached by the Technical Forum on Intellectual Property, held in July 1999 in Vienna, during the third UN Conference. The final report stressed the need for an adequate protection of intellectual property in order to encourage and support the transfer of technologies. Furthermore, the increase of co-operation programmes in outer space requires the constant harmonisation of the standards of intellectual property and of regulations. The questions to be examined and clarified refer to the applicability of national legislation in outer space, to the ownership and use of the rights on intellectual property, to contracts and rules for licences⁶.

3. Possible conflicts among the rules for the protection of research carried out in the module laboratories of the International Space Station

The 1998 Intergovernmental Agreement, established by the Partner States to determine their co-operation in the ISS, dedicates art. 21 to intellectual property. The criterion adopted to establish the regulating norm for intellectual property foresees the application of the law in force in the States which has registered the space module in which the invention takes place. This solution is in accordance with the 1990 American legislation on space patents⁷, which, however, refers more generally to a criterion of jurisdiction and control, less unequivocal than the registration criterion. The practical application of the above mentioned regulation does however lead to certain difficulties, only in part considered in the subsequent commas of art. 21, both for the difference in content of the applicable laws and for the specific location of the laboratories⁸.

Paragraph 2 of art. 21 considers and solves a case which could cause a conflict of applicable national jurisdiction. In fact, it establishes that the sole participation of a

Partner State, or of its co-operating agency or related entities on board flight elements of another Partner State does not alter the latter's jurisdiction over the main activity and potential inventions made in the module⁹.

Other difficulties, which shall only be mentioned briefly, arise and they must be appropriately solved. For example, protection of intellectual property, eventually obtained, is still limited to the territory of the State which granted the patent and therefore a lack of protection could occur if the patent were to be used in an element under a different jurisdiction. The patent systems adopted by the States involved in the ISS are different and this could cause a certain difficulty in obtaining protection in different States.

The USA system to establish priority is based on the principle of the "first to invent". Whoever can prove to have been the first to develop an invention may obtain the patent, even if someone else has already registered it before. This involves the burden for the inventor to keep an updated and verifiable report on his work, and until the patent procedure is concluded, the priority of the invention may be questioned by others. The system tends to ensure the benefits of the invention for the inventor and to discourage research espionage.

Europe and Japan instead follow the principle of the "first to file" in order to determine priority. The system undoubtedly offers a greater certainty in recognising the owner of the right, but research must be carried out with great discretion so that others may not gain access to the information before the registration of the invention. Secrecy is not always possible in the ISS where control entities or crew members belonging to other Partner States have access to all sorts of information.

4. Duty to protect information in the Code of Conduct and in the IGA

The "Code of Conduct for the International Space Station Crew"¹⁰, in the process of being approved by the Partner States for the realisation of rules more generally stated in the IGA and in the

MOUs, also faces the problem of the protection of information.

Point V of the Code of Conduct establishes the guidelines on physical and information security. This way a conventional uniform law, valid in the ISS and which the Partner States must respect, has been created. It is established that the crew members¹¹ of the ISS may only use marked or otherwise identified export-controlled data in the performance of ISS duties. The crew members must be informed by the co-operating agency or by the owners or providers, through the agency, of the property rights or control measures on exportation concerning data produced on board the ISS and they must maintain this protection for as long as necessary. Furthermore, ISS Crew Members shall act in a manner consistent with the provisions of the IGA and the MOUs concerning protection of operations data, utilisation data, and the intellectual property of ISS users. According to point IV relevant to disciplinary regulations, crew members will comply with the rules, operational directives and management policies developed to ensure such protection within the ISS programme.

The crew is not only controlled by its own agency, conduct is also controlled by especially created collective organs and by the Commander of the ISS. The Multilateral Crew Operations Panel (MCOP) will establish the disciplinary principles to which the crew members are subject. The principles, which are administrative, are aimed at solving matters concerning the violation of the code of conduct. The Commander of the ISS also has the authority and the responsibility to enforce safety procedures, physical and information security procedures and crew rescue procedures. The concept is reaffirmed in part III concerning authority and responsibility of the ISS Commander, because, among his responsibilities, there is also the duty to enforce the procedures for the physical and information security of operations and utilisation data deriving from the use of the space labs¹².

A delicate issue could be the disclosure to the public of the invention,

and in most systems this is only allowed after a variable amount of time following the registration of the patent. The circulation of the data among the astronauts and the laboratory technicians cannot be considered as disclosure and, as we have seen, the crew members are subject to secrecy and respect of the protection of the data.

Even the space to ground transmissions must be considered as confidential and art. 13 of the IGA establishes some rules on this issue. First of all, it is established that the two primary space and ground communication networks¹³ shall be provided by the United States and Russia. Therefore, as established in the Memoranda, measures for the protection of the confidentiality of utilisation data being transmitted over the information systems of the ISS must be created. It is also stressed that each partner, in supplying communication systems to another partner "shall respect the proprietary rights in, and the confidentiality of, the utilisation data passing through its communication systems, including its ground network and the communication systems of its contractors". The protection measures will also involve space to ground transmissions which might be monitored by the Agencies for security reasons. The Partners accept that the transfer of technical data and goods, as mentioned in art. 19 of the IGA, is subject to predetermined restrictions. Among these restrictions, we find the conditions for the use, transfer and protection of technical data and goods that have been marked either because they must be protected in view of proprietary rights or because they are considered as classified. Even the 1993 Russian Federation law on Space Activity establishes that the use and transfer of "space hardware must be carried out respecting the rights of intellectual property that are protected by Russian law"¹⁴.

Comma 3 of art. 21 of the IGA attempts, on one hand, to reconcile the national regulations of the States concerning secrecy of patents for national security issues and on the other hand, to allow patentability in the Partner States.

The case of an invention made on an element of the ISS by a person who is not a national or resident of the registering Partner State is considered. In this situation, the "territorial" State does not apply its laws on the secrecy of the invention if this should prevent the filing of a patent application in another State, for example by imposing a delay or requiring prior authorisation, if the mentioned State is able to guarantee the protection of the secrecy and disclosure of questions including classified information.

If, by fulfilling the obligations thus determined for the respect of intellectual property and for the confidential use among the ISS crew of the data and created innovation, it will be possible not to incur in the violation of the rights of the owner, there are still many more issues due to the difference in national laws on intellectual property applicable to inventions made in the modules of the ISS.

5. Requirements for patentability and international regulations

The requests of national regulations of the Partner States for the patentability of the inventions are based on the existence of three requirements: the advance of research in respect of the previous state of the art, the novelty compared to inventions that are already known and in use, and industrial applicability. However, some countries are stricter than others. Japan, instead, due to its policy of industrial promotion, requires less stricter patentability standards. The main issue, according to section 29 of the Japanese law on patents, is that an invention be industrially applicable, that it not be publicly known and that it not be used in Japan. The advancement of research itself is recognised by Japan more easily than in other countries, therefore many companies developing the same technology, with small modifications, can obtain a separate patent. However, the patent cannot be requested in other Partner States and the invention, or even a procedure to isolate or develop a new material, cannot be used under protection in the laboratories of other States. Furthermore, the timing required by

different countries as for public disclosure, commercial application of research and the concession of compulsory licences to develop commercial utility, often differ, thus creating further difficulties.

It must not be forgotten that the particular environment in which the space labs are situated has some new characteristics when compared to the earth environment, therefore it could be more difficult to identify further requirements for patentability. The novelty or not obviousness requirement itself could have a particular aspect in space or it could be necessary to patent a procedure for the development of new material even before its creation, while still being a technical means without the requirement of concreteness¹⁵.

When considering the existing international Conventions on the matter, the most important being the 1883 Paris Convention (revised in Stockholm on July 14th 1967) on the protection of industrial property, one cannot fail to notice the scarce amount of harmonising principles. A person belonging to one of the member States of the Union for the Protection of Intellectual Property is assimilated to a national citizen as for the equal treatment for access to the protection of the inventions, but this does not ensure a uniformity of treatment in the various States. Whoever has a right to do so, may, within 12 months, make different deposits in other States of the Union effective from the date of the first deposit, but this does not determine any connection between the different patents obtained, which remain independent and must be requested separately.

A greater harmonisation has been reached by the Patent Co-operation Treaty, which ended in Washington on June 19th 1970, creating the Union for the International Deposit of Patent Requests. The Treaty allows any citizen or resident in the contracting State to deposit an international request at the national office specifying the contracting States in which protection is requested, thus avoiding having to deposit multiple requests and having to face costly procedures and

preventive exams for each involved country. The applicability of the Treaty to inventions made in space would at least in part simplify the procedure to obtain a patent in multiple countries¹⁶.

The TRIPS (Agreement on Trade – Related Aspects of Intellectual Property Rights, including trade in Counterfeit Goods), which was included, together with the other agreements, in the Final Act in Marrakech on April 15th 1995, by introducing for the first time the intellectual property in the GATT, suggests a systematic world reference structure to which national laws and the actions of territorial organisations, starting from the European Union and the WIPO, cannot lack to be informed.

As for the most important conventions on the issue of protecting intellectual property, which the TRIPS Agreement does not deny, but in fact refers to, we can notice a substantial progress. The most qualifying aspects of the introduced system are represented, basically, by the introduction of rather high level minimum protection standards in all the various areas of intellectual property, and by the undertaking, by the member States, of extended international obligations for the prevention and repression of counterfeit goods. The World Trade Organisation (WTO), created with the Marrakech agreements, extends its action also to the agreements concerning intellectual property (TRIPS). The difficult operation of harmonising rules on patents, begun by the WIPO is slowly progressing and we hope that with the participation of other countries, including those involved in space activities, it will further be extended¹⁷.

It is to be hoped that, within the framework of these two international organisations – WTO and WIPO – the new issues on intellectual property concerning space activities will be considered, and that uniform regulations accepted by all member States may be formulated¹⁸.

6. European International regulations on patents and Agency contracts

The progressive harmonisation of European regulations on patents has been strongly increased by the conclusion of three important conventions. The Strasbourg Convention, November 27th 1963, on the unification of some legislation principles on invention patents, dictated uniform rules on the essential requirements for the patentability of the invention (novelty, originality and industrial use) which were later included in the subsequent conventions with further principles.

The Munich Convention on the "European patent", October 5th 1973, signed by all the European Union States and also by other European countries, is in force since 1977. The Convention did not introduce a new law on patents, different from the undersigning States, nor did it uniform national regulations, but it did uniform the procedure for the issue of national patents. The Central patent Office instituted in Munich is competent for all the requests for the issue of a "European" patent being valid, according however to the rules of each country, in each State in which the requesting party has requested a registration. The holder receives a series of national patents through a single operation, thus reducing the costs and the timing for the operation of registering a patent.

The Luxembourg Convention, December 15th 1975, institutes a "community patent", a new separate patent with a content that could differ from the one of the member States. It does not substitute the patent issued by the single States, but it will be linked to it because it operates only on a trans-national level and it will be activated only by whoever wishes to extend the protection of rights also to other States of the Community. The holder of the patent will be certain that in whichever State he must act to defend his right, he will receive the same protection because there is only one substantial reference regulation¹⁹. The Community convention, however, is not yet in force due to the lack of a number of ratifications. After having published, on June 24th 1997, a "green book"²⁰ on

community patent and on the patent system in Europe, the European Commission raised the question of the transformation of the Luxembourg Convention into a series of community regulation instruments (a regulation, a directive and an interpretation communication). On February 5th 1999, the Commission adopted a communication to the Council, to the European Parliament and to the Economic and Social Committee informing about a series of concrete measures aimed at improving the patent system in the European Union²¹.

The European Partner States, wishing to co-ordinate the application of their national laws for the concession of the protection for the inventions made in the elements registered by the ESA in the International Space Station, and also trying to avoid the duplication of actions for the violations to such protection, included, in art. 21 of the IGA some specific dispositions, which however only partially achieve the desired goal.

In par. 2 of art. 21 it is established, that each European Partner State, for purposes of intellectual property law, shall consider the activity occurring in the ESA-registered, as having occurred within its territory. Only Germany, in the 1991 ratification law, felt the need to specify that for purposes of intellectual property law, the inventions made in the ESA element are to be considered as having occurred in German territory. There being at present no homogenous law on European copyright, notwithstanding the fact that European regulations are rather uniform on the matter, the acknowledgement of the copyright in the different designated European countries and the eventual exploitation of the products can only take place after the filing of a unique and centralised request according to the Munich Convention on the European Copyright.

Par. 4 of art. 21 aims at avoiding compensation for the same infringement of the same intellectual property rights for an invention carried out in the ESA module. In the event of different infringement proceedings, filed by different owners of intellectual property, thus considered by more than one European Partner State

having considered the invention as occurring in its own territory, a court may grant a temporary stay of proceeding in a later-filed action thus granting a greater possibility of obtaining compensation to whoever has filed the earlier action. The principle of the first to claim excludes further compensations based on the same motivations.

Furthermore, European States shall recognise the licences for the exploitation of intellectual property granted according to the legislation of one of the European Partner States.

However, this is not enough to obtain a copyright recognised at the same time on all the European ESA Partner States participating in the programme. A greater harmonisation of the national laws is necessary and the European States are obliged to co-ordinate for the application of their laws, and in the ESA context, they must act in order to achieve a close and regular co-operation.

The ESA has tried to reconcile the obligation, deriving from space law, to disclose the scientific results of research with the need to protect the intellectual property of the public or private users of the ESA structures in outer space. Art. III of the ESA Convention on information and data establishes the principle that the Agency and all the member States must facilitate the exchange of information concerning space research, technology and their applications in outer space, but only after the scientific manager of the research has received adequate protection and has been able to be the first to use the results of the research itself. The 1989 Council adopted a series of regulations on the disclosure of data and information²² concerning research in ESA flights.

The different models foreseen are often present in the contracts stipulated with the users²³. If the research is carried out by Agency staff, the latter is the owner of the results, but is also obliged to disclose the results to the other member States for the furthering of scientific research and of competitively of European industry with the concession of free or payable licences.

If the research in the ESA laboratories, related to compulsory or optional programmes, is carried out by public or private organisations specialised in the space sector, the ownership of the inventions belongs to the latter and they must protect them accordingly. However, after a brief period of priority over the results, the owners must disclose the data and the inventions to the Agency and to the member States participating in the programme granting free and irrevocable licences for the use according to their needs. A similar model has been foreseen for the inventions made in the "payloads", transported in space vehicles by the Agency, by researchers and industries to whom the Agency has granted the opportunity of the flight. However, if the client is fully financing the flight, the data is transmitted directly to the client who becomes the owner and is free to exploit the results without any restriction.

Two similar forms of agreement have been stipulated by NASA with the commercial users who wish to use the resources of the Space Station: the Space Act Agreement and the Cooperative Research and Development Agreement (CRADA)²⁴. The Space Act Agreement is "reimbursable" or "non-reimbursable" depending on the financial participation of the user to NASA's expenses. In a "non-reimbursable" agreement, the ownership of the data obtained in co-operation belongs to the respective inventing parties who co-operate in order to obtain an adequate protection. NASA ensures confidentiality of the "first produced" data, even for a five-year period after their development, and agrees with the other contractors upon the specific cases in which they may be disclosed or used by the parties. The ownership of the inventions made by the participants bound by a Reimbursable Space Act who have paid NASA, belongs entirely to the participants unless the inventions have been made by NASA employees. In this case NASA grants and exclusive, royalty-free, irrevocable licence according to governmental regulations²⁵.

7. Conclusions

The patentability of inventions made in outer space in complex structures such as the ISS, where various States co-operate and public and private entities participate in the research, is a problem yet to be solved and it may still cause conflicts between the applicable rules.

The incompatibility of the rules, as we have just seen, derives from the different protection systems adopted round the world, so that the criteria of priority, novelty and industrial applicability may be considered differently in the States where the protection of intellectual property is being requested with the consequence that the ownership of the inventions may be attributed to different subjects.

The peculiarity of the place where the research is carried out, the need to guarantee for a private party wishing to invest in outer space and the necessity of having to use inventions and technologies for the research in the laboratories, with the possibility of infringing previously obtained copyrights are still open questions which must lead to agreed upon solutions.

The harmonisation of regulations and the mutual acknowledgement of a patent obtained in other countries can only be solved on an international agreement level. It is difficult to think that in a short time a convention could be stipulated specifically dealing with intellectual property of inventions made in outer space, but hopefully with the re-opening of the negotiations of the agreement on the TRIPS among the WTO member States or within the framework of the World Intellectual Property Organisation, some acceptable solutions will be achieved. The United Nations, together with specialised Organisations, such as the WIPO, could examine this subject. In fact, it appears that there is a strong possibility that the commercial aspects of space commercialisation, including intellectual property, be placed on the agenda of the Legal Subcommittee of the UNCOPUOS²⁶.

It will certainly be easier to find an agreement on a regional level, such as the European one, where there is a plan for a

community regulation for the realisation of a community copyright.

Some solutions may be found in the agreements between Agencies and private users where the ownership of intellectual property is mentioned, together with the necessity and the timing of the disclosure of the data and the system of compulsory licences. Following the example of the NASA, other Agencies could study agreements with the commercial users of the Space Station resources.

In joint ventures it is only an agreement among Partners that leads to a uniform compulsory regulation. The provisions of the IGA and of the MOUs, concerning the regulations on intellectual property must be specified more in detail. The Partner States, other than the Code of Conduct of the ISS crew, are discussing another document: the "Space Station Procedures for the Protection of User Intellectual Property". This could be the place where uniform rules and procedures could be accepted, reconciling the necessity to disclose space research in the interest and for the benefit of all countries, as required by space law, and the necessity to protect public and private investments in space laboratories.

NOTES

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² DOYLE, Using Extraterrestrial Resources Under the Moon Agreement of 1979, *Journal of Space Law*, vol. 26, n. 2, 1998

³ Daimler Chrysler Aerospace (DASA), Matra-Marconi Space, Alenia Aerospazio, Aerospaziale-Matra Linceurs, ANSA 05 April 2000

⁴ Commercial Space Act, Public Law 105-103, 10th Congress, October 28, 1998, Proc. of the Project 2001 – Workshop on Legal Issues of Privatising Space Activities, Vienna July 19, 1999, p. 147

⁵ MURPHY OOSTERLINK, Protection des données et inventions dans l'espace, Droit de l'espace, aspect recents, sous la direction de DUTHEIL de la ROCHERE, Paris 1988, p. 290

⁶ Technical Forum: Conclusions and proposals of the Workshop on Intellectual Property Rights in Space, Vienna 19-30 July 1999, A/CONF. 184/C.1/L.18

⁷ The Patent in Space Legislation, S.459, November 16, 1990 as Public Law 101-580, 35 U.S.C. 105

⁸ MARCELLI. La tutela delle invenzioni effettuate nello spazio extra-atmosferico a l'art. 21 dell'Intergovernmental Agreement relativo alla Stazione Spaziale, in CATALANO SGROSSO, Diritto dello Spazio, recenti sviluppi e prospettive, Padova 1994, p.204

⁹ MOENTER, The International Space Station: Legal Framework and Current Status, *Journal of Air Law and Commerce* 1999, p. 1033

¹⁰ Code of Conduct for the International Space Station Crews, ESA/C (2000) 14 Annex, if the procedures for the approval are over, it will be in force from September 15th 2000

¹¹ CATALANO SGROSSO, Legal Status, Rights and Obligations of the Crew in Space, in *Journal of Space Law* 1998, vol. 26, n. 2, p. 163

¹² Code of Conduct, III, A, 2, (b), (4)

¹³ "...shall provide the two primary data relay satellite system space and ground communications networks for command, control, and operations of Space Station elements and payloads, and other Space Station communications purposes"

¹⁴ Entered into force on October 6th 1993, in Proc. of the Project 2001 – Legal Framework for privatising space activities, Vienna 19 July 1999, p. 249

¹⁵ WALKER, Potential patent problems on the ISS, Proc. of the 42nd Colloquium on the Law of Outer Space, Amsterdam 1999

¹⁶ For the texts of the Conventions see CHIA-JUI CHENG, Basic documents on International Trade law, Dordrecht 1986

¹⁷ SANDRI, La nuova disciplina della proprietà industriale dopo i GATT-TRIPS, Padova 1996

¹⁸ BALSANO, Space Technology and International Cooperation – The role of Intellectual Property, *Air and Space Law*, 1995, p.177; SMITH, Recent developments in patents for outer space, Proc. of the 42nd Colloquium on the Law of Outer Space, Amsterdam 1999

¹⁹ BENACCHIO, Diritto privato della Comunità Europea, Padova 1998

²⁰ IP/97/558 and MEMO97/65

²¹ COM (1999) 42 def.

²² ESA/C(89)95 rev. 1

²³ BALSANO, Intellectual property within public international research organisations, The example of the European Space Agency, Proc. of the 36th Colloquium on the Law of Outer Space, 1993, p. 9; for agreements between NASA and ESA and private users, see: CATALANO SGROSSO, Copyright and Intellectual Property in Outer Space – legal Protection of Discoveries and inventions made in conditions of microgravity, Proc. of the 37th Colloquium on the Law of Outer Space, Jerusalem 1994, p. 131

²⁴ This reference guide provides detailed information concerning the allocation and protection of rights in

four areas: 1) rights in patents and inventions generated or used in a performance of the agreement; 2) Data Rights; 3) Publications of resulting data; 4) Handling of data

²⁵ See "Intellectual Property and the International Space Station: Creation, Use, Transfer, Ownership and Protection" prepared by the Office of the General Counsel National Aeronautics and Space Administration, September 1999, in Proc. of the Project 2001 – International Space Station, Berlin 8-9 June 2000

²⁶ As described in par. 321 of the draft report of UNISPACE III: internet <http://www.un.or.at/OOSA/>