

The UNIDROIT Registration of Security Interests and The Registration Convention: Compatible / Complementary, or Contradictory?

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ABSTRACT

The development and launch of many new (privately owned) satellite systems has led to the need for greater compliance with the 1976 Registration Convention, whose main purpose is to assist in identification of space objects, in determining potential liability in the event of an incident involving a space object.

The investors in these new satellite systems have also sought to protect their massive investments, resulting in a proposal to register and secure their financial interests in space objects or assets. Thus, UNIDROIT has drafted a Protocol on Matters Specific to Space Assets, one of three Protocols to the Convention on International Interests in Mobile Equipment.^{1/}

This paper will highlight the basic registration requirements set forth in these two documents, as well as in the International Telecommunication Union's Radio Regulations (ITU-RRS). It will also try to ascertain whether their purposes are compatible with and complementary to each other, or whether there are inconsistencies that should be resolved.

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Introduction

The increased mobility of objects, and of natural and legal persons, has led to a growing need to know what kind of object is being registered, where, and by whom. With the privatization and globalization of satellite systems, as well as of other economic activities, there is a growing need to know who owns and controls the assets, albeit for different reasons: insurance liability, collecting on a debt, cause of harmful interference, etc.

In regard to space objects, two systems of registration of spacecraft exist, each with its specific objectives and requirements as to the information needed. These are the 1976 Registration Convention (RC)^{2/}, and the International Telecommunication Union's Radio Regulations (ITU-RRS)^{3/}.

Under the terms of the RC, launching States are mandated to create a National Register, and to provide the information contained therein to the United Nations Secretary General (UNSG). Similarly, a National Administration forwards to the ITU the information submitted to it by the proponents of the satellite system, in accordance with national requirements.^{4/} A third system, to register security and financial interests, is being proposed by UNIDROIT. The ultimate goal of the three registers is to have information on objects launched to outer space, although the reasons for having this information differ

among the entities maintaining or that would maintain the registers.^{6/}

The following chart outlines the information sought by the three entities:

	REGISTRATION Convention	UNIDROIT Protocol on Space Assets	ITU Constitution, Radio Regulations
Legal "status"	Public Int'l law	Int'l Convention drafted by law private parties	Public Int'l law
Number of States Parties	Signed & Ratified by more than 40 States	Convention not ratified yet	180+ Member Administrations
Information required	Name of launching State(s)	Investor(s) creditor(s) seeking to secure financial interest	Notifying Administration (by country)
	Appropriate designator or its (national) registration number	File number would be issued electronically	Country and ITU number; identifying name of space system or number of space object
Notification/ Registration requirements	General technical parameters, including function of space object, nodal period, inclination, apogee, perigee. General function of the space object.	Any and all commercial transaction, existing and prospective sales and interests, rights, subrogation of any national and international interests may be registered	Very specific technical parameters, including coverage area, and function, satellite service (e.g., FSS, BSS, MSS, RNSS); frequency bands to be used, etc. (See App. 4, ITU-RRSI)
Notification/ Registration requirements	Registration with UN is mandatory for States that have ratified this Convention	Electronic filing/registration not mandatory	Advance notification mandatory; otherwise no protection against harmful interference
Time period for notification/registration	"As soon as practicable" (usually after launch)	Time of filing is considered the time of registration of the prospective international interest, prospective sale or prospective assignment.	Not more than 6, and not less than 2 years from when system will be brought into service.
Other notification requirements	Notification to UNSG of space objects no longer in Earth orbit	All transactions to be electronically recorded	Notification (and usually co-ordination) required for spacecraft, even if placed in same orbital position as one that is at end of useful life in orbit.
Definitions provided	"Launching State", "Space Object"; "State of Registry", as defined in RC and other outer-space related treaties and conventions	"Space Assets", "Associated Rights", as drafted by UNIDROIT	Cf ITU-RRS, Ch. RRS I, "Terminology and Technical Characteristics". (Precise definitions, used world-wide by ITU Member Administrations)

Obviously there are differences in the basic notification requirements of the entities with which space objects are registered. The

ITU-RRS (and National Administrations) require very precise technical data for co-ordination, but these will not be elaborated

upon here. Rather, the focus will be on the Registration Convention and certain aspects of the proposed UNIDROIT Convention and Space Assets Protocol.^{6/}

The Registration Convention

Registration of mobile objects, ranging from automobiles, maritime ships, aircraft, and even space objects, is a basic requirement in most nations. One of the principal reasons for registering vehicles is to be able to determine ownership or control, for insurance and liability purposes. National requirements to register a mobile object differ from country to country and the conditions for granting licenses^{7/} to use or operate mobile objects also vary in each jurisdiction.

The Registration Convention mandates that launching States establish a National Register of space objects launched, and that basic data on these objects be provided to the United Nations Secretary General (UNSG), which maintains an international Register thereof.

At the national level, several governmental entities are involved in obtaining the information required to register a space object: ministries regulating transportation, telecommunications, foreign relations, inter alia. Registration of a mobile object or vehicle, however, takes place with only one government authority. Similarly, the RC requires that there be only one State of Registry, although there may be more than one Launching State. The establishment of a *National Registry* of objects launched into outer space is at the core of the Registration Convention, and the State of Registry of the space object must have a National Register for that purpose.

The State of Registry of the space object notifies the UN that it has established its national Register, and submits its information to the United Nations Secretary-General (UNSG). This notification to the UNSG usually occurs *post launch*, "as soon as practicable," if at all.

While each State *may* provide additional information on space objects carried in its registry, it *shall* notify the UN Secretary General of space objects it *had* on its Registry, which are no longer in orbit.^{8/} The latter requirement reflects the States' on-going jurisdiction, control over, and liability for damage caused by its space objects, whether in outer space, in air or on Earth.^{9/}

In brief, the information that the State of Registry is mandated to provide to the UNSG is readily available in the National Register. Consequently, registering the space object with the UN in a timely manner should take place at a time certain, rather than "as soon as practicable."^{10/} Time of registration (of security interests) will become more important, if UNIDROIT's Space Protocol is adopted. First, a brief look at the ITU's notification requirements, which are similar to the RC's.

The International Telecommunication Union (ITU)

One of the principal activities of the ITU is aimed at making efficient use of the radio frequency spectrum (RFS) in the provision of telecommunications worldwide, to minimize harmful interference between satellite systems.

Like with the RC, that calls for only one State of Registry,^{11/} one Administration^{12/} only notifies the ITU of the space object(s)

or satellite system that is planned or proposed. The notifying Administration compiles information from various sources, including the application(s) of proponents of the satellite system, and submits it to the ITU.^{/13/} This information is published by the ITU, thus giving notice to other Administrations whose telecom systems may be affected, to facilitate co-ordination with them, and avoid harmful technical interference between the systems.

It should be noted, however, that the choice of orbits, as well as of the kind of service to be provided (telecom, broadcasting, navigation, etc.) is at the discretion of the satellite systems' proponents, with approval of the National Administration. While the ITU has no jurisdiction or control over the choice or use of orbits, use of the radio frequencies must follow the ITU allocations.^{/14/} Further, the ITU keeps a master Register of the frequencies assigned by the National Administration(s), to ensure that these assignments fall within the ITU's appropriate allotments and allocations.

Despite the fact that both the Registration Convention and the ITU call for registering specific information on space objects (orbital location, apogee, perigee, general function or purpose)^{/15/} reliable information on the hundreds of satellites in orbit is not available, since not all of them have not been entered into the UNSG's Register.

In the last decade alone, hundreds of privately owned and operated satellite systems (subsumed under the designation of "Global Mobile Personal Communications Services", or GMPCS)^{/16/} have been launched to a variety of non-geostationary (NGSO) orbits, to provide personal communication services.

The GMPCS are owned and operated by multi-national consortia; frequently the financial operations are incorporated into a "holdings company" under the laws of a tax-friendly State, while the laws of another country govern "operations".^{/17/} Thus, the RC's "State of Registry" as well as the ITU "Notifying Administration" may not be one and the same.

This complex ownership situation, compounded by the bankruptcy filings, gives rise to a number of legal and financial issues. For example, the drafters of the UNIDROIT Space Protocol have commented on the legal uncertainty that is created by the fact that several agencies – and laws of different countries – are involved in licensing satellite systems. Together with this uncertainty is the lack of assurance that investors in satellite systems, such as GMPCS, can secure their investment, or protect themselves from default on loans.^{/18/}

Some of these issues, and others that are raised by UNIDROIT's Space Protocol and registration of security interests will be considered next.

UNIDROIT's Proposed Convention on International Interests in Mobile Equipment, International Registry, and Space Protocol

UNIDROIT's proposed Space Protocol is aimed at facilitating the privatization and commercialization of outer space^{/19/}, by protecting private investments in that sector. In essence, the Convention would secure the financial interests of investors who have provided funds for outer space – related projects.^{/20/}

UNIDROIT also proposes the establishment of an International Registry, to secure the financial interests of investors in space systems and other mobile assets, thereby providing "...third parties with public notice of that interest."^{21/} "Registration is also key to the international interest's validity against the trustee in bankruptcy and creditors in the obligor's insolvency..."^{22/} Thus, a centralized recording system for the registration of interests in space property or assets is proposed.

Among the reasons given for creating an International Registry (to be managed by a Supervisory Agency), is that "several international agencies are involved in licensing satellite systems", but "...[n]one of them can offer a comprehensive registry of licensing of orbits,^{23/} frequencies and other rights... nor of financiers' interests in them..."^{24/} Thus, an international registration system is seen as an essential feature of the legal framework applicable to international interests in space property. Such a Register would provide the means of identifying some components of space property, even though they would not all have designator numbers.^{25/}

Having a registry of financial interests in space hardware may allay some of the financiers' difficulties, but does not solve the problem of a lack of registration of some space objects, or of other "space assets" and "associated rights", as defined by UNIDROIT (licenses, orbits, frequencies), for several reasons, as will be explained below.

Definitions

Both the Registration Convention and the Space Protocol provide definitions of "space

object" and "space assets", respectively. The RC's definition is: "The term "space object" includes component parts of a space object as well as its launch vehicle and parts thereof..."^{26/}

UNIDROIT's definition is more elaborate, and according to UNIDROIT's Report to COPUOS,^{27/} definitions are very important to the Protocol, as is the applicability of UNIDROIT's regime to more than tangible space property.

UNIDROIT's definition of "space assets" needs to be read before, and in conjunction with what are postulated as "Associated Rights"^{28/} in the Protocol. Article I (2) (f) of the Protocol provides the following meaning of "space asset":

- (i) any separately identifiable asset that is in space or that is intended to be launched and placed in space or has been returned from space;*
- (ii) any separately identifiable component forming part of an asset referred to in the preceding clause or attached to or contained within such asset;*
- (iii) Any separately identifiable asset or component assembled or manufactured in space; and*
- (iv) any launch vehicle that is expendable or can be reused to transport persons or goods to and from space.*

As used in this definition, the term "space" means outer space, including the Moon and other celestial bodies."^{29/}

The Protocol's definition of "space asset" is broader, yet clearer in some respects, than the one provided in both the Liability and Registration Conventions. One question arises, would the Moon and other celestial bodies fall under the meaning of "space

assets”, as defined by UNIDROIT? While they may be “space assets”, celestial bodies, including the Moon and asteroids, are not “space property”; they are not subject to appropriation, nor subject to property rights.^{/30/}

Similarly, other “space assets”, such as orbits, orbital positions, and the radio frequency spectrum (RFS) they *use*, may not be appropriated or converted into private property. *Use* of orbital locations or of parts of the RFS does not confer property rights on the *users* of these global commons, or global resources. In brief, a space object, may be a space asset, but a space asset is not necessarily a space object, let alone space property.

According to UNIDROIT, “*Associated rights*” means:

(i) *any permit, license, authorization or equivalent instrument that is granted or issued by a national or intergovernmental or other international body or authority to control, use or operate a space asset, relating to the use of orbital positions and the transmission, emission or reception of radio signals to and from a space asset, which may be transferred or assigned, to the extent permissible and assignable under the laws concerned;*

(ii) *all rights to payment or other performance due to a debtor by any person with respect to space assets; and*

(iii) *all contractual rights held by the debtor that are secured by or associated with the space assets.*^{/31/}

Art. I (2) (a) (ii) and (iii) refer to financial obligations and contractual rights in space assets; and thus, are not an issue. The first clause, (i) however, is problematic, for several reasons.

Having access to various rights [as defined above] would permit [inter alia] transfer of ownership rights in a spacecraft, of rights to operate the spacecraft, even the constructive repossession of a spacecraft.^{/32/} It could also lead to private parties deeming that their contractual rights are superior to official authorizations.

The Protocol seems to view licenses^{/33/} as negotiable property, as commodities in which a financial interest can be secured; thus, licenses could begin acquiring characteristics or traits of tangible “property” that can be transferred or assigned, even attached, without official sanction.

Licenses, however, are not negotiable property, nor are they a “right”; they are essentially privileges and/or prerogatives, granted by an official governmental entity, to facilitate some activity, whether on earth or in outer space.^{/34/} It is an official entity that decides, on the basis of certain criteria, whether or not to grant a license.

Deeming licenses or any other government authorization as a negotiable, transferable asset could lead to the gradual taking over of key government functions by the private sector. This, in turn, raises questions as to the value and usefulness of the official entities that issue licenses. The granting or withholding of licenses, however, still remains an important governmental function, one unlikely to be delegated to the private sector. As stated in one dictionary, “*a license is a mere personal permit; it is not property or a property right.*”^{/35/}

Further, the licensing, launching and operation of an international satellite system

is very complex, and requires the collaboration of many national administrations, each one with its own requirements and restrictions.^{36/} UNIDROIT is correct in stating that there is no international agency that issues licenses to [use] orbits, orbital positions or the requisite radio frequencies. The proponents of the satellite systems are the ones who decide how many spacecraft will be launched, to which orbital plane(s), for what function or purpose. Their National Administrations, in turn, assign the orbital positions and the radio frequencies^{37/}, and grant the appropriate licenses or permits for their use.

Consequently, it would be difficult to secure a financial interest in, or transfer a license for the use of a particular orbit or orbital position, since these are not subject to national or international regulations.^{38/} Hence, an international register of financial interests in components or operations of space assets, as proposed by UNIDROIT, would not necessarily solve the issue of trying to attach an orbital location or license to satisfy a debt.

Despite the globalization trend, every nation still has sovereign rights as to the issuance of licenses, to regulate the activities of its nationals, both on earth and in outer space. At the national level, regulatory agencies are the stewards (but not owners) of natural resources, such as the radio frequencies. At the international level entities such as the ITU, may be regarded as the “allocator” and custodian (not owner) of limited natural resources (such as the radio frequency spectrum and the geostationary orbit) that are considered “global commons”^{39/}.

If licenses (e.g., to use the spectrum or an orbital location) are considered negotiable “rights” (rather than privileges granted by an official national entity), the result will be the gradual appropriation by private parties of outer space resources. This outcome would be a clear violation of the spirit and the wording of the Outer Space Treaty, which states:

“Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”^{40/}

One means of overcoming an impasse that could occur, due to UNIDROIT’s current definition of “associated rights”^{41/}, as well as issues of national sovereignty over its licensing methods, would be to change some terminology.

Just as the term “space property” was changed to “space assets”, to reflect differences in what constitutes “property” in different legal systems,^{42/} it is submitted that “Associated rights” as stated in Art. I (2) (a) (i) of the Protocol should be re-named “Ancillary Privileges”. The term “privilege” better represents the true nature of licenses, or authorizations or permits.

Perhaps this change in terminology would help overcome the reticence of some of the potential signatories of the Protocol. The governments would retain control of the licensing process, authorizing their nationals to *use* space resources, but neither licenses nor intangible space assets (such as the orbits and RFS) would be considered negotiable rights, let alone private property.

Conclusions and Recommendations

The Registration Convention, the ITU’s

notification procedures and UNIDROIT's proposed Convention, have different objectives, since these institutions have different reasons for, and interests in ensuring compliance with their registration / notification requirements.

One lacuna in all these processes is the fact that at present no one single national or international entity seems to have a centralized registry of space objects or activities. Nor is any entity involved in planning the use of or allocation of non-geostationary orbits, where the vast majority of the privately owned and operated GMPCS satellite systems is or will be located.^{43/}

Other omissions becomes apparent when looking at the Registration Convention data base maintained by the UN's Office of Outer Space Affairs. States supply different data to the UNSG; some include information on space objects only if they have reached their orbit while others notify the UNSG of objects that have been de-orbited.^{44/} Still others do not provide data on many of their launches. "As a consequence, the UN Register...is incomplete, which restricts its usefulness".^{45/}

Improved compliance with the Registration Convention is becoming more urgent, due to the growing number of satellites in a variety of orbits, and the increasing number of countries with launch capabilities. Several benefits would inure from greater compliance: reliable information on the location of a space object facilitates the ITU co-ordination process, to avoid harmful interference; it reduces the possibility of collisions, and consequently, mitigates the creation of space debris.

A few actions could be taken to ensure better compliance with the Registration Convention. At the national level, the entities responsible for transmitting information to the ITU and to UNSG could improve co-ordination and sharing of data amongst themselves. The data required by the UN Registration Convention and the ITU is readily available from the States or Administrations, years prior to launch. Once the space object has been co-ordinated through the ITU, it could or should be entered into the National Register, and that information could and should be transmitted to the UNSG. The entry in the respective Registers should occur prior to launch, rather than *post facto*.

At the international level, some means of enforcing existing treaty provisions should be instituted, even though this would require amending the current treaties and Conventions. The new text(s) should reflect the private sector's growing role in space activities, including ownership, operations and responsibility or liability therefor. Additional information could be submitted when registering, which would be of benefit to those involved in space activities, from the design of a system, its financing, to its implementation.

Specific changes to the RC that could be made would include the following:

- Instituting a time certain for registration with the national authority, and subsequently with the UNSG, replacing the current "as soon as practicable".^{46/} This time frame could be contingent on when certain licenses^{47/} have been granted by the State of Registry.

In addition to the information required under present terms of Art. IV of the RC, other

technical data could be requested, such as:

- Projected useful life in orbit of the space object;
- Plans for its de-orbiting at end of useful life.
- Date(s) of launch, and launch vehicle(s).^{48/}

“Contact” information:

- Administration notifying the ITU;
- Date of notification to the ITU;
- Date of entry into National Register.
- Launching State(s), for liability purposes.
- Insurance company or consortium providing insurance coverage;

Financial Data: (of a general nature)

- Primary owner(s) and operator(s) of the satellite system;
- Names and legal domiciles of major financing entities, especially those seeking to register or secure their interest in the space object or system.
- State (or city) of registration of financial interests in the space object(s), providing third parties with public notice of that interest.^{49/}
- Insurance coverage: for launch, for components, including launch vehicle stages, and against malfunction of the satellite, its components, or its operation.

If the Registration Convention were amended to include additional information, such as general information on the ownership of the space object, possibly these changes would begin to meet one of UNIDROIT’s objectives- of providing public notice as to the interests that have been secured or registered.

Information on financial matters, however, would not necessarily preclude the establishment of another International Registry, as proposed by UNIDROIT. One question that arises, however, is whether the UN’s current Register is entirely compatible with the one envisioned by UNIDROIT.

In this respect, the main purposes of the three registration systems set forth in the chart, supra, should be taken into account:

- The Registration Convention is an international legal document, ratified by States, for politico-legal purposes. It is basically an “informational” document, but an important part of public international law and space law.
- The ITU is essentially a technical entity, concerned with technical issues. Its Constitution and Radio Regulations (also part of public international law) facilitate the technical co-ordination of satellite systems, but the ITU is not involved in granting licenses for the use of space resources or assets.
- UNIDROIT’s proposed Protocol is an instrument drafted by a non-governmental group representing private interests of an economic / financial nature. Its main purpose is to secure these financial interests, and seemingly, to be able to collect on bad debts.

The basic technical data required both by the Registration Convention and the ITU are similar; they are relatively easy to compile, and transmit from the National Administration or State of Registry, to the appropriate entity (the UN or the ITU). Thus, a basic compatibility exists between these two organizations, and the data they require. Closer co-operation between the ITU and COPUOS/OOSA would enhance this compatibility.

In regard to consonance between the RC's Register and UNIDROIT's, an issue arises as to the compatibility of the functions (and goals) of these two entities: is the UN the most suitable "Supervising Agency" for the Space Protocol's implementation?

UNIDROIT seems to advocate a sort of "Global Securities and Exchange Commission", an entity that would register all transactions related to securing or transferring financial interests in space "assets" (or other mobile equipment).

If this is the case, the UN, an international political body, perhaps is not the best choice as the supervisory agency of the Space Protocol. Therefore, an alternative is suggested.

WTO as an Alternative venue for UNIDROIT's International Registry?

It is submitted that the World Trade Organization (WTO) may be a more appropriate venue for the Supervising Agency proposed in the UNIDROIT Convention on Mobile Equipment, and its associated Protocols. Several factors would seem to make the WTO a preferable alternative to the UN.

A principal factor is that the WTO is an institution geared to the economic and financial aspects of trade and commerce. Since 1997, when the Annex on Telecommunications was incorporated in the General Agreement on Trade in Services, it has been increasingly involved in satellite telecommunications as a trade issue. The Annex "recognizes the dual role of telecommunications services as a *distinct sector of economic activity* and as the

underlying *transport means* for other economic activities."^{50/} The Annex applies to all means of "telecommunications transport"^{51/}, including satellite communications, except for the distribution of broadcast of radio or TV programming. Thus, the WTO is already aware of many of the economic / financial aspects of satellite systems, of which countries and corporations are involved in them.

Further, it is more familiar with commercial terminology and transactions, such as filing of security interests, than any part of the UN dealing with outer space (COPUOS, or the OOSA).

Thus, it may be easier to set up and maintain an electronic international Registry of securities and other transactions related to all mobile equipment, not only of space assets, under the aegis of the WTO. While the Annex applies to means of telecom transport, perhaps it could also apply to other mobile equipment (aircraft, rolling stock) which is also used in transport, albeit of a different kind.

It should be noted, however, that neither the WTO nor any other international institution is mandated to license satellite systems, or the use of orbits or the radio frequency spectrum. These are still prerogatives of National Administrations, of States, which are the constituents of these international organizations.

Hence, having the WTO (instead of the UN) as the Supervising Agency of the International Register may allay some concerns regarding the privatization of outer space.^{52/} Does the international legal community really want the private sector to take over legal / political activities of official

entities, supplanting the role of the State of Registry or the National Administrations?

Despite the trends toward globalization, national sovereignty issues and prerogatives still need to be taken into account, particularly in regard to granting licenses, and registering assets for use in outer space activities and operations. National sovereignty, however, does not extend to outer space, a global commons.

¹ UNIDROIT is the acronym for the International Organization for the Unification of Private Law, headquartered in Rome, Italy. UNIDROIT has drafted a "Convention on International Interests in Mobile Equipment, international interests in mobile equipment", and Protocols specific to the rolling stock of railroads, to aircraft, and to "space assets." Opened to signature in Cape Town, South Africa, November 2001. [Cited hereinafter as the Protocol.]

² Convention on Registration of Objects Launched into Outer Space, entered into force Sept. 1976. [Cited as the Registration Convention, or RC hereinafter.]

³ The International Telecommunication Union, a UN agency, specializes in the technical aspects of telecommunications, in particular radio communications. Its Convention and Constitution, and Radio Regulations that govern the use of the radio frequency spectrum are amended periodically. [Cited as ITU-RRS hereinafter.]

⁴ See, for example the USA's Federal Communications Commission (FCC) Main Form 601, Schedule K.

⁵ See UNIDROIT Secretariat's Report to COPUOS, A/AC.105/C.2/L.225 (Jan. 2001) [Cited as UNIDROIT Report hereinafter.]

⁶ UNIDROIT, note 1, supra.

⁷ The term "license" is used generically, to include concessions, permissions, authorizations, permits, licenses; i.e., any authorization granted by a governmental entity.

⁸ Art. IV (2), (3), Registration Convention. [Emphasis added].

⁹ Art. VII, VIII, Outer Space Treaty. De-orbited satellites must be notified to the UN. (Should those that have been transferred to another owner / operator also be entered in the UN Register?)

¹⁰ Art. IV (3), Registration Convention. It's debatable whether this notice applies only to de-orbited satellites, or to those that will be launched. If they are entered into the National Register, the

information should be transmitted to the UNSG, as per Art. IV (1).

¹¹ Art. II (2), Registration Convention.

¹² The ITU Radio Regulations (ITU-RRS) define Administration as "any governmental department or service responsible for discharging the obligations undertaken in the [ITU] Convention and Regulations. Chapter SI, Sect. I, Art. SI.2, ITU-RRS. (1997 version).

¹³ See, for example, the FCC's Main Form 601, which requires very detailed information on the applicant and the technical characteristics of the proposed telecommunication system.

¹⁴ See ITU-RRS, Appendix 4 (APS4), Annex 2A.

¹⁵ Art. IV, RC; ITU-RRS, APS4.

¹⁶ Among the GMPCS systems launched are IRIDIUM (66+ satellites); GLOBALSTAR (48+ satellites); ORBCOMM (36+ satellites); Worldspace (at least 3 radiobroadcasting satellites in GEO). Several other GMPCS systems have been proposed, but are unlikely to become reality.

¹⁷ The majority of the GMPCS systems have had to seek protection from creditors under US Bankruptcy laws. While most of them reorganized and emerged from "Chapter 11", tracking down their new "owners" is rather complicated.

¹⁸ Stanford, Martin: The Roles of International Organisations in Privatisation and Commercial Use of Outer Space: UNIDROIT's project for the creation of a new regime governing the taking of security in high-value mobile assets: a window of opportunity in the context of the privatisation and commercial use of outer space. UNISPACE III: Workshop on Space Law in the 21st Century, Session 6.(Vienna, Austria, 20-23 July 1999).[Cited as Stanford hereafter.] [Emphasis added.]

¹⁹ Ibid. Note emphasis, supra, note 18.

²⁰ UNIDROIT, note 1, supra.

²¹ Stanford, note 18, supra.

²² Idem; pp.3-4. UNIDROIT's proposed validity of the (registered) interest against a trustee in bankruptcy is worth noting, in view of the filing for bankruptcy protection ("Chapter 11") by most of the operational GMPCS systems (Globalstar, IRIDIUM, ICO, Orbcomm, inter alia.)

²³ It is the prerogative of national Administrations to issue the requisite licenses for satellite systems, for the use of certain frequencies, but no license is required for the use of particular orbits. While the systems are coordinated under the ITU-RRS, no international organization licenses [the use of] orbits, frequencies or other "rights".

²⁴ Stanford, note 18, supra.

²⁵ Par. 25, UNIDROIT Report, supra, note 5. But see the RC's requirement for such a number.

²⁶ Art. I(b), Registration Convention. This same definition is found in Art. I(d) of the 1972 Convention on International Liability for Damage

Caused by Space Objects. (Cited as the Liability Convention hereinafter.)

²⁷ Par. 20, UNIDROIT Report, note 5, *supra*.

²⁸ Protocol, Art. I (2) (a).

²⁹ Protocol, *supra*, note 1, Art. I (f). [Emphasis added.] It should be noted that the earlier draft of the Space Protocol spoke of "Space Property", which was replaced by "Space Assets", in response to concerns regarding the implications under civil law of the term "property". In this respect, see footnotes of the Draft Protocol discussions held at Evry, France, Sept. 2001. Also see UN documents A/AC.105/763; A/56/20, *inter alia*, and UNIDROIT, www.unidroit.org.

³⁰ Art. II, Outer Space Treaty. Art. 11 (2) of the Moon Treaty reiterates the non-appropriation doctrine, although Art. 6 allows States Parties to this Treaty to "collect on and remove from the Moon samples of its minerals and other substances". Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. Entered into force 1984. [Cited as the Moon Treaty hereinafter.]

³¹ Protocol, *supra*, note 1, Article I (2) (a). Revised in Rome, Italy, February 2002. [Emphasis added.]

³² Par.20, UNIDROIT Report, note 5, *supra*.

³³ The term "license" will be used hereinafter, in reference to concessions, authorizations, permits, or licenses granted by a governmental authority, and only as they may relate to telecommunication satellite systems.

³⁴ The licensing system with which most people are familiar is the driver's license, which is issued by a governmental entity. A driver's license is highly personal, and cannot be assigned, transferred, or re-issued to a third party, with or without official authorization. Should licenses pertaining to space activities be more easily transferable than drivers' licenses, in view of the numerous national security (and financial security) issues involved?

³⁵ Black's Law Dictionary, St. Paul, Minn., West Publishing Co. [Emphasis added.]

³⁶ Many States have restrictions on foreign ownership of the media, of airlines, and other areas of strategic importance, such as the aerospace sector.

³⁷ The use of the RFS is done in accordance with the ITU's Radio Regulations and Plans that have been devised for certain satellite services

³⁸ An exception: use of geostationary orbital positions is subject to some regulation: the satellites must be located at 2 Deg. from each other, and there are only 360 Deg. in the geostationary orbital arc.

³⁹ In this respect, see V. Kopal, "Outer Space as a Global Common", Proceedings of the IISL, 1997.

⁴⁰ Art. II, Outer Space Treaty (OST). But see fn 2, Draft Protocol (Evry, France 2001), to the effect that there are no conflicts between the Protocol and the principles incorporated in the UN's Space treaties.

Or could there be some potential conflict between the privatization of outer space and Art. II, OST?

⁴¹ H. Kronke, Secretary-General of UNIDROIT noted that "the issues of how to define and how to deal with 'associated rights' pose a number of problems..." "The Draft UNIDROIT Convention..." Included in "Project 2001- Legal Framework for the Commercial Use of Outer Space", Karl-Heinz Bockstiegel, Ed. Carl Heymanns Verlag, Koeln, 2002, at p. 655.

⁴² See note 27, *supra*.

⁴³ See note 16, *supra*, re: GMPCS systems.

⁴⁴ L. Perek, "Maintaining the Space Environment". Discussion Paper presented at Workshop on Space Law in the 21st Century. UNISPACE III, Vienna, Austria, 20-24 July 1999. Perek noted that only 40 States adhere to the Registration Convention, and that international organizations do not register their satellites. (The latter may be a moot point, since the International Satellite Organizations (ISOs) have been "privatized".)

⁴⁵ Perek, *op.cit.* One very complete database is available electronically, at www.harvard.edu/QEDT/, or www.jcm/space/un/un.html.

⁴⁶ Art. IV(1), (3); the latter section requires notification to the UNSG of space objects which are no longer in orbit.

⁴⁷ Several kinds of licenses may be required: a) to construct, build a satellite system; b) to operate said system; c) to provide certain services via that system; d) to use certain frequencies of the radio spectrum; e) license to export the satellite, both to the launch site and to outer space.

⁴⁸ This information is or should be known to the system owner(s), as well as to the insurance corporation(s) several months prior to launch.

⁴⁹ Stanford, note 18, *supra*.

⁵⁰ WTO, General Agreement on Trade In Services, Annex on Telecommunications, "1", Objectives. [Cited as the Annex hereinafter.] [Emphasis added.]

⁵¹ *Ibid.* 3(a) provides the following definition:

"Telecommunication means the transmission and reception of signals by any electromagnetic means."

⁵² The privatization, not only the commercialization of outer space seems to be one of UNIDROIT's goals. Note the full title of Stanford, note 18, *supra*.