

PIERCING THE DIPLOMATIC VEIL: ENCOURAGING COMMERCIAL SATELLITE SYSTEMS TO LEAD NEGOTIATIONS OVER RADIO FREQUENCY SPECTRUM BY REFORMING ITU REGULATIONS

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The rapid development of commercially funded satellite communications systems over the last 10 years has presented the International Telecommunication Union (ITU) with the problem of attempting to resolve frequency conflicts between satellite systems that are located and operate within different sovereign nations. Commercial satellite communication systems that operate over more than one country must coordinate with the ITU to prevent frequency conflicts with other communications networks, but the ITU does not have the authority to force any of these entities to agree on a mutually beneficial use of the frequency spectrum. The ITU and commercial satellite systems are under the total control of local telecommunications regulators who desire to protect the use of spectrum within their nation's borders. This diplomatic control is inhibiting the ability of commercially driven satellite systems to negotiate efficient spectrum use with other commercially driven entities.

This paper presents two solutions to help resolve this problem. First, the responsibility for coordinating a satellite system through the ITU interference coordination process should be left to the entity that proposed the system in the first place and not to the local regulator of the country that supports that entity's interests. Second, the ITU should allow only one delegate per nation to attend the World Radio Conference. Changing the ITU Convention to allow commercial satellite systems to represent their own interests before the ITU should encourage these commercially driven entities to lead spectrum negotiations.

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These negotiations would still be under the tight control and approval of local regulators, but leadership would shift to the commercial entities that are most qualified to negotiate a commercial solution.

I. Introduction

The International Telecommunications Union (ITU) is a specialized agency under the United Nations that adopts international regulations and treaties governing all terrestrial and space uses of the radio frequency spectrum.¹ The ITU, as an intergovernmental organization, does not have the authority to force the settlement of potential frequency conflicts between different communications systems. The only authorities with the power to settle these conflicts are the local telecommunications regulators and administrators who regulate the radio frequency spectrum within the nation's borders. The ITU provides an international venue where disputes can be addressed and resolved. This venue is becoming more important as frequency conflicts arise between communication systems and communication frequencies² that are the responsibility of more than one sovereign nation.

The accelerating development of commercially funded satellite communications systems over the last 10 years has presented the ITU with the problem of attempting to resolve frequency conflicts between satellite systems that are located and operate within different sovereign nations. Commercial satellite communication systems that operate over more than one country must coordinate with the ITU to prevent frequency conflicts with other communications networks³, but the ITU does not have the authority to force any of these entities to agree on a mutually beneficial use of the frequency spectrum. If these frequency conflicts were between entities operating within one nation, the local telecommunications regulator

would have the sovereign's authority to resolve this conflict. Because conflicts between satellite systems occur over international boundaries, conflict resolution is achieved by sovereign diplomats who are responsible to local telecommunications regulators and by satellite system Chief Executive Officers (CEOs) who must protect their business interests. When these diverse interests are brought together by the ITU, an organization that has no authority to enforce a negotiated settlement, the results are disagreements and an inefficient use of the available radio frequency spectrum.

In order to encourage more negotiation between these commercially driven entities this paper makes two suggestions. First, the responsibility for coordinating a satellite system should be left to the entity that proposed the system in the first place, and not to the administration or country that supports that entity's interests. Second, the ITU should allow only one delegate per nation to attend the World Radio Conference, which would prevent business entities from representing sovereign nations as delegates.⁴ Neither of these suggestions would apply to terrestrial communications systems, because conflicts with terrestrial systems should be dealt with at the local regulator level.⁵

If the diplomatic mask is removed from business leaders, they may become more aggressive in making business decisions. The purpose of these two suggestions is to increase business style negotiations at the ITU without upsetting the power of sovereign nations to control the spectrum allocation process. This paper will demonstrate how these two suggestions will have minimal impact on the power of sovereigns at the ITU, and a positive impact on the efficient allocation of the commercially available spectrum.

II. Background

A. The Market Oriented and Commercially Funded Satellite Revolution

A revolution in communications satellites has been occurring over the last ten years. Driven by tens of billions of dollars in private investment, thousands of new communications satellites have been produced or proposed. These new satellite systems have been proposed by private businesses and by business-oriented arms of intergovernmental organizations like the International Telecommunications Satellite Organization (INTELSAT) and the International Maritime Satellite Organization (INMARSAT).

These new satellite systems are also using low and medium orbits that had not been used for commercial communications in the past.

For the purposes of this paper, the key aspects of this satellite communications revolution are the increase of market-oriented participants and the increased desire for spectrum that is controlled by more than one nation. As stated above, most of the satellite systems proposed and developed over the last ten years have been led by business oriented entities. Private companies like Iridium and Skybridge and intergovernmental organizations like INTELSAT and INMARSAT are competing for investment capital and international customers to justify the capital expenditure involved in building their global systems. Whether motivated by dreams of huge profits or universal service to the world's poor, these entities are affected and steered by market forces. If a proposed satellite communications system can not demonstrate a reasonable return on investment then banks and other financial entities will not fund it.⁶ With only a handful of European banks currently providing finance for satellite communications projects, and Asian economies presently in turmoil, most of the investment capital for these new systems is coming from banks within the United States.⁷ Investment and commercial banks within the United States do not have the capital to fund all of the proposed satellite systems. The analysts within these banks that decide which projects get financed will evaluate each proposal for its ability to gain enough customers to earn a return on investment under market conditions. Potential operators must show they have a good business plan and that they will serve a large market if they expect to receive investment capital for their satellite systems.

Almost all of the entities proposing these global satellite systems realize that they must have a good business plan, and they also know that they must market their satellite services to customers throughout the globe. The ability to acquire the right to use radio frequency spectrum within many different nations is mandatory to the funding of most of the new satellite systems and all of the new LEO and MEO systems.⁸ The use of inter-satellite links on some of the new LEO systems is a global spectrum issue that must also be resolved by many different nations, because these inter-satellite radio waves travel through globally shared and internationally regulated regions of outer space.⁹ Whether the frequency spectrum is within the atmosphere or in outer space, global satellite systems must show investment bankers that they

can acquire spectrum regulated by many different nations if they want money to build their satellite systems.

B. Local Telecommunications Regulation

The use of the radio frequency spectrum within a nation's borders will always be a sovereignty issue. No nation should expect to be able to bombard another nation with its radio, television, or other telecommunication signals without inviting conflict. The radio frequency spectrum within a nation is normally controlled and administered by an agency of the government, like the Federal Communications Commission (FCC) within the United States, or a quasi-governmental organization called a Post, Telegraph, and Telephone (PTT).

A government agency, like the FCC, will usually regulate the use of spectrum by other government, private, domestic and foreign entities within that nation. A local PTT will usually regulate the use of spectrum and be the owner of most or all of the entities providing telecommunications services within that nation. Because PTTs normally provide many of the telecommunications services within their nations, they often try to control the exploitation of the spectrum to impede the growth of potential competitors. The restrictive environment that PTTs can sometimes create is currently loosening with the privatization of PTTs and the deregulation of telecommunications services within these nations.

C. International Telecommunication Regulation

(1) The International Telecommunication Union (ITU)

Many telecommunications signals and telecommunications services do not stop at the borders of the nation that originated them. The International Telegraph Union was founded in 1865 to set up standards for the interconnection of telegraph networks across European boundaries. In 1934 the name changed to the International Telecommunication Union (ITU) to reflect the inclusion of all forms of communication. In 1947 the ITU became a specialized agency of the United Nations.¹⁰

The ITU is not a supranational organization and it lacks a permanent charter. The 1973 Convention of the ITU and the Radio Regulations

of the ITU have the force of international treaties, but individual countries can make reservations or declarations adverse to agreements made at the ITU.¹¹ This ability to escape from unpopular agreements made at the ITU effectively allows individual nations to maintain sovereignty over the spectrum within their border. In spite of the ITU, control of the radio frequency spectrum is left firmly in the hands of the local regulator within each nation.

(2) The Radio Regulations and the World Radio Conference (WRC)

In 1903, what is now the ITU decided to convene an International Radiotelegraph Conference to discuss the regulation of wireless telegraphy, and the first regulations to govern wireless telegraphy were signed in 1906. These regulations, which are known today as the Radio Regulations, have been updated and amended continuously at other conferences since that first conference in 1906.¹² Changes to these regulations have authorized the construction and implementation of new services, like satellite services, within particular frequency bands.

A World Radiocommunication Conference (WRC) is held approximately every two years to vote upon proposed changes to the Radio Regulations. Radio frequency spectrum for particular types of satellite and other wireless communications systems is set aside at the WRC. Voting is accomplished by the member nations of the ITU where a maximum of one proxy vote is given to each nation.¹³ Each nation is allowed to have more than one person on its delegation as long as the overall delegation has the power to represent its government without restriction and sign the Final Acts of the WRC.¹⁴ The Final Acts of the WRC represent the changes that eventually will be implemented to the Radio Regulations.

(3) The Table of Frequency Allocations (TFA)

An International Frequency Registration Board (IFRB) was set up to manage the radio frequency spectrum, and the Table of Frequency Allocations (TFA) became a mandatory register to all nations that are members of the ITU. This table would list the specific frequency bands that had been allocated to particular types of communications services. The specific frequency bands in the table were set aside by the Radio Regulations or at World Radio Conferences. The purpose of this table was to prevent interference between

communication stations in the air, space, on the ground, or out at sea.¹⁵ The TFA did not list the actual communication systems that would utilize the spectrum set aside within the table.

(4) Priority Allocations

Frequency allocations may be exclusive, primary, permitted, or secondary depending on the intended use of the set aside frequency band in the TFA. The highest classification is the exclusive allocation, which permits sole use of the assigned frequency band. The other types of allocations involve some form of frequency sharing between potentially interfering communications systems.¹⁶

The most common type of allocation is the multiple primary or co-primary allocation. This type of allocation allows two or more services to share the same frequency bands within the TFA.¹⁷ A local regulator from a national administration is responsible for coordinating systems within that nation if these systems share on a multiple primary basis. Competing satellite systems that must share globally controlled spectrum on a multiple primary basis must rely on the impotent ITU and the thousands of local regulators within each nation to complete the coordination of their systems. This coordination process, whether local or global, is under the control of the national administrations that regulate telecommunications within their local markets.

(5) Master International Frequency Register (Master Register)

The actual communications systems that intend to use the frequency bands set aside in the Table of Frequency Allocations are supposed to record and register their intended frequency assignment, and where appropriate their orbital characteristics, in the Master International Frequency Register (Master Register).¹⁸ The national administration, government agency, or PTT of the country responsible for a communications system is responsible for publishing the technical specifications of its system in the Master Register. Any entity should be able to go to the Master Register and find out what communications systems is using a particular frequency and what country is that system's notifying authority.

III. Current Satellite Coordination Process

A satellite communications system must overcome local regulatory barriers and global

regulatory barriers if it intends to operate in more than one nation. A satellite system must be authorized to use global spectrum by the ITU, and it must obtain a license from the local regulator to use this spectrum within every nation that it wants to serve. If a satellite system receives the authorization to use spectrum from the ITU, but is not licensed within a particular country, then it lacks the authority to serve that country.¹⁹

The satellite system coordination process is the unofficial name for the set of procedures that an entity will have to go through to get its system approved by the ITU and licensed in several key countries. Some may feel that this process ends when coordination is complete with the ITU, but a satellite system that can not obtain a license in a few rich countries may never get the investment capital to be built. The Radio Communication Bureau of the ITU desires to operate the maximum amount of radio channels in those portions of the spectrum where harmful interference between satellite systems may occur.²⁰ If this goal is to be achieved, a satellite system's ability to obtain local licenses and investment capital should be as valuable as its ability to use the available spectrum efficiently.

A. Allocation of Global Spectrum for Intended Satellite Service

As discussed previously in section II.D(2) and (3) of this article, a satellite system can operate within particular frequency bands only if that type of satellite service is allocated frequency within the Radio Regulations and the Table of Frequency Allocations. An entity proposing a satellite system must ensure that enough spectrum is set aside within the Radio Regulations to enable the operation of the proposed service. In order to accomplish this, the entity must be able to effect changes to the Radio Regulations at the World Radio Conference (WRC).

Issues discussed and resolved at the WRC are proposed and voted upon by the representatives of national governments. The entity described above must be represented by a national government at the WRC if that entity wants to have spectrum set aside for its satellite service in the Radio Regulations.

Within the United States and in Europe, the lobbying and negotiating that occurs between national governments and the satellite systems that they represent at the WRC are time consuming, expensive, and sometimes ineffective. In order to streamline this process, the United States has

established a World Radio Conference Advisory Committee (WRCAC), primarily formed of satellite industry representatives, to assist the U.S. government in establishing an agenda that would help U.S. companies at the WRC.²¹ The Europeans use a Conference Preparatory Group (CPG) to advise the European Conference of Postal and Telecommunications Administrations (CEPT)²² to establish an agenda that would help their companies at the WRC.²³ This preparation process will normally last for the entire two years before the actual WRC.

The WRCAC and the CPG are valiant attempts by both governments to represent their constituents effectively, but neither the Europeans nor the U.S. government is obligated or able to represent the desires of the satellite systems that help them to prepare for the WRC. There are often too many conflicting positions between national regulators and competing communications systems to effectively come up with one agenda that all parties can agree to. Other communication systems within these nations want to set aside spectrum for their terrestrial or satellite service, and the governments of these nations want to set aside spectrum for use by government agencies like the military.

After surviving this process, the entity behind a satellite system, with luck, will have its agenda become part of the national agenda for the WRC. In addition to this, the entity will probably be permitted to have one or more of its employees to serve as an official member of that nation's delegation to the WRC. As mentioned previously in section II.D(2) of this article, the delegates of a member nation must have the full authority of that nation to represent it at the WRC. This means that a delegate from a U.S. satellite company is representing the position of the United States at the WRC. Neither the United States government, nor any other member nation of the ITU, would allow one of its delegates to espouse anything but the national position at the WRC, because anything less would undermine that nation's stance on key issues at the WRC. When employees of satellite systems attend the WRC as delegates, they are not permitted to push the agenda of their satellite system if it conflicts with the national agenda. They are not advocates for their business; they are advocates for the nation.

If the United States government, or the Europeans, or some other nations propose agendas at the WRC that the other member nations can agree upon, then that agenda will be voted into approval. With luck, sufficient spectrum will be allocated in the Radio Regulations to allow the

entity proposing a satellite system to offer its service. Without luck, this entity would have to hope that the nation(s)²⁴ that represents its' agenda would be able to promote this agenda with more success at the next WRC in two years.

B. Advanced Publication and Interference Coordination

An entity proposing a satellite system must eventually publish, in the Master Register, its intentions to operate that system within the frequency bands assigned to it in the Radio Regulations. The Radio Regulations provides procedures for advanced publication, interference coordination, and notification to help resolve frequency conflicts between all potential communications systems that desire to operate within the set aside frequency bands. Unless the Radio Regulations stipulate that the satellite services offered within this band are allocated on an exclusive basis, the entity proposing the satellite system will have to share the spectrum in this band with other users. It is extremely unlikely that frequency bands appropriated to commercial satellite services will ever be allocated on an exclusive basis.

The advanced publication, interference coordination, and notification procedures that help satellite systems to resolve conflicts over shared spectrum are under the control of the national governments. A national administration, also known as the "notifying authority", must give the Radio Communications Bureau of the ITU all of the relevant technical information for a satellite system that is proposed by one of its constituents.²⁵ The entity that is actually responsible for the satellite system may not do this on its own.

When the advanced publication information for a proposed satellite system is filed with the ITU, other nations that wish to comment have four months to file their comments with the Bureau and the nation that is sponsoring the satellite system.²⁶ If another nation objects to the satellite system's proposed use of the frequency, then coordination procedures may begin between the nation responsible for the system and any nation objecting. In theory, over a time period of a few months (not years), the notifying authority will negotiate a spectrum sharing plan with other nations that all of the coordinating nations can agree to. The ITU offers its assistance in resolving any disputes, but it does not have the authority to enforce any decision. If the notifying authority

fails, then the satellite system that it represents may fail.

C. Obtaining Licenses within the Key Nations of the World

When an adequate spectrum sharing arrangement has been agreed upon at the ITU, the entity proposing a satellite system must still have its system licensed to operate within the nations that it desires to serve. If any of the before mentioned steps of the satellite coordination process met resistance from a particular nation, this is an opportunity for that nation to deny a license to the offending satellite system. As mentioned in section II.D(1) of this article, nations can opt out of agreements made before the ITU. If a nation was against a particular type of satellite service being offered in a particular frequency band, that nation could decide to ignore the decisions of the ITU, even if every other member nation of the ITU supported that service.

It is the responsibility of the entity that proposed the satellite system to acquire national licenses for the system. The entity can leverage its own negotiating ability and the lobbying power of national governments to help it to acquire licenses around the world. This is a very expensive process and many satellite systems never acquire licenses in the key countries that they want to serve. Coordinating a satellite system with the ITU and coordinating the acquisition of national licenses are two totally separate matters. For the sake of the business driven entities that propose these satellite systems, it is unfortunate that this is the reality.

IV. The Problem

In order to acquire the use of global spectrum for a satellite system, the entity responsible for that system must complete a long and inflexible process. This process is long and inflexible because the entity must convince different nations to bless the operation of its satellite system at the potential expense of other communications systems that that nation may want to champion. National government telecommunications regulators and diplomats will always control this long and inflexible process, because this is presently the best way for them to provide for the needs of their citizens and constituents.

Whether it is a capitalist or quasi-socialist entity that proposes a satellite system, the need to please shareholders, investors, and paying customers drives that entity to make decisions

which are more business driven than the decisions of a diplomat or telecommunications regulator. Business decision making requires decisiveness, clarity, flexibility, and timeliness. A business entity proposing a satellite system can not be decisive or clear when their regulatory position must be in harmony with the interests of the nation that represents them before the ITU. A business entity can not be timely or flexible when, over a two year period, it has to coordinate its decision making in secret with nations representing it at the WRC.

Business driven decision-making encourages the entities proposing satellite systems to push their own regulatory position at the ITU when the position of the nation that represents them before the ITU is not working. Business driven decision making would allow these entities to change their allegiance from one national regulatory agenda to another when it fits the business needs of the satellite system. Business driven decision making would force many of these entities to negotiate spectrum-sharing arrangements with competitors that are represented by opposing nations.

Within the United States, the Federal Communications Commission (FCC) has the authority to resolve spectrum conflicts between communications systems that compete for use of the same frequency spectrum. Because clear winners and losers might be determined when the FCC resolves a spectrum conflict, the business driven entities involved in these disputes will adjust their regulatory positions and business plans to salvage a solution that can please their shareholders, investors, and potential customers. Adjustments of regulatory position and business plan may happen hundreds of times over a period of months if the business entity wants its proposed satellite system to survive. Eventhough the ITU does not have the enforcement authority that the FCC has within the United States, a regulatory regime could be developed at the ITU to encourage the flexibility and efficiency of business style negotiations.

V. A Solution – Business Driven Negotiations at the ITU

In order to encourage more business style negotiations at the ITU, two changes should be made. First, the responsibility for coordinating a satellite system through the ITU advanced publication and interference coordination process should be left to the entity that proposed the system in the first place and not to the administration or country that supports that entity's interests.

Second, the ITU should allow only one delegate per nation to attend the World Radio Conference; this change would prevent business entities from representing sovereign nations as delegates.

A. Solution 1: Interference Coordination becomes the Responsibility of the Entity Proposing a Satellite System

As mentioned in section III.B of this article, the advanced publication and interference coordination of a satellite system must be under taken by a sovereign nation. A diplomat representing this sovereign nation does not have the authority to change a satellite system's business plan or the flexibility to change the regulatory position of his nation on short notice. An entity proposing a satellite system does have the authority and flexibility to change the business plan, the spectrum-sharing plan, and the regulatory position of a proposed satellite system in order to negotiate the use of spectrum with others. The advanced publication and interference coordination process should be made the responsibility of the business driven entities that propose satellite systems, because only these entities have the authority and flexibility to negotiate for spectrum sharing arrangements that are in their own interests.

If this responsibility is given to these entities, they will have to coordinate the use of spectrum with every entity or national government that challenges the use of that spectrum. This change should increase business driven negotiations over global spectrum sharing, because a business driven entity would be directly responsible for these negotiations instead of a sovereign diplomat.

B. Solution 2: Entities Proposing Satellite Systems can not Represent Sovereign Nations as Delegates

Sovereign nations often send delegations to the WRC that include employees of proposed satellite systems that have pressing issues before the WRC. All of the delegates that a sovereign nation sends to the WRC, regardless of their prior affiliation, must support the position of their nation before the ITU. As mentioned previously in section II.D(2) of this article, a delegate espousing a position on an issue that is different than his nation's position is a traitor who could undermine the power of his nation before the ITU.

If every nation is only allowed one delegate at the WRC, then entities proposing satellite systems could not place their employees on to national

delegations. These entities would still probably coordinate their agendas with the agendas of other nations prior to the WRC, but they would not be locked into the position of one nation while at the WRC. If a particular nation's position is not achieving success at the WRC, then the representatives of a proposed satellite system can immediately abandon the position of that nation at the WRC and find a solution that will work for their satellite system's business. This could not be accomplished if these representatives were delegates who had to support one nation's position.

C. Neither Change will Decrease the Power of Sovereign Nations before the ITU

There are many changes that could be made to the ITU Convention that would improve the resolution of spectrum conflicts, but most of these changes would never be implemented because they would threaten the power of sovereign nations at the ITU. The two solutions presented above are designed to enhance the resolution of spectrum conflicts at the ITU without significantly changing the status quo. Both of the above solutions could be implemented without seriously affecting the present bureaucratic structure of the ITU or the power that sovereign nations wield at the ITU.

Neither of these changes will affect the power that national governments have at the ITU, because national governments will always have the power to vote at World Radio Conferences and the power to deny local licenses to satellite systems. National governments will only lose the official power to represent entities in the interference coordination process (solution 1) and the official power to place representatives of satellite systems on their WRC delegations (solution 2).

This lost official power is insignificant because national governments will always be able to control and manipulate their incorporated entities and other national citizens. If a nation wants to control the interference coordination process of one of its satellite companies, then it can nationalize that company or force that company to obey the sovereign's orders. If a nation is fearful that its citizens or companies will espouse positions different than the national position at a WRC, then that nation can order that all of its citizens or companies support the national position. If the entity proposing a global satellite system is totally or partially owned by a national government, then that entity may decide to have all of its actions before the ITU handled by the national government.

National governments should always have the power to regulate the activities of satellite companies that are incorporated within their borders or that desire to offer service within their borders. Within the United States, a U.S. registered satellite company will never be able to negotiate a spectrum sharing deal with a foreign satellite company that might adversely effect other U.S. satellite companies or U.S. government communications policies. Removing a local government from the interference coordination process espoused in solution 1 will not prevent that government from regulating the spectrum negotiations of one of its companies. This solution will encourage a commercially oriented satellite company to take the lead in spectrum negotiations that government regulators do not have the flexibility to excel in.

Local government regulators should always be involved in the negotiation process, because they will always have the final decision on whether or not any spectrum sharing solution will be approved. Local government regulators should not lead this process, however, because they do not have the resources or the authority to lead commercially oriented spectrum negotiations that may involve the manipulation of a satellite company's business, marketing, or financial plans. Solution 1 encourages business led negotiations over interference coordination, but it does so without removing the power of the local regulator to make the final decision.

The local regulator will also always have the final decision in determining the composition of its WRC delegation. Solution 2 should not change the composition of WRC delegations, because member nations of the ITU will always be able to staff these delegations with the lawyers, engineers, and satellite company representatives that they need to negotiate effectively at the WRC. Solution 2 only changes the status of the support members of the WRC delegation by removing the ITU created restriction that espouses that these delegates must represent their local nation. The one delegate who is allowed to vote at the WRC should be the only official representative of that nation's government at the WRC.

If a nation brings more than one delegate to the WRC, then that nation can still restrict and control the behavior of its delegates. Solution 2 will only change the perceived status of these delegates before the ITU, and it will not change the real relationship that supporting delegates have with the nation that sponsors them. By lowering the diplomatic status of the supporting delegates at the

WRC, solution 2 desires to encourage more open negotiation between supporting delegates who are no longer officially affiliated with one nation.

By encouraging satellite companies to represent their own interests before the ITU, the two changes presented in solutions 1 and 2 should actually increase the power of sovereign nations at the ITU. At worst, these changes should not decrease the power of sovereign nations at the ITU, because these nations could still undermine the independence of satellite companies through nationalization or other methods of control.

VI. Conclusion

This paper presents two solutions to help resolve frequency spectrum conflicts between business driven entities proposing global satellite communications systems. First, the responsibility for coordinating a satellite system through the ITU interference coordination process should be left to the entity that proposed the system in the first place and not to the administration or country that supports that entity's interests. Second, the ITU should allow only one delegate per nation to attend the World Radio Conference.

Business driven entities are driving the communications satellite revolution, and they are driving many of the spectrum conflicts before the ITU. If national governments or the ITU had the capability or authority to resolve the spectrum conflicts between commercial satellite systems, then the changes proposed in this paper would be unnecessary. Changing the ITU Convention to allow satellite systems to represent themselves at the WRC and to lead the interference coordination process would encourage the business entities behind these systems to lead spectrum negotiations. These negotiations would still be under the tight control and approval of local regulators, but leadership would shift to the commercial entities that are most qualified to negotiate a commercial solution.

References

¹ *International Telecommunication Union*, Sept. 1998, handout prepared by Kevin McGilly of Freedom Technologies Inc., Washington, DC.

² Inter-satellite links that carry information from one satellite to another in space are not the responsibility of any one nation.

³ Other communications networks includes satellite and terrestrial communications networks.

⁴ Most nations have multi-party delegations to provide them with a wide variety of technical and regulatory expertise, and to help them to deal with the diversity of issues presented at the WRC. As will be discussed later in this paper, these nations will be able to keep their multi-party delegations as long as the voting head of the delegation is the only official representative of that nation at the WRC.

⁵ Global balloon systems like the Sky Station system would be treated like satellites for the purposes of this paper. Eventhough local terrestrial systems present huge international spectrum issues for global satellite systems, these spectrum issues are still local. This paper deals with a global solution for the global spectrum problem of global satellite systems competing for the same spectrum across the globe. This paper believes that a spectrum conflict between a terrestrial system and a satellite system is a local issue that should be handled by the local regulator within each nation.

⁶ Even organizations like INTELSAT that lack a true profit motive must justify to their board of directors that they will receive a return on investment that justifies the investment of the partner countries. Most of the interference problems before the ITU though are not associated with INTELSAT or INMARSAT, but with their commercial spin-offs like ICO Global Communications and New Skies.

⁷ *Satellite Projects*, INTERNATIONAL SPACE INDUSTRY REPORT, Oct. 26, 1998, at 4.

⁸ The LEO and MEO satellite systems, because they are not stationary, will cover most of the globe. It is tough to justify the construction of an inherently global satellite system if it does not access many of the potential customers below it.

⁹ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 (entered into force Oct. 10, 1967) [hereinafter Outer Space Treaty]. Article 2 of this treaty states "Outer Space, including the Moon and other celestial bodies, is not subject to

national appropriation by a claim of sovereignty, by means of use or occupation, or by any other means."

¹⁰ International Telecommunication Union, *ITU's History* (visited Nov. 8, 1998)

<<http://www.itu.int/aboutitu/history/history.html>>.

¹¹ Jannat C. Thompson, *Space for Rent: The International Telecommunications Union, Space Law, and Orbit/Spectrum Leasing*, *Journal of Air Law and Commerce* 279 (1996).

¹² *See id.*

¹³ ITU Convention, art. 31, sec. 8, ch. 2.

¹⁴ *See id.*

¹⁵ International Telecommunication Union, *ITU's History* (visited Nov. 8, 1998)

<<http://www.itu.int/aboutitu/history/history.html>>.

¹⁶ Gary D. Gordon and Walter L. Morgan, *Principles of Communications Satellites*, p. 91 (1993).

¹⁷ *See id.* at 92.

¹⁸ ITU Convention, art. 12, sec. 5, ch. 1.

¹⁹ Smaller hand held communicators like Iridium phones and ORBCOMM pagers could operate without a license, but this would be an illegal violation of that nations' sovereignty and customs laws. This paper assumes that satellite companies do not want to break the laws of sovereign nations.

²⁰ ITU Convention, art. 12, sec. 5, ch. 1.

²¹ Scott Blake Harris, *Reform the WRC Process*, *SATELLITE COMMUNICATIONS*, Mar. 1998, at 16.

²² CEPT forms an agenda that represents 43 countries, including the 14 countries of the European Union, at the WRC.

²³ Gerald E. Oberst Jr., *Working on the WRC*, *VIA SATELLITE*, Jul. 1998, at 14.

²⁴ Satellite companies often have representatives serving on more than one national delegation during the WRC. This allows a satellite company to push its agenda throughout the world, and it unofficially allows each national delegation to discover the intentions of other nations at the WRC. This paper seeks to make some of these practices official in order to encourage negotiation and discourage unneeded secrecy.

²⁵ International Telecommunication Union Radio Communication Bureau, *Procedural Aspects of Satellite Network Coordination*, Document RES18-R1/1-E, (last modified Sep. 6, 1996)

<<http://www.itu.int/publications>>.

²⁶ *See id.*