



“Strengthening Access to Communications”

Policy & Regulatory Guidelines for Satellite Services

GVF
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Table of Contents

	Page
EXECUTIVE SUMMARY	1
1. International Satellite Policy Declaration.....	2
2. Overview of Satellite-Based Telecommunications Services.....	4
3. Satellite Policy Principles: A Public/Private Partnership.....	5
3.1 Non-Discriminatory Market Entry	7
3.2 Open Borders for Competitive Access.....	8
3.3 Transparency of Telecommunication Rules and Policies.....	9
3.4 Content-Neutral Regulations.....	10
3.5 Technology-Neutral Regulations and Licensing Requirements.....	10
3.5.1 Protecting Public Safety with Harmonised Equipment Standards	11
3.5.2 Managing Spectrum Resources	12
4. Key Regulatory and Licensing Trends.....	13
4.1 Space Segment	13
4.1.1 Landing Rights - The Case for ‘Open Skies’ Policies.....	13
4.1.2 Spectrum Management and Licensing	14
4.2 Ground Segment.....	14
4.2.1 Network Operator and Service Provider Licensing.....	15
4.2.2 Individual and Blanket Earth Station Licensing.....	15
4.3 Establishing Appropriate Fees.....	17
4.4 Enforcement	17
5. Service Barriers and Proposed Regulatory Solutions.....	18
5.1 License Issues.....	19
5.2 Legal Issues	23
5.3 Need for Expedited Process	24
5.4 Type Approvals.....	24
5.5 Space Segment Access Issues	25
5.6 Customs Issues	25
6. Conclusion.....	25
APPENDIX A: GVF and RWG Membership.....	A-1
APPENDIX B: GVF Mutual Recognition Arrangement (GVF MRA).....	A-4
APPENDIX C: GVF Model VSAT License Application Template	A-6

EXECUTIVE SUMMARY

This document was prepared by GVF, an association of organisations engaged in the delivery of advanced broadband and narrowband satellite services to consumers, and commercial and government enterprises worldwide.

Headquartered in London, GVF is an independent, non-partisan and non-profit organisation with 160 members from more than 50 countries. The broad-based membership represents every major world region and every sector of the satellite industry, including fixed and mobile satellite operators, satellite network operators, teleports, satellite earth station manufacturers, system integrators, value added and enhanced service providers, telecom carriers, consultants, law firms, and users.

GVF provides a unified voice for the global satellite industry. GVF's Regulatory Working Group (RWG) plays an instrumental role in this by bringing together regulatory experts from across the globe to share first-hand experience with international satellite communications policy and regulation (*Appendix A: GVF and RWG Membership*).

On behalf of GVF, the RWG has analysed and compared a wide variety of policy and regulatory frameworks, legal structures and licensing procedures to arrive at this recommendation of the most effective and proven approaches for the benefit of policy makers, regulatory administrations, industry and the end-user community.

This document consists of the following:

- Section 1 includes the *International Satellite Policy Declaration*, stating the key priorities and regulatory principles advocated by GVF.
- Section 2 addresses the essential role satellite communications play in fulfilling national, regional and global policy objectives and, in particular, calls attention to the link between telecom connectivity and economic strength.
- Section 3 provides a guideline that aims to facilitate administrations' efforts to develop communications policies that promote access to satellite systems and services.
- Section 4 examines key regulatory and licensing trends relevant to the satellite communications sector worldwide.
- Section 5 identifies regulatory barriers that slow or prevent effective provision of satellite-based services and identifies corresponding regulatory solutions.
- Section 6 offers ongoing support for regulatory programs that seek to facilitate the provision of satellite-based communication solutions.

1. International Satellite Policy Declaration

Fully Recognizing,

the Buenos Aires Declaration of the first World Telecommunication Development Conference (March 1994), which calls for International Telecommunication Union (ITU) Members to **restructure regulatory systems** in order to:

- a. create a stable and transparent environment to attract investment
- b. facilitate access of service providers to the network with a framework that promotes fair competition while protecting network integrity
- c. ensure the provision of universal service helping to achieve integrated rural development as well as promoting innovation and the introduction of new services and technologies; and
- d. guarantee the rights of users, operators and investors.

Further Recognising,

the Memorandum of Understanding to Facilitate Arrangements for Global Mobile Personal Communications by Satellite, Including Regional Systems (GMPCS-MoU), finalised on 13 and 14 February 1997, which is a guide to the issue of **the global roaming of GMPCS terminals,**

Further Recognising,

the Report of the ITU's Second Regulatory Colloquium (March 1994), which states that "Innovative technologies and services will make a direct and large contribution to providing universal service... by a combination of terrestrial radio technology, **VSAT systems, and new satellite technologies**",

Recalling,

the World Trade Organization (WTO) Reference Paper on Regulatory Principles (February 1997) that defines **core regulatory obligations**, including universal service, competitive safeguards, public availability of licensing criteria, independent regulator, regulatory impartiality, and objective, timely, transparent and non-discriminatory allocation of scarce resources,

Noting,

the ITU World Telecommunication Development Report (March 1998), which states, "Technology that theoretically provides telecommunication access from any place on the surface of the earth is **already available**",

Further Noting,

the ITU World Telecommunication Development Report (March 1998), which states that, “... universal access is now not so much an engineering or supply-side problem but rather **a regulatory and policy challenge**”,

Concerned,

that expanded access to cost-effective communications solutions is urgently needed to advance education, safety, health, economic prosperity and **bridge the “Digital Divide”** to access broadband and narrowband services in many economies,

Acknowledging,

that the global satellite industry has the resources and expertise to provide effective satellite-based communications for this purpose today,

Concerned,

that policies and regulations in some administrations are inhibiting the provision of critical satellite-based communications,

Supported,

by the work of United Nations agencies, governmental, intergovernmental, and non-governmental organisations, humanitarian agencies, telecommunication equipment and service providers, media, universities and communication-related organisations to improve and facilitate satellite-based communications,

Desiring,

to ensure the reliable, rapid, and cost-effective availability of satellite-based telecommunication resources for rural telecoms, disaster mitigation, telemedicine, distance learning, Internet, and other public- and private-sector network operations,

Therefore Request As Follows:

that national, regional and global regulatory administrations, according to their respective roles and competencies, formulate and implement policy and regulatory solutions that take into consideration the following recommendations and guidelines, which GVF believes essential to the effective provision of many essential satellite services in every nation of the world.

2. Overview of Satellite-Based Telecommunications Services

International telecom services are facilitating the creation of a global economy, where satellite-based systems are used extensively in the developed nations to reduce costs, increase efficiency, and improve productivity.

Developing countries are also turning to satellite-based solutions, which - being distance independent - make it possible to link the providers of raw materials to agents, to shippers, to importers, to retailers and, finally, to consumers in widely-separated geographic areas. As retail demand changes, each participant in the supply chain is able to instantly communicate that adjustments in the supply are needed. This minimises spoilage and enables surpluses to be diverted to alternative sources of demand, thus maximising the economic potential of any given nation.

Indeed, the benefits of satellite-based communications are being realised in every sector of activity, both private and public. From Internet service providers, banks, and stock exchanges to schools, hospitals, and rural telecenters, satellite services are also being seized upon to elevate economic, educational, and health standards.

In turn, higher economic and social standards attract foreign investment, which creates employment opportunities, leads to increased exports, and yields stronger hard-currency earnings.

Conversely, while some developing countries are progressing quickly, other nations have not begun to realise their full potential, largely because outmoded regulations inhibit or prevent the cost-effective provision of satellite-based services. It is vital that the relevant authorities adapt satellite regulation so that national interests can be advanced.

With the advent of higher functionality and lower costs, satellite services can now support a broader range of domestic and international communications objectives than ever before. A snap-shot of typical services includes:

- *Internet Via Satellite*
- *Distance Learning*
- *Rural Telecommunications*
- *Telemedicine*
- *Disaster Relief*
- *Government Closed User Groups*
- *National and Multi-National Networks*

- *Broadband Data Communications*
- *Multicast VSAT Services*
- *Intergovernmental and Corporate Applications*
- *PSTN Infrastructure Extension*
- *Aeronautical Links*
- *Land Mobile Communications*
- *Maritime Services*
- *News Distribution*

The global satellite industry supports these and other vital services today with – according to recent GVF research – more than one million fixed earth stations and approximately 500,000 mobile terminals around the world.

The advantage to end users of such satellite-based solutions is that vendors can provide an inexpensive, single communications platform serving an entire region or the world. Global demand for this level of connectivity has enabled satellite communications to rise from being a niche technology capable of providing a small competitive advantage to professional users to a mainstream telecommunications service platform used by many of the world’s largest corporations, governments, and personal users in the mass marketplace.

3. Satellite Policy Principles: A Public/Private Partnership

As highlighted by GVF’s *International Satellite Policy Declaration*, a major goal of Administrations is the elimination of unnecessary regulatory barriers that may inhibit the use of satellite services to provide communications on an open and competitive basis to business, government and consumers throughout the world. Satellite regulatory reform facilitates expanded access to cost-effective digital communications services throughout the world. Stronger socio-economic development can be realised as a direct result in the form of enhanced public services – including health through telemedicine, education through distance learning and universal access through rural communications – as well as stimulating private-sector activity by attracting foreign investment, creating jobs, encouraging exports, and much more.

To accomplish this, GVF believes that regulators and satellite operators must work together to promote the ideals of: expanded access to services, competition and lower prices, technology innovations, efficient use of public resources, fairness, consistency, timeliness and transparency all within the satellite telecommunications market. Through light-touch regulation and simplified processes, the GVF has experienced that this is a feasible goal with reciprocal rewards.

Consistent with these goals, GVF promotes compliance with the World Trade Organization's ("WTO's") General Agreement on Trade in Services ("GATS"), along with its Fourth Protocol on Basic Telecommunications Services¹. GVF also encourages countries to abide by the International Telecommunication Union's ("ITU's") Memorandum of Understanding for Global Mobile Personal Communications² by Satellite ("GMPCS-MoU"), which provides for additional pro-competitive, market opening measures for both fixed and mobile solutions.

The GVF RWG – a non-partisan group of legal and regulatory experts – recently conducted a survey of the policies and regulatory conditions applied to satellite services in almost every country of the world. The GVF survey reveals not only that numerous administrations have endorsed WTO GATS and the GMPCS-MoU – 146 and 68 administrations have formalised their support for these policy instruments, respectively – but that they have also begun moving toward policies that embrace a host of regulatory approaches designed to enhance competitiveness: “Open Skies” or less exorbitant conditions for authorising the landing of foreign satellite services, liberalisation of satellite-based service provision domestically and internationally, circulation of mobile satellite terminals, relaxation of the requirement to build local satellite infrastructure (*i.e.*, establishment of a hub or teleport as a licensing condition for networks), and harmonizing satellite regulations within regional and sub-regional groups.

As regards this latter point, through close collaboration between government administrations and the satellite industry, effective national deregulatory approaches are now being discussed – and in many cases implemented – in an increasingly harmonised regional context through organisations such as the Inter-American Telecommunications Commission (CITEL) in the Americas, the Asia Pacific Telecommunity (APT) and Asia Pacific Economic Co-operation group (APEC) in Asia, the Conference Europeene Posts et Telecommunications (CEPT) and the European Union (EU) in Europe and, on a sub-regional level, through groups like the Telecommunications Regulators Association of Southern Africa (TRASA), the West Africa Telecommunications Regulators Association (WATRA), the East Africa Community, Mercado Común del Sur (Mercosur) in South America, and others.

In general, the GVF survey reveals an increasing recognition by regulatory agencies that “less is more.” In other words, many policy makers and regulators now recognise that imposing *less* regulatory requirements results in *more* access to essential communications and serves as an important means of enhancing competitiveness.

The GVF survey also reveals that minimal approaches to satellite regulation are not only possible, but they can be developed in a way that assures that the systems and services do not cause harmful interference and take into consideration public health

¹ Reference Paper, Fourth Protocol to the General Agreement on Trade in Services, 436 (WTD 1997)

² Memorandum of Understanding-GMPCS Arrangement, adopted in Geneva 7 October 1997 and posterior Arrangements of Geneva 12-13 March 1998.

standards. This is especially true for networks based on the use of fixed Very Small Aperture Terminals (VSATs), both in receive-only and interactive modes, as well as mobile satellite service (MSS) systems.

3.1 Non-Discriminatory Market Entry

The first prerequisite for an open, competitive market is a legal and regulatory structure that does not discriminate in favour of existing service providers, or otherwise limit the number of independent service providers that are permitted to provide satellite and telecommunications services to consumers. Vigorous competition between a large number of market entrants encourages investment in infrastructure, provision of new services, improvements in quality and availability of lower prices.

Many countries have already agreed to provide unlimited market access for satellite and other telecommunications services as a part of their commitments in the WTO GATS and its Fourth Protocol on Basic Telecommunications Services. The WTO GATS requires member countries to refrain from imposing certain types of quantitative restrictions, economic needs tests, or local incorporation requirements. This means that a WTO Member may not maintain limits, such as a cap on the number of service suppliers or the corporate form in which a service can be provided.

Those WTO Members that undertook market access commitments in basic telecommunications services also became subject to GATS requirements on domestic regulation of those services. For example, domestic regulation of telecommunications services must be administered in a reasonable, objective, and impartial manner. Many WTO member countries undertook additional specific commitments regarding pro-competitive regulatory principles. The Reference Paper on Pro-Competitive Regulatory Principles obligates governments to adopt measures that prevent anti-competitive conduct, ensure fair, non-discriminatory and cost-oriented interconnection, and administer universal service obligations in a competitively neutral manner.

Despite these advances, some countries still restrict the number of licensed satellite networks that are permitted to provide services in a market, either because the government has a residual ownership interest in a monopoly or dominant carrier, or because old policies remain in place that were developed before liberalisation became a consideration and based upon the erroneous view that limiting the number of telecommunications carriers in a market encourages those carriers to make capital investments in improved infrastructure. It has been repeatedly demonstrated in numerous countries that continued maintenance of such anti-competitive restrictions serves only to harm domestic economic development and growth.

Furthermore, whenever a country artificially limits competition through a restriction on the number of market participants, a form of “black market” develops in which non-mainstream businesses attempt to provide services and meet consumer demand in violation of the government’s licensing requirements. The prevalence of non-

mainstream service providers often makes it more difficult for governments to ensure compliance and enforcement with their regulations and licensing conditions.

In making these recommendations, we recognize that many countries have traditionally restricted the number of authorized terrestrial and satellite-based telecommunications service providers that are permitted to serve a country in order to support an implicit program of Universal Service for consumers. Specifically, many countries require that their dominant telecommunications provider subsidize the cost of local telephone services primarily by charging higher rates for long distance and international telephone services. Such a system of cross subsidies between different services is highly inefficient from an economic perspective and cannot be sustained following a conversion to a competitive market. Competing international telecommunications service providers would be able to undercut the prices charged by the dominant operator for international telephony services, undermining the revenue base of the dominant supplier and potentially jeopardizing the continued existence of implicit Universal Service offerings.

Countries throughout the world have discovered, however, that the solution to this dilemma is not to restrict the number of independent service providers, but instead to require all telecommunications service providers to contribute to the cost of Universal Service. This can be done either by (1) requiring all operators to pay a set percentage of their telecommunications service revenues into a Universal Service fund, (2) requiring all operators to interconnect with the dominant operator at interconnection rates that reflect the Universal Service subsidy and, as a result, compensate the dominant operator for the cost of providing Universal Service, or (3) compensate the dominant operator for the cost of Universal Service through appropriations from the government's general budget. Experience in other countries has demonstrated that each of these approaches can be used to successfully maintain an explicit program of Universal Service, while permitting unlimited competition in the telecommunications marketplace.

3.2 Open Borders for Competitive Access

The second necessary measure for an open, competitive market is providing non-discriminatory market access for both domestic and non-domestic satellite and telecommunications service providers. This is often referred to as an "Open Skies" policy, and it is a second area that was addressed by the WTO Fourth Protocol on Basic Telecommunications Services. The GATS requires WTO Members to provide all service suppliers of other WTO countries with National Treatment, which is a non-discrimination rule that requires a WTO Member to treat companies from other WTO Members the same as it treats its own companies. The WTO agreement also requires countries to provide companies from other WTO countries with Most Favored Nation ("MFN") treatment. Essentially, MFN is a non-discrimination rule that requires each WTO Member to treat all other WTO Members similarly.

It is also important for countries to eliminate regulations that, although not discriminatory on their face, may have the unintended effect of preventing access by non-

domestic service providers. For example, satellite service operators should not be required to have a corporate presence in a country in order to provide services in that country. Furthermore, if a satellite operator has already received a license for its space segment from its home country and has coordinated the satellite through the ITU, then no duplicate licensing requirement should be imposed on the use of that space segment to provide services in any other country.

In this regard, GVF encourages countries to comply with the market opening commitments of the ITU's Memorandum of Understanding for Global Mobile Personal Communications By Satellite (GMPCS-MoU). The GMPCS-MoU encourages countries to permit holders of satellite terminals that are licensed by one country to freely carry and use those terminals in other countries without obtaining an additional license or authorization. The 68 countries that have adopted the GMPCS-MoU have also agreed to provide for blanket or class licensing of satellite communications terminals, mutual recognition of type approvals and general licenses, and the elimination or reduction of customs requirements for satellite terminals.

3.3 Transparency of Telecommunication Rules and Policies

Another important principle included in the WTO agreement is the need for countries to employ transparency in telecommunications regulation. In compliance with the WTO Agreement, a significant number of regulators have undertaken the task of publishing regularly their laws and regulations on satellite licensing and permits. Making this information readily available to the public is an extraordinary step in advancing the transparency of a country's policies.

Some countries have developed Internet websites, which they use to post their regulatory framework, the list of licensed providers, technical standards and even to facilitate on-line filing of satellite and/or earth station authorizations. The advantages of making data readily accessible on the Internet are clear: Posting regulatory requirements is inexpensive, reduces the burden on Administrations (by reducing the need to respond to numerous individual inquiries), enables industry to more effectively provide services, and serves as an effective platform from which to promote regulatory harmonisation. Regulators should also brief their Commercial Attaches in their Diplomatic Missions to have them respond to petitions from satellite or network providers desiring access to their market.

A few countries, however, still seem reluctant to engage in this activity, possibly because of financial difficulties or because their regulations still favour the incumbent or monopoly providers. This difficulty is so severe that in many cases an aspiring service provider has to devote tremendous amounts of time, money and effort in an attempt to determine what regulations apply to satellite systems and services. The lack of transparency in some countries constitutes a significant barrier to entry by new competitors, particularly since many service providers are forced to abandon plans to provide services in certain countries rather than shoulder the significant expense of ascertaining the regulatory requirements.

3.4 Content-Neutral Regulations

Satellite networks can be effectively used to provide all forms of telecommunications services. As a result, administrations that regulate “content” often apply those regulations to satellite operators. For example, some countries still maintain limits on the number of carriers that are permitted to provide international voice traffic. Other countries restrict the provision of private line resale services, call-back services, or international carriage of Voice over Internet (VoIP) protocol.

GVF encourages countries to refrain from placing any restrictions on the content of international telecommunications services. Restrictions on the number and types of international carriers that serve a country serve only to erode competition and raise prices for customers. GVF recognizes that some countries use revenues from international telecommunications services to help subsidize and reduce the costs of local telecommunications services. These implicit universal support mechanisms can still be maintained in a fully competitive market, however, through the imposition of universal service fees on international carriers, or through interconnection requirements.

In any event, content restrictions that are imposed by a country should be technology-neutral – applying equally to satellite-based and wireline telecommunications service providers. Since satellite networks can be used to provide all forms of telecommunications services, no country should limit the number of satellite licenses that are issued in an attempt to restrict certain types of content.

3.5 Technology-Neutral Regulations and Licensing Requirements

Modern telecommunications services are being provided to consumers using a number of different technologies, such as wireline, satellite and terrestrial wireless networks. In order to facilitate fair competition between these technologies, regulators must strive, to the extent possible, to make their regulations, licensing requirements and regulatory fees technically neutral.

For example, an authorised Internet service provider (ISP) would ideally be able to select either a terrestrial (wireless or wireline) or satellite system architecture to build its network, based solely on the relative costs and benefits of each available technology. In contrast, if discriminatory regulatory requirements make one or more of these technologies relatively unattractive, the ISP will likely be forced to choose the technology that is least encumbered from a regulatory perspective, rather than the technology that can provide the best service at the lowest price.

In order to ensure that regulations are technology-neutral, regulators should strictly limit their regulations and licensing requirements for satellite services, using them solely to (1) protect the public safety and (2) manage scarce public resources, such as frequency spectrum when there is more than a negligible risk of harmful interference.

3.5.1 Protecting Public Safety with Harmonised Equipment Standards

Regulation and licensing of satellite services is appropriate only to the extent that it is used to protect public safety. Although satellite communications services can be provided on a universal and cost-effective basis to both large and small consumers, in certain circumstances measures must be taken in order to ensure that satellite transmission devices do not pose a radiation hazard threat to the public.

Regulations and licensing conditions that can be used to protect public safety include restrictions on physical accessibility of transmission equipment (*i.e.*, use of fencing, secure areas and warning signage), restrictions on the design and configuration of transmission equipment in order to ensure that transmissions do not exceed appropriate levels (homologation or type approvals), and restrictions on the proper installation and use of transmission equipment (*i.e.*, requiring adequate training for equipment installers and operators).

In regulating the design and configuration of satellite transmission equipment, however, regulators should not duplicate the regulatory efforts of other countries, or impede the importation of transmission equipment though potentially onerous type-approval requirements. Testing requirements (homologation) from country to country are often redundant, resulting in major delays, high costs and less efficient provision of communication services.

Instead, regulators should honor equipment approvals and certificates issued by other countries, or by recognized international certification bodies. For example, several regional entities, like APEC and CITEL have moved toward adoption of mutual recognition agreements (MRAs) for type approvals, which aim to eliminate the need for type approval requirements on a country-by-country basis. In order to help facilitate this transition, the GVF membership developed a technical framework that enables administrations to mutually recognise test results generated during the satellite operator type approvals process.

This framework is embodied in a document entitled “GVF 101: Mutual Recognition of Performance Measurement Guidelines and Procedures for Satellite System Operator Type Approvals” (*Appendix B: Excerpt from “GVF Mutual Recognition Arrangement” or “GVF MRA”*). The GVF MRA procedure defines a set of standardized measurements that produce a data package, which can be used to check compliance of an earth station antenna model with applicable performance requirements. The procedure further provides for independent auditing of the accuracy and completeness of the data by Authorized Test Entities, which are elected by satellite-operator members of the GVF. In this way, the community of satellite operators maintains oversight of the characteristics of earth stations that affect interference and provides a high level of assurance of compliance with ITU coordination agreements.

The availability of a standardized, audited data package alleviates the need for each country to maintain its own testing and verification requirements, reducing costs for

administrations and improving the quality and comprehensiveness of the data submitted to regulators as a part of the licensing or type approval process. At the same time, acceptance by domestic regulators of a standardized data package can greatly reduce costs for satellite service providers, by permitting them to use a single set of tests and data to demonstrate compliance with the technical requirements of both satellite operators and domestic licensing officials in multiple countries.

Finally, the European Community has implemented legislation that *eliminates* government type approvals of satellite and other telecom terminals, introducing harmonized standards and certification procedures to be issued by independent laboratories. This change is being brought about with the Radio and Telecommunications Terminal Equipment Directive 1999/5/EC (the “R&TTE Directive”), which introduces a system based on manufacturers’ declaration of conformity and relaxation of the regulatory constraints on the free movement and putting into use of terminal equipment (Note: The R&TTE Directive can be downloaded from www.europa.eu.int/comm/enterprise/newapproach/standardization/harmstds/reflist/radiote.html).

3.5.2 Managing Spectrum Resources

Regulation of satellite and other radiocommunications services is also appropriate to the extent that it is necessary to manage scarce spectrum resources. This is particularly true in those limited cases in which satellite services share a co-primary allocation with other radiocommunications services in the same frequency bands.

In many frequency bands, however, satellite services do not share the same spectrum with other radiocommunications services. In such cases, no reason exists for regulators to place any restrictions on satellite networks that have been licensed by other countries and have completed spectrum coordination through the ITU. Instead, regulators in each country should only impose licensing and spectrum coordination requirements on satellite networks that are based in that country. Such an approach would ensure that spectrum resources are used efficiently, by requiring each and every satellite network to secure a license from its country of origin and coordinate spectrum through the ITU.

These same factors should be employed with respect to owners and operators of satellite earth stations. VSAT and receive-only earth station terminals do not raise any concerns about the use of scarce spectrum resources to the extent that the VSATs are communicating using satellites (either domestic or foreign) that have completed the ITU spectrum coordination process. Thus, no spectrum related regulation is appropriate for satellite earth station operations.

Despite this fact, some administrations employ a registration process, whereby a foreign satellite operator, or an operator of a VSAT network is requested to provide the details of its headquarters and to provide a contact in case of any questions or problems. A copy of the ITU coordination filings as well as of the company’s incorporation status

with a contact name should be considered sufficient information by National Regulators for granting the landing rights to foreign satellites, or approvals to operate earth stations.

4. Key Regulatory and Licensing Trends

The public policy principles discussed above provide a clear road map for administrations seeking to establish a licensing and regulatory structure for satellite services, or to reform existing regulatory structure in order to facilitate competition. Non-discriminatory licensing requirements provide a country with a useful tool to ensure safety and keep up to date with technology developments and demands. Licensing requirements and their associated costs vary worldwide, but a significant trend has emerged toward adopting more streamlined, publicly accessible licensing arrangements for satellite network operators and service providers. This trend reflects the fact that – as discussed above – licensing of satellite services should be used solely for two purposes – to protect public safety and to manage spectrum resources in order to prevent unreasonable interference.

The use of licensing conditions and requirements to serve collateral purposes unnecessarily increases barriers for entry by potential competitors in the market. Restrictive licensing rules also effectively discriminate against providers of satellite services by giving wireless and terrestrial wireless service providers a competitive advantage through the use of less onerous licensing conditions.

Several types of licensing requirements have been employed effectively by administrations in various regions of the world. These licensing rules tend to focus either on the space segment of a satellite network, or on the terrestrial earth station portion of the network. In both situations, care must be taken in order to ensure that licensing requirements do not become barriers to free trade, but instead are used sparingly in order to accomplish legitimate regulatory requirements.

4.1 Space Segment

In attempting to place licensing requirements on the space segment portion of a satellite network, administrations have focused on two areas – requiring authorisations for domestic landing rights and requiring authorisations for the use of specific frequency segments. Both trends are discussed below.

4.1.1 Landing Rights - The Case for ‘Open Skies’ Policies

In the past, governments have developed policies to protect their countries’ satellite systems. These “Closed Skies” policies required service providers to use only locally-owned satellite capacity when providing VSAT services. Also, originally satellite operators such as Intelsat, Eutelsat and Inmarsat were inter-governmental organizations

and owned by the PTTs and telcos around the world. Consequently, in the beginning space segment could only be bought via the incumbent PTT or telco.

But in the long run, governments are realising that tremendous demand for Internet, data, voice, video and other essential services is best addressed by policies that permit open and direct access to all satellite resources assuming that they have been properly co-ordinated through the ITU. The “footprint” of a satellite – the region of the Earth served by a satellite - does not match national borders, making it necessary to regulate this matter through international agreements such as those developed by the ITU. This approach is referred to as “Open Skies” and is being adopted by most administrations in every major region of the world.

While the policies being implemented today are not completely open, they all involve permitting increased access to orbital resources, regardless of the satellite operators’ country of origin. “Open Skies” policies require satellite operators to compete for customers interested in obtaining C-band, Ku-band and Ka-band satellite bandwidth. It has been proven that this competition can result in more options for local customers with a significant boost in quality and lower prices.

4.1.2 Spectrum Management and Licensing

The spectrum used via a satellite was historically distributed between the incumbent, military and related public service providers (police and emergency services). As countries began implementing ‘Open Skies’ policies, licensing of spectrum became an issue nationally. In particular, interference had to be minimised in the best interests of society.

Today, the ITU coordination process serves to avoid technical problems such as interference among global operators. Exclusive bands are often allocated for FSS and MSS services and spectrum sub-segments are assigned to different operators through coordination. In such cases, it is not necessary to issue duplicate licenses to a foreign satellite operator or the spectrum associated with the foreign satellite because it has been coordinated and assigned by a foreign administration and no infrastructure is being installed or operated in the country. Once inter-satellite co-ordination is accomplished at the ITU level, there is no further need to license spectrum use by networks operating in these exclusive bands.

4.2 Ground Segment

In addition to licensing of the space segment, many administrations have attempted to create licensing regimes for the terrestrial segment of satellite networks. Efforts to require licenses for the ground segment can be divided into two groups – authorization requirements for satellite service providers and individual licensing for earth station facilities. Both approaches are discussed below.

4.2.1 Network Operator and Service Provider Licensing

Many countries require that public network operators hold licenses so that there is some quality assurance of the service being provided to their public. A few countries have adopted this rule also for private VSAT services. As the nature of private satellite services is being understood better, the requirement for this type of license is declining. As it is not a public service and not usually connected to the PSTN, and can be privately owned, it is understood that this is a redundant licensing process that causes extreme time delays and confusion. These types of licenses can also be referred to as Service Provider Licenses, Value Added Service Licenses and sometimes certain types of Class Licenses.

4.2.2 Individual and Blanket Earth Station Licensing

Traditionally, most governments have required each VSAT or mobile terminal to be licensed individually; this was in addition to requiring a network operator's license. But more than 10 years ago, a new approach to regulating VSATs - "blanket licensing" - began to be implemented and it has been successful.

With this regulation, VSATs are configured based upon technical criteria - involving power level, frequency, etc. - that eliminate the risk of unreasonable interference. Thus, a single blanket license can be issued covering a very large number of VSAT terminals.

For mobile systems, international frequency co-ordination procedures, as well as the use of harmonised standards, eliminated the risk of harmful interference and a growing number of countries were able to exempt the circulation of terminals from individual licensing requirements.

These approaches have worked well for the regulator, for the industry, and for end users, wherever it has been applied, including administrations in North and South America, Asia, Africa, and Europe. Indeed, 44 European nations have now adopted a set of policy principles that eliminates the need for individual licensing of receive-only and interactive VSAT terminals, as well as a wide range of mobile terminals. The policy principles were adopted through the regional Conference Europeene Posts et Telecommunications (CEPT) and, more recently, have begun to be *implemented* by individual national administrations.

The CEPT Decisions exempt VSATs or mobile handhelds from individual terminal licensing requirements, provided that they meet specific technical criteria - such as frequency use, maximum radio power, etc. - that assure adherence to recognised safety standards. Stations that meet these requirements can quickly and easily be put under a general "blanket" type of license. In this case no or minimal administration is necessary and there is no need to require a licence prior to operating the terminal. There are key advantages in having such generic Decisions, both for the CEPT and also for satellite operators, since one Decision can cover multiple technically-comparable antenna and terminal types.

The seriousness with which European regulators are taking VSAT streamlined licensing is best demonstrated by the relative speed of implementation:

- In 1998, streamlined licensing of VSAT services was not implemented anywhere in Europe; as this proposal was being compiled, a dozen countries had implemented streamlined licensing regimes for VSATs, either for receive-only terminals, interactive systems, or both.

These exemptions and blanket-licensing policy principles are divided into the following adopted 'Decisions':

- Receive-Only Earth Stations ("ROES" Decision): Almost 90% of European countries have adopted this principle.
- Exclusive Ku-band VSATs ("VSAT" 2000 Decision), which have now been implemented by 15 countries.
- Several Decisions for mobile terminals, which have been implemented by certain countries.
- Ka-band Interactive Earth Stations ("SIT" and "SUT" Decisions), which have been implemented by 17 and 18 countries, respectively, and is expected to be re-affirmed by the Draft Decision on shared Ku-band VSATs to be adopted in the last quarter of 2003 ("VSAT" 2003 Decision).
- In addition, the same policy principles have inspired the adoption of other similar Decisions concerning other types of terminals such as LMES or S-PCS.

Likewise, the 35 countries of CITELE have adopted a Resolution advocating the implementation of VSAT blanket licensing throughout the Americas region.

It is important to note that the implementation at the national level of blanket licensing is not *required* by the CEPT or CITELE; rather, each regional group develops and adopts policy principles that advocate blanket licensing, and each individual country within the respective region decides whether they want to implement the regulation in their nation. Increasingly, individual regulators are deciding to proceed with blanket licensing based on their national interests.

Meanwhile, the trend toward streamlined satellite licensing approaches is becoming even more simplified. Under the terms of the new EU Authorisation Directive,³ the EU countries will implement a "general authorization" system. As opposed to

³ Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services (Authorisation Directive).

blanket licences - which are still administrative acts or explicit decisions - general authorisations no longer require license applications to be made prior to providing service or running a network. Administrations might require a notification, including basic information on the operator, the network location, the type of service provided, etc. However, the service can be offered under general authorisation and cannot be put on hold awaiting a reply or consent of the Administration. GVF regards this approach to be an important step forward in the development of satellite licensing approaches that maximise access to new services.

General authorisation also recognises fully the international nature of satellite services, whereby there is no need to have a service provider located in each country. It overcomes, therefore, the difficulty of obtaining blanket licences in countries where a small number of terminals belong to several service providers, or where foreign ownership restrictions require the establishment of a national presence.

Implementation of streamlined licensing results not only in faster implementation of service, but also lower costs of implementation. This derives from the fact that with individual licensing of terminals or services, licensing fees are often imposed on the use of individual terminals or on each of the service providers and require more administrative work on behalf of the regulator or responsible national body.

4.3 Establishing Appropriate Fees

The fundamental rationale for licensing fees is that they should compensate administrative costs to the regulator but should not be used as a source of real profit for the government. Specifically, fees should not exceed the average resource hours required to process an application. When fees are raised for the provider, fees are in turn raised for the customer, which is prohibitive to competition, fair prices and universal service offerings. Utilising fees to compensate for administrative costs also helps to promote the independence of the regulatory agency, by freeing the agency from dependence on the government's general budgetary process.

In addition to publicising rules regarding satellite licensing, fee structures should be clearly defined for the public without discrimination. Companies assess expected costs before market entry, so clarity and availability of this information is critical.

4.4. Enforcement

Most countries have little difficulty securing enforcement of telecommunications laws, regulations and licensing conditions, including regulations for the satellite sector. In order to maximize industry compliance, laws and regulations should be designed in recognition of the fundamental characteristics of the business community.

Like all mainstream businesses, satellite and other telecommunications service providers are highly risk averse. This means that business ventures seek, above all else,

predictability and consistency. A rational business would prefer to invest in a country where it is likely to receive a modest, but predictable and consistent revenue stream, as opposed to a country where the company might receive an initially large, but unpredictable and inconsistent revenue stream.

Recognising these basic principles, countries should develop laws and regulations for the telecommunications sector (along with all other business sectors) that are objective (non-discriminatory), easily understood (transparent) and highly predictable. Such laws and regulations should also prohibit government actions that are arbitrary or discriminatory. For example, all mainstream telecommunications service providers would be willing to pay an annual licensing fee to provide satellite services in a country, as long as the fee was reasonable and consistent from year to year.

Mainstream businesses tend to avoid investing in countries that lack objective, transparent and predictable regulatory structures. Furthermore, a government-imposed restriction on the number of participants that can exist in a particular market segment (i.e., a mandatory monopoly, duopoly, or other numerical restriction) also serves to prevent many mainstream businesses from providing services in the country.

When mainstream businesses avoid (or are prevented from) investing in certain countries and regions, a gap develops in the chain of supply and demand. Either a certain percentage of the demand for telecommunications services is not met by existing suppliers, or the demand is met, but at much higher prices than would exist in a competitive market.

A significant gap between supply and demand encourages the growth of non-mainstream businesses, which may be willing to provide services in non-compliance with domestic laws and regulations. Such non-mainstream businesses are less likely to promote local economic development, because they are less likely to create well-paying jobs and they often take measures to avoid payment of local taxes.

The most expedient way for governments to discourage the development of non-mainstream businesses is to create legal and regulatory conditions that are conducive to the mainstream business community. When given the option, consumers – particularly business customers – will purchase services from mainstream business as opposed to non-mainstream businesses. Furthermore, mainstream businesses are often willing to help the government regulate and “police” the participants in an industry segment in order to help eliminate unfair competition from non-mainstream business ventures. As a result, the best way to ensure compliance with laws, regulations and licensing conditions is to establish a strong mainstream business community through the adoption and use of objective, transparent and predictable laws, regulations and licensing conditions.

5. Service Barriers and Proposed Regulatory Solutions

GVF Members have observed that regulators around the world share certain fundamental goals regarding satellite regulatory policies. These can be summarized as follows:

- Enforce radio frequency allocation policies
- Ensure that licensees are protected against unreasonable interference
- Encourage satellite uses that advance the public interest, economy, and social welfare of the country.

Despite the almost universal presence of these goals on regulators' and policy makers' agendas, GVF Members encounter different regimes in every nation, many of which do not effectively facilitate the provision of vital satellite services.

Based on the global experience of GVF Members, the following list identifies the most frequently encountered current regulatory obstacles and corresponding proposed solutions:

5.1 License Issues

5.1.1 Problem:

On the national level, satellite rules often are not transparent and are inaccessible to the general public. Further, these rules are often difficult to interpret.

Solution:

Rules applicable to satellite services should be transparent, nondiscriminatory, and widely publicised. Applicable rules should be readily available to the public and industry preferably on the Internet, or through the regulatory agency or ministry. Contact information with multiple persons listed should be clearly posted to facilitate processing. Trained personnel should be available during business hours to respond to public inquiries.

5.1.2 Problem:

On the regional level, service providers are required to seek out a multiplicity of application forms - as well as contact details for the officials responsible for processing them - among the jurisdictions where they provide services.

Solution:

Administrations should either participate in existing regional one-stop-shop (OSS) satellite licensing programmes, or support the formation of new ones. OSS programmes generally consist of a central database where applicants can access the satellite license application forms and relevant contacts of every

administration in the region. GVF is an active participant in and endorses OSS licensing efforts in:

- Europe where a CEPT OSS initiative designed for 44 administrations has been launched at www.eto.dk
- South, Central and North America, where CITELE – the Telecommunications Secretariat of the Organization of American States – has created a one-stop VSAT licensing information database for the Americas at www.citel.oas.org/pcc3_old/vsat/vsat_information_of_licensing.asp
- Pacific Rim, where the Asia Pacific Telecommunity (APT) is considering an OSS solution.
- Africa, where TRASA and WATRA are considering GVF proposals for OSS satellite licensing solutions.

5.1.3 Problem:

Satellite service provider licenses issued in one country are not recognised by other administrations.

Solution:

In regions of the world where sovereign nations form regional economic or telecom alliances, a satellite service provider license should be recognised on a regional cross-border basis.

5.1.4 Problem:

In some jurisdictions, satellite service providers and/or operators of the space station must obtain a license - in addition to an end-user earth station terminal license.

Solution:

Duplicative license processes should be avoided. Once facilities are licensed for use, such as a VSAT, no further license should be required (*APPENDIX C: GVF Model VSAT License Application Template*). Circulation of visiting mobile terminals that do not create interference should be allowed in order to encourage global roaming.

5.1.5 Problem:

In countries where operations and regulation have not yet been separated, obtaining VSAT authorization often requires a bilateral arrangement between the service provider and the monopoly operator (PTT). The bilateral arrangement may require a “landing right fee” or tariff be paid to the PTT - even if the PTT does not participate in the service chain.

In other monopoly jurisdictions, the PTT is the only entity that may install and service VSATs or provide any satellite service. In other jurisdictions, the monopoly operator is the only entity that may own, operate and maintain VSATS.

Solution:

Regulations should be clear that users and service providers have the right to own and operate earth stations independent of the monopoly operator. The regulator must be independent from the operator.

While the GVF realizes that some countries still have not established autonomous licensing bodies, the practice of bilateral arrangements requires close scrutiny. During periods when regulatory frameworks may continue to function on the basis of bilateral agreements, these should be non-discriminatory and cost-based. While the GVF does not encourage the bilateral PTT framework, if it is in place it should not exact onerous “landing fees” on VSAT users in the country. Generally these bilateral fees raise service costs and do not add value for the customer.

5.1.6 Problem:

Many jurisdictions require earth station licenses for VSATs or mobile terminals when no application should be necessary. Such licenses are generally needed to prevent unreasonable interference. However, there is often no exemption of licenses, even though unreasonable interference cannot occur technically.

Solution:

License requirements can be limited to those instances where regulatory review is necessary to prevent unreasonable interference. Mobile terminals and many beneficial VSAT uses do not raise spectrum or policy concerns and should be permissible without a regulatory license. One example is receive-only (R/O) terminals which, regardless of antenna size or the satellite utilized, do not cause interference. R/O terminals for all VSAT services should be treated similarly to satellite terminals used for personal television purposes. Another example is terminals that, assuming they operate in a primary or exclusive frequency band, may not cause unacceptable interference.

5.1.7 Problem:

Licensing fees remain too high in most markets. Further, some jurisdictions levy additional taxes, “landing rights”, or annual operator fees. These fees tend to be prohibitive leading to end-user fees that are impractical for many VSAT applications.

Solution:

While GVF believes it is reasonable for applicants to absorb administrative fees, regulatory fees should reflect actual administrative processing costs. Fees should not exceed the average resource hours required to process an application. In all instances where no license is required - such as blanket licenses or general authorizations - no fee should be imposed.

5.1.8 Problem:

Time periods for issuing regulatory licenses are too long.

Solution:

Establish reasonable time periods – 30 to 45 days after an application is filed – by when the regulator must respond. If the regulator does not respond within the time period, then the application is automatically granted. Where public comment is appropriate, the application should be placed on public notice automatically upon filing. Further, in limited circumstances, where timely licensing is not feasible, temporary authorizations should be readily available.

5.1.9 Problem:

A commercial presence is often required by administrations as a precondition for license issuance. This is a major obstacle to the effective roll-out of VSAT services in the countries concerned, because it increases overhead costs to operators and service costs to end users.

Solution:

Do not include such a requirement in national or regional satellite service licensing procedures. The license itself establishes a jurisdictional nexus to a regulatory authority and no further incorporations or commercial registrations are needed to maintain regulatory review.

5.2 Legal Issues

5.2.1 Problem:

The laws in some countries do not adequately address VSAT or certain mobile satellite services. Sometimes, existing earth station regulations are geared to the broadcast industry and do not contemplate current uses such as data, Internet, and private voice networks.

Solution:

Rules should be updated to reflect current uses. VSAT rules should address interference issues rather than the underlying telecommunication application. Regulators also must be careful when drafting to ensure that new rules are flexible enough to accommodate ever-changing technologies.

5.2.2 Problem:

Hub-only and geographic-service restrictions remain in effect in certain countries.

Solution:

The practice in some countries of requiring hub-only installations should be discontinued. Satellite telecommunications services are an important adjunct to terrestrial services and should not be deemed an infringement to terrestrial lines and restricted to hub installations. Similarly, the public interest is not served by geographic service restrictions. In some countries, competitive VSAT services are only permitted in “Technology Parks” or certain “Free Trade Zones”. If the services are beneficial within these geographic confines they also will bring important benefits to all regions within a country - especially rural areas, educational institutions and hospitals.

5.2.3 Problem:

Zoning restrictions may prevent the installation of rooftop VSATs.

Solution:

GVF recognizes the importance of zoning rules based on reasonable historical and aesthetic considerations. However, in all other cases, national policies supporting VSAT applications should supersede unreasonable local restrictions that may impede installation.

5.3 Need for Expedited Process

5.3.1 Problem:

Mobile and VSAT services for satellite users involved in disaster recovery and other emergency/temporary uses, including news coverage, require an expedited approval process that many jurisdictions lack.

Solution:

Administrations should implement expedited processes that permit temporary - and in some cases permanent - service provision upon single notice. For disaster-recovery applications, the United Nations' Tampere Convention, which the GVF endorses, provides a model approach.

5.4 Type Approvals

5.4.1 Problem:

Some administrations require redundant type approvals for antennas operating with a variety of satellite systems. This requires users to obtain type approvals for antennas repeatedly even though the antenna type is already being used in many jurisdictions for the particular satellite system being requested.

Solution:

The manufacturer, not the end-user, should be qualified to obtain homologation certificates. VSAT type approvals obtained by the antenna manufacturer for trans-border applications should be mutually recognised by each administration.

5.5 Space Segment Access Issues

5.5.1 Problem:

Limited direct access to the space segment of international satellite organizations impinges on the ability of VSAT service providers to obtain access to adequate space segment. Furthermore, VSAT users should have unrestricted access to the space segment provider of their choice, whether or not it is a private or treaty-based organization.

Solution:

Regulators should encourage space segment providers to provide capacity under “Open Skies” policies allowing for competing space segment suppliers of capacity in C-, Ku-, and Ka-band. VSAT service providers require adequate space segment to provide customer service. VSAT service providers should be able to choose from among competing space segment suppliers and should be able to contract with them directly for space segment capacity.

5.6 Customs Issues

5.6.1 Problem:

High Customs tariffs unreasonably restrict importation of satellite equipment.

Solution:

Satellite equipment should be readily transportable across borders unimpeded by high tariffs and cumbersome Custom rules. Current tariffs require fundamental reform because they often raise costs by 100-150%. Mobile satellite terminals should be considered personal effects and carriage across borders should not be subject to import duties.

6. Conclusion

GVF endorses the above guidelines as the foundation of equitable regulatory policies that encourage new and innovative satellite services.

In keeping with the organisation’s fundamental support for fair competition and equitable rules, GVF reiterates its endorsement of the World Trade Organization (WTO) “Reference Paper” on pro-competitive regulatory principles. The non-discriminatory and transparent regulatory regime endorsed by more than 50 countries in the “Reference Paper” should be a guiding light in the establishment of satellite regulatory regimes.

While the GVF does not endorse any single existing regime as the ideal standard, this document is meant to serve as an aid to policy-makers, practitioners, and the satellite industry globally in our joint efforts towards regulatory frameworks that help achieve public policy objectives, and promote innovation and new services.

The GVF is committed to providing administrations with industry input on regulatory approaches that can be used as a tool in public policy analysis. For additional information or questions regarding this document please visit the GVF website at www.GVF.org or contact the GVF Secretariat at:

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Secretary General

APPENDIX A

GVF Regulatory Working Group (RWG)

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Vice Chair: Reagan Sweitzer, Loral Skynet	Emanuele D'andria, Telespazio
Bruce Olcott, Squire, Sanders & Dempsey	Chuck Uhl, Channel Master
David Hartshorn, GVF	Michael Kelley, Intelsat
Martin Jarrold, GVF	John Purvis, SES-Americom
Gilbert Adanusa, GVF-W. Africa	Dan Ellenbogen, Triaton
Henoch Aquiar, GVF-Argentina	Attila Vago, Triaton
BG Bhalla, GVF-India	Serge Adler, Eutelsat
Geoff Daniell, GVF-S.Africa	Jean Bouin, Alcatel Space
John Feneley, GVF-Canada	Siegfried Dickhoven, Fokus SatCom
Iwan Hadiano, GVF-Indonesia	Alexander Matveev, NASC
Alexander Matveyev, GVF-Russia	Philippe Mestre, Alcatel Space
Cristovam Nascimento, GVF-Brasil	Andre du Toit, Transtel
Sedat Ozkol, GVF-Turkey	Monserrat Sans, Hughes Network Systems
Erik Wallsten, GVF-Mexico	Robert Hanson, Verestar
Gillian Wittmann, GVF-Germany	Claudia Quaglione, Telespazio
Rita Zhang, GVF-China	Michael Moir, Stratos
Andrew D'Uva, New Skies Satellites	Ralph Brooker, Andrew
Annette Purves, New Skies Satellites	Kathryn Martin, Access Partnership
Donna Bethea, PanAmSat	Karel Matthijs, Sonema
Daniella Genta, Eutelsat	Andreas Voigt, Fokus SatCom
Simon Bull, Comsys	Keith Bernard, Hughes Network Systems
John Cole, Andrew	Stephan Kollar, Intersputnik
Jennifer Manner, MCI	Audrey Allison, Boeing
Andrew Stimson, Intelsat	Douglas May, Intelsat
Larry Whitmeyer, Intelsat	Clark Norton, MCI
Joslyn Read, Hughes Network Systems	Rami Avitzour, Gilat
Norbert Schroeder, SES-Americom	Helene Vossiniotis, Detecon

GVF Membership⁴

AAE Systems	Datasat Communications
Access Partnership	DCC Satellite and Networks
Advantech	DETECON
Advantech AMT	DTT Consulting
Aetheric Engineering	Emperion
AFSAT Communications	EMS
Agilis Communication Technologies	Ericsson Componedex
Aguiar & Marsiglia**	Ertebatat Faragostar
Alcatel	Euroconsult
Alkan Communications	EuropeStar
Anacom	EUTELSAT
Andrew	Falconstream
Application Technology Strategy	FhG – Fokus SatCom
Arabsat	Foxcom
Asiasat	Futron
ASISAT**	General Dynamics
ASSI**	Geoff Daniell Communications**
Astrium	Gilat Satellite Networks
Astroworks/AstroExpo.com	Gilbert Adanusa Telecommunications
AVL Technologies	Consultant**
Bagan Cybertech	Global Communications Network
Bhojsons	Global Convergence Technology
Cable & Wireless	Globalnet
Caprock Communications	Globecomm Systems
Channel Master	GS Telecom
Cisco	GsatX
Clear Channel	Gulfsat
CMC Engineering	High Capabilities Technologies
Codan	Hispasat
CommCarrier	Hughes Network Systems
Communication Concepts Africa	IABGmbH
Communications Center	IDirect
CompassRose International	Inmarsat
COMSYS	Intelsat
Comtech EF Data	Intersputnik
Connexion by Boeing	Invacom
Corporate Access	INVSAT
Cosmos Satnet	Iran ISP Association
Data Marine Systems	Irwin Communications

⁴ Full Members appear in bold. Double asterisk denotes GVF Correspondents. Membership as at 23 May 2003

ITP Asia
Jazeera Telecom
Jeraisy Computer & Communication Services
John T. Feneley Satellite Business Ventures**
Kingston inmedia
Kish Telecom
L3 Communications Satellite Networks
Latham & Watkins
Loral Skynet
Masterworks Communications
Maqsat Satellite
MCI
Mentat
Mindsprout Technologies
Mitsubishi Electric
Multipoint Communications
NASC**
ND Satcom
NERA
Network Innovations
New Skies Satellites
Newtec
NITI Enterprises
Nomura
Nordic Satellite
Norsat International
Northern Sky Research
Pacific Century Matrix
PanAmSat
Paradigm
Patriot Antenna Systems
PentaMedia
Petrocom
Planet Communications Asia
Plenexis
Polarsat
Pradeshta
Prodelin
Pronet
Qinetiq
Radyne Comstream
Raven Manufacturing
Samacom
Satcom Networks Africa
Satellite Evolution Asia
SatNews Publishers

Saudi Inteltec
SES Americom
SES Global
Shin Satellite
Shiron Satellite Communications
Signal Mountain Networks
Singtel-Optus
SNEF Groupe
SONEMA
Spacebridge Semiconductor
Spacecom
Speedcast
Star One
STM Wireless
Stratos
SWE-DISH
Tachyon
Teamcom
TeleDanmark
Telenor
TELEPORT Bulgaria
Telespazio
Telstra V-Comm
The London Satellite Exchange
Thuraya
Titan Wireless
Transcom ISP
Transtel
Triaton
TriPoint Global
TUYAD**
UNISAT**
United Telesys
University of York
Verestar
Vertex
Via Satellite Magazine/PBI Media
ViaSat Satellite Networks
Vicom
Vipersat
VisioSat
VSAI**
Wavestream
W B Walton Enterprises
White & Case
Xantic

APPENDIX B

THE GVF MUTUAL RECOGNITION ARRANGEMENT (MRA)

The GVF MRA is designed to facilitate mutual recognition by satellite operators – as well as by national Administrations - of satellite ground equipment performance testing for the purposes of certifying equipment models, in order to eliminate the necessity of repeated factory or field testing.

Specifically, the MRA document is intended to serve the following purposes:

- Define equipment levels (antennas, earth stations, and VSAT terminals)
- Define a complete set of mutually-recognized tests for each equipment level (“MRA Testing”)
- Define a process for assuring complete and accurate testing of equipment, and preparation of a file of test results and design review information (“Data Package”)
- Define a process for the GVF to authorize test witnesses (“Authorized Test Entities”)
- Define the overall process for an initial Satellite System Operator Type Approval (“SSOTA”)
- Define the process for follow-on Satellite System Operator Type Approvals

Background

An earth station is the ground-based equipment that transmits and receives signals to and from a satellite system. Satellite system operators desire to prevent users of their satellites from interfering with each other’s signals and to protect against excessive use of transponder power and bandwidth resources. Under national laws and international treaties, satellite system operators also have certain responsibilities to protect other satellites and other radio communications services from interference. To these ends, satellite operators impose technical specifications on earth station equipment.

Correct and compliant operation of the earth station is the responsibility of the earth station owner and operator. An earth station owner-operator seeking to operate an earth station in a satellite system must have the earth station certified to be in compliance with the relevant mandatory performance characteristics, such as pattern sidelobes and cross-polarization discrimination, as specified by the satellite system operator.

Compliance might be assured by either (i) verification testing each earth station after it is installed, or (ii) a program of Satellite System Operator Type Approvals.

Developments in earth station technology and advanced manufacturing quality control make it possible to replicate equipment with sufficient consistency and performance margin that an operator may issue an approval, i.e., (a “Satellite System Operator Type Approval,” or OTA) for all installations of equipment of a certain type. Note that the

SSOTA's are issued by the satellite operators and are independent from national or regional regulations.

Typically, smaller earth stations - such as Very Small Aperture Terminals (VSATs) – and those earth stations that do not require extensive or any individual antenna panel adjustment are good candidates for SSOTA.

When an earth station has an SSOTA, the earth station owner-operator can be assured that specified levels of compliance are met. This can greatly reduce or even negate the requirement for the individual testing of each earth station at its operational site. Thus, Satellite System Operator Type Approval can result in significant savings in cost, time and effort for the earth station operator and owner, the earth station manufacturer and the satellite system operator.

Individual operators have historically granted SSOTA only after extensive testing of manufacturer's equipment demonstrates consistent performance with margin. However, each operator has required that the testing be repeated in order to grant their own SSOTA. The associated expense and delay acts to discourage manufacturers from applying for SSOTA's, and so products that would benefit end users and encourage the use of satellite solutions are not made available to the market with low installation cost.

The GVF MRA Test process seeks to address this problem by defining a set of standardized measurements and independent oversight, resulting in a verified data package that a manufacturer may submit to multiple operators and national Administrations as part of SSOTA applications.

MRA Testing

The MRA document defines a Data Package, comprising a set of measurements and reports, which together are sufficient to allow any satellite operator member of the GVF to evaluate the equipment for Satellite System Operator Type Approval. To ensure that measurements are made in an impartial, accurate, and complete manner, and that the entire Data Package is complete, this document provides for impartial Authorized Test Entities to conduct, direct or witness testing and to review the Data Package.

The MRA document describes the procedures and requirements for GVF MRA Testing and preparation of the Data Package. The procedures are designed to ensure that all Operator Type Approved Antenna Models, Earth Stations, or VSAT Terminals will perform consistently without the need to repeat measurements. (The complete MRA document can be downloaded from www.gvf.org.)

APPENDIX C

GVF Model VSAT License Application Template

I. APPLICATION PROCEDURE

Applications for licenses pertaining to the operation of transmit-receive Very Small Aperture Terminal (VSAT) earth stations used to provide telecommunication services for the public must be sent to the Regulatory Authority for Telecommunications and Posts:

[Contact name, address, telephone/fax numbers, and email]

Applications must include the following information:

- a) Name and address of applicant
- b) Name, telephone and fax number of contact person representing the applicant
- c) Legal status of the applicant/company
- d) Details of ownership of the applicant/company
- e) License class requested
- f) Details of the planned category of telecommunications service
- g) Details of the geographic location of the VSATs, including an outline map
- h) Planned date of startup of the activity subject to license
- i) Proof that the applicant/company does not have a dominant position in the market.

The granting of a license is subject to the applicant's fulfillment of certain conditions. These include in particular specialized knowledge, efficiency, and reliability on the part of the applicant.

The Regulatory Authority can request the applicant to provide any proof and supporting documents it requires to make a decision on the granting of the license. The applicant is advised to submit appropriate proof and supporting documents as listed in Section II together with its license application.

II. PROOF AND SUPPORTING DOCUMENTS

- a) Proof of Specialized Knowledge

Under the Telecommunications Act, anyone who guarantees the necessary knowledge, experience and skills of the persons engaged in the exercise of license rights is deemed to possess the required specialized knowledge.

Accordingly, the applicant should detail the relevant knowledge, experience and skills of the persons intended to operate the VSAT system. The applicant can submit, inter alia, licenses granted to the persons to set up, connect, modify and maintain terminal equipment as proof of specialized knowledge.

b) Proof of Efficiency

Under the Telecommunications Act, anyone who guarantees availability of the means of production for setting up and operation necessary to exercise license rights is deemed to possess the required efficiency.

c) Proof of Reliability

Under the Telecommunications Act, anyone who guarantees compliance, as a licensee, with the legal provisions is deemed to possess the required reliability.

The applicant should in particular state whether itself, one of its affiliate companies or a person appointed to manage its business has in the past five years been subject to:

- The withdrawal of a telecommunications license
 - The imposition of conditions for non-fulfillment of obligations ensuing from a telecommunication license or
 - Legal proceedings for violation of telecommunications or data protection law, or whether
 - Such legal proceedings are pending.
- d) Outline map showing the geographic location of the area in which the activity subject to license is to be performed (if not a transportable VSAT)
- e) Interference analysis report where relevant, i.e. when involving C-band frequencies.

III. FEES

Fees are charged for the granting of a license under the fees ordinance issued by virtue of the Telecommunications Act. (Fees do not exceed US\$1,000.)

IV. PROCESS

Your completed application will be placed on Public Notice for a 30-day comment period. If no objection is filed by the Ministry or the Public, your application is deemed automatically granted on the thirty-first day. A confirmation will be mailed to you or sent electronically within 10 days of grant.

Notwithstanding the foregoing, temporary authorization is available when necessary to serve the public interest.

V. EXCEPTIONS

No license is required for:

- a) VSAT earth stations operating via satellites utilizing frequencies reserved for fixed satellite services
- b) Receive-only VSAT earth stations