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Telecom Regulatory Authority of India

Consultation Paper On Issues Relating to Satellite Radio Service

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PREFACE

Even though a satellite radio service is in operation in the country, there is no policy or regulatory framework for this sector as against clearly laid down policies for other media segments. This gives rise to various issues, such as level playing field between Satellite Radio service and Private FM Radio, regulation of broadcast content, license fee, interoperability requirement in case of a new Satellite Radio service provider etc.

The Amit Mitra Committee in its report on Private Sector FM Broadcasting had suggested that a Satellite Radio Policy should be laid down by the Government. TRAI in its recommendations on the subject, sent on August 11, 2004 had indicated that this issue would be separately examined.

Accordingly, this Consultation Paper has been prepared on issues relating to Satellite Radio Service. The Consultation Paper covers the following issues:

- 1) Rationale for Satellite Radio
- 2) Regulation and Monitoring
- 3) Licensing
- 4) Technical Considerations

The objective of this Consultation Paper is to obtain structured inputs on the various issues involved in formulation of a policy on satellite radio. Based on these inputs, TRAI would give its recommendations to the Ministry of Information & Broadcasting on the issues involved in laying down a policy framework for satellite radio.

Written comments on this Paper may be furnished to Secretary, TRAI by 31st January, 2005. Gist of these comments will be placed on TRAI's website. For any further clarification on the matter, Secretary, TRAI or Advisor (B&CS) may be contacted at trai07@bol.net.in (Ph. No.26167448) and rkacker@tra.gov.in (Ph. No.26713291) respectively.

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Chapter 1: Introduction

1.1 Background

Over the past seventy-five years or so, the developments in broadcasting technology have been tremendous. The changes have come quickly, and the quality of broadcasting has remarkably improved. Radio broadcasting began with Amplitude Modulated (AM) signals. This was followed by the advent of Frequency Modulated (FM) broadcasting. The next logical step in evolution of Broadcasting is Digital Audio Broadcasting.

However, before the terrestrial form of Digital Audio Broadcasting could make a significant headway, its satellite form started commercial operations in the form of Satellite Radio. Advances in technology and increased competition have created new opportunities and new challenges for radio broadcasters.

In India, radio coverage is available in SW, MW and FM mode through terrestrial transmission. The private sector has been providing services only in FM mode. In addition to these terrestrial modes of broadcasting, Satellite Radio service is also available in India. At present there is only one service provider in this segment.

1.2 Satellite Radio

Satellite Radio [also referred to as Broadcasting Satellite Service (Sound) – BSS (Sound) in ITU Radio Regulations and Digital Audio Radio Service – DARS in the USA] is a radio service that provides radio signals directly from satellites. The antenna of the satellite Radio receiver is similar to the saucer of a tea cup in size and shape. Subscribers are able to receive up to 100 radio channels featuring

crystal-clear high quality music, news, weather, sports, talk radio and other entertainment channels 24 hours a day. It is being called the next big step in broadcasting – the greatest improvement since the advent of FM broadcasting.

1.3 How is satellite radio different from regular radio?

The basic difference between a satellite radio and regular radio is that in the case of Satellite Radio the signal is broadcast from a satellite whereas regular radio signals are broadcast from a terrestrial antenna. Regular radio is provided in either Medium Wave/ Short Wave frequency bands in the case of AM radio or VHF frequency band in the case of FM Radio. AM stations can broadcast their signals over large distances. The problem with the AM band is that the quality of the signal is not very good. In FM radio though there is improved quality of the signal and the listeners get stereo sound, the signal cannot be received beyond line of sight distance. With satellite radio, one can get near-CD quality sound and coverage of very large geographical area. A satellite radio receiver can pick up the signal the same way a TV can pick up television channels through DTH/ satellite. Whereas a set top box is required along with the TV for reception of DTH channels, the satellite radio receiver is an integrated receiver and no set top box is required.

1.4 Existing Framework

World Administrative Radio Conferences convened by ITU (WARC 79 and WARC 92) paved the way for the introduction of Satellite Digital Radio. In 1992, the ITU World Administrative Radio Conference (WARC-92) allocated certain frequencies for satellite radio services in 'L' and 'S' bands. The primary purpose of WARC-92 was to reach global agreement on which frequencies should be allocated for certain new technologies.

Presently, world over there are four satellite digital radio systems which are in operation. These are World Space, XM Radio, Sirius Radio and MBCo. WorldSpace covers the entire African zone, southern Europe, the Middle East and Asia with its existing operational two-satellite system. XM Radio and Sirius Radio cover the United States and parts of Canada. The MBCo system covers Japan and Korea.

In India, M/s. World Space through the West beam of its Asia star satellite is providing about 40 Radio channels. However, only a very small fraction of the population are availing the service. It is estimated that there are less than 50,000 receivers presently in the country of which about 31,800 are subscription based and the balance consumers listen to only free to air channels.

1.5 Context of this Consultation Paper

Even though a satellite radio service is in operation in the country, there is no policy or regulatory framework for this sector as against clearly laid down policies for other media segments. This gives rise to various issues, such as level playing field between Satellite Radio service and Private FM Radio, regulation of broadcast content, license fee, receiver interoperability requirement in case of a new Satellite Radio service provider etc. Even though at present there is only one service provider in this sector, some sort of policy framework may need to be laid down so as remove regulatory uncertainty on the part of the existing and potential future satellite radio operators.

Therefore, there is a need for India to establish clear regulations for satellite radio, which it is hoped will satisfy the problems voiced by the FM Radio industry as well as provide additional impetus to promote the further development of satellite radio in India, in a planned and acceptable way.

It may be recalled that the Amit Mitra Committee in its report on Private Sector FM Broadcasting had suggested that a Satellite Radio Policy should be laid down by the Government. TRAI in its recommendations on the subject, sent on August 11, 2004 had indicated that this issue would be separately examined.

It is in this context and also in line with the consultative approach of TRAI that this consultation paper has been prepared to seek the views of the stakeholders on the issue.

Chapter 2: Rationale of Satellite Radio

Satellite radio is already established and growing rapidly as viable businesses in some parts of the world, such as North America, Japan and Korea. In India, satellite radio service already exists, in the form of the WorldSpace system, but only a very small fraction of the population benefit from it, with less than 50,000 receivers presently in the country. If the development of satellite radio in India could be expanded so that it reached a large proportion of the population, significant benefits to Indian society and industry could accrue.

2.1 Coverage

More than 80 years have passed since broadcasting first started in the country. Even then we have not been able to fully cover the entire country by MW and FM broadcasts. In terms of reach, combined AM and FM broadcasts cover about 99.13% of the Indian population and about 91.37% of the geographical area, while FM broadcasts alone cover about 30% of the population and 21% of the geographical area. Satellite Radio has the potential to reach 100% of the Indian population (geographically speaking) and so could help to achieve some of the objectives of India's development process, by reaching out to remote, inaccessible areas.

2.2 Channels

With a large number of high quality digital channels available on satellite radio this medium can help to increase the plurality of voices, provide more choice to consumers through nation wide niche programming and add greater diversity to the broadcasting sector.

2.3 Disaster Warning System

India with its large geographical size is well placed to benefit from a satellite radio system unlike smaller countries. The large size of the country makes it very difficult to provide timely advance warning to people living in remote areas for dealing with natural disasters such as cyclones and floods.

Its countrywide footprint enables the satellite radio system to provide instantaneous reach to all corners of the country including remote locations, especially the hilly areas. These remote areas may be impossible to cover through terrestrial means.

The WorldSpace is already in touch with the Government of India regarding a project for fishermen that would, inter alia, bring them reliable, timely, advance weather warnings.

2.4 Commercial Viability

Given the large population of the country, the prospects of commercial viability of such a capital intensive venture are also much brighter. With 25 Indian languages in use across the country, satellite radio, which has the potential to go up to about 100 channels, would provide the opportunity of language-niche programming which would be of great benefit to citizens that are living away from their home language area, and help to further integrate communities across dispersed geographies.

2.5 Industrial Growth

India has well developed space and electronics industries, and both would be in an excellent position to benefit from India's increased reliance on a new medium such as satellite radio. The Indian space industry is well positioned to become involved in the construction and launching of future satellites for satellite radio transmission. Indian electronics manufacturers are already involved in the manufacture of WorldSpace receivers and competitively well-positioned to exploit future requirements for millions of such receivers.

2.6 Spectrum Allocation

India has already invested much effort over many years to ensure that the spectrum allocations necessary for satellite radio are available internationally and to India, and this investment would be recouped as satellite radio systems are realized in India. The following frequency bands are available to India for providing Satellite Radio Service: -

'L' Band: 1452 – 1492 MHz

'S' Band: (a) 2310 – 2360 MHz

(b) 2535 – 2655 MHz

2.7 Future Applications

There is a trend towards using satellite radio systems for broader applications than the mere distribution of audio programming. All of the currently operational satellite radio systems already carry data services, in addition to audio programming, and in Japan and Korea video programming has also been included. Of all the currently operational systems, Korea has the most advanced vision of the role of satellite radio, where the user terminal is a two-way device that can be used as a wireless extension of the internet. The planned European Maestro project takes this a stage further and contemplates the role

that a satellite radio system can play in future 3rd generation mobile networks.

It is necessary for India to keep pace with the emerging technologies in the world, as this could have significant commercial spin-offs in the long run.

Chapter 3: Regulation and Monitoring

3.1 Introduction

This Chapter deals with the issues relevant to establishment of regulations for the future deployment and use of Satellite Radio in India. For this it is necessary to take into account the current status of radio broadcasting in India, both terrestrial and Satellite, as well as relevant DTH related issues.

3.2 Present Status

Although satellite radio is in operation today in India, at least in a relatively small way, India does not have a licensing policy for Satellite Radio service providers. The existing operator namely WorldSpace is operating its services after obtaining FIPB approval for setting up of a 100% wholly owned subsidiary for carrying out software programming activities in India, to import digital satellite receivers and accessories and to carry out revenue collection services in India on behalf of its parent/associate companies. Apart from the FIPB approval for its activities, WorldSpace has also done frequency coordination through ITU in respect of its AsiaStar Satellite with the existing and planned terrestrial, radio astronomy and space systems of India.

Absence of a licensing policy causes several problems, including (a) absence of a “level playing field” with respect to FM Radio operators, (b) regulatory uncertainty on the part of the existing and potential future satellite radio operators, and (c) haphazard development of this important industry. Therefore,

there is a need for India to establish clear regulations for growth of satellite radio.

3.3 Regulatory Issues

3.3.1 Separate licensing of “carriage” versus “content”

Traditionally broadcasters are licensed to perform all the functions involved with creating programmes and distributing these to the public. In case of FM radio also, the broadcast license specifies the conditions (including the relevant programme code) that must be adhered to in terms of the content. However, there is a trend to separate “carriage” (the distribution of the signals to the public, or to subscribers) from the “content” (the generation of programme material), from a regulatory licensing perspective.

International Trends

In the USA, Japan and Korea, there has been no such separation of carriage from content in the licenses awarded to the satellite radio operators. Each operator in these countries is responsible for the programming and the distribution of the signals to the audience. However, in China, ChinaSat is licensed for the use of the North East beam of AsiaStar to distribute the satellite radio signals, and it is understood that separate programming licenses will be granted to the programme providers, where appropriate.

The issue for consultation is:

- **Should content regulation be separated from carriage regulation?**

3.3.2 Subscription services versus true broadcasting

In the case of traditional broadcasting the signals are freely available to the general public with widely available low cost receivers whereas in case of subscription services there is a controlled access to the programming material by members of the public that enter into service contracts with the service provider and typically requires a special addressable receiver.

International Trends

In USA, there is a differentiation between the offering of subscription-type services and broadcasting in terms of the strict definition. FCC licenses granted to Sirius and XM are non-broadcast licenses which makes them exempt from some of the statutory requirements on US licensed broadcasters.

The issue for consultation is:

- **Should subscription type services be distinguished from broadcasting?**

3.4 **Programme Code**

The Programme Code for AIR prohibits the following:

- Criticism of friendly countries;
- Attack on religions or communities.
- Anything obscene or defamatory.
- Incitement to violence or anything against maintenance of law and order.
- Anything amounting to contempt of court.
- Aspersions against the integrity of the President and Judiciary.
- Anything affecting the integrity of the Nation, and criticism by name of any person.

The private FM Radio broadcasters are also required to follow this programme code as well as the advertisement code followed by the All India Radio.

Another point that needs to be considered in this context is differentiating between programmes targeted solely at the Indian subscribers and “international” programmes that are being made available in India, such as BBC World Service. The Indian targeted channels could be controlled to a greater extent, in terms of programme content, than the “international” channels.

The issues for consultation are:

- **Should Satellite Radio in India be regulated on the lines of Private FM radio broadcasters?**
- **Should the AIR Programme and Advertisement Codes be applicable to all channels receivable in the country?**

3.5 News & Current Affairs

Currently the private FM broadcasters are not permitted to broadcast news and current affairs. One of the main reasons for the restriction is security concerns in sensitive areas prone to communal/caste tensions. However, this gives rise to level playing field issue between private FM Radio and Satellite Radio as WorldSpace is already broadcasting a number of News channels. These news channels are: -

<u>Channel</u>	<u>Language</u>	<u>Category</u>
BBC Asia West	English	FTA
WRN	English	FTA

CNNI	English	FTA
BLMBR-PR	English	FTA
RFI	French	FTA
NDTV 24x7	English	Pay
NDTV IND	Hindi	Pay
FOX News	English	Pay

It may be seen that there are some free to air news channels also available on satellite radio. TRAI in the case of Phase II of Private FM broadcasting has recommended that the current restriction on coverage of News and Current Affairs should be reviewed keeping the policies in other media segments in view and these restrictions should be lifted once the security implications of this step are adequately addressed.

The issue for consultation is:

- **Whether the ban on broadcast of news and current affairs programmes should be applicable in case of satellite radio also? If so, how should this ban be enforced given the nature of satellite radio?**

3.6 Uplink Policy

Currently M/s. WorldSpace, the only Satellite Radio broadcaster in the country is not permitted to uplink its programmes from India. The FIPB approval to WorldSpace noted that the company would uplink its programmes from Singapore till the Broadcasting Law in India is finalized. Consequently, all radio channels originated in India including AIR channels are transported via international circuits (through VSNL etc.) to Singapore for uplinking to the AsiaStar satellite.

The Union Government liberalized its TV channel Uplinking Policy in July 2000 and permitted the Indian private companies to set up uplinking hub/ teleports for licensing/ hiring out to other broadcasters. The new policy also permits uplinking of any television channel from India with separate guidelines in respect of News and Current Affairs TV Channels. It also allows the Indian news agencies to have their own uplinking facilities for purposes of newsgathering and its further distribution. The issue of permission of uplinking of Satellite Radio programmes from India was however not addressed in the new policy.

The issues for consultation are

- **Whether uplinking of Satellite Radio programmes should be permitted from India? If so, how can it be encouraged?**
- **Whether we should have a common uplink policy or a separate policy for uplink of Satellite Radio channels and TV channels?**

Chapter 4: Licensing

4.1 Introduction

The basic idea of licensing is to control/ regulate the entry of players/ service providers in a particular industry. Satellite Radio industry in India is peculiar in a way because there is only one operator as on date and the possibility of having another Satellite Radio service provider in the near future is rather bleak. As on date there is no policy framework for licensing of Satellite Radio Service providers in the country.

4.2 Approach

In practice, it could be many years before a satellite radio system, separate from WorldSpace, is available to provide service to India. Nevertheless, any regulations introduced to control satellite radio in India should be viable into the foreseeable future when several competing satellite radio systems might simultaneously be operational.

It would also be important to keep the existing service provider in mind while formulating the policy as the existing provider should be automatically licensed as per the new policy. WorldSpace began its operations in India after obtaining FIPB approval and completing frequency coordination. The FIPB approval for WorldSpace says that the proposed activities must conform to the Broadcasting Policy. Now with its Satellite Radio service in place it would be logical to take WorldSpace into account while formulating a policy for licensing of Satellite Radio.

There could be two approaches to licensing of Satellite Radio in India. One way is to lay down a licensing framework in anticipation of future interest in the industry and the other option is to deal with any future application of any potential Satellite radio Service provider for license as and when it is received.

The advantage of the first approach is that with a regulatory framework in place, interested parties can work out financial viability of such a project and enter the market. The disadvantage of this approach is that the regulatory framework laid down today may be out of date by the time an application for license is received.

The issue for consultation is:

- **Whether a licensing framework for Satellite Radio Service providers should be laid down now or later?**

4.3 Ownership

There is no policy framework for licensing of Satellite Radio Service providers in the country. Other countries in the world have followed different ways to regulate/ license Satellite Radio Service Operators. The primary issue of licensing is regarding the foreign ownership of satellite systems. In view of the fact that heavy capital investment is involved in setting up a Satellite Radio Service, it is unlikely that a wholly owned Indian Satellite Radio Service may come into existence in foreseeable future.

International status

USA: Section 310(b) of the US Communications Act, as updated in 1996, places certain foreign ownership restrictions

on broadcast and common-carrier licensees. However, because the FCC decided in its satellite DARS rules not to mandate any particular regulatory classification for this new service but rather to allow the licensees to choose the regulatory classification they wished, and because subsequently both satellite DARS licensees elected to be non-broadcast, non common-carrier licensees, the foreign ownership restrictions in the Communications Act do not apply to the existing US satellite DARS licensees.

The issue of foreign licensed satellite systems is obviously not addressed in the FCC's rules relating to the US licensing of satellite DARS systems.

Canada: Since 1995, Canada has had a satellite-use policy in effect that requires use of only Canadian satellite facilities to receive and/or distribute to its citizens all Canadian programming services. In view of the receipt of the first application to establish subscription satellite radio service using a US satellite network, CRTC sent a request to Industry Canada (IC) seeking clarification of this 1995 satellite-use policy. In considering this CRTC request, IC determined that Canada has no satellite facility capable of distributing digital satellite radio broadcasting and is unlikely to have such a facility in the future. Additionally, Canada has not secured with the ITU the required spectrum resources to develop its own specialized BSS (sound) satellites. Furthermore, IC determined that spectrum could be made available domestically to accommodate the provision of digital satellite radio broadcasting in Canada using US satellite facilities.

Therefore, in response to the CRTC request, IC has proposed to amend the existing policy so as to allow “in exceptional circumstances, where no Canadian satellite facilities are available, or likely to be available in a reasonable time frame, to accommodate specialized satellite delivery of a broadcasting service to the public e.g. satellite radio services including vehicular reception, the use of foreign satellite facilities is permitted to distribute Canadian programming services.”

Japan & Korea: From around 1999 there were two industrial consortia in Japan hoping to develop Japanese satellite radio systems. The industrial consortia led by Toshiba became the MBCo operating company. In July 2003 a “preliminary license” was granted to MBCo. The MBSAT satellite was launched in April 2004 and in May 2004 MBCo was granted a full satellite broadcasting license. Less than five months later, in October 2004, MBCo commenced full commercial service.

Korea allowed one of its major telecommunications operators, namely SK Telecom, to enter into a venture with MBCo of Japan, so that the MBCo satellite system could be used jointly and cooperatively by both Japan and Korea. In effect the capacity of the MBCo spacecraft was divided equally between Japan and Korea, and SK Telecom established a subsidiary local operating company now known as TU Media Corporation, to act as the service provider in Korea. SK Telecom in turn was able to secure licenses from the Korean Ministry of Information and Communications (MIC) for use of the frequencies needed for the satellite transmission, and TU Media Corporation obtained the licenses for the terrestrial augmentation, and also

permission from the Korean Broadcasting Commission to deliver broadcasting content.

China: China wanted to retain control over the content of all signals that could be received over Chinese territory. To achieve this, China authorized its own satellite operator, ChinaSat, to enter into a commercial agreement with WorldSpace, whereby ChinaSat would control the uplinking of all signals on the North East beam of AsiaStar. In addition, the distribution of WorldSpace receivers within China would be regulated to ensure that those receivers could only receive the North East beam signals. In return, ChinaSat has a commercial agreement with WorldSpace regarding the sharing of revenue that ChinaSat derives from the broadcast of audio and multimedia content. Revenue is derived by subscription fees for the encrypted programme content and also fees directly from broadcasters who want their signals to be carried on the satellite. In the latter case, Chinese state broadcasters are actively involved.

The information regarding licensing processes in Japan, Korea and China is not available in public domain, hence the information regarding these countries is indicative only and based on available information.

As a policy, restrictions have been placed in India on foreign ownership/ investment in relation to various media sectors as per details below: -

- a. Print Media – news & current affairs – FDI upto 26%

- b. Print Media – non news category – FDI upto 74%
- c. DTH – total foreign equity upto 49% [FDI not to exceed 20%]
- d. Cable television – foreign investment upto 49%
- e. TV Uplink hub/ teleport – total foreign equity holding upto 49%
- f. Uplink of news/current affairs TV channels – FDI not to exceed 26%
- g. News agencies for uplinking for news-gathering and its further distribution – 100% owned by Indians with Indian Management control

The footprint of one Satellite Broadcast covers many countries. The service providers would naturally like to serve consumers in as many countries as possible to maximize their subscription receipts. Moreover, due to large number of channels available, it is possible to provide content in many languages, directed at different audiences in different countries. It may therefore not be practically feasible to subject a satellite based service provider to similar ownership restrictions that are placed on other media sectors.

The issue for consultation is:

- **Whether any restriction on foreign ownership should be placed for grant of license to Satellite Radio Service providers?**

4.4 Eligibility

Detailed eligibility criteria are laid down for licensing of DTH service, private FM Radio stations, Community Radio stations and setting up of uplink hub/ teleports. However, it is important to remember that there are many seekers/ applicants for licenses of these activities, which is not the case with Satellite Radio. In view of very limited number of Satellite Radio Service providers all over the world, laying down detailed eligibility criteria may stall chances of any new player entering the market. On the other hand, laying down criteria could help in the process of attracting new players as and when conditions permit this.

The issue therefore for consultation is:

- **Whether some eligibility criteria should be laid down for grant of license to Satellite Radio Service providers? If yes, what should the eligibility conditions be?**

4.5 Period of License

The broadcast licenses have been issued in the case of Private FM Radio for a fixed term of 10 years. The Satellite Radio Service Providers could also be licensed for a similar term. However, automatic extension of license period by 5 years has been recommended by the TRAI for Phase-II of licensing of Private FM radio. In case of a license for Satellite Radio service, the license period should take into account expected life of a Satellite System, which is usually between 10 and 15 years from the date of launch.

In the USA, although the FCC normally licenses satellites for a period of ten years, existing US statute requires broadcasters to be licensed for eight year terms. Because satellite DARS licensees may choose to operate under a “broadcaster” regulatory classification, and to keep all satellite DARS license terms the same, the FCC was obliged to make the satellite DARS license term eight years.

The issue for consultation is:

- **What should be the term of license for the Satellite Radio Service providers?**

4.6 License Fee and Impact on Private FM Radio

Private FM Radio broadcasters are required to pay license fee as per their license conditions. The license fee was determined by a bidding process at the time of award of licenses and has a built in annual escalation clause.

Currently, the only Satellite Radio Service provider in the country is not subject to any license fee. Presently Satellite Radio service is being availed by a very small number of listeners and there is minimal impact on the listenership of Private FM Radio. However, the issue of level playing field between Private FM radio and Satellite Radio is likely to become important with growth in the number of Satellite Radio listeners in the country.

The issue of possible impact of satellite radio by way of additional competition to struggling terrestrial radio stations, was

analyzed by the FCC in the USA. In spite of the huge amount of data provided by commenters during the FCC's rulemaking, the FCC determined that it was not possible to reliably quantify the revenue or profitability impact to terrestrial radio stations by the introduction of satellite DARS, but it expected such impact to be relatively small. In summary, the FCC considered that satellite DARS would likely complement terrestrial radio rather than compete with it.

However, the Satellite Radio operators in the USA pay the following regulatory fees to the FCC:

- Auction fees at time of licensing:
Sirius: \$83.4 million
XM: \$89.9 million
- FCC Application fees (one-off):
Sirius: ~\$100,000 (current fee, per GSO satellite)
XM: ~\$300,000 (fee charged to Sirius, includes all 3 satellites)
- Annual Regulatory fees (every year):
Sirius: \$131,400 (as of July 2004, non-GSO)
XM: \$114.675 (as of July 2004, GSO)

The auction fee (i.e., winning bid) depends on the dynamics of the auction mechanism, and the perceived value of the spectrum in the eyes of the bidders. The FCC application fees and ongoing regulatory fees are standard fees imposed on satellite licensees of all types, and are not specifically related to satellite DARS.

Thus it is seen that the USA charged an Entry Fee for grant of license for Satellite Radio service on the basis of auction. There were four applicants and two licenses were to be granted. In the Indian context, the likelihood of having an auction for grant of

Satellite Radio license is very remote. Moreover, since WorldSpace is already providing its services in the country after obtaining Governmental Approvals by way of FIPB approval and frequency coordination, it may not be very desirable to ask it to pay an entry fee at this stage. Further, Satellite Radio service is much more capital intensive as compared to the FM Radio broadcasting service and its subscriber base is also very low. Therefore, the entry fee component of license fee may not be very appropriate for Satellite Radio service. On the other hand, given the reach of Satellite Radio, levy of some entry fee may be necessary.

As far as Annual fee is concerned, a Revenue Share regime has been recommended by TRAI in the case of Private FM Radio broadcasters. In case this suggestion is accepted, the same could be extended to Satellite Radio service also so as to provide a level playing field between the two platforms. The problem here is that since the technology and markets for both are so different, a level playing field may be difficult to define.

The issue for consultation is:

- **Whether any license fee should be imposed on the Satellite Radio Service providers?**
- **Whether the license fee for Satellite Radio should be similar to that of FM broadcasters in order to have a level playing field?**
- **Whether in view of the high capital investment costs and risk associated with the establishment of satellite radio system, a revenue share system would be more appropriate?**

Chapter 5: Technical Considerations

5.1 Introduction

Any regulatory framework for Satellite Radio should also take into account the technical considerations so that the regulations positively promote growth of the industry. This growth could be in terms of future applications with advancement in technology or in terms of more choice to consumers with more service providers in the market.

5.2 Transmission Standard/ Interoperability Requirement

The transmission standards adopted by the existing Satellite Radio systems are different from each other. ITU's recommendations BO 789-2 and BO 1130-3 provide detailed specifications of WorldSpace, MBCo and Sirius Radio systems as Digital System "D", "E" and "G" respectively. All of these standards are proprietary in nature and consequently require different receivers which are non-interoperable. The choice of standard, be it open or proprietary, has a direct bearing on the cost and availability of the terminal devices and the opportunity for local manufacture. In case the Indian market for receivers expands significantly the use of a proprietary transmission scheme might still make economic sense in the long-term. The cost of receivers is coming down and at present is a little less than Rs. 3,000/- both domestically and internationally. As volumes expand these costs could come down further in the future. Thus there could be advantages in the use of a non-standard receiver in order to boost the competitive position of the Indian electronics industry.

Multi-standard receivers, which can be used with several different transmission standards used by satellite radio operators, may not be prohibitively expensive, in future.

One major consideration for India in this matter is the reality of the current situation with WorldSpace. For WorldSpace to continue to provide service to the tens of thousands of receivers already in the country, the continued use of the WorldSpace transmission scheme (ITU standards “Ds” and “Dh”) would be required.

In the USA, the FCC decided not to mandate a transmission standard for satellite DARS in the USA. However, the FCC did require the two operators to develop a receiver that is capable of being used to receive the signals of both satellite DARS operators, although the operators have still failed to comply with this requirement, even after almost four years of operation.

The issues for consultation are:

- **Whether the WorldSpace transmission scheme (ITU standards “Ds” and “Dh”) should be mandated for potential new satellite radio operators providing service to India in the future?**
- **Whether multi-standard receivers, which can be used with several different transmission standards (or are at least compatible with the WorldSpace transmission scheme), should be mandated for potential new satellite radio operators?**

5.3 Technical Capability/ Scope of license

Any licensing framework for Satellite Radio should allow for maximum flexibility for future technological and market developments. The existing Satellite Radio systems are already being used for other applications such as video and data broadcasting apart from audio broadcasting services. TRAI is also separately developing a framework for unified licensing, recognizing the growing convergence in various segments of telecommunications business.

The MBCo venture of Japan & Korea offers around 20 video channels as well as about 50 audio channels and some data channels, shared amongst Japanese and Korean operators. The video channels' focus is on live sports and entertainment (particularly attractive for passengers in vehicles) and news stations, while the audio channels' focus is on non-stop music channels, plus news including foreign language. The data channels consist of "push and store" multimedia content. Low-cost terminals with small screen video capability are ideally matched to the low data rate, multi-media video services offered by MBCo.

The planned ASBC system of Japan aims to combine elements of a mobile telecommunications service, an accurate positioning system (using GPS type signals), an intelligent transportation communications system (telematics), and DMB (Digital Multi-media Broadcasting) to mobile users.

The planned European MAESTRO project is aimed at deployment of 3G multimedia services over mobile networks. It has the objective of reducing the digital divide between urban and rural areas, and also between regions, by ensuring service continuity over heterogeneous GPRS/UMTS networks.

However, in the USA, and probably also in Canada when its regulatory deliberations are completed, the satellite DARS operators are viewed as providing primarily an audio broadcasting service, with some ancillary data services.

The issues for consultation are:

- **Whether the regulations should require, or promote transmission schemes capable of being used for the widest possible variety of applications and mandate a signal structure that can accommodate all types of multi-media, including internet type traffic?**
- **Whether the licenses granted to satellite radio service providers should allow for the evolution of the services from the initial simple audio/data broadcasting, to include video, internet applications and other advanced services?**

5.4 Terrestrial repeaters

Although a satellite radio system is designed to provide a direct-to-person communication path, experience in USA where such systems are operating suggests that terrestrial repeaters are essential to providing high reliability service in urban areas where satellite signals are likely to be obstructed by the high

rise buildings. They are therefore the key to increasing the subscriber base of the satellite radio system.

Presently, neither any terrestrial repeaters are being used by WorldSpace in India nor there is any application pending with the Government to permit setting up of terrestrial repeaters.

The issues for consultation are:

- **Whether foreign ownership (or foreign direct investment) restrictions that apply to FM radio licenses should also be applicable to terrestrial repeater licenses?**
- **What are the content/ technical restrictions that must be placed while licensing terrestrial repeaters?**

Chapter 6: Issues for Consultation

6.1 Regulation and Monitoring

6.1.1 Regulatory Issues

Separate licensing of “carriage” versus “content”

- Should content regulation be separated from carriage regulation?

Subscription services versus true broadcasting

- Should subscription type services be distinguished from broadcasting?

6.1.2 Programme Code

- Should Satellite Radio in India be regulated on the lines of Private FM radio broadcasters?
- Should the AIR Programme and Advertisement Codes be applicable to all channels receivable in the country?

6.1.3 News & Current Affairs

- Whether the ban on broadcast of news and current affairs programmes should be applicable in case of satellite radio also? If so, how should this ban be enforced given the nature of satellite radio?

6.1.4 Uplink Policy

- Whether uplinking of Satellite Radio programmes should be permitted from India? If so, how can it be encouraged?
- Whether we should have a common uplink policy or a separate policy for uplink of Satellite Radio channels and TV channels?

6.2 Licensing

6.2.1 Approach

- Whether a licensing framework for Satellite Radio Service providers should be laid down now or later?

6.2.2 Ownership

- Whether any restriction on foreign ownership should be placed for grant of license to Satellite Radio Service providers?

6.2.3 Eligibility

- Whether some eligibility criteria should be laid down for grant of license to Satellite Radio Service providers? If yes, what should the eligibility conditions be?

6.2.4 Period of License

- What should be the term of license for the Satellite Radio Service providers?

6.2.5 License Fee and Impact on Private FM Radio

- Whether any license fee should be imposed on the Satellite Radio Service providers?
- Whether the license fee for Satellite Radio should be similar to that of FM broadcasters in order to have a level playing field?
- Whether in view of the high capital investment costs and risk associated with the establishment of satellite radio system, a revenue share system would be more appropriate?

6.3 Technical Considerations

6.3.1 Transmission Standard/ Interoperability Requirement

- Whether the WorldSpace transmission scheme (ITU standards “Ds” and “Dh”) should be mandated for potential new satellite radio operators providing service to India in the future?
- Whether multi-standard receivers, which can be used with several different transmission standards (or are at least compatible with the WorldSpace transmission scheme), should be mandated for potential new satellite radio operators?

6.3.2 Technical Capability/ Scope of license

- Whether the regulations should require, or promote transmission schemes capable of being used for the widest possible variety of applications and mandate a signal structure that can accommodate all types of multi-media, including internet type traffic?
- Whether the licenses granted to satellite radio service providers should allow for the evolution of the services from the initial simple audio/data broadcasting, to include video, internet applications and other advanced services?

6.3.3 Terrestrial repeaters

- Whether foreign ownership (or foreign direct investment) restrictions that apply to FM radio licenses should also be applicable to terrestrial repeater licenses?
- What are the content/ technical restrictions that must be placed while licensing terrestrial repeaters?