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राष्ट्रीय आवृत्ति नियतन योजना-2008
NATIONAL FREQUENCY ALLOCATION PLAN-2008

बेतार आयोजना एवं समन्वय स्कंध
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MESSAGE

I am happy that the existing National Frequency Allocation Plan-2002 (NFAP-2002) has been revised and new National Frequency Allocation Plan-2008 (NFAP-2008) has been developed within the framework of ITU taking into account spectrum requirement of Government as well as private sectors in the fast changing scenario with a view to meeting requirements of new emerging spectrum efficient technologies as well as protecting existing assignments. The requirement of Government as well as private sector has been considered in a very transparent manner while developing NFAP-2008.

2. The radio frequency spectrum and geo-stationary satellite orbit are limited natural resources. Government of India attaches great significance to spectrum management and radio regulatory process. It is essential that these resources are used rationally, efficiently and economically so that equitable access is available for all spectrum users of different Radiocommunications services. With the emergence of new technologies and with astounding growth of telecommunication services all over the world, spectrum management process has become extremely complex and intricate. It is necessary that all the spectrum and orbit users, whether Government or private, work in the spirit of mutual understanding and cooperation and utilize these resources in most optimal manner with self-discipline.

3. As per New Telecom Policy-99, the NFAP is to be revised every two years in line with the decisions of World Radiocommunication Conferences. However, the work of review / revision of existing NFAP was undertaken within the framework of NTP-99 and Radio Regulations of ITU, the work of NFAP could not be progressed due to various pending policy issues on spectrum with

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different government agencies. The draft NFAP 2005 was finalized and placed on the DOT website for information to all concerned but no formal NFAP could be published. After WRC- 2007, the issue of review / revision was again taken up with all stakeholders and consensus decisions various India remarks have been made.

4. In the recent past the growth of telecommunications services particularly mobile telephony, has been phenomenal, 8-10 millions telephone subscribers are being added every month in the country and due to this growth in telecom, the number of subscribers have reached 400 million and tele-density has increased to 34.5%. As the mobile services require spectrum, sufficient spectrum is required to be made available for successful implementation of wireless based telecom infrastructure. In this connection, during the World Radiocommunicaton Conference-2007 many new frequency bands have been identified for mobile services. The NFAP-2008 has taken all these aspects while formulating the National Frequency Allocation Plan.

5. The task of review / revision of NFAP was very challenging and complex. A lot of efforts have been put in to revise and bring out the new NFAP effective from April 1, 2009. I would also like to express my appreciation to the Wireless Adviser & his team of officers and stake holders for their efforts in the development of NFAP-2008. I would like to compliment all the participants from government sector, private sector and the industry for their valuable contributions in this detailed exercise.

6. I am confident that NFAP-2008 will prove to be valuable for spectrum managers and wireless users in country and that the Plan will result in optimal utilization of radio frequency spectrum, which a is limited natural resource..


(Siddhartha Behura)

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PREFACE

Radio Frequency Spectrum (RFS) and satellite orbits including geostationary satellite orbits are scarce natural resources. RFS is susceptible to harmful interference and is international in character since radio waves cannot be confined to national boundaries. Utilization (Assignment of frequency) of these resources follows laws of physics and is governed by international treaties notably, the Constitution, the Convention and Radio Regulations of the International Telecommunication Union (ITU).

Like any other natural resource it cannot be owned but used and shared amongst various countries, services, users, technologies, etc without any element of exclusiveness. No ownership of any frequency band conferred on any entity. It is essential that these scarce resources be used rationally, optimally, efficiently and economically so that equitable access could be available to large variety of radiocommunication networks in an interference free radio environment.

Spectrum Management is the combination of administrative and technical procedures necessary to ensure the efficient operation of radio communication services. It is important that users should plan, establish and operate their radiocommunication networks optimally using spectrum efficient technologies with optimal technical parameters and should take all necessary measures for coexistence and sharing of the resources. Radiocommunication networks are like global society necessitating appropriate discipline.

National Frequency Allocation Plan, 2008 (NFAP-2008) has been evolved in line with the Radio Regulation of the ITU edition 2008 with a view to catering for demands on the spectrum, including those of new emerging technologies without unduly constraining the existing usages. It is hoped that NFAP-2008 will provide necessary information with regard to spectrum allocation for development, manufacturing and spectrum utilization activities in the country, both for government and private sectors.



(Dr. Ashok Chandra)

Wireless Adviser to the Govt. of India
& Chairman NFAP Committee

INTRODUCTION

In pursuance of National Telecom Policy, 1999, the National Frequency Allocation Plan 2000 (NFAP-2000) was evolved which became a public document. It was reviewed and revised in 2002 in line with the decisions taken in the WRC-2000 and also taking in to consideration of the requirements of various stakeholders and NFAP-2002 was evolved which is presently in force. The NFAP-2008 has been evolved in line with the over all frame work of ITU, taking into account spectrum requirements of government as well as private sector and national priorities.

2. The radio frequency spectrum is shared by various government and private user organisations like Defence, Police, Intelligence and other Security agencies, Public Telecommunications, Broadcasting, Railways, Public Utility Organisations, Oil and Electricity Grids, Atomic Energy, Mining and Steel, Shipping and Airlines, and so on as well as private and public telecom operators, for variety of applications including public telecom services, aeronautical and maritime safety communications, radars, seismic surveys, rocket and satellite launching, earth exploration, natural calamities forecasting etc. A frequency which is being used in one place by one agency may be used by another agency for some other purpose in another place leading to the frequency reuse on spatial basis.
3. In the National Frequency Allocation Plan-2008 (NFAP-2008), the table on the left side depicts, as a reference, the international frequency allocations in ITU Regions 1, 2 and 3 respectively, contained in article 5 of the Radio Regulations of the International Telecommunication Union (ITU). India falls in ITU Region 3. The table in right hand side depicts the national frequency allocations.
4. Following definitions, in accordance with Radio Regulations (RR), are relevant in this context:
 - 4.1 *Allocation* (of a frequency band): Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions. This term shall also be applied to the frequency band concerned. (RR-1.16)
 - 4.2 *Allotment* (of a radio frequency or radio frequency channel): Entry of a designated frequency channel in an agreed plan, adopted by a competent conference, for use by one or more administrations for a terrestrial or space *radiocommunication service* in one or more identified countries or geographical areas and under specified conditions (RR-1.17).

- 4.3 *Assignment* (of a radio frequency or radio frequency channel): Authorisation given by an administration for a radio *station* to use a radio frequency or radio frequency channel under specified conditions (RR-1.18).
- 4.4 *Region 1*: Region 1 includes the area limited on the east by line A (lines A, B and C are defined below) and on the west by line B, excluding any of the territory of the Islamic Republic of Iran which lies between these limits. It also includes the whole of the territory of Armenia, Azerbaijan, Russian Federation, Georgia, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russian Federation which lies between lines A and C. (RR5.3)
- 4.5 *Region 2*: Region 2 includes the area limited on the east by line B and on the west by line C. (RR 5.4)
- 4.6 *Region 3*: Region 3 includes the area limited on the east by line C and on the west by line A, except any of the territory of Armenia, Azerbaijan, Russian Federation, Georgia, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russian Federation. It also includes that part of the territory of the Islamic Republic of Iran lying outside of those limits. (RR-5.5)
- 4.7 *Line A*: Line A extends from the North Pole along meridian 40° East of Greenwich to parallel 40° North; thence by great circle arc to the intersection of meridian 60° East and the Tropic of Cancer; thence along the meridian 60° East to the South Pole. (RR-5.7)
- 4.8 *Line B*: Line B extends from the North Pole along meridian 10° West of Greenwich to its intersection with parallel 72° North; thence by great circle arc to the intersection of meridian 50° West and parallel 40° North; thence by great circle arc to the intersection of meridian 20° West and parallel 10° South; thence along meridian 20° West to the South Pole. (RR-5.8)
- 4.9 *Line C*: Line C extends from the North Pole by great circle arc to the intersection of parallel 65° 30 North with the international boundary in Bering Strait; thence by great circle arc to the intersection of meridian 165° East of Greenwich and parallel 50° North; thence by great circle arc to the intersection of meridian 170° West and parallel 10° North; thence along parallel 10° North to its intersection with meridian 120° West; thence along meridian 120° West to the South Pole. (RR-5.9)
- 4.10 *Primary Services*: services the names of which are printed in “capitals” (example: FIXED); these are called “primary” services(RR-5.25);

4.11 *Secondary Services*: services the names of which are printed in “normal characters” (example: Mobile); these are called “secondary” services (RR-Nos. 5.26)

4.11.1 Stations of a secondary service:

- a) shall not cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date(RR-5.29)
- b) cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date(RR-5.30)
- c) can claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date(RR-5.31)

4.11.2 When more than one services are listed as having same status, order of their listing does not indicate any relative priority among such services.

- 5 Existing assignments will be protected under their existing status, unless and until it is decided to modify or relocate these assignments.
- 6 Radio Frequency Channelling Plans as per ITU-R recommendations should be followed unless specified otherwise.
- 7 Spectrum efficient technologies and systems should be deployed for exploitation of radiofrequency spectrum.
8. All necessary technical, operational, regulatory and administrative measures shall be taken so as to avoid harmful interference.
9. Permitting exploitation in portion of earmarked frequency bands for particular system by other systems in the areas where exploitation of total spectrum is not envisaged by the earmarked systems and other systems have specific needs for exploitation may be considered without putting undue constraints on the earmarked systems. Suitable time frames be also kept in view in this context.
10. In relation to coexistence of FDD, TDD and mobile TV operations in 700 MHz Band - India (JTG-India) a Joint Task Group has been established to study the compatibility between quick and to develop a channel plan in line with ITU-R recommendation for which studies are going on in ITU foras.
11. The review of NFAP may be done generally every two years, in line with the Radio Regulations of ITU.
12. The effective date of NFAP-2008 is 01.04.2009.