

PLENARY MEETING

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ASIA-PACIFIC BROADCASTING UNION (ABU)

POSITION ON WRC-12 AGENDA ITEMS 1.5, 1.13 AND 1.17

The Asia-Pacific Broadcasting Union (ABU) is a non-profit, non-government, professional association of broadcasting organisations, formed in 1964 to facilitate the development of broadcasting in the Asia-Pacific region and to organise co-operative activities amongst its members. It currently has over 200 members in 60 countries, reaching a potential audience of more than 3 billion people.

ABU's position on WRC-12 Agenda Items 1.5, 1.13 and 1.17 is provided in the Annex.

AGENDA ITEM 1.5

1.5 to consider worldwide/regional harmonization of spectrum for electronic news gathering (ENG), taking into account the results of ITU-R studies, in accordance with Resolution 954 (WRC-07);

Resolution 954 (WRC-07): *Harmonization of spectrum for use by terrestrial electronic news gathering systems*

There is increasing demand for sound and television electronic news gathering (ENG) and similar applications of outside broadcasting (OB) and electronic field production (EFP), together known as Broadcast Auxiliary Services (BAS). The very nature of ENG involves several broadcasters covering the same event and this requires several independent frequency channels for simultaneous operation for a limited time on each such occasion.

WRC-07 adopted Resolution 954 (WRC-07) that calls for studies and asks WRC-12 to determine whether worldwide / regional harmonization of spectrum usage and requirements for such links could be achieved in terms of the frequency bands used for such applications in specific band(s).

ABU members are seeking appropriate regional/worldwide bands and tuning ranges for the temporary fixed/mobile links. ABU also supports the development of regional / worldwide set of tuning ranges for the ENG applications.

ABU Views

1. The ABU supports the conclusions of the Report ITU-R BT.2069 (Spectrum usage and operational characteristics of terrestrial electronic news gathering (ENG), television outside broadcast and electronic field production systems) that the existing spectrum used for the ENG is insufficient to meet anticipated demands, including for HDTV ENG where wideband links are required. This conclusion is based on an inventory, provided in this report, of the bands used for ENG links.

2. As identified in Report ITU-R BT.2069, the following general applications need to be taken into account while determining the spectrum needs for ENG¹:

- Field use applications
- Field transmission applications
- Fleet / airborne transmission applications and mobile repeater applications

3. While many countries have made spectrum allocations for ENG links within their national regulatory framework, ABU members are of the view that spectrum planning in all countries could benefit from harmonisation. However, such spectrum planning may impact on the existing applications in other services, including broadcasting services.

¹ For the purpose of this text, ENG represents all applications ancillary to broadcasting, such as terrestrial electronic news gathering, electronic field production, TV outside broadcast, wireless radio microphones and radio outside production and broadcast.

4. Examples of frequency bands, which are currently used for ENG applications, are described in Recommendations ITU-R F. 1777 and M. 1824. These bands need to be addressed while developing a harmonized frequency spectrum regime.

5 . There has been substantial growth in the use of the frequency bands between 500 MHz and 10 GHz by several radiocommunication services. This has adversely impacted provision of sufficient regional harmonisation of spectrum to meet the needs of ENG applications. Bands between 500 MHz and 10 GHz are optimal for use by ENG and it is, therefore, necessary to find regional harmonisation for ENG usage in these bands.

6. Broadcasters use a wide range of frequencies for ENG applications. These applications are essential for the production of programmes for news, disaster reporting, sports, and entertainment. ABU members expect a shortage of spectrum in near future for ENG applications: there is a growing demand for such applications, new technologies (e.g. HDTV) require larger bandwidths and there is a reduction of frequency bands available for these applications (e.g. the 790-862 MHz, the 2500-2670 MHz).

7. According to Recommendations ITU-R F. 1777 and M. 1824, it has been found that some ENG links (such as EFP and audio links) operate more efficiently in bands below 3 GHz with better propagation over even difficult paths and result in more successful link establishment. Additionally, digital ENG equipment can more easily be used for mobile applications at these lower frequency bands. These aspects need to be addressed.

8. Co-siting requirements of multiple ENG links, while covering an event, need to be met and the related coordination of spectrum tuning ranges should be managed according to this requirement.

9. Advance notice for coverage of news events by ENG is always short and set-up time even shorter. This is due to the very nature of the application with television broadcasting. As the time at hand generally may not allow pre-coordination, the frequency spectrum environment should be managed in a way to facilitate ENG link operation through regional harmonisation, particularly events requiring cross border coverage such as natural disasters.

10. As a wide diversity of ENG link equipment is currently available from the manufacturers, and also with the ENG link operators, with frequency bands ranging from 800 MHz to 17 GHz, this important aspect of harmonisation needs to be addressed.

11. The ABU seeks support for the regional harmonisation of tuning ranges for ENG as the method to ensure that no harmful interference is encountered by ENG applications or inflicted upon other services during the course of deployment and operation in all locations. This will be facilitated by effective coordination across borders as a result of well defined tuning ranges.

For information purposes

Views of some ABU members on some regulatory issues

The following regulatory issue has been considered by ABU members. While some members are in agreement with the regulatory approach, others are not in favour of such regulatory approach.

ADD

RESOLUTION [XXX-ENG-ABU] (WRC-12)

Development of ITU-R Recommendations and Reports on worldwide/regional harmonization of Tuning ranges¹ for terrestrial electronic news gathering² systems

The World Radiocommunication Conference (Geneva, 2012),

considering

- a) that the use of terrestrial portable and transportable radio equipment by services ancillary to broadcasting and programme making, commonly described as electronic news gathering (ENG), operating in the bands allocated to the broadcasting³, fixed and mobile services has become an important element in the comprehensive coverage of a wide range of internationally noteworthy events, including natural disasters;
- b) that, in some situations, studies within ITU-R may indicate that sharing may be feasible between ENG applications and other fixed and mobile service applications;
- c) that Report ITU-R BT.2069 provides a conclusion that the existing spectrum used for ENG is insufficient to meet anticipated demands;
- d) that a wide diversity of ENG link equipment is currently available from the manufacturers, and also with the broadcasters and/or ENG operators and this important aspect of regional harmonization needs to be addressed;
- e) that operational constraints often introduces problems for administrations as little advance notice is often provided for some ENG requirements, which minimizes the possibility for pre-coordination, however frequency spectrum harmonization of tuning ranges would facilitate ENG link operation, particularly at events requiring cross-border coverage, such as natural disasters;
- f) that digitization provides an opportunity for more efficient spectrum usage for ENG that could assist in meeting a growth in demand for spectrum by these systems;
- g) that modular design and miniaturization of terrestrial ENG systems has increased the portability for such equipment and has thus increased the trend towards cross-border operation of ENG equipment;
- h) that relevant ITU Recommendations and Reports can assist administrations in addressing ENG operations;
- i) that Recommendation ITU-R M.1824 provides system characteristics of television outside broadcast, electronic news gathering (ENG) and electronic field production (EFP) in the mobile service for use in sharing studies;

¹ In the context of this Recommendation/Resolution, the term “tuning range” means a range of frequencies over which radio equipment is envisaged to be capable of operating but limited to specific frequency band(s) according to national conditions and requirements.

² For the purpose of this text, ENG represents all applications ancillary to broadcasting, such as terrestrial electronic news gathering, electronic field production, TV outside broadcast, wireless radio microphones and radio outside production and broadcast.

³ Within some administrations ENG applications are assigned within bands other than those allocated to the fixed and mobile services, for example wireless microphones can/may operate in bands allocated to the broadcasting services. Also, within some administrations, the use of such microphones is based on the condition that they shall not cause harmful interference to, nor claim protection from, other applications in neighbouring countries.

- j) that Recommendation ITU-R F.1777 provides system characteristics of television outside broadcast, electronic news gathering and electronic field production in the fixed service for use in sharing studies;
- k) that Report ITU-R BT.2069 provides spectrum usage and operational characteristics of terrestrial ENG, television outside broadcast (TVOB) and EFP systems;
- l) that Recommendation ITU-R M.1637 addresses issues to be considered in order to facilitate the global circulation of radiocommunication equipment to be used in emergency and disaster relief situations,

noting

that worldwide/regional harmonization of spectrum for use by terrestrial ENG systems should be beneficial for the administrations in their national spectrum planning and to the ENG equipment users in covering the events internationally,

recognizing

- a) that access to a globally harmonized spectrum in terms of agreed tuning ranges is highly desirable to facilitate the rapid and less restrictive deployment and operation of ENG systems from one country to another;
- b) that the dynamic nature of the use of ENG is driven by scheduled and unscheduled events such as breaking news, emergencies and disasters;
- c) that news gathering and electronic production typically take place in an environment where several television broadcasters/organizations/networks attempt to cover the same event, creating a demand for multiple ENG links which results in an increased demand for access to spectrum in suitable frequency bands;
- d) that harmonization of tuning ranges for ENG usage does not preclude the use of these bands for any other application which falls within the service allocation applicable to these bands, nor establish any priority for ENG applications with respect to any other use of these bands,

resolves

- 1 to invite ITU-R to develop, as a matter of urgency, Recommendations and Reports on worldwide / regional harmonisation of the tuning ranges for ENG usage to assist administrations in carrying out ENG applications more efficiently.
- 2 to encourage administrations to consider the ITU-R Recommendations and Reports on worldwide / regional harmonisation of the tuning ranges for ENG usage referred to in *resolves* 1, taking into account the national and regional requirements and also having regard to any needed consultation and cooperation with other concerned countries.

SUP

RESOLUTION 954 (WRC-07)

**Harmonization of spectrum for use by terrestrial
electronic news gathering systems**

AGENDA ITEM 1.13

1.13 to consider the results of ITU-R studies in accordance with Resolution 551 (WRC-07) and decide on the spectrum usage of the 21.4-22 GHz band for the broadcasting-satellite service and the associated feeder-link bands in Regions 1 and 3;

Resolution 551 (WRC-07): *Use of the band 21.4-22 GHz for broadcasting-satellite service and associated feeder-link bands in Regions 1 and 3.*

WARC-92 allocated the band 21.4-22.0 GHz in Regions 1 and 3 to the BSS to be implemented after 1 April 2007. The use of the band since 1992 was subject to an interim procedure in accordance with Resolution 525 (WARC-92 and Rev.WRC-03).

In the interim procedures of Resolution 525 (Rev.WRC-07) it is indicated that after 1 April 2007 all services other than the BSS in the band 21.4-22.0 GHz in Regions 1 and 3 operating in accordance with the Table of Frequency Allocations may operate subject to not causing harmful interference to BSS (high-definition television (HDTV)) systems nor claiming protection from such systems.

Resolution 551 (WRC-07) *resolves* that ITU-R continue technical and regulatory studies on harmonization of spectrum usage, including planning methodologies, coordination procedures or other procedures, and BSS technologies, in preparation for WRC-12, in the 21.4-22 GHz band and the associated feeder-link bands in Regions 1 and 3, taking into account *considering h) and i)*. Resolution 551 (WRC-07) also *resolves* that WRC-12 review the results of the studies and decide the usage of the 21.4-22 GHz band and the associated feeder-link bands in Regions 1 and 3.

ABU Views

1. The 21.4-22.0 GHz band has been recognized as one of the most favourable frequency bands in which advanced digital satellite broadcasting applications which require larger bandwidth capacity than ever before can be successfully implemented. Those applications include UHDTV (Ultra High Definition Television), 3DTV (Three Dimensional Television), VIS (Digital Multimedia Video Information System), Multi-channel HDTV, LSDI (Large Screen Digital Imagery) and EHRI (Extremely High Resolution Imagery) which have been studied in Study Group 6 to enhance the broadcasting services.
2. The ABU generally supports current technical and regulatory studies in ITU-R in accordance with Resolution 551 (WRC-07) to decide on the technical arrangements and spectrum usage of the 21.4–22.0 GHz band for the broadcasting-satellite service.
3. The ABU view is that ‘a priori’ planning is not necessary and should be avoided as it freezes access according to technological assumptions at the time of planning and then prevents flexible use taking account of real world demand and technical developments.
4. The arrangements arrived at WRC-12 should take into account the need for ensuring the availability of the 21.4-22 GHz band BSS spectrum to all countries.

5. In order to overcome the large rain attenuation in Region 3 countries, the pfd value of -105 dB(W/(m²·MHz)) should be considered as the maximum pfd at the Earth's surface in studies on sharing for the BSS in the band 21.4-22.0 GHz.

6. The ABU recognizes the status of 'super primary' which is provided to Regions 1 and 3 BSS in the band 21.4-22.0 GHz, with respect to other services in Regions 1 and 3 in accordance with Resolution 525 (Rev. WRC-07).

7. The ABU supports a continuous band of 600 MHz that can be used for associated feeder-links of the BSS in the band 21.4-22.0 GHz, without a reduction of the frequency band already allocated to the FSS for use by BSS feederlinks.

8. The ABU supports a regulatory framework defined in the relevant sections of the CPM Report to WRC-12 by Methods A and B on Issue A, Method B2 on Issue B and Methods C2a, C2c, C3 on Issue C.

ABU Position

ABU Position/1.13/1

SUP

5.530

Reasons: The regulatory content of Resolution **525 (Rev.WRC-07)** is no longer required.

MOD

¹⁸ **11.37.2** When a frequency assignment to a space station in the broadcasting-satellite service in a non-planned band **other than the 21.4-22 GHz band** is recorded in the Master Register, a note shall be entered in the remarks column indicating that such recording does not prejudice in any way the decisions to be included in the agreements and associated plans referred to in Resolution **507**.

Reasons: Following a decision by WRC-12, the status of BSS in the 21.4-22 GHz band should not be subject to modifications in the near future. Therefore, Resolution **507 (Rev.WRC-03)** should not be applicable to the 21.4-22 GHz band.

ABU Position/1.13/2

MOD

RESOLUTION 507 (Rev.WRC-~~03~~12)

**Establishment of agreements and associated plans
for the broadcasting-satellite service¹**

¹ This Resolution does not apply to the 21.4-22 GHz band.

Reasons: Following a decision by WRC-12, the status of BSS in the 21.4-22 GHz band should not be subject to modifications in the near future. Therefore, Resolution **507 (Rev.WRC-03)** should not be applicable to the 21.4-22 GHz band.

ABU Position/1.13/3

SUP

RESOLUTION 525 (Rev.WRC-07)

**Introduction of high-definition television systems
of the broadcasting-satellite service in the
band 21.4-22.0 GHz in Regions 1 and 3**

Reasons: The regulatory content of the Resolution is no longer required.

ABU Position/1.13/4

SUP

RESOLUTION 551 (WRC-07)

**Use of the band 21.4-22 GHz for broadcasting-satellite service
and associated feeder-link bands in Regions 1 and 3**

Reasons: Resolution no longer needed.

ABU Position/1.13/5

MOD

ARTICLE 9

**Procedure for effecting coordination with or
obtaining agreement of other administrations^{1, 2, 3, 4, 5, 6, 7, 8} (WRC-07)**

⁴ A.9.4 Resolution 49 (Rev.WRC-~~2000~~12)** and Resolution [\[B113-DUE DILIGENCE\] \(WRC-12\)](#) shall also be applied with respect to those satellite networks and satellite systems that are subject to it. (WRC-12000)

Reasons: Due diligence requirements for BSS networks in the 21.4-22 GHz band will be under the new Resolution.

ABU Position/1.13/6

MOD

ARTICLE 11 Notification and recording of frequency assignments^{1, 2, 3, 4, 5, 6, 7}

² **A.11.2** Resolution 49 (Rev.WRC-2000~~12~~) and Resolution [B113-DUE DILIGENCE] (WRC-12) shall also be applied with respect to those satellite networks and satellite systems that are subject to it.

11.44 The notified date²⁰ of bringing into use of any assignment to a space station of a satellite network shall be not later than seven years following the date of receipt by the Bureau of the relevant complete information under No. 9.1 or 9.2, as appropriate. Any frequency assignment not brought into use within the required period shall be cancelled by the Bureau after having informed the administration at least three months before the expiry of this period.

²⁰ **11.44.1** In the case of space station frequency assignments that are brought into use prior to the completion of the coordination process, and for which the Resolution 49 (Rev.WRC-0312)* data or Resolution [B113-DUE DILIGENCE] (WRC-12) data, as appropriate, have been submitted to the Bureau, the assignment shall continue to be taken into consideration for a maximum period of seven years from the date of receipt of the relevant information under No. 9.1. If the first notice for recording of the assignments in question under No. 11.15 has not been received by the Bureau by the end of this seven-year period, the assignments shall no longer be taken into account by the Bureau and administrations. The Bureau shall inform the notifying administration of its pending actions three months in advance.

In the case of satellite networks for which relevant advance publication information has been received prior to 22 November 1997, the corresponding period will be nine years from the date of publication of this information. (WRC-2000)

ABU Position/1.13/7

MOD

RESOLUTION 49 (Rev.WRC-0712)

Administrative due diligence applicable to some satellite radiocommunication services

resolves

1 that the administrative due diligence procedure contained in Annex 1 to this Resolution shall be applied as from 22 November 1997 for a satellite network or satellite system of the fixed-satellite service, mobile-satellite service or broadcasting-satellite service, except the broadcasting-satellite service in the band 21.4-22.0 GHz in Regions 1 and 3, for which the advance publication information under No. 9.2B, or for which the request for modifications of the Region 2 Plan under Article 4, § 4.2.1 b) of Appendices 30 and 30A that involve the addition of new frequencies or orbit positions, or for which the request for modifications of the Region 2 Plan under Article 4, § 4.2.1 a) of Appendices 30 and 30A that extend the service area to another country or countries in addition to

the existing service area, or for which the request for additional uses in Regions 1 and 3 under § 4.1 of Article 4 of Appendices 30 and 30A, or for which the submission of information under supplementary provisions applicable to additional uses in the planned bands as defined in Article 2 of Appendix 30B (Section III of Article 6) has been received by the Bureau from 22 November 1997, or for which submission under Article 6 of Appendix **30B (Rev.WRC-07)** is received on or after 17 November 2007, with the exception of submissions of new Member States seeking the acquisition of their respective national allotments¹ for inclusion in the Appendix **30B** Plan;

ANNEX 1 TO RESOLUTION 49 (Rev.WRC-0712)

1 Any satellite network or satellite system of the fixed-satellite service, mobile-satellite service or broadcasting-satellite service with frequency assignments that are subject to coordination under Nos. **9.7, 9.11, 9.12, 9.12A** and **9.13** and Resolution **33 (Rev.WRC-03)**, with the exception of broadcasting-satellite service submissions in the band 21.4-22.0 GHz in Regions 1 and 3, shall be subject to these procedures.

Reasons: Due diligence requirements for BSS networks in the 21.4-22 GHz band will be under the new Resolution. Consequently, Resolution **49 (Rev.WRC-12)** will no longer be applicable for BSS networks in this band.

ABU Position/1.13/8

ADD

DRAFT RESOLUTION [B113-DUE DILIGENCE] (WRC-12)

Long-term access to and development in the band 21.4-22.0 GHz in Regions 1 and 3

The World Radiocommunication Conference (Geneva, 2012),

considering

- a) that WARC-92 allocated the band 21.4-22.0 GHz in Regions 1 and 3 to the broadcasting-satellite service (BSS) to be implemented after 1 April 2007;
- b) that the use of the band since 1992 was subject to an interim procedure in accordance with Resolution **525 (WARC-92, Rev.WRC-03** and **Rev.WRC-07)**;
- c) that Resolution **551 (WRC-07)** instructs ITU-R to continue technical and regulatory studies on harmonization of spectrum usage, coordination procedures or other procedures, and BSS technologies, in preparation for WRC-12, in the 21.4-22 GHz band and the associated feeder-link bands in Regions 1 and 3;
- d) that Article 44 of the ITU Constitution sets out the basic principles for the use of the radio-frequency spectrum and the geostationary-satellite and other satellite orbits, taking into account the needs of developing countries,

resolves

1 that the administrative due diligence procedures contained in the Annexes to this Resolution shall be applied as from 17 February 2012 to satellite networks of the broadcasting-satellite service in the 21.4-22.0 GHz band, for which notification or confirmation of the date of bringing into use

¹ See § 2.3 of Appendix **30B (Rev.WRC-07)**.

under the provisions of No. **11.44** or **11.47**, as appropriate, was not received by the Bureau before 17 February 2012; Resolution **49 (Rev.WRC-12)** shall not apply to such satellite networks;

2 that for a satellite network of the broadcasting-satellite service in the 21.4-22.0 GHz band, for which notification or the confirmation of the date of bringing into use under the provisions of No. **11.44** or **11.47** was received by the Bureau before 17 February 2012, the responsible administration shall submit to the Bureau not later than 17 April 2012 the complete due diligence information in accordance with Annex 2 to this Resolution;

3 that the information to be submitted in accordance with *resolves* 2 above shall be signed by an authorized official of the notifying administration or of an administration that is acting on behalf of a group of named administrations, an authorized official of the spacecraft manufacturer and an authorized official of the launch services provider;

4 that if the due diligence information specified in *resolves* 2 above is found to be incomplete, the Bureau shall immediately request the administration to submit the missing information within 30 days;

5 that if the due diligence information specified in *resolves* 2 above is not received by the Bureau before the expiry date specified in *resolves* 2 or 4 above, as appropriate, the frequency assignments in the satellite network of the broadcasting-satellite service in the 21.4-22.0 GHz band shall no longer be taken into account by the Bureau and administrations and shall be cancelled by the Bureau. The Bureau shall publish this information in the BR IFIC;

6 that for satellite networks covered under *resolves* 2 above, the provisions of §§ 9 to 15 of Annex 1 to this Resolution may also apply, as applicable, after the original submission of information in accordance with Annex 2 to this Resolution on 17 April 2012,

further resolves

that the procedures in this Resolution are in addition to Articles **9** or **11** of the Radio Regulations and associated provisions, as applicable,

instructs the Director of the Radiocommunication Bureau

to report to future competent world radiocommunication conferences on the results of the implementation of this Resolution.

ANNEX 1 TO DRAFT RESOLUTION [B113-DUE DILIGENCE] (WRC-12)

1 Any satellite network of the broadcasting-satellite service in the 21.4-22.0 GHz band for which notification or confirmation of the date of bringing into use under the provisions of No. **11.44** or **11.47** was not received by the Bureau before 17 February 2012 shall be subject to these procedures.

2 Within [30/45] days after the actual date of bringing into use, as of 17 February 2012, of a satellite network of the broadcasting-satellite service in the 21.4-22.0 GHz band, the notifying administration shall send to the Bureau the confirmation of the date of bringing into use. The notifying administration shall send to the Bureau the complete due diligence information for the network specified in Annex 2 to this Resolution before the expiry of the period for bringing the satellite network into use as specified in No. **11.44**.

3 The information to be submitted in accordance with § 2 above shall be signed by an authorized official of the notifying administration or of an administration that is acting on behalf of a group of named administrations.

4 If the spacecraft is used for the first time under this Resolution, the due diligence information to be submitted in accordance with § 2 above shall be additionally signed by an authorized official of the spacecraft manufacturer and an authorized official of the launch services provider.

5 On receipt of the due diligence information under § 2 above, the Bureau shall publish the “as received” information on its website within 15 days.

6 On receipt of the due diligence information under § 2 above, the Bureau shall promptly examine that information for completeness. If the information is found to be complete, the Bureau shall publish the complete information in a special section of the BR IFIC within not more than two months.

7 If the information is found to be incomplete, the Bureau shall request the administration to submit the missing information within 30 days.

8 A minimum of [X] days after the receipt of the complete due diligence information under § 2 above, the responsible notifying administration or administration that is acting on behalf of a group of named administrations could apply appropriate measures under § 9, if required.

9 The due diligence information submitted in accordance with § 2 and *resolves* 2 above shall be updated and resubmitted to the Bureau by the responsible notifying administration or administration that is acting on behalf of a group of named administrations not later than [30] days after the end of life or the relocation of the spacecraft associated with the notification under § 2 above.

10 In case of end of life of a spacecraft already used under this Resolution, the responsible notifying administration or administration that is acting on behalf of a group of named administrations shall inform the Bureau within [30] days after the event such the Bureau will take appropriate action to delete the corresponding ITU number associated to such spacecraft.

11 On receipt of the due diligence information under § 9 above, the Bureau shall publish the “as received” information on its website within 15 days.

12 On receipt of the due diligence information under § 9 above, the Bureau shall promptly examine that information for completeness. If the information is found to be complete, the Bureau shall publish the complete information in a special section of the BR IFIC within not more than two months.

13 If the information is found to be incomplete, the Bureau shall request the administration to submit the missing information within 30 days.

14 If the complete due diligence information specified in § 9 above is not received by the Bureau in the time-limits specified in this Resolution under §§ 9 and 13 above, as appropriate, the due diligence information and the confirmation of the date of bringing into use shall be considered as invalid and the Bureau shall immediately inform the administration and take the appropriate measures under § 15, if required.

15 After the end of the seven-year period from the date of receipt of the relevant information under No. **9.1**, if the confirmation of the date of bringing into use or the complete due diligence information for satellite network frequency assignments are not received by the Bureau, or if the due diligence information or the confirmation of the date of bringing into use of satellite network frequency assignments are considered as invalid under § 14, the frequency assignments shall no longer be taken into account by the Bureau and administrations and shall be cancelled by the Bureau. The Bureau shall publish this information in the BR IFIC.

ANNEX 2 TO DRAFT RESOLUTION [B113-DUE DILIGENCE] (WRC-12)

Due diligence information

- 1) Identity of the satellite network
 - a) Identity of the satellite network
 - b) Name of the administration

- c) Country symbol
 - d) Orbital characteristics
 - e) Reference to the advance publication information
 - f) Reference to the request for coordination
 - g) Frequency band(s) included on the satellite network filing
 - h) First date of bringing into use in accordance with § 1 of Annex 1
 - i) Regulatory status (*tick box*)
 - Satellite network under operation (only § 2 data should be provided)
 - or
 - Satellite network suspended (only § 3 data should be provided)
- 2) Identity of the spacecraft² (if satellite network filing is under operation)
- a) ITU ID number
 - or
 - a) Spacecraft manufacturer
 - Name of the spacecraft manufacturer
 - Date of execution of the contract
 - Delivery date
 - b) Launch services provider
 - Name of the launch vehicle provider
 - Date of execution of the contract
 - Launch date
 - Name of the launch vehicle
 - Name and location of the launch facility
 - c) Frequency band(s) present on board the spacecraft within the band 21.4-22 GHz
- 3) Suspension information (if satellite network filing is suspended)
- a) Date of suspension
 - b) Planned date of bringing back into regular use.

² If the spacecraft is used for the first time under this Resolution, fields “Spacecraft manufacturer”, “Launch services provider” and “Frequency band(s) present on-board on the spacecraft” shall be supplied. Otherwise, if the spacecraft was already used under this Resolution associated to another satellite network, the ID number given by the Bureau at that time shall be indicated.

ABU Position/1.13/9

ARTICLE 5

Frequency allocations

MOD

22-24.75 GHz

Allocation to services		
Region 1	Region 2	Region 3
24.65-24.75 FIXED FIXED-SATELLITE (Earth-to-space) MOD 5.535 ADD 5.A113 INTER-SATELLITE	24.65-24.75 INTER-SATELLITE RADIOLOCATION- SATELLITE (Earth-to-space)	24.65-24.75 FIXED FIXED-SATELLITE (Earth-to-space) MOD 5.535 ADD 5.A113 INTER-SATELLITE MOBILE 5.533

ABU Position/1.13/10

MOD

24.75-29.9 GHz

Allocation to services		
Region 1	Region 2	Region 3
24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) MOD 5.535 ADD 5.A113	24.75-25.25 FIXED-SATELLITE (Earth-to-space) MOD 5.535	24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) MOD 5.535 MOBILE
...		

ABU Position/1.13/11

MOD

5.535 In the band 24.75-25.25 GHz in Region 2 and in the band 24.65-25.25 GHz in Regions 1 and 3, feeder links to stations of the broadcasting-satellite service shall have priority over other uses in the fixed-satellite service (Earth-to-space). Such other uses shall protect and shall not claim protection from existing and future operating feeder-link networks to such broadcasting satellite stations.

ABU Position/1.13/12

ADD

5.A113 Use of the band 24.65-25.25 GHz in Region 1 and 24.65-24.75 GHz in Region 3 by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of [4.5] m.

ABU Position/1.13/13

MOD

ARTICLE 21

Terrestrial and space services sharing frequency bands above 1 GHz

Section V – Limits of power flux-density from space stations

TABLE 21-4 (Rev.WRC-0712)

Frequency band	Service*	Limit in dB(W/m ²) for angles of arrival (δ) above the horizontal plane			Reference bandwidth
		0°-5°	5°-25°	25°-90°	
<u>In Regions 1 and 3:</u> <u>21.4-22.0 GHz</u>	<u>Broadcasting-satellite</u>	<u>-115¹</u>	<u>-115 + 0.5(δ - 5)¹</u>	<u>-105¹</u>	<u>1 MHz</u>

¹ These limits apply only to Regions 1 and 3 BSS emissions on territories of Region 2.

ABU Position/1.13/14

MOD

18.4-22 GHz

Allocation to services		
Region 1	Region 2	Region 3
21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B- 5.530	21.4-22 FIXED MOBILE <u>ADD 5.XXX</u>	21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B- 5.530 5.531

ABU Position/1.13/15

ADD

5.XXX Before an administration brings into use transmitting stations of the fixed and mobile services in this band it shall ensure that the power flux-density (pfd) produced at [3] m above ground does not exceed $-XXX.X$ dB(W/(m² [1 MHz][4 kHz])) for more than [0.01%] of time at the border of the territory of any administration in Regions 1 and 3. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile and fixed services in the band 21.4-22 GHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations.

[Note: The value of the pfd should be determined in accordance with the study in ITU-R Working Party 4A. During the last meeting held in May 2011, an allowable pfd of $-114.3 \text{ dB(W/m}^2 \cdot 1 \text{ MHz)}$ as a single entry in the band 21.4 – 22.0 GHz at 3 m above the ground at [the border][any point] of the territory of any other administrations in Regions 1 and 3 for not more than 20% of the time was considered.]

ABU Position/1.13/16

MOD

18.4-22 GHz

Allocation to services		
Region 1	Region 2	Region 3
21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B– 5.530 <u>5.530</u>	21.4-22 FIXED MOBILE	21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B– 5.530 <u>5.530</u> –5.531

5.530 In Regions 1 and 3, the use of the band 21.4-22 GHz by ~~the broadcasting-satellite service is subject to the provisions of Resolution 525 (Rev.WRC-07)~~ stations in services other than the broadcasting-satellite service shall not cause harmful interference to nor claim protection from stations in the broadcasting-satellite service operating in accordance with the Table of Frequency Allocations. (WRC-0712)

Reasons: Clarify directly in RR Article 5 the regulatory situation of the 21.4-22 GHz band which is set by Resolution 525 (Rev.WRC-07).

ABU Position/1.13/17

SUP

RESOLUTION 525 (Rev.WRC-07)

Introduction of high-definition television systems of the broadcasting-satellite service in the band 21.4-22.0 GHz in Regions 1 and 3

Reasons: The regulatory content of the Resolution is transferred to RR No. 5.530.

For information purposes

Views of some ABU members on some regulatory issues

The following two regulatory issues have been considered by ABU members. While some members are in agreement with the regulatory approach, others are not in favour of such regulatory approach.

MOD

TABLE 5-1 (WRC-1207)

Technical conditions for coordination
(see Article 9)

TABLE 5-1 (continued) (WRC-1207)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. 9.7 GSO/GSO (cont.)	A station in a satellite network using the geostationary-satellite orbit (GSO), in any space radiocommunication service, in a frequency band and in a Region where this service is not subject to a Plan, in respect of any other satellite network using that orbit, in any space radio-communication service in a frequency band and in a Region where this service is not subject to a Plan, with the exception of the coordination between earth stations operating in the opposite direction of transmission	<p><u>7)</u> 21.4-22 GHz in Regions 1 and 3</p> <p><u>87)</u> Bands above 17.3 GHz, except those defined in § 3), <u>6)</u> and <u>76)</u></p> <p><u>98)</u> Bands above 17.3 GHz except those defined in § 4), <u>5)</u> and <u>75)</u></p>	<p><u>i) Bandwidth overlap, and</u></p> <p><u>ii) any network in the BSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $[\pm 6^\circ]$ of the nominal orbital position of a proposed network in the BSS</u></p> <p>i) Bandwidth overlap, and</p> <p>ii) any network in the FSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 8^\circ$ of the nominal orbital position of a proposed network in the FSS (see also Resolution 901 (Rev.WRC-07))</p> <p>i) Bandwidth overlap, and</p> <p>ii) any network in the FSS or BSS, not subject to a Plan, and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 16^\circ$ of the nominal orbital position of a proposed network in the FSS or BSS, not subject to a Plan, except in the case of a network in the FSS with respect to a network in the FSS (see also Resolution 901 (Rev.WRC-07))</p>		With respect to the space services listed in the threshold/condition column in the bands in 1), 2), 3), 4), 5), 6), 7), <u>8)</u> and <u>98)</u> , an administration may request, pursuant to No. 9.41 , to be included in requests for coordination, indicating the networks for which the value of $\Delta T/T$ calculated by the method in § 2.2.1.2 and 3.2 of Appendix 8 exceeds 6%. When the Bureau, on request by an affected administration, studies this information pursuant to No. 9.42 , the calculation method given in § 2.2.1.2 and 3.2 of Appendix 8 shall be used

TABLE 5-1 (continued) (WRC-07)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. 9.7 GSO/GSO (cont.)		109) All frequency bands, other than those in 1), 2), 3), 4), 5), 6), 7), 8) and 98), allocated to a space service, and the bands in 1), 2), 3), 4), 5), 6), 7), 8) and 98) where the radio service of the proposed network or affected networks is other than the space services listed in the threshold/ condition column, or in the case of coordination of space stations operating in the opposite direction of transmission	i) Bandwidth overlap, and ii) Value of $\Delta T/T$ exceeds 6%	Appendix 8	In application of Article 2A of Appendix 30 for the space operation functions using the guardbands defined in § 3.9 of Annex 5 of Appendix 30, the threshold/condition specified for the FSS in the bands in 2) applies. In application of Article 2A of Appendix 30A for the space operation functions using the guardbands defined in § 3.1 and 4.1 of Annex 3 of Appendix 30A, the threshold/condition specified for the FSS in the bands in 7) applies

ADD

DRAFT RESOLUTION [E113-PRIORITY ACCESS] (WRC-12)

Additional regulatory provisions for BSS networks in the band 21.4-22 GHz in Regions 1 and 3 for the enhancement of equitable access to this band

The World Radiocommunication Conference (Geneva, 2012),

considering

- a) that WARC-92 allocated the band 21.4-22.0 GHz in Regions 1 and 3 to the broadcasting-satellite service (BSS) to be implemented after 1 April 2007;
- b) that the use of the band since 1992 was subject to an interim procedure in accordance with Resolution **525 (WARC-92 and Rev.WRC-03)**;
- c) that Resolution **551 (WRC-07)** instructs ITU-R to continue technical and regulatory studies on harmonization of spectrum usage, coordination procedures or other procedures, and BSS technologies, in the 21.4-22 GHz band and the associated feeder-link bands in Regions 1 and 3;
- d) that Article 44 of the ITU Constitution sets out the basic principles for the use of the radio-frequency spectrum and the geostationary-satellite and other satellite orbits, taking into account the needs of developing countries,

considering further

- a) that *a priori* planning for BSS networks in the band 21.4-22.0 GHz in Regions 1 and 3 is not necessary and should be avoided as it freezes access according to technological assumptions at the time of planning and then prevents flexible use taking account of real-world demand and technical developments;
- b) that interim arrangements for the use of the bands are on a first-come first-served basis;
- c) that Articles 12 and 44 of the ITU Constitution lay down the basic principles for the use of the radio-frequency spectrum and the geostationary-satellite and other satellite orbits;
- d) that those principles have been included in the Radio Regulations;
- e) that Article I of the Agreement between the United Nations and the International Telecommunication Union provides that “the United Nations recognizes the International Telecommunication Union (hereinafter called “the Union”) as the specialized agency responsible for taking such action as may be appropriate under its basic instrument for the accomplishment of the purposes set forth therein”;
- f) that, in accordance with Nos. **11.30, 11.31 and 11.31.2**, notices shall be examined with respect to the provisions of the Radio Regulations, including the provision relating to the basic principles, appropriate rules of procedure being developed for the purpose,

noting

- a) that, in accordance with the provisions of No. 127 of the ITU Convention, the Conference may give instructions to the Sectors of the Union;
- b) the RRB report to WRC-2000 and WRC-03 on the application/implementation of Resolution **80** initially adopted by WRC-97;
- c) that some of the issues identified in the report referred to in *noting b)* have been considered by WRC-07,

recognizing

- a) that the “first-come first-served” concept restricts and sometimes prevents access to and use of certain frequency bands and orbit positions;

- b) the relative disadvantage for developing countries in coordination negotiations due to various reasons such as a lack of resources and expertise;
- c) the perceived differences in consistency of application of the Radio Regulations;
- d) that the submission of “paper” satellites restricts access options;
- e) that the considerable processing delays in the Radiocommunication Bureau are due to the very complex procedures required and the large number of filings submitted; these delays contribute to a coordination backlog of [X (number)] months which could extend to three years and creates uncertain regulatory situations, additional delay in the coordination process that cannot be overcome by administrations, and the possible loss of the assignment because the allotted time is exceeded,

recognizing further

- a) that at its July 2010 meeting, Working Party 4A received from the Bureau an update of its survey from the March 2010 meeting of Working Party 4A of the various submissions received by the Bureau which include BSS for Regions 1 or 3 for the 21.4-22 GHz band. This survey provides important information for the discussions under WRC-12 Agenda item 1.13;
 - b) that attached is the information provided by the Bureau, based upon the Bureau databases as of 5 March 2010 with links to the detailed information for each submission.
- The table below and the figures summarize the data provided by the Bureau and show the variations for the number of networks at the various stages:

	Advance publication information	Coordination request	Notification submission	Networks in MIFR	Resolution 49	Confirmed brought into use
October 2008	605	115	21	2	18	
September 2009	599	158	24	9	22	18
March 2010	558	199	22	11	20	19
June 2010	664	229	22	12	23	19
January 2011	703	242	20	7	18	14*

* Includes seven networks for which clarification from administration is awaited and one network suspended under No. **11.49**.

- c) that the number of filings made by some administrations as contained in the above table in this band is extremely large, which may not be realistic and may be difficult to implement within the regulatory time-limit under Article **11**;
 - d) that the number of filings (242 coordination requests received by the Bureau as of January 2011), including those referred to in *recognizing a)* above, is limiting the possibility of coordination of BSS systems submitted by other administrations,
- [Note: The above “*recognizing further, a) and b)*” need to be amended to indicate the latest statistics on the submitted networks at the time this Resolution is considered by WRC-12].

resolves

1 that administrations, in compliance with Article 44 of the ITU Constitution, review their submissions in the band 21.4-22.0 GHz received before 18 February 2012 but not yet processed by the Bureau, with a view to reducing their number of submissions, and to indicate to the Bureau the networks, before 30 June 2012, which are no longer required to be considered and processed under Articles **9** and **11**;

2 that, for submissions received before [WRC-12] but not yet processed by the Bureau, administrations shall:

2.1 seriously review their files already submitted and reduce them to the minimum absolutely necessary in order to comply with relevant provisions of the Radio Regulations and the principle enshrined in Article 44 of the ITU Constitution;

2.2 for the remaining number of reasonable filings, without any change to the initial date of receipt, modify the characteristics confirming to the range of the technical parameters by values recommended in Report [ITU-R BO.2071] and supply new values before the Bureau's examination under Article 9 or 11;

3 that the course of actions outlined in the Annex to this Resolution shall apply as a measure to provide the minimum degree of equitable access to those administrations which did not submit any satellite network in the band 21.4-22 GHz pursuant to the relevant provisions of the Radio Regulations and the principles enshrined in Article 44 of the ITU Constitution.

ANNEX TO DRAFT RESOLUTION [E113-PRIORITY ACCESS] (WRC-12)

1 The special procedures described in this Annex can only be applied by an administration or intergovernmental/subregional organization¹ which does not have any network in the MIFR nor notified under Article 11 nor coordinated or in the process of coordination under Article 9 of the Radio Regulations in the band 21.4-22.0 GHz.

2 The general principle under this procedure on how to process the network of that administration or intergovernmental/subregional organization which has not submitted any national requirement in this frequency band at the time that submitting their first national or intergovernmental/subregional requirements is as follows:

3 The networks submitted by these administrations in the order of their receipt will be given top priority, in analogy with the principles contained in Appendix 30B in case of new Member of the Union (in that Appendix all Member States have already obtained an allotment/assignment in the Plan).

4 The orbital location for networks applying the special procedure could either be specified by the notifying administration, preferably co-located with the orbital location position(s) of the national assignments in Appendices 30, 30A and/or 30B, at the time of the submission or should be selected within a specified period (not more than 6 months) by the Bureau pursuant to the request by the administration, within the arc specified at the time of submission of the responsible administration.

5 The order of priority will be implemented so as these submissions will be moved to the beginning of the Bureau's file waiting list behind all administrations which have already submitted complete information as per RR Appendix 4 data but with one single satellite network per administration which did not have any assignment/satellite network in this frequency band that were either recorded in the MIFR or notified and not yet brought into use, or coordinated or under coordination. The remaining networks submitted by other administrations waiting to be processed under Section II of Article 9 by the Bureau will be moved to the end of the waiting list of the administrations which have submitted only one network respecting their corresponding date of receipt.

6 Intergovernmental/subregional organizations could apply this procedure for [3 networks] [1 network] when all members of this subregional system do not have any assignments notified,

¹ ~~Intergovernmental/subregional organization in this context is understood to mean an organization which has networks submitted by an administration on behalf of a group of named administrations.~~

recorded in the MIFR or in the process of coordination. However, each one of the countries member of that intergovernmental/subregional organization would retain its right to apply the special procedures only in the case where it is not part of an earlier intergovernmental system that have used this procedure and provided that this administration does not have any network neither in the MIFR nor notified under Article 11 nor coordinated or in the process of coordination under Article 9 of the Radio Regulations in this frequency band.

Editor's note: The choice of using this number by intergovernmental systems [3 networks] or [1 network] is to be determined by the Conference, if this Method is adopted.

7 The notifying administration applying these special procedures (Administration "B") then needs to effect necessary coordination with other administrations that are identified as affected (Administrations "A1", "A2", etc.). In this connection, should any of these latter administrations already have satellite networks in the subject frequency band in the Bureau's coordination files and covering the national territory of Administration "B" (or national territories of named administrations that have joined the submission), they shall apply the following course of action in respect of Administration "B" which has had no submission before and having the first submission in the same frequency band and covering its national territory (territories):

- a) if the agreement of administrations "A1", "A2", etc. is required following the application of relevant procedure of Article 9 by Administration "B", in order to protect the satellite networks of administrations "A1", "A2", etc. by the Administration "B" from interference caused by the assignment proposed by the latter administration, the concerned administrations shall make every possible effort to resolve the difficulties by means of mutually acceptable adjustments to their networks;
- b) in case of continuing disagreement, and if the administrations of "A1", "A2", etc. have not communicated to the Bureau the valid information specified in Annex 2 to Resolution 49 (Rev.WRC-07), these administrations shall be deemed to have given their agreements to Administration "B" for recording in the Master Register.

8 Once the assignments of Administration "B" are recorded in the MIFR, that Administration shall bring the assignments into use within the regulatory time-limit specified in No. 11.44 and No. 11.48 together with submission of valid information specified in Annex 2 to Resolution 49 (Rev.WRC-07) and confirmation of the date of bringing into use of the subject assignment. Otherwise assignments in question shall be cancelled from the MIFR together with the associated coordination file(s) from the Bureau's database.

9 Should Administration "B" submit at a later stage a new submission intending to use the above-mentioned procedures, such submission would not benefit from the priority arrangements enshrined in Method E.

AGENDA ITEM 1.17

1.17 to consider results of sharing studies between the mobile service and other services in the band 790-862 MHz in Regions 1 and 3, in accordance with Resolution 749 (WRC-07), to ensure the adequate protection of services to which this frequency band is allocated, and take appropriate action;

Resolution 749 (WRC-07): *Studies on the use of the band 790-862 MHz by mobile applications and by other services*

Background

The services currently allocated in the frequency band 790-862 MHz in Regions 1 and 3 are the BS, FS and MS.

The frequency range 790-862 MHz is also allocated to the ARNS on a primary basis in nineteen countries of Region 1 (RR No. 5.312).

In Region 3 as well as in a number of countries of Region 1 the band 790-862 MHz has been allocated for MS for many years prior to WRC-07. WRC-07 via footnote RR No. 5.316B, allocated this band to the mobile, except aeronautical mobile, service on a primary basis for the whole of Region 1 effective from 17 June 2015.

In accordance with RR Nos. 5.316 and 5.316A sixty-seven Region 1 administrations have a primary MS allocation, which is effective until 16 June 2015, under the conditions stipulated in these footnotes. See also RR No. 5.317A, which makes reference to Resolution 224 (Rev.WRC-07).

ABU Views

1. ABU is of the view that the services already operating in the band 790-862 MHz have to be protected against interference from the entry of any new services (IMT, etc) that are considered for this band. The ABU supports the studies and conclusions reported to the CPM11-2 by the ITU-R JTG5-6 Group (DRAFT RECOMMENDATION [JTG 5-6] WRC-12 stated in CPM Report to WRC-12).
2. It must be noted that some countries in Region 3 will continue with analogue television broadcasting and some other existing services (i.e. ENG) e.g. fixed point to point links and land mobile services in Bands 470-862MHz for the foreseeable future.
3. The ABU believes that broadcasting is still a growth industry with the best improvements in technology yet to come. There is much to be gained economically by nations from such growth of broadcasting technology. Improvements like advanced DTTB systems have emerged and many are under development in some countries. More new broadcasting technology developments like 3DTV are only a couple of years away. Mobile TV reception is also on the rise. All of these technologies will need spectrum for growth.
4. Any new arrangement that may be instituted, needs to protect reception of broadcasting services in the relevant bands, retain ability to expand coverage of broadcasting services with population growth and retain the ability to improve quality services, additional services (e.g., mobile TV with current ITU-R standards), future broadcasting services such as 3DTV and broadcasting ancillary services (BAS) such as use of wireless microphones.

For information purposes

A- Views of some ABU members on some regulatory issues

The following regulatory issues have been considered by ABU members. While some members are in agreement with the regulatory approach, others are not in favour of such regulatory approach.

1. Several different cases of international coordination requirements have been recommended considering the differences arising from whether or not interfering or interfered countries are members of GE-06 or not and whether they want regional, national or multilateral resolution method for international interference. International service coordination aspects remain crucially important for all countries and for broadcasters and mobile operators in all countries. Many administrations in Region 3 believe that GE-06 agreement should not be applied to the area except Iran, and sharing criteria can be managed within the relating countries without developing any new Resolutions or Recommendations. Some members of the ABU believe that there is considerable merit in standardising sharing conditions and criteria for services and for international decisions on technical and regulatory boundary conditions for mitigation of interference. If national planning regimes are aligned with these, future introduction of new technology for both the broadcasting and the mobile services will be easier in those countries. Other members of the ABU believe that since such sharing conditions and criteria are based on the negotiations between bilateral/multilateral administrations, there is no need to develop new Resolutions/Recommendations.

Issue A:

Method A1 Option 1: No need to change current provisions in RR in force. The provisions of the GE06 Agreement continue to apply. With respect to additional arrangements to be taken to protect the BS from the MS there are three options:

No additional arrangements needed

Method A2: No need to change current provisions in RR in force.

Method A3 Option I: No need to change current provisions in RR in force. No additional arrangement needed.

NOC to the Radio Regulations

For information purposes

B- Views of some other ABU members on some regulatory issues

The following regulatory issues have been considered by ABU members. While some members are in agreement with the regulatory approach, others are not in favour of such regulatory approach.

1. Several different cases of international coordination requirements have been recommended considering the differences arising from whether or not interfering or interfered countries are members of GE-06 or not and whether they want regional, national or multilateral resolution method for international interference. International service coordination aspects remain crucially important for all countries and for broadcasters and mobile operators in all countries. In view of the above, there is considerable merit in standardising sharing conditions and criteria for services and for international decisions on technical and regulatory boundary conditions for mitigation of interference. If national planning regimes are aligned with these, future introduction of new technology for both the broadcasting and the mobile services will be easier in those countries.
2. Based on the studies and the CPM Report (section 3/1.17/4.1 “Protection of the broadcasting service for countries Contracting Members to the GE06 Agreement”), the potential impact of the cumulative effect of interference from base stations of mobile services could be significant.
3. The potential impact of the cumulative effect of interference should be taken into account as early as possible in the coordination processes referred to above.

ARTICLE 5

Allocation to services		
Region 1	Region 2	Region 3
460-470	FIXED MOBILE 5.286AA Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 5.290	
470-790 BROADCASTING	470-512 BROADCASTING Fixed Mobile 5.292 5.293	470-585 FIXED MOBILE BROADCASTING 5.291 5.298
	512-608 BROADCASTING 5.297	
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)	610-890 FIXED MOBILE 5.313A MOD 5.317A BROADCASTING
	614-698 BROADCASTING Fixed Mobile 5.293 5.309 5.311A	
	698-806 BROADCASTING Fixed MOBILE 5.313B 5.317A	
	5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311A 5.312	
790-862 FIXED BROADCASTING MOBILE except aeronautical mobile 5.316B 5.317A 5.312 5.314 5.315 5.316 5.316A 5.319	5.293 5.309 5.311A 806-890 FIXED MOBILE 5.317A BROADCASTING	
862-890 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.319 5.323	5.317 5.318	5.149 5.305 5.306 5.307 5.311A 5.320

MOD

5.317A Those parts of the band 698-960 MHz in Region 2 and the band 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). [Such](#)

implementation should be in accordance with Resolution 749 (Rev WRC-07) and Resolution 224 (Rev. WRC-~~1207~~) . This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations (Rev WRC- ~~0712~~).

MOD

RESOLUTION 224 (Rev.WRC-~~0712~~)

Use of Frequency-~~frequency~~ bands for the terrestrial component of International Mobile Telecommunications below 1 GHz

The World Radiocommunication Conference (Geneva, 2007),

considering

- a)* that International Mobile Telecommunications (IMT) is the root name, encompassing both IMT-2000 and IMT-Advanced (see Resolution ITU-R 56);
- b)* that IMT systems are intended to provide telecommunication services on a worldwide scale, regardless of location, network or terminal used;
- c)* that parts of the band 698-960 MHz in Region 2 and the band 790-960 MHz in Regions 1 and 3 are also allocated on a primary basis to the mobile service and identified for use by administrations wishing to implement International Mobile Telecommunications (IMT);
- de)* that parts of the band 806-960 MHz are extensively used in the three Regions by mobile systems;
- ed)* that IMT systems have already been deployed in the band 806-960 MHz in some countries of the three Regions;
- fe)* that some administrations are planning to use the band 698-862 MHz, or part of that band, for IMT;
- gf)* that, as a result of the transition from analogue to digital terrestrial television broadcasting, some countries are planning to make or are making the band 698-862 MHz, or parts of that band, available for applications in the mobile service (including uplinks);
- hg)* that the band 450-470 MHz is allocated to the mobile service on a primary basis in the three Regions and that IMT systems have already been deployed in some countries of the three Regions;
- ih)* that results of the sharing studies for the band 450-470 MHz are contained in Report ITU-R M.2110;
- j)* that, according to Resolution 646 (WRC-03), the bands 764-776 MHz and 794-806 MHz are currently used in some countries for Public Protection and Disaster Relief (PPDR); and the bands 806-866 MHz (in Region 2) and 806-824 MHz and 851-869 MHz (in Region 3) are currently identified for PPDR;
- ki)* that cellular mobile systems in the three Regions in the bands below 1 GHz operate using various frequency arrangements;
- lj)* that where cost considerations warrant the installation of fewer base stations, such as in rural and/or sparsely populated areas, bands below 1 GHz are generally suitable for implementing mobile systems including IMT;
- mk)* that bands below 1 GHz are important, especially for some developing countries and countries with large areas where economic solutions for low population density areas are necessary;
- nl)* that Recommendation ITU-R M.819 describes the objectives to be met by IMT-2000 in order to meet the needs of developing countries, and in order to assist them to “bridge the gap” between their communication capabilities and those in developed countries;

- ~~o#)~~ that Recommendation ITU-R M.1645 also describes the coverage objectives of IMT,
- p) that applications ancillary to broadcasting are sharing the band 470-862 MHz with the broadcasting service in all three Regions, and are expected to continue their operations in this band;
- q) that the operation of broadcasting stations and base stations in the mobile service in the same geographical area may create incompatibility issues;
- r) that it is necessary to adequately protect, *inter alia*, terrestrial television broadcasting and other systems in this band-;
- s) that sharing studies for the band 790-862 MHz, carried-out by ITU-R, showed that the potential impact of the cumulative effect of interference from base stations, which individually did not trigger the need for coordination with broadcasting, could be significant;

recognizing

- a) that cellular-based mobile networks' evolution to IMT can be facilitated if they are permitted to evolve within their current frequency bands;
- b) that the band 450-470 MHz and parts of the bands 746-806 MHz and 806-862 MHz are used extensively in many countries by various other terrestrial mobile systems and applications, including public protection and disaster relief radiocommunications (see Resolution **646 (WRC-03)**);
- c) that there is a need, in many developing countries and countries with large areas of low population density, for the cost-effective implementation of IMT, and that the propagation characteristics of frequency bands below 1 GHz identified in Nos **5.286AA** and **5.317A** result in larger cells;
- d) that the band 450-470 MHz, or parts of that band, is also allocated to services other than the mobile service;
- e) that the band 460-470 MHz is also allocated to the meteorological-satellite service in accordance with No. **5.290**;
- f) that the frequency band 470-806/862 MHz is allocated to the broadcasting service on a primary basis in all three Regions and used predominantly by this service, and that the GE06 Agreement applies in all Region 1 countries, except Mongolia, and in the Islamic Republic of Iran in Region 3;
- g) that the GE06 Agreement contains provisions for the terrestrial broadcasting service and other primary terrestrial services, a Plan for digital television, and a list of stations of other primary terrestrial services;
- h) that the transition from analogue to digital television is expected to result in situations where the band 470-806/862 MHz will be used extensively for both analogue and digital terrestrial transmission, and the demand for spectrum during the transition period may be even greater than the stand-alone usage of analogue broadcasting systems;
- i) that the time-frame and transition period for analogue to digital television switchover may not be the same for all countries;
- j) that, after analogue to digital television switchover, some administrations may decide to use all or parts of the band 698-806/862 MHz for other services to which the band is allocated on a primary basis, in particular the mobile service for the implementation of IMT, while in other countries the broadcasting service will continue to operate in that band;
- k) that in the band 470-862 MHz, or parts of that band, there is an allocation on a primary basis for the fixed service;
- l) that, in some countries, the band 698-806/862 MHz is allocated to the mobile service on a primary basis;
- m) that the band 645-862 MHz is allocated on a primary basis to the aeronautical radionavigation service in the countries listed in No. **5.312**;

n) that the Radio Regulations provide that the identification of a given band for IMT does not preclude the use of that band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations;

o#) that the compatibility of the mobile service with the broadcasting, fixed and aeronautical radionavigation service in the band referred to in *recognizing k)* and *m)* will need further study in ITU-R,

p) that the use of spectrum for different services should take into account the need for sharing studies;

emphasizing

a) that in all administrations terrestrial broadcasting is a vital part of the communication and information infrastructure;

b) that flexibility must be afforded to administrations:

– to determine, at a national level, how much spectrum to make available for IMT from within the identified bands, taking into account current uses of the spectrum and the needs of other applications;

– to develop their own transition plans, if necessary, tailored to meet their specific deployment of existing systems;

– to have the ability for the identified bands to be used by all services having allocations in those bands;

– to determine the timing of availability and use of the bands identified for IMT, in order to meet particular market demand and other national considerations;

c) that the particular needs and national conditions and circumstances of developing countries, including least-developed countries, highly-indebted poor countries with economies in transition, and countries with large territories and territories with a low-subscriber density, must be met;

d) that due consideration should be given to the benefits of harmonized utilization of the spectrum for the terrestrial component of IMT, taking into account the current and planned use of these bands by all services to which these bands are allocated;

e) that the use of frequency bands below 1 GHz for IMT also helps to “bridge the gap” between sparsely-populated areas and densely-populated areas in various countries;

f) that the identification of a band for IMT does not preclude the use of this band by other services or applications to which it is allocated;

g) that the use of the band 470-862 MHz by the broadcasting service and other primary services is also covered by the GE06 Agreement;

h) that the requirements of the different services to which the band is allocated, including the mobile and broadcasting services, need to be taken into account;;

i) that Administrations benefit from using ITU-R Recommendations and Reports, based on ITU-R sharing studies, to assist them in their bilateral and multilateral coordination,

resolves

1 that administrations which are implementing, or planning to implement IMT, consider the use of bands identified for IMT below 1 GHz and the possibility of cellular-based mobile networks’ evolution to IMT, in the frequency band identified in Nos 5.286AA and **5.317A**, based on user demand and other considerations;

2 to encourage administrations to take into account the results of the ITU-R studies referred to in *invites ITU-R* below, and any recommended measures when implementing applications/systems

in the bands 790-862 MHz in Region 1 and Region 3, in the band 698-806 MHz in Region 2, and in those administrations mentioned in No. 5.313A ;

3 that administrations should take into account the need to protect the existing and future broadcasting stations, both analogue and digital, in the 470-806/862 MHz band, as well as other primary terrestrial services;

4 that administrations planning to implement IMT in the bands mentioned in *resolves* 2 shall effect coordination with all neighbouring administrations prior to implementation;

5 that in Region 1 (excluding Mongolia) and in the Islamic Republic of Iran the implementation of stations in the mobile service shall be subject to the applications of procedures contained in the GE06 Agreement. In so doing:

a) administrations which deploy stations in the mobile service for which coordination was not required, or without having obtained the prior consent of those administrations that may be affected, shall not cause unacceptable interference to, nor claim protection from, stations of the broadcasting service of administrations operating in conformity with the GE06 Agreement. This should include a signed commitment as required under § 5.2.6 of the GE06 Agreement;

b) administrations which deploy stations in the mobile service for which coordination was not required, or without having obtained the prior consent of those administrations that may be affected, shall not object nor prevent the entry into the GE06 plan or recording in the MIFR of additional future broadcasting allotments or assignments of any other administration in the GE06 Plan with reference to those stations;

6 that, in Region 2, implementation of IMT shall be subject to the decision of each administration on the transition from analogue to digital television;;

7 that ITU-R should develop Recommendations and Reports to assist Administrations in carrying out their bilateral / multilateral coordination when mobile service, including IMT, and broadcasting service operate in the band 790-862 MHz in Regions 1 and 3, taking into account the available results of ITU-R studies;

invites ITU-R

1 to develop Recommendations and Reports, in reference to *resolves* 7 above, describing i) a calculation procedure to assist Administrations in identifying the assignments in the mobile service that should be considered in the coordination, taking into account the cumulative effect of interference and ii) a methodology that administrations may apply in their bi- and multilateral coordination to take into account the cumulative effect of interference from the mobile service to the broadcasting service;

2 to complete the studies, as appropriate, study-of the potential use of the band 790-862 MHz in Region 1 and Region 3, the band 698-806 MHz in Region 2 and in those administrations mentioned in No. 5.313A in Region 3 by new mobile and broadcasting applications, including the impact on the GE06 Agreement, where applicable, and to develop ITU-R Recommendations on how to protect the services to which these bands are currently allocated, including the broadcasting service and in particular the GE06 Plan, as updated, and its future developments;

~~2 in the frequency bands mentioned in *invites ITU-R* 1, to study compatibility between mobile systems with different technical characteristics and provide guidance on any impact the new considerations may have on spectrum arrangements;~~

~~3 to include the results of the studies referred to in *invites ITU-R* 2, and in particular harmonization measures for IMT, in one or more ITU-R Recommendations by 2010;~~

42 to develop harmonized frequency arrangements for the 450-470 MHz band for operation of the terrestrial component of IMT, taking into account *considering i/h*) above,

invites the Director of the Telecommunication Development Sector
to draw the attention of the Telecommunication Development Sector to this Resolution.
