WRC-12: Use of 21.4-22GHz band & ENG harmonisation get the nod

BY DR ALI R EBADI

The World Radiocommunication Conference 2012 (WRC-12) held in Geneva, Switzerland, from January 23-February 17 successfully addressed more than 30 agenda items on regulatory and technical matters relating to all types of radiocommunication services. Among the agenda items relevant to broadcasting were the use of the 21.4-22GHz band as well as its associated feeder link bands for broadcast satellite service (BSS) in ITU Region 1 (Africa, Europe, Russia) and Region 3 (Asia), and the harmonisation of spectrum for electronic newsgathering (ENG).

The use of the 21.4-22GHz band for BSS

Under this agenda item, three main issues were addressed during the conference:

- The regulatory mechanisms for the use of the 21.4-22GHz band between BSS networks.
- Allocation of feeder link bands for BSS.
- Regulatory measures for sharing between BSS networks and terrestrial services.

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The regulatory mechanisms for the use of the 21.4-22GHz band between BSS networks

On the issue of regulatory mechanisms between BSS networks, the following principles were discussed and reflected in the outcome: The first come, first served basis; improvements to the due diligence procedure; reduction of coordination arc; special procedure with priority; review/reduction of filing submissions; and the use of homogenous technical parameters.

The conference decided that the current regulatory treatment of BSS networks in the 21.4-22GHz band, which is on a first come, first served basis, shall be retained as it provides the required flexibility in the design and implementation of BSS systems.

To improve the long-term access and development in the 21.4-22GHz band, WRC-12 adopted a new resolution to improve the due diligence procedure, with the aim of achieving better accuracy/consistency between satellite networks recorded in the ITU database and real satellites in operation.

An interesting feature of the improvements made was the assignment of each spacecraft with an ITU ID number, to enable easy tracking and verification of the identity of the satellite. Its purpose was to prevent one satellite from being registered as being operational in multiple orbital locations simultaneously.

In order to facilitate the coordination procedure, the coordination arc in this band was reduced from 16° to 12°. In addition, power flux density (pfd) masks are used to identify the coordination requirements of networks in this band. The use of pfd masks as a coordination trigger eases the coordination process as it encourages the submission of more homogeneous technical parameters. Concerning efforts to curb excessive submissions in the 21.4-22GHz band, administrations are urged via a new resolution to review and reduce their submissions to the absolute minimum necessary.

The conference recognised that developing countries may face obstacles in their satellite projects due to various reasons such as lack of resources and expertise. In view of this, a special procedure was developed by WRC-12 to assist these countries in accessing this band.

This procedure, as outlined in a new resolution, could only be applied once by an administration or an inter-governmental organisation, provided that none of these administrations have a network in this band at the coordination/notification stage or in the ITU database.

The submission will receive priority and be moved to the beginning of the filing-processing queue. There are restrictions in the technical parameters that could be used in the BSS system and the service area is limited to the national territory of the administration(s).

WRC-12 decided to adopt the maximum pfd of -105dB (W/(m²MHz)) in the 21.4-22GHz band in order to compensate for total link attenuation due to atmospheric effects, to achieve high annual service availability.

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Allocation of feeder link bands for BSS

On the issue of feeder link bands for BSS, the conference identified an additional 100MHz in the 24.65-24.75GHz band for ITU Region 3, which is contiguous to the existing 500MHz feeder link band in 24.75-25.25GHz.

Regulatory measures for sharing between BSS networks and terrestrial services

WRC-12 decided that BSS and terrestrial services should be on equal primary status in ITU Regions 1 and 3. The space stations in the BSS are subject to pfd limits in order to protect the terrestrial services. As the BSS receivers are not only susceptible to interference (due to the small antenna size) but are also ubiquitously located, co-existence may be feasible with only certain types of terrestrial services in the same band.

Therefore, there is footnote in the Radio Regulations encouraging administrations not to deploy mobile services in this band and to limit deployment of fixed services to point-to-point links.

In addition, pfd limits are imposed on fixed and mobile services operating at the borders of a country's national territory in order to protect the BSS receivers operating in neighbouring countries.

Harmonisation of spectrum for ENG

ENG is the use of terrestrial portable radio equipment by services ancillary to broadcasting, to provide the coverage of breaking news, disasters and emergencies, at any time and location.

ITU-Radiocommunication (ITU-R) has commenced studies on potential tuning ranges/frequency bands for worldwide/regional harmonisation of ENG, which indicate that the use of spectrum for ENG audio/video applications is highly divergent across different countries.

The term "tuning range" for ENG means a range of frequencies over which radio equipment is envisaged to be capable of operating; within this tuning range, the use in any one country of radio equipment from another country will be limited to the range of frequencies identified nationally in that one country for ENG, and will be operated in accordance with the related national conditions and requirements.

The Radiocommunication Assembly 2012 (RA-12) has developed a new resolution (ITU-R Resolution 59) to carry out studies regarding possible solutions for global/regional harmonisation of frequency bands and tuning ranges for ENG use in bands already allocated to the fixed, mobile or broadcast services, taking into account available technologies to maximise efficient and flexible use of spectrum.

WRC-12 decided no changes were necessary to the current Radio Regulations on this agenda item and studies be carried out in the relevant ITU study groups as outlined in the ITU-R Resolution 59. APB

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Dr Ali R Ebadi, an APB panellist, is a member of ITU's Radio Regulations Board. He is also senior vice-president, Space Systems Development at Measat Satellite Systems.