

Ratification of the World Radiocommunication Conference 2019 Final Acts

Purpose

- To submit Outcomes of the World Radiocommunication Conference 2019 (WRC-19) viz. Final Acts.
- **For Parliament to consider ratification of the Final Acts in accordance with Section 231 (2) of the Constitution of the Republic of South Africa**

- In line with Section 34 (1) of the Electronic Communication Act (ECA) (Act 36 of 2005), the Minister of Communication and Digital Technologies in exercising her functions represents the Republic at International fora including the ITU in respect of - **international allocation, coordination and approval of spectrum plans** applicable to the Republic, in accordance with International treaties, multi-national and bilateral agreements entered into by the Republic.
- Henceforth, the Minister signed on behalf of the Republic, the **ITU World Radiocommunication Conference 2019 (WRC-19) Final Acts**, on 22 November 2019 in Sharm El-Sheikh, Egypt at the end of WRC-19.
- WRC-19 reviewed and revised the Radio Regulations, the international treaty governing the use of the radio-frequency spectrum and the geostationary-satellite and non-geostationary-satellite orbits; as contained in the Final Acts.

- Ratification of Final Acts (Conference outcomes) as amended will serve to benefit and protect the Republic of South Africa during international coordination of radio frequency spectrum usage; co-ordination of satellite deployment to mitigate interference with national services, co-ordination and approval of any regional radio frequency spectrum plans.
- Ensures that revised Radio Regulations, the international treaty governing the use of the radio-frequency spectrum and the geostationary-satellite and non-geostationary-satellite orbits are approved by Resolution, and that those Radio Regulations impacting South Africa are updated in the National Radio Frequency Plan.

- **WRC-19 had 22 Agenda Items and 11 issues covering all radio services.**
- The following are key strategic outcomes from the WRC-19 impacting the South Africa's national policies and national radio frequency plan:
 - **Mobile Broadband** - WRC-19 allocated additional spectrum to support fifth generation (5G) network deployment, which will enhance access to mobile broadband applications and services;
 - **Broadcasting-satellite service (BSS)** – Protection of frequency assignments, providing a priority mechanism for developing countries to regain access to spectrum orbit resources. That is ensure to developing countries can deploy their own satellites.
 - **Maritime Distress and Safety System (GMDSS)** - Amended Radio Regulation to expand coverage and enhanced capabilities of **GMDSS** by adding a new **GMDSS system** – this is also meant to improve service competition in the market.
 - **Earth exploration-satellite (EESS) service** – Protection accorded to **EESS** in order to allow **EESS** use for satellite tracking, telemetry and control.

- The following are key strategic outcomes from the WRC-19 impacting the South Africa's national policies and national radio frequency plan :
 - **WiFi networks** – There has been proliferation of WiFi use, hence Regulatory provisions were revised to accommodate both indoor and outdoor usage and the growth in demand for wireless access systems, including RLANs for end-user radio connections to public or private core networks, such as WiFi, while limiting their interference into existing satellite services.
 - **Railway radiocommunication systems between train and trackside (RSTT)** – Resolution approved on Railway radiocommunication systems to facilitate the deployment of railway train and trackside systems to meet the needs of a high-speed railway environment in particular for train radio applications for improved railway traffic control, passenger safety and security for train operations;
 - **Intelligent Transport Systems (ITS)** – ITU Recommendation (standard) approved to integrate ICTs in evolving Intelligent Transport Systems (ITS) to connect vehicles, improve traffic management and assist in safer driving;

- The following key strategic outcome from the WRC-19 impacting the South Africa's national agenda:
 - **Greater gender participation and empowerment of women** – The conference declared the commitment of the Sector to gender equality, and gender balance.
 - Member-States were encouraged to increase the number of women engineers and participation by women in spectrum management and planning.

- **National implications from WRC-19**
 - **WRC-19 Final Acts - Radio Regulations came into force on January 1, 2021**
 - The DCDT and ICASA will update the 2018 National Radio-Frequency Plan with the outcomes of the WRC-19 impacting on the Republic, while ensure protection of security service spectrum, consider Government current and planned use of spectrum in line Section 34 of ECA.
 - The outlined outcomes will be taken by DCDT and ICASA as part of ongoing ‘environmental’ awareness of spectrum management trends and spectrum outlook for the next few years;
 - Parliament to consider ratification of the Final Acts, and thus Radio Regulations impacting on SA be updated in the revised NRFP in order to keep the plan current;
 - Minister to approve the revised NRFP in accordance with Section 34(2) of the ECA .

Implementation Plan & Implications

- **Legal Opinions** obtained from State Law Advisors at Justice and DIRCO:
 - DOJ&CD: ratification not in conflict with domestic laws but will require amendments to NRFP
 - OCSLA: International opinion states that the WRC final acts are not in conflict with South Africa's international obligations
- **On Stakeholders:**
 - A National Working Group on Spectrum comprising Government Departments, State Owned Companies, sectoral organisations and the private sector is in place.
 - The Security Services (as defined in Ch.11 of the Constitution), CAA, ATNS, SAWS, SAMSA, PRASA, public agencies and other private radio sector industry representatives have been heavily involved in South Africa's preparation for the resolution of WRC-19 agenda items. An Interdepartmental Committee has been established to work on WRC national issues. As the Final Acts of WRC-19 are consistent with South Africa's interests, no concerns were expressed.

- (1) That Parliament notes Outcomes of the World Radiocommunication Conference 2019 (WRC-19).
- (2) That Parliament considers ratification of the Final Acts in line with Section 231 (2) of the Constitution of the Republic of South Africa

Additional Slides:

Unpacking Key National Objectives met at WRC–19 (slides 6 &7)

Additional frequency bands: 5G

- WRC-19 reached a consensus on the identification of additional globally harmonized frequency bands for International Mobile Telecommunications (IMT), particularly for IMT-2020 (also known as 5G), facilitating diverse usage scenarios for enhanced mobile broadband, massive machine-type communications and, ultrareliable and low-latency communications:
 - global IMT identification and conditions for the frequency bands 24.25 - 27.5 GHz, 37 - 43.5 and 66 - 71 GHz, including appropriate limits and conditions to protect passive and other services.
 - Additional allocations at regional and country level were also agreed for frequency band 45.5 - 47 GHz and 47.2 - 48.2 GHz to identify IMT in the listed regions and countries.
- Provision of intelligent and secure high-speed broadband services through 5G (fixed, mobile, satellite platforms) is a key enabler for digital transformation mainly in 5 different vertical industries: the automotive, health, transport, manufacturing and public services.

Protection of Earth observation: weather prediction

- In identifying new frequencies for 5G applications, WRC-19 established conditions to protect existing services from receiving harmful interference from future mobile handsets and base stations. Of great importance was the need and priority given to protecting sensitive science services, particularly the Earth exploration-satellite service passive bands where measurements are made that are then used in weather prediction models.
- A WRC Resolution agreed on compatibility between the Earth exploration-satellite service (passive) and relevant active services, is intended to manage harmful interference that could make weather prediction increasingly less accurate.

Additional frequency bands for HAPS

- The ITU Member States agreed to identify additional radio-frequency bands for High Altitude Platform Station (HAPS) systems.
 - These easily deployable stations operating in the stratosphere (layer of the Earth's atmosphere starting at 20 kilometers above ground level) are high enough to provide services to a large area or to augment the capacity of other broadband service providers.
- The agreements reached at WRC-19 help pave the way to connect more of the world's people to the benefits of today's digital economy, particularly in underserved communities and in rural and remote areas.
- A new Resolution passed at WRC-19 also mentioned that “current technologies, such as HAPS, can be used to deliver broadband applications for broadband connectivity and disaster-recovery communications with minimal ground network infrastructure”. This can potentially enable lower-cost connectivity and faster deployment.



- The ITU Member States agreed to adopt an innovative new milestone-based approach, affecting multiple satellite deployments, for the deployment of non-geostationary satellite (NGSO) systems in specific radio-frequency bands and services.
- The agreement reached establishes regulatory procedures for the deployment of NGSOs, including mega-constellations in low-Earth orbit.
 - These NGSO systems would provide broadband Internet services to locations where access has been unreliable, expensive, or completely unavailable.
- The milestone-based approach will provide a regulatory mechanism to help ensure that the MIFR reasonably reflects the actual deployment of such NGSO satellite systems in specific radio-frequency bands and services.
- It also seeks to strike a balance between the prevention of radio-frequency spectrum warehousing, the proper functioning of coordination mechanisms, and the operational requirements related to the deployment of NGSO systems.

Spectrum for earth stations in motion

- WRC-19 agreed to a new Resolution that will boost the deployment of earth stations in motion (ESIM).
- ESIM address a complex challenge: how to provide reliable and high-bandwidth Internet services to what are literally moving targets. They provide broadband communications, including Internet connectivity, on platforms in motion.
- There are currently three types of ESIM: ESIM on aircraft (aeronautical ESIM), ESIM on ships (maritime ESIM) and ESIM on land vehicles (land ESIM). They connect people on ships, aircraft and land vehicles and ensure their safety, security and comfort on the move.



Source: inmarsat

- WRC-19 agreed introduction of additional satellite systems into the Global Maritime Distress Safety Systems (GMDSS), ending monopoly in this sector, and further reached consensus on allocation relevant spectrum to the mobile maritime-satellite service to be used for the GMDSS, while ensuring protection to radio astronomy and other existing GMDSS system.
- An enhanced recognised satellite safety service (GMDSS), especially in the far Southern Regions of our Navigation Areas and our Search and Rescue areas. South Africa does not have any Satellite Communications from a recognised satellite service provider, in the far South of our maritime area of responsibility. Here reference to the voyages of our ships to the Antarctic Base at the South Pole needs mentioning.

- Radio astronomy stations will be protected from any harmful radio interference from other space stations or satellite systems in orbit.
- New orbital slots were opened up for broadcasting satellites, providing developing countries with the opportunity to regain access to spectrum orbit resources thanks to a priority mechanism especially set for them.
- Measures were taken to ensure the continuous assistance and support for the timely implementation of new technologies, including 4G and 5G networks and services, in Palestine.
- The Conference declared the commitment of the Sector to gender equality, and gender balance.

Stakeholders are considering opportunities and risks pertaining to World Radiocommunication 2023(WRC-23) agenda across four main themes:

- **IMT and Mobile:** Consideration of further bands for IMT identification will likely be controversial, spotlighting bands below 10.5 GHz and re-opening the debate on the UHF TV broadcast bands. HIBS – a new technology proposing to provide IMT services via High Altitude Platforms – will be considered in existing IMT allocations, potentially pitting terrestrial manufacturers against disruptive competitors.
- **Aeronautical and maritime:** Adoption of new innovative digital technologies in existing HF allotments will be reviewed for aircraft safety communications, alongside possible assignment of terrestrial VHF channels for satellite use. The ongoing evolution of maritime GMDSS systems will be considered to identify any implications to maritime radio allocations.

WRC-23 Agenda: cont...

- **Science:** New allocations to both active and passive space science services will be considered, with the aim of improving earth and weather monitoring and supporting exploration of space. The rapid development of small-satellite technology has fueled this sector, and driven demand for new spectrum as more and more private and public organisations now seek access to space.
- **Satellite:** WRC-23 will examine five separate satellite issues, ranging from allocations serving satellite IoT to the possible use of satellite allocations for control and monitoring of unmanned aircraft. The global nature of satellite communications, combined with a huge increase in investment in large non-geostationary constellations, suggests that the satellite sector may dominate the next conference.

NOTE: *The National Preparatory Group has commenced with its meetings on WRC-23 examining opportunities and risks for WRC-23 agenda items*