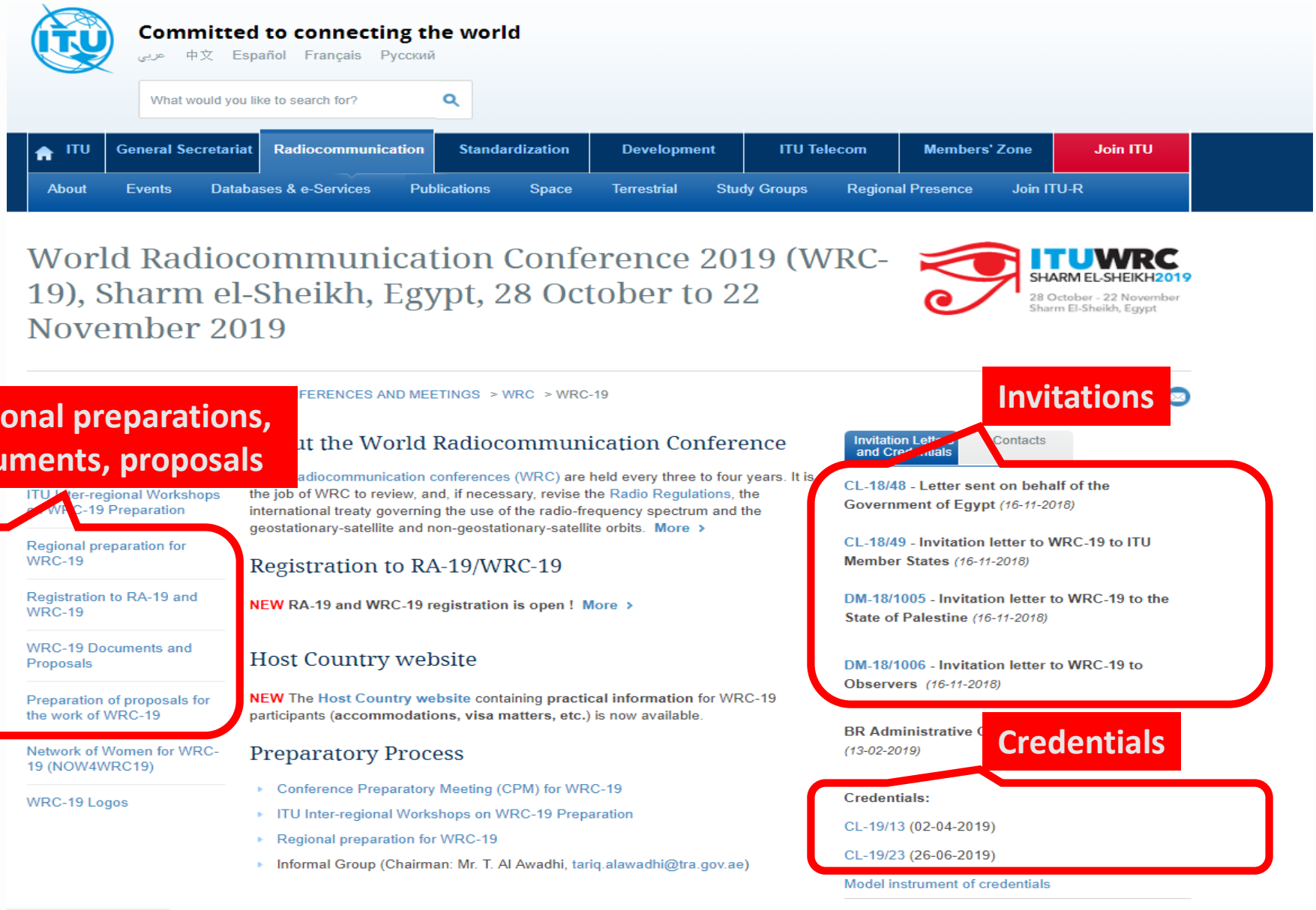
Caribbean Spectrum Management Task Force
Trinidad and Tobago 18th and 19th July 2019

Preparations for WRC-19

Radiocommunication Bureau, ITU

WRC-19 Webpage



Regional preparations, documents, proposals

Invitations

Credentials

Information on WRC-19

- **Registration**: **ITU-R.Registrations@itu.int** not later 28 September
- **Proposals**: **4 month** before WRC-19; firm deadline - **7 October** 2019
- **Description of documents and tools**: please use **Guidelines for the Preparation of Proposals for WRC-19**
- **Preparation and submission of proposals: Conference Proposals Interface (CPI) for WRC-19** - strongly encouraged
- **Search proposals**: **WRC-19 Proposal Management System** - web interface that allows user to search, filter and download proposals
- **Venue, hotels, visa: https://www.itu.int/md/R15-2NDWRC19PREPWORK-C-0017/en**

Regional preparations

Increasing role of regional telecommunication organizations: consolidation of views at the regional level, facilitating inter-regional discussions, saving time at WRC

Asia-Pacific Telecommunity (APT)	Arab Spectrum Management Group (ASMG)	African Telecommunications Union (ATU))	European Conference of Postal and Telecom Administrations (CEPT)	Inter-American Telecommunication Commission (CITEL)	Regional Commonwealth in the Field of Communications (RCC)
31 July - 6 August 2019	**27 Jul - 1 Aug 2019**	**26 - 30 August 2019**	**26 - 30 August 2019**	**12 - 16 August 2019**	**09 - 12 Sep. 2019**

ITU assists in coordination between regions organizes Inter-Regional Workshops

3rd Workshop
4 - 6 Sep. 2019

⇨ Presentation and review of the regional groups' draft views, positions and common proposals
⇨ Presentation of the CPM and Director Reports to WRC-19

Part 2 - Overview of some WRC-19 agenda items

Agenda item 1.13 – IMT above 24 GHz

- IMT-2020/5G needs larger bands -> millimeter bands are considered
  - High capacity: ensure high data rates and area traffic capacity
  - Convenient for MIMO and small cells (micro-, pico-, femto- cells)
  - WRC-19 consider 11 bands 24.25 - 86 GHz for IMT-2020

IMT-2020 candidate bands under AI 1.13

Existing mobile allocation	No global mobile allocation
24.25 GHz – 27.5 GHz	31.8 – 33.4 GHz
37 – 40.5 GHz	40.5 – 42.5 GHz
42.5 – 43.5 GHz	
45.5 – 47 GHz	47 - 47.2 GHz
47.2 -50.2 GHz	
50.4 – 52.6 GHz	
66 – 76 GHz	
81 – 86 GHz	

WRC-19 will also review the PFD limit on IMT in footnote 5.441B (IMT identification in 4 800 – 4 990 MHz in 3 countries of Region 3) . Not under AI1.13, but this is an IMT related issue

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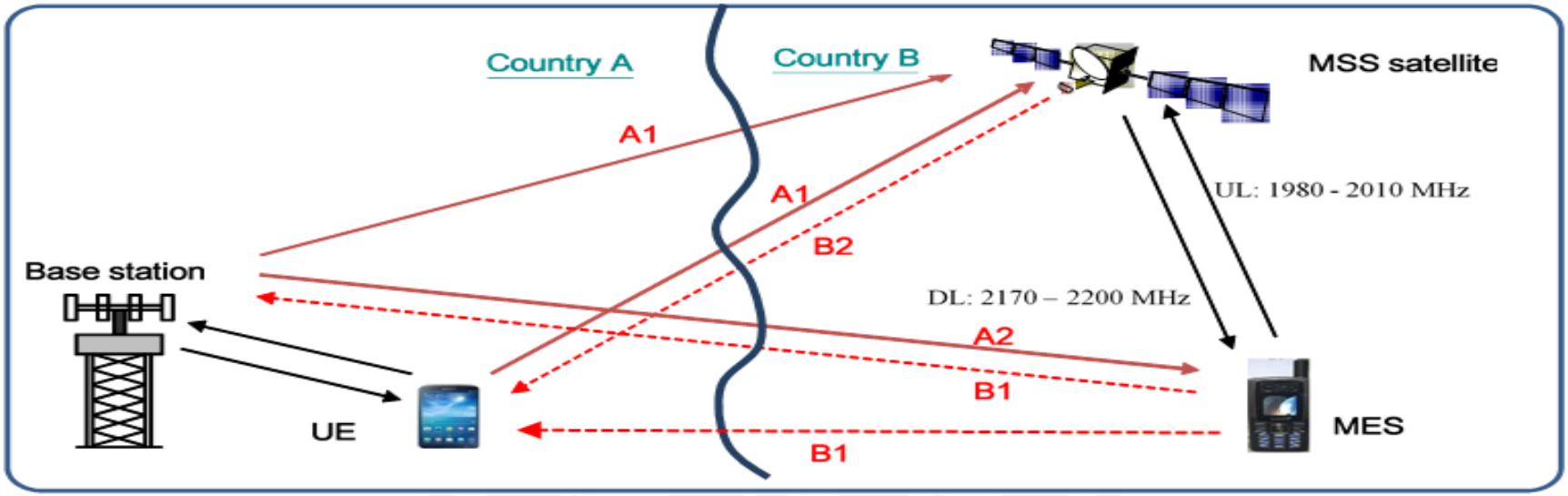
Agenda item 1.13 – IMT (3)

- Variety of Methods, alternatives, conditions, options for this AI. Solutions are through RR, Resolutions, Recommendations, e.g.:
  - Limits on power, antenna elevation, hot spots density, epfd limits
  - cross-border coordination, non-interference basis

One of issues of divergence is protection of science services in adjacent bands (example of protection of EESS in 23.6–24 GHz from IMT 26 GHz)

- Space science services have a great social value and need protection
- CPM Report values vary: from -55 to -20 dBW in 200 MHz for IMT base stations, from -51 to −20 dBW for IMT terminals
- Regional proposals different, e.g. for IMT base stations: −28 to −42 dBW (APT), - 42 dBW (CEPT), −20 to −37 dBW (CITEL)
- WRC-19 will determine the appropriate limits to protect EESS sensors
- By ratifying WRC-19 decisions, ITU administrations will be bound to apply these limits

AI 9.1.1 (terrestrial and satellite IMT in 2 GHz)



- Interference scenarios:
  - **A1**: BS to Space–high; UE to Space– low. Measures: no BS, e.i.r.p. limit
  - **A2**: BS to MES –may occur. Measures: separation distances, coordination
  - **B1**: MES to BS/UE – may occur. Measures: separation, border coordination
  - **B2**: Space station to UE – may occur to outdoor UE. Measures: threshold pfd level, narrow beams, antenna steering, beam forming
- Views: (1) changes to RR, e.g. e.i.r.p. limits in Art. 5, AP 7 and AP5 changes; (2) no need for changes to RR. Compatibility through new technologies and bilateral coordination

Agenda item 1.14 – High Altitude Platforms

- High Altitude Platform Station (HAPS) can contribute to broadband connectivity in remote and underserved areas
- HAPS: drones or balloons at 20-26 km height with service area of about 50 km
- Several existing bands are already designated for HAPS at 2 GHz, 6.5 GHz, 27/31 GHz and 47/48 GHz

- However, the above bands have geographical limitations and not large enough to provide high-rate broadband (up to 30 Gbps data rates are planned in HAPS -> 2 GHz bandwidth needed)
- AI 1.14 considers additional bands for HAPS in fixed service in :
  - 38-39.5 GHz - globally, and
  - in R2: 21.4-22 GHz and 24.25-27.5 GHz - regionally

Agenda item 1.14 – HAPS (2)

HAPS bands to be considered at WRC-19

Frequency band	Dir.	Band.	Identification	Incumbent services
6 440-6 520 MHz	↓	80 MHz	5 ADMs (R1, R3)	FS, MS, EESS (7.19-7.25 GHz)
6 560-6 640 MHz	↑	80 MHz	5 ADMs (R1, R3)	FS, MS, EESS (7.19-7.25 GHz)
27.9-28.2 GHz	↓	300 MHz	23 ADMs (R1, R3)	FSS, MS
31-31.3 GHz	↑	300 MHz	23 ADMs (R1, R3)	FS, EESS/RAS (31.3-31.8 GHz)
47.2-47.5 GHz	↑↓	300 MHz	Worldwide	FS, MS, FSS, RAS (48.94-49.04 GHz)
47.9-48.2 GHz	↑	300 MHz	Worldwide	FS, MS, FSS, RAS (48.94-49.04 GHz)
21.4-22 GHz and 24.25-27.5 GHz	↑↓	600 MHz/ 3.25 GHz	Region 2	FS, MS, FSS, EESS (21.2-21.4 GHz and 23.6-24.2 GHz), RAS (22.21-22.5 GHz)
38-39.5 GHz	↑↓	1.5 GHz	Worldwide	FS, MS, FSS, SRS (37-38 GHz)

- Growing regional consensus on identification of existing and new bands (e.g. 6440 – 6520 MHz, 31 – 31.3 GHz, 38 – 39.5 GHz, 47/48 GHz)
- In R2, 21.4-22 GHz is supported, and 24.25-25.5 GHz has some support
- R1&R3: Possible HAPS identifications in 21.4-22 and 24.25-27.5 GHz in Region 2 shall protect space services in other regions and should not limit the possibility of identifications for IMT on a global level under AI 1.13

Agenda item 1.16 – WAS/RLAN in 5GHz

- 300–425 MHz of additional spectrum is needed for Wi-Fi by 2019 (total requirements are about 880 MHz)
- Worldwide harmonized WAS/RLANs spectrum is needed

AI 1.16 considers additional spectrum and regulations for RLANs in:

5 150-5 250	5 250-5 350 X	5 350-5 470 X	5 470-5 725	5 725-5 850	5 850-5 925 X

Current situation

Frequency Band (MHz)	Issue	Preliminary indications
5150-5250 - currently used by RLANs for indoor only	To allow outdoor RLAN operations	Still under consideration. Need to protect FSS and air-borne sense and avoid systems
5250-5350 - currently used by RLANs for indoor only	To allow outdoor RLAN operations	NOC is **the only** Method. Difficulties to protect Earth exploration service
5350-5470 - currently not used for RLANs	To allocate the band to mobile service and allow for RLANs	NOC is **the only** Method. Difficulties to protect Earth exploration service and certain radars
5725-5850 - currently not identified for RLANs	To accommodate RLANs	Still under consideration. Need to protect FSS, weather and defense radars, other applications
5850-5925 - currently not identified for RLANs	To accommodate RLANs	NOC is **the only** Method. Difficulties to protect FSS. The band could be for ITS

AI 1.8 – GMDSS modernization

- Issue A: regulations for GMDSS modernization
  - Recognition in RR of MF and HF frequencies for NAVDAT system (future digital system to broadcast maritime safety information, would replace NAVTEX)
  - Methods: allow the band 495 – 505 kHz and some HF channels for NAVDAT operations
  - General support of regions for this Method

- Issue B: introduction of additional satellite systems into GMDSS
  - NGSO system was recognized as the GMDSS provider by IMO in 2018
  - This system operates in 1616-1626.5 MHz and capable to cover polar areas
  - Proposals for WRC-19: to incorporate 1616-1626.5 MHz in RR APP 15 (GMDSS frequencies), modify the relevant provisions of Articles 5 and 33
  - Difficulties: the downlink is secondary (not protected); possible impact on adjacent radioastronomy (<1 613.8 MHz) and MSS (> 1626.5 MHz)
  - 5 methods, including upgrade of the downlink or part of it to a primary status, protection of adjacent services, etc.. Views on Issue B are diverging

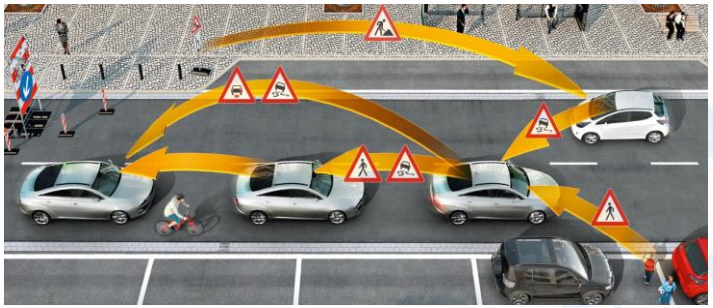
AI 1.10 - GADSS

- AI1.10: consider spectrum needs and regulatory provisions for the Global Aeronautical Distress and Safety System (GADSS)
  - GADSS includes aircraft tracking, autonomous distress tracking and post flight localization and recovery
  - Any existing radio system fulfilling the requirement could contribute to GADSS
  - ICAO: no additional spectrum is needed for GADSS -> no Article 5 changes proposed
  - 3 Methods. Method A: modification to RR Art. 30 and a new Art. 34A to recognize GADSS
  - Method B: the same as Method A, with Resolution requiring the development of ITU-R Recommendations to list the frequency bands of the systems contributing to GADSS, and their technical characteristics
  - Metdos C: No change

Agenda item 1.11 – Communications between train and trackside

- AI 1.11 addresses globally or regionally harmonized bands for railway radiocommunication systems between train and trackside (RSTT)
- RSTT applications: train radio, train remote (coms between train and ground to control engine), train surveillance (video)
- Examples of bands used: 138-174 MHz, 335.4-470 MHz, 873-915 MHz, 918-960 MHz
- *3 Methods:*
  - NOC - identification of spectrum and frequency harmonization can be made via ITU-R reports and recommendations
  - WRC Resolution with frequency ranges for RSTT + regulatory framework to guide the harmonization process
  - WRC Resolution specifying regulatory framework to guide the harmonization process

Agenda item 1.12 – Intelligent transport systems



- AI 1.12 looks for globally or regionally harmonized bands Intelligent Transport Systems (ITS) in 5 850-5 925 MHz

- ITS : vehicle-to-vehicle (V2V), vehicle-to-infrastructure (V2I), vehicle-to-pedestrian (V2P) applications to assist safer driving
- Good harmonization potential: 5855-5925 MHz (Europe, China, Japan, Korea, Australia, Singapore), 5850 -5925 MHz (USA)
- Indications from some regions that no RR changes needed. Frequency harmonization of ITS can be via ITU-R reports and recommendations
- Other methods include a WRC Resolution to encourage to use 5 850-5 925 MHz, or its parts. Other harmonized frequency band(s) for evolving ITS are in Recommendation ITU-R M.2121

AI 10 – Agenda items for WRC-23

- **Preliminary agenda for the 2023 World Radiocommunication Conference (Resolution 810 (WRC-15))**
  - GMDSS modernization and e-navigation implementation
  - Allocations to Earth exploration-satellite service for spaceborne radar sounders around 45 MHz
  - spectrum requirements and designations for space weather sensors
  - spectrum needs and new allocations to FSS in 37.5-39.5 GHz (Earth-to-space)
  - spectrum use and needs of existing services in 470-960 MHz in Region 1 and possible regulatory actions in 470-694 MHz in Region 1
- Preliminary discussions and indications