



ITU-R at a Glance and Accessibility Matters

*Ruoting Chang:
Study group Counsellor
Study Groups Department
Radiocommunication Bureau –ITU
ruoting.chang@itu.int*



ITU-R Objectives

- R.1 Meet, in a rational, equitable, efficient, economical, and timely way, the ITU membership's requirements for radio-frequency spectrum and satellite-orbit resources, while avoiding harmful interference
- R.2 Provide for worldwide connectivity and interoperability, improved performance, quality, affordability, and timeliness of service and overall system economy in radiocommunications, including through the development of international standards
- R.3 Foster the acquisition and sharing of knowledge and know-how on radiocommunications



ITU RADIO REGULATIONS



The
**INTERNATIONAL
TREATY**
for all
Radiocommunications



Key priorities for the ITU-R Sector

To establish and update international regulations on the use of the radio-frequency spectrum and satellite orbits

To implement and apply international regulations on the use of the radio-frequency spectrum and satellite orbits

To establish and update worldwide Recommendations, Reports and Handbooks for the most efficient use of the radio-frequency spectrum and satellite orbits

Supporting activities of the Radiocommunication Bureau

To inform and assist the ITU-R membership in radiocommunication matters

World Radio Conferences, WRC

- by considering technological developments on Radio sector, its realities and challenges, to respond early and appropriately.

WRC performs a complete and detailed review of the RR



- modify the RR and consider any radiocommunication matter of worldwide character
- Develop instructions to the RRB and the BR
- Determine issues considered by RA and SGs as part of the preparatory work for WRC future
- Set agenda of next WRC, and

WRC has the authority, among others, to



- develop and maintain, by consensus, a sustainable ecosystem for radiocommunications and avoid massive disruptions.
- **only if necessary, a vote (one vote per administration)**

On a consensus basis



Highlights on the output of WRC-19

- WRC-19 opened up new orbital slots for Broadcasting Satellites and provided developing countries with the opportunity to regain access to spectrum orbit resources thanks to a priority mechanism especially set for them
- WRC-19 defined a stable regulatory framework for non-GSO satellite systems based on a milestone process enabling mega constellations to rapidly come to fruition. Such a balance will ensure that more affordable means of connectivity will now be offered to the citizens of all countries.
- The need for connectivity everywhere, at all times, has also led to the decision made on Earth Stations in motion of tremendous importance to connect people while in planes, ships, and trains.
- WRC-19 expanded the capacity and ensured the provision of a truly global maritime distress and safety system by setting out regulations for the deploying of globally covered satellite network.
- The conference identified globally harmonized millimetre wave bands for IMT for the future development of 5G while taking measures to protect vital resources used for scientific services, such as earth exploration satellite services, particularly passive bands used for meteorological measurements that enable weather forecasting and prediction.
- The conference has also considered the expansion of provision of broadband access to rural and remote areas by the identifying frequency bands for High Altitude Platform Systems (HAPS).
- WRC-19 approved a Resolution on Spectrum harmonization for railway radiocommunication systems between train and trackside within the existing mobile service allocations and a Recommendation on Intelligent Transport Systems (ITS) towards connecting vehicles, improving traffic management and assisting safe driving.

Significance:

- will change the lives of billions of people around the world by promoting economic growth and development globally.
- will make the digital society more accessible and affordable to all.
- will make this world a safer place and allow people and industries that serve them to utilize the advances of radiocommunication technology.

ITU-R Study Groups (SG)

<http://www.itu.int/en/ITU-R/study-groups>

develop the technical bases for decisions taken at WRCs and develop global standards (Recommendations), Reports and Handbooks on radiocommunication matter.

gather more than 5000 specialists from ITU Member States, Sector and Associate Members, and Academia ; ITU-R SG work in cooperation with other international radiocommunication organizations.

counts with 6 SG, composed by 21 Working Parties, WP.
WP meets twice a years (some WP 1 or 3), normally at Geneva.
SG usually meets yearly (after sessions of their respective WP)

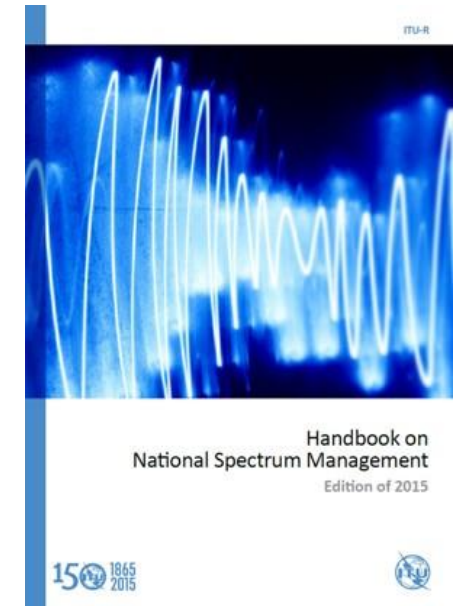
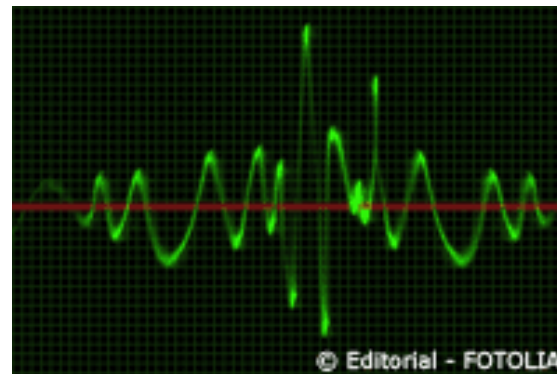
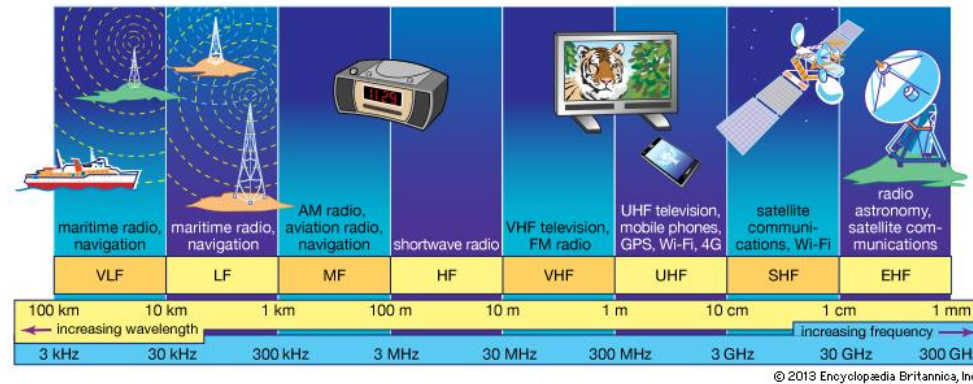
All ITU-R Rec, Rep, Op, and the Spectrum Management related Handbooks are of public access (download), free of charge.





SPECTRUM MANAGEMENT

- Principles and techniques
- Spectrum sharing
- Spectrum monitoring
- Spectrum utilization strategies
- Economic approaches

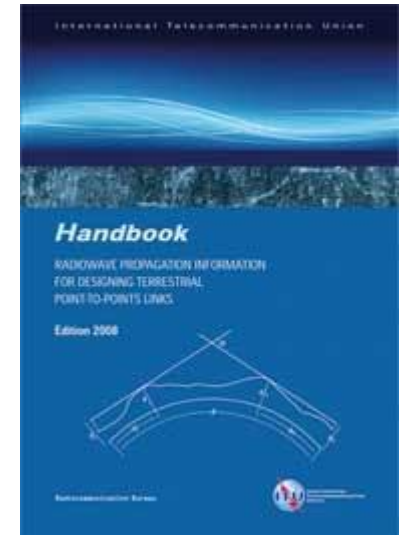
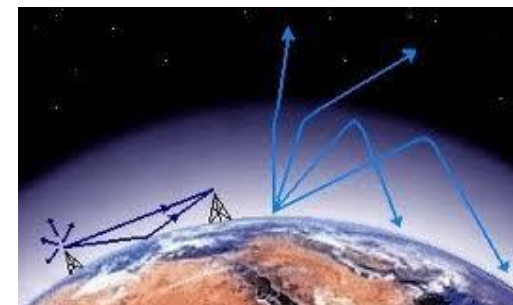
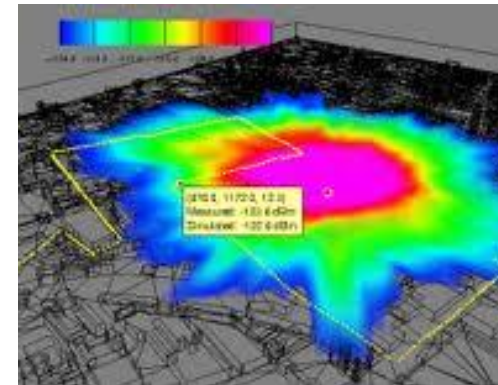


ITU-R STUDY GROUP 1



RADIOWAVE PROPAGATION

- Propagation in ionized and non-ionized media
- Point-to-point and Earth-space propagation
- Prediction methods
- Radio noise



ITU-R STUDY GROUP 3



SATELLITE SERVICES

- Efficient orbit/spectrum utilization
- Early warning and relief operations
- Equipment and performance standards for:
 - fixed-satellite services (**FSS**)
 - broadcasting-satellite services (**BSS**)
 - mobile-satellite services (**MSS**)
 - radio-determination-satellite services (**RDSS**)

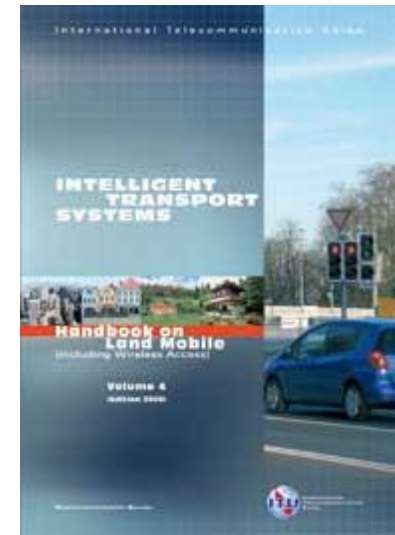


ITU-R STUDY GROUP 4



TERRESTRIAL SERVICES

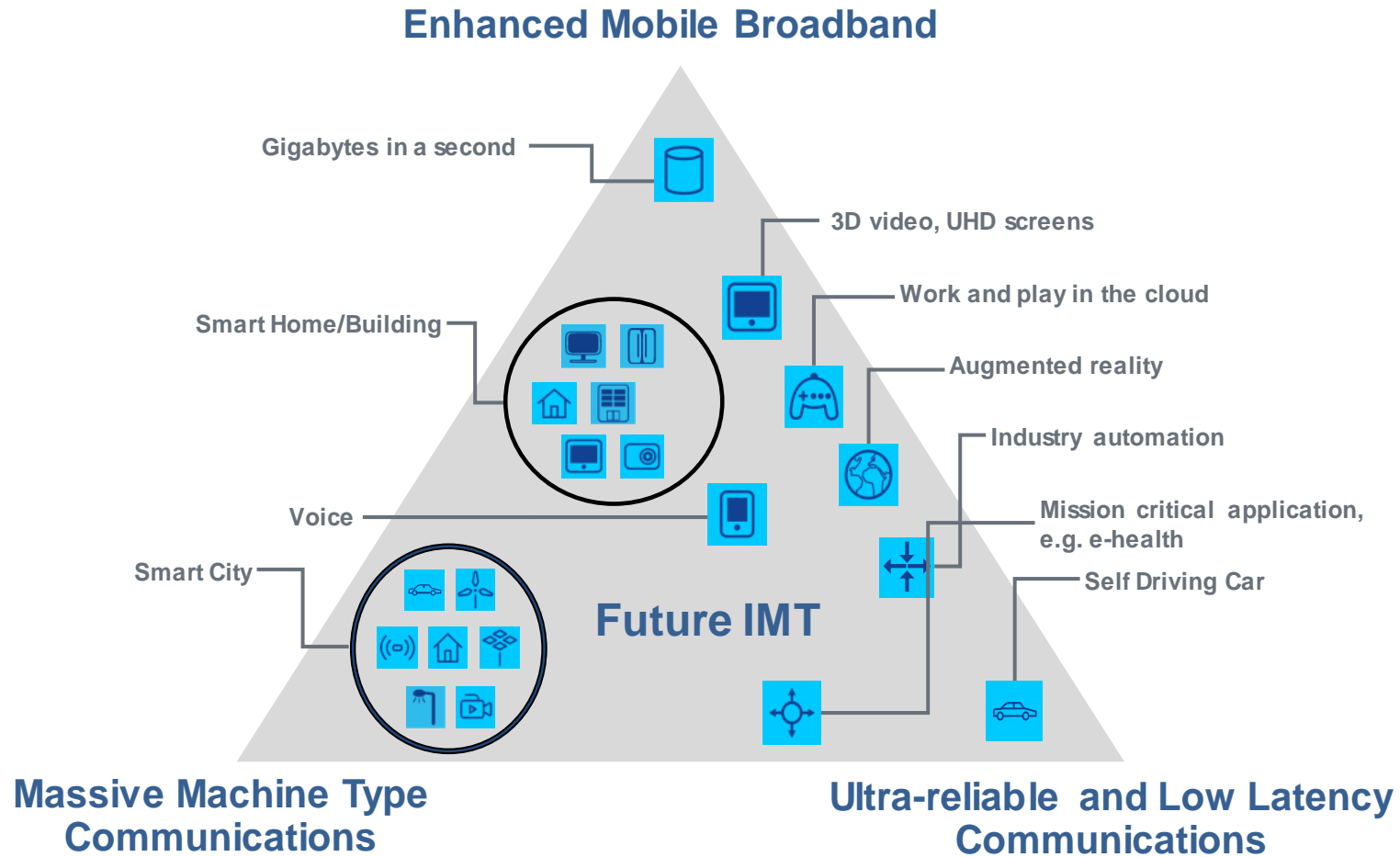
- Fixed
- Land mobile (3G, 4G, 5G)
- Maritime mobile
- Aeronautical mobile
- Radiodetermination
- Amateur



ITU-R STUDY GROUP 5



IMT-2020: 5G USAGE SCENARIOS





BROADBAND CONNECTIVITY VIA HAPS



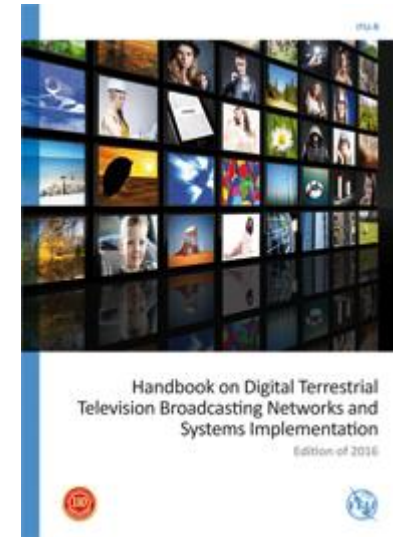


GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)



BROADCASTING SERVICE

- Programme production
- Programme assembly
- Terrestrial broadcasting delivery
- Quality of service



ITU-R STUDY GROUP 6



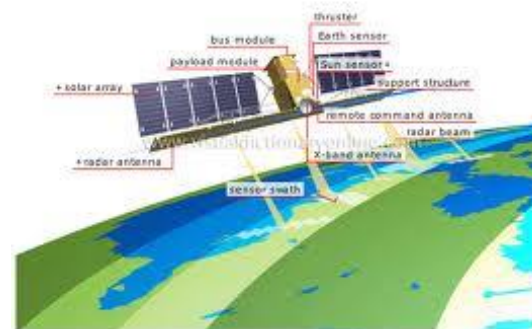
UHDTV : Recommendation ITU-R BT.2020-2 (10/2015) “Parameter values for ultra-high definition television systems for production and international programme exchange .”

DTTB: Recommendation ITU-R BT.1306-7 (06/2015) “Error-correction, data framing, modulation and emission methods for digital terrestrial television broadcasting. ”

DSB: Recommendation ITU-R BS.1114-10 (12/2017) “Systems for terrestrial digital sound broadcasting to vehicular, portable and fixed receivers in the frequency range 30-3 000 MHz.”

SCIENCE SERVICES

- Space operation
- Space research
- Earth exploration
- Radio astronomy
- Standard frequency and time signals

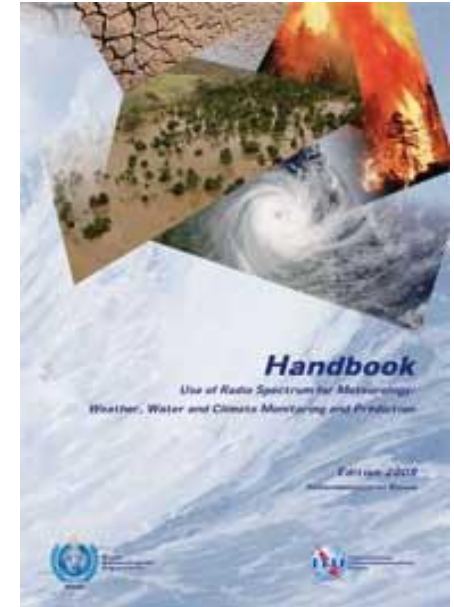


ITU-R STUDY GROUP 7



EMERGENCY COMMUNICATIONS

- Preparedness
- Disaster prediction
- Detection
- Early warning/Alerting
- Relief

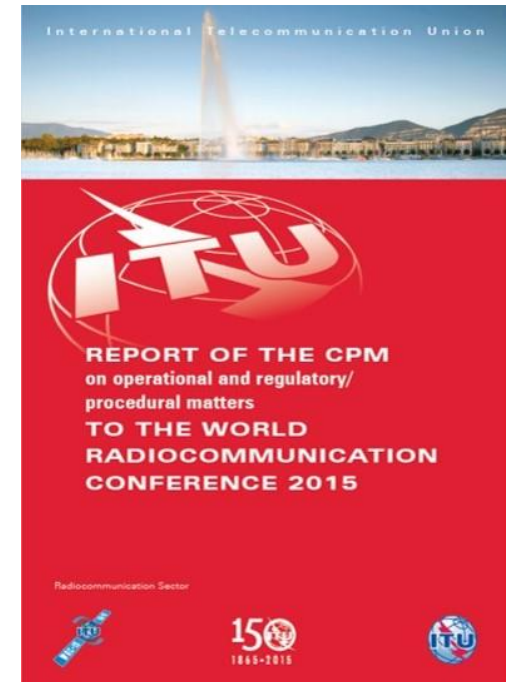
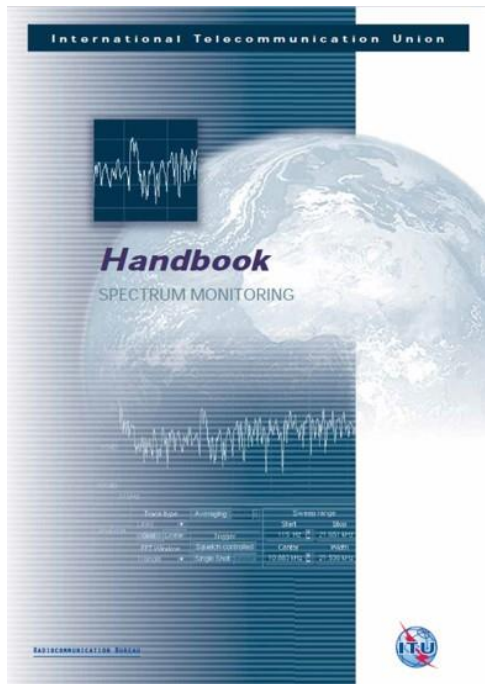


ITU-R STUDY GROUPS 5, 6 & 7



ITU-R PRODUCTS - PUBLICATIONS

- ITU-R Recommendations
- ITU-R Reports and Handbooks
- Technical bases for radio conferences
- Service publications





Access to media is a right

ITU Resolutions

Resolution 175 (REV.DUBAI 2018)

instructs the Secretary-General, in consultation with the Directors of the Bureaux

...

- 7 to work collaboratively on accessibility-related activities with ITU-R, ITU-T and ITU-D, taking into account JCA-AHF, in particular concerning awareness and mainstreaming of telecommunication/ICT accessibility standards, and in developing programmes that enable developing countries to introduce services that allow persons with disabilities and persons with specific needs to utilize telecommunication/ICT services effectively;

...



Access to media is a right

ITU-R Resolutions

Resolution ITU-R 67 (Geneva 2019)

...resolves to invite ITU-R

to continue conducting studies, research, guidelines and recommendations, related to telecommunication/ICT accessibility for persons with disabilities and persons with specific needs, taking into account *recognizing b) and c)*, and in close cooperation with ITU-T and ITU-D,

instructs the Director of the Radiocommunication Bureau

- 1 to cooperate with the Directors of the Telecommunication Development Bureau and the Telecommunication Standardization Bureau in the sustainable development of devices and applications promoting compatibility of the new technologies with the current ones to benefit telecommunication/ICTs for persons with disabilities and persons with specific needs;
- 2 to encourage and promote representation by persons with disabilities and persons with specific needs so as to ensure that their experiences, views and opinions are taken into account when developing and progressing ITU-R work.



ITU-R Study Groups 1 ,4 and 5

- ❑ ITU-R SG1 is regularly updating the Report ITU-R [SM.2153-6](#) , this Report sets out common technical and non-technical parameters for short-range radiocommunication devices (SRDs) among that including wireless applications in healthcare, such as hearing aid, guiding system for the blind and medical implant communications systems (MICS). SG1 is also revising Recommendation ITU-R [SM.1896](#) to include a new harmonized band for “Telecoil Replacement Systems (TRS) for the hearing impaired”.
- ❑ Work in Study Group 4 Working parties 4A and 4B and Study Group 5 Working Party 5A with regard to improving access to digital hearing aids on a global basis, e.g., Recommendation ITU-R [M.1076](#)—*Wireless communication system s for persons with impaired hearing*.



SM.2153



SM.1896



M.1076



Draft reversion of
SM.1896



MICS



ITU-R Study Group 6

Recommendations

- **ITU-R BT.2123** *Video Parameters for advanced immersive audio-visual systems*
- **ITU-R BT.2075** *Integrated broadcast-broadband systems*
- **ITU-R BT.2127** *Audio Definition Model Renderer for advanced sound systems*





ITU-R Study Group 6

New Question ITU-R 145/6 –

Systems for enabling access to broadcast and cooperative media for persons with disabilities

decides that the following Questions should be studied

- 1 What systems can be used for delivering sub-titling/closed captioning, and systems to deliver audio into text, appropriate to the delivery of broadcast media and related services.
- 2 What systems can be used for delivering signing/closed signing appropriate to the delivery of broadcast media and related services?
- 3 What systems can be used for delivering audio description/described video for video content appropriate to the delivery of broadcast media and related services?
- 4 What systems can be used for delivering 'clean audio' (facility to improve the clarity of foreground sound) for the delivery of audio for broadcast media, and related services?
- 5 What systems can be used for delivering haptic information appropriate to the delivery of broadcast media, and related services?
- 6 What use of intelligent agents and related technologies could assist in the development and application of access systems and services?
- 7 What technologies could be used to enhance the understanding of broadcast media content for persons of differing abilities?
- 8 What are the preferred ways that can allow a person with different ranges of ability (vision, hearing, motor impairment) to take part in interactive programme content?



ITU-R Study Group 6

Reports

- **ITU-R BT.2448** *Technical Realisation of signing in digital television*
- **ITU-R BT.2420** *Use cases of advanced immersive audio-visual systems*
- **ITU-R BT.2400** *Usage scenarios, requirements, and technical elements of a global platform*
- **ITU-R BT.2342** *Production, emission and exchange of closed captions for all worldwide language character sets*
- **ITU-R BT.2267** *Integrated broadcast-broadband systems*
- **ITU-R BT.2207** *Accessibility to broadcasting services for persons with disabilities*





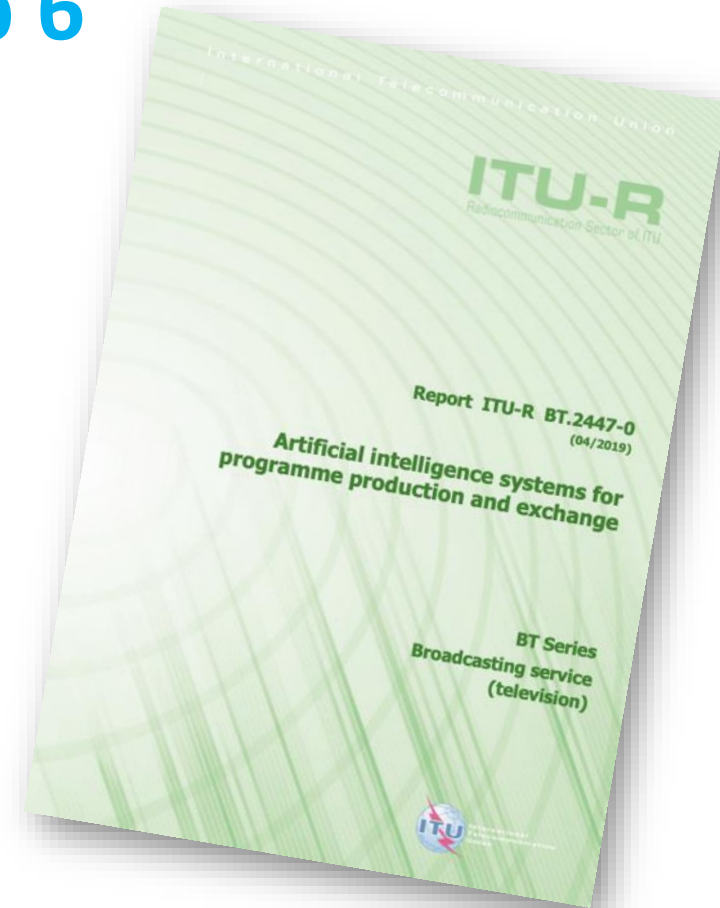
ITU-R Study Group 6

Tapping into the potential of AI for Accessibility

New released Report ITU-R BT.2447 (May 2019)

Automation of content recognition

- Speech to text and text to speech
- Dialogue tools for Audio Description
- Translation – eliminating then unintended
- Object and Scene recognition





Thank you