

GSMA
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Programme

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International Regulations

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Spectrum challenges for direct-to-device connectivity

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ABOUT THE ITU

Established in **1865**

UN specialized agency for Information and Communication Technology (**ICT**)

Global allocation of **spectrum** and **satellite orbits**

Development of **international regulations** and **technical standards**

World Radiocommunication Conference (**WRC**) updates **Radio Regulations** every 3-4 years



194

MEMBER STATES



1000+

PRIVATE SECTOR ORGANIZATIONS



170

ACADEMIA MEMBERS



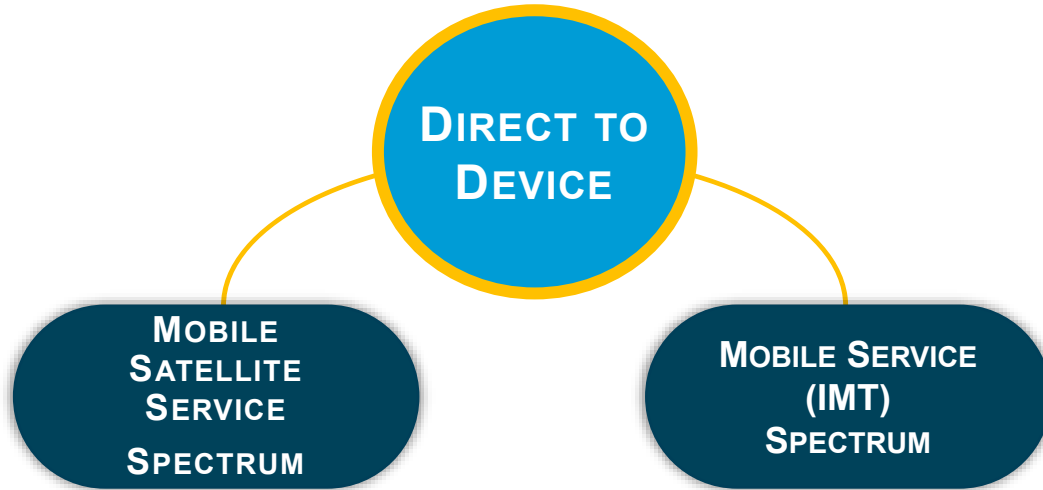
DIRECT-TO-DEVICE (D2D)



- Can be used in areas without terrestrial coverage (e.g. seas, mountains, deserts, remote areas)
- Bigger coverage
- Need for less base stations
- Natural disasters where terrestrial networks are no longer available
- Emergency SOS communication



- Affordability
- Data capacity
- Quality of service
- Standards
- Regulations



D2D: MOBILE SATELLITE SERVICE APPROACH

MSS SPECTRUM



- Frequency bands that are **already allocated** to mobile-satellite services – Frequency assignments benefit from **international recognition**
- MSS spectrum availability may **limit** data **capacity** and services
- **Limited availability of devices** with integrated MSS frequency bands
- **Standardization effort** to integrate MSS bands into mobile devices

MS SPECTRUM (IMT)



- May cause **interference between terrestrial and satellite systems**:
 - Cross-border interference
 - Adjacent band interference
- MS bands used for satellite connectivity **shall not cause harmful interference** to and **cannot claim protection** from harmful interference (**RR Art. 4.4**).
- No need to modify user equipment
 - Same user device
 - Same frequency bands used by current mobile operators and satellite

WRC-27 – AGENDA ITEM 1.13

- **Direct connectivity** between space stations and International Mobile Telecommunications (IMT) user equipment will be a major topic of WRC-27
- Possible **new allocations to the mobile-satellite service** to enable direct to device connectivity
 - Frequency range **between 694/698 MHz and 2.7 GHz** taking into account Rec. ITU-R M.1036

ITU-R SG/WPs:

- **Technical and operational characteristics** of MSS for direct communication with IMT user equipment
- **Description and functionality** of MSS systems for direct connectivity between space stations and IMT user equipment.
- **Sharing and compatibility** studies
- Calculation of pfd levels for **protection of terrestrial** IMT BS & UE





Thank you!

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