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WRC-15 decision about sub-orbital flights

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RADIO REGULATIONS - 1



The ITU Radio Regulations (RR) classifies services that use radio communications, according to several parameters, namely:

1. **Link type:** *Terrestrial* (earth to earth) or *Space* (Earth-space, space-Earth, space-space)
 2. **Type of coverage:** land, global, regional...
 3. **Station type:** fixed, mobile, aeronautical, space...
 4. **Type of use-service:** communications, broadcasting, navigation, meteorological, scientific, earth observation...
-

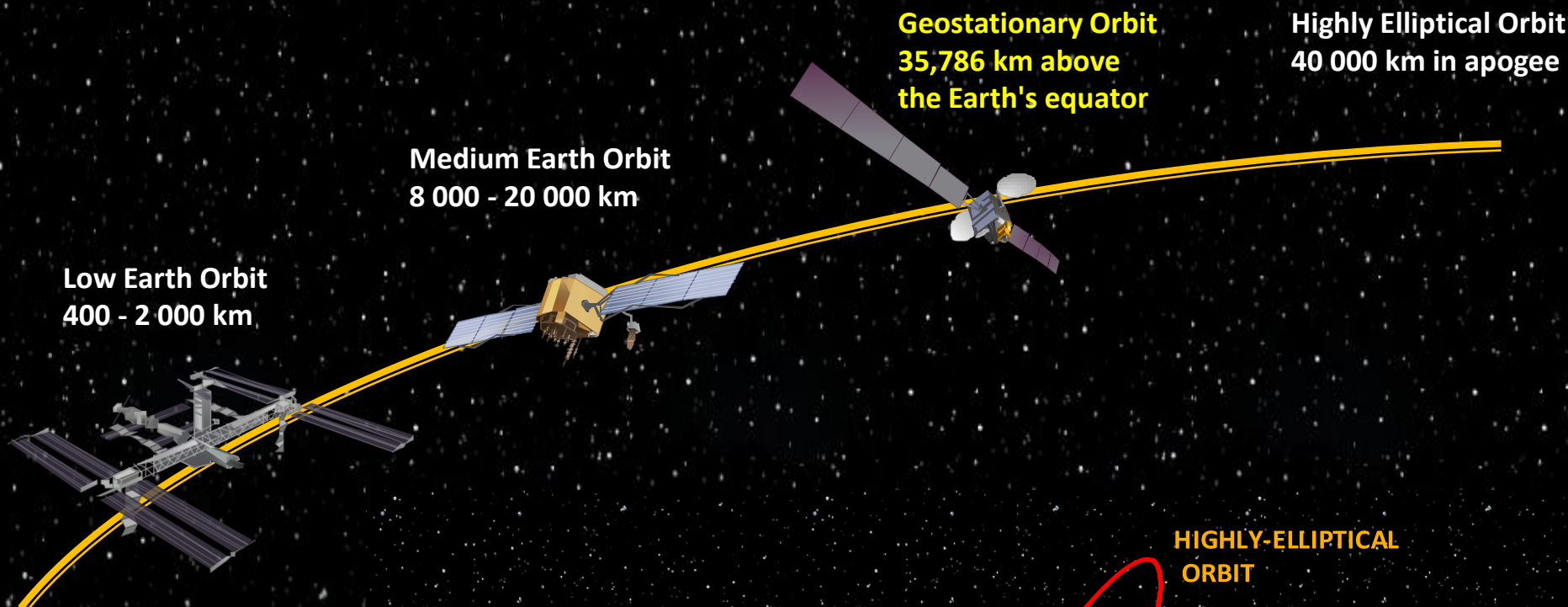
RR is **technically and technologically neutral**, it

- Does allocate **frequency bands** to **radiocommunication services**
 - for example allocation to Aeronautical Radio Navigation Service (**ARNS**)
- Does not allocate to specific applications
- Does not allocate to particular technologies
 - **not for application or technology** (GSM, LTE, Wimax, etc.)

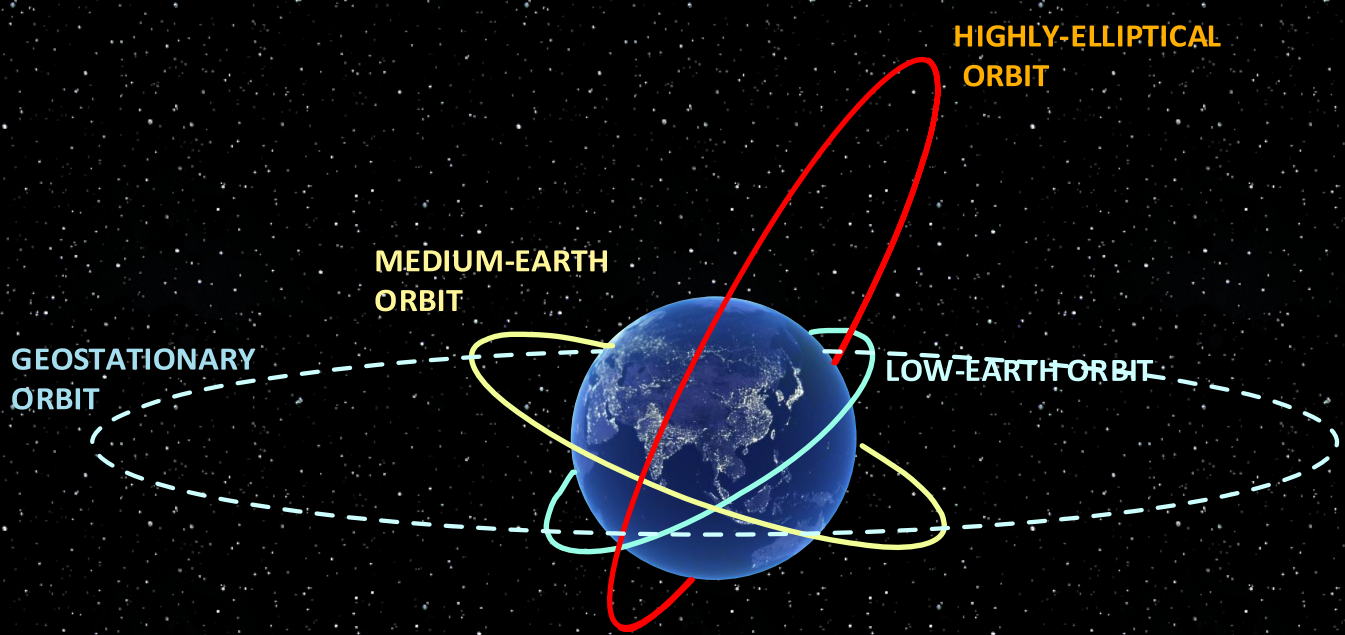
Definitions from the Radio Regulations



- **1.7 terrestrial radiocommunication:** Any radiocommunication other than space radiocommunication or radio astronomy.
- **1.8 space radiocommunication:** Any radiocommunication involving the use of one or more *space stations* or the use of one or more *reflecting satellites* or other objects in space.
- **1.64 space station:** A station located on an object [*spacecraft*] which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere.
- **1.178 spacecraft:** A man-made vehicle which is intended to go beyond the major portion of the Earth's atmosphere.
- **1.23 space operation service:** A radiocommunication service concerned exclusively with the operation of *spacecraft*, in particular *space tracking*, *space telemetry* and *space telecommand*.
- **1.83 aircraft station:** A mobile station in the *aeronautical mobile service*, other than a *survival craft station*, located on board an aircraft.
- **1.33 aeronautical mobile (R) service:** An *aeronautical mobile service* reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.
- **1.34 aeronautical mobile (OR) service:** An *aeronautical mobile service* intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes.



Sub-orbital flight



World Radio Conference (WRC)



- WRC performs a complete and detailed review of the Radio Regulations (RR) and its Rules of Procedure (RoP)
 - WRC updates RR considering **technological developments on spectrum utilization and needs by the radiocommunication services** and ITU-R sector studies, realities and challenges, to respond early and appropriately to these changes.
 - **ONLY WRC** *has the authority to modify the RR* by addenda, modifications or deletions they deem pertinent. These modifications are made by consensus, and only if necessary, would vote (one vote per administration).
-

International Telecommunication Union



WORLD RADIOCOMMUNICATION CONFERENCE 2015

GENEVA, SWITZERLAND
2 – 27 NOVEMBER 2015



15  1865
2015

www.itu.int/go/ITU-R/WRC-15



- Several ADM request clarification from the Bureau related to *satellite launch vehicles* or *sub-orbital flight vehicles*
- From the technical description, operational parameters as well as spectrum requirements, these new projects may not be fitting with the current aeronautical terrestrial or space service regulatory description and associated procedures for *protection from HI and international recognition* of the use of relevant frequency assignments.....

- Report of the Director on the activities of the ITU-R Sector *Part 2*: Experience in the application of the radio regulatory procedures:
3.2.1.4 Launch vehicles and Sub-orbital flights
- The boundary between the Earth's atmosphere and space is usually assumed to be 100 km above the Earth's surface
- Some vehicles, including aircraft, are being developed which can fly at altitudes of over 100 km into sub-orbital trajectories
- Other vehicles may also operate at altitudes over 100 km and use non-orbital trajectories
- The current regulatory provisions and procedures for terrestrial and space services may not be adequate for *protection from HI* and *international recognition* of the use of relevant frequency assignments by stations on board of these vehicles

ITU Radiocommunication Assembly **RA-15** decision
QUESTION **ITU-R 259/5**

Operational and radio regulatory aspects for planes operating in the upper level of the atmosphere

1. How will planes be operated including a description of the various phases of flight?
2. During which phases of flight described in *decides 1*, will, if at all, need to be supported by air traffic control systems and what sort of systems are expected?
3. What radio links will be required to support planes operations and under what radiocommunication service definition will they fall?

RESOLUTION 763[COM5/7] (WRC-15)

Stations on board sub-orbital vehicles

- The spectrum requirements for TT&C and voice communications on stations on board sub-orbital vehicles have not been studied
- Provisions of No. **4.10** (*safety aspect*) may apply for certain aspects of these operations

▪ *resolves*

1. to conduct studies to *identify any required technical and operational measures*, in relation to **stations on board sub-orbital vehicles**, *that could assist in avoiding harmful interference between radiocommunication services*

2. to conduct studies to *determine spectrum requirements* and, based on the outcome of those studies, to consider a possible future agenda item for **WRC-23**

3. to complete the studies within the next ITU-R study cycle

- ITU-R **Working Party (WP) 5B** is responsible for studies related to the aeronautical mobile service
 - CPM-19-1 allocated **RES-763** (WRC-15) and ITU-R **259/5** question to *WP5B*
 - Results of studies should contribute not only to the **WRC-23** preparation but may develop a new ITU-R **M** Series Recommendation(s)
- **Free online access to ITU-R information**
 - *current ITU-Radio Regulations @ 2012:*
<http://www.itu.int/pub/R-REG-RR-2012>
 - *all ITU-R Recommendations:*
<http://www.itu.int/publ/R-REC/en>



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THANK YOU

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