

## RESOLUTION 153 (WRC-12)

### **The use of frequency bands allocated to the fixed-satellite service not subject to Appendices 30, 30A and 30B for the control and non-payload communications of unmanned aircraft systems in non-segregated airspaces**

The World Radiocommunication Conference (Geneva, 2012),

*considering*

- a) that many applications of unmanned aircraft systems (UAS) exist that require access to non-segregated airspace;
- b) that unmanned aircraft (UA) need to operate seamlessly with manned aircraft in the non-segregated airspace and, to the extent practicable, use globally harmonized spectrum;
- c) that the safe flight operation of UAS needs reliable communication links and associated spectrum, especially for the remote pilot to command and control the flight and to relay the air traffic control communications, also referred to as control and non-payload communications (CNPC);
- d) that UAS CNPC links via satellite are part of UAS operations, in particular to relay transmissions beyond the horizon and maintain safe flight operation;
- e) that UAS already operate in fixed-satellite service (FSS) frequency bands for the UA-to-satellite CNPC links under No. 4.4 of the Radio Regulations;
- f) that the use of FSS for the UAS CNPC links, including but not limited to the links between geostationary satellite and mobile elements of the UAS, has to ensure the protection of incumbent services;
- g) that CNPC links will need the ability to operationally mitigate interference in order to ensure appropriate overall link integrity and availability that are consistent with UAS operations in non-segregated airspace;
- h) that multi-frequency CNPC architectures provide a means of improving link availabilities, and have the potential to mitigate interference;
- i) that it is necessary to take into account existing and future satellite networks when planning for growth of the use of FSS resources for UAS;
- j) that appropriate Article 11 notification status of a FSS network is required for use in high-reliability applications such as UAS CNPC links,

*recognizing*

- a) that, with the introduction of UA in non-segregated airspace, continued safety of other airspace users as well as life and property on the ground needs to be maintained;
- b) that studies are required to provide a basis for considering regulatory, technical and operational conditions, in order to use FSS links for the CNPC link between geostationary satellites and UAS in non-segregated airspaces in a compatible manner with incumbent services in the FSS frequency bands;
- c) that, in accordance with the Convention on International Civil Aviation, the operation of UAS in non-segregated airspace has to meet standards and recommended practices;

d) that ITU-R reports have been approved dealing with UAS operation in non-segregated airspace, in particular Report ITU-R M.2171 and Report ITU-R M.2233;

e) that, pursuant to No. 4.10 of the Radio Regulations, Member States recognize that the safety aspects of radionavigation and other safety services require special measures to ensure their freedom from harmful interference; it is necessary therefore to take this factor into account in the assignment and use of frequencies,

*resolves to invite WRC-15*

to consider, based on the results of the ITU-R studies referred to in *invites ITU-R* below, the possible regulatory actions to support the use of FSS frequency bands for the UAS CNPC links, as mentioned in the *considerings* above, ensuring the safe operation of UAS CNPC links, consistent with *recognizing e*),

*invites ITU-R*

1 to conduct, in time for WRC-15, the necessary studies leading to technical, regulatory and operational recommendations to the Conference, enabling that Conference to decide on the usage of FSS for the CNPC links for the operation of UAS;

2 to include, in the studies referred to in *invites ITU-R* 1, sharing and compatibility studies with services already having allocations in those bands;

3 to take into account information from operations referred to in *considering e*),

*further invites*

the International Civil Aviation Organization (ICAO), the International Air Transport Association, administrations and other organizations concerned to participate in the studies identified in *invites ITU-R* above,

*instructs the Secretary-General*

to bring this Resolution to the attention of ICAO.