PCC.II/REC. 22 (IX-07)[1]

REQUIREMENTS FOR DEPLOYMENT OF 5 GHZ RLANS INSTALLED ON BOARD AIRCRAFT

The IX Meeting of the Permanent Consultative Committee II: Radiocommunication including Broadcasting,

CONSIDERING:

a) That WRC-03 allocated the bands 5 150 – 5 250 MHz, 5 250 – 5 350 MHz and 5 470 – 5 725 MHz on a primary basis to the mobile service for the implementation of wireless access systems (WAS), including radio local area networks (RLANs);

b) That WRC-03 adopted Resolution 229 which places technical and operational restrictions on the use of these bands by WAS, including RLANs;

c) That CITEL PCC.II adopted Recommendation CCP.II/REC.11 (VI-05)[2] which provides technical and operational limits for the deployment of RLANs covering the bands 5150 – 5250 MHz, 5250 -5350 MHz, 5470 – 5725 MHz and 5725 – 5825 MHz;

d) That the technical basis of Resolution 229 (WRC-03) and CITEL PCC.II Recommendation CCP.II/REC.11 (VI-05) addressed terrestrial deployments of RLANs and did not specifically address their deployment on board aircraft;

e) That the deployment of RLANs on board aircraft would be both beneficial and useful to manufacturers, airlines and the traveling public;

f) That use of RLANs installed on board aircraft have the potential to impact other users of the radiofrequency spectrum beyond national boundaries due to the inherent nature of air traffic;

g) That the vast majority of RLANs will be operated on a license-exempt basis;

h) That a typical deployment of RLANs installed on board aircraft will require the number of transmitters or Access Points (APs) to be very small, in order to maximize throughput by minimizing self-interference;

i) That studies[3] have shown that RLAN operations inside an aircraft will provide equal or better protection to other users of the bands 5150-5250 MHz, 5250-5350 MHz, 5470-5725 MHz and 5725-5825 MHz bands compared with terrestrial deployments;

CONSIDERING FURTHER:

a) That the use and installation of equipment on board aircraft is subject to approval of the appropriate national authorities and their applicable regulatory framework;

[1] CCP.II-RADIO/doc. 1409/07 rev.1 Base document is CCP.II-RADIO/doc. 1193/07 rev.1
[2] See CCP.II-RADIO/doc. 871/05 cor. 1
[3] See document CCP.II-RADIO/doc. 1339/07 rev.1, CCP.II-RADIO/doc.0977/06, CCP.II-RADIO/doc. 0642/05.

b) That some administrations have completed trials in the bands 5150 – 5 250 MHz and 5 250 – 5 350 MHz that indicate there is no harmful interference from RLANs to essential aircraft radiocommunication and radionavigation systems of the aircraft tested;

c) That some Civil Aviation Authorities have already approved the use of RLANs, on board aircraft; and

d) That electronic devices are typically turned off at altitudes less than 10000 feet (or 3000 meters) or less due to restrictions associated with the take off and landing phases of flight,

RECOGNIZING:

a) That in Europe, CEPT adopted ECC Decision (04)08 and the European Union (with relevance in the European Economic Area) adopted Decision 2005/513/EC, which considers that the use inside aircraft of 5 GHz Wireless Access Systems/RLAN devices as being indoor, and

b) That in Asia Pacific, the APT Wireless Forum has approved a draft recommendation[4] on the Use of 5 GHz Wireless LANs on Board Aircraft which recognizes that RLANs will be restricted to a maximum mean e.i.r.p of 100 mW and recommends that APT administrations allow use of the 5 GHz band by airborne RLANS consistent with Resolution 229 (WRC-03), subject to ensuring protection of other radio services operating in these bands;

c) That the shielding provided by both a metallic and composite fuselage will provide comparable attenuation to the values used in ITU-R studies for building attenuation losses.[5] ,

RECOMMENDS:

1. That the use of RLANS installed on board aircraft in the bands 5 150-5 250 MHz, 5 250 – 5 350 MHz, 5 470-5 725 MHz and 5 725-5 825 MHz be on a license-exempt basis in those cases where permitted by national regulatory frameworks;

2. That administrations consider the operation of RLANs installed on board aircraft in the frequency band 5 150 – 5 250 MHz and 5 250-5 350 MHz, to be an indoor use as specified in Resolution 229 (WRC-03);

3. That administrations adopt requirements for the deployment of RLANs installed on board aircraft that are in accordance with CITEL PCC.II Recommendation CCP.II/REC.11 (VI-05), including dynamic frequency selection (DFS) in those bands requiring DFS;

4. That, in addition to the provision of *recommends 3)*, administrations limit the mean maximum[6] e.i.r.p. for RLAN transmitters installed on board aircraft to 100 mW;

5. That, in addition to the provision of *recommends 3)*, administrations require RLAN systems to be installed on board aircraft to limit operation on no more than 2 identical frequencies at the same time;

---

[4] See document AWF-IM3/09(Rev.2), 13 January 2007, APT/AWF-AVI_RLAN

[5] See ITU-R M.1352. See also ITU-R Recommendation P.1238 "Propagation data and prediction methods for the planning of indoor radiocommunication systems and radio local area networks in the frequency range 900 MHz to 100 GHz".

[6] The mean maximum refers to the e.i.r.p. during the transmission burst which corresponds to the highest power, if power control is implemented. See Resolution 229 (WRC-03).

6. That, in addition to the provision of *recommends 3)*, for the protection of terrestrial radars, administrations restrict the use of RLAN transmitters or APs installed on board aircraft, in the 5600-5650 MHz band, when the aircraft is in flight at an altitude less then 10,000 feet (or 3000 meters).

INSTRUCTS THE SECRETARIAT OF CITEL:

To send this Recommendation to the regional telecommunication organizations.