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STATUTORY INSTRUMENTS

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**2015 No. 591**

**The Wireless Telegraphy (Ultra-Wideband  
Equipment) (Exemption) Regulations 2015**

**PART 5**

**USE OF ULTRA-WIDEBAND EQUIPMENT ONBOARD AIRCRAFT**

**Exemption**

**16.** The establishment, installation or use of ultra-wideband equipment complying with the terms, provisions and limitations in regulation 17 is hereby exempt from the provisions of section 8(1) of the Act.

**Terms, provisions and limitations**

**17.**—(1) The exemption provided for in regulation 16 shall apply to ultra-wideband equipment which complies with the requirements of paragraph (2) to (5) of this regulation.

(2) The ultra-wideband equipment must be used onboard an aircraft where the aircraft is—

- (a) an aircraft registered in the British Islands; and
- (b) situated in or flying over the British Islands and the territorial waters adjacent thereto, or for the time being beyond the British Islands and the territorial waters adjacent hereto.

(3) The ultra-wideband equipment must be used for communications purposes within an aircraft.

(4) The ultra-wideband equipment must not cause or contribute to undue interference to other users of the electromagnetic spectrum.

(5) The ultra-wideband equipment must emit transmissions which are in accordance with the condition in regulation 18.

**Transmission limits**

**18.** The condition referred to in regulation 17(5) is that the ultra-wideband equipment only emits transmissions which—

- (a) in frequencies up to 1.6 GHz when measured in any direction have—
  - (i) a maximum mean power spectral density no greater than -90.0 dBm/MHz; and
  - (ii) a maximum peak power no greater than -50.0 dBm or the equivalent transmission level;
- (b) in the frequency band 1.6 GHz to 2.7 GHz when measured in any direction have—
  - (i) a maximum mean power spectral density no greater than -85.0 dBm/MHz; and
  - (ii) a maximum peak power no greater than -45.0 dBm or the equivalent transmission level;
- (c) in the frequency band 2.7 GHz to 3.4 GHz when measured in any direction have—

- (i) a maximum mean power spectral density no greater than -70.0 dBm/MHz; and
  - (ii) a maximum peak power no greater than -36.0 dBm or the equivalent transmission level;
- (d) in the frequency band 3.4 GHz to 3.8 GHz when measured in any direction—
- (i) have a maximum mean power spectral density no greater than -80.0 dBm/MHz; and
  - (ii) a maximum peak power no greater than -40.0 dBm or the equivalent transmission level;
- (e) in the frequency band 3.8 GHz to 6.0 GHz when measured in any direction have—
- (i) a maximum mean power spectral density no greater than -70.0 dBm/MHz; and
  - (ii) a maximum peak power no greater than -30.0 dBm or the equivalent transmission level;
- (f) in the frequency band 6.0 GHz to 6.650 GHz when measured in any direction have—
- (i) a maximum mean power spectral density no greater than -41.3 dBm/MHz; and
  - (ii) a maximum peak power no greater than 0.0 dBm or the equivalent transmission level;
- (g) in the frequency band 6.650 GHz to 6.6752 GHz when measured in any direction—
- (i) have—
    - (aa) a maximum mean power spectral density no greater than -62.3 dBm/MHz; and
    - (bb) a maximum peak power no greater than -21.0 dBm or the equivalent transmission level; or
  - (ii) provide an equivalent level of protection from interference to other users of the electromagnetic spectrum as that provided by the provisions in regulation 18(g)(i)(aa) and regulation 18(g)(i)(bb), by use of mitigation techniques which may include the technique described in regulation 23.
- (h) in the frequency bands 6,6752 GHz to 7.25 GHz and 7.9 GHz to 8.5 GHz when measured in any direction have—
- (i) a maximum mean power spectral density no greater than -41.3 dBm/MHz; and
  - (ii) a maximum peak power no greater than 0.0 dBm or the equivalent transmission level;
- (i) in the frequency band 7.25 GHz to 7.75 GHz when measured in any direction meet the emission requirements in either regulation 19 or regulation 20;
- (j) In the frequency band 7.75 GHz to 7.9 GHz when measured in any direction meet the emission requirements in either regulation 21 or regulation 22;
- (k) in the frequency band 8.5 to 10.6 GHz when measured in any direction have—
- (i) a maximum mean power spectral density no greater than -65.0 dBm/MHz; and
  - (ii) a maximum peak power no greater than -25.0 dBm or the equivalent transmission level; and
- (l) in frequency bands above 10.6 GHz when measured in any direction have—
- (i) a maximum mean power spectral density no greater than -85.0 dBm/MHz; and
  - (ii) a maximum peak power no greater than -45.0 dBm or the equivalent transmission level.

**Emission requirements for the frequency band 7.25 GHz to 7.75 GHz**

19. The requirements referred to in regulation 18(i) are that the emissions have—

- (i) a maximum mean power spectral density—
  - (aa) no greater than -41.3 dBm/MHz;
  - (bb) no greater than  $-51.3 \text{ dBm/MHz} - 20 \cdot \log_{10}(10[\text{km}]/x[\text{km}])(\text{dBm/MHz})$  (where x is the aircraft height above ground in kilometres) provided that the aircraft that the ultra-wideband equipment is onboard is higher than 1000 meters above ground level; or
  - (cc) no greater than -71.3 dBm/MHz provided that the aircraft that the ultra-wideband equipment is onboard is at or lower than 1000 meters above ground level but not on ground level; and
- (ii) a maximum peak power no greater than 0.0 dBm or the equivalent transmission level.

**Alternative emission requirement for the frequency band 7.25 GHz to 7.75 GHz**

20. The requirement referred to in regulation 18(i) is that the emissions provide an equivalent level of protection from interference to other users of the electromagnetic spectrum as that provided by regulation 19, by use of mitigation techniques which may include the technique described in regulation 23.

**Emission requirements for the frequency band 7.75 GHz to 7.9 GHz**

21. The requirements referred to in regulation 18 (j) are that the emissions have—
- (i) a maximum mean power spectral density—
    - (aa) no greater than -41.3 dBm/MHz;
    - (bb) no greater than  $-44.3 \text{ dBm/MHz} - 20 \cdot \log_{10}(10[\text{km}]/x[\text{km}])(\text{dBm/MHz})$  (where x is the aircraft height above ground in kilometres) provided that the aircraft that the ultra-wideband equipment is onboard is higher than 1000 meters above ground level; or
    - (cc) no greater than -64.3 dBm/MHz provided that the aircraft that the ultra-wideband equipment is onboard is at or lower than 1000 meters above ground level but not on ground level; and
  - (ii) have a peak power no greater than 0.0 dBm or the equivalent transmission level.

**Alternative emission requirement for the frequency band 7.75 GHz to 7.9 GHz**

22. The requirement referred to in regulation 18(j) is that the emissions provide an equivalent level of protection from interference to other users of the electromagnetic spectrum as that provided by regulation 21, by use of mitigation techniques which may include the technique described in regulation 23.

**Mitigation techniques**

23. The mitigation technique referred to in regulations 18, 20 and 22 is the use of shielding on the windows of an aircraft in order to give the windows similar attenuation characteristics as other parts of the aircraft.