

PRELIMINARY DRAFT FOR CONSULTATION

STATUTORY INSTRUMENTS

2012 No.

ELECTRONIC COMMUNICATIONS

The Wireless Telegraphy (White Space Devices) (Exemption) Regulations [●]

Made - - - - - ***

Coming into force - - - - - ***

The Office of Communications (“OFCOM”), in exercise of the powers conferred by section 8(3) of the Wireless Telegraphy Act 2006 (the “Act”) (a), makes the following Regulations.

Before making these Regulations, OFCOM have given notice of their proposal to do so in accordance with section 122(4)(a) of the Act, published notice of their proposal in accordance with section 122(4)(b) of the Act and have considered the representations made to them before the time specified in that notice in accordance with section 122(4)(c) of the Act.

Citation and commencement

1. These Regulations may be cited as the Wireless Telegraphy (White Space Devices) (Exemption) Regulations [●] and shall come into force on [DATE].

Interpretation

2. In these Regulations—

“dBm” means decibels of power referenced to one milliwatt;

“DTT channel” is an 8 MHz channel based on the European harmonised digital terrestrial television channel raster listed in Table 1 of Schedule 2;

“EIRP” means equivalent isotropic radiated power;

“geo-located” means the ability of a white space device to determine and report its latitude and longitude coordinates;

“geographic validity” means the geographic area within which the operational parameters for a geo-located white space device are valid, such geographic area being the area within a 50 metre radius of the latitude and longitude coordinates of the geo-located white space device determined at the time at which that geo-located white space device last reported its latitude and longitude coordinates to a qualifying white space database;

(a) 2006 c. 36.

“in-block EIRP spectral densities” means the EIRP specified in dBm over a bandwidth of 0.1 MHz and the EIRP specified in dBm over a bandwidth of 8 MHz where both EIRPs are measured within the DTT channels used by a white space device;

“MHz” means megahertz;

“out-of-block EIRP spectral density” means the EIRP specified in dBm over a bandwidth of 0.1 MHz where the EIRP is measured outside the DTT channels used by a white space device;

“qualifying white space database” means a white space database which has qualified to communicate with white space devices and to provide operational parameters to those white space devices under the terms of a contract between Ofcom and the person providing the white space database and which white space database is listed in Schedule 1;

“TV white spaces” means frequencies within the band 470 MHz to 790 MHz which have been identified by a white space database for use by a white space device under the operational conditions specified by the white space database; and

“white space device” means wireless telegraphy equipment which operates in TV white spaces.

Exemption

3. The establishment, installation and use of wireless telegraphy stations or wireless telegraphy apparatus (“wireless telegraphy equipment”) for the purposes of accessing TV white spaces is hereby exempt from the provisions of section 8(1) of the Wireless Telegraphy Act 2006 where the requirements in regulations 4, 5 and 6 below are met.

General requirements

4.—(1) The wireless telegraphy equipment must—

- (a) operate within the frequency band 470 MHz to 790 MHz;
- (b) not be used airborne; and
- (c) provide a level of protection from undue interference to other users of the electromagnetic spectrum that is at least equivalent to that provided for in VNS 2188 – Voluntary National Specification 2188, White space devices operating in the 470 MHz to 790 MHz band(a).

(2) The wireless telegraphy equipment must either be—

- (a) a geo-located device that obtains operational parameters directly from a white space database (“master white space device”) in which case it must meet the requirements set out in Regulation 5; or
- (b) a device that obtains operational parameters directly from a master white space device (“slave white space device”) in which case it must meet the requirements set out in Regulation 6.

(3) For the purposes of these Regulations, operational parameters is the term given to the information that a white space database provides to a master white space device about the operational conditions under which a master white space device, or any slave white space device that the master white space device may serve, may transmit and includes—

- (a) the lower and upper frequency boundaries within which a white space device may transmit;
- (b) the maximum permitted in-block EIRP spectral densities between each lower frequency boundary and its corresponding upper frequency boundary;
- (c) limits on the maximum total number of DTT channels that may be used at any given time and the maximum number of contiguous DTT channels that may be used at any given time; and

(a) published by OFCOM on [●]

(d) the time at which the operational parameters cease to be valid.

(4) The wireless telegraphy equipment must not cause or contribute to undue interference to any wireless telegraphy.

Master white space device requirements

5.—(1) A master white space device must not request operational parameters other than from a qualifying white space database.

(2) A master white space device must only transmit in the frequency band 470 MHz to 790 MHz—

- (a) in accordance with the operational parameters which it has received from a qualifying white space database; and
- (b) in a geographic area which does not exceed the geographic validity of those operational parameters.

(3) When requesting operational parameters for its own transmissions, a master white space device must provide the following information about its device characteristics and geographic location to the qualifying white space database—

- (a) the fact that the device is a master white space device;
- (b) the master white space device's unique device identifier which is the serial number or other identifier unique to the master white space device;
- (c) the device emission class with which the master white space device complies as specified in Table 2 in Schedule 3;
- (d) the master white space device's technology identifier which indicates the technology specifications used by the master white space device and the organisation responsible for those technology specifications;
- (e) whether the master white space device has antennas which are permanently mounted on a non-moving outdoor platform;
- (f) the master white space device's model identifier which is either the model number affixed by the manufacturer of the master white space device or some other identifier of the product family to which the master white space device belongs;
- (g) the master white space device's antenna latitude and longitude coordinates; and
- (h) the accuracy of the master white space device's antenna latitude and longitude coordinates specified as $\pm\Delta x$ and $\pm\Delta y$ metres respectively, corresponding to a ninety-five per cent confidence level.

(4) After having received operational parameters for its own transmissions and before transmitting in accordance with those operational parameters, a master white space device must provide the following information to the qualifying white space database that provided the operational parameters—

- (a) the lower and upper frequency boundaries within which the master white space device will transmit; and
- (b) the maximum in-block EIRP spectral densities at which the master white space device will transmit between each reported lower frequency boundary and its corresponding upper frequency boundary

(5) A master white space device must cease all transmissions in the frequency band 470 MHz to 790 MHz within 60 seconds of receiving instructions to do so from a qualifying white space database.

(6) A master white space device must not communicate operational parameters to a slave white space device unless those operational parameters have been communicated to the master white space device by a qualifying white space database.

(7) A master white space device must communicate all the information that it receives from a slave white space device pursuant to Regulation 6(3) and Regulation 6(4) to a qualifying white

space database and must state that the information relates to a slave white space device that it is serving.

Slave white space device requirements

6.—(1) A slave white space device must only transmit in the frequency band 470 MHz to 790 MHz—

- (a) in accordance with the operational parameters which it has received from a master white space device; and
- (b) if the slave white space device is a geo-located device, in a geographic area which does not exceed the geographic validity of the operational parameters which it has received from a master white space device.

(2) For the purposes of Regulation 6, a slave white space device must transmit in accordance with operational parameters that are either—

- (a) operational parameters that apply to all slave white space devices operating in the area in which transmissions from the master white space device providing the operating parameters can be received (“generic operational parameters”); or
- (b) operational parameters that are specific to the slave white space device’s characteristics and, if it is a geo-located device, to its geographic location (“specific operational parameters”).

(3) After having received generic operational parameters from a master white space device, a slave white space device must provide the following information to that master white space device—

- (a) the slave white space device’s unique device identifier which is the serial number or other identifier unique to the slave white space device;
- (b) the device emission class with which the slave white space device complies as specified in Table 2 in Schedule 3;
- (c) the slave white space device’s technology identifier which indicates the technology specifications used by the slave white space device and the organisation responsible for those technology specifications;
- (d) whether the slave white space device has antennas which are permanently mounted on a non-moving outdoor platform;
- (e) the slave white space device’s model identifier which is either the model number affixed by the manufacturer of the slave white space device or some other identifier of the product family to which the slave white space device belongs;
- (f) if the slave white space device is a geo-located device, the slave white space device’s antenna latitude and longitude coordinates;
- (g) if the slave white space device is a geo-located device, the accuracy of the slave white space device’s antenna latitude and longitude coordinates specified as $\pm\Delta x$ and $\pm\Delta y$ metres respectively, corresponding to a ninety-five per cent confidence level;
- (h) the lower and upper frequency boundaries within which the slave white space device will transmit; and
- (i) the maximum in-block EIRP spectral densities at which the slave white space device will transmit between each reported lower frequency boundary and its corresponding upper frequency boundary.

(4) After having received specific operational parameters from a master white space device, a slave white space device must provide the following information to that master white space device—

- (a) the lower and upper frequency boundaries within which the slave white space device will transmit; and

- (b) the maximum in-block EIRP spectral densities at which the slave white space device will transmit between each reported lower frequency boundary and its corresponding upper frequency boundary.
- (5) A slave space device must cease all transmissions in the frequency band 470 MHz to 790 MHz—
- (a) within one second of receiving instructions to do so from a master white space device; or
 - (b) if the slave white space device loses communications for more than five seconds with the master white space device from which it has received its most recent operational parameters.

[Date] [•]
Chief Executive of the Office of Communications
For and by authority of the Office of Communications

SCHEDULE 1

LIST OF QUALIFYING WHITE SPACE DATABASES

[List of qualifying white space databases to be inserted]

SCHEDULE 2

Table 1

Table of European harmonised DTT channel raster and corresponding DTT channel numbers

DTT channel raster (MHz)	470 to 478	478 to 486	486 to 494	766 to 774	774 to 782	782 to 790
--------------------------	------------------	------------------	------------------	------	------------------	------------------	------------------

DTT channel numbers	21	22	23	58	59	60
---------------------	----	----	----	------	----	----	----

SCHEDULE 3

Table 2

Table of device emission classes

The emission class is determined on the basis of the relationship between the in-block and out-of-block EIRP spectral densities of a white space device. This relationship is defined as—

$$P_{\text{OoB}} \leq \max \{ P_{\text{IB}} - \text{AFLR}, -84 \}$$

where P_{IB} is the in-block EIRP spectral density (in dBm over 8 MHz), P_{OOB} is the out-of-block EIRP spectral density (in dBm over 0.1 MHz) in the DTT channels adjacent to those used by the white space device and AFLR is the adjacent channel frequency leakage ratio (in dB).

The four device emission classes are specified in Table 2 below, each class corresponding to a different value of AFLR.

<i>Where P_{OOB} falls within the n^{th} adjacent channel</i>	<i>AFLR (dB)</i>			
	<i>Class 1</i>	<i>Class 2</i>	<i>Class 3</i>	<i>Class 4</i>
$n = \pm 1$	74	74	64	54
$n = \pm 2$	79	74	74	64
$n \geq +3$ or $n \leq -3$	84	74	84	74

DRAFT

EXPLANATORY NOTE

(This note is not part of the Regulations)

[To be drafted]

DRAFT