



# Frequency bands designated for Industrial, Scientific and Medical use (ISM)

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# Industrial, Scientific and Medical use (ISM)

1.1 The industrial, scientific and medical (ISM) radio bands are frequencies reserved internationally for the use of radio frequency (RF) energy for industrial, scientific and medical uses for other purposes other than telecommunications, an example of this type of use is microwave ovens. These devices use powerful emissions that can create electromagnetic interference that could disrupt other radiocommunication users of the same frequency. Due to this the use of ISM devices is limited to certain frequency bands.

1.2 In the frequency bands designated for ISM use, any communications equipment operating must tolerate any interference generated by ISM applications, and users have no regulatory protection from ISM device operation.

1.3 In the United Kingdom the use of ISM apparatus is allowed provided it does not contravene the provisions of the Wireless Telegraphy Act 2006. The International Telecommunications Union defines ISM in the Radio Regulations as:

“industrial, scientific and medical (ISM) applications (of radio frequency energy): Operation of equipment or appliances designed to generate and use locally radio frequency energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunications.”

1.4 In pursuance of these provisions, regulations governing the control of interference from ISM apparatus, which include the limits of field strength and terminal voltage applicable to particular frequency bands are contained in –

The Wireless Telegraphy (Control of interference from Electro-Medical Apparatus Regulations 1963

Statutory instrument 1963  
No. 1895

and

The Wireless Telegraphy (Control of Interference from Radio Frequency Heating Apparatus) Regulations 1971

Statutory Instrument 1971  
No. 1675

1.5 Frequency bands designated for ISM applications and therefore subject to control legislation in the United Kingdom are listed in the table below.

| Frequency Band                                          | Conditions of Use                                                                                                                                                                         | Remarks                                                                                                                                                              |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 765-6 795 kHz *                                       | 5.138 applies. Radiocommunication services must accept harmful interference from ISM.                                                                                                     | WT (Control of Interference from Electro-Medical Apparatus) Regulations 1963 and WT (Control of Interference from RF Heating Apparatus) Regulations 1971 also apply. |
| 13 553-13 567 kHz *                                     | 5.150 applies. Radiocommunication services must accept harmful interference from ISM.                                                                                                     | As for 6 765-6 795 kHz above.                                                                                                                                        |
| 26 957-27 283 kHz *                                     | 5.150 applies. Radiocommunication services must accept harmful interference from ISM.                                                                                                     | As for 6 765-6 795 kHz above.                                                                                                                                        |
| 40-66 – 40-70 MHz                                       | 5.150 applies. Radiocommunication services must accept harmful interference from ISM                                                                                                      |                                                                                                                                                                      |
| 83-996-84-004 MHz<br>167-992-168-008 MHz<br>886-906 MHz | Radiocommunication services must accept harmful interference from ISM apparatus operating in accordance with the WT (Control of Interference from RF Heating Apparatus) Regulations 1971. | The WT (Control of Interference from RF Heating Apparatus) Regulations 1971 specify the limits of levels of radiation permitted outside the ISM bands.               |
| 433-05-434-79 MHz *                                     | 5.138 applies. Radiocommunication services must accept harmful interference from ISM.                                                                                                     |                                                                                                                                                                      |
| 2 400-2 500 MHz *                                       | 5.150 applies. Radiocommunication services must accept harmful interference from ISM.                                                                                                     |                                                                                                                                                                      |
| 5 725-5 875 MHz *                                       | 5.150 applies. Radiocommunication services must accept harmful interference from ISM.                                                                                                     |                                                                                                                                                                      |
| 24-0-24-25 GHz *                                        | 5.150 applies. Radiocommunication services must accept harmful interference from ISM.                                                                                                     |                                                                                                                                                                      |
| 61-0-61-5 GHz *                                         | 5.138 applies. Radiocommunication services must accept harmful interference from ISM.                                                                                                     |                                                                                                                                                                      |
| 122-123 GHz *                                           | 5.138 applies. Radiocommunication services must accept harmful interference from ISM.                                                                                                     |                                                                                                                                                                      |
| 244-246 GHz *                                           | 5.138 applies. Radiocommunication services must accept harmful interference from ISM.                                                                                                     |                                                                                                                                                                      |

1.6 ISM equipment operating in the bands annotated with an asterisk above are subject to the provisions of Article 15.13 of the Radio Regulations according to which, administrations shall take all practicable and necessary steps to ensure that radiation from ISM is minimal and that, outside the band designated for use by this equipment, it is at a level that does not cause harmful interference to radiocommunications services and, in particular, to a radionavigation or any other safety service operating in accordance with the Radio Regulations.