Guidance for Business Radio

Business Radio online enables users to apply for a range of licences covering the use of radio for mostly short range localised radio networks for factories, shopping centres. Other licences cover communication requirements for courier firms, bus companies, taxis and utility firms. There is also a radio supplier's licence covering demonstration and short term hire of equipment. See the guidance document for more detail on licence types and their uses.

Ofcom are unable to issue licences immediately or take payment via this application. The Ofcom Licensing Centre will send you a request for payment and, when payment has been received, issue a licence.

The guidance below is arranged in the same order as the information requested on each screen.

Apply for a new Business Radio licence

What type of licence do I need?

Simple Site Light

Uses include localised voice and paging systems for sites using a base station and antenna. Return messages cannot be sent to the base station. The coverage area is required to be within the premises or perimeter of a local site, completely under the control of the licensee such as factories, nursing homes and housing associations. Licensees (or in practice their suppliers) choose from a range of frequencies shared with other users of this type of licence. Typical distance covered is up to three kilometres. Cost: £75 for five years.

Simple UK Light

These systems transmit speech messages from handheld to handheld radio communication, anywhere in the UK, without the need for a base station. Users have shared access to a set number of frequencies and signalling tones along with all other customers who hold a Simple UK Light licence. The cost: is £75 for five years.

Suppliers Light

A Business Radio Suppliers licence permits you to:

- service and repair business radio and marine equipment
- hire out business radio (including trunked business radio) and/or radio paging equipment to customers for up to one year
- allocate business radio (including trunked business radio) equipment to customers awaiting Business Radio licences, for up to three months ('parking')
- demonstrate business radio (including trunked business radio) equipment to customers for up to 8 days

There are a range of frequencies to choose from shared with other users of this type of licence. The cost is £75 for five years.

Technically Assigned

For customers who wish to have a particular frequency assigned to them within a stated coverage area (x km around a National Grid Reference which will be shown on the licence), typical users include transport such as buses and taxis, energy suppliers, shopping precincts and factories. Can use either a base station or handheld to handheld. Coverage can range from one to one hundred kilometres depending on the customer's requirement. Cost is based on location and the number of frequencies and ranges from £75 to £1480.

Area Defined

An Area Defined licence allows you exclusive use of a frequency within a defined area. This area can encompass a 50km2 map square, a country or you can choose to operate the frequency across the United Kingdom.

Cost is based on the area you wish to cover and your choice of frequency and range from £75 for operation within a map square to £9900 for UK wide operation of a 12.5kHz duplex.

I am an existing customer with a customer reference number

Your customer number will be quoted in licence documentation or correspondence we have sent you.

Licensee Name and Address Screen

Types of Legal entity

Individual or Sole Trader

Any person may apply for a licence in his or her own name. If the person runs a business solely in his or her own name then that person is known as the sole proprietor of that business. Legally that person is wholly liable for all aspects of that business and all its obligations. Thus the person will need a WT Act Licence in their name to operate a radio system which states the applicant/ licensee's name. If the person holds a trading name, then this may also be stated on the licence but it is important that this is not substituted in the place of the individual's name.

Partnerships

Partnerships must be applied for by one partner signing 'for self and partners'.

Public Limited Company/Limited Company/Incorporated Association

A Public Limited Company is the standard form for a public company in the UK. A company registered as a public company is one that has an unlimited number of shareholders, and can offer its shares to the public. A Public Limited Company is defined as one limited by shares or by guarantee, whose memorandum states that it is a public company and which has registered as such. It is a legal requirement that the words public limited company (or plc) must follow the company's name.

Limited Company

Is a business structure in which the shareholder responsibility for company debt is limited to the amount that he/ she has invested in the company. Abbreviated as Ltd.

Crown Bodies

A Crown body is a management unit of the Crown whose staff are servants and agents of the Crown. All Government Departments and their Agencies are Crown Bodies.

Incorporated Association

Is a group of people who share a common interest.

Registered Charity

Is an official charity organisation that has legal status. In order to ascertain that a charity is registered and has legal status the charity registration number and, where applicable, its company registration number should be supplied upon application for a licence.

Licensee Name and Address

This screen is used to obtain details of the individual(s) or organisation responsible for the use of the radio system. If the application is for a Limited, Private Limited Company or Registered Charity then the registered address of the organisation must be used.

Licence contact name and address screen

Licence Contacts

This can be different to the licensee name and address. The licence documents and other correspondence relating to the licence will be sent here.

Payment contact name and address screen

Payment contact

Ofcom will use these details to contact the nominated person regarding licence renewal matters and accounts queries.

3rd party contact name and address screen

3rd party contact

This is the person or company who acts on you or your company's behalf when communicating with Ofcom regarding your licence. In many case this is the customer's radio supplier.

Please send a copy of the licence document to this contact

If you select this option then a copy of your radio licence will be sent to your radio supplier. Many customers find this advantageous, as the radio supplier will need to see your radio licence before any equipment can be installed.

Technical contact name and address screen

Technical Contact

Please enter the name and details of the person in your organisation who is responsible for the operation of the radio equipment, and whom Ofcom can contact in

case of queries regarding the technical aspects of your application and/or radio system.

Licence trading contact name and address screen

Licence trading contact

Ofcom will use these details to contact the nominated person regarding trading queries regarding your licence. These details are optional.

At this point the information requirement ceases for light licences. The following guidance relates to technically assigned licences only.

Service details screen

Type of Station

A base station requires that you enter antenna details such as erp or height. An operational area does not have an antenna and allows mobile to mobile communication only

Requested Service Area

The area you wish to cover with your radio system stated in kilometres. If you have chosen operational area as your type of station then the maximum requested service area is 30km. If you have chosen base station as your type of station then the requested service area is limited to 100kms.

Callsign

The callsign must not be more than 12 characters and must not be a place name. A callsign is a requirement of operation under the terms of the licence.

Mobile ERP

The power output of the mobile radio at the antenna.

Antenna details screen

Antenna Details

The choice of antenna to be used with the base station will have an effect on the coverage area for the proposed system. There are five types of antenna to choose from. Ofcom will take into account the frequency band and operational conditions before deciding whether the type of antenna selected can be used. In a small number of cases Ofcom may tell you to use a different type of antenna to ensure that minimum interference is caused to other co-channel users. Therefore you should not purchase any equipment including the antenna until you have received your licence schedule. The antenna types are:

Downfire antenna

The downfire antenna effectively radiates all of the power in a downward direction. This type of antenna is generally used for on site systems.

Directional antenna

Unlike the omni directional antenna, the directional antenna concentrates the radiated power in a given direction and is used when a more tailored coverage area is required.

Omni-directional antenna

This antenna provides a uniform pattern of coverage in all directions and is the most common type of antenna used.

Radiating cable

A radiating cable system uses a length of special cable that acts as the antenna. This type of system is used for in building coverage, and underground tunnels.

Azimuth

The Azimuth refers to the direction in which the antenna will be pointing and is measured in degrees east of true north.

Gain

The Gain of the antenna is a technical characteristic of the antenna and is expressed in dB-relative to a dipole. If you are unsure of the gain then you should consult with your equipment supplier who will be able to provide you with the information. You can enter a value between 0.1 and 99.9

Tilt

The angle of tilt below the horizontal plane is a technical characteristic for 'Downtilt' or 'Downfire' antenna types and is expressed in degrees. If you are unsure of the angle of tilt then you should consult with your equipment supplier who will be able to provide you with the information. You can enter a value between -90 and 90, a negative value implies a mechanical or electrical downtilt of the antenna.

Location

State if your service will run indoor, outdoor or underground. Underground services can include transport systems or car parks.

ERP

This is the power output of your antenna necessary to achieve your requested service area. You can enter a value between 0.1 and 100 if your service is designed to cover a wide area. If it is an on-site service then you should enter a maximum value of 25.

Height

The antenna height selected will have an effect on the coverage area for the proposed system. Regardless of the antenna type selected, you must enter the antenna height.

Spectrum details screen

1st choice band and 2nd choice band.

Please note that any assignments that use either UHF1 or Band III will require co-ordination, which may affect the turnaround time of your application. For more details on UHF1 or Band III coordination please send an email to businessradio@ofcom.org.uk.

Channel details

A simplex channel allows communications in one direction at a time whereas a duplex channel allows communications in both directions. A duplex channel has a different frequency for base and mobile transmit, i.e. the base station transmits on 156MHz and the mobile stations transmit on 161MHz.
Bandwidth for Business Radio channels is usually 12.5KHz, some systems such as TETRA require 25KHz channels, Digital Mobile Radio allows the user to split a 12.5KHz channel into two 6.25KHz channels.

Channel spacing is only required if you have specified that you will be using a trunked system, you should enter the number of channels you wish to have between each channel of your trunked system, note that each channel is assumed to be 12.5KHz wide.

CTCSS tones / DCS codes

CTCSS is an abbreviation for “Continuous Tone Controlled Signalling System”, it is also known as “Continuously Tone Controlled Sub-Audio Squelch”.
DCS is an abbreviation for Digitally Coded Squelch.

How CTCSS works

The best way of thinking of CTCSS is as a key to a door. When the door is closed, or in this case the radio receiver is muted, no other transmissions can enter. When the correct key is presented, the receiver opens up and the transmissions will be heard. A further aid to good reception is that the majority of users employ “Frequency Modulation” and the FM capture effect means that the radio will lock on to the strongest signal. It is unfortunate if a channel sharer has a stronger signal than the wanted one, as this will inhibit correct reception.

The generation of a tone is known as ENCODE and reacting to it is known as DECODE. If an interference problem is received on one leg of the channel only, a licensee may elect to have a restricted CTCSS ability. For more information go to:
http://www.fcs.org.uk/my%20files/fcs_pdfs/codesofpractice/mpt1306.pdf

How DCS works

Digitally coded squelch works by using a codeword which is a specific digitally coded signal transmitted continuously as with CTCSS. This is decoded by the mobiles in a similar way to CTCSS.

The DCS codeword consists of a 23 bit frame which is transmitted at 134.4 bits/sec. As this frequency is below that normally used for speech on PMR, it is a fairly simple matter to filter out the tone in the receiver so the user is unaware of it. The actual code system used to generate the bit pattern is fairly complex but is defined in MPT 1381. There are a total of 104 codes available but only 52 codes are normally assigned for use on PMR bands. This is because the other 52 are the inverted codes (also known as complementary codes) e.g. a codeword such as 10010 is the complement of 01101.

DCS can be used with SELCALL if required as it uses its own discrete frequencies.

A Code of Practice for using DCS can be found on the Federation of Communication Services website who manage the MPT on Ofcom's behalf. For more information go to: http://www.fcs.org.uk/my%20files/fcs_pdfs/codesofpractice/mpt1381.pdf

Digital Colour Codes

Please note that communication companies offer different variants of a colour code scheme and when you purchase their equipment they, or the radio dealer you have purchased the equipment from, can explain the scheme that is being used.

Timeslots

An IR2008 channel consists of two frequencies - a base station transmit frequency and a mobile station transmit frequency. The timeslots, of which there are 8 on the base station and 8 on the mobile station frequencies, represent 250 milliseconds (1/4 of a second), which are repeated every 2 seconds. An IR2008 licence would typically grant the use of four slots (2 base station and 2 mobile station), which are chosen by the licensee (i.e. BS slots 1 & 2, MS slots 5 & 6). The same slots are not licensed in the same geographical area, which equates to the exclusive use of the channel.