



Licensing Conditions and Station Identification

Nature of amateur radio, types of licence and call signs

1A2

Recall the restrictions applicable to Intermediate licensees in operation from a ship or aircraft.

The Intermediate Licence permits the licensee to operate on designated Amateur Radio frequencies:

- Within, across and over the United Kingdom of Great Britain and Northern Ireland,
- Within, across and over the Crown Dependencies of Jersey, Guernsey and the Isle of Man,
- Within, across and over the territorial seas associated with the above entities which extend to the closer of 12 miles off-shore or the midpoint between countries,

The licence also applies to areas covered by UK law such as UK controlled areas of the North Sea.

Finally the licence may be used in international airspace or international waters provided that:

- The vessel or aircraft is registered in the UK, and
- The permission of the vessels master has been obtained

Airborne operation can only take place on the primary bands and is limited to 500mW EIRP.



Operators and supervision

1B1

Understand the meaning of direct supervision, duties of the supervisor and need for the operator to comply with the licence.

The operator of the Radio Equipment is the person whose callsign is being used to identify the station, it does not necessarily reflect the ownership of the equipment. If another person wants to operate your equipment there are a couple of ways this can take place.

The first way, assuming that they are a Licensed Radio Amateur, is that you simply "lend" them the equipment and they operate using their own callsign and within the Terms and Conditions of their licence. They can do this even if the equipment is at your house although they might want to add the optional suffix "/a" to their callsign to signify that they are not at their Main Station Address.

The second way is that they can operate using your callsign, and this applies to unlicensed people, and maintaining the Terms and Conditions of your licence (even if they hold a superior licence). You must be present throughout the operation and are taking responsibility for the operation of the station as if it was you operating.

Messages

1C1

Recall that in an international disaster messages may be passed, internationally, on behalf of non-licensed persons.

Amateur Radio can be a lifeline in times of national or International disasters. During such events or in the aftermath of a disaster you may encounter non-amateur stations operating within the Amateur Bands, you should avoid transmitting over these stations. You may also pass messages on behalf of non-licensed persons if assisting with disaster communications.



1C2

Recall that the licensee may pass messages on behalf of a User Service and may permit them to use the Radio Equipment to send messages.

There are a number of "User Services" and although their identity is not examined you should be aware that the list includes:

- Any "blue-light" responder,
- British Red Cross,
- St John's Ambulance,
- St Andrew's Ambulance Association,
- The Women's Royal Voluntary Service (WRVS) known as the Royal Voluntary Service since 2013,
- The Salvation Army, and
- Any Government Departments

Although RAYNET-UK is set up and trained to operate in emergencies they are not a User Service.

At the request of a User Service you may:

- Transmit any information they provide unchanged even if it includes encrypted or obscured information, and
- Allow a member of a User Service to operate your equipment to send messages.



Apparatus, inspection and closedown

1D1

Recall that transmissions from the station must not cause undue interference to other radio users.

Recall that the Licensee must reduce any emissions causing interference, to the satisfaction of a person authorised by Ofcom.

Understand that this may include a reduction in transmit power or any other action required to reduce emissions to an acceptable level.

Ofcom has the power to require you to modify or restrict your operation with immediate effect. They usually won't do this without good reason although if there is a local emergency and you are not involved in traffic handling they may ask you to refrain from operating even if there is nothing wrong with your station.

If you cause or contribute undue interference to other authorised radio equipment Ofcom can require you to modify your station, modify your operation, avoid some bands/modes, or cease operation until repairs/improvements are made.

1D2

Recall the occasions for mandatory log keeping.

Understand circumstances in which modification or cessation of operating of the station may be required.

Understand circumstances in which modification of transmitting equipment may be required.

The requirement to keep a log of all transmissions has long since been removed from the Licence Conditions. However, this does not make logs any less valuable and many operators continue to maintain them. They can be a valuable asset in:

- Determining if you were transmitting at the time that interference was noted
- Recording contacts that are going to be confirmed via QSL Cards



- To claim awards
- If entering a contest

Remember, that although it is not mandatory to maintain a permanent log, Ofcom can make it mandatory as part of their investigations into licence breaches and interference investigations.

If you breach your licence conditions Ofcom can close your station down

If your station is shown to be the cause of undue interference you will be expected to make changes to prevent further occurrences and this may include restricted operation until alterations have been put in place.

Unattended and remote control operation

1E1

Recall that the licensee may use any communication link for the purposes of Remote Control of their station and must ensure that:

Any links used for the Remote Control of the Radio Equipment must be adequately secure so as to ensure that no other person is able to control the Radio Equipment;

Remote Control links using Amateur Radio frequencies must use frequency bands above 30 MHz and must not be encrypted;

Transmissions from the Radio Equipment can be terminated promptly; and

The Licence Number must be displayed on or next to any unattended Radio Equipment located other than at the address shown in the licence.

There has been an upsurge in remote operation caused, probably, by a combination of factors:

- Increased noise levels in urban environments as a result of solar panels, inverters, increased WiFi use, noisy non-compliant devices, smart meters, EV chargers etc.
- Increased support in modern radios for remote operation reducing the technical hurdles



Unattended and remote operation can cover a number of possible scenarios:

- Remote control operation is where the radio equipment is not located at the same place as the licensee but remains under their direct control. This can be either via a radio link, or alternative method such as an internet connection.
- Unattended operation is where the radio equipment is located outside of the licensee's main station address and used by a person not at the same location. This is especially the case for systems such as: repeaters that may be used by other amateurs.

If you want to set up a remote station you will need to ensure that:

- The remote control link is for your personal use only or somebody using it under your direct supervision,
- If the link fails the station should not be left transmitting,
- The remote link must be secure to prevent others from using it,
- If an amateur band is used to provide the remote link, it must be above 30MHz,
- There must be a mechanism to promptly terminate transmission in the event of a problem
- Your licence number, which is only identifiable to Ofcom, must be clearly displayed at the remote site.

The Licence describes 'Unattended Operation' as the operation of Radio Equipment by the Licensee when the location of the Licensee is different from the location of the Radio Equipment. 'Remote Control Operation' is described as Unattended Operation but where the Radio Equipment is operated by remote control, that is, where the Licensee has the ability to control the Radio Equipment from a different location from that of the Radio Equipment.

The distinction between these two terms is what the operator is able to do at the remote location. If an operator can simply transmit and receive through the station and no more, then this would be 'Unattended Operation'. However, if the operator in the remote location can, for example, switch the transmitter on or off, retune it or change other characteristics of it, then OfCom believes that that should be viewed as 'Remote Control Operation'.

The Wireless Telegraphy Act and the Amateur Radio Licences that OfCom issue under it relate only to the use of radio. No matter how a station is being operated, it is the actual use of the station that is subject to the Wireless Telegraphy Act and the Amateur Radio



Licence. Whoever holds the licence must ensure that the use of the station complies with the Licence. This may mean that the licensee must implement monitoring or other checks in order to take reasonable steps to ensure compliance with the Licence or to remedy any breaches that emerge.

Electromagnetic Fields

1G1

Recall the average and peak transmit power level at which the EMF restrictions apply; when there is a need to reassess EMF compliance.

The purpose of the EMF requirements is to limit the amount of RF that a human body is exposed to. There are two criteria that need to be considered:

- Average exposure over a 6 minute period, and
- Instantaneous peak exposure

The purpose of the regulations is to ensure that tissue warming effects associated with prolonged exposure remain at a level where the body's own temperature regulation mechanisms can handle and dissipate the increased heat and to ensure that peak effects do not cause momentary distracting sensations.

You need to undertake an assessment for ALL installations however if the assessment indicates that your station will be under:

- Transmitted power levels of less than 10W EIRP averaged over 6 minutes, and
- Transmitted peak levels of less than 100W EIRP

then the station is deemed compliant and no further measures are required.

Should the assessment prove that one or other of the exposure levels described above are exceeded then it is necessary to identify an "exclusion zone" around your antenna and ensure that transmissions don't occur if someone is within the exclusion zone.

You should have undertaken an assessment of your station at 25W, or the maximum power of the transceiver if lower, but if you plan on increasing your power level you will



need to reassess your current configuration at 100W, or the maximum power level of the transceiver if lower.

Remember that 25W into a dipole will result in 41W EIRP and 100W into the same dipole is 164W EIRP. The transmission mode will affect the actual calculation as modes like FM radiate full power for the duration of the transmission whereas SSB only produces RF when you speak and the power output varies.

If you make other changes to your system, such as a different antenna then the station must be reassessed.

The RSGB calculator is accepted by Ofcom as producing complaint outputs and you should complete any assessments and save the results for future reference.

Licence Schedule

1H1

Identify relevant information in Schedule 1 to the Intermediate licence.

A copy of the schedule will be available during the examination.

The Schedule for the Intermediate Licence differs from the Schedule for the Foundation Licence because the Intermediate Licence allows:

- Operation on additional bands compared to the Foundation Licence; and
- Operation with greater power than is permitted with the Foundation licence

However, the layout of the information is identical to the layout in the Foundation Licence:

Column 1 shows the frequency limits permitted for operation with an Amateur Radio Foundation Licence, operation outside of these limits is an offence. Note that some bands (such as the 40m band 7.0 - 7.2MHz) are split into sections.

Column 2 shows our status. Primary gives us more rights, a secondary allocation indicates that others are in control of these frequencies and that our operation there whilst legal is only tolerated as long as we don't cause interference.



Column 3 is similar to Column 2 in that it shows the status allocated to the Amateur Satellite Service, not all bands that are allocated to us in permit or indeed support Satellite uplink or downlink.

Column 4 lists the maximum permitted power. This is usually in terms of Peak Envelope Power (PEP) which is simply the power fed to the antenna from the transmitter (or transceiver) but in some cases is in terms of Effective Radiated Power (ERP) which is the power radiated from the antenna. PEP is relatively straightforward to measure with the right equipment, and if there are notable losses in the feeder between the transmitter and the antenna it is permitted to increase the transmitter's output to compensate for the feeder losses as long as the feedpoint doesn't receive more than the stipulated PEP. ERP is harder to measure and is usually calculated from a knowledge of the antenna performance, feeder loss and transmitter power.



INTERMEDIATE

Licensing Conditions

Syllabus 1.6b

Table B: Intermediate Licence Parameters

Frequency Bands	Status of Amateur Service allocation under this licence	Status of Amateur Satellite Service allocation under this licence	Maximum Peak Envelope Power level in Watts (and dB relative to 1 Watt)
135.7 to 137.8 kHz	Secondary. Available on the basis of non-interference to other services.	Not allocated	1 W (0 dBW) ERP
1810 to 1830 kHz	Primary. Available on the basis of non-interference to other services outside the UK or Crown Dependencies.	Not allocated	100 W (20 dBW) 500 mW EIRP airborne
1830 to 1850 kHz	Primary	Not allocated	100 W (20 dBW) 500 mW EIRP airborne
1850 to 2000 kHz	Secondary. Available on the basis of non-interference to other services.	Not allocated	32 W (15 dBW)
3500 to 3800 kHz	Primary. Shared with other Services.	Not allocated	100 W (20 dBW) 500 mW EIRP airborne
7000 to 7100 kHz	Primary	Primary	100 W (20 dBW) 500 mW EIRP airborne
7100 to 7200 kHz	Primary	Not allocated	100 W (20 dBW) 500 mW EIRP airborne
10100 to 10150 kHz	Secondary	Not allocated	100 W (20 dBW)
14000 to 14250 kHz	Primary	Primary	100 W (20 dBW) 500 mW EIRP airborne
14250 to 14350 kHz	Primary	Not allocated	100 W (20 dBW) 500 mW EIRP airborne