Licensing Conditions and Station Identification

Nature of amateur radio, types of licence and call signs

1A1

Recall that the amateur licence is for self-training in radio communications and is of a non-commercial nature. Business use and commercial advertising is not permitted.

Recall that the amateur licence permits operation in and over the United Kingdom, the Channel Islands and the Isle of Man in each case including their territorial seas.

Recall that the amateur licence also authorises operation aboard ships or aircraft registered in the United Kingdom, the Channel islands or the Isle of Man in international water or airspace.

Recall that the licence does not permit use in other countries or their territorial waters or airspace.

Notes: In practice a very low percentage of ships/aircraft are so registered and thus quite limited to the wider international arrangements for Full Licensees.

Airborne use has limited power and is primary allocations only.

Note. Refer to 1F1 for CEPT/International arrangements.

Amateur Radio is almost as old as radio itself, in fact, it could be argued that although the concept of "amateur" radio as we recognise it today didn't exist at the beginning of the use of radio; those pioneers such as Guglielmo Marconi (25/04/1874 - 20/07/1937) who were instrumental in developing RF techniques embodied the true spirit of Amateur Radio.

The Wireless Telegraphy Act was introduced in 1904 and has been subsequently revised to account for changes in technology (and off-shore pirate radio stations). The Wireless

Telegraphy Act formalised the use of sections of the RF spectrum by hobbyists, in so doing it mandated that the hobby of Amateur Radio was:

- for the purpose of self-training in radio communications, including conducting technical investigations; and
- as a leisure activity and not for commercial purposes of any kind.

This means that irrespective of your Licence class you should always be seeking to improve your operating technique, your understanding, your capability in different modes and that you cannot use Amateur Radio as a surrogate or replacement for a proper business radio licence so no managing pizza deliveries, taxi services or courier deliveries.

The three licence tiers (Foundation, Intermediate and Full) confer different privileges but all offer the right to operate an amateur radio station in and over the United Kingdom, the Channel Islands and the Isle of Man including the territorial waters associated with each entity.

At Foundation (and Intermediate) level there is no automatic right of operation beyond these limits, unless the operation is taking palace from a vessel or aircraft registered in the UK, Channel Islands or the Isle of Man. The number of vessels/aircraft so registered is quite small; so in practice Foundation (and Intermediate) licensees are limited to operation within the UK, Channel Islands, Isle of Man and associated territorial waters.

1A2

Recall the various types of UK Amateur Licence.

Recall that Regional Secondary Locators (RSLs), although optional, are defined in the licence and frequently used by amateurs to identify the location of their transmitting station.

Recall the RSLs that may be used by individual amateurs: D, E, I, J, M, U, W.

Recall that the use of an RSL is mandatory for all 2x series callsigns.

Recall that where an RSL is used, it must be used correctly.

Understand that suffixes may be used (but must not be offensive or obscure correct identification).

Recall that suffixes can optionally be used to indicate type of operation.

Recall the restrictions applicable to Foundation Licensees in operation from a ship or aircraft.

Note: The optional club secondary locators are not examined.

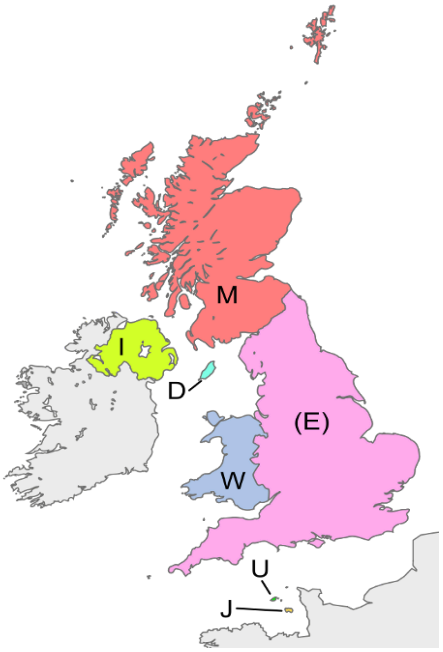
There are 3 levels of licence in the UK, these are:

- Foundation;
- Intermediate; and
- Full

It is possible to identify which licence someone holds by their callsign:

Licence Class	Possible Callsigns
Foundation	M#3XXX M#6XXX M#7XXX
Intermediate	2#0XXX 2#1XXX M#8XXX M#9XXX
Full	Any callsign starting G M#0XXX M#1XXX M#5XXX

Callsigns in the UK commence with: G, M or 2. To refine the locations you **may**, optionally (except in the case of a "2" series callsign when RSLs remain mandatory), include a Regional Secondary Locator (RSL) within your callsign to identify if you are in England, Northern Ireland, Scotland, Wales, the Isle of Man or the Channel Islands. The RSLs are shown below:



With the exception of Intermediate "2" series callsigns, the RSL for England (E) is optional. Historically, it wasn't used by either Foundation or Full Licence holders so its use is unlikely to be adopted under the new rules but you will hear it used by "2" series Intermediate Licence holders. As stations move across UK country borders they may change their callsign to reflect the country they are operating from, as follows:

Licence Type	England	Northern Ireland	Scotland	Wales	Guernsey	Jersey	Isle of Man
Foundation	M(E)7XXX	M(I)7XXX	M(M)7XXX	M(W)7XXX	M(U)7XXX	M(J)7XXX	M(D)7XXX
Intermediate	2E0YYY	2I0YYY	2M0YYY	2W0YYY	2U0YYY	2J0YYY	2D0YYY
Full	M(E)0ZZZ	M(I)0ZZZ	M(M)0ZZZ	M(W)0ZZZ	M(U)0ZZZ	M(J)0ZZZ	M(D)0ZZZ

If you choose to use a RSL it must be used correctly, that is with only the designation listed above and as the second character of your callsign.

It is also permissible to add a "suffix" to your callsign to help identify the type of operation being undertaken. Such suffixes are more or less up to the Licensee to select but they must:

1. Not be offensive, which can include more than just obvious vulgarity, and
2. Not obscure the station identification.

Some examples might be:

- /QRP to signify a low power operation
- /SOTA to signify a Summits on the Air activation
- /<$special event> to signify a station participating in a Special Event such as Railways on the Air or Mills on the Air
- /A, /P, /M and /MM which are recognised suffixes that used to form part of the Licence and are discussed in more detail in Section 7 'Operating Practices and Procedures'

With a Foundation Licence it is permitted to operate from an aircraft that is over the United Kingdom, the Channel islands, the Isle of Man or the territorial waters associated with each of these entities. There are restrictions on the power levels associated with such operation and it can only take place on primary bands and with the permission of the plane's captain.

A similar situation applies to operation from a ship within the territorial waters of the UK, Channel Islands or the Isle of Man. In this case the power restrictions are not as onerous and operation is permitted on any allowable bands but again it must be with the permission of the vessel's master.

1A3

Recall that the Licensee must give immediate notice to Ofcom of any change to: the Licensee's name and address quoted on the licence.

Recall that the licensee must confirm that the details shown on the licence remain valid at least once every five years.

Recall that the licence can be revoked by Ofcom for breaches of licence conditions.

When you apply for your licence you will have to provide Ofcom with:

- Your Full Name;
- The address that the Radio Equipment is located at (the Main Station Address)
- A mailing address at which Ofcom may contact you (the Mailing Address which is usually the same as the Main Station Address but might not be)

If any of these details change because you change your name (through marriage or other legal means), relocate your Radio Equipment, or move your contact address then you must update your details with Ofcom **Immediately**.

Even if your details are unchanged you must validate your licence with Ofcom at least every 5 years, failure to do so may result in your licence being declared dormant and reallocated to another amateur when they pass their Foundation Exam.

The Terms, Conditions and Limitations of the Licence are supplied or can be downloaded from Ofcom when you are issued with your licence. They form an integral part of your Licence and govern what you are permitted to do. If you transgress or violate these rules then your Licence may be revoked, as it may be if you don't confirm your details every 5 years.

1A4

Recall the requirements for station identification.

Note: For the purposes of the examination this includes identifying when there is a change of: frequency; mode including a change of digital protocols (e.g. FM [frequency modulation], AM [amplitude modulation], SSB [single sideband], CW [carrier wave - Morse code], Data [PSK, RTTY, WSPR, FT8]); supervisor; Regional Secondary Locator if used.

The Amateur Radio Terms, Conditions and Limitations state that your station should:

- be clearly identifiable at all times;
- that the callsign should be given "as frequently as practicable during transmissions"; and
- that the identification should be given in voice or a mode compatible with that in use.

Note that this doesn't mean you have to give your callsign every over!

There are, however, specific occasions when you **must** give your callsign, these are:

- If you change frequency you must immediately identify your station on the new frequency;
- If you change the mode of transmission, switching from, say FM Voice to PSK31 then you must identify your station in the new mode
- If you change digital protocol, e.g. changing from PSK31 to RTTY or SSTV then you must identify your station in the new mode
- If you are operating under supervision (more on this later) and the supervisor changes then your callsign will change to that of the new supervisor and you must immediately announce this
- If you using RSLs to identify your location with the UK, Channel Islands or the Isle of Man and cross a country border so that your optional RSL changes then you must immediately identify with the new RSL

Operators and supervision

1B1

Recall that only the licensee or any person operating under the Licensee's direct supervision may use the Radio Equipment.

Recall that the call sign of the supervisor is used to identify the station and operation is in accordance with the supervisor's licence.

Recall that in certain circumstances the licensee may allow the equipment to be used by a member of a User Service.

Notes:

The term 'Radio Equipment' (in initial capitals) is a defined licence term meaning the equipment used and identified by the operator's call sign. If a visiting amateur uses the radio equipment with their own call sign, it is then deemed to be their Radio Equipment.

The Nature of the circumstances and identity of the User Services are not examinable.

Your callsign belongs to you, only you may use it when operating the Radio Equipment. You may, however, allow another person (with or without a UK amateur radio licence) to operate using your callsign as long as you supervise that other person. Under these circumstances, the other person uses your callsign under your supervision and is bound by your licence limitations. Direct supervision means that you remain responsible for the operation of the Radio Equipment and compliance with the terms, conditions and limitations of the Licence, you may not allow operation to continue if you are not present. This is required so that at any time during the supervised operation the licensee can take back control of the radio equipment.

As well as being able to supervise another person it is also possible for you to operate under the supervision of someone with a higher licence class allowing you temporary access to the greater privileges of an Intermediate or Full licence for the duration of the

supervision. When operating under the supervision of another licensed amateur you operate using the callsign of the supervisor and in accordance with the supervisor's licence.

A User Service is generally an emergency service such as the Police, Fire Service or Ambulance Service. There are others but it is not important that you know the full list. The important thing is that there may be circumstances where a User or Emergency Service may not be able to rely on their own communications equipment. Under these circumstances, the User or Emergency Service may ask you to pass a message on their behalf or to be allowed to operate your equipment so that they can send a message. The Licence specifically allows this if it is required by the User Service.

Messages

1C1

Recall the requirement to send messages only to other amateur radio stations and only using UK Amateur frequencies.

Recall that a 'Net' or 'Network' refers to transmissions to three or more Amateurs with whom communication and identification has been established.

Recall that transmitting for general reception, that is to anybody who may be listening, is not permitted other than for CQ calls.

Your licence only permits you to send messages in whatever format you choose (SSB, FM, CW, Digimodes etc.) to other Licensed Radio Amateurs in the UK and worldwide. If you suspect that the person who is in contact with you is not a Radio Amateur you should extricate yourself from the QSO at the earliest opportunity.

There is a technical difference in legal terms, and we are dealing here with Licence Conditions, between "Broadcasting" and "Transmitting". **Transmitting** means sending your signal from your station to the station of another Radio Amateur, the intended recipient of your message; it is a one-to-one transmission. **Broadcasting** means sending

your message to anyone who might be listening, it is intended to be received by many people; it is a one-to-many broadcast.

Our licence permits us to **transmit**, it does not permit us to **broadcast**. However there are a few circumstances where it is necessary for us to broadcast, these situations are recognised and our licence has dispensation allowing us to broadcast in the following situations:

- When calling CQ. Clearly, if we don't know who is listening we cannot contact them directly and therefore you have to broadcast until you know who is going to make contact
- Operating in a "net". A net is a group of Radio Amateurs sharing a frequency and taking turns to broadcast to all those in the group. Under these circumstances, it is impossible for us not to be in a one-to-many broadcast situation so the Licence allows us to broadcast to a group.

1C2

Recall that encryption is not permitted except at the direct request of a User Service.

Note: Morse code is not a secret code and that it is only secret codes which obscure the meaning of the Message that are prohibited.

You are not allowed to obfuscate or make unclear the meaning of any message you send, it is not permitted to use phrases or words to conceal or confuse what you are saying, there is no expectation of privacy on the air.

Internationally recognised codes such as Morse code and "Q" codes do not obfuscate or conceal meaning; they may be read and understood by anyone with knowledge of the standards. Similarly, digital modes may not be understood when heard on the air but with the correct equipment and the correct public domain digital protocols, the tones can be decoded. Once decoded the words should be clear.

If you are required to send a message on behalf of a User Service, they may require you to conceal personal details, this is one of the few occasions where you may deliberately

conceal the meaning of your transmission and you may repeat word for word something you are told by a representative of a User Service even if the meaning of those words is unclear to you.

Apparatus, inspection and closedown

1D1

Recall the Licensee must ensure that the station is not causing Undue Interference to other radio users.

Recall that a person authorised by Ofcom has the right to any or all the following: inspection of, require the modification of, require the closedown of and/or restrict the operation of the Radio Equipment.

Once you are licensed and begin operating it is your responsibility to ensure that your station is clean and not transmitting spurious signals that might cause interference particularly outside of the Amateur bands. To ensure this is not occurring you must demonstrate that you have periodically checked your equipment. Exactly how you do this is not part of this section and will not be examined but is discussed in Sections 6 'EMC' and 7 'Operating Practices and Procedures'..

Ofcom has a duty to keep the radio spectrum clean and resolve issues of interference. If interference is reported to them and they investigate you may be asked to cooperate. They may want to inspect your equipment to ensure that it hasn't developed a fault that you are unaware of. Equally, they might want to rule you out as a source of interference or limit your operations whilst they check other potential sources.

You are required by the terms of your licence to permit Ofcom or their authorised representative to inspect your station whenever they wish and a failure to allow this may result in revocation of your licence.

Should Ofcom determine that your equipment is at fault they will require you to have the offending equipment repaired or replaced. Generally, they want to work with you helping

you to get your station in order, but if you are uncooperative they have the power to limit your operations or close your station down and ultimately revoke your licence.

1D2

Recall that a person authorised by Ofcom may require the Licence holder to keep a log of all transmissions made over a specified period of time.

The requirement to maintain a log of all contacts has long since been removed from the Licence. In the Operating Practices and Procedures topic, we will discuss when it might be a useful or necessary function, but in the main log keeping is at the operator's discretion. Should there be an interference investigation that involves your station, for whatever reason, Ofcom or their duly authorised representative may require you to keep a log of all transmitting activities to determine patterns and assist in identifying the root cause of any problem.

If you are instructed by Ofcom or their representative to keep a log then you must do so until such time as they have resolved the problem and no longer require you to maintain the log.

Electromagnetic Fields

1G1

Recall:

The purpose of basic EMF restrictions;

The equipment to which the EMF restrictions apply;

The transmit power level at which the EMF restrictions apply;

The persons to which the EMF restrictions apply;

The need to keep a written record of assessments carried out.

Note:

See also 8D1.

The record includes a justification of why no further action is required if that is the case (e.g., power levels are below the threshold).

The purpose of this legislation is to ensure that members of the general public are not present in areas where the general public EMF limits (as defined in section 3 of Ofcom's 'Guidance on EMF Compliance and Enforcement') may be exceeded when you are transmitting. It does not require you to protect yourself, other radio amateur licensees or workers from EMF.

The assessment applies to all radio transmitting equipment, although there is an acceptance that equipment with an average EIRP of less than 10W (6.1W ERP) and a peak EIRP of less than 100W EIRP (61W ERP) do not need further detailed assessment. All other equipment will require an assessment to be completed. The initial step in the assessment is to determine if the average and peak values described above are exceeded or not.

Assessment needs to follow the methodology set out by Ofcom or an alternative calculation that is known to produce the same answer such as the RSGB EMF Calculator which can be found on the RSGB website:

https://rsgb.org/main/technical/emc/emf-exposure/

The assessment takes the form of a compliance check. The purpose of a compliance check is to identify the boundaries of the zone around the antenna within which the general public might be exposed above the general public EMF limits if transmission takes place while a member of the general public is or can be expected to be present. This is called the “EMF exclusion zone”.

There are a number of ways to carry out a compliance check including:

1. Using Ofcom’s EMF calculator
2. Using another calculator that you are confident produces accurate results, e.g. the RSGB’s EMF calculator
3. Using one of the pre-assessed equipment configurations developed and shared by representative organisations, for example, the RSGB

The size and shape of the EMF exclusion zone will depend on the antenna, its location, and the RF power level. Simple methods of assessment produce a single figure of “compliance distance” based on the worst case in any direction. More advanced methods, including pre-assessed configurations, will provide more realistic 3D estimates of the EMF exclusion zone.

You need to ensure that you do not transmit if any member of the general public is or can be expected to be present within the EMF exclusion zone.

The general public can include family, friends, neighbours, lodgers and visitors as well as other members of the general public of all ages. None of these individuals should be exposed to EMF above the general public EMF limits. The general public may either be on public or private property including, for example, on a public footpath, or in a private residence, including in the garden, an adjoining garden or on a balcony.

No further action is required if the only people able to enter the EMF exclusion zone are either:

1. you (i.e. the licensee),
2. other amateur radio licensees, or
3. workers (i.e. persons already protected under existing health and safety legislation). This includes any workers you may invite onto your property e.g. a nanny or tradesman.

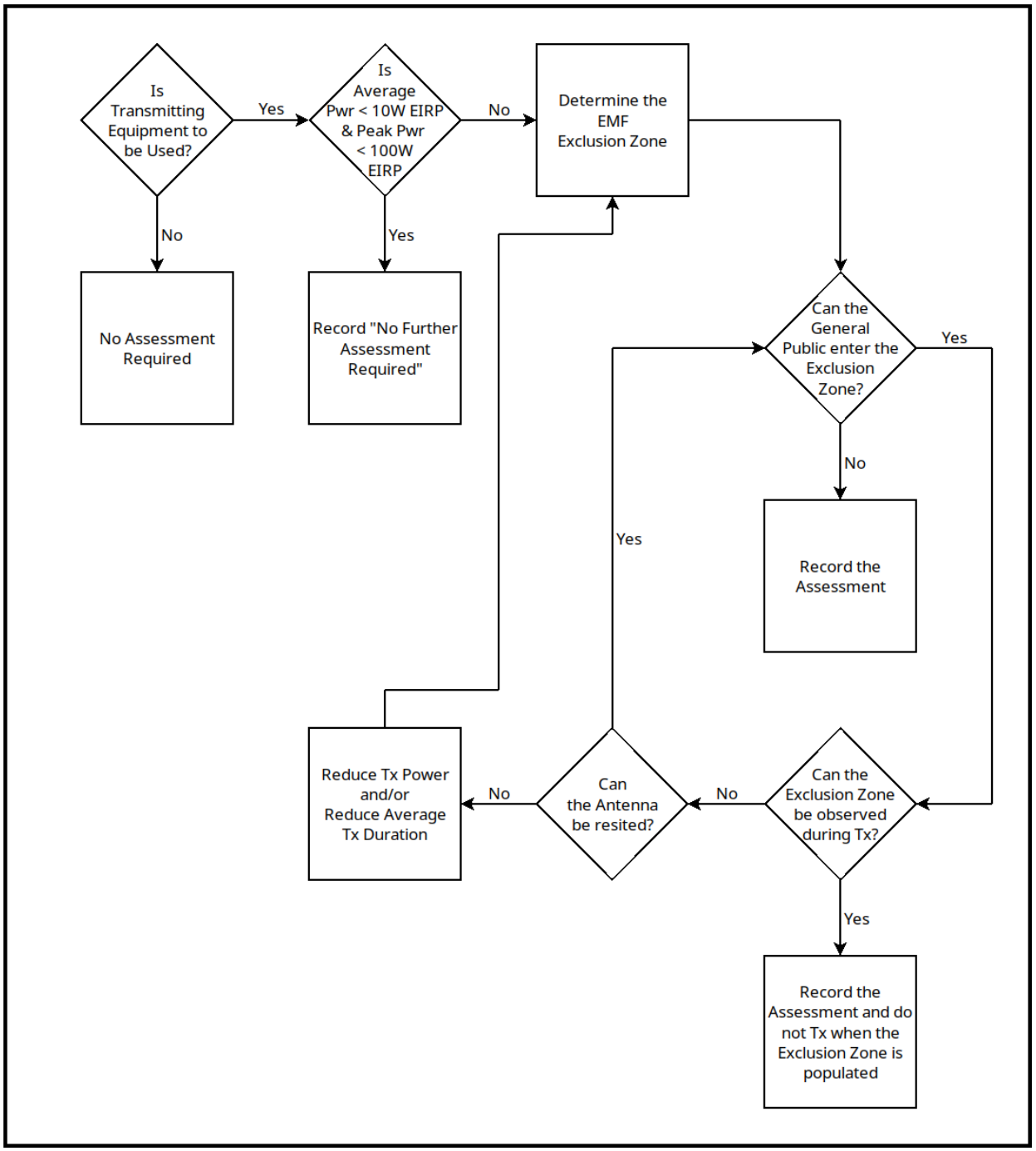
It is not necessary to exclude people from the area inside the safe distance but it is necessary to be able to determine if people are within this zone and take appropriate action, which may be as simple as: "if people are in my garden I won't go on air". Other steps may include reducing power or repositioning the antenna.

Remember that these are ERP figures and it is quite possible, particularly at VHF and above, to have sufficient antenna gain to produce ERPs in excess of either the average or peak thresholds for assessment even with modest power from the transceiver.

The assessment does not have to cover the worst case of maximum power legally allowed, only the configuration in use. So even though you have a 25W maximum power permission if your transmitter is only capable of 5W maximum it is perfectly acceptable to assess the 5W output as this is all that can be practically achieved.

Compliance needs to be re-assessed whenever the configuration is changed, that means:

1. Change of antenna
2. Change of feeder
3. Change of antenna location
4. Increase in maximum power



Licence schedule

1H1

Identify relevant information in Schedule 1 to the Foundation licence.

Recall the difference between Primary and Secondary status and that other services may also be present with such status in some allocations.

A copy of the relevant part of Schedule 1 will be available during the examination.

The Licence schedule is part of the Terms, Conditions and Limitations document that forms part of your licence. You do not need to memorise it as a copy is provided in the exam but you do need to understand it and be familiar with using it to check aspects of the operation. The Licence contains 3 tables, one for each of the licence classes: Foundation, Intermediate and Full. As a Foundation Licence holder, you are bound by Table A

In the table below:

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 the bands that are allocated to us 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 feed point 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.

Table A

Foundation Licence Parameters

Frequency Bands (in MHz)	Status of allocations in the UK to the Amateur Service	Status of allocations in the UK to the Amateur Satellite Service	Maximum Peak Envelope Power level in Watts (and dB relative to 1Watt)
0.1357-0.1378	Secondary. Available on the basis of non-interference to other services	Not allocated	1W (0 dBW) ERP
1.810-1.830	Primary. Available on the basis of non-interference to other services outside the UK or Crown Dependencies	Not allocated	25W (13.98 dBW) 500mW EIRP airborne
1.830-1.850	Primary	Not allocated	25W (13.98 dBW) 500mW EIRP airborne
1.850-2.000	Secondary. Available on the basis of non-interference to other services	Not allocated	25W (13.98 dBW)
3.500-3.800	Primary. Shared with other Services	Not allocated	25W (13.98 dBW) 500mW EIRP airborne
7.000-7.100	Primary	Primary	25W (13.98 dBW) 500mW EIRP airborne
7.100-7.200	Primary	Not allocated	25W (13.98 dBW) 500mW EIRP airborne
10.100-10.150	Secondary	Not allocated	25W (13.98 dBW)
14.000-14.250	Primary	Primary	25W (13.98 dBW) 500mW EIRP airborne
14.250-14.350	Primary	Not allocated	25W (13.98 dBW) 500mW EIRP airborne
18.068-18.168	Primary	Primary	25W (13.98 dBW) 500mW EIRP airborne
21.000-21.450	Primary	Primary	25W (13.98 dBW) 500mW EIRP airborne

Frequency Bands (in MHz)	Status of allocations in the UK to the Amateur Service	Status of allocations in the UK to the Amateur Satellite Service	Maximum Peak Envelope Power level in Watts (and dB relative to 1Watt)
24.890-24.990	Primary	Primary	25W (13.98 dBW) 500mW EIRP airborne
28.000-29.700	Primary	Primary	25W (13.98 dBW) 500mW EIRP airborne
50.00-51.00	Primary. Available on the basis of non-interference to other services outside the UK or Crown Dependencies	Not allocated	25W (13.98 dBW) 500mW EIRP airborne
51.00-52.00	Secondary. Available on the basis of non-interference to other services	Not allocated	25W (13.98 dBW)
70.00-70.50	Secondary. Available on the basis of non-interference to other services	Not allocated	25W (13.98 dBW)
144.0-146.0	Primary	Primary	25W (13.98 dBW) 500mW EIRP airborne
430.0-431.0	Secondary	Not allocated	25W (13.98 dBW) ERP
431.0-432.0	Secondary. Not available for use within 100km of Charing Cross, London (51°30'30"N, 00°07'24"W)	Not allocated	25W (13.98 dBW) ERP
432.0-435.0	Secondary	Not allocated	25W (13.98 dBW)
435.0-438.0	Secondary	Secondary	25W (13.98 dBW)
438.0-440.0	Secondary	Not allocated	25W (13.98 dBW)
2400-2450	Secondary. Users must accept interference from ISM users	Secondary. Users must accept interference from ISM users	2W (3 dBW)
5650-5670	Secondary	Secondary. Earth to Space only	2W 93 dBW)
5670-5680	Secondary	Not allocated	2W (3 dBW)
5755-5765	Secondary. Users must accept interference from ISM Users	Not allocated	2W (3 dBW)
5820-5830	Secondary. Users must accept interference from ISM users	Not allocated	2W (3 dBW)
10000-10125	Secondary	Not allocated	1W (0 dBW)
10225-10450	Secondary	Not allocated	1W (0 dBW)

Frequency Bands (in MHz)	Status of allocations in the UK to the Amateur Service	Status of allocations in the UK to the Amateur Satellite Service	Maximum Peak Envelope Power level in Watts (and dB relative to 1Watt)
10450-10475	Secondary	Secondary	1W (0 dBW)
10475-10500	Not allocated	Secondary	1W (0 dBW)