

South Bristol Amateur Radio Club Foundation Course

Lesson Two

4.0 Amateur Radio Licence Conditions:

(Syllabus section 2c.1 to 2c.9)

(Manual pages 17 - 19)

- 4.1 All the licensing conditions are in Section 2 of the new Licence for Life documentation entitled "Terms, Conditions and Limitations".
- 4.2 Listed below are some of the more important conditions that you should be aware of and could be tested on:
- Sections 1(1)
 - Sections 2(1) & 2(2)
 - Section 3(1)
 - Sections 5(1), 5(2) & 8(1)
 - Section 6(2)
 - Sections 11(2), 11(3) & 11(4)
 - Section 12(1)
 - Section 13(1) & note (d)

To put it simply:

- The purpose of your licence is for self-training in communication by radio.
- The radio equipment should not be used for commercial purposes.
- When away from the main station address, use the appropriate regional secondary locator if applicable.
- Only the licensee may operate the station, or supervise another licenced amateur subject to the terms and limitations of the licence holder.
- Local Ofcom officials have the right of inspection and to close down or restrict operation of the station.
- Notify the issuing authority, Ofcom of any change of address.
- You send messages only to other licensed amateur radio stations.
- Do not use secret codes.
- Do not broadcast, other than initial (CQ) calls or when part of a group (net).
- Maintain a log when directed by a person authorised by Ofcom.
- Give call sign at least every 15 minutes or when changing frequency.
- Optionally, when at an alternative location having a fixed postal address use suffix /A on your call sign.
- Optionally, when mobile (in a car, on foot, or on a vessel in inland waterways) use suffix /M on your call sign.
- Optionally, when operating from a temporary location other than an alternative location use suffix /P on your call sign.

5.0 Technical Basics #1:
 (Syllabus section 3b.4 to 3c.3)
 (Manual pages 7 - 9)

5.1 Electricity and frequency

5.1.1 A battery provides **voltage** at its terminals; this is often referred to as a potential difference. In order for electrical current to flow there must be a continuous circuit from one battery terminal to the other.

5.1.2 In simple circuits, such as a filament lamp, battery and switch, it does not matter which way round the battery is connected. But in a more complex piece of equipment, such as a radio, television, calculator etc, the positive and negative terminals of the battery **must** be connected to the correct polarity (positive battery terminal to positive side of the circuit and vice-versa) otherwise serious damage can be caused to the equipment.

5.1.3 The current from a battery flows out of the positive terminal around the circuit and back into the negative terminal. We call this **direct current (D.C.)**. **Alternating current (A.C.)** is different; it keeps changing directions (polarity) first one way then the other. A.C. is much easier to generate and to change from one voltage to the other. The mains electricity supply in the UK is 230 volts A.C.

5.1.4 When an electrical circuit is illustrated a number of symbols are used to show the various components in the circuit. The following symbols may be used in the exam.

Description	Symbol	Description	Symbol
Cell		Switch (s.p.s.t)	
Battery		Antenna	
Fuse		Earth	
Lamp		Microphone	
Resistor (General)		Loudspeaker	

5.2 Frequencies used in power, audio and radio systems.

5.2.1 Some facts you need to know:

- Frequency is measured in Hertz (Hz).
- 1 Hz is one cycle per second.
- 1 Kilohertz (kHz) is one thousand cycles per second.
- 1 Megahertz (MHz) is one million cycles per second.
- The UK mains supply operates at 50Hz
- The normal hearing range - audible frequencies (A.F.) are 100Hz to 15 kHz.
- The range of frequencies for audible communications is 300 Hz to 3 kHz.

- 5.2.2 Radio frequencies (R.F.) are much higher than A.F. and are divided into various bands. For this course you need to know that:
- High Frequency (H.F.) covers: 3 MHz to 30 MHz
 - Very High Frequency (V.H.F.) covers: 30 MHz to 300 MHz
 - Ultra High Frequency (U.H.F.) covers: 300 MHz to 3000 MHz
- 5.2.3 The frequency is generated by an oscillator and when graphically represented looks like a sine wave.
- 5.2.4 Different services such as broadcasting, emergency services, maritime, mobile telephones etc. are allocated different parts of the radio frequency bands. This ensures that all services can operate without interfering with each other. See table 3 on page 9 of the manual.
- 5.2.5 Also you should be aware that as the frequency increases then the wavelength decreases and vice-versa. See fig. 8 on page 9 of the manual.
- 5.2.6 You do not need to remember these tables but you should be able to understand them. Copies will be supplied for the exam.