

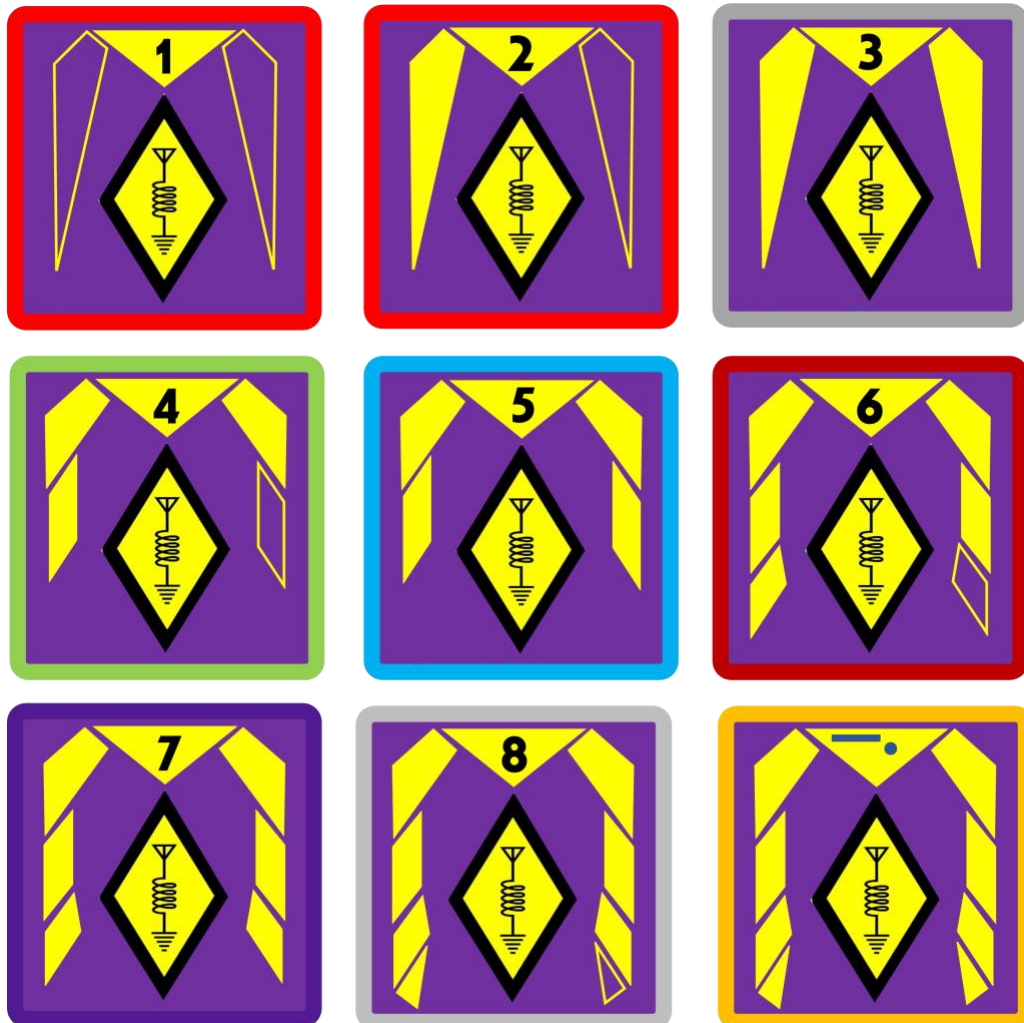


Radio Scouting Skills Program (DRAFT v2.0)

The objective of Radio Scouting program badges levels 1-4 is to give scouts and scouters a basic level of understanding of radio communications, including space communications, such that they can competently operate a station safely and with a little bit of extra study they can have their knowledge skills externally validated by exam, obtaining a Novice Amateur Licence (Once available in Ireland) and or a Marine VHF license. Similar to the other adventure skills Level 1 & 2 are relatively easy for your average scouter to learn and teach. After level 2 outside support and or external training may be required. For example, Radio scouting Ireland run scout specific training and the National Short Wave Listeners Club run training courses up to and including sitting tests for the attainment of a Class A or Class B license.

The objective of Radio Scouting program badges levels 5-9 is for scouts to develop a high level of competence to operate in any given circumstance and environment and a very good level of understanding of radio communications such that with some extra study they can obtain a Full class A or B Amateur radio license and go on to be a proficient radio operator with a good understanding of technology.

On presenting evidence of attaining a stage the scout can apply for the corresponding badge for the level of competence acquired.



Stage 1

- I can name at least 4 things that I know use radio waves
 - e.g. Mobile phones, TV, Radio, WiFi, walkie talkie, Satellites, GPS, Bluetooth, Radar
- I know my parents/guardian/ICE contact phone number and can dial it on a mobile phone
- I can name some radio stations I can hear from my home/den/car
- I know the difference between Commercial and Amateur radio
- I know why amateur radio is a licensed hobby
- I know what morse code is
- I know some aspects of Amateur radio language (Phonetic Alphabet and Q codes, callsigns), I know what a callsign is and the prefix of my own country and I can spell my name using the phonetic alphabet
- I can use a walkie talkie

Earned on

Stage 2

- I can build a simple circuit e.g. scribble robot, morse key/light
- I know the main components of an amateur radio system
 - Antenna, receiver, speaker, microphone, transmitter
- I know what short wave listening is and I have tuned in to and can recognise morse code, data and voice signals
- I know what the RST system for signal reporting is
- I know how to look up a callsign of an amateur radio station on qrz.com
- I have listened to and logged 5 QSO's and have identified the operators country
- I have taken part in a scouting event and talked to another operator on the radio

Earned on

Stage 3

- I understand low frequency, high frequency, HF, VHF & UHF
- I understand low frequencies need larger antennas and high frequencies need smaller antennas
- I understand resonance and the basics of tuning a half-wave dipole antenna
- I understand the concept of signal-to-noise ratio and how directional antennas help
- I understand and can explain the 3 modes of propagation, namely Free-space, Groundwave & Ionospheric propagation
- I can explain why I can hear distant stations on MW, LW and SW and how these changes from night and day
- I know how space weather, particularly the Sun affects radio wave propagation
- I know what objects in the Solar System emit radio waves and I understand the concept of signal to noise ratio
- I understand how a repeater and DMR works and I have made a QSO via a repeater or DMR
- I understand the main radio controls and how to use them, VFO A/B, AGC, RF gain, AF gain, Band select, Mode select, Tune

- I have a log of 25 shortwave/HF stations that I have heard on the radio (Can includes Amateur and Commercial Stations). Log time, date, frequency, mode and signal report
- I have used an amateur radio station under supervision & completed and logged 5 QSO's
- I have received a QSL card from a commercial or Amateur radio station
- I know the meaning and use of Mayday, PanPan and Securite, I can use radio communications effectively in an emergency situation (Emergencies L7) and I know how to contact emergency services using Marine VHF C16

Earned on

Stage 4

- I can set up a working station, antenna, PSU transceiver, ATU
- I understand SWR and how to use an SWR meter, analyser and Antenna Tuning Unit (ATU)
- I understand how to calculate the length of a dipole antenna for any given frequency
- I have built, tuned, and logged at least 3 QSO's on a dipole or ¼ wave GP or similar antenna that I have made and tuned myself
- I understand EMF, PEP, EIRP, the relative danger of electromagnetic waves at various powers and how to set up an antenna safely.
- I can name 10 of the main Amateur radio bands (160,80,60,40,30,20,17,15,12,10,2) and how their propagation might be changed by the time of day, day of year & sun cycle.
- I understand and can explain the different antenna types ¼ wave ground plane, Dipole, End Fed Half Wave -EFHW, Random wire, Yagi, Log periodic
- I know ComReg's role in licensing
- I understand the importance of good procedure for communicating via amateur radio
 - I have read and abide by the DX code of conduct
 - I know how to call and answer CQ, how to give signal reports and how to 'break' into an existing communication.
 - I know what 'split' operation is, how to recognise a station is operating split, and when to use it
 - I know how to recognise and operate with a DXpedition station, Competition station & standard amateur radio station
- I understand the importance of a clean signal and how to check if my station is over modulating (radio check or SDR)
- I have decoded an SSTV signal
- I understand and can use the $P=VI$ equation
- I understand the difference between inductance, capacitance & resistance.

Earned on

Stage 5

- I understand how to calculate the resistance of a circuit of parallel or in series resistors
- I understand how to calculate the capacitance of a circuit of parallel or in series capacitors
- I understand how to calculate the inductance of a circuit of parallel or in series inductors
- I understand the concept of a tuned circuit and understand how to calculate the frequency of a tuned circuit
- I can name and explain the characteristics of 3 different types of coax and or transmission line
- I have built a choke and a balun and can explain what they do

- I have completed a simple electronics or Arduino/Raspberry Pi project
- I have studied the HAREC curriculum and have sat the exam and obtained a Novice License OR I have studied the marine VHF license curriculum and have sat the exam and obtained a Marine VHF License

Earned on

Stage 6

- I have completed at least 2 of the following Amateur Radio/Radio Scouting Special Activities with at least 10 QSO's : IOTA, POTA, JOTA, SOTA, DxPedition, AREN exercise, Competition
- I have built and tuned a multiband antenna with at least 3 bands (e.g. nested ¼ waves or fan dipole)
- I have built an electronic gadget and can use a soldering Iron to solder components onto a PCB
- I can detect meteors using radio
- I have set up an operated on a scout camp or field day event without the use of mains power electricity
- I have logged at least 200 QSO's across a minimum of 3 modes (SSB< AM, FM, Digi e.g. FT8, CW.)
- I have logged at least 50 different countries (DXCC entities)

Earned on

Stage 7

- I have competed in a competition and made >40 verified/scored qso's
- I have supervised a station at a JOTA-JOTI or similar multi station event
- I have made a contact over an amateur radio satellite
- I have conducted 50 assisted* CW QSO's (* using a keyer and skimmer/decoder)
- I have achieved DXCC on at least 3 bands (LOTW or QRZ.com certified)
- I have obtained a Class B licence

Earned on

Stage 8

- I have achieved DXCC on at least 5 bands
- I have built a simple morse code oscillator and can send my callsign, 599 and 73
- I have operated in another country
- I can send and receive morse code at 5 wpm or more
- I have obtained a Class A licence

Earned on

Stage 9

- I have completed 25 QSO's on 160m and 6m
- I have completed at least 1 DXCC award on CW, Phone & Digital modes (LOTW or QRZ.com certified)
- I can send & receive CW reliably >= 25 wpm (Verified by membership of CWOPS or FOC)
- I have completed at least 5 of the following special activities of : IOTA, POTA, JOTA, SOTA, DxPedition, AREN exercise, Competition (verified by submission of evidence)

Earned on