

How to manage a radio communication

The basics of two-way radio communication and of special codes.

Learning targets: Learn how to communicate with voice radio communications - Learn the basic codes used in a radio communication - Work on listening skills, on avoiding to talk over other people, on avoiding to shout to overwhelm someone else's speech, on keeping a correct language.

Material:

- PMR/CB. If possible, each Scout/Guide should have a transceiver. In preparing the activity and finding radios, consider that CBs and PMRs work on different frequencies, so communications between a CB and a PMR are not possible. Before using CBs/PMRs, check the laws that govern the use of these devices in your country.
- paper sheets with Q code and NATO/ICAO alphabet.

Time and preferred place: 1-2 hours. The theoretical part of the training can be done in a room, but the practice with transceivers should be performed outside, with sufficient distance to make voice communications impossible.

Description: At the beginning of the activity the correct ways to call in radio or to make a conversation of two or more people will be explained. Please refer to the **JOTA-JOTI Ham Radio Handbook** for details. For a complete ham radio guide to communications, the most expert are encouraged to read the "Ethics and operating procedures for the radio amateur" by Mark Demeuleneere ON4WW

(<https://www.uba.be/sites/default/files/uploads/dossiers/eth-en-site-on-uba-1jul2008.pdf> <https://www.qsl.net/on4ww/op.html>). For simple CB/PMR communications, after having read the documentation on how to use a transceiver (look the Activity How to use a radio CB-PMR). Here are the basic concepts to keep in mind:

- When using CBs/PMRs, even if callsign is assigned to people, it's useful to assign a meaningful name/nickname to each radio/station.
- Each channel cannot host more than one transmission at a time. Talking over someone else will only make your message and the other person's message unreadable, no matter the power you use and how much you shout on the microphone. As consequence:
 - Before calling for the first time on a channel, please listen for a few seconds if the channel is busy. If not, make a first transmission asking "Is this frequency in use?" If after some seconds no answer is received then you can start chatting on the channel.

- A general call (i.e. a call towards any potential listener) starts like this: “CQ CQ CQ (from) (your stations’ name), listening and standing by.” If needed then repeat the call, but leave some seconds in between calls to listen to potential answers.
- In a radio conversation stations transmit in turn; to avoid confusion and superposition of transmissions, the beginning and end of each transmission must be made identifiable and they must help the tournament. So:
 - When beginning a transmission, start with “(Station name before you), from (or this is..) (your station’s name), ...” then give your message.
 - When ending a transmission, say “To you, (name of the next station in turn)”. In a conversation between only two people, transmissions can end with “over”.
 - Specify when you are about to close your transmissions.
- When it’s your turn to speak, don’t start transmitting right after the end of the previous transmission, but wait some seconds before pushing the PTT. This allows other people to “break the chain” of transmissions, to join the conversation or to ask for assistance.
- Messages must be as concise as possible. The channel is shared by all the people; the shorter the messages, the quicker it is to share important information. And you save a lot of battery charge.
- Exactly as during a JOTA-JOTI, NO PERSONAL INFORMATION MUST BE SHARED in radio communications. You never know who is listening to the channel (and not all the listeners necessarily transmit).
- For the same reason, and obviously because of your Scout/Guide Promise, no rude talking is allowed on the radio.
- Talk plainly, clearly and at moderate speed. Don’t shout, it will just make your message less understandable.
- Check whether one or more channels are assigned to emergency communications in your country. These channels are meant to be used only in case of emergency, if the other channels are busy. Don’t expect that someone is always listening or able to receive you in any condition and place on this channel. If CBs/PMRs are used for safety communications during a camp/excursion, keep a station at the base and verify the radio coverage between the base and the main points of your camp/excursion before the activity. If you find yourself in danger, find a busy channel and draw the attention of the people in the channel calling immediately after the end of a transmission. If needed (e.g. because of too much interference), ask the people to switch to an emergency channel to give them more information about your need for assistance.

After having given these instructions to Scouts/Guides, the NATO/ICAO alphabet and the Q code can be introduced.

- The NATO/ICAO alphabet is useful to make the voice spelling of a word or of a sequence of letters and numbers; it turns out useful in case of bad reception: weak signals or strong noise/interfering communications.

A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

- The Q code is made by sequences of three letters, the first one is always a Q. Each sequence has a meaning which is unique in all the languages of the world. While a simple sequence represents a sentence, that same sequence followed by a question mark represents a question with an equivalent meaning. Using the Q code is useful in Morse code communications to speed up the conversation or to facilitate basic information exchange between people who don't know a common language. The Q code and other abbreviations are generally unnecessary in simple voice communications.

The Q codes can be found at https://en.wikipedia.org/wiki/Q_code. Here are some examples:

Codes of general use

- QRL** = I am busy (or I am busy with ____). Please do not interfere.
- QRU** = I have no messages for you.
- QRV** = I am ready
- QTH** = My position is ____
- QTU** = My station is open from ____ to ____ hours.
- QUA** = Here is news of ____ (call sign).

Codes for radio communication

- QRA** = The name of my station is ____.
- QRM** = I am being interfered with / Your transmission is being interfered with ____.
- QRN** = I am troubled by natural noise (____).
(1. nil
2. slightly
3. moderately
4. severely
5. extremely).
- QRO** = Increase transmitter power.
- QRP** = Decrease transmitter power.
- QRQ** = Send faster.
- QRS** = Send more slowly.
- QRT** = Stop sending.
- QRX** = I will call you again at ____ hours (on ____ kHz (or MHz)).
- QRZ** = You are being called by ____ (on ____ kHz (or MHz)).
- QSL** = I am acknowledging receipt.
- QSY** = Change to transmission on another frequency [or on ____ kHz (or MHz)].

To find detailed information about the NATO/ICAO alphabet, the Q code and other international codes and abbreviations, please consult the **JOTA-JOTI Ham Radio Handbook**.

After these explanations, practical activities can be proposed. A basic activity is to make Scouts/Guides chat on radio about an actuality topic, to train them on the respect of turns and of all the indications given above. A game similar to the “wireless telephone” game can be proposed: every Scout/Guide/patrol has a piece of an unknown message. The first spells his part of the message to the second, the second gives this piece of message and his/hers to the third, and so on. Alternatively, there is no predefined message and each Scout/Guide/patrol receives a sequence of words from its previous station, finds a word and adds it to the sequence, and finally transmits everything to the following station. In the end, the sequence of words must form a valid sentence. In addition to these proposals, many of the activities listed together with this document involve the use of CBs/PMRs and can be used to train Scouts/Guides on radio communications and on the use of codes.