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Q-MAC ELECTRONICS

HF TRANSCEIVERS & ANTENNA SYSTEMS

HF HELP FILES

SELCALL VS ALE

Q-MAC Electronics Pty Ltd

HF HELP FILES

HF Selcall vs. ALE

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1 Selcall vs. ALE

Both Selcall & ALE are a means of link establishment. Each has some merits. Here are some facts.

1.1 ALE.

Fed Standard 1045 ALE works on the basis of each station in a network transmitting periodic soundings on a range of frequencies, normally once every 30 minutes or so. This enables all the other radios in the network to judge the signal strength from that station.

The information is stored in a Link Quality Analysis (LQA) database. The radios are programmed to find the first acceptable channel on which to communicate, above a pre-set signal to noise ratio.

Selection of the channel is automatic, but the first station above the pre-set parameters will be used, when there may be a much better channel just above or below that frequency.

It is very limited for use in Portables, Manpacks or Vehicles, whose radios spend a lot of time switched off. To get the LQA database up to date takes typically 2 hours.

It can also be very noisy as stations take it in turn to listen to soundings, and power consumption in Manpacks & Portables is greatly affected, as the stations use up lots of TX power sending soundings.

ALE does have its uses. In a *small, well-managed, network of base stations*, it is good.

NB: ALE soundings interfere considerably with the transmission speed of data.

1.2 SELCALL & BEACON CALL.

This is more like a phone system, and each station is allocated a 4 digit Selcall Number.

Beacon Call is a derivative of Selcall, and is the means of checking for the BEST frequency. The operator manually selects the channel he thinks will be best, sends a Beacon, and waits for a revertive signal from the destination station. The quality of signal (beeps) & noise (background) can be judged by ear. If the operator wants to check other channels the process is repeated on channels above & below, then the BEST channel can be picked.

Using Beacon Call, whilst it is a manual operation for the sender, no action is required by the recipient as the radio sends the revertive automatically. The BEST channel can be found, no TX power is used except when involved in making a call, and the airwaves are not clogged with the buzzing of ALE soundings.

Once Beacon Call has been used to find the best channel, a Selcall is sent, and the destination radio rings like a phone.

Selcall / Beacon Call is therefore much more suited to radios which are required to be switched on & used immediately, and also where battery power is a consideration, or if the radio network is large.

Use of Selcall allows radios to be put in Scanning mode, where they will only stop scanning when a Selcall is received, addressed to that particular station; the rest of the time the radio is silent (muted) and can scan up to 8 channels of any frequency 2-30MHz, which is useful. They might be called on a low frequency by a local mobile or base station, or might be called on a higher frequency from a more distant station.

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2 Other Information

2.1 Author

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Rod Macduff is Managing Director of Q-MAC Electronics which is a specialist supplier of HF Communications to the Humanitarian, Aid & Relief and Military organisations. Rod Macduff worked with Racal BCC for 10 years on the Jaguar V tactical hopping radio and travelled extensively consulting with armies on their secure communication issues. The Q-MAC HF-90 hopping radio is in service in 75 nations and has been adopted by Humanitarian, Aid & Relief, Army, Police and Intelligence organisations.

2.2 About Q-MAC Electronics

Q-MAC Electronics is specialist designer and manufacturer of HF Transceivers. The flagship product the HF-90 is the world's smallest high performance HF SSB Transceiver. The HF-90 and Q-MAC Electronics have been awarded many accolades and is currently used by thousands of users in over 80 countries worldwide. The HF-90 is one of the most versatile HF transceivers available and is suited to military, paramilitary and humanitarian aid and relief applications.

Q-MAC offers the HF-90 in a variety of configurations suited to manpack, vehicle and base station applications. A full complement of accessories is also offered for use with the HF-90; including antennas, field battery charging accessories, carry packs/cases and more. All Q-MAC products are backed by the company's strong commitment to after sales service, support and certified ISO9001 quality standards.

2.3 Contact Details

For Further Information Contact;

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