The Hamster Handbook

Table of Contents

Overview

Notes made by a ham newbie as he muddled his way through the learning curve.

Scenarios

1. just chatting ("rag chew")
2. automatic position reporting (see APRS)
3. operating remotely - QRM, solar powered
4. operating remotely - canyons and other obstacles
5. disaster assistance - reconnecting to a net, operating in a net, operating the net

Morse Code

For completeness, Morse code (CW) is included. It requires you to learn Morse, however. From many perspectives, CW is optimal - low bandwidth, low power, it can get through whenm voice cannot, and the kit to start operating is probably the least expensive — assuming you can get past the 'learn Morse' part.

Morse code used to be called Continuous Wave (CW).

Voice

AM, FM, side band

Digital Modes

It appears that digital is where a lot of the experimentation is happening. While CW & voice are well understood and pretty stable, digital provides a ton of opportunities to play with protocols, error checking & correction, TDMA, data+voice and a ton of other things.

I’m attracted to digital modes because it appears it may be possible to get a message through with a low power transmitter when voice wouldn’t cut it.

ALE - Automatic Link Establishment

Problem: after a disaster how to hams reconnect with each other?

Solution: ALE is a set of fixed frequencies and a protocol for scanning those frequencies to find and reconnect hams to each other.

APRS -

digipeater, iGate, microsat, aprsdroid

https://aprs.fi

JS8CALL

???

Antennas

If you want to analyze an antenna design, AFAIK the only free software left for this is https://www.qsl.net/4nec2/ It has a very steep learning curve, but it could be useful. (extra credit: is the fractal antenna in White Collar really an antenna? What properties do you get from the fractal shape?)

MMANA-GAL appears to be free antenna analysis software. MSWin only, sadly.

Reference Materials

Phonetic Alphabet

A	Alfa/Alpha	AL FAH
B	Bravo	BRAH VOH
C	Charlie	CHAR LEE
D	Delta	DELL TAH
E	Echo	ECK OH
F	Foxtrot	FOKS TROT
G	Golf	GOLF
H	Hotel	HOH TELL
I	India	IN DEE AH
J	Juliett	JEW LEE ETT
K	Kilo	KEY LOH
L	Lima	LEE MAH
M	Mike	MIKE
N	November	NO VEMBER
O	Oscar	OSS CAH
P	Papa	PAH PAH
Q	Quebec	KEH BECK
R	Romeo	ROW ME OH

S	Sierra	SEE AIRRAH
T	Tango	TANG OH
U	Uniform	YOU NEE FORM
V	Victor	VIK TAH
W	Whiskey	WISS KEY
X	X-ray	ECKS RAY
Y	Yankee	YANG KEY
Z	Zulu	ZOO LOO

Q-Codes

Q-signals are a system of radio shorthand as old as wireless and developed from even older telegraphy codes. Q-signals are a set of abbreviations for common information that save time and allow communication between operators who don't speak a common language. Modern ham radio uses them extensively. The table below lists the most common Q-signals used by hams. While Q-signals were developed for use by Morse operators, their use is common on phone, as well. You will often hear, "QRZed?" as someone asks "Who is calling me?" or "I'm getting a little QRM" from an operator receiving some interference or "Let's QSY to 146.55" as two operators change from a repeater frequency to a nearby simplex communications frequency.

QRG	Your exact frequency (or that of) is __*kHz. Will you tell me my exact frequency (or that of _*)?
QRL	I am busy (or I am busy with ___). Are you busy? Usually used to see if a frequency is busy.
QRM	Your transmission is being interfered with ___ (1. Nil; 2. Slightly; 3. Moderately; 4. Severely; 5. Extremely.) Is my transmission being interfered with?
QRN	I am troubled by static ___. (1 to 5 as under QRM.) Are you troubled by static?
QRO	Increase power. Shall I increase power?
QRP	Decrease power. Shall I decrease power?
QRQ	Send faster (_____wpm). Shall I send faster?
QRS	Send more slowly (_____wpm). Shall I send more slowly?
QRT	Stop sending. Shall I stop sending?
QRU	I have nothing for you. Have you anything for me?
QRV	I am ready. Are you ready?

QRX	I will call you again at _*hours (on* _kHz). When will you call me again? Minutes are usually implied rather than hours.
QRZ	You are being called by _ *(on* ____kHz). Who is calling me?
QSB	Your signals are fading. Are my signals fading?
QSK	I can hear you between signals; break in on my transmission. Can you hear me between your signals and if so can I break in on your transmission?
QSL	I am acknowledging receipt. Can you acknowledge receipt (of a message or transmission)?
QSO	I can communicate with _ *direct (or relay through _). Can you communicate with* ___ direct or by relay?
QSP	I will relay to . Will you relay to ?
QST	General call preceding a message addressed to all amateurs and ARRL members. This is in effect “CQ ARRL.”
QSX	I am listening to on _*kHz. Will you listen to on* _kHz?
QSY	Change to transmission on another frequency (or on _*kHz). Shall I change to transmission on another frequency (or on* _kHz)?
QTC	I have _*messages for you (or for* _). How many messages have you to send?
QTH	My location is ___. What is your location?
QTR	The time is ___. What is the correct time?

REF: ARRL

References

1. ARRL - American Radio Relay League. arrl.org
2. 4NEC2 - "NEC based antenna modeler and optimizer by Arie Voors", https://www.qsl.net/4nec2/
3. MMANA-GAL - antenna analysis software, https://hamsoft.ca/pages/mmana-gal.php