

How to Make a Successful (and Legal) QSO

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Amateur radio operators are involved in the science and art of radio communication. The licencing arm of Government, the *Australian Communications and Media Authority*, ACMA, recognise this fact, that is, our hobby has both a scientific and artistic component, each requiring some learning. This is reflected in the regulations which govern amateur radio.

‘The amateur service is designed primarily to facilitate hobby radiocommunications and for technical experimentation and operates on specified frequency bands. Amateur radio operators *communicate* (my emphasis) using transmission modes including, but not limited to, Morse Code, telephony and data’.

‘An amateur apparatus licence is issued to authorise a station that:

- Is operated for the purposes of *self-training* (my emphasis) in radiocommunications; intercommunication using radio communications; and technical investigation into radio communications by persons who do so solely with a personal aim, and who have no pecuniary interest in the outcome of the operations of the station;
- Is operated on amateur frequencies or amateur frequency bands; and
- May participate in the amateur-satellite service’ (ACMA, 2014).

The knowledge required for an amateur radio certificate of proficiency and subsequent licence, requires that the applicant demonstrate that she has basic knowledge of electricity, DC, AC, Audio and RF, conduction, induction, measurement, frequency and the building blocks of radio (components, etc. and to safely assemble a station without causing interference to other persons and services). In other words, the content thus far is scientific and technical. But this is only one part of the equation, albeit a very important one.

The other side of the equation is the *art* of communication. Have you ever wondered how the other guy gets all of the contacts? Here the regulations are designed to assist you. They provide a very basic framework for beginning to learn the art of radio communications.

‘The call in radiotelephony should consist of the call sign of the station called spoken not more than three times, the words *'THIS IS'*, the call sign of the calling station spoken not more than three times and the word *'OVER'*. Example: VK7AB VK7AB VK7AB *THIS IS* VK9YZ VK9YZ VK9YZ *OVER'* (ACMA, 2014). Most times you will find that when answering a CQ call it is sufficient to give your call once, sometimes twice. You might find with a rare DX station or a contest station or even a SOTA station you will join a queue and you might give your call many times to establish a contact, or you may be unsuccessful.

Further down the page ACMA, recommends the use of the phonetic alphabet and even give suggestions for pronunciation (ACMA, 2014). I will say more about this later.

Call Signs

A call sign is constructed of a unique identifier given to you by ACMA. It may be one you selected and applied for or it may be one allocated to you. The first part of the call sign is the country or entity prefix. In our case it is VK. VK as Victor Kilo in phonetics works well. Next there is the call area part of the call-sign. In our case it is five (5). Unlike the USA we are very fortunate to have call areas based on the units of the Federation, that is, the six founding states and then, later, the territories of Australia.

Next comes the suffix. For this, there can be two, three or four letters. Two-letter calls seem to be popular. They used to indicate older, more experienced amateurs. There are no bad call-signs, just good ones and better! Know your call-sign and know how to say it phonetically using the NATO (ACMA preferred phonetics). Now these phonetics are not fool-proof. The last letter of my suffix, and therefore call, is E. This is a difficult letter to copy under marginal conditions and my knowledge of this is based on 38 years of giving it on air and countless DX and local contacts. It is sometimes hard to copy locally as well, especially when working QRP. The NATO phonetic is Echo with the recommended pronunciation of ECK oh! Most local and nearby foreign stations can recognise an E of 'ECK oh' if pronounced cleanly and properly over a well set-up radio. Give your call-sign completely in phonetics or at least in hybrid form, e.g. Victor Kilo Five Bravo Juliett Echo, or VK5 Bravo Juliett Echo. E on the end of a call-sign is not good for a CW call either!

Is it permissible to deviate from the NATO phonetics? If a DX station is having difficulty making sense of Echo pronounced as Eck oh, then I use England. Or I give my call suffix in alternative phonetics: Boston Japan England. Some of these alternatives were once official: Papa becomes Pacific, Oscar becomes Ocean and Zulu becomes Zebra and so on. But always use the NATO phonetics first.

Have a look on an oscilloscope as you enunciate your call-sign. In my case, as a QRP station operating with a nominal power of five watts, it is the word Bravo that is likely to consume sufficient battery power to produce five watts peak envelope power: it fills the screen and I don't have to roll the B! Juliett is number two in power usage and Echo uses the least power.

On air you will hear Advanced, Intermediate and Foundation licensees all racing through their calls. I have paid particular attention to this over the last year or so as I have been pursuing my QRP (HF) and weak signal interests on VHF and UHF.

Foundation call-holders frequently race through the first letters of the suffix. Frequently you may not hear the F and the second letter and if you decipher any it will be letters three and four. It is almost as if they are ashamed of their call-signs! They should not be. When people learn the Morse code they practice sending and receiving. But, I wonder how many people practice using their call signs and modelling a qso in radio telephony? You should be, focusing on clarity, phonetics and appropriate speed.

Some amateurs have commented on my ability to understand and secure contacts under difficult operating conditions. This is not a skill I was born with! It comes with practice. And, I

don't hesitate to ask amateurs to slow down, give their call-sign phonetically and count out sequentially signal reports, that is one, two, three four, five and the same for strength. When I do this I like to think it has some value as an educational and mentoring value for the other amateur.

Frequency of Identification

Most amateurs identify too frequently. We are required to identify every ten minutes, or at the beginning and end of a contact. In net operations, and most amateurs participate in some nets, it is proper to identify more often and indicate by using the call-sign of the station next in line to transmit. In contests, nets and QRP parks and SOTA operations it is useful to identify more often, and, as well, for Parks and Peaks, identify the place of operation. The ACMA regulations require a mobile or portable station to give the full location of their operations, e.g., this is VK5BJE, portable in New South Wales operating from Eurobodalla National Park. In SOTA operations it might be VK5BJE portable South Australia from Mount Lofty summit. You only have to do this once every ten minutes. I usually shorten the identification to VK5BJE/P5 Mount Lofty (or SOTA reference number for SOTA contacts, e.g. VK5 SE 005) as required for each contact as you will usually make many in ten minutes.

Listen on the frequency before transmitting

Listen on the frequency before you transmit. This is an ACMA requirement and it is also good manners. If operating QRP I always ask is the frequency in use. You may not hear a QRP station and assume the frequency is clear. This happens every weekend. The other station in the contact may hear you and tell you the frequency is in use. Don't tune up with your auto or manual antenna coupler on a frequency that is in use. This is really bad practice and I hear this every day. You may be desperate to work the QRP station but when you tune up on the operating frequency you may make that station unable to be copied by the station engaged in the current contact.

None of us own a frequency. There are conventions that apply: if you are there on a frequency first, and you constitute a desirable station, (SOTA, Park, DX, special call) you may have a pile up. If you are in contact with station x and station y breaks in asks, may I work x, you have the right to say no. Station Y's behaviour is poor practice. I usually indicate to the break-in station that I will ask the station I am in contact with to move up the band five kilohertz.

Unidentified transmissions

ACMA is very clear about unidentified transmissions. Such transmissions constitute a breach of your licence conditions. They are illegal. If you are going to use a manual or auto coupler move off the frequency in use and do your tune-up and identify and then move back to the frequency in use. You can make the whole process much easier for yourself and other amateurs by making a chart of your coupler's settings: for a resonant dipole antenna every 50 kilohertz is fine and for a non-resonant antenna you might want to make measurements every 20 kilohertz. I type, print and then laminate my charts.

It breaks my heart to hear newly licenced Foundation Call amateurs timidly calling on a repeater and not getting a reply. When I hear such calls I always answer the amateur and attempt an 'engaging' qso.

I think 'kerchunkers' are lazy and a lot of other things as well. They should announce their call-signs. I have found over the years that if I simply announce my call-sign on a repeater or announce (and indicate I am listening – which is redundant) it a rare event to have someone reply. A more useful approach is to announce your call-sign and indicate test. I find this invariably works, assuming someone is listening, which is not always the case with remote repeaters. If someone indicates you are loud and clear into the repeater and gives their call-sign, I then accept the challenge to engage with that amateur. I reply, thanks for the report, my name is John and your signal is excellent and I make a comment about the audio. You might then finish with a brief description of your operating conditions (mobile, using a hand-held in a park or on public transport, for example) and ask something about his station. If the contact goes well you might ask about her other interests in amateur radio. Of course, with DStar there are no 'kerchunkers'! If you are on a D-Plus repeater and you press your push-to-talk switch, your call sign is immediately transmitted around the world and is there for all to see.

Antennas

I have prepared a separate paper on antennas.

Use of inappropriate (bad) language

One change over the years which I have noticed and regret greatly is the increasing use of bad language on our bands. Once upon a time you could listen to a repeater and enjoy the discussions/conversations taking place and it didn't matter if children or older persons were present. The same could be said of nets on the 80 metre band at night. But this is not the case now. I have heard amateurs on air say you can hear worse on the television stations, in the past SSB and now all channels. That is true, but we are not broadcasters and nor are we required to warn listeners in advance that strong/bad language will be used. We don't give people a chance to turn off their radios in advance. I think bad language reflects badly on the amateur service and bad language is no excuse for not thinking of a more appropriate adjective. I am not making a moral judgment here. You can speak how you like, with friends, work-mates and so on, but the air-ways are public.

What can you speak about?

In the past it was an unwritten rule: amateurs do not speak about politics and religion and I will add race to that list. I still think that rule makes great sense. I have heard discussions/comments on the 80 metre band at night and on our repeaters which breach this rule. The comments cause offense to people: they are hurtful and a turn-off for people.

Of course all that I have said begs one question! What is the purpose of the qso? There can be many reasons for engaging in a qso and my comments here are directed at those attempting to make a telephony call.

A call to a rare DX station requires two things to be useful for an award, e.g. DXCC. You must copy the DX station's call-sign accurately and you must obtain a signal report. You will know straight away if you have been successful: you will hear VK5BJE 5 and 9. You say QSL (confirmed) and thanks. In chasing rare DX you need to know how to operate split frequency, or duplex. The DX operator will transmit on one frequency, say, 14.275 and indicate he is listening up five KHz. You need to be able to transmit on 14.280 + /- and listen on 14.275. Try this with a friend on 40 metres, say above 7.200 MHz.

A common qso on the higher HF bands will be of a longer nature: in the past called a rag-chew contact. You can tell by listening for a while if it is a rag-chew contact or whether the DX station is engaging with each contact for a minute or two. If it is the latter you will at liberty to call the desired station, that is, the originating station, at the end of the contact.

A call to a SOTA or Parks station (usually QRP or low power operations) has more in common with chasing rare DX than rag-chew contacts. You will not be popular if you try and engage a SOTA or Parks station in a discussion of the wild-life, batteries or the view from the summit, as these stations are operating on a power constraint, that is, the battery has a finite life. A parks operator will rarely be satisfied with one contact, although that is all that is required for the local awards. If the operator is working the VKFF award she needs ten contacts and if aiming for the WWFF award, 44 contacts are required. It is really difficult to achieve 44 contacts in one activation. I have activated over 70 parks and summits and have reached into the thirties on some occasions and on others have not gained ten. Propagation and general band conditions, time of the day and day of the week are all issues.

Operating in nets presents other challenges and nets are great for newly qualified operators and the not so newly qualified. You have two major responsibilities when calling into a net: know where you are in the queue (write it down in you log) and write down the other operators' names (this may take a circuit through the net to achieve).

Conclusion

Amateur radio is a wonderful hobby. It is a broad church: I think it is almost impossible to master all facets of the hobby. Most of us specialise in those parts of the hobby which provides us with a challenge and perhaps, in some ways, fits with other interests. I am not ashamed to admit I have never operated though a satellite or contacted the ISS (space ship), but I have enjoyed many other aspects of the hobby. My wife and I have always enjoyed camping and 4 x 4 driving and thus mobile and portable operations have always played a large part in my enjoyment of the hobby. I accept and respect that the other guy down the road may have very different interests: this is reflected in the regulations with 'technical investigations' mentioned in the same sentence as radiocommunications.

So in making your qso, sound enthusiastic, be patient, be respectful, listen carefully and above all enjoy yourself.

References

<http://www.acma.gov.au/Industry/Spectrum/Radiocomms-licensing/Apparatus-licences/amateur-broadcasting-licence-examinations-and-certification>

About the author

John Dawes PhD has been a radio amateur since December 1976. He has explored many facets of the hobby, including analogue ATV on 70 centimetres and, in addition to portable and weak-signal communications on HF, VHF and UHF, he is active in digital modes, such as JT65hf and Digital Voice (DStar). When he is the shack he operates a DStar hot-spot on 438.925 Mhz.

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