

Response to call for Responses to the Proposed amateur class licence and considerations for higher power operation

Stephen Kennedy

Executive summary

In response to the call for submissions by ACMA, my submission is contained within this paper.

My name is Stephen Kennedy. My current main callsign is VK6SJ. I have been an amateur operator since 1981. The hobby led me into a career in radio that began in the Navy as a HF transmitter and receiver maintainer, and then in the commercial sector where I have been involved in the support of several public safety agencies use of HF technologies. I also own and operate a business that specialises in the sale of HF related equipment to the amateur, commercial, and public safety sectors.

In addition to the above, I am a regular user of HF communications in the amateur sector and operate and maintain a station that operates at our current limit of 400W.

1. Issues for comment

Consultation questions

1. Do you see any reason for not extending secondary user access to the 50–52 MHz band for Standard amateurs? If yes, what is your reason? (See section 3.)
 - a. I see no issue with this.
2. What are your views on the proposed policy on call sign transfer? (See section 4.)
 - a. I have no issue with the proposed changes.
3. Will the proposed ‘regular check’ – to confirm whether a person is still using their call sign – be a sufficient method of ensuring there are enough call signs (in combination with other factors, for example, the high number of available call signs, deceased amateurs, most amateurs only wishing to hold one call sign)? (See section 4.)
 - a. Alternatively, a means of “touching” a register maintained by the same entity used to maintain callsigns could be instigated that places the onus of the continued use of a callsign on the owner of the callsign, would allow for a regular check without creating an alternative license with an associated cost to the tax payer or the operator (similar to that used in the United Kingdom).
4. What are the benefits or disadvantages of our proposal not to limit the number of call signs that may be assigned to a person? (See section 4.)
 - a. There are a number of reasons why someone would own more than 1 callsign. For me personally, I have a Girl Guides Club Station callsign used only for JOTA, a contest callsign (2x1), my normal operation callsign, and I am holding one callsign for a family of a deceased friend while his son gains an advanced certificate. There are other reasons and this should not necessarily be discouraged. A maximum limit could be placed that prevents someone from attempting to collect callsigns for personal gain (e.g. to sell in the same way as a personalised car registration could be traded), however while there are some who could be classed as keeping additional callsigns for purposes that are less obvious, legislating or otherwise adding process to control this is more trouble than it is worth.
5. Do you have any concerns with the other proposed call sign management arrangements? If so, what are they? (See section 4.)
 - a. No issue with the proposed practices.

6. In the absence of amateur and station information being contained in the Register of Radiocommunications Licences, are there any amateur-operated registers or other existing voluntary registers that you would use? (See section 5.)
 - a. QRZ.com is a resource that is used by many amateurs and could be used in the manner suggested.
 - b. The issue would be how trusted the information is. The current RRL is obviously trusted. A volunteering information site such as QRZ.com merely displays what users wish to display which may or may not be true.
 - c. My preference would be to continue to maintain some kind of register that can be trusted. That doesn't necessarily need to be maintained by the ACMA or AMC but would require input from ACMA or AMC. It could be maintained by the WIA for instance.
7. Do you anticipate any difficulties operating your station in Conference of Postal and Telecommunications Administrations signatory countries? (See section 5.)
 - a. No
8. What are your views on the proposal to allow Advanced amateurs to apply for assigned scientific licences for certain experimentation uses, such as reflecting signals from a celestial body as well as inter-continental ionospheric and trans-equatorial propagation experiments? (See section 6.)
 - a. The proposed changes appear to be reasonable.
9. Noting the proposal mentioned in 8, are there other amateur experimentation uses that require higher power that you think should also be considered under assigned scientific licensing arrangements? (See section 6.)
 - a. Keeping a pragmatic approach to this to allow experimentation in areas that may not be obvious or known today and treating these on a case by case basis would be the best approach (and very similar to that in place now).
10. What are your views on the medium-term proposal to allow Advanced amateurs to apply for authorisation for other higher power use-cases under certain conditions? Please provide brief information to help us understand your view. (See section 6.)
 - a. I believe that a similar process to the previous trial could be employed, however an operator wishing to use extended power limits should provide the proof of his/her capability to monitor and maintain a system with this capability prior to the licence amendment being issued. The spreadsheet previously used for managing Level 2 compliance would be the most pragmatic demonstration of this knowledge and is easily used to demonstrate compliance and competence.
 - b. Rather than placing the onus of the monitoring of compliance on ACMA or even the AMC, the checking of this compliance could be moved down to the same volunteer group employed to carry out examinations (i.e. the registered assessors used by AMC). The assessment of an operator's ability to operate and maintain a station with extended power limits could be a fee for service in the same way that a certificate is gained within the AMC framework. This turns the license amendment into an opportunity for AMC, rather than a burden. It also places the cost of the operation with the operator, rather than the taxpayer.

11. Is a 1kW power limit appropriate? Why or why not? If not, what alternative do you propose and why? (See section 6.)
 - a. Most amplifiers available on the market now are capable of at least 1.2kW, with many capable of 1.5kW and higher. In my opinion, the use of 1.5kW has the same issues as 1kW but allows a larger variety of equipment to be available to our sector.
 - b. In an unregulated environment, many amateurs would choose a 1.5kW amplifier, but use it at much less levels for everyday use, but at maximum capacity if required.
12. Are there particular bands that you consider should or should not be able to be accessed for Advanced amateur higher power operations? Which band(s) and why? (See section 6.)
 - a. Not from the point of view of the ARS, but I recognise that there may be other factors to be considered, such as where we only have secondary access to a band (e.g. 7.200 to 7.300MHz).
13. What use-cases would require stations to operate at power limits for Advanced amateurs higher than the 400W currently permitted? (See section 6.)
 - a. What should drive power limits are the level 2 requirements in the current regulations. I am completely supportive of the requirement to ensure that a station is EMC compliant and safe to the public. There is no justification for operating a station that does not comply with current safety and EMC standards. The onus of compliance with this should be on the operator of the station. I would be supportive of an additional level of proven competency (e.g., something like the Extra Class license used in the USA), that ensures that an operator has the skills to self-certify their own station and that station could be inspected for compliance at any time. This competency should be additional to the current advance certificate. I would also be supportive of a requirement for periodic re-qualification of this competency to ensure that operators maintain the knowledge required to operate a station at increased power. The current practise of using Level 1 and level 2 compliance addresses the EMC requirements, can be implemented by most amateurs and is practical.
 - b. A large and popular use of amateur radio is to communicate with other amateur operators outside of Australia. Many users outside Australia are operating far more than 400W. This often means that we can hear a station but may not be transmitting a signal sufficient to be heard by the other party.
 - c. A popular use of communications on the HF bands is in contesting. It is very difficult to compete with amateurs away from Australia whilst using only 400W.
 - d. Australia is a long way from Europe and the Americas. When attempting to work a station in high demand (e.g., a station in a very low populated country), we are competing with stations often much closer to the desired operator than we are in Australia, in highly populated countries with allowances to operate at much higher power limits.
 - e. Australia's apparent lack of enforcement on devices non-conforming to EMC requirements has led to a significant rise to the noise floor across the HF bands in particular. This means that the average amateur operator in Australian suburbia is only hearing the stronger stations, who he/she cannot be heard by, when only using 400W or less.

- f. There are many use case scenarios for use of increased power. I do not see any benefit in trying to limit the use of increased power to particular use case scenarios. Like all technology centric sectors, the use case and available technology changes so rapidly that attempting to limit the use of any equipment would be of little value to the community and be onerous on the government to enforce.

14. For each use-case mentioned in 13, please briefly answer:

The following applies to all use case scenarios mentioned in paragraph 13.

- a) Why is a higher power limit needed?
 - 1) Throughout the world, there are very few countries that allow only 400W PEP and 120W Carrier.
 - 2) A large and popular use of amateur radio is to communicate with other amateur operators outside of Australia. Many users outside Australia are operating more than 400W. This often means that we can hear a station but may not be transmitting a signal sufficient to be heard by the other party.
 - 3) Most amplifiers on the market are capable of at least 1kW, and many as much as 1.5kW or 2kW. In addition, routinely operating a 2kW amplifier at 1kW or less allows the amplifier to operate well within its limits with a high degree of reliability but allows for higher power use on occasion where required to maintain reliable communications.
 - 4) A popular use of communications on the HF bands is in contesting. It is very difficult to compete with amateurs away from Australia whilst using only 400W.
 - 5) Australia is a long way from Europe and the Americas. When attempting to work a station in high demand (e.g. a station in a very low populated country), we are competing with stations often much closer than we are in Australia, in highly populated countries with allowances to operate at much higher power limits.
 - 6) Australia's apparent lack of enforcement on devices non-conforming to EMC requirements has led to a significant rise to the noise floor across the HF bands in particular. This means that the average amateur operator in Australian suburbia is only hearing the very strong stations, who he/she cannot be heard by when only using 400W or less.

- 7) Since satellite communications have become normal and cost effective, there has been a significant move away from using HF in most sectors apart from the amateur sector, some recreational use of commercial frequencies, some areas of defence and the aeronautical sector. This has led to a large reduction of expertise in designing, installing, and maintaining HF radio systems in our community. HF is still the only reliable means of long-distance communications without infrastructure and is now again being recognised by some public safety agencies as still being of value. Amateur radio operators are one of the few remaining sectors in Australia maintaining capability in HF. In this world of uncertainty and instability, use of HF may well become important again and our community needs to maintain a capability in this field. Facilitating this within the amateur community allows this retention of expertise at no cost to the community. In WA in particular, there has been a resurgence of the use of HF in not only public safety agency exercises but also in responses to a number of significant weather events where public infrastructure has been non operational and satellite phones unreliable. In all these events, you will find that the champions of this technology are also amateur operators in their spare time. This technology would not have been considered again had it not been for these enthusiasts and this would have been a loss to our community. The use of extended power limits makes communication across HF far more reliable than using just 100W.
- 8) Aside from the benefits to amateur operators in the use of increased power, there are other less obvious benefits to the community as a whole;
- i. When using increased power in a transmission system, all aspects of a station must be in excellent condition, robustly engineered and well maintained. A poorly engineered and maintained system employing increased power will quickly fail. Use of increased power on a successful station requires skills and knowledge not necessarily known in any other sector except broadcasting (which is also a technology in it's final years). If amateurs are permitted to use increased power, they will need to become more skilled in maintaining a reliable station. This benefits the community, in terms of retention of knowledge and in terms of upskilling amateurs, which reduces the instances of potential interference caused by amateurs.
 - ii. There are a number of high-quality amplifiers in the amateur market now that easily compete with commercial brands with models of amplifier that are type approved. Even the most expensive amateur amplifiers are less than 20% of the cost of "type approved" amplifiers available from mainstream commercial HF manufacturers in Australia. The use of these amplifiers by amateurs creates economy of scale that previously may not have existed in our community. Not only do we have a pool of expertise in increased power HF operation, but equipment that can potentially be used in the commercial sector after type approval, as well as a pool of equipment that could be appropriated or just used by government agencies in a time of need.

- b) While there is a view that HF has “had its day” and is no longer relevant to the community, there is a resurging feeling within the wider community that an independent means of communication, not reliant on other infrastructure, may well be required at a point in time in the not-too-distant future. In my capacity as a trainer and examiner of amateur operators, as well as a reseller of amateur equipment, an increasingly large portion of my time is spent working with members of the community who wish to have an amateur license, capability, and equipment to build this capability to assemble and operate a station without public infrastructure. In these increasingly uncertain times, maintaining expertise and a pool of stations with increased power within the community could become a critical part of keeping communities and the population connected in a world where critical infrastructure has been removed. One only needs to look at what is happening in Ukraine now with their energy sector, as well as their communications infrastructure in occupied areas, to understand the importance of being able to communicate within the community. At this point in time, the only means of communication within Russian occupied regions of Ukraine to the outside world is via Amateur Radio. If Australia were to be invaded in a similar fashion to Ukraine, widespread use and skills in HF communication could be the only means of keeping the entire population connected. Having an environment that allows the population to own and maintain this capability as a hobby in peacetime, also ensures that capability is available in a time of need.
- c) What are the specific limitations of the current power limit?
- i. Answered in section 14 a).
- d) What power level is required?
- i. Rather than assigning a limit, the limitation should be based on the current regime for level 2 compliancy. This considers all aspects required to create a station that presents no risk to the community.
- e) What is the technical description of this power level requirements (for example, transmitter output power, emission mode)?
- i. The current Level 2 compliancy considers all aspects of a station that can affect safety to the public, including frequency, power O/P and antenna gain.
- f) What amateur service frequency bands would be used?
- i. As above.
- g) How often will a higher power level be required?
- i. Any time where a lower level of power is not maintaining communications.
- h) What is the location of the station?
- i. Amateur radio stations are typically located in an operator’s premises, or at a remote location and accessed via a number of means.

15. Should potential higher power authorisations be limited by location, position, event or something else? (See section 6.) Please provide details to support your answer.
- a. To maintain a capability that is of use to the community and also allows the operator to use their discretion as to when and how much power to employ, we should not apply undue restrictions on the use outside that of the current emission requirements, and the safe operation of the station (i.e. ARPANSA driven requirements). Aside from the removal of the 400w limitation, I believe the level 2 requirements are pragmatic and fit for purpose. For instance;
 - i. Operation of a transmitter with an antenna mounted on a 10m mast on the top of a block of flats in suburbia would represent a low risk.
 - ii. A station with an 10m mast at ground level next to a 2-story house could realistically be a threat to the occupants of that house.
 - iii. Each scenario needs to take into consideration all factors that could place others in harm's way. To place blanket restrictions on any single sector of the amateur community would 1/. Not work, and 2/. Would further rob the community of the benefits of the hobby as previously described and 3/. be difficult to enforce.
 - b. In addition to the opinions offered to these questions;
 - i. Most HF transceivers available on the market are capable of being used at 100W, as are almost all commercial HF transceivers used in the Assigned license services. Limiting Foundation license holders to 10W gives nothing to the hobby, nor does it reduce the risk of interference in any measurable manner. In addition, the rule is hard to enforce. Foundation license holders should be permitted to use 100W.
 - ii. The syllabus for the standard license does support the responsible use of power levels in excess of 100W. There are many solid-state amplifiers capable of 200W-400W that could be allowed to be used by a Standard license holder with little risk to the operator or other users of spectrum. A sensible limitation could be that only solid state amplifiers up to 400W.