

## 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.)
  - No.
2. What are your views on the proposed policy on call sign transfer? (See section 4.)
  - I don't have any objection to the proposed policy
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.)
  - This will be useful I think, particularly in relation to two letter call signs which seem to be held closely and not released despite the decease of the holder of the call sign.
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.)
  - If there is no limit to the number of call signs one person can hold, it will promote hoarding of call signs, particularly two letter calls, and could well result in the irresponsible use of such call signs where the ACMA is no longer maintaining a public register – a measure I do not support.
5. Do you have any concerns with the other proposed call sign management arrangements? If so, what are they? (See section 4.)
  - A level of accountability will be missing once the allocation of call signs no longer involves the ACMA. Such accountability is necessary, in my view, given the level of entitlement and rivalry in amateur radio organisations if one or either (WIA or RACA or any other) become call sign entities. Further there is a lack of any real professional or industry self-regulation or ethical rules which govern the allocation of what (to the individual amateur) is an important asset – their call sign. Unless there are some guidelines published which would need to be observed by call sign entities, including the provision of public registers of call signs and holders, the management would be best kept as it currently is.
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.)
  - All of these registers depend upon the honesty of the person submitting their application. Upon my own application to QRZ (for example), I discovered some other person has been using the call sign. I do not believe it was a previous holder of that call sign. Without the public register, there is no way such a site (and they are more than merely call sign registers) can conveniently and reliably verify the truth of the application.
7. Do you anticipate any difficulties operating your station in Conference of Postal and Telecommunications Administrations signatory countries? (See section 5.)
  - 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.)
  - I have no issue with this. I do think the annual license fee is far too high, but agree that the costs of due diligence ought be borne by the applicant. Having said that, for ionospheric communications experiments at high frequencies, the EME and EMC risks are extremely low. For 1500 watts at 7.125Mhz the minimum safe distance from the antenna where the power density is 17.7285 mw/cm<sup>2</sup> is 1.3920 meters in a controlled environment or 1.9686 in an uncontrolled environment. If a dipole antenna of higher gain – 2.2dBi is used, and is 6 metres above the ground even if one is broadcasting with 1500w continuous carrier the safe distance in an uncontrolled environment is 3.8 metres.

- It seems to me that high power licenses for either scientific or regular Advanced use in the HF spectrum need not be regularly assessed. Rather, an initial radiation study could be performed by the amateur. This could set out the methodology (there are online calculators as well as readily available multi field EMF meters). The study would particularise the exposure limits and safety procedures in place in terms of access for RF workers (the operator) and the general public, specify the antennas on site, the maximum power and frequencies used ofr each antenna. It would set out the location of the antenna, type theoretical gain. In some cases (where 1kw or more is authorised for example) plotted readings of RF energy could be provided. There should be no need to illustrate the radiation hazard patterns – simply set out minimum distances from the antenna at particular power levels. I assume most antennas would be above 3 - 6m in height where high power is to be used.
  - The Tenmars Field Strength Meter is only about \$220 and would provide sufficient accuracy to provide a level of comfort to the regulator – and is a lot less than a \$606 licensing fee which could be reduced.
  - Where an antenna was moved or changed, the study could be amended rather than undertake the whole thing again.
  - For VHF and higher the same process would be appropriate.
  - .All of this would also be consistent with the ACMA medium term approach to Advanced higher power considerations.
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.) – I have suggested that ionospheric propagation experiments should be authorised under the normal Advanced licence without the need for a Scientific license.
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.)
- The use of higher power (1KW is mentioned) is desirable on HF bands for international communication on a far more reliable basis than with the existing limitation of 400W PEP, given the increasing level of man-made EMI, and the varying levels of propagation on account of changing solar activity.
  - Regular communication between Europe and Australia and between Australia and the USA (for example) would be greatly enhanced with the higher power levels on those bands or portions of bands which are in the HF spectrum and in which amateur radio is the primary service. More reliable international ionospheric communications could be conceivably also be of further use if there is a conflict or event which affects access to internet based communications or other forms of communication.
  - I have outlined the processes which I feel would provide some confidence that RF exposure risks can be known and managed appropriately. To that I would add that most interference experienced by the public was in relation to domestic analogue television reception and that this is no longer an issue. Nevertheless, a good practice could be to require the addition of an appropriate or specified type of low pass filter following the transmitting apparatus to ensure that the potential for harmonic interference is minimised .
11. Is a 1kW power limit appropriate? Why or why not? If not, what alternative do you propose and why? (See section 6.) I consider that a useful maximum power of 1500w PEP is preferable to 1KW as it the case in the USA, or even higher in bands where amateur radio is the primary service and the risks posed are low and there is a particular case:
- 1.8 to 1.875MHz – I suggest a carrier level of 500W (2000W PEP) is appropriate here as long distance AM transmission is possible of a night, but the level of man-made EME is very troubling on this band. The frequency is low enough to minimise risks in relation to non-ionising radiation hazard and requires, typically, an elevated vertical antenna further minimising such risks. Appropriate signage and the measures have outlined would also help

minimise risks. Further, even though the power is in excess of that proposed, it is not likely to create any interference issues as it is well above the medium wave broadcast band, yet low enough being only just a short wave band, that any properly suppressed harmonic generation is unlikely to affect higher bands. Further, converted broadcast type transmitters are occasionally available and with a double pi output tank, or a Pi-L of reasonable Q have very low harmonic output and considerable stability.

- 3.5 to 3.7 and 3.776 to 3.8 MHz a power limit of 1kw PEP is appropriate. This band is mostly used for local communications, although there is significant medium and distance use at various times of day.
  - 7.000 to 7.200 – Despite amateur radio in Australia being the primary service on the 7 to 7.1MHz segment of the band, most long distance communication occurs between 7.1 and 7.3MHz and occasionally to 7.3MHz when conditions allow, bearing in mind that 7.2 to 7.3 is heavily used by international short wave broadcasters. Very few if any broadcasters (other than pirate or unauthorised radio broadcasters) broadcast in the 7.1 to 7.2 MHz band as it is in other Regions exclusively used by amateur radio. In this band there is regular communication with the USA, Europe and Asia, and the 1KW limit proposed would enhance that activity, making such communication more reliable and enabling inter-continental special interest networks possible.
  - The 30 metre (secondary service) and 17 metre bands, being available only to Advanced licensees would be appropriate candidates for the 1KW limit proposed – again to enhance long distance communication.
  - 20 metres is also a useful long distance SSB and AM band and would benefit from the 1KW limit.
  - 10 metres does not to my mind benefit from higher powers. When propagation is good, very low powers permit good international communications, and when propagation is not good, higher powers do not assist.
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.) – see above.
13. What use-cases would require stations to operate at power limits for Advanced amateurs higher than the 400W currently permitted? (See section 6.) see above.
14. For each use-case mentioned in 13, please briefly answer:
- a. Why is a higher power limit needed? See above
  - b. What are the specific limitations of the current power limit? 120 watts mean power or 400W peak envelope power is sufficient for communications in good conditions, but the additional nearly 4dB is sufficient to maintain good communications in far worse conditions.
  - c. What power level is required? You have suggested 1KW. I consider a carrier level of 500w is appropriate for 160m, and 1kw for the higher amateur bands. Generally speaking for VHF the current limits are sufficient unless engaged in long distance atmospheric routing experiments, or earth moon earth or meteor bounce is being experimented with.
  - d. What is the technical description of this power level requirements (for example, transmitter output power, emission mode)?
    - On 160M 500W pZ and the mode A3E,
    - Where J3E is being transmitted 1KW to 1.5KW PEP is adequate.
    - For FM, F3E, a mean output power (pY) of 400w would be sufficient – most communication using FM is in the VHF spectrum or on 10 metres and in these cases the current power levels seem to me sufficient.
  - e. What amateur service frequency bands would be used? See above
  - f. How often will a higher power level be required? Regularly.
  - g. What is the location of the station? East coast suburb near the sea and Blue Mountains

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.

- As I have suggested, the availability of the higher power should depend upon scientific determination of risk – not on a simple and subjective view based merely on location or position. Part of the approval process would involve the ability to demonstrate either theoretically, or supported by spot measurements, that non-ionising radiation levels at places accessible to the public or to RF workers are within appropriate limits (as determined by ARPANSA).
- In a built up area, a short loaded vertical with no real gain at all and mounted at 6m will not be efficient despite being fed with 1KW pep on 80 metres or 40 metres, yet it will be significantly more effective than if fed with 400w PEP. . The location, position and so on are not relevant unless the radiation calculations or study indicate that there is a relevant safety issue.
- Higher power authorisations based on radiation studies should subsist while the amateur operator remains licensed, the antennas and the transmitting equipment output power is not changed. A variation could be applied for if either of the antenna or output power is altered requiring a further submission.
- Other than specifically authorised for mobile experimentation, I higher powers should be authorised for a fixed location (or perhaps a maximum of two or three fixed locations with individual submissions/studies to support each, where higher powers are used at more than one fixed location).