

Standard RFI Management Requirements for Activities on Boolardy Station

CSIRO Astronomy and Space Science (CASS)

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The Murchison Radio-astronomy Observatory (MRO) is located on Boolardy Pastoral Station in the Murchison region of the Mid-West of WA (see map below). The Australian Radio Quiet Zone WA (ARQZWA) was established by the Australian and Western Australian Governments to protect radio astronomy receivers from harmful radio-frequency interference (RFI), while allowing for opportunities for coexistence with other activities. The Radio Quiet Zone is centred on the Murchison Radio-astronomy Observatory.

Routine astronomy-related activities are managed by CASS, a business unit within CSIRO. Mining activities within 70 km are covered by a Mineral Resource Management Area process administered by the WA Department of Mines and Petroleum. This document is applicable to other activities on Boolardy Station, including those carried out by external parties. It is relevant not just to the use of radio communication devices (such as UHF radios and mobile phones), but to a much broader range of activities/equipment that have the potential to cause RFI. The document provides a list of the standard requirements that must be satisfied. In addition to meeting the requirements in this document, a Radio Emissions Management Plan (REMP) must be filed prior to commencement to describe the specific activities planned and the equipment that will be used.

Information and the appropriate form for REMPs are in the document titled *Radio Emission Management Plan for Activities on Boolardy Station*. A copy can be obtained from the CASS RQZ Team at mro.emc@csiro.au.

Please contact the CASS RQZ team at mro.emc@csiro.au if there are any questions about this process.

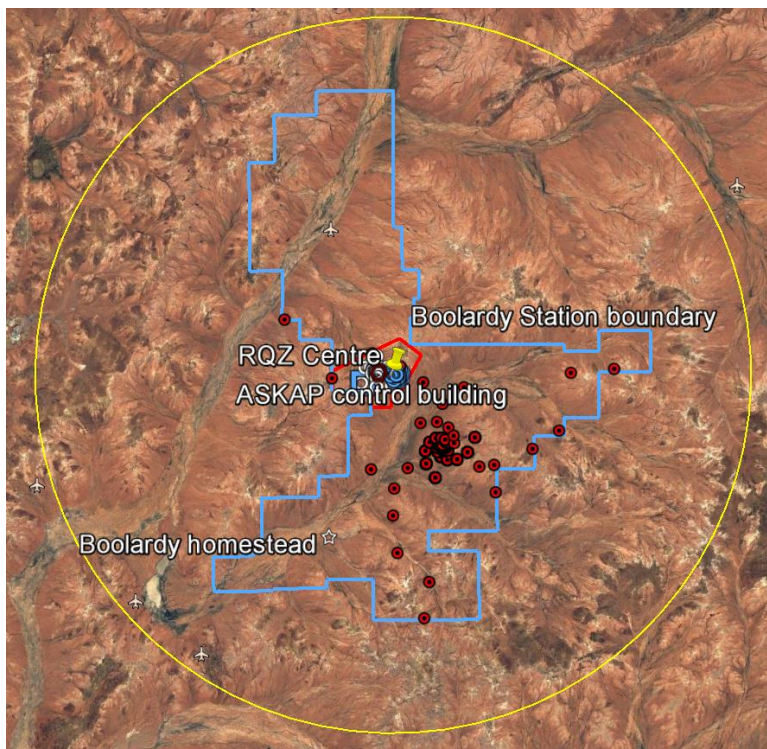
Standard Requirements for RFI Management

All activities on the Boolardy Station must adhere to the following restrictions (except in the case of an emergency):

- i. Use of radiocommunication equipment at frequencies in the ARQZWA frequency range (70 MHz to 25.25 GHz) will be kept to an absolute minimum. This includes CB/UHF radios, satellite phones, radio-controlled drones and anything else transmitting radio signals. Whenever possible, work plans will be co-ordinated in person rather than by radio communication. After hours (5 pm – 7 am) and on weekends, radio use is allowed only in an emergency situation.
- ii. The default state of all radio communication systems should be 'OFF' (including overnight) unless required for safety reasons or urgent coordination of activities where other means are not feasible.
- iii. Mobile phones, Bluetooth, cordless phones, WiFi and vehicle keyless entry will not be used anywhere on Boolardy Station or within 70 km of the ARQZWA centre, in compliance with the relevant class licenses. All personnel must ensure their mobile phones are switched off and that all wireless functionality of tablets, laptops or other devices is switched off. New electrical equipment brought to site should be reviewed to ensure that it does not include Bluetooth, WiFi or similar sub-systems. Note that personal fitness trackers or smart watches typically include

Bluetooth, WiFi and/or GPS. Please avoid bringing such items to site, or ensure they are completely switched off.

- iv. Permanent radio-transmitting/receiving equipment should not be installed, including wireless data transport, wireless monitoring systems and remote-controlled equipment.
- v. Operation and/or installation of radio receiving equipment requires permission from CSIRO. This includes, but is not limited to, satellite TV, televisions and radios.
- vi. Arc-welders, earth-moving road equipment, aircraft and drones are not to be used without specific approval via the REMP process described above.
- vii. Routine activities may use vehicles, hand-held power tools and domestic appliances intermittently as required. Within about 1 km of telescopes, vehicles may cause unacceptable interference so such traffic should be kept to a minimum. The scope of “routine activities” will be reconsidered when full ASKAP operation commences.
- viii. Items (i) to (vii) above relate to equipment which is essential to the core activity of building, operating and maintaining radio telescopes. The use of non-essential equipment is not allowed without specific authorisation by CASS management.
- ix. All equipment to be used will comply with the Australian testing authority electromagnetic compatibility standards. Commercially available equipment is assumed to comply with these standards unless it has been modified.



Key:

Light Blue: Boolardy Station boundary

Red: MRO boundary

Yellow line: 70 km Inner Radio Quiet Zone

Yellow pin: Radio Quiet Zone Centre