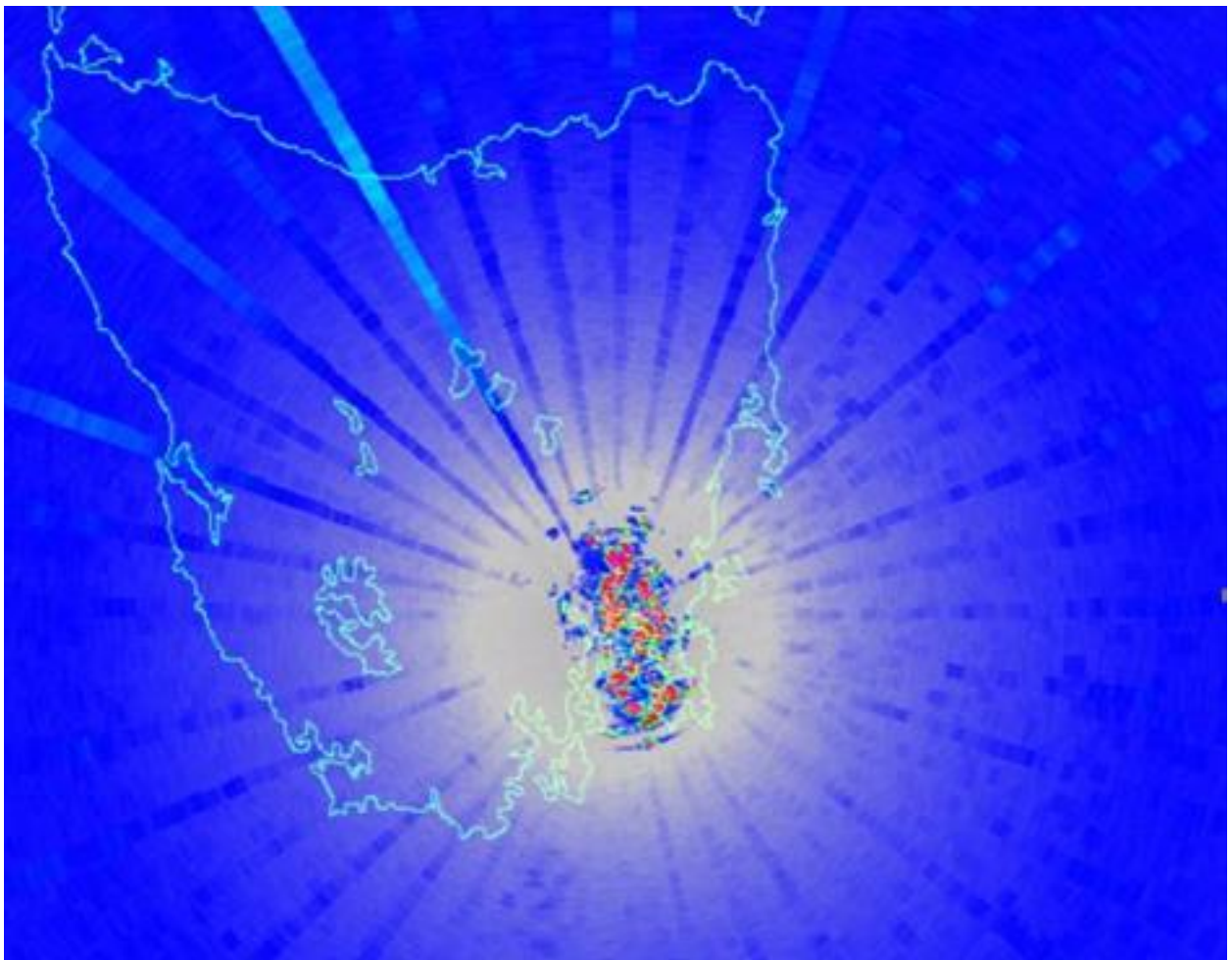


Response to ACMA's consultation paper on "Proposed updates to RALI FX23"

Bureau of Meteorology

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1. Introduction

The Bureau of Meteorology (the Bureau) as a 24/7 operational public sector agency delivering high-public-value services in support of safety, security and economic productivity, and with explicit obligations under the Meteorology Act 1955, has a requirement for certainty in its ongoing access to certain frequency bands for both active and passive sensing applications, most of which will remain essentially unchanged for the foreseeable future. The Bureau's spectrum needs are largely met by long-term certainty of licences in predominantly internationally harmonised bands, and protected from levels of interference that would impact the effectiveness of the systems utilising these bands.

A [Nov 2016 study](#) by London Economics valued the net economic benefit to Australia of the Bureau's services at \$28.6 billion over the following ten years. The largest beneficiaries were the agriculture sector (39%) and the public (27%). The report noted that the net benefit to the aviation sector is actually much larger than the value included in this net figure, given that "international aviation rules require meteorological advice for airlines to operate" and that "...an alternative approach would be to include all activity in the civil aviation sector as an economic benefit enabled by the Bureau.". The report goes on to say " This alternative approach would add \$166 billion to the ten-year benefit calculation, and an additional \$227 billion if flow-on benefits to the tourism sector are included.".

1.1. Response to Issues for Comment

1.1.1. Proposed changes in Annex D

The Bureau suggests adding new column in Annex D of the RALI FX 23 and specify the bandwidth of the sites as 6 MHz.

Therefore, new Annex D should be as below table:

Site name	State	Lat (GDA94, dec deg)	Long (GDA94, dec deg)	Centre frequency (MHz)	Band width (MHz)	Pulse width (ns)	Antenna diameter (m)	3 dB beam-width (°)	Min up-tilt angle (°)	Tx power (kW)	Ant gain (dBi)	EIRP (dBW)	Ant height (m AGL)
Bybera – Boggabila	QLD	- 28.192719	151.040299	5625	6	500	4.1	1.0	0.5	400	45	101	20
Goondwindi - Boggabila	QLD	- 28.52234	150.32657	5625	6	500	4.1	1.0	0.5	400	45	101	20



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Moreover, it is noticed that values in Table 4 of the RALI FX23 is based on 1 MHz bandwidth assumption for the weather radars.

Checking the RRL, provides the following information on the bandwidth of Bureau's licenced C-band weather radars.

Licenced bandwidth (MHz)	Number of sites	Percentage (%)
1	14	21
4	18	27
5	2	3
6	29	44
8	3	5

Therefore, to accurately reflect the required protection criteria for radiolocation service in Section 4.3 of the RALI FX23, it is suggested to modify Table 4 as below:



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Table 1: Protection criteria for Radiolocation receivers¹

Frequency offset (between centre frequencies) (MHz)	Radiolocation Receiver Protection Criteria (at the input of the radiolocation receiver)		
	10 MHz PMP transmitter <u>(dBm in receiver bandwidth)</u>	15 MHz PMP transmitter <u>(dBm in receiver bandwidth)</u>	20 MHz PMP transmitter <u>(dBm in receiver bandwidth)</u>
Co-channel	-125	-125	-125
5 MHz	-118	-125	-125
7.5 MHz	-90	-114	-125
10 MHz	-85	-91	-111
15 MHz	-75	-85	-90
17.5 MHz	-75	-82	-87
20 MHz	-75	-78	-85
25 MHz	-75	-75	-79
30 MHz or more	-75	-75	-75

¹ These values are based on:

- an assumed radar receiver mask with a -3 dB bandwidth as per licenced information of approximately 1 MHz and slopes derived from information supplied by the Bureau of Meteorology; and,
- PMP services adhering to the out-of-band emission mask defined in **Annex A**.