



NOISE FM

Noise FM Pty Ltd (Trading as River FM 87.6, 2KA 87.8 and Noise FM)
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The Manager
Spectrum Licensing Policy Section
Australian Communications and Media Authority
PO Box 13112
Law Courts
Melbourne VIC 8010

Re: Draft Five-year spectrum outlook 2023–28

Date: 12th May 2023

Dear Manager,

Thank you for the opportunity to comment regarding the Draft Five-year spectrum outlook 2023–28. Please accept this as our formal submission.

Background

Noise FM Pty Ltd operates a number of narrowcast radio services that add to the diversity of Australian Radio, we distribute our services via a number of Broadcasting licencing types including Low Power Open Narrowcasting (LPON), Narrowband Area Service (NAS) and Non BSB Commercial Radio licences. On behalf of Noise FM Pty Ltd, we thank the ACMA for providing these licencing options, which contribute greatly to the diversity of voices within the Australian Media landscape.

Sunsetting Radiocommunications Licence Conditions

Table 9: Consultation Plan - Select radiocommunications instruments due to sunset on 1 April 2025 or 1 October 2025

Consultation Details	Proposed Timeline
Radiocommunications (Allocation of Transmitter Licences – Low Power Open Narrowcasting Licences) Determination 2015	Q1 2024: consult
Consultation on the sunseting Radiocommunications Licence Conditions (Apparatus Licence) Determination 2015	Q2 2024: consult

Regarding "Q2 2024 - ACMA plan to consult on the Radiocommunications Licence Conditions (Broadcasting Licence) Determination 2015 which will sunset in 2025".

The **Radiocommunications Licence Conditions (Broadcasting Licence) Determination 2015**, currently contains the following provisions which Noise FM Pty Ltd seeks to have reviewed:

*"4.9 Low power open narrowcasting services — field strength in a residential area
If the licensee operates a narrowcasting service station to provide a low power open narrowcasting service in a residential area, the field strength must not exceed 48dBuV/m when measured at 10 metres above ground level at any location more than 2 kilometres from the station’s antenna.*

*4.10 Low power open narrowcasting services — field strength in a non-residential area
If the licensee operates a narrowcasting service station to provide a low power open narrowcasting service in a non-residential area, the field strength must not exceed 48dBuV/m when measured at 10 metres above ground."*

Comment:

Noise FM Pty Ltd argues that the requirement to have a received signal of no greater than 48 dBµV/m at 2km for a 1 watt FM service (or 48 dBµV/m at 10km for a 10 watt service) does not stack up against the laws of physics and international comparison.

For comparison, New Zealand Radio Spectrum Management requires 1 watt FM services to have a received signal of no greater than 95 dBµV/m at 100 meters.

Source:

<https://www.rsm.govt.nz/assets/Uploads/pdfs/gazette/29169a430b/additional-information-on-low-power-fm-general-user-licence.pdf>

And

<https://www.rsm.govt.nz/licensing/frequencies-for-anyone/low-power-fm-broadcasting/>

Using the Inverse Square Law, we can extrapolate this out to 2km:

Distance (meters)	Signal Strength (dBµV/m)
100	95
200	89

400	83
800	77
1600	71
3200	65

Therefore, at 2km, the signal strength should be no greater than around 68 dB μ V/m.

Unlike Australia's 48 dB μ V/m at 2km figure, New Zealand's figure of 95 dB μ V/m appears to be based on the Laws of Physics.

Furthermore, using the online Radiated Power Calculator at <https://www.compeng.com.au/radiated-power-calculator/>

This Calculator estimates that for 1.64w ERP would equate to a signal strength of 116.92 dB μ V/m at 10 meters, therefore if we extrapolate this out to 2km using the Inverse Square Law we get the following:

Distance (meters)	Signal Strength (dB μ V/m)
10	116.92
20	110.92
40	104.92
80	98.92
160	92.92
320	86.92
640	80.92
1280	74.92
2560	68.92

Again, like the New Zealand example, the above figures from this online Radiated Power Calculator arrive at a similar signal strength of around 68 dB μ V/m at 2KM (for 1 watt ERP).

The ACMA have authorised LPONs to operate at 1 watt ERP, but then specify a signal strength limitation of 48 dB μ V/m at 2km, which is inconsistent, this is because "1 Watt Transmitter Power" and "48 dB μ V/m at 2km" are both measures of Electromagnetic Radiation/RF Energy and should be equal to one another (as in the NZ case).

As an operator of LPONs, the current situation of a maximum field strength of 48 dB μ V/m is overly onerous as there is no definitive way for us to know if we are exceeding the 48 dB μ V/m requirement (without expensive highly calibrated field strength meters, tuned antenna on a 10m portable mast) and therefore in breach of my licence conditions. LPON operators are made up of small businesses, not for profits groups, community groups, and thus should not have to be highly qualified radio engineers. Furthermore if an operator is found to be in breach of the maximum field strength, and required to reduced ERP below 1 watt, this will result in inadequate reception for listeners.

Therefore for the aforementioned reasons, we would argue that the 48 dB μ V/m requirement is not fit for purpose and be removed and replaced with a maximum Effective Radiated Power (ERP) of 1 watt for LPONs in residential areas and 10 watts for LPONs in non-residential areas. Operators can

easily calculate $ERP = \text{Transmitter Power} - \text{Fixed losses} + \text{Antenna Gain}$.

Thank you again for the opportunity to comment and please feel free to contact me if we can offer any further clarification.

Kind Regards



Nathan and Michelle Rose
Managing Director