COMMUNITY BROADCASTING ASSOCIATION OF AUSTRALIA

Proposal to vary the Queensland digital radio channel plan

Comments on the ACMA Consultation Paper, July 2021

AUGUST 2021

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1. Introduction

1.1 The Community Broadcasting Association of Australia (CBAA) welcomes the opportunity to comment further on the Queensland Digital Radio Channel Plan (DRCP), prompted by a follow-up consultation paper issued by the ACMA in July 2021.

1.2 The CBAA responded to the previous consultation paper circulated by the ACMA in September 2020. The CBAA stands by position/s in response to that consultation.

1.3 Comments made herein do not repeat the full extent of comments previously made, but do reiterate and expand upon points of particular relevance in light of issues raised by the ACMA in its July 2021 follow-up consultation paper.

Key comments – Brisbane main transmit site, Mt Coot-Tha

1.4 The CBAA continues to support the change to remove existing restrictions to the Brisbane main transmit site (Mt Coot-Tha) antenna horizontal radiation pattern as proposed in Appendix C of the September 2020 consultation paper.

1.5 The removal of restrictions will result in an increase of the practical maximum from 23 kW ERP to the original intended and nominal maximum of 50 kW ERP, and is welcomed.

1.6 When effected, the intended operational parameters will be in place without restriction for the first time since the introduction of digital radio to Brisbane in 2009.

1.7 The CBAA welcomes the improvement this will bring to coverage, bringing a reliability of reception that digital radio listeners in the Brisbane RA1 licence area might reasonably expect, and especially when listening indoors or using entry-level receivers.

1.8 As noted in the ACMA September 2020 consultation paper, following completion of the digital television switchover and restack process in 2014, there is no longer any need for digital radio to be restricted in order to protect television services from interference.

1.9 Any continuation or imposition of restrictions as suggested in July 2021 would compromise delivery and be to the detriment of reliable reception to a significant number of listeners to digital radio in Brisbane.

1.10 To reiterate: the CBAA strongly supports the provision of coverage suited to reliable reception of digital radio services across Brisbane, and considers that the intent of the original specification ought be effected without further delay, hence;

1.11 The CBAA continues to support varying the Queensland DRCP in line with the Brisbane main transmit site specification proposed in the ACMA September 2020 consultation.

Key comments – Brisbane in-fill site, Mt Mee

1.12 There is currently an on-channel repeater located at the north of the Brisbane licence area, providing some level of in-fill coverage, including to Caboolture.

1.13 This in-fill site may require operation at a higher power to provide meaningful contribution to coverage. The exact extent and arrangements for this ought not be central to a decision on the Queensland DRCP in regard to Brisbane RA1.

1.14 In other metropolitan cities, in-fill sites have not been specified in the DRCP.

1.15 The September 2020 consultation paper proposed a change to section 6 of the DRCP to provide for the technical specifications of a co-channel transmitter to be specified in the DRMT apparatus licence.

1.16 This would seem to provide a mechanism, outside of the DRCP itself, to balance views and consider the merits and operational basis of Mt Mee, or any other in-fill sites.

1.17 Reliance on an in-fill site, in this case Mt Mee, as fundamental to meet significant base level coverage in Brisbane seems inappropriate, and would likely require significant changes to current site infrastructure and the addition of redundancy and resilience.

Key comments – Gold Coast, two main site options

1.18 The CBAA supports a change to the Queensland DRCP to provide for the nominal main transmit site for the Gold Coast RA1 to include two options: so that either Mt Tamborine or Lower Beechmont might be able to be used – by any, either or all DRMT licensees.

1.19 The opportunity for any of the DRMT licensees to make use of either main site will assist competitive outcomes from the transmission facility owners and providers.

1.20 Having the two main sites nominated is in line with best and existing practice to date, where the DRCP specifies a nominal main site and/but where that nominal site has within its scope multiple options of transmission facility providers.

2. ACMA Consultation

2.1 The ACMA July 2021 consultation paper sets out Alternatives to the ACMA September 2020 specification, and seeks comment, primarily on Alternative 1.

2.2 Alternative 1 seeks to impose a restriction of ERP in the North-North-East direction, between 12 and 20 degrees, limiting the ERP in that sector to 15.4kW.

2.3 The intent of this restriction is to address concerns expressed by commercial broadcasters in Nambour RA1 about overspill of Brisbane digital radio services.

2.4 The ACMA July 2021 consultation paper discusses Alternative 2, which involves changes to the Mt Coot-Tha antenna vertical radiation pattern on a direction-specific basis. The ACMA does not consider Alternative 2 viable. The CBAA does not support Alternative 2.

2.5 The ACMA July 2021 consultation paper discusses Alternative 3, which involves changes to the Mt Mee in-fill site. As discussed under key comments, the CBAA considers Mt Mee is best considered in the manner of co-channel in-fill sites in other capital cities, and not necessarily included in the DRCP itself.

3. Comments on Alternative 1

3.1 The following comments relate to Alternative 1 and compares outcomes with the September 2020 specification.

3.2 As noted, Alternative 1 seeks to re-impose a restriction of ERP in the North-North-East direction, between 12 and 20 degrees, limiting the ERP in that sector to 15.4kW.

Overspill, Alternative 1 compared to September 2020

3.3 The ACMA consultation paper considers the effect of Alternative 1 on overspill using several models[1], with varying outcomes predicted. Under any model, the maximum estimate of reduction of overspill to Nambour RA1 is 9,825 people.

3.4 However, the ACMA consultation paper notes that Alternative 1 would increase overspill to the Gold Coast RA1 by a similar amount, predicting an increase of 7,843 people.

3.5 Taken as a percentage of the total population of each respective licence area, these population counts amount to a decrease of overspill to Nambour RA1 of 1.57%, and an increase of overspill to the Gold Coast RA1 of 1.35%.

3.6 The ACMA paper further suggests that under different prediction modelling the increase in overspill to the Gold Coast from Alternative 1 is even greater, and the decrease to Nambour much less.

3.7 Setting aside the vagaries of prediction modelling, several points are clearly evident:

(a) Even at the maximum estimate the reduction of overspill to Nambour RA1 by 1.57%, were Alternative 1 to be adopted, is minor and not compelling.

(b) There is no overall reduction in overspill by adoption of Alternative 1, rather, the locus of overspill shifts from one adjacent licence area to another.[2]

No market distortion as a result of digital radio overspill

3.8 Two additional points may also be relevant:

(a) There is long-standing existing overspill of Brisbane RA1 analogue radio services. The extent of existing analogue overspill is likely similar or greater than any overspill from Brisbane digital radio services. It follows that there is no market distortion introduced as a result of Brisbane RA1 digital radio overspill.

(b) As digital radio allocation planning has been completed across all metropolitan and regional commercial RA1 licence areas in Australia, there is no structural impediment to licensees in adjacent licence areas taking the opportunity to implement digital radio.

Community sector policy is to prioritise coverage

3.9 The CBAA has a long-standing policy position to prioritise coverage and availability of community radio services to the fullest extent within their Licence Area.

3.10 This policy position reflects the community sector's primary concern is to ensure service delivery to listeners, rather than a focus on overspill based on commercial boundaries.

[1] The two models used being CRC-Predict, and ITU-R P.1546.1

[2] At Page 8, the ACMA July 2021 Consultation Paper notes that propagation model ITU-R P.1546.1 predicts Alternative 1 to cause greater total overspill by approximately 20,000 people.

Community and commercial services share same digital radio multiplex

3.11 The digital radio legislative framework provides for community and commercial radio broadcast services to use capacity on a common digital radio multiplex transmitter.

3.12 The CBAA considers it unreasonable that community radio services have restrictions placed upon them that are counter to the optimal reception of community services by listeners within the intended Licence Area, especially if those restrictions are being imposed only or primarily to assuage minor overspill concerns.

3.13 A further outcome of the digital radio framework is that community radio broadcasters are jointly allocated and share a limited amount of multiplex capacity.

3.14 In Brisbane this limitation results in all community radio services being squeezed into the equivalent of 4 commercial radio standard capacity entitlements. This limits the options for delivery of community services, and, while not preferred, can require using less than the standard EEP-3A protection scheme for provision of some services. In this scenario, robust transmission coverage is especially important for reliable reception.

Impact to reception by reduction in coverage north of Mt Coot-Tha

3.15 The ACMA consultation paper considers the effect of Alternative 1 on coverage within the Brisbane RA1 Licence Area.

3.16 The ACMA tabulation suggests coverage of Alternative 1 is similar to the September 2020 proposal, with the comment that Alternative 1 provides slightly better coverage to the South, whereas the September 2020 proposal offers better coverage to the North.

3.17 The ACMA has provided reception population figures within the Brisbane RA1 Licence Area north of Mt Coot-Tha, showing predicted outcomes from Alternative 1 as compared to the September 2020 proposal. ACMA has tabulated against two models.

3.18 As would be expected—with Alternative 1 having a deliberate restriction to the North-North-East—the outcomes of Alternative 1 predict a reduction in the quality of coverage as compared to the September 2020 proposal, with the two models estimating negative impact on Urban Indoor reception as being either 28,436 people or 14,538 people.

Thresholds	CRC-Predict	ITU-R P.1546.1
Mobile (99%)		
60 dBμV/m at 10 metres	-1,767 people	-524 people
Suburban Indoor (95%)		
64 dBμV/m at 10 metres	-5,019 people	-788 people
Urban Indoor (95%)		
70 dBμV/m at 10 metres	-28,436 people	-14,538 people

As tabulated in the ACMA July 2021 paper, Appendix D

3.19 The impact of the coverage reduction to reception quality experienced by listeners can be complex to assess. The prediction models provide a guide as to field strength and population at each nominal threshold, but, the models do not necessarily capture the impact of reflections, and with performance inside buildings being particularly challenging to assess.

3.20 Adding further to uncertainty, the predictions are at 10 metres. It is preferred that detailed analysis of areas of poor reception use 1.5 metres.

Area of population with reduced coverage, population count

3.21 What can be said with certainty is that the deliberate insertion of a notch to reduce field strength will reduce the efficacy of reception to the population of Brisbane RA1 Licence Area in those areas where the field strength is less than it would have been under the September 2020 proposal.

3.22 Those areas are described by reference to the practical antenna horizontal radiation patterns, shown in the ACMA July 2021 Paper at Appendix G.

3.23 When compared, these antenna patterns show the North-North-East arc where the E/Emax is less for Alternative 1 as compared to the September 2020 proposal is approximately -10 through to +40 degrees.

3.24 Attachment 1 shows that arc overlaid upon the Brisbane RA1 Licence Area.

3.25 A population count within this arc has been performed. The population within this arc is estimated as being 545,702 people, using 2016 Census data.[3]

3.26 While very recent Census data is not available, it is clear there is a trend for significant population growth within this arc, as the population count using 2006 Census data is 427,278 people. The growth to 545,702 is significant, 2.5% pa compounding.

3.27 While the coverage of digital radio to the whole population within this arc would be in some way derogated by Alternative 1 as compared to the September 2020 proposal, the extent of derogation would likely be material to the reception experienced for a much smaller number of people.

Area of population within mask, population count

3.28 Another measure is to assess the population count within the arc defined by the mask set out in the draft technical specification for Alternative 1. This narrower arc is from +12 through to +20 degrees.

3.29 A population count within this arc is estimated as being 96,413 people using 2016 Census data. The growth trend seems even more significant within this narrower arc: the population count using 2006 Census data is 67,355 people, 3.7% pa compounding.

3.30 The two 2016 population counts of 545,702 people and 96,413 people might be considered as ways of describing the total population in the area of reduced coverage under Alternative 1, and has a high degree of certainty.

Impact of reduced coverage to reception outcomes has uncertainties

3.31 Within these areas where the population can be counted with certainty, the afore-mentioned coverage prediction methodologies suggest the count of people that may suffer degradation of reception in practice will be a lesser number, depending upon their listening location, building type, reflections and other uncertainties.

3.32 As noted, ACMA tabulates 10 metre predictions of impact to Urban Indoor reception as negative to either 28,436 people or 14,538 people. The number negatively impacted seems likely to be higher if assessed at 1.5 metres, and taking into account the impact of reflections.

4. Recap and conclusion

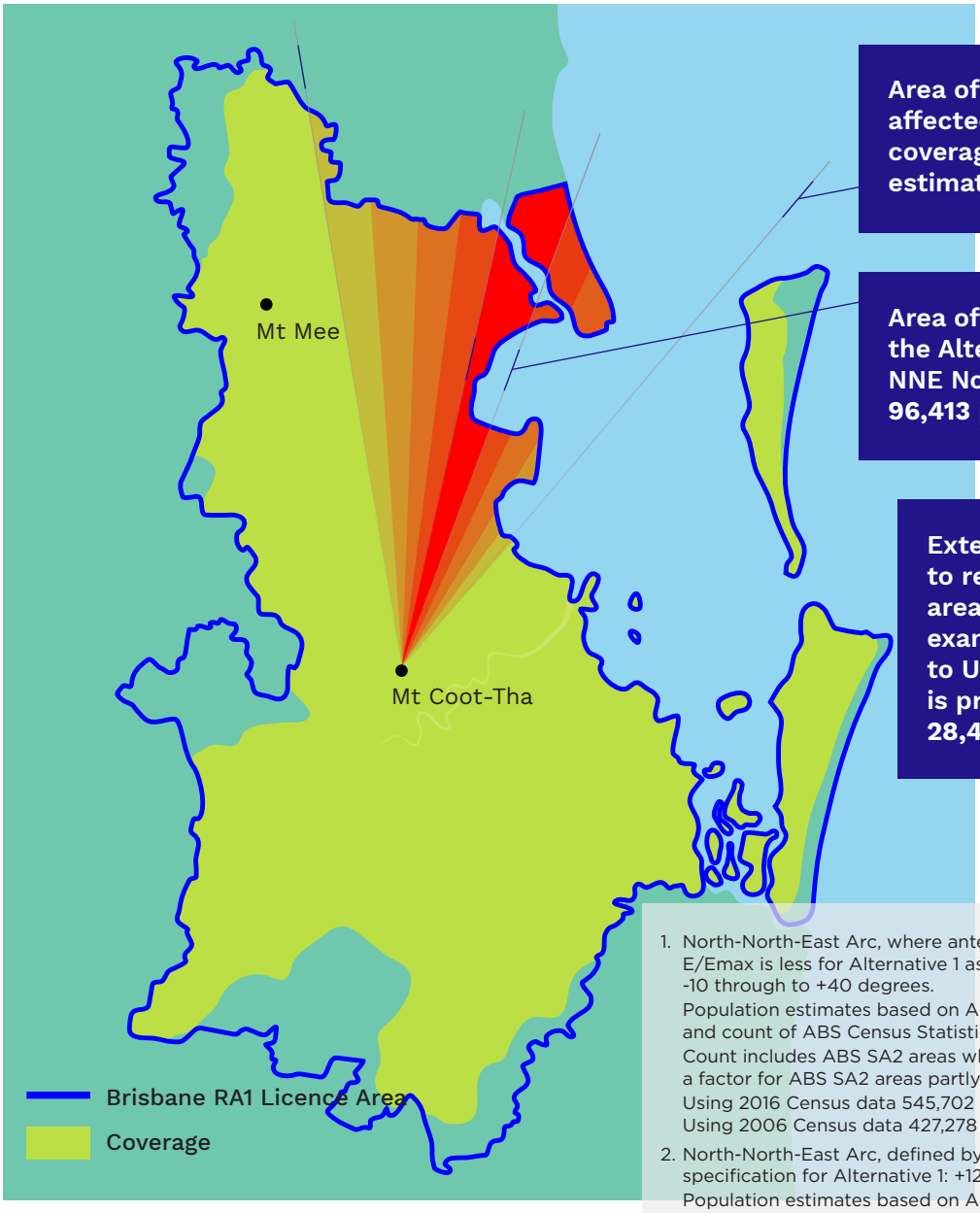
4.1 It is clear that Alternative 1 as set out in the July 2021 consultation paper would have negative impacts to coverage across a significant population within the Brisbane RA1 Licence Area north of Mt Coot-Tha, and that the extent of material impact to the reliability of reception has a degree of uncertainty.

4.2 To deliberately put in jeopardy reliable reception of digital radio to even a small portion of listeners across such a highly populated area of Brisbane RA1 runs against best practice and good public policy, particularly when it can be avoided and with no extra cost.

4.3 The CBAA reiterates its strong support for the original September 2020 proposal, noting that it aligns with the original intended coverage, pattern and ERP; was to be implemented upon closure of digital television; and has no major or deliberate restriction to coverage.

[3] This analysis tracked population and growth using overlay of ABS KMZ Census SA2 areas that are wholly contained within the arc, and applied a factor for SA2 areas partly within the arc.

Area and population within Brisbane RA1 negatively affected by Alternative 1 coverage compared to ACMA September 2020 coverage



Area of population negatively affected by Alternative 1 coverage with NNE notch, estimated 545,702 people [1]

Area of population within the Alternative 1 mask of the NNE Notch, estimated 96,413 people [2]

Extent of material impact to reception within these areas is uncertain. For example, negative impact to Urban Indoor reception is predicted as either 28,436 or 14,538 people [3]

1. North-North-East Arc, where antenna horizontal radiation pattern E/Emax is less for Alternative 1 as compared to September 2020: -10 through to +40 degrees.
   Population estimates based on ABS KMZ overlay of Brisbane RA1 and count of ABS Census Statistical Areas Level 2.
   Count includes ABS SA2 areas wholly within this Arc and applies a factor for ABS SA2 areas partly within this arc.
   Using 2016 Census data 545,702 people.
   Using 2006 Census data 427,278 people. Growth 2.5% pa.
2. North-North-East Arc, defined by ACMA draft technical specification for Alternative 1: +12 through to +20 degrees.
   Population estimates based on ABS KMZ overlay of Brisbane RA1 and count of ABS Census Statistical Areas Level 2.
   Count includes ABS SA2 areas wholly within this Arc and applies a factor for ABS SA2 areas partly within this arc.
   Using 2016 Census data 96,413 people.
   Using 2006 Census data 67,355 people. Growth 3.7% pa.
3. Population count of negative impacts to reception of Alternative 1 compared to September 2020 within Brisbane RA1 - north of Mt Coot-Tha, no in-fill.

Thresholds	CRC-Predict	ITU-R P.1546.1
Mobile (99%)		
60 dBµV/m at 10 metres	-1,767 people	-524 people
Suburban Indoor (95%)		
64 dBµV/m at 10 metres	-5,019 people	-788 people
Urban Indoor (95%)		
70 dBµV/m at 10 metres	-28,436 people	-14,538 people

As tabulated in the ACMA July 2021 paper, Appendix D.
Two different prediction methodologies.
Predictions are at 10 metres. It is preferred that detailed analysis of areas of poor coverage use 1.5 metres.

Antenna horizontal radiation pattern options