EXPLANATORY STATEMENT

Issued by the Australian Communications and Media Authority

Broadcasting Services (Technical Planning) Amendment Guidelines 2009 (No.1)

Broadcasting Services Act 1992

Purpose

The Broadcasting Services (Technical Planning) Amendment Guidelines 2009 (No.1) (the Amendment) amends the Broadcasting Services (Technical Planning) Guidelines 2007 (the Guidelines) to incorporate changes required to facilitate the introduction of digital radio broadcasting services in Australia.

Legislative Provisions

Section 33 of the Broadcasting Services Act 1992 (the BSA) requires the ACMA to develop in writing guidelines for use by licensees in the technical planning of individual services that use the broadcasting services bands as a means of delivery.

Subsection 33(3) of the Acts Interpretation Act 1901 provides that where an Act confers a power to make an instrument, that power shall, unless the contrary intention appears, be construed as including a power exercisable in a like manner and subject to like conditions, to amend that instrument.

Background

On 10 May 2007, the Parliament passed the Broadcasting Legislation Amendment (Digital Radio) Act 2007 which facilitated the introduction of digital radio services by amending the Radiocommunications Act 1992 (the RA) and the BSA. Digital radio services will be introduced by commercial radio broadcasters, national broadcasters and wide-coverage community radio broadcasters.

Paragraph 109B(1)(n) of the RA makes it a condition of a digital radio multiplex transmitter (DRMT) licence issued under Part 3.3 of that Act, that the holder of the licence must comply with the guidelines developed by ACMA under section 33 of the BSA.

Operation

In order to ensure that the guidelines made under section 33 of the BSA take into account the introduction of digital radio broadcasting services in Australia, the Amendment to the Guidelines:

- introduces a new part containing provisions applying to DRMT licences (Part 8). This new part is based mostly on the digital television part (Part 6), with some ‘guidelines’ based on the FM Radio part (Part 4).
- applies to digital radio services (including restricted datacasting services) delivered by a transmitter operating under a DRMT licence in the frequency band 174-230 MHz.
- sets out the rules for deploying the transmitters specified in the Digital Radio Channel Plans (DRCPs) made under section 44A of the RA.
- gives DRMT licensees the capacity to deploy within the relevant designated BSA radio area, additional transmitters (repeaters) on the same frequency as that specified in the DRCP, subject to not causing interference and not exceeding the maximum permissible field strength beyond the designated BSA radio boundary.
- requires DRMT licensees to comply with the provisions of Part 1 “Start Up Procedures”. This includes requirements to publish contact details (including a telephone number), conduct test transmissions, and eliminate or minimise interference before the test transmission is completed.
● requires DRMT licensees to comply with the provisions of Part 2 the “Change of
   transmitter site procedure”.

● amends the digital television part (Part 6) such that digital television licensees and
datacasting transmitter licensees must take account of digital radio in planning
   deployment of digital TV transmitters.

These changes are designed to ensure that interference between digital radio and other
radiocommunications including other broadcasting services is appropriately minimised or
eliminated. The analog TV part has not been varied to take account of digital radio as the
interference risk from analog TV to digital radio is low and few changes or new transmitters
are likely for analog TV prior to the final analog switch off.

Consultation

On 31 October 2008 a copy of the draft Amendment, together with explanatory material was
published on the ACMA internet site inviting members of the public to make submissions on
the instrument.

Also on 31 October 2008, the ACMA emailed interested parties to alert them to the release of
the Amendment. These interested parties included metropolitan DRMT licensees, peak radio
industry bodies (Commercial Radio Australia and the Community Broadcasting Association of
Australia), national broadcasters and others who had provided their email contact details in
response to a letter of 8 June 2007 that was sent to all commercial and wide coverage
community radio broadcasters in the six state capital cities, inviting their representatives to a
briefing on digital radio planning.

Also alerted by email to the release of the draft Amendment were parties interested in the
planning of digital television services, these included national and commercial television
broadcasters and the commercial television peak body.

The ACMA ceased accepting comments on the draft Amendment on 19 December 2008,
having received 3 submissions on the proposed arrangements. Following consideration of the
submissions ACMA made several changes to the Amendment including:
   • Adding an informative table of digital radio (DAB) frequency block frequencies;
   • Removing the references to the 230-240 MHz band; and
   • Other minor editorial enhancements.

Additionally, a review of protection ratio measurement data conducted by the ACMA also lead
to some minor changes to the protection ratios that are used in guideline 190 for digital radio
potentially interfering with adjacent channel analog television services and for digital radio
potentially interfering with co-channel digital television services.

Regulation Impact

The ACMA obtained advice from its SES contact officer for the Government's regulation
impact analysis arrangements that the Amendment has low impact.

For those reasons under the self-assessment regime administered by the Office of Best
Practice Regulation, the ACMA has determined that there is no need to produce a Business
Cost Calculator report or to prepare a Regulation Impact Statement. The ACMA RIS
reference number is 029.

Documents incorporated into this Amendment by Reference

This Amendment incorporates information from the ETSI EN 300 401 V1.4.1 standard
developed by the European Telecommunications Standards Institute. This standard can be
Attachments

Details of the Amendment are described in the Attachment.
NOTES ON AMENDED SECTIONS

Foreword

The foreword is amended to include appropriate references to digital radio.

Introduction

The ACMA has made changes to guideline 2 to indicate that the Guidelines apply to DRMT licensees.

New guidelines 4C, 4D and 4E clarify the relative roles of the Guidelines and the DRCP’s.

Guideline 6 has been amended to indicate that digital radio will operate in the 174-230 MHz band.

New guideline 7B indicates that the ACMA may publish additional information on the methods for planning digital radio broadcasting transmissions.

The definitions in guideline 8 have been amended to include new definitions, such as ‘BSA licence area’, ‘designated BSA radio area’, ‘digital radio broadcasting service’, ‘digital radio channel plan (DRCP)’, ‘DRMT licensee’, ‘protection ratio’, ‘restricted datacasting services’ and ‘frequency block’, as well as amendments to existing definitions, such as ‘licensee’, ‘nominal location’, ‘planned minimum field strength’ and ‘transmitter licence’. Additionally, the note following the definition of ‘EMC calculations’ is amended.

Note that for most commercial and community radio broadcasting licensees, designated BSA radio area is equivalent to that licensee’s licence area. Exceptions are those licensees that have a licence area that is deemed to be the same as a specified commercial radio broadcasting licence area, either under subsections 8AD(1) and (2), or through a determination under subsection 8AD(3), of the BSA.

Guideline 8A is amended so that a reference to a transmitter in Part 8 (the new digital radio related Part) includes a transmitter authorised to transmit digital radio or restricted datacasting services.

Part 1 Start Up Procedure

Guidelines 12 and 13 are amended to make Part 1 - Start Up Procedure apply to digital radio and restricted datacasting services.

Part 2 Change of Transmitter Site Procedure

Guidelines 14 and 15 are amended to make the Part 2 - Change of Transmitter Site Procedure apply to digital radio and restricted datacasting services.

Part 6 Digital Television

Guidelines 102A-102D

New guidelines 102A to 102D require digital television licensees to provide protection from interference to digital radio services or restricted datacasting services by not causing unacceptable interference to those services.

Guideline 104
Guideline 104 is amended to reference digital radio along with the other broadcasting services mentioned in this guideline. The term - radiocommunications licensees includes licensees of broadcasting services as well as non-broadcasting services.

**Part 8 Digital Radio**

A new part, Part 8 is inserted that has provisions similar to those in Parts 3, 4, 5 and 6 for other broadcasting services. The provisions relate to location of transmitters; power levels; minimum service levels; maximum signal levels both within and beyond the licence area boundary; interference to other services; deployment of additional transmitters and radiated signal characteristics.

The guidelines in new Part 8 are numbered 177 to 210.

**Guideline 177 Application of Part 8**

New guideline 177 specifies that Part 8 applies to DRMT licensees or authorised persons operating a DRMT in the very high frequency (VHF) band 174-230 MHz.

**Guideline 178 Location of transmitter site**

New guideline 178 requires the transmission site to be located within the designated BSA radio area, unless otherwise specified in the DRCP or an approved implementation plan.

**Guideline 179 Effective radiated power**

New guideline 179 requires the effective radiated power (ERP) to not exceed that specified in the DRCP whether or not the transmitter is to be sited at the nominal location in the DRCP.

**Guidelines 180-182 Minimum level of service requirements**

New guidelines 180-182 require licensees to operate at an ERP level of no less than 5 dB below (i.e. approximately 32% of) the ERP specified in the DRCP for a given direction if the transmitter is sited at the nominal site specified in the DRCP. If the transmitter is at another site, then the minimum signal level required for indoor reception in suburban areas (ie 70 dBuV/m) shall be provided to urban centres that would have received at least that minimum signal level had the transmitter been operated as per the DRCP specification.

**Guidelines 183-184 Maximum field strength within the designated BSA radio area**

New guidelines 183-184 require licensees to design their transmissions facilities to limit the area receiving the very high signal levels that may potentially cause interference or degradation in the performance of other radiofrequency receivers near the transmission site.

**Guidelines 185-186 Maximum field strength beyond the designated BSA radio area boundary**

New guidelines 185-186 require that the signal level in any urban centre outside the designated BSA radio area does not exceed the minimum signal level required for indoor reception in suburban areas (ie 70 dBuV/m). Greater levels are also permitted if they result from operation in accordance with the DRCP technical specification at the nominal site. Levels greater than 70 dBuV/m may be the necessary result of adequately serving the designated BSA radio area.

**Guidelines 187-192 Interference to analog television**

New guidelines 187-192 provide the technical rules that licensees must apply to assess the potential for their digital radio transmissions to cause interference to analog television services.
Table in guideline 190 Required protection ratios to avoid interference from digital radio

The table specified in new guideline 190 is referenced in various provisions relating to the potential for digital radio to cause interference to analog television, digital television and other digital radio transmissions. The table specifies the protection ratio to use in each case depending upon the combination of digital radio frequency blocks in use in the designated BSA radio area and the service to be protected and whether the services are to operate co-channel or on adjacent channels. The values in the table were derived from a number of sources. Where practicable, values were derived from relevant International Telecommunication Union – Radiocommunication Sector (ITU-R) Recommendations or other ITU-R publications. Measurements undertaken by the ACMA were used to verify a number of those protection ratio values and, in some cases substitute those values.

Note that the table of protection ratio values for the situation of co-channel digital radio and digital television has been adjusted to cater for future expansion of the number of DAB frequency blocks in use. For metropolitan area digital radio, the protection ratio value applicable to the case where all four DAB frequency blocks within a television channel are occupied is required to be used when considering interference to co-channel digital television.

The number of incumbent radio services in regional areas taken together with the legislated planning framework for digital radio means that it is unlikely that more than two digital radio frequency blocks will be planned in any regional designated BSA radio areas. Therefore for regional area digital radio, the protection ratio value applicable to the case where two DAB frequency blocks within a television channel are occupied is required to be used for one and two DAB frequency block cases when considering interference to co-channel digital television.

The above mentioned planning assumptions do not limit future expansion beyond the number of DAB frequency blocks mentioned above; however, should such expansion be necessary, there may be a requirement to replan existing services.

Guidelines 193-197 Interference to digital television or datacasting

New guidelines 193-197 provide the technical rules that licensees must apply to assess the potential for their digital radio transmissions to cause interference to digital television services.

Guidelines 198-202 Interference to other digital radio or restricted datacasting services

New guidelines 198-202 provide the technical rules that licensees must apply to assess the potential for their digital radio transmissions to cause interference to other digital radio or restricted datacasting services television services.

Guideline 203 Complaints about interference

New guideline 203 requires complaints of interference to other services to be resolved. This requirement applies to services provided by radiocommunications licensees. The term - radiocommunications licensees includes licensees of broadcasting services as well as non-broadcasting services.
Guideline 204 Protection ratio value

New guideline 204 specifies that the combination of the DAB frequency blocks planned in the relevant DRCP determine which row of the table in guideline 190 is to be used.

For example: If frequency blocks 9A, 9B and 9C are planned in the DRCP for a relevant designated BSA radio area, the eleventh row (excluding the two header rows) is to be used as it corresponds to the combination of the A, B and C frequency blocks for N=9. N-1, N and N+1 correspond to Australian television channels 9, 9A and 10 respectively.

Guidelines 205-207 Single frequency networks and additional co-channel transmitters

New guidelines 205-207 specify the circumstances under which additional digital radio multiplex transmitters that are not specified in a DRCP may be established and operated and clarifies that transmitters may be operated as a single frequency network. Note that in addition to complying with the Guidelines, the DRMT licence would also need to be varied to authorise the operation of the additional transmitters.

Guidelines 208-210 radiated signal characteristics

New guideline 208 specifies that the radiated signal must conform to the stated spectrum mask. This is a minimum requirement and the DRCP may specify a more stringent spectrum mask where this is necessary.

New guidelines 209 and 210 specify the modulation parameters to be used in relevant planning calculations and how this relates to interference protection that will be afforded to services using those parameters.

Appendix 6 Digital radio (DAB) frequency blocks

A new appendix has been inserted to provide an informative list of digital radio (DAB) frequency block identifiers and frequencies. The relevant Australian television channel numbers are also listed.

Explanatory Notes

A number of editorial changes have been made to the Explanatory Notes consistent with the inclusion of guidelines relating to digital radio. Annex A has been deleted. The only content in Annex A was a list of two documents produced by the former Australian Broadcasting Authority (ABA). Those documents contain policy assumptions used in development of licence area plans and digital channel plans by the ABA and the ACMA which is not directly relevant to the application of the Guidelines.