

Broadcast Planning Instruction

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| Title: Planning in-fill services for MF-AM radio broadcasting services | |
| Instruction no: 12 | Version release: 2 |
| | Date of effect: Immediate |

Background

This Instruction details the general principles to be applied when assessing alternative technical solutions for the 'in-fill' of coverage deficient areas within the licence area of existing Medium Frequency Amplitude Modulated (MF-AM) radio broadcasting services.¹

Coverage deficiencies within an MF-AM radio licence area may arise as a result of new residential development and population growth in the area. Additionally, the coverage of the main service may be identified as deficient due to propagation issues or poor received audio quality. The propagation issues may be related to poor ground conductivity, inadequate transmitter power or directionality of the antenna, whereas poor audio quality may be attributed to increased man-made noise levels over time due to expanding urban or industrial environments.

Excluded from application of this Instruction is the re-transmission of broadcasting services by third parties. Re-transmissions are typically requested and funded by small communities located in isolated parts of a licence area where the main service does not reach. In these situations the coverage is generally confined to the immediate community (commonly known as "town only" services). To ensure a cost effective solution for these communities, FM solutions are usually considered.

Instruction

Principles to be applied when assessing technical solutions

Verify the claimed/reported problem with the coverage of the AM service

The first step in the technical assessment is to confirm the coverage deficiency within the licence area of the AM broadcasting service. Modelling of signal coverage is to be performed, based on the current operational parameters of the service. If not already supplied, the licensee should be requested to provide a field survey report detailing measured field strength levels in the problematic area(s). Where applicable, the report should also include an assessment of the monitored audio quality in the area(s) concerned. The survey data submitted by the licensee is then to be assessed against results obtained from the coverage modelling exercise and any past ACMA surveys of the broadcasting service. This process will serve to confirm which parts of the licence area require attention or are deficient in terms of coverage.

¹ Although licence areas are only relevant to commercial and community broadcasting services, the principles detailed in this Instruction are equally applicable to national services seeking to extend, or to overcome signal deficiencies within, the main coverage of an MF-AM radio broadcasting service.

Identify the most appropriate technical solution

- > The preferred option for addressing the coverage deficiency is to modify the technical specification of the main AM transmitter. This may entail an increase in the transmitter power, a change to the radiation pattern or the introduction of day/night switching². These alternative solutions should be investigated and discussed with the licensee.
- > Where a change to the main transmitter specification is not feasible, either due to cost, site restrictions, hardware limitations or other reasons, an FM based solution can be considered. Subject to other spectrum requirements in the area, planning options should be developed for an FM translator (or 'in-fill') service covering only the signal deficient area(s) of the AM broadcasting service. The planned FM service is not to provide or facilitate de facto AM to FM conversion by the licensee.
The ACMA has directed that FM in-fill services should not, in general, be planned such that use of a particular frequency will prevent use of that frequency for a main service. Any exceptions to this rule should be highlighted in the engineering report.
- > If there is insufficient FM spectrum or if the use of FM will result in de facto AM to FM conversion, then consideration may be given to a low power AM transmitter. Given the costs and difficulties in establishing new AM transmitter sites, such a proposal will need to be discussed with the licensee.
If an AM transmitter is to be considered, it is necessary to confirm not only the availability of AM spectrum but whether use of the available frequency for a low power solution is spectrally efficient.

Fully discuss proposal(s) with the licensee

It is important to ensure that any options developed are fully discussed with the licensee prior to proceeding with formal consultation on the proposal in a draft Licence Area Plan (LAP) variation.

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| Authorised: [SIGNED] Manager Broadcast Spectrum Planning Section | Date: 1/06/2021 |
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² Refer to Broadcast Instruction No. 5. (Day/night switching of transmission power and full time power increase for AM radio broadcasting services).