Explanatory Paper

Draft Variation to Licence Area Plan for Lithgow, NSW
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Background

The Australian Broadcasting Authority (ABA) varied the Lithgow Radio Licence Area Plan (LAP) in December 1999 by providing an AM translator in Katoomba for commercial radio service 2LT and an FM translator in Katoomba for commercial radio service 2ICE.

The 2LT AM translator was planned to operate on 783 kHz from Wentworth Falls with a maximum cymomotive force of 440 V using an omni-directional pattern.

The 2ICE FM translator was planned to operate on 99.5 MHz from Council Headquarters Building, Gang Gang St, Katoomba, with a maximum ERP of 200 W using an omni-directional pattern with an antenna height of 30 metres.

The current licence area for 2ICE is smaller than the licence area for 2LT.

Media Corporation Australia Limited (MCAL), the licensee of 2LT, was advised by the owners of the Wentworth Falls transmitter tower that they will not allow any AM antennas on the site. MCAL has been unable to find another suitable site in the Katoomba area for its AM translator service for 2LT. Furthermore, Blue Mountains Council has advised that it will not permit the establishment of any further AM transmission sites in the Blue Mountains area.

MCAL, the licensee of 2ICE, has also experienced difficulties establishing its FM translator service in the Katoomba area. The tower at the Wentworth Falls site designated in the LAP variation is used by a number of non-broadcasting services in the area and antenna access on the tower is limited. The maximum antenna height specification of 30 metres designated in the 1999 LAP variation cannot be accommodated on the tower.

The licensee has been unable to commence either of the Katoomba translator services using the existing technical specifications.

In September 2005 the Australian Communications and Media Authority (ACMA) agreed to release an explanatory paper and draft variation to the Lithgow LAP in relation to proposed changes to the technical specifications for the 2ICE translator service in Katoomba. Several submissions were received in response to the proposed changes. However, MCAL expressed dissatisfaction with the proposed changes, which it believed did not satisfy the changes it required for the service.

ACMA also proposes three additional National services for Lithgow to provide the full range of ABC radio services.
Call for Submissions

Submissions on the matters raised in this Explanatory Paper may be made to the Australian Communications and Media Authority (ACMA) as follows:

By email: lapvariation@acma.gov.au

By mail: Draft Licence Area Plan Variation – Lithgow Radio
          Australian Communications and Media Authority
          PO Box Q500
          QUEEN VICTORIA BUILDING NSW 1230

By fax: (02) 9334 7799

Please quote file reference 2005/2174 in your reply.

Any enquiries concerning matters raised in this document should be directed to Mr Paul Newton (02) 9334 7704.

The closing date for submissions is 5.00pm, xx January 2008.

All submissions received will be made available for public inspection on the ACMA website.¹ (www.acma.gov.au)

¹ Note that any submission marked “In Confidence”, “Confidential” or similar, cannot be considered by the ACMA in finalising the LAP variation.
Preliminary View

Preliminary View – Lithgow Commercial Radio Services 2LT and 2ICE

ACMA proposes to vary the technical specifications of the 2LT Lithgow commercial radio broadcasting service as follows:
To convert the translator service in Katoomba from the AM band to the FM band on 101.1 MHz, with a maximum effective radiated power of 1kW (directional) from the Broadcast/Communications Site, 31 - 45 Great Western Highway, Wentworth Falls, and a maximum antenna height of 60 metres.

ACMA proposes to vary the technical specifications of the 2ICE Lithgow commercial radio broadcasting service as follows:
To increase the maximum effective radiated power of the Katoomba translator service to 1kW (directional) from the Broadcast/Communications Site, 31 - 45 Great Western Highway, Wentworth Falls, with a maximum antenna height of 60 metres.

ACMA proposes to determine that the licence area of 2ICE will be the Lithgow RA1 licence area (which is the same as 2LT) and that the Lithgow RA1 licence area be redefined using 2001 Census boundaries.

Changes requested by the licensee to the technical specifications for the 2ICE and 2LT translator services, Katoomba

MCAL requested a change of site for the 2ICE translator service to the 2ONE tower at Wentworth Falls, along with an increase in maximum ERP to 2kW using a directional antenna pattern at a height of 70 metres.

To enable it to commence the 2LT service from a viable site, MCAL requested conversion of the 2LT translator service from the AM band to the FM band to enable it to site the service on the same antenna on the 2ONE tower as the 2ICE service, at a maximum ERP of 2kW using a directional antenna pattern at a height of 70 metres.

MCAL also sought to equalise the licence areas of 2ICE and 2LT to provide similar coverage across the Blue Mountains. MCAL states that strong community of interest ties exist between the upper and lower Blue Mountains, however the 2ICE licence area does not currently include the lower Blue Mountains area. MCAL states that people living in the Blue Mountains use radio during times of emergency, particularly bushfires and believes that some people may be endangered during an emergency if they are unable to receive an adequate signal from 2ICE. It believes that people in the lower Blue Mountains should have access to the same number of commercial radio services that are available in the upper Blue Mountains.
Discussion

Proposed antenna height for 2LT and 2ICE translator services
While assessing the request for a maximum antenna height of 70 metres for both translator services, MCAL advised ACMA that the proposed antenna system for 2LT and 2ICE would be located just below 60 metres on the 2ONE tower. ACMA has therefore conducted its assessments based on a maximum antenna height of 60 metres.

Alternative technical specifications for the 2LT translator service in Katoomba
The availability of suitable vacant FM spectrum in the Blue Mountains area is very limited. Two frequencies (94.1 MHz and 101.1 MHz) were assessed as potentially suitable for use in Katoomba by the 2LT translator service, however, both have the potential for rural grade signal overspill and may cause adjacent or co-channel interference to existing FM radio services.

ACMA proposes that the frequency 101.1 MHz be planned for the 2LT translator service as it has less potential to cause interference than the use of 94.1 MHz in Katoomba, which may cause interference to the reception of community radio service 2CCH in Gosford and a national translator service in Portland.

ACMA’s interference modelling indicates that the 2 kW technical specification requested by MCAL for the 2LT translator on 101.1 MHz has the potential to cause adjacent channel interference to Gosford commercial radio service 2CFM on 101.3 MHz within the 54 dBuV/m contour in isolated locations outside the main coverage area, particularly at elevated sites near the licence area boundary of commercial radio service 2CFM in Gosford. It also has the potential to receive adjacent channel interference from 2CFM and from a high powered open narrowcasting service operating on 100.9 MHz in Bathurst.

ACMA therefore proposes a maximum ERP of 1 kW for the 2LT translator service on 101.1 MHz at a maximum antenna height of 60 metres to limit the potential for interference and overspill. However, the potential to receive adjacent channel interference from 2CFM and from a high powered open narrowcasting service operating on 100.9 MHz in Bathurst increases with this lower power level.

The extent of actual interference can only be verified by conducting test transmissions on the proposed frequency. For this reason, if ACMA varies the LAP in accordance with this proposal, ACMA will consider imposing a condition on 2LT’s licence that it conducts the start-up procedure required under the Technical Planning Guidelines for an extended period of at least 30 days.

Alternative technical specifications for the 2ICE translator service in Katoomba
A technical specification for 2ICE on 99.5 MHz with a maximum ERP of 2 kW and a maximum antenna height of 60 metres has the potential to receive 1st adjacent channel interference from commercial radio service 2BXS Bathurst on 99.3 MHz within the Lithgow licence area. ACMA’s interference predictions indicate there is no identified potential interference to the 2BXS Bathurst service within the 54 dBuV/m contour. This frequency is also the first adjacent upper and lower channel to community radio services 2NSB Chatswood and 2SSR Sutherland respectively. Theoretical interference assessments indicate that there should not be any adjacent channel interference to either service within the 66 dBuV/m contour. These two services are interference limited and only field strength levels of 66 dBuV/m and above are protected from interference.
Taking into account the potential for signal overspill and interference, an assessment was undertaken by ACMA using a maximum ERP of 1 kW with a directional radiation pattern. This assessment found that a 1 kW directional service with an ERP restriction of 40 W towards Sydney and a maximum antenna height of 60 metres would provide a suburban grade of service to Katoomba and reduce the level of signal overspill into Sydney.

There is potential for the proposed 2ICE Katoomba service to cause 2nd Harmonic interference to the reception of TCN 9 Sydney in areas in close proximity to the proposed FM transmitter. Also, there is potential for interference to the reception of television services where viewers may be using mast-head amplifiers to receive the Sydney services.

For this reason, if ACMA varies the LAP in accordance with this proposal, ACMA will consider imposing a condition on 2LT’s licence that it conducts the start-up procedure required under the Technical Planning Guidelines for an extended period of at least 30 days.

Interference issues are managed under the provisions of the “Start-Up Procedures” of ACMA’s Technical Planning Guidelines (TPGs). The TPGs state that in the event of interference, a licensee must adjust, or fit devices to, the transmitter or affected receivers or undertake other necessary measures in order to eliminate or minimise interference to other services.

**Equalisation of the 2LT and 2ICE licence areas**

The licence areas for 2ICE (Lithgow RA3) and 2LT (Lithgow RA1) are not currently identical. MCAL has previously requested that the two licence areas be equalised.

In 1999, the ABA determined an extension of the two licence areas to include Katoomba. In determining an extension of the licence areas, the ABA took into account the predicted coverage of the proposed AM and FM translators at Katoomba. The AM translator at Katoomba was expected to have a wider coverage than the FM translator, with the AM translator expected to provide coverage to the lower Blue Mountains area. However, because of ERP restrictions towards Sydney, the Katoomba FM translator service has had reduced coverage to the east in comparison to the AM service. The Lithgow RA1 and Lithgow RA3 licence areas were defined accordingly.

The proposed 1 kW directional radiation pattern for the 2ICE translator will improve coverage of the service into the Lithgow RA1 licence area, including the urban centres of Mount Victoria and Blackheath.

ACMA is proposing to equalise the licence areas of 2ICE and 2LT as the Lithgow RA1 licence area.

The Lithgow RA1 licence area is currently described using 1996 Census boundaries. ACMA is proposing to redefine these licence areas using 2001 Census boundaries but otherwise remaining unchanged.
Preliminary View – National Radio – Lithgow

ACMA proposes to make channel capacity available in Lithgow on 88.5 MHz, 91.3 MHz and 104.7 MHz in Lithgow City at a maximum ERP of 100 W (omnidirectional) for National radio services including ABC NewsRadio.

It is proposed to make channel capacity available for additional ABC radio services in Lithgow as part of the rollout of ABC services across Australia.

An engineering analysis identified that the frequencies 88.5 MHz, 91.3 MHz and 104.7 MHz) could be used at a maximum ERP of 100 W from the Reservoir Hill broadcast site in Lithgow. These frequencies have the least potential to cause interference to other services.

Each of the proposed services on 88.5 MHz, 91.3 MHz, and 104.7 MHz is subject to potential co-channel and adjacent channel interference. However, based on the coverage provided by an existing Lithgow 100 W national FM radio service (on 92.1 MHz), ACMA anticipates the proposed services will provide similar or better level of coverage.

The proposed service on 88.5 MHz is predicted to receive interference from a proposed Central Tablelands service and has some limitations in respect to low power open narrowcasting (LPON) services in the vicinity of the transmission site.

The proposed service on 91.3 MHz is predicted to receive minimal co-channel interference from Campbelltown, and it is largely protected to the 66 dBuV/m contour.

The proposed service on 104.7 MHz is predicted to receive adjacent channel interference from Sydney though it is largely protected to the 74 dBuV/m contour.

ACMA proposes to apply special licence conditions to these services to indicate that the services can only be protected to either the 66 dBuV/m contour and above.
Preliminary View – Lithgow RA2 Community Licence Area

ACMA proposes that the Lithgow RA2 community licence area be redefined using 2001 Census boundaries, but otherwise remain unchanged.

The licence area for the community radio service in Lithgow is currently described against the 1996 Census count.

ACMA proposes to take this opportunity to redefine the Lithgow RA2 community radio licence areas using 2001 Census boundaries, but otherwise remain unchanged.