

REVISED LICENSING ARRANGEMENTS FOR LOW POWER INFORMATION SERVICES

BY BOB GREENEY, DIRECTOR OF ENGINEERING, PLANNING BRANCH

INTRODUCTION

In the April 1994 edition of *Update*, I outlined progress on the consultations on the ABA's proposal for self regulation of the licensing arrangements for low power radio information services. The ABA has now completed its review of comments received and has decided to adopt a revised and streamlined licensing arrangement.

The ABA found there was strong support for maintaining regulation on the basis that self regulation was widely believed to be not workable given the opposing views expressed in most responses to the ABA discussion paper. In addition there were widely held concerns about the possibility of breaches of one or more aspects of the published guidelines for these low power open narrowcasting services.

The ABA has accepted these concerns and developed revised arrangements which provide a streamlined process for handling the backlog of applications held by the ABA, with a minimum of detailed planning required for each application. The new approach is intended to remove the log-jam and to get licences for low power information services flowing wherever possible.

There are some guiding policy principles which form the basis of the new arrangements. These are based on the need for the ABA's planning resources to complete their main function, planning for broadcasting services throughout Australia, according to published planning priorities. Because of its commitment of resources to this mainstream planning task, the ABA will not be able to make alternative spectrum available for low power information services where the sub-band 87.6 - 88.0 MHz cannot be used until initial planning for all of Australia is completed.

The proposed arrangements apply to all new applications still held by the ABA and to those which may be received in the immediate future. It is

recognised that not all applications will be satisfied immediately through the streamlined procedures. However, applications not initially licensed through this new procedure will be reviewed once the backlog has been eliminated and planning for the area in question has been completed. Services licensed by the ABA before the streamlined arrangements were implemented will continue to operate as planned, including those where an alternative 0.5 MHz of the FM band was made available in the past.

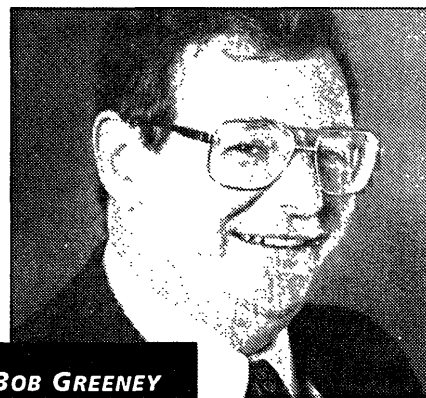
THE REVISED ARRANGEMENTS

The ABA will licence two services in each area. The published guidelines shall apply, that is, 1 watt maximum power, 10 kilometres separation between services on the same frequency, and importantly, 10 metre maximum height of the transmitting antenna above the average surrounding terrain. The height datum for the average terrain is to be the height above sea level of the nearest Post Office.

These guidelines reinforce the stated intention of the ABA's policy when it released the spectrum between 87.6 and 88.0 MHz for use by low power information services. This is to provide local information services with a field strength of 48 dBuV/m at two kilometres from the radiating antenna.

The guidelines allow these services to be licensed in advance of completing broadcasting planning, on the basis that they will not cause interference to reception of mainstream broadcasting services.

The only reason the ABA was able to drop through this small part of the FM band is that at 1 watt, giving a field strength of 48 dBuV/m at two kilometres, it is not necessary for the ABA to complete detailed planning for each application, as long as the published guidelines are followed. Any change to the guidelines changes these basic as-



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sumptions and leads to the necessity of detailed planning for each application, and would detract from the ABA's primary broadcasting planning task.

FREQUENCIES

Two frequencies shall be made available initially, in areas where there is no television service on channel 3 and there are no mainstream FM broadcasting services on frequencies below 88.4 MHz. They are 88.0 MHz and 87.6 MHz. The ABA is satisfied from experience that broadcasting services operating on 88.5 MHz will not suffer interference from low power, 1 watt, information services operating on 88.0 MHz. Where it is available, 88.0 MHz would be assigned first, then 87.6 MHz.

These frequencies will be made available for use in all areas outside the radius stated in Tables 1 and 2 for those areas near television channel 3 services and mainstream FM broadcasting services below 88.4 MHz. For those areas near a television service on channel 3 or an FM broadcasting service operating on a frequency below 88.4 MHz, see the section on Restricted Areas.

Other frequencies may be made available, i.e. 87.7, 87.8 and 87.9 MHz, once planning for each area is completed. Initially, however, these intermediate frequencies will not be used.

Where an application has been made, which is consistent with the previously published guidelines, the applicant will be offered either 88.0 or 87.6 MHz, even

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if they had sought an intermediate frequency.

It is recognised that the streamlined arrangements are not as spectrum efficient as might be achieved with unlimited resources. However, the proposed arrangements recognise the urgency for the ABA to complete its main task of planning for all broadcasting services. These arrangements allow for two services almost everywhere immediately. Other low power information services may be planned after the ABA has completed its main task.

THE PUBLISHED GUIDELINES

The published guidelines require that the maximum transmitter power is 1 watt, that there is to be 10 kilometres between services on the same frequency, and that the transmitting antenna not be at a height greater than 10 metres above the average height of the surrounding terrain.

For resource reasons, no exceptions to the published guidelines will be granted.

THE ANTENNA HEIGHT

It is difficult in many cases to determine accurately the average height of the surrounding terrain. Initially, the elevation of the nearest local Post Office will be taken to be the height datum for the area. This is suggested because applicants, with the assistance of town planners and surveyors, can easily determine the elevation of the Post Office. For services licensed before these new arrangements were adopted, the restriction on transmitting antenna height to 10 metres above the average surrounding terrain will continue to apply.

RURAL AREAS

It is proposed, at the discretion of the ABA, to continue the practice of permitting 10 watt transmitters in areas where the transmitter is more than twenty kilometres from the nearest boundary of residential areas, as determined by Australian Bureau of Statistics data for towns and cities. The signal strength of the rural low power transmitter is not to exceed 48 dBuV/m at the nearest boundary of the town. The transmitting antenna

will remain restricted to no greater than ten metres above the average surrounding terrain.

SEPARATION DISTANCES

The separation distances between low power open narrowcasting services on 1 watt, and 10 watts in rural areas, on co-channel and adjacent channel assignments recommended by the ABA are set out below.

Initially, type approval will not be required but could be expected to be introduced following consultations with the Spectrum Management Agency (SMA).

Under type approval, operation of low power information services would be on the basis that transmitters comply with the SMA's standard and carry a suitable compliance label. Services already operating would be given a period of grace in which to complete type

| Frequency Separation | Required Protection Ratio | Separation Distance in Residential Areas (1 watt ERP - 10 m EAH) | Separation Distance in Rural Areas (10 watt ERP - 10 m EAH) | Separation Distances between Rural and Residential Services |
|----------------------|---------------------------|---|--|---|
| 0 kHz | 45 dB | 10 km | 30 km | 20 km |
| 100 kHz | 42 dB | 10 km | 30 km | 20 km |
| 200 kHz | 25 dB | 5 km | 20 km | 10 km |
| 300 kHz | 4 dB | 3 km | 10 km | 6 km |
| 400 kHz | -18 dB | 0 km | 0 km | 0 km |

(Note: Intermediate frequencies between 87.6 and 88.0 MHz will not be assigned initially, at least until the current backlog is finalised.)

TYPE APPROVAL OF TRANSMITTERS

In the longer term, type approval of transmitters used for low power information services is likely to be adopted.

approval formalities.

RESTRICTED AREAS

Currently, there are restrictions on as-

TABLE 1
OPERATING TELEVISION SERVICES ON VHF CHANNEL 3
(areas with VHF television channel 3 - radius around each town to be protected)
(no low power information open narrowcast services are to be licensed to operate within the radii indicated in this table)

| EXISTING TV TRANSMITTER SITES | AREA SERVED | ERP | PROTECTION RADIUS |
|-------------------------------|----------------------------|--------|-------------------|
| ABN3 - 3 km S of Nyngan | Nyngan | 10 W | 30 km |
| NBN3 - Mt Sugarloaf | Newcastle/ Hunter River | 100 kW | 150 km |
| NEN3 - Carpenters Hill | Glen Innes | 10 W | 30 km |
| WIN3 - Bimmil Hill | Eden | 50 W | 30 km |
| WIN3 - Buckeridge Lookout | Narooma | 500 W | 50 km |
| WIN3 - Brokers Nose | Wollongong | 5 kW | 50 km |
| ABTQ3 - Mt Stuart | Townsville | 100 kW | 130 km |
| ABRS3 - 4km WSW of Loxton | Renmark/Loxton | 150 kW | 120 km |
| SSW3 - Mt Lennard | Bunbury | 50 kW | 150 km |
| VEW3 - Nareling Hill | Baandee | 500 W | 50 km |
| VEW3 - Red Hill | Kambalda | 10 W | 30 km |
| ABNT3 - Mt Barrow | N E Tasmania | 300 kW | 130 km |
| ABC3 - Black Mountain | Canberra | 100 kW | 100 km |

signments for low power information services where a television service is operating on VHF channel 3, or there are FM radio services operating on frequencies below 88.4 MHz (there are about 26 areas where this is the case).

Initially, applications for low power information services in these areas will be processed only where the proposed location for the low power information service transmitter is outside the radius indicated for the locations listed in Table 1 or Table 2, because they could interfere with mainstream broadcasting services.

In areas where an alternative sub-band was previously dropped through per s.34 of the *Broadcasting Services Act 1992*, applications for low power information services will be treated the same as those in areas which would use 87.6 - 88.0 MHz. That is, the upper frequency will be assigned first and the lower frequency (400 kHz away) will be assigned next. Once two frequencies have been assigned from the alternative FM sub-band for an area, no additional frequencies within the alternative sub-band will be assigned for low power information services until planning for that area has been completed. No new alternative sub-bands will be authorised under s.34, until planning has been completed in each area.

TABLE 2

OPERATING FM BROADCASTING SERVICES ON 88.1 AND 88.3 MHz

(areas where FM broadcasts are on 88.1 or 88.3 MHz - gives radius around each town to be protected)
(no low power information open narrowcast services are to be licensed to operate within the radii indicated in this table)

| FREQUENCY | EXISTING FM RADIO TRANSMITTER SITE | AREA SERVED | ERP | PROTECTION RADIUS |
|-----------|------------------------------------|------------------------|-------|-------------------|
| 88.1MHz | 2ABCFM - Khancoban | Khancoban | 18 W | 30 km |
| | 2ABCFM - Talbingo | Talbingo | 2 W | 10 km |
| | 2RDJ - Burwood | Burwood | 50 W | 50 km |
| | 2RVR/T15.5km ENE of Hay | Hay | 3 kW | 100 km |
| | 3ABCFM1.5km N of Bright | Bright | 10 W | 30 km |
| | 3ABCFM - Mt Clay | Portland | 2 kW | 80 km |
| | 3MFM - Mt Misery | Leongatha | 1 kW | 80 km |
| | 4HI - Blair Athol Mine | Blair Athol | 100 W | 50 km |
| 88.3MHz* | 8ABCRN - South Alligator | South Alligator | 2 W | 10 km |
| | 3SCB - Moorabbin | Southern Subs Melb. | 200 W | 30 km |

* = 87.6 MHz only, may be assigned initially, within this area.

IMPLEMENTATION

The revised licensing arrangements are being implemented immediately. Each application held by the ABA will be assessed strictly in accordance with the date of receipt of the application by the ABA. Applications which do not comply with the published guidelines will be rejected and the applicant advised of the reason for the rejection;

those which cannot be assigned a frequency immediately will be retained for reassessment. Once planning for the area is completed, the applicant will receive appropriate advice regarding their application.

A copy of the guidelines is available from the Director Planning, ABA; the reference is ABA News Release No. 13/1992.



DELIVERY OF CABLE VIDEO SERVICES

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CONCLUSION

Optic fibre can deliver to the home a variety of video services, however bringing fibre to the home remains an expensive exercise. Hybrid optic fibre and coaxial cable networks provide a viable alternative in implementing a broadband network.

ADSL, currently under going field trials, promises video delivery over existing telephone wires. In Australia, ADSL may be used to introduce cable video services to regions not served by either an optic fibre or hybrid network.

Footnotes

- 1 *Exchange*, Volume 6, Number 8, 4 March 1994, p.3.
- 2 *Exchange*, Volume 6, Number 14, 15 April 1994, p.4.
- 3 *Exchange*, Volume 6, Number 14, 15 April 1994, p.4.
- 4 *Exchange*, Volume 6, Number 10, 18 March 1994, p.4.

Further reading:

T. Russell Hsing, Cheng-Tie Chen and Jules A. Bellisio 'Video Communications and Services in the Copper Loop' *IEEE Communications Magazine*, p.62, January 1993.

Joe Sutherland and Larry Litteral, 'Residential Video Services' *IEEE Communications Magazine*, p.36, July 1992

D. Waring, J Lechleider and T Hsing, 'Digital Subscriber Line Technology Facilitates a Graceful Transition from Copper to Fiber,' *IEEE Communications Magazine*, p.96, March 1991

R White, 'ADSL Bridging the Superhighway Gap' *Australian Communications*, p.81, May 1994

Bureau of Transport and Communications Economics, Communications Futures Project, *Delivery Technologies in the New Communications World Module 5*, March 1994

