



**SUBMISSION TO  
DEPARTMENT OF COMMUNICATIONS INFORMATION  
TECHNOLOGY AND THE ARTS**

**DISCUSSION PAPER ON  
OPTIONS FOR STRUCTURAL REFORM**

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## OPTIONS FOR STRUCTURAL REFORM IN SPECTRUM MANAGEMENT

### JOINT RESPONSE TO DISCUSSION PAPER BY COMMERCIAL RADIO AUSTRALIA (CRA) AND THE FEDERATION OF AUSTRALIAN COMMERCIAL TELEVISION STATIONS (FACTS)

This joint submission is made by the Federation of Australian Radio Broadcasters, trading as Commercial Radio Australia (**CRA**) and the Federation of Australian Commercial Television Stations (**FACTS**), in response to the Discussion Paper titled "*Options for Structural Reform in Spectrum Management*" (**Discussion Paper**) which was released on 5 August 2002.

FACTS is the representative body for all 48 commercial television licensees. CRA is the representative body for 245 commercial radio broadcasters.

Given the scope of the Discussion Paper, CRA and FACTS do not consider the Discussion Paper to be a simple or limited review of the functions of existing regulatory agencies. The issues raised by the Discussion Paper are very complex. For example, issues in relation to the objectives of spectrum planning and the pricing of spectrum go to the very foundations of the current regulatory system and have potentially far-reaching implications. However, the treatment of these issues by the Discussion Paper is quite superficial, and the time available for the preparation of submissions has been very limited.

In this submission, FACTS and CRA have aimed to address the immediate issues arising from the Discussion Paper. However, if the Government was giving serious consideration to the implementation of any of the options in the Discussion Paper or to any variations of those options, this is likely to raise other significant issues which are not addressed in this submission. In such circumstances, CRA and FACTS would request adequate time to make further submissions before a final decision was made by the Government in relation to these matters.

This submission is divided into two parts:

- Part A provides FACTS and CRA's response to the options in the Discussion Paper relating to the "merger" of the Australian Broadcasting Authority (**ABA**) and the Australian Communications Authority (**ACA**). Part A also details the principles which CRA and FACTS consider to be of most relevance to the options in the Discussion Paper. CRA and FACTS have commented on the options on the basis of how they have been presented in the Discussion Paper. It is noted that variations to these options have been suggested in other submissions. These variations (in particular, those suggested by the ABA) are noted briefly at the end of Part A; and
- Part B outlines issues which are critical to any consideration of the "efficiency" of spectrum use or pricing of spectrum use and provides FACTS and CRA's response to the

questions in the Discussion Paper relating to spectrum pricing mechanisms. The discussion of these questions has been separated from the discussion of the options (in Part A), as the Discussion Paper does not make it clear whether spectrum pricing is being considered in connection with any particular option.

### **Executive Summary**

FACTS and CRA are opposed to each of the options outlined in the Discussion Paper, being:

- Option A: Combine the ABA and ACA into a single organisation;
- Option B: Transfer of planning, licence allocation and enforcement functions from the ABA to the ACA; and
- Option C: Transfer broadcasting planning functions from the ABA to the ACA.

The reasons why FACTS and CRA are opposed to all three of the options outlined in the Discussion Paper can be summarised as follows:

(a) **The Discussion Paper is not seeking to remedy any demonstrated failure in the current regulatory scheme**

CRA and FACTS are of the view that the *Broadcasting Services Act 1992 (BSA)* and the *Radiocommunications Act 1992 (Radcoms Act)* contain an effective regulatory regime based on sound public policy. The need for integrated and specialised regulation of the planning, licensing and content of broadcasting services was recognised when the ABA was established in 1992. There is nothing in the Discussion Paper which would justify a change of this existing regulatory regime at this time. The Discussion Paper does not demonstrate that change is either necessary or timely.

(b) **Reliance upon “convergence” is not justified**

In particular, the propositions that reform is required because of actual or anticipated “convergence” and ongoing demands for spectrum appear to be speculative at best, and appear to rely on overseas experiences which are not comparable with the economic realities of the Australian broadcasting, media and communications sector. Just two years ago, the report of the Department of Communications, Information Technology and the Arts’ *Convergence Review* stated that the existing structure of broadcasting legislation was “sound” and that “continued separate operation of these regulations would be the best approach for the foreseeable future”. It is not clear what changes have occurred since the release of that report which would justify the changes proposed in the Discussion Paper.

Certainly, when a specialist convergence “think-tank” (such as the University of Adelaide’s Convergent Communications Research Group) suggests maintenance of the status quo (while the implications of convergence are assessed over time), it is clear that “convergence” arguments should not be used in support of any of the options proposed in the Discussion Paper.

**(c) All uses are of not of equal public benefit**

Each of the options in the Discussion Paper appear to rest on the express or implied assumption that the use of the spectrum by broadcasters can be assessed and planned on the same basis as the use of the spectrum by non-broadcasters. In other words, the preference for a single “spectrum wide” approach to planning seems based on the assumption that an “application-neutral” approach to spectrum planning is not only practical but desirable.

FACTS and CRA do not agree with this approach. CRA and FACTS consider that the leading object in the Radcoms Act (ie the object to “maximise, by ensuring the efficient allocation and use of the spectrum, the overall public benefit derived from the use of the radiofrequency spectrum”) should be the starting point for any consideration of spectrum management principles, but that it should be understood that the question of how to “maximise ... the overall public benefit derived from using the radiofrequency spectrum” is not a question about “maximising revenue”. How the overall public benefit is maximised needs to be answered in different ways according to whether the proposed use is a broadcasting allocation or another type of radiofrequency allocation.

As planning of the spectrum for broadcasting purposes cannot be divorced from the social and cultural objectives which broadcasting services are expected to fulfil (from both an audience and government perspective), these are important considerations when the “overall public benefit” is assessed in the context of spectrum use by broadcasters. Parliament has recognised the objectives that should apply when spectrum is allocated for broadcasting, as outlined in the BSA. This fundamental principle (ie that how the “overall public benefit” is approached in relation to broadcasting allocations will differ from the approach that is used in relation to other types of radiofrequency allocations), seems to have been overlooked by the Discussion Paper.

**(d) Broadcasters do use spectrum efficiently, and pay significant licence fees**

FACTS and CRA are of the firm view that broadcasters do use spectrum efficiently, and such use is considerably more efficient than that by other spectrum users (in comparison with other users such as mobile telephone services).

Further, commercial radio and commercial television broadcasters do pay high amounts for the spectrum they use. Radio and television use just 2% of the radiofrequency spectrum yet revenues

from broadcasters make up over 70% of the revenue collected by the Government from spectrum users in Australia (not including amounts paid at auction).

CRA and FACTS note the ABA has stated in its submission that “the public receives a fair return for broadcasting spectrum”. Broadcasters pay more than \$210 million in annual broadcasting licence fees, substantially more than comparable countries (including in North America). As the ABA states, the revenue-based charge does reflect the value of the spectrum. The annual fee is directly linked to the revenue-generating capacity of the spectrum and has an in-built mechanism to increase over time. This annual revenue-based approach has proven to be lucrative for Government as licence fee charges have risen at a higher rate than economic growth. This is outlined in detail in Part B of this submission.

In addition, there is no guarantee that a move to a “spectrum pricing” model instead of a revenue-based licence fee model would result in higher returns to the Government (this is explained at 9.2(a)(iii) in Part B of this submission), so if the ultimate objective of the current Departmental review is to increase revenues paid for the use of spectrum, this approach is flawed

Basing the licence fees paid by broadcasters upon revenue has provided certainty for both broadcasters and the Government. This is one of the reasons why FACTS and CRA support retention of the annual revenue-based charge in preference to other spectrum pricing mechanisms.

The submission by CRA and FACTS is that the question of what is “efficient use of the spectrum” by broadcasters cannot and should not be considered in isolation. Any consideration of whether the allocation of particular spectrum for broadcasting use would maximise the public benefit needs to consider more than economic factors. In broadcasting, service quality, service coverage and service content are inextricably linked concepts, and each of these are relevant considerations in the context of spectrum planning. This has not been expressly acknowledged in the Discussion Paper. However, this is a key reason why a separate regulator for the broadcasting industry needs to be retained, and why that regulator must retain spectrum planning functions.

**(e) Investment issues**

The Government will be aware that in the radio broadcasting sector in particular, very large investments have been made in new commercial radio licences. These investments have occurred in reliance on the existing regulatory scheme, on the understanding that the radio licences made available under the licence area planning (LAP) process were among the last that would be made available for allocation, and on the basis that the BSA would continue to regulate how licences were planned and allocated in the future. Had the Government announced that it was considering sweeping changes to broadcasting regulation that could allow the allocation of more radio “broadcasting” licences in future, it is highly likely that the considerable premiums paid for new licences would not have been offered. A change in the current system now, after the Government

has collected very significant payments for new licences, would undermine the valuation of all radio licences across Australia and cause damage on a radio industry-wide basis.

**(f) Implications for audiences – especially in regional Australia**

Finally, the Government needs to acknowledge the implications (associated with the possible decline in the number and quality of broadcasting services) which would result from the implementation of any of the options in the Discussion Paper, or related changes to the present spectrum management regime for broadcasting. A move to a spectrum pricing model (away from the current licence fees based on revenue model) could adversely effect the delivery of the social, cultural and economic benefits presently delivered by the commercial broadcasting sector. In addition, as discussed at 9.2(a)(ii) in Part B of this submission, a move to spectrum pricing would be likely to adversely impact on broadcasters (and audiences) in regional and remote Australia.

## **PART A**

FACTS and CRA are opposed to all three of the options outlined in the Discussion Paper. Before outlining the flaws associated with each of the options, some relevant principles are outlined below.

### **1. Principles for regulating the use of broadcasting spectrum**

CRA and FACTS recognise that the Discussion Paper has drawn from the conclusions made by the Productivity Commission in its *Broadcasting Inquiry Report* and in its draft *Radiocommunications Inquiry Report*. As noted in submissions to the Productivity Commission, the first objective underpinning existing spectrum management under the Radcoms Act is “to maximise, by ensuring the efficient allocation and use of the spectrum, the overall public benefit derived from using the radiofrequency spectrum”.

FACTS and CRA consider that this objective of “maximising ... the overall public benefit derived from using the radiofrequency spectrum” (as currently contained in the Radcoms Act) is a sound starting point for any consideration of spectrum management principles. However, it needs to be recognised that different public benefits will flow from different spectrum uses, and that “maximising ... the overall public benefit” is not the same thing as “maximising the value” of the spectrum. This is addressed below.

#### **1.1 Maximising the public benefit**

CRA and FACTS consider that the objective of “maximising the overall public benefit” requires that spectrum planning take into account not only economic objectives, but technical and public interest objectives also (such as social and cultural benefits, if relevant to the “use” in question). To illustrate, broadcasting is driven by public interest considerations which focus on content. This can be contrasted with the considerations which drive other communications uses – which focus principally on the carriage of the service, or technical objectives, and where the provider of the service is not expected to be responsible for the fulfilment of community or cultural objectives. For this reason, a “spectrum-wide” or homogenous approach to spectrum planning, which does not distinguish between different uses of the spectrum, would not “maximise the overall public benefit”.

Another reason why an approach of “maximising the overall public benefit” needs to focus on matters such as social and cultural benefits is that it should not be assumed that “public benefit” will flow from “efficient use” alone.

For example, while it has previously been assumed (including by the Productivity Commission) that the auctioning of the spectrum will result in an “efficient use”, and that spectrum allocation

can be left to market forces, this does not always result in a “public benefit”. A lesson learnt from the dramatic downturn in the new economy/technology sector in the late 1990s (colloquially known as the “tech wreck”) is that the auctioning of spectrum does not guarantee that the spectrum will be used. After spectrum auctions in both Australia and New Zealand, auctioned spectrum has been left idle, even where the previous user of the spectrum was forced to relocate in order to allow the auction and the re-allocation of spectrum to proceed. In these instances, the pursuit of revenue from spectrum sales has not maximised the overall public benefit, in that the public are not receiving any new services, and the spectrum cannot be put to its previous use<sup>1</sup>.

The submission of FACTS and CRA is that it is imperative that spectrum planning focus on how to maximise the overall public benefit derived from the use of the relevant spectrum. Whenever spectrum is planned for broadcasting use (whether in the broadcasting services bands or elsewhere in the spectrum) this will mean that a broad range of public interest objectives must be taken into account.

## 1.2 Assessing the public benefit

For a range of reasons, broadcasting services have traditionally been regulated differently from other communications services which use the radiofrequency spectrum. The regulation of the Australian broadcasting industry has long been motivated by a range of different economic, social and cultural objectives, and by the recognition that free to air television and radio services can play a special role in meeting such objectives. For example, the objectives in the BSA include the promotion of:

- the availability of a diverse range of radio and television services to audiences throughout Australia (section 3(a));
- the role of broadcasting services in developing and reflecting a sense of Australian identity, character and cultural diversity (section 3(e));
- the provision of high quality and innovative programming by broadcasters (section 3(f));
- appropriate coverage of matters of local significance (section 3(g)); and
- respect for community standards in the provision of broadcasting material (section 3(h)).

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<sup>1</sup> It is also worth noting that in the United States, the Federal Communications Commission (**FCC**) is considering releasing telecommunications carriers from their obligations to pay for spectrum licences they bid for at auction, as the auction process has been challenged in the Supreme Court, and the right to use the spectrum has not been delivered to the successful bidders. In the meantime, the relevant spectrum lies idle. This is another instance of how auction processes do not guarantee that the spectrum will be used promptly or at all. See at <http://www.msnbc.com/news/807060.asp?0si=-&cp1=1#BODY>

To illustrate the scope of these objectives, some examples are set out below.

Cultural objectives for free to air broadcasting include:

- the development of a sense of cultural identity;
- the production and broadcast of innovative, high quality programs; and
- sharing an Australian cultural perspective with the world, through the export of programs.

Social objectives for free to air broadcasting include:

- ensuring all Australians receive a diverse range of broadcasting services, and have access to the entertainment, information and education contained in television and radio programs (“universal coverage”);
- maintaining and developing a sense of community; and
- ensuring the free flow of diverse opinions and information to sustain an informed Australian community and to contribute to the health of Australia’s democracy.

Economic objectives for free to air broadcasting can include:

- ensuring that the broadcasting industry is efficient and competitive and contributes to national economic growth;
- ensuring that spectrum is used to meet a wide range of audience demands.

As a result of this regulatory history, community service requirements and service expectations have been developed over time. Government intervention in the broadcasting sector has required commercial broadcasters to use the spectrum they have been allocated to provide services of a quality over and above what would occur in a purely market-driven industry (in terms of both coverage, involving for example the installation of additional television transmission equipment, and content, involving for example the provision of local programming). Consequently, Australian audiences have strong expectations about the content and technical quality of broadcasting services. Audiences also have expectations about the number of broadcasting services they should be able to receive. Diversity of services is one of the principal public benefits delivered under the present regulatory regime.

In the capital cities and in mainland aggregated television markets, audiences expect to receive 5 free to air television services and a mixture of national, commercial, community and

narrowcasting radio services. Regional audiences also expect to receive a range of broadcasting services (although they may have lower expectations than capital city audiences, for historical reasons). Audiences expect the content of national and commercial services in particular to be of a high quality, both from a technical perspective and from a programming perspective.

On television, audiences have come to expect high quality Australian drama, news and current affairs services, children's programming and comprehensive sports coverage. Australians spend on average over 3 hours watching free-to-air television each day, with more than 80% of that viewing time devoted to commercial television. At least 55% of programs broadcast between 6am and midnight across a year must be Australian, and all broadcasters exceed this requirement, with the result that more than 11,000 hours of Australian programs are broadcast by the three commercial networks annually. As well as the immense cultural benefits that commercial television programming provides to the Australian community, there are also substantial economic benefits. ABA figures demonstrate that in 2000-1, commercial television broadcasters spent at least \$700 million on Australian programming, with Australian programs representing about 70% of total program expenditure. Commercial television broadcasters underpin 78% of Australian film and television production. These are examples of how the cultural objectives in the current regulatory regime are manifested in practice.

Radio is listened to by 95% of the Australian population. On average, commercial radio listeners tune in for over 3 hours each day. Of all the radio broadcasting sectors, commercial radio has the largest audience share (75% of this 95% figure), with the national radio broadcasting services (including the 5 ABC radio networks and SBS radio) having a 21% share and the community and narrowcasting radio broadcasting sectors having a 4% share. On radio, audiences expect to receive a broad range of formats (from top 40 to classical to talk-back to easy listening) and to be kept informed about issues of relevance on a day to day basis – traffic reports, weather reports, emergency information and news of local events. Audiences also expect to receive such content clearly, without interference from other broadcasting and non-broadcasting (ie radiocommunications) services. They also expect to hear Australian voices (for example, Australian announcers and voice-overs are heard on commercial radio, programming is not syndicated from abroad).

The submission of CRA and FACTS is that such expectations cannot be met concurrently with a policy that does not take account of public interest objectives, and that does not serve to maximise the overall public benefit derived from the use of the spectrum.

In the broadcasting sector, service quality, service coverage and service content are inextricably linked concepts, and that each of these must be considered in the context of spectrum planning (ie whether the planning of the spectrum for a broadcasting use would serve to maximise the overall public benefit derived from the use of the spectrum). This has not been acknowledged in the Discussion Paper. However, this is a key reason why a separate regulator for the broadcasting

industry needs to be retained, and why that regulator must retain broadcasting spectrum planning functions.

FACTS and CRA's submission is that the cultural, social and economic objectives identified above remain paramount policy considerations. If these objectives were to be diminished as a consequence of an "economic rationalist" approach to spectrum management, resulting in fewer services, a decline in reception of those services, or a diminution in the quality, range and level of Australian content on those services, we have no doubt that the Australian community (which considers it has a right to continue to receive the existing level of free-to-air broadcasting services) would consider these outcomes to be unacceptable.

It should also be noted that important objective of service diversity is likely to be quite inconsistent with objectives based on maximising the value of spectrum alone. In regional areas in particular, the introduction of spectrum pricing (which is likely to require regional broadcasters to pay more than they do at present) could lead to reductions in the quantity and quality of services available. This is inconsistent with the current regulatory trends aimed at increasing local coverage in regional licence areas.

As an example, the ABA's recent report *"Adequacy of local news and information programs on commercial television services in Regional Queensland, Northern NSW, Southern NSW and Regional Victoria"* (August 2002) has recommended that more local television content be provided in aggregated regional licence areas. Similarly, the report of the House of Representatives Standing Committee on Transport, Communications and the Arts, *"Local Voices: An Inquiry into Regional Radio"* (September 2001) recommended that the ABA investigate the degree to which the planning process has provided for localism in regional licence areas, and that provision be made to ensure the broadcast of locally relevant information (especially in emergency situations). These reports reflect objectives which are inconsistent with objectives aimed primarily at maximising the amounts paid by broadcasters for the use of broadcasting spectrum.

## **2. Planning is a fundamental element of broadcasting regulation**

To ensure that the public policy objectives of broadcasting are delivered (including the social, cultural and economic policies noted at 1.2 above), the regulation of planning, licensing and content regulation must be integrated. This fundamental issue is not recognised by the Discussion Paper. As noted in the ABA's submission (discussed at 8 below):

"There is no neat separation between the planning of broadcasting services and content regulation when it comes to achieving the broader social and cultural objectives of the BSA".

Another fundamental issue is the treaty which Australia has with the International Telecommunications Union (**ITU**) to recognise the ITU's Radio Regulations. These include spectrum planning and management of those bands allocated to broadcasting. The ABA is closely involved in ITU discussions regarding planning of broadcasting bands.

For these reasons, CRA and FACTS believe that the regulator responsible for the management of broadcasting spectrum needs to take responsibility for the outcome of planning decisions. Planning decisions will inevitably impact on the coverage of the licence area and the content that is provided to audiences, whether viewed from a technical or programming perspective. For example, spectrum will not simply be planned for a "radio service" or for a "television service". It will be planned according to the categories of service in the BSA, and may be a national, commercial or community broadcasting service, or a narrowcasting service. In this context, broadcasting can be distinguished from other uses of the spectrum which are not regulated according to their content, and to which spectrum is the only "input".

Planning of broadcasting services needs to ensure, among other things, that:

- audiences are provided with an appropriate number and diverse mix of services (national, commercial, community, narrowcasting);
- reception of services is planned to ensure they are technically optimised to reduce interference (ie adequate coverage throughout the licence area can be provided, on the basis of established technical planning guidelines).

The present regulatory scheme enables planning to occur by reference to the characteristics of individual markets, to enable distinctions to be drawn between regional and metropolitan licence areas, and for the above objectives to be met. It is not clear whether a "spectrum wide" (common) approach to planning in all frequency bands (of the kind implied by Option A of the Discussion Paper) would enable these distinctions to be made. Certainly, the Discussion Paper notes that the "benefit" of a single, strategic approach to the management of radiofrequency spectrum in Australia would be "significantly reduced" if the "new agency" were required to manage two distinctly different processes for the planning and allocation of spectrum. From this, CRA and FACTS have understood that the "dual system" approach is not favoured by Government, and so have not assumed this to be an element of Option A.

Under the present regulatory scheme, the regulator who is responsible for planning the service is also responsible for the implementation of the service. For example, if the technical specifications for a service were flawed and resulted in large proportion of the intended audience not receiving the service, or the quality of the service falling below the internationally accepted ITU quality of service standards, the regulator who had planned the service would be the

regulatory agency which would also receive complaints about the technical quality of the service. The same agency would take responsibility for rectifying the problem.

To use a different example, if new licences were planned to cater for a perceived demand for community radio in a licence area, but the licences were not allocated because no community group applied, this is an issue for the planning regulator – which, if challenged, would need to justify why spectrum was planned for community radio in the first place. Alternatively, if the community radio licences were allocated, but the services provided under that licence were operated for profit and did not encourage community participation, it would be appropriate for the regulator who planned and allocated the licence to be responsible for the investigation and enforcement of conditions of licence.

The need for integrated regulation of planning, licensing and content was recognised when the ABA was established in 1992. Prior to 1992, broadcasting planning functions were conducted by the Department of Transport and Communications, and the Australian Broadcasting Tribunal was responsible for allocation of licences and for ownership and content regulation. This was considered (by the industry) to be an inefficient regulatory regime. Combining all broadcasting regulatory functions within a single regulator was widely considered to be a significant improvement. Separating these functions (as outlined in Options B and C of the Discussion Paper) would be likely to see a return to pre-1992 inefficiencies.

For all these reasons, CRA and FACTS' submission is that broadcasting planning needs to be an integrated part of the broadcasting regulatory scheme, and it should not be considered in isolation.

### **3. The Discussion Paper has not demonstrated that change is necessary**

The Discussion Paper states that a number of changes have given rise to a significant increase in demand for radiocommunications spectrum and “in some cases, calls for changes in spectrum management practices”.

#### **3.1 Demand issues**

The Discussion Paper refers to the growth in take-up of Internet services, the emergence of pay television services, an increase in the number of analog services (commercial radio, SBS television and ABC radio), the introduction of digital television, increased take-up of broadband services, rapid growth in mobile telephony and the impending introduction of 3G mobile services.

However, many of the broadcasting and communications services identified in the Introduction to the Discussion Paper do not use radiocommunications spectrum. For example, many Internet services, pay television services and broadband services are delivered by cable, not by the use of

the radiocommunications spectrum. For those services that do use radiocommunications spectrum, it is not apparent that spectrum demand exceeds spectrum supply (except in the larger capital cities).

For example, there is no demonstrated shortage of telecommunications spectrum. The ACA has not allocated all the 3.4 GHz spectrum, LMDS spectrum, 3G spectrum and 1800 MHz spectrum that was originally made available for allocation. The percentage of spectrum available for allocation but not acquired is set out in the table below (using ACA source material):

<b>Spectrum</b>	<b>Sydney</b>	<b>Melbourne</b>	<b>Adelaide</b>	<b>Brisbane</b>	<b>Perth</b>	<b>Hobart</b>	<b>Darwin</b>	<b>Canberra</b>
<b>800 MHz</b>	0%	0%	50% <sup>1</sup>	50% <sup>1</sup>	50% <sup>1</sup>	25% <sup>1</sup>	25% <sup>1</sup>	25% <sup>1</sup>
<b>1.8 GHz</b>	19% <sup>2</sup>	19% <sup>2</sup>	18% <sup>2</sup>	19% <sup>2</sup>	20% <sup>2</sup>	0% <sup>3</sup>	0% <sup>3</sup>	0% <sup>3</sup>
<b>2.1 GHz U</b>	0%	0%	0%	0%	0%	25%	25%	25%
<b>2.1 GHz P</b>	0%	0%	12%	12%	12%	25%	25%	0%
<b>3.4 GHz</b>	4%	0%	4%	36%	0%	8%	N/A	8%
<b>27 GHz</b>	50%	50%	50%	50%	50%	50%	50%	50%

Notes:

- 1 AAPT acquired 800MHz spectrum which has not been used for the deployment of CDMA services (effectively its only application)
- 2 Includes One.Tel spectrum which is unused
- 3 Only 20% of the spectrum was made available in these cities.

This table demonstrates that the only evidenced “shortage” of spectrum is in Sydney and Melbourne only.

FACTS and CRA query whether the Discussion Paper is relying on “evidence” which is now outdated in the wake of the recent and dramatic downturn in the technology sector.

Also, as a comparison, FACTS and CRA note that broadcasting services reach 99% of the Australian population and use just 2% of the available radiofrequency spectrum. Broadcasting services are supplied to over 7 million homes and reach all population demographics and income levels. Given the public benefits which result from the provision of commercial broadcasting services, on this basis it is difficult to argue that broadcasters are using a disproportionate amount of spectrum.

In addition Australian commercial broadcasters need to rely on broadcast spectrum to reach most homes as close to 90 per cent of homes have no other way of accessing free-to-air services (unlike the US and Canada, where over 80 per cent of homes can receive these services as part of their cable or satellite services).

Further, when spectrum is used for broadcasting, it is used on a 24 hours a day / 7 days per week basis. Spectrum used for cellular based telecommunications purposes is always under-utilised (by design). This is explained in detail in Annexure A.

The submission of CRA and FACTS is that any assessment about whether broadcasters use spectrum “efficiently” should not be made in isolation. In particular (and as outlined in Annexure A), it can be demonstrated that broadcasters use the spectrum they are allocated more efficiently than other communications services.

### **3.2 Convergence issues**

Among the matters that the Discussion Paper identifies as having given rise to an increase in demand for radiocommunications spectrum is the fact that “digital technologies have facilitated convergence of communications services”. In the Australian context, it would not appear that “convergence” can be relied upon as a rationale to justify major structural reforms. What a “convergent” future will look like remains unclear – both from a business model perspective and a technology perspective. In this context, predictions of what may or may not occur in the future cannot be used as the foundation for a “convergent” regulatory system. Change of the current system cannot be claimed to be necessary on the basis of unclear concepts of “convergence”.

It is worth noting that the “*Final Report of the Convergence Review*” (Department of Communications, Information Technology and the Arts, tabled in Parliament on 10 May 2000) concluded that the structure of telecommunications legislation reflects the current realities of the industry and that it would not require fundamental change in the next few years. The report then stated (at page 8):

“Like the telecommunications legislation, broadcasting legislation largely reflects the current structure of the broadcasting industry, and these structures are likely to persist until digital technology substantially penetrates the broadcasting industries. Based on reasonable assessments of the likely take-up of digital television and radio, this is several years off. As a result, it is likely that the corresponding structure of the broadcasting legislation will remain sound for some time ...

Both the Australian Communications Authority (ACA) and the Australian Broadcasting Authority (ABA) retain specialised roles, and it is difficult to identify any significant synergies that would be generated by merging them. The cultural and social focus of the ABA has little in common with the economic and technical focus of the ACA. This is also reflected in the management skills and membership of the boards of these organisations. This suggests that continued separate operation of these regulators would be the best approach for the foreseeable future”.

It is difficult to identify any changes which have occurred in the past 2 years which are so sweeping as to have resulted in a change in the above position. In fact, the present Departmental Review is occurring at a time when the success of convergence and the take up of digital technologies (both broadcasting and telecommunications) is under review around the world.

In addition, it is clear that the separation of the ABA and ACA functions has not impeded technological convergence. The argument that the lack of a single communications regulator could impede technological development is theoretical, the real issue is to ensure that the content of the regulation is appropriate. In this regard, FACTS and CRA agree with the submission of the Convergent Communications Research Group at the University of Adelaide, in that “centralised spectrum management is not the response to convergence that is needed”. It is also worth noting that the ITU continues to support regulation in the ITU-T (telecommunications) and ITU-R (radiocommunications) sectors.

Finally, “convergence” is not a justification for a “one size fits all” approach to the regulation of telecommunications, radiocommunications and broadcasting. Any suggestion to the contrary is rejected.

#### **4. Timing of review**

##### **(a) Radio Investment Issues**

The ABA has recently completed a lengthy and comprehensive planning process (known as the “licence area planning” or “LAP” process). This involved the ABA preparing planning priorities, frequency allotment plans and licence area plans relating to every radio licence area in Australia, and for regional and remote non-aggregated television licence areas.

As noted in the press release issued by the ABA on 21 December 2001, the LAP process took place over 9 years, and resulted in nearly one thousand new national, commercial, community and narrowcasting radio services becoming available around Australia.

Investments have been made in the commercial (and narrowcasting) radio sector on the basis of the existing regulatory scheme – ie that the LAP process would govern how new licences were planned. Indeed, since 1923 radio broadcasters have based their business models on the fact that the bands of the spectrum used for broadcasting are treated differently from those parts of the spectrum used by non-broadcasters. If the planning functions are removed from the ABA, or if a new regulator is created, it may be assumed that the ACA or new regulator will exercise new planning and allocation powers. There is nothing in the Discussion Paper which suggests that a whole new planning and allocation process will not be commenced. However, it must be recognised that radio operators have made very significant investments on the basis of the existing regulatory scheme, and in reliance on the regulatory policy in the BSA (ie that the ABA

will perform its functions and exercise its powers in a manner that will produce regulatory arrangements that are stable and predictable). For example, hundreds of millions of dollars have been paid for new capital city commercial radio licences.

The devaluation of existing radio licences and the consequences for business viability are two potential outcomes of a shift in the current scheme for the planning of the spectrum for broadcasting.

As noted below at 7, there are no compelling reasons to adopt any of the Options contained in the Discussion Paper. For the reasons outlined above and for the other reasons outlined in this submission, all should be rejected.

**(b) Digital conversion issues**

The commercial broadcasting industry, particularly the commercial television industry, is currently undergoing a process of sweeping operational and technological change.

Free to air television broadcasters are in the midst of the digital conversion process. Free to air broadcasters in Sydney, Melbourne, Brisbane, Adelaide and Perth commenced digital broadcasting on 1 January 2001, and digital broadcasting is being progressively commenced throughout other metropolitan and regional markets. Converting to digital technologies and encouraging consumer take-up and acceptance is an ongoing industry and Government priority.

The commercial radio industry has been conducting technical trials which are intended to assist in the development of the regulatory and technical model for digital conversion. The DR2000 consortium of Broadcasters, comprising 2KY (Sky), 2DAY (Austereo), 2WS (ARN) and ABC Classic FM have been conducting Sydney based technical trials of digital radio for several years, using Eureka 147 technology on the L-Band. Consumer focussed digital trials are now being developed in Sydney and will commence in the next few months. As well as the original participants, the remaining Sydney commercial radio broadcasters and the SBS are expected to join the trials. It is aimed to extend these trials nationally. The purpose of the trials is to identify the digital radio technology or technologies that best suits Australia and consequently, the spectrum needs for digital radio in the future. The trials will undertake comparisons between L-Band and VHF Band III spectrum in delivering digital radio to consumers.

In addition, the digital radio “product” will be tested and developed from an audience/consumer and advertiser perspective. This is proposed to include the testing of DRM, IBOC and DVB technologies as and when they come on-line. It is not yet clear whether the preferred technology will require additional spectrum, and what the needs of the radio industry will be in relation to digital conversion. Future transmission models may well require the allocation of new broadcast spectrum to enable the full suite of digital radio services to be offered to all Australians.

It is clear that the broadcasting industry, as a whole, is moving towards new delivery methods which may ultimately mean that more is achieved from less spectrum due to compression technologies. For example, in the case of television, digital transmission will allow more programs to be transmitted in the channel capacity required for one analog service, while the ability to reuse the same frequency in many cases at close intervals (via a single frequency network) may further improve spectrum efficiency. It is premature to attempt to reform how spectrum is managed while the digital conversion process is still being implemented.

The submission of FACTS and CRA is that if any of the options in the Discussion Paper were adopted, this would create industry upheaval and uncertainty at a time when it is in the public interest that the broadcasting industry should focus its energies on digital conversion issues.

## **5. International comparisons must be viewed in context**

Regulatory developments overseas are identified in the Discussion Paper as a reason why change should be considered. However, any consideration of overseas developments needs to recognise the unique circumstances of the relevant country. Australia is a large continent with a small concentrated urban population, which is why successive governments have made a regulatory commitment to provide equal quality and availability of service to regional and remote areas. The Discussion Paper notes that international responses have varied according to local regulatory priorities. FACTS and CRA note that it is critical that international comparisons are viewed in context.

### **5.1 United Kingdom**

The Discussion Paper refers to developments in the United Kingdom (UK), where the regulation of broadcasting and communications services is in the process of being reformed. It is clear that the changes in the UK should be viewed in context, as UK-specific factors have been significant in prompting this change. For example the population and geographical characteristics of delivery of radio and television services could not be more different to Australia. Other issues are:

- (a) UK broadcasting services currently fall into one of the two following categories – they are either highly regulated or virtually unregulated. In the UK, commercial broadcasting services developed late and unevenly (compared with Australia), and the highly regulated public service television model is still dominant, even though significant parts of the broadcasting sector are wholly outside it (eg BSkyB) or only fit awkwardly within it (eg Channel 5). The existing regulatory scheme, and the existing regulators, do not adequately deal with these anomalies and inconsistencies.

- (b) The bewildering multiplicity of regulatory bodies in the UK is a recipe for confusion, with their overlapping jurisdictions and regulatory gaps. It also reflects the many layers of broadcasting regulation – which are far more complicated than under the Australian regulatory scheme.
- (c) Real pressure on spectrum availability, highlighted by the difficulty in identifying enough frequencies for reasonable national digital broadcasting coverage, and by demand from the telecommunications sector for mobile spectrum.
- (d) EC standardisation, in the form of major EC Communications Directives that require substantial legislative change by mid-2003.

In a real sense, the draft *Communications Bill* is also “catch-up” legislation. The first attempt to update and reform regulation applying to UK broadcasting services in 1990 was met with very mixed success. Neither broadcasting nor communications legislation in the UK has since kept pace with developments in Australia in the regulation of telecommunications and competition law in particular.

By contrast, the Australian broadcasting regulatory system was reformed just 10 years ago, and significant reforms of the telecommunications regulatory system were introduced just 5 years ago. This can be contrasted with the UK.

Further, Australia has little in common with the UK in terms of population size, geographical dispersion of radio and television broadcasting infrastructure and the economics of providing commercial broadcasting services and other communications services in that market. Broadcasting markets in Australia are much smaller than those in the UK in population terms, but are usually much larger geographic markets.

For all these reasons, the developments in the UK need to be viewed as addressing UK-specific issues, many of which do not apply in Australia.

Finally, it should be noted that the creation of OFCOM and the introduction of the draft Communications Bill were the results of a very lengthy and comprehensive review process which involved significant consultation with industry. This has not taken place in Australia. The recent reviews by the Productivity Commission were limited by the terms of reference (which focussed on economic and competition issues) and also the Productivity Commission’s own statutory framework.

## 5.2 Canada and USA

It is noted that in Canada, there is a separation of broadcast technical planning functions (conducted by Industry Canada) from content regulation and service planning and licensing (conducted by the Canadian Radio-television and Telecommunications Commission). This system has been in place for over 30 years, and can be compared with the system that existed in Australia prior to the commencement of the BSA in 1992. As noted, broadcasting planning is conducted by Industry Canada (carrying out functions like the former Department of Transport and Communications in Australia), but the Industry Canada spectrum planning division has branches dedicated to broadcast technical planning. These branches set rules for ensuring coverage and protecting against interference.

CRA and FACTS understand that the bifurcated regulatory system between CRTC and Industry Canada can be inefficient and slow. In addition, its existence is based more on historical factors than any other compelling reason. As such, it provides limited assistance for comparative purposes. However, it is useful to note that in Canada broadcasting spectrum is planned separately from other spectrum use by a separate branch within Industry Canada.

The United States of America (**USA**) has a single regulator for all forms of non-Government communications, though the Discussion Paper recognises that it is more a “co-location of agencies” than a unitary regulator. Again, broadcasting spectrum is planned differently from other spectrum, and this needs to be recognised.

Overall, the issues facing broadcasting regulation in North America are significantly different to those in Australia. In North America, a population of over 300 million occupies much the same land area as Australia. There is intense pressure on broadcasting spectrum. For example, even though Canada has only 30 million people in a large landmass, most of them are within 150 km of the USA border, so Canadian broadcast frequency planning is heavily constrained by USA spectrum demand. However, 80 per cent or more homes rely on cable or satellite retransmissions for the reception of free-to-air services.

Spectrum continues to be reserved for broadcasting in both the USA and Canada, and broadcasting planning principles reflect similar social and cultural considerations to those in Australian broadcasting legislation. Both Canada and the USA have been slower to move to market allocation of new broadcasting licences than Australia, and their governments recover far less in licence fee charges. For example, a large city television station pays 9 per cent of revenue in licence fees in Australia, while it would pay about 2.5 per cent in Canada and about 0.06 per cent in the USA.

In summary, North American broadcasters are less efficient users of broadcast spectrum, and pay far less for its use. Current spectrum use reviews in those countries have been prompted by these concerns, as well as spectrum demand issues (which need to be considered in context).

## **6. Technical issues**

As outlined above, broadcasting is different from other uses of the radiofrequency spectrum. This was even recognised well before the introduction of the *Broadcasting Act* 1942 (which was introduced to reflect the growing importance of broadcasting). At no time since the introduction of the *Wireless Telegraphy Act* 1905 has broadcasting spectrum been planned in the same way as other parts of the radiofrequency spectrum.

The technical basis for planning broadcasting services is fundamentally different from that which applies to other radiocommunications and telecommunications services.

Broadcasting services require a planned grade of service, that is, a minimum level of signal throughout a licence area to domestic receiving equipment. The planning of broadcasting services uses a planning model that tailors the radiation pattern and radiated power of each broadcasting service within a licence area to maximise spectrum efficiency, and to ensure adequate coverage.

Planning for broadcasting services takes into account the need for protection of radiocommunications services using other frequency bands and protection of other broadcasting services in adjacent areas and uses adjacent frequencies as a means of maximising efficient use of the spectrum. The location of the transmitter(s) with respect to the community being serviced often requires the use of directional radiating antennas tailored to achieve the desired coverage. It should be noted that Australian broadcasting spectrum planning uses the most efficient spacing of services (within a licence area and in adjacent areas) that can both be used and result in interference-free reception of services (within the relevant licence area).

By contrast, telecommunications services are usually point-to-point services with vastly different coverage requirements, being delivered to specialised receivers and having very different frequency re-use criteria. Telecommunications services typically employ standard antennas to meet their requirements.

Planning for telecommunications services often takes little account of topography and tends to apply more simplistic planning rules - using set "re-use distances" between sites before re-using a frequency. Unlike broadcasting systems, telecommunications systems planning assumes a fixed Effective Isotropic Radiated Power (EIRP) for all transmitters in a particular class of service.

Finally, broadcasting services generally serve a whole community simultaneously while a telecommunications service can provide specific one to one services to two parties at any particular time.

Assuming that the planning principles outlined above are not proposed to be abandoned (as this would result in either a reduction in coverage of existing broadcasting services, or an increase in the interference from other services with broadcasting services, or both), it is difficult to see how the options outlined in the Discussion Paper would result in any administrative savings or efficiencies (through consolidation of planning staff).

Technical staff employed to plan broadcasting services use different planning parameters and planning tools than do staff employed to plan other radiocommunications and telecommunications services. It cannot be assumed that the spectrum planning staff employed by the ACA have the necessary technical skills, nor the necessary understanding of the public interest objectives which are fundamental to the planning of broadcasting services. This raises real issues about whether options B or C in the Discussion Paper would lead to administrative efficiencies.

For the ACA to assume responsibility for the management of the broadcasting services bands, it will be necessary for the ACA to acquire the staff and or the skills of the broadcasting planning staff currently employed by the ABA. The separation of the technical planning function from the broadcasting service licensing functions (as contemplated by Options B and C in the Discussion Paper) splits the responsibility of these closely related functions in managing the broadcasting services bands. As noted above at point 2, this fails to recognise that broadcasting planning is an essential element of broadcasting regulation.

Broadcasting services cannot be planned, from a technical perspective, like other radiocommunications and telecommunications services. At a superficial level, there may appear to be some logic in having all radiofrequency spectrum managed by a single authority and according to common regulatory principles. Such a move could be supported if all uses of the spectrum could be assessed in the same way, and from a public benefit perspective. However, for the reasons outlined above, this is not the case.

## **7. Specific comments on Options in Discussion Paper**

A summary of the options presented in the Discussion Paper, and the submission of CRA and FACTS in relation to each of those options, is set out below.

**Option A. Combine the ABA and the ACA into a single organisation**

Option A proposes the creation of a single communications regulator, with responsibility for the regulation of the telecommunications, broadcasting and online industries. Option A purports to be based on the approach taken in the United Kingdom under the draft *Communications Bill*.

The Discussion Paper indicates that the “benefits” of Option A could include:

- more effective implementation of a spectrum-wide approach to the management of spectrum planning and pricing;
- a consolidated approach to convergence, competition and other regulatory issues;
- “multi-use” planning of spectrum;
- targeted enforcement powers, improved workload sharing in spectrum planning, improved international co-ordination and improved consumer services.

The Discussion Paper notes that Option A would require substantial legislative change, given that the ACA and the ABA currently have different statutory mandates. The Discussion Paper makes no reference to the application of the objects of the BSA (or objects like them) by the merged regulator in relation to broadcasting spectrum. In other words, while the Discussion Paper states that a “spectrum-wide” approach to the management of spectrum planning and pricing “does not suggest that all spectrum planning and pricing should be undertaken in the same way”, this does appear to be the preferred approach of the Discussion Paper (in relation to Option A). In particular, the Discussion Paper notes that the “benefit” of a single, strategic approach to the management of radiofrequency spectrum in Australia would be “significantly reduced” if the new agency were required to manage two distinctly different processes for the planning and allocation of spectrum. From this it is assumed that the “dual system” approach is not favoured by Government, and for this reason, it has not been assumed to be an element of Option A.

Therefore, it is not clear what is intended by the Discussion Paper when it refers to a “spectrum – wide” approach to planning and pricing. If it means that broadcasting spectrum would cease to be planned by reference to the existing cultural, social and economic objectives in the BSA, and that broadcasters would need to “compete” with other communications services for spectrum, CRA and FACTS would not consider it to be a “benefit”, and Option A could not supported on this basis.

For the reasons outlined above, any proposal that the broadcasting spectrum cease to be planned by reference to the objects of the BSA (or comparable objectives) is opposed by CRA and FACTS.

If a spectrum-wide / application neutral approach to the management of spectrum planning and pricing is the preferred option of the Government, the understanding of CRA and FACTS is that this would be likely to mean that broadcasting would not be treated any differently from other radiocommunications services when the spectrum was planned and allocated (if not at first, then ultimately). CRA and FACTS do not consider that there are any benefits associated with this approach.

A purely commercial approach to the spectrum currently in the broadcasting service bands would mean that metropolitan uses (both broadcasting and non-broadcasting) would crowd out potential users in adjacent regional areas. This might mean, for instance, that there were no regional television allocations within 150 km of Sydney or Melbourne.

The current planning scheme in the BSA allows differentiation between metropolitan and regional markets, and the ABA has taken the view - based on a solid legal interpretation of the BSA and by reference to international approaches to planning - that it would not promote the economic and efficient use of the spectrum if the planning of new broadcasting services did not ultimately result in an increase in the number of broadcasting services received in a licence area.

FACTS and CRA also reject the suggestion that “multi-use” planning of spectrum is a “benefit”, and oppose any suggestion that broadcasting services must compete with other communications services to access the spectrum. Otherwise, this may lead to increased levels of interference to services and a loss of quality and viability of existing broadcasting services.

In any event, the BSA already provides for secondary use of temporarily unused areas of the broadcasting services bands, and provides a mechanism for this via the ABA’s “drop-through” allocation powers. The scope for non-interfering shared use is quite limited, for the reasons set out under point 6 above.

As discussed above, it needs to be recognised that the part of the spectrum that is currently known as the “broadcasting services bands” is also the part of the spectrum that is used for broadcasting in other countries, on the basis of international agreements. As a result, receivers for non-broadcasting uses are not designed to be used on frequencies contained in the broadcasting services bands. CRA and FACTS agree with the submission of the Convergent Communications Research Group that using the broadcasting services bands for non-broadcasting uses would be inconsistent with what is done overseas. Further, it would mean that “Australian-specific” tuners in receivers would need to be manufactured. On this basis, it is difficult to see how “multi-use” planning of broadcasting spectrum would ultimately mean more services being available to consumers.

Also, it is difficult to identify other public benefits that would arise from “multi-use” planning of broadcasting spectrum. While the economic and efficient use of the spectrum is one objective relevant to the planning of the spectrum for broadcasting use, for all the reasons outlined in this submission, capacity to pay is not and should not be the dominant or sole objective. This is another reason why Option A should be rejected.

Finally, as outlined at 3.2, CRA and FACTS do not think that changing the present regulatory system can be justified on the basis of unclear concepts of “convergence”. When all these matters are considered, it is difficult to identify any “benefits” associated with Option A which are of enough significance to justify reform of the present system. FACTS and CRA do not consider that any change is necessary.

**Option B: Transfer of planning, licence allocation and enforcement functions from the ABA to the ACA**

Option B proposes to transfer the ABA’s planning, allocation and enforcement functions to the ACA. The Discussion Paper notes that this option would:

- retain the ABA as a separate entity (as the regulator of broadcasting and online content and media ownership and control); and
- locate all spectrum management functions would be located within a single regulator - the ACA.

The “benefits” of Option B are stated to include “a single, strategic approach to the management of radiofrequency spectrum”.

However the Discussion Paper notes that the ACA could (feasibly) manage two distinctly different processes for the planning and allocation of spectrum (with broadcasting planning being driven by the relevant objects which are currently in the BSA), although the “benefits” of the merging of functions would be diminished if this occurred.

Again, the Discussion Paper notes that this approach would require substantial legislative change.

While Option B does not preclude the possibility that planning of broadcasting spectrum by reference to the relevant BSA objects could continue (as supported by FACTS and CRA), Option B is opposed by CRA and FACTS on other grounds.

First, as noted at 2 above, FACTS and CRA are of the view that broadcasting planning should be integrated with other broadcast regulatory functions, as planning is a fundamental element of broadcasting regulation.

Second, the submission of FACTS and CRA is that adoption of Option B would leave the ABA as a diminished and inconsequential regulator. Removal of the planning, licensing and enforcement functions from the ABA under Option B would result in the ABA becoming marginalised and disempowered, and the expert knowledge of the ABA (built up over some years) not being effectively utilised. FACTS and CRA are not confident that a body of this kind could attract experienced or knowledgeable staff. This point is acknowledged in the Discussion Paper.

Also, Option B suggests that even if broadcasting services were planned differently from other communications services, the planning process may still involve the ACA assessing the relative value of alternative uses (from an economic perspective, and possibly from a “public benefit” or an international regulatory perspective). It could mean that a new broadcasting service may not be planned because the ACA could raise more revenue from an alternative use. It is not appropriate for an administrative agency to be expected to make decisions of this kind. In other words, the agency needs to be guided by the statutory framework.

It is worth noting that Option B was rejected by the Productivity Commission.

**Option C:        Transfer broadcasting planning functions from the ABA to the ACA**

Option C proposes to transfer all broadcasting spectrum technical planning functions from the ABA to the ACA.

Under Option C, the ACA would undertake all planning functions, but the ABA would retain allocation and enforcement functions.

Option C contemplates the ACA being required to apply a different approach to spectrum planning for broadcasting services than for non-broadcasting services. However, as with Option B, the planning process may still involve the ACA assessing the relative value of alternative uses (ie broadcasting and non-broadcasting) and CRA and FACTS’ view is that it is simply not appropriate for an administrative agency to be expected to make decisions of this kind. The ACA does not have the experience to participate in international broadcast planning issues as the ABA has done for many years. Recently the ACA has attended some of the ITU-R Study Group 6 Working Party meetings, however it does not represent the needs of broadcasting in the administration of the broadcasting services bands and ancillary bands used by broadcasters. It has been the ABA who has carried out this role.

Further, Option C would mean that the outcomes of planning discussions would be the responsibility of a different agency to the one which made the planning decisions. This result is not supported.

Further, as planning is fundamental to the broadcasting regulatory scheme, Option C would leave the ABA much diminished. FACTS and CRA agree with the observation in the Discussion Paper that transferring the planning function to the ACA would affect the ABA's "viability and effectiveness as a broadcasting regulator".

## **8. Alternative Options**

CRA and FACTS note that the ABA's submission supports a merged regulator, but on a basis which diverges from the model proposed in the Discussion Paper as Option A.

The ABA's support for a merger of the ACA and the ABA is qualified by the requirement that the regulatory tasks in broadcasting and communications remain differentiated, for so long as "governments and the community continue to seek specific policy outcomes from broadcasting". In particular, the ABA's submission notes that:

"..the longstanding policy emphasis on coverage, intended to make broadcasting services accessible for all Australians, means that planning for broadcasting purposes will continue to require extensive consultation and a complex decision making process, providing highly responsive and tailored outcomes".

Similarly, the ACA's submission also notes that there is "no necessary reason why the distinct activity of broadcasting planning should not follow a separate set of planning principles". Like the ABA, the ACA assumes that any change to legislation would be premised on the key objectives of current broadcasting planning arrangements being maintained.

Both these views are consistent with the views expressed in this submission about the need to plan broadcasting services by reference to specific broadcasting objectives. However, they are based on policy assumptions which are not expressly contained in the Discussion Paper.

The ABA notes that "issues of timing, policy development and legislative change require much further discussion". FACTS and CRA are of the view that a compelling case for merger should be made out before it is seriously considered. The Discussion Paper does not make such a case.

CRA and FACTS are of the view that the better approach is that set out in the submission from the Convergent Communications Research Group at the University of Adelaide. This argues that a "graduated, incremental policy response" is appropriate, and that these should address issues or gaps in the existing regulatory framework. This is consistent with the view of FACTS and CRA that the Discussion Paper has not demonstrated that change is necessary or timely.

## **PART B**

### **9. Spectrum pricing issues**

FACTS and CRA note that spectrum pricing issues have not been expressly linked by the Discussion Paper to any of the options, so this is why the questions relating to spectrum pricing are being considered separately in this Part B.

#### **9.1 Critical issues**

Before outlining responses to the specific questions contained in the Discussion Paper, the following issues are critical to any consideration of the “efficiency” of spectrum use or pricing of spectrum use.

##### **(a) Misconceptions about spectrum inefficiencies**

FACTS and CRA consider that claims the broadcasters do not use spectrum efficiently are not based on fact.

FACTS and CRA understand that criticisms have been made of the amount of spectrum required for broadcasting (although this is just 2% of the radiofrequency spectrum), the fact that the broadcasting services bands are reserved for use by broadcasters only, and the fact that technical planning of the broadcasting services bands has traditionally adopted a “quality of service” approach to interference management (based on ITU regulations and a long term conditioning of broadcasting audiences which has resulted in audiences not tolerating interference within their broadcasting services).

Some key points in relation to these matters are noted below:

- Broadcasters are required to deliver their services throughout their licence areas. The regulator (ie the ABA) decides what spectrum is required to ensure coverage of a licence area. The regulator also decides which channels to allocate, and this determines how much spectrum will be required).
- If in practice the spectrum allocated is not adequate to ensure coverage of the licence area, broadcasters may seek additional spectrum (for translator services – used to extend the coverage of the broadcasting service). However, the decision of whether to allocate such additional spectrum rests with the regulator. In any event, as transmission facilities are expensive to build, operate and maintain, it does not make any business sense to construct facilities that will use spectrum that is not needed.

- Commercial broadcasters cannot “hoard” spectrum, as services must commence within 12 months of the issue of a licence.
- Broadcasting planning must take into account the capability of a “notional” television or radio receiver planning model. Interference levels predicated in broadcast planning have regard to this receiver sensitivity. While “high-end” analog receivers might be able to handle adjacent channel placements, or shorter protection distances, most receivers cannot. As receiver standards are not mandated, a more aggressive approach to interference management planning would need to assume that manufacturers will make, and consumers will acquire, sophisticated new equipment, and will continually upgrade equipment to prevent interference from new services. This is not realistic.
- Australian broadcasters are particularly reliant on use of the broadcasting services bands for delivery of services as there is often no alternative way of delivering a service to all (or even most viewers) without using the broadcasting services bands and existing consumer reception infrastructure. Cable covers only parts of even the major urban markets. Satellite provides almost universal physical coverage, but it is not possible to deliver scores of local services by satellite. In either case, consumers would need to subscribe to cable or satellite services to receive “free to air” services in this way.
- There is very limited scope for introducing other services to “unused” parts of the broadcast bands because of the high risk of mutual interference. This is a problem even when services are co-located and power levels are carefully co-ordinated, as is the case with digital and analog television services. It would rule out the use of adjacent channel services with different topographies (eg a multi-transmitter cellular service and a television-type service utilising a few higher-powered transmitters). Very low power class licensed services also run into difficulties when “vacant” channels are activated. Recent examples are class licensed medical monitoring equipment and existing analog television signals affected by digital television transmissions.

In any event, claims of inefficiency relate to use of spectrum to provide analog broadcasting services. In the context of the technology, analog services have been efficient. In fact, Australian analog broadcasting services are internationally renowned for their efficiency and quality of service. However, by comparison to digital, analog services are inherently less efficient than digital services. As noted above, the broadcasting industry is in the process of converting to digital (in the case of television) and trialing current technology and spectrum efficiency (in the case of radio). Digital transmission is considered to be more efficient than analog transmission because:

- Digital channels can (in the case of single frequency network technology) be reused much more intensively than analog channels (particularly once the constraint of digital into analog interference disappears); and
- Digital receivers are more selective in their tuning than the vast majority of analog receivers.

As noted above at 4(b) in Part A, the commercial broadcasting industry wants to focus on the new digital technology, and considers that working towards this end may result in far greater “efficiencies” than any of the proposals contained in the Discussion Paper.

Certainly, “spectrum pricing” initiatives have the negative potential to distract the attention of Government and broadcasters from exploring new technologies and ensuring an effective transition to digital services.

Finally, a comparison between spectrum usage by broadcasters and mobile telephony operators is set out at Annexure A. This illustrates why it should not be assumed that broadcasters use spectrum less efficiently than other communications services.

**(b) Spectrum pricing is problematic for services with a significant community benefit component**

While spectrum pricing is an accepted means of allocating defined spectrum for “purely” commercial services, it is problematic where it is used as a means of allocating spectrum between purely commercial services and other uses (including broadcasters). This is because it either cannot value or undervalues the non-monetary value of these other uses.

For example, mobile telephony operators may be prepared to pay more per MHz for a particular band of spectrum, but this may not represent the optimum use for which that spectrum could be put (if assessed from a public benefit perspective) if such use adversely affects emergency services communication or “public service broadcasting” (as the British call all broadcasting services which have to meet a range of costly regulatory obligations). For example:

“Efficient use of spectrum to deliver public policy outcomes and value to the public will not always be consistent with revenue maximisation. This applies in broadcasting – and public service broadcasting in particular – where there are a wide range of public policy objectives in play. These include the need for universally available services with high quality, locally produced output, the provision of which may be inconsistent with broadcasters paying the full opportunity cost of the spectrum they require. Looking forward, it is possible that alternative users might be prepared to make higher spectrum payments than terrestrial broadcast licence-holders for access to the same spectrum. But

this does not indicate that broadcast licence holders are utilising that spectrum inefficiently, nor that they should be expected to pay the “market rate”. The value to viewers of free to air television may be difficult to measure, but is significant. Free to air viewing is, after all, the UK’s most popular leisure activity”<sup>2</sup>.

It should be noted that the draft UK *Communications Bill* requires OFCOM – the new regulator – to “encourage, in the interests of all persons, the optimal use for wireless telegraphy of the electro-magnetic spectrum”<sup>3</sup> The UK Joint Parliamentary Committee on the Bill commented:

“We share the Government's preference for the term "optimal", reflecting as it does the combination of economic, social and technical considerations that must determine the use of spectrum... Patricia Hewitt and Tessa Jowell [the relevant Ministers] understandably told us that they would oppose the idea of a primary duty on OFCOM that would secure priority for either economic and competition issues or cultural concerns at the expense of the other element”(Joint Committee Report, paras 37-38)”.

The Discussion Paper does not offer any solutions to this problem, and nor could the Productivity Commission formulate any adequate answers.

### **(c) Broadcasters pay high amounts for spectrum**

The commercial broadcasting industry in Australia uses spectrum in both the broadcasting services bands (**BSB**) and other bands. As has been recognised by the Productivity Commission in its draft report on Radiocommunications, broadcasters pay a substantial sum for the right to use spectrum.

For example, since 1991, the commercial television industry has paid (after regional licence fee rebates) licence fees of almost \$1.7 billion in constant dollar terms.

While the position of FACTS and CRA is that it is very difficult to compare the pricing of broadcasting spectrum with the pricing of spectrum used by non-broadcasters, if the Government is determined to do so, then it should be noted that comparison on an economic-only basis can demonstrate that broadcasters pay more for spectrum than non-broadcasters.

Two ways of looking at how broadcasters pay more for spectrum are outlined below.

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<sup>2</sup> *Independent Review of Radio Spectrum Management: Submission by ITV and ITV Digital, August 2001, page 2)*

<sup>3</sup> *Draft Communications Bill (UK), clause 3 (1)(c).*

First, the amount paid by commercial television licensees can be compared with the amount paid for 2.1GHz spectrum (**3G spectrum**). Second, the amount paid by commercial radio licensees for the use of spectrum can be compared with what is paid by other spectrum users (more generally).

**(i) Commercial television vs 2.1GHz (3G) licensees**

Telecommunications services using 3G spectrum will provide multi-media products in addition to telephony services. This is why the 3G spectrum has been selected as a means of comparison. Also, in Australia the auctioning of 3G spectrum occurred in 2001, so the prices paid better reflect what would be paid today than if it had been auctioned at the height of the “technology boom”.

In the 2.1GHz spectrum auctions which were held in 2001, 140 MHz of spectrum was sold on a 15 year licence basis to 5 operators for a total price of \$1.17 billion. On a non discounted cash flow basis this represents \$8.36 million per MHz. When comparing the cost or value of spectrum, a common comparator (as used in the draft report) is the term “pop” which is the cost of spectrum on a per MHz basis divided by the population in the area. This yields a price per pop for the 2.1GHz spectrum of 60 cents (assuming 14 million population coverage) or an annual cost of \$0.04 per pop. An annual per pop equivalent price (on a non-discounted cash flow basis) for commercial television broadcasters can be derived from the licence fee.

2.1 GHz spectrum (“3G” spectrum)	Commercial television
\$0.04 per pop per year	\$0.05 per pop per year

This comparison price makes the following assumptions:

- 60% of VHF and UHF BSB spectrum used by commercial television broadcasters (balance ABC and SBS);
- Australian population of 20,000,000; and
- 99% terrestrial television penetration.
- VHF/UHF BSB used by all broadcasters of 356 MHz (television and radio frequencies are used several times in planning services throughout Australia).

Therefore, even if all non-economic objectives are ignored, it is difficult to justify spectrum management reform on the basis that this would meet an objective of revenue raising.

**(ii) Commercial radio**

Of the total spectrum planned for terrestrial broadcasting use, 21.58 MHz is used for radio broadcasting. Of this, 1.08 MHz for AM radio and 20.5 MHz for FM radio broadcasting. Radio therefore uses the following proportions of the broadcasting services bands spectrum:

- All radio            21.58 MHz    5.3%
- AM radio            1.08 MHz     0.3%
- FM radio            20.5 MHz     5.0%

According to the Productivity Commission, the total licence fee revenue collected by the ACA in 1999-2000 was \$326.1 million (excluding revenue from auctions)<sup>4</sup>. Of this, and as acknowledged in the Discussion Paper, the total revenue raised from all broadcasting licence fees (television and radio) in 1999-2000 was \$232.1 million. This is 71% of the total licence fee revenue in that year. However, broadcasters use only 2% of all planned spectrum.

Commercial radio contributed \$14.8 million, or 4.5% of the total licence fee revenue raised by the ACA in 1999-2000 whilst only using 0.11% of all planned radiofrequency spectrum. All radio uses 5.3% of all planned broadcasting spectrum or 0.11% of all planned radiofrequency spectrum.

This demonstrates that the revenue raised from commercial radio licence fees contributes more than adequately for the proportion for the proportion of spectrum used for radio.

**(d) Broadcasters' contribution to the Australian economy**

The Australian free to air broadcasting sector is a strong economic generator, through the number of people it employs and the number of employment opportunities it creates in associated industries, through its use as an advertising medium to stimulate trade in a vast range of goods and services, as a major contributor to the taxation system through its payment of licence fees, and through its support of associated industries, such as the independent production sector. These are all important considerations when the impact of any proposed structural reforms is being assessed.

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<sup>4</sup> Productivity Commission, *Draft Report: Radiocommunications* (February 2002), at page 26.

## 9.2 Response to Questions in Discussion Paper

Responses to the questions in the discussion paper are set out below:

- (a) **Is there merit in moving to replace the current broadcasting licence fees with transmitter licence fees that reflect the amount of spectrum used?**

No. CRA and FACTS do not believe that there is merit in this proposal.

Replacing the current revenue-based licence fee system with a spectrum pricing model would be likely to result in less certainty for broadcasters and for the Government, and to have adverse effects on the delivery of the social, cultural and economic benefits provided by the entire broadcasting sector. In addition, spectrum pricing is likely to have a very adverse effect on broadcasting in regional areas.

Further, even if spectrum-based licence fees were introduced, there are no guarantees that this would result in more revenue being collected by the Government, so if the ultimate objective of the current Departmental review is to increase revenues paid for the use of spectrum (at the expense of other public interest objectives), the introduction of spectrum pricing would not meet this objective. This is discussed in more detail below.

### (i) **Why revenue-based fees should remain**

The longstanding revenue model applied under the *Television Licence Fees Act* and the *Radio Licence Fees Act* has provided substantial returns to Government whilst enabling broadcasters to meet licence fees in proportion to the turnover they generate from use of the spectrum.

This proportional approach has meant that broadcasters can factor the cost of their licence fee payments into their operations with some certainty. This has encouraged the growth and development of a comprehensive range of broadcasting services through setting fees on the basis of the broadcaster's increasing capacity to pay in line with the revenue generated by the spectrum. In addition, the revenue-based licence fee model does not disadvantage regional licensees in the way that a spectrum-pricing model may (as discussed below).

The annual, revenue-linked charge has also provided certainty for Government. Government can rely on a steadily increasing contribution to Consolidated Revenue that has consistently risen at a higher rate than economic growth.

**(ii) Impact of change on regional licensees**

The adverse and significant impact upon broadcasters in regional and remote Australia would be damaging for communities in these areas. A move to spectrum pricing would adversely and significantly impact upon broadcasters in regional and remote Australia. Broadcasters in regional areas use more spectrum than their capital city counterparts. However, regional broadcasters earn less revenue, due to the smaller population size of those markets. The revenue model applied under the *Television Licence Fees Act* and the *Radio Licence Fees Act* recognises this.

A move to this model would threaten the viability of existing broadcasting services in regional licence areas (particularly radio services). It is very likely that this would lead to a decrease in the number of services available to audiences, and would directly impact on the quality of such services (in terms of transmission quality and the nature of content provided). It is difficult to see how this outcome would be in the public interest.

The ABA's recent inquiry into local news in aggregated television markets, and the recent House of Representatives Standing Committee inquiry into the adequacy of radio services in regional areas each highlighted the need for locally relevant services in regional Australia.

These are important issues and need to be directly placed against any pure economic arguments in favour of a new transmitter licence fees system.

**(iii) Spectrum fees do not mean more fees**

It is assumed that the phrase "transmitter licence fees that reflect the amount of spectrum used" in the question at (a) above could refer to two of the three fee models under the Radcoms Act and BSA.

First, the holders of apparatus licensees issued under section 100 of the Radcoms Act pay annual licence fees which includes an administrative fee component, and in some cases, a spectrum fee component (**section 100 licensees**). Where a spectrum fee component is payable, this is payable on an annual basis, and is subject to annual CPI<sup>5</sup> increases.

Second, spectrum licensees pay an up front fee at auction. In practice, the amount bid (and paid) is discounted to take account of the cost of capital (as set out in Annexure B, the cost of capital is the weighted average cost of debt and of equity).

Third, holders of commercial broadcasting licences under the BSA pay revenue-based licence fees (relating to the broadcasting service licence they hold, rather than the apparatus licence) as

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<sup>5</sup> Australian Bureau of Statistics Consumer Price Index (All Capitals) ABS 6401.

well as an upfront fee for the licence (if the licence is bought at auction). The annual increases in licence fees paid by commercial broadcasters (as a whole) have exceeded the CPI. Commercial broadcasting licensees also pay a fee for their apparatus licences, issued under section 102 of the Radcoms Act.

Under the second model outlined above, spectrum licensees may pay comparatively less than they would pay if they were required to pay annual licence fees (which include a spectrum fee component) which attracted CPI increases during the term of the licence (like some section 100 licensees). The amount that spectrum licence holders will pay for spectrum licences (issued at auction) will be based on a discounted cash flow valuation. When compared with the amount they would pay under an indexed annual fee (based on a valuation of the spectrum), the amount paid for spectrum licences will be less (in theory), as the cost of capital will exceed CPI, and the amount bid will be discounted accordingly.

Only commercial broadcasters pay licence fees based on revenue. Over time and in order to meet shareholder expectations, revenue will need to grow faster than CPI, so commercial broadcasters expect licence fees to increase at a rate which is higher than CPI (in contrast with section 100 licensees).

It cannot be assumed that a change in the licence fee methodology for commercial broadcasters will generate higher fees than revenue based licence fees. Indeed, the drivers of the underlying cost of capital for commercial broadcasters suggest that the relevant fees could be lower. The analysis in relation to this issue is set out in Annexure B.

**(b) How could spectrum be priced to maintain incentives to retain or improve existing coverage levels?**

Spectrum pricing is inconsistent with maximising coverage of broadcasting services. Spectrum pricing is likely to encourage broadcasters to use only spectrum that is essential for their services. For regional commercial broadcasters, in particular, a significant proportion of their translators do not “pay their way” commercially and could not be justified under a spectrum pricing regime<sup>6</sup>. They could only be maintained if Government (Federal, State or local) subsidised them. Broadcasters and communities would be wary of committing to translators that would become both an operational cost and a spectrum cost to them if subsidies were subsequently withdrawn.

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<sup>6</sup> As outlined in FACTS’ submission to the Productivity Commission dated July 1999, in New Zealand, the NZ broadcasters’ initial plans for digital television envisaged using roughly one tenth of existing transmission sites to reach approx 90 per cent of the population. The remaining 10 per cent were described as not reachable economically. This was based on purely commercial considerations, in the absence of spectrum pricing. The addition of spectrum pricing would presumably have resulted in the use of even fewer sites, and the abandonment of even more “uneconomic” viewers.

Under the existing regulatory regime, there are adequate measures in place to ensure coverage in regional areas. The ABA plans broadcasting services to ensure maximum coverage and the minimum amount of interference. Where coverage is inadequate, this is addressed by the existing “black spots” programs. For example, the Television Black Spots Program originally aimed to eradicate between 200 and 250 television reception black spots, but has covered more. It is targeted at communities wanting to work with the Government to fix television reception problems using the self-help retransmission model. FACTS and CRA’s submission is that this model, partly based on “user pays” and partly based on Government assistance, is effective at ensuring coverage.

**(c) Should there be stronger statutory imperatives on the regulator to optimise returns from the sale of broadcasting spectrum?**

The current approach to allocating commercial broadcasting licences ensures that the community receives an appropriate return for the value of the spectrum involved. If the regulator was required to optimise or maximise returns (eg through spectrum licensing), it is likely that the amount of returns would not increase returns to the Government, but it could mean that regional broadcasters pay more and capital city broadcasters pay less. Depending on the model chosen, it could discourage regional broadcasters from providing a service throughout a licence area and could take resources from programming.

CRA and FACTS are of the view that if there are statutory imperatives on the regulator to optimise or maximise returns from the sale of broadcasting spectrum, this will have a direct impact on the quality and quantity of broadcasting services offered to Australian audiences. This would not be in the public interest.

If the regulator’s objective is to maximise returns, then the broadcasters should also be entitled to maximise their returns. This would mean that current restrictions under applicable standards and codes (for example, the Australian Content Standards and Children’s Television Standards for television, and the provisions relating to Australian Music for radio) would need to be removed. An exclusive focus on maximising returns would require a major revision of the social and cultural requirements of the broadcasting regulatory framework, calling into question the future of content regulation.

**(d) How would the value of existing broadcasting licences be determined if spectrum pricing for the associated transmitter licences was introduced?**

Spectrum pricing raises difficult issues when (as suggested by the Discussion Paper) it is applied to existing services, in circumstances where there is no relevant benchmark for establishing price levels.

The Discussion Paper refers to the Productivity Commission's acknowledgment of the difficulty of finding a suitable proxy for pricing broadcasting spectrum, and refers to the Productivity Commission's "conversion" model (which the Productivity Commission considered to be the most equitable and efficient pricing mechanism).

The Productivity Commission's suggested reference prices were those paid for spectrum for mobile telephony at the height of the boom in the technology sector. This is not realistic. More recent spectrum auction prices would point to a different (and lower) reference price.

In addition, there are significant differences between spectrum suited for mobile telephony (line of sight range, reusable at short intervals) and spectrum suited for high power broadcasting channels (80-100 km range, normally reusable at higher power only at about 150 km intervals). Comparison of different kinds of spectrum use is difficult given that such uses are not equivalent in potential use or value. Where these uses intersect (at the top of the UHF band), the spectrum is potentially valuable for cellular use but is of use only for low-power infill for television.

If spectrum charges were greater than existing licence fees, it could place major policy objectives at risk (as it would do in relation to the digital transition if it imposed additional costs on broadcasters).

In addition, as noted in the Discussion Paper, the "conversion" model could penalise low-revenue broadcasters (ie those in regional areas) and lead to "substantial adjustments to industry" (which is assumed to refer to broadcasters ceasing to operate). Any pricing mechanism which would result in Australians receiving less broadcasting services than they do at present cannot be supported. Such a result would be contrary to the public interest.

(e) **How would any such imperatives be reconciled with the desirability of promoting a diverse range of broadcasting services for audiences throughout Australia?**

It is assumed that this question refers to the maximisation of returns. This "imperative" is fundamentally inconsistent with the promotion of a diverse range of broadcasting services throughout Australia.

The provision of a range of different categories of service in each licence area goes to the objective of ensuring that Australian audiences receive a diverse range of broadcasting services. The pricing of spectrum for national and community services – and self-help retransmission sites - would raise complex issues.

The case for spectrum pricing is probably strongest for community television and community radio services, which often occupy large amounts of commercially valuable spectrum in capital city markets, and which are listened to or watched by very few people. Such community services

could not pay the “opportunity cost” of that spectrum without Government subsidy. Government would have to subsidise services – or areas of service – that would not otherwise survive a conversion to spectrum pricing. As a result, the Government would almost certainly receive less from spectrum in net terms than it does now.

Australian communities have been well served by a diverse range of commercial broadcasting services that have provided quality programming that has proven very popular with audiences, and delivered universal coverage to a dispersed population across large licence areas. The undue focus of the Discussion Paper on economic imperatives as a driver of spectrum allocation is at odds with the long-standing cultural, quality of service and social objectives that have underpinned the development of Australia’s broadcasting services.

The current system works well, ensures the payment of spectrum charges based on the revenue-earning capacity of the spectrum and delivers returns to Consolidated Revenue that are unlikely to be matched through other spectrum pricing options. The policy question which needs to be asked is whether the perceived benefits of the reforms of the kind outlined in or suggested by the Discussion Paper would justify massive disruption and instability to the broadcasting industry, and jeopardise the continued delivery of some services and the quality of programming on others, leaving audiences across Australia with a diminished range of broadcasting services than they currently enjoy.

FACTS and CRA believe that the economic imperatives to which the Discussion Paper refers cannot be reconciled or equated with the desirability of promoting a diverse range of broadcasting services for audiences throughout Australia - the objective which must continue to be given primacy.

**16 September 2002**

## ANNEXURE A

### INEFFICIENT SPECTRUM USE BY MOBILE TELECOMMUNICATIONS SERVICES: DESIGN ISSUES

As outlined at 3.1 of this submission, spectrum which is allocated for cellular-based telecommunications services is always under-utilised. This is explained below.

Each cell in a mobile network has the capability to support a number of traffic connections, or "channels", to mobiles. For any one network, this is constrained to around 30 channels. However, this does not mean that 30 calls can be supported. Due to the processes involved in supplying mobile telephony services (including call set-up, tear down, non-answered calls, handovers between cells) on average, considerably fewer calls can be supported than the number of channels available. The exact number of calls depends upon the Grade of Service (**GoS**) that it is desired to offer the customer – the better the GoS required, the fewer the number of calls that can be supported. For mobile networks, a typical GoS would be 2%, meaning that out of 100 call set-up attempts, two will fail on the first attempt.

The statistical unit used to measure the number of calls supported is the 'Erlang'. Using the Erlang equation, it is possible to determine from the channels available, the number of simultaneous calls (Erlangs) that can be supported. For example, a 30 channel cell will support around 22 Erlangs at a 2% GoS. One important effect is that as the number of channels available is reduced, the traffic handling capability reduces sharply, making low capacity cells very inefficient.

This effect is illustrated in the table below:

<b>Channels</b>	<b>Erlangs (2% GoS)</b>	<b>'Efficiency' (Erlangs/Channels)</b>	<b>Comment</b>
1	.02	2%	
2	.223	11.2%	
4	1.09	27.3%	
7	2.96	42.3%	This represents the capability of a one transceiver GSM cell (commonly found in rural areas)

14	8.20	58.6%	Capacity of a two transceiver GSM base station.
30	21.93	73.1%	30 channels is the approximate capacity of a four transceiver GSM cell (typically found in urban areas)
60	49.64	82.7%	Traffic handling ability of a maximum capacity cell on a combined network.

The average capacity used by the customers of a mobile network is also measured in Erlangs. Since, on average, users are only using their mobile phones, and therefore network resources, a small proportion of the day, it is convenient to measure this in milli-Erlangs or mE. For Australian networks, the average usage is around 15 mE.

An efficient network will be designed to meet, with some safety margin, the maximum expected load for the busiest time of the day or week at the design GoS. An important aspect of the design is the ability to cope with local variations to traffic load as well as the maximum level of aggregated traffic seen at the call switching centre. This is because the peak period (known as the busy hour) will occur at different times within the region served by the switch (eg. in the evening busy hour, the peak network load can be seen first in the city centre and then moves out to the suburbs as customers travel home). Therefore, whereas the traffic levels seen at the switching centre may seem fairly constant, the radiocommunications infrastructure needs to be dimensioned for its local peak load. The net effect of this is that the urban radiocommunications infrastructure has significant excess capacity compared to the switching capacity but, in reality, there is little “headroom”. This is an inefficient use of spectrum.

The situation changes significantly as the density of customers per unit area decreases (outer suburban areas and rural). Here, the density of base stations is primarily driven by coverage considerations and is not normally a factor of capacity fulfilment.

These effects can be seen in an analysis of a typical network:

Area	Cell busy hour utilisation	Max Erlang per Cell	% installed capacity of total avail	Utilisation of total available TRXC slots	Maximum useable mobility factor	Effective utilisation
<b>Metropolitan</b>	61.1%	16	80.8%	49.4%	0.7	70.6%
<b>Regional</b>	61.4%	21	42.6%	26.2%	0.80	32.7%
<b>Rural</b>	53.2%	21	25.3%	13.5%	0.95	14.2%
	<b>56.3%</b>		<b>56.6%</b>	<b>31.9%</b>	<b>0.76</b>	<b>41.7%</b>

#### Notes

- The "Cell busy hour utilisation" reflects the utilisation of the installed capacity.
- The "Max Erlang per Cell" figure reflects the maximum capability of the cell – frequency re-use constraints and the use of microcells lowers the average capacity per cell in urban areas.
- "% installed capacity of total avail" is the ratio between installed transceivers and maximum that could be installed based on the maximum Erlang per cell capability.
- "Maximum useable mobility factor" is the factor that reduces the effective useability of capacity to make allowance for mobility. This factor reduces, when there are more cells of smaller size (ie. there are more handovers occurring).

It can be seen that the network utilisation is much greater in the metropolitan areas but that spectrum use is highly inefficient to cope with the peak busy hour.

The submission of CRA and FACTS is that any assessment about whether broadcasters use spectrum "efficiently" should not be made in isolation. In particular, it can be demonstrated that broadcasters use the spectrum they are allocated more efficiently than other communications services.

## ANNEXURE B

### SPECTRUM LICENSING METHODOLOGY

Spectrum licences have a term of fifteen years. In bidding for a spectrum licence, the prospective licensee will discount the cash flow expected from the exploitation of the spectrum to today's dollars to determine the maximum price to bid. In discounting the cash flow, the bidder will use its cost of capital.

The cost of capital will be the weighted average of the cost of debt and the cost of equity (with the weighting being proportionate to the debt/equity ratio).

The cost of capital is the nominal pre-tax cost of capital and is calculated by determining the post-tax cost of capital and adjusting this to reflect the tax rate and franking credits.

The nominal post-tax cost of capital is:

$$W = R_e \frac{E}{V} + R_d \frac{D}{V}$$

Where:

- W is the nominal cost of capital;
- $R_e$  is the cost of equity;
- $E/V$  is the proportion of equity capital in total capital;
- $D/V$  is the proportion of debt capital in total capital; and
- $R_d$  is the actual cost of debt to the bidder.

The post-tax cost of equity,  $R_e$ , is determined using a capital asset pricing model (**CAPM**) method. That is:

$$R_e = r_f + \beta(r_m - r_f)$$

Where:

- $r_f$  is the risk-free cost of debt (based on 10 year Government bond rates);
- $r_m$  is the market rate of return;
- $(r_m - r_f)$  is the market risk premium — the return of the market as a whole less the risk free return (typically taken to be 6% in Australia); and
- $\beta$  is the systematic risk of the bidder's equity determined by the bidder.

This approach illustrates that the cost of capital always exceeds the risk-free cost of debt. In general, the risk-free cost of debt will exceed the CPI. If CPI is higher than the risk free cost of debt for a substantial period, there will be a substantial growth in consumption.

On this basis, the bidder for a spectrum licence will discount the cash flow by the cost of capital which is always greater than CPI. On this basis, the rational spectrum licensee will always pay less in cash terms for spectrum access than a licensee who holds an apparatus licence under section 100 of the Radcoms Act and who pays for spectrum access on an indexed annual basis (assuming that the licensee pays a spectrum fee component as well as an administrative fee component for their apparatus licence).

In turn, a commercial broadcaster will (all other things being proportionate), aim to increase its revenue by its cost of capital each year. To achieve expectations of profitability by shareholders, it will need to grow its revenue by more than CPI.

Over time, the revenue increases from broadcasters have exceeded CPI. This is to be expected as there is an expectation of growth in companies (expressed as the market risk premium in the cost of equity). Even stable and established broadcasters have a  $\beta$  of close to one and are therefore expected to show an equity return that is substantially above the risk free cost of debt (that is, substantially in excess of CPI).

From this, it cannot be assumed that a change in the licence fee methodology for commercial broadcasters will generate higher fees than revenue based licence fees. Indeed, the drivers of the underlying cost of capital for commercial broadcasters strongly suggest that the relevant fees would be lower than those paid at present.