



**SPECTRUM
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Radiocommunications Planning and Design

**A Submission to the Productivity Commission re
the Review of the Radiocommunications Act
and the Market Based Reforms and Activities
Undertaken by the Australian Communications Authority**

Prepared by

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Canberra
October 2001

Spectrum Engineering Australia

Spectrum Engineering Australia Pty Limited¹ is a Canberra-based engineering consultancy firm specialising in radiocommunications planning and frequency management. The views expressed in this submission are essentially those of its founder and Managing Director, Mr Peter Hilly.

After holding a number of engineering positions in government Defence and Telecommunications organisations, Mr Hilly joined the Radio Frequency Management Division of the Department of Communications in 1981 where he worked as a senior spectrum planning engineer till January 1986.

In 1986 Mr Hilly established the consultancy firm of Spectrum Engineering Australia to provide the spectrum user community with an independent source of advice and assistance in spectrum management and planning matters. Spectrum Engineering can claim to have been in the business of spectrum management well before spectrum management became a business in Australia.

Through the activities of his company Mr Hilly has maintained a close working relationship with successive spectrum management regimes through to the present ACA and is able to claim two decades of unbroken experience of the Australian spectrum management process.

Mr Hilly was an active participant and contributor to the 1990 Inquiry by the House of Representatives Standing Committee on Transport Communications and Infrastructure into the management of the radio spectrum in Australia. The current system of accreditation of external frequency assigners was instigated in response to a submission made by Mr Hilly to that Inquiry.

Spectrum Engineering interacts with the Customer Services Division of the ACA on a daily basis in carrying out licensing work under the accreditation process. Thus we are well positioned to observe and comment on this aspect of the ACA's performance.

We welcome the opportunity to contribute to this inquiry, and we are hopeful that it will lead to significant changes to some aspects of current spectrum management practice in Australia.

¹ Despite the similarity of names Spectrum Engineering Australia Pty Limited (ACN 008 642 028) has no association with the more recently established ACT based company Spectrum Management International Pty Ltd.

1. Background

The management of the radio frequency spectrum in Australia has evolved over the past twenty-five years, from a highly regulated and restricted regime to a much more liberal system now driven largely by user demand and technological evolution.

Until the early nineties change in spectrum management policy took place gradually and largely without deliberate government intervention. In 1990 the House of Representatives Standing Committee on Transport, Communications and Infrastructure conducted a public inquiry into the management of the radio spectrum in Australia. That inquiry received some 75 written reports and conducted six public hearings. Resulting from the Report of that inquiry was the Radiocommunication Act 1992. The new Act introduced significant reforms to the policy and practice of spectrum management in Australia, some of which were well supported by the submissions – some of which were not.

Arguably the most significant of those reforms was the introduction of an “economic approach” to spectrum management whereby market forces might be used to achieve optimal allocation of the “scarce” spectrum resource. The case for this approach was developed by the Commonwealth Government’s own Bureau of Transport and Communications Economics², drawing heavily on a report that it published in 1990³.

There has been considerable debate within the spectrum management and spectrum user communities over the past decade as to both the practicality and effectiveness of this “market based” approach to spectrum management. What problem did it set out to resolve? The implementation of the new approach involved very significant legislative change. That in turn required very significant development of new administrative processes. This change has come at considerable cost to the ACA and to the user community. Has this new approach succeeded? Was the gain worth the pain?

² Input paper No. 48 to the Inquiry

³ “Management of the Radio Frequency Spectrum – An Economic Analysis” BTCE Occasional Paper 102, September 1990.



It is timely now to ask those questions - we no longer need to consider what might be the outcomes – the results are there to see. It is therefore extremely important that the present Inquiry looks beyond vague theories and unsubstantiated argument and focuses critically on the practical realities of the spectrum management regime as it exists today and the results that it is achieving.

It is also important that the Inquiry looks critically at the ACA's day-to-day performance of its spectrum management role. Careful scrutiny might well reveal that major improvements can be achieved by reassessment of priorities, and by some relatively simple "re-engineering" of work processes – without the need for ambitious new policies and legislation.

I will argue that many of the changes of the past decade that were introduced under the new Act have not resulted in overall improvement, at least not improvement beyond what might have been achieved more readily under earlier legislation. Indeed implementation of some aspects of the new legislation has merely complicated the task. That is not to say that many of the philosophies and policies that underpin the "economic allocation approach" are necessarily unsound or without merit, merely that their implementation has been complicated unnecessarily.

2. The Issues

This submission does not attempt to address all aspects raised by the “Issues” paper. It focuses firstly on the core question of the merit or otherwise of the approaches used by the ACA in managing the spectrum resource. It then addresses some practical aspects of the ACA’s performance, particularly those that affect the day-by-day business of our company in our dealings with the ACA.

The first part of the response therefore considers the broader philosophies and policies that under-pin the spectrum management process. These include consideration of:

- The concept and the realities of spectrum management by market forces;
- The licensing system.

The response then addresses some specific issues relating to the administrative implementation of spectrum management function by the ACA, including:

- Accreditation;
- The administration of the apparatus licensing process;
- The administration of the spectrum licensing system.

3. Philosophies and Policies of Spectrum Management

The concept and the reality of spectrum management by market forces

The market-based spectrum management model introduced by the 1992 Act gave rise to the new concept and terminology of “spectrum licensing” – so as to clearly distinguish this “new” form of spectrum management. The distinguishing name was important to achieve visibility of this “novel” concept – unfortunately it also gave rise to a raft of entirely new concepts and new legislation whereas in fact the fundamental objectives of spectrum licensing might well have been achieved with far less administrative and legislative contortion.

Ten years on, the “validity” of the spectrum licensing concept still generates polarised debate. The reality of course is that there are valid arguments on both sides .

We would not argue against:

- The concept of long term property rights – for appropriate bands and services;
- The use of auctions as an efficient means of initial allocation of these rights;
- The right to trade spectrum;
- The minimisation of technical or purpose constraints on the use of that spectrum;
- The concept of mutual resolution of interference between neighbours, rather than by regulatory intervention;
- The return to the government of a market-based economic rental.

The introduction of the spectrum licensing however may also be seen as having a number of unsatisfactory aspects including :

- The creation of a separate regulatory regime to achieve the above benefits when, for the most part, existing legislation could have coped;
- The unsatisfactory (and unnecessary) legislation that has been created – essentially Part 3.2 of the Act;

- The application of a policy of “the more the better” re spectrum licensing - apparently irrespective of the need or benefit⁴;
- The unsatisfactory (and unnecessary) regulatory regime that has been created, embodied in the various s145 determinations, in a futile attempt to implement the purist notion of spectrum licensing;
- The un-necessary, non-productive, and expensive “registration process” imposed by this regulatory regime;
- The enormous amount of time and effort expended by the ACA in developing and managing the new regime;
- The general lack of understanding of the spectrum licensing system, even by some who have paid many millions of dollars for spectrum rights.

Spectrum licensing is founded on a very simple premise; that it is possible to partition a spectrum lot at frequency and geographic boundaries and thenceforth “deal” with that lot essentially in isolation of its spectrum and geographic neighbours. The legal construct by which the “lot” is managed is the “core conditions” that apply to the spectrum licence. Having isolated the spectrum lot by such a mechanism it is then possible to declare it available for any purpose (ie “technical neutrality”).

Whilst the essence of spectrum licensing is the simplicity of the concept, its implementation has in fact proved considerably less simple. Whilst it may be possible to reasonably isolate spectrum lots at frequency boundaries, the reality is that it is far more difficult to do so at geographic boundaries. The Act however requires that both be achieved. In response to this situation the ACA developed the concept of “the device boundary” that seeks to define the geographic limits of the transmission from the device. By any reasonable engineering assessment however the device boundary construct is a technical farce. It achieves no practical purpose except to meet the requirements of the ill-conceived legislation.

What perceived “problem” did spectrum licensing set out to solve? Essentially spectrum licensing was seen as a panacea for the perceived problems of prescriptive planning. Prescriptive planning requires value judgments to be made regarding the relative merits of competing services and technologies. Not a comfortable role for government. It is a role in which the spectrum manager has received criticism for as long as the spectrum management function has existed. But what is the role of the

⁴ Evidence of this policy is the fact that a key performance indicator for the ACA is “the extent of spectrum managed through spectrum licensing”.

national spectrum manager if not to manage such conflicts . Spectrum licensing, clothed as it was in the attractive garb of economic reform was a convenient exit. It had recently been implemented by the New Zealand government in its pursuit of its “Rogernomics” policies - it was a product of the times. Put the spectrum into the market-place and there is nothing left to do! It also carried the particular attraction of the expectation of windfall revenues for the government of the day, and indeed this expectation was fulfilled, to some extent at least.

But should market-driven spectrum management have succeeded? Were the necessary market conditions present? Is market failure a possibility? Was the theory well founded? In a submission to the House of Representatives inquiry in 1991 the Communications Law Center at the University of NSW described as “superficial” the BTCE report that inspired spectrum licensing ⁵. Such economic analysis is beyond the expertise of this writer but the questions regarding the underlying theory at least ought to be asked, and hopefully answered, by this inquiry. That submission by the Communications Law Center might provide an appropriate starting point.

We might well look at what has actually happened to “spectrum licensed” spectrum that has been purchased at auction since 1996. Whilst it is not possible to quantify the extent of usage⁶ it is possible to identify (by the absence of device registrations) those bands in which there has been no (apparent) usage. In some cases the explanation may be one of timing (real plans, but not yet implemented). In other cases the intention of future use is not so readily apparent. It is arguable that no net benefit is derived from the spectrum unless it is used. Is it of any consolation in the wider economic context that a licensee has paid significant economic rental for the spectrum if it is not put to use? (One may well ask that question, particularly in the case of One.Tel where the price paid for spectrum must surely be seen as a major contributor to the demise of that company, and to the demise of the opportunity for further competition in that industry.)

Was an alternative system necessary? Was prescriptive planning a failure? On both counts I would say not⁷. The irony of the situation is that planning is still required.

⁵ Input paper No. 36 to the House of Representatives Inquiry

⁶ Usage is multidimensional; in time, place and frequency.

⁷ As a case in point I would say that Australia had a particularly efficient evolution of mobile telecommunications services from the early days of the AMPS technology, through to GSM 900. Those services were planned. The spectrum allocation for the present GSM 900 was documented in a 1984 band-plan, indeed two years in advance of the introduction of first generation AMPS ! The present argument is that the pace of change is now too rapid to permit such planning. Is it?

Before the market gets its chance to “do its efficient allocation” there are planning decisions to be made as to what spectrum and how much spectrum is to be released. There are then planning decisions to be made as to what is the likely use of the spectrum. Despite the “purist concept” of “unspecified purpose”, technical constraints are placed on the licences based on that expected purpose. We then proceed to have the “PCS Auction” or the “LMDS Auction”, in clear contravention of the spectrum licensing ideal.

In reality the name and the nature of the planning has changed, but prescriptive planning does still exist. What has changed is the regulatory environment in which the planning is done. Instead of merely reforming and streamlining existing planning methods in 1992 we re-established them in a more complicated new regulatory framework that is far less efficient than before.

In many ways spectrum licensing was an over-reaction to a management regime that was traditionally conservative, parsimonious, and authoritarian. These once were valid criticisms, though arguably less so in Australia by the early 1990's. In the opinion of the writer however “spectrum licensing” in Australia was a “vogue” spectrum management solution looking for a problem.

The Licensing System

Any review of licensing mechanisms should begin with the question: “why do we licence”. There seems to be at least two reasons;

- to provide a control mechanism (a database of radiocommunications systems) for managing interference;
- and, to raise revenue.

In a congested multi-user environment it seems reasonable to assume that maximum utility can be achieved if the spectrum is used in an organised rather than a haphazard manner. This implies the need for some form of management and control. It is the method and extent of that control that is at issue.

The nature and extent of the management task varies considerably from band to band, service to service, and user class to user class. Solutions that are appropriate



in one situation may be inappropriate elsewhere. This suggests the need for a range of control systems, each tailored to the specific requirements of the particular task. A large part of the problem with the former apparatus licensing system was that it failed to recognise the differences. That is not to say that we needed several different licensing systems, rather we needed flexibility throughout a unified licensing system.

The current arrangement of licence types is not a rational system based on actual characteristics or management requirements, rather the ad-hoc combination of various management regimes from several management philosophies and eras. The three existing forms of licensing have distinctive attributes but (with the exception of class licensing) these attributes are not intrinsic to the services to which they apply. Ample evidence of this situation exists when we consider that two variants of GSM (GSM 900 and GSM 1800), which are technically and functionally identical in many regards (except of course for the frequency band), are managed under two totally different licensing regimes.

Apparatus licensing is characterised by highly prescribed technical and operational characteristics. The purpose of the licence (ie the service for which it may be used) is also prescribed. Tenure is normally for one year and initial allocation is usually not price based. Spectrum licensing on the other hand is less technically prescriptive, and purpose is not prescribed. Tenure is normally longer and initial allocation is price based.

None of these characteristics however are intrinsically linked to the services to which they are applied. If we were to develop a rational system of licensing based on system characteristics and spectrum management requirements we might have the following licence types:

- Type A: Services that require an “exclusive” spectrum allocation within a given geographic area
- Type B: Services that can optimally share spectrum within a given geographic area on an actively managed, ie “coordinated”, basis
- Type C: Services that can optimally share spectrum within a given geographic area without the need for active co-ordination.

These three “types” then begin to resemble “spectrum”, “apparatus” and “class” licensing as we currently have it – but without the additional connotations of those

three forms of licensing. But even this degree of distinction is unnecessary, and unnecessarily restrictive. The essential difference between one licence type and the next is the degree of control that needs to be applied to achieve optimal level of frequency management for the service in question, and the operational constraints that might be applied to achieve non-technical objectives⁸. For example, the method of initial allocation of spectrum (price based or otherwise) should be determined as appropriate for the band and service in question, not on the basis of some arbitrary application of a particular licensing regime.

In our opinion the system of licensing should be seen as a continuum of options, the difference between one licence and the next being the conditions that are applied; rather than as a system of discrete options each of which comes packaged with its pre-determined characteristics.

4. Administrative Aspects

Whilst alternative systems of licensing may well have potential for the overall improvement of the spectrum management function such benefit will nevertheless require efficient administrative processes to support them.

In the event that significant changes are not forthcoming however the remainder of this submission relates to administrative improvements that are seen to be required in the context of the present system of licensing management. It is my observation that the performance of the administrative aspects of the licensing and frequency management function, essentially the performance of the Customer Services Division, has not kept pace with the demands of the task. Despite reviews, re-arrangements, and new ADP systems, the Division still maintains inefficient methods of working and manual processes that appear to be outmoded and unnecessary.

The following paragraphs separately examine the administrative aspects of apparatus licensing and spectrum licensing since these regimes are significantly different. Before doing so however I will make some comment on the process of “accreditation” that is relevant to both.

⁸ For example licence conditions that might prohibit the un-authorised provision of broadcasting services, if that were to be relevant policy.

The Introduction and Operation of “Accreditation”

In my submission⁹ to the 1990 Parliamentary Inquiry I suggested, “... *that the Authority adopts methods of working whereby much of the operational detail of the spectrum management process is divested to the users themselves, or to appropriate user or industry groups, or external contract effort.*” I argued that, “*The central authority should not...involve itself as it does at present in providing what is essentially an engineering consultancy service in frequency planning of radio systems for commercial users and government enterprises.*”

The new legislation adopted this suggestion¹⁰ and made provision for a system of “accreditation” whereby “Accredited Persons” (APs) can now undertake “frequency assignment” work in competition with the ACA’s own technical staff.

Initially the concept was not received enthusiastically by the then SMA and it was almost three years before administrative arrangements were in place and the first certificate of accreditation was issued. The concept however has proved extremely popular with licencees, to the point where a very significant¹¹ amount of assignment work is now done by APs. The initiative appears to have brought benefits both to the user community (faster and less expensive issue of licences) and to the ACA (reduced staffing requirements).

It is important to recognise that the introduction of accreditation did not represent the mandatory outsourcing of a government function¹², but merely the opening up of that activity to competition. Whilst I believe this situation is entirely appropriate it does raise issues related to competition policy as outlined below. (These comments relate only to apparatus licensing.)

The ACA frequency assigners compete for work with APs in the commercial sense in that the ACA now charges a reduced “issue fee” if the services of an AP are used. This is appropriate. However because the ACA is both the controller of the licensing process and a “service provider” the ACA assigner enjoys certain competitive advantages. For example the ACA assigner:

⁹ Input Paper No 14 to the 1990 House of Representatives Inquiry.

¹⁰ The suggestion was supported by at least two other industry submissions.

¹¹ I am not aware of any official statistics having been published, but in our principal area of activity (point to point microwave) the figure may be as high as 80 or 90 %. The ACA submission puts the overall figure at about 60 %.

¹² This is only true in respect of apparatus licensed services. For reasons that are unclear the ACA does not undertake “certification” in respect of spectrum licensed services.

- carries no personal “legal” responsibility for his/her work;
- has immediate access to on-line data entry facilities;
- has access to some data that is not available to external assigners (current information regarding license status);
- appears to not be subject to technical “auditing” (who audits the auditor?);
- is able to exercise discretion in the application of assignment rules;
- appears to be able to “reserve” frequencies for indefinite periods.

These advantages were not intentionally bestowed; they were merely carried over from an era in which the market was non-contestable. The time has now come to level the playing field. If the ACA is to remain a provider of frequency assignment services (at least in those areas of licensing where operation of APs is well established) the ACA should establish independent business units that would operate under identical conditions to those of external service providers (ie APs).

Alternatively the ACA should withdraw as a provider in “declared” areas of activity that are well served by APs. The ACA assignment resources might then be re-directed to areas that are not (or cannot be) adequately served by APs. Effort should also be re-directed to the clarification and codification of assignment rules and procedures with a view to maximising the extent of “declared” bands and services.

Of particular concern to our company (and at least one other AP) is the fact that the ACA requires prospective APs to sign a Deed of Indemnity against “...*any liability...loss, cost or expense incurred ... arising from any act or omission by the Applicant (ie the AP) whether or not there was fault on the part of person whose conduct gave rise to that liability.*” This requirement is imposed not by the Act directly, but by Determination. It was promoted by the ACA.

The requirement that the AP indemnifies a Commonwealth Government agency without limit and even in the event of no fault of the AP is preposterous. It is a strange form of competition that enables one major service provider (the ACA) to require all its competitors to indemnify it against the consequences of its own mishaps. Furthermore there is concern as to the effectiveness of professional indemnity insurance in the event of a related claim if such an indemnity is given. Despite ACA assertions to the contrary the indemnity requirement is certainly a disincentive to the operation of the accreditation process; indeed it has resulted in one employee of our company having withdrawn his application for accreditation

because of our concerns for the legal and financial consequences that he might incur personally.

I have discussed this matter at length with senior ACA management and at their suggestion we obtained independent legal advice. That legal opinion¹³ concluded (among other things) that the indemnity requirement might well be ultra vires. The ACA rejected this opinion, stating (inter alia) that the requirement was drafted on the basis of advice from the Attorney General's Department.

We are now left with the option of taking further expensive legal action, or accepting this risk as indeed others have been forced to do. I believe that this dismissive response by the ACA represents an abuse of its power in its dominant market position.

Administrative Efficiency and Apparatus Licensing

The technical frequency assignment function that is carried out by APs is but one component of the overall apparatus licensing process. On completion of his/her work the AP merely issues a *Frequency Assignment Certificate* that the ACA *may* then consider in deciding whether to issue the apparatus licence. Thus the ultimate licensing responsibility and timescale of the licensing remains with the ACA.

Prior to the operation of Frequency Assignment Certificates the frequency assignment task was considered by the ACA to be the most significant component of the licensing process. It accounted for licensing delays that extended to many weeks, in some cases months. Under accreditation licensing is completed typically in less than two weeks, and often more quickly. The ACA however retains responsibility of the administrative aspects of the licensing process (data entry into the Radcom database, fee processing and the issue of paper licences.) Unfortunately in my opinion these functions are still managed very poorly by the ACA, resulting in unnecessary delay and cost. (Poorly organised, outdated and unnecessary processes, and too many people involved.) The overall efficiency of the licensing process is therefore still constrained by the performance of the ACA. Were it not for

¹³ All relevant documentation can be made available to the Inquiry if required.

this situation apparatus licences might be issued with much less delay. Same day service is entirely feasible if it were not for the present administrative delays.

The inefficient administrative processes of the ACA directly increase the overall cost to the licensee. The ACA charges an administrative “issue fee” for their part in the initial issue of the apparatus licence. This fee is intended to be time-based cost recovery. In one twelve month period of activity however the “cost recovery fees” collected by the ACA as a result of our work alone amounted to approximately \$1m. That work was carried in the Canberra Area Office (and some in the Adelaide Area Office) under ‘streamlined’ administrative processes that we were able to instigate at both offices. Our estimate is that our work required probably no more than the full time equivalent of one ACA person (certainly no more than two). On this efficient operating basis the ACA cost recovery fee should have been reduced at least by a factor of ten!¹⁴

The ACA has for a long time promised improvement in this area by way of provision of facilities for automated data entry and electronic payment of licence fees. But as yet they have failed to deliver. We understand that work is underway at present to develop such systems though there has been no public commitment to milestones. There has also been very limited exposure of these developments and we are concerned that unless there is some fundamental re-engineering of the licensing processes itself the new facilities will merely automate (and entrench) what are fundamentally inefficient licensing processes.

A most unsatisfactory aspect of the processing of apparatus licences is the insistence by the ACA on receiving pre-payment of licence fees. This is despite s 7 of the Radiocommunications Taxes Collection Act 1983 that states that “*The apparatus licence tax imposed on the issue of an instrument is payable on the issue of the instrument*”. To compound the problem the ACA still has not implemented facilities for on-line payment. This results in considerable delays and inefficiencies when paper cheques are involved. Again we are advised that on-line bill paying facilities are being developed – but again there has been no commitment to milestones.

¹⁴ This anomaly has now been “rectified”. As a result of a recent “efficiency” re-organisation within the ACA we no longer have access to those two offices. The added complexity of dealing remotely with a large number of people in the major state offices now goes a long way towards justifying the fees presently charged!

Administrative Efficiency and Spectrum Licensing

The administration of the spectrum licensing system is fundamentally different to that of apparatus licensing. The difference is due principally to the fact that the “spectrum licence” is issued at the outset and this licence covers the operation of all devices under the licence. (Apparatus licences on the other hand are issued individually in response to individual applications.) At the day-to-day level however spectrum licensing usually requires “device registration” prior to the devices being placed in service. (Despite the fundamental differences, the “Device Registration” under spectrum licences is often seen as parallelling “frequency assignment” under Apparatus Licensing.)

Device Registration purports to achieve two objectives:

- the creation a record in the ACA Radcom database to identify the operation of the device;
- The certification that the operation of the device is in accordance with its “core conditions”.

The first of these objectives is achieved inadequately under the present system¹⁵. The second is ineffective and quite unnecessary. Moreover the registration process often requires a level of technical detail that is impractical if not impossible to provide.¹⁶

Certification appears to serve no useful purpose whatsoever yet it requires the services of an accredited person”. It may involve the complex and convoluted “device boundary” analysis that is of dubious technical validity. It is hard to understand why this requirement for certification exists within a regime that purports to strive for minimum regulation.

¹⁵ The recording of devices in the database is unsatisfactory because the process fails to adequately describe the device (or service) in question. This situation is a consequence of the desire to maintain the pretext of technology neutrality. The recording process is also short-sighted because whilst there is an obligation (and a once-off cost) to register the device there is no obligation or incentive to delete the record when the device is de-commissioned. Over a period of time the database will become less useful as it fills up with records of devices that are no longer in operation.

¹⁶ Device position (location) is required to be given to a level of precision that is neither practical for the licensee to ascertain nor practical for the ACA to record. Out of band frequency constraints are also defined to levels that in some cases are impractical (or expensive) to ascertain.

The only obvious beneficiaries of this process are the accredited persons who earn fees in providing the service¹⁷. We note that the ACA does not offer services in this area. We understand that this was a deliberate policy intended to encourage the operation of accredited persons. But device registration is a sunrise industry that has been established unnecessarily and at the expense of the licencees. Surely it is not the role of the ACA to manufacture and maintain such business. Furthermore the unnecessary level of complexity and legal uncertainty that surrounds the spectrum licensing process and device registration has effectively served to exclude all but a determined few from this activity.

Despite it being a mandatory requirement device registration does not ensure (or even seek to ensure) that unacceptable interference will not be caused by the operation of the transmitter. Unlike apparatus licensing, the responsibility for interference management under spectrum licensing rests with the licensee. Whilst the ACA may prepare “guidelines” for the management of interference, the application of these guidelines is not a mandatory part of the device registration process.

If spectrum licensing is to continue to exist in its present form we strongly recommend that significant changes to the registration process be adopted. These should include:

- The exemption from registrations of devices for which there is no demonstrably valid frequency management reason for registration¹⁸.
- The recording of more specific technical details of those devices that do need to be registered, and the requirement for the deletion of redundant records.
- The re-specification of the precision of detail that is required for registration, commensurate with what is reasonably necessary, obtainable, and able to be recorded.
- The simplification of core conditions wherever possible, and abandoning of the “device boundary” construct.

¹⁷ Spectrum Engineering Australia has been a substantial beneficiary of this process and we will continue to offer device registration as a “service” to our established clients for as long as it is mandated by the ACA. Nevertheless we are appalled by the ACA’s instance on this unnecessary regime. Our views are well known to the ACA and we also make our views known to our potential clients.

¹⁸ Many devices are already exempted. We have argued on behalf of clients in the past that further exemptions should exist.

- Simplification of the form of expression of the spectrum licence. A typical licence is approximately 20 printed pages, it could be reduced to just a few pages of “plain English”.
- The removal of the need for certification of “core conditions” by an accredited person since certification costs money and achieves no benefit. A legal obligation already rests with the licensee to adhere to the licence conditions. This will remain unchanged, as will the requirement to manage interference. It should be the prerogative of the licensee to decide how those obligations are to be discharged.

Fortunately the requirements of the present registration regime are requirements that are imposed by Determinations or simply as licence conditions. It should therefore be a simple matter to implement the changes advocated above, without the need for change to the primary legislation. These unsatisfactory processes are of the ACA ‘s own making. They can be readily “re-made”.

5. Summary and Conclusions

The introduction of the new concept of spectrum licensing in the Radiocommunications Act of 1992 sought to achieve reform of the spectrum management process through the introduction of a “market driven spectrum allocation process”. In theory such an approach was to have enabled economic forces to discover the most efficient use of the radio spectrum, thereby eliminating the need for prescriptive planning.

In the opinion of the writer however such change was driven more by a desire for innovation than by any fundamental deficiency in the existing system. It was perhaps an over-reaction to a perceived problem of inflexibility of the licensing system of the time. The question must now be asked “was the cure worse than the disease?” Spectrum licensing did succeed in delivering a much-needed change of attitude to the spectrum management process but it has done so at considerable cost and complexity associated with the development of new legislation and administrative process.

Perhaps it is now time for the pendulum to return to a more central position. We believe that this can be obtained by retaining the progressive philosophies of spectrum licensing, whilst discarding much of the unnecessary complexity and ambiguity of that processes. Spectrum licensing has in our opinion taken a not-too-difficult task and complicated it un-necessarily. We advocate the return to a single simplified flexible licensing framework under which the best attributes of all systems of licensing can be combined.

We also believe that it is time also for the ACA to urgently re-examine its day-by-day practices, and, in particular to seek ways in which current and future licensing requirements might be minimised and simplified. The introduction of the “accredited persons” system has been an important first step in that direction. It is now necessary to remove the remaining barriers to the efficient operation of that system and to provide the facilities that are necessary to make its operation more effective. In doing so it will free up ACA resources that might then be applied to further progressive developments.

In all of this however we encourage the ACA to maintain a firm and active role as the Australian Spectrum Manager; in planning, implementing, and overseeing the spectrum management process. We do not believe that this role can be delegated successfully to the forces of the market-place, nor can it be performed effectively by wholesale outsourcing of the ACA's technical capabilities.

