

**Low Power Radio Association Response to the Radio Communications Agency
“Consultation on the use of licence-exempt spectrum for the provision of public
telecommunication services”**

Question 1

The first part of the question looks at the possible benefits of allowing commercial access to licence exempt bands. This poses the question, what is the attraction of the licence free bands? Is it the mere fact of being licence – and hence cost-free, or is it surmised that licence free spectrum promotes innovative use. If the former point is the main interest, then holders of licenced spectrum would have a strong case for objecting to licence-exempt spectrum being used in any public telecommunication application which might compete with them. If the second point is regarded as beneficial, then any study might be directed towards extending the number of licence free bands to encourage further innovation, rather than subjecting those existing to potentially disastrous overcrowding.

The question of competition is aimed at new entrants to the bands, not those already using them, since the type of service postulated was and is not allowed by current regulations. As stated in the Mason report, introduction of new services is likely to be to the detriment of those existing, which, particularly in the 400-500Mhz and 863-870Mhz bands are numerous, poorly recorded and individually low density, though cumulatively representing extensive usage. Any consideration of the effects of introducing WLAN type services, will therefore be difficult.

The majority of companies operating in the licence free bands, again principally in those sub 1 Ghz are small to medium size, unable to take advantage of network opportunities available to larger concerns, whereas, in the 2.4 Ghz and 5.8 Ghz bands, it is principally large companies operating. If public access is to be allowed, then it is probably the case that trial introduction into the higher bands will have less effect on the current SRD community.

A further important point is the restriction of public services to “within building” applications.

The mitigating effect of structures in containing interference should be strongly considered in any trial, such as Internet Services in airport lounges. There is already evidence within the EC that permission for external WLAN networks has led to increased levels of interference to other SRD installations, this should be noted.

Though the preamble to the Consultation, and much of the Mason Report is centred around the provision, in licence exempt bands, of WLAN type systems, it would be very unwise to consider, that if public access is permitted, such systems would represent the majority of new entrants.

It is likely that the lifting of prohibition of public access will stimulate innovative use which is not foreseen in the current scenario analysis – and which may be more damaging.

Finally, whether or not public access to deregulated spectrum will promote Britain’s E-business success is, in our view, too indefinite a question to answer.

Question 2

The use of current licence exempt bands varies widely and thus a general answer to this question is meaningless. The 433 Mhz band has already a history of interference problems, the 458 Mhz band, (MPT1329) currently available to professional telemetry suppliers is overcrowded in some parts of the UK and the 868-870Mhz band, to which SRD manufacturers have been encouraged to migrate and which is currently under compatibility study as the “main” SRD band, is underused as yet as it has only recently been fully released as a harmonised band throughout Europe.

The 2.4Ghz and more recently 5.8Ghz bands, however, have, with certain exceptions been dominated by large international companies offering WLAN or other network services (Bluetooth etc).

Statements already in the public domain, suggest that shortly the 2.4Ghz band will be so overcrowded as to be almost unusable to any service which demands a high duty cycle.

Public telecommunications services must be widely distributed and high duty cycle to be profitable, such a requirement must be in direct conflict with SRD services already installed.

Geographically, public services will be the greatest problem in most densely populated areas – this is clear from the patterns of installation of existing networks. Excepting wide area telemetry which is used countrywide, the greatest markets for generic SRDs are also in urban environments – and hence interference by high duty cycle services is likely.

Question 3

As already stated, for commercial success, public telecommunication services must be taken up by numerous clients, with high duty cycles. By contrast, much of the use of generic SRDs is by very low duty cycle equipment, ie fire and other alarm systems, social alarms, “report by exception” telemetry. Sharing studies with public networks have not been undertaken, but it is highly likely that in urban surrounds, interference levels would become significant. This may well impact the usability of, for instance, property protection alarms.

Question 4

No, the rules for channel access are under continuous pressure and revision. As an example, current sharing studies for the intended expansion of SRD band 862-870 Mhz are considering a wide range of simultaneously used channel usage techniques, (FHSS, DHSS, CDMA, FDMA etc) to achieve a spectrally efficient future.

However, the rate at which such techniques can be introduced is very much a feature of development cost and difficulty and buoyant market conditions to fund development. Even with the introduction of interference resistant techniques, deployed equipment density will eventually be the limiting factor.

Question 5

The Mason Report identifies local Internet access as a possible future public service in airport lounges etc. While this appears at first sight an attractive proposition, it brings precisely the same problems currently associated with RLANs, ie limitation to “in building” use. The problem for Regulators is what defines “in building”. RLAN users, having building complexes and a requirement to network between buildings are frustrated by being denied “building to building” connections. This situation becomes worse when such a network extends to dispersed complexes, where to achieve connection requires transmission over 3rd party real estate. Then the prospect of interference with unknown SRD systems being used by the 3rd party owner becomes real and litigious.

Thus the most easily regulated service is a data service that is strictly limited to a single building, using common protocols between systems provided by competing suppliers to give the benefit of interoperability to clients. So far as market potential is concerned, we have no reliable data and can offer no view.

Question 6

Users of current landline Internet services regularly experience periods of poor or even non-existent systems access. Most seem resigned to the “rush hour traffic jam” scenario. However, most Internet service is free or very low cost with no QOS guarantees. Where providers offer a wire free service at a significant cost it will, in our view be difficult to provide any realistic QOS guarantees since there can be no prevention of other potentially interfering SRD services from being deployed after a service network has been set up. This is on the understanding that the cardinal rule for SRD suppliers, “that one cannot claim exemption from interference from another SRD supplier in the same band” applies. If the “rules” are amended to favour the maintenance of QOS for the “new” network providers this would, in our view be a disastrous decision and would, again, prove litigious.

Question 7

As already stated, we believe the sub 433Mhz, 458Mhz and 862-870 Mhz bands should be excluded from public service. In general these bands are too narrow for high speed data transmission and/or have been aimed at very wide selection of low to medium density installations. Deployment of high density, high duty cycle networks in these bands (unless very strictly limited “in building” scenarios in which the building owner/operator makes his own choice as to what radio equipment he wishes) would, in our view seriously damage existing SRD services.

If any band is to be considered, it should, in our view be limited in the first instance to the 2.4 or 5.8 Ghz bands where the principle of data network use is already widespread.

Any subsequent consideration of expansion to other bands should only be after strict analysis, after a number of years of track record of competing systems at 2.4/5.8 Ghz and then only on detailed knowledge of the projected increase in equipment density by “conventional” SRD band users.

Question 8

Yes, as outlined, potentially destructive interference with existing SRD services and the severe difficulties of withdrawing such services once introduced.

Question 9

Existing SRD installations are ubiquitous and very varied. Some, destined for relatively trivial duties could expect a deployed product life of perhaps 2 years. At the other end of the scale, professional telemetry and industrial alarm schemes are regularly extended and improved over an equipment life of 10 years and more and represent high investments in both money and training. If, as suggested by Mason, new services are likely to have a downgrading effect on existing systems, there will inevitably be serious repercussions.

Further, the market for long term equipment is dependent on stability and there is a serious danger of loss of confidence and consequent loss of business, in an atmosphere of uncertainty caused by the introduction of public telecommunication services in the same bands.

It should be re-iterated that this problem is likely to be greatest in bands below 1Ghz. In the bands greater than 1Ghz, generic SRD installations, particularly video alarms and some sensor systems are likely to be affected.

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