



Response by LPRA to Consultation by OFCOM (UK) on technical licence conditions for 800 MHz and 2.6 GHz spectrum and related matters

The LPRA have considered the very thorough report prepared by ERA on behalf of OFCOM (UK) on the potential for interference from LTE on SRDs operating in the band 863 – 870 MHz. The study suggests that under certain conditions of use there is a real possibility that LTE could cause significant interference to SRDs. If such an outcome were to occur in practice, it would be of considerable concern to LPRA. Although SRDs operate in the band 863 – 870 MHz on an unprotected basis, they are increasingly being deployed in applications where users demand a high level of reliability. In such situations a failure to function correctly could lead to serious consequences.

LTE is a highly flexible system where a large number of the functional parameters may be adjusted dynamically by the operator. At present it appears that nobody yet has a precise idea of how LTE will be used in practice. This makes it difficult to assess the real scale of the problem. Nevertheless, irrespective of the potential for interference, it seems certain that OFCOM will proceed with the planned auctions for spectrum and LTE will be deployed.

Having reviewed the charts in the ERA report, one possible technique for reducing the level of interference generated by handsets would be to incorporate improved filtering. However it is recognised that this would lead to an increase in the cost of handsets, which would most likely be unacceptable for commercial reasons.

However the operators of LTE may be prepared to consider other alternative mitigation techniques. For example two points of particular interest emerge from the ERA report. Firstly mobile units will be fitted with dynamic power control. Presumably this feature is included to maximise the battery life of handsets. Secondly ERA demonstrated that the higher the number of Resolution Blocks assigned to a mobile unit, the greater the number of IPs generated and hence the greater the potential for interference.

If it is found that LTE is causing unacceptable interference to SRDs, the above two points might perhaps be combined in a way that would provide a means of mitigation. In order to validate this concept, further measurements would be necessary with handsets adjusted to their maximum transmit levels. Operating under this condition the number of RBs assigned to a handset could be progressively reduced until an



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acceptable level of interference is achieved. Similarly at lower transmit powers the number of RBs assigned to a handset could safely be increased. By the use of such an approach it may be possible to devise an algorithm giving a relationship between transmit levels and number of RBs that would always keep interference to an acceptable level.

It is recognised that such a restriction might not be welcomed by the LTE community. However the LPRA believes that all users of spectrum have an obligation to minimise interference to others. Furthermore with careful design of the network, the need to limit the number of RBs assigned to handsets at high transmit levels should not represent a significant burden on operations.

The LPRA also has major concerns over the way that LTE story should be disseminated to industry. If badly handled the LPRA are of the opinion that this could be more damaging to the SRD industry than the interference itself. The LPRA stresses that the story needs to be broken with care and ideally before LTE is implemented. Industry should be given sufficient time and information in order to understand the impact of LTE and develop its response. The LPRA believe that Ofcom (UK) should work with the SRD industry to understand more fully the scale of the interference from LTE.

As a contingency, in the face of interference to critical services such as alarms and monitoring systems, the LPRA wish Ofcom to consider the possibility of finding additional spectrum for SRDs and speaking to the MOD to gain consent for the power limit on the 433-434MHz band to be raised from 10mw to 25mW for low duty cycle operation.

In conclusion the LPRA understands and accepts that it cannot stand in the way of progress. It would however stress that it represents an industry worth hundreds of millions of pounds per annum to the UK economy. This industry is rapidly growing and the number of devices deployed already can be counted in 8-figures. Therefore in these fragile economic times it is important for industry and Government to be seen to be working together for the greater good.

The LPRA are happy to offer their limited resources to Ofcom and other regulatory bodies to assist in the process of education / dissemination on the plans for LTE. We are able to do this through the LPRA website and LPRA e-news.