

Response to:

Consultation and information on technical licence conditions for 800 MHz and 2.6 GHz spectrum and related matters

Overview

Ofcom has actively, taken part in and encouraged the change of use for the 790-862MHz band from broadcast (high tower high power, *far from domestic household*) use to a Mobile Fixed Communications Network (MFCN)(local and *within the domestic household*) without a full impact assessment as to the effects (and costs) to the existing users (primarily domestic households).

Whilst Ofcom has insisted on a full impact assessment for other spectrum requests and changes, **and** used the resulting balance sheet to assess the worth of such proposals. In the case of the Digital Dividend (both the MFCN and white space devices), which can be considered the first major change in spectrum reallocation since the 1940s, it has attempted to separate the wide ranging interference issues into separate “boxes” without an overall “balance Sheet “and only within the two current consultations started to address some of them:

- Without allowing any discussion on them by the OFCOM protection clause group
- Without giving realistic costs for both equipment and labour to rectify the problems generated by MFCN’s.

One of, if not the main reason given by the European Commission and Ofcom for the introduction of MFCN was the provision of rural broadband, it is interesting to note the omission of any network capacity requirements within this consultation. Surely if rural broadband is such an important issue the networks must have the capacity to fully service all rural broadband customers simultaneously.

A requirement to achieve this should be placed in the technical Licence conditions

Within the CEPT committees investigating the “least restrictive technical conditions” for the introduction of MFCN’s , members of those committee’s (including Ofcom) refused to investigate or include any reference to the interference which will be generated to existing users, other than a brief comment on single TV use.

Those identified as victims by a range of studies include:

- Domestic Television
- Domestic televisions with various amplifiers
- Other domestic equipment containing a TV tuner (hard disk recorders, VHS etc.)
- Cordless audio
- Radio microphones
- Social alarms
- Medical devices
- Communal aerial systems
- Cable network consumer equipment (uses a TV tuner)
- Baby Alarms

Within the various reports presented as part of this and other consultations by Ofcom the full effect of the MFCN on the general population has not been explored, nor in many cases has the numerical information obtained by limited testing been included in the consultation documents.

Whilst this *Consultation and information on technical licence conditions for 800 MHz and 2.6 GHz spectrum and related matters* consultation has only (belatedly some 10 days after the main consultation) provided a report identifying short range devices (SRD) as victims this Ofcom report, unlike the other European work (http://docbox.etsi.org/Etsi_Cenelec/PUBLIC%20FOLDER%20on%20DD/CENELEC-ETSI%20%20Joint%20Working%20Group%20Published%20reports/Main%20Report%20Agreed%20by%20TC210%20May%202011/) has failed to test against base stations, nor has it considered the impact when the MFCN's are fully deployed.

Also:

- Ofcom impact assessment was initially carried out at some 794watts for base stations Ofcom is now proposing an indiscriminate use of 2511Watts for base station licences. Therefore the victims of interference are likely (by Ofcom's own statement) to be multiplied by at least 3.
- In addition Ofcom bases its figures on 9000 base stations the DKTN (http://docbox.etsi.org/Etsi_Cenelec/PUBLIC%20FOLDER%20on%20DD/UK%20DKTN)

[%20DD/](#)) report proposes 18,000 as a more probably realistic deployment scenario (at least doubling the interference zone by bringing base stations closer to domestic dwellings and communal aerial systems)

It is also worth noting that under the ECC and EC decisions the base and UE powers can be increased by Ofcom from the proposed figures.

The Ofcom report makes a number of statements that MFCN terminals are unlikely to transmit at their full power in a domestic environment. Given the shielding effects of a domestic household and the likely use of poor aerials, (especially in data dongles due to size limitations) it is highly likely that they will use close to full power especially in the start-up phase. Using the figures from the report interference can be expected up to 49.7M, this means that UE in adjacent rooms and buildings will cause interference (which will be out of the victims control).

This conclusion was reached long ago within the Joint CENELEC-ETSI working group

Many of the SRD's operating in the 863-870 MHz band are being used by elderly or infirm people (social alarms, medical monitoring, hearing aids and cordless audio) how is it proposed by Ofcom that;

1. These people identify where the interference is coming from (likely to be a frightening experience for many)
2. Solve the problem
3. Pay for new equipment (when and if immune equipment becomes available)

Whilst there is a blanket statement that SRD's cannot claim protection from interference from licenced services, this is the first time that I am aware of where Ofcom policy will cause these devices to become, in many cases, unusable. Ofcom has been aware of these problems for at least two years but has done nothing to initiate changes in equipment design and standards to solve the problems. Under these circumstances there appears to be a compelling moral, if not legal, case for Ofcom to **compensate or replace affected equipment**.

In addition the extensive costs to both consumers and industry have been excluded from the "**costs**" of implementing Ofcom's plans for MFCN

There appears to be an argument put forward in the SRD report that because SRD's can interfere with other SRD's that the MFCN interference should be tolerated, **this is a totally spurious argument**. The 863-870 MHz band has been carefully planned to be spectrum efficient by CEPT in conjunction with ETSI SRD groups and has resulted in the band plan (a

result of considerable compatibility testing by CEPT,ETSI and industry) separating disparate uses.

Since its identification in the Detailed Spectrum Investigations of the early 1990's very few cases of inter SRD interference have been reported to manufacturers. The stated cases of radio microphones interfering with a range of devices misses the main point that these devices are geographically separated and therefore do not interfere unlike the MFCN base and UE which are likely to be physically adjacent to its victim with a much larger (up to 2511watts base and 316mW UE) transmit power.

Leaving aside the interference that will be experienced by users of the various television and entertainment platforms any users of SRD's in this band including a wide range of industry (such as supermarkets) can look forward to disruption of their radio devices which may not become apparent until full deployment of the MFCN's and their UE.

Will this be part of the remit of Mitigation Co? if not why not

Radio microphones in the 863-865 licence exempt band are widely used in places of worship, clubs, bingo, amateur (and in some cases professional) productions, schools and lecture tours. The reports identify current sales but fail to consider the millions of legacy equipment which has been in use since the 1990,s and would be expected to have a long usable life (20 years in some cases).

Currently there are no other licence exempt bands which users can migrate to (Ofcom stated that the channel 69 equipment/users could use 863-865 as replacement spectrum!). Release of the pan European 1800MHz band (where full compatibility testing has already been carried out in CEPT) as licence exempt spectrum would go some way to helping users (except in Northern Ireland where Ofcom has already sold the spectrum)

Overall there are probably many millions of devices in current use all of which are likely to suffer interference

How does Ofcom propose to solve the problems that this policy, once implemented, will inevitably cause?

Response to questions

Technical licence conditions for the 800 MHz band

Question 1: Do you have any comment on the proposal to apply the limits defined in Case A of Commission Decision 2010/267/EU for out-of-block emissions from base stations into all frequencies in the range 470 to 790 MHz, as set out in Table 4.4?

Case A will be inadequate to mitigate interference. There appears to be a good case to tighten these figures by at least 3db

Question 2: Do you have any comment on the proposal to set an in-block emission limit of 61dBm/(5 MHz) for base stations in the 800 MHz band?

This means that the base station will have three times the power (2511W) compared with the figures used in the impact analysis and modelling work.

Therefore the number of victims and cost should at least be multiplied by at least 3

Reduce base station power to 55dBm/5MHz to reduce the impact of interference – though this will still not be enough to remove the problem completely.

Technical licence conditions for the 2.6 GHz band

Question 3: Do you agree with the proposed conditions on antenna placement that would permit the use of the alternative block-edge mask for restricted unpaired blocks? If not, please explain your reasoning and your alternative proposals, bearing in mind the need to remain consistent with the framework provided in Commission Decision 2008/477/EC.

No comment

Question 4: Meeting the conditions on the use of the alternative block edge mask for restricted TDD blocks would require certain licensees to share information about the locations of their base stations. Do you agree with this proposed approach?

Yes

Low-power shared access in paired 2.6 GHz spectrum

Question 5: We welcome comments on stakeholders' preference for the dedicated or hybrid options for low-power shared access as discussed above.

Hybrid

Question 6: We welcome comments on the appropriate frequency placement for low-power spectrum blocks.

No comment

Question 7: Do you agree with our proposed technical licence conditions for low-power access?

Yes

Question 8: We welcome comments from stakeholders on the additional restrictions and technical measures we have outlined for the management of interference under the hybrid approach, and the technical licence conditions that would be necessary to implement them.

Question 9: Do you agree that a Code of Practice on Engineering Coordination, as outlined, is the appropriate approach to manage the coexistence between low-power licensees?

Yes

Terminal stations

Question 10: Do you agree that we should proceed with the approach that terminal stations complying with the relevant technical parameters be exempted from the requirement for individual licensing?

No

- The so called fixed mobile terminal units should be individually licenced due to their higher interference potential

- Other terminal stations should only be licence exempt if below 20dbm which has been shown to reduce interference to domestic equipment
- A QA requirement should be placed on manufacturer's and or network operators to ensure that these devices are performing to the correct parameters