

Comments of Thales Research and Technology (UK) Ltd. on the Notice of Ofcom's proposal to make (Ultra-Wideband Equipment)(Exemption) Regulations.

1. The impact assessment (annex 4) does not contain most of the elements defined in the guidelines document. Indeed, apart from a list of some advantages of UWB, it only deals with the impact on Ofcom and the UK government: i.e. will they risk a conflict with the European Commission. The reason for this is, however, apparent from the background material in section 2 of the Notice. Ofcom have conducted or commissioned several studies on the impact of UWB and the regulatory approach to be adopted, and have consulted on these in the past. Further studies have been conducted in CEPT, and discussed in the RSCOM (for the commission), and Ofcom have been active in these forums. Thus the impact assessment should refer to this process as the reason for not considering these matters again now.
2. The two options considered in the impact assessment obviously do not exhaust all the possibilities. Regulations might also be made that do not comply with the EC decision, though if this non-compliance is serious the result will be much the same as the "do nothing" case. However, when the preferred option is spelled out at paragraph A4.11, it says: "enact the decision as *closely as possible*" (italics added).

One reason for not enacting the decision exactly is that the decision contains defects. By "defects" is meant:

- Wording that is ambiguous or unclear
- Wording that is self-contradictory
- Wording that does not reflect the commission's intention, which is known from other sources.

The proposed regulation has copied several such defects from the decision. The important ones are listed in the next item.

3. The wording of the proposed regulation appears to be ambiguous or contradictory in the following places:
 - "Peak EIRP density".

In all places where "peak EIRP density" is mentioned, the word "density" should be removed. What is to be measured is power (as EIRP), not power density. The ECC has corrected this (see the minutes of ECC meeting 16: ECC(07)050 rev 2, section 5.1), but the correction was too late to be reflected in the EC decision.
 - "dBm/50 MHz"

The definition of (what will now be) "peak EIRP" specifies a 50 MHz bandwidth, and yet in each occurrence the power is indicated with the notation "-50 dBm/50 MHz". This is a duplication of information, and this notation is one of the reasons why the word "density" was mistakenly inserted in the first place. This notation is to be read as "minus fifty decibels in a 50 MHz bandwidth", not "...per 50 MHz"; "dBm/50 MHz" is not a unit of power density. It would be better to use the words "in a 50 MHz bandwidth" instead of "/50 MHz" to make this entirely clear.

While the value of 50 MHz is not part of a general definition of peak power, it should be kept; it is important that the limit in this regulation is intended to apply to a bandwidth of 50 MHz as the widest a victim receiver is likely to have, not as a proxy for the full bandwidth of the transmission.
 - "Equivalent transmission level"

The phrase "or the equivalent transmission level" is always added as an alternative wherever a limit is set for the peak EIRP. The intention is that a measurement may be made in another bandwidth against a modified limit. However, the wording of this definition does not make it clear if the scaling is to be applied to the measured level or to the limit against which the measured level is compared. Taking the unintended meaning reverses the scaling, which would raise the limit by, for example, 34 dB for 1 MHz bandwidth. Also, if a measurement bandwidth above 50 MHz is used, the scaling is again reversed, though in this case this reduces the limit. In fact, the originators of this measurement scaling (the FCC and the NTIA) never intended it to be used outside the range 1 MHz to 50 MHz, and this ought to be included in the definition.
 - Low duty cycle

The wording of the duty cycle limits only makes sense if the phrase "the sum of all transmitted signals" can represent a quantity of time – which it cannot.

The maximum “on” time of 5 ms has no effect, since several (up to 10) 5 ms transmissions could be produced with only short gaps between them. The ECC decision had a further constraint that the mean “off” time over 1 second should be at least 38 ms (this was omitted from the EC decision). This has no effect either: the effective limit is of no more than 50 ms “on” in any second.

The duty restriction can usefully be reworded in terms of the “off” times: e.g. “for at least 95% of every second there shall be no transmission”. This avoids the need to define “a transmission”.

If Ofcom would like any further information or supporting material, TRT (UK) will be happy to supply it on request.