

General:

The consultation document confuses isotropic power and EIRP in many places, so that the proposals being made or the choices presented are unclear.

The consultation questions do not naturally follow from the licensing options and various power levels discussed. As a result, this response will contain additional remarks, beyond those requested by the questions. The consultation document does not make it clear how these additional comments will be handled within Ofcom.

The consultees (Section 2) do not include the large number of individuals who operate WLANs for domestic use. These users of the 2.4GHz band are likely to be adversely affected by high-power operators in the band.

If only service operators were consulted, it is not surprising that higher powers are being requested. However, Ofcom must explain why other bands which were recently auctioned for wireless broadband use are insufficient for use by WBA operators and why further use of 2.4GHz for this usage is being proposed.

The health issues of higher-powered microwave devices which can potentially operate in close proximity to the general public, are not considered.

Q1: Have all the possible victims of interference been correctly identified and quantified as far as possible?

No.

Paras 2.8 and 2.9 correctly identify some of the issues to be addressed. However, Para 2.10 could be entirely misleading. A node using 100mW and a node operating at 10W are not "similar systems" as the interference caused is not reciprocal.

Para 3.14 assumes polite protocols. This is an unsafe assumption because of the power difference between the proposed WBA systems and WLANs.

The first sentence in 3.16 is nonsense - even it refers to the receiver in a long-range WBA link in the presence of a local WLAN. (E.g. the first Fresnel zone of a 3km LOS link at 2.4GHz extends to around 10m at mid-range. Any interference between a WLAN and WBA within this zone at mid-range will be slight owing to the (103dB) loss at 1.5km range).

SRDs (3.18 to 3.23) currently coexist with WLANs since they use a similar power. The basis for the statement in 3.23 is not justified in the consultation document (see comment on 3.16 above).

RFID (3.24) The cost to the economy of interference to RFID tags could be quite severe and the associated costs are not included in this consultation.

If high-power devices are allowed, then it is likely that they will be used in unintended locations - the most severe impact will be on aeronautic systems should they be taken onto passenger planes.

Q2: Have the costs and benefits been correctly captured? In particular, are the costs of interference to WLANs appropriately assessed?

The cost to business of high-power interference to their WLANs is likely to be higher than the RIA suggests. The RIA does not say whether these costs are for new (replacement) equipment alone, or whether the costs of investigating interference and loss of business are included.

Section 4: The benefit arising (e.g. Fig 4.1) of using higher power is grossly overstated. From Fig 4.1, the main benefits are seen at the level of a Rural Town or above. However, since urban areas are presently well-connected for Broadband, and the consultation suggests that these areas are not within its scope, these figures should not be included in the benefits.

Q3: Are there any other mechanisms that could be used to restrict device operation to appropriate areas? Of the schemes set out which should be preferred?

If directional antennas are allowed at 2.4 GHz to extend the range (retaining a power limit of 100mW at the transmitter), then mutual interference between WBAs and WLANs is likely to be equitable so that a WBA operator will take mitigating action to the benefit of both systems.

WBA links using directional antennas should be subject to a registration scheme which is a publicly-accessible register of the WBA antenna location. Such WBA links should be only permitted at fixed locations (i.e. not in vehicles or aircraft).

It is unlikely that location-aware devices will be commercially viable or fully implemented.

It is unwise to promote commercial services in an ISM band such as 2.4GHz. A better option for WBA would be to use the 5.2GHz band for high-power links (or obtain a licence to use the 3.4GHz FWA allocation).

In summary, at 2.4 GHz - operating from fixed locations and achieving higher EIRP through the use of directional antennas is the only possible option. At 5.2 GHz, there may be a case for using higher powers.

Q4: Should we move from specifying radiated power to specifying conducted power?

Only if it is for the purpose summarised above - and no increase to the current conducted power limits at 2.4 GHz are proposed (i.e. converting the IR2005 EIRP limit into a conducted power).

The discussion in paras 5.12 to 5.23 ostensibly deals with radiated vs. conducted power and this is misleading. This section is really arguing for allowing directional antennas to be used - and it is possible to make this argument as I indicate above. The arguments in paras 5.19 to 5.21 are technically clumsy and confuse the picture.

I broadly agree with 5.22. Para 5.23 is extremely vague and appears to be an argument in support of a favoured option - this is unsatisfactory.

Q5: For 2.4GHz which of these options do you favour? Are there other viable options that should be considered? Or should regulations be left unchanged?

As I state in the introduction, the lack of clarity in quoting power limits (e.g. para 6.4) is a major obstacle to selecting the 'favoured option'. This consultation falls short of the Cabinet Office guidelines.

The discussion jumps from higher EIRP using directional antennas to options which assume a higher EIRP using omni-directional antennas and none of the options is directly justified in previous sections. The issue of directional antennas does not appear in any of the options in section 6 as is clear from the 'equivalent' conducted power quoted.

None of the options presented is acceptable.

I favour, for all areas except large and major urban conurbations, a 10W EIRP (or 100mW conducted) limit. Devices with EIRP exceeding 100mW need not be location-aware but must only be operated at a fixed location and at

Main Heading

a minimum height to avoid accidental exposure to humans. A mandatory registration scheme should operate for devices with EIRP above 100mW.

Q6: For 5GHz should Ofcom increase the power to 4W EIRP at 5.8GHz in accordance with ECC Recommendation and as set out in the draft IR2007? Should Ofcom open the database for public access to facilitate coordination?

I am content with this proposal, with similar precautions taken to those mentioned above concerning the safe location of these devices.

A public database is preferred.