

## Consultation response form

### Your response

<p><b>Question 1: Do you agree with our assessment of current road tolling use in the 5.8 GHz band in the UK? Is there other current and future planned use that we are not aware of?</b></p>	<p>Confidential? – No</p> <p>An important new area of use which we are aware of but which is not mentioned in the consultation documents is the management and enforcement of Clean Air Zones. Another is as one option for the technological solutions at the moment only roughly sketched out for post Brexit customs arrangements, particularly given the significant UK/EU HGV use of RTTT equipment for continental journeys.</p> <p>There is also an increasingly widely held belief that with falling revenues from fuel duty and VED, a future UK Government will introduce road user charging on a very wide scale, not just for tolled crossings and the M6. Removing options for implementing such a policy in a cost effective and user friendly way at this stage is taking too short a view.</p> <p>CEPT guidance includes provision in this band not just for RUC but also for safety related communication in the emerging area of Connected Vehicles. There is a general expert consensus that communications for automated and connected vehicles will be hybrid and DSRC has the potential to play an important part in a successful UK approach to this emerging area.</p> <p>The European Commission has decided to implement Smart Tachograph and Weight &amp; Dimension that will use the same physical layer and frequency spectra as road tolling systems.</p>
<p><b>Question 2: Do you agree with our analysis of the options for managing sharing between BFWA and RTTT? Are there additional options which we have not considered which in your opinion would result in a better balance of benefits and risks?</b></p>	<p>Confidential? – No</p> <p>Annex 4 of the quoted ECC Recommendation (06)04 is particularly relevant, and you include the reference "In particular, it was shown that co-channel interference range from BFWA into RTTT could be in the order of 200-2000 m depending on the scenario, whereas the range of interference from RTTT into BFWA could be</p>

in the order of 2000 m – 20 km". It is not clear how these results were derived. Most likely it is because RTTT beacons typically use a higher transmit power than BWFA ones, but it would be good to have that confirmed. However, it probably neglects two very important points:

(a) RTTT beacons use a shaped beam aimed at the ground in front of a gantry, which would minimise interference in other directions; BWFA ones presumably use omnidirectional antennae because they want to cover as much area (and users) as possible.

(b) The RTTT transaction with a car passing under the gantry takes around 30 milliseconds which includes interchange of several messages; so any interference at that time would be disastrous, with no opportunity for a second attempt, since the vehicle would by then be out of range, or at least out of the beam pattern. In contrast, for most if not all BWFA transactions, the transaction time would not be critical and there would be time for repeat transmissions and error corrections over a period of many seconds if not minutes.

We therefore cannot agree with the assertion in paragraph 3.22 that localised RTTT transmissions will have a greater propensity to affect wider broadcasts arising from BFWA, rather than vice versa unless the interference relates to the localised area around the RTTT transmission (ie interference very near the toll plaza).

If DSRC performance is brought into doubt, then the financial viability of a dependent tolling system will be seriously compromised.

Tolling via DSRC is critically affected by interference, and it is surprising that your paper sees RTTS systems to be the biggest cause, rather than vice versa. DSRC emissions are low power, limited to a footprint of 12-15 m, i.e. one vehicle length. We cannot understand how longer range effects of the type described in this paper are possible.

Another option should also be considered: if there will be interference on one road toll

	<p>station and if it can be shown by power spectrum measurements that the fault is because of one BFWA, to limit the frequency spectra use of that specific BFWA to not use the road toll band 5795 to 5815 MHz.</p>
<p><b>Question 3: Do you agree with our proposal to remove the notch and allow BFWA use in the whole of the 5.8GHz band?</b></p>	<p>Confidential? – No</p> <p>The lack of contemporary technical research around dual use reflects that assigning a notch to road tolling is the long standing and well considered solution to potential interference. It is surely not unreasonable to require that those recommending change do more to prove their position rather than require it from those wishing to keep current regulation.</p> <p>This approach is particularly relevant when considering 3.7 of the consultation document: the statement that “it is not <i>aware</i> of additional uses” is insufficient.</p> <p>3.7 says "It was recently announced by Government that the Severn Crossings tolls would be removed in 2018. We are also not aware of any immediate plans for additional road tolling uses in the 5.8 GHz band. In addition there are other options for managing road tolling schemes other than 5.8 GHz. For example, we understand that the planned Mersey Gateway scheme will make use of a combination of ANPR (automatic number plate recognition) and RFID (radio-frequency identification) technology".</p> <p>But in addition to the likely long term policy change re road user charging we mention above, there are in fact immediate plans for additional road tolling, for example in London (see the Mayor's Draft Transport Strategy), including specifically the Silvertown Tunnel, the Mayor's plans for extension of the LEZ/ULEZ, the T-charge, and encouragement of the London Boroughs to investigate demand management and congestion charging.</p> <p>It is likely that the Silvertown tunnel would use the 5.8 GHz band as well as ANPR, and this cannot be ruled out in advance for the other areas and topics.</p>

	<p>It is true that the Mersey Gateway scheme will use ANPR and RFID rather than the 5.8GHz DSRC technology. But multi-protocol tags and readers are becoming commonplace and it is surely desirable that Mersey Gateway should be able to read 5.8GHz tags as well in order to avoid drivers, especially of commercial vehicles, having to use multiple devices. The results of recent EC consultations indicate that a wider range of technologies will be harnessed in tandem with 5.8 GHz DSRC and GNSS, in order to address the challenges of climate change and toxic emissions. UK ITS industry practice will need to harmonise with EC standards if UK business is to be competitive.</p> <p>How exactly will RTTT operators identify potential interference from BFWA transmissions? This will at the very least require additional technical support and cost, and is not actually likely to be practically possible in a toll plaza or freeflow environment. The consultation seems to imply reactive solutions, in other words changing channels after interference has been identified, without offering any evidence that this is technically possible. In effect, creating a decrease in reliable operation of the RTTT system and more barrier incidents including collision.</p>
<p><b>Question 4: Are there any other considerations that you believe need to be taken into account and that are not already covered in this consultation?</b></p>	<p>Confidential? – No</p> <p>The argument for removing the notch based on the remoteness of tolling operations from centres of population conflicts with the argument that the benefits will accrue to the 2.4 million rural households and small businesses, also not located in centres of population, who lack BFWA. Also, as pointed out in our response to Question 3, we are likely to see greater use of this 5.8GHz RTTT band in London in the near future.</p>