

Wi-Fi Alliance response to the Ofcom consultation document on:
Public Sector Spectrum Release: Award of the 2.3 and 3.4 GHz spectrum bands

Summary

Wi-Fi Alliance welcomes this opportunity to respond again to the consultation on the Public Sector Spectrum Release. Our comments focus on the section relating to Coexistence between 2.3 GHz LTE and Wi-Fi.

Wi-Fi Alliance would like to address some of the statements in this and previous PSSR consultations that we have concerns with, and would like to offer some suggestions for better compliance with the Task 1.1 of the EC mandate in FM52(14)17 which states that “conditions should be sufficient to ensure coexistence between WBB services within the same band and with services in adjacent bands including use by Radio Local Area Networks (RLAN).”

LTE in 2.3 GHz represents a threat to RLANs in 2.4 GHz

In September of 2014, Wi-Fi Alliance submitted a report on the results of its testing of Wi-Fi in 2.4 GHz with an LTE-like signal in the 2.3 GHz band, in accordance with the proposed frequency planning. This report clearly showed “...that some devices are very susceptible to desensitization by the LTE signal and will incur a significant impact to their performance.” In October, Rich Kennedy of Mediatek met with Ofcom and discussed the issue. Although the Ofcom data supported the Wi-Fi Alliance findings, the causation was placed fully on the Wi-Fi receivers “listening out of band”.

Whether this was 100% accurate or not, there was no disagreement that LTE in 2.3 GHz clearly causes blocking of Wi-Fi receivers. Wi-Fi Alliance data indicated that this interference could potentially extend as far as Wi-Fi channel 6, potentially blocking 2/3 of the available channels.

In its published review of this data, Ofcom indicated that it believed that Wi-Fi traffic was migrating to the 5 GHz band, so this interference should not be a major problem. It also indicated that in the future RLAN devices would require improved receive filtering to prevent this issue. In addition, Ofcom offered mitigation techniques including moving Access Points (APs) away from windows, and in severe cases, switching to wired Ethernet.

EC Mandate to CEPT FM(14)17

Wi-Fi Alliance believes that the EC Mandate FM52(14)17 requires Ofcom to take special precautions to prevent interference into Wi-Fi devices, including the existing and deployed devices without improved receiver filtering. Yet Ofcom clearly states that “there is no justification for further intervention in the market to protect Wi-Fi in the 2.4 GHz band from interference issues caused by coexistence with 2.3 GHz LTE.”

As mentioned, Ofcom testing has proven that LTE in 2.3 GHz can block Wi-Fi channel 1, and devices designed, marketed and deployed at a time when there were no high power adjacent band operations cannot be expected to meet these new requirements. We believe

Ofcom underestimates the lifecycle of devices operating in the band, and overstates the Wi-Fi move to the 5 GHz band.

Ofcom claims that the location of high power transmitters relative to the Wi-Fi victim devices will minimize actual interference, and that users understand that the 2.4 GHz band is unreliable; both these statements must be rejected. Moving Wi-Fi away from windows and switching to wired Ethernet are not useful suggestions for interference mitigation.

We believe Ofcom should review all test data, including ours, which represents the state of Wi-Fi devices currently deployed, and the harm that high power LTE in 2.3 GHz will cause. At the very least, spectrum awards at the high end of this band must severely limit transmit power to protect these devices and networks that have become so vital to everyday access to the Internet.

Conclusions

Wi-Fi Alliance is concerned that Ofcom has reached conclusions that are based on a desire to award the 2.3 GHz spectrum and move on, rather than on test data. Millions, and potentially tens of millions of UK citizens could be affected by this action. This includes not only Wi-Fi access to the Internet, home entertainment and gaming, but also medical devices that use Wi-Fi in potential safety-of-life situations. We recognize that some receivers may not be capable of avoiding this interference, but with no Ofcom specification for receiver characteristics in the first twenty years of the existence of Wi-Fi, and the low-cost nature of the technology, this should not be surprising, but it also cannot be denied.

Wi-Fi Alliance believes that Ofcom should reconsider this decision, review all the data, and decide in favour of the people who depend on Wi-Fi, every day of their lives.

Respectfully submitted

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