

IEEE 802.11 Working Group response to ETSI ERM LS regarding IEEE 802.11 section in TR 103 665 – 2.4 GHz SRDoc

TO:

- Edgard Vangeel, ETSI ERM TG11 Chair, evangeel@cisco.com

CC:

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SUBJECT: IEEE 802.11 section in TR 103 665 – 2.4 GHz SRDoc

DATE: 2020-07-30

Dear Edgard,

The IEEE 802.11 Working Group (WG) thanks ETSI ERM TG11 for their Liaison Statement (ERMTG11(20)000018r2) that highlights the ongoing work in ERM TG11 relating to the *System Reference Document on 2.4 GHz Wideband Data Transmission Systems* (TR 103 665).

As requested by ETSI ERM TG11, the WG initiated a review of the proposal in ERMTG11(20)000016 from Qorvo for a new clause 8.1.4 on “*Current challenges*” in the TR 103 665 draft, as well as the text in clause 8.1 in the TR 103 665 draft:

- The WG notes that the challenges asserted in ERMTG11(20)000016 justifying a new clause 8.1.4 in the TR 103 665 draft are not recognised by the WG as important challenges that need to be addressed at this time. The WG recommends that the proposal for a new clause 8.1.4 in ERMTG11(20)000016 be rejected on the basis that the associated proposed regulatory change for a per transmitter power limit for all technologies could unnecessarily risk the ongoing success of the 2.4 GHz band in Europe.
- A number of WG participants have reviewed clause 8.1 in the TR 103 665 draft. A few comments and suggestions from these WG participants are recorded in an appendix to this Liaison Statement. In addition, we have highlighted to WG participants the possibility of providing additional input to ETSI ERM TG11 on clause 8.1 to ensure it provides an appropriately detailed description of IEEE 802.11 operation in the 2.4 GHz band.

The WG also notes, in reviewing the TR 103 665 draft, that some stakeholders seem to believe the existing Power Density limit of 10 dBm/MHz is too restrictive, particularly for systems with narrower bandwidths. The WG is concerned that the acceptance of any proposal to remove or relax existing Power Density requirements for non-hoppers could have a serious adverse effect on Wi-Fi operations in the 2.4 GHz band in Europe. A wide-band Wi-Fi device would be subject to interference from the full power of a narrower band device, whereas the narrower band device would only be subject to interference from a portion of the power of a wide-band Wi-Fi device.

The existing 2.4 GHz band regulations were designed to enable the operation of wide-band systems using polite access mechanisms. The regulations have been in place for more than 20 years and have enabled the development of multiple multi-billion-dollar global industries with significant socio-economic impacts across Europe. The WG is not aware of any justification to put this success at risk by accepting any new, significant regulatory changes, including to the Power Density limits. The WG suggests any new clause 8.1.4 discussing “*Current challenges*” for IEEE 802.11 should rather describe the potential risk from any removal of the current Power Density requirement for non-hoppers.

Yours sincerely,

/s/

Dorothy Stanley
Chair, IEEE 802.11 Working Group
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Appendix (comments and suggestions for TR 103 665 from some participants in the IEEE 802.11 WG)

- 8.1.1: Change to “*This includes desktop PCs, laptops, IoT devices, printers and other ancillary devices, ...*”
- 8.1.1: Change to “*One of the latest additions to the IEEE 802.11 [i.14] standard is the IEEE 802.11ax amendment ...*”
- 8.1.1: Change to “*In fact, the IEEE 802.11 committee has started to look into the next evolution of “Wi-Fi” known as the Extremely High Throughput IEEE 802.11be amendment.*”
- 8.1.1: This clause refers to operation of 802.11ax (Wi-Fi 6) equipment in the 2.4 GHz band. While 802.11ax operation is defined in this band, it is not clear how often Wi-Fi 6 features will be used in actual deployments in the 2.4 GHz band.
- 8.1.2.1.2: Delete “*This regulatory limit is more restrictive in Europe compared to the US*” because it does not appear to be relevant or its relevance is not obvious.
- 8.1.2.1.2: The text states, “*IEEE 802.11 equipment operating in 20 MHz mode has a measured Power Spectral Density which is about 10 dB to 12 dB below the measured RF Output Power when operating in that same mode ...*”. This text seems to compare *Power Spectral Density* and *RF Output Power*. Unfortunately, they cannot be compared because they have different dimensions. Maybe what is meant is something like, “*the maximum power in any one MHz (which is the PD) is about 10 dB to 12 dB below the total RF Output power ...*”?
- 8.1.2.1.4.3: First Paragraph: Add text that lists the different CCA modes in IEEE 802.11 when operating in the 2.4 GHz band and explain which modes comply with EN 300 328
- 8.1.2.1.4.3: Second Paragraph: Change to “*The theoretical lowest data rate is 1 Mb/s (DSSS mode) will result in a maximum transmission time of about 18.6 ms. However, this mode is hardly used. The lowest OFDM rate (6 Mb/s) will result in the maximum transmission time being reduced to about 3.1 ms*” (assuming a maximum MPDU length of 2304 bytes)