



Federal Communication Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

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Attention: Reviewing Engineer

RE: RF exposure information for the equipment WE865-DUAL (FCC ID: [R17WE865D](#))

RF exposure information

The device [WE865-DUAL](#) (FCC ID: [R17WE865D](#)) is designed as module in order to be installed in other devices.

Manufacturers of mobile, fixed or portable devices incorporating this module are advised to clarify any regulatory questions and to have their complete product tested and approved for FCC compliance.

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all the persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

The table below is extracted from Table 1B of 47 CFR 1.1310 titled Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure:

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
1500–100,000	1.0	30

The equipment WE865-DUAL transmits in the following frequency ranges so that the applicable limits are:

Frequency range	Limit
2412 - 2462 MHz	1 mW/cm ²

The equipment is a *Wi-Fi 802.11 b/g Module*, and the maximum duty cycle is 1.
Under conditions stated above, MPE limits can be guaranteed as the calculation shows below:

2450 MHz frequency band

Maximum conducted output power: 157.76 mW (21.98 dBm)

Duty cycle: 1

Equivalent conducted output power = Maximum conducted output power x Duty cycle =
= 157.76 mW x 1 = 157.76 mW

Maximum antenna gain (as stated in the test report) = 3 dBi (numerical gain)

Using the equation:

$$S = P \cdot G / 4 \cdot \pi \cdot R^2$$

Where,

S = power density in mW/cm²

P = power input to the antenna in mW

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna in cm (20 cm Prediction distance)

$$S = 157.76 \text{ mW} \cdot 2 / 4 \cdot \pi \cdot (20 \text{ cm})^2 = 0.063 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2 \text{ (limit)}$$

These predictions demonstrate that:

The power density levels at a distance of 20 cm with typical antennas of a gain of less than 3dBi are below the maximum levels allowed by the FCC rules.

Conclusion:

The equipment complies with the MPE limits if used with antennas with a gain of less than 3dBi and this antenna is installed to provide a separation distance of at least 20 cm from all the people.

Warning:

To ensure the compliance with the MPE limits the antenna gain has been limited and a warning statement has been included in some pages of documents 'HW User's Guide' and 'Product Description':

- a. HW user guide pag 26 instruct customer to chose antenna with gain<=2 dBi
- b. HW user guide pag 28 gives installation guideline and ask to provide separation between antenna and persons to meet RF exposure
- c. HW user guide pag 46 give conformity assessment indications for FCC related also to RF exposure
- d. Prod Desc Pag 11 instruct customer to chose antenna with gain<=2 dBi and refer to HW user guide for installation instructions
- e. Prod Desc Pag 18 give conformity assessment indications for FCC related also to RF exposure

Signed on behalf of Telit Communications S.p.A. by



P.A.
Andrea Fragiaco
EMC Lab Responsible
Telit Communications S.p.A.
Via Stazione di Prosecco 5/B, I-34010 Trieste, Italy