



Maximum Permissible Exposure(MPE) Estimation for 316942

1. Introduction

316942 is a MP10 module, which contain Wi-Fi function inside (802.11b/g). Also the MP10 module will be installed in the treadmill for expanded internet function.

2. Limit and Guidelines on Exposure to Electromagnetic Fields

The minimum safe distance per FCC part 2.1091 was calculated the power density of 1 mW/cm limit for maximum permissible exposure in an uncontrolled environment per FCC part 1, section 1.1307(b). So the minimum safe distance is the larger of this calculated distance or 20cm. As this MP6 module, it is being insured by specify the minimum safe distance the antenna must be kept the user is 20cm in User manual. So this MP10 module is compliance with the FCC part 2.1091.

3. Calculation method

For the final determination of compliance boundary the model for far-field calculation is used since this overestimates the field strength in the near-field region. Thus the calculated compliance boundary should be rather more conservative and on the safe side.

For EUT the following compliance boundary is calculated:

$$Pd=(Pout*G)/(4*pi*r^2)$$

Where Pd=power density in mW/cm²

Pout=output power to antenna in mW

G=gain of antenna in linear scale

Pi=3.14159

R=distance between observation point and center of the radiator in cm

316942:

Maximum power output:

$$Pout=111.7mW(20.48dBm)$$

Maximum Antenna gain of the certified antenna list:

$$G=1dBi=1.259$$

Maximum EIRP from transmit antenna:

$$EIRP=20.48+1.0 =21.48dBm(140.6mW)$$

To be determine the overall exposure at 20cm from the EUT(R=20cm)

$$Pd=0.0280 mW/cm^2$$

The power density at 20cm from the antenna of the EUT is 0.0280mW/cm² which is less than the permitted maximum power density.

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