Maximum Permissible Exposure (MPE) Estimation for PC-91301

1.   Introduction

PC-91301 is a notebook computer, which contain a approval WIFI module (FCC ID: VQF-RT3090-1T1R). The notebook computer can connect to the network through this wireless 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 notebook computer, it is being insured by specify the minimum safe distance the antenna must be kept the user is 20cm in User manual. So this notebook computer 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/cm^2

$Pout$=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

PC-91301:

Maximum power output:

$Pout$=82.79mW (19.18dBm)

Maximum Antenna gain of the certified antenna list:

G=0.975dBi=1.25

Maximum EIRP from transmit antenna:

EIRP=19.18+0.975 =20.16dBm(103.75mW)

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

Pd=0.0206 mW/cm^2

The power density at 20cm from the antenna of the EUT is 0.0206mW/cm^2, which is less than the permitted maximum power density.

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