RF exposure Estimation

1. Introduction

The EUT is a Wi-Fi Module, which support 2.4GHz Wi-Fi function.
Applicant: Hisense (Guangdong) Air Conditioning Co., Ltd
Product Name: WiFi Module
Model: AEH-W4B1
FCC ID: 2AGCCAEH-W4B1

2. MaximuM Permissible exposure (MPE)

According to subpart 15.247 (i) and subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mw/cm2)	Averaging Time (Minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

3. Calculation method

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where:

S = power density (in appropriate units, e.g. mW/cm2)
P = power input to the antenna (in appropriate units, e.g., mW).
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Maximum peak output power at antenna input terminal: 22.33 (dBm)
Maximum peak output power at antenna input terminal: 171 (mW)
Prediction distance: ≥20 (cm)
Predication frequency: 2462 (MHz)
Antenna Gain (typical): 2.0 (dBi)

Maximum Antenna Gain: 1.585 (numeric)
The worst case is power density at predication frequency at 20 cm: 0.0086(mW/cm^2)
MPE limit for general population exposure at prediction frequency: 1.0 (mW/cm^2)

0.054 (mW/cm^2) < 1 (mW/cm^2)

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch -

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