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MPE REPORT

Product Name	WIFI/BT Combo wireless module
Manufacture	Hon Hai Precision Ind. Co.,Ltd.
Model	M26H002
FCC ID	MCLM26H002
Test date	2013-2-20

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Maximum Permissible Exposure

Type of EUT: WIFI/BT Combo wireless module

FCC ID: MCLM26H002

Manufacturer: Hon Hai Precision Ind. Co.,Ltd.

Model: M26H002

Maximum conducted output power (measured) and antenna Gain:

Band	Maximum Average Conducted Output Power (dBm)	Antenna Gain (dBi)
BT	3	4
802.11b	18.64	4.46
802.11g	15.19	4.46
802.11n(20M)	15.09	4.46
802.11n(40M)	15.12	4.46

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE)

are as following

TABLE 1 – LIMITS FOR MAXIMUN PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Averaging Time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500	....	....	f/300	6
1500-100,000	....	....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
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

Note1. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

Note2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

The maximum permissible exposure for 300~1500MHz is f/1500, 1500~100,000MHz is f/1500.So

Band	The maximum permissible exposure
BT	**1 mW/cm²**
802.11b/g/n	**1 mW/cm²**

IMPORTANT NOTE: To comply with the FCC RF exposure compliance requirements, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. No change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided.

This calculation is based on the conducted power, considering maximum power and antenna gain. The

formula shown in OET Bulletin 65 is used in the calculation.

Equation from OET Bulletin 65, Edition 97-01 is:

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

where: S = power density (in appropriate units, e.g. mW/cm^2)

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

R = distance to the center of radiation of the antenna (appropriate

units, e.g., cm)

BT:	PG = 3dBm+ (4dBi) =7dBm=5mW
802.11b	PG = 18.64dBm+ (4.46dBi) =23.1dBm=204.17mW
802.11g	PG = 15.19dBm+ (4.46dBi) =19.65dBm= 92.26mW
802.11n(20M)	PG = 15.09dBm+(4.46dBi)=19.55dBm= 90.16mW
802.11n(40M)	PG = 15.12dBm+(4.46dBi)=19.58dBm= 90.78mW

R =20 cm

$\prod$= 3.1416

Solving for S, the power density at 20 cm is

Band	Test Result (mW/cm^2)	Limit Value (mW/cm^2)
BT	0.001	1 mW/cm²
802.11b	0.041	1 mW/cm²
802.11g	0.018	1 mW/cm²
802.11n(20M)	0.018	1 mW/cm²
802.11n(40M)	0.018	1 mW/cm²

The MPE ratio of BT $= 0.001 \div 1 = 0.001$;

The MPE ratio of 802.11b $= 0.041 \div 1 = 0.041$;

The MPE ratio of 802.11g $= 0.018 \div 1 = 0.018$;

The MPE ratio of 802.11n (20M) $= 0.018 \div 1 = 0.018$;

The MPE ratio of 802.11n (40M) $= 0.018 \div 1 = 0.018$;

So the simultaneous transmitting antenna pairs as below:

$\sum$ of MPE ratios=0.001+0.041=0.042<1

Note: For mobile or fixed location transmitters, minimum separation distance is 20cm, even if calculations

indicate MPE distance is less.

This means that according to OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01), the

equipment fulfills the requirements on power density for general population/uncontrolled exposure

and therefore fulfills the requirements of 47 CFR Part 15.247 (b) (5)