

# RF EXPOSURE REPORT

**REPORT NO.:** SA140606E01

**MODEL NO.:** T77H526

**FCC ID:** MCLT77H526

**RECEIVED:** June 06, 2014

**TESTED:** July 01 to 02, 2014

**ISSUED:** July 09, 2014

**APPLICANT:** Hon Hai PRECISION IND.CO.,LTD

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA140606E01	Original release	July 09, 2014

## 1. CERTIFICATION

**PRODUCT:** 802.11ac+802.11abgn + BT4.0+BT3.0+BT2.1/EDR  
Module

**BRAND NAME:** FOXCONN

**MODEL NO.:** T77H526

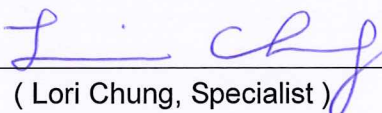
**TEST SAMPLE:** ENGINEERING SAMPLE

**APPLICANT:** Hon Hai PRECISION IND.CO.,LTD

**TESTED DATE:** July 01 to 02, 2014

**STANDARDS:** FCC Part 2 (Section 2.1091)  
FCC OET Bulletin 65, Supplement C (01-01)  
IEEE C95.1

The above equipment (Model: T77H526) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY :**  , **DATE:** July 09, 2014  
( Lori Chung, Specialist )

**APPROVED BY :**  , **DATE:** July 09, 2014  
( May Chen, Manager )

## 2. RF EXPOSURE LIMIT

### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FREQUENCY RANGE (MHz)	ELECTRIC FIELD STRENGTH (V/m)	MAGNETIC FIELD STRENGTH (A/m)	POWER DENSITY (mW/cm <sup>2</sup> )	AVERAGE TIME (minutes)
LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 3. MPE CALCULATION FORMULA

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

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

### 4. CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 5. ANTENNA GAIN

The antennas provided to the EUT, please refer to the following table:

Antenna No.	Transmitter Circuit	Brand	Model	Antenna Gain(dBi) <include cable loss>	Cable Loss (dB)	Frequency range (MHz to MHz)	Antenna Type	Connector Type	Cable Length (mm)
1	Chain (0)	Wistron Neweb Corporation	DC33001KT00 (Main port)	1.54	1.38	2400~2500	PIFA	I-PEX	363
				1.26	1.98	5150~5350			
				0.57	2.04	5470~5725			
				1.23	2.08	5725~5850			
2	Chain (1)	Wistron Neweb Corporation	DC33001KT10 (Aux port)	0.63	2.13	2400~2500	PIFA	I-PEX	593
				0.16	3.11	5150~5350			
				0.35	3.21	5470~5725			
				1.84	3.27	5725~5850			

## 6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

For WLAN: 15.247(2.4GHz)

### 802.11b

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412 - 2462	113.018	4.11	20	0.05793	1.00

NOTE: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.11\text{dBi}$ .

### 802.11g

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412 - 2462	606.691	4.11	20	0.31095	1.00

NOTE: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.11\text{dBi}$ .

### 802.11n (HT20)

FREQUENCY BAND (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412 - 2462	603.594	4.11	20	0.30937	1.00

NOTE: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.11\text{dBi}$ .

### 802.11n (HT40)

FREQUENCY BAND (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2422 - 2452	472.94	4.11	20	0.24240	1.00

NOTE: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.11\text{dBi}$ .

## For WLAN: 15.407(5GHz)

### 802.11a

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240, 5260 - 5320, 5500 - 5700 & 5745 - 5825	56.013	4.55	20	0.03177	1.00

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.55\text{dBi}$ .

### 802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240, 5260 - 5320, 5500 - 5700 & 5745 - 5825	57.161	4.55	20	0.03242	1.00

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.55\text{dBi}$ .

### 802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190 - 5230, 5270 - 5310, 5510 - 5670 & 5755 - 5795	51.021	4.55	20	0.02894	1.00

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.55\text{dBi}$ .

### 802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5210 - 5290, 5530, 5610 & 5775	50.873	3.47	20	0.02250	1.00

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 3.47\text{dBi}$ .



### For Bluetooth:

#### GFSK

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2402-2480	2.460	1.54	20	0.00070	1.00

#### 8DPSK

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2402-2480	5.000	1.54	20	0.00142	1.00

#### BT-LE (GFSK)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2402 - 2480	5.236	1.54	20	0.00149	1.00

### CONCLUSION:

Both of the Bluetooth and WLAN can transmit simultaneously, the formula of calculated the MPE is:

$$CPD_1 / LPD_1 + CPD_2 / LPD_2 + \dots \text{etc.} < 1$$

**CPD** = Calculation power density

**LPD** = Limit of power density

### For WLAN (2.4G) and Bluetooth:

Therefore, the worst-case situation is  $0.31095 / 1 + 0.00149 / 1 = 0.312$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

### For WLAN (5G) and Bluetooth:

Therefore, the worst-case situation is  $0.03242 / 1 + 0.00149 / 1 = 0.034$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

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