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RF EXPOSURE REPORT

REPORT NO.: SA130710E11E

MODEL NO.: T77H462

FCC ID: MCLT77H462

RECEIVED: Apr. 01, 2014

TESTED: Apr. 22, 2014

ISSUED: May 02, 2014

APPLICANT: Hon Hai PRECISION IND.CO.,LTD

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ISSUED BY: Bureau Veritas Consumer Products Services
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA130710E11E	Original release	May 02, 2014



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1. CERTIFICATION

PRODUCT: 802.11abgn+BT4.0 module

BRAND NAME: FOXCONN

MODEL NO.: T77H462

TEST SAMPLE: ENGINEERING SAMPLE

APPLICANT: Hon Hai PRECISION IND.CO.,LTD

TESTED DATE: Apr. 22, 2014

STANDARDS: FCC Part 2 (Section 2.1091)

FCC OET Bulletin 65, Supplement C (01-01)

IEEE C95.1

The above equipment (Model: T77H462) 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 : Midoli Peng , **DATE:** May 02, 2014
(Midoli Peng, Specialist)

APPROVED BY : May Chen , **DATE:** May 02, 2014
(May Chen, Manager)



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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 ²)	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

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

where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

π = 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**.



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5. ANTENNA GAIN

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

Antenna Set 1							
Transmitter Circuit	Brand	Model	Antenna Type	Antenna Gain (dBi)	Frequency range (MHz to MHz)	Connector Type	
Chain (0)	Foxconn	T77H462	PIFA	-0.6	2400~2500	MHF4	
				-2.3	5150~5850		
Chain (1)	Foxconn	T77H462	PIFA	-0.6	2400~2500	MHF4	
				-2.3	5150~5850		
Antenna Set 2							
Transmitter Circuit	Brand	Model	Antenna Type	Antenna Gain (dBi) <Including cable loss>	Frequency range (MHz to MHz)	Cable Length (mm) Connector Type	
Chain (0) & Chain (1)	Wistron Neweb Corporation	DC33001GL00	PIFA	1.32	2400~2500	55	MHF4 (i-pex)
				1.62	5150~5350		
				-1.84	5470~5725		
				-2.12	5725~5850		
Antenna Set 3							
Transmitter Circuit	Brand	Model	Antenna Type	Antenna Gain (dBi) <Including cable loss>	Frequency range (MHz to MHz)	Cable Length (mm) Connector Type	
Chain (0) & Chain (1)	Wistron Neweb Corporation	DC33001GL10	PIFA	0.48	2400~2500	239	MHF4 (i-pex)
				-2.19	5150~5350		
				-2.70	5470~5725		
				-1.77	5725~5850		
Antenna Set 4							
Transmitter Circuit	Antenna P/N	Manufacturer	Antenna Type	Cable Assembly P/N and Information	Frequency range (MHz to MHz)	Antenna Gain (dBi) <Including cable loss>	Antenna Gain (dBi) <Excluding cable loss>
Chain (0)	Main Antenna (P/N: LA22RF754-1H)	LUXSHARE-ICT Co., Ltd.	PIFA	50 ohm coaxial cable Cable length: 750 mm Diameter: Lowloss 1.13mm	2400~2500	0.43	2.68
					5150~5350	-8.70	-5.15
					5470~5725	-8.82	-5.15
					5725~5850	-8.98	-5.25
					2400~2500	0.43	2.68
Chain (1)	Auxiliary Antenna (P/N: LA22RF755-1H)	LUXSHARE-ICT Co., Ltd.	PIFA	50 ohm coaxial cable Cable length: 750 mm Diameter: Lowloss 1.13 mm	5150~5350	-8.70	-5.15
					5470~5725	-8.82	-5.15
					5725~5850	-8.98	-5.25



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Antenna Set 5

Transmitter Circuit	Antenna P/N	Manufacturer	Antenna Type	Cable Assembly P/N and Information	Frequency range (MHz to MHz)	Antenna Gain (dBi) <Including cable loss>	Antenna Gain (dBi) <Excluding cable loss>	Cable loss max. (dB)	VSWR
Chain (0)	Main Antenna (P/N: LA22RF764-1H)	LUXSHARE -ICT Co., Ltd.	PIFA	50 ohm coaxial cable Cable length:220 mm Diameter:1.13mm	2400-2500	2.34	3.0	0.66	2.5 max
					5150-5350	0.67	1.71	1.04	2.5 max
					5470-5725	0.15	1.22	1.07	2.5 max
					5725-5850	-0.54	0.55	1.09	2.5 max
Chain (1)	Auxiliary Antenna (P/N: LA22RF765-1H)	LUXSHARE -ICT Co., Ltd.	PIFA	50 ohm coaxial cable Cable length: 250 mm Diameter:1.13 mm	2400-2500	0.83	1.58	0.75	2.5 max
					5150-5350	2.05	3.23	1.18	2.5 max
					5470-5725	0.61	1.84	1.23	2.5 max
					5725-5850	0.61	1.85	1.24	2.5 max

From the above new antennas, the antenna set 5 was selected as representative antennas for the test and their data were recorded in this report.



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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 ²)	LIMIT (mW/cm ²)
2412 - 2462	170.216	2.34	20	0.05804	1.00

802.11g

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
2412 - 2462	229.615	2.34	20	0.07829	1.00

802.11n(HT20)

FREQUENCY BAND (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
2412 - 2462	319.012	2.34	20	0.10878	1.00

BT-LE(GFSK)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
2402 - 2480	6.237	2.34	20	0.00213	1.00



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For WLAN: 15.247(5GHz)

802.11a

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
5745 - 5825	137.404	0.61	20	0.03146	1.00

802.11n (HT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
5745 - 5825	161.918	0.61	20	0.03707	1.00

802.11n (HT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
5755 - 5795	166.074	0.61	20	0.03802	1.00



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For WLAN: 15.407(5GHz, 5150MHz~5350MHz)

802.11a

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
5180 -5240, 5260 - 5320	97.499	2.05	20	0.03110	1.00

802.11n (HT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
5180 -5240, 5260 - 5320	99.978	2.05	20	0.03189	1.00

802.11n (HT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
5190 -5230, 5270 - 5310	75.100	2.05	20	0.02395	1.00



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**For WLAN: 15.407(5GHz, 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz)
802.11a**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
5500 -5580 & 5660 - 5700	101.859	0.61	20	0.02332	1.00

802.11n (HT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
5500 - 5580 & 5660 - 5700	102.688	0.61	20	0.02351	1.00

802.11n (HT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
5510 - 5550 & 5670	93.119	0.61	20	0.02132	1.00



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**For Bluetooth:
GFSK**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
2402-2480	9.099	2.34	20	0.00310	1.00

8DPSK

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
2402-2480	8.831	2.34	20	0.00301	1.00

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