

# RF EXPOSURE REPORT

**REPORT NO.:** SA140923E06

**MODEL NO.:** J20H085

**FCC ID:** MCLJ20H085

**RECEIVED:** Sep. 23, 2014

**TESTED:** Sep. 30 to Oct. 01, 2014

**ISSUED:** Nov. 11, 2014

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

**ADDRESS:** 5F-1,5 Hsin-An Road Hsinchu,  
Science-Based Industrial Park Taiwan, R.O.C.

**ISSUED BY:** Bureau Veritas Consumer Products Services  
(H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

**LAB ADDRESS :** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,  
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,  
R.O.C.

**TEST LOCATION (1):** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,  
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,  
R.O.C.

**TEST LOCATION (2):** No. 49, Ln. 206, Wende Rd., Shangshan Tsuen,  
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,  
R.O.C.

This report should not be used by the client to claim  
product certification, approval, or endorsement by any  
government agencies.

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specifically mentioned, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

## TABLE OF CONTENTS

RELEASE CONTROL RECORD.....	3
1. CERTIFICATION.....	4
2. RF EXPOSURE LIMIT .....	5
3. MPE CALCULATION FORMULA.....	5
4. CLASSIFICATION.....	5
5. ANTENNA GAIN .....	6
6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER .....	7



## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA140923E06	Original release	Nov. 11, 2014



A D T

## 1. CERTIFICATION

**PRODUCT:** 802.11abgn/BT3.0 Wireless Module  
**BRAND NAME:** FOXCONN  
**MODEL NO.:** J20H085  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**APPLICANT:** Hon Hai PRECISION IND.CO.,LTD  
**TESTED DATE:** Sep. 30 to Oct. 01, 2014  
**STANDARDS:** FCC Part 2 (Section 2.1091)  
KDB 447498 D03  
IEEE C95.1

The above equipment (Model: J20H085) 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 :** L. Chung, **Date:** Nov. 11, 2014  
( Lori Chung, Specialist )

**Approved By :** May Chen, **Date:** Nov. 11, 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:

Set 1								
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length (mm)	Frequency range (MHz to MHz)
Chain (0)	NA	NA	-0.4	NA	PCB	NA	NA	2400~2483.5
			1.12					5150~5850
Chain (1)	NA	NA	0.28	NA	PCB	NA	NA	2400~2483.5
			0.9					5150~5850
Set 2								
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length (mm)	Frequency range (MHz to MHz)
Chain (0)	WIESON	Z-Y121JT008A-013-S	2.26	0.5	Dipole	IPEX	100	2400~2483.5
			3.22	1				5150~5850
Chain (1)	WIESON	Z-Y121JT008A-013-S	2.26	0.5	Dipole	IPEX	100	2400~2483.5
			3.22	1				5150~5850
Set 3								
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length (mm)	Frequency range (MHz to MHz)
Chain (0)	FOXCONN	FX01K03-SN-EF	1.2	0.87	Dipole	IPEX MHF	217	2400~2483.5
			1.2	NA				5150~5850
Chain (1)	FOXCONN	FX01K03-SN-EF	1.2	0.87	Dipole	IPEX MHF	217	2400~2483.5
			1.2	NA				5150~5850
Set 4								
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length (mm)	Frequency range (MHz to MHz)
Chain (0)	WIESON	Y121JT008A-016-S	1.78	1	Dipole	IPEX	200	2400~2483.5
			2.78	1.5				5150~5850
Chain (1)	WIESON	Y121JT008A-016-S	1.78	1	Dipole	IPEX	200	2400~2483.5
			2.78	1.5				5150~5850
For above antenna set, <b>antenna set 1 &amp; 2</b> were selected as representative antenna for the test and its data was recorded in this report.								

## 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	151.356	2.26	20	0.05067	1.00

### 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	317.687	2.26	20	0.10635	1.00

### 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	320.627	2.26	20	0.10733	1.00

## 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	151.705	3.22	20	0.06335	1.00

### 802.11n (HT20)

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	139.637	3.22	20	0.05831	1.00

### 802.11n (HT40)

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	110.408	3.22	20	0.04610	1.00

## 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	4.046	2.26	20	0.00135	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	5.794	2.26	20	0.00194	1.00

## CONCLUSION:

Both of the Bluetooth and WLAN (5GHz) can transmit simultaneously, the formula of calculated the MPE is:

$$CPD_1 / LPD_1 + CPD_2 / LPD_2 + .....etc. < 1$$

CPD = Calculation power density

LPD = Limit of power density

## For WLAN (5G) and Bluetooth:

Therefore, the worst-case situation is  $0.06335 / 1 + 0.00194 / 1 = 0.065$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

--- END ---