RF EXPOSURE EVALUATION REPORT

FCC ID	: MCL951993
Equipment	: LTE Module
Brand Name	: Foxconn
Model Name	: 95.1993T01
Marketing Name	: 95.1993T01
Applicant	: Hon Hai Precision Ind. Co., Ltd. 5F-1, 5 Hsin-An Road, Hsinchu, Science-Based Industrial Park, Taiwan
Manufacturer	: Hon Hai Precision Ind. Co., Ltd. 5F-1, 5 Hsin-An Road, Hsinchu, Science-Based Industrial Park, Taiwan
Standard	: 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated in accordance with 47 CFR Part 2.1091 for the device and pass the limit.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERTIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Jones Tsai

Approved by: Jones Tsai / Manager

SPORTON INTERTIONAL INC. EMC & Wireless Communications Laboratory

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History of this test report

Report No.	Version	Description	Issued Date
FA851104	Rev. 01	Initial issue of report	Jun. 12, 2018

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	LTE Module
Brand Name	Foxconn
Model Name	95.1993T01
Marketing Name	95.1993T01
FCC ID	MCL951993
Wireless Technology and Frequency Range	LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 41L: 2496 MHz ~ 2568 MHz LTE Band 41H: 2618 MHz ~ 2690 MHz
Mode	LTE: QPSK, 16QAM, 64QAM
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Reviewed by: Eric Huang

Report Producer: Wan Liu

2. Maximum RF average output power among production units

Mode		Maximum Average power(dBm)
LTE	Band 25	25.7
	Band 41L	25.7
	Band 41H	25.7

3. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	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

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:
S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

4. Radio Frequency Radiation Exposure Evaluation

4.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum Conducted (W)	Maximum EIRP (dBm)	Maximum EIRP (W)	Maximum EIRP Limit (W)	Maximum Conducted Limit (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)
LTE Band 25	1850.0	7.30	25.70	0.372	33.000	1.995	2.000	NA	1995.262	0.397	1.000
LTE Band 41L	2496.0	11.00	25.70	0.372	36.700	4.677	NA	2.000	4677.351	0.931	1.000
LTE Band 41H	2618.0	11.00	25.70	0.372	36.700	4.677	NA	2.000	4677.351	0.931	1.000

Note: For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.

4.2. Collocated Power Density Calculation

Note:

1. This MPE analysis is applicable to any collocated transmitters with transmit power for WLAN is less than or equal to 26dBm and for Bluetooth is less than or equal to 15dBm.
2. A maximum antenna gain of 5 dBi for WLAN/BT has been assumed for all collocated antennas.

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
LTE Band 25	1850.0	7.30	25.70	33.0	2.00	1995.26	0.397	1.000	0.397
LTE Band 41L	2496.0	9.90	25.70	35.6	3.63	3630.78	0.723	1.000	0.723
LTE Band 41H	2618.0	9.90	25.70	35.6	3.63	3630.78	0.723	1.000	0.723
WLAN2.4GHz Band	2412.0	5.00	26.00	31.0	1.26	1258.93	0.251	1.000	0.251
WLAN5GHz Band	5180.0	5.00	26.00	31.0	1.26	1258.93	0.251	1.000	0.251
Bluetooth	2402.0	5.00	15.00	20.0	0.10	100.00	0.020	1.000	0.020

<Collocated analysis>

WWAN Power Density / Limit	WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ(Power Density / Limit) of WWAN+WLAN+Bluetooth
0.723	0.251	0.020	0.993

Note:

1. Σ(Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN + WLAN + Bluetooth.
2. Considering the WWAN module collocation with the WLAN and Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 3 collocated transmitters is compliant

Conclusion:

Based on 47 CFR §2.1091, the analysis concludes that this product when transmitting in standalone within a host device, is compliant with the FCC RF exposure requirements in mobile exposure condition, provided the conducted power and antenna gain do not exceed the limits for each given frequency band per wireless technology as follow table:

Device	Technology	Band	Frequency (MHz)	Maximum Conducted Power (dBm)	Stanalone Maximum Antenna Gain (dBi)	Collocated Maximum Antenna Gain (dBi)
LTE Module	LTE	LTE B25	1850 ~ 1915	25.7	7.30	7.30
		LTE B41L	2496 ~ 2568	25.7	11.00	9.90
		LTE B41H	2618 ~ 2690	25.7	11.00	9.90