



RF EXPOSURE EVALUATION REPORT

FCC ID : MCL951993

: LTE Module Equipment

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.

Approved by: Jones Tsai / Manager

SPORTON INTERTIONAL INC. EMC & Wireless Communications Laboratory

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History of this test report

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

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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				

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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: <u>Eric Huang</u> Report Producer: <u>Wan Liu</u>

2. Maximum RF average output power among production units

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

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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.

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Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)	
500 St.	(A) Limits for O	ccupational/Controlled Expos	sures	W	
0.3-3.0	614	1.63	*(100)	6	
3.0-30	1842/	f 4.89/1	*(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 Gene	ral Population/Uncontrolled I	Exposure		
0.3-1.34	614	1.63	*(100)	30	
1.34-30	824/	f 2.19/1	*(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

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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 (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

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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			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.
- 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

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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:

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

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