

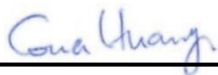
RF EXPOSURE EVALUATION REPORT

FCC ID : 2AQ68T99W651
Equipment : 5G WWAN Module
Brand Name : Foxconn
Model Name : T99W651
Applicant : Hon Lin Technology Co., Ltd
11F, No.32, Jihu Rd., Neihu Dist., Taipei City 114,
Taiwan R.O.C.
Manufacturer : Hon Lin Technology Co., Ltd
11F, No.32, Jihu Rd., Neihu Dist., Taipei City 114,
Taiwan R.O.C.
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part2.1091 and it complies with applicable limit.

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3786) and the FCC designation No. TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.

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



Approved by: Cona Huang / Deputy Manager



SPORTON INTERNATIONAL INC. Wensan Laboratory

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan



Table of Contents

1. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)	4
2. MAXIMUM RF AVERAGE OUTPUT POWER AMONG PRODUCTION UNITS	5
3. RF EXPOSURE LIMIT INTRODUCTION	6
4. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION	7
4.1. Standalone Power Density Calculation	7
4.2. Collocated Power Density Calculation.....	8



History of this test report

Report No.	Version	Description	Issued Date
FA522653	Rev. 01	Initial issue of report	Apr. 11, 2025

**1. Description of Equipment Under Test (EUT)**

Product Feature & Specification	
EUT Type	5G WWAN Module
Brand Name	Foxconn
Model Name	T99W651
FCC ID	2AQ68T99W651
Wireless Technology and Frequency Range	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 29: 717 MHz ~728 MHz (RX only) LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n14 : 788 MHz ~ 798 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n77: 3700 MHz ~ 3980 MHz, 3450MHz ~ 3550MHz
Mode	LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM

Reviewed by: Jason Wang**Report Producer: Paula Chen**

2. Maximum RF average output power among production units

Mode		Maximum Transmit Power Level (dBm)
LTE	LTE Band 2	24.50
	LTE Band 5	24.50
	LTE Band 12	24.50
	LTE Band 14	24.50
	LTE Band 30	24.50
	LTE Band 66	24.50
FR1	5G NR n2	24.50
	5G NR n5	24.50
	5G NR n14	24.50
	5G NR n30	24.50
	5G NR n66	24.50
	5G NR n77 PC3	24.50
	5G NR n77 PC2	27.50
	5G NR n77 PC1.5	29.00

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/f ²)	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/f ²)	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	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum ERP (dBm)	Maximum ERP (W)	Maximum EIRP (dBm)	Maximum EIRP (W)	Maximum ERP/EIRP Limit (W)	Maximum PG (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
LTE Band 2	8.5	24.50	30.850	1.216	33.000	1.995	2.00	1995.262	0.397	1.000
LTE Band 5	6.6	24.50	28.950	0.785	31.100	1.288	7.00	1288.250	0.256	0.549
LTE Band 12	6.1	24.50	28.450	0.700	30.600	1.148	3.00	1148.154	0.229	0.466
LTE Band 14	6.4	24.50	28.750	0.750	30.900	1.230	3.00	1230.269	0.245	0.525
LTE Band 30	8.5	24.50	30.850	1.216	33.000	1.995	2.00	1995.262	0.397	1.000
LTE Band 66	5.5	24.50	27.850	0.610	30.000	1.000	1.00	1000.000	0.199	1.000
NR Band 2	8.5	24.50	30.850	1.216	33.000	1.995	2.00	1995.262	0.397	1.000
NR Band 5	6.6	24.50	28.950	0.785	31.100	1.288	7.00	1288.250	0.256	0.549
NR Band 14	6.4	24.50	28.750	0.750	30.900	1.230	3.00	1230.269	0.245	0.525
NR Band 30	8.5	24.50	30.850	1.216	33.000	1.995	2.00	1995.262	0.397	1.000
NR Band 66	5.5	24.50	27.850	0.610	30.000	1.000	1.00	1000.000	0.199	1.000
NR Band 77_PC3	5.5	24.50	27.850	0.610	30.000	1.000	1.00	1000.000	0.199	1.000
NR Band 77_PC2	2.5	27.50	27.850	0.610	30.000	1.000	1.00	1000.000	0.199	1.000
NR Band 77_PC1.5	1.0	29.00	27.850	0.610	30.000	1.000	1.00	1000.000	0.199	1.000

4.2. Collocated Power Density Calculation

Note:

1. This MPE analysis is applicable to any collocated transmitters, with the maximum EIRP for WLAN assumed to be 30 dBm and the maximum EIRP for BT assumed to be 20 dBm.

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Maximum PG (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
LTE Band 2	6.5	24.50	31.0	1.26	1258.93	0.251	1.000	0.251
LTE Band 5	4.0	24.50	28.5	0.71	707.95	0.141	0.549	0.257
LTE Band 12	3.5	24.50	28.0	0.63	630.96	0.126	0.466	0.270
LTE Band 14	4.0	24.50	28.5	0.71	707.95	0.141	0.525	0.268
LTE Band 30	7.0	24.50	31.5	1.41	1412.54	0.281	1.000	0.281
LTE Band 66	5.5	24.50	30.0	1.00	1000.00	0.199	1.000	0.199
NR Band 2	6.5	24.50	31.0	1.26	1258.93	0.251	1.000	0.251
NR Band 5	4.0	24.50	28.5	0.71	707.95	0.141	0.549	0.257
NR Band 14	4.0	24.50	28.5	0.71	707.95	0.141	0.525	0.268
NR Band 30	7.0	24.50	31.5	1.41	1412.54	0.281	1.000	0.281
NR Band 66	5.5	24.50	30.0	1.00	1000.00	0.199	1.000	0.199
NR Band 77_PC3	5.5	24.50	30.0	1.00	1000.00	0.199	1.000	0.199
NR Band 77_PC2	2.5	27.50	30.0	1.00	1000.00	0.199	1.000	0.199
NR Band 77_PC1.5	1.0	29.00	30.0	1.00	1000.00	0.199	1.000	0.199
WLAN2.4GHz Band			30.0	1.00	1000.00	0.199	1.000	0.199
WLAN5/6GHz Band			30.0	1.00	1000.00	0.199	1.000	0.199
Bluetooth			20.0	0.10	100.00	0.020	1.000	0.020

WWAN Power Density / Limit	WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ(Power Density / Limit) of WWAN+ WLAN + Bluetooth
0.281	0.199	0.020	0.500

Note:

1. The device support DPS (Dynamic Power Share) function to achieve higher uplink data rate keeping the total power unchanged in 5G NR NSA EN-DC mode according to 3GPP 38.213, when the equipment has a dynamic power sharing capability, it adjusts the LTE or NR transmission power so that the instantaneous total power does not exceed the specified value, when the maximum transmission power of NR (P_{LTE}, P_{NR}) and the specified total power (P_{total}) have been set and the instantaneous calculated total transmission power exceeds P_{total}, the NR transmission power is reduced so that the actual transmission power of the user equipment will not exceed P_{total} power. So, if the LTE and NR standalone SAR is testing at total power level, the EN-DC combine MPE(LTE+NR) will not higher than the each standalone LTE and NR MPE, therefore, the simultaneous transmission analysis is used standalone MPE at total power level to show compliance.
2. 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.
3. 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 FCC 47 CFR §2.1901, 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	Maximum Conducted Power (dBm)	Stanalone Maximum Antenna Gain (dBi)	Collocated Maximum Antenna Gain (dBi)
T99W651	LTE	LTE Band 2	24.5	8.5	6.5
		LTE Band 5	24.5	6.6	4.0
		LTE Band 12	24.5	6.1	3.5
		LTE Band 14	24.5	6.4	4.0
		LTE Band 30	24.5	8.5	7.0
		LTE Band 66	24.5	5.5	5.5
	NR	NR Band 2	24.5	8.5	6.5
		NR Band 5	24.5	6.6	4.0
		NR Band 14	24.5	6.4	4.0
		NR Band 30	24.5	8.5	7.0
		NR Band 66	24.5	5.5	5.5
		NR Band 77_PC3	24.5	5.5	5.5
		NR Band 77_PC2	27.5	2.5	2.5
		NR Band 77_PC1.5	29.0	1.0	1.0