



RF EXPOSURE EVALUATION REPORT

FCC ID : J9CQSIP7180P
Equipment : 7c Modular Platform
Brand Name : Qualcomm
Model Name : QSIP7180P
Applicant : Qualcomm Technologies, Inc.
5775 Morehouse Dr.San Diego, CA 92121-1714 (USA)
Manufacturer : Qualcomm Technologies, Inc.
5775 Morehouse Dr.San Diego, CA 92121-1714 (USA)
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part 2.1091 and it complies with applicable limit.

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

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.



Approved by: Cona Huang / Deputy Manager

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



Table of Contents

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



History of this test report

Report No.	Version	Description	Issued Date
FA042002-06	Rev. 01	Initial issue of report	Sep. 23, 2020

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	7c Modular Platform
Brand Name	Qualcomm
Model Name	QSIP7180P
FCC ID	J9CQSIP7180P
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8GHz Band: 5725 MHz ~ 5825 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz
Mode	WLAN: 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
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: Jason Wang

Report Producer: Wan Liu

2. Maximum RF average output power among production units

Mode		Maximum Average power(dBm)
2.4GHz WLAN	2Tx Total Power	22.50
5GHz WLAN	2Tx Total Power	22.50
Bluetooth		12.00

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 EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
WLAN 2.4GHz MIMO	10.0	22.5	32.5	1.78	1778.28	0.354	1.000	0.354
WLAN 5GHz MIMO	7.5	22.5	30.0	1.00	1000.00	0.199	1.000	0.199
Bluetooth	10.0	12.0	22.0	0.16	158.49	0.032	1.000	0.032

4.2. Collocated Power Density Calculation

5GHz WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit) of 5GHz WLAN+Bluetooth
0.199	0.032	0.231

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 5GHz WLAN + Bluetooth.
2. Considering the 5GHz WLAN collocation with the Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 2 collocated transmitters is compliant

Conclusion:

Based on FCC OET Bulletin 65 Supplement C and 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	Frequency (MHz)	Maximum Conducted Power (dBm)	Standalone Maximum Antenna Gain (dBi)	Collocated Maximum Antenna Gain (dBi)
QSIP7180P	2.4GHz WLAN	2400~2483.5	22.50	10.00	5.50
	5GHz WLAN	5150~5825	22.50	7.50	5.50
	Bluetooth	2400~2483.5	12.00	10.00	5.50