RF Exposure Evaluation

FCC ID: 2AGGR-B45

1. Client Information

Applicant	:	Shenzhen Rivers Technology Co.,Limited
Address	:	A#1611, Zhantao Technology Building, Longhua New District, Shenzhen, China
Manufacturer	:	Shenzhen Rivers Technology Co.,Limited
Address	:	6F, First Building, Taiming Industrial Park, New Longhua District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Keyboard	
Models No.	:	B45, B46, B47, B48, B49, B50	
Model Difference	:	All these models are identical in the same PCB layout and electrical circuit, the only difference is model name for commercial.	
Product Description	:	Operation Frequency:	Bluetooth 2.1+EDR&4.0(BLE): 2402MHz~2480MHz
		Number of Channel:	Bluetooth 4.0(BLE): 40 channels Bluetooth 2.1+EDR: 79 channels
		RF Output Power:	BLE: -3.099 dBm Conducted Power(Module 1) -3.138 dBm Conducted Power(Module 2) -3.142 dBm Conducted Power(Module 3) Bluetooth 2.1+EDR: -1.543dBm(π/4-DQPSK)
		Modulation Type:	GFSK 1Mbps(1 Mbps&BLE) π/4-DQPSK(2 Mbps)
Power Supply	:	DC Voltage Supply from USB Port. DC Supply by the Battery.	
Power Rating	:	DC 5.0 V from the USB Cable. DC 3.7V by 4000mAh Li-ion Battery.	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Note: The EUT has four bluetooth Module, the three module is N51822(BLE) for keyboard, the other Module is JL(BT 2.1+EDR) for play music.			

Note:

More test information about the EUT please refer to the RF Test Report.

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SAR Test Exclusion Calculations

1. **FCC: According to KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.**
   (1) Clause 4.3: General SAR test reduction and exclusion guidance
   Sub clause 4.31: Standalone SAR test exclusion considerations
   1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance≤5 mm are determined by:
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[$\sqrt{f_{(GHz)}}$] ≤3.0 for 1-g SAR
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[$\sqrt{f_{(GHz)}}$] ≤7.5.0 for 10-g SAR

2. Calculation:

Test separation: 5mm												
BLE Mode (GFSK)												
Frequency (MHz)	Worst Conducted Power (dBm)			Turn-up Power Tolerance (dB)			Max power of tune up tolerance (dbm)			Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
	BLE Module No.			BLE Module No.			BLE Module No.					
	1	2	3	1	2	3	1	2	3			
2402	-3.099	-3.138	-3.142	-3±1	-3±1	-3±1	-2	-2	-2	1.893	0.587	3.0
2442	-5.592	-5.629	-5.623	-5±1	-5±1	-5±1	-4	-4	-4	1.194	0.373	
2480	-7.613	-7.647	-7.653	-7±1	-7±1	-7±1	-6	-6	-6	0.753	0.237	

Test separation: 5mm						
Bluetooth Mode (GFSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dbm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	-2.436	-2±1	-1	0.794	0.246	3.0
2.441	-2.480	-2±1	-1	0.794	0.248	3.0
2.480	-2.677	-2±1	-1	0.794	0.250	3.0
Bluetooth Mode (π/4-DQPSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dbm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	-1.543	-1±1	0	1.000	0.310	3.0
2.441	-1.583	-1±1	0	1.000	0.312	3.0
2.480	-1.787	-1±1	0	1.000	0.315	3.0

So standalone SAR measurements are not required.

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