

RF Exposure Evaluation

FCC ID: 2BB8F-T3MAX

1. Client Information

Applicant	:	Shenzhen TenFifteen Technology Co., Ltd
Address	:	612 Minle Technology Building, Minzhi Street, Longhua District, Shenzhen, China
Manufacturer	:	Shenzhen TenFifteen Technology Co., Ltd
Address	:	612 Minle Technology Building, Minzhi Street, Longhua District, Shenzhen, China

2. General Description of EUT

EUT Name	:	SmartWatch
Model(s) No.	:	T3MAX, Q13, Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q14, Q15, T3, T3PLUS, T4, T5, T6, T7, T9, T10, T10PRO, T10PLUS, T11, T11PLUS, T12, T12PRO, T12PLUS, T13, T13PRO, T13PLUS, T15, T15PRO, T15PLUS, T16, G1, G2, G3, G4, G5, G6, G7, G8, G9, G10, SKY1, SKY1PRO, SKY1PLUS, D01, D02, D03, D05, D06, M1, M2, M3, M5, M6, M7, M8, M9, M9PRO, M9UltraMAX, V6, V6Ultra, M10, M11, M12, M13, M15, M16, S8000Ultra GLD, S8000Ultra MAX, Watch8Ultra, Watch8U, X8Ultra, T900PRO MAX, T500+PLUS, T55, T55ProMax, T500, X6, X7, X8, Y68 Macaron, Y68, 115Plus, 116plus, 119plus, D18 Macaron, D18, FD68, M8, M7, M6, M5, M4, M3, LJ736CD, W8, W9, D20, Y68S, D20ultra, xs8 pro ultra, S7, KD99Ultra, T200plus, i8ultraMax, AS9UltraTWS, Q13, Y13, GT3, T16PLUS, V6MAX, Y9
Model Difference	:	All PCB boards and circuit diagrams are the same, the only difference is that model names.
Product Description	Operation Frequency:	Bluetooth 5.2: 2402MHz~2480MHz Bluetooth 5.2(BLE): 2402MHz~2480MHz
	Number of Channel:	Bluetooth 5.2: 79 channels Bluetooth 5.2(BLE):40 channels
	Antenna Gain:	2.8dBi Wire Antenna
	Modulation Type:	GFSK, Pi/4-DQPSK, 8-DPSK(3Mbps) Bluetooth LE:1/2Mbps
	Bit Rate of Transmitter:	1/2/3Mbps
Power Supply	:	Input: DC 5V/2A
Li-ion Polymer	:	DC 3.7V by 270mAh Rechargeable Li-ion battery

TB-RF-074-1.0

Battery		
Software Version	:	2.1.17
Hardware Version	:	2.1.3(8505)
Remark: The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.		

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

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)] * $\sqrt{f_{\text{GHz}}}$ ≤ 3.0 for 1-g SAR

- [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)] * $\sqrt{f_{\text{GHz}}}$ $\leq 7.5.0$ for 10-g SAR

2. Calculation:

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	0.98	1±1	2	1.585	0.491	3.0
2.441	0.92	1±1	2	1.585	0.495	3.0
2.480	0.66	1±1	2	1.585	0.499	3.0
Bluetooth Mode (Pi/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	1.76	2±1	3	1.995	0.618	3.0
2.441	1.52	2±1	3	1.995	0.623	3.0
2.480	1.32	1±1	2	1.585	0.499	3.0
Bluetooth Mode (8-DPSK)						
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	2.24	2±1	3	1.995	0.618	3.0
2.441	1.72	2±1	3	1.995	0.623	3.0
2.480	1.81	2±1	3	1.995	0.628	3.0
Bluetooth LE Mode(1Mbps)						
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	5.32	5±1	6	3.981	1.234	3.0
2.440	5.18	5±1	6	3.981	1.244	3.0
2.480	4.32	4±1	5	3.162	0.996	3.0
Bluetooth LE Mode(2Mbps)						
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	5.36	5±1	6	3.981	1.234	3.0
2.440	5.17	5±1	6	3.981	1.244	3.0
2.480	4.34	4±1	5	3.162	0.996	3.0

Summary simultaneous transmission results

Simultaneous Transmission for SAR Exclusion

The sample support one BT modular and one BLE modular, they supports difference antenna, need consider simultaneous transmission;

$\sum \text{ of (the highest measured or estimated SAR}_{BT} + \text{SAR}_{BLE}) / 1.6 = (0.0831 + 0.1659) / 1.6 = 0.155625 < 1.0;$

Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

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