RF Exposure Evaluation

FCC ID: 2AL5ES19

1. Client Information

Applicant	:	Shenzhen IVANTE Technology co., LTD.
Address	:	3/F,NO.18 Chuangye 2 Road, Zhang'er Village, Zhangbei Community, Longcheng Sub-District, Longgang District, Shenzhen, China
Manufacturer	:	Shenzhen IVANTE Technology co., LTD.
Address	:	3/F,NO.18 Chuangye 2 Road, Zhang'er Village, Zhangbei Community, Longcheng Sub-District, Longgang District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Bluetooth Earphone	
Model(s) No.	:	S19, S15, S16, S18, S20, S22, S23, S25, S26, S27, S28, G19, G20, W19, W10, W10P, X6, X7	
Model Different	:	All models are based on the same circuit and structure, the differences are Appearance shape.	
Sample ID	:	TBBJ-20200820-05-1#& TBBJ-20200820-05-2#	
Product Description	:	Operation Frequency:	Bluetooth 5.0(BT): 2402MHz~2480MHz
		Number of Channel:	Bluetooth 5.0(BT): 79 channels
		RF Output Power:	5.671dBm (,Max)
		Antenna Gain:	0 dBi Ceramic Antenna
		Modulation Type:	GFSK, π/4-DQPSK, 8-DPSK
		Bit Rate of Transmitter:	1/2/3Mbps
Power Supply (Earphone)	:	Input: DC 5V DC 3.7V by 0.15Wh Li-ion battery	
Power Supply (Charge box)	:	Input: DC 6V DC 3.7V by 800mAh Li-ion battery	
Software Version	:	V6.0	
Hardware Version	:	V1.0	
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.

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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						
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	5.553	5±1	6	3.981	1.234	**3.0**
2.441	5.671	5±1	6	3.981	1.244	**3.0**
2.480	5.372	5±1	6	3.981	1.254	**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	3.408	3±1	4	2.512	0.779	**3.0**
2.441	3.598	3±1	4	2.512	0.785	**3.0**
2.480	3.244	3±1	4	2.512	0.791	**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	3.982	3±1	4	2.512	0.779	**3.0**
2.441	4.216	4±1	5	3.162	0.988	**3.0**
2.480	3.844	3±1	4	2.512	0.791	**3.0**

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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