

RF Exposure Evaluation

Test report
On Behalf of
Guangdong Yier Acoustics Electronic Technology Co., Ltd.
For
TWS Bluetooth Headset
Model No.: HT28, HT18, HT38, HT48, HT58, HT68, HT78, HT88, HT98

FCC ID: 2ATZ9-TWSHTX

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1 General Description of EUT

Product Name:	TWS Bluetooth Headset
Model/Type reference:	HT28
Serial Model:	HT18, HT38, HT48, HT58, HT68, HT78, HT88, HT98
Model Difference:	All model's the function, software and electric circuit are the same, only with a product outward and model named different. Test sample model: HT28
Trade Mark	Lenovo 联想
FCC ID	2ATZ9-TWSHTX
Hardware Version:	V1.1
Software Version:	V1.5
Modulation:	GFSK, $\pi/4$ DQPSK
Operation frequency:	2402MHz~2480MHz
Channel number:	79CH
Channel separation:	1MHz
Antenna type:	PCB Antenna
Antenna gain:	0 dBi
Power supply:	DC 3.7V from Battery

2 RF Exposure Compliance Requirement

2.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

2.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances \leq 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is \leq 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation

distance is $<$ 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

3 EUT RF Exposure

Left Headset

GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-4.158	-4 ± 1	-3	0.501	0.155	3.0
Middle (2441MHz)	-4.067	-4 ± 1	-3	0.501	0.157	
Highest (2480MHz)	-4.681	-5 ± 1	-4	0.398	0.125	

$\pi/4$ DQPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-2.921	-3±1	-2	0.631	0.196	3.0
Middle (2441MHz)	-2.837	-3±1	-2	0.631	0.197	
Highest (2480MHz)	-3.506	-3±1	-2	0.631	0.199	

Right Headset

GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-4.276	-4±1	-3	0.501	0.155	3.0
Middle (2441MHz)	-4.308	-4±1	-3	0.501	0.157	
Highest (2480MHz)	-5.072	-5±1	-4	0.398	0.125	
Conclusion: the calculated value ≤ 3.0 , SAR is exempted.						

$\pi/4$ DQPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-3.083	-3±1	-2	0.631	0.196	3.0
Middle (2441MHz)	-3.143	-3±1	-2	0.631	0.197	
Highest (2480MHz)	-3.843	-3±1	-2	0.631	0.199	
Conclusion: the calculated value ≤ 3.0 , SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: HK1911152897-E