

# RF EXPOSURE TEST REPORT

**Application No.** : HX1906141805

**Applicant** :

**Equipment Under Test (EUT)**

**EUT Name** : Bluetooth Speaker

**Model No.** :

**Serial No.** : See Page 3

**Brand Name** : N/A

**Receipt Date** : 2019-06-05

**Test Date** : 2019-06-05 to 2019-06-13

**Issue Date** : 2019-06-14

**Standards** : EN 62479: 2010

**Conclusions** : **PASS**

In the configuration tested, the EUT complied with the standards specified above. The EUT technically complies with the RED Directive of 2014/53/EU requirements.

**Test/Witness Engineer**

*Tim Chen*

**Approved & Authorized**

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This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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# 1 General Information

## 1.1 Client Information

Applicant	:	
Address	:	
Manufacturer	:	
Address	:	

## 1.2 General Description of EUT (Equipment Under Test)

<b>EUT Name</b>	:	Bluetooth Speaker
<b>Model No.</b>	:	
<b>Serial No.</b>	:	N/A
<b>Model Difference</b>	:	The different models are identical in schematic and critical component, the only different is the appearance.
<b>Product Description</b>	:	Operation Frequency:2402Hz~2480MHz
		Number of Channel: 79 Channels <b>see note (2)</b>
		Out Power 3.23 dBm 1Mbps 2.14 dBm 3Mbps
		Antenna Gain: 0 dBi
		Antenna Type: Printed Antenna
		Modulation Type: GFSK 1Mbps(1Mbps) $\pi$ /4-DQPSK(2Mbps) 8-DPSK(3Mbps)
<b>Power Supply</b>	:	DC 5.0V, 0.5A
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual

### Note:

- (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (2) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
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00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

### 1.3 Test Facility

The testing report were performed by the Shenzhen HX Detect Certification Co., Ltd., in their facilities located at 8/F, Haoyunlai Building B, Baomin 2th Road, Xixing Street, Baoan District, Shenzhen, China.

## 2 Conformity Assessment Methods

### 2.1 General Considerations

Compliance of electromagnetic emissions from electronic and electrical equipment with the basic restrictions usually is determined by measurements and, in some cases, calculation of the exposure level. If the electrical power used by or radiated by the equipment is sufficiently low, the electromagnetic fields emitted will be incapable of producing exposures that exceed the basic restrictions. This standard provides simple EMF assessment procedures for this low power equipment.

For transmitter intended for use with more than one antenna configuration option, the combination of transmitter and antenna(s) which generates the highest available antenna power and/or average total radiated power shall be assessed.

### 2.2 Low-power exclusion level ( $P_{\max}$ ) based on considerations of SAR

Low-power electronic and electrical equipment is deemed to comply with the provisions of this standard if it can be demonstrated using routes B, C or D that the available antenna power and/or the average total radiated power is less than or equal to the applicable low-power exclusion level  $P_{\max}$ .

When SAR is the basic restriction, a conservative minimum value for  $P_{\max}$  can be derived, equal to the localized SAR limit ( $SAR_{\max}$ ) multiplied by the average mass (m):

$$P_{\max} = SAR_{\max} m$$

Example values of  $P_{\max}$  according to Equation are provided in follows for cases described by the ICNIRP Guidelines, IEEE Std C95.1-1999 and IEEE Std C95.1-2005 where SAR limits are defined. Other exposure guidelines or standards may be applicable depending on national regulations.

Note: Unless otherwise mentioned in other applicable regulations or standards, the most recent edition IEEE C95.1-2005 takes precedence over the previous edition IEEE C95.1-1999.

**Example values of SAR-based  $P_{\max}$**

Guideline/ Standard	SAR limit, $SAR_{\max}$ W/kg	Averaging mass, m g	$P_{\max}$ mW	Exposure tier	Region of body
ICNIRP	2	10	20	General public	Head and trunk
	4	10	40	General public	Limbs
	10	10	100	Occupational	Head and trunk
	20	10	200	Occupational	Limbs
IEEE Std C95.1-1999	1.6	1	1.6	Uncontrolled environment	Head, trunk, arms, legs
	4	10	40	Uncontrolled environment	Hands, wrists, feet and ankles
	8	1	8	Controlled environment	Head, trunk, arms, legs

	20	10	200	Controlled environment	Hands, wrists, feet and ankles
IEEE Std C95.1-2005	2	10	20	Action level	Body except extremities and pinnae
	4	10	40	Action level	Exremities and pinnae
	10	10	100	Controlled environment	Body except extremities and pinnae
	20	10	200	Controlled environment	Exremities and pinnae

When power density is the basic restriction, a conservative minimum value for  $P_{\max}$  can be derived, equal to the power density limit (s) multiplied by the averaging area (a);

$$P_{\max} = S_a$$

Therefore, equation yields conservative values for  $P_{\max}$  of 20 mW and 100 mW for general public and occupational exposures, respectively.

## 3 Test Results Summary

### 3.1 Transmit Power

Bluetooth Speaker				
1Mbps				
Frequency (MHz)	Power(dBm)	Power(mW)	Limit(mW)	Result
2402	3.23	2.2356	20	PASS
2441	2.84	1.9478	20	PASS
2480	2.61	1.9265	20	PASS
3Mbps				
Frequency (MHz)	Power(dBm)	Power(mW)	Limit(mW)	Result
2402	2.14	1.7134	20	PASS
2441	1.74	1.6075	20	PASS
2480	1.61	1.4896	20	PASS

More details please refer to Report of ETSI EN 300 328 for more details.

### 3.2 Client Information

The result: PASS

From results of report ETSI EN 300 328 can be assumed that the compliance criteria is Fulfilled (max radiated power is less than 20mW). The assumption is made with an uncertainty of 30%.

\*EN 62479:2010 Annex A: Derivation of low-power exclusion level from ICNIRP and IEEE exposure limits.

The ICNIRP guidelines provide SAR limits of 2W/kg, and averaging mass 10g, over the 10GHz to 300 GHz frequency range for general public and occupational exposures, respectively, and a conservative minimum value for  $P_{max}=20mW$ . So when the equipment radiated power is less than 20mW, it complies with EMF basic restrictions.