



## Shenzhen Huaxia Testing Technology Co., Ltd

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# RF Exposure Evaluation Report

**Report No. :** CQASZ20181100030E-02  
**Applicant:** Shenzhen Qili Audio Application CO., Ltd.  
**Address of Applicant:** 7F, Nanhang Buiding, No.7 Langshan Road, Hi-Tech Industrial Park (North), Nanshan district, Shenzhen, China  
**Manufacturer:** Shenzhen Qili Audio Application CO., Ltd.  
**Address of Manufacturer:** 7F, Nanhang Buiding, No.7 Langshan Road, Hi-Tech Industrial Park (North), Nanshan district, Shenzhen, China  
**Equipment Under Test (EUT):**  
**Product:** qdc Bluetooth Adaptor, qdc Bluetooth Neptune  
**All Model No.:** BTX, BTX Neptune  
**Test Model No.:** BTX Neptune  
**Brand Name:** qdc  
**FCC ID:** 2AROO-QDC-BTX  
**Standards:** 47 CFR Part 1.1307  
47 CFR Part 2.1093  
KDB447498D01 General RF Exposure Guidance v06  
**Date of Test:** 2018-11-06 to 2018-11-14  
**Date of Issue:** 2018-11-14  
**Test Result :** **PASS\***

**Tested By:** \_\_\_\_\_

(Daisy Qin)

**Reviewed By:** \_\_\_\_\_

(Aaron Ma)

**Approved By:** \_\_\_\_\_

(Jack Ai)



\* In the configuration tested, the EUT complied with the standards specified above.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

## 1 Version

### Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20181100030E-03	Rev.01	Initial report	2018-11-14

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### 3 General Information

#### 3.1 Client Information

Applicant:	Shenzhen Qili Audio Application CO., Ltd.
Address of Applicant:	7F, Nanhang Buiding, No.7 Langshan Road, Hi-Tech Industrial Park (North), Nanshan district, Shenzhen, China
Manufacturer:	Shenzhen Qili Audio Application CO., Ltd.
Address of Manufacturer:	7F, Nanhang Buiding, No.7 Langshan Road, Hi-Tech Industrial Park (North), Nanshan district, Shenzhen, China

#### 3.2 General Description of EUT

Product:	qdc Bluetooth Adaptor, qdc Bluetooth Neptune
All Model No.:	BTX, BTX Neptune
Test Model No.:	BTX Neptune
Trade Mark:	qdc
Hardware Version:	V1.0
Software Version:	V1.0
Sample Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Power Supply:	lithium battery: DC3.7V, Charge by USB

#### 3.3 General Description of BT

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps/3Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Test Software of EUT:	Blue test (manufacturer declare )
Antenna Type:	Ceramic antenna
Antenna Gain:	2.48dBi

#### 3.4 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Type:	GFSK
Transfer Rate:	1Mbps, 2Mbps
Number of Channel:	40
Test Software of EUT:	Blue test (manufacturer declare )
Antenna Type:	Ceramic antenna
Antenna Gain:	2.48dBi

Note:

All model: BTX, BTX Neptune

Only the model BTX Neptune was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.

## 4 SAR Evaluation

### 4.1 RF Exposure Compliance Requirement

#### 4.1.1 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.

#### 4.1.2 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:

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

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

Power and distance are rounded to the nearest mW and mm before calculation<sup>17</sup>

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

### 4.1.3 EUT RF Exposure

#### Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.680	-2±1	-1	0.794
Middle(2441MHz)	-1.310	-2±1	-1	0.794
Highest(2480MHz)	0.400	0±1	1	1.259
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.920	-3±1	-2	0.631
Middle(2441MHz)	-2.810	-3±1	-2	0.631
Highest(2480MHz)	-0.910	-1±1	0	1.000
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.650	-3±1	-2	0.631
Middle(2441MHz)	-2.540	-3±1	-2	0.631
Highest(2480MHz)	-0.700	-1±1	0	1.000

Worst case: 8DPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-1.680	-2±1	-1	0.794	0.25	3.0
Middle (2441MHz)	-1.310	-2±1	-1	0.794	0.25	
Highest (2480MHz)	0.400	0±1	1	1.259	0.40	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20181100030E-01

2) For BLE

Measurement Data

GFSK(1Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.22	-2±1	-1	0.794
Middle(2440MHz)	-1.16	-2±1	-1	0.794
Highest(2480MHz)	-0.06	0±1	1	1.259

Worst case: GFSK(1Mbps)						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-1.22	-2±1	-1	0.794	0.25	3.0
Middle (2440MHz)	-1.16	-2±1	-1	0.794	0.25	
Highest (2480MHz)	-0.06	0±1	1	1.259	0.40	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20181100030E-02