



# SAR Evaluation Report

**Application No.:** SZEM1905014343CR  
**Applicant:** Onkyo Corporation  
**Address of Applicant:** KOKUGIKAN FRONT BUILDING 1-10-5 Yokoami Sumida-ku, Tokyo, Japan 130-0015  
**Manufacturer:** Onkyo Corporation  
**Address of Manufacturer:** 1-10-5 Yokoami Sumida-ku, Tokyo, Japan  
**Factory:** Dongguan Tenji Industrial Co., Ltd  
**Address of Factory:** 7 Hai Yi Road, Chongtuo Community, Chang an Town. Dongguan City, Guangdong Province, P.R.China  
**Equipment Under Test (EUT):**  
**EUT Name:** Wireless Stereo Headphones  
**Model No.:** SE-C5TW  
**Trade mark:** Pioneer  
**FCC ID:** ATMSEC5TW  
**Standards:** 47 CFR Part 1.1307  
 47 CFR Part 2.1093  
 KDB447498D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2019-05-23  
**Date of Test:** 2019-05-24 to 2019-06-13  
**Date of Issue:** 2019-06-25

<b>Test Result :</b>	<b>PASS*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu  
 EMC Laboratory Manager



## 2 Version

<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2019-06-25		Original

<b>Authorized for issue by:</b>			
			
		<hr/> <b>Bill Chen /Project Engineer</b>	
			
		<hr/> <b>Eric Fu /Reviewer</b>	





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## 4 General Information

### 4.1 General Description of EUT

Power supply:	Left earphone: Rechargeable battery DC 3.7V 55mAh 0.2Wh (Charge by charge Box) Right earphone: Rechargeable battery DC 3.7V 55mAh 0.2Wh (Charge by charge Box)
<b>For BT</b>	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.0(This test report is for classic mode.)
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Sample Type:	Portable production
Number of Channels:	79
Channel Spacing:	1MHz
Antenna Type:	Monopole
Antenna Gain:	Left earphone -4.8dBi Right earphone -5.43dBi
<b>For BLE</b>	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.0(This test report is for BLE mode.)
Modulation Type:	GFSK
Sample Type:	Portable production
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	Monopole
Antenna Gain:	Left earphone -4.8dBi Right earphone -5.43dBi



## 4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China  
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

## 4.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.





#### 4.4 Deviation from Standards

None.

#### 4.5 Abnormalities from Standard Conditions

None.

#### 4.6 Other Information Requested by the Customer

None.



## 5 SAR Evaluation

### 5.1 RF Exposure Compliance Requirement

#### 5.1.1 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.

#### 5.1.2 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:

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

#### 5.1.3 EUT RF Exposure

For BT

Left earphone

The Max. power (including tune-up tolerance) is 2.55 dBm on the lowest channel 2.402 GHz (\*)  
 2.55 dBm logarithmic terms convert to numeric result is nearly 1.80 mW

According to the formula. calculate the test exclusion thresholds:

$$\left[ \frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})}$$

$$\text{General RF Exposure} = (1.80 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.402 \text{ GHz}} = 0.56 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(\*) Max. power refer to Report No.:SZEM190501434302



Right earphone

The Max. power (including tune-up tolerance) is 2.58 dBm on the lowest channel 2.402 GHz (\*)  
 2.58 dBm logarithmic terms convert to numeric result is nearly 1.81 mW

According to the formula. calculate the test exclusion thresholds:

$$\left[ \frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})}$$

$$\text{General RF Exposure} = (1.81 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.402 \text{ GHz}} = 0.56 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(\*) Max. power refer to Report No.:SZEM190501434302

For BLE

Left earphone

The Max. power (including tune-up tolerance) is 0.45 dBm on the lowest channel 2.402 GHz (\*)  
 0.45 dBm logarithmic terms convert to numeric result is nearly 1.11 mW

According to the formula. calculate the test exclusion thresholds:

$$\left[ \frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})}$$

$$\text{General RF Exposure} = (1.11 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.402 \text{ GHz}} = 0.34 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(\*) Max. power refer to Report No.:SZEM190501434303

Right earphone

The Max. power (including tune-up tolerance) is 0.39 dBm on the lowest channel 2.402 GHz (\*)  
 0.39 dBm logarithmic terms convert to numeric result is nearly 1.09 mW

According to the formula. calculate the test exclusion thresholds:

$$\left[ \frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})}$$

$$\text{General RF Exposure} = (1.09 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.402 \text{ GHz}} = 0.34 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(\*) Max. power refer to Report No.:SZEM190501434303

- End of the Report -

