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Report Template Version: V03
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RF Exposure Evaluation Report

Report No. :	CQASZ20181000023E-03
Applicant:	S&O ELECTRONICS (MALAYSIA) SDN. BHD.
Address of Applicant:	LOT 202, BAKAR ARANG INDUSTRIAL ESTATE, 08000 SUNGAI PETANI, KEDAH, Malaysia
Manufacturer:	S&O ELECTRONICS (MALAYSIA) SDN. BHD.
Address of Manufacturer:	LOT 202, BAKAR ARANG INDUSTRIAL ESTATE, 08000 SUNGAI PETANI, KEDAH, Malaysia
Factory:	Shenzhen Shuaixian Electronic Equipment Co., Ltd.
Address of Factory:	NO.10 Lane3, Longxing Rd., Dakang Long Village, Henggang Town, Longgang Dist., Shenzhen, China
Equipment Under Test (EUT):	
Product:	Stereo Headphones
Model No.:	HP-20
Brand Name:	SHARP
FCC ID:	2AB3N-HP20
Standards:	47 CFR Part 1.1307
	47 CFR Part 2.1093
	KDB447498D01 General RF Exposure Guidance v06
Date of Test:	2018-10-16 to 2018-10-22
Date of Issue:	2018-10-22
Test Result :	**PASS***

Tested By: Martin Lee

(Martin Lee)

Reviewed By: Aaron Ma

(Aaron Ma)

Approved By:

(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD
CQA 华夏准测
APPROVED

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

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20181000023E-03	Rev.01	Initial report	2018-10-22

2 Contents

3 General Information

3.1 Client Information

Applicant:	S&O ELECTRONICS (MALAYSIA) SDN. BHD.
Address of Applicant:	LOT 202, BAKAR ARANG INDUSTRIAL ESTATE, 08000 SUNGAI PETANI, KEDAH, Malaysia
Manufacturer:	S&O ELECTRONICS (MALAYSIA) SDN. BHD.
Address of Manufacturer:	LOT 202, BAKAR ARANG INDUSTRIAL ESTATE, 08000 SUNGAI PETANI, KEDAH, Malaysia
Factory:	Shenzhen Shuaixian Electronic Equipment Co., Ltd.
Address of Factory:	NO.10 Lane3, Longxing Rd., Dakang Long Village, Henggang Town, Longgang Dist., Shenzhen, China

3.2 General Description of EUT

Product Name:	Stereo Headphones
Model No.:	HP-20
Trade Mark:	SHARP
Hardware Version:	A0
Software Version:	A0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Type:	BT classic: GFSK, π/4DQPSK, 8DPSK BLE: GFSK
Number of Channel:	BT classic:79 BLE:40
Sample Type:	portable production
Test Software of EUT:	Blue test 3(manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Power Supply:	lithium battery:DC3.7V 300mAh, Charge by DC5.0V

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 ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 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)	2.000	1.5±1	2.5	1.778
Middle(2441MHz)	4.250	3.5±1	4.5	2.818
Highest(2480MHz)	3.060	3.0±1	4.0	2.512
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-0.190	-0.5±1	0.5	1.122
Middle(2441MHz)	2.870	2.5±1	3.0	1.995
Highest(2480MHz)	1.290	1.0±1	2.0	1.585
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.670	0±1	1.0	1.259
Middle(2441MHz)	3.320	2.5±1	3.5	2.239
Highest(2480MHz)	1.540	1.0±1	2.0	1.585

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	2.000	1.5±1	2.5	1.778	0.55	3.0
Middle (2441MHz)	4.250	3.5±1	4.5	2.818	0.88	
Highest (2480MHz)	3.060	3.0±1	4.0	2.512	0.79	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20181000023E-01

2) For BLE

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.73	3.5±1	4.5	2.818
Middle(2440MHz)	5.09	4.5±1	5.5	3.548
Highest(2480MHz)	4.12	3.5±1	4.5	2.818

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	3.73	3.5±1	4.5	2.818	0.87	3.0
Middle (2440MHz)	5.09	4.5±1	5.5	3.548	1.11	
Highest (2480MHz)	4.12	3.5±1	4.5	2.818	0.89	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20181000023E-02

BDR, EDR and BLE can not simultaneous transmitting at same time.