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RF Exposure Evaluation Report

Report No. :	CQASZ20191201293E-02
Applicant:	TOPWAY EM ENTERPRISE LTD.
Address of Applicant:	8F BLOCK B BUILDING 6 BAONENG S & T PARK LONG HUA, SHENZHEN GD, China 518109
Equipment Under Test (EUT):	
EUT Name:	Rugged speaker
Model No.:	19YX01RD, 19YX01BL, 19YX01MI, 19YX01YL
Test Model No.:	19YX01MI
Brand Name:	N/A
FCC ID:	2AKI8-BTSPK
Standards:	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2019-12-10
Date of Test:	2019-12-10 to 2019-12-16
Date of Issue:	2019-12-16
Test Result :	**PASS***

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

Tested By: Tom Chen.

(Tom Chen)

Reviewed By: Aaron Ma

(Aaron Ma)

Approved By:

(Jack Ai)

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

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20191201293E-02	Rev.01	Initial report	2019-12-16

2 Contents

3 General Information

3.1 Client Information

Applicant:	TOPWAY EM ENTERPRISE LTD.
Address of Applicant:	8F BLOCK B BUILDING 6 BAONENG S & T PARK LONG HUA, SHENZHEN GD, China 518109
Manufacturer:	Shenzhen Jia Hua Li Dian Zi You Xian Gong Si
Address of Manufacturer:	NO. 101,201, BUILDING E, NEW INDUSTRIAL ZONE, SHENZHU ROAD, LIUYUE SHENKENG VILLAGE, HENGGANG, LONGGANG DISTRICT, SHENZHEN CHINA.

3.2 General Description of EUT

Product Name:	Rugged speaker
Model No.:	19YX01RD, 19YX01BL, 19YX01MI, 19YX01YL
Test Model No.:	19YX01MI
Trade Mark:	N/A
Hardware Version:	V1.1
Software Version:	V1.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK
Transfer Rate:	1Mbps/2Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	FCCAssist 2.4 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Power Supply:	lithium battery:DC3.7V, Charge by DC5.0V

Model No.: 19YX01RD, 19YX01BL, 19YX01MI, 19YX01YL

Only the model 19YX01MI 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 ≤ 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)	1.970	1.0±1	2.0	1.585
Middle(2441MHz)	2.240	1.5±1	2.5	1.778
Highest(2480MHz)	2.280	1.5±1	2.5	1.778
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.440	1.5±1	3.0	1.995
Middle(2441MHz)	2.690	2.0±1	2.5	1.778
Highest(2480MHz)	2.790	2.0±1	3.0	1.995

Worst case: π/4DQPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	2.440	1.5±1	3.0	1.995	0.618	3.0
Middle (2441MHz)	2.690	2.0±1	2.5	1.778	0.556	
Highest (2480MHz)	2.790	2.0±1	3.0	1.995	0.628	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20191201293E-01