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RF Exposure Evaluation Report

Report No. : CQASZ20181200062E-02
Applicant: GANZHOU DEHUIDA TECHNOLOGY CO., LTD.
Address of Applicant: Dehuida Science and Technology Park, Huoyanshan Road, Anyuan District, Ganzhou City, Jiangxi Province, China
Manufacturer: GANZHOU DEHUIDA TECHNOLOGY CO., LTD.
Address of Manufacturer: Dehuida Science and Technology Park, Huoyanshan Road, Anyuan District, Ganzhou City, Jiangxi Province, China
Equipment Under Test (EUT):
Product: Blackweb Rugged SPK M
Model No.: BWD 19AAS05
Brand Name: blackweb
FCC ID: 2AO5X-WM1905
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Test: 2018-12-20 to 2019-01-07
Date of Issue: 2019-01-07
Test Result : PASS*

Tested By:

Daisy Xin

(Martin Lee)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai
(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
CQASZ20181200062E-02	Rev.01	Initial report	2019-01-07

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3 General Information

3.1 Client Information

Applicant:	GANZHOU DEHUIDA TECHNOLOGY CO., LTD.
Address of Applicant:	Dehuida Science and Technology Park, Huoyanshan Road, Anyuan District, Ganzhou City, Jiangxi Province, China
Manufacturer:	GANZHOU DEHUIDA TECHNOLOGY CO., LTD.
Address of Manufacturer:	Dehuida Science and Technology Park, Huoyanshan Road, Anyuan District, Ganzhou City, Jiangxi Province, China

3.2 General Description of EUT

Product Name:	Blackweb Rugged SPK M
Model No.:	BWD 19AAS05
Trade Mark:	blackweb
Hardware Version:	V1.0
Software Version:	V1.5
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.2
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	☒ Mobile ☐ Portable ☐ Fix Location
Test Software of EUT:	Actions BT FCC Tool V1.02 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Power Supply:	lithium battery: DC3.7V, 2000mAh, 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:

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

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

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

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

For BT:

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.69	1.5 ± 0.5	2.0	1.585
Middle(2441MHz)	1.95	1.5 ± 0.5	2.0	1.585
Highest(2480MHz)	2.98	2.5 ± 0.5	3.0	1.995
$\pi/4$ DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	4.31	4.5 ± 0.5	5.0	3.162
Middle(2441MHz)	4.52	4.5 ± 0.5	5.0	3.162
Highest(2480MHz)	5.63	5.5 ± 0.5	6.0	3.981
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	4.83	5.0 ± 0.5	5.5	3.548
Middle(2441MHz)	5.15	5.0 ± 0.5	5.5	3.548
Highest(2480MHz)	6.19	6.0 ± 0.5	6.5	4.467

Worst case: 8DPSK mode						
Channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	4.83	5.0±0.5	5.5	3.548	1.10	3.0
Middle (2440MHz)	5.15	5.0±0.5	5.5	3.548	1.11	
Highest (2480MHz)	6.19	6.0±0.5	6.5	4.467	1.41	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20181200062E-01