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RF Exposure Evaluation Report

Report No. : CQASZ20191101172E-03
Applicant: Shenzhen Boeleo Intelligence Co., Ltd.
Address of Applicant: 4th Floor, Chungu, Meisheng Chuanggu Science and Technology Innovation Park, No. 10 Longchang Road, Bao'an District, Shenzhen
Equipment Under Test (EUT):
Product: Translator
Model No.: W1, K1, P1, X1, M1, T9, T9 Pro
Test Model No.: W1
Brand Name: boeleo, Vincross
FCC ID: 2AU6J-W1
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2019-11-20
Date of Test: 2019-11-25 to 2019-12-09
Date of Issue: 2019-12-09
Test Result : PASS*

Tested By:

Tom Chen.

(Tom chen)

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
CQASZ20191101172E-03	Rev.01	Initial report	2019-12-09

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Boeleo Intelligence Co., Ltd.
Address of Applicant:	4th Floor, Chungu, Meisheng Chuanggu Science and Technology Innovation Park, No. 10 Longchang Road, Bao'an District, Shenzhen
Manufacturer:	Shenzhen Boeleo Intelligence Co., Ltd.
Address of Manufacturer:	4th Floor, Chungu, Meisheng Chuanggu Science and Technology Innovation Park, No. 10 Longchang Road, Bao'an District, Shenzhen

3.2 General Description of EUT

Product Name:	Translator
All Model No.:	W1, K1, P1, X1, M1, T9, T9 Pro
Test Model No.:	W1
Trade Mark:	boeleo, Vincross
Hardware version:	S632-HW-V2.0
Software version:	S632HW_V2_D_BLZN_BF301_GS_V1.8
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Power Supply:	Li-ion Battery 3.8V, Charging by USB

3.3 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Transfer Rate:	1Mbps
Number of Channel:	40
Test Software of EUT:	RF test (manufacturer declare)
Antenna Type:	internal antenna
Antenna Gain:	-0.08dBi

3.4 General Description of WIFI

Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels
Channel Separation:	5MHz
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM, QPSK,BPSK)
Transfer Rate:	IEEE for 802.11b: 1Mbps/2Mbps/5.5Mbps/11Mbps IEEE for 802.11g : 6Mbps/9Mbps/12Mbps/18Mbps/24Mbps/36Mbps/48Mbps/54Mbps

	IEEE for 802.11n(HT20) : 6.5Mbps/13Mbps/19.5Mbps/26Mbps/39Mbps/52Mbps/58.5Mbps/65Mbps IEEE for 802.11n(HT40) : 13.5Mbps/27Mbps/40.5Mbps/54Mbps/81Mbps/108Mbps/121.5Mbps/135Mbps
Test Software of EUT:	RF test (manufacturer declare)
Antenna Type:	internal antenna
Antenna Gain:	-0.08dBi

Note:

Model No.: W1, K1, P1, X1, M1, T9, T9 Pro

Only the model W1 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:

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

$f(\text{GHz})$ 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

1) For WIFI

Measurement Data

IEEE for 802.11b mode				
Test channel	Average Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2412MHz)	8.16	8.0±1	9	7.943
Middle(2437MHz)	8.18	8.0±1	9	7.943
Highest(2462MHz)	8.76	8.0±1	9	7.943
IEEE for 802.11g mode				
Test channel	Average Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2412MHz)	7.95	8.0±1	9	7.943
Middle(2437MHz)	8.09	8.0±1	9	7.943
Highest(2462MHz)	8.56	8.0±1	9	7.943
IEEE for 802.11n(HT20) mode				
Test channel	Average Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2412MHz)	7.97	8.0±1	9	7.943
Middle(2437MHz)	8.01	8.0±1	9	7.943
Highest(2462MHz)	8.36	8.0±1	9	7.943
IEEE for 802.11n(HT40) mode				
Test channel	Average Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2422MHz)	8.11	8.0±1	9	7.943
Middle(2437MHz)	8.26	8.0±1	9	7.943
Highest(2452MHz)	8.91	8.0±1	9	7.943

Worst case: 802.11b mode						
Channel	Average Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2412MHz)	8.55	8.0±1	9	7.943	2.47	3.0
Middle (2437MHz)	8.69	8.0±1	9	7.943	2.48	
Highest (2462MHz)	8.67	8.0±1	9	7.943	2.49	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Average Output Power data refer to report Report No.: CQASZ20191101172E-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)	-1.47	-1±1	0	1
Middle(2440MHz)	-1.23	-1±1	0	1
Highest(2480MHz)	-1.59	-1±1	0	1

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)	-1.47	-1±1	0	1.000	0.31	3.0
Middle (2440MHz)	-1.23	-1±1	0	1.000	0.31	
Highest (2480MHz)	-1.59	-1±1	0	1.000	0.31	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20191101172E-02

WIFI and BLE can not simultaneous transmitting at same time.