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Report Template Version: V04
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RF Exposure Evaluation Report

Report No.:	CQASZ20200901100E-03
Applicant:	Xiamen Pinnacle Electrical Co.,Ltd.
Address of Applicant:	4F, Guang Xia Building, Torch High-Tech Zone, Xiamen, China
Equipment Under Test (EUT):	
Product:	BAR CODE SCANNER
Model No.:	BR1X,BR2X,BR3X,BR4X,BR5X,BR6X,BR7X,BR8X, BRX
Test Model No.:	BR1X
Brand Name:	ACLAS
FCC ID:	O89BR1X
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2020-11-16
Date of Test:	2020-11-16 to 2020-12-09
Date of Issue:	2020-12-10
Test Result:	**PASS***

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

Tested By: Tiny You

(Tiny You)

Reviewed By: Sheek.Luo

(Sheek Luo)

Approved By:

(Jack Ai)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200901100E-03	Rev.01	Initial report	2020-12-10

2 Contents

3 General Information

3.1 Client Information

Applicant:	Xiamen Pinnacle Electrical Co.,Ltd.
Address of Applicant:	4F, Guang Xia Building, Torch High-Tech Zone, Xiamen, China
Manufacturer:	Xiamen Pinnacle Electrical Co.,Ltd. Pinnacle Technology Corp.(Taiwan)
Address of Manufacturer:	Guang Xia Building, Torch High-Tech Zone,Xiamen,China NO.270,Nan-Kang RD,Section3,Taipei,Taiwan
Factory:	Xiamen Pinnacle Electrical Co.,Ltd.
Address of Factory:	Guang Xia Building, Torch High-Tech Zone, Xiamen NO.1,Fangshannan Road,Xiang'an industrial Zone,Xiamen,China

3.2 General Description of EUT

Product Name:	BAR CODE SCANNER
Model No.:	BR1X,BR2X,BR3X,BR4X,BR5X,BR6X,BR7X,BR8X, BRX
Test Model No.:	BR1X
Trade Mark:	ACLAS
Hardware Version:	EPBR1CMB
Software Version:	V1.001
Test sample SN:	BR1M320309505
EUT Power Supply:	lithium battery:DC3.7V, Charge by DC5.0V

3.3 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Type:	GFSK
Transfer Rate:	1Mbps, 2Mbps
Number of Channel:	40
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	Non_Signaling_Test_Tool (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	0dBi

3.4 General Description of 2.4G

Operation Frequency:	2405MHz~2476MHz
Channel Numbers:	16
Type of Modulation:	O-QPSK
Product Type:	☐ Mobile ☒ Portable ☒ Fix Location
Test Software of EUT:	Non_Signaling_Test_Tool (manufacturer declare)

Antenna Type:	PCB antenna
Antenna Gain:	0dBi

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

1) For BLE

Measurement Data

GFSK(1Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.49	2.5±1	3.5	2.239
Middle(2440MHz)	2.86	2.5±1	3.5	2.239
Highest(2480MHz)	3.13	2.5±1	3.5	2.239
GFSK(2Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.53	2.5±1	3.5	2.239
Middle(2440MHz)	2.89	2.5±1	3.5	2.239
Highest(2480MHz)	3.22	2.5±1	3.5	2.239

Worst case: GFSK(2Mbps)						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	2.53	2.5±1	3.5	2.239	0.694	3.0
Middle (2440MHz)	2.89	2.5±1	3.5	2.239	0.699	
Highest (2480MHz)	3.22	2.5±1	3.5	2.239	0.705	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200901100E-01

2) For 2.4G

Measurement Data

O-QPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2405MHz)	2.3	2.5±1	3.5	2.239
Middle(2445MHz)	2.78	2.5±1	3.5	2.239
Highest(2480MHz)	3.2	2.5±1	3.5	2.239

Worst case: O-QPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2405MHz)	2.3	2.5±1	3.5	2.239	0.694	3.0
Middle (2440MHz)	2.78	2.5±1	3.5	2.239	0.699	
Highest (2476MHz)	3.2	2.5±1	3.5	2.239	0.705	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200901100E-02

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