

RF Exposure Evaluation Report

Product : Portable Electronic Piano
Trade mark : N/A
Model/Type reference : See content 3.2
Serial Number : N/A
Report Number : EED32P80738603
FCC ID : 2AX4N-PIANOKEYBOARD
Date of Issue : Jul. 19, 2023
: 47 CFR Part 1.1307
: 47 CFR Part 2.1093
Test Standards : KDB447498D01 General RF
Exposure Guidance v06
Test result : PASS

Prepared for:

Shenzhen Konix Technology Co., Ltd
2nd & 6th Floor, 201 plant No.3 Building, Yufeng Industrial Area, Xitou
New Village, Shangfen Community, Minzhi Street, Longhua
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1 Version

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Konix Technology Co., Ltd
Address of Applicant:	2nd & 6th Floor, 201 plant No.3 Building, Yufeng Industrial Area, Xitou New Village, Shangfen Community, Minzhi Street, Longhua District, Shenzhen
Manufacturer:	Guangdong Konix Technology Co., Ltd
Address of Manufacturer:	Room 401,Building 3, No. 76 Qingxi Baijia Road, Qingxi Town, Dongguan,Guangdong
Factory:	Guangdong Konix Technology Co., Ltd
Address of Factory:	Room 401,Building 3, No. 76 Qingxi Baijia Road, Qingxi Town, Dongguan,Guangdong

3.2 General Description of EUT

Product Name:	Portable Electronic Piano	
Model No.(EUT):	PH88C, PH61A, PH88A, PH61C, PH88CL, PH49S, PH61S, PH88S, PH88Y, PH88Q, PH88T, PJ88A, PJ61B, PJ88B, PJ61C, PJ88C, PJ88CD, PJ88CE, PJ88CF, PJ88CH, PJ88CT, PJ88CX, PJ61D, PJ88D, PJ88DL, PJ88DT, PJ61S, PJ88S, PJ49Z, PJ61Z,PJ88Z, PJ49T, PJ61T, PJ88T, PZ49, PZ61.	
Test Model No.:	PH88C	
Trade Mark:	N/A	
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location	
Power Supply:	Adapter	MODEL:AS0601A-0501000USU INPUT:100-240V~50/60Hz 0.2A Max OUTPUT:5V--- 1000mA
	Battery DC 3.7V	
Test Voltage:	DC 3.7V	
Sample Received Date:	May 19, 2023	
Sample tested Date:	May 19, 2023 to Jul. 06, 2023	
Remark:		
Company Name and Address shown on Report, the sample(s) and sample Information were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.		
Model No.: PH88C, PH61A, PH88A, PH61C, PH88CL, PH49S, PH61S, PH88S, PH88Y, PH88Q, PH88T, PJ88A, PJ61B, PJ88B, PJ61C, PJ88C, PJ88CD, PJ88CE, PJ88CF, PJ88CH, PJ88CT, PJ88CX, PJ61D, PJ88D, PJ88DL, PJ88DT, PJ61S, PJ88S, PJ49Z, PJ61Z,PJ88Z, PJ49T, PJ61T, PJ88T, PZ49, PZ61.		
Only the model PH88C was tested. Theses models are identical on circuitry design, PCB layout, electrical components used, internal wiring and functions with the model/item No.PH88C.		

3.3 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Number of Channel:	40
Antenna Type:	PCB Antenna
Antenna Gain:	-0.58dBi

3.4 General Description of BT Classic

Operation Frequency:	2402MHz~2480MHz
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Antenna Type:	PCB Antenna
Antenna Gain:	-0.58dBi

3.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

3.6 Deviation from Standards

None.

3.7 Abnormalities from Standard Conditions

None.

3.8 Other Information Requested by the Customer

None.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06
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.

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

4.1.2 EUT RF Exposure

1) For Bluetooth LE

Measurement Data

1M:

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	4.71	4±1	5	3.162
Middle(2440MHz)	4.6	4±1	5	3.162
Highest(2480MHz)	4.34	4±1	5	3.162

Worst case: GFSK 1M						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	4.71	4±1	5	3.162	0.996	3.0
Middle (2440MHz)	4.6	4±1	5	3.162	0.996	
Highest (2480MHz)	4.34	4±1	5	3.162	0.996	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: EED32P80738601.

2) For Bluetooth Classic

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.23	2.0±1	3.0	1.995
Middle(2441MHz)	2.15	2.0±1	3.0	1.995
Highest(2480MHz)	1.9	1.0±1	2.0	1.585
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.91	2.0±1	3.0	1.995
Middle(2441MHz)	2.67	2.0±1	3.0	1.995
Highest(2480MHz)	2.33	2.0±1	3.0	1.995

Worst case: $\pi/4$ DQPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	2.91	2.0 $\pm$ 1	3.0	1.995	0.628	3.0
Middle (2441MHz)	2.67	2.0 $\pm$ 1	3.0	1.995	0.628	
Highest (2480MHz)	2.33	2.0 $\pm$ 1	3.0	1.995	0.628	
Conclusion: the calculated value $\leq$ 3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: EED32P80738602.

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*** End of Report ***