



시험 성적서

TEST REPORT

페이지(page) : (1) / (총(Total) 7)

성적서 번호 Report No.		ICRT-TR-E231161-0A	
신청자 Client	기관명 Name	HANMI MICRONICS INC.	
	주 소 Address	72, Samdo-ro 48beon-gil, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea.	
시험대상품목 Sample description		WIRELESS KEYBOARD	
모델명 Type designation		CaluX	
정 격 Ratings		DC 3.7 V	
시험장소 Place of test		☒ 고정시험(Inside test) ☐ 현장시험(Field test) 주소지(Address): 112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea	
시험기간 Date of test		12. Apr. 2023 ~ 17. May. 2023	
시험방법/항목 Test Method/Item		FCC rule §2.1093	
시험결과 Test Results		Refer to 3. RF Exposure	
확 인 Affirmation	작성자 Tested by	기술책임자 Technical Manager	
	성 명 Name Si-Yeon, Hwang (서 명) (Signature)	성 명 Name Tae-Yang, Yoon (서 명) (Signature)	
☐ 위 성적서는 고객이 제공한 시료에 대한 시험결과입니다. The above test report is certified that the above mentioned products have been tested for the sample. ☐ 위 성적서는 KS Q ISO/IEC 17025 및 한국인정기구(KOLAS)인정과 관련이 없습니다. The above test report is not related to accreditation by KS Q ISO/IEC 17025 and Korea Laboratory Accreditation scheme. ☐ 위 성적서는 주식회사 아이씨알의 승인 없이는 일부 복제에 대해 금지됩니다. The test report is prohibited for some reproduction without the approval of the ICR.			
2023. 05. 23 주식회사 아이씨알 대표이사 The head of INTERNATIONAL CERTIFICATION REGISTRAR			

본 성적서의 진위 확인은 G4B 혹은 ICR 홈페이지에서 가능합니다.

The authenticity of the test report can be checked on the G4B or ICR website.

경기도 김포시 양촌읍 황금3로7번길 112 / Tel: 02-6351-9001 ~ 6



Contents

1. Applicant & Manufacturer & Test Laboratory Information.....	4
1.1 Applicant information.....	4
1.2 Manufacturer Information.....	4
1.3 Test Laboratory Information.....	4
2. Equipment under Test(EUT) Information.....	5
2.1 General Information	5
2.2 Additional Information	5
2.3 Mode of operation during the test.....	5
2.4 Modifications of EUT	5
3. Maximum Permissible Exposure	6
3.1 RF Exposure calculation	6
3.2 Result.....	7



Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E231161-0A	2023.05.23	Initial Issue	All



1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	HANMI MICRONICS INC.
Address	72, Samdo-ro 48beon-gil, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea.
Contact Person	Jin Chul Kim
Telephone No.	82-10-4023-7851
Fax No.	-
E-mail	jckim@micronics.co.kr

1.2 Manufacturer Information

Manufacturer	HANMI MICRONICS INC.
Address	72, Samdo-ro 48beon-gil, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea.

1.3 Test Laboratory Information

Laboratory	ICR Co., Ltd.
Address	112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
Telephone No.	+82-2-6351-9002
Fax No.	+82-2-6351-9007
RRA No.	KR0165
KOLAS No.	KT652



2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	Wireless Keyboard
Brand Name	-
Model Name	CaluX
Additional Model Name	-
FCC ID	2A3QW-CALUX
Hardware Version	1.0

2.2 Additional Information

Equipment Class	DSS - Frequency Hopping Spread Spectrum system	
	DTS - Digital Transmission System	
Device Type	Stand-alone	
Operating Frequency	FHSS	2 402 MHz ~ 2 479 MHz
	Bluetooth BDR, LE	2 402 MHz ~ 2 480 MHz
RF Output Power	FHSS	6.3 dBm
	Bluetooth BDR	-6.29 dBm
	Bluetooth LE	-5.35 dBm
Number of Channel	FHSS	78
	Bluetooth BDR	79
	Bluetooth LE	40
Modulation Type	GFSK	
Antenna Type	PCB Antenna	
Antenna Gain	1.58 dBi	
Antenna Operating Mode	Single antenna exists for each mode	

2.3 Mode of operation during the test

- The EUT is continuous transmission mode during the test with set at Low Channel, Middle Channel, and High Channel. To get a maximum radiated emission levels from the EUT, the EUT was moved throughout the XY, YZ, XZ planes.

2.4 Modifications of EUT

- None



3. RF Exposure

3.1 RF Exposure calculation.

Kind of EUT	RECEIVER	
Operating Frequency Band	☐ WLAN(802.11b/g/n(HT20)): 2 412 MHz ~ 2 462 MHz ☐ WLAN(802.11n(HT40)): 2 422 MHz ~ 2 452 MHz ☐ WLAN: 5 180 MHz ~ 5 320 MHz / 5 500 MHz ~ 5 700 MHz ☐ WLAN: 5 745 MHz ~ 5 825 MHz ☒ Bluetooth: 2 402 MHz ~ 2 480 MHz ☒ FHSS: 2 402 MHz ~ 2 479 MHz	
Max. Output Power	FHSS	6.30 dBm
	Bluetooth BDR	- 6.29 dBm
	Bluetooth LE	- 5.35 dBm
Exposure Evaluation Applied	☐ MPE ☐ SAR ☒ N/A	



3.2 Result

According to the procedure, KDB 447498 D01, the standalone SAR test exclusion threshold is

$$[(\text{Max. Power of channel, including tune-up tolerance, mW}) / (\text{Min. test separation distance, mm})] \times [\sqrt{f}(\text{GHz})] < 7.5$$

Conclusion: The SAR test exclusion threshold is less than 7.5, so the device meets the RF Exposure Requirement and excluded SAR Test.

Operating Mode	Frequency (MHz)	Target Power W / tolerance	Max tune up power		Separation distance (mm)	RF exposure	Limit
		(dBm)	(dBm)	(mW)			
FHSS	2 402	6.3 ± 0.5	6.8	4.79	5.00	1.48	7.5
Bluetooth BDR	2 402	-6.29± 0.5	-5.79	0.26	5.00	0.08	7.5
Bluetooth LE	2 402	-5.35± 0.5	-4.85	0.33	5.00	0.10	7.5

End of Report