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RF Exposure Evaluation Report

Report No.:	CQASZ20210100004E-02
Applicant:	Kontakt Micro-Location Sp. z o.o.
Address of Applicant:	ul. Stoczniowcow 3, 30-709 Krakow, Poland
Equipment Under Test (EUT):	
EUT Name:	Smart Badge
Model No.:	KHWPO302F001
Brand Name:	Smart Badge
FCC ID:	2ADAO-KHWPO302F001
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2021-01-04
Date of Test:	2021-01-04 to 2021-01-11
Date of Issue:	2021-01-11
Test Result:	**PASS***

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

Tested By: Martin Lee

(Martin Lee)

Reviewed By: Ares Liu

(Ares Liu)

Approved By: Sheek Luo

(Sheek Luo)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210100004E-02	Rev.01	Initial report	2021-01-11

2 Contents

3 General Information

3.1 Client Information

Applicant:	Kontakt Micro-Location Sp. z o.o.
Address of Applicant:	ul. Stoczniowcow 3, 30-709 Krakow, Poland
Manufacturer:	Shenzhen Minew Technologies Co., Ltd
Address of Manufacturer:	3rd Floor, I Bulding, Gangzhilong Science Park, Qinglong Road, Longhua District, Shenzhen City, China
Factory:	Shenzhen Minew Technologies Co., Ltd
Address of Factory:	Building 3, Instrument World Industrial Park, No. 306, Guanlan Guiyue Road, Longhua District, Shenzhen

3.2 General Description of EUT

Product Name:	Smart Badge
Model No.:	KHWPO302F001
Trade Mark:	Smart Badge
Hardware Version:	V1.X
Software Version:	V1.X
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:	Direct Test Mode Tool (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	0.01dBi
EUT Power Supply:	lithium battery: DC3.0V, 800mAh

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)	2.86	2.0±1	3.0	1.995
Middle(2440MHz)	3.63	3.0±1	4.0	2.512
Highest(2480MHz)	3.89	3.0±1	4.0	2.512
GFSK(2Mbps) 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(2440MHz)	3.64	3.0±1	4.0	2.512
Highest(2480MHz)	3.92	3.0±1	4.0	2.512

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)	2.91	2.0±1	3.0	1.995	0.618	3.0
Middle (2440MHz)	3.64	3.0±1	4.0	2.512	0.785	
Highest (2480MHz)	3.92	3.0±1	4.0	2.512	0.791	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20210100004E-01.

--THE END--