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Report Template Version: V03
Report Template Revision Date: Mar.1st, 2017

RF Exposure Evaluation Report

Report No. : CQASZ20190200029E-03
Applicant: GolfzonDeca Inc.
Address of Applicant: 98, Yatap-ro, Bundang-Gu, Seongnam-si, Gyeonggi-do, 13517, South Korea
Manufacturer: PKtech
Address of Manufacturer: Room 507, 537, Dunchon-daero, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
Factory: Shenzhen Huaxin Communication Co., Ltd.
Address of Factory: 5/F, Building B5, Xujingchang Industrial Park, No. 39, Haoye Road, Xinhe Community, Fuhai Street, Baoan District, Shenzhen, Guangdong, P.R. China
Equipment Under Test (EUT):
Product: Golf Rangefinder
Model No.: AIMV10
Brand Name: GOLFBUDDY
FCC ID: 2ALG4AIMV10
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Test: 2019-01-04 to 2019-01-15
Date of Issue: 2019-02-22
Test Result : PASS*

Tested By:

Daisy Qin

(Daisy Qin)

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
CQASZ20181200049E-03	Rev.01	Initial report	2019-01-15
CQASZ20190200029E-03	Rev.02	See remark	2019-02-22

Remark:

Report supplementary information:

1. This report is supplementary report, compared with the original report, this report only changed manufacturer, no addition tests are necessary in the report.
2. This supplementary report is based on the original report, it is effective when the supplementary report and original report were used at the same time.
3. For more details, please refer to the following table.

No.	Item	Before the change	After the change
1	Report No.	CQASZ20181200049E-03	CQASZ20190200029E-03
2	Manufacturer	Name: GolfzonDeca Inc. Address: 98, Yatap-ro, Bundang-Gu, Seongnam-si, Gyeonggi-do,13517, South Korea	Name: PKtech Address: Room 507, 537, Dunchon-daero, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea

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3 General Information

3.1 Client Information

Applicant:	GolfzonDeca Inc.
Address of Applicant:	98, Yatap-ro, Bundang-Gu, Seongnam-si, Gyeonggi-do, 13517, South Korea
Manufacturer:	PKtech
Address of Manufacturer:	Room 507, 537, Dunchon-daero, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
Factory:	Shenzhen Huaxin Communication Co., Ltd.
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3.2 General Description of EUT

Product Name:	Golf Rangefinder
Model No.:	AIMV10
Trade Mark:	GOLFBUDDY
Hardware Version:	GOLFBUDDY_V10_20181228
Software Version:	V10_MB_V2.0_20181129
Test Software of EUT:	Maui META-bulid 7.1504.0 (manufacturer declare)
Antenna Type:	Integral antenna
Antenna Gain:	1.88dBi
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Power Supply:	lithium battery:DC4.35V, Charge by DC5.0V

3.3 General Description of BT

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps/3Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems

3.4 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.0
Modulation Type:	GFSK
Transfer Rate:	1Mbps
Number of Channel:	40

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:

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

$f(\text{GHz})$ 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

4.1.3 EUT RF Exposure

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	4.010	3.5±1	4.5	2.818
Middle(2441MHz)	3.970	3.5±1	4.5	2.818
Highest(2480MHz)	3.860	3.5±1	4.5	2.818
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.260	2.5±1	3.5	2.239
Middle(2441MHz)	3.110	2.5±1	3.5	2.239
Highest(2480MHz)	3.000	2.5±1	3.5	2.239
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.600	3.5±1	4.5	2.818
Middle(2441MHz)	3.500	3.5±1	4.5	2.818
Highest(2480MHz)	3.150	3.0±1	4.0	2.512

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)	4.010	3.5±1	4.5	2.818	0.87	3.0
Middle (2440MHz)	3.970	3.5±1	4.5	2.818	0.88	
Highest (2480MHz)	3.860	3.5±1	4.5	2.818	0.89	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20181200049E-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)	4.12	3.5±1	4.5	2.818
Middle(2441MHz)	4.18	3.5±1	4.5	2.818
Highest(2480MHz)	4.04	3.5±1	4.5	2.818

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)	4.12	3.5±1	4.5	2.818	0.87	3.0
Middle (2440MHz)	4.18	3.5±1	4.5	2.818	0.88	
Highest (2480MHz)	4.04	3.5±1	4.5	2.818	0.89	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20181200049E-02