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TEST REPORT

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1. Client

- Name : Golfzon. CO., LTD
- Address : GOLFZON TOWER SEOUL 10-11F, 13F-17F, 19F, 735, Yeongdong-daero, Gangnam, Seoul, Republic of Korea
- Date of Receipt : 2022-07-21

2. Use of Report : Certification

3. Name of Product / Model : Portable Golfsensor_IR / GZ-GWPS-22

4. Manufacturer / Country of Origin : Teravalue Inc., / Korea

5. FCC ID : N5Y-GZ-GWPS-22

6. Date of Test : 2022-08-09 to 2022-08-16

7. Location of Test : ■ Permanent Testing Lab ☐ On Site Testing
(Address:65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea)

8. Test method used : Part 1.1310

9. Test Result : Refer to the test result in the test report

Affirmation	Tested by Name : Hyesom Shin (Signature)	Technical Manager Name : Harim Lee (Signature)

2023-02-15

Eurofins KCTL Co.,Ltd.

As a test result of the sample which was submitted from the client, this report does not guar antee the whole product quality. This test report should not be used and copied without a written agreement by KCTL Inc.

REPORT REVISION HISTORY

Date	Revision	Page No
2023-02-15	Originally issued	-

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General remarks for test reports

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

☐ **Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:**

Procedure number, issue date and title:

Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

☒ **Statement not required by the standard or client used for type testing**

CONTENTS

1. General information 4
2. Device information 4
2.1. Frequency/channel operations.....5
3. Antenna requirement 5
4. RF Exposure.....6
4.1. Test results.....7

1. General information

Client	:	Golfzon. CO., LTD
Address	:	GOLFZON TOWER SEOUL 10-11F, 13F-17F, 19F, 735, Yeongdong-daero, Gangnam, Seoul, Republic of Korea
Manufacturer	:	Teravalue Inc.,
Address	:	70, Gasan digital 2-ro, Geumcheon-gu, Seoul, Republic of Korea
Laboratory	:	Eurofins KCTL Co.,Ltd.
Address	:	65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Accreditations	:	FCC Site Designation No: KR0040, FCC Site Registration No: 687132
		VCCI Registration No. : R-20080, G-20078, C-20059, T-20056
		CAB Identifier: KR0040
		ISED Number: 8035A
		KOLAS No.: KT231

2. Device information

Equipment under test	:	Portable Golfsensor_IR
Model	:	GZ-GWPS-22
Modulation technique	:	Bluetooth(BLE)_GFSK
Number of channels	:	40 ch
Power source	:	DC 5 V
Antenna specification	:	Chip Antenna
Antenna gain	:	-7.08 dBi
Frequency range	:	2 402 ㎒ ~ 2 480 ㎒
Software version	:	Wave-P1-221128
Hardware version	:	IR-PUTT V0.9
Test device serial No.	:	N/A
Operation temperature	:	-10 ℃ ~ 50 ℃

2.1. Frequency/channel operations

This device contains the following capabilities:
Bluetooth Low Energy

Ch.	Frequency (㎒)
00	2 402
⋮	⋮
19	2 440
⋮	⋮
39	2 480

Table 2.1.1. Bluetooth Low Energy

3. Antenna requirement

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.
All measurement uncertainty values are shown with a coverage factor of *k*=2 to indicated a 95 % level of confidence. The measurement data shown herein meets of exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded uncertainty (±)
Conducted RF power	0.9 ㏈

4. RF Exposure

Regulation

This document is prepared to show compliance with the RF Exposure requirements as required in §1.1310 of the FCC rules and Regulations.
The limit for Maximum Permissible Exposure (MPE), specified in FCC §1.1310, is listed in Table 1-1.
According to FCC §1.1310: the criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b).

Table 1 – Limits for Maximum Permissible Exposure (MPE)

Frequency Range (㎒)	Electric Field Strength [V/m]	Magnetic Field Strength [A/m]	Power Density [㎽/㎠]	Averaging Time [minute]
(A) Limits for Occupational / Controlled Exposure				
0.3 ~ 3.0	614	1.63	*100	6
3.0 ~ 30	1842/f	4.89/f	*900/f²	6
30 ~ 300	61.4	0.163	1.0	6
300 ~ 1 500	/	/	f/300	6
1 500 ~ 15 000	/	/	5	6
(B) Limits for General Population / Uncontrolled Exposure				
0.3 ~ 1.34	614	1.63	*100	30
1.34 ~ 30	824/f	2.19/f	*180/f²	30
30 ~ 300	27.5	0.073	0.2	30
300 ~ 1 500	/	/	f/1 500	30
1 500 ~ 15 000	/	/	1.0	30

*f=frequency in ㎒, *= plane-wave equivalent power density*

Per the guidance of KDB 680106, the E-field and H-field limits shown in the table above are extended down to 100 ㎑

MPE (Maximum Permissive Exposure) Prediction

Predication of MPE limit at a given distance: Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2 \quad \left(\Rightarrow R = \sqrt{PG/4\pi S}\right)$$

S = power density [㎽/㎠]
P = Power input to antenna [㎽]
G = Power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna [㎝]

4.1. Test results

Calculation Result of RF exposure (FCC)

Maximum tune-up tolerance

Mode	Frequency [㎒]	Max Tune-up Power [dBm]	Max Tune-up Power [㎽]	Ant Gain [dBi]	Ant Gain [㎽]	Power density at 20 ㎝ [㎽/㎠]	Limit [㎽/㎠]
BLE_1M Bits/s	2 402	1.00	1.26	-7.08	0.20	0.000 05	1.000 00

Note.

1. The power density P_d at a distance of 20 ㎝ calculated from the friis transmission Formula is far below the limit of 1 ㎽/㎠.

End of test report