

Project No: TM-2508000066P
Report No.: TMWK2508003276KS

FCC ID: JNZVR0041

Page 1 / 15
Rev.: 01

RF Exposure Evaluation Report

FCC 47 CFR § 2.1091

for
Environmental Sensor

Model Name.: VR0041

Prepared for:

**Logitech Far East Ltd.
#2 Creation Rd. 4, Science-Based Ind. Park Hsinchu
Taiwan, R.O.C.**

Prepared by

**Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City, Taiwan.**

Issue Date: October 28, 2025

Note: This document may be altered or revised by Compliance Certification Services Inc. personnel only, and shall be noted in the revision section of the document. The client should not use it to claim product endorsement by TAF, NIST or any government agencies. The test results in the report only apply to the tested sample.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.



Project No: TM-2508000066P
Report No.: TMWK2508003276KS

Page 2 / 15
Rev.: 01

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	October 20, 2025	Initial Issue	ALL	Allison Chen
01	October 28, 2025	See the following Note Rev.(01)	P.14	Allison Chen

Note:

Rev.(01)

1. Modify Simultaneous Transmission Analysis in section 7.



Table of Contents

1 ATTESTATION OF TEST RESULTS4

2 TEST SPECIFICATION, METHODS AND PROCEDURES5

3 DEVICE UNDER TEST (DUT) INFORMATION.....6

3.1 DUT DESCRIPTION6

3.2 WIRELESS TECHNOLOGIES7

4 MEASUREMENT UNCERTAINTY8

5 MAXIMUM PERMISSIBLE EXPOSURE9

5.1 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)9

5.2 MPE CALCULATION METHOD10

5.3 MPE EXEMPTION11

5.4 MULTIPLE RF SOURCES12

6 RADIO FREQUENCY RADIATION MAX EXPOSURE EVALUATION13

7 SIMULTANEOUS TRANSMISSION ANALYSIS14

7.1 SUM OF THE RADAR & BLE & LORA14

8 FACILITIES15



Project No: TM-2508000066P
Report No.: TMWK2508003276KS

Page 4 / 15
Rev.: 01

1 Attestation of Test Results

Applicant Name	Logitech Far East Ltd. #2 Creation Rd. 4, Science-Based Ind. Park Hsinchu Taiwan, R.O.C.
Model Name	VR0041
Applicable Standards	FCC 47 CFR § 2.1091 FCC 47 CFR § 1.1307 FCC 47 CFR § 1.1310 Published RF exposure KDB procedures
Receive EUT Date:	August 05, 2025
Date of Test:	August 19, 2025
Compliance Certification Services Inc. , tested the above equipment in accordance with the requirements set forth in the above standards. Determination of compliance is based on the results of the compliance measurement,not taking into account measurement instrumentation uncertainty.All indications of Pass/Fail in this report are opinions expressed by Compliance Certification Services Inc, based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.	
Approved & Released By: 	Tested by: 
Sky Zhou Asst. Section Manager Compliance Certification Services Inc.	KW Huang Engineer Compliance Certification Services Inc.



Project No: TM-2508000066P
Report No.: TMWK2508003276KS

Page 5 / 15
Rev.: 01

2 Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1091, the following FCC Published RF exposure [KDB](#) procedures:

- 447498 D04 Interim General RF Exposure Guidance v01
- 865664 D02 RF Exposure Reporting v01r02



Project No: TM-2508000066P
Report No.: TMWK2508003276KS

Page 6 / 15
Rev.: 01

3 Device Under Test (DUT) Information

3.1 DUT Description

Product	Environmental Sensor
Trade Name	logi, logitech, Logitech
Model No.	VR0041
Model Discrepancy	N/A
Hardware Version	PB2
Software Version	1.0.138
Sample Stage	Identical prototype

3.2 Wireless Technologies

Frequency bands	☐ Bluetooth: 2402MHz-2480MHz ☐ 802.11b/g/n HT20: 2412MHz ~ 2462 MHz ☐ 802.11n HT40: 2422MHz ~ 2452 MHz ☐ 802.11a/n HT20: 5180MHz ~ 5240MHz / 5260 ~ 5320MHz / 5500 ~ 5700MHz / 5745MHz ~ 5825MHz ☐ 802.11n HT40: 5190 MHz ~ 5230 MHz / 5270 MHz ~ 5310 MHz / 5510 MHz ~ 5670 MHz / 5755 MHz ~ 5795MHz ☐ 802.11ac VHT20: 5180MHz ~ 5240MHz / 5260 ~ 5320MHz / 5500 ~ 5700MHz / 5745MHz ~ 5825MHz ☐ 802.11ac VHT40: 5190 MHz ~ 5230 MHz / 5270 MHz ~ 5310 MHz / 5510 MHz ~ 5670 MHz / 5755 MHz ~ 5795MHz ☐ 802.11ac VHT80: 5210 MHz / 5290 MHz / 5530 MHz / 5775 MHz ☐ 802.11ax HE20: 5180MHz ~ 5240MHz / 5260 ~ 5320MHz / 5500 ~ 5700MHz / 5745MHz ~ 5825MHz ☐ 802.11ax HE40: 5190 MHz ~ 5230 MHz / 5270 MHz ~ 5310 MHz / 5510 MHz ~ 5670 MHz / 5755 MHz ~ 5795MHz ☐ 802.11ax HE80: 5210 MHz / 5290 MHz / 5530 MHz / 5775 MHz ☒ Others: 59.22-60.56GHz		
Exposure classification	☐ Occupational/Controlled exposure ☒ General Population/Uncontrolled exposure		
Antenna Specification	Type: PCB etched antenna Gain: 8.65 dBi Radar Gain : 8.65 dBi (Numeric gain: 7.33) Worst		
Maximum Peak EIRP tune up power	59.22-60.56GHz	17.50 dBm	(56.234 mW)

Notes:

- For more details, please refer to the User's manual of the EUT.
- Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
- The tune up power referred the Peak power of the test report TMWK2508003275KR for RF Exposure assessment purpose.



Project No: TM-2508000066P
Report No.: TMWK2508003276KS

Page 8 / 15
Rev.: 01

4 Measurement Uncertainty

PARAMETER	UNCERTAINTY
Radiated Emission_9kHz-30MHz	± 2.750 dB
Radiated Emission_30MHz-200MHz	± 3.874 dB
Radiated Emission_200MHz-1GHz	± 4.065 dB
Radiated Emission_1GHz-6GHz	± 5.594 dB
Radiated Emission_6GHz-18GHz	± 5.556 dB
Radiated Emission_18GHz-26GHz	± 3.165 dB
Radiated Emission_26GHz-40GHz	± 3.216 dB
Radiated Emission_40GHz-60GHz	± 2.259 dB
Radiated Emission_60GHz-90GHz	± 2.215 dB
Radiated Emission_90GHz-140GHz	± 2.225 dB
Radiated Emission_140GHz-220GHz	± 2.207 dB
Radiated Emission_220GHz-325GHz	± 2.311 dB



Project No: TM-2508000066P
Report No.: TMWK2508003276KS

Page 9 / 15
Rev.: 01

5 Maximum Permissible Exposure

5.1 Limits for Maximum Permissible Exposure (MPE)

Table 1 - Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	* 100	6
3.0-30	1842/f	4.89/f	* 900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			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/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
<u>1,500-100,000</u>			1.0	30

5.2 MPE Calculation Method

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \text{ Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

If, Substituting the MPE safe distance using d = 20 cm into Equation 1:

$$S = 0.000199 \times P \times G$$

5.3 MPE EXEMPTION

- (A) The available maximum time-averaged power is no more than 1 mW
- (B) The available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

- (C) Using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

Single RF Sources Subject to Routine Environmental Evaluation	
RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.
Note: R is in meters, f is in MHz.	

5.4 Multiple RF sources

In the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation),

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$



Project No: TM-2508000066P
Report No.: TMWK2508003276KS

Page 13 / 15
Rev.: 01

6 Radio Frequency Radiation Max Exposure Evaluation

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

Radar

Frequency (MHz)	Max. Peak EIRP Tune-up power (dBm)	Max. Peak EIRP Tune-up power (mW)	D(cm)	Power Density in mW/cm ²	Limit (mW/cm ²)
60542	17.50	56.23	20	0.011	1

7 Simultaneous Transmission Analysis

In the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation),

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

7.1 Sum of the Radar & BLE & LoRa

1. Radar + BLE

Therefore, the worst-case situation is $0.011 / 1 + 0.0014 / 1 = 0.012$, which is less than "1".

2. Radar + LoRa

Therefore, the worst-case situation is $0.011 / 1 + 0.018 / 0.601 = 0.041$, which is less than "1".

Notes:

1. Refer to the BLE and LoRa results in test report TESA2507000581ES for simultaneous transmission analysis.



Project No: TM-2508000066P
Report No.: TMWK2508003276KS

Page 15 / 15
Rev.: 01

8 Facilities

All measurement facilities used to collect the measurement data are located at

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.

END OF REPORT