

RF Exposure Evaluation Report

Product : Radar Level Meter
Trade mark : 精波
Model/Type reference : PWRD8X, PWRD81, PWRD82, PWRD83,
PWRD84, PWRD85, PWRD86, PWRD86A,
PWRD81H, PWRD81HA, PWRD81HB,
PWRD81HC, PWRD81HD, PWRD8X-W1,
PWRD8X-W2, PWRD8X-W3, PWRD8X-W4
Serial Number : Radar Level Meter
Report Number : EED32S811055
FCC ID : 2BWL3-PWRD
Date of Issue : October 10, 2026
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB 447498 D04 Interim General RF Exposure
Guidance v01
Test result : PASS

Prepared for:

Beijing Precision Wave Instrument Co.,Ltd.
Room 2002, 2nd floor, No.1 Building, No.7 of Fengxian Road, Haidian
District, Beijing China

Prepared by:

Centre Testing International Group Co., Ltd.
Building C, Hongwei Industrial Park Block 70, Bao'an District,
Shenzhen, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385



Compiled by:

Frazer Li

Frazer Li

Approved by:

Aaron Ma

Aaron Ma

Reviewed by:

Tom Chen

Tom Chen

Date:

October 10, 2026

Check No.:5117190526

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2 General Information

2.1 Client Information

Applicant:	Beijing Precision Wave Instrument Co.,Ltd.
Address of Applicant:	Room 2002, 2nd floor, No.1 Building, No.7 of Fengxian Road, Haidian District,Beijing China
Manufacturer:	Beijing Precision Wave Instrument Co.,Ltd.
Address of Manufacturer:	Room 2002, 2nd floor, No.1 Building, No.7 of Fengxian Road, Haidian District,Beijing China
Factory:	Beijing Precision Wave Instrument Co.,Ltd.
Address of Factory:	Room 2002, 2nd floor, No.1 Building, No.7 of Fengxian Road, Haidian District,Beijing China

2.2 General Description of EUT

Product Name:	Radar Level Meter
Model No.:	PWRD8X, PWRD81, PWRD82, PWRD83, PWRD84, PWRD85, PWRD86, PWRD86A, PWRD81H, PWRD81HA, PWRD81HB, PWRD81HC, PWRD81HD, PWRD8X-W1, PWRD8X-W2, PWRD8X-W3, PWRD8X-W4
Test model No.:	PWRD8X
Trade Mark:	N/A
Model difference:	Their electrical circuit design, layout, components used and internal wiring are identical, Only the model and appearance color are different. The circuit schematic diagram, PCB layout diagram, structure and key components of all models are identical. It will not affect the safety and EMC performance of its products

2.3 Product Specification subjective to this standard

Frequency Range:	BLE: 2402MHz~2480MHz mmWave: 75GHz to 85GHz
Modulation Type:	BLE: GFSK mmWave: FMCW(Frequency Modulated Continuous Wave)
Test Power Grade:	Default
Test Software of EUT:	N/A
Antenna Type:	Lens Antenna
Antenna Gain:	BLE: 2.72 dBi mmWave: 22.4dBi
Power Supply:	DC 12-30V
Sample Received Date:	Jul. 23, 2026
Sample tested Date:	Jul. 23, 2026 to Aug. 27, 2026

2.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164, Test Firm Registration No.: 260439

2.5 Deviation from Standards

None.

2.6 Abnormalities from Standard Conditions

None.

2.7 Other Information Requested by the Customer

None.

3 SAR Evaluation

3.1 RF Exposure Compliance Requirement

3.1.1 Limits

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula

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

where

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

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

(2) According to KDB 447498 D04 Interim General RF Exposure Guidance v01, for all devices, MPE limits in § 1.1310(e)(1) - Table 1. The SAR-based exemption formula of § 1.1310(e)(1), Table 1 to § 1.1310(e)(1) sets forth limits for Maximum Permissible Exposure (MPE) to radio frequency electromagnetic fields.

Table 1 to § 1.1310(e)(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)
(i) 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
(ii) 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
1,500–100,000			1.0	<30

f = frequency in MHz.

* = Plane-wave equivalent power density.

Friis Formula,

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$;

Where,

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.141592653589793;

R = distance between observation point and center of the radiator in cm .

General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure. For example, RF sources intended for consumer use shall be subject to the limits for general population/uncontrolled exposure in this section.

3.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3.1.3 EUT RF Exposure Evaluation

For Stand alone:

BLE:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
@BLE	20	2	2.72	2.57	1.81	3060.00	0.0006	Pass

mmWave:

Working environment	Frequency (MHz)	Estimation distance (cm)	EIRP (dBm)	EIRP (mW)	Power density (mW/cm ²)	Limit (mW/cm ²)	MPE ratio	Result
Uncontrolled	76996.9	20	15.73	37.411	0.0074	1	0.0074	Pass

Note:

① $EIRP(mW) = 10^{(EIRP(dBm)/10)}$;

② The estimation distance is 20cm;

③ Tune-up EIRP was declared by manufacturer;

④ The test data of Corrected EIRP please refer to the report of EED32S811053, EED32S811054 and only the worst case data was recorded in the report.

For Simultaneous Transmission:

As MPE ratio (BLE+77GHz)=0.0006+0.0074=0.008 < 1, it's deemed to fulfil the RF exposure requirement.

Statement

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
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*** End of Report ***