

Test Report

No. 1-9305-25-13-10_TR1-R01

July 07. 2026

Applicant	Pepperl+Fuchs SE
Product	Radar sensor
Model	MWMC-L2M-EP-IO-V1
Tested Technology	Radar
Test Standard	FCC 47 CFR Part 2
FCC ID	IRE-MWL2A
Verdict	TEST EXEMPTION FULFILLED

The test results apply only to the equipment specified in this document.

This test report is electronically signed and valid without handwritten signature.
Public keys for verification of the electronic signatures can be requested at the testing laboratory.



Digitally signed by
Alexander.Hnatovskiy@cetecomadvanced.com
Date: 2026.07.07 10:24:55

authorized by

Alexander Hnatovskiy
Coordinator Area
Regulatory Services Radio



Digitally signed by
Eric.Tuettmann@cetecomadvanced.com
Date: 2026.07.07 10:07:23

created by

Eric Tuettmann
Testing Manager
Regulatory Services Radio

Table of Contents

1. Disclaimer	3
2. Related cetecom advanced documents	4
3. Document history.....	5
3.1. Current release	5
3.2. Previous releases	5
4. Test laboratory.....	6
4.1. Contact information	6
4.2. Involved test locations.....	6
4.3. Subcontracted laboratories.....	6
4.4. Laboratory listings and recognitions	6
5. Client information	7
5.1. Applicant.....	7
5.2. Manufacturer.....	7
6. Test sample information	8
6.1. General Information	8
6.1.1. General Data of Main EUT as Declared by Applicant.....	8
7. Measurement details	9
7.1. Test methodology.....	9
8. Description of the test setup	10
8.1. No Test Performed	10
9. 1.1 General Information	11
9.1. Notes&References.....	11
9.2. References	11
9.3. General RF Exposure Test Exemptions	11
10. Reference Level Evaluation.....	13
10.1. Limits for maximum permissible exposure for uncontrolled exposure	13
10.1.1. Evaluation	13

1. Disclaimer

The test results of this test report relate exclusively to the test item specified in chapter "Test sample information". cetecom advanced does not assume responsibility for any conclusions and generalizations drawn from the test results regarding other specimens or samples of the type of the equipment represented by the test item.

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of cetecom advanced.

The testing service provided by cetecom advanced has been rendered under the current "General Terms and Conditions for cetecom advanced".

cetecom advanced will not be liable for any loss or damage resulting from false, inaccurate, inappropriate, or incomplete product information provided by the customer.

Under no circumstances does the cetecom advanced test report include any endorsement or warranty regarding the functionality, quality or performance of any other product or service provided.

Under no circumstances does the cetecom advanced test report include or imply any product or service warranties from cetecom advanced, including, without limitation, any implied warranties of merchantability, fitness for purpose, or non-infringement, all of which are expressly disclaimed by cetecom advanced.

All rights and remedies regarding vendor's products and services for which cetecom advanced has prepared this test report shall be provided by the party offering such products or services and not by cetecom advanced. In no case this test report can be considered as a Letter of Approval.

This test report is electronically signed and valid without handwritten signature. Public keys for verification of the electronic signatures can be requested at the testing laboratory.

The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 10 years at cetecom advanced.

2. Related cetecom advanced documents

Title	Description	Reference	Total Pages
n/a			

3. Document history

3.1. Current release

Release No.: R01
Date of release: July 07. 2026
Applied changes: Initial release

3.2. Previous releases

Version	Applied change	Date of release
n/a		

4. Test laboratory

4.1. Contact information

cetekom advanced GmbH
Untertuerkheimer Str. 6-10
66117 Saarbruecken
Germany

4.2. Involved test locations

Saarbrücken Lab

Untertürkheimer Strasse 6 – 10
66117 Saarbrücken
Germany

4.3. Subcontracted laboratories

None.

4.4. Laboratory listings and recognitions

	Saarbrücken	Essen
FCC	DE0002	DE0003
ISED	DE0001 3462C	DE0001 3462D

5. Client information

5.1. Applicant

Name: Pepperl+Fuchs SE
Address: GERMANY, 92224 Amberg, Ohmstraße 2a
Contact Person: Samuel Zeising
Contact Person's Email: szeising@de.pepperl-fuchs.com

5.2. Manufacturer

Name: Pepperl+Fuchs SE
Address: GERMANY, 92224 Amberg, Ohmstraße 2a
Contact Person: Samuel Zeising
Contact Person's Email: szeising@de.pepperl-fuchs.com

6. Test sample information

The data about the test samples is given/supplied by the customer and not under control by cetecom advanced GmbH.

6.1. General Information

6.1.1. General Data of Main EUT as Declared by Applicant

FCC ID

IRE-MWL2A

7. Measurement details

7.1. Test methodology

The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2018-03) by the Deutsche Akkreditierungsstelle GmbH (DAkkS).

The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number D-PL-12047-01-00.

Test method, standard, rule	Description
FCC 47 CFR Part 2	Federal Communications Commission, 47 code of federal regulations, Part 2: General Rules & Regulations for Equipment Authorisation

8. Description of the test setup

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, RF generating and signaling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

Each block diagram listed can contain several test setup configurations. All devices belonging to a test setup are identified with the same letter syntax. For example: Column Setup and all devices with an A.

Note: Monitoring

Abbreviation	Explanation
cal	Calibration
calchk	Calibration and Validation
car	Calibration Restricted Use
chk	Validation
chr	Validation Restricted Use
cpu	Validation prior to Use
cnn	No Monitoring

8.1. No Test Performed

This report includes no tests, only calculations from previously aquired data

9. 1.1 General Information

9.1. Notes&References

9.2. References

Guidance Version Description

47 CFR 1.1307		Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.
47 CFR 2.1091		Radiofrequency radiation exposure evaluation: mobile devices.
47 CFR 2.1093		Radiofrequency radiation exposure evaluation: portable devices.
KDB 447498 D04	v01	Interim General RF Exposure Guidance: RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices

9.3. General RF Exposure Test Exemptions

KDB 447498 D04 Interim General RF Exposure Guidance v01, section 2.1.1:

RF exposure test exemptions provide means to obtain certification without the need of showing data (measurements, or analytical/numerical modeling) to demonstrate compliance. Hereafter, in this context, an RF source is referred to as “exempt RF device” in the sense that it is not required to show data demonstrating compliance to RF exposure limits.

Test exemptions apply for devices used in general population/uncontrolled exposure environments, according to the SAR-based, or MPE-based exemption thresholds. However, it is always possible, especially when the potential for exposure cannot be easily determined, that an RF exposure evaluation may become required according §§ 1.1307(c) and (d).

As detailed in Section 3.1 (see KDB 447498 D04, Section 2.1.2), the 1-mW and SAR-based test exemption conditions are in terms of source-based available maximum time-averaged (matched conducted) output power for all operating configurations, adjusted for tune-up tolerance, and at the minimum test separation distance required for the particular RF exposure scenario under consideration. This minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander. To qualify for SAR test exemption, the test separation distances applied must be fully explained and justified (typically in the SAR measurement, or SAR analysis report, according to KDB Pub. 865664) by showing the actual operating configurations and exposure conditions of the transmitter, and applicable host platform requirements (e.g., KDB Pubs. 648474, 616217, 941225)

When no other RF exposure testing or reporting is required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for SAR test exemption.

If RF exposure testing requirements for a specific device are covered in a KDB publication, those requirements must be satisfied before applying any SAR test exemption provisions. For example, this is the case for handheld PTT two-way radios, handsets, laptops, and tablets, etc. Finally, when 10-g extremity SAR applies, SAR test exemption may be considered by applying a factor of 2.5 to the SAR-based exemption thresholds.

KDB 447498 D04 Interim General RF Exposure Guidance v01, Appendix A:

Frequency-dependent and distance-dependent power thresholds were adopted in Report and Order FCC 19-126. Appendix D of NPRM FCC 13-39 has the derivation of the frequency- dependent and distance-dependent time-averaged power thresholds, below which single portable RF sources operating in the frequency range of 300 MHz (0.3 GHz) to 6 GHz may be exempt from RF evaluation.

The previous power exclusion thresholds for mobile devices in § 2.1091(c) were 1.5 W ERP for transmitters operating at frequencies at or below 1.5 GHz, and 3 W ERP for transmitters operating at frequencies above 1.5 GHz. The new exemption criteria are similar to the previous power exclusion thresholds above 1.5 GHz between 20 cm and 40 cm but consider the potential for whole body resonance at frequencies below 1.5 GHz. The new exemption criteria are less restrictive than the previous power exclusion thresholds between 0.8 GHz and 1.5 GHz, and additionally support extension of these exclusion thresholds down to 0.3 GHz. The new exemption criteria can be used out to a separation distance of 40 cm for mobile and fixed RF sources operating between 300 MHz and 6 GHz. At 40 cm, the MPE-based exemption criteria and the SAR-based exemption criteria are equal.

Generally, the sequence to apply for single portable RF sources includes the following steps: Generally, the sequence to apply for single portable RF sources includes the following steps:

determination of 1 mW blanket exemption under § 1.1307(b)(3)(i)(A)

determination of exemption under the MPE-based § 1.1307(b)(3)(i)(C) if 1) is not met

determination of exemption under the SAR-based § 1.1307(b)(3)(i)(B) if both 1) and 2) are not met.

10. Reference Level Evaluation

Prediction of MPE limit at given distance - FCC

$$S = PG / 4\pi R^2$$

where: S = Power density

P = Power input to the antenna

G = Antenna gain

R = Distance to the center of radiation of the antenna

PG = Output power including antenna gain (EIRP)

The table below is excerpted from Table 1 - Limits for Maximum Permissible Exposure (MPE) - "General Population/Uncontrolled Exposure" according according FCC 19-126A1

10.1. Limits for maximum permissible exposure for uncontrolled exposure

Frequency (MHz)	Electric Field strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (Minutes)
0.3-3	614	1.63	100	<30
3-30	824/f	2.19/f	1800/f ²	<30
30-300	27.5	0.073	0.2	<30
300-1500	-/-	-/-	f/1500	<30
1500-100,000	-/-	-/-	1.0	<30

10.1.1. Evaluation

Technology	RADAR
Frequency	120000 MHz
Meas. EIRP	19.6 dBm
Distance	20 cm
MPE limit for uncontrolled exposure	1.0 mW/cm ²
Calculated Power density:	0.0182 mW/cm ²
Calculated percentage of limit:	1.82%

#	Document	Document Type	additional information
A	1-9305-25-13-08_TR1-R01	cetecom advanced test report	pg 38

This demonstrates a compliance with the reference levels at 20 cm

End of document