

Test Report

Report Number:

F251884E10

Equipment under Test (EUT):

Controlunit PILOT

Applicant:

Fronius International GmbH

Manufacturer:

Fronius International GmbH



Deutsche
Akkreditierungsstelle
D-PL-17186-01-00

References

- [1] **ANSI C63.4-2014+C63.4a-2017** American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
- [2] **FCC 47 CFR Part 2:** General Rules and Regulations
- [3] **FCC 47 CFR Part 15:** Radio Frequency Devices (Subpart B)
- [4] **ICES-003 Issue 7 (October 2020):** Spectrum Management and Telecommunications. Interference-Causing Equipment Standard. Information Technology Equipment (Including Digital Apparatus) —Limits and Methods of Measurement

Test Result

The requirements of the tests performed as shown in the overview (clause 4) were fulfilled by the equipment under test. The complete test results are presented in the following.

“Passed” indicates that the equipment under test conforms with the relevant limits of the testing standard without taking any measurement uncertainty into account as stated in clause 10.2.8.2 of ANSI C63.4 (2014). However, the measurement uncertainty is calculated and shown in this test report.

Tested and written
by:

Signature

Reviewed and
approved by:

Signature

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The test results herein refer only to the tested sample. NMI TESTLAB GmbH is not responsible for any generalizations or conclusions drawn from these test results concerning further samples. Any modification of the tested samples is prohibited and leads to the invalidity of this test report. Each page necessarily contains the NMI TESTLAB Logo and the TEST REPORT NUMBER.

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1 Identification

1.1 Applicant

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Phone:	+43-7242-241-0
eMail address:	herndler.jan@fronius.com
Applicant represented during the test by the following person:	Partly: Mr. Jan HERNDLER

1.2 Manufacturer

Name:	Fronius International GmbH
Address:	Fronius Straße 5, 4642 Sattledt
Country:	Austria
Name for contact purposes:	Mr. Jan HERNDLER
Phone:	+43-7242-241-0
eMail address:	herndler.jan@fronius.com
Manufacturer represented during the test by the following person:	Partly: Mr. Jan HERNDLER

1.3 Test Laboratory

The tests were carried out by: **NMI TESTLAB GmbH**
Königswinkel 10
32825 Blomberg
Germany

accredited by *Deutsche Akkreditierungsstelle GmbH (DAkkS)* according to DIN EN ISO/IEC 17025:2018. The accreditation is only valid for the scope of accreditation listed in the annex of the certificate D-PL-17186-01-00. FCC Test Firm Designation Number DE0004, FCC Test Firm Registration Number 469623, CAB Identifier DE0003 and ISED# 3469A.

1.4 EUT (Equipment under Test)

Test object: *	Control and steering unit for solar inverters
Model name: *	Controlunit PILOT
Model number: *	43,0001,3553
Order number: *	N/A
FCC ID: *	QKWPILOT1
IC certification number: *	12270A-PILOT1
PMN: *	Controlunit PILOT
HVIN: *	V0.8A_B
FVIN: *	N/A

	EUT number	
	1	Type plate
Serial number: *	035942 0016	
PCB identifier: *	4,071,452,RD	
Hardware version: *	V0.8A_B	
Software version: *	N/A	

* Declared by the applicant

One EUT was used for all tests.

Note: NMI TESTLAB GmbH does not take samples. The samples used for tests are provided exclusively by the applicant.

1.5 Technical Data of Equipment

General EUT data			
Power supply EUT: *	DC		
Supply voltage EUT: *	U _{nom} = 12 V	U _{min} = 10.8 V	U _{max} = 13.2 V
Temperature range: *	-40°C to + 65°C		
Lowest / Highest internal clock frequency: *	32.768 kHz (quartz) / 2462 MHz		

Ports / Connectors				
Identification	Connector		Length during test	Shielding (Yes / No)
	EUT	Ancillary		
Power connection cable	Customized	Customized	3m	no
Ethernet	RJ45	RJ45	3m	yes
Ethernet	RJ45	Left open	---	---
RS485	RJ45/ Customized (parallel)	Left open	---	---
DC / IO 16 pin	Customized 16 pol plug	Left open	---	---
IN / OUT 4 pin	Customized 4 pol plug	Left open	---	---
-	-	-	-	-

IEEE 802.11 frequencies	
20 MHz	
Channel 1	2412 MHz
Channel 2	2417 MHz
Channel 3	2422 MHz
Channel 4	2427 MHz
Channel 5	2432 MHz
Channel 6	2437 MHz
Channel 7	2442 MHz
Channel 8	2447 MHz
Channel 9	2452 MHz
Channel 10	2457 MHz
Channel 11	2462 MHz
40 MHz	
Channel 03	2422 MHz
Channel 04	2427 MHz
Channel 05	2432 MHz
Channel 06	2437 MHz
Channel 07	2442 MHz
Channel 08	2447 MHz
Channel 09	2452 MHz

IEEE 802.11 radio mode			
Fulfil radio specification: * ¹	IEEE 802.11 b IEEE 802.11 g IEEE 802.11 n (20 MHz) IEEE 802.11 n (40 MHz)		
Radio chip: * ¹	SPB 209A; H&D Wireless AB		
Antenna type: * ¹	Dipole antenna		
Antenna name: * ¹	Taoglas GW.40		
Antenna gain: * ²	3.15 dBi		
Antenna connector: * ¹	RP SMA		
Supply voltage WLAN module: * ¹	$U_{nom} = 3 V_{DC}$	$U_{min} = 2.7 V_{DC}$	$U_{max} = 3.3 V_{DC}$
Type of modulation: * ¹	IEEE 802.11b	DSSS (1 Mbps DSSS (2 Mbps DSSS (5.5/11 Mbps	DBPSK) DQPSK) CCK)
	IEEE 802.11g	OFDM (6/9 Mbps OFDM (12 / 18 Mbps OFDM (24/36 Mbps OFDM (48/54 Mbps	BPSK) QPSK) 16-QAM) 64-QAM)
	IEEE 802.11n 20 MHz (SISO 1x1:1)	MCS0 OFDM MCS1/2 OFDM MCS3/4 OFDM MCS5/6/7 OFDM	(BPSK) (QPSK) (16-QAM) (64-QAM)
	IEEE 802.11n 40 MHz (SISO 1x1:1)	MCS0 OFDM MCS1/2 OFDM MCS3/4 OFDM MCS5/6/7 OFDM	(BPSK) (QPSK) (16-QAM) (64-QAM)
	IEEE 802.11b	2412 – 2462 MHz	
Operating frequency range: * ¹	IEEE 802.11g	2412 – 2462 MHz	
	IEEE 802.11n 20 MHz	2412 – 2462 MHz	
	IEEE 802.11n 40 MHz	2422 – 2452 MHz	
	IEEE 802.11b	11 (5 MHz channel spacing)	
Number of channels: * ¹	IEEE 802.11g	11 (5 MHz channel spacing)	
	IEEE 802.11n 20 MHz	11 (5 MHz channel spacing)	
	IEEE 802.11n 40 MHz	7 (5 MHz channel spacing)	
	IEEE 802.11b	11 (5 MHz channel spacing)	

*¹ declared by the applicant

*² based on the antenna data sheet provided by the applicant

Equipment used for testing	
AC adapter *2	enercell™ CAT.NO. 273-316
Test laptop *2	Fujitsu Lifebook S760
-	-

*1 Provided by the applicant

*2 Provided by the laboratory

1.6 Dates

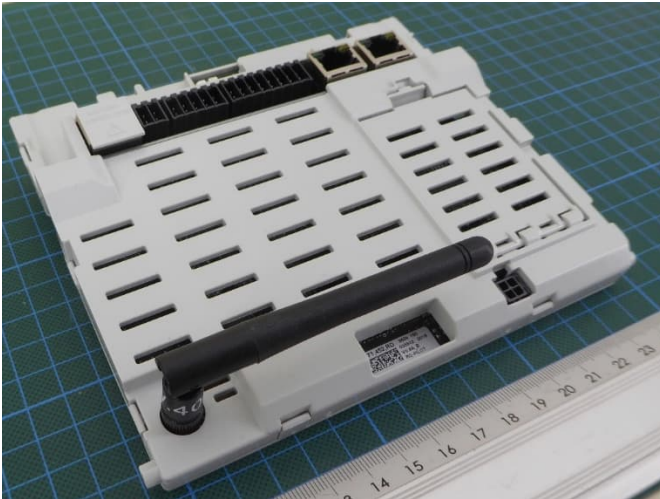
Date of receipt of test sample:	09.12.2025
Start of test:	11.12.2025
End of test:	18.12.2025

2 Operational States

Description of function of the EUT:

The EUT is a control unit for solar inverters, equipped with IEEE 802.11 Wi-Fi for communication purposes. As declared by the applicant, only IEEE 802.11 radio is active, BT/BLE and NFC are disabled by software.

The EUT:



The following states were defined as the operating conditions:

The EUT was supplied by 12 V DC during all tests.

The EUT opened an access point, a laptop was connected to the AP and via ethernet to the EUT. An Fping command was used to simulate continuous data load on WLAN and Ethernet interfaces. As declared by the applicant all other interfaces were not connected nor terminated.

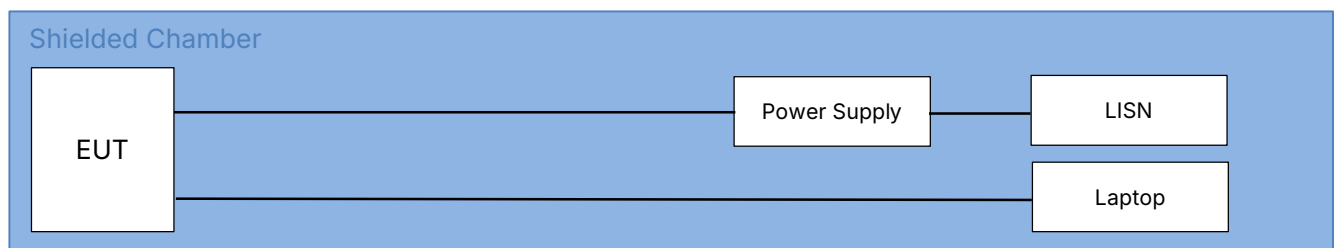
The system was set up as follows:



2.1.1 Block Diagram (Radiated)



2.1.2 Block Diagram (AC power-line conducted)



3 Additional Information

The EUT was not labeled as required by FCC / IC.

The tests were done with an unmodified sample.

4 Overview

Conducted emissions FCC 47 CFR Part 15 section 15.107 (a) [3] (Class B) ICES-003 Issue 7 section 3.2.1[4] (Class B)					
Frequency range	Limits		Reference standard	Tested EUT	Status
[MHz]	dB(μV)	Detector			
0.15 – 0.5	66 to 56*	QP	ANSI C63.4 [1]	1	Passed
	56 to 46*	AV			
0.5-5	56	QP			
	46	AV			
5-30	60	QP			
	50	AV			
*: Decreases with the logarithm of the frequency					

Radiated emissions (Class B) FCC 47 CFR Part 15 section 15.109 (a) [3]							
Frequency range	Limits				Reference standard	Tested EUT	Status
[MHz]	[μV/m]	dB(μV/m)	Detector	Distance			
30 - 88	100	40.0	QP	3m	ANSI C63.4 [1]	1	Passed
88 - 216	150	43.5	QP	3m			
216 - 960	200	46.0	QP	3m			
960 - 1000	500	54.0	QP	3m			
Above 1000	500	54.0	AV	3m			
	5000	74.0	Pk	3m			

Radiated emissions (Class B) ICES-003 Issue 7 section 3.2.2 [4]						
Frequency range	Limits			Reference standard	Tested EUT	Status
[MHz]	[dB(μV/m)]	Detector	Distance			
30 - 88	40.0	QP	3m	ANSI C63.4 [1]	1	Passed
88 - 216	43.5	QP	3m			
216 - 230	46.0	QP	3m			
216 - 960	47.0	QP	3m			
960 - 1000	54.0	QP	3m			
Above 1000	54.0	AV	3m			
	74.0	Pk	3m			

Remark: As declared by the applicant the highest internal clock frequency is 2.480 GHz.
Therefore the radiated emission measurement must be carried out up to 5th of the highest internal clock frequency up to 12.4 GHz, in this case the measurement was carried out up to 13 GHz.

The EUT was classified by the applicant as CLASS B equipment.

5 Results

5.1 Test setups

5.1.1 Radiated: 30 MHz to 1 GHz

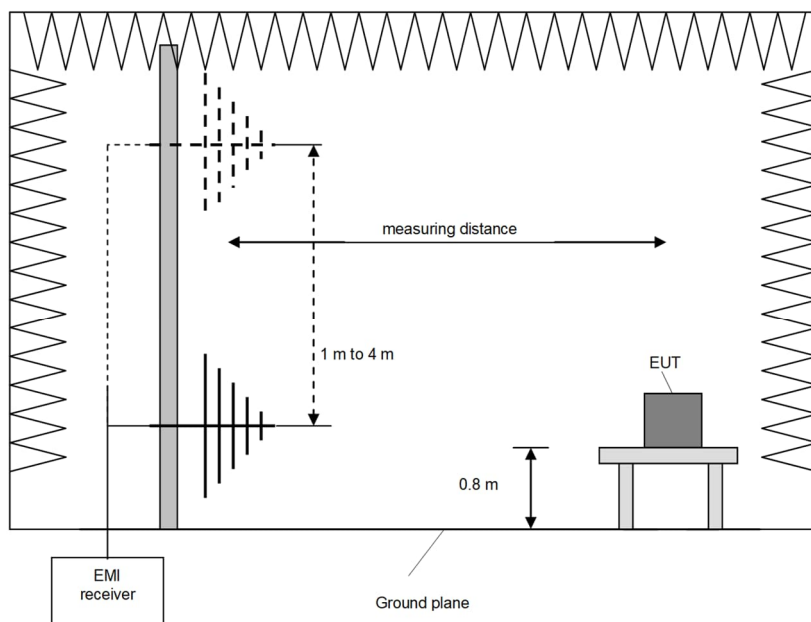
5.1.1.1 Preliminary and final measurement 30 MHz to 1 GHz

The preliminary and final measurements are performed in a semi-anechoic chamber with a metal ground plane at a measuring distance of 3 meters. Table-top devices are set up on a non-conducting support with a size of 1 m by 1.5 m and a height of 80 cm. Floor-standing devices are placed directly on the turntable / ground plane. The setup of the equipment under test is in accordance with [1].

During the tests the EUT is rotated in the range of 0 ° to 360 °, the measuring antenna is set to horizontal and vertical polarization and raised and lowered in the range from 1 m to 4 m to find the maximum level of emissions.

The resolution bandwidth of the EMI receiver is set to the following values:

Test	Frequency range	Step-size	Resolution bandwidth	Measuring time	Detector
Preliminary measurement	30 MHz to 1 GHz	30 kHz	120 kHz	-	Peak Average
Frequency peak search	± 120 kHz	10 kHz	120 kHz	1 s	Peak
Final measurement	30 MHz to 1 GHz	-	120 kHz	1 s	QuasiPeak



Procedure preliminary measurement:

The following procedure is used:

- 1) Set the measuring antenna to 1 m height.
- 2) Monitor the frequency range at horizontal polarization of the measuring antenna and an EUT / turntable azimuth of 0 °.
- 3) Rotate the EUT by 360° to maximize the detected signals.
- 4) Repeat steps 2 to 3 with the vertical polarization of the measuring antenna.
- 5) Increase the height of the measuring antenna for 0.5 m and repeat steps 2 to 4 until the final height of 4 m is reached.
- 6) The highest values for each frequency are saved by the software, including the measuring antenna height and polarization and the turntable azimuth for that value.

Procedure final measurement:

The following procedure is used:

- 1) Select the highest frequency peaks (lowest margin to the limit) for the final measurement.
- 2) The software determines the exact peak frequencies by doing a partial scan with reduced step size of the pre-scan of the selected peaks.
- 3) If the EUT is portable or ceiling mounted, find the worst-case EUT orientation (x,y,z) for the final test.
- 4) The worst-case measuring antenna height is found via varying the height by +/- 0.5 m from the value obtained in the preliminary measurement while monitoring the emission level.
- 5) The worst-case turntable position is found via varying the turntable azimuth by +/- 30° from the value obtained in the preliminary measurement while monitoring the emission level.
- 6) The final measurement is performed at the worst-case measuring antenna height and the worst-case turntable azimuth.
- 7) Steps 2 to 6 are repeated for each frequency peak selected in step 1.

5.1.2 Radiated: 1 GHz to 40 GHz

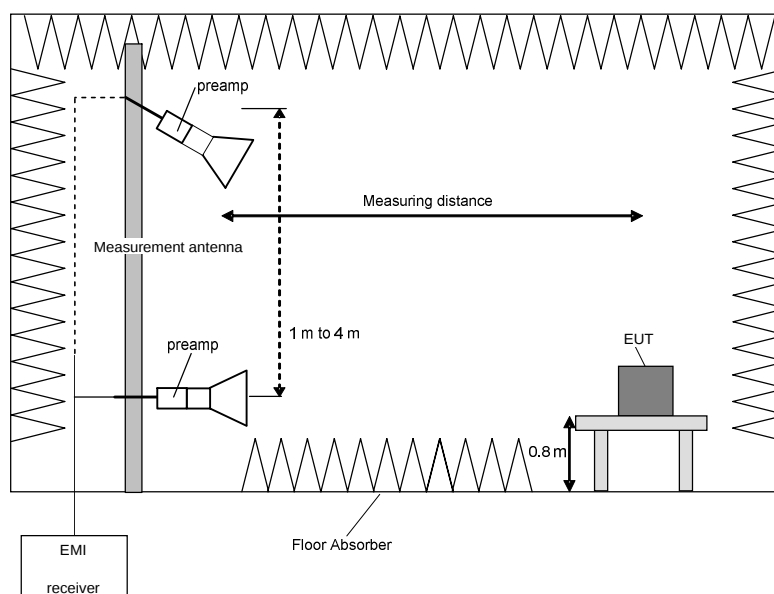
5.1.2.1 Preliminary and final measurement 1 GHz to 40 GHz

The preliminary and final measurements are performed in a semi-anechoic chamber at a measuring distance of 3 meters, with floor absorbers between EUT and measuring antenna. Table-top devices are set up on a non-conducting support with a size of 1 m by 1.5 m and a height of 80 cm. Floor-standing devices are placed directly on the turntable / ground plane. The setup of the equipment under test is in accordance with [1].

During the tests the EUT is rotated in the range of 0 ° to 360 °, the measuring antenna is set to horizontal and vertical polarization and raised and lowered in the range from 1 m to 4 m to find the maximum level of emissions. While changing the height, the measuring antenna gets tilted so that it is always aiming at the EUT.

The resolution bandwidth of the EMI receiver is set to the following values:

Test	Frequency range	Step-size	Resolution bandwidth	Measuring time	Detector
Preliminary measurement	1 - 40 GHz	250 kHz	1 MHz	-	Peak Average
Frequency peak search	+ / - 1 MHz	50 kHz	1 MHz	100 ms	Peak
Final measurement	1 - 40 GHz	-	1 MHz	100 ms	Peak Average



Procedure preliminary measurement:

The following procedure is used:

- 1) Set the measuring antenna to 1 m height.
- 2) Monitor the frequency range at horizontal polarization of the measuring antenna and an EUT / turntable azimuth of 0 °.
- 3) Rotate the EUT by 360° to maximize the detected signals.
- 4) Repeat steps 2 to 3 with the vertical polarization of the measuring antenna.
- 5) Increase the height of the measuring antenna for 0.5 m and repeat steps 2 to 4 until the final height of 4 m is reached.
- 6) The highest values for each frequency are saved by the software, including the measuring antenna height and polarization and the turntable azimuth for that value.

Procedure final measurement:

The following procedure is used:

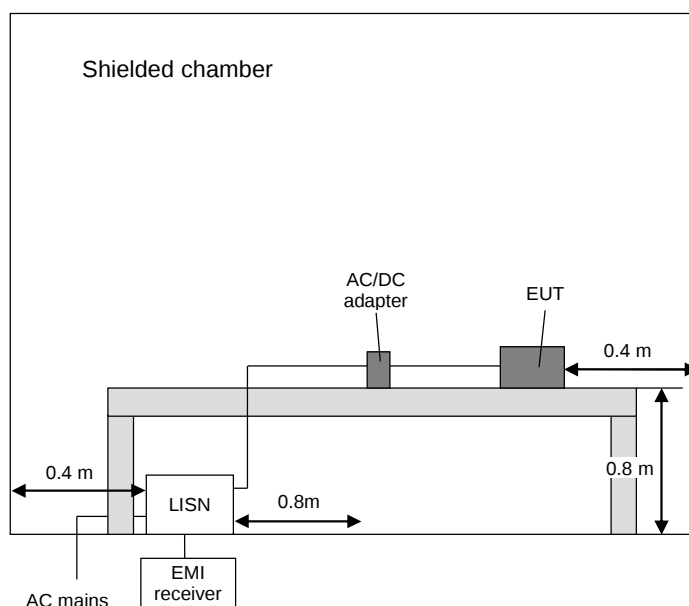
- 1) Select the highest frequency peaks (lowest margin to the limit) for the final measurement.
- 2) The software determines the exact peak frequencies by doing a partial scan with reduced step size of the pre-scan of the selected peaks.
- 3) If the EUT is portable or ceiling mounted, find the worst-case EUT orientation (x,y,z) for the final test.
- 4) The worst-case measuring antenna height is found via varying the height by +/- 0.5 m from the value obtained in the preliminary measurement while monitoring the emission level.
- 5) The worst-case turntable position is found via varying the turntable azimuth by +/- 30° from the value obtained in the preliminary measurement while monitoring the emission level.
- 6) The final measurement is performed at the worst-case measuring antenna height and the worst-case turntable azimuth.
- 7) Steps 2 to 6 are repeated for each frequency peak selected in step 1.

5.1.3 Conducted: AC power line

The test is carried out in a shielded chamber. Table-top devices are set up on a non-conducting support with a size of 1 m by 1.5 m and a height of 80 cm above the ground plane. Floor-standing devices are placed directly on the ground plane. In case of DC powered equipment, which is not exclusively powered by a battery, it is connected to the LISN via a suitable AC/DC adaptor. The setup of the equipment under test is in accordance with [1].

The frequency range 150 kHz to 30 MHz is measured with an EMI receiver set to MAX hold mode with Peak and Average detectors and a resolution bandwidth of 9 kHz. A scan is carried out on the phase and neutral line of the AC mains network. If emissions less than 10 dB below the appropriate limit are detected, these emissions are measured with an Average and Quasi-Peak detector on all lines.

Frequency range	Resolution bandwidth	Measuring time
150 kHz to 30 MHz	9 kHz	5 s



5.2 Radiated emissions

5.2.1 Test setup (Maximum unwanted emissions)

Test setup (Maximum unwanted emissions)			
Used	Setup	See sub-clause	Comment
☒	Radiated: 30 MHz to 1 GHz / 1 GHz to 40 GHz	5.1.1 / 5.1.2	-

5.2.2 Test method (Maximum unwanted emissions)

☒ Test method (radiated) see sub-clause 5.1.1 / 5.1.2 as described herein

5.2.3 Test results (Maximum unwanted emissions)

5.2.3.1 Test results (30 MHz – 1 GHz)

Ambient temperature:	22 °C
Relative humidity:	27 %

Date:	17.12.2025
Tested by:	P. NEUFELD

Position of EUT: For tests for f between 30 MHz to 1 GHz, the EUT was set-up on a table with a height of 80 cm. The distance between EUT and antenna was 3 m.

Cable guide: For detailed information of test set-up and the cable guide refer to the pictures in annex A of this test report.

Test record: Plots for each frequency range are submitted below.

Remark: Only the nominal position was tested.

Calculations:

Result [dBμV/m] = Reading [dBμV] + Correction [dB/m]

Correction [dB/m] = AF [dB/m] + Cable attenuation [dB] + optional preamp gain [dB]

Margin [dB] = Limit [dBμV/m] - Result [dBμV/m]

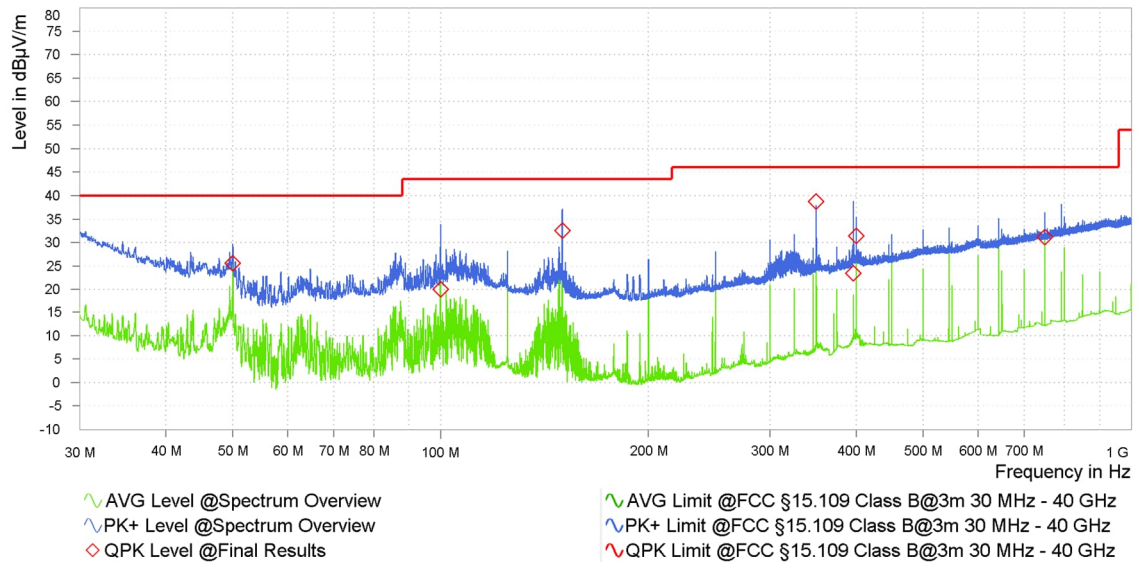
The measured points and the limit line in the following diagram refer to the standard measurement of the emitted interference in compliance with the above-mentioned standard. The measured points marked with "◇" are the measured results of the standard subsequent measurement in a semi-anechoic chamber.

The test results are presented on the following pages.

5.2.3.2 Operation mode 1:

5.2.3.2.1 Measurement plot FCC:

Spurious emissions from 30 MHz to 1 GHz



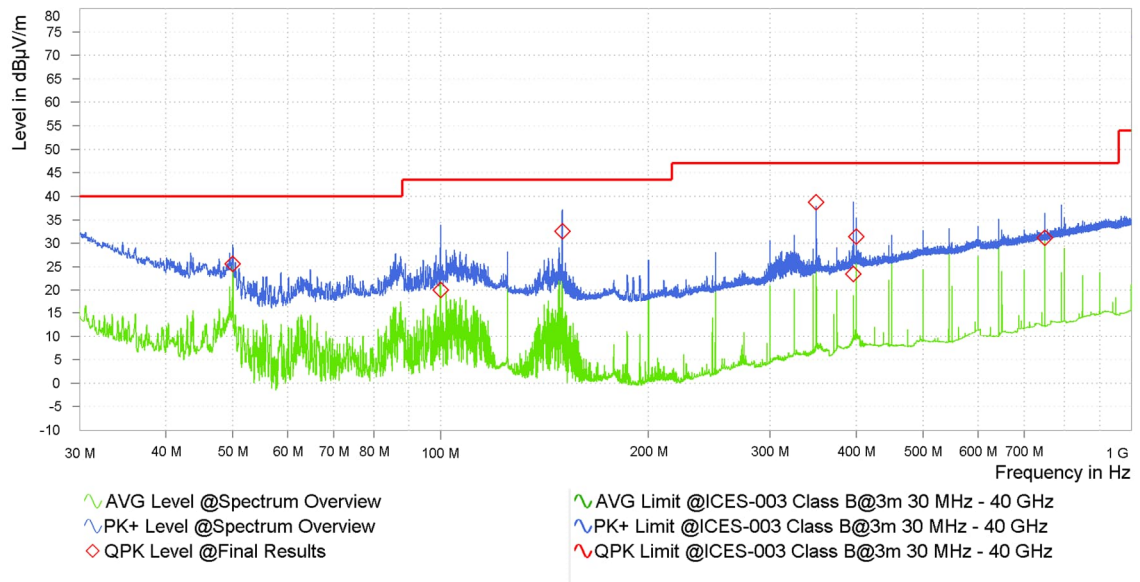
5.2.3.2.2 Result table FCC:

Results according to FCC 47 CFR Part 15 section 15.109 (a), (b) [3]:

Frequency [MHz]	Result (QP) [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Correction [dB/m]	Polarization (H/V)	Azimuth [deg]	Height [m]
50.010	25.59	40.00	14.41	13.75	V	238	2.78
99.990	19.99	43.50	23.51	17.32	V	114	1.34
150.000	32.55	43.50	10.95	15.28	V	54	1.00
350.010	38.77	46.00	7.23	20.43	V	34	1.31
396.000	23.46	46.00	22.54	21.62	V	27	1.43
399.990	31.41	46.00	14.59	21.75	V	18	1.14
750.000	31.19	46.00	14.81	27.54	H	318	1.01

5.2.3.2.3 Measurement plot ICES:

Spurious emissions from 30 MHz to 1 GHz



5.2.3.2.4 Result table ICES:

Results according to ICES-003 Issue 7 section 3.2.2 [4]:

Frequency [MHz]	Result (QP) [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Correction [dB/m]	Polarization (H/V)	Azimuth [deg]	Height [m]
50.010	25.59	40.00	14.41	13.75	V	238	2.78
99.990	19.99	43.50	23.51	17.32	V	114	1.34
150.000	32.55	43.50	10.95	15.28	V	54	1.00
350.010	38.77	47.00	8.23	20.43	V	34	1.31
396.000	23.46	47.00	23.54	21.62	V	27	1.43
399.990	31.41	47.00	15.59	21.75	V	18	1.14
750.000	31.19	47.00	15.81	27.54	H	318	1.01

Test result: Passed

Test equipment (please refer to chapter 7 for details)

5 - 11, 13 - 14

5.2.3.3 Test results (radiated 1 GHz to 40 GHz)

Ambient temperature:	22 °C
Relative humidity:	27 %

Date:	18.12.2025
Tested by:	P. NEUFELD

Position of EUT: For tests for f between 1 GHz and the 5th harmonic, the EUT was set-up on a table with a height of 80 cm. The distance between EUT and antenna was 3 m.

Cable guide: For detailed information of test set-up and the cable guide refer to the pictures in annex A of this test report.

Test record: Plots for each frequency range are submitted below.

Remark: Only the nominal position was tested

Calculation:

Max Peak [dBμV/m] = Reading [dBμV] + Correction [dB/m]

Average [dBμV/m] = Reading [dBμV] + Correction [dB/m]

Correction [dB/m] = AF [dB/m] + Cable attenuation [dB] + optional preamp gain [dB] + DCCF* [dB]
* (if applicable – only for Average values, that are fundamental related)

Margin [dB] = Limit [dBμV/m] – Max Peak | Average [dBμV/m]

The curves in the diagram only represent the maximum measured value for each frequency point of all preliminary measurements, which were carried out with various EUT and antenna positions.

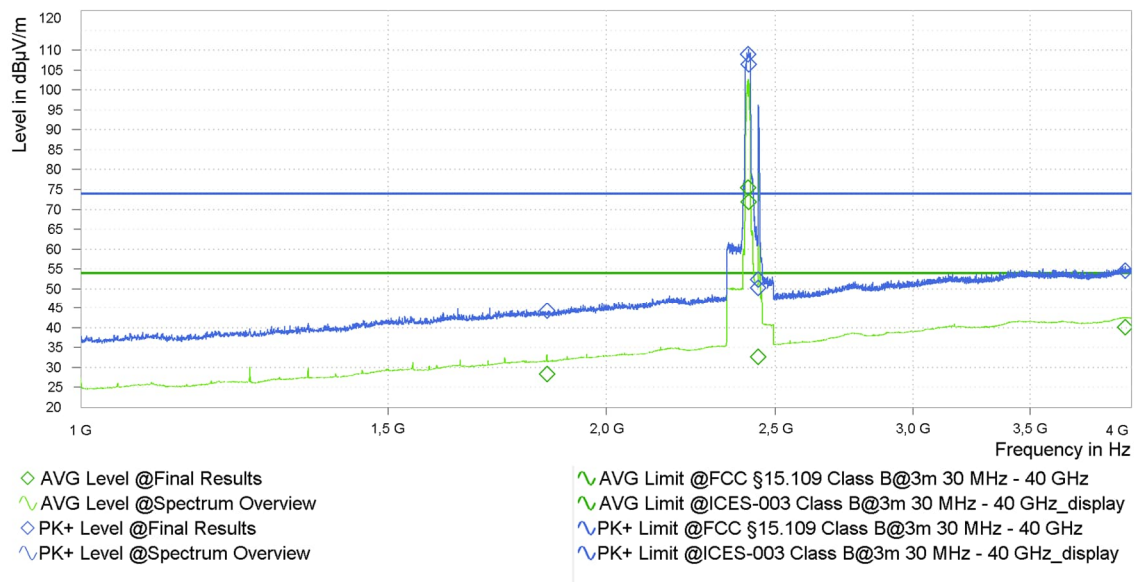
The top measured curve represents the peak measurement. The measured points marked with "◇" are frequency points for the final peak detector measurement. These values are indicated in the following table.

The bottom measured curve represents the average measurement. The measured points marked with "◇" are frequency points for the final average detector measurement.

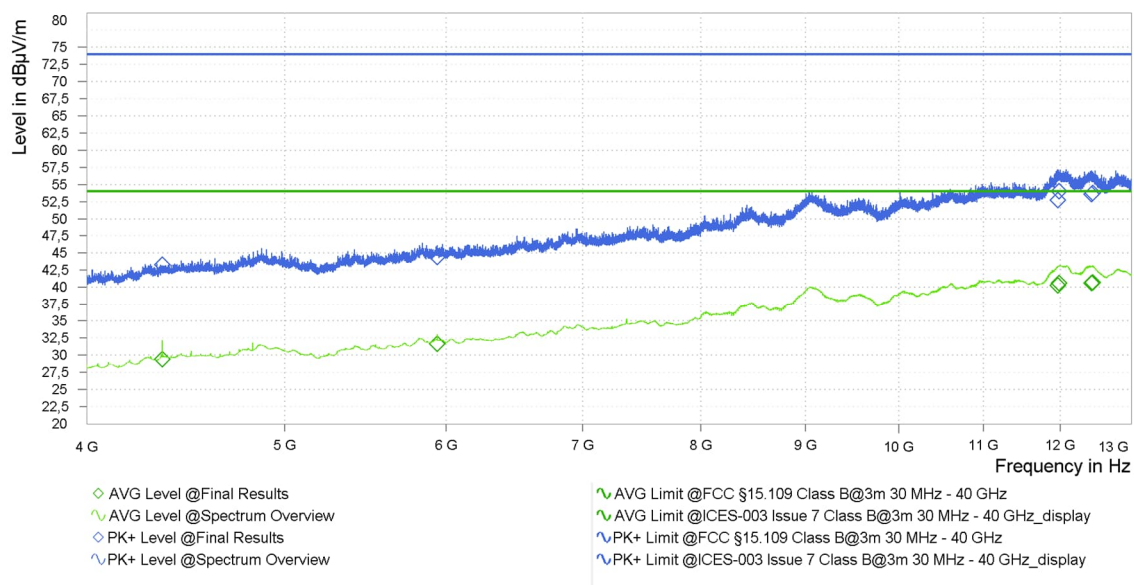
The measurement results are presented on the following pages.

5.2.3.3.1 Measurement plots:

Spurious emissions from 1 GHz to 4 GHz (operation mode 1):



Spurious emissions from 4 GHz to 13 GHz (operation mode 1):



The result table is presented on the following page.

5.2.3.3.2 Result table:

Operation mode 1:

Frequency [MHz]	MaxPeak [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Average [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Correction [dB/m]	Polarization [H/V]	Azimuth [deg]	Antenna Height [m]
1850.000	44.22	74.00	29.78	28.34	54.00	25.66	30.80	H	173	2.02
2412.750	108.95	Fundamental		75.44	Fundamental		34.64	V	117	2.50
2414.750	106.50			71.84			34.66	V	145	2.44
2445.250	50.29	74.00	23.71	32.69	54.00	21.31	34.89	H	305	1.50
2445.500	52.30	74.00	21.70	32.69	54.00	21.31	34.89	H	321	1.05
3968.250	54.54	74.00	19.46	40.07	54.00	13.93	39.87	V	38	1.02
4356.000	43.29	74.00	30.71	29.39	54.00	24.61	6.87	V	119	3.42
5940.000	44.40	74.00	29.60	31.64	54.00	22.36	11.12	H	147	2.35
11967.500	52.71	74.00	21.29	40.25	54.00	13.75	21.67	H	309	3.00
11986.500	53.99	74.00	20.01	40.59	54.00	13.41	21.90	V	249	3.15
12434.750	53.59	74.00	20.41	40.67	54.00	13.33	22.18	H	156	1.00
12449.000	53.77	74.00	20.23	40.75	54.00	13.25	22.19	H	361	4.09

Test result: Passed

Test equipment (please refer to chapter 7 for details)

1 - 12

5.3 AC power-line conducted emissions

5.3.1 Test setup (Conducted emissions on power supply lines)

Test setup (Conducted emissions on power supply lines)			
Used	Setup	See sub-clause	Comment
☒	Conducted: AC power line	5.1.3	Test setup photos in annex A of this test report
☐	Not applicable, because ...	-	-

5.3.2 Test method (Conducted emissions on power supply lines)

Test setup (Conducted emissions on power supply lines)				
Used	Clause [1]	Name of method	Sub-clause	Comment
☒	7.3; 11.5; 11.8	Tabletop equipment testing	5.1.3	Provided AC switching power adaptor
☐	7.3; 11.6; 11.8	Floor-standing equipment testing	-	-

The AC power adaptor provided by the laboratory was used for the tests:

enercell™ AC adaptor, Cat. No. 273-316

The power adaptor itself was supplied by 120V_{AC} 60Hz.

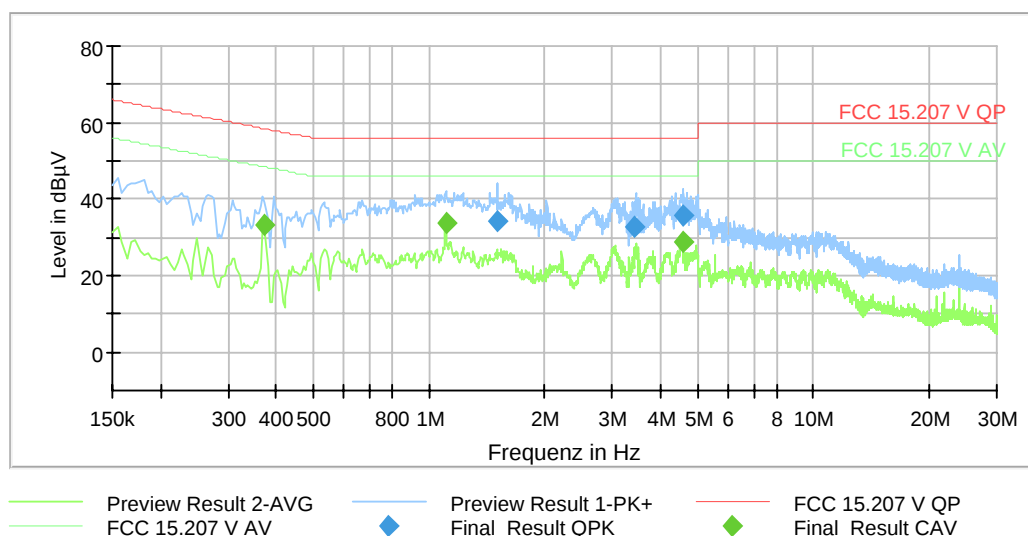
EUT was tested in normal operation mode, EUT opened an AP on ch1, laptop was connected and data was transferred via WLAN and ethernet.

5.3.3 Test results (Conducted emissions on power supply lines)

Ambient temperature:	22 °C
Relative humidity:	40 %

Date:	18.12.2025
Tested by:	P. NEUFELD

The curves in the diagrams below only represent for each frequency point the maximum measured value of all preliminary measurements which were made for each power supply line. The top measured curve represents the peak measurement and the bottom measured curve the average measurement. The quasi-peak measured points are marked by ◆ and the average measured points by ◆.



Result table:

Operation mode 1:

Frequency [MHz]	QuasiPeak [dB(μV)]	Average [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Line	PE	Corr. [dB]
0.373000	---	33.39	48.43	15.04	L1	GND	9.9
1.107000	---	33.60	46.00	12.40	N	FLO	9.9
1.508500	34.16	---	56.00	21.84	L1	FLO	10.0
3.440500	32.93	---	56.00	23.07	L1	FLO	10.3
4.577000	35.55	---	56.00	20.45	L1	GND	10.4
4.594500	---	28.84	46.00	17.16	L1	GND	10.4
0.373000	---	33.39	48.43	15.04	L1	GND	9.9

Test result: Passed

Test equipment (please refer to chapter 7 for details)
15 - 20

6 Measurement Uncertainties

Conducted measurements		
Measurement method	Standard used for calculating measurement uncertainty	Expanded measurement uncertainty (95 %) U_{lab}
Conducted emissions from 150 kHz to 30 MHz with LISN	CISPR 16-4-2	2.8 dB

Radiated measurements		
Radiated field strength M276		
R&S HL562E @ 3 m 30 MHz – 1 GHz	CISPR 16-4-2	4.8 dB
R&S HL050 @ 3 m	-	
1 – 6 GHz	CISPR 16-4-2	5.1 dB
6 – 18 GHz	CISPR 16-4-2	5.4 dB
Flann Standard Gain Horns 18 – 40 GHz	-	5.9 dB

7 Test Equipment used for Tests

No.	Test equipment	Type	Manufacturer	Serial No.	PM. No.	Cal. Date	Cal Due
1	Low Noise Amplifier 10 MHz - 18 GHz	LNA-30- 00101800-25- 10P	Narda-Miteq	2110917	482967	04.02.2026	02.2028
2	Log.-Per. antenna 850 MHz - 26.5 GHz	HL050	Rohde & Schwarz	100908	482977	10.10.2025	10.2028
3	Low Noise Amplifier 18 GHz - 26.5 GHz	LNA-30- 18002650-20- 10P	Narda-Miteq	2110911	482969	04.02.2026	02.2028
4	Standard gain horn 18 GHz - 26 GHz	20240-20	Flann	266399	483026	Calibration not necessary	
5	EMC test software	Elektra V5.21	Rohde & Schwarz	---	483755	Calibration not necessary	
6	RF Switch Matrix	OSP220	Rohde & Schwarz	101391	482976	Calibration not necessary	
7	Turntable	TT3.0-3t	Maturo	825/2612/.01	483224	Calibration not necessary	
8	Antenna support tilt mast	BAM 4.5-P- 10kg	Maturo	222/2612.01	483225	Calibration not necessary	
9	Controller	NCD	Maturo	474/2612.01	483226	Calibration not necessary	
10	Semi Anechoic Chamber M276	SAC5-2	Albatross Projects	C62128-A540- A138-10-0006	483227	Calibration not necessary	
11	EMI receiver / Spectrum analyser	ESW44	Rohde & Schwarz	101828	482979	06.02.2026	02.2028
12	High-pass filter	WHKX4.0/18G- 8SS	Wainwright	1	480587	Calibration not necessary	
13	Attenuator 6 dB	WA2-6	Weinschel		482793	Calibration not necessary	
14	Ultralog antenna 30 MHz - 6 GHz	HL562E	Rohde & Schwarz	101079	482978	24.04.2024	04.2027
15	Transient Filter Limiter	CFL 9206A	Teseq GmbH	38268	481982	05.02.2026	02.2028
16	LISN	NSLK8128	Schwarzbeck	8128155	480058	04.02.2026	02.2028
17	Software	EMC32 V10.60.20	Rohde & Schwarz	100061	481022	Calibration not necessary	
18	Shielded chamber M4	B83117-S1-X158	Siemens	190075	480088	Calibration not necessary	
19	EMI Receiver / Spectrum Analyser	ESIB 26	Rohde & Schwarz	100292	481182	06.02.2026	02.2028
20	AC / DC power supply	AC6803A AC Power Source 2000VA	Keysight	JPVJ002509	482350	Calibration not necessary	

8 Test site Verification

Test equipment	PM. No.	Frequency range	Type of validation	According to	Val. Date	Val Due
Shielded chamber M4	480088	9 kHz – 30 MHz	GND-Plane	ANSI C63.4-2014	21.05.2025	21.05.2028
Semi anechoic chamber M276	483227	30 – 1000 MHz	NSA	ANSI C63.4-2014 ANSI C63.4a-2017	01.03.2023	28.02.2026
Semi anechoic chamber M276	483227	1 -18 GHz	SVSWR	CISPR 16-1-4 + Cor1:2010 + A1:2012 +A2:2017	28.02.2023	27.02.2026

9 Report History

Report Number	Date	Comment
F251884E10	12.06.2026	Initial Test Report
-	-	-
-	-	-

10 List of Annexes

Annex A	Test Setup Photos	4 pages
Annex B	Void	
Annex C	Void	
Annex D	Void	

----- end of test report -----