

Test Report

Report Number:

F241886E1

Equipment under Test (EUT):

UHD FINEPIX MATIX AlfaCOB

Applicant:

PROFESSIONAL MEDIA TECHNOLOGIES, SLU
(tradename: ALFALITE)

Manufacturer:

PROFESSIONAL MEDIA TECHNOLOGIES, SLU
(tradename: ALFALITE)



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. PHOENIX TESTLAB GmbH is not responsible for any generalisations 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 PHOENIX TESTLAB Logo and the TEST REPORT NUMBER.

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1 Identification

1.1 Applicant

Name:	PROFESSIONAL MEDIA TECHNOLOGIES, SLU (tradenname: ALFALITE)
Address:	C. Zalema, 2, 21720 Rociana del Condado
Country:	Spain
Name for contact purposes:	Mr. Jesús Cabrera Contreras
Phone:	+34 959 41 73 71
eMail address:	info@alfalite.com
Applicant represented during the test by the following person:	-

1.2 Manufacturer

Name:	PROFESSIONAL MEDIA TECHNOLOGIES, SLU (tradenname: ALFALITE)
Address:	C. Zalema, 2, 21720 Rociana del Condado
Country:	Spain
Name for contact purposes:	Mr. Jesús Cabrera Contreras
Phone:	+34 959 41 73 71
eMail address:	info@alfalite.com
Manufacturer represented during the test by the following person:	-

1.3 Test Laboratory

The tests were carried out by: **PHOENIX 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: *	LED screen cabinet
Model name: *	UHD FINEPIX MATIX AlfaCOB
Model number: *	P0.9/P1.2/P1.5/P1.8
Order number: *	none
FCC ID: *	2BPY3-ALFAUHDFPIXM

	EUT number
	1
Serial number: *	Engineering Sample
PCB identifier: *	PART 2302ALFACOBHUBOCTOV1.0
Hardware version: *	-
Software version: *	-

* Declared by the applicant

One EUT was used for all tests.

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

1.5 Technical Data of Equipment

General			
Power supply EUT: *	Internal switching AC power supply (50 Hz / 60 Hz)		
Supply voltage EUT: *	$U_{nom} = 120 \text{ V}_{AC}$	$U_{min} = 100 \text{ V}_{AC}$	$U_{max} = 240 \text{ V}_{AC}$
Temperature range: *	-10°C to +40°C		
Lowest / highest internal frequency: *	50 Hz / 100 MHz		

* Declared by the applicant

Ports / Connectors				
Identification	Connector		Length during test	Shielding (Yes / No)
	EUT	Ancillary		
Power connection cable (2x)	powerCONN TRUE1 (double/chassis)	none	2.1 m	none
Ethernet (2x)	RJ 45	none	none	none

Equipment used for testing	
-	-

*1 Provided by the applicant

*2 Provided by the laboratory

Ancillary equipment	
-	-

*1 Provided by the applicant

1.6 Dates

Date of receipt of test sample:	12.02.2025
Start of test:	09.04.2025
End of test:	06.08.2025

2 Operational States

Description of function of the EUT:

The EUT is a panel of a modular LED display screen system running in normal operation mode. While accessed over ethernet, the LEDs turn off automatically, so in operational mode these connectors are disabled.

The following states were defined as the operating conditions:

The EUT was supplied by 120 V 60 Hz AC during the radiated tests and for the conducted tests the EUT was supplied additionally by 240 V 50 Hz AC.

During the radiated tests a video camera was used to monitor the function of the EUT.

By pressing the button on the PCB the device was turned on. Pressing it again switched the LED modes and the full white mode was used for testing as worst-case mode.

The ethernet connectors are for means of service configuration only and are not active when the LED panel is running in normal mode.

The EUT is a wall mounted device and was tested in one specific position only in all radiated tests.

For radiated emissions the EUT side openings were covered with copper tape to simulate the cabin where the module will be mounted in when built into a frame.

3 Additional Information

The copper tape that has been used to cover the holes, replicates the ultimate mounting conditions of a screen. Those sides of the panel that are covered by the copper tape will be sealed to other panels that make up the screen and the closing panels, i.e. the perimeter panels of the final screen, do have all those holes sealed metallically.

4 Overview

Conducted emissions FCC 47 CFR Part 15 section 15.107 (a), (b) [3] ICES-003 Issue 7 section 3.2.1[4]					
Application	Frequency range	Limits	Reference standard	Tested EUT	Status
AC supply line Class A	0.15 to 0.5 MHz 0.5 to 30 MHz	79 dB(μV) QP 66 dB(μV) AV 73 dB(μV) QP 60 dB(μV) AV	ANSI C63.4	1	Passed
*: Decreases with the logarithm of the frequency					

Radiated emissions FCC 47 CFR Part 15 section 15.109 (a), (b) [3]					
Application	Frequency range	Limits	Reference standard	Tested EUT	Status
Radiated Emission Class A (Limits for 10 m)	30 to 88 MHz 88 to 216 MHz 216 to 960 MHz 960 to 1000 MHz above 1000 MHz	39.1 dB(μV/m) QP at 10 m 43.5 dB(μV/m) QP at 10 m 46.4 dB(μV/m) QP at 10 m 49.5 dB(μV/m) QP at 10 m 49.5 dB(μV/m) AV at 10 m and 69.5 dB(μV/m) PK at 10 m	ANSI C63.4	1	Passed

Radiated emissions ICES-003 Issue 7 section 3.2.2 [4]					
Application	Frequency range	Limits	Reference standard	Tested EUT	Status
Radiated Emission Class A	30 to 88 MHz 88 to 216 MHz 216 to 230 MHz 230 to 960 MHz 960 to 1000 MHz above 1000 MHz	40.0 dB(μV/m) QP at 10 m 43.5 dB(μV/m) QP at 10 m 46.4 dB(μV/m) QP at 10 m 47.0 dB(μV/m) QP at 10 m 49.5 dB(μV/m) QP at 10 m No limit available for 10 m	ANSI C63.4	-	-
Radiated Emission Class A	30 to 88 MHz 88 to 216 MHz 216 to 230 MHz 230 to 960 MHz 960 to 1000 MHz above 1000 MHz	50.0 dB(μV/m) QP at 3 m 54.0 dB(μV/m) QP at 3 m 56.9 dB(μV/m) QP at 3 m 57.0 dB(μV/m) QP at 3 m 60.0 dB(μV/m) QP at 3 m 60 dB(μV/m) AV at 3 m and 80 dB(μV/m) PK at 3 m	ANSI C63.4	1	Passed

Remark: As declared by the applicant the highest internal clock frequency is < 108 MHz.
Therefore, the radiated emission measurement must be carried out up to 1 GHz.
The applicant requested testing up to <2.4 GHz, therefore and because of the test setup range, the radiated emission measurement was carried out up to 4 GHz.

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

5 Results

5.1 Test setups

5.1.1 Radiated: 30 MHz to 1 GHz

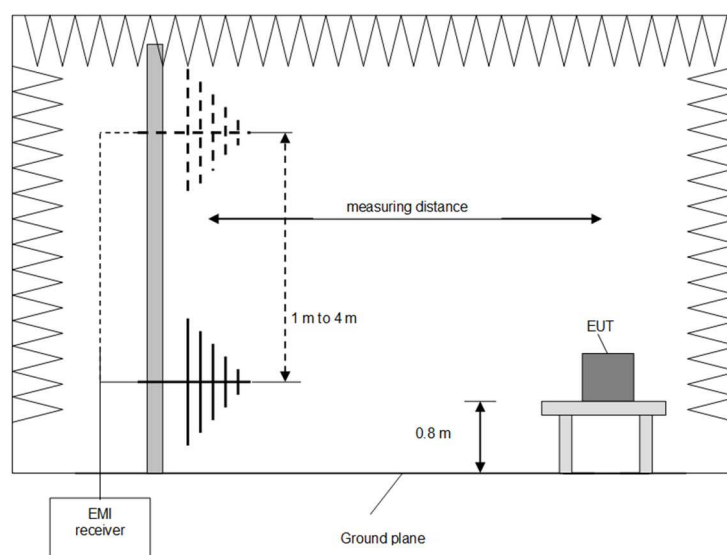
5.1.1.1 Preliminary and final measurement 30 MHz to 1 GHz

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	Quasi Peak



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 4 GHz

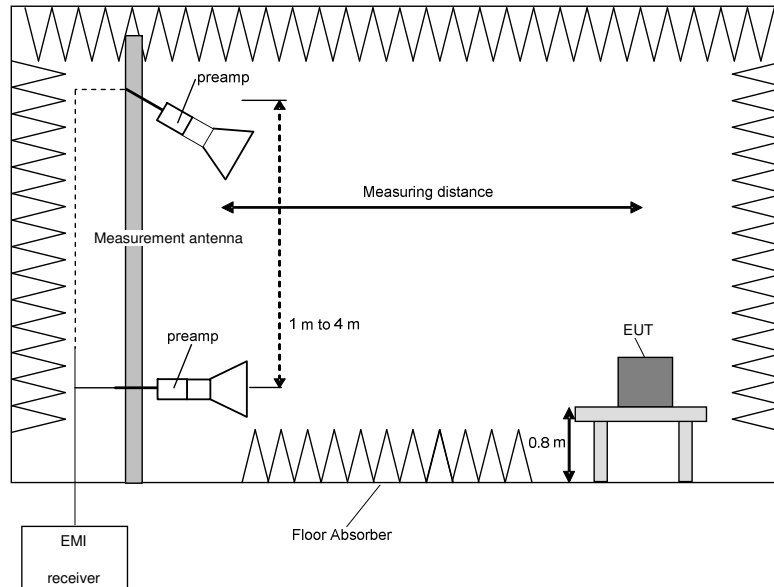
5.1.2.1 Preliminary and final measurement 1 to 4 GHz

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 - 4 GHz	250 kHz	1 MHz	-	Peak Average
Frequency peak search	+ / - 1 MHz	50 kHz	1 MHz	100 ms	Peak
Final measurement	1 - 4 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.

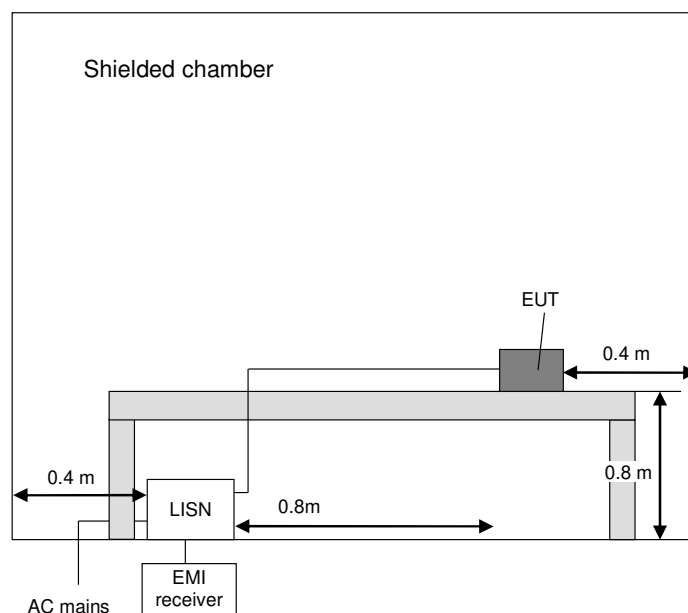
5.1.3 Conducted: AC power line

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

Option without AC adapter



5.2 Radiated emissions

5.2.1 Test setup (Maximum unwanted emissions)

Test setup (Maximum unwanted emissions)			
Used	Setup	See sub-clause	Comment
<input checked="" type="checkbox"/>	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:	23 °C
Relative humidity:	25 %

Date:	09.04.2025
Tested by:	A. DÜCKMANN

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 the annex A in the test report.

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

Remark: Only one plane was tested (wall mounted device)

Calculations:

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

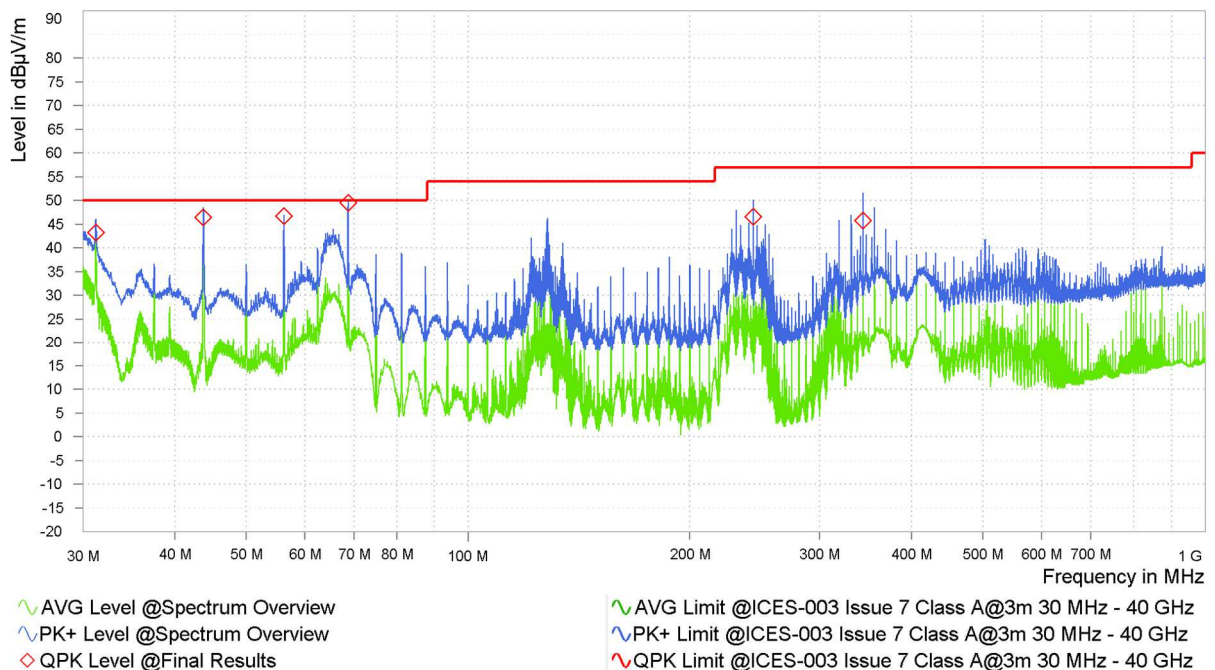
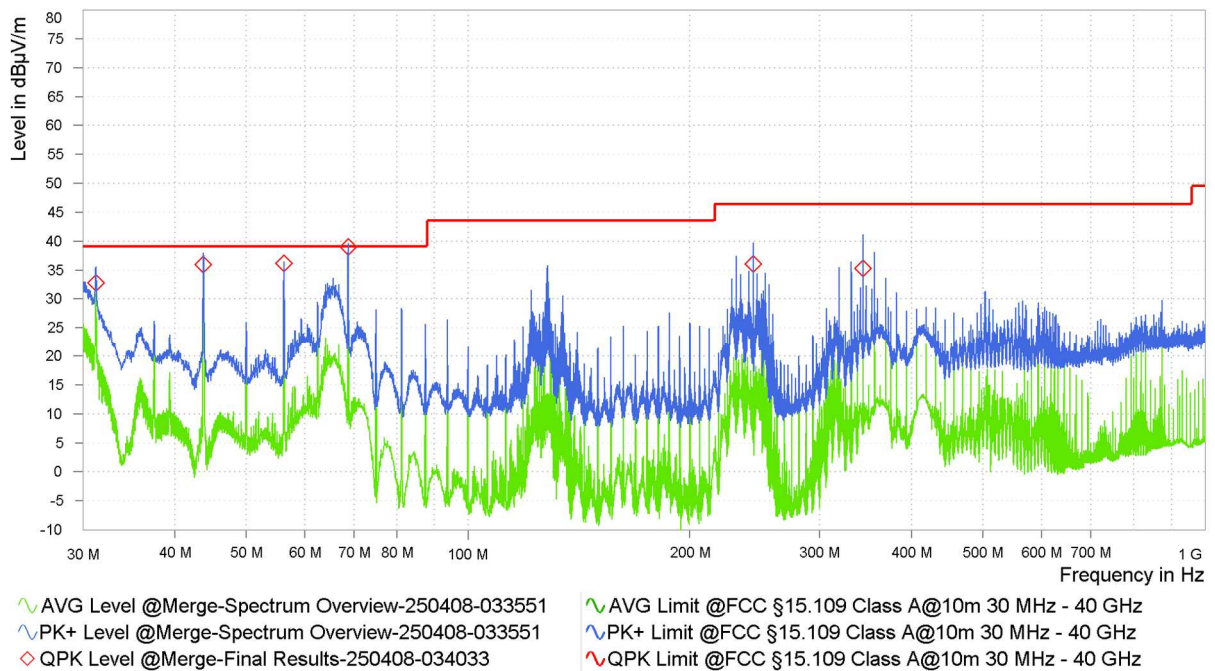
Correction [dB/m] = AF [dB/m] + Cable attenuation [dB] + optional preamp gain [dB]

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.

Worst case plots:

Spurious emissions from 30 MHz to 1 GHz (operation mode all LEDs white):



Result tables:

(Operation mode full white):

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]	Height [cm]	Azimuth [deg]	Pol. (H/V)
31.26	32.73	39.1	6.37	25.88	101	68	V
43.74	35.88	39.1	3.22	17.72	100	240	V
56.25	36.18	39.1	2.92	12.00	332	307	H
68.76	39.01	39.1	0.09	14.25	120	143	V
243.75	36.05	46.4	10.35	17.00	183	191	V
343.74	35.25	46.4	11.15	20.17	135	198	V

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]	Height [cm]	Azimuth [deg]	Pol. (H/V)
31.26	43.19	50.00	6.81	25.88	101	68	V
43.74	46.34	50.00	3.66	17.72	100	240	V
56.25	46.64	50.00	3.36	12.00	332	307	H
68.76	49.47	50.00	0.53	14.25	120	143	V
243.75	46.51	57.00	10.49	17.00	183	191	V
343.74	45.71	57.00	11.29	20.17	135	198	V

Test result: Passed

Test equipment (please refer to chapter 7 for details)
1-9

5.2.3.2 Test results (radiated 1 to 4 GHz)

Ambient temperature:	23 °C
Relative humidity:	25 %

Date:	09.04.2025
Tested by:	A. DÜCKMANN

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 the test report.

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

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)

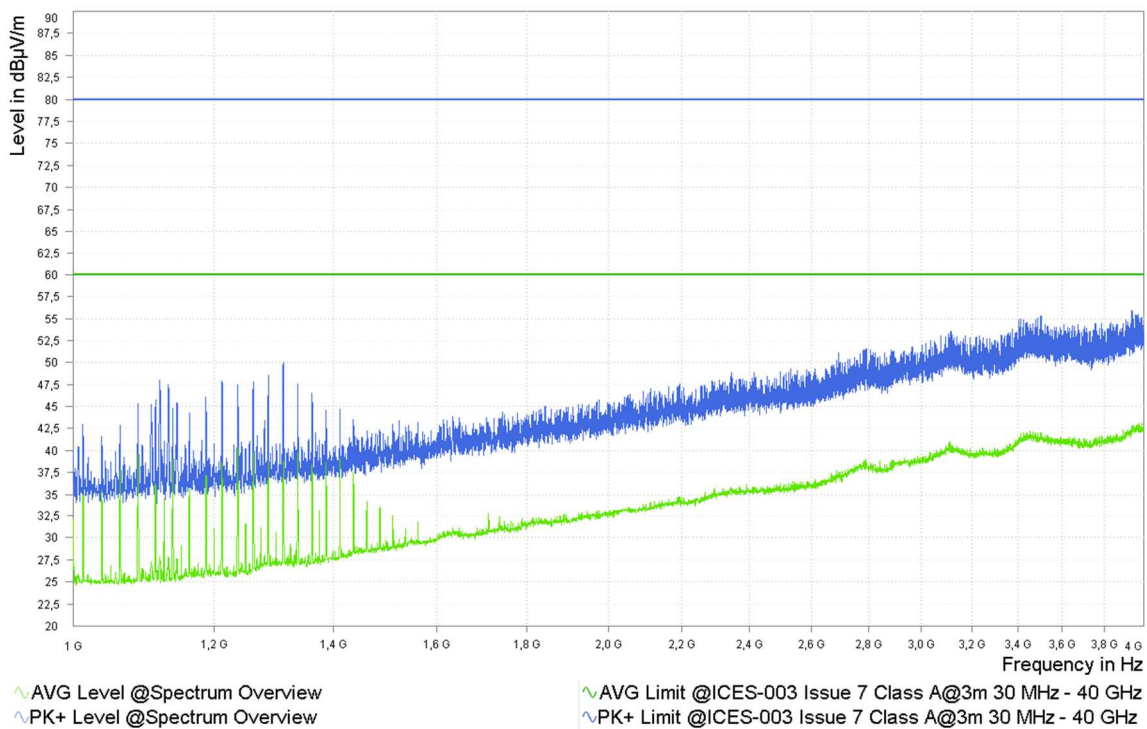
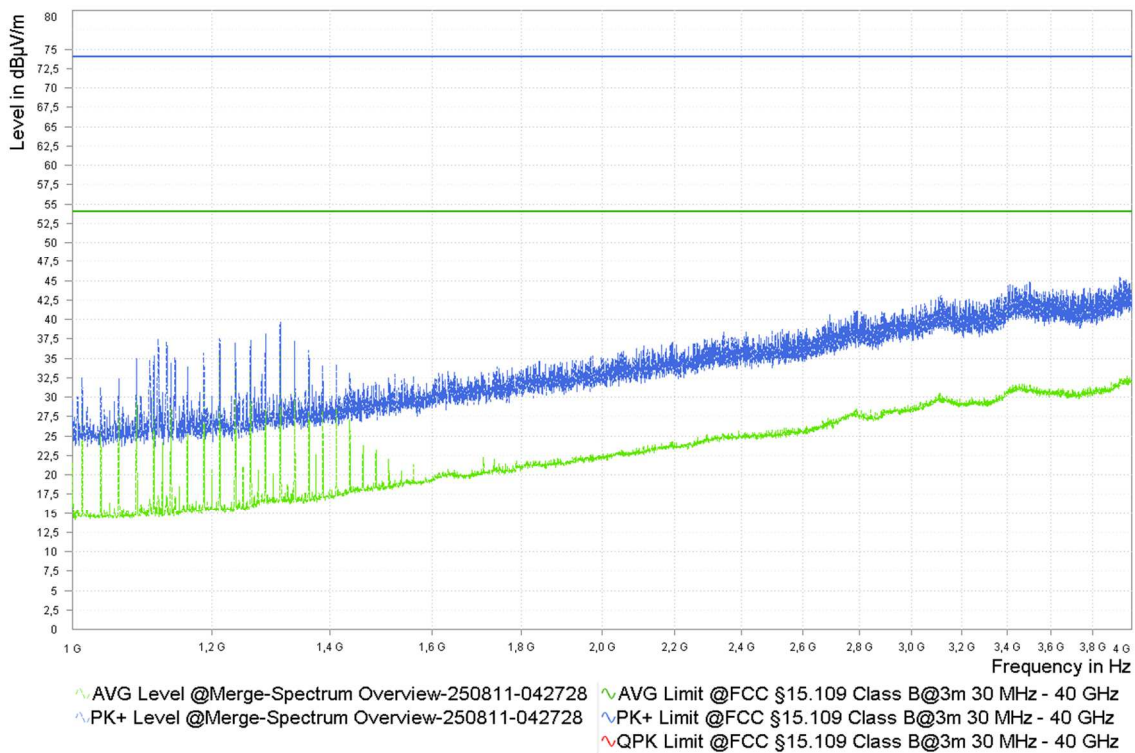
Margin [dB] = Limit [dBμV/m] – Max Peak | Average [dBμV/m]

The 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.

Worst case plot:

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



Result tables:

Operation mode full white:

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

Frequency [MHz]	Max Peak [dB(μV/m)]	Average [dB(μV/m)]	Max Peak Limit [dB(μV/m)]	Max Peak Margin [dB(μV/m)]	Average Limit [dB(μV/m)]	Average Margin [dB(μV/m)]	Height [cm]	Pol [H/V]	Azimuth [deg]	Corr. [dB]
1106.25	-	23.61	-	-	49.5	25.89	285	V	62	25.88
1134.50	34.97	-	69.5	34.53	-	-	106	V	40	25.98
1193.75	34.19	-	69.5	35.31	-	-	110	V	223	26.68
1193.75	-	29.07	-	-	49.5	20.43	127	V	220	26.68
3998.25	44.16	29.73	69.5	25.34	49.5	19.77	297	H	-8	40.06

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

Frequency [MHz]	Max Peak [dB(μV/m)]	Average [dB(μV/m)]	Max Peak Limit [dB(μV/m)]	Max Peak Margin [dB(μV/m)]	Average Limit [dB(μV/m)]	Average Margin [dB(μV/m)]	Height [cm]	Pol [H/V]	Azimuth [deg]	Corr. [dB]
1106.25	-	34.07	-	-	60	25.93	285	V	62	25.88
1134.50	45.43	-	80	34.57	-	-	106	V	40	25.98
1193.75	44.65	-	80	35.35	-	-	110	V	223	26.68
1193.75	-	39.53	-	-	60	20.47	127	V	220	26.68
3998.25	54.62	40.19	80	25.38	60	19.81	297	H	-8	40.06

Test result: Passed

Test equipment (please refer to chapter 7 for details)
3-11

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
<input checked="" type="checkbox"/>	Conducted: AC power line	5.1.3	-
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	7.3; 11.5; 11.8	Tabletop equipment testing	5.1.3	-
<input type="checkbox"/>	7.3; 11.6; 11.8	Floor-standing equipment testing	-	-

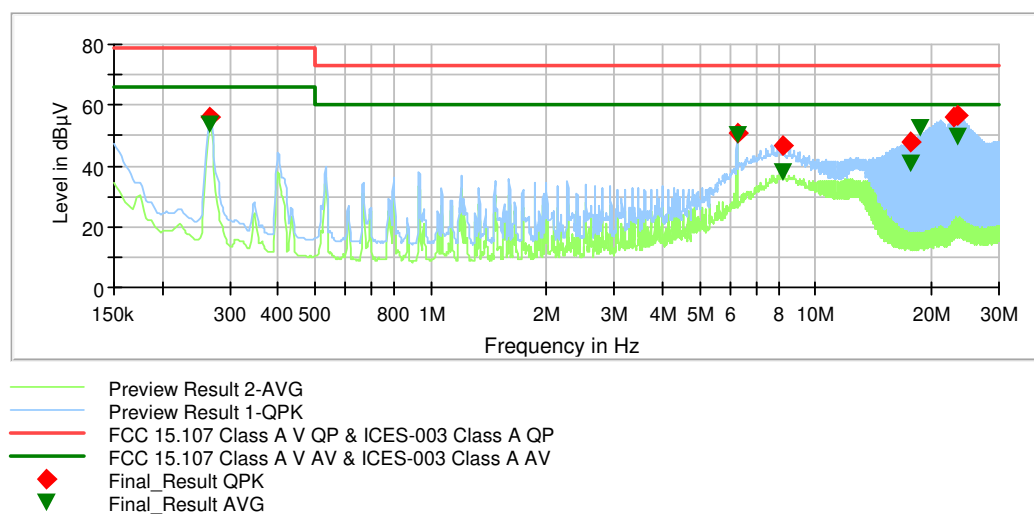
5.3.3 Test results (Conducted emissions on power supply lines)

Ambient temperature:	23 °C
Relative humidity:	38 %

Date:	06.08.2025
Tested by:	M. DINTER

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 ◆.

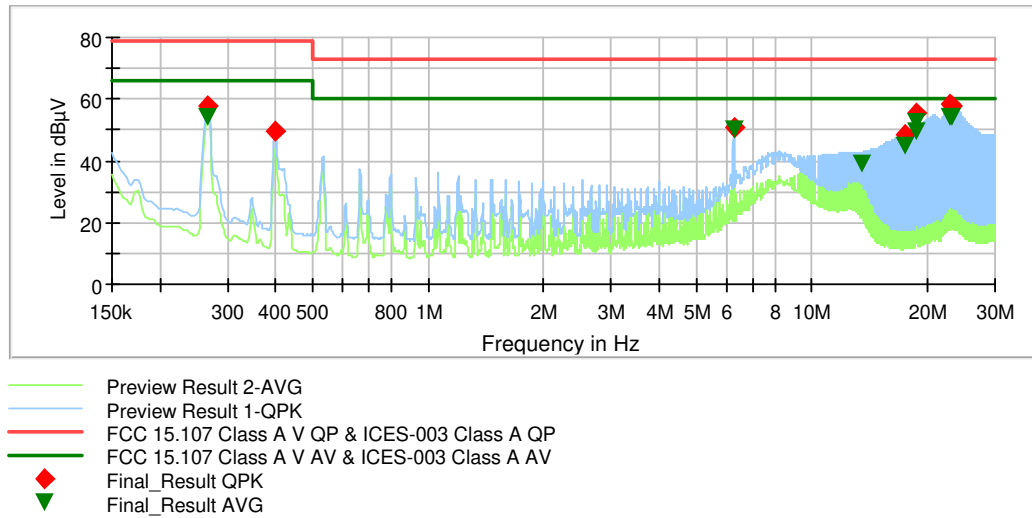
EUT supply: 120 V 60 Hz AC



Frequency [MHz]	QuasiPeak [dB(μV)]	Average [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Line	PE	Corr. [dB]
0.267000	56.11	---	79.00	22.89	15000.0	9.000	N	GND	19.7
0.267000	---	53.84	66.00	12.16	15000.0	9.000	L1	GND	19.7
6.249750	50.65	---	73.00	22.35	15000.0	9.000	N	GND	20.2
6.249750	---	50.17	60.00	9.83	15000.0	9.000	N	GND	20.2
8.211750	---	37.74	60.00	22.26	15000.0	9.000	N	GND	20.2
8.268000	46.52	---	73.00	26.48	15000.0	9.000	N	GND	20.2
17.598750	---	41.10	60.00	18.90	15000.0	9.000	N	GND	20.3
17.598750	47.92	---	73.00	25.08	15000.0	9.000	N	GND	20.3
18.750750	---	52.75	60.00	7.25	15000.0	9.000	L1	GND	20.3
22.929000	56.22	---	73.00	16.78	15000.0	9.000	L1	GND	20.3
23.329500	---	49.90	60.00	10.10	15000.0	9.000	L1	GND	20.3
23.329500	56.69	---	73.00	16.31	15000.0	9.000	L1	GND	20.3

Test result: Passed

EUT supply: 240 V 50 Hz AC



Frequency [MHz]	QuasiPeak [dB(μV)]	Average [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Line	PE	Corr. [dB]
0.267000	---	54.31	66.00	11.69	15000.0	9.000	L1	GND	19.7
0.267000	57.98	---	79.00	21.02	15000.0	9.000	L1	GND	19.7
0.399750	49.84	---	79.00	29.17	15000.0	9.000	L1	GND	19.7
6.249750	---	50.45	60.00	9.55	15000.0	9.000	N	GND	20.2
6.249750	50.97	---	73.00	22.03	15000.0	9.000	N	GND	20.2
13.429500	---	39.21	60.00	20.79	15000.0	9.000	N	GND	20.3
17.551500	48.67	---	73.00	24.33	15000.0	9.000	N	GND	20.3
17.551500	---	45.24	60.00	14.76	15000.0	9.000	N	GND	20.3
18.748500	55.72	---	73.00	17.28	15000.0	9.000	N	GND	20.3
18.750750	---	52.81	60.00	7.19	15000.0	9.000	L1	GND	20.3
18.753000	---	49.79	60.00	10.21	15000.0	9.000	L1	GND	20.3
23.001000	58.11	---	73.00	14.89	15000.0	9.000	L1	GND	20.3
23.003250	---	54.59	60.00	5.41	15000.0	9.000	L1	GND	20.3
23.133750	58.09	---	73.00	14.92	15000.0	9.000	L1	GND	20.3
23.136000	---	54.58	60.00	5.42	15000.0	9.000	L1	GND	20.3

Test result: Passed

Test equipment (please refer to chapter 7 for details)
12 - 18

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	Attenuator 6 dB	WA2-6	Weinschel	-	482793	Calibration not necessary	
2	Ultralog Antenna	HL562E	Rohde & Schwarz	101079	482978	24.04.2024	04.2027
3	RF Switch Matrix	OSP220	Rohde & Schwarz	-	482976	Calibration not necessary	
4	Turntable	TT3.0-3t	Maturo	825/2612/.01	483224	Calibration not necessary	
5	Antenna support	BAM 4.5-P-10kg	Maturo	222/2612.01	483225	Calibration not necessary	
6	Controller	NCD	Maturo	474/2612.01	483226	Calibration not necessary	
7	Semi Anechoic Chamber M276	SAC5-2	Albatross Projects	C62128-A540-A138-10-0006	483227	Calibration not necessary	
8	Software M276	Elektra version 5.05	Rohde & Schwarz	101381	483755	Calibration not necessary	
9	EMI Test receiver	ESW44	Rohde & Schwarz	101828	482979	21.02.2024	02.2026
10	Low Noise Amplifier 100 MHz - 18 GHz	LNA-30-00101800-25-10P	Narda-Miteq	2110917	482967	20.02.2024	02.2026
11	Log.-Per. antenna	HL050	Rohde & Schwarz	100908	482977	22.09.2022	09.2025
12	V-LISN	NSLK8128RC	Schwarzbeck	0412	483186	28.02.2024	02.2026
13	Shielded chamber M155	SK3	Albatross Projects		482786	Calibration not necessary	
14	Software	EMC32 Ver. 10.60.20	Rohde & Schwarz	100619	483182	Calibration not necessary	
15	EMI Test receiver	ESR7	Rohde & Schwarz	101939	482558	21.02.2024	02.2026
16	SPS_EMV	Software	Spitzenberger & Spies	A7078 B22 M1	480114	Calibration not necessary	
17	EMC test system	EMC D 30000 / PAS	Spitzenberger & Spies	A4507 00/1 1110	481301	Calibration not necessary	
18	Control unit	SyCore 1k4	Spitzenberger & Spies	A4507 12/0 1110	481302	19.02.2025	08.2027

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	08.11.2022	07.11.2025
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
F241886E1	19.08.2025	Initial Test Report
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10 List of Annexes

Annex A	Test Setup Photos	5 pages
Annex B	EUT External Photos	7 pages
Annex C	EUT Internal Photos	9 pages

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