

FCC Part 15B and ISED TEST REPORT

Report Number	600/24/04784/FCC	Rev. 00
Date of document	2025-01-17	
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OBJECT	FCC Part15B and ICES-003 Issue 7 and ICES-Gen Issue 1	
CUSTOMER	Elektrosil GmbH	
EQUIPMENT UNDER TEST	AC/DC adapter + Voltage control box with measuring functions	
MODEL	EA1019HVRS-120 + i3 DMControl	
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Verified by (Name + Signature)	ANDREA CUPIDO Lab Manager	
Approved and issued by (Name + Signature)	ALESSANDRO ZUCCATO Lab Director	

History sheet of test Report			
Report Number	Rev.	Date	Description of modification

1 OBJECTIVE OF THE TESTS

The objective of the tests is the evaluation of the conformity of the EUT to the requirements of the standards and test methods specified on par. 4 & 5 of present Test Report.

2 IDENTIFICATION

2.1 Laboratory

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FCC Designation

number: IT0016

ISED CAB Identifier: IT0007

2.2 Customer

Customer: Elektrosil GmbH
Street: Ruhrstraße 53
City: 22761 Hamburg, Germany
Phone: +49 40 8400010
Refer to : Mr Ye Li

3 EQUIPMENT UNDER TEST (EUT)

3.1 EUT identification (declared under responsibility of the customer)

The EUT is a system composed of the following components:

EUT Component N° 1

EUT Description: AC/DC adapter
Model: EA1019HVRS-120
Serial N°: 243600009
EUT size: 62.5x41x34 [mm]
Manufacturer: EDACPOWER
Supply voltage: 100 - 240 Va.c.
Frequency: 50-60 Hz
Rated Electrical Power: 24 W
Rated input current: 0.8 A

EUT Component N° 2

EUT Description: Voltage control box with measuring functions
Model: I3 DMControl
Serial N°: A0006
EUT size: 204x108x68 [mm]
Manufacturer: Elektrosil GmbH
Supply voltage: 12 Vd.c.
Rated Electrical Power: 24 W Input, 5 W Output
Rated input current: 2 A

3.1.2 EUT additional information

Object	Descriptions
EUT Internal frequencies (Fundamental frequency of any signal used in the device)	< 108 MHz as specified by the manufacturer
Date of receipt of test item	2024-12-18
Date(s) of performance of tests	See the data specified in test results details

3.2 EUT cables

The EUT has been configured by the manufacturer with the following input / output cables:

Classification	Cabling Description	Cable		Note
		Shielded	Specified max. length	
DC power port	DC input cable (between EUT01 & EUT02)	<input type="checkbox"/>	---	EUT01 = supplier 230 Vac 50 Hz to 12 Vdc
Signal port	Load cable with PE cable	<input type="checkbox"/>	≤2m	

3.4 EUT Associated Equipments (AEs)

To ensure the correct functioning of the EUT, it has been necessary to make use of the following associated equipment (AE):

Associated Equipment AE01

Description : Dummy membrane
Model: DUM_I3M_000001
Manufacturer: Elektrosil GmbH

3.4 EUT Sampling and adopted criteria

Equipment used for testing was selected by the customer. Sampling criteria adopted by the customer is unknown to Kiwa Creiven laboratory.

4 REFERENCE STANDARDS

4.1 Reference standards

DOCUMENT	DATE	OBJECT
FCC Title 47- Telecommunication part 15, subpart B	2022-10	CHAPTER I-FEDERAL COMMUNICATIONS COMMISSION PART 15--RADIO FREQUENCY DEVICES FCC part 15, subpart B, sez. 15.109 (Measurement of Radiated Emissions) FCC part 15, subpart B, sez. 15.107 (Measurement of AC power Line Conducted Emissions)
ICES-003	Issue 7	Conducted limits
ICES-Gen	Issue 1	Radiated emission limits

4.1.1 Emission summary

The following table specifies the tests required by the reference standard and test performed on EUT.

EUT PORT	Requirement of reference standard	Tested	Note	Results
Enclosure	Radiated Emissions Range 30÷1000MHz	YES	---	Complies
Ac. mains port	AC Power Line Conducted Emissions	YES	---	Complies

5 TEST METHODS

5.1 Test methods

DOCUMENT	DATE	METHOD	ACCREDIA accreditation	Test Sequence (See Note 1)
FCC part 15, subpart B, sez. 15.109 ANSI C63.4	2022-10	Measurement of Radiated Emissions	Yes	01
ICES-003	Issue 7			
ICES-Gen	Issue 1			
FCC part 15, subpart B, sez. 15.107 ANSI C63.4	2022-10	Measurement of AC power Line Conducted Emissions	Yes	02
ICES-003	Issue 7			
ICES-Gen	Issue 1			

Note :

1) The tests have been carried out in the order specified in this column

5.2 Deviation from test methods

None.

6 EUT OPERATING CONDITIONS DURING TESTS

The EUT is set to function as indicated in Table below, in compliance with the manufacturer's prescriptions and with that which is stated in the applied standards, test methods and procedures.

OPERATING CONDITION	DESCRIPTION OF FUNCTIONING DURING THE TEST
OC01 continuo	<ul style="list-style-type: none"> EUT01 was powered at 100 Vac – 60 Hz EUT02 was powered at 12 Vdc through EUT01 continuous working state AE01 connected to load cable In EUT02 was set On "EUT sequence" in the menu "Custom sequence" <p><u>Cabling details : description of particular connection</u></p> <ul style="list-style-type: none"> P.E. provided to AE01 only through EUT

7 Environmental test conditions

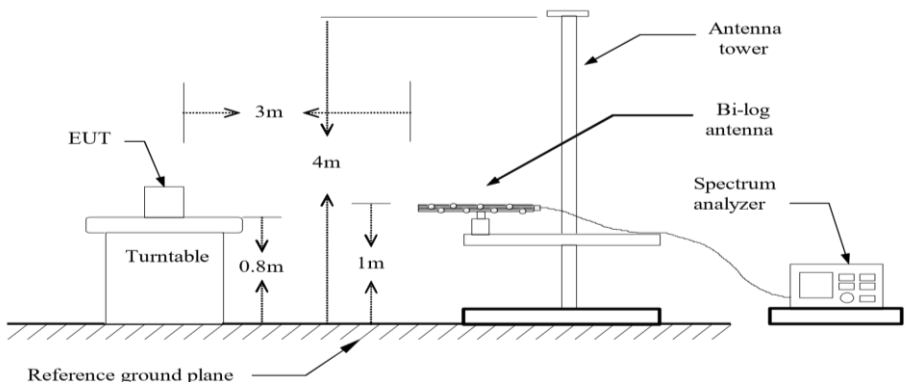
The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment.

The climatic conditions during the tests were within the following limits:

Temperature	Humidity	Atmospheric pressure
15 °C ÷ 30 °C	30 % ÷ 60 %	800 hPa ÷ 1060 hPa

If explicitly required in the basic standard or applied product standard the climatic values are recorded and documented separately in this test report.

8 TEST RESULT

Test method:	FCC part 15, subpart B, sez. 15.109 ICES-003 Issue 7 & ICES-Gen Issue 1 ANSI C63.4 Measurement of Radiated Emissions (30 MHz ÷ 1 GHz) For details see par. 5 of this report	
Operator	Marco Nicolè	
Test Date	2025-01-13	
EUT Classification	Class: B	
Electrical wiring	Cable	Length [m]
	DC input cable	1.5
	Load cable	2.0
Operating conditions	OC01 See par. 6 of this report	
Auxiliary equipment (AE)	See par. 3.4 of this report	
Frequency range	30 MHz ÷ 1 GHz	
Test set up		
Measuring distance	3 m	
Limits	See graph below	
Test instrumentations	See Annex B	
Measurement Uncertainty (k=2)	See Annex F	
EUT modification during this test	None	
Result	COMPLIES	
Note	The worst condition between X, Y and Z axis was checked	

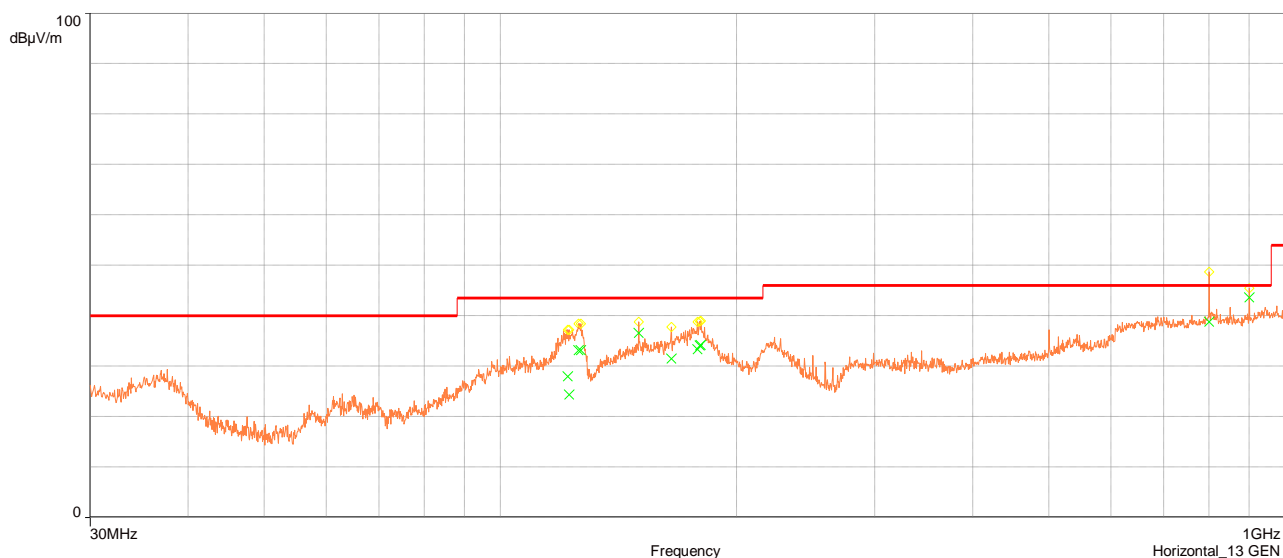
TEST GRAPHS AND MEASUREMENTS

All traces have been acquired with Peak detector in Max-Hold mode (Maximum-Hold allows to record the maximum values of the spectra)

The final measurements are obtain consider the value read in the receiver minus the value of the column "Conversion Factor".

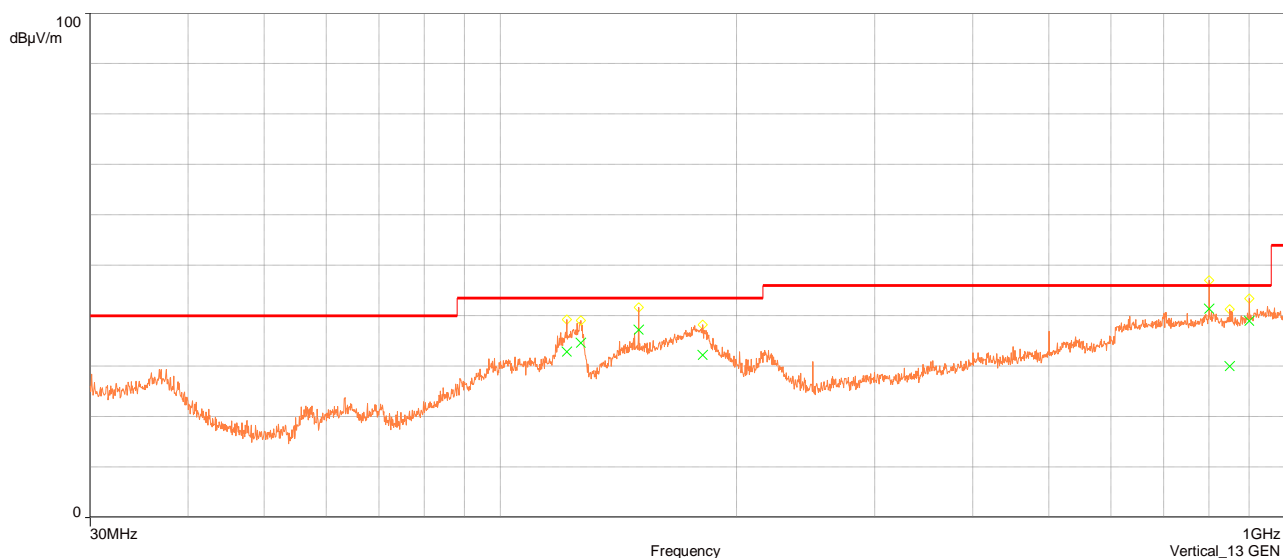
Measurement 01

EUT disposal: Complete rotation (360°) – **Antenna height:** 1 ÷ 4 m – **Antenna Pol.:** Horizontal
Range: 30MHz ÷ 1GHz
Operating Condition: OC01



Measurement 02

EUT disposal: Complete rotation (360°) – **Antenna height:** 1 ÷ 4 m – **Antenna Pol.:** Vertical
Range: 30MHz ÷ 1GHz
Operating Condition: OC01



Frequency (MHz)	SR	Peak (dB μ V/m)	QPeak (dB μ V/m)	LimQPeak (dB μ V/m)	Delta (dB)	Polarization	Height (m)	Angle (deg)	Conversion Factor
121.8555	1	37.24	27.96	43.50	-15.54	Horizontal	2.61	340.10	12.69
122.335	1	37.27	24.40	43.50	-19.10	Horizontal	2.00	305.60	12.70
125.695	1	38.45	33.17	43.50	-10.33	Horizontal	1.94	325.60	12.85
126.5355	1	38.45	33.15	43.50	-10.35	Horizontal	1.96	325.60	12.93
149.995	1	38.84	36.55	43.50	-6.95	Horizontal	2.37	65.50	14.93
164.995	1	37.78	31.53	43.50	-11.97	Horizontal	1.58	79.90	14.80
178.195	1	38.81	33.38	43.50	-10.12	Horizontal	2.00	340.10	15.76
179.5755	1	38.94	34.12	43.50	-9.38	Horizontal	1.97	50.50	15.73
180.055	1	39.00	34.18	43.50	-9.32	Horizontal	2.03	50.50	15.72
800.035	1	48.72	38.76	46.00	-7.24	Horizontal	1.41	205.30	31.65
899.995	1	45.49	43.62	46.00	-2.38	Horizontal	1.05	124.80	31.87
121.495	2	39.31	32.85	43.50	-10.65	Vertical	1.04	320.70	12.70
126.595	2	39.06	34.60	43.50	-8.90	Vertical	1.01	340.70	12.94
149.995	2	41.69	37.27	43.50	-6.23	Vertical	1.27	65.50	14.93
180.8955	2	38.23	32.25	43.50	-11.25	Vertical	1.27	80.00	15.72
799.975	2	47.05	41.39	46.00	-4.61	Vertical	1.10	115.10	31.65
849.1755	2	41.32	30.05	46.00	-15.95	Vertical	2.94	130.10	31.21
899.995	2	43.40	38.99	46.00	-7.01	Vertical	2.11	280.70	31.87

Test method:	FCC part 15, subpart B, sez. 15.107 ICES-003 Issue 7 & ICES-Gen Issue 1 ANSI C63.4 Measurement of disturbance voltage For details see par. 5 of this report	
Operator	Marco Nicolè	
Test Date	2025-01-14	
EUT Classification	Class: B	
Electrical wiring	<i>Cable</i>	<i>Length [m]</i>
	DC input cable	1.5
	Load cable	2.0
Operating conditions	OC01 See par. 6 of this report	
Additional information	None	
Auxiliary equipment (AE)	See par. 3.4 of this report	
Frequency range	150 kHz ÷ 30 MHz	
Test set up	<input type="checkbox"/> Floor standing set up <input checked="" type="checkbox"/> Table top set up	
Limits	In compliance with reference standard	
Port	AC. Input - LISN measurements	
Test instrumentations	See Annex B	
Measurement Uncertainty (k=2)	See Annex F	
EUT modification during this test	None	
Result	COMPLIES	
Note	---	

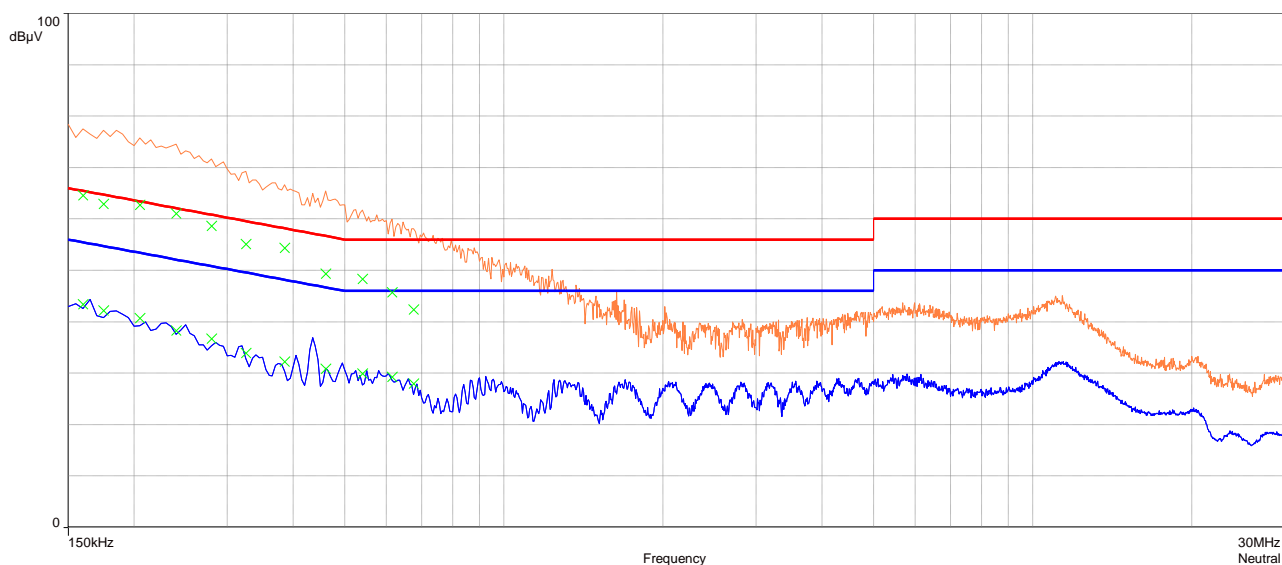
TEST GRAPHS AND MEASUREMENTS

All traces have been acquired with PK Peak detector (orange trace) and AVG Average detector (blue trace)
If PK trace exceeds QP Quasi-Peak limit, QP measurements are performed at discrete frequencies where the limit is exceeded. Measurement time for QP measurements is 15 s.

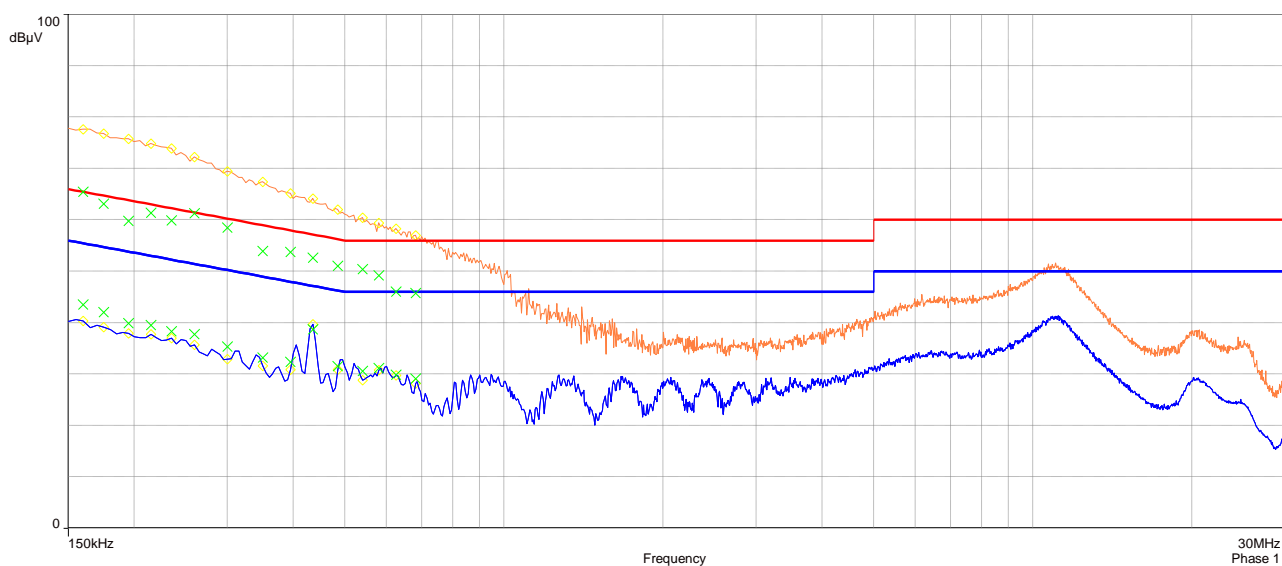
If the general level of the disturbance is not steady, also the AVG disturbance voltage level is observed for 15 s per frequency; results are reported in a specific table below the graph.

The final measurements are obtain consider the value read in the receiver minus the value of the column "Conversion Factor".

Measurement 01 A.C. Input - LISN measurements Line: Neutral Operating Condition: OC01



Measurement 02 A.C. Input - LISN measurements Line: Phase 1 Operating Condition: OC01



Frequency (MHz)	SR	AVG (dBμV)	QPeak (dBμV)	Lim AVG (dBμV)	Lim QPeak (dBμV)	AVG Margin (dB)	QPeak Margin (dB)	Line	Conversion Factor
0.1595	1	43.43	64.59	55.46	65.46	-12.04	-0.88	Neutral	12.87
0.1745	1	42.21	62.93	54.72	64.72	-12.51	-1.79	Neutral	12.63
0.2045	1	40.70	62.75	53.41	63.41	-12.71	-0.66	Neutral	12.16
0.2395	1	38.34	61.09	52.10	62.10	-13.76	-1.01	Neutral	11.64
0.2795	1	36.69	58.66	50.82	60.82	-14.12	-2.16	Neutral	11.09
0.3245	1	33.96	55.15	49.58	59.58	-15.61	-4.42	Neutral	10.76
0.3845	1	32.28	54.41	48.17	58.17	-15.89	-3.76	Neutral	10.63
0.4595	1	30.90	49.36	46.69	56.69	-15.79	-7.34	Neutral	10.46
0.53955	1	29.96	48.32	46.00	56.00	-16.04	-7.68	Neutral	10.34
0.6145	1	29.33	45.71	46.00	56.00	-16.67	-10.29	Neutral	10.28
0.6745	1	27.96	42.41	46.00	56.00	-18.04	-13.59	Neutral	10.23
0.1595	2	43.53	65.46	55.46	65.46	-11.93	-0.01	Phase 1	12.87
0.1745	2	42.03	63.07	54.72	64.72	-12.69	-1.65	Phase 1	12.63
0.1945	2	39.85	59.72	53.82	63.82	-13.97	-4.10	Phase 1	12.31
0.2145	2	39.55	61.37	53.01	63.01	-13.46	-1.64	Phase 1	12.01
0.23455	2	38.26	59.85	52.27	62.27	-14.01	-2.42	Phase 1	11.71
0.2595	2	37.79	61.24	51.43	61.43	-13.64	-0.19	Phase 1	11.36
0.2995	2	35.37	58.51	50.24	60.24	-14.87	-1.73	Phase 1	10.82
0.3495	2	33.22	53.88	48.96	58.96	-15.74	-5.09	Phase 1	10.70
0.39455	2	32.34	53.71	47.96	57.96	-15.62	-4.25	Phase 1	10.60
0.43455	2	38.66	52.59	47.16	57.16	-8.50	-4.57	Phase 1	10.52
0.4845	2	31.53	51.06	46.25	56.25	-14.72	-5.19	Phase 1	10.41
0.5395	2	30.60	50.37	46.00	56.00	-15.40	-5.63	Phase 1	10.34
0.5795	2	31.14	49.20	46.00	56.00	-14.86	-6.80	Phase 1	10.31
0.6245	2	29.82	45.99	46.00	56.00	-16.18	-10.01	Phase 1	10.27
0.67955	2	29.10	45.70	46.00	56.00	-16.90	-10.30	Phase 1	10.23

9 EUT MODIFICATIONS

None.

Annex B Test instrumentations

FCC Part15

Description	Manufacturer	Model	Identifier	Cal data	Cal due
RF Cable - N-N 5m	INTERCOND	M17/74 RG 213	225/LAB	2024-08-26	2025-08-26
			Rapporto 6599		
LISN 32A	ROHDE&SCHWARZ	ESH2-Z5	033L/CS	2024-09-09	2025-09-09
			Rapporto 6609		
Software BAT-EMC	Nexio	BAT-EMC	1910/LAB	--	--
Antenna - BiConiLog Antenna 30MHz÷ 6 GHz	ETS-LINDGREN	3142E	1508/LAB	2024-01-26	2027-01-25
			Rapporto 6348		
EMI Receiver - MXE	Keysight Technologies	N9038A	1444/LAB	2024-02-27	2025-02-26
			Rapporto 6358		
RF cable - set of RF cables (760/LAB + 804/LAB + 805/LAB)			806/LAB	2024-04-05	2025-04-05
			Rapporto 6606		
RF Cable - set of RF cables 769/LAB + 791/LAB + 938/LAB + Pre-Amplifier 758/LAB with cables			803/LAB	2024-04-05	2025-04-05
			Rapporto 6498		
RF cable - set of RF cables (771/LAB + 791/LAB + 937/LAB)			802/LAB	2024-01-26	2025-01-25
			Rapporto 6441		
Semianechoic Chamber	Albatross Projects GmbH		739/CA	2023-02-06	2025-02-05
			Rapporto 6030		
Pulse Limiter ESH3-Z2	ROHDE&SCHWARZ GmbH	ESH3-Z2	528/LAB	2024-08-26	2025-08-26
			Rapporto 6602		



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LAB N° 0259 L

Annex B Test instrumentations

Filter PB	G. De PAOLI	BPF.0.15-30MHz	268/LAB	2024-08-26	2025-08-26
Rapporto 6601					
RF Cable - N-N 1,8m	Siva Cables Italy	RG 58A/U	243/LAB	2024-08-26	2025-08-26
Rapporto 6600					



Kiwa Creiven

Code 600/24/04784/FCC



LAB N° 0259 L

Annex D Auxiliary instrumentations

<i>Application</i>	<i>Description</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Identifier</i>	<i>Cal. data</i>	<i>Cal. due</i>
Monitoring of environmental conditions	Climatic Sensor (pri site) - 739/LAB Emission Anec	HW group	HWg-STE	1299/LAB	2023-08-10	2025-08-09
Monitoring of environmental conditions	Pressure Transducer	COMET	T7410	1530/LAB	2023-10-06	2025-10-05
Distance monitoring	Metro Laser	Leica	DISTO A2	1094/LAB	2023-11-10	2025-11-09

Annex F Compliance Decision Rule and measurements uncertainty

F1: Decision Rule

- A decision rule defines the role of uncertainty in assessing the conformity of measured values with respect to specification limits.
- The KIWA Creiven decision uses the “simple acceptance” rule, then the measure is assessed compliant with specifications if it is less or equal to the specification limit.
- The rule of simple acceptance is also called “shared risk” because the probability to be over the tolerance limit may be as high as 50% in the case when a measurement result is exactly on the tolerance limit (assuming a symmetric normal distribution of the measurements).
- This rule results in accordance with :
 - IEC Guide 115 Application of uncertainty of measurement to conformity assessment activities in the electrotechnical sector
 - ILAC-G8 Guidelines on the Reporting of Compliance with Specification
 - JGCM guide 106

F.2 Measurements uncertainty

Set Up N.	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
4	Power disturbance measurement
Test Uncertainty [dB]	4.5
5	Discontinuous terminal disturbance voltage measurement
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Test Uncertainty [dB]	3.4
7	Harmonic current emission measurement
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Test Uncertainty [%]	7.5
8	Voltage fluctuation and Flicker measurement up to 16A
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Uncertainty Dmax [%]	8.0
Uncertainty Dc [%]	8.0
Uncertainty Pst [%]	8.0
8	Voltage fluctuation and Flicker measurement up to 75A
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Uncertainty Dmax< 3% [%]	8.0
Uncertainty Dmax 3% -> 7% [%]	8.0
Uncertainty Dmax > 7% [%]	8.0
34 - LISN DC	Conducted emissions from components/modules - Voltage measurements
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Test Uncertainty [dB]	3.7
35 – Current Probe	Conducted emissions from components/modules – Current measurements
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>

Annex F Compliance Decision Rule and measurements uncertainty

Test Uncertainty [dB]	4.8
36 – Radiated emission	36 – Radiated emission from components/modules
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Test Uncertainty [dB]	5.4
47 - LISN 32A – 200A	Terminal disturbance voltage measurements (LISN 32A – 200A)
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Test Uncertainty [dB]	3.4
47 – VP	Terminal disturbance voltage measurements (Passive Voltage Probe)
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Test Uncertainty [dB]	2.9
47 - ISN T8	Terminal disturbance voltage measurements (ISN T8)
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Test Uncertainty [dB]	5.0
51	Emission: Radiated disturbance measurements 30-1000MHz
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Test Uncertainty 30 MHz - 1 GHz [dB]	6.3
52	Emission: Radiated disturbance measurements 18-40 GHz
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Test Uncertainty [dB]	6.5
61	Emission: Radiated disturbance measurements 1-18 GHz
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Test Uncertainty 1 – 6 GHz [dB]	5.2
Test Uncertainty 6 - 18 GHz [dB]	5.5
64	Emission: Radiated Large Loop Antenna
	<i>Expanded Uncertainty (k=2 - coverage factor: 95%)</i>
Test Uncertainty [dB]	3.6

--- End of test report ---