DEKRA Testing and Certification, S.A.U.
Parque Tecnológico de Andalucía,
c/ Severo Ochoa nº 2 · 29590 Campanillas · Málaga · España
C.I.F. A29 507 456

Test report No:
81221REM.001

Partial Test Report

EN IEC 62135-2 (2021): Resistance welding equipment - Part 2: Electromagnetic compatibility (EMC) requirements

(*) Identification of item tested	Medium Frequency Converter for Resistance Welding
(*) Trademark	SERRA
(*) Model and /or type reference	SERRATRON MFC-4009CN
Other identification of the product	Not provided data
(*) Features	HW version: V1.0 SW version: Firmware V1.05 / Welding Engine V1.10 Features supported: Power Electronics
Manufacturer	SERRA UNP S.L.U. Pol. Ind. Zona Franca, Carrer D, nº 29 08040 Barcelona, Spain
Test method requested, standard	EN IEC 62135-2 (2021)
Approved by (name / position & signature)	Antonio José Jurado Industrial & Automotive EMC Lab. Manager 80157242B ANTONIO JOSE JURADO (C:A29507456) Firmado digitalmente por 80157242B ANTONIO JOSE JURADO (C:A29507456) Fecha: 2025.01.07 14:30:06 +01'00'
Date of issue	2025-01-07
Report template No	FDT08_25 (*) “Data provided by the client”

Index

Acronyms

Acronym ID	Acronym Description
CPL	Zones / Coupling Cables
CPL Type	Coupling Type
Code	EMC Test Code
Freq Rng	Frequency Range
Immunity Lvl	Immunity Level
Line	Conducted Emissions - Tested Line
MP	Measurement Point
OM	Operation Mode
Pol	Polarization
S/	Sample
V	Verdict

Competences and guarantees

DEKRA Testing and Certification S.A.U. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Testing and Certification S.A.U. has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification S.A.U. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Testing and Certification S.A.U. at the time of performance of the test.

DEKRA Testing and Certification S.A.U. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Testing and Certification S.A.U.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification S.A.U. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

The total uncertainty of the measurement system for the measured conducted disturbance characteristics of EUT from 150 kHz to 30 MHz is I = ± 3,9 dB for quasi-peak measurements, I = ± 3,2 dB for peak measurements (k = 2).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is I = ± 4,7 dB for quasi-peak measurements, I = ± 4,3 dB for peak and average measurements (k = 2).

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested"

2. The sample consists of a medium frequency converter for resistance welding.

DEKRA Testing and Certification S.A.U. declines any responsibility with respect to the information provided by the client and that may affect the validity of results. The laboratory is not responsible for such information and it is not covered by accreditation

Usage of samples

Samples undergoing test have been selected by: The client.

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	81221_1.1	Welding control	SERRATRON MFC-4009CN	---	2024-12-10	Element Under Test

Notes referenced to samples during the project: N/A.

Test sample description

Ports…… :	Port name and description		Cable				
			Specified max length [m]	Attached during test	Shielded	Coupled to patient(3)	
	Ethernet		100	[X]	[X]	[ ]	
	FieldBus		100	[X]	[X]	[ ]	
Supplementary information to the ports…… :	Not provided data						
Rated power supply .....:	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[X]	AC: 400 Vac / 50-60 Hz	[X]	[X]	[X]	[ ]	[X]
	[ ]	DC:					
Rated Power .....:	60 kVA						
Clock frequencies.....:	25 MHz						
Other parameters .....:	Not provided data						
Software version .....:	Firmware V1.05 / Welding Engine V1.10						
Hardware version .....:	V1.0						
Dimensions in cm (W x H x D) ....:	29 x 37,5 x 22 cm						
Mounting position .....:	[ ]	Table top equipment					
	[ ]	Wall/Ceiling mounted equipment					
	[ ]	Floor standing equipment					
	[ ]	Hand-held equipment					
	[X]	Other: Inside industrial cabinet					
Modules/parts.....:	Module/parts of test item		Type	Manufacturer			
	Not provided data		.....	.....			
Accessories (not part of the test item) .....:	Description		Type	Manufacturer			
	Not provided data		.....	.....			
Documents as provided by the applicant.....:	Description		File name	Issue date			
	Not provided data		.....	.....			

(3) Only for Medical Equipment

Identification of the client

SERRA UNP S.L.U.
Pol. Ind. Zona Franca, Carrer D, nº 29
08040 Barcelona, Spain

Contact Person:
Romà Gómez
R&D Electronics
Project Manager
+34 932617100

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2024-12-09
Date (finish)	2024-12-12

Document history

Report number	Date	Description
81221REM.001	2025-01-07	First release

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

The tests have been performed by the technical personnel: Humberto Pérez Guerrero, José Antonio Santiago Galván, José Carlos Morales Gutiérrez and Ricardo Josel Turcios Oliva.

Testing verdicts

Fail	F
Inconclusive	I
Not applicable	N/A
Not measured	N/M
Not Tested	N/T
Pass	P

List of equipment used during the test

Control No.	Equipment	Model	Manufacturer	Next Calibration
08053	AVG POWER SENSOR 6 GHZ	NRP6AN	ROHDE AND SCHWARZ	2025-04-12
08056	AVG POWER SENSOR 6 GHZ	NRP6AN	ROHDE AND SCHWARZ	2025-04-12
09559	ELECTROSTATIC DISCHARGE SIMULATOR (ESD)	ESD NX30.1	EM TEST	2024-12-21
07816	EMI TEST RECEIVER 1Hz-26.5GHz	ESW26	ROHDE AND SCHWARZ	2026-07-23
08825	EMI TEST RECEIVER 9kHz-7GHz	ESR7	ROHDE AND SCHWARZ	2025-08-21
06135	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2025-04-23
02010	HORN ANTENNA 0.5-6GHz	BBHA 9120 E	SCHWARZBECK MESS-ELEKTRONIK	--
07746	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2026-09-01
07969	LOG-PERIODIC BROADBAND ANTENNA	STPL 9129	SCHWARZBECK MESS-ELEKTRONIK	--
08052	POWER AMPLIFIER 250W/110W/100W 80MHz-1GHz/0,69GHz-3,2GHz/2,5GHz-6GHz	BBA150	ROHDE AND SCHWARZ	--
09541	PRE-AMPLIFIER G>37dB 10MHz-6GHz	BLNA 0160-02N	BONN ELEKTRONIK	2025-08-29
08150	SEMIANECHOIC ABSORBER LINED CHAMBER I	FACT 10	ETS LINDGREN	--
08051	SIGNAL GENERATOR 8kHz-6GHz	SMB100B	ROHDE AND SCHWARZ	2026-03-12
04848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	--
07546	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2025-04-09
07553	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2025-04-09
07771	TRANSIENT LIMITER 10DB N CONNECTOR	VTSD 9561-F	SCHWARZBECK	2025-07-05
06204	THREE-PHASE ARTIFICIAL NETWORK 32A	PMM L3-32	NARDA	2025-02-06
04430	THREE-PHASE POWER SOURCE 30KVA	MX30-3Pi	CALIFORNIA INSTRUMENTS	2026-08-12
10410	ACTIVE LOOP ANTENNA 9kHz-30MHz	FMZB 1519-60 D	SCHWARZBECK	2027-05-08

Summary

Test Specification	Requirement – Test case	Verdict	Remark
EN IEC 62135-2 (2021)	RE Radiated emission. Electromagnetic field measure	Pass	
EN IEC 62135-2 (2021)	CE Continuous conducted emission on power leads	Pass	
EN IEC 62135-2 (2021)	MF Magnetic field radiation disturbance	Pass	
EN IEC 62135-2 (2021)	RI Radiated RF Electromagnetic field immunity test	Pass	
EN IEC 62135-2 (2021)	ESD Electrostatic discharge immunity test	Pass	
Supplementary information and remarks: None			

Appendix A: Test results

Appendix A content

Description of the operation modes

The operation modes described in this paragraph constitute a functionality of the sample under test for itself. Every operation mode takes a failure criteria for the immunity test that they were applying to it and a monitoring to guarantee performance of the same ones.

The operation modes used by the samples to which the present report refers, are shown in the following table:

Id	Description
OM/01	EUT ON. Idle mode. Power supply: 400Vac. 50Hz.
OM/02	EUT ON. Load mode (1A), load 500 ohm. Power supply: 400Vac. 50Hz.

Fails criteria for immunity test

According to EN IEC 62135-2 (2021)

Performance criteria A
The following criteria shall be met:
a) the resistance welding equipment shall continue to operate as intended;
b) variations of ±10 % of the output voltage are admissible;
c) the pre-set heat time shall not be exceeded;
d) no interruptions are permitted in the heat time;
e) in the "single" welding state, an interruption of the welding cycle shall be properly terminated;
f) in the "repeat", "seam" and "continuous" welding states, an interruption of the cycle byreleasing the start switch provided shall be possible;
g) all controls shall continue to function;
h) malfunctioning of the semiconductor power switches is inadmissible;
i) loss of stored data is inadmissible.

Performance criteria B
The following criteria shall be met:
a) variations of (+50/-100)% of the output voltage are admissible;
b) in the case of a current interruption during the intended heat time, the welding cycle is terminated with "no current". Manual reset may be required;
c) the pre-set heat time shall not be exceeded;
d) in the "single" welding state, an interruption of the welding cycle shall be properly terminated;
e) in the "repeat", "seam" and "continuous" welding states, an interruption of the cycle by releasing the start switch provided shall be possible;
f) malfunctioning of the semiconductor power switches is inadmissible;
g) loss of stored data is inadmissible.

Performance criteria C
The following criteria shall be met:
a) temporary loss of function is allowed, provided that the loss of function is selfrecoverable or can be restored by the operator of the controls. This may require the control voltage of the resistance welding equipment to be restored by means of an appropriate switch;
b) malfunctioning of the semiconductor power switches is inadmissible; temporary loss of function is allowed;
c) loss of stored programme data is inadmissible, unless it can be restored by the operation of the controls.

Monitoring for immunity test

For every operation mode, the monitoring performed over the samples under test is shown in the following table:

Id	CFC Monitoring	TFT Monitoring
OM/01	By visual inspection, it is ensured that EUT does not suffer any changes in the active screen during and after the test.	By visual inspection, it is ensured that EUT does not suffer any changes in the active screen after the test.
OM/02	By visual inspection, it is ensured that EUT does not suffer any changes in the active screen during and after the test.	By visual inspection, it is ensured that EUT does not suffer any changes in the active screen after the test.

Test standards version applied

The product standards and test standards applied for each test cases are shown in the following table:

Product Test Standard	Test standard	Requirement – Test case	Fail criteria
EN IEC 62135-2 (2021)	IEC 61000-6-4 (2018)	CE Continuous conducted emission test	N/A
	CISPR 11 (2015) / AMD1 (2016) / AMD2 (2019)	RE Radiated emission. Electromagnetic field measure test	N/A
	CISPR 11 (2015) / AMD1 (2016) / AMD2 (2019)	MF Magnetic Field Radiated Emission	N/A
	IEC 61000-4-3 (2006) / AMD1 (2007) / AMD2 (2010)	RI Radiated RF Electromagnetic field immunity test	A
	IEC 61000-4-2 (2008)	ESD Electrostatic discharge immunity test	B

Test Cases Details

EN 62135-2

RE Radiated emission. Electromagnetic field measure

Electromagnetic radiation disturbance limits for Class A equipment – Idle state at 3m:

Frequency range (MHz)	Measured field limit at 3 m (dBµV/m) Quasi-Peak measurement
30 to 230	50
230 to 1000	57

Electromagnetic radiation disturbance limits for Class A equipment – Loaded state at 3m:

Frequency band (MHz)	On a test site at 3m test distance Quasi-Peak (dBµV/m)
30 to 47	78
47 to 54.56	60
54.56 to 68	60
68 to 81.848	73
81.848 to 87	73
87 to 134.786	70
134.786 to 136.414	70
136.414 to 156	70
156 to 174	70
174 to 188.7	60
188.7 to 190.979	60
190.979 to 230	60
230 to 1000	70

Results

S/	OM	Code	Freq Rng (MHz)	V
01	OM/01	RE0101LR	[30, 1000]	P
01	OM/02	RE0102LR	[30, 1000]	P

Verdict

Pass

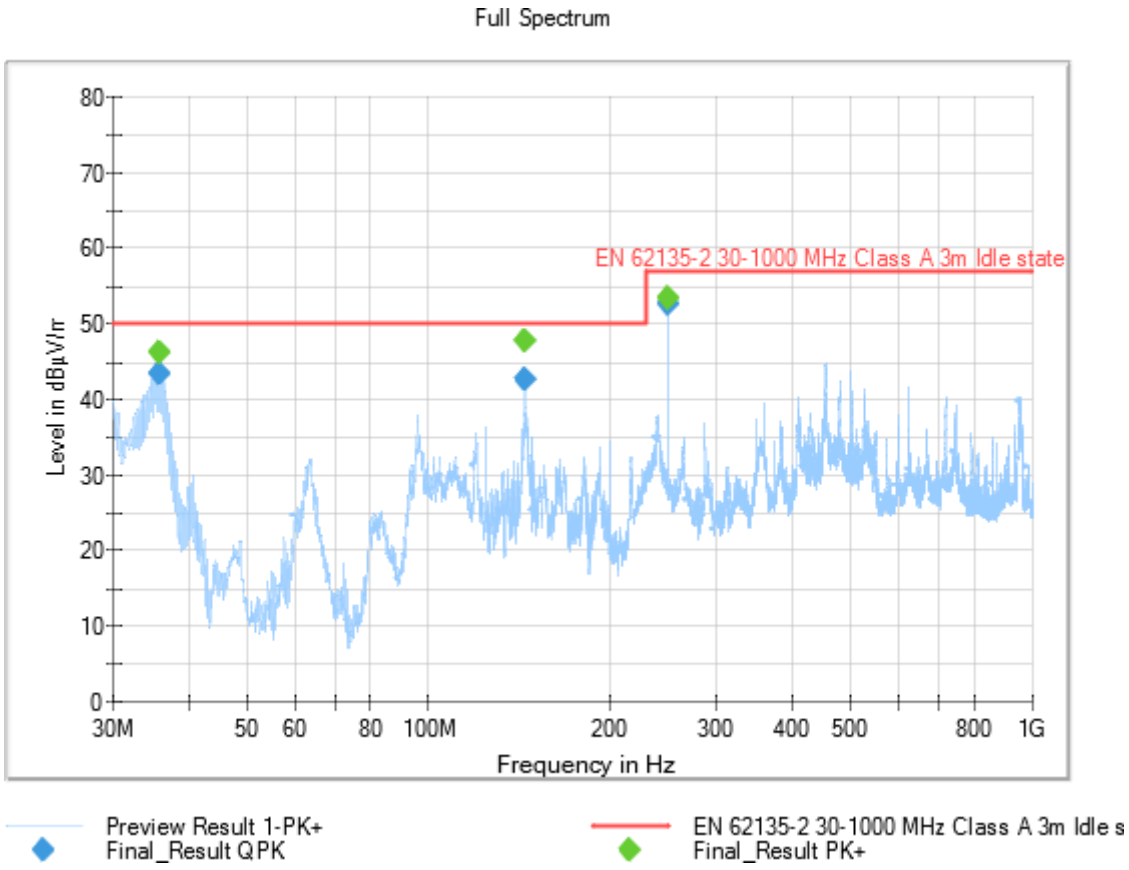
Attachments

EMC Test Code = RE0101LR Frequency Range MHz = [30, 1000]

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Idle mode. Power supply: 400Vac. 50Hz

Images:



Tables:

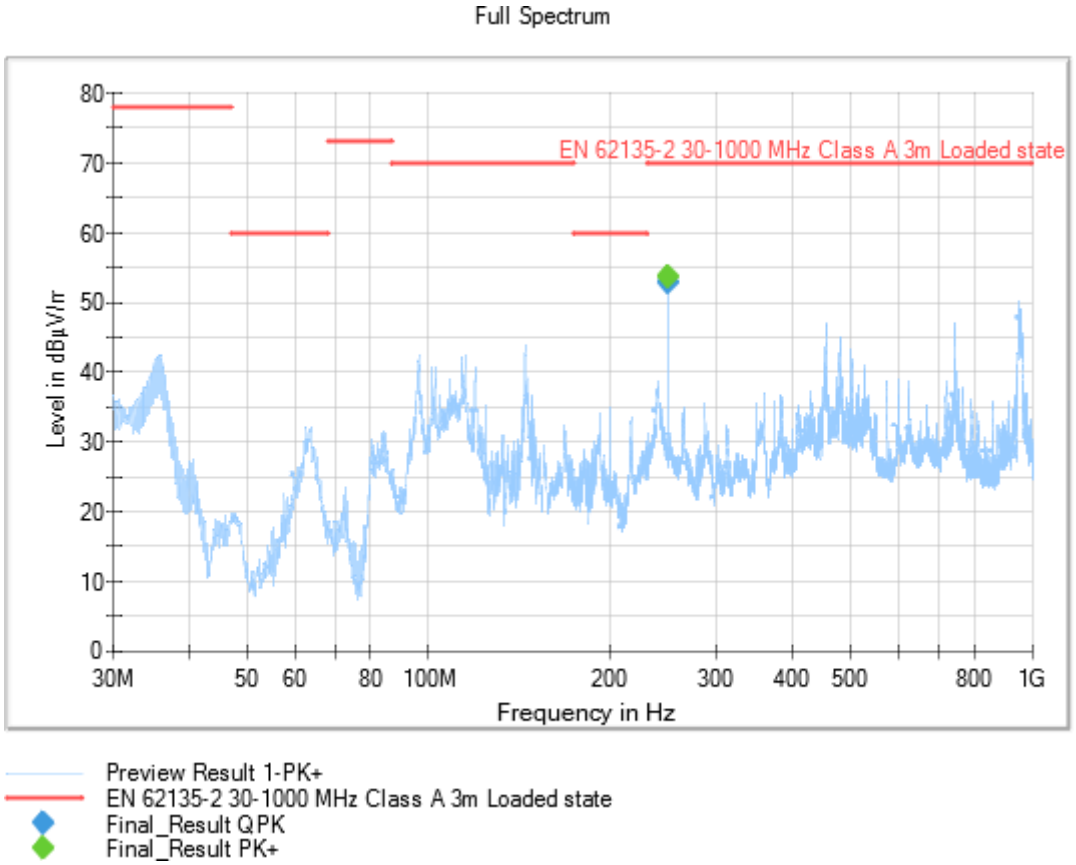
Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
35.706000	---	46.03	---	---	126.0	V	128.0
35.706000	43.42	---	50.00	6.58	126.0	V	128.0
144.083000	---	47.68	---	---	100.0	V	327.0
144.083000	42.44	---	50.00	7.56	100.0	V	327.0
250.031000	---	53.24	---	---	125.0	V	0.0
250.031000	52.65	---	57.00	4.35	125.0	V	0.0

EMC Test Code = RE0102LR Frequency Range MHz = [30, 1000]

Sample ID: S/01

Operation Mode: OM/02. EUT ON. Load mode (1A), load 500 ohm. Power supply: 400Vac. 50Hz

Images:



Tables:

Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
250.033000	---	53.62	---	---	155.0	V	32.0
250.033000	52.91	---	70.00	17.09	155.0	V	32.0

CE Continuous conducted emission on power leads

Disturbance voltage limits for class A equipment – Idle state and Loaded state:

Frequency range (MHz)	Class A maximum rated input power > 75kVA	
	Quasi-Peak measurement (dBµV)	Average measurement (dBµV)
0.15 to 0.50	130	120
0.50 to 5	125	115
5 to 30	115	105

Results

S/	OM	Code	Freq Rng (MHz)	Line	V
01	OM/01	CE0101L1	[0.15, 30]	L1	P
01	OM/01	CE0101L2	[0.15, 30]	L2	P
01	OM/01	CE0101L3	[0.15, 30]	L3	P
01	OM/02	CE0102L1	[0.15, 30]	L1	P
01	OM/02	CE0102L2	[0.15, 30]	L2	P
01	OM/02	CE0102L3	[0.15, 30]	L3	P

Verdict

Pass

Attachments

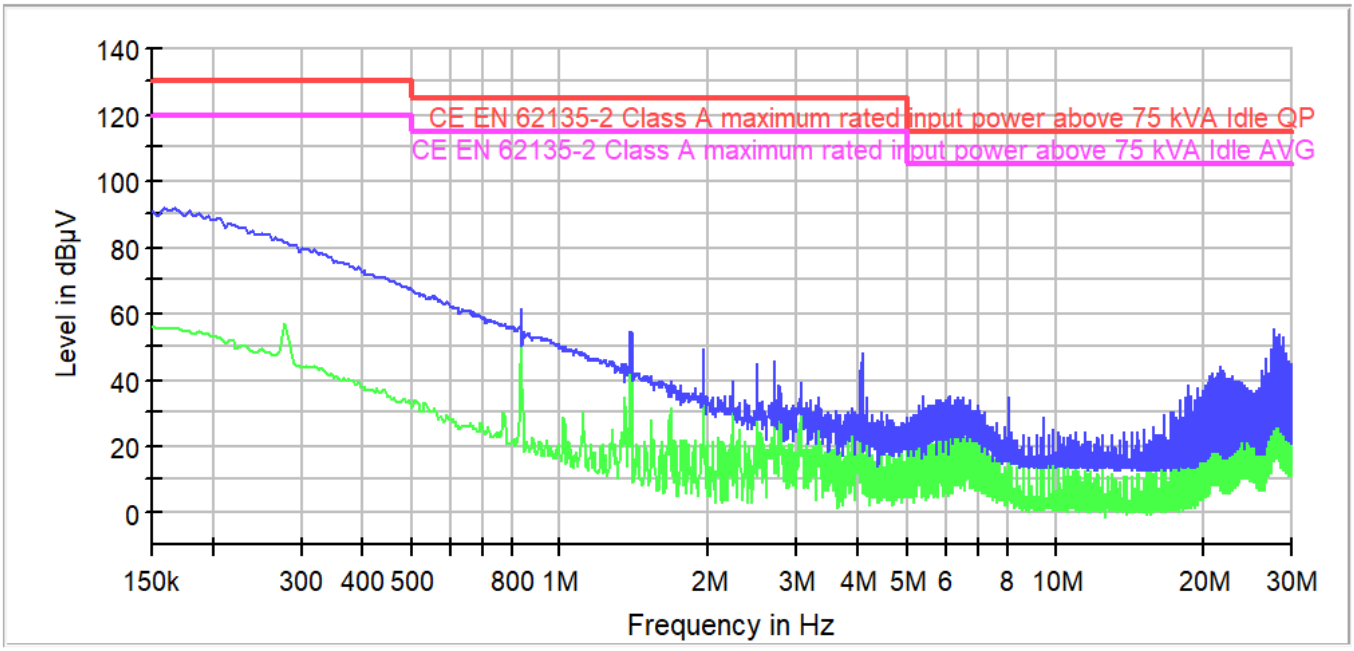
EMC Test Code = CE0101L1 Frequency Range MHz = [0.15, 30]

Conducted Emissions - Tested Line = L1

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Idle mode. Power supply: 400Vac. 50Hz

Images:



AVG_CLRWR
PK+_CLRWR
CE EN 62135-2 Class A maximum rated input power above 75 kVA Idle QP
CE EN 62135-2 Class A maximum rated input power above 75 kVA Idle AVG

Tables:

Frequency (MHz)	PK+_CLRWR (dBµV)	AVG_CLRWR (dBµV)	Line
0.158000	91.8	55.7	L1
0.258000	83.7	48.0	L1
0.434000	70.8	36.3	L1
0.834000	61.4	51.2	L1
1.390000	54.9	47.8	L1
2.710000	45.5	43.0	L1
4.062000	48.3	43.3	L1
6.162000	35.2	25.0	L1
17.106000	30.4	13.7	L1
27.814000	55.7	53.0	L1

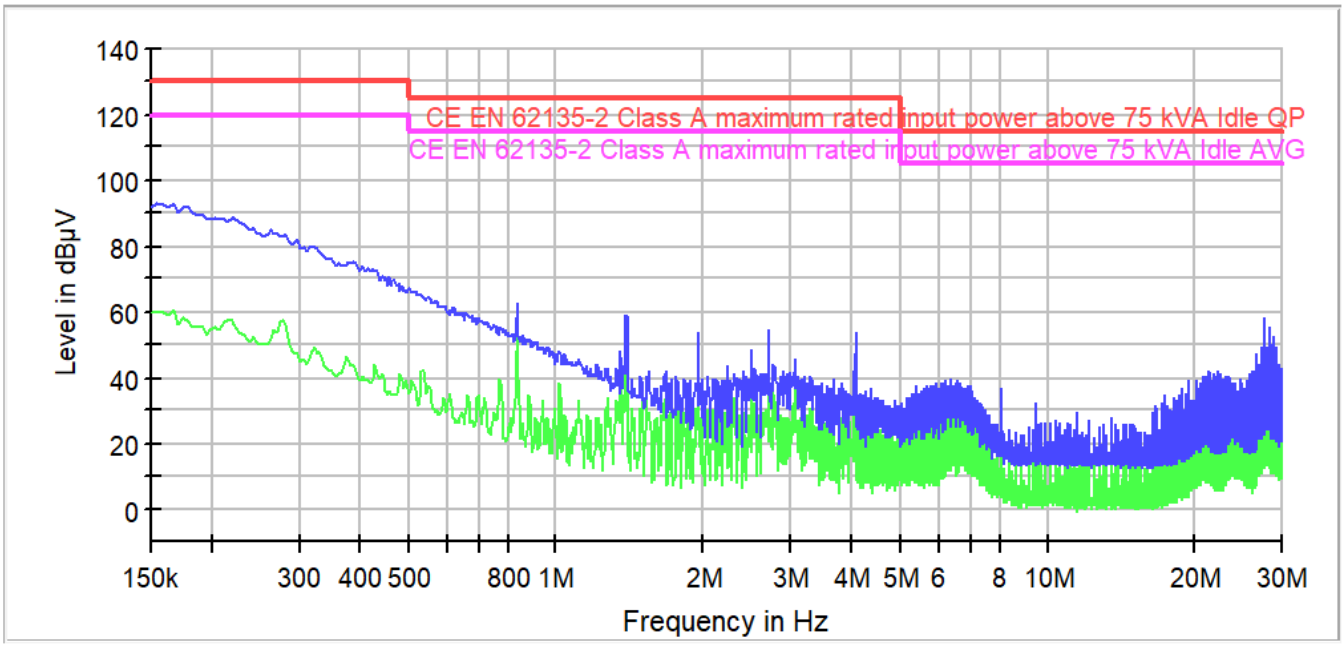
EMC Test Code = CE0101L2 Frequency Range MHz = [0.15, 30]

Conducted Emissions - Tested Line = L2

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Idle mode. Power supply: 400Vac. 50Hz

Images:



AVG_CLRWR
PK+_CLRWR
CE EN 62135-2 Class A maximum rated input power above 75 kVA Idle QP
CE EN 62135-2 Class A maximum rated input power above 75 kVA Idle AVG

Tables:

Frequency (MHz)	PK+_CLRWR (dBµV)	AVG_CLRWR (dBµV)	Line
0.166000	93.4	60.5	L2
0.262000	84.7	51.8	L2
0.434000	72.3	41.1	L2
0.834000	62.8	54.1	L2
1.390000	58.9	51.7	L2
2.710000	55.0	51.5	L2
4.066000	54.1	48.4	L2
6.378000	39.8	28.9	L2
17.350000	34.5	20.4	L2
27.814000	58.2	52.6	L2

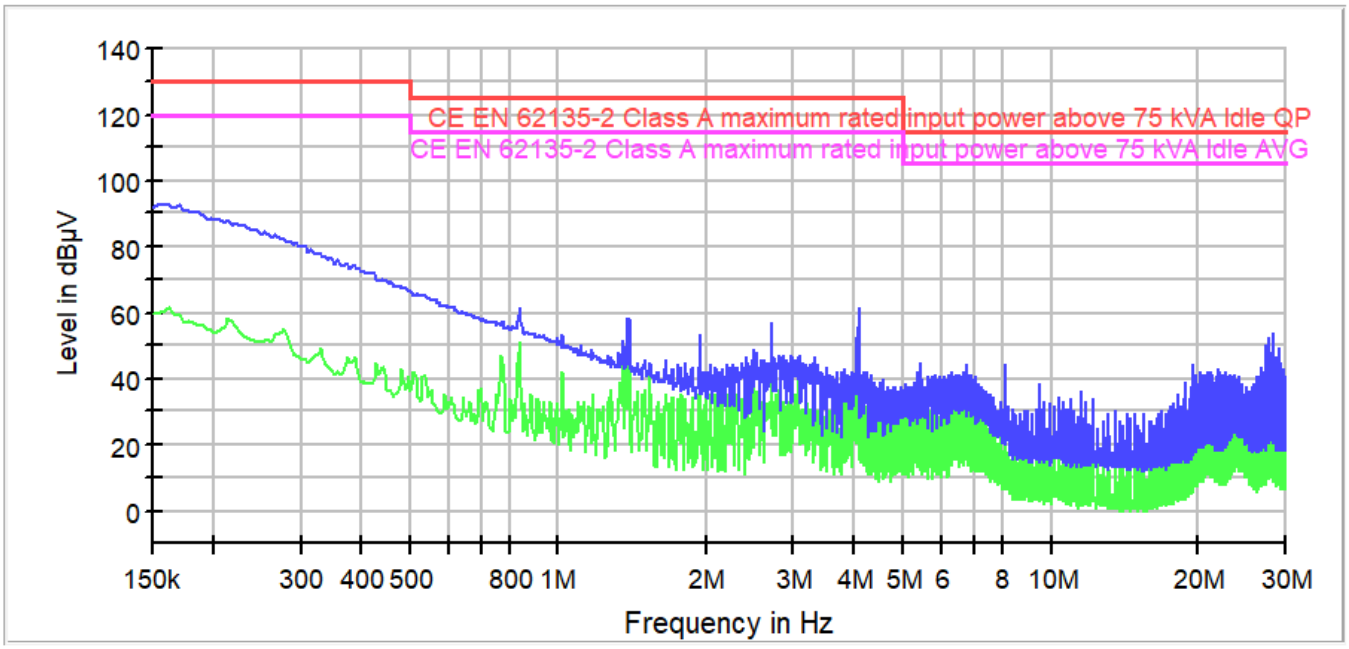
EMC Test Code = CE0101L3 Frequency Range MHz = [0.15, 30]

Conducted Emissions - Tested Line = L3

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Idle mode. Power supply: 400Vac. 50Hz

Images:



AVG_CLRWR
PK+_CLRWR
CE EN 62135-2 Class A maximum rated input power above 75 kVA Idle QP
CE EN 62135-2 Class A maximum rated input power above 75 kVA Idle AVG

Tables:

Frequency (MHz)	PK+_CLRWR (dBµV)	AVG_CLRWR (dBµV)	Line
0.158000	92.8	60.7	L3
0.258000	83.5	52.0	L3
0.438000	70.5	43.8	L3
0.834000	61.1	50.7	L3
1.390000	58.1	49.1	L3
2.710000	56.8	53.6	L3
4.066000	61.4	52.3	L3
8.126000	44.4	32.6	L3
11.482000	36.0	16.2	L3
28.370000	53.7	48.0	L3

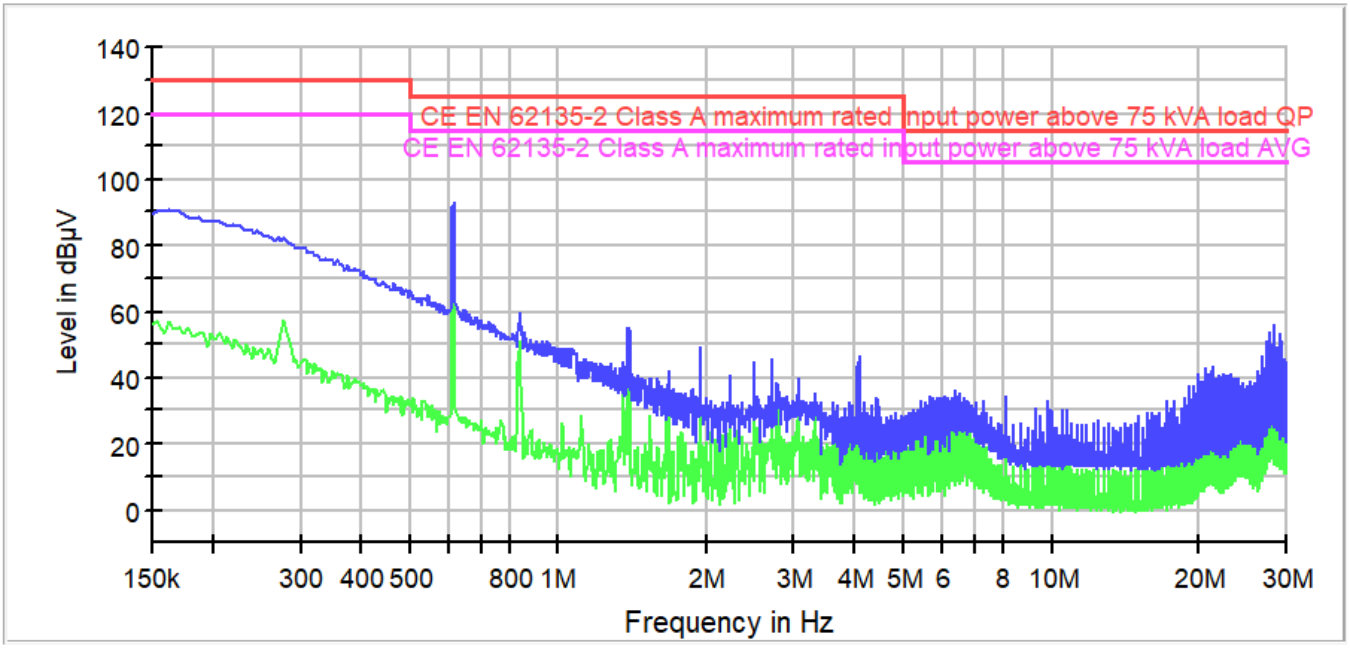
EMC Test Code = CE0102L1 Frequency Range MHz = [0.15, 30]

Conducted Emissions - Tested Line = L1

Sample ID: S/01

Operation Mode: OM/02. EUT ON. Load mode (1A), load 500 ohm. Power supply: 400Vac. 50Hz

Images:



AVG_CLRWR
PK+_CLRWR
CE EN 62135-2 Class A maximum rated input power above 75 kVA load QP
CE EN 62135-2 Class A maximum rated input power above 75 kVA load AVG

Tables:

Frequency (MHz)	PK+_CLRWR (dBµV)	AVG_CLRWR (dBµV)	Line
0.162000	91.0	56.8	L1
0.258000	83.1	48.7	L1
0.614000	93.3	73.6	L1
0.834000	60.2	51.2	L1
1.390000	55.0	47.9	L1
2.710000	45.5	42.8	L1
4.062000	46.8	42.8	L1
6.378000	36.3	24.4	L1
17.086000	32.9	17.0	L1
28.370000	56.4	53.5	L1

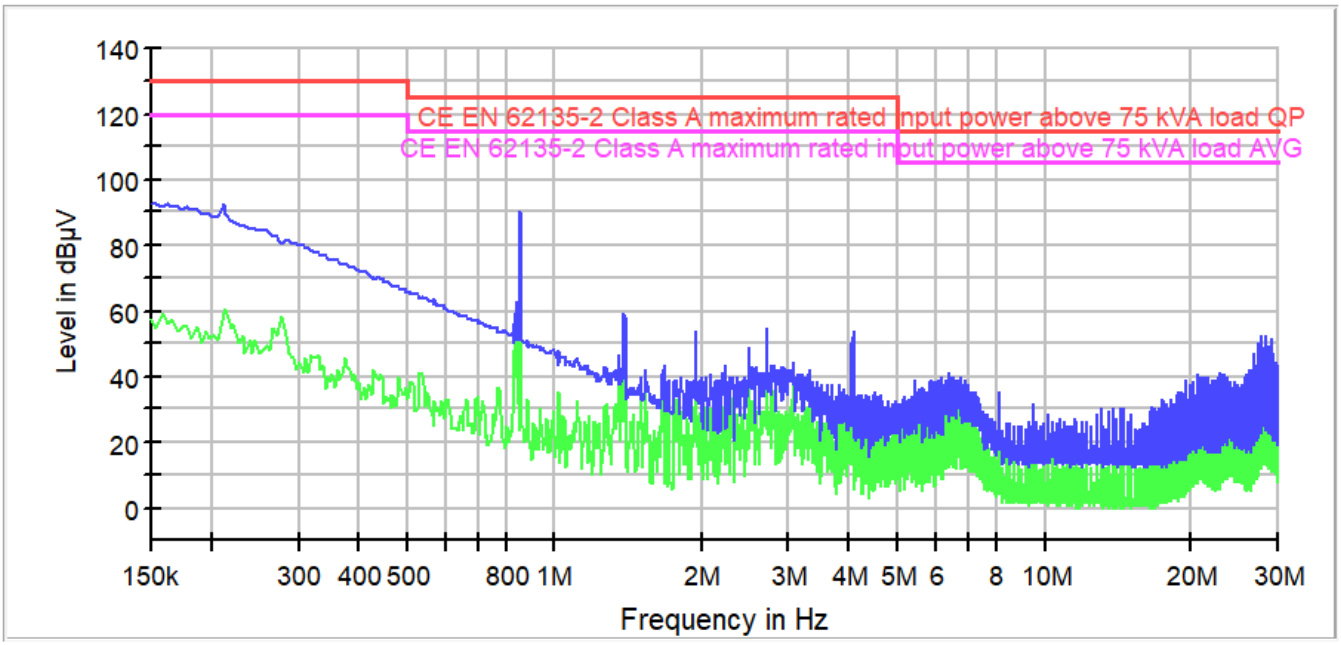
EMC Test Code = CE0102L2 Frequency Range MHz = [0.15, 30]

Conducted Emissions - Tested Line = L2

Sample ID: S/01

Operation Mode: OM/02. EUT ON. Load mode (1A), load 500 ohm. Power supply: 400Vac. 50Hz

Images:



AVG_CLRWR
PK+_CLRWR
CE EN 62135-2 Class A maximum rated input power above 75 kVA load QP
CE EN 62135-2 Class A maximum rated input power above 75 kVA load AVG

Tables:

Frequency (MHz)	PK+_CLRWR (dBµV)	AVG_CLRWR (dBµV)	Line
0.210000	92.8	59.2	L2
0.258000	84.0	49.4	L2
0.438000	69.9	38.8	L2
0.850000	90.1	66.6	L2
1.390000	58.8	51.5	L2
2.710000	54.4	51.4	L2
4.062000	53.8	48.0	L2
6.378000	41.3	32.3	L2
17.342000	32.8	22.0	L2
27.810000	52.7	48.5	L2

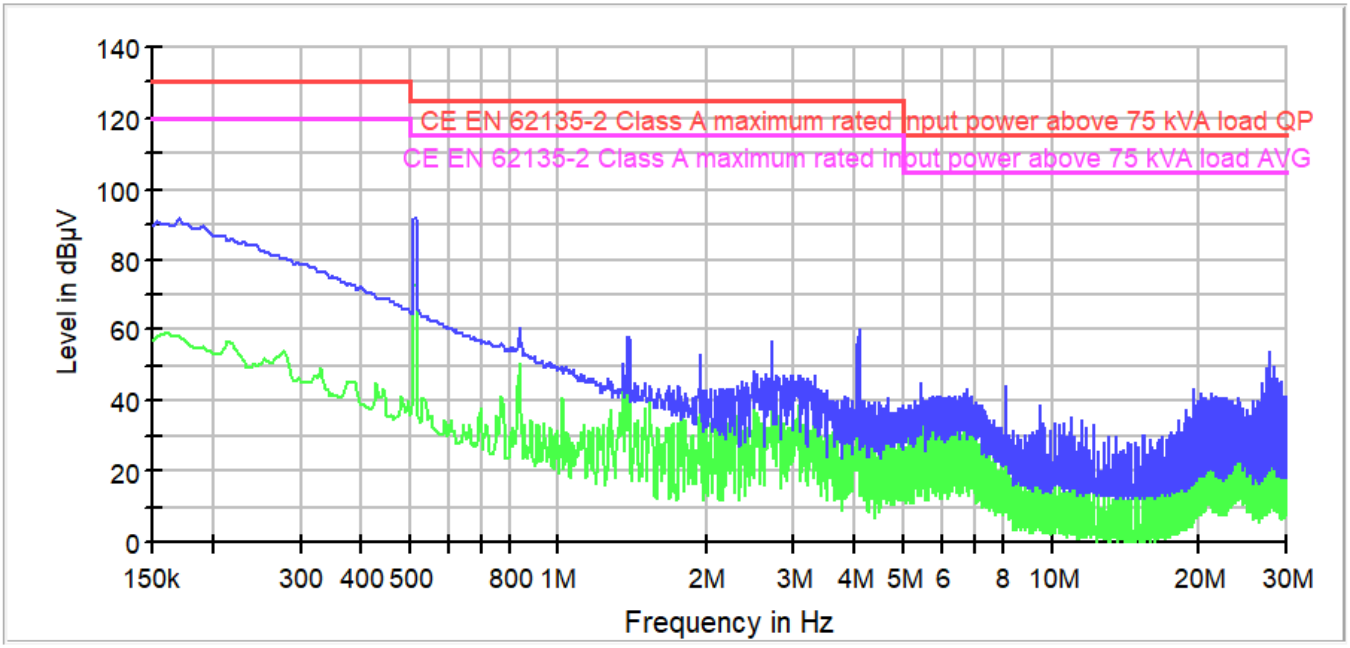
EMC Test Code = CE0102L3 Frequency Range MHz = [0.15, 30]

Conducted Emissions - Tested Line = L3

Sample ID: S/01

Operation Mode: OM/02. EUT ON. Load mode (1A), load 500 ohm. Power supply: 400Vac. 50Hz

Images:



AVG_CLRWR
PK+_CLRWR
CE EN 62135-2 Class A maximum rated input power above 75 kVA load QP
CE EN 62135-2 Class A maximum rated input power above 75 kVA load AVG

Tables:

Frequency (MHz)	PK+_CLRWR (dBµV)	AVG_CLRWR (dBµV)	Line
0.170000	91.2	57.9	L3
0.258000	81.8	51.2	L3
0.514000	91.8	72.9	L3
0.834000	61.0	50.8	L3
1.390000	58.5	49.2	L3
2.706000	56.7	52.6	L3
4.062000	60.1	53.3	L3
8.126000	44.3	34.1	L3
10.970000	35.3	14.3	L3
27.814000	53.7	44.6	L3

MF Magnetic field radiation disturbance

Limits for Class B equipment – Loaded state:

Frequency band (MHz)	On a test site at 3m test distance Quasi-Peak dB(μA/m)
0.15 to 30	39 Decreasing linearly with the logarithm of frequency to 3
At the transition frequency, the more stringent limit shall apply.	

Results

S/	OM	Code	Freq Rng (MHz)	V
01	OM/02	MF0102	[0.15, 30]	P

Verdict

Pass

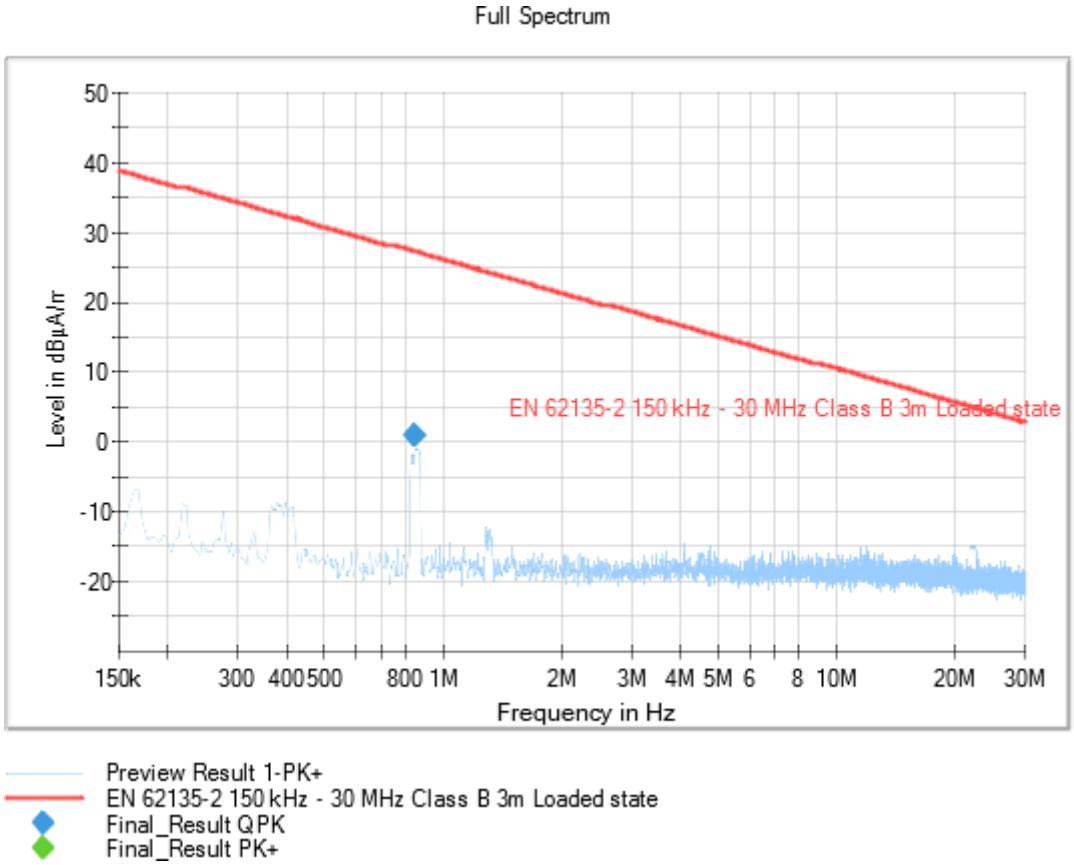
Attachments

EMC Test Code = MF0102 Frequency Range MHz = [0.15, 30]

Sample ID: S/01

Operation Mode: OM/02. EUT ON. Load mode (1A), load 500 ohm. Power supply: 400Vac. 50Hz

Images:



Tables:

Frequency (MHz)	QuasiPeak (dBµA/m)	MaxPeak (dBµA/m)	Limit (dBµA/m)	Margin (dB)	Height (cm)	Pol
0.847500	0.79	---	27.23	26.44	100.0	V

RI Radiated RF Electromagnetic field immunity test

Limits

Range	Frequency	Modulation	Step	Level
A	80-1000MHz	AM 1 kHz Prof: 80%	LOG 1%	10 V/m
B	1400-6000MHz	AM 1 KHz Prof: 80%	LOG 1%	3 V/m

Results

S/	OM	CPL	Immunity Lvl (V/m)	Pol	Comments	V
01	OM/02	EUT Front side, right side, left side and rear side	10	H/V	No fails detected.	P
01	OM/02	EUT front side, right side, left side and rear side	3	H/V	No fails detected.	P

Verdict

Pass

ESD Electrostatic discharge immunity test

Limits

Coupling	Level
Direct contact discharge:	±4kV
Indirect contact discharge:	±4kV
Air discharge:	±8kV

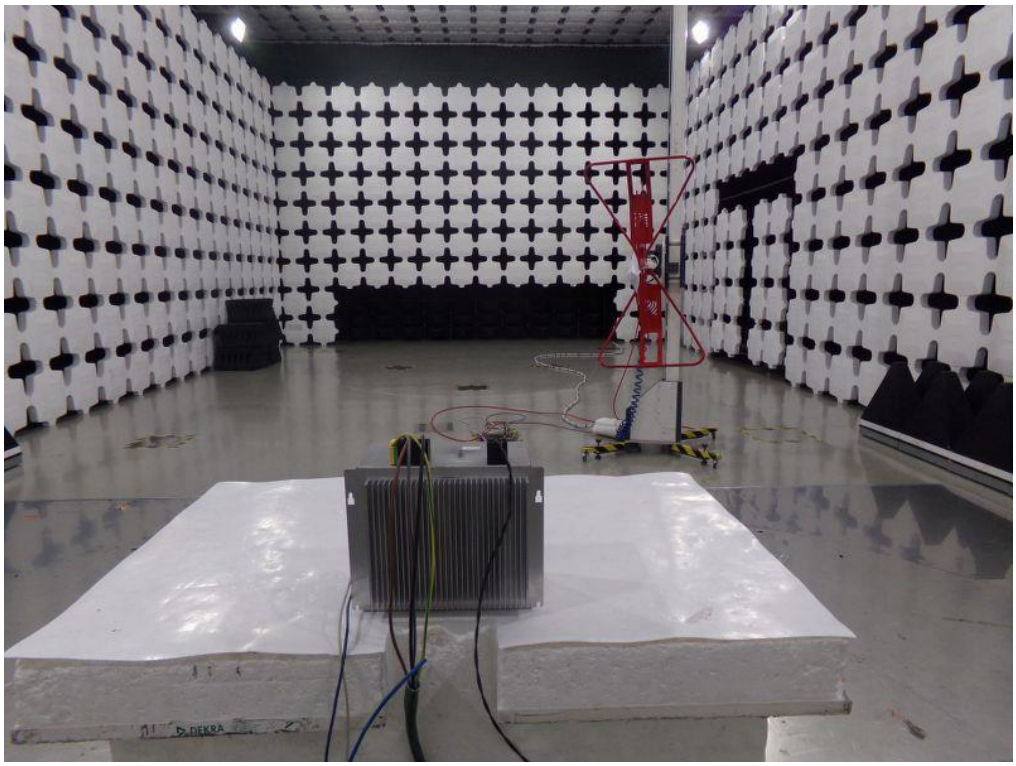
Results

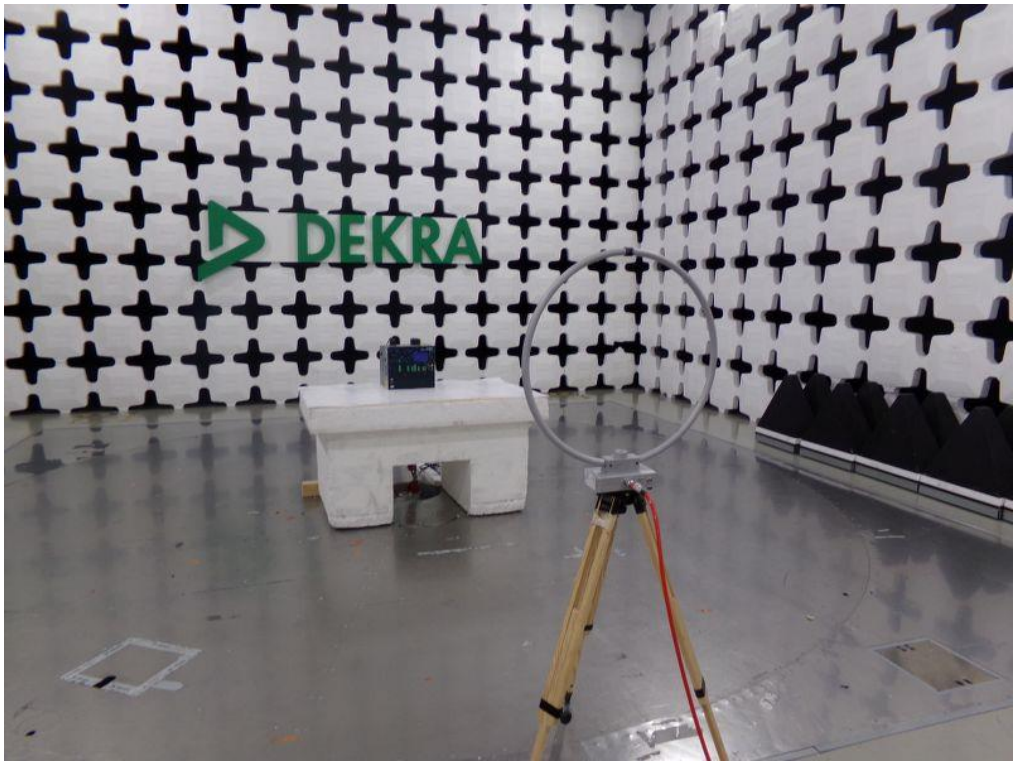
S/	OM	CPL	Immunity Lvl (kV)	CPL Type	Comments	V
01	OM/02	EUT Front side	±4	DC	No fails detected.	P
01	OM/02	EUT front, left, right and rear side	±4	ICH/ICV	No fails detected.	P
01	OM/02	Screws	±4	DC	No fails detected.	P
01	OM/02	Ethernet Cable	±8	DA	No fails detected.	P
01	OM/02	FieldBUS Cable	±8	DA	No fails detected.	P
01	OM/02	Plastic enclosure	±8	DA	No fails detected.	P
01	OM/02	Screen	±8	DA	No fails detected.	P
01	OM/02	AC power cable	±8	DA	No fails detected.	P

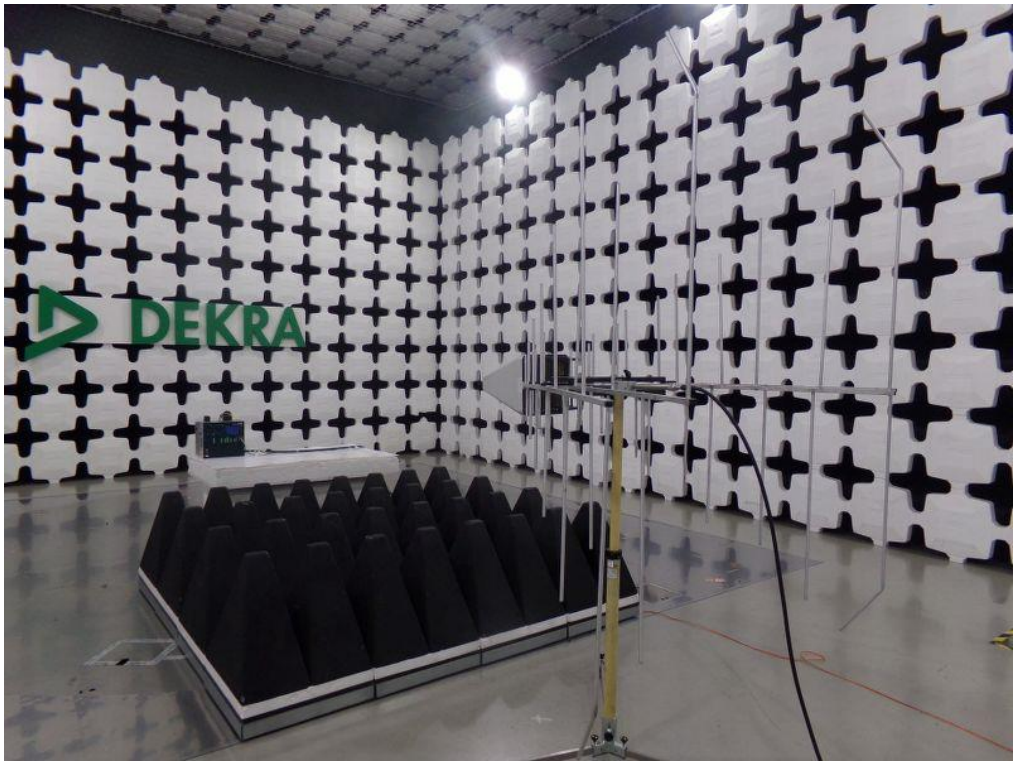
Verdict

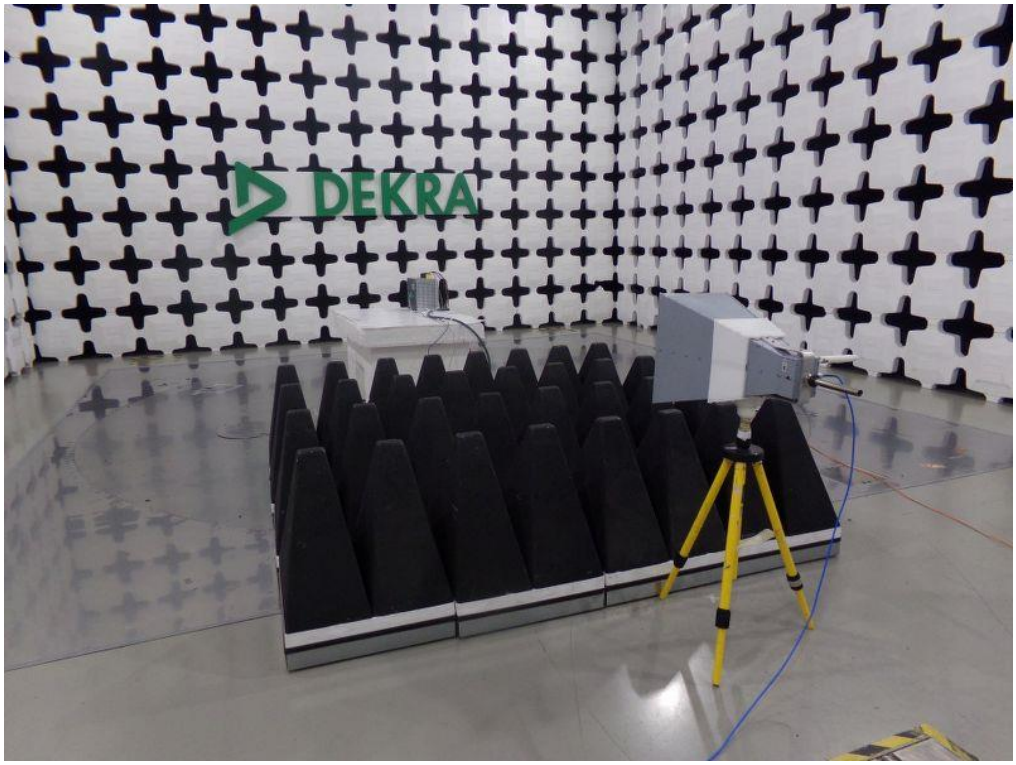
Pass

Photographs




DEKRA


DEKRA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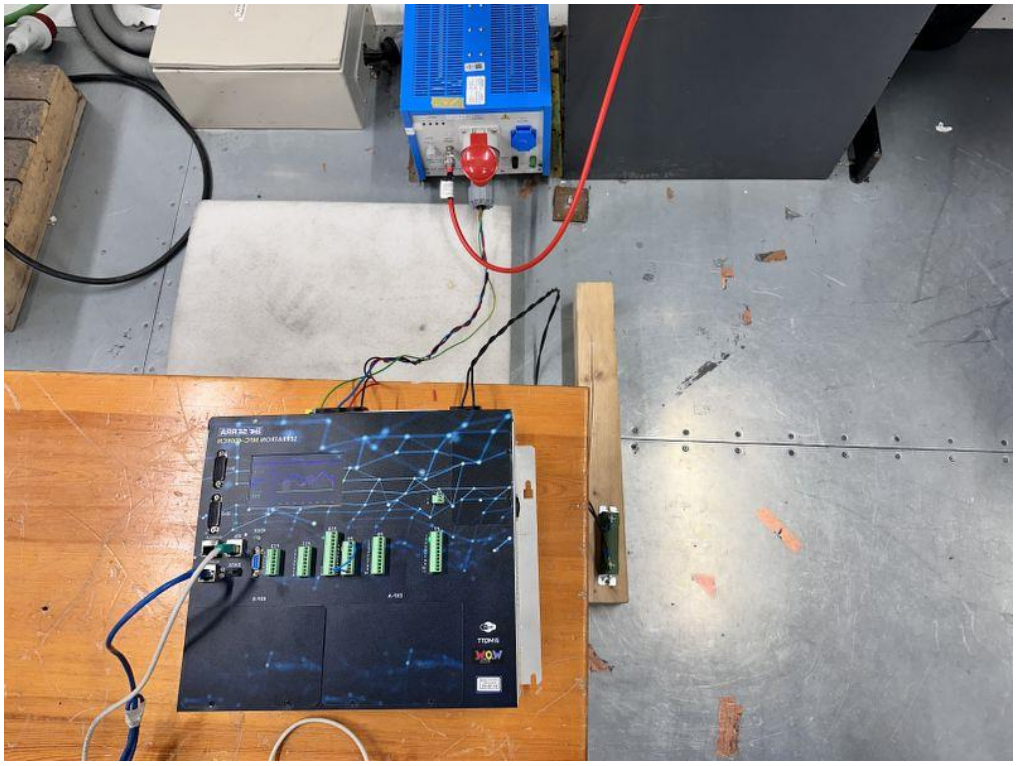
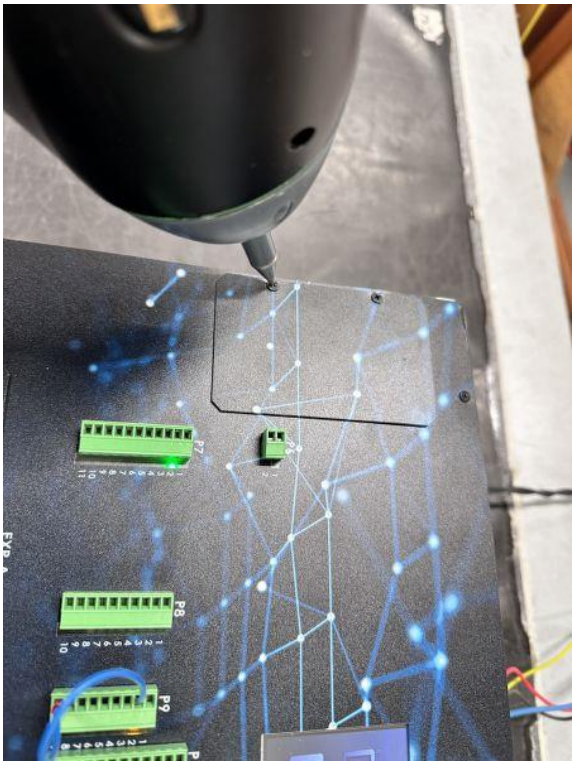
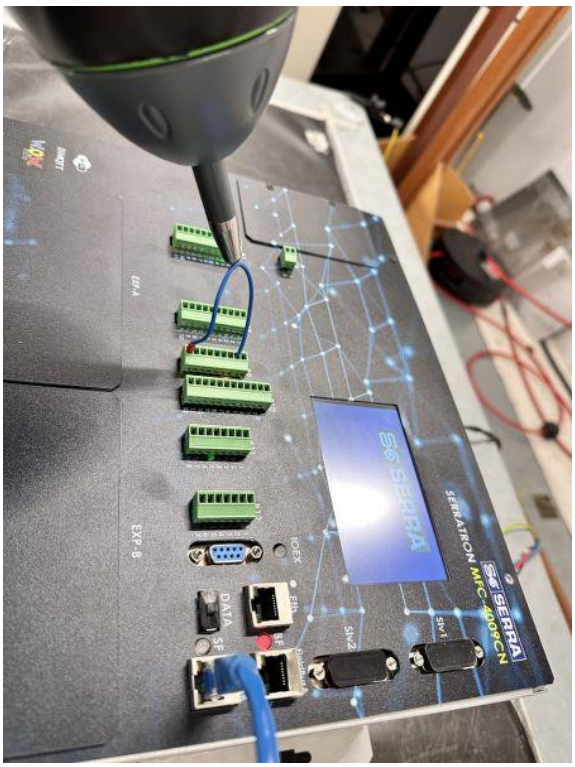



SERRA
SERRATRON MFC-400PCN
DATA




SERRATRON MFC-4009CN
SERRA
Slv1


SERRATRON MFC-4009CN
SERRA
SERRA
P10
P11
P12
IOEX
Eth
DATA
BF
FieldBusB
FieldBusA
Slv2
Slv1


SERRA
SERRATRON MTC-400SCN
EXP-A
EXP-B
DATA
SF
SW1
SW2


SERRA
SERRATRON MTC-400SCN