

CERTIFICATE OF CONFORMITY



**EC Council Directive 2014/30/EU
Electromagnetic Compatibility
Registration No.: NTC1801659EV00**

Applicant : American Power Conversion Holdings Inc., Taiwan Branch .
Address : 3F No. 205, Sec. 3, Beixin Rd., Xindian Dist. New Taipei City 231 Taiwan

Manufacturer : American Power Conversion Holdings Inc., Taiwan Branch .
Address : 3F No. 205, Sec. 3, Beixin Rd., Xindian Dist. New Taipei City 231 Taiwan

Factory : VOLTRONIC POWER TECHNOLOGY (SHENZHEN) CORP.
Address : 1-4F, Building 5, Yusheng Industrial Park, No.467, Section Xixiang,
National Highway 107, Xixiang, Bao An District, Shenzhen, China

E.U.T. : UPS

Brand Name :  
by Schneider Electric or Schneider Electric

Model No. : **UPS:**
abcKIde, SPMxKyz
(For Variables a,b,c,d,e,x,y,z see the report on page 8)
External battery cabinet:
SRVS240BP-9A (trademark: Schneider)
SRV240BP-9A (trademark: APC)

Test Report No. : NTC1801659EV00

Standard : EN 62040-2: 2006+AC: 2006
Equate test limit with IEC 62040-2: 2005



Li Fan
March 02, 2018

The certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical report and documentation are at the applicant's disposal. This is to certify that the tested sample is in conformity with all provisions of Annex I of Council Directive 2014/30/EU, in its latest amended version, referred to EMC Directive. The certificate does not imply assessment of the production and does not permit the use of Lab's logo.

EMC TEST REPORT

The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results are contained in this test report. Dongguan Nore Testing Center Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

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E.U.T. : UPS

Brand Name :  
by Schneider Electric or

Model No. : **UPS:**
abcKIde, SPMxKyz
(For Variables a,b,c,d,e,x,y,z see the report on page 8)

External battery cabinet:

SRVS240BP-9A (trademark: Schneider), SRV240BP-9A (trademark: APC)

Measurement Standard : EN 62040-2: 2006+AC: 2006, Equate test limit with IEC 62040-2: 2005
(EN61000-4-2: 2009, EN 61000-4-3:2006+A2: 2010,
EN61000-4-4: 2012, EN 61000-4-5: 2014, EN 61000-4-6: 2014,
EN 61000-4-8: 2010, EN61000-4-11:2004,EN 61000-2-2: 2002)

Date of Receiver : : January 12, 2018
Date of Test : : February 24, 2018 to February 27, 2018
Date of Report : : March 02, 2018

This Test Report is Issued Under the Authority of :

Prepared by



Bowen Zhu / Engineer



Iori Fan / Authorized Signatory

This report shows that the E.U.T. is technically compliant with the EN 62040-2. This report applies to above tested sample only and shall not be reproduced in part without written approval of Dongguan Nore Testing Center Co., Ltd.

TEL: +86-769-22022444 FAX: +86-769-22022799 Web: www.ntc-c.com

Address: Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District,
Dongguan City, Guangdong, China

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Appendix I (Photos of E.U.T.) (17 pages)

Revision History of This Test Report

Report Number	Description	Issued Date
NTC1801659EV00	Initial Issue	2018-03-02

1. SUMMARY OF TEST RESULTS

The E.U.T. has been tested according to the following specifications:

EMISSION			
Standard	Test Type	Result	Remarks
EN 62040-2: 2006+AC: 2006	Mains Terminal Disturbance Voltage Test	PASS	Uncertainty: 2.7dB
	Radiated Emission Test	PASS	Uncertainty: 3.4dB

IMMUNITY(EN 62040-2: 2006+AC: 2006)			
Standard	Test Type	Result	Remarks
EN 61000-2-2: 2002	Low frequency signals test	PASS	Meets the requirements of Performance Criterion A
EN 61000-4-2: 2009	Electrostatic discharge immunity test	PASS	Meets the requirements of Performance Criterion B
EN61000-4-3: 2006+A2: 2010	Radiated, radio-frequency, electromagnetic field immunity test	PASS	Meets the requirements of Performance Criterion A
EN 61000-4-4: 2012	Electrical fast transient/ burst immunity test	PASS	Meets the requirements of Performance Criterion B
EN 61000-4-5: 2014	Surge immunity test	PASS	Meets the requirements of Performance Criterion B
EN 61000-4-6: 2014	Injected Currents immunity test	PASS	Meets the requirements of Performance Criterion A
EN 61000-4-8: 2010	Magnetic Field immunity test	PASS	Meets the requirements of Performance Criterion A
EN 61000-4-11: 2004	Voltage Dips and Interruptions	PASS	Meets the requirements of Performance Criterion B

2. GENERAL INFORMATION

2.1 Details of E.U.T.

E.U.T. : UPS

UPS:

abcKlde, SPMxKyz

(For Variables a,b,c,d,e,x,y,z see the report on page 8)

Model No. : (We prepare SRVb10KI and SRVb10KIL for EMC test.)

External battery cabinet:

SRVS240BP-9A (trademark: Schneider),

SRV240BP-9A (trademark: APC)

E.U.T. Type : Category C3

WARNING : This is a product for commercial and industrial application in the second environment installation restrictions or additional measures may be needed to prevent disturbance.

Brand Name



Rating : Input rating: 220-240Vac, 63A max. 50/60Hz; Icc: 6kA
Output rating: 220-240Vac, 50/60Hz, 45.5A max,
10kVA/10kW, 1Ø

Test Voltage : AC 230V/50Hz, DC 192V, DC 240V(External battery bank)

Cable : None

Description of model difference : See the page 7 for details

Remark : None

Model difference:

Model type	Input rating	Output rating
SRVb6KIde, SPVb6KIde, SPM6Kyz	220-240Vac, 40.6A max. 50/60Hz; lcc: 6kA	220-240Vac, 50/60Hz, 27.3A max, 6kVA/6kW, 1Ø
SRVb10KIde, SPVb10KIde, SPM10Kyz	220-240Vac, 63A max. 50/60Hz; lcc: 6kA	220-240Vac, 50/60Hz, 45.5A max, 10kVA/10kW, 1Ø
SRV240BP-9A, SRVS240BP-9A	240Vdc, 1A max.	240Vdc, 50A max.

Model type Part	SRVb6Kle, SPVb6Kle, SPM6Kz	SRVb6KILe, SPVb6KILe, SPM6KLz	SRVb10Kle, SPVb10Kle, SPM10Kz	SRVb10KILe, SPVb10KILe, SPM10KLz
Enclosure dimension WxHxD (mm)	190 x 685 x 374	190 x 336 x 374	190 x 685 x 447	190 x 336 x 447
Internal battery number	16	N/A	16	N/A
Internal battery capacity	7Ah	N/A	9Ah	N/A

Model	SRV240BP-9A	SRVS240BP-9A
Enclosure dimension WxHxD (mm)	190 x 369 x 447	
Battery number	20	20
Capacity	9Ah	9Ah
Used with UPS models	SRVbcKILe, SPVcKILe, SPMxKLz	SRVbcKILe, SPVcKILe, SPMxKLz

Models definition

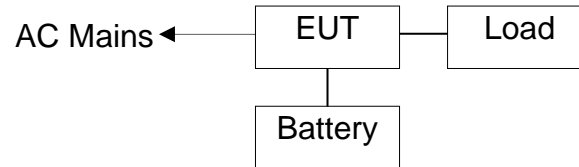
Model type: abcKIde ,SPMxKyz		
Variable:	Range of variable:	Content:
a	SRV or SPV	a indicates different model name design, no affect safety.
b	S, PM, SPM or nil	b indicates different product logo used on marking label, not affect safety.
c	6 or 10	c indicates different output apparent power in VA, see below for details: 6 denotes 6kVA, 10 denotes 10kVA.
d	L or nil	d indicates different UPS type, see below for details: L denotes Long-lasting type UPS without internal batteries, nil of d denotes Standard type UPS with internal batteries.
e	-AR, -GR, -RS, -SP, -KR, -BR, -CN, or nil	e indicates different language for different country.
x	6 or 10	x indicates different output apparent power in VA, see below for details: 6 denotes 6kVA, 10 denotes 10kVA.
y	L or nil	y indicates different UPS type, see below for details: L denotes Long-lasting type UPS without internal batteries, nil of d denotes Standard type UPS with internal batteries.
z	-P	z indicates this for an optional function

2.2 Description of Support Device

None

2.3 Block Diagram of Test Setup

(1) Normal operation mode



(2) Stored Energy operation mode



2.4 Test Facility

Site Description

EMC Lab

: Listed by CNAS, November 02, 2016
The certificate is valid until August 13, 2018
The Laboratory has been assessed and proved to
be in compliance with CNAS/CL01
The Certificate Registration Number is L5795.

Listed by FCC, July 03, 2014
The Certificate Number is 665078.

Listed by Industry Canada, June 08, 2017
The Certificate Registration Number. Is 46405-9743

Name of Firm

: Dongguan Nore Testing Center Co., Ltd.
(Dongguan NTC Co., Ltd.)

Site Location

: Building D, Gaosheng Science & Technology Park,
Zhouxi Longxi Road, Nancheng District, Dongguan
City, Guangdong Province, China

2.5 Abnormalities from Standard Conditions

None

3. MEASURING DEVICES AND TEST EQUIPMENT

3.1 For Mains terminals Disturbance voltage Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	101152	Mar. 08, 2018	1 Year
2.	L.I.S.N	Rohde & Schwarz	ENV 216	101317	Mar. 08, 2018	1 Year
3.	L.I.S.N	Schwarzbeck	NNLK8129	8129-212	Mar. 08, 2018	1 Year
4.	RF Switching Unit	Compliance Direction Systems Inc.	RSU-M2	38311	Mar. 08, 2018	1 Year

3.2 For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI7	100837	Mar. 08, 2018	1 Year
2.	Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 22, 2018	1 Year
3.	Positioning Controller	UC	UC 3000	N/A	N/A	N/A
4.	Color Monitor	SUNSP0	SP-140A	N/A	N/A	N/A
5.	Single Phase Power Line Filter	SAEMC	PF201A-32	110210	N/A	N/A
6.	3 Phase Power Line Filter	SAEMC	PF401A-200	110318	N/A	N/A
7.	DC Power Filter	SAEMC	PF301A-200	110245	N/A	N/A
8.	Cable	Huber+Suhner	CBL3-NN-9M	21490001	Mar. 08, 2018	1 Year
9.	Cable	Huber+Suhner	RG223U	N/A	Mar. 08, 2018	1 Year
10.	Power Amplifier	HP	HP 8447D	1145A00203	Mar. 08, 2018	1 Year

3.3 For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	TESEQ	NSG 437	432	Mar. 22, 2018	1 Year

3.4 For RF Electromagnetic Field Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	RF Power Meter	ESE	4242	13984	Nov. 04, 2017	1 Year
2.	Power Amplifier	TESEQ	CBA 1G-150	T44029	N/A	N/A
3.	Signal Generator	Agilent	N5181A	MY50142530	Nov. 01, 2017	1 Year
4.	Power Sensor	ESE	51011EMC	35716	Nov. 04, 2017	1 Year
5.	Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 22, 2018	1 Year

3.5 For Electrical Fast Transient /Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst Tester	EM TEST	UCS 500N	V1104108683	Mar. 08, 2018	1 Year
2.	Coupling Clamp	EM TEST	HFK	0311-94	Mar. 08, 2018	1 Year
3.	Test Soft	EM TEST	lec. control	N/A	N/A	N/A

3.6 For Surge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Surge Tester	EM TEST	UCS 500N	V1104108683	Mar. 08, 2018	1 Year
2.	Test Soft	EM TEST	lec. control	N/A	N/A	N/A

3.7 For Injected Currents Immunity Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	C/STest System	HAEFELY	WinPAMP	NSEMC002	N/A	N/A
2.	CDN	FRANNOKIA	CDN-M2+M3	A2210150	Mar. 22, 2018	1 Year

3.8 For Magnetic Field Immunity Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Test Software	N/A	N/A	N/A	N/A	N/A
2.	Magnetic Field Tester	HAEFELY	MAG100.1	150579	Oct.18, 2017	1 Year

3.9 For Voltage Dips And Interruptions Measurement

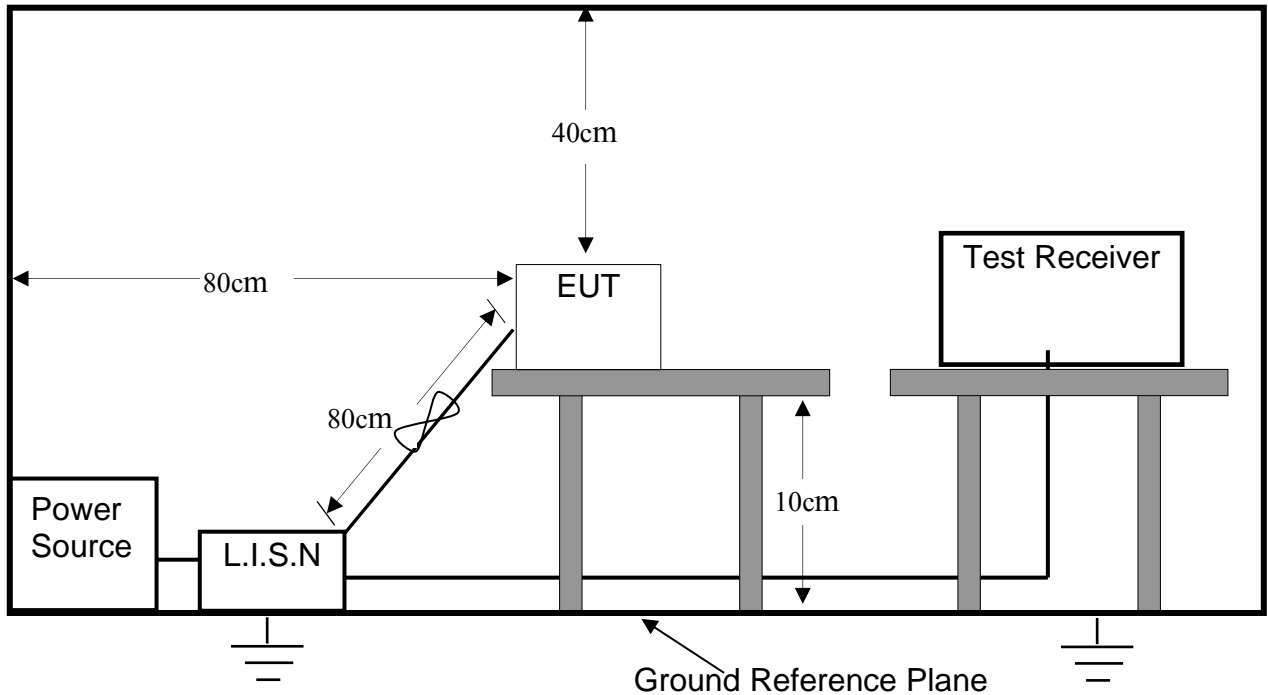
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Dips Tester	EM TEST	UCS500N	V1104108683	Mar. 08, 2018	1 Year
2.	Test Soft	EM TEST	lec.control	N/A	N/A	N/A
3.	Dips Modulator	EM TEST	V4780S2	0111-11	Mar. 08, 2018	1 Year

3.10 For Low Frequency Signal Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Programmable AC Source	CHROMA	6530	N/A	Sep. 01, 2017	1 Year

4. MAINS TERMINAL DISTURBANCE VOLTAGE MEASUREMENT

4.1. Block Diagram of Test Setup



4.2. Limit of Mains Terminal Disturbance voltage measurement

Test Standard: EN 62040-2 Category C3

Limits of mains terminal interference voltage frequency range 0.15 MHz to 30 MHz for Category C3 Uninterruptible Power Supply equipment (rated output current >16-100A)

Frequency range MHz	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50 ^b	100	90
0.50 to 5 ^b	86	76
5 to 30	90-70 ^a	80-60 ^a

^a The limit decreases linearly with the logarithm of the frequency.

^b The lower limit shall apply at the transition frequency.

4.3. Test Procedure

The E.U.T. is put on the 0.1 m high table and connected to the AC mains through a Artificial Mains Network (AMN). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the EN 62040-2 regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESCI) is set at 9 KHz.

4.4. Operating Condition of E.U.T.

4.4.1 Setup the E.U.T. and simulators as shown in Section 2.3.

4.4.2 Turn on the power of all equipments.

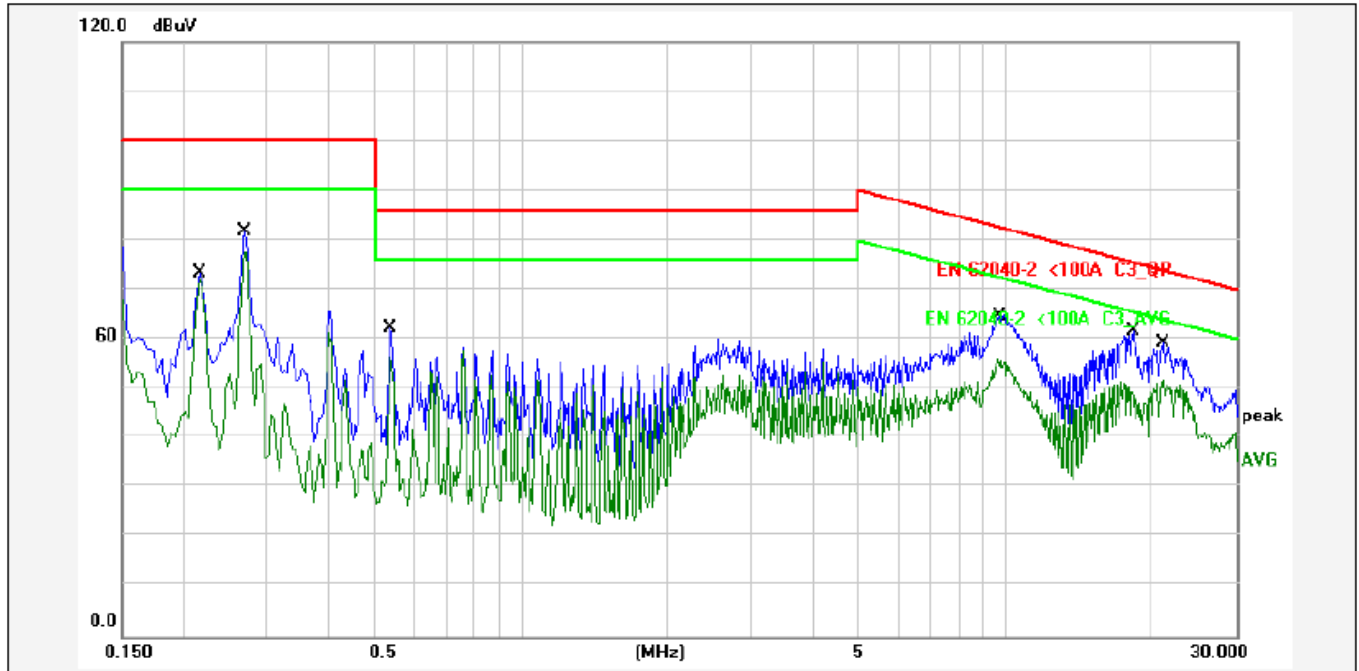
4.4.3 Let the E.U.T. work in test modes (Normal operation mode, Stored energy operation mode) and test it.

4.5. Mains Terminal Disturbance Voltage Test Results

PASS.

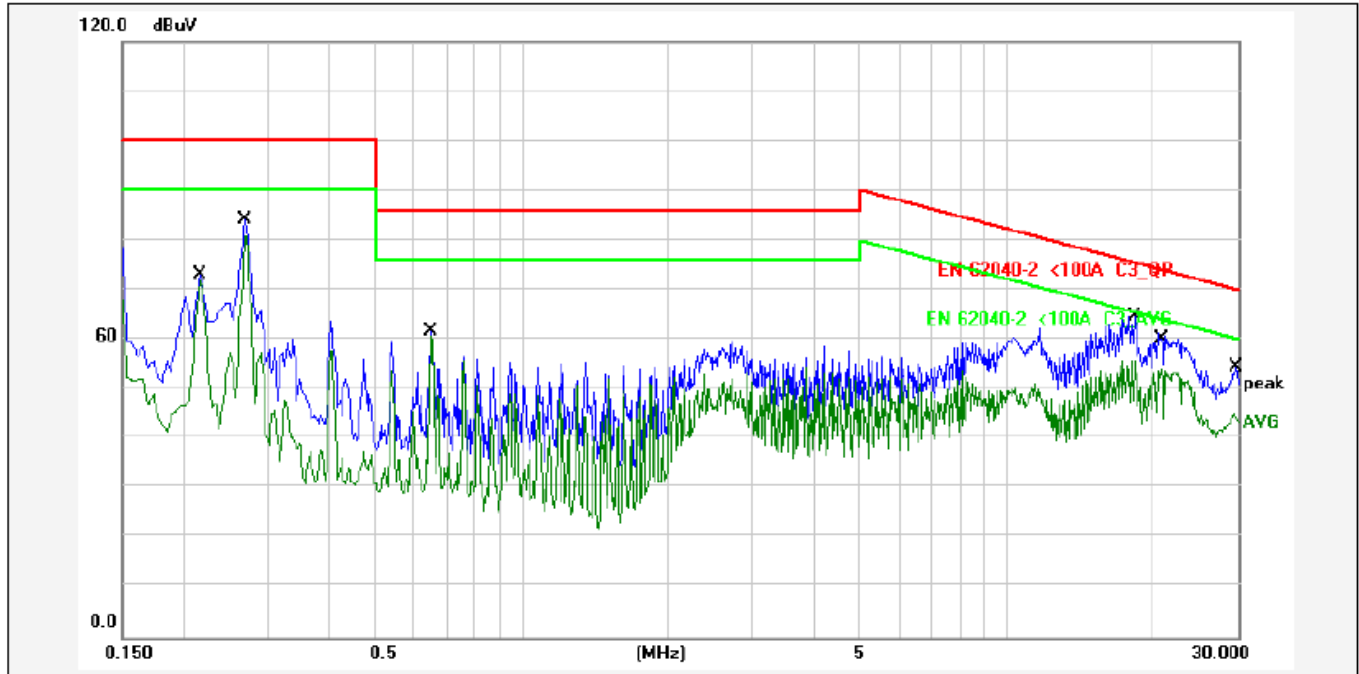
Please refer to the following pages.

E.U.T :	UPS	Model Name :	SRVb10KI
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	AC 230V/50Hz
Test Mode :	Normal operation mode	Polarization:	Neutral



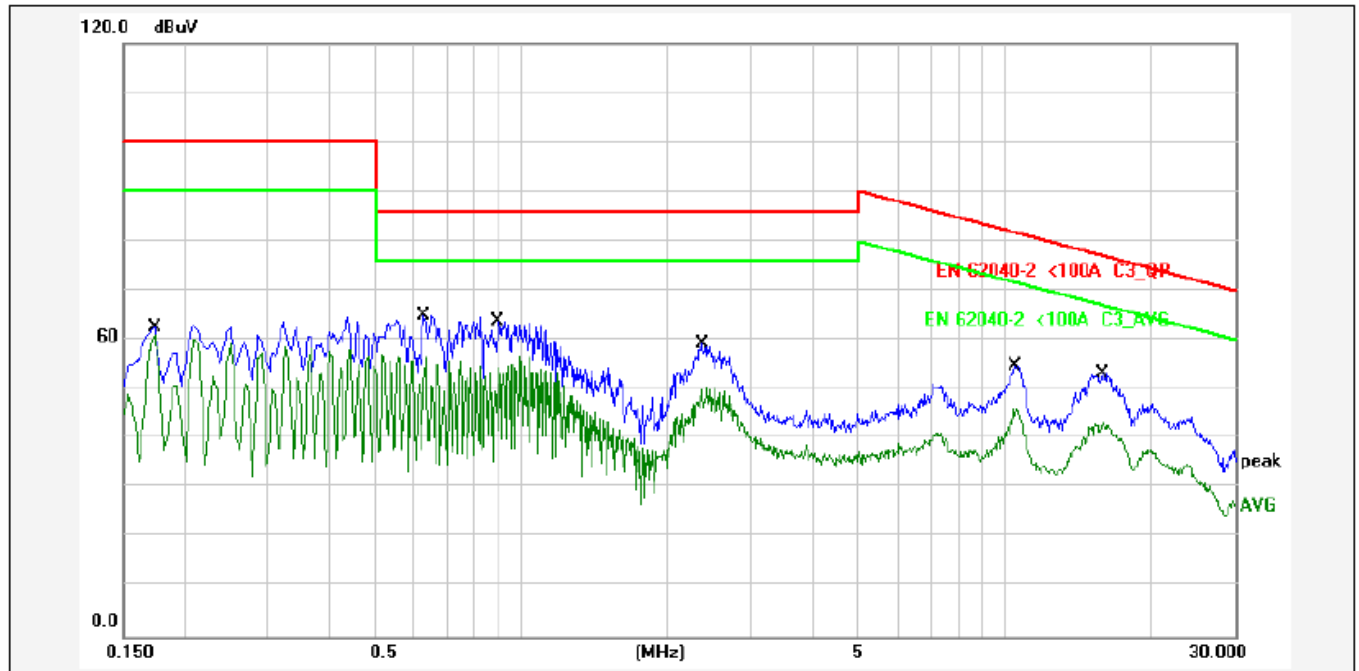
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2179	10.80	62.48	73.28	100.00	-26.72	QP	P	
2	0.2179	10.80	61.37	72.17	90.00	-17.83	AVG	P	
3	0.2700	10.80	71.01	81.81	100.00	-18.19	QP	P	
4	0.2700	10.80	66.88	77.68	90.00	-12.32	AVG	P	
5	0.5380	10.80	51.49	62.29	86.00	-23.71	QP	P	
6	0.5380	10.80	45.58	56.38	76.00	-19.62	AVG	P	
7	9.6577	10.80	54.06	64.86	82.65	-17.79	QP	P	
8	9.6577	10.80	45.09	55.89	72.65	-16.76	AVG	P	
9	18.4219	10.80	50.71	61.51	75.44	-13.93	QP	P	
10	18.4219	10.80	40.41	51.21	65.44	-14.23	AVG	P	
11	21.2377	10.80	48.32	59.12	73.86	-14.74	QP	P	
12	21.2377	10.80	41.01	51.81	63.86	-12.05	AVG	P	

E.U.T :	UPS	Model Name :	SRVb10KI
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	AC 230V/50Hz
Test Mode :	Normal operation mode	Polarization:	Line



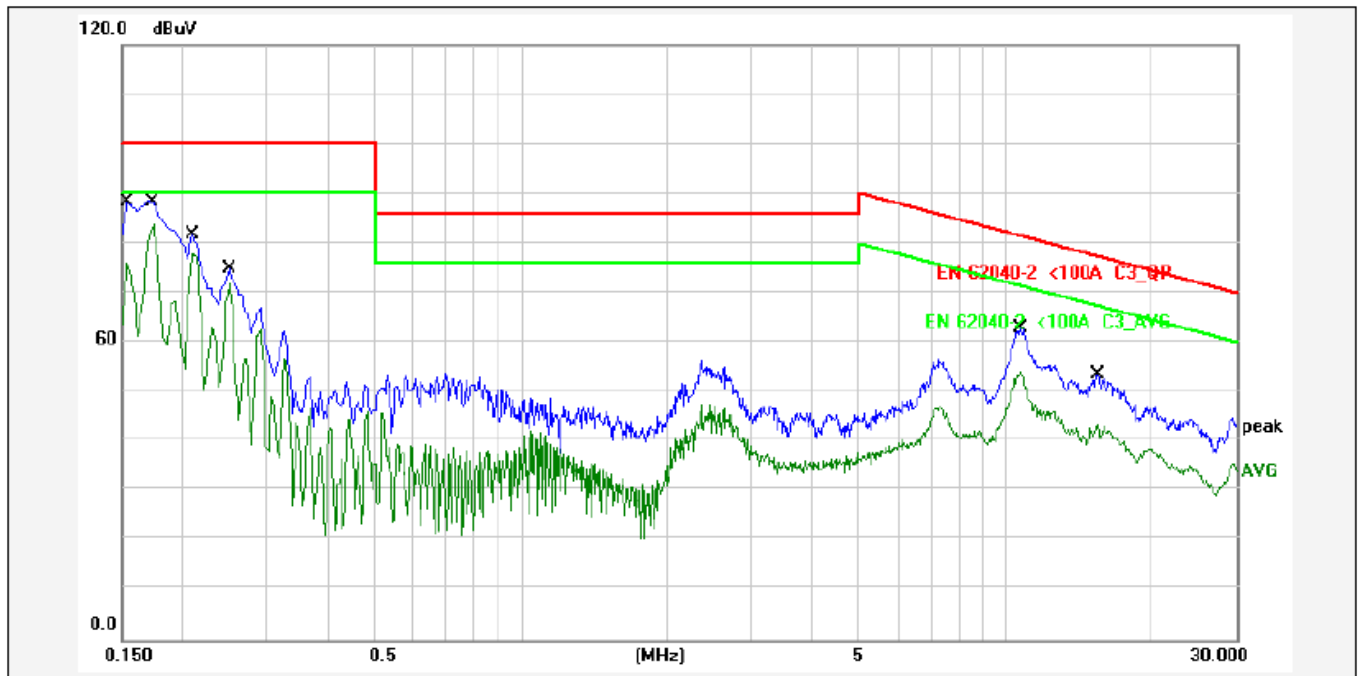
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2179	10.80	62.32	73.12	100.00	-26.88	QP	P	
2	0.2179	10.80	60.94	71.74	90.00	-18.26	AVG	P	
3	0.2700	10.80	73.40	84.20	100.00	-15.80	QP	P	
4	0.2700	10.80	70.13	80.93	90.00	-9.07	AVG	P	
5	0.6540	10.80	50.88	61.68	86.00	-24.32	QP	P	
6	0.6540	10.80	49.88	60.68	76.00	-15.32	AVG	P	
7	18.3338	10.80	53.86	64.66	75.50	-10.84	QP	P	
8	18.3338	10.80	44.89	55.69	65.50	-9.81	AVG	P	
9	20.8900	10.80	50.49	61.29	74.04	-12.75	QP	P	
10	20.8900	10.80	43.20	54.00	64.04	-10.04	AVG	P	
11	29.6260	10.80	43.57	54.37	70.14	-15.77	QP	P	
12	29.6260	10.80	34.30	45.10	60.14	-15.04	AVG	P	

E.U.T :	UPS	Model Name :	SRVb10KI
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	DC 192V
Test Mode :	Stored energy operation mode	Polarization:	Line



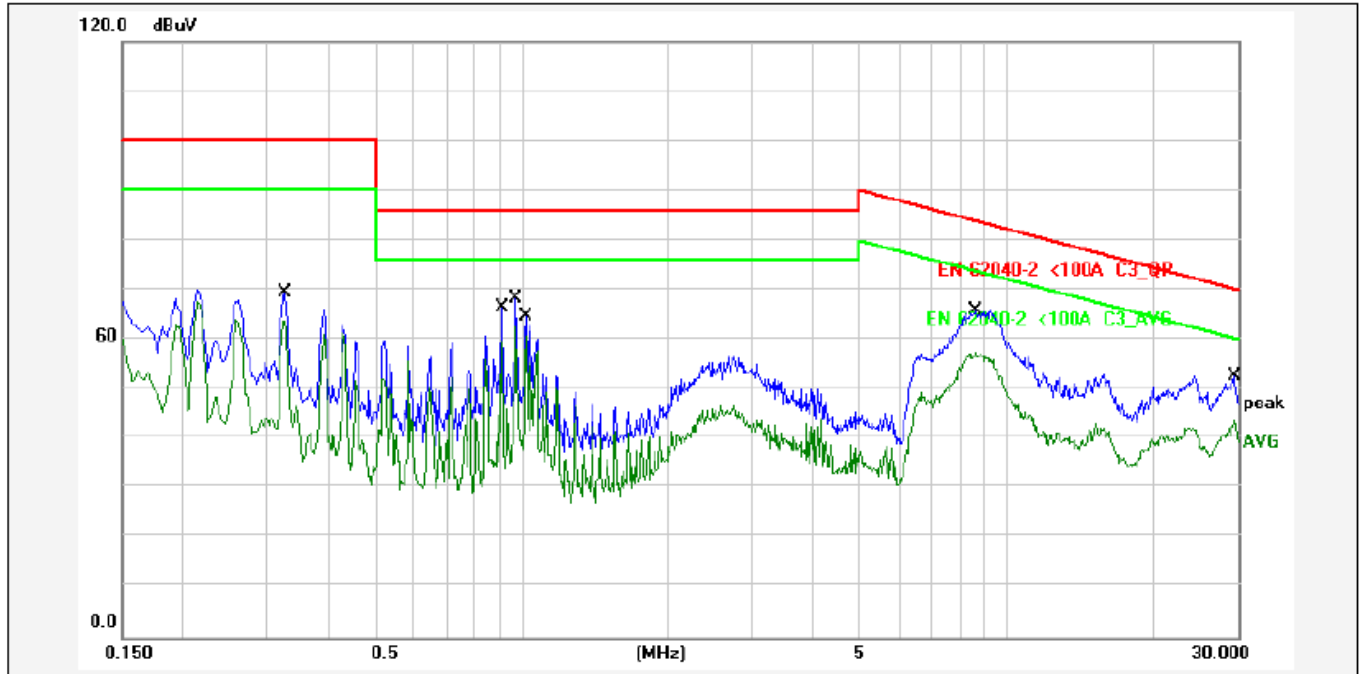
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1740	10.80	51.85	62.65	100.00	-37.35	QP	P	
2	0.1740	10.80	50.37	61.17	90.00	-28.83	AVG	P	
3	0.6340	10.80	54.10	64.90	86.00	-21.10	QP	P	
4	0.6340	10.80	45.89	56.69	76.00	-19.31	AVG	P	
5	0.9020	10.80	52.99	63.79	86.00	-22.21	QP	P	
6	0.9020	10.80	43.53	54.33	76.00	-21.67	AVG	P	
7	2.3620	10.80	48.46	59.26	86.00	-26.74	QP	P	
8	2.3620	10.80	39.12	49.92	76.00	-26.08	AVG	P	
9	10.5978	10.80	44.08	54.88	81.61	-26.73	QP	P	
10	10.5978	10.80	35.40	46.20	71.61	-25.41	AVG	P	
11	16.0500	10.80	42.57	53.37	76.98	-23.61	QP	P	
12	16.0500	10.80	32.60	43.40	66.98	-23.58	AVG	P	

E.U.T :	UPS	Model Name :	SRVb10KI
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	DC 192V
Test Mode :	Stored energy operation mode	Polarization:	Neutral



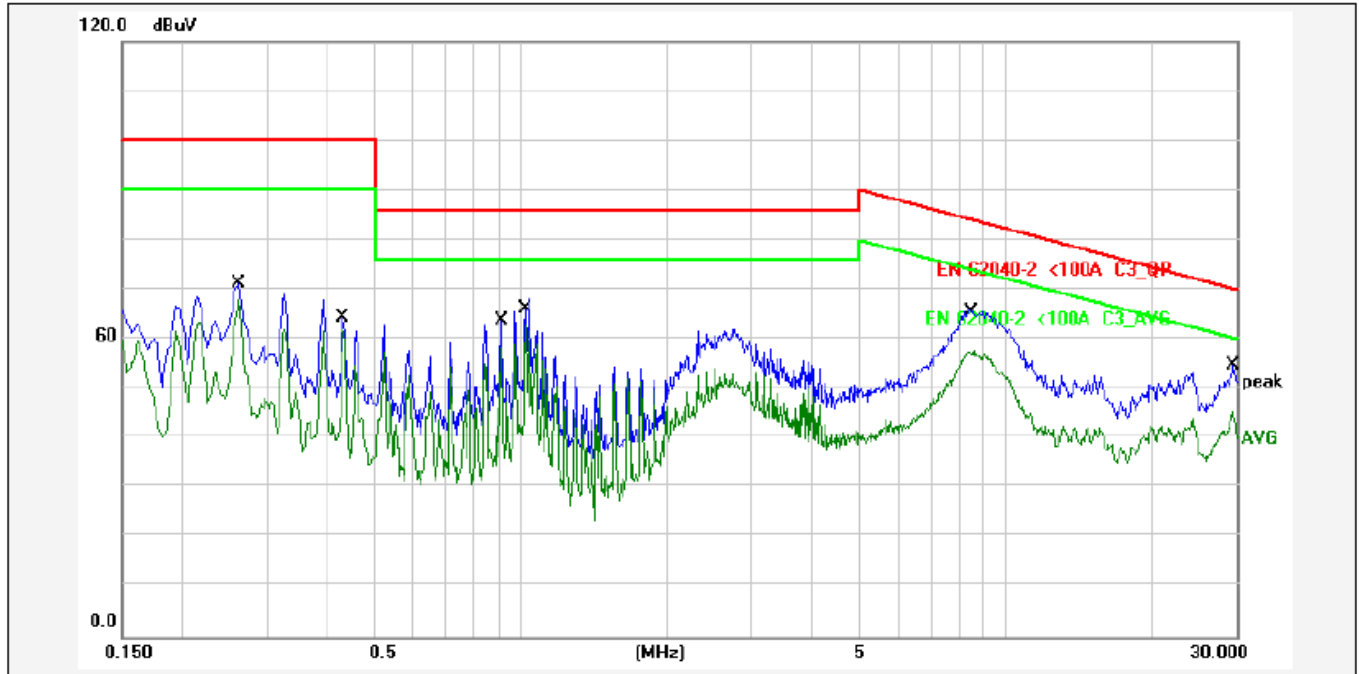
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1539	10.80	77.60	88.40	100.00	-11.60	QP	P	
2	0.1539	10.80	65.40	76.20	90.00	-13.80	AVG	P	
3	0.1740	10.80	77.73	88.53	100.00	-11.47	QP	P	
4	0.1740	10.80	73.01	83.81	90.00	-6.19	AVG	P	
5	0.2100	10.80	70.83	81.63	100.00	-18.37	QP	P	
6	0.2100	10.80	67.16	77.96	90.00	-12.04	AVG	P	
7	0.2500	10.80	64.09	74.89	100.00	-25.11	QP	P	
8	0.2500	10.80	60.92	71.72	90.00	-18.28	AVG	P	
9	10.7577	10.80	52.03	62.83	81.45	-18.62	QP	P	
10	10.7577	10.80	43.30	54.10	71.45	-17.35	AVG	P	
11	15.5379	10.80	42.64	53.44	77.34	-23.90	QP	P	
12	15.5379	10.80	32.69	43.49	67.34	-23.85	AVG	P	

E.U.T :	UPS	Model Name :	SRVb10KIL
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	AC 230V/50Hz
Test Mode :	Normal operation mode	Polarization:	Neutral



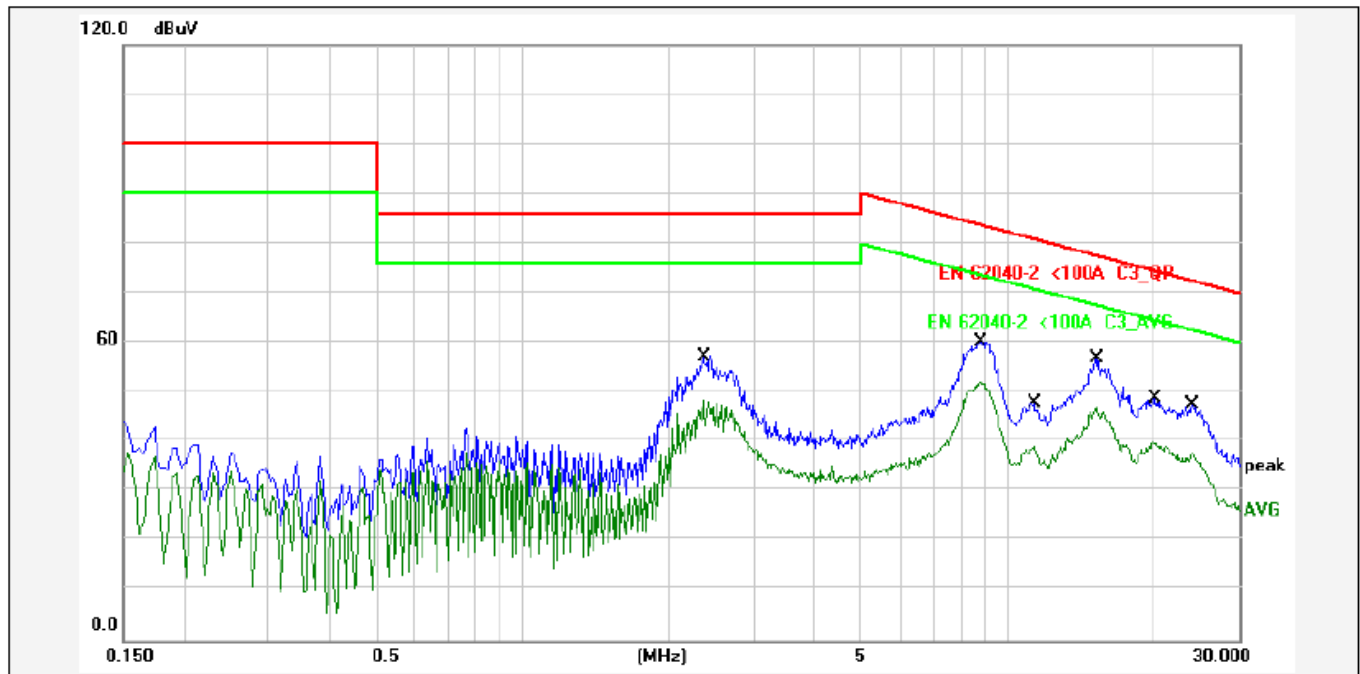
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.3220	10.80	58.73	69.53	100.00	-30.47	QP	P	
2	0.3220	10.80	53.01	63.81	90.00	-26.19	AVG	P	
3	0.9140	10.80	55.78	66.58	86.00	-19.42	QP	P	
4	0.9140	10.80	48.74	59.54	76.00	-16.46	AVG	P	
5	0.9780	10.80	57.51	68.31	86.00	-17.69	QP	P	
6	0.9780	10.80	51.78	62.58	76.00	-13.42	AVG	P	
7	1.0220	10.80	53.75	64.55	86.00	-21.45	QP	P	
8	1.0220	10.80	49.95	60.75	76.00	-15.25	AVG	P	
9	8.6740	10.80	54.97	65.77	83.85	-18.08	QP	P	
10	8.6740	10.80	46.70	57.50	73.85	-16.35	AVG	P	
11	29.6179	10.80	41.97	52.77	70.14	-17.37	QP	P	
12	29.6179	10.80	32.74	43.54	60.14	-16.60	AVG	P	

E.U.T :	UPS	Model Name :	SRVb10KIL
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	AC 230V/50Hz
Test Mode :	Normal operation mode	Polarization:	Line



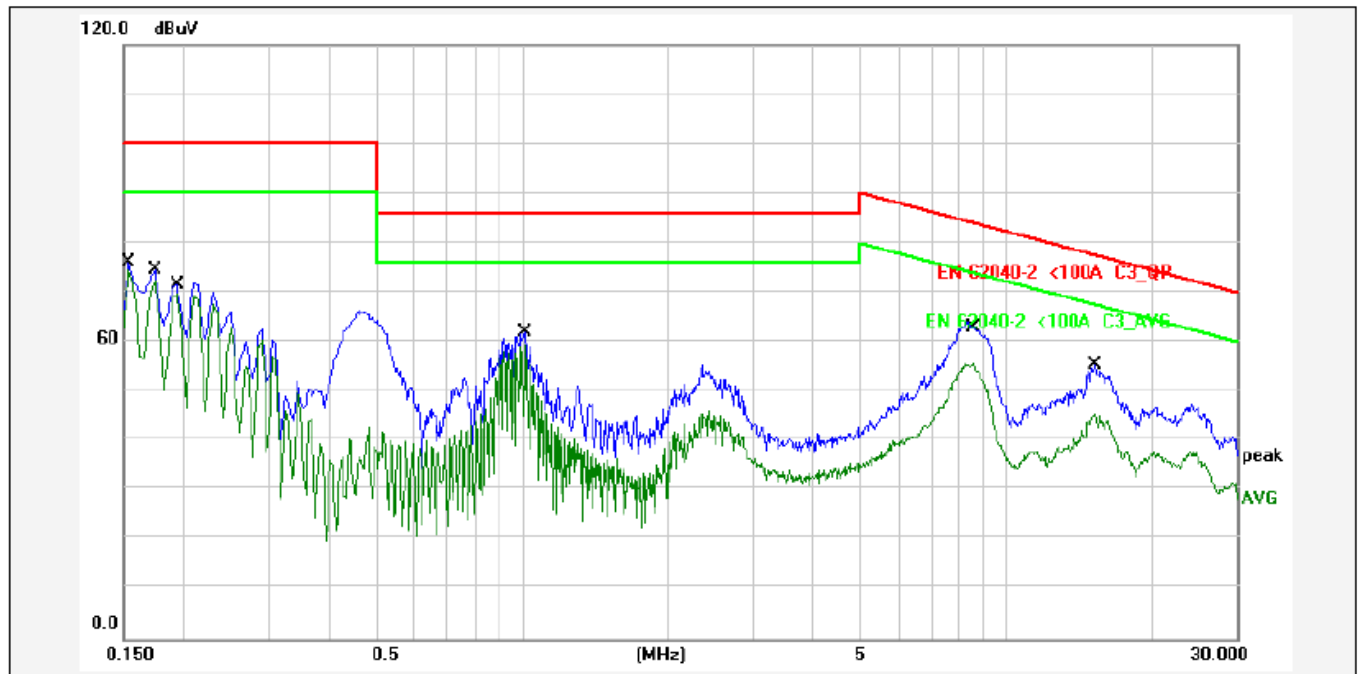
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2620	10.80	60.36	71.16	100.00	-28.84	QP	P	
2	0.2620	10.80	57.29	68.09	90.00	-21.91	AVG	P	
3	0.4300	10.80	53.55	64.35	100.00	-35.65	QP	P	
4	0.4300	10.80	51.11	61.91	90.00	-28.09	AVG	P	
5	0.9140	10.80	52.99	63.79	86.00	-22.21	QP	P	
6	0.9140	10.80	47.56	58.36	76.00	-17.64	AVG	P	
7	1.0220	10.80	57.33	68.13	86.00	-17.87	QP	P	
8	1.0220	10.80	51.92	62.72	76.00	-13.28	AVG	P	
9	8.6300	10.80	55.42	66.22	83.91	-17.69	QP	P	
10	8.6300	10.80	46.92	57.72	73.91	-16.19	AVG	P	
11	29.4939	10.80	44.02	54.82	70.19	-15.37	QP	P	
12	29.4939	10.80	34.70	45.50	60.19	-14.69	AVG	P	

E.U.T :	UPS	Model Name :	SRVb10KIL
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	DC 240V
Test Mode :	Stored energy operation mode	Polarization:	Line



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	2.3620	10.80	46.52	57.32	86.00	-28.68	QP	P	
2	2.3620	10.80	37.70	48.50	76.00	-27.50	AVG	P	
3	8.7619	10.80	49.42	60.22	83.74	-23.52	QP	P	
4	8.7619	10.80	41.15	51.95	73.74	-21.79	AVG	P	
5	11.3659	10.80	37.04	47.84	80.83	-32.99	QP	P	
6	11.3659	10.80	28.29	39.09	70.83	-31.74	AVG	P	
7	15.2300	10.80	45.99	56.79	77.57	-20.78	QP	P	
8	15.2300	10.80	36.19	46.99	67.57	-20.58	AVG	P	
9	19.8659	10.80	37.93	48.73	74.60	-25.87	QP	P	
10	19.8659	10.80	29.21	40.01	64.60	-24.59	AVG	P	
11	24.0380	10.80	36.72	47.52	72.47	-24.95	QP	P	
12	24.0380	10.80	26.77	37.57	62.47	-24.90	AVG	P	

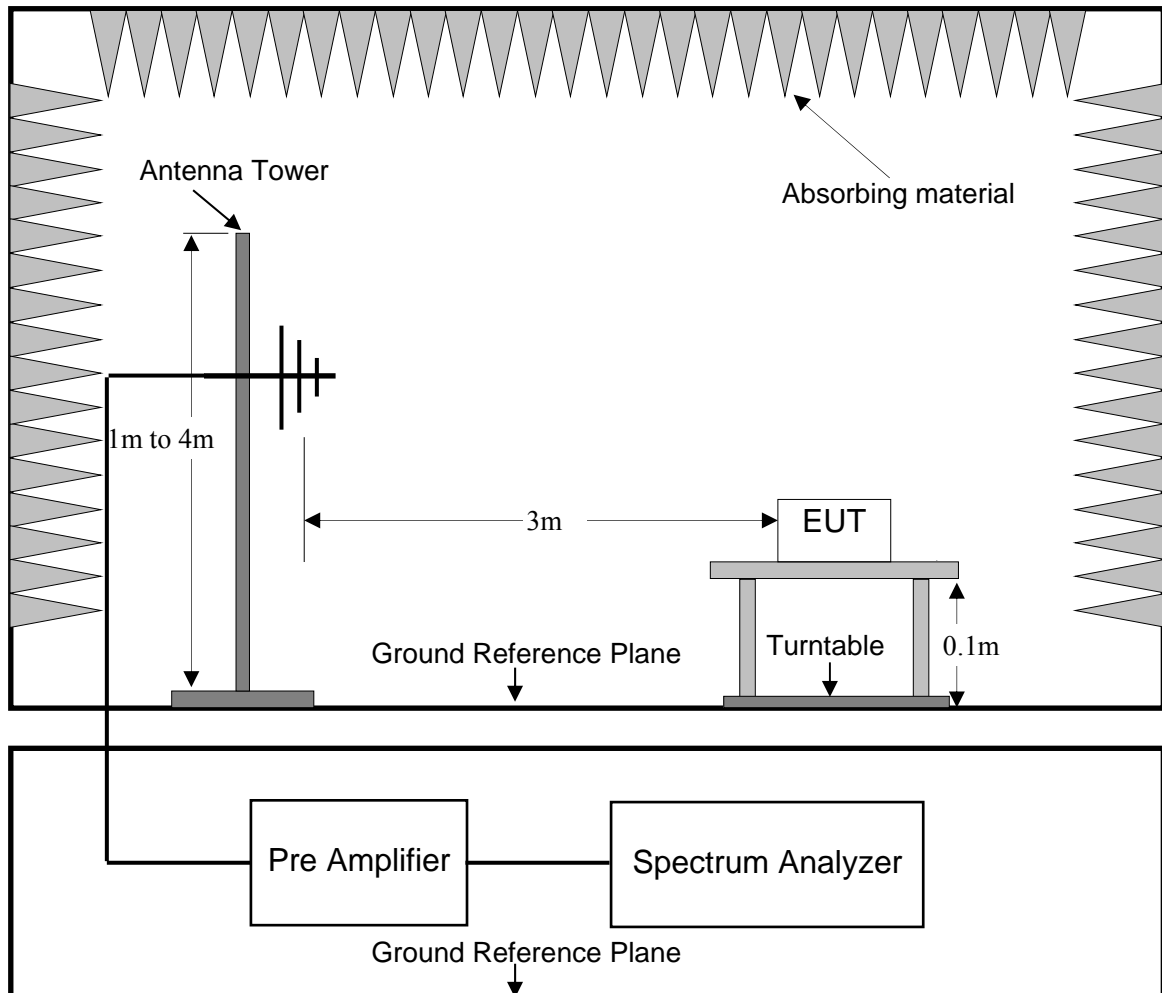
E.U.T :	UPS	Model Name :	SRVb10KIL
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	DC 240V
Test Mode :	Stored energy operation mode	Polarization:	Neutral



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1539	10.80	65.10	75.90	100.00	-24.10	QP	P	
2	0.1539	10.80	63.77	74.57	90.00	-15.43	AVG	P	
3	0.1739	10.80	63.74	74.54	100.00	-25.46	QP	P	
4	0.1739	10.80	61.62	72.42	90.00	-17.58	AVG	P	
5	0.1940	10.80	60.90	71.70	100.00	-28.30	QP	P	
6	0.1940	10.80	58.97	69.77	90.00	-20.23	AVG	P	
7	1.0180	10.80	51.05	61.85	86.00	-24.15	QP	P	
8	1.0180	10.80	48.47	59.27	76.00	-16.73	AVG	P	
9	8.5700	10.80	52.11	62.91	83.99	-21.08	QP	P	
10	8.5700	10.80	44.78	55.58	73.99	-18.41	AVG	P	
11	15.3100	10.80	44.66	55.46	77.51	-22.05	QP	P	
12	15.3100	10.80	34.73	45.53	67.51	-21.98	AVG	P	

5. RADIATED EMISSION MEASUREMENT

5.1 Block Diagram of Test



5.2 Limit of Radiated Emission Measurement

Test Standard: EN 62040-2 Category C3

Limits for radiated disturbance at a measuring distance of 3m

Frequency range MHz	Quasi-peak limits dB(uV/m)		
	Category C1	Category C2	Category C3
30 to 230	40	50	60
230 to 1000	47	57	70

Note: The lower limit shall apply at the transition frequency.

5.3 Test Procedure

E.U.T. and its simulators are placed on a turntable, which is 0.1 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. E.U.T. is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to EN 62040-2 on radiated emission measurement.

The bandwidth of the EMI test receiver (R&S ESCI7) is set at 120 KHz. The frequency range from 30 MHz to 1000 MHz is checked.

5.4 Operating Condition of E.U.T.

5.4.1 Setup the E.U.T. and simulators as shown in Section 2.3.

5.4.2 Turn on the power of all equipments.

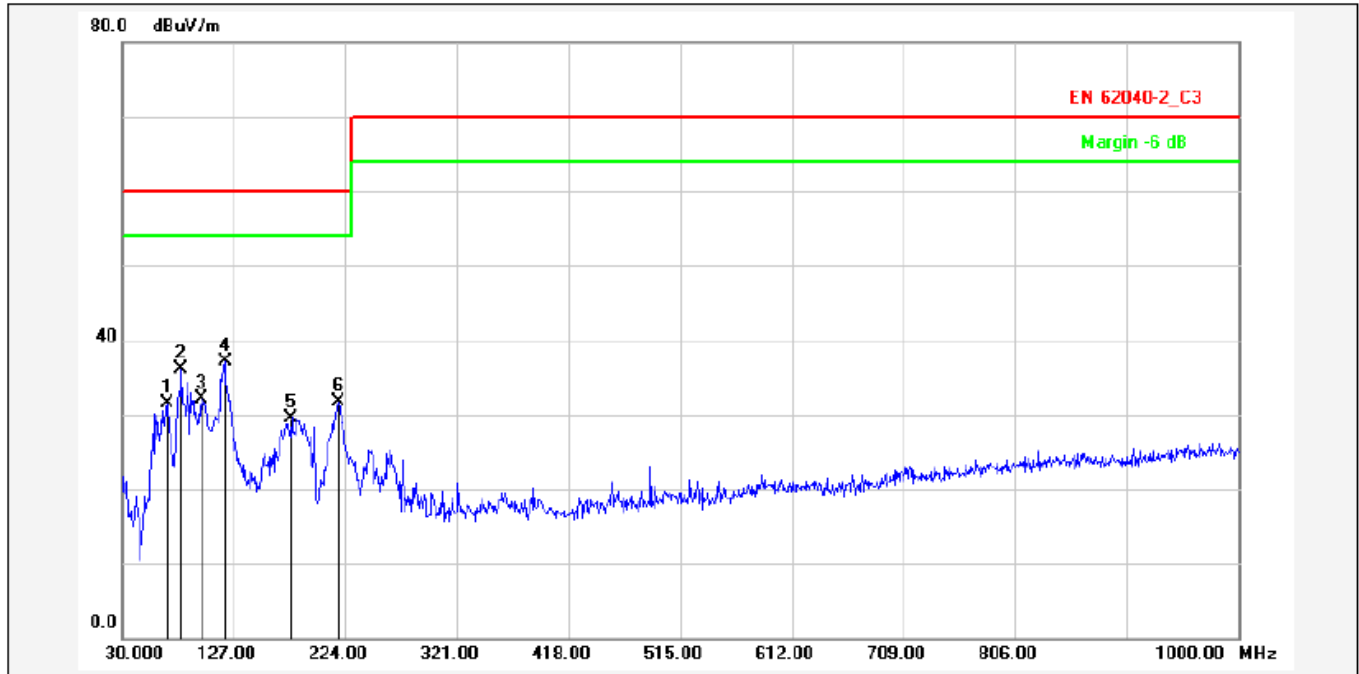
5.4.3 Let the E.U.T. work in test modes (Normal operation mode, Stored energy operation mode) and test it.

5.5 Radiated Emission Measurement Result

PASS.

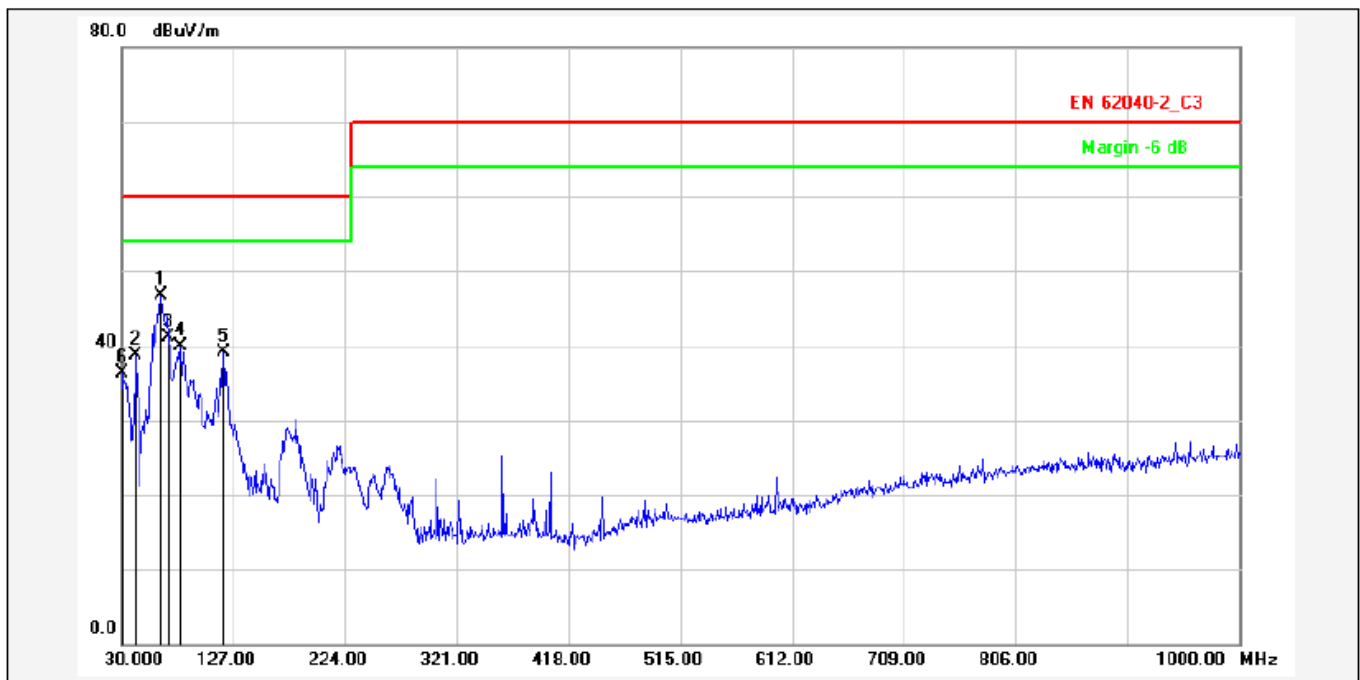
Please refer to the following pages.

E.U.T :	UPS	Model Name :	SRVb10KI
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	AC 230V/50Hz
Test Mode :	Normal operation mode	Polarization:	Horizontal



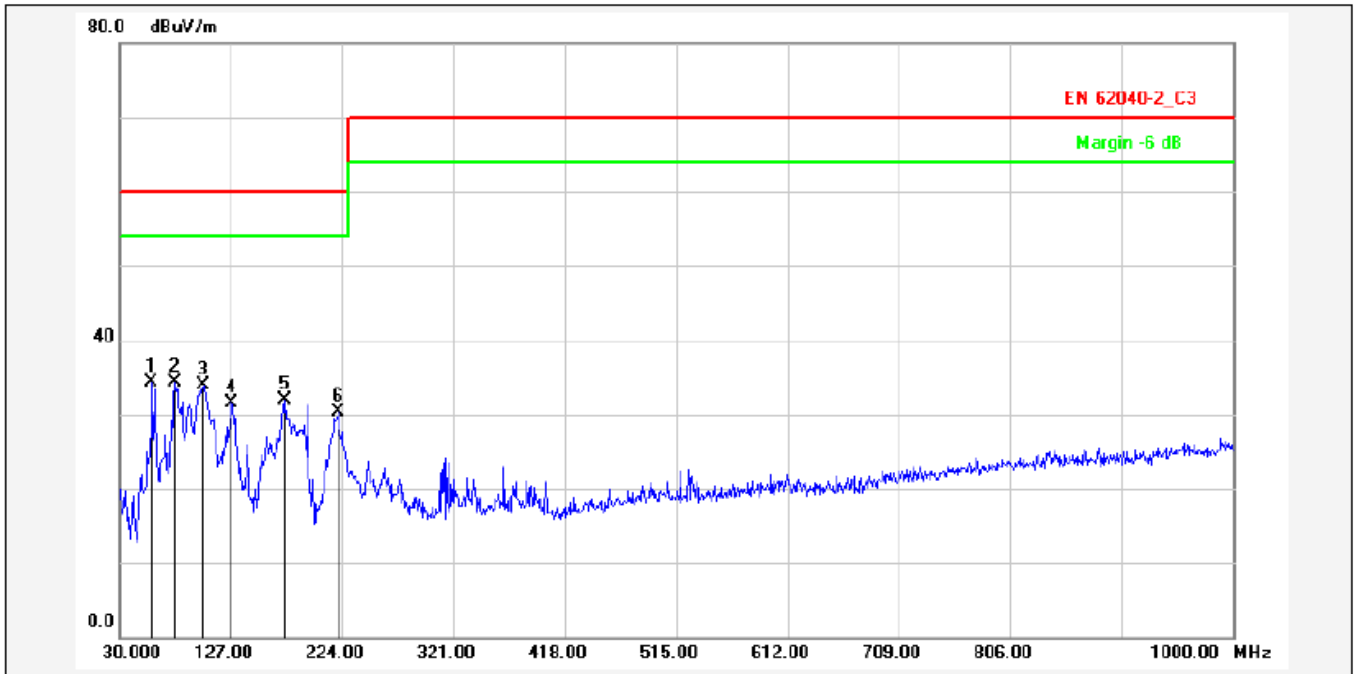
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	69.7699	-20.35	51.82	31.47	60.00	-28.53	QP			P	
2	81.4099	-15.87	52.07	36.20	60.00	-23.80	QP			P	
3	98.8700	-12.28	44.30	32.02	60.00	-27.98	QP			P	
4	119.2400	-13.89	50.99	37.10	60.00	-22.90	QP			P	
5	177.4399	-14.32	43.92	29.60	60.00	-30.40	QP			P	
6	218.1800	-13.02	44.79	31.77	60.00	-28.23	QP			P	

E.U.T :	UPS	Model Name :	SRVb10KI
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	AC 230V/50Hz
Test Mode :	Normal operation mode	Polarization:	Vertical



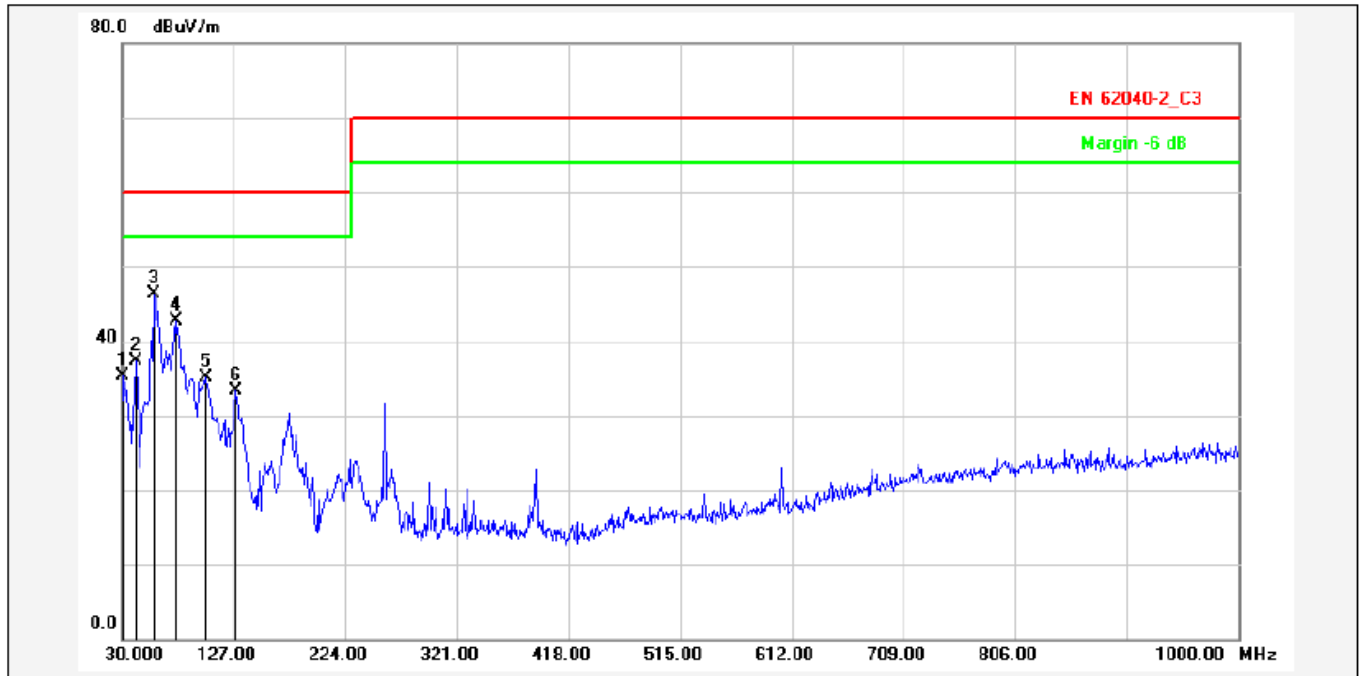
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	63.9500	-15.30	61.96	46.66	60.00	-13.34	QP			P	
2	42.6099	-14.28	52.91	38.63	60.00	-21.37	QP			P	
3	70.7399	-17.63	58.66	41.03	60.00	-18.97	QP			P	
4	81.4098	-18.87	58.72	39.85	60.00	-20.15	QP			P	
5	118.2699	-16.68	55.71	39.03	60.00	-20.97	QP			P	
6	30.0000	-15.90	52.28	36.38	60.00	-23.62	QP			P	

E.U.T :	UPS	Model Name :	SRVb10KI
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	DC 192V
Test Mode :	Stored energy operation mode	Polarization:	Horizontal



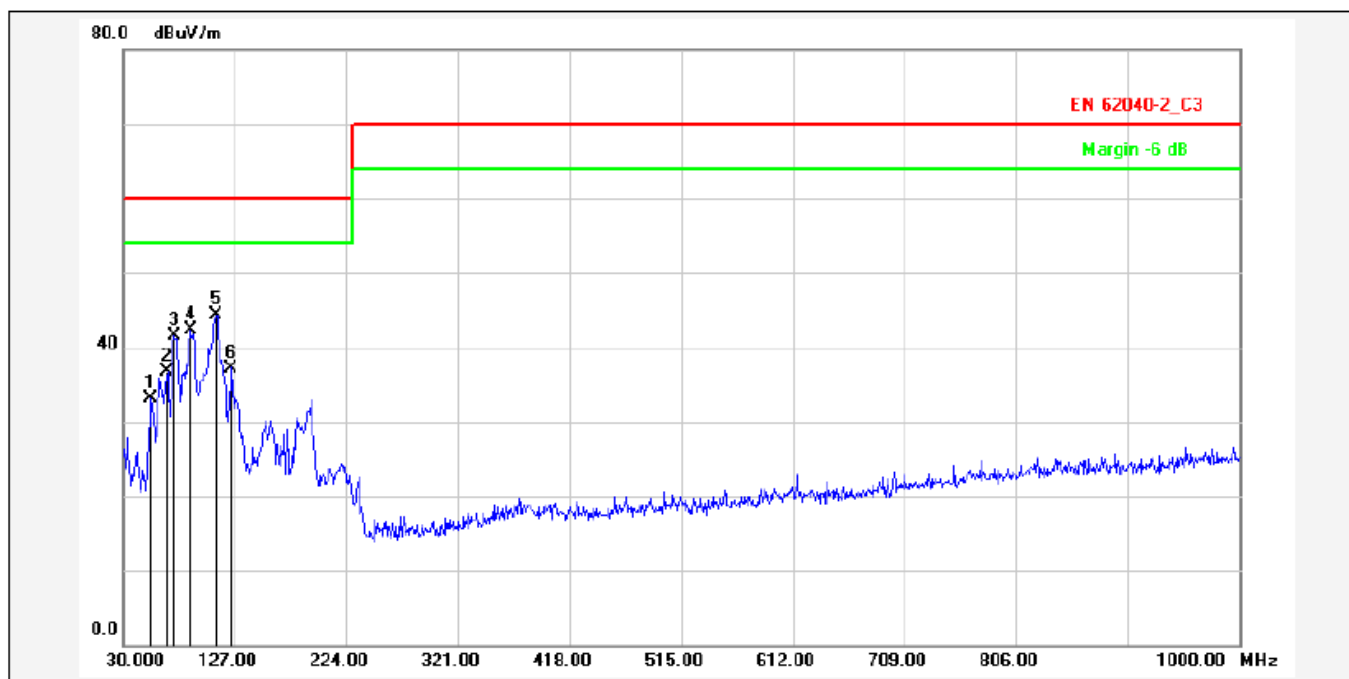
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	58.1300	-18.11	52.50	34.39	60.00	-25.61	QP			P	
2	78.5000	-17.59	51.97	34.38	60.00	-25.62	QP			P	
3	103.7199	-12.15	45.96	33.81	60.00	-26.19	QP			P	
4	127.9699	-14.94	46.54	31.60	60.00	-28.40	QP			P	
5	174.5300	-14.53	46.49	31.96	60.00	-28.04	QP			P	
6	220.1200	-12.97	43.22	30.25	60.00	-29.75	QP			P	

E.U.T :	UPS	Model Name :	SRVb10KI
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	DC 192V
Test Mode :	Stored energy operation mode	Polarization:	Vertical



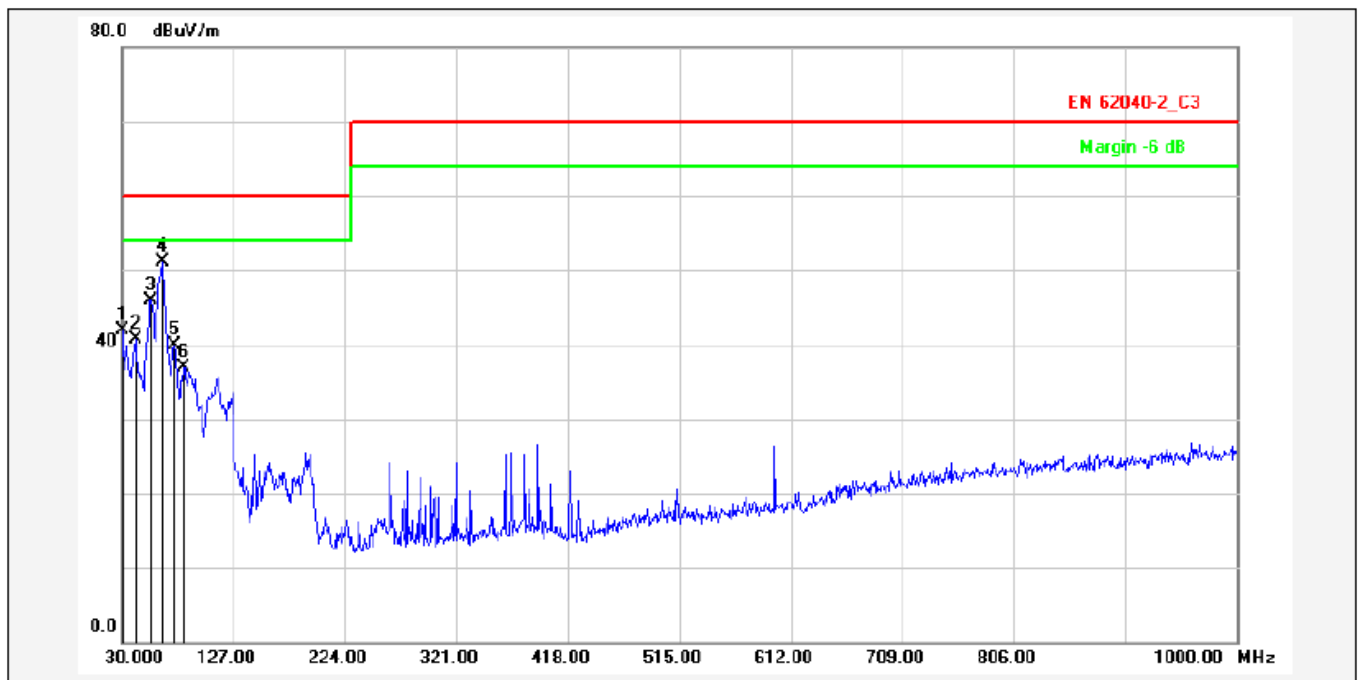
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	30.0000	-15.90	51.14	35.24	60.00	-24.76	QP			P	
2	42.6099	-14.28	51.65	37.37	60.00	-22.63	QP			P	
3	57.1600	-13.98	60.21	46.23	60.00	-13.77	QP			P	
4	76.5600	-19.05	61.80	42.75	60.00	-17.25	QP			P	
5	102.7500	-16.03	51.20	35.17	60.00	-24.83	QP			P	
6	128.9398	-18.04	51.27	33.23	60.00	-26.77	QP			P	

E.U.T :	UPS	Model Name :	SRVb10KIL
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	AC 230V/50Hz
Test Mode :	Normal operation mode	Polarization:	Horizontal



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	54.2500	-17.64	50.83	33.19	60.00	-26.81	QP			P	
2	68.7997	-20.19	56.88	36.69	60.00	-23.31	QP			P	
3	74.6200	-20.97	62.55	41.58	60.00	-18.42	QP			P	
4	88.2000	-14.38	56.72	42.34	60.00	-17.66	QP			P	
5	110.5100	-12.26	56.58	44.32	60.00	-15.68	QP			P	
6	124.0900	-14.51	51.71	37.20	60.00	-22.80	QP			P	

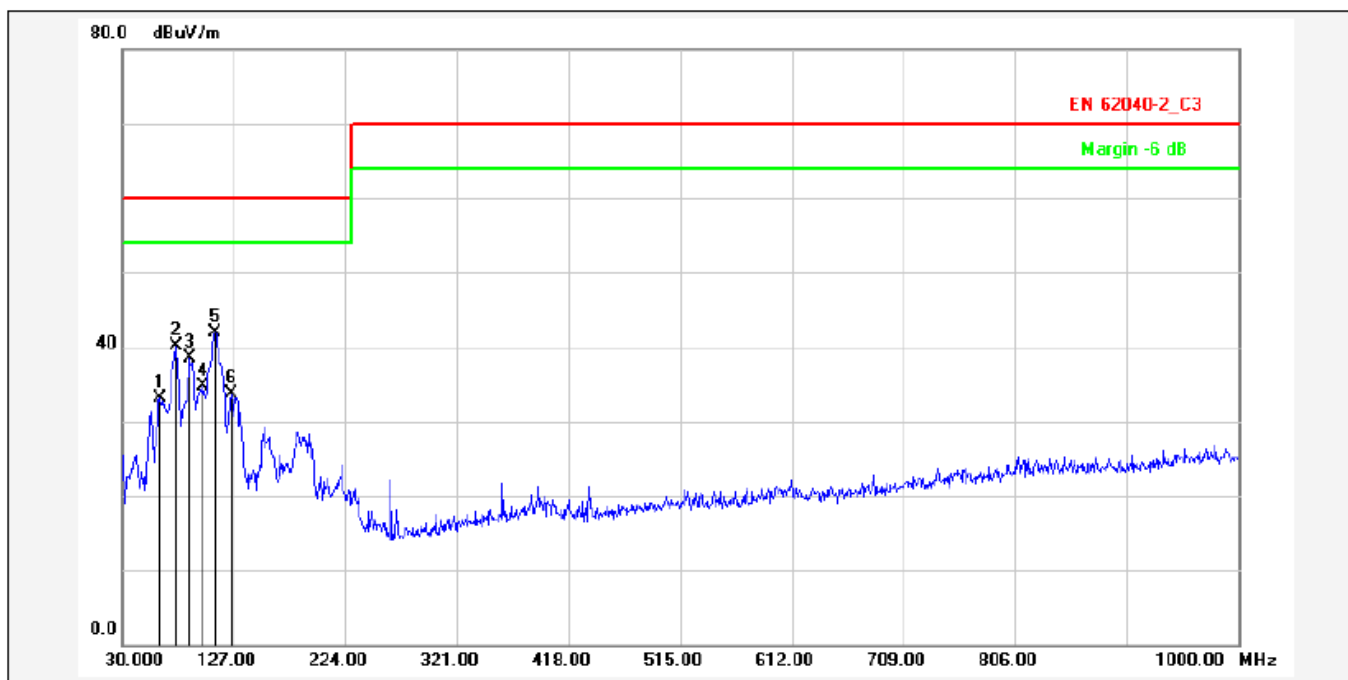
E.U.T :	UPS	Model Name :	SRVb10KIL
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	AC 230V/50Hz
Test Mode :	Normal operation mode	Polarization:	Vertical



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	30.0000	-15.90	57.72	41.82	60.00	-18.18	QP			P	
2	41.6400	-14.69	55.46	40.77	60.00	-19.23	QP			P	
3	55.2199	-13.72	59.71	45.99	60.00	-14.01	QP			P	
4	64.9200	-15.53	66.70	51.17	60.00	-8.83	QP			P	
5	75.5899	-19.03	58.86	39.83	60.00	-20.17	QP			P	
6	83.3499	-18.50	55.45	36.95	60.00	-23.05	QP			P	

E.U.T :	UPS	Model Name :	SRVb10KIL
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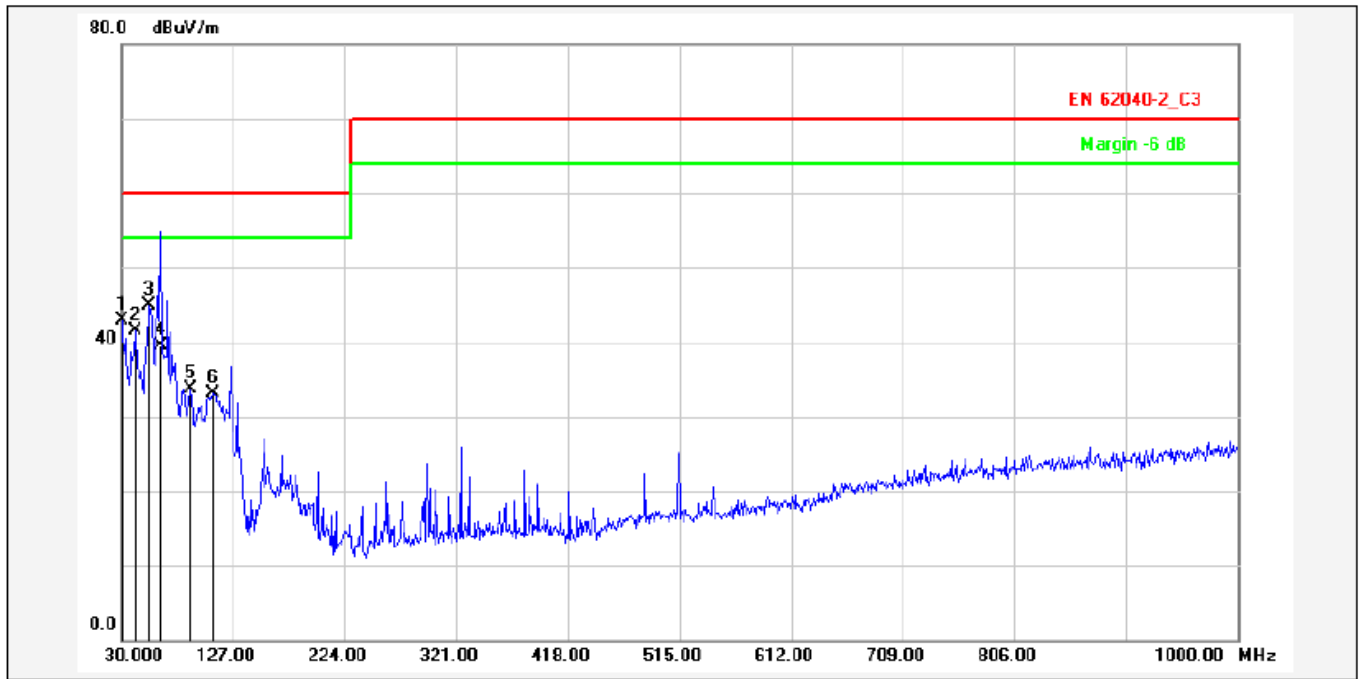
Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	DC 240V
Test Mode :	Stored energy operation mode	Polarization:	Horizontal



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	62.9799	-19.07	52.10	33.03	60.00	-26.97	QP			P	
2	76.5600	-19.49	59.51	40.02	60.00	-19.98	QP			P	
3	88.2000	-14.38	52.96	38.58	60.00	-21.42	QP			P	
4	100.8100	-12.14	46.82	34.68	60.00	-25.32	QP			P	
5	110.5100	-12.26	54.07	41.81	60.00	-18.19	QP			P	
6	125.0600	-14.62	48.32	33.70	60.00	-26.30	QP			P	

E.U.T :	UPS	Model Name :	SRVb10KIL
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Temperature :	25 °C	Relative Humidity :	60 %
Pressure :	1006 hPa	Test Voltage :	DC 240V
Test Mode :	Stored energy operation mode	Polarization:	Vertical



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	30.0000	-15.90	58.71	42.81	60.00	-17.19	QP			P	
2	41.6400	-14.69	56.16	41.47	60.00	-18.53	QP			P	
3	54.2500	-13.64	58.45	44.81	60.00	-15.19	QP			P	
4	63.9500	-15.30	54.80	39.50	60.00	-20.50	QP			P	
5	90.1400	-16.90	50.59	33.69	60.00	-26.31	QP			P	
6	109.5400	-16.15	49.34	33.19	60.00	-26.81	QP			P	

6. PERFORMANCE CRITERIA FOR IMMUNITY

The performance criteria are referred to the test standard: EN 62040-2

Performance criteria for immunity tests

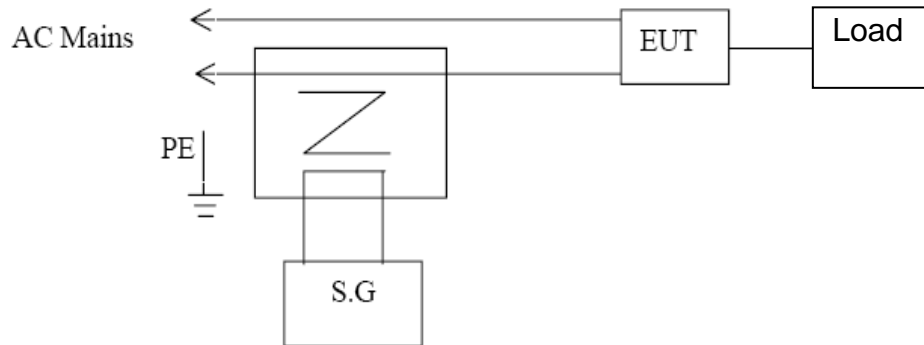
	Criterion A	Criterion B
Output characteristics	Voltage permitted to vary only within the steady-state characteristics applicable(100m sec limits in Figures 1,2 or 3 of IEC62040-3)	Voltage permitted to vary within the inverse time characteristics applicable (<100 m sec limits in Figures 1, 2 or 3 of IEC 62040-3)
External and internal indications and metering	Change only during test	Change only during test
Control signals to external devices	No change	Change only temporarily in consistency with the actual Uninterruptible Power Supply mode of operation
Mode of operation	No change	Change only temporarily

The tests shall be made with the Uninterruptible Power Supply in the following conditions:

- rated input voltage;
- normal mode of operation;
- linear load at rated active output power or at light load according to IEC62040-3.

7. LOW FREQUENCY SIGNALS TEST

7.1 Block Diagram of Test Setup



7.2 Test Standard and Performance Criterion

EN 62040-2 Category C3
(EN 61000-2-2)

Performance criterion: **A**

7.3 Operating Condition of E.U.T.

7.3.1 Setup the E.U.T. and simulators as shown in Section 2.3.

7.3.2 Turn on the power of all equipments.

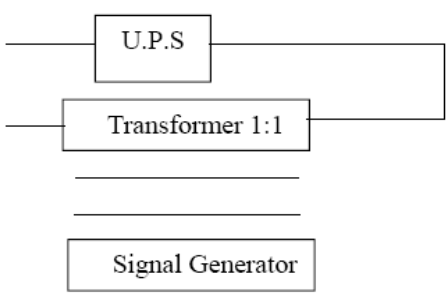
7.3.3 Let the E.U.T. work in test mode (Normal operation mode) and test it.

7.4 Test Results

PASS.

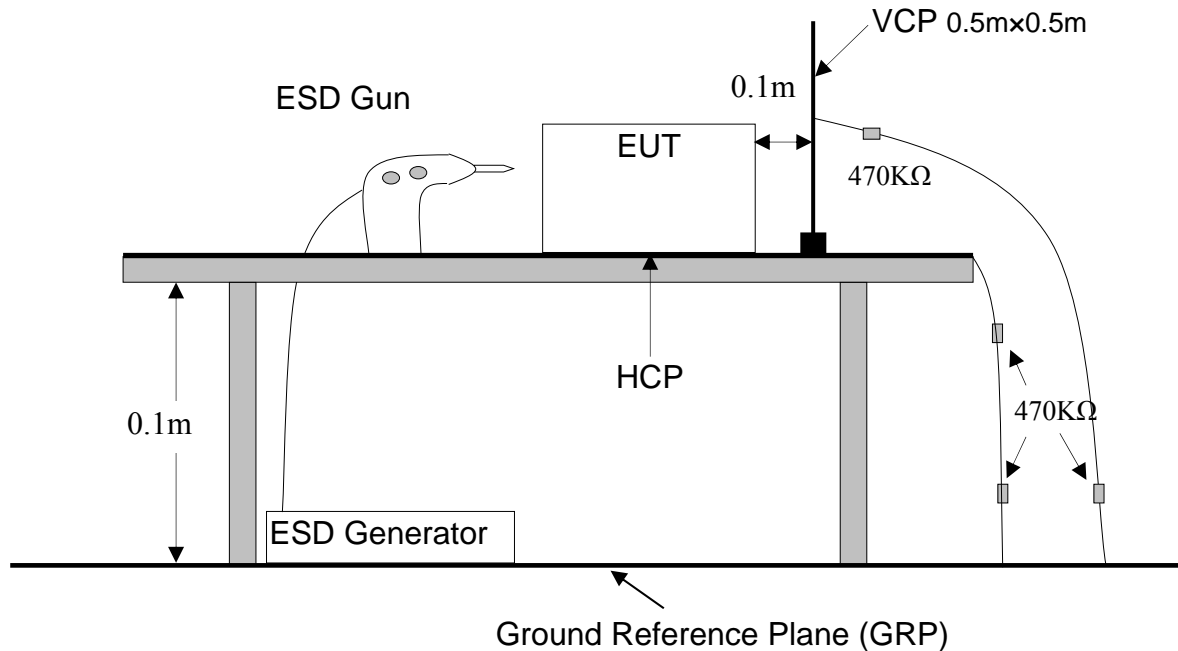
Please refer to following page.

Low Frequency Signals Test Result

Ambient Condition:	Temp.: 25°C	R.H.: 52%	Air Pressure: 101 kPa
Power Supply:	AC 230V 50Hz	Required Performance Criterion: A	
Tested mode:	Normal operation mode		
Model:	SRVb10KI, SRVb10KIL		
Frequency Range (Hz)	Position	Strength	Result (Performance Criterion)
140	See Fig.1	10V(rms) Sinusoidal	A
160			A
200			A
240			A
280			A
320			A
360			A
Note: <div style="margin-left: 40px;">  <pre> graph LR In[] --- UPS[U.P.S.] UPS --- T[Transformer 1:1] T --- SG[Signal Generator] </pre> </div>		Test Equipment: 1. Programmable AC Source: 6530(CHROMA)	
		Test Engineer : Jerry	

8. ELECTROSTATIC DISCHARGE TEST

8.1 Block Diagram of Test Setup



8.2 Test Standard and Severity Levels

8.2.1 Test Standard:

EN 62040-2 Category C3

(EN 61000-4-2 Air Discharge: Severity Level: 3, ± 8 KV;

Contact Discharge: Level: 2, ± 4 KV)

8.2.2 Severity Levels:

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	± 2	± 2
2.	± 4	± 4
3.	± 6	± 8
4.	± 8	± 15
X	Special	Special

Performance criterion: **B**

8.3 Test Procedure

8.3.1 Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the E.U.T.. After each discharge, the discharge electrode shall be removed from the E.U.T.. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

8.3.2 Contact Discharge:

All the procedure shall be same as Section 8.3.1. except that the tip of the discharge electrode shall touch the E.U.T. before the discharge switch is operated.

8.3.3 Indirect discharge for horizontal coupling plane

At least 10 single discharges(in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit(if applicable) of the E.U.T. and 0.1m from the front of the E.U.T.. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

8.3.4 Indirect discharge for vertical coupling plane

At least 10 single discharge (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the E.U.T.. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the E.U.T. are completely illuminated.

8.4 Test Results

PASS.

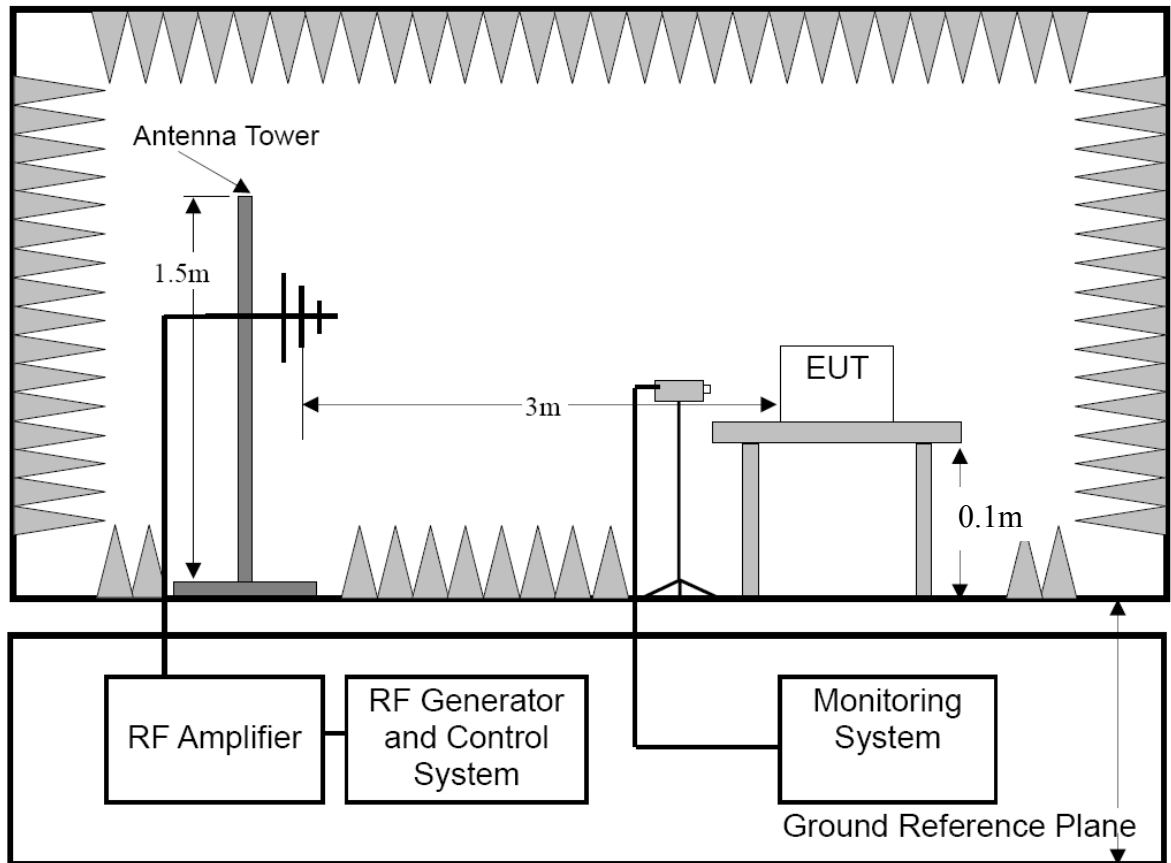
Please refer to the following page.

Electrostatic Discharge Test Results

Ambient Condition:	Temp.: 25°C	R.H.: 52% Air Pressure: 101 kPa	
Power Supply:	AC 230V 50Hz, DC 192V, DC 240V(External battery bank)	Required Performance Criterion: B	
Test Specifications:	±2, 4 kV Contact Discharge; ±2, 4, 8 kV Air Discharge For each point positive 10 times and negative 10 times		
Tested mode:	Normal operation mode, Stored energy operation mode		
Model:	SRVb10KI, SRVb10KIL		
Test Point	Kind A-Air Discharge C-Contact Discharge	Result (Performance Criterion)	
Slot of EUT	A	A	
Button	A	A	
LED	A	B	
Metal	C	A	
VGA, USB Port	C	A	
Indirect Discharge (HCP)	C	A	
Indirect Discharge (VCP)	C	A	
Note:EUT LED screen flashes during the test, then self-recovery.			
Test Equipment : ESD Tester (TESEQ, NSG 437)		Test Engineer : Jerry	

9. RF FIELD STRENGTH SUSCEPTIBILITY TEST

9.1 Block Diagram of Test Setup



9.2 Test Standard and Severity Levels

9.2.1 Test Standard

EN 62040-2 Category C3
 (EN 61000-4-3, Severity Level: 3, 10V / m)

9.2.2 Severity Levels

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

Performance Criterion : **A**

9.3 Test Procedure

The E.U.T. and its simulators are placed on a turn table which is 0.1 meter above ground. E.U.T. is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of E.U.T. must be faced this transmitting antenna and measured individually.

All the scanning conditions are as follows :

Condition of Test	Remarks
1. Fielded Strength	10 V/m (Severity Level 3)
2. Radiated Signal	Modulated
3. Scanning Frequency	80 - 1000 MHz
4. Dwell time of radiated	0.0015 decade/s
5. Waiting Time	1 Sec.

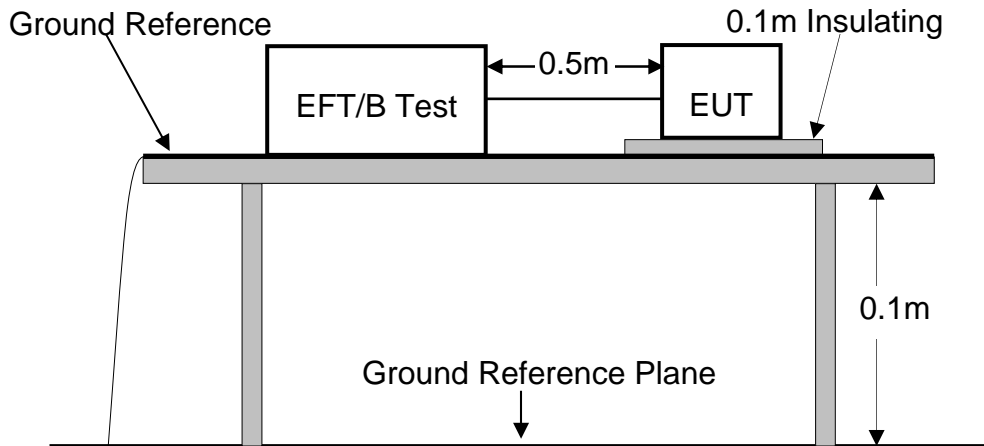
9.4 Test Results

PASS.

Please refer to the following page.

10.ELECTRICAL FAST TRANSIENT/BURST TEST

10.1 Block Diagram of Test Setup



10.2 Test Standard and Severity Levels

10.2.1 Test Standard

EN 62040-2 Category C3

(EN 61000-4-4, Severity Level, Level 3: 2KV)

10.2.2 Severity level

Open circuit output test voltage and repetition rate of the impulses				
Level	On power port, PE		On I/O (Input/Output) Signal data and control ports	
	Voltage peak KV	Repetition rate KHz	Voltage peak KV	Repetition rate KHz
1.	0.5	5 or 100	0.25	5 or 100
2.	1.0	5 or 100	0.5	5 or 100
3.	2.0	5 or 100	1.0	5 or 100
4.	4.0	5 or 100	2.0	5 or 100
X	Special	Special	Special	Special

Note 1 Use of 5 KHz repetition rates is traditional; however, 100 KHz is closer to reality. Product committees should determine which frequencies are relevant for specific products or product types.

Note 2 With some products, there may be no clear distinction, between power ports and I/O ports, in which case it is up to product committees to make this determination for test purposes.

Note 3 "X" is an open level. The level has to be specified in the dedicated equipment specification.

Performance Criterion : **B**

10.3 Test Procedure

The E.U.T. is put on the table which is 0.1 meter high above the ground. This reference ground plane shall project beyond the E.U.T. by at least 0.1m on all sides and the minimum distance between E.U.T. and all other conductive structure, except the ground plane beneath the E.U.T., shall be more than 0.5m.

10.3.1 For input and output AC power ports:

The E.U.T. is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minus.

10.3.2 For signal lines ports:

It's unnecessary to test.

10.3.3 For DC ports:

It's unnecessary to test.

10.4 Test Result

PASS.

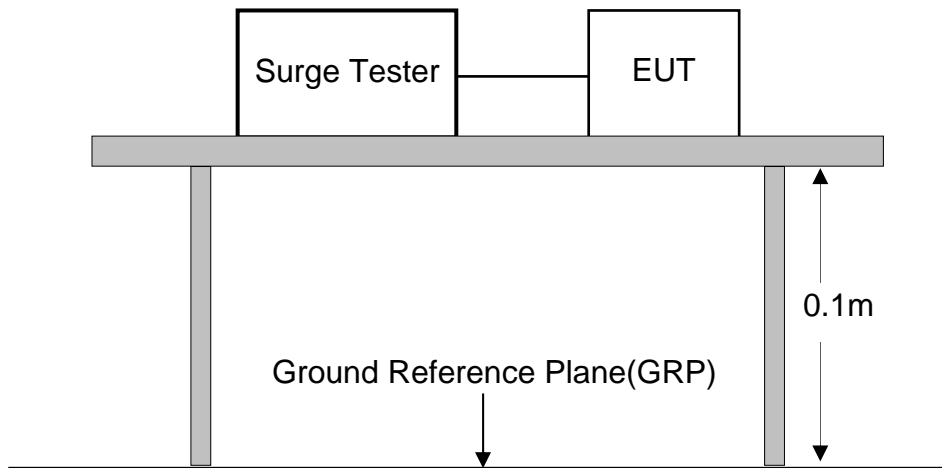
Please refer to the following page.

Electrical Fast Transient/Burst Test Results

Ambient Condition:	Temp.: 25°C	R.H.: 52%	Air Pressure: 101 kPa
Power Supply:	AC 230V 50Hz	Required Performance Criterion: B	
Test Specifications:	Repetition Frequency: 5kHz; Duration: 15ms; Period: 300ms		
Test mode:	Normal operation mode		
Model :	SRVb10KI, SRVb10KIL		
Line :	<input checked="" type="checkbox"/> AC Mains	<input type="checkbox"/> Signal line	<input type="checkbox"/> DC line
Coupling :	<input checked="" type="checkbox"/> Direct	<input type="checkbox"/> Capacitive	
Line (Input and output AC power ports)	Test Voltage	Result (Performance Criterion)	
L	±2KV	A	
N	±2KV	A	
PE	±2KV	A	
L、N	±2KV	A	
L、PE	±2KV	A	
N、PE	±2KV	A	
L、N、PE	±2KV	A	
Signal line	---	---	
DC line	---	---	
Note :			
Test Equipment : Burst Tester(EM TEST, UCS500N)		Test Engineer : Jerry	

11. SURGE IMMUNITY TEST

11.1 Block Diagram of Test Setup



11.2 Test Standard and Severity Levels

11.2.1 Test Standard

EN 62040-2 Category C3

(EN 61000-4-5, Severity Level: Line To Line, Level 2: 1.0KV; Line To Earth, Level 3: 2.0KV)

11.2.2 Severity level

Severity Level	Open-Circuit Test Voltage KV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

Performance Criterion : **B**

11.3 Test Procedure

1. Set up the E.U.T. and test generator as shown on Section 11.1.
2. For line to line coupling mode, provide a 1.0KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to E.U.T. selected points.
3. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
4. Different phase angles are done individually.
5. Record the E.U.T. operating situation during compliance test and decide the E.U.T. immunity criterion for above each test.

11.4 Test Result

PASS.

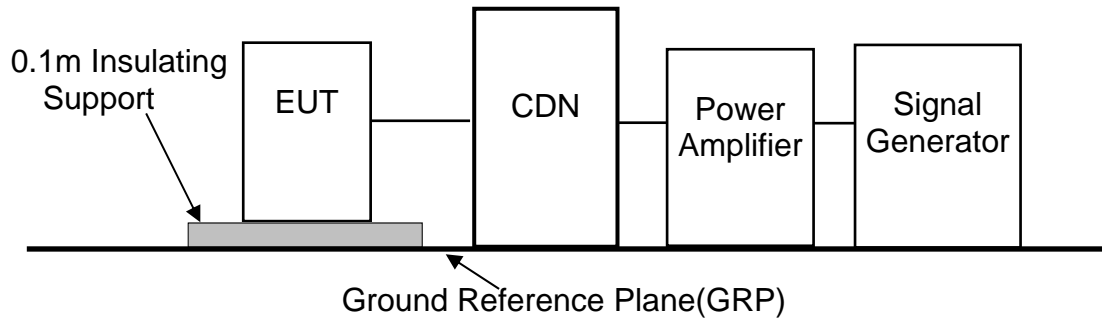
Please refer to the following page.

Surge Immunity Test Results

Ambient Condition:	Temp.: 25°C	R.H.: 52%	Air Pressure: 101 kPa
Power Supply:	AC 230V 50Hz	Required Performance Criterion: B	
Test Specifications:	Voltage surge 1.2/50 us ; Current surge 8/20 us ; Five positive and five negative pulses each at 0°, 90°, 180° and 270°.		
Test mode:	Normal operation mode		
Model :	SRVb10KI, SRVb10KIL		
Line(AC Input)	Phase Angle	Test Voltage	Result (Performance Criterion)
L-N	0°, 90°, 180°, 270°	±1.0KV	A
L-PE	0°, 90°, 180°, 270°	±2.0KV	A
N-PE	0°, 90°, 180°, 270°	±2.0KV	A
Signal line	---	---	---
DC line	---	---	---
Note :			
Test Equipment : Burst Tester(EM TEST, UCS500N)		Test Engineer : Jerry	

12. INJECTED CURRENTS SUSCEPTIBILITY TEST

12.1 Block Diagram of Test Setup



12.2 Test Standard and Severity Levels

12.2.1 Test Standard

EN 62040-2 Category C3

(EN 61000-4-6, Severity Level 3: 10V (rms), 0.15MHz ~ 80MHz)

12.2.2 Severity level

Level	Field Strength V
1.	1
2.	3
3.	10
X	Special

Performance Criterion : **A**

12.3 Test Procedure

1. Set up the E.U.T., CDN and test generators as shown on Section 12.1.
2. Let the E.U.T. work in test mode and measure it.
3. The E.U.T. are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from E.U.T.. Cables between CDN and E.U.T. are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
4. The disturbance signal described below is injected to E.U.T. through CDN.
5. The E.U.T. operates within its operational mode(s) under intended climatic conditions after power on.
6. The frequency range is swept from 150 KHz to 80 MHz using 10V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.
7. The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
8. Recording the E.U.T. operating situation during compliance testing and decide the E.U.T. immunity criterion.

12.4 Test Result

PASS.

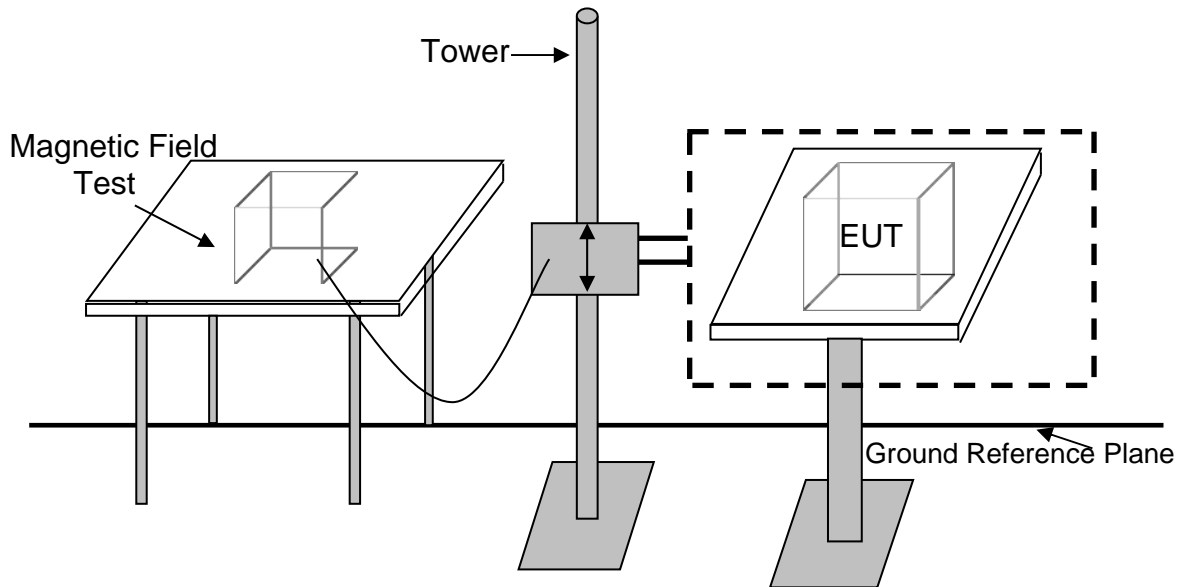
Please refer to the following page.

Injected Currents Susceptibility Test Results

Ambient Condition:	Temp.: 25°C	R.H.: 52%	Air Pressure: 101 kPa
Power Supply:	AC 230V 50Hz	Required Performance Criterion: A	
Test Specifications:	Modulation : 1KHz, 80%AM, Step Size : 1%, Dwell Time : 1s		
Test mode:	Normal operation mode		
Model :	SRVb10KI, SRVb10KIL		
Test Port	Frequency (MHz)	Level(V)	Result (Performance Criterion)
AC Mains (Input, Output)	0.15~80	10	A
Note :			
Test Equipment : FRANNOKIA, CDN-M2+M3 HAEFELY, WinPAMP		Test Engineer : Jerry	

13.MAGNETIC FIELD IMMUNITY TEST

13.1 Block Diagram of Test Setup



13.2 Test Standard and Severity Levels

13.2.1 Test Standard

EN 62040-2 Category C3
 (EN 61000-4-8, Severity Level 4: 30A/m)

13.2.2 Severity level

Level	Magnetic Field Strength A/m
1.	1
2.	3
3.	10
4.	30
5.	100
X	Special

Performance Criterion : **B**

13.3 Test Procedure

The E.U.T. is placed in the middle of a induction coil (1*1m), under which is a 1*1*0.1m (high)table, this small table is also placed on a larger table, 0.1 m above the ground. X, Y and Z polarization of the induction coil are set on test, so that each side of the E.U.T. is affected by the magnetic field. Also can reach the same aim by change the position of the E.U.T..

13.4 Test Result

PASS.

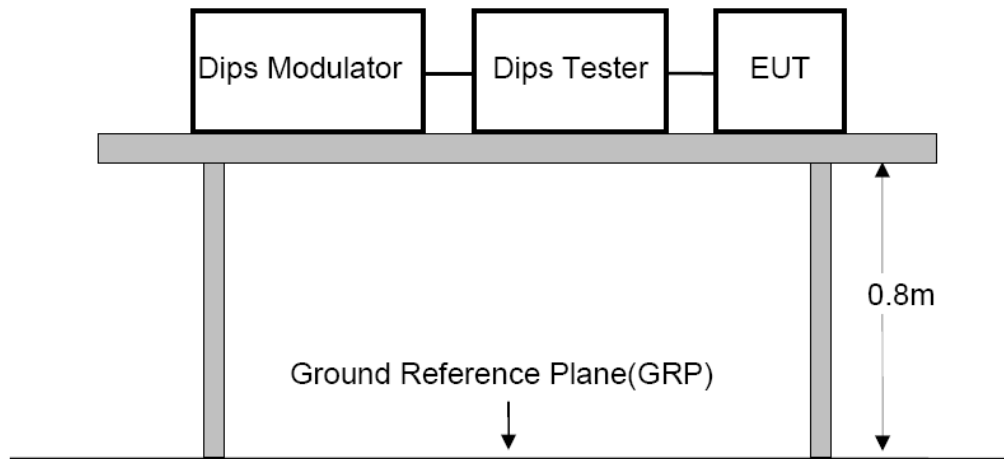
Please refer to the following page.

Magnetic Field Immunity Test Results

Ambient Condition:	Temp.: 25°C	R.H.: 52%	Air Pressure: 101 kPa
Power Supply:	AC 230V 50Hz, DC 192V, DC 240V(External battery bank)	Required Performance Criterion: B	
Test Specifications:	30A/m		
Test mode:	Normal operation mode, Stored energy operation mode		
Model :	SRVb10KI, SRVb10KIL		
Test Level	Testing Duration	Coil Orientation	Result (Performance Criterion)
30A/m	5 mins	X	A
30A/m	5 mins	Y	A
30A/m	5 mins	Z	A
Note :			
Test Equipment : Magnetic field test(HAEFELY, MAG100.1)		Test Engineer : Jerry	

14. VOLTAGE DIPS AND INTERRUPTIONS TEST

14.1 Block Diagram of Test Setup



14.2 Test Standard and Severity Levels

14.2.1 Test Standard

EN 62040-2
 (EN 61000-4-11: 2004)

14.2.2 Severity level

Test Level %U _T	Voltage dip and short interruptions %U _T	Duration (in period)
0	100	0.5
		1
40	60	5
		10
70	30	25
		50
		*

14.3 Test Procedure

1. Set up the E.U.T. and test generator as shown on Section 14.1.
2. The interruptions is introduced at selected phase angles with specified duration.
3. Record any degradation of performance.

14.4 Test Result

PASS.

Please refer to the following page.

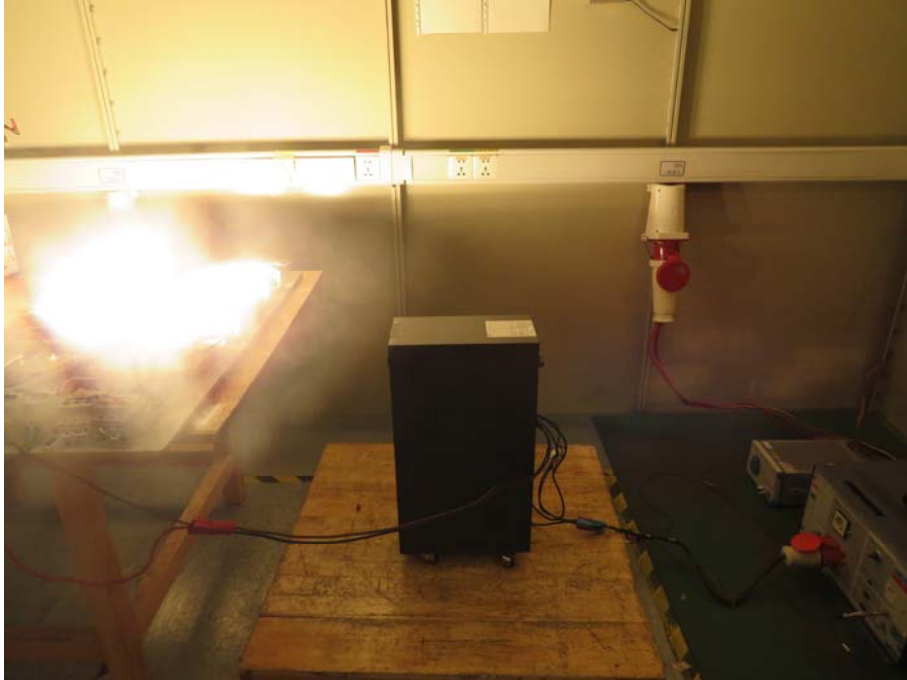
Voltage Dips And Interruptions Test Results

Ambient Condition:	Temp.: 25 °C	R.H.: 54 %	Air Pressure: 101 kPa
Power Supply:	AC 230V 50Hz	Required Performance Criterion: B	
Test Specifications:	0%U _T , 0.5Cycle; 70%U _T , 25Cycle; 0%U _T ,250Cycle		
Test mode:	Normal operation mode		
Model :	SRVb10KI, SRVb10KIL		
Test Level % UT	Duration (in period)	Result (Performance Criterion)	
0	0.5P	B	
70	25P	A	
0	250P	B	
Note : Performance Criterion B switch to Stored energy operation mode			
Test Equipment : Dips Tester: EM TEST, UCS 500N		Test Engineer : Stan	

15. PHOTOGRAPH

15.1 Photo of Conducted Emission Measurement

M/N:SRVb10KI



M/N:SRVb10KIL

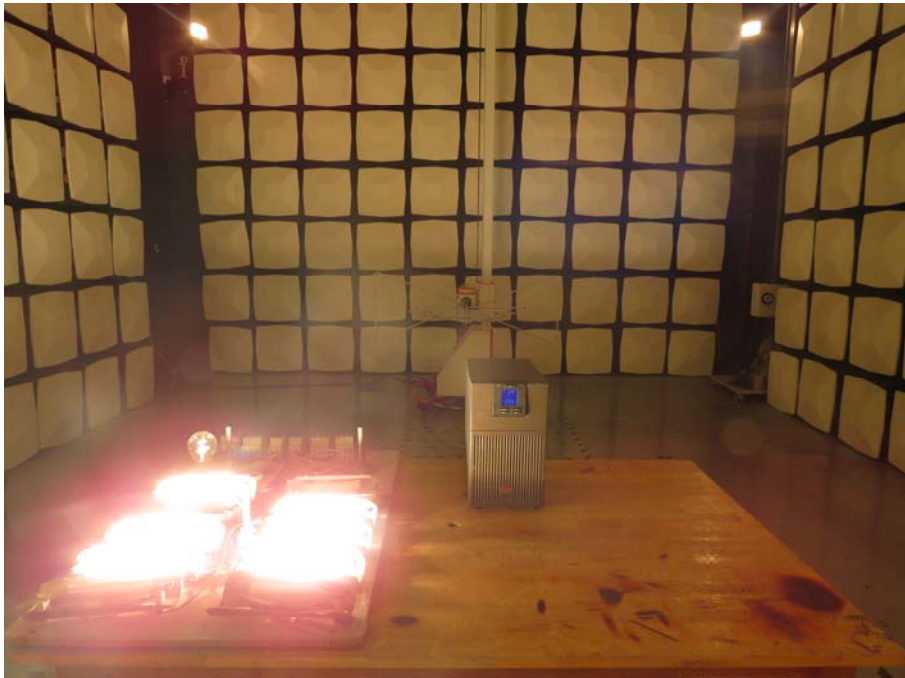


15.2 Photo of Radiation Emission Measurement

M/N:SRVb10KI



M/N:SRVb10KIL



15.3 Photo of Electrostatic Discharge Test



15.4 Photo of Electrical Fast Transient /Surge Test



APPENDIX I

(Photos of E.U.T.)

Figure 1
General Appearance of the E.U.T.
M/N: SRV10KI
For APC trademark



Figure 2
General Appearance of the E.U.T.
M/N: SRVS10KI
For Schneider trademark



Figure 3
M/N: SRVb10KI
General Appearance of the E.U.T.



Figure 4
M/N: SRVb10KI
General Appearance of the E.U.T.



Figure 5

M/N: SRVb10KI
General Internal of the E.U.T.



Figure 6
M/N: SRVb10KI
General Internal of the E.U.T.



Figure 7
General Appearance of the E.U.T.
M/N: SRV10KIL
For APC trademark



Figure 8
General Appearance of the E.U.T.
M/N: SRVS10KIL
For Schneider trademark



Figure 9
M/N: SRVb10KIL
General Appearance of the E.U.T.



Figure 10
M/N: SRVb10KIL
General Appearance of the E.U.T.



Figure 11
Page 64 of 76

M/N: SRVb10KIL
General Internal of the E.U.T.



Figure 12
M/N: SRVb10KIL
General Internal of the E.U.T.

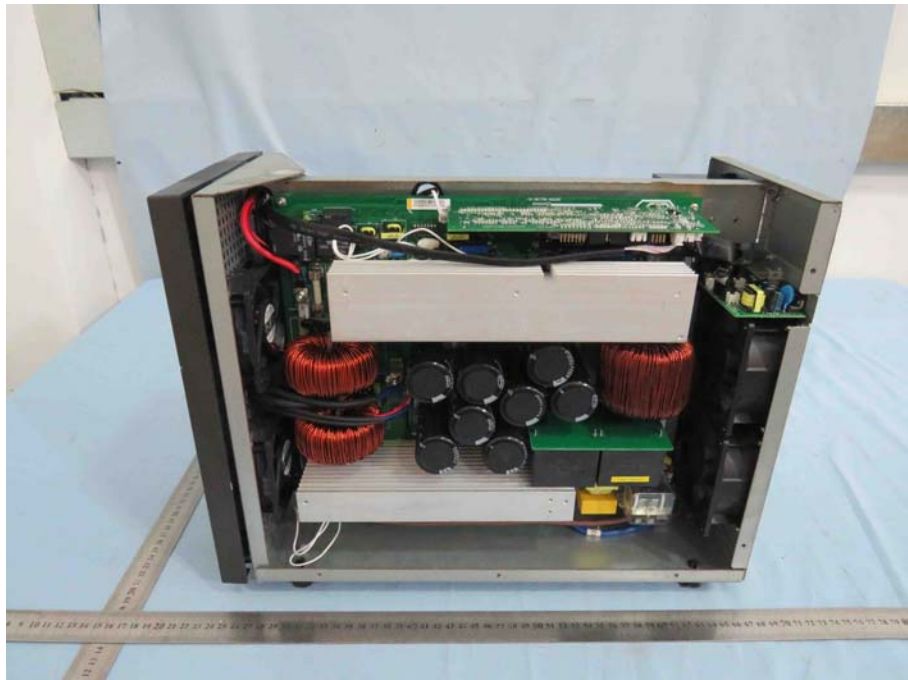


Figure 13
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General Appearance of the PCB

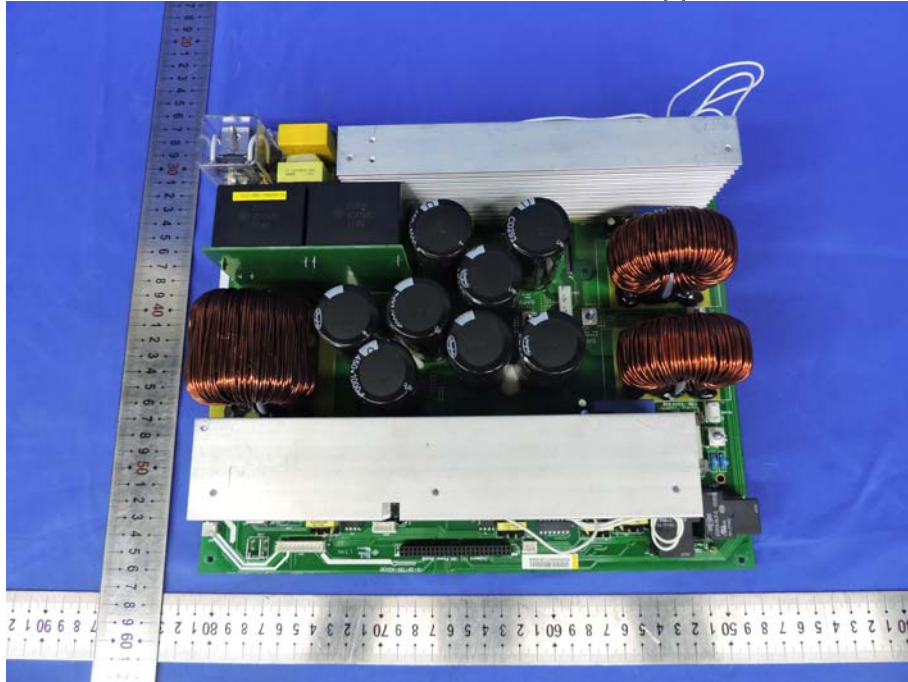


Figure 14
General Appearance of the PCB

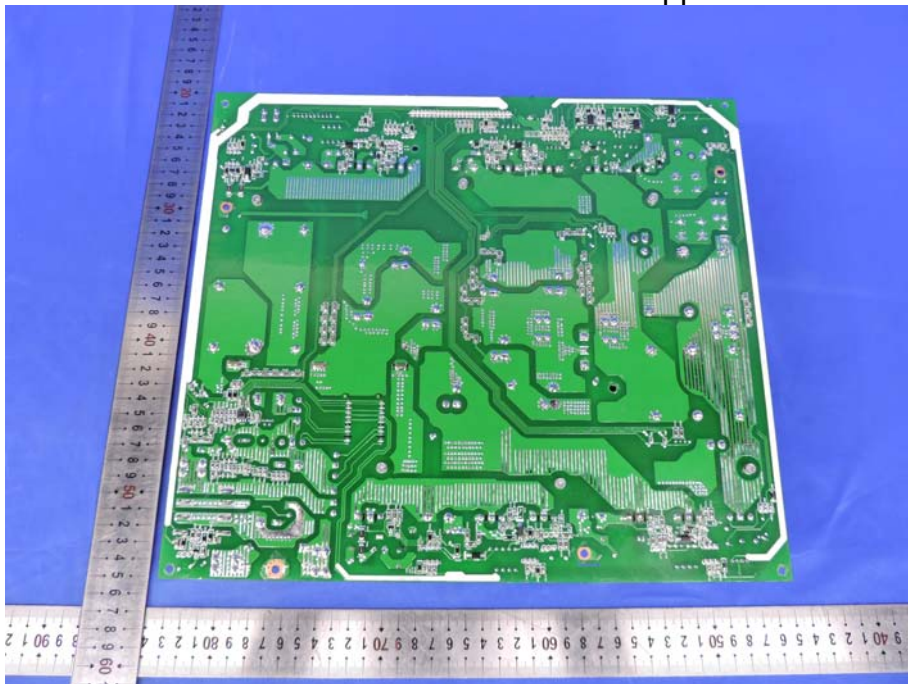


Figure 15

General Appearance of the PCB

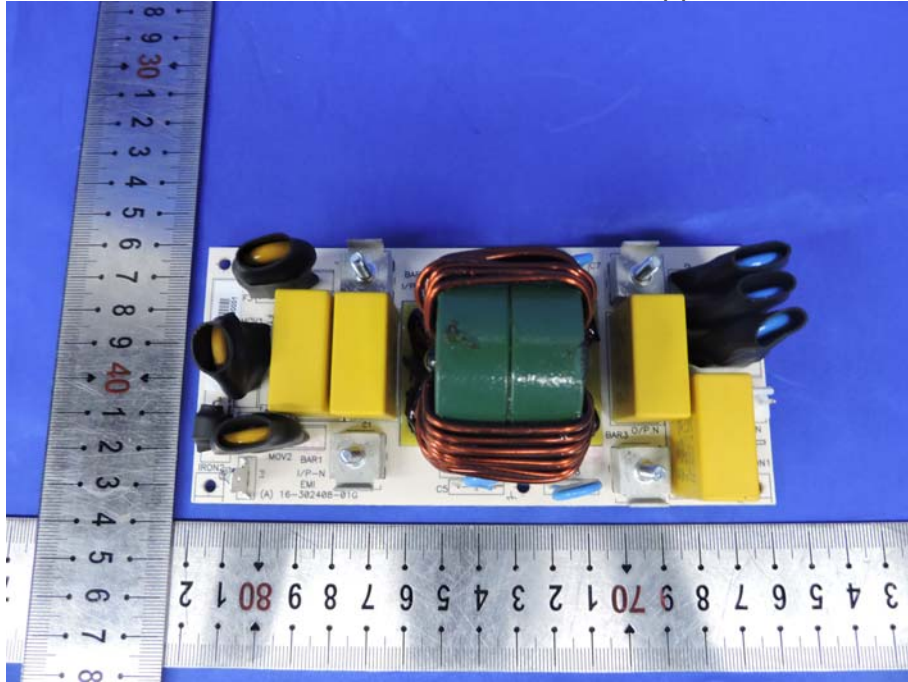


Figure 16
General Appearance of the PCB

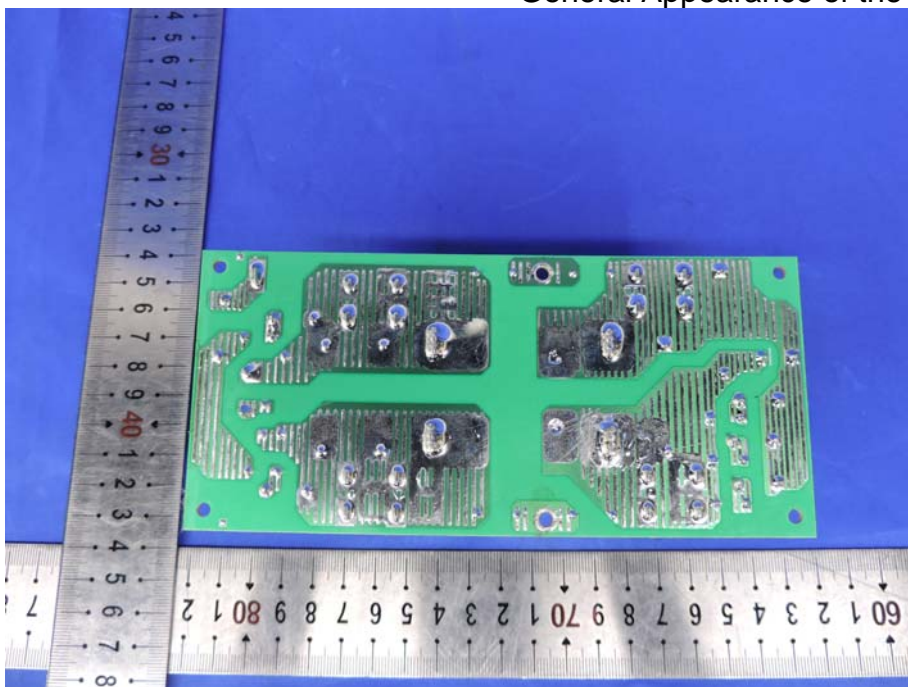


Figure 17

General Appearance of the PCB

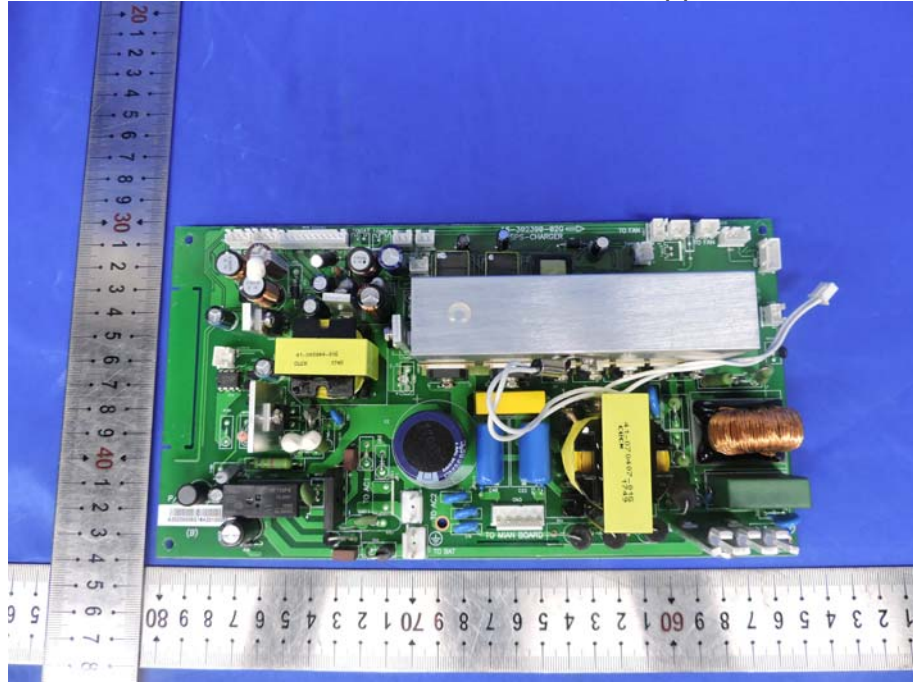


Figure 18
General Appearance of the PCB

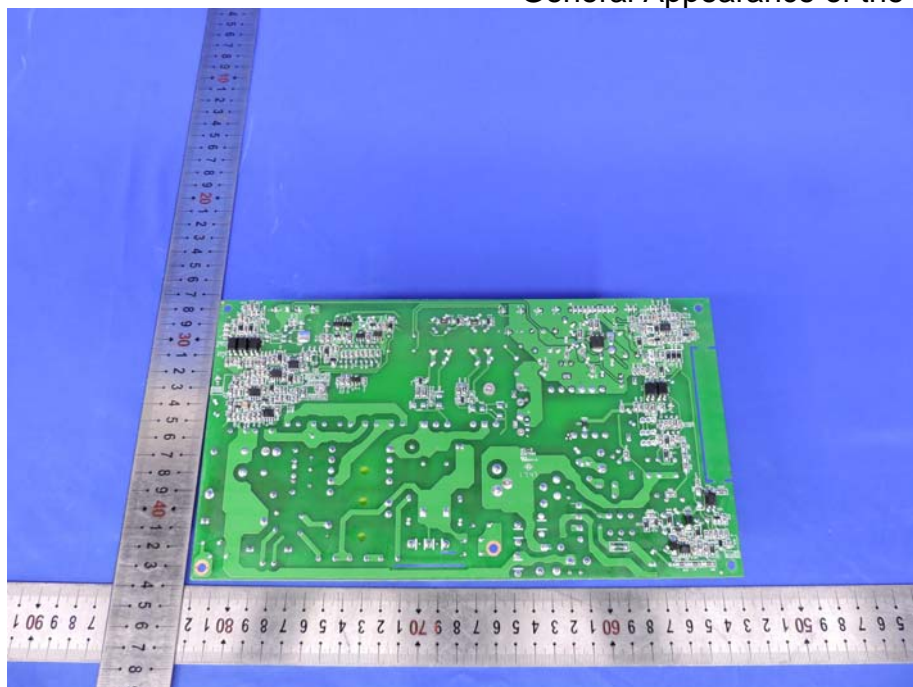


Figure 19
General Appearance of the PCB

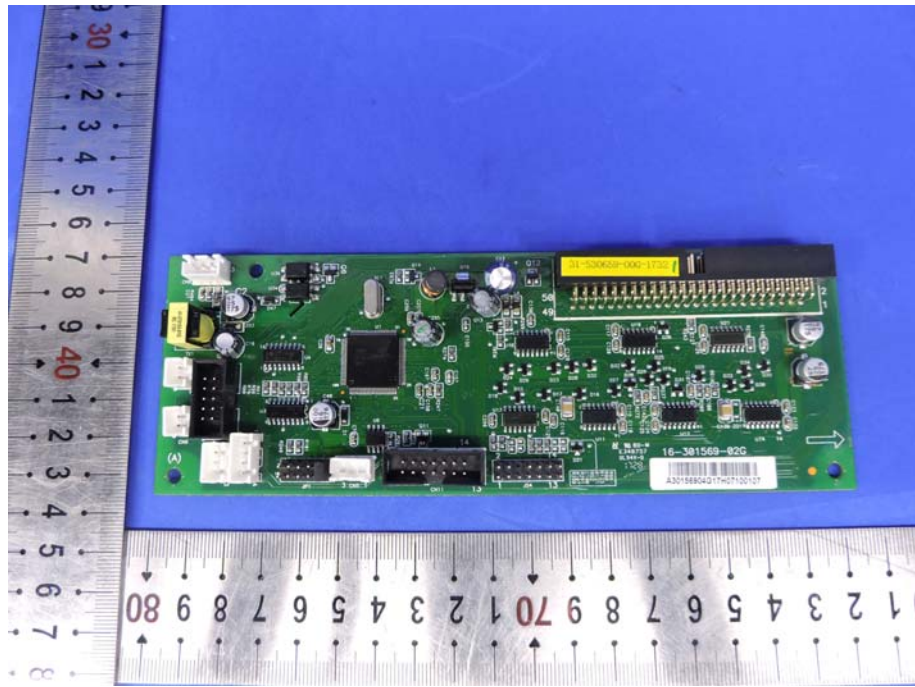


Figure 20
General Appearance of the PCB

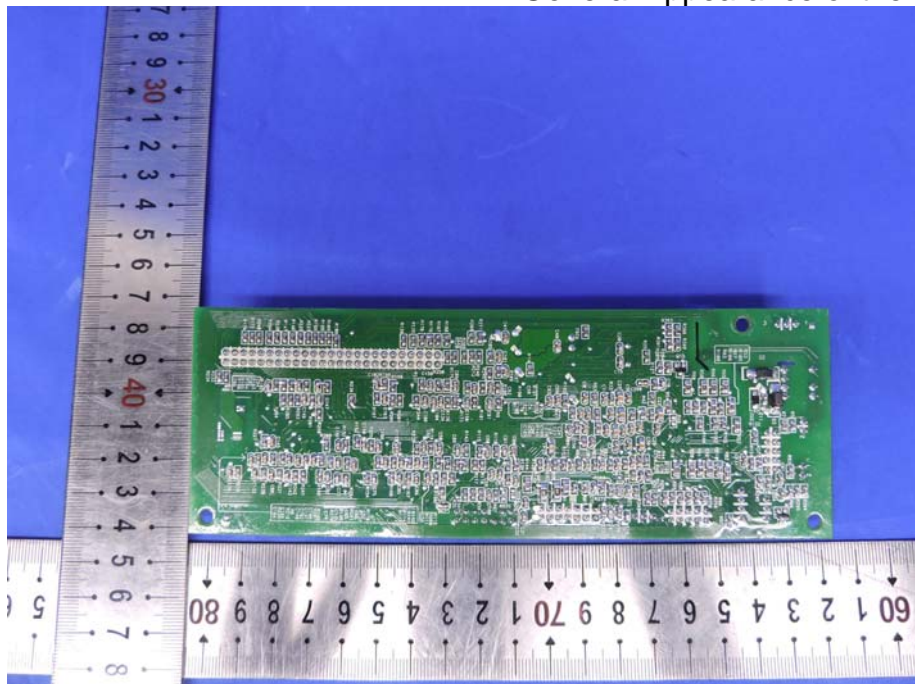


Figure 21
General Appearance of the PCB

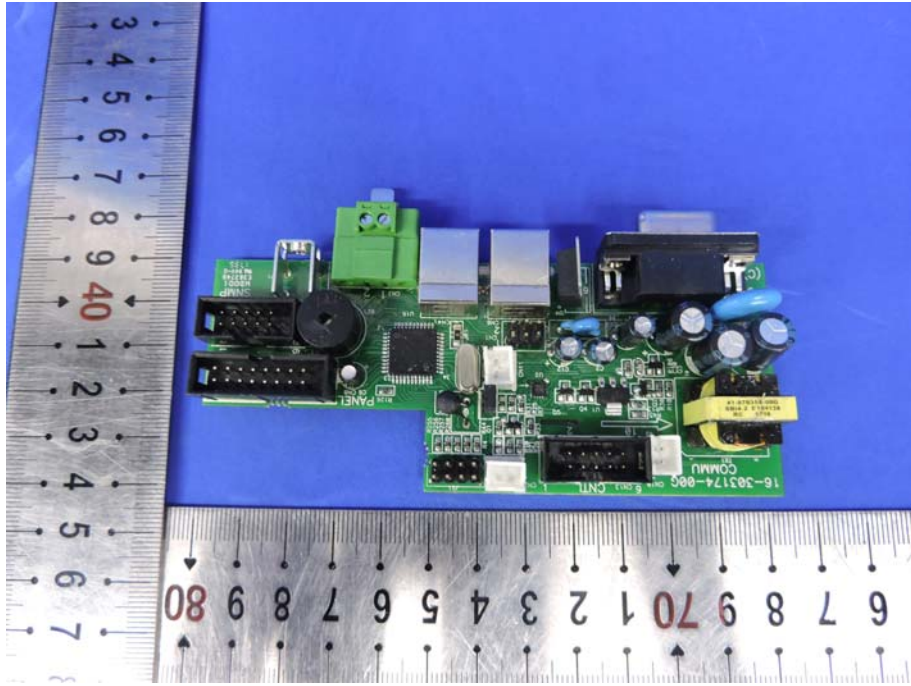


Figure 22
General Appearance of the PCB

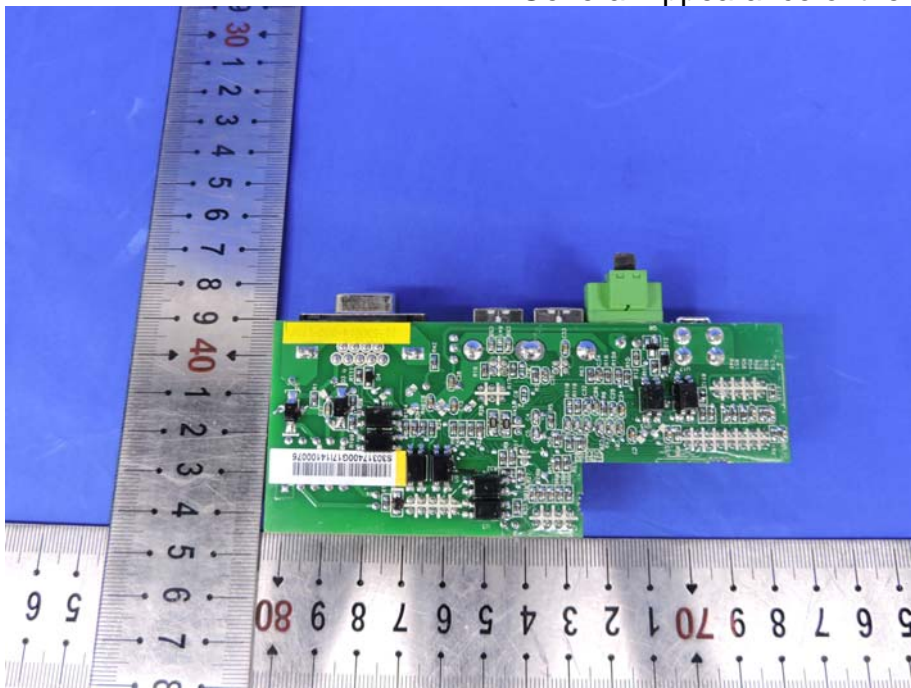


Figure 23
General Appearance of the PCB

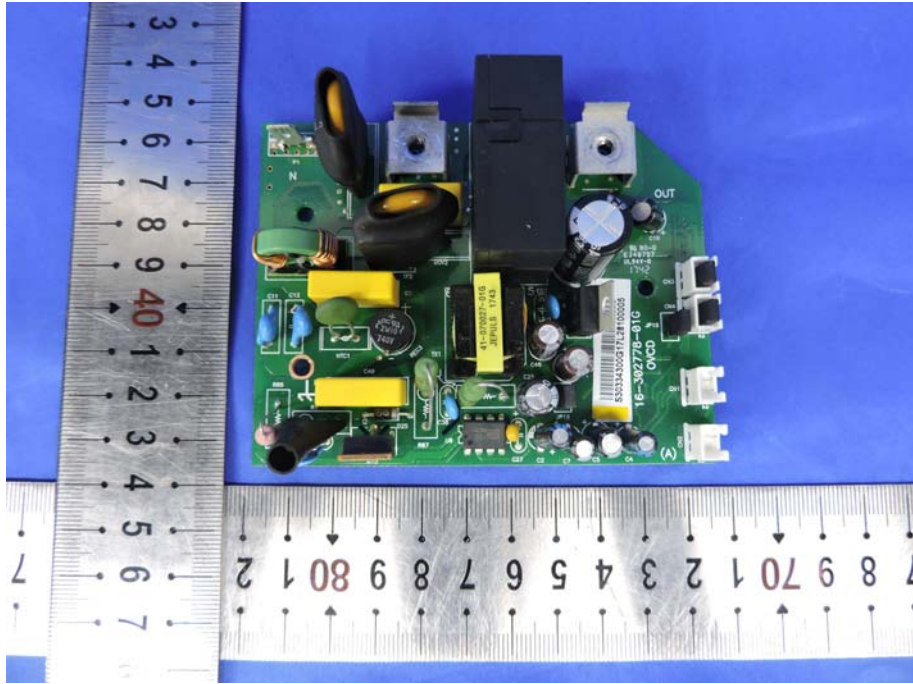


Figure 24
General Appearance of the PCB

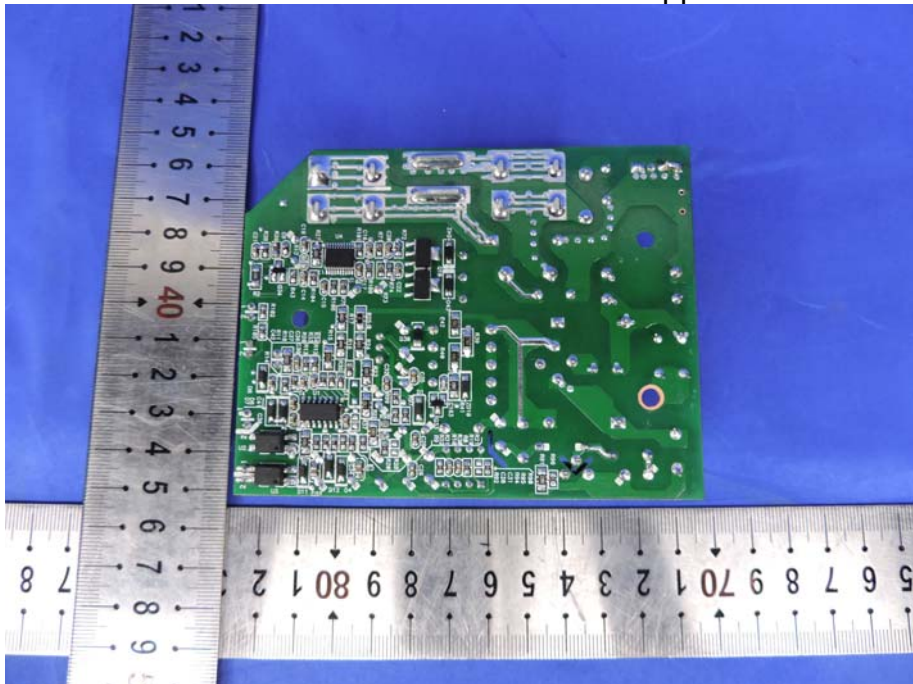


Figure 25
General Appearance of the PCB

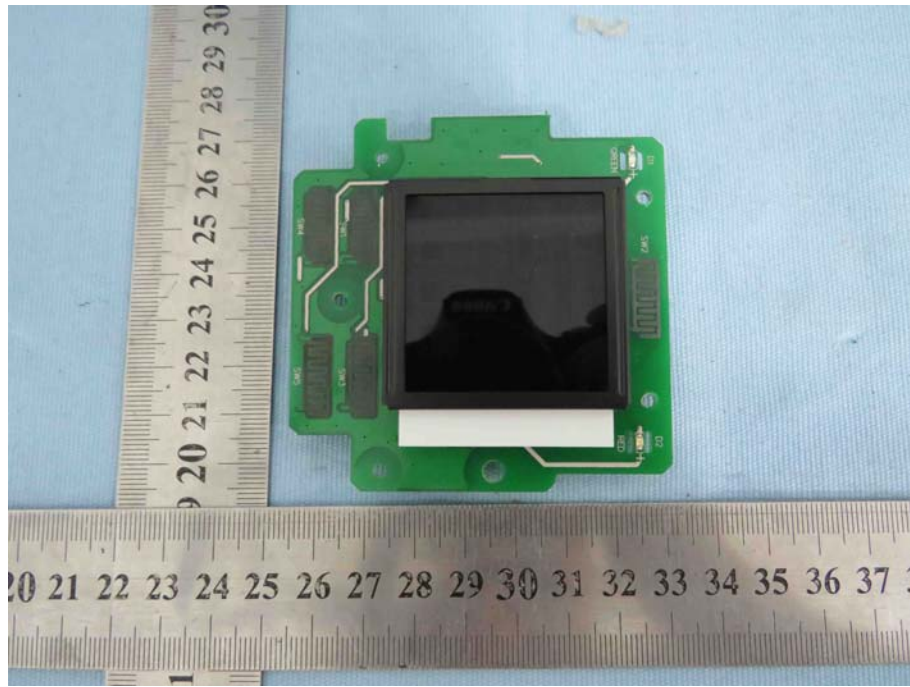


Figure 26
General Appearance of the PCB

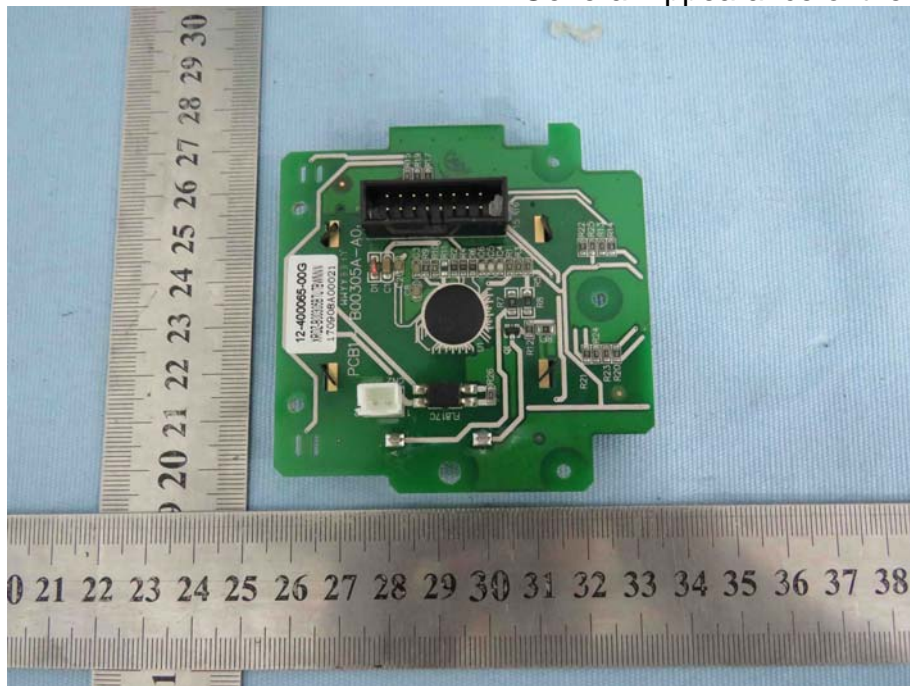


Figure 27
General Appearance of the PCB

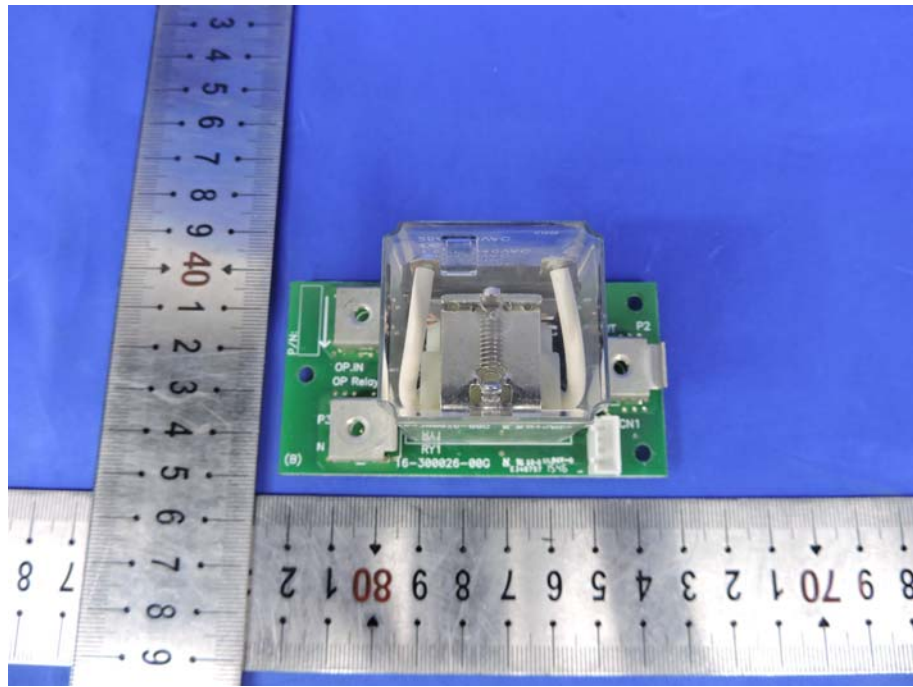


Figure 28
General Appearance of the PCB

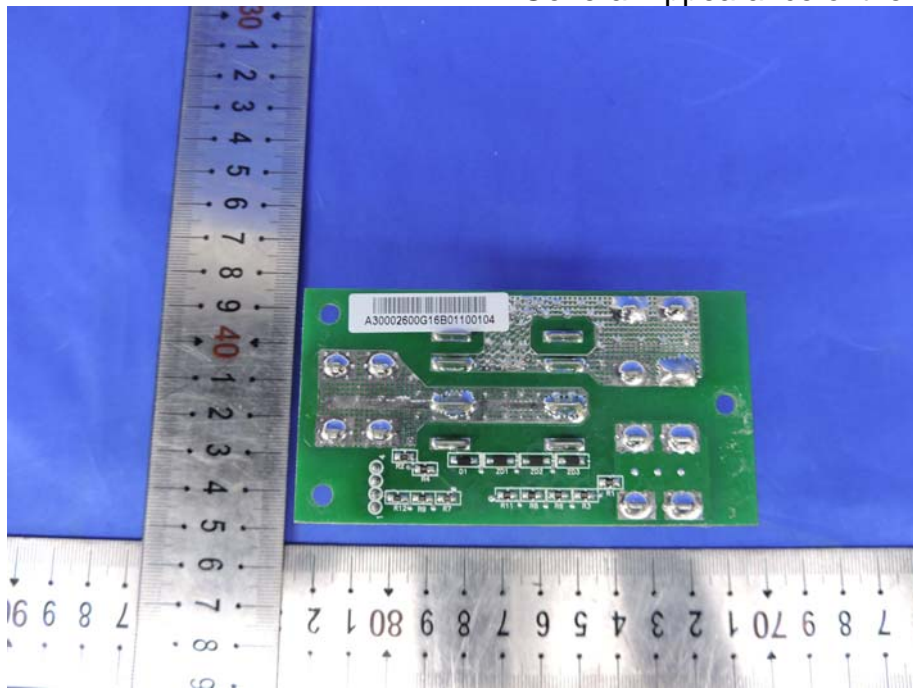


Figure 29
General Appearance of the EBM

M/N:SRV240BP-9A(Trademark:APC)



Figure 30
General Appearance of the EBM
M/N:SRV240BP-9A(Trademark:Schneider)



Figure 31
General Appearance of the EBM



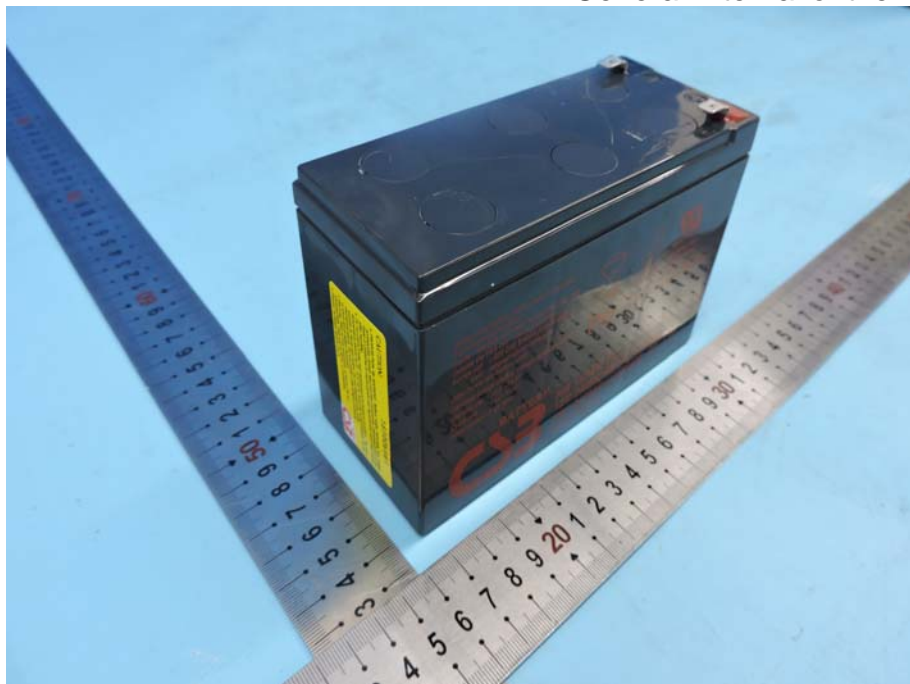
Figure 32
General Internal of the EBM



Figure 33
General Internal of the EBM



Figure 34
General Internal of the EBM



---End---