EMC TEST REPORT

For

Robotic Vacuum Cleaner

MODEL NUMBER: S270RR

PROJECT NUMBER: 4790162819

REPORT NUMBER: 4790162819-2

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Prepared for

Beijing Roborock Technology Co., Ltd.

Prepared by

UL-CCIC Company Limited
No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, China
T： + 86-512-6808 6400
F： + 86-512-6808 4099

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	12/05/2021	Initial Issue	

Test Summary

According to the specifications of the manufacture, the EUT must complies with the following standards' requirements:
EN 55014-1:2017+A11:2020
EN 55014-2:2015
EN IEC 61000-3-2:2019
EN 61000-3-3:2013+A1:2019

Electromagnetic Interference (EMI)

Test Items	Test Method	Reference Clause	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	EN 55014-1:2017+A11:2020	CISPR 16-2-1:2014 +A1:2017	Pass
Disturbance Power	EN 55014-1:2017+A11:2020	CISPR 16-2-2:2010	N/A
Radiated Emissions (30MHz-1GHz)	EN 55014-1:2017+A11:2020	CISPR 16-2-3:2016 +A1:2019	Pass
Discontinuous disturbances (Clicks)	EN 55014-1:2017+A11:2020	EN 55014-1:2017 +A11:2020	N/A
Harmonic Current Emission	EN IEC 61000-3-2:2019	EN IEC 61000-3-2:2019	Pass
Voltage Fluctuations & Flicker	EN 61000-3-3:2013 +A1:2019	EN 61000-3-3:2013 +A1:2019	Pass
Electromagnetic Susceptibility (EMS)			
ESD	EN 55014-2:2015	EN 61000-4-2:2009	PASS
Radiated Immunity	EN 55014-2:2015	EN IEC 61000-4-3:2020	PASS
Electrical Fast Transients (EFT)	EN 55014-2:2015	EN 61000-4-4:2012	PASS
Surge Immunity	EN 55014-2:2015	EN 61000-4-5:2014 +A1:2017	PASS
Conducted Immunity	EN 55014-2:2015	EN 61000-4-6:2014	PASS
Voltage Dips and Interruptions	EN 55014-2:2015	EN IEC 61000-4-11:2020	PASS

Remark :

1) N/A is an abbreviation for Not Applicable.
2) Pre-test with all operating ranges of voltage and frequency then choose the worst case as result.
3) The measurement result for the sample received is <Pass> according to < EN 55014-1:2017+A11:2020; EN 55014-2:2015; EN IEC 61000-3-2:2019; EN 61000-3-3:2013 +A1:2019> when <Accuracy Method> decision rule is applied.

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1 ATTESTATION OF TEST RESULTS

Applicant Information	
Company Name:	Beijing Roborock Technology Co., Ltd.
Address:	Floor 6, Suite 6016, 6017, 6018, Building C, Kangjian Baosheng Plaza, No. 8 Heiquan Road, Haidian District, 100192 Beijing, P.R. China
Manufacturer Information	
Company Name:	Beijing Roborock Technology Co., Ltd.
Address:	Floor 6, Suite 6016, 6017, 6018, Building C, Kangjian Baosheng Plaza, No. 8 Heiquan Road, Haidian District, 100192 Beijing, P.R. China
EUT Description	
Product Name:	Robotic Vacuum Cleaner
Model Number:	S270RR
Sample Number:	4401433, 4387834
Data of Receipt Sample:	Nov. 16, 2021
Date Tested:	Nov. 16, 2021~ Nov. 28, 2021

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
EN 55014-1:2017+A1:2020 **EN 55014-2:2015** **EN IEC 61000-3-2:2019** **EN 61000-3-3:2013+A1:2019**	**PASS**

Prepared By:

Leon Wu

Leon Wu

Reviewed By:

Tom Tang

Tom Tang

Authorized By:

Chris Zhong

Chris Zhong
Laboratory Leader

2 TEST METHODOLOGY

All tests were performed in accordance with the procedures documented EN 55014-1:2017+A11:2020, EN 55014-2:2015, EN IEC 61000-3-2:2019 and EN 61000-3-3:2013+A1:2019.

3 FACILITIES AND ACCREDITATION

Test Location	UL-CCIC Company Limited
Address	No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, China
Accreditation Certificate	A2LA (Certificate No.: 4829.01) UL-CCIC COMPANY LIMITED has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1247) UL-CCIC COMPANY LIMITED has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules. IC (IC Designation No.: 25056) UL-CCIC COMPANY LIMITED has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules.

Note 1: All tests measurement facilities use to collect the measurement data are located at No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, People's Republic of China

Note 2: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. These measurements below 30MHz had been correlated to measurements performed on an OFS.

Note 3: The test anechoic chamber in UL-CCIC COMPANY LIMITED had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

4 CALIBRATION AND UNCERTAINTY

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

4.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus

Test Item	Frequency Range	Measurement Uncertainty	U_{cispr}
Conducted Emission at mains port using AMN	9kHz-150kHz	3.5 dB	3.8 dB
Conducted Emission at mains port using AMN	150kHz-30MHz	3.1 dB	3.4 dB
Conducted Emission at telecommunication port using AAN	150kHz-30MHz	5.0 dB	5.0 dB
Radiated Emission	30MHz-1000MHz	2.5 dB	6.3 dB
Radiated Emission	1GHz-18GHz	3.3 dB	5.2 dB (1GHz-6GHz)
			5.5 dB (6GHz-18GHz)
Remark: AMN – Artificial Mains Network VP – Voltage Probe ANN – Asymmetric Artificial Network			

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5 EQUIPMENT UNDER TEST

5.1 DESCRIPTION FOR THE EUT

Product Name:	Robotic Vacuum Cleaner
Model No.:	S270RR
Description of EUT:	The EUT is a vacuum cleaner which contains a 2.4GHz band WiFi module. It can be used with Dock Charger or Auto-Empty Dock
Max operating frequency	＞108MHz
Test voltage:	AC 230V/50Hz
Rated Input:	Rated Input：20VDC，1.2A

5.2 TEST MODE

Mode 1	Keep EUT Charing via dock charger
Mode 2	Keep EUT Charging via Auto-Empty Dock
Mode 3	Keep EUT working in dust collection condition when use Auto-Empty Dock
Mode 4	Keep EUT working normally

5.3 DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Description
1	/	/	/	/

I/O PORT

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	AC power cable	/	/	120	N/A

ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	Dock Charger	roborock	CDZ11RR	Input:100-240VAC,50-60Hz, 28W; Output: 20V DC, 1.2A
2	Auto-Empty Dock	roborock	AED02HRR	Input:220-240VAC,50-60Hz, Rated input power for charging: 28W; Rate input power for dust collection: 1000W Output: 20V DC, 1.2A

5.4 MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI Test Receiver	R&S	ESR3	126700	2020-12-05	2021-12-04
2	LISN	R&S	ENV216	126701	2020-12-05	2021-12-04
3	LISN	AFJ Instruments	LS16C-10	127010	2020-12-05	2021-12-04
Software						
Item	**Description**	**Manufacturer**		**Name**		**Version**
1	Test Software for Conducted disturbance	R&S		EMC32		Ver. 9.25

Radiated Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI test receiver	R&S	ESR26	126703	2020-12-05	2021-12-04
2	Hybrid Antenna	SunAR RF Motion	JB1	177821	2019-01-28	2022-01-27
4	Horn Antenna	R&S	HF907	126705	2019-01-26	2022-01-25
5	Amplifier	R&S	SCU-18D	134667	2020-12-05	2021-12-04
Software						
Item	**Description**	**Manufacturer**		**Name**		**Version**
1	Test Software for Radiated Disturbance	Tonscend		TS+		Ver. 2.5

Harmonic &Flicker

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	Single phase Harmonic & Flicker test system	TESEQ	5001IX-CTS-400-SCH	126719	2020-12-05	2021-12-04
2	Power Source	TESEQ	5001IX-400-413-SCH	137616	2021-06-07	2022-06-05
Software						
Item	**Description**	**Manufacturer**		**Name**		**Version**
1	Test Software for Harmonics Current & Flicker analyzer	TESEQ		Win2001		Ver. 4.12.7

Electrostatic Discharge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	Electrostatic Discharge Simulator	TESEQ	NSG 437	137873	2021-11-01	2022-10-31

Radiated Immunity

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	Signal Generator	KEYSIGHT	N5171B	155387	2021-05-09	2022-05-08
2	Power Amplifier	BONN	BLWA0810-200/100	137597	2021-05-09	2022-05-08
	Power Amplifier	AMETEK	AS102-001	155390	2021-05-09	2022-05-08
	Power Amplifier	AMETEK	AS1860-100	155391	2021-05-09	2022-05-08
3	Power Meter	DARE	RPR2006C	138150	2021-05-09	2022-05-08
4	Isotropic Electric Field Probe	DARE	RSS1006A	137874	2021-05-09	2022-05-08
5	EMS Antenna	SCHWARZBECK	STLP9128D	137599	2017-06-17	--
6	EMS Antenna	SCHWARZBECK	STLP 9149	155388	2017-06-17	--
Software						
Item	**Description**		**Manufacturer**		**Name**	**Version**
1	Test Software for Radiated Immunity		Tonscend		TS+	Ver. 2.5

Electrical Fast Transients

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMS test generator	TESEQ	NSG3060	137601	2021-05-09	2022-05-08
2	EMS test coupling network	TESEQ	CDN3061	137605	2021-05-09	2022-05-08
3	EUT supply power	TESEQ	VAR3005	137606	2021-05-09	2022-05-08
4	EFT coupling clamp	TESEQ	CDN 3425	137607	2021-05-09	2022-05-08

Surge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMS test generator	TESEQ	NSG3060	137601	2021-05-09	2022-05-08
2	EMS test coupling network	TESEQ	CDN3061	137605	2021-05-09	2022-05-08
3	EUT supply power	TESEQ	VAR3005	137606	2021-05-09	2022-05-08
4	Coupling Decoupling Network for surge pulses	TESEQ	CDN118	137609	2021-05-09	2022-05-08

Conducted Immunity

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	CI test generator	TESEQ	NSG4070	137614	2021-05-09	2022-05-08
2	Coupling and Decoupling Network	TESEQ	CDN M016	137613	2021-05-09	2022-05-08
3	6dB Attenuator	TESEQ	ATN 6050	137615	2021-05-09	2022-05-08
4	CI coupling clamp	TESEQ	KEMZ 801A	137612	2021-05-09	2022-05-08
Software						
Item	**Description**		**Manufacturer**		**Name**	**Version**
1	Test Software for Conducted Immunity		TESEQ		NSG4070 Control Program	Ver. 1.2

Power Frequency Magnetic Field

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMS test generator	TESEQ	NSG3060	137601	2021-05-09	2022-05-08
2	EMS test coupling network	TESEQ	CDN3061	137605	2021-05-09	2022-05-08
3	EUT supply power	TESEQ	VAR3005	137606	2021-05-09	2022-05-08
4	Magnetic field generator	TESEQ	MFO6502	137610	2021-05-09	2022-05-08
5	Induction coil	TESEQ	INA 703	137611	2021-05-09	2022-05-08

Voltage Dips and Interruptions

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMS test generator	TESEQ	NSG3060	137601	2021-05-09	2022-05-08
2	EMS test coupling network	TESEQ	CDN3061	137605	2021-05-09	2022-05-08
3	EUT supply power	TESEQ	VAR3005	137606	2021-05-09	2022-05-08

6 ELECTROMAGNETIC COMPATIBILITY (EMC)

6.1 ELECTROMAGNETIC INTERFERENCE (EMI)

6.1.1 CONDUCTED EMISSION

Test Method:	EN 55014-1:2017+A11:2020
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)
	Quasi-Peak if maximized peak within 6dB of Quasi-Peak limit
EUT Operation:	
Test Mode:	Mode 1 to Mode 3
Test Status:	Pre-scan was performed with peak detected on all ports, Quasi-peak & average measurements were performed at the frequencies at which maximum peak emission level were detected. Please see the attached Quasi-peak and Average test results.
Limit:	(a.) General limits

Frequency range	Mains ports		Associated ports			
	Disturbance voltage		Disturbance voltage		Disturbance current	
1	2	3	4	5	6	7
MHz	Quasi-peak dBµV	Average dBµV	Quasi-peak dBµV	Average dBµV	Quasi-peak dBµA	Average dBµA
0,15 to 0,50	Decreasing linearly with the logarithm of the frequency from:		80	70	Decreasing linearly with the logarithm of the frequency from:	
	66 to 56	59 to 46			40 to 30	30 to 20
0,50 to 5	56	46	74	64	30	20
5 to 30	60	50	74	64		
The lower limit applies at the transition frequencies. The test report shall state which test method was used and which limits were applied.						

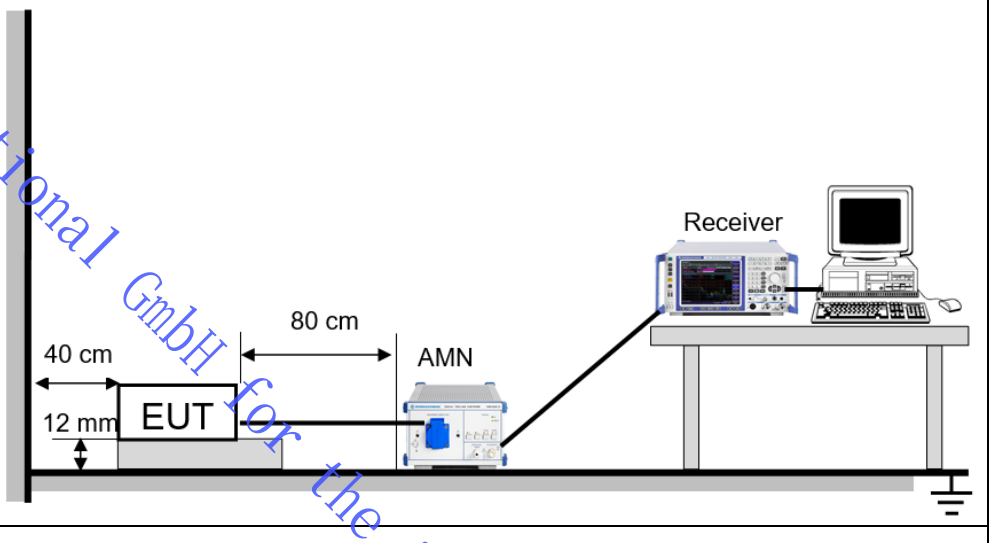
(b.) Limits for mains port of tools

Frequency range	$P \leq 700$ W		700 W < $P \leq 1\,000$ W		$P > 1\,000$ W	
1	2	3	4	5	6	7
MHz	Quasi-peak dBµV	Average dBµV	Quasi-peak dBµV	Average dBµV	Quasi-peak dBµV	Average dBµV
0,15 to 0,35	Decreasing linearly with the logarithm of the frequency from:					
	66 to 59	59 to 49	70 to 63	63 to 53	76 to 69	69 to 59
0,35 to 5	59	49	63	53	69	59
5 to 30	64	54	68	58	74	64
The lower limit applies at the transition frequencies. **Key** P = rated power of the motor only.						

(c.) limits for induction cooking appliances

Frequency range	Appliances which are 100 V rated and without an earth connection		All other appliances	
MHz	dBµV Quasi-peak	dBµV Average	dBµV Quasi-peak	dBµV Average
0,009 to 0,050	122	–	110	–
0,050 to 0,150	Decreasing linearly with logarithm of frequency from 102 to 92	–	Decreasing linearly with logarithm of frequency from 90 to 80	–
0,150 to 0,5	Decreasing linearly with logarithm of frequency from			
	72 to 62	62 to 52	66 to 56	56 to 46
0,5 to 5	56	46	56	46
5 to 30	60	50	60	50
The lower limit applies at the transition frequencies.				

Test Setup:



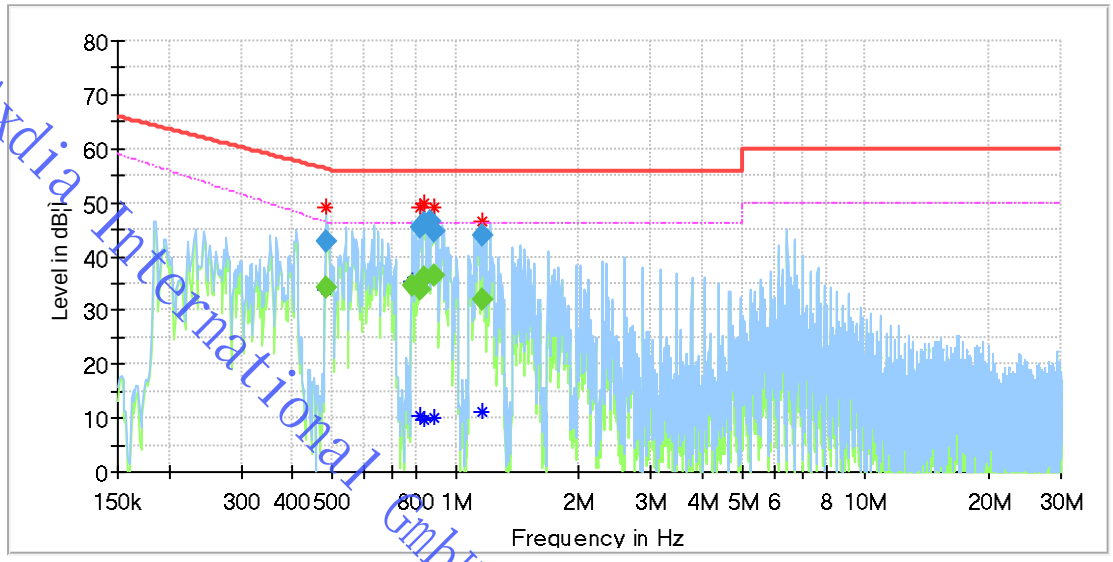
Test Procedure:

1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50µH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

Test Environment	Temperature:	21.3℃
	Humidity:	58.1%
	ATM pressure:	1020 mbar
	Test Date:	11/26/2021

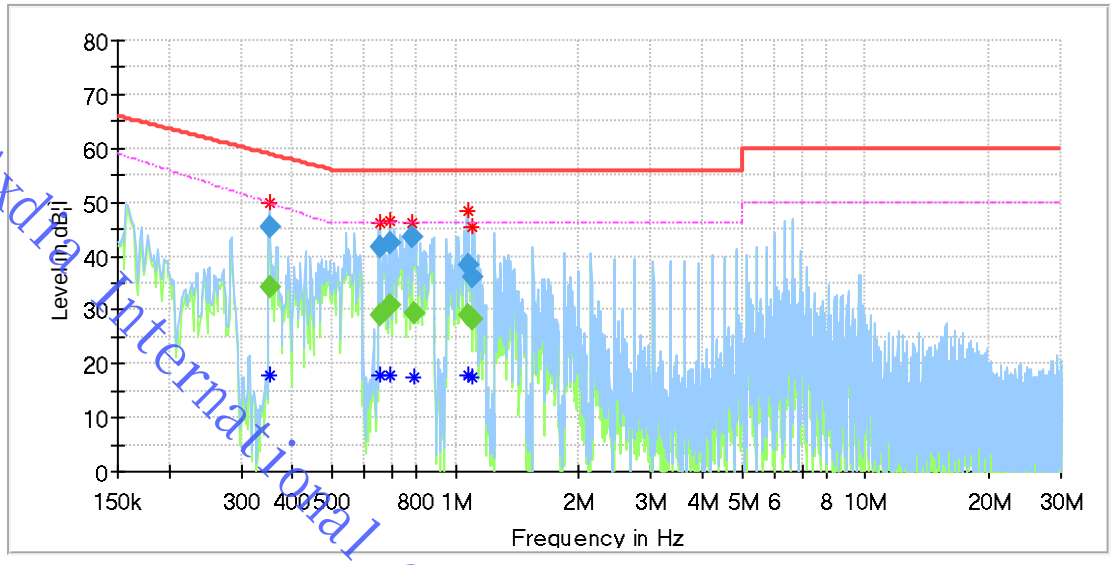
Measurement Data

Test Mode	Phase:	Verdict
Mode 3 (worst case)	L	PASS



Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.482828	---	34.40	46.38	11.98	1000.0	9.000	L1	OFF	9.7
0.482828	42.82	---	56.29	13.47	1000.0	9.000	L1	OFF	9.7
0.782820	---	34.77	46.00	11.23	1000.0	9.000	L1	OFF	9.6
0.817148	---	33.96	46.00	12.04	1000.0	9.000	L1	OFF	9.6
0.817148	45.35	---	56.00	10.65	1000.0	9.000	L1	OFF	9.6
0.841028	46.07	---	56.00	9.93	1000.0	9.000	L1	OFF	9.6
0.841028	---	36.22	46.00	9.78	1000.0	9.000	L1	OFF	9.6
0.864908	46.57	---	56.00	9.43	1000.0	9.000	L1	OFF	9.7
0.890280	44.61	---	56.00	11.39	1000.0	9.000	L1	OFF	9.7
0.890280	---	36.56	46.00	9.44	1000.0	9.000	L1	OFF	9.7
1.167885	---	32.17	46.00	13.83	1000.0	9.000	L1	OFF	9.7
1.167885	43.97	---	56.00	12.03	1000.0	9.000	L1	OFF	9.7

Test Mode	Phase:	Verdict
Mode 3 (worst case)	N	PASS



Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.351488	---	34.17	49.81	15.63	1000.0	9.000	N	OFF	9.5
0.351488	45.56	---	58.93	13.37	1000.0	9.000	N	OFF	9.5
0.654465	---	29.00	46.00	17.00	1000.0	9.000	N	OFF	9.6
0.654465	41.71	---	56.00	14.29	1000.0	9.000	N	OFF	9.6
0.690285	---	30.97	46.00	15.03	1000.0	9.000	N	OFF	9.7
0.690285	42.28	---	56.00	13.72	1000.0	9.000	N	OFF	9.7
0.785805	43.70	---	56.00	12.30	1000.0	9.000	N	OFF	9.6
0.796253	---	29.53	46.00	16.47	1000.0	9.000	N	OFF	9.6
1.069380	38.50	---	56.00	17.50	1000.0	9.000	N	OFF	9.6
1.069380	---	29.16	46.00	16.84	1000.0	9.000	N	OFF	9.6
1.096245	---	28.22	46.00	17.78	1000.0	9.000	N	OFF	9.6
1.096245	36.22	---	56.00	19.78	1000.0	9.000	N	OFF	9.6

6.1.2 DISCONTINUOUS DISTURBANCES (CLICKS)

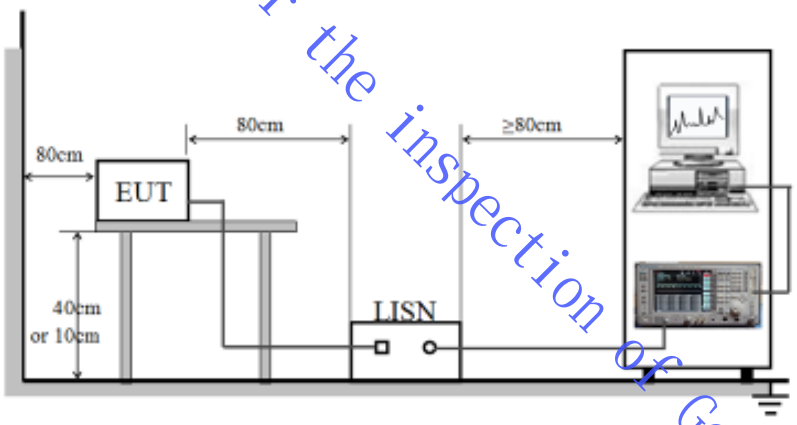
Test Method:	EN 55014-1:2017+A11:2020
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)
	Quasi-Peak if maximized peak within 6dB of Quasi-Peak limit
EUT Operation:	
Test Mode:	Mode 1 to Mode 3
Test Status:	Pre-scan was performed with peak detected on all ports, Quasi-peak & average measurements were performed at the frequencies at which maximum peak emission level were detected. Please see the attached Quasi-peak and Average test results.

Limit:

Provision	Limit Click Rate (N)		
1	All clicks < 20 ms	90 % click < 10 ms	N≤5
2	N ≤ 0,2	L_q [b] = L^a + 44	Clicks [c] ≤ 25% exceed L_q [b]
3	30 ≥ N > 0,2	L_q [b] = L^a + 20 lg(30/N)	Clicks [c] ≤ 25% exceed L_q [b]

a The limits L of Conducted Emissions apply also to discontinuous disturbances from all equipment which produce:
1) disturbances other than clicks, or
2) clicks with a click rate N equal to or greater than 30
b The relevant limit Lq for continuous disturbance, as given in 4.1.1 for the measurement with the quasi-peak detector, increased by a certain value determined from the click rate N (see also 4.2.2.2)
The click limit applies to the disturbance assessed according to the upper quartile method
c a quarter of the number of the clicks registered during the observation time T is allowed to exceed the click limit Lq

Test Setup:



Test Procedure:

1) The EUT was placed on a 0.4m high insulation material table in shielded room, the ground of shielded room used as Ground Reference Plane (GRP), and keeps a distance of at least 0.8m from any of the other metallic surface.
2) The EUT was connected to an artificial mains network and at a distance of 0.8m from it, the excess lead of EUT was bundled with a length of 0.3m to 0.4m parallel to the main lead.
3) The number of counted clicks above the permitted limit for continuous interference and their duration, spacing and rate were measured during the observation time. When relevant, permitted (relaxed) limits for clicks were calculated and a second measurement was performed. Determination of compliance with the permitted limit according to the upper quartile method.

Test Environment	Temperature: / Humidity: / ATM pressure: / Test Date: /

Test Results

N/A

6.1.3 RADIATED EMISSION

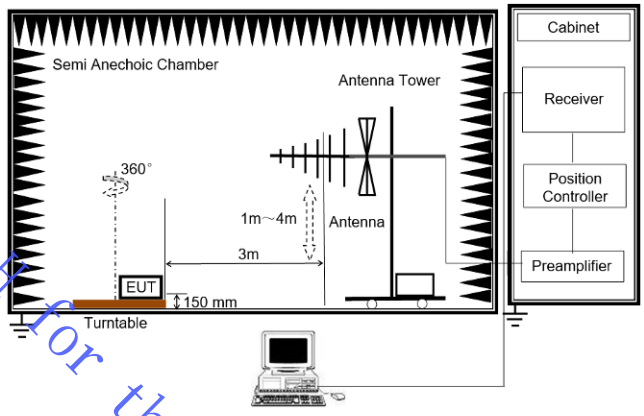
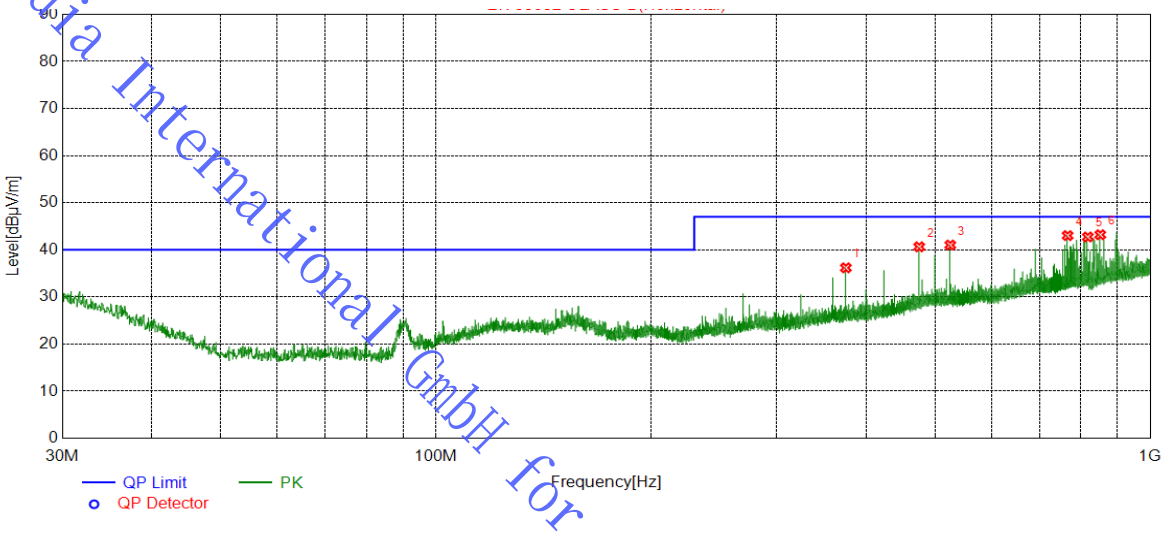
<table>
<tr><td>Test Method:</td><td>EN 55014-1:2017+A11:2020</td></tr>
<tr><td>EUT Operation:</td><td></td></tr>
<tr><td>Test Status:</td><td>Pre-scan was performed with peak detected, Quasi-peak measurements was performed at the frequencies at which maximum peak emission level were detected.</td></tr>
<tr><td>Receive Setup:</td><td>
<table>
<tr><td>Frequency range (MHz)</td><td>Detector</td><td>RBW</td><td>VBW</td></tr>
<tr><td>30-1000</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit(@3m)</th><th>Remark</th></tr>
<tr><td>30MHz-230MHz</td><td>40dBuV/m</td><td>QP value</td></tr>
<tr><td>230MHz-1GHz</td><td>47dBuV/m</td><td>QP value</td></tr>
</table>
</td></tr>
<tr><td>Test Setup:</td><td> 

Figure 1. 30MHz to 1GHz</td></tr>
<tr><td>Test Procedure:</td><td>1. From 30 MHz to1GHz test procedure as below:
1) The radiated emissions were tested in a semi-anechoic chamber.
2) The EUT is placed on a turntable, which is 0.8m above ground plane.
3) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4) EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
5) Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6) And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7) Repeat above procedures until the measurements for all frequencies are complete.</td></tr>
</table>

Measurement Data:

30MHz ~ 1000MHz

Temperature:	21.2℃
Humidity:	53.1%
ATM pressure:	1019 mbar
Test Date:	11/24/2021
Test Mode:	Mode 4 (worst case)
Polarization:	Horizontal

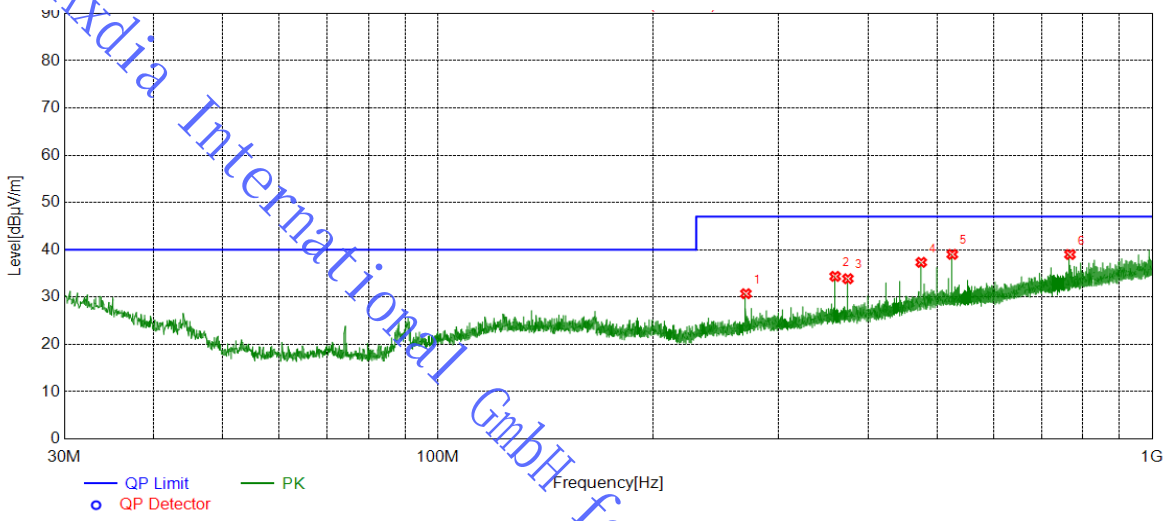


NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector
1	374.9978	13.88	22.31	36.19	47.00	10.81	Peak
2	475.0098	15.60	25.05	40.65	47.00	6.35	Peak
3	525.0158	15.05	25.97	41.02	47.00	5.98	Peak
4	766.3638	13.63	29.40	43.03	47.00	3.97	Peak
5	817.8734	12.66	30.08	42.74	47.00	4.26	Peak
6	851.3401	12.73	30.48	43.21	47.00	3.79	Peak

Note: 1. Result Level = Reading Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

30MHz ~ 1000MHz

Temperature:	21.2℃
Humidity:	53.1%
ATM pressure:	1019 mbar
Test Date:	11/24/2021
Test Mode:	Mode 4 (worst case)
Polarization:	Vertical



NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector
1	269.9900	10.92	19.80	30.72	47.00	16.28	Peak
2	359.9620	12.42	21.96	34.38	47.00	12.62	Peak
3	374.9978	11.58	22.31	33.89	47.00	13.11	Peak
4	475.0098	12.30	25.05	37.35	47.00	9.65	Peak
5	525.0158	13.07	25.97	39.04	47.00	7.96	Peak
6	767.2369	9.61	29.40	39.01	47.00	7.99	Peak

Note: 1. Result Level = Reading Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

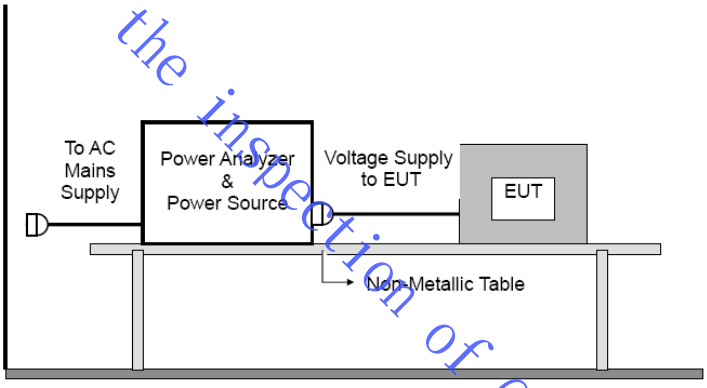
6.1.4 HARMONIC EMISSION

Test Method:	EN IEC 61000-3-2:2019
EUT Operation:	
Test Mode:	Mode 1 to Mode 3
Class/Severity:	Class A

Limits:

Harmonic order n	Maximum permissible harmonic current A
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
15≤n≤39	0.15*15/n
Even harmonics	
2	1.08
4	0.43
6	0.30
8≤n≤40	0.23*8/n

Test Setup:



1. Measurements were made in a draught-free atmosphere and at an ambient temperature within the range from 20 °C to 27 °C. During measurement the temperature was not vary by more than 1 K.
2. Lamps was aged for at least 100 hat rated voltage. They were operated for at least 15 min before a series of measurements is made. During ageing and measurement, lamps were installed as in normal use.
3. The measurements were carried out under steady conditions. When a piece of EUT is brought into operation or is taken out of operation, manually or automatically, harmonic currents and power are not taken into account at first 10s following the switching event. EUT shall not be in standby mode for more than 10% of any observation period.

	4. Harmonics of the fundamental current were measured using a digital power meter with an analogue output and frequency analyser which was integrated in the harmonic & flicker test system. 5. For each harmonic order, measure the 1,5 s smoothed r.m.s. harmonic current in each DFT time window and calculate the arithmetic average of the measured values from the DFT time windows, over the entire observation period. Each harmonic order, all 1.5 s smoothed r.m.s. harmonic current values and the average values for the individual harmonic currents, taken over the entire test observation period shall be less than or equal to the applicable limits.
Test Environment:	Temperature: 21.4℃ Humidity: 65.2% ATM pressure: 1026 mbar Test Date: 11/28/2021

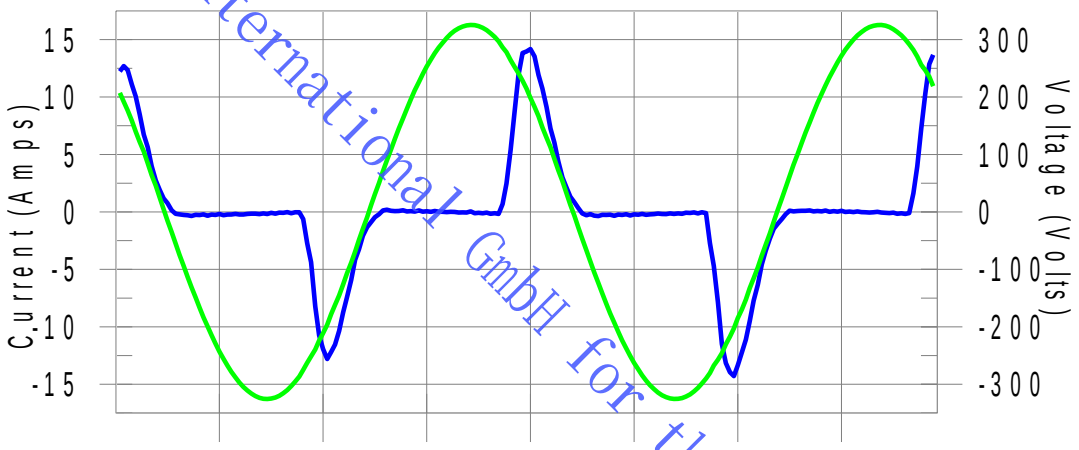
Measurement Data:

Mode 3 (worst case)

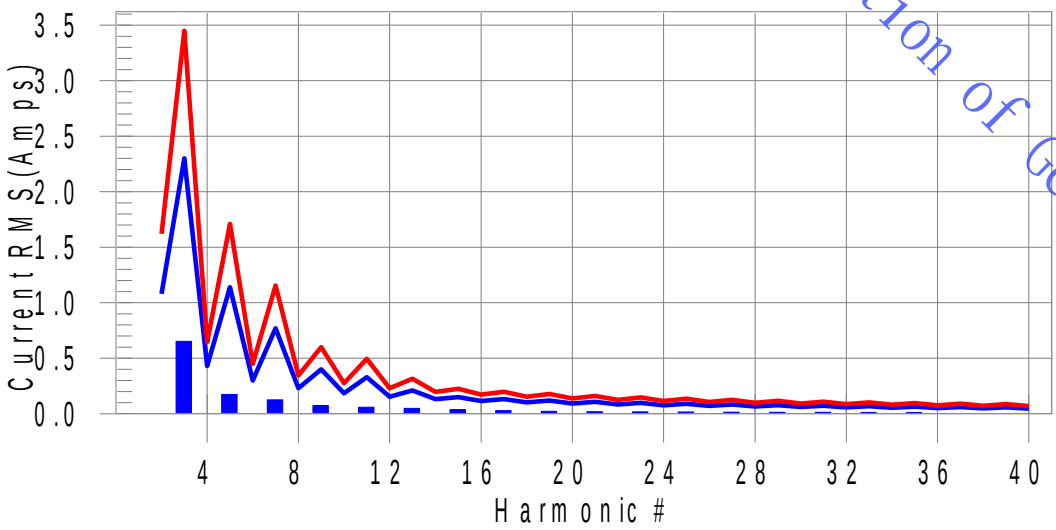
EUT: S270RR **Tested by: Leon**
Test category: Class-A per Ed. 4.0 (2014) (European limits) **Test Margin: 100**
Test date: 2021/11/28 **Start time: 14:33:32** **End time: 14:36:13**
Test duration (min): 2.5 **Data file name: H-000597.cts_data**
Comment: Comments
Customer: Customer

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H5-59.5% of 150% limit, H3-28.4% of 100% limit

Current Test Result Summary (Run time)

EUT: S270RR **Tested by: Leon**
Test category: Class-A per Ed. 4.0 (2014) (European limits) **Test Margin: 100**
Test date: 2021/11/28 **Start time: 14:33:32** **End time: 14:36:13**
Test duration (min): 2.5 **Data file name: H-000597.cts_data**
Comment: Comments
Customer: Customer

Test Result: Pass **Source qualification: Normal**
THC(A): 0.698 **I-THD(%): 40.2** **POHC(A): 0.043** **POHC Limit(A): 0.251**

Highest parameter values during test:

V_RMS (Volts):	230.23	Frequency(Hz):	50.00
I_Peak (Amps):	14.557	I_RMS (Amps):	5.191
I_Fund (Amps):	3.441	Crest Factor:	6.598
Power (Watts):	939.5	Power Factor:	0.940

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.003	1.080	N/A	0.044	1.620	N/A	Pass
3	0.652	2.300	28.4	1.949	3.450	56.5	Pass
4	0.003	0.430	N/A	0.040	0.645	N/A	Pass
5	0.174	1.140	15.3	1.017	1.710	59.5	Pass
6	0.002	0.300	N/A	0.032	0.450	N/A	Pass
7	0.125	0.770	16.3	0.527	1.155	45.7	Pass
8	0.001	0.230	N/A	0.023	0.345	N/A	Pass
9	0.074	0.400	18.6	0.280	0.600	46.7	Pass
10	0.001	0.184	N/A	0.018	0.276	N/A	Pass
11	0.059	0.330	17.8	0.167	0.495	33.7	Pass
12	0.001	0.153	N/A	0.014	0.230	N/A	Pass
13	0.048	0.210	22.9	0.100	0.315	31.7	Pass
14	0.001	0.131	N/A	0.011	0.197	N/A	Pass
15	0.038	0.150	25.2	0.061	0.225	26.9	Pass
16	0.001	0.115	N/A	0.006	0.173	N/A	Pass
17	0.029	0.132	21.7	0.037	0.198	18.6	Pass
18	0.001	0.102	N/A	0.005	0.153	N/A	Pass
19	0.022	0.118	18.8	0.027	0.178	15.1	Pass
20	0.001	0.092	N/A	0.006	0.138	N/A	Pass
21	0.019	0.107	17.3	0.028	0.161	17.2	Pass
22	0.001	0.084	N/A	0.006	0.125	N/A	Pass
23	0.017	0.098	17.2	0.027	0.147	18.6	Pass
24	0.001	0.077	N/A	0.004	0.115	N/A	Pass
25	0.016	0.090	17.4	0.026	0.135	19.0	Pass
26	0.001	0.071	N/A	0.004	0.107	N/A	Pass
27	0.014	0.083	17.0	0.020	0.125	16.0	Pass
28	0.001	0.066	N/A	0.005	0.099	N/A	Pass
29	0.013	0.078	17.2	0.020	0.116	17.1	Pass
30	0.001	0.061	N/A	0.004	0.092	N/A	Pass
31	0.013	0.073	17.9	0.018	0.109	16.9	Pass
32	0.001	0.058	N/A	0.003	0.086	N/A	Pass
33	0.012	0.068	17.8	0.019	0.102	18.2	Pass
34	0.001	0.054	N/A	0.002	0.081	N/A	Pass
35	0.010	0.064	16.2	0.015	0.096	16.1	Pass
36	0.001	0.051	N/A	0.003	0.077	N/A	Pass
37	0.009	0.061	14.5	0.015	0.091	16.1	Pass
38	0.001	0.048	N/A	0.004	0.073	N/A	Pass
39	0.008	0.058	13.5	0.014	0.087	16.1	Pass
40	0.001	0.046	N/A	0.003	0.069	N/A	Pass

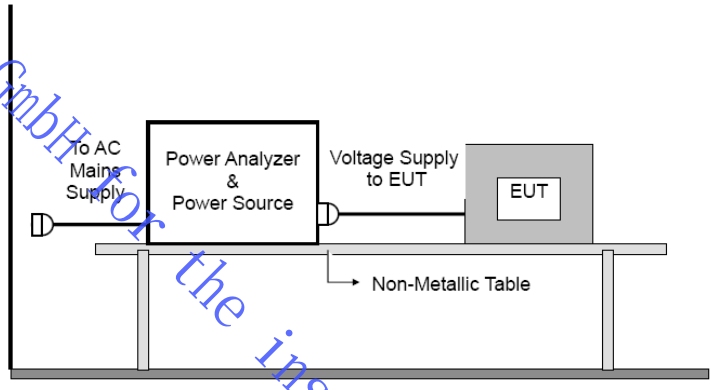
6.1.5 FLICKER TEST

Test Method:	EN 61000-3-3:2013+A1:2019
EUT Operation:	
Test Mode:	Mode 1 to Mode 3

Limits:

Test items	Limits(EN61000-3-3)	Descriptions
P_{st}	≤1.0, T_p=10min	short-term flicker indicator
P_{lt}	≤0.65, T_p=2h	long-term flicker indicator
Tmax	≤3.3%	relative voltage change characteristic
d_c	≤3.3%	relative steady-state voltage change
d_{max}	≤4%(or 6%Note(1), 7% Note(2))	maximum relative voltage change:
$d_{(t)}$	≤3.3%, more than 500ms	relative voltage change characteristic

Test Setup:



1. The test supply voltage (open-circuit voltage) was the rated voltage of the EUT. The Test voltage: was maintained within ±2 % of the nominal value. The frequency was 50 Hz ±0.5 %.
2. The voltage fluctuations and flicker were measured at the supply terminals of the EUT.
3. The observation period, Tp, for the assessment of flicker values by flicker measurement, flicker simulation, or analytical method was:
   — for Pst, Tp = 10 min;
   — for Plt, Tp = 2 h.

The observation period included that part of the whole operation cycle in which the EUT produces the most unfavorable sequence of voltage changes.

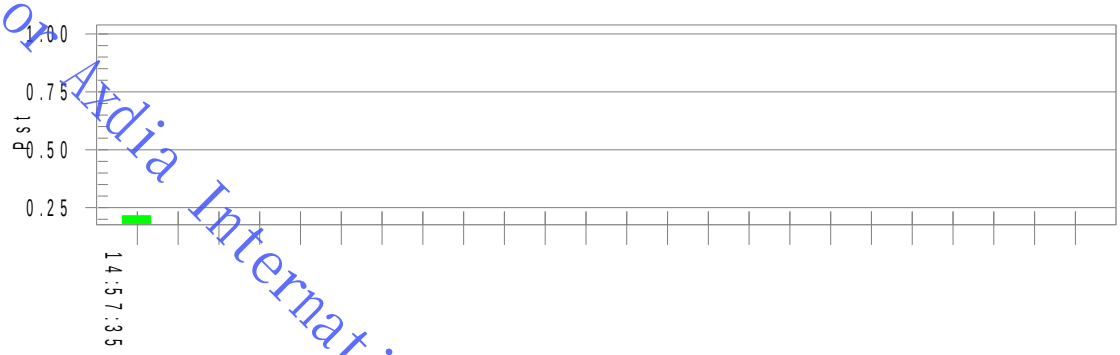
Test Environment

Temperature:	21.4℃
Humidity:	65.2%
ATM pressure:	1026 mbar
Test Date:	11/28/2021

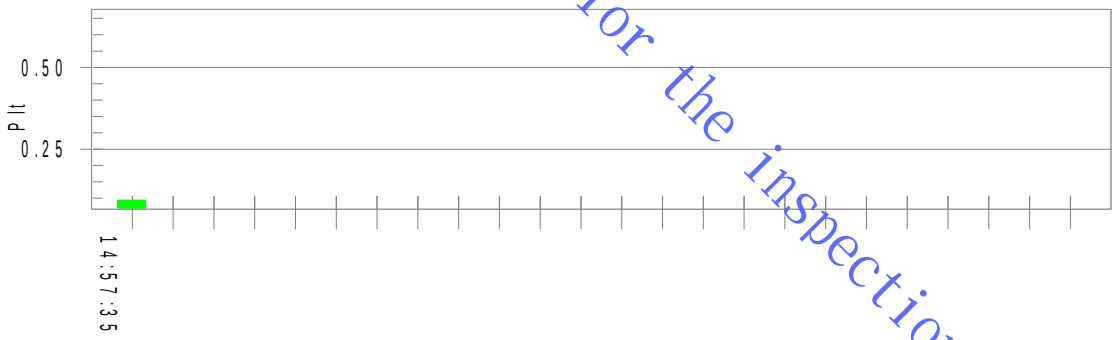
Measurement Data:

Test Mode	Verdict
Mode 3 (worst case)	PASS

Pst_i and limit line **European Limits**



Plt and limit line



Parameter values recorded during the test:

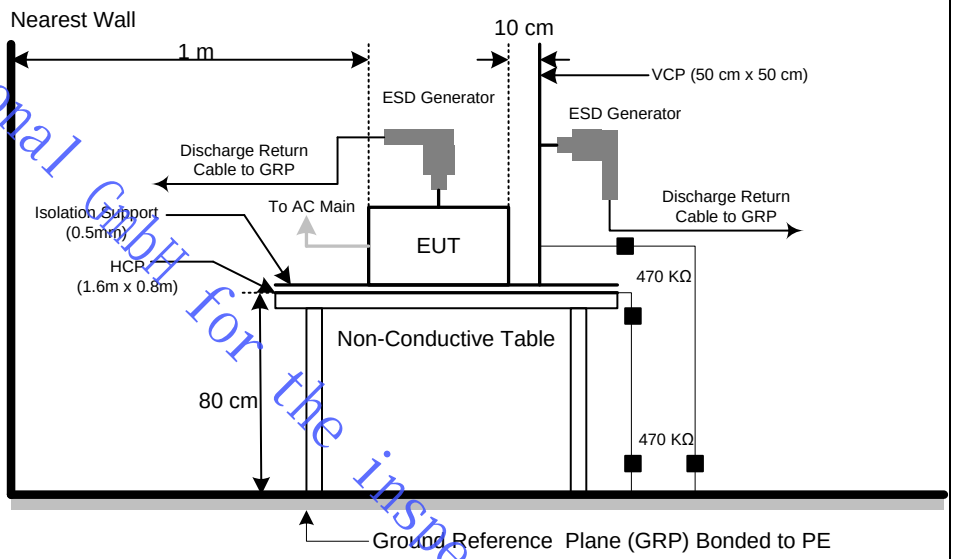
Vrms at the end of test (Volt):	**230.22**			
Highest dt (%):	**0.00**	**Test limit (%):**	**N/A**	**N/A**
T-max (mS):	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.00**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.215**	**Test limit:**	**1.000**	**Pass**
Highest Plt (2 hr. period):	**0.094**	**Test limit:**	**0.650**	**Pass**

6.2 ELECTROMAGNETIC SUSCEPTIBILITY (IMMUNITY)

According to EN 55014-2:2015 standard, the general performance criteria as following:

Criterion A:
The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
Criterion B:
The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however no change of actual operating state or stored data is allowed to persist after the test. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation,
Criterion C:
Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

6.2.1 ELECTROSTATIC DISCHARGE (ESD)

Test Method:	EN 61000-4-2 :2009
EUT Operation:	
Test Mode:	Mode 1 to Mode 4
Criterion Required:	B
Discharge Impedance:	330 Ω / 150 pF
Polarity:	Positive & Negative
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum
Equipment Used:	Refer to section 5 for details.
Test Setup:	 Test set-up for tabletop equipment
Test Procedure:	1) Contact discharges to the conductive surfaces and to coupling planes: Air discharge at slots and apertures, and insulating surfaces: On those parts of the EUT where it was not possible to perform contact discharge testing, the equipment was investigated to identify user accessible points where breakdown may occur. This investigation was restricted to those areas normally handled by the user. The application of electrostatic discharges to the contacts of open connectors was not required by this standard. 2) The EUT was put on a 0.8m high wooden table for table-top equipment or 0.1m high for floor standing equipment standing on the ground reference plane (GRP). 3) A horizontal coupling plane(HCP) 1.6m by 0.8m in size was placed on the table, and the EUT with its cables were isolated from the HCP by an insulating support thick than 0.5mm. The VCP 0.5m by 0.5m in size & HCP were constructed from the same material type & think mess as that of the GRP, and connected to the GRP via a 470kΩ resistor at each end. The distance between EUT and any of the other metallic surfaces excepted the

	GRP, HCP and VCP was greater than 1m. 4) During the contact discharges, the tip of the discharge electrode was touch the EUT before the discharge switch is operated. During the air discharges, the round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. 5) After each discharge, the ESD generator was removed from the EUT, the generator was then retriggered for a new single discharge. For ungrounded product, a discharge cable with two resistances was used after each discharge to remove remnant electrostatic voltage. 10 times of each polarity single discharge were applied to HCP and VCP.
Test Results:	
Observations:	Test Point: 1. All insulated part of indicator lights and seams. 2. All accessible metal parts of the enclosure. 3. All sides.
Test Environment	Temperature: 21.4℃ Humidity: 56.7% ATM pressure: 1025 mbar Test Date: 11/28/2021

Test Results:

Direct Application				Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Point	Test Mode	Contact Discharge	Air Discharge
8	+/-	1	Mode 1 to Mode 4	N/A	A
4	+/-	2		A	N/A

Indirect Application Test Results

Indirect Application				Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Point	Test Mode	Horizontal Coupling	Vertical Coupling
4	+/-	3	Mode 1 to Mode 4	A	A

Results: Pass

A: No loss of function.
Test phenomenon description for the EUT:
1. The EUT working is normal, Before the conditioning.
2. No any change in status of the EUT was observed, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.
N/A: Not Applicable (not required by Standard).

6.2.2 RADIATED IMMUNITY

Test Method:	EN IEC 61000-4-3:2020
EUT Operation:	
Test Mode:	Mode 1 to Mode 4
Criterion Required:	A
Test Setup:	

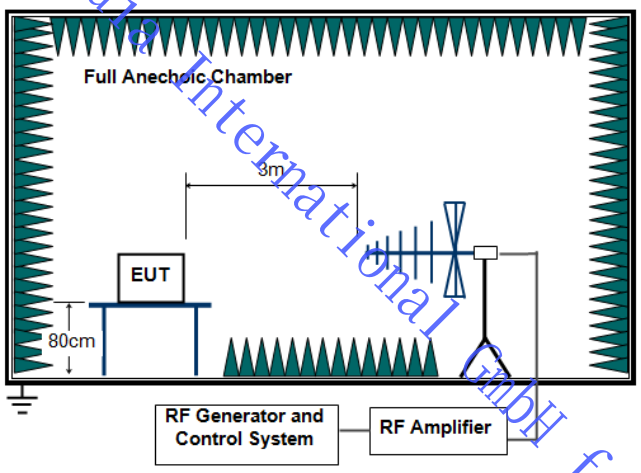
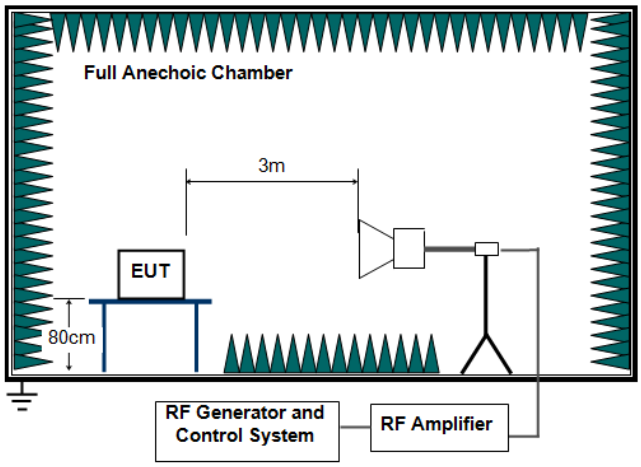


Figure 1. 80MHz to 1GHz ,



1GHz to 6GHz

Test Procedure:

1) For table-top equipment, the EUT was placed in the chamber on a non-conductive table 0.8m high. For arrangement of floor-standing equipment, the EUT was mounted on a non-conductive support 0.1m above the supporting plane. For human body-mounted equipment, the EUT may be tested in the same manner as table top items.
2) If possible, a minimum of 1 m of cable is exposed to the electromagnetic field. Excess length of cables interconnecting units of the EUT shall be bundled low-inductively in the approximate center of the cable to form a bundle 30 cm to 40 cm in length.
3) The EUT was initially placed with one face coincident with the calibration plane. The EUT face being illuminated was contained within the UFA (Uniform Field Area).
4) The frequency ranges to be considered were swept with the signal modulated and pausing to adjust the RF signal level or to switch oscillators and antennas as necessary. Where the frequency range was swept incrementally, the step size was not exceed 1% of the preceding frequency value.
5) The dwell time of the amplitude modulated carrier at each frequency was not be less than the time necessary for the EUT to be exercised and to respond, and was not less than 0.5s.
6) The test normally was performed with the generating antenna facing each side of the EUT.
7) The polarization of the field generated by each antenna necessitates testing each selected side twice, once with the antenna positioned vertically and again with the antenna positioned horizontally.
8) The EUT was performed in a configuration to actual installation conditions, a video camera, test data and/or an audio monitor were used to monitor the

	performance of the EUT.
Test Environment	Temperature: 21.1℃ Humidity: 54.8% ATM pressure: 1025 mbar Test Date: 11/28/2021

Test Results:

Frequency	Level	Modulation	Dwell Time	Test Mode	Antenna Polarization	EUT Face	Result / Observations
80MHz-1GHz	3 V/m	1 kHz, 80% Am, 1 % step increment	3s	Mode 1 to Mode 4	V	Front	A
					H		A
					V	Rear	A
					H		A
					V	Left	A
					H		A
					V	Right	A
					H		A

Results: Pass

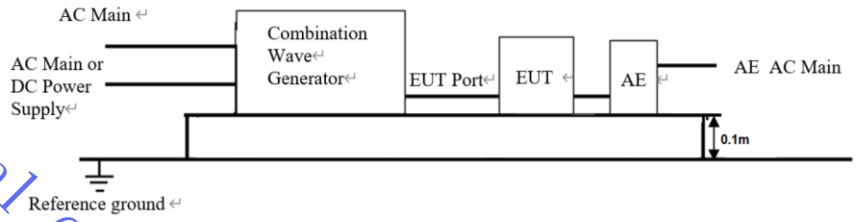
A: No loss of function.

Note:

Test phenomenon description for the EUT:

1. The EUT working is normal, Before the conditioning.
2. No any change in status of the EUT was observed, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

6.2.3 ELECTRICAL FAST TRANSIENTS (EFT)

Test Method:	IEC 61000-4-4:2012, EN 61000-4-4:2012
Test Level:	± 1.0kV on AC port ± 0.5kV on signal port
Polarity:	Positive & Negative
Repetition Frequency:	5 kHz
Burst Period:	300ms
Test Duration:	2 minutes per level & polarity
EUT Operation:	
Test Mode:	Mode 1 to Mode 3
Test Setup:	
Test Procedure:	1) The EUT was placed on a ground reference plane(GRP) insulated by an insulating support 0.1m thick and the GRP was placed on a 0.8m high wooden table for table-top equipment. For floor standing equipment, the EUT was placed on a 0.1m high wooden support above the GRP. 2) The GRP shall project beyond the EUT and the clamp by at least 0.1m on all sides. The distance between the EUT and any other of the metallic surface except the GRP was greater than 0.5m. All cables to the EUT was placed on the insulation support 0.1m above GRP. A cable not subject to EFT was routed as far as possible from cable under test to minimize the coupling between the cables. 3) The length of signal and power cable between the EUT and EFT generator was 0.5m. If the cable is a non-detachable supply cable more than 0.5m, the excess length of this cable shall be folded to avoid a flat coil and situated at a distance of 0.1m above the GRP. 4) The EUT was conducted the below specified test voltages for line and neutral or line, neutral and earth simultaneously (for telecommunication, single, control and DC port line with capacitive coupling clamp), 120 seconds duration. If the equipment contains identical ports, only one was tested; multicomputer cables, such as a 50-pair telecommunication cable, were tested as a single cable. Cables did not be split or divided into groups of conductors for this test; interface ports, which were intended by the manufacturer to be connected to data cables not longer than 3 m, did not be tested.
Test Environment	Temperature: 21.3℃ Humidity: 65.2% ATM pressure: 1026 mbar Test Date: 11/28/2021

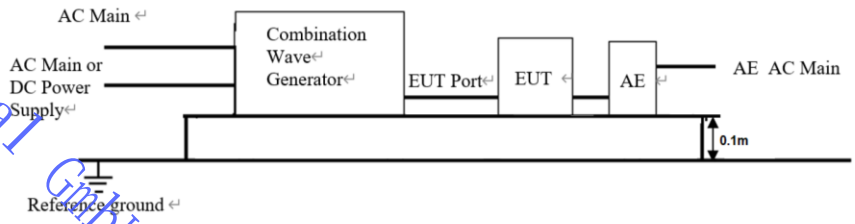
Test Results:

Lead under Test	Level (±kV)	Coupling Direct/Clamp	Test mode	OBSERVATIONS (PERFORMANCE CRITERION)
AC Power Port	1.0	Direct	Mode 1 to Mode 3	A

Results: Pass

Note:
A: No loss of function.
Test phenomenon description for the EUT:
1. The EUT working is normal. Before the conditioning.
2. No any change in status of the EUT was observed, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

6.2.4 SURGE IMMUNITY

Test Method:	EN 61000-4-5:2014+A1:2017
Test Level:	± 1.0 kV Line to Line ± 2.0 kV Line to Earth
Criterion Required:	B
Polarity:	Positive & Negative
Interval:	60s between each surge
No. of Surges:	5 positive at 0°, 5 negative at 90°
EUT Operation:	
Test Mode:	Mode 1 to Mode 3
Test Setup:	 For AC port
Test Procedure:	1) The EUT was placed on a ground reference plane(GRP) insulated by an insulating support 0.1 m thick and the GRP was placed on a 0.8m high wooden table for table-top equipment. For floor standing equipment, the EUT was placed on a 0.1m high wooden support above the GRP. 2) The 1.2/50 µs surge was to be applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks were required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines and to provide sufficient decoupling impedance to the surge wave so that the specified wave may be applied on the lines under test. 3) The power cord between the EUT and the coupling/decoupling network was not exceed 2 m in length. The interconnection line between the EUT and the coupling/ decoupling network shall not exceed 2 m in length. 4) The EUT was conducted 0.5 kV and 1 kV test voltage for line to line and line to neutral and conducted 0.5 kV, 1 kV and 2 kV test voltage for line to earth and neutral to earth, five positive pulses and five negative pulses each at 0°, 90°, 180° and 270° for a.c. power ports and five positive pulses and five negative surge pulses for d.c. power ports (for telecommunication port, It was 0.5 kV for indoor cable longer than 10m line to ground and 0.5kV,1kV test voltage for outdoor cable line to ground, five positive pulses and five negative surge pulses), The test levels were applied on the EUT with a 2 Ω generator source impedance for power supply terminals and 40Ω output impedance for interconnection lines. The tests were done at repetition rate one per minute.

Test Environment	Temperature:	21.3℃
	Humidity:	65.2%
	ATM pressure:	1026 mbar
	Test Date:	11/28/2021

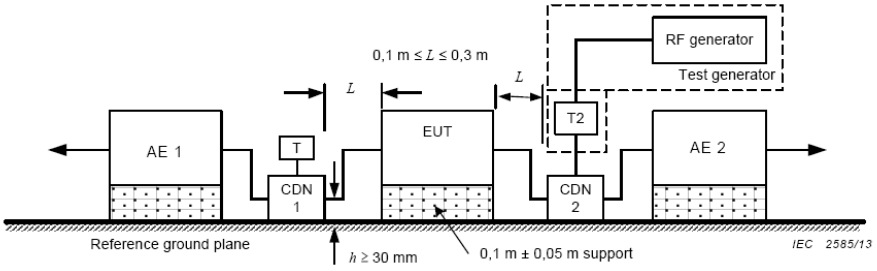
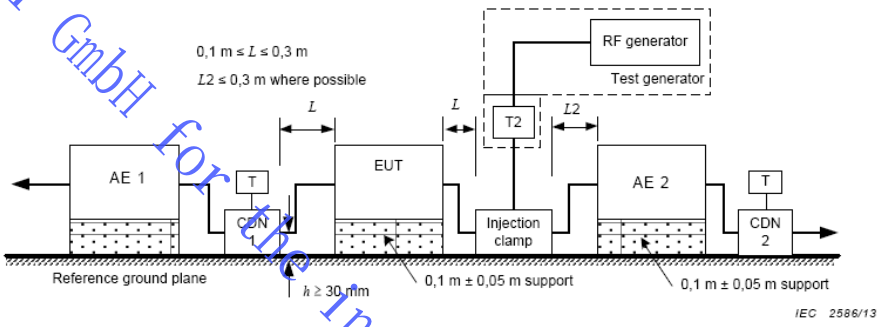
Test Results:

Pulse No	Line-Line	Level (kV)	Surge Interval	Phase (deg)	Test Mode	Observation (Performance Criterion)
1–5	L-N	+ 1	60 s	90°	Mode 1 to Mode 3	A
6–10	L-N	- 1	60 s	270°		A

Results: Pass

Note:
A: No loss of function.
Test phenomenon description for the EUT:
1. The EUT working is normal, before the conditioning.
2. No any change in status of the EUT was observed, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

6.2.5 CONDUCTED IMMUNITY

Test Method:	EN 61000-4-6:2014
Criterion Required:	A
EUT Operation:	
Test Mode:	Mode 1 to Mode 3
Test Setup:	 **Schematic setup for immunity test used for CDN**  **Schematic setup for immunity test used for injection clamp** T Termination 50 Ω T2 Power attenuator (6 dB) CDN Coupling and decoupling network Injection clamp: Current clamp or EM clamp
Test Procedure:	1) The EUT was placed on an insulating support of 0.1m height above a ground reference Plane, arranged and connected to satisfy its functional requirement. All cables exiting the EUT was supported at a height of at least 30 mm above the ground reference plane. 2) The coupling and decoupling devices were required; they were located between 0.1m and 0.3m from the EUT. This distance was to be measured horizontally from the projection of the EUT on to the ground reference plane to the coupling and decoupling device. 3) Each AE, used with clamp injection, shall be placed on an insulating support 0.1m above the ground reference plane. A decoupling network shall be installed on each cable between the EUT and AE except the cable under test. All cables connected to each AE, other than those being connected to the EUT, shall be provided with decoupling networks. The decoupling networks connected to each AE (except those on cables between the EUT and AE) shall be applied no further than 0.3m from the AE. The cable(s) between the AE and the decoupling network (s) or in between the AE and

	the injection clamp shall not be bundled nor wrapped and shall be kept between 30mm and 50mm above the ground reference plane. 4) The frequency range was swept from 150 kHz to 80MHz, using the signal levels established during the setting process, and with the disturbance signal 80 % amplitude modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or to change coupling devices as necessary. Where the frequency was swept incrementally, the step size does not exceed 1% of the preceding frequency value. The dwell time of the amplitude modulated carrier at each frequency was not less than the time necessary for the EUT to be exercised and to respond, and was not less than 0.5 s.
Test Environment	Temperature: 21.3℃ Humidity: 65.3% ATM pressure: 1026 mbar Test Date: 11/28/2021

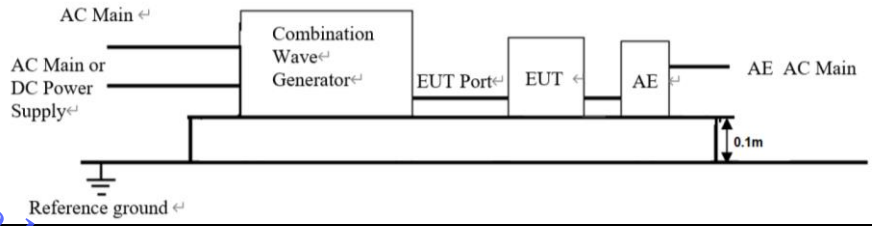
Test Results:

Frequency	Line	Test Level	Modulation	Step Size	Dwell Time	Test Mode	Observation (Performance Criterion)
0.15 MHz to 80 MHz	AC Power Port	3V r.m.s	1 kHz, 80%, Amp. Mod	1%	3s	Mode 1 to Mode 3	A

Results: Pass

Note:
A: No loss of function.
Test phenomenon description for the EUT:
1. The EUT working is normal, Before the conditioning.
2. No any change in status of the EUT was observed, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

6.2.6 VOLTAGE DIPS AND INTERRUPTIONS

Test Method:	EN IEC 61000-4-11:2020
Test Level:	1) Voltage dip: 0 % UT voltage for 0.5 cycle; 2) Voltage dip: 40 % UT voltage for 10 cycle; 3) Voltage dip: 70 % UT voltage for 25 cycles; Note: UT is the rated voltage of the equipment under test.
No. of Dips / Interruptions:	3 per Level
EUT Operation:	
Test Mode:	Mode 1 to Mode 3
Test Setup:	
Test Procedure:	1) The EUT was placed on a ground reference plane(GRP) insulated by an insulating support 0.1 m thick and the GRP was placed on a 0.8m high wooden table for table-top equipment. For floor standing equipment, the EUT was placed on a 0.1m high wooden support above the GRP. 2) The test was performed with the EUT connected to the test generator with the shortest power supply cable as specified by the EUT manufacturer. 3) The EUT was tested for each selected combination of test level and duration with a sequence of three dips /interruptions with intervals of 10 s minimum. Each representative mode of operation was tested. 4) For EUT with more than one power cord, each power cord was tested individually.
Test Environment	Temperature: 21.3℃ Humidity: 65.2% ATM pressure: 1026 mbar Test Date: 11/28/2021

Test Results:

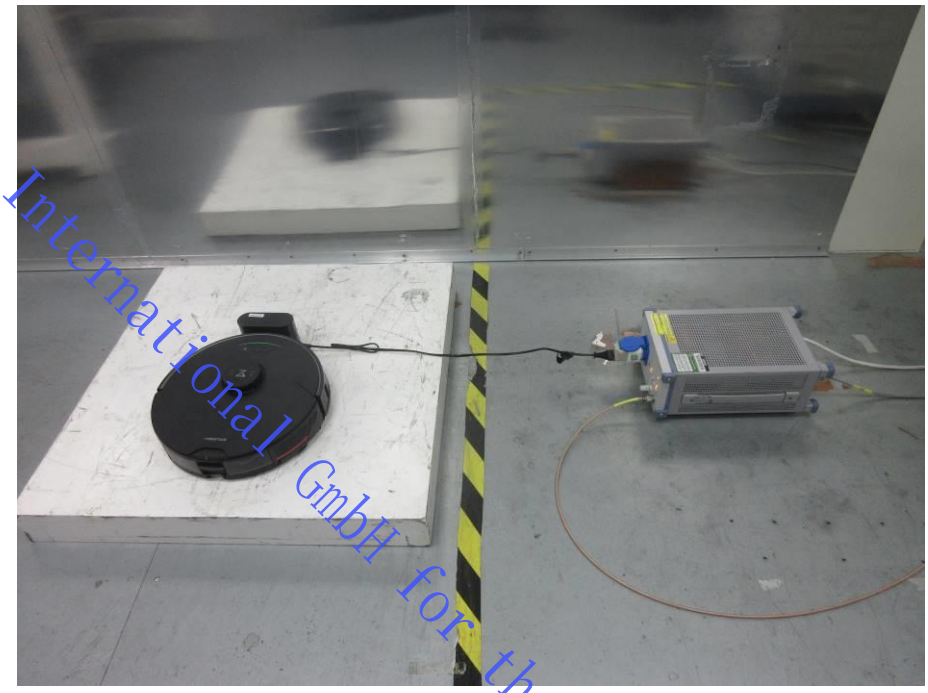
$U_{T=}$ 230V/50Hz						
Test Level % U_T	**Phase**	**Duration of drop out in Periods**	**No. of drop out**	**Time between drop out**	**Test Mode**	**Observations (Performance Criterion)**
0	0°, 180°	0.5	3	10s	Mode 1 to Mode 3	A
40	0°, 180°	10	3	10s		A
70	0°, 180°	25	3	10s		A

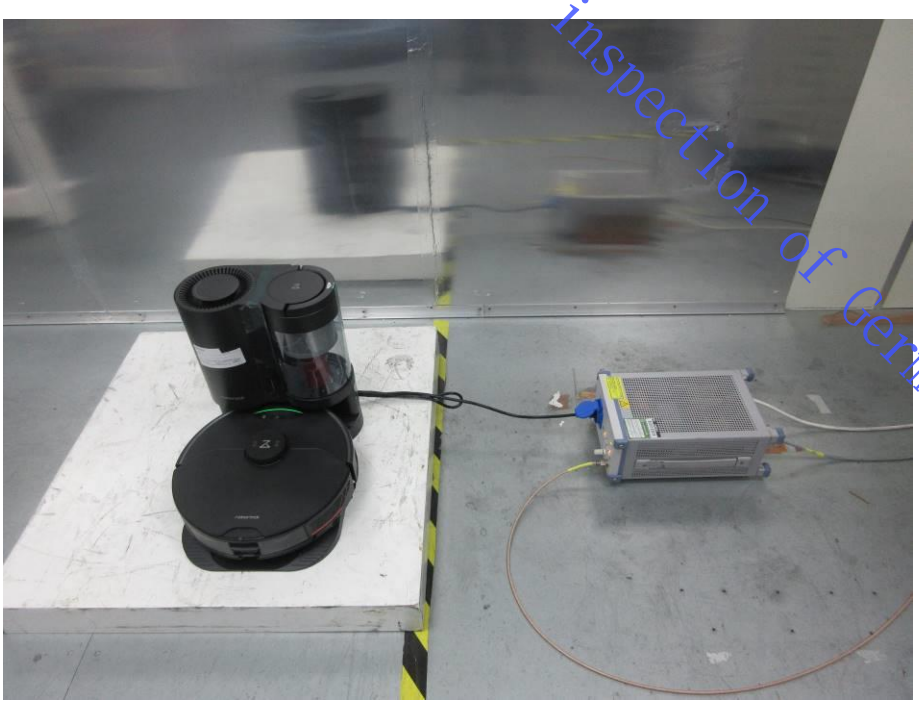
Results: Pass

Note:
A: No loss of function.
Test phenomenon description for the EUT:
1. The EUT working is normal, Before the conditioning.
2. No any change in status of the EUT was observed, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

7 PHOTOGRAPHS OF EMC TEST CONFIGURATION

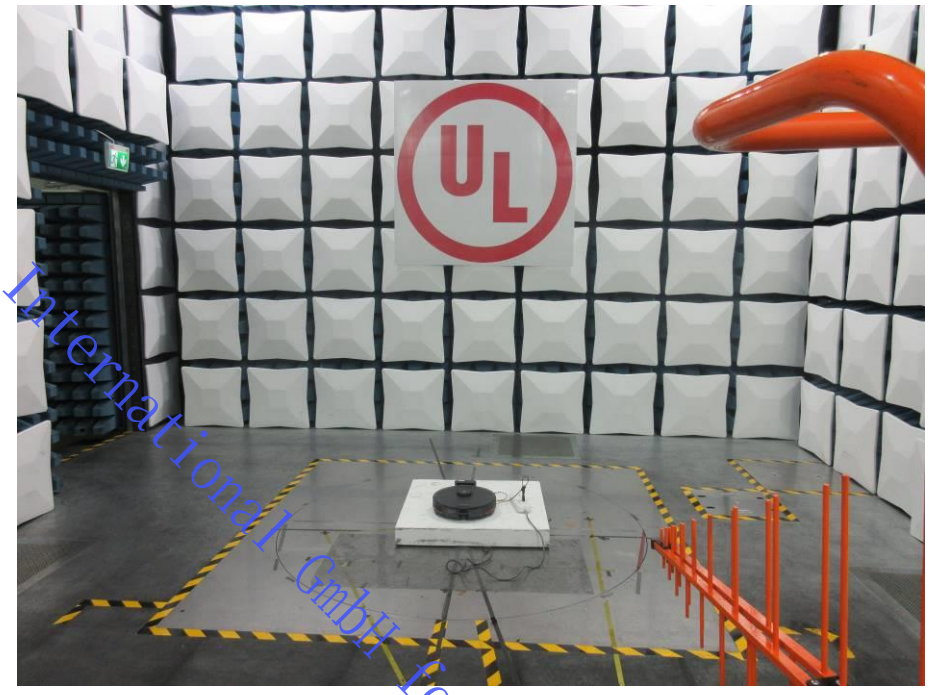
7.1 CONDUCTED EMISSION TEST SETUP





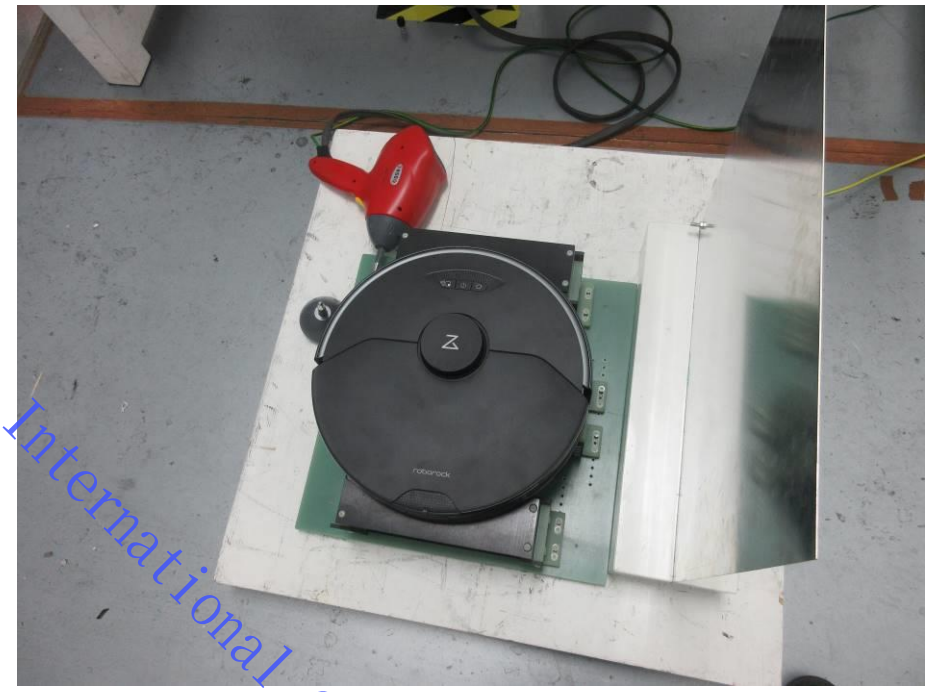
7.2 RADIATED EMISSION TEST SETUP

30MHz ~ 1000MHz



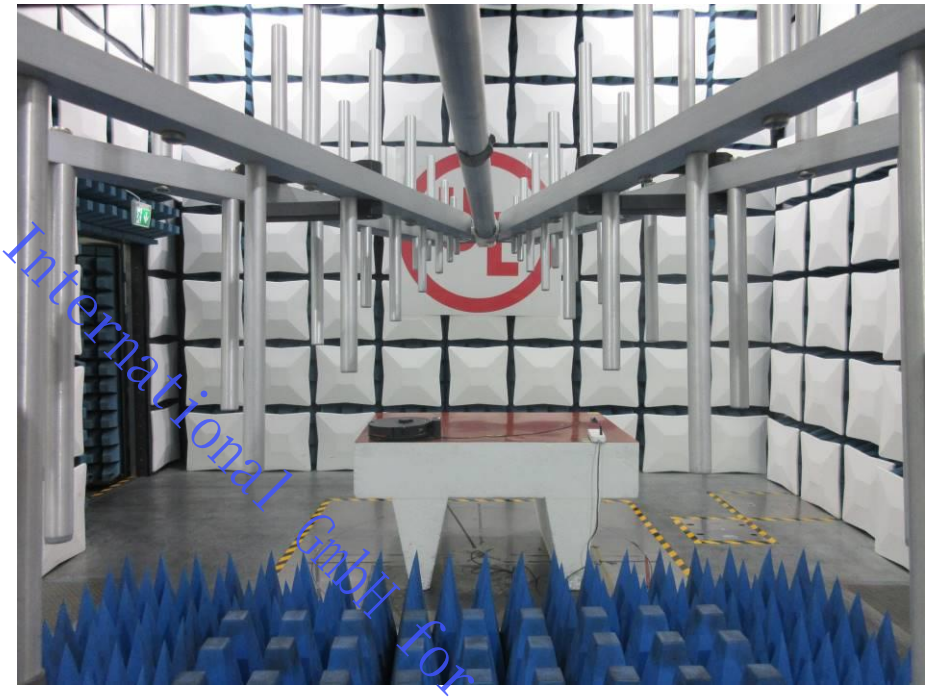
7.3 HARMONIC CURRENT & VOLTAGE FLUCTUATION AND FLICK MEASUREMENT

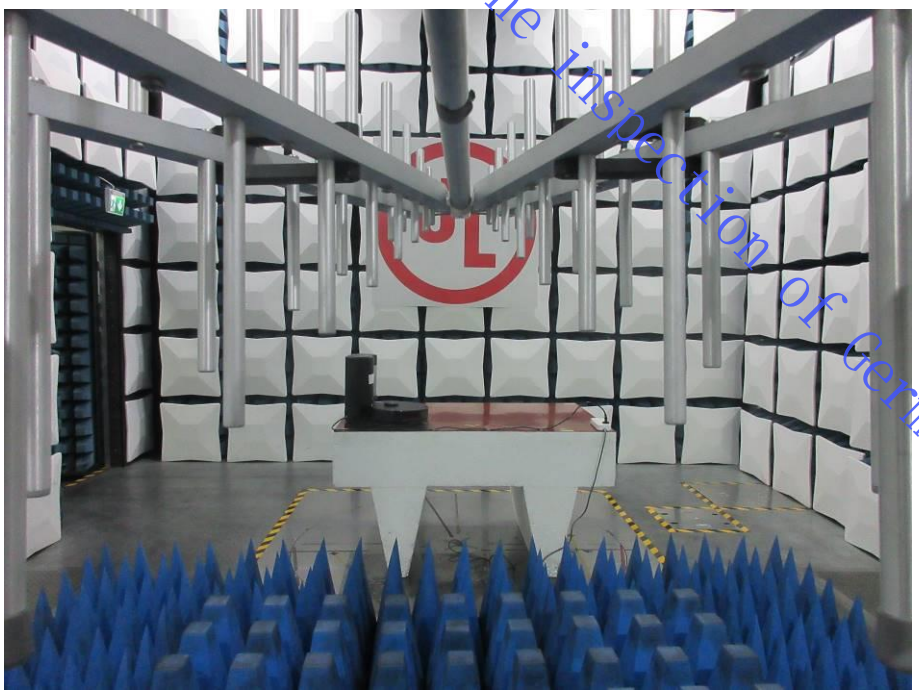
7.4 ESD

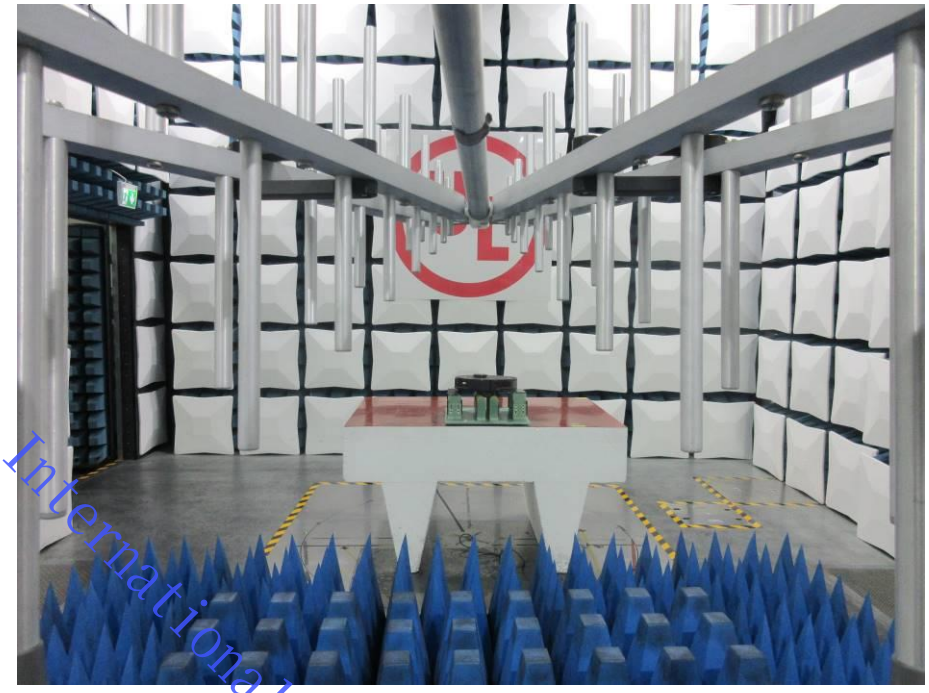


7.5 RADIO FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY

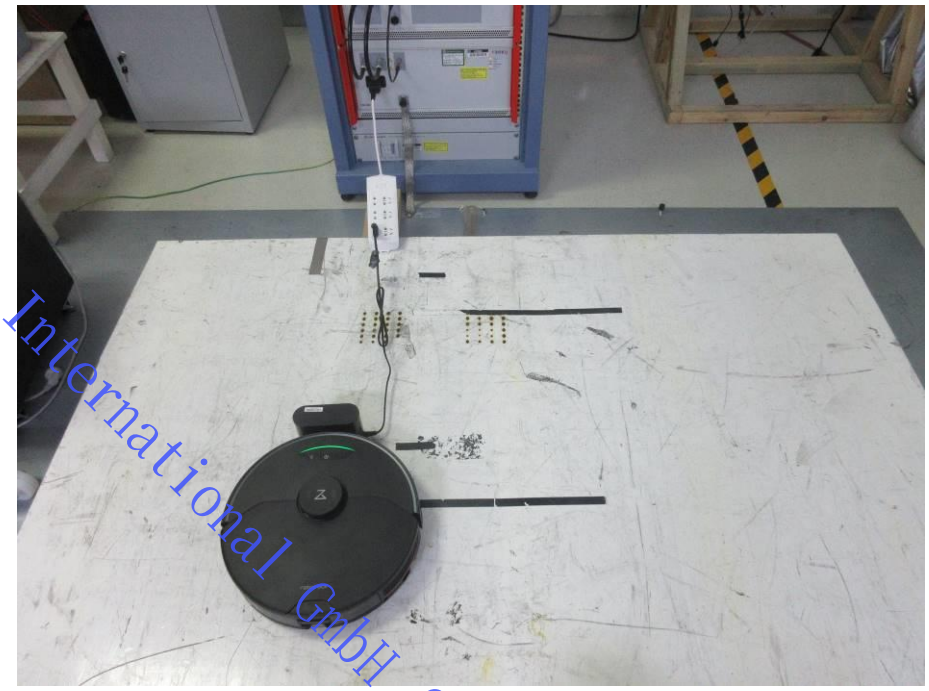
Below 1GHz

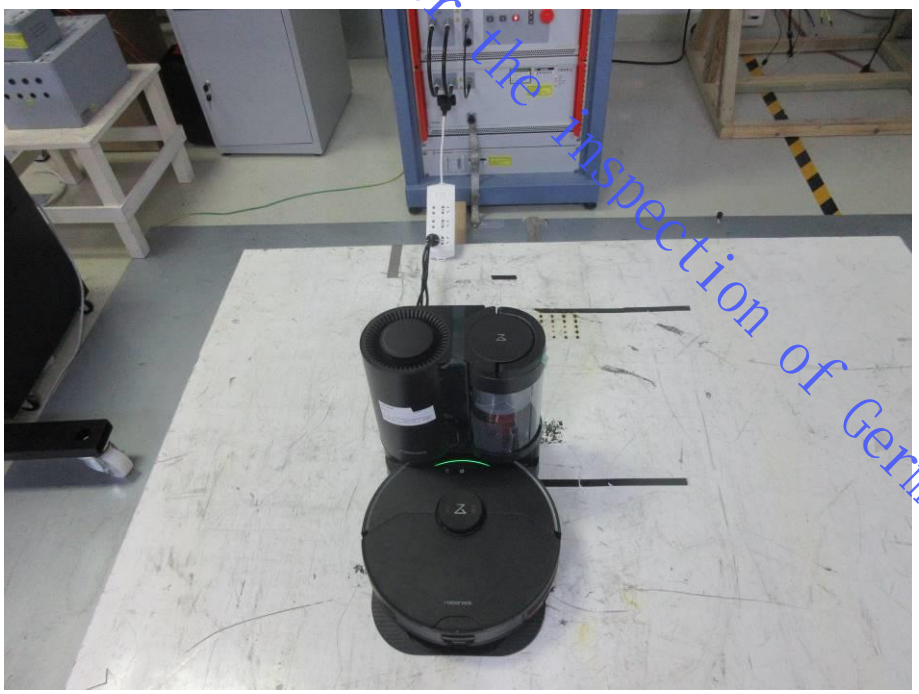




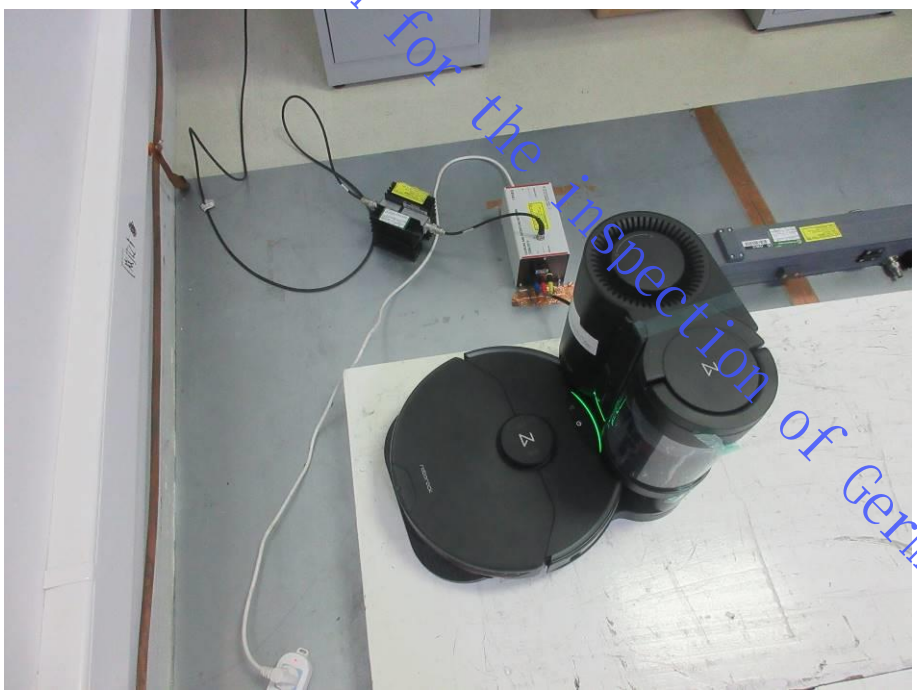


7.6 ELECTRICAL FAST TRANSIENT/BURST/SURGE/DIPS





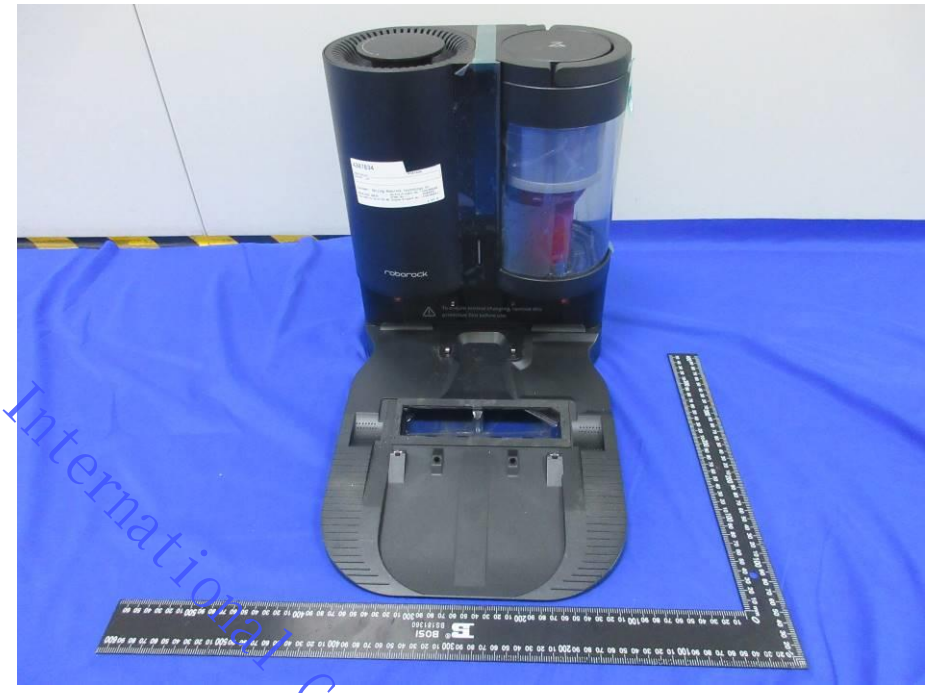
7.7 CONDUCTED IMMUNITY

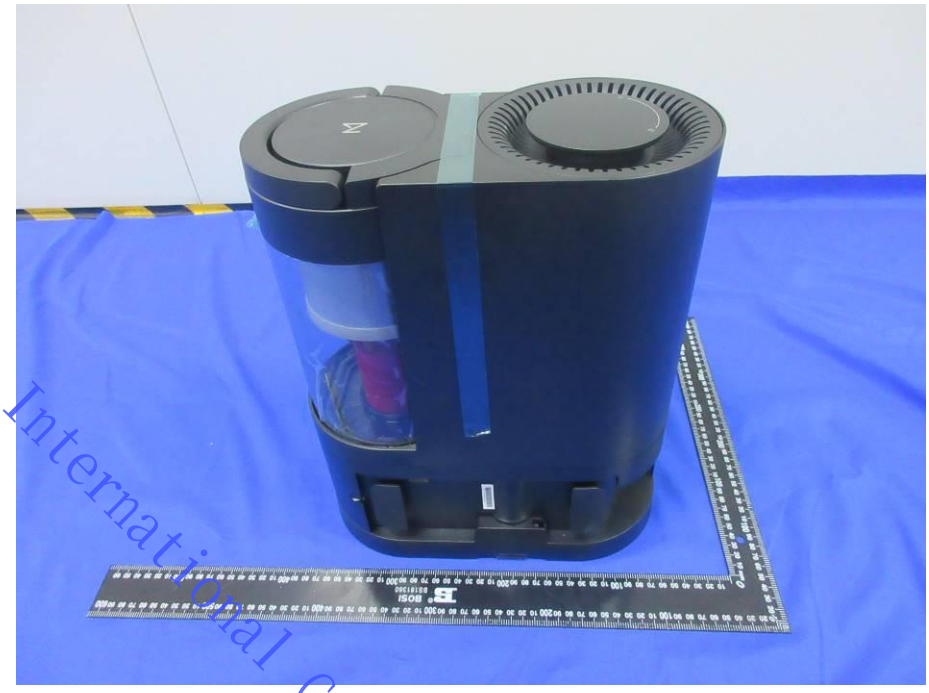


8 PHOTOGRAPHS FO THE EUT

External Photographs:

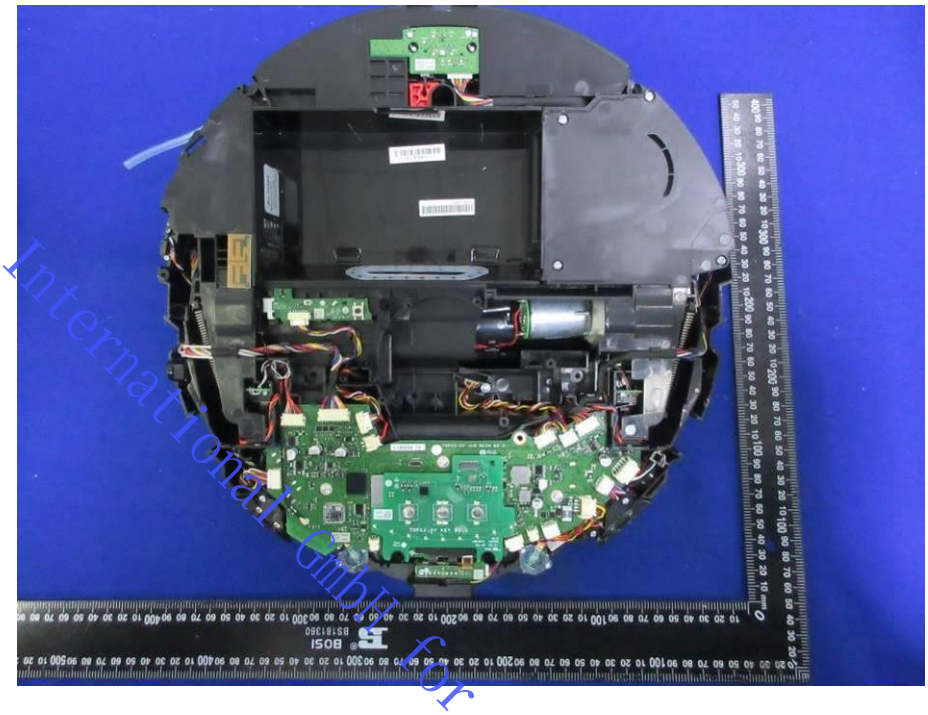
All View of EUT

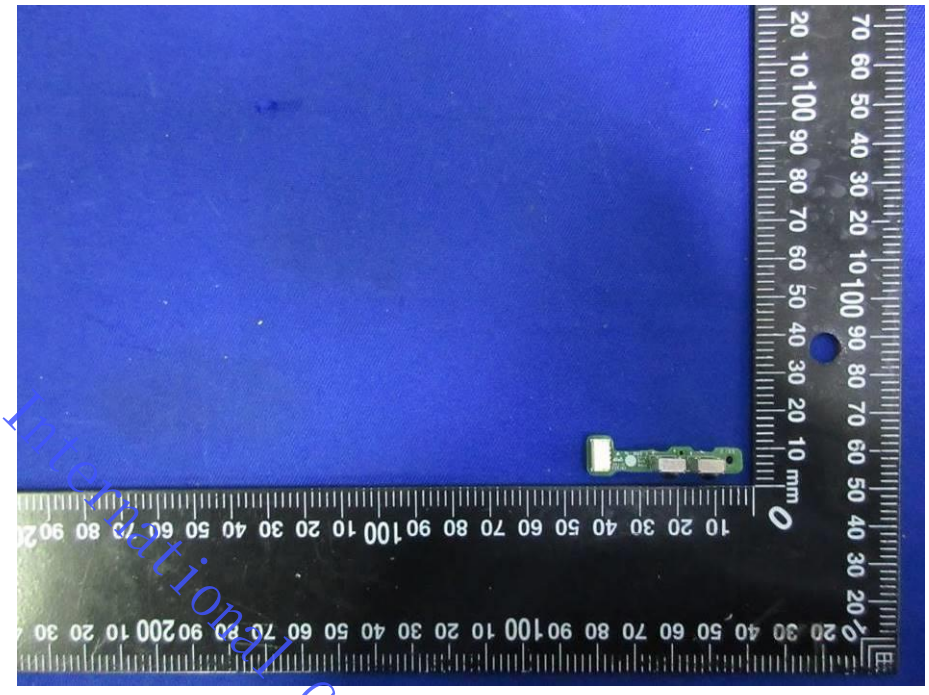


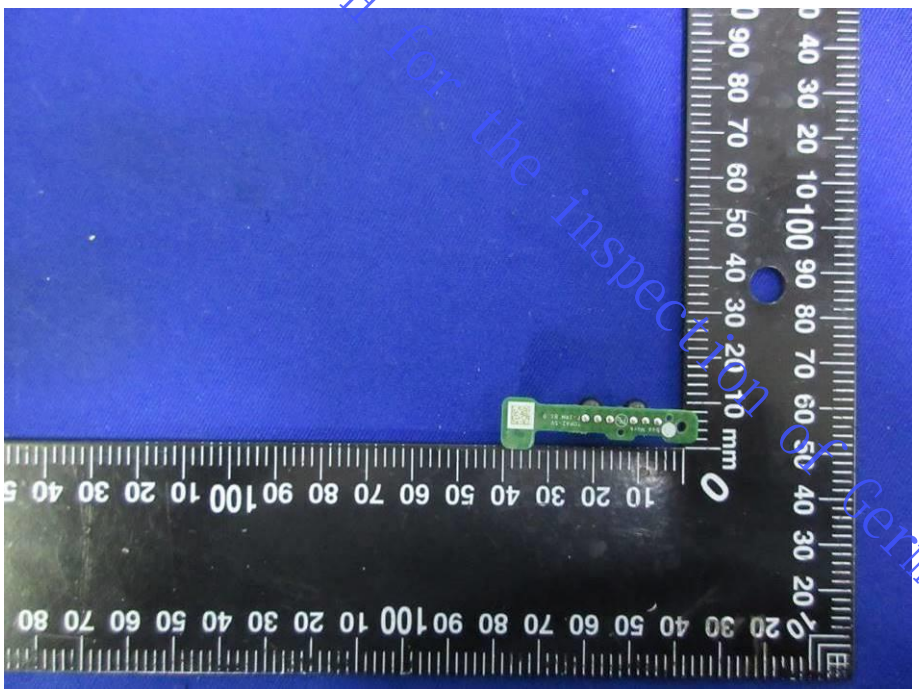


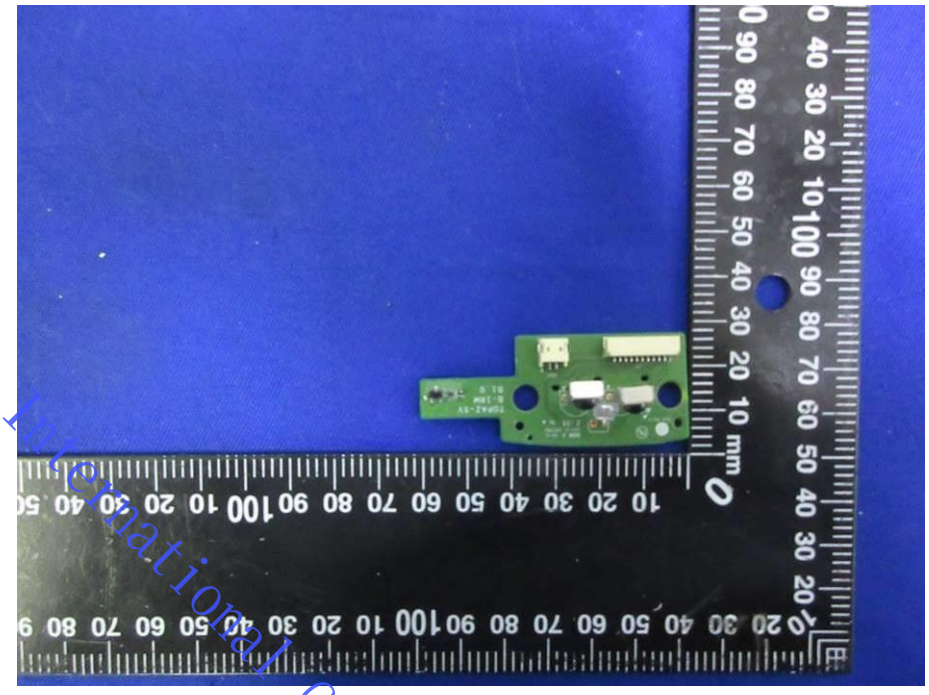
Internal Photographs

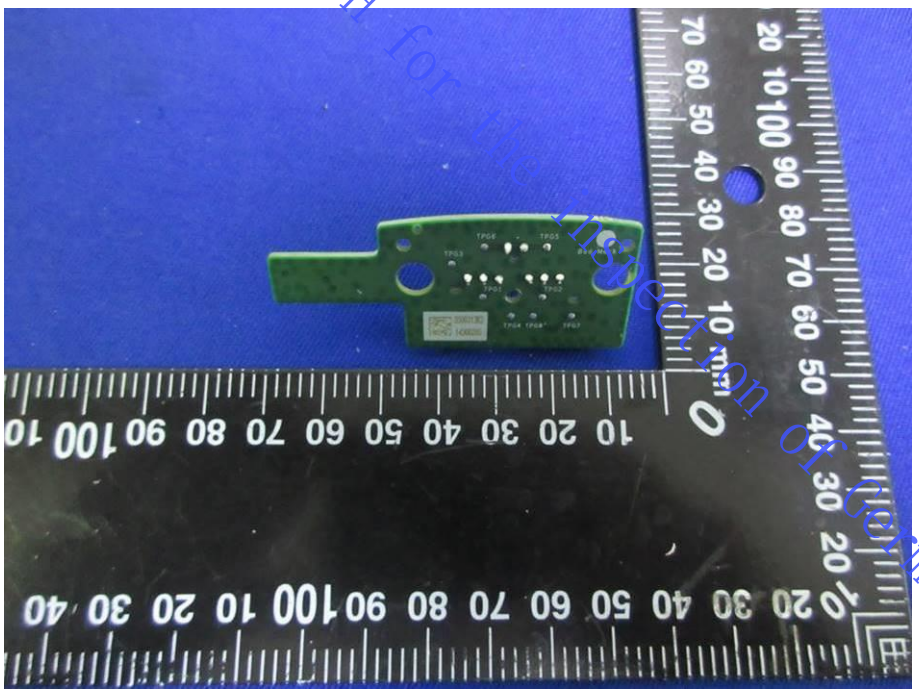
Internal View of EUT

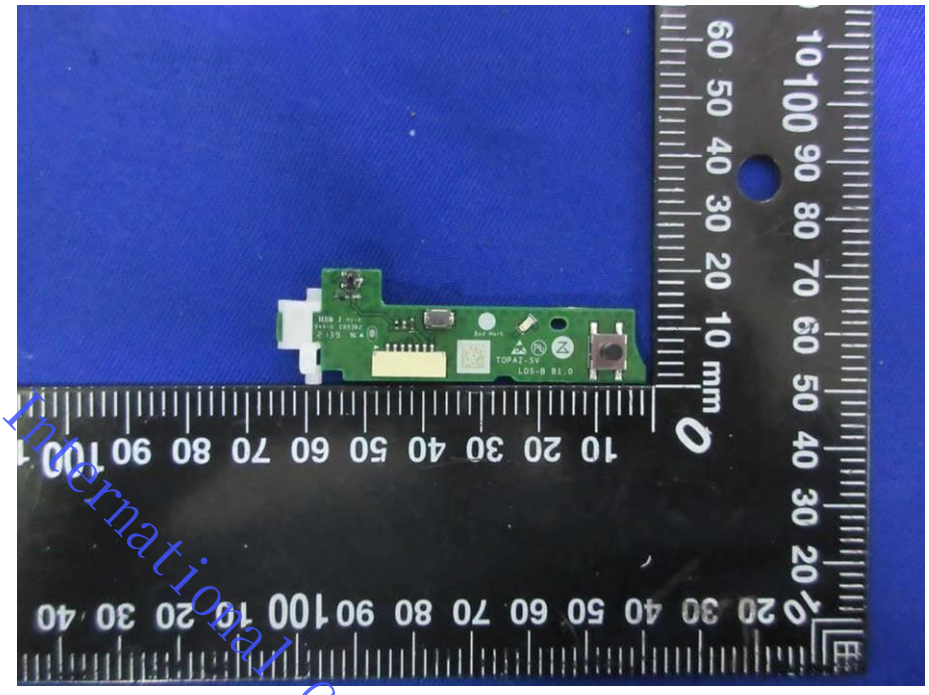


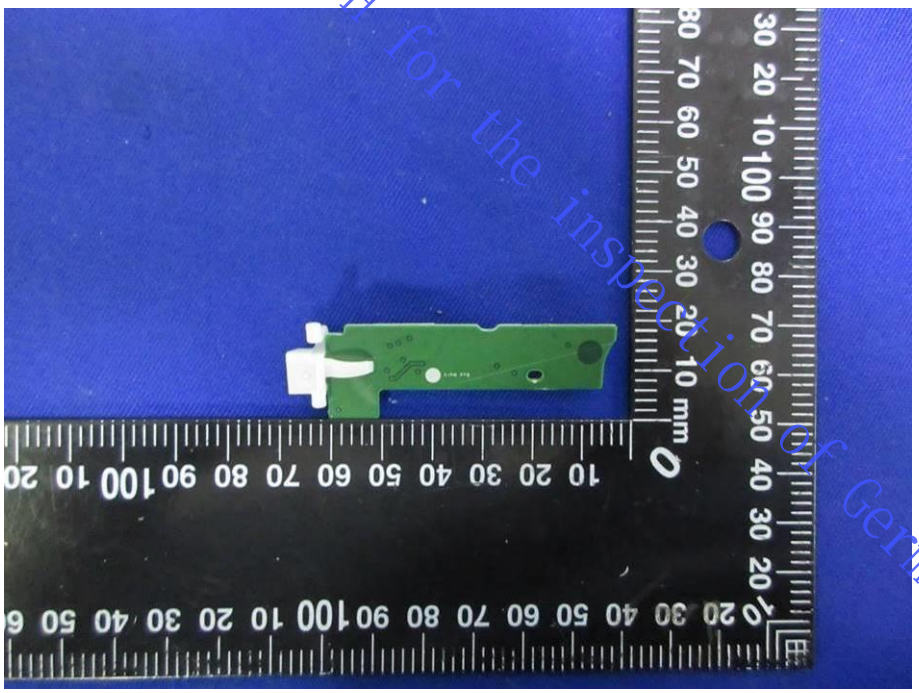


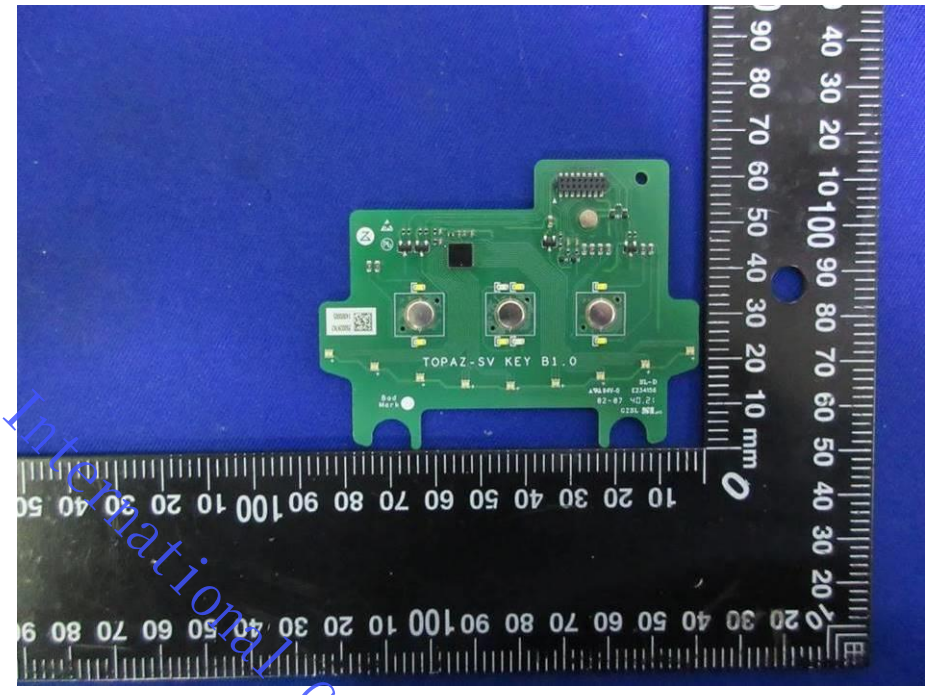


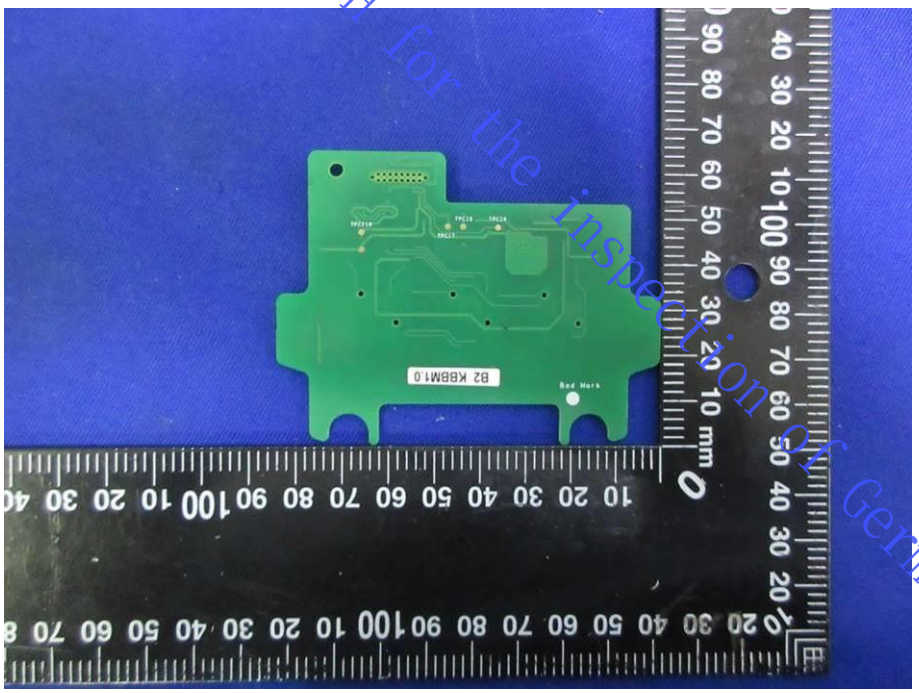


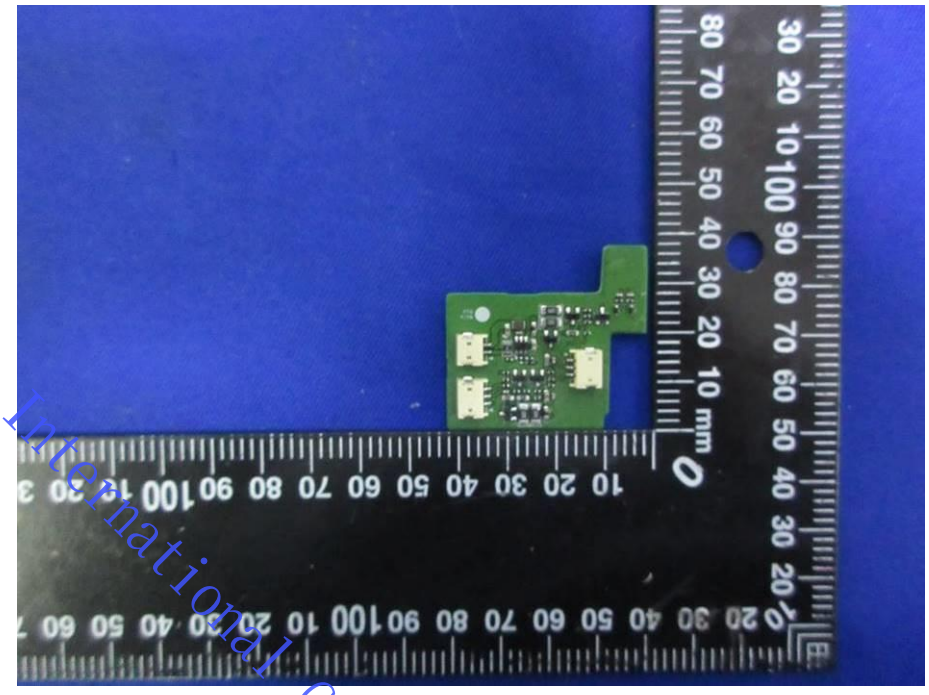


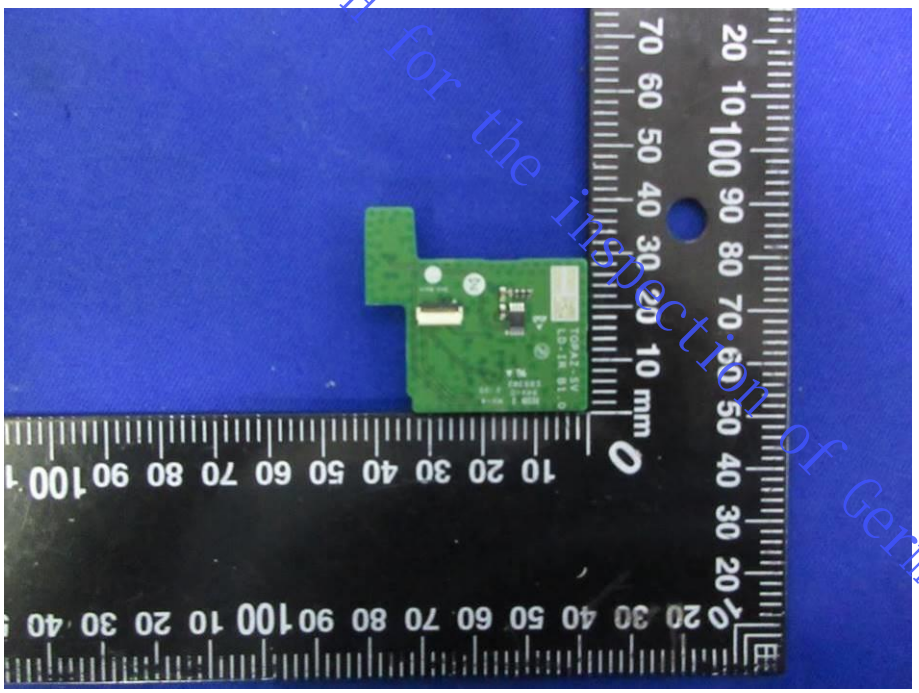


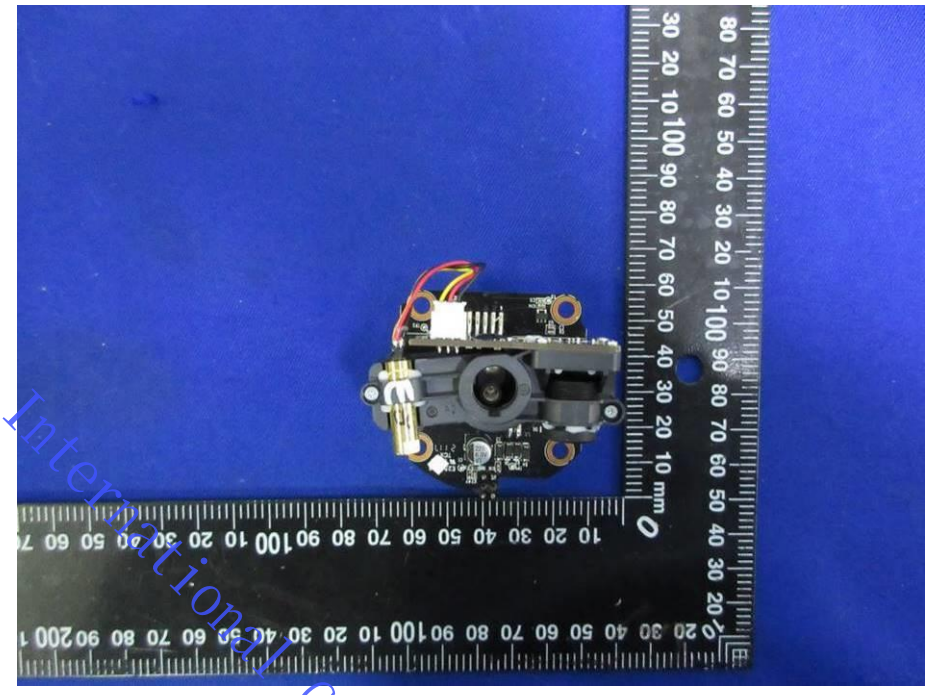


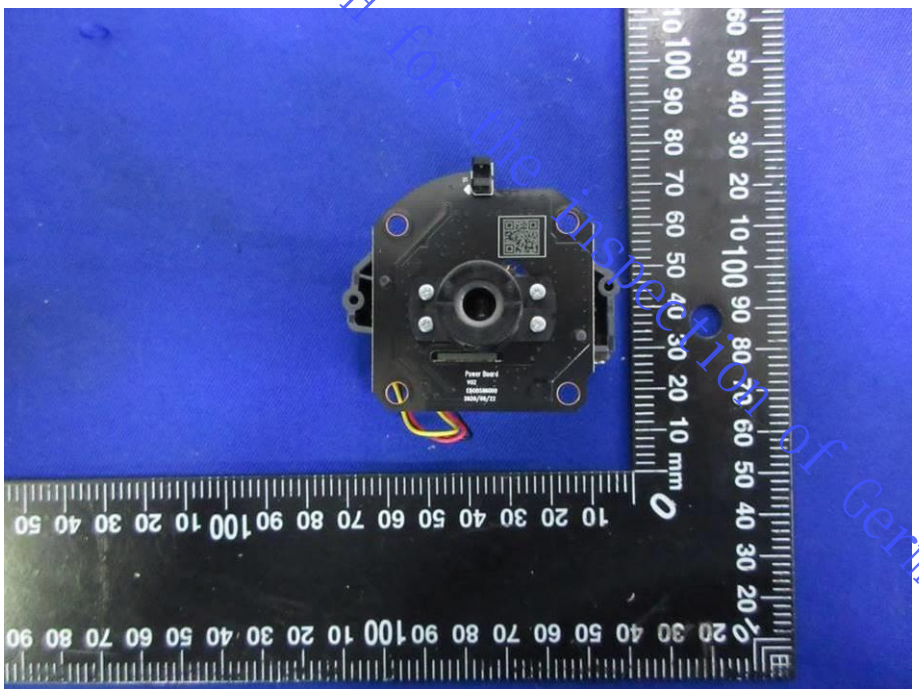


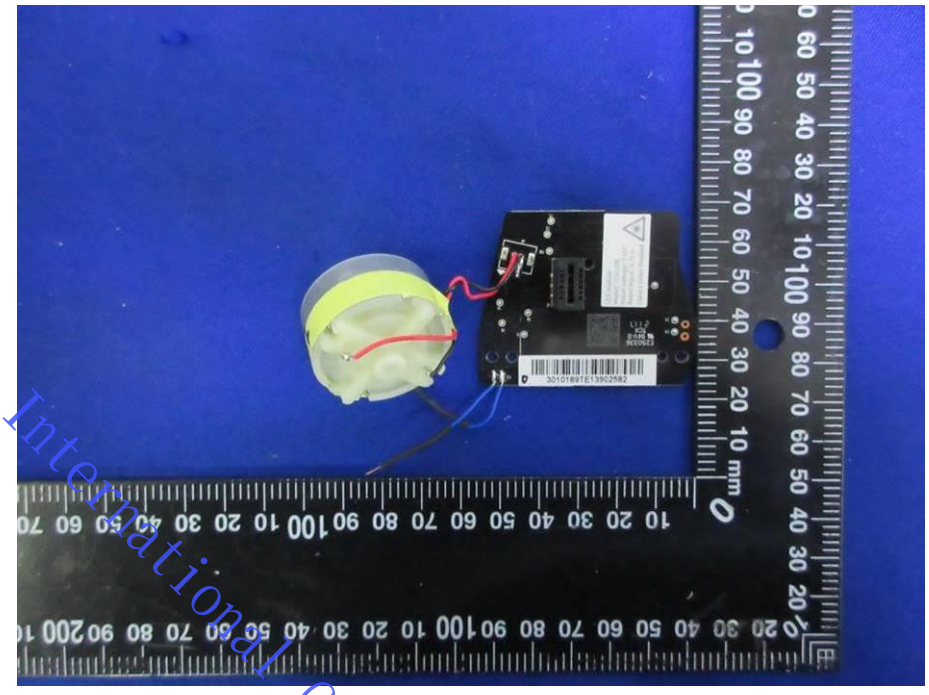


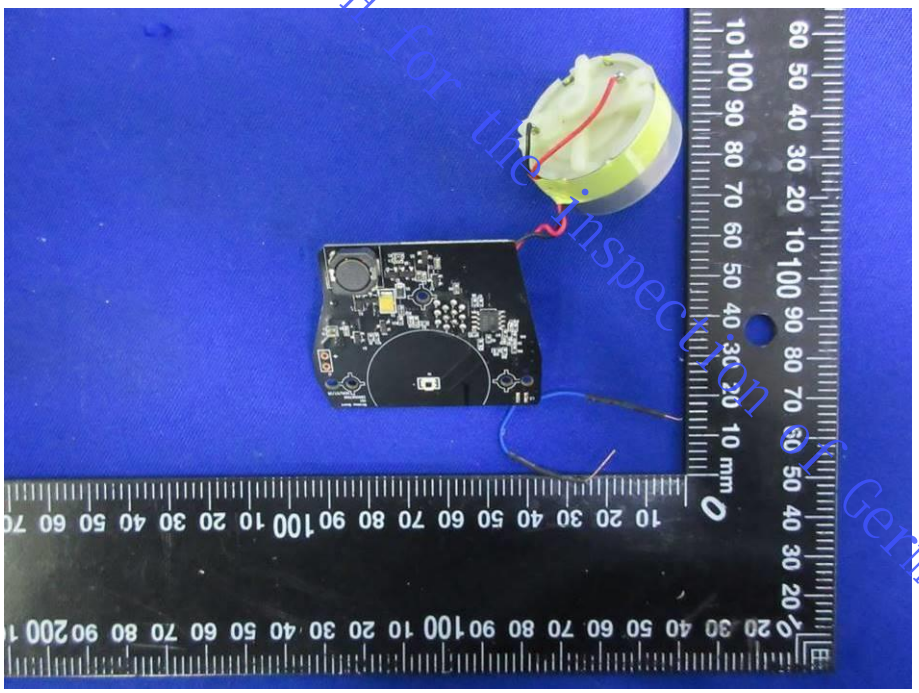


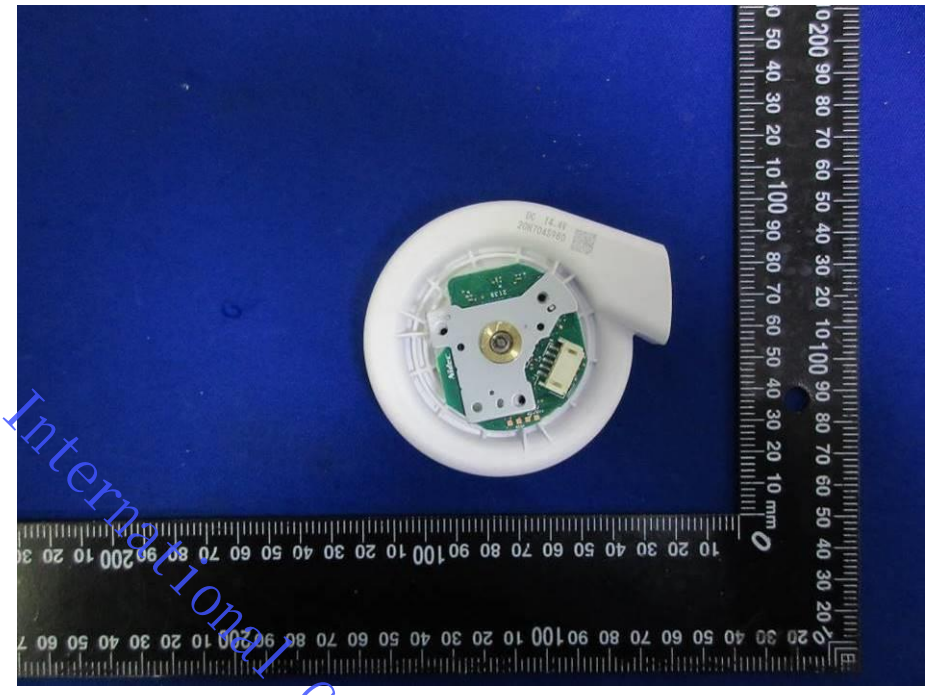


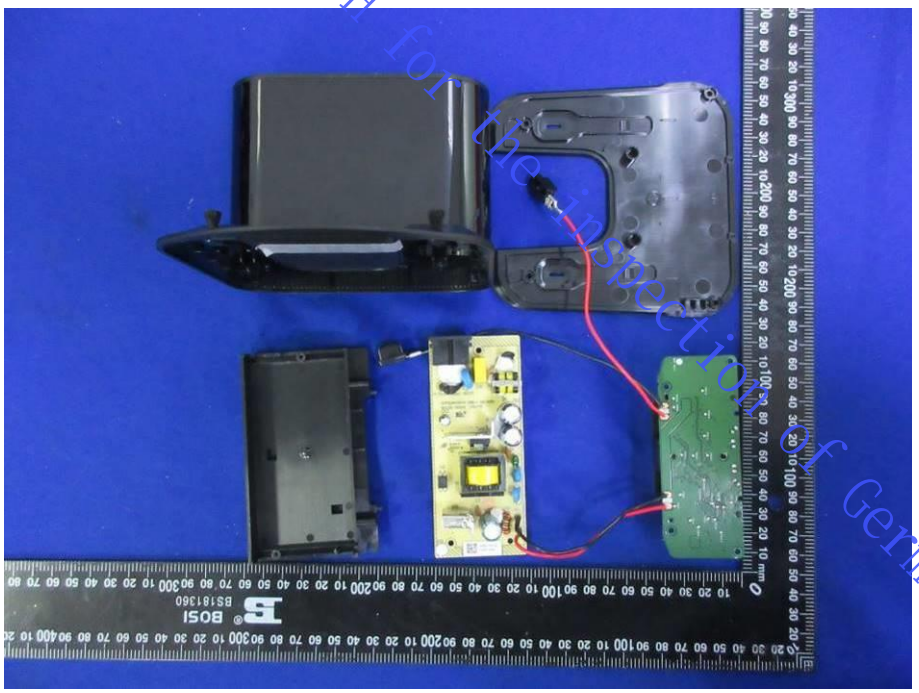


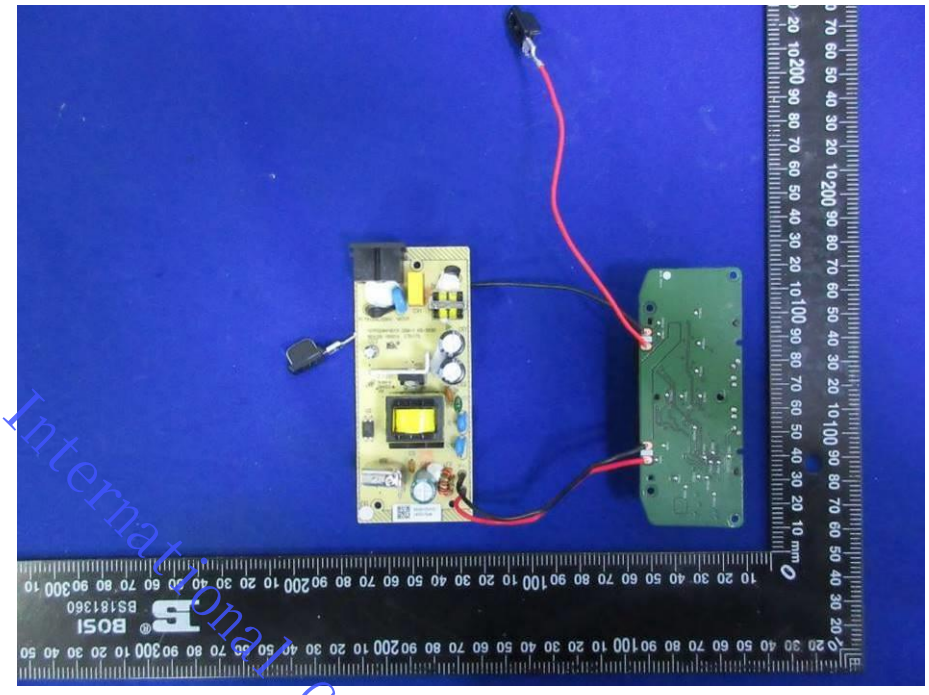


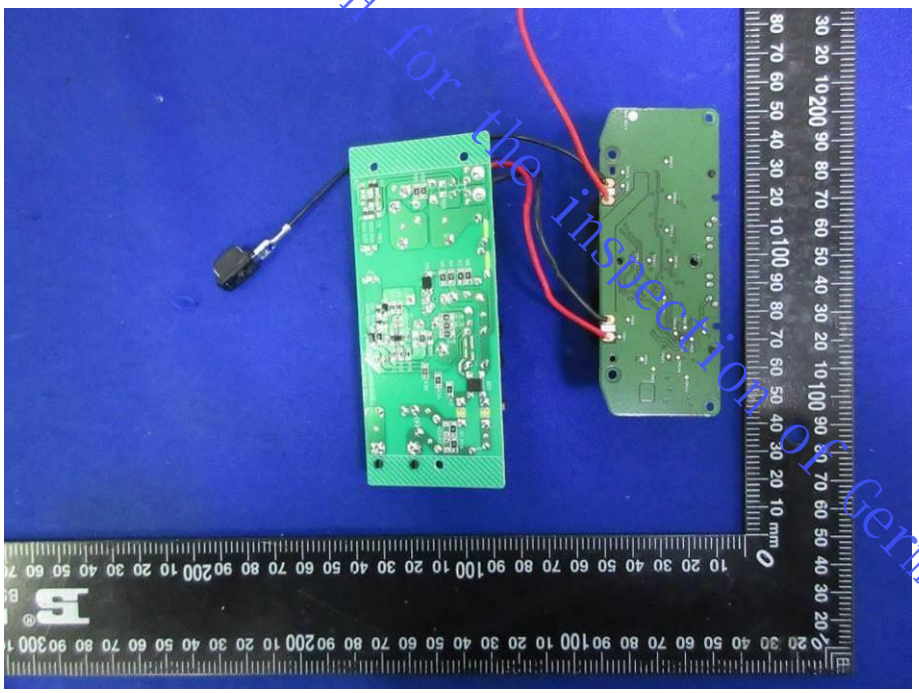


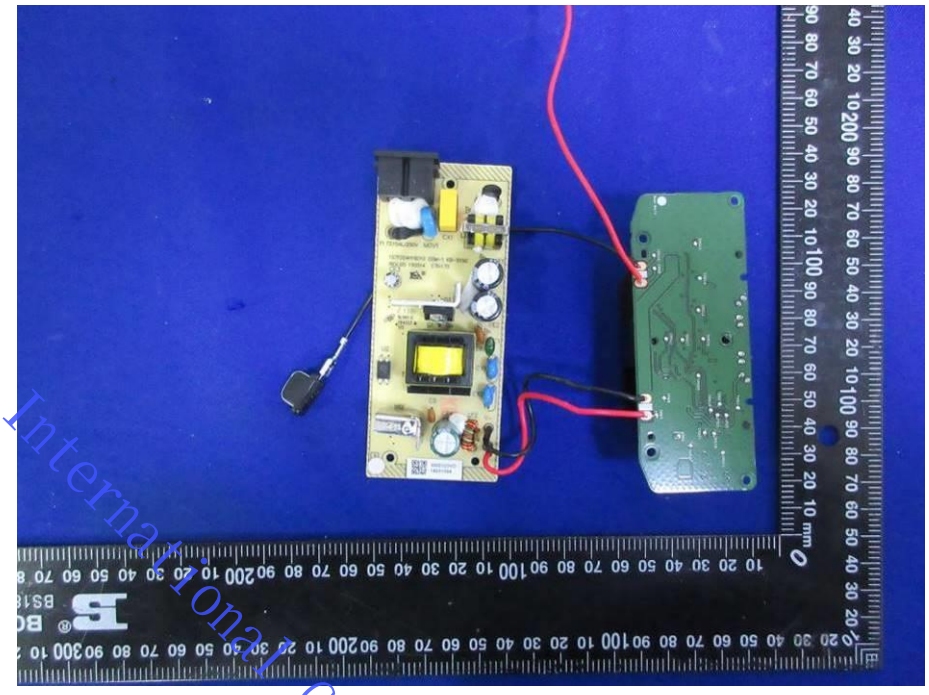


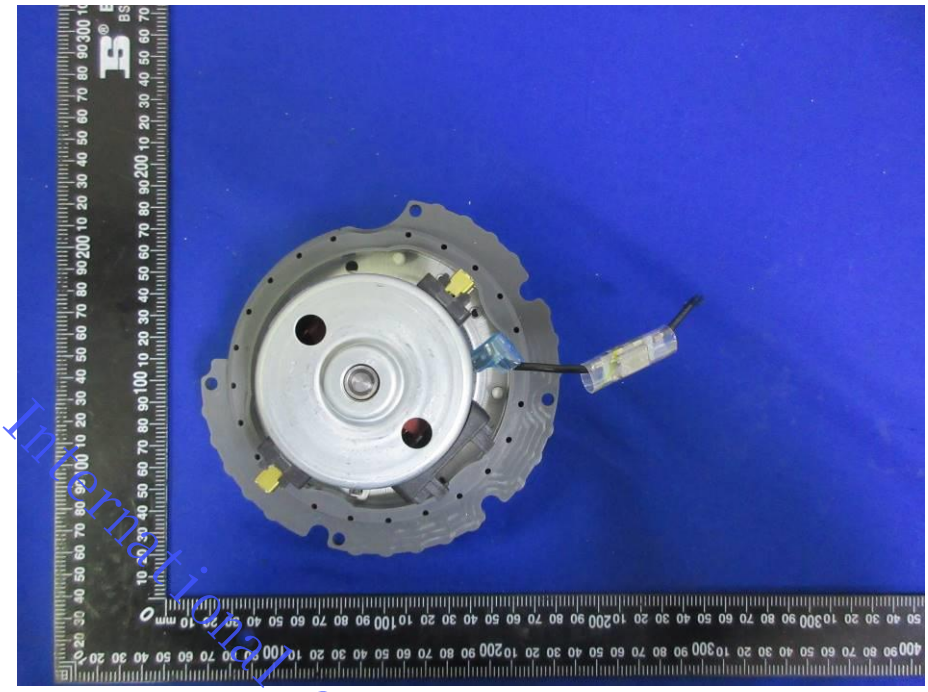


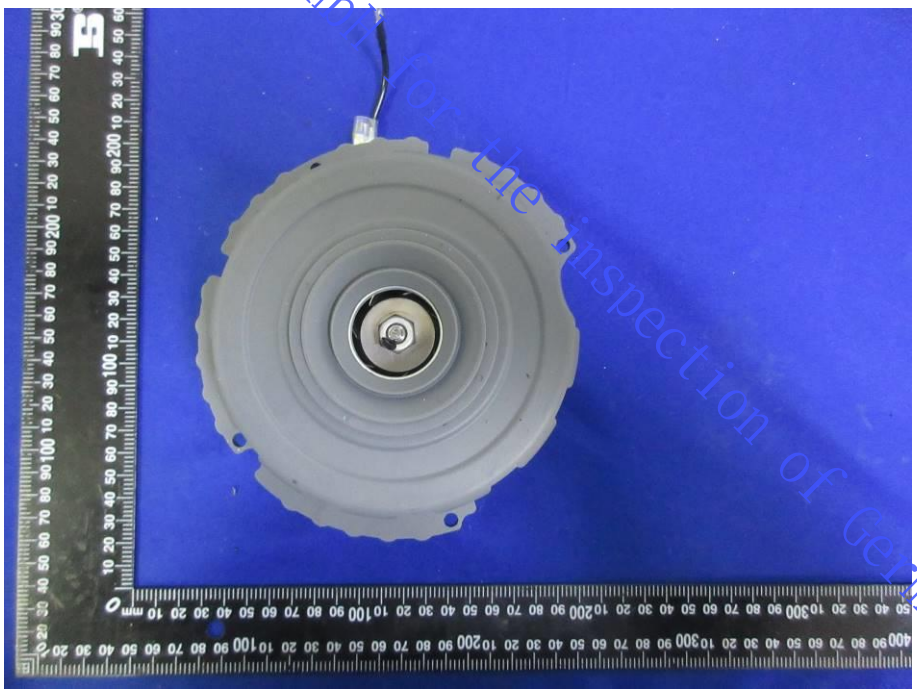


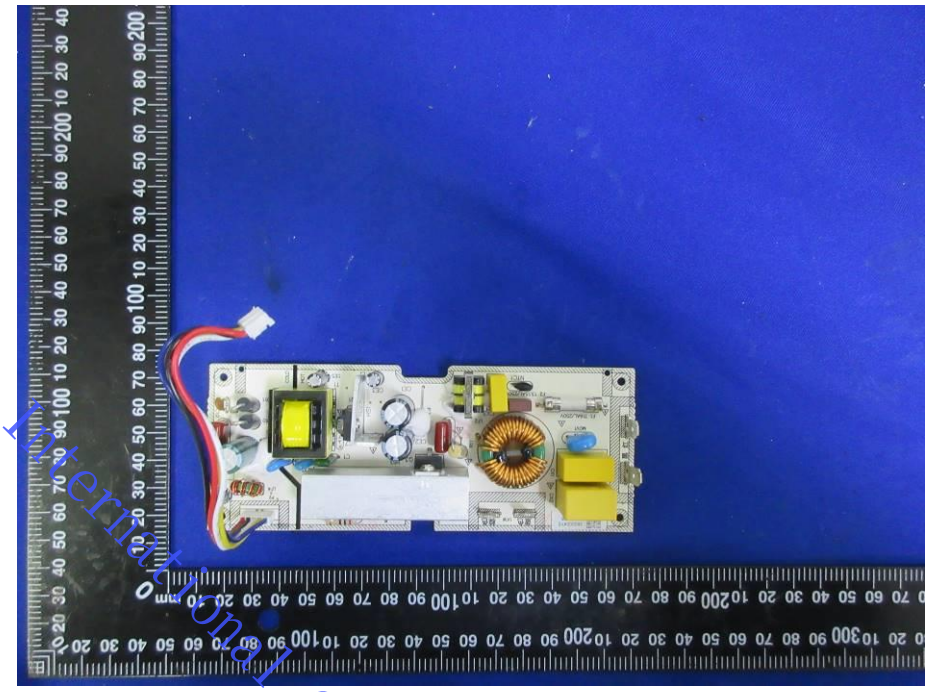


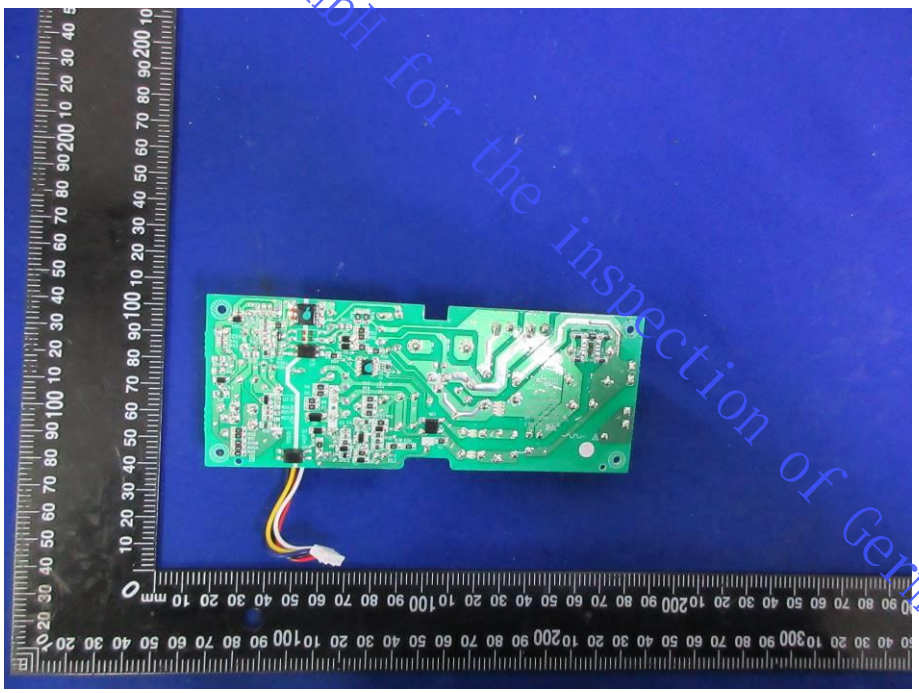


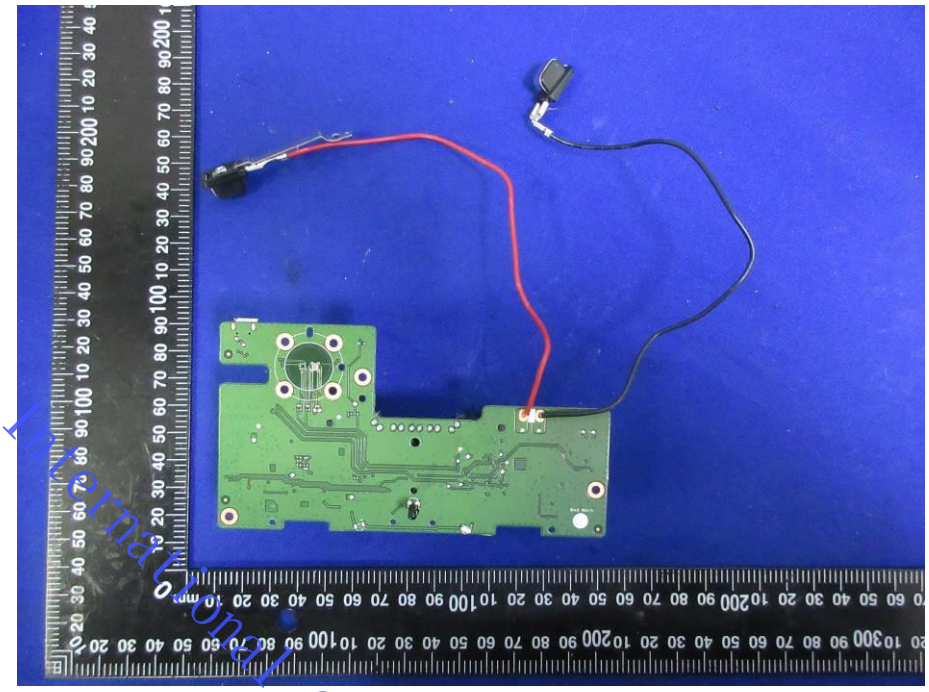


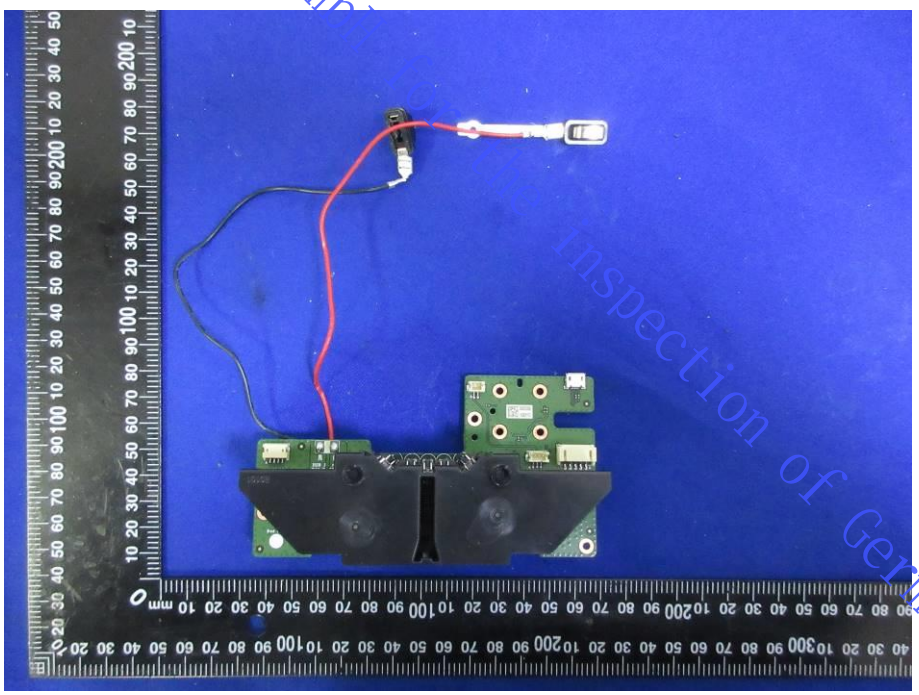


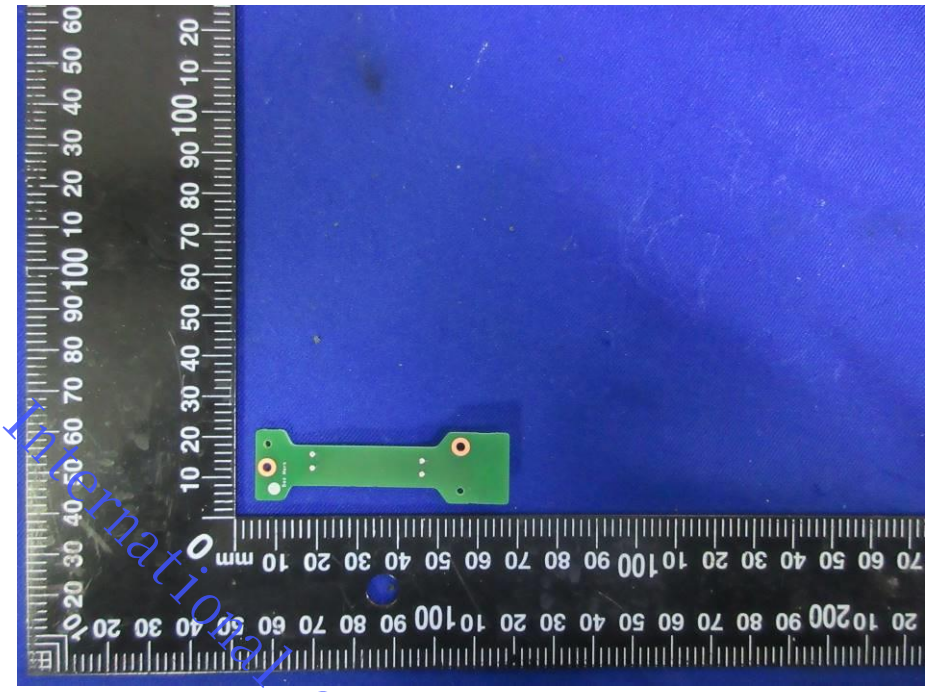


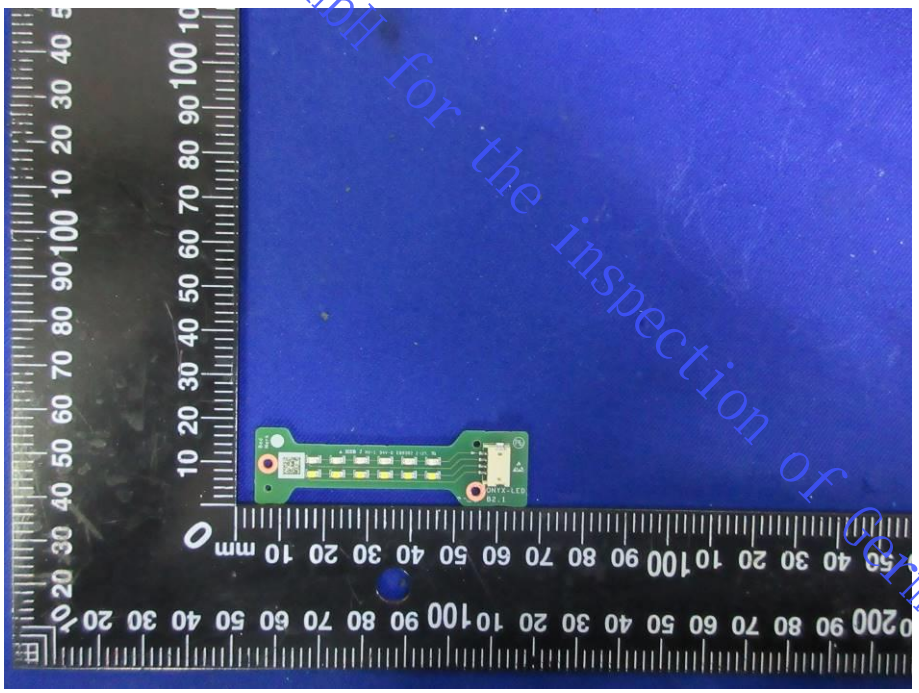












END OF REPORT