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EMC TEST REPORT

Report No: TST20250602757ER

Product Name: Frequency Password Resonance Health Device

Test Model: Health Device 1.0

Applicant: RICH SMART TECHNOLOGY CO.,LTD

EXECUTIVE SUMMARY

A sample of this product was tested and found to be in compliance with EN IEC 55014-1:2021, EN IEC 55014-2:2021, EN IEC 61000-3-2:2019/A2:2024 and EN 61000-3-3:2013/A2:2021/AC:2022 Any reproduction of this document must be done in full. No single part of this document may be reproduced without permission from TST; All Test Data Presented in this report is only applicable to presented Test sample.

Dongguan True Safety Testing Co., Ltd.

Room 201, No.20, East of Houjie Avenue, Houjie, Dongguan, Guangdong, China

Test Report of EMC

Product name	Frequency Password Resonance Health Device				
Model No.	Health Device 1.0				
Series Models	Frequency Password health instrument, Health Device 2.0, Health Device 3.0, Health Device flagship edition(All models share same electric circuits except outer shape and model name.)				
Ratings	AC 230V 50Hz				
Trade Mark	 				
Applicant	Name	RICH SMART TECHNOLOGY CO.,LTD			
	Address	No. 606, Section 1, Taiwan Boulevard, North District, Taichung City, Taiwan Province			
Manufacturer	Name	SUZOU YINNIU TECHNOLOGY CO.,LTD			
	Address	715-138 workstations, 7th floor, Yuanhe Building, 959 Jiayuan Road, Yuanhe Street, Xiangcheng District, Suzhou City (cluster registration)			
Factory	Name	SUZOU YINNIU TECHNOLOGY CO.,LTD			
	Address	715-138 workstations, 7th floor, Yuanhe Building, 959 Jiayuan Road, Yuanhe Street, Xiangcheng District, Suzhou City (cluster registration)			
Standard	EN IEC 55014-1:2021 EN IEC 55014-2:2021 EN IEC 61000-3-2:2019/A2:2024 EN 61000-3-3:2013/A2:2021/AC:2022				
Related Directives and Annex	Electromagnetic Compatibility (EMC) Directive 2014/30/EU				
Test Location	Dongguan True Safety Testing Co., Ltd. Room 201, No.20, East of Houjie Avenue, Houjie, Dongguan, Guangdong, China				
Receipt Date	2025.06.16	Test period	2025.06.16-2025.06.18	Issue Date	2025.06.18
Conclusion	The equipment under test was found to be compliance with the requirements of the standards applied.				
Writer by:	Yancy				(Special seal)
Reviewer by:	Jerry Xiang				
Approved by:	Blake Gin				

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1. Brief Summary of Results

A brief summary of the tests carried out in accordance with EMC- Directive 2014/30/EU and its amendments is shown below.

EMISSION(EN IEC 55014-1:2021)					
Description of Test Item		Standard	Results	Remark	
Conducted Emission at The Main Terminals Test		EN IEC 55014-1:2021	PASS		
Disturbance Power		EN IEC 55014-1:2021	N/A	Note 1	
Radiated emission (30-1000MHz)		EN IEC 55014-1:2021	PASS		
Radiated emission Above 1GHz		EN IEC 55014-1:2021	N/A		
Harmonic current emission		EN IEC 61000-3-2:2019/A2:2024	PASS		
Voltage Fluctuations-Flicker		EN 61000-3-3:2013/A2:2021/AC:2022	PASS		
IMMUNITY(EN IEC 55014-2:2021)					
Description of Test Item		Basic Standard	Results	Performance Criteria	Observation Criteria
Electrostatic Discharge (ESD)		EN 61000-4-2:2009	PASS	B	A
Radio frequency electromagnetic fields (RS)		EN IEC 61000-4-3:2020	N/A	A	
Electric Fast Transient/Burst Immunity (EFT)		EN 61000-4-4:2012	PASS	B	A
Surge Immunity		EN 61000-4-5:2014/A1:2017	PASS	B	A
Injected currents (CS)		EN 61000-4-6:2014/A1:2015/EN IEC 61000-4-6:2023	PASS	A	A
Voltage dips	30%reduction	EN IEC 61000-4-11:2020	PASS	C	A
	60%reduction		PASS	C	A
	100%reduction		PASS	C	A
“N/A” is an abbreviation for Not Applicable.					
Note 1: The manufacturer selects one of the radiation or power disturbances for testing and evaluation.					
Final Judgment : PASS					

2. Classification

2.1 Classification for EMS Test

Category I: equipment containing no electronic control circuitry.

EXAMPLES Appliances, tools and toys that contain no electronic control circuits and only electromechanical components such as switches, thermostats, brush motors, induction motors, Working elements, lighting toys containing only batteries and LED.

Electrical circuits consisting of passive components (such as radio interference suppression capacitors or inductors, mains transformers, mains frequency rectifiers) are not considered to be electronic control circuitry.

Category II: mains operated equipment containing electronic control circuitry with no clock frequency higher than 15MHz.

Category III: battery operated equipment not included in Category I.

EXAMPLES Appliances, tools and toys powered by batteries and that include a microprocessor to provide a selection of functions.

NOTE The assignment to Category III is independent of the clock frequency.

This category also includes equipment provided with rechargeable batteries, which can be charged, directly or indirectly, from the mains. Accordingly, this equipment shall also be subjected to the test requirements for mains operated equipment but only when testing the charging function.

If the equipment can operate its intended functions when connected, directly or indirectly to the mains, then it is not battery operated. Accordingly, it shall be classified as Category II, Category IV or Category V, as applicable, and subjected to the corresponding test requirements when in mains operation.

Category IV: mains operated equipment containing electronic control circuitry with a highest clock frequency greater than 15 MHz but lower than or equal to 200MHz.

Category V: mains operated equipment containing electronic control circuitry with a highest clock frequency greater than 200MHz.

2.2 Application of tests for the different categories of apparatus for EMS Test

Category I: Category I equipment is deemed to comply with the immunity requirements of this document without testing.

Category II:

Environmental phenomenon	Performance criterion	Test specifications (see subclause)
Electrostatic discharges	B	5.1
Electric fast transients	B	5.2
Injected currents 150kHz to 230MHz	A	5.3
Surges	B	5.6
Voltage dips	C	5.7

Category III:

Environmental phenomenon	Performance criterion	Test specifications (see subclause)
Electrostatic discharges	B	5.1
Electric fast transients	B	5.2
Injected currents 150kHz to 80MHz	A	5.4
Radio frequency electromagnetic fields b, c 80 MHz to (F) MHz	A	5.5
Surges	B	5.6

a. Performance criterion C may be applied to toys not using score or data entered by the user (e.g. musical soft toys and sounding toys).
b. The frequency (F), up to which this test needs to be performed, is determined from either Table 17 or Table 18, according to the principle for distinguishing between categories IV and V.
c. For Category III toys, the radio frequency electromagnetic fields test shall be applicable only for ride on toys.

Category IV:

Environmental phenomenon	Performance criterion	Test specifications (see subclause)
Electrostatic discharges	B	5.1
Electric fast transients	B	5.2
Injected currents 150kHz to 80MHz	A	5.4
Radio frequency electromagnetic fields 80MHz to 1000MHz	A	5.5
Surges	B	5.6
Voltage dips	C	5.7

Category V:

Environmental phenomenon	Performance criterion	Test specifications (see subclause)
Electrostatic discharges	B	5.1
Electric fast transients	B	5.2
Injected currents 150kHz to 80MHz	A	5.3
Radio frequency electromagnetic fields 80MHz to 6GHz	A	5.5
Surges	B	5.6
Voltage dips	C	5.7

3. General Information

The information contained in this report is intended to show verification of the EMC Qualification Approval Testing of the requirements of the standards for the tests listed in Section 1.

3.1 Product Information

3.1.1 General Description of EUT (Equipment Under Test)

Product Name : Frequency Password Resonance Health Device
Models : Health Device 1.0
Listed Models : Frequency Password health instrument, Health Device 2.0, Health Device 3.0, Health Device flagship edition(All models share same electric circuits except outer shape and model name.)
Ratings : AC 230V 50Hz

3.2 Test Configuration

Test samples	Configuration	Description
1. Health Device 1.0	AC Powered	AC 230V/50Hz

3.3 Modes of Operation

Pretest Mode	Description
Mode 1	Working

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

The EUT system operated these modes were found to be the worst case during the pre-scanning test as Following:

The worst Test Mode	Description
Mode 1	Working
Remark: The worst case is listed on this report.	

3.4 Block Diagram Showing The Configuration of System Tested

EUT: Frequency Password Resonance

Health Device

EMI:



EMS:



Highest internal frequency : <108MHz

EUT type : ☐ Table top ☒ Floor standing

3.5 Tested Supporting System Details

No.	Description	Equipment No.	Manufacturer	Model	Serial Number
1.	/	/	N/A	/	N/A

3.6 Test Location

Test Site 1:

Company name: Dongguan True Safety Testing Co., Ltd.

Address: Room 201, No.20, East of Houjie Avenue, Houjie, Dongguan, Guangdong, China

Registration No.:L9412

Test Name	Test Site
Conducted Emission at The Main Terminals Test	1
Disturbance Power	N/A
Radiated Emissions Test(30-1000MHz)	1
Radiated Emissions (above 1GHz)	1
Harmonic current emission	1
Voltage Fluctuations-Flicker	1
Electrostatic Discharge (ESD)	1
Electromagnetic field immunity test modulated(RS)	N/A
Electric Fast Transient/ Burst Immunity Test	1
Surge Immunity Test	1
Immunity to Conducted Disturbances, Induced by Radio-frequency Fields	1
Voltage dips& Voltage interruptions	1

4. Test Equipment Information

4.1 General Test Equipment Used

Equipment for conduction emission test

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Receiver	R&S	ESCI7	AT001	2024/7/31~ 2025/7/31
LISN	R&S	ENV216	AT006	2024/7/31~ 2025/7/31
Pulse limiter	Schwarzbeck	VTSD 9561 F-N	AT007	2024/7/10~ 2025/7/10

Equipment for Magnetic field radiation test

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Receiver	R&S	ESCI7	AT001	2024/7/31~ 2025/7/31
Loop antenna	GUOCE	LSA-930	AT010	2024/7/10~ 2025/7/10

Equipment for Radiation emission test

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Receiver	R&S	ESCI7	AT001	2024/7/31~ 2025/7/31
Trilog-boardband antenna	Schwarzbeck	VULB 9168	AT002	2024/7/31~ 2025/7/31
Double Ridge Horn Antenna 1GHz-18GHz	Schwarzbeck	BBHA 9120 D	AT003	2024/9/23~ 2025/9/23
Broadband Preamplifier 0.5-18GHz	Schwarzbeck	BBV 9718 D	AT004	2024/7/10~ 2025/7/10

Equipment for HARMONIC/FLICKER test

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Harmonic & Flicker analyzer	California Instruments	CTS	AT009	2024/8/12~ 2025/8/12
Programmable power supply	California Instruments	5001iX-CTS-400-413	AT010	2024/9/2~ 2025/9/2

Equipment for ESD test

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Electrostatic discharge generator	Lioncel	ESD-203B	AT011	2024/7/10~ 2025/7/10

Equipment for RS test

Equipment	Manufacturer	Model No.	Serial No.	Cal.Date
Signal generator	R&S	SMC100A	105651	2024/7/10~ 2025/7/10
Power amplifier	PRANA	MT400	1507-1746	2024/7/31~ 2025/7/31
Power amplifier	PRANA	SV70	1602-1820	2024/7/10~ 2025/7/10
Trilog-boardband antenna	Schwarzbeck	STLP 9128E	9128ES-136	2024/7/31~ 2025/7/31
Horn antenna	Schwarzbeck	BBHA 9120E	BBHA9120E6 98	2024/7/10~ 2025/7/10
Power meter	R&S	NRP2	105155	2024/7/10~ 2025/7/10

Equipment for Electric Fast Transient/Burst Immunity test (EFT)

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Electrical fast transient generator	Lioncel	EFT-405CN	AT012	2024/7/10~ 2025/7/10
Coupling clamp	Lioncel	EFTC	AT013	2024/7/10~ 2025/7/10

Equipment for Surge Immunity test

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Surge generator	Lioncel	LSG-512H-07CB	AT014	2024/7/10~ 2025/7/10
Surge coupling decoupling network	Lioncel	CDN-5320H-32D C	AT015	2024/7/10~ 2025/7/10

Equipment for Immunity to Conducted Disturbances, Induced by Radio-frequency Fields test (CS)

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Radio frequency conduction immunity test system	Lioncel	RIS-6091 (35W)	AT017	2024/7/10~ 2025/7/10
Rf conducted immunity coupled decoupling network	Lioncel	CDN-M2-16	AT018	2024/7/10~ 2025/7/10
Rf conducted immunity coupled decoupling network	Lioncel	CDN-M3-16	AT031	2024/7/10~ 2025/7/10
6dB RF Attenuator	Lioncel	100W 6dB DC-3GHz	AT019	2024/7/10~ 2025/7/10

Equipment for Voltage Dips/Interruption test (DIP)

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Single-phase AC voltage dip simulator	Lioncel	VDS-1102	AT022	2024/7/10~ 2025/7/10
Adjustable power supply	Lioncel	RGL-220	AT032	2024/7/10~ 2025/7/10

5. Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

System Measurement Uncertainty	
Test Item	Uncertainty
Uncertainty for Conduction emission test in shielding room	2.5dB(150kHz to 30MHz)
Uncertainty for Disturbance power test in shielding room	3.30dB (30MHz~300MHz)
Uncertainty for Radiation emission test in shielding room	4.24dB (30MHz~1000MHz)

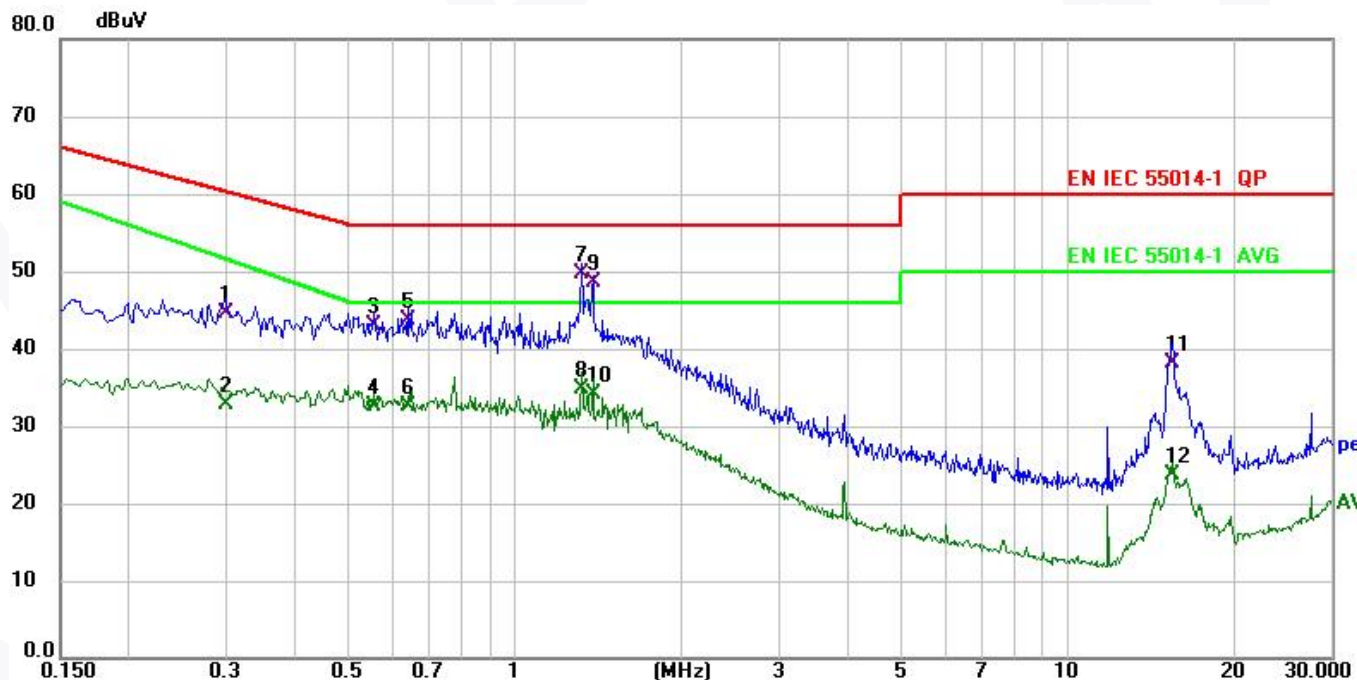
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to specification on conducted Disturbance test.

6.1.5 Conducted Disturbance at Mains Terminals Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

6.1.6 Test Data

EUT: Frequency Password Resonance Health Device
M/N: Health Device 1.0
Test Voltage: AC 230V/50Hz
Phase: Live
Test Mode: Working
Note:
Detailed results are shown below

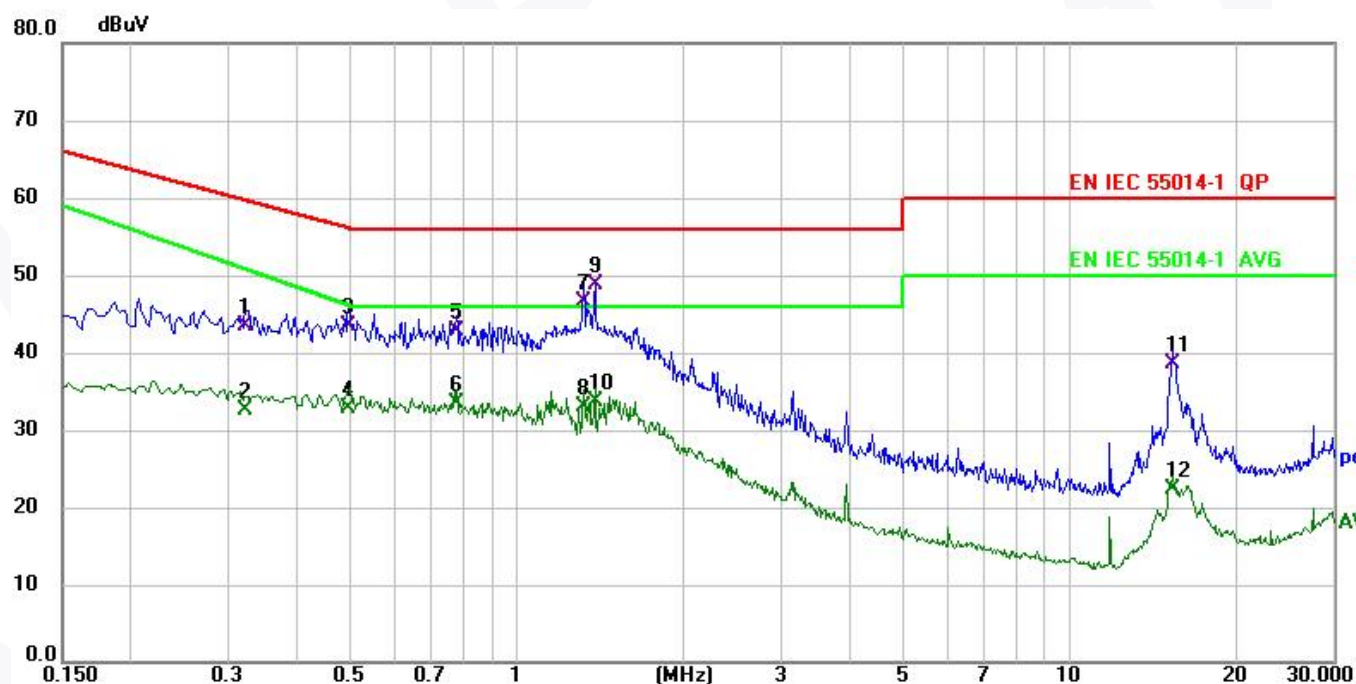


No.	Frequency (MHz)	Reading Level(dB uV)	Factor (dB)	Measurement(dBuV)	Limit (dBuV)	Margin (dB)	Detector	Comment
1	0.298	23.96	20.64	44.60	60.30	-15.70	QP	
2	0.298	12.16	20.64	32.80	51.59	-18.79	AVG	
3	0.554	22.33	20.77	43.10	56.00	-12.90	QP	
4	0.554	11.73	20.77	32.50	46.00	-13.50	AVG	
5	0.638	22.95	20.65	43.60	56.00	-12.40	QP	
6	0.638	11.95	20.65	32.60	46.00	-13.40	AVG	
7 *	1.322	28.81	20.79	49.60	56.00	-6.40	QP	
8	1.322	14.01	20.79	34.80	46.00	-11.20	AVG	
9	1.382	27.70	20.80	48.50	56.00	-7.50	QP	
10	1.382	13.40	20.80	34.20	46.00	-11.80	AVG	
11	15.498	17.11	21.09	38.20	60.00	-21.80	QP	
12	15.498	2.51	21.09	23.60	50.00	-26.40	AVG	

Remark: The test Result=Reading+ Lisn+ Cab L.

If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

EUT: Frequency Password Resonance Health Device
M/N: Health Device 1.0
Test Voltage: AC 230V/50Hz
Phase: Neutral
Test Mode: Working
Note:
Detailed results are shown below



No.	Frequency (MHz)	Reading Level(dB uV)	Factor (dB)	Measurement(dBuV)	Limit (dBuV)	Margin (dB)	Detector	Comment
1	0.322	22.83	20.67	43.50	59.66	-16.16	QP	
2	0.322	11.93	20.67	32.60	50.75	-18.15	AVG	
3	0.494	22.65	20.85	43.50	56.10	-12.60	QP	
4	0.494	11.85	20.85	32.70	46.13	-13.43	AVG	
5	0.778	22.17	20.63	42.80	56.00	-13.20	QP	
6	0.778	12.77	20.63	33.40	46.00	-12.60	AVG	
7	1.322	25.68	20.82	46.50	56.00	-9.50	QP	
8	1.322	12.28	20.82	33.10	46.00	-12.90	AVG	
9 *	1.382	27.97	20.83	48.80	56.00	-7.20	QP	
10	1.382	12.77	20.83	33.60	46.00	-12.40	AVG	
11	15.342	17.34	21.16	38.50	60.00	-21.50	QP	
12	15.342	1.14	21.16	22.30	50.00	-27.70	AVG	

Remark: The test Result=Reading+ Lisn+ Cab L.

If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

6.2 Disturbance Power

6.2.1 Specification Reference

EN IEC 55014-1:2021

6.2.2 Environmental Conditions

Test date	Ambient temperature	Relative humidity	Atmospheric pressure
Jun. 18, 2025	25°C	58%	101.5kPa

6.2.3 Limits

Limit of Disturbance Power		
Frequency Range (MHz)	Quasi-peak (dB(pW))	Average (dB(pW))
30-300	45– 55*	35–45*

Note: 1. * Means the limit increasing linearly with the logarithm of the frequency in the range 30MHz to 300MHz
2. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

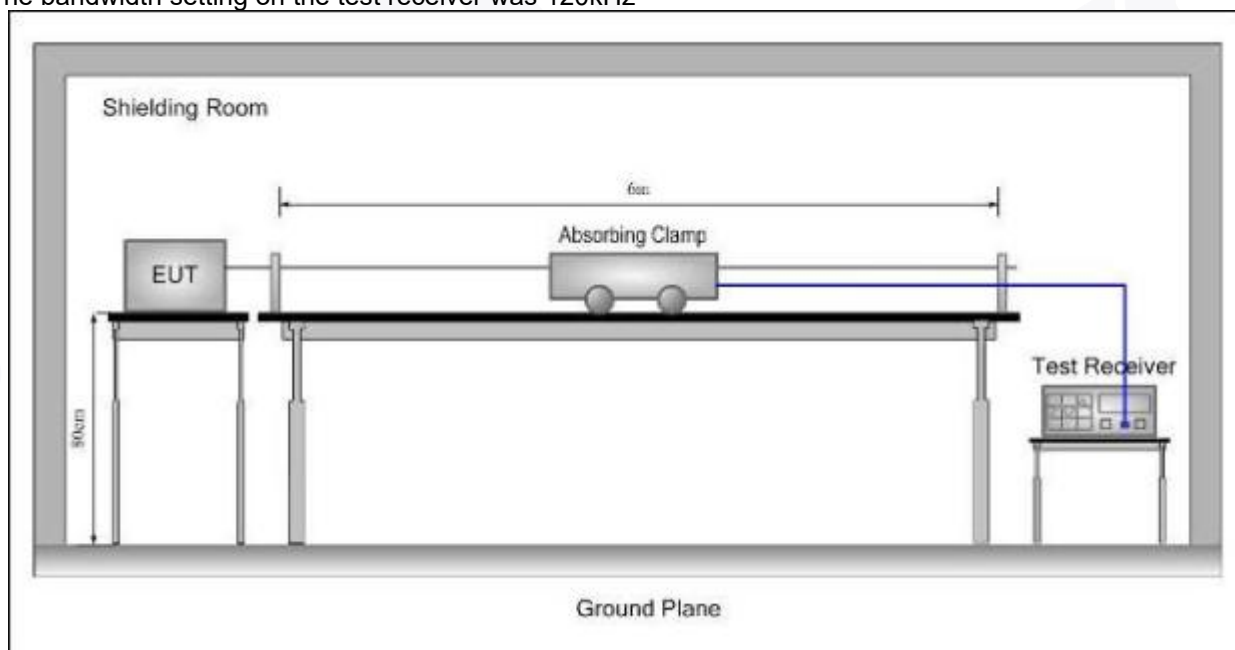
The EUT shall be assessed for emissions in the frequency range from 30MHz to 1000MHz by testing in accordance with either method a) or b), see also Figure 5.a) The disturbance power limits in columns 2 and 3 of Table 7 for the frequency range from 30MHz to 300MHz shall be met by all equipment except for electric tools. For electric tools the limits given in columns 4 to 9 of Table 7 apply. The power ratings given in columns 4 to 9 of Table 7 relate only to the rated power P of the motor. The power taken by resistive loads of the EUT (for instance the power used by the Working elements in an electric blower for plastic welding) is disregarded for the purpose of selecting the limits. The EUT shall be also deemed to comply with the requirement of this document in the frequency range from 300MHz to 1000 MHz without further testing if both conditions 1) and 2) below are fulfilled: 1) the disturbance power emission from the EUT is lower than the limits of Table 7 reduced by the values of Table 8; 2) the maximum clock frequency is less than 30MHz; If either of the conditions 1) or 2) is not fulfilled, radiated measurements in the frequency range from 300MHz to 1 000 MHz shall be performed and the limits of Table 9 for that range applied. In any case, the limits of Table 7 in the frequency range 30 MHz to 300MHz shall be met.
b) The limits for radiated disturbances in Table 9 for the selected test method shall be met.

NOTE: The advantage of method b) is that the assessment in the frequency range 30MHz to 1000 MHz of equipment having leads in addition to the mains lead is done in one measurement only whilst with method a) the leads where applicable, have to be tested separately.

6.2.4 Test Setup& Test Method

The EUT is placed on a table which is 0.8m high above the ground and away from other metallic surface at least 0.8m. It is connected to the power mains through an extension cord of 6m min. The absorber clamp clamps the cord and moves from the far end to the EUT to measure the disturbing energy emitted from the cord.

The EUT was tested in the shielded room. It was pre-scanned with a Peak detector from the spectrum, and all the final readings from the test receiver were measured with the Quasi-Peak detector. The bandwidth setting on the test receiver was 120kHz



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

6.2.5 Disturbance Power Test Results

N/A (The manufacturer selects one of the radiation or power disturbances for testing and evaluation.)

6.3 Radiated Emissions

6.3.1 Specification Reference

EN IEC 55014-1:2021, Clause Annex A.2

6.3.2 Environmental Conditions

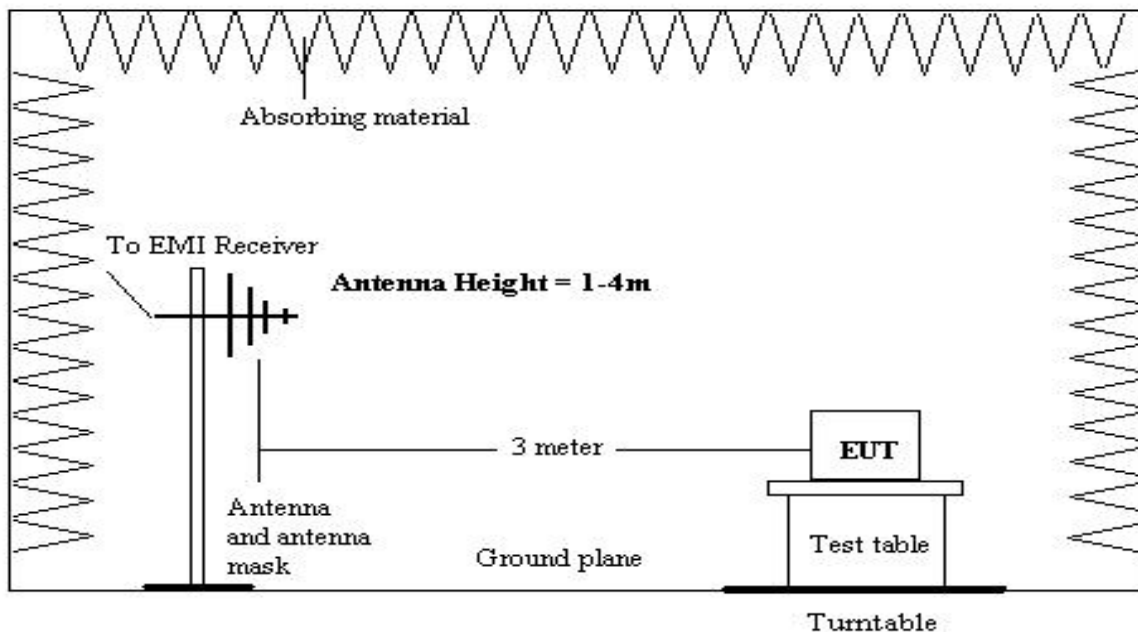
Test date	Ambient temperature	Relative humidity	Atmospheric pressure
Jun. 18, 2025	25°C	58%	101.5kPa

6.3.3 Limits

Limits of Radiated Emissions		
Frequency Range (MHz)	Distance 3m	Distance 10M
	Quasi-peak (dBμV/m)	Quasi-peak (dBμV/m)
30-230	40	30
230-1000	47	37

Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.

6.3.4 Test Setup & Test Method



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

The EUT was placed on the top of a rotating table which is 0.8 meters above the ground. EUT is set 3.0 meters away from the receiving antenna that mounted on a antenna tower. The table was rotated 360 degrees to determine the position of the highest radiation, the antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

Measurements shall be made with a quasi-peak measuring receiver in the frequency range 30MHz to 1000MHz. If the Peak Mode measured value compliance with and lower than quasi-peak mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.

6.3.5 Radiated Emissions Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

6.3.6 Test Data

EUT: Frequency Password Resonance Health Device
M/N: Health Device 1.0
Test Voltage: AC 230V/50Hz
Ant. Pol.: Vertical
Test Mode: Working

Note:

Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Remark
1	43.353	19.60	14.30	33.90	40.00	-6.10	QP	
2 !	85.898	25.82	9.98	35.80	40.00	-4.20	QP	
3 *	112.130	24.01	12.09	36.10	40.00	-3.90	QP	
4 !	132.220	21.90	13.80	35.70	40.00	-4.30	QP	
5 !	186.440	22.34	12.26	34.60	40.00	-5.40	QP	
6	397.633	15.91	17.79	33.70	47.00	-13.30	QP	

Remarks: 1. Result=Reading+ Antenna+ Cable

2. If Peak Result complies with QP Limit, QP Result is deemed to comply with QP Limit.

EUT: Frequency Password Resonance Health Device
M/N: Health Device 1.0
Test Voltage: AC 230V/50Hz
Ant. Pol.: Horizontal
Test Mode: Working

Note:

Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Remark
1	70.090	15.99	11.11	27.10	40.00	-12.90	QP	
2	86.200	23.54	9.96	33.50	40.00	-6.50	QP	
3	93.113	20.90	9.70	30.60	40.00	-9.40	QP	
4 !	131.297	21.07	13.73	34.80	40.00	-5.20	QP	
5 *	142.324	22.70	14.50	37.20	40.00	-2.80	QP	
6 !	373.311	26.58	16.92	43.50	47.00	-3.50	QP	

Remarks: 1. Result=Reading+ Antenna+ Cable

2. If Peak Result complies with QP Limit, QP Result is deemed to comply with QP Limit.

6.4 Harmonic current emission

6.4.1 Specification Reference

EN IEC 61000-3-2:2019/A2:2024 Clause 7
Limits for Class A equipment

6.4.2 Equipment Under Test

The following equipments are installed on conducted emission test to meet EN IEC 61000-3-2 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

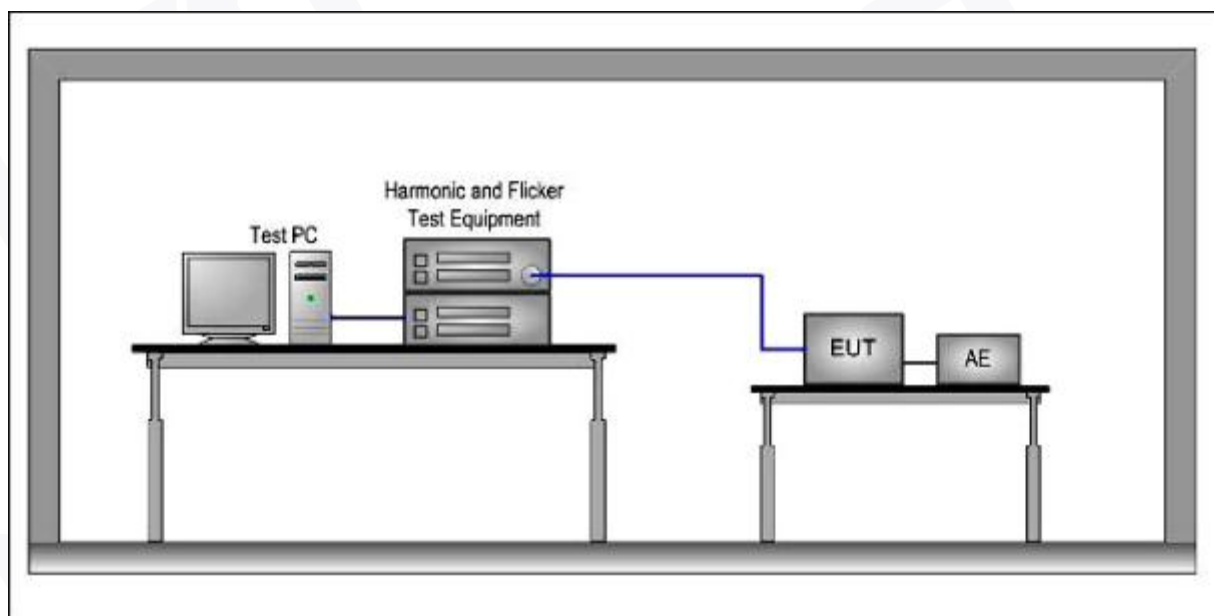
6.4.3 Environmental Conditions

Test date	Ambient temperature	Relative humidity	Atmospheric pressure
Jun. 18, 2025	25°C	58%	101.4kPa

6.4.4 Test Setup& Test Method

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.

The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the necessary for the EUT to be exercised.



6.4.5 Classification of equipment

For the purpose of harmonic current limitation, equipment is classified as follows:

Class A:

For the purpose of harmonic current limitation, equipment is classified as follows:

Class A: Equipment not specified as belonging to Class B, C or D shall be considered as Class A equipment.

Some examples of Class A equipment are:

- Balanced three-phase equipment;
- Household appliances, excluding those specified as belonging to Class B, C or D;
- Vacuum cleaners;
- High pressure cleaners;
- Tools, excluding portable tools;
- Independent phase control dimmers;
- Audio equipment;
- Professional luminaires for stage lighting and studios.

Class B:

- Portable tools;
- Arc welding equipment which is not professional equipment.

Class C:

- lighting equipment.

Class D:

Equipment having a specified power according to EN 61000-3-2: 2019 Clause 6.3.2, less than or equal to 600 W, of the following types:

- Personal computers and personal computer monitors;
- Television receivers;
- Refrigerators and freezers having one or more variable-speed drives to control compressor motor(s).

6.4.6 Limits

Remark: If the EUT power level is below 75 Watts and therefore has no defined limits.

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

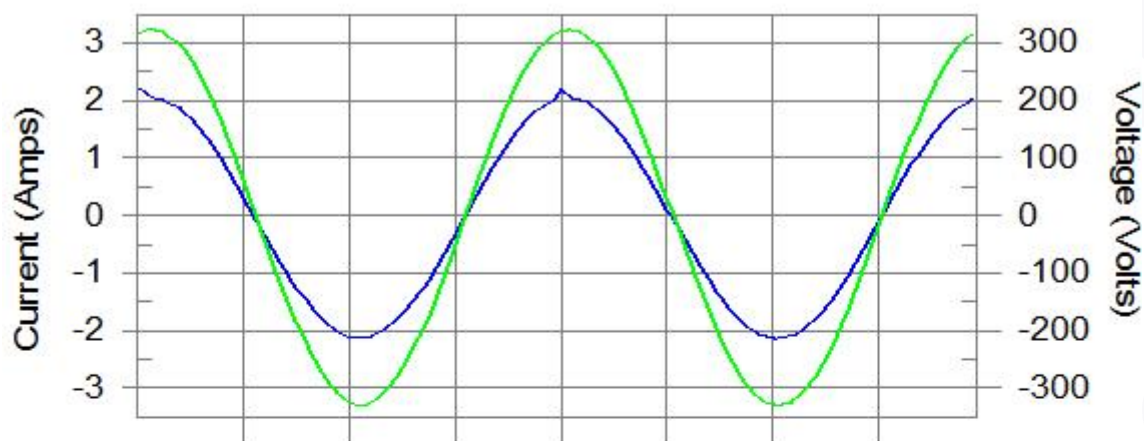
Limits for Class D equipment		
Harmonic order	Maximum permissible harmonic current per watt	Maximum permissible harmonic current
n	mA/W	A
Odd harmonics		
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
$13 \leq n \leq 39$ (odd harmonics only)	$3.85/n$	$0.15 \ 15/n$

6.4.7 Test Results

Pass

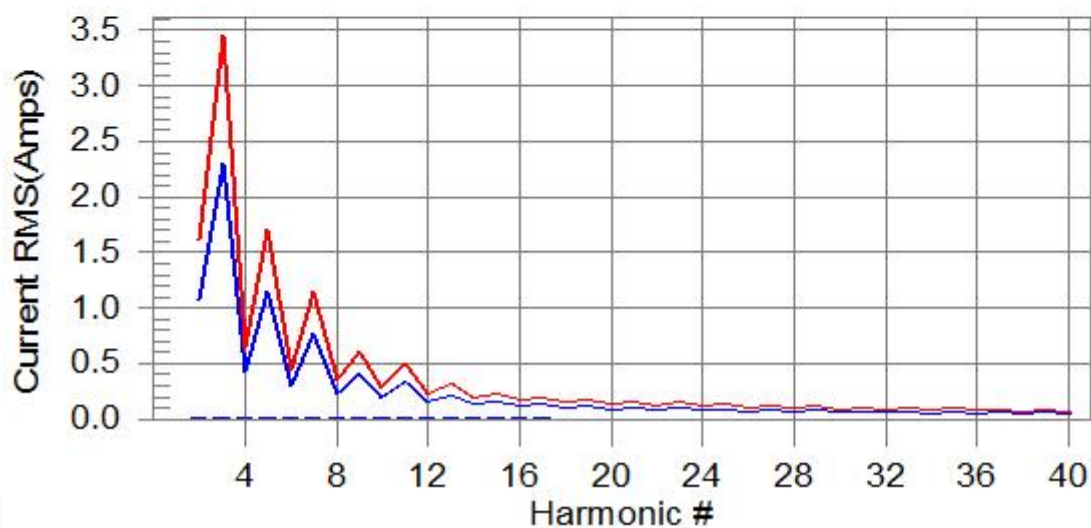
6.4.8 Test Data

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass Worst harmonics H0-0.0% of 150% limit, H0-0% of 100% limit

6.5 Voltage Fluctuations-Flicker

6.5.1 Specification Reference

EN 61000-3-3:2013/A2:2021/AC:2022, Clause 5

6.5.2 Equipment Under Test

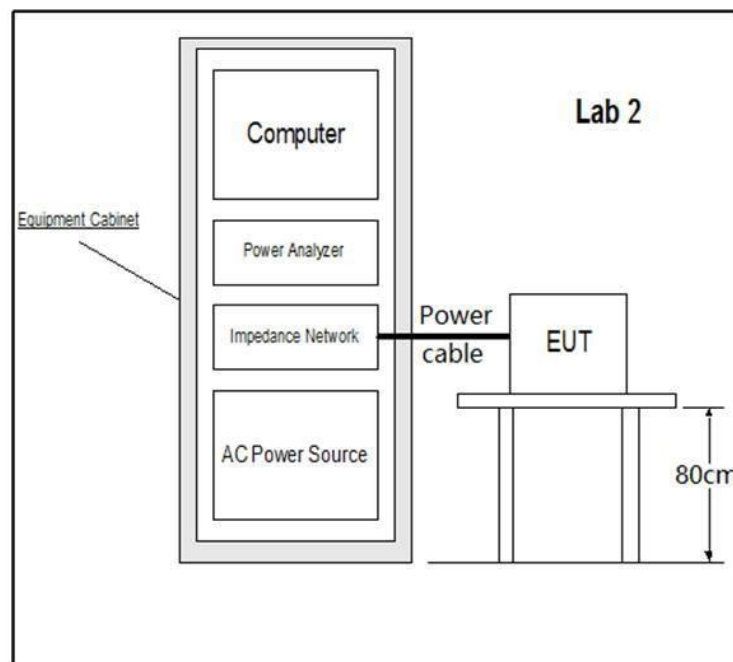
The following equipments are installed on conducted emission test to meet EN 61000-3-3 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

6.5.3 Environmental Conditions

Test date	Ambient temperature	Relative humidity	Atmospheric pressure
Jun. 18, 2025	25°C	58%	101.4kPa

6.5.4 Test Setup& Test Method

For equipment not mentioned in annex A, controls or automatic programs should be set to produce the most unfavourable sequence of voltage change, using only those combinations of controls and programmes which are mentioned by the manufacturer in the instruction manual, or are otherwise likely to be used



6.5.5 Limits

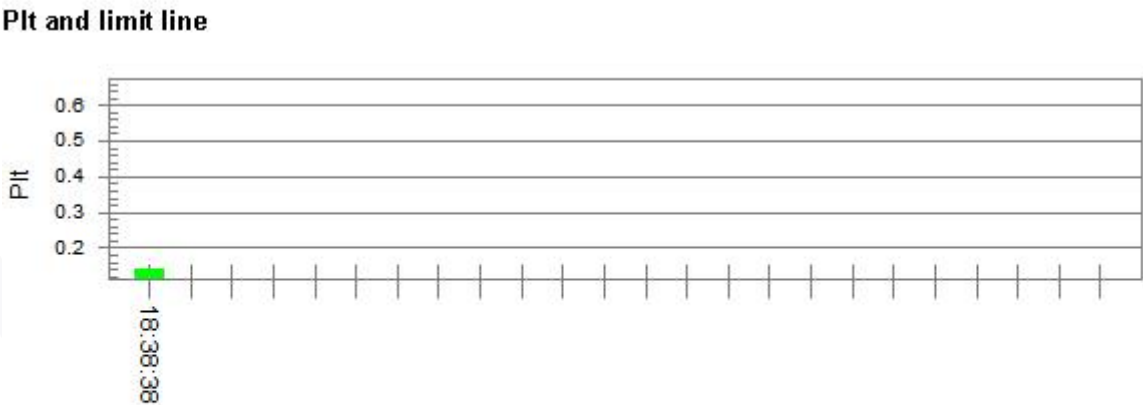
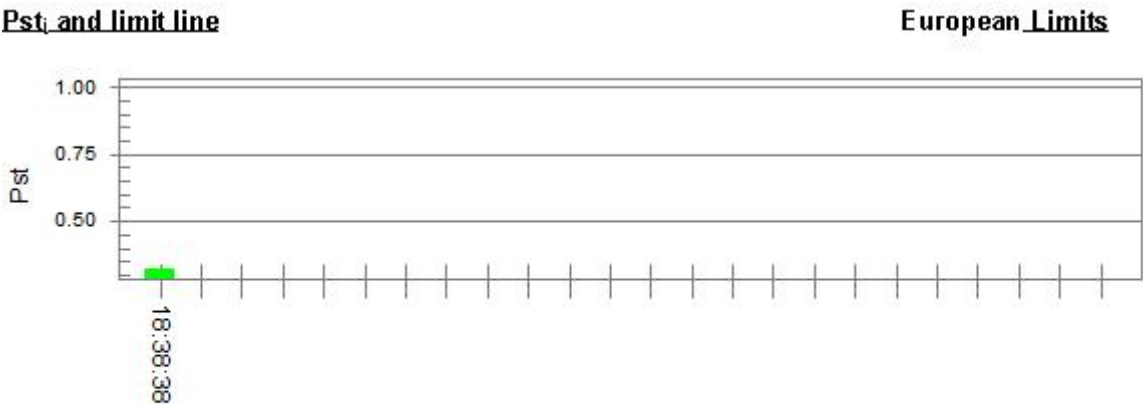
Test Item	Limit	Note
Pst	1.0	Pst means Short-term flicker indicator
Plt	0.65	Plt means long-term flicker indicator
Tmax	500ms	Tmax means maximum time that d(t) exceeds 3.3%
dmax(%)	4%	dmax means maximum relative voltage change.
dc(%)	3.3%	dc means relative steady-state voltage change.



6.5.6 Test Results

Pass

6.5.7 Test Data



Parameter values recorded during the test:

Vrms at the end of test (Volt): 230.20				
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.21	Test limit (%):	3.30	Pass
Highest dmax (%):	0.28	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.320	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.140	Test limit:	0.650	Pass

7. Immunity Test Result

Performance criteria for EN 55014-2

The performance criteria are based on the general criteria of the standard and derived from the product specification

Criterion A:

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. 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 by what the user may reasonably expect from the equipment if used as intended.

Criterion B:

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of 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, and by what the user may reasonably expect from the equipment if used as intended.

Criterion C:

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

Basic EMC standard for immunity test

IEC/EN 61000-4-2: Electromagnetic Compatibility (EMC) – Part 4: testing and measurement techniques – section 2: electrostatic discharge immunity test

IEC/EN 61000-4-3: Electromagnetic Compatibility (EMC) – Part 4: testing and measurement techniques – section 3: radiated, radio frequency, electromagnetic field immunity test

IEC/EN 61000-4-4: Electromagnetic Compatibility (EMC) – Part 4: testing and measurement techniques – section 4: electric fast transient/burst immunity test

IEC/EN 61000-4-5: Electromagnetic Compatibility (EMC) – Part 4: testing and measurement techniques – section 5: surge immunity test

IEC/EN 61000-4-6: Electromagnetic Compatibility (EMC) – Part 4: testing and measurement techniques – section 6: immunity to conducted disturbance, induced by radio frequency field

IEC/EN 61000-4-8: Electromagnetic compatibility (EMC) — Part 4: testing and measurement techniques — Section 8: Power frequency magnetic field immunity test.

IEC/EN 61000-4-11: Electromagnetic Compatibility (EMC) – Part 4: testing and measurement techniques – section 11: voltage dips, short interruption and voltage variations immunity test

Note: For the above standards, the latest edition (including any amendments) applies.

7.1 Electrostatic Discharge (ESD)

7.1.1 Specification Reference

EN IEC 55014-2:2021, Clause 5.1, Table 1
EN 61000-4-2:2009

7.1.2 Test Setup & Test Method

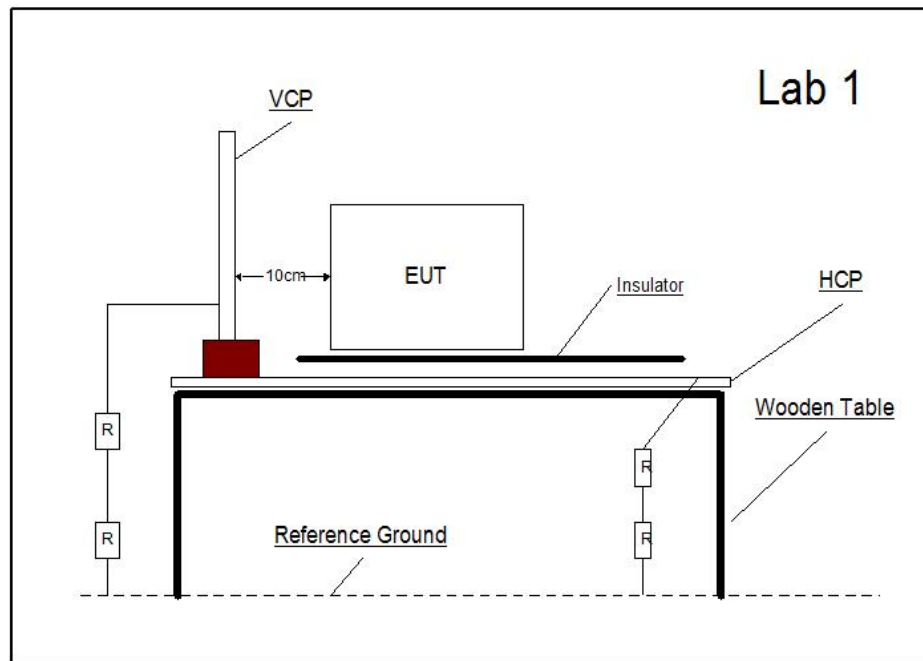


Table-top equipment

VCP: Vertical Coupling Plane 0.5 x 0.5 m

HCP: Horizontal Coupling Plane 0.95 x 1.6 m

R. Ground: 2 x 2 m

R: 470 K Ω

The equipment under test including associated cabling was configured on but insulated from, using a 0.5mm isolator, a horizontal coupling plane fitted to the top of a 0.8 m non-conductive table for table-top equipment; and on a 0.1 m insulated support for floor standing equipment; above a ground reference plane all within a test laboratory.

Air Discharge:

The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 20 times for each pre-selected test point. This procedure was repeated until all the air discharge completed.

Contact Discharge:

All the procedure was same as Section 8.5.1. Except that the generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. The tip of the discharge electrode was touch the EUT before the discharge switch was operated.

Indirect discharge for horizontal coupling plane:

At least 20 single discharges were applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

Indirect discharge for vertical coupling plane:

At least 20 single discharges were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, was placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

For the time interval between successive single discharges an initial value of one second. After discharge to the ungrounded part of EUT, it needs the bleeder resistor to remove the charge prior to next ESD pulse.

During this testing any anomalies in the equipment under tests performance was recorded.

7.1.3 Limits

Required Test Levels				
Discharge type	Discharge Level (kV)		Number of discharges per location (each)polarity	Performance Criteria
	Positive	Negative		
Air – Direct	2, 4 and 8	2, 4 and 8	see note 1	B
Contact – Direct	4	4	see note 1	B
Contact – Indirect	4	4	see note 1	B
Supplementary information: Note 1. The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. For table-top equipment one of the test points shall be the center front edge of the horizontal coupling plane, which shall be subjected to at least 50 indirect discharges (25 of each polarity).				

7.1.4 Test Results

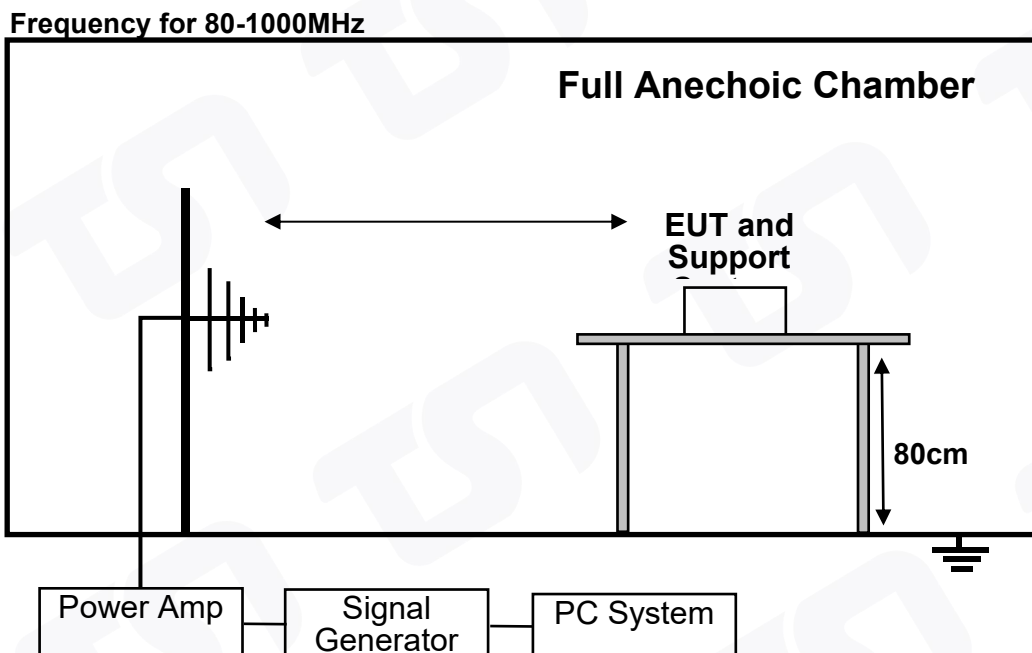
EUT	:	Frequency Password Resonance Health Device		Test Date	:	Jun. 18, 2025	
M/N	:	Health Device 1.0		Test Mode	:	Working	
Test Voltage	:	AC 230V/50Hz		Temperature	:	23.1°C	
Humidity	:	59%		Pressure	:	101.5kPa	
Air Discharge:		±8kV	For Air Discharge each Point Positive 10 times and negative10 times discharge				
Contact Discharge:		±4kV	For Contact Discharge each point positive 10 times and negative 10 times discharge				
Discharge Voltage (kV)	Type of discharge	Dischargeable Points	Performance		Result (Pass/Fail)		
			Required	Observation			
±4	Contact	Center of VCP	B	A	Pass		
±4	Contact	Center of HCP	B	A	Pass		
±2, ±4	Contact	/	B	/	/		
±2, ±4, ±8	Air	1,2	B	A	Pass		
Discharge Points Description							
1	Surface		8	--			
2	Screen		9	--			
3	--		10	--			
4	--		11	--			
5	--		12	--			
6	--		13	--			
7	--		14	--			
Performance: The EUT was no change compared with initial operation during the test.							

7.2 Radio frequency electromagnetic fields (RS)

7.2.1 Specification Reference

EN IEC 55014-2:2021, Clause 5.5, Table 11
EN IEC 61000-4-3:2020

7.2.2 Test Setup & Test Method



The equipment under test including associated cabling was configured, on a 0.8 m non-conductive table for table-top equipment and on a 0.1m insulated support for floor standing equipment; with a pre-calibrated semi anechoic chamber.

All four sides of the equipment under test were subjected to the required RF field strength, modulated as described, swept over the frequency range of test with the antenna positioned in both horizontal and vertical polarizations.

During this testing any anomalies in the equipment under tests performance was recorded.

7.2.3 Limits

Required Test Levels					
Frequency Range (MHz)	Level (V/m)	Modulation	Step Size (%)	Dwell (s)	Performance Criteria
80 to 1000	3	AM (80 %, 1 kHz, sine wave)	1	>1	A
1000 to 6000	3	AM (80 %, 1 kHz, sine wave)	1	>1	A

Supplementary information:
Note 1. EUT powered at one of the Nominal input voltages and frequencies
Note 2: Only Category IV of products are required for testing

7.2.4 Test Results

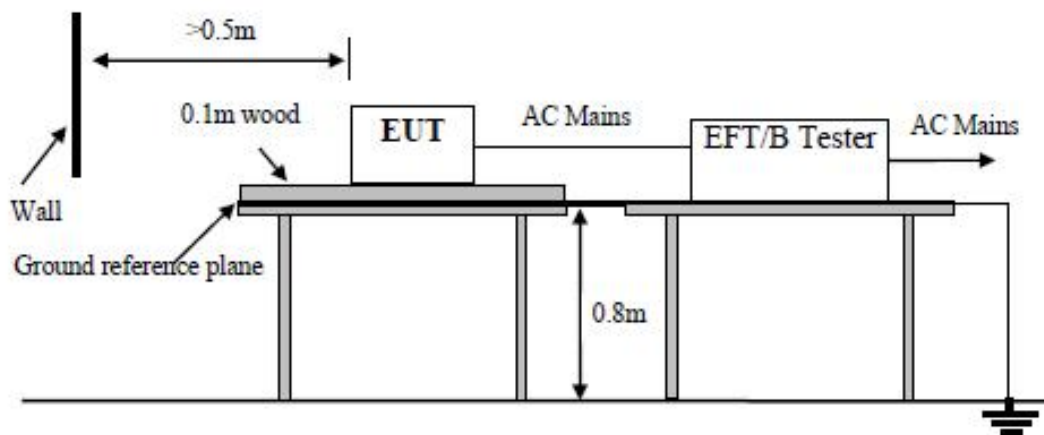
EUT	:	Frequency Password Resonance Health Device	Test Date	:	Jun. 18, 2025
M/N	:	Health Device 1.0	Test Mode	:	Working
Test Voltage	:	AC 230V/50Hz	Temperature	:	23.5°C
Humidity	:	59%	Pressure	:	101.5kPa
Test Level	:	3 V/m	Dwell Time	:	3 s
Modulation	:	AM (80 %,1 kHz, sine wave)	Step Size (%)	:	1
Test Frequency Range	Side of the equipment under test	Antenna polarization (Vertical/Horizontal)	Performance		Result
			Required	Observation	(Pass/Fail)
80-1000 MHz	All sides	Vertical& Horizontal	A	/	/
1000-6000 MHz	All sides	Vertical& Horizontal	A	/	/
Performance: EUT belongs to Category II products, the test item is not applicable.					

7.3 Electric Fast Transient/Burst Immunity (EFT)

7.3.1 Specification Reference

EN IEC 55014-2:2021, Clause 5.2, Table 2, 3, 4
EN 61000-4-4:2012

7.3.2 Test Setup & Test Method



The EUT and its simulators were placed on a ground reference plane and were insulated from it by a wood support 0.1m + 0.01m thick. The ground reference plane was 1m*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane was project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane was more than 0.5m. The length of signal and power cable between EUT and EFT generator was 0.5m. All cables to the EUT was placed on the wood support, cables not subject to EFT/B was routed as far as possible from the cable under test to minimize the coupling between the cables.

During this testing any anomalies in the equipment under tests performance was recorded

7.3.3 Limits

Open Circuit Output Test Voltage ±10%			
Severity Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control Lines, DC Line	Performance criterion
1.	0.5KV	0.25KV	B
2.	1KV	0.5KV	
3.	2KV	1KV	
4.	4KV	2KV	
X	Special	Special	
The use of 5 kHz repetition frequency is traditional, however, 100 kHz is closer to reality. Product committees should determine which frequencies are relevant for specific products or product types. With some products, there may be no clear distinction between power ports and signal ports, in which case it is up to product committees to make this determination for test purposes.			
a "X" can be any level, above, below or in between the others. The level shall be specified in the dedicated equipment specification.			

7.3.4 Test Results

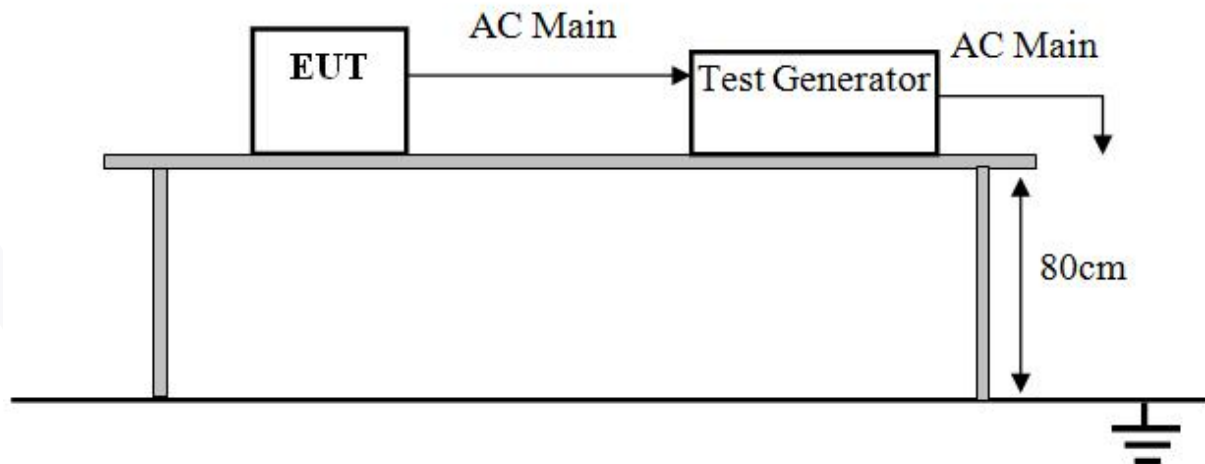
EUT	:	Frequency Password Resonance Health Device		Test Date	:	Jun. 18, 2025	
M/N	:	Health Device 1.0		Test Mode	:	Working	
Test Voltage	:	AC 230V/50Hz		Temperature	:	23.5°C	
Humidity	:	59%		Pressure	:	101.5kPa	
Repetition Frequency :		5kHz	Burst Duration :		15ms	Burst Period :	300ms
Inject Time(s):	120s	Inject Method: ☒ Direct ☐ Capacitive Clamp			Inject Line: ☒ AC Mains ☐ DC Mains ☐ Signal		
Line	Test Voltage	Performance		Result			
		Required	Observation	(Pass/Fail)			
L	±1.0kV	B	A	Pass			
N	±1.0kV	B	A	Pass			
L-N	±1.0kV	B	A	Pass			
L-PE	±1.0kV	B	--	--			
N-PE	±1.0kV	B	--	--			
L-N-PE	±1.0kV	B	--	--			
Signal Line	--	--	--	--			
DC Line	--	--	--	--			
Performance: There was no change compared with initial operation during the test.							

7.4 Surge Immunity

7.4.1 Specification Reference

EN IEC 55014-2:2021, Clause 5.6, Table 12
EN 61000-4-5:2014/A1:2017

7.4.2 Test Setup & Test Method



The equipment under test including associated cabling was configured, on a 0.8 m non-conductive table for table-top equipment and on a 0.1 m insulated support for floor standing equipment above a ground reference plane all within a test laboratory.

Using CDNs for power ports and appropriate coupling methods for applicable signal and control ports, the required number of surges was applied for each surge voltage level using both positive and negative surge voltage polarities. Surges were applied at the power line frequency phase angles and repartition rates detailed.

During this testing any anomalies in the equipment under tests performance was recorded

7.4.3 Limits

Required Test Levels					
Line Under Test	Level (kV)	Surge Waveform	Phase Angles (°)	Number of Pulse	Performance Criteria
AC Power Port	± 1 (Line to Line) ± 2 (Line to Earth)	1.2/50 (8/20)	+90, -270	5 per polarity	B
Control and Signal Line, DC Line	± 0.5 (Line to Line) ± 0.5 (Line to Earth)	1.2/50 (8/20)	+90, -270	5 per polarity	B

Supplementary information:
Note 1. EUT powered at one of the Nominal input voltages and frequencies

7.4.4 Test Results

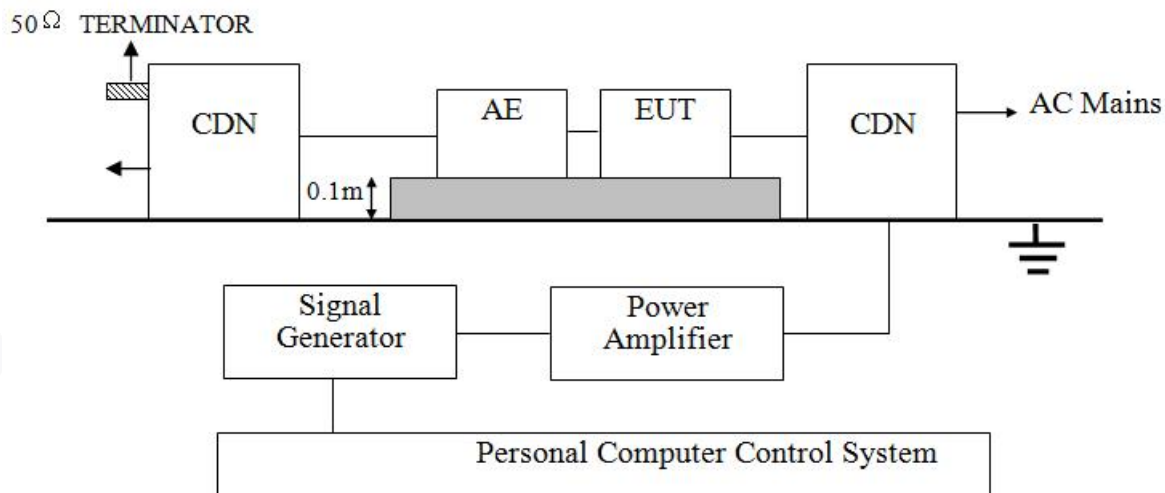
EUT	:	Frequency Password Resonance Health Device	Test Date	:	Jun. 18, 2025			
M/N	:	Health Device 1.0	Test Mode	:	Working			
Test Voltage	:	AC 230V/50Hz	Temperature	:	23.5°C			
Humidity	:	59%	Pressure	:	101.5kPa			
Required Performance	:	B	Actual Performance	:	A			
Counts of pulse:	:	+5 times, -5 times	Interval	:	60 Seconds			
Line : ☒ AC Mains ☐ DC Supply ☐ Signal :WAN & LAN Port								
Location	Volt	500V		1kV		2kV		Result
	Phase	Performance		Performance		Performance		(Pass/Fail)
		+	-	+	-	+	-	
L-N	0°	--	--	--	--	--	--	--
	90°	--	--	A	--	--	--	Pass
	180°	--	--	--	--	--	--	--
	270°	--	--	--	A	--	--	Pass
L-N-PE	0°	--	--	--	--	--	--	--
	90°	--	--	--	--	--	--	--
	180°	--	--	--	--	--	--	--
	270°	--	--	--	--	--	--	--
Signal &Control Line, DC Line	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
Performance: There was no change compared with initial operation during the test.								

7.5 Injected currents (CS)

7.5.1 Specification Reference

EN IEC 55014-2:2021, Clause 5.3, Table 7; Clause 5.4, Table 10
EN 61000-4-6:2014/A1:2015/EN IEC 61000-4-6:2023

7.5.2 Test Setup & Test Method



The equipment under test was configured, on but insulated from, using a 0.1 m isolator, a horizontal coupling plane fitted to the top of a 0.8 m non-conductive table for table-top equipment; and on a 0.1 m insulated support for floor standing equipment; above a ground reference plane all within a test laboratory.

All associated cabling was configured, on but insulated from, using a 50 mm isolator, the same horizontal coupling plane as the equipment under test.

Using CDNs, EM Clamps or current clamps as appropriate, the power ports and applicable signal and control ports were subjected to required, pre calibrated RF injected signal strength, modulated as described, swept over the frequency range of test.

During this testing any anomalies in the equipment under tests performance was recorded.

7.5.3 Limits

Category II Products Required Test Levels						
Line Under Test	Frequency Range (MHz)	Level (V)	Modulation	Step Size (%)	Dwell (s)	Performance Criteria
a.c Mains Line	0.15 to 230	3	AM (80 %,1kHz,sine wave)	1	>1	A
Control and Signal Line	0.15 to 230	1	AM (80 %,1kHz,sine wave)	1	>1	A
DC Line:	0.15 to 230	1	AM (80 %,1kHz,sine wave)	1	>1	A
Category III&IV&V Products Required Test Levels						
Line Under Test	Frequency Range (MHz)	Level (V)	Modulation	Step Size (%)	Dwell (s)	Performance Criteria
a.c Mains Line	0.15 to 80	3	AM (80 %,1kHz,sine wave)	1	>1	A
Control and Signal Line	0.15 to 80	1	AM (80 %,1kHz,sine wave)	1	>1	A
DC Line:	0.15 to 80	1	AM (80 %,1kHz,sine wave)	1	>1	A
Supplementary information: Note 1: EUT powered at one of the Nominal input voltages and frequencies Note 2: Category I products no required test. Note 3: Test frequency range for category 2 and 3 products: 0.15-230MHz. Note 4: Test frequency range for category 4 products: 0.15-80MHz.						

7.5.4 Test Results

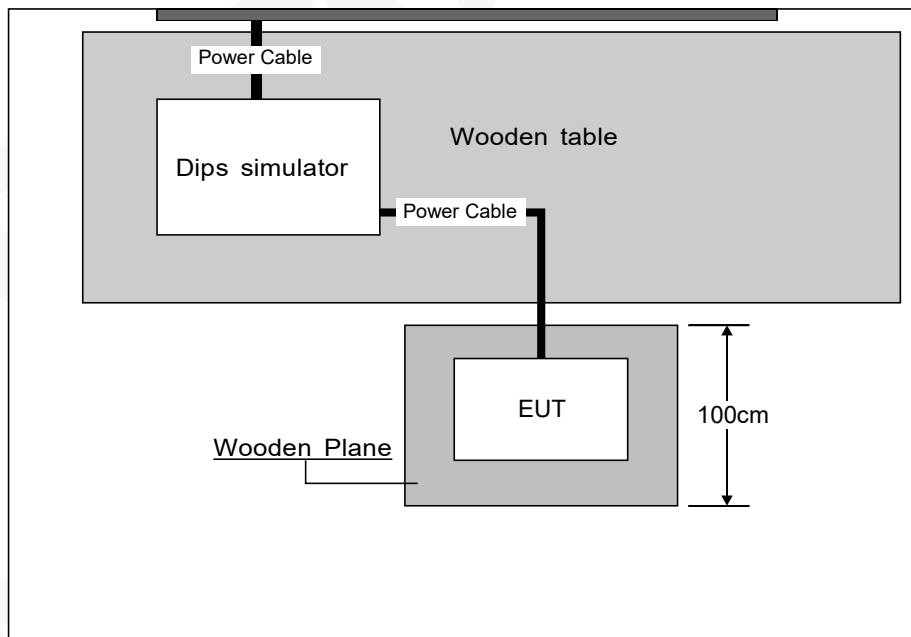
EUT	:	Frequency Password Resonance Health Device	Test Date	:	Jun. 18, 2025
M/N	:	Health Device 1.0	Test Mode	:	Working
Test Voltage	:	AC 230V/50Hz	Temperature	:	23.5°C
Humidity	:	59%	Pressure	:	101.5kPa
Modulation Signal: 1kHz, 80% AM					
Frequency Range (MHz)	Injected Position	Voltage Level (r.m.s)	Performance		Result
			Required	Observation	(Pass/Fail)
0.15-230	AC mains	3V	A	A	Pass
Performance: There was no change compared with initial operation during the test.					

7.6 Voltage Dips

7.6.1 Specification Reference

EN IEC 55014-2:2021, Clause 5.7, Table 14
EN IEC 61000-4-11:2020

7.6.2 Test Setup & Test Method



The equipment under test including associated cabling was configured, on a 0.8 m non-conductive table for table-top equipment and on a 0.1 m insulated support for floor standing equipment above a ground reference plane all within a test laboratory.

Using a programmable power supply the equipment under test was subjected to the detailed supply voltage dips and interruptions. The required supply phase synchronization and test repetition rate, detailed, was controlled by the programmable power supply.

During this testing any anomalies in the equipment under tests performance was recorded.

7.6.3 Limits

Required Test Levels				
Environmental phenomena (Voltage dips in %Ut)	Test Level in % of rated Ut (%)	Duration(in period)		Performance Criteria
		50Hz	60Hz	
Voltage Dip 100	0	0.5		C
Voltage Dip 60	40	10	12	C
Voltage Dip 30	70	25	30	C
Supplementary information: Note 1. EUT powered at one of the Nominal input voltages and frequencies				

7.6.4 Test Results

EUT	:	Frequency Password Resonance Health Device			Test Date	:	Jun. 18, 2025	
M/N	:	Health Device 1.0			Test Mode	:	Working	
Test Voltage	:	AC 230V/50Hz			Temperature	:	23.8°C	
Humidity	:	56%			Pressure	:	101.5kPa	
Environmental phenomena (Voltage dips in %Ut)	Test Level in %Ut	Duration (in period)		Phase Angle	Performance		Result	
		50Hz	60Hz		Required	Observation	(Pass /Fail)	
100	0	0.5P		0° ,180°	C	A	Pass	
60	40	10P	12P	0° ,180°	C	A	Pass	
30	70	25P	30P	0° ,180°	C	A	Pass	
Performance: There was no change compared with initial operation during the test.								

8. Photographs - Constructional Details

Photo 1 External photos of EUT



-----END OF REPORT-----