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EMC TEST REPORT

Report No: TST20250303532-2ER

Product Name: USB CAN ANALYZER

Model No.: SAVVYCANFD C

Applicant: Shenzhen Pibiger Technology Co., Ltd.

EXECUTIVE SUMMARY

A sample of this product was tested and found to be in compliance with EN 55032:2015/A11:2020, EN 55032:2015/A1:2020, EN 55035:2017/A11:2020, 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	USB CAN ANALYZER				
Model No.	SAVVYCANFD C				
Rating	DC 5V 0.1A 0.5W				
Trade Mark	PIBIGER				
Applicant	**Name**	Shenzhen Pibiger Technology Co., Ltd.			
	Address	RM922,No. 20th building of Xiang Nan 4th district, Zhang Keng Community, Minzhi street, Longhua District, Shenzhen,China			
Manufacturer	**Name**	Shenzhen Pibiger Technology Co., Ltd.			
	Address	RM922,No. 20th building of Xiang Nan 4th district, Zhang Keng Community, Minzhi street, Longhua District, Shenzhen,China			
Factory	**Name**	Shenzhen Pibiger Technology Co., Ltd.			
	Address	RM922,No. 20th building of Xiang Nan 4th district, Zhang Keng Community, Minzhi street, Longhua District, Shenzhen,China			
Standard	**EN 55032:2015/A11:2020, EN 55032:2015/A1:2020 EN 55035:2017/A11:2020 EN IEC 61000-3-2:2019/A2:2024 EN 61000-3-3:2013/A2:2021/AC:2022**				
Test Location	Room 201, No.20, East of Houjie Avenue, Houjie, Dongguan, Guangdong, China				
Receipt Date	2025.03.18	**Test period**	2025.03.18-2025.03.21	**Issue Date**	2025.03.21
Conclusion	**The equipment under test was found to be compliance with the requirements of the standards applied.**				

Tested by:	**Approved by:**
Engineer	Manager

Contents

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 55032:2015/A11:2020, EN 55032:2015/A1:2020)				
Description of Test Item	Standard	Results	Remark	
Conducted Emission at The Main Terminals Test	EN 55032:2015/A11:2020, EN 55032:2015/A1:2020	N/A	Note 1	
Conducted Emission at Telecommunication Port Test	EN 55032:2015/A11:2020, EN 55032:2015/A1:2020	N/A		
Radiated emission (30-1000MHz)	EN 55032:2015/A11:2020, EN 55032:2015/A1:2020	PASS	Class B	
Radiated emission Above 1GHz	EN 55032:2015/A11:2020, EN 55032:2015/A1:2020	N/A		
Harmonic current emission	EN IEC 61000-3-2:2019/A2:2024	N/A	Note 1	
Voltage Fluctuations-Flicker	EN 61000-3-3:2013/A2:2021/AC :2022	N/A	Note 1	
IMMUNITY(EN 55035:2017/A11:2020)				
Description of Test Item	Basic Standard	Results	Performance Criteria	Observation Criteria
Electrostatic Discharge (ESD)	EN 61000-4-2:2009	PASS	B	A
Electromagnetic field immunity (RS)	EN 61000-4-3:2006 /A1:2008/A2:2010	PASS	A	A
Electric Fast Transient/Burst Immunity (EFT)	EN 61000-4-4:2012	N/A	B	Note 1
Surge Immunity	EN 61000-4-5:2014 /A1:2017	N/A	B	Note 1
Immunity to Conducted Disturbances, Induced by Radio-frequency Fields(CS)	EN 61000-4-6:2014 /A1:2015	N/A	A	Note 1
Power- frequency magnetic field	EN 61000-4-8:2010	N/A	Note 2	
Voltage dips, 100% reduction	EN 61000-4-11:2020	N/A	B	Note 1
Voltage dips, 30% reduction		N/A	C	Note 1
Voltage Interruptions, 100% reduction		N/A	C	Note 1
"N/A" is an abbreviation for Not Applicable.				
Note 1: The EUT is powered by the DC only and has no antenna port, the test item is not applicable. Note 2: Applicable only to EUT containing devices susceptible to magnetic fields, such as CRT monitors, Hall elements, electrodynamics microphones, magnetic field sensors, etc.				
Final Judgment :**PASS**				

2. 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.

2.1 Product Information

2.1.1 General Description of EUT (Equipment Under Test)

Product Name	:	USB CAN ANALYZER
Models	:	SAVVYCANFD C
Listed Models	:	/
Ratings	:	DC 5V 0.1A 0.5W

2.2 Test Configuration

Test samples	Configuration	Description
1. SAVVYCANFD C	DC Powered	1. DC 5V From the Auxiliary Equipment Input

2.3 Modes of Operation

Pretest Mode	Description
Mode 1	Full Power

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.

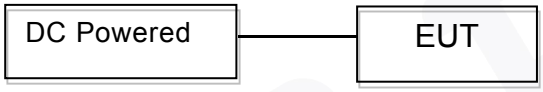
The EUT system operated these modes were found to be the worst case during the pre-scanning test as Following:

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

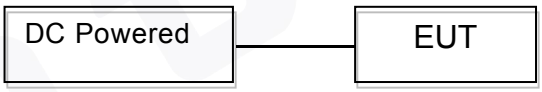
2.4 Block Diagram Showing The Configuration of System Tested

EUT：USB CAN ANALYZER

EMI:



EMS:



Highest internal frequency : <108MHz

EUT type : ☒ Table top ☐ Floor standing

2.5 Tested Supporting System Details

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

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

3. Test Equipment Information

3.1 General Test Equipment Used

Equipment for conduction emission test

Equipment	Manufacturer	Model No.	Serial No.
Receiver	R&S	ESR3	102054
LISN	AFJ	LS16	16011618383
ISN	Schwarzbeck	ISN-CAT6	NTFM81580138
Pulse limiter	Compliance Direction	PLA-10N	110525-010-2006

Equipment for Radiation emission test

Equipment	Manufacturer	Model No.	Serial No.
Receiver	R&S	ESR3	102055
Trilog-boardband antenna	Schwarzbeck	VULB 9163D	9163-961

Equipment for HARMONIC/FLICKER test

Equipment	Manufacturer	Model No.	Serial No.
Harmonic & Flicker analyzer	California Instruments	100-CTS-230	1626A00278
Programmable power supply	California Instruments	5001Ix-CTS-400	1629A02598

Equipment for ESD test

Equipment	Manufacturer	Model No.	Serial No.
ESD generator	Noiseken	ESS-L1611	ESS1643151

Equipment for RS test

Equipment	Manufacturer	Model No.	Serial No.
Signal generator	R&S	SMC100A	105651
Power amplifier	PRANA	MT400	1507-1746
Power amplifier	PRANA	SV70	1602-1820
Trilog-boardband antenna	Schwarzbeck	STLP 9128E	9128ES-136
Horn antenna	Schwarzbeck	BBHA 9120E	BBHA9120E698
Power meter	R&S	NRP2	105155

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

Equipment	Manufacturer	Model No.	Serial No.
EFT generator	Noiseken	FNS-AX3-A16C	FNS1621762
Coupling clamp	Noiseken	15-00009A	FNS15Y1753

Equipment for Surge Immunity test

Equipment	Manufacturer	Model No.	Serial No.
Surge generator	Noiseken	LSS-6230A	LSS1634248
Telecom lines CDN	Noiseken	LSS-INJ6401TEL	LSS1654360
Interconnection lines unit	Noiseken	LSS-INJ6401SIG	LSS1654361

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

Equipment	Manufacturer	Model No.	Serial No.
Signal generator	R&S	SMC100A	105651
CDN	TESEQ	M016	43434
Power amplifier	PRANA	DR220	1602-1819
EM clamp	TESEQ	KEMA 801A	41399

Equipment for Voltage Dips/Interruption test (DIP)

Equipment	Manufacturer	Model No.	Serial No.
Dips simulator	Noiseken	VDS-2002	VDS1510396

4. 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 Radiation emission test in shielding room	4.24dB (30MHz~1000MHz)

5. Emission Test Result

5.1 Conducted Emissions

5.1.1 Specification Reference

EN 55032:2015/A11:2020, EN 55032:2015/A1:2020, Clause A.3, Table A.9

5.1.2 Environmental Conditions

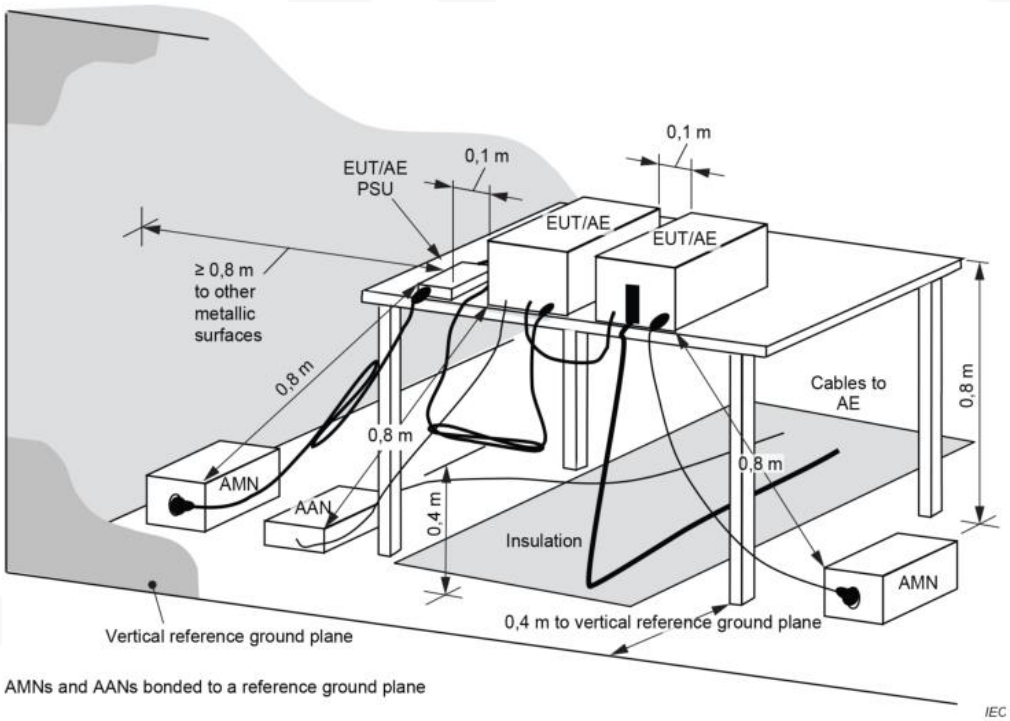
Test date	Ambient temperature	Relative humidity	Atmospheric pressure
Mar. 20, 2025	25°C	58%	101.4kPa

5.1.3 Limits

Frequency Range (MHz)	At the AC mains power ports of Class B equipment		At telecommunication ports of Class B equipment	
	Quasi-peak (dBμV)	Average (dBμV)	Quasi-peak (dBμV)	Average (dBμV)
0.15-0.5	66-56*	56-46*	84-74 *	74-64*
0.50-5.0	56	46	74	64
5.0-30.0	60.	50		

Note:
1. * Means the limit decreasing linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz
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.

5.1.4 Test Setup& Test Method



The bandwidth of the test receiver (R&S ESR Test Receiver) is set at 9kHz.
The frequency range from 150kHz to 30MHz is checked.

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.

5.1.5 Conducted Disturbance at Mains Terminals Test Results

N/A.

The EUT is powered by the DC only and has no antenna port, the test item is not applicable.

5.2 Radiated Emissions

5.2.1 Specification Reference

EN 55032:2015/A11:2020, EN 55032:2015/A1:2020, Clause A.2, Table A.2, Table A.4

5.2.2 Environmental Conditions

Test date	Ambient temperature	Relative humidity	Atmospheric pressure
Mar. 20, 2025	25°C	58%	101.5kPa

5.2.3 Limits

Radiated Emissions Limits Below 1 GHz				
Frequency Range (MHz)	Class B equipment		Class A equipment	
	Distance 3m	Distance 10M	Distance 3m	Distance 10M
	Quasi-peak (dBμV/m))	Quasi-peak (dBμV/m)	Quasi-peak (dBμV/m))	Quasi-peak (dBμV/m)
30-230	40	30	50	40
230-1000	47	37	57	47

Radiated Emissions Limits Above 1 GHz				
Frequency Range (MHz)	Class B equipment		Class A equipment	
	Distance 3m			
	Average (dBμV/m)	Peak (dBμV/m)	Average (dBμV/m)	Peak (dBμV/m)
1000-6000	54	74	60	80

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

5.2.4 Test Setup& Test Method

The EUT was set up in a semi-anechoic chamber on a remotely controlled turntable and placed on a non-conductive.

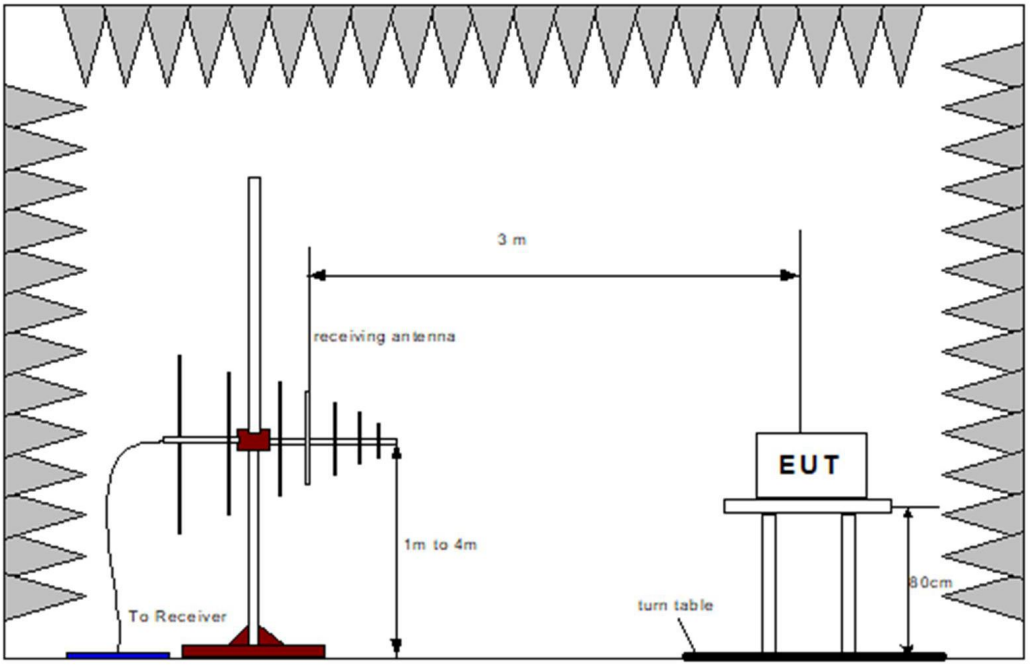
< Table 0.8 m above a reference ground plane>

< Support 0.1 m above a reference ground plane>

A prescan of the EUT emissions profile was made while varying the antennae-to-EUT azimuth and antenna-to-EUT polarization using a peak detector; measurements were taken at a 3m distance.

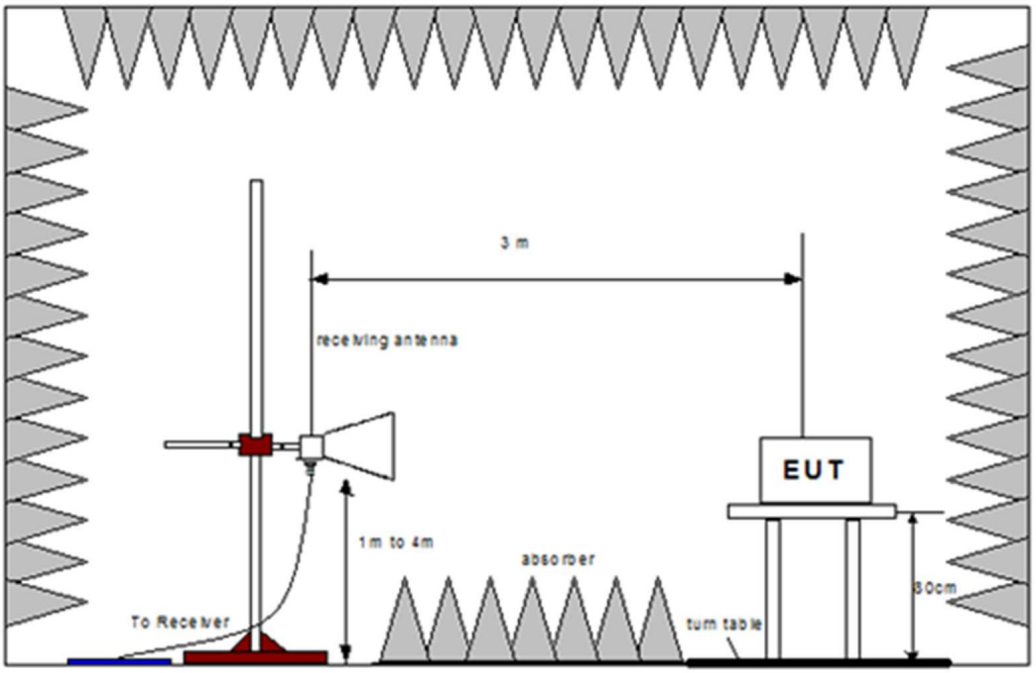
Using the prescan list of the highest emissions detected, their bearing and associated antenna polarization, the EUT was then formally measured using Quasi-Peak and Average detectors, as appropriate. The readings were maximized by adjusting the antenna height, polarization and turntable azimuth, in accordance with the specification.

Below 1 GHz



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

Above 1 GHz



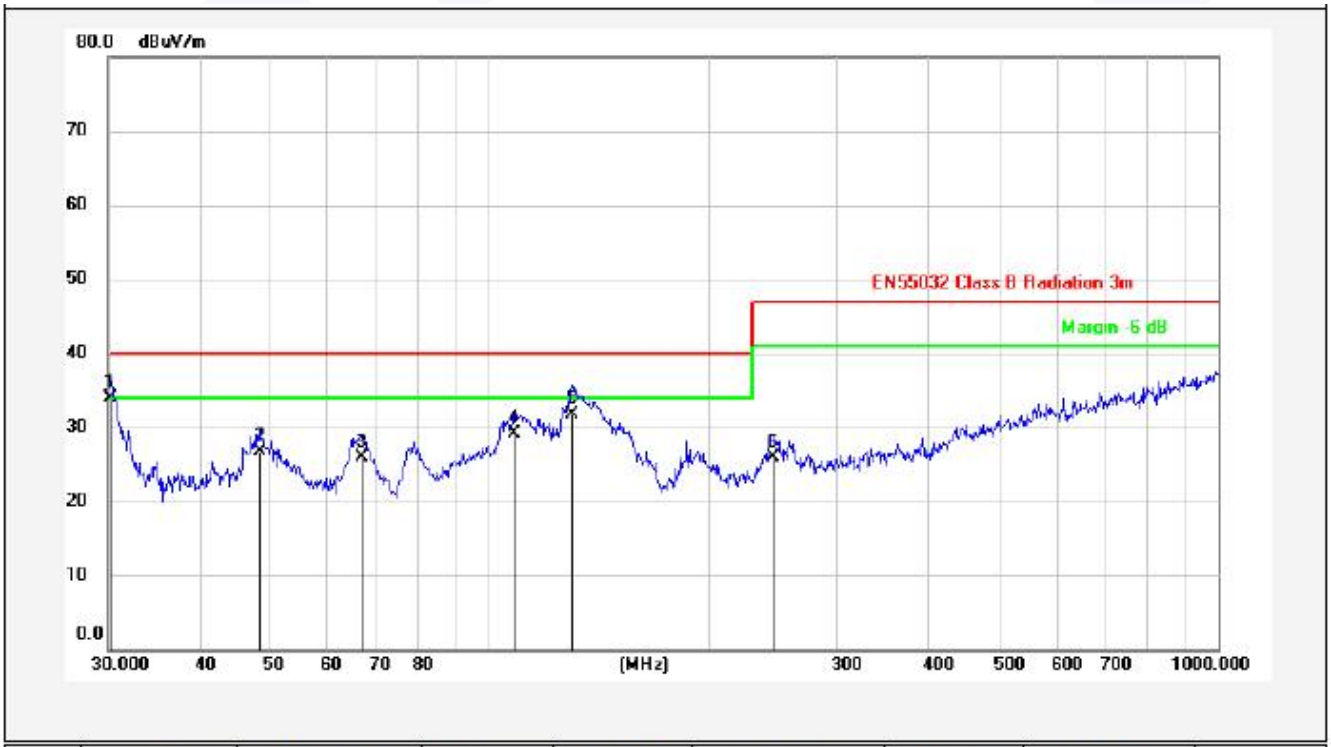
The bandwidth of the test receiver (R&S Test Receiver) is set at 1MHz.
The frequency range from above 1000MHz is checked.

5.2.5 Conducted Disturbance at Mains Terminals Test Results

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

5.2.6 Test Data

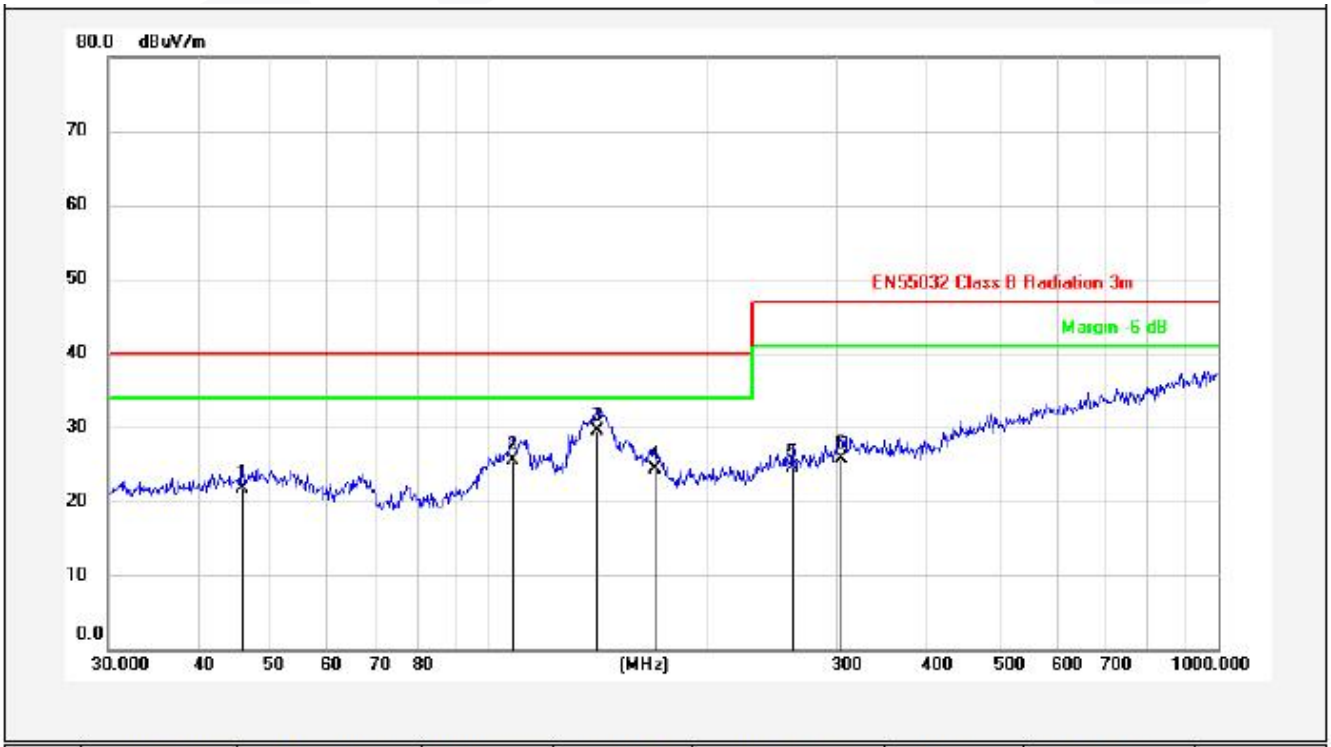
EUT: USB CAN ANALYZER
M/N: SAVVYCANFD C
Test Voltage: DC 5V From the Auxiliary Equipment Input
Ant. Pol.: Vertical
Test Mode: Full Power
Note:
Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV/m)	Antenna (dB/m)	Cable (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.2110	20.76	11.82	1.33	33.91	40.00	-6.09	QP
2	48.3318	11.10	14.1	1.51	26.71	40.00	-13.29	QP
3	66.7325	13.13	11.25	1.62	26.00	40.00	-14.00	QP
4	108.2667	14.79	12.11	2.13	29.03	40.00	-10.97	QP
5	129.9225	19.93	9.42	2.31	31.66	40.00	-8.34	QP
6	245.0900	10.52	12.4	3.02	25.94	47.00	-21.06	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: USB CAN ANALYZER
M/N: SAVVYCANFD C
Test Voltage: DC 5V From the Auxiliary Equipment Input
Ant. Pol.: Horizontal
Test Mode: Full Power
Note:
Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV/m)	Antenna (dB/m)	Cable (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	45.6948	5.76	14.38	1.47	21.61	40.00	-18.39	QP
2	107.5100	11.13	12.2	2.12	25.45	40.00	-14.55	QP
3	140.3420	17.87	9.29	2.42	29.58	40.00	-10.42	QP
4	168.4138	12.02	9.61	2.62	24.25	40.00	-15.75	QP
5	260.1444	8.31	13.07	3.21	24.59	47.00	-22.41	QP
6	303.5437	8.45	13.76	3.41	25.62	47.00	-21.38	QP

Remarks: 1. Result=Reading+ Antenna+ Cable
2. If Peak Result complies with QP Limit, QP Result is deemed to comply with QP Limit.

5.3 Harmonic current emission

5.3.1 Specification Reference

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

5.3.2 Equipment Under Test

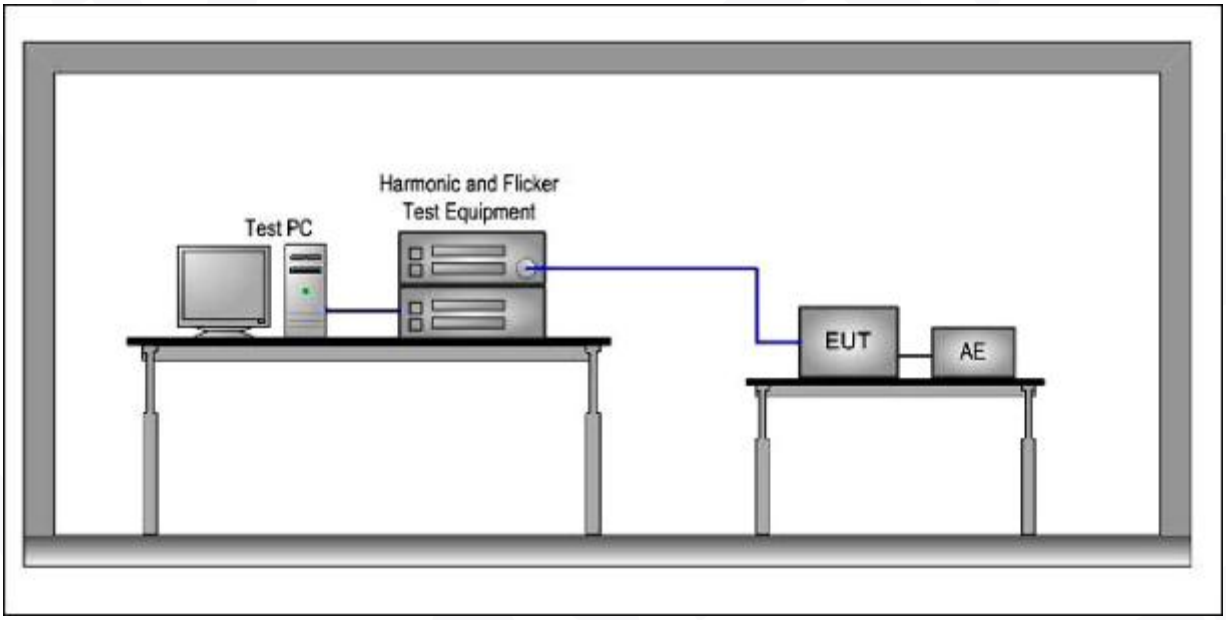
The following equipments are installed on conducted emission test to meet EN IEC 61000-3-2 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

5.3.3 Environmental Conditions

Test date	Ambient temperature	Relative humidity	Atmospheric pressure
Mar. 20, 2025	25°C	58%	101.4kPa

5.3.4 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.



5.3.5 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 IEC 61000-3-2:2019/A2:2024 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).

5.3.6 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≤n≤39	0.15 15/n
Even harmonics	
2	1.08
4	0.43
6	0.30
8≤n≤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≤n≤39 (odd harmonics only)	3.85/n	0.15 15/n

5.3.7 Test Results

N/A

The EUT is powered by the DC only and has no antenna port, the test item is not applicable.

5.4 Voltage Fluctuations-Flicker

5.4.1 Specification Reference

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

5.4.2 Equipment Under Test

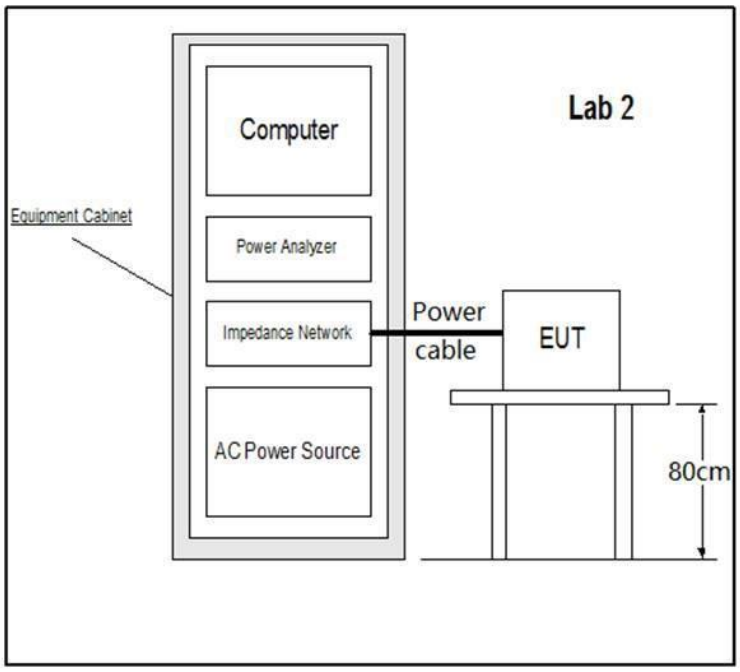
The following equipments are installed on conducted emission test to meet EN 61000-3-3 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

5.4.3 Environmental Conditions

Test date	Ambient temperature	Relative humidity	Atmospheric pressure
Mar. 20, 2025	25°C	58%	101.4kPa

5.4.4 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



5.4.5 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.

5.4.6 Test Results

N/A

The EUT is powered by the DC only and has no antenna port, the test item is not applicable.

6. Immunity Test Result

Performance criteria for EN 55035

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.

6.1 Electrostatic Discharge (ESD)

6.1.1 Specification Reference

EN 55035:2017/A11:2020, Clause 4.2.1, Table 1
EN 61000-4-2:2009

6.1.2 Test Setup& Test Method

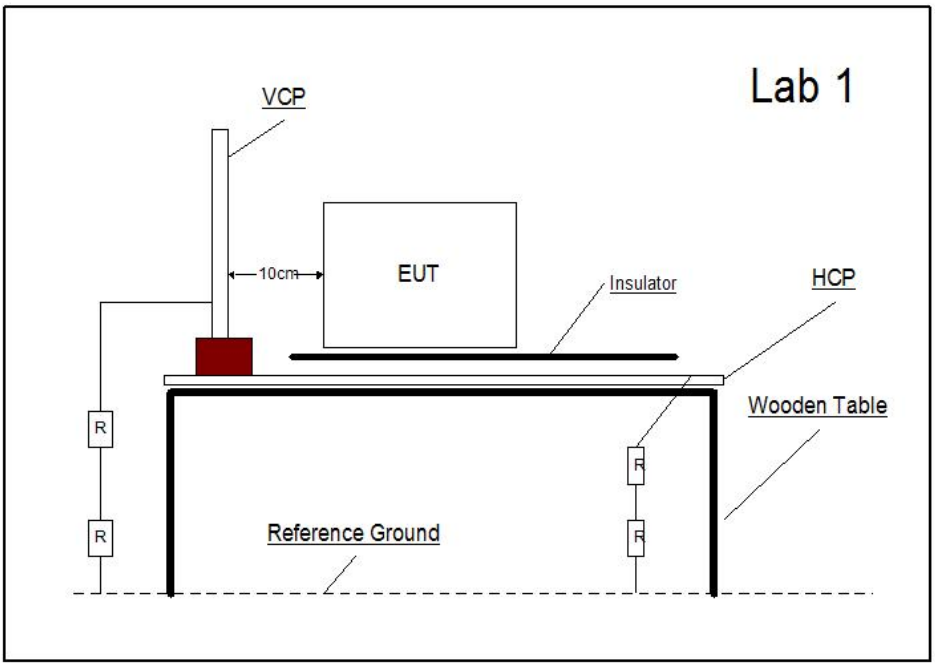


Table-top equipment

VCP: Vertical Coupling Plane 0.5 x 0.5 mm HCP: Horizontal Coupling Plane 0.95 x 1.6 mm

R. Ground: 2 x 2 mm R: 470 KΩ

The equipment under test including associated cabling was configured on but insulted 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.

6.1.3 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).				

6.1.4 Test Results

EUT	:	USB CAN ANALYZER	Test Date	:	Mar. 20, 2025
M/N	:	SAVVYCANFD C	Test Mode	:	Full Power
Test Voltage	:	DC 5V From the Auxiliary Equipment Input	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	1	B	A	Pass
±2, ±4, ±8	Air	2	B	A	Pass

Discharge Points Description			
1	Port	8	--
2	Slots	9	--
3	--	10	--
4	--	11	--
5	--	12	--
6	--	13	--
7	--	14	--

Performance:
The EUT was no change compared with initial operation during the test.

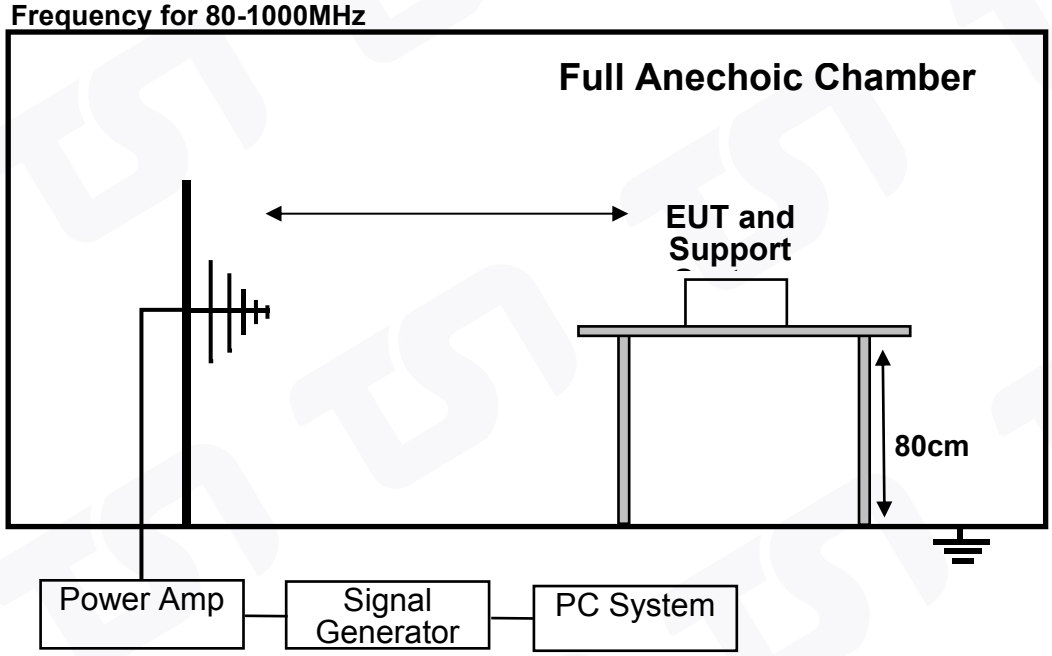
6.2 Electromagnetic field immunity (RS)

6.2.1 Specification Reference

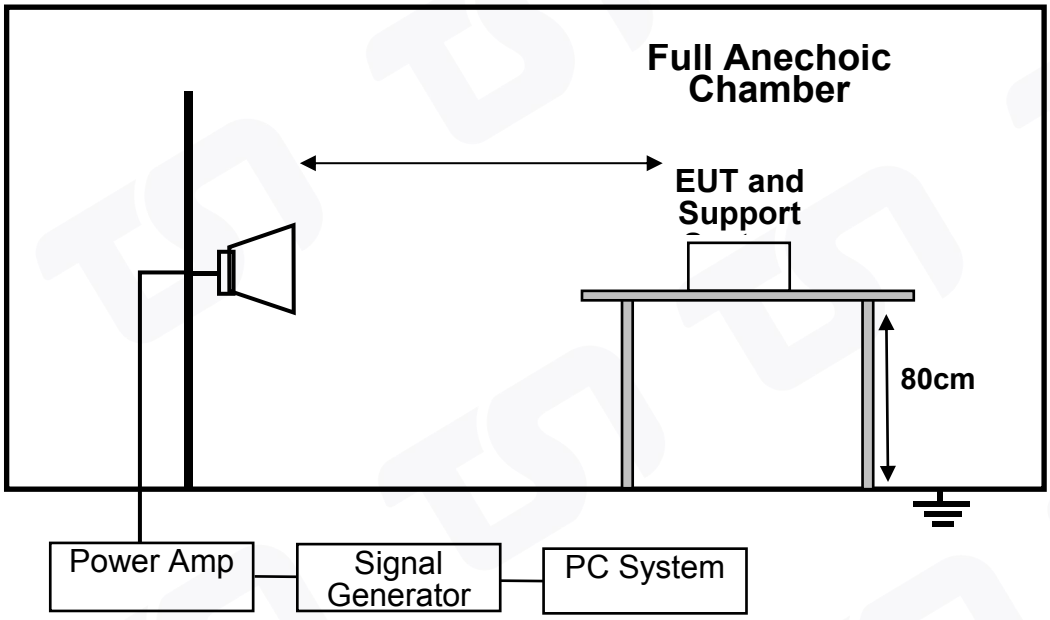
EN 55035:2017/A11:2020, Clause 4.2.2.2, Table 1
EN 61000-4-3:2006/A1:2008/A2:2010

6.2.2 Test Setup& Test Method

Frequency for 80-1000MHz



Frequency for 1-6GHz



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; 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.

6.2.3 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
1800 2600 3500 5000	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					

6.2.4 Test Results

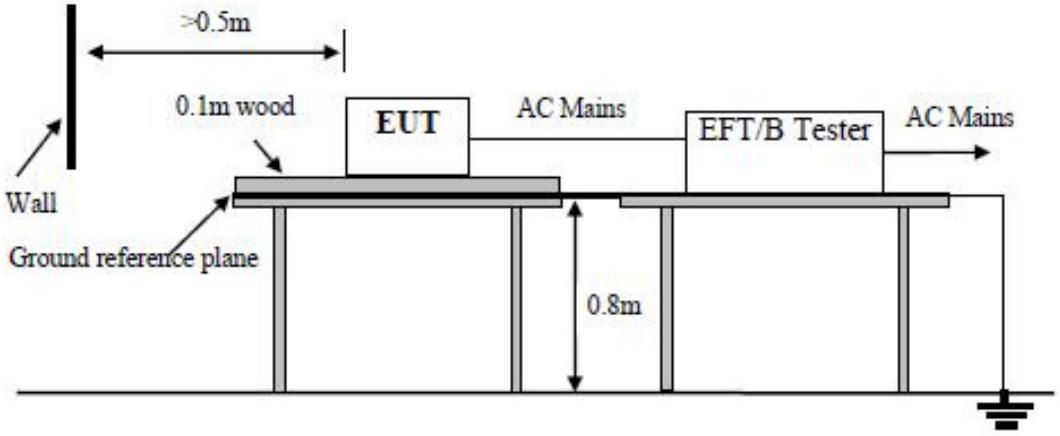
EUT :	USB CAN ANALYZER		Test Date :	Mar. 20, 2025	
M/N :	SAVVYCANFD C		Test Mode :	Full Power	
Test Voltage :	DC 5V From the Auxiliary Equipment Input		Temperature :	23.5°C	
Humidity :	59%		Pressure :	101.5kPa	
Test Level :	3 V/m		Dwell Time :	3 s	
Modulation :	AM (80 %,1 kHz, sine wave)		Step Size (%) :	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	A	Pass
1800MHz 2600MHz 3500MHz 5000MHz	All sides	Vertical& Horizontal	A	A	Pass
Performance: There was no change compared with initial operation during the test.					

6.3 Electric Fast Transient/Burst Immunity (EFT)

6.3.1 Specification Reference

EN 55035:2017/A11:2020, Clause 4.2.4, Table 4
EN 61000-4-4:2012

6.3.2 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

6.3.3 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.			

6.3.4 Test Results

EUT :	USB CAN ANALYZER		Test Date :	Mar. 20, 2025	
M/N :	SAVVYCANFD C		Test Mode :	--	
Test Voltage :	DC 5V From the Auxiliary Equipment Input		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	--	--	--
N	±1.0kV	--	--	--
L-N	±1.0kV	B	--	--
PE	±1.0kV	--	--	--
L-PE	±1.0kV	--	--	--
N-PE	±1.0kV	--	--	--
L-N-PE	±1.0kV	--	--	--
Signal Line	--	--	--	--
DC output Line	--	--	--	--

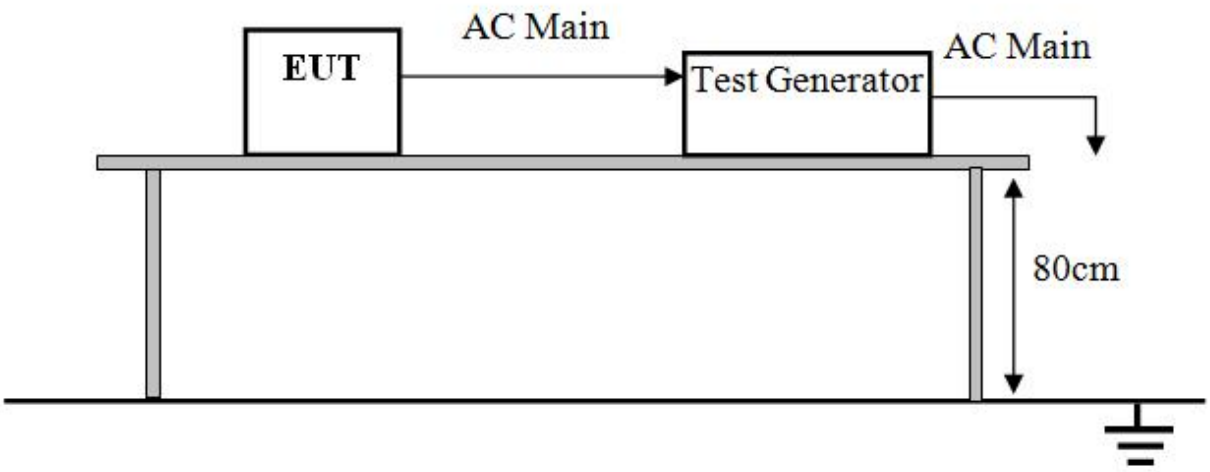
Performance:
The EUT is powered by the DC only and has no antenna port, the test item is not applicable.

6.4 Surge Immunity

6.4.1 Specification Reference

EN 55035:2017/A11:2020, Clause 4.2.5, Table 4
EN 61000-4-5:2014/A1:2017

6.4.2 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

6.4.3 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					

6.4.4 Test Results

EUT	:	USB CAN ANALYZER	Test Date	:	Mar. 20, 2025
M/N	:	SAVVYCANFD C	Test Mode	:	--
Test Voltage	:	DC 5V From the Auxiliary Equipment Input	Temperature	:	23.5°C
Humidity	:	59%	Pressure	:	101.5kPa
Required Performance	:	B	Actual Performance	:	--
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	--	A	--	--	--	--
	180°	--	--	--	--	--	--	--
	270°	--	A	--	A	--	--	--
L-N-PE	0°	--	--	--	--	--	--	--
	90°	--	--	--	--	--	--	--
	180°	--	--	--	--	--	--	--
	270°	--	--	--	--	--	--	--
Signal &Control Line	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--

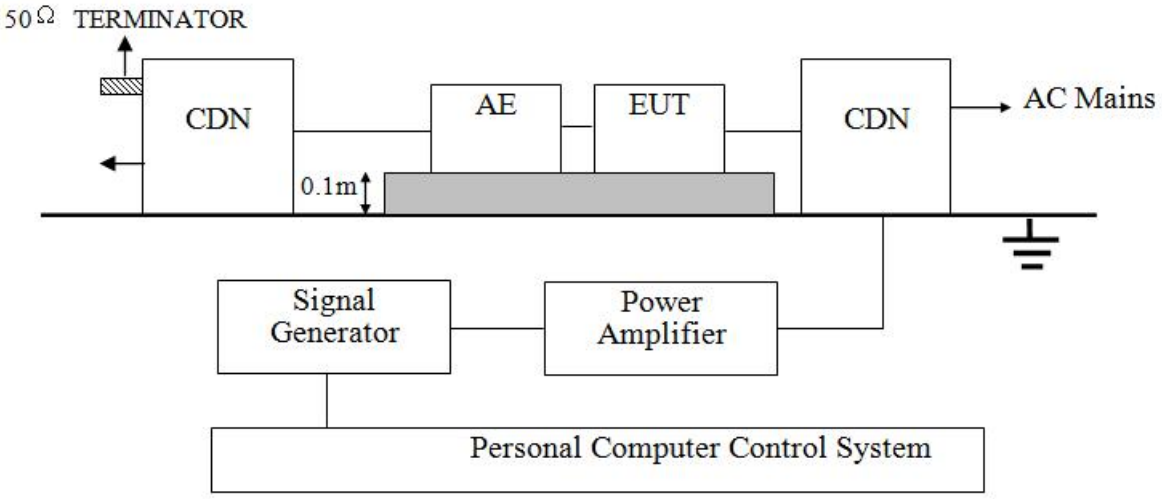
Performance:
The EUT is powered by the DC only and has no antenna port, the test item is not applicable.

6.5 Immunity to Conducted Disturbances, Induced by Radio-frequency Fields (CS)

6.5.1 Specification Reference

EN 55035:2017/A11:2020, Clause 4.2.2.3, Table 4
EN 61000-4-6:2014/A1:2015

6.5.2 Test Setup& Test Method



The equipment under test was configured, on but insulted 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 insulted 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.

6.5.3 Limits

Required Test Levels						
Line Under Test	Frequency Range (MHz)	Level (V)	Modulation	Step Size (%)	Dwell (s)	Performance Criteria
AC Power Port	0.15 to 10	3	AM (80 %,1kHz,sine wave)	1	>1	A
AC Power Port	10 to 30	3-1	AM (80 %,1kHz, sine wave)	1	>1	A
AC Power Port	30 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						

6.5.4 Test Results

EUT	:	USB CAN ANALYZER	Test Date	:	Mar. 20, 2025
M/N	:	SAVVYCANFD C	Test Mode	:	--
Test Voltage	:	DC 5V From the Auxiliary Equipment Input	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)
0.15-10	AC mains	3V	A	--	--
10-30	AC mains	3V–1V	A	--	--
30-80	AC mains	1V	A	--	--

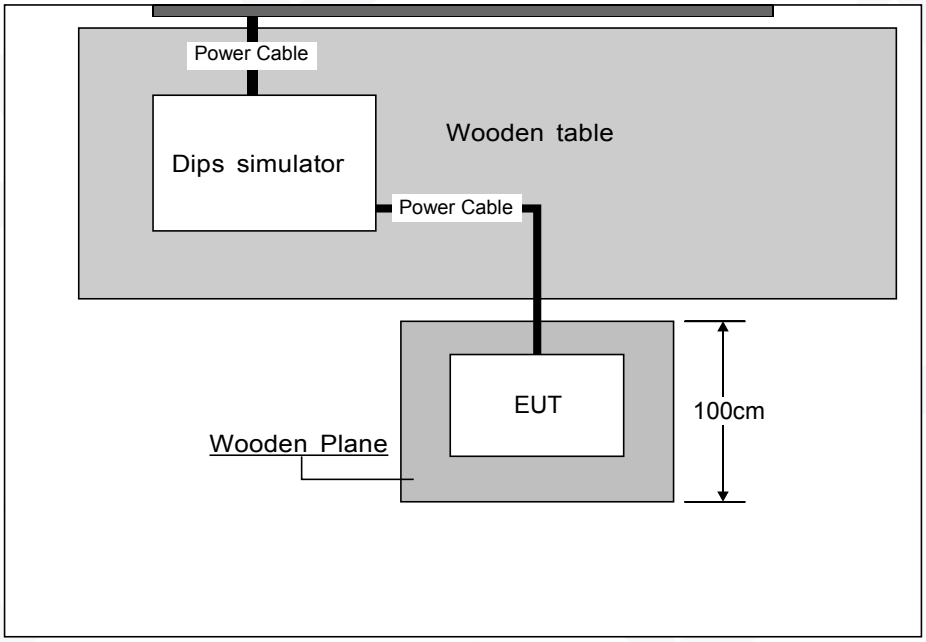
Performance:
The EUT is powered by the DC only and has no antenna port, the test item is not applicable.

6.6 Voltage Dips and Voltage Interruptions

6.6.1 Specification Reference

EN 55035:2017/A11:2020, Clause 4.2.6, Table 4
EN 61000-4-11:2004

6.6.2 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.

6.6.3 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 <5	>95	0.5		B
Voltage Dip 70	30	25	30	C
Voltage Interruptions <5	>95	250	300	C
Supplementary information: Note 1. EUT powered at one of the Nominal input voltages and frequencies				

6.6.4 Test Results

Results for Configuration and Mode: Full Power .

Performance assessment of the EUT made during this test: N/A.

Detailed results are shown below.

EUT :	USB CAN ANALYZER	Test Date :	Mar. 20, 2025
M/N :	SAVVYCANFD C	Test Mode :	--
Test Voltage :	DC 5V From the Auxiliary Equipment Input	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)
0	>95	0.5P		0° ,180°	B	--	--
70	30	25P	30P	0° ,180°	C	--	--
0	>95	250P	300P	0° ,180°	C	--	--

Performance:
The EUT is powered by the DC only and has no antenna port, the test item is not applicable.

7. Photographs - Constructional Details

Photo 1 External photos of EUT

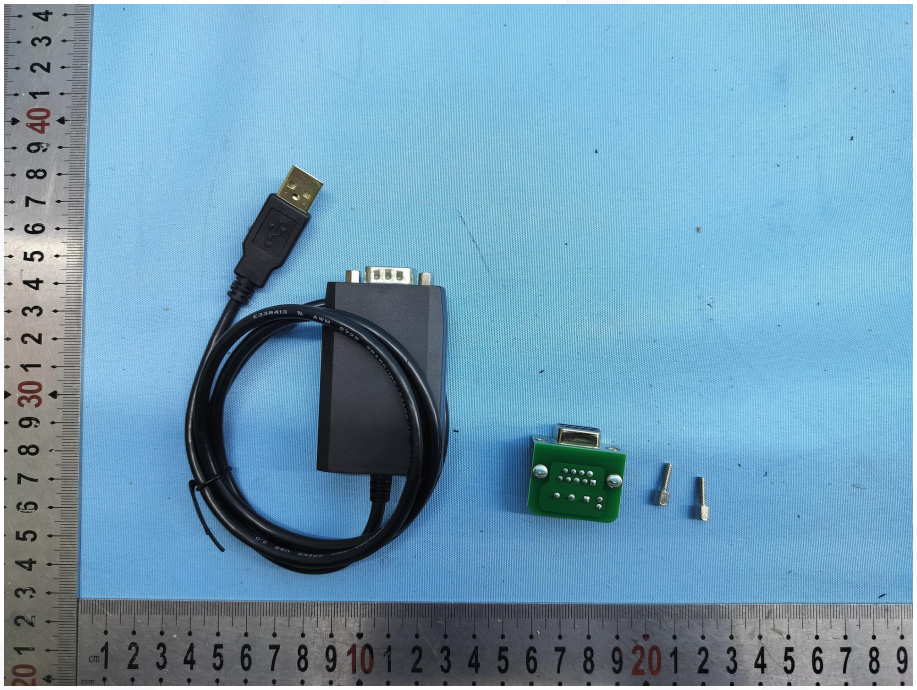


Photo 2 External photos of EUT

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