TEST REPORT

CERTIFICATE OF CONFORMITY

Standard:	**EN 55032: 2015+A11:2020, Class B** **BS EN 55032: 2015+A11:2020, Class B** **EN 61000-3-2: 2014 (Not Applicable)** **EN IEC 61000-3-2: 2019+A1:2021 (Not Applicable)** **BS EN IEC 61000-3-2: 2019+A1:2021 (Not Applicable)** **EN 61000-3-3: 2013+A1:2019+A2:2021 (Not Applicable)** **BS EN 61000-3-3: 2013+A1:2019+A2:2021 (Not Applicable)** **EN 55035: 2017+A11:2020** **BS EN 55035: 2017+A11:2020**
Report No.:	CEBDBO-WTW-P24110521
Product:	USB 3.2 Gen2 x1 Flash Drive
Brand:	Apacer
Model No.:	UT130-UFD9
Series Model:	UX130-UFD9 (X=A~Z)
Received Date:	2024/11/14
Test Date:	2024/11/22 ~ 2024/11/28
Issued Date:	2024/12/19
Applicant:	Apacer Technology Inc.
Address:	1F., No.32, Zhongcheng Rd., Tucheng Dist., New Taipei City 236, Taiwan (R.O.C)
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Approved by: Jim Hsiang , **Date:** 2024/12/19

Jim Hsiang / Associate Technical Manager

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Prepared by : Vivian Chen / Senior Specialist

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Release Control Record

Issue No.	Description	Date Issued
CEBDBO-WTW-P24110521	Original release.	2024/12/19

1 Certificate

Product:	USB 3.2 Gen2 x1 Flash Drive
Brand:	Apacer
Test Model:	UT130-UFD9
Series Model:	UX130-UFD9 (X=A~Z)
Sample Status:	Engineering sample
Applicant:	Apacer Technology Inc.
Test Date:	2024/11/22 ~ 2024/11/28
Standard:	EN 55032: 2015+A11:2020, Class B
	BS EN 55032: 2015+A11:2020, Class B
	EN 61000-3-2: 2014 (Not Applicable)
	EN IEC 61000-3-2: 2019+A1:2021 (Not Applicable)
	BS EN IEC 61000-3-2: 2019+A1:2021 (Not Applicable)
	EN 61000-3-3: 2013+A1:2019+A2:2021 (Not Applicable)
	BS EN 61000-3-3: 2013+A1:2019+A2:2021 (Not Applicable)
	EN 55035: 2017+A11:2020
	BS EN 55035: 2017+A11:2020
Measurement procedure:	EN 61000-4-2: 2009 / IEC 61000-4-2: 2008 ED. 2.0
	BS EN 61000-4-2: 2009
	EN IEC 61000-4-3: 2020 / IEC 61000-4-3: 2020 ED. 4.0
	BS EN IEC 61000-4-3: 2020
	EN 61000-4-4: 2012 / IEC 61000-4-4: 2012 ED. 3.0 (Not Applicable)
	BS EN 61000-4-4: 2012 (Not Applicable)
	EN 61000-4-5: 2014+A1:2017 / IEC 61000-4-5: 2017 ED. 3.1 (Not Applicable)
	BS EN 61000-4-5: 2014+A1:2017 (Not Applicable)
	EN IEC 61000-4-6: 2023 / IEC 61000-4-6: 2023 ED. 5.0 (Not Applicable)
	BS EN IEC 61000-4-6: 2023 (Not Applicable)
	EN 61000-4-8: 2010 / IEC 61000-4-8: 2009 ED. 2.0
	BS EN 61000-4-8: 2010
	EN IEC 61000-4-11: 2020+AC:2020 / IEC 61000-4-11: 2020 ED. 3.0 (Not Applicable)
	BS EN IEC 61000-4-11: 2020 (Not Applicable)

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

2 Summary of Test Results

The test items that the EUT need to perform in accordance with its interfaces, evaluated functions, are as follows:

Standard	Test Item	Result	Remark
EN 55032	Conducted Emissions from Power Ports	Pass	Minimum passing Class B margin is -9.97 dB at 0.44925 MHz
EN 55032	Radiated Emissions up to 1 GHz	Pass	Minimum passing Class B margin is -4.83 dB at 960.00 MHz
EN 55032	Radiated Emissions above 1 GHz	Pass	Minimum passing Class B margin is -13.08 dB at 1198.07 MHz
IEC 61000-4-2	Electrostatic Discharges (ESD)	Pass	For EN 55035 Performance Criteria B
IEC 61000-4-3	Radio Frequency Electromagnetic Field (RS)	Pass	For EN 55035 Performance Criteria A
IEC 61000-4-8	Power Frequency Magnetic Field (PFMF)	Pass	For EN 55035 Performance Criteria A

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Performance Criteria

For EN 55035

General Performance Criteria

These criterions shall be used during the testing of primary functions where no specified in the normative annexes of EN 55035 is applicable.

Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state 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.

Performance criterion B

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test.

After the test, 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), or recovery time, 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.

Performance 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. A reboot or re-start operation is allowed.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

Product Specific Performance criteria for Audio output functions
Performance criterion A

Table – Performance criterion A – Limits for devices supporting telephony

Type of immunity test	Frequency range MHz	Acoustic or electrical interference ratio	Equivalent direct measurement		
			dB(SPL)	Digital dBm0	Analogue dBm
Conducted	0.15 to 30	–20 dB	55	–50	–50
	30 to 80	–10 dB	65	–40	–40
Radiated	80 to 1 000	0 dB	75	–30	–30

The acoustic level of the demodulated audio shall be less than the limits in column 4.

For all other Audio output devices:
The measured acoustic interference ratio and/or the measured electrical interference ratio during the test shall be –20 dB or better.

Performance criterion B

Use the general performance criterion B.

Performance criterion C

Use the general performance criterion C.

Product Specific Performance criteria for network functions
Equipment that provides these functions transmits and receives data through ports such as an analogue/digital data port. The networking functions are just like network switching and routing ; data transmission ; supervisory...etc.

The particular performance criteria which are specified in the normative annexes of CISPR 35/ EN 55035 take precedence over the corresponding parts of the general performance criteria.

Performance criterion A
Where relevant, during the application of the test the network function shall, as a minimum, operate ensuring that:
- established connections shall be maintained throughout the application of the test;
- no change of operational state or corruption of stored data occurs;
- no increase in error rate above the figure defined by the manufacturer occurs. The manufacturer should select the most appropriate performance measurement criteria for the product or system, for example bit error rate, block error rate;
- no request for retry above the figure defined by the manufacturer;
- the data transmission rate does not reduce below the figure defined by the manufacturer;
- no protocol failure occurs;
- other verifications are described in F.3.3.1 of CISPR 35/ EN 55035.

Performance criterion B
Established connections shall be maintained throughout the test, or shall self-recover in a way and timescale that is imperceptible to the user.

The error rate, request for retry and data transmission rates may be degraded during the application of the test. Degradation of the performance as described in criterion A is permitted, provided that the normal operation of the EUT is self-recoverable to the condition established prior to the application of the test.

Where required, as defined in Clause 5 of CISPR 35/ EN 55035, the acceptable operation of the function shall be verified at the completion of the test as described in Table H.1 of CISPR 35/ EN 55035, by confirming the following:

- the EUT's ability to establish a connection,
- the EUT's ability to clear a connection.

During surge testing disconnection is allowed on the analogue/digital data port being tested.

If the EUT is a supervisory equipment, it shall not impact the normal operation of the network being monitored. In addition, any supervisory functions impacted during the period of the test shall return to the state prior to the test. Elements to consider include: alarms, signalling lamps, printer output, network traffic rates, network monitoring.

Performance criterion C
Degradation of performance as described in criteria A and B is permitted provided that the normal operation of the EUT is self-recoverable to the condition immediately before the application of the test, or can be restored after the test by the operator.

Product Specific Performance Criteria for xDSL
The particular performance criteria which are specified in the normative annexes of CISPR 35/ EN 55035 take precedence over the corresponding parts of the general performance criteria.

Performance criterion A
Applicable for the test requirement defined in table clause 2.1 of EN 55035
During the swept frequency test the established connection shall be maintained throughout the testing and the information transferred without any additional reproducible errors or loss of synchronisation. If a degradation in performance is observed and the system is adaptive, for example has the capability to automatically retrain in the presence of an interfering signal, then for conducted immunity tests only, the following procedure shall be followed:
a) For each range of interfering frequencies in which degradation in performance is observed, three frequencies (beginning, middle and end) shall be identified.
b) At each of the frequencies identified in step a), the interfering signal shall be turned on and the system is allowed to retrain.
c) If the system is able to retrain and then functions correctly for a dwell time of at least 60 seconds without any additional reproducible errors or loss of synchronisation, then the performance level of the system is considered acceptable.
d) The frequencies identified in step a) and the data rates achieved in step b) shall be recorded in the test report.

Applicable for the test requirement defined in table clause 2.2 of EN 55035
It is important that the modems are able to train in the presence of repetitive impulsive noise and minimize disruption to the end-user where a repetitive impulsive noise source starts after the link has synchronized. Therefore the following procedure and performance criteria shall apply.
The manufacturer shall select the class of impulsive noise protection (INP) to be used for the immunity test and should state this information in the technical documentation and in the test report. The maximum delay shall be set to 8 ms.
In the absence of impulsive noise: The modem shall operate without retraining at its target noise margin with a bit rate value depending on the line attenuation and the stationary noise being present on the line. (The actual value will be between the minimum and maximum bit rate values programmed in the port).
The impulsive noise source shall then be applied at the required test level.
With the impulsive noise applied: The modem shall operate without retraining and without SES at the bit rate established prior to the application of the impulsive noise. No extra CRC errors shall occur due to the impulsive noise.
After the test, the noise margin value shall return to the target noise margin.

Performance criterion B
Applicable for the test requirement defined in table clause 2.3 of EN 55035
Modems shall withstand the occurrence of isolated impulsive noise events. The performance criteria defined in below Table shall be applied.

Impulse duration (ms)	**Performance criteria**
0.24	The application of the impulse shall not cause the xDSL link to lose synchronisation. No CRC errors are permitted.
10	The application of the 5 impulses shall result in less than 75 CRC errors and shall not cause the link to lose synchronisation.
300	The application of the impulse shall not cause the xDSL link to lose synchronisation.

Applicable for the test requirements defined in table clauses 2.5 and 4.5 of EN 55035
For application of this test to the xDSL port, a repetition rate of 100 kHz (burst length 0.75 ms) shall be used.
Degradation of the performance as described in criterion A is permitted in that errors are acceptable during the application of the test. However the application of the test shall not cause the system to lose the established connection or re-train. At the cessation of the test the system shall operate in the condition established prior to the application of the test without user intervention.
After the application of the EFT/B tests to the xDSL or AC mains port, the CRC error count shall not have increased by more than 600 when compared to the count prior to the application of the test.
Performance criterion C
Degradation of the performance as described in criteria A and B is permitted provided that the normal operation of the EUT is self-recoverable to the condition established prior to application of the test or can be restored after the test by the operator.

2.2 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Specification	Expanded Uncertainty (k=2) (±)	Maximum allowable uncertainty (±)
Conducted Emissions from Power Ports	9 kHz ~ 30 MHz	2.9 dB	3.4 dB (U_{cispr})
Radiated Emissions up to 1 GHz	30 MHz ~ 1 GHz	3m : 5.44 dB 10m : 4.00 dB	6.3 dB (U_{cispr})
Radiated Emissions above 1 GHz	1 GHz ~ 6 GHz	4.44 dB	5.2 dB (U_{cispr})

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.3 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 Description of EUT

Product	USB 3.2 Gen2 x1 Flash Drive
Brand	Apacer
Test Model	UT130-UFD9
Series Model	UX130-UFD9 (X=A~Z)
Model Difference	Marketing Differentiation
Sample Status	Engineering sample
Power Supply Rating	DC 5V

Note:

This report is issued as a duplicate report of BV CPS report no.: CEBDBO-WTW-P24110326. The difference compared with original report are changing applicant, product, brand and model for marketing purpose; therefore all test data was copied from the original test report.

The EUT has three sample, as following

Sample	Capacity
1	960GB
2	960GB-2
3	120GB

3.2 Primary Clock Frequencies of Internal Source

The highest frequency generated or used within the EUT or on which the EUT operates or tunes is 5 GHz, provided by Apacer Technology Inc., for detailed internal source, please refer to the manufacturer's specifications.

3.3 Features of EUT

The tests reported herein were performed according to the method specified by Apacer Technology Inc., for detailed feature description, please refer to the manufacturer's specifications or user's manual.
Please refer to appendix of the report if the applicant has provided additional descriptions of the EUT.

3.4 Operating Modes of EUT and Determination of Worst Case Operating Mode

The EUT has been pre-tested under following test modes.

Test Condition	
Mode	Radiated Emissions up to 1 GHz
1	960GB with system
2	**960GB-2 with system**
3	120GB with system
Notes: 1. There are both standby mode and normal mode to be pre-tested then normal mode has the highest emission value. 2. The worst case is that mode 2 is shown in bold.	

Test modes are presented in the report as below.

Test Condition	
Mode	Conducted Emissions from Power Ports
A	960GB-2 with system + Input Power(230 Vac, 50 Hz)
Mode	Radiated Emissions up to 1 GHz
A	960GB-2 with system + Input Power(230 Vac, 50 Hz)
Mode	Radiated Emissions above 1 GHz
A	960GB-2 with system + Input Power(230 Vac, 50 Hz)
Mode	Electrostatic Discharges (ESD)
A	960GB-2 with system + Input Power(230 Vac, 50 Hz)
Mode	Radio Frequency Electromagnetic Field (RS)
A	960GB-2 with system + Input Power(230 Vac, 50 Hz)
Mode	Power Frequency Magnetic Field (PFMF)
A	960GB-2 with system + Input Power(230 Vac, 50 Hz)

3.5 Test Program Used and Operation Descriptions

For Emission test

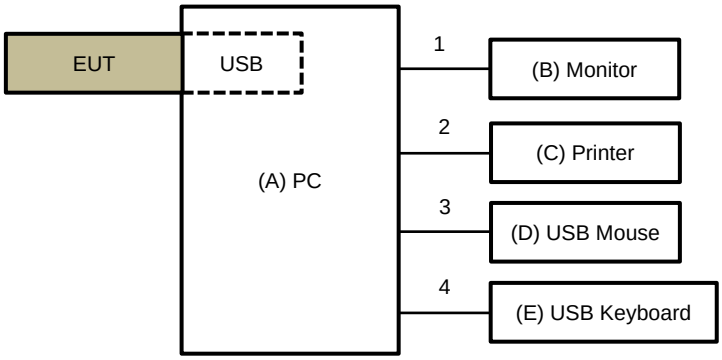
a. Connect the device under test to the PC.
a. Turned on the power of all equipments.
b. PC ran a test program (WinEMC) to enable all functions.
c. PC read and wrote messages to/ from EUT.
d. PC sent (ITU-R BT 471-1) messages to monitor. Then they displayed messages on its screen.
e. PC sent messages to printer and printed them out.

For Immunity test

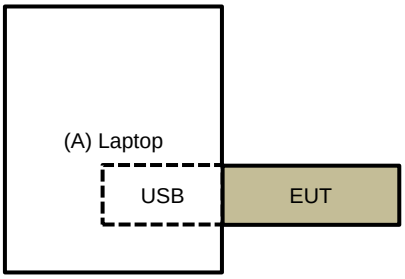
a. Turned on the power of all equipments.
b. Laptop ran a test program (BurnIn) to enable all EUT functions.
c. Laptop read and wrote messages to/ from EUT.
d. Laptop sent (color bars with moving element) messages to panel. Then displayed messages on its screens.

3.6 Connection Diagram of EUT and Peripheral Devices

For Emission test



For Immunity tests:



3.7 Configuration of Peripheral Devices and Cable Connections

For Emission test

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	PC	Lenovo	90G8	R303YS8R	N/A	Provided by Lab
B	Monitor	DELL	U2410	CN082WXD728720CC0KVL	DoC	Provided by Lab
C	Printer	HP	HP Officejet Pro 251dW	N/A	B94SDGOB1191	Provided by Lab
D	USB Mouse	DELL	MOCZUL	CN-049TWY-PRC00-77B-008G	N/A	Provided by Lab
E	USB Keyboard	Dell	KB216t	CN-0W33XP-LO300-7CL-191E	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DP	1	1.8	Y	0	Provided by Lab
2	USB	1	1.8	Y	0	Provided by Lab
3	USB	1	1.8	Y	0	Provided by Lab
4	USB	1	1.8	Y	0	Provided by Lab

For Immunity test

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	DELL	Latitude 5420	FHS33F3	N/A	Provided by Lab

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Conducted Emissions from Power Ports

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
* Isolation Transformer Erika Fiedler	D-65396	46	2023/4/20	2025/4/19
50 ohm terminal resistance LYNICS	0900510	E1-01-299	2024/1/3	2025/1/2
50 ohm terminal resistance SUHNER	65BNC-5001	E1-010789	2024/6/20	2025/6/19
EMI Test Receiver R&S	ESR3	102414	2023/12/12	2024/12/11
Fixed Attenuator STI	STI02-2200-10	NO.2	2024/7/5	2025/7/4
Isolation Transformer Erika Fiedler	D-65396	017	2024/9/18	2025/9/17
LISN R&S	ESH2-Z5	100104	2023/12/12	2024/12/11
	ESH3-Z5	847265/023	2024/10/23	2025/10/22
LISN Schwarzbeck	NNLK 8121	8121-731	2024/6/12	2025/6/11
		8121-808	2024/4/26	2025/4/25
	NNLK 8129	8129229	2024/10/14	2025/10/13
RF Coaxial Cable PEWC	5D-FB	Cable-CO9-01	2024/7/5	2025/7/4
Software BVADT	Cond_V7.4.1.0	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2024/8/28	2025/8/27

Notes:

1. * The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA
2. The test was performed in Linkou Conduction 9.
3. The VCCI Site Registration No. C-11312.
4. Tested Date: 2024/11/22

4.2 Radiated Emissions up to 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
ADT. Tower	AT100	0205	N/A	N/A
ADT. Turn Table	TT100	0205	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-303	2024/10/14	2025/10/13
Coupling / Decoupling Network Schwarzbeck	CDNE-M2	00097	2024/5/28	2025/5/27
	CDNE-M3	00091	2024/5/28	2025/5/27
EMI Test Receiver R&S	ESCS 30	100276	2024/4/24	2025/4/23
Fixed Attenuator Mini-Circuits	UNAT-5+	PAD-ST2-01	2024/10/19	2025/10/18
Preamplifier HP	8447D	2944A08119	2024/2/15	2025/2/14
RF Coaxial Cable Pacific	8D-FB	Cable-ST2-01	2024/11/6	2025/11/5
Software BVADT	Radiated_V8.8.09	N/A	N/A	N/A

Notes:

1. The test was performed in Linkou Open Site2 , The test site validated date: 2024/7/13 (NSA)
2. The VCCI Site Registration No. R-10237.
3. Tested Date: 2024/11/25

4.3 Radiated Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fix tool for Boresight antenna tower BV	BAF-01	9	N/A	N/A
Fixed Attenuator Mini-Circuits	BW-K3-2W44+	PAD-CH7-03	2024/7/5	2025/7/4
	BW-N4W5+	PAD-CH10-02	2024/7/5	2025/7/4
Horn Antenna EMCO	3115	6714	2024/11/10	2025/11/9
Horn Antenna ETS-Lindgren	3117-PA	00215857	2024/11/10	2025/11/9
Horn Antenna Schwarzbeck	BBHA 9170	BBHA9170190	2024/11/10	2025/11/9
MXA Signal Analyzer Keysight	N9020B	MY60110438	2023/11/28	2024/11/27
		MY60112260	2024/5/29	2025/5/28
Notch Filter Micro-Tronics	BRC50703-01	010	2024/5/24	2025/5/23
	BRM17690	005	2024/5/24	2025/5/23
Preamplifier EMCI	EMC0126545	980076	2024/2/15	2025/2/14
	EMC184045B	980235	2024/2/15	2025/2/14
Preamplifier HP	8449B	3008A01292	2024/2/15	2025/2/14
RF Coaxial Cable EMEC	EM102-KMKM-100	02	2024/7/5	2025/7/4
	EM102-KMKM-350	01	2024/7/5	2025/7/4
Software BVADT	Radiated_V8.8.09	N/A	N/A	N/A
Turn Table & Tower Max Full	MF7802	MF780208216	N/A	N/A

Notes:

1. The test was performed in Linkou 966 Chamber 3 (CH 10).
2. The VCCI Site Registration No. G-10427.
3. Tested Date: 2024/11/26

4.4 Electrostatic Discharges (ESD)

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Electrostatic Analog Tester TESEQ	NSG 438	1875	2024/11/11	2025/11/10
ESD Generator EM TEST	Dito//DM-150/330//DM-150/330-rfci	P1315117252/P1317117852	2024/7/10	2025/7/9
ESD Simulator EM TEST	Dito	V1203111608	2024/7/22	2025/7/21
ESD Simulator TESEQ	NSG 438	1364	2024/11/11	2025/11/10

Notes:

1. The test was performed in Linkou ESD Room No.03.
2. Tested Date: 2024/11/28

4.5 Radio Frequency Electromagnetic Field (RS)

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Audio analyzer R&S	UPV	104934	2024/8/6	2025/8/5
Band Pass Filter B&K	WH3278	N/A	2024/11/20	2025/11/19
CHANCE MOST Full Anechoic Chamber (9x5x3m)	Chance Most	RS-002	2024/1/22	2025/1/21
Controller Amplifier Research	SC1000M3	305910	N/A	N/A
High Gain Horn Antenna Amplifier Research	AT4010	0329800	N/A	N/A
Isotropic EM Field Probe+EM Field Meter Wavecontrol	WPF18+SMP2	21WP090492+21SN1691	2023/12/14	2024/12/13
Log Periodic Antenna Amplifier Research	AT6080	0329465	N/A	N/A
Power Amplifier Amplifier Research	35S4G8AM4	0326094	N/A	N/A
Power Amplifier BONN	BSA 0125-800	1912556	N/A	N/A
Power sensor Boonton	51011-EMC	34152	2024/5/14	2025/5/13
		34153	2024/5/14	2025/5/13
Pressure-field Microphone B&K	4192	3190854	2023/12/12	2024/12/11
		3190855	2023/12/12	2024/12/11
PSG Analog Signal Generator Agilent	E8257D	MY48050465	2024/6/26	2025/6/25
RF Power Amplifier BONN	BLMA 1060-150	2214325C-02	N/A	N/A
	BLWA 0810-250	2214325A-01	N/A	N/A
RF Power Meter Boonton	4232A	10180	2024/5/14	2025/5/13
Software BVADT	ABMS_Audio V7.4.10	N/A	N/A	N/A
Software BVADT	RS_V7.6.14	N/A	N/A	N/A
Stacked Log Periodic Antenna Schwarzbeck	STLP 9149	9149-260	N/A	N/A
Two channel microphone conditioning amplifier B&K	2690-OS2	3001996	2024/11/20	2025/11/19
Wideband Radio Communication Tester R&S	CMW500	170333	2023/12/6	2024/12/5

Notes:

1. The test was performed in Linkou RS Room No.02.
2. Tested Date: 2024/11/28

4.6 Power Frequency Magnetic Field (PFMF)

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Gaussmeter F.W. Bell	4190	0743043	2024/4/19	2025/4/18
Magnetic Field Test System Haefely Trench AG	MAG 100	083794-06	2024/8/26	2025/8/25

Notes:

1. The test was performed in Linkou EMS Room No.1.
2. Tested Date: 2024/11/28

5 Limits of Test Items

5.1 Conducted Emissions from Power Ports

Frequency (MHz)	Class A (dBµV)		Class B (dBµV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Notes: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.2 Radiated Emissions up to 1 GHz

Frequency (MHz)	Class A Quasi-peak (dBuV/m)		Class B Quasi-peak (dBuV/m)	
	at 3m	at 10m	at 3m	at 10m
30 - 230	50	40	40	30
230 - 1000	57	47	47	37

For radiated emissions from FM receivers only (Measurement Facility: OATS/SAC)

Frequency (MHz)	Fundamental (dBuV/m)		Harmonics (dBuV/m)	
	at 3m	at 10m	at 3m	at 10m
30 - 230	60	50	52	42
230 - 300	60	50	52	42
300 - 1000	60	50	56	46

Notes: 1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.3 Radiated Emissions above 1 GHz

Frequency (GHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	Average	Peak	Average	Peak
1 to 3	56	76	50	70
3 to 6	60	80	54	74

Notes: 1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

Frequency Range of Radiated Measurement (For unintentional radiators)

Highest internal frequency (*Fx*)	**Highest measurement frequency (*FM*)** (GHz)
Fx ≤ *108 MHz*	1
108 MHz < ***Fx*** ≤ 500 MHz	2
500 MHz < ***Fx*** ≤ 1 GHz	5
Fx > *1 GHz*	5 x ***Fx*** up to a maximum of 6 GHz
Fx is the highest fundamental frequency generated and/or used in the ITE or digital apparatus under test.	

5.4 General immunity requirements

For EN 55035

Port	Basic Standard	Test item	Test specification	Performance criteria
Power input (AC)	IEC 61000-4-4	Fast Transients, Common Mode (EFT)	±1 kV 5/50 ns (Tr/Th) 5 kHz, repetition frequency	B
	IEC 61000-4-5	Surge	Line to line: ±1 kV, 1.2/50 µs Line to earth: ±2 kV, 1.2/50 µs	B
	IEC 61000-4-6	Radio Frequency, Common Mode (CS)	0.15-10 MHz, 3 V, 80% AM (1 kHz), 10-30 MHz, 3 V-1 V, 80% AM (1 kHz), 30-80 MHz, 1 V, 80% AM (1 kHz),	A
	IEC 61000-4-11	Voltage dips and interruptions (DIP)	**Voltage Dips:** < 5% residual voltage, 0.5 cycle 70% residual voltage, 25 cycles (at 50 Hz) **Voltage Interruption:** < 5% residual voltage, 250 cycles (at 50 Hz)	 B C C
DC power/ Wired network and Signal/ Control port	IEC 61000-4-4	Fast Transients, Common Mode (EFT)	±0.5 kV 5/50 ns (Tr/Th) 100 kHz, repetition frequency for xDSL port 5 kHz, repetition frequency for other port	B
	IEC 61000-4-5	Surge	**Wired network ports** (directly connected to outdoor cables): Symmetrically operated: 10/700 µs w/o primary protectors: ±1.0 kV, or with primary protectors fitted: ±1.0 kV and ±4.0 kV, Coaxial or shielded operated: 1.2/50 µs shield to ground: ±0.5 kV, **DC power ports** (directly connected to outdoor cables):1.2/50 µs each individual line to earth, or shield to ground: ±0.5 kV,	 C B B
	IEC 61000-4-6	Radio Frequency, Common Mode (CS)	0.15-10 MHz, 3 V, 80% AM (1 kHz), 10-30 MHz, 3 V-1 V, 80% AM (1 kHz), 30-80 MHz, 1 V, 80% AM (1 kHz),	A
		Broadband impulse noise disturbances (Applicable only to xDSL ports.)	**Repetitive :** Impulse frequency profile : 0.15 – 0.5 MHz, 107 dBuV ; 0. 5 – 10 MHz, 107 – 36 dBuV ; 10 – 30 MHz, 36 – 30 dBuV Burst duration : 0.70 ms Burst period :10 ms(for 50 Hz) At least 2 minutes for each port under test.	A
			Isolated : Impulse frequency profile : 0.15 –30 MHz, 110 dBuV Burst duration : 0.24 ms, 10 ms and 300 ms Isolated impulses : 5 times Interval : at least 60 seconds	B

Port	Basic Standard	Test item	Test specification	Performance criteria
Enclosure	IEC 61000-4-2	Electrostatic Discharge (ESD)	±4 kV (contact) ±8 kV (Air)	B
	IEC 61000-4-3	Radio Frequency Electromagnetic Field (RS)	Swept Frequency Test: 80 to 1000(MHz), 3 V/m, 80% AM (1 kHz) Spot Frequency Test: 1800, 2600, 3500, 5000 MHz (±1%), 3 V/m, 80% AM (1 kHz)	A
	IEC 61000-4-8	Power Frequency Magnetic Field (PFMF)	1 A/m, 50 Hz	A

6 Test Arrangements

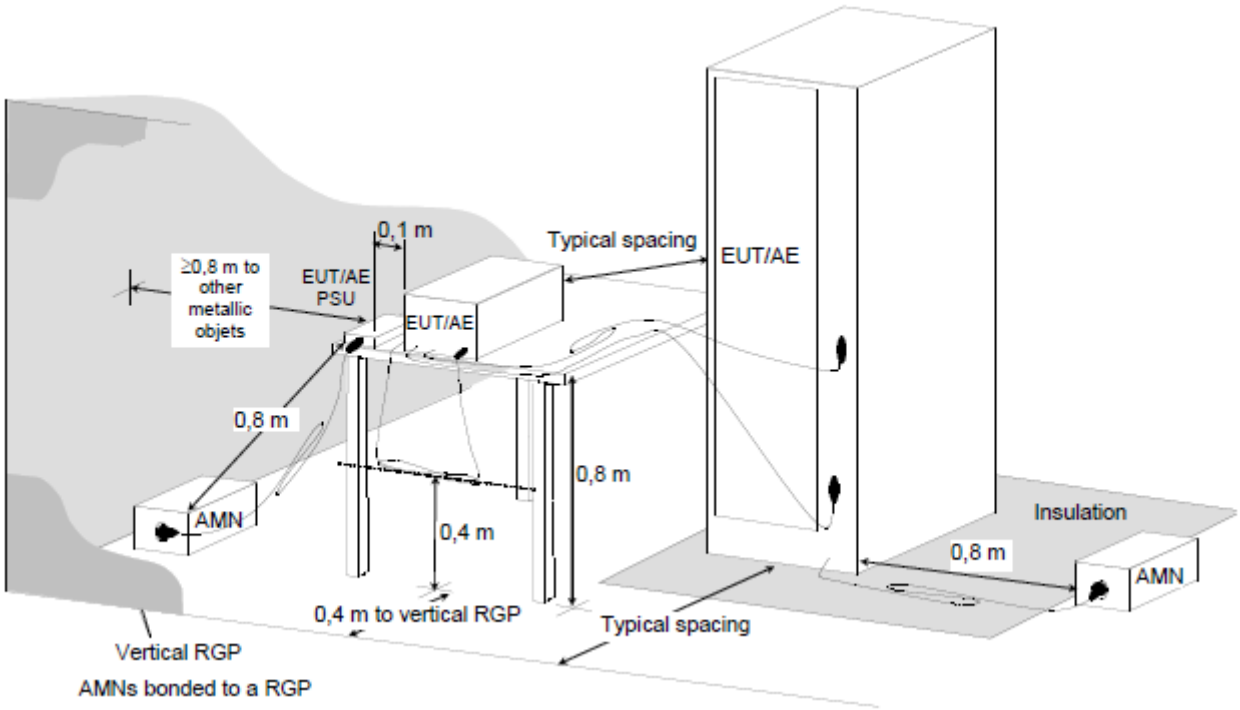
6.1 Conducted Emissions from Power Ports

a. The EUT is placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN), or an Artificial Network (AN) as specified in CISPR 25 if uses in a vehicle. Other support units are connected to the power mains through another LISN and/or AN. They provide coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The test results of conducted emissions at mains ports are recorded of six worst margins for quasi-peak (mandatory) [and average (if necessary)] values against the limits at frequencies of interest unless the margin is 20 dB or greater.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

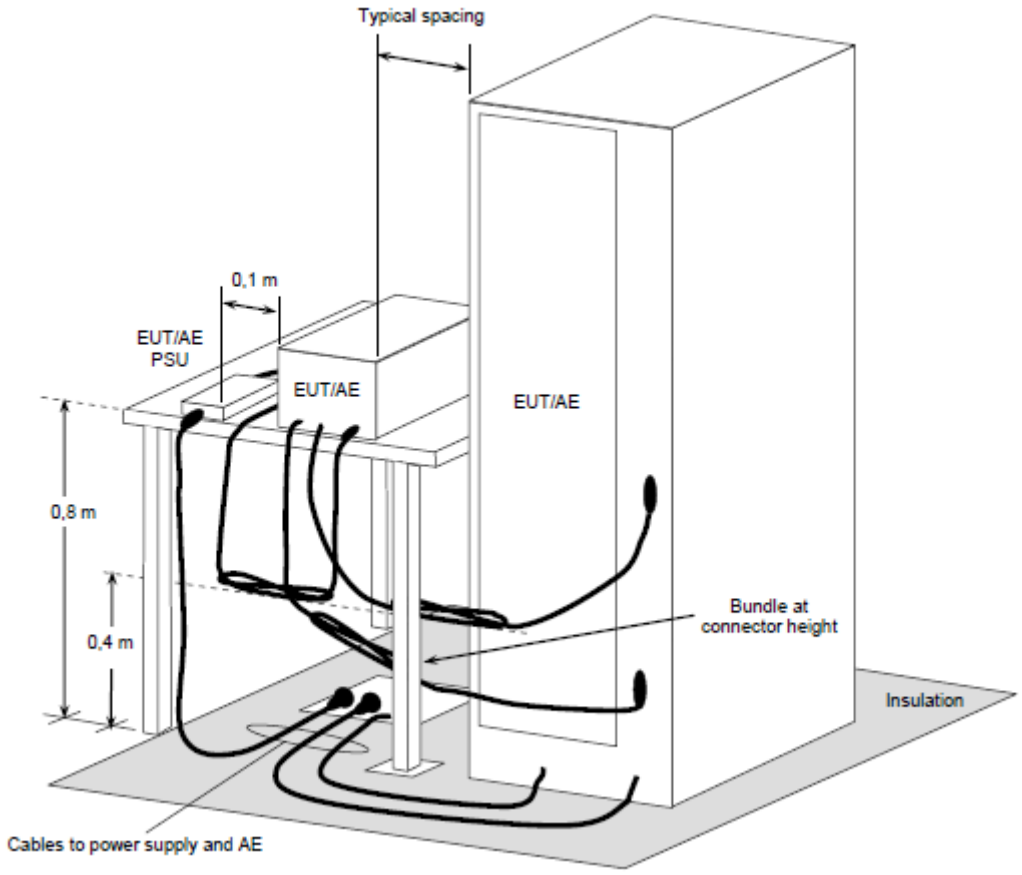


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

6.2 Radiated Emissions up to 1 GHz

a. For the table-top EUT is placed on a 0.8 meter to the top of rotating table; for the floor standing EUT shall be insulated (by insulation of maximum thickness of 150 mm) from the horizontal reference ground plane. The rotating table is rotated 360 degrees to determine the position of the highest radiation. If the equipment requires a dedicated ground connection, this shall be provided and bonded to the RGP.
b. The EUT is set 10 meters away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1 m to 4 m and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system is set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is up to 1 GHz.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency up to 1GHz.

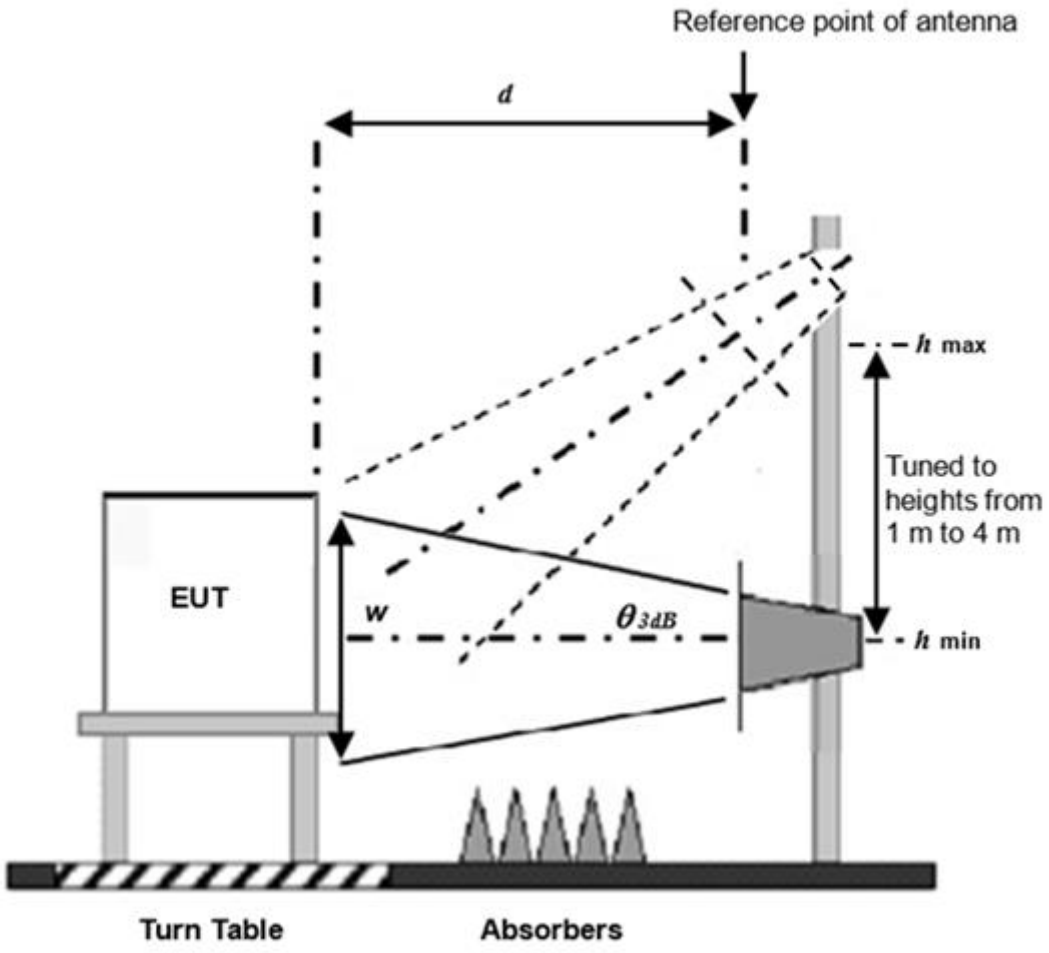


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

6.3 Radiated Emissions above 1 GHz

a. For the table-top EUT is placed on a 0.8 meter to the top of rotating table; for the floor standing EUT shall be insulated (by insulation of maximum thickness of 150 mm) from the horizontal reference ground plane. The rotating table is rotated 360 degrees to determine the position of the highest radiation. If the equipment requires a dedicated ground connection, this shall be provided and bonded to the RGP.
b. The EUT was set *d* = 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The spectrum analyzer system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

Note: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection (PK) at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.



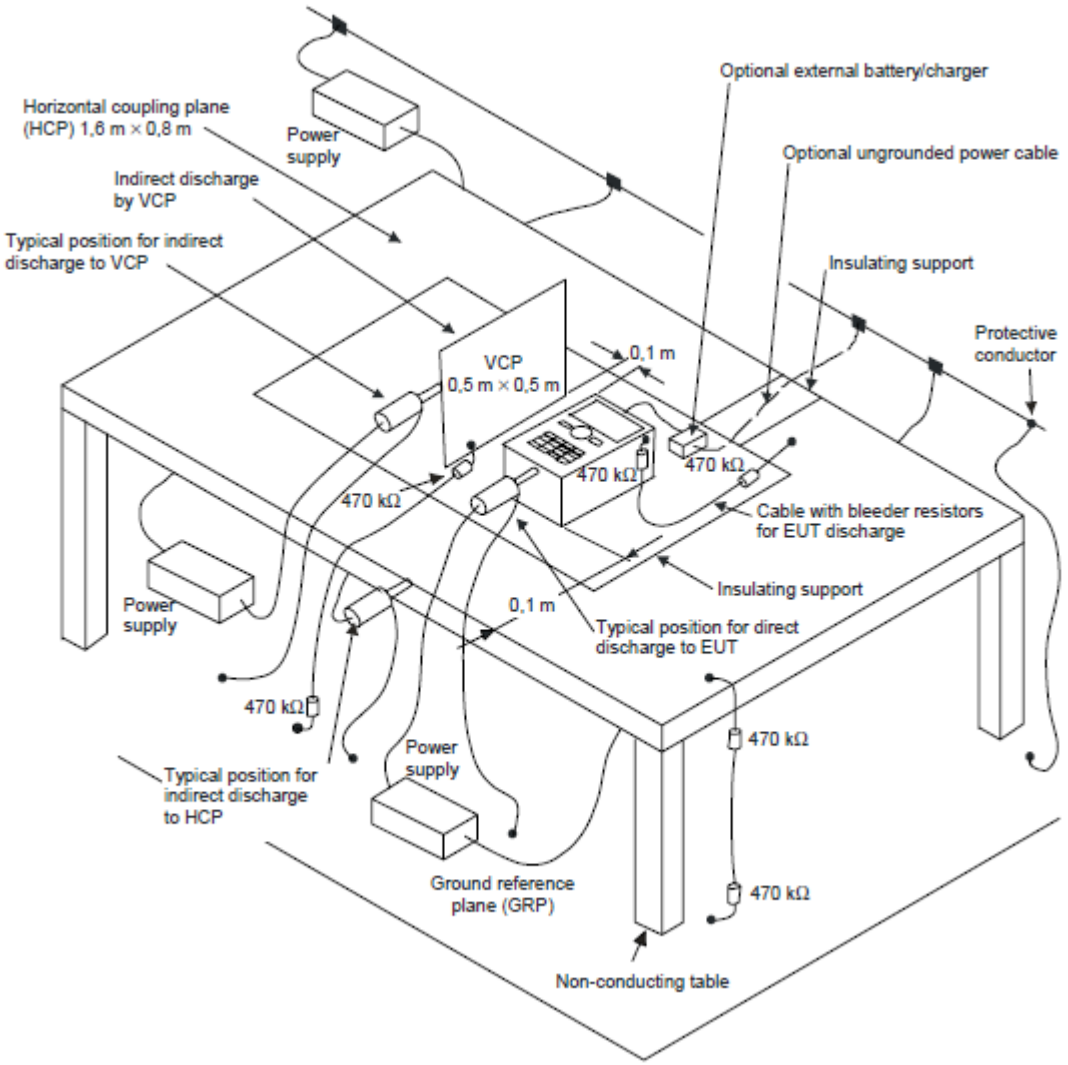
For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

6.4 Electrostatic Discharges (ESD)

Discharge Impedance:	330 ohm / 150 pF
Number of Discharge:	Air – Direct: 10 discharges per location (each polarity) Contact – Direct & Indirect: 10 discharges per location (each polarity)
Discharge Period:	1-second minimum

The basic test procedure was in accordance with EN/IEC 61000-4-2:

a. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation.
b. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.
c. The time interval between two successive single discharges was at least 1 second.
d. The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the EUT.
e. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
f. Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
g. At least ten single discharges (in the most sensitive polarity) were applied to the **H**orizontal **C**oupling **P**lane at points on each side of the EUT. The ESD generator was positioned at a distance of 0.1 meters from the EUT with the discharge electrode touching the **HCP.**
h. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the **V**ertical **C**oupling **P**lane in sufficiently different positions that the four faces of the EUT were completely illuminated. The **VCP** (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the **G**round **R**eference **P**lane. The **GRP** consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A **H**orizontal **C**oupling **P**lane (1.6m x 0.8m) was placed on the table and attached to the **GRP** by means of a cable with 940kΩ total impedance. The equipment under test, was installed in a representative system as described in section 7 of EN/IEC 61000-4-2, and its cables were placed on the **HCP** and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 m.

6.5 Radio Frequency Electromagnetic Field (RS)

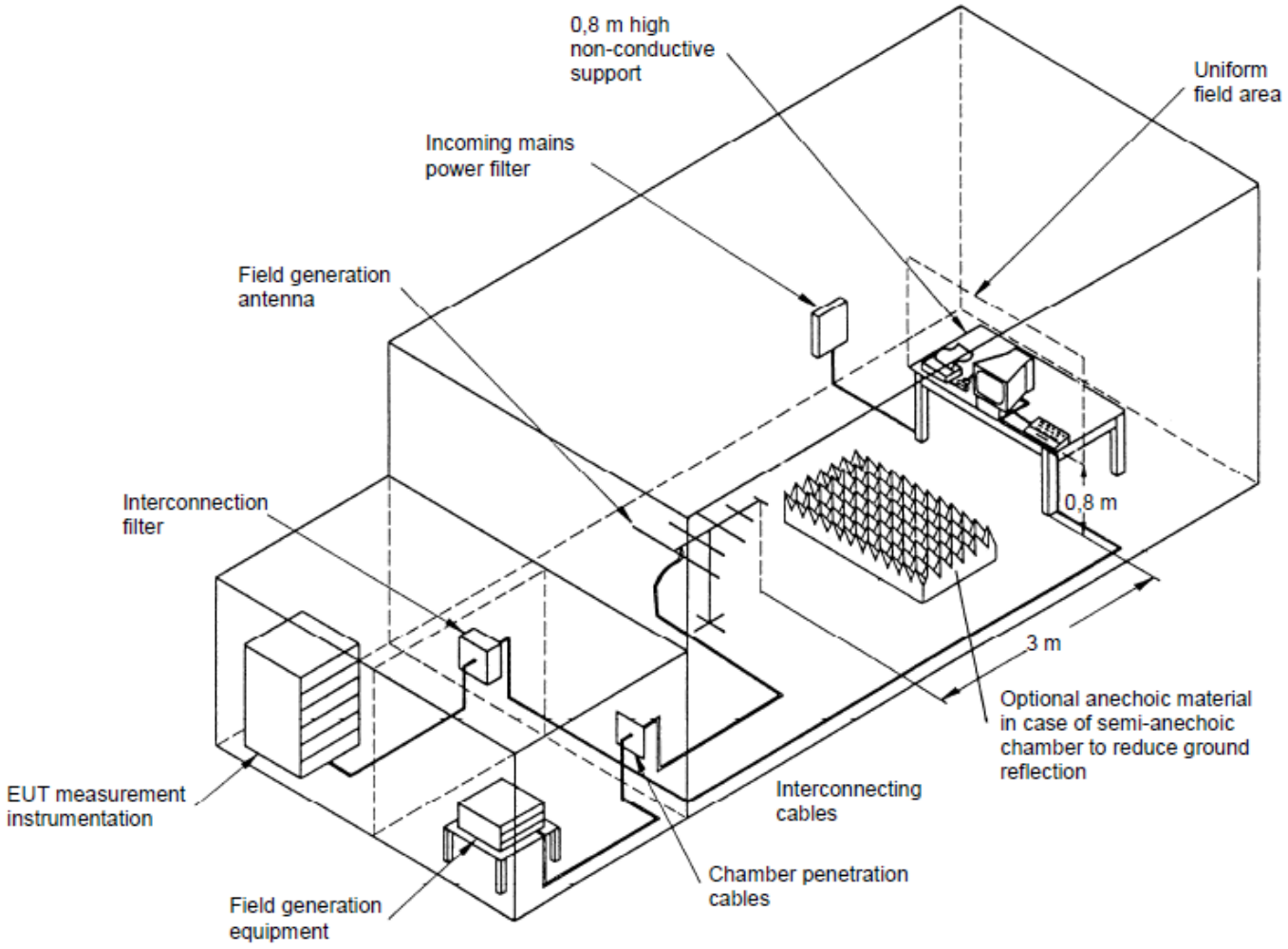
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of preceding frequency value
Dwell Time:	3 seconds

The test procedure was in accordance with EN/IEC 61000-4-3.

a. The testing was performed in a modified semi-anechoic chamber.

b. The frequency range shall be swept, with the signal 80% amplitude modulated with a 1kHz sine wave.

c. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLETOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN/IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN/IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

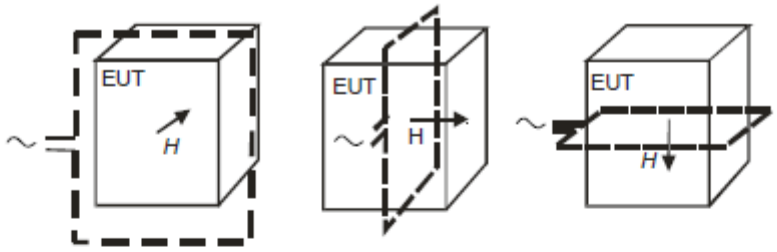
6.6 Power Frequency Magnetic Field (PFMF)

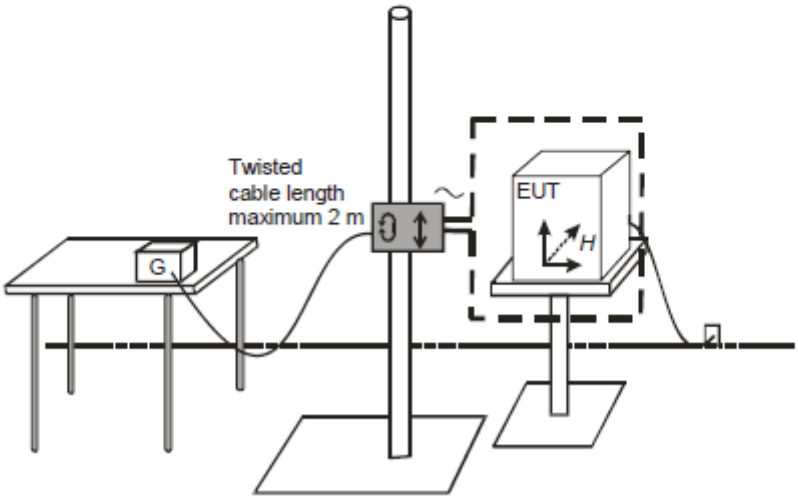
Observation Time:	1 minute
Inductance Coil:	Rectangular coil, 1 m x 1 m (L x W) or 2.6 m x 1 m (L x W)

a. The equipment is configured and connected to satisfy its functional requirements.

b. The power supply, input and output circuits shall be connected to the sources of power supply, control and signal.

c. The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.





For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7 Test Results of Test Item

7.1 Conducted Emissions from Power Ports

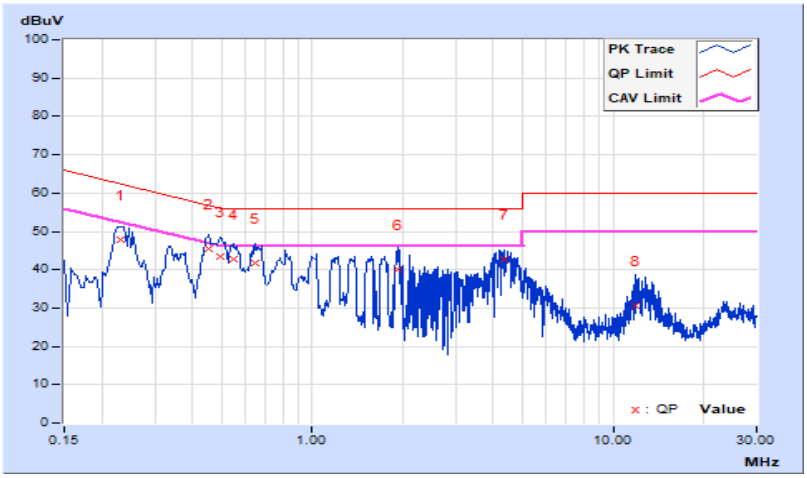
Mode A

Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	230 Vac, 50 Hz	**Environmental Conditions**	21 °C, 77 % RH, 1002.436975 mbar
Tested by	Kenny Chang		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.22999	9.97	37.88	25.33	47.85	35.30	62.45	52.45	-14.60	-17.15
2	0.45324	9.97	35.41	26.59	45.38	36.56	56.82	46.82	-11.44	-10.26
3	0.49314	9.98	33.50	19.56	43.48	29.54	56.11	46.11	-12.63	-16.57
4	0.54788	9.98	32.69	17.59	42.67	27.57	56.00	46.00	-13.33	-18.43
5	0.64763	9.99	31.66	22.58	41.65	32.57	56.00	46.00	-14.35	-13.43
6	1.93241	10.05	30.06	13.67	40.11	23.72	56.00	46.00	-15.89	-22.28
7	4.35412	10.13	32.72	18.34	42.85	28.47	56.00	46.00	-13.15	-17.53
8	11.87876	10.30	20.49	7.45	30.79	17.75	60.00	50.00	-29.21	-32.25

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

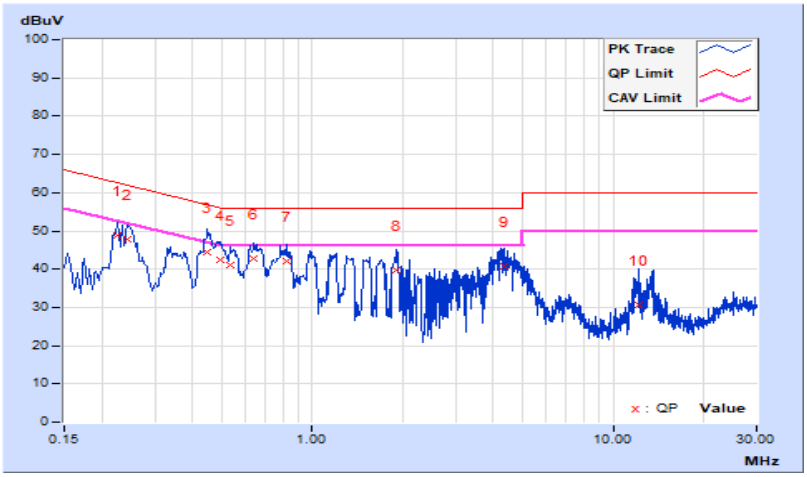


Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	230 Vac, 50 Hz	**Environmental Conditions**	21 °C, 77 % RH, 1002.436975 mbar
Tested by	Kenny Chang		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.22581	9.96	38.74	24.58	48.70	34.54	62.60	52.60	-13.90	-18.06
2	0.24177	9.96	37.80	23.64	47.76	33.60	62.04	52.04	-14.28	-18.44
3	**0.44925**	**9.98**	**34.54**	**26.94**	**44.52**	**36.92**	**56.89**	**46.89**	**-12.37**	**-9.97**
4	0.49713	9.98	32.49	18.76	42.47	28.74	56.05	46.05	-13.58	-17.31
5	0.53544	9.99	31.04	16.20	41.03	26.19	56.00	46.00	-14.97	-19.81
6	0.63965	9.99	32.89	23.95	42.88	33.94	56.00	46.00	-13.12	-12.06
7	0.82708	10.00	31.97	21.09	41.97	31.09	56.00	46.00	-14.03	-14.91
8	1.91246	10.05	29.76	14.23	39.81	24.28	56.00	46.00	-16.19	-21.72
9	4.34612	10.13	30.70	16.88	40.83	27.01	56.00	46.00	-15.17	-18.99
10	12.09821	10.31	20.49	10.49	30.80	20.80	60.00	50.00	-29.20	-29.20

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



7.2 Radiated Emissions up to 1 GHz

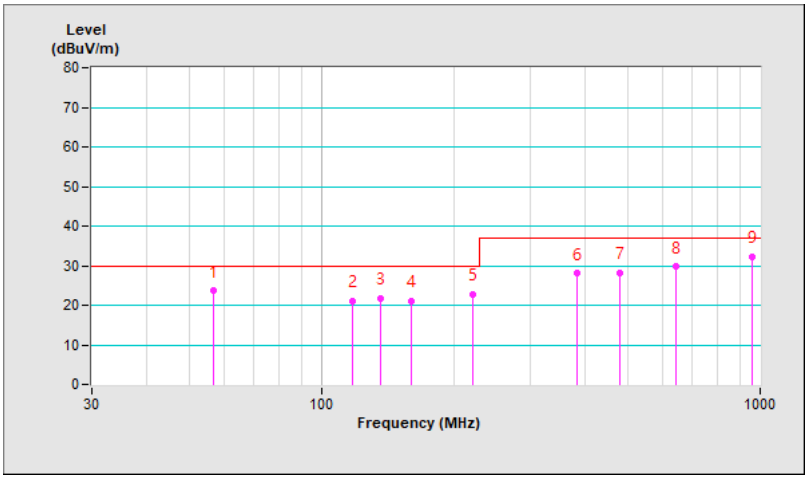
Mode A

Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120 kHz
Input Power	230 Vac, 50 Hz	**Environmental Conditions**	25 °C, 66 % RH, 1000 mbar
Tested By	Paul Chen		

Antenna Polarity & Test Distance : Horizontal at 10 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	56.72	23.64 QP	30.00	-6.36	4.00 H	232	32.41	-8.77
2	118.14	21.04 QP	30.00	-8.96	4.00 H	327	31.06	-10.02
3	136.22	21.64 QP	30.00	-8.36	4.00 H	327	29.97	-8.33
4	160.24	20.95 QP	30.00	-9.05	4.00 H	244	28.10	-7.15
5	222.13	22.69 QP	30.00	-7.31	4.00 H	196	33.11	-10.42
6	382.42	27.97 QP	37.00	-9.03	3.17 H	245	32.34	-4.37
7	480.01	28.15 QP	37.00	-8.85	2.21 H	168	30.83	-2.68
8	643.13	29.71 QP	37.00	-7.29	1.48 H	255	28.73	0.98
9	**960.00**	**32.17 QP**	**37.00**	**-4.83**	**1.00 H**	**358**	**25.35**	**6.82**

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

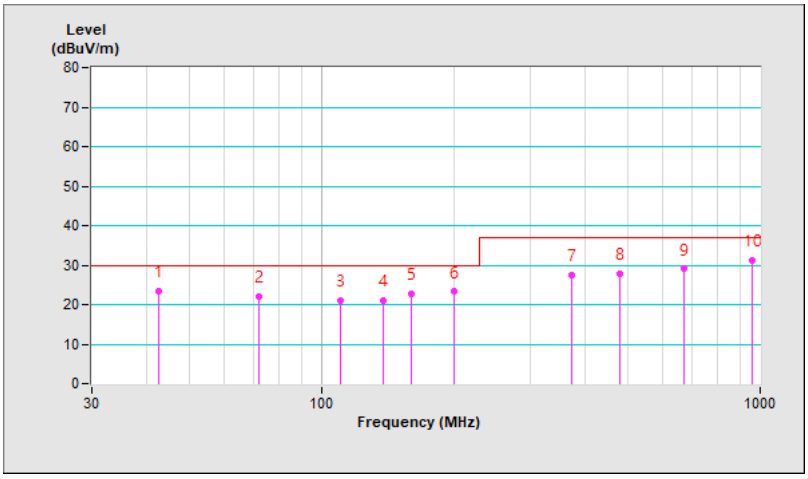


Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120 kHz
Input Power	230 Vac, 50 Hz	**Environmental Conditions**	25 °C, 66 % RH, 1000 mbar
Tested By	Paul Chen		

Antenna Polarity & Test Distance : Vertical at 10 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	42.64	23.51 QP	30.00	-6.49	1.36 V	220	32.00	-8.49
2	72.13	22.14 QP	30.00	-7.86	1.83 V	252	33.39	-11.25
3	110.41	21.09 QP	30.00	-8.91	1.00 V	316	32.01	-10.92
4	138.29	21.17 QP	30.00	-8.83	1.00 V	336	29.34	-8.17
5	160.64	22.63 QP	30.00	-7.37	1.00 V	319	29.82	-7.19
6	200.04	23.28 QP	30.00	-6.72	1.00 V	296	34.08	-10.80
7	372.42	27.59 QP	37.00	-9.41	1.00 V	177	32.28	-4.69
8	480.00	27.83 QP	37.00	-9.17	1.00 V	277	30.51	-2.68
9	668.42	28.99 QP	37.00	-8.01	3.26 V	193	27.64	1.35
10	960.00	31.22 QP	37.00	-5.78	2.23 V	15	24.40	6.82

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.



7.3 Radiated Emissions above 1 GHz

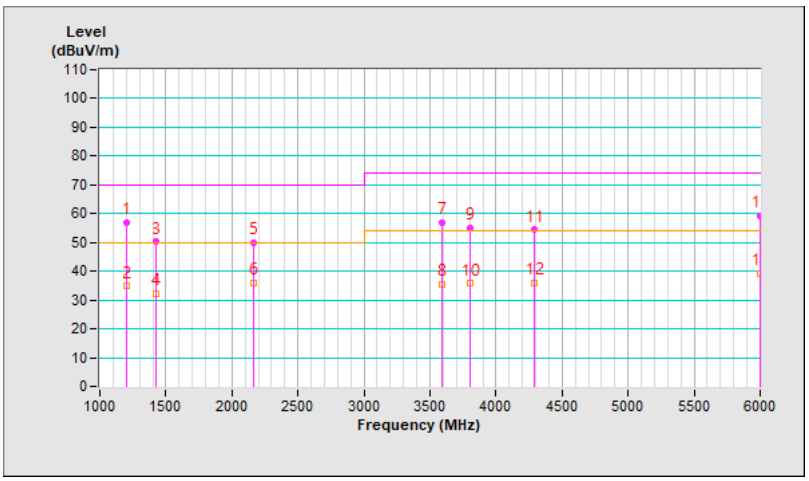
Mode A

Frequency Range	1 GHz ~ 6 GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1 MHz
Input Power	230 Vac, 50 Hz	**Environmental Conditions**	25 °C, 75 % RH, 999 mbar
Tested By	Willy Wong		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	**1198.07**	**56.92 PK**	**70.00**	**-13.08**	**1.68 H**	**0**	**76.42**	**-19.50**
2	1198.07	34.81 AV	50.00	-15.19	1.68 H	0	54.31	-19.50
3	1423.66	50.17 PK	70.00	-19.83	1.00 H	33	70.84	-20.67
4	1423.66	32.20 AV	50.00	-17.80	1.00 H	33	52.87	-20.67
5	2165.84	50.04 PK	70.00	-19.96	1.79 H	150	66.19	-16.15
6	2165.84	35.89 AV	50.00	-14.11	1.79 H	150	52.04	-16.15
7	3588.42	56.99 PK	74.00	-17.01	1.25 H	300	70.19	-13.20
8	3588.42	35.65 AV	54.00	-18.35	1.25 H	300	48.85	-13.20
9	3798.88	55.07 PK	74.00	-18.93	1.83 H	56	68.33	-13.26
10	3798.88	35.66 AV	54.00	-18.34	1.83 H	56	48.92	-13.26
11	4290.41	54.34 PK	74.00	-19.66	2.11 H	56	67.07	-12.73
12	4290.41	36.03 AV	54.00	-17.97	2.11 H	56	48.76	-12.73
13	5996.36	59.23 PK	74.00	-14.77	1.64 H	360	70.26	-11.03
14	5996.36	39.32 AV	54.00	-14.68	1.64 H	360	50.35	-11.03

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

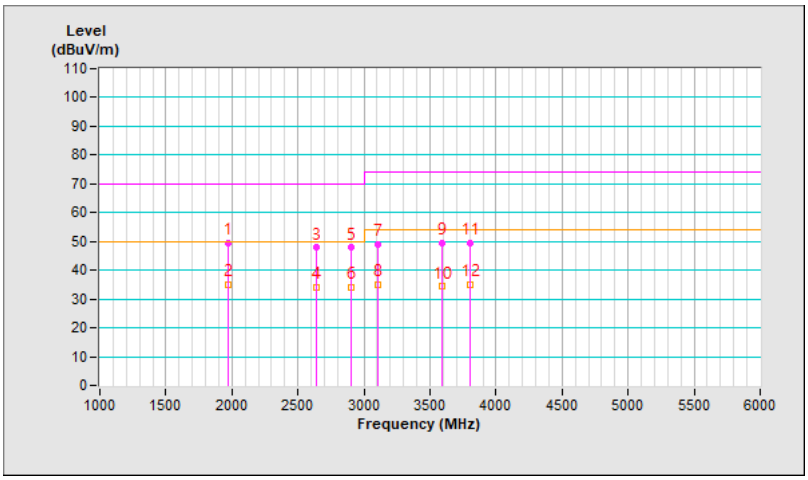


Frequency Range	1 GHz ~ 6 GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1 MHz
Input Power	230 Vac, 50 Hz	**Environmental Conditions**	25 °C, 75 % RH, 999 mbar
Tested By	Willy Wong		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	1967.11	49.47 PK	70.00	-20.53	2.39 V	161	65.62	-16.15
2	1967.11	34.96 AV	50.00	-15.04	2.39 V	161	51.11	-16.15
3	2638.95	47.83 PK	70.00	-22.17	1.98 V	350	62.05	-14.22
4	2638.95	34.15 AV	50.00	-15.85	1.98 V	350	48.37	-14.22
5	2905.22	47.83 PK	70.00	-22.17	1.44 V	82	61.79	-13.96
6	2905.22	34.26 AV	50.00	-15.74	1.44 V	82	48.22	-13.96
7	3109.72	49.09 PK	74.00	-24.91	1.93 V	28	62.74	-13.65
8	3109.72	35.01 AV	54.00	-18.99	1.93 V	28	48.66	-13.65
9	3595.67	49.39 PK	74.00	-24.61	1.13 V	30	62.60	-13.21
10	3595.67	34.37 AV	54.00	-19.63	1.13 V	30	47.58	-13.21
11	3803.46	49.54 PK	74.00	-24.46	1.58 V	279	62.79	-13.25
12	3803.46	34.92 AV	54.00	-19.08	1.58 V	279	48.17	-13.25

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.



7.4 Electrostatic Discharges (ESD)

Mode A

For EN 55035

Input Power	AC 230V / 50Hz	Environmental conditions	20 °C, 41 % RH 1009 mbar
Tested by	Todd Chang		

Test Results of Direct Application					
Discharge Level (kV)	Polarity (+/-)	Test Point	Contact Discharge	Air Discharge	Performance Criteria
2, 4	+/-	1, 2	Note 1	---	A
2	+/-	3	Note 1	---	A
4	-	3	Note 2	---	B
2, 4, 8	+/-	4, 5, 6	---	Note 1	A

Description of test points of direct application: Please refer to following page for representative mark only.

Test Results of Indirect Application					
Discharge Level (kV)	Polarity (+/-)	Test Point	Horizontal Coupling Plane	Vertical Coupling Plane	Performance Criteria
2, 4	+/-	Four Side	Note1	Note1	A

Description of test points of indirect application:

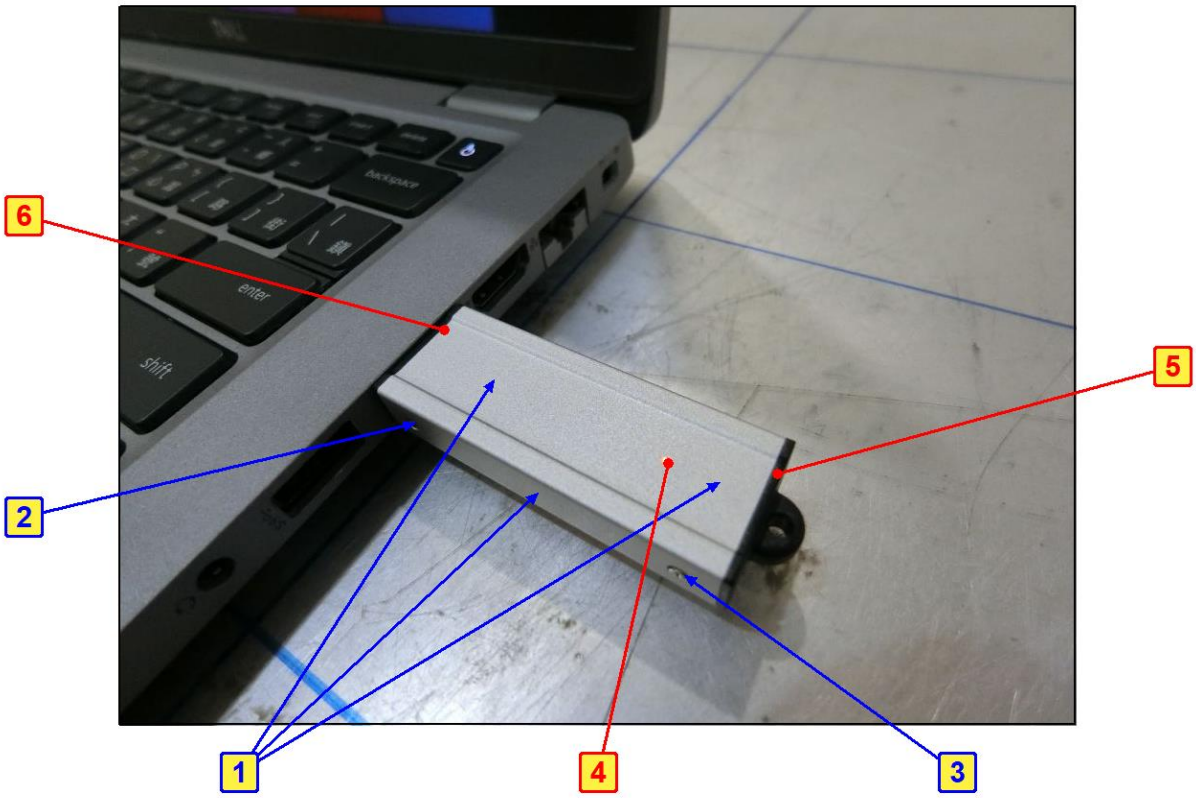
1. Front side 2. Rear side 3. Right side 4. Left side

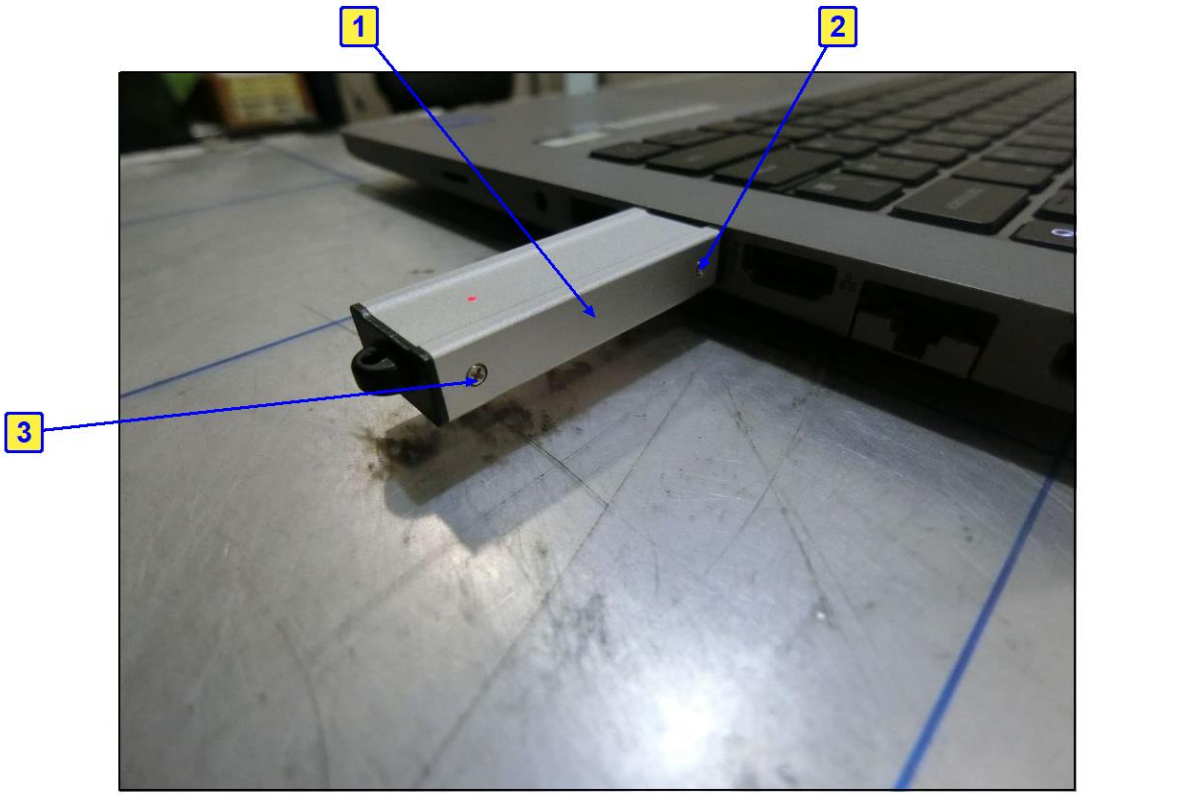
Please refer to the attached page for description of test points.

Notes:

1. The EUT is operated normal during the test.
2. The EUT R/W delay during the test, but it can be self-recoverable after the test.

Description of test point





7.5 Radio Frequency Electromagnetic Field (RS)

Mode A

For EN 55035

Input Power	AC 230V / 50Hz	Environmental conditions	21 °C, 60 % RH 1009 mbar
Tested by	Todd Chang		

Frequency (MHz)	Polarity	Azimuth(°)	Applied Field Strength		Observation	Performance Criteria
			(V/m)	Modulation		
80 - 1000	V&H	0, 90, 180, 270	3	80% AM (1kHz)	Note	A
1800, 2600, 3500, 5000	V&H	0, 90, 180, 270	3	80% AM (1kHz)	Note	A

Note: The EUT is operated normal during the test.

7.6 Power Frequency Magnetic Field (PFMF)

Mode A

For EN 55035

Input Power	AC 230V / 50Hz	Environmental conditions	20 °C, 62 % RH 1009 mbar
Tested by	Todd Chang		

Application	Frequency (Hz)	Field Strength (A/m)	Observation	Performance Criteria
X - Axis	50	1	Note	A
Y - Axis	50	1	Note	A
Z - Axis	50	1	Note	A

Note: The EUT is operated normal during the test.

8 Pictures of Test Arrangements

8.1 Conducted Emissions from Power Ports

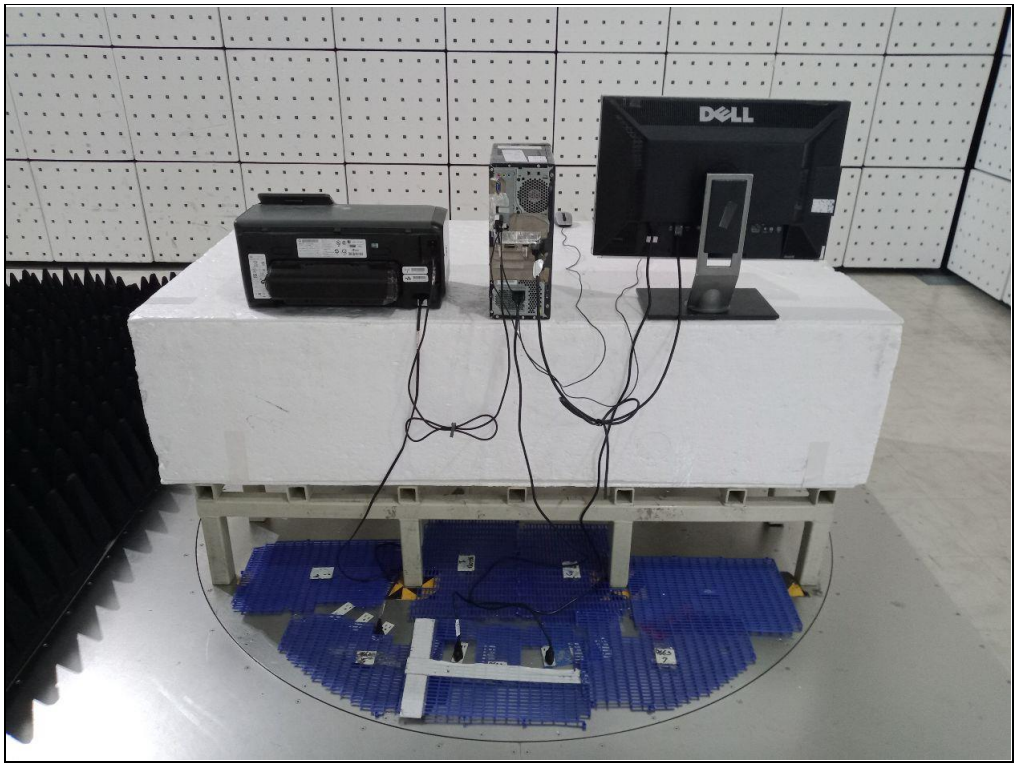
Mode A

8.2 Radiated Emissions up to 1 GHz

Mode A

8.3 Radiated Emissions above 1 GHz

Mode A



8.4 Electrostatic Discharges (ESD)

Mode A

8.5 Radio Frequency Electromagnetic Field (RS)

Mode A

8.6 Power Frequency Magnetic Field (PFMF)

Mode A

9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@bureauveritas.com
Web Site: http://ee.bureauveritas.com.tw

The address and road map of all our labs can be found in our web site also.

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