FCC Part15, Subpart B

TEST REPORT

For

GenulN COVID-19 Rapid PCR Test

MODEL NUMBER: U202025-1

FCC ID: 2A8FMU202025-1

REPORT NUMBER: 4790487153-2

ISSUE DATE: August 18, 2022

Prepared for

Ustar Biotechnologies (Hangzhou) Ltd.
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Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	8/18/2022	Initial Issue	

Summary of Test Results				
Standard	**Test Item**	**Limit**	**Result**	**Remark**
FCC Part15, Subpart B ANSI C63.4-2014	Conducted Disturbance	Class B	PASS	**NOTE (2)**
	Radiated Disturbance below 1 GHz	Class B	PASS	
	Radiated Disturbance above 1 GHz	Class B	N/A	**NOTE (1) NOTE (3)**

Note:
(1) “N/A” denotes test is not applicable in this test report.
(2) This test is only applicable for devices which can be charged or powered by AC power cable.
(3) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is less.
(4) This test report is only published to and used by the applicant, and it is not for evidence purpose in China.
(5) The measurement result for the sample received is <Pass> according to < FCC Part15, Subpart B > when <Accuracy Method> decision rule is applied.

CONTENTS

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Ustar Biotechnologies (Hangzhou) Ltd.
Address:	6/F, Building2, 611 Dongguan Road, Binjiang District, Hangzhou, Zhejiang, China

Manufacturer Information

Company Name:	Ustar Biotechnologies (Hangzhou) Ltd.
Address:	6/F, Building2, 611 Dongguan Road, Binjiang District, Hangzhou, Zhejiang, China

EUT Information

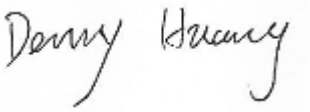
EUT Name:	GenuIN COVID-19 Rapid PCR Test
Model Name:	U202025-1
Sample Received Date:	August 10, 2022
Sample Status:	Normal
Sample ID:	5228527-2
Date of Tested:	August 10, 2022 ~ August 18, 2022

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC Part15, Subpart B	PASS

Prepared By:

Andy Wan
Project Engineer

Checked By:



Denny Huang
Senior Project Engineer

Approved By:

Stephen Guo
Laboratory Manager

2. TEST METHODOLOGY

All tests were performed in accordance with the standard FCC Part15 Subpart B & ANSI C63.4-2014.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 4102.01)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1187)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Delcaration of Conformity (DoC) and Certification rules **ISED (Company No.: 21320)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046. **VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B , the VCCI registration No. is C-20012 and T-20011

Note: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Measurement Frequency Range	K	U(dB)
Conducted emissions from the AC mains power ports	0.009 MHz ~ 0.15 MHz	2	4.00
Conducted emissions from the AC mains power ports	0.15 MHz ~ 30 MHz	2	3.62
Radiated emissions	30 MHz ~ 1 GHz	2	4.00
Radiated emissions	1 GHz ~ 18 GHz	2	5.78
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k=2.			

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	GenuIN COVID-19 Rapid PCR Test
Model	U202025-1
Input	5Vdc, 1A

5.2. TEST MODE

Test Mode	Description
Mode 1	Normal Operating

5.3. EUT ACCESSORY

Note: No accessory.

5.4. SUPPORT UNITS FOR SYSTEM TEST

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Specification	Series No.
1	Adapter	Yi	A18A-050100U-CN2	Input: 100-240V~, 50/60Hz, Max 0.2A Output: 5Vdc, 1A	N/A

The following cables were used to form a representative test configuration during the tests.

Item	Type of cable	Shielded Type	Ferrite Core	Specification
1	Type-C Cable	YES	NO	1.0m

6. MEASURING EQUIPMENT AND SOFTWARE USED

Conducted Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR3	101961	Oct. 30, 2021	Oct. 29, 2022
Two-Line V-Network	R&S	ENV216	101983	Oct. 30, 2021	Oct. 29, 2022
Software					
Description			Manufacturer	Name	Version
Test Software for Conducted Emissions			Farad	EZ-EMC	Ver. UL-3A1
Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Oct. 30, 2021	Oct. 29, 2022
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Apr. 24, 2020	Apr. 23, 2023
Preamplifier	HP	8447D	2944A09099	Oct. 30, 2021	Oct. 29, 2022
Software					
Description			Manufacturer	Name	Version
Test Software for Radiated Emissions			Farad	EZ-EMC	Ver. UL-3A1

7. EMISSION TEST

7.1. CONDUCTED EMISSIONS MEASUREMENT

LIMITS

CFR 47 FCC Part15 Subpart B				
FREQUENCY (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46*
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

TEST PROCEDURE

1. The testing follows the guidelines in ANSI C63.4-2014.

2. The EUT was placed on the top of a rotating table 0.8 meters above the horizontal ground plane and being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

3. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

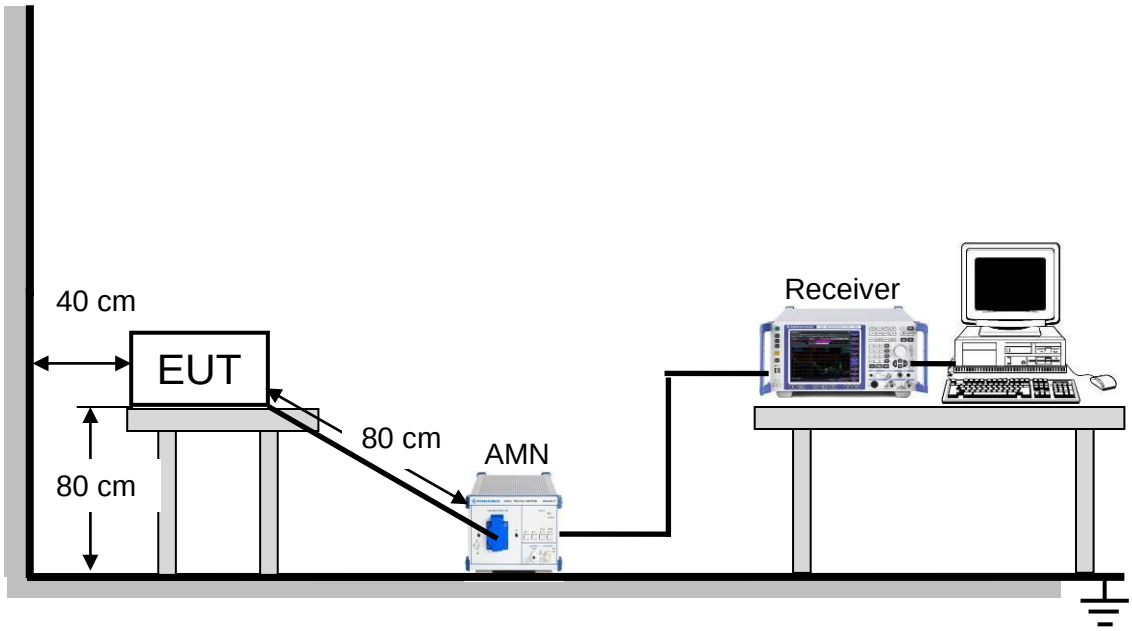
4. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

5. Cables of hand-operated devices, such as keyboards and mice, shall be placed as for normal used.

6. LISN at least 80 cm from nearest part of EUT chassis.

7. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode.

TEST SETUP



For the actual test configuration, please refer to Appendix I: Photographs of Test Configuration.

TEST ENVIRONMENT

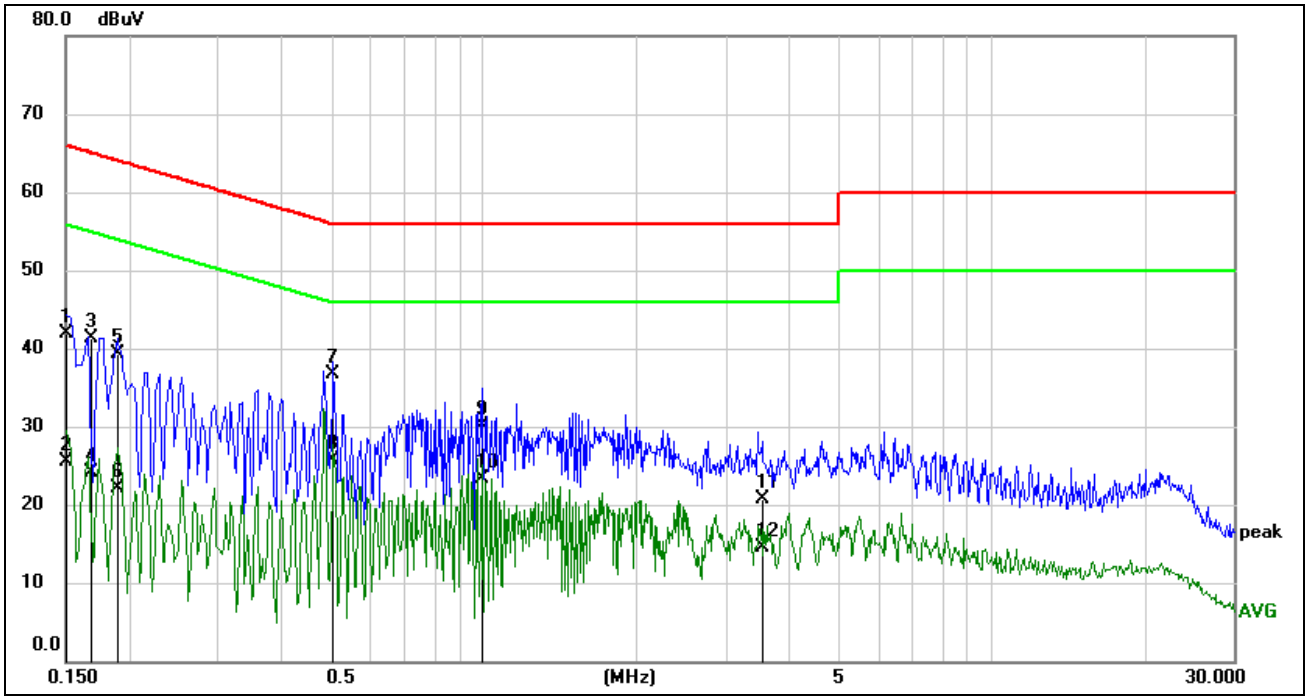
Temperature	23.8 °C	Relative Humidity	56 %
Atmosphere Pressure	101 kPa		

TEST MODE

Pre-test Mode:	Mode 1
Final Test Mode:	Mode 1

TEST RESULTS

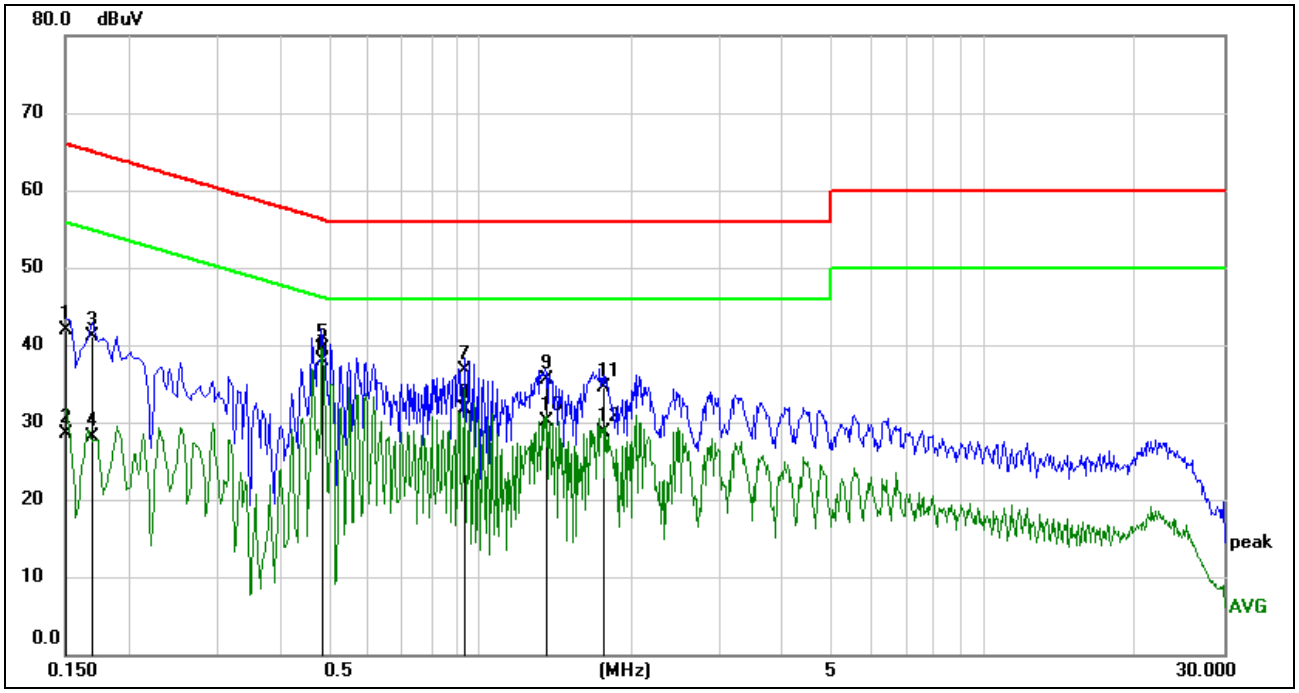
Conducted Emissions			
Test Mode:	Mode 1	Phase:	Line
Test Voltage	AC 120 V/60 Hz		



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1501	32.33	9.59	41.92	65.99	-24.07	QP
2	0.1501	16.01	9.59	25.60	55.99	-30.39	AVG
3	0.1692	31.81	9.59	41.40	65.00	-23.60	QP
4	0.1692	14.51	9.59	24.10	55.00	-30.90	AVG
5	0.1901	29.70	9.59	39.29	64.03	-24.74	QP
6	0.1901	12.56	9.59	22.15	54.03	-31.88	AVG
7	0.5066	27.35	9.31	36.66	56.00	-19.34	QP
8	0.5066	16.45	9.31	25.76	46.00	-20.24	AVG
9	0.9924	20.55	9.61	30.16	56.00	-25.84	QP
10	0.9924	13.72	9.61	23.33	46.00	-22.67	AVG
11	3.5297	11.14	9.61	20.75	56.00	-35.25	QP
12	3.5297	4.94	9.61	14.55	46.00	-31.45	AVG

Note: 1. Result = Reading +Correct Factor
2. Margin = Result - Limit

Conducted Emissions			
Test Mode:	Mode 1	Phase:	Neutral
Test Voltage	AC 120 V/60 Hz		



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	32.36	9.59	41.95	66.00	-24.05	QP
2	0.1500	18.82	9.59	28.41	56.00	-27.59	AVG
3	0.1698	31.55	9.59	41.14	64.97	-23.83	QP
4	0.1698	18.51	9.59	28.10	54.97	-26.87	AVG
5	0.4863	30.23	9.31	39.54	56.23	-16.69	QP
6	0.4863	28.55	9.31	37.86	46.23	-8.37	AVG
7	0.9298	27.05	9.61	36.66	56.00	-19.34	QP
8	0.9298	22.16	9.61	31.77	46.00	-14.23	AVG
9	1.3556	25.87	9.61	35.48	56.00	-20.52	QP
10	1.3556	20.52	9.61	30.13	46.00	-15.87	AVG
11	1.7580	24.98	9.62	34.60	56.00	-21.40	QP
12	1.7580	19.01	9.62	28.63	46.00	-17.37	AVG

Note: 1. Result = Reading +Correct Factor
2. Margin = Result – Limit

7.2. RADIATED EMISSIONS MEASUREMENT

LIMITS

Below 1 GHz

CFR 47 FCC Part 15 Subpart B		
Frequency (MHz)	Class A	Class B
	Field strength (dBuV/m) (at 3 m)	Field strength (dBuV/m) (at 3 m)
30 - 88	49.5	40
88 - 216	53.9	43.5
216 - 960	56.9	46
Above 960	60	54

Above 1 GHz

CFR 47 FCC Part 15 Subpart B				
Frequency (MHz)	Class A		Class B	
	(dBuV/m) (at 3 m)		(dBuV/m) (at 3 m)	
	Peak	Average	Peak	Average
Above 1000	80	60	74	54

Test Frequency Range of Radiated Disturbance Measurement

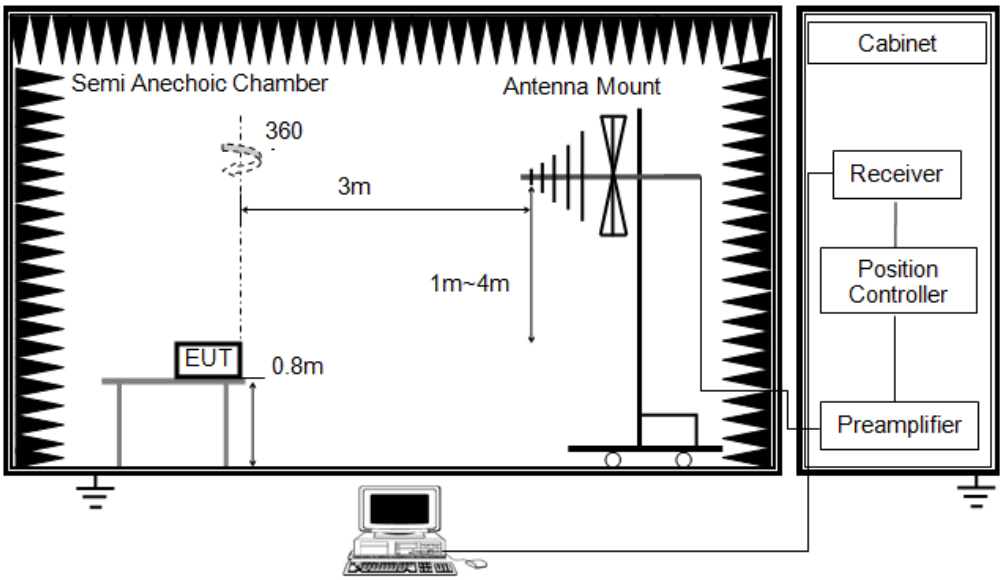
Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 - 108	1000
108 - 500	2000
500 - 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

NOTE:

(1) The limit for radiated test was performed according to FCC Part 15, Subpart B;
(2) The tighter limit applies at the band edges;
(3) Emission level (dBuV/m) = 20log Emission level (uV/m),
3m Emission level = 10 m Emission level + 20log(10 m/3 m);

TEST SETUP AND PROCEDURE

Below 1 GHz and above 30 MHz



The setting of the spectrum analyser

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak and QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.4-2014.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp was used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

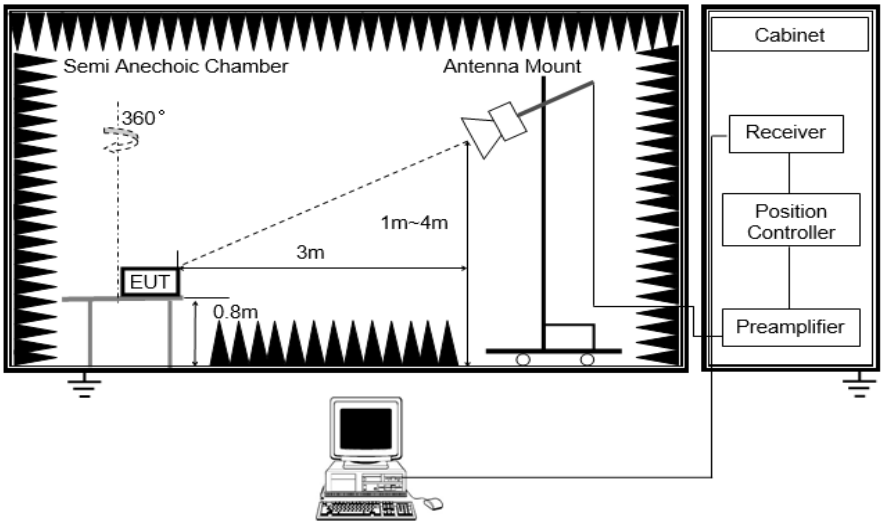
5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

6. Cables of hand-operated devices, such as keyboards and mice, shall be placed as for normal used.

7. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

8. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

Above 1 GHz



The setting of the spectrum analyser

RBW	1 MHz
VBW	3 MHz
Sweep	Auto
Detector	Peak: Peak AVG: RMS
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.4-2014.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

6. Cables of hand-operated devices, such as keyboards and mice, shall be placed as for normal used.

7. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

8. For measurement above 1 GHz, the peak emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the peak limit specified in Section 15.109. If peak result complies with average limit, average result is deemed to comply with average limit.

9. The average emission measurement will be measured by the RMS detector and must comply with the average limit specified in Section 15.109.

TEST ENVIRONMENT

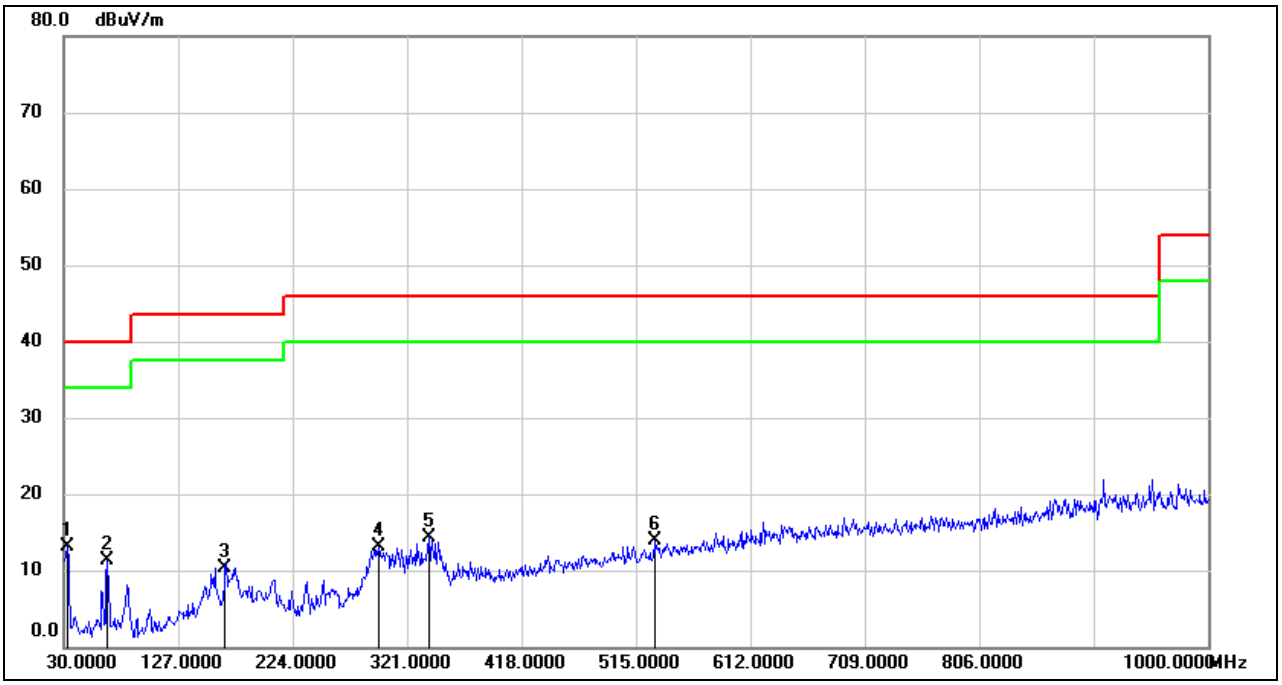
Radiated Emissions - Below 1 GHz		Radiated Emissions - Above 1 GHz	
Temperature:	24.2 °C	Temperature:	N/A
Humidity:	55 %	Humidity:	N/A
Atmosphere Pressure	101 kPa	Atmosphere Pressure	N/A

TEST MODE

Radiated Emissions - Below 1 GHz		Radiated Emissions - Above 1 GHz	
Pre-test Mode:	Mode 1	Pre-test Mode:	N/A
Final Test Mode:	Mode 1	Final Test Mode:	N/A

TEST RESULTS

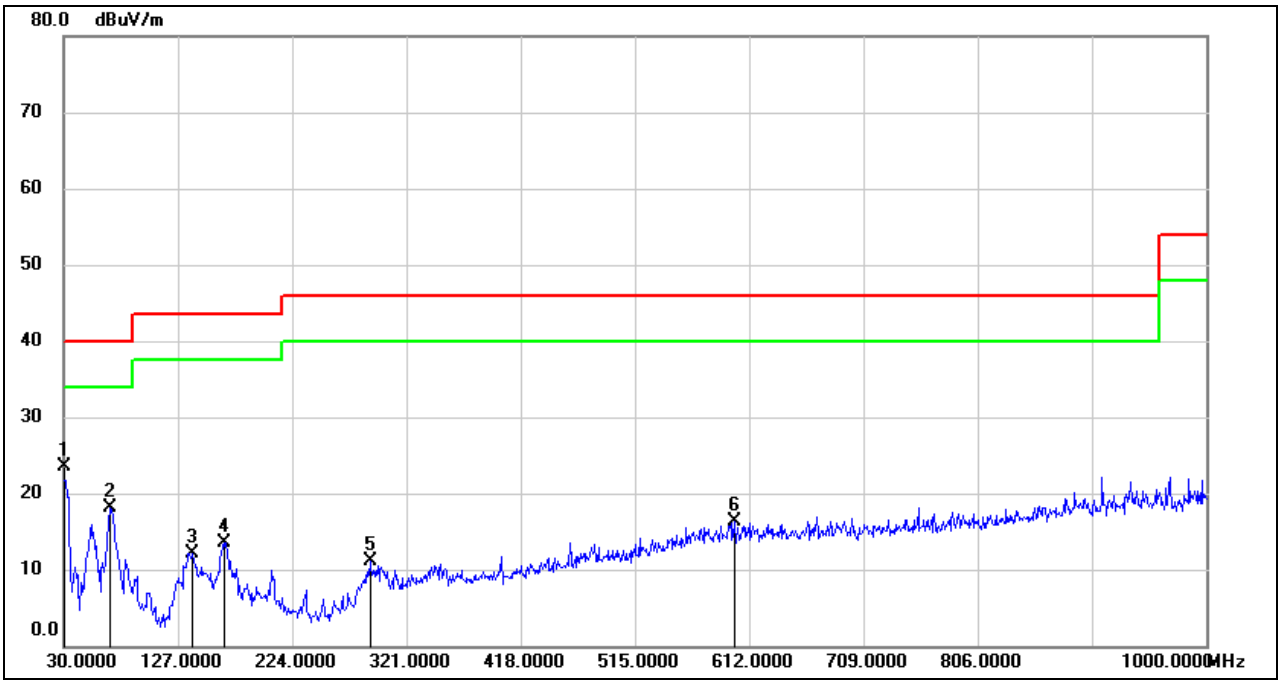
Radiated Emissions – Below 1 GHz			
Measurement Method	Radiated	Polar:	Horizontal
Test Mode:	Mode 1	Test Voltage:	AC 120 V/60 Hz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	32.9100	32.37	-19.22	13.15	40.00	-26.85	QP
2	66.8600	31.95	-20.56	11.39	40.00	-28.61	QP
3	166.7700	27.81	-17.47	10.34	43.50	-33.16	QP
4	296.7500	28.52	-15.50	13.02	46.00	-32.98	QP
5	339.4300	28.85	-14.45	14.40	46.00	-31.60	QP
6	530.5200	24.67	-10.79	13.88	46.00	-32.12	QP

Note: 1. Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor)
2. Margin = Result - Limit

Radiated Emissions – Below 1 GHz			
Measurement Method	Radiated	Polar:	Vertical
Test Mode:	Mode 1	Test Voltage:	AC 120 V/60 Hz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.0000	42.36	-18.94	23.42	40.00	-16.58	QP
2	69.7699	38.71	-20.57	18.14	40.00	-21.86	QP
3	138.6400	31.05	-18.91	12.14	43.50	-31.36	QP
4	166.7700	30.93	-17.47	13.46	43.50	-30.04	QP
5	289.9600	26.97	-15.91	11.06	46.00	-34.94	QP
6	599.3900	25.85	-9.56	16.29	46.00	-29.71	QP

Note: 1. Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor)
2. Margin = Result - Limit

END OF REPORT