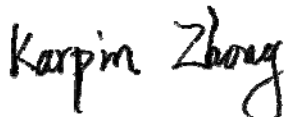


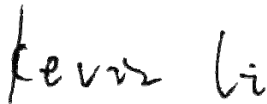
FCC&ISED EMC Test Report

Project No. : 1905C010A
Equipment : LCD Monitor
Brand Name : N/A
Test Model : **27G2*****(*=A-Z,a-z,0-9,/ , +,-,\ or blank)
Series Model : N/A
Applicant : TPV Electronics (Fujian) Co., Ltd.
Address : Rongqiao Economic and Technological Development Zone, Fuqing City,
Fujian Province, P.R. China
Date of Receipt : Aug. 22, 2019
Date of Test : Aug. 22, 2019 ~ Mar. 23, 2020
Issued Date : Apr. 03, 2020
Report Version : R00
Test Sample : Engineering Sample No.: DG201909035
Standard(s) : FCC Part 15, Subpart B
ICES-003 Issue 6:2016
ICES-003 Issue 6:2016 (updated April 2019)

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.



Prepared by : Karpin Zhong



Approved by : Kevin Li



Certificate #5123.02

Add: No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

Tel: +86-769-8318-3000

Web: www.newbtl.com

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

The report must not be used by the client to claim product certification, approval, or endorsement by NIST, A2LA, or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Apr. 03, 2020

1. SUMMARY OF TEST RESULTS

Emission		
Ref Standard(s)	Test Item	Result
ANSI C63.4-2014	AC Power Line Conducted Emissions	PASS
	Radiated Emissions 30 MHz to 1 GHz	PASS
	Radiated Emissions Above 1 GHz	PASS

1.1 TEST FACILITY

The test facilities used to collect the test data in this report at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

BTL's Test Firm Registration Number for FCC: 357015

BTL's Designation Number for FCC: CN1240

BTL's Test Firm Registration Number for ISED: 4428B

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-C01	CISPR	150kHz ~ 30MHz	2.90

B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
DG-CB08 (3m)	CISPR	30MHz ~ 200MHz	V	3.72
		30MHz ~ 200MHz	H	3.02
		200MHz ~ 1,000MHz	V	4.20
		200MHz ~ 1,000MHz	H	3.66

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB08 (3m)	CISPR	1GHz ~ 6GHz	4.36

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Tested By
AC Power Line Conducted Emissions	25°C	53%	Bang Liang
Radiated emissions 30 MHz to 1 GHz	25°C	60%	Dylan Hong
Radiated emissions above 1 GHz	25°C	60%	Dylan Hong

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	LCD Monitor
Brand Name	N/A
Test Model	**27G2*****(*=A-Z,a-z,0-9,/ , +,-,\ or blank)
Series Model	N/A
Model Difference(s)	Only differ in model name due to marketing purpose
Power Source	AC Mains.
Power Rating	100-240V~ 50-60Hz
Connecting I/O Port(s)	1* AC port 1* D-SUB port 2* HDMI port 1* DP port 1* Earphone port 5* USB port 1* Aduio port
Classification Of EUT	Class B
Highest Internal Frequency(Fx)	600MHz

Cable Type	Shielded T pe	Ferrite Core	Length(m)	Note
D-SUB	Shielded	YES	1.8/1.5	Bonded two Ferrite Cores
HDMI	Shielded	NO	1.8/1.5	
DP	Shielded	NO	1.8/1.5	
AC Power Cord	Non-shielded	NO	1.8/1.5	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. Power cable 1.8m, 1.5m length, worst case is Power cable 1.8m with D-SUB+HDMI+DP 1.8m length testing and recording in test report.

2.2 DESCRIPTION OF TEST MODES

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 possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	D-SUB 1920*1080/60Hz
Mode 2	DP1920*1080/144Hz
Mode 3	HDMI 1 1920*1080/144Hz
Mode 4	HDMI 2 1920*1080/144Hz
Mode 5	HDMI 1 1080P
Mode 6	HDMI 2 1080P
Mode 7	HDMI 1 1024*768/60Hz
Mode 8	HDMI 1 640*480/60Hz

AC Power Line Conducted Emissions test	
Final Test Mode	Description
Mode 1	D-SUB 1920*1080/60Hz
Mode 3	HDMI 1 1920*1080/144Hz
Mode 5	HDMI 1 1080P

Radiated emissions 30 MHz to 1 GHz test	
Final Test Mode	Description
Mode 1	D-SUB 1920*1080/60Hz
Mode 3	HDMI 1 1920*1080/144Hz
Mode 5	HDMI 1 1080P

Radiated emissions Above 1 GHz test	
Final Test Mode	Description
Mode 1	D-SUB 1920*1080/60Hz
Mode 3	HDMI 1 1920*1080/144Hz
Mode 5	HDMI 1 1080P

Evaluation description:

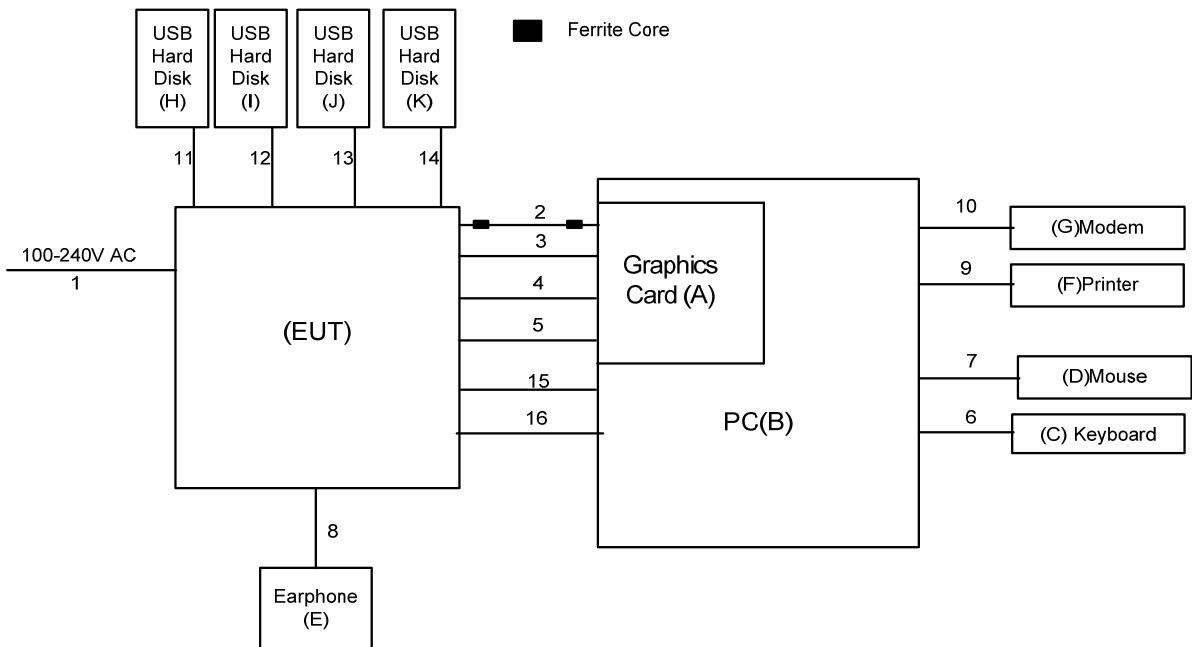
1. The maximum resolution is evaluated Mode 1-6. The worst case is Mode 3 and evaluated the middle and low resolution Mode 7 and Mode 8.
2. According to the client's requirement, choose Mode 1, Mode 3, Mode 5 and recorded in test report.

2.3 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use. The standard test signals and output signal as following:

1. EUT connected to Earphone via Earphone cable.
2. EUT connected to PC via D-SUB & HDMI & DP & USB & Audio cable.
3. PC connected to Mouse and Keyboard via USB cable.
4. The USB Hard Disk connected to EUT via USB cable.
5. Printer connected to PC via Parallel cable.
6. Modem connected to PC via RS232 cable.

2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.5 DESCRIPTION OF SUPPORT UNITS

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.	Series No.
A	Graphics Card	DELL	ATI 3650	260832000932
B	PC	DELL	Vostro 470	28747261333
C	Keyboard	DELL	KB212-B	CN0HTXH97158125004DXA01
D	Mouse	Lenovo	M-SBF96	8B4643223001509
E	Earphone	Apple	N/A	N/A
F	Printer	SII	DPU-414	3018507 B
G	Modem	ACEEX	DM-1414V	0603002131
H	USB Hard Disk	LACIE	Lacie S.A	NL33PVLS
I	USB Hard Disk	LACIE	Lacie S.A	NL34BJRF
J	USB Hard Disk	LACIE	Lacie S.A	NL33PVK4
K	USB Hard Disk	LACIE	Lacie S.A	NL33PVLH

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	AC Cable	NO	NO	1.8m/1.5m
2	D-SUB Cable	YES	YES	1.8m/1.5m
3	DP Cable	YES	NO	1.8m/1.5m
4	HDMI Cable	YES	NO	1.8m/1.5m
5	HDMI Cable	YES	NO	1.8m/1.5m
6	USB Cable	YES	NO	1.8m
7	USB Cable	YES	NO	1.8m
8	Earphone Cable	NO	NO	1.2m
9	Parallel Cable	YES	NO	1.8m
10	RS232 Cable	YES	NO	1.8m
11-14	USB Cable	NO	NO	0.5m
15	USB Cable	YES	NO	1.5m
16	Audio Cable	NO	NO	1.5m

3. EMC EMISSION TEST

3.1 AC POWER LINE CONDUCTED EMISSIONS TEST

3.1.1 LIMIT

Frequency of Emission (MHz)	Class B (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56 *	56 - 46 *
0.5 - 5.0	56.00	46.00
5.0 - 30.0	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.
- (3) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
 Margin Level = Measurement Value - Limit Value

3.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	50Ω Terminator	SHX	TF2-3G-A	8122901	Feb. 28, 2021
2	TWO-LINE V-NETWORK	R&S	ENV216	100526	Mar. 01, 2021
3	EMI Test Receiver	R&S	ESR3	101862	Aug. 03, 2020
4	Artificial-Mains Network	SCHWARZBECK	NSLK 8127	8127685	Mar. 01, 2021
5	TRANSIENT LIMITER	EM	EM-7600	772	Mar. 01, 2021
6	Cable	N/A	RG400	N/A(12m)	Mar. 10, 2021
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.

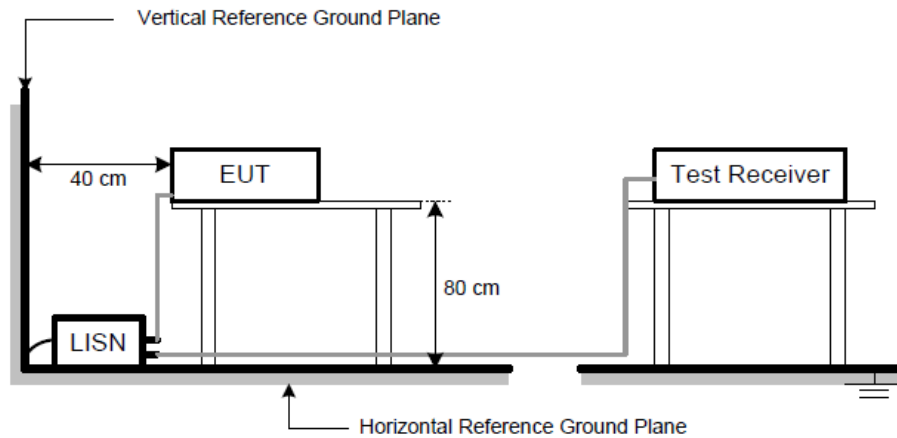
3.1.3 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT 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.
- b. 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.
- c. 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.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.
- f. Measuring frequency range from 150KHz to 30MHz.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation

3.1.5 TEST SETUP

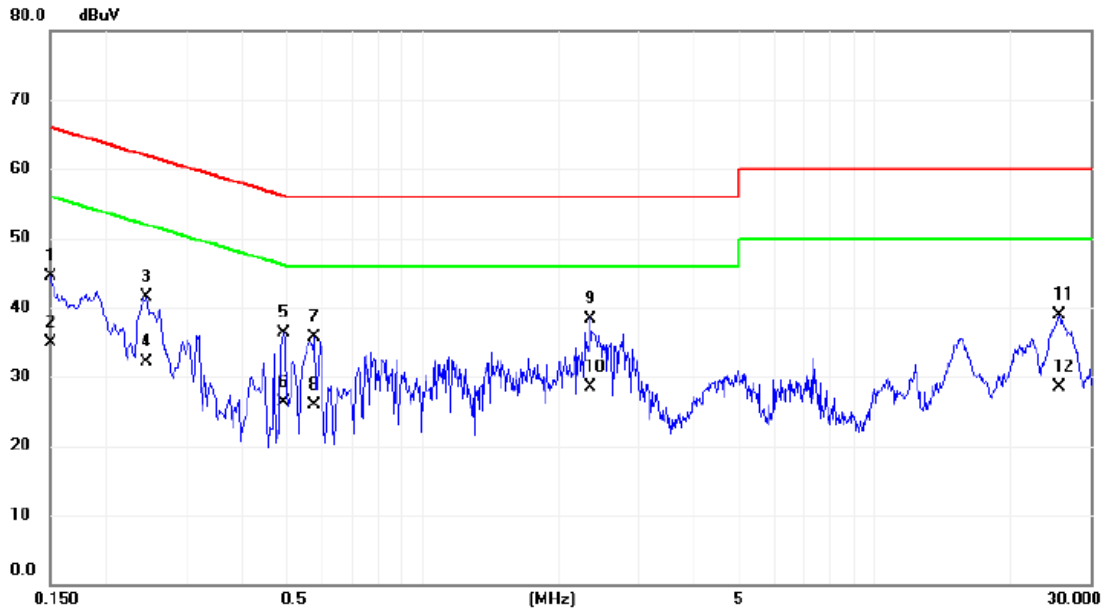


4.1.6 TEST RESULTS

Remark

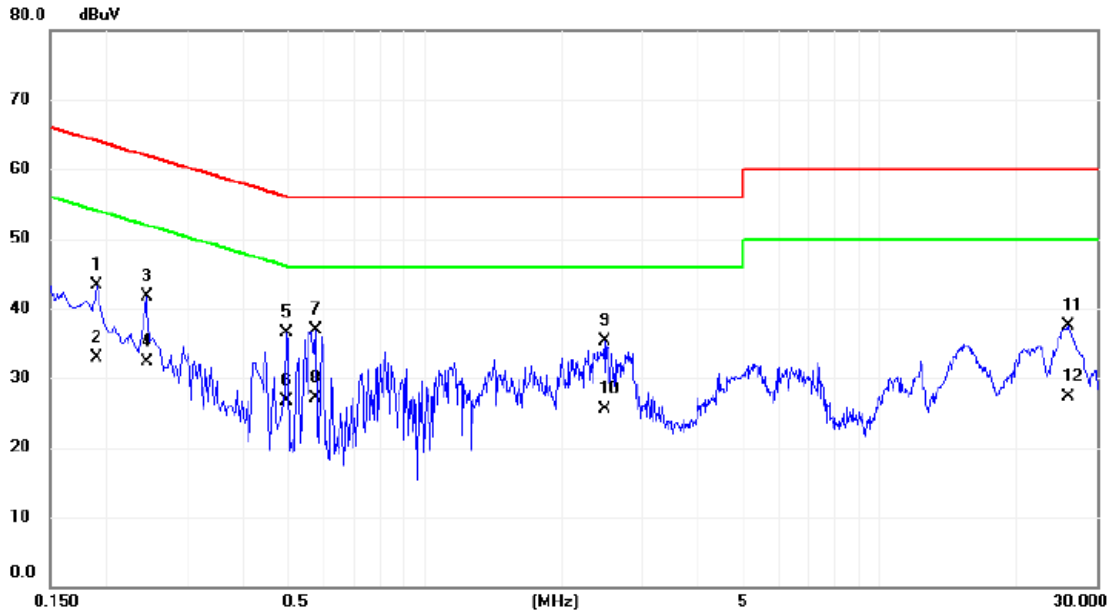
- (1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9 kHz; SPA setting in RBW=10 kHz, VBW =10 kHz, Swp. Time = 0.3 sec./MHz. Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10 kHz, VBW=10 kHz, Swp. Time =0.3 sec./MHz.
- (2) All readings are QP Mode value unless otherwise stated AVG in column of 『Note』 . If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a “ * ” marked in AVG Mode column of Interference Voltage Measured.

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



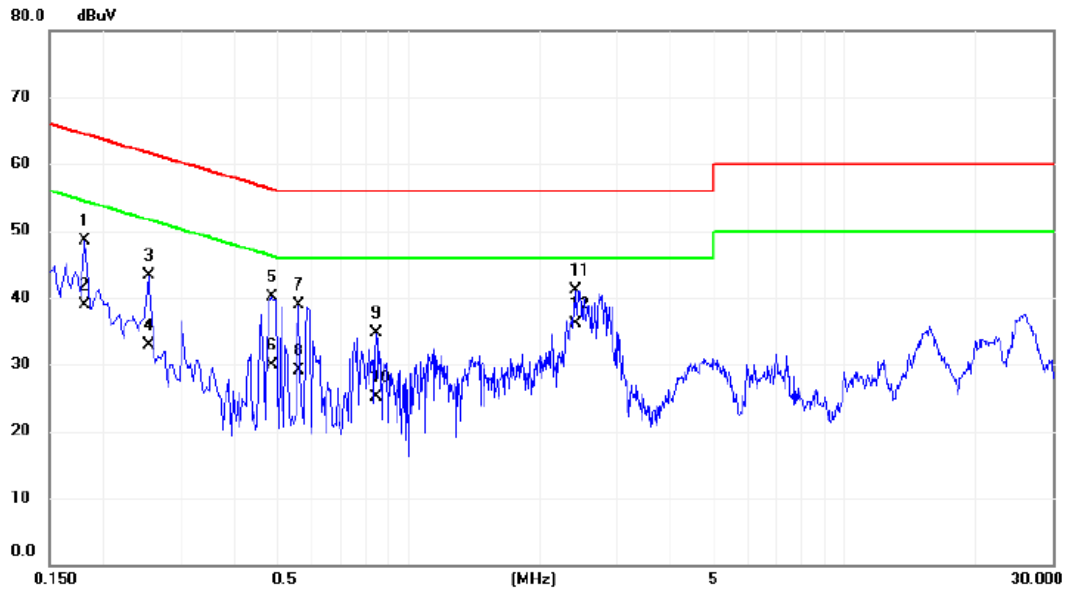
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1500	34.06	10.49	44.55	66.00	-21.45	QP	
2		0.1500	24.50	10.49	34.99	56.00	-21.01	AVG	
3		0.2454	31.10	10.47	41.57	61.91	-20.34	QP	
4		0.2454	21.60	10.47	32.07	51.91	-19.84	AVG	
5		0.4920	25.80	10.50	36.30	56.13	-19.83	QP	
6		0.4920	15.90	10.50	26.40	46.13	-19.73	AVG	
7		0.5774	25.23	10.52	35.75	56.00	-20.25	QP	
8		0.5774	15.40	10.52	25.92	46.00	-20.08	AVG	
9		2.3550	27.74	10.66	38.40	56.00	-17.60	QP	
10	*	2.3550	17.80	10.66	28.46	46.00	-17.54	AVG	
11		25.5480	27.92	11.01	38.93	60.00	-21.07	QP	
12		25.5480	17.50	11.01	28.51	50.00	-21.49	AVG	

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



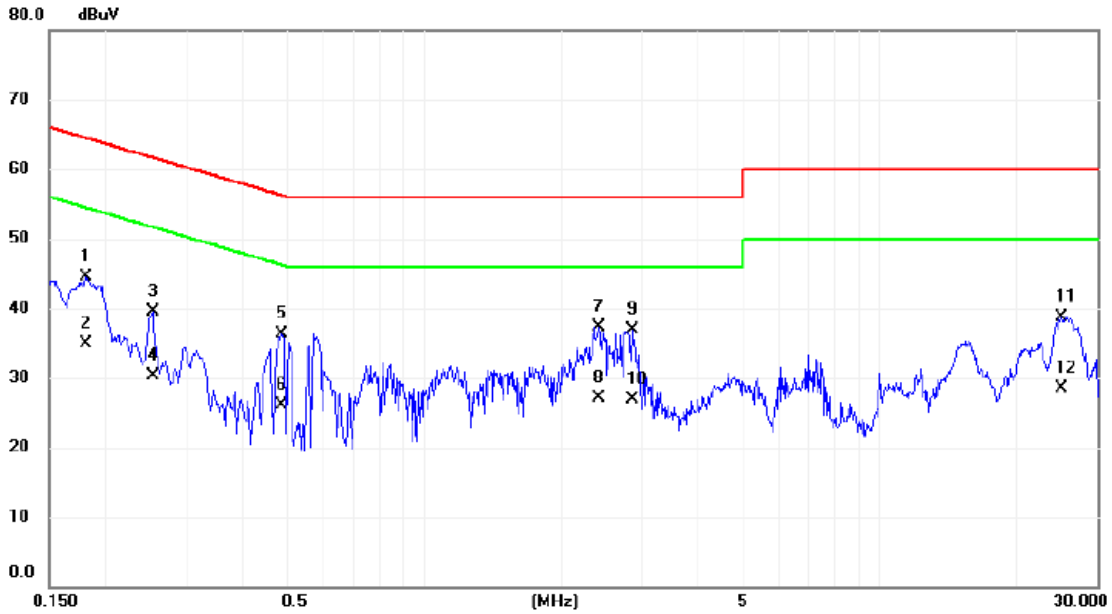
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1905	32.86	10.45	43.31	64.01	-20.70	QP	
2		0.1905	22.40	10.45	32.85	54.01	-21.16	AVG	
3		0.2444	31.19	10.47	41.66	61.95	-20.29	QP	
4		0.2444	21.80	10.47	32.27	51.95	-19.68	AVG	
5		0.4964	26.08	10.49	36.57	56.06	-19.49	QP	
6		0.4964	16.30	10.49	26.79	46.06	-19.27	AVG	
7		0.5774	26.37	10.49	36.86	56.00	-19.14	QP	
8	*	0.5774	16.70	10.49	27.19	46.00	-18.81	AVG	
9		2.4855	24.62	10.63	35.25	56.00	-20.75	QP	
10		2.4855	14.90	10.63	25.53	46.00	-20.47	AVG	
11		25.9800	26.51	11.01	37.52	60.00	-22.48	QP	
12		25.9800	16.20	11.01	27.21	50.00	-22.79	AVG	

Test Voltage	AC 120V/60Hz	Phase	Line
Test Mode	Mode 3		



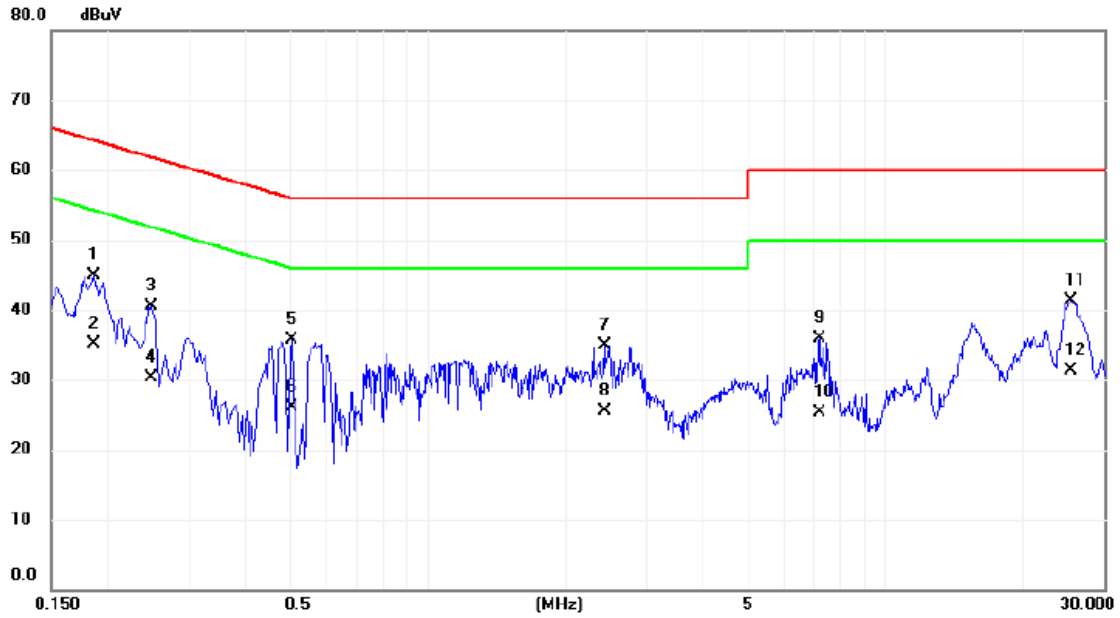
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1814	38.09	10.47	48.56	64.42	-15.86	QP	
2		0.1814	28.40	10.47	38.87	54.42	-15.55	AVG	
3		0.2535	32.79	10.47	43.26	61.64	-18.38	QP	
4		0.2535	22.50	10.47	32.97	51.64	-18.67	AVG	
5		0.4873	29.53	10.50	40.03	56.21	-16.18	QP	
6		0.4873	19.40	10.50	29.90	46.21	-16.31	AVG	
7		0.5594	28.46	10.52	38.98	56.00	-17.02	QP	
8		0.5594	18.60	10.52	29.12	46.00	-16.88	AVG	
9		0.8430	24.13	10.53	34.66	56.00	-21.34	QP	
10		0.8430	14.50	10.53	25.03	46.00	-20.97	AVG	
11		2.4134	30.37	10.66	41.03	56.00	-14.97	QP	
12	*	2.4134	25.50	10.66	36.16	46.00	-9.84	AVG	

Test Voltage	AC 120V/60Hz	Phase	Neutral
Test Mode	Mode 3		



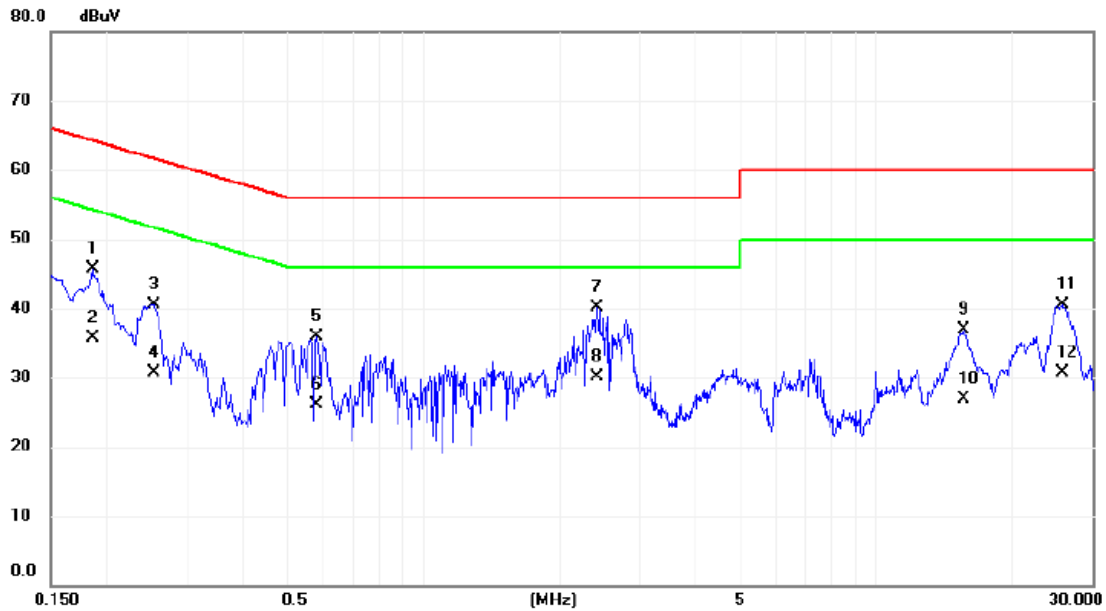
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1814	34.04	10.44	44.48	64.42	-19.94	QP	
2		0.1814	24.50	10.44	34.94	54.42	-19.48	AVG	
3		0.2535	29.02	10.47	39.49	61.64	-22.15	QP	
4		0.2535	19.80	10.47	30.27	51.64	-21.37	AVG	
5		0.4873	25.89	10.49	36.38	56.21	-19.83	QP	
6		0.4873	15.70	10.49	26.19	46.21	-20.02	AVG	
7	*	2.4180	26.64	10.63	37.27	56.00	-18.73	QP	
8		2.4180	16.50	10.63	27.13	46.00	-18.87	AVG	
9		2.8680	26.24	10.64	36.88	56.00	-19.12	QP	
10		2.8680	16.30	10.64	26.94	46.00	-19.06	AVG	
11		25.0440	27.78	11.01	38.79	60.00	-21.21	QP	
12		25.0440	17.50	11.01	28.51	50.00	-21.49	AVG	

Test Voltage	AC 120V/60Hz	Phase	Line
Test Mode	Mode 5		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1860	34.43	10.48	44.91	64.21	-19.30	QP	
2		0.1860	24.70	10.48	35.18	54.21	-19.03	AVG	
3		0.2490	29.97	10.47	40.44	61.79	-21.35	QP	
4		0.2490	19.80	10.47	30.27	51.79	-21.52	AVG	
5		0.5052	25.25	10.50	35.75	56.00	-20.25	QP	
6		0.5052	15.60	10.50	26.10	46.00	-19.90	AVG	
7		2.4270	24.26	10.66	34.92	56.00	-21.08	QP	
8		2.4270	14.80	10.66	25.46	46.00	-20.54	AVG	
9		7.1745	24.98	10.86	35.84	60.00	-24.16	QP	
10		7.1745	14.50	10.86	25.36	50.00	-24.64	AVG	
11		25.3722	30.22	11.01	41.23	60.00	-18.77	QP	
12	*	25.3722	20.30	11.01	31.31	50.00	-18.69	AVG	

Test Voltage	AC 120V/60Hz	Phase	Neutral
Test Mode	Mode 5		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1860	35.32	10.45	45.77	64.21	-18.44	QP	
2		0.1860	25.20	10.45	35.65	54.21	-18.56	AVG	
3		0.2535	30.06	10.47	40.53	61.64	-21.11	QP	
4		0.2535	20.30	10.47	30.77	51.64	-20.87	AVG	
5		0.5820	25.32	10.49	35.81	56.00	-20.19	QP	
6		0.5820	15.70	10.49	26.19	46.00	-19.81	AVG	
7		2.4180	29.48	10.63	40.11	56.00	-15.89	QP	
8	*	2.4180	19.50	10.63	30.13	46.00	-15.87	AVG	
9		15.6074	25.89	10.99	36.88	60.00	-23.12	QP	
10		15.6074	15.90	10.99	26.89	50.00	-23.11	AVG	
11		25.6875	29.43	11.01	40.44	60.00	-19.56	QP	
12		25.6875	19.60	11.01	30.61	50.00	-19.39	AVG	

3.2 RADIATED EMISSIONS 30 MHZ TO 1 GHZ

3.2.1 LIMIT

30 MHz to 1 GHz

Frequency (MHz)	Class B (at 3m)	
	(uV/m) Field strength	(dBuV/m) Field strength
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) Emission level (dBuV/m) = $20\log$ Emission level (uV/m).
3m Emission level = 10m Emission level + $20\log(10m/3m)$.
- (3) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
 Margin Level = Measurement Value - Limit Value

3.2.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Receiver	Keysight	N9038A	MY54450004	Aug. 03, 2020
2	Pre-Amplifier	EMC INSTRUMENT	EMC 9135	980284	Mar. 01, 2021
3	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	946	Oct. 26, 2020
4	Cable	emci	LMR-400(5m+11m+15m)	N/A	Nov. 22, 2020
5	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A
6	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
7	Attenuator	EMCI	EMCI-N-6-06	N0670	Dec. 02, 2020

Remark: "N/A" denotes no model name, no serial no. or no calibration specified.

All calibration period of equipment list is one year.

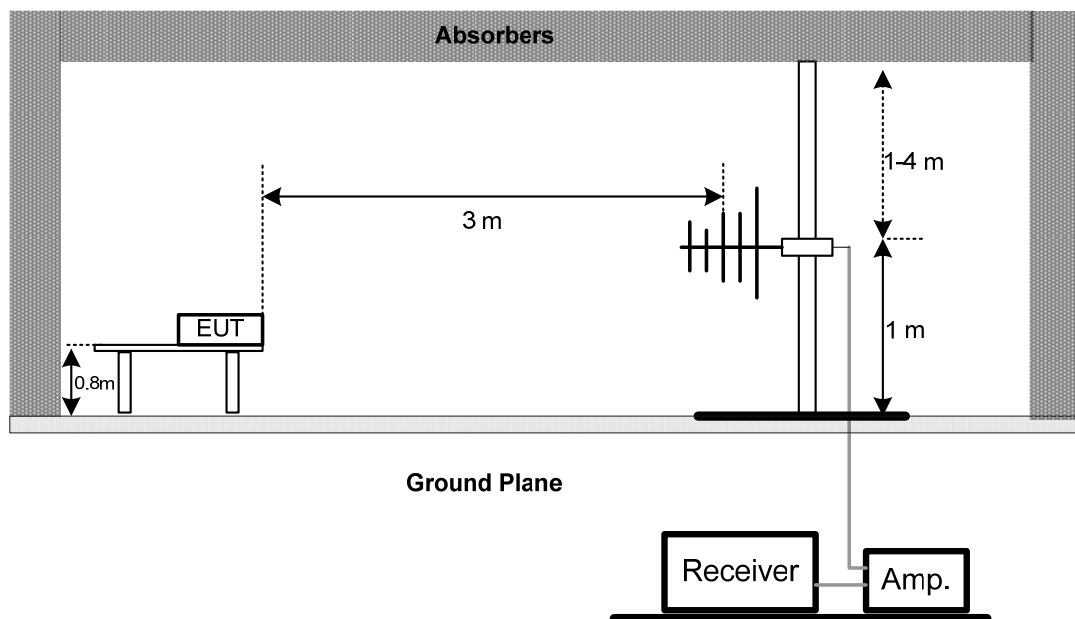
3.2.3 TEST PROCEDURE

- The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- For the actual test configuration, please refer to the related Item - Block Diagram of system tested.

3.2.4 DEVIATION FROM TEST STANDARD

No deviation

3.2.5 TEST SETUP

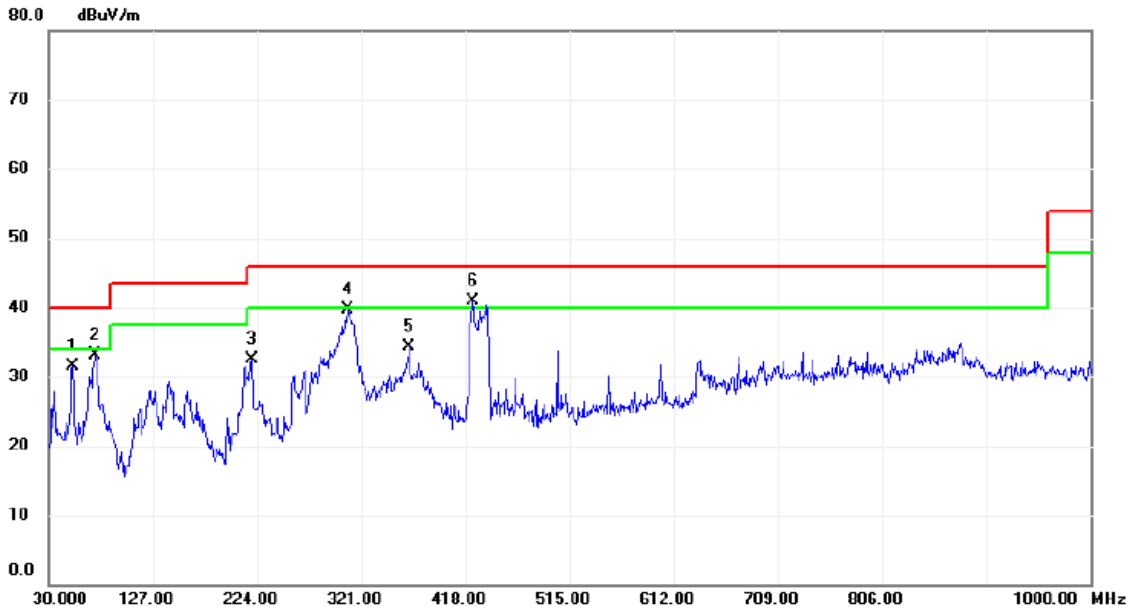


3.2.6 TEST RESULTS-BELOW 1 GHZ

Remark :

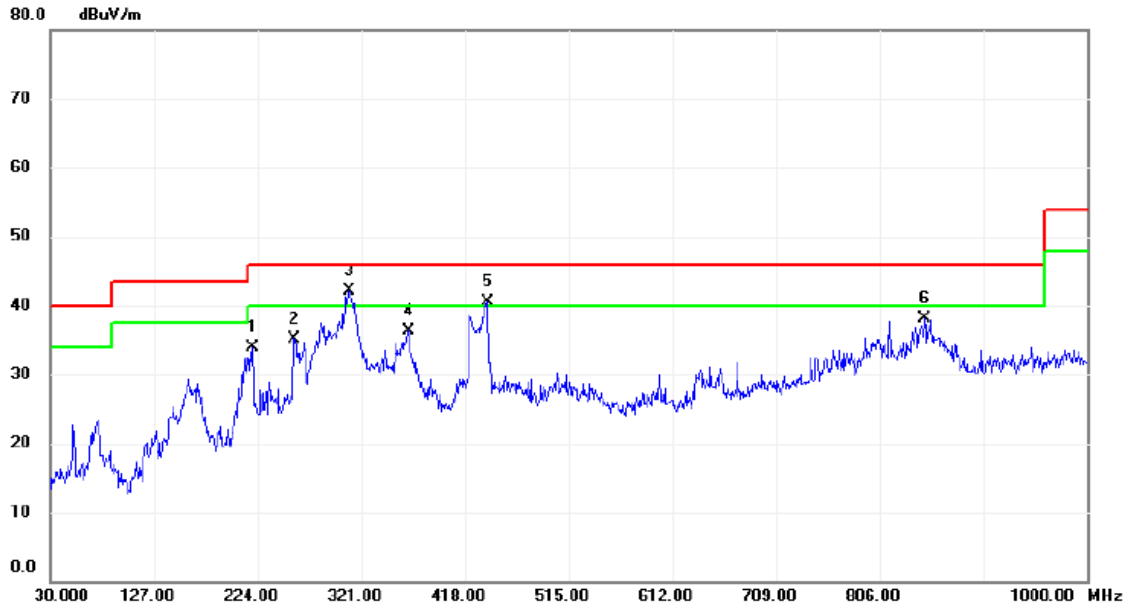
- Measuring frequency range from 30 MHz to 1000 MHz
- If the peak scan value lower limit more than 20 dB, then this signal data does not show in table.

Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 1		



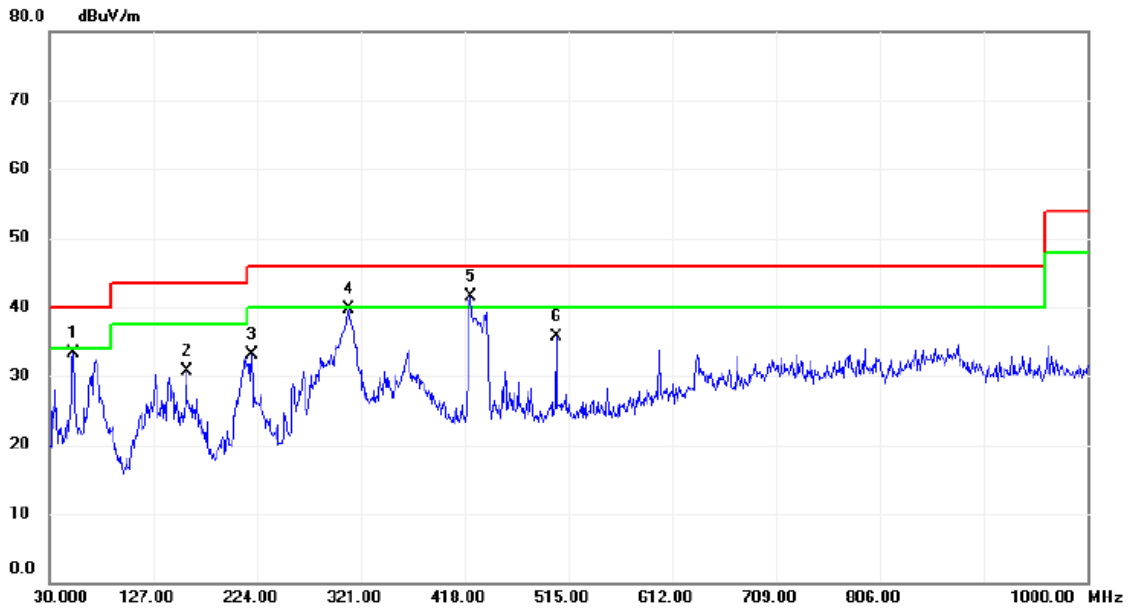
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		52.3100	47.18	-15.68	31.50	40.00	-8.50	QP	
2		73.6500	51.55	-18.49	33.06	40.00	-6.94	QP	
3		219.6350	49.21	-16.63	32.58	46.00	-13.42	QP	
4		308.8750	52.81	-13.12	39.69	46.00	-6.31	QP	
5		366.1050	45.90	-11.53	34.37	46.00	-11.63	QP	
6	*	425.2750	50.90	-10.06	40.84	46.00	-5.16	QP	

Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 1		



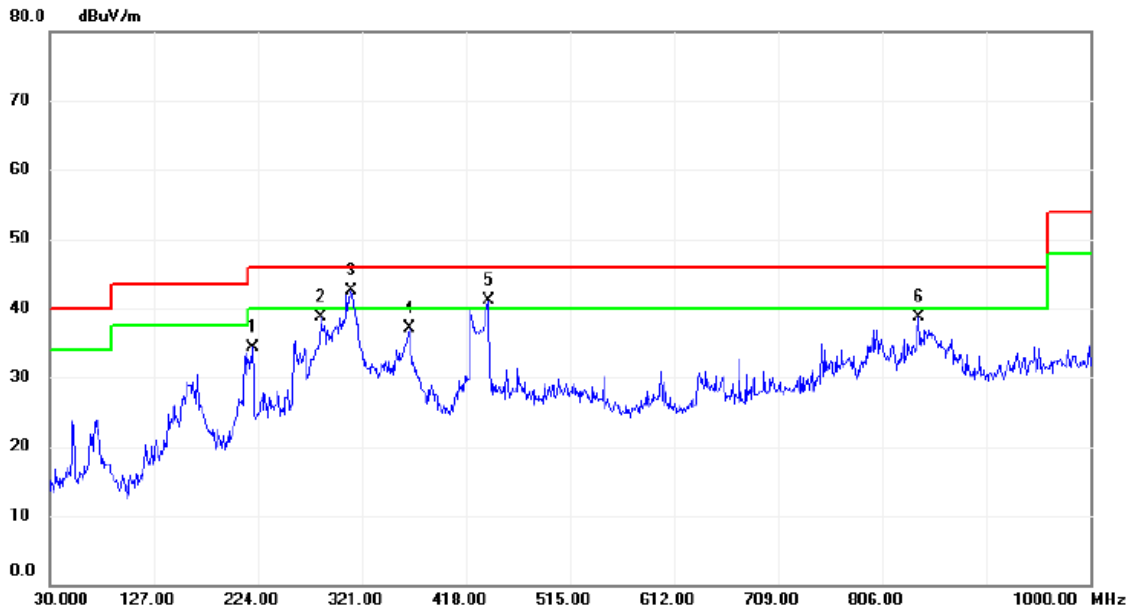
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		219.6350	50.54	-16.63	33.91	46.00	-12.09	QP	
2		258.4350	50.22	-15.02	35.20	46.00	-10.80	QP	
3	*	310.3300	55.22	-13.07	42.15	46.00	-3.85	QP	
4		365.1350	47.95	-11.57	36.38	46.00	-9.62	QP	
5	!	439.3400	50.21	-9.74	40.47	46.00	-5.53	QP	
6		847.7100	41.04	-2.95	38.09	46.00	-7.91	QP	

Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 3		



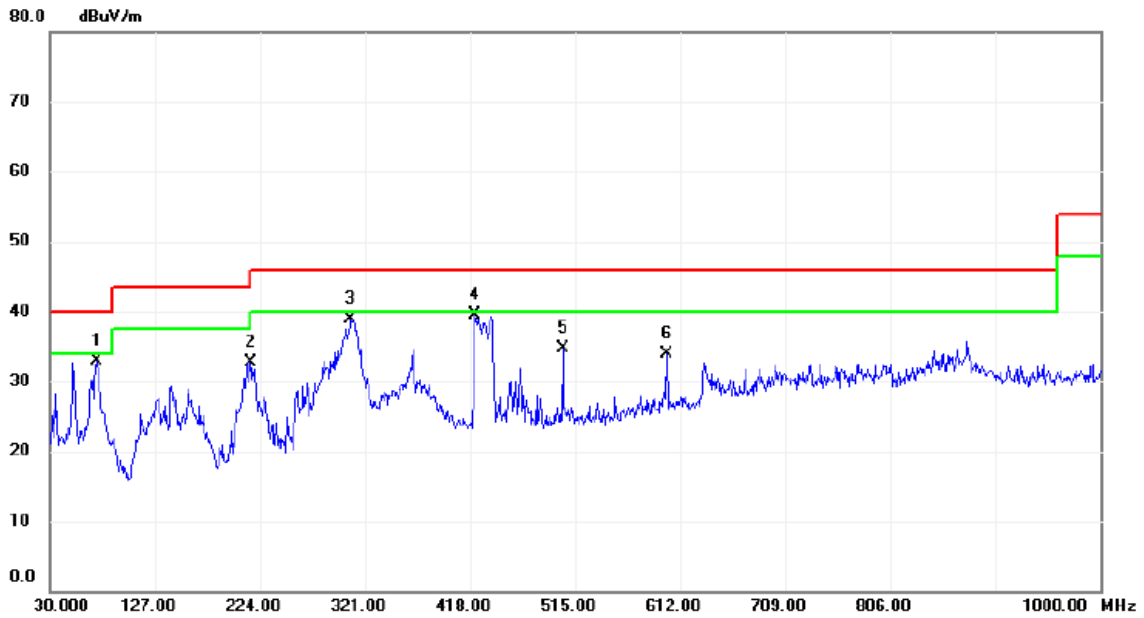
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		52.3100	49.07	-15.68	33.39	40.00	-6.61	QP	
2		158.5250	45.19	-14.52	30.67	43.50	-12.83	QP	
3		219.6350	49.64	-16.63	33.01	46.00	-12.99	QP	
4		309.8450	52.82	-13.09	39.73	46.00	-6.27	QP	
5	*	423.8200	51.61	-10.09	41.52	46.00	-4.48	QP	
6		503.8450	44.75	-9.02	35.73	46.00	-10.27	QP	

Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 3		



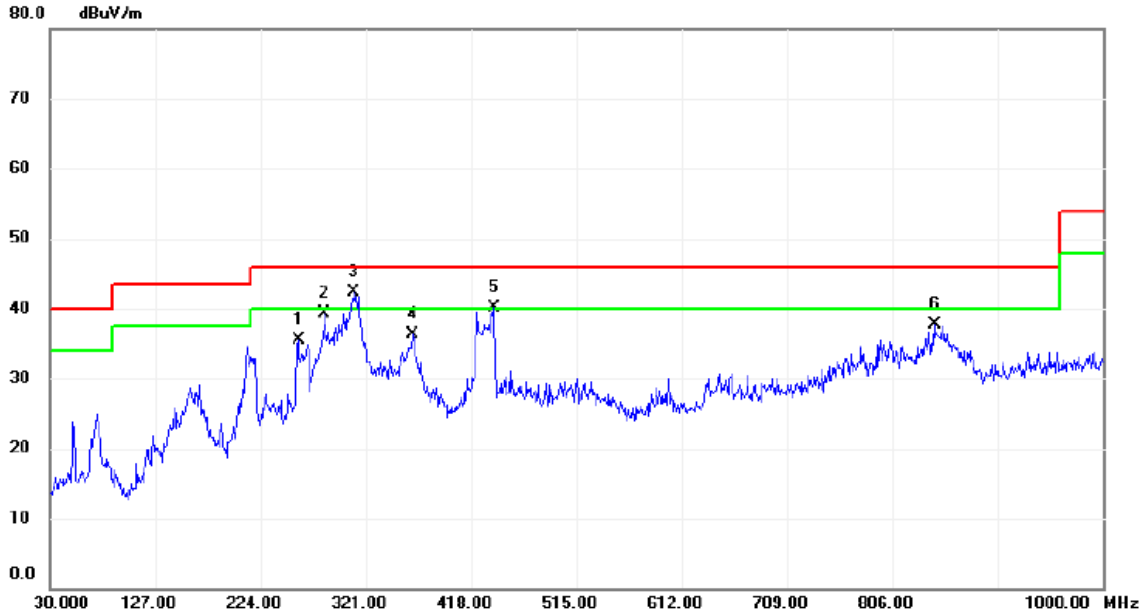
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		219.1500	50.98	-16.64	34.34	46.00	-11.66	QP	
2		283.1700	52.53	-13.81	38.72	46.00	-7.28	QP	
3	*	311.7850	55.46	-13.02	42.44	46.00	-3.56	QP	
4		366.1050	48.61	-11.53	37.08	46.00	-8.92	QP	
5	!	438.8550	50.89	-9.75	41.14	46.00	-4.86	QP	
6		839.9500	41.77	-3.04	38.73	46.00	-7.27	QP	

Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 5		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		73.1650	51.20	-18.39	32.81	40.00	-7.19	QP	
2		215.7550	49.49	-16.70	32.79	43.50	-10.71	QP	
3		307.9050	52.12	-13.16	38.96	46.00	-7.04	QP	
4	*	422.8500	49.55	-10.11	39.44	46.00	-6.56	QP	
5		503.8450	43.69	-9.02	34.67	46.00	-11.33	QP	
6		599.8750	40.31	-6.42	33.89	46.00	-12.11	QP	

Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 5		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		259.4050	50.42	-15.00	35.42	46.00	-10.58	QP	
2		283.1700	53.09	-13.81	39.28	46.00	-6.72	QP	
3	*	309.3600	55.39	-13.11	42.28	46.00	-3.72	QP	
4		364.6500	47.99	-11.59	36.40	46.00	-9.60	QP	
5	!	438.8550	49.81	-9.75	40.06	46.00	-5.94	QP	
6		845.2850	40.75	-2.98	37.77	46.00	-8.23	QP	

3.3 RADIATED EMISSIONS ABOVE 1 GHZ

3.3.1 LIMIT

Above 1 GHz

Frequency (MHz)	Class B	
	(dBuV/m) (at 3m)	
	Peak	Average
Above 1000	74	54

FREQUENCY RANGE OF RADIATED MEASUREMENT (FOR UNINTENTIONAL RADIATORS)

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	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) Emission level (dBuV/m) = 20log Emission level (uV/m).
3m Emission level = 10m Emission level + 20log(10m/3m).
- (3) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value

3.3.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75846	Mar. 19, 2021
2	Amplifier	Agilent	8449B	3008A02333	Mar. 01, 2021
3	MXE EMI Receiver	Agilent	N9038A	MY53220133	Feb. 28, 2021
4	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A
5	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
6	Controller	MF	MF-7802	MF780208159	N/A
7	Cable	Mlcable Inc.	B10-01-01-5M	18047123	Feb. 28, 2021
8	Cable	Mlcable Inc.	B10-01-01-12M	18072743	Feb. 28, 2021
9	Cable	RegalWay	RWLPS50-7.9A-SMSM-1M	20200102001	Feb. 28, 2021

Remark: "N/A" denotes no model name, no serial no. or no calibration specified.

All calibration period of equipment list is one year.

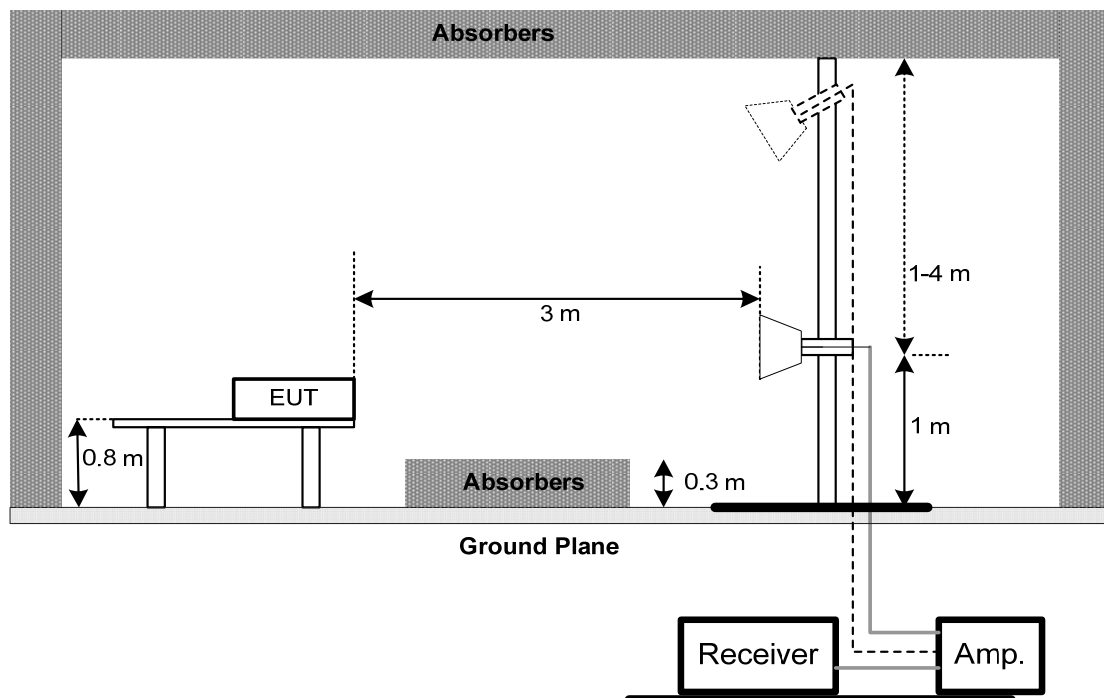
3.3.3 TEST PROCEDURE

- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The height of the equipment or of the substitution antenna shall be 0.8 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- c. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- d. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- f. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform.
- g. For the actual test configuration, please refer to the related Item - Block Diagram of system tested.

3.3.4 DEVIATION FROM TEST STANDARD

No deviation

3.3.5 TEST SETUP

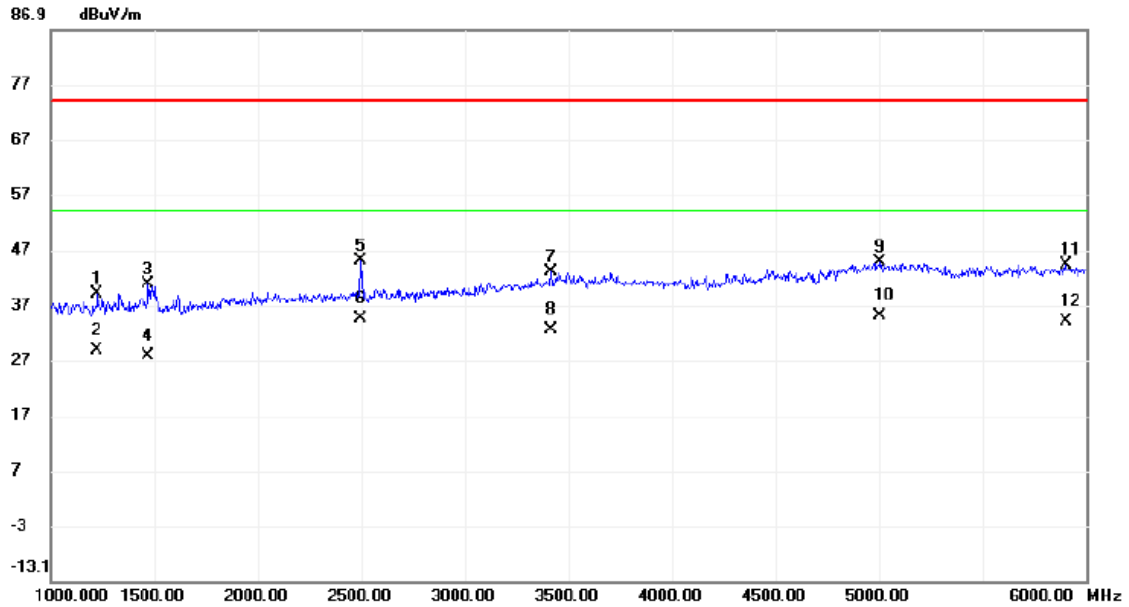


3.3.6 TEST RESULTS-ABOVE 1 GHZ

Remark :

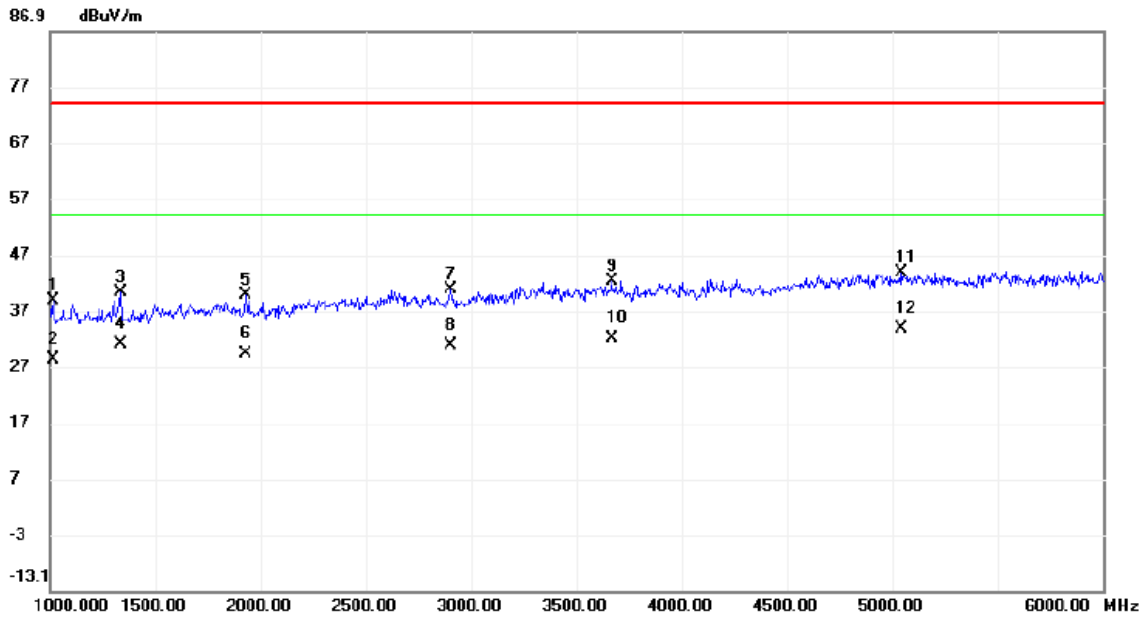
- (1) Radiated emissions measured in frequency range above 1000 MHz were made with an instrument using Peak detector mode and AV detector mode of the emission.
- (2) Data of measurement within this frequency range shown “ * ” in the table above means the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
- (3) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 1		



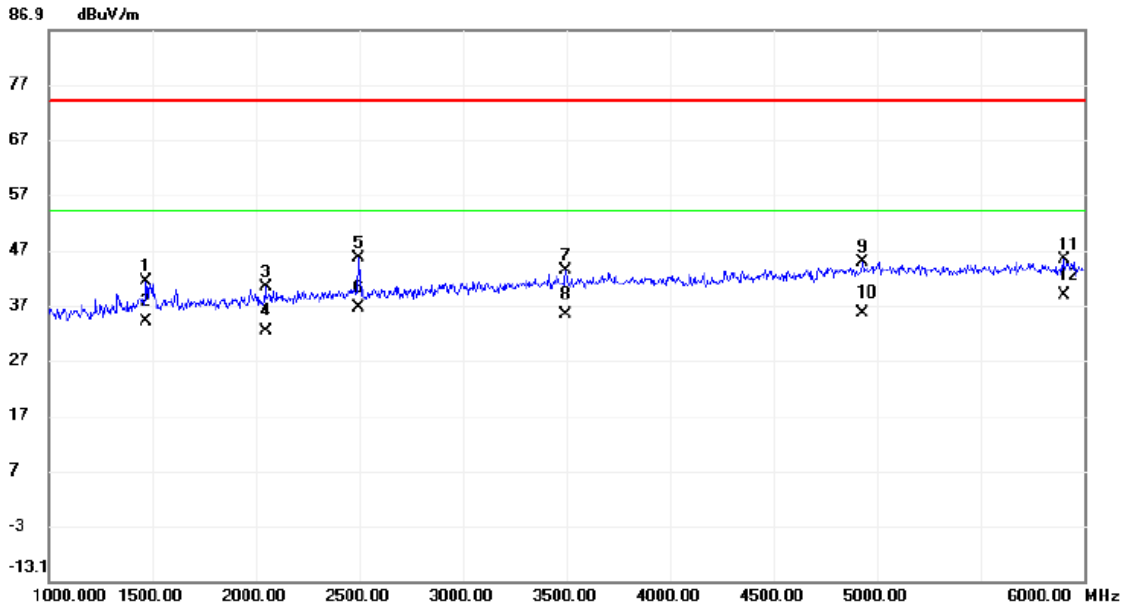
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		1225.000	44.40	-5.49	38.91	74.00	-35.09	peak	
2		1225.000	34.22	-5.49	28.73	54.00	-25.27	AVG	
3		1470.000	44.48	-3.77	40.71	74.00	-33.29	peak	
4		1470.000	31.58	-3.77	27.81	54.00	-26.19	AVG	
5		2495.000	44.88	0.17	45.05	74.00	-28.95	peak	
6		2495.000	34.26	0.17	34.43	54.00	-19.57	AVG	
7		3415.000	39.96	2.99	42.95	74.00	-31.05	peak	
8		3415.000	29.65	2.99	32.64	54.00	-21.36	AVG	
9		5005.000	37.18	7.67	44.85	74.00	-29.15	peak	
10	*	5005.000	27.48	7.67	35.15	54.00	-18.85	AVG	
11		5902.500	35.46	8.83	44.29	74.00	-29.71	peak	
12		5902.500	25.15	8.83	33.98	54.00	-20.02	AVG	

Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 1		



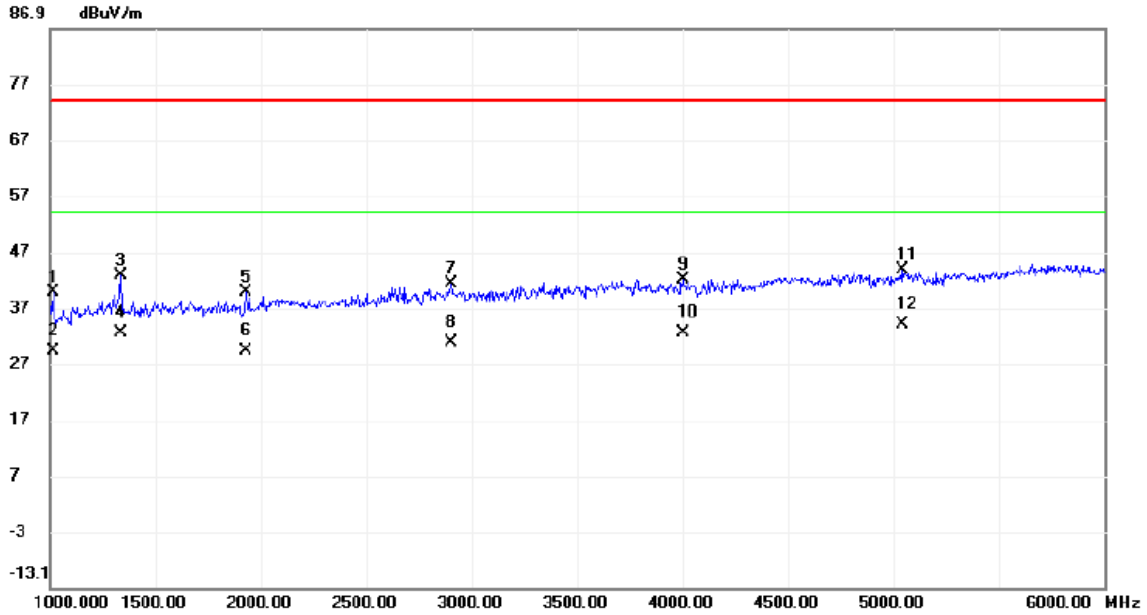
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	1015.000	45.63	-6.95	38.68	74.00	-35.32	peak	
2	1015.000	35.24	-6.95	28.29	54.00	-25.71	AVG	
3	1337.500	45.02	-4.70	40.32	74.00	-33.68	peak	
4	1337.500	35.69	-4.70	30.99	54.00	-23.01	AVG	
5	1930.000	41.91	-2.08	39.83	74.00	-34.17	peak	
6	1930.000	31.24	-2.08	29.16	54.00	-24.84	AVG	
7	2905.000	39.49	1.33	40.82	74.00	-33.18	peak	
8	2905.000	29.57	1.33	30.90	54.00	-23.10	AVG	
9	3667.500	38.56	3.76	42.32	74.00	-31.68	peak	
10	3667.500	28.26	3.76	32.02	54.00	-21.98	AVG	
11	5045.000	36.12	7.71	43.83	74.00	-30.17	peak	
12 *	5045.000	26.18	7.71	33.89	54.00	-20.11	AVG	

Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 3		



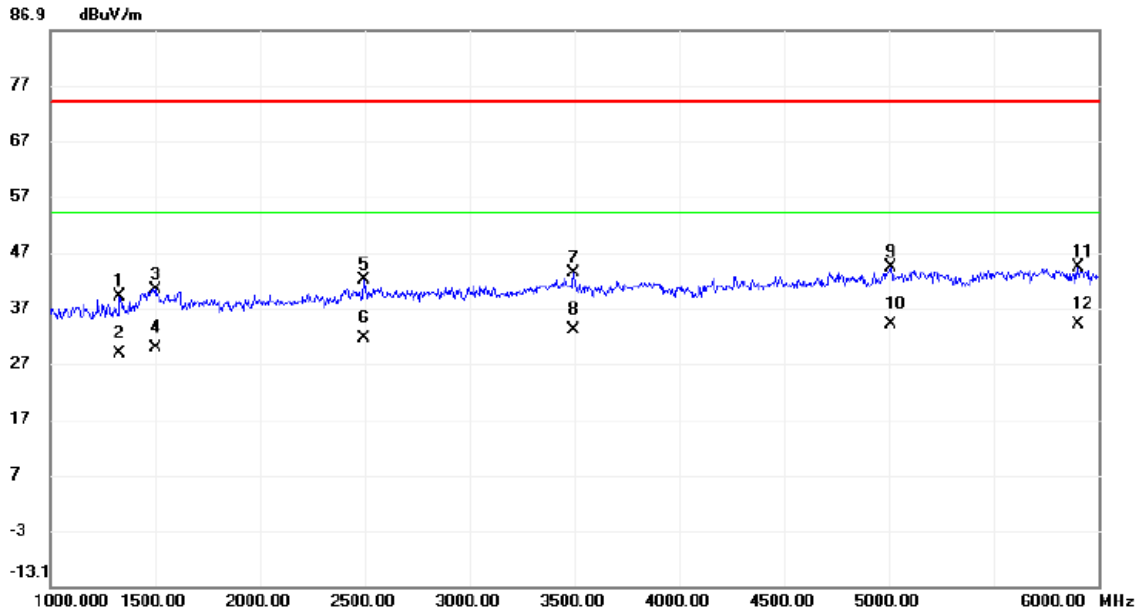
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		1470.000	44.98	-3.77	41.21	74.00	-32.79	peak	
2		1470.000	37.75	-3.77	33.98	54.00	-20.02	AVG	
3		2047.500	41.83	-1.65	40.18	74.00	-33.82	peak	
4		2047.500	33.94	-1.65	32.29	54.00	-21.71	AVG	
5		2495.000	45.38	0.17	45.55	74.00	-28.45	peak	
6		2495.000	36.44	0.17	36.61	54.00	-17.39	AVG	
7		3497.500	39.93	3.26	43.19	74.00	-30.81	peak	
8		3497.500	31.97	3.26	35.23	54.00	-18.77	AVG	
9		4930.000	37.45	7.39	44.84	74.00	-29.16	peak	
10		4930.000	28.06	7.39	35.45	54.00	-18.55	AVG	
11		5902.500	36.46	8.83	45.29	74.00	-28.71	peak	
12	*	5902.500	29.84	8.83	38.67	54.00	-15.33	AVG	

Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 3		



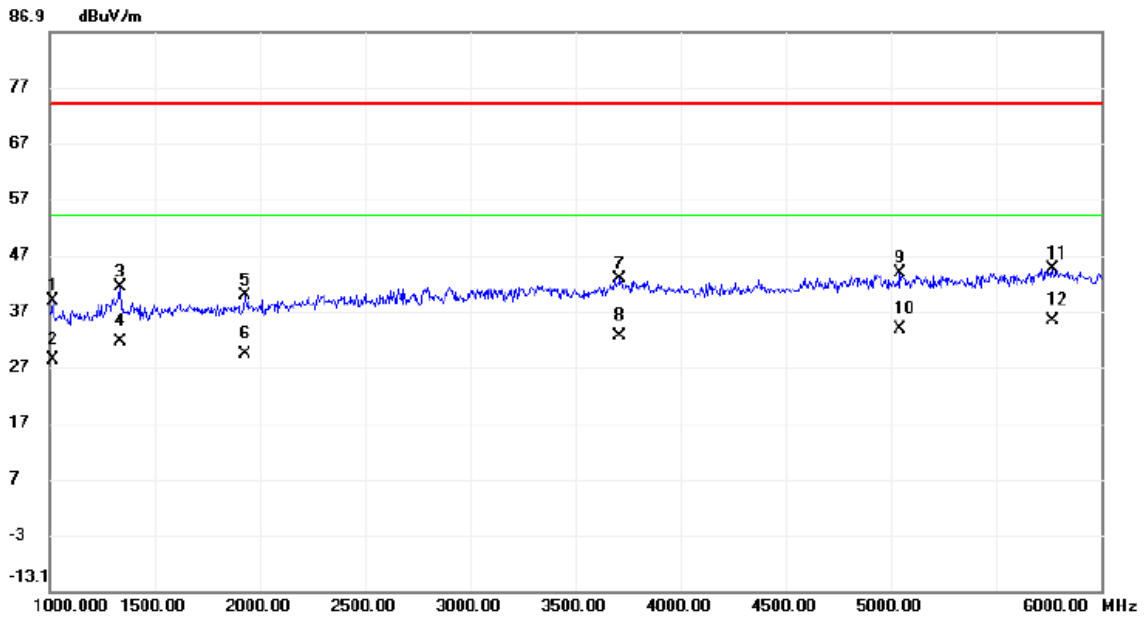
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		1015.000	46.63	-6.95	39.68	74.00	-34.32	peak	
2		1015.000	36.21	-6.95	29.26	54.00	-24.74	AVG	
3		1337.500	47.52	-4.70	42.82	74.00	-31.18	peak	
4		1337.500	37.25	-4.70	32.55	54.00	-21.45	AVG	
5		1930.000	41.91	-2.08	39.83	74.00	-34.17	peak	
6		1930.000	31.25	-2.08	29.17	54.00	-24.83	AVG	
7		2905.000	39.99	1.33	41.32	74.00	-32.68	peak	
8		2905.000	29.48	1.33	30.81	54.00	-23.19	AVG	
9		4000.000	37.26	4.76	42.02	74.00	-31.98	peak	
10		4000.000	27.85	4.76	32.61	54.00	-21.39	AVG	
11		5045.000	36.12	7.71	43.83	74.00	-30.17	peak	
12	*	5045.000	26.24	7.71	33.95	54.00	-20.05	AVG	

Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 5		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		1332.500	43.68	-4.73	38.95	74.00	-35.05	peak	
2		1332.500	33.57	-4.73	28.84	54.00	-25.16	AVG	
3		1500.000	43.83	-3.56	40.27	74.00	-33.73	peak	
4		1500.000	33.26	-3.56	29.70	54.00	-24.30	AVG	
5		2495.000	41.88	0.17	42.05	74.00	-31.95	peak	
6		2495.000	31.24	0.17	31.41	54.00	-22.59	AVG	
7		3497.500	39.93	3.26	43.19	74.00	-30.81	peak	
8		3497.500	29.85	3.26	33.11	54.00	-20.89	AVG	
9		5012.500	36.53	7.68	44.21	74.00	-29.79	peak	
10		5012.500	26.24	7.68	33.92	54.00	-20.08	AVG	
11		5902.500	35.46	8.83	44.29	74.00	-29.71	peak	
12	*	5902.500	25.15	8.83	33.98	54.00	-20.02	AVG	

Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 5		



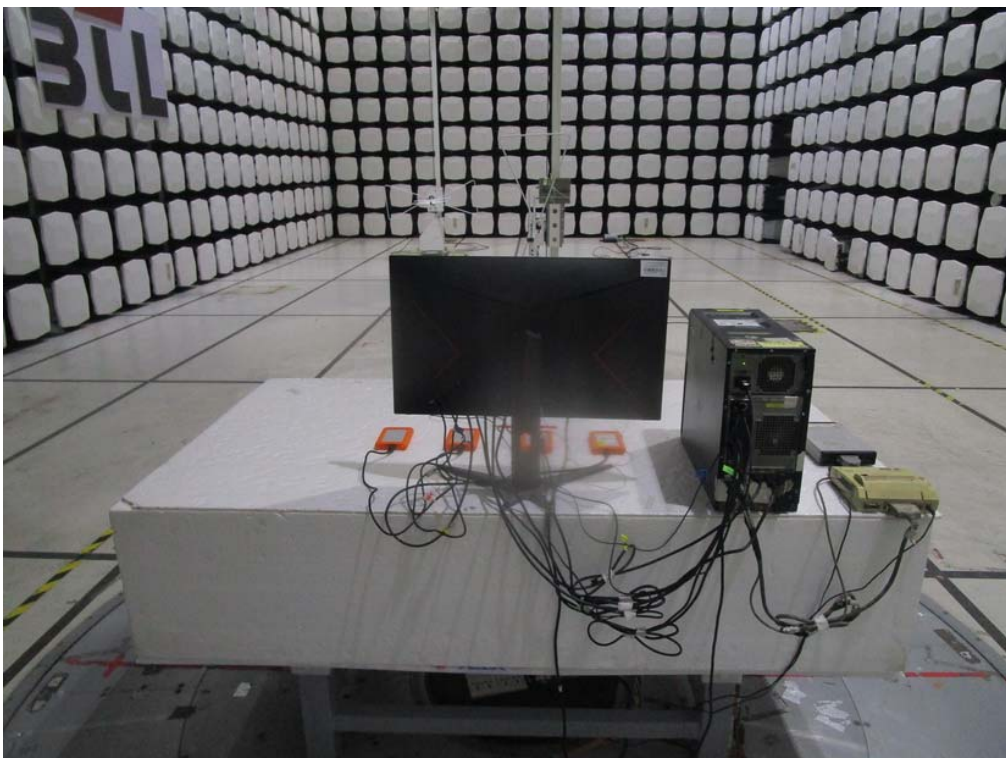
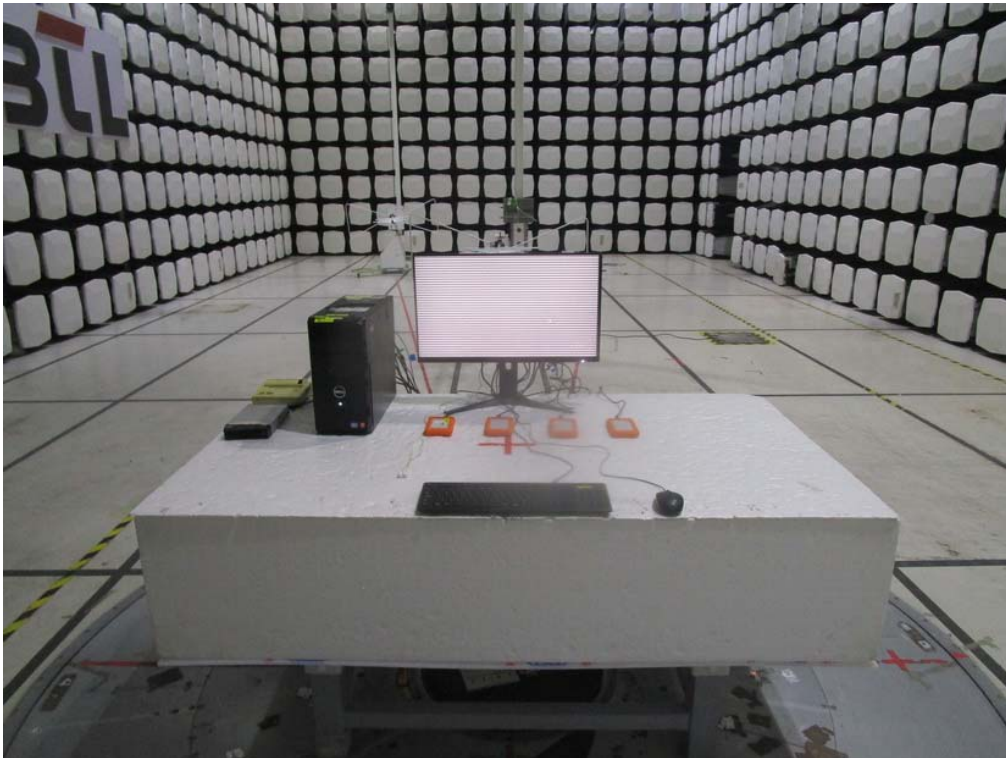
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		1015.000	45.63	-6.95	38.68	74.00	-35.32	peak	
2		1015.000	35.18	-6.95	28.23	54.00	-25.77	AVG	
3		1337.500	46.02	-4.70	41.32	74.00	-32.68	peak	
4		1337.500	36.26	-4.70	31.56	54.00	-22.44	AVG	
5		1930.000	41.91	-2.08	39.83	74.00	-34.17	peak	
6		1930.000	31.24	-2.08	29.16	54.00	-24.84	AVG	
7		3712.500	38.76	3.90	42.66	74.00	-31.34	peak	
8		3712.500	28.57	3.90	32.47	54.00	-21.53	AVG	
9		5045.000	36.12	7.71	43.83	74.00	-30.17	peak	
10		5045.000	26.18	7.71	33.89	54.00	-20.11	AVG	
11		5772.500	36.03	8.61	44.64	74.00	-29.36	peak	
12	*	5772.500	26.55	8.61	35.16	54.00	-18.84	AVG	

4. EUT TEST PHOTO

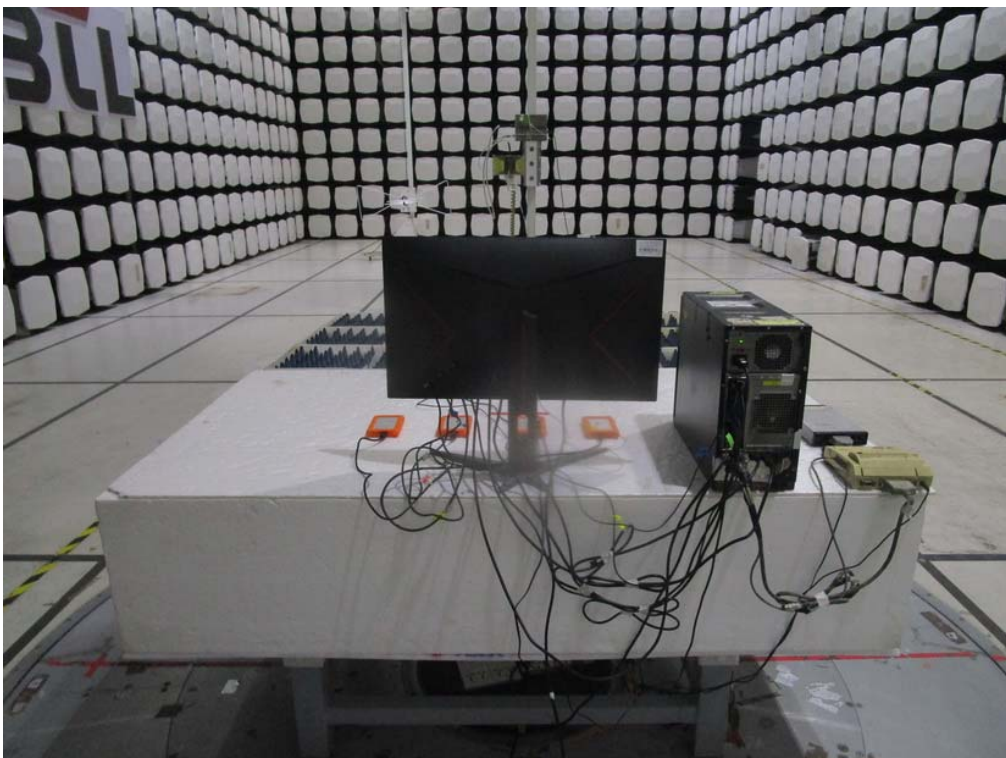
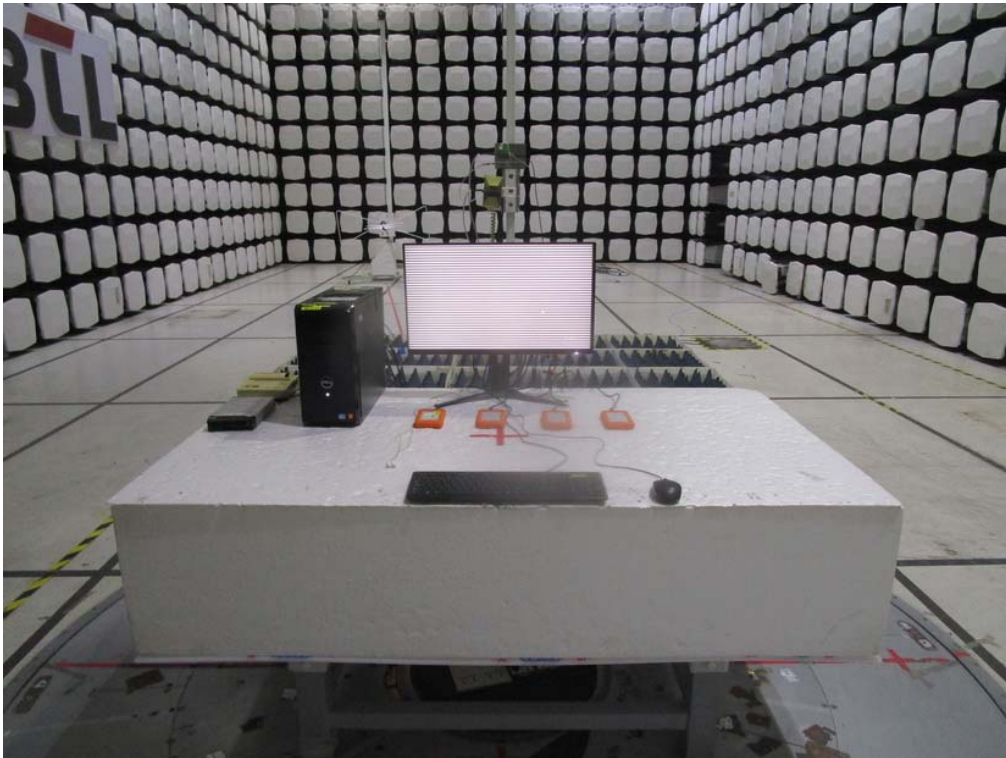
AC Power Line Conducted Emissions



Radiated Emissions 30 MHz to 1 GHz



Radiated Emissions Above 1 GHz



End of Test Report