

FCC Test Report

Product	Personal Computer
Machine Type / Model No.	IdeaCentre A540-27ICB
FCC ID.	A5MA540-27ICBWC

Applicant	Lenovo (Beijing) Ltd.
Address	201-H2-6, Floor 2, Building 2, No.6 Shangdi West Road, Haidian District, Beijing, China 100085

Date of Receipt	May 17, 2019
Issued Date	June 25, 2019
Report No.	1950273R-RFUSP20V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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Test Report

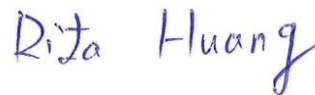
Issued Date: June 25, 2019

Report No.: 1950273R-RFUSP20V00



Product	Personal Computer
Applicant	Lenovo (Beijing) Ltd.
Address	201-H2-6, Floor 2, Building 2, No.6 Shangdi West Road, Haidian District, Beijing, China 100085
Manufacturer	1.Asia Vital Components (Dongguan) Co., Ltd. 2.Lenovo Centro Tecnologico S DE RL DE CV
Machine Type / Model No.	IdeaCentre A540-27ICB
FCC ID.	A5MA540-27ICBWC
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 110V, 50Hz
Trade Name	Lenovo
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2018 ANSI C63.4: 2014, ANSI C63.10: 2013
Test Result	Complied

Documented By :



(Senior Adm. Specialist / Rita Huang)

Tested By :



(Engineer / Anson Lu)

Approved By :



(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product	Personal Computer
Trade Name	Lenovo
Machine Type / Model No.	IdeaCentre A540-27ICB
FCC ID.	A5MA540-27ICBWC
Frequency Range	110~145kHz
Antenna Type	Coil Antenna
Mouse	MFR: Lenovo, M/N: EMS-537A
Keyboard	MFR: Lenovo, M/N: Ekb-536a
ODD	MFR: Lenovo, M/N: PL DA -8AESH
USB Cable	Non-Shielded, 0.45m
Power Adapter	MFR: Lenovo, M/N: ADP-170CB B Input: AC 100-240V, 50-60Hz, 2.5A Output: 20V $\overline{=}$ 8.5A Cable In: Non-shielded, 0.9m. Cable Out: Non-shielded, 1.7m.

Frequency of Channel:

Channel	Frequency
Channel 1:	127kHz

Note:

1. The EUT is a Personal Computer with a built-in 110~145kHz transceiver.
2. These tests were radiated on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.209
3. Only the higher Fundamental Radiated Emission channel was tested and recorded in this report.

Test Mode	Mode 1: Transmit 5V Mode 2: Transmit 12V
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1.3. Test System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

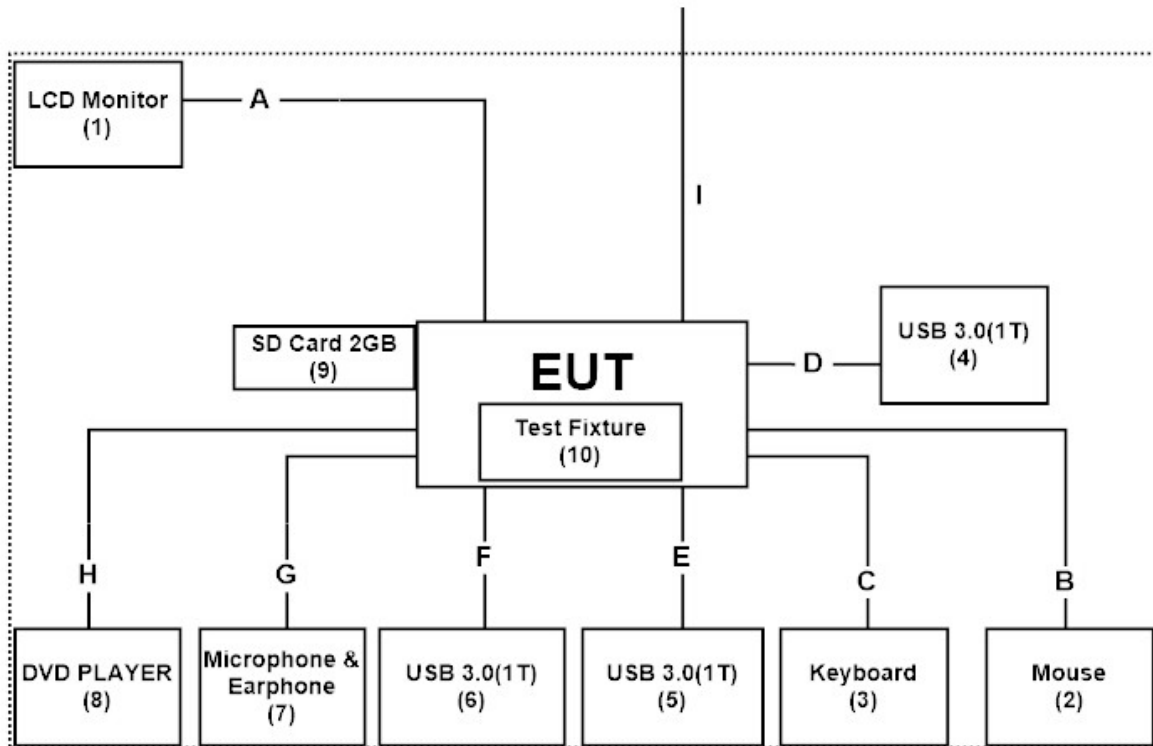
Product	Manufacturer	Model No.	Serial No.	Power Cord
1 LCD Monitor	ASUS	VS229HA	F4LMQS135395	Non-Shielded, 1.8m
2 Mouse	Lenovo	EMS-537A	8SSM50U65178AVLC	N/A
3 Keyboard	Lenovo	Ekb-536a	901017BG	N/A
4 USB 3.0(1T)	Transcend	TS1T5J25M3	C13890-3746	Non-Shielded, 0.4m
5 USB 3.0(1T)	Transcend	TS1T5J25M3	C13890-3746	Non-Shielded, 0.4m
6 USB 3.0(1T)	Transcend	TS1T5J25M3	C13890-3746	Non-Shielded, 0.4m
7 Microphone & Earphone	Ergotech	ET-E201	N/A	Non-Shielded, 1.65m
8 DVD PLAYER	Pioneer	DV-600AV	GJKD006378LS	Non-Shielded, 1.8m
9 SD Card 2GB	Transcend	BE1014314401G	3430631 8398	N/A
10 Test Fixture	N/A	N/A	N/A	N/A

Note:

1. The Test Fixture is a cement resistor(30W5Ω).

Signal Cable Type	Signal cable Description
A HDMI Cable	Non-Shielded, 1.8m
B Mouse Cable	Non-Shielded, 1.7m
C Keyboard Cable	Non-Shielded, 1.8m
D USB Cable	Non-Shielded, 0.4m
E USB Cable	Non-Shielded, 0.4m
F USB Cable	Non-Shielded, 0.4m
G Signal Cable	Non-Shielded, 1.65m
H HDMI Cable	Non-Shielded, 1.8m
I Network Cable	Non-Shielded, 1.65m

1.4. Configuration of Test System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Turn on the power of all equipment.
- (3) Start the continuous transmitter.
- (4) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en

Site Description: Accredited by TAF
Accredited Number: 3023

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FCC Accreditation Number: TW3023

1.7. List of Test Equipment

For Conducted measurements /CB3/SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
	Temperature Chamber	WIT GROUP	TH-1S-B	EQ-201-00146	2019/02/12	2020/02/11
X	Spectrum Analyzer	Agilent	N9010A	MY48030495	2018/10/13	2019/10/12
	Peak Power Analyzer	Keysight	8990B	MY51000410	2018/08/01	2019/07/31
	Wideband Power Sensor	Keysight	N1923A	MY56080003	2018/07/25	2019/07/24
	Wideband Power Sensor	Keysight	N1923A	MY56080004	2018/07/25	2019/07/24
X	EMI Test Receiver	R&S	ESCS 30	100369	2018/11/07	2018/11/06
X	LISN	R&S	ESH3-Z5	836679/017	2019/02/09	2020/02/08
X	LISN	R&S	ENV216	100097	2019/02/09	2020/02/08
X	Coaxial Cable	DEKRA	RG 400	LC018-RG	2019/06/21	2020/06/20

For Radiated measurements /Site3/CB8

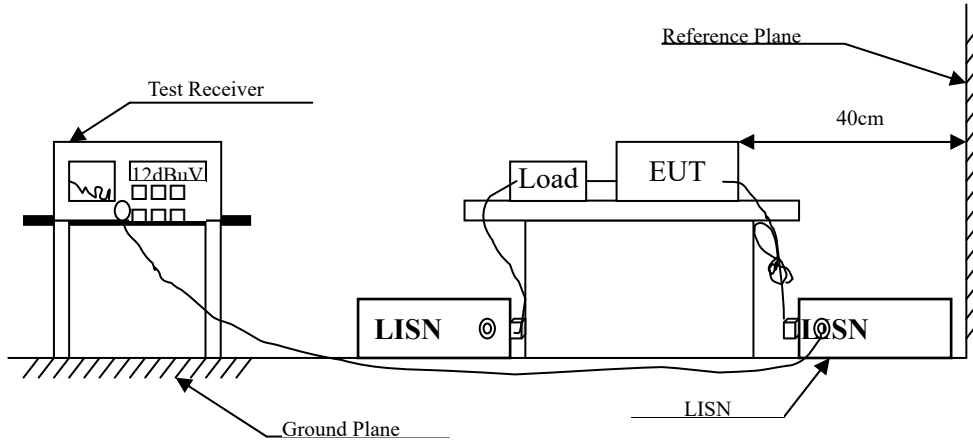
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
X	Spectrum Analyzer	R&S	FSP40	100170	2019/03/12	2020/03/11
X	Loop Antenna	Teseq	HLA6121	37133	2018/10/13	2019/10/12
X	Bilog Antenna	Schaffner Chase	CBL6112B	2707	2019/06/24	2020/06/23
X	Coaxial Cable	DEKRA	RG 214	LC003-RG	2019/06/14	2020/06/13
X	Pre-Amplifier	Jet-Power	JPA-10M1G33	170101000330010	2019/06/14	2020/06/13
	Horn Antenna	ETS-Lindgren	3117	00135205	2019/05/03	2020/05/02
	Horn Antenna	SCHWARZBECK	9120D	576	2018/11/30	2019/11/29
	Pre-Amplifier	EMCI	EMC012630SE	980210	2019/04/10	2020/04/09
	Horn Antenna	Com-Power	AH-840	101043	2019/01/09	2020/01/08
	Amplifier + Cable	EMCI	EMC184045SE	980370	2019/03/21	2020/03/20
	Filter	MICRO-TRONICS	BRM50702	G270	2018/08/06	2019/08/05
	Filter	MICRO-TRONICS	BRM50716	G196	2018/08/06	2019/08/05

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek EMI 2.0 V2.1.113.

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56 ^(註)	56-46 ^(註)
0.50-5.0	56	46
5.0 - 30	60	50

2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

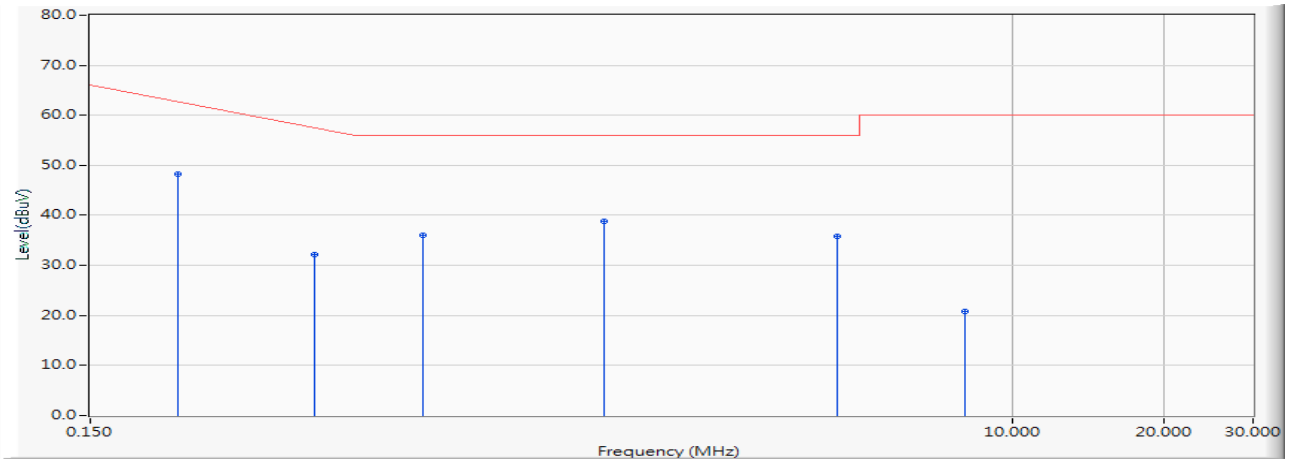
2.4. Uncertainty

± 2.26 dB

2.5. Test Result of Conducted Emission

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 1: Transmit 5V

Line1



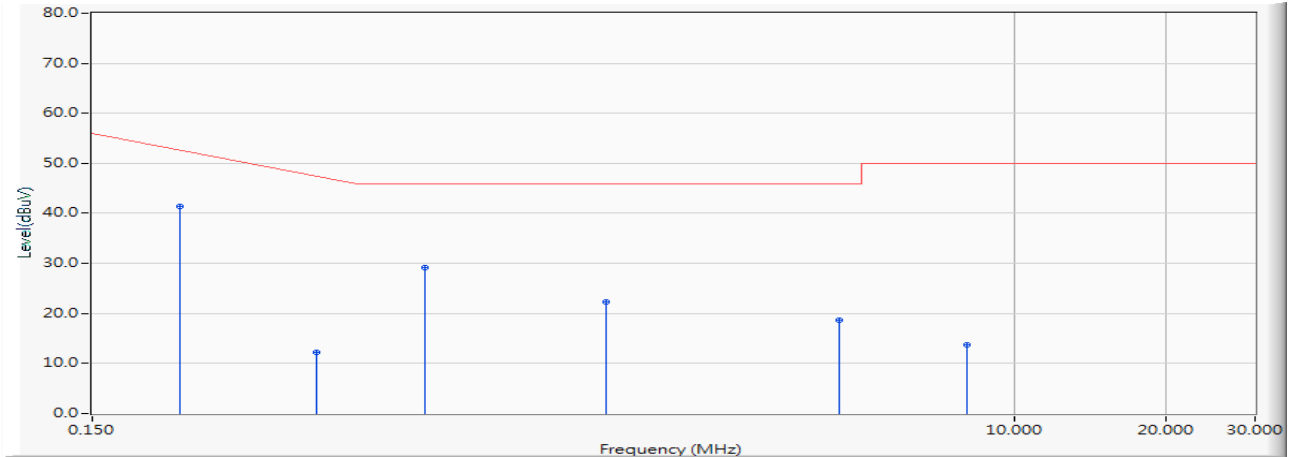
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.224	9.659	38.540	48.199	-15.687	63.886	QUASIPeAK
2		0.416	9.667	22.400	32.067	-26.333	58.400	QUASIPeAK
3		0.681	9.678	26.340	36.018	-19.982	56.000	QUASIPeAK
4		1.564	9.724	29.000	38.724	-17.276	56.000	QUASIPeAK
5		4.505	9.812	25.980	35.792	-20.208	56.000	QUASIPeAK
6		8.084	9.924	10.940	20.864	-39.136	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 1: Transmit 5V

Line1



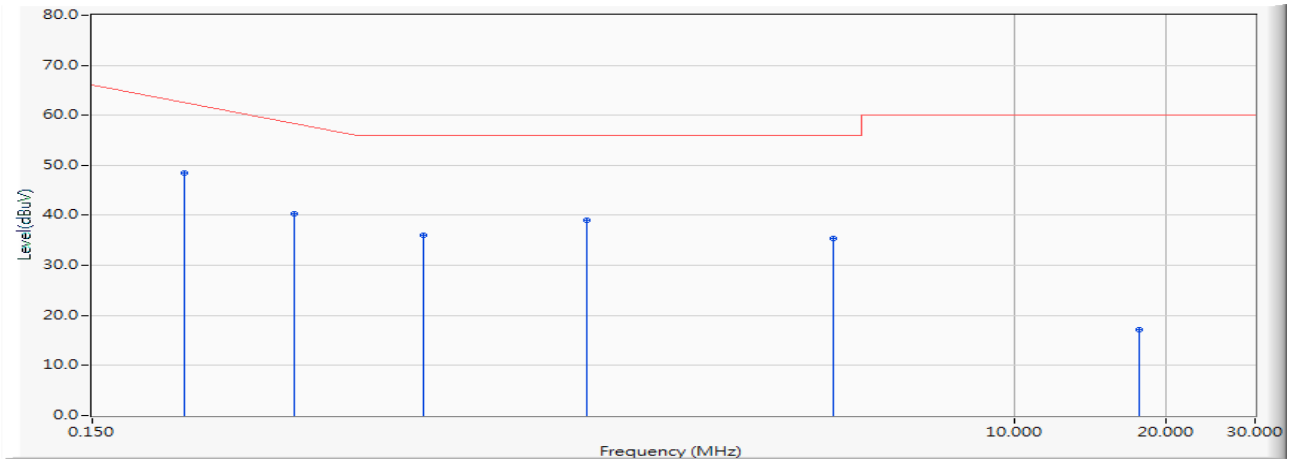
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.224	9.659	31.660	41.319	-12.567	53.886	AVERAGE
2		0.416	9.667	2.480	12.147	-36.253	48.400	AVERAGE
3		0.681	9.678	19.470	29.148	-16.852	46.000	AVERAGE
4		1.564	9.724	12.660	22.384	-23.616	46.000	AVERAGE
5		4.505	9.812	8.890	18.702	-27.298	46.000	AVERAGE
6		8.084	9.924	3.720	13.644	-36.356	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 1: Transmit 5V

Line2



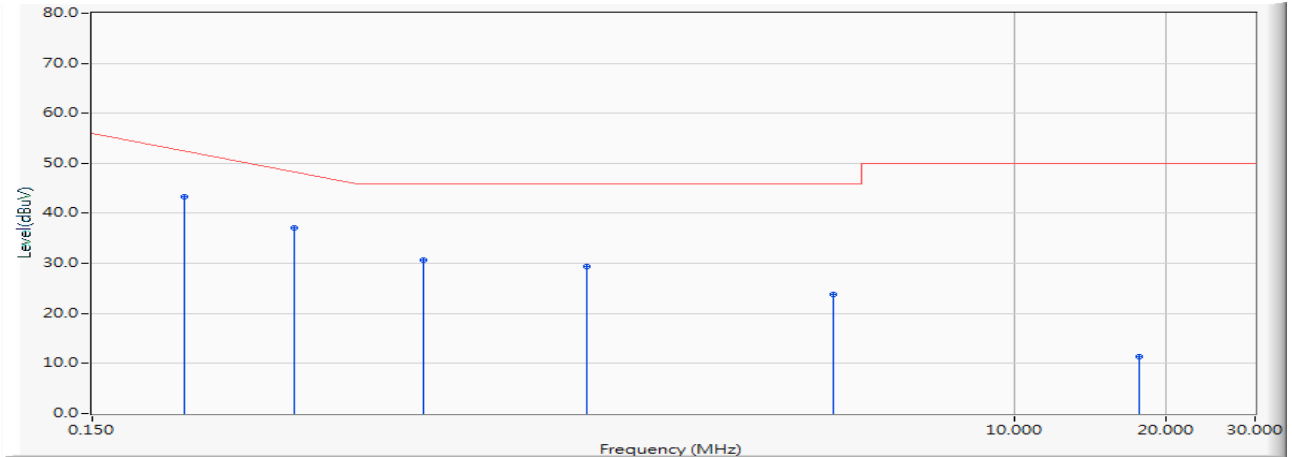
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.228	9.689	38.780	48.469	-15.302	63.771	QUASIPeAK
2		0.377	9.695	30.700	40.395	-19.119	59.514	QUASIPeAK
3		0.677	9.707	26.380	36.087	-19.913	56.000	QUASIPeAK
4		1.427	9.748	29.300	39.048	-16.952	56.000	QUASIPeAK
5		4.380	9.857	25.580	35.437	-20.563	56.000	QUASIPeAK
6		17.748	10.272	6.980	17.252	-42.748	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 1: Transmit 5V

Line2



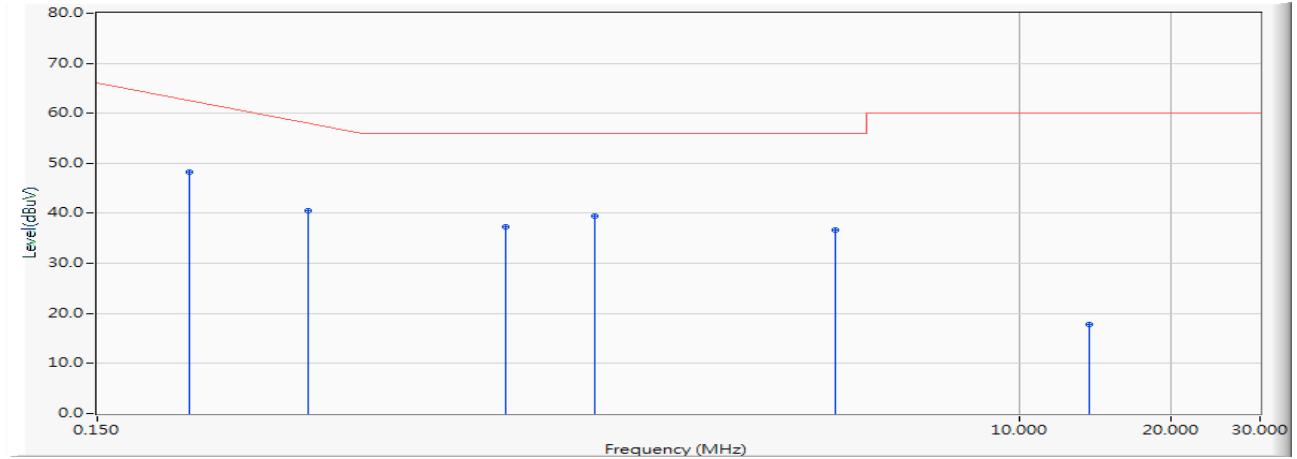
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.228	9.689	33.710	43.399	-10.372	53.771	AVERAGE
2		0.377	9.695	27.390	37.085	-12.429	49.514	AVERAGE
3		0.677	9.707	21.060	30.767	-15.233	46.000	AVERAGE
4		1.427	9.748	19.550	29.298	-16.702	46.000	AVERAGE
5		4.380	9.857	13.970	23.827	-22.173	46.000	AVERAGE
6		17.748	10.272	1.180	11.452	-38.548	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 2: Transmit 12V

Line1



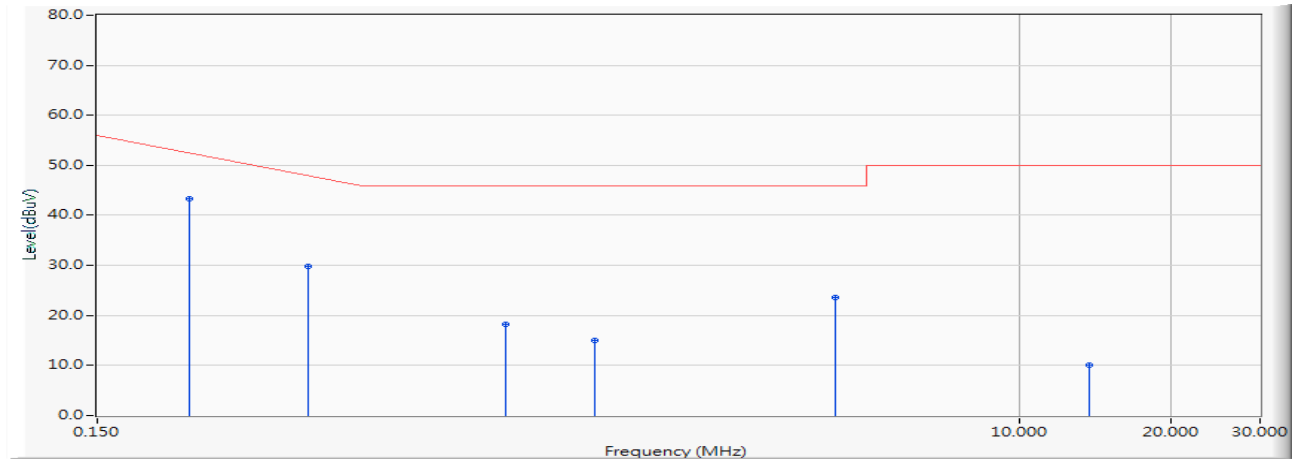
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.228	9.659	38.580	48.239	-15.532	63.771	QUASIPeAK
2		0.392	9.666	30.920	40.586	-18.500	59.086	QUASIPeAK
3		0.966	9.689	27.580	37.269	-18.731	56.000	QUASIPeAK
4		1.447	9.709	29.820	39.529	-16.471	56.000	QUASIPeAK
5		4.345	9.809	26.960	36.769	-19.231	56.000	QUASIPeAK
6		13.767	10.050	7.780	17.830	-42.170	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 2: Transmit 12V

Line1



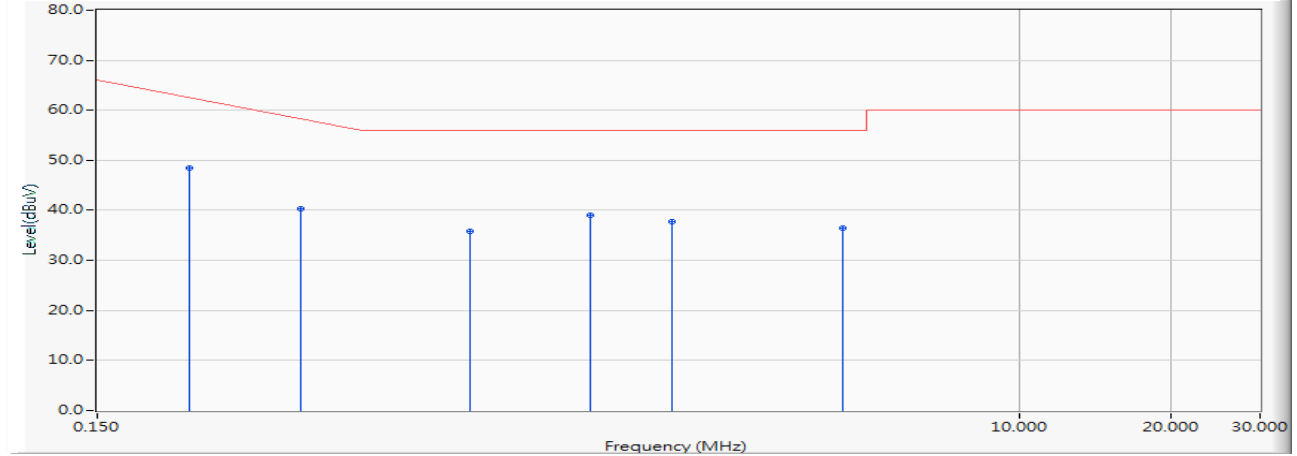
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.228	9.659	33.590	43.249	-10.522	53.771	AVERAGE
2		0.392	9.666	20.130	29.796	-19.290	49.086	AVERAGE
3		0.966	9.689	8.630	18.319	-27.681	46.000	AVERAGE
4		1.447	9.709	5.310	15.019	-30.981	46.000	AVERAGE
5		4.345	9.809	13.750	23.559	-22.441	46.000	AVERAGE
6		13.767	10.050	-0.020	10.030	-39.970	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 2: Transmit 12V

Line2



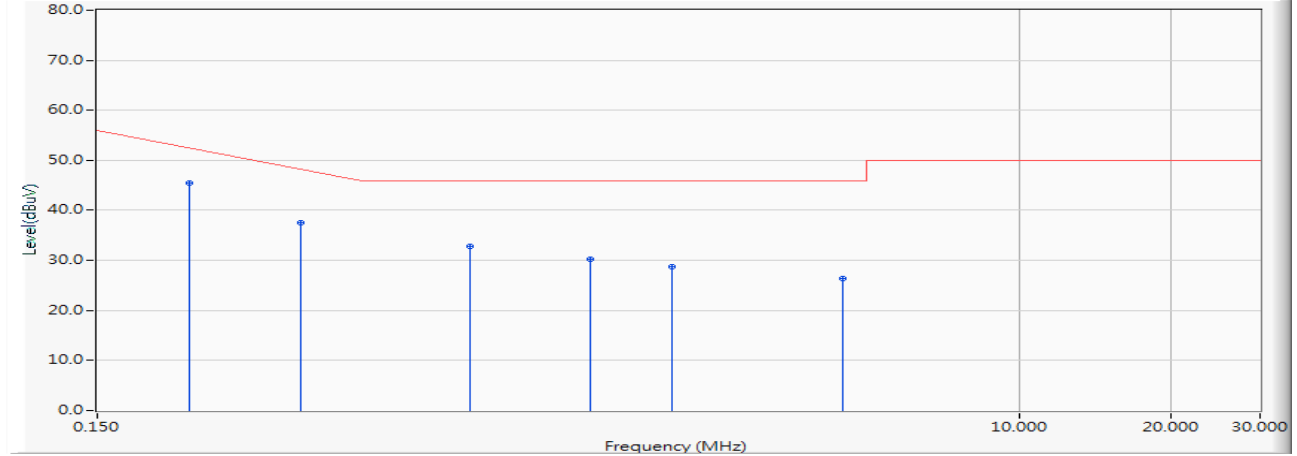
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.228	9.689	38.880	48.569	-15.202	63.771	QUASIPeAK
2		0.380	9.695	30.600	40.295	-19.134	59.429	QUASIPeAK
3		0.818	9.723	26.080	35.803	-20.197	56.000	QUASIPeAK
4		1.423	9.748	29.340	39.088	-16.912	56.000	QUASIPeAK
5		2.052	9.784	27.920	37.704	-18.296	56.000	QUASIPeAK
6		4.490	9.862	26.600	36.462	-19.538	56.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 2: Transmit 12V

Line2



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.228	9.689	35.690	45.379	-8.392	53.771	AVERAGE
2		0.380	9.695	27.800	37.495	-11.934	49.429	AVERAGE
3		0.818	9.723	23.070	32.793	-13.207	46.000	AVERAGE
4		1.423	9.748	20.470	30.218	-15.782	46.000	AVERAGE
5		2.052	9.784	18.850	28.634	-17.366	46.000	AVERAGE
6		4.490	9.862	16.540	26.402	-19.598	46.000	AVERAGE

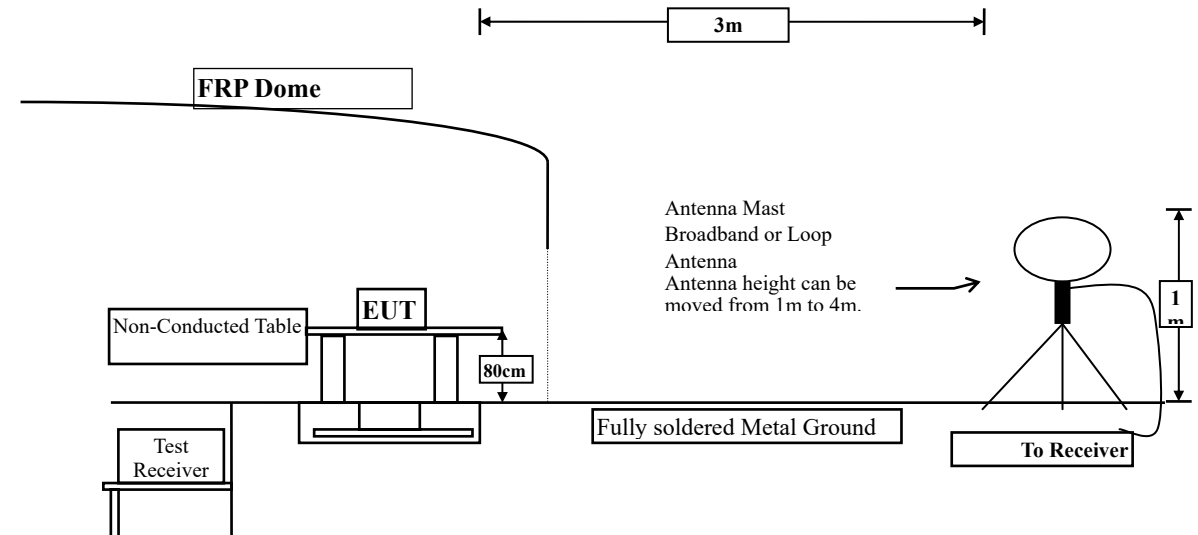
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

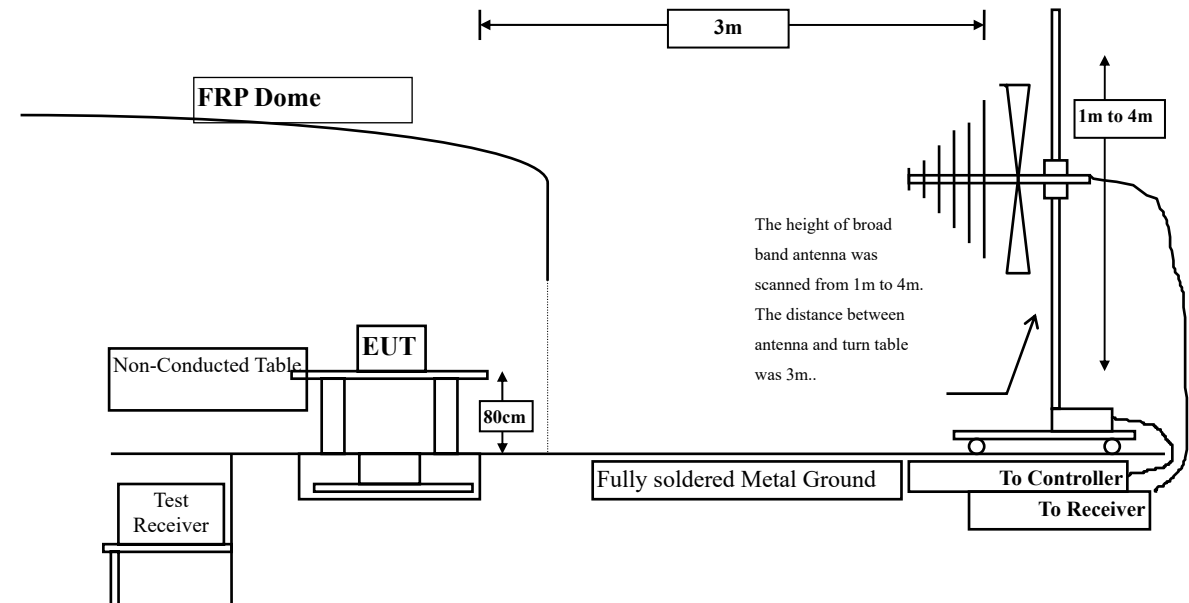
3. Radiated Emission

3.1. Test Setup

Under 30MHz Test Setup



Radiated Emission Below 1GHz



3.2. Limits

FCC Part 15 Subpart B Paragraph 15.209 Limits		
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 - 0.490	2,400/F(kHz)	300
0.490– 1.705	24,000/F(kHz)	30
1.705 – 30	30	30
30 – 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

- Remarks :
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested compliance to FCC 47CFR 15.209 requirements.

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz. Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured on the Final Measurement.

The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

3.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

3.5. Test Result of Radiated Emission

Product	Personal Computer
Test Item	Fundamental Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/05/29
Test Mode	Mode 1: Transmit 5V

Horizontal

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	0.127	19.991	63.600	83.591	-21.937	105.528	Average

Vertical

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	0.127	19.991	61.700	81.691	-23.837	105.528	Average

Note:

1. Limit=25.528 dBuV/300m + 40*Log (300(m)/3(m))= 105.528dBuV/3m (Average).
2. Measurement Level = Reading Level + Correct Factor.

Product	Personal Computer
Test Item	Fundamental Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/05/29
Test Mode	Mode 2: Transmit 12V

Horizontal

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	0.127	19.991	63.500	83.491	-22.037	105.528	Average

Vertical

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	0.127	19.991	61.700	81.691	-23.837	105.528	Average

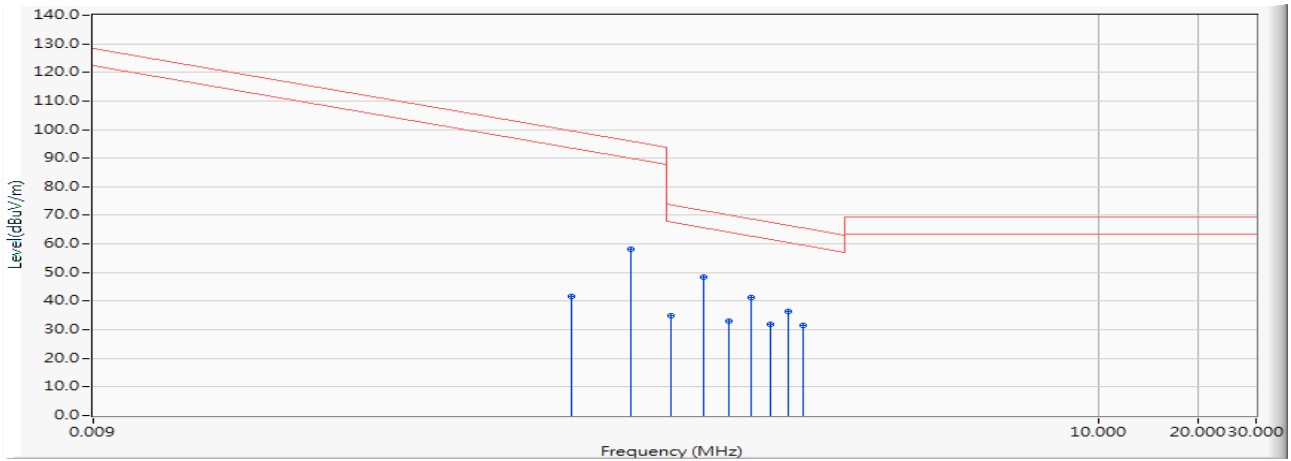
Note:

1. Limit=25.528 dBuV/300m + 40*Log (300(m)/3(m))= 105.528dBuV/3m (Average).
2. Measurement Level = Reading Level + Correct Factor.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/05/29
Test Mode	Mode 1: Transmit 5V (9k-30M)

9kHz~30MHz

Horizontal



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		0.254	19.927	21.600	41.527	-69.309	110.835	QUASIPeAK
2		0.381	19.900	38.300	58.200	-43.468	101.668	QUASIPeAK
3		0.508	19.900	15.100	35.000	-38.640	73.640	QUASIPeAK
4	*	0.635	19.900	28.400	48.300	-24.213	72.513	QUASIPeAK
5		0.762	19.900	13.300	33.200	-38.185	71.385	QUASIPeAK
6		0.889	19.900	21.500	41.400	-28.858	70.258	QUASIPeAK
7		1.016	19.894	11.900	31.794	-37.336	69.131	QUASIPeAK
8		1.143	19.862	16.500	36.362	-31.641	68.003	QUASIPeAK
9		1.270	19.830	11.800	31.630	-35.246	66.876	QUASIPeAK

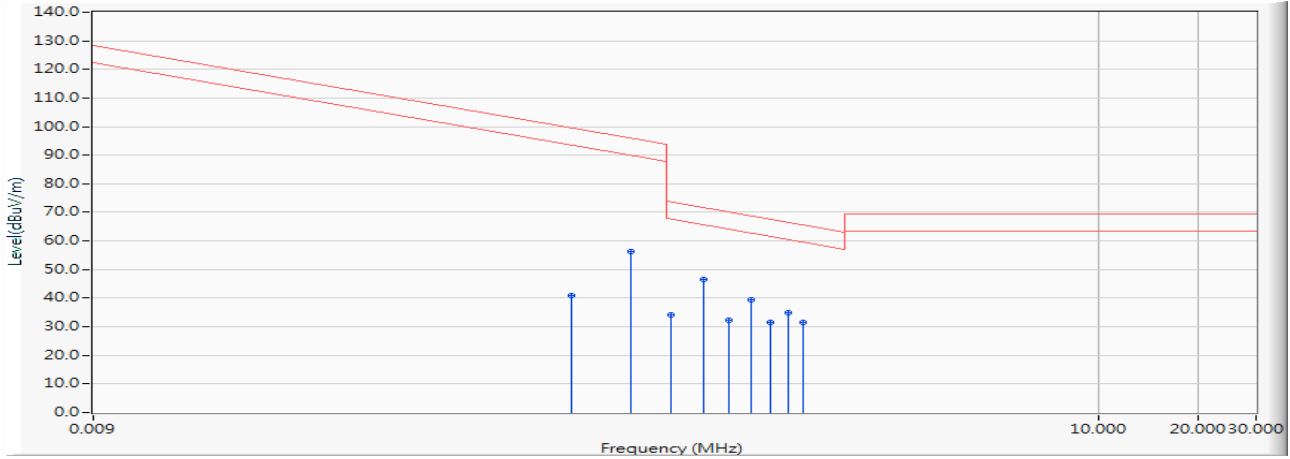
Note:

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement Level = Reading Level + Correct Factor.
3. “*” means the worst emission level.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/05/29
Test Mode	Mode 1: Transmit 5V (9k-30M)

9kHz~30MHz

Vertical



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		0.254	19.927	20.800	40.727	-70.109	110.835	QUASIPeAK
2		0.381	19.900	36.500	56.400	-45.268	101.668	QUASIPeAK
3		0.508	19.900	14.300	34.200	-39.440	73.640	QUASIPeAK
4	*	0.635	19.900	26.500	46.400	-26.113	72.513	QUASIPeAK
5		0.762	19.900	12.500	32.400	-38.985	71.385	QUASIPeAK
6		0.889	19.900	19.600	39.500	-30.758	70.258	QUASIPeAK
7		1.016	19.894	11.800	31.694	-37.436	69.131	QUASIPeAK
8		1.143	19.862	15.100	34.962	-33.041	68.003	QUASIPeAK
9		1.270	19.830	11.600	31.430	-35.446	66.876	QUASIPeAK

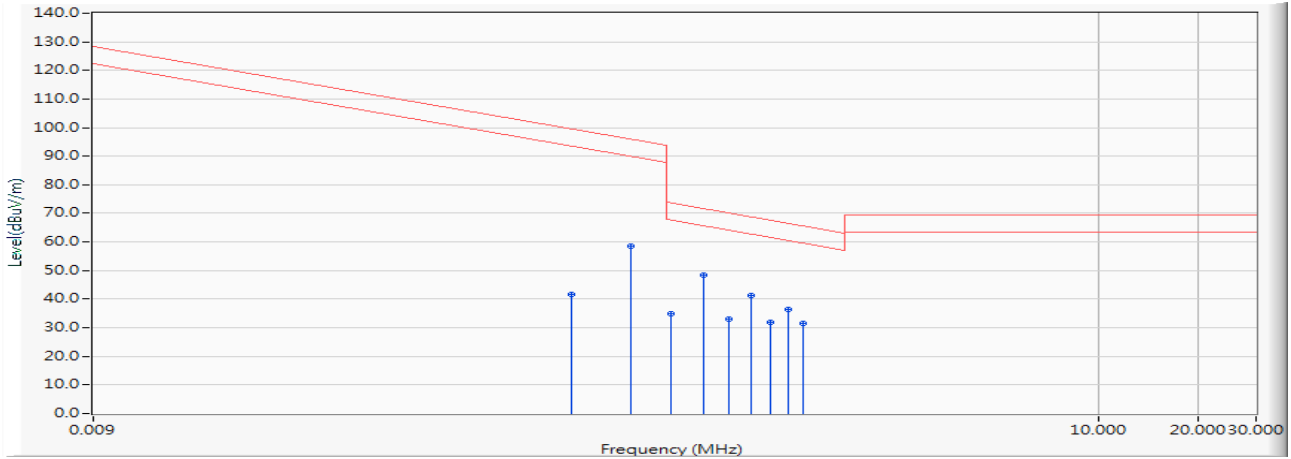
Note:

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement Level = Reading Level + Correct Factor.
3. “*” means the worst emission level.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/05/29
Test Mode	Mode 2: Transmit 12V (9k-30M)

9kHz~30MHz

Horizontal



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		0.254	19.927	21.800	41.727	-69.109	110.835	QUASIPeAK
2		0.381	19.900	38.500	58.400	-43.268	101.668	QUASIPeAK
3		0.508	19.900	15.100	35.000	-38.640	73.640	QUASIPeAK
4	*	0.635	19.900	28.500	48.400	-24.113	72.513	QUASIPeAK
5		0.762	19.900	13.300	33.200	-38.185	71.385	QUASIPeAK
6		0.889	19.900	21.500	41.400	-28.858	70.258	QUASIPeAK
7		1.016	19.894	12.100	31.994	-37.136	69.131	QUASIPeAK
8		1.143	19.862	16.500	36.362	-31.641	68.003	QUASIPeAK
9		1.270	19.830	11.800	31.630	-35.246	66.876	QUASIPeAK

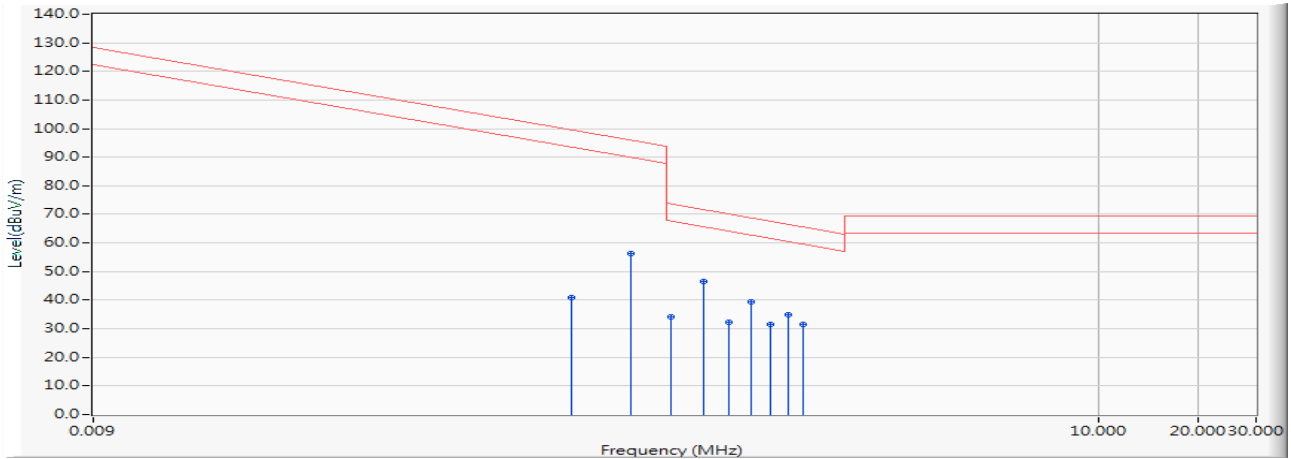
Note:

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement Level = Reading Level + Correct Factor.
3. “*” means the worst emission level.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/05/29
Test Mode	Mode 2: Transmit 12V (9k-30M)

9kHz~30MHz

Vertical



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		0.254	19.927	20.800	40.727	-70.109	110.835	QUASIPeAK
2		0.381	19.900	36.500	56.400	-45.268	101.668	QUASIPeAK
3		0.508	19.900	14.300	34.200	-39.440	73.640	QUASIPeAK
4	*	0.635	19.900	26.500	46.400	-26.113	72.513	QUASIPeAK
5		0.762	19.900	12.500	32.400	-38.985	71.385	QUASIPeAK
6		0.889	19.900	19.600	39.500	-30.758	70.258	QUASIPeAK
7		1.016	19.894	11.800	31.694	-37.436	69.131	QUASIPeAK
8		1.143	19.862	15.100	34.962	-33.041	68.003	QUASIPeAK
9		1.270	19.830	11.600	31.430	-35.446	66.876	QUASIPeAK

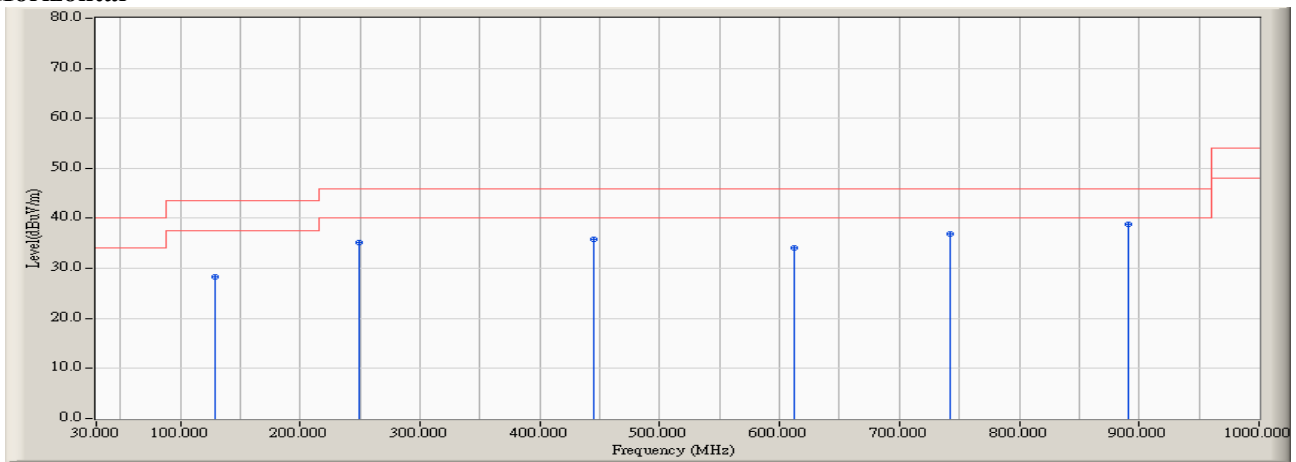
Note:

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement Level = Reading Level + Correct Factor.
3. “ ” means the worst emission level.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/06/03
Test Mode	Mode 1: Transmit 5V (30M-1G)

30MHz~1GHz

Horizontal



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		128.940	-0.695	28.966	28.271	-15.229	43.500	QUASIPeAK
2		249.220	0.448	34.830	35.278	-10.722	46.000	QUASIPeAK
3		445.160	5.686	30.060	35.746	-10.254	46.000	QUASIPeAK
4		612.000	8.529	25.674	34.203	-11.797	46.000	QUASIPeAK
5		741.980	10.075	26.918	36.993	-9.007	46.000	QUASIPeAK
6	*	891.360	12.048	26.807	38.855	-7.145	46.000	QUASIPeAK

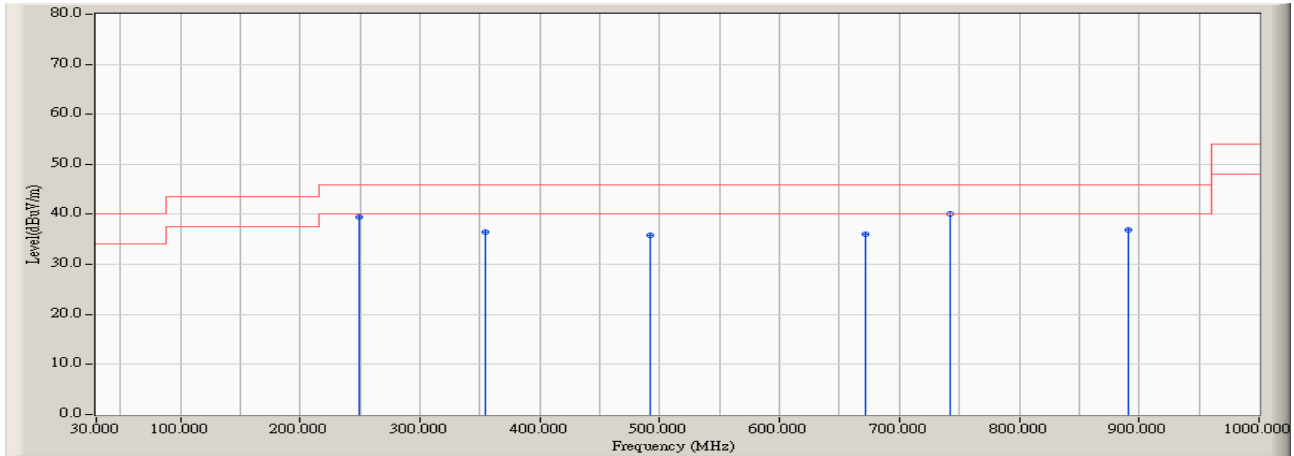
Note:

1. The reading levels below 1GHz are quasi-peak values.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/06/03
Test Mode	Mode 1: Transmit 5V (30M-1G)

30MHz~1GHz

Vertical



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		249.220	0.448	39.074	39.522	-6.478	46.000	QUASIPeAK
2		353.980	3.532	32.958	36.490	-9.510	46.000	QUASIPeAK
3		491.720	6.545	29.202	35.747	-10.253	46.000	QUASIPeAK
4		672.140	9.239	26.698	35.937	-10.063	46.000	QUASIPeAK
5	*	741.980	10.075	29.963	40.038	-5.962	46.000	QUASIPeAK
6		891.360	12.048	24.947	36.995	-9.005	46.000	QUASIPeAK

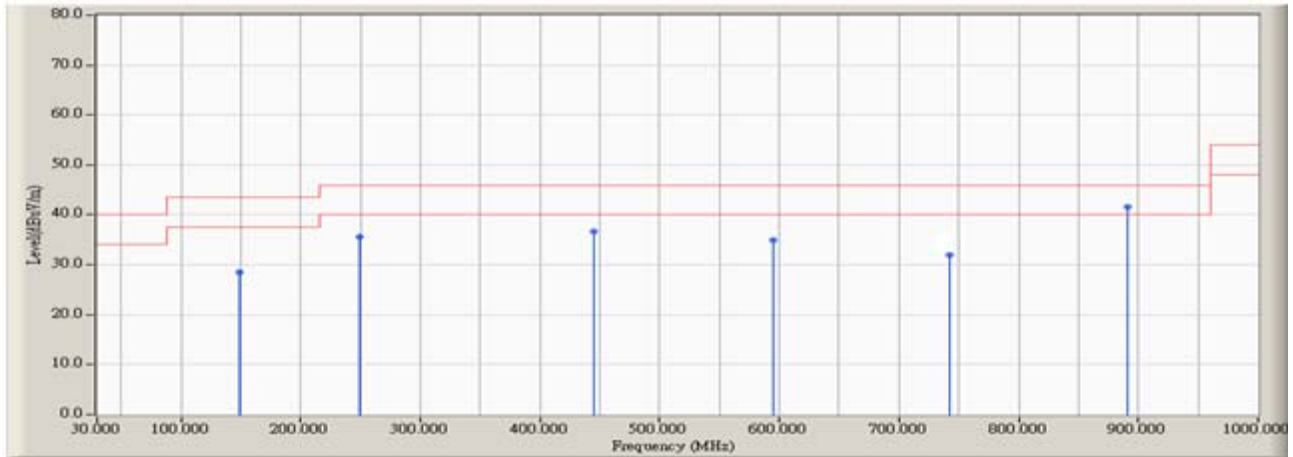
Note:

1. The reading levels below 1GHz are quasi-peak values.
2. “█” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/06/03
Test Mode	Mode 2: Transmit 12V (30M-1G)

30MHz~1GHz

Horizontal



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		148.340	-1.769	30.301	28.532	-14.968	43.500	QUASIPeAK
2		249.220	0.448	35.067	35.515	-10.485	46.000	QUASIPeAK
3		445.160	5.686	31.075	36.761	-9.239	46.000	QUASIPeAK
4		594.540	8.272	26.715	34.987	-11.013	46.000	QUASIPeAK
6		741.980	10.075	21.800	31.875	-14.125	46.000	QUASIPeAK
7	*	891.360	12.048	29.486	41.534	-4.466	46.000	QUASIPeAK

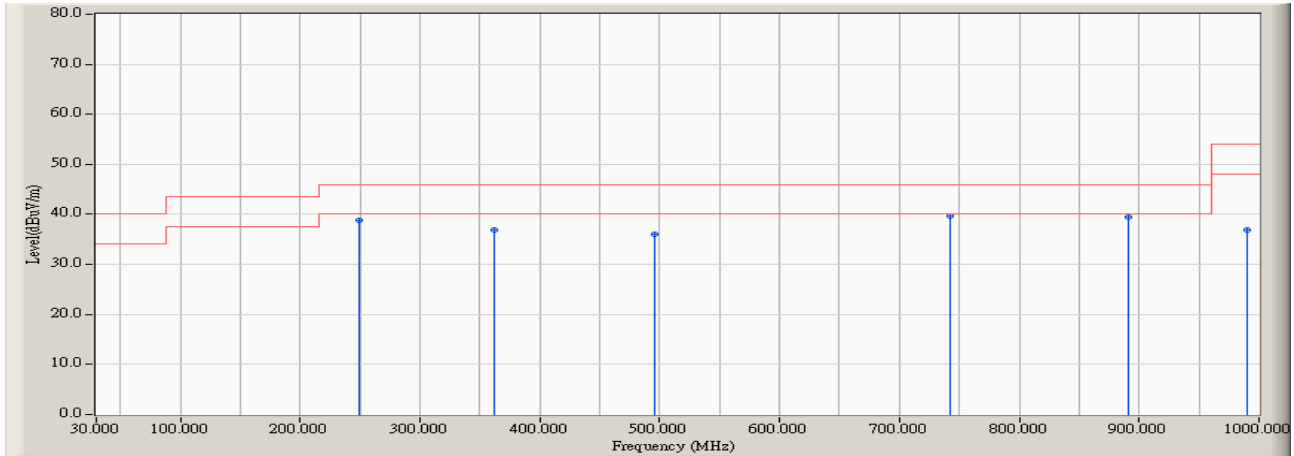
Note:

1. The reading levels below 1GHz are quasi-peak values.
2. “█” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/06/03
Test Mode	Mode 2: Transmit 12V (30M-1G)

30MHz~1GHz

Vertical



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	249.220	0.448	38.433	38.881	-7.119	46.000	QUASIPeAK
2	361.740	3.788	33.122	36.910	-9.090	46.000	QUASIPeAK
3	495.600	6.615	29.480	36.095	-9.905	46.000	QUASIPeAK
4	* 741.980	10.075	29.537	39.612	-6.388	46.000	QUASIPeAK
5	891.360	12.048	27.523	39.571	-6.429	46.000	QUASIPeAK
6	990.300	13.304	23.575	36.879	-17.121	54.000	QUASIPeAK

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. “█” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

4. EMI Reduction Method During Compliance Testing

No modification was made during testing.