

Technical Compliance Statement

FCC and ISED Test Report

For the following information

Ref. File No.: C1M1711393

Product : LCD Monitor
Model Number : (1)PA271Q-BK (2)PA271Q
Brand Name : NEC
Applicant : Compal Electronics, Inc.
Manufacturer : Compal Display electronics (Kunshan) Co., Ltd.
Rules and Standards : 47 CFR FCC Part 15 Subpart B and
ICES-003 Issue 6: 2016
(Class B Limit)

We hereby certify that the above product has been tested by us and complied with the FCC and ISED official limits. The product might be marketed in US in accordance with the standard 47 CFR FCC Part 2 and Part 15 Subpart B class B equipment regulations under FCC Rules. The test was performed according to the procedures mentioned in ANSI C63.4-2014.

The test data and results are issued on the test report no. **EM-F170805**.

Signature



Alex Deng/Deputy Manager
Date: 2017. 12. 29

Test Laboratory:
AUDIX Technology Corporation, EMC Department
NVLAP Lab. Code: 200077-0
FCC OET Designation: TW1004 & TW1090
Web Site: www.audixtech.com

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

TEST REPORT

Product: LCD Monitor
Model: (1)PA271Q-BK (2)PA271Q
Brand: NEC

Applicant for:

Compal Electronics, Inc.
No. 581 & 581-1, Ruiguang Rd., Neihu District,
Taipei City 11492, Taiwan

Prepared by:

Audix Technology Corporation, EMC Department
No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan



File No. : C1M1711393
Report No. : EM-F170805
Date of Report : 2017. 12. 29

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Test Report

Applicant : Compal Electronics, Inc.
Manufacturer : Compal Display electronics (Kunshan) Co., Ltd.
EUT Description
(1) Product : LCD Monitor
(2) Model : (1)PA271Q-BK (2)PA271Q
(3) Brand : NEC
(4) Power Rating : AC 100-240V, 50/60Hz

Rules of Compliance and Applicable Standards:

47 CFR FCC Part 15 Subpart B
ANSI C63.4-2014
ICES-003 Issue 6:2016

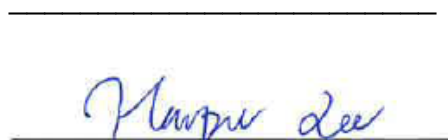
The device described above was tested by Audix Technology Corporation to determine the maximum emission levels emanating from the device. All of the tests were requested by the applicant and the results thereof based upon the information that the applicant provided to us. We, Audix Technology Corporation assumes full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is technically compliance with the requirements of **FCC and ISED official rules and Class B limits.**

This report is made under FCC Part 2.938. No modifications were required during testing to bring this product into compliance.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Audix Technology Corporation.

Date of Report: 2017. 12. 29

Reviewed by:

 (Harper Lee/Administrator)

Approved by:

 (Alex Deng/Deputy Manager)

Table of Content

1. Revision of Test Report.....	4
2. Summary of Test Result.....	5
2.1. Test Result.....	5
2.2. Description of Test Firm.....	6
3. General Information.....	7
3.1. Description of Application	7
3.2. Description of the EUT.....	8
3.3. Highest Frequency within EUT.....	9
3.4. List of Key Components of EUT.....	9
3.5. Determination of Worse Case Operating Modes.....	10
3.6. Final Test Configuration.....	10
4. Measurement Arrangement.....	11
4.1. Equipment and cables arrangement	11
4.2. Method of Exercising EUT	12
4.3. List of Supported Units under Test.....	13
4.4. List of Used Cables under Test.....	13
5. Measurement of Conducted Emissions.....	14
5.1. List of Test Instruments.....	14
5.2. Test Setup.....	14
5.3. Power-line Conducted Emission Limits.....	15
5.4. Measurement Procedure	15
5.5. Measurement Result.....	16
6. Measurement of Radiated Emissions	18
6.1. List of Test Instruments.....	18
6.2. Test Setup.....	19
6.3. Radiation Emission Limits.....	20
6.4. Measurement Procedure	21
6.5. Measurement Result.....	22
7. Measurement Uncertainty List.....	26
8. Photographs.....	28
8.1. Powerline Conducted Emission Measurement.....	28
8.2. Radiated Emissions Measurement	29

APPENDIX I (Photos of EUT)

1. Revision of Test Report

Issued Date	Revision Summary	Report Number
2017. 12. 29	Original Report.	EM-F170805

2. Summary of Test Result

2.1. Test Result

Test Item	Referred Rules/Standard	Limit	Result
Power-line conducted emission	47 CFR FCC Part 15 Subpart B and ICES-003: 2016	Class B	Pass
			Margin 4.40dB at 0.150MHz
Radiated emission (30 – 1000MHz)	47 CFR FCC Part 15 Subpart B and ICES-003: 2016	Class B	Pass
			Margin 6.42 at 216.24MHz (Horizontal, 4m/194°)
Radiated emission (Above 1GHz)	47 CFR FCC Part 15 Subpart B and ICES-003: 2016	Class B	Pass
			Margin 13.30dB at 2110.91MHz
Note :			
1. N/A is an abbreviation for Not Applicable.			
2. Special measures: None			
3. Decision and justification not to measure: None			
4. The FCC Part 15 Subpart B emission measurement results are deemed satisfactory evidence of compliance with ICES-003 regulations.			

2.2. Description of Test Firm

Name of Test Firm	Audix Technology Corporation / EMC Department No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan Tel: +886-2-26092133 Fax: +886-2-26099301 Website : www.audixtech.com Contact e-mail: attemc_report@audixtech.com
Accreditations	The laboratory is accredited by following organizations under ISO/IEC 17025:2005 (1) NVLAP(USA) NVLAP Lab Code 200077-0 (2) TAF(Taiwan) No. 1724
Test Facilities	FCC OET Designation Number under APEC MRA by BSMI is : TW1004 & TW1090 (1) No. 7 Shielding Room (3) No. 1 10m Semi-Anechoic Chamber

3. General Information

3.1. Description of Application

Applicant	Compal Electronics, Inc. No. 581 & 581-1, Ruiguang Rd., Neihu District, Taipei City 11492, Taiwan
Manufacturer	Compal Display electronics (Kunshan) Co., Ltd. No. 1881 Liji Road Shipai Bacheng Town, Kunshan, Jiangsu, P.R.China
Product	LCD Monitor
Brand	NEC
Model No.	(1)PA271Q-BK (2)PA271Q The difference of above models is in sales area.

3.2. Description of the EUT

Test Model	PA271Q-BK
Serial Number	N/A
Power Rating	AC 100-240V, 50/60Hz
Firmware Version	N/A
Sample Status	Production
Date of Receipt	2017. 11. 24
Data of Test	2017. 12. 22 ~ 26
I/O Ports List	Back View: • Two USB-downstream ports • One USB Type-C port • Two DP ports • One Earphone ports • One LAN port • One AC In port Side View: • Two HDMI ports • One mini DP port • Four USB-upstream ports
Accessories	• Mini DP to DP Cable • DP Cable • USB 3.0 Cable • AC Power Cord (3C)

3.3. Highest Frequency within EUT

The highest frequency is above 108MHz of EUT.

3.4. List of Key Components of EUT

Item	Supplier/Brand	Model	Specification
LCD Panel	Panasonic	VVX27T160H00	Max. Resolution: DP/mini DP: 2560*1440/60Hz HDMI: 1920*1080/60Hz
Power board	HUNTKEY	HKM150SL32-3A	---
Converter board	HUNTKEY	HKL32N6408-6I	---
Touch key board	Sunjet	SJT0112C	---
Backlight Sensor board	Comapl	VS-2712	---
Human sensor board	Comapl	VS-2218	---
Main board	Comapl	VL-2712	---

3.5. Determination of Worse Case Operating Modes

According to the specification, the EUT was estimated to determine the highest emissions by following configurations:

Test Item	Test Voltage	Panel Angle	USB Type-C	Input Port	Resolution & Frequency
Power-line conducted emission	AC 230V/50Hz	0°	HDD	HDMI 1	1920*1080/60Hz
				HDMI 2	1920*1080/60Hz
				DP 1	2560*1440/60Hz
				DP 2	2560*1440/60Hz
				Mini DP-DP	2560*1440/60Hz
				LAN	---
			PC	USB Type-C	2560*1440/60Hz
			Charge (20V,1A)	HDMI 1	1280*1024/60Hz
			Charge (5V,3A)	HDMI 1	640*480/60Hz
	AC 120V/60Hz	90°	HDD	HDMI 1	1080*1920/60Hz
		0°	HDD	HDMI 1	1920*1080/60Hz
Radiated emission (30 – 1000MHz)	AC 230V/50Hz	0°	HDD	HDMI 1	1920*1080/60Hz
				HDMI 2	1920*1080/60Hz
				DP 1	2560*1440/60Hz
				DP 2	2560*1440/60Hz
				Mini DP-DP	2560*1440/60Hz
				LAN	---
			PC	USB Type-C	2560*1440/60Hz
			Charge (20V,1A)	HDMI 1	1280*1024/60Hz
			Charge (5V,3A)	HDMI 1	640*480/60Hz
	AC 120V/60Hz	90°	HDD	HDMI 1	1080*1920/60Hz
		0°	HDD	HDMI 1	1920*1080/60Hz
Radiated emission (1 – 6GHz)	AC 230V/50Hz	0°	HDD	HDMI 1	1920*1080/60Hz
	AC 120V/60Hz	0°	HDD	HDMI 1	1920*1080/60Hz

3.6. Final Test Configuration

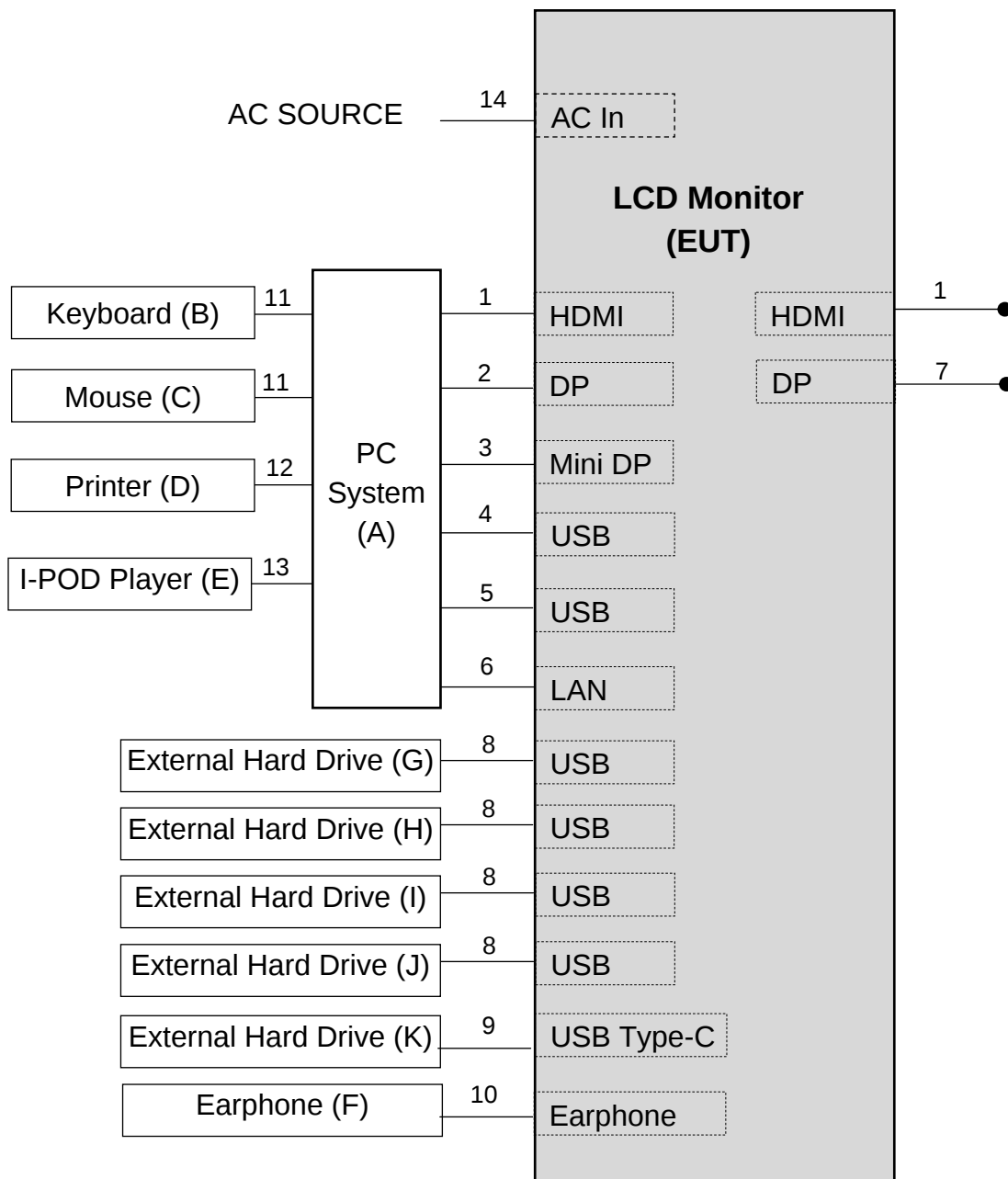
The worst showed as following configuration was recorded in this report.

Test Item	Test Voltage	Panel Angle	USB Type-C	Input Port	Resolution & Frequency
Power-line conducted emission	AC 120V/60Hz	0°	HDD	HDMI 1	1920*1080/60Hz
Radiated emission (30 – 1000MHz)	AC 120V/60Hz	0°	HDD	HDMI 1	1920*1080/60Hz
Radiated emission (1 – 6GHz)	AC 120V/60Hz	0°	HDD	HDMI 1	1920*1080/60Hz

4. Measurement Arrangement

4.1. Equipment and cables arrangement

- Connection Diagram of EUT and Peripheral Devices
****Worst Mode****



4.2. Method of Exercising EUT

The methods for exercising the EUT during the measurement specified in ANSI C63.4-2014 clause 11.2, 11.3 and figure 16 were used.

Operating System	Windows 7 of PC system
Test Program	"Windows Media Player", "BurnIn"
Video Signal (Display Image)	Scrolling H characters
Audio Signal	Play 1kHz Audio Signal
USB Signal	Read/Write operation to External Hard Drive
Other	Other peripheral devices were driven and operated in turn

4.3. List of Supported Units under Test

Item	Product	Brand	Model No.	Serial No.	Approval
A	PC System	Lenovo	RK4	PBFK914	By DoC
B	USB Keyboard	Lenovo	SK-8825	0056462	By DoC
C	USB Mouse	Lenovo	45J4886	N/A	By DoC
D	Printer	SAMSUNG	ML-1630	4561B1CP60002 3X	A3LML1630
E	I-POD Player	APPLE	A1204	4H722TNUVTE	By DoC
F	Earphone	APPLE	N/A	N/A	N/A
G	External Hard Drive#1	SONY	HD-E1	3GDL0T155151A 12	By DoC
H	External Hard Drive#2	SONY	HD-E1	3GDL0T155151F FA	By DoC
I	External Hard Drive#3	SONY	HD-E1	3GDL0T155151A 04	By DoC
J	External Hard Drive#4	SONY	HD-E1	BBW3DEK78041 FE8	By DoC
K	External Hard Drive#5	AKITIO	SK2-U31AS-A KT	SK21D1549X000 6	By DoC

4.4. List of Used Cables under Test

Item	Type	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remark
1	HDMI Cable	2	1.8	Yes	0	Provided by LAB
2	DP Cable	1	1.8	Yes	0	Accessory of EUT
3	Mini DP-DP Cable	1	2.0	Yes	0	Accessory of EUT
4	USB Cable	1	1.8	Yes	0	Accessory of EUT
5	USB Cable	1	1.8	Yes	0	Provided by LAB
6	LAN Cable	1	1.8	Yes	0	Provided by LAB
7	DP Cable	1	1.8	Yes	0	Provided by LAB
8	USB Cable	4	0.5	Yes	0	Provided by LAB
9	USB Type-C Cable	1	0.3	Yes	0	Provided by LAB
10	Earphone	1	0.9	No	0	Provided by LAB
11	USB Cable	2	1.8	Yes	0	Provided by LAB
12	USB Cable	1	1.5	Yes	0	Provided by LAB
13	USB Cable	1	1.0	Yes	0	Provided by LAB
14	AC Power Cord (3C)	1	1.8	No	0	Accessory of EUT
15	AC Power Cord	2	1.8	No	0	Provided by LAB for above supported units

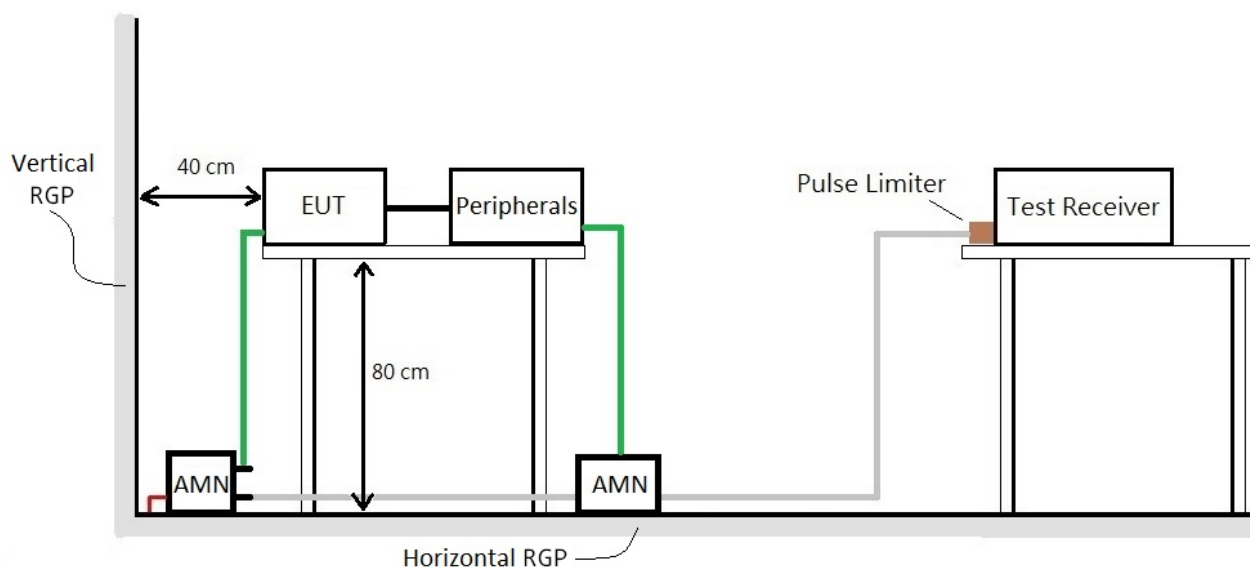
5. Measurement of Conducted Emissions

5.1. List of Test Instruments

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Test Receiver	R&S	ESCI	101276	2017. 03. 23	1 Year
2	A.M.N.	R&S	ESH2-Z5	100366	2017. 07. 20	1 Year
3	L.I.S.N.	Kyoritsu	KNW-407	8-1539-3	2017. 01. 13	1 Year
4	Pulse Limiter	R&S	ESH3-Z2	101495	2017. 01. 16	1 Year
5	Signal Cable	Thermax/CDT	RG-142	CE-07	2017. 05. 25	1 Year
6	Test Software	Audix	e3	V.120619C	N.C.R.	N.C.R.
7	Digital Ther-mo-Hygro Meter	iMax	HTC-1	No.7 S/R	2017. 04. 21	1 Year

5.2. Test Setup

The EUT and test equipment were configured in accordance with the requirement of ANSI C63.4-2014 clause 5.2.



5.3. Power-line Conducted Emission Limits

- For FCC §15.107 and ICES-003 §6.1

Frequency Range (MHz)	Class A Limits		Class B Limits	
	Quasi Peak dB(μV)	Average dB(μV)	Quasi Peak dB(μV)	Average dB(μV)
0.15 – 0.50	79	66	66 – 56*	56 – 46*
0.50 – 5.0	73	60	56	46
5.0 – 30			60	50

Note: * Decreases with the logarithm of the frequency.

5.4. Measurement Procedure

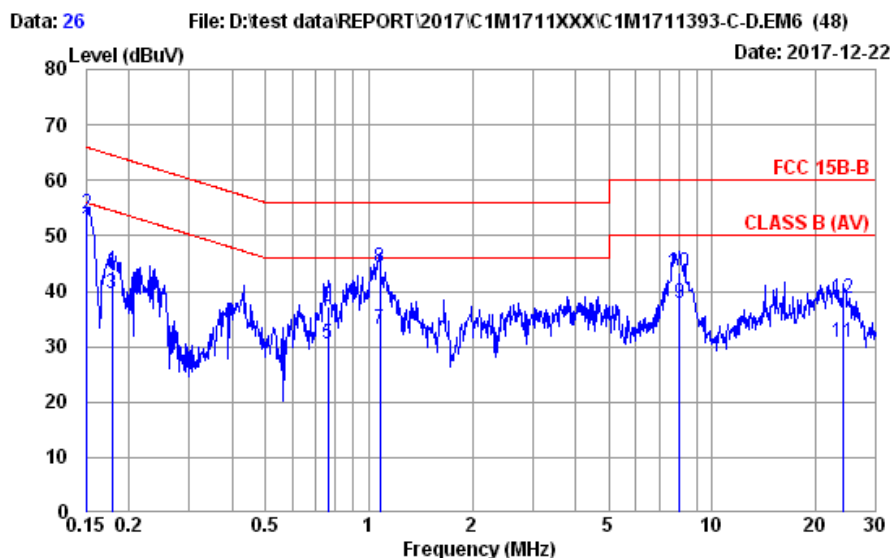
The power-line conducted emission measurement was performed in accordance with the procedure of ANSI C63.4-2014 clause 7.3.

- Setup the EUT and associated equipment described as section 4.1, and they were located 40cm from the vertical conducting plane.
- Connect the EUT power cord to the main A.M.N and associated equipment to the second A.M.N. All ports of the A.M.N not connecting to the measuring equipment was terminated into 50 ohm resistive load.
- Setup the resolution bandwidth of the test receiver at 9kHz (while testing within 0.15 to 30MHz).
- Operate the EUT system as described in section 4.2.
- Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, all of the interconnecting cables were manipulated.
- For the exploratory measurement, determine the highest emission amplitude relative to the limit on each of the EUT power cord with the peak detector by each of the EUT operation over the specified frequency range and record it.
- For final measurement, select the EUT operation mode that produced the highest amplitude in the exploratory measurement to determine the highest emissions with each specified detector and record it. All of the current-carrying conductors of each of the EUT power cords, except the ground conductor, must be measured over the specified frequency range.
- The measurement result was calculated by following formula:
Emission Level = Reading (Receiver) + Factor (A.M.N) + Cable Loss + Pulse Limiter
- If the average limit is met when using a Quasi-Peak detector receiver, the EUT is deemed to meet both limits and measurement with the average detector is unnecessary.

5.5. Measurement Result

The following data are the worst emissions based on the prescan measurement result.

Test Date	2017. 12. 22	Environment	22°C, 44%
Input Power	AC 120V, 60Hz	Test Phase	Neutral
Tested By	Nick Du	Test Result	Pass
Test Mode	HDMI 1, 1920*1080/60Hz	Test Model	PA271Q-BK

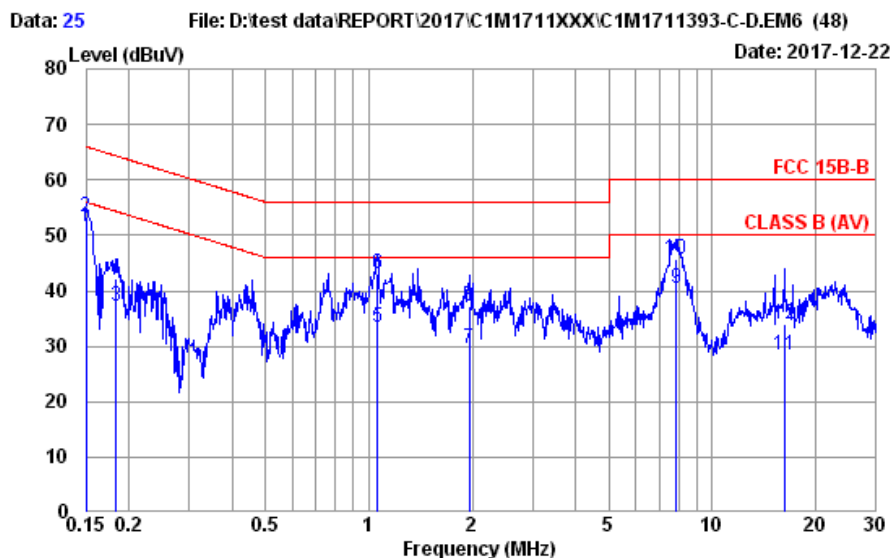


Site no. : No.7 Shielded Room Data no. : 26
Condition : ESH2-Z5 366(ADAPTER) L1SN Phase : NEUTRAL
Limit : FCC 15B-B
Env. / Ins. : 22°C / 44% ESCI (1276) Engineer : Nick Du
EUT : PA271Q-BK
Power Rating : 120Vac/60Hz
Test Mode : 1920*1080/60Hz HDMI 1
Type c HDD

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.151	0.19	0.03	9.86	41.08	51.16	55.96	4.80	Average
2	0.151	0.19	0.03	9.86	43.80	53.88	65.96	12.08	QP
3	0.179	0.18	0.04	9.86	29.38	39.46	54.55	15.09	Average
4	0.179	0.18	0.04	9.86	33.70	43.78	64.55	20.77	QP
5	0.759	0.21	0.05	9.86	20.46	30.58	46.00	15.42	Average
6	0.759	0.21	0.05	9.86	27.02	37.14	56.00	18.86	QP
7	1.077	0.22	0.05	9.86	23.13	33.26	46.00	12.74	Average
8	1.077	0.22	0.05	9.86	34.12	44.25	56.00	11.75	QP
9	8.020	0.48	0.21	9.88	27.22	37.79	50.00	12.21	Average
10	8.020	0.48	0.21	9.88	32.92	43.49	60.00	16.51	QP
11	24.142	0.95	0.32	9.97	19.67	30.91	50.00	19.09	Average
12	24.142	0.95	0.32	9.97	27.36	38.60	60.00	21.40	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
2. If the average limit is met when using a quasi-peak detector,
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

Test Date	2017. 12. 22	Environment	22°C, 44%
Input Power	AC 120V, 60Hz	Test Phase	Line
Tested By	Nick Du	Test Result	Pass
Test Mode	HDMI 1, 1920*1080/60Hz	Test Model	PA271Q-BK



Site no. : No.7 Shielded Room Data no. : 25
Condition : ESH2-Z5 366(ADAPTER) LISN Phase : LINE
Limit : FCC 15B-B
Env. / Ins. : 22°C / 44% ESCI (1276) Engineer : Nick Du
EUT : PA271Q-BK
Power Rating : 120Vac/60Hz
Test Mode : 1920*1080/60Hz HDMI 1
Type c HDD

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.150	0.18	0.03	9.86	41.52	51.59	55.99	4.40	Average
2	0.150	0.18	0.03	9.86	43.33	53.40	65.99	12.59	QP
3	0.183	0.17	0.04	9.86	27.11	37.18	54.33	17.15	Average
4	0.183	0.17	0.04	9.86	32.19	42.26	64.33	22.07	QP
5	1.060	0.21	0.05	9.86	23.36	33.48	46.00	12.52	Average
6	1.060	0.21	0.05	9.86	32.90	43.02	56.00	12.98	QP
7	1.959	0.25	0.12	9.86	19.40	29.63	46.00	16.37	Average
8	1.959	0.25	0.12	9.86	27.01	37.24	56.00	18.76	QP
9	7.852	0.51	0.21	9.88	29.79	40.39	50.00	9.61	Average
10	7.852	0.51	0.21	9.88	35.12	45.72	60.00	14.28	QP
11	16.226	0.95	0.28	9.93	17.13	28.29	50.00	21.71	Average
12	16.226	0.95	0.28	9.93	22.85	34.01	60.00	25.99	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

6. Measurement of Radiated Emissions

6.1. List of Test Instruments

- For measurement of 30 to 1000MHz frequency range

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9010A-503	MY51250850	2017. 03. 08	1 Year
2	Spectrum Analyzer	Agilent	N9010A-503	MY52220119	2017. 12. 15	1 Year
3	Test Receiver	R&S	ESCI7	100922	2017. 05. 15	1 Year
4	Amplifier	Sonoma	310N	187158	2017. 03. 06	1 Year
5	Amplifier	Sonoma	310N	187159	2017. 03. 14	1 Year
6	Bilog Antenna	Schwarzbeck	VULB 9168	711	2017. 07. 20	1 Year
7	Bilog Antenna	Schwarzbeck	VULB 9168	712	2017. 07. 20	1 Year
8	Signal Cable	HUBER+SUHNER	S07212BD	10m ACC3CL (10mA)	2017. 02. 17	1 Year
9	Signal Cable	HUBER+SUHNER	S07212BD	10m ACC3CL (10mB)	2017. 02. 17	1 Year
10	Digital Ther-mo-Hygro Meter	iMax	HTC-1	No.1 10m A/C	2017. 04. 21	1 Year
11	Test Software	Audix	e3	V.6.1206197	N.C.R.	N.C.R.

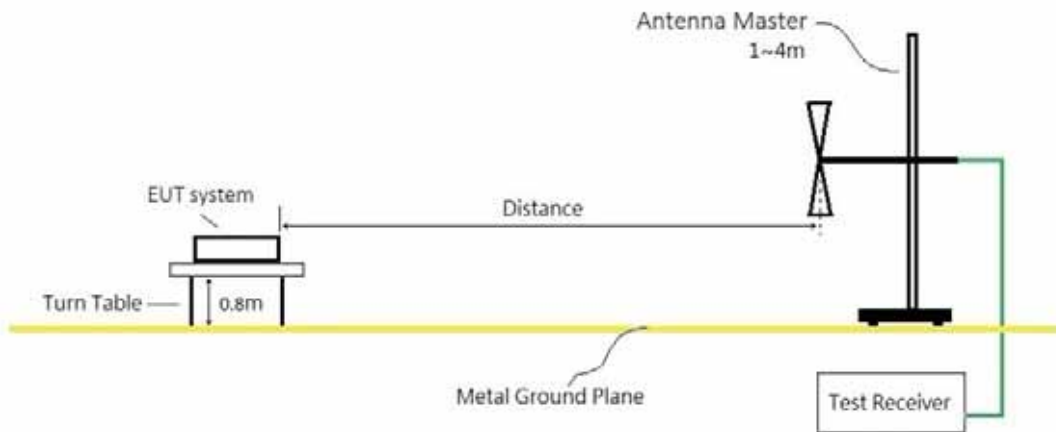
- For measurement of above 1GHz frequency range

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9010A-526	MY51250943	2017. 02. 16	1 Year
2	Microwave Preamplifier	Agilent	8449B	3008A02681	2017. 03. 14	1 Year
3	Double-Ridged Waveguide Horn	ETS-Lindgren	3117	00114403	2017. 03. 27	1 Year
4	Signal Cable	HUBER+SUHNER	SUCOFLEX 104	10m ACCL 1-18G	2017. 04. 23	1 Year
5	Test Software	Audix	e3	V.6.1206197	N.C.R.	N.C.R.
6	Digital Ther-mo-Hygro Meter	iMax	HTC-1	No.1 10m A/C	2017. 04. 21	1 Year

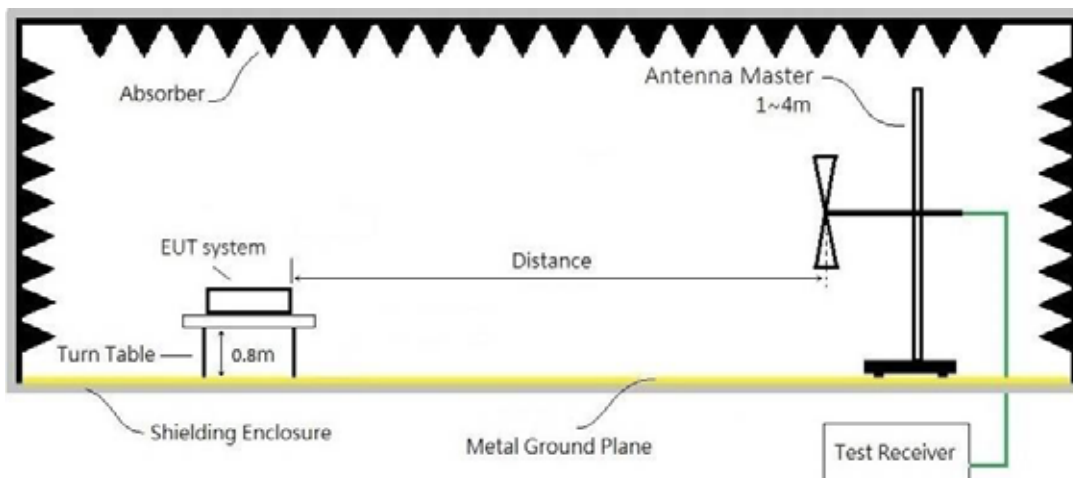
6.2. Test Setup

The EUT and test equipment were configured in accordance with the requirement of ANSI C63.4-2014 clause 5.4. and 5.5.

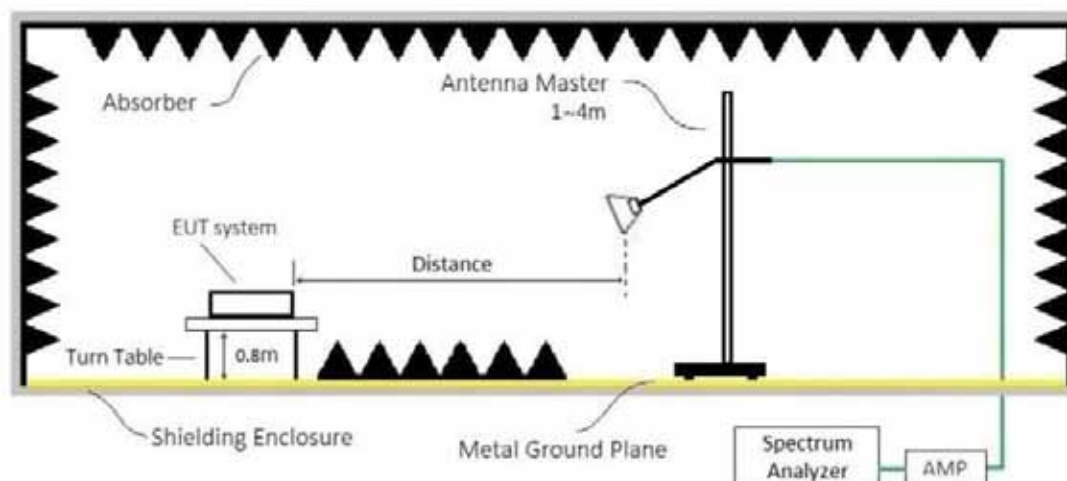
- For frequency range 30 to 1000MHz (at Open Area Test Site)



- For frequency range 30 to 1000MHz (at Semi-Anechoic Chamber)



- For frequency range above 1GHz (at Semi-Anechoic Chamber)



6.3. Radiation Emission Limits

- For Below 1GHz, FCC §15.109(a)(g)/CISPR 22 and ICES-003 §6.2

Frequency Range (MHz)	Distance (meter)	Class A Limits	Class B Limits
		Quasi-Peak [dB(μV/m)]	Quasi-Peak [dB(μV/m)]
30 – 230	10	40	30
230 – 1000		47	37
30 – 230	3	50	40
230 – 1000		57	47

- For Above 1GHz, FCC §15.109(a)(g)/CISPR 22 and ICES-003 §6.2

Frequency Range (MHz)	Distance (meter)	Class A Limits		Class B Limits	
		Peak [dB(μV/m)]	Average [dB(μV/m)]	Peak [dB(μV/m)]	Average [dB(μV/m)]
Above 1000	3	79.54	59.54	73.98	53.98

- The tighter limit applies at the edge between two frequency bands.
- Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the E.U.T.
- The limits from 30 to 1000MHz are referred to CISPR 22 standard, which are in accordance with the requirement of FCC Part 15.38 (b)(3), Part 15.109 (a)(g) and ICES-003 section 5(a)(i).
- The limits above 1GHz are referred to FCC Part 15.109(a)

- Required highest frequency for radiated measurement

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement 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.

6.4. Measurement Procedure

The radiated emission measurement was performed in accordance with the procedure of the ANSI C63.4-2014 clause 8.3.

- The EUT and peripherals were placed on the rotatable non-conduction table, which is 0.8meters above the ground reference plane at the semi-anechoic chamber or OATS as described in section 4.1 and 6.2.
- The measurement distance is set as specified in section 6.3. The specified distance is between the horizontal projection onto the ground plane of the closest periphery of the EUT and the projection onto the ground plane of the center of the axis of the elements of the receiving antenna.
- The resolution bandwidth of the test receiver was at 120kHz (testing from 30 to 1000MHz) or 1MHz (testing above 1000MHz).
- Operate the EUT system as described in section 4.2.
- For the exploratory measurement, determine the highest emission amplitude relative to the limit on each of antenna polarization with the peak detector by each of the EUT operations over the specified frequency range and record it.
- For final measurement, select the EUT operation mode that produced the highest amplitude in the exploratory measurement to determine the highest emissions with each specified detector and record it.
- In order to determine the maximum emission level, must rotate the table in 360 degree and move the receiving antenna between 1~4m height above the ground reference plane.
- In order to find the maximum emission, all of the interconnecting cables were manipulated, except for the bundled cable.
- Both polarizations of receiving antenna were determined.
- The measurement result was calculated by following formulas:

(30 – 1000MHz)

Emission Level = Reading (Receiver) + Cable Loss + Antenna Factor –
Preamp Gain

(Above 1GHz)

Emission Level = Reading (Spectrum) + Cable Loss + Antenna Factor –
Preamp Gain

- The 3dB bandwidth of the horn antenna is minimum 52 degree (or w=2.93m at 3m distance) for 1~18 GHz.

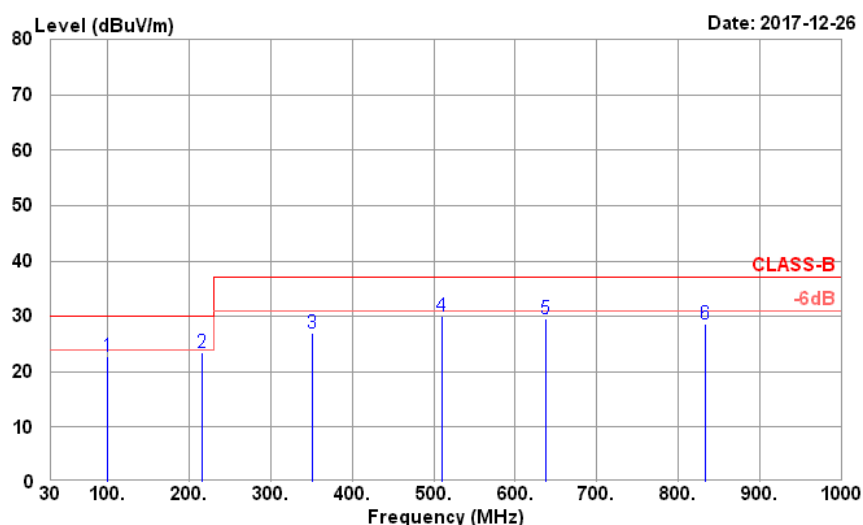
6.5. Measurement Result

The following data are the worst emissions based on the prescan measurement result.

- For frequency range 30 – 1000MHz

Test Date	2017. 12. 26	Environment	25°C, 50%
Input Power	AC 120V, 60Hz	Ant. Polarity	Horizontal
Tested By	Ken Yang	Test Result	Pass
Test Mode	HDMI 1, 1920*1080/60Hz	Test Model	PA271Q-BK

Data: 2 File: D:\TEST DATA\REPORT\2017\1C1M1711XXX\1C1M1711393\1C1M1711393-10M.EM6 (2



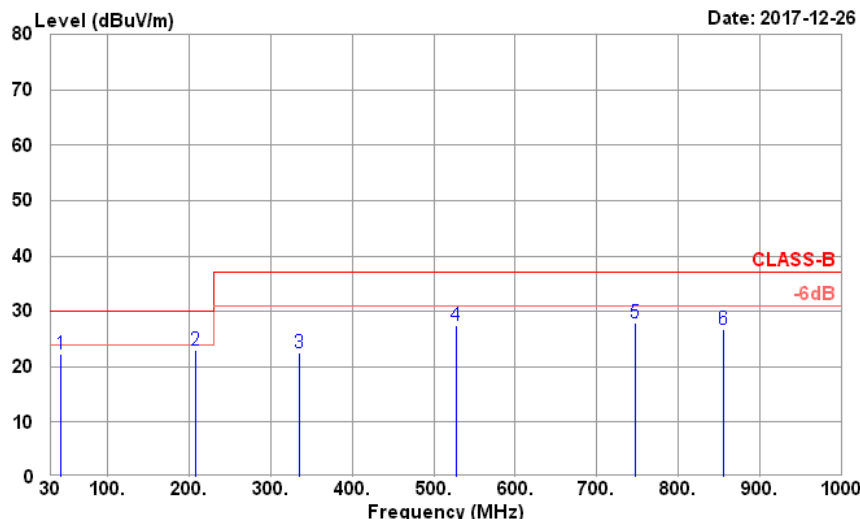
Site no. : NO.1 10M Chamber Data no. : 2
 Dis. / Ant. : 10m VULB 9168 712 Ant. pol. : HORIZONTAL
 Limit : CLASS-B
 Env. / Ins. : 25°C / 50% ESCI 7 (0922) Engineer : Ken Yang
 EUT : PA271Q-BK
 Power Rating : 120Vac/60Hz
 Test Mode : 1920*1080/60Hz HDMI 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	98.87	14.56	1.54	33.14	39.84	22.80	30.00	7.20	QP
2	216.24	16.37	2.38	33.06	37.89	23.58	30.00	6.42	QP
3	351.07	20.40	3.09	33.00	36.46	26.95	37.00	10.05	QP
4	510.15	23.56	3.87	33.04	35.61	30.00	37.00	7.00	QP
5	637.22	25.84	4.36	33.07	32.35	29.48	37.00	7.52	QP
6	833.16	27.96	5.15	32.62	28.26	28.75	37.00	8.25	QP

Remarks: 1.Emission Level= Antenna Factor + Cable Loss + Reading - Preamp.
 2.The emissions not reported are 20 dB lower than the specified limit.

Test Date	2017. 12. 26	Environment	25°C, 50%
Input Power	AC 120V, 60Hz	Ant. Polarity	Vertical
Tested By	Ken Yang	Test Result	Pass
Test Mode	HDMI 1, 1920*1080/60Hz	Test Model	PA271Q-BK

Data: 1 File: D:\TEST DATA\REPORT\2017\1C1M1711XXX\1C1M1711393\1C1M1711393-10M.EM6 (2



Site no. : NO.1 10M Chamber Data no. : 1
Dis. / Ant. : 10m VULB 9168 711 Ant. pol. : VERTICAL
Limit : CLASS-B
Env. / Ins. : 25°C / 50% ESCI 7 (0922) Engineer : Ken Yang
EUT : PA271Q-BK
Power Rating : 120Vac/60Hz
Test Mode : 1920*1080/60Hz HDMI 1

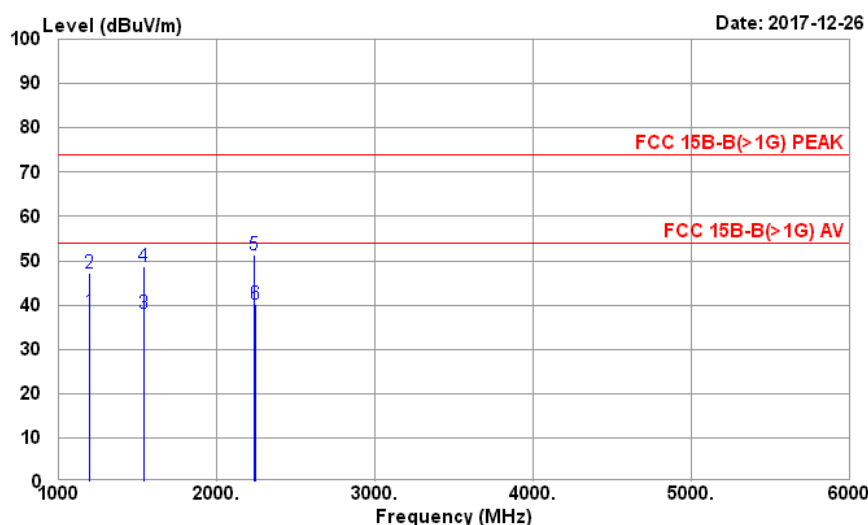
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	42.61	19.14	0.79	32.66	35.12	22.39	30.00	7.61	QP
2	208.48	16.06	1.83	32.55	37.76	23.10	30.00	6.90	QP
3	334.58	20.08	2.34	32.43	32.64	22.63	37.00	14.37	QP
4	527.61	23.78	3.08	32.38	32.93	27.41	37.00	9.59	QP
5	746.83	27.15	3.74	32.30	29.33	27.92	37.00	9.08	QP
6	855.47	28.33	3.99	32.00	26.43	26.75	37.00	10.25	QP

Remarks: 1.Emission Level= Antenna Factor + Cable Loss + Reading - Preamp.
2.The emissions not reported are 20 dB lower than the specified limit.

- For frequency range above 1 GHz

Test Date	2017. 12. 26	Environment	25°C, 50%
Input Power	AC 120V, 60Hz	Ant. Polarity	Horizontal
Tested By	Ken Yang	Test Result	Pass
Test Mode	HDMI 1, 1920*1080/60Hz	Test Model	PA271Q-BK

Data: 12 File: D:\TEST DATA\REPORT\2017\1M1711XXX\1C1M1711393\1C1M1711393-10M.EM6 (2



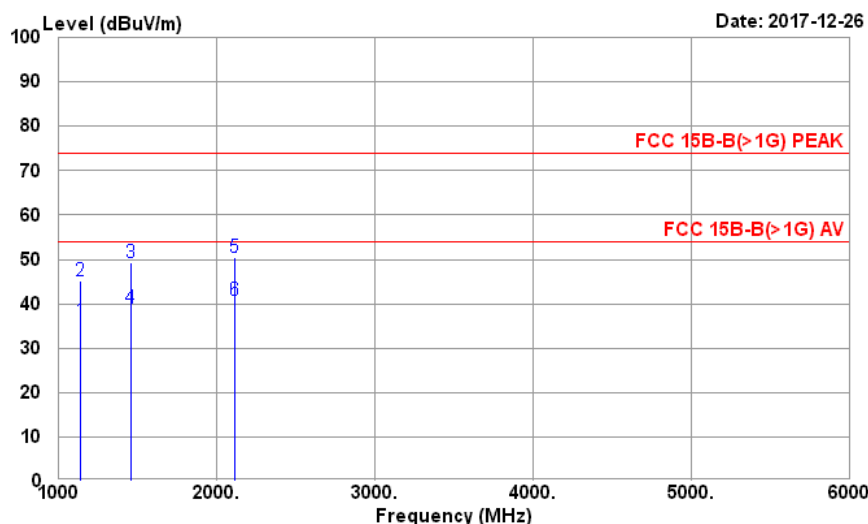
Site no. : No.1 10m Chamber Data no. : 12
Dis. / Ant. : 3m 3117 14403 Ant. pol. : HORIZONTAL
Limit : FCC 15B-B(>1G) PEAK
Env. / Ins. : 25°C / 50% N9010A (0943) Engineer : Ken Yang
EUT : PA271Q-BK
Power Rating : 120Vac/60Hz
Test Mode : 1920*1080/60Hz HDMI 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	1192.29	27.63	1.91	36.04	44.95	38.45	53.98	15.53	Average
2	1192.65	27.63	1.91	36.04	53.67	47.17	73.98	26.81	Peak
3	1540.26	28.13	2.22	35.67	43.49	38.17	53.98	15.81	Average
4	1540.83	28.17	2.22	35.67	53.91	48.63	73.98	25.35	Peak
5	2240.30	31.91	2.67	35.54	52.30	51.34	73.98	22.64	Peak
6	2240.82	31.91	2.67	35.54	41.16	40.20	53.98	13.78	Average

Remarks: 1.Emission Level= Antenna Factor + Cable Loss + Reading - Preamp.
2.The emissions not reported are 20 dB lower than the specified limit.

Test Date	2017. 12. 26	Environment	25°C, 50%
Input Power	AC 120V, 60Hz	Ant. Polarity	Vertical
Tested By	Ken Yang	Test Result	Pass
Test Mode	HDMI 1, 1920*1080/60Hz	Test Model	PA271Q-BK

Data: 11 File: D:\TEST DATA\REPORT\2017\1M1711XXX\1M1711393\1M1711393-10M.EM6 (2



Site no. : No.1 10m Chamber Data no. : 11
Dis. / Ant. : 3m 3117 14403 Ant. pol. : VERTICAL
Limit : FCC 15B-B(>1G) PEAK
Env. / Ins. : 25°C / 50% N9010A (0943) Engineer : Ken Yang
EUT : PA271Q-BK
Power Rating : 120Vac/60Hz
Test Mode : 1920*1080/60Hz HDMI 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	1136.13	27.59	1.86	36.12	42.80	36.13	53.98	17.85	Average
2	1136.79	27.59	1.86	36.12	51.85	45.18	73.98	28.80	Peak
3	1460.18	27.78	2.18	35.73	55.18	49.41	73.98	24.57	Peak
4	1460.53	27.78	2.18	35.73	44.71	38.94	53.98	15.04	Average
5	2110.84	31.69	2.57	35.49	51.57	50.34	73.98	23.64	Peak
6	2110.91	31.69	2.57	35.49	41.91	40.68	53.98	13.30	Average

Remarks: 1.Emission Level= Antenna Factor + Cable Loss + Reading - Preamp.
2.The emissions not reported are 20 dB lower than the specified limit.

7. Measurement Uncertainty List

The measurement uncertainty was estimated for test on the EUT according to CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage of K=2.

The uncertainties value is not used in determining the PASS/FAIL results.

Test Items/Facilities	Frequency/Equipment/Unit	Uncertainty
Conducted emissions at AC mains power port	9kHz-150kHz	±3.7dB
	150kHz-30MHz	±3.5dB
Conducted emissions at wired network port	150kHz-30MHz	±3.5dB
Conducted emissions at broadcast receiver tuner port	150kHz-30MHz	±3.5dB
Conducted emissions Power Clamp	30MHz-300MHz	±4.4dB
Radiated electromagnetic	9kHz-30MHz	±0.5dB
Radiated emissions (10m Chamber)	30MHz-200MHz, 3m, Horizontal	±4.3dB
	200MHz-1000MHz, 3m, Horizontal	±4.3dB
	30MHz-200MHz, 3m, Vertical	±4.4dB
	200MHz-1000MHz, 3m, Vertical	±3.9dB
	30MHz-200MHz, 10m, Horizontal	±4.3dB
	200MHz-1000MHz, 10m, Horizontal	±4.1dB
	30MHz-200MHz, 10m, Vertical	±4.3dB
	200MHz-1000MHz, 10m, Vertical	±3.8dB
	1GHz-6GHz, 3m	±5.5dB
	6GHz-18GHz, 3m	±4.8dB
Radiated emissions (No.1 3m Chamber)	30MHz-200MHz, 3m, Horizontal	±3.9dB
	200MHz-1000MHz, 3m, Horizontal	±4.3dB
	30MHz-200MHz, 3m, Vertical	±4.5dB
	200MHz-1000MHz, 3m, Vertical	±4.1dB
	1GHz-6GHz, 3m	±5.1dB
	6GHz-18GHz, 3m	±5.5dB
Radiated emissions (No.2 3m Chamber)	30MHz-200MHz, 3m, Horizontal	±4.3dB
	200MHz-1000MHz, 3m, Horizontal	±4.3dB
	30MHz-200MHz, 3m, Vertical	±4.4dB
	200MHz-1000MHz, 3m, Vertical	±3.9dB
	1GHz-6GHz, 3m	±5.2dB
	6GHz-18GHz, 3m	±5.2dB
Radiated emissions (No.3 3m Chamber)	30MHz-200MHz, 3m, Horizontal	±4.7dB
	200MHz-1000MHz, 3m, Horizontal	±4.5dB
	30MHz-200MHz, 3m, Vertical	±4.3dB
	200MHz-1000MHz, 3m, Vertical	±4.1dB
Radiated emissions (No.4 3m Chamber)	30MHz-200MHz, 3m, Horizontal	±4.1dB
	200MHz-1000MHz, 3m, Horizontal	±4.4dB
	30MHz-200MHz, 3m, Vertical	±4.2dB
	200MHz-1000MHz, 3m, Vertical	±5.0dB
	1GHz-6GHz, 3m	±4.4dB
	6GHz-18GHz, 3m	±4.1dB

Test Items/Facilities	Frequency/Equipment/Unit	Uncertainty
Radiated emissions (No.3 OATS)	30MHz-200MHz, 3m, Horizontal	$\pm 4.5\text{dB}$
	200MHz-1000MHz, 3m, Horizontal	$\pm 4.4\text{dB}$
	30MHz-200MHz, 3m, Vertical	$\pm 4.4\text{dB}$
	200MHz-1000MHz, 3m, Vertical	$\pm 4.0\text{dB}$
	30MHz-200MHz, 10m, Horizontal	$\pm 4.5\text{dB}$
	200MHz-1000MHz, 10m, Horizontal	$\pm 4.2\text{dB}$
	30MHz-200MHz, 10m, Vertical	$\pm 4.3\text{dB}$
	200MHz-1000MHz, 10m, Vertical	$\pm 4.0\text{dB}$
Radiated emissions (No.5 OATS)	30MHz-200MHz, 3m, Horizontal	$\pm 4.2\text{dB}$
	200MHz-1000MHz, 3m, Horizontal	$\pm 4.7\text{dB}$
	30MHz-200MHz, 3m, Vertical	$\pm 4.4\text{dB}$
	200MHz-1000MHz, 3m, Vertical	$\pm 4.4\text{dB}$
	30MHz-200MHz, 10m, Horizontal	$\pm 4.2\text{dB}$
	200MHz-1000MHz, 10m, Horizontal	$\pm 4.6\text{dB}$
	30MHz-200MHz, 10m, Vertical	$\pm 4.4\text{dB}$
	200MHz-1000MHz, 10m, Vertical	$\pm 4.4\text{dB}$
Radiated emissions (No.6 OATS)	30MHz-200MHz, 3m, Horizontal	$\pm 4.3\text{dB}$
	200MHz-1000MHz, 3m, Horizontal	$\pm 4.4\text{dB}$
	30MHz-200MHz, 3m, Vertical	$\pm 4.5\text{dB}$
	200MHz-1000MHz, 3m, Vertical	$\pm 4.1\text{dB}$
	30MHz-200MHz, 10m, Horizontal	$\pm 4.3\text{dB}$
	200MHz-1000MHz, 10m, Horizontal	$\pm 4.2\text{dB}$
	30MHz-200MHz, 10m, Vertical	$\pm 4.4\text{dB}$
	200MHz-1000MHz, 10m, Vertical	$\pm 4.1\text{dB}$
Radiated emissions (No.7 OATS)	30MHz-200MHz, 3m, Horizontal	$\pm 3.9\text{dB}$
	200MHz-1000MHz, 3m, Horizontal	$\pm 4.5\text{dB}$
	30MHz-200MHz, 3m, Vertical	$\pm 4.6\text{dB}$
	200MHz-1000MHz, 3m, Vertical	$\pm 4.5\text{dB}$
	30MHz-200MHz, 10m, Horizontal	$\pm 3.9\text{dB}$
	200MHz-1000MHz, 10m, Horizontal	$\pm 4.3\text{dB}$
	30MHz-200MHz, 10m, Vertical	$\pm 4.6\text{dB}$
	200MHz-1000MHz, 10m, Vertical	$\pm 4.5\text{dB}$
Radiated emissions (No.8 OATS)	30MHz-200MHz, 3m, Horizontal	$\pm 4.5\text{dB}$
	200MHz-1000MHz, 3m, Horizontal	$\pm 4.3\text{dB}$
	30MHz-200MHz, 3m, Vertical	$\pm 4.6\text{dB}$
	200MHz-1000MHz, 3m, Vertical	$\pm 4.1\text{dB}$
	30MHz-200MHz, 10m, Horizontal	$\pm 4.7\text{dB}$
	200MHz-1000MHz, 10m, Horizontal	$\pm 4.2\text{dB}$
	30MHz-200MHz, 10m, Vertical	$\pm 4.6\text{dB}$
	200MHz-1000MHz, 10m, Vertical	$\pm 4.0\text{dB}$

8. Photographs

8.1. Powerline Conducted Emission Measurement



Front View of Conducted Measurement



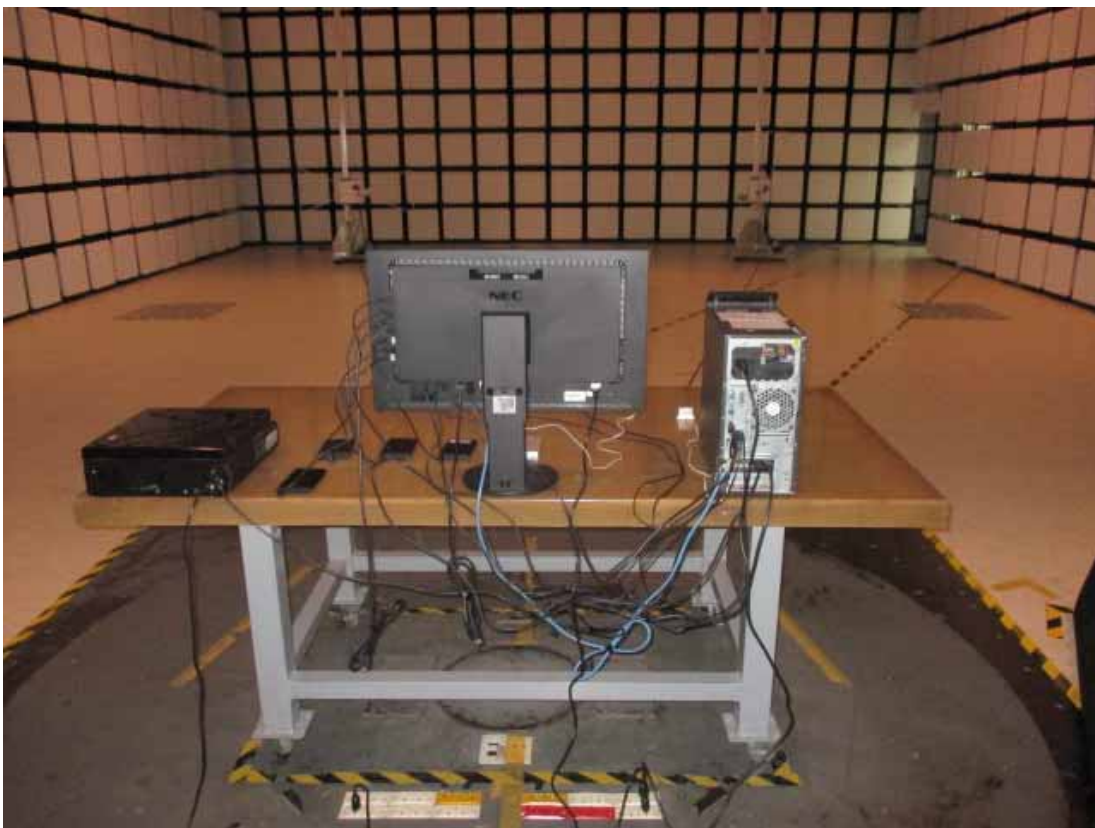
Back View of Conducted Measurement

8.2. Radiated Emissions Measurement

- For Frequency Range 30 – 1000MHz



Front View of Radiated Measurement

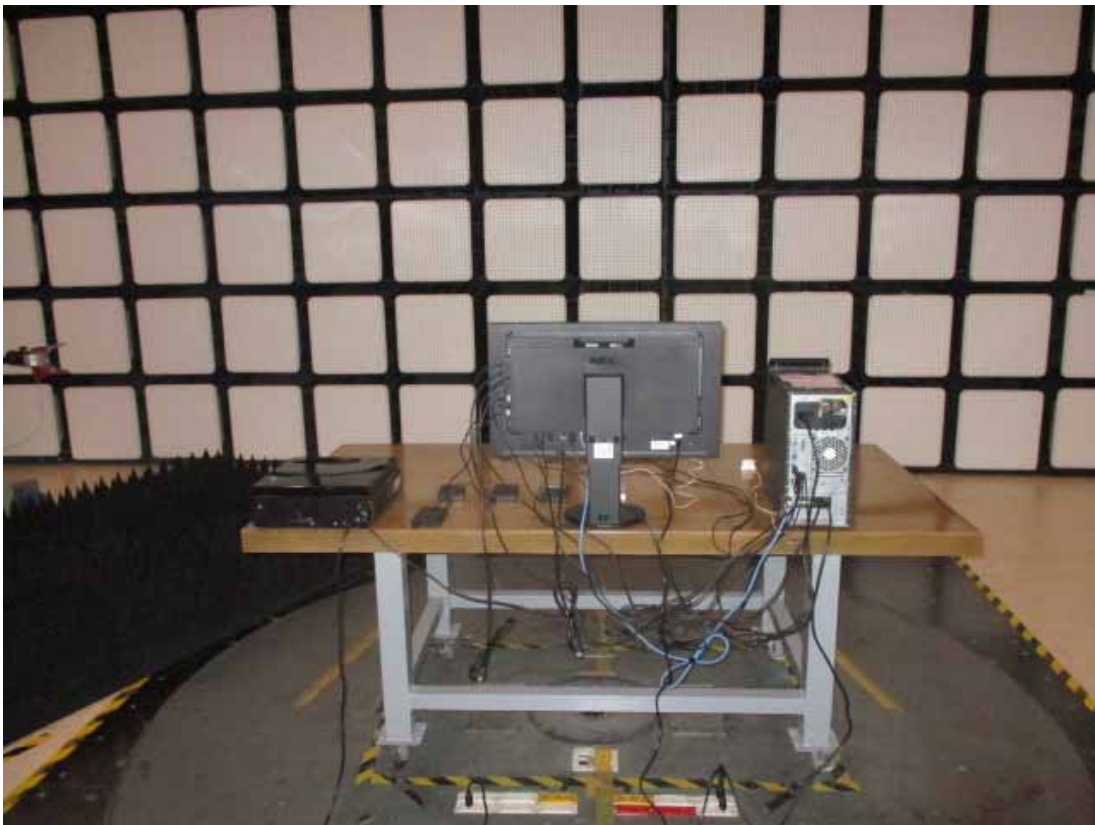


Back View of Radiated Measurement

- For Frequency Range Above 1GHz



Front View of Radiated Measurement



Back View of Radiated Measurement

APPENDIX I

(Photos of EUT)

(Total Pages: 6 Pages)

Figure 1
General Appearance, Panel Angle: 0° (Front View)



Figure 2
General Appearance, Panel Angle: 0° (Back View)



Figure 3
General Appearance, Panel Angle: 90° (Front & Side View)



Figure 4
General Appearance, Panel Angle: 90° (Back & Side View)



Figure 5
General Appearance (Bottom View)



Figure 6
Appearance (Back I/O Ports View)



Figure 7
Appearance (Side I/O Ports View)



Figure 8
Mini DP to DP Cable



Figure 9
DP Cable



Figure 10
USB 3.0 Cable



Figure 11
AC Power Cord

