TEST REPORT

CTK Co., Ltd.
(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea
Tel: +82-31-339-9871
Fax: +82-31-624-9501

Report No.: CTK-2016-00238

1. Client

◦ Name : LG CNS CO.,LTD.

◦ Address : FKI Tower, 24, Yeoui-daero, Yeongdeungpo-gu, Seoul, Korea, 07320

◦ Date of Receipt : 2016-01-08

2. Manufacturer

◦ Name : ART&CORE Inc

◦ Address : 44 Burim-ro 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, Korea

3. Factory

◦ Name : ARTVIEW CO.,LTD.

◦ Address : 5F, 44, burim-ro 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, Korea

4. Use of Report : For FCC DoC Report

5. Test Sample / Model: Tablet PC / LPT-200AR

6. Date of Test : 2016-02-21 to 2016-02-23

7. FCC ID : RTQLPT200AR

8. Test Standard(method) used : FCC Part 15 Subpart B

9. Testing Environment: refer to 10 pages to 16 pages

10. Test Results : refer to 11 pages to 16 pages

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full.

	Tested by	Approved by
Affirmation	Kim Minkyu: (Signature) EMC Test Engineer	Lee Eunwon: (Signature) Technical Manager

2016-02-24

Republic of KOREA **CTK Co., Ltd.**

REPORT REVISION HISTORY

Date	Revision	Page No
2016-02-24	Issued (CTK-2016-00238)	All

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1.0 General Product Description

No.	ITEM		APPLICATION	
1	Test Sample		Tablet PC	
2	Model		LPT-200AR	
3	Variant Model		-	
4	Dimensions (W x L x H)		246.0 ㎜ × 175.0 ㎜ × 14.5 ㎜	
5	Mobility		☐ Table-top ☐ Floor-standing ☒ Built-in ☐ Portable	
6	Maximum Clock Frequency		26 ㎒	
7	Electrical Ratings	AC/DC ADAPTER	Input:	AC 100 V – AC 240 V, 50 ㎐ / 60 ㎐, 0.8 A
			Output:	DC 12 V
		EUT	Input:	DC 12 V
			Output:	-
8	Test Voltage / Frequency		Voltage:	AC 120 V
			Frequency:	60 ㎐

1.1 Model Differences

Not applicable

1.2 Device Modifications

The following modifications were necessary for compliance:

Not applicable

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1.3 EUT Configuration(s)

See Appendix A for individual test set-up configuration(s). The following peripheral devices and/or interface cables were connected during the measurement:

☒ Peripheral Devices

Device	Model No.	Serial No.	Manufacturer
AC/DC ADAPTER1	RS-300/120-S336	-	Dongguan Jinhuasheng Power Technology Co., Ltd.
Notebook Computer	7260HMW	-	INTEL CORPORATION
AC/DC ADAPTER2	PPP012D-S	-	DELTA ELECTRONICS(JIANGSU) LTD.
Micro SD Card	-	-	-
Earphone	-	-	-

☒ Cable Description

No.	From		To		Type of Cable		
	Device	I/O Port	Device	I/O Port	Length (m)	Shielded or Unshielded	Ferrite Core [Y/N]
1	EUT	SD Card Slot	Micro SD Card	-	-	-	-
2		DC IN	AC/DC ADAPTER1	DC OUT	1.5	U	Y
3		USB	Notebook Computer	USB	0.1	U	N
4		Audio	Earphone	-	0.1	U	N
5	AC/DC ADAPTER1	AC Power	AC Mains	-	1.5	U	N
6	Notebook Computer	DC IN	AC/DC ADAPTER2	DC OUT	1.5	U	Y
7	AC/DC ADAPTER2	AC Power	AC Mains	-	1.5	U	N

* Shielded or Unshielded : Unshielded=U, Shielded=S

1.4 Test Software

☐ EMC Test V 1.0
☐ Display Test Patterns – V1.5
☐ Ping.exe
☒ Not applicable

1.5 EUT Operating Mode(s)

Equipment under test was operated during the measurement under the following conditions:

☐ Standby
☐ Color Bar Display
☐ USB PLAY
☐ USB Data Communication
☐ AUX IN
☐ DLNA
☐ Scrolling 'H'
☐ Data Read/Write
☐ DVD Play
☐ Serial Data Communication
☐ Receipt Printing Mode
☒ Video Play & Data Read/Write

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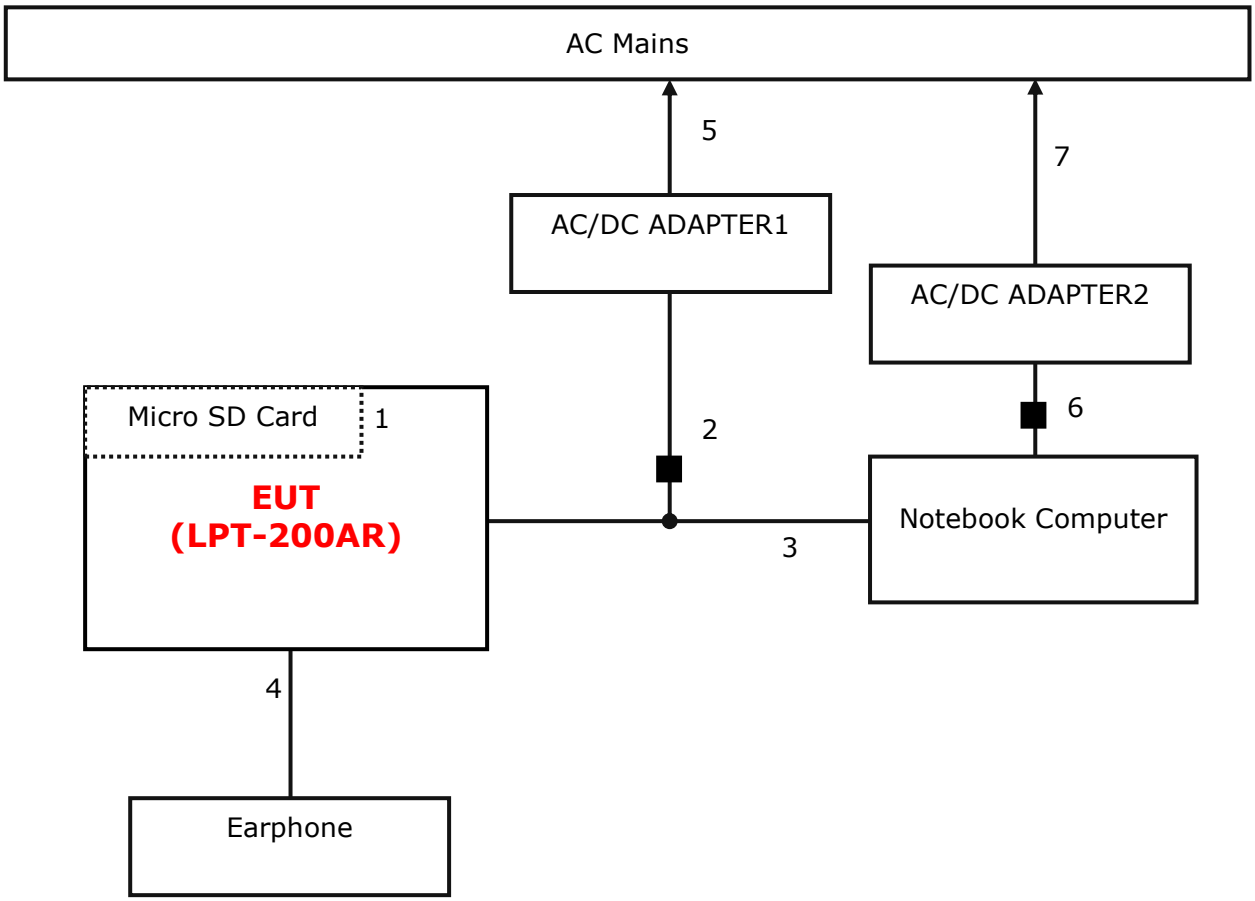
1.6 Configuration



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1.7 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.8 Test Facility

The measurement facility is located at (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yong-in-si, Gyeonggi-do, Korea. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.9 Measurement Procedure

Preliminary AC power line conducted emissions tests were performed shielded room. To find worst mode, several typical mode and typical cable position were tested.
Final AC power line conducted emissions test was performed shielded room. (location is same as Preliminary test)
Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

Preliminary radiated emissions test were performed Semi-Anechoic Chamber or anechoic chamber (Distance of antenna and EUT was 3 m). To find worst mode, several typical mode and typical cable position were tested and peak level and frequency were recorded.

Final radiated emissions test was performed Semi-Anechoic Chamber.
Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

* Measurement procedures was In accordance with ANSI C63.4-2009 7.3.3, 7.3.4, 8.3.1.1, 8.3.1.2, 8.3.2.1, 8.3.2.2

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1.10 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Registration Number	Logo
USA	FCC	FCC Part 15 & 18 EMI (Electromagnetic Interference / Emission)	805871	
JAPAN	VCCI	VCCI V-3 EMI (Electromagnetic Interference / Emission)	C-986 T-1843 R-3627 G-387	
KOREA	MSIP	EMI (Electromagnetic Interference / Emission) EMS (Electromagnetic Susceptibility / Immunity)	KR0025	

1.11 Measurement Uncertainty

Compliance of the product is based on the measured value.
However, the measurement uncertainty is included for information purposes.
The measurement uncertainties given below are based on a standard uncertainty multiplied by a coverage factor of *k*=2, providing a level of confidence of approximately 95 %.

Measurement Type	Frequency Range	Expanded Uncertainty
Conducted Emission	9 ㎑ to 150 ㎑	2.78 ㏈ (C.L.: Approx. 95 %, *k*=2)
Conducted Emission	150 ㎑ to 30 ㎒	2.70 ㏈ (C.L.: Approx. 95 %, *k*=2)
Disturbance Power	30 ㎒ to 300 ㎒	3.74 ㏈ (C.L.: Approx. 95 %, *k*=2)
Radiated Emission	30 ㎒ to 1000 ㎒	3.66 ㏈ (C.L.: Approx. 95 %, *k*=2)
Radiated Emission	1 ㎓ Above	4.16 ㏈ (C.L.: Approx. 95 %, *k*=2)

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2.0 EMC Test Regulations/Standards

The tests were performed according to following regulations:

Applied standard	Title	Applied	Test Result
FCC Part 15 Subpart B ☐ Class A ☒ Class B	Conducted Voltage Emissions	☒	☒ MET ☐ NOT MET
	Radiated Electric Field Emissions	☒	☒ MET ☐ NOT MET

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3.0 Results of Individual Test

3.1 Conducted Voltage Emissions of Mains ports

Test Date
2016-02-23

Test Location
Shielded Room

Test Equipment

Name of Equipment	Model No.	Manufacturer	Serial No.	Cal Date	Due Date	Applied
LISN	ENV216	Rohde & Schwarz	101235	2015-05-14	2016-05-14	☐
LISN	ENV216	Rohde & Schwarz	101236	2015-05-14	2016-05-14	☐
EMI Test Receiver	ESR7	Rohde & Schwarz	101088	2015-06-12	2016-06-12	☒
LISN	ENV216	Rohde & Schwarz	101151	2015-11-02	2016-11-02	☒
LISN	ESH3-Z5	Rohde & Schwarz	100207	2015-11-02	2016-11-02	☒
EMI Test Receiver	ESCI7	Rohde & Schwarz	100816	2015-11-02	2016-11-02	☐
LISN	ENV216	Rohde & Schwarz	101760	2016-02-05	2017-02-05	☐
LISN	NNLK 8121	SCHWARZBECK	8121-644	2015-05-15	2016-05-15	☐
Pulse Limiter	VTSD 9561-F	SCHWARZBECK	9561-F064	2015-05-15	2016-05-15	☐
LISN	ENV216	Rohde & Schwarz	101150	2016-02-05	2017-02-05	☐

Test Software
ESCI7, ESCI3 : EMC32 Ver. 8.50.0
ESR7 : EMC32 Ver. 8.53.0

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Setting
IF Band Width: 9 ㎑

Climate Condition
Temperature: (19 ± 1) ℃
Relative Humidity: (42 ± 1) %
Atmospheric Pressure: 98 ㎪

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Test Result

The requirements are: ☒ MET ☐ NOT MET

Frequency (㎒)	Measured Data (㏈μV)	Margin (㏈)	Remark
0.361 500	44.3	14.4	Quasi-peak

The Result is calculated by using the following formula;

* Result = Limit – Margin (Result included the correction factor)
* Correction factor = Cable Loss + Insertion loss of LISN

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Test Data

[Line: L1]

EMI Auto Test(9) 1 / 2

Test Report

Common Information

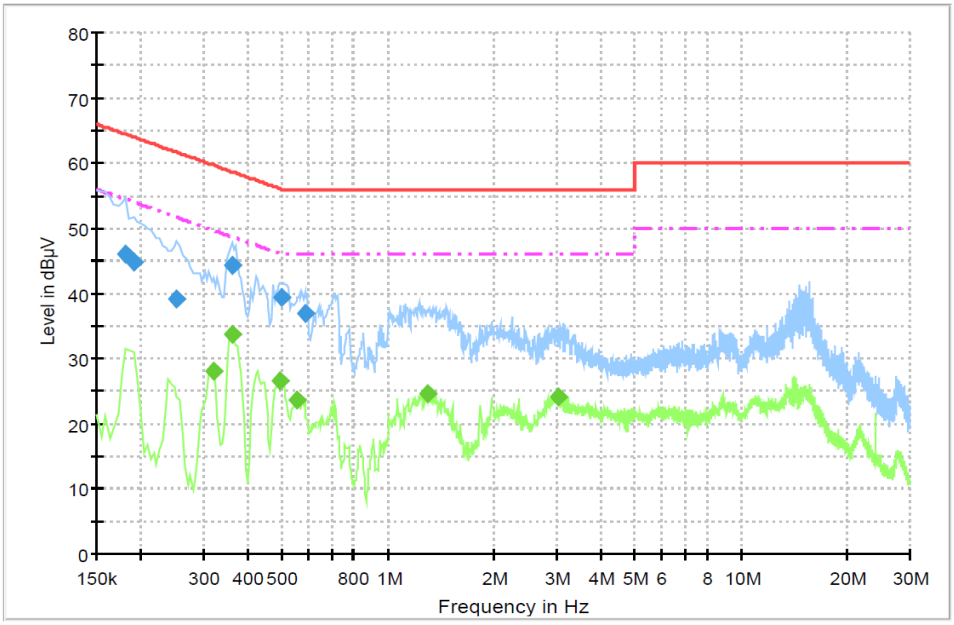
Test Model Name:	LPT-200AR
Test Mode:	Video Play & Data Read/Write
Manufacturer:	ART&CORE
Tester:	Kim Minkyu

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1

Frequency Range:	150 kHz - 30 MHz
Receiver:	ESR 7 [ESR 7] @ GPIB0 (ADR 23), SN 1316.3003K07/101088, FW 2.26
Signal Path:	ESR 7-ENV216 FO(101151) FW 1.0 Correction Table: 2CE Cable Loss
LISN:	ENV216 FO(101151) Correction Table (Line 0): ENV216_FO_N(101151) Correction Table (Line 1): ENV216_FO_L1(101151)

CISPR 22 Class B_L1



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EMI Auto Test(9) 2 / 2

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.181500	46.1	1000.0	9.000	On	L1	9.9	18.3	64.4
0.190500	44.8	1000.0	9.000	On	L1	9.9	19.2	64.0
0.253500	39.2	1000.0	9.000	On	L1	9.6	22.5	61.6
0.361500	44.3	1000.0	9.000	On	L1	9.8	14.4	58.7
0.501000	39.4	1000.0	9.000	On	L1	9.9	16.6	56.0
0.582000	36.9	1000.0	9.000	On	L1	9.8	19.1	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.321000	28.1	1000.0	9.000	On	L1	9.8	21.6	49.7
0.361500	33.7	1000.0	9.000	On	L1	9.8	15.0	48.7
0.496500	26.7	1000.0	9.000	On	L1	9.9	19.4	46.1
0.555000	23.7	1000.0	9.000	On	L1	9.9	22.3	46.0
1.297500	24.6	1000.0	9.000	On	L1	9.7	21.4	46.0
3.025500	24.2	1000.0	9.000	On	L1	9.7	21.8	46.0

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[Line : Neutral]

EMI Auto Test(9) 1 / 2

Test Report

Common Information

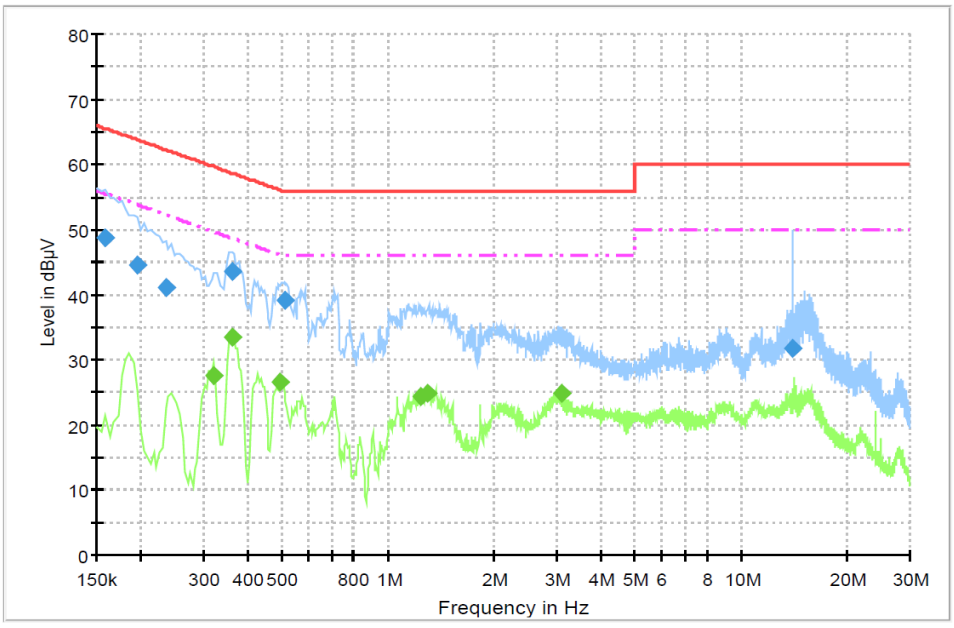
Test Model Name:	LPT-200AR
Test Mode:	Video Play & Data Read/Write
Manufacturer:	ART&CORE
Tester:	Kim Minkyu

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1

Frequency Range:	150 kHz - 30 MHz
Receiver:	ESR 7 [ESR 7] @ GPIB0 (ADR 23), SN 1316.3003K07/101088, FW 2.26
Signal Path:	ESR 7-ENV216 FO(101151) FW 1.0 Correction Table: 2CE Cable Loss
LISN:	ENV216 FO(101151) Correction Table (Line 0): ENV216_FO_N(101151) Correction Table (Line 1): ENV216_FO_L1(101151)

CISPR 22 Class B_N



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EMI Auto Test(9) 2 / 2

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159000	48.9	1000.0	9.000	On	N	9.9	16.7	65.5
0.195000	44.6	1000.0	9.000	On	N	10.0	19.2	63.8
0.235500	41.1	1000.0	9.000	On	N	9.8	21.2	62.3
0.361500	43.6	1000.0	9.000	On	N	9.9	15.1	58.7
0.514500	39.2	1000.0	9.000	On	N	10.0	16.8	56.0
13.992000	31.8	1000.0	9.000	On	N	10.0	28.2	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.321000	27.5	1000.0	9.000	On	N	9.9	22.2	49.7
0.361500	33.4	1000.0	9.000	On	N	9.9	15.3	48.7
0.496500	26.6	1000.0	9.000	On	N	10.0	19.4	46.1
1.239000	24.4	1000.0	9.000	On	N	9.8	21.6	46.0
1.297500	24.9	1000.0	9.000	On	N	9.8	21.1	46.0
3.093000	24.9	1000.0	9.000	On	N	9.8	21.1	46.0

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3.2 Radiated Electric Field Emissions (Below 1 ㎓)

Test Date
2016-02-21

Test Location
10 m SAC (test distance : ☐ 10 m, ☒ 3 m)

Test Equipment

Name of Equipment	Model No.	Manufacturer	Serial No.	Cal Date	Due Date	Applied
EMI Test Receiver	ESCI7	Rohde & Schwarz	100814	2015-11-02	2016-11-02	☒
Bilog Antenna	CBL6111C	Schaffner	2551	2015-04-24	2017-04-24	☒
6dB Attenuator	DNF	Rohde & Schwarz	272.4110.50-2	2015-11-03	2016-11-03	☒
Amplifier	310	Sonoma Instrument Co.	291721	2016-02-02	2017-02-02	☒

Test Software
TOYO EMI software Ver. 5.1.0

Frequency Range of Measurement
30 ㎒ to 1 ㎓

Instrument Setting
IF Band Width: 120 ㎑

Climate Condition
Temperature: (20 ± 1) ℃
Relative Humidity: (43 ± 1) %
Atmospheric Pressure: 98 ㎪

Test Result
The requirements are: ☒ MET ☐ NOT MET

Frequency (㎒)	Measured Data (dBμV/m)	Margin (dB)	Remark
480.080	37.5	8.5	Quasi-peak

The Result is calculated by using the following formula;
* Result = Reading + Correction factor
* Correction factor = Antenna Factor + Cable Loss + 6 ㏈ attenuator – Amp Gain

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Test Data

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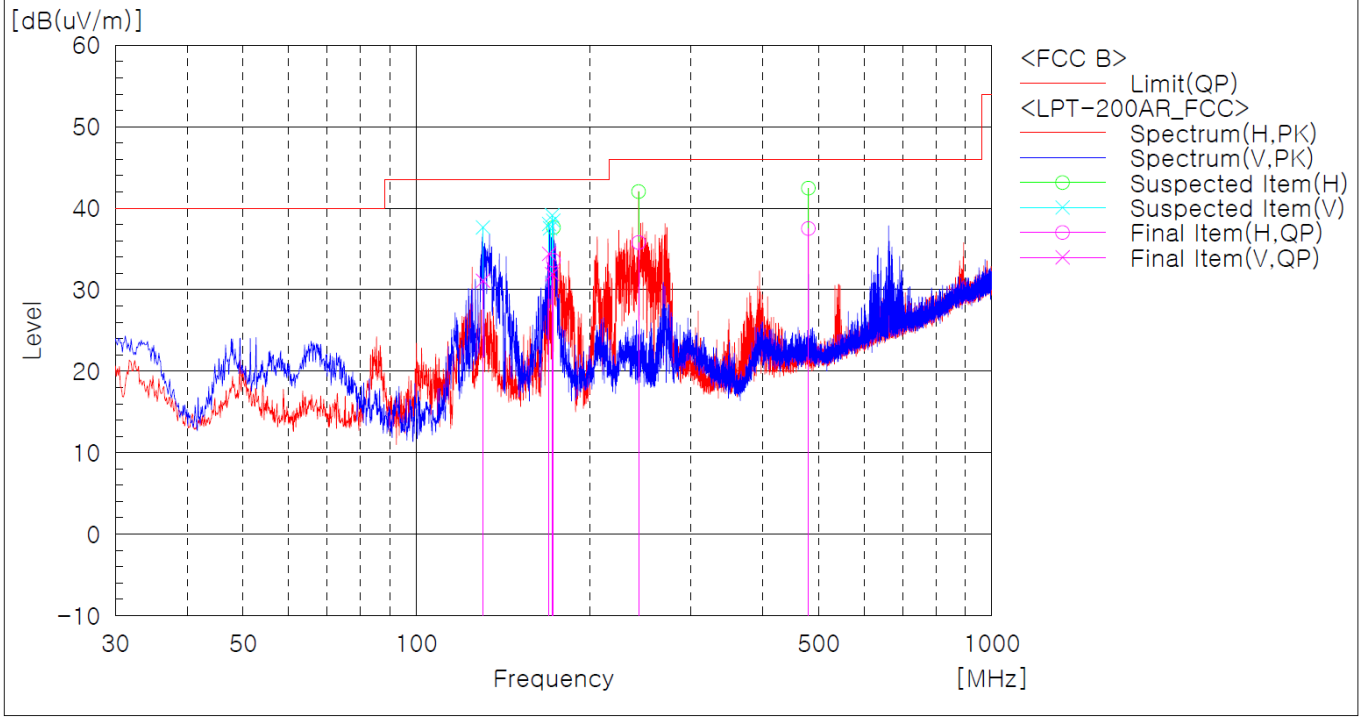
Test Model : LPT-200AR
Test Mode : Video Play & Data Read/Write
Tester : Kim Minkyu

Manufacturer : ART&CORE



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	130.516	V	42.3	-11.2	31.1	43.5	12.4	100.0	235.0
2	170.044	V	44.7	-10.3	34.4	43.5	9.1	100.0	235.0
3	172.226	V	42.3	-10.4	31.9	43.5	11.6	100.0	235.0
4	173.075	H	44.1	-10.5	33.6	43.5	9.9	100.0	350.0
5	243.279	H	46.2	-10.4	35.8	46.0	10.2	100.0	350.0
6	480.080	H	40.1	-2.6	37.5	46.0	8.5	207.0	85.0

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3.3 Radiated Electric Field Emissions (Above 1 ㎓)

Test Date
Not Applicable

Test Location
3 m SAC

Test Equipment

Name of Equipment	Model No.	Manufacturer	Serial No.	Cal Date	Due Date	Applied
EMI Test Receiver	ESCI7	Rohde & Schwarz	100816	2015-11-02	2016-11-02	☐
Double Ridged Guide Antenna	3117	ETS-Lindgren	00154525	2015-09-02	2017-09-02	☐
Preamplifier	8449B	Agilent Technologies	3008A02011	2015-12-08	2016-12-08	☐

Test Software
TOYO EMI software Ver. 5.1.0

Frequency Range of Measurement
1 ㎓ to 6 ㎓

Instrument Setting
IF Band Width: 1 ㎒

Climate Condition
Temperature:
Relative Humidity:
Atmospheric Pressure:

Test Result
The requirements are: ☐ MET ☐ NOT MET

Frequency (㎒)	Measured Data (dBμV/m)	Margin (dB)	Remark

The Result is calculated by using the following formula;

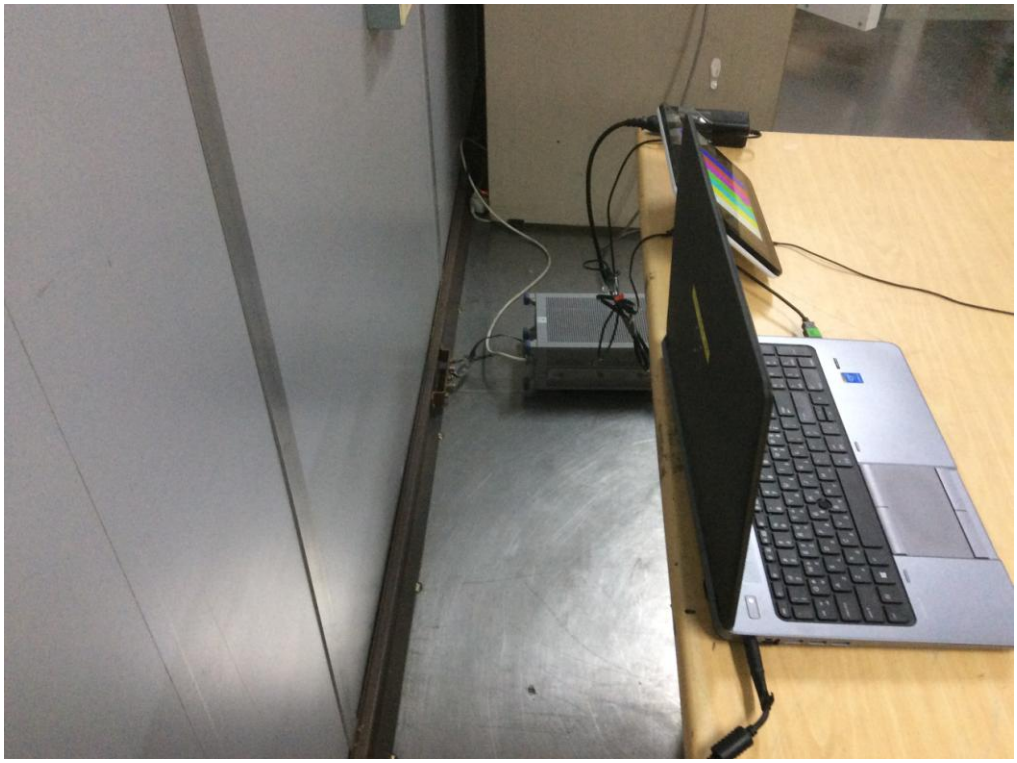
* Result = Reading + Correction factor

* Correction factor = Antenna Factor + Cable Loss– Amp Gain

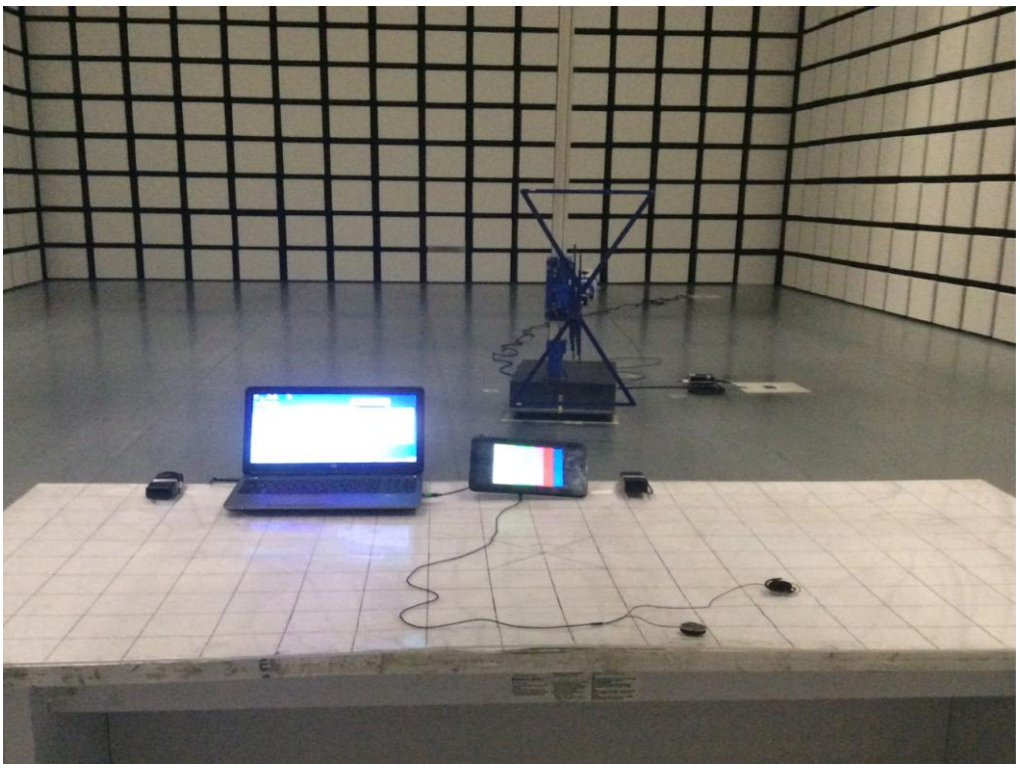
Test Data

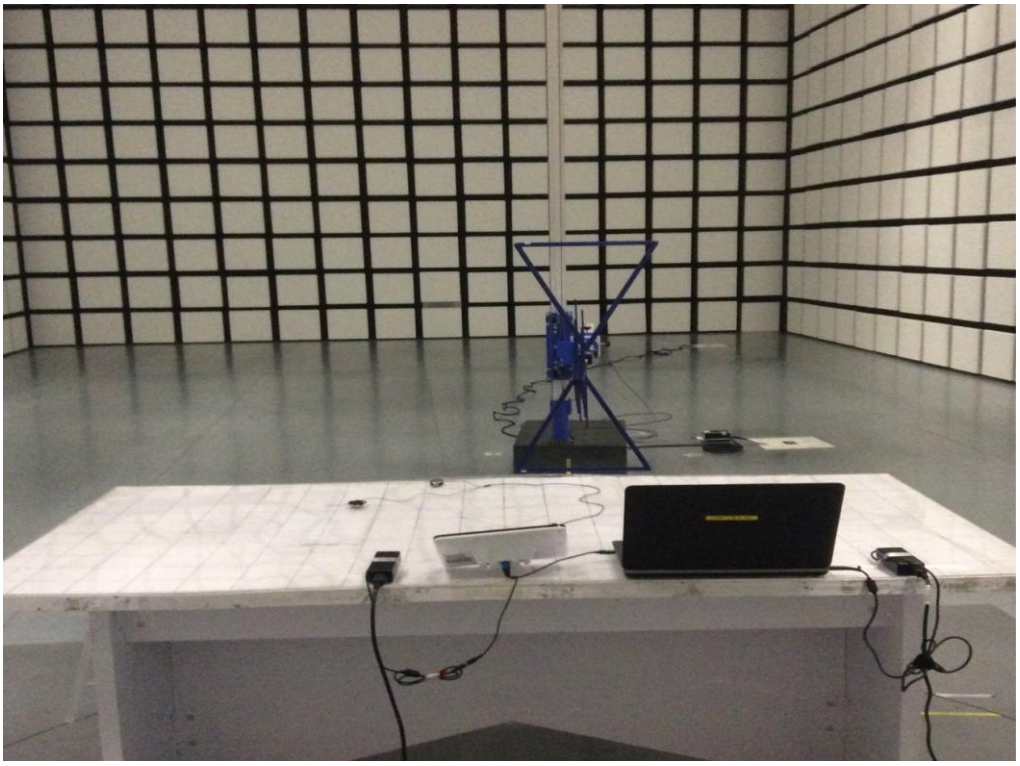
APPENDIX A - Test Setup Photos and Configuration

Conducted Voltage Emissions of Mains Ports



Radiated Electric Field Emissions (Below 1 ㎓)





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Radiated Electric Field Emissions (Above 1 ㎓)

Not Applicable

APPENDIX B – EUT Photographs

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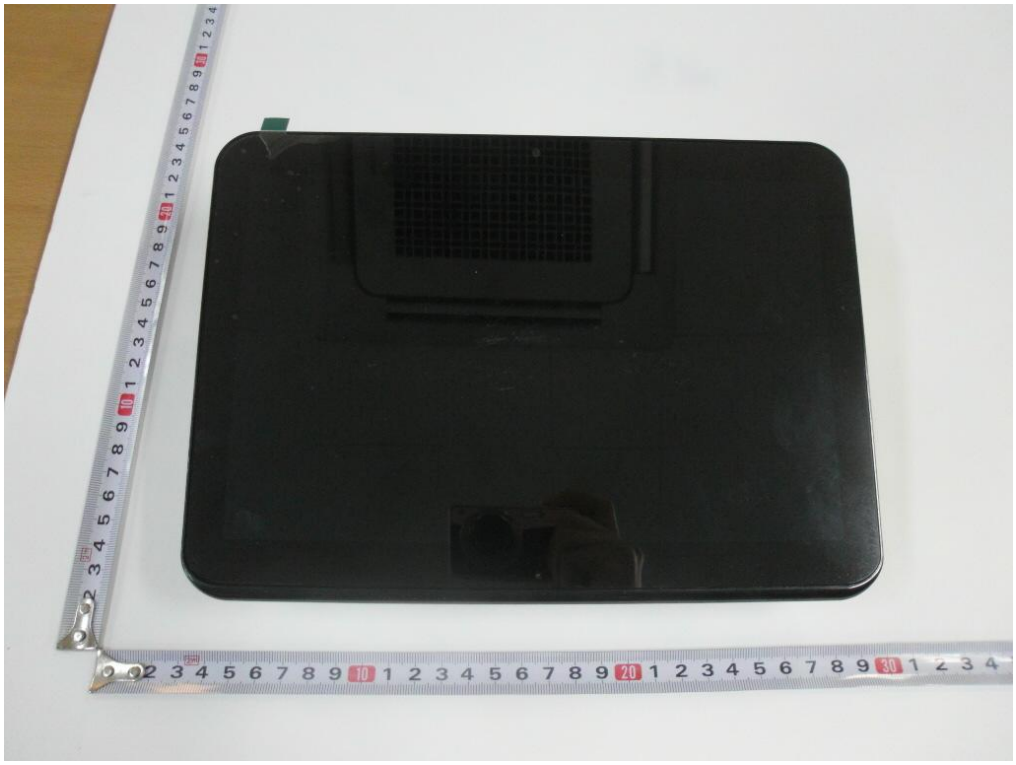
EUT External Photographs



EUT Internal Photographs

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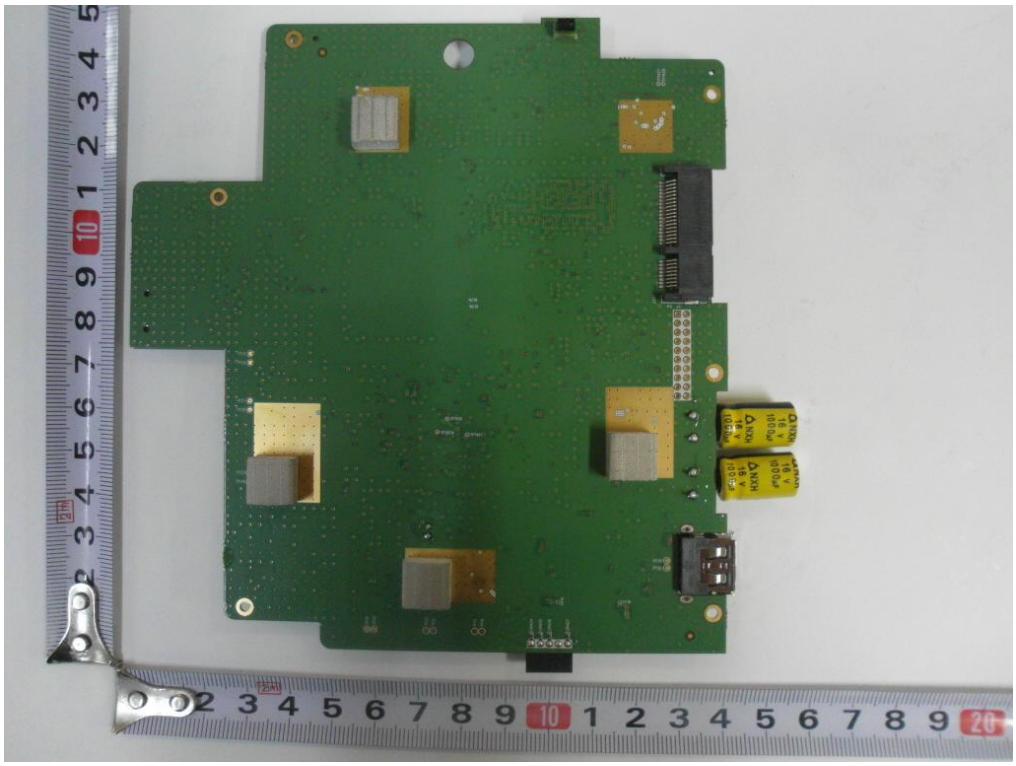
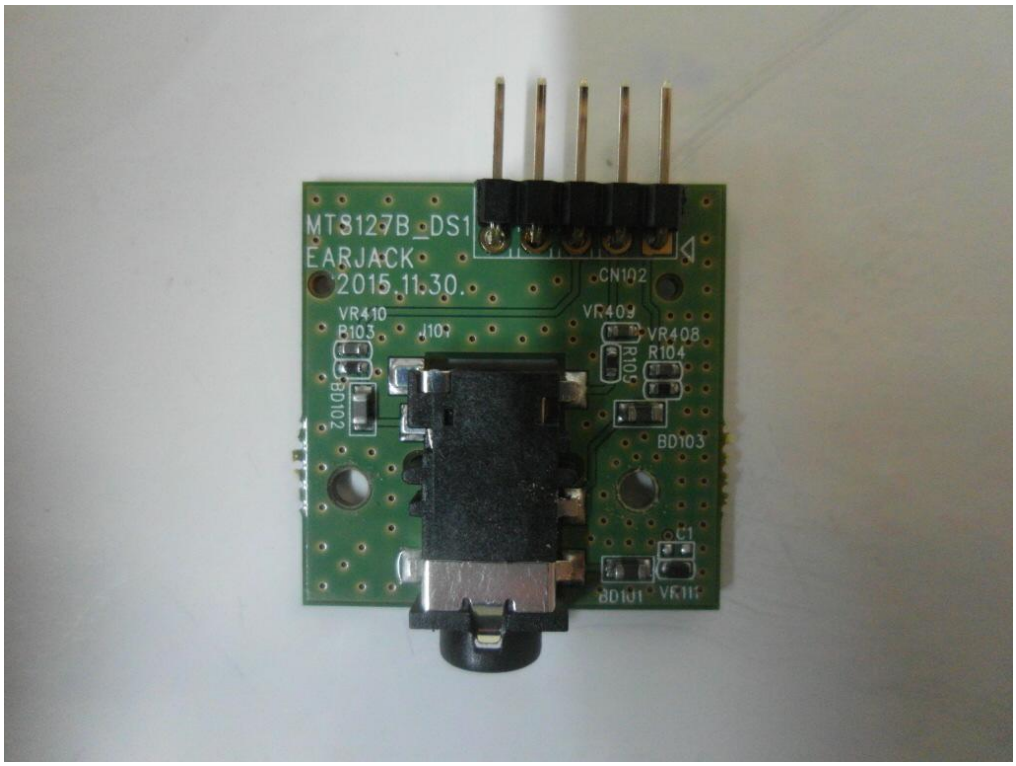
PCB

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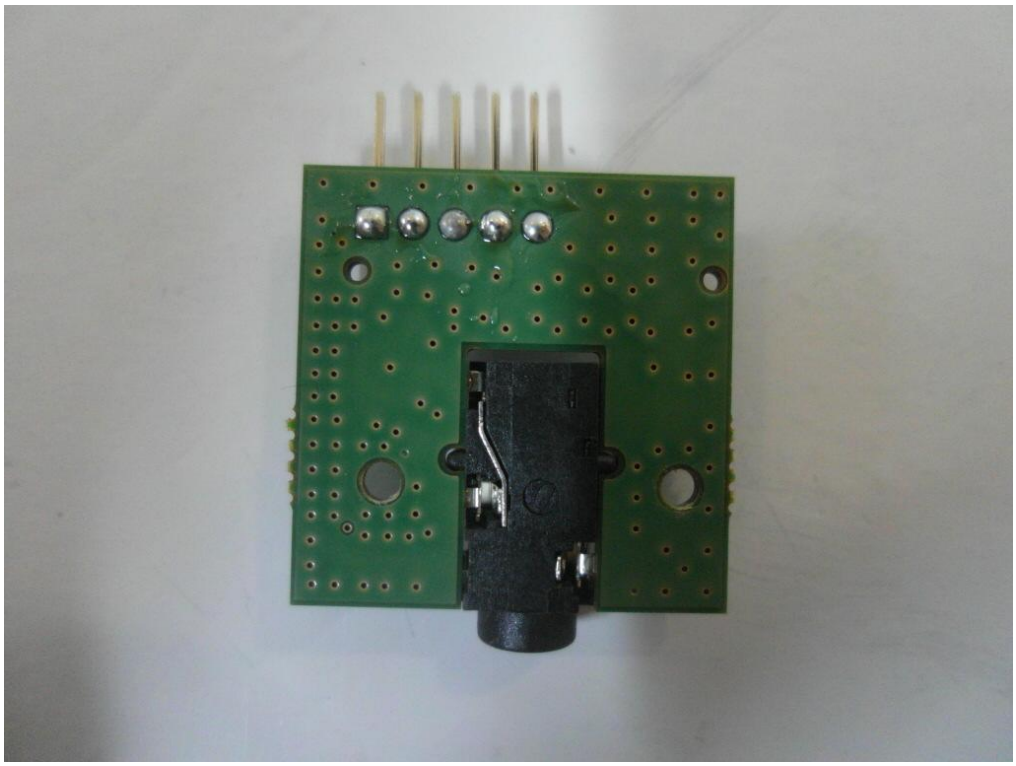


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