Electromagnetic Emission

F C C M E A S U R E M E N T R E P O R T

CERTIFICATION OF COMPLIANCE

FCC Part 15 Certification Measurement

PRODUCT	:	PDP TV
MODEL/TYPE NO	:	EPD-42Q5BN
MULTIPLE MODEL	:	PDT425BKA
FCC ID	:	OIOEPT-425BKA
APPLICANT	:	Erae Electronics Industry Co., Ltd. #371-51, Kasan-Dong, Keumcheon-Ku, Seoul, 153-803, Korea Attn.: Woon Seok, Yu **/** Deputy General Manager
MANUFACTURER	:	Erae Electronics Industry Co., Ltd. #371-51, Kasan-Dong, Keumcheon-Ku, Seoul, 153-803, Korea
FCC CLASSIFICATION	:	Class B personal computers and peripherals & TV Receiver
FCC RULE PART(S)	:	FCC Part 15 Subpart B
FCC PROCEDURE	:	Certification
TRADE NAME	:	ERAE
TEST REPORT No.	:	ETLE060711.319
DATES OF TEST	:	July 25, 2006 - July 26, 2006
REPORT ISSUE DATE	:	July 31, 2006
TEST LABORATORY	:	ETL Inc. (FCC Registration Number : 95422)

This PDP TV, Model EPD-42Q5BN has been tested in accordance with the measurement procedures specified in ANSI C63.4-2003 at the ETL/EMC Test Laboratory and has been shown to be complied with the electromagnetic radiated emission limits specified in FCC Rule Part15 Subpart B:
I attest to the accuracy of data. All measurement herein was performed by me or was made under my supervision and is correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.
The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Chon Sik, Kim / Chief Engineer

ETL Inc.
#584 Sangwhal-ri, Ganam-myeon, Yoju-gun, Gyeonggi-do, 469-885, Korea
Tel : 82-2-858-0786 Fax : 82-2-858-0788

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EMC Lab : #584 Sangwhal-ri, Ganam-myeon, Yoju-gun, Gyeonggi-do, 469-885, Korea

FCC MEASUREMENT REPORT

Scope – *Measurement and determination of electromagnetic emission(EME) of radio frequency devices including intentional radiators and/or unintentional radiators for compliance with the technical rules and regulations of the U.S Federal Communications Commission(FCC)*

General Information

Applicant Name : Erae Electronics Industry Co., Ltd.

Address : 371-51,Kasan-Dong,Keumcheon-Ku,Seoul, 153-803, Korea

Attention : Woon Seok, Yu / Deputy General Manager

- **EUT Type :** PDP TV
- **Model Number :** EPD-42Q5BN
- **FCC ID :** OIOEPT-425BKA
- **S/N :** N/A
- **FCC Rule Part(s) :** FCC Part 15 Subpart B
- **Test Procedure :** ANSI C63.4-2003
- **FCC Classification :** Class B personal computers and peripherals & TV Receiver
- **Dates of Tests :** July 25, 2006 - July 26, 2006
- **Place of Tests :** ETL Inc.
  EMC Testing Lab. (FCC Registration Number : 95422)
  #584, Sangwhal-ri, Ganam-myeon, Yoju-gun,
  Gyeonggi-do, 469-885, Korea
  Tel : 82-2-858-0786 Fax : 82-2-858-0788
- **Test Report No. :** ETLE060711.319

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1. INTRODUCTION

The measurement test for radiated and conducted emission test were conducted at the open area test site of E-RAE Testing Laboratory Inc. facility located at #584, Sangwhal-ri, Ganam-myeon, Yoju-gun, Gyeonggi-do, 469-885, Korea. The site is constructed in conformance with the requirements of the ANSI C63.4-2003 and CISPR Publication 16. The ETL has site descriptions on file with the FCC for 3 and 10 meter site configurations. Detailed description of test facility was found to be in compliance with the requirements of Section 2.948 FCC Rules according to the ANSI C63.4-2003 and registered to the Federal Communications Commission (Registration Number : 95422).

The measurement procedure described in American National Standard for Method of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (ANSI C63.4-2003) was used in determining radiated and conducted emissions from the Erae Electronics Industry Co., Ltd., Model: EPD-42Q5BN.

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2. PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the Erae Electronics Industry Co., Ltd., Model: EPD-42Q5BN.

Model Difference :
- The model EPD-42Q5BN is basic model that was tested.
- The multilisted model of PDT425BKA(Buyer model) is identical to basic model, except for model name.

2.2 General Specification

Aspect Ratio	16:9
Screen Size (H x V)	708,954 mm(H) x 398,592 mm(V)
Resolution	1 024 x 768
Cell pitch (H x V)	300 μm(H) x 676 μm(V)
Displayable Colors	16,7M
Brightness	1 200 cd/m^2 (w/o filter)
Contras	10 000:1 (MAX)
Viewing Angle	160 °
Input signal	NTSC, SD, HD, VGA, SVGA, XGA, SXGA (1 280 X 1 024 / 60 Hz)
Tuner	NTSC-M, ATSC
PC Input	Analog RGB, HDMI
AC Input	AC 100 V – 240 V, 50 Hz / 60 Hz, 4 A (MAX)
Power Consumption	320 W (MAX)
Stand-by Mode	1 W

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3. DESCRIPTION OF TESTS

3.1 Conducted Emission Measurement

Conducted emissions measurements were made in accordance with section 11, "Measurement of Information Technology Equipment" of ANSI C63.4-2003. The measurements were performed over the frequency range of 0,15 MHz to 30 MHz using a 50 Ω / 50 uH LISN as the input transducer to a Spectrum Analyzer or a Test Receiver. The measurements were made with the detector set for "Peak" amplitude within a bandwidth of 9 kHz or for "quasi-peak" within a bandwidth of 9 kHz.

The line-conducted emission test is conducted inside a shielded anechoic chamber room with 1 m x 1,5 m x 0,8 m wooden table which is placed 40 cm away from the vertical wall and 1,5 m away from the side wall of the chamber room. Two LISN are bonded to the shielded room. The EUT is powered from the LISN and the support equipment is powered from the other LISN. Power to the LISNs are filtered by a noise cut power line filters. All electrical cables are shielded by braided tinned steel tubing with inner ϕ 1,2 cm. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and these supply lines will be connected to the LISN. Non-inductive bundling to a 1 m length shortened all interconnecting cables more than 1m. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the EMI Test Receiver to determine the frequency producing the maximum emission from the EUT. The frequency producing the maximum level was reexamined using to set Quasi-Peak mode by manual, after scanned by automatic Peak mode from 0,15 MHz to 30 MHz. The bandwidth of the spectrum analyzer was set to 9 kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission.

Photographs of the worst-case emission can be seen in photographs of conducted emission test setup in Appendix B.

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3. DESCRIPTION OF TESTS

3.2.1 Radiated Emission Measurement

Radiated emission measurements were made in accordance with section 11, "Measurement of Information Technology Equipment" of ANSI C63.4-2003. The measurements were performed over the frequency range of 30 MHz to 1 GHz using antenna as the input transducer to a spectrum analyzer or a field intensity meter. The measurements were made with the detector set for "Quasi-peak" within a bandwidth of 120 kHz.

Preliminary measurements were made at 10 m using broadband antennas, and spectrum analyzer to determined the frequency producing the maximum emission in shielded room. Appropriate precaution was taken to ensure that all emission from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth and height with respect to the antenna were noted for each frequency found. The spectrum was scanned from 30 MHz to 1000 MHz using Log-Bicon antenna. Above 1 GHz, linearly polarized double ridge horn antennas were used. Final measurements were made open site at 10 m. The test equipment was placed on a wooden turn-table. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. Each frequency found during pre-scan measurements was re-examined by manual. The detector function was set to CISPR Quasi-peak mode and the bandwidth of the receiver was set to 120 kHz or 1MHz depending on the frequency of type of signal. The EUT, support equipment and interconnecting cables were re-configured to the set-up producing the maximum emission for the frequency and were placed on top of a 0,8 m high nonmetallic 1 m x 1.5 m table. The EUT, support equipment, and interconnecting cables were re-arranged and manipulated to maximize each emission. The turntable containing the system was rotated; the antenna height was varied 1 m to 4 m and stopped at the azimuth or height producing the maximum emission. Each emission was maximized by: varying the mode of operation to the EUT and/or support equipment and changing the polarity of the antenna, whichever determined the worst-case emission.

Photographs of the worst-case emission can be seen in Photographs of the worst-case emission test setup can be seen in Appendix B.

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3. DESCRIPTION OF TESTS

3.2.2 Radiated Emission Measurement

Preliminary measurements were made at indoors 3 m semi EMC anechoic chamber using broadband antennas, broadband amplifier, and spectrum analyzer to determine the emission frequencies producing the maximum EME.
Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configurations, mode of operation, turntable azimuth with respect to the antenna were noted for each frequency found. The spectrum was scanned from 30 MHz to 1 000 MHz using biocenology antenna and above 1 000 MHz, linearly polarized double ridge horn antennas were used. Above 1 GHz, linearly polarized double ridge horn antennas were used. The measurements were performed with three frequencies which were selected as bottom, middle and top frequency in the operating band. Emission levels from the EUT with various configurations were examined on the spectrum analyzer connected with the RF amplifier and plotted graphically.

Final measurements were made outdoors open site at 3 m test range using biocenology antenna. The output from the antenna was connected, via a pre-selector or a preamplifier, to the input of the EMI Measuring Receiver and Spectrum analyzer (for above 1 GHz). The detector function was set to the quasi-peak or peak mode as appropriate. The measurement bandwidth on the Field strength receiver was set to at least 120 kHz (1 MHz for measurement above 1 GHz); with all post-detector filtering no less than 10 times the measurement bandwidth. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition.

Each frequency found during preliminary measurement was examined and investigated as the same set up and configuration which produced the maximum emission The EUT, support equipment and interconnecting cables were configured to the set-up producing the maximum emission for the frequency and were placed on top of a 0.8-meter high non-metallic 1 m x 1,5 m table. The turntable containing the system was rotated and the antenna height was varied 1 m to 4 m and stopped at the azimuth or height producing the maximum emission.

Each emission was maximized by varying the mode of operating frequencies of the EUT. The worst case emissions are recorded in the data tables. If necessary, the radiated emission measurement could be performed at a closer distance to ensure higher accuracy and the results were extrapolated to the specified distance using an inverse linear distance extrapolation factor (20 dB/decade) as per section 15.31(f).

Photographs of the worst-case emission test setup can be seen in Appendix B.

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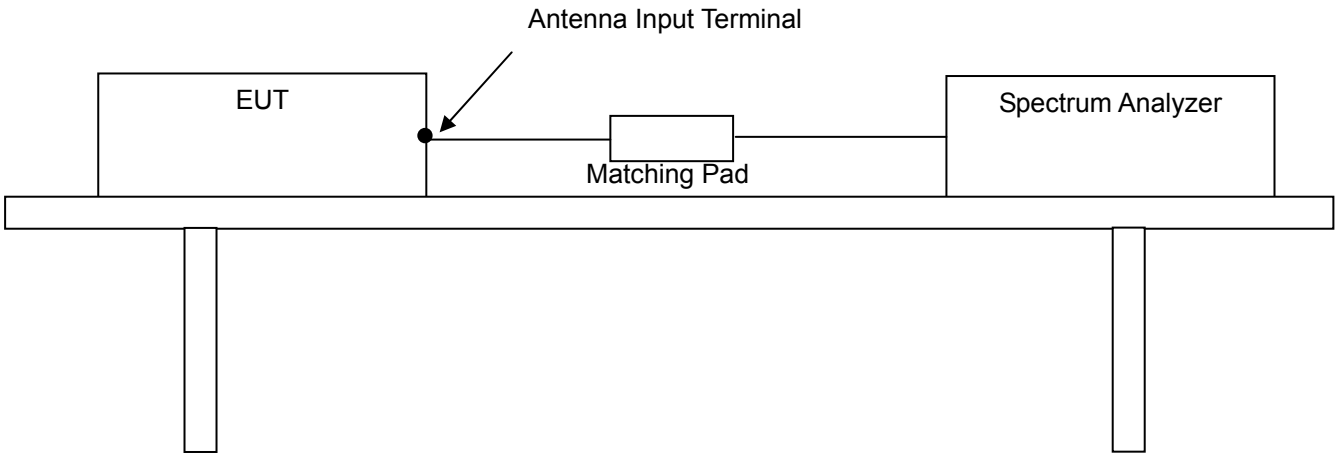
3. DESCRIPTION OF TESTS

3.3 Antenna-Conducted Power Measurements

Power on the receive antenna terminals was to be determined by measurement of the voltage present at these terminals. An antenna-conducted power measurement is performed with the EUT antenna terminals connected directly to a spectrum analyzer, if the antenna impedance matches the impedance of the measuring instrument. Otherwise, use an impedance-matching network to connect the measuring instrument to the antenna terminals of the EUT. Losses in decibels in any impedance-matching network used are added to the measured value in dBμV.

With the EUT tuned to one of the frequency over which device operates , measure both the frequency and voltage present at the antenna input terminals over the frequency range specified in the individual equipment requirements. Repeat this measurement with the receiver tuned to another frequency until the numbers of frequencies specified have been successively measured. Power on the receive antenna terminals is the ratio of V^2/R, where V is the loss-corrected voltage measured at the antenna terminals, and R is the impedance of the measuring instrument.



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4. TEST CONDITION

4.1 Test Configuration

The device was configured for testing in a typical fashion (as a customer would normally use it). During the tests, the EUT and the supported equipments were installed to meet FCC requirement and operated in a manner and which tends to maximize its emission level in a typical application.

4.2 EUT operation

Operating Mode	The worst operating condition
Stand-by mode	X
Color bar display mode	X
640 * 480 Vf = 60 Hz, Full “H” pattern display with MP3 sound play mode	X
800 * 600 Vf = 60 Hz, Full “H” pattern display with MP3 sound play mode	X
1024 * 768 Vf = 60 Hz, Full “H” pattern display with MP3 sound play mode	X
1280 * 1024 Vf = 60 Hz, Full “H” pattern display with MP3 sound play mode	◎

◎ : Worst case investigated during the test.

4.3 Support Equipment Used

Description	Model Name	Serial No.	Manufacturer	FCC ID
EUT	EPD-42Q5BN	NONE	Erae Electronics Industry Co., Ltd.	N/A
Keyboard	KB-9963	B26960GBUKO13F	Chicony Elec.	N/A
Mouse	M-S34	LNA10212779	Logitech	N/A
Computer	DHM	G9MB71S	Dell Asia Pacific Sdn.	N/A
DVD Player 1	NONE	NONE	Ellion	N/A
DVD Player 2	NONE	NONE	Ellion	N/A

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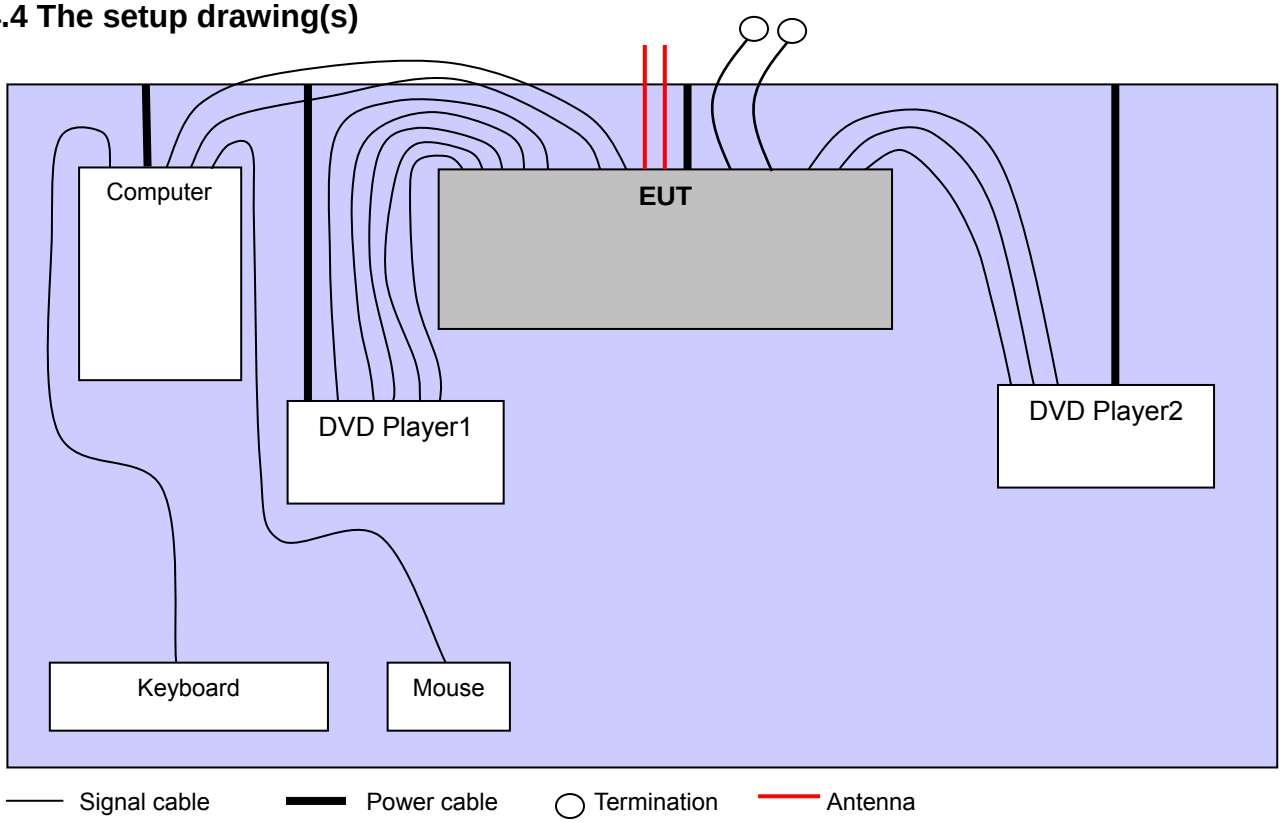
4. TEST CONDITION

4.4 The setup drawing(s)



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4. TEST CONDITION

4.5 Type of Cables Used

Device from	Device to	Type of Cable	Length(m)	Type of shield
EUT	Computer	RGB In	1,5	Shielded
EUT	Computer	Audio In	1,5	Shielded
EUT	Termination	HDMI	1,5	Shielded
EUT	Termination	USB Input	1,2	Shielded
EUT	DVD Player 1	Component 1 Input	3,0	Shielded
EUT	DVD Player 1	Component 1 Audio In	3,0	Shielded
EUT	DVD Player 2	Component 2 Input	3,0	Shielded
EUT	DVD Player 2	Component 2 Audio In	3,0	Shielded
EUT	DVD Player 1	Composite A/V Input	3,0	Shielded
EUT	DVD Player 2	Composite A/V Input	3,0	Shielded
EUT	DVD Player 1	S-Video In	3,0	Shielded
EUT	DVD Player 1	COAXIAL Output	3,0	Shielded
EUT	-	Antenna 1 Input	3,0	Shielded
EUT	-	Antenna 2 Input	3,0	Shielded
EUT	Power socket	AC Input	1,2	Unshielded
DVD Player1	Power Socket	Non-detachable Power	1,5	Unshielded
DVD Player2	Power Socket	Non-detachable Power	1,5	Unshielded
Computer	Keyboard	PS/2	1,5	Shielded
Computer	Mouse	PS/2	1,5	Shielded
Computer	Power Socket	AC Input	1,5	Unshielded

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5. TEST RESULTS

5.1 Summary of Test Results

The measurement results were obtained with the EUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum emission of the EUT are reported.

FCC Rule	Measurement Required	Result
15.107	Conducted Emission Measurement	**Passed by 9,40 dB**
15.109	Radiated Emission Measurement	**Passed by 3,10 dB**
15.111	Antenna Power Conduction Measurement	☒ met ☐ not met ☐ N/A
15.117(f)	Picture Sensitivity	☒ met ☐ not met ☐ N/A
15.117(g)	Noise Figure Measurement	☒ met ☐ not met ☐ N/A
15.119	Closed caption decoder requirements	☒ met ☐ not met ☐ N/A
15.120	Program blocking technology requirements	☒ met ☐ not met ☐ N/A

The data collected shows that the **Erae Electronics Industry Co., Ltd. / PDP TV / EPD-42Q5BN** complied with technical requirements of above rules part 15.107 and 15.109 Class B Limits and CISPR Publication 22 & Part 15 Subpart B Unintentional radiators and the TV Broadcast Receiver section of the FCC Rules.

The equipment is not modified anything, mechanical or circuits to improve EMI status during a measurement. No EMI suppression device(s) was added and/or modified during testing.

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5. TEST RESULTS

5.2.1 Conducted Emissions Measurement

EUT	PDP TV / EPD-42Q5BN (SN :N/A)
Limit apply to	FCC Part 15. 107(CISPR Pub.22 Class B)
Test Date	July 25, 2006
Operating Condition	1280 * 1024 Vf = 60Hz, Full "H" pattern display with MP3 file play mode
Result	Passed by 9,4 dB

Conducted Emission Test Data

The following table shows the highest levels of conducted emissions on both polarizations of hot and neutral line.

Detector mode: CISPR Quasi-Peak mode (6 dB Bandwidth : 9 kHz)

Frequency [MHz]	Result [dBμV]		Phase (*H/**N)	Limit [dBμV]		Margin [dB]	
	Quasi-peak	Average		Quasi-peak	Average	Quasi-peak	Average
0,151	54,4	46,6	H	66,0	56,0	11,6	9,4
0,218	50,6	37,6	H	62,9	52,9	12,3	15,3
0,274	41,6	36,9	H	61,0	51,0	19,4	14,1
0,343	43,2	38,0	H	59,1	49,1	15,9	11,1
0,439	39,8	32,3	H	57,1	47,1	17,3	14,8
0,484	39,2	34,2	H	56,3	46,3	17,1	12,1
0,745	38,0	29,9	H	56,0	46,0	18,0	16,1
1,390	38,0	30,4	H			18,0	15,6
1,566	33,2	25,3	H			22,8	20,7
6,822	32,3	24,3	H	60,0	50,0	27,7	25,7
14,850	31,7	21,6	N			28,3	28,4
21,624	39,8	37,2	N			20,2	12,8
23,224	36,5	34,3	N			23,5	15,7

NOTES: **1. * H: HOT Line , **N: Neutral Line**
2. Margin value = Limit – Result
3. Measurement were performed at the AC Power Inlet in the frequency band of 150 kHz ~ 30 MHz according to the FCC Part 15 and CISPR 22 Class B

Test Engineer: Jae Young, Kwon

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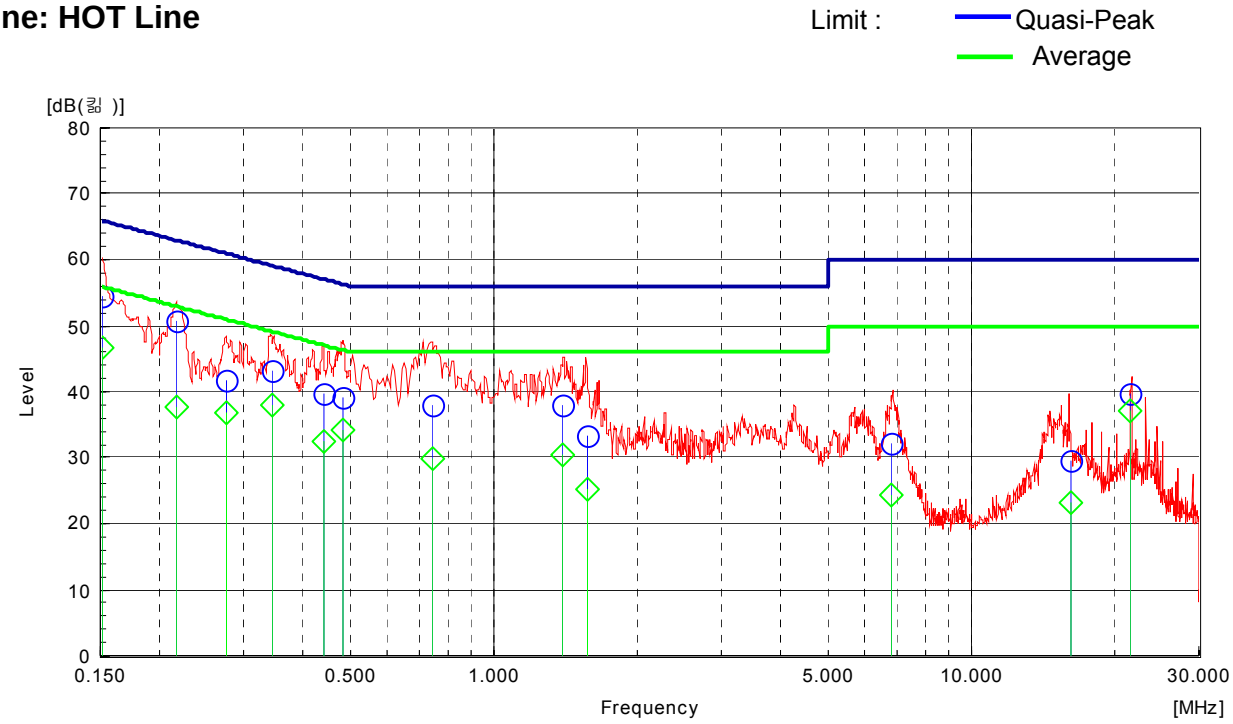
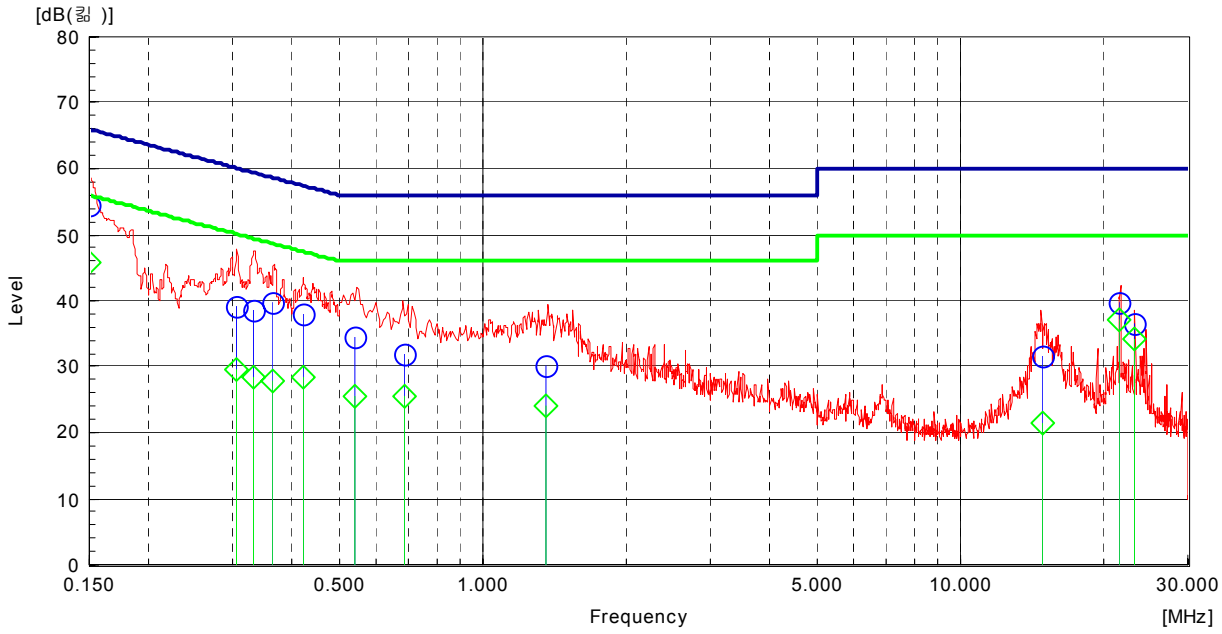
Line: HOT Line



Line: Neutral Line



Quasi-peak Average

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5. TEST RESULTS

5.2.2 Conducted Emissions Measurement

EUT	PDP TV / EPD-42Q5BN (SN :N/A)
Limit apply to	FCC Part 15. 107(CISPR Pub.22 Class B)
Test Date	July 25, 2006
Operating Condition	Color Bar Display mode
Result	Passed by 9,5 dB

Conducted Emission Test Data

The following table shows the highest levels of conducted emissions on both polarizations of hot and neutral line.

Detector mode: CISPR Quasi-Peak mode (6 dB Bandwidth : 9 kHz)

Frequency [MHz]	Result [dBμV]		Phase (*H/**N)	Limit [dBμV]		Margin [dB]	
	Quasi-peak	Average		Quasi-peak	Average	Quasi-peak	Average
0,151	54,5	46,5	N	66,0	56,0	11,5	9,5
0,218	50,5	37,5	N	62,9	52,9	12,4	15,4
0,274	41,7	37,0	N	61,0	51,0	19,3	14,0
0,343	43,0	38,2	N	59,1	49,1	16,1	10,9
0,439	39,6	32,4	N	57,1	47,1	17,5	14,7
0,484	39,3	34,4	N	56,3	46,3	17,0	11,9
0,745	38,4	30,0	N	56,0	46,0	17,6	16,0
1,390	38,2	30,6	N			17,8	15,4
1,566	33,5	25,4	N			22,5	20,6
6,822	32,0	24,5	N	60,0	50,0	28,0	25,5
14,850	31,9	21,4	H			28,1	28,6
21,624	40,0	37,5	H			20,0	12,5
23,224	36,4	34,5	H			23,6	15,5

NOTES: **1. * H: HOT Line , **N: Neutral Line**
2. Margin value = Limit – Result
3. Measurement were performed at the AC Power Inlet in the frequency band of 150 kHz ~ 30 MHz according to the FCC Part 15 and CISPR 22 Class B

Test Engineer: Jae Young, Kwon

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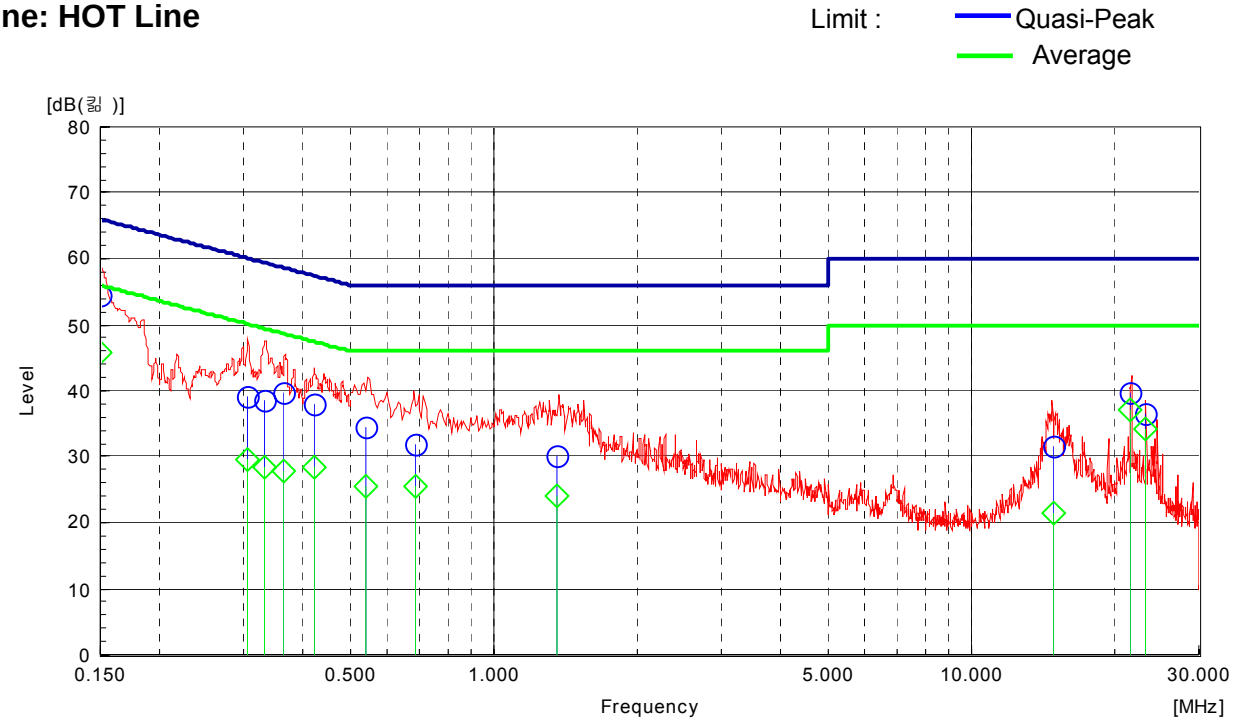
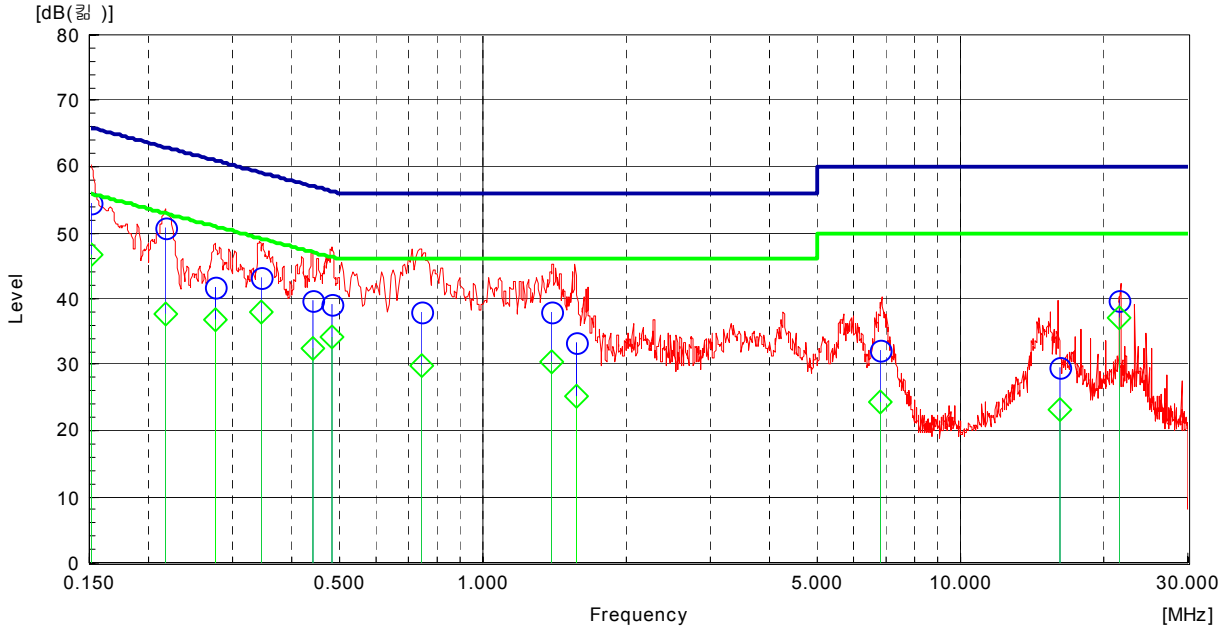
Line: HOT Line



Line: Neutral Line



Quasi-peak Average

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5. TEST RESULTS

5.3.1 Radiated Emissions Measurement

EUT	PDP TV / EPD-42Q5BN (SN :N/A)
Limit apply to	FCC Part 15. 109(CISPR Pub.22 Class B)
Test Date	July 25, 2006
Operating Condition	1280 * 1024 Vf = 60Hz, Full “H” pattern display with MP3 file play mode
Result	Passed by 3,10 dB

Radiated Emission Test Data

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Detector mode: CISPR Quasi-Peak mode (6 dB Bandwidth: 120 kHz)

Frequency [MHz]	Reading [dBμV]	Polarization (*H/**V)	Ant. Factor [dB/m]	Cable Loss [dBμV]	Emission Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]
45,75	11,69	V	9,79	2,02	23,50	30,0	6,50
82,50	13,78	V	7,54	2,48	23,80		6,20
130,50	12,31	V	11,33	3,26	26,90		3,10
140,50	11,61	V	11,68	3,41	26,70		3,30
185,75	12,57	V	9,90	3,93	26,40		3,60
255,50	12,99	V	10,98	4,93	28,90	37,0	8,10
400,50	11,01	H	14,48	6,61	32,10		4,90
475,00	7,56	H	16,44	7,40	31,40		5,60
540,50	7,39	H	17,86	8,25	33,50		3,50
676,75	4,27	H	20,07	9,46	33,80		3,20

NOTES :*** H : Horizontal polarization , ** V : Vertical polarization**
Result = Reading + Antenna factor + Cable loss
Margin value = Limit - Result
The measurement was performed for the frequency range 30 MHz ~ 1 000 MHz according to the CISPR 22 Class B

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5. TEST RESULTS

5.3.1 Radiated Emissions Measurement

EUT	PDP TV / EPD-42Q5BN (SN :N/A)
Limit apply to	FCC Part 15. 109 Class B
Test Date	July 25, 2006
Operating Condition	Color bar display mode
Result	Passed by 3,20 dB

Radiated Emission Test Data

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Detector mode: CISPR Quasi-Peak mode (6 dB Bandwidth: 120 kHz)

Frequency [MHz]	Reading [dBμV]	Polarization (*H/**V)	Ant. Factor [dB/m]	Cable Loss [dBμV]	Emission Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]
36,50	25,50	V	9,21	1,59	36,30	40,0	3,70
45,75	20,69	V	9,79	2,02	32,50		7,50
82,50	20,48	H	7,54	2,48	30,50		9,50
128,75	21,31	V	11,26	3,23	35,80	43,5	7,70
135,00	19,87	V	11,50	3,33	34,70		8,80
420,50	17,63	V	15,02	6,85	39,50	46,0	6,50
515,75	16,27	H	17,38	7,85	41,50		4,50
535,40	16,77	H	17,76	8,17	42,70		3,30
580,50	15,41	H	18,38	8,71	42,50		3,50
645,50	13,93	H	19,61	9,26	42,80		3,20

NOTES :*** H : Horizontal polarization , ** V : Vertical polarization**
Result = Reading + Antenna factor + Cable loss
Margin value = Limit - Result
The measurement was performed for the frequency range 30 MHz ~ 1 000 MHz according to the FCC Part 15. 109 Class B

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5. TEST RESULTS

5.4 Antenna power conduction measurement

EUT	PDP TV / EPD-42Q5BN (SN :N/A)
Limit apply to	FCC Part15 Subpart B Section 15.111
Test Date	July 26, 2006
Operating Condition	CH 2~69
Result	Passed

Antenna power conduction test data

Tuned Frequency [MHz]	Meter Reading [dBμV]	Correction Factor [dB]	Result [dBμV]	Limit [dBμV]	Margin [dB]
800,500	17,7	7,9	25,6	50,0	24,4

NOTES :

1. **The other frequencies has 10 dB margin at least.**
2. **Result = Meter Reading + Correction Factor.**
   Margin value = Limit - Result
3. **Measurements using the CISPR Quasi-peak mode and 1 MHz resolution peak mode for above 1 GHz, The limits are 2.0 nW in the frequency range from 30 MHz to 5 000 MHz.**

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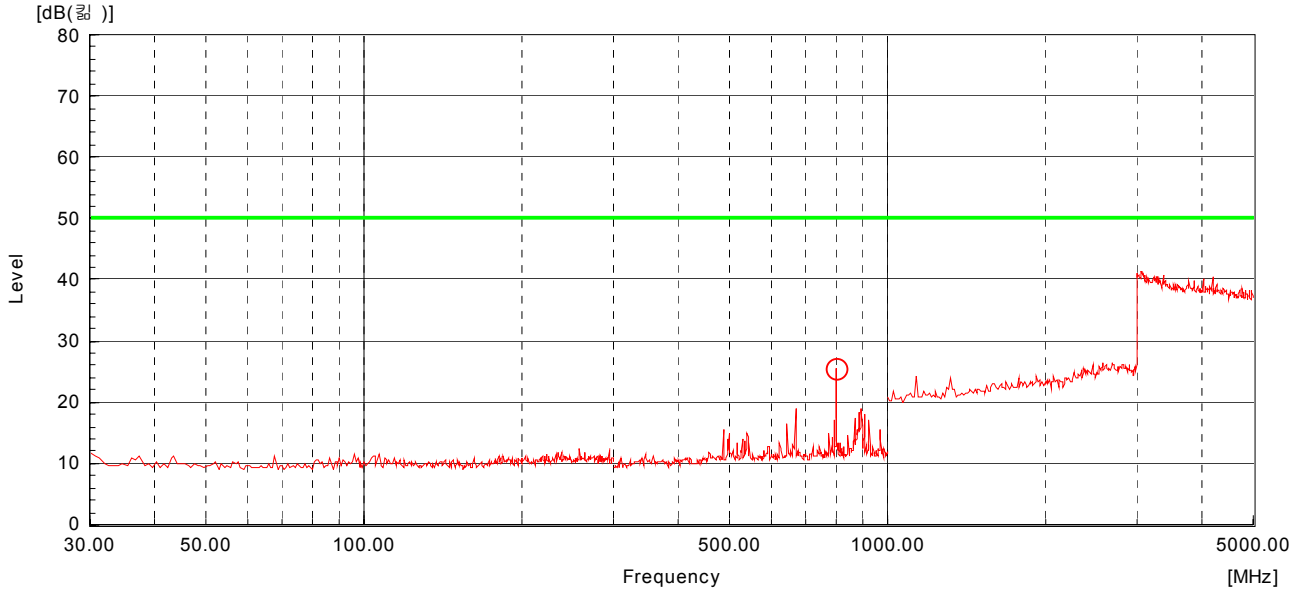
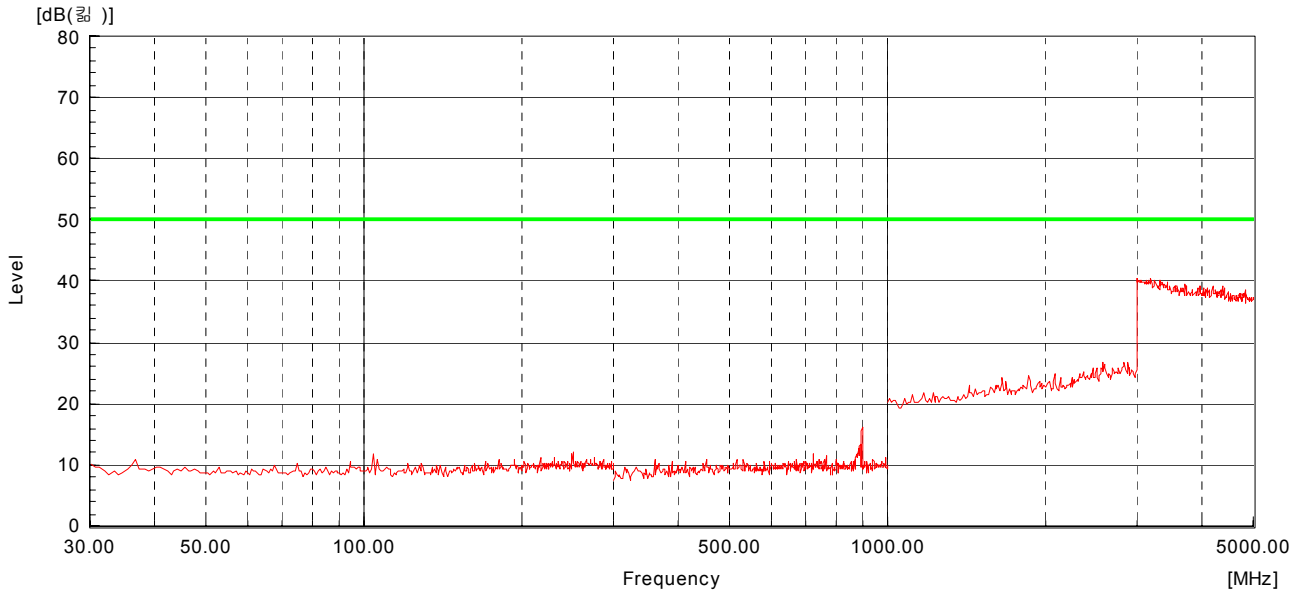
ANT 1



ANT 2



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5. TEST RESULTS

5.5 Picture sensitivity

EUT	PDP TV / EPD-42Q5BN (SN :N/A)
Limit apply to	FCC Part15 Subpart B Section 15.117(f)
Test Date	July 26, 2006
Operating Condition	Color bar display
Result	Passed

Picture sensitivity test data

Tuner Model name:

Measured Channel	Average Level [dB μV]	Result (dB)	Limit (dB)
VHF	19,70	2,80	< 8
UHF	22.50		

NOTES:

1. **Result = UHF band average value – VHF band average value**
2. **Measurements using 50 Ω/ 75 Ω matching transformer between spectrum analyzer and TV broadcast receiver.**

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5. TEST RESULTS

5.6 Noise figure measurement

Measured Channel	Limit (dB)
471,25	< 14
549,25	
723,25	
801,25	

NOTES :

1. **The limits shall not exceed 14 dB in the all television channels.**

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6. SAMPLE CALCULATION

Sample Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor.
The basic equation with a sample calculation is as follows:

FS = RA + AF + CF

Where FS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Attenuation Factor

$dB(\mu V) = 20 \log_{10} (\mu V)$
$dB\mu V$ = dBm + 107

Example : @ 130,50 MHz

Class B Limit = 31,70 μV/m = 30 dB μV/m

Reading = 12,31 dB μV

Antenna Factor + Cable Loss = 11,33 + 3,26 = 14,59 dB μV/m

Total = 26,90 dB μV/m

Margin = 30 – 26,90 = 3,10 dB

= 3,10 dB below Limit

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7. List of test equipments used for measurements

Test Equipment		Model	Mfg.	Serial No.	Cal. Due Date
☒	EMI TEST Receiver	ESVS 10	R & S	835165/001	07-04-25
☒	EMI TEST Receiver	ESPI	R & S	100478	06-10-17
☒	LISN	3816-2	EMCO	1002	06-10-17
☒	LISN	3825/2	EMCO	9208-1995	07-04-06
☒	LogBicon Antenna	VULB9160	Schwarz Beck	3128	06-09-23
☒	Spectrum Analyzer	E7405A	Agilent	US41160290	06-10-18
☒	Turn-Table	DETT-03	Daeil EMC	-	N/A
☒	Antenna Master	DEAM-03	Daeil EMC	-	N/A

End of Test Report

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