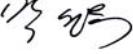


# TEST REPORT

## FCC PART 15 Class B

Applicant	Trade Name	D&T Inc.		
	Address	59-9, Jang Dong, Yuseong Gu, Daejeon, 305-343 South Korea		
	Telephone Number	+82 42 360 0820	Fax Number	+82 42 360 0830
Product	Name	52" Dual Color TFT LCD Monitor		
	Model Name	FS-S5202C		
	Manufacturer	D&T Inc.		
	Test Date	2009 01. 14.	-	2009 01. 19.
	Issued Date	2009 01. 29.		
	Test Procedure	ANSI C63.4-2003		
	Applicable Regulation	FCC Part 15		
	Equipment Class	<b>Class B</b>		
	Test Result	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	
	Test Engineer	Chief Engineer		
				
	Young, Choi	Seongwook, Park		

## CHUNGBUK TECHNOPARK

I, the undersigned, hereby declare that the equipment specified above conforms to the above FCC Rule(s) and Regulation(s) Part 15 as described in the attached test report.

This test report contains only the result of a single test of the sample supplied for the examination.

## TABLE OF CONTENTS

<b>1. Test Laboratory</b>	<b>3</b>
1.1 General Information	3
1.2 Location of Test Laboratory	3
1.3 Registration Information	3
<b>2. Test Rule</b>	<b>4</b>
2.1 Test Rule Part(s)	4
2.2 Equipment Under Test(EUT) Modifications	4
<b>3. Description for Equipment Under Test(EUT)</b>	<b>5</b>
<b>4. Configuration of Test System</b>	<b>6</b>
4.1 Test Equipments	6
4.2 Type of Cables	6
4.3 Operation of Equipment Under Test(EUT)	7
4.4 Setup drawing(s)	7
<b>5. Test Limits</b>	<b>8</b>
5.1 Conducted Emission Measurement Limits	8
5.2 Radiated Emission Measurement Limits	8
<b>6. Test Procedure and Results</b>	<b>9</b>
6.1 Radiated Emission Measurement	9
6.2 Test Results	10
6.3 Conducted Emission Measurement	12
6.4 Test Results	13
<b>7. FCC Labelling Requirements</b>	<b>16</b>
7.1 FCC Statement	16
7.2 Label Location	16
<b>8. Test Setup Photographs</b>	<b>17</b>
8.1 Radiated Emission Measurement	17
8.2 Conducted Emission Measurement	19
<b>9. Photographs of Equipment Under Test(EUT)</b>	<b>21</b>



# CHUNGBUK TECHNOPARK

#685-3, Yangcheong, Ochang, Cheongwon, Chungbuk, Korea

TEL:(043)219-5890 FAX:(043)219-5899 <http://www.cntp.or.kr>

## 1. Test Laboratory

### 1.1 General Information

Name of Laboratory	CHUNGBUK TECHNOPARK
Representative	Jongsung, Lim
Address	685-3 Yangcheong-ri, Ochang-eup, Cheongwon-gun, Chungcheongbuk-do, Korea
Telephone Number	043-219-5890
Fax Number	043-219-5899
Homepage	<a href="http://www.cntp.or.kr">www.cntp.or.kr</a>

### 1.2 Location of Test Laboratory

Address	685-3 Yangcheong-ri, Ochang-eup, Cheongwon-gun, Chungcheongbuk-do, Korea
Telephone Number	043-219-5890
Fax Number	043-219-5899

### 1.3 Registration Information

Test item(s)	Facility	Registration Number
Radiated Emission Measurement	10m semi-anechoic chamber	647924
Conducted Emission Measurement	Shielded room	



# CHUNGBUK TECHNOPARK

#685-3, Yangcheong, Ochang, Cheongwon, Chungbuk, Korea  
TEL:(043)219-5890 FAX:(043)219-5899 <http://www.cntp.or.kr>

## 2. Test Rule

### 2.1 Test Rule Part(s)

Test item(s)	Test Rule Part(s)	Test Result	
Conducted Emission Measurement	Part 15.107	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Radiated Emission Measurement	Part 15.109	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail

### 2.2 Equipment Under Test(EUT) Modifications

No modifications were made to the EUT in order to achieve and maintain compliance to the standards described in this report.

### 3. Description for Equipment Under Test(EUT)

#### 3.1 AC Power

3.1.1 AC input voltage : AC 100 to 240 Volts (Universal power)  
3.1.2 AC input frequency : 50~60Hz ±3Hz

#### 3.2 Video and Sync Signal

##### 3.2.1 Video signal

- A. Horizontal frequency : 25 ~ 90KHz
- B. Vertical frequency : 24 ~ 120Hz
- C. Applicable maximum pixel frequency : 170MHz(Analog), 165MHz(Digital)
- D. Maximum resolution : 1920x1080 / 60Hz

##### 3.2.2 Signal connectors

- A. HDMI type Ax3x2(Dual) : HDMI input
- B. 15p D-Sub(Female, 3row) x1x2(Dual) : Analog RGB input
- C. 9p D-Sub (Female) x1x2(Dual) : RS232C Input
- D. 9p D-Sub (Male) x1x2(Dual) : RS232C Output
- E. 15p D-Sub(Male, 2row) x1x(Dual) : Audio AMP signal input
- F. AC Inlet x1x2(Dual) : main AC power input

#### 3.3 LCD Panel Specifications(Left/Right individual)

Item		SPECIFICATION	UNIT	NOTE
Display area	diagonal	1321	mm	
	viewable	1152.0(H) × 648.0(V)	mm	
Driver element		a-Si TFT Active matrix		
Number of Pixels		1920x1080, 2.07Million	pixels	
Pixel Pitch		0.6(H) ×0.6(V)	mm	
Pixel arrangement		R, B, G Vertical Stripe		
Display colors		16.7M (RGB 8-bit data)		
Viewing angle(max)		178(H), 178(V)	degrees	120 minutes after lighting on
Display mode		Normally black		

#### 4. Configuration of Test System

##### 4.1 Host System Configuration

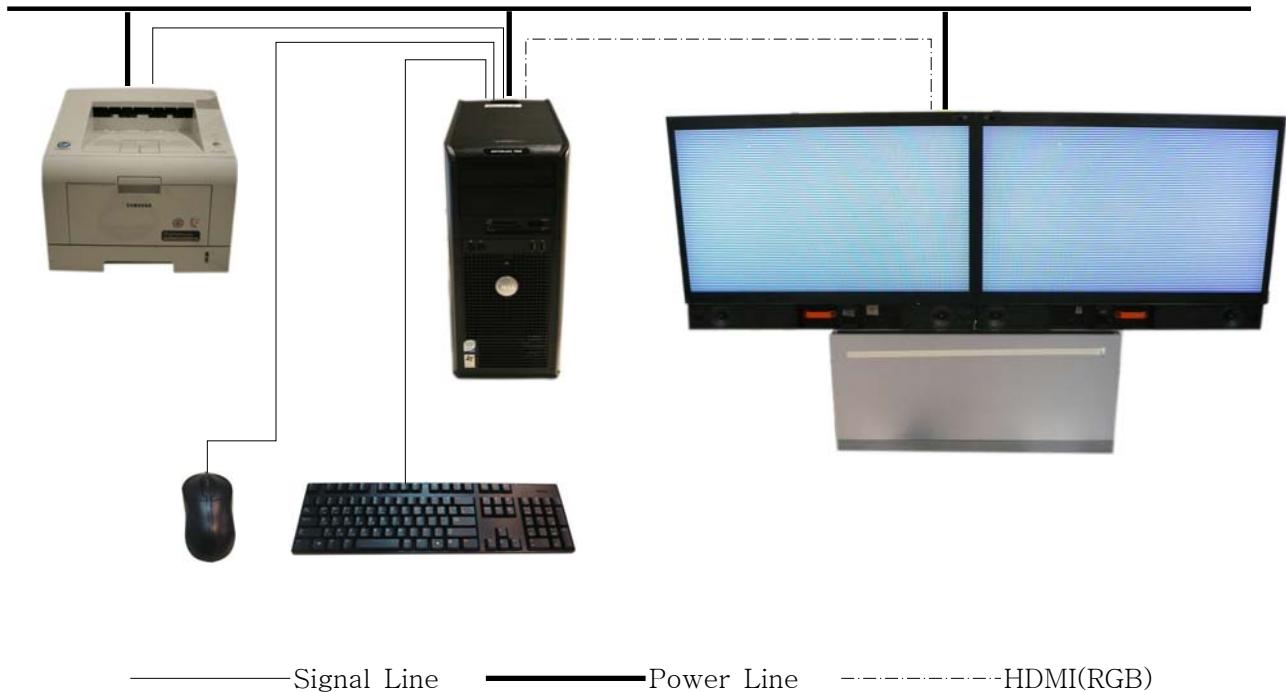
Description	Model Name	Serial Number	Manufacturer	Remarks
PC	OPTIPLEX 760	6TSKKBX	DELL	Class B
Printer	ML-2250G	BD35BKDL919186X	SAMSUNG	Class B
Keyboard	L30U	-	DELL	Class B
Mouse	XN966	HS851131Q2H	DELL	Class B
52" Dual Color TFT LCD Monitor	FS-S5202C	-	D&T Inc.	EUT

##### 4.2 Type of Cables

Port / From		Port / To		Remarks	
Description	I/O Port	Description	I/O Port	Length[m]	Shielded(Y/N)
EUT	HDMI	PC	DVI	2.0	Y
EUT	RGB	PC	DVI	1.8	Y
PC	LPT	Printer	LPT	1.8	Y
PC	USB	Mouse	-	1.8	Y
PC	POWER	-	-	1.8	N
EUT	POWER	-	-	1.8	N

**4.3 Operation of Equipment Under Test(EUT)**

The Equipment Under Test 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.

**4.4 Setup drawing(s)**

## 5. Test Limits

### 5.1 Conducted Emission Measurement Limits

Frequency (MHz)	Class B Limits (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

### 5.2 Radiated Emission Measurement Limits

Frequency (MHz)	Class B Limit (dBuV/m)
30 - 230	30 (Quasi-peak) @ 10m
230 - 1000	37 (Quasi-peak) @ 10m
Above 1000	54 (Average) @ 3m

## 6. Test Procedure and Results

### 6.1 Radiated Emission Measurement

#### 6.1.1 Test Equipments

Description	Model Name	Manufacturer	Serial Number	Cal. Due	Used
Test Receiver	ESIB26	Rohde & Schwarz	100359	2009.05.26	■
Antenna	CBL6112D	Schaffner	22022	2010.04.21	■
Antenna Master	MA 4000	inn-co	-	-	■
Turn table	DT 3000	inn-co	-	-	■

6.1.2 Test place : 10m semi-anechoic chamber

6.1.3 Test Environments : Temperatures 18.2°C, Relative Humidity 32.5%

#### 6.1.4 Test Procedure

Final measurements of radiated emission were made on the 10m semi-anechoic chamber. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emission in amplitude, direction and frequency. This process was repeated during final radiated emission measurements on the 10m semi-anechoic chamber range, at each frequency, in order to ensure that maximum emissions amplitudes were attained.

The radiated emission test was performed with EUT exercise program loaded, and the emissions were scanned between 30MHz to 1000MHz using a ESCI3 test receiver. The test receiver's 6dB bandwidth was set to 120kHz, and the receiver was operated in the CISPR quasi-peak detection mode.

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum emission levels. Measurements were taken using both HORIZONTAL and VERTICAL antenna polarization, herein referred to as H and V, respectively.

$$F1[\text{dBuV/m}] = F2[\text{dBuV}] + AF[\text{dB/m}] + CL[\text{dB}]$$

F1: Final Field Strength    F2:Reading    AF: Antenna Factor    CL: Cable Factor

**6.2 Test Results :  Pass  Fail**

Test Date : 2009 01. 14.

**6.2.1 HDMI mode**

Frequency (MHz)	Reading (dBuV)	Polarity	Antenna Height (m)	Correction Factor		Limit (dBuV/m)	Level (dBuV/m)	Margin (dB)
				Antenna (dB/m)	Cable (dB)			
60.19	14.10	V	2.95	6.19	0.41	30.00	20.70	9.30
73.62	15.80	V	2.00	7.41	0.49	30.00	23.70	6.30
112.10	7.50	V	1.05	12.51	0.49	30.00	20.50	9.50
156.90	7.90	H	3.00	11.81	0.49	30.00	20.20	9.80
184.27	2.60	H	3.05	11.80	0.50	30.00	14.90	15.10
193.08	9.30	H	3.95	12.08	0.52	30.00	21.90	8.10
224.83	7.40	V	1.05	13.79	0.51	30.00	21.70	8.30
662.05	6.90	V	2.95	22.00	0.50	37.00	29.40	7.60
735.70	10.00	V	3.00	22.40	0.50	37.00	32.90	4.10

**6.2.2 RGB mode**

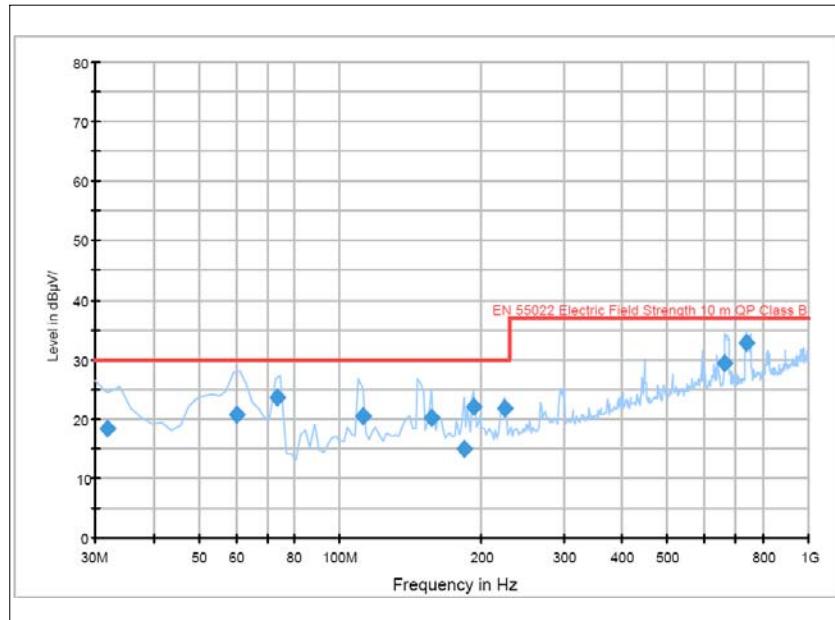
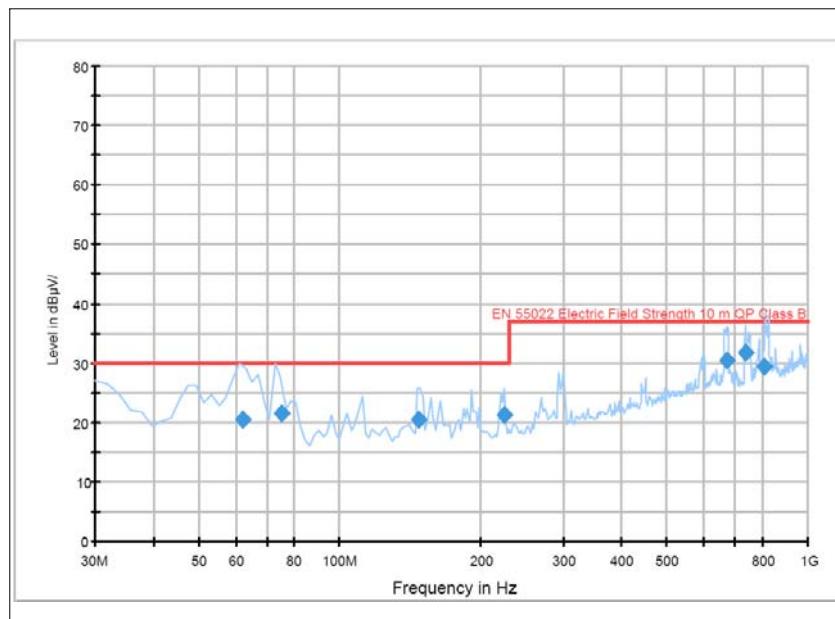
Frequency (MHz)	Reading (dBuV)	Polarity	Antenna Height (m)	Correction Factor		Limit (dBuV/m)	Level (dBuV/m)	Margin (dB)
				Antenna (dB/m)	Cable (dB)			
75.08	13.50	V	2.05	7.69	0.41	30.00	21.60	8.40
147.04	7.90	V	1.05	12.01	0.49	30.00	20.40	9.60
224.53	6.90	V	1.00	13.81	0.49	30.00	21.20	8.80
673.05	8.00	V	3.05	22.01	0.49	37.00	30.50	6.50
734.19	8.90	V	2.95	22.40	0.50	37.00	31.80	5.20
808.76	5.80	H	1.00	23.18	0.52	37.00	29.50	7.50

**Note**

- Margin (dB)=Limit (dBuV) - Level (dBuV)
- If no frequencies are specified in the tables, no measurement for quasi-peak or average was necessary.

**6.2.3 Graphical representation of radiated emissions - HDMI mode**

&lt;radiated emissions&gt;

**6.2.4 Graphical representation of radiated emissions - RGB mode**

### 6.3 Conducted Emission Measurement

#### 6.3.1 Test Equipments

Description	Model Name	Manufacturer	Serial Number	Cal. Due	Used
Spectrum Analyzer	ESCI3	Rohde & Schwarz	100545	03, 30, 2009	■
LISN 1	NNLK8129	Schwarzbeck	8129-162	03, 28, 2009	■
LISN 2	ESH2-Z5	Rohde & Schwarz	100146	03, 28, 2009	■

#### 6.3.2 Test place : 10 m Semi-anechoic chamber

#### 6.3.3 Test Environments : Temperatures 17.5°C, Relative Humidity 31%

#### 6.3.4 Test Procedure

Conducted emission levels were measured on each current-carrying line with the test receiver operating in the CISPR quasi-peak mode (or peak mode if applicable). The receiver's 6dB bandwidth was set to 9kHz. The initial step in collecting conducted data is a test receiver peak scan of the measurement range. If the conducted emission exceed the average limit with the instrument set to the quasi-peak mode, the measurements are made in the average mode. The emission was scanned from 150kHz to 30MHz. The highest emission amplitudes relative to the appropriate limits were measured and have been recorded. Quasi-peak readings are distinguished with a "QP". The conducted emission test was performed with the EUT exercise program loaded, and the emissions were scanned between 150kHz to 30MHz on the HOT side and NEUTRAL side, herein referred to as H and N, respectively.

**6.4 Test Results :  Pass  Fail**

Test Date : 2009 01. 19.

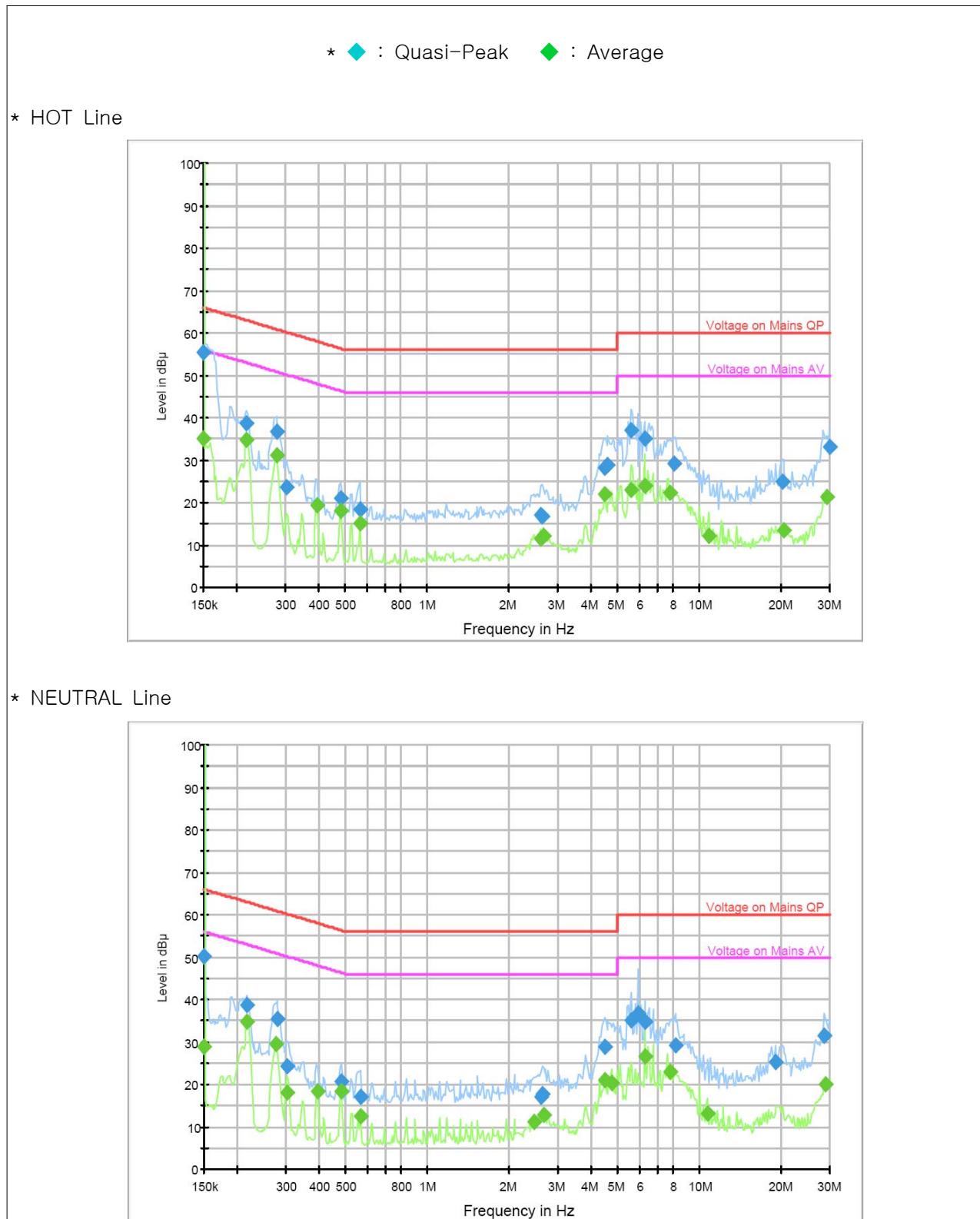
**6.4.1 HDMI Mode**

Frequency (MHz)	Correction Factor		Line	Quasi-peak			Average		
	LISN	Cable		Limit (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Reading (dBuV)	Level (dBuV)
0.150	9.75	0.15	H	66.00	45.50	55.40	56.00	25.20	35.10
0.217	9.75	0.15	H	62.90	28.70	38.60	52.90	25.00	34.90
0.278	9.77	0.13	H	60.90	26.70	36.60	50.90	21.40	31.30
0.480	9.77	0.13	N	56.30	10.80	20.70	46.30	8.50	18.40
4.464	10.03	0.27	N	56.00	18.50	28.80	46.00	10.70	21.00
5.611	10.10	0.30	H	60.00	26.80	37.20	50.00	12.60	23.00
5.898	10.11	0.29	N	60.00	26.40	36.80	50.00	10.10	20.50
6.260	10.10	0.40	H	60.00	24.70	35.20	50.00	13.60	24.10
8.109	10.07	0.43	N	60.00	18.60	29.10	50.00	12.30	22.80
18.892	9.99	0.81	N	60.00	14.50	25.30	50.00	4.20	15.00
28.693	10.12	0.88	N	60.00	20.50	31.50	50.00	8.90	19.90
30.000	10.15	1.65	H	60.00	21.40	33.20	50.00	9.50	21.30

**6.4.2 RGB Mode**

Frequency (MHz)	Correction Factor		Line	Quasi-peak			Average		
	LISN	Cable		Limit (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Reading (dBuV)	Level (dBuV)
0.150	9.75	0.15	N	66.00	46.50	56.40	56.00	25.70	35.60
0.190	9.77	0.13	H	64.00	31.50	41.40	54.00	16.10	26.00
0.215	9.75	0.15	N	63.00	26.60	36.50	53.00	24.70	34.60
0.275	9.77	0.13	H	61.00	26.80	36.70	51.00	21.90	31.80
4.508	10.03	0.27	N	56.00	18.60	28.90	46.00	10.20	20.50
4.833	10.06	0.34	H	56.00	17.20	27.60	46.00	10.20	20.60
4.882	10.06	0.24	N	56.00	16.60	26.90	46.00	9.60	19.90
5.668	10.10	0.30	N	60.00	27.00	37.40	50.00	14.60	25.00
5.839	10.11	0.39	H	60.00	27.50	38.00	50.00	13.50	24.00
6.260	10.10	0.30	N	60.00	24.80	35.20	50.00	16.00	26.40
6.515	10.10	0.40	H	60.00	22.80	33.30	50.00	12.60	23.10
29.858	10.15	1.65	H	60.00	22.40	34.20	50.00	9.50	21.30

#### 6.4.3 Graphical representation of conducted emissions - HDMI mode



#### 6.4.4 Graphical representation of conducted emissions - RGB mode

