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**FEDERAL COMMUNICATIONS COMMISSION**

Registration number: 282399

Report No.: GZEM101000248201

Page: 1 of 52

FCC ID:YWULH32S91T

## TEST REPORT

<b>Application No.:</b>	GZEM1010002482AV
<b>Applicant:</b>	Guangzhou CHANGJIA ELECTRONIC Co.,Ltd.
<b>FCC ID:</b>	YWULH32S91T
<b>Equipment Under Test (EUT):</b>	
EUT Name:	LCD-TV
Item No.:	LH32S91T, EC-320-HU ♦
♦	Please refer to section 3 of this report for more details.
Trade Mark:	MOTION, DIGIMOTION, VTREK
<b>Standards:</b>	FCC PART 15 SUBPART B:2009
<b>Date of Receipt:</b>	2010-10-26
<b>Date of Test:</b>	2010-10-29 to 2010-11-19
<b>Date of Issue:</b>	2011-01-28
<b>Test Result :</b>	<b>Pass*</b>

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Richard Li  
2011 Jan.

**Richard Li**  
**Manager**

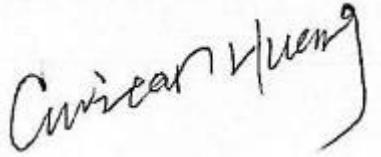
The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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. All test results in this report can be traceable to National or International Standards.

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## 2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2011-01-28		Original

Authorized for issue by:			
Tested By	 (Yam Shan) /Project Engineer		2010-10-29 to 2010-11-19 Date
Prepared By	 (Millie Li) /Clerk		2011-01-28 Date
Checked By	 (Guitar Huang) /Reviewer		2011-01-28 Date

### 3 Test Summary

Electromagnetic Interference (EMI)				
Test	Test Requirement	Test Method	Class / Severity	Result
Conducted Emission (150 KHz to 30 MHz)	FCC PART 15 SUBPART B:2009	ANSI C63.4:2009	Class B	PASS
Radiated Emission (30 MHz to 1 GHz)	FCC PART 15 SUBPART B:2009	ANSI C63.4:2009	Class B	PASS **
Radiated Emission above 1 GHz	FCC PART 15 SUBPART B:2009	N/A	Class B	N/A
Antenna Power (30 MHz to 1 GHz)	FCC PART 15 SUBPART B:2009	Section 15.111	Class B	PASS

**Remark :**

**EUT:** In this whole report EUT means Equipment Under Test.

**N/A:** Not applicable, please refer to section 7.2 of this report for details.

**\* Model no.:** LH32S91T, EC-320-HU

According to the confirmation from the applicant, two models are totally identically in mechanical and electrical construction, except for model No. and trade mark. **LH32S91T** is applicant model No. and trade mark is VTREK; **EC-320-HU** is customer model No. and trade mark is MOTION & DIGIMOTION.

Therefore only one model **LH32S91T** was tested in this report.

Besides the SAMSUNG LCD, there are two additional LCD display (LG and AU) are supplemented for the EUT, therefore the Radiated Emission test was additionally performed for the EUT with these two LCD display, and added the individual Radiated Emission test data into the report.

**\*\*:** The EUT was passed the Radiated Emission (30 MHz to 1 GHz) after retest.

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## 5 General Information

### 5.1 Client Information

Applicant: GUANGZHOU CHANGJIA ELECTRONIC CO.,LTD.  
Address of Applicant: Bo-ying Industrial Garden, Taishi Industrial Zone, Yuwotou, Dongchong Town, Panyu District, Guangzhou, China

### 5.2 General Description of E.U.T.

EUT Name: LCD-TV  
Item No.: LH32S91T, EC-320-HU  
Trade Mark: MOTION, DIGIMOTION, VTREK

### 5.3 Details of E.U.T.

Power Supply: AC 100-240V, 50/60Hz, 150W  
DC 3V (2 x 1.5V size 'AAA' batteries) for remote controller  
Power Cord: 1.5 m x 3 wires unscreened AC mains cable

## 5.4 Description of Support Units

The EUT has been tested with associated equipment as a typical PC system for PC monitor mode.

For other modes, the EUT had been tested as an independent unit.

Description	Manufacturer	Model No.	SN/Certificate NO
<b>Test PC 1</b>			
Personal Computer	DELL	WORKSTATION 690	3R5592X
Monitor	SAMSUNG	225MS	CR22HVMP900646W
Mouse	DELL	MOC5UO	G1B02ZP5
Keyboard	DELL	SK-8115	CN-ODJ331-71616-7B1-109J
<b>Test PC 2</b>			
Personal Computer	DELL	OPTIPLEX 755	D6JF82X
Monitor	DELL	SP2208WF Pt(B)	CN-OPK573-71618-831-119U
Mouse	DELL	M-WDEL1	OT0943
Keyboard	DELL	SK-8115	CN-ODJ331-71616-7B1-109J
<b>Test PC 3</b>			
Personal Computer	DELL	OPTIPLEX 330	7JZ382X
Monitor	DELL	E228WFPC	CN-OPN380-64180-7CJ-1DXL
Mouse	DELL	MOC5UO	G1B02ZP5
Keyboard	CHERRY	RS 6000M	G 00005662 Q242 III
<b>Test PC 4</b>			
Personal Computer	HP	DX7208	CNG62707HF
Monitor	HP	D8904	L0204H094
Mouse	DELL	MOC5UO	G1B02ZP5
Keyboard	DELL	SK-8135	N/A
<b>Notebook</b>			
NoteBook	IBM	T40	99-FBAF9 03/09
NoteBook	Lenovo	R400	L3-ABB9E

Description	Manufacturer	Model No.	SN/Certificate NO
<b>Printer</b>			
Printer	DELL	4470-AD1 (926B)	CN-OGH204-48734-69Q-7K78
Printer	HP	C5884A	SG78D1H18F
<b>Other Peripheral</b>			
DV	SONY	DCR-HC28	375383
Portable Hard disk	MSI	2.5" USB2.0 MOBILE HDD(250GB)	HKC08-J/L8022438329
Portable Hard disk	SAMSUNG	HM320JI(320GB)	S16LJD0Q543275
ROM Programmer	DASI Electronics	EMP-100A	N/A
Faxmodem	3Com U.S. Robotics	56K Faxmodem	715630-01
HP Colorado T1000e External Parallel Tape Backup System	Hewlett Packard	T1000e	US035980
GROUP PHONE SYSTEM	HB	WS824(1)	2.41342E+14
Fast Ethernet Switch	TP-Link	TL-SF1005D	7126101589
Fast Ethernet Switch	TP-Link	TL-SF1008D	7126001251
MIC	VoiceAO	N/A	N/A
MIC	VoiceAO	N/A	N/A
Flash Disk	Kingston	DTI/2GB	CH 092908
Flash Disk	Kingston	DTI/1GB	CH 042007
SD Memory Card	SanDisk	128MB	AK0531802339D
MiniSD Memory Card	SanDisk	1024MB	BB063010TE
MMCmobile	Richlight	1GB	MM8GH01GRMCA-9A
Headphone	COBY	CV-230	N/A
Headphone	Philips	N/A	N/A
Ipod classic	Apple	MB147CH	JQ74121YMV
Ipod classic	Apple	A1137	JQ63803RV9M
Ipod classic	Apple	A1137	
Ipod shuffle	Apple	A1137	YM601DN0S2B
Ipod touch	Apple	A1288	1B9070RW203
Projector	Sony	VPL-CX61	5004355
Xbox 360 Console	Microsoft	Xbox 360 Console	328731122665682000
Xbox Video Game System	Microsoft	F23-00064	111100623241005

## 5.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC (Registration No.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460 and C-2584)**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460 and C-2584 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01:2006-10 and Rules of procedure IECEE 02:2006-10, and the relevant IECEE CB-Scheme Operational documents.

## 5.6 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,  
198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District,  
Guangzhou, China 510663  
Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

## 5.7 Deviation from Standards

None.

## 5.8 Abnormalities from Standard Conditions

The EUT was passed the Radiated Emission (30 MHz to 1 GHz) after modification by applicant.

## 6 Equipment Used during Test

Conducted Emission						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m <sup>3</sup>	N/A	N/A	N/A
EMC0118	Two-line v-netwok	R&S	ENV216	100359	2010-09-25	2011-09-25
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	2010-11-24	2011-11-24
EMC0107	Coaxial Cable	SGS	2m	N/A	2010-07-18	2011-07-18
EMC0106	Voltage Probe	SGS	N/A	N/A	N/A	N/A
EMC0120	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	20550	2010-01-25	2011-01-25
EMC0121	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	20549	2010-01-25	2011-01-25
EMC0122	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	20548	2010-01-25	2011-01-25

RE in Chamber						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2010-09-06	2011-09-06
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2010-01-25	2011-01-25
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	10036	2010-06-02	2011-06-02
N/A	EMI Test Software	Audix	E3	N/A	N/A	N/A
EMC0514	Coaxial cable	SGS	N/A	N/A	2010-12-08	2011-12-08
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2009-12-20	2010-12-20
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2009-12-20	2010-12-20
EMC0518	Horn Antenna	Rohde & Schwarz	HF906	100096	2010-09-11	2011-09-11
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2010-01-25	2011-01-25
EMC0049	Amplifier	Agilent	8447D	2944A10862	2010-04-21	2011-04-21
EMC0075	310N Amplifier	Sonama	310N	272683	2010-10-25	2011-10-25
EMC0523	Active Loop Antenna	EMCO	6502	42963	2010-11-17	2011-11-17
EMC0530	10m Semi- Anechoic Chamber	ETS	N/A	N/A	2010-05-17	2011-05-17



CE AT & Antenna Power						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m <sup>3</sup>	N/A	N/A	N/A
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	2010-11-24	2011-11-24
EMC0107	Coaxial Cable	SGS	2m	N/A	2010-07-18	2011-07-18
EMC1704	Matching Pad	Rohde & Schwarz	RAM	100374	2010-09-22	2011-09-22
EMC1705	Matching Pad	Rohde & Schwarz	RAM	100394	2010-09-22	2011-09-22

General used equipment						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0006	DMM	Fluke	73	70681569	2009-12-16	2010-12-16
EMC0007	DMM	Fluke	73	70671122	2009-12-16	2010-12-16

## 7 Emission Test Results

### 7.1 Conducted Emissions Mains Terminals, 150 KHz to 30MHz

Test Requirement: FCC Part15 B  
Test Method: ANSI C63.4  
Test Voltage: 120V AC, 60Hz  
Test Date: 2010-11-01  
Frequency Range: 150KHz to 30MHz  
Detector: Peak for pre-scan  
Quasi-Peak and Average at frequency with maximum peak  
(9 kHz resolution bandwidth)  
Class / Limit: Class B

Frequency range MHz	Class B Limits dB ( $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

NOTE 1 :The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.  
NOTE 2: The lower limit is applicable at the transition frequency.

#### 7.1.1 E.U.T. Operation

Operating Environment:

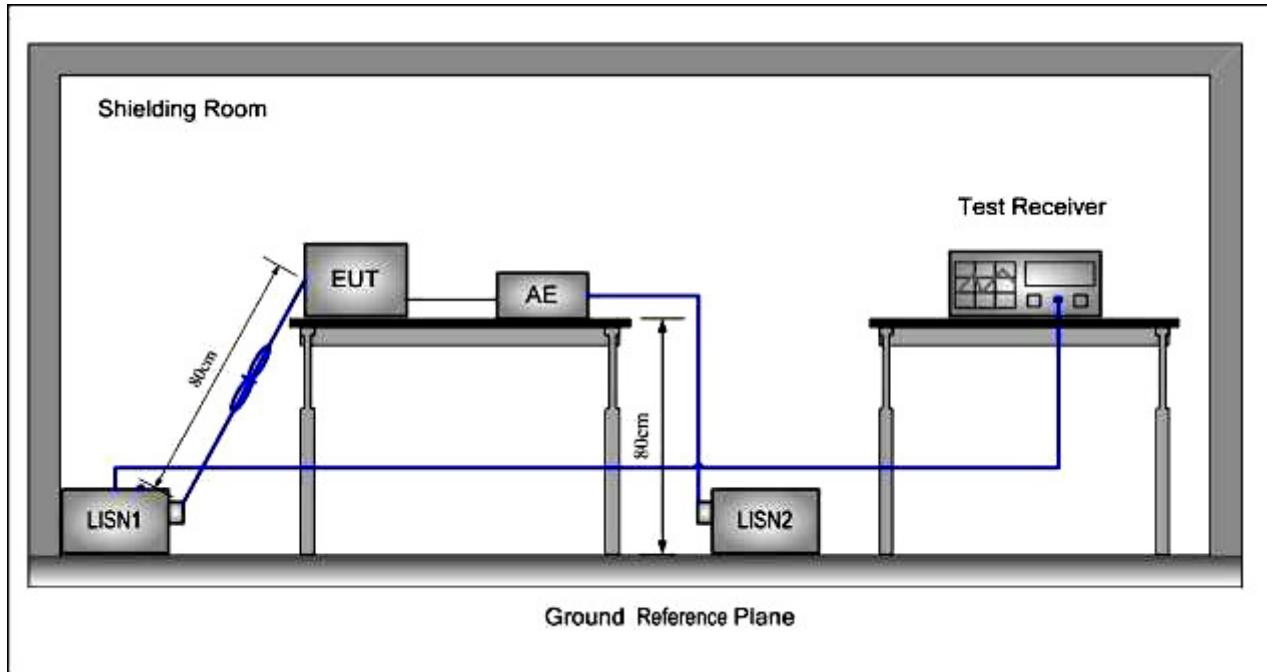
Temperature: 23.0 °C      Humidity: 59 %RH      Atmospheric Pressure: 1006 mbar

EUT Operation: 1. Pre-test the EUT in DTV mode, USB disk play mode, AV mode and HDMI mode to find the worst case, compliance test the EUT in DTV mode as the worst case was found

2. Test the EUT in PC connection mode.

Pre-test the lowest, middle and highest supported resolution, compliance test in the worst supported resolution: 800X600 with highest contrast and brightness, keep scroll playing 'H' on the monitor.

### 7.1.2 Test Setup and Procedure



1. The mains terminal disturbance voltage test was conducted in a shielded room.
2. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a  $50\Omega/50\mu\text{H} + 5\Omega$  linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

### 7.1.3 Measurement Data

Pre-scan was performed with peak detected on both live and neutral cable. Quasi-peak & average measurements were performed at the frequencies which maximum peak emission level was detected.

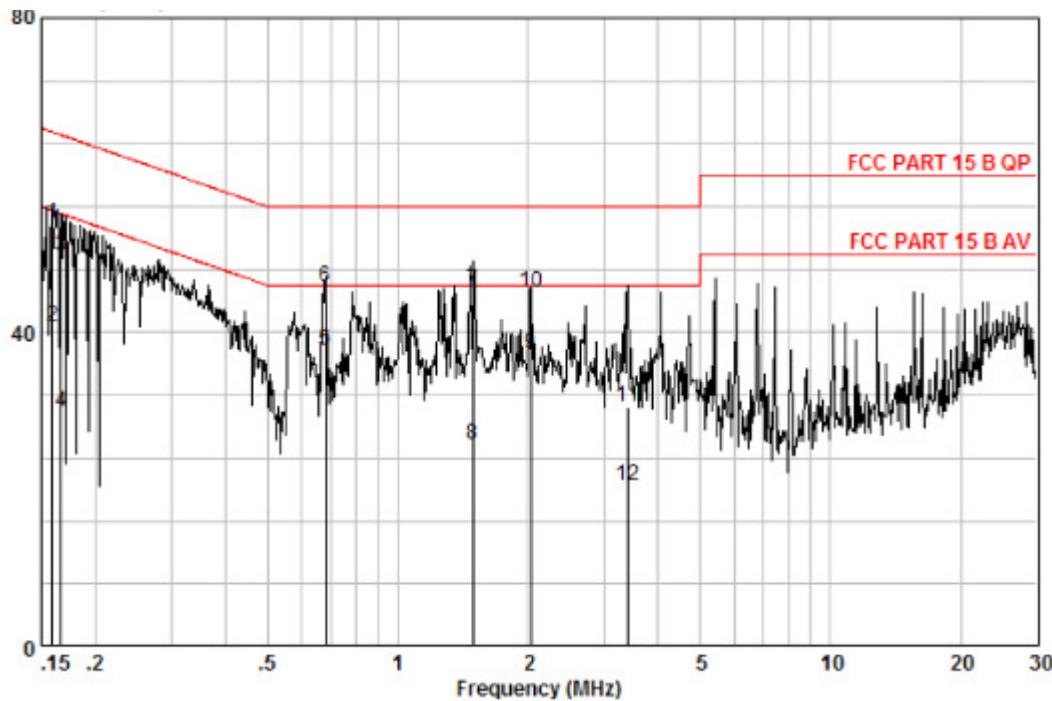
Please see the attached Quasi-peak and Average test results.

#### DTV mode

##### Live Line:

Peak Scan:

Level (dB $\mu$ V)



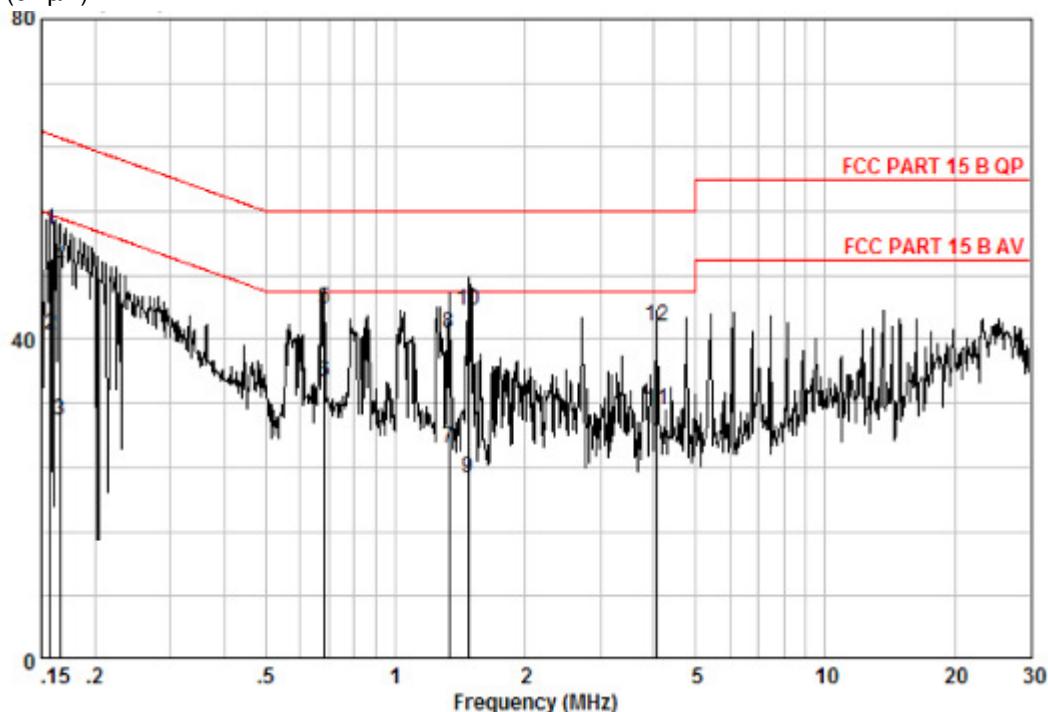
Quasi-peak and Average measurement

Freq	Read	Cable	LISN	Limit	Over	Over	Remark
	Level	Loss	Factor				
MHz	dB $\mu$ V	dB	dB	dB $\mu$ V	dB $\mu$ V	dB	
0.159	44.19	0.07	9.62	53.88	65.52	-11.63	QP
0.159	31.17	0.07	9.62	40.86	55.52	-14.65	AVERAGE
0.167	39.91	0.09	9.62	49.62	65.12	-15.50	QP
0.167	20.21	0.09	9.62	29.92	55.12	-25.20	AVERAGE
0.679	28.06	0.04	9.62	37.72	46.00	-8.28	AVERAGE
0.679	36.01	0.04	9.62	45.67	56.00	-10.33	QP
1.487	35.76	0.02	9.63	45.41	56.00	-10.59	QP
1.487	16.16	0.02	9.63	25.81	46.00	-20.19	AVERAGE
2.033	27.60	0.06	9.64	37.30	46.00	-8.70	AVERAGE
2.033	35.52	0.06	9.64	45.22	56.00	-10.78	QP
3.399	20.68	0.13	9.64	30.45	56.00	-25.55	QP
3.399	10.72	0.13	9.64	20.49	46.00	-25.51	AVERAGE

Level = Read Level + LISN Factor + Cable Loss.

**Neutral Line:**

Peak Scan:

Level (dB $\mu$ V)

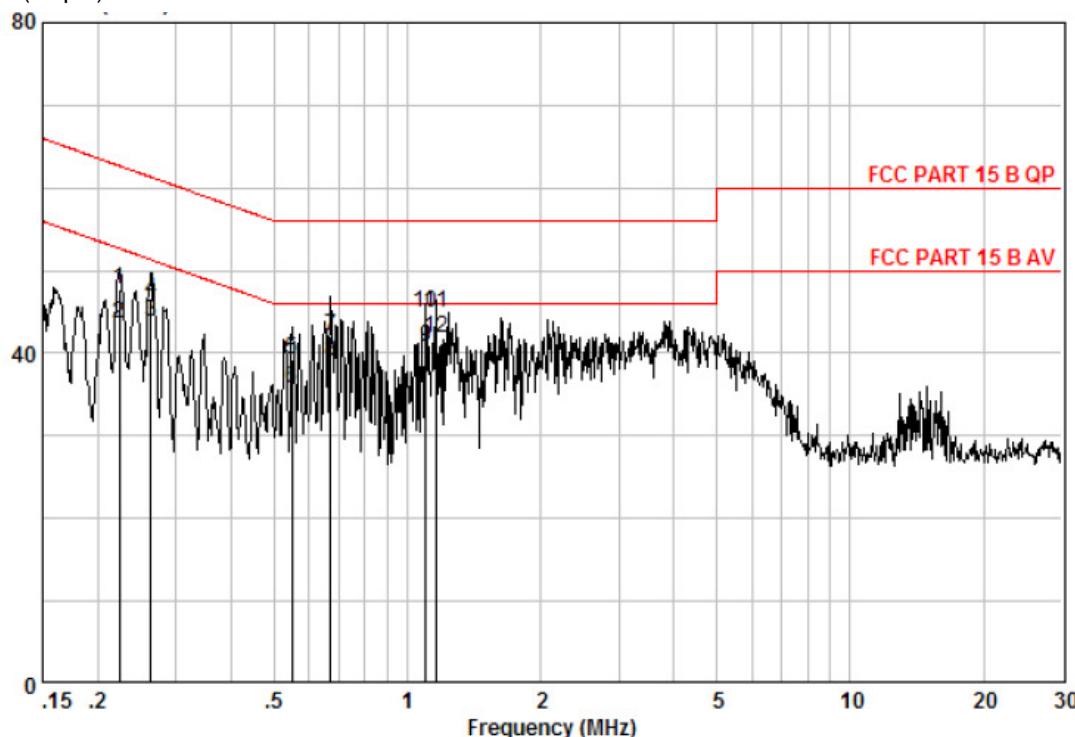
Quasi-peak and Average measurement:

Freq	Read	Cable	LISN	Level	Limit	Over	Remark
	Level	Loss	Factor		Line	Line	
MHz	dB $\mu$ V	dB	dB	dB $\mu$ V	dB $\mu$ V	dB	
0.157	43.91	0.07	9.64	53.62	65.60	-11.99	QP
0.157	30.91	0.07	9.64	40.62	55.60	-14.99	AVERAGE
0.166	20.05	0.08	9.63	29.77	55.16	-25.40	AVERAGE
0.166	39.30	0.08	9.63	49.02	65.16	-16.15	QP
0.683	34.25	0.04	9.61	43.90	56.00	-12.10	QP
0.683	25.05	0.04	9.61	34.70	46.00	-11.30	AVERAGE
1.331	16.73	0.02	9.65	26.40	46.00	-19.60	AVERAGE
1.331	31.18	0.02	9.65	40.85	56.00	-15.15	QP
1.480	13.04	0.02	9.65	22.71	46.00	-23.29	AVERAGE
1.480	33.88	0.02	9.65	43.55	56.00	-12.45	QP
4.070	21.43	0.14	9.69	31.26	46.00	-14.74	AVERAGE
4.070	31.91	0.14	9.69	41.74	56.00	-14.26	QP

**Level = Read Level + LISN Factor + Cable Loss.**

**PC connection mode****Live Line:**

Peak Scan:

Level (dB $\mu$ V)

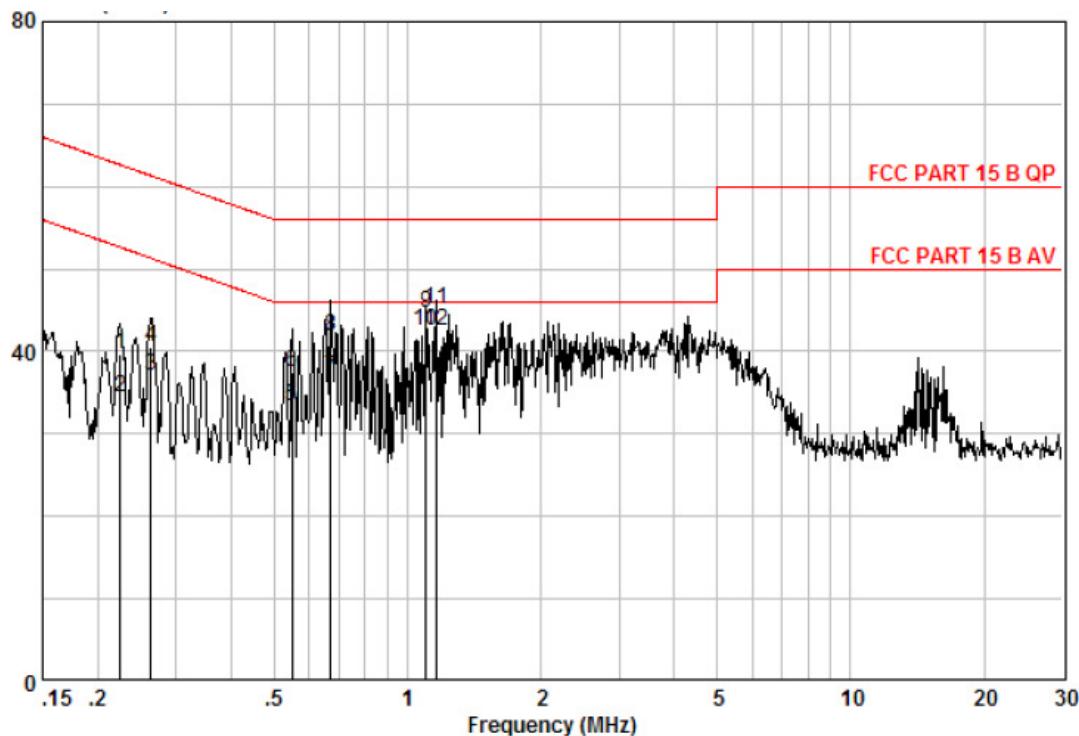
Quasi-peak and Average measurement

Freq	Read	Cable	LISN	Limit	Over	Remark
	Level	Loss	Factor			
MHz	dB $\mu$ V	dB	dB	dB $\mu$ V	dB $\mu$ V	dB
0.223	37.96	0.12	9.62	47.70	62.70	-15.00 QP
0.223	33.92	0.12	9.62	43.66	52.70	-9.04 AVERAGE
0.263	34.17	0.10	9.62	43.88	51.34	-7.45 AVERAGE
0.263	36.78	0.10	9.62	46.49	61.34	-14.84 QP
0.549	29.54	0.05	9.61	39.20	56.00	-16.80 QP
0.549	25.98	0.05	9.61	35.64	46.00	-10.36 AVERAGE
0.672	32.40	0.04	9.62	42.06	56.00	-13.94 QP
0.672	29.38	0.04	9.62	39.04	46.00	-6.96 AVERAGE
1.100	31.03	0.02	9.62	40.67	46.00	-5.33 AVERAGE
1.100	35.18	0.02	9.62	44.82	56.00	-11.18 QP
1.160	35.16	0.02	9.62	44.80	56.00	-11.20 QP
1.160	32.18	0.02	9.62	41.82	46.00	-4.18 AVERAGE

Level = Read Level + LISN Factor + Cable Loss.

**Neutral Line:**

Peak Scan:

Level (dB $\mu$ V)

Quasi-peak and Average measurement:

Freq MHz	Read Level dB $\mu$ V	Cable Loss dB	LISN Factor dB	Level dB $\mu$ V	Limit Line dB $\mu$ V	Over Limit dB	Over Limit Remark
							QP
0.224	29.88	0.12	9.62	39.62	62.66	-23.04	QP
0.224	24.78	0.12	9.62	34.52	52.66	-18.14	AVERAGE
0.263	27.38	0.10	9.62	37.10	51.34	-14.24	AVERAGE
0.263	30.82	0.10	9.62	40.54	61.34	-20.80	QP
0.549	23.68	0.05	9.62	33.35	46.00	-12.65	AVERAGE
0.549	27.90	0.05	9.62	37.57	56.00	-18.43	QP
0.672	27.15	0.04	9.61	36.81	46.00	-9.19	AVERAGE
0.672	32.24	0.04	9.61	41.90	56.00	-14.10	QP
1.100	34.92	0.02	9.64	44.58	56.00	-11.42	QP
1.100	32.83	0.02	9.64	42.49	46.00	-3.51	AVERAGE
1.160	35.52	0.02	9.64	45.18	56.00	-10.82	QP
1.160	32.78	0.02	9.64	42.44	46.00	-3.56	AVERAGE

**Level = Read Level + LISN Factor + Cable Loss.**

## 7.2 Radiated Emissions, 30MHz to 1GHz

Test Requirement: FCC Part15 B  
Test Method: ANSI C63.4  
Test Voltage: 120V AC, 60Hz  
Test Date: 2010-11-01 (initial test)  
2010-11-19 (retest)  
Frequency Range: 30MHz to 1GHz  
Measurement Distance: 3 m, 10m  
Detector: Peak for pre-scan  
Quasi-Peak if maximised peak within 6dB of limit  
(120 kHz resolution bandwidth)  
Class / Limit: Class B

For Class B

For 3M (DTV mode, USB disk play mode, AV mode and HDMI mode)

Frequency range MHz	Quasi-peak limits dB ( $\mu$ V/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960	54

At transitional frequencies the lower limit applies.

For 10M (PC connection mode)

Frequency range MHz	Quasi-peak limits dB ( $\mu$ V/m)
30 to 88	29.5
88 to 216	33.1
216 to 960	35.6
Above 960	43.5

At transitional frequencies the lower limit applies.

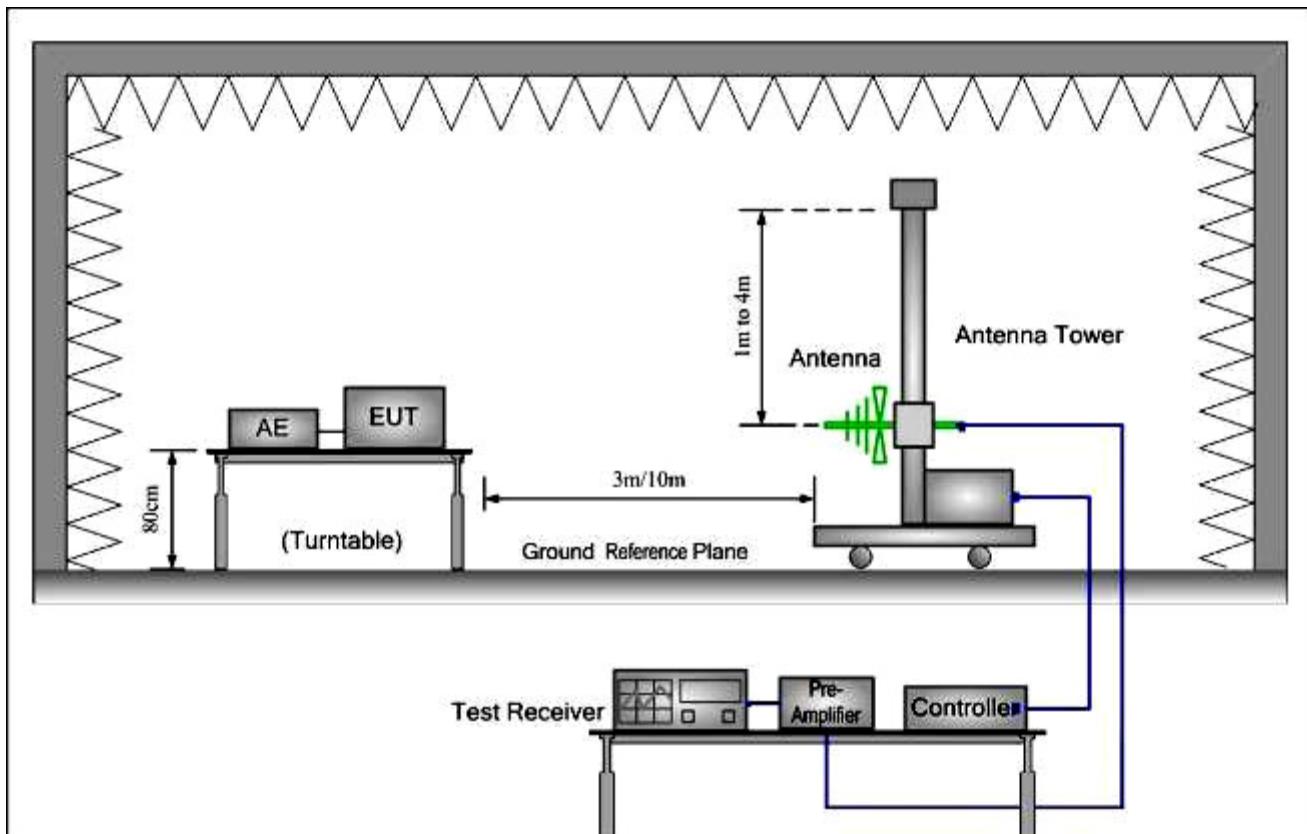
### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24.0 °C      Humidity: 53 %RH      Atmospheric Pressure: 1005 mbar

EUT Operation: Test the EUT in DTV mode, USB disk play mode, AV mode, HDMI mode and PC connection mode(Pre-test the lowest, middle and highest supported resolution, compliance test in the worst supported resolution: 800X600 with highest contrast and brightness, keep scroll playing 'H' on the monitor).

### 7.2.2 Test Setup and Procedure



1. The radiated emissions test was conducted in a semi-anechoic chamber.
2. Biconical and log periodic antenna was used for the frequency range from 30MHz to 1GHz
3. The EUT was connected to AC power source through a mains power outlet which was bonded to the ground reference plane; The mains cables were draped to the ground reference plane. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.
5. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

### 7.2.3 Measurement Data

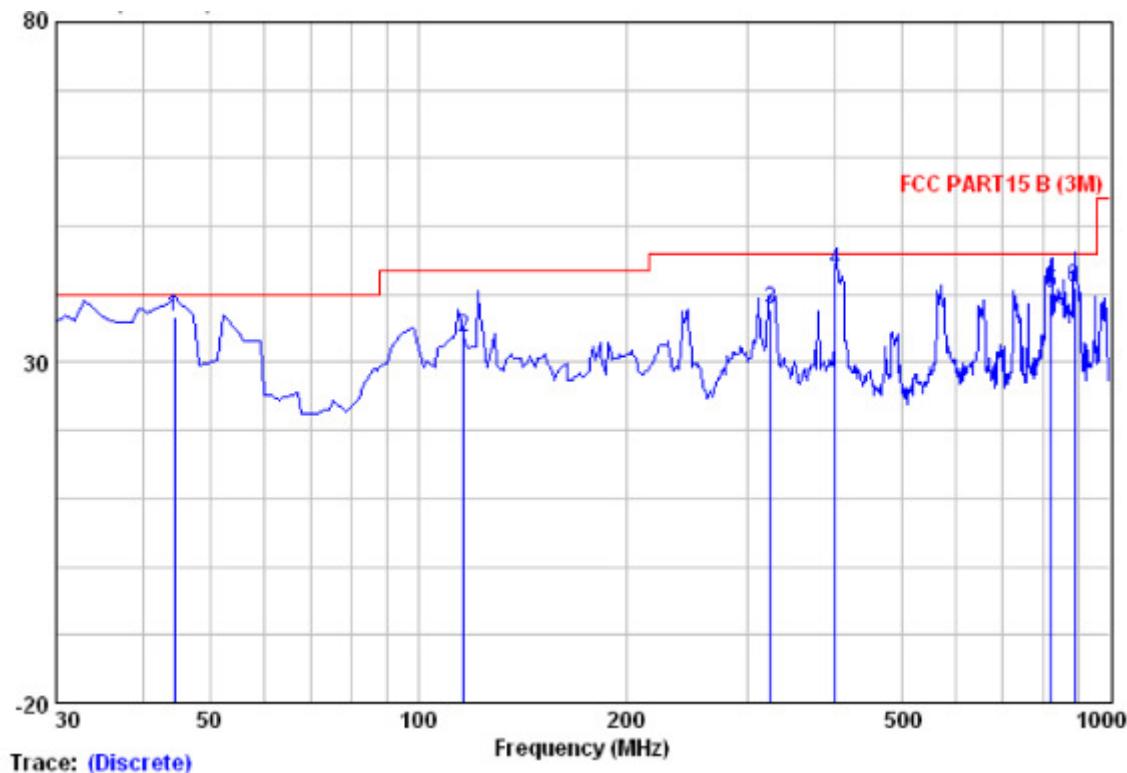
With SAMSUNG LCD

DTV mode

Vertical:

Peak scan

Level (dB $\mu$ V/m)



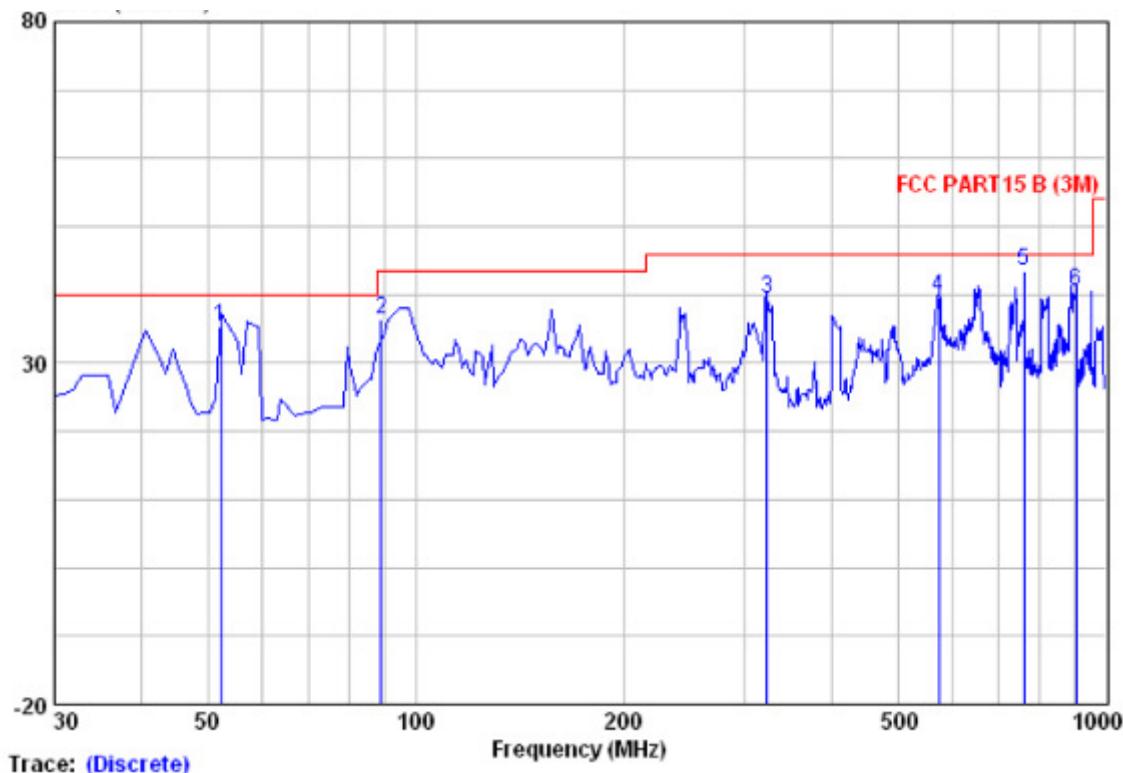
Quasi-peak measurement

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Level dB $\mu$ V/m	Over Limit dB	Over Limit Remark
44.550	51.90	13.55	0.60	29.50	40.00	36.55	-3.45	QP
116.364	51.30	11.10	0.90	29.70	43.50	33.60	-9.90	QP
322.940	52.25	13.46	1.60	29.60	46.00	37.71	-8.29	QP
401.510	56.17	15.10	1.80	29.60	46.00	43.47	-2.53	QP
822.280	46.26	20.28	2.70	28.99	46.00	40.26	-5.74	QP
887.080	45.60	20.96	2.80	28.40	46.00	40.95	-5.05	QP

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)

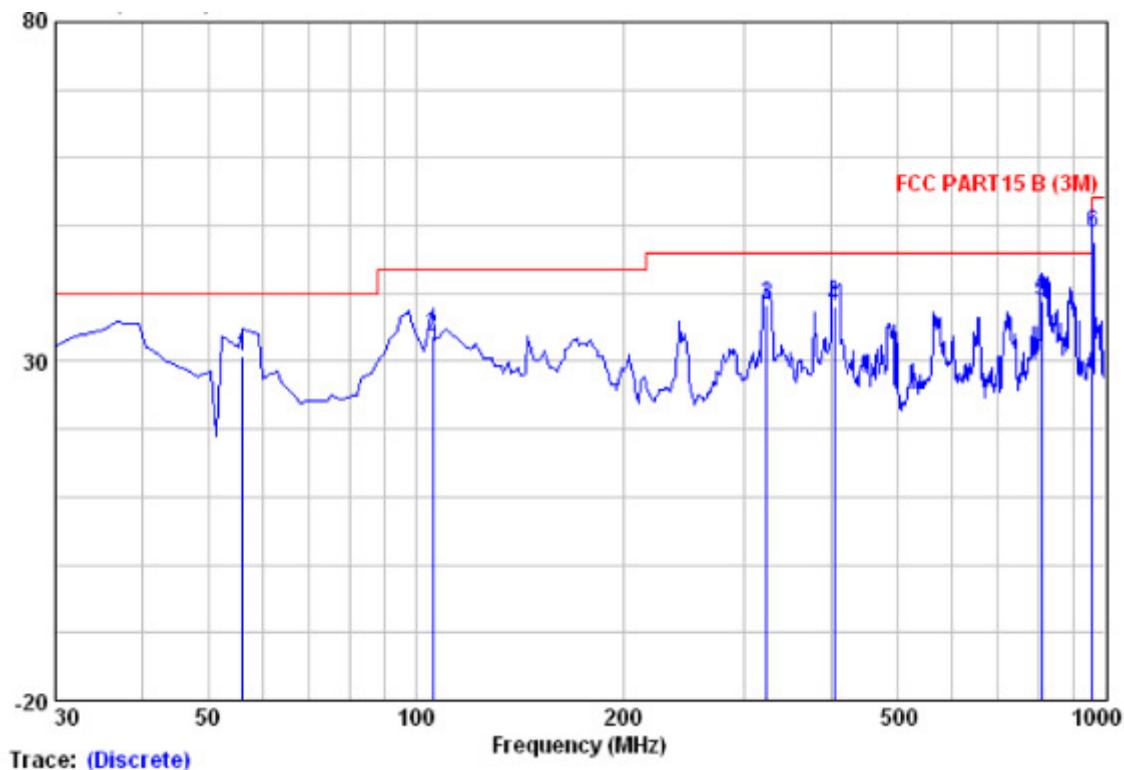
## Quasi-peak measurement

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Over Limit dB $\mu$ V/m	Over Limit dB	Remark
52.310	50.87	13.15	0.70	29.51	40.00	35.21	-4.79	QP
89.170	53.44	11.76	0.80	29.67	43.50	36.32	-7.18	QP
322.940	53.83	13.46	1.60	29.60	46.00	39.29	-6.71	QP
572.230	48.91	17.98	2.20	29.43	46.00	39.67	-6.33	QP
761.380	50.67	19.58	2.60	29.24	46.00	43.61	-2.39	QP
904.940	44.72	21.12	2.80	28.24	46.00	40.40	-5.60	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**USB disk play mode****Vertical:**

Peak scan

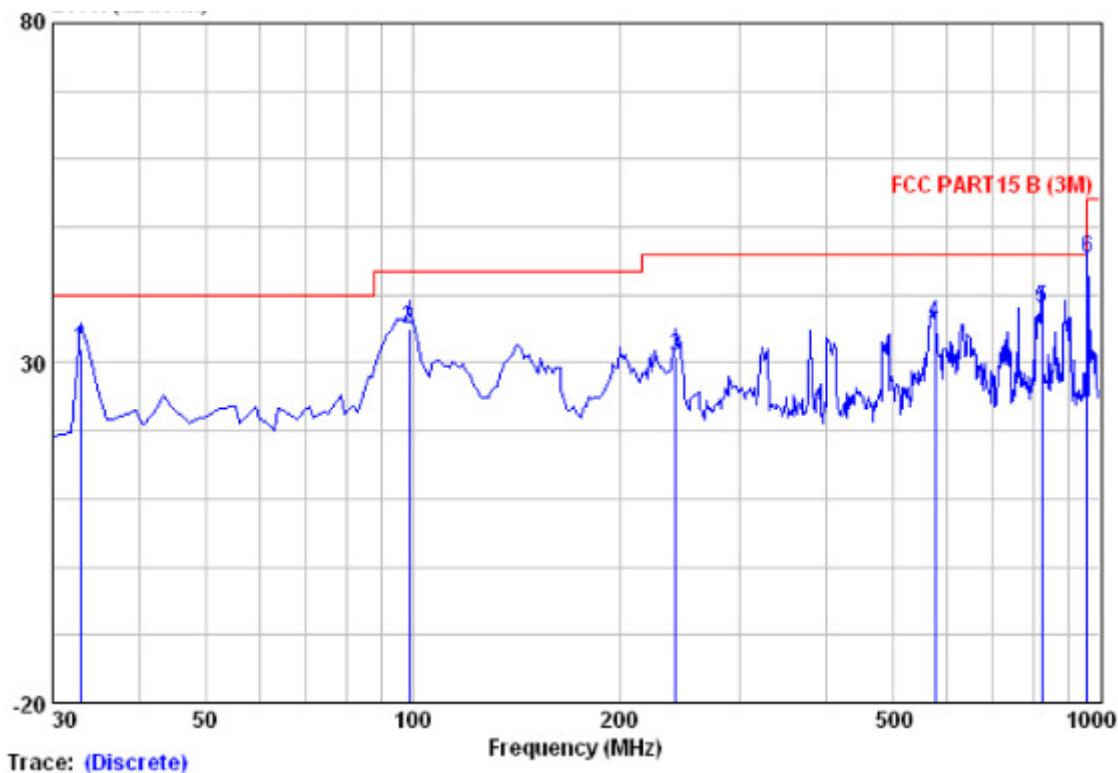
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Level dB $\mu$ V/m	Over Limit dB	Over Limit Remark
56.190	46.71	12.93	0.70	29.53	40.00	30.80	-9.20	QP
105.660	49.80	12.63	0.90	29.70	43.50	33.64	-9.86	QP
322.940	52.91	13.46	1.60	29.60	46.00	38.37	-7.63	QP
404.420	50.56	15.14	1.80	29.60	46.00	37.90	-8.10	QP
807.940	45.13	20.15	2.70	29.12	46.00	38.86	-7.14	QP
960.200	52.26	21.49	2.90	27.82	54.00	48.83	-5.17	QP

$$\text{Level} = \text{Read Level} + \text{Antenna Factor} + \text{Cable Loss} - \text{Preamp Factor}.$$

**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)

## Quasi-peak measurement

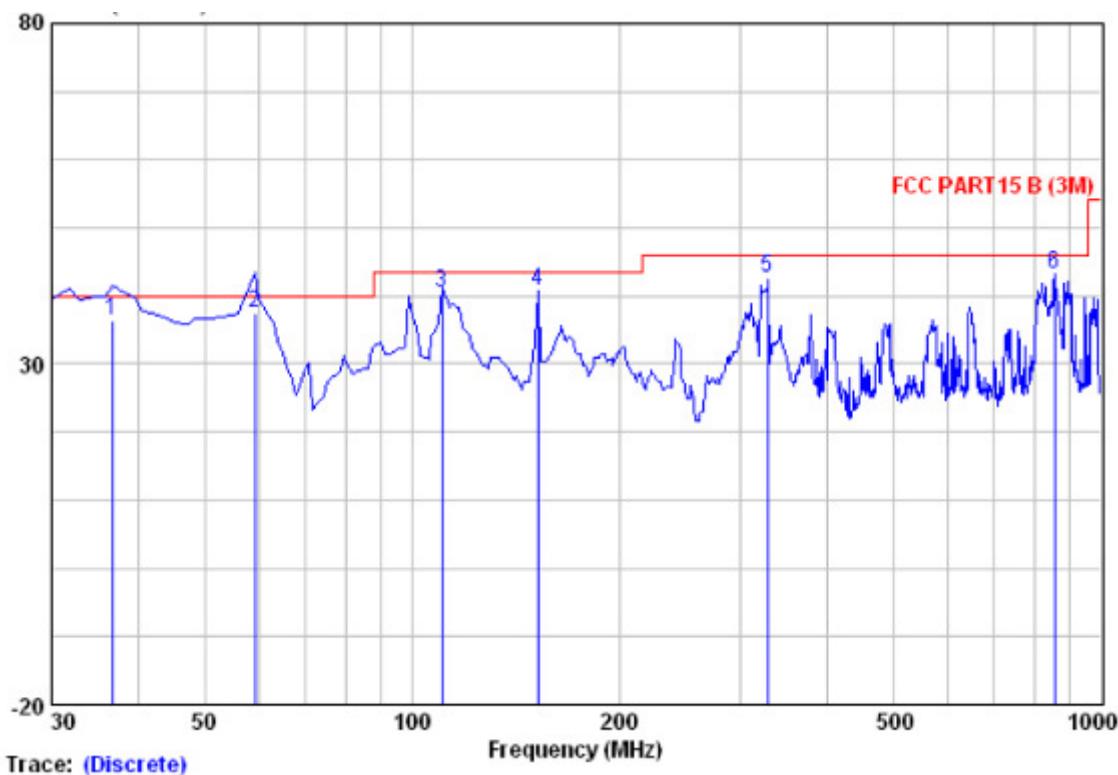
Freq MHz	Read	Antenna Level	Cable Loss	Preamp Factor	Limit Line	Level	Over Limit	Remark
	dB $\mu$ V	dB/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
32.910	48.77	12.31	0.40	29.50	40.00	31.98	-8.02	QP
98.870	50.72	13.10	0.90	29.70	43.50	35.02	-8.48	QP
241.460	47.12	12.09	1.30	29.55	46.00	30.96	-15.04	QP
576.110	45.18	18.03	2.20	29.42	46.00	35.99	-10.01	QP
823.460	43.85	20.33	2.70	28.96	46.00	37.91	-8.09	QP
960.240	48.82	21.49	2.90	27.82	54.00	45.39	-8.61	QP

Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor.

**AV mode**

Vertical:

Peak scan

Level (dB $\mu$ V/m)

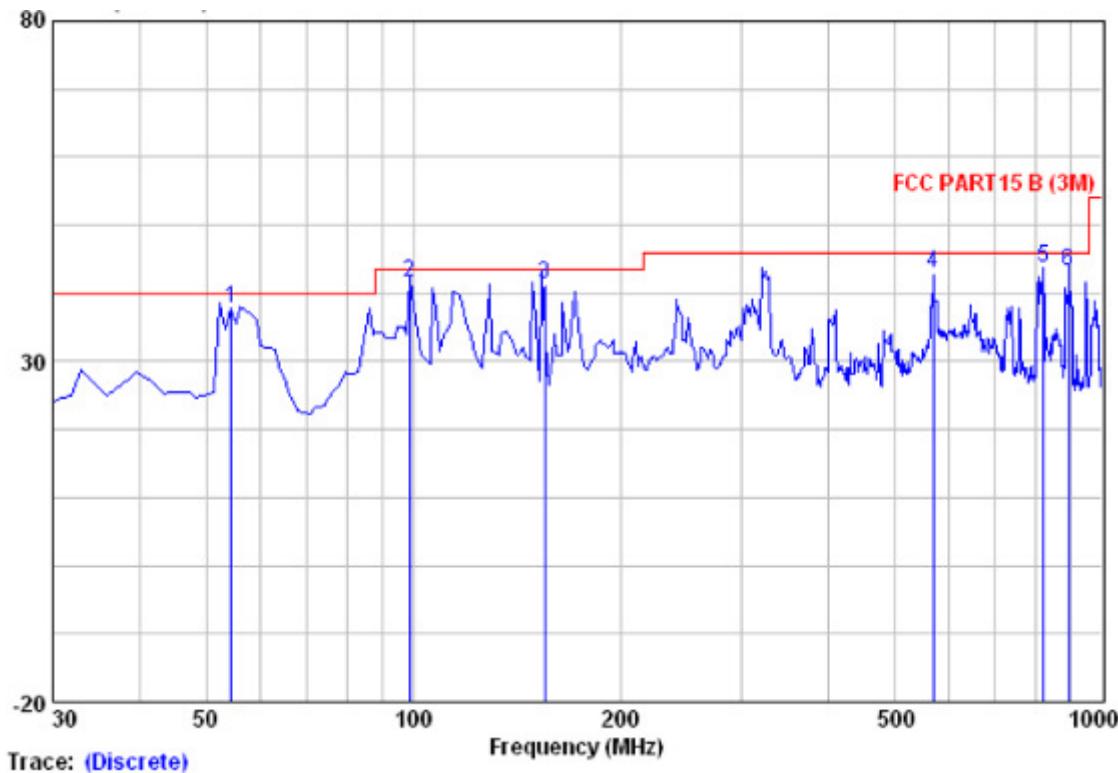
Quasi-peak measurement

Freq MHz	Read Level dB $\mu$ V	Antenna Factor	Cable Loss dB	Preamp Factor	Line Limit dB $\mu$ V/m	Over Line Level dB $\mu$ V/m	Over Limit dB	Over Remark
	MHz	dB $\mu$ V/m	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	dB	
36.790	51.11	14.39	0.50	29.50	40.00	36.51	-3.49	QP
59.100	61.08	5.25	0.70	29.55	40.00	37.48	-2.52	QP
110.510	57.88	11.50	0.90	29.70	43.50	40.58	-2.92	QP
152.220	59.58	9.75	1.10	29.69	43.50	40.74	-2.76	QP
327.790	56.87	13.73	1.60	29.60	46.00	42.60	-3.40	QP
854.500	48.49	20.70	2.70	28.70	46.00	43.19	-2.81	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)

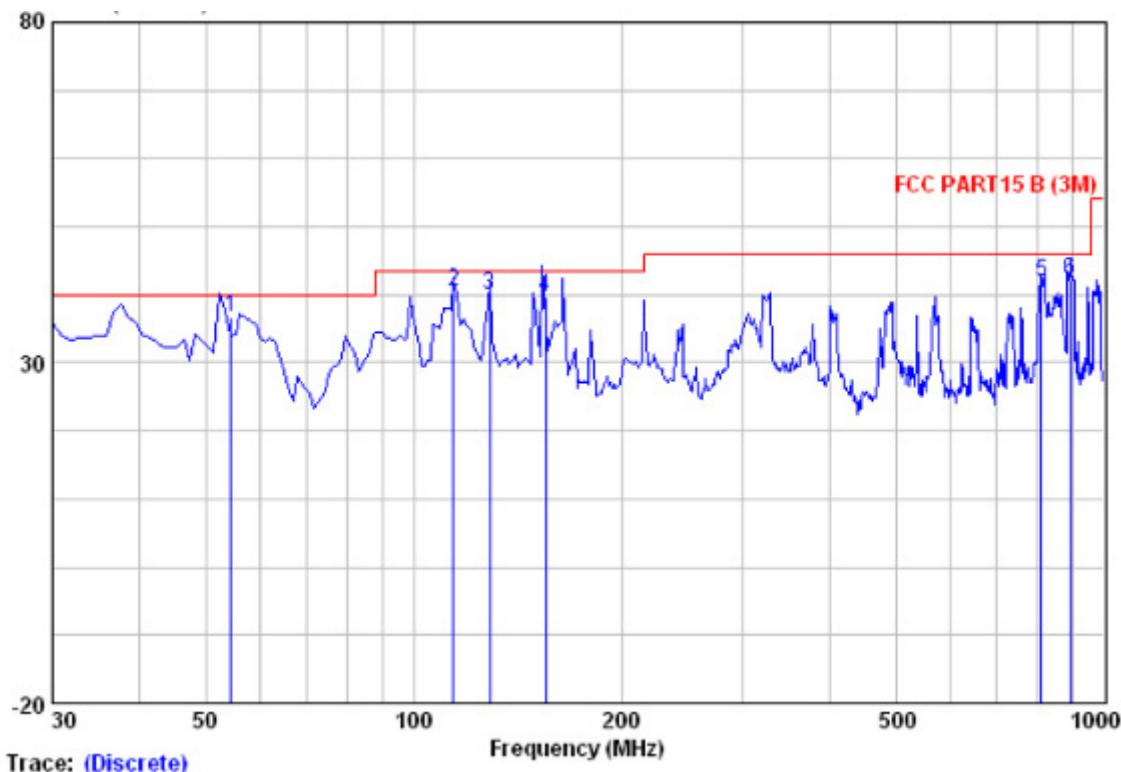
## Quasi-peak measurement

Freq MHz	Read	Antenna Level dB $\mu$ V	Cable Loss dB	Preamp Factor	Limit Line dB $\mu$ V/m	Limit Level dB $\mu$ V/m	Over Limit dB	Remark
	Antenna Level dB $\mu$ V/m	Preamp Factor	Cable Loss dB	Line dB $\mu$ V/m	QP			
54.330	60.07	6.63	0.70	29.52	40.00	37.88	-2.12	QP
98.870	59.97	10.29	0.90	29.70	43.50	41.47	-2.03	QP
155.180	60.42	9.50	1.10	29.68	43.50	41.34	-2.16	QP
568.350	52.04	18.13	2.20	29.43	46.00	42.93	-3.07	QP
820.550	49.35	20.60	2.70	28.99	46.00	43.66	-2.34	QP
894.270	48.23	20.40	2.80	28.35	46.00	43.08	-2.92	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**HDMI mode****Vertical:**

Peak scan

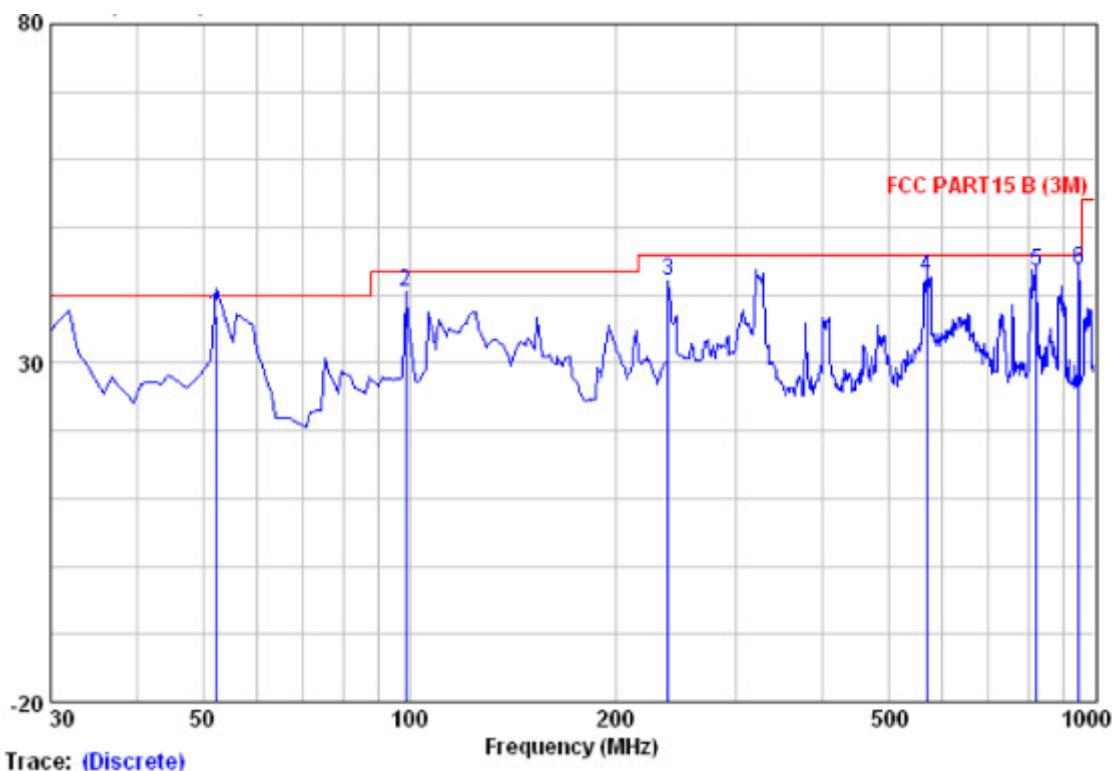
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Read Freq	Antenna Level	Cable Factor	Preamp Loss	Line Factor	Limit	Over Level	Over Limit	Remark
MHz	dB $\mu$ V	dB/ $\mu$ V/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
54.330	58.97	6.63	0.70	29.52	40.00	36.78	-3.22	QP
114.390	57.65	11.50	0.90	29.70	43.50	40.35	-3.15	QP
128.940	56.95	11.80	0.90	29.70	43.50	39.95	-3.55	QP
155.160	58.69	9.50	1.10	29.68	43.50	39.61	-3.89	QP
812.790	47.88	20.40	2.70	29.07	46.00	41.91	-4.09	QP
894.270	47.26	20.40	2.80	28.35	46.00	42.11	-3.89	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

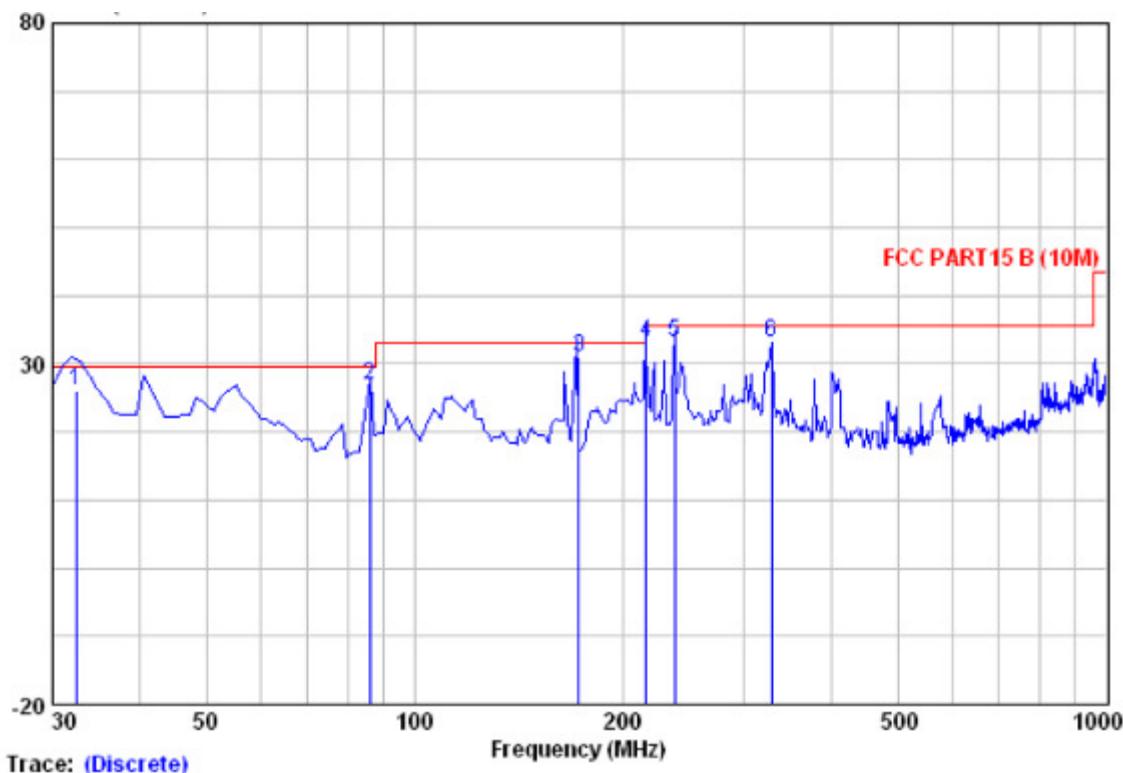
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss Factor dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Limit Line Level dB $\mu$ V/m	Over Limit dB	Over Remark
	MHz	dB $\mu$ V	dB/m	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
52.310	58.61	7.23	0.70	29.51	40.00	37.03	-2.97	QP
98.870	59.06	10.29	0.90	29.70	43.50	40.55	-2.95	QP
238.550	59.25	11.10	1.30	29.54	46.00	42.10	-3.90	QP
568.350	51.90	18.13	2.20	29.43	46.00	42.80	-3.20	QP
820.550	49.10	20.60	2.70	28.99	46.00	43.41	-2.59	QP
948.590	47.71	21.17	2.90	27.90	46.00	43.87	-2.13	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**PC connection mode****Vertical:**

Peak scan

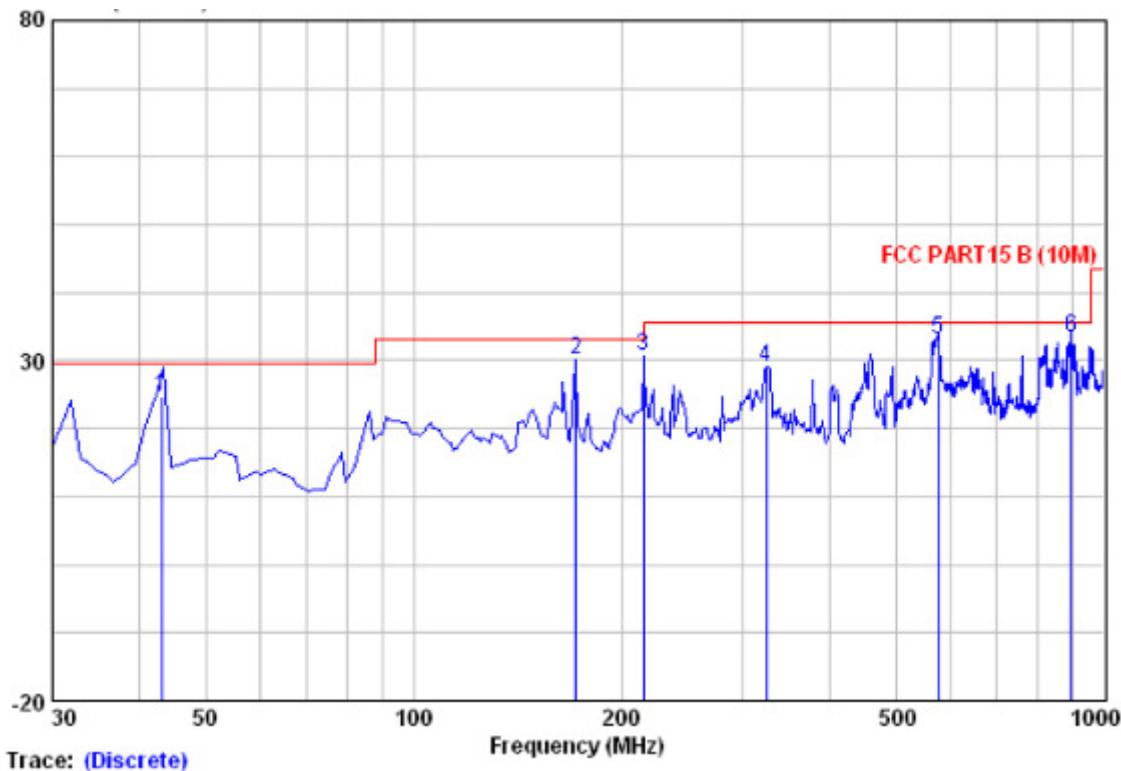
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss Factor dB	Preamp Factor dB	Limit Line dB $\mu$ V/m	Limit Level dB $\mu$ V/m	Over Level dB	Over Limit Remark
	MHz	dB $\mu$ V	dB/m	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
32.480	43.82	11.46	0.40	29.50	29.50	26.18	-3.32	QP
86.260	45.86	9.88	0.80	29.66	29.50	26.89	-2.61	QP
172.820	50.60	8.81	1.18	29.60	33.10	30.99	-2.11	QP
216.020	50.50	10.97	1.30	29.52	35.60	33.25	-2.35	QP
237.580	49.34	11.98	1.30	29.54	35.60	33.08	-2.52	QP
327.790	47.33	13.93	1.60	29.60	35.60	33.26	-2.34	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

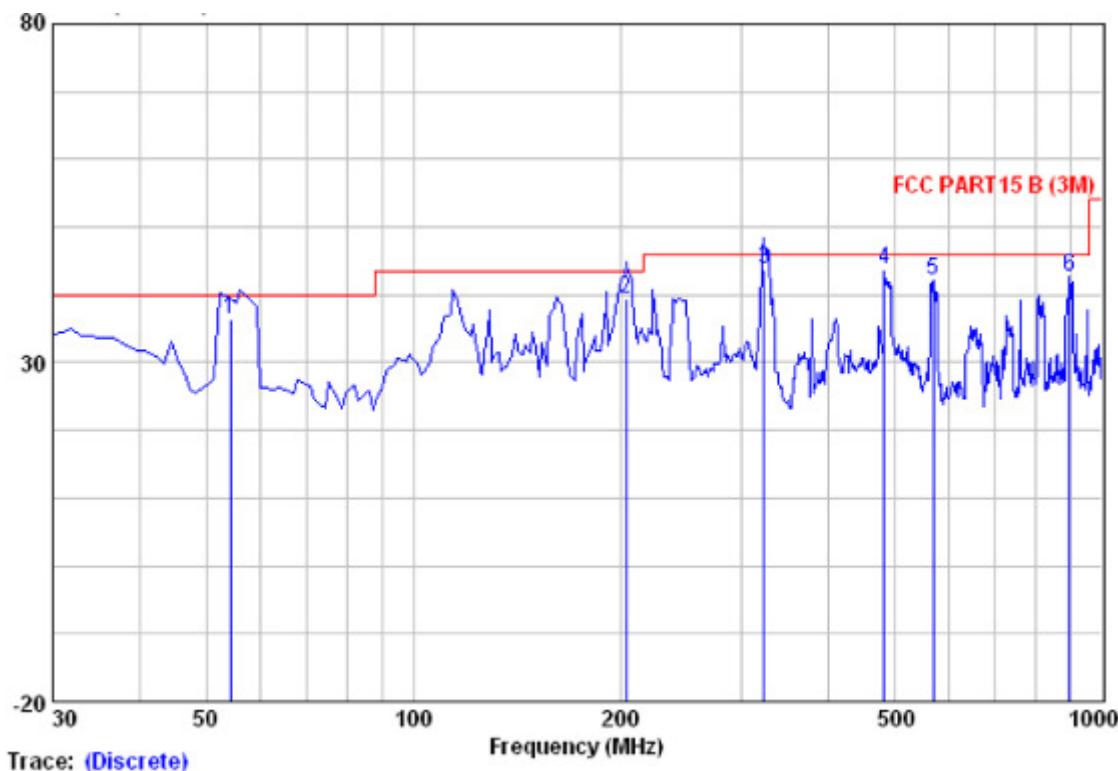
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read	Antenna	Cable	Preamp	Limit	Over Limit dB	Remark
	Level dB $\mu$ V	Factor dB/m	Loss dB	Factor dB	Line dB $\mu$ V/m		
43.200	40.78	12.70	0.60	29.50	29.50	24.58	-4.92 QP
171.620	49.76	8.74	1.15	29.61	33.10	30.04	-3.06 QP
215.270	47.92	10.93	1.30	29.52	33.10	30.63	-2.47 QP
323.910	43.35	13.79	1.60	29.60	35.60	29.14	-6.46 QP
575.140	41.66	18.62	2.20	29.42	35.60	33.06	-2.54 QP
897.180	37.20	21.80	2.80	28.32	35.60	33.48	-2.12 QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**With LG LCD****DTV mode****Vertical:**

Peak scan

Level (dB $\mu$ V/m)

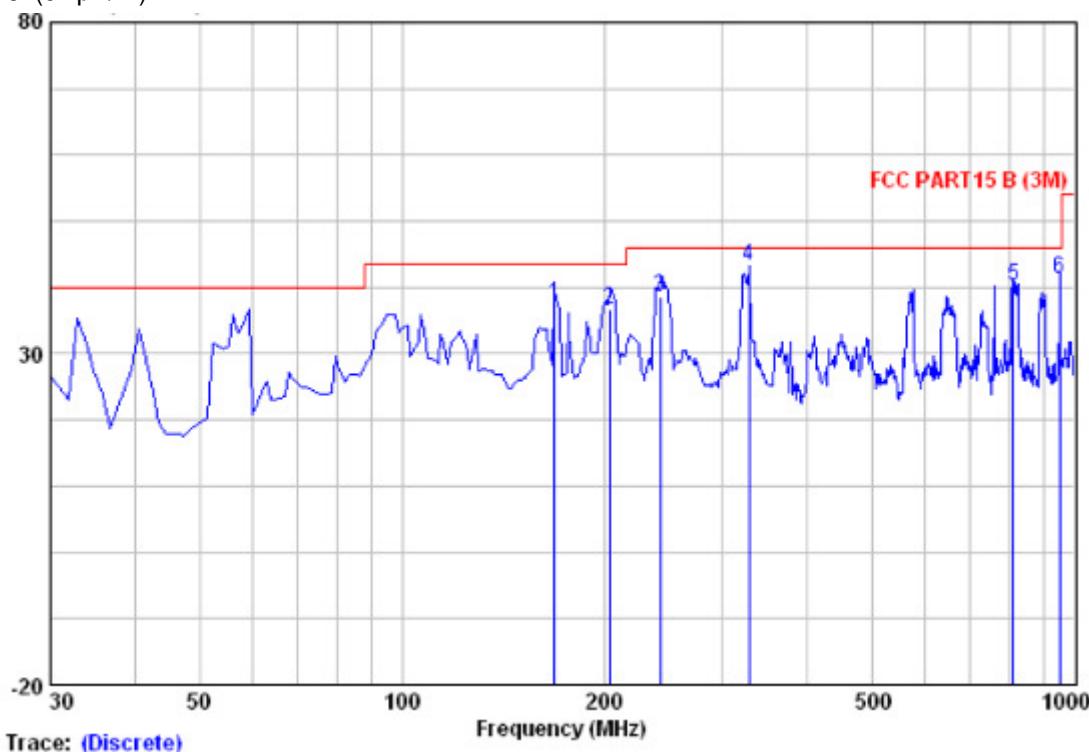
Quasi-peak measurement

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Limit Line dB $\mu$ V/m	Over Limit dB	Remark
54.300	52.20	13.05	0.70	29.52	40.00	36.42	-3.58	QP
203.630	57.00	10.67	1.20	29.50	43.50	39.37	-4.13	QP
322.700	58.26	13.46	1.60	29.60	46.00	43.72	-2.28	QP
482.990	55.14	16.13	2.00	29.52	46.00	43.76	-2.24	QP
568.350	51.44	17.93	2.20	29.43	46.00	42.14	-3.86	QP
897.180	47.03	21.05	2.80	28.32	46.00	42.55	-3.45	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)

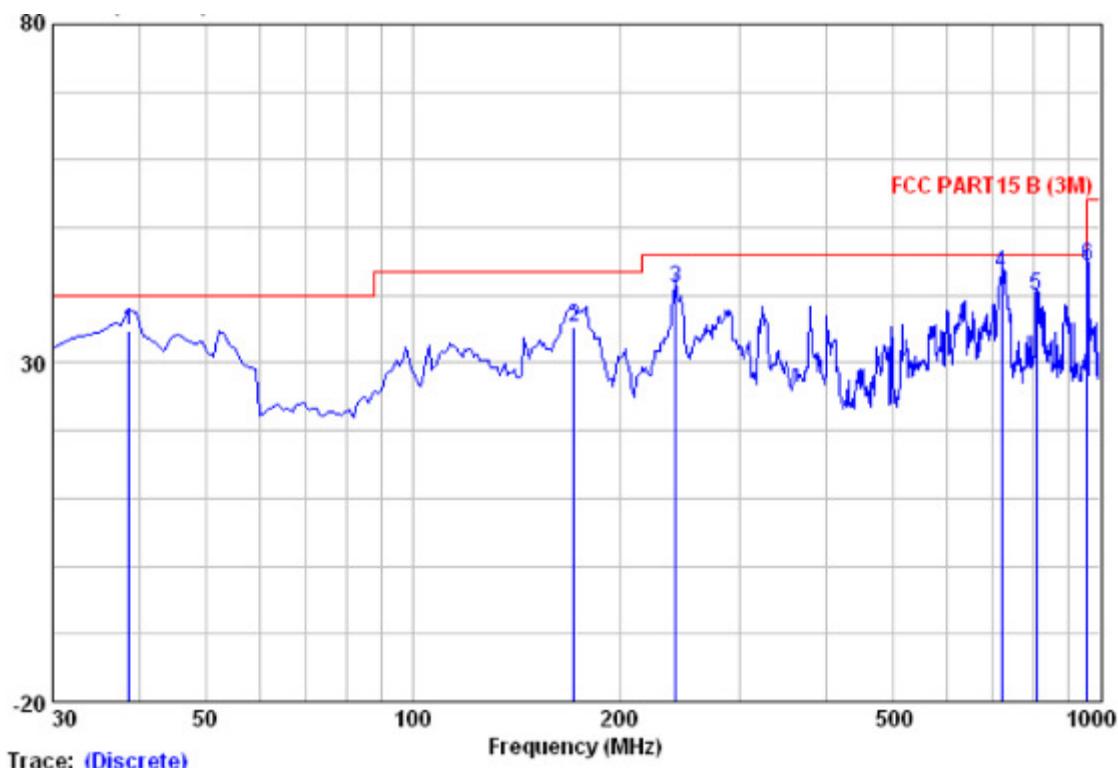
Quasi-peak measurement

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss Factor dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Over Line Level dB $\mu$ V/m	Over Limit dB	Over Remark
168.710	57.03	8.92	1.10	29.62	43.50	37.44	-6.06	QP
203.630	54.30	10.67	1.20	29.50	43.50	36.66	-6.84	QP
242.430	54.82	12.08	1.30	29.55	46.00	38.66	-7.34	QP
327.790	57.67	13.66	1.60	29.60	46.00	43.33	-2.67	QP
812.790	46.27	20.19	2.70	29.07	46.00	40.09	-5.91	QP
951.500	44.90	21.43	2.90	27.87	46.00	41.36	-4.64	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**USB disk play mode****Vertical:**

Peak scan

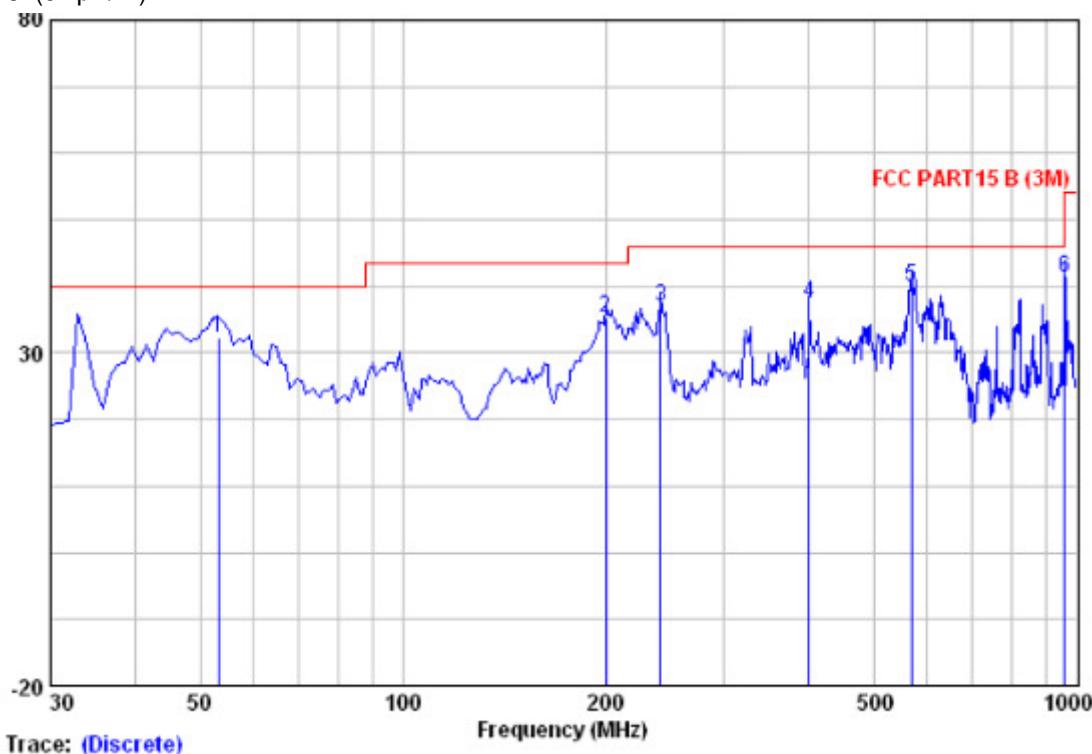
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Line Limit	Over Level	Over Limit	Remark
MHz	dB $\mu$ V	dB $\mu$ V/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
38.730	50.41	13.25	0.50	29.50	40.00	34.65	-5.35	QP
171.620	54.79	9.10	1.15	29.61	43.50	35.43	-8.07	QP
241.460	57.08	12.09	1.30	29.55	46.00	40.92	-5.08	QP
719.670	50.92	19.05	2.50	29.28	46.00	43.19	-2.81	QP
807.940	46.13	20.15	2.70	29.12	46.00	39.86	-6.14	QP
960.230	47.82	21.49	2.90	27.82	54.00	44.40	-9.60	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

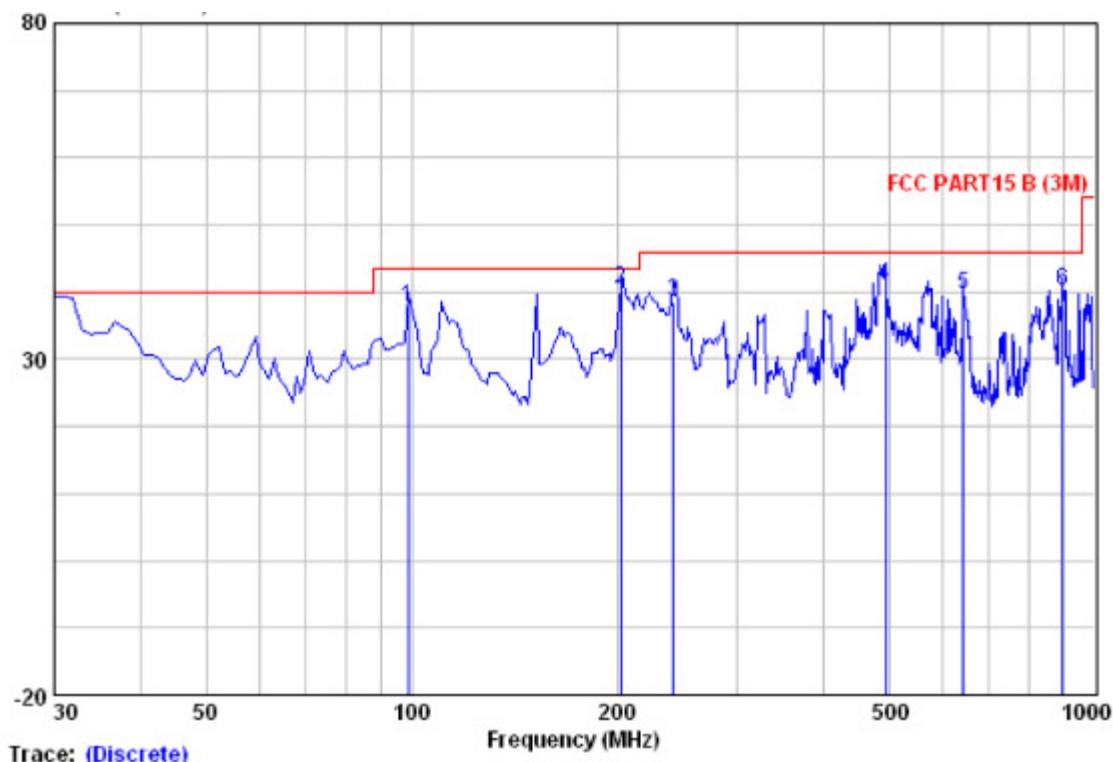
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB $\mu$ V/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Over Line Level dB $\mu$ V/m	Over Limit dB	Remark
53.280	48.12	13.10	0.70	29.52	40.00	32.40	-7.60	QP
199.750	53.04	10.57	1.20	29.50	43.50	35.31	-8.19	QP
241.460	53.12	12.09	1.30	29.55	46.00	36.96	-9.04	QP
401.510	50.25	15.10	1.80	29.60	46.00	37.56	-8.44	QP
568.350	49.35	17.93	2.20	29.43	46.00	40.05	-5.95	QP
960.230	44.82	21.49	2.90	27.82	54.00	41.39	-12.61	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**AV mode****Vertical:**

Peak scan

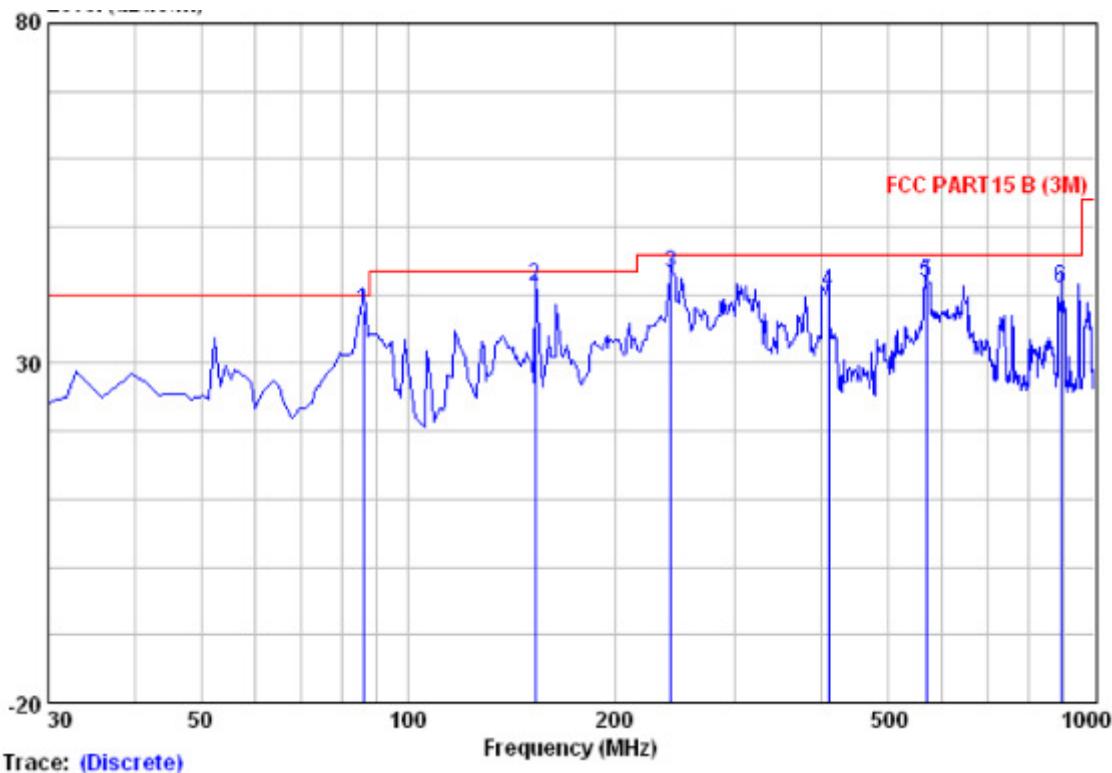
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Limit Line Level dB $\mu$ V/m	Over Limit dB	Over Limit Remark
98.870	56.38	10.29	0.90	29.70	43.50	37.87	-5.63	QP
202.660	60.05	8.75	1.20	29.50	43.50	40.50	-3.00	QP
241.460	55.49	11.32	1.30	29.55	46.00	38.56	-7.44	QP
493.660	51.44	16.94	2.05	29.50	46.00	40.92	-5.08	QP
642.070	48.02	18.50	2.40	29.35	46.00	39.57	-6.43	QP
897.180	45.16	20.50	2.80	28.32	46.00	40.13	-5.87	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)

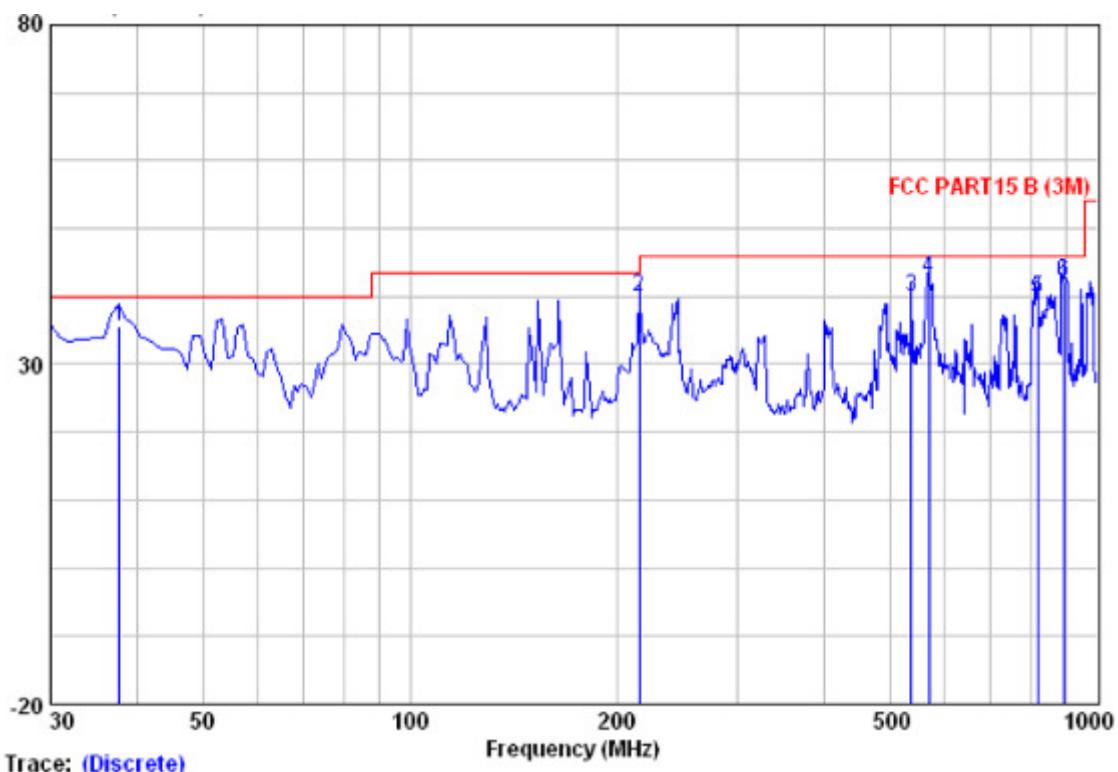
Quasi-peak measurement

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss Factor dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Over Line Level dB $\mu$ V/m	Over Limit dB	Over Remark
86.260	58.70	7.94	0.80	29.66	40.00	37.78	-2.22	QP
153.190	60.12	9.69	1.10	29.69	43.50	41.22	-2.28	QP
241.460	60.12	11.32	1.30	29.55	46.00	43.19	-2.81	QP
409.270	51.71	16.48	1.90	29.59	46.00	40.50	-5.50	QP
568.350	51.04	18.13	2.20	29.43	46.00	41.93	-4.07	QP
894.270	46.23	20.40	2.80	28.35	46.00	41.08	-4.92	QP

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

**HDMI mode****Vertical:**

Peak scan

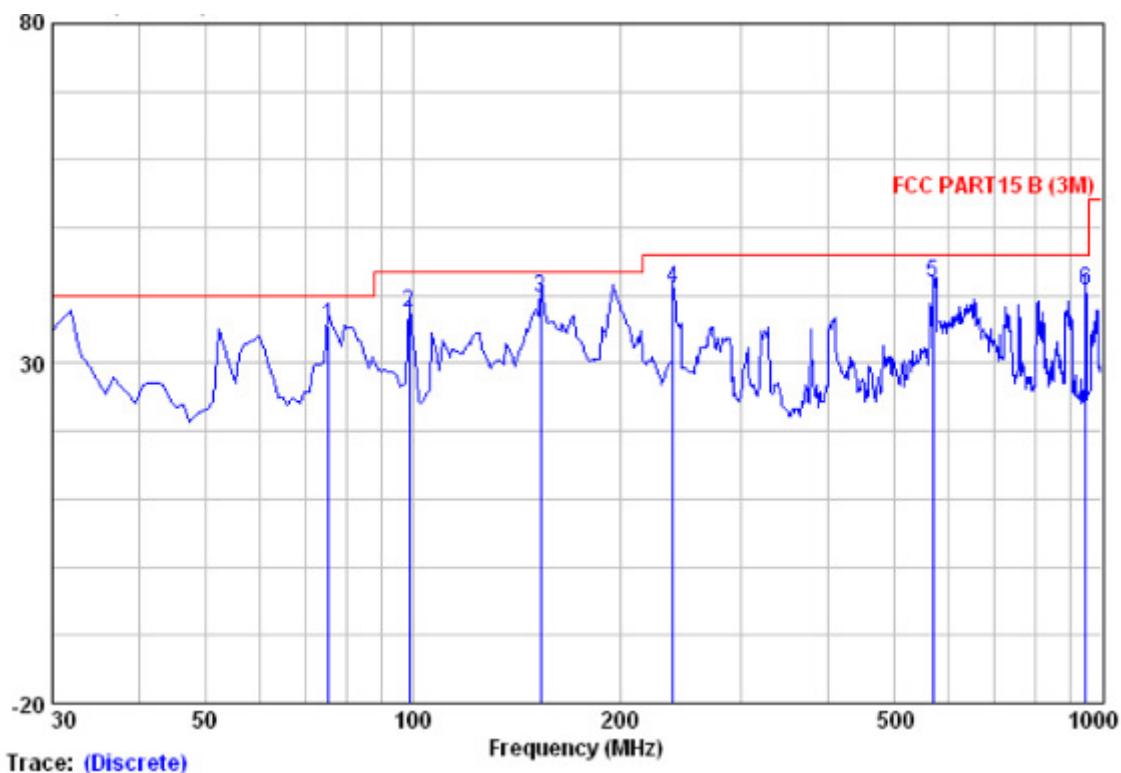
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Level dB $\mu$ V/m	Over Limit dB	Over Limit Remark
37.760	50.67	13.88	0.50	29.50	40.00	35.55	-4.45	QP
215.270	58.83	9.40	1.30	29.52	43.50	40.02	-3.48	QP
536.340	49.51	17.68	2.20	29.46	46.00	39.92	-6.08	QP
568.350	51.85	18.13	2.20	29.43	46.00	42.75	-3.25	QP
819.580	45.33	20.60	2.70	29.01	46.00	39.61	-6.39	QP
894.270	47.26	20.40	2.80	28.35	46.00	42.11	-3.89	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

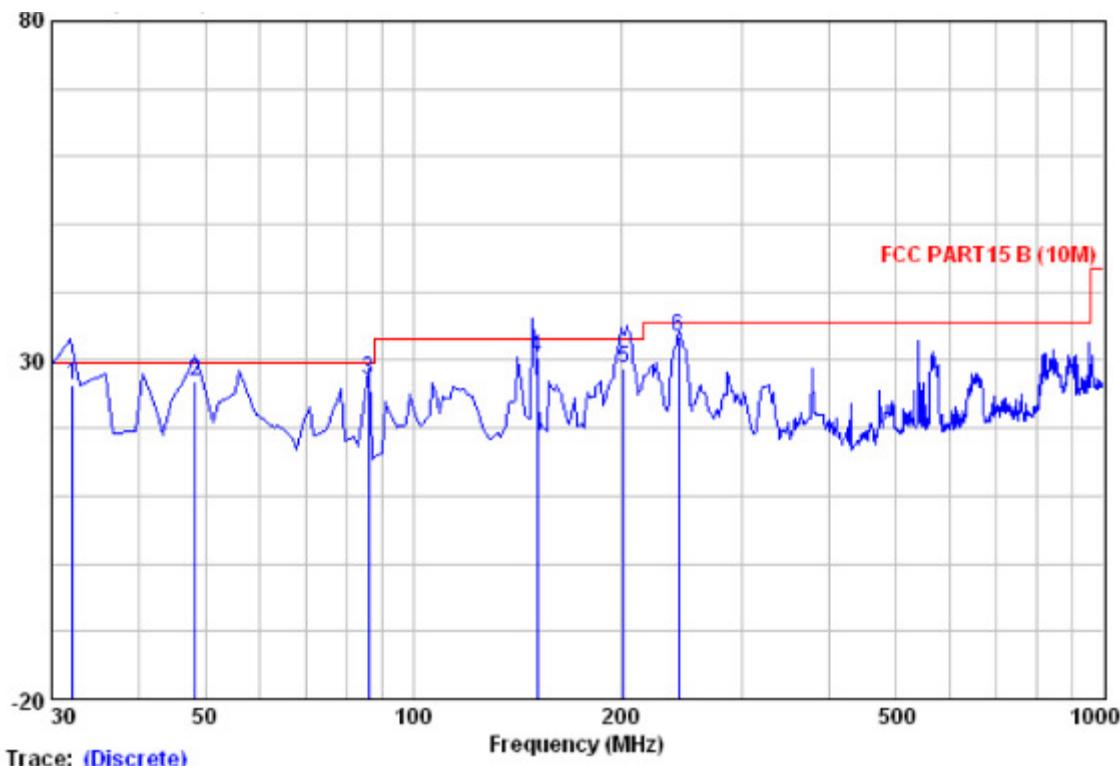
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Level dB $\mu$ V/m	Over Limit dB	Over Limit Remark
75.590	58.90	5.63	0.70	29.62	40.00	35.60	-4.40	QP
98.870	56.06	10.29	0.90	29.70	43.50	37.55	-5.95	QP
153.190	58.68	9.69	1.10	29.69	43.50	39.79	-3.71	QP
238.550	58.25	11.10	1.30	29.54	46.00	41.10	-4.90	QP
569.320	50.99	18.10	2.20	29.43	46.00	41.86	-4.14	QP
948.590	44.71	21.17	2.90	27.90	46.00	40.87	-5.13	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**PC connection mode****Vertical:**

Peak scan

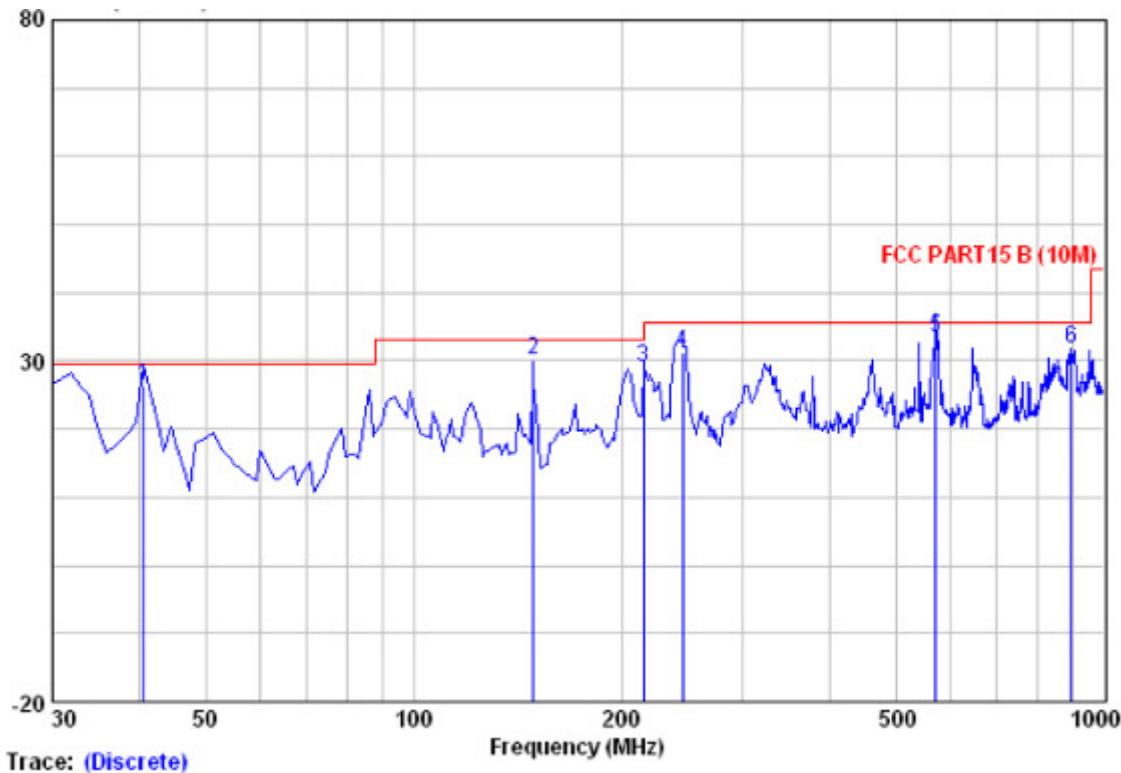
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Limit Line dB $\mu$ V/m	Limit Level dB $\mu$ V/m	Over Level dB	Over Limit dB	Remark
32.180	43.89	11.47	0.40	29.50	29.50	26.25	-3.25	QP	
48.430	43.16	12.49	0.70	29.50	29.50	26.85	-2.65	QP	
86.260	46.04	9.88	0.80	29.66	29.50	27.07	-2.43	QP	
151.200	51.26	7.80	1.05	29.70	33.10	30.41	-2.69	QP	
201.600	46.56	10.43	1.20	29.50	33.10	28.68	-4.42	QP	
242.430	49.65	12.10	1.30	29.55	35.60	33.50	-2.10	QP	

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

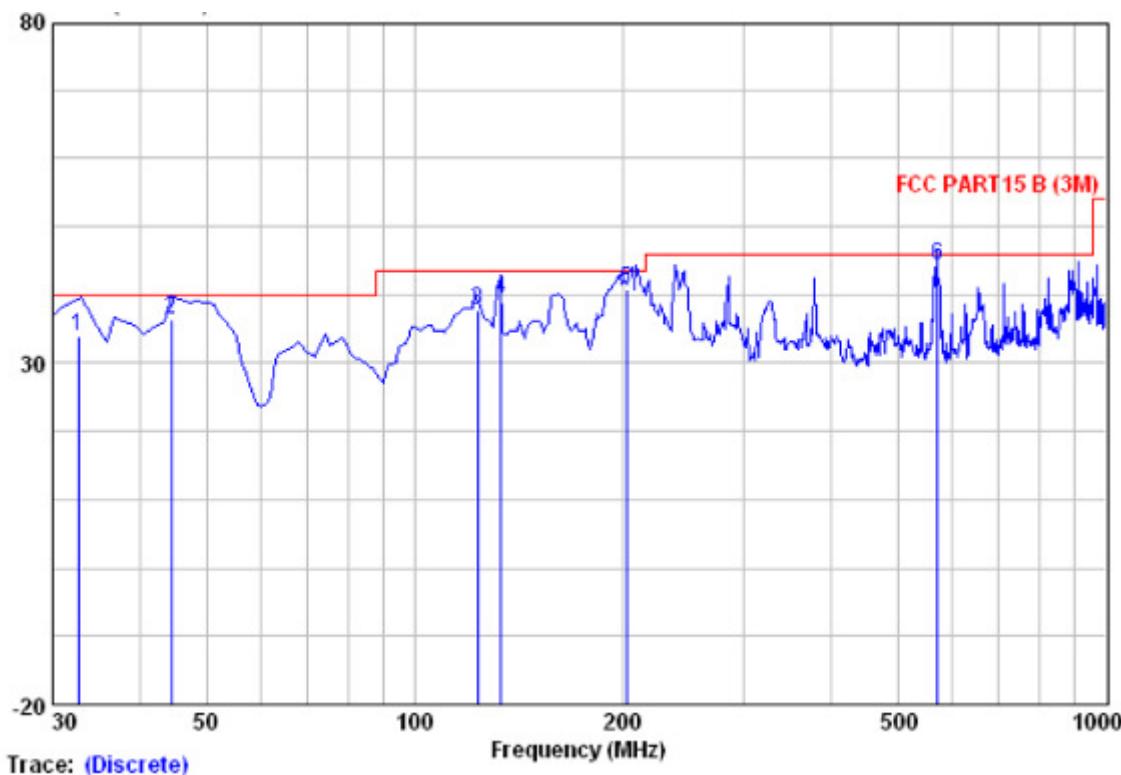
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Line Limit	Level	Over Limit	Remark
MHz	dB $\mu$ V	dB/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
40.670	42.64	12.72	0.50	29.50	29.50	26.37	-3.13	QP
149.310	51.25	7.71	1.00	29.70	33.10	30.25	-2.85	QP
215.270	46.38	10.93	1.30	29.52	33.10	29.09	-4.01	QP
245.340	47.17	12.11	1.40	29.55	35.60	31.13	-4.47	QP
570.020	42.20	18.52	2.20	29.43	35.60	33.49	-2.11	QP
897.180	35.54	21.80	2.80	28.32	35.60	31.82	-3.78	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**With AU LCD****DTV mode****Vertical:**

Peak scan

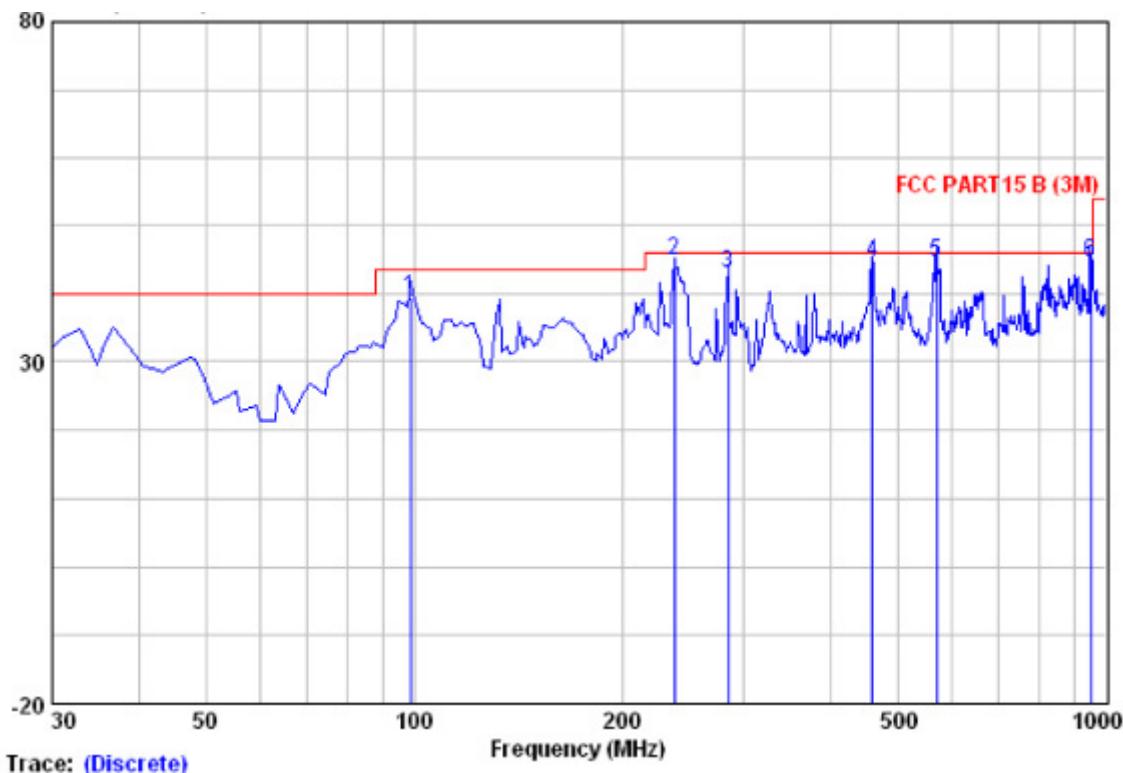
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss Factor dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Limit Level dB $\mu$ V/m	Over Limit dB	Over Limit Remark
32.653	46.26	16.83	0.40	29.50	40.00	33.99	-6.01	QP
44.550	55.08	10.33	0.60	29.50	40.00	36.50	-3.50	QP
123.603	54.85	11.77	0.90	29.70	43.50	37.82	-5.68	QP
133.182	56.76	11.47	1.00	29.70	43.50	39.53	-3.97	QP
202.366	60.26	8.75	1.20	29.50	43.50	40.71	-2.79	QP
570.024	53.35	18.10	2.20	29.43	46.00	44.22	-1.78	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)

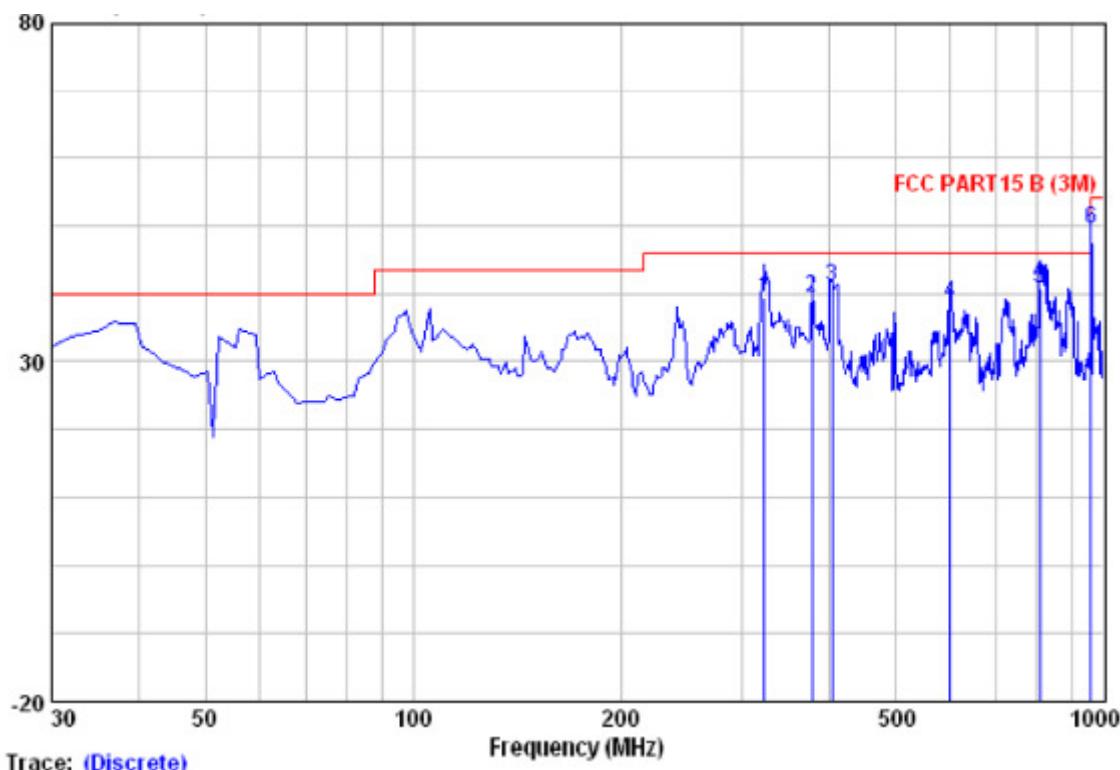
Quasi-peak measurement

Read	Antenna	Cable	Preamp	Limit	Over			
Freq	Level	Factor	Loss	Factor	Line	Level	Limit	Remark
MHz	dB $\mu$ V	dB/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
98.870	57.84	10.29	0.90	29.70	43.50	39.33	-4.17	QP
237.580	62.17	11.00	1.30	29.54	46.00	44.93	-1.07	QP
284.140	58.77	12.30	1.50	29.59	46.00	42.98	-3.02	QP
459.710	55.97	16.20	2.00	29.54	46.00	44.63	-1.37	QP
568.350	53.77	18.13	2.20	29.43	46.00	44.67	-1.33	QP
950.004	48.30	21.20	2.90	27.90	46.00	44.50	-1.50	QP

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

**USB disk play mode****Vertical:**

Peak scan

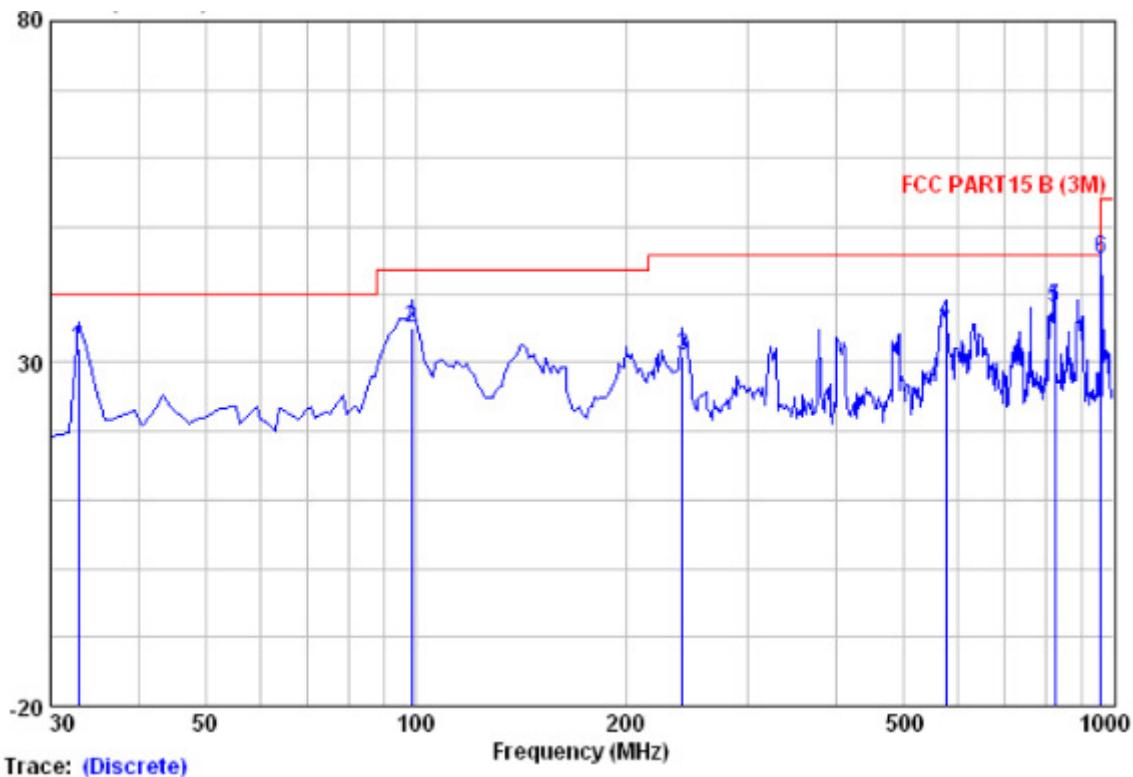
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Limit Line dB $\mu$ V/m	Over Level dB	Over Limit dB	Remark
322.940	53.91	13.46	1.60	29.60	46.00	39.37	-6.63	-6.63	QP
378.230	52.57	14.57	1.75	29.60	46.00	39.29	-6.71	-6.71	QP
404.420	53.56	15.14	1.80	29.60	46.00	40.90	-5.10	-5.10	QP
600.360	47.22	18.45	2.40	29.40	46.00	38.67	-7.33	-7.33	QP
807.940	47.13	20.15	2.70	29.12	46.00	40.86	-5.14	-5.14	QP
960.230	52.82	21.49	2.90	27.82	54.00	49.40	-4.60	-4.60	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

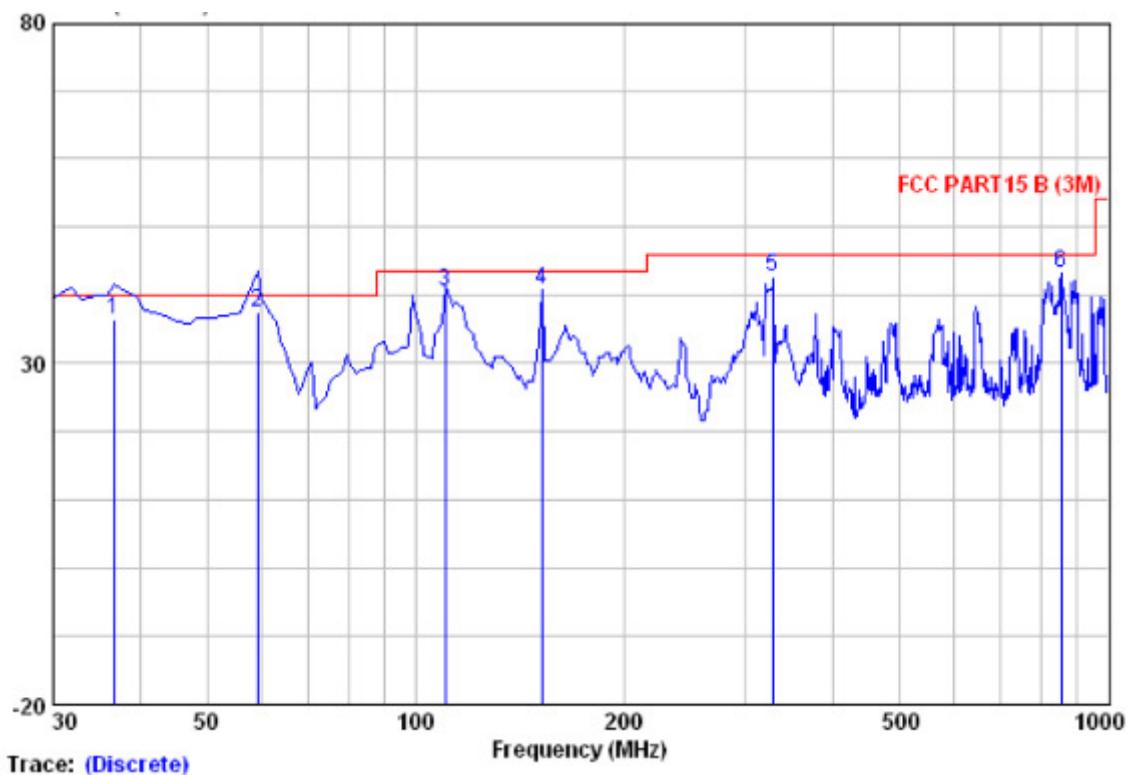
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Level dB $\mu$ V/m	Over Limit dB	Remark
32.910	48.77	12.31	0.40	29.50	40.00	31.98	-8.02	QP
98.870	50.72	13.10	0.90	29.70	43.50	35.02	-8.48	QP
241.460	47.12	12.09	1.30	29.55	46.00	30.96	-15.04	QP
576.110	45.18	18.03	2.20	29.42	46.00	35.99	-10.01	QP
823.460	43.85	20.33	2.70	28.96	46.00	37.91	-8.09	QP
960.240	48.82	21.49	2.90	27.82	54.00	45.39	-8.61	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**AV mode****Vertical:**

Peak scan

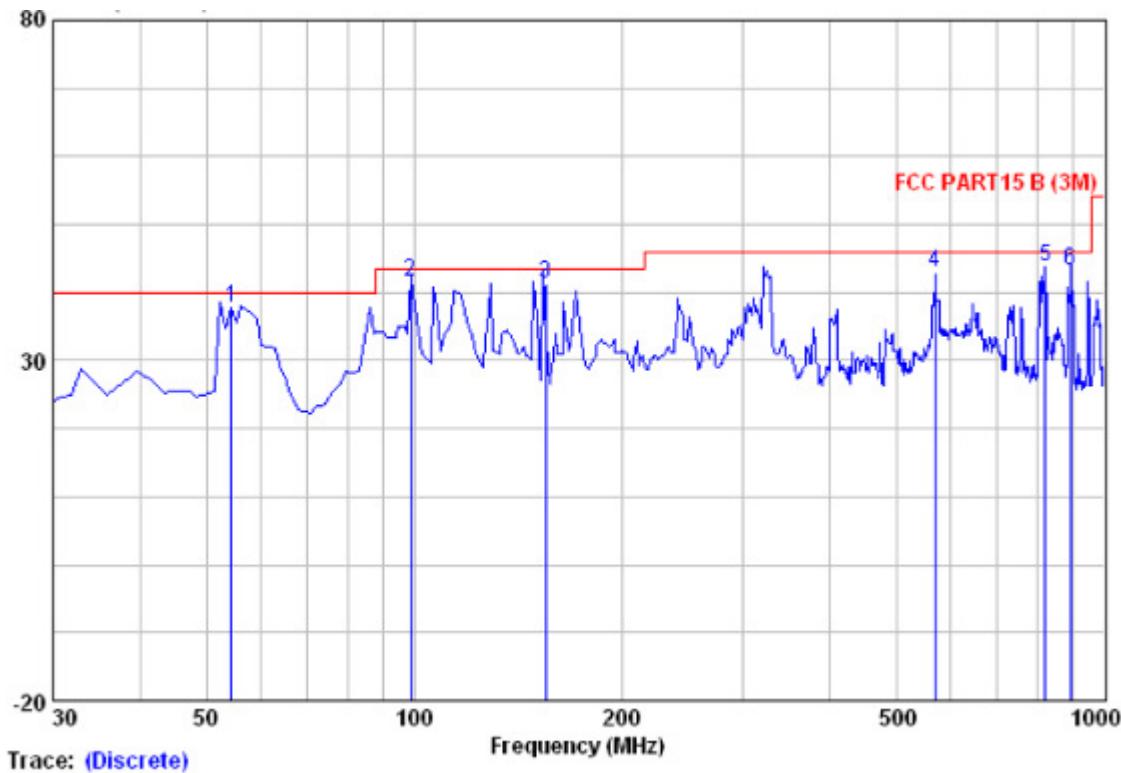
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Level dB $\mu$ V/m	Over Limit dB	Over Limit Remark
36.790	51.11	14.39	0.50	29.50	40.00	36.51	-3.49	QP
59.100	61.08	5.25	0.70	29.55	40.00	37.48	-2.52	QP
110.510	57.88	11.50	0.90	29.70	43.50	40.58	-2.92	QP
152.220	59.58	9.75	1.10	29.69	43.50	40.74	-2.76	QP
327.790	56.87	13.73	1.60	29.60	46.00	42.60	-3.40	QP
854.500	48.49	20.70	2.70	28.70	46.00	43.19	-2.81	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

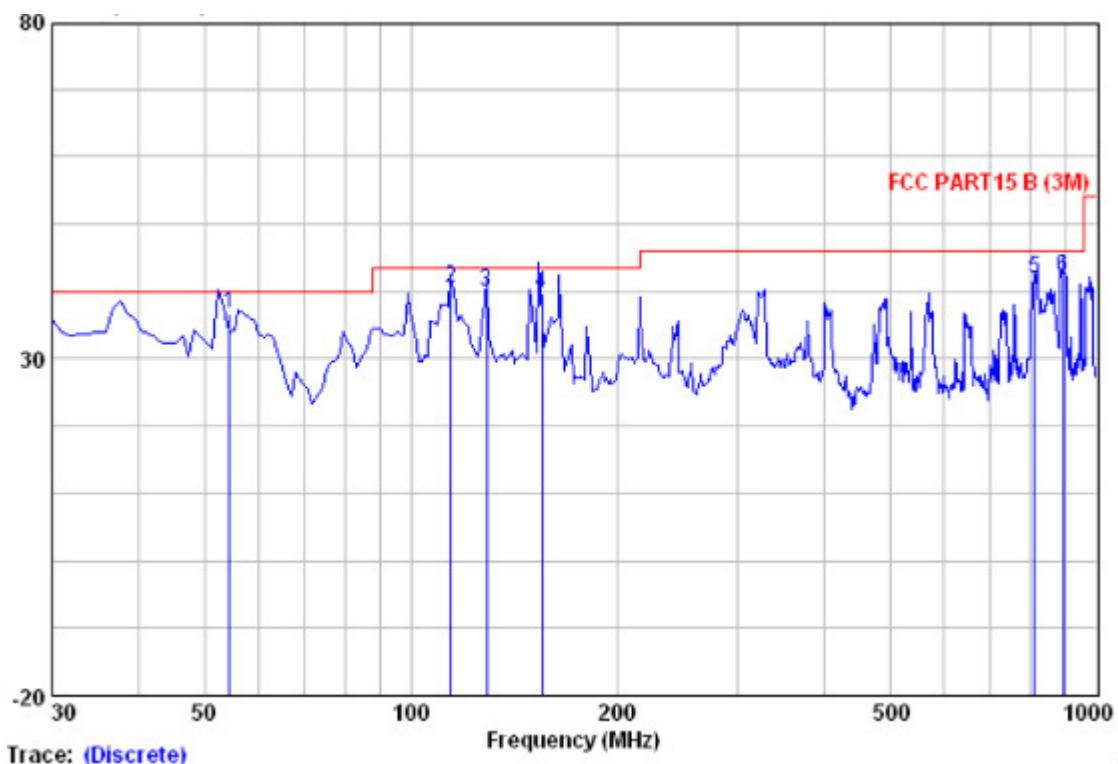
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss Factor dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Level dB $\mu$ V/m	Over Limit dB	Over Limit Remark
54.330	60.07	6.63	0.70	29.52	40.00	37.88	-2.12	QP
98.870	59.97	10.29	0.90	29.70	43.50	41.47	-2.03	QP
155.180	60.42	9.50	1.10	29.68	43.50	41.34	-2.16	QP
568.350	52.04	18.13	2.20	29.43	46.00	42.93	-3.07	QP
820.550	49.35	20.60	2.70	28.99	46.00	43.66	-2.34	QP
894.270	48.23	20.40	2.80	28.35	46.00	43.08	-2.92	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**HDMI mode****Vertical:**

Peak scan

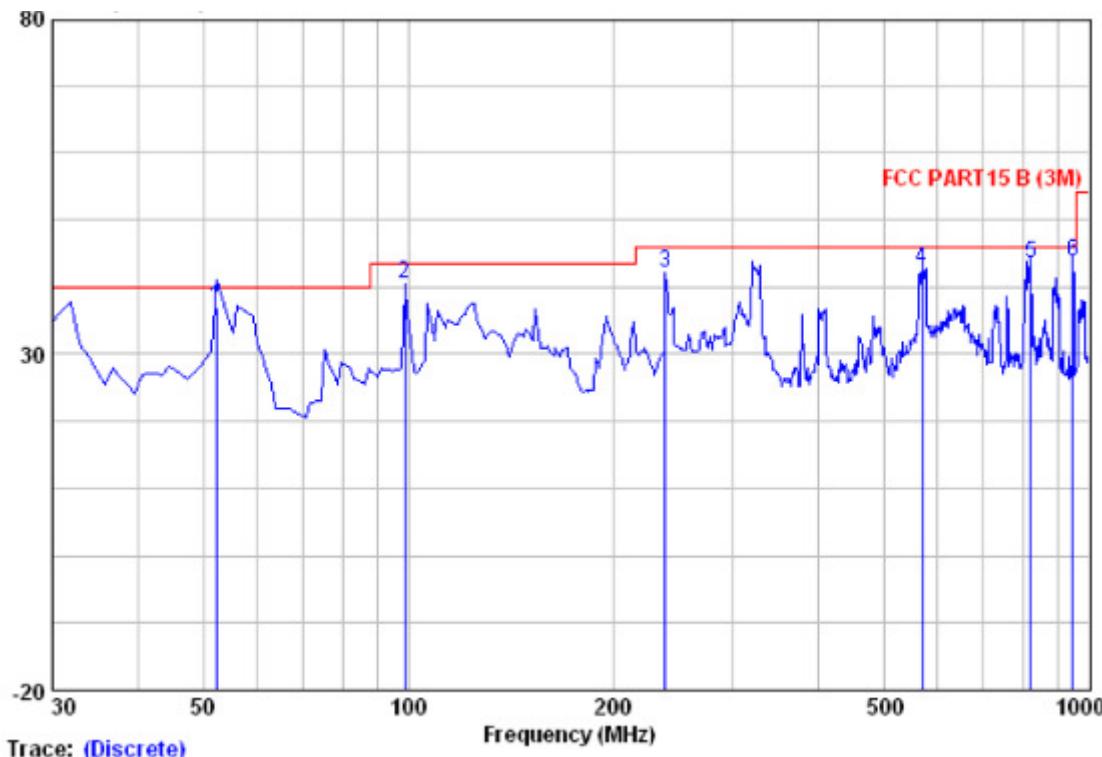
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Level dB $\mu$ V/m	Over Limit dB	Over Remark
	MHz	dB $\mu$ V	dB/m	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
54.330	58.97	6.63	0.70	29.52	40.00	36.78	-3.22	QP
114.390	57.65	11.50	0.90	29.70	43.50	40.35	-3.15	QP
128.940	56.95	11.80	0.90	29.70	43.50	39.95	-3.55	QP
155.160	58.69	9.50	1.10	29.68	43.50	39.61	-3.89	QP
812.790	47.88	20.40	2.70	29.07	46.00	41.91	-4.09	QP
894.270	47.26	20.40	2.80	28.35	46.00	42.11	-3.89	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)

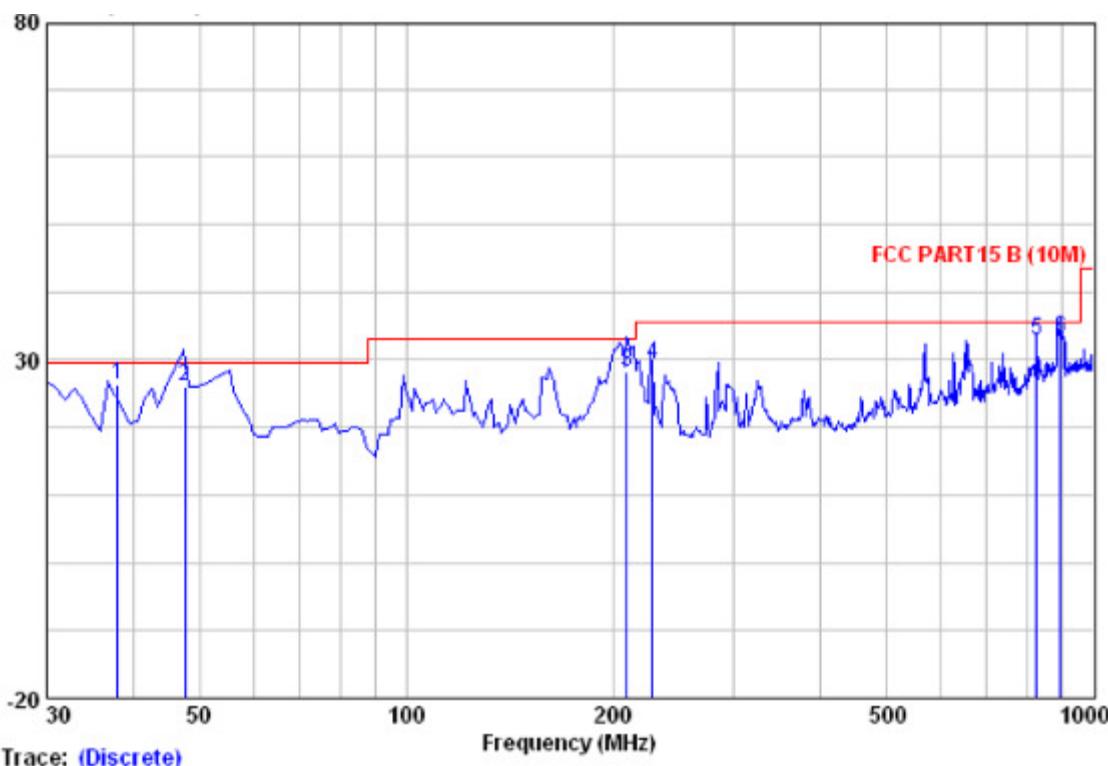
Quasi-peak measurement

Freq MHz	Read	Antenna Level Factor	Cable Loss Factor	Preamp Factor	Line Limit	Line Level	Over Limit	Over Remark
	dB $\mu$ V	dB/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
52.310	58.61	7.23	0.70	29.51	40.00	37.03	-2.97	QP
98.870	59.06	10.29	0.90	29.70	43.50	40.55	-2.95	QP
238.550	59.25	11.10	1.30	29.54	46.00	42.10	-3.90	QP
568.350	51.90	18.13	2.20	29.43	46.00	42.80	-3.20	QP
820.550	49.10	20.60	2.70	28.99	46.00	43.41	-2.59	QP
948.590	47.71	21.17	2.90	27.90	46.00	43.87	-2.13	QP

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

**PC connection mode****Vertical:**

Peak scan

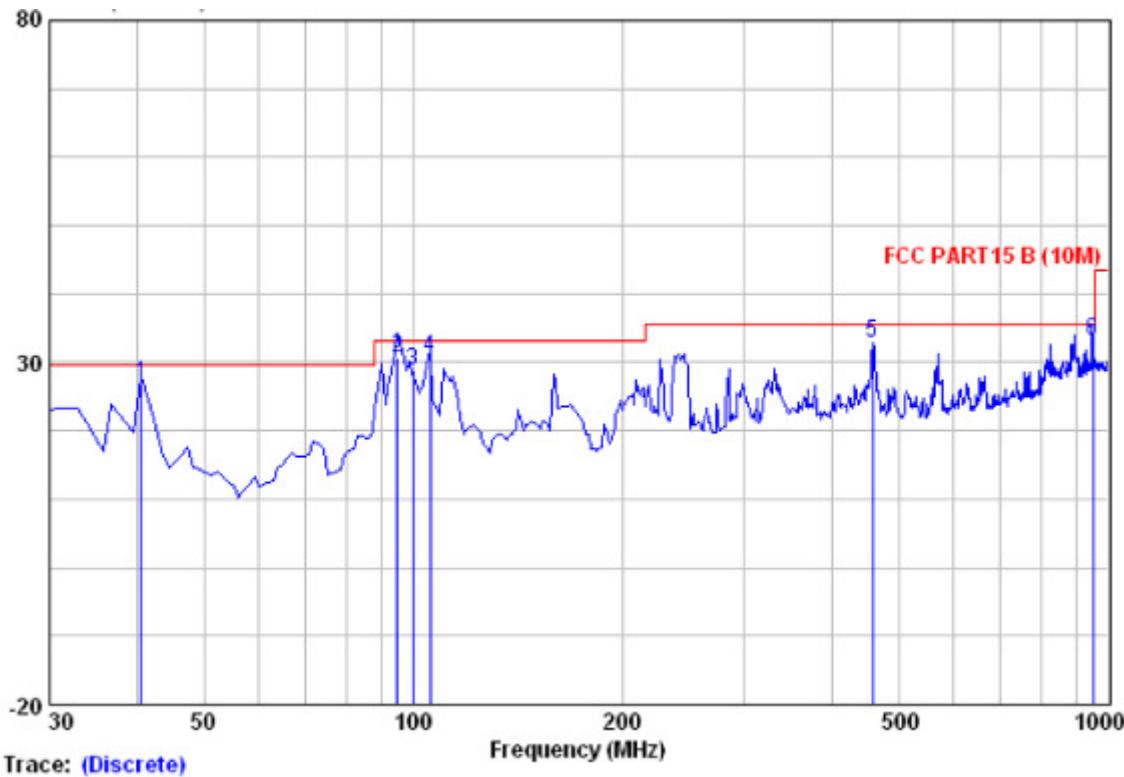
Level (dB $\mu$ V/m)**Quasi-peak measurement**

Freq MHz	Read Level dB $\mu$ V	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Line Limit dB $\mu$ V/m	Over Line Level dB $\mu$ V/m	Over Limit dB	Over Remark
38.046	41.09	14.24	0.50	29.50	29.50	26.32	-3.18	QP
47.591	44.56	10.34	0.70	29.50	29.50	26.10	-3.40	QP
209.221	47.26	9.26	1.25	29.51	33.10	28.26	-4.84	QP
228.292	47.70	9.94	1.30	29.53	35.60	29.41	-6.19	QP
827.340	38.50	20.70	2.70	28.93	35.60	32.97	-2.63	QP
896.174	38.45	20.17	2.80	28.32	35.60	33.09	-2.51	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)

## Quasi-peak measurement

Freq MHz	Read	Antenna Level Factor	Cable Loss Factor	Preamp Factor	Limit Line Level	Over Level	Over Limit	Remark
	dB $\mu$ V	dB/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
40.670	42.53	13.31	0.50	29.50	29.50	26.83	-2.67	QP
94.990	49.29	10.10	0.90	29.69	33.10	30.60	-2.50	QP
100.012	46.79	10.90	0.90	29.70	33.10	28.89	-4.21	QP
105.660	47.86	11.70	0.90	29.70	33.10	30.76	-2.34	QP
458.740	44.29	16.06	2.00	29.54	35.60	32.82	-2.78	QP
950.054	37.04	21.00	2.90	27.90	35.60	33.04	-2.56	QP

**Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.**

### 7.3 Radiated Emissions above 1 GHz

Test Requirement: FCC Part15 B  
Frequency Range: 1GHz to 40GHz  
Measurement Distance: 3 m  
Class / Limit: Class B  
Test Date: N/A: See Remark Below

**Remark:**

**There is no need for Radiated Emissions (above 1G) test to be performed on this product in accordance with FCC Part 15: 2009 because the highest internal source is less than 108 MHz.**

**For further details, please refer to Subject B section 15.33 (b) (1)of FCC Part 15 which states:**

**The spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:**

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 to 108	1000
108 to 500	2000
500 to 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

## 7.4 Antenna Power, 30 MHz to 1 GHz

Test Requirement: FCC PART 15, SUBPART B  
Test Method: Section 15.111  
Test Voltage: 120V AC, 60Hz  
Test Date: 2010-10-29 (Initial test)  
2010-11-19 (Retest)  
Frequency Range: 30 MHz to 1 GHz  
Class / Severity: 2 nW at 75 ohm terminal.  
Detector: Quasi-peak

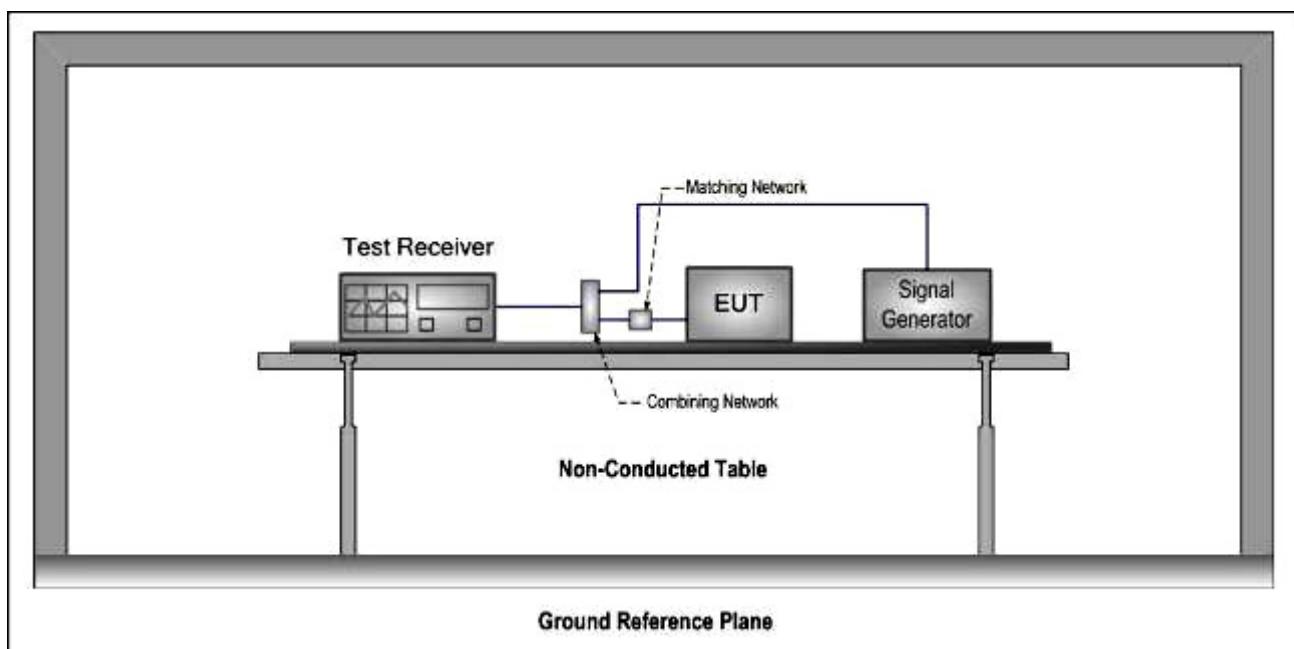
### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 21.0 °C      Humidity: 52 % RH      Atmospheric Pressure: 1008 mbar

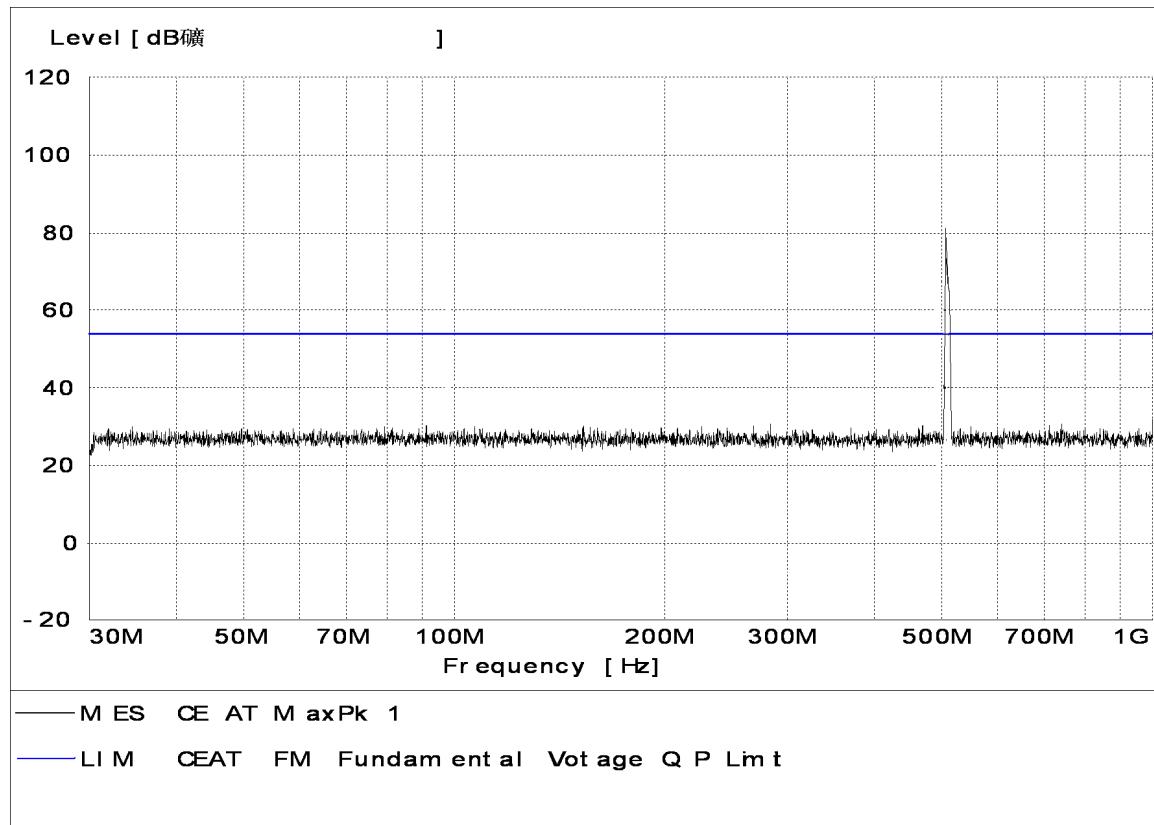
EUT Operation: Test the EUT in DTV mode(pre-test in all channels , compliance test in channel 20 as the worst case)

### 7.4.2 Test Setup and Procedure



1. The antenna terminals of the EUT and the auxiliary signal generator are connected to the measuring set by means of coaxial cables and a resistive combining network having a minimum attenuation of 6dB.
2. The matching network is connected between the antenna terminals of the EUT and combining network to match the nominal impedance requirement.
3. The EUT was set to achieve the maximum disturbance.

### 7.4.3 Measurement Data



Frequency (MHz)	Transducer (dB)	Receiver QP Reading (dB $\mu$ V)	Receiver QP Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
123.450	22.1	14.5	36.6	51.8	15.2
245.650	22.3	13.8	36.1	51.8	15.7
326.100	22.4	3.5	26.3	51.8	25.5
465.660	22.4	2.0	24.4	51.8	27.4
543.500	22.4	4.1	26.5	51.8	25.3
652.200	22.3	1.8	24.3	51.8	27.5

Remark:

Effective limit voltage at 75ohm impedance: Ext (P X R) =387.3 $\mu$ V  
Effective limit in dB $\mu$ V=51.8dB $\mu$ V

--End of Report--