

EMI Test Report

On Model Name: TFT-LCD MONITOR

Model Number: 19T33

FCC ID Number: WW319T

Prepared for

Quasimoto Interactive, Inc.

According to FCC Part 15:2007, Class B

Test Report #: SHE-0811-10103-FCCID

Prepared by: May Wang
Reviewed by: Jawen Yin

QC Manager: Paul Chen

Test Report Released by:

Paul J. de

Nov. 24, 2008

Paul Chen

Date

Test Location

Tests performed at ECMG Worldwide Certification Solution Inc. (China) in a Certified ANSI Semi-Anechoic Chamber and Shielded Room performed testing.

Test Site Location: Emitel(Shenzhen) Limited

Building2,171 Meihua Road, Futian District

Shenzhen, P.R. China.

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FCC Registration Number: 746887

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Statement of Measurement Uncertainty

The data and results referenced in the document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error. Furthermore, component and process variability of devices similar to that tested may result in additional deviation.

Administrative Data

Test Sample : TFT-LCD MONITOR

Model Number : 19T33

Model Tested : 19T33

Date Tested : November 18, 2008

Applicant : Quasimoto Interactive, Inc.

471 E. Bergey St. Suite 1, Wadsworth, OH 44281

Telephone : 330-331-4515 ext. 303

Fax : 330-598-1835

Manufacturer : SHENZHEN KTC COMPUTER TECHNOLOGY CO.,LTD

Northern Wuhe Road, Gangtou, Buji,

Longgang, Shenzhen, China

Telephone : 86-755-33615555

Fax : 86-755-33615999

EUT Description

Quasimoto Interactive, Inc. model tested 19T33 (referred to as the EUT in this report) is a TFT-LCD MONITOR.

Technology Specification:

Monitor type: TFT-LCD MONITOR

Max. resolution: 1440*900 60Hz (VGA)

Power adapter: 100V-240Vac, 60Hz/50Hz

consumption: ≤45W

AC adapter information:

Model number: K-1205

Serial number: P573-87P082-00872

Input: 100V-240Vac, 60Hz/50Hz

Output: 12VDC = 4.2A

Note: The adapter with 2 ferrite cores.

The EUT is a TFT-LCD MONITOR which input/output ports as follows:

(1) One VGA Port: Connected with PC (unshided, with 2 ferrite cores)

(2) One DC In Port: Connected with Power

Note: Other I/O Ports and antenna port are void(Optional ports).

Please refer to user's manual for detail.

Operating Mode of EUT

Let the EUT worked in test mode (Running "H" Pattern 640*480@60Hz Running "H" Pattern 1024*768@60Hz Running "H" Pattern 1440*900@60Hz) and measured it.

The EUT's Max. resolution bandwidth is 1440*900 60Hz VGA, the highest frequency which the EUT operates is between 108-500MHz, so the Upper frequency of radiated emission measurement range is up to 2GHz, other resolution bandwidth that operates frequency is below 108MHz, so the Upper frequency of radiated emission measurement range is up to 1GHz.

FCC Test Report #: SHE-0811-10103-FCCID Prepared for Quasimoto Interactive, Inc. Prepared by ECMG Worldwide Certification Solution Inc.

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Test Summary

The Electromagnetic Compatibility requirements on model 19T33 for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment Under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

Emission Tests						
Specifications	Description	Test Results	Test Point	Remark		
FCC Part 15.107 Class B per ANSI C63.4 2003	Conducted Emission	Passed	AC Input Port	Attachment 1		
FCC Part 15.109 Class B per ANSI C63.4 2003	Radiated Emission	Passed	Enclosure	Attachment 2		

Test Mode Justification

This device complies with Part 15 of the FCC rules. Operations is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Equipment Modification

Any modifications installed previous to testing by Quasimoto Interactive, Inc. will be incorporated in each production model sold or leased in United States.

There were no modifications installed by ECMG Worldwide Certification Solution Inc. (China) test personnel.

EUT Sample Photos



EUT Front View



EUT Rear View



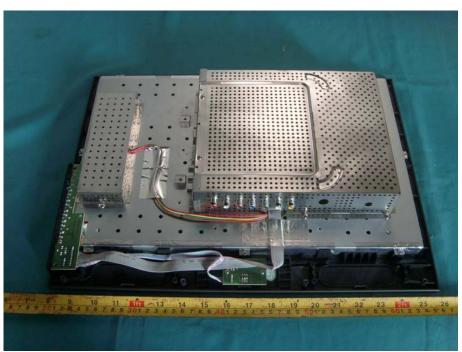
EUT Side View (1)



EUT Side View (2)



EUT Key View



EUT Uncovered View (1)



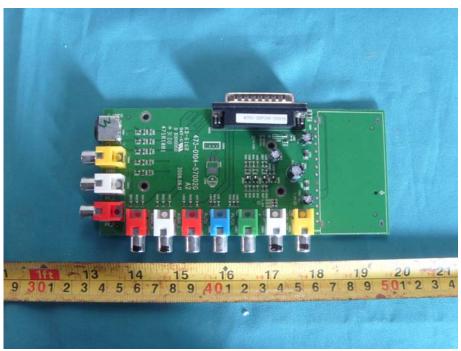
EUT Uncovered View (2)



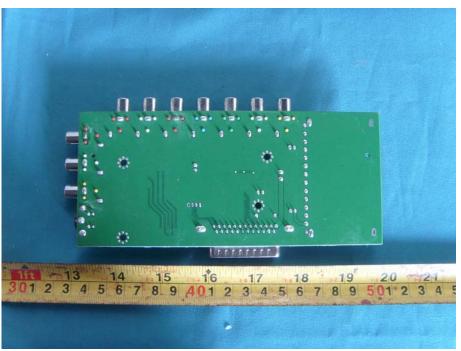
LCD Front View



LCD Rear View



Main Board #1 Front View



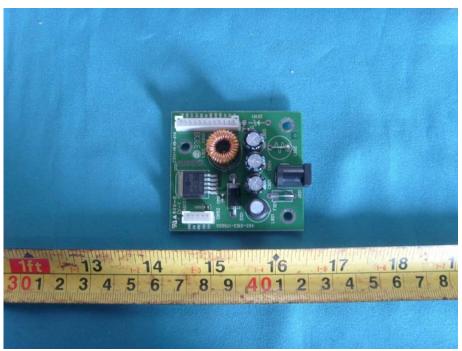
Main Board #1 Rear View



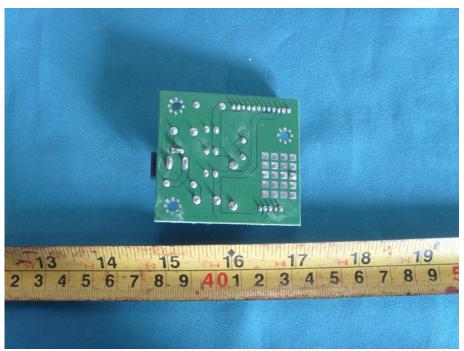
Main Board #2 Front View



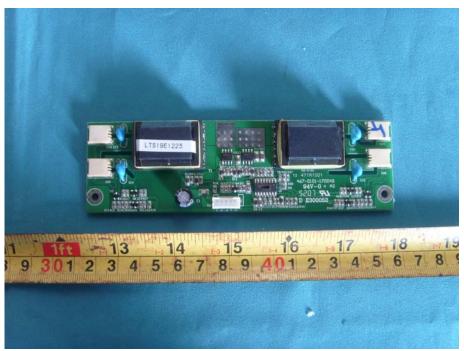
Main Board #2 Rear View



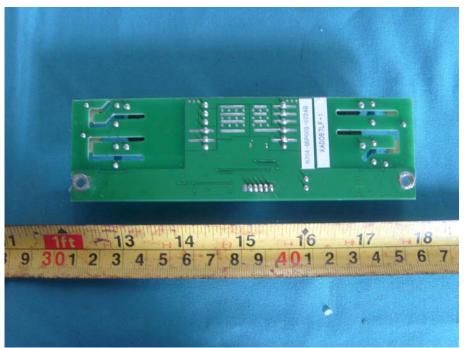
Power Board Front View



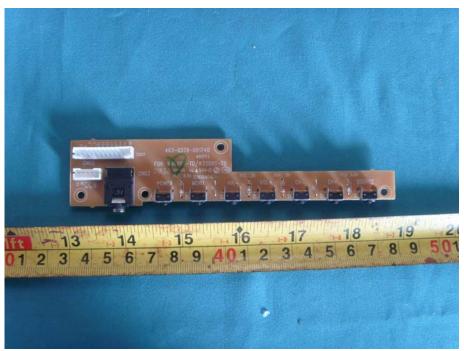
Power Board Rear View



High Voltage Board Top View



High Voltage Board Rear View



Key Board Front View



Key Board Rear View



Remote Control View



Power Cable View



VGA Cable View(With two ferrite cores)



AC adapter View(With two ferrite cores)

Test System Details

EUT

Model Number: 19T33

Model Tested: 19T33

Description: TFT-LCD MONITOR

Manufacture: SHENZHEN KTC COMPUTER TECHNOLOGY CO., LTD

Support Equipment

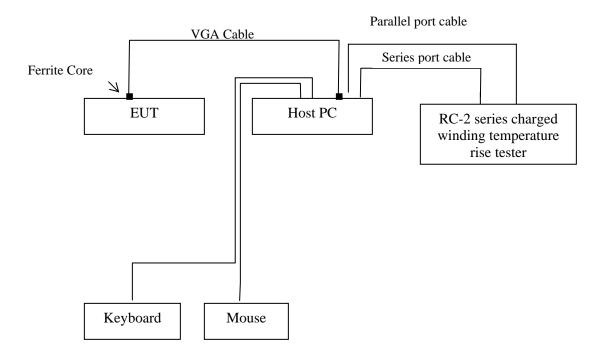
Description	Model Number	Serial Number	Manufacturer
Host PC	N/A	N/A	Dell
Keyboard	SK-/815	F145614	Dell
Mouse	N/A	F0800NEN	Dell
RC-2 series charged winding temperature rise tester	vinding temperature RC-2		WeiBo

Cable Description

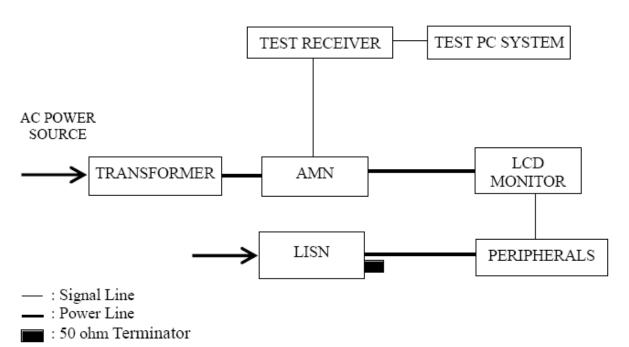
Description	From	То	Length (Meters)	Shielded (Y/N)	Ferrite (Y/N)
AC Power Cable	EUT	Plug	1.5	N	N
VGA Cable	EUT	Host PC	1.5	N	Y
PC Power cable	Host PC	Plug	1.8	N	N
Keyboard cable	Keyboard	Host PC	1.8	N	N
Mouse Cable	Mouse	Host PC	1.8	N	N
Series port cable	RC-2	Plug	1.8	N	N
Parallel port cable	RC-2	Plug	1.8	N	N

Note: The "EUT" indicated TFT-LCD Monitor.

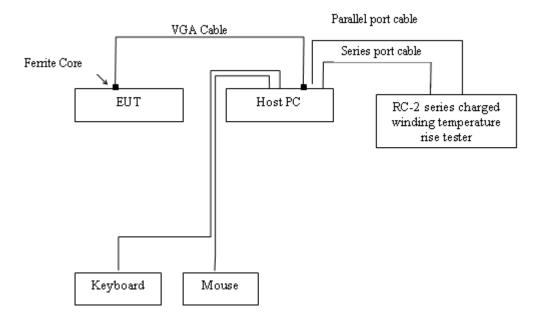
Configuration of Tested System



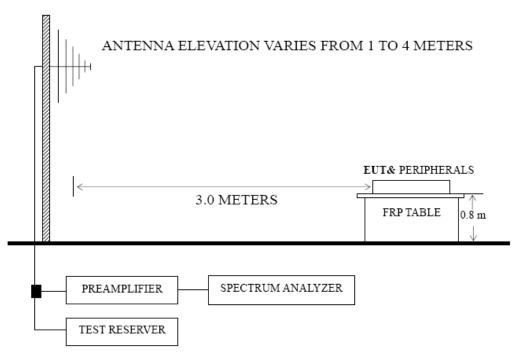
Block Diagram of Conducted Emissions Test



Conducted Disturbance Test Set-up photograph



Block diagram of Radiated Emissions Test



: 50 ohm Coaxial Switch

Radiated Emission Test Set up Photograph

ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

CLIENT:	Quasimoto Interactive, Inc.	TEST STANDERD:	FCC Part 15: 2007, Class B		
MODEL NUMBERS:	19T33	PRODUCT:	TFT-LCD Monitor		
EUT MODEL:	19T33	EUT DESIGNATION:	Information Technology Equipment		
TEMPERATURE:	23°C	HUMIDITY:	47%RH		
ATM PRESSURE:	101.0kPa	GROUNDING:	Through AC Power Cord		
TESTED BY:	May Wang	DATE OF TEST:	November 18, 2008		
TEST REFERENCE:	ANSI C63.4: 2003				
TEST PROCEDURE:	The EUT was set up according to the guideline of ANSI C63.4: 2003 for conducted emissions. The measurement was using a AMN on each line and an EMI receiver peak scan was made at the frequency measurement range. The six highest significant peaks were then marked, and these signals were then quasi-peaked and averaged. The frequency range investigated was from 150KHz to 30MHz.				
TESTED RANGE:	150kHz to 30MHz				
TEST VOLTAGE:	120VAC / 60Hz				
RESULTS:	According to the recorded data in following data table, the EUT complied with the FCC PART 15: 2007 Class B, with the worst margin reading of: For VGA Mode 640*480@60Hz: -1.82 dB at 7.626 MHz in the Neutral conductor model For VGA Mode 1024*768@60Hz: -1.93 dB at 3.122 MHz in the Line conductor model For VGA Mode 1440*900@60Hz: -2.03 dB at 2.246 MHz in the Line conductor model The test results relate only to the equipment under test provided by client.				
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution Inc. (China) test personnel.				
M. UNCERTAINTY:	Freq. ± 2x10-7 x Center Freq.,	Amp ± 2.6 dB			

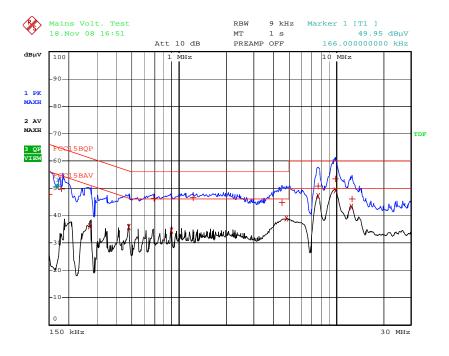
15.107 Conducted limit:

Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency of Emission	Conducted Limit (dBµV)			
(MHz)	Quasi-Peak	Average		
0.15-0.5	66 to 56*	56 to 46*		
0.5-5	56	46		
5-30	60	50		

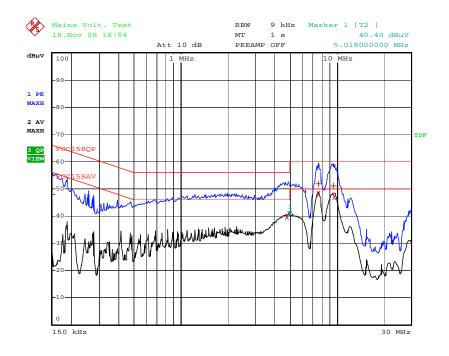
¹⁾ The lower limit shall apply at the transition frequencies.

²⁾ The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz



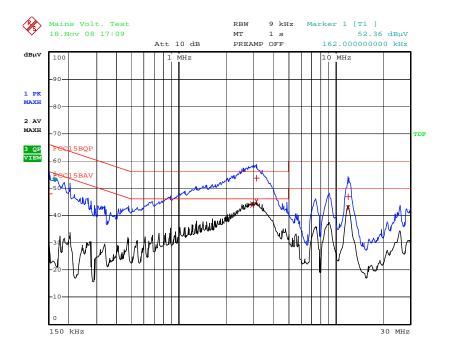
Date: 18.NOV.2008 16:51:25

Line L Conducted Emission Graph(VGA Mode 640*480@60Hz)



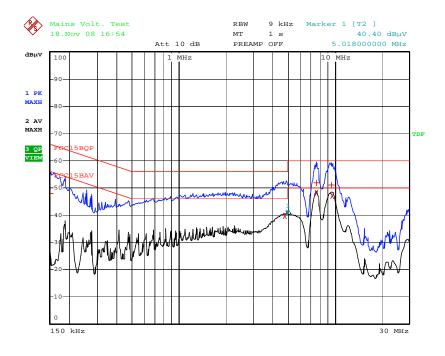
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Line N Conducted Emission Graph(VGA Mode 640*480@60Hz)



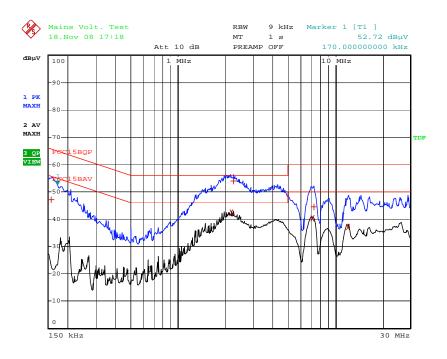
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Line L Conducted Emission Graph(VGA Mode 1024*768@60Hz)



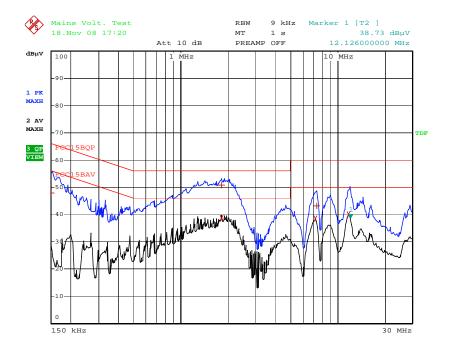
Date: 18.NOV.2008

Line N Conducted Emission Graph(VGA Mode 1024*768@60Hz)



Date: 18.NOV.2008 17:18:04

Line L Conducted Emission Graph(VGA Mode 1440*900@60Hz)



Date: 18.NOV.2008 17:20:39

Line N Conducted Emission Graph(VGA Mode 1440*900@60Hz)

Test Data:

Line	Frequency (MHz)	Corrected QP Level (dBµV)	Limits QP (dBµV)	Margin QP (dB)	Frequency (MHz)	Corrected AV Level (dBµV)	Limits AV (dBµV)	Margin QP (dB)
		ν	'GA Mod	le(640*4	80 60Hz)			
L	7.838	49.68	60.0	-10.32	7.834	45.36	50.0	-4.64
L	9.71	51.62	60.0	-8.38	9.842	48.07	50.0	-1.93
N	0.150	47.77	60.0	-12.23	4.818	39.63	46.0	-6.37
N	7.646	51.94	60.0	-8.06	7.626	48.18	50.0	-1.82
N	9.566	51.13	60.0	-8.87	9.642	47.17	50.0	-2.83
		V	GA Mode	e(1024*)	768 60Hz)			
L	0.150	47.78	66.0	-18.22	2.934	43.94	46.0	-2.06
L	3.146	53.69	56.0	-2.31	3.122	44.07	46.0	-1.93
L	12.038	46.73	60.0	-13.27	12.038	42.74	50.0	-7.26
N	0.150	40.77	60.0	-19.23	4.818	35.63	46.0	-10.37
N	7.646	53.94	60.0	-6.06	7.626	42.18	50.0	-7.82
N	9.566	55.13	60.0	-4.87	9.642	45.17	50.0	-4.83
		V	GA Mode	e(1440* <u>9</u>	900 60Hz)			
L	0.158	46.42	65.0	-18.58	2.178	42.51	46.0	-3.49
L	2.246	53.93	56.0	-2.06	7.158	40.22	50.0	-9.78
L	7.362	44.44	60.0	-15.56	12.114	37.01	50.0	-12.98
N	0.150	47.97	66.0	-18.03	1.834	38.61	46.0	-7.38
N	1.834	50.84	56.0	-5.16	7.266	38.56	50.0	-11.44
N	7.418	43.06	-60.0	-16.94	11.83	40.06	50.0	-9.94

¹⁾ All readings are using a bandwidth of 9 kHz, with a 30 ms sweep time. A video filter was not used.

^{2) &}quot;QP" means "Quasi-Peak" values, "AV" means "Average" values.

Test Equipment List:

Test Equipment	Model No. Manufacture		Serial No.	Last Cal.	Cal. Interval
Test Receiver	ESP13	Rohe & Schwarz	04-02/03-06-002	01/22/2008	01/21/2009
LISN	ESH2-Z5	Rohe & Schwarz	04-02/03-06-001	01/22/2008	01/21/2009
Coaxial Calbe	C009	Emitel	N/A	01/22/2008	01/21/2009
Coaxial Calbe	C010	Emitel	N/A	01/22/2008	01/21/2009

Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.

SIGNED BY:

ENGINEER

REVIEWED BY:

SENIOR ENGINEER



Conducted Emission Test Set-up -Front View



Conducted Emission Test Set-up -Side View

ATTACHMENT 2 - RADIATED EMISSION TEST RESULTS

CLIENT:	Quasimoto Interactive, Inc.	TEST STANDERD:	FCC Part 15, Class B	
MODEL NUMBERS:	19T33	PRODUCT:	TFT-LCD Monitor	
EUT MODEL:	19T33	EUT DESIGNATION:	Information Technology Equipment	
TEMPERATURE:	23°C	HUMIDITY:	47%RH	
ATM PRESSURE:	101.0kPa	GROUNDING:	Through AC Power Cord	
TESTED BY:	May Wang	DATE OF TEST:	November 18, 2008	
TEST REFERENCE:	ANSI C63.4: 2003			
TEST PROCEDURE:	The EUT was set up according to the guidelines of ANSI C63.4: 2003 for radiated emissions. An EMI receiver peak scan was made at the frequency measurement range (pre-scan) in an Anechoic chamber. Signal discrimination was then performed and the significant peaks marked. These peaks were then quasi-peaked in the frequency range of 30 MHz to 1GHz at an Anechoic chamber measurement are based on Peak value and Average value detector above 1GHz., the bandwidth of Test Receiver was set at 1MHz. The following data lists the significant emission frequencies, measured levels, correction factors (including cable and antenna correction factors), and the corrected readings against the limits. Explanation of the Correction Factor are given as follows:			
	FS= RA + AF + CF - AG			
	Where: FS = Field Strength			
	RA = Receiver Amplitude			
	AF = Antenna Factor			
	CF = Cable Attenuation Factor			
	AG = Amplifier Gain			
TESTED RANGE:	30MHz to 2,000MHz			
TEST VOLTAGE:	120VAC / 60Hz	120VAC / 60Hz		

Continue on to next page...

RESULTS:	According to the recorded data in following data table, the EUT complied with the FCC Part 15, Class B, with the worst margin reading of: For Below 1 GHz: -8.19 dB by 30.24 MHz in the Vertical Polarization at VGA Mode 640*480 @60Hz. -5.32 dB by 30.20 MHz in the Vertical Polarization at VGA Mode 1024*768@ 60Hz. -7.33 dB by 30.20 MHz in the Vertical Polarization at VGA Mode 1440*900@ 60Hz. For Above 1 GHz: -16.80 dB by 1621.585 MHz in the Vertical Polarization at VGA Mode 1440*900@ 60Hz. The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution Inc. (China) test personnel.
M. UNCERTAINTY:	Freq. ± 2x10-7 x Center Freq., Amp ± 2.6 dB

15.109 Limits of Radiated Emission:

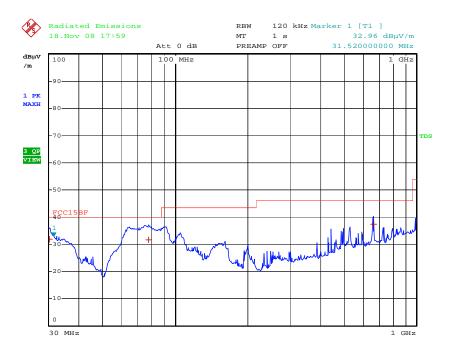
The field strength of radiated emissions at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)
30 - 88	100	40
88 -216	150	43.5
216 - 960	200	46
Above 960	500	54

¹⁾ Emission Level dB (μ V/m) = 20 log Emission Level (μ V/m)

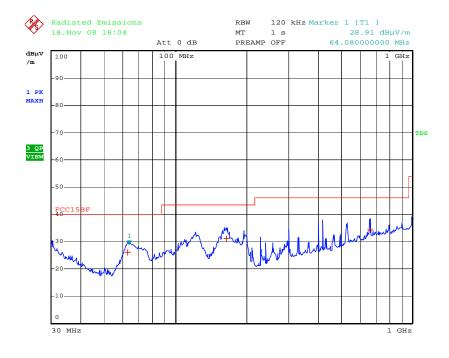
²⁾ The tighter limit applies at the band edges.

³⁾ Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.



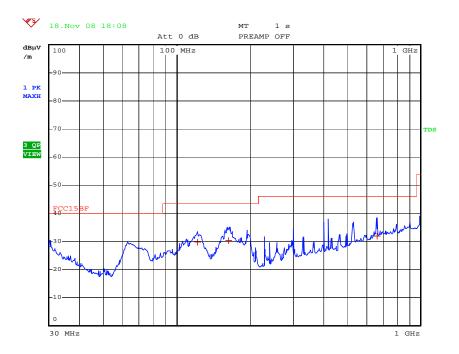
Date: 18.NOV.2008 17:59:14

Horizontal Radiated Emissions Graph (VGA Mode 640*480@60Hz)



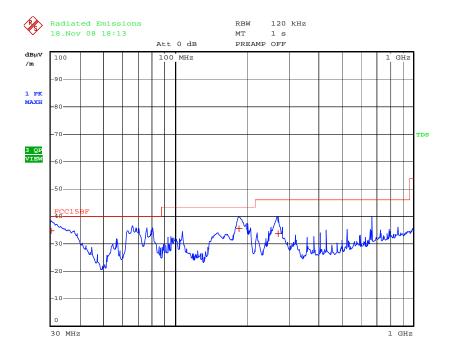
Date: 18.NOV.2008 18:04:35

Vertical Radiated Emissions Graph (VGA Mode 640*480@60Hz)



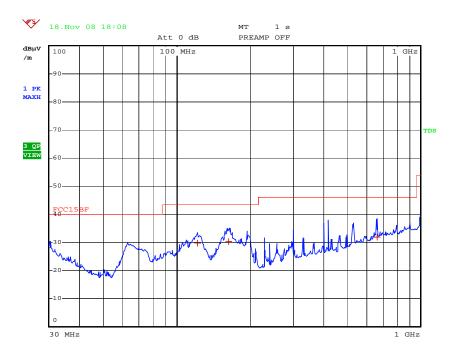
Date: 18.NOV.2008 :

Horizontal Radiated Emissions Graph (VGA Mode 1024*768@60Hz)



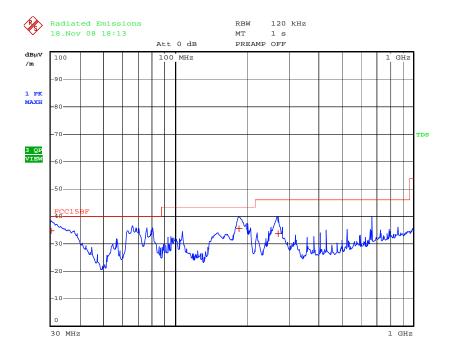
Date: 18.NOV.2008

Vertical Radiated Emissions Graph (VGA Mode 1024*768@60Hz)



Date: 18.NOV.2008 :

Horizontal Radiated Emissions Graph (VGA Mode 1440*900@60Hz)



Date: 18.NOV.2008

Vertical Radiated Emissions Graph (VGA Mode 1440*900@60Hz)

Test Data:

Below 1GHz:

Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dBµV/m]	Delta, QP [dB]	3 Meters Limits [dB _µ V/m]			
	VGA Mode (640*480@60Hz)						
30.24	Н	31.81	-8.19	40.0			
77.60	Н	31.68	-8.32	40.0			
6665.52	Н	37.33	-8.67	46.0			
62.84	V	26.02	-13.98	40.0			
165.04	V	31.17	-12.33	43.5			
665.24	V	34.27	-11.73	46.0			
	VGA M	lode (1024*768@	260Hz)				
122.20	Н	29.83	-13.65	43.5			
164.20	Н	30.18	-13.31	43.5			
665.24	Н	31.82	-14.17	46.0			
30.20	V	34.67	-5.32	40.0			
185.64	V	35.48	-8.01	43.5			
270.64	V	33.75	-12.24	46.0			
	VGA M	lode (1440*900@	⊉60Hz)				
122.20	Н	25.83	-17.65	43.5			
164.20	Н	28.50	-15.0	43.5			
665.24	Н	30.50	-15.5	46.0			
30.20	V	32.67	-7.33	40.0			
185.64	V	35.49	-8.01	43.5			
270.64	V	30.75	-15.25	46.0			

The limits shown are based on Quasi-peak value detector below or equal to 1GHz, the bandwidth of Test Receiver was set at 120 kHz below 1GHz.

²⁾ The frequency range from 1 GHz to 2 GHz was checked for VGA 1440*900@60Hz modes, 30 MHz to 1000MHz was checked for all test modes.

³⁾ The emission levels that are 20dB below the official limit are not reported.

Above 1GHz:

Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dBµV/m]	Delta, QP [dB]	3 Meters Limits [dBμV/m]	Remark			
VGA Mode (1440*900@60Hz)								
1024.400	Н	20.94	-32.95	54.0	AV			
1220.000	Н	21.37	-32.52	54.0				
1362.000	Н	22.76	-31.13	54.0				
1548.800	V	23.03	-30.86	54.0				
1701.200	V	22.94	-30.95	54.0				
1992.800	V	24.93	-28.96	54.0				
1102.010	Н	45.90	-28.10	74.0				
1404.525	Н	55.80	-18.20	74.0	PK			
1621.585	Н	53.50	-20.50	74.0				
1102.010	V	51.20	-22.80	74.0				
1404.525	V	56.00	-18.00	74.0				
1621.585	V	57.20	-16.80	74.0				

¹⁾ The limits shown are based on Peak value and Average value detector above 1GHz.,the bandwidth of Test Receiver was set at 1MHz above 1GHz.

²⁾ The frequency range from 1 GHz to 2 GHz was checked for VGA 1440*900@60Hz modes, 30 MHz to 1000MHz was checked for all test modes.

³⁾ The emission levels that are 20dB below the official limit are not reported.

Test Equipment List:

Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Due
Test Receiver	ESP13	Rohe & Schwarz	04-02/03-06-002	2008/01/25	2009/01/24
BicoNILog Antenna	3142C	EMCO	04-02/24-06-001	2008/01/25	2009/01/24
MiniMast	2175	ETS LINDGREN	04-02/30-06-001	2008/01/25	2009/01/24
Mulit-Device Controller	2091	EMCO	04-02/30-06-002	2008/03/21	2009/03/20
Turntable	2087	ETS LINDGREN	04-02/03-06-003	2008/03/21	2009/03/20

Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.

SIGNED BY:

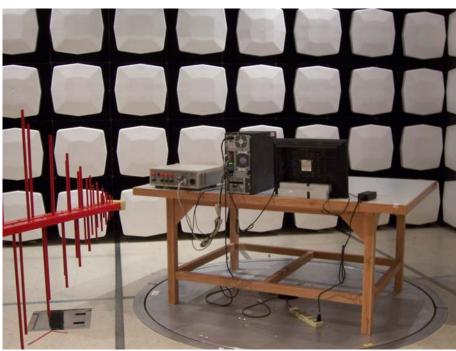
ENGINEER

REVIEWED BY:

SENIOR ENGINEER



Radiated Emission Test Set-up -Front View



Radiated Emission Test Set-up - Rear View