



EMC COMPLIANCE TEST REPORT

REPORT NO.: 20081104-1

PRODUCT: Notebook Computer

BRAND NAME: LEMOTE

MODEL NO.: YEELONG 8089_* (* means any character or blank)

FCC ID: HFS-YEELONG8089

ISSUED DATE: Nov. 04, 2008

ISSUED BY: QSMC Compliance Center.

LAB ADDRESS: No. 68, Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P. R. China

COMPLIANCE STANDARDS:

FCC 47CFR Part 15, Subpart B, Class B; ANSI C63.4:2003
ICES-003
CISPR 22: 2006
CISPR 24:1997+A1:2001+A2:2002
AS/NZS CISPR 22:2006, Class B
V-3/2007.04
V-4/2007.04
CNS13438
GB9254
GB17625.1
ETSI EN 301 489-1 v1.6.1: 2005
ETSI EN 301 489-17 v1.2.1:2002
EN 61000-3-2: 2006, Class D
EN 61000-3-3:1995+A1:2001+A2:2005
EN 55024:1998+A1:2001+A2:2003
EN 61000-4-2:2001
EN 61000-4-3:2006
EN 61000-4-4:2004
EN 61000-4-5:2006
EN 61000-4-6:2003+A1:2004
EN 61000-4-8:2001
EN 61000-4-11:2004
EN 55022:2006, Class B



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Applicant: Quanta Computer Inc.
Manufacturer: Quanta Computer Inc.
Product: Notebook Computer
Brand Name: LEMOTE
Model Number: YEELONG 8089_* (* means any character or blank)
Test Date: Oct. 22 – Oct. 28, 2008

COMPLIANCE STANDARDS:

FCC 47CFR Part 15, Subpart B, Class B; ANSI C63.4:2003
ICES-003
CISPR 22: 2006
CISPR 24:1997+A1:2001+A2:2002
AS/NZS CISPR 22:2006, Class B
V-3/2007.04
V-4/2007.04
CNS13438
GB9254
GB17625.1
ETSI EN 301 489-1 v1.6.1: 2005
ETSI EN 301 489-17 v1.2.1:2002
EN 61000-3-2: 2006, Class D
EN 61000-3-3:1995+A1:2001+A2:2005
EN 55024:1998+A1:2001+A2:2003
EN 61000-4-2:2001
EN 61000-4-3:2006
EN 61000-4-4:2004
EN 61000-4-5:2006
EN 61000-4-6:2003+A1:2004
EN 61000-4-8:2001
EN 61000-4-11:2004
EN 55022:2006, Class B

Approved By

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Reviewed By

Joyce Kuo



Section 1: General Information

1.1 Introduction

Product	Notebook Computer		
Trade Name	LEMOTE		
Model Name	YEELOONG 8089_* (* means any character or blank)		
Housing Type	Plastic		
AC Power Adapter	Delta	Model	ADP-40MH BD
AC Power Adapter Rating	I/P: 100-240Vac O/P:20Vdc, 2A		
AC Power Cord Type	Non-shielded AC 3-pin (1.8m)		
DC Power Cable Type	Non-shielded DC (1.8m) with one ferrite core		
CPU	SGT	Model	STLS2F02 (800MHz)
Memory Capacity	512MB / 1GB		
System Storage	2GB		
8.9" LCD panel	CMO	Model	N089L6-L01
	CPT	Model	CLAA089NA0CCW
	LG	Model	LP089WS1
HDD	Fujitsu	Model	MHZ2160BH (160GB)
	WD	Model	WD1600BEVT-22ZCT0 (160GB)
Battery	SIMPLO	Model	SQU-813
	Sanyo	Model	3UR18650-1-T0302
Wireless LAN	QMI	Model	US105
Camera	SUYIN	Model	CN0317-S30C-MC03



I/O Port:

IO Port Types	Quantity
Audio in port	1
Audio out port	1
LAN port	1
USB port	3
Video out port (VGA)	1
4 IN 1 card reader	1



1.2 Test Procedure

The EUT was tested using special test software called H patterns, which exercises all external I/O ports as well as the internal storage media by writing and reading (if applicable) a continuous stream of “H” characters in 9 fonts. A pattern of continuous stream-scrolling black “H” on a white background was written to display. To exercise the optical drive, a CD was put into the optical drive and played through the internal audio while the EMC testing was being done. The measurements were made while the system was exercised in this manner.



Section 2: Test Facility and Procedure

2.1 Test Facility Used for Emission Testing

Conducted Emissions Facilities: Conducted Emissions were performed at QSMC Compliance Center of No.68 Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P. R. China

FCC Registration No. 602285

VCCI Registration No. C-2529

Radiated Emissions Facilities: Radiated Emissions measurements were performed at QSMC Compliance Center of No.68 Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P. R. China

FCC Registration No. 602285

VCCI Registration No. R-2319

2.1.1 Measurement Uncertainty

The measurement uncertainty has been determined to be the following:

AC Conducted Emissions = 2.9 dB

Telecom Conducted Emissions = 2.9 dB

Radiated Emissions (30MHz~1000MHz) = 3.6 dB





Radiated Emissions (1000MHz~18000MHz) =3.1 dB

The equipment conforms to the requirement of CISPR 16-1, CISPR 16-4-2, ANSI C63.2 and other required standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective manual.



2.1.2 Lab Accreditations

Coverage	Agency	Scope of Accreditation	Logo
USA	FCC	3/10 meter chamber and conducted test chamber to perform FCC Part 15/18 measurements	 602285
Japan	VCCI	3/10 meter chamber and conducted test chamber to perform radiated / conducted measurements	 R-2320 / 2319 C-2529
ISO/IEC 17025	CNAS	FCC 47CFR Part 15; CISPR22; AS/NZS CISPR 22; V-3/2006.04; V-4/2006.04; CNS13438; GB9254; GB17625.1; EN55022; EN61000-3-2; EN 61000-3-3; CISPR24; EN55024; EN61000-4-2; EN61000-4-3; EN61000-4-4; EN61000-4-5; EN61000-4-6; EN61000-4-8; EN61000-4-11	 

2.1.3 Software to Exercise EUT

The EUT was tested using special test software called H Patterns, which exercises all external I/O ports as well as the internal storage media by writing and reading (if applicable) a continuous stream of “H” characters in 9 fonts. A pattern of continuous stream-scrolling black “H” on a white background was written to display. To exercise the optical drive, a disk was put into the drive tray and played through the internal audio while the EMC testing was being done. The measurements were made while the system was exercised in this manner.

2.1.4 Special Accessories

There were no special accessories used during these tests.

2.1.5 Equipment Modifications and Deviations

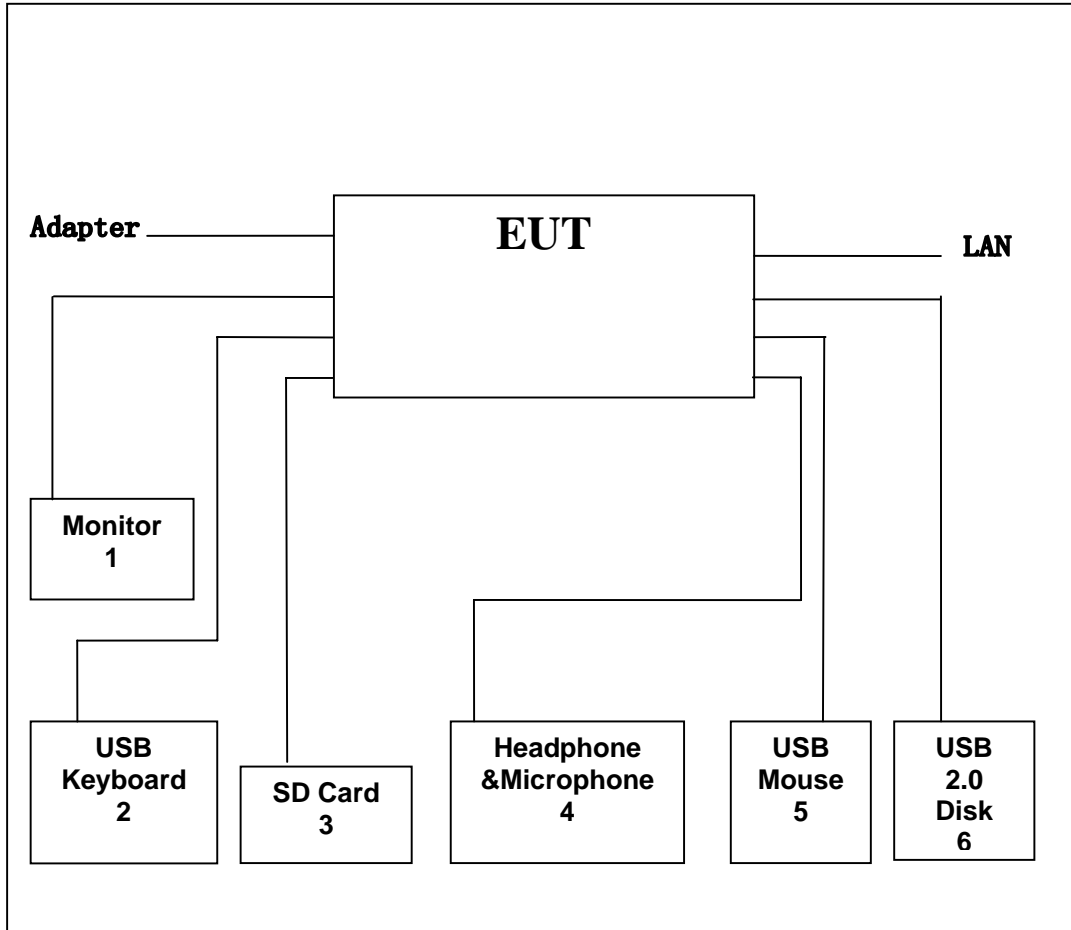
There is no EUT modification or test standard deviation.



2.1.6 Test Configuration

The EUT was configured as a worst case system configuration as a result from pre-testing as described below:

Arrangement Block Diagram



Associated Equipments

	Description	Model
1	HP CRT	HSTND-1L03-M
2	Logitech Keyboard	Y-BP62a
3	SD card Transcend	1GB
4	Philips headphone/mic	SBC HM450
5	Microsoft mouse	X08-71118
6	Terasys USB2.0 Disk	F12-UF



Pre-test configuration

Prior to taking the formal emissions data collected in this report many hours of pre-testing have been performed. The selection of the worst case system documented in this report was based upon this pre-testing.

Mode	CPU	LCD Panel	Memory	HDD	SSD	WLAN	Adapter	Battery
1	SGT STLS2F02 (800MHz)	LG LP089WS1	1GB	Fujitsu MHZ2160BH (160GB)	N/A	QMI US105	Delta ADP-40MH BD	SIMPLO SQU-813
2	SGT STLS2F02 (800MHz)	CPT CLAA089NA0CCW	512MB	WD WD1600BEVT-22ZCT0 (160GB)	N/A	QMI US105	Delta ADP-40MH BD	SIMPLO SQU-813
3	SGT STLS2F02 (800MHz)	CMO N089L6-L01	512MB	WD WD1600BEVT-22ZCT0 (160GB)	N/A	QMI US105	Delta ADP-40MH BD	SANYO 3UR18650-1-T0302
4	SGT STLS2F02 (800MHz)	CMO N089L6-L01	512MB	N/A	2GB	QMI US105	Delta ADP-40MH BD	SIMPLO SQU-813
5	SGT STLS2F02 (800MHz)	CPT CLAA089NA0CCW	512MB	N/A	2GB	QMI US105	Delta ADP-40MH BD	SIMPLO SQU-813
6	SGT STLS2F02 (800MHz)	CMO N089L6-L01	512MB	N/A	2GB	QMI US105	Delta ADP-40MH BD	SANYO 3UR18650-1-T0302
7	SGT STLS2F02 (800MHz)	CPT CLAA089NA0CCW	512MB	N/A	2GB	QMI US105	Delta ADP-40MH BD	SIMPLO SQU-813

Worst Case for Final Testing (Mode 1 chosen)

Component	Vendor	Part Number
Power Adapter	Delta	ADP-40MH BD
Battery	SIMPLO	SQU-813
CPU	SGT	STLS2F02 (800MHz)
Hard Disk Drive	Fujitsu	MHZ2160BH (160GB)
Memory	A-DATA	1GB
LCD Panel	LG	LP089WS1
Wireless LAN	QMI	US105

2.1.7 Cable Description and Information

Cable Type	Shielded	Ferrite
CRT Monitor cable	Yes	Yes (irremovable)
LAN cable (Remote)	No	No
Multimedia Headset	No	No
USB Mouse	No	Yes (irremovable)
USB Keyboard	No	No
USB2.0 HDD	Yes	No



2.2 Measurement Equipment

N/A is an abbreviation for Not Applicable. All equipments are traceable to CNAS calibration standards.

2.2.1 Conducted Emissions

Description	Manufacturer	Model No.	Serial No.	Calibrated Until
Test Receiver	Rohde & Schwarz	ESCI	100167	5/24/2009
LISN	Schwarzbeck	NSLK8127	8127433	5/24/2009
LISN	Schwarzbeck	NSLK8128	8128229	5/24/2009
TLISN	FCC	FCC-TLISN-T2	20217	5/24/2009
TLISN	FCC	FCC-TLISN-T4	20218	5/24/2009
TLISN	FCC	FCC-TLISN-T08-02	20445	7/25/2009
Software	ADT	ADT_Cond_V7.3 .4	N/A	N/A

2.2.2 Radiated Emissions

Description	Manufacturer	Model No.	Serial No.	Calibrated Until
Test Receiver	Rohde & Schwarz	ESCI	100166	5/24/2009
Test Receiver	Rohde & Schwarz	ESIB26	100307	5/24/2009
Bilog Antenna	Schwarzbeck	VULB9168	9168-198	5/30/2009
Bilog Antenna	Schwarzbeck	VULB9168	9168-195	5/30/2009
Horn Antenna	Schwarzbeck	BBHA 9120	409	5/30/2009
Preamplifier	Agilent	8447D	2944A10848	5/24/2009
Preamplifier	Agilent	8447D	2944A10847	5/24/2009
Preamplifier	Agilent	8449B	3008A02145	5/24/2009
Software	ADT	ADT_Radiated_V7	N/A	N/A
Antenna Mast	Innco	MA4000	MA4000/101/9 770405/L	N/A
Antenna Mast	Innco	MA4000	MA4000/104/9 770405/L	N/A
Turn Table	Innco	DT3000-1T-C	DT3000-1T-C/2 2	N/A
Controller	Innco	CO2000	CO2000/218/9 770405/L	N/A

**2.2.3 Power Harmonics and Voltage Fluctuation/Flicker**

Description	Manufacturer	Model No.	Serial No.	Calibrated Until
AC Power Source	EMTest	ACS 500	V0523100459	5/24/2009
Harmonics & Flicker Analyzer	EMTest	DPA 500	V0523100458	5/24/2009
Software	EMTest	EMTest software	N/A	N/A

2.2.4 Electrostatic Discharge (ESD) Immunity

Description	Manufacturer	Model No.	Serial No.	Calibrated Until
ESD Simulator	EMTest	ESD 30C	V0523100460	6/28/2009
ESD Simulator	Noiseken	ESS-2002	ESS0423758	5/30/2009
ESD Simulator	Keytek	MZ-15/EC	0506331	5/30/2009

2.2.5 Radiated Electromagnetic Field Immunity

Description	Manufacturer	Model No.	Serial No.	Calibrated Until
Amplifier	Amplifier Research	150W1000	312368	N/A
Amplifier	Amplifier Research	60S1G3(M1)	312416	N/A
Antenna	Amplifier Research	AT5080	312113	N/A
Antenna Tripod	Evergo	TP1000A	N/A	N/A
Field Monitoring	Amplifier Research	IF4000A	310906	N/A
Probe	Amplifier Research	FP6001	307201	5/30/2009
Power Meter	Boonton	4232A	142402	5/24/2009
Power Sensor	Boonton	51011EMC	33838	5/24/2009
Power Sensor	Boonton	51011EMC	33839	5/24/2009
Double-coupling	Amplifier Research	DC6180A	312192	N/A
Double-coupling	Amplifier Research	DC7144A	311989	N/A
Controller	Amplifier Research	SC1000M1	312477	N/A
Signal Generator	Rohde& Schwarz	SML03	102270	5/24/2009
Software	ADT	ADT_RS_V7	N/A	N/A

**2.2.6 Fast Transient/Burst Immunity**

Description	Manufacturer	Model No.	Serial No.	Calibrated Until
EFT Generator	EMTest	EFT500	V0523100450	5/24/2009
Clamp	EMTest	HFK	0605-08	N/A
CA EFT kit	EMTest	KW50 / KW1000	0305-49/0105-26	N/A
Software	EMTest	EMTest Software	N/A	N/A

2.2.7 Surge Immunity

Description	Manufacturer	Model No.	Serial No.	Calibrated Until
Telecom surge generator	EMTest	TSS 500 M10	0523100456	5/24/2009
Impulse Generator	EMTest	VCS 500 M10	V0523100451	5/24/2009
CDN	EMTest	CNV504 S4	V054221000813	N/A
CDN	EMTest	CNV504 S1	V0523100455	N/A
Software	EMTest	EMTest Software	N/A	N/A

2.2.8 Conducted Disturbance/Induced Radio-Frequency Field Immunity

Description	Manufacturer	Model No.	Serial No.	Calibrated Until
Continuous Wave Simulator	EMTest	CWS 500C	V053100457	5/24/2009
Attenuator	EMTest	ATT 6/75	1104-13	N/A
CDN	EMTest	CDN-M2/M3	0705-02	5/24/2009
CDN	EMTest	CDN-T2	0705-01	5/24/2009
CDN	EMTest	CDN-T4	0705-01	5/24/2009
Adapter	EMTest	Adapter T2-RJ11	N/A	N/A
Adapter	EMTest	CDN-T8-RJ45	N/A	N/A
EM Clamp	EMTest	EM Clamp	35737	N/A
CA M2/M3/AF3	EMTest	CA M2/M3/AF3	N/A	N/A
Built-in power monitor	EMTest	PM402	0705-01	N/A
Capacitive coupling clamp	EMTest	HFK (-4)	0605-08	N/A
CDN	EMTest	CDN-M1	0705-01	5/24/2009



CDN	EMTest	CDN-AF4	0705-01	5/24/2009
Basic calibration kit	EMTest	CWS-CAL	N/A	N/A
calibration kit	EMTest	CA T2/AF2	N/A	N/A
calibration kit	EMTest	CA T4/AF4/M4	N/A	N/A
calibration kit	EMTest	CA EM	276	N/A
calibration kit	EMTest	CA-M1	N/A	N/A
calibration kit	EMTest	CAA M2/M3	0263	N/A
Software	EMTest	EMTest Software	N/A	N/A

2.2.9 Power Frequency Magnetic Field Immunity

Description	Manufacturer	Model No.	Serial No.	Calibrated Until
Current transformer	EMTest	MC 2630 (-8)	0705-04	N/A
Motorized Variation	EMTest	MV 2616 (-8)	V0523100453	N/A
Power Fail Simulator	EMTest	UCS500M4-PFS	V0523100452	5/24/2009
Software	EMTest	EMTest Software	N/A	N/A

2.2.10 Voltage Dips and Short Interruptions

Description	Manufacturer	Model No.	Serial No.	Calibrated Until
Power Fail Simulator	EMTest	UCS500M4-PFS	V0523100452	5/24/2009
Software	EMTest	EMTest Software	N/A	N/A



Section: 3 Electromagnetic Emissions Test

3.1 Emission

3.1.1 Line Conducted Emissions Test

- Measurement Procedures Utilized for Conducted Emissions

The EUT was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN 55022.

Associated equipment, if needed, was placed as per EN 55022.

All I/O cables were positioned to simulate typical actual usage as per EN 55022.

The test equipment EUT installed received AC power through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane.

All associated equipment received power from a second LISN.

For conducted emission test on telecommunication ports, a telecommunication port is connected by its signal cable to an impedance stabilization network (ISN).

During the testing, the LAN utilization is in excess of 10 % and sustain that level for a minimum of 250 ms. The traffic rate is monitored by the program of NetSpeed..

The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150K Hz to 30MHz for emissions in each of the test modes.

During the above scans under battery charging mode, the emissions were maximized by cable manipulation.

The EUT configuration and cable configuration of the above highest emission level were recorded for reference of the final test.

- Conducted Emissions Test Data

The following data was collected with a spectrum analyzer in peak detection mode, unless otherwise noted.

Test date: 10/28/2008

Temperature 22 °C

Rel. Humidity 58 %



120 VAC 60 Hz Mains

Live Line

Frequency	Correction factor	Reading dB(μ V)		Emission dB(μ V)		Limit dB(μ V)		Margins dB	
		QP	AV	QP	AV	QP	AV	QP	AV
0.20200	10.97	33.51	27.25	44.48	38.22	63.53	53.53	-19.05	-15.31
0.33399	10.62	29.69	28.13	40.31	38.75	59.35	49.35	-19.04	-10.60
0.39798	10.46	27.44	27.04	37.90	37.50	57.90	47.90	-20.00	-10.40
4.05774	10.30	23.88	14.46	34.18	24.76	56.00	46.00	-21.82	-21.24
8.71743	10.50	32.47	31.31	42.97	41.81	60.00	50.00	-17.03	-8.19
16.22892	10.62	36.76	35.52	47.38	46.14	60.00	50.00	-12.62	-3.86

Neutral Line

Frequency	Correction factor	Reading dB(μ V)		Emission dB(μ V)		Limit dB(μ V)		Margins dB	
		QP	AV	QP	AV	QP	AV	QP	AV
0.20200	11.20	33.20	26.35	44.40	37.55	63.53	53.53	-19.13	-15.98
0.33399	10.89	31.61	30.85	42.50	41.74	59.35	49.35	-16.85	-7.61
0.46598	10.61	25.14	24.12	35.75	34.73	56.59	46.59	-20.84	-11.86
4.25772	10.38	19.09	10.30	29.47	20.68	56.00	46.00	-26.53	-25.32
8.7174	10.54	32.03	30.88	42.57	41.42	60.00	50.00	-17.43	-8.58
16.22892	10.67	36.59	35.46	47.26	46.13	60.00	50.00	-12.74	-3.87

Note: Conducted Emissions data was also taken at 110VAC, 60Hz and 100VAC, 50Hz. This data was found to be equivalent or lower than the data listed above.



230 VAC 50 Hz Mains

Live Line

Frequency	Correction factor	Reading dB(μ V)		Emission dB(μ V)		Limit dB(μ V)		Margins dB	
		QP	AV	QP	AV	QP	AV	QP	AV
0.20200	10.97	33.74	31.55	44.71	42.52	63.53	53.53	-18.82	-11.01
0.26599	10.80	36.06	35.04	46.86	45.84	61.24	51.24	-14.38	-5.40
0.40198	10.46	28.63	27.78	39.09	38.24	57.81	47.81	-18.72	-9.57
4.65770	10.31	21.98	17.42	32.29	27.73	56.00	46.00	-23.71	-18.27
8.71743	10.50	32.66	31.17	43.16	41.67	60.00	50.00	-16.84	-8.33
16.22892	10.62	36.57	35.49	47.19	46.11	60.00	50.00	-12.81	-3.89

Neutral Line

Frequency	Correction factor	Reading dB(μ V)		Emission dB(μ V)		Limit dB(μ V)		Margins dB	
		QP	AV	QP	AV	QP	AV	QP	AV
0.19800	11.24	39.64	34.01	50.88	45.25	63.69	53.69	-12.81	-8.44
0.26599	11.04	36.62	35.13	47.66	46.17	61.24	51.24	-13.58	-5.07
0.46598	10.61	26.18	24.74	36.79	35.35	56.59	46.59	-19.80	-11.24
4.11773	10.38	17.56	11.85	27.94	22.23	56.00	46.00	-28.06	-23.77
13.35712	10.59	33.44	32.38	44.03	42.97	60.00	50.00	-15.97	-7.03
16.22892	10.67	36.76	35.57	47.43	46.24	60.00	50.00	-12.57	-3.76

Note: Conducted Emissions data was also taken at 220VAC/240VAC, 50Hz. This data was found to be equivalent or lower than the data listed above.



230 VAC 50 Hz Telecommunication

RJ45 Line (10 Mbps)

Frequency	Correction factor	Reading dB(μ V)		Emission dB(μ V)		Limit dB(μ V)		Margins dB	
		QP	AV	QP	AV	QP	AV	QP	AV
MHz	dB	QP	AV	QP	AV	QP	AV	QP	AV
0.33399	19.62	29.95	25.00	49.57	44.62	77.35	67.35	-27.78	-22.73
0.49798	19.63	29.34	28.13	48.97	47.76	74.03	64.03	-25.06	-16.27
2.66583	19.67	19.78	13.15	39.45	32.82	74.00	64.00	-34.55	-31.18
7.50951	19.78	14.07	4.75	33.85	24.53	74.00	64.00	-40.15	-39.47
10.00934	19.74	18.97	-4.44	38.71	15.30	74.00	64.00	-35.29	-48.70
12.51317	19.69	7.34	-4.33	27.03	15.36	74.00	64.00	-46.97	-48.64

RJ45 Line (100 Mbps)

Frequency	Correction factor	Reading dB(μ V)		Emission dB(μ V)		Limit dB(μ V)		Margins dB	
		QP	AV	QP	AV	QP	AV	QP	AV
MHz	dB	QP	AV	QP	AV	QP	AV	QP	AV
0.33399	19.62	29.89	24.86	49.51	44.48	77.35	67.35	-27.84	-22.87
2.65783	19.67	23.96	19.08	43.63	38.75	74.00	64.00	-30.37	-25.25
5.23766	19.70	32.42	30.73	52.12	50.43	74.00	64.00	-21.88	-13.57
13.35712	19.69	40.18	39.84	59.87	59.53	74.00	64.00	-14.13	-4.47
16.22892	19.70	41.55	41.49	61.25	61.19	74.00	64.00	-12.75	-2.81
23.12846	19.76	41.64	41.46	61.40	61.22	74.00	64.00	-12.60	-2.78

Note: Conducted Emissions data was also taken at 220VAC/240VAC, 50Hz. This data was found to be equivalent or lower than the data listed above.



3.1.2 Radiated Emissions Test

- Measurement Procedures Utilized for Radiated Emissions

The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane.

Associated equipment, if needed, was placed as per EN 55022.

All I/O cables were positioned to simulate typical usage as per EN 55022.

The EUT received AC power source, from the outlet socket under the turntable. All associated equipment received power from another socket under the turntable.

Mains cables, telephone lines or other connections to auxiliary equipment located outside the test are shall drape to the floor. No. extension cords shall be used to mains receptacle.

The antenna was placed at 10 meter away from the EUT as stated in EN 55022. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.

The analyzer/receiver scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned under battery charging mode and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both vertical and horizontal polarization, to maximize the emission reading level.

The test mode(s) described in Item 2.1.6 were scanned during the preliminary test:

After the preliminary scan, we found the test mode described in Item 2.1.7 producing the highest emission level.

The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

FCC Part 15 measurements below 1 GHz were performed at an EUT to antenna distance of 10 meters. Measurements taken above 1GHz were taken at an EUT to antenna distance of 3 meters. CISPR 22 measurements were performed at an EUT to antenna distance of 10 meters.

- Radiated Emissions Test Data

Radiated Emissions measurements were performed at QSMC Compliance Center. The data lists the worst case emission frequencies, measured levels, antenna, cable and amplifier corrections, the corrected field strength, and the limit. The data was collected at 10 meters and compared to the CISPR 22 Class B limits.

Test date: 10/28/2008

Temperature 20°C

Rel. Humidity 60%



120 VAC 60 Hz Mains

Vertical Polarization

Frequency	Factor	Reading	Emission	Limit	Margin	Mast Height	Turn Table
MHz	dB	dB(μV)	dB(μV)	dB(μV/m)	dB	cm	deg
60.24 (QP)	12.73	8.30	21.03	30.00	-8.97	105	248
148.12 (QP)	14.39	6.17	20.56	30.00	-9.44	200	83
242.67 (QP)	12.66	7.19	19.85	37.00	-17.15	102	180
263.35 (QP)	13.35	12.77	26.12	37.00	-10.88	110	268
326.60 (QP)	15.41	17.84	33.25	37.00	-3.75	100	33
529.42 (QP)	19.91	11.11	31.02	37.00	-5.98	312	3

Horizontal Polarization

Frequency	Factor	Reading	Emission	Limit	Margin	Mast Height	Turn Table
MHz	dB	dB(μV)	dB(μV)	dB(μV/m)	dB	cm	deg
84.28 (QP)	9.35	7.21	16.56	30.00	-13.44	356	305
214.27 (QP)	10.92	5.40	16.32	30.00	-13.68	400	149
260.83 (QP)	12.86	6.94	19.80	37.00	-17.20	350	165
326.80 (QP)	15.00	15.15	30.15	37.00	-6.85	323	360
478.14 (QP)	18.65	3.48	22.13	37.00	-14.87	400	300
532.46 (QP)	19.47	11.98	31.45	37.00	-5.55	156	285

Note: Radiated Emissions data was also taken at 110VAC, 60Hz and 100VAC, 50Hz. This data was found to be equivalent or lower than the data listed above.

**230 VAC 50 Hz Mains****Vertical Polarization**

Frequency	Factor	Reading	Emission	Limit	Margin	Mast Height	Turn Table
MHz	dB	dB(μ V)	dB(μ V)	dB(μ V/m)	dB	cm	deg
60.22 (QP)	12.74	11.71	24.45	30.00	-5.55	100	213
151.55 (QP)	14.52	8.04	22.56	30.00	-7.44	178	19
240.03 (QP)	12.59	5.95	18.54	37.00	-18.46	100	154
264.00 (QP)	13.37	10.64	24.01	37.00	-12.99	100	241
326.10 (QP)	15.39	18.03	33.42	37.00	-3.58	100	34
532.92 (QP)	19.99	11.34	31.33	37.00	-5.67	331	345

Horizontal Polarization

Frequency	Factor	Reading	Emission	Limit	Margin	Mast Height	Turn Table
MHz	dB	dB(μ V)	dB(μ V)	dB(μ V/m)	dB	cm	deg
84.58 (QP)	9.35	7.01	16.36	30.00	-13.64	376	320
193.18 (QP)	10.69	8.29	18.98	30.00	-11.02	292	164
260.83 (QP)	12.86	6.87	19.73	37.00	-17.27	350	190
326.80 (QP)	15.00	14.69	29.69	37.00	-7.31	250	12
478.14 (QP)	18.65	3.56	22.21	37.00	-14.79	400	315
532.46 (QP)	19.47	11.07	30.54	37.00	-6.46	183	300

Note: Radiated Emissions data was also taken at 220VAC/240VAC, 50Hz. This data was found to be equivalent or lower than the data listed above.

**120 VAC 60 Hz Mains****Vertical Polarization (above 1GHz to 5th harmonics)**

Frequency	Factor	Reading	Emission	Limit	Margin	Mast Height	Turn Table
MHz	dB	dB(μ V)	dB(μ V)	dB(μ V/m)	dB	cm	deg
1082.45 (AV)	27.58	-1.81	25.77	54.00	-28.23	101	245
1465.35 (AV)	29.02	-2.88	26.14	54.00	-27.86	134	313
1600.25 (AV)	29.16	1.54	30.70	54.00	-23.30	110	256
2893.95 (AV)	34.36	-4.04	30.32	54.00	-23.68	105	12
3805.23 (AV)	35.67	-3.50	32.17	54.00	-21.83	150	211
5511.94 (AV)	40.38	-4.69	35.69	54.00	-18.31	123	123

Horizontal Polarization (above 1GHz to 5th harmonics)

Frequency	Factor	Reading	Emission	Limit	Margin	Mast Height	Turn Table
MHz	dB	dB(μ V)	dB(μ V)	dB(μ V/m)	dB	cm	deg
1065.23 (AV)	27.57	-0.35	27.22	54.00	-26.78	102	0
1600.18 (AV)	29.16	1.30	30.46	54.00	-23.54	123	71
1879.21 (AV)	29.80	-3.35	26.45	54.00	-27.55	108	13
2127.48 (AV)	32.18	-2.04	30.14	54.00	-23.86	200	17
4273.59 (AV)	37.46	-2.97	34.49	54.00	-19.51	109	122
5702.78 (AV)	40.67	-4.05	36.62	54.00	-17.38	129	60

Note: Radiated Emissions data was also taken at 110VAC, 60Hz and 100VAC, 50Hz. This data was found to be equivalent or lower than the data listed above.

**240 VAC 50 Hz Mains****Vertical Polarization (1GHz to 6GHz)**

Frequency	Factor	Reading	Emission	Limit	Margin	Mast Height	Turn Table
MHz	dB	dB(μ V)	dB(μ V)	dB(μ V/m)	dB	cm	deg
1066.49 (AV)	27.56	-0.89	26.67	50.00	-23.33	398	101
1460.50 (AV)	29.03	-2.33	26.70	50.00	-23.30	385	300
1600.47 (AV)	29.16	-0.65	28.51	50.00	-21.49	101	256
2137.21 (AV)	32.27	-3.54	28.73	50.00	-21.27	251	360
4312.45 (AV)	37.59	-2.85	34.74	54.00	-19.26	250	24
5200.19 (AV)	39.96	-4.17	35.79	54.00	-18.21	100	360

Horizontal Polarization (1GHz to 6GHz)

Frequency	Factor	Reading	Emission	Limit	Margin	Mast Height	Turn Table
MHz	dB	dB(μ V)	dB(μ V)	dB(μ V/m)	dB	cm	deg
1081.34 (AV)	27.58	-1.48	26.10	50.00	-23.90	150	101
1599.50 (AV)	29.16	4.01	33.17	50.00	-16.83	102	74
1862.67 (AV)	29.71	1.19	30.90	50.00	-19.10	101	110
2125.61 (AV)	32.17	-1.22	30.95	50.00	-19.05	139	246
4680.42 (AV)	38.52	-4.07	34.45	54.00	-19.55	152	45
5561.27 (AV)	40.42	-3.80	36.62	54.00	-17.38	400	360

Note: Radiated Emissions data was also taken at 220VAC/230VAC, 50Hz. This data was found to be equivalent or lower than the data listed above.



3.1.3 Power Harmonics Measurement

The product with power less than 75 Watt was met the requirements specified in EN 61000-3-2: 2006, Class D. No test is required.

3.1.4 Power Voltage Fluctuation/ Flicker Measurement

The product was tested and met the requirements specified in EN 61000-3-3:1995 + A1:2001 + A2:2005.

Test Condition

Equipment Tested	Notebook
Test Software	H Patterns
Test Standard	EN 61000-3-3
Test Operator	Lawrence Mok
Date of Test	10/24/08
Relative Humidity	61%
Temperature	21°C
Atmospheric Pressure	100.5 kPa

	EUT Values	Limit	Result	Remark
P_{st}	0.028	1.00	Pass	P_{st} means short-term flicker indicator
P_{lt}	0.028	0.65	Pass	P_{lt} means long-term flicker indicator
d_c [%]	0.005	3.30	Pass	d_c means relative steady-state voltage change
d_{max} [%]	0.145	4.00	Pass	d_{max} means maximum relative voltage change
d_t [s]	0.000	0.50	Pass	T_{dt} means maximum time that d_t exceeds 3.3%



3.2 Electromagnetic Immunity Report

EN55024:1998+A1:2001+A2:2003

3.2.1 Electrostatic Discharge (ESD) Immunity Measurement

The product was tested and met the requirements specified in EN 61000-4-2:2001

Test Condition

Equipment Tested	Notebook
Test Software	H Patterns
Test Standard	EN 61000-4-2
Test Operator	Lawrence Mok
Date of Test	10/22/08
Relative Humidity	56%
Temperature	22°C
Atmospheric Pressure	99 kPa

Test Results

Amount of Discharge	Voltage	Coupling	Performance Criteria	Result (Pass/Fail)
10 /Point	± 8 kV	Air Discharge	B	Pass
25 /Point	± 4 kV	Contact Discharge	B	Pass
25 /Point	± 4 kV	Indirect Discharge HCP	B	Pass
25 /Point	± 4 kV	Indirect Discharge VCP (Right)	B	Pass
25 /Point	± 4 kV	Indirect Discharge VCP (Left)	B	Pass



3.2.2 Radiated Electromagnetic Field Immunity Test

The product was tested and met the requirements specified in EN 61000-4-3:2006

Test Condition

Equipment Tested	Notebook
Test Software	H Patterns
Test Standard	EN 61000-4-3
Test Operator	Lawrence Mok
Date of Test	10/23/08
Relative Humidity	61%
Temperature	21°C
Atmospheric Pressure	101 kpa

Test Results

Test level: 3V/m

Steps: 1 % of fundamental

Dwell Time: 3 sec

Range (MHz)	Field	Modulation	Polarity	Position	Performance Criteria	Result (Pass/Fail)
80-1000	3V/m	Yes	H	B/F/L/R	A	Pass
80-1000	3V/m	Yes	V	B/F/L/R	A	Pass
1400-2700	3V/m	Yes	H	B/F/L/R	A	Pass
1400-2700	3V/m	Yes	V	B/F/L/R	A	Pass



3.2.3 Fast Transient/Burst Immunity Test

The product was tested and met the requirements specified in EN 61000-4-4:2004

Test Condition

Equipment Tested	Notebook
Test Software	H Patterns
Test Standard	EN 61000-4-4
Test Operator	Lawrence Mok
Date of Test	10/24/08
Relative Humidity	61%
Temperature	20°C
Atmospheric Pressure	101 kPa

Test Results

Inject Line	Voltage	Inject Method	Performance Criteria	Result (Pass/Fail)
L	± 1 KV	Direct	B	Pass
N	± 1 KV	Direct	B	Pass
PE	± 1 KV	Direct	B	Pass
L + N	± 1 KV	Direct	B	Pass
L + PE	± 1 KV	Direct	B	Pass
N + PE	± 1 KV	Direct	B	Pass
L + N + PE	± 1 KV	Direct	B	Pass
RJ 45 Port (LAN Cable)	± 0.5 KV	Clamp	B	Pass



3.2.4 Surge Immunity Test

The product was tested and met the requirements specified in EN 61000-4-5:2006

Test Condition

Equipment Tested	Notebook
Test Software	H Patterns
Test Standard	EN 61000-4-5
Test Operator	Lawrence Mok
Date of Test	10/24/08
Relative Humidity	60%
Temperature	20°C
Atmospheric Pressure	101.5 kPa

Test Results

Coupling Line	Voltage	Polarity	Coupling Method	Performance Criteria	Result (Pass/Fail)
L1-L2	1 KV	Positive	Capacitive	B	Pass
L1-PE	2 KV	Positive	Capacitive	B	Pass
L2-PE	2 KV	Positive	Capacitive	B	Pass
L1-L2	1 KV	Negative	Capacitive	B	Pass
L1-PE	2 KV	Negative	Capacitive	B	Pass
L2-PE	2 KV	Negative	Capacitive	B	Pass
T, R to Ground	1 KV	Positive	Capacitive	B	Pass
T, R to Ground	1 KV	Negative	Capacitive	B	Pass



3.2.5 Conducted Disturbance, Induced Radio-Frequency Field

The product was tested and met the requirements specified in EN 61000-4-6:2003 + A1:2004

Test Condition

Equipment Tested	Notebook
Test Software	H Patterns
Test Standard	EN 61000-4-6
Test Operator	Lawrence Mok
Date of Test	10/23/08
Relative Humidity	59%
Temperature	21°C
Atmospheric Pressure	100.5 kPa

Test Results

Frequency Step: 1% of fundamental

Dwell Time: 3 sec

Test Ports: mains, RJ-45

Range (MHz)	Field	Modulation	Performance Criteria	Result (Pass/Fail)
0.15-80	3V	Yes	A	Pass



3.2.6 Power Frequency Magnetic Field Immunity Test

The product was tested and met the requirements specified in EN 61000-4-8:2001

Test Condition

Equipment Tested	Notebook
Test Software	H Patterns
Test Standard	EN 61000-4-8
Test Operator	Lawrence Mok
Date of Test	10/23/08
Relative Humidity	60%
Temperature	20°C
Atmospheric Pressure	101.5 kPa

Test Results

Power Freq.: 50Hz

Orientation	Field	Performance Criteria	Result (Pass/Fail)
X	1A/m	A	Pass
Y	1A/m	A	Pass
Z	1A/m	A	Pass



3.2.7 Voltage Dips/ Short Interruptions and Interruptions Test

The product was tested and met the requirements specified in EN 61000-4-11:2004

Test Condition

Equipment Tested	Notebook
Test Software	H Patterns
Test Standard	EN 61000-4-11
Test Operator	Lawrence Mok
Date of Test	10/23/08
Relative Humidity	61%
Temperature	21°C
Atmospheric Pressure	101.5 kPa

Test Results

The duration with a sequence of three dips/interruptions with interval of 10 s minimum (Between each test event)

Voltage Dips:

Test Level % U_T	Reduction	Duration (periods)	Performance Criteria	Result (Pass/Fail)
0	> 95%	0.5	B	Pass
0	> 95%	1	B	Pass
40	60%	5	C	Pass
70	30%	0.5	B	Pass
70	30%	25	C	Pass

Voltage Interruptions:

Test Level % U_T	Reduction	Duration (periods)	Performance Criteria	Result (Pass/Fail)
0	> 95%	250	C	Pass