



Test Report

**Compliance with Industry Canada Interference-Causing
Equipment Standard ICES-003**

Product Name : Notebook PC

Model No. : U38D, U38N

Applicant : ASUSTeK COMPUTER INC.

Address : 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Date of Receipt : 2012/09/07

Issued Date : 2012/09/25

Report No. : 129213R-ITUSP02V02

Report Version : V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF, NVLAP, NIST or any agency of the Government. The test report shall not be reproduced except in full without the written approval of Quietek Corporation.

Test Report Certification

Issued Date : 2012/09/25

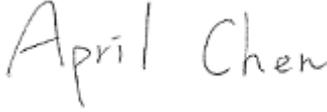
Report No. : 129213R-ITUSP02V02



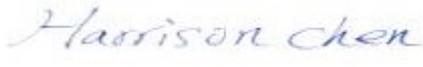
Product Name : Notebook PC
Applicant : ASUSTeK COMPUTER INC.
Address : 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.
Manufacturer : 1. PEGATRON CORPORATION Taoyuan Mfg
2. Protek (Shanghai) Limited.
3. Tech-Com(Shanghai) Computer Co. Ltd.
4. Tech-Front (Chongqing) Computer Co.,Ltd .
5. Compal Information Technology (Kunshan) Co., Ltd
6. Digitek (Chongqing) Limited

Model No. : U38D, U38N
EUT Rated Voltage : 19Vdc; 3.42A/ 19Vdc; 2.37A
EUT Test Voltage : AC 120 V / 60 Hz
Trade Name : ASUS
Applicable Standard : FCC CFR Title 47 Part 15 Subpart B: 2011 Class B
CISPR 22: 2008, ANSI C63.4: 2009
ICES-003 Issue 4: 2004 Class B

Test Result : Complied
Performed Location : Quietek Corporation (Linkou Laboratory)
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Laboratory Information

We, **QuietTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scopes:

Taiwan R.O.C.	:	BSMI, NCC, TAF
Norway	:	Nemko, DNV
USA	:	FCC, NVLAP
Japan	:	VCCI

The related certificate for our laboratories about the test site and management system can be downloaded from QuietTek Corporation's Web Site : <http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of QuietTek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

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TABLE OF CONTENTS

Description	Page
1. General Information	5
1.1. EUT Description.....	5
1.2. Mode of Operation	5
1.3. Tested System Details	8
1.4. Configuration of Tested System	9
1.5. EUT Exercise Software.....	10
2. Technical Test	11
2.1. Summary of Test Result.....	11
2.2. List of Test Equipment	12
2.3. Measurement Uncertainty.....	12
2.4. Test Environment.....	14
3. Conducted Emission	15
3.1. Test Specification	15
3.2. Test Setup.....	15
3.3. Limit	15
3.4. Test Procedure	16
3.5. Test Result	17
3.6. Test Photograph	29
4. Radiated Emission	30
4.1. Test Specification	31
4.2. Test Setup.....	31
4.3. Limit	32
4.4. Test Procedure	33
4.5. Test Result	34
4.6. Test Photograph	42
5. Attachment.....	45
EUT Photograph.....	45

1. General Information

1.1. EUT Description

Product Name	Notebook PC
Trade Name	ASUS
Model No.	U38D, U38N

Component	
Power Adapter (1)	MFR: DELTA, M/N: ADP-65AW A Input: AC 100-240V~1.5A, 50-60Hz Output: DC 19V, 3.42A Cable Out: Non-Shielded, 1.8m
Power Adapter (2)	MFR: DELTA, M/N: ADP-45AW A Input: AC 100-240V~1.2A, 50-60Hz Output: DC 19V, 2.37A Cable Out: Non-Shielded, 1.8m

Keypart List		
Component	Vendor	Remark
Motherboard	ASUS/ U38DT MAIN BOARD	DIS (65W) UMA (45W)
CPU (813pin)	AMD A10-4655M 2.0GHZ	17W; Qual Core
	AMD A8-4555M 1.6GHZ	19W; Qual Core
	AMD A6-4455M 2.1GHZ	25W; Dual Core
Panel	CMO/ N133HSE-EA1	LCD 13.3' FHD WV SLIM EDP LED
	IVO/ M133NWN1 R1	13.3" HD GLARE LED
Graphic & Video Module	MARS 64-PRO	AMD
H.D.D	SEAGATE/ ST320LT012	SATA 320G 5400R 2.5'
	SEAGATE/ ST500LT012	SATA 500G 5400R 2.5'
	HITACHI/ HTS545032A7E380	SATA 320G 5400R 2.5'
	HITACHI/ HTS545050A7E380	SATA 500G 5400R 2.5'
	HITACHI/ HTS725050A7E630	SATA 500G 7200R 2.5'
	SANDISK/SDSA5GK-128G	SATA SSD 128GB 2.5'
	SANDISK/SDSA5GK-256G-1002	SATA SSD 256GB 2.5'
WLAN+BT Module	Broadcom/ BCM943228HMB (AW-NB111H)	802.11A/B/G/N WLAN+BT4.0+HS
	Atheros/ AR5B22 (AW-AB116H)	802.11A/B/G/N WLAN+BT4.0+HS
DDR: DDR3/ 1600/ 2G, 4G		
USB to LAN	--	--
Battery Pack	SIMPLO (ASUS)/ C23-UX32	7.4Vdc, 6520mAh, 48W
	CELXPRT (ASUS)/ C23-UX32	7.4Vdc, 6520mAh, 48W
Adaptor	DELTA/ ADP-45AW A	45W, 2 pin
	DELTA/ ADP-65AW A	65W, 2 pin

Note :

The EUT is including two models for different is listed as below:

Model No.	Motherboard	VGA	Rating	Adaptor	Remarks
U38D	ASUS/U38DT MAIN BOARD	DIS	19Vdc; 3.42A	65W	non touch
U38N		UMA	19Vdc; 2.37A	45W	touch

1.2. Mode of Operation

Quietek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode	
Mode 1	Mode 5
Mode 2	Mode 6
Mode 3	Mode 7
Mode 4	
Final Test Mode	
Emission	Mode 1 Mode 2

	Mode 1	Mode 2
Resolution	LCD+HDMI 1920*1080/60Hz	LCD+D-SUB 1366*768/60Hz
Motherboard	ASUS / U38DT MAIN BOARD (UMA)	ASUS / U38DT MAIN BOARD (DIS)
CPU	AMD / A10-4655M 2.0GHZ	AMD / A8-4555M 1.6GHZ
Panel	CMO / N133HSE-EA1	IVO / M133NWN1 R1
Graphic	N/A	AMD / MARS 64-PRO
H.D.D	SANDISK / SDSA5GK-256G-1002	HITACHI / HTS725050A7E630
RAM	DDR3 1600	DDR3 1600
WLAN+BT	Broadcom / BCM943228HMB (Azurewave / AW-NB111H)	Atheros / AR5B22 (Azurewave / AW-AB116H)
Battery Pack	CELXPART (ASUS) / C23-UX32	SIMPLO (ASUS) / C23-UX32
AC Adapter	DELTA/ ADP-45AW A	DELTA/ ADP-65AW A
USB to LAN	USB to LAN	USB to LAN

	Mode 3	Mode 4
Resolution	LCD+D-SUB 1920*1080/60Hz	LCD+HDMI 1366*768/60Hz
Motherboard	ASUS / U38DT MAIN BOARD (UMA)	ASUS / U38DT MAIN BOARD (DIS)
CPU	AMD / A6-4455M 2.1GHZ	AMD / A8-4555M 1.6GHZ
Panel	CMO / N133HSE-EA1	IVO / M133NWN1 R1
Graphic	N/A	AMD / MARS 64-PRO
H.D.D	HITACHI / HTS545050A7E380	SEAGATE / ST500LT012
RAM	DDR3 1600	DDR3 1600
WLAN+BT	Broadcom / BCM943228HMB (Azurewave / AW-NB111H)	Atheros / AR5B22 (Azurewave / AW-AB116H)
Battery Pack	CELXPART (ASUS) / C23-UX32	SIMPLO (ASUS) / C23-UX32
AC Adapter	DELTA/ ADP-45AW A	DELTA/ ADP-65AW A
USB to LAN	N/A	N/A

	Mode 5	Mode 6
Resolution	LCD+HDMI 1920*1080/60Hz	LCD+D-SUB 1366*768/60Hz
Motherboard	ASUS / U38DT MAIN BOARD (UMA)	ASUS / U38DT MAIN BOARD (DIS)
CPU	AMD / A10-4655M 2.0GHZ	AMD / A8-4555M 1.6GHZ
Panel	CMO / N133HSE-EA1	IVO / M133NWN1 R1
Graphic	N/A	AMD / MARS 64-PRO
H.D.D	SEAGATE / ST320LT012	HITACHI / HTS545032A7E380
RAM	DDR3 1600	DDR3 1600
WLAN+BT	Broadcom / BCM943228HMB (Azurewave / AW-NB111H)	Atheros / AR5B22 (Azurewave / AW-AB116H)
Battery Pack	CELXPART (ASUS) / C23-UX32	SIMPLO (ASUS) / C23-UX32
AC Adapter	DELTA/ ADP-45AW A	DELTA/ ADP-65AW A
USB to LAN	USB to LAN	USB to LAN

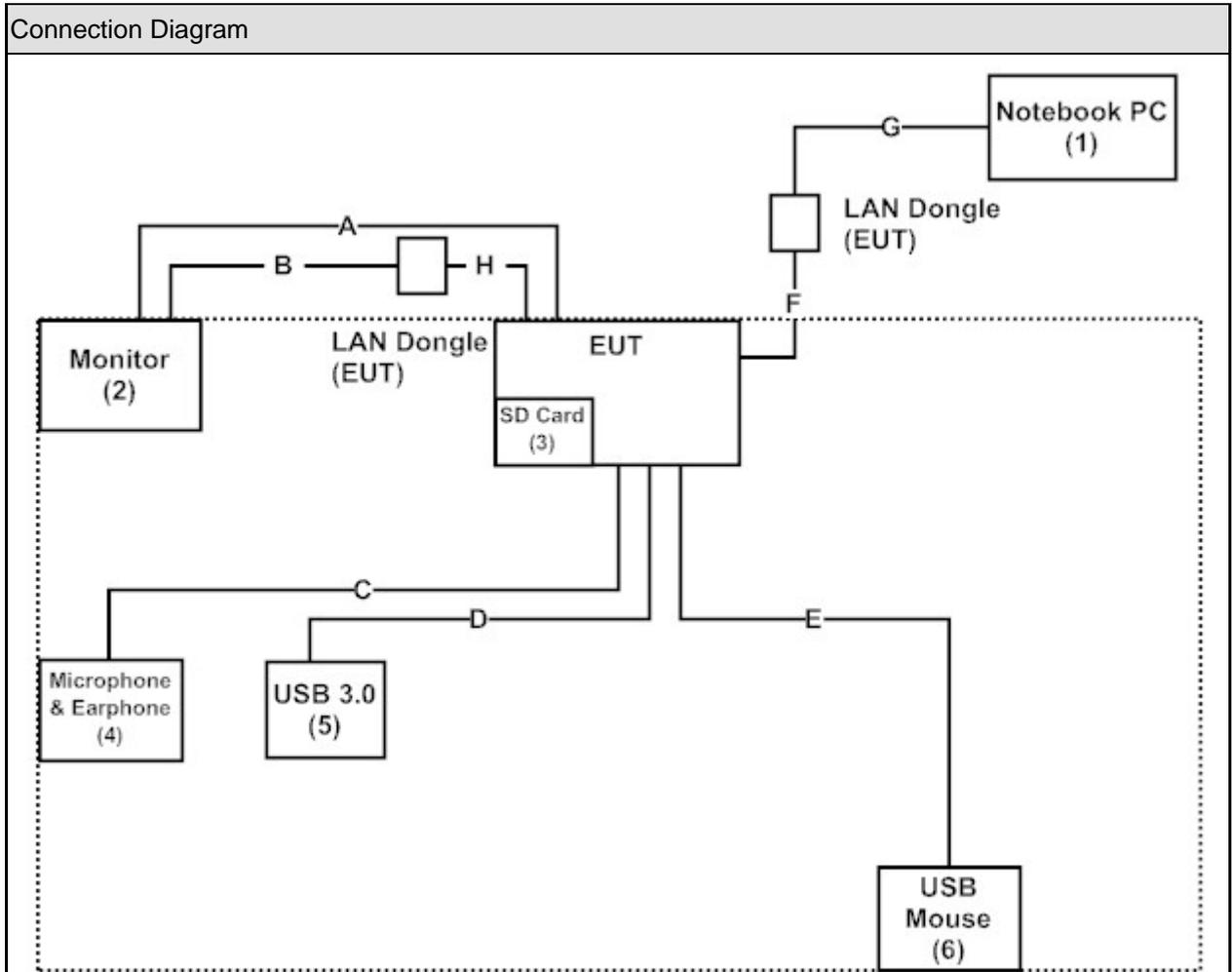
	Mode 7
Resolution	LCD+D-SUB 1920*1080/60Hz
Motherboard	ASUS / U38DT MAIN BOARD (UMA)
CPU	AMD / A6-4455M 2.1GHZ
Panel	CMO / N133HSE-EA1
Graphic	N/A
H.D.D	SANDISK / SDSA5GK-128G
RAM	DDR3 1600
WLAN+BT	Broadcom / BCM943228HMB (Azurewave / AW-NB111H)
Battery Pack	CELXPART (ASUS) / C23-UX32
AC Adapter	DELTA/ ADP-45AW A
USB to LAN	N/A

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Notebook PC	DELL	PP04X	C8YYM1S	Non-Shielded, 1.8m
2 Monitor	DELL	U2410	CN-0J257M-728-01I-04NL	Non-Shielded, 1.8m
3 SD Card 512MB	Transcend	155496	3959	N/A
4 Microphone & Earphone	Ergotech	ET-E201	N/A	N/A
5 USB 3.0	WD	WDBACW0010HBK- SESN	WCAV5M998567	N/A
6 USB Mouse	Logitech	M-U0003	LZ024HR	N/A

1.4. Configuration of Tested System



Signal Cable Type		Signal cable Description
A	D-SUB Cable	Shielded, 1.8m, with two ferrite cores bonded.
B	HDMI Cable	Shielded, 1.8m
C	Earphone Cable	Non-Shielded, 1.6m
D	USB 3.0 Cable	Shielded, 1.0m
E	USB Mouse Cable	Shielded, 1.8m
F	USB Cable	Shielded, 0.15m
G	LAN Cable	Non-Shielded, 7.0m
H	Mini VGA Cable	Shielded, 0.03m

1.5. EUT Exercise Software

1	Setup the EUT and peripheral as shown on Figure
2	Connect the power to EUT and peripherals, then turn on the power of all equipments.
3	Waiting for EUT to enter Window Operating System, and adjust the display resolution to the test mode.
4	Connect LAN to Notebook for transmitting data.
5	Activate Wireless interface and Bluetooth function, and perform the wireless data communication with the other Notebook (write/delete action).
6	Run Windows Media Player program and play a disk with color Bar pattern
7	Run “H” pattern.
8	Begin to test and repeat the above procedure (4)~(7)

2. Technical Test

2.1. Summary of Test Result

- No deviations from the test standards
- Deviations from the test standards as below description:

Emission			
Performed Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart B: 2011 Class B ANSI C63.4: 2009	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart B: 2011 Class B ANSI C63.4: 2009	Yes	No

2.2. List of Test Equipment

Conducted Emission / SR2

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCI	100647	2011/12/08
LISN	R&S	ESH3-Z5	836679/017	2012/01/08
LISN	R&S	ENV216	100086	2012/03/07
Pulse Limiter	R&S	ESH3-Z2	100324	2012/04/23

Radiated Emission / Site3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2704	2012/07/22
EMI Test Receiver	R&S	ESCS 30	100367	2012/09/23
Pre-Amplifier	QTK	LK-E-I-AMP4	N/A	2012/07/04
CXA Signal Analyzer	Agilent	N9000A	MY50510070	2012/03/12
Site3 NSA	QTK	N/A	N/A	2012/07/04

Radiated Emission / CB7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	Agilent	E4440A	MY46185846	2011/12/12
Horn Antenna	ETS-Lindgren	3117	00135205	2012/03/30
Horn Antenna	SCHWARZBECK	9120D	576	2011/11/14
Pre-Amplifier	Quietek	AP-180C	CHM/071920	2012/07/12
CB7 VSWR	QTK	N/A	N/A	2012/08/25

2.3. Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.26 dB.

Radiated Emission

The measurement uncertainty is evaluated as ± 3.19 dB.

2.4. Test Environment

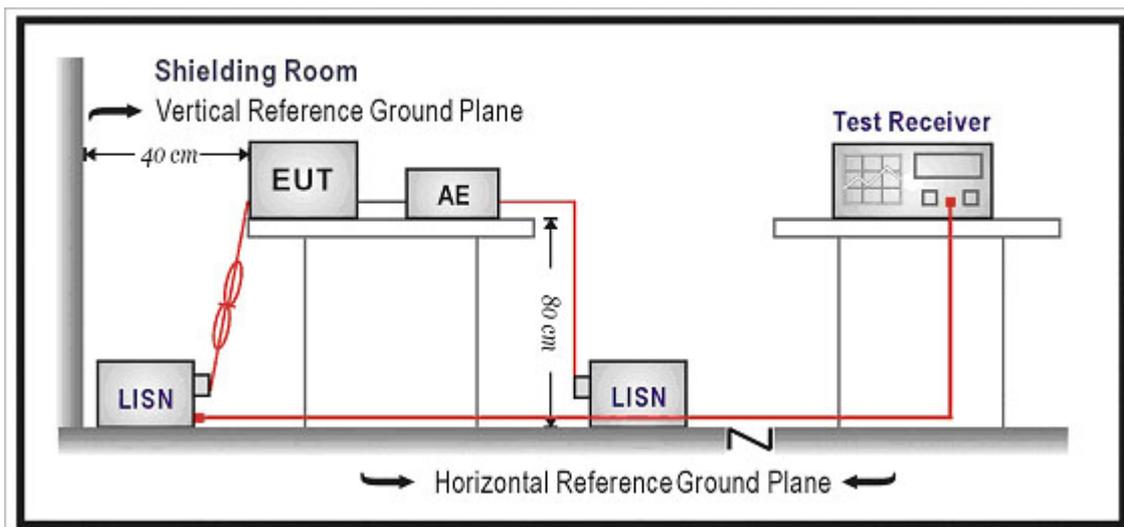
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	24
	Humidity (%RH)	25-75	53
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	23.9
	Humidity (%RH)	25-75	67
	Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission

3.1. Test Specification

According to Standard : FCC Part 15 Subpart B, ANSI C63.4

3.2. Test Setup



3.3. Limit

Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

3.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination.

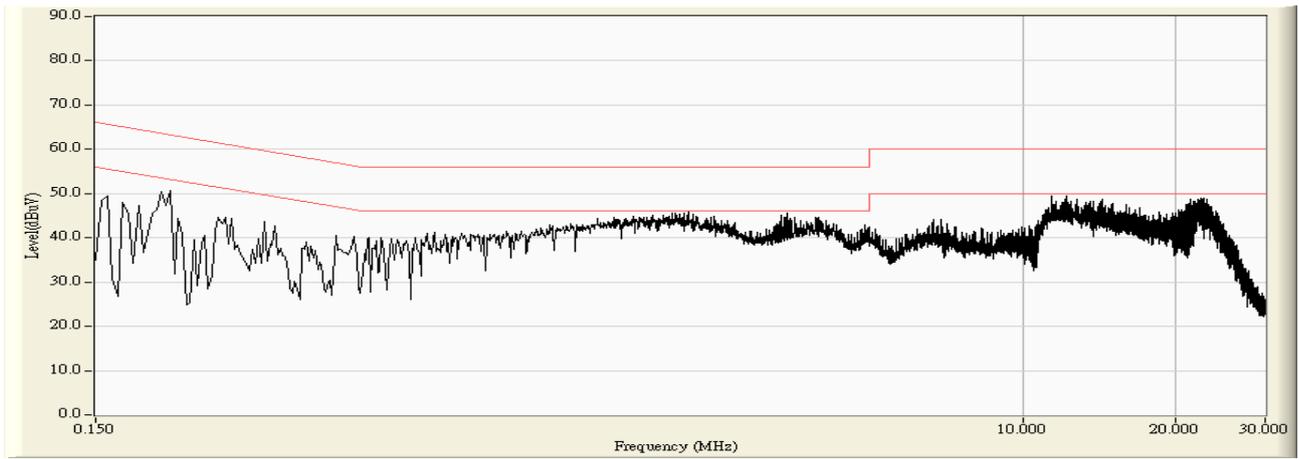
(Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.

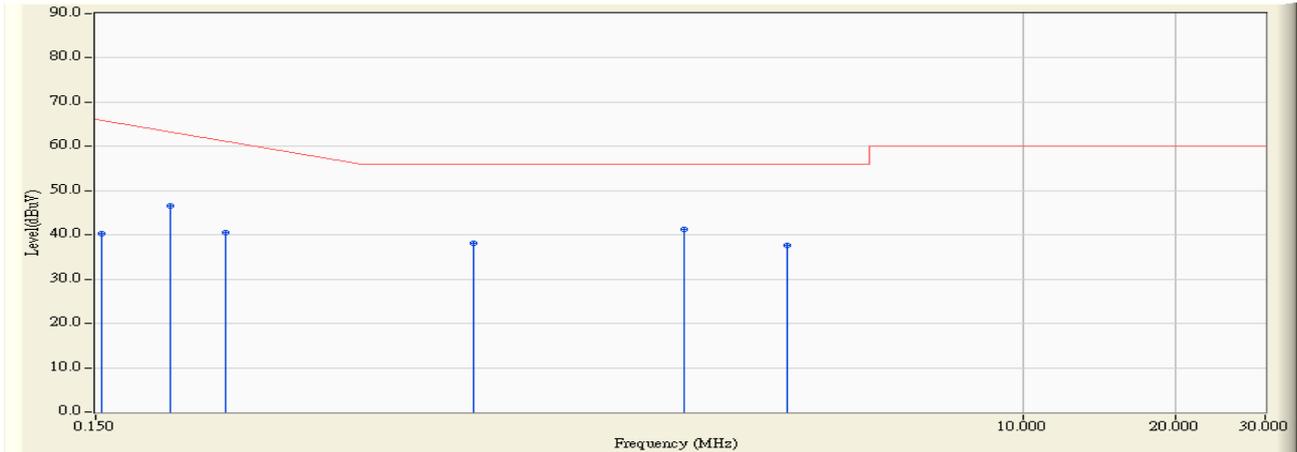
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Test Result

Site : SR2	Time : 2012/09/14 - 15:09
Limit : CISPR_B_00M_QP	Margin : 10
EUT : Notebook PC	Probe : ENV_216_L1 - Line1
Power : AC 120V/50Hz	Note : Mode 1



Site : SR2	Time : 2012/09/14 - 15:10
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Notebook PC	Probe : ENV_216_L1 - Line1
Power : AC 120V/50Hz	Note : Mode 1

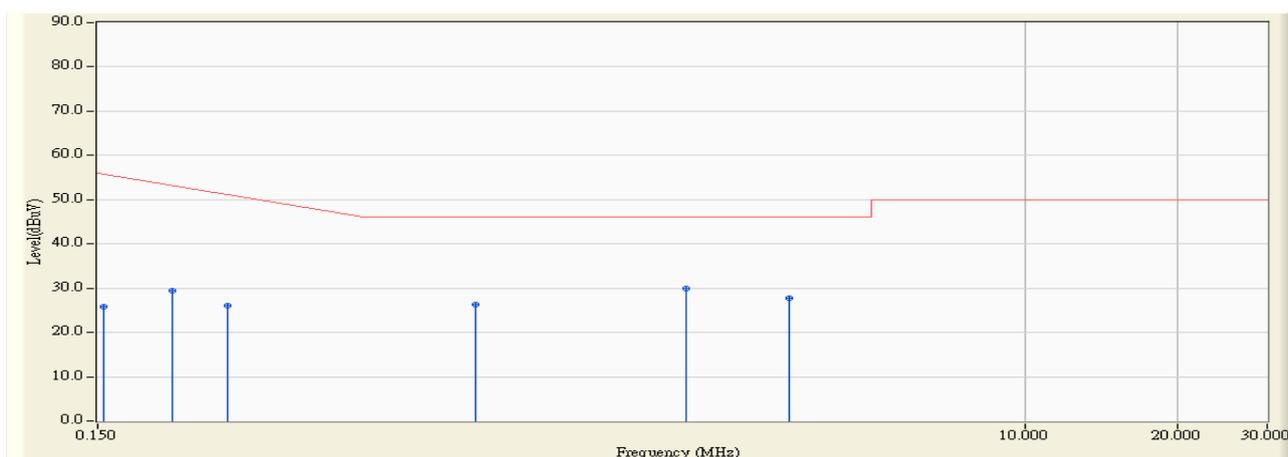


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.154	9.822	30.461	40.283	-25.603	65.886	QUASIPeAK
2		0.210	9.820	36.709	46.529	-17.757	64.286	QUASIPeAK
3		0.270	9.820	30.729	40.549	-22.022	62.571	QUASIPeAK
4		0.830	9.830	28.356	38.186	-17.814	56.000	QUASIPeAK
5	*	2.154	9.840	31.402	41.242	-14.758	56.000	QUASIPeAK
6		3.442	9.850	27.901	37.751	-18.249	56.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR2	Time : 2012/09/14 - 15:10
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Notebook PC	Probe : ENV_216_L1 - Line1
Power : AC 120V/50Hz	Note : Mode 1

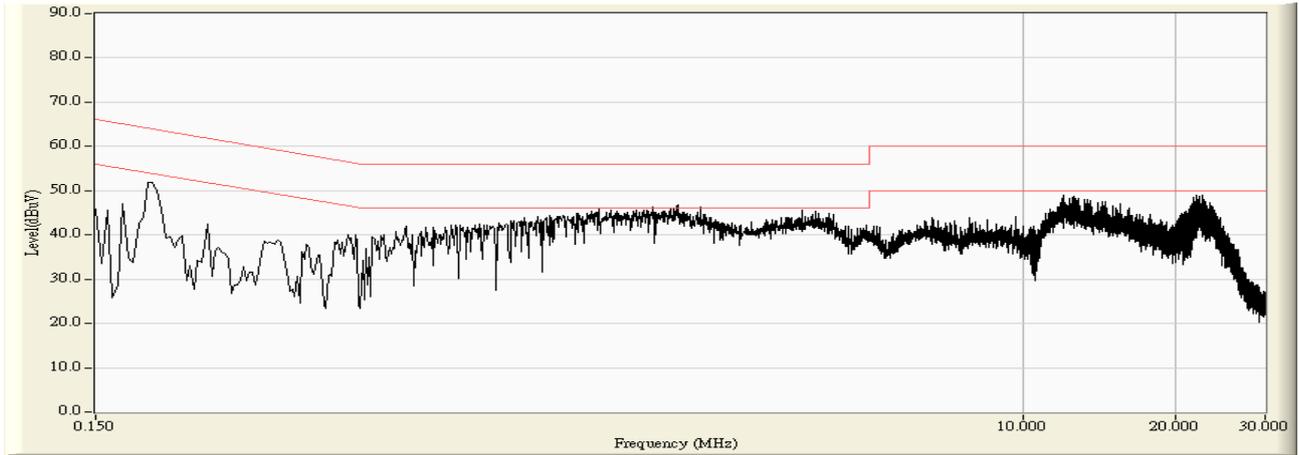


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.154	9.822	16.021	25.843	-30.043	55.886	AVERAGE
2		0.210	9.820	19.656	29.476	-24.810	54.286	AVERAGE
3		0.270	9.820	16.330	26.150	-26.421	52.571	AVERAGE
4		0.830	9.830	16.359	26.189	-19.811	46.000	AVERAGE
5	*	2.154	9.840	20.035	29.875	-16.125	46.000	AVERAGE
6		3.442	9.850	17.862	27.712	-18.288	46.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR2	Time : 2012/09/14 - 15:11
Limit : CISPR_B_00M_QP	Margin : 10
EUT : Notebook PC	Probe : ENV_216_N - Line2
Power : AC 120V/50Hz	Note : Mode 1



Site : SR2	Time : 2012/09/14 - 15:12
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Notebook PC	Probe : ENV_216_N - Line2
Power : AC 120V/50Hz	Note : Mode 1

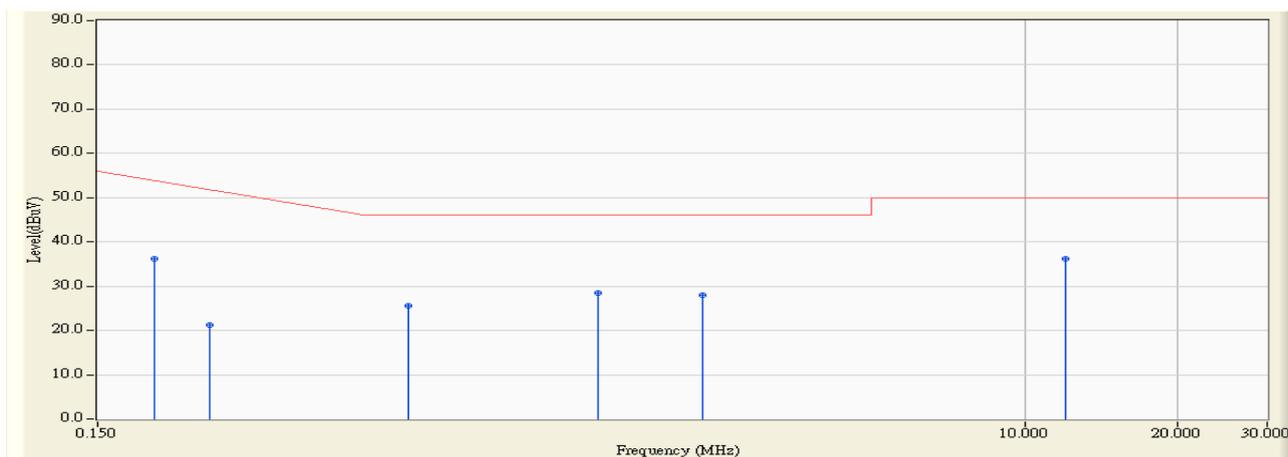


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.194	9.840	38.620	48.460	-16.283	64.743	QUASPEAK
2		0.250	9.840	26.971	36.811	-26.332	63.143	QUASPEAK
3		0.614	9.830	28.644	38.474	-17.526	56.000	QUASPEAK
4	*	1.450	9.850	31.898	41.748	-14.252	56.000	QUASPEAK
5		2.326	9.860	30.397	40.257	-15.743	56.000	QUASPEAK
6		11.998	10.028	33.701	43.729	-16.271	60.000	QUASPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR2	Time : 2012/09/14 - 15:12
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Notebook PC	Probe : ENV_216_N - Line2
Power : AC 120V/50Hz	Note : Mode 1

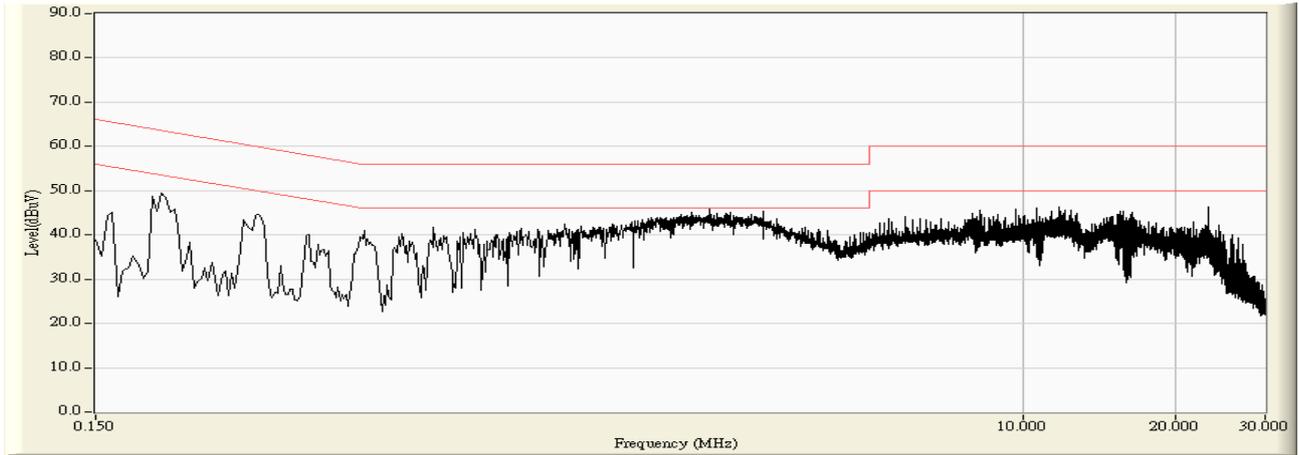


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.194	9.840	26.307	36.147	-18.596	54.743	AVERAGE
2		0.250	9.840	11.370	21.210	-31.933	53.143	AVERAGE
3		0.614	9.830	15.770	25.600	-20.400	46.000	AVERAGE
4		1.450	9.850	18.555	28.405	-17.595	46.000	AVERAGE
5		2.326	9.860	18.115	27.975	-18.025	46.000	AVERAGE
6	*	11.998	10.028	26.233	36.261	-13.739	50.000	AVERAGE

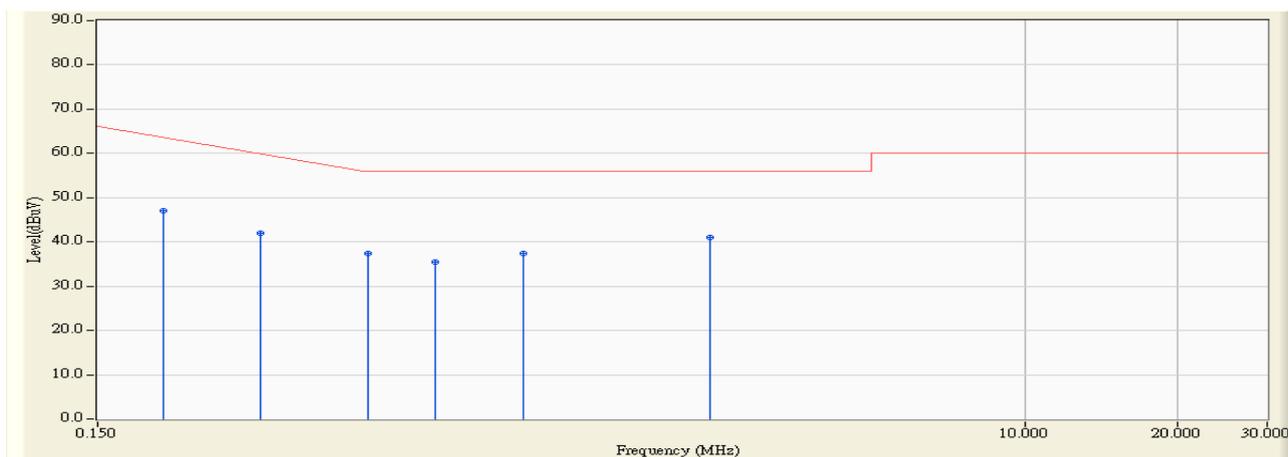
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR2	Time : 2012/09/14 - 16:28
Limit : CISPR_B_00M_QP	Margin : 10
EUT : Notebook PC	Probe : ENV_216_L1 - Line1
Power : AC 120V/60Hz	Note : Mode 2



Site : SR2	Time : 2012/09/14 - 16:29
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Notebook PC	Probe : ENV_216_L1 - Line1
Power : AC 120V/60Hz	Note : Mode 2

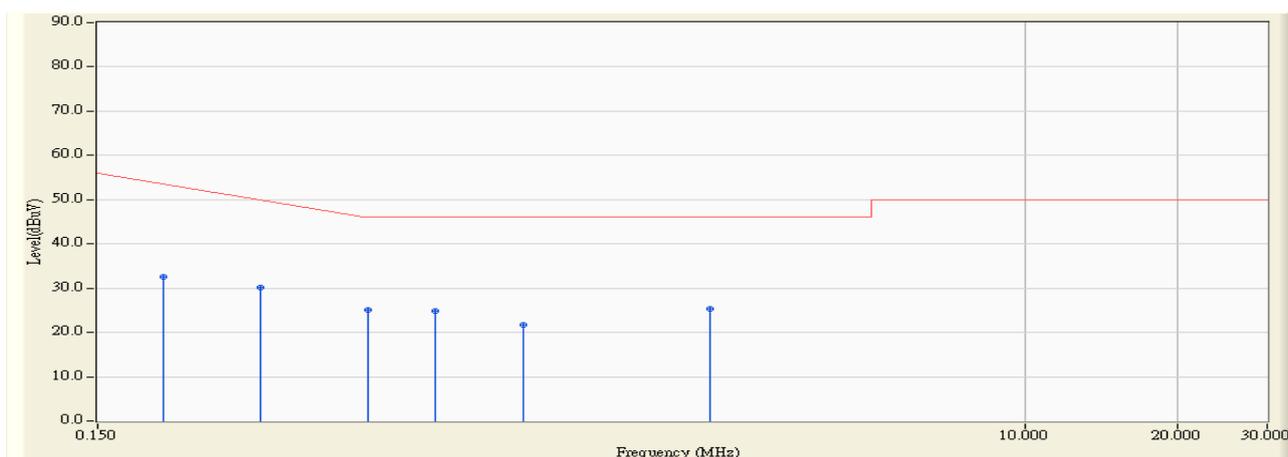


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.202	9.820	37.214	47.034	-17.480	64.514	QUASPEAK
2		0.314	9.820	32.085	41.905	-19.409	61.314	QUASPEAK
3		0.510	9.820	27.536	37.356	-18.644	56.000	QUASPEAK
4		0.694	9.820	25.632	35.452	-20.548	56.000	QUASPEAK
5		1.030	9.830	27.681	37.511	-18.489	56.000	QUASPEAK
6	*	2.398	9.840	31.094	40.934	-15.066	56.000	QUASPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR2	Time : 2012/09/14 - 16:29
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Notebook PC	Probe : ENV_216_L1 - Line1
Power : AC 120V/60Hz	Note : Mode 2

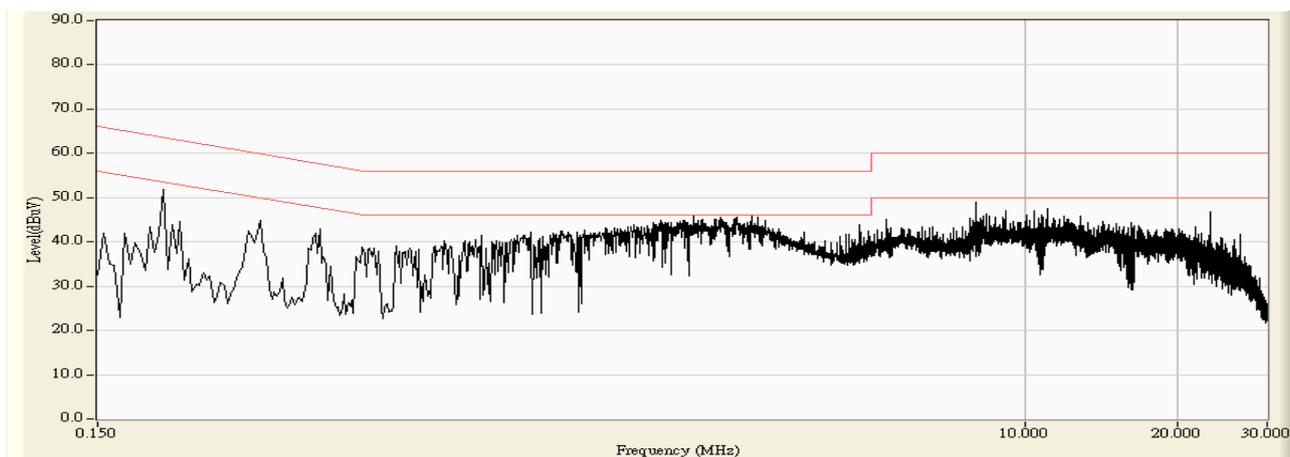


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.202	9.820	22.704	32.524	-21.990	54.514	AVERAGE
2		0.314	9.820	20.372	30.192	-21.122	51.314	AVERAGE
3		0.510	9.820	15.311	25.131	-20.869	46.000	AVERAGE
4		0.694	9.820	15.078	24.898	-21.102	46.000	AVERAGE
5		1.030	9.830	11.916	21.746	-24.254	46.000	AVERAGE
6	*	2.398	9.840	15.570	25.410	-20.590	46.000	AVERAGE

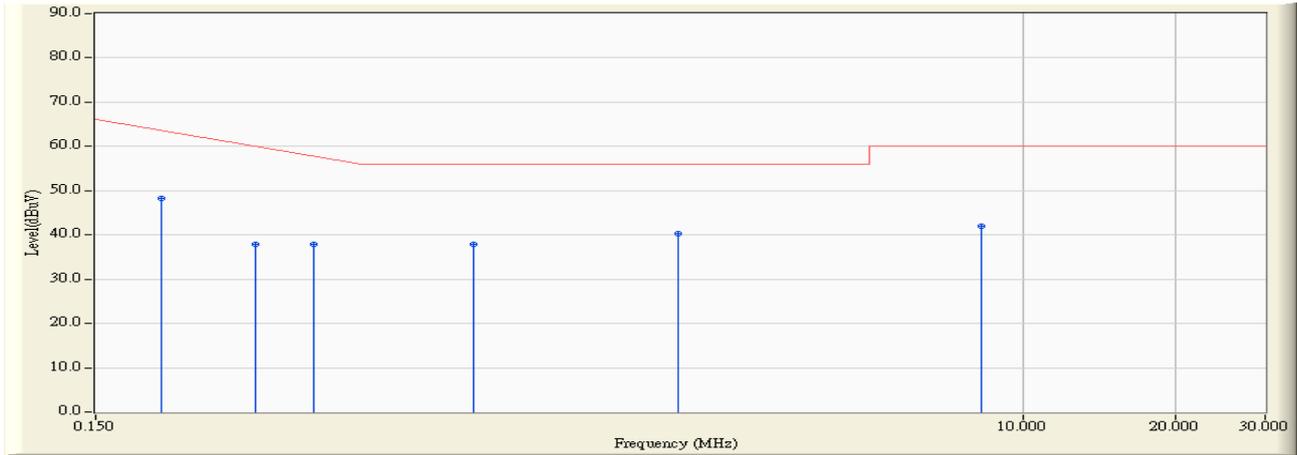
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR2	Time : 2012/09/14 - 16:30
Limit : CISPR_B_00M_QP	Margin : 10
EUT : Notebook PC	Probe : ENV_216_N - Line2
Power : AC 120V/60Hz	Note : Mode 2



Site : SR2	Time : 2012/09/14 - 16:32
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Notebook PC	Probe : ENV_216_N - Line2
Power : AC 120V/60Hz	Note : Mode 2

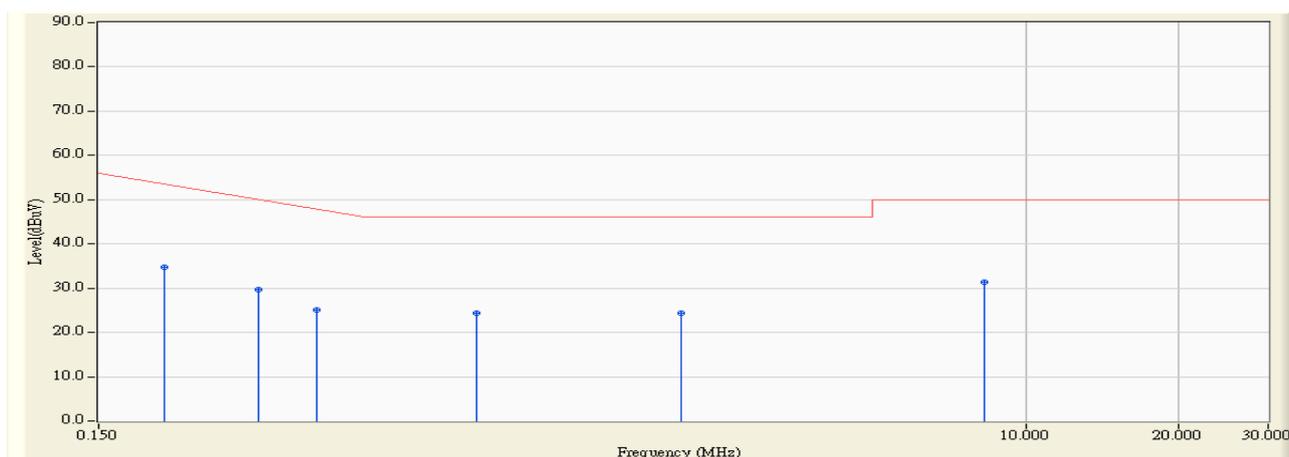


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.202	9.840	38.343	48.183	-16.331	64.514	QUASIPeAK
2		0.310	9.830	28.103	37.933	-23.496	61.429	QUASIPeAK
3		0.402	9.830	28.130	37.960	-20.840	58.800	QUASIPeAK
4		0.830	9.840	28.039	37.879	-18.121	56.000	QUASIPeAK
5	*	2.102	9.860	30.493	40.353	-15.647	56.000	QUASIPeAK
6		8.314	9.930	32.008	41.938	-18.062	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR2	Time : 2012/09/14 - 16:32
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Notebook PC	Probe : ENV_216_N - Line2
Power : AC 120V/60Hz	Note : Mode 2



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.202	9.840	24.805	34.645	-19.869	54.514	AVERAGE
2		0.310	9.830	19.799	29.629	-21.800	51.429	AVERAGE
3		0.402	9.830	15.226	25.056	-23.744	48.800	AVERAGE
4		0.830	9.840	14.598	24.438	-21.562	46.000	AVERAGE
5		2.102	9.860	14.523	24.383	-21.617	46.000	AVERAGE
6	*	8.314	9.930	21.421	31.351	-18.649	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

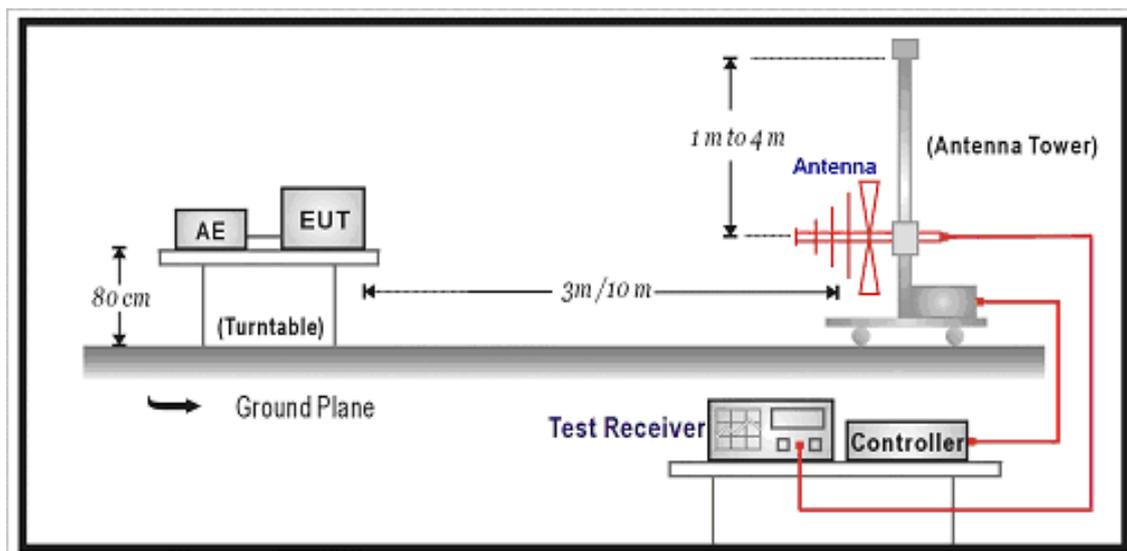
4. Radiated Emission

4.1. Test Specification

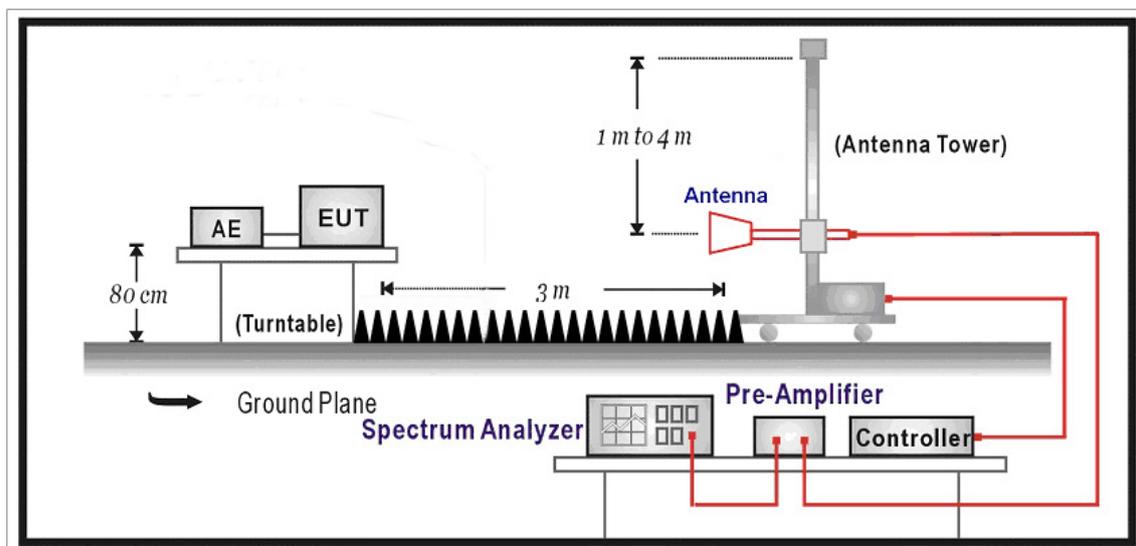
According to EMC Standard : FCC Part 15 Subpart B, ANSI C63.4

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

Under 1GHz test shall not exceed the following value:

Limits		
Frequency (MHz)	Distance (m)	dBuV/m
30 – 230	10	30
230 – 1000	10	37

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Above 1GHz test shall not exceed the following value:

FCC Part 15 Subpart B Paragraph 15.109 Limits (dBuV/m)		
Frequency (MHz)	Distance (m)	dBuV/m
30-88	3	40
88-216	3	43.5
216-960	3	46
Above 960	3	54

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
3. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground.

The turn table can rotate 360 degrees to determine the position of the maximum emission level and the antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.

For an unintentional radiator, including a digital device, 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 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

On any frequency or frequencies below or equal to 1000 MHz, the radiated limits shown are based on measuring equipment employing a quasi-peak detector function and above 1000 MHz, the radiated limits shown are based measuring equipment employing an average detector function.

When average radiated emission measurement are included emission measurement Above 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

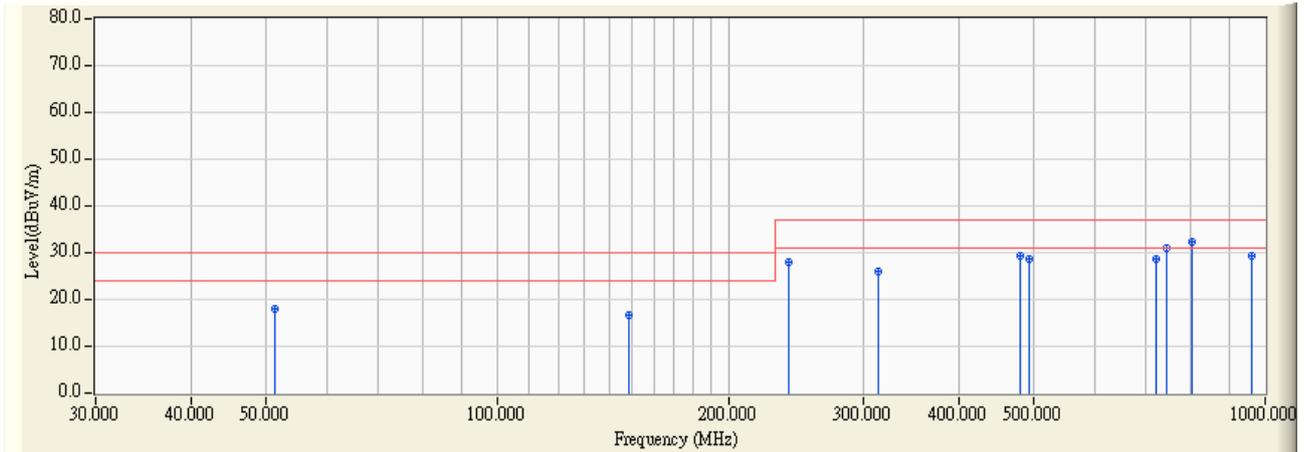
For class A, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and above 1GHz.

For class B, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and 3 meters for above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30) is 120 kHz and above 1GHz is 1MHz.

4.5. Test Result

Site : Site3	Time : 2012/09/04 - 14:36
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Notebook PC	Probe : Site3_CBL6112_10M_1206 - HORIZONTAL
Power : AC 120V/60Hz	Note : Mode 1

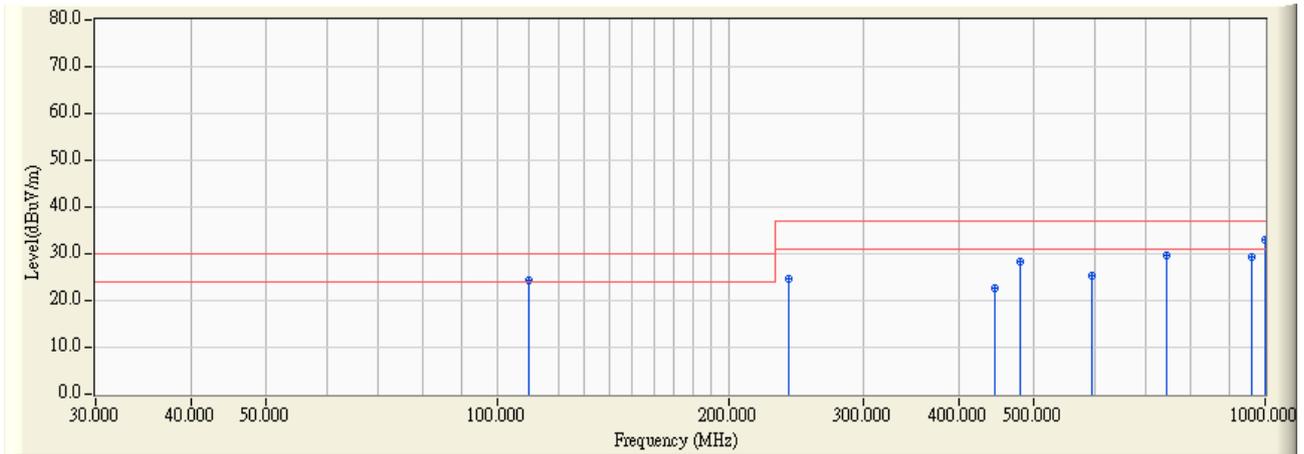


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		51.440	10.030	8.100	18.130	-11.870	30.000	QUASPEAK
2		148.500	13.417	3.100	16.517	-13.483	30.000	QUASPEAK
3		240.000	15.514	12.400	27.914	-9.086	37.000	QUASPEAK
4		314.200	18.240	7.700	25.940	-11.060	37.000	QUASPEAK
5		480.000	22.997	6.500	29.498	-7.502	37.000	QUASPEAK
6		492.400	23.311	5.400	28.711	-8.289	37.000	QUASPEAK
7		720.000	26.117	2.600	28.717	-8.283	37.000	QUASPEAK
8		742.500	26.706	4.200	30.906	-6.094	37.000	QUASPEAK
9	*	803.600	27.355	5.100	32.455	-4.545	37.000	QUASPEAK
10		960.000	29.398	0.100	29.498	-7.502	37.000	QUASPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : Site3	Time : 2012/09/04 - 14:10
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Notebook PC	Probe : Site3_CBL6112_10M_1206 - VERTICAL
Power : AC 120V/60Hz	Note : Mode 1

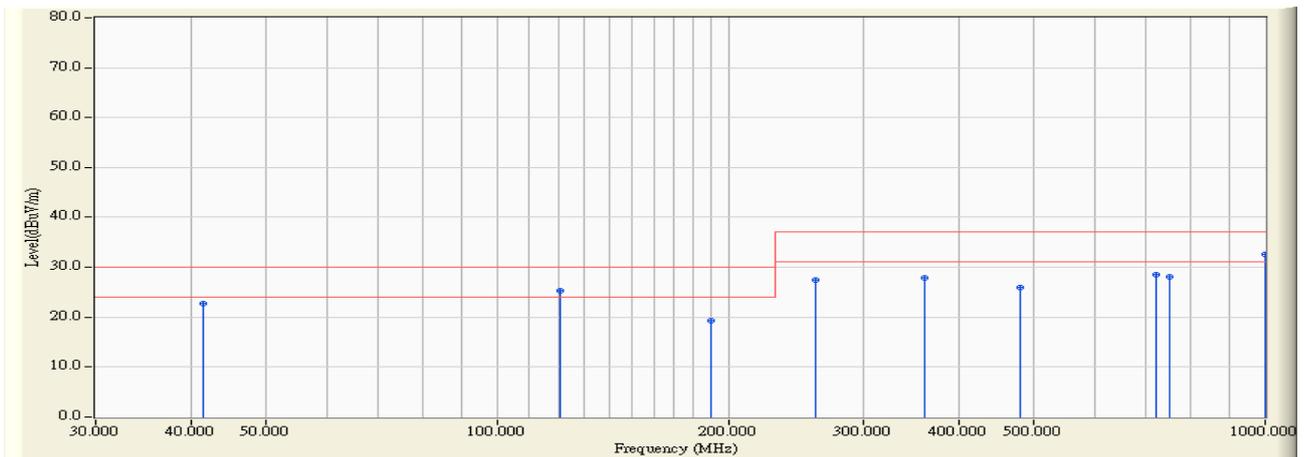


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		109.980	14.398	10.100	24.497	-5.503	30.000	QUASPEAK
2		240.000	15.514	9.200	24.714	-12.286	37.000	QUASPEAK
3		445.500	22.147	0.600	22.747	-14.253	37.000	QUASPEAK
4		480.000	22.997	5.200	28.198	-8.802	37.000	QUASPEAK
5		594.000	25.070	0.100	25.170	-11.830	37.000	QUASPEAK
6		742.500	26.706	3.000	29.706	-7.294	37.000	QUASPEAK
7		960.000	29.398	0.100	29.498	-7.502	37.000	QUASPEAK
8	*	998.600	29.982	2.900	32.881	-4.119	37.000	QUASPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : Site3	Time : 2012/05/28 - 14:03
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Notebook PC	Probe : Site3_CBL6112_10M_0726 - HORIZONTAL
Power : AC 120V/60Hz	Note : Mode 2

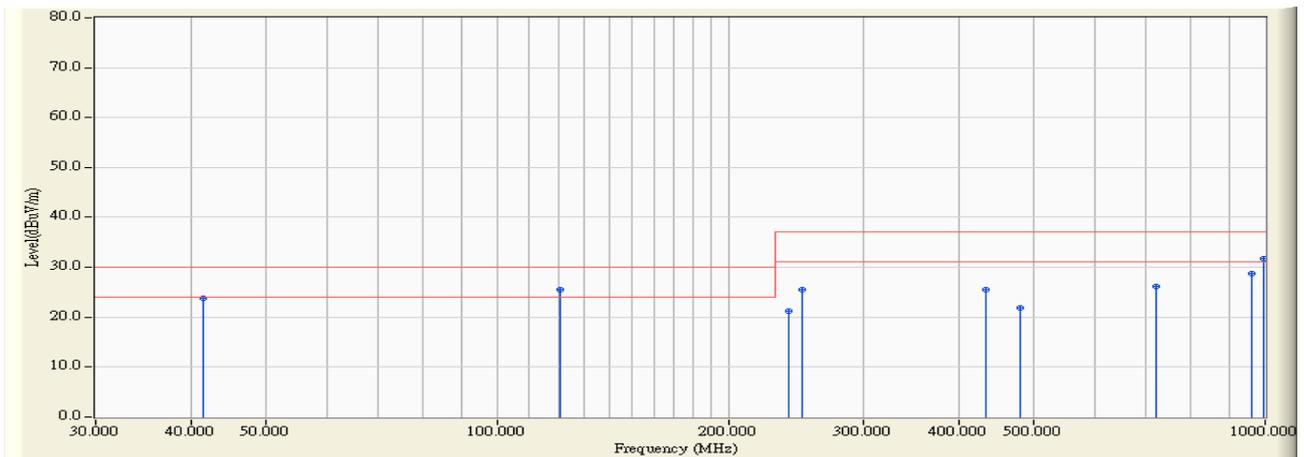


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	41.470	15.359	7.400	22.760	-7.240	30.000	QUASPEAK
2	120.520	15.173	10.200	25.374	-4.626	30.000	QUASPEAK
3	189.680	12.566	6.800	19.366	-10.634	30.000	QUASPEAK
4	259.700	16.464	11.000	27.464	-9.536	37.000	QUASPEAK
5	360.000	19.046	8.800	27.846	-9.154	37.000	QUASPEAK
6	480.000	21.748	4.300	26.048	-10.952	37.000	QUASPEAK
7	720.000	25.170	3.400	28.570	-8.430	37.000	QUASPEAK
8	750.000	25.603	2.400	28.003	-8.997	37.000	QUASPEAK
9	* 1000.000	29.100	3.600	32.700	-4.300	37.000	QUASPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : Site3	Time : 2012/05/28 - 13:53
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Notebook PC	Probe : Site3_CBL6112_10M_0726 - VERTICAL
Power : AC 120V/60Hz	Note : Mode 2

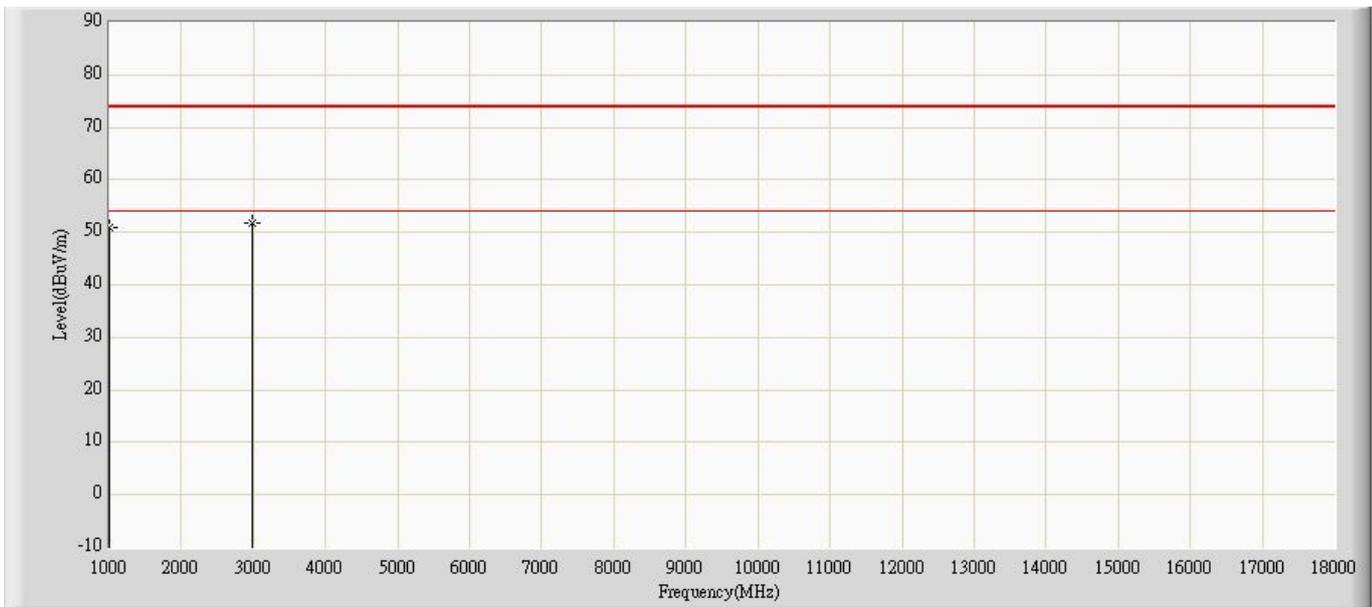


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		41.470	15.259	8.500	23.760	-6.240	30.000	QUASIPeAK
2	*	120.520	15.073	10.500	25.574	-4.426	30.000	QUASIPeAK
3		240.000	15.510	5.800	21.310	-15.690	37.000	QUASIPeAK
4		250.000	16.198	9.400	25.598	-11.402	37.000	QUASIPeAK
5		432.000	20.748	4.800	25.549	-11.451	37.000	QUASIPeAK
6		480.000	21.748	0.100	21.848	-15.152	37.000	QUASIPeAK
7		720.000	25.170	1.100	26.270	-10.730	37.000	QUASIPeAK
8		960.000	28.568	0.100	28.668	-8.332	37.000	QUASIPeAK
9		997.575	29.070	2.700	31.770	-5.230	37.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site: CB7	Time: 2012/09/15 - 04:39
Limit: FCC_B_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1204	Polarity: Horizontal
EUT : Notebook PC	Power: AC 120V/60Hz
Note : Mode 1	

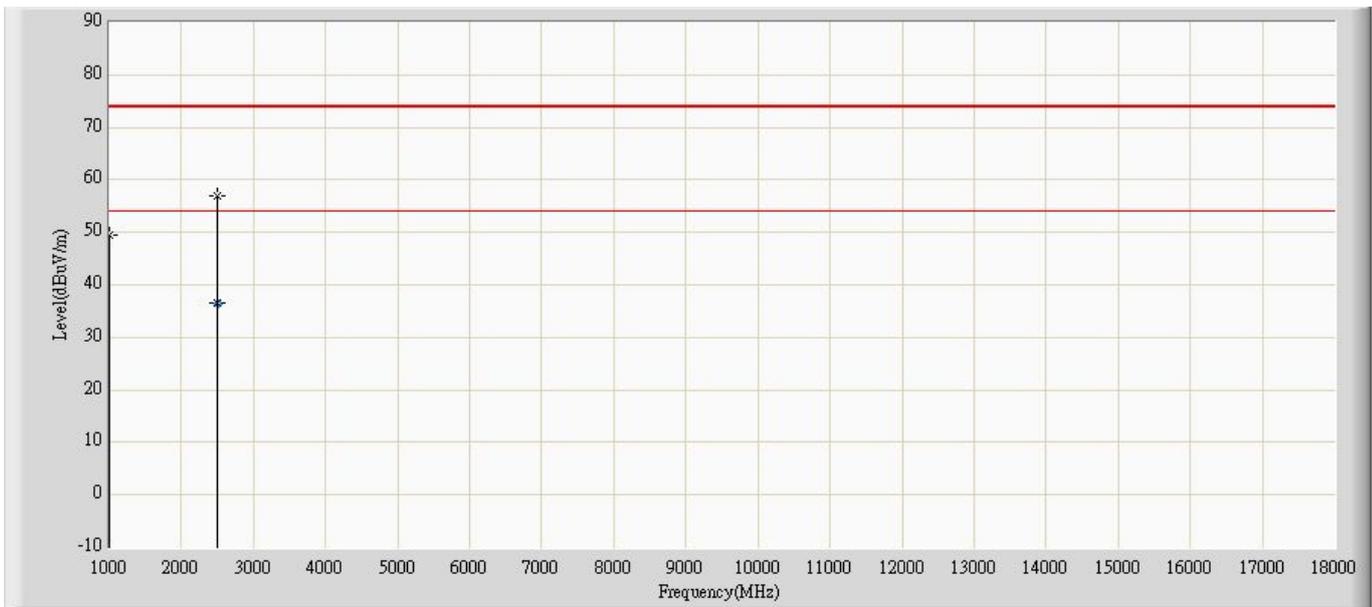


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			1004.000	50.912	53.410	-23.088	74.000	-2.498	PK
2		*	2992.000	51.874	48.290	-22.126	74.000	3.584	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	Time: 2012/09/15 - 04:42
Limit: FCC_B_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1204	Polarity: Vertical
EUT : Notebook PC	Power: AC 120V/60Hz
Note : Mode 1	

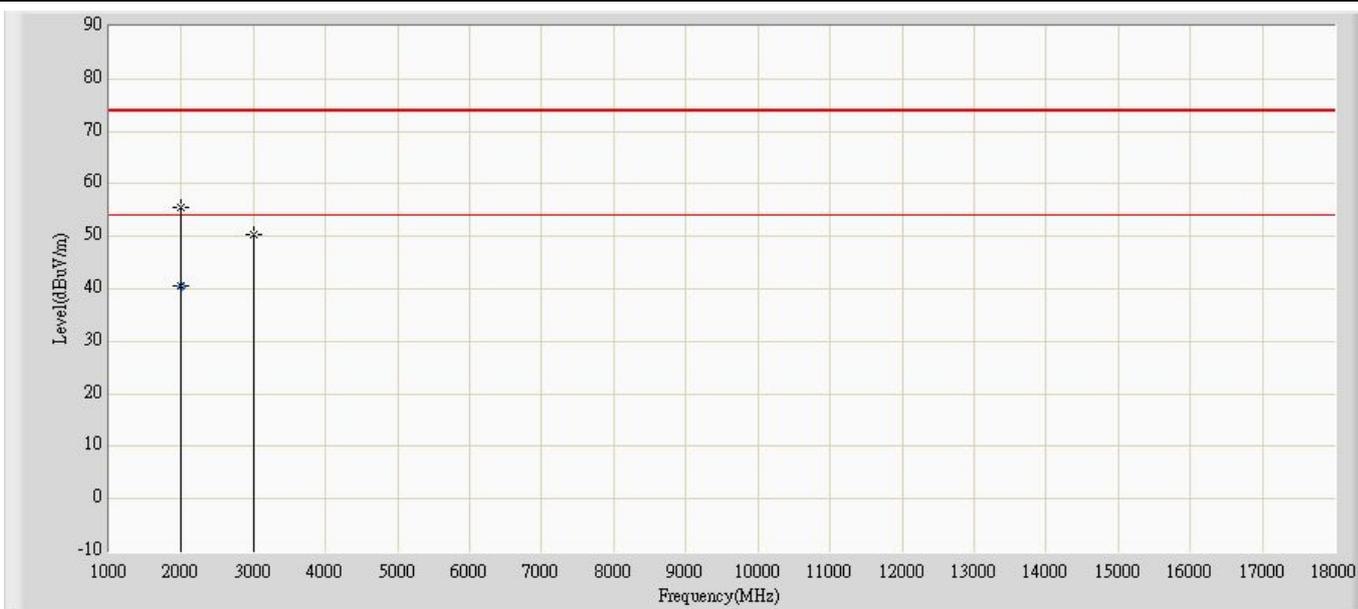


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			1005.000	49.523	52.020	-24.477	74.000	-2.497	PK
2		*	2505.000	57.061	54.350	-16.939	74.000	2.711	PK
3			2505.000	36.501	33.790	-17.499	54.000	2.711	AV

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	Time: 2012/09/15 - 05:16
Limit: FCC_B_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1204	Polarity: Horizontal
EUT : Notebook PC	Power: AC 120V/60Hz
Note : Mode 2	

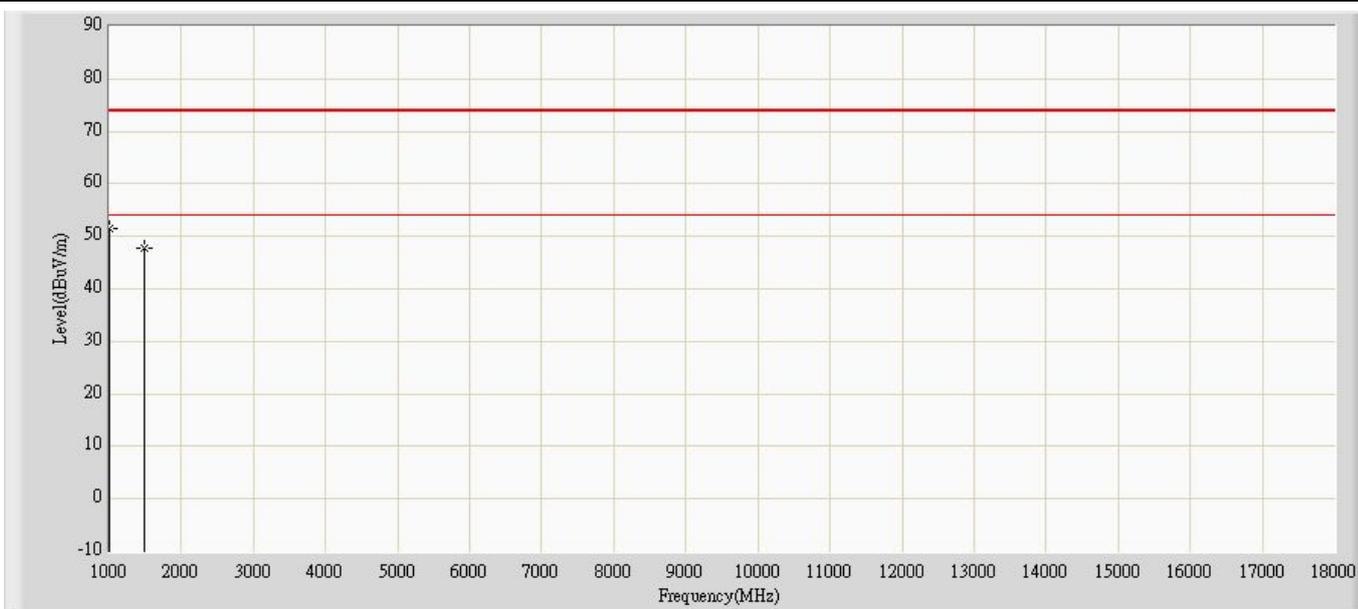


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			1994.000	55.466	53.820	-18.534	74.000	1.647	PK
2		*	1994.000	40.436	38.790	-13.564	54.000	1.647	AV
3			2994.000	50.306	46.720	-23.694	74.000	3.586	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	Time: 2012/09/15 - 05:20
Limit: FCC_B_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1204	Polarity: Vertical
EUT : Notebook PC	Power: AC 120V/60Hz
Note : Mode 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	1005.000	51.443	53.940	-22.557	74.000	-2.497	PK
2			1494.000	47.724	49.720	-26.276	74.000	-1.996	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).