





## ISO/IEC17025Accredited Lab.

Report No: FCC 1006393-01 File reference No: 2010-08-02

Shenzhen Sinchun Electronic Co., Ltd Applicant:

Product: NOTE BOOK

Model No: M5A

Trademark: saycool

Test Standards: FCC Part 15 Subpart C, Paragraph 15.247

It is herewith confirmed and found to comply with the Test result:

requirements set up by ANSI C63.4FCC Part 15 Subpart C, regulations evaluation Paragraph 15.247 for the of

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung Manager

Dated: Aug 02, 2010

Results appearing herein relate only to the sample tested The technical reports is issued errors and omissions exempt and is subject to withdrawal at

## SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen, CHINA.

> Tel (755) 83448688 Fax (755) 83442996

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Date: 2010-08-02



# **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

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

### **CNAL-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

# FCC-Registration No.: 899988

The 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 No.: 899988.

### IC-Registration No.: IC5205A-01

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-01.



Date: 2010-08-02



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### 1.0 General Details

### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District,

Shenzhen, CHINA.

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-01

For 3m & 10 m OATS

## 1.2 Applicant Details

Applicant: Shenzhen Sinchun Electronic Co., Ltd

Address: Shenzhen Sinchun Electronic Co., Ltd/3/F,Unit5,Cuihai Industrial Zone,Fengtang

Road, Fuyong Town, Baoan District, Shenzhen, China

Telephone: 755 83957777
Fax: 755 83956777

### 1.3 Description of EUT

Product: NOTE BOOK

Manufacturer: Shenzhen Sinchun Electronic Co., Ltd

Brand Name: saycool Model Number: M5A

Power Source Adapter Model: XKD-C20001C 12.0-24W Input: 100-240V~1.0A 60/50Hz

Output: 12V-2A

Type of Modulation IEEE 802.11b : DSSS (CCK, DQPSK, DBPSK)

IEEE 802.11g: OFDM(64QAM, 16AQM, QPSK, BPSK)

Frequency range IEEE 802.11b/g: 2412-2462MHz

Channel Spacing IEEE 802.11b/g: 5MHz

Air Data Rate IEEE 802.11b: 11 long, 11 short, 5.5 long, 5.5 short, 2 long, 2 short, 1 long Mbps

IEEE 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps

Frequency Selection By software

Channel Number IEEE 802.11b/g: 11 Channels

### 1.4 Submitted Sample: 1 Sample

### 1.5 Test Duration

2010-06-30-2010-08-02

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1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB Radiated Emissions Uncertainty =4.7dB

Test Engineer 1.7

The sample tested by

Print Name: Terry Tang

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6.0		Test Equipm			I			
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date			
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2009-12-05	2010-12-04			
Absorbing Clamp	ROHDE&SCHWARZ	MDS-21	100126	2009-12-05	2010-12-04			
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2009-12-05	2010-12-04			
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2009-12-05	2010-12-04			
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2009-12-05	2010-12-04			
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2010-03-29	2011-03-28			
4-WIRE ISN	ROHDE&SCHWARZ	ENY 41	830663/044	2010-02-17	2011-02-16			
GG ENY22 Double 2-Wire ISN	ROHDE&SCHWARZ	ENY22	83066/016	2010-02-17	2011-02-16			
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2010-02-17	2011-02-16			
System Controller	CT	SC100	-	2010-02-17	2011-02-16			
Printer	EPSON	РНОТО ЕХЗ	CFNH234850	2010-02-17	2011-02-16			
FM-AM Signal Generator	JUNG.JIN	SG-150M	389911177	2010-02-17	2011-02-16			
Color TV Pattern Generator	PHILIPS	PM5418	LO621747	2010-02-17	2011-02-16			
Computer	IBM	8434	1S8434KCE99 BLXLO*	-	-			
Oscillator	KENWOOD	AG-203D	3070002	2010-02-17	2011-02-16			
Spectrum Analyzer	HAMEG	HM5012	-	-	-			
Power Supply	LW	APS1502	-	-	-			
5K VA AC Power Source	California Instruments	5001iX	56060	2010-02-17	2011-02-16			
CDN	EM TEST	CDN M2/M3	-	2010-02-17	2011-02-16			
Attenuation	EM TEST	ATT6/75	-	2010-02-17	2011-02-16			
Resistance	EM TEST	R100	-	2010-02-17	2011-02-16			
Electromagnetic Injection Clamp	LITTHI	EM101	35708	2010-02-17	2011-02-16			
Inductive Components	EM TEST	MC2630	-	2010-02-17	2011-02-16			
Antenna	EM TEST	MS100	-	2010-02-17	2011-02-16			

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	Tury tury tury tury tury tury tury tury t		/		
Signal Generator	ROHDE&SCHWARZ	SMT03	100029	2010-02-17	2011-02-16
Power Amplifier	Power Amplifier AR		300999	2010-02-17	2011-02-16
Field probe	Holaday	HI-6005	105152	2010-02-17	2011-02-16
Bilog Antenna	Chase	CBL6111C	2576	2010-02-17	2011-02-16
Loop Antenna	EMCO	6502	00042960	2010-02-17	2011-02-16
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2010-02-17	2011-02-16
3m OATS			N/A	2010-02-17	2011-02-16
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2009-08-15	2010-08-14
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2010-07-03	2011-07-02
Power meter	Anritsu	ML2487A	6K00003613	2010-02-17	2011-02-16
Power sensor	Anritsu	MA2491A	32263	2010-02-17	2011-02-16
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2010-05-14	2011-05-13
LISN	AFJ	LS16C	10010947251	2010-5-14	2011-05-13
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2010-5-14	2011-05-13
9*6*6 Anechoic			N/A	2010-5-14	2011-05-13

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### 3. DESCRIPTION OF TEST MODES

### IEEE 802.11b, 802.11g mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode: 1Mbps data rate (worst case) were chosen for full testing. IEEE 802.11g mode: 6Mbps data rate (worst case) were chosen for full testing.

The worst-case data rates are determined according to the description above, based on the investigations by measuring the PSD and average power across all the data rates, bandwidths, modulations and spatial stream modes.

Date: 2010-08-02



## 3.0 Technical Details

# 3.1 Summary of test results

	The EUT has been	i tested acco	rding to the	following	specifications:
--	------------------	---------------	--------------	-----------	-----------------

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107 & 15.207	<b>Conducted Emission Test</b>	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	PASS	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	PASS	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Complies
FCC Part 15, Paragraph 15.247(c)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	PASS	Complies

### 3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

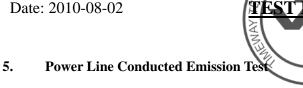
## 4.0 EUT Modification

No modification by Shenzhen Timeway Technology Consulting Co.,Ltd

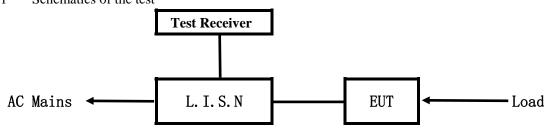
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#### 5.1 Schematics of the test

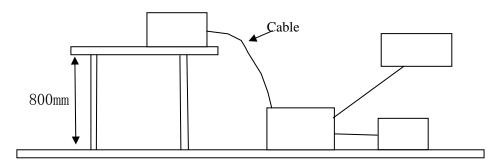


**EUT: Equipment Under Test** 

#### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 -2003.

Test Voltage: 120V~, 60Hz Block diagram of Test setup



#### 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

#### **EUT** A.

Device	Manufacturer	Model	FCC ID
NOTEBOOK	Shenzhen Sinchun Electronic Co., Ltd	M5A	YG6M5A

#### B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

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## C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
N/A				

## 5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207 and 15.107

	<u> </u>								
Frequency	Class A Lim	its (dB \mu V)	Class B Limits (dB \( \mu \) V)						
(MHz)	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level					
$0.15 \sim 0.50$	79.0	66.0	66.0~56.0*	56.0~46.0*					
$0.50 \sim 5.00$	73.0	60.0	56.0	46.0					
5.00 ~ 30.00	73.0	60.0	60.0	50.0					

Notes:

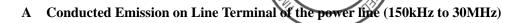
- 1. \*Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

### 5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

Note: the worse cases was selected to conducted the test

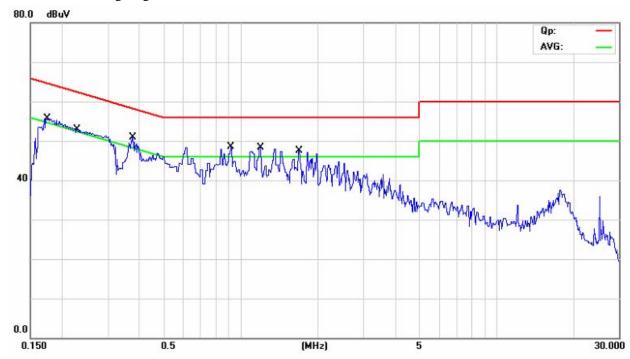
Date: 2010-08-02



EUT set Condition: Read USB,TF card and Running EMC test software and Ping

wireless network

**Results:** Pass



Eraguanav	Reading(dB μ V)				Limit	
Frequency (MHz)	Line		Neutral		(dB µ V)	
(WITIZ)	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1753	54.35	45.57			64.71	54.71
0.2278	51.29	42.91			62.53	52.53
0.3756	49.89	40.82			58.38	48.38
0.9162	47.47	40.04			56.00	46.00
1.1861	47.21	38.09			56.00	46.00
1.6812	46.33	37.42			56.00	46.00

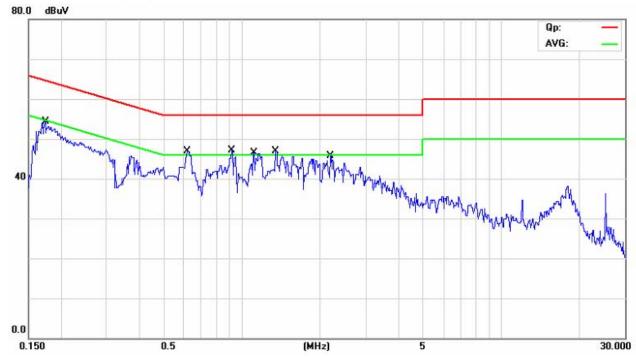
Date: 2010-08-02

# B Conducted Emission on Neutral Terminal of the power line (150kHz to 30MHz)

EUT set Condition: Read USB, TF card and Running EMC test software and Ping

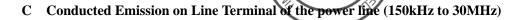
wireless network

Results: Pass



Eraguanav		Reading	Limit			
Frequency (MHz)	Live		Neutral		(dB µ V)	
(WITIZ)	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1736			53.25	46.39	64.79	54.79
0.6237			45.99	40.02	56.00	46.00
0.9162			46.23	38.65	56.00	46.00
1.1072			46.74	39.46	56.00	46.00
1.3550			45.97	37.06	56.00	46.00
2.1987			44.83	38.61	56.00	46.00

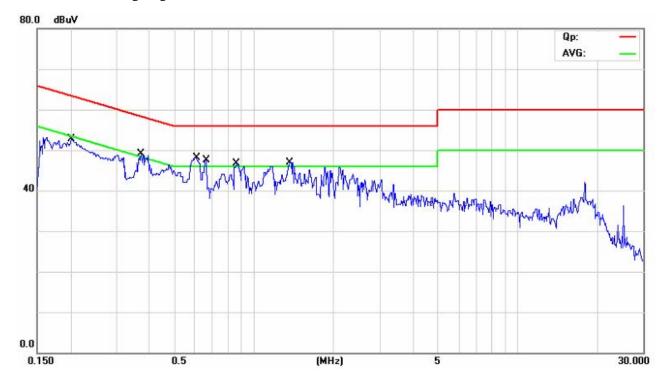
Date: 2010-08-02



EUT set Condition: Running notebook test program, Ping network and Keep Bluetooth

Transmitting

Results: Pass



F	Reading(dB \mu V)			Limit			
Frequency (MHz)	Line	Line		Neutral		$(dB \mu V)$	
(WITIZ)	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average	
0.2006			52.64	41.20	63.59	53.59	
0.3704			49.16	39.84	58.49	48.49	
0.6011			48.05	39.26	56.00	46.00	
0.6573			47.54	39.15	56.00	46.00	
0.8600			46.79	38.67	56.00	46.00	
1.3662			46.98	38.26	56.00	46.00	

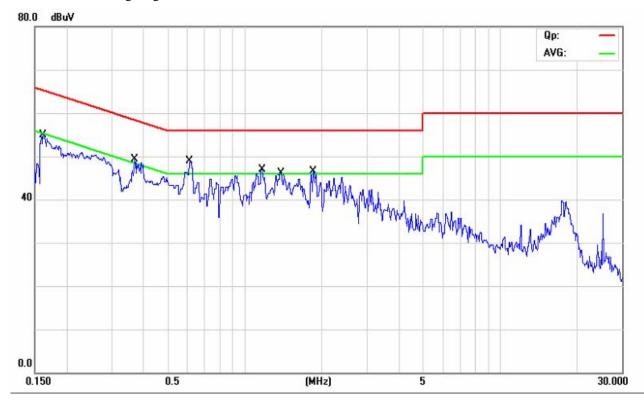
Date: 2010-08-02

# D Conducted Emission on Neutral Terminal of the power line (150kHz to 30MHz)

EUT set Condition: Running notebook test program, Ping network and Keep Bluetooth

Transmitting

Results: Pass



Engavener		Reading(dB µ V)			Limit	
Frequency (MHz)	Live	Live		Neutral		V)
(MHZ)	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1621	53.36	44.85			65.36	55.36
0.3687	47.56	38.79			58.53	48.53
0.6124	47.81	39.60			56.00	46.00
1.1635	45.64	36.31			56.00	46.00
1.3772	46.35	36.81			56.00	46.00
1.8500	45.02	34.21			56.00	46.00

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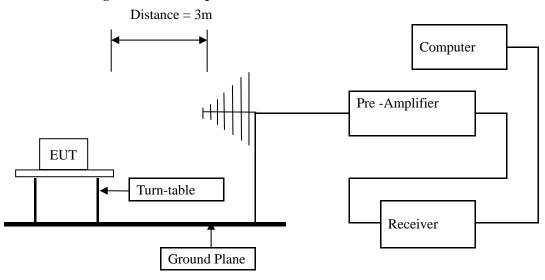
Date: 2010-08-02



### 6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

### **Block diagram of Test setup**



- 6.2 Configuration of The EUT

  Same as section 5.3 of this report
- 6.3 EUT Operating Condition
  Same as section 5.4 of this report.

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### 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

### Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109

Frequency Range (MHz)	Distance (m)	Field strength (dB µ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage  $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2. In the Above Table, the higher limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. Two antennas used in the EUT. RF Module Control Unit can check the signal strength of the two antennas, and decide use which one through control the RF switch unit. In the same time just One Antenna is working. Pre-scanning tests for the both antennas and the worse case data is recorded

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### Test result

## General Radiated Emission Data and Harmonics Radiated Emission Data

### Radiated Emission In Horizontal (30MHz----1000MHz)

**EUT** set Condition: Read USB, TF card and Running EMC test software and Ping

wireless network

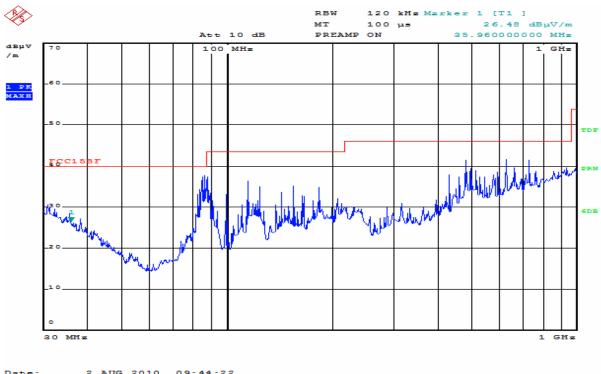
**Results: Pass** 

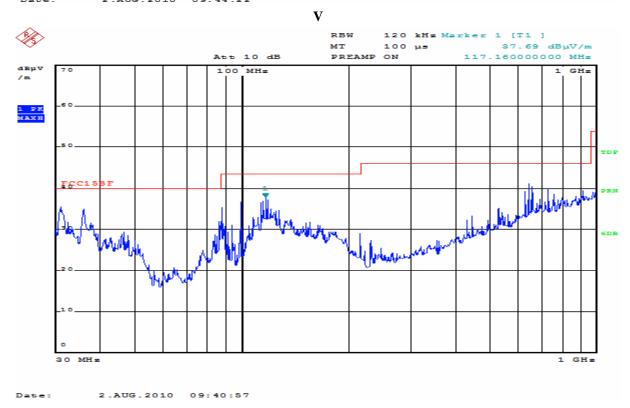
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
86.36	30.19	Н	40.00
115.64	24.83	Н	43.50
481.00	33.74	Н	46.00
35.96	30.12	V	40.00
99.56	38.35	V	43.50
117.16	30.87	V	43.50

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Test Figure:





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### Test result

## General Radiated Emission Data and Harmonics Radiated Emission Data

### Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Running notebook test program, Ping network and Keep Bluetooth

Transmitting

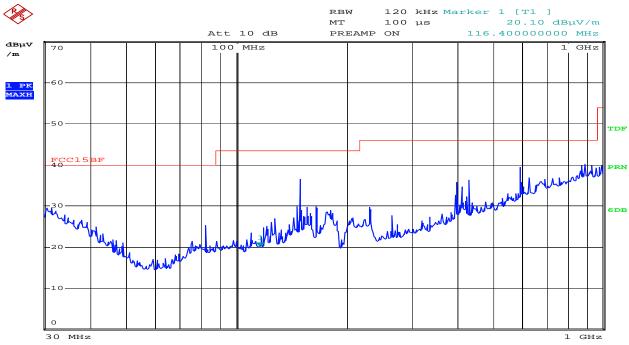
**Results:** Pass

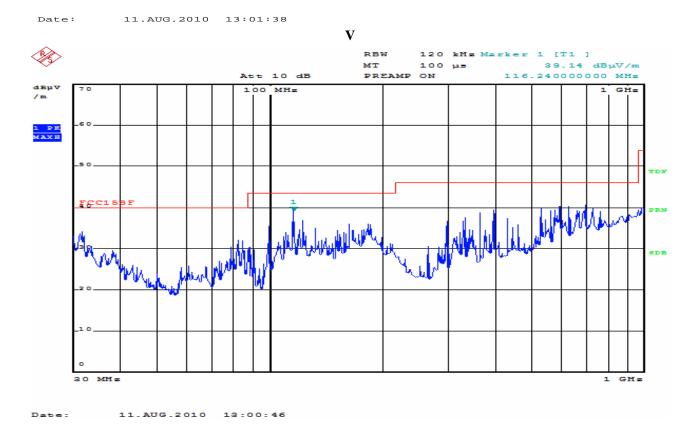
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
158.62	29.54	Н	43.50
399.65	26.89	Н	46.00
598.38	28.41	Н	46.00
99.85	31.25	V	43.50
116.40	30.85	V	43.50
398.46	31.67	V	46.00

Date: 2010-08-02



Test Figure:





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Date: 2010-08-02

<b>Operation Mode:</b>	Operation Mode: Keep Transmitting in CH01 at 6Mbps					
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \( \mu \)V/m)			
2412.00	98.3 (PK) /85.2 (AV)	Н	Fundamental Frequency			
2412.00	97.1 (PK) /84.3 (AV)	V	Tundamental Frequency			
4824.00	-	H/V	74(Peak)/ 54(AV)			
7236.00	1	H/V	74(Peak)/ 54(AV)			
9648.00	1	H/V	74(Peak)/ 54(AV)			
12060	1	H/V	74(Peak)/ 54(AV)			
14472	-	H/V	74(Peak)/ 54(AV)			
16884	1	H/V	74(Peak)/ 54(AV)			
19296	1	H/V	74(Peak)/ 54(AV)			
21708		H/V	74(Peak)/ 54(AV)			
24120		H/V	74(Peak)/ 54(AV)			

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11g mode 6Mbps

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<b>Operation Mode</b> :	Operation Mode: Keep Transmitting in CH06 at 6Mbps					
Frequency (MHz)	Level@3m (dB \mu V/m)	Antenna Polarity	Limit@3m (dB \mu V/m)			
2437.00	99.6 (PK) /86.3 (AV)	Н	Fundamental Fraguency			
2437.00	98.3 (PK) /83.2 (AV)	V	Fundamental Frequency			
4874.00		H/V	74(Peak)/ 54(AV)			
7311.00		H/V	74(Peak)/ 54(AV)			
9748.00		H/V	74(Peak)/ 54(AV)			
12185		H/V	74(Peak)/ 54(AV)			
14622		H/V	74(Peak)/ 54(AV)			
17059		H/V	74(Peak)/ 54(AV)			
19496		H/V	74(Peak)/ 54(AV)			
21933		H/V	74(Peak)/ 54(AV)			
24370		H/V	74(Peak)/ 54(AV)			

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11g mode 6Mbps

Date: 2010-08-02

### Operation Mode: Keep Transmitting in CH11 at 6Mbps

operation reduce freely framsmering in certain at overlaps				
Frequency (MHz)	Level@3m (dB \mu V/m)	Antenna Polarity	Limit@3m (dB \mu V/m)	
2462.00	100. 2 (PK) /85.5 (AV)	Н	Fundamental Fraguency	
2462.00	197.6 (PK) /83.2 (AV)	V	Fundamental Frequency	
4924		H/V	74(Peak)/ 54(AV)	
7368		H/V	74(Peak)/ 54(AV)	
9848		H/V	74(Peak)/ 54(AV)	
12310		H/V	74(Peak)/ 54(AV)	
14772		H/V	74(Peak)/ 54(AV)	
17234		H/V	74(Peak)/ 54(AV)	
19696		H/V	74(Peak)/ 54(AV)	
22158		H/V	74(Peak)/ 54(AV)	
24620		H/V	74(Peak)/ 54(AV)	

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

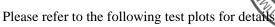
- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11g mode at 6Mbps

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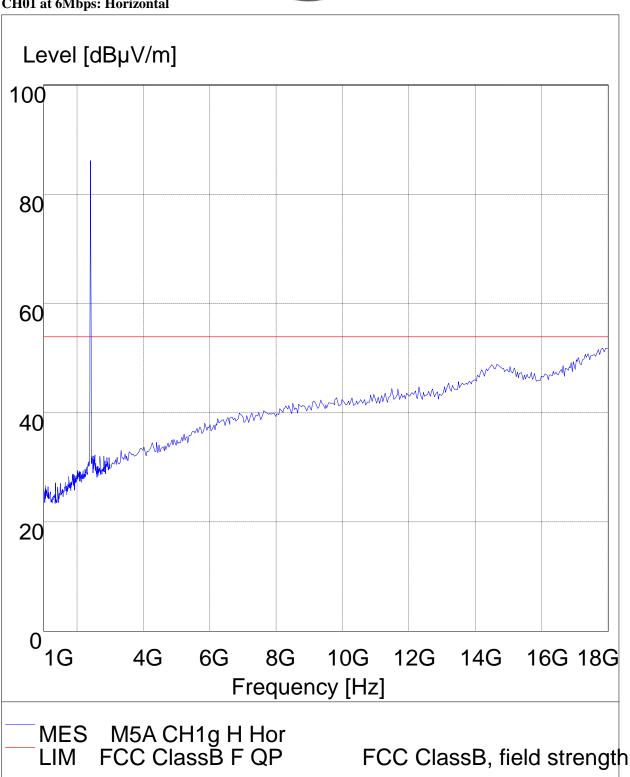
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CH01 at 6Mbps: Horizontal



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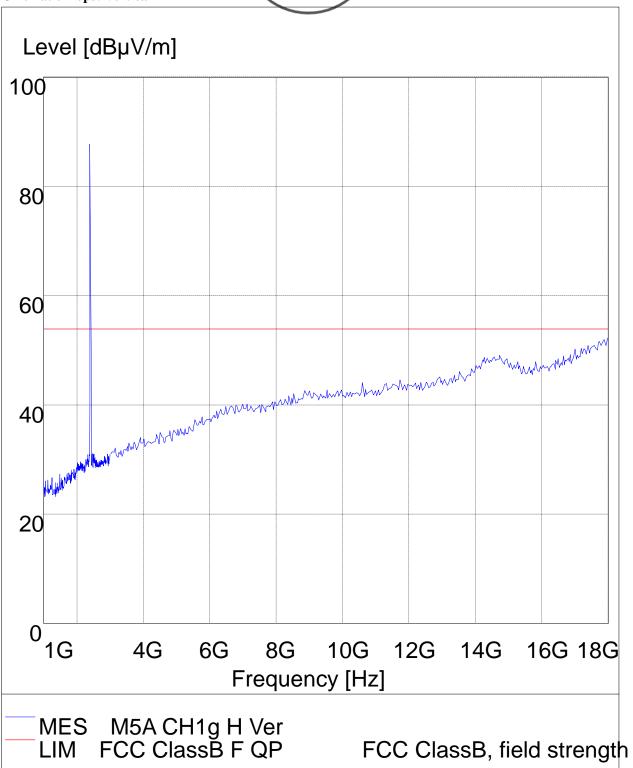
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CH01 at 6Mbps: Vertical



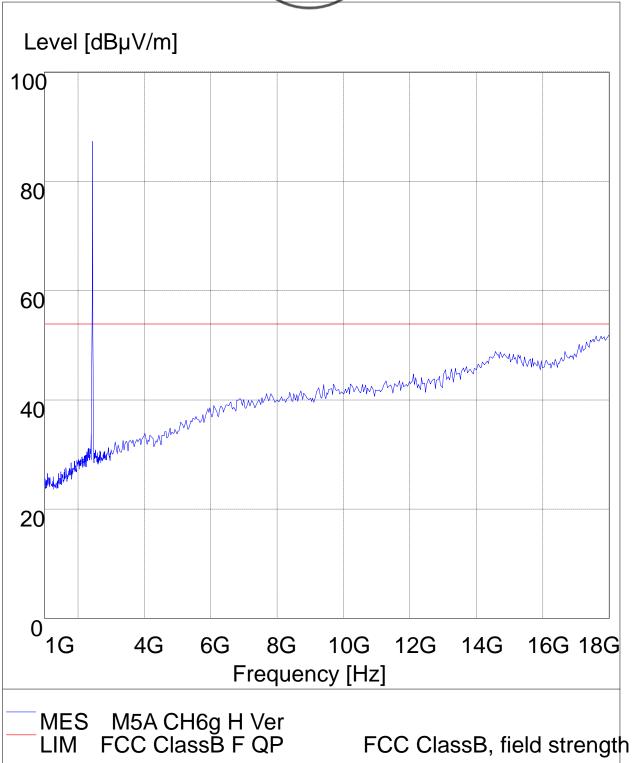
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CH06 at 6Mbps: Vertical



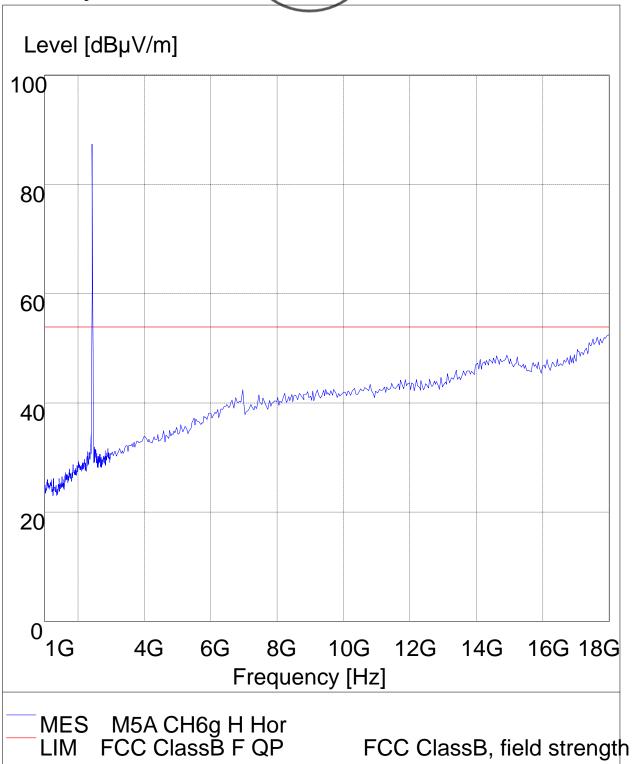
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CH06 at 6Mbps: Horizontal



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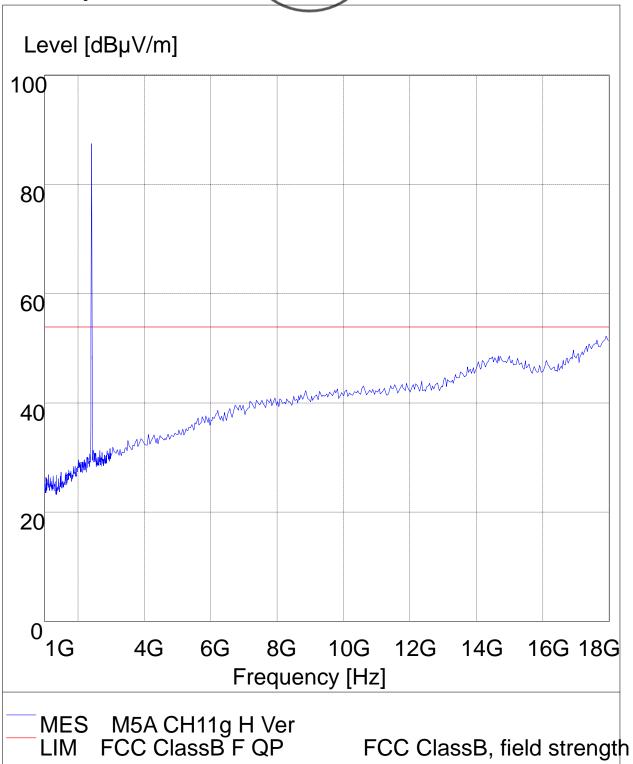
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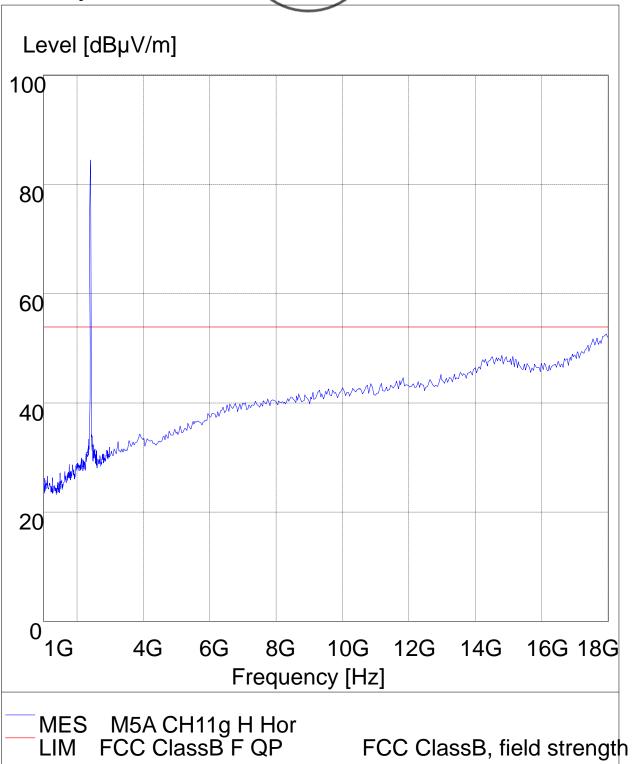
CH11 at 6Mbps: Vertical



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CH11at 6Mbps: Horizontal



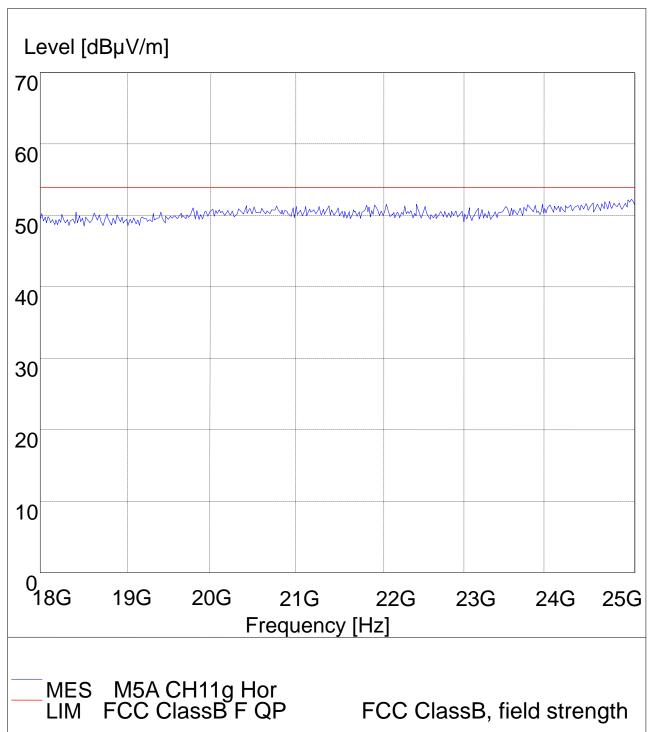
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18-25G CH11 6M Horizontal

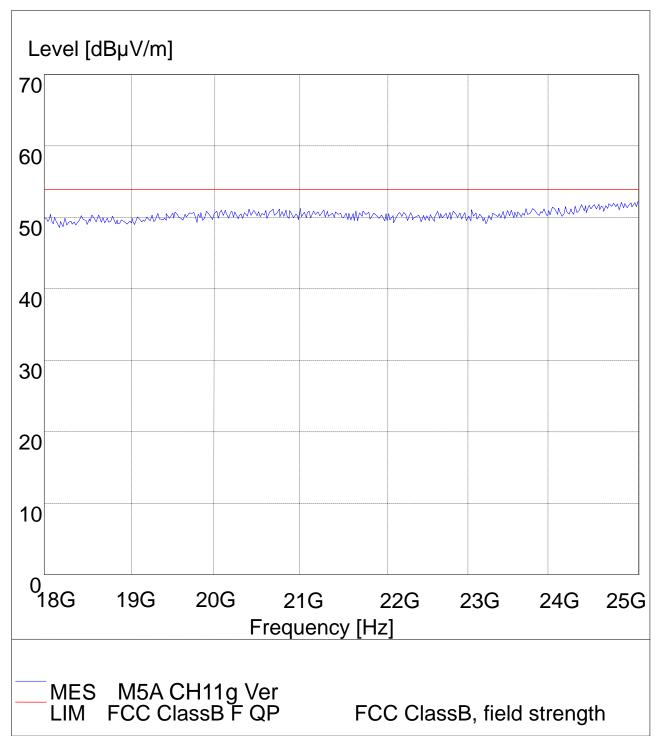


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18-25G CH11 6M Vertical



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<b>Operation Mode:</b>	Operation Mode: Keep Transmitting in CH01 at 1Mbps					
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \( \mu \)V/m)			
2412.00	102.3 (PK)/ 87.2(AV)	Н	Fundamental Frequency			
2412.00	101.5 (PK)/86.0 (AV)	V	Fundamental Frequency			
4824.00		H/V	74(Peak)/ 54(AV)			
7236.00		H/V	74(Peak)/ 54(AV)			
9648.00		H/V	74(Peak)/ 54(AV)			
12060	-	H/V	74(Peak)/ 54(AV)			
14472		H/V	74(Peak)/ 54(AV)			
16684		H/V	74(Peak)/ 54(AV)			
19296		H/V	74(Peak)/ 54(AV)			
21708		H/V	74(Peak)/ 54(AV)			
24120		H/V	74(Peak)/ 54(AV)			

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11b mode 1Mbps

Date: 2010-08-02

### Operation Mode: Keep Transmitting in CH06 at 1Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2437.00	102.9 (PK)/ 88.1(AV)	Н	Fundamental Frequency
2437.00	100.5 (PK)/86.3 (AV)	V	rundamental Frequency
4874.00		H/V	74(Peak)/ 54(AV)
7311.00		H/V	74(Peak)/ 54(AV)
9748.00		H/V	74(Peak)/ 54(AV)
12185		H/V	74(Peak)/ 54(AV)
14622		H/V	74(Peak)/ 54(AV)
17059		H/V	74(Peak)/ 54(AV)
19496		H/V	74(Peak)/ 54(AV)
21933		H/V	74(Peak)/ 54(AV)
24370		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode 1Mbps

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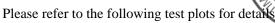
<b>Operation Mode:</b>	Operation Mode: Keep Transmitting in CH11 at 1Mbps					
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \mu V/m)			
2462.00	102.1(PK)/ 87.8(AV)	Н	Fundamental Frequency			
2462.00	99.7 (PK)/86.3 (AV)	V	Tundamental Prequency			
4924	-	H/V	74(Peak)/ 54(AV)			
7368		H/V	74(Peak)/ 54(AV)			
9848	1	H/V	74(Peak)/ 54(AV)			
12310	1	H/V	74(Peak)/ 54(AV)			
14772		H/V	74(Peak)/ 54(AV)			
17234		H/V	74(Peak)/ 54(AV)			
19696		H/V	74(Peak)/ 54(AV)			
22158		H/V	74(Peak)/ 54(AV)			
24650		H/V	74(Peak)/ 54(AV)			

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

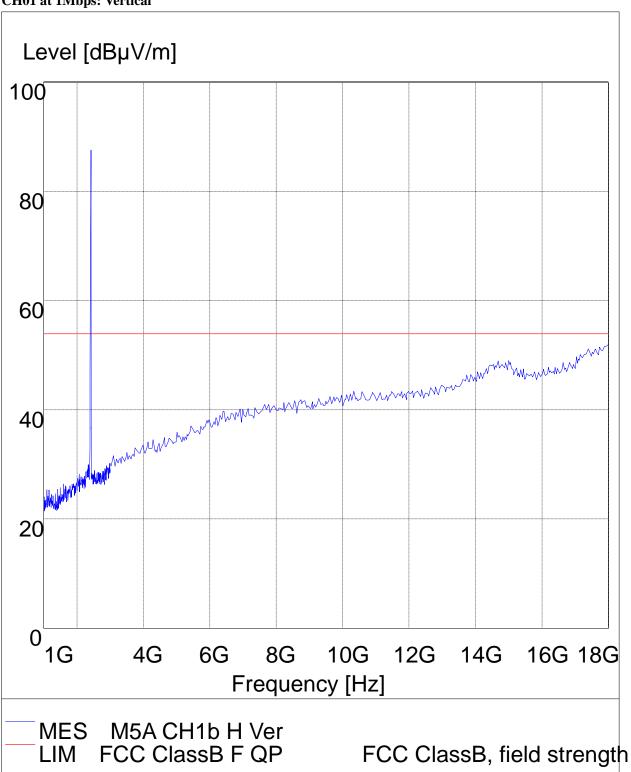
- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode at 1Mbps

Date: 2010-08-02

Date: 2010-08-02



CH01 at 1Mbps: Vertical



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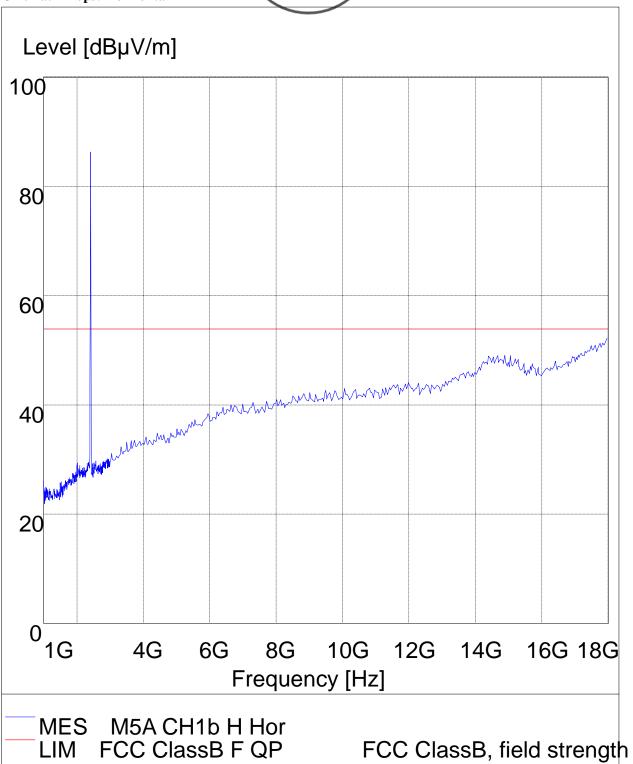
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CH01 at 1Mbps: Horizontal



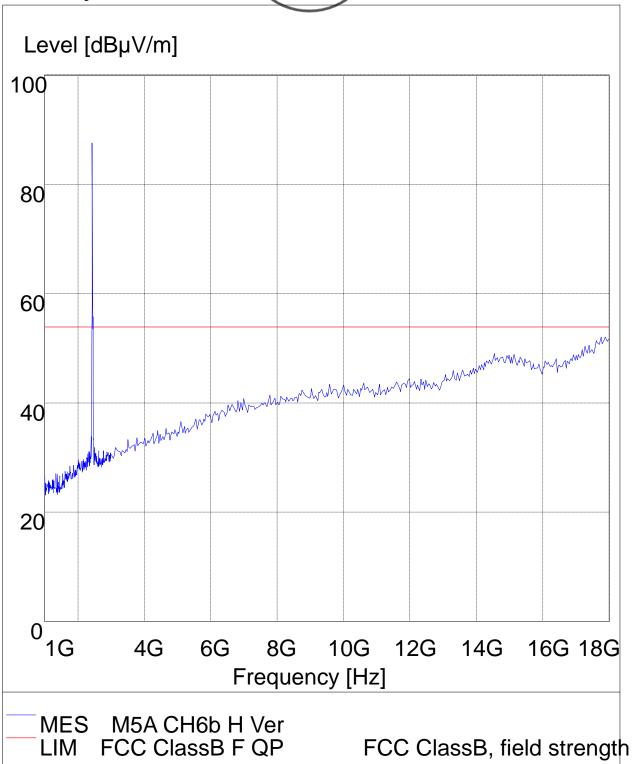
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CH06 at 1Mbps: Vertical



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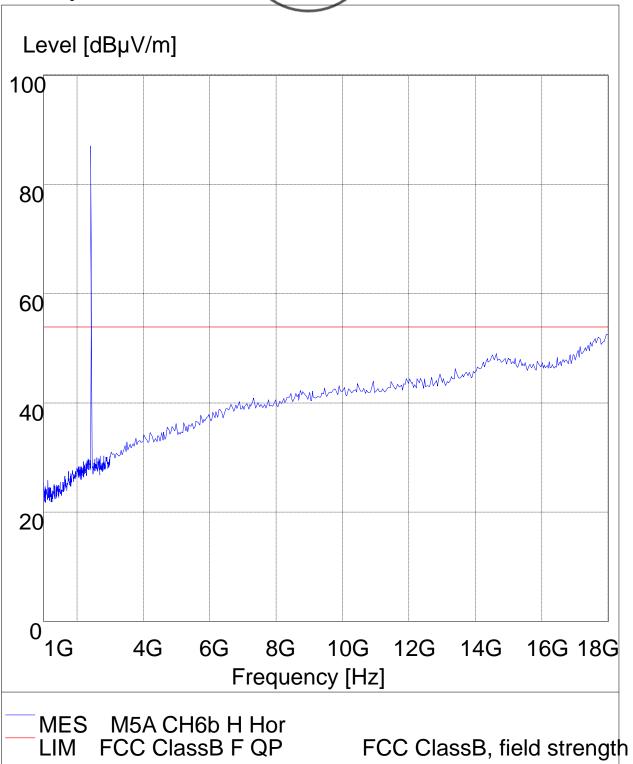
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CH06 at 1bps: Horizontal



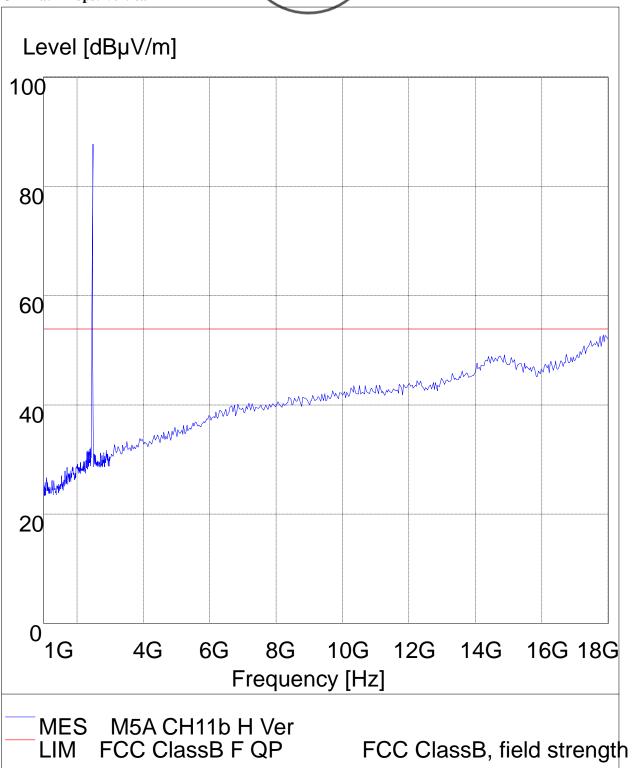
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CH11 at 1Mbps: Vertical

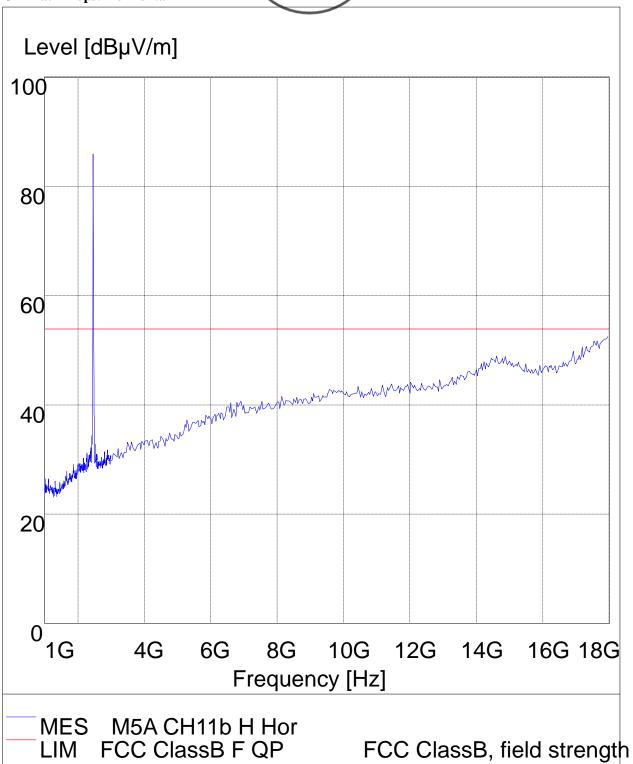


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CH11 at 1Mbps: Horizontal



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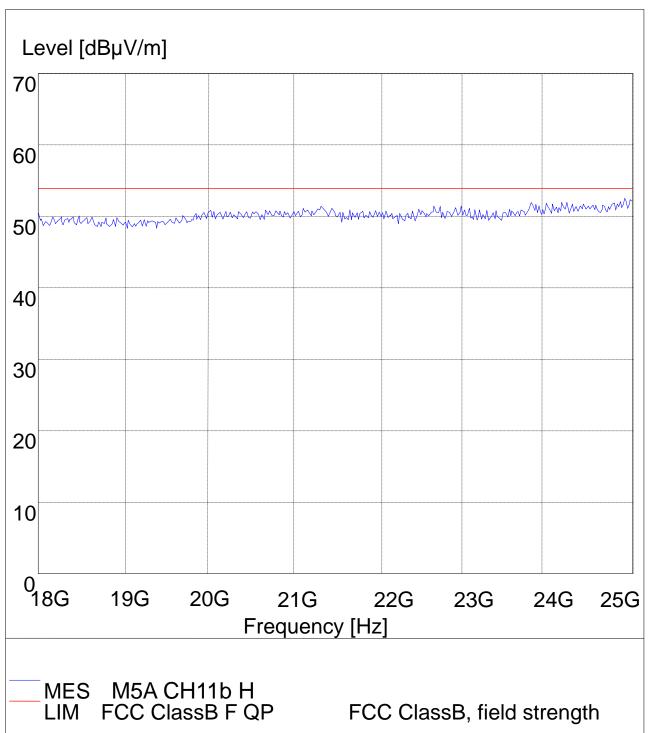
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18-25G CH11 1M Horizontal

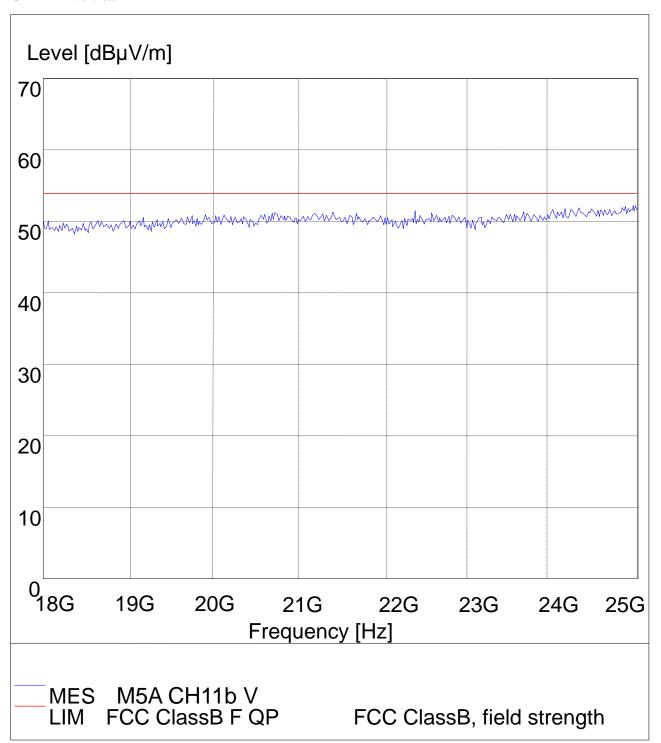


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18-25G CH11 1M Vertical



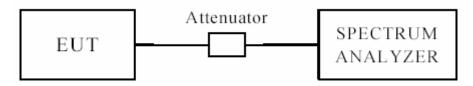
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## 7.0 6dB Bandwidth Measurement

## 7.1 Test Setup



#### 7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500kHz

#### 7.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator.

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz RBW and 100 kHz VBW for 802.11b/g mode; The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

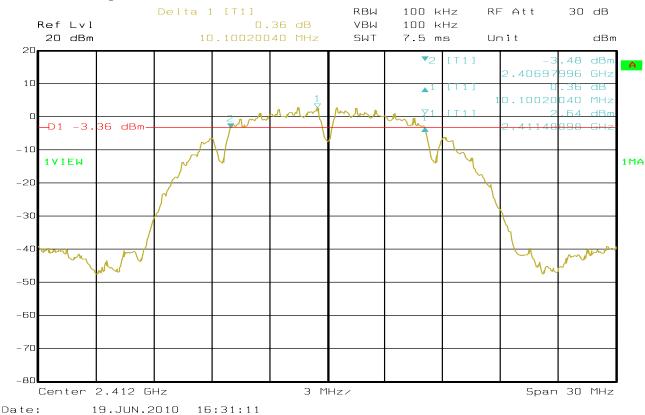
## 7.4 Test Result

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EUT		NOTE BOOK M		Model		M5A		
Mode		8	802.11b Input Voltage		120V	/~		
Temperat	ure	24	4 deg. C,		Humidity		56% I	RH
Channel		el Frequency (MHz)	Data Transfer Rate (Mbps)		andwidth Hz)		num Limit MHz)	Pass/ Fail
1		2412	1	10	.10		0.5	Pass
6		2437	1	10	.10		0.5	Pass
11		2462	1	9.	38		0.5	Pass

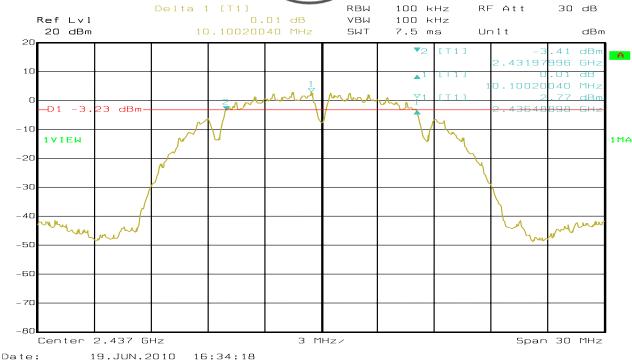
## 1. 802.11b at 1Mbps of CH01



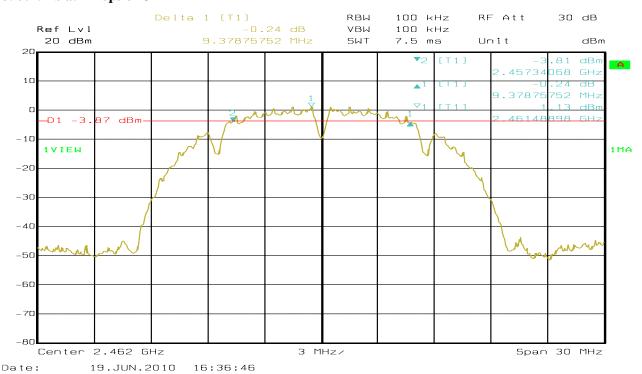
Date: 2010-08-02



## 2. 802.11b at 1Mbps of CH06



#### 3. 802.11b at 1Mbps of CH11



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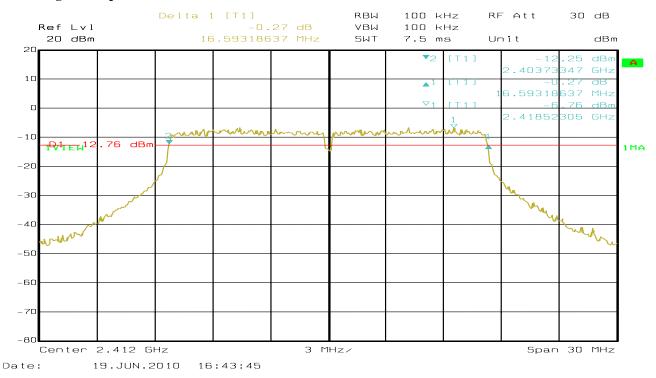
Report No: 1006393-01

Date:	201	0-08	3-02
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EUT		NOTE BOOK Model		NOTE BOOK Model M		M5/	A	
Mode		8	302.11g		Input Vol	put Voltage 120V		/~
Temperat	ure	24	4 deg. C,		Humidity		56% ]	RH
Channel		el Frequency (MHz)	Data Transfer Rate (Mbps)		ındwidth Hz)		num Limit MHz)	Pass/ Fail
1		2412	6	16	.59		0.5	Pass
6		2437	6	16	.59		0.5	Pass
11		2462	6	16	.59		0.5	Pass

#### **Test Plots:**

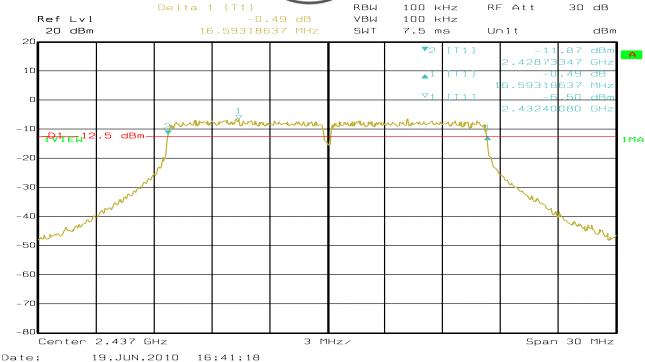
## 1. 802.11g at 6Mbps of CH01



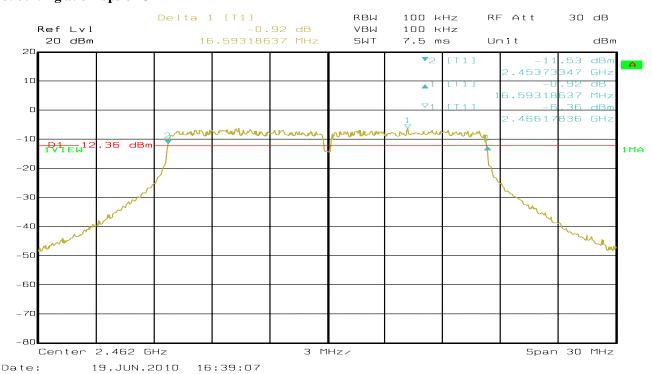
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## 2. 802.11g at 6Mbps of CH06



#### 3. 802.11g at 6Mbps of CH11



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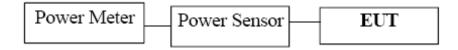
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# 8. Maximum Peak Output Power

8.1 Test Setup



## 8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

#### 8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: the peak power was measured

#### **8.4Test Results**

EUT	UT NOTE BOOK		BOOK	Model			M5A		
Mode	Mode 802.11b		I1b Input V		Input Voltage		put Voltage		20V~
Temperati	Temperature 24 deg. C, Hui		. C, Humidity 5		Humidity		5% RH		
Channel	Cha	Channel Frequency Peak Power Out (MHz) (dBm)		Output	Peak P Lin (dB	nit	Pass/ Fail		
1		2412	6.23		30	)	Pass		
6		2437	7.08		30	)	Pass		
11		2462	7.34		30	)	Pass		

Note: 1. At finial test to get the worst-case emission at 1Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

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		12					
EUT	NOTE B		Mo		odel		M5A
Mode	Mode 802.11g		1g	Input Voltage		1	20V~
Temperati	Temperature 24 deg. C, Hum		nidity 5		5% RH		
Channel	Cha	annel Frequency (MHz)	Peak Power Output (dBm)		Peak P Lin (dB	nit	Pass/ Fail
1		2412	5.10		30	)	Pass
6		2437	5.78		30	)	Pass
11		2462	5.67		30	)	Pass

Note: 1. At finial test to get the worst-case emission at 6Mbps for CH01, CH06 and CH11

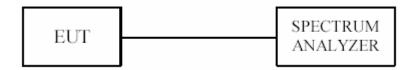
2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

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#### 9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm.

#### 9.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3KHz RBW and 10kHz VBW, set sweep time=100s, **PK detector.** 

The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span / 3KHz for a full response of the mixer in the spectrum analyzer.

#### 9.4Test Result

EUT	NOTE BOOK		Model			M5A	
Mode	Mode 802.11b		1b	Input Voltage		1	20V~
Temperat	Temperature 24 deg. C, Hum		Humidity		midity 56		
Channel	Cha	annel Frequency (MHz)	Final RF Power Level in 3kHz BW (dBm)		Maximur (dB		Pass/ Fail
1		2412	-24.83		8		Pass
6		2437	37 24.74		8		Pass
11		2462	-24.82		8		Pass

Note: For 802.11b mode at finial test to get the worst-case emission at 1Mbps for CH11, CH06 and CH01

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Date: 2010-08-02

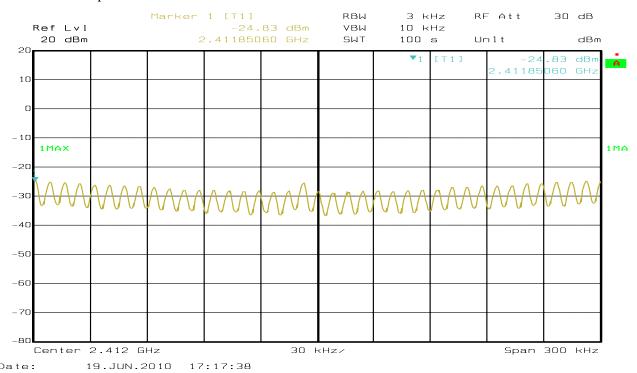
EUT	EUT NOTE E		BOOK	M	odel		M5A
Mode		802.1	1g	Input Voltage		120V~	
Temperat	ure	24 deg	g. C,	Hur	midity 56%		5% RH
Channel	Cha	Channel Frequency (MHz)  Final RF Power Level in 3kHz BV (dBm)			Maximur (dB		Pass/ Fail
1	2412		-23.88		8		Pass
6		2437	-22.94		8		Pass
11	2462		-24.44		8		Pass

Note: For 802.11g mode at finial test to get the worst-case emission at 6Mbps for CH11, CH06 and CH01

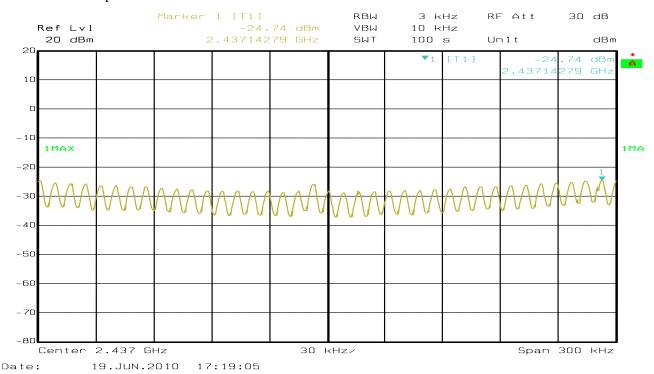
Date: 2010-08-02

## 9.5 Photo of Power Spectral Density Measurement

## 1.802.11b at 1Mbps of CH01



#### 2. 802.11b at 1Mbps at CH06



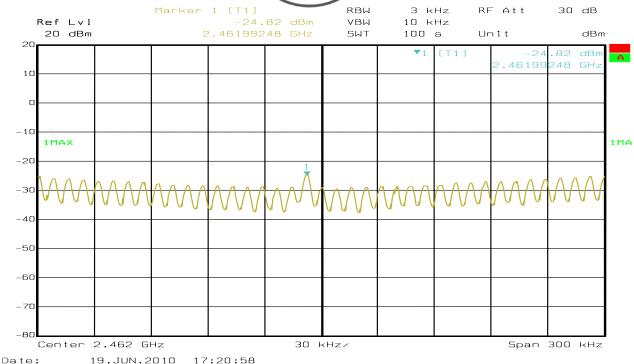
The report refers only to the sample tested and does not apply to the bulk.

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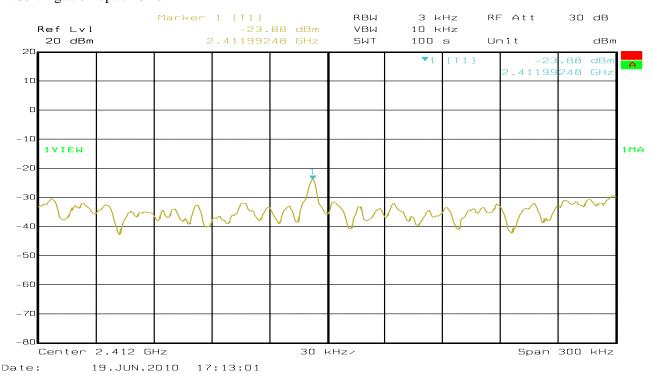
Date: 2010-08-02



## 3. 802.11b at 1Mbps of CH11



#### 4. 802.11g at 6Mbps of CH01



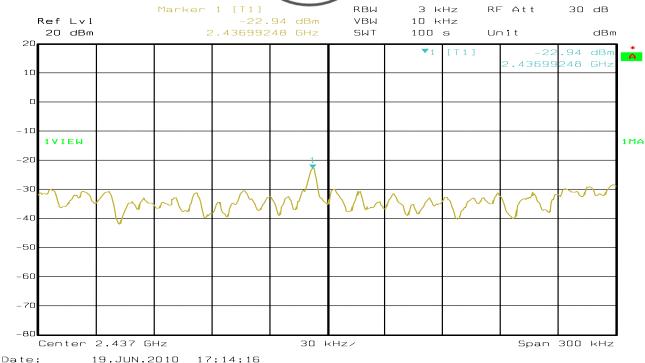
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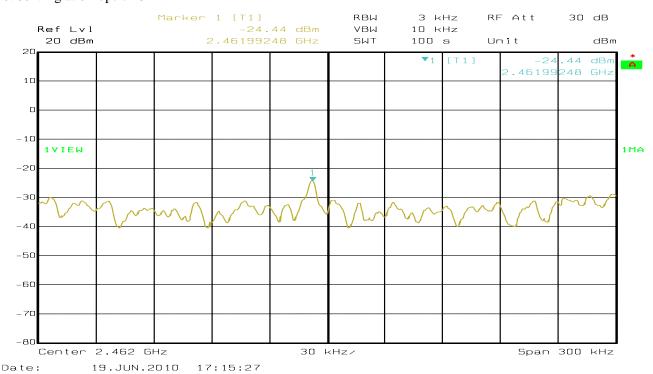
Date: 2010-08-02



## 5. 802.11g at 6Mbps of CH06



#### 6. 802.11g at 6Mbps of CH11



The report refers only to the sample tested and does not apply to the bulk.

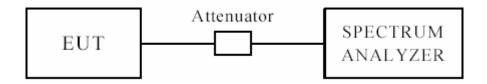
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## 10 Out of Band Measurement 10.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

#### 10.2 Limits of Out of Band Emissions Measurement

- 1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
- 2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

#### 10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test.( Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector)

For bandage test, the spectrum set as follows: RBW=VBW=100 kHz. A conducted measurement used

## 10.4Test Result

Please see next pages

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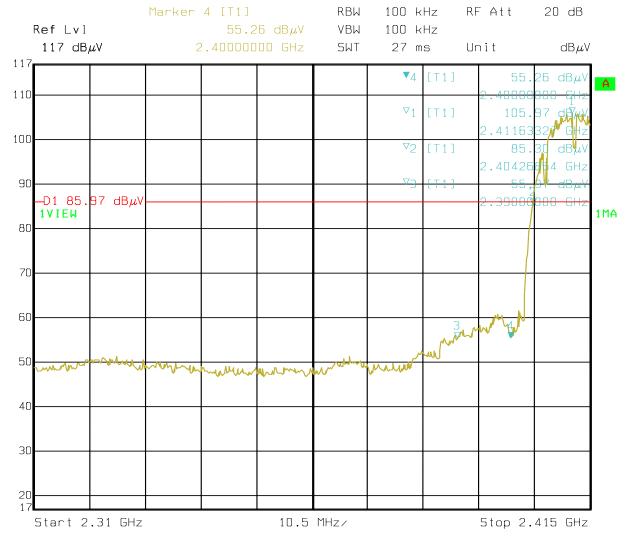
## For 802.11b mode

CH01 at 1Mbps

### **10.4** Restricted band and bandedge Measurement

Product:	NOTE BOOK		Test Mode:	CH1
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBµV/m)	PK (dBμV/m) 52.69(V)/50.88(H)		$74(dB\mu V/m)$
Restrict Band 2390MHz	AV (dBμV/m)			54(dBµV/m)

## **Test Figure:**



Date: 19.JUN.2010 17:33:47

#### Note: The Max. FS in Restrict Band are measured in conventional method.

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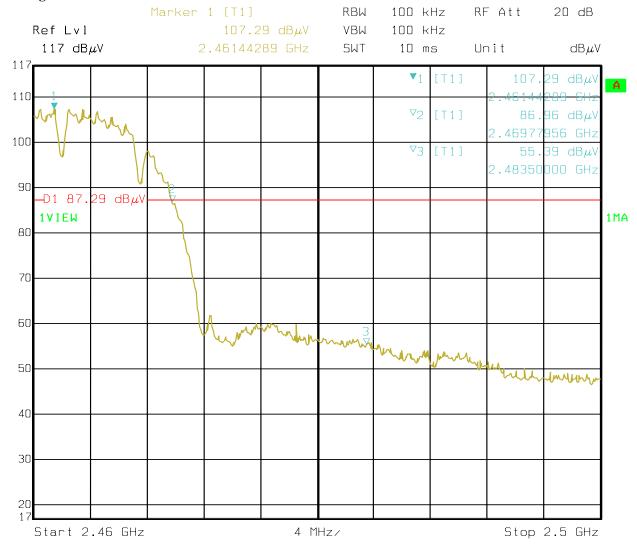
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10.4 Restricted band and bandedge Measurement									
Product: NOTE BOOK		Test Mode:	CH11						
Mode	de Keeping Transmitting		de Keeping Transmitting		Input Voltage	120V~			
Temperature	24 deg. C,		Humidity	56% RH					
Test Result:	]	Pass	Detector	PK					
The Max. FS in	PK (dBμV/m)	55.52(V)/53.18(H)		$74(dB\mu V/m)$					
Restrict Band	AV (dBμV/m)	42.23(V)/40.16(H)	Limit	54(dBµV/m)					

#### **Test Figure:**



19.JUN.2010 17:41:08 Date:

Note: The Max. FS in Restrict Band are measured in conventional method.

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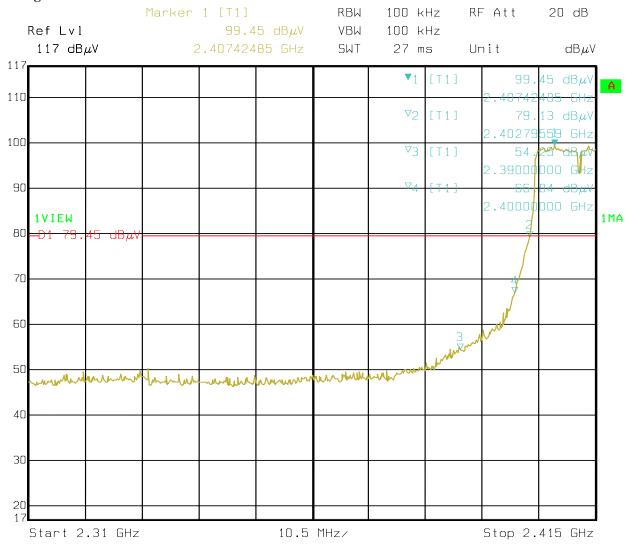
## For 802.11g mode

CH01 at 6Mbps

## 10.4 Restricted band and bandedge Measurement

Product:	NOTE BOOK		Test Mode:	CH1
Mode	Keeping	Transmitting	Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m)	59.92(V)/56.80(H)		$74(dB\mu V/m)$
Restrict Band 2380.7MHz	AV (dBμV/m)	44.21(V)/41.58(H)	Limit	54(dBµV/m)

## **Test Figure:**



Date: 19.JUN.2010 17:37:34

#### Note: The Max. FS in Restrict Band are measured in conventional method.

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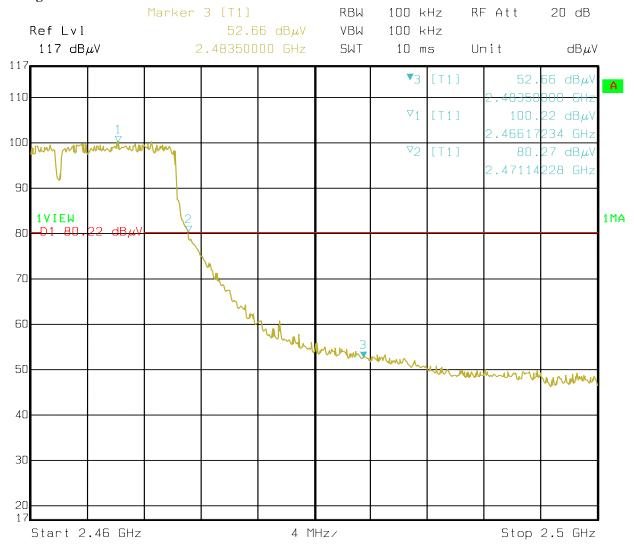
Date: 2010-08-02

## CH11 at 6Mbps

10.4 Restricted band and bandedge Measurement

200.							
Product:	NOTE BOOK		Test Mode:	CH11			
Mode	Keeping Transmitting		Input Voltage	120V~			
Temperature	24 deg. C,		Humidity	56% RH			
Test Result:		Pass	Detector	PK			
The Max. FS in	PK (dBμV/m)	59.68(V)/56.07(H)		$74(dB\mu V/m)$			
Restrict Band 2495.8MHz	AV (dBμV/m)	44.38(V)/42.26(H)	Limit	54(dBμV/m)			

## **Test Figure:**



Date: 19.JUN.2010 17:43:03

#### Note: The Max. FS in Restrict Band are measured in conventional method.

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# 11.0 Antenna Requirement 11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi

are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

#### 11.2 Antenna Connected construction

An RF cable connected the IPX connector with the PCB antenna. The maximum Gain of both antennas is 3dBi.

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# 12.0 Maximum Permissible Exposure

#### **Applicable Standard**

According to §1.1307(b)(5), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Portable device. KDB616217 was used as the guidance.

According to §1.1310 and §2.1093 RF exposure is calculated.

#### **Measurement Result**

This is a laptop and the conducted output power is 7.34dBm (5.42mW), which is lower than low threshold 60/fGHz mW (60/2.462GHz = 24.37 mW), and the antenna is 3dBi which is less than 6dBi.

The SAR measurement is not necessary.

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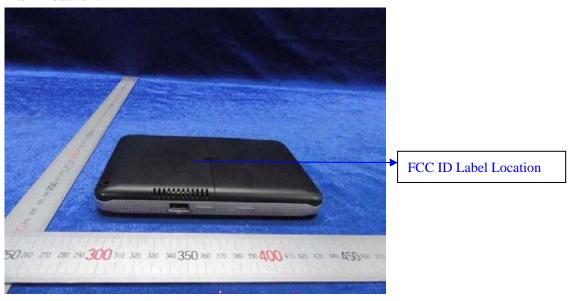


#### 13.0 FCC ID Label

This device complies with part 15 of the FCC rules. Operation 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.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

#### **Mark Location:**



## 14.0 Photo of testing

Please refer to report EMC1006393-02

14.3 Photo for the EUT

Please refer to report EMC1006393-02

## **End of the report**