



Test Report for FCC

FCC ID:V2X-PM155

				1 \	O ID-VZX FIVITOO
Repo	rt Number	ESTF15	50712-016		
	Company name	POINTMOBILE CO., LTD			
Applicant	Address		orld Meridian Vent eon-gu, Seoul, K	ture Center-1, 60-2 orea 153-781	24, Gasan-dong,
	Telephone	82-2-2	2113-7275		
	Product name	PDA			
Product	Model No.	C	CHD FIVE	Manufacturer	POINTMOBILE CO., LTD
	Serial No.		NONE	Country of origin	KOREA
Test date	2007-11-1	5 ~ 2007-11-16 Date of issue 20-Dec-07			20-Dec-07
Testing location	97-1	Hoiuk-Ri I	ESTECH. Majang-Myon, Ic	Co., Ltd. :heon-city, Kyunç	gKi-Do, Korea
Standard		FCC	PART 15 2007,	ANSI C 63.4 20	003
Measurement facility registration numbe			94696		
Tested by	Engineer J.H.Kim (Signature)				
Reviewed by	Engineering Manager J.M.Yang (Signature)				
Abbreviation	ation OK, Pass = Passed, Fail = Failed, N/A = not applicable				

- * Note
- Basic model is CHD Five and additional model is Metrologic SP58xx Series.
- This test report is not permitted to copy partly without our permission
- This test result is dependent on only equipment to be used
- This test result based on a single evaluation of one sample of the above mentioned

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ESTECH Co., Ltd.

Rm 1015, World Venture Center II. 426-5 Gasan-dong, Guncheon-gu, Seoul, 158-803, Korea



Electromagnetic Interference Test Report

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Appendix 1. Spectral diagram

Appendix 2. Antenna Requirement





1. Laboratory Information

1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and is tested in accordance with the measurement procedures as indicated in this report.

ESTECH Lab attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.

ESTECH Lab assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

1.2 Test Lab.

Corporation Name: ESTECH Co. Ltd

Head Office: Rm 1015, World Venture Center II, 426-5, Gasan-dong, Geumcheon-gu, Seoul, Korea (Safety & Telecom. Test Lab)

EMC Test Lab: 58-1 Osan-Ri, GaNam-Myon, YeoJoo-Gun, KyungKi-Do, Korea 97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea

1.3 Official Qualification(s)

MIC: Granted Accreditation from Ministry of Information & Communication for EMC, Safety and Telecommunication

KOLAS: Accredited Lab By Korea Laboratory Accreditation Schema base on CENELEC requirements

FCC: Filed Laboratory at Federal Communications Commission

VCCI: Granted Accreditation from Voluntary Control Council for Interference from ITE

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2. Description of EUT

2.1 Summary of Equipment Under Test

Product Name : PDA

Model Number : CHD FiVE

Modulation Type : WLAN(DSSS, OFDM)

Transfer Rate : up to 54Mbps

Number of Channel : 802.11b and 802.11g:11 Channel Spacing : 802.11b and 802.11g: 5MHz

Output Power : 802.11b: 13.3dBm, 802.11g: 12.3dBm

Serial Number : NONE

Manufacturer : POINTMOBILE CO., LTD

Country of origin : KOREA

Rating : AC 120V \sim /60Hz 0.3A , OUTPUT : DC 5V 2.0A

Receipt Date : 2007-11-21

X-tal list(s) : 32.768KHz/3.6864MHz/24.576MHz/29.4912MHz

2.2 General descriptions of EUT

`

This device fully compatible with the 802.11b standard to provide a wireless data rate of 11Mbps. This device fully compatible with the 802.11g standard to provide a wireless data rate of up to 54Mbps

For the detailed features, please refer to the manufacturer's specifications or User's Manual.

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3. Test Standards

Test Standard: FCC PART 15 (2007)

This Standard sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of Part 15 devices.

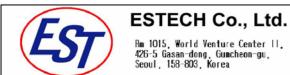
Test Method: ANSI C 63.4 (2003)

This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and may be applied to any such equipment unless otherwise specified by individual equipment requirements. These methods cover measurement of certain decides that deliberately radiate energy, such as intentional emitters, but does not cover licensed transmitters. This standard is not intended for certification/approval of avionic equipment or for industrial, scientific, and medical (ISM) equipment These method apply to the measurement of individual units or systems comprised of multiple units

Summary of Test Results

Applied Satandard: 47 CFR Part 15, Subpart C				
Standard	Test Type	Result	Remark	Limit
15.207	AC Power Conducted Emission	Pass	Meet the requirement	
15.247(a)(2)	Spectrum Bandwidth of	Pass	Meet the requirement	Min. 500kHz
	a DSSS System			
15.247(b)	Maximum Peak ouput power	Pass	Meet the requirement	Max. 30dBm
15.247(c)	Transmitter Radiated Emission	Pass	Meet the requirement	Table 15.209
15.247(d)	Power Spectral Density	Pass	Meet the requirement	Max. 8dBm
15.247(c)	Band Edge Measurement	Pass	Meet the requirement	20dB less

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4. Measurement Condition

4.1 EUT Operation(For 802.11b and 802.11g)

a. Channel

Ch.	Frequency	Ch.	Frequency
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

- b. Measurement Channel: WLAN: Low(2412MHz), Middle(2437Mhz), High(2462MHz)
- c. Test Mode: Continuous Output, DSSS, OFDM
- d. Test rate: the worst case of rate 802.11b(11Mbps), 802.11g(54Mbps)

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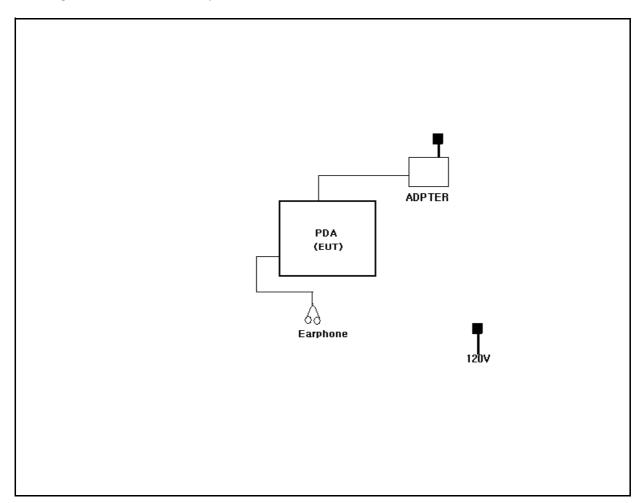




4.2 EUT Operation.

- * The EUT was in the following operation mode during all testing
- * The operational conditions of the EUT was determined by the manufacturer according to the typical use of the EUT with respect to the expected hightest level of emission
- * The computer system ran a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.3 Configuration and Peripherals



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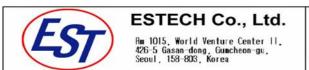
4.4 EUT and Support equipment

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
PDA	CHD FiVE	NONE	POINTMOBILE CO., LTD	EUT
ADAPTER	PSC11R-05D	P72010387A1	Phihong(Dongguan)Electro nics Co.,Ltd	
Earphone	NONE	NONE	LG Electronics Inc.	

4.5 Cable Connecting

Start Equip	ment	End Equipment		End Equipment Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	пешак
PDA	POWER	Adapter	-	2	Unshielded	
PDA	Earphone	Earphone	_	1	Unshielded	

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5. 6dB Bandwidth Measurement

5.1 Test procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measured by spectrum analyzer. The 6dB bandwidth is defined as the bandwidth at 6dB below from peak power point. The minimum of 6dB bandwidth measurement is 0.5MHz.

5.2 Test instruments and measurement setup

The spectrum analyzer is set to as following.

- . RBW= 100KHz
- . VBW= 100KHz
- . Span= 20MHz
- . Sweep= suitable duration based on the EUT specification.

6dB Bandwidth Test Instruments

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4407B	US42041281	2008-03-02
RF Cable	Length: 20cm	_	
-Spectrum Analyzer <=> EUT	Loss: 0.7dB	_	

5.3 Measurement results

EUT	PDA	MODEL	CHD FiVE
MODE	CCK	ENVIRONMENTAL CONDITION	24°C, 44%RH
INPUT POWER	120Vac, 60Hz		

(802.11b)

CHANNEL	Channel Frequency (MHz)	Bandwidth at 6dB below(MHz)	Minimum Limit (MHz)	PASS/FAIL
1	2412	9.64	0.5	PASS
6	2437	9.70	0.5	PASS
11	2462	9.50	0.5	PASS

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EUT	PDA	MODEL	CHD FiVE
MODE	OFDM	ENVIRONMENTAL CONDITION	24°C, 43%RH
INPUT POWER	120Vac, 60Hz		

(802.11g)

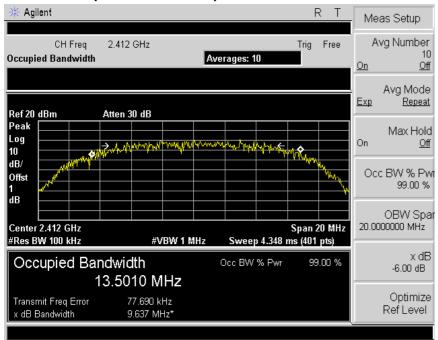
CHANNEL	Channel Frequency (MHz)	Bandwidth at 6dB below(MHz)	Minimum Limit (MHz)	PASS/FAIL
1	2412	16.42	0.5	PASS
6	2437	16.33	0.5	PASS
11	2462	16.34	0.5	PASS

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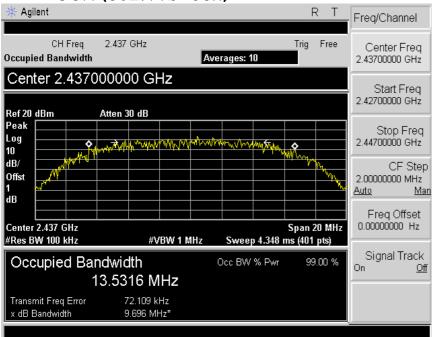




5.4 Trace data CCK (802.11b-1ch)

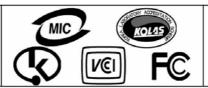


CCK (802.11b-6ch)

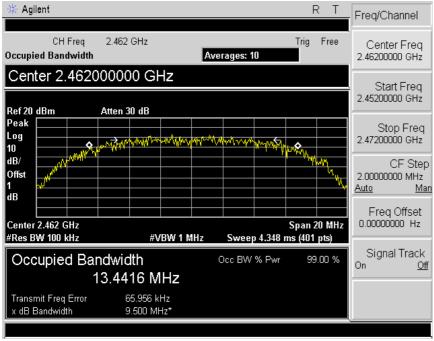


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CCK (802.11b-11ch)

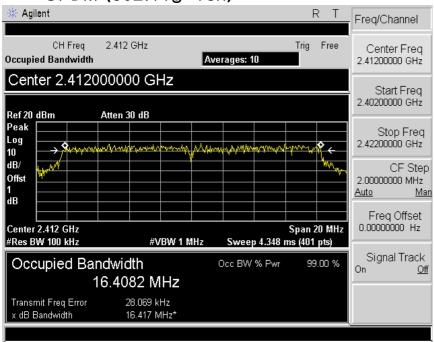


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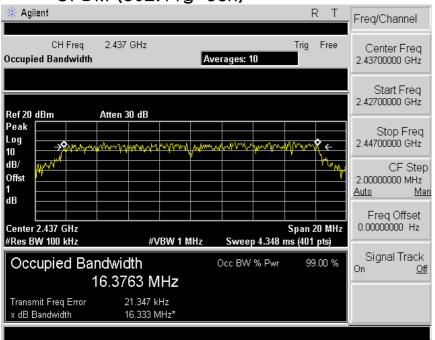




5.4 Trace data OFDM (802.11g-1ch)

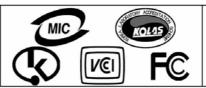


OFDM (802.11g-6ch)

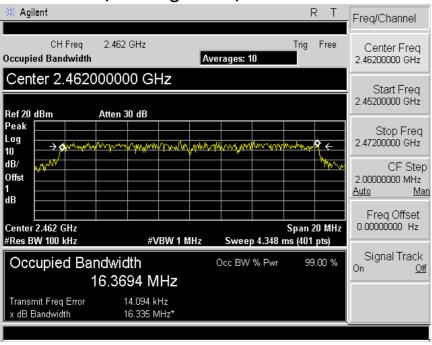


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OFDM (802.11g-11ch)



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6. MAXIMUM PEAK OUTPUT POWER

6.1 Test procedure

The transmitter antenna terminal is connected to the input of a RF power sensor. Measurement is made while EUT is operating in transmission mode at the appropriate center frequency. The maximum peak output power measurement is 30dBm.

Maximum Peak Output Power Test Instruments

Description	Model	Serial Number	Cal. Due Date
Power Meter	HP E4418A	GB38272722	2008-03-02
Power Sensor	HP 8481A	3318A96478	2008-03-02
RF Cable:	Length: 20cm	_	
-Spectrum Analyzer <=> EUT	Loss: 1.0 dB	_	

6.2 Measurement results

EUT	PDA	MODEL	CHD FiVE
MODE	CCK	ENVIRONMENTAL CONDITION	24℃, 43%RH
INPUT POWER	120Vac, 60Hz		

OLIANINEI	Channel Peak Power Output(dBm)		Limit[1W]	DACO/EAU	
CHANNEL	Frequency (MHz)	(dBm)	(W)	(dBm)	PASS/FAIL
1	2412	12.4	0.017	30.0	PASS
6	2437	13.3	0.021	30.0	PASS
11	2462	13.2	0.021	30.0	PASS

(802.11g)

EUT	PDA	MODEL	CHD FiVE
MODE	OFDM	ENVIRONMENTAL CONDITION	24℃, 43%RH
INPUT POWER	120Vac, 60Hz		

CHANNEL	Channel	Peak Power	Output(dBm)	Limit[1W]	PASS/FAIL
CHANNEL	Frequency (MHz)	(dBm)	(W)	(dBm)	PASS/FAIL
1	2412	11.9	0.015	30.0	PASS
6	2437	12.3	0.017	30.0	PASS
11	2462	11.8	0.015	30.0	PASS

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7. Transmitter power spectral density

7.1 Test procedure

The peak power density was measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency. The maximum of power spectral density measurement is 8dBm.

7.2 Test instruments and measurement setup

The spectrum analyzer is set to as following.

- . RBW= 3KHz
- . VBW= 30KHz
- . Span= 1.5MHz
- . Sweep= 500 seconds (It is allowed tobe longer than span/3kHz.)

The peak power density Test Instruments

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4407B	US42041281	2008-03-02
RF Cable	Length: 20cm	_	
-Spectrum Analyzer <=> EUT	Loss: 0.7dB	_	

7.3 Measurement results

EUT	PDA	MODEL	CHD FiVE
MODE	CCK	ENVIRONMENTAL CONDITION	23℃, 43%RH
INPUT POWER	120Vac, 60Hz		

CHANNEL	Channel Frequency (MHz)	RF Power Spectral Density (dBm)	Maximum Limit (dBm)	PASS/FAIL
1	2412	-11.41	8.0	PASS
6	2437	-10.17	8.0	PASS
11	2462	-9.97	8.0	PASS

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EUT	PDA	MODEL	CHD FiVE
MODE	OFDM	ENVIRONMENTAL CONDITION	23℃, 43%RH
INPUT POWER	120Vac, 60Hz		

CHANNEL	Channel Frequency (MHz)	RF Power Spectral Density (dBm)	Maximum Limit (dBm)	PASS/FAIL
1	2412	-16.24	8.0	PASS
6	2437	-15.35	8.0	PASS
11	2462	-14.67	8.0	PASS

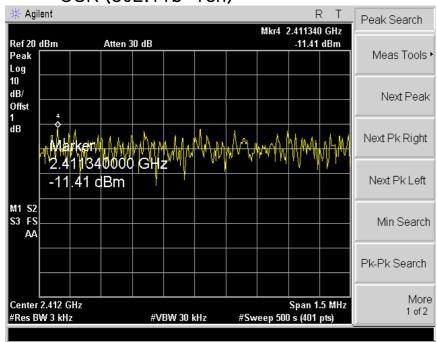
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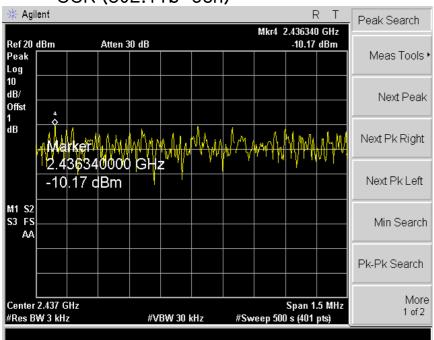


7.4 Trace data

CCK (802.11b-1ch)



CCK (802.11b-6ch)



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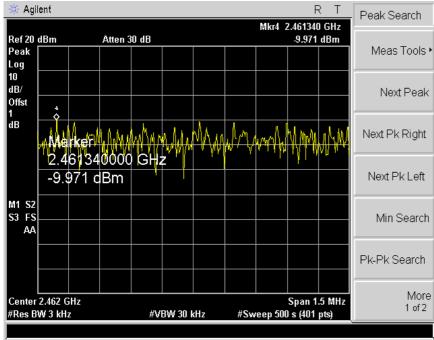
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Electromagnetic Interference Test Report

CCK (802.11b-11ch)



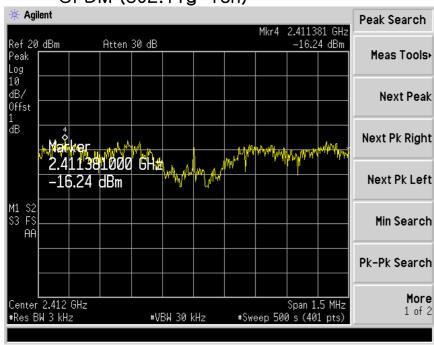
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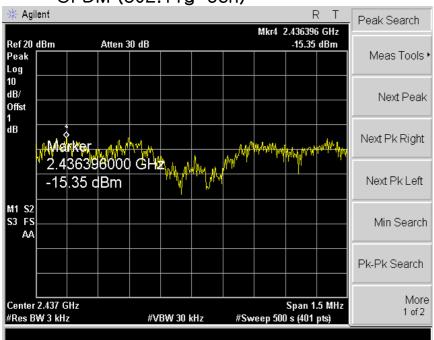


7.4 Trace data

OFDM (802.11g-1ch)



OFDM (802.11g-6ch)



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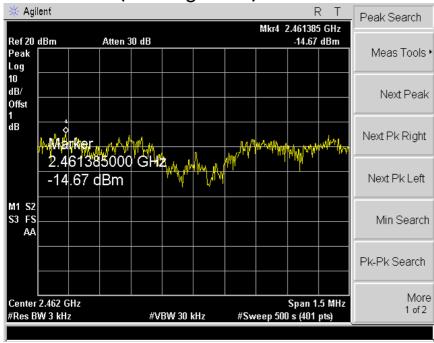
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OFDM (802.11g-11ch)



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8. band-edge and out of band emissions.

8.1 Test procedure

The radio frequecy power at 20dB down from the highest inband power level is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency. The band edge&out of band emission shall be at least 20dB below of the highest inband power level.

8.2 Test instruments and measurement setup

The spectrum analyzer is set to as following.

- . RBW= 100KHz(11b), 1MHz(11g)
- . VBW= 100KHz(11b), 300Hz(11g)
- . Span= suitable frequency span
- . Sweep= suitable duration based on the EUT specification.

Band Edge&Out of Emission Test Instruments

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4407B	US42041281	2008-03-02
RF Cable	Length: 20cm		_
-Spectrum Analyzer <=> EUT	Loss: 1.0dB		_

8.3 Measurement results of band-edge & out of emission

EUT	PDA	MODEL	CHD FiVE
MODE	CCK	ENVIRONMENTAL CONDITION	23℃, 43%RH
INPUT POWER	120Vac, 60Hz		

CHANNEL	Channel Frequency (MHz)	Measurement Frequency (MHz)	Peak Level at 20dB below(dBm)	Limit (MHz)
1	2412	2398.5	-48.20	Below 20dB from peak power level to band edge
11	2462	2486.0	-49.15	Below 20dB from peak power level to band edge

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EUT	PDA	MODEL	CHD FiVE
MODE	OFDM	ENVIRONMENTAL CONDITION	23℃, 43%RH
INPUT POWER	120Vac, 60Hz		

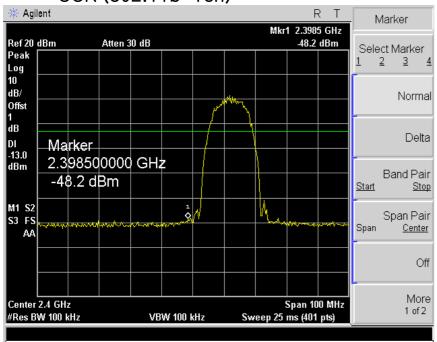
CHANNEL	Channel Frequency (MHz)	Measurement Frequency (MHz)	Peak Level at 20dB below(dBm)	Limit (MHz)
1	2412	2397.8	-30.39	Below 20dB from peak power level to band edge
11	2462	2483.3	-37.89	Below 20dB from peak power level to band edge

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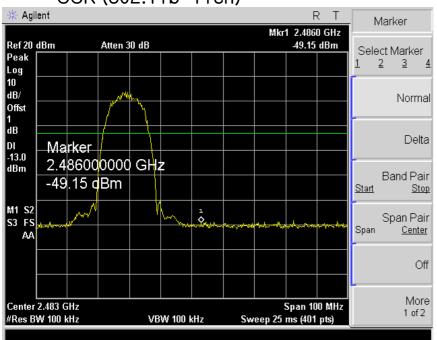




8.4 Trace data of band-edge & Out of Emission CCK (802.11b-1ch)



CCK (802.11b-11ch)

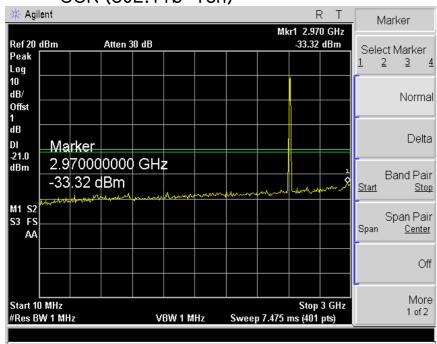


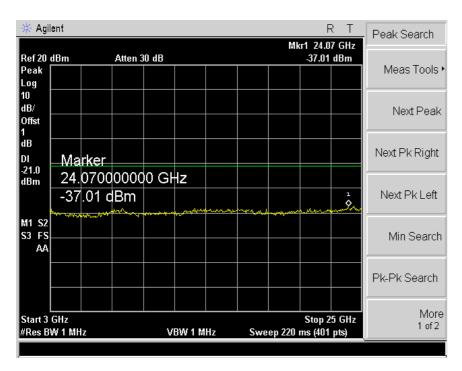
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CCK (802.11b-1ch)



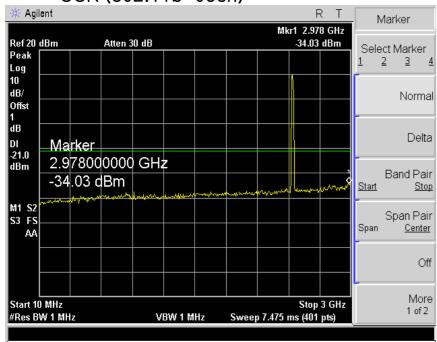


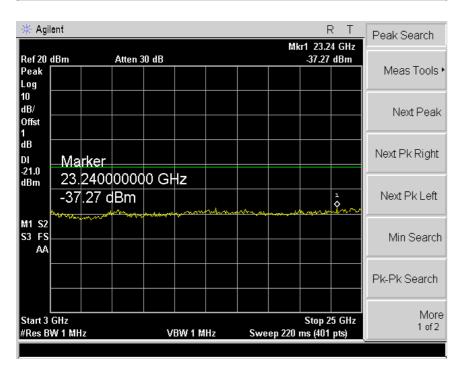
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CCK (802.11b-06ch)



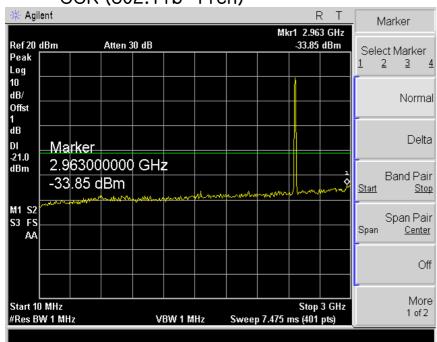


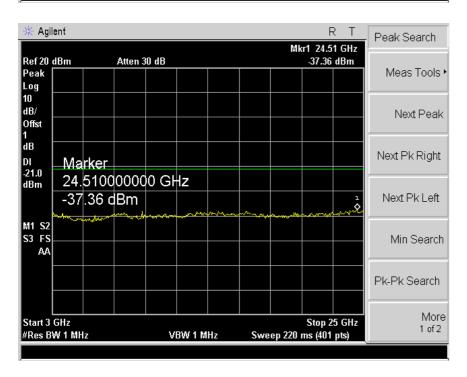
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CCK (802.11b-11ch)



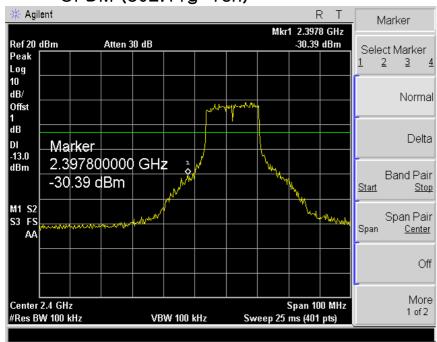


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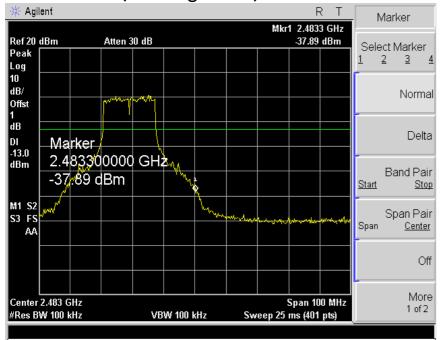




OFDM (802.11g-1ch)



OFDM (802.11g-11ch)

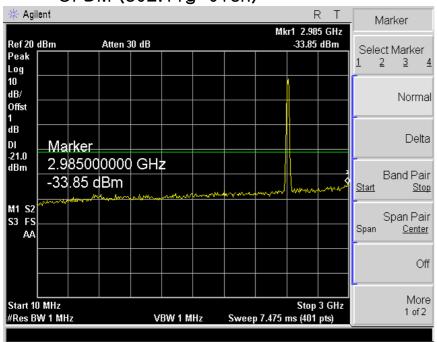


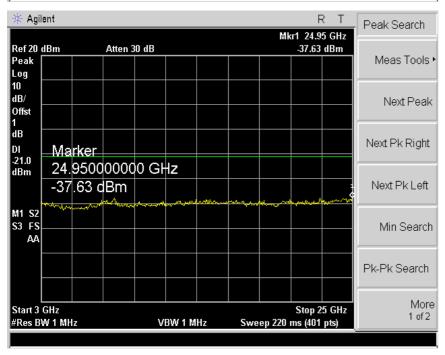
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OFDM (802.11g-01ch)



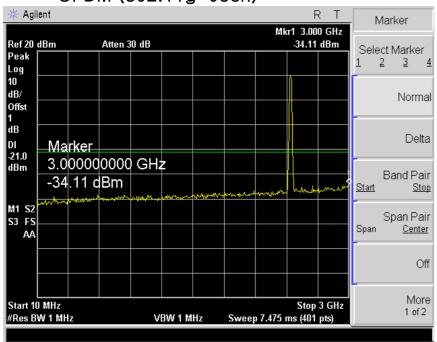


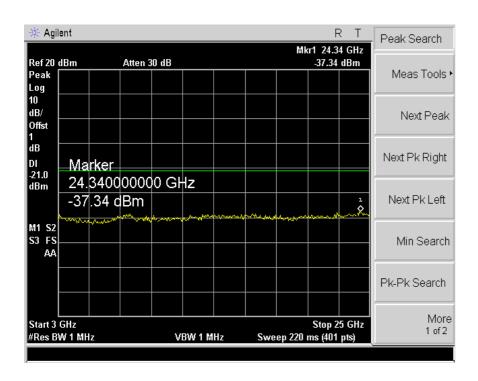
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OFDM (802.11g-06ch)



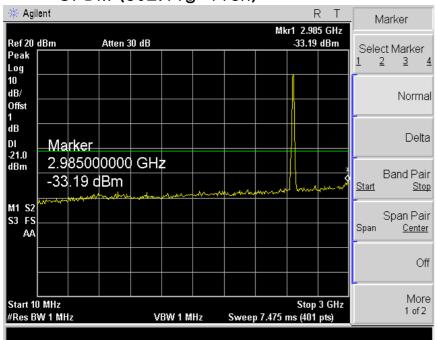


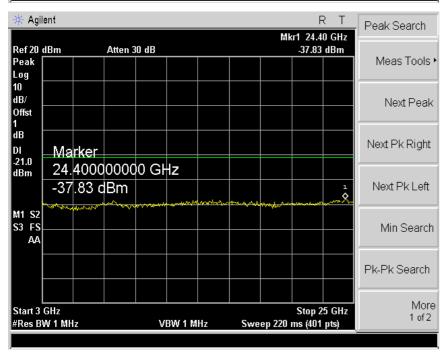
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OFDM (802.11g-11ch)





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9. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC Part 15 (2007) & ANSI C 63.4 (2003). The test setup was made according to FCC Part 15 (2007) & ANSI C 63.4 (2003) on an open test site, which allows a 3m distance measurement. The EUT was placed in the center of wooden turntable. The height of this table was 0.8m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test setup.

9.1 Measurement equipments

Equipment Name	Туре	Manufacturer	Serial No.	Next Calibration date	
TEST Receiver	ESVS10	Rohde & Schwarz	838562/002	23-Jan-08	
Spectrum Analyzer	R3261C	ADVANTEST	61720116	20-Apr-08	
LogBicon Antenna	VULB 9160	S/B	3142	7-May-08	
Amplifier	8447F	HP	2805A02972	26-Jun-08	
PREAMPLIFIER	8449B	HP	3008A00581	6-May-08	
Horn Antenna	BBHA 9120 D	Schwarzbeck	352	5-Jun-08	
Spectrum Analyzer	R3273	ADVANTEST	121200664	27-Nov-08	
Turn Table	2087	EMCO	2129	_	
Antenna Mast	2070-01	EMCO	9702-203	-	
ANT Mast Controller	2090	EMCO	1535	-	
Turn Table Controller	2090	EMCO	1535	_	

9.2 Environmental Condition

Test Place : Open site(3m)

Temperature (°C) : $6 ^{\circ}$ C Humidity (%) : 49 %

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9.3 Test Data for wireless LAN

Test Date: 16-Nov-07 Measurement Distance: 3 m

Frequency (MHz)	Reading	Position	Position Height (V/H) (m)	Correctio	n Factor	Result Value		
	(dBW)			Ant Factor (dB)	Cable (dB)	Limit (dB#V/m)	Result (dB#V/m)	Margin (dB)
79.80	10.20	V	1.0	8.81	1.4	40.0	20.40	-19.60
120.41	12.40	Н	2.1	12.05	1.7	43.5	26.15	-17.35
140.62	10.60	Н	1.6	13.39	1.8	43.5	25.83	-17.67
172.62	14.60	Н	1.4	13.10	2.0	43.5	29.72	-13.78
195.43	7.20	V	1.0	10.71	2.2	43.5	20.11	-23.39
220.10	8.90	V	1.0	10.76	2.4	46.0	22.07	-23.93
245.17	14.10	V	1.0	11.82	2.6	46.0	28.50	-17.50
294.94	12.60	Н	1.0	13.09	2.9	46.0	28.62	-17.38
344.09	14.10	Н	1.0	14.15	3.3	46.0	31.51	-14.49
398.23	15.60	Н	1.1	15.28	3.6	46.0	34.45	-11.55
497.65	12.10	Н	1.0	17.04	4.2	46.0	33.36	-12.64
597.12	7.10	V	1.0	19.08	4.7	46.0	30.89	-15.11
696.26	7.10	Н	1.0	20.10	5.3	46.0	32.45	-13.55
796.10	4.60	Н	1.0	21.73	5.9	46.0	32.23	-13.77

H: Horizontal, V: Vertical TEST MODE: 802.11b

Remark

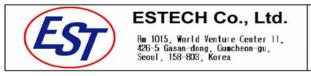
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^{*}Checked in all 3 axis and the maximum measured data were reported.

^{*}CL = Cable Loss-Amplifier Gain(In case of above1000Mhz)

^{*}CL = Cable Loss(In case of below1000Mhz)

^{*}The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz.





9.3-1 Test Data for wireless LAN

Test Date: 16-Nov-07 Measurement Distance: 3 m

Frequency	Reading	Position	Position Height (V/H) (m)	Correction	n Factor	Result Value			
(MHz)	(dB₩)			Ant Factor (dB)	Cable (dB)	Limit (dB#V/m)	Result (dBW/m)	Margin (dB)	
PEAK(RBW:1Mhz VBW:1MHz)									
2390	20.60	Н	1.1	27.64	2.3	74.0	50.51	-23.49	
2412	69.10	Н	1.1	27.62	2.3	*OB	98.99	_	
4824	44.92	Н	1.1	31.30	-28.8	74.0	47.38	-26.62	
7236	44.12	Н	1.4	36.54	-26.7	74.0	54.01	-19.99	
9648	44.39	Н	1.3	37.98	-23.1	74.0	59.28	-14.72	
2390	20.56	V	1.1	27.64	2.3	74.0	50.47	-23.53	
2412	68.00	V	1.2	27.62	2.3	*OB	97.89	_	
4824	48.21	V	1.1	31.30	-28.8	74.0	50.67	-23.33	
7236	44.07	V	1.3	36.54	-26.7	74.0	53.96	-20.04	
9648	44.39	V	1.2	37.98	-23.1	74.0	59.28	-14.72	
			AV(RBW:	1Mhz VBW	':10Hz)				
2390	8.90	Н	1.1	27.64	2.3	54.0	38.81	-15.19	
2412	58.00	Н	1.1	27.62	2.3	*OB	87.89	_	
4824	33.12	Н	1.1	31.30	-28.8	54.0	35.58	-18.42	
7236	30.82	Н	1.4	36.54	-26.7	54.0	40.71	-13.29	
9648	31.67	Н	1.3	37.98	-23.1	54.0	46.56	-7.44	
2390	9.24	V	1.1	27.64	2.3	54.0	39.15	-14.85	
2412	57.60	V	1.2	27.62	2.3	*OB	87.49	_	
4824	34.62	V	1.1	31.30	-28.8	54.0	37.08	-16.92	
7236	30.80	V	1.3	36.54	-26.7	54.0	40.69	-13.31	
9648	31.66	V	1.2	37.98	-23.1	54.0	46.55	-7.45	
Remark	H: Horizontal, V: Vertical TEST MODE: 802.11b - CH1(2412MHz) *The TX signal isn't detected from 5th harmonics. *OB = Operating band *Checked in all 3 axis and the maximum measured data were reported. *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz)								

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9.3-2 Test Data for wireless LAN

Test Date: 16-Nov-07 Measurement Distance: 3 m

Frequency	Reading	Position	Height	Correctio	n Factor	Result Value			
(MHz)	(dBW)	(V/H)	(m)	Ant Factor (dB)	Cable (dB)	Limit (dB#V/m)	Result (dBW/m)	Margin (dB)	
PEAK(RBW:1Mhz VBW:1MHz)									
2437	66.18	Н	1.1	27.61	2.3	*OB	96.09	_	
4874	45.61	Н	1.6	31.37	-28.7	74.0	48.29	-25.71	
7311	44.72	Н	1.2	36.56	-26.5	74.0	54.77	-19.23	
9648	44.49	Н	1.4	37.98	-23.1	74.0	59.38	-14.62	
2437	65.45	V	1.2	27.61	2.3	*OB	95.36	_	
4874	44.62	V	1.2	31.37	-28.7	74.0	47.30	-26.70	
7311	43.96	V	1.4	36.56	-26.5	74.0	54.01	-19.99	
9648	44.29	V	1.2	37.98	-23.1	74.0	59.18	-14.82	
			AV(RBW:	1Mhz VBW	(:10Hz)				
2437	58.02	Н	1.1	27.61	2.3	*OB	87.93	_	
4874	32.66	Н	1.6	31.37	-28.7	54.0	35.34	-18.66	
7311	31.20	Н	1.2	36.56	-26.5	54.0	41.25	-12.75	
9648	31.67	Н	1.4	37.98	-23.1	54.0	46.56	-7.44	
2437	56.92	V	1.2	27.61	2.3	*OB	86.83	_	
4874	32.69	V	1.2	31.37	-28.7	54.0	35.37	-18.63	
7311	31.17	V	1.4	36.56	-26.5	54.0	41.22	-12.78	
9648	31.63	V	1.2	37.98	-23.1	54.0	46.52	-7.48	
Remark	H: Horizontal, V: Vertical TEST MODE: 802.11b - CH6(2437MHz) *The TX signal isn't detected from 5th harmonics. *OB = Operating band *Checked in all 3 axis and the maximum measured data were reported. *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz)								

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9.3-3 Test Data for wireless LAN

Test Date: 16-Nov-07 Measurement Distance: 3 m

Frequency	Reading	Position	n Height	Correction	n Factor	Result Value			
(MHz)	(dB#V)	(V/H)	(m)	Ant Factor (dB)	Cable (dB)	Limit (dB#V/m)	Result (dB#V/m)	Margin (dB)	
PEAK(RBW:1Mhz VBW:1MHz)									
2462	65.00	Н	1.1	27.60	2.3	*OB	94.87	_	
2483.5	18.83	Н	1.1	27.59	2.3	74.0	48.69	-25.31	
4924	44.91	Н	1.5	31.44	-28.6	74.0	47.77	-26.23	
7386	44.71	Н	1.2	36.59	-26.4	74.0	54.93	-19.07	
9648	44.31	Н	1.4	37.98	-23.1	74.0	59.20	-14.80	
2462	67.30	V	1.1	27.60	2.3	*OB	97.17	_	
2483.5	20.05	V	1.1	27.59	2.3	74.0	49.91	-24.09	
4924	44.69	V	1.2	31.44	-28.6	74.0	47.55	-26.45	
7386	44.21	V	1.2	36.59	-26.4	74.0	54.43	-19.57	
9648	44.32	V	1.4	37.98	-23.1	74.0	59.21	-14.79	
			AV(RBW:	1Mhz VBW	(:10Hz)				
2462	55.50	Н	1.1	27.60	2.3	*OB	85.37	_	
2483.5	7.65	Н	1.1	27.59	2.3	54.0	37.51	-16.49	
4924	34.11	Н	1.5	31.44	-28.6	54.0	36.97	-17.03	
7386	31.30	Н	1.2	36.59	-26.4	54.0	41.52	-12.48	
9648	31.66	Н	1.4	37.98	-23.1	54.0	46.55	-7.45	
2462	59.20	V	1.1	27.60	2.3	*OB	89.07	_	
2483.5	8.25	V	1.1	27.59	2.3	54.0	38.11	-15.89	
4924	33.84	V	1.2	31.44	-28.6	54.0	36.70	-17.30	
7386	31.24	V	1.2	36.59	-26.4	54.0	41.46	-12.54	
9648	31.17	V	1.4	37.98	-23.1	54.0	46.06	-7.94	
Remark	H: Horizontal, V: Vertical TEST MODE: 802.11b - CH11(2462MHz) *The TX signal isn't detected from 5th harmonics. *OB = Operating band *Checked in all 3 axis and the maximum measured data were reported. *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz)								

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9.4 Test Data for wireless LAN

Test Date: 16-Nov-07 Measurement Distance: 3 m

rest Date : 10 Nov 07									
Frequency	Reading (dB#V)	Position (V/H)	Height (m)	Correction	n Factor	Result Value			
(MHz)				Ant Factor (dB)	Cable (dB)	Limit (dB#V/m)	Result (dB#V/m)	Margin (dB)	
79.10	11.20	V	1.0	8.97	1.4	40.0	21.55	-18.45	
120.40	11.50	Н	2.2	12.05	1.7	43.5	25.25	-18.25	
140.00	11.10	Н	1.5	13.36	1.8	43.5	26.30	-17.20	
172.62	14.80	Н	1.3	13.10	2.0	43.5	29.92	-13.58	
195.42	7.50	V	1.0	10.71	2.2	43.5	20.41	-23.09	
220.00	9.20	V	1.0	10.76	2.4	43.5	22.36	-21.14	
245.20	14.40	V	1.0	11.82	2.6	46.0	28.80	-17.20	
294.92	13.10	Н	1.1	13.09	2.9	46.0	29.12	-16.88	
344.04	14.40	Н	1.0	14.15	3.3	46.0	31.81	-14.19	
398.21	15.20	Н	1.0	15.28	3.6	46.0	34.05	-11.95	
497.21	11.20	V	1.0	17.04	4.2	46.0	32.46	-13.54	
696.40	6.40	Н	1.0	20.10	5.3	46.0	31.75	-14.25	
796.20	4.50	Н	1.0	21.73	5.9	46.0	32.13	-13.87	
Remark	*CL = Cable Lo	I 3 axis and thoss-Amplifier obss(In case of	e maximum n Gain(In case below1000M	neasured data w of above1000Mh hz)	nz)	n analyzer is 12	OKHz for		

^{*}The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz.

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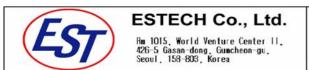




9.4-1 Test Data for wireless LAN

Test Date: 16-Nov-07 Measurement Distance: 3 m

Frequency	Reading	Position	Height (m)	Correction	n Factor	Result Value				
(MHz)	(dB₩)	(V/H)		Ant Factor (dB)	Cable (dB)	Limit (dB#V/m)	Result (dB#V/m)	Margin (dB)		
		Р	EAK(RBW	:1Mhz VB	W:1MHz)					
2390	27.44	Н	1.1	27.64	2.3	74.0	57.35	-16.65		
2412	68.00	Н	1.1	27.62	2.3	*OB	97.89	_		
4824	44.48	Н	1.2	31.30	-28.8	74.0	46.94	-27.06		
7236	43.67	Н	1.3	36.54	-26.7	74.0	53.56	-20.44		
9648	44.10	Н	1.2	37.98	-23.1	74.0	58.99	-15.01		
2390	27.39	V	1.3	27.64	2.3	74.0	57.30	-16.70		
2412	66.40	V	1.2	27.62	2.3	*OB	96.29	-		
4824	45.56	V	1.2	31.30	-28.8	74.0	48.02	-25.98		
7236	43.11	V	1.1	36.54	-26.7	74.0	53.00	-21.00		
9648	43.81	V	1.2	37.98	-23.1	74.0	58.70	-15.30		
			AV(RBW:	IMhz VBW	:10Hz)					
2390	11.65	Н	1.1	27.64	2.3	54.0	41.56	-12.44		
2412	57.00	Н	1.1	27.62	2.3	*OB	86.89	_		
4824	32.56	Н	1.2	31.30	-28.8	54.0	35.02	-18.98		
7236	31.17	Н	1.3	36.54	-26.7	54.0	41.06	-12.94		
9648	31.58	Н	1.2	37.98	-23.1	54.0	46.47	-7.53		
2390	11.90	V	1.3	27.64	2.3	54.0	41.81	-12.19		
2412	54.90	V	1.2	27.62	2.3	*OB	84.79	-		
4824	33.67	V	1.2	31.30	-28.8	54.0	36.13	-17.87		
7236	30.72	V	1.1	36.54	-26.7	54.0	40.61	-13.39		
9648	31.66	V	1.2	37.98	-23.1	54.0	46.55	-7.45		
Remark	H: Horizontal, V: Vertical TEST MODE: 802.11g - CH1(2412MHz) *The TX signal isn't detected from 5th harmonics. *OB = Operating band									





9.4-2 Test Data for wireless LAN

Test Date: 16-Nov-07 Measurement Distance: 3 m

Frequency	Reading	Position	Height	Correctio	n Factor	Result Value			
(MHz)	. ,		(m)	Ant Factor (dB)	Cable (dB)	Limit (dB#V/m)	Result (dB/W/m)	Margin (dB)	
	PEAK(RBW:1Mhz VBW:1MHz)								
2437	64.26	Н	1.1	27.61	2.3	*OB	94.14	_	
4874	44.48	Н	1.4	31.37	-28.7	74.0	47.16	-26.84	
7311	43.81	Н	1.3	36.56	-26.5	74.0	53.86	-20.14	
9648	44.10	Н	1.3	37.98	-23.1	74.0	58.99	-15.01	
2437	63.69	V	1.1	27.61	2.3	*OB	93.57	_	
4874	44.96	V	1.3	31.37	-28.7	74.0	47.64	-26.36	
7311	43.62	V	1.2	36.56	-26.5	74.0	53.67	-20.33	
9648	44.11	V	1.1	37.98	-23.1	74.0	59.00	-15.00	
			AV(RBW:	Mhz VBW	(:10Hz)				
2437	55.01	Н	1.1	27.61	2.3	*OB	84.89	_	
4874	32.16	Н	1.4	31.37	-28.7	54.0	34.84	-19.16	
7311	31.66	Н	1.3	36.56	-26.5	54.0	41.71	-12.29	
9648	31.62	Н	1.3	37.98	-23.1	54.0	46.51	-7.49	
2437	54.85	V	1.1	27.61	2.3	*OB	84.73	_	
4874	33.11	V	1.3	31.37	-28.7	54.0	35.79	-18.21	
7311	31.62	V	1.2	36.56	-26.5	54.0	41.67	-12.33	
9648	31.61	V	1.1	37.98	-23.1	54.0	46.50	-7.50	
Remark	H: Horizontal, V: Vertical TEST MODE: 802.11g - CH6(2437MHz) *The TX signal isn't detected from 5th harmonics. *OB = Operating band								

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9.4-3 Test Data for wireless LAN

Test Date: 16-Nov-07 Measurement Distance: 3 m

Frequency	Reading	Position	Height (m)	Correction	n Factor	Result Value			
(MHz)	(dB₩)	(V/H)		Ant Factor (dB)	Cable (dB)	Limit (dB#V/m)	Result (dB#V/m)	Margin (dB)	
		F	'EAK(RBW:	1Mhz VBW	/:1MHz)				
2462	63.00	Н	1.1	27.60	2.3	*OB	92.87	_	
2483.5	26.66	Н	1.2	27.59	2.3	74.0	56.52	-17.48	
4924	44.41	Н	1.4	31.44	-28.6	74.0	47.27	-26.73	
7386	44.65	Н	1.2	36.59	-26.4	74.0	54.87	-19.13	
9648	44.52	Н	1.3	37.98	-23.1	74.0	59.41	-14.59	
2462	65.10	V	1.2	27.60	2.3	*OB	94.97	_	
2483.5	31.78	V	1.2	27.59	2.3	74.0	61.64	-12.36	
4924	44.59	V	1.3	31.44	-28.6	74.0	47.45	-26.55	
7386	43.69	V	1.1	36.59	-26.4	74.0	53.91	-20.09	
9648	44.11	V	1.3	37.98	-23.1	74.0	59.00	-15.00	
			AV(RBW:11	Mhz VBW:	10Hz)				
2462	54.05	Н	1.1	27.60	2.3	*OB	83.92	_	
2483.5	10.83	Н	1.2	27.59	2.3	54.0	40.69	-13.31	
4924	32.69	Н	1.4	31.44	-28.6	54.0	35.55	-18.45	
7386	31.59	Н	1.2	36.59	-26.4	54.0	41.81	-12.19	
9648	32.69	Н	1.3	37.98	-23.1	54.0	47.58	-6.42	
2462	54.10	V	1.2	27.60	2.3	*OB	83.97	_	
2483.5	10.46	V	1.2	27.59	2.3	54.0	40.32	-13.68	
4924	32.58	\ \	1.3	31.44	-28.6	54.0	35.44	-18.56	
7386	31.61	\ \	1.1	36.59	-26.4	54.0	41.83	-12.17	
9648	31.44	V	1.3	37.98	-23.1	54.0	46.33	-7.67	
Remark	*Checked in all *CL = Cable Lo	isn't detected f	rom 5th harmor maximum meas ain(In case of a	B02.11g - CH11 nics. *OB = Ope sured data were bove1000Mhz)	rating band				

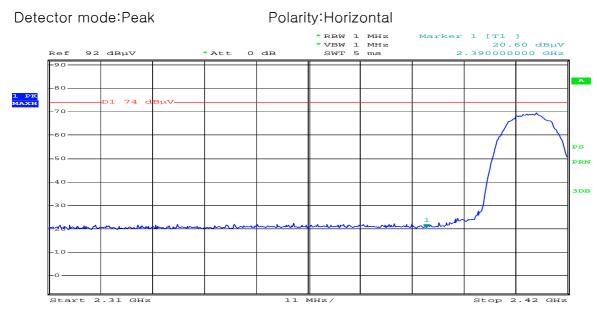
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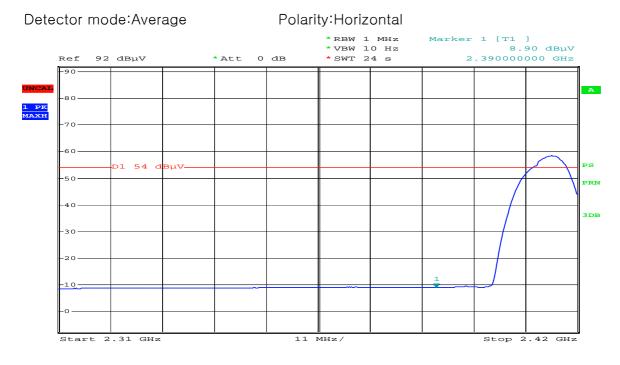


9.5-1 Restricted Band Edges for 802.11b

Band Edges(CH Low)



Comment: CHD FiVE 801.11/B CH1 PK HOR



Comment: CHD FiVE 801.11/B CH1 AV HOR



Rm 1015, World Venture Center II, 426–5 Gasan-dong, Guncheon-gu, Seoul, 158–803, Korea

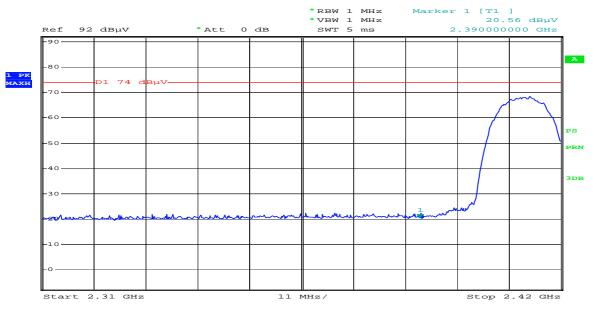


Electromagnetic Interference Test Report

Band Edges(CH Low)

Detector mode:Peak

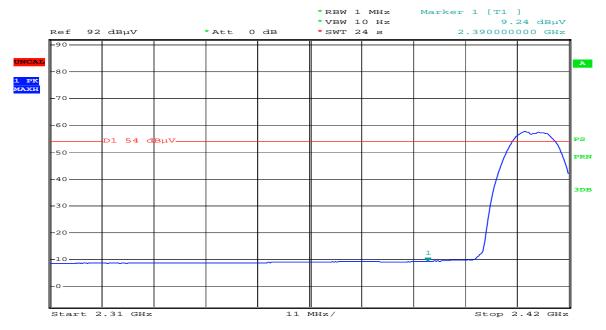
Polarity: Vertical



Comment: CHD FiVE 801.11/B CH1 PK VER

Detector mode: Average

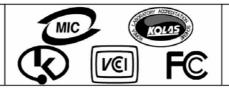
Polarity: Vertical



Comment: CHD FiVE 801.11/B CH1 AV VER



Rm 1015, World Venture Center II, 426-5 Gasan-dong, Guncheon-gu, Seoul, 158-803, Korea

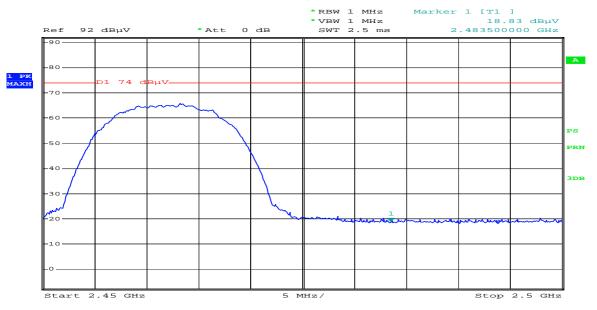


Electromagnetic Interference Test Report

Band Edges(CH High)



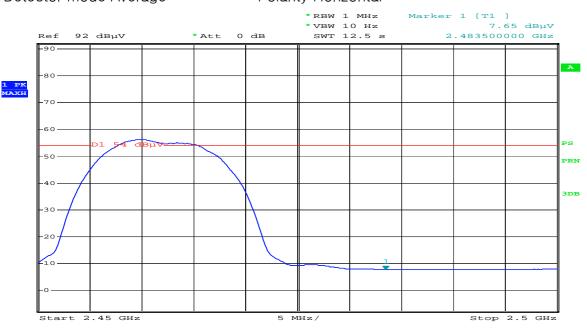
Polarity: Horizontal



Comment: CHD FiVE 801.11/B CH11 PK HOR

Detector mode: Average

Polarity:Horizontal



Comment: CHD FiVE 801.11/B CH11 AV HOR



Rm 1015, World Venture Center II. 426–5 Gasan-dong, Guncheon-gu, Seoul, 158–803, Korea

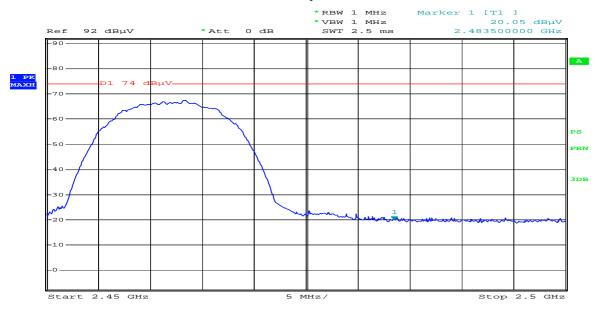


Electromagnetic Interference Test Report

Band Edges(CH High)

Detector mode:Peak

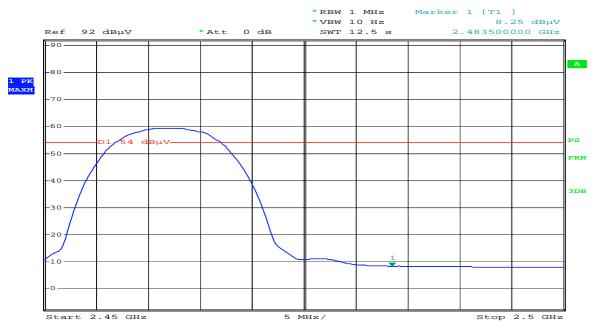
Polarity: Vertical



Comment: CHD FiVE 801.11/B CH11 PK VER

Detector mode: Average

Polarity:Vertical



Comment: CHD FiVE 801.11/B CH11 AV VER

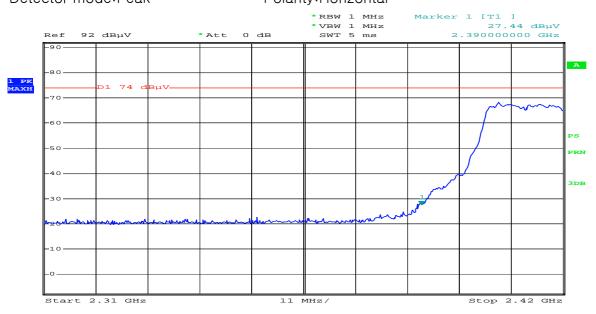




14.6-2 Restricted Band Edges for 802.11g

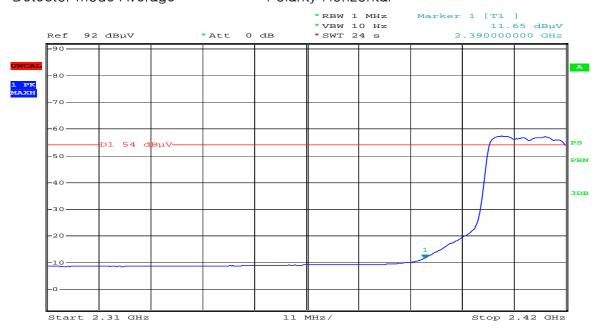
Band Edges(CH Low)





Comment: CHD FiVE 801.11/G CH1 PK HOR

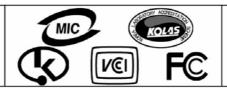
Detector mode: Average Polarity: Horizontal



Comment: CHD FiVE 801.11/G CH1 AV HOR



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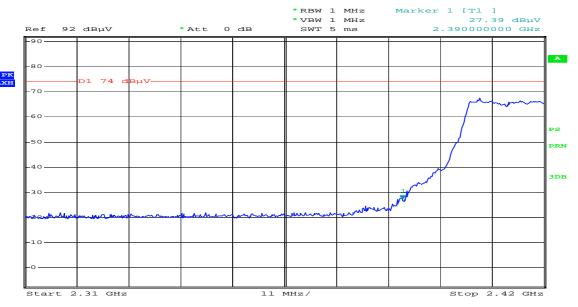


Electromagnetic Interference Test Report

Band Edges(CH Low)

Detector mode:Peak

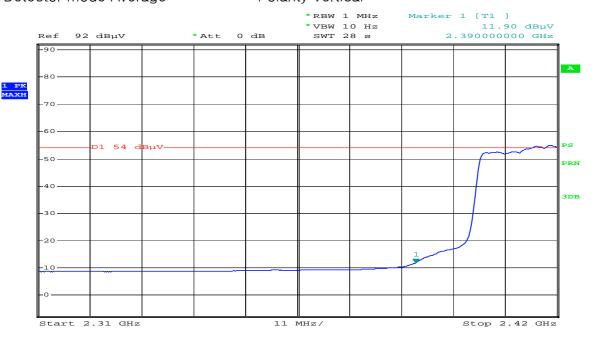
Polarity: Vertical



Comment: CHD FiVE 801.11/G CH1 PK VER

Detector mode: Average

Polarity:Vertical



Comment: CHD FiVE 801.11/G CH1 AV VER



Am 1015, World Venture Center II. 426-5 Gasan-dong, Guncheon-gu, Seoul, 158-803, Korea

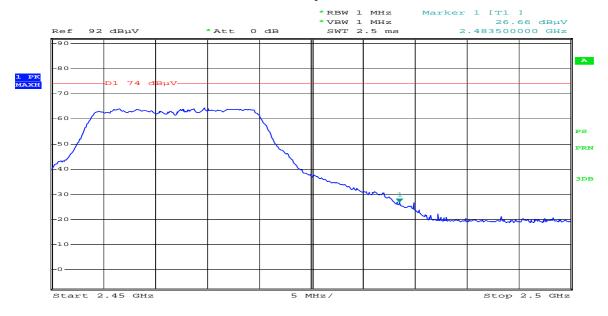


Electromagnetic Interference Test Report

Band Edges(CH High)

Detector mode:Peak

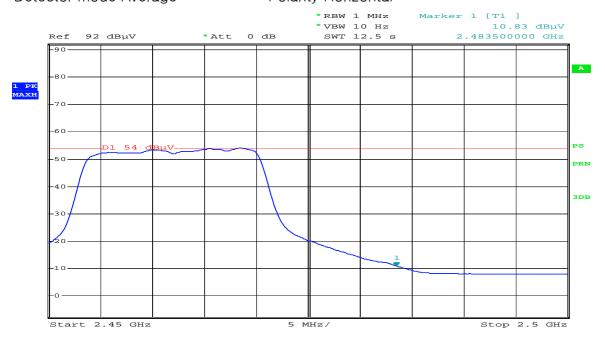
Polarity: Horizontal



Comment: CHD FiVE 801.11/G CH11 PK HOR

Detector mode: Average

Polarity:Horizontal



Comment: CHD FiVE 801.11/G CH11 AV HOR



Rm 1015, World Venture Center II, 426–5 Gasan-dong, Guncheon-gu, Seoul, 158–803, Korea

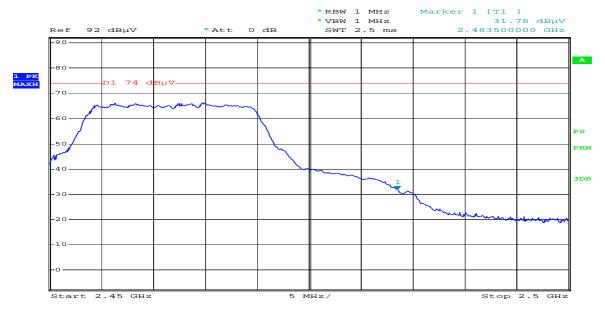


Electromagnetic Interference Test Report

Band Edges(CH High)

Detector mode:Peak

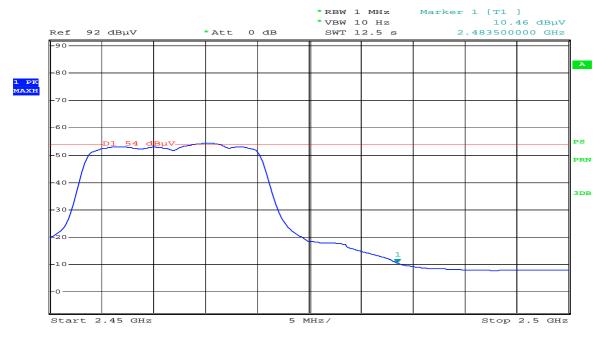
Polarity: Vertical



Comment: CHD FiVE 801.11/G CH11 PK VER

Detector mode: Average

Polarity:Vertical



Comment: CHD FiVE 801.11/G CH11 AV VER





10. Measurement of conducted disturbance

The continuous disturbance voltage of AC Mains in the frequency from 0.15 to 30 MHz was measured in accordance to FCC Part 15 (2006) & ANSI C 63.4 (2003) The test setup was made according to FCC Part 15 (2006) & ANSI C 63.4 (2003) in a shielded. The EUT was placed on a non-conductive table at least 80 above the ground plan. A grounded vertical reference plane was positioned in a distance of 40cm from the EUT. The distance from the EUT to other metal surfaces was at least 0.8m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0m.. The test receiver with Quasi Peak detector complies with CISPR 16.

10.1 Measurement equipments

Equipment Name	Туре	Manufacturer	Serial No.	Next Calibration date
LISN	ESG3-Z5	Schwarzbeck	838979/010	28-Feb-08
TEST Receive	ESPI7	Rohde & Schwarz	100185	27-Aug-08
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	_

10.2 Environmental Condition

Test Place : Shield Room

Temperature (°C) : 22 °C Humidity (%) : 46 %

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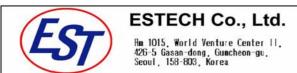


10.3 Test Data for wireless LAN

Frequency	Correction Factor		Line	Qu	asi-peak Va	llue	Average Value		
(MHz)	Lisn (dB)	Cable (dB)	(H/N)	Limit (dB#V)	Reading (dB#V)	Result (dB#V)	Limit (dB#V)	Reading (dB#V)	Result (dB)
0.17	0.16	0.0	Н	64.96	43.29	43.50	54.96	29.86	30.07
0.21	0.15	0.1	Ν	63.05	39.41	39.62	53.05	24.94	25.15
0.22	0.15	0.1	Н	62.82	39.27	39.48	52.82	25.91	26.12
0.25	0.14	0.1	Н	61.63	37.76	37.97	51.63	24.71	24.92
0.26	0.13	0.1	N	61.37	38.79	39.00	51.37	26.04	26.25
0.30	0.12	0.1	Н	60.27	35.61	35.82	50.27	27.48	27.69
0.51	0.15	0.1	Н	56.00	39.01	39.25	46.00	30.80	31.04
0.53	0.15	0.1	N	56.00	30.84	31.08	46.00	26.01	26.25
0.57	0.15	0.1	N	56.00	26.87	27.11	46.00	18.59	18.83
0.60	0.15	0.1	Н	56.00	28.15	28.40	46.00	21.88	22.13
0.70	0.16	0.1	Н	56.00	28.85	29.10	46.00	22.95	23.20
1.16	0.26	0.2	Н	56.00	27.09	27.53	46.00	20.50	20.94
6.16	0.43	0.6	Н	60.00	24.47	25.45	50.00	15.72	16.70
7.65	0.50	0.6	Ν	60.00	24.72	25.83	50.00	17.95	19.06
7.89	0.52	0.6	Н	60.00	29.24	30.37	50.00	20.45	21.58
8.13	0.53	0.6	Н	60.00	31.20	32.36	50.00	21.82	22.98
8.64	0.56	0.6	N	60.00	24.40	25.61	50.00	19.16	20.37
9.39	0.61	0.7	Н	60.00	28.55	29.84	50.00	20.10	21.39

Remark H: Hot Line, N: Neutral Line TEST MODE: 802.11b - CH 6(2437MHz)

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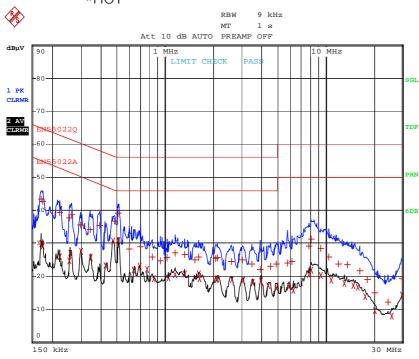
10.4 Test Data for wireless LAN

Frequency	Correction Factor		Line	Qu	asi-peak Va	lue	Average Value		
(MHz)	Lisn (dB)	Cable (dB)	(H/N)	Limit (dB#V)	Reading (dB#V)	Result (dB#V)	Limit (dB#V)	Reading (dB#V)	Result (dB)
0.17	0.16	0.0	N	64.91	42.47	42.68	54.91	28.89	29.10
0.22	0.15	0.1	Ν	62.67	38.47	38.68	52.67	23.42	23.63
0.23	0.15	0.1	Н	62.63	36.81	37.02	52.63	24.30	24.51
0.26	0.13	0.1	Ν	61.46	38.35	38.56	51.46	25.94	26.15
0.30	0.12	0.1	N	60.27	34.53	34.74	50.27	24.71	24.92
0.47	0.15	0.1	Ν	56.51	33.01	33.27	46.51	25.99	26.25
0.51	0.15	0.1	Н	56.00	38.49	38.73	46.00	30.61	30.85
0.52	0.15	0.1	Ν	56.00	31.34	31.58	46.00	26.01	26.25
0.66	0.16	0.1	Н	56.00	30.30	30.55	46.00	22.69	22.94
0.78	0.16	0.1	Ν	56.00	26.78	27.04	46.00	20.34	20.60
0.82	0.17	0.1	Н	56.00	26.13	26.44	46.00	20.50	20.81
1.15	0.26	0.2	Н	56.00	27.50	27.94	46.00	21.37	21.81
6.48	0.44	0.6	Н	60.00	25.99	27.00	50.00	15.30	16.31
7.84	0.51	0.6	Н	60.00	29.86	30.99	50.00	20.10	21.23
8.37	0.55	0.6	Н	60.00	30.07	31.25	50.00	22.28	23.46
8.70	0.57	0.6	N	60.00	25.26	26.48	50.00	19.18	20.40
9.21	0.60	0.7	Н	60.00	28.49	29.76	50.00	20.92	22.19
10.61	0.67	0.8	Н	60.00	26.20	27.64	50.00	19.27	20.71
Remark	H: Hot Line, N: Neutral Line TEST MODE: 802.11g - CH 6 (2437MHz)								

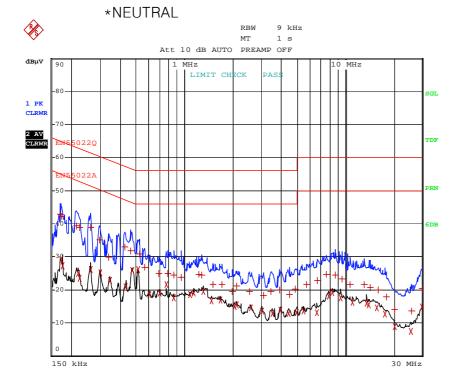
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Appendix 1. Spectral diagram for Wireless LAN

802.11b - CH 6 *HOT



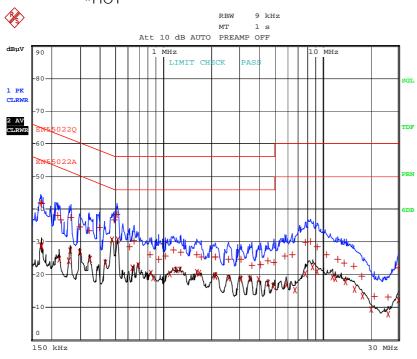
Comment: CHD FiVE 801.11/B HOT Date: 15.NOV.2007 10:28:42



Comment: CHD FiVE 801.11/B NEUTRAL Date: 15.NOV.2007 10:33:25

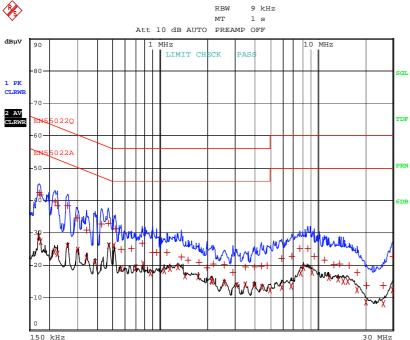
Appendix 1. Spectral diagram for Wireless LAN

802.11g - CH 6 *HOT



Comment: CHD FiVE 801.11/G HOT Date: 15.NOV.2007 10:43:34





Comment: CHD FiVE 801.11/G NEUTRAL Date: 15.NOV.2007 10:38:42

Appendix 2. Antenna Requirement

1. Antenna Requirement

1.1 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 15.24

1.2 Antenna Connected Construction

The antenna types used in this product are Intergrated Sandwich antenna. The maximum Gain of this antenna is 1.34dBi.