Test Report for FCC

FCC ID : U7XMC-7500S

Report Number		ESTF150805-007		
Applicant	Company name	Mobile Compia Co., Ltd.		
	Address	DongWon B/D, 725-30, Yeoksam-dong, Gangnam-gu, Seoul, 135-080, Korea		
	Telephone	82-2-574-0037(140)		
Product	Product name	Portable Data Collection Terminal		
	Model No.	MC-7500S	Manufacturer	Mobile Compia Co., Ltd.
	Serial No.	NONE	Country of origin	KOREA
Test date	2008-5-18 ~ 2008-5-19		Date of issue	23-May-08
Testing location	ESTECH. Co., Ltd. 97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea			
Standard	FCC PART 15 2007 , ANSI C 63.4 2003			
Measurement facility registration number	94696			
Tested by	Engineer M. J. Song (Signature)			
Reviewed by	Engineering Manager J.M.Yang (Signature)			
Abbreviation	OK, Pass = Passed, Fail = Failed, N/A = not applicable			

* Note

- 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

Contents

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

2. Description of EUT

2.1 Summary of Equipment Under Test

Product Name	: Portable Data Collection Terminal
Model Number	: MC-7500S
Modulation Type	: DSSS, OFDM
Transfer Rate	: up to 54Mbps
Number of Channel	: 802.11b and 802.11g--> CH1 ~ CH11
Channel Spacing	: 802.11b and 802.11g: 5MHz
Output Power	: 802.11b: 11.00dBm, 802.11g: 11.00dBm
Serial Number	: NONE
Manufacturer	: Mobile Compia Co., Ltd.
Country of origin	: KOREA
Rating	: INPUT : AC 100V~250V 50 / 60Hz, 0.5A OUTPUT : + 5V---3.0A
Receipt Date	: 2008-02-29
Internal clock(s)	: 13MHz,32.768KHz, 40MHz,31.86MHz,14.456MHz(2ea),12.90MHz

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.

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	
15.209	Intentional Radiated Emission	Pass	Meet the requirement	
15.247(a)(2)	Spectrum Bandwidth of a DSSS System	Pass	Meet the requirement	Min. 500kHz
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

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 : Low(2412MHz), Middle(2437Mhz),High(2462MHz)

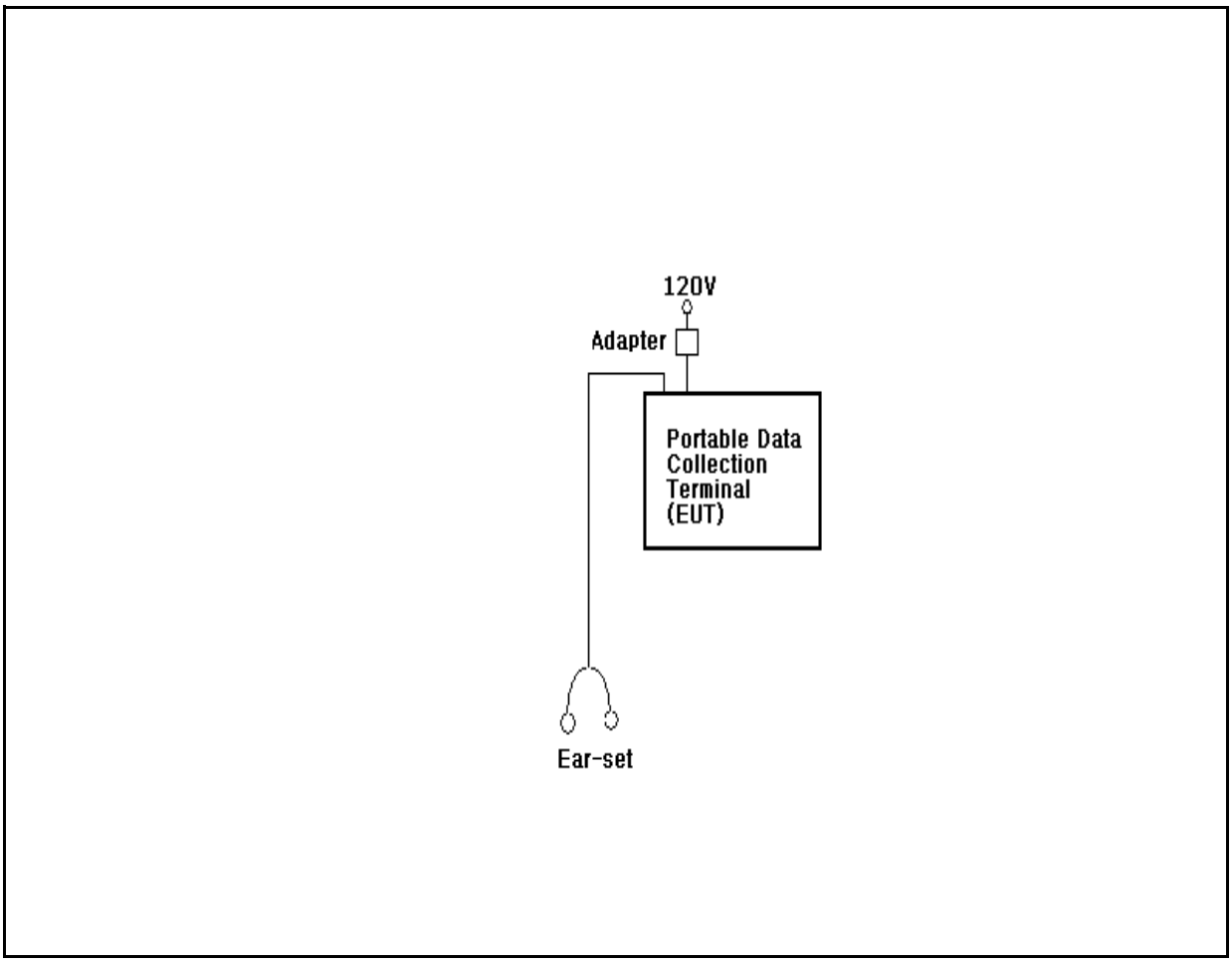
c. Test Mode : Continuous Output, DSSS and OFDM

d. Test rate : the worst case of rate 802.11b(11Mbps), 802.11g(54Mbps)

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
* After setting the EUT by the provided Test Program, tested under transmission/receiving condition continuously at specific channel frequency.
* The supporting equipments used in the part15B testing were approved under Doc.

4.3 Configuration and Peripherals



4.4 EUT and Support equipment

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
Portable Data Collection Terminal	MC-7500S	NONE	Mobile Compia Co., Ltd.	EUT
Adapter	PW118KA0500N66	07354A	AULT KOREA CORP.	-
Ear-set	NONE	NONE	Mobile Compia Co., Ltd.	

4.5 Cable Connecting

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
Portable Data Collection Terminal	Ear-set	Ear-set	-	2	N	
Portable Data Collection Terminal	DC power	Adapter	-	2	N	

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
Spectrum Analyzer	E4407B	US42041281
RF Cable	Length: 49cm	-
-Spectrum Analyzer <=> EUT	Loss: 1.05dB	-

5.3 Measurement results

EUT	Home Monitoring System	MODEL	MC-7500S
MODE	CCK	ENVIRONMENTAL CONDITION	24°C, 44%RH
INPUT POWER	120Vac, 60Hz		

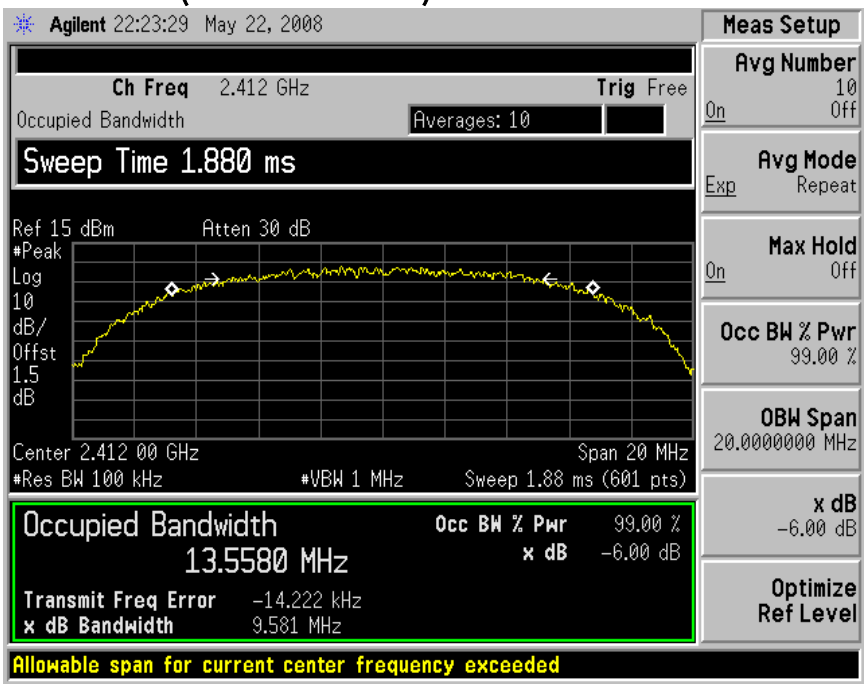
CHANNEL	Channel Frequency (MHz)	Bandwidth at 6dB below(MHz)	Minimum Limit (MHz)	PASS/FAIL
1	2412	9.58	0.5	PASS
6	2437	9.09	0.5	PASS
11	2462	9.49	0.5	PASS

EUT	Home Monitoring System	MODEL	MC-7500S
MODE	OFDM	ENVIRONMENTAL CONDITION	24°C, 43%RH
INPUT POWER	120Vac, 60Hz		

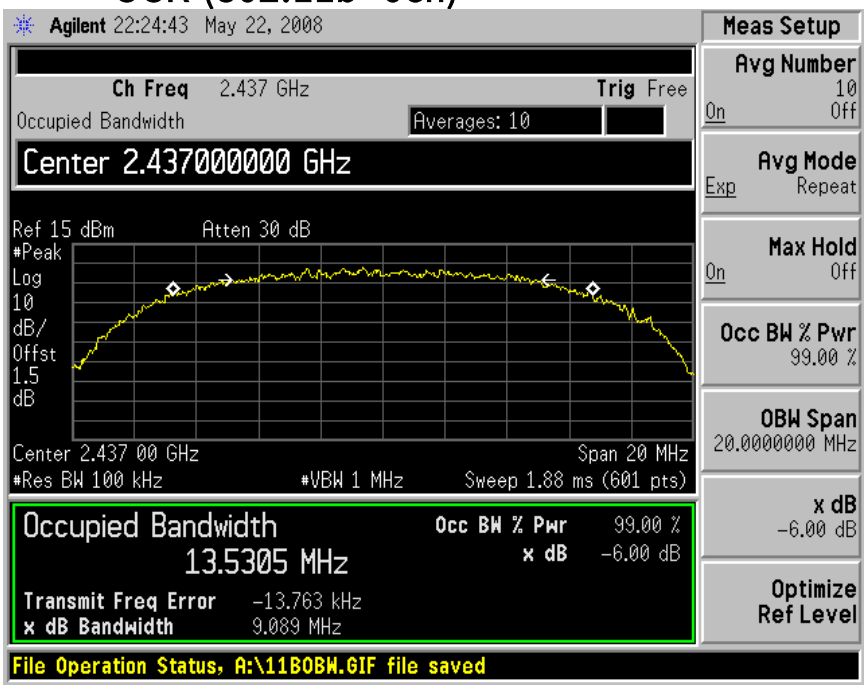
CHANNEL	Channel Frequency (MHz)	Bandwidth at 6dB below(MHz)	Minimum Limit (MHz)	PASS/FAIL
1	2412	16.52	0.5	PASS
6	2437	16.50	0.5	PASS
11	2462	16.50	0.5	PASS

5.4 Trace data

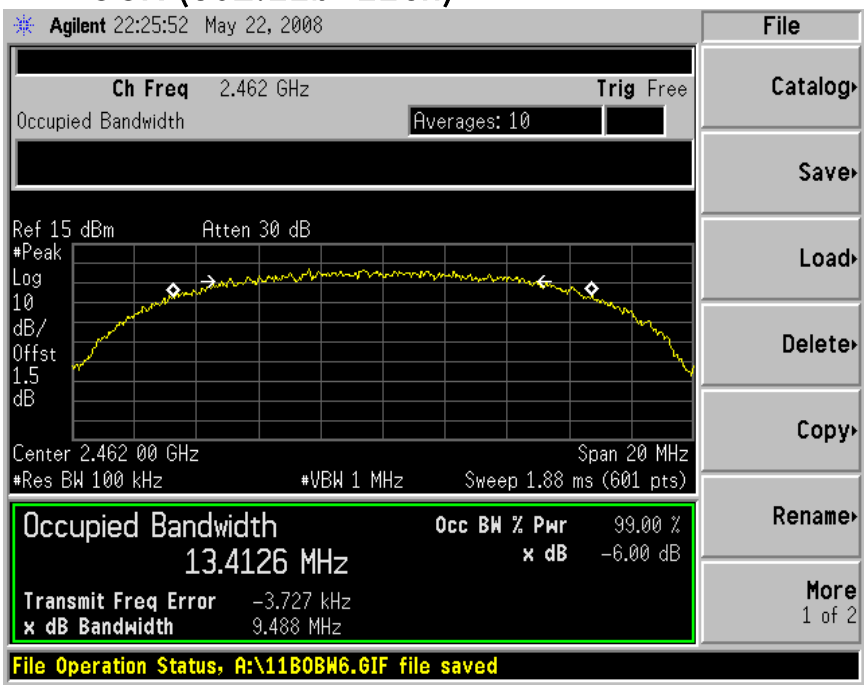
CCK (802.11b-1ch)



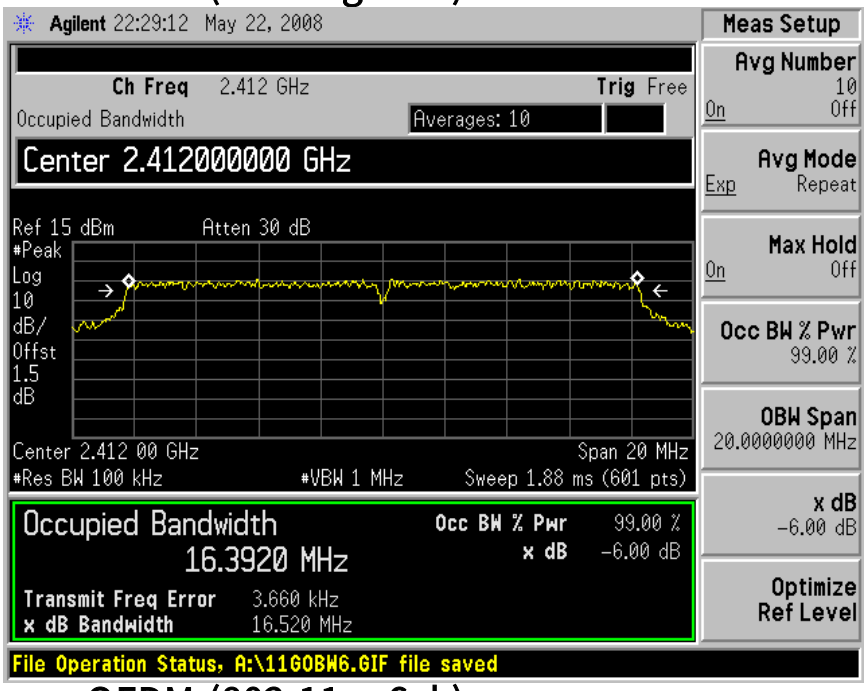
CCK (802.11b-6ch)



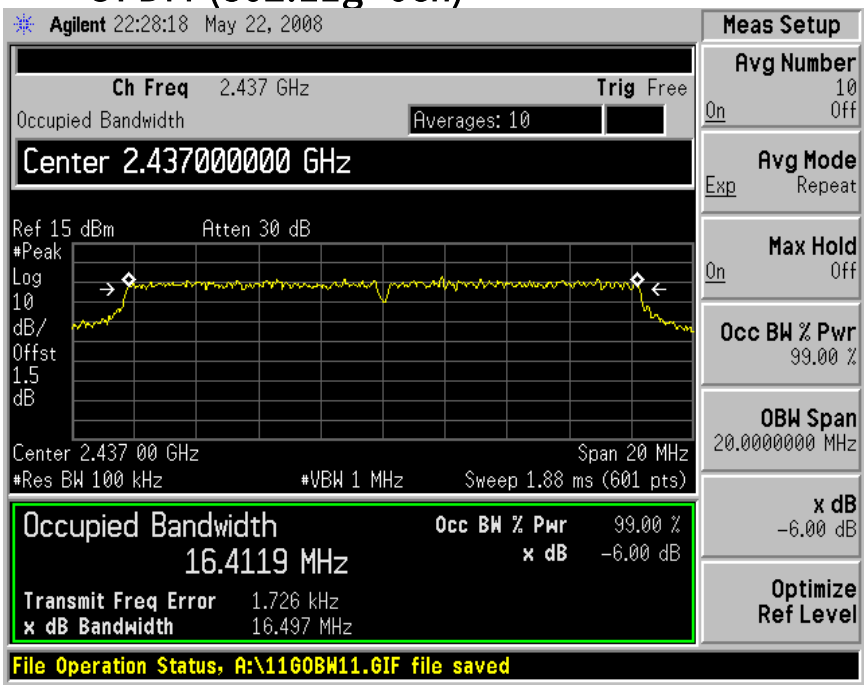
CCK (802.11b-11ch)



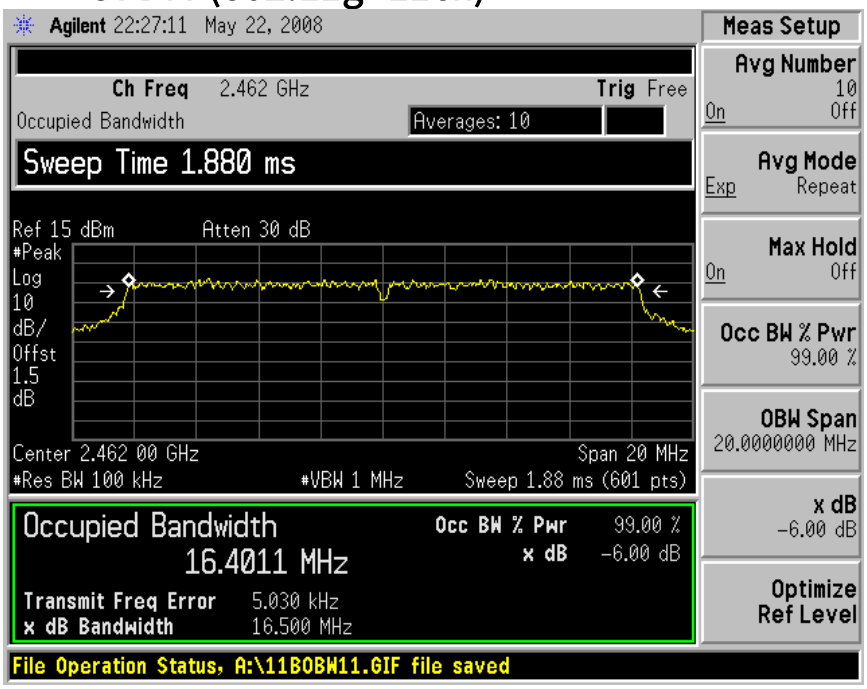
OFDM (802.11g-1ch)



OFDM (802.11g-6ch)



OFDM (802.11g-11ch)



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
Power Meter	HP E4418A	GB38272717
Power Sensor	HP 8481A	3318A96478
RF Cable:	Length: 49cm	-
-Spectrum Analyzer <=> EUT	Loss: 1.5dB	-

6.2 Measurement results

EUT	Home Monitoring System	MODEL	MC-7500S
MODE	CCK	ENVIRONMENTAL CONDITION	24°C, 43%RH
INPUT POWER	120Vac, 60Hz		

CHANNEL	Channel Frequency (MHz)	Peak Power Output(dBm)		Limit[1W] (dBm)	PASS/FAIL
		(dBm)	(W)		
1	2412	11.2	0.013	30.0	PASS
6	2437	10.6	0.011	30.0	PASS
11	2462	11.2	0.013	30.0	PASS

EUT	Home Monitoring System	MODEL	MC-7500S
MODE	OFDM	ENVIRONMENTAL CONDITION	24°C, 43%RH
INPUT POWER	120Vac, 60Hz		

CHANNEL	Channel Frequency (MHz)	Peak Power Output(dBm)		Limit[1W] (dBm)	PASS/FAIL
		(dBm)	(W)		
1	2412	5.9	0.004	30.0	PASS
6	2437	5.1	0.003	30.0	PASS
11	2462	4.3	0.003	30.0	PASS

Power table

(dBm)

	CH1	CH6	CH11
1M	9.05	9.01	9.10
2M	9.45	9.22	9.62
5.5M	10.58	10.11	10.25
11M	11.20	10.60	11.20
22M	11.02	10.51	11.12
6M	9.65	9.51	9.77

Power table

(dBm)

	CH1	CH6	CH11
9M	5.07	5.01	5.47
12M	4.95	4.87	4.62
18M	5.23	5.10	4.21
24M	5.19	5.08	4.15
36M	5.39	5.09	4.10
48M	5.74	4.98	4.01
54M	5.90	5.10	4.30

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 dencity 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 to be longer than span/3kHz.)

The peak power density Test Instruments

Description	Model	Serial Number
Spectrum Analyzer	E4407B	US42041281
RF Cable	Length: 49cm	-
-Spectrum Analyzer <=> EUT	Loss: 1.5dB	-

7.3 Measurement results

EUT	Home Monitoring System	MODEL	MC-7500S
MODE	CCK	ENVIRONMENTAL CONDITION	23°C, 43%RH
INPUT POWER	120Vac, 60Hz		

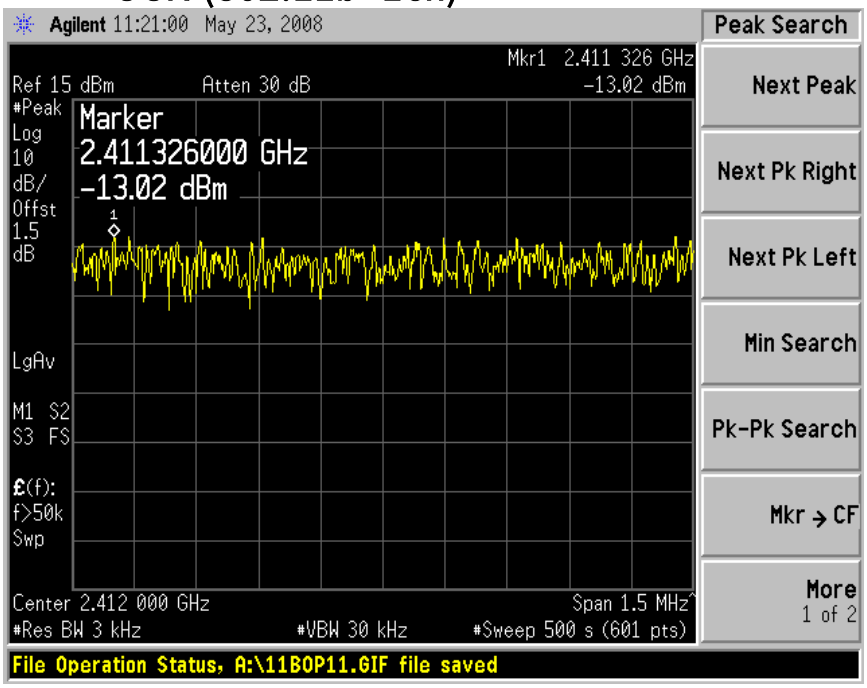
CHANNEL	Channel Frequency (MHz)	RF Power Spectral Density (dBm)	Maximum Limit (dBm)	PASS/FAIL
1	2412	-13.02	8.0	PASS
6	2437	-13.48	8.0	PASS
11	2462	-12.02	8.0	PASS

EUT	Home Monitoring System	MODEL	MC-7500S
MODE	OFDM	ENVIRONMENTAL CONDITION	23°C, 43%RH
INPUT POWER	120Vac, 60Hz		

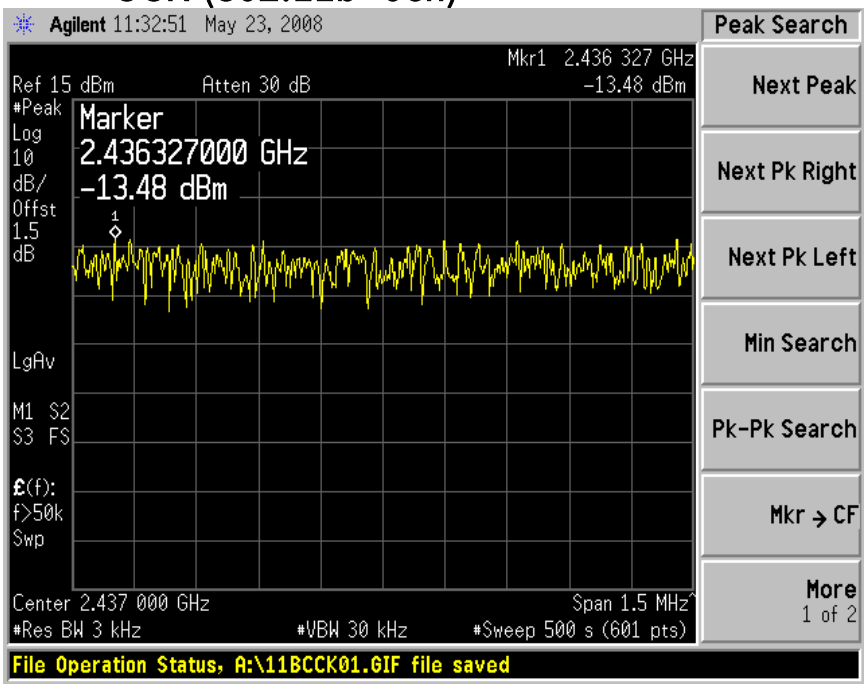
CHANNEL	Channel Frequency (MHz)	RF Power Spectral Density (dBm)	Maximum Limit (dBm)	PASS/FAIL
1	2412	-17.58	8.0	PASS
6	2437	-17.36	8.0	PASS
11	2462	-17.64	8.0	PASS

7.4 Trace data

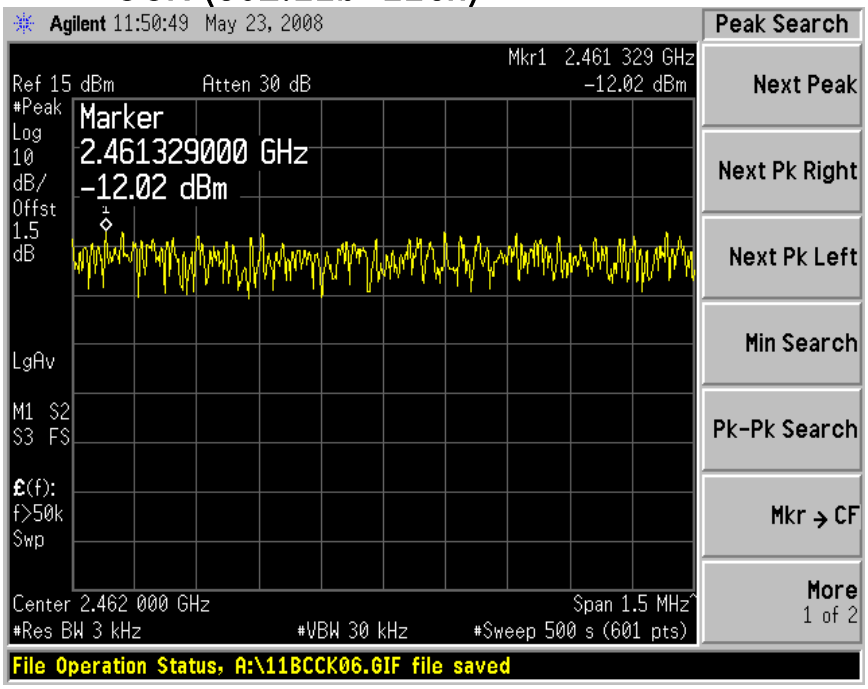
CCK (802.11b-1ch)



CCK (802.11b-6ch)

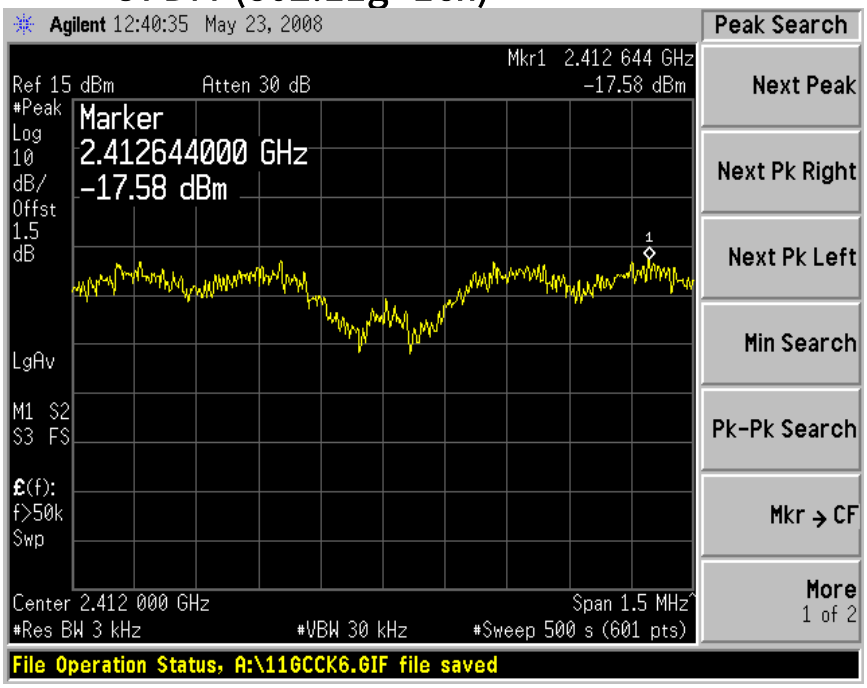


CCK (802.11b-11ch)

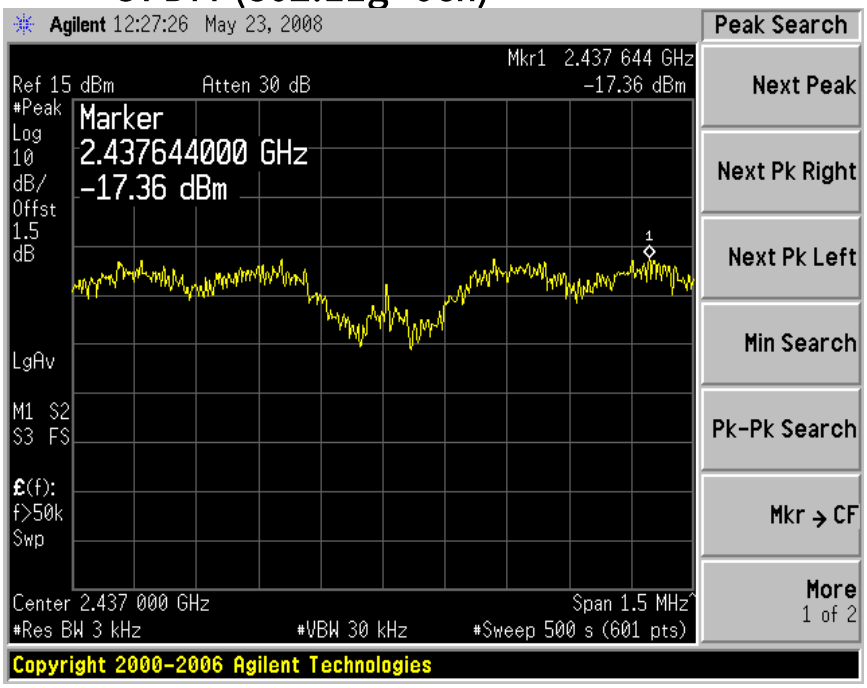


7.4-1 Trace data

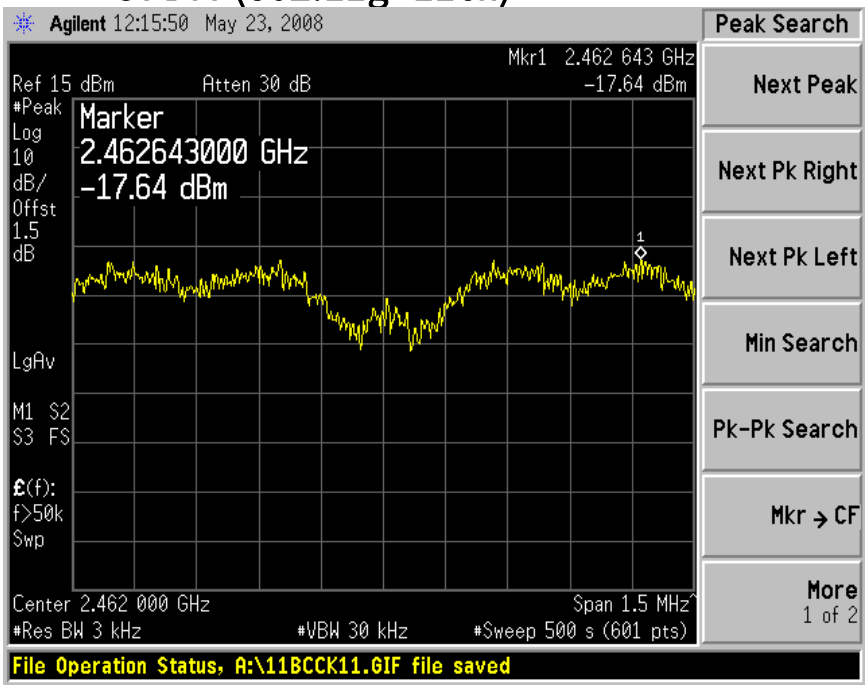
OFDM (802.11g-1ch)



OFDM (802.11g-6ch)



OFDM (802.11g-11ch)



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/g)

. VBW= 100KHz(11b/g)

. Span= suitable frequency span

. Sweep= suitable duration based on the EUT specification.

Band Edge&Out of Emission Test Instruments

Description	Model	Serial Number
Spectrum Analyzer	E4407B	US42041281
RF Cable	Length: 49cm	-
-Spectrum Analyzer <=> EUT	Loss: 1.5dB	-

8.3 Measurement results of band-edge & out of emission

EUT	Home Monitoring System	MODEL	MC-7500S
MODE	CCK	ENVIRONMENTAL CONDITION	23°C, 43%RH
INPUT POWER	120Vac, 60Hz		

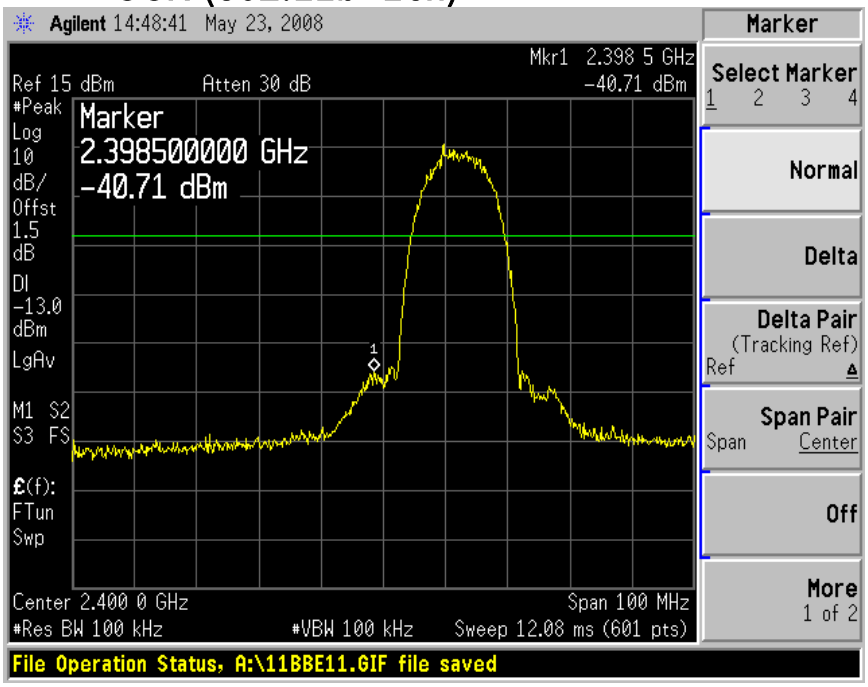
CHANNEL	Channel Frequency (MHz)	Measurement Frequency (MHz)	Peak Level at 20dB below(dBm)	Limit (MHz)
1	2412	2398.5	-40.71	Below 20dB from peak power level to band edge
11	2462	2483.7	-51.96	Below 20dB from peak power level to band edge

EUT	Home Monitoring System	MODEL	MC-7500S
MODE	OFDM	ENVIRONMENTAL CONDITION	23°C, 43%RH
INPUT POWER	120Vac, 60Hz		

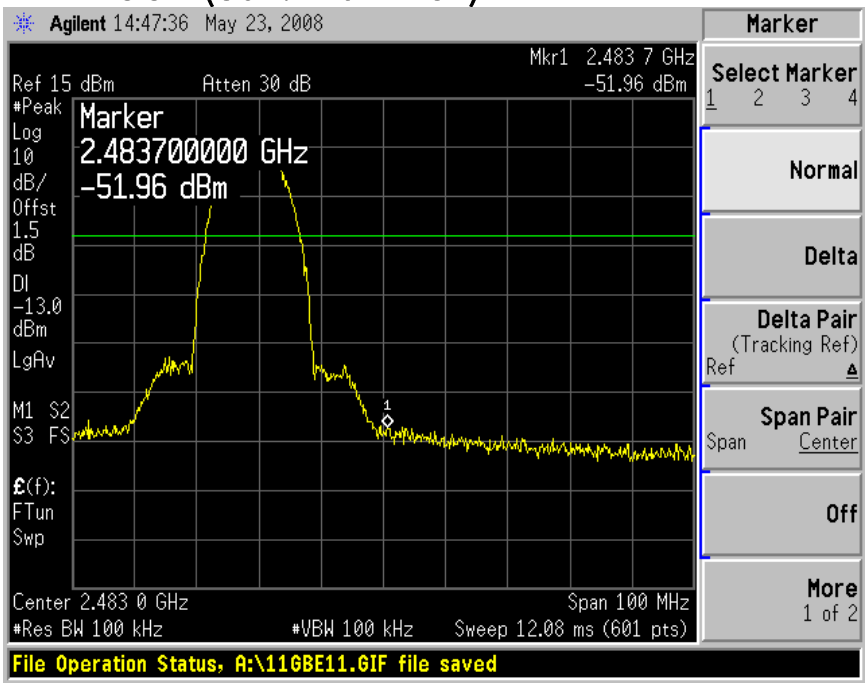
CHANNEL	Channel Frequency (MHz)	Measurement Frequency (MHz)	Peak Level at 20dB below(dBm)	Limit (MHz)
1	2412	2399.8	-37.60	Below 20dB from peak power level to band edge
11	2462	2483.0	-50.68	Below 20dB from peak power level to band edge

8.4 Trace data of band-edge & Out of Emission

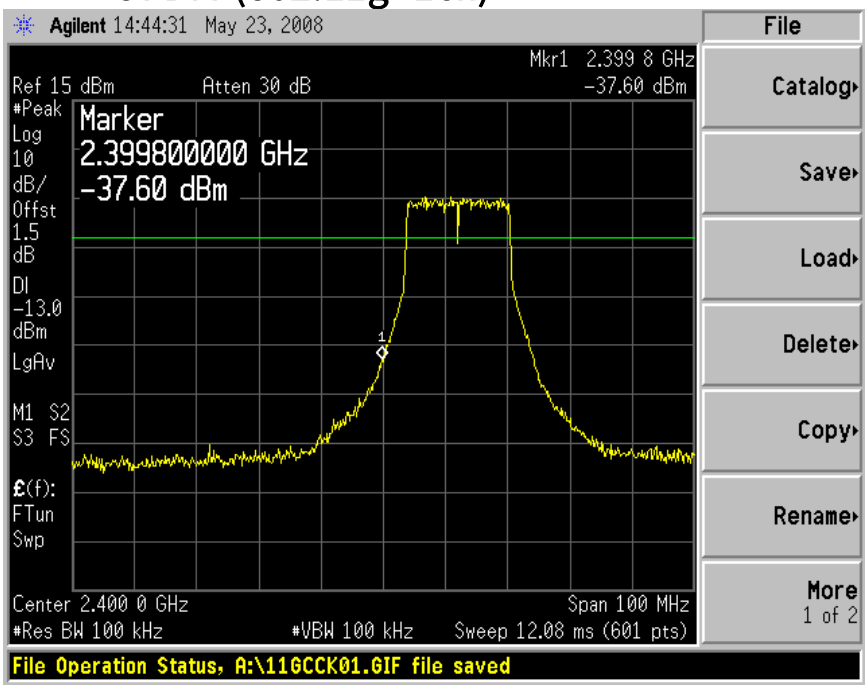
CCK (802.11b-1ch)



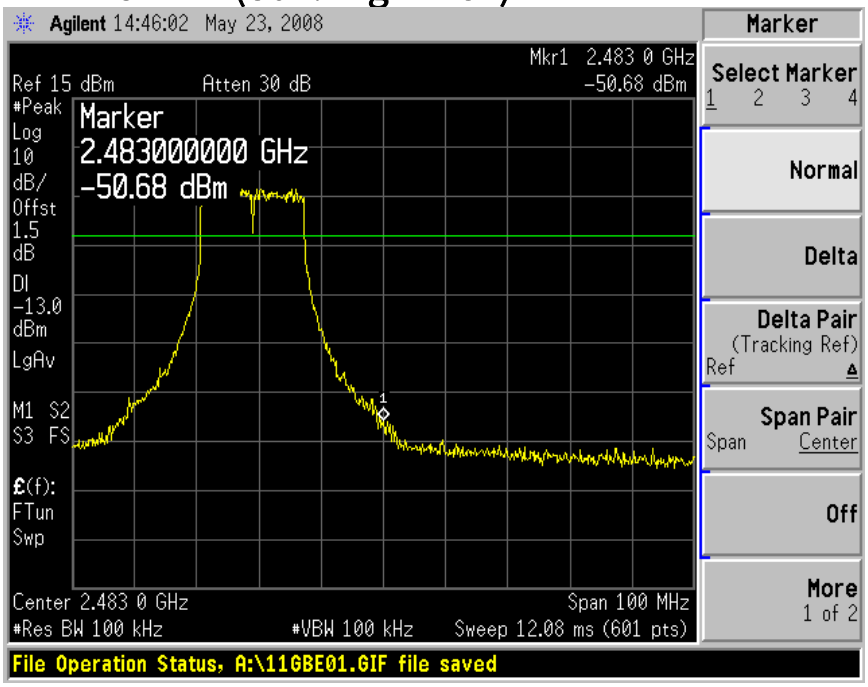
CCK (802.11b-11ch)



OFDM (802.11g-1ch)



OFDM (802.11g-11ch)



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 set-up.

9.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
TEST Receiver	ESVS10	Rohde & Schwarz	838562/002	2009. 01. 23
LogBicon Antenna	VULB 9160	SCHWARZBECK	3107	2008. 05. 22
Amplifier	8447F	HP	2805A02972	2008. 06. 26
Spectrum Analyzer	R3273	ADVANTEST	121200664	2008. 11. 27
Horn Antenna	BBHA 9120 D	S/B	469	2008. 07. 24
PREAMPLIFIER	8449B	HP	3008A00581	2008. 05. 06
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) : 18 °C
Humidity (%) : 64 %

9.3 Test Data for Transmitter

Test Date : 18-May-08 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
111.76	11.30	V	1.0	11.24	1.6	43.5	24.18	-19.32
225.67	10.80	H	1.5	11.03	2.4	46.0	24.27	-21.73
252.15	12.80	H	1.3	11.97	2.6	46.0	27.40	-18.60
336.46	9.90	H	1.2	14.01	3.2	46.0	27.12	-18.88
385.43	10.90	H	1.0	15.00	3.5	46.0	29.41	-16.59
434.35	7.20	H	1.0	16.07	3.8	46.0	27.09	-18.91

Remark	H : Horizontal, V : Vertical Test Mode : 802.11g - CH6(2437MHz) *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.

Test Date : 18-May-08 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW:1MHz VBW:1MHz)								
2412	69.67	H	1.4	27.62	4.5	OB	101.79	-
2412	63.00	V	1.2	27.62	4.5	OB	95.12	-
4824	43.52	H	1.4	31.30	-29.0	74.0	45.85	-28.15
4824	44.04	V	1.2	31.30	-29.0	74.0	46.37	-27.63
AV(RBW:1MHz VBW:10Hz)								
2412	59.85	H	1.4	27.62	4.5	OB	91.97	-
2412	52.18	V	1.2	27.62	4.5	OB	84.30	-
4824	31.87	H	1.4	31.30	-29.0	54.0	34.20	-19.80
4824	31.50	V	1.2	31.30	-29.0	54.0	33.83	-20.17
Remark	H : Horizontal, V : Vertical TEST MODE : 802.11g - CH1(2412MHz) *Cable Loss=Cable Loss+Amp *Data rate of 54Mbps. *OB is 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) *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz.								

Test Date : 18-May-08 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW:1MHz VBW:1MHz)								
2437	69.00	H	1.5	27.61	4.5	OB	101.11	-
2437	61.00	V	1.2	27.61	4.5	OB	93.11	-
4874	43.70	H	1.4	31.37	-28.8	74.0	46.25	-27.75
4874	43.78	V	1.2	31.37	-28.8	74.0	46.33	-27.67
AV(RBW:1MHz VBW:10Hz)								
2437	60.45	H	1.5	27.61	4.5	OB	92.56	-
2437	51.99	V	1.2	27.61	4.5	OB	84.10	-
4874	31.34	H	1.4	31.37	-28.8	54.0	33.89	-20.11
4874	31.42	V	1.2	31.37	-28.8	54.0	33.97	-20.03
Remark	H : Horizontal, V : Vertical TEST MODE : 802.11g- CH6(2437MHz) *Cable Loss=Cable Loss+Amp *Data rate of 54Mbps. *OB is 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) *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz.								

Test Date : 18-May-08 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW:1MHz VBW:1MHz)								
2462	68.46	H	1.3	27.60	4.5	OB	135.86	-
2462	63.33	V	1.4	27.60	4.5	OB	130.73	-
4924	43.29	H	1.2	31.44	-28.7	74.0	46.03	-27.97
4924	42.68	V	1.4	31.44	-28.7	74.0	45.42	-28.58
AV(RBW:1MHz VBW:10Hz)								
2462	59.07	H	1.3	27.60	4.5	OB	126.47	-
2462	53.96	V	1.4	27.60	4.5	OB	121.36	-
4924	31.12	H	1.2	31.44	-28.7	54.0	33.86	-20.14
4924	31.12	V	1.4	31.44	-28.7	54.0	33.86	-20.14

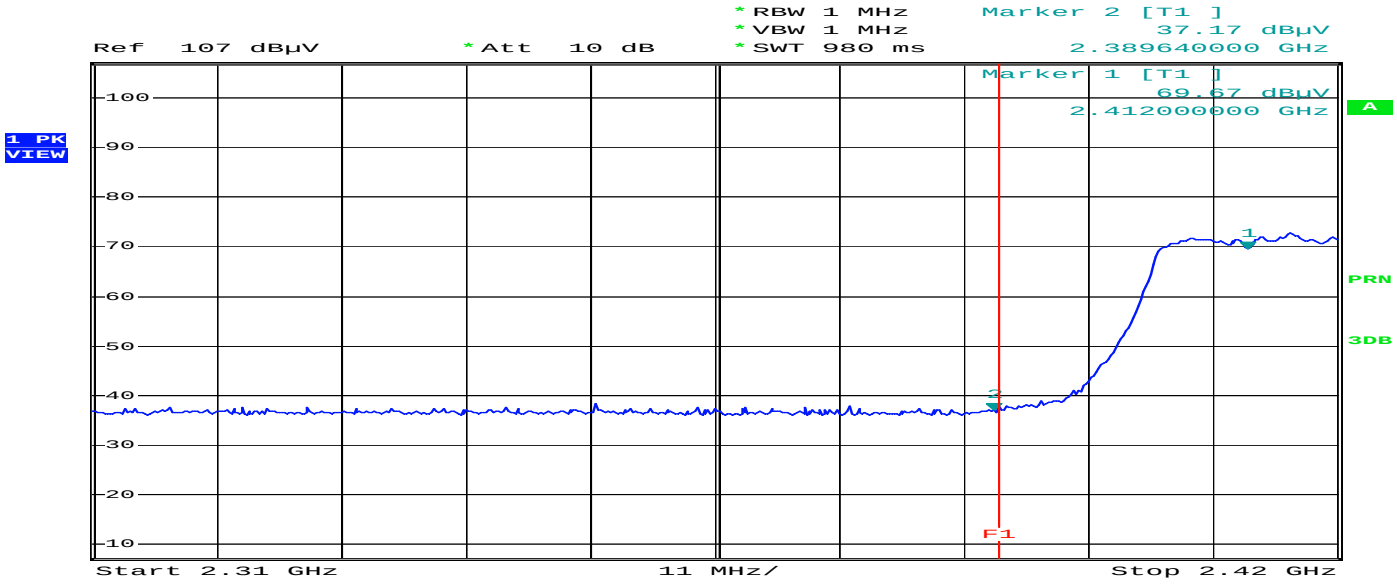
Remark

H : Horizontal, V : Vertical TEST MODE : 802.11g - CH11(2462MHz)
*Cable Loss=Cable Loss+Amp *Data rate of 54Mbps. *OB is 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)
*The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz.

9.3-1 Restricted Band Edges(802.11g - CH 6)

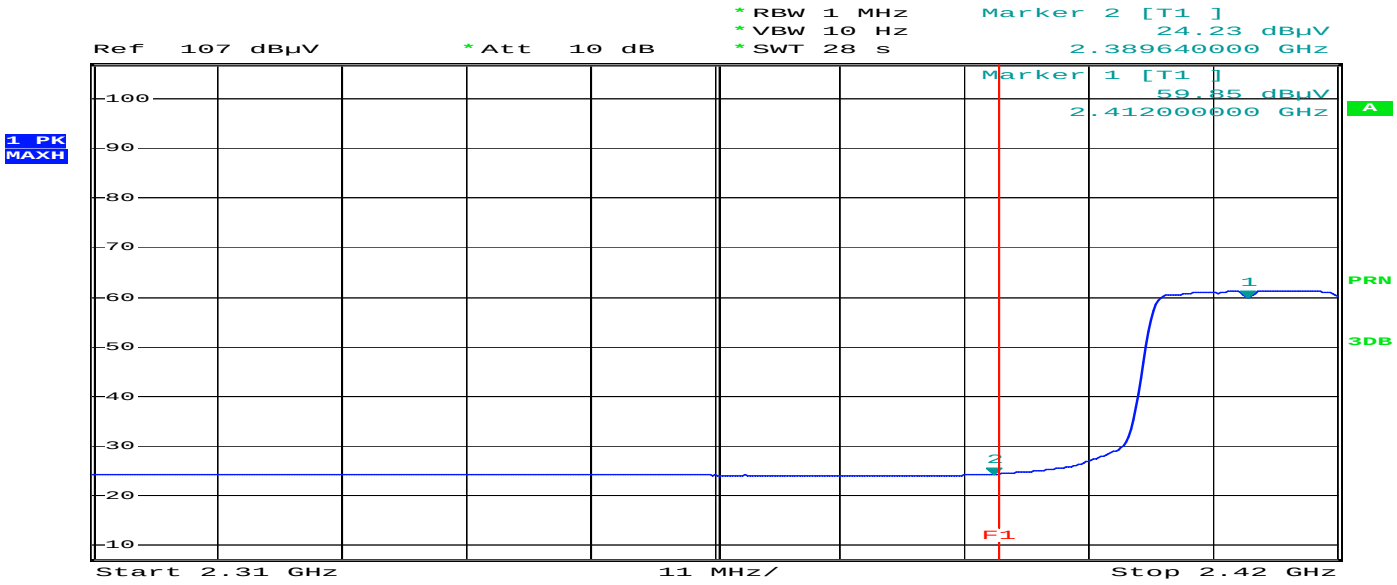
Band Edges(CH Low)

Detector mode:Peak Polarity:Horizontal



Comment: MC-7500S WLAN 802.11g CH1(PEAK)-HOR
Date: 13.MAY.2008 13:20:28

Detector mode:Average Polarity:Horizontal

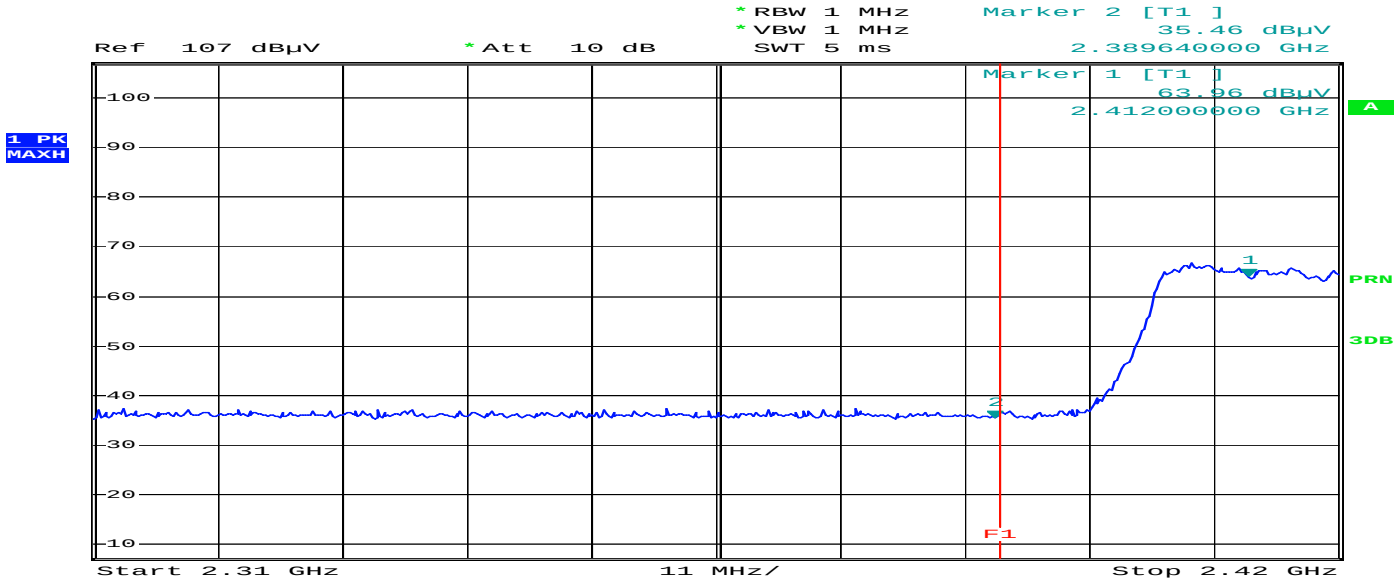


Comment: MC-7500S WLAN 802.11g CH1(AV)-HOR
Date: 13.MAY.2008 13:33:51

(802.11g - CH 6)

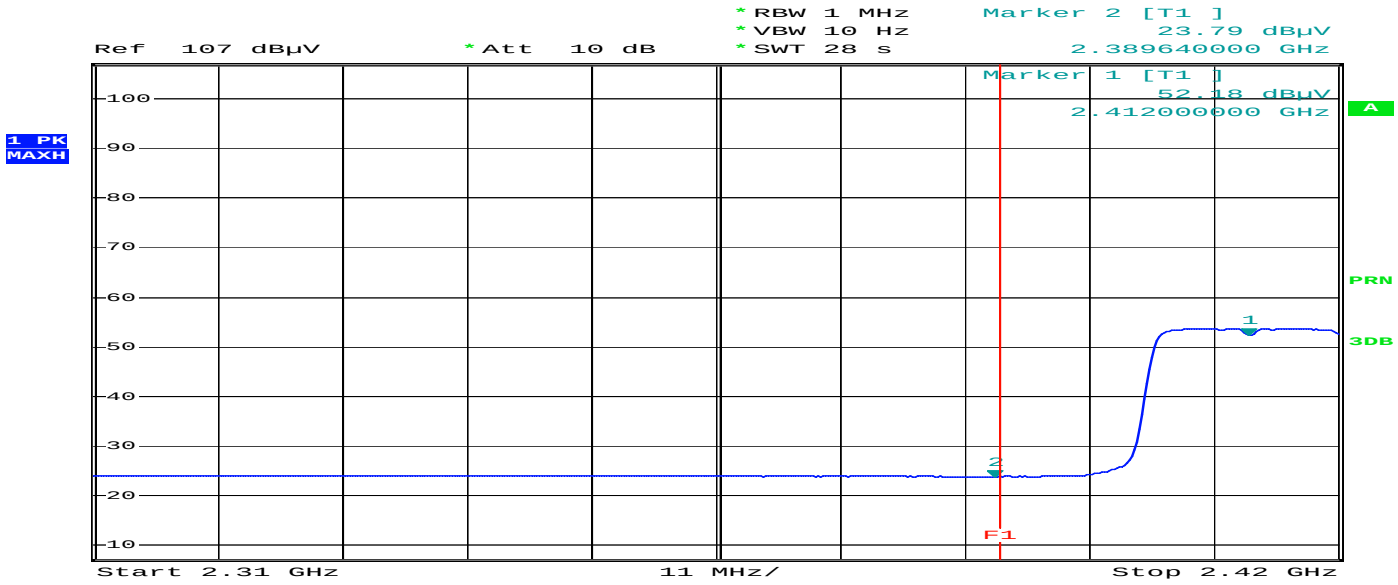
Band Edges(CH Low)

Detector mode:Peak Polarity:Vertical



Comment: MC-7500S WLAN 802.11g CH1(PEAK)-VER
Date: 13.MAY.2008 14:06:59

Detector mode:Average Polarity:Vertical

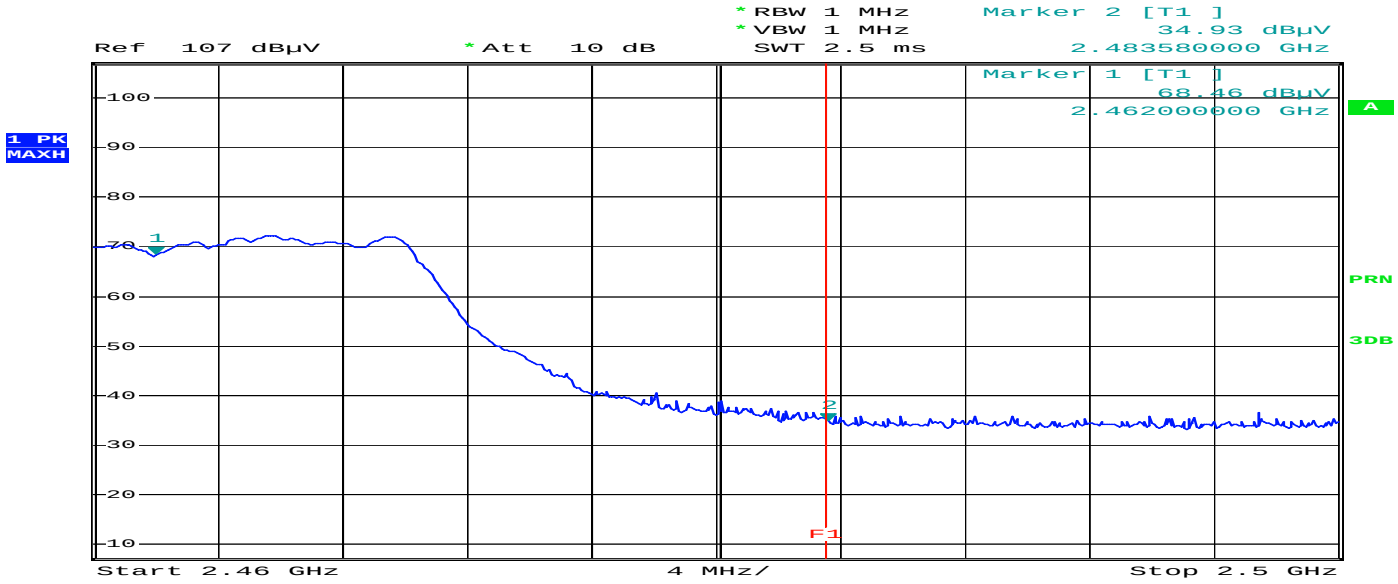


Comment: MC-7500S WLAN 802.11g CH1(AV)-VER
Date: 13.MAY.2008 13:53:04

(802.11g - CH 6)

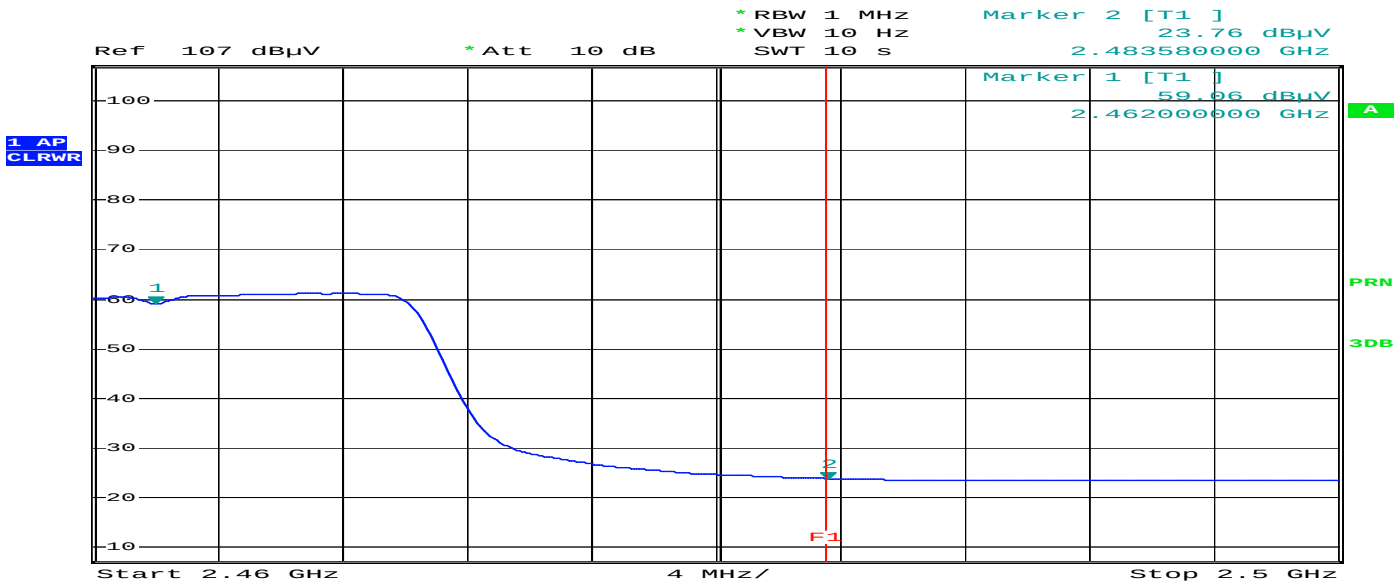
Band Edges(CH High)

Detector mode:Peak Polarity:Horizontal



Comment: MC-7500S WLAN 802.11g CH11(PEAK)-HOR
Date: 13.MAY.2008 14:40:10

Detector mode:Average Polarity:Horizontal

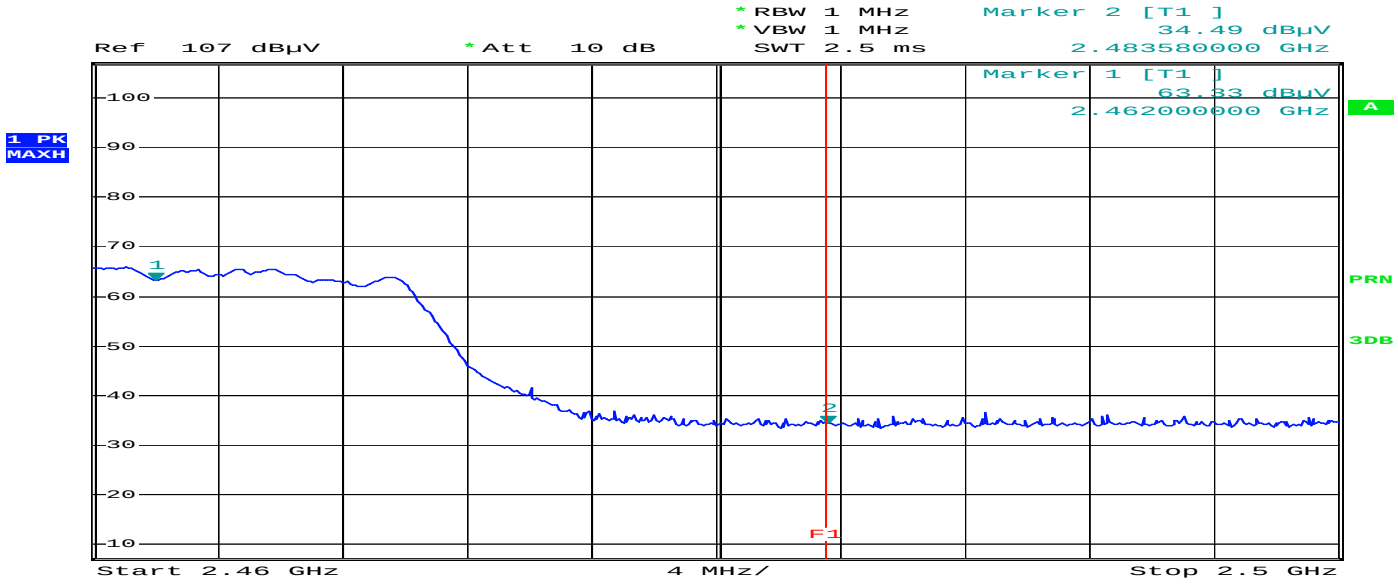


Comment: MC-7500S WLAN 802.11g CH11(AV)-HOR
Date: 13.MAY.2008 14:39:26

(802.11g - CH 6)

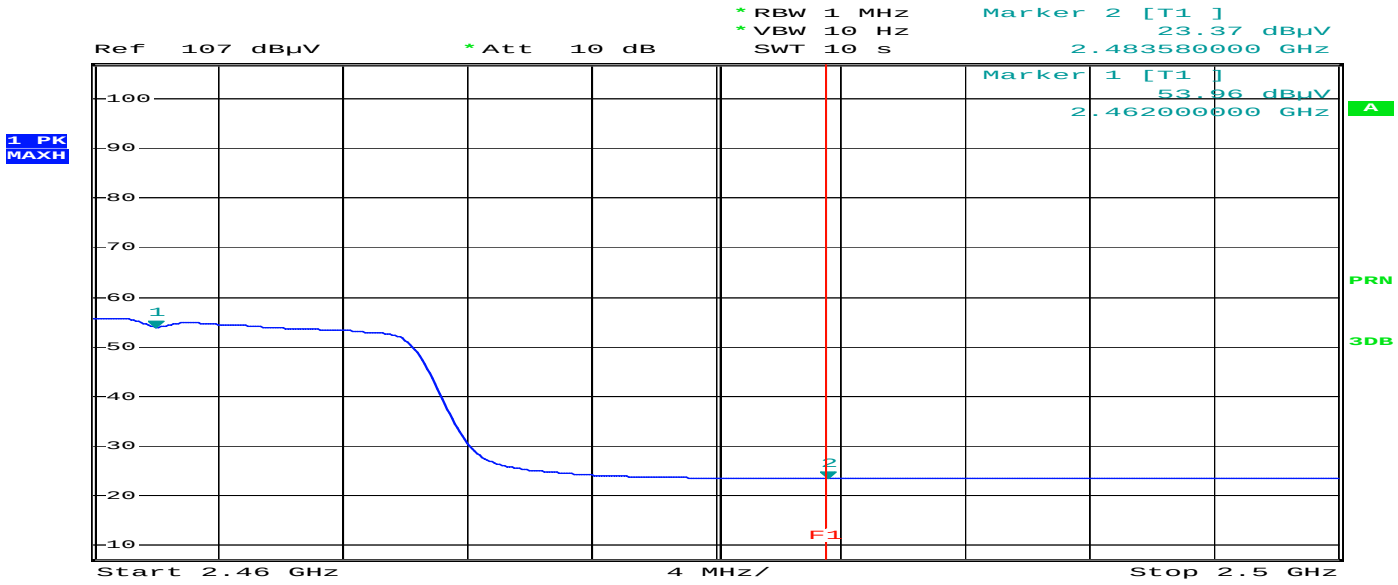
Band Edges(CH High)

Detector mode:Peak Polarity:Vertical



Comment: MC-7500S WLAN 802.11g CH11(PEAK)-VER
Date: 13.MAY.2008 14:35:08

Detector mode:Average Polarity:Vertical



Comment: MC-7500S WLAN 802.11g CH11(AV)-VER
Date: 13.MAY.2008 14:35:59

Test Date : 18-May-08 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
107.68	11.40	V	1.0	10.88	1.6	43.5	23.89	-19.61
226.84	10.60	H	1.6	11.08	2.4	46.0	24.13	-21.87
250.10	12.70	H	1.4	11.92	2.6	46.0	27.25	-18.75
336.45	9.80	H	1.2	14.01	3.2	46.0	27.02	-18.98
385.42	11.00	H	1.0	15.00	3.5	46.0	29.51	-16.49
434.35	7.10	H	1.0	16.07	3.8	46.0	26.99	-19.01

Remark	H : Horizontal, V : Vertical Test Mode: 802.11b - CH6(2437MHz) *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.

Test Date : 18-Aug-08 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW:1MHz VBW:1MHz)								
2412	75.76	H	1.3	27.62	4.5	OB	107.88	-
2412	70.36	V	1.2	27.62	4.5	OB	102.48	-
4824	43.40	H	1.4	31.30	-29.0	74.0	45.73	-28.27
4824	44.00	V	1.2	31.30	-29.0	74.0	46.33	-27.67
AV(RBW:1MHz VBW:10Hz)								
2412	68.09	H	1.3	27.62	4.5	OB	100.21	-
2412	62.43	V	1.2	27.62	4.5	OB	94.55	-
4824	31.60	H	1.4	31.30	-29.0	54.0	33.93	-20.07
4824	31.70	V	1.2	31.30	-29.0	54.0	34.03	-19.97
Remark	H : Horizontal, V : Vertical TEST MODE : 802.11b - CH1(2412MHz) *Cable Loss=Cable Loss+Amp *Data rate of 11Mbps. *OB is 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) *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz.								

Test Date : 18-May-08 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW:1MHz VBW:1MHz)								
2437	75.67	H	1.5	27.61	4.5	OB	107.78	-
2437	69.70	V	1.2	27.61	4.5	OB	101.81	-
4874	44.20	H	1.4	31.37	-28.8	74.0	46.75	-27.25
4874	44.20	V	1.2	31.37	-28.8	74.0	46.75	-27.25
AV(RBW:1MHz VBW:10Hz)								
2437	68.53	H	1.5	27.61	4.5	OB	100.64	-
2437	61.80	V	1.2	27.61	4.5	OB	93.91	-
4874	32.40	H	1.4	31.37	-28.8	54.0	34.95	-19.05
4874	31.90	V	1.2	31.37	-28.8	54.0	34.45	-19.55

Remark

H : Horizontal, V : Vertical TEST MODE : 802.11b - CH6(2437MHz)
*Cable Loss=Cable Loss+Amp *Data rate of 11Mbps. *OB is 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)
*The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz.

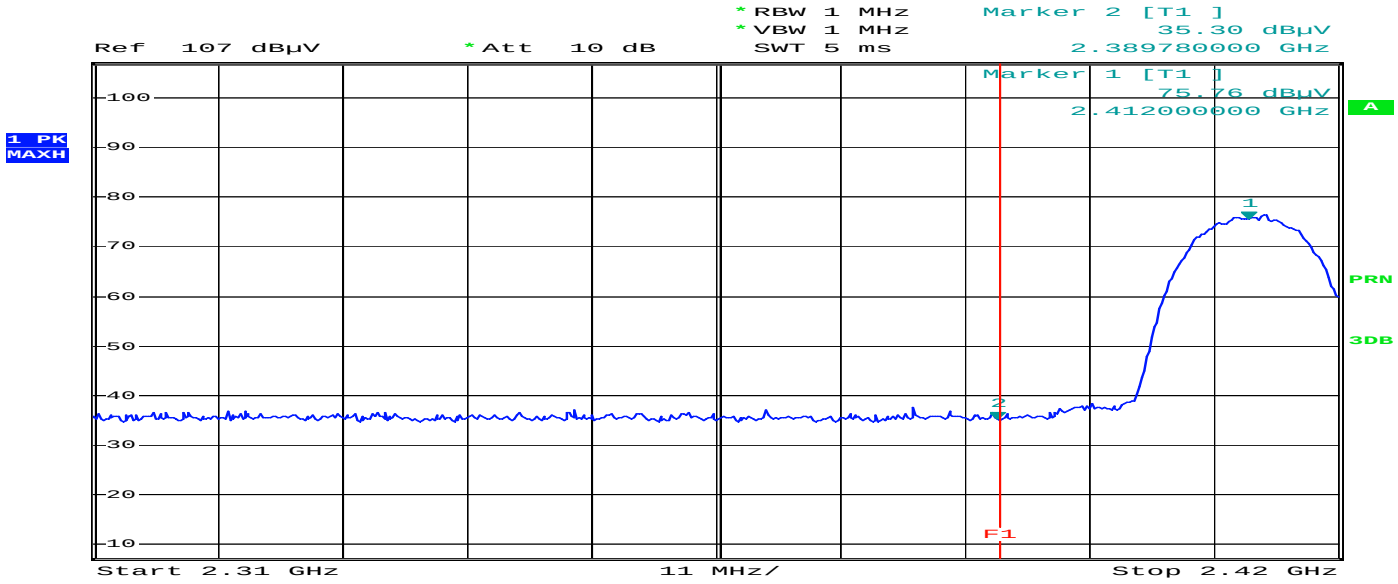
Test Date : 18-May-08 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW:1MHz VBW:1MHz)								
2462	75.14	H	1.9	27.60	4.5	OB	107.24	-
2462	70.70	V	1.1	27.60	4.5	OB	102.80	-
4924	43.58	H	1.8	31.44	-28.7	74.0	46.32	-27.68
4924	43.60	V	1.2	31.44	-28.7	74.0	46.34	-27.66
AV(RBW:1MHz VBW:10Hz)								
2462	67.34	H	1.9	27.60	-31.3	OB	63.61	-
2462	62.98	V	1.1	27.60	-31.3	OB	59.25	-
4924	31.16	H	1.8	31.44	-28.7	54.0	33.90	-20.10
4924	31.30	V	1.2	31.44	-28.7	54.0	34.04	-19.96
Remark	H : Horizontal, V : Vertical TEST MODE : 802.11b - CH11(2462MHz) *Cable Loss=Cable Loss+Amp *Data rate of 11Mbps. *OB is 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) *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz.								

10.3-2 Restricted Band Edges(802.11b - CH 6)

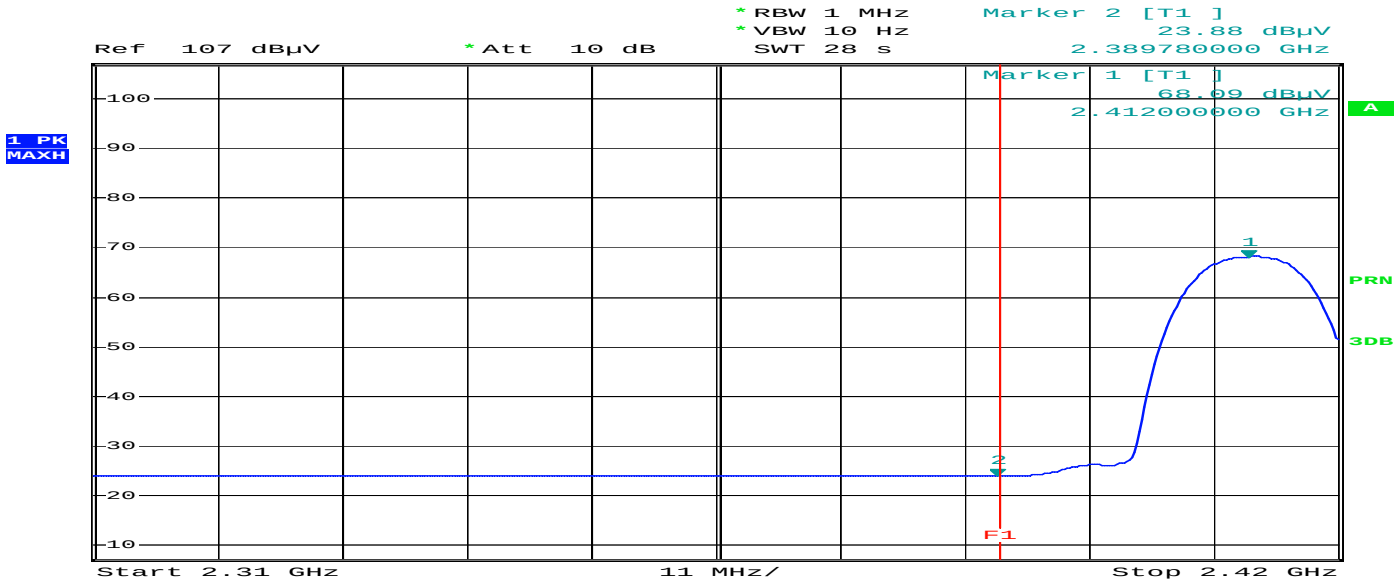
Band Edges(CH Low)

Detector mode:Peak Polarity:Horizontal



Comment: MC-7500S WLAN 802.11b CH1(PEAK)-HOR
Date: 13.MAY.2008 15:34:12

Detector mode:Average Polarity:Horizontal

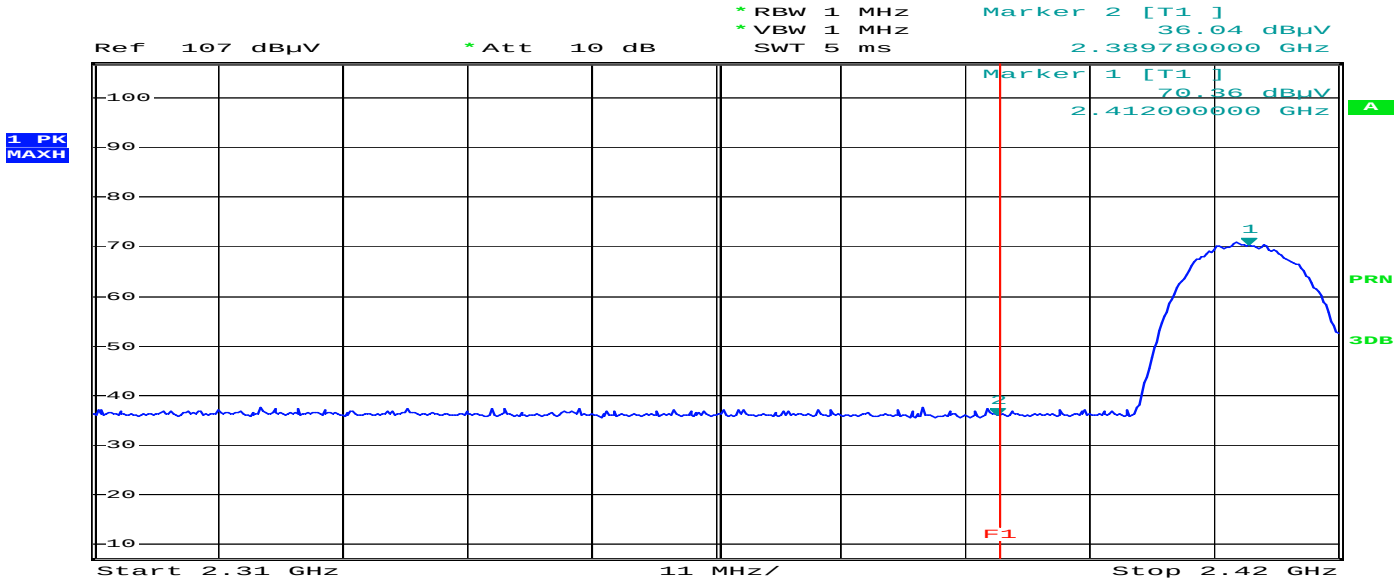


Comment: MC-7500S WLAN 802.11b CH1(AV)-HOR
Date: 13.MAY.2008 15:31:49

(802.11b - CH 6)

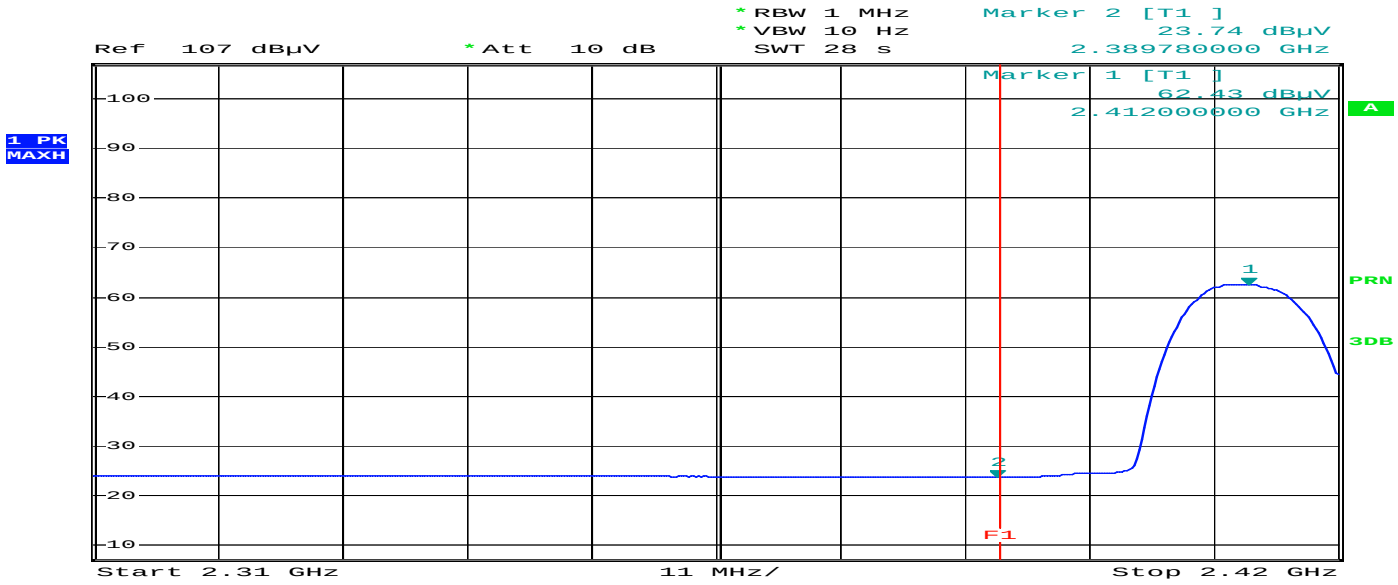
Band Edges(CH Low)

Detector mode:Peak Polarity:Vertical



Comment: MC-7500S WLAN 802.11b CH1(PEAK)-VER
Date: 13.MAY.2008 15:26:45

Detector mode:Average Polarity:Vertical

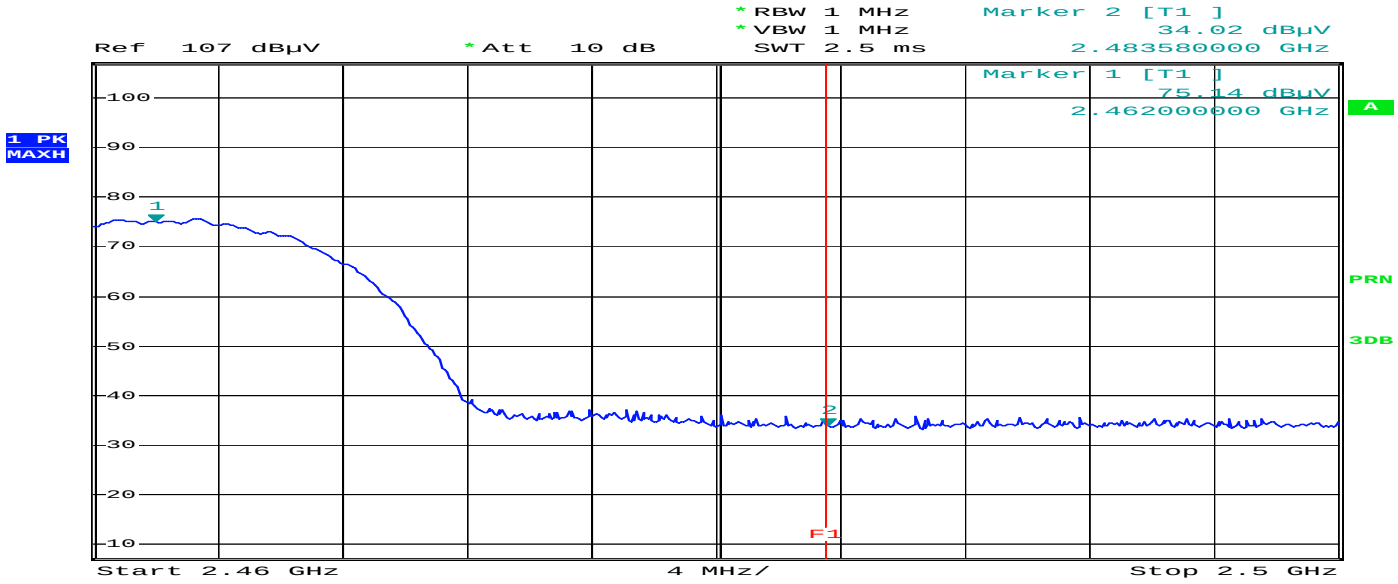


Comment: MC-7500S WLAN 802.11b CH1(AV)-VER
Date: 13.MAY.2008 15:27:41

(802.11b - CH 6)

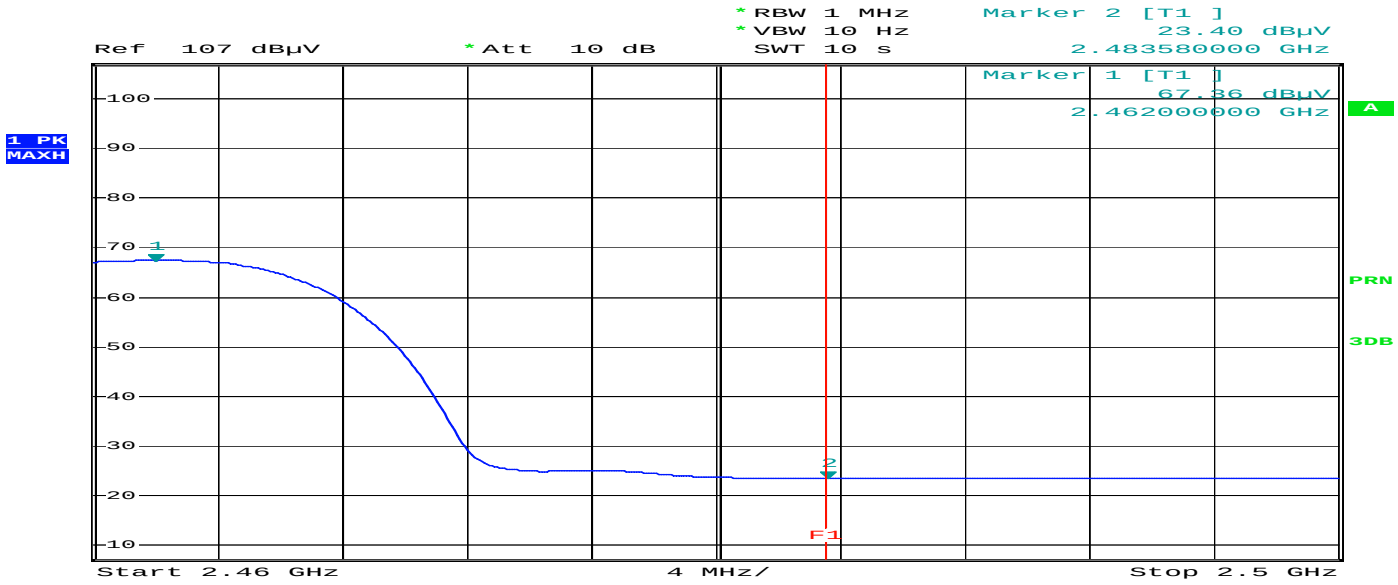
Band Edges(CH High)

Detector mode:Peak Polarity:Horizontal



Comment: MC-7500S WLAN 802.11b CH11(PEAK)-HOR
Date: 13.MAY.2008 14:59:47

Detector mode:Average Polarity:Horizontal

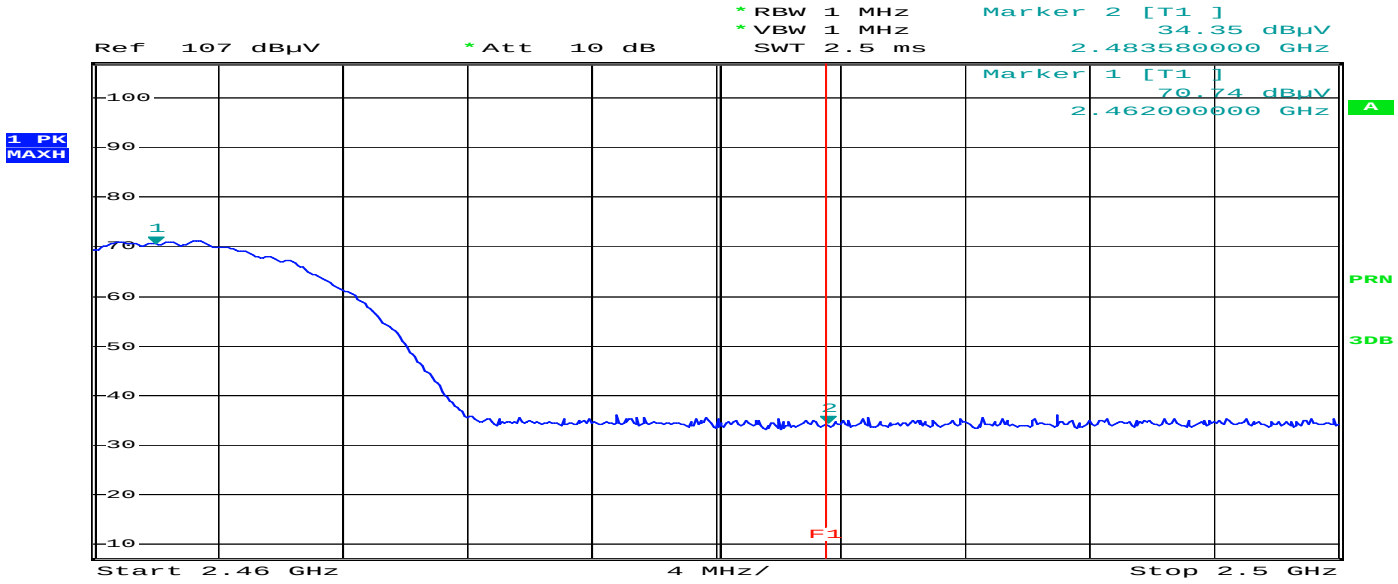


Comment: MC-7500S WLAN 802.11b CH11(AV)-HOR
Date: 13.MAY.2008 14:59:03

(802.11b - CH 6)

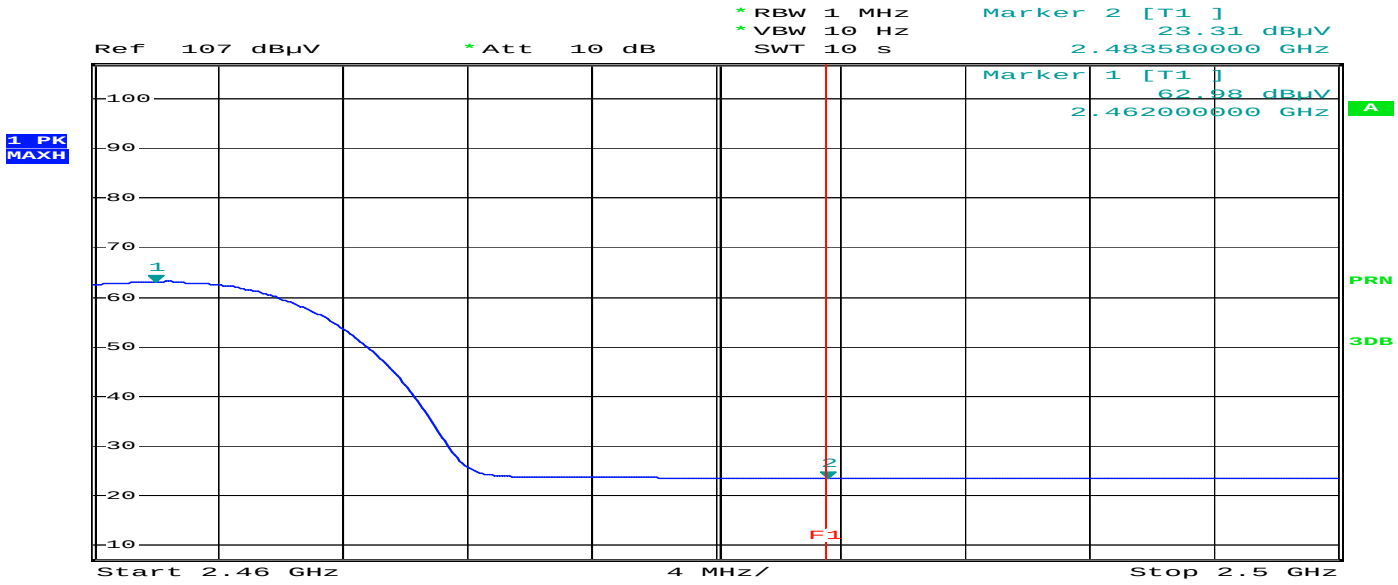
Band Edges(CH High)

Detector mode:Peak Polarity:Vertical



Comment: MC-7500S WLAN 802.11b CH11(PEAK)-VER
Date: 13.MAY.2008 14:54:40

Detector mode:Average Polarity:Vertical



Comment: MC-7500S WLAN 802.11b CH11(AV)-VER
Date: 13.MAY.2008 14:55:16

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 (2007) & ANSI C 63.4 (2003) The test setup was made according to FCC Part 15 (2007) & 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	Type	Manufacturer	Serial No.	Next Calibration date
LISN	NNLA8120A	Schwarzbeck	8120161	2009. 2. 29
LISN	ESH3-Z5	Schwarzbeck	838979/010	2009. 2. 29
TEST Receive	ESP17	Rohde & Schwarz	100185	2008. 8. 27
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	-

10.2 Environmental Condition

Test Place : Shield Room

Temperature (°C) : 21 °C

Humidity (%) : 48 %

10.3 Test data for Transmitter

Test Date : 19-May-08

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dBµV)	Reading (dBµV)	Result (dBµV)	Limit (dBµV)	Reading (dBµV)	Result (dB)
0.15	0.15	0.8	N	66.00	40.55	41.45	56.00	21.02	21.92
0.20	0.17	0.8	H	63.69	49.72	50.68	53.69	40.50	41.46
0.26	0.20	0.8	H	61.30	42.11	43.15	51.30	36.99	38.03
0.27	0.20	0.8	N	61.27	42.56	43.61	51.27	31.29	32.34
0.40	0.21	0.8	N	57.92	35.52	36.56	47.92	29.17	30.21
0.46	0.20	0.8	H	56.66	36.41	37.41	46.66	33.81	34.81
0.53	0.20	0.8	H	56.00	37.25	38.23	46.00	34.43	35.41
0.60	0.20	0.8	N	56.00	35.00	35.99	46.00	32.02	33.01
0.66	0.20	0.8	H	56.00	35.06	36.06	46.00	32.23	33.23
0.86	0.19	0.8	H	56.00	33.08	34.09	46.00	29.29	30.30
1.06	0.18	0.8	H	56.00	32.07	33.05	46.00	28.84	29.82
1.19	0.19	0.8	H	56.00	32.62	33.61	46.00	28.85	29.84
6.08	0.41	1.0	H	60.00	31.44	32.88	50.00	28.69	30.13
6.15	0.42	1.0	H	60.00	31.46	32.91	50.00	27.22	28.67
6.21	0.42	1.0	N	60.00	31.40	32.86	50.00	27.53	28.99
23.00	0.88	1.8	H	60.00	30.10	32.81	50.00	27.38	30.09
23.46	0.89	1.9	N	60.00	31.06	33.83	50.00	28.49	31.26
23.79	0.89	1.9	H	60.00	32.55	35.36	50.00	29.08	31.89
Remark	H : Hot Line, N : Neutral Line TEST MODE : 802.11b- CH6(2437MHz)								

Test Date : 17-May-08

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dBμV)	Reading (dBμV)	Result (dBμV)	Limit (dBμV)	Reading (dBμV)	Result (dB)
0.15	0.15	0.8	H	65.84	40.06	40.96	55.84	21.58	22.48
0.16	0.15	0.8	N	65.67	41.14	42.05	55.67	22.09	23.00
0.20	0.17	0.8	H	63.69	52.21	53.17	53.69	42.64	43.60
0.26	0.20	0.8	N	61.30	41.68	42.72	51.30	30.55	31.59
0.27	0.20	0.8	H	61.27	42.47	43.52	51.27	33.75	34.80
0.40	0.21	0.8	N	57.90	37.75	38.79	47.90	31.00	32.04
0.53	0.20	0.8	H	56.00	35.12	36.10	46.00	31.67	32.65
0.59	0.20	0.8	H	56.00	34.55	35.54	46.00	30.71	31.70
0.66	0.20	0.8	N	56.00	33.03	34.03	46.00	29.42	30.42
0.73	0.20	0.8	H	56.00	35.63	36.64	46.00	32.99	34.00
0.99	0.18	0.8	H	56.00	33.71	34.68	46.00	30.44	31.41
1.32	0.20	0.8	H	56.00	33.51	34.51	46.00	28.72	29.72
6.08	0.41	1.0	H	60.00	31.13	32.57	50.00	25.62	27.06
6.41	0.44	1.1	N	60.00	30.30	31.79	50.00	25.43	26.92
7.00	0.48	1.1	H	60.00	28.26	29.83	50.00	19.44	21.01
7.08	0.48	1.1	N	60.00	28.05	29.63	50.00	23.24	24.82
9.18	0.49	1.3	H	60.00	23.71	25.51	50.00	14.90	16.70
24.53	0.90	2.0	N	60.00	28.81	31.71	50.00	20.48	23.38
Remark	H : Hot Line, N : Neutral Line TEST MODE : 802.11g- CH6(2437MHz)								

11. 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 15.24

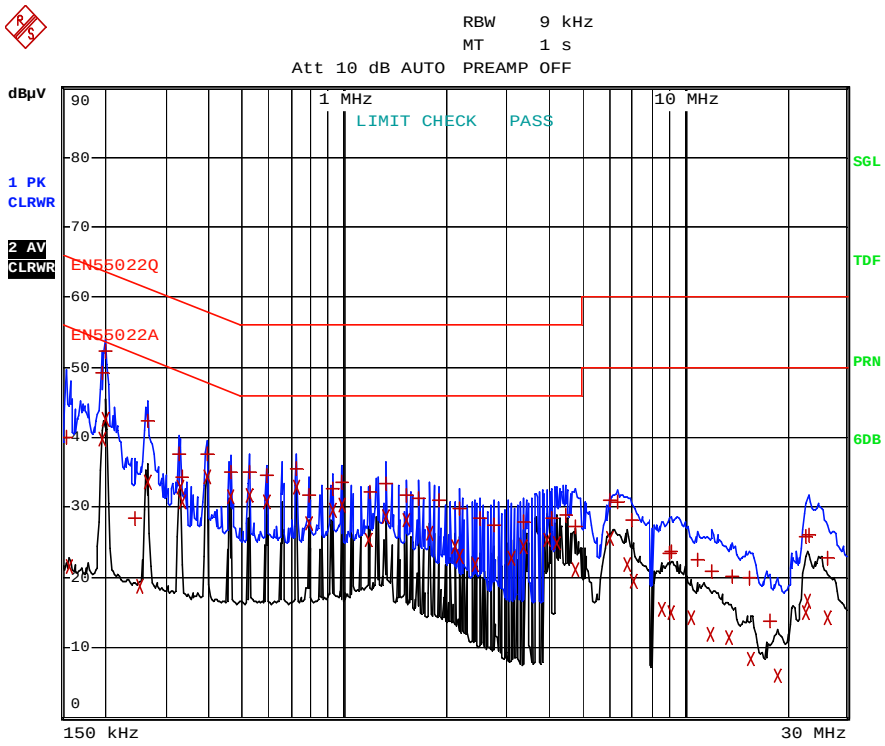
11.2 Antenna Connected Construction

The antenna types used in this product are Intergrated PCB Pattern Antenna. The maximum Gain of this antenna is 0dBi.

Appendix 1. Spectral diagram

802.11g - CH 6

*HOT



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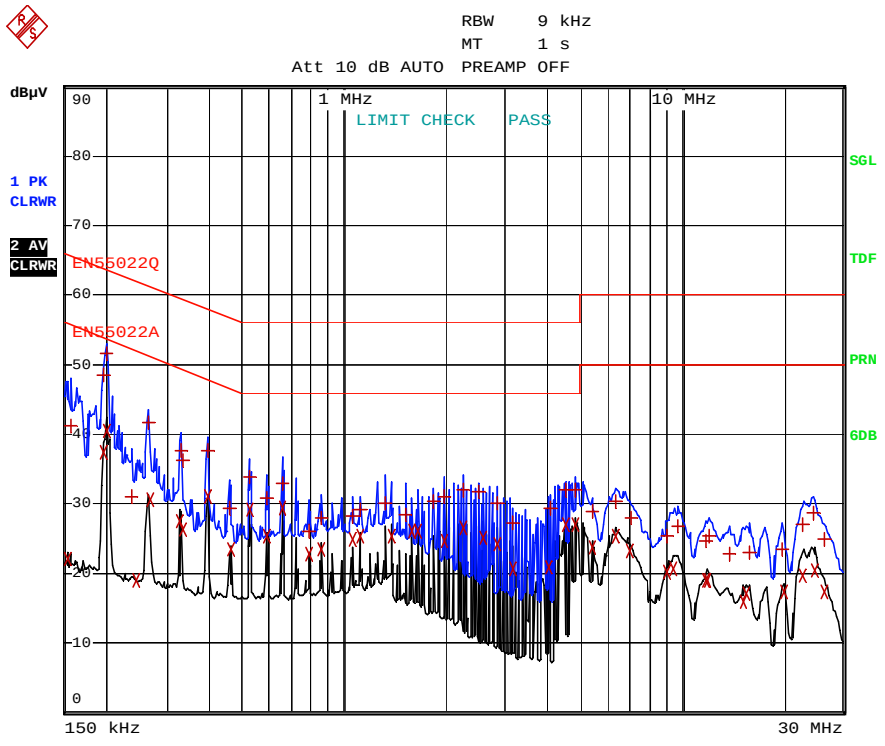

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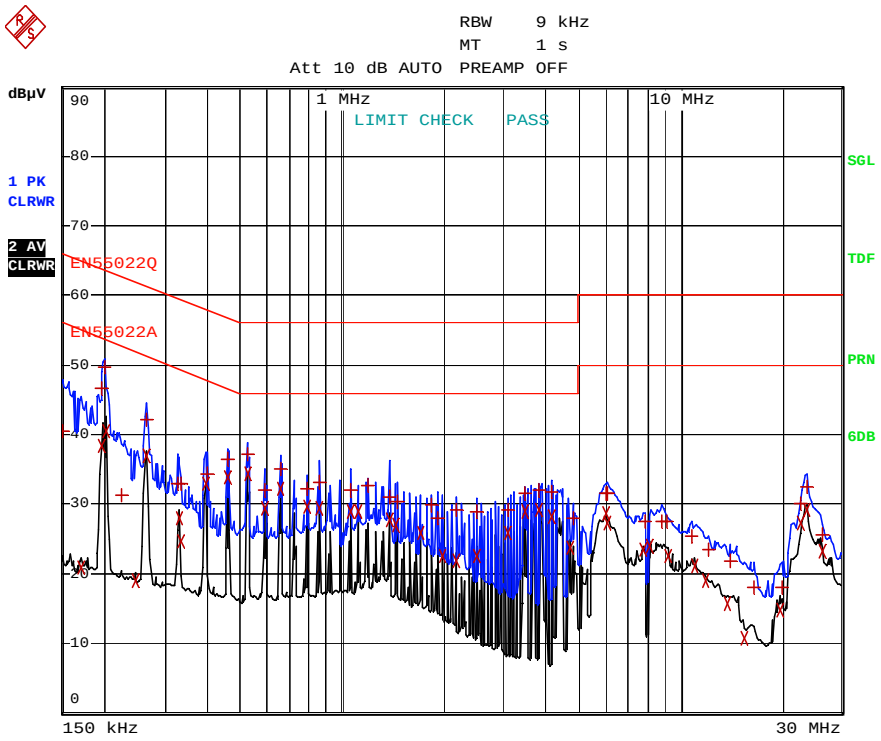
802.11b - CH6

*HOT



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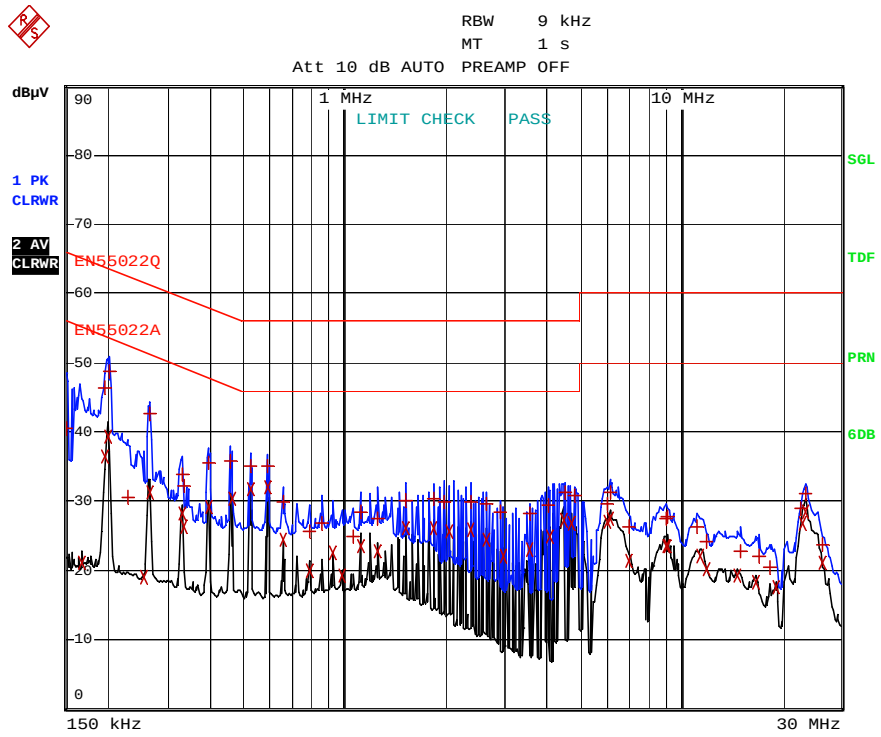

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