

# ETSI EN 300 328 V1.7.1

## Measurement and Test Report

### For

### YAMAY ELECTRONICS CO., LTD.

**Bldg 1, Fu Yuan No. 2 Industrial Zone, Gongye Rd, Fuyong Town, Bao An,  
Shenzhen, China**

<b>Report Concerns:</b> Original Report	<b>Equipment Type:</b> TABLET PCs
<b>Model:</b>	<u>Y-B07</u>
<b>Report No.:</b>	<u>STR12048001E-1</u>
<b>Test Date:</b>	<u>2012-04-03 to 2012-04-18</u>
<b>Issue Date:</b>	<u>2012-04-20</u>
<b>Tested By:</b>	<u>Galy He / Engineer</u> <i>Galy He</i>
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd.

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## 1.GENERAL INFORMATION

### 1.1 Product Description for Equipment Under Test (EUT)

#### Client Information

Applicant: YAMAY ELECTRONICS CO., LTD.  
Address of applicant: Bldg 1, Fu Yuan No. 2 Industrial Zone, Gongye Rd, Fuyong Town, BaoAn, Shenzhen, China

Manufacturer: YAMAY ELECTRONICS CO., LTD.  
Address of manufacturer: Bldg 1, Fu Yuan No. 2 Industrial Zone, Gongye Rd, Fuyong Town, BaoAn, Shenzhen, China

#### General Description of E.U.T

Items	Description
EUT Description:	TABLET PCs
Trade Name:	/
Model No.:	Y-B07
Add Model:	Y-728, Y-738, Y-1020, Y-1330, Y-1401, Y-1402, Y-A07A, Y-A07B, Y-A07C, Y-A07D, Y-A08B, Y-A08C, Y-A10B, Y-A10C, Y-B07A, Y-B07B, Y-B07C, Y-B07D, Y-B07E, Y-B07F, Y-B07G, Y-B08A, Y-B08B, Y-B08C, Y-B08D, Y-971, Y-972, Y-973, Y-975, Y-B10A, Y-B10B, Y-B10C, Y-B10D, Y-M07X, Y-M08X, Y-M10, Y-N07D, Y-N07E, Y-Q07, Y-Q08, Y-R07, Y-R07A, Y-R07B, Y-R07C, Y-R07D, Y-R08, Y-R10, Y-S07, Y-S08, Y-S10, Y-T08, Y-V07A, Y-V07B, Y-V07C, Y-V08B, Y-V08C, Y-V08D, Y-V10B, Y-V10C, Y-V10D, Y-W07A, Y-W07B, Y-W07C, Y-W07D, Y-W08, Y-W10, Y-1028, Y-1038
Rated Voltage:	AC 230V Adapter DC 9V
RF Output Power	< 20 dBm
Frequency range:	2412-2472MHz
Number of channels:	13
Channel Separation:	5MHz
Type of Antenna:	Integral Antenna
Size:	20.2x13.5x1.2 cm
For more information refer to the circuit diagram form and the user's manual.	

*Note: The test data gathered are from a production sample, provided by the manufacturer. Test is carried out with Y-B07 since the others models listed in this report are only with different appearances from model Y-B07 without electronic construction changed, declared by the manufacture.*

### 1.2 Test Standards

The following report is prepared on behalf of the YAMAY ELECTRONICS CO., LTD. in accordance with ETSI

EN 300 328 V1.7.1, Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive.

The objective of the manufacturer is to demonstrate compliance with ETSI EN 300 328 V1.7.1.

**Maintenance of compliance** is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained

### 1.3 Related Submittal(s)/Grant(s)

No Related Submittal(s).

### 1.4 Test Methodology

All measurements contained in this report were conducted with ETSI EN 300 328 V1.7.1, Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive.

The equipment under test (EUT) was configured to measure its highest possible emission/immunity against the tested phenomena. The test modes were adapted accordingly in reference to the Operating Instructions, which is set to transmitting mode with Low, Middle and High frequency range.

### 1.5 Test Facility

- **FCC – Registration No.: 994117**

SEM.Test Compliance Services Co., Ltd. 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 and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**

The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

### 1.6 EUT Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components. The test software provided by the manufacture is started while the EUT is On and make the continue transmitting during the test.

**1.7 Accessories Equipment List and Details**

Description	Manufacturer	Model	Serial Number
Mouse	Dell	Moc5uo	XGDZ01107
Earphone	/	/	/
TF Card	KingSton	2G	/

**1.8 EUT Cable List and Details**

Cable Description	Length (M)	Shielded/ Unshielded	With Core/Without Core
USB Cable	0.2	Unshielded	With Core
Adaptor Cable	1.4	Unshielded	Without Core

## 2. SUMMARY OF TEST RESULTS

EN 300 328 V1.71	DESCRIPTION OF TEST	RESULT
Section 4.3.1	Equivalent isotropic radiated power	Compliant
Section 4.3.2	Maximum spectral power density	Compliant
Section 4.3.3	Frequency range	Compliant
Section 4.3.4	Transmitter spurious emissions	Compliant
Section 4.3.5	Receiver spurious emissions	Compliant

### 3. EQUIVALENT ISOTROPIC RADIATED POWER

#### 3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is  $\pm 5.20$  dB.

#### 3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2012-03-28	2013-03-27
Positioning Controller	C&C	CC-C-1F	N/A	2012-03-28	2013-03-27
RF Switch	EM	EMSW18	SW060023	2012-03-28	2013-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2012-03-28	2013-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2012-03-28	2013-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2012-03-25	2013-02-24
Horn Antenna	ETS	3117	00086197	2012-03-25	2013-02-24
Signal Generator	Rohde & Schwarz	SMR20	100047	2012-03-28	2013-03-27
Spectrum Analyzer	Agilent	E4402B	US41192821	2012-03-28	2013-03-27
Attenuator	ATTEN	DC-4GHz	ATS100-4-20	2012-03-28	2013-03-27
Moisture Test Chamber	GONGWEN	GDS-150	SEMT-0013	2012-03-28	2013-03-27
DC Power Supply	LW	APR-3003	N/A	2012-03-28	2013-03-27

#### 3.3 Standard Applicable

According to Section 4.3.1, the equivalent isotropic radiated power shall be equal to or less than -10 dBW (100 mW) e.i.r.p. This limit shall apply for any combination of power level and intended antenna assembly.

#### 3.4 Test Procedure

The device under test has an integral antenna and the power was measured on a radiated basis. According to the EN300328 V1.7.1 Section 5.7.1

#### 3.5 Summary of Test Results

Test Mode: Transmitting-802.11b

Test conditions		Output Power dBm	Antenna gain dBi	EIRP dBm	Limit dBm
Temperature °C	Voltage V				
802.11b (Low channel 2412MHz)					
T <sub>nom</sub> 25	V <sub>nom</sub> 230	13.46	0	13.46	20
T <sub>min</sub> -20	V <sub>nin</sub> 207	13.43	0	13.43	20
	V <sub>max</sub> 253	13.44	0	13.44	20
T <sub>max</sub> 55	V <sub>nin</sub> 207	13.50	0	13.50	20
	V <sub>max</sub> 253	13.48	0	13.48	20
802.11b (Mid channel 2442MHz)					
T <sub>nom</sub> 25	V <sub>nom</sub> 230	13.43	0	13.43	20
T <sub>min</sub> -20	V <sub>nin</sub> 207	13.40	0	13.40	20
	V <sub>max</sub> 253	13.40	0	13.40	20
T <sub>max</sub> 55	V <sub>nin</sub> 207	13.44	0	13.44	20
	V <sub>max</sub> 253	13.46	0	13.46	20
802.11b (High channel 2472MHz)					
T <sub>nom</sub> 25	V <sub>nom</sub> 230	13.40	0	13.40	20
T <sub>min</sub> -20	V <sub>nin</sub> 207	13.37	0	13.37	20
	V <sub>max</sub> 253	13.36	0	13.36	20
T <sub>max</sub> 55	V <sub>nin</sub> 207	13.44	0	13.44	20
	V <sub>max</sub> 253	13.41	0	13.41	20



Test Mode: Transmitting-802.11g

Test conditions		Output Power dBm	Antenna gain dBi	EIRP dBm	Limit dBm
Temperature °C	Voltage V				
802.11g (Low channel 2412MHz)					
T <sub>nom</sub> 25	V <sub>nom</sub> 230	13.23	0	13.23	20
T <sub>min</sub> -20	V <sub>nin</sub> 207	13.19	0	13.19	20
	V <sub>max</sub> 253	13.20	0	13.20	20
T <sub>max</sub> 55	V <sub>nin</sub> 207	13.26	0	13.26	20
	V <sub>max</sub> 253	13.34	0	13.34	20
802.11g (Mid channel 2442MHz)					
T <sub>nom</sub> 25	V <sub>nom</sub> 230	13.24	0	13.24	20
T <sub>min</sub> -20	V <sub>nin</sub> 207	13.19	0	13.19	20
	V <sub>max</sub> 253	13.21	0	13.21	20
T <sub>max</sub> 55	V <sub>nin</sub> 207	13.30	0	13.30	20
	V <sub>max</sub> 253	13.26	0	13.26	20
802.11g (High channel 2472MHz)					
T <sub>nom</sub> 25	V <sub>nom</sub> 230	13.20	0	13.20	20
T <sub>min</sub> -20	V <sub>nin</sub> 207	13.15	0	13.15	20
	V <sub>max</sub> 253	13.16	0	13.16	20
T <sub>max</sub> 55	V <sub>nin</sub> 207	13.24	0	13.24	20
	V <sub>max</sub> 253	13.26	0	13.26	20

## 4. MAXIMUM SPECTRAL POWER DENSITY

### 4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is  $\pm 0.42$  dB.

### 4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2012-03-28	2013-03-27
Attenuator	ATTEN	DC-4GHz	ATS100-4-20	2012-03-28	2013-03-27

### 4.3 Standard Application

Test is conducting under the description of EN 300 328 §4.3.2.2, For wide band modulations other than FHSS(DSSS,OFDM etc.), the maximum eirp spectral density is limited to 10 mW per MHz.

### 4.4 Summary of Test Results/Plots

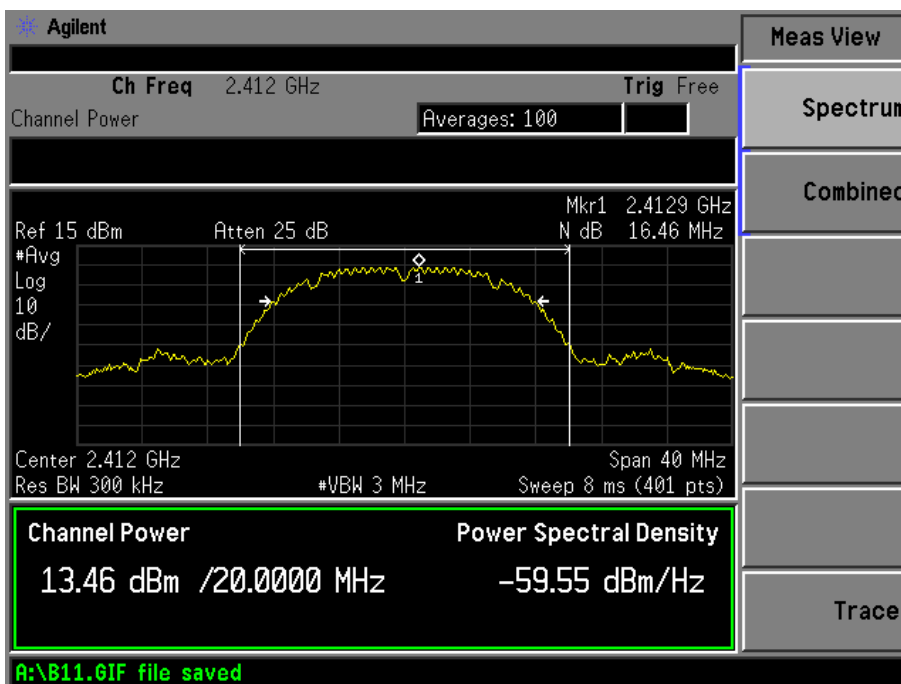
*Test Mode: Transmitting-802.11b*

Operating mode	Test Channel	Reading (dBm/Hz)	Antenna gain dBi	Corrected (dBm/MHz)	Limit (dBm/MHz)
802.11b	Low CH (2412MHz)	-59.55	0	0.45	10
	Mid CH (2442MHz)	-59.59	0	0.41	10
	High CH (2472MHz)	-59.61	0	0.39	10

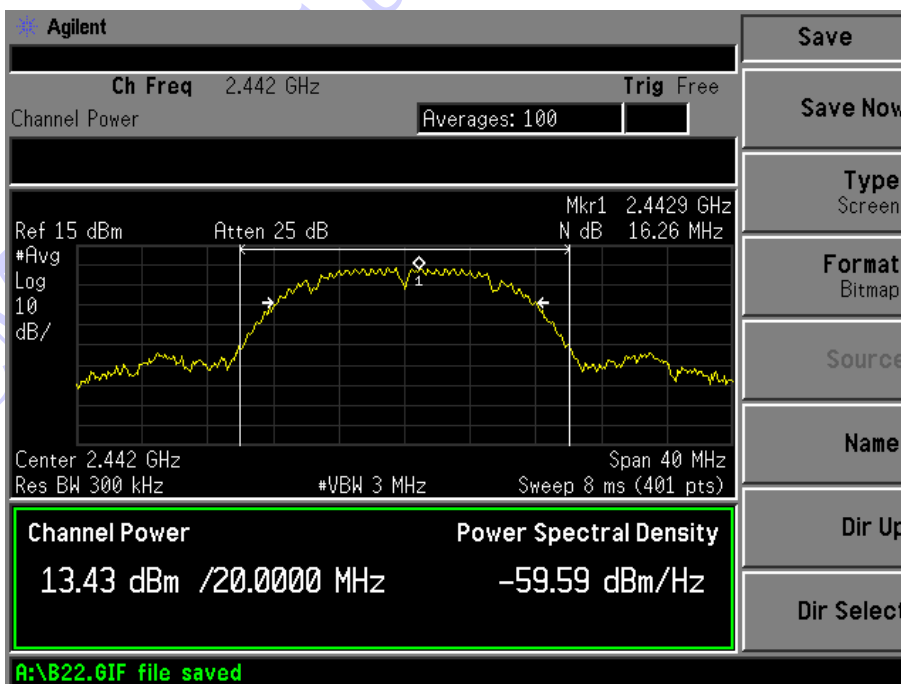
*Test Mode: Transmitting-802.11g*

Operating mode	Test Channel	Reading (dBm/Hz)	Antenna gain dBi	Corrected (dBm/MHz)	Limit (dBm/MHz)
802.11g	Low CH (2412MHz)	-59.78	0	0.22	10
	Mid CH (2442MHz)	-59.77	0	0.23	10
	High CH (2472MHz)	-59.81	0	0.19	10

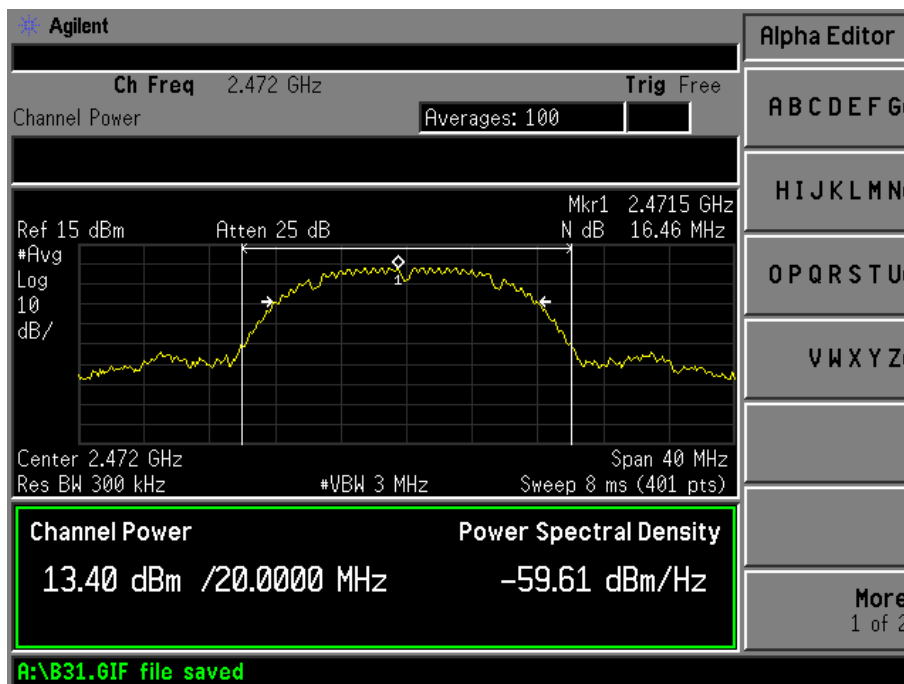
Plots hereby for reference with the worse case:  
802.11b- Low channel



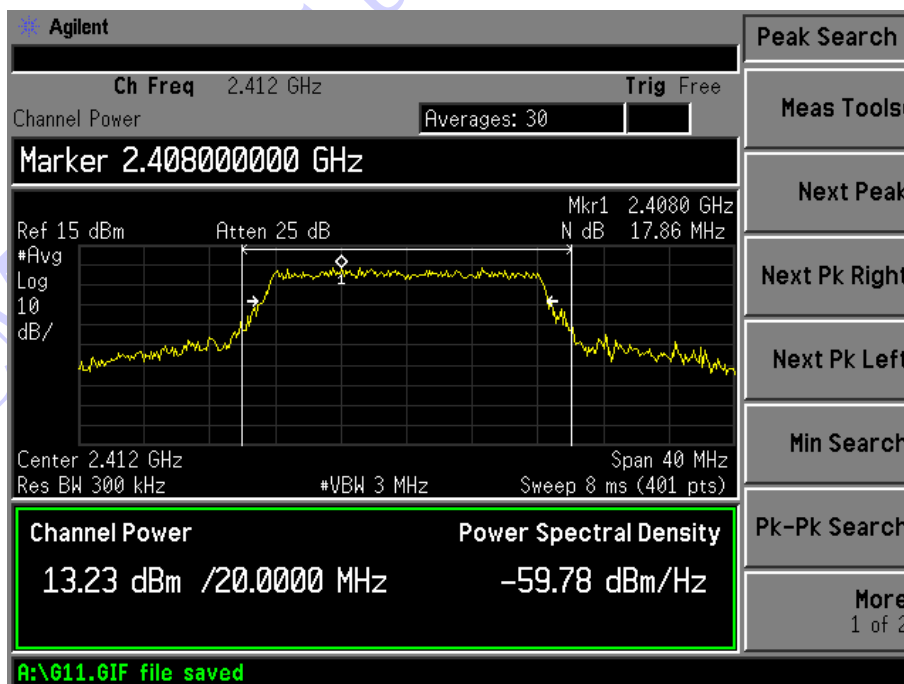
802.11b- Mid channel



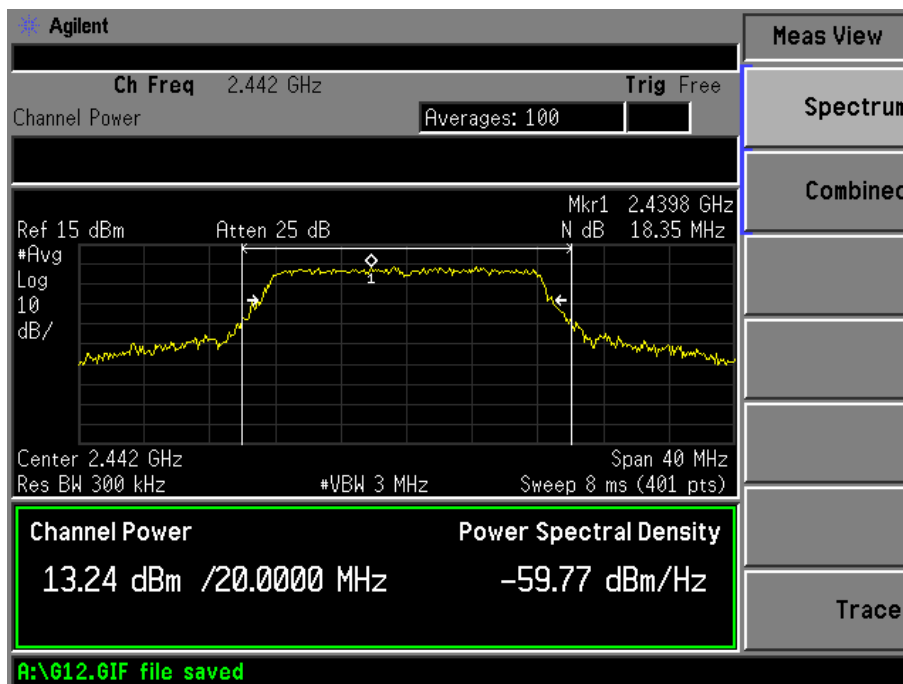
802.11b- High channel



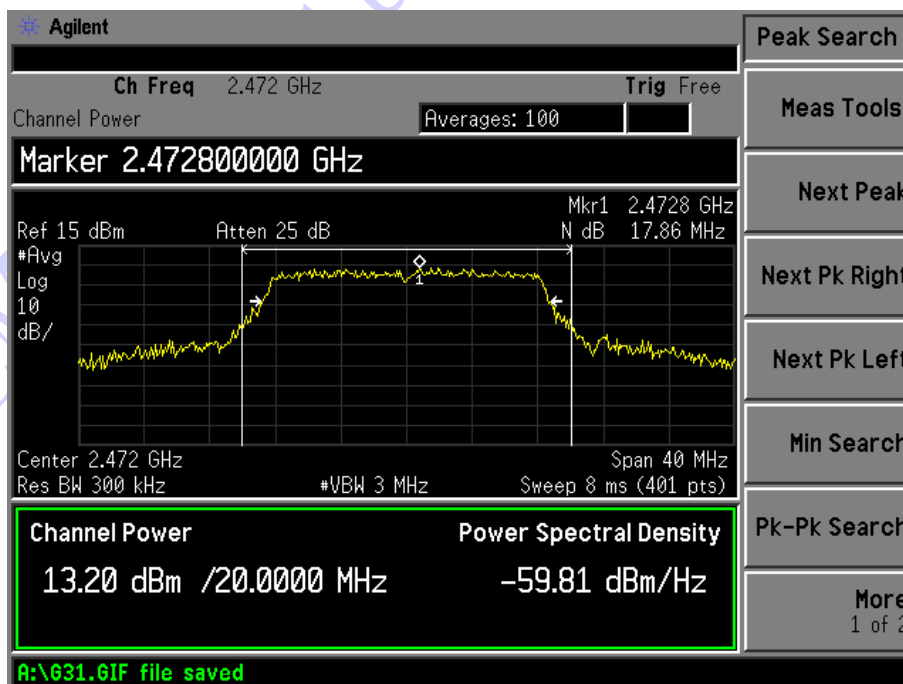
802.11g- Low channel



802.11g- Mid channel



802.11g- High channel



## 5. FREQUENCY RANGE

### 5.1 Standard Application

According to Section 4.3.3, The frequency range of the equipment is determined by the lowest and highest frequencies occupied by the power envelope.

fH is the highest frequency of the power envelope: it is the frequency furthest above the frequency of maximum power where the output power drops below the level of -80 dBm/Hz e.i.r.p. spectral power density (-30 dBm if measured in a 100 kHz bandwidth).

fL is the lowest frequency of the power envelope; it is the frequency furthest below the frequency of maximum power where the output power drops below the level equivalent to -80 dBm/Hz e.i.r.p. spectral power density (or -30 dBm if measured in a 100 kHz bandwidth).

For a given operating frequency, the width of the power envelope is (fH - fL). In equipment that allows adjustment or selection of different operating frequencies, the power envelope takes up different positions in the allocated band. The frequency range is determined by the lowest value of fL and the highest value of fH resulting from the adjustment of the equipment to the lowest and highest operating frequencies.

For all equipment the frequency range shall lie within the band 2,4 GHz to 2,4835 GHz (fL > 2,4 GHz and fH < 2,4835 GHz).

### 5.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2012-03-28	2013-03-27
Attenuator	ATTEN	DC-4GHz	ATS100-4-20	2012-03-28	2013-03-27
Moisture Test Chamber	GONGWEN	GDS-150	SEMT-0013	2012-03-28	2013-03-27
DC Power Supply	LW	APR-3003	N/A	2012-03-28	2013-03-27

### 5.3 Test Procedure

- Put the spectrum analyzer in video averaging mode with a minimum of 50 sweeps selected;
- Select the lowest operating frequency of the equipment under test and activate the transmitter with modulation applied. The RF emission of the equipment shall be displayed on the spectrum analyzer.
- Using the marker of the spectrum analyzer, find lowest frequency below the operating frequency at which spectral power density drops below the required value.
- Select the highest operating frequency of the equipment under test and find the highest frequency at which the spectral power density drop below the required value.
- The difference between the frequencies measured in step 3 and step 4 is the operating frequency range.

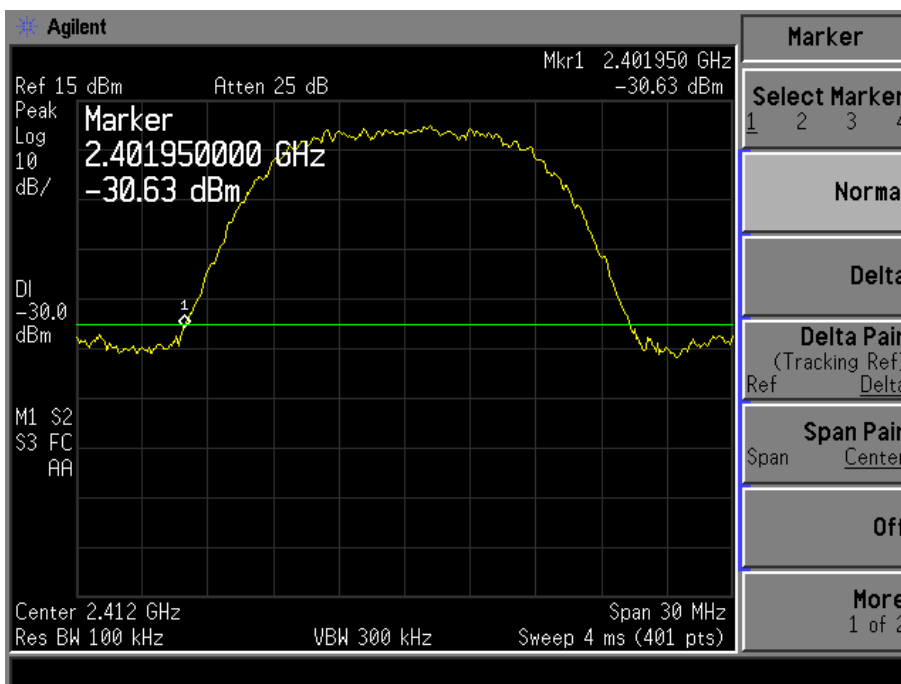
## 5.4 Summary of Test Results/Plots

Test Mode: Transmitting (802.11b/g)

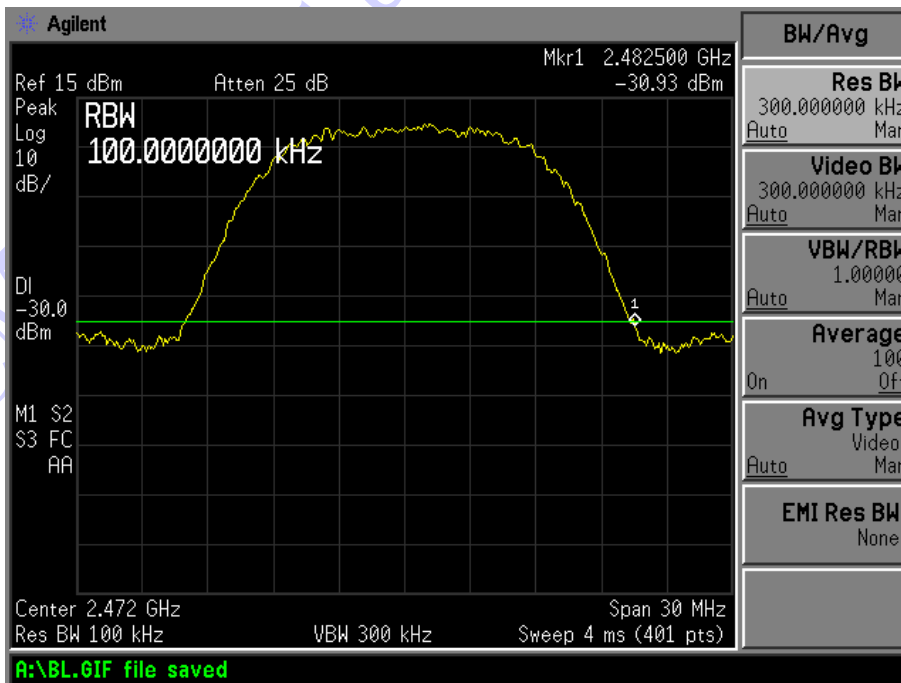
Operating mode	Test Conditions		Frequency (MHz)	
			At -30dBm/100KHz(eirp)	
			FL at Low CH	FH at High CH
802.11b	Tnom =25°C	Vnom =230 V	2401.950	2482.500
	Tmin = -20°C	Vmin =207 V	2401.943	2482.493
		Vmax =253 V	2401.940	2482.491
	Tmax =55°C	Vmin =207 V	2401.956	2482.511
		Vmax =253 V	2401.958	2482.509
	802.11g	Tnom =25°C	Vnom =230 V	2401.620
Tmin = -20°C		Vmin =207 V	2401.614	2482.615
		Vmax =253 V	2401.615	2482.611
Tmax =55°C		Vmin =207 V	2401.626	2482.625
		Vmax =253 V	2401.624	2482.627

Plots hereby for reference with the normal case:

802.11b- Lowest CH

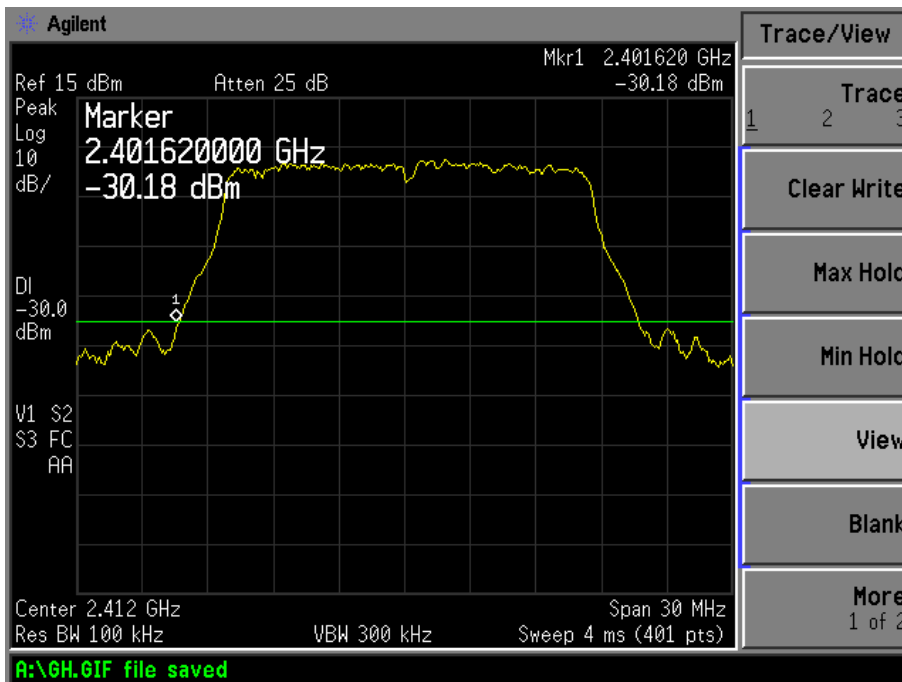


802.11b- Highest CH

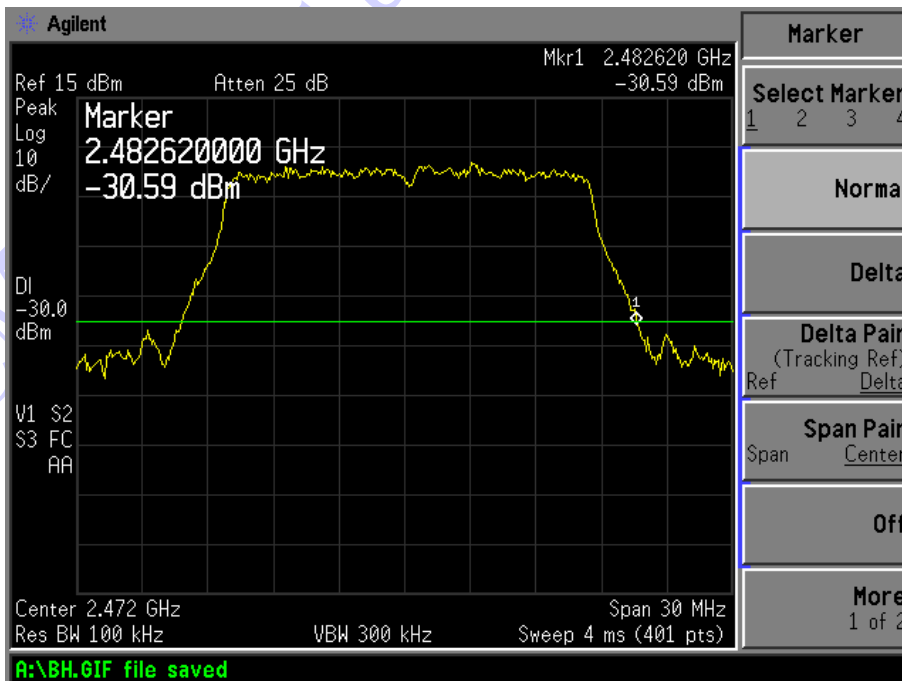




802.11g- Lowest CH



802.11g- Highest CH



## 6 MEDIUM ACCESS PROTOCOL

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### 6.1 Standard Applicable

According to EN 300 328 V1.7.1, §4.3.5 A medium access protocol is a mechanism designed to facilitate spectrum sharing with other devices in a wireless network.

A medium access protocol shall be implemented by the equipment.

### 6.2 Access Protocol Used

The protocol of the equipment is compliant with IEEE 802.11.b/g, as it is designed to share the spectrum with other devices in a wireless network.

SEM. Test Compliance

## 7. TRANSMITTER SPURIOUS EMISSIONS

### 7.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is  $\pm 5.20$  dB.

### 7.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2012-03-28	2013-03-27
Positioning Controller	C&C	CC-C-1F	N/A	2012-03-28	2013-03-27
RF Switch	EM	EMSW18	SW060023	2012-03-28	2013-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2012-03-28	2013-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2012-03-28	2013-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2012-02-25	2013-02-24
Horn Antenna	ETS	3117	00086197	2012-02-25	2013-02-24
Signal Generator	Rohde & Schwarz	SMR20	100047	2012-03-28	2013-03-27

### 7.3 Standard Applicable

According to EN 300 328 V1.7.1, §4.3.4 spurious emissions are emissions outside the frequency range as defined in frequency range. when the equipment is in Transmit mode and/or in Standby mode.

The spurious emissions of the transmitter shall not exceed the values in following tables

Table 1: Transmitter limits for narrowband spurious emissions

Frequency Range	Limit when Operating	Limit when Standby
30 MHz to 1 GHz	-36 dBm	-57 dBm
Above 1 GHz to 12.75 GHz	-30 dBm	-47 dBm
1.8 GHz to 1.9 GHz, 5.15 GHz to 5.3 GHz	-47 dBm	-47 dBm

Table 2: Transmitter limits for wideband spurious emissions

Frequency Range	Limit when Operating	Limit when Standby
30 MHz to 1 GHz	-86 dBm/Hz	-107 dBm/Hz
Above 1 GHz to 12.75 GHz	-80 dBm/Hz	-97 dBm/Hz
1.8 GHz to 1.9 GHz, 5.15 GHz to 5.3 GHz	-97 dBm/Hz	-97 dBm/Hz

### 7.4 Test Procedure

The device under test has an integral antenna and the power was measured on a radiated basis. According to the EN300328 V1.7.1 Section 5.7

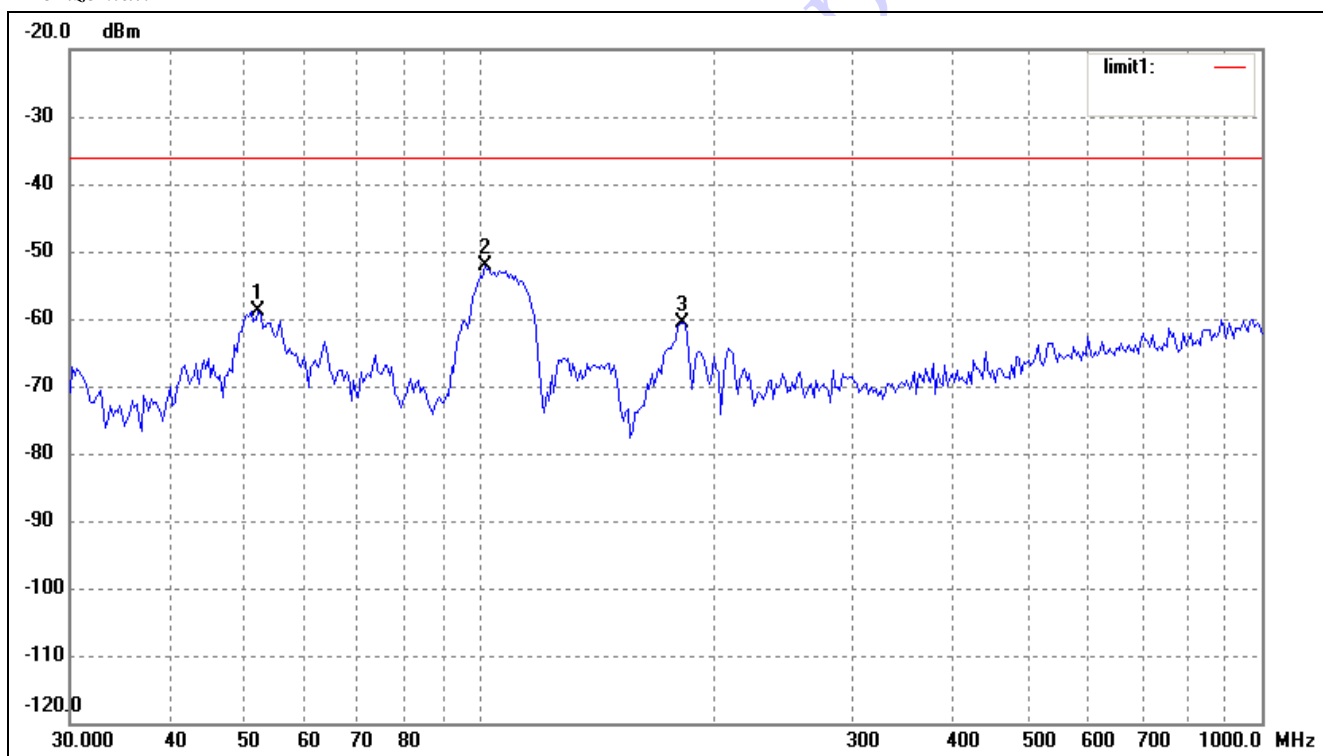
### 7.5 Environmental Conditions

Temperature:	26 °C
Relative Humidity:	52%
ATM Pressure:	1032 mbar

### 7.6 Summary of Test Results/Plots

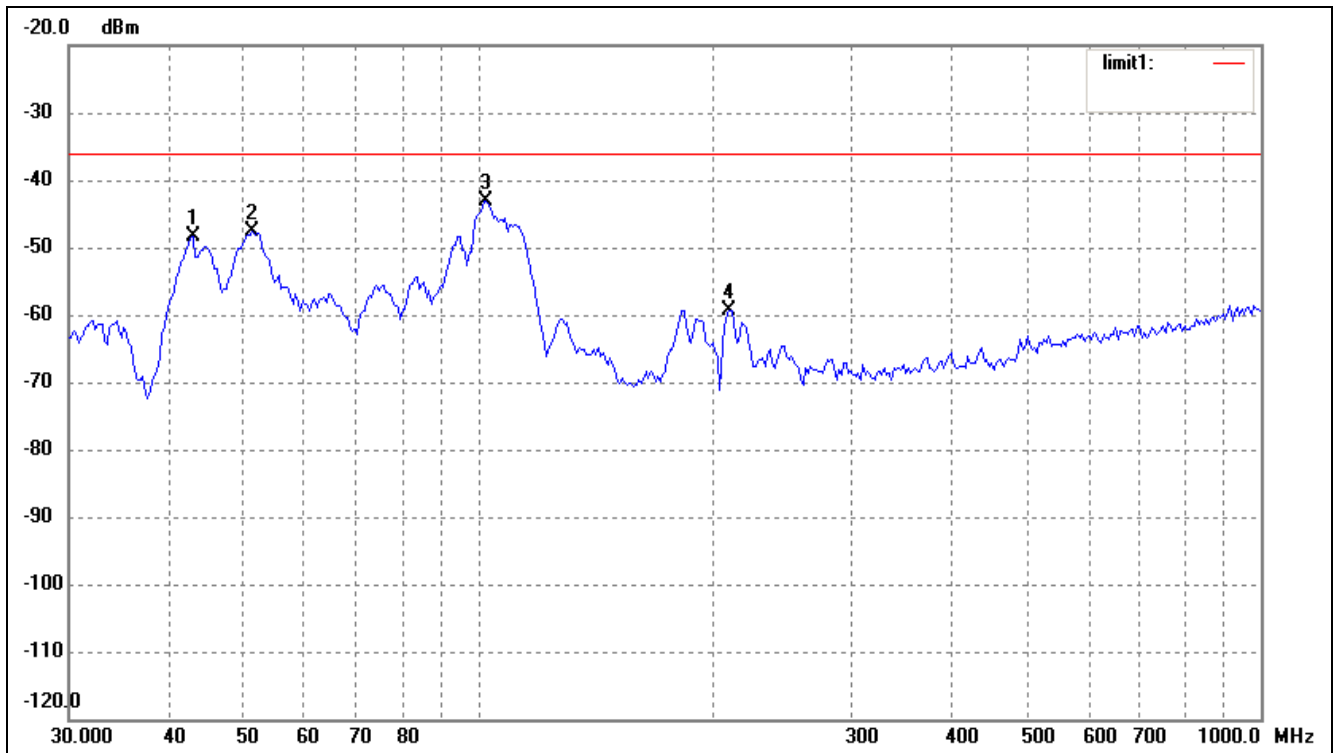
*Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

Spurious Emission From 30MHz to 1GHz  
 Test Mode: Transmitting (802.11b Low CH)  
 Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	52.2079	-78.15	19.39	-58.76	-36.00	-22.76	EIRP
2	101.6443	-71.65	19.47	-52.18	-36.00	-16.18	EIRP
3	181.9202	-77.37	16.75	-60.62	-36.00	-24.62	EIRP

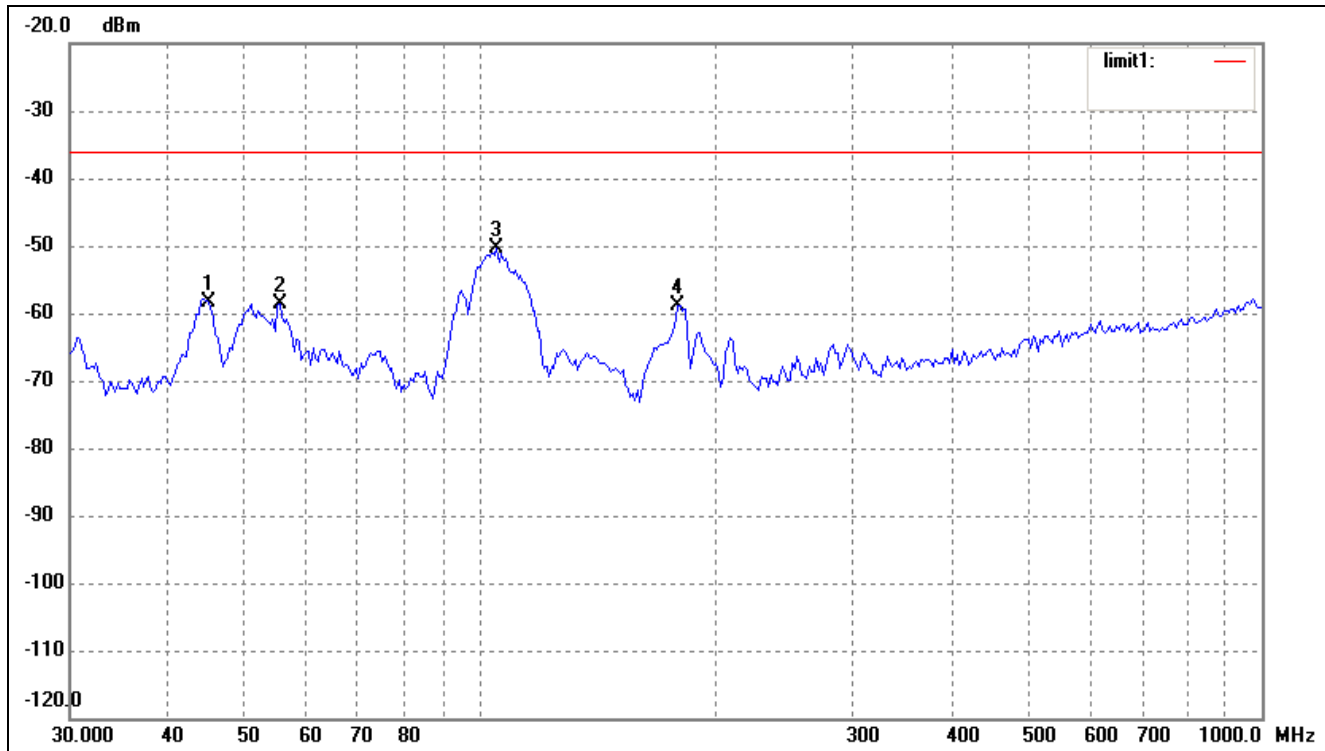
Vertical:



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	43.2017	-68.20	19.76	-48.44	-36.00	-12.44	EIRP
2	51.4807	-67.08	19.42	-47.66	-36.00	-11.66	EIRP
3	102.3597	-62.55	19.40	-43.15	-36.00	-7.15	EIRP
4	209.3129	-77.07	17.79	-59.28	-36.00	-23.28	EIRP

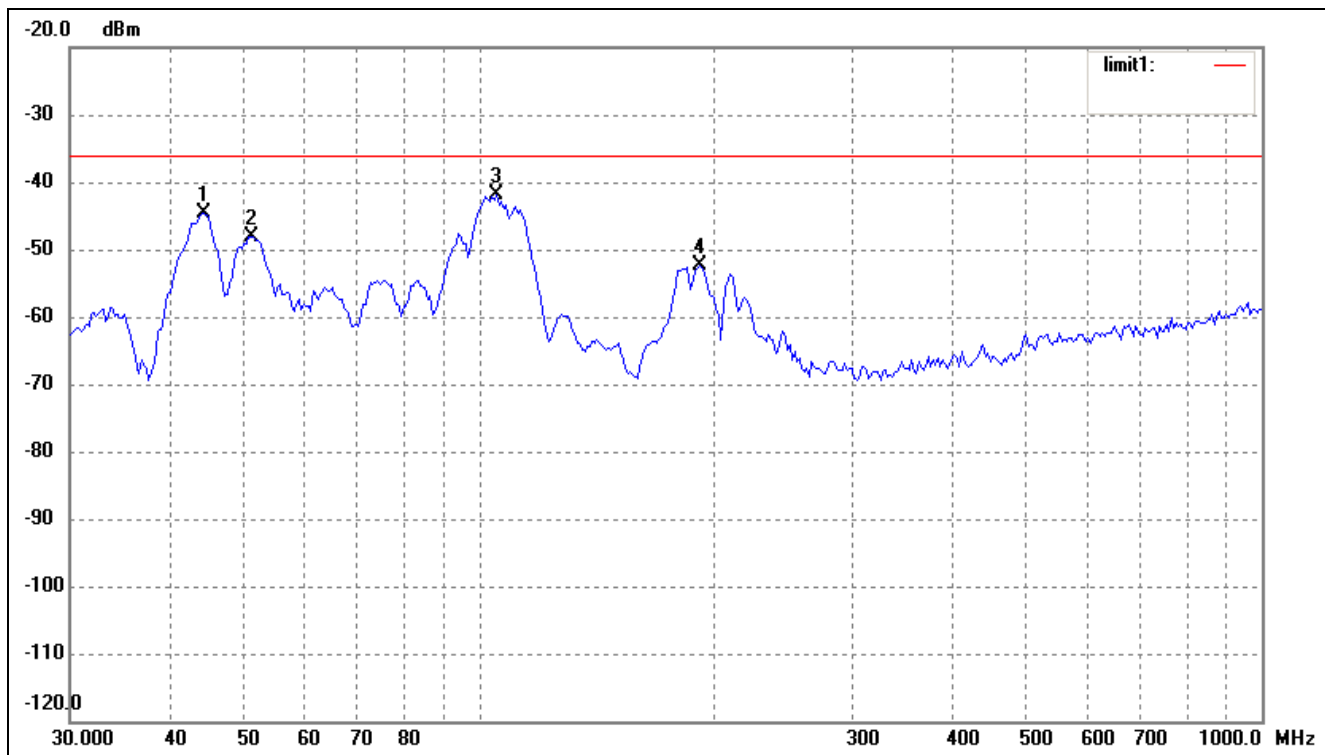
Test Mode: Transmitting (802.11b Middle CH)

Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	45.0583	-78.06	19.79	-58.27	-36.00	-22.27	EIRP
2	55.6094	-77.84	19.23	-58.61	-36.00	-22.61	EIRP
3	105.2718	-69.63	19.15	-50.48	-36.00	-14.48	EIRP
4	179.3864	-75.39	16.54	-58.85	-36.00	-22.85	EIRP

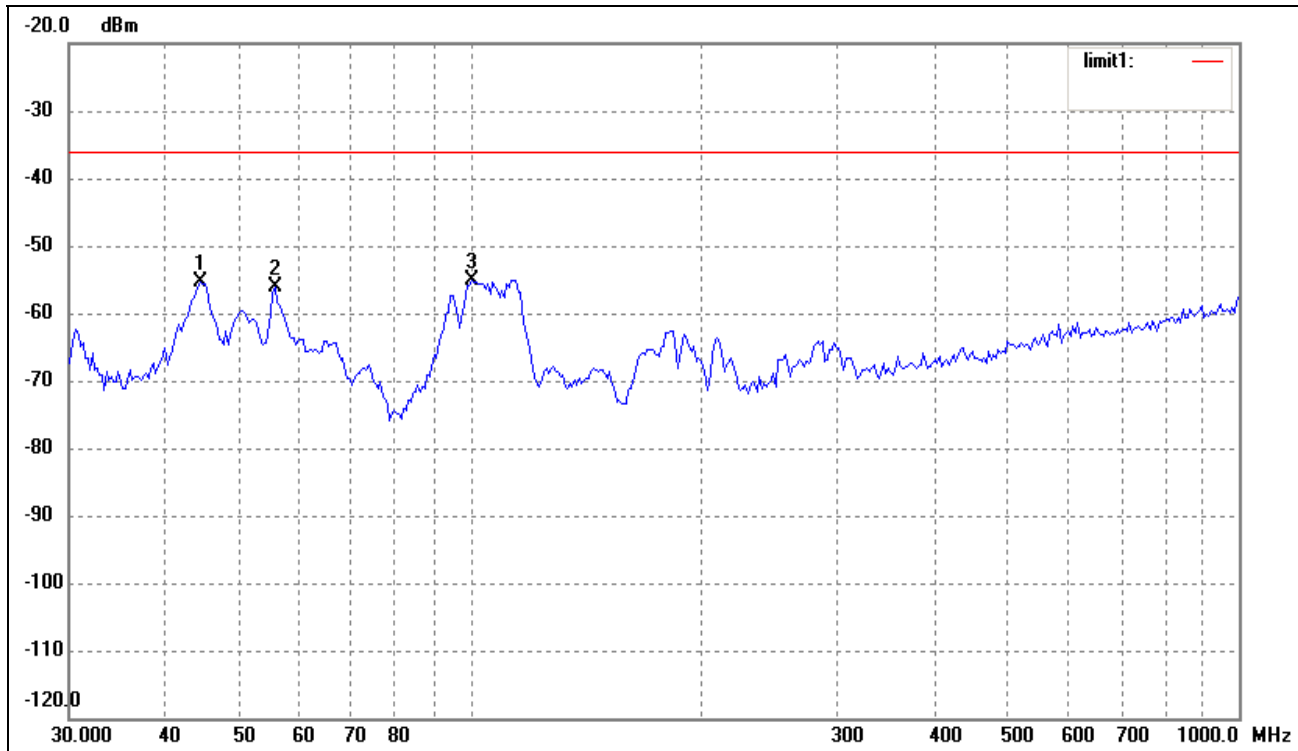
Vertical



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	44.4308	-64.33	19.78	-44.55	-36.00	-8.55	EIRP
2	51.1209	-67.45	19.44	-48.01	-36.00	-12.01	EIRP
3	105.2718	-61.11	19.15	-41.96	-36.00	-5.96	EIRP
4	191.0738	-69.89	17.46	-52.43	-36.00	-16.43	EIRP

Test Mode: Transmitting (802.11b High CH)

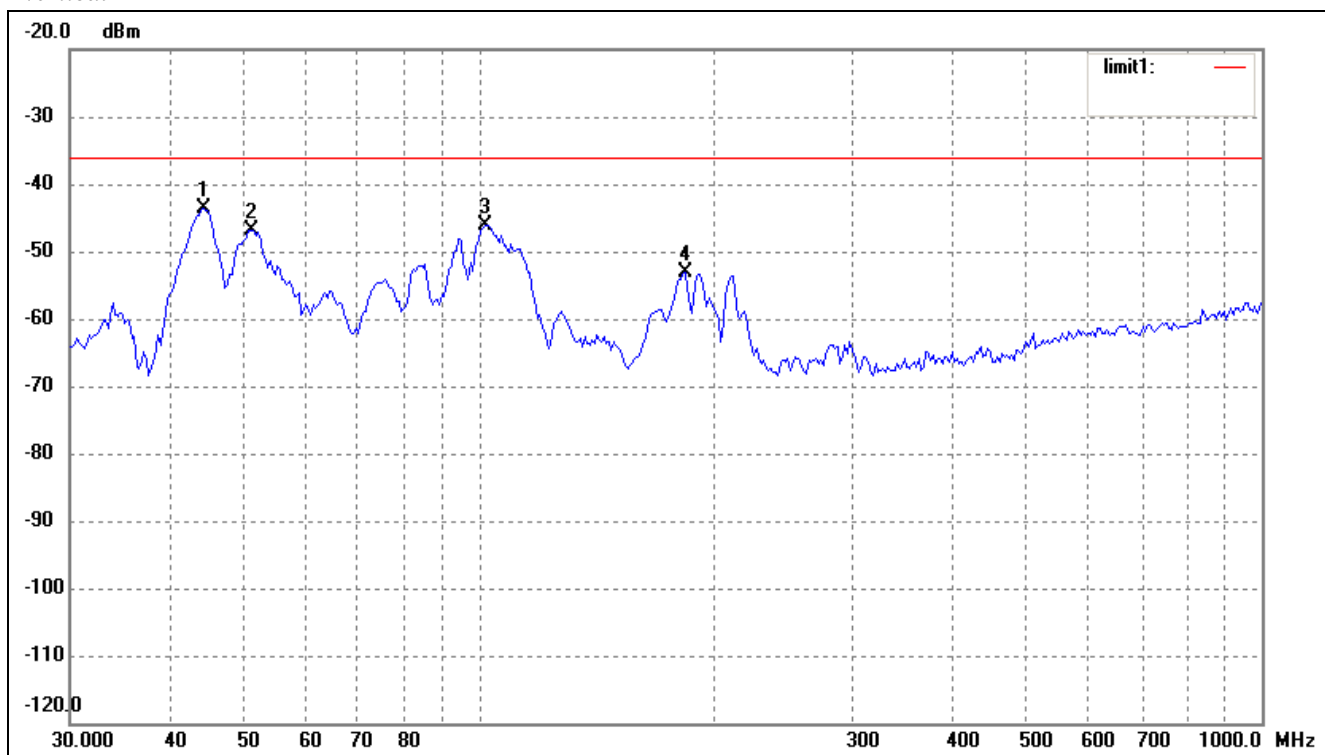
Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	44.4308	-75.07	19.78	-55.29	-36.00	-19.29	EIRP
2	55.6094	-75.47	19.23	-56.24	-36.00	-20.24	EIRP
3	100.2286	-74.68	19.59	-55.09	-36.00	-19.09	EIRP



Vertical

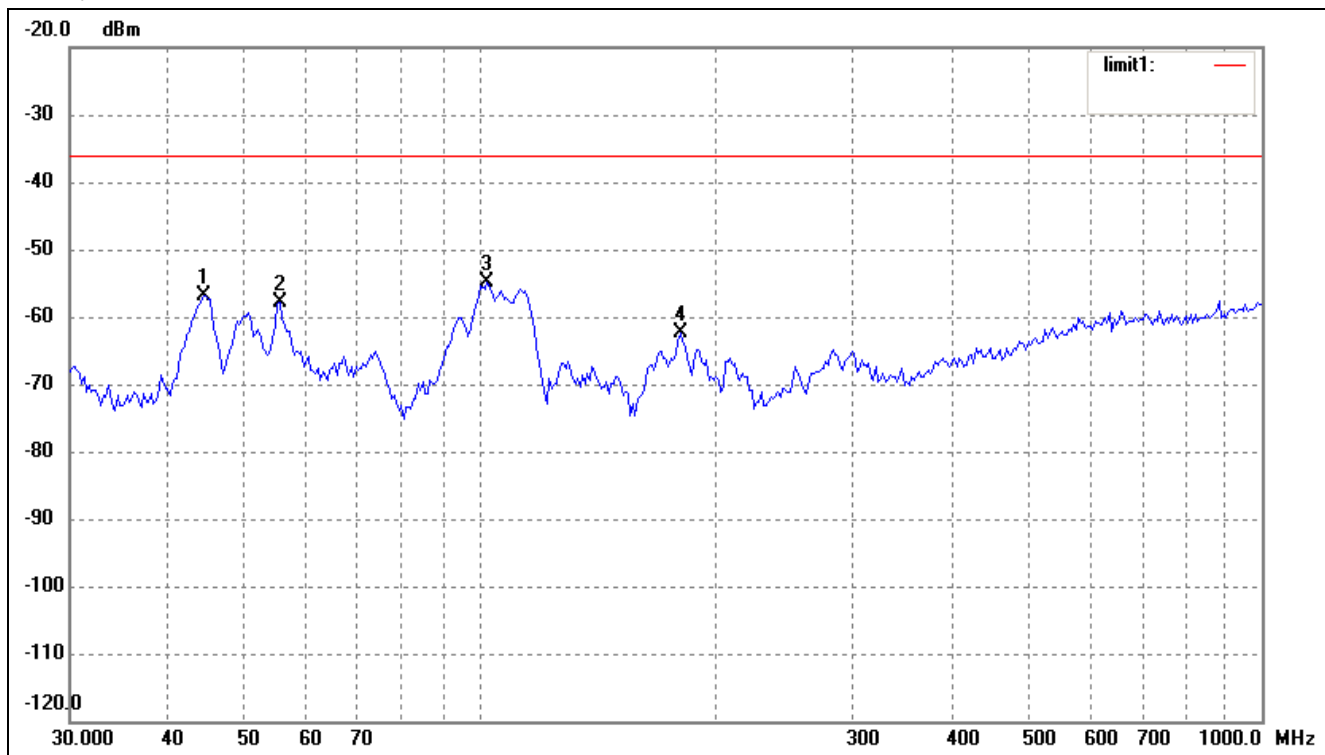


No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	44.4308	-63.49	19.78	-43.71	-36.00	-7.71	EIRP
2	51.1209	-66.26	19.44	-46.82	-36.00	-10.82	EIRP
3	101.6443	-65.53	19.47	-46.06	-36.00	-10.06	EIRP
4	183.2005	-69.86	16.86	-53.00	-36.00	-17.00	EIRP

Spurious Emission From 30MHz to 1GHz

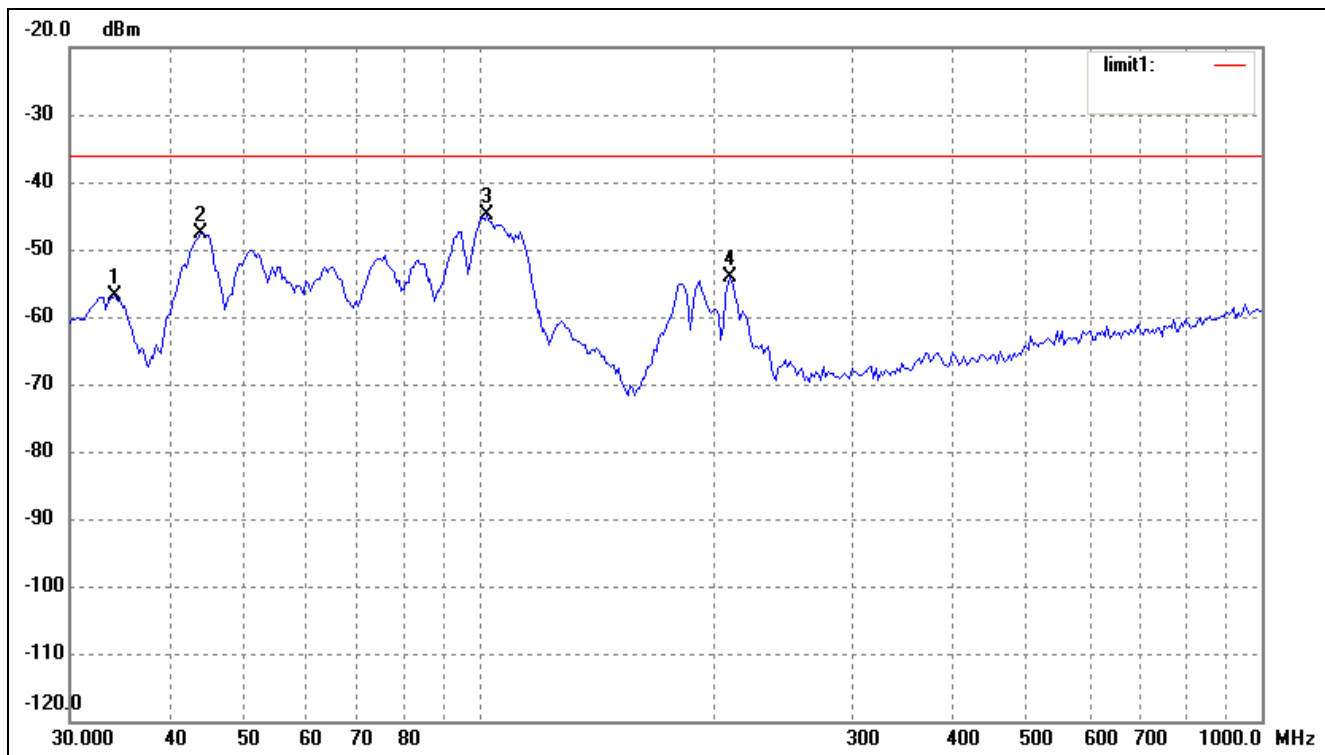
Test Mode: Transmitting (802.11g Low CH)

Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	44.4308	-76.69	19.78	-56.91	-36.00	-20.91	EIRP
2	55.6094	-77.16	19.23	-57.93	-36.00	-21.93	EIRP
3	102.3597	-74.28	19.40	-54.88	-36.00	-18.88	EIRP
4	180.6488	-78.93	16.64	-62.29	-36.00	-26.29	EIRP

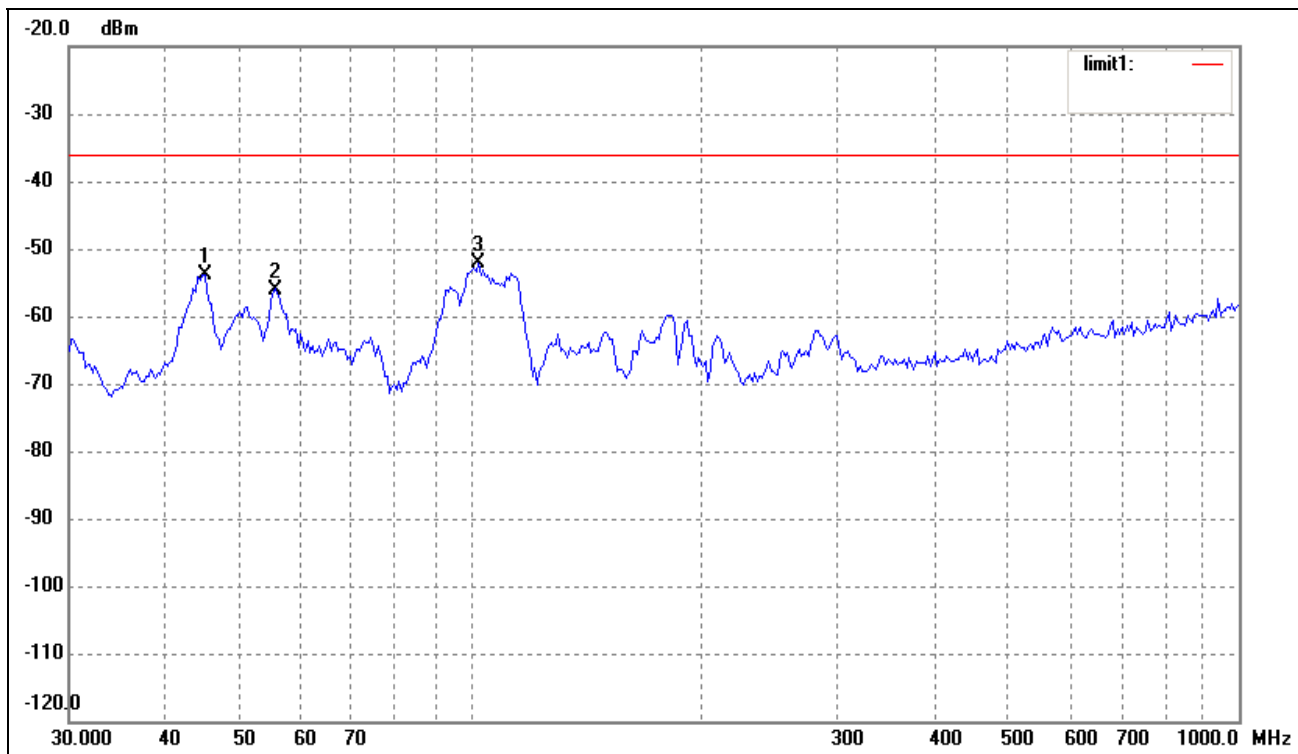
Vertical:



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	34.2760	-75.23	18.40	-56.83	-36.00	-20.83	EIRP
2	44.1202	-67.45	19.78	-47.67	-36.00	-11.67	EIRP
3	102.3597	-64.38	19.40	-44.98	-36.00	-8.98	EIRP
4	209.3129	-71.91	17.79	-54.12	-36.00	-18.12	EIRP

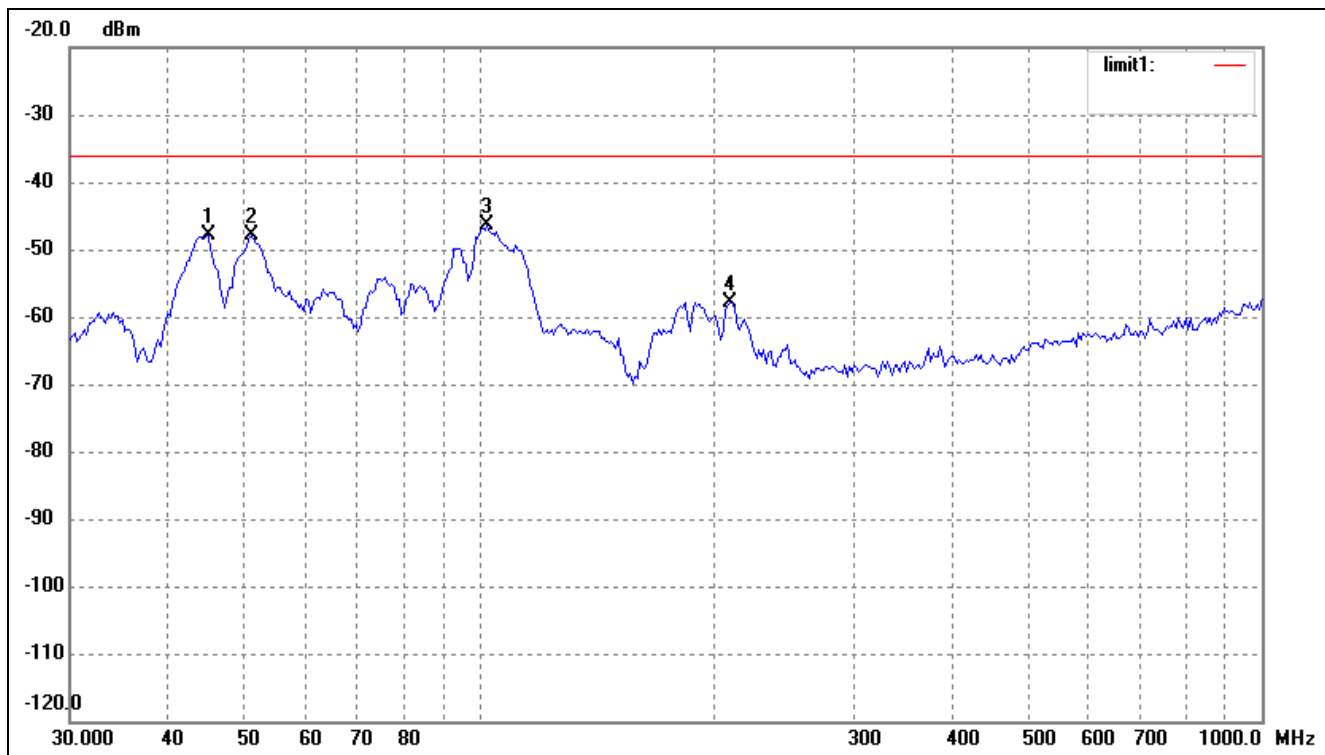
Test Mode: Transmitting (802.11g Middle CH)

Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	45.0583	-73.57	19.79	-53.78	-36.00	-17.78	EIRP
2	55.6094	-75.23	19.23	-56.00	-36.00	-20.00	EIRP
3	102.3597	-71.47	19.40	-52.07	-36.00	-16.07	EIRP

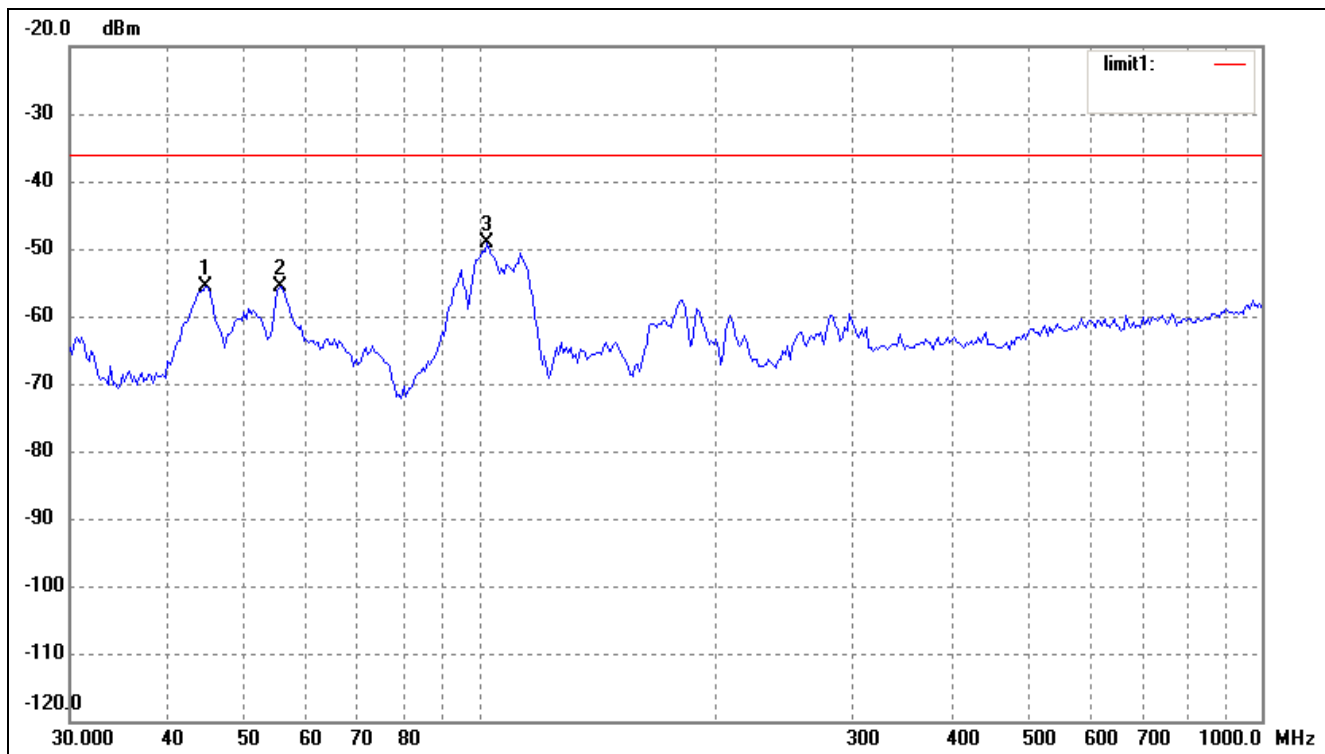
Vertical



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	45.0583	-67.73	19.79	-47.94	-36.00	-11.94	EIRP
2	51.1209	-67.34	19.44	-47.90	-36.00	-11.90	EIRP
3	102.3597	-65.86	19.40	-46.46	-36.00	-10.46	EIRP
4	209.3129	-75.58	17.79	-57.79	-36.00	-21.79	EIRP

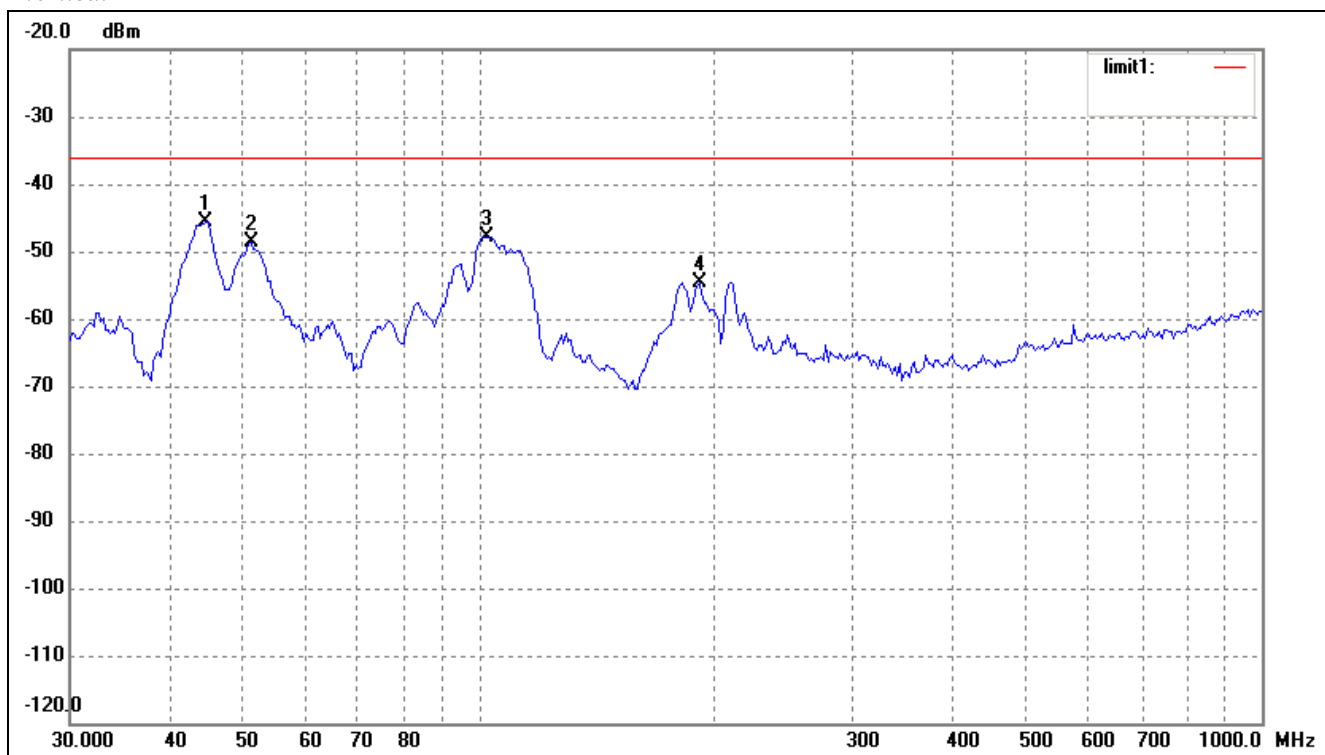
Test Mode: Transmitting (802.11g High CH)

Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	44.7434	-75.52	19.78	-55.74	-36.00	-19.74	EIRP
2	55.6094	-74.76	19.23	-55.53	-36.00	-19.53	EIRP
3	102.3597	-68.62	19.40	-49.22	-36.00	-13.22	EIRP

Vertical



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	44.7434	-65.41	19.78	-45.63	-36.00	-9.63	EIRP
2	51.1209	-67.97	19.44	-48.53	-36.00	-12.53	EIRP
3	102.3597	-67.18	19.40	-47.78	-36.00	-11.78	EIRP
4	191.0738	-71.97	17.46	-54.51	-36.00	-18.51	EIRP

*Spurious Emission Above 1GHz*  
*Test Mode: Transmitting (802.11b)*

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	EN300328 Limit	EN300328 Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel, 1-25GHz								
4824.0	-38.8	1.2	H	5.2	8.4	-35.6	-30	-5.6
4824.0	-38.2	1.5	V	5.2	8.4	-35.0	-30	-5.0
7236.0	-40.5	1.3	H	6.0	10.3	-36.2	-30	-6.2
7236.0	-42.3	1.2	V	6.0	10.3	-38.0	-30	-8.0
Middle Channel, 1-25GHz								
4884.0	-39.2	1.2	H	5.2	8.4	-36.0	-30	-6.0
4884.0	-38.8	1.0	V	5.2	8.4	-35.6	-30	-5.6
7326.0	-41.8	1.3	H	6.0	10.3	-37.5	-30	-7.5
7326.0	-40.7	1.5	V	6.0	10.3	-36.4	-30	-6.4
High Channel, 1-25GHz								
4944.0	-40.2	1.0	H	5.2	8.4	-37.0	-30	-7.0
4944.0	-38.8	1.3	V	5.2	8.4	-35.6	-30	-5.6
7416.0	-42.9	1.5	H	6.0	10.3	-38.6	-30	-8.6
7416.0	-41.5	1.0	V	6.0	10.3	-37.2	-30	-7.2

*Note: Emissions attenuated more than 20 dB below the permissible value are not reported.*



Test Mode: Transmitting (802.11g)

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	EN300328 Limit	EN300328 Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel, 1-25GHz								
4824.0	-39.2	1.2	H	5.2	8.4	-36.0	-30	-6.0
4824.0	-38.8	1.5	V	5.2	8.4	-35.6	-30	-5.6
7236.0	-39.6	1.3	H	6.0	10.3	-35.3	-30	-5.3
7236.0	-43.1	1.2	V	6.0	10.3	-38.8	-30	-8.8
Middle Channel, 1-25GHz								
4884.0	-40.3	1.2	H	5.2	8.4	-37.1	-30	-7.1
4884.0	-39.7	1.0	V	5.2	8.4	-36.5	-30	-6.5
7326.0	-42.1	1.3	H	6.0	10.3	-37.8	-30	-7.8
7326.0	-42.7	1.5	V	6.0	10.3	-38.4	-30	-8.4
High Channel, 1-25GHz								
4944.0	-39.5	1.0	H	5.2	8.4	-36.3	-30	-6.3
4944.0	-39.3	1.3	V	5.2	8.4	-36.1	-30	-6.1
7416.0	-42.3	1.5	H	6.0	10.3	-38.0	-30	-8.0
7416.0	-42.5	1.0	V	6.0	10.3	-38.2	-30	-8.2

Note: Emissions attenuated more than 20 dB below the permissible value are not reported.

## 8. RECEIVER SPURIOUS EMISSION

### 8.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is  $\pm 5.20$  dB.

### 8.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2012-03-28	2013-03-27
Positioning Controller	C&C	CC-C-1F	N/A	2012-03-28	2013-03-27
RF Switch	EM	EMSW18	SW060023	2012-03-28	2013-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2012-03-28	2013-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2012-03-28	2013-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2012-02-25	2013-02-24
Horn Antenna	ETS	3117	00086197	2012-02-25	2013-02-24
Signal Generator	Rohde & Schwarz	SMR20	100047	2012-03-28	2013-03-27

### 8.3 Standard Applicable

According to EN300328 V1.7.1 Section 4.3.5, Receiver spurious emissions are emissions at any frequency when the equipment is in received mode.

The spurious emissions of the receiver shall not exceed the values in tables 4 and 5 in the indicated bands.

Table 4: Narrowband spurious emission limits for receivers

Frequency Range	Limit
30 MHz to 1 GHz	-57 dBm
Above 1 GHz to 12.75 GHz	-47 dBm

### 8.4 Test Procedure

The device under test has an integral antenna and the power was measured on a radiated basis. According to the EN300328 V1.7.1 Section 5.7.

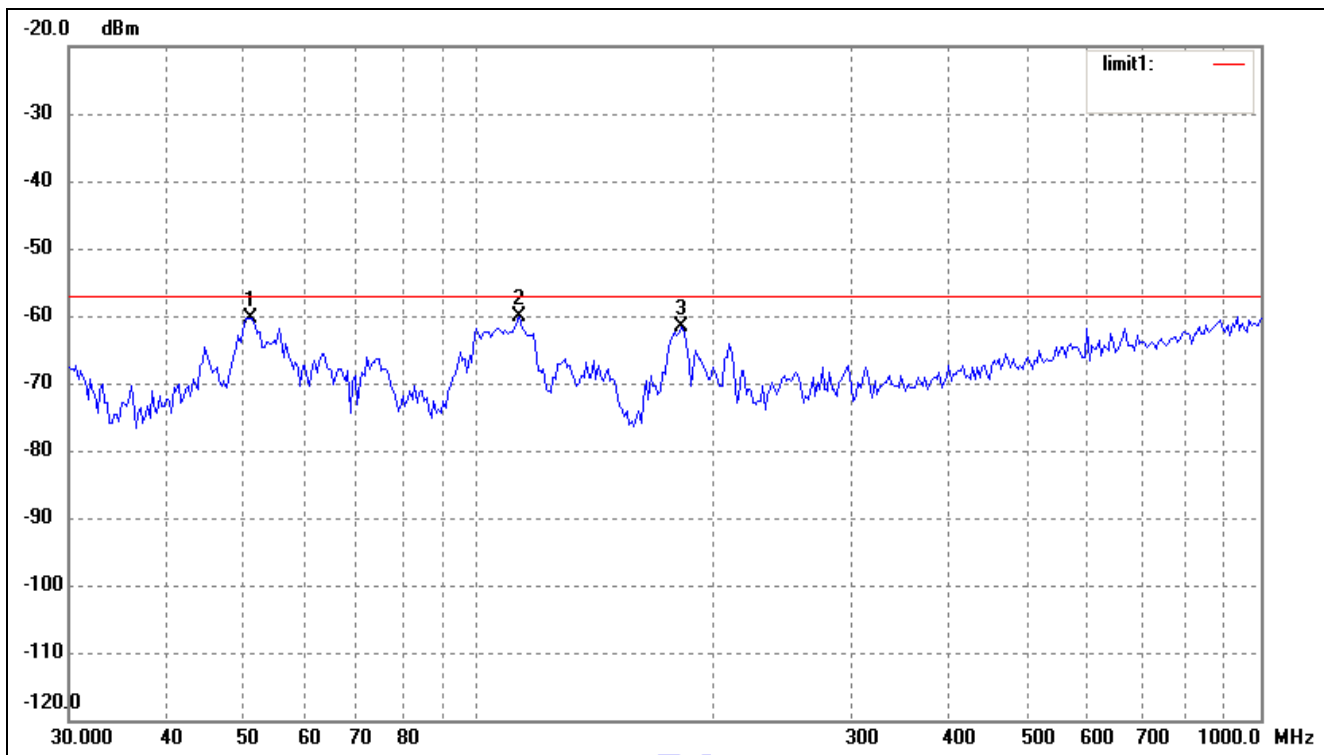
### 8.5 Environmental Conditions

Temperature:	26 °C
Relative Humidity:	61 %
ATM Pressure:	1012 mbar

### 8.6 Summary of Test Results/Plots

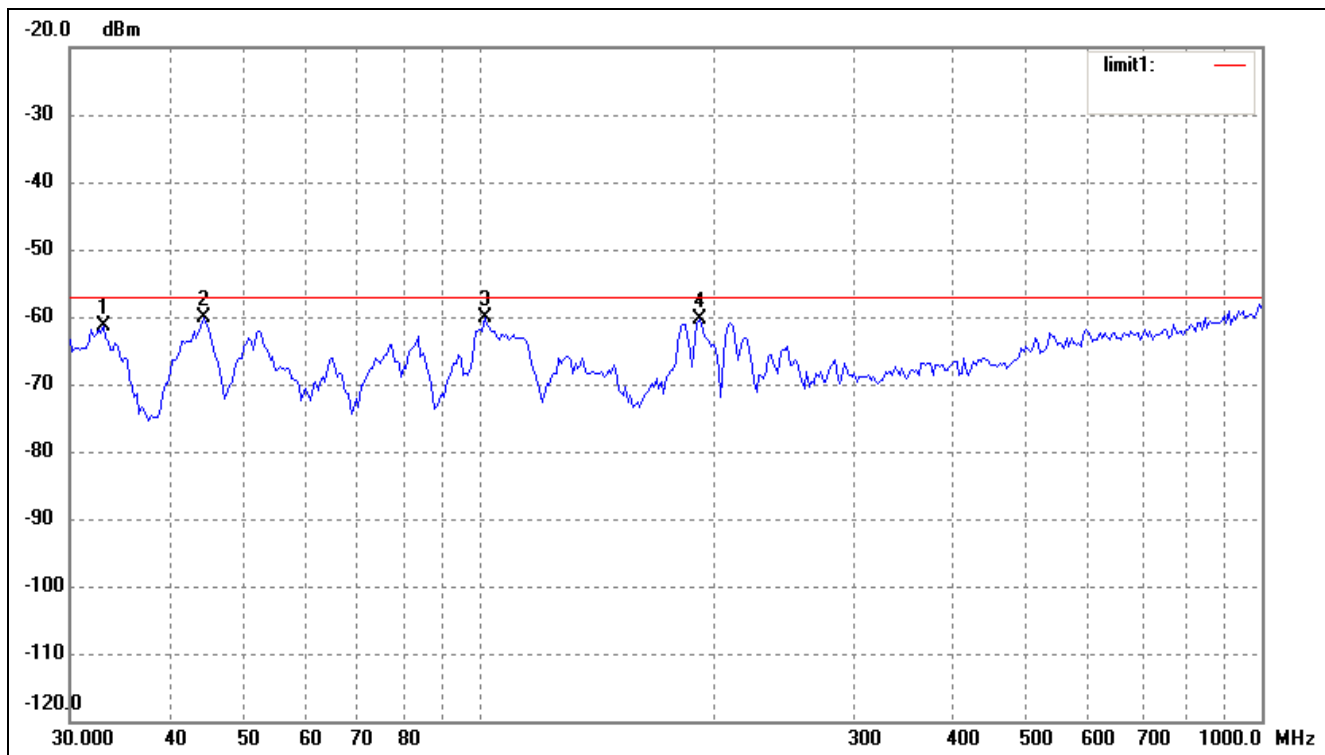
Receiving Spurious Emissions below 1000MHz

Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	51.1209	-79.83	19.44	-60.39	-57.00	-3.39	360	100	peak
2	112.9196	-78.48	18.25	-60.23	-57.00	-3.23	360	100	peak
3	181.9202	-78.36	16.75	-61.61	-57.00	-4.61	360	100	peak

Vertical:



No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	33.0950	-79.74	18.41	-61.33	-57.00	-4.33	360	100	peak
2	44.4308	-79.98	19.78	-60.20	-57.00	-3.20	360	100	peak
3	101.6443	-79.56	19.47	-60.09	-57.00	-3.09	360	100	peak
4	191.0738	-77.94	17.46	-60.48	-57.00	-3.48	360	100	peak

Note: Emissions attenuated more than 20 dB below the permissible value are not reported.

*Receiver Spurious Emission Above 1GHz (802.11b)*

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	EN300328 Limit	EN300328 Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel, 1-25GHz								
2412.0	-66.5	1.5	H	3.3	6.2	-63.6	-47	-16.6
2412.0	-69.6	1.5	V	3.3	6.2	-66.7	-47	-19.7
---	---	---	---	---	---	---	-47	---
---	---	---	---	---	---	---	-47	---
Middle Channel, 1-25GHz								
2442.0	-67.4	1.5	H	3.3	6.2	-64.5	-47	-17.5
2442.0	-68.7	1.5	V	3.3	6.2	-65.8	-47	-18.8
---	---	---	---	---	---	---	-47	---
---	---	---	---	---	---	---	-47	---
High Channel, 1-25GHz								
2472.0	-66.7	1.5	H	3.3	6.2	-63.8	-47	-16.8
2472.0	-68.2	1.5	V	3.3	6.2	-65.3	-47	-18.3
---	---	---	---	---	---	---	-47	---
---	---	---	---	---	---	---	-47	---

*Note: Emissions attenuated more than 20 dB below the permissible value are not reported.*

*Receiver Spurious Emission Above 1GHz (802.11g)*

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	EN300328 Limit	EN300328 Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel, 1-25GHz								
2412.0	-67.8	1.5	H	3.3	6.2	-64.9	-47	-17.9
2412.0	-69.6	1.5	V	3.3	6.2	-66.7	-47	-19.7
---	---	---	---	---	---	---	-47	---
---	---	---	---	---	---	---	-47	---
Middle Channel, 1-25GHz								
2442.0	-68.1	1.5	H	3.3	6.2	-65.2	-47	-18.2
2442.0	-69.6	1.5	V	3.3	6.2	-66.7	-47	-19.7
---	---	---	---	---	---	---	-47	---
---	---	---	---	---	---	---	-47	---
High Channel, 1-25GHz								
2472.0	-68.3	1.5	H	3.3	6.2	-65.4	-47	-18.4
2472.0	-70.1	1.5	V	3.3	6.2	-67.2	-47	-20.2
---	---	---	---	---	---	---	-47	---
---	---	---	---	---	---	---	-47	---

*Note: Emissions attenuated more than 20 dB below the permissible value are not reported.*

## EXHIBIT 1- PRODUCT LABELING

### Proposed CE Label Format



Specifications: Text is Black or white in color. Labels are printed in indelible ink on permanent adhesive backing or silk-screened onto the EUT or shall be affixed at a conspicuous location on the EUT.

### Proposed Label Location on EUT

CE Label Location



## EXHIBIT 2 - EUT PHOTOGRAPHS

EUT View 1



EUT View 2





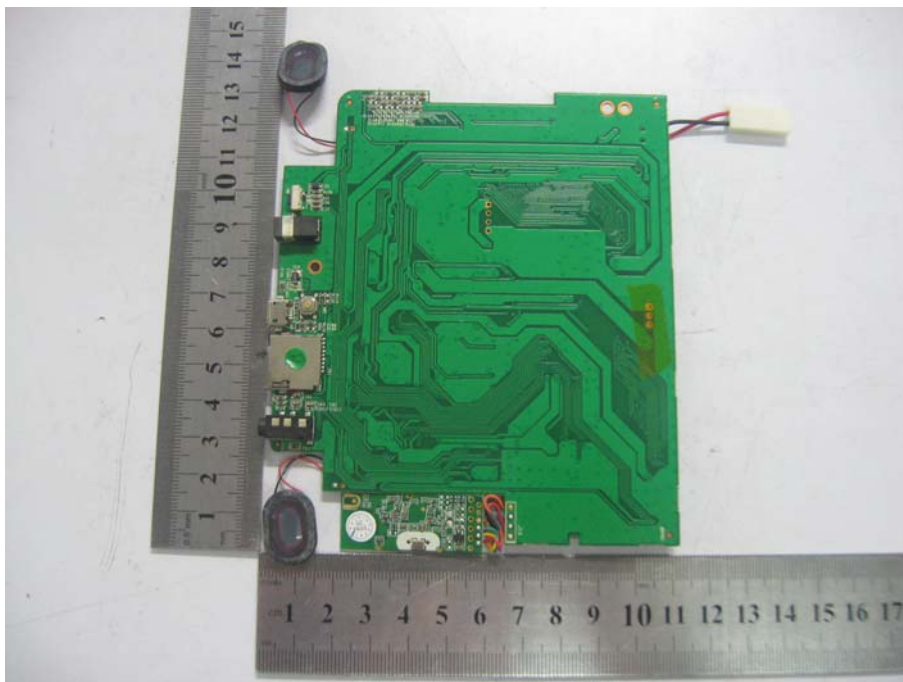
**EUT Housing and Board View**



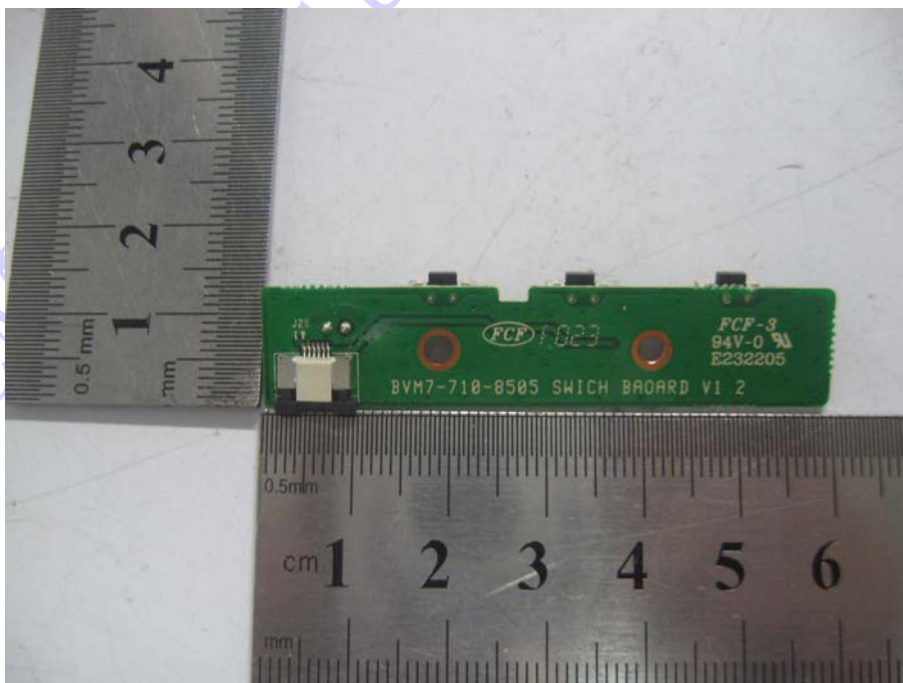
**Solder Board-Component View 1**



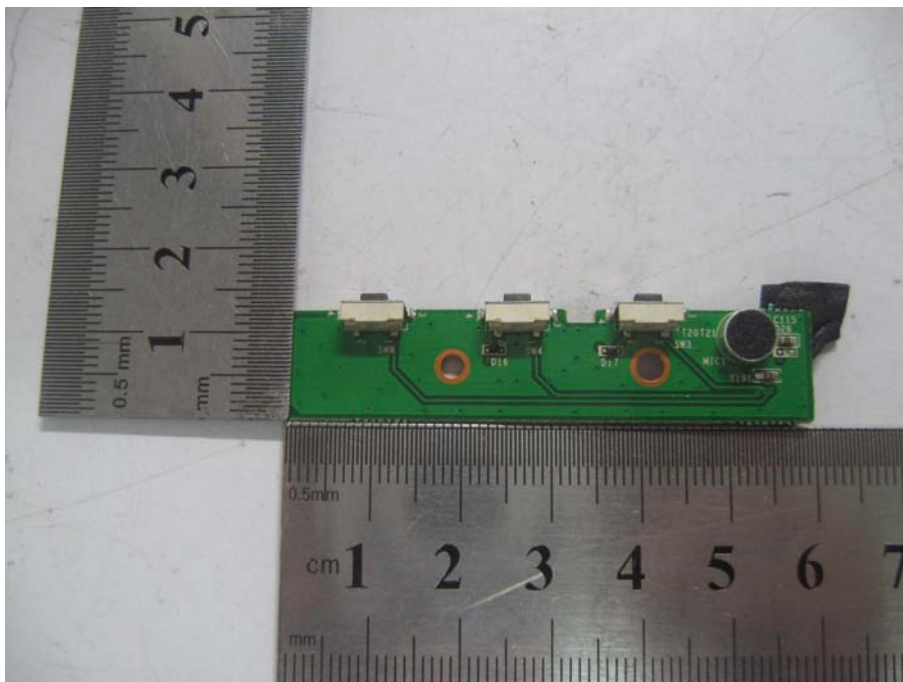
**Solder Board-Component View 2**



**Solder Board-Component View 3**

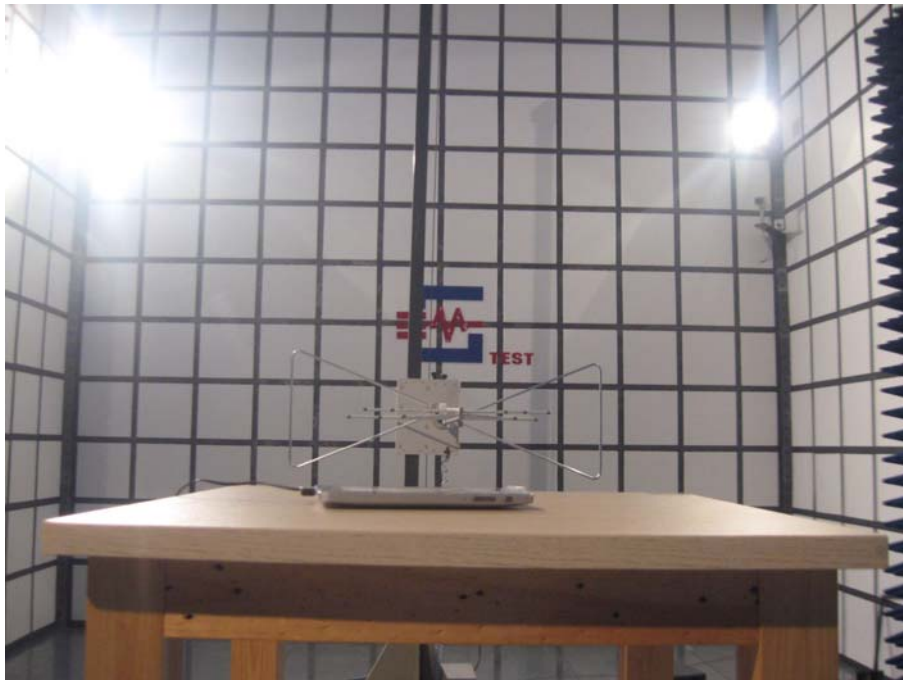


Solder Board-Component View 4

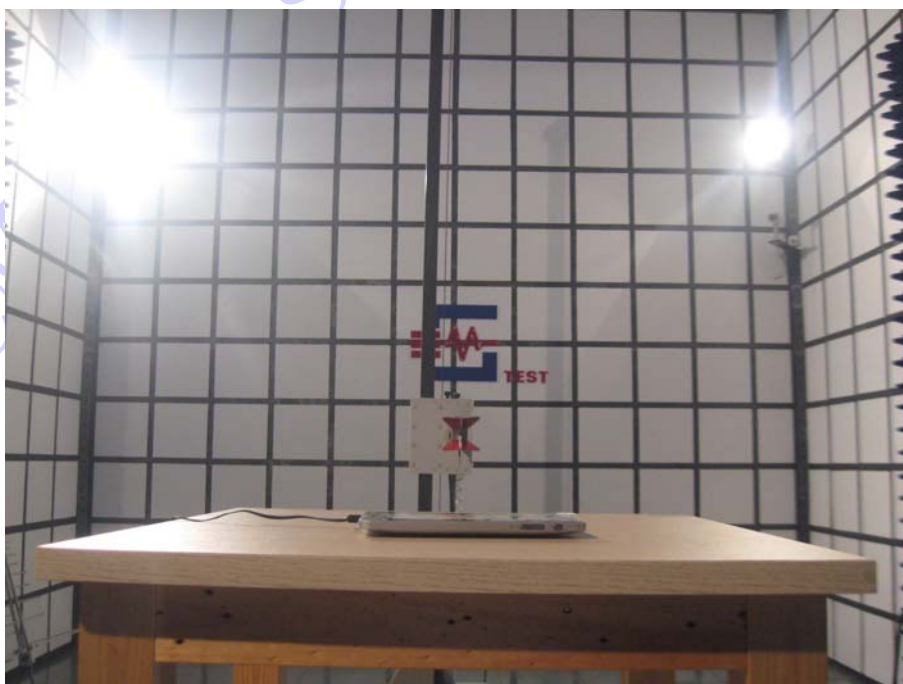


### EXHIBIT 3 - TEST SETUP PHOTOGRAPHS

Spurious Emission Test Setup (Below 1GHz)



Spurious Emission Test Setup (Above 1GHz)



**Frequency Range Test Setup**



SEM. Test Com. ce

**\*\*\*\*\* END OF REPORT \*\*\*\*\***