


**REPORT: FCC / IC test report**

**PRODUCT:**

Test item description:	Wi-Fi Tag
Trade Mark:	Ekahau
Model/Type reference:	T301-B
Serial number:	301B-083-117
Customer:	Ekahau, Inc. Tallberginkatu 2 A FIN-00180 HELSINKI FINLAND
Contact person:	Arttu Huhtiniemi
Manufacturer:	Ekahau, Inc. Tallberginkatu 2 A FIN-00180 HELSINKI FINLAND


**DATE:** 18.8.2008

**TESTED BY:**

  
Matti Virkki ; Test engineer



**APPROVED BY:**

  
Petri Lehtinen ; Operational Manager

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## 1 LABORATORY INFORMATION

<b>Test Laboratory</b>	Intertek ETL Semko OY EMC Laboratory Koneenkatu 12 / K17 05830 Hyvinkää FINLAND  Tel: +358 10 424 6200 Fax: +358 10 424 6201 e-mail: firstname.surname@intertek.com
<b>FCC registration number:</b> <b>IC file number:</b>	910391 (January 27, 2003) IC 2042C-1 (May 14, 2003)

## 2 CUSTOMER INFORMATION

<b>Client</b>	Ekahau, Inc. Tallberginkatu 2 A FIN-00180 HELSINKI FINLAND
<b>Contact person:</b>	Arttu Huhtiniemi  Arttu.Huhtiniemi@ekahau.com Tel: +358-20-743 5910 Fax: +358-20-743 5919
<b>Receipt of EUT:</b>	-
<b>Testing date:</b>	26.3 – 26.6.2008
<b>Report date:</b>	26.6.2008

The tests listed in this report have been done to demonstrate compliance to the FCC rules section CFR47 §15.107, §15.109, §15.247 and IC standard RSS-GEN, RSS-210.

### 3 SUMMARY OF TEST RESULTS

#### Transmitter measurements

Section in CFR 47	Section in RSS-210	Test	Result
§ 15.247 (a 2)	A8.2 (1)	6 dB bandwidth	PASS
§ 15.247 (d)	A8.2 (2)	Power spectral density	PASS
§ 15.247 (b 3)	A8.4 (4)	Peak output power	PASS
§ 15.247 (c)	A8.5	Band-edge compliance of RF emissions	PASS
-	RSS-GEN 4.4.1	99% bandwidth	PASS
§ 15.247 (c)	A8.5	Radiated spurious emissions	PASS
§ 15.247 (c)	A8.5	Conducted spurious emissions	PASS

#### Receiver measurements

Section in CFR 47	Section in RSS-GEN	Test	Result
§ 15.107	7.2.2	Conducted emissions to AC-power lines	PASS
§ 15.109	7.2.3	Radiated emissions	PASS

PASS Pass  
 FAIL Fail  
 X Measured, but there is no applicable performance criteria  
 NA Not applicable

### 4 EUT INFORMATION

The EUT and accessories used in the tests are listed below. Later in this report only EUT numbers are used as reference.

	Device	Type	S/N	EUT number
<b>EUT</b>	Wi-Fi Tag	T301-B	301B-083-117	1.
<b>Accessories</b>	AC Adapter	FW7650/05	NA	2.

Notes: EUT has battery power supply. AC Adapter input voltage range is 100 – 240 VAC; Output voltage is 5 VDC and maximum charging current is 1000 mA. Cable length of AC Adapter is 2 meters and diameter 3.35 mm.

#### 4.1 EUT description

The EUT is battery powered Wi-Fi Tag operating in 2.4 GHz frequency band.

### 5 EUT TEST SETUPS

Tests are done in continuous operation modes. TX mode – EUT is transmitting modulated carrier frequency during the test. RX – EUT was working as receiver. All the tests were done AC Adapter connected to EUT.

For each test the EUT was exercised to find out the worst case of operation modes and device configuration.

The test setup photographs are in the document referenced in section 15.

### 6 APPLICABLE STANDARDS

The tests were performed in guidance of:

CFR 47 part:

§15.107  
§15.109  
§15.209  
§15.247  
ANSI C63.4, 2003

IC standard:

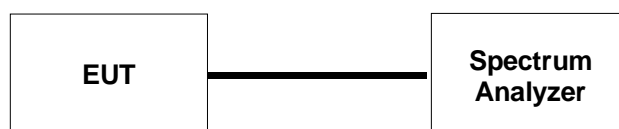
RSS-GEN, Issue 1  
RSS-210, Issue 7  
CISPR 22, 2002

Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method" for each test case.

## 7 6 dB BANDWIDTH

<b>EUT</b>	EUT 1.		
<b>Accessories</b>	EUT 2.		
<b>Temp, Humidity, Air Pressure</b>	21 °C	22 RH%	1006 hPa
<b>Date of measurement</b>	15.8.2008		
<b>FCC rule part</b>	15.247 (a 2)		
<b>RSS-210 section</b>	A8.2 (1)		
<b>Measured by</b>	Matti Virkki		

### 7.1 Test setup and measurement method



Picture 1: Test setup for conducted RF output power measurement

The 6 dB bandwidth was measured using 100 kHz resolution bandwidth and maximum hold function of the spectrum analyzer. 6 dB bandwidth was defined by measuring the maximum level on the measured channel and by placing display line 6 dB below this value and by reading the bandwidth from the intersection of the measured trace and display line.

### 7.2 EUT operation mode

<b>EUT operation mode</b>	Max Power, Normal modulation
<b>EUT channel</b>	1, 6 and 11
<b>EUT TX power level</b>	Full Power

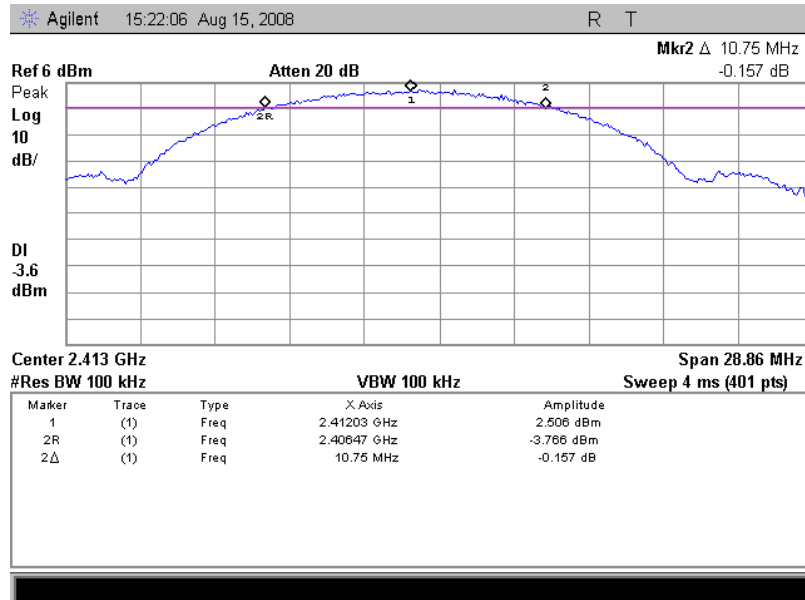
### 7.3 Results

Table 1: 6 dB bandwidth measurement results

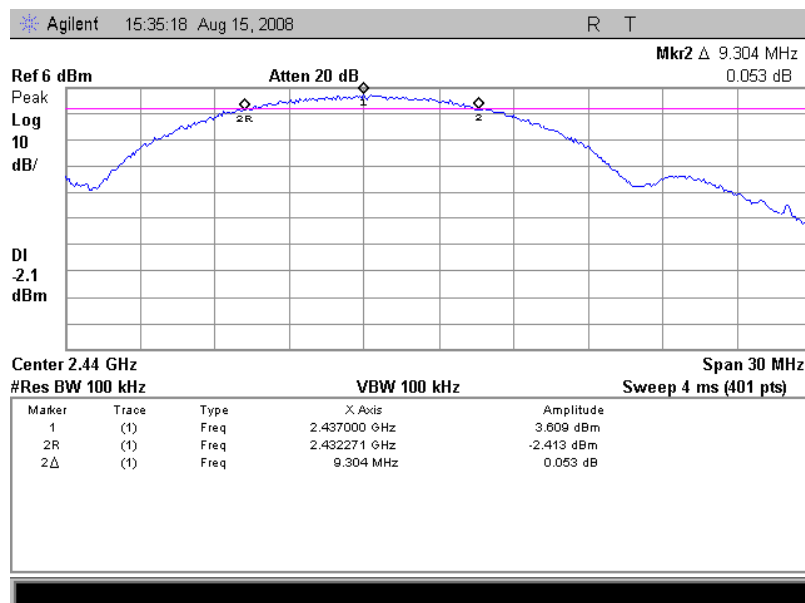
EUT Channel	Limit (MHz)	Measured value (MHz)
1	> 0.5	10.75
6		9.30
11		9.90

7.4 Screen shots

Picture 2: 6 dB Bandwidth measurement result, Channel 1

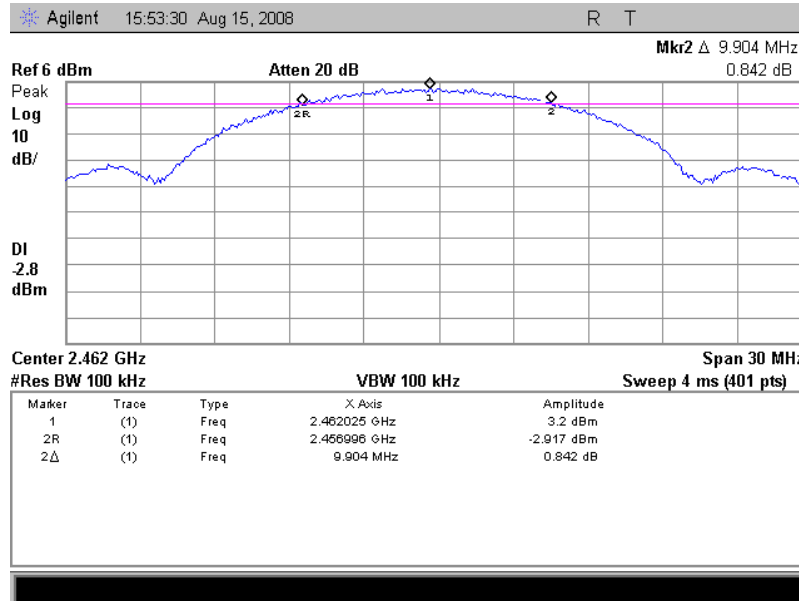


Picture 3: 6 dB Bandwidth measurement result, Channel 6





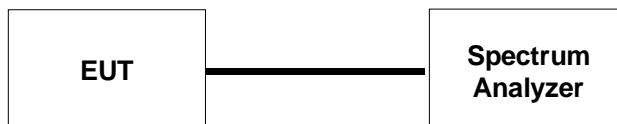
Picture 4: 6 dB Bandwidth measurement result, Channel 11



## 8 PEAK OUTPUT POWER

<b>EUT</b>	EUT 1.		
<b>Accessories</b>	EUT 2.		
<b>Temp, Humidity, Air Pressure</b>	21 °C	22 RH%	1006 hPa
<b>Date of measurement</b>	2.4.2008		
<b>FCC rule part</b>	15.247 (b 3)		
<b>RSS-210 section</b>	A8.4 (4)		
<b>Measured by</b>	Petri Juhola		

### 8.1 Test setup and measurement method



Picture 5: Test setup for conducted RF output power measurement

In the peak output power measurement the cable attenuations were measured prior to the power measurement and set as parameter for external preamplifier gain in the spectrum analyzer to correct the reading of the peak output power. Spectrum analyzer subtracts the set PG value shown in the screenshots from the measured reading.

The measurement was made using spectrum analyzer band power function.

### 8.2 EUT operation mode

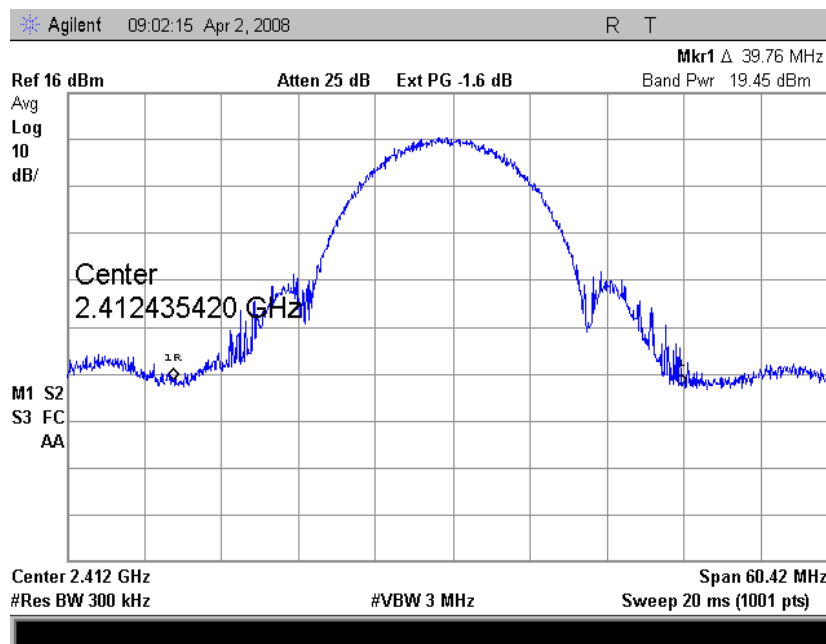
<b>EUT operation mode</b>	Normal modulation
<b>EUT channel</b>	1, 6 and 11
<b>EUT TX power level</b>	Full Power

### 8.3 Results

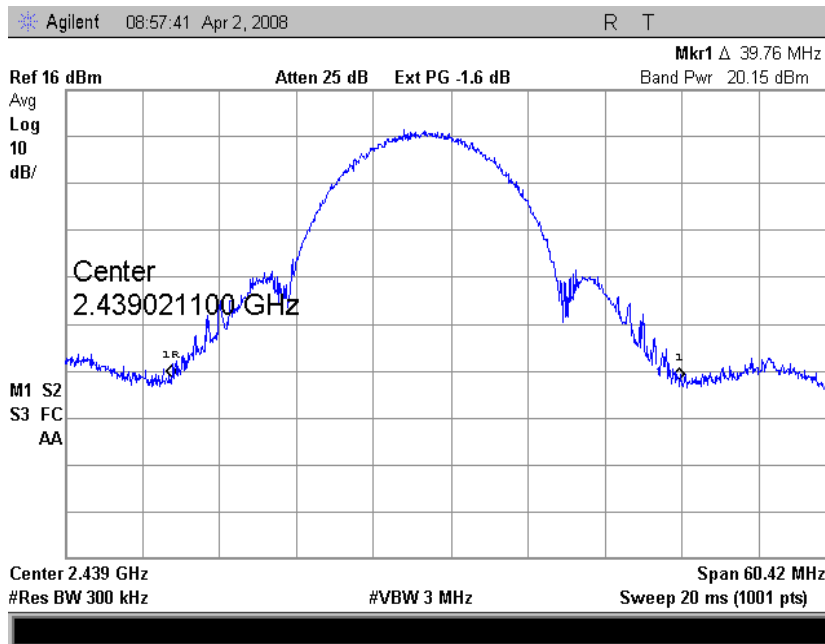
Table 2: Peak output power measurement results

EUT Channel	Limit (W)	Test result (W)	Limit (dBm)	Test result (dBm)
1	≤ 1	0.09	≤ 30	19.45
6		0.10		20.15
11		0.14		21.6

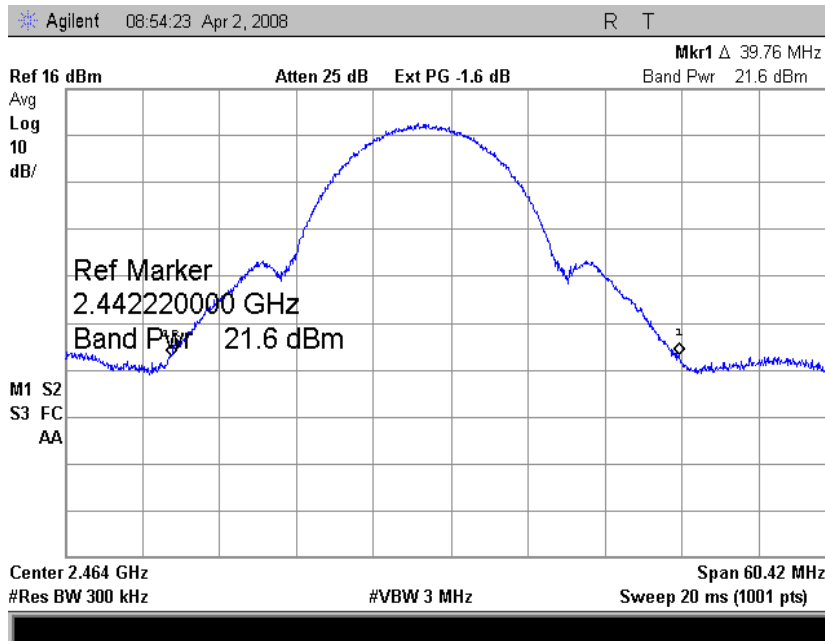
### 8.4 Screen shots



Picture 6: Peak output power, channel 1



Picture 7: Peak output power, channel 6

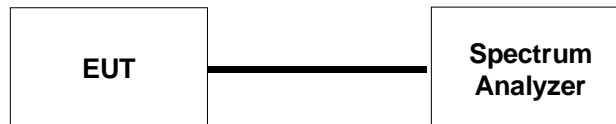


Picture 8: Peak output power, channel 11

## 9 POWER SPECTRAL DENSITY

<b>EUT</b>	EUT 1.		
<b>Accessories</b>	EUT 2.		
<b>Temp, Humidity, Air Pressure</b>	21 °C	22 RH%	1006 hPa
<b>Date of measurement</b>	2.4.2008		
<b>FCC rule part</b>	15.247 (d)		
<b>RSS-210 section</b>	A8.2 (2)		
<b>Measured by</b>	Petri Juhola		

### 9.1 Test setup and measurement method



Picture 9: Test setup for conducted RF output power measurement

In the power spectral density measurement the cable attenuations were measured prior to the power measurement and set as parameter for external preamplifier gain in the spectrum analyzer to correct the reading of the peak output power. Spectrum analyzer subtracts the set PG value shown in the screenshots from the measured reading.

The measurement was made by first finding the maximum of emission with wide enough measurement span to cover the whole transmitter spectrum. The maximum was centered to spectrum analyzer display. Zero span and 3 kHz resolution bandwidth were used to measure power spectral density.

### 9.2 EUT operation mode

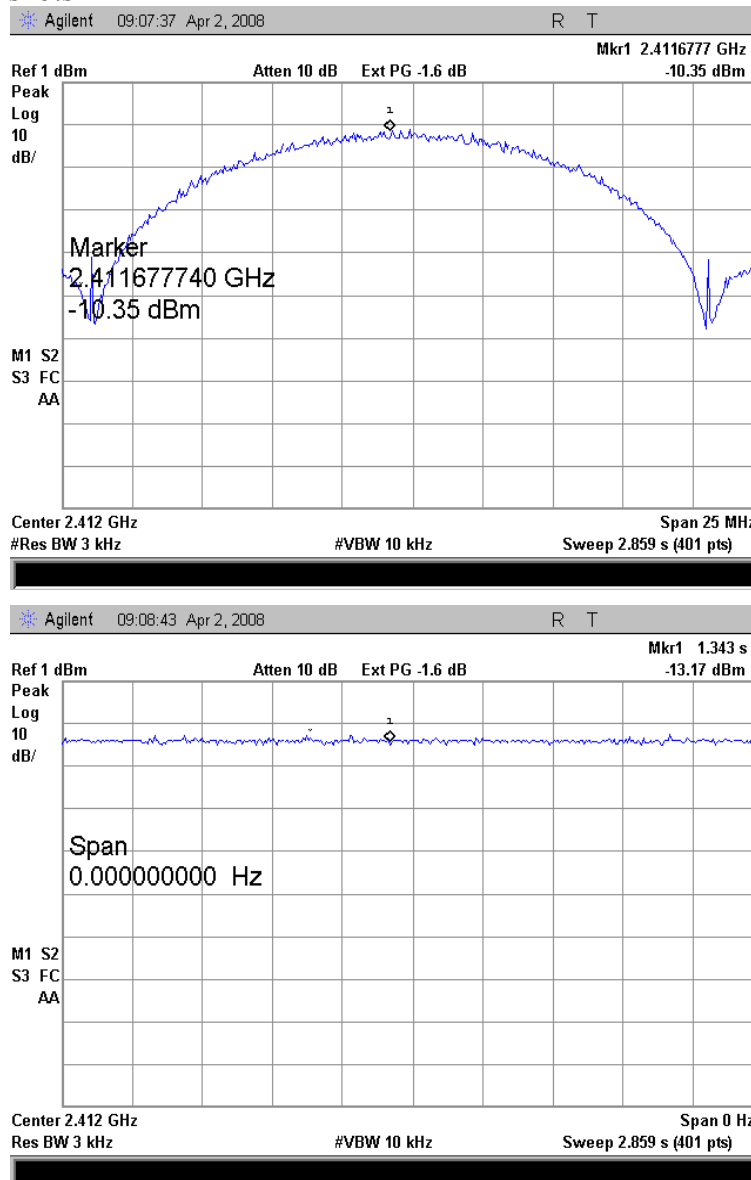
<b>EUT operation mode</b>	Normal modulation
<b>EUT channel</b>	1, 6 and 11
<b>EUT TX power level</b>	Full Power

### 9.3 Results

Table 3: Power spectral density measurement results (Cable attenuation 1.6dB added to results in table below)

EUT Channel	Limit (dBm)	Test result (dBm)
1	$\leq 8$	-13.2
6		-13.5
11		-11.8

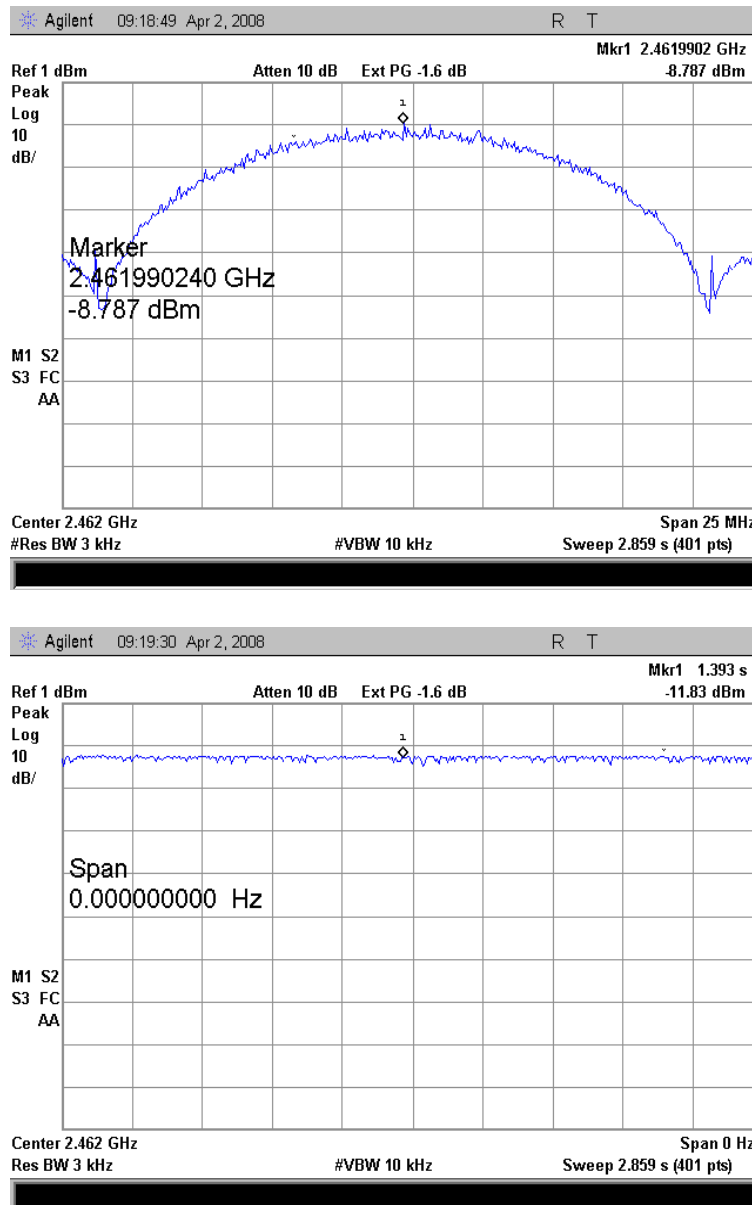
### 9.4 Screen shots



Picture 10: Power spectral density, channel 1



Picture 11: Power spectral density, channel 6



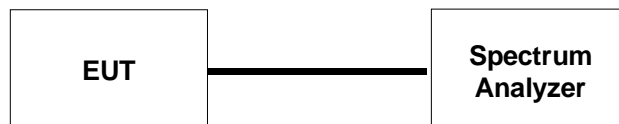
Picture 12: Power spectral density, channel11



## 10 BAND-EDGE COMPLIANCE OF RF CONDUCTED EMISSIONS

<b>EUT</b>	EUT 1.		
<b>Accessories</b>	EUT 2.		
<b>Temp, Humidity, Air Pressure</b>	21 °C	22 %Rh	1006 hPa
<b>Date of measurement</b>	2.4.2008		
<b>FCC rule part</b>	15.247 (c)		
<b>RSS-210 section</b>	A8.5		
<b>Measured by</b>	Petri Juhola		

### 10.1 Test setup and measurement method



Picture 13: Test setup for band edge compliance measurement

Band edge compliance of RF-conducted emissions was measured by setting the band edge as center frequency in the spectrum analyzer and measuring the power on the transmission on channels 1 and 11. The measured power and power on the band edge was then compared.

### 10.2 EUT operation mode

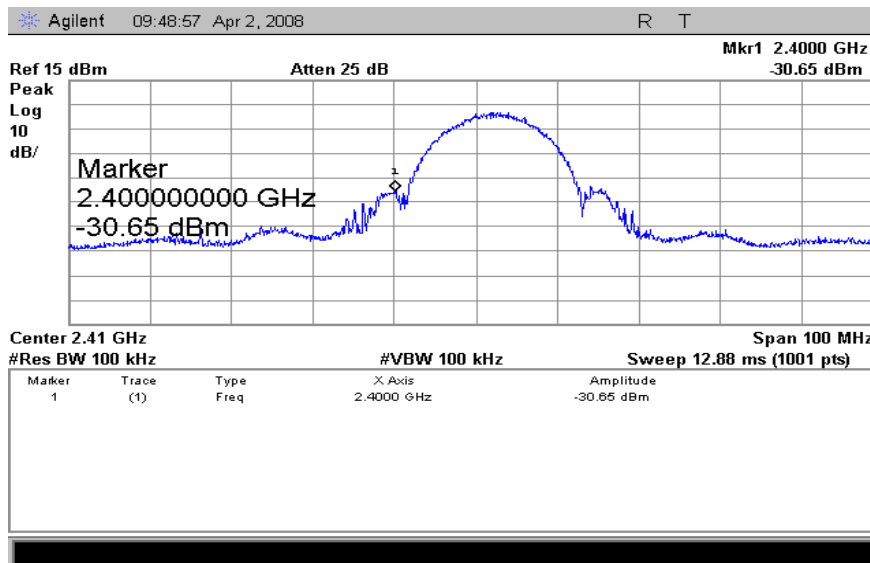
<b>EUT operation mode</b>	Normal modulation
<b>EUT channel</b>	1 and 11
<b>EUT TX power level</b>	Full Power

### 10.3 Results

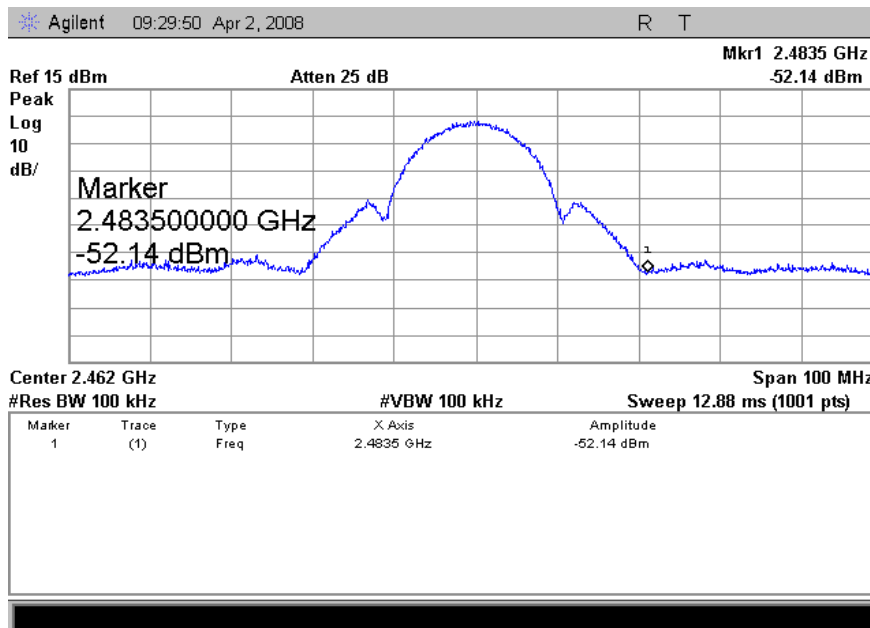
Table 4: Signal attenuation at band-edge

EUT Channel	Limit (dBc)	Test result (dBc)
1	≤ -20	-30.6
11		-52.1

### 10.4 Screen shots



Picture 14: Band edge compliance, channel 1



Picture 15: Band edge compliance, channel 11

## 11 99 % BANDWIDTH

<b>EUT</b>	EUT 1.		
<b>Accessories</b>	EUT 2.		
<b>Temp, Humidity, Air Pressure</b>	21 °C	22 RH%	1006 hPa
<b>Date of measurement</b>	June 27, 2008		
<b>FCC rule part</b>	-		
<b>RSS-GEN section</b>	4.4.1		
<b>Measured by</b>	Matti Virkki		

### 11.1 Test setup and measurement method

The 99% occupied bandwidth was calculated from spectrum analyzer measurements.

The measurement data was read from the analyzer to computer.

Software in computer calculated the total power from the measurement data and defined the frequency band containing 99% of the total power.

Markers in the spectrum analyzer were then placed between the calculated frequencies to show the calculated 99% power band in the screenshots.

### 11.2 EUT operation mode

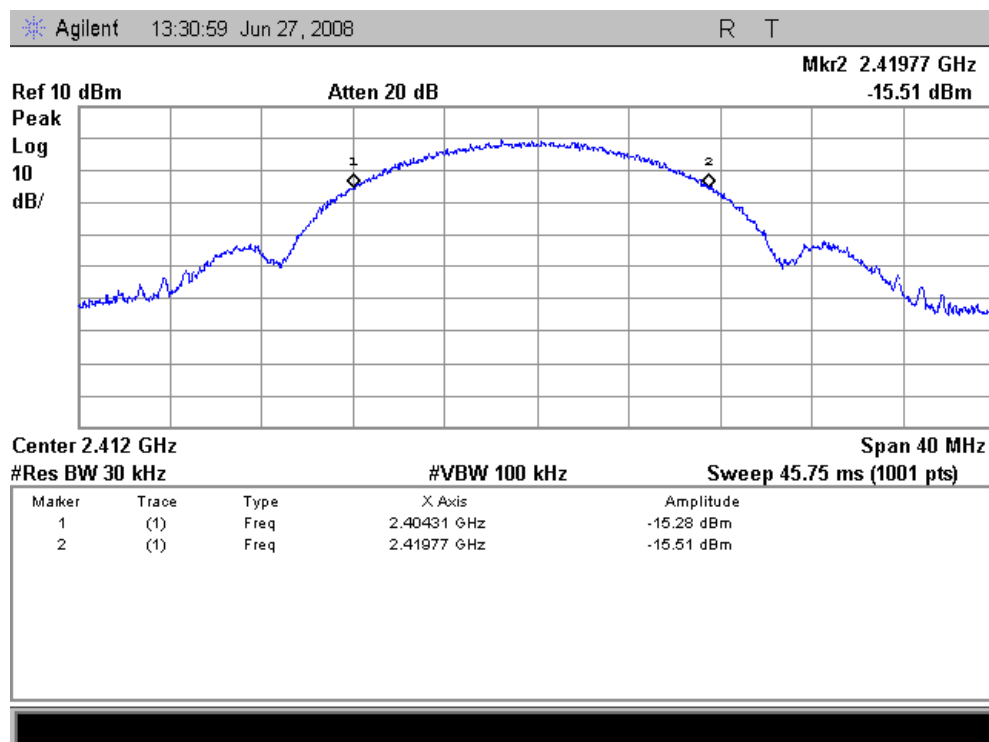
<b>EUT operation mode</b>	Normal modulation
<b>EUT frequency</b>	1, 6 and 11
<b>EUT TX power level</b>	Full Power

### 11.3 Results

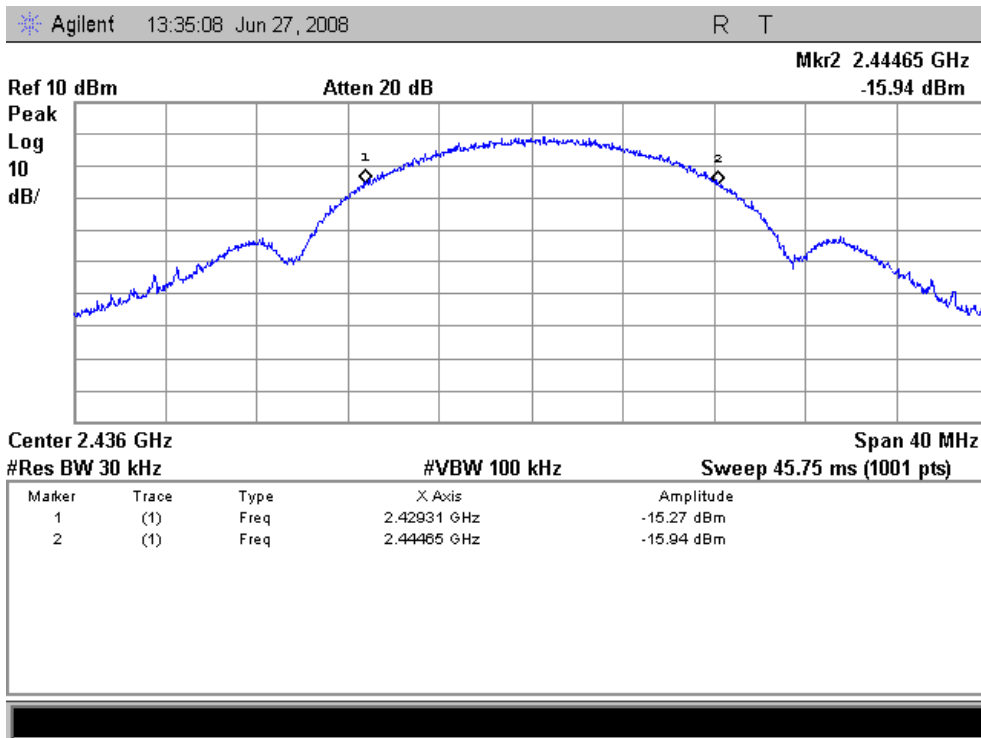
Table 5: 99% bandwidth measurement results

EUT Frequency MHz	Limit MHz	Measured 99% BW value MHz
2412	-	15.46
2437	-	15.34
2462	-	15.46

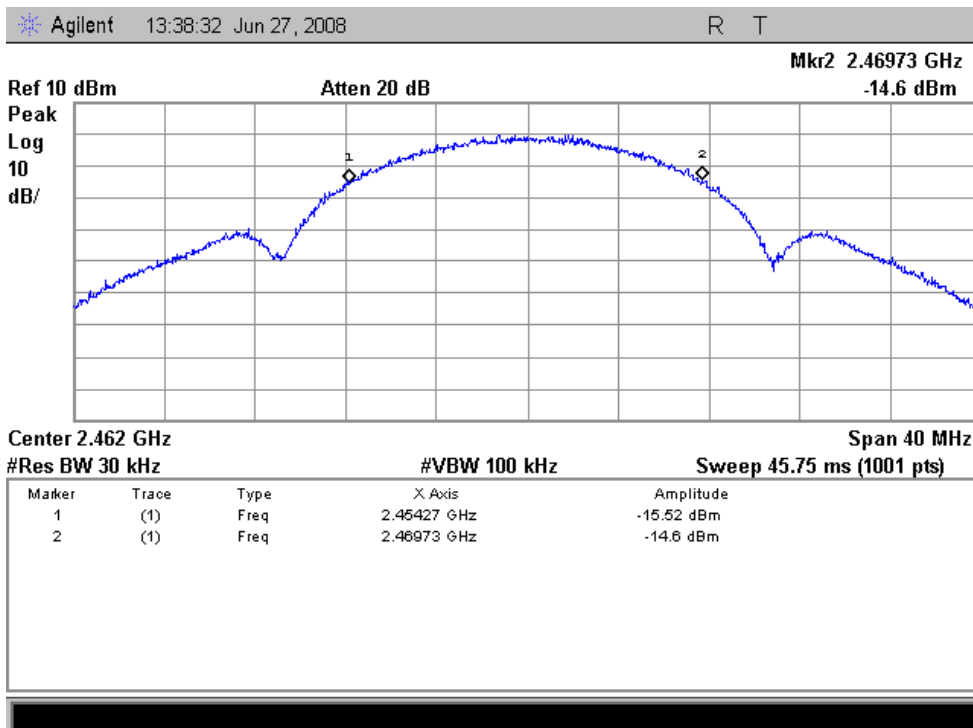
### 11.4 Screen shots



Picture 16: 99% Bandwidth measurement result for Channel 1



Picture 17: 99% Bandwidth measurement result for Channel 6



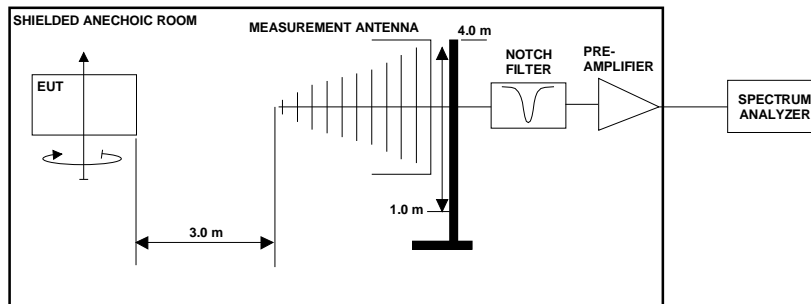
Picture 18: 99% Bandwidth measurement result for Channel 11

## 12 RADIATED SPURIOUS EMISSIONS - TRANSMITTER

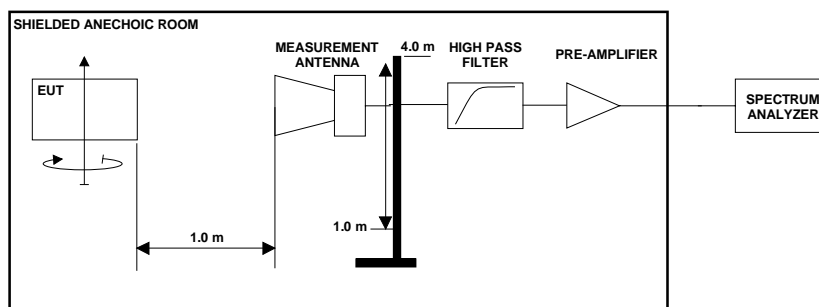
<b>EUT</b>	EUT 1.		
<b>Accessories</b>	EUT 2.		
<b>Temp, Humidity, Air Pressure</b>	21 °C (26.3.)	26 RH% (26.3.)	998 hPa (26.)
	21 °C (27.3.)	18 RH% (27.3.)	982 hPa (27.)
	25 °C (3.6.)	24 RH% (3.6.)	1009 hPa (3.)
	29 °C (5.6.)	28 RH% (5.6.)	1009 hPa (5.)
	25 °C (6.6.)	33 RH% (6.6.)	1005 hPa (6.)
<b>Date of measurement</b>	26.3. - 28.3. / 3.6. - 6.6.		
<b>FCC rule part</b>	§15.247 (c)		
<b>RSS-GEN section</b>	A8.5		
<b>Measured by</b>	Petri Juhola		

### 12.1 Test setup

The test was done using an automated test system, where a computer controlled the measurement equipments.



Picture 2: Test setup for radiated spurious emissions measurement  
30 MHz - 3 GHz frequencies



Picture 3: Test setup for radiated spurious emissions measurement  
3 GHz – 25 GHz frequencies

## 12.2 Test method

1. The emissions were searched and maximized by moving the turntable, changing the measuring antenna polarization and height and manipulating the EUT.
2. Levels of suspicious signals and levels of EUT transmitter harmonics were recorded.
3. The recorded levels were corrected in the automated test system with the measurement antenna factor, cable attenuations and filter attenuation.
4. The corrected values, giving the EUT radiated spurious emission levels as dB $\mu$ V/m at 3 m distance, are reported.

## 12.3 EUT operation mode

<b>EUT operation mode</b>	Continuous transmission
<b>EUT channel 1</b>	2412 MHz
<b>EUT channel 6</b>	2437 MHz
<b>EUT channel 11</b>	2462 MHz
<b>EUT TX power level</b>	Full Power

## 12.4 Limit

Table 6: Radiated emission limits for FCC class B and IC class B digital devices, measurement distance 3.0 m

Frequency band (MHz)				
30 – 88	100	40	QP	30 – 88
88 -216	150	43.5	QP	88 -216
216 - 960	200	46	QP	216 - 960
960 - 1000	500	54.0	QP	960 - 1000
1000 - 25000	500	54.0	AVG	1000 - 25000
1000 - 25000	5000	74.0	PEAK	1000 - 25000

As default, all emissions were compared against the general limits. If any emission exceeded that limit, it was further checked, if it was outside the restricted band thus complying with the -20dBc requirement.

## 12.5 Results

Measurement system noise level was least 20 dB below the spurious emission limit. Only levels of suspicious signals and transmitter harmonic frequencies, which were above the measurement system noise, are reported.

Table 7: Measured EUT maximum spurious emissions/ Channel 1, Peak detector

Freq GHz	Measured Value dBuV	Correction Factor dB	Result dBuV/m	Marginal dBuV/m	EUT Position	Ant Pol.	Ant height	TT angle
2.99	28.95	22.05	51.0	-22.9	1	V	1.7	227
7.23	51.2	-3.78	55.6	-18.3	2	H	1.1	197
9.64	65.88	-3.62	69.5	-4.5	1	H	1.1	264
12.05	68.07	2.35	65.7	-8.2	1	V	1.0	172
14.47	66.82	5.36	61.4	-12.5	2	H	1.1	266
19.29	65.53	1.13	64.3	-9.6	2	H	1.0	264
21.71	65.09	3.21	61.8	-12.1	2	H	1.0	101

Table 8: Measured EUT maximum spurious emissions/ Channel 6

Freq GHz	Measured Value dBuV	Correction Factor dB	Result dBuV/m	Marginal dBuV/m	EUT Position	Ant Pol.	Ant height	TT angle
2.99	72.64	22.05	50.5	-23.4	1	V	1.4	233
9.74	65.83	-3.47	69.3	-4.7	3	V	1.0	357
19.49	64.09	1.2	62.8	-11.1	3	H	1.1	264
21.93	63.99	3.48	60.5	-13.4	3	H	1.0	101

Table 9: Measured EUT maximum spurious emissions/ Channel 11

Freq GHz	Measured Value dBuV	Correction Factor dB	Result dBuV/m	Marginal dBuV/m	EUT Position	Ant Pol.	Ant height	TT angle
2.99	74.86	22.05	52.8	-21.1	2	H	1.0	321
9.84	62.19	-3.3	65.4	-8.5	2	V	1.3	166
19.69	64.76	1.67	63.0	-10.9	2	H	1.0	261
22.15	64.01	3.98	60.0	-13.9	2	H	1.0	99

Since the measurements are made with sample that is modified to continuous transmission, average results are calculated from peak results using duty cycle.

$$\text{Average level} \leq \text{Peak level} - 20 \log (\text{duty cycle})$$

According to manufacturer the worst case duty cycle for this product is less than 10% at any given 100ms period. Therefore,

$$\text{Average level} \leq \text{Peak level} - 20 \log (10/100)$$

$$\text{Average level} \leq \text{Peak level} - \mathbf{20 \text{ dB}}$$



### 13 CONDUCTED SPURIOUS EMISSIONS - TRANSMITTER

<b>EUT</b>	EUT 1.		
<b>Accessories</b>	EUT 2.		
<b>Temp, Humidity, Air Pressure</b>	23 °C	43 RH%	995 hPa
<b>Date of measurement</b>	17.6.2008		
<b>FCC rule part</b>	15.247 (c)		
<b>RSS-210 section</b>	A8.5		
<b>Measured by</b>	Petri Juhola		

#### 13.1 Test setup and measurement method



Picture 19: Test setup for spurious conducted emission measurement

Spectrum analyzer and automated software were used to record conducted spurious emissions on frequency range 30 MHz – 25 GHz. Frequency range was scanned using 100 kHz resolution bandwidth and 50 kHz steps.

Spurious emissions levels relative to the carrier level were read from the measured results.

#### 13.2 EUT operation mode

<b>EUT operation mode</b>	Continuous transmission
<b>EUT channel</b>	1, 6 and 11
<b>EUT TX power level</b>	Full Power

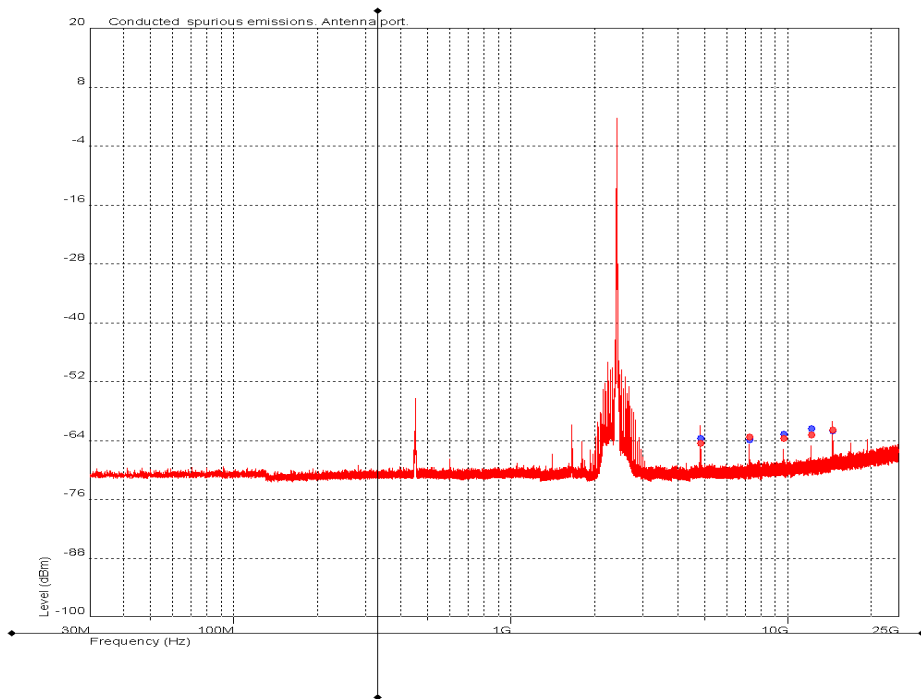
### 13.3 Limit

Table 10. Conducted Limit

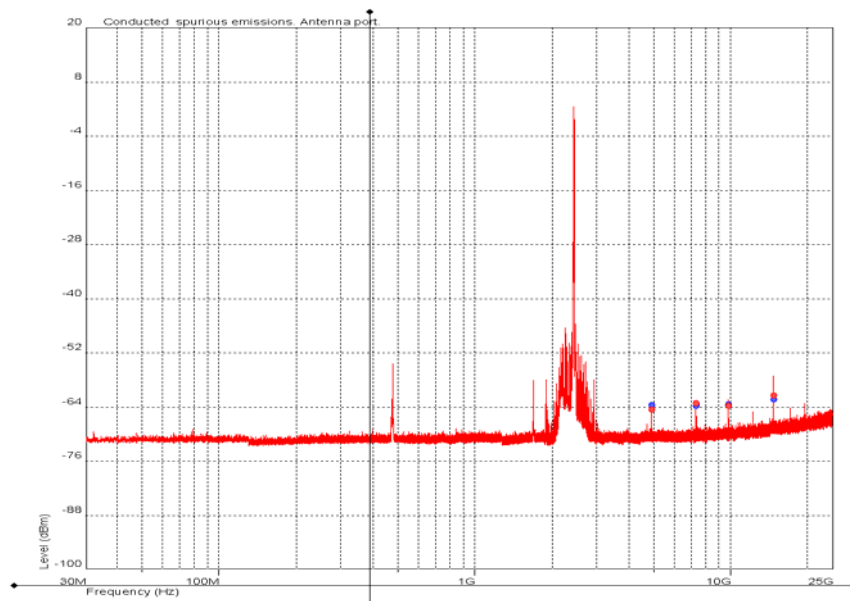
EUT Channel	Limit (dBc)
1	≤ -20
6	
11	

### 13.4 Results

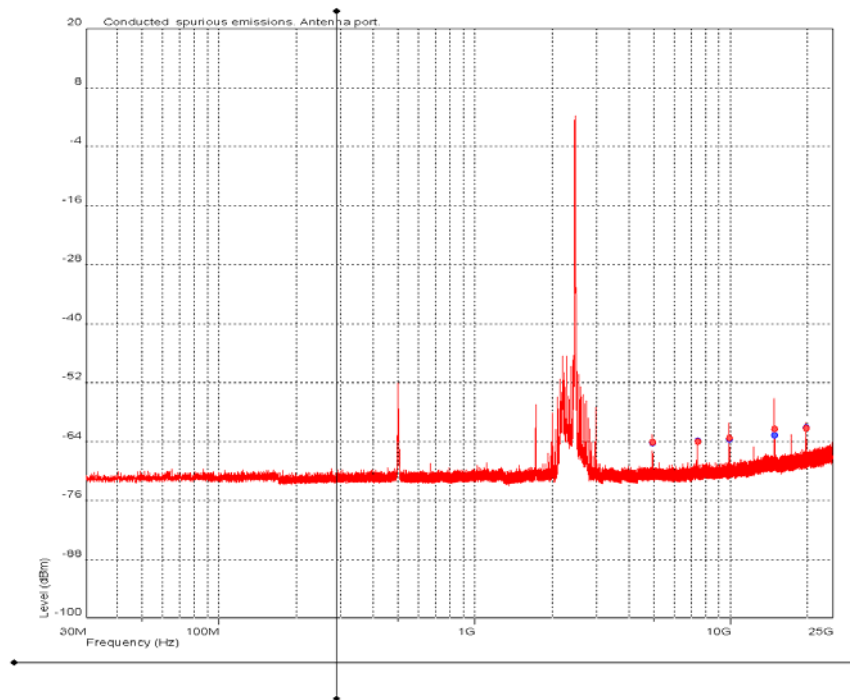
All spurious emissions measured were least 40 dB below the carrier level.



Picture 20: Conducted spurious emissions on antenna port, Channel 1



Picture 21: Conducted spurious emissions on antenna port, Channel 6



Picture 22: Conducted spurious emissions on antenna port, Channel 11

## 14 CONDUCTED EMISSIONS TO AC-POWER LINES - RECEIVER

<b>EUT</b>	EUT 1.		
<b>Accessories</b>	EUT 2.		
<b>Temp, Humidity, Air Pressure</b>	23 °C	43 RH%	995 hPa
<b>Date of measurement</b>	30.6.2008		
<b>FCC rule part</b>	15.107		
<b>RSS-GEN section</b>	7.2.2		
<b>Measured by</b>	Simo Ojanen		

### 14.1 Test setup

Charger was connected to line impedance stabilization network and conducted emissions to AC-mains were measured using measurement receiver.

### 14.2 EUT operation mode

EUT was connected to AC adapter.

### 14.3 Limits

Frequency of emission [MHz]	FCC / IC	
	Limit [dB $\mu$ V] Quasi peak	Limit [dB $\mu$ V] Average
0,15 – 0,50	66 – 56*	56 – 46*
0,50 – 5	56	46
5 – 30	60	50

\* The limit decreases linearly with the logarithm of the frequency

## 14.4 Results

The measured interference values using peak and average detectors are shown in the pictures 3 and 4 below.

All signals closer than 6 dB to the limit have been measured using quasi peak and average detectors and reported in the tables 11 to 14.

Table 11: Quasi peak detector measurement results, AC live

Frequency [MHz]	Measured value [dB $\mu$ V]	Limit [dB $\mu$ V]	Margin to limit [dB]
Na			

Table 12: Average detector measurement results, AC live

Frequency [MHz]	Measured value [dB $\mu$ V]	Limit [dB $\mu$ V]	Margin to limit [dB]
Na			

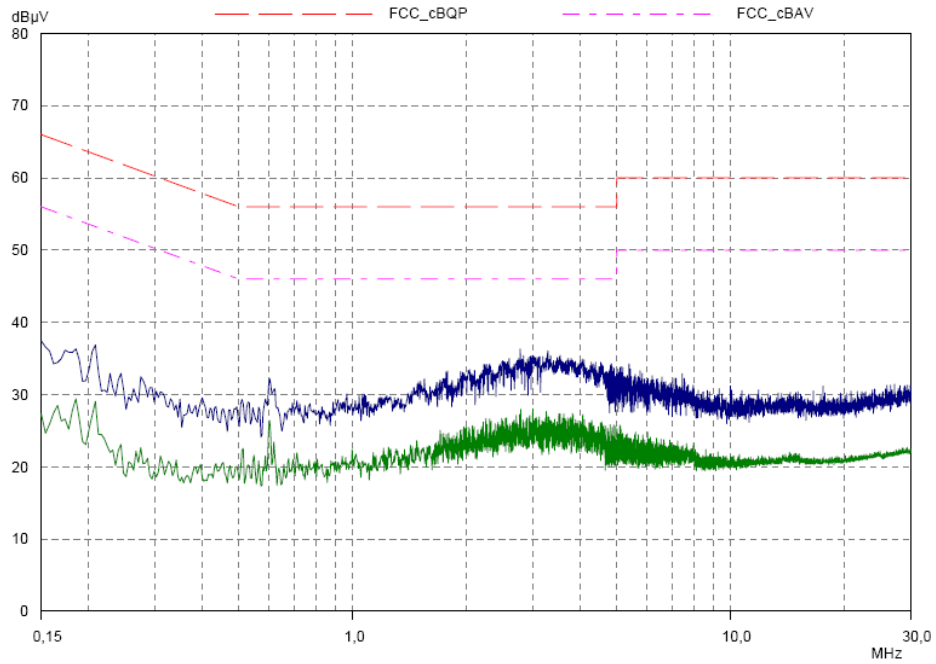
Table 13: Quasi peak detector measurement results, AC neutral

Frequency [MHz]	Measured value [dB $\mu$ V]	Limit [dB $\mu$ V]	Margin to limit [dB]
Na			

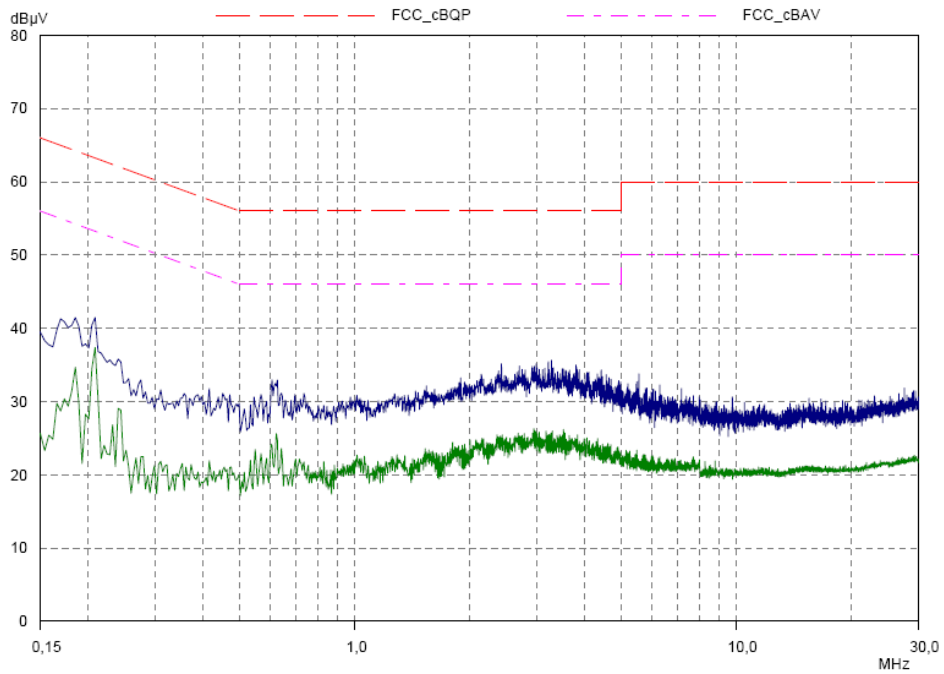
Table 14: Average detector measurement results, AC neutral

Frequency [MHz]	Measured value [dB $\mu$ V]	Limit [dB $\mu$ V]	Margin to limit [dB]
Na			

### 14.5 Screen shots



Picture 23: AC-mains conducted emission measurement results, AC live



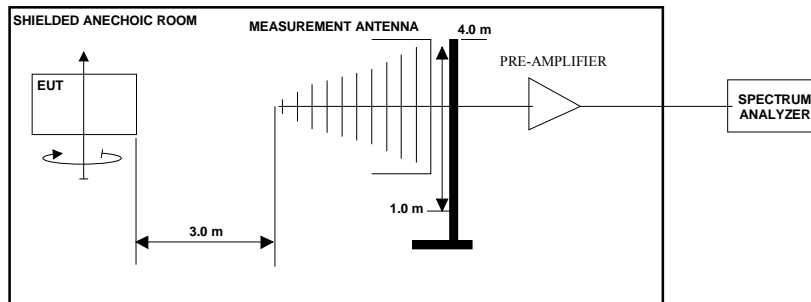
Picture 24: AC-mains conducted emission measurement results, AC neutral

## 15 RADIATED EMISSIONS - RECEIVER

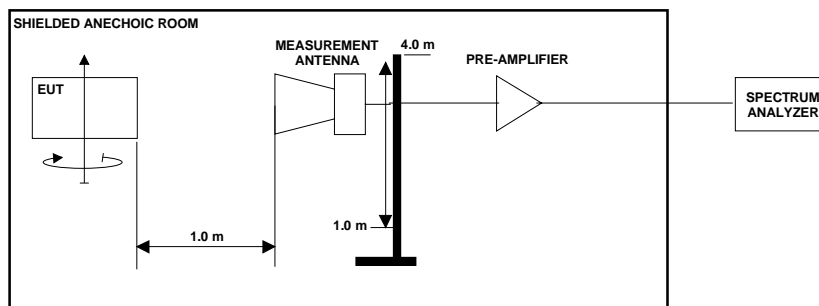
<b>EUT</b>	EUT 1.		
<b>Accessories</b>	EUT 2.		
<b>Temp, Humidity, Air Pressure</b>	23 °C	43 RH%	995 hPa
<b>Date of measurement</b>	17.6.2008		
<b>FCC rule part</b>	15.109		
<b>RSS-GEN section</b>	7.2.3		
<b>Measured by</b>	Petri Juhola		

### 15.1 Test setup

The test was done using an automated test system, where a computer controlled the measurement equipments.



Picture 25: Test setup for radiated spurious emissions measurement  
30 MHz - 1 GHz frequencies



Picture 26: Test setup for radiated spurious emissions measurement  
1 GHz – 12.75 GHz frequencies

## 15.2 Test method

1. The emissions were searched and maximized by moving the turntable, changing the measuring antenna polarization and height and manipulating the EUT.
2. Levels of suspicious signals and levels of EUT transmitter harmonics were recorded.
3. The recorded levels were corrected in the automated test system with the measurement antenna factor, cable attenuations and filter attenuation.
4. The corrected values, giving the EUT radiated spurious emission levels as dB $\mu$ V/m at 3 m distance, are reported.

## 15.3 EUT operation mode

Channels 1, 6 and 11 were measured in receiver active mode

## 15.4 Limit

Table 15: Radiated spurious emission limits at measurement distance 3m

Frequency band (MHz)	3m Limit ( $\mu$ V/m)	3m Limit (dB $\mu$ V/m)	Detector
30 – 88	100	40	QP
88 -216	150	43.5	QP
216 - 960	200	46	QP
960 - 1000	500	54.0	QP
1000 - 12400	500	54.0	AVG
1000 - 12400	5000	74.0	PEAK



## 15.5 Results

The measured interference values using Peak detector are shown in the graphs below.

Table 16: Channel 1 radiated emissions

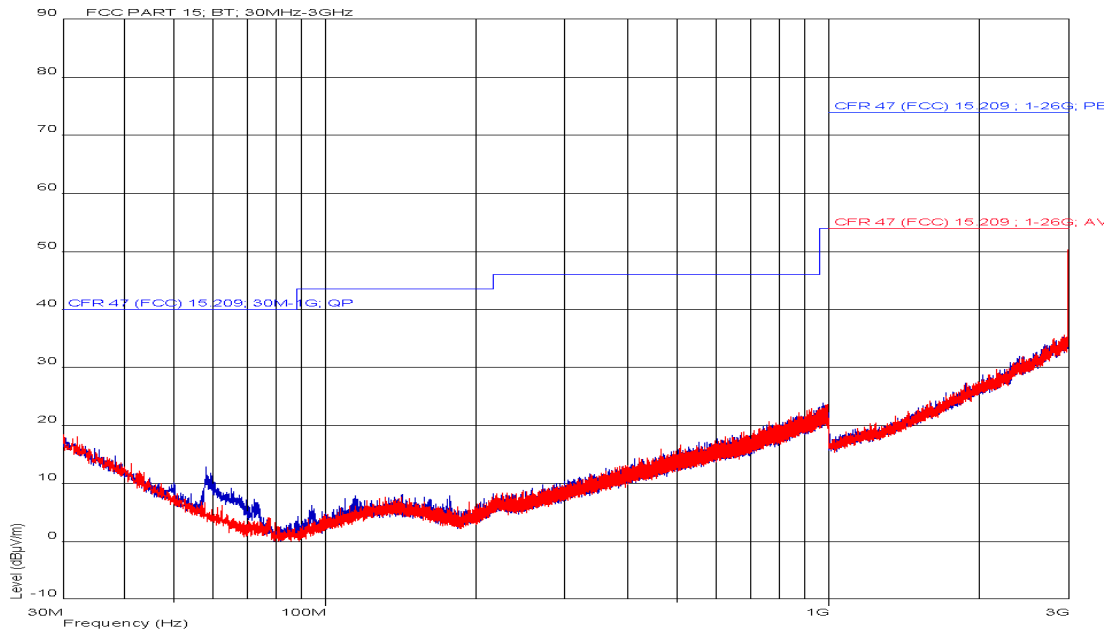
<b>Freq / GHz</b>	<b>measured peak / dB<math>\mu</math>V/m</b>	<b>Antenna height / m</b>	<b>Antenna polarization H / V</b>	<b>Table position deg</b>	<b>Limit</b>	<b>Margin</b>
Na						

Table 17: Channel 6 radiated emissions

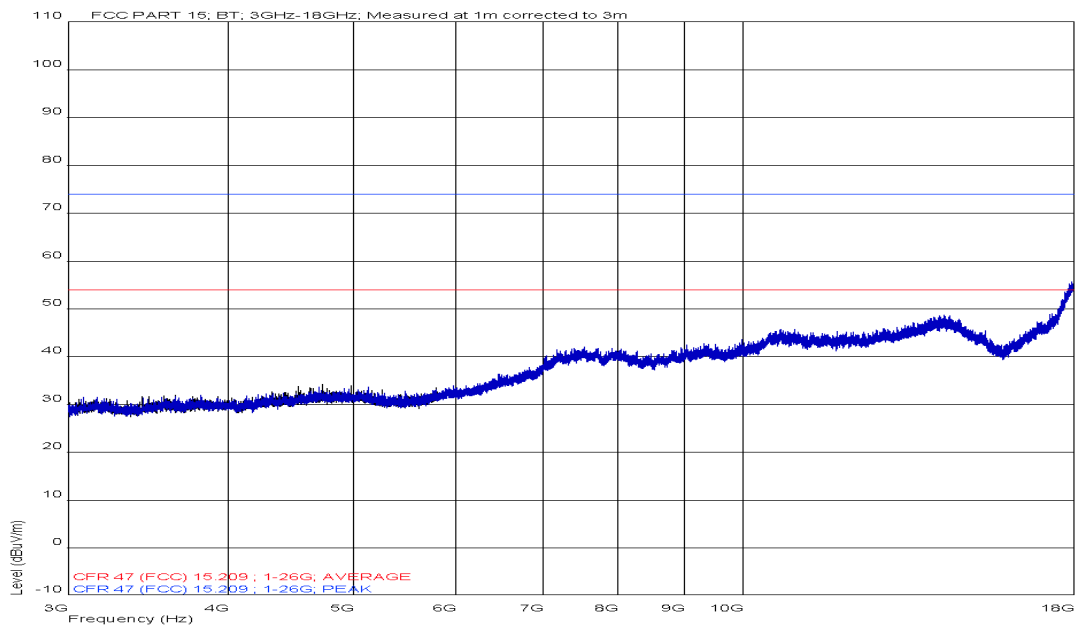
<b>Freq / GHz</b>	<b>measured peak / dB<math>\mu</math>V/m</b>	<b>Antenna height / m</b>	<b>Antenna polarization H / V</b>	<b>Table position deg</b>	<b>Limit</b>	<b>Margin</b>
Na						

Table 18: Channel 11 radiated emissions

<b>Freq / GHz</b>	<b>measured peak / dB<math>\mu</math>V/m</b>	<b>Antenna height / m</b>	<b>Antenna polarization H / V</b>	<b>Table position deg</b>	<b>Limit</b>	<b>Margin</b>
Na						



Picture 27: Radiated emission results, 30 – 3000 MHz ,  
 Red= horizontal polarization, blue = vertical polarization



Picture 28: Radiated emission results, 3 – 18 GHz,  
 Red= horizontal polarization, blue = vertical polarization

## 16 TEST EQUIPMENT

### 16.1 Conducted measurements

Equipment	Manufacturer	Model
Spectrum Analyzer	Agilent	E7405A
EMI test receiver	Rohde & Schwarz	ESCS30
LISN	Rohde & Schwarz	ESH3-Z5
Signal Generator	Agilent	E825A
Power Meter	R&S	NRVD
Diode Power Sensor	R&S	NRV-ZI

### 16.2 Radiated measurements

Equipment	Manufacturer	Model
Spectrum Analyzer	Agilent	E7405A
Antenna	Chase	CBL 6141
Antenna	Schwarzbeck	BBHA 9120D
Antenna	Schwarzbeck	BBHA 9170
High pass filter	Wainwright Instruments	WHK1.0/3GST
High pass filter	Wainwright Instruments	WHK3.0/18GST
Pre-amplifier	JCA	118-400
Pre-amplifier	Miteq	AMF-6F-18002650-25-10P
Turn table / antenna mast controller	EMCO	2090
Antenna mast	EMCO	2075-2

## 17 TEST SETUP PHOTOGRAPHS

Test setup photograph can be found in a separate document

T08-566C-EMC\_PHOTOS.doc