

FCC Part 15C Compliance Test Report

Test Report no.:	Tre_FCC_0732_02.doc	Date of Report:	10.8.2007
Number of pages:	69	Customer's Contact person:	Tero Lehtinen
Testing laboratory:	TCC Nokia Tampere Laboratory P.O. Box 68 Sinitaival 5 FIN-33720 TAMPERE, FINLAND Tel. +358 (0) 7180 46800 Fax. +358 (0) 7180 46880	Customer:	Nokia Corporation P.O. Box 86 Joensuukatu 7 FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 44277
FCC listing no.:	94436		
IC recognition no.:	3608		
Tested devices/ accessories:	GSM phone RM-244 / Battery BP-6MT, AC charger AC-5E, Headset HS-47		
FCC ID:	PYARM-244	IC:	661V-RM244
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2003), Public Notice DA 00-705, DTS procedures KDB 558074, IC standards RSS-GEN and RSS-210. Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test Results:	The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document.		
Date and signature for the contents:			

Jari Jantunen, System Manager

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	7.8.2007
Testing completed	9.8.2007
The customer's contact person	Tero Lehtinen
Test Plan referred to	T:\Projects\
Notes	-
Document name	T:\Projects\RM-244\EMC\Results\FCC\Tre_FCC_0732_02.doc

1.1. EUT and Accessory Information

The EUT is a 6-band (GSM850/900/1800/1900 and WCDMA Band I/V(850)) mobile phone with GPRS, EGPRS, Bluetooth and WLAN. Bluetooth and WLAN are tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
GSM phone	RM-244	004401012805194	0501	-	007.22.01	41179
GSM phone	RM-244	004401012805160	0501	-	007.22.01	41180
Battery	BP-6MT	-	-	-	-	41183
Battery	BP-6MT	-	-	-	-	41184
AC-Charger	AC-5E	-	-	-	-	41185
Headset	HS-47	-	4.1	4.0	-	41215

1.2. Summary of Test Results

Bluetooth:

Section in CFR 47	Section in RSS-GEN or RSS-210	Name of the test	Result
15.247(b)(1)	A8.4 (2)	Conducted peak output power	PASSED
15.247(c)	A8.5	Band edge compliance of RF emissions	PASSED
15.247(c)	A8.5	Spurious RF conducted emissions	PASSED
15.247(c), 15.209	A8.5	Spurious radiated emissions	PASSED
15.207	7.2.2	AC powerline conducted emissions	PASSED
15.247(a)(1)	A8.1 (1)	20 dB bandwidth	PASSED
15.247(a)(1)	A8.1 (2)	Carrier frequency separation	PASSED
15.247(a)(1)(iii)	A8.1 (4)	Number of hopping frequencies	PASSED
15.247(a)(1)(iii)	A8.1 (4)	Time of occupancy	PASSED

WLAN:

Section in CFR 47	Section in RSS-210	Name of the test	Result
15.247(b)(1)	A8.4 (4)	Conducted peak output power	PASSED
15.247(c)	A8.5	Band edge compliance of RF emissions	PASSED
15.247(c)	A8.5	Spurious RF conducted emissions	PASSED
15.247(c), 15.209	A8.5	Spurious radiated emissions	PASSED
15.207	7.2.2	AC powerline conducted emissions	PASSED
15.247(a)(2)	A8.2 (1)	6 dB bandwidth	PASSED
15.247(e)	A8.2 (2)	Power spectral density	PASSED

PASSED

The EUT complies with the essential requirements in the standard.

FAILED

The EUT does not comply with the essential requirements in the standard.

NP

The test was not performed by the TCC Nokia Tampere Laboratory.

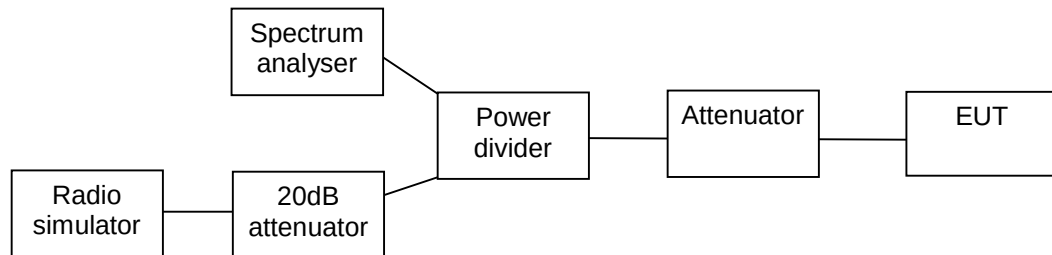
CONTENTS

1. Summary for FCC Part 15C Compliance Test Report.....	2
1.1. EUT and Accessory Information	2
1.2. Summary of Test Results	2
2. Test setups.....	5
2.1. Conducted RF test setup	5
2.2. AC powerline conducted emissions test setup.....	5
2.3. Spurious radiated emissions test setup	5
3. Conducted peak output power (FCC §15.247(b)(1), RSS-210 A8.4 (2))	6
3.1. Test method and limit.....	6
3.2. Bluetooth Test results	7
4. Band edge compliance of RF emissions (FCC §15.247(c), RSS-210 A8.5)	10
4.1. Test method and limit.....	10
4.2. Bluetooth Test results	11
5. Spurious RF conducted emissions (FCC §15.247(c), RSS-A8.5).....	15
5.1. Test method and limit.....	15
5.2. Bluetooth Test results	16
6. Spurious radiated emissions (FCC §15.247(c), §15.209, RSS-210 A8.5).....	19
6.1. Test method and limit.....	19
6.2. Bluetooth Test results	20
7. AC powerline conducted emissions (FCC §15.207, RSS-GEN 7.2.2)	23
7.1. Test method and limit.....	23
7.2. Bluetooth Test results	24
8. 20 dB bandwidth (FCC §15.247(a)(1), RSS-210 A8.1 (1))	26
8.1. Test method and limit.....	26
8.2. Bluetooth Test results	27
9. Carrier frequency separation (FCC §15.247(a)(1), RSS-210 A8.1 (2))	31
9.1. Test method and limit.....	31
9.2. Bluetooth Test results	32
10. Number of hopping frequencies (FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))	34
10.1. Test method and limit.....	34
10.2. Bluetooth Test results	35
11. Time of occupancy (FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))	37

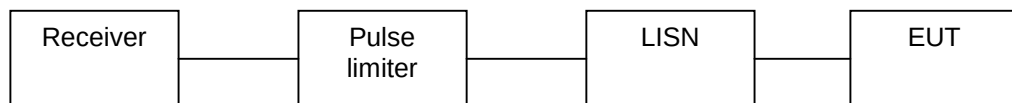
11.1.	Test method and limit.....	37
11.2.	Bluetooth test results.....	38
12.	Conducted peak output power (FCC §15.247(b)(1), RSS-210 A8.4 (4)).....	40
12.1.	Test method and limit.....	40
12.2.	WLAN Test results	41
13.	Band edge compliance of RF emissions (FCC §15.247(c), RSS-210 A8.5)	45
13.1.	Test method and limit.....	45
13.2.	WLAN Test results	46
14.	Spurious RF conducted emissions (FCC §15.247(c), RSS-210 A8.5)	48
14.1.	Test method and limit.....	48
14.2.	WLAN Test results	49
15.	Spurious radiated emissions (FCC §15.247(c), §15.209, RSS-210 A8.5)	52
15.1.	Test method and limit.....	52
15.2.	WLAN Test results	53
16.	AC powerline conducted emissions (FCC §15.207, RSS-GEN 7.2.2).....	56
16.1.	Test method and limit.....	56
16.2.	WLAN Test results	57
17.	6 dB bandwidth (FCC §15.247(a)(2), RSS-210 A8.2 (1)).....	59
17.1.	Test method and limit.....	59
17.2.	WLAN test results.....	60
18.	Power spectral density (FCC §15.247(e), RSS-210 A8.2 (2)).....	64
18.1.	Test method and limit.....	64
18.2.	WLAN test results.....	65
19.	Test Equipment	69
19.1.	Conducted measurements	69
19.2.	Radiated measurements	69

2. Test setups

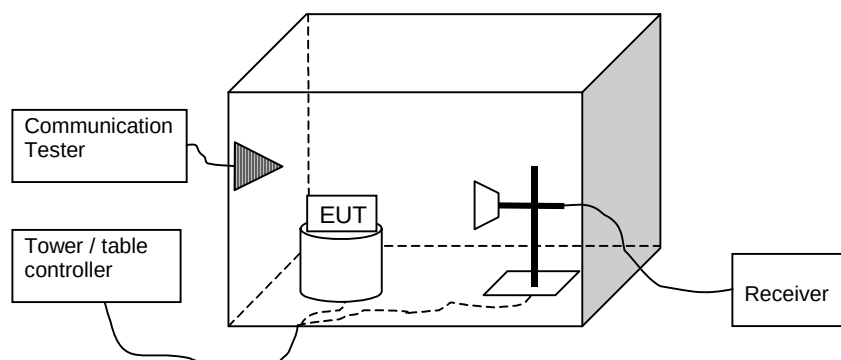
2.1. Conducted RF test setup



2.2. AC powerline conducted emissions test setup



2.3. Spurious radiated emissions test setup



3. Conducted peak output power (FCC §15.247(b)(1), RSS-210 A8.4 (2))

EUT with DUT number	RM-244 DUT 41180
Accessories with DUT numbers	BP-6MT DUT 41183, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 46 / 102.3
Date of measurements	08.08.2007
Measured by	Timo Raiskio

3.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

Limits for conducted peak output power measurements

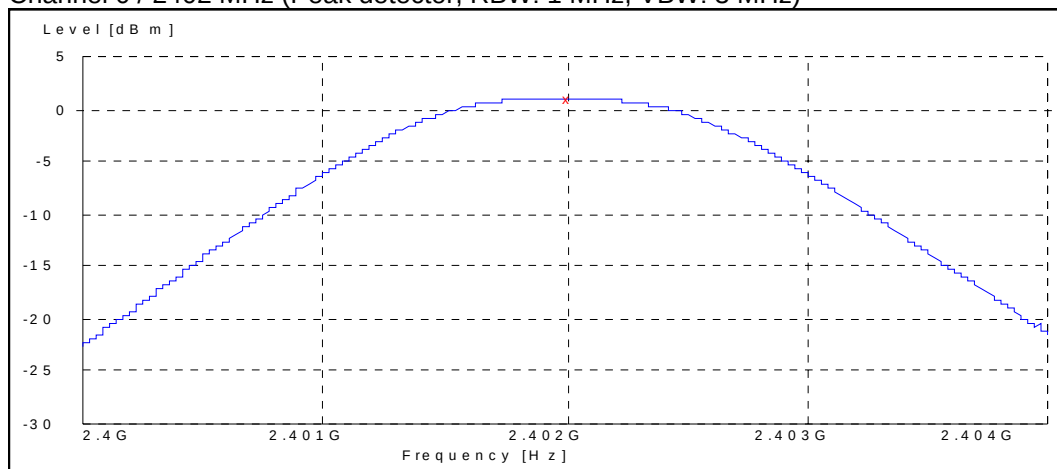
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

3.2. Bluetooth Test results

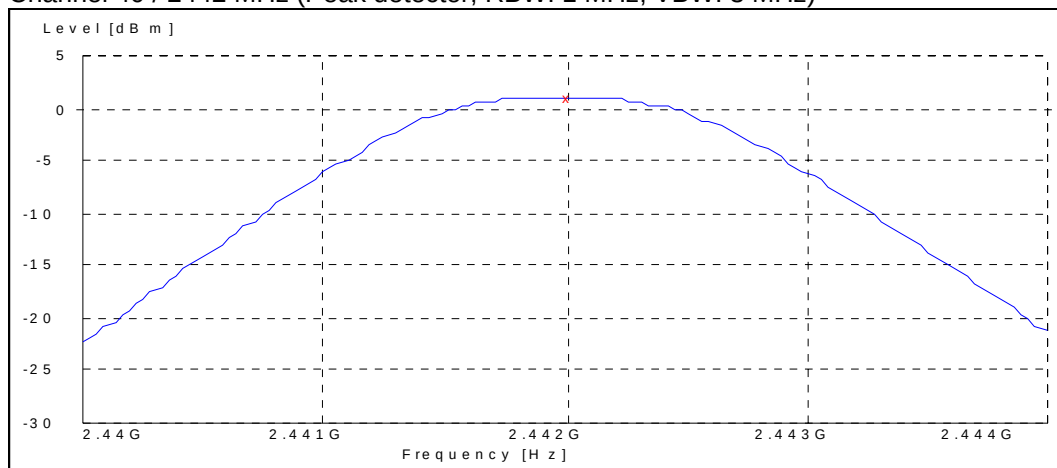
3.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	0.90	1.230	PASSED
40 / 2442	1.00	1.259	PASSED
78 / 2480	0.90	1.230	PASSED

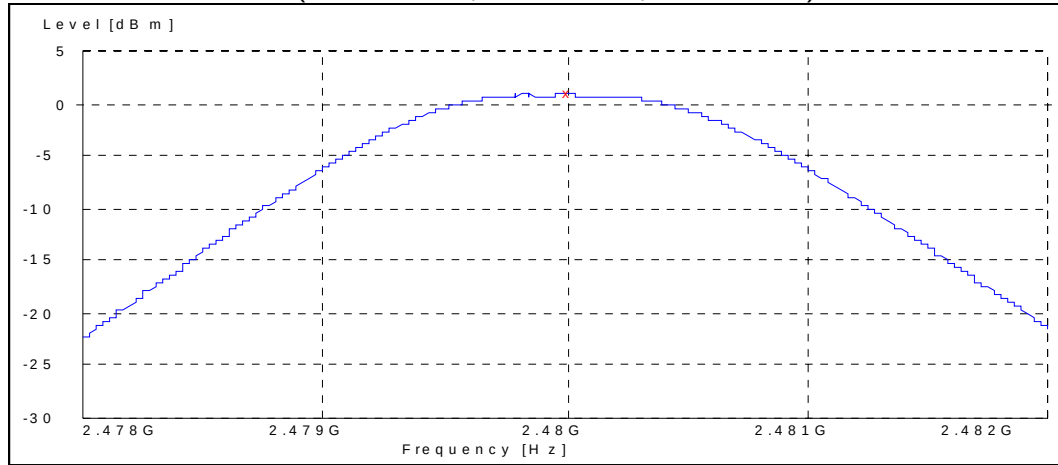
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



Channel 40 / 2442 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



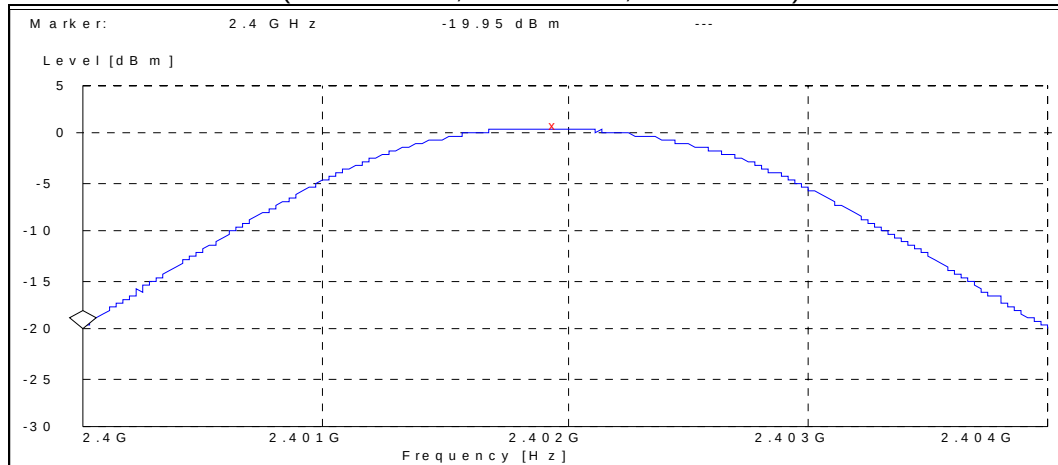
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



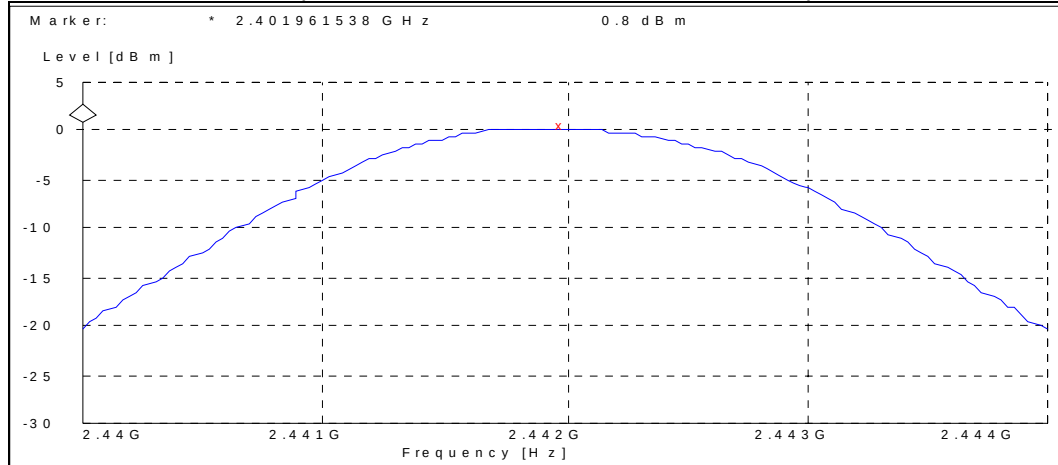
3.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	0.80	1.202	PASSED
40 / 2442	0.50	1.122	PASSED
78 / 2480	0.10	1.023	PASSED

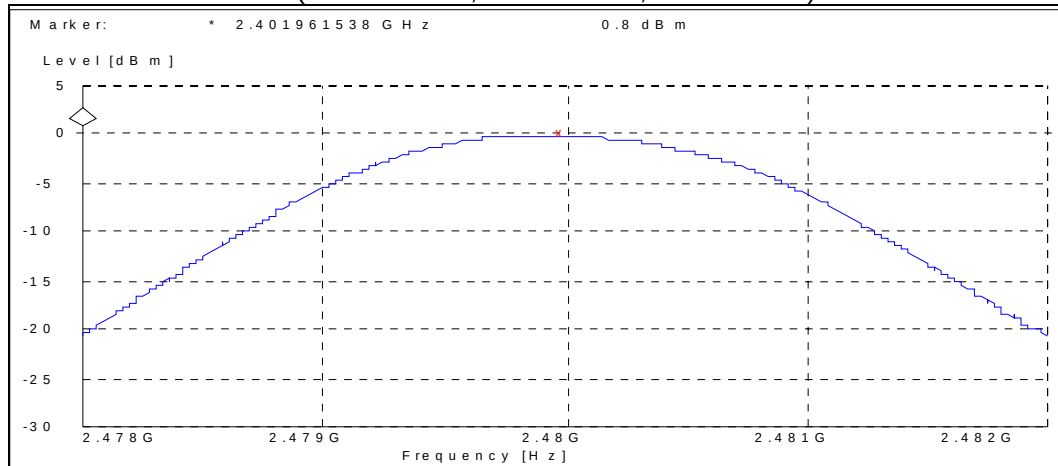
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



Channel 40 / 2442 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



4. Band edge compliance of RF emissions (FCC §15.247(c), RSS-210 A8.5)

EUT with DUT number	RM-244 DUT 41179
Accessories with DUT numbers	BP-6MT DUT 41184, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 51 / 102.1
Date of measurements	7.8.2007
Measured by	Jari Jantunen

4.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit Average [dBμV/m]	Limit Peak [dBμV/m]
Below 2390 and above 2483.5	≤ 54	≤ 74

4.2. Bluetooth Test results

4.2.1 GFSK modulation, PRBS packet type

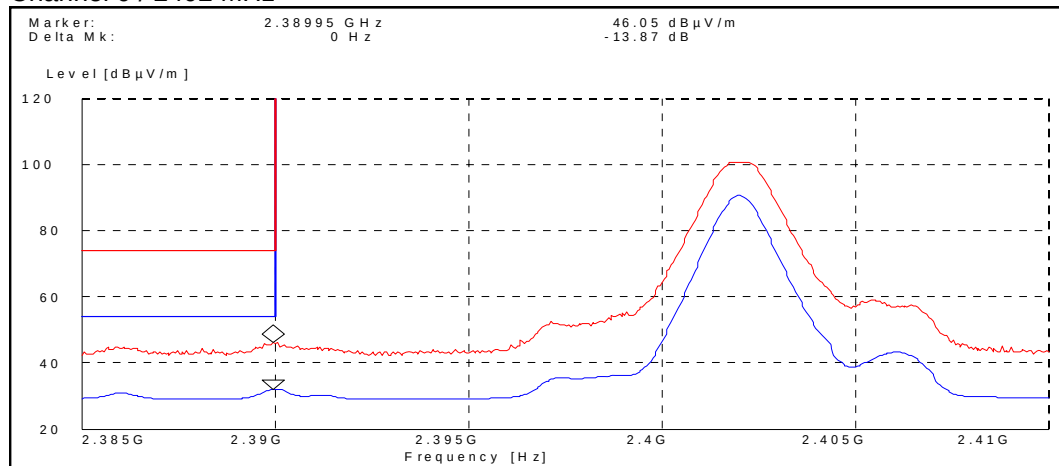
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	32.18	PASSED
78 / 2480	41.33	PASSED
Hopping on, low end	37.62	PASSED
Hopping on, high end	51.82	PASSED

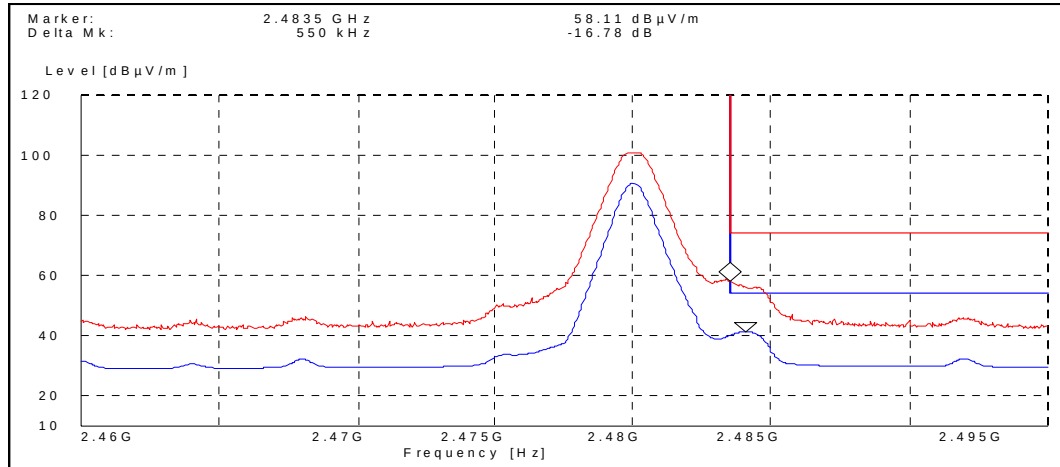
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	46.05	PASSED
78 / 2480	58.11	PASSED
Hopping on, low end	47.34	PASSED
Hopping on, high end	58.55	PASSED

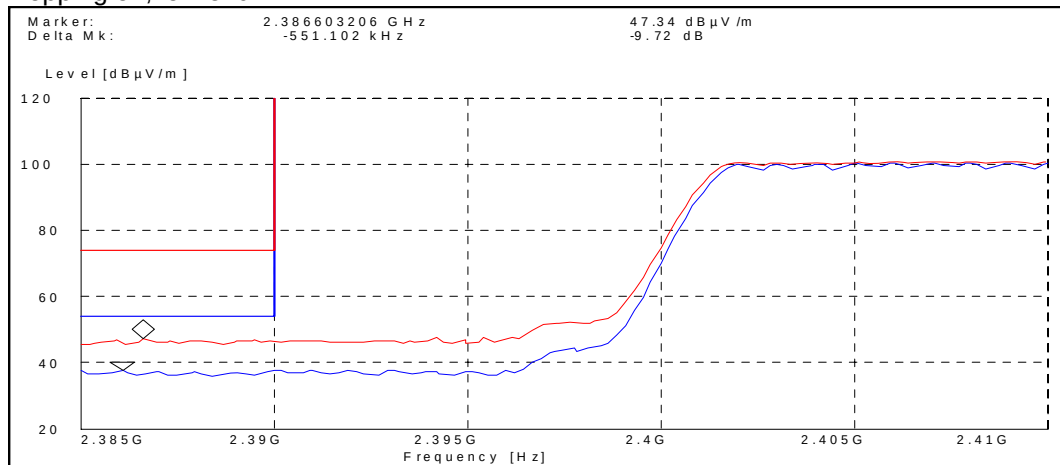
Channel 0 / 2402 MHz



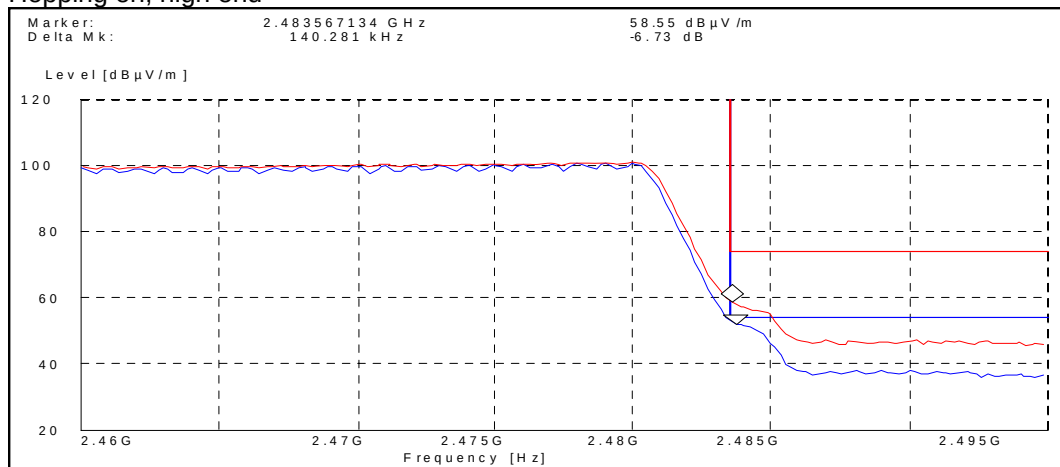
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



4.2.2 8DPSK modulation, PRBS packet type

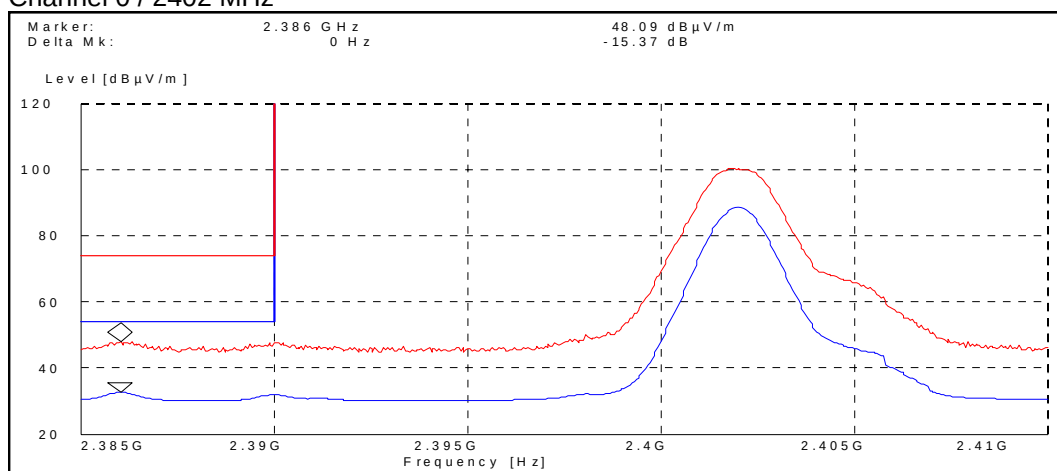
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	32.72	PASSED
78 / 2480	43.62	PASSED
Hopping on, low end	39.11	PASSED
Hopping on, high end	53.48	PASSED

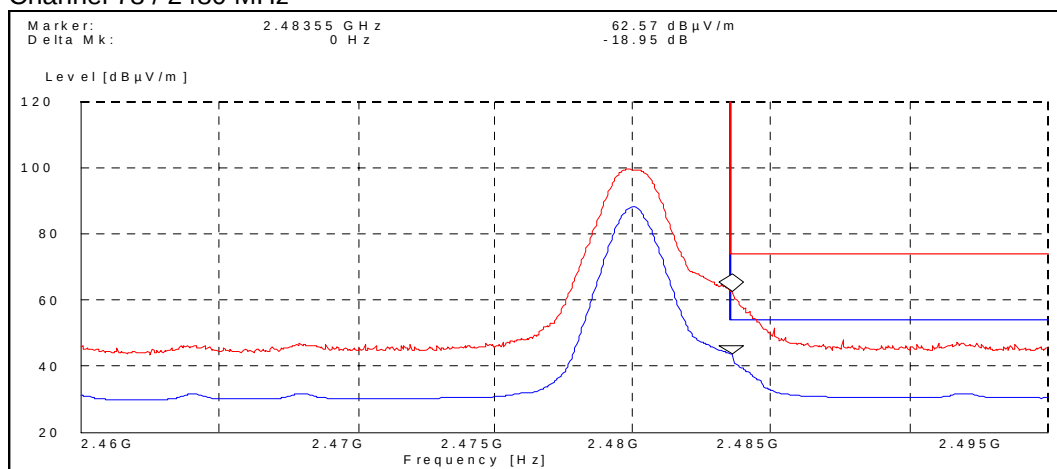
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	48.09	PASSED
78 / 2480	62.57	PASSED
Hopping on, low end	49.02	PASSED
Hopping on, high end	63.34	PASSED

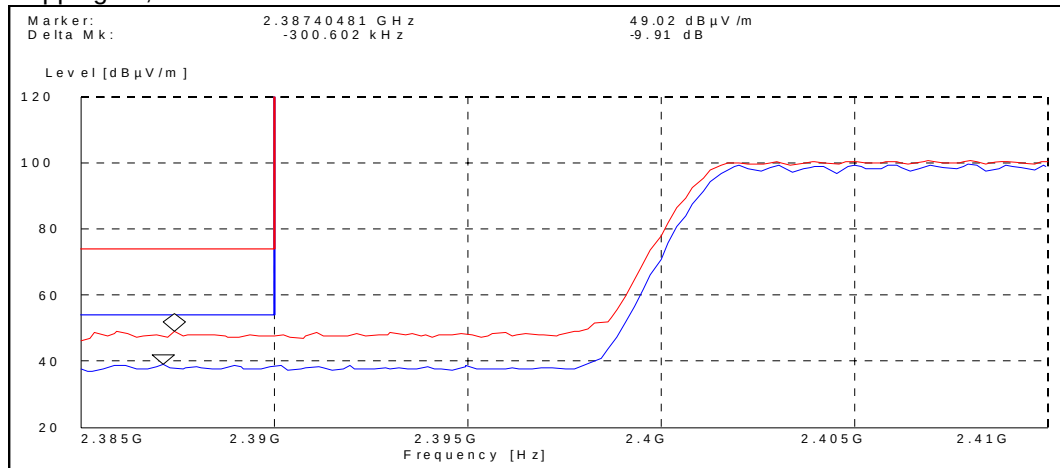
Channel 0 / 2402 MHz



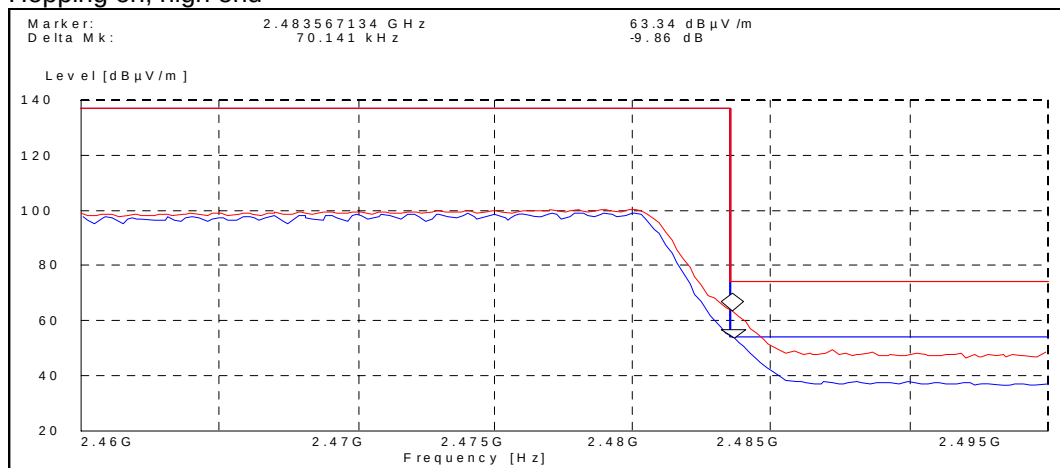
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



5. Spurious RF conducted emissions (FCC §15.247(c), RSS-A8.5)

EUT with DUT number	RM-244 DUT 41180
Accessories with DUT numbers	BP-6MT DUT 41183, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 46 / 102.3
Date of measurements	08.08.2007
Measured by	Timo Raiskio

5.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

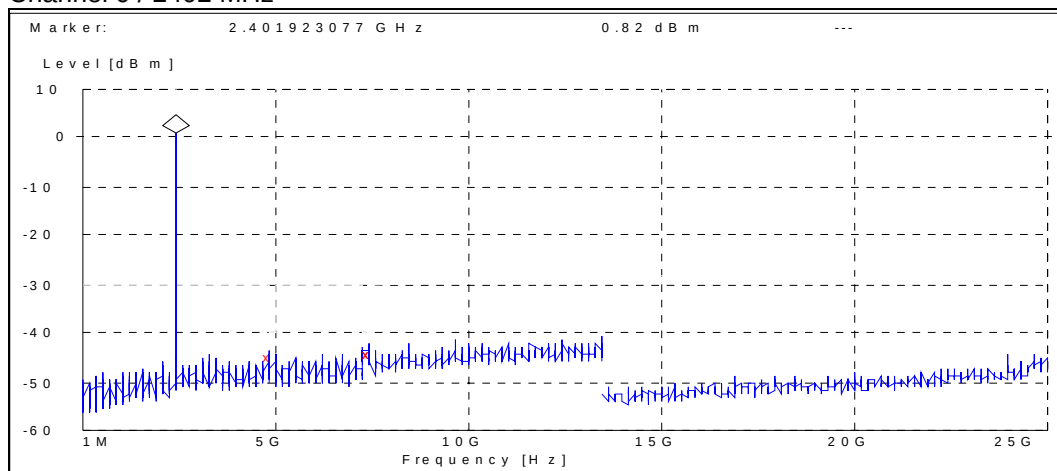
Limits for spurious RF conducted emissions measurements

Frequency range [MHz]	Limit [dBc]
1 – 25000	≤ -20

5.2. Bluetooth Test results

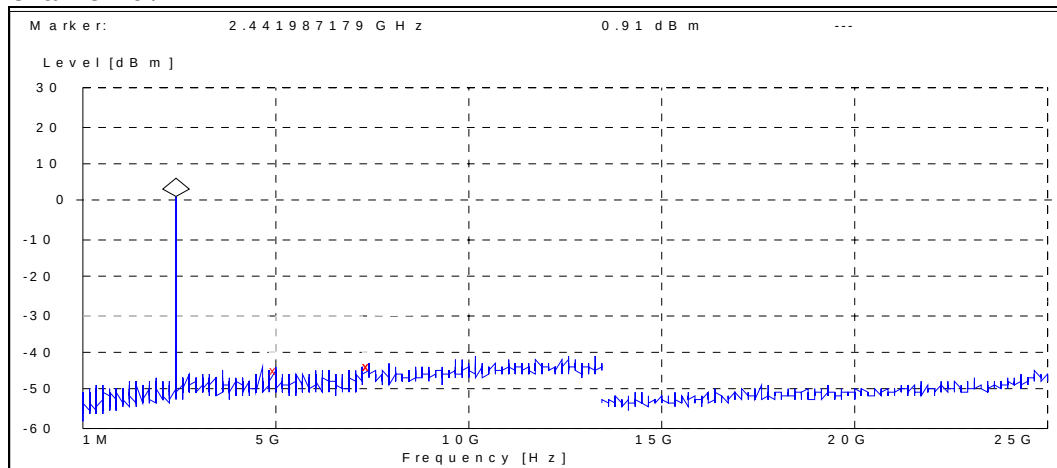
5.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



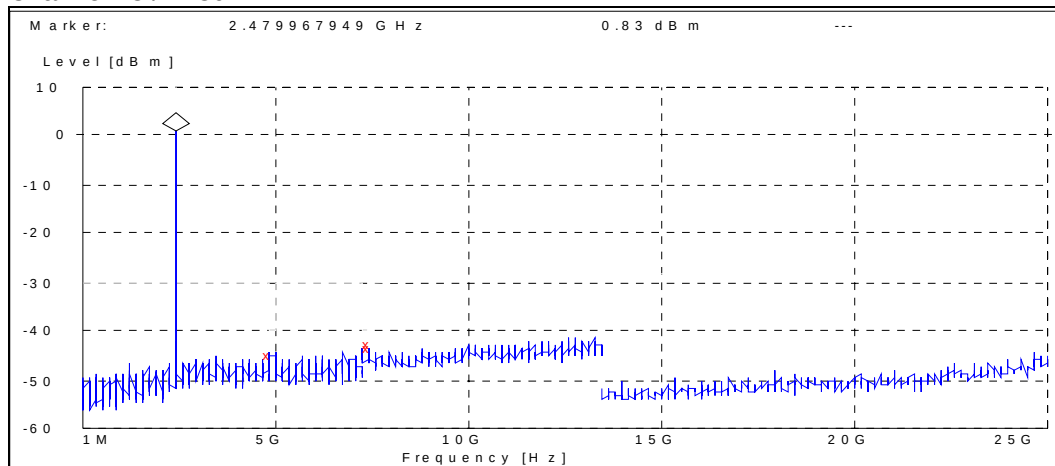
Frequency [MHz]	P [dBc]	Result
4807.692308	-45.620175	PASSED
7360.096154	-45.020175	PASSED
7500.000000	-45.220175	PASSED

Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4980.769231	-45.208191	PASSED
7349.519231	-44.908191	PASSED
7500.000000	-44.308191	PASSED

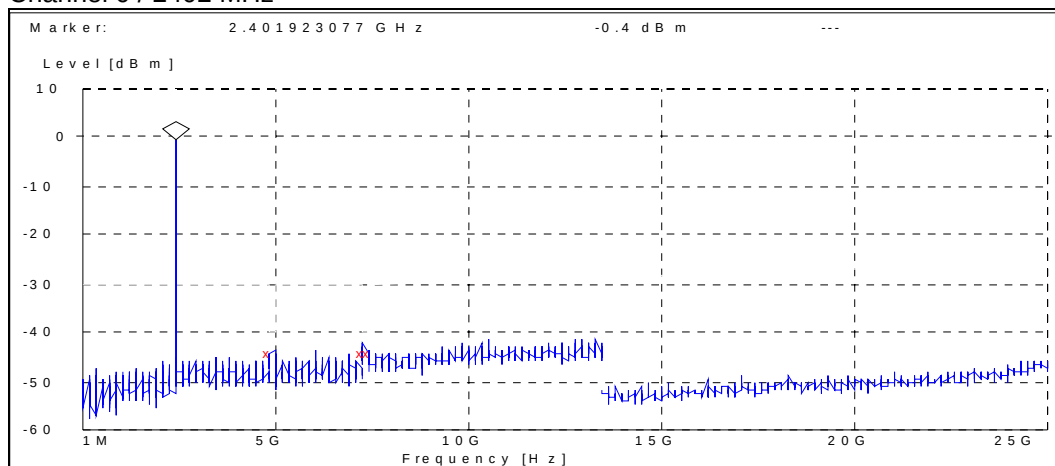
Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4910.897436	-45.726491	PASSED
7411.057692	-43.726491	PASSED
7500.000000	-44.626491	PASSED

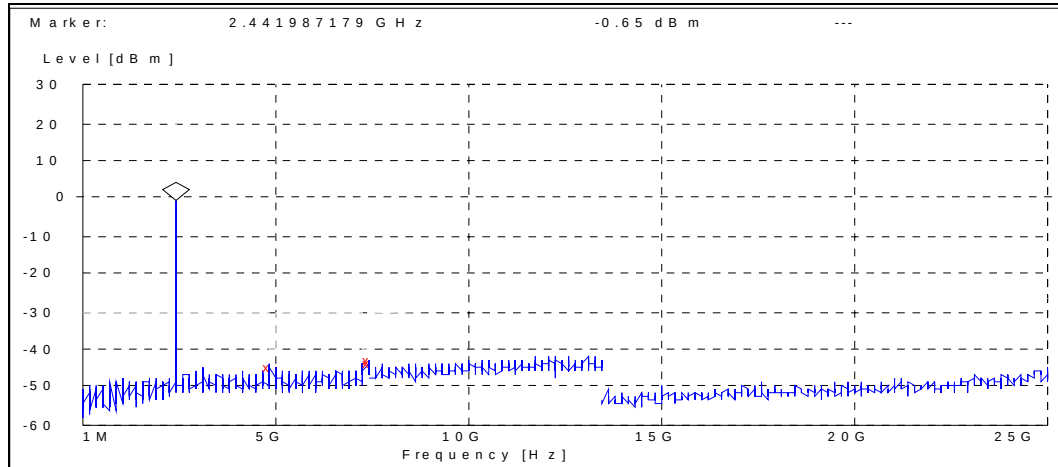
5.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



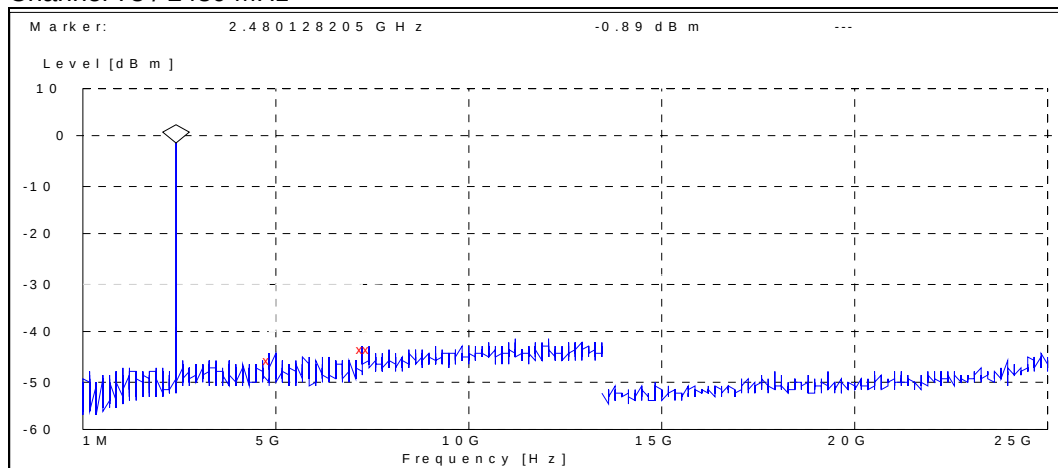
Frequency [MHz]	P [dBc]	Result
4937.500000	-44.002371	PASSED
7324.519231	-44.102371	PASSED
7500.000000	-44.202371	PASSED

Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4833.333333	-43.951177	PASSED
7351.442308	-41.951177	PASSED
7500.000000	-43.451177	PASSED

Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4929.807692	-44.806947	PASSED
7210.096154	-42.706947	PASSED
7500.000000	-42.506947	PASSED

6. Spurious radiated emissions (FCC §15.247(c), §15.209, RSS-210 A8.5)

EUT with DUT number	RM-244 DUT 41179
Accessories with DUT numbers	BP-6MT DUT 41184, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 51 / 102.1
Date of measurements	7.8.2007
Measured by	Jari Jantunen

6.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210 as follows:

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system.

The Final Measurement is performed in the Semi-Anechoic Chamber with conducting metal floor, if the Preliminary Measurement results are closer than 20 dB to the permissible value.

The EUT is placed at nonconductive plate at the turntable center.

For each suspected frequency, the turntable is rotated 360 degrees and antenna is scanned from 1 to 4 m. This is repeated for both horizontal and vertical receive antenna polarizations.

The emissions less than 20 dB below the permissible value are reported.

The measurement results are obtained as described below:

$$E [\mu V/m] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + AF - G_{PREAMP}$).

Limits for spurious radiated emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit [$\mu\text{V/m}$]	Limit [dB $\mu\text{V/m}$]	Detector
30 – 88	100	40	Quasi peak
88 – 216	150	43.5	Quasi peak
216 – 960	200	46	Quasi peak
960 – 1000	500	54	Quasi peak
Above 1000	500	54	Average
Above 1000	5000	74	Peak

6.2. Bluetooth Test results

6.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	39.00	89.13	40.70	-1.7	HORIZONTAL	PASSED
7206.000000	40.80	109.65	39.10	1.7	HORIZONTAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	26.10	20.18	27.80	-1.7	HORIZONTAL	PASSED
7206.000000	28.30	26.00	26.60	1.7	VERTICAL	PASSED

Channel 40 / 2442 MHz

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
37.995391	7.10	2.26	18.40	-11.3	VERTICAL	PASSED

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4925.345691	39.70	96.61	41.00	-1.3	HORIZONTAL	PASSED
4952.903808	39.80	97.72	41.00	-1.2	HORIZONTAL	PASSED
7281.059118	42.30	130.32	39.90	2.4	VERTICAL	PASSED
7324.641283	42.00	125.89	39.70	2.3	HORIZONTAL	PASSED
7416.825651	42.80	138.04	40.00	2.8	HORIZONTAL	PASSED
17995.495992	55.60	602.56	34.30	21.3	VERTICAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4920.345691	26.90	22.13	28.30	-1.4	HORIZONTAL	PASSED
4949.403808	27.00	22.39	28.20	-1.2	HORIZONTAL	PASSED
7277.059118	29.50	29.85	27.10	2.4	VERTICAL	PASSED
7324.641283	29.20	28.84	26.90	2.3	HORIZONTAL	PASSED
7412.325651	29.60	30.20	26.80	2.8	HORIZONTAL	PASSED
17999.495992	42.20	128.82	20.90	21.3	VERTICAL	PASSED

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	40.10	101.16	41.30	-1.2	HORIZONTAL	PASSED
7440.000000	42.90	139.64	40.20	2.7	HORIZONTAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	27.00	22.39	28.20	-1.2	HORIZONTAL	PASSED
7440.000000	29.40	29.51	26.70	2.7	HORIZONTAL	PASSED

6.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	38.90	88.10	40.60	-1.7	HORIZONTAL	PASSED
7206.000000	41.10	113.50	39.40	1.7	HORIZONTAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	25.90	19.72	27.60	-1.7	HORIZONTAL	PASSED
7206.000000	28.30	26.00	26.60	1.7	HORIZONTAL	PASSED

Channel 40 / 2442 MHz

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
30.700000	12.50	4.22	18.10	-5.6	HORIZONTAL	PASSED
37.695391	7.40	2.34	18.50	-11.1	HORIZONTAL	PASSED

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4954.403808	39.90	98.86	41.10	-1.2	VERTICAL	PASSED
4956.905812	39.70	96.61	40.90	-1.2	HORIZONTAL	PASSED
7279.063126	42.40	131.83	40.00	2.4	VERTICAL	PASSED
7284.577154	42.90	139.64	40.50	2.4	HORIZONTAL	PASSED
7416.825651	42.50	133.35	39.70	2.8	VERTICAL	PASSED
7423.839679	42.50	133.35	39.70	2.8	VERTICAL	PASSED
17999.497996	55.20	575.44	33.90	21.3	VERTICAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4950.903808	27.10	22.65	28.30	-1.2	VERTICAL	PASSED
4952.405812	27.10	22.65	28.30	-1.2	HORIZONTAL	PASSED
7285.563126	29.50	29.85	27.10	2.4	VERTICAL	PASSED
7291.577154	29.40	29.51	27.00	2.4	HORIZONTAL	PASSED
7410.825651	29.50	29.85	26.70	2.8	VERTICAL	PASSED
7421.339679	29.50	29.85	26.70	2.8	VERTICAL	PASSED
17995.997996	42.20	128.82	20.90	21.3	VERTICAL	PASSED

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	39.60	95.50	40.80	-1.2	HORIZONTAL	PASSED
7440.000000	42.90	139.64	40.20	2.7	VERTICAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	26.90	22.13	28.10	-1.2	HORIZONTAL	PASSED
7440.000000	29.40	29.51	26.70	2.7	VERTICAL	PASSED

7. AC powerline conducted emissions (FCC §15.207, RSS-GEN 7.2.2)

EUT with DUT number	RM-244 DUT 41179
Accessories with DUT numbers	BP-6MT DUT 41184, AC-5E DUT 41096, HS-47 DUT 41215
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 52 / 102.1
Date of measurements	7.8.2007
Measured by	Jari Jantunen

7.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-GEN as follows:

The EUT is placed on a wooden table 80 cm above the reference groundplane.

The EUT is connected via LISN to a test power supply.

The measurement results are obtained as described below:

$$U [dB\mu V] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

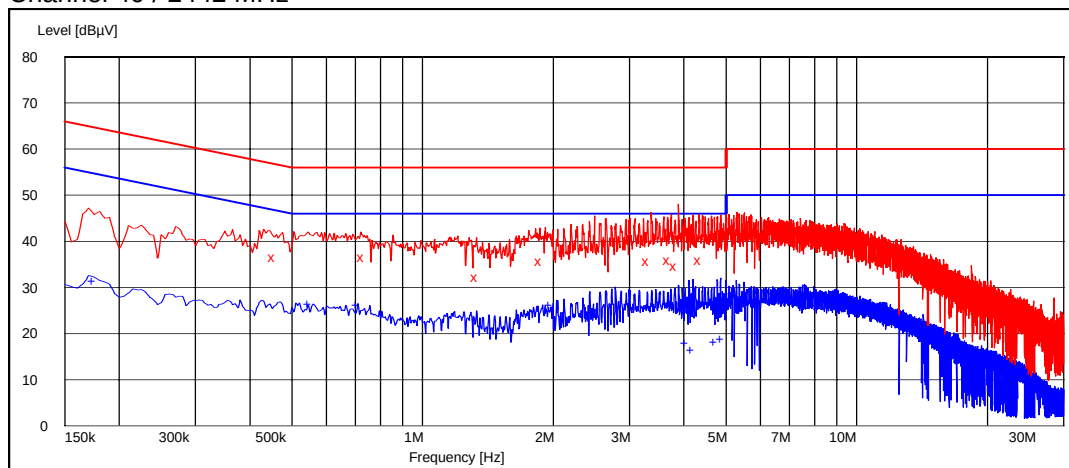
CISPR 22 Class B limits

Frequency range [MHz]	Quasi peak limit [dBμV]	Average limit [dBμV]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

7.2. Bluetooth Test results

7.2.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

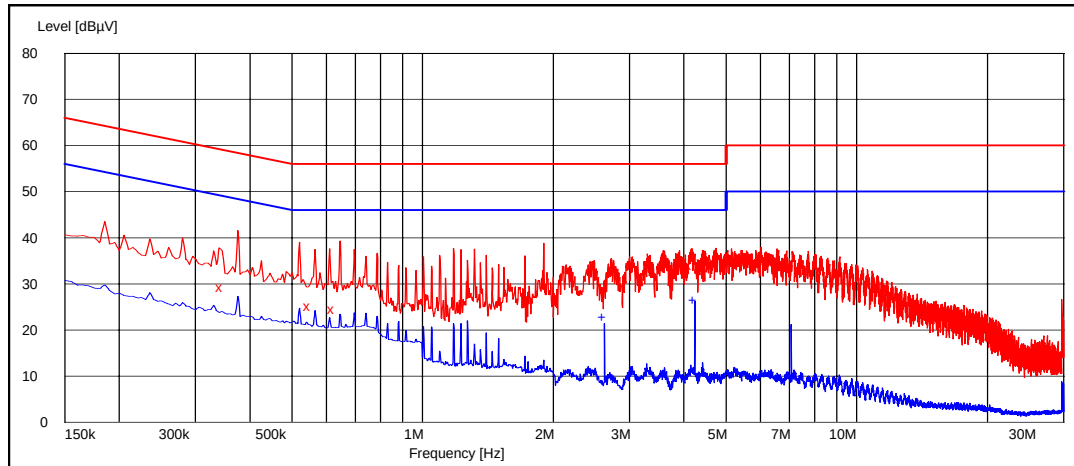
Frequency [MHz]	U [dBμV]	Line	Result
0.455000	36.50	L1	PASSED
0.730000	36.50	L1	PASSED
1.335000	32.30	L1	PASSED
1.875000	35.60	L1	PASSED
3.315000	35.70	L1	PASSED
3.700000	36.00	L1	PASSED
3.845000	34.60	L1	PASSED
4.365000	35.90	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.175000	31.30	L1	PASSED
0.550000	26.50	L1	PASSED
0.710000	26.30	L1	PASSED
1.970000	26.30	L1	PASSED
4.065000	17.90	L1	PASSED
4.200000	16.50	N	PASSED
4.740000	18.10	N	PASSED
4.910000	18.80	L1	PASSED

7.2.2 8DPSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.345000	29.40	L1	PASSED
0.550000	25.20	N	PASSED
0.625000	24.60	L1	PASSED
4.165000	34.10	L1	PASSED
4.425000	34.80	L1	PASSED
4.730000	34.90	L1	PASSED
4.775000	34.00	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
2.625000	22.80	L1	PASSED
4.240000	26.40	N	PASSED

8. 20 dB bandwidth (FCC §15.247(a)(1), RSS-210 A8.1 (1))

EUT with DUT number	RM-244 DUT 41180
Accessories with DUT numbers	BP-6MT DUT 41183, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 46 / 102.3
Date of measurements	08.08.2007
Measured by	Timo Raiskio

8.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

Limits for 20 dB bandwidth measurements

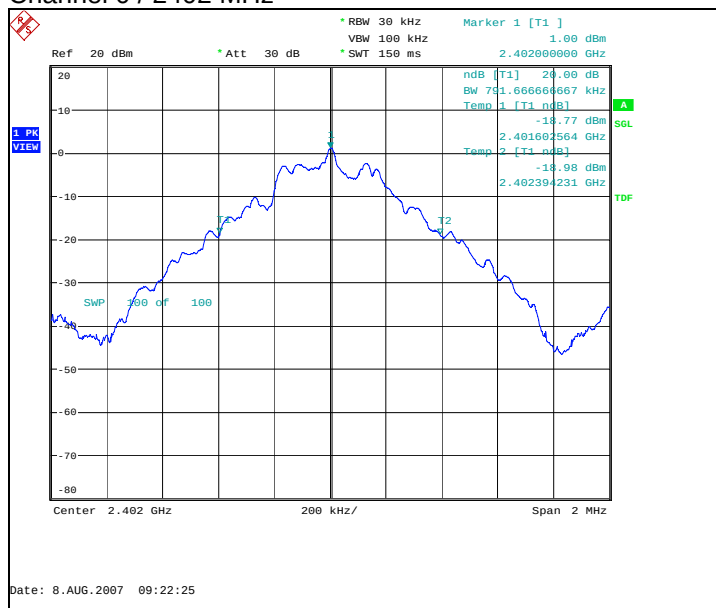
Limit [MHz]
N/A

8.2. Bluetooth Test results

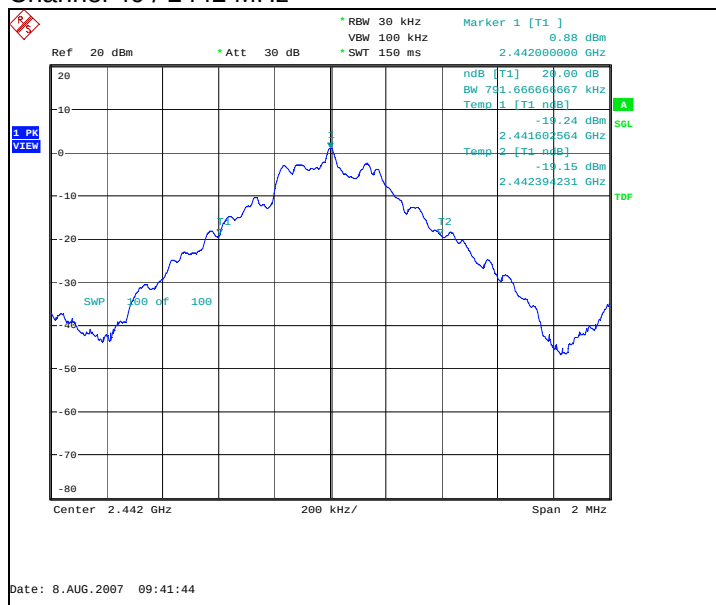
8.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	791.667	PASSED
40 / 2442	791.667	PASSED
78 / 2480	791.667	PASSED

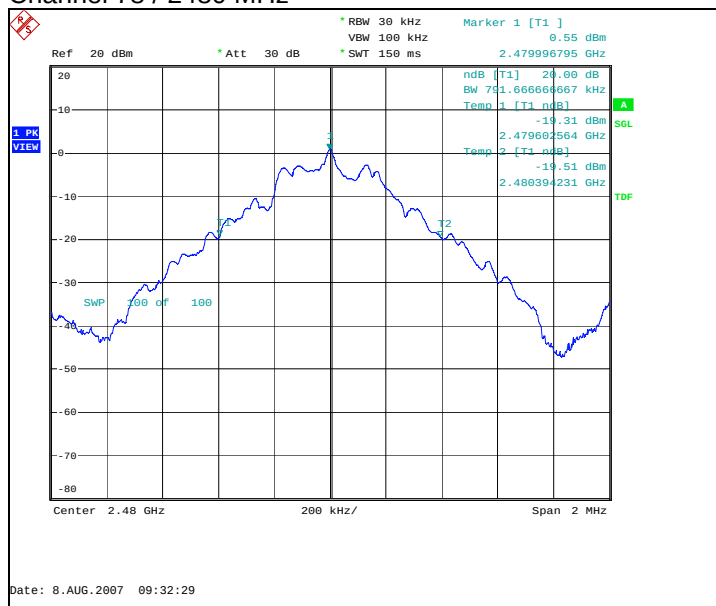
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



Channel 78 / 2480 MHz



8.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1266.026	PASSED
40 / 2442	1262.821	PASSED
78 / 2480	1266.026	PASSED

1 PK VIEW

Ref 20 dBm * Att 30 dB * RBW 30 kHz VBW 100 kHz * SWT 150 ms

Marker 1 [T1] -0.06 dBm 2.402003205 GHz

ndB [T1] 20.00 dB
BW 1.266025641 MHz
Temp 1 [T1 ndB] -20.27 dBm
2.401352564 GHz
Temp 2 [T1 ndB] -20.34 dBm
2.402618590 GHz

SWP 100 Off 100

Center 2.402 GHz 200 kHz/ Span 2 MHz

Date: 8.AUG.2007 09:47:32

1 PK VIEW

Ref 20 dBm * Att 30 dB * RBW 30 kHz VBW 100 kHz SWT 150 ms Marker 1 [T1] 2.442003205 GHz -0.52 dBm

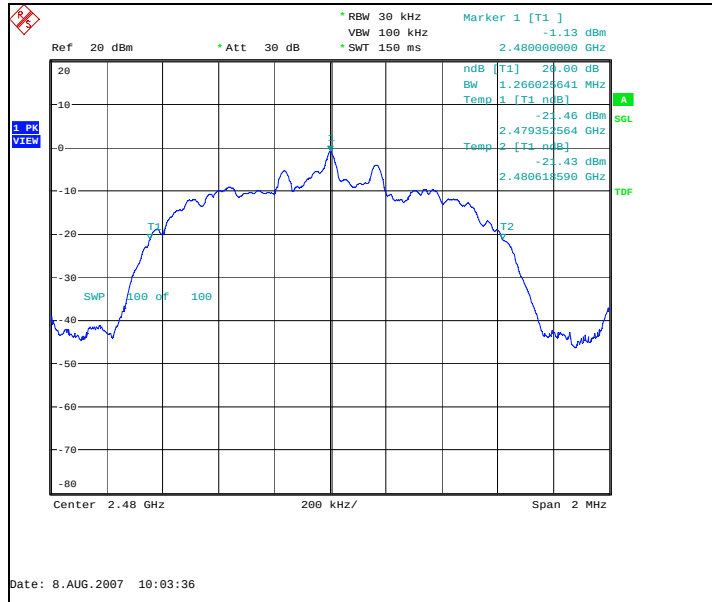
20 dBm [T1] 20.00 dB 1.262820513 MHz -20.37 dBm Temp 1 [T1 dBm] 2.441355769 GHz -20.62 dBm Temp 2 [T1 dBm] 2.442618590 GHz

SWP 100 Off 100

Center 2.442 GHz 200 kHz/ Span 2 MHz

Date: 8.AUG.2007 10:14:01

Channel 78 / 2480 MHz



9. Carrier frequency separation (FCC §15.247(a)(1), RSS-210 A8.1 (2))

EUT with DUT number	RM-244 DUT 41180
Accessories with DUT numbers	BP-6MT DUT 41183, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 46 / 102.3
Date of measurements	08.08.2007
Measured by	Timo Raiskio

9.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

Limits for carrier frequency separation measurements

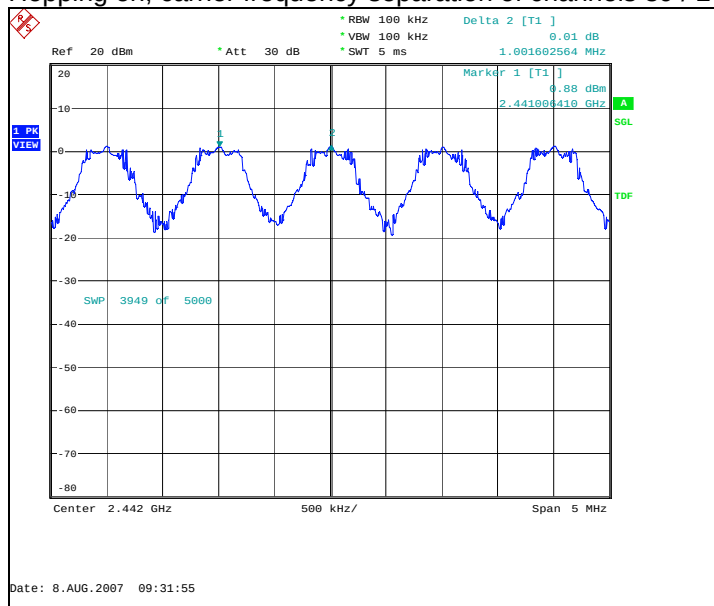
Limit [MHz]
≥ 0.025 or $2/3$ of the 20 dB bandwidth

9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1001.603	PASSED

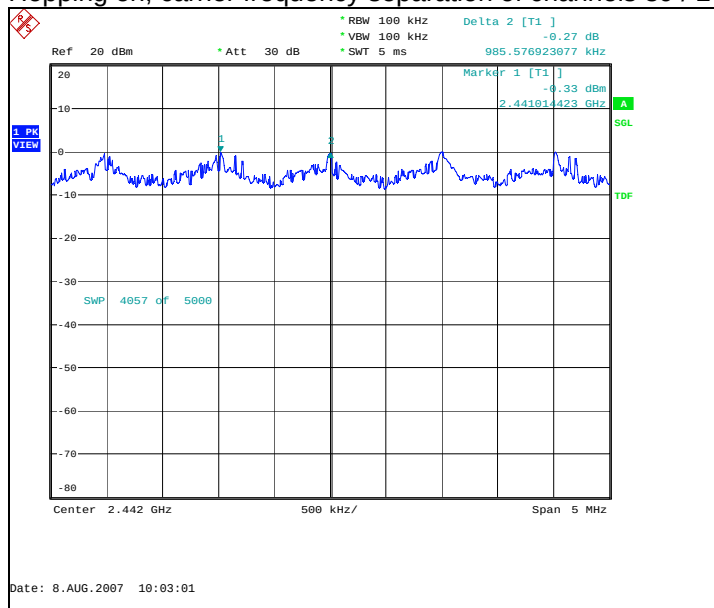
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



9.2.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
985.577	PASSED

Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



10. Number of hopping frequencies (FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))

EUT with DUT number	RM-244 DUT 41180
Accessories with DUT numbers	BP-6MT DUT 41183, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 46 / 102.3
Date of measurements	08.08.2007
Measured by	Timo Raiskio

10.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

Limits for number of hopping frequencies measurements

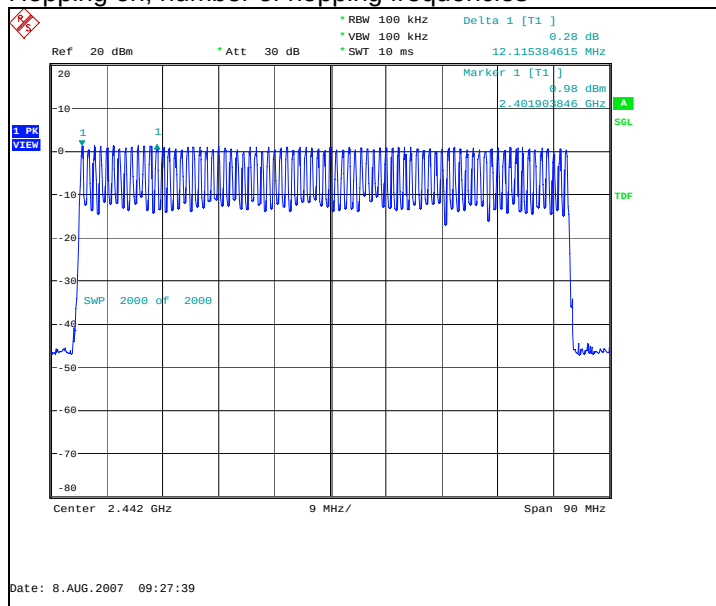
Limit [number]
≥ 15

10.2. Bluetooth Test results

10.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	PASSED

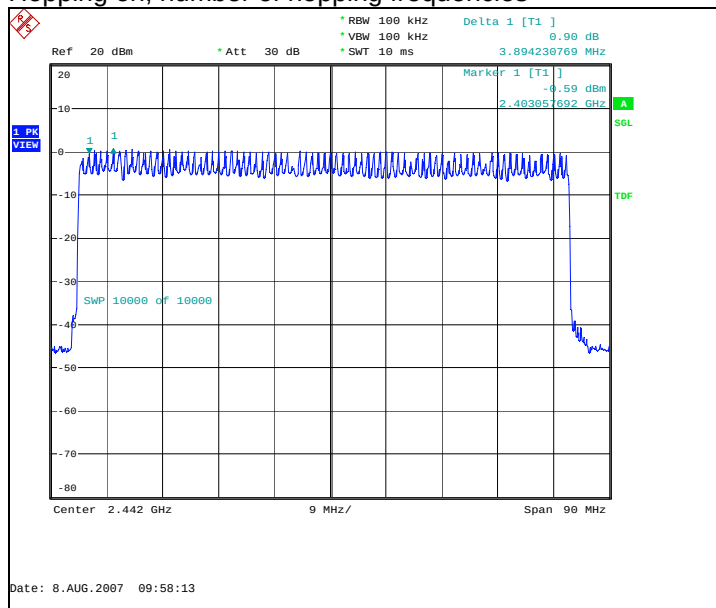
Hopping on, number of hopping frequencies



10.2.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
73	PASSED

Hopping on, number of hopping frequencies



11. Time of occupancy (FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))

EUT with DUT number	RM-244 DUT 41180
Accessories with DUT numbers	BP-6MT DUT 41183, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 46 / 102.3
Date of measurements	08.08.2007
Measured by	Timo Raiskio

11.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210 as follows:

The total time of occupancy is get by multiplying the measured number of transmissions occurred during 31.6 second period with the duration of one transmission.

Limits for time of occupancy measurements

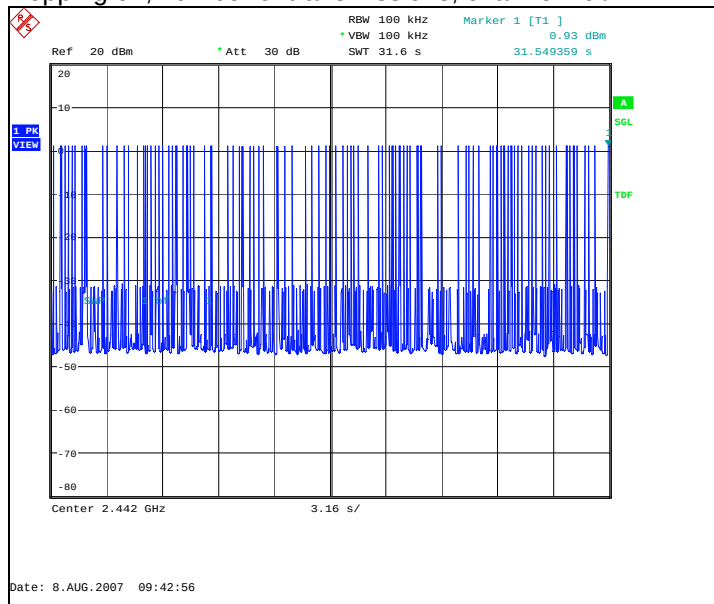
Limit [s]
≤ 0.4

11.2. Bluetooth test results

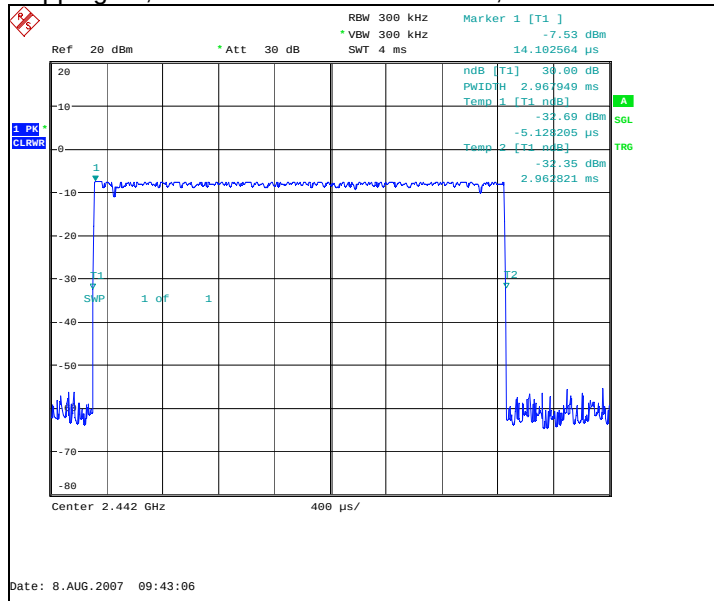
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
77	2,968	0.228536	PASSED

Hopping on, number of transmissions, channel 40 / 2442 MHz



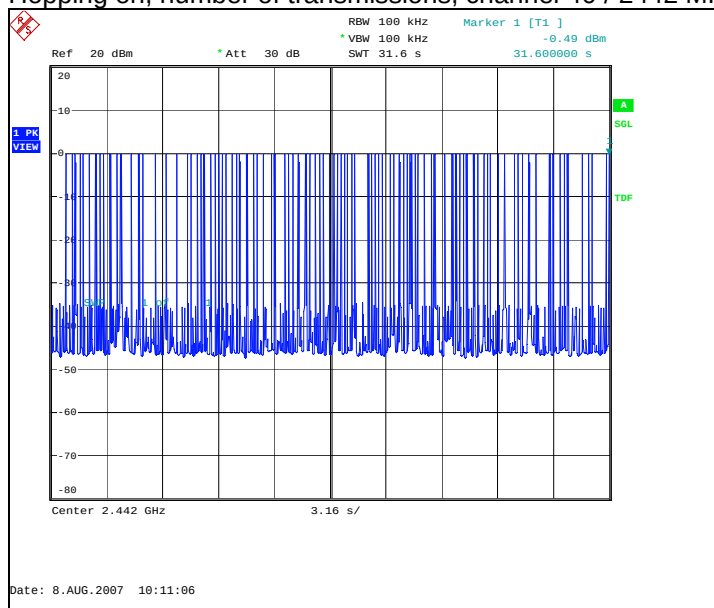
Hopping on, duration of one transmission, channel 40 / 2442 MHz



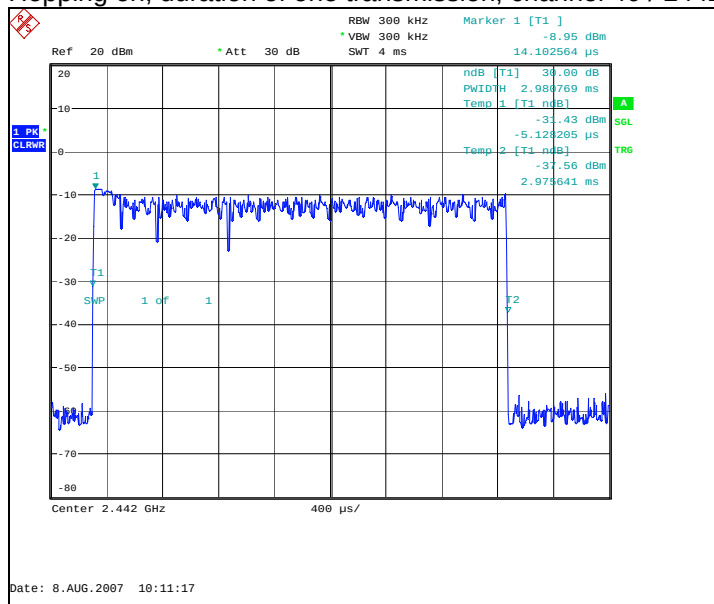
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μs]	Time of occupancy [s]	Result
79	2,981	0.235499	PASSED

Hopping on, number of transmissions, channel 40 / 2442 MHz



Hopping on, duration of one transmission, channel 40 / 2442 MHz



12. Conducted peak output power (FCC §15.247(b)(1), RSS-210 A8.4 (4))

EUT with DUT number	RM-244 DUT 41180
Accessories with DUT numbers	BP-6MT DUT 41183, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 46 / 102.3
Date of measurements	08.08.2007
Measured by	Timo Raiskio

12.1. Test method and limit

The measurement is made according to DTS procedures KDB 558074 and IC standard RSS-210.

Limits for conducted peak output power measurements

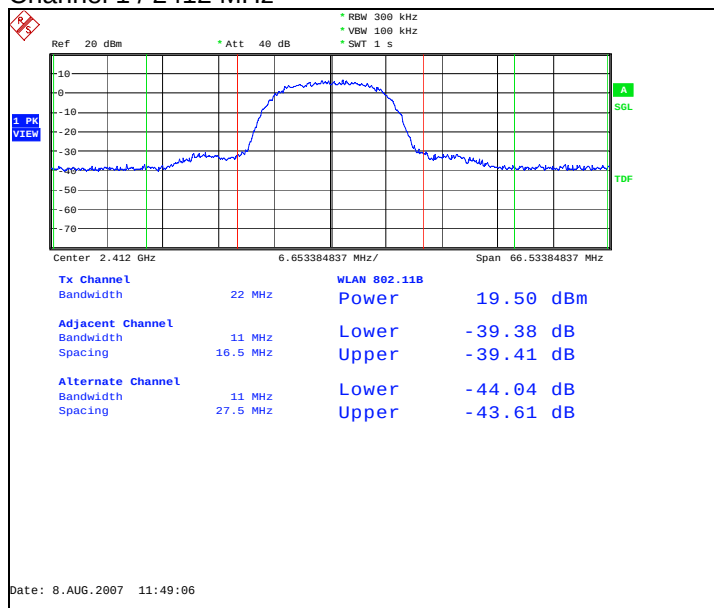
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

12.2. WLAN Test results

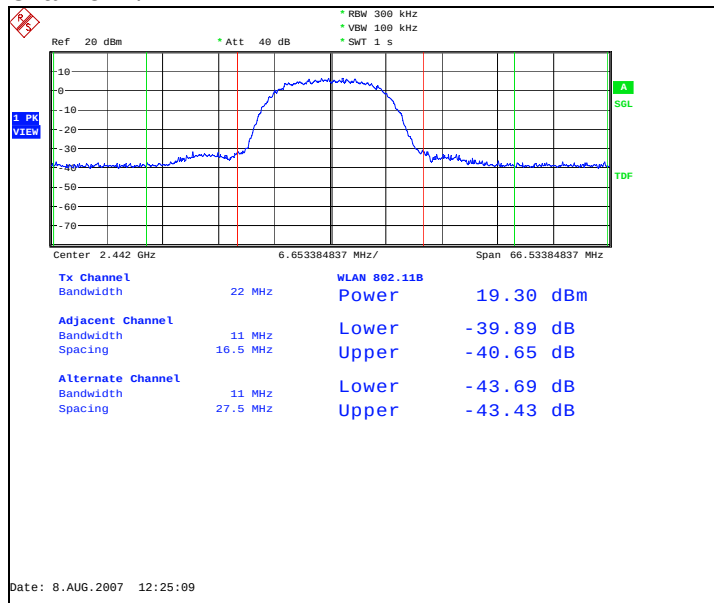
12.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f _c [MHz]	P [dBm]	P [W]	Result
1 / 2412	19.52	0.090	PASSED
7 / 2442	19.30	0.085	PASSED
11 / 2462	19.13	0.082	PASSED

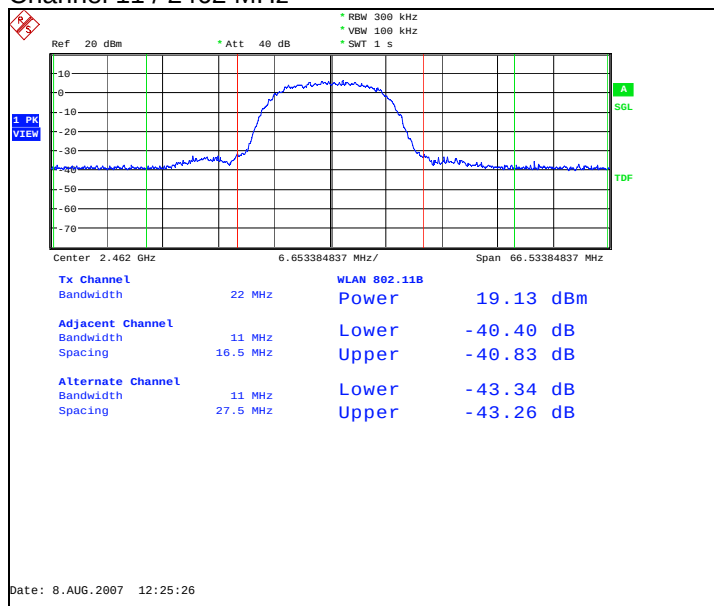
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



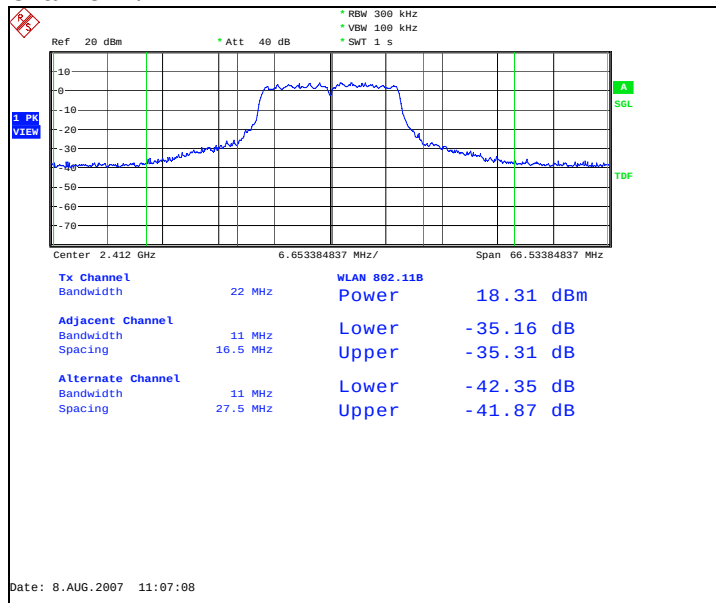
Channel 11 / 2462 MHz



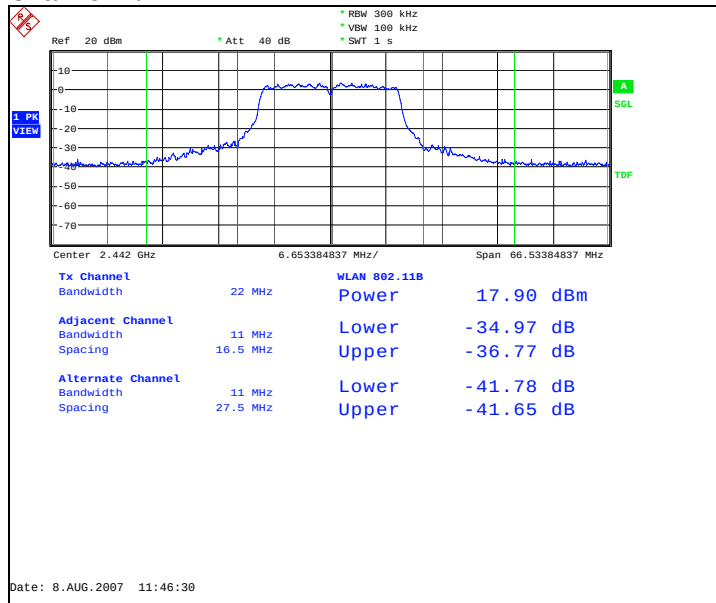
12.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [W]	Result
1 / 2412	18.15	0.065	PASSED
7 / 2442	17.90	0.062	PASSED
11 / 2462	17.94	0.062	PASSED

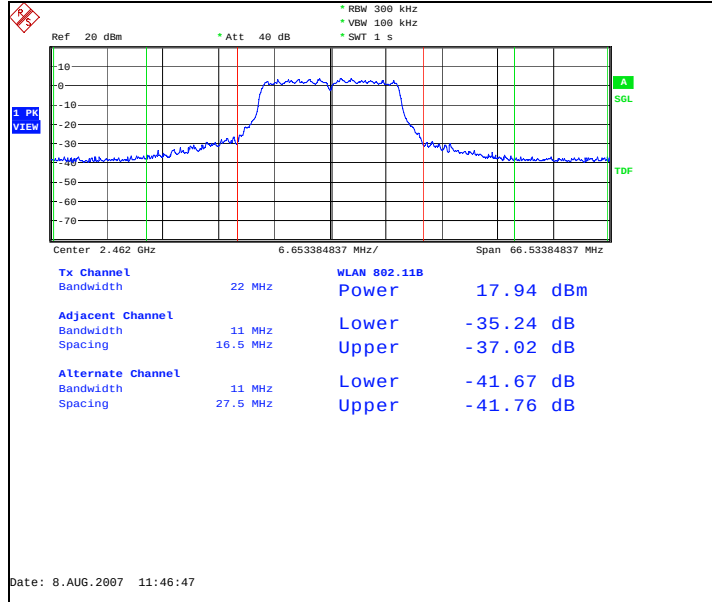
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



13. Band edge compliance of RF emissions (FCC §15.247(c), RSS-210 A8.5)

EUT with DUT number	RM-244 DUT 41179
Accessories with DUT numbers	BP-6MT DUT 41184, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 50 / 102.2
Date of measurements	8.8.2007
Measured by	Jari Jantunen

13.1. Test method and limit

The measurement is made according to DTS procedures KDB 558074 and IC standard RSS-210.

Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit Average [dBμV/m]	Limit Peak [dBμV/m]
Below 2390 and above 2483.5	≤ 54	≤ 74

13.2. WLAN Test results

13.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

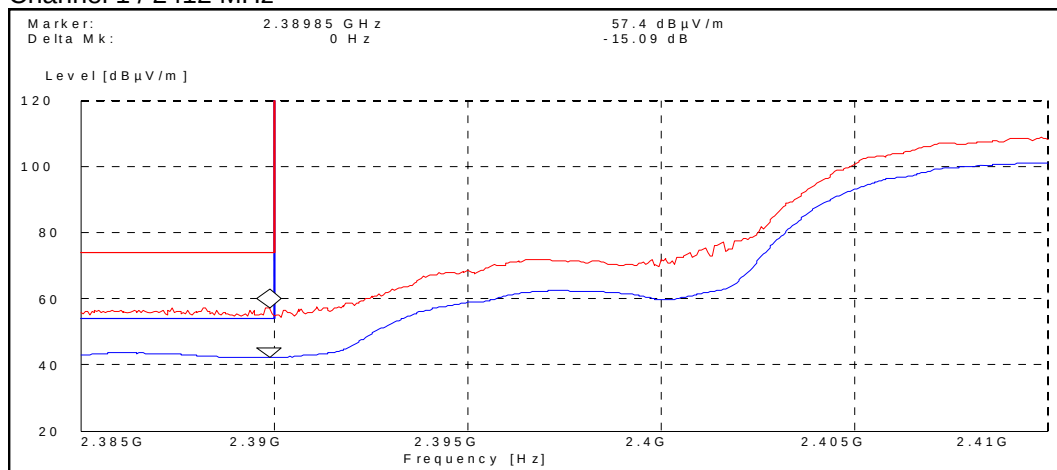
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	42.31	PASSED
11 / 2462	40.17	PASSED

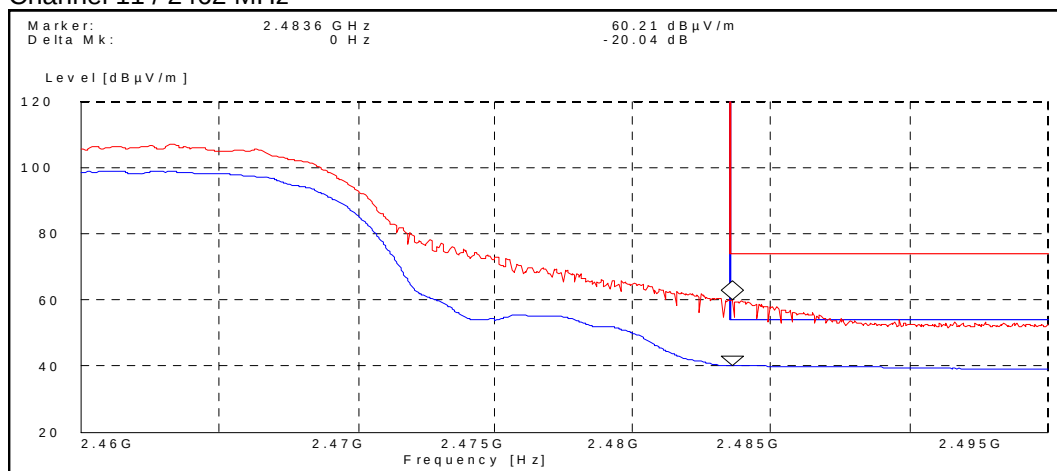
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	57.40	PASSED
11 / 2462	60.21	PASSED

Channel 1 / 2412 MHz



Channel 11 / 2462 MHz



13.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

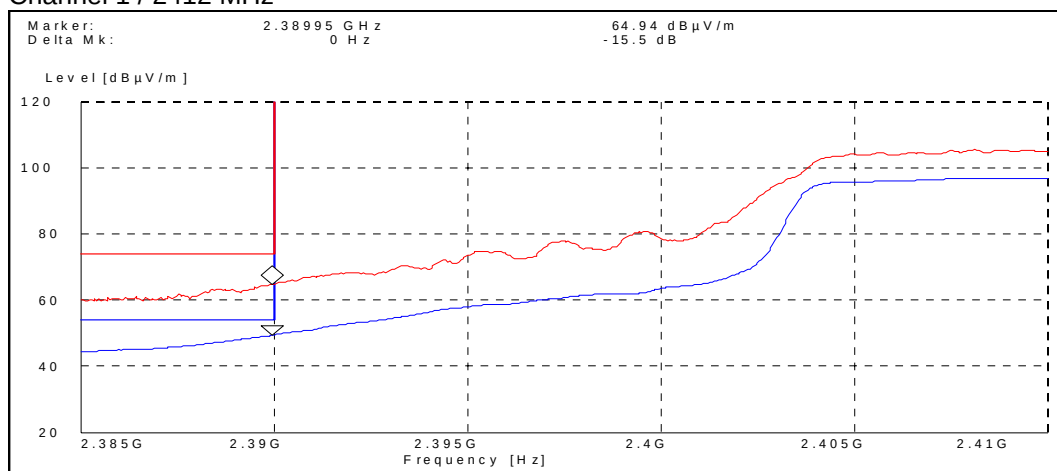
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	49.44	PASSED
11 / 2462	48.56	PASSED

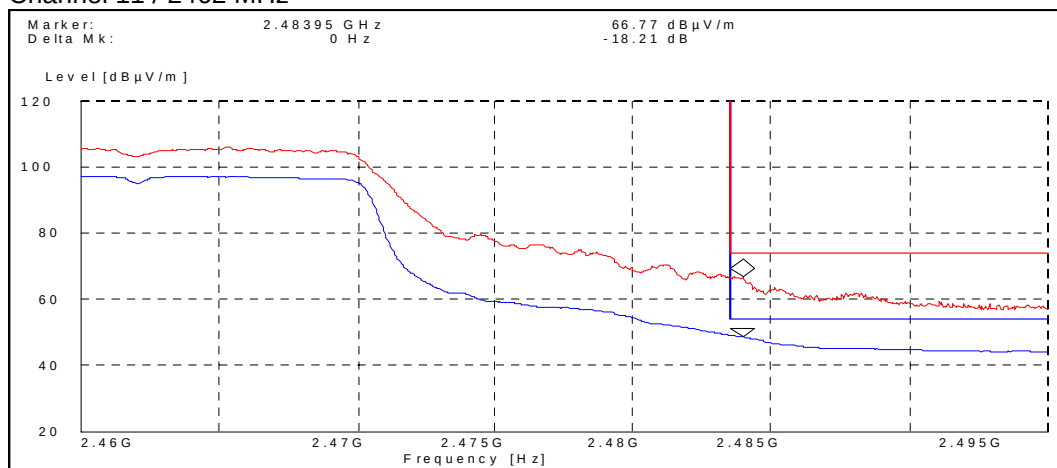
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	64.94	PASSED
11 / 2462	66.77	PASSED

Channel 1 / 2412 MHz



Channel 11 / 2462 MHz



14. Spurious RF conducted emissions (FCC §15.247(c), RSS-210 A8.5)

EUT with DUT number	RM-244 DUT 41180
Accessories with DUT numbers	BP-6MT DUT 41183, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 46 / 102.3
Date of measurements	08.08.2007
Measured by	Timo Raiskio

14.1. Test method and limit

The measurement is made according to DTS procedures KDB 558074 and IC standard RSS-210.

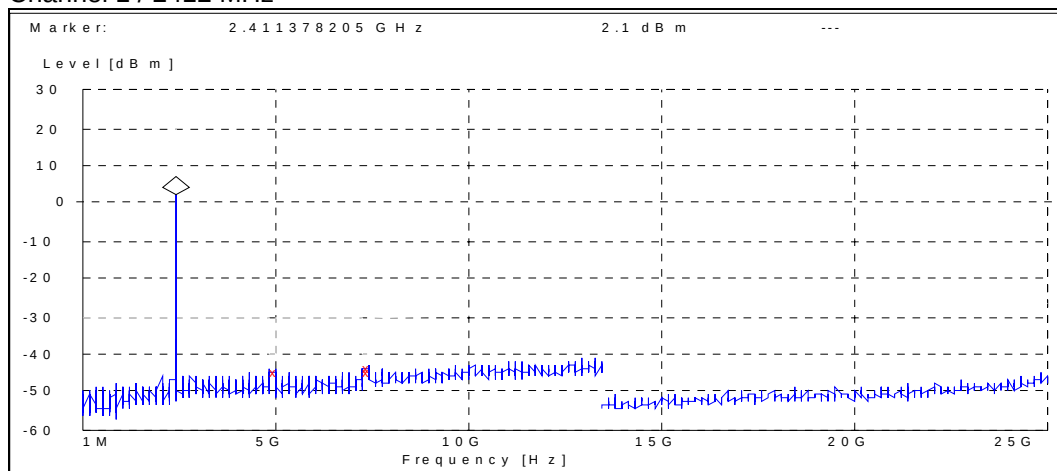
Limits for spurious RF conducted emissions measurements

Frequency range [MHz]	Limit [dBc]
1 – 25000	≤ -20

14.2. WLAN Test results

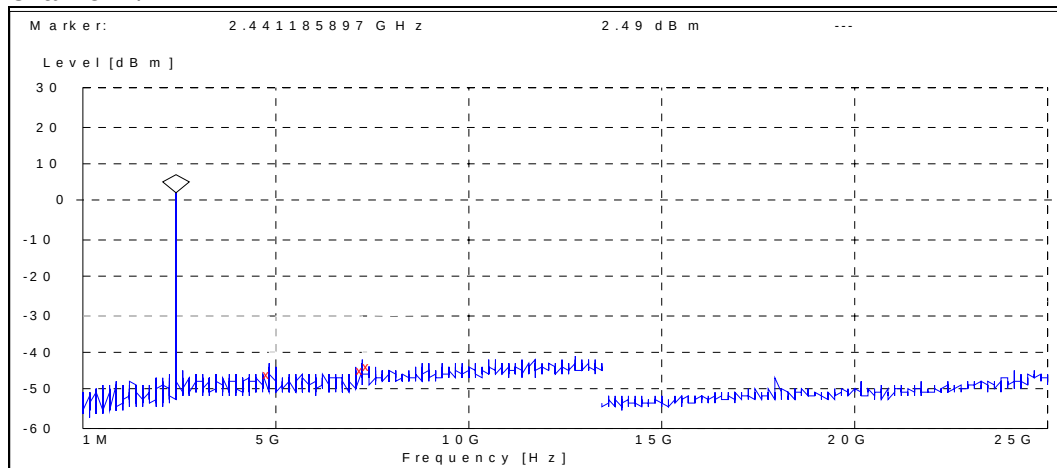
14.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 1 / 2412 MHz



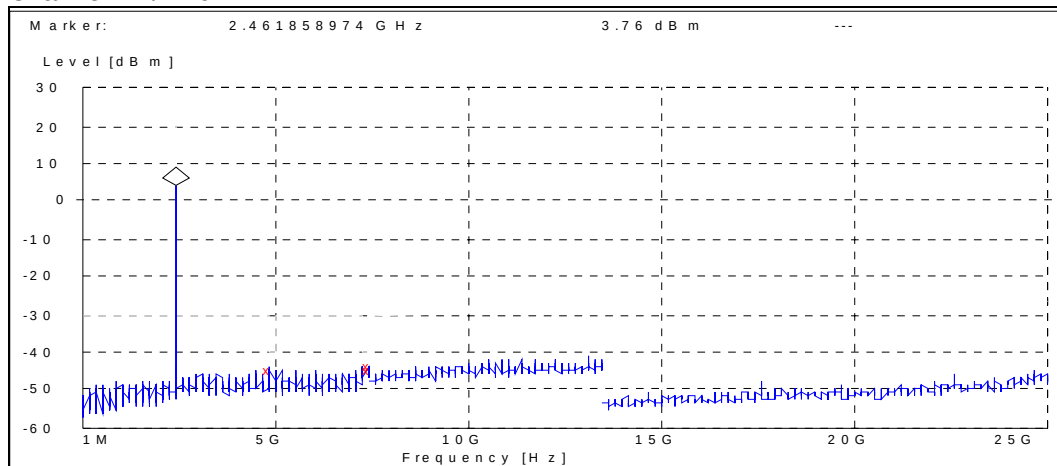
Frequency [MHz]	P [dBc]	Result
4984.294872	10.277943	PASSED
7451.442308	11.077943	PASSED
7500.000000	10.577943	PASSED

Channel 7 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4888.141026	6.701076	PASSED
7244.230769	8.301076	PASSED
7500.000000	8.901076	PASSED

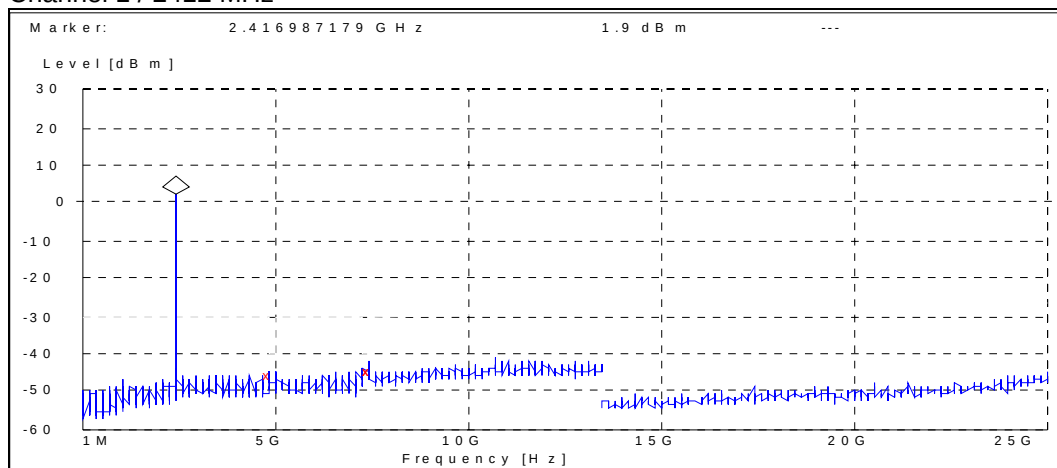
Channel 11 / 2462 MHz



Frequency [MHz]	P [dBc]	Result
4842.948718	-48.761765	PASSED
7440.865385	-48.161765	PASSED
7500.000000	-47.561765	PASSED

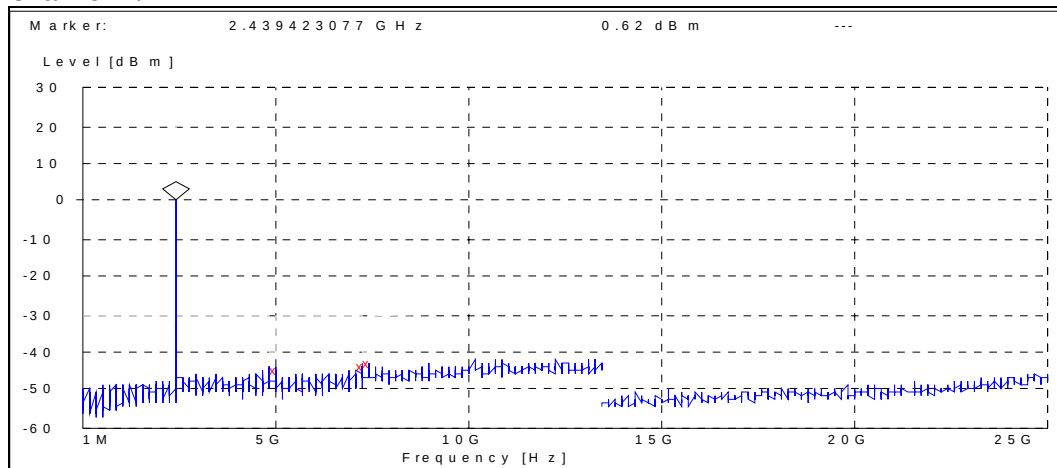
14.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel 1 / 2412 MHz



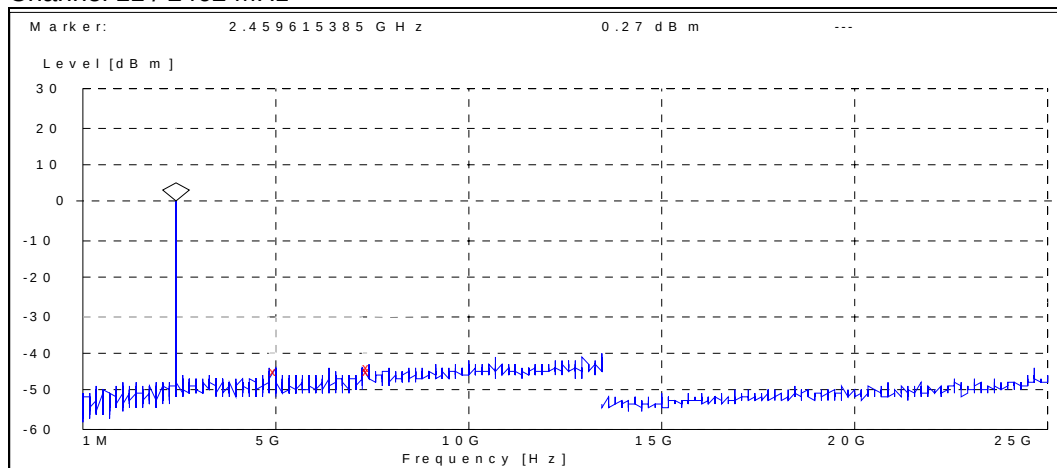
Frequency [MHz]	P [dBc]	Result
4884.615385	-47.395760	PASSED
7495.192308	-46.195760	PASSED
7500.000000	-46.495760	PASSED

Channel 7 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4990.064103	7.360399	PASSED
7202.884615	8.560399	PASSED
7500.000000	8.960399	PASSED

Channel 11 / 2462 MHz



Frequency [MHz]	P [dBc]	Result
4957.371795	8.050410	PASSED
7445.192308	8.350410	PASSED
7500.000000	8.550410	PASSED

15. Spurious radiated emissions (FCC §15.247(c), §15.209, RSS-210 A8.5)

EUT with DUT number	RM-244 DUT 41179
Accessories with DUT numbers	BP-6MT DUT 41184, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20-21 / 50- 51 / 102.0-102.3
Date of measurements	8-9.8.2007
Measured by	Jari Jantunen

15.1. Test method and limit

The measurement is made according to DTS procedures KDB 558074 and IC standard RSS-210 as follows:

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system.

The Final Measurement is performed in the Semi-Anechoic Chamber with conducting metal floor, if the Preliminary Measurement results are closer than 20 dB to the permissible value.

The EUT is placed at nonconductive plate at the turntable center.

For each suspected frequency, the turntable is rotated 360 degrees and antenna is scanned from 1 to 4 m. This is repeated for both horizontal and vertical receive antenna polarizations.

The emissions less than 20 dB below the permissible value are reported.

The measurement results are obtained as described below:

$$E [\mu V/m] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + AF - G_{PREAMP}$).

Limits for spurious radiated emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit [$\mu\text{V/m}$]	Limit [dB $\mu\text{V/m}$]	Detector
30 – 88	100	40	Quasi peak
88 – 216	150	43.5	Quasi peak
216 – 960	200	46	Quasi peak
960 – 1000	500	54	Quasi peak
Above 1000	500	54	Average
Above 1000	5000	74	Peak

15.2. WLAN Test results

15.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 1 / 2412 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	42.50	133.35	44.20	-1.7	HORIZONTAL	PASSED
7236.000000	41.90	124.45	39.90	2.0	VERTICAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	29.10	28.51	30.80	-1.7	HORIZONTAL	PASSED
7236.000000	28.80	27.54	26.80	2.0	VERTICAL	PASSED

Channel 7 / 2442 MHz

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
30.600000	12.60	4.27	18.10	-5.5	VERTICAL	PASSED
37.895391	7.20	2.29	18.40	-11.2	VERTICAL	PASSED

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4883.767535	42.70	136.46	44.30	-1.6	VERTICAL	PASSED
7326.649299	42.30	130.32	40.00	2.3	VERTICAL	PASSED
7335.679359	42.30	130.32	39.90	2.4	HORIZONTAL	PASSED
7392.281563	41.90	124.45	39.20	2.7	VERTICAL	PASSED
17954.407816	55.00	562.34	33.80	21.2	VERTICAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4884.267535	29.90	31.26	31.50	-1.6	VERTICAL	PASSED
7324.649299	29.50	29.85	27.20	2.3	VERTICAL	PASSED
7340.179359	29.30	29.17	26.90	2.4	HORIZONTAL	PASSED
7394.781563	29.40	29.51	26.70	2.7	VERTICAL	PASSED
17955.407816	42.00	125.89	20.80	21.2	VERTICAL	PASSED

Channel 11 / 2462 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	43.30	146.22	44.70	-1.4	VERTICAL	PASSED
7386.000000	43.10	142.89	40.50	2.6	VERTICAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	29.90	31.26	31.30	-1.4	VERTICAL	PASSED
7386.000000	29.50	29.85	26.90	2.6	VERTICAL	PASSED

15.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel 1 / 2412 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	39.50	94.41	41.20	-1.7	HORIZONTAL	PASSED
7236.000000	42.00	125.89	40.00	2.0	HORIZONTAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	27.00	22.39	28.70	-1.7	HORIZONTAL	PASSED
7236.000000	28.80	27.54	26.80	2.0	VERTICAL	PASSED

Channel 7 / 2442 MHz

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4882.761523	42.00	125.89	43.60	-1.6	VERTICAL	PASSED
4885.269539	41.10	113.50	42.70	-1.6	VERTICAL	PASSED
7270.039078	42.30	130.32	40.00	2.3	HORIZONTAL	PASSED
7322.151303	42.60	134.90	40.30	2.3	VERTICAL	PASSED
17899.293587	54.90	555.90	33.80	21.1	HORIZONTAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4880.761523	28.50	26.61	30.10	-1.6	VERTICAL	PASSED
4887.769539	27.70	24.27	29.20	-1.5	VERTICAL	PASSED
7271.539078	29.50	29.85	27.20	2.3	HORIZONTAL	PASSED
7328.651303	29.70	30.55	27.40	2.3	VERTICAL	PASSED
17894.793587	41.80	123.03	20.70	21.1	HORIZONTAL	PASSED

Channel 11 / 2462 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	41.90	124.45	43.30	-1.4	VERTICAL	PASSED
7386.000000	42.80	138.04	40.20	2.6	HORIZONTAL	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	28.20	25.70	29.60	-1.4	VERTICAL	PASSED
7386.000000	29.60	30.20	27.00	2.6	VERTICAL	PASSED

16. AC powerline conducted emissions (FCC §15.207, RSS-GEN 7.2.2)

EUT with DUT number	RM-244 DUT 41179
Accessories with DUT numbers	BP-6MT DUT 41184, AC-5E DUT 41096, HS-47 DUT 41215
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 52 / 102.1
Date of measurements	7.8.2007
Measured by	Jari Jantunen

16.1. Test method and limit

The measurement is made according to DTS procedures KDB 558074 and IC standard RSS-GEN as follows:

The EUT is placed on a wooden table 80 cm above the reference groundplane.

The EUT is connected via LISN to a test power supply.

The measurement results are obtained as described below:

$$U [dB\mu V] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

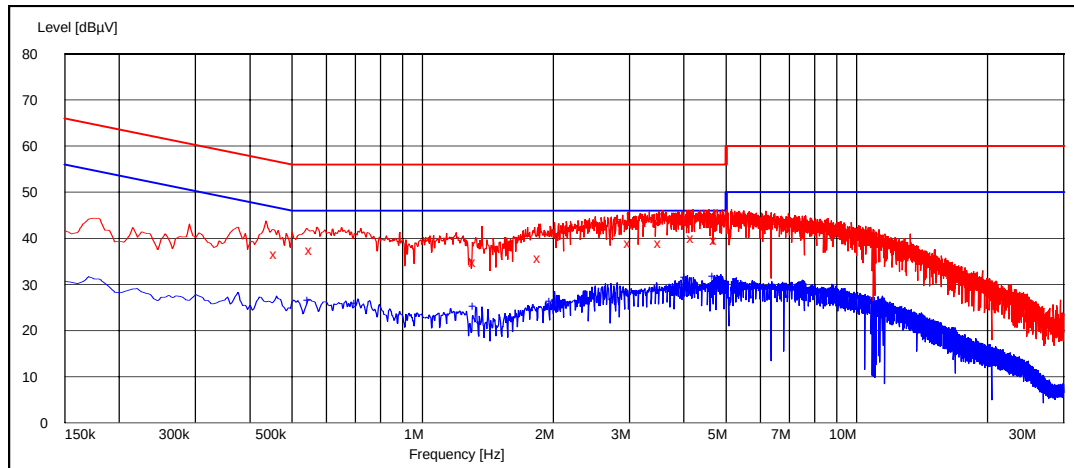
CISPR 22 Class B limits

Frequency range [MHz]	Quasi peak limit [dBμV]	Average limit [dBμV]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

16.2. WLAN Test results

16.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 7 / 2442 MHz



Quasi peak (RBW: 9 kHz)

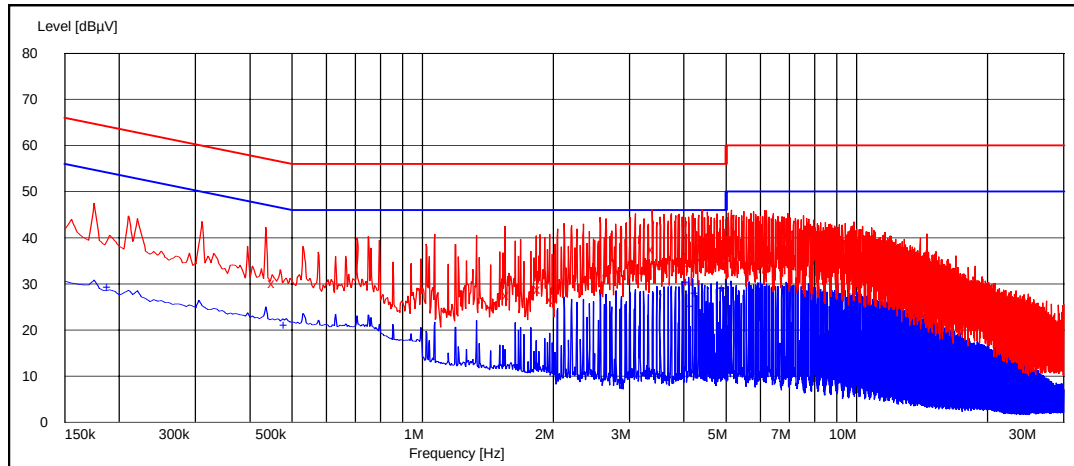
Frequency [MHz]	U [dBμV]	Line	Result
0.460000	36.60	L1	PASSED
0.555000	37.40	L1	PASSED
1.325000	34.90	L1	PASSED
1.865000	35.70	L1	PASSED
3.015000	39.00	L1	PASSED
3.540000	38.90	L1	PASSED
4.205000	40.10	L1	PASSED
4.755000	39.70	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.550000	26.60	L1	PASSED
0.705000	25.90	L1	PASSED
1.320000	25.30	L1	PASSED
1.985000	26.50	L1	PASSED
4.065000	31.60	L1	PASSED
4.720000	31.80	L1	PASSED
4.815000	30.20	L1	PASSED
4.940000	30.80	L1	PASSED

16.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel 7 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.455000	30.20	L1	PASSED
1.575000	27.50	L1	PASSED
1.865000	28.90	L1	PASSED
1.990000	26.60	L1	PASSED
3.405000	37.60	L1	PASSED
4.170000	34.60	L1	PASSED
4.435000	39.00	L1	PASSED
4.515000	37.60	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.190000	29.30	L1	PASSED
0.485000	21.00	N	PASSED
4.095000	30.40	L1	PASSED
4.170000	25.30	L1	PASSED
4.295000	28.10	L1	PASSED
4.960000	29.20	L1	PASSED

17. 6 dB bandwidth (FCC §15.247(a)(2), RSS-210 A8.2 (1))

EUT with DUT number	RM-244 DUT 41180
Accessories with DUT numbers	BP-6MT DUT 41183, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 46 / 102.3
Date of measurements	08.08.2007
Measured by	Timo Raiskio

17.1. Test method and limit

The measurement is made according to DTS procedures KDB 558074 and IC standard RSS-210.

Limits for 6 dB bandwidth measurements

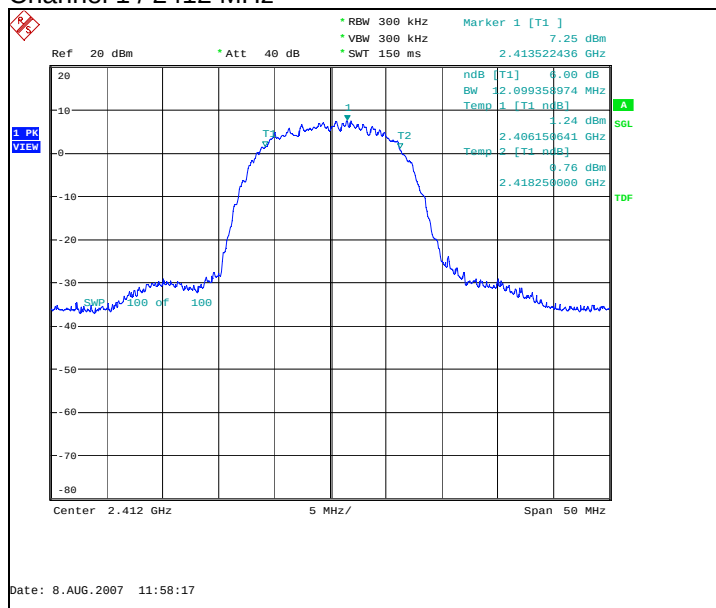
Limit [kHz]
≥ 500

17.2. WLAN test results

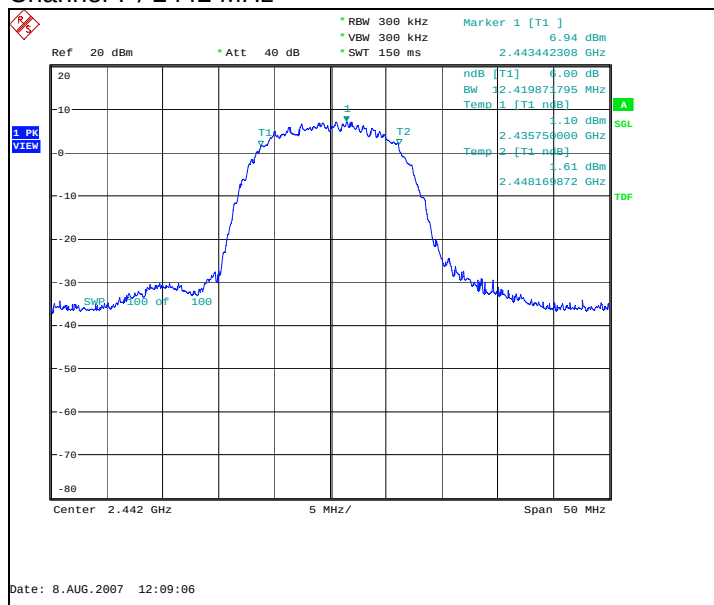
17.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
1	12099.359	PASSED
7	12419.872	PASSED
11	12099.359	PASSED

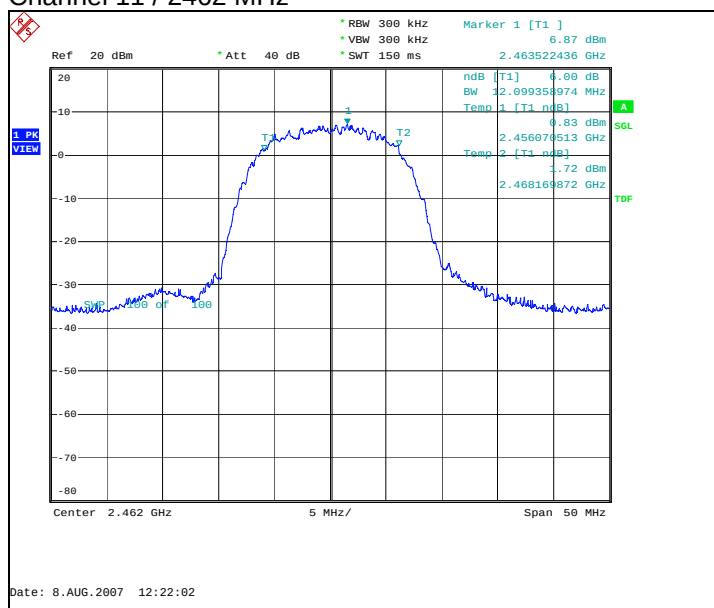
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



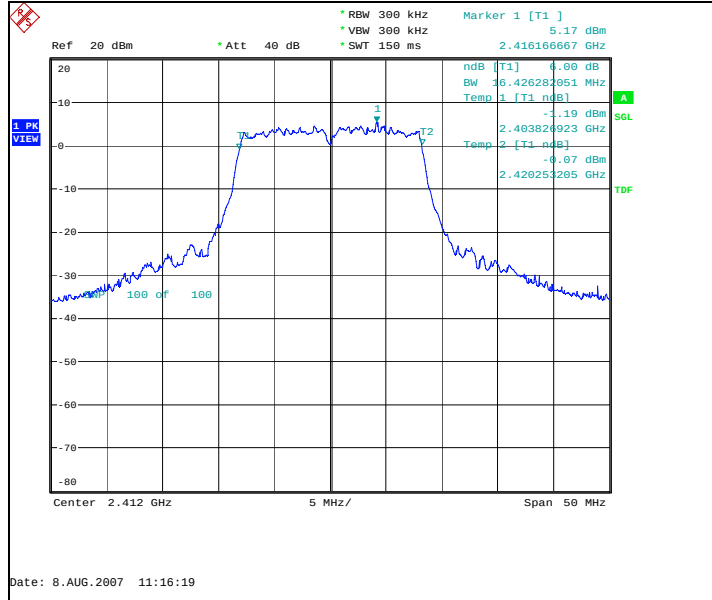
Channel 11 / 2462 MHz



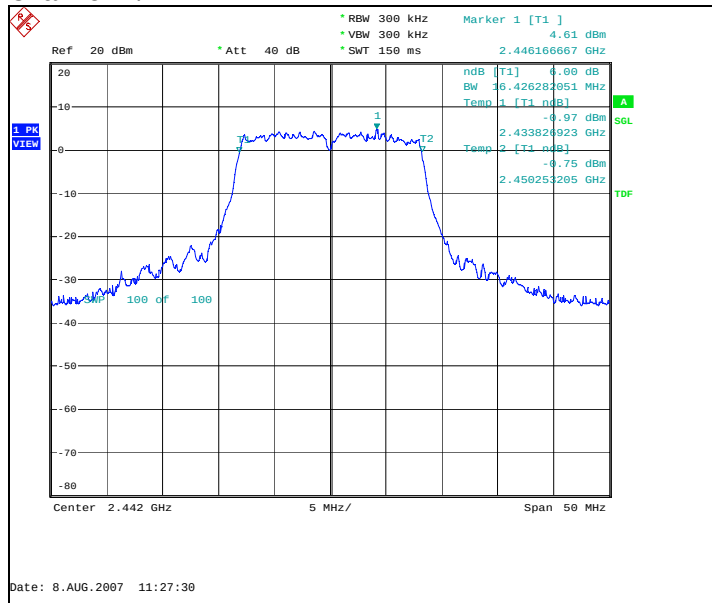
17.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	6 dB bandwidth [kHz]	Result
1	16426.282	PASSED
7	16426.282	PASSED
11	16426.282	PASSED

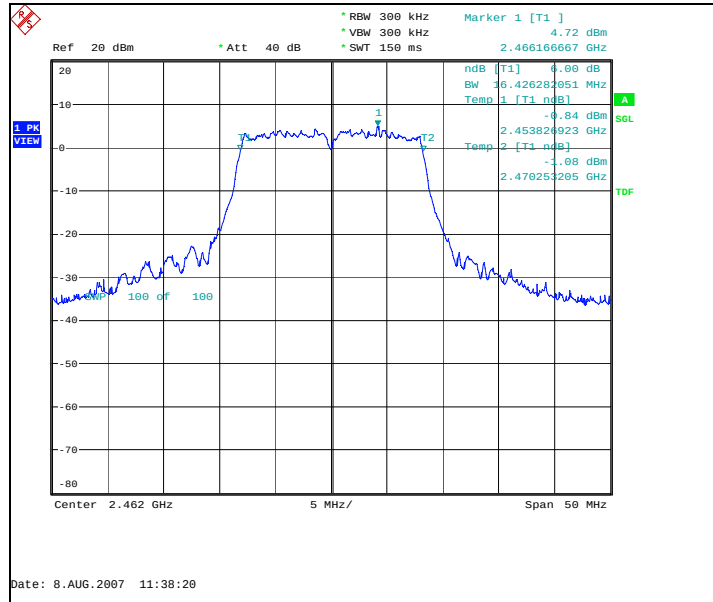
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



18. Power spectral density (FCC §15.247(e), RSS-210 A8.2 (2))

EUT with DUT number	RM-244 DUT 41180
Accessories with DUT numbers	BP-6MT DUT 41183, AC-5E DUT 41185, HS-47 DUT 41181
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 46 / 102.3
Date of measurements	08.08.2007
Measured by	Timo Raiskio

18.1. Test method and limit

The measurement is made according to DTS procedures KDB 558074 and IC standard RSS-210.

Limits for power spectral density measurements

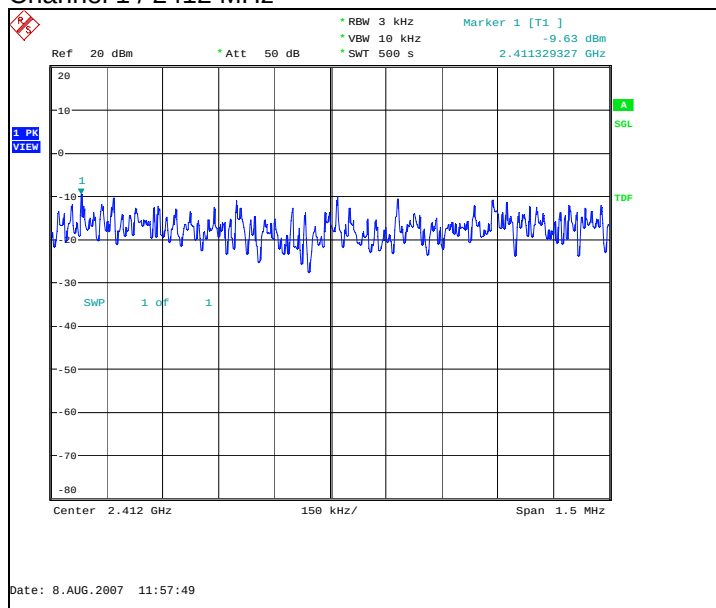
Limit [dBm] @ 3 kHz
≤ 8

18.2. WLAN test results

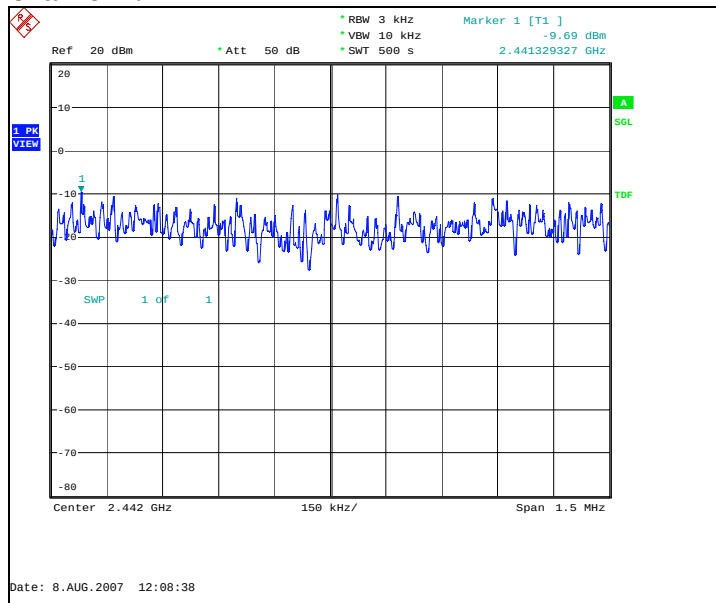
18.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-9.63	PASSED
7 / 2442	-9.69	PASSED
11 / 2462	-9.89	PASSED

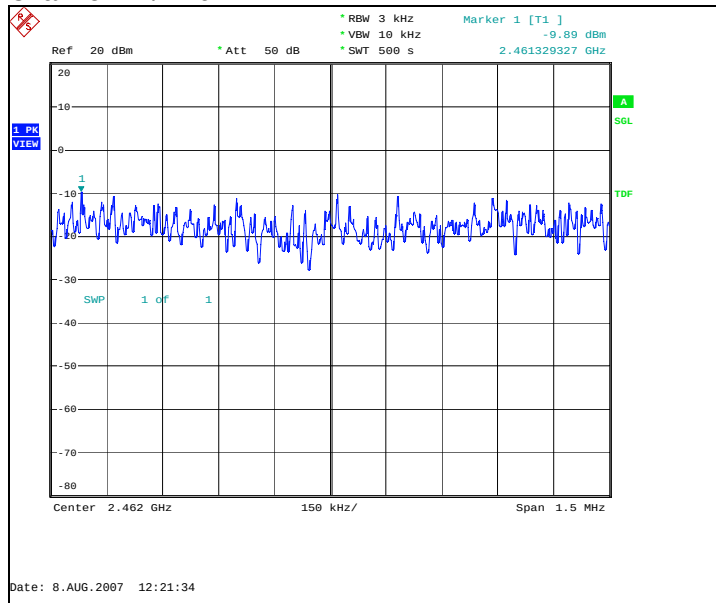
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



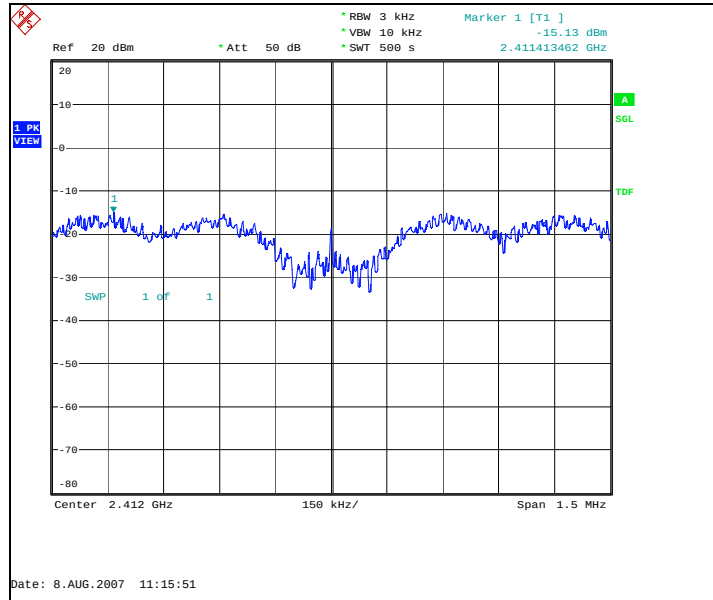
Channel 11 / 2462 MHz



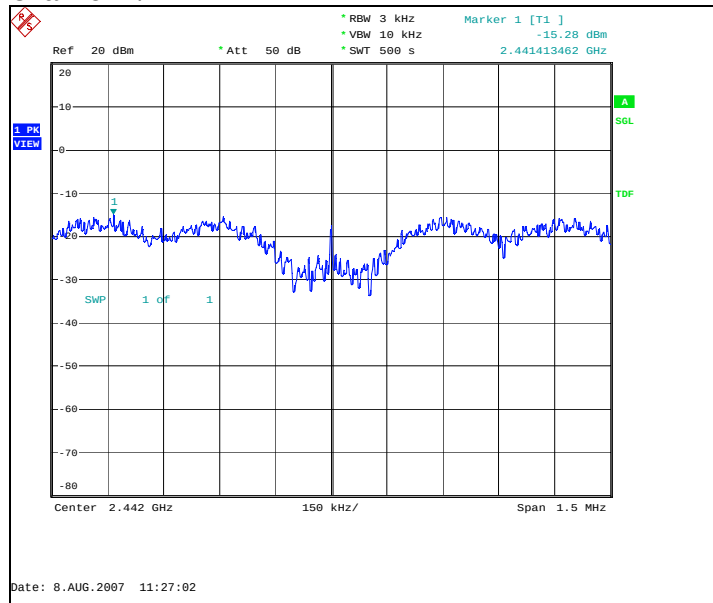
18.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-15.13	PASSED
7 / 2442	-15.28	PASSED
11 / 2462	-15.39	PASSED

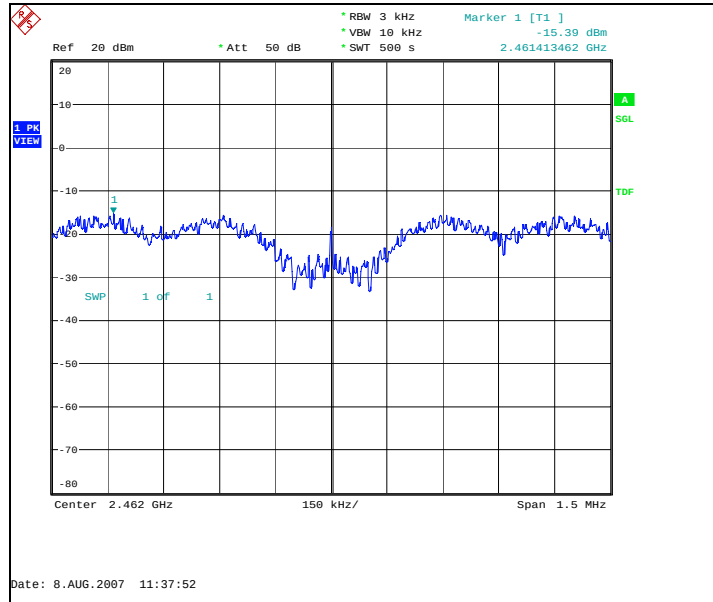
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



19. Test Equipment

19.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM37610	Spectrum analyzer	FSU	R&S	22/24, 15C
TM37678	Radio communication tester	CMU-200	R&S	22/24, 15C
	Attenuator 10 dB	6251.17.A	Huber+Suhner AG	22/24, 15C
TM37499	Power splitter	11667A	Agilent	22/24, 15C
	Temperature chamber	VT4002	Vötsch	22/24, 15C
TM38112	DC power supply	6632A	Agilent	22/24, 15C
TM38111	Multimeter	34401A	Agilent	22/24, 15C
	EMI Test receiver	ESPC	R&S	15C, 15B
TM37773	Radio communication tester	CMU-200	R&S	15C, 15B
TM38631	Signal generator	83640L	Agilent	15C, 15B
TM38114	DC power supply	6632A	Agilent	15C, 15B
TM22835	Multimeter	87	Fluke	15C, 15B
TM30600	Pulse Limiter	ESH3-Z2	R&S	15C, 15B
TM26490	LISN 50 µH	ESH3-Z5/	R&S	15C, 15B
TM30636	LISN 50 µH	L2-16/	PMM	15C, 15B

19.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM30599	3m semi-anechoic chamber		TDK	22/24, 15C, 15B
TM38845	EMI receiver	ESI 40	R&S	22/24, 15C, 15B
TM37498	Preamplifier	AMF-5D-020180-26-10P	MITEQ	22/24, 15C, 15B
TM37523	Preamplifier	AMF-4D-10M-3G-25-20P	MITEQ	22/24, 15C, 15B
TM37516	Biconilog antenna	HL562	R&S	22/24, 15C, 15B
TM26496	Double ridged waveguide antenna	3115	EMCO	22/24, 15C, 15B
TM39158	Horn antenna	3116	EMCO	22/24, 15C, 15B
TM26492	Reference dipole set	UHAP/VHAP	Schwarzbeck	22/24, 15C, 15B
TM37501	Dipole antenna	3125-870	EMCO	22/24
TM37502	Dipole antenna	3125-1880	EMCO	22/24
TM37773	Radio communication tester	CMU-200	R&S	22/24, 15C, 15B
TM38631	Signal generator	83640L	Agilent	22/24, 15C, 15B
TM38066	High pass filter	4HC3000/18000-3-KK	Trilithic	22/24, 15C, 15B
	High pass filter	WHK2010-10SS	Trilithic	22/24, 15C, 15B
	Low pass filter	WLK1750-10SS	Trilithic	22/24, 15C, 15B
TM26511	Tunable notch filter	WRCA870	Wainwright	22/24
TM38215	Tunable notch filter	WRCD1850/1910-0.2/40	Wainwright	22/24
TM38214	Band reject filter	WRCT 2402/2480-2400/2483.5-30	Wainwright	15C
TM30642	Turntable controller	HD-100	Deisel	22/24, 15C, 15B
TM26500	Turntable	DS412	Deisel	22/24, 15C, 15B
TM38842	Antenna mast controller	2090	EMCO	22/24, 15C, 15B
TM38843	Antenna mast	2075	EMCO	22/24, 15C, 15B
TM38114	DC power supply	6632A	Agilent	22/24, 15C, 15B
TM22835	Multimeter	87	Fluke	22/24, 15C, 15B