

FCC Part 15C Compliance Test Report

Test Report no.:	Salo_FCC_0810_02.doc	Date of Report:	28-Mar-2008
Number of pages:	67	Customer's Contact person:	Niko Balabanis
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FCC listing no.:	533467		
IC recognition no.:	661V-1		
Tested devices/ accessories:	Internet Table RX-48 / Battery BP-4L, Headset HS-48, AC-Charger AC-4U		
FCC ID:	LJPRX-48	IC:	-
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 (Issue 2, June 2007) and RSS-210 (Issue 7, June 2007). 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:			

Anni Manninen, Test System Manager

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	03-Mar-2008
Testing completed	19-Mar-2008
The customer's contact person	Niko Balabanis
Test Plan referred to	T:\Projects\accessor\RX-48\TestPlan_RS\RS_Test_Plan_RX-48.xls
Notes	-
Document name	T:\Projects\accessor\RX-48\EMC\Results\FCC\Salo_FCC_0810_02.doc

1.1. EUT and Accessory Information

The EUT is a Bluetooth, WLAN and WiMAX device. Bluetooth and WLAN are tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Internet Table	RX-48	Z4A030972	0901	-	-	12603
Battery	BP-4L	3932137173130118147;0670519	-	-	-	12604
Internet Table	RX-48	Z4A030992	0901	-	-	12614
Battery	BP-4L	3932137344120272467;0670519	-	-	-	12619
Internet Table	RX-48	Z4A030953	0901	-	-	12616
Battery	BP-4L	3932137344120272453;0670519	-	-	-	12617
Headset	HS-48	0694581741482102313	-	-	-	12618
AC-Charger	AC-4U	1103337225281314121;0675379	-	-	-	12623

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(d)	A8.5	Band edge compliance of RF emissions	PASSED
15.247(d)	A8.5	Spurious RF conducted emissions	PASSED
15.247(d), 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-GEN or RSS-210	Name of the test	Result
15.247(b)(1)	A8.4 (4)	Conducted peak output power	PASSED
15.247(d)	A8.5	Band edge compliance of RF emissions	PASSED
15.247(d)	A8.5	Spurious RF conducted emissions	PASSED
15.247(d), 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
FAILED
NP

The EUT complies with the essential requirements in the standard.
The EUT does not comply with the essential requirements in the standard.
The test was not performed by the TCC Nokia Salo Laboratory.

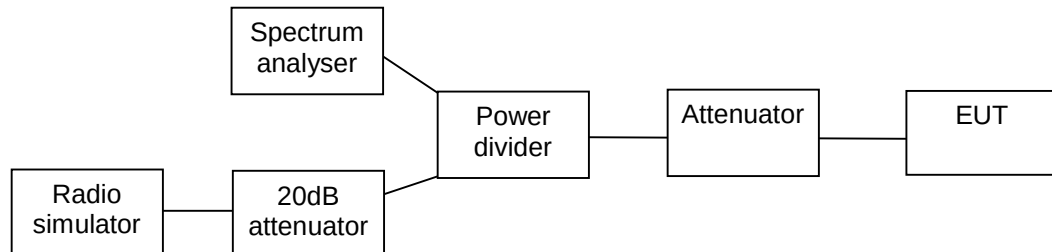
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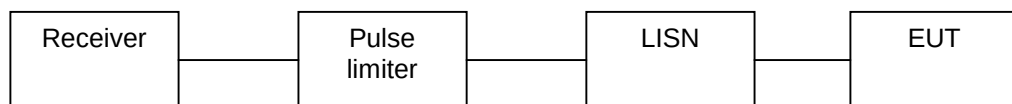
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2. Test setups

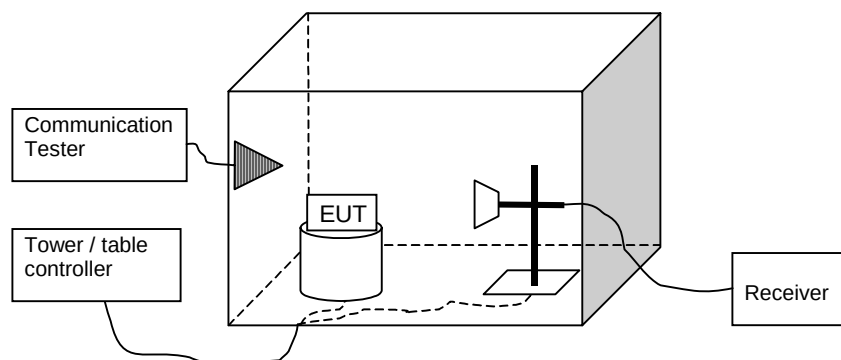
2.1. Conducted RF test setup



2.2. AC powerline conducted emissions test setup



2.3. Radiated test setup



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

EUT with DUT number	RX-48, DUT 12614
Accessories with DUT numbers	BP-4L, DUT 12619; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 41 / 100
Date of measurements	10-Mar-2008
Measured by	Anni Manninen

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

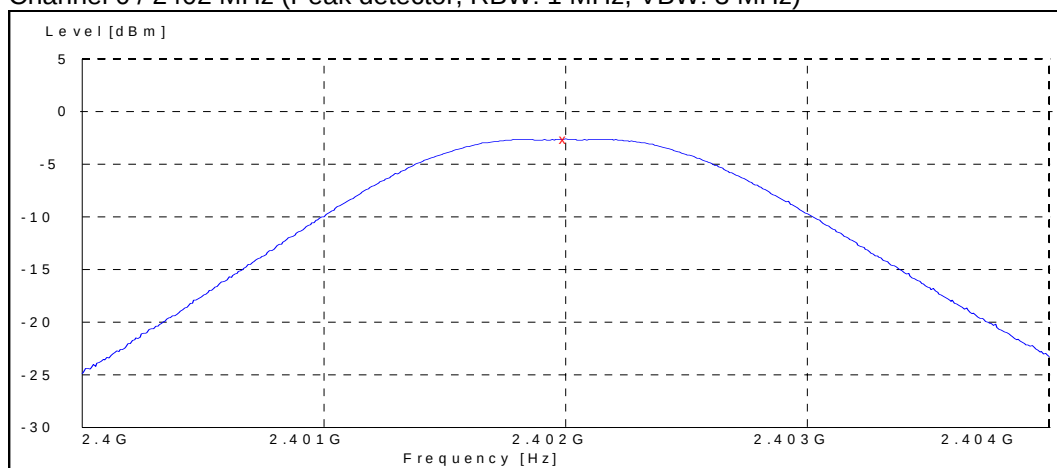
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

3.2. Bluetooth Test results

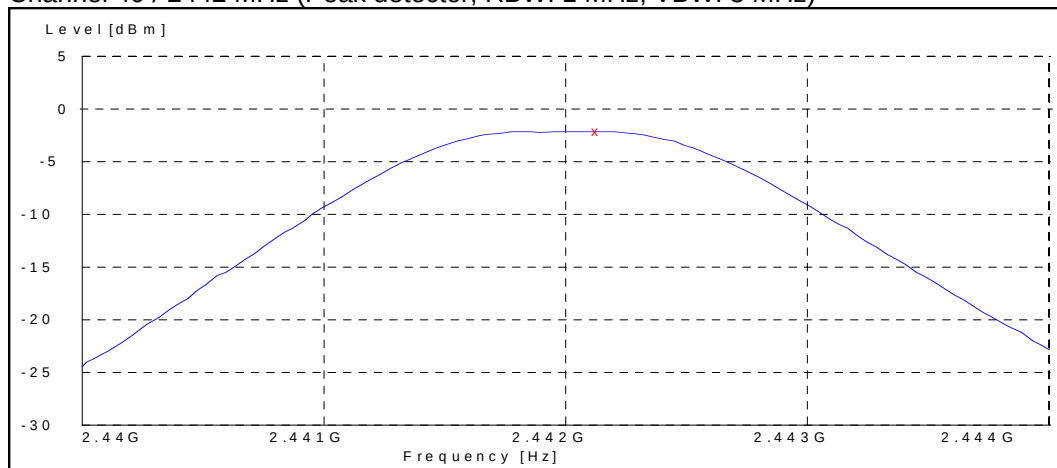
3.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-2.60	0.550	PASSED
40 / 2442	-2.10	0.617	PASSED
78 / 2480	-2.00	0.631	PASSED

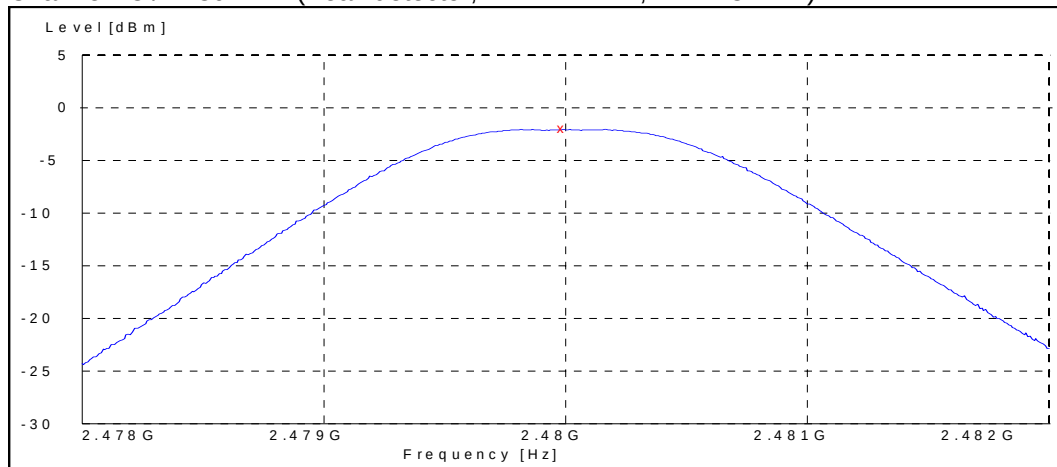
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



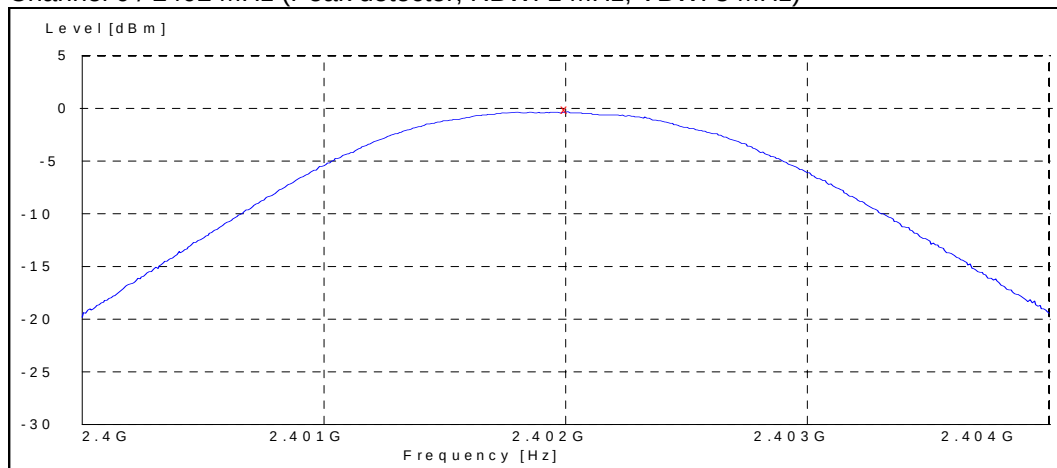
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



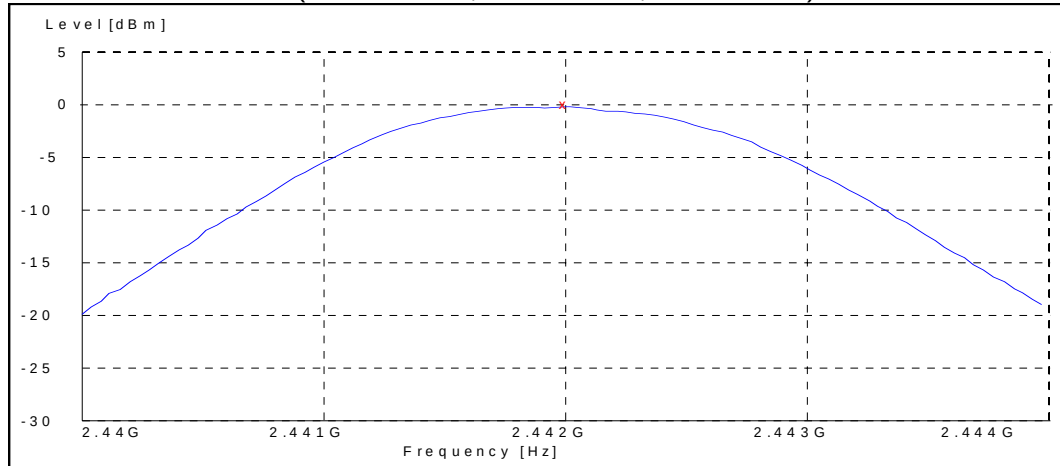
3.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-0.10	0.977	PASSED
40 / 2442	0.00	1.000	PASSED
78 / 2480	-0.30	0.933	PASSED

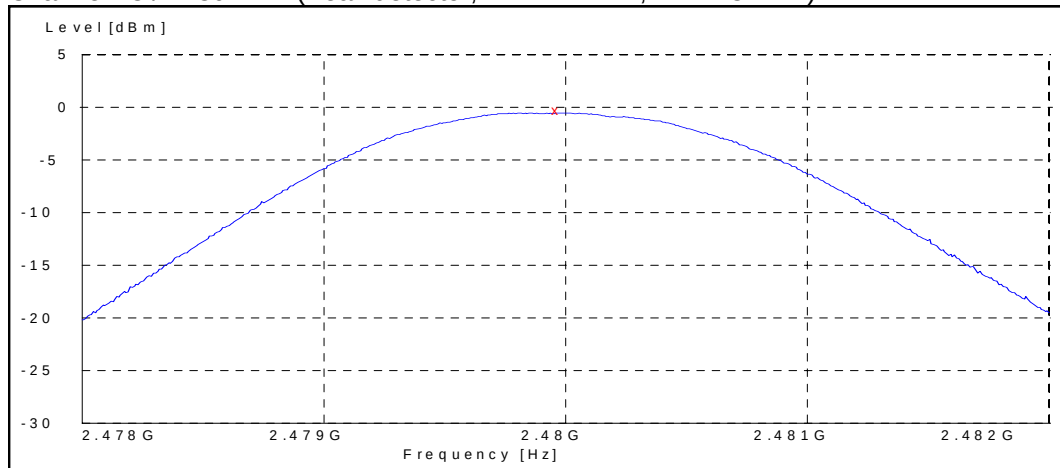
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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(d), RSS-210 A8.5)

EUT with DUT number	RX-48, DUT 12603
Accessories with DUT numbers	BP-4L, DUT 12604; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 40 / 101
Date of measurements	07-Feb-2008
Measured by	Anni Manninen

4.1. Test method and limit

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

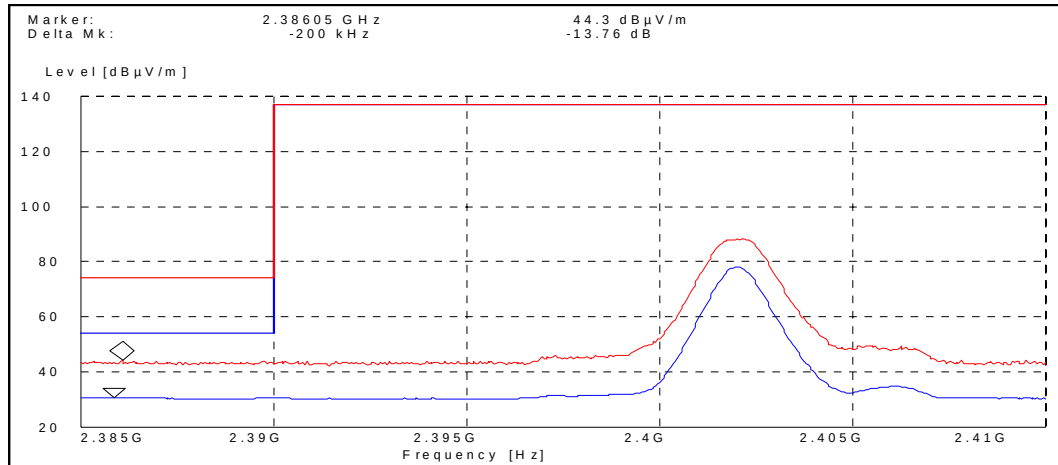
Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

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

4.2. Bluetooth Test results

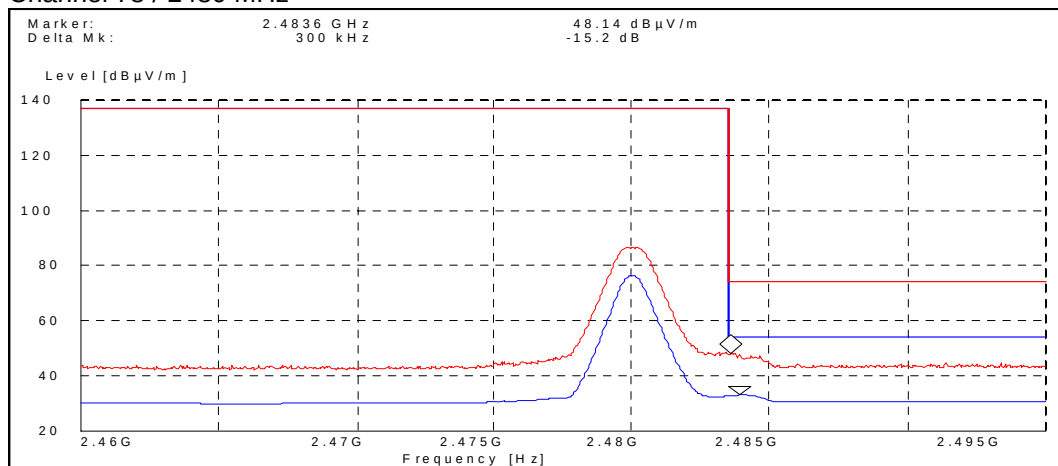
4.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



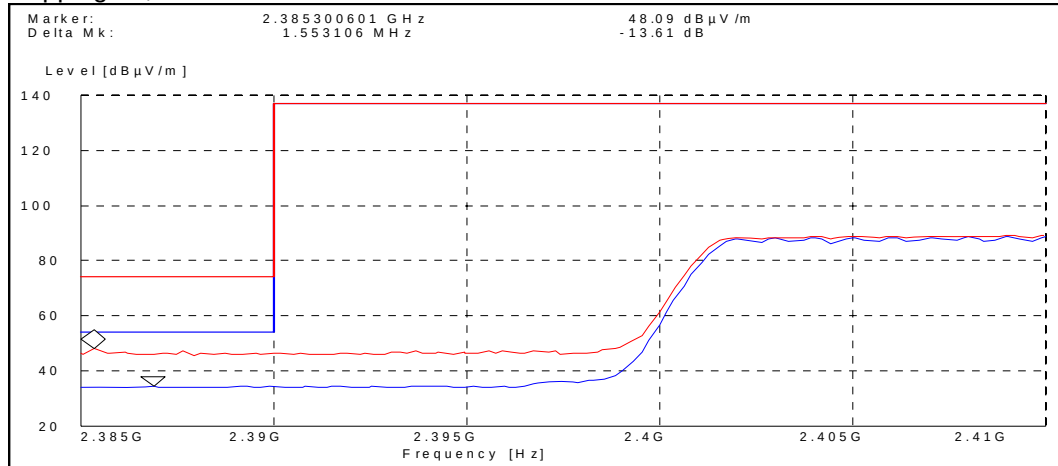
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	44.30	PASSED
Average	30.50	PASSED

Channel 78 / 2480 MHz



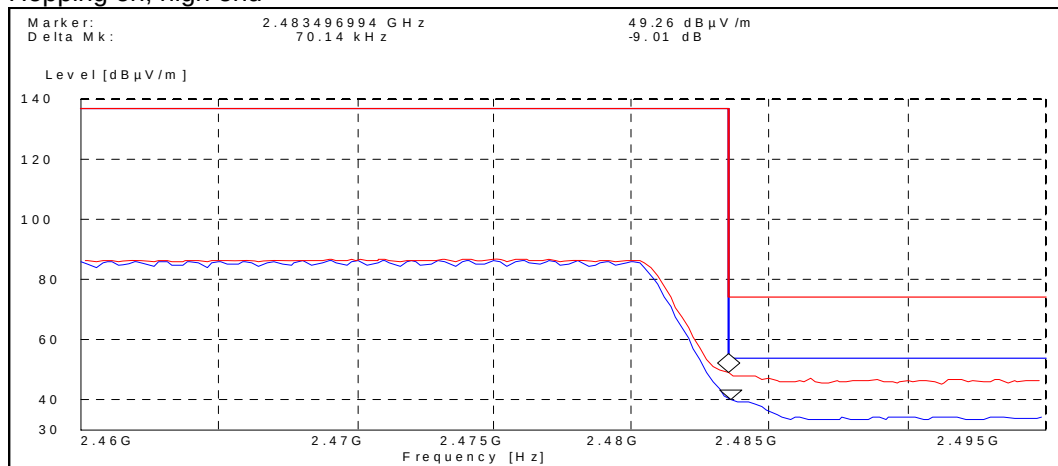
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	48.10	PASSED
Average	32.90	PASSED

Hopping on, low end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	48.10	PASSED
Average	34.50	PASSED

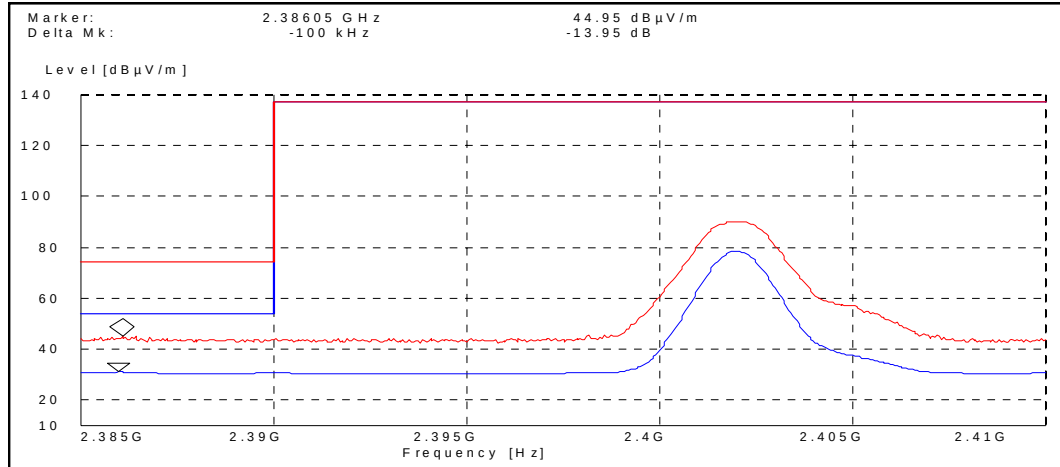
Hopping on, high end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	49.30	PASSED
Average	40.30	PASSED

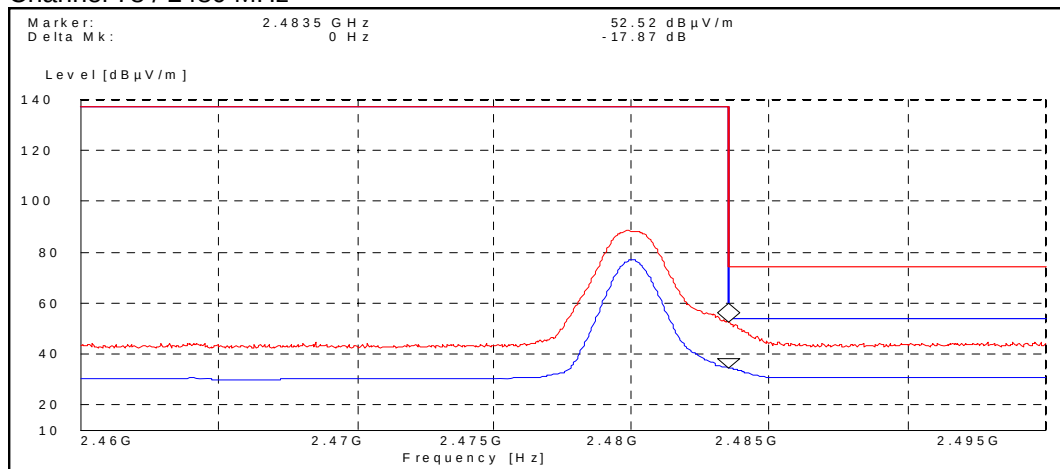
4.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



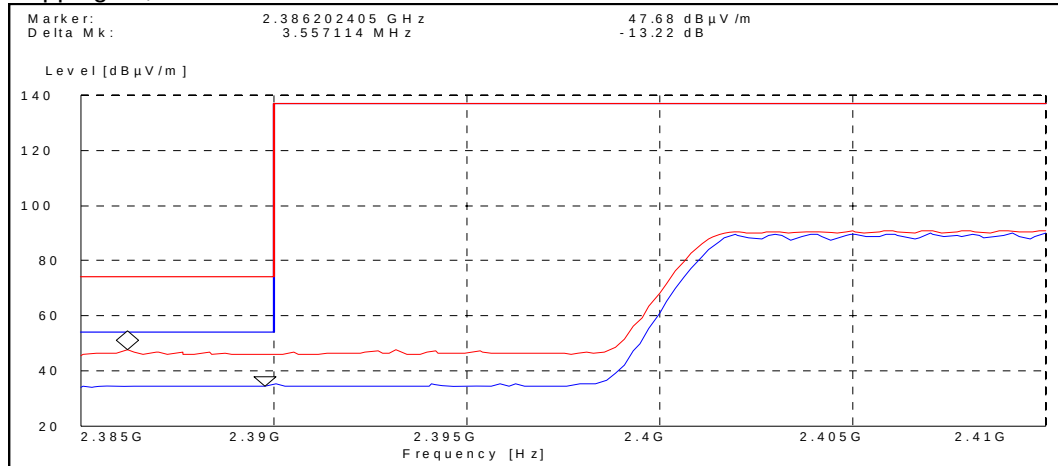
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	44.90	PASSED
Average	31.00	PASSED

Channel 78 / 2480 MHz



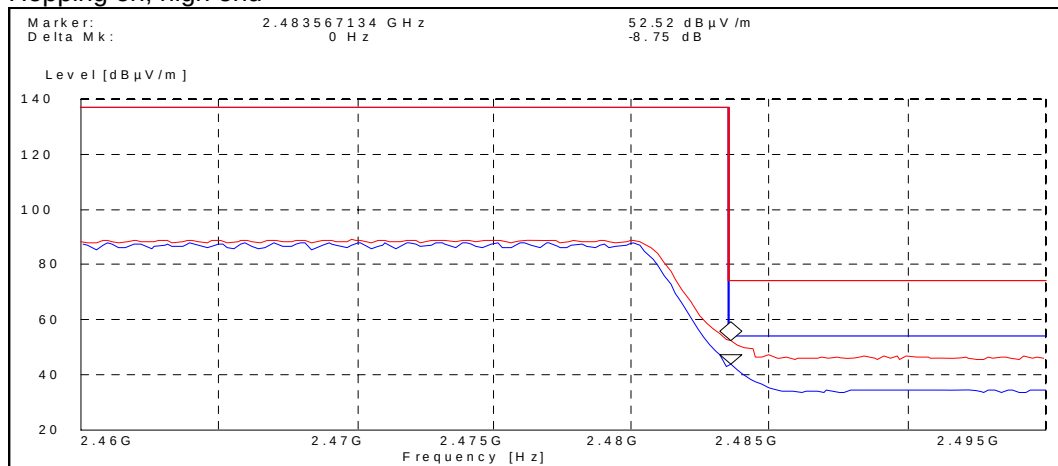
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	52.50	PASSED
Average	34.70	PASSED

Hopping on, low end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	47.70	PASSED
Average	35.10	PASSED

Hopping on, high end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	52.50	PASSED
Average	43.80	PASSED

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

EUT with DUT number	RX-48, DUT 12614
Accessories with DUT numbers	BP-4L, DUT 12619; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 41 / 100
Date of measurements	10-Mar-2008
Measured by	Anni Manninen

5.1. Test method and limit

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

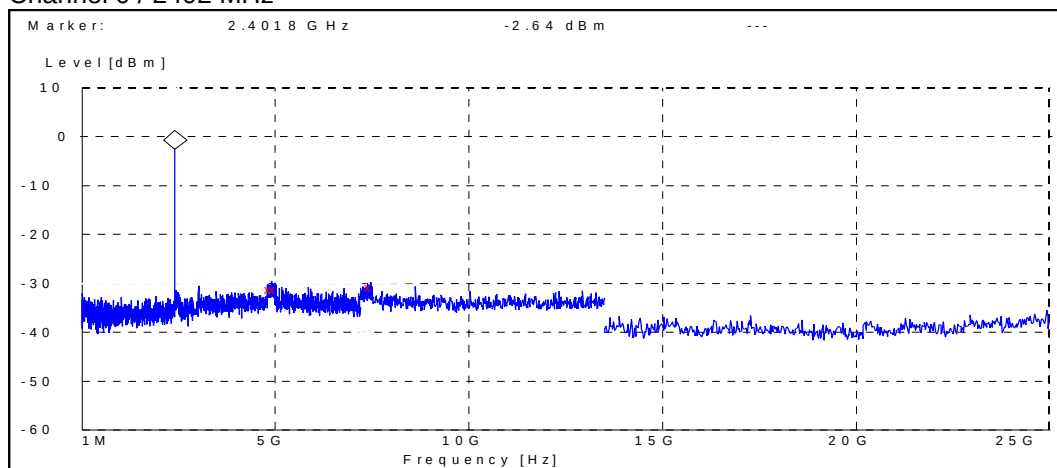
Limits for spurious RF conducted emissions measurements

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

5.2. Bluetooth Test results

5.2.1 GFSK modulation, PRBS packet type

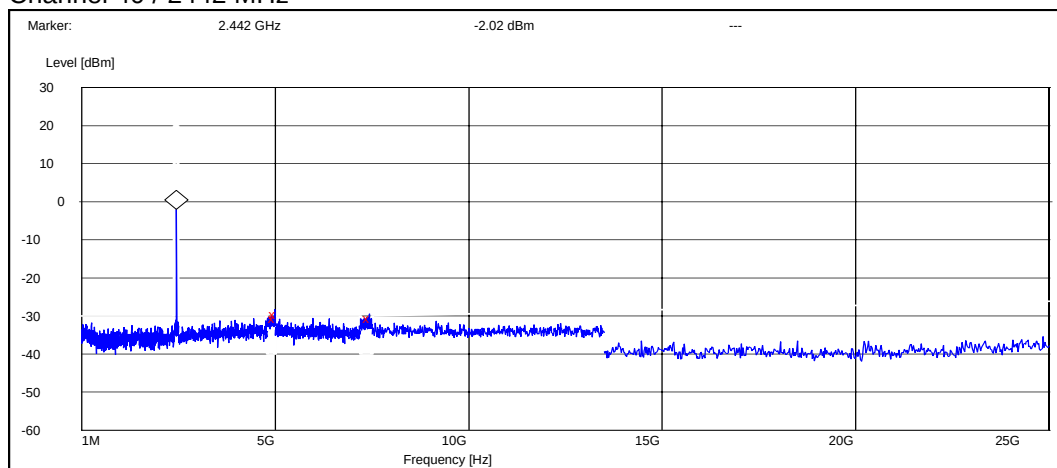
Channel 0 / 2402 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4897.200000	-28.558776	PASSED
5000.000000	-28.458776	PASSED
7466.400000	-28.258776	PASSED

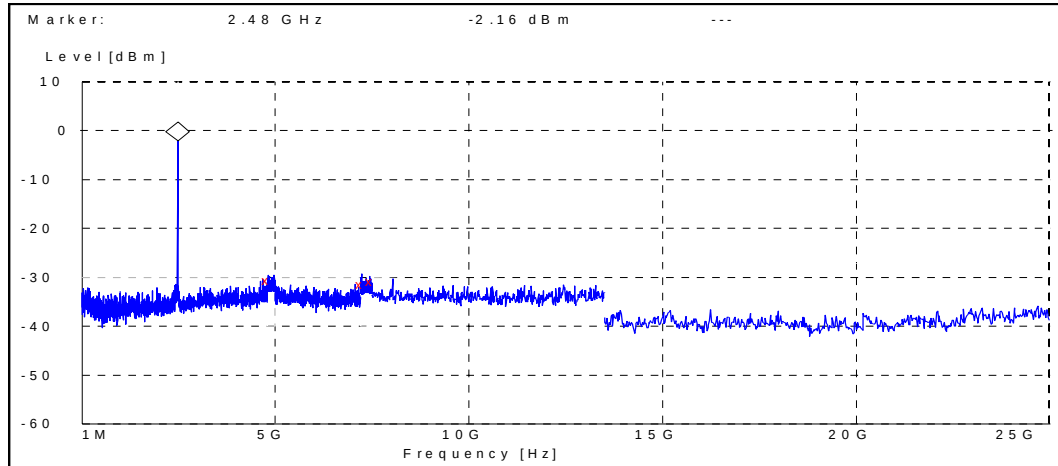
Channel 40 / 2442 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4992.400000	-28.580211	PASSED
5000.000000	-27.680211	PASSED
7442.400000	-28.680211	PASSED

Channel 78 / 2480 MHz

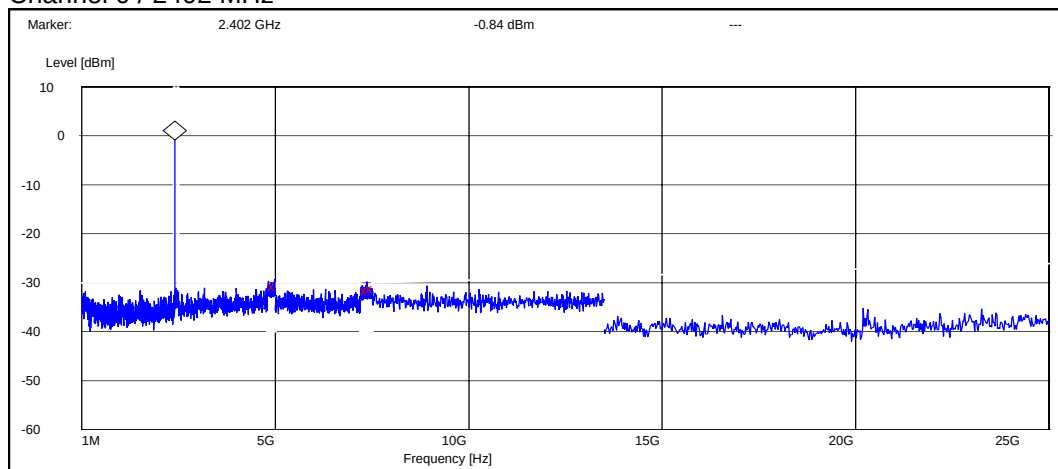


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4810.400000	-28.442480	PASSED
7234.200000	-29.242480	PASSED
7500.000000	-28.542480	PASSED

5.2.2 8DPSK modulation, PRBS packet type

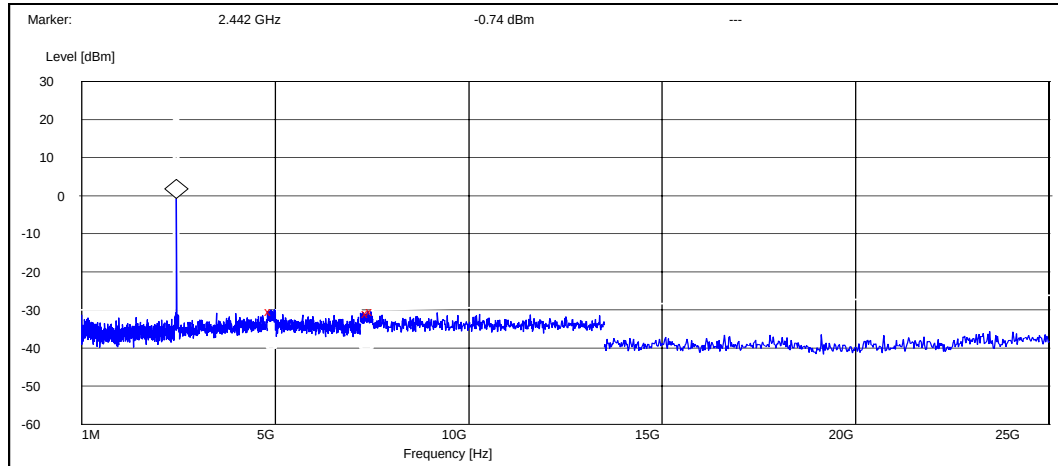
Channel 0 / 2402 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4991.600000	-29.959393	PASSED
7363.800000	-30.659393	PASSED
7500.000000	-30.259393	PASSED

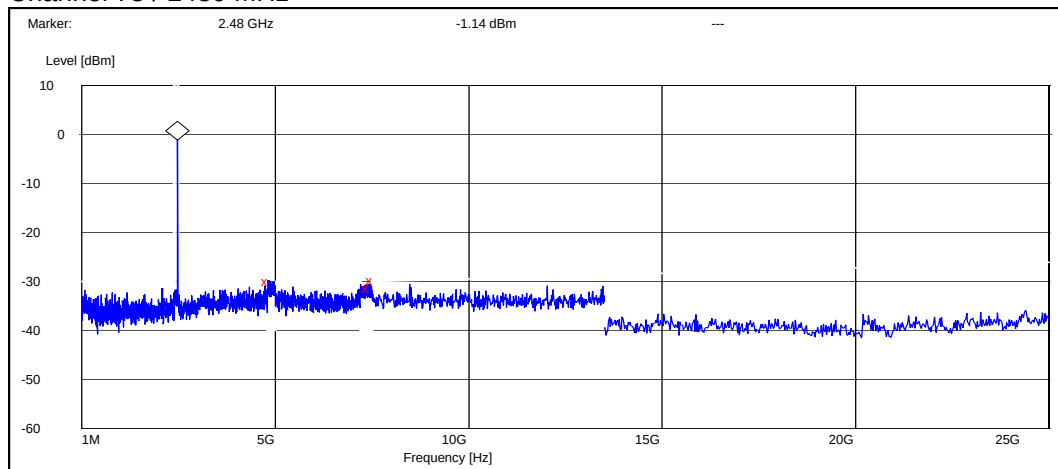
Channel 40 / 2442 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4892.800000	-29.664398	PASSED
7399.800000	-30.164398	PASSED
7500.000000	-29.664398	PASSED

Channel 78 / 2480 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4812.400000	-28.756534	PASSED
7404.600000	-30.256534	PASSED
7500.000000	-28.556534	PASSED

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

EUT with DUT number	RX-48, DUT 12603
Accessories with DUT numbers	BP-4L, DUT 12604; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 40 / 101
Date of measurements	06-Mar-2008
Measured by	Anni Manninen

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:

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

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	43.70	153.11	43.50	0.2	VERTICAL	PASSED
7206.000000	45.00	177.83	42.80	2.2	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
4804.000000	30.60	33.88	30.40	0.2	VERTICAL	PASSED
7206.000000	32.20	40.74	30.00	2.2	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
38.176353	22.90	13.96	43.40	-20.5	VERTICAL	PASSED
74.567535	15.00	5.62	44.10	-29.1	HORIZONTAL	PASSED
83.467735	21.20	11.48	49.60	-28.4	HORIZONTAL	PASSED
114.430261	23.20	14.45	49.50	-26.3	HORIZONTAL	PASSED
126.832866	20.20	10.23	48.50	-28.3	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
4846.189379	43.90	156.68	43.10	0.8	VERTICAL	PASSED
13278.559118	53.30	462.38	40.70	12.6	VERTICAL	PASSED
13362.219439	53.30	462.38	39.90	13.4	VERTICAL	PASSED
15392.283567	53.10	451.86	37.80	15.3	VERTICAL	PASSED
15923.853707	53.90	495.45	37.30	16.6	VERTICAL	PASSED
16189.880762	55.90	623.73	38.50	17.4	VERTICAL	PASSED
17920.343687	56.40	660.69	37.40	19.0	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
4843.689379	30.90	35.08	30.10	0.8	VERTICAL	PASSED

13281.059118	40.40	104.71	27.80	12.6	VERTICAL	PASSED
13362.219439	40.60	107.15	27.20	13.4	VERTICAL	PASSED
15390.283567	39.80	97.72	24.60	15.2	VERTICAL	PASSED
15926.853707	41.00	112.20	24.40	16.6	VERTICAL	PASSED
16187.880762	42.30	130.32	24.90	17.4	VERTICAL	PASSED
17920.843687	43.90	156.68	24.90	19.0	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	42.80	138.04	43.20	-0.4	VERTICAL	PASSED
7440.000000	46.60	213.80	43.50	3.1	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
4960.000000	29.90	31.26	30.30	-0.4	VERTICAL	PASSED
7440.000000	33.80	48.98	30.70	3.1	VERTICAL	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	43.60	151.36	43.40	0.2	VERTICAL	PASSED
7206.000000	45.40	186.21	43.20	2.2	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
4804.000000	30.60	33.88	30.40	0.2	VERTICAL	PASSED
7206.000000	32.80	43.65	30.60	2.2	VERTICAL	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
38.176353	22.60	13.49	43.10	-20.5	VERTICAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4844.693387	43.60	151.36	42.80	0.8	VERTICAL	PASSED
12453.399800	52.20	407.38	41.40	10.8	VERTICAL	PASSED
13300.603206	53.90	495.45	41.20	12.7	VERTICAL	PASSED
13381.769539	53.20	457.09	39.80	13.4	VERTICAL	PASSED
15598.188377	53.90	495.45	38.10	15.8	VERTICAL	PASSED
16171.338677	54.80	549.54	37.80	17.0	VERTICAL	PASSED

17912.329659	56.40	660.69	37.60	18.8	VERTICAL	PASSED
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Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4843.693387	31.00	35.48	30.20	0.8	VERTICAL	PASSED
12451.899800	39.80	97.72	29.00	10.8	VERTICAL	PASSED
13301.603206	40.70	108.39	28.00	12.7	VERTICAL	PASSED
13382.769539	40.30	103.51	26.90	13.4	VERTICAL	PASSED
15598.188377	40.90	110.92	25.10	15.8	VERTICAL	PASSED
16173.338677	42.10	127.35	25.10	17.0	VERTICAL	PASSED
17917.829659	43.80	154.88	24.90	18.9	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	42.80	138.04	43.20	-0.4	VERTICAL	PASSED
7440.000000	47.10	226.46	44.00	3.1	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	30.00	31.62	30.40	-0.4	VERTICAL	PASSED
7440.000000	33.80	48.98	30.70	3.1	VERTICAL	PASSED

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

EUT with DUT number	RX-48, DUT 12603
Accessories with DUT numbers	BP-4L, DUT 12604; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 40 / 100
Date of measurements	10-Mar-2008
Measured by	Anni Manninen

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.

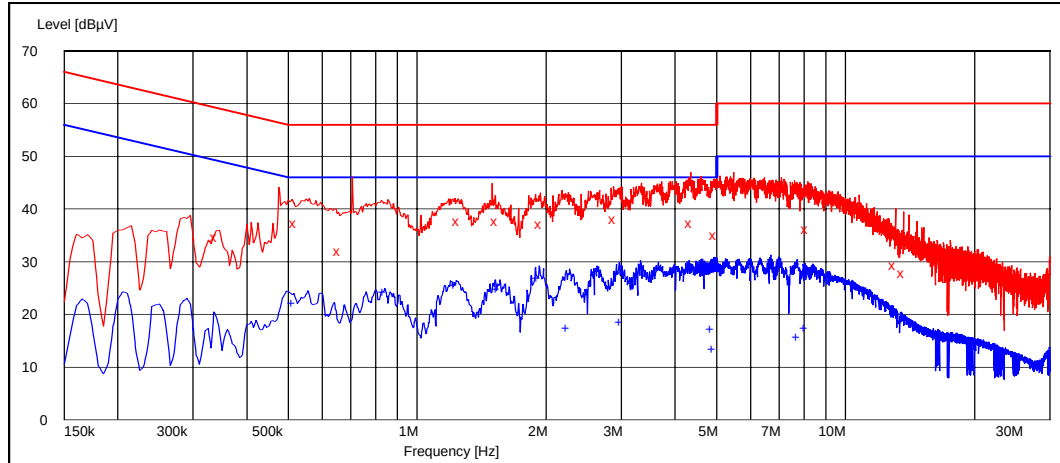
CISPR 22 Class B limits

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)

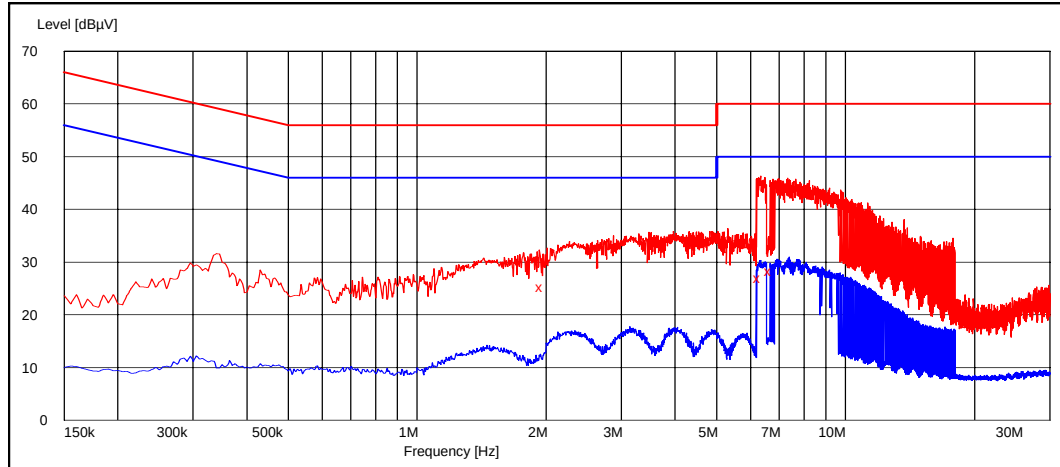
Frequency [MHz]	U [dBμV]	Line	Result
0.340000	34.70	L1	PASSED
0.520000	37.40	L1	PASSED
0.660000	32.10	N	PASSED
1.250000	37.60	L1	PASSED
1.535000	37.80	L1	PASSED
1.945000	37.20	L1	PASSED
2.900000	38.00	L1	PASSED
4.360000	37.30	L1	PASSED
4.980000	35.00	N	PASSED
8.145000	36.20	L1	PASSED
13.065000	29.40	L1	PASSED
13.690000	27.80	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.515000	22.10	L1	PASSED
0.840000	24.20	L1	PASSED
1.230000	25.50	L1	PASSED
1.545000	24.90	L1	PASSED
1.925000	26.90	L1	PASSED
2.250000	17.50	N	PASSED
2.995000	18.50	N	PASSED
4.895000	17.30	N	PASSED
4.935000	13.40	N	PASSED
7.765000	15.70	N	PASSED
8.095000	17.40	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
1.955000	25.20	L1	PASSED
6.310000	27.00	L1	PASSED
6.685000	28.30	L1	PASSED

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

EUT with DUT number	RX-48, DUT 12614
Accessories with DUT numbers	BP-4L, DUT 12619; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 41 / 100
Date of measurements	10-Mar-2008
Measured by	Anni Manninen

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

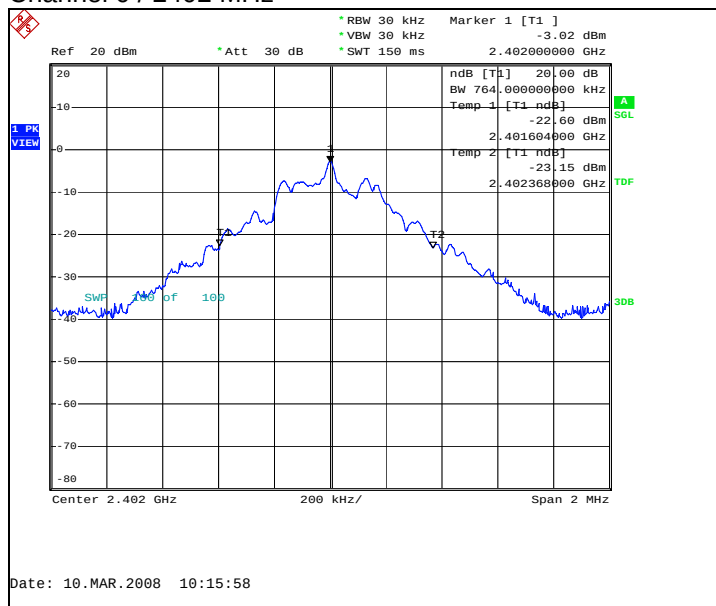
Limit [MHz]
N/A

8.2. Bluetooth Test results

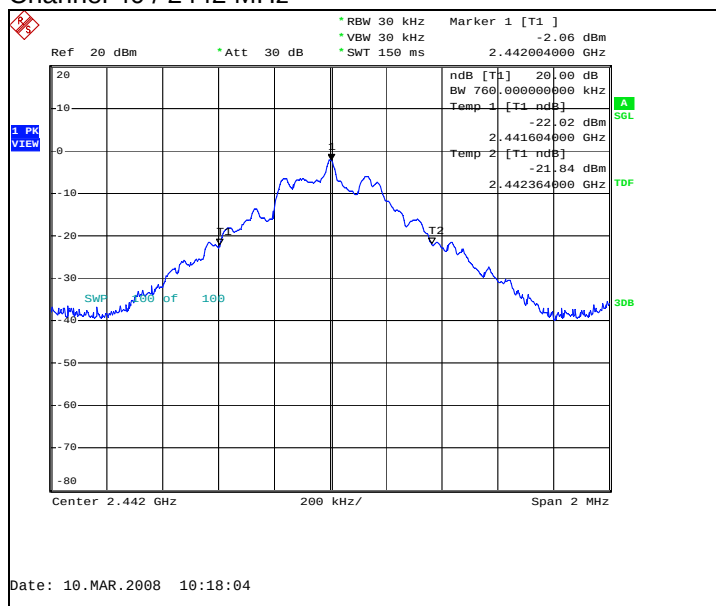
8.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	764.000	PASSED
40 / 2442	760.000	PASSED
78 / 2480	760.000	PASSED

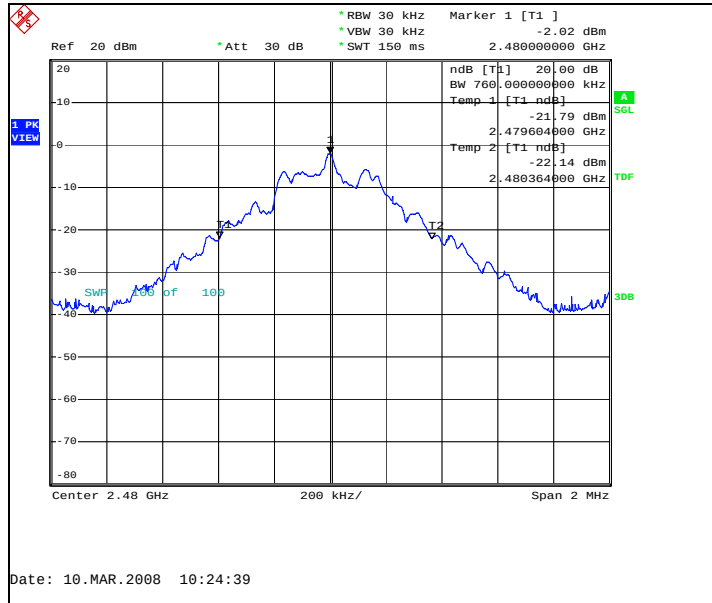
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



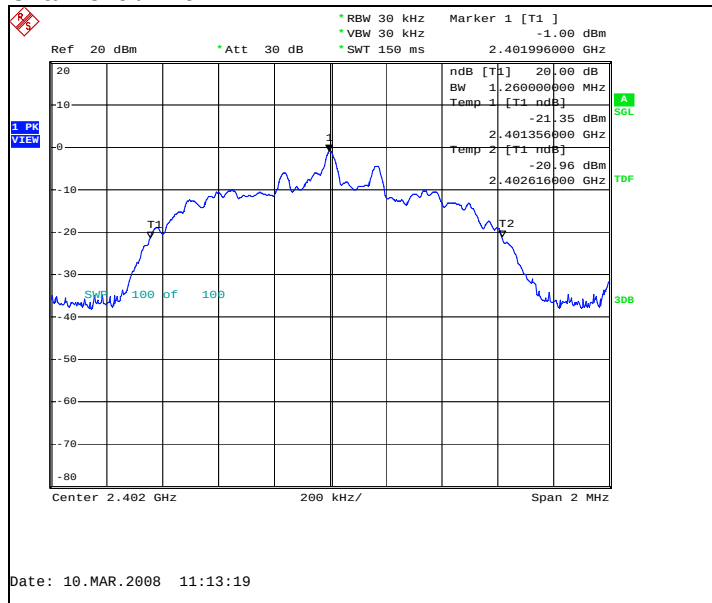
Channel 78 / 2480 MHz



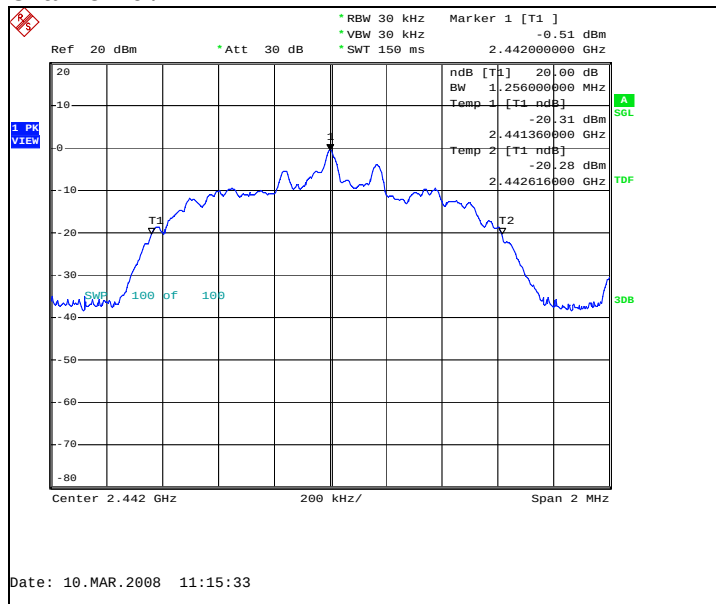
8.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1260.000	PASSED
40 / 2442	1256.000	PASSED
78 / 2480	1260.000	PASSED

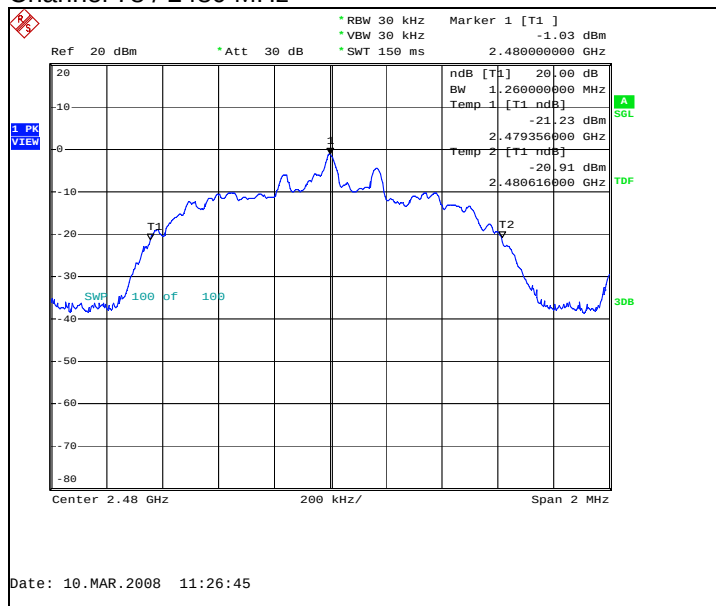
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



Channel 78 / 2480 MHz



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

EUT with DUT number	RX-48, DUT 12614
Accessories with DUT numbers	BP-4L, DUT 12619; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 41 / 100
Date of measurements	10-Mar-2008
Measured by	Anni Manninen

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

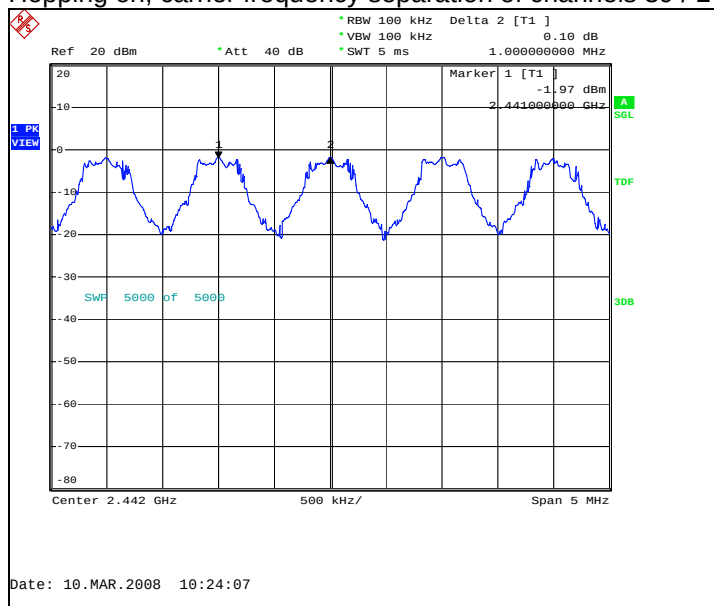
Limit [MHz]
≥ 0.025 or $2/3$ of the 20 dB bandwidth

9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1000	PASSED

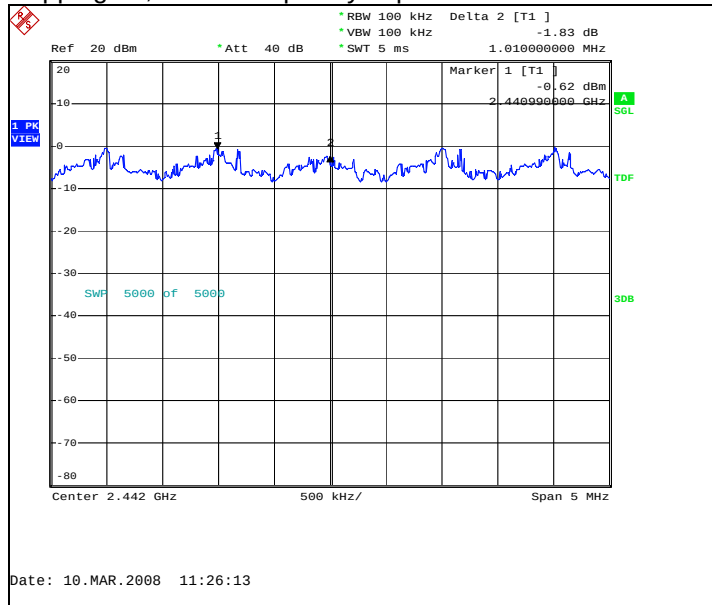
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



9.2.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1010	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	RX-48, DUT 12614
Accessories with DUT numbers	BP-4L, DUT 12619; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 41 / 100
Date of measurements	10-Mar-2008
Measured by	Anni Manninen

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

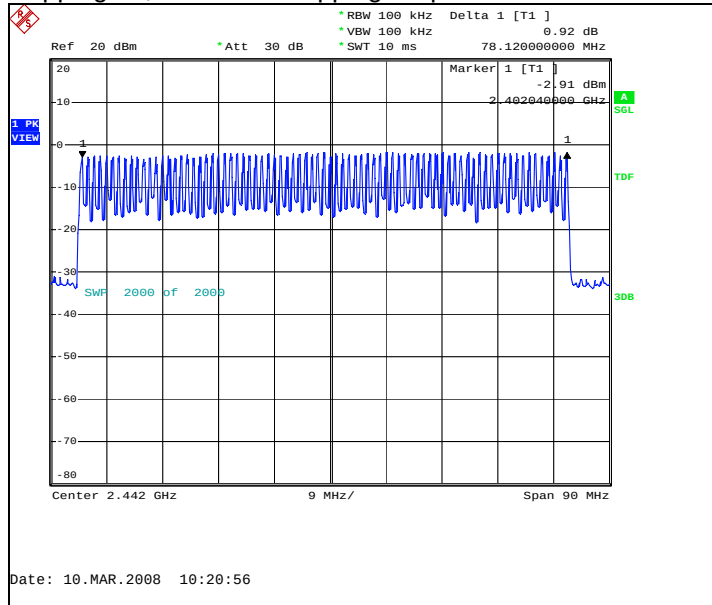
Limit [number]
≥ 15

10.2. Bluetooth Test results

10.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	PASSED

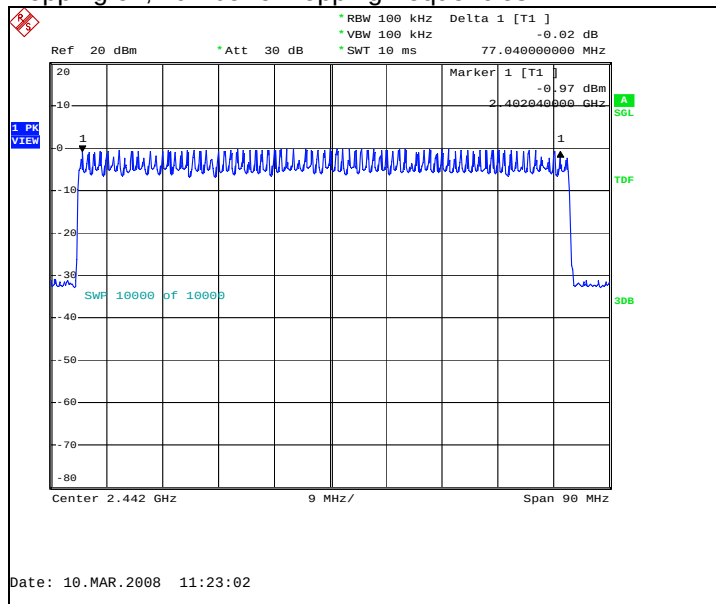
Hopping on, number of hopping frequencies



10.2.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
69	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	RX-48, DUT 12614
Accessories with DUT numbers	BP-4L, DUT 12619; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 41 / 100
Date of measurements	10-Mar-2008
Measured by	Anni Manninen

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

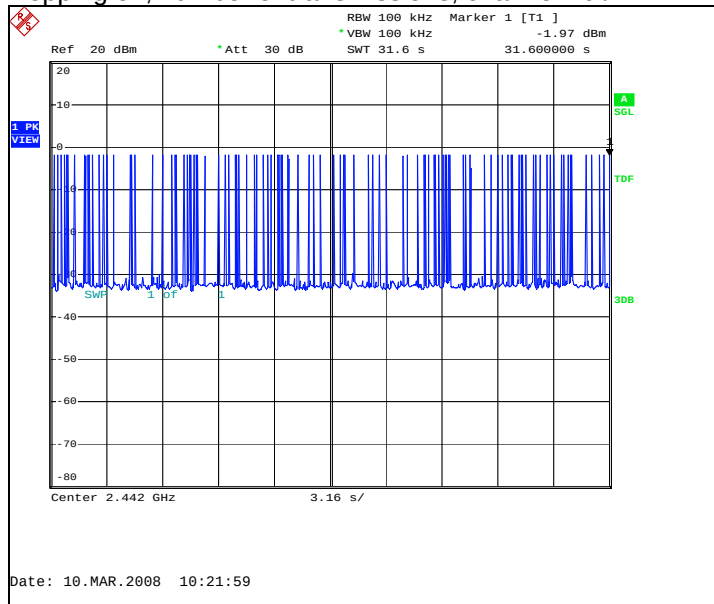
Limit [s]
≤ 0.4

11.2. Bluetooth test results

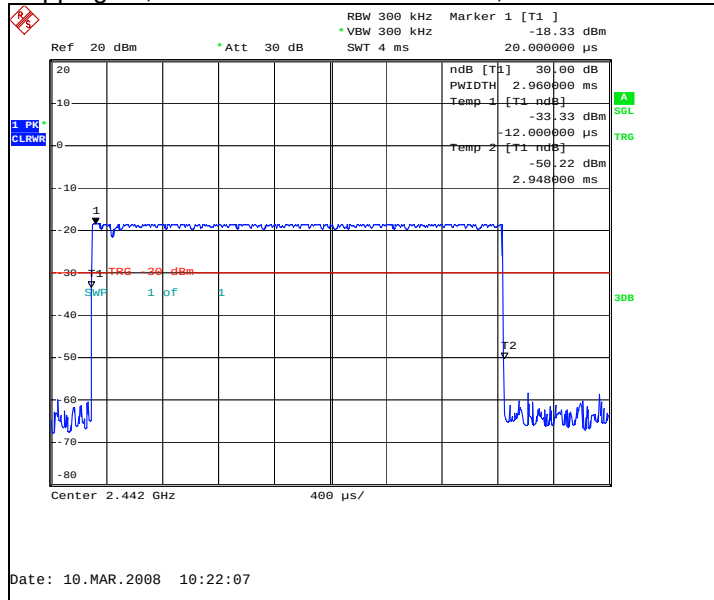
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
89	2 960	0.263440	PASSED

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



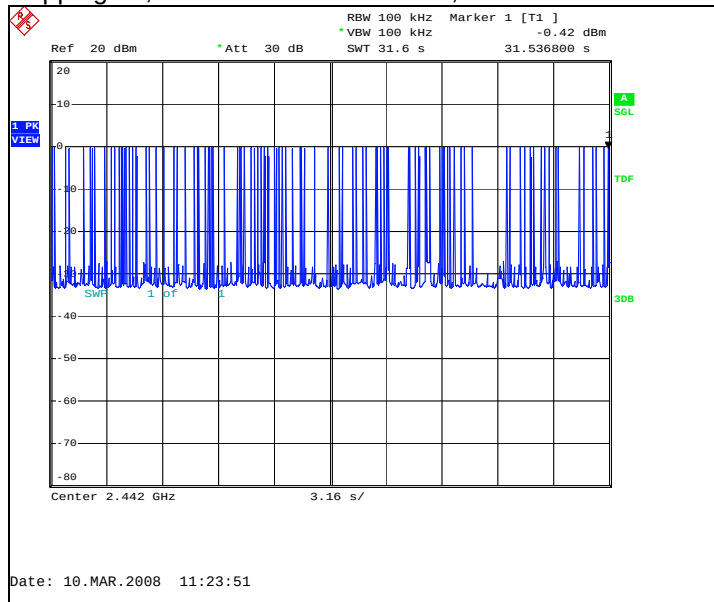
Hopping on, duration of one transmission, channel 40 / 2442 MHz



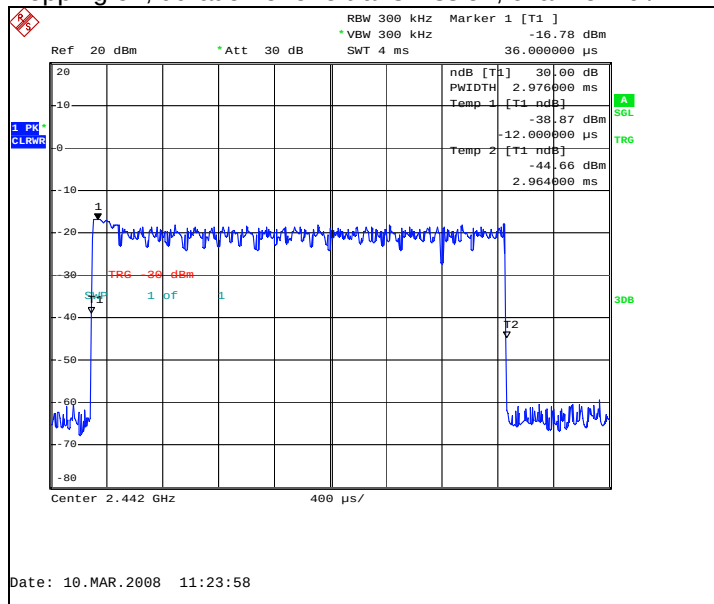
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
90	2 976	0.267840	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	RX-48, DUT 12614
Accessories with DUT numbers	BP-4L, DUT 12619; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 41 / 100
Date of measurements	11-Mar-2008
Measured by	Anni Manninen

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

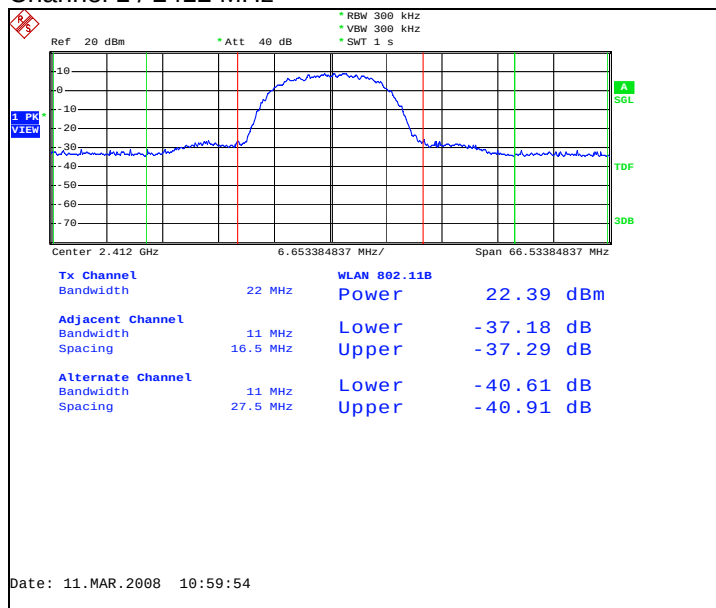
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

12.2. WLAN Test results

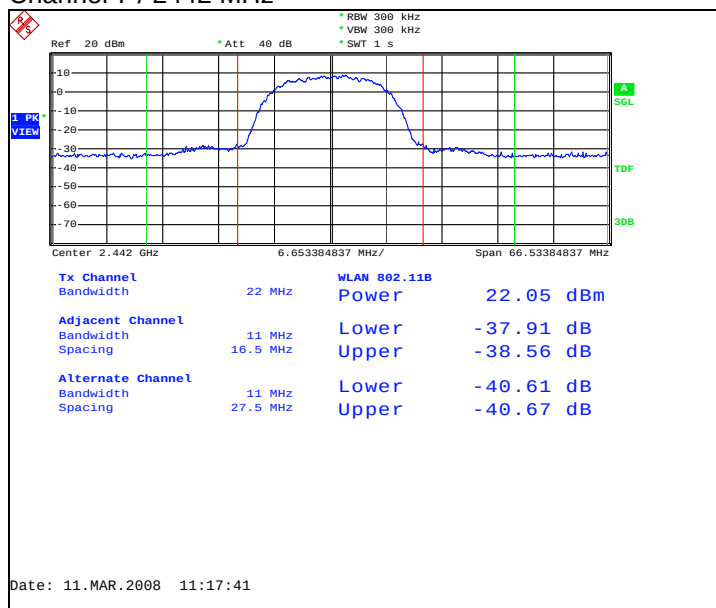
12.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [W]	Result
1 / 2412	22.39	0.173	PASSED
7 / 2442	22.05	0.160	PASSED
11 / 2462	22.44	0.175	PASSED

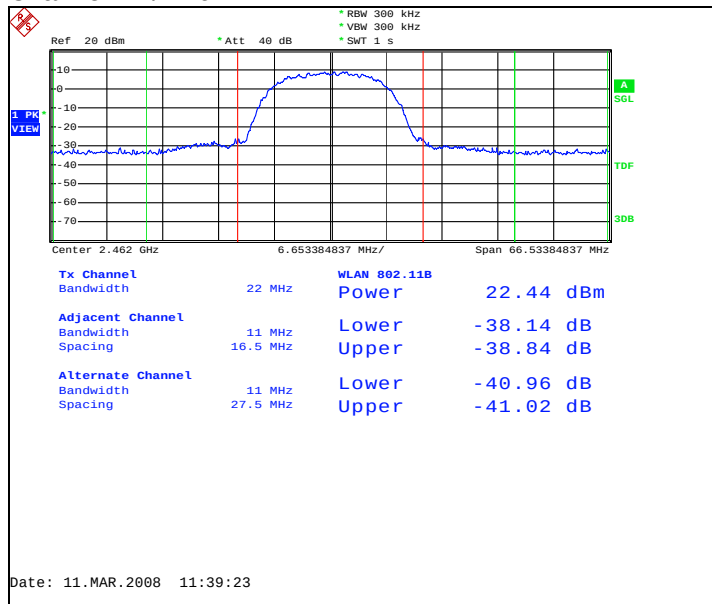
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



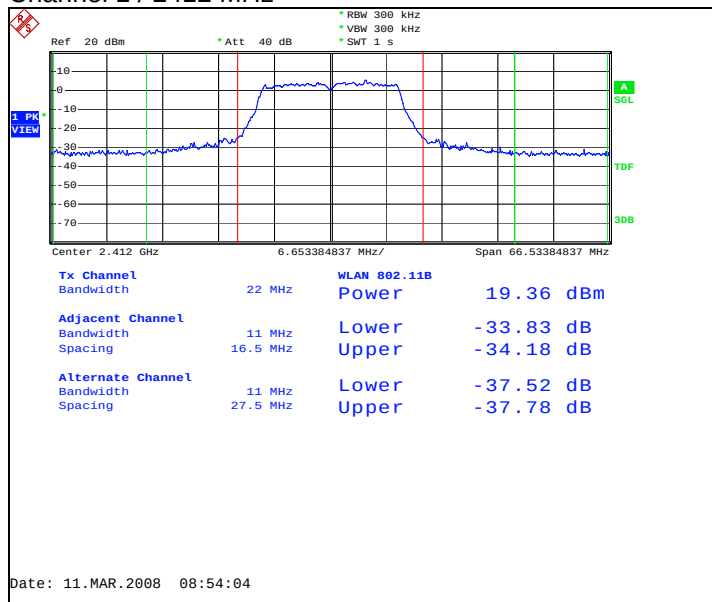
Channel 11 / 2462 MHz



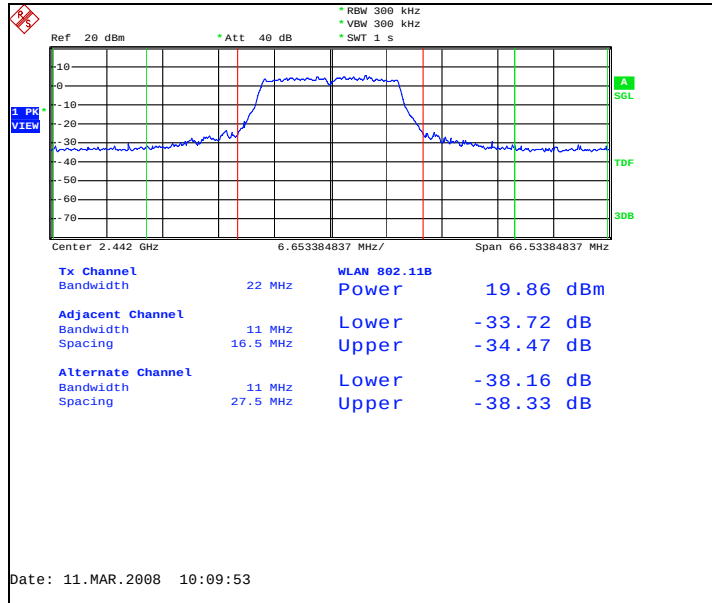
12.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [W]	Result
1 / 2412	19.36	0.086	PASSED
7 / 2442	19.86	0.097	PASSED
11 / 2462	20.21	0.105	PASSED

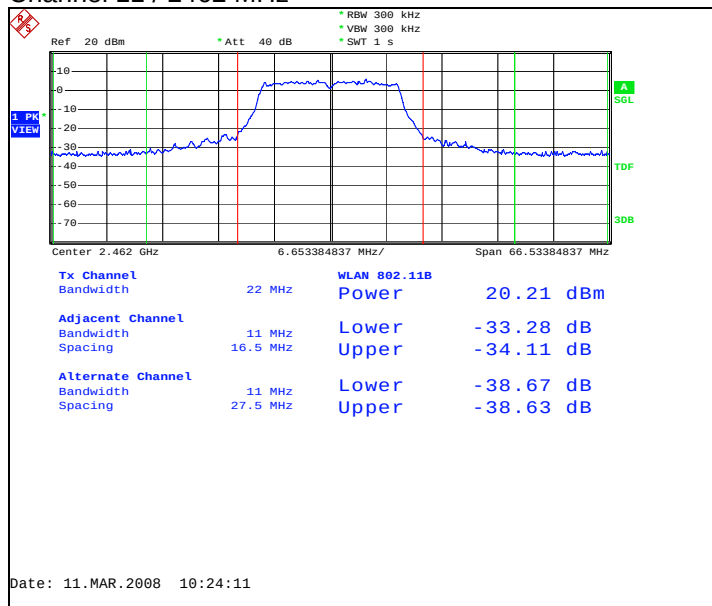
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



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

EUT with DUT number	RX-48, DUT 12603
Accessories with DUT numbers	BP-4L, DUT 12604; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 40 / 101
Date of measurements	07-Mar-2008
Measured by	Anni Manninen

13.1. Test method and limit

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

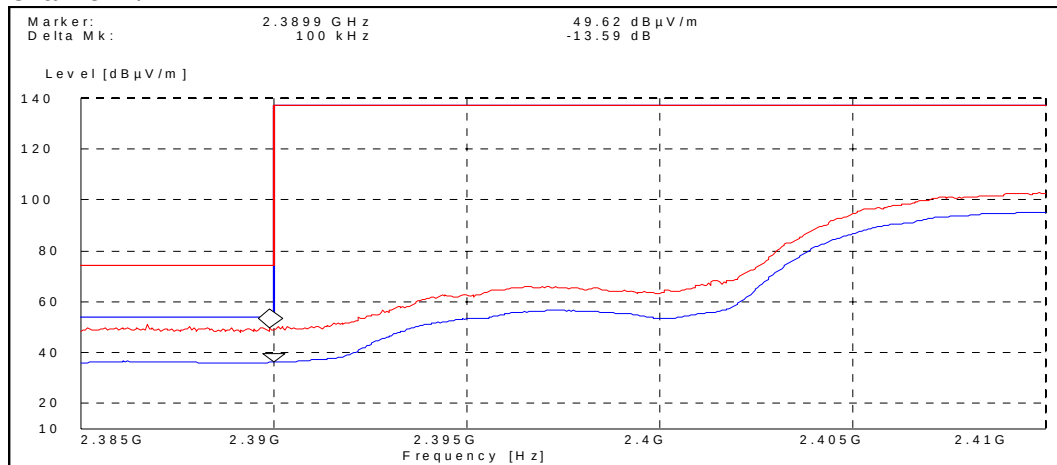
Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

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

13.2. WLAN Test results

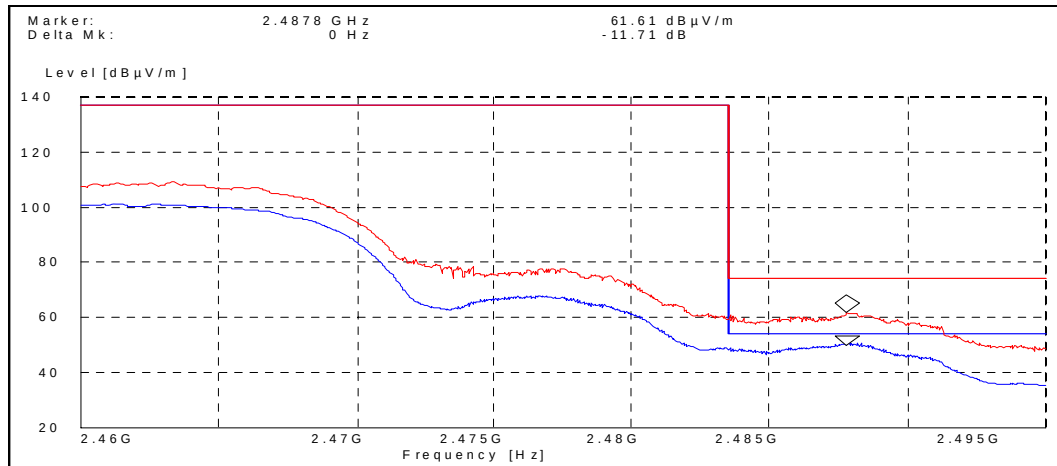
13.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 1 / 2412 MHz



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	58.60	PASSED
Average	58.60	PASSED

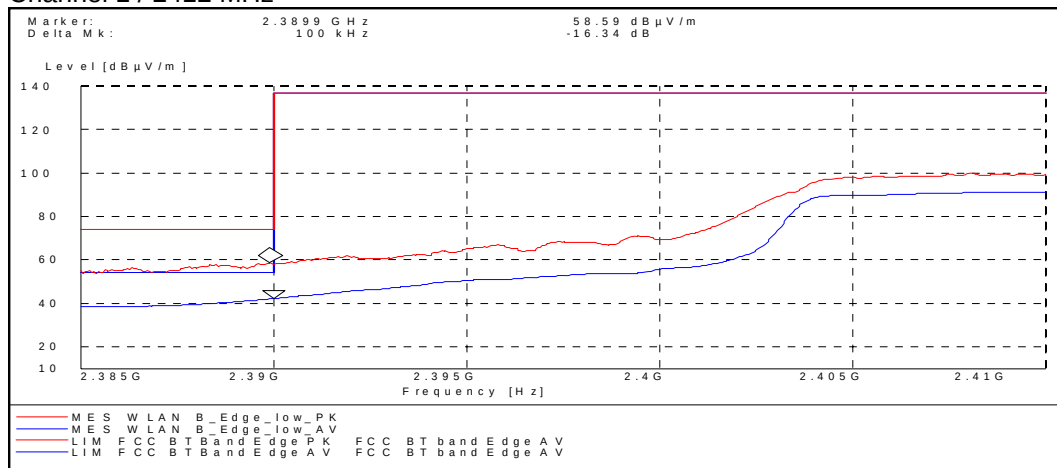
Channel 11 / 2462 MHz



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	61.60	PASSED
Average	50.50	PASSED

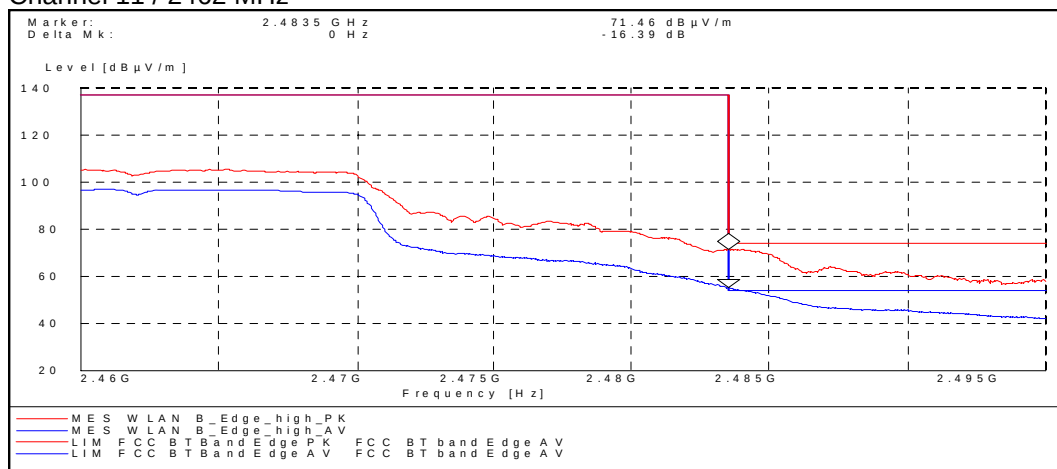
13.2.2 OFDM mode, 16QAM modulation, 6 Mbps data rate

Channel 1 / 2412 MHz



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	58.60	PASSED
Average	42.20	PASSED

Channel 11 / 2462 MHz



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	71.50	PASSED
Average	55.10	PASSED

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

EUT with DUT number	RX-48, DUT 12614
Accessories with DUT numbers	BP-4L, DUT 12619; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 41 / 100
Date of measurements	11-Mar-2008
Measured by	Anni Manninen

14.1. Test method and limit

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

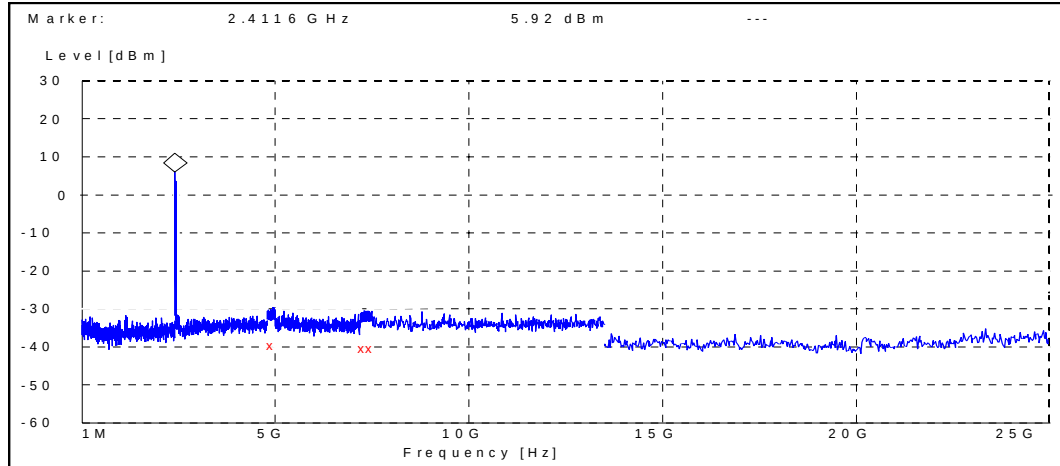
Limits for spurious RF conducted emissions measurements

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

14.2. WLAN Test results

14.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

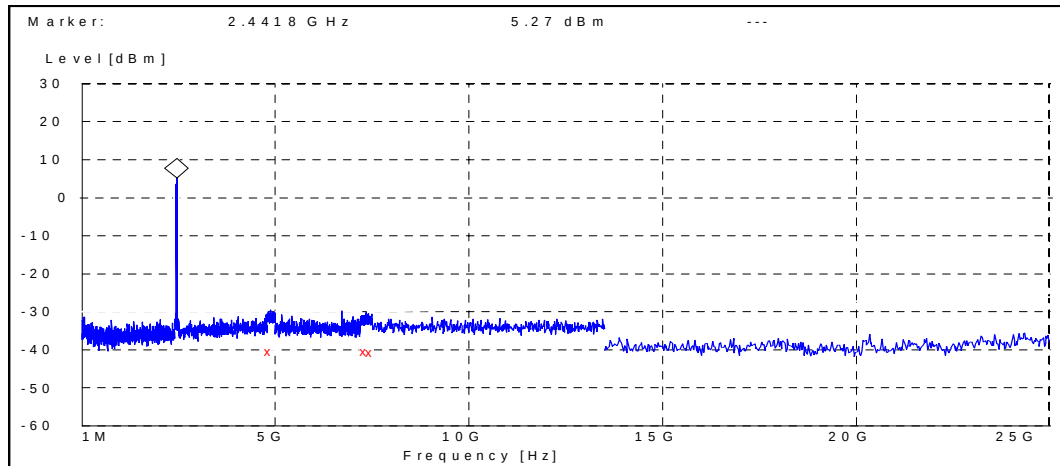
Channel 1 / 2412 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4932.400000	-45.624836	PASSED
7303.800000	-46.324836	PASSED
7500.000000	-46.324836	PASSED

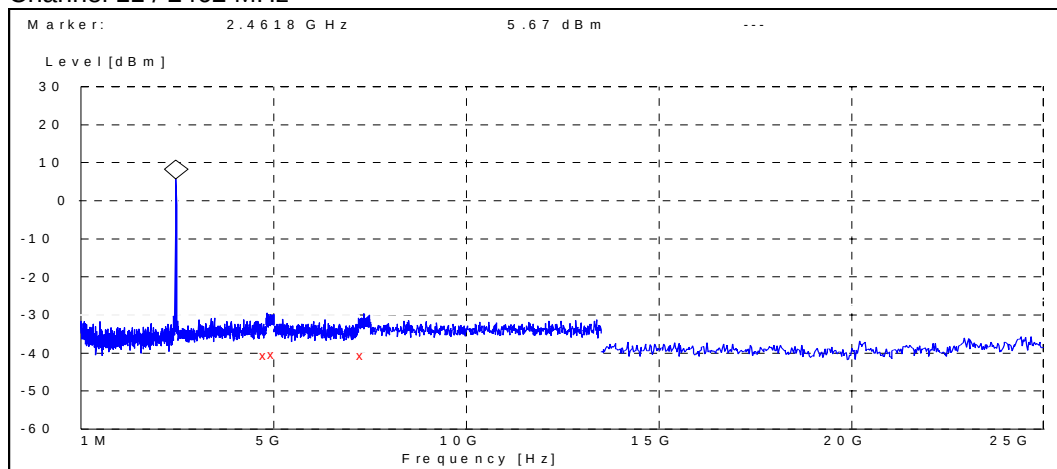
Channel 7 / 2442 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4861.600000	-45.667164	PASSED
7359.600000	-45.667164	PASSED
7500.000000	-45.767164	PASSED

Channel 11 / 2462 MHz

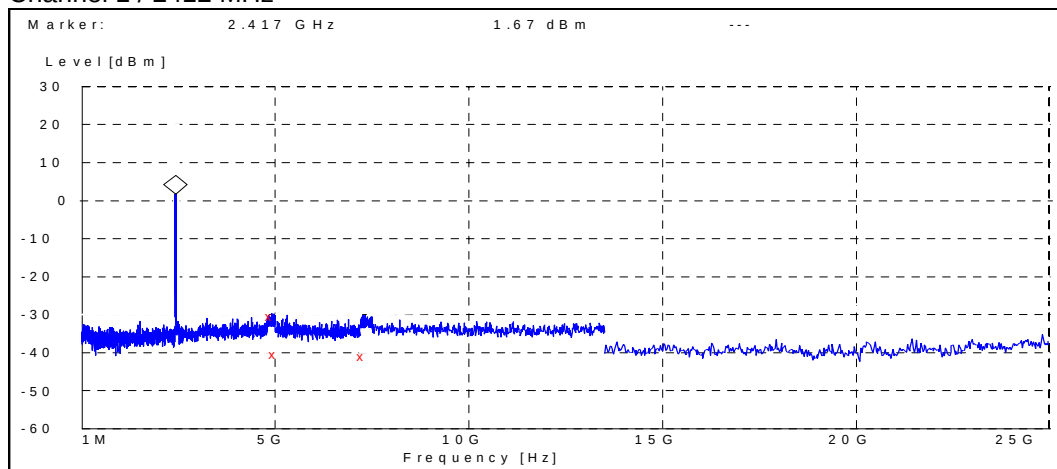


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4807.200000	-46.171846	PASSED
5000.000000	-46.071846	PASSED
7324.800000	-46.271846	PASSED

14.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

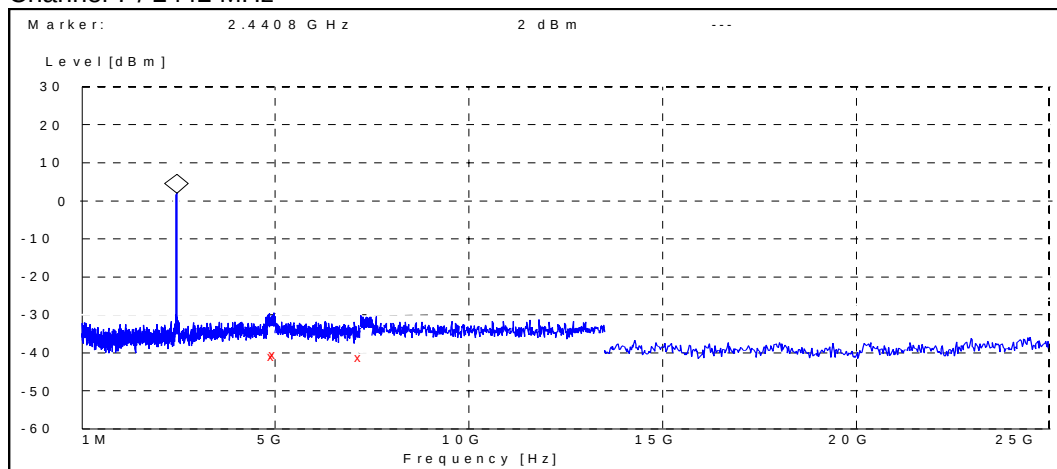
Channel 1 / 2412 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4901.600000	-32.073388	PASSED
5000.000000	-42.073388	PASSED
7260.000000	-42.673388	PASSED

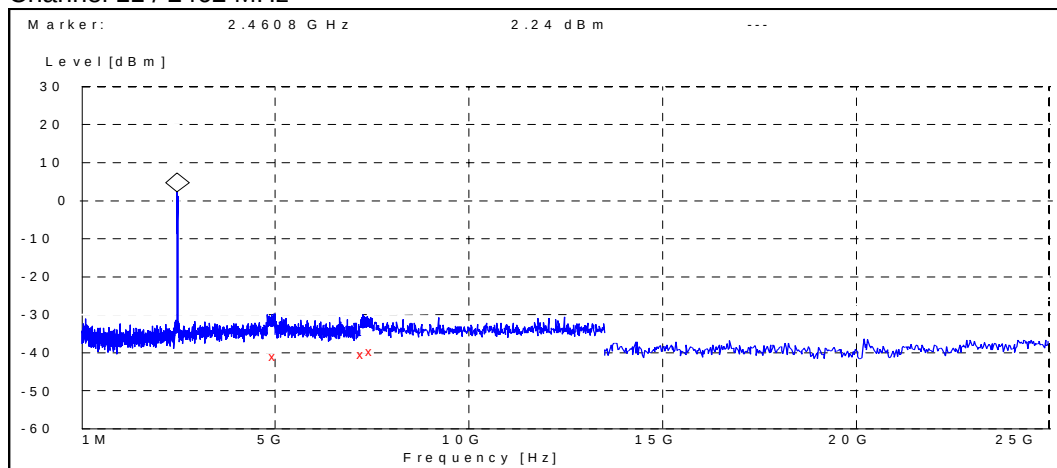
Channel 7 / 2442 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4966.800000	-42.996168	PASSED
5000.000000	-42.296168	PASSED
7223.400000	-43.096168	PASSED

Channel 11 / 2462 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4993.600000	-43.336566	PASSED
7255.800000	-42.636566	PASSED
7500.000000	-41.936566	PASSED

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

EUT with DUT number	RX-48, DUT 12603
Accessories with DUT numbers	BP-4L, DUT 12604; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 40 / 100
Date of measurements	06-Mar-2008
Measured by	Anni Manninen

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:

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

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	44.20	162.18	43.70	0.5	HORIZONTAL	PASSED
7236.000000	45.70	192.75	43.40	2.3	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	31.80	38.90	31.30	0.5	HORIZONTAL	PASSED
7236.000000	33.10	45.19	30.80	2.3	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
4883.769539	49.40	295.12	48.80	0.6	VERTICAL	PASSED
12457.917836	52.40	416.87	41.60	10.8	VERTICAL	PASSED
13299.599198	53.10	451.86	40.40	12.7	VERTICAL	PASSED
15401.295591	53.10	451.86	37.70	15.4	VERTICAL	PASSED
15933.861723	54.40	524.81	37.70	16.7	VERTICAL	PASSED
16177.358717	55.00	562.34	37.90	17.1	VERTICAL	PASSED
17927.349699	56.40	660.69	37.30	19.1	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
4883.769539	36.90	69.98	36.30	0.6	VERTICAL	PASSED
12456.917836	39.50	94.41	28.70	10.8	VERTICAL	PASSED
13298.099198	40.50	105.93	27.80	12.7	VERTICAL	PASSED
15401.295591	40.00	100.00	24.60	15.4	VERTICAL	PASSED
15929.361723	41.00	112.20	24.40	16.6	VERTICAL	PASSED
16176.358717	41.90	124.45	24.80	17.1	VERTICAL	PASSED
17920.849699	43.90	156.68	24.90	19.0	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	52.70	431.52	52.60	0.1	VERTICAL	PASSED
7386.000000	50.60	338.84	47.50	3.1	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
4924.000000	40.10	101.16	40.00	0.1	VERTICAL	PASSED
7386.000000	36.80	69.18	33.70	3.1	HORIZONTAL	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	44.20	162.18	43.70	0.5	HORIZONTAL	PASSED
7236.000000	45.70	192.75	43.40	2.3	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
4824.000000	31.80	38.90	31.30	0.5	HORIZONTAL	PASSED
7236.000000	33.10	45.19	30.80	2.3	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
2494.036072	52.30	412.10	55.50	-3.2	VERTICAL	PASSED
4885.263527	46.90	221.31	46.30	0.6	HORIZONTAL	PASSED
12461.917836	53.00	446.68	42.20	10.8	VERTICAL	PASSED
13308.615230	53.60	478.63	40.80	12.8	VERTICAL	PASSED
15482.971944	53.80	489.78	38.50	15.3	VERTICAL	PASSED
15891.281563	54.80	549.54	38.10	16.7	VERTICAL	PASSED
16195.382766	54.90	555.90	37.40	17.5	VERTICAL	PASSED
17965.937876	55.80	616.60	37.40	18.4	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
2494.036072	38.60	85.11	41.80	-3.2	VERTICAL	PASSED
4878.763527	32.40	41.69	31.70	0.7	HORIZONTAL	PASSED
12455.917836	39.70	96.61	28.90	10.8	VERTICAL	PASSED
13310.615230	40.60	107.15	27.80	12.8	VERTICAL	PASSED
15487.971944	40.20	102.33	24.80	15.4	VERTICAL	PASSED
15888.281563	41.80	123.03	25.10	16.7	VERTICAL	PASSED

16193.882766	42.40	131.83	24.90	17.5	VERTICAL	PASSED
17969.937876	43.30	146.22	24.90	18.4	VERTICAL	PASSED

Channel 11 / 2462 MHz

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4924.000000	52.70	431.52	52.60	0.1	VERTICAL	PASSED
7386.000000	50.60	338.84	47.50	3.1	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4924.000000	40.10	101.16	40.00	0.1	VERTICAL	PASSED
7386.000000	36.80	69.18	33.70	3.1	HORIZONTAL	PASSED

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

EUT with DUT number	RX-48, DUT 12603
Accessories with DUT numbers	BP-4L, DUT 12604; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 40 / 100
Date of measurements	08-Mar-2008
Measured by	Anni Manninen

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.

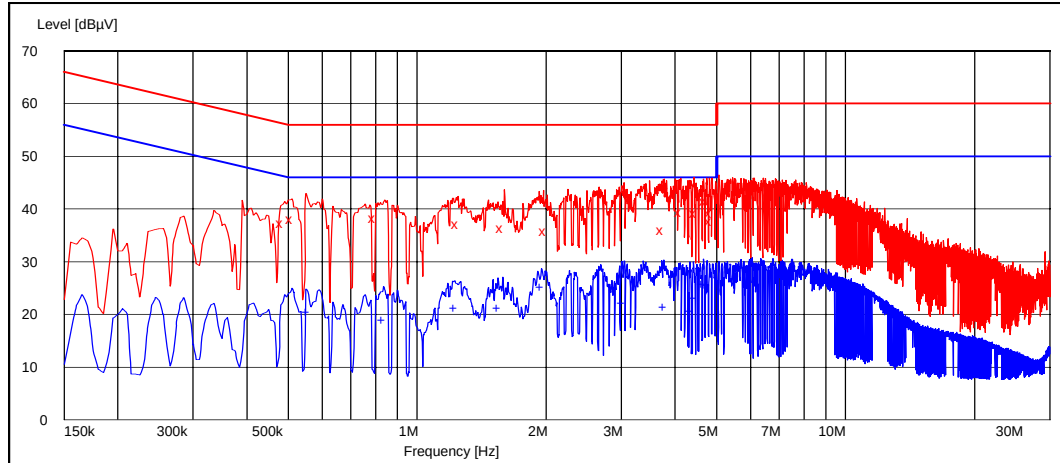
CISPR 22 Class B limits

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)

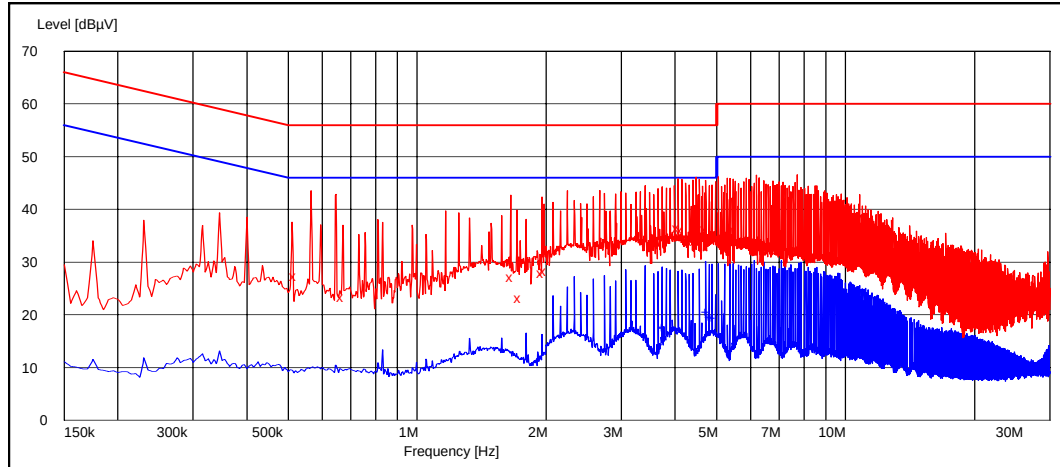
Frequency [MHz]	U [dBμV]	Line	Result
0.485000	37.30	L1	PASSED
0.510000	38.10	L1	PASSED
0.795000	38.20	L1	PASSED
1.245000	37.20	L1	PASSED
1.580000	36.30	L1	PASSED
1.990000	35.80	L1	PASSED
3.745000	36.00	N	PASSED
4.120000	39.50	L1	PASSED
4.470000	39.30	L1	PASSED
4.720000	41.40	L1	PASSED
4.850000	37.70	N	PASSED
4.855000	39.20	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.555000	20.40	L1	PASSED
0.835000	19.00	N	PASSED
1.230000	21.30	N	PASSED
1.555000	21.20	N	PASSED
1.955000	25.10	N	PASSED
3.035000	22.20	L1	PASSED
3.790000	21.40	L1	PASSED
4.355000	20.60	L1	PASSED
4.450000	23.10	L1	PASSED
4.660000	25.70	L1	PASSED
4.780000	25.50	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
0.520000	27.40	L1	PASSED
0.670000	23.30	L1	PASSED
1.670000	27.10	L1	PASSED
1.740000	23.20	N	PASSED
1.965000	27.90	L1	PASSED
1.995000	28.40	L1	PASSED
4.080000	36.50	L1	PASSED
4.175000	36.10	L1	PASSED
4.370000	33.90	N	PASSED
4.525000	35.00	L1	PASSED
4.605000	34.80	L1	PASSED
4.745000	36.30	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
3.775000	17.50	L1	PASSED
3.780000	17.70	L1	PASSED
4.765000	20.50	L1	PASSED
4.845000	19.50	L1	PASSED
4.930000	19.30	L1	PASSED

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

EUT with DUT number	RX-48, DUT 12614
Accessories with DUT numbers	BP-4L, DUT 12619; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 41 / 100
Date of measurements	11-Mar-2008
Measured by	Anni Manninen

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

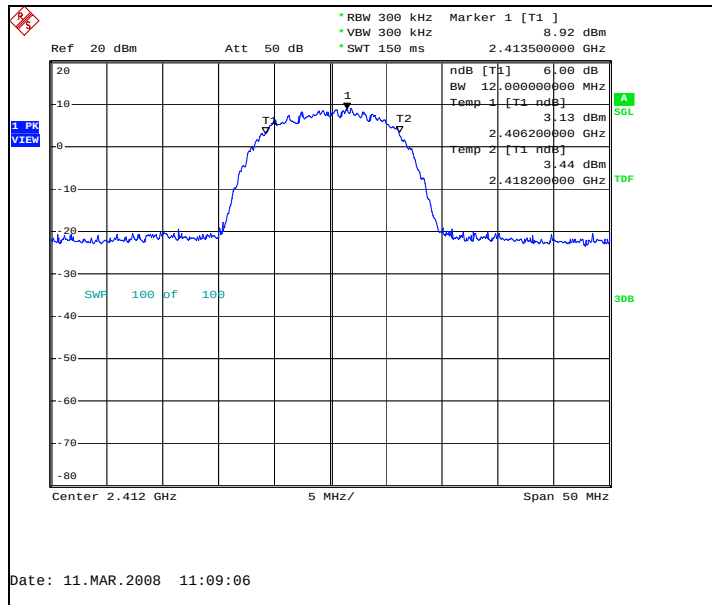
Limit [kHz]
≥ 500

17.2. WLAN test results

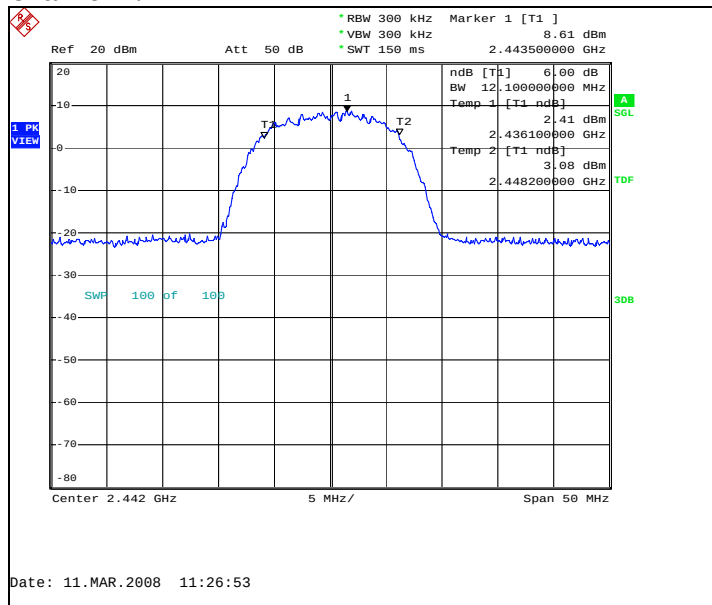
17.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	6 dB bandwidth [kHz]	Result
1	12000.000	PASSED
7	12100.000	PASSED
11	12100.000	PASSED

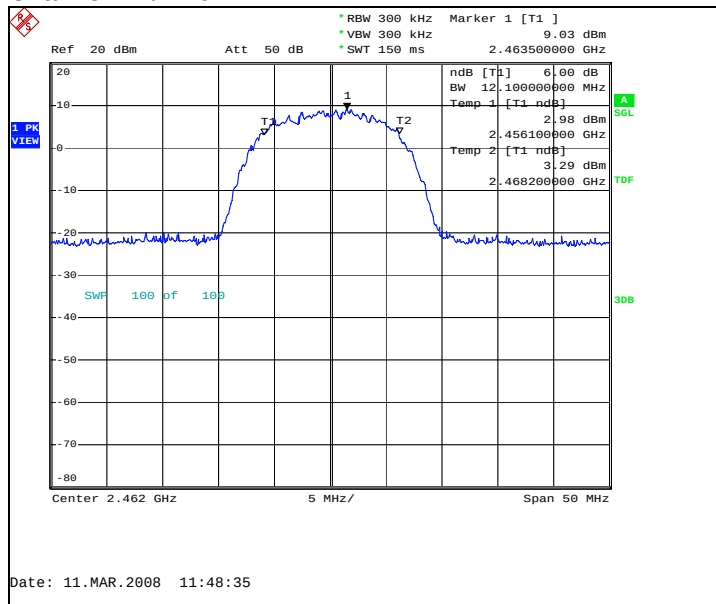
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



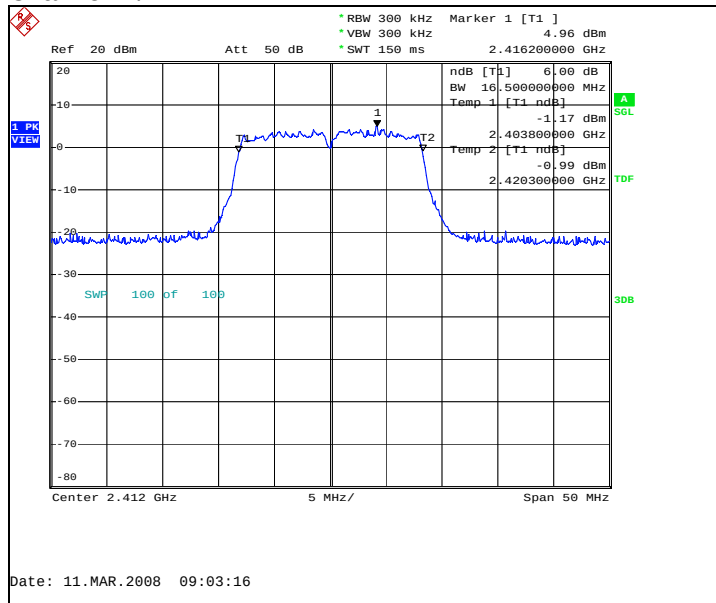
Channel 11 / 2462 MHz



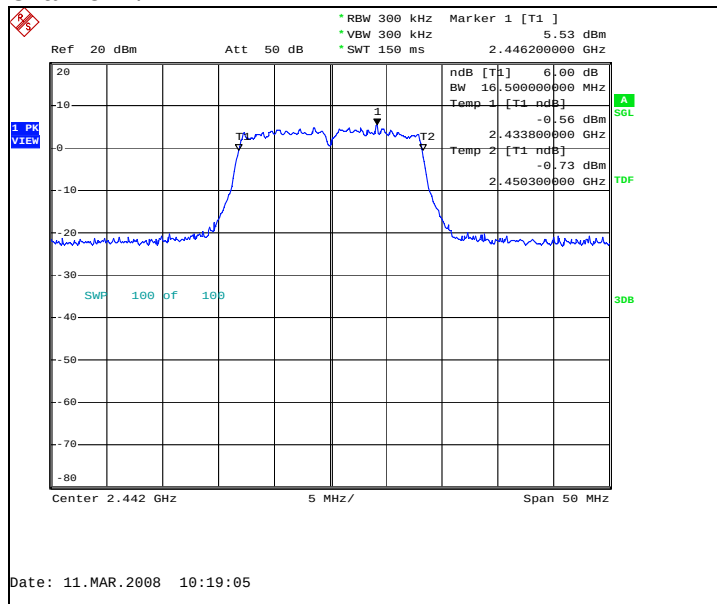
17.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
1	16500.000	PASSED
7	16500.000	PASSED
11	16500.000	PASSED

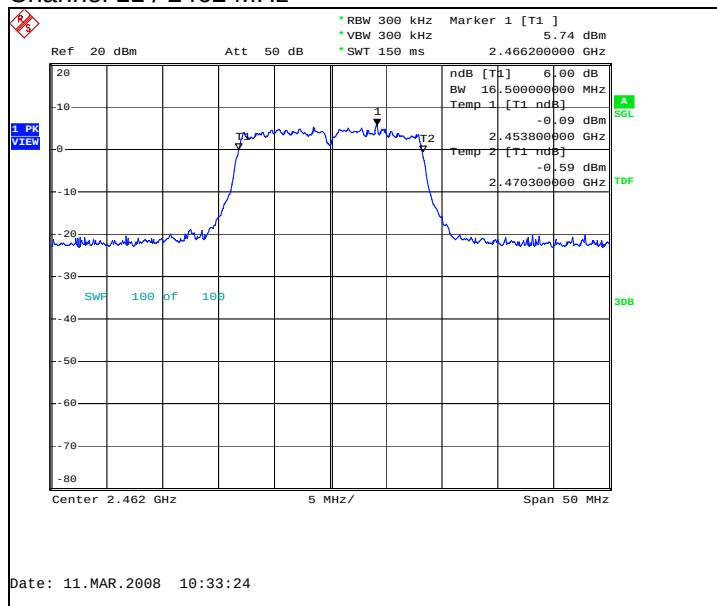
Channel 1 / 2412 MHz



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	RX-48, DUT 12614
Accessories with DUT numbers	BP-4L, DUT 12619; HS-48, DUT 12618; AC-4U, DUT 12623
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 41 / 100
Date of measurements	11-Mar-2008
Measured by	Anni Manninen

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

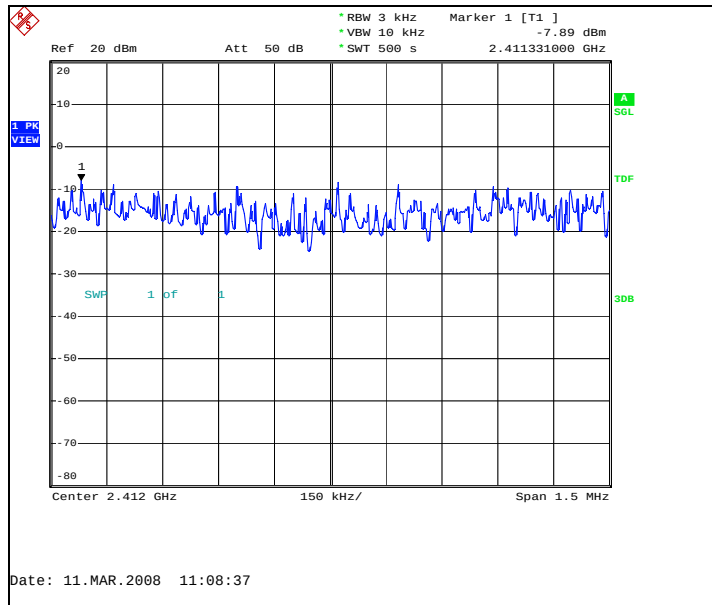
Limit [dBm] @ 3 kHz
≤ 8

18.2. WLAN test results

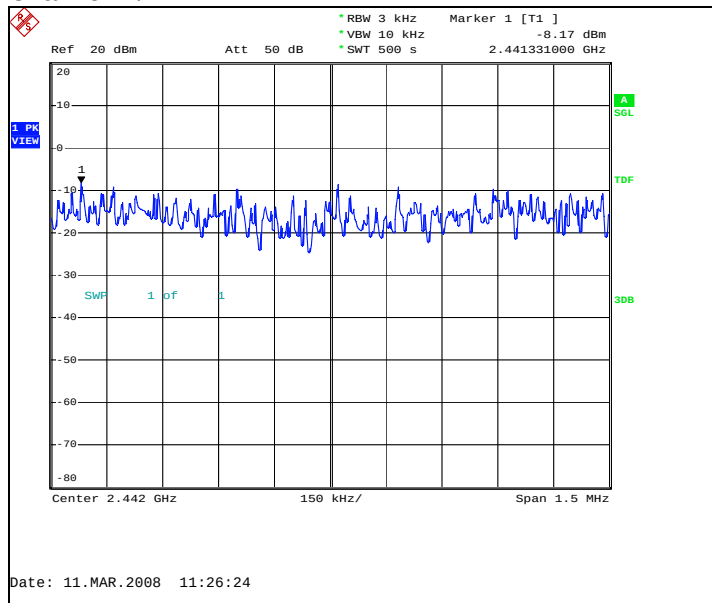
18.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-7.89	PASSED
7 / 2442	-8.17	PASSED
11 / 2462	-7.79	PASSED

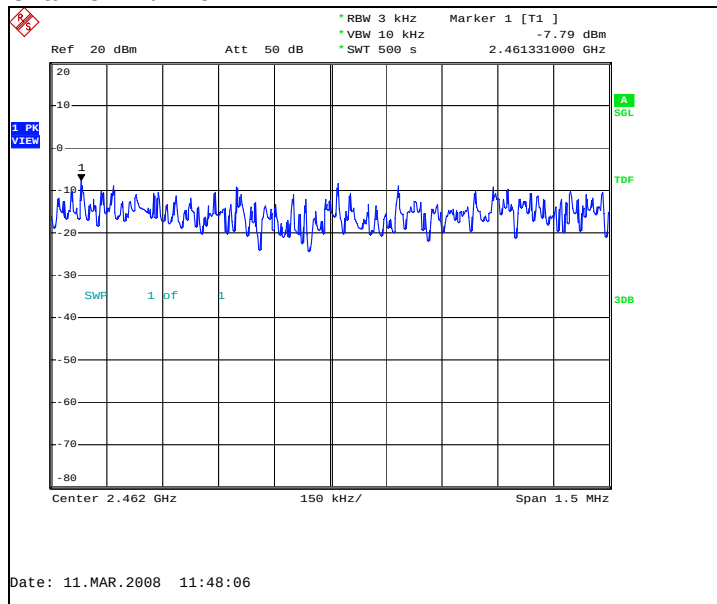
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



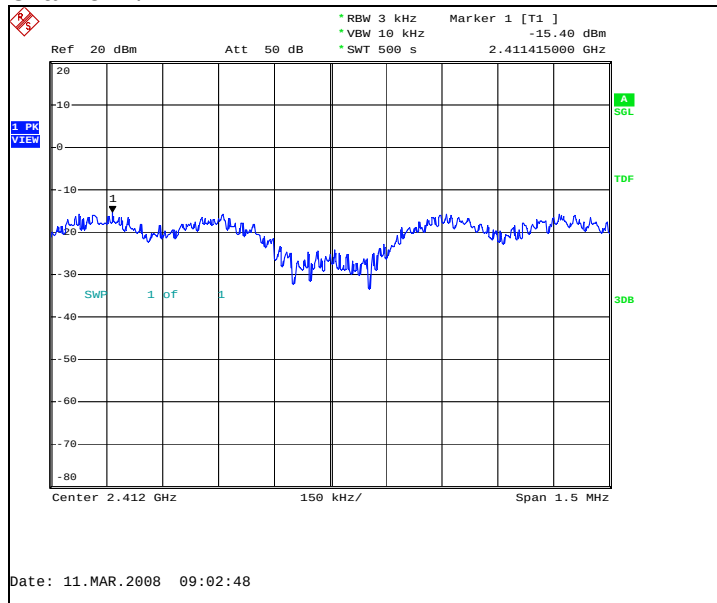
Channel 11 / 2462 MHz



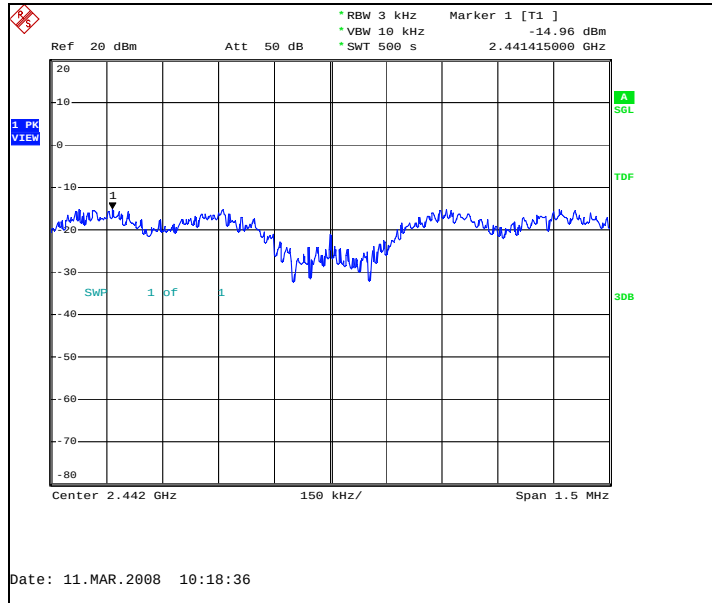
18.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-15.40	PASSED
7 / 2442	-14.96	PASSED
11 / 2462	-14.62	PASSED

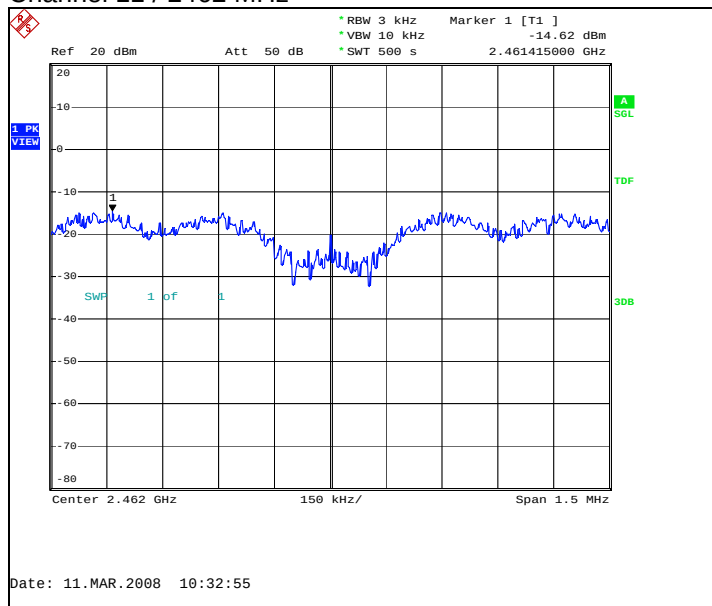
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



19. Test Equipment

19.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
1742	EMI Test Receiver	ESMI	R&S	15C, 15B
1759	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
1872	Thermo- Hygrograph	00.02520.150700	Lambrecht	15C, 15B
1916	Radio Communication tester	CMTA84	R&S	15C, 15B
2039	Power Supply	PL330QMD	THURLBY	15C, 15B
2060	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
2068	CDN-Antenna line	S1	NMP	15C, 15B
2097	Pulse Limiter	ESH3-Z2	R&S	15C, 15B
2111	Multimeter	TX3	Tektronix	15C, 15B
2156	Digital Radio Communication Tester	CMU200	R&S	15C, 15B
2206	Signal generator	SMX	R&S	15C, 15B
2335	GPIO Switch 2 to 1	-	National Instruments	15C, 15B
2347	Digital Radio Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2352	Spectrum Analyzer	FSP	R&S	22/24/27, 15C
2359	Temperature Test system	VT4002	Vötsch Industrietechnik	22/24/27
2360	Serial Bus Converter	Serial 488A	IO Tech	22/24/27
2362	Power Supply	NGPX 70/5	R&S	22/24/27
2388	Bluetooth Tester	CBT	R&S	15C, 15B
-	RF Emission Software	ES-K1 v.1.71	R&S	22/24/27, 15C, 15B

19.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
1748	Log. per. Antenna	HL025	R&S	22/24/27, 15C
1749	Log. per. Antenna	HL025	R&S	22/24/27, 15C
1875	Thermo- Hygrograph	00.02520.150700	Lambrecht	22/24/27, 15C, 15B
1917	Radio Communication tester	CMTA84	R&S	22/24/27, 15C, 15B
1933	Precision half-wave dipole antennas	HZ-13	R&S	22/24/27, 15C
1938	Precision half-wave dipole antennas	HZ-12	R&S	22/24/27, 15C
2006	Radiation Reference Source	VSQ	MEB	22/24/27, 15C, 15B
2009	Signal generator	SMP 22	R&S	22/24/27, 15C, 15B
2019	Multimeter	34401A	HP	22/24/27, 15C, 15B
2027	Coupling and Decoupling Network	M2 (modified) DC1	MEB	22/24/27, 15C, 15B
2028	Coupling and Decoupling Network	M3 (modified) DC2	MEB	22/24/27, 15C, 15B
2029	Power Supply	PL330	THURLBY	22/24/27, 15C, 15B
2043	Band Reject Filter	WRCA824/849-0.2-6SS	Wainwright	22, 15C, 15B
2047	Band Reject Filter	WRCC1800/2000-0.2-10SS	Wainwright	24, 15C, 15B
2048	Band Reject Filter	WRCC1700/1800-0.2-10SS	Wainwright	27, 15C, 15B
2051	High Pass Filter	4HC1700-1-KK	R&S	22/24/27, 15C
2057	Log. per. Antenna	HL025	R&S	22/24/27, 15C
2109	Power Supply	PL330QMD	THURLBY	22/24/27, 15C, 15B
2110	Multimeter	34401A	HP	22/24/27, 15C, 15B
2112	Multimeter	TX3	Tektronix	22/24/27, 15C, 15B
2116	Controller	EMCO MODEL 2090	ETS	22/24/27, 15C, 15B
2133	Power Meter	NRVS	R&S	22/24/27, 15C
2134	Power Sensor	NRV-Z32	R&S	22/24/27, 15C
2135	Coupling and Decoupling Network	CDN 801-M3	LÜTHI	22/24/27, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
2138	Ultra Broadband Antenna	HL562	R&S	22/24/27, 15C, 15B
2140	Biconical Antenna	EMCO93110B	EMCO	22/24/27, 15C
2142	Log.-per.-dipol Antenna	3146	EMCO	22/24/27, 15C
2144	Attenuator	6803.17B	Huber-Suhner	22/24/27, 15C, 15B
2150	High Pass Filter	F-15041	RLC ELECTRONICS	22/24/27, 15C
2176	Coupling and Decoupling Network	CDN 801-M3	LÜTHI	22/24/27, 15C, 15B
2180	Digital Radio Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2188	Preamplifier	AFS4-00100300-20-23P-6	MITEQ	22/24/27, 15C, 15B
2330	EMI Test receiver	ESIB26	R&S	22/24/27, 15C, 15B
2334	GPIB Switch 2 to 1	-	National Instruments	22/24/27, 15C, 15B
2348	Yaesu controller	G-1000DXC	YAESU	22/24/27, 15C, 15B
2349	Computer controller (Yaesu)	GS-232B	YAESU	22/24/27, 15C, 15B
2350	Preamplifier	AMF-6D-020180-29-20P	MITEQ	22/24/27, 15C
2361	Anechoic chamber	3 meter semi/full anechoic chamber	Euroshield	22/24/27, 15C, 15B
2398	Horn antenna	HF906	R&S	22/24/27, 15C
2363	Band Reject Filter	WRCG 832/838-825/845/5SS	Wainwright	22/24/27
2364	Band Reject Filter	WRCG1877/1883 - 1870/1890-40/6SS	Wainwright	22/24/27
2365	Relay Switch Unit	TS-RSP	R&S	22/24/27, 15C, 15B
2366	Relay Switch Unit	TS-RSP	R&S	22/24/27, 15C, 15B
2384	Band Reject Filter	WRCG832/838-825/845-40/5SS	Wainwright	22/24/27
2388	Bluetooth Tester	CBT	R&S	15C, 15B
-	RF Emission Software	ES-K1 v.1.71	R&S	22/24/27, 15C, 15B