

FCC Part 15C Compliance Test Report

Test Report no.:	FCC15C_RM-648_11.doc	Date of Report:	19-Apr-2010
Number of pages:	33	Customer's Contact person:	Mohammad El-haj
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FCC listing no.:	99059		
IC recognition no.:	661AL-1		
Tested devices/ accessories:	Phone RM-648 / Battery BL-5F / AC-Charger AC-6E / Headset WH-102		
FCC ID:	QTKRM-648	IC:	661AD-RM648
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:			

Ruben Hansen, System Manager, EMC

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	13-Mar-2010
Testing completed	15-Apr-2010
The customer's contact person	Mohammad El-haj
Test Plan referred to	T:\Projects\RM-627\TestPlan\RS_testplan_RM-627.xls
Notes	None
Document name	FCC15C_RM-648_11.doc

1.1. EUT and Accessory Information

The EUT is a 7-band (GSM850/900/1800/1900 and WCDMA Band I/II(1900)/V) 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
Phone	RM-627	004402130272374	0200A	-	041.005RD	24391
Phone	RM-627	004402130272671	0200A	-	041.005RD	24392
Phone	RM-627	004402130270089	0200A	-	041.005RD	24403
Phone	RM-627	004402130275708	0200A	-	041.005RD	24402
Battery	BL-5F	3635639366311608756;0670498	-	-	-	24371
Battery	BL-5F	3635639366311608752;0670498	-	-	-	24373
AC Charger	AC-6E	3943499401141210186;0675590	-	-	-	24387
AC Charger	AC-6E	3943499401141210126;0675590	-	-	-	24384
Headset	WH-102	0694786945311R00533	-	-	-	24383
Headset	WH-102	0694786945311R00076	-	-	-	24376

1.2. Summary of Test Results

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 (a)	6 dB bandwidth	Passed
15.247(e)	A8.2 (b)	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 Copenhagen Laboratory.

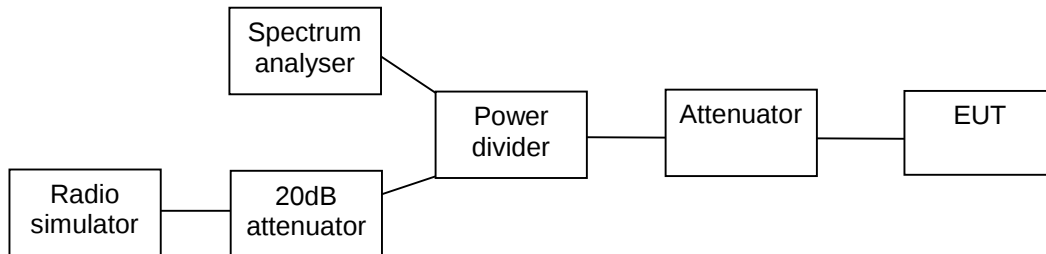
The test results of QTKRM-627 are re-used for certification of the QTKRM-648. The tables above indicate the results, which will be re-used.

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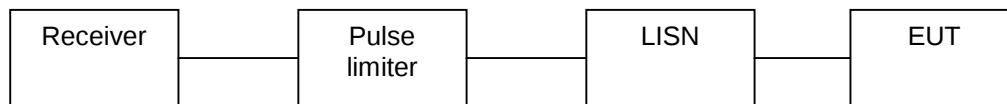
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2. Test setups

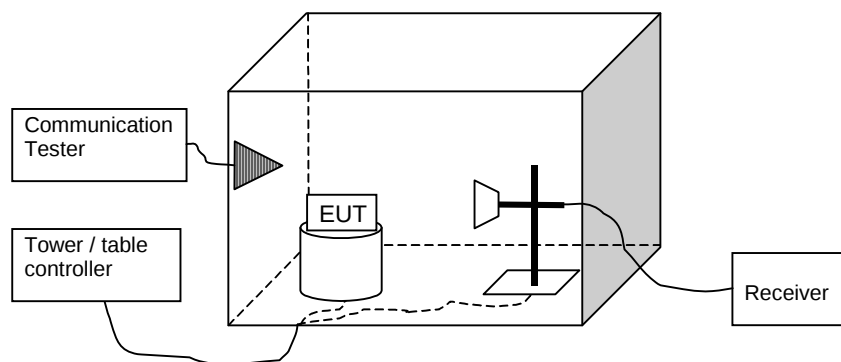
2.1. Conducted RF test setup



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 (4))

EUT with DUT number	RM-627 DUT 24391
Accessories with DUT numbers	BL-5F DUT 24371, AC-6E DUT 24387, WH-102 DUT 24383
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 36 / 102.5
Date of measurements	18-Mar-2010
Measured by	Ruben Hansen

3.1. 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

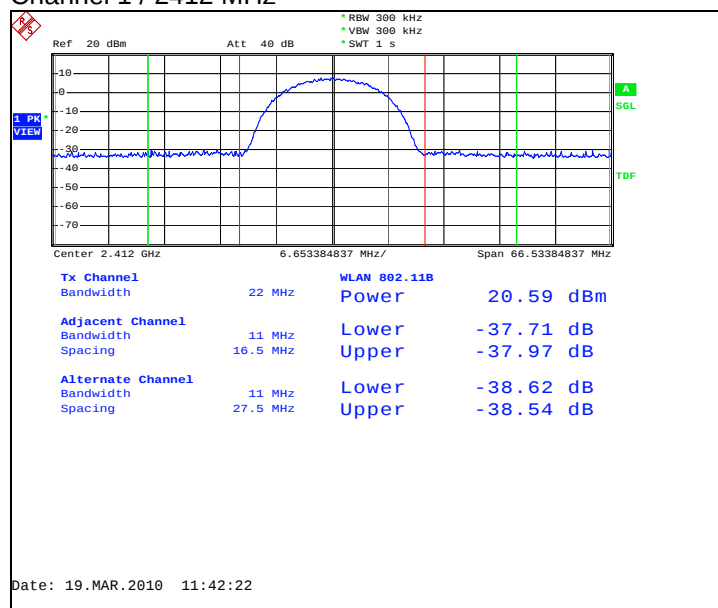
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

3.2. WLAN Test results

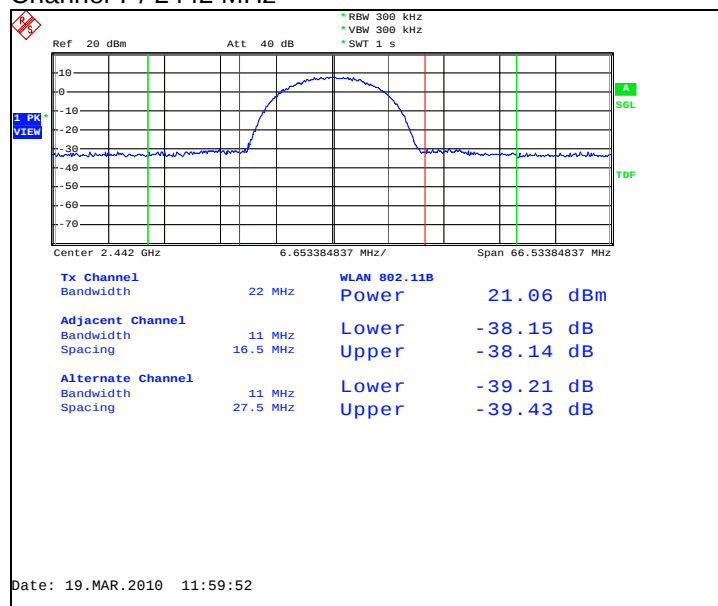
3.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [W]	Result
1 / 2412	20.59	0.115	Passed
7 / 2442	21.06	0.128	Passed
11 / 2462	21.51	0.142	Passed

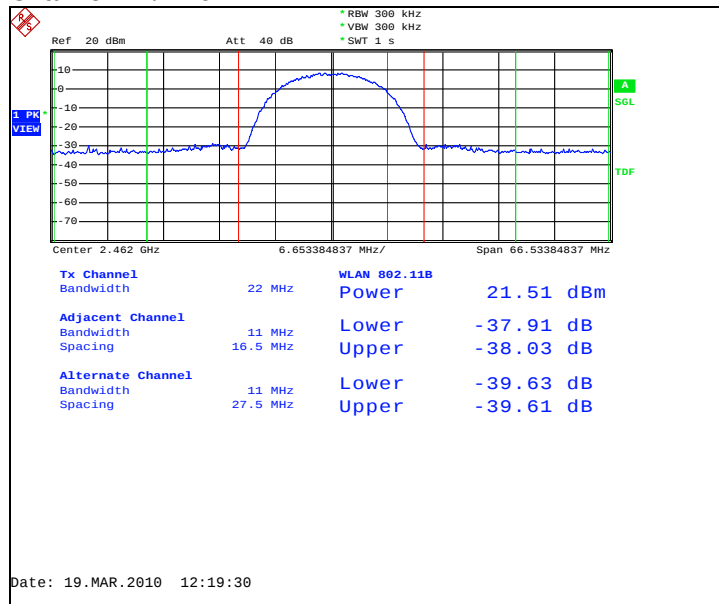
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



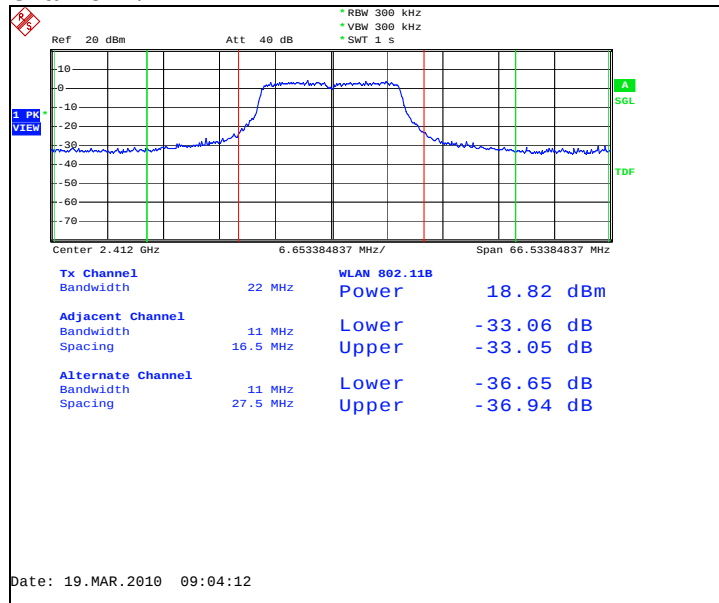
Channel 11 / 2462 MHz



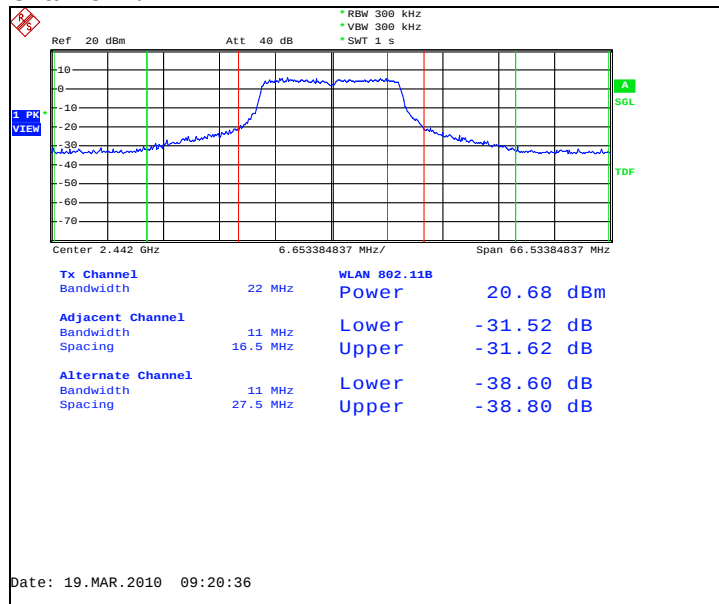
3.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f _c [MHz]	P [dBm]	P [W]	Result
1 / 2412	18.82	0.076	Passed
7 / 2442	20.68	0.117	Passed
11 / 2462	19.74	0.094	Passed

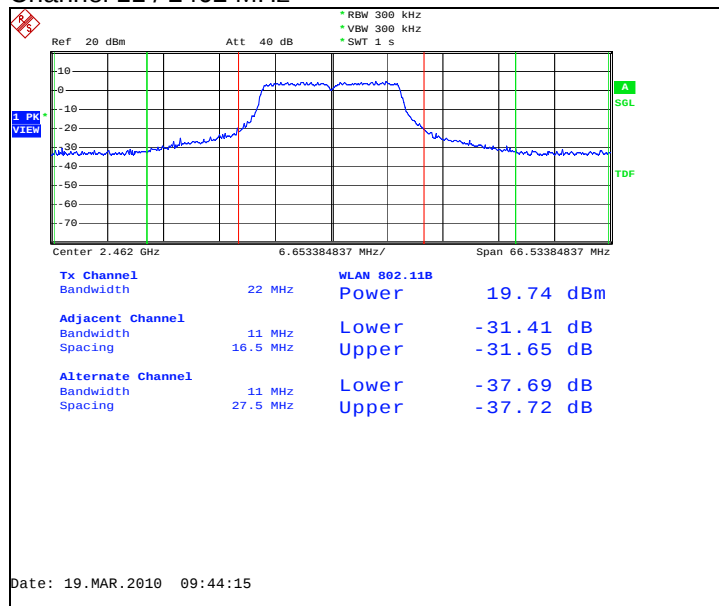
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



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

EUT with DUT number	RM-627, DUT 24412
Accessories with DUT numbers	BL-5F, DUT 24368 ; AC-6E, DUT 24384 ; WH-102, DUT 24377
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 42 / 100.1
Date of measurements	15-Apr-2010
Measured by	Christian Andersen

4.1. 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)

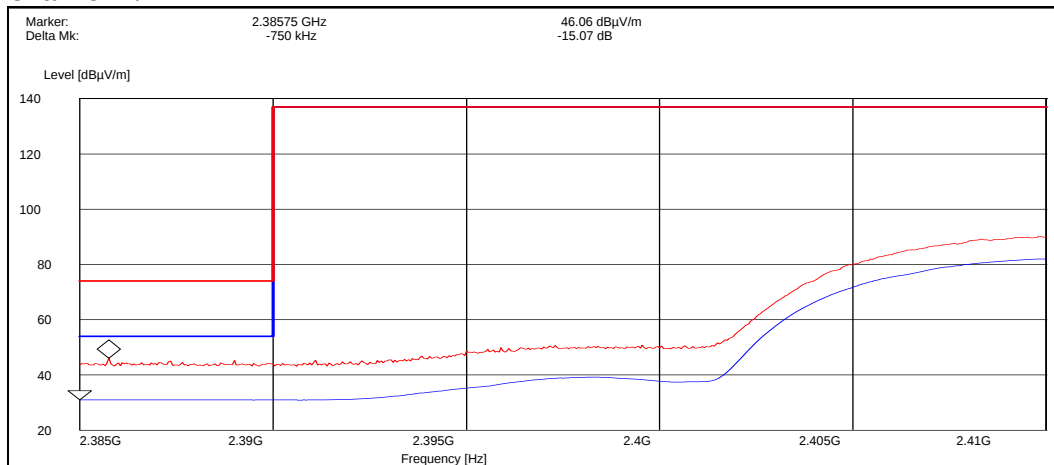
Frequency range [MHz]	Limit Average [dBμV/m]	Limit Peak [dBμV/m]
Below 2390 and above 2483.5	≤ 54	≤ 74

4.2. WLAN Test results

4.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

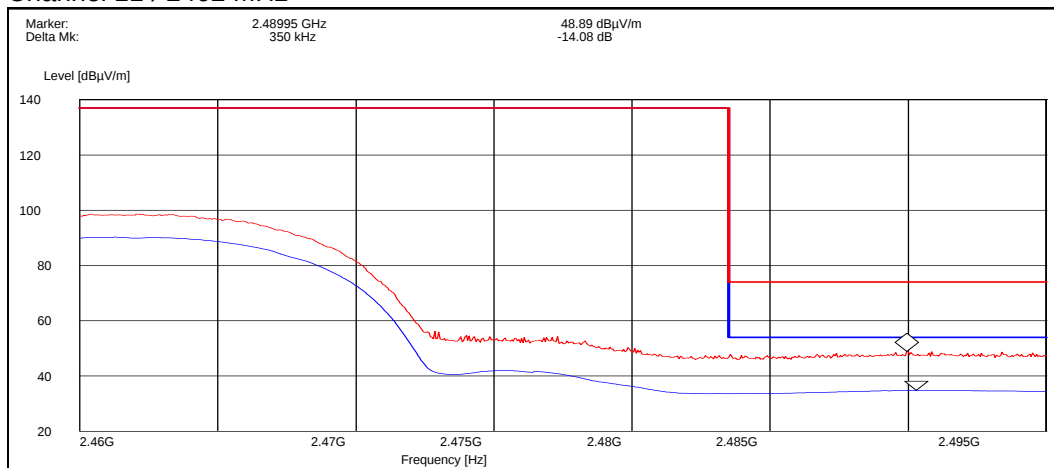
Phone slide open

Channel 1 / 2412 MHz



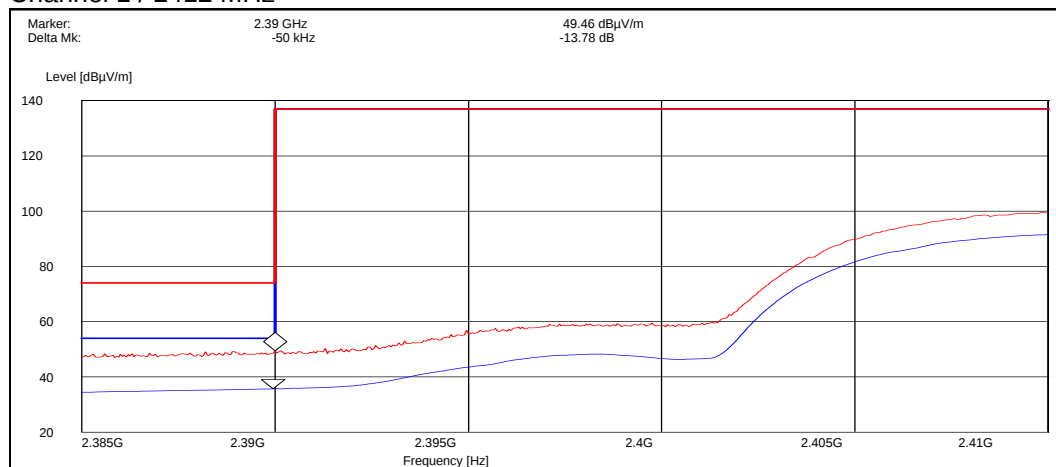
Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	46.10	Passed
Average	31.00	Passed

Channel 11 / 2462 MHz



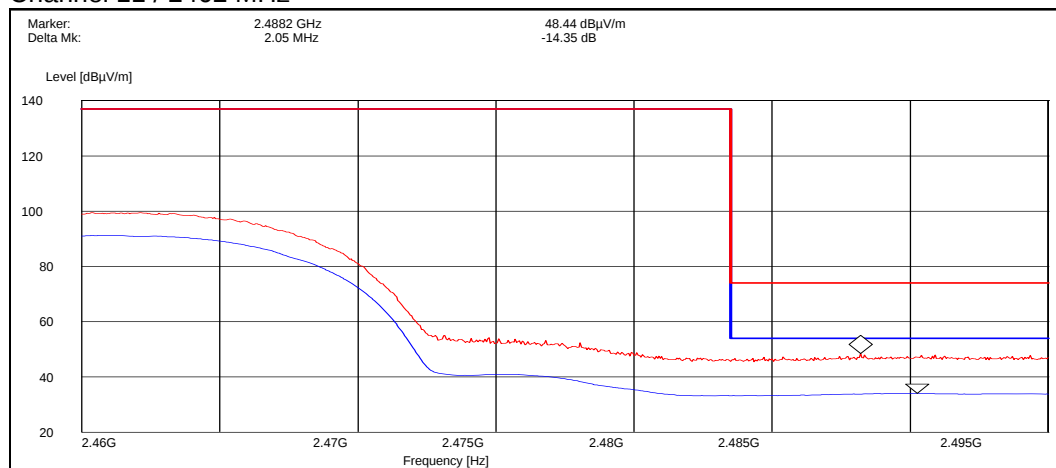
Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	48.90	Passed
Average	34.80	Passed

Phone slide closed
Channel 1 / 2412 MHz



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	49.50	Passed
Average	35.70	Passed

Channel 11 / 2462 MHz

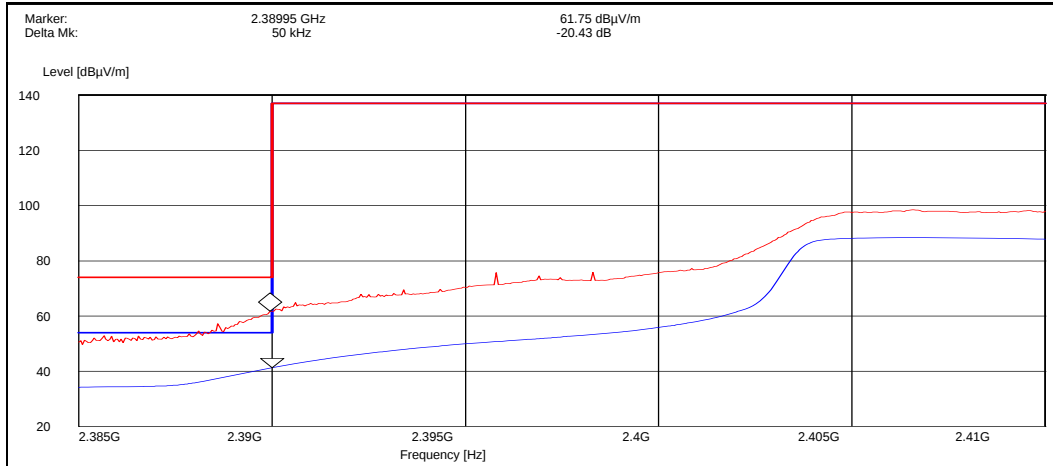


Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	48.40	Passed
Average	34.10	Passed

4.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

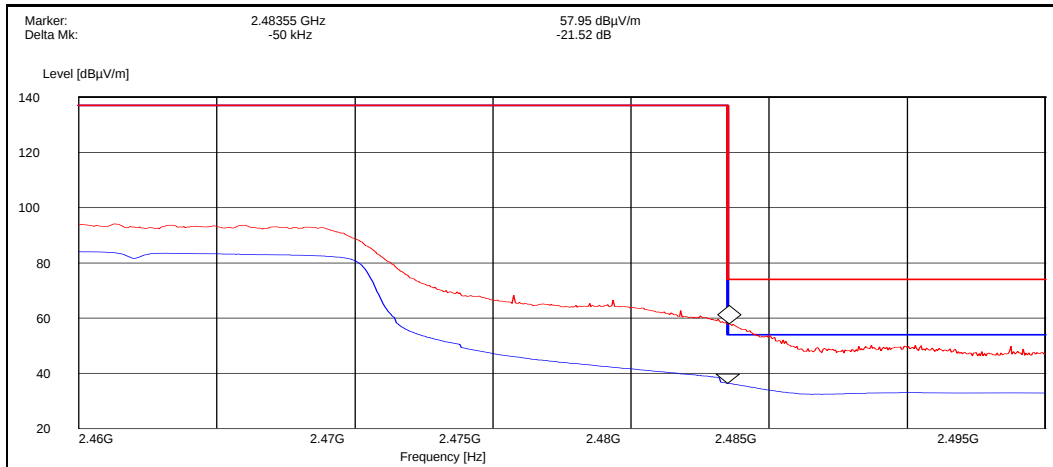
Phone slide open

Channel 1 / 2412 MHz



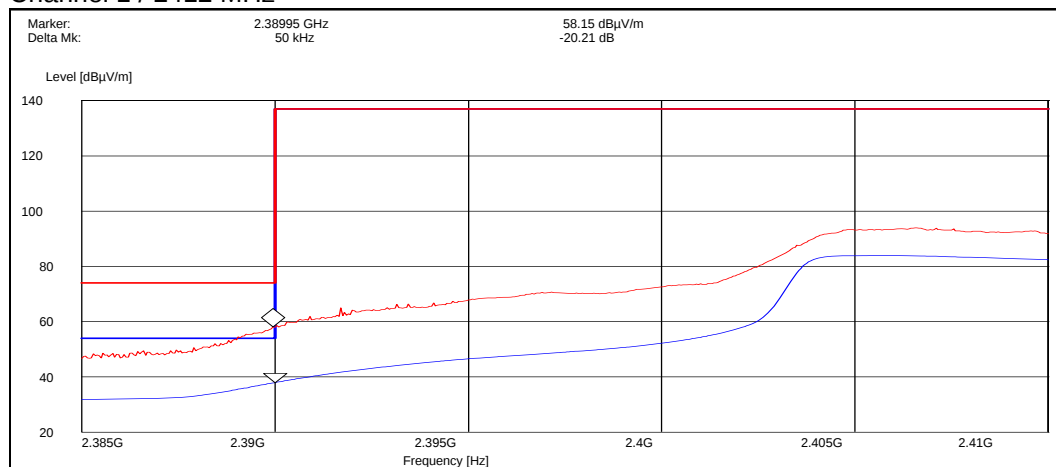
Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	61.80	Passed
Average	41.30	Passed

Channel 11 / 2462 MHz



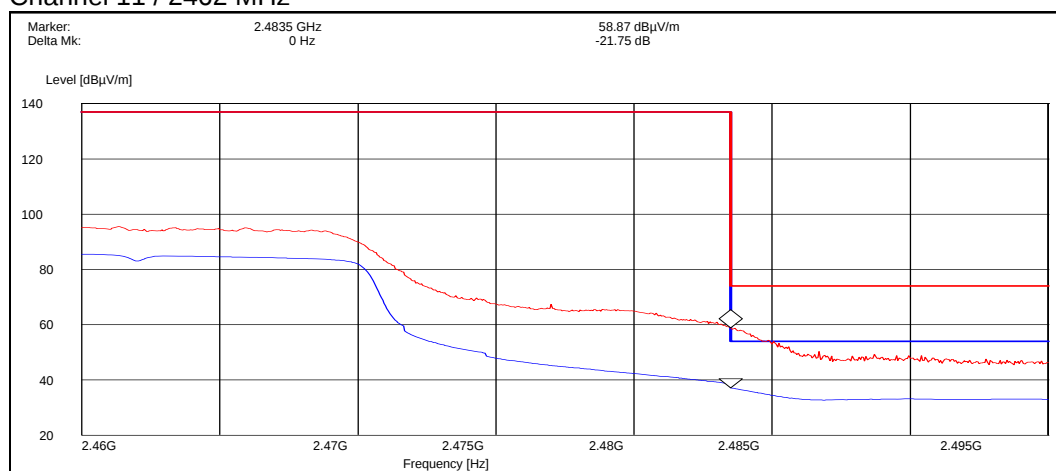
Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	58.00	Passed
Average	36.40	Passed

Phone slide closed
Channel 1 / 2412 MHz



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	58.20	Passed
Average	37.90	Passed

Channel 11 / 2462 MHz



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	58.90	Passed
Average	37.10	Passed

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

EUT with DUT number	RM-627 DUT 24403
Accessories with DUT numbers	BL-5F DUT 24371, AC-6E DUT 24387, WH-102 DUT 24383
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 36 / 102.5
Date of measurements	18-Mar-2010
Measured by	Ruben Hansen

5.1. Test method and limit

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

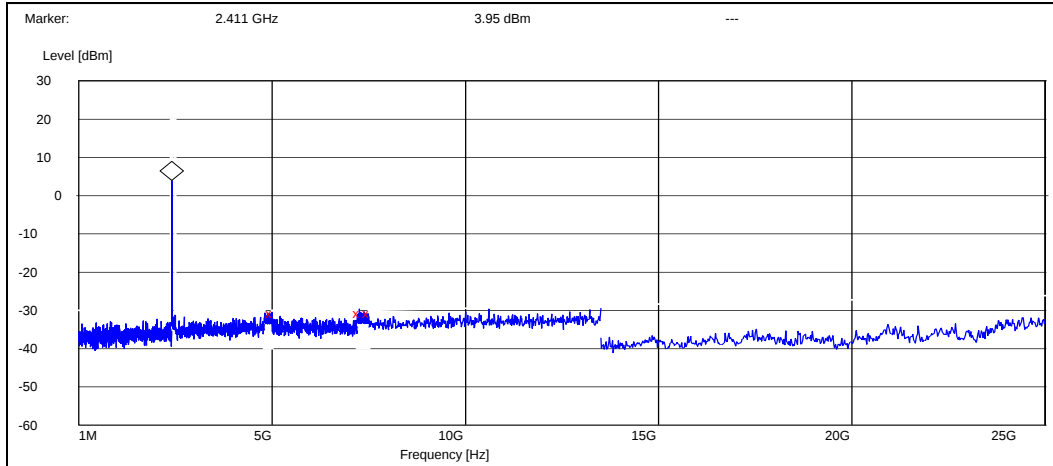
Limits for spurious RF conducted emissions measurements

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

5.2. WLAN Test results

5.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

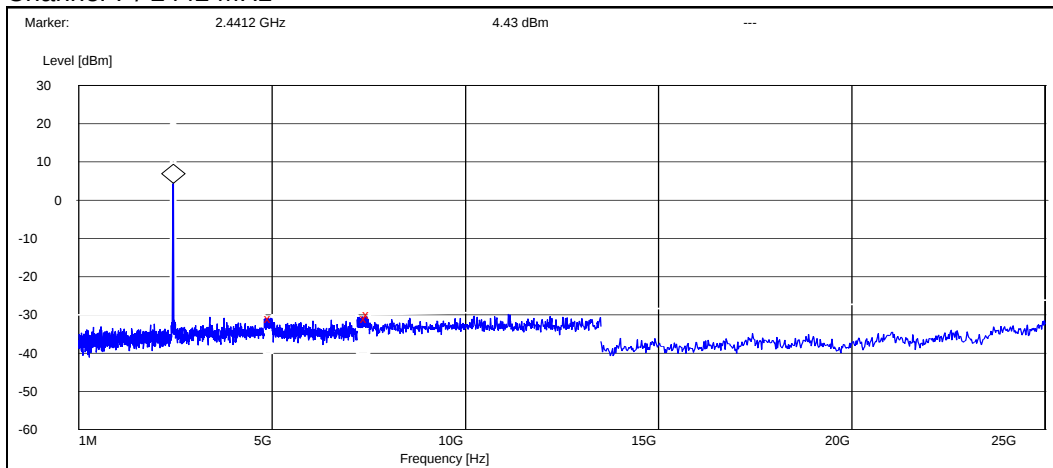
Channel 1 / 2412 MHz



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

Frequency [MHz]	P [dBc]	Result
4998.800000	-34.754407	Passed
7263.600000	-34.754407	Passed
7500.000000	-34.854407	Passed

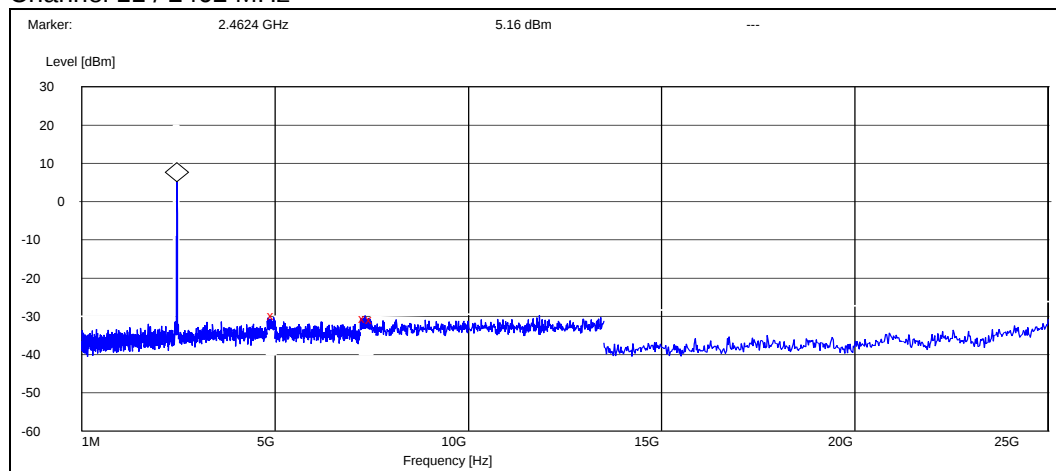
Channel 7 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4959.200000	-35.331702	Passed
7443.600000	-35.331702	Passed
7500.000000	-34.231702	Passed

Channel 11 / 2462 MHz

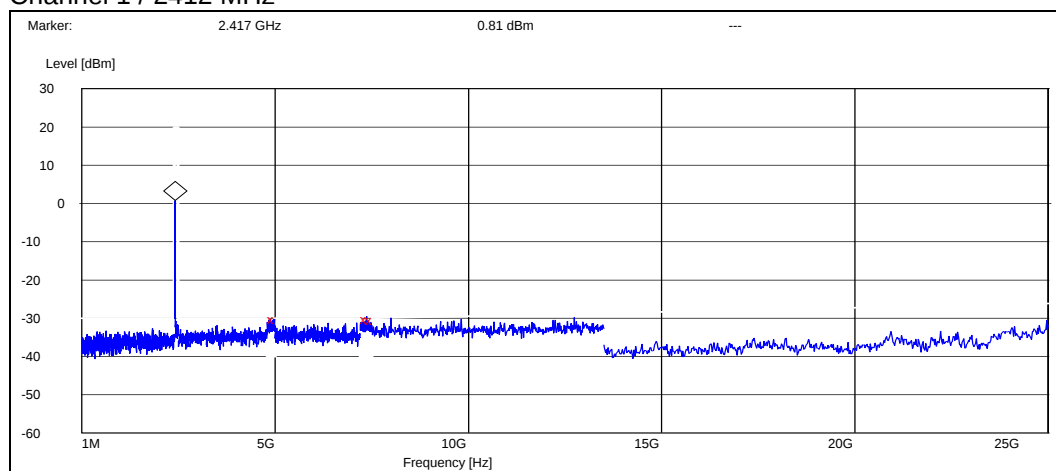


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4969.200000	-34.961629	Passed
7328.400000	-35.661629	Passed
7500.000000	-35.861629	Passed

5.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

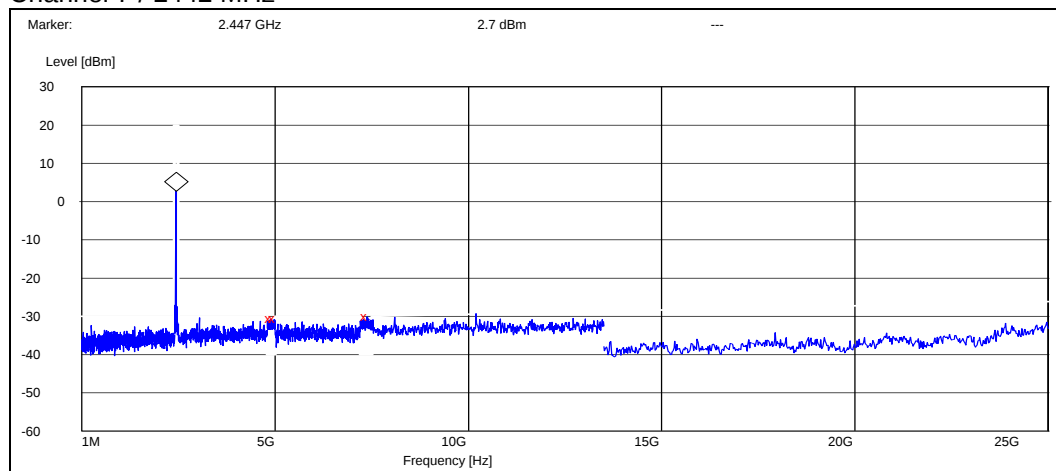
Channel 1 / 2412 MHz



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

Frequency [MHz]	P [dBc]	Result
4959.600000	-31.210120	Passed
7362.600000	-31.010120	Passed
7500.000000	-31.410120	Passed

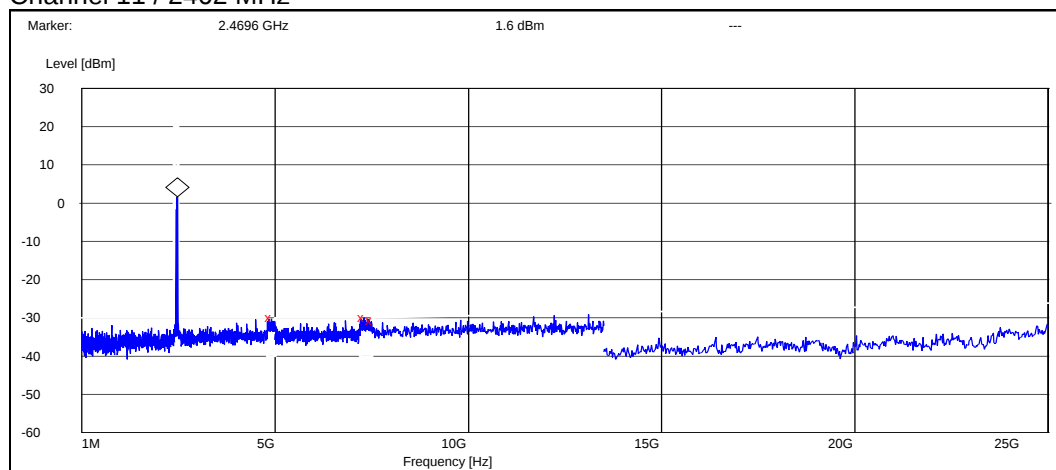
Channel 7 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4910.000000	-33.301195	Passed
5000.000000	-33.301195	Passed
7379.400000	-32.601195	Passed

Channel 11 / 2462 MHz



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

Frequency [MHz]	P [dBc]	Result
4904.400000	-31.502486	Passed
7294.200000	-31.502486	Passed
7500.000000	-32.402486	Passed

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

EUT with DUT number	RM-627, DUT 24402
Accessories with DUT numbers	BL-5F, DUT 24368 ; AC-6E, DUT 24384 ; WH-102, DUT 24377
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	Phone tested in slide open mode.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 42 / 100.1
Date of measurements	30-Mar-2010
Measured by	Christian Andersen

6.1. 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

6.2. WLAN Test results

6.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 1 / 2412 MHz

TX mode, channel 1 / 2412 MHz

Peak (RBW: 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	43.50	149.62	44.10	-0.6	HORIZONTAL	Passed
7236.000000	41.20	114.82	32.90	8.3	HORIZONTAL	Passed

Average (RBW: 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	30.50	33.50	31.10	-0.6	HORIZONTAL	Passed
7236.000000	28.90	27.86	20.60	8.3	VERTICAL	Passed

TX mode, channel 7 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
38.135872	30.30	32.73	46.80	-16.5	VERTICAL	Passed
73.627054	28.20	25.70	53.90	-25.7	HORIZONTAL	Passed
74.169940	27.00	22.39	52.60	-25.6	HORIZONTAL	Passed
112.625451	21.60	12.02	45.20	-23.6	HORIZONTAL	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
4883.769539	42.00	125.89	42.20	-0.2	HORIZONTAL	Passed
7329.155311	43.00	141.25	34.00	9.0	HORIZONTAL	Passed
7343.679359	42.50	133.35	32.80	9.7	HORIZONTAL	Passed
7437.873747	42.80	138.04	33.30	9.5	VERTICAL	Passed
17471.447896	52.90	441.57	29.30	23.6	VERTICAL	Passed
17990.477956	58.40	831.76	28.70	29.7	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4884.269539	29.10	28.51	29.30	-0.2	HORIZONTAL	Passed
7330.655311	30.10	31.99	21.10	9.0	HORIZONTAL	Passed
7343.179359	29.60	30.20	20.00	9.6	HORIZONTAL	Passed
7435.873747	29.70	30.55	20.20	9.5	VERTICAL	Passed
17474.447896	39.90	98.86	16.20	23.7	VERTICAL	Passed
17990.977956	45.40	186.21	15.70	29.7	HORIZONTAL	Passed

TX mode, channel 11 / 2462 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	42.00	125.89	42.00	0.0	HORIZONTAL	Passed
7386.000000	44.90	175.79	34.70	10.2	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	28.90	27.86	28.90	0.0	HORIZONTAL	Passed
7386.000000	31.50	37.58	21.30	10.2	VERTICAL	Passed

6.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

TX mode, channel 1 / 2412 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	41.10	113.50	41.70	-0.6	HORIZONTAL	Passed
7236.000000	41.70	121.62	33.40	8.3	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	28.00	25.12	28.60	-0.6	HORIZONTAL	Passed
7236.000000	28.50	26.61	20.20	8.3	VERTICAL	Passed

TX mode, channel 7 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
38.176353	22.80	13.80	39.30	-16.5	VERTICAL	Passed
73.367535	21.70	12.16	47.40	-25.7	HORIZONTAL	Passed
74.169940	21.40	11.75	47.00	-25.6	HORIZONTAL	Passed
116.551703	16.90	7.00	40.50	-23.6	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
4881.267535	41.40	117.49	41.60	-0.2	HORIZONTAL	Passed
4885.765531	41.40	117.49	41.60	-0.2	HORIZONTAL	Passed
7329.659319	44.90	175.79	35.90	9.0	HORIZONTAL	Passed
7331.671343	43.70	153.11	34.60	9.1	HORIZONTAL	Passed
17455.403808	52.80	436.52	29.30	23.5	HORIZONTAL	Passed
17940.877756	58.40	831.76	29.40	29.0	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4884.765531	28.20	25.70	28.40	-0.2	HORIZONTAL	Passed
4884.767535	28.20	25.70	28.40	-0.2	HORIZONTAL	Passed
7331.659319	30.90	35.08	21.80	9.1	HORIZONTAL	Passed
7332.171343	30.80	34.67	21.70	9.1	HORIZONTAL	Passed
17455.403808	39.80	97.72	16.30	23.5	HORIZONTAL	Passed
17935.377756	45.50	188.36	16.40	29.1	HORIZONTAL	Passed

TX mode, channel 11 / 2462 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	38.90	88.10	38.90	0.0	VERTICAL	Passed
7386.000000	45.10	179.89	34.90	10.2	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	25.50	18.84	25.50	0.0	VERTICAL	Passed
7386.000000	31.50	37.58	21.30	10.2	VERTICAL	Passed

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

EUT with DUT number	RM-627, 24392
Accessories with DUT numbers	BL-5F, 24371 ; AC-6E, 24387 ; WH-102, 24383
Result	None
Remarks	Passed
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 35 / 101
Date of measurements	25-Mar-2010
Measured by	Bo Moltved Christiansen

7.1. 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:

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

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

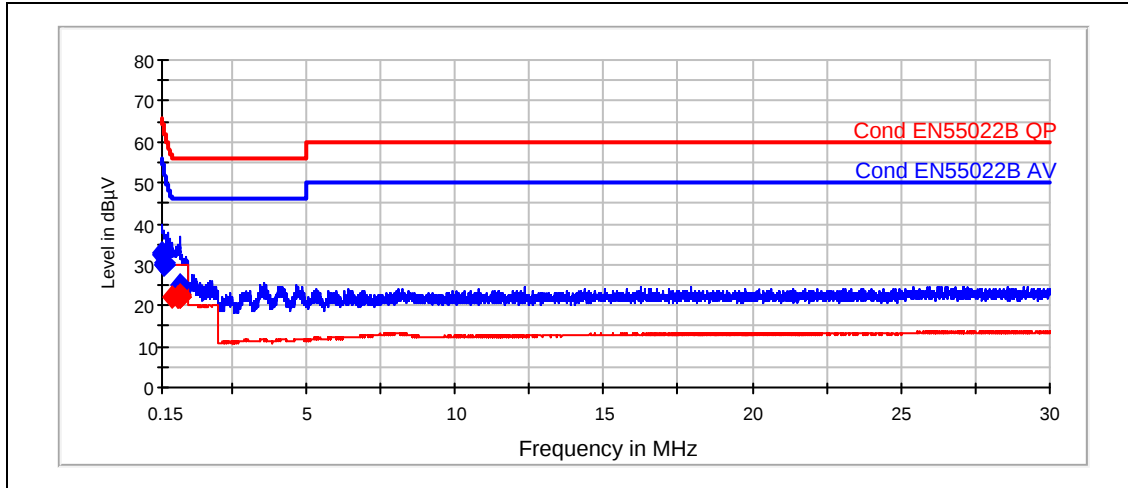
CISPR 22 Class B limits

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. WLAN Test results

7.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 7 / 2442 MHz



Quasi peak

Frequency[MHz]	Level [dBμV]	Meas. time[ms]	IF-BW[kHz]	Line	Margin	Result
0.155	32.98	20000	10	N	32.73	Passed
0.17	32.28	20000	10	L1	32.66	Passed
0.205	30.5	20000	10	N	32.91	Passed
0.225	30.11	20000	10	L1	32.53	Passed
0.235	29.86	20000	10	L1	32.37	Passed
0.76	24.96	20000	10	N	31	Passed

Average

Frequency[MHz]	Level [dBμV]	Meas. time[ms]	IF-BW[kHz]	Line	Margin	Result
0.5	22.21	20000	10	L1	23.8	Passed
0.705	22.2	20000	10	N	23.8	Passed
0.715	22.3	20000	10	L1	23.7	Passed
0.73	22.37	20000	10	L1	23.6	Passed
0.745	22.29	20000	10	N	23.7	Passed
0.755	22.21	20000	10	L1	23.8	Passed

8. 6 dB bandwidth (FCC §15.247(a)(2), RSS-210 A8.2 (a))

EUT with DUT number	RM-627 DUT 24403
Accessories with DUT numbers	BL-5F DUT 24371, AC-6E DUT24387, WH-102 DUT 24383
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	25 / 43 / 101.3
Date of measurements	19-Mar-2010
Measured by	Ruben Hansen

8.1. 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

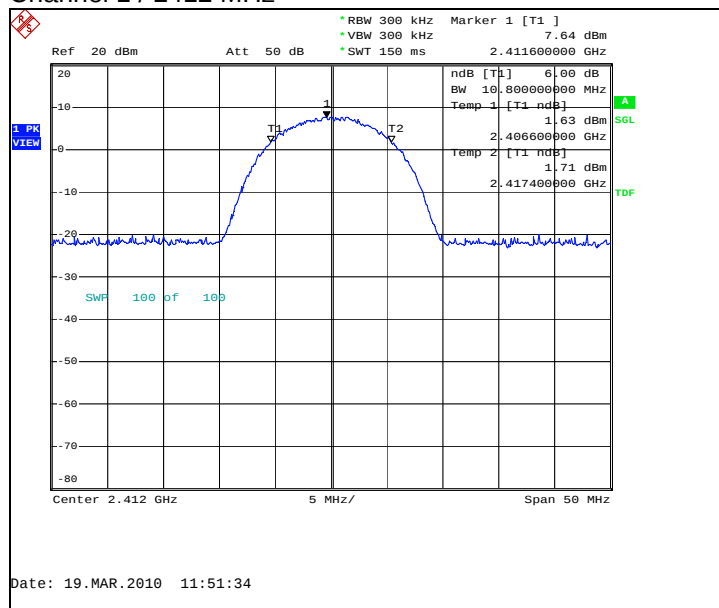
Limit [kHz]
≥ 500

8.2. WLAN test results

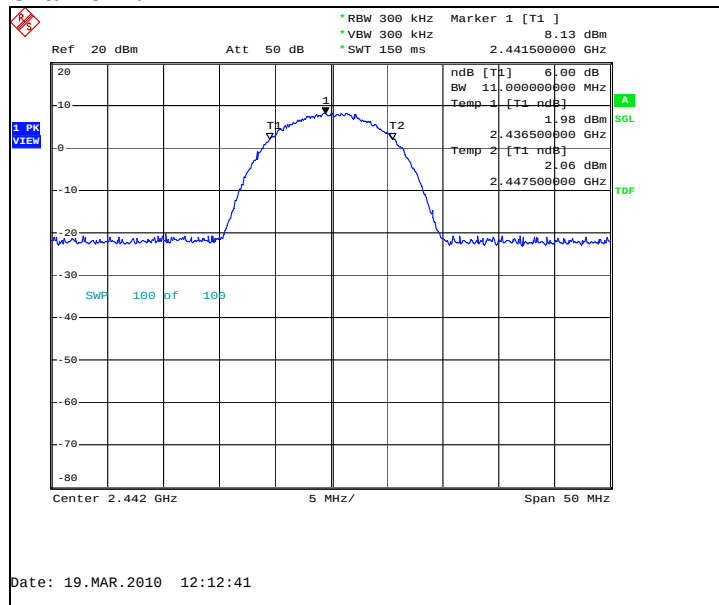
8.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	6 dB bandwidth [kHz]	Result
1	10800.000	Passed
7	11000.000	Passed
11	10800.000	Passed

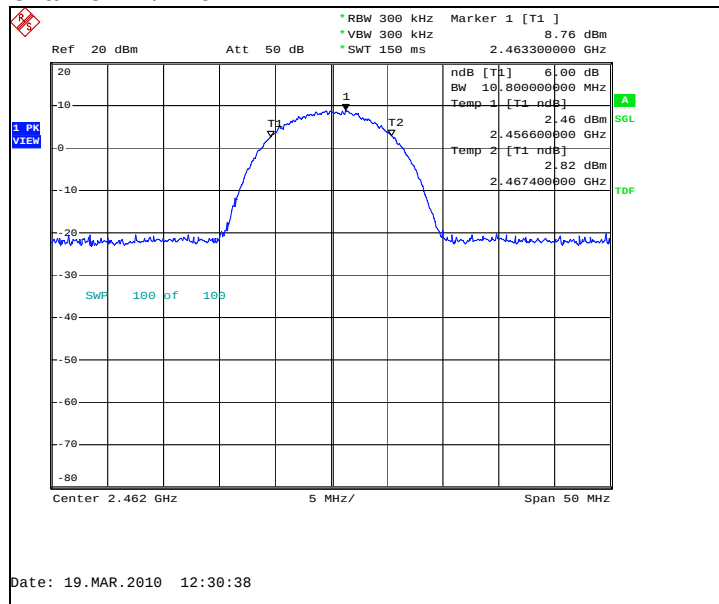
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



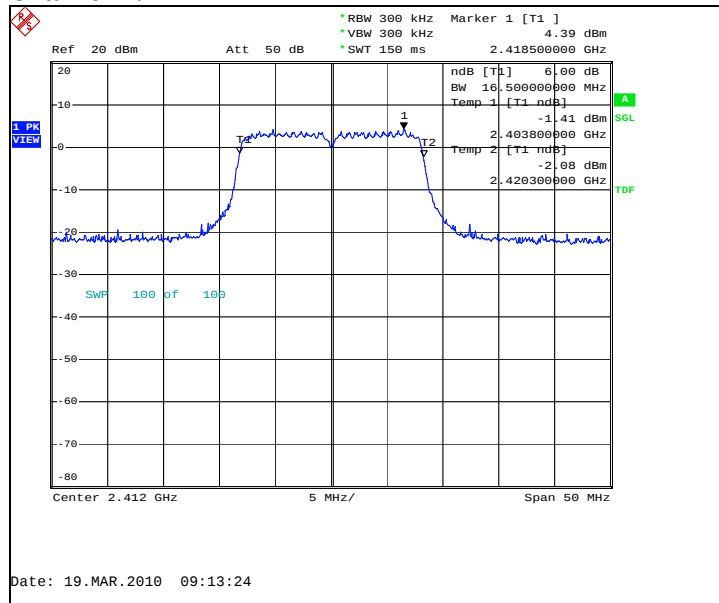
Channel 11 / 2462 MHz



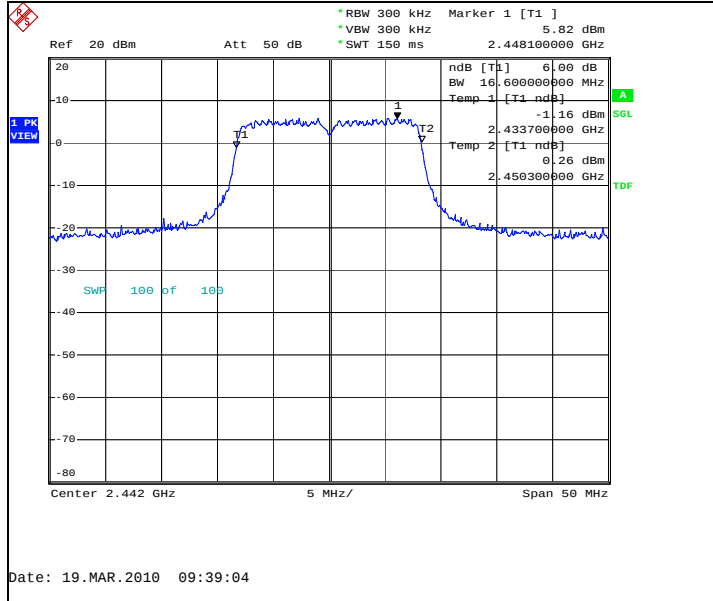
8.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	6 dB bandwidth [kHz]	Result
1	16500.000	Passed
7	16600.000	Passed
11	16600.000	Passed

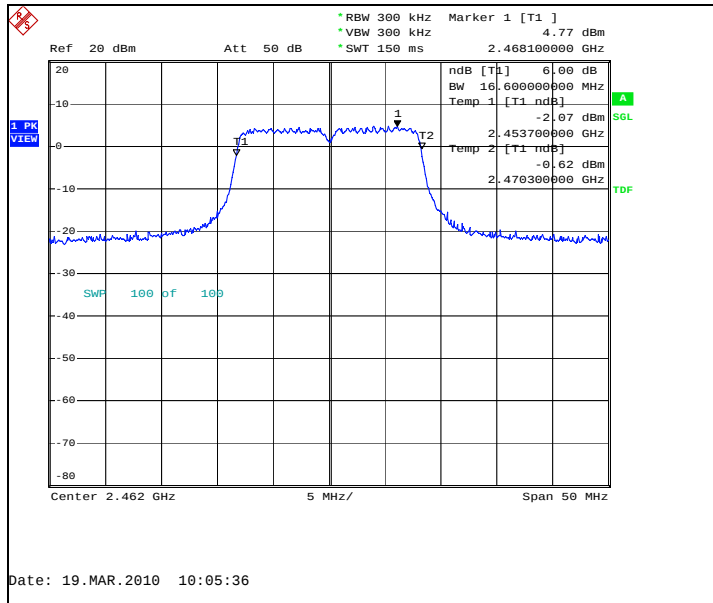
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



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

EUT with DUT number	RM-627 DUT 24403
Accessories with DUT numbers	BL-5F DUT 24371, AC-6E DUT24387, WH-102 DUT 24383
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	25 / 43 / 101.3
Date of measurements	19-Mar-2010
Measured by	Ruben Hansen

9.1. 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

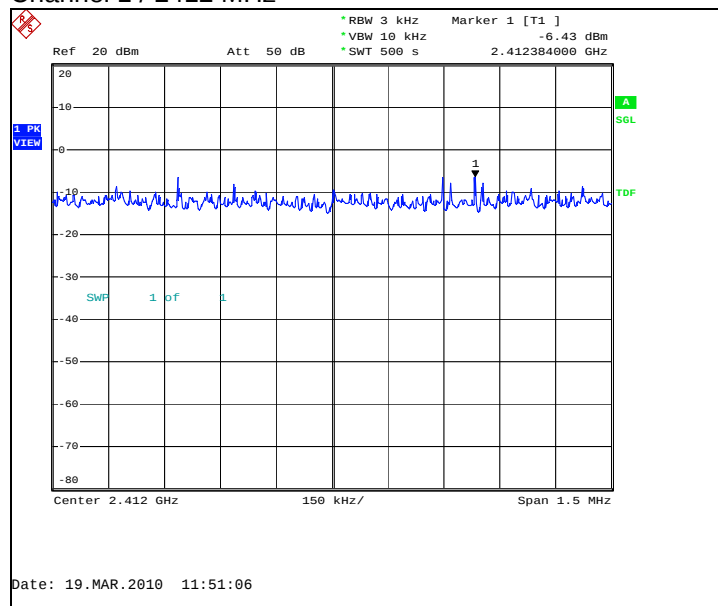
Limit [dBm] @ 3 kHz
≤ 8

9.2. WLAN test results

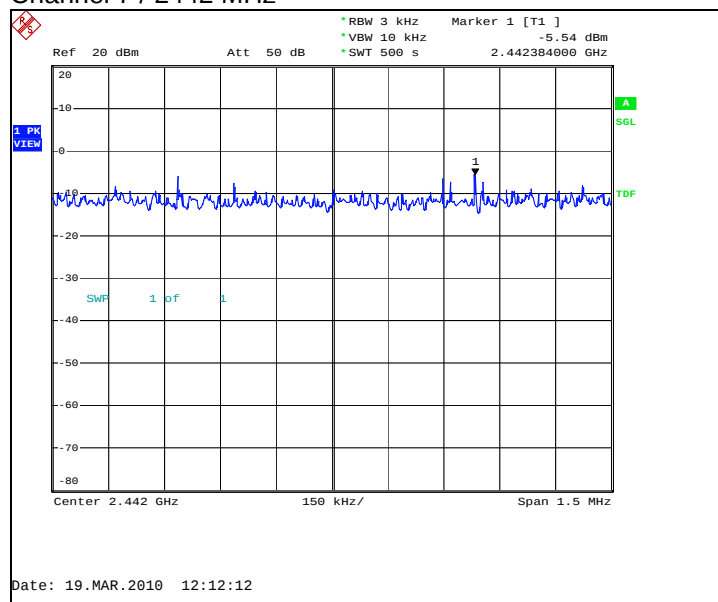
9.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Frequency	Level	Transd	Spectr Density
2412.000000	-6.43	17.0	Passed

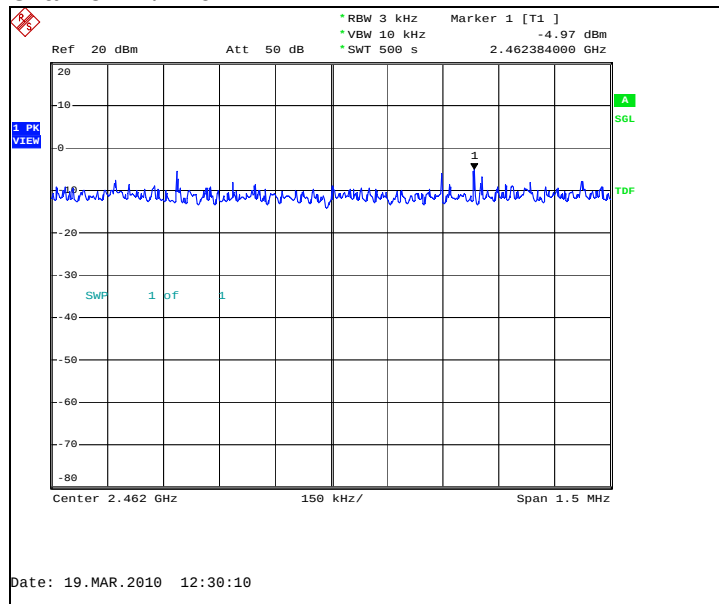
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



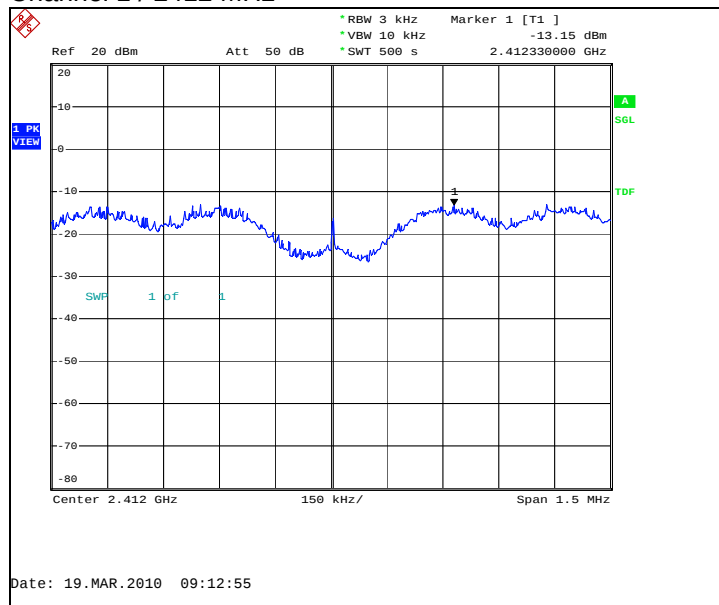
Channel 11 / 2462 MHz



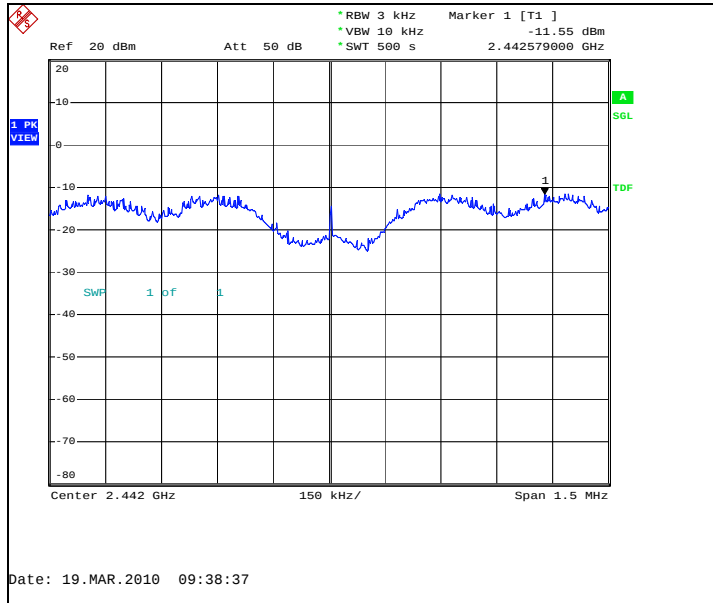
9.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Frequency	Level	Transd	Spectr Density
2412.000000	-13.15	17.0	Passed

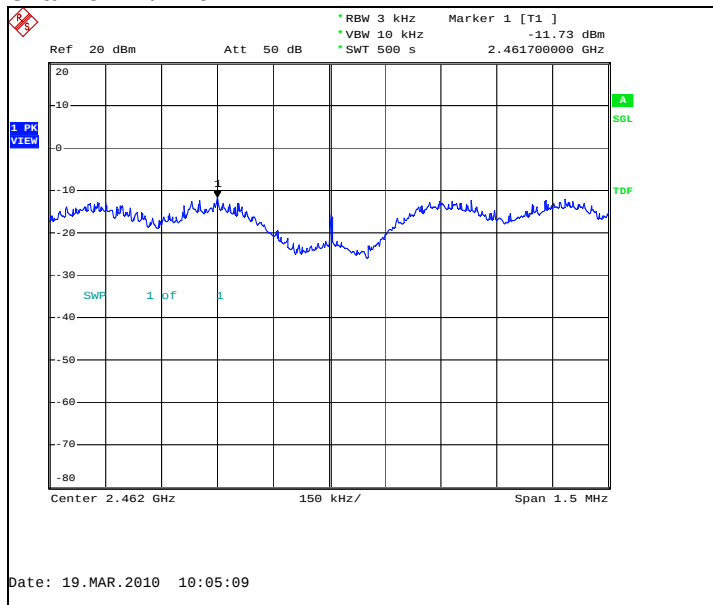
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



10. Test Equipment

10.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
13037	Power Supply 0-15V 10A	EA3012	LP Instruments	15C, 15B
13513	Pulse Limiter 9KHz-30MHz	ESH3Z2	Rohde&Schwarz	15C, 15B
13666	EMI Test Reciever 9KHz-2,5GHz	ESPC	Rohde&Schwarz	15C, 15B
13935	Two Lines Artificial Mains Network	ESH3-Z5	Rohde&Schwarz	15C, 15B
16995	Directional Coupler 20dB 0,5-2,0 GHz SMA Conn.	1538RA-20	Weinschel	15C, 15B
18772	Shielded Chamber	RFD-100	ETS-Lindgren	15C, 15B
19171	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	15C, 15B
11386	System DC Power Supply	HP6632A	Hewlett Packard	22/24/27, 15C, 15B
19678	Spectrum Analyzer 26 GHz	FSP	Rohde&Schwarz	22/24/27, 15C, 15B
16601	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
19625	Vötsch Climatic Chamber	VT4002EMC	Vötsch	22/24/27, 15C, 15B
13357	Rohde & Schwartz Signal Generator	SMP02	Rohde&Schwarz	22/24/27, 15C, 15B
20168	Bluetooth EDR Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B

10.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
18416	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
	Programmable Relay Switching System	-----	Pickering	22/24/27, 15C, 15B
15742	Programmable Relay Switching System	-----	Pickering	22/24/27, 15C, 15B
14020	Power Supply Module Relay Switching System 45W	10-910-002	Pickering	22/24/27, 15C, 15B
15743	Power Supply Module Relay Switching System 50W	10-910L-001	Pickering	22/24/27, 15C, 15B
16490	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24/27, 15C, 15B
	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24/27, 15C, 15B
20078	Relay 2x6 Chnl μ Wave Mux	10-785B-522	Pickering	22/24/27, 15C, 15B
14021	Relay Dual 6 Chnl μ Wave Mux	10-785-522		22/24/27, 15C, 15B
	Relay Dual 6 Chnl μ Wave Mux	10-785-522		22/24/27, 15C, 15B
17644	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16948	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16949	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
18792	Multi Device Controller	2090	ETS-EMCO	22/24/27, 15C, 15B
14963	RF Preamplifier 100MHz-4GHz (Metal Chassis)	AFS3-00100400	Miteq/NMP Cph	22/24/27, 15C, 15B
18861	EMI Test Receiver 20Hz-26,5GHz	ESI	Rohde&Schwarz	22/24/27, 15C, 15B
20335	Ultra Broadband Antenna Ultralog 30-3000MHz	HL562	Rohde&Schwarz	22/24/27, 15C, 15B
18773	Shielded Chamber	RFD-100	ETS-Lindgren	22/24/27, 15C, 15B
18774	Shielded Chamber	RFSD-F/A-100	ETS-Lindgren	22/24/27, 15C, 15B
19151	High Pass Filter 3GHz	WHJS3000-10SS	Wainwright	22/24/27, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
	WHK3.0/18G-10ss			
13937	Ultra Stable Notch Filter 850MHz	WRCA902.4-0.2/40-6SS	Wainwright Instruments	22/24/27, 15C, 15B
13936	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright Instruments	22/24/27, 15C, 15B
14114	Highpass filter	WHK1000-12SS	Wainwright Instruments	22/24/27, 15C, 15B
14188	Ultra Stable Notch Filter 902,4MHz	WRCA902.4-0.2/40-6SS	Wainwright	22/24/27, 15C, 15B
14187	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright	22/24/27, 15C, 15B
16633	Ultra Stable Notch Filter 1880,0MHz	WRCD1880.0-0.2/40-10SS	Wainwright	22/24/27, 15C, 15B
19587	BT/WLAN Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	22/24/27, 15C, 15B
20115	WDCMA Band 2 filter		Wainwright	24, 15C, 15B
20114	WDCMA Band 4 filter	WRCG1737/1743-1733/1747-40/6SS	Wainwright	27, 15C, 15B
20116	WDCMA Band 5&6 filter	WRCG832/83/-825/845-40/5SS	Wainwright	22, 15C, 15B
18323	Band reject filter 1947-1953MHz 40dB	WRCG1947/1953-1940/1960-40/6SS	Wainwright	22/24/27, 15C, 15B
20031	Double Ridged Broadband Horn	BBHA 9120 D	SCHWARZBECK	22/24/27, 15C, 15B
19966	Magnetic Loop Antenna 9 kHz - 30 MHz	HFH2-Z2	Rohde&Schwarz	15C, 15B
14993	EMI Test Receiver 9KHz-2750MHz	ESCS30	Rohde&Schwarz	22/24/27, 15C, 15B
15191	Turntable Contoller Unit	G-800SDX	YAESU	22/24/27, 15C, 15B
14900	Antenna Controller	HD100	HD GmbH	22/24/27, 15C, 15B
19374	Resonant Dipole Antenna 850MHz SMA m Conn.	-----	NMP Cph	22/24/27, 15C, 15B
19375	Resonant Dipole Antenna 1900MHz SMA m Conn.	-----	NMP Cph	22/24/27, 15C, 15B
20168	Bluetooth EDR Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B