

FCC Part 15C Compliance Test Report

Test Report no.:	FCC15C_RM-481_11.doc	Date of Report:	26-Aug-2010
Number of pages:	54	Customer's Contact person:	Lasse Vaattovaara
Testing laboratory:	TCC Nokia Salo Laboratory P.O.Box(86) Joensuunkatu 7H / Kiila 1B FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 45220	Customer:	Nokia Corporation P.O.Box(86) Joensuunkatu 7H / Kiila 1B FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 45220
FCC listing no.:	533467		
IC recognition no.:	661V-1		
Tested devices/ accessories:	Phone RM-481 / Battery BP-4L / Headset HS-48 / AC-Charger AC-10E		
FCC ID:	PYARM-481X	IC:	661V-RM481
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-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:			

Teuvo Miettinen, Test Engineer, EMC

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	23-Mar-2010
Testing completed	11-Apr-2010
The customer's contact person	Lasse Vaattovaara
Test Plan referred to	T:\Projects\RM-481\TestPlan_RS\ RS_testplan_RM-481_CR_HW8010.xls
Notes	Copy all BT and WLAN results from the reports resulting from testing of RM-469 HW8010, see: RS_testplan_RM-469_CR_HW8010.xls
Document name	T:\Projects\RM-481\EMC\FCC15C_RM-481_11.doc

1.1. EUT and Accessory Information

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

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-469	359327031410537	8010	-	022.009	14675
Battery	BP-4L	39321392244609077680670519				14561
Headset	HS-48	06945819143A1R02434	CE	-	-	14677
AC-Charger	AC-10E	399791844611050458060675408	CE	-	-	14676

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(0.4(2))	Conducted peak output power	PASSED
15.247(d)	A8(0.5)	Band edge compliance of RF emissions	PASSED
15.247(d)	A8(0.5)	Spurious RF conducted emissions	PASSED
15.247(d), 15.209	A8(0.5)	Spurious radiated emissions	PASSED
15.207	7.2.2	AC powerline conducted emissions	NP
15.247(a)(1)	A8(0.1(1))	20dB(bandwidth)	NP
15.247(a)(1)	A8(0.1(2))	Carrier frequency separation	NP
15.247(a)(1)(iii)	A8(0.1(4))	Number of hopping frequencies	NP
15.247(a)(1)(iii)	A8(0.1(4))	Time of occupancy	NP

WLAN:

Section in CFR 47	Section in RSS-GEN or RSS-210	Name of the test	Result
15.247(b)(1)	A8(0.4(4))	Conducted peak output power	PASSED
15.247(d)	A8(0.5)	Band edge compliance of RF emissions	PASSED
15.247(d)	A8(0.5)	Spurious RF conducted emissions	PASSED
15.247(d), 15.209	A8(0.5)	Spurious radiated emissions	PASSED
15.207	7.2.2	AC powerline conducted emissions	PASSED
15.247(a)(2)	A8(0.1(1))	6dB(bandwidth)	PASSED
15.247(a)(1)(iii)	A8(0.1(4))	Power spectral density	PASSED

The test results of PYARM-469 are re-used for certification of the PYARM-481. The table above indicates the results, which will be re-used

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 Laboratory.

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

EUT with DUT number	RM-469, DUT 14675
Accessories with DUT numbers	BP-4L, DUT 14561 ; HS-48, DUT 14677 ; AC-10E, DUT 14676
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 100.2
Date of measurements	10-Apr-2010
Measured by	Sami Lehtonen

2.1. 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

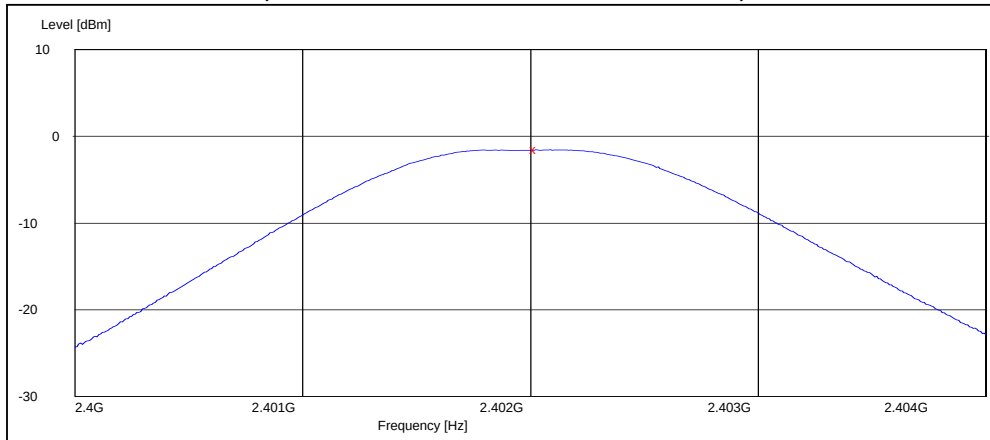
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

2.2. Bluetooth Test results

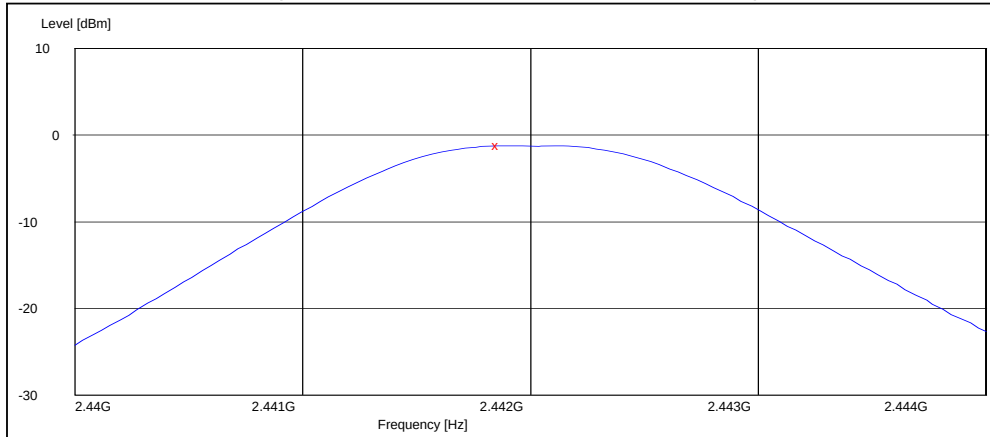
2.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-1.50	0.708	PASSED
40 / 2442	-1.20	0.759	PASSED
78 / 2480	-1.40	0.724	PASSED

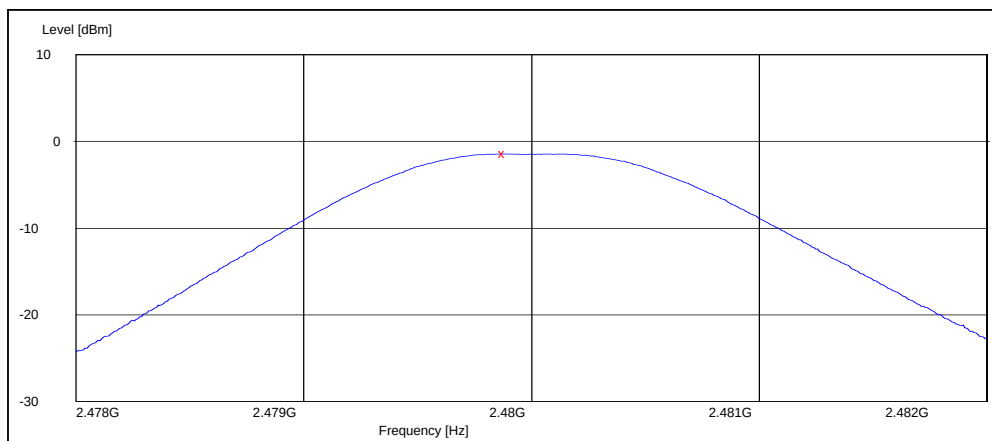
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



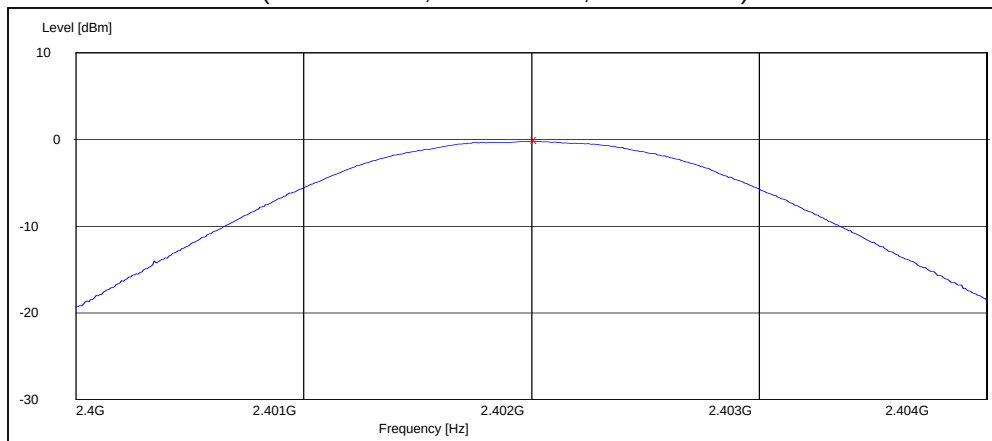
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



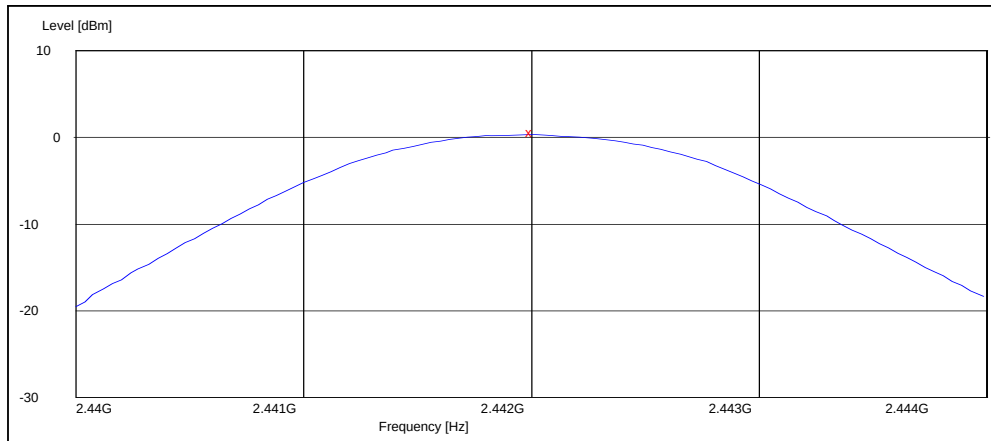
2.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	0.00	1.000	PASSED
40 / 2442	0.60	1.148	PASSED
78 / 2480	0.40	1.096	PASSED

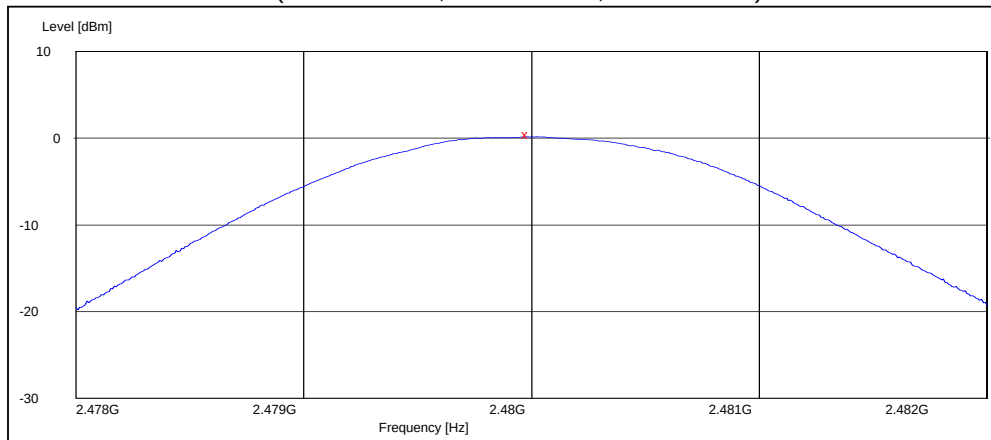
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



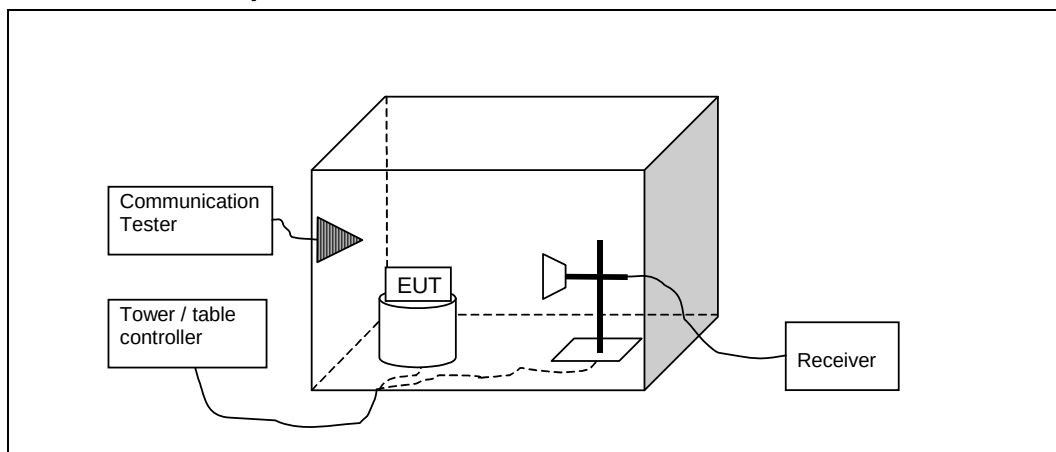
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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

EUT with DUT number	RM-469, DUT 14675
Accessories with DUT numbers	BP-4L, DUT 14561 ; HS-48, DUT 14677 ; AC-10E, DUT 14676
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 100.2
Date of measurements	06-Apr-2010
Measured by	Sami Lehtonen

3.1. Test Setup



3.2. Test method and limit

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

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 ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

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

3.3. Bluetooth Test results

3.3.1 GFSK modulation, PRBS packet type

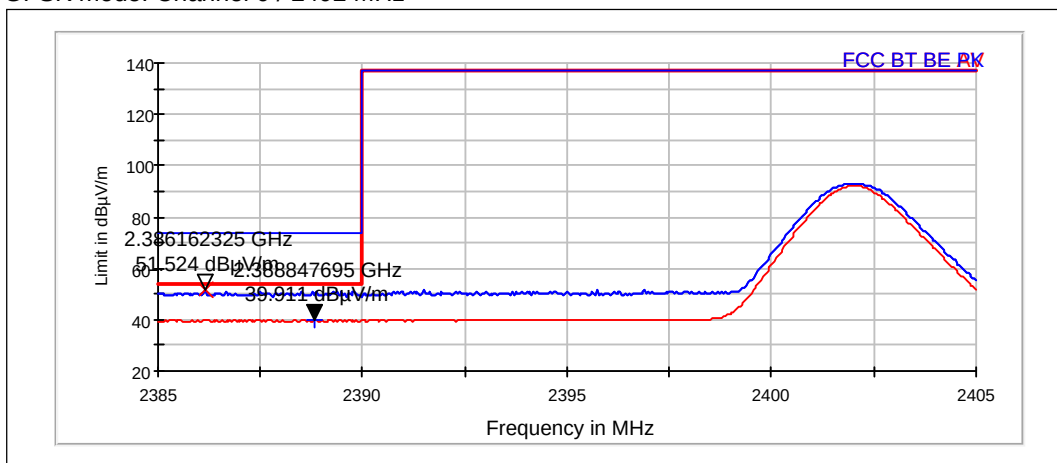
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Result
0 / 2402	39.91	98.976	45.46	-5.55	PASSED
Hopping on, low end	41.08	113.272	46.63	-5.55	PASSED
78 / 2480	43.11	143.13	48.17	-5.06	PASSED
Hopping on, high end	43.6	151.283	48.66	-5.06	PASSED

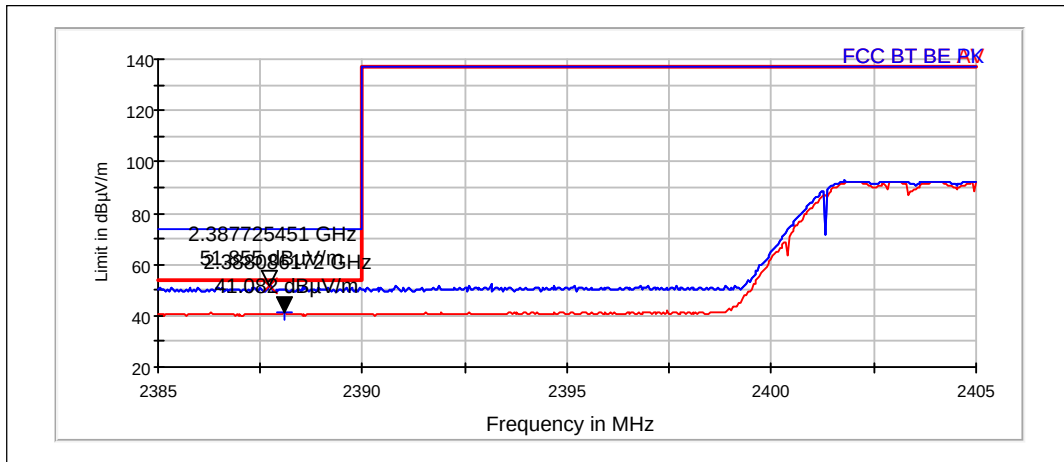
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Result
0 / 2402	51.52	376.888	57.07	-5.55	PASSED
Hopping on, low end	51.85	391.514	57.4	-5.55	PASSED
78 / 2480	52.91	442.183	57.97	-5.06	PASSED
Hopping on, high end	52.13	404.19	57.19	-5.06	PASSED

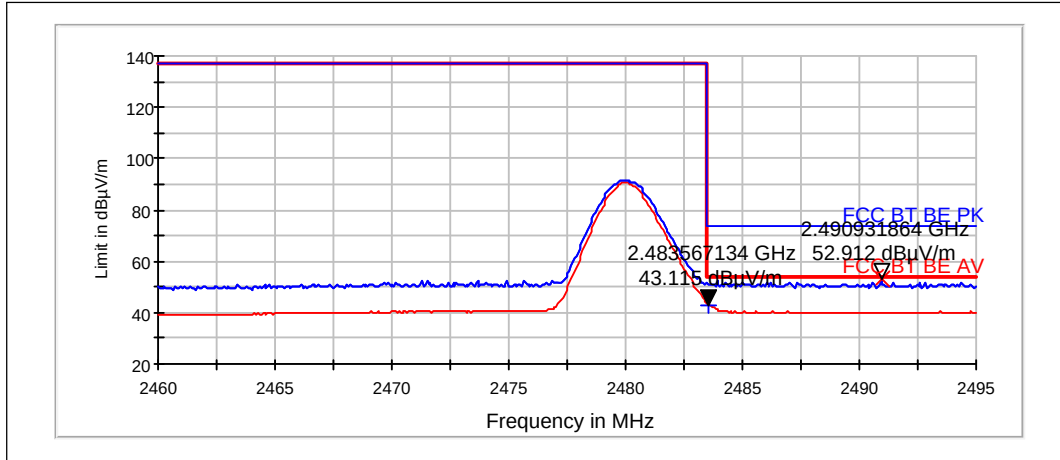
GFSK mode. Channel 0 / 2402 MHz



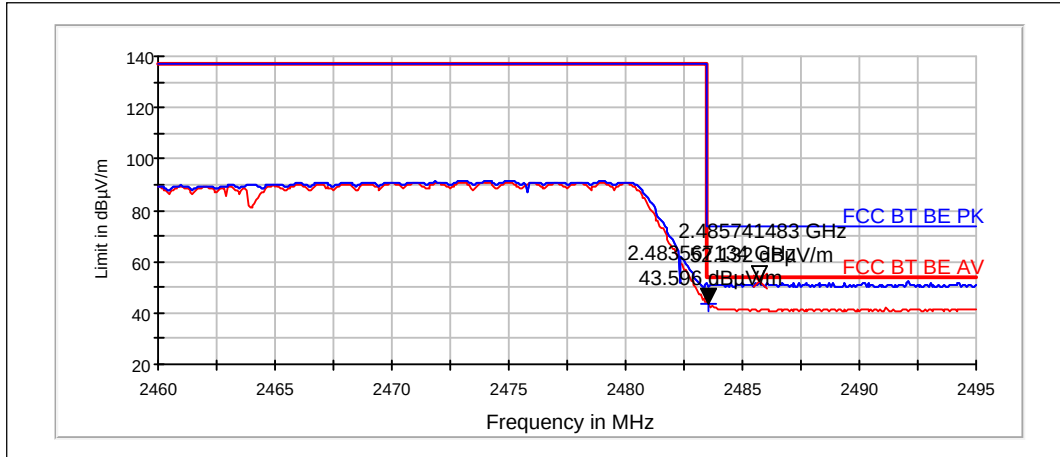
GFSK mode. Hopping on, low end



GFSK mode. Channel 78 / 2480 MHz



GFSK mode. Hopping on, high end



3.3.2 8DPSK modulation, PRBS packet type

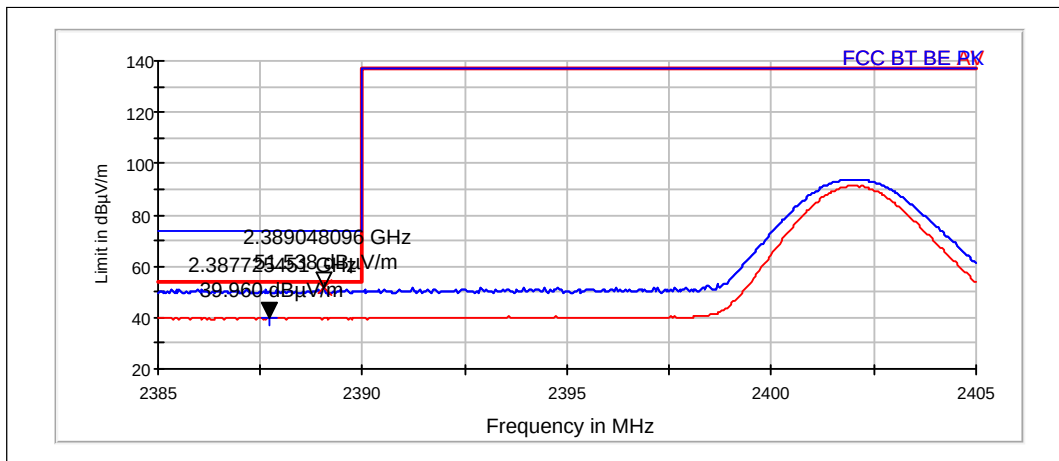
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Result
0 / 2402	39.96	99.536	45.51	-5.55	PASSED
Hopping on, low end	41.01	112.331	46.56	-5.55	PASSED
78 / 2480	44.34	164.871	49.4	-5.06	PASSED
Hopping on, high end	44.39	165.777	49.45	-5.06	PASSED

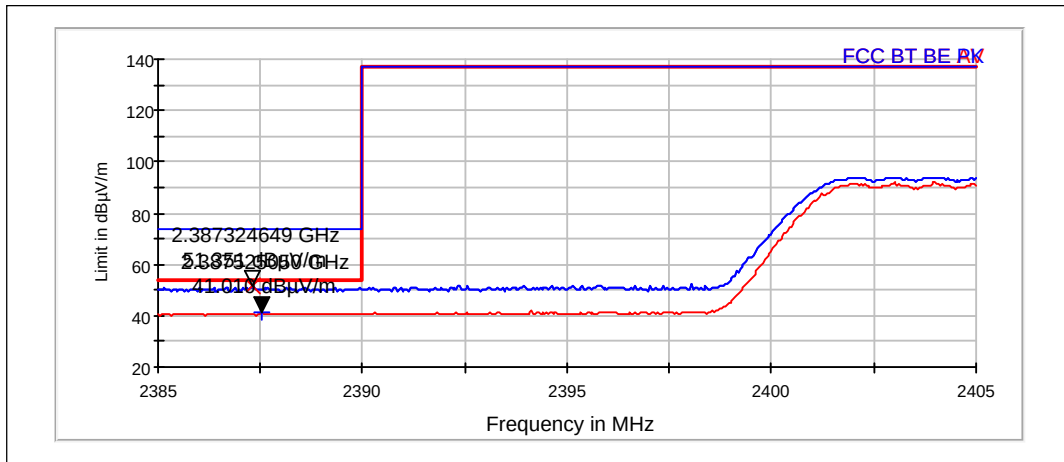
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Result
0 / 2402	51.54	377.502	57.09	-5.55	PASSED
Hopping on, low end	51.35	369.449	56.9	-5.55	PASSED
78 / 2480	51.91	394.035	56.97	-5.06	PASSED
Hopping on, high end	52.15	405.137	57.21	-5.06	PASSED

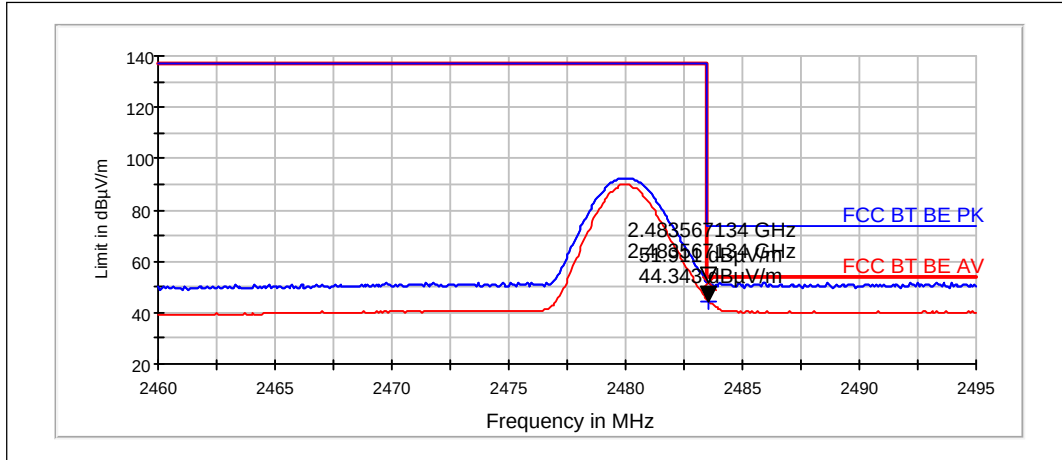
8DPSK mode. Channel 0 / 2402 MHz



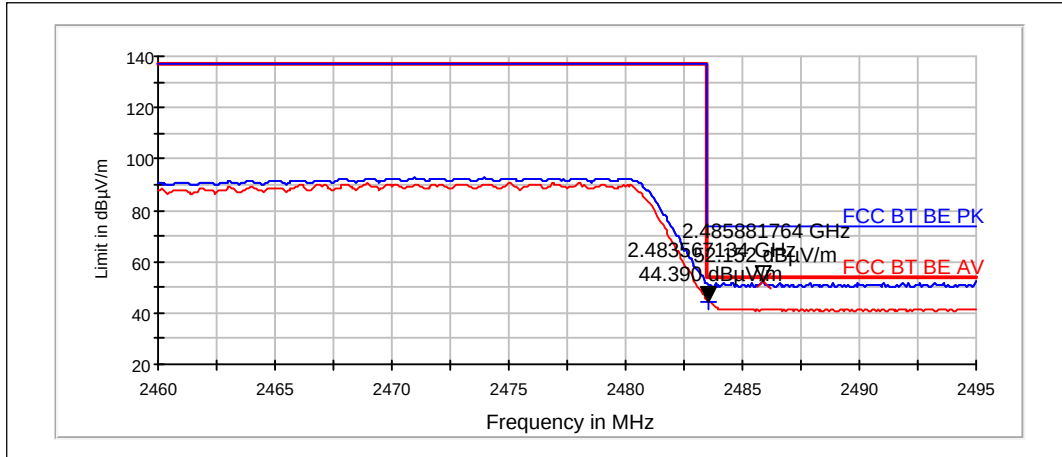
8DPSK mode. Hopping on, low end



8DPSK mode. Channel 78 / 2480 MHz



8DPSK mode. Hopping on, high end



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

EUT with DUT number	RM-469, DUT 14675
Accessories with DUT numbers	BP-4L, DUT 14561 ; HS-48, DUT 14677 ; AC-10E, DUT 14676
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 100.2
Date of measurements	10-Apr-2010
Measured by	Sami Lehtonen

4.1. Test method and limit

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

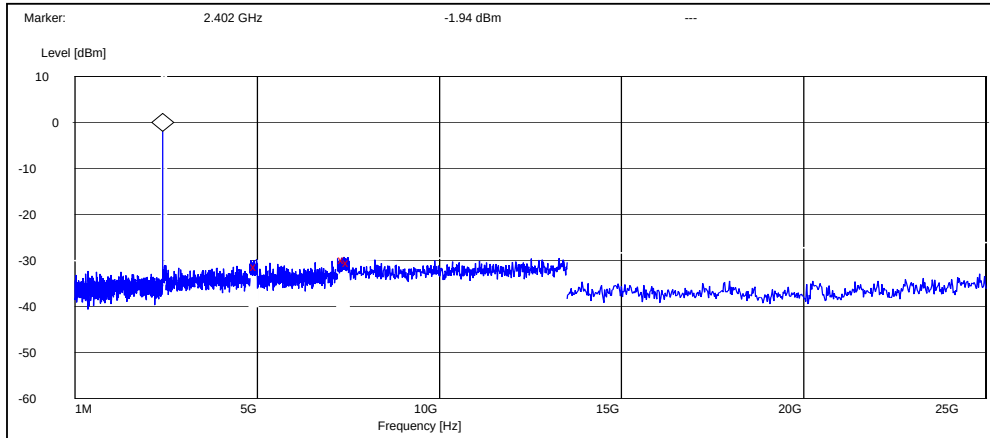
Limits for spurious RF conducted emissions measurements

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

4.2. Bluetooth Test results

4.2.1 GFSK modulation, PRBS packet type

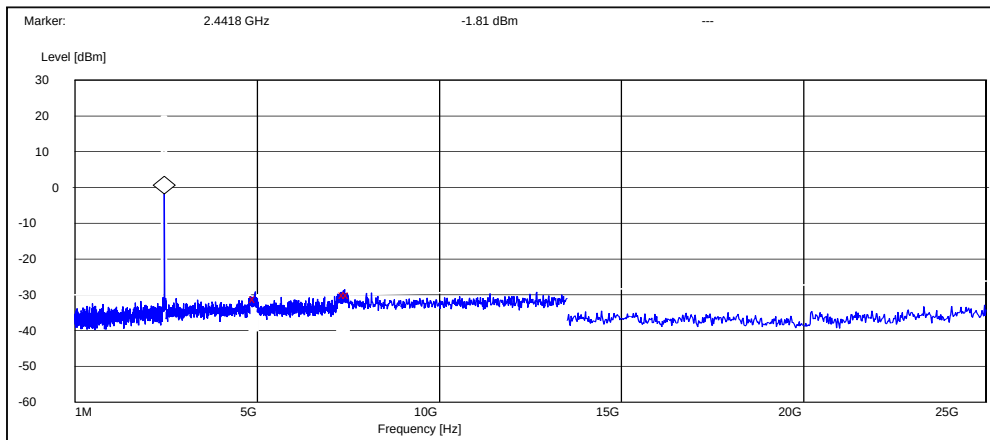
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4976.400000	-29.460663	PASSED
7377.000000	-27.960663	PASSED
7500.000000	-28.460663	PASSED

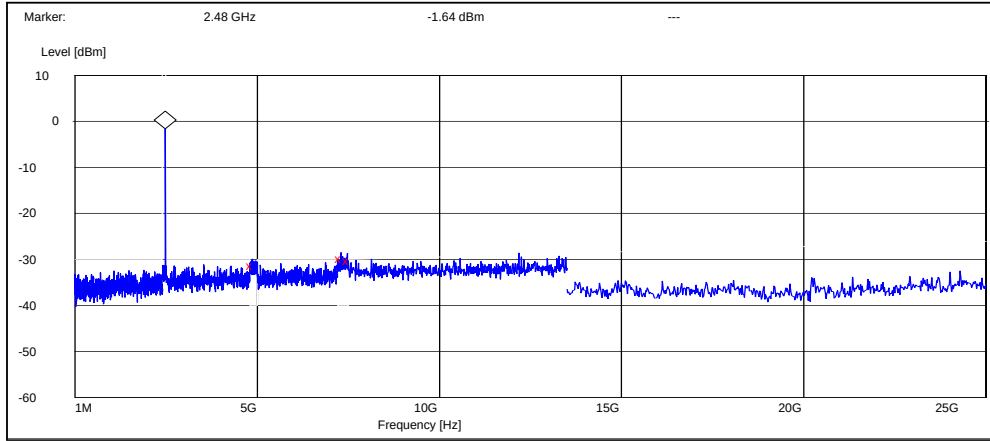
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4947.200000	-29.394748	PASSED
7398.600000	-28.194748	PASSED
7500.000000	-28.094748	PASSED

Channel 78 / 2480 MHz

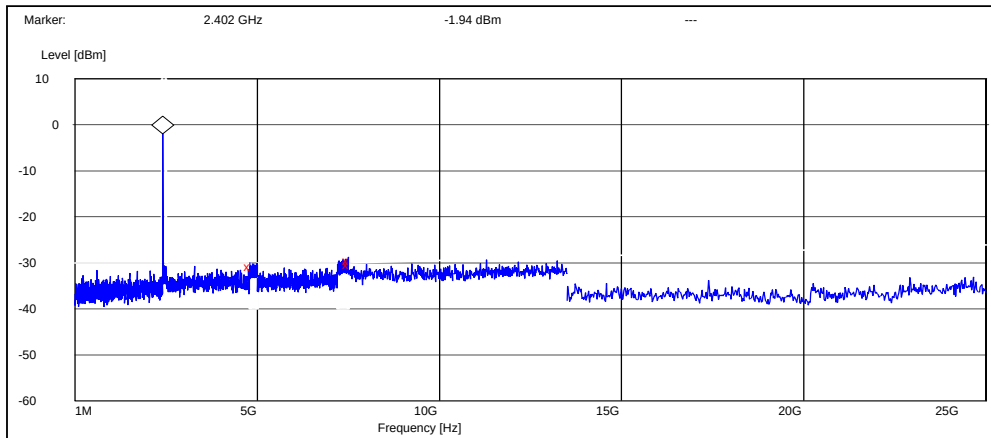


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4872.400000	-29.755237	PASSED
7303.800000	-28.255237	PASSED
7500.000000	-28.555237	PASSED

4.2.2 8DPSK modulation, PRBS packet type

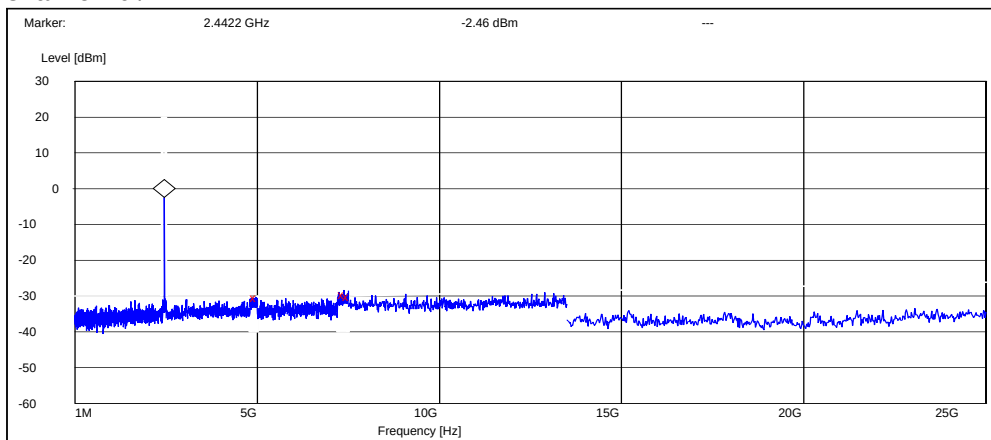
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4801.200000	-28.856451	PASSED
7498.200000	-28.456451	PASSED
7500.000000	-27.656451	PASSED

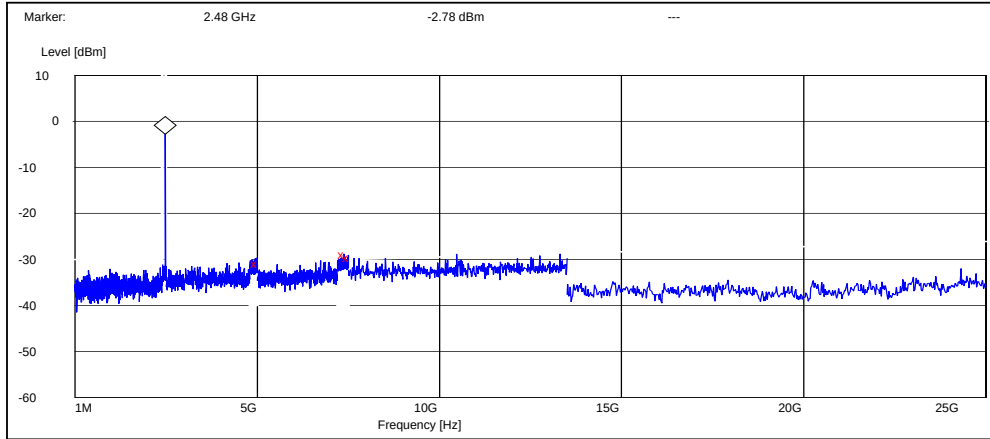
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4963.600000	-28.135631	PASSED
7383.000000	-27.235631	PASSED
7500.000000	-27.835631	PASSED

Channel 78 / 2480 MHz



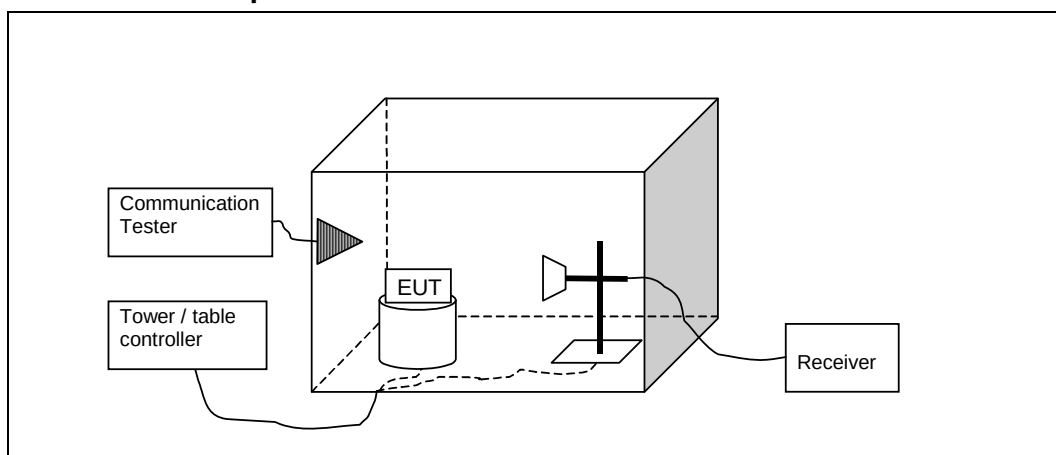
Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4990.800000	-28.219998	PASSED
7378.200000	-26.219998	PASSED
7500.000000	-26.919998	PASSED

5. Spurious radiated emissions (FCC §22.917(a), §24.238(a), §2.1053, RSS-132 4.5, RSS-133 6.5)

EUT with DUT number	RM-469, DUT 14675
Accessories with DUT numbers	BP-4L, DUT 14561 ; HS-48, DUT 14677 ; AC-10E, DUT 14676
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 100.2
Date of measurements	06-Apr-2010
Measured by	Sami Lehtonen

5.1. Test Setup



5.2. 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 ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

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

Frequency range [MHz]	Limit [$\mu V/m$]	Limit [dB $\mu V/m$]	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

5.3. Bluetooth Test results

5.3.1 GFSK modulation, PRBS packet type

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
12198.901	42.47	132.831	30.53	11.94	VERTICAL	PASSED
12476.05	43.49	149.469	30.96	12.53	VERTICAL	PASSED
17925.248	49.17	287.376	28.94	20.23	VERTICAL	PASSED

Quasi peak (RBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
30.66	28.48	26.549	37.02	-8.54	VERTICAL	PASSED
30.684	28.47	26.503	37.03	-8.56	VERTICAL	PASSED
30.81	28.43	26.388	37.07	-8.64	VERTICAL	PASSED
30.9	28.61	26.953	37.3	-8.69	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
12198.901	55.37	586.746	43.43	11.94	VERTICAL	PASSED
12476.05	56.74	686.752	44.21	12.53	VERTICAL	PASSED
17925.248	62.27	1299.122	42.04	20.23	VERTICAL	PASSED

Channel 78 / 2480 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960	31.95	39.573	31.66	0.29	HORIZONTAL	PASSED
7442	36.05	63.453	31.56	4.49	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960	45.94	198.13	45.65	0.29	HORIZONTAL	PASSED
7442	49.36	293.63	44.87	4.49	VERTICAL	PASSED

Channel 0 / 2402 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804	32.15	40.495	30.92	1.23	HORIZONTAL	PASSED
7206.9	35.14	57.174	31.91	3.23	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804	46.88	220.902	45.65	1.23	HORIZONTAL	PASSED
7206.9	48.35	261.547	45.12	3.23	HORIZONTAL	PASSED

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
12394.09	43.4	147.877	31.03	12.37	VERTICAL	PASSED
12470.438	43.46	148.868	31.08	12.38	HORIZONTAL	PASSED
17922.746	49.12	285.595	28.9	20.22	VERTICAL	PASSED

Quasi peak (RBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
31.56	24.9	17.583	34	-9.1	VERTICAL	PASSED
32.063	25.15	18.086	34.57	-9.42	VERTICAL	PASSED
32.385	26.13	20.26	35.75	-9.62	VERTICAL	PASSED
32.484	25.76	19.407	35.44	-9.68	VERTICAL	PASSED
32.485	26.26	20.552	35.94	-9.68	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
12394.09	56.05	634.892	43.68	12.37	VERTICAL	PASSED
12470.438	55.8	616.879	43.42	12.38	HORIZONTAL	PASSED
17922.746	62.38	1315.073	42.16	20.22	VERTICAL	PASSED

5.3.2 8DPSK modulation, PRBS packet type

Channel 78 / 2480 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4958.9	31.9	39.346	31.62	0.28	HORIZONTAL	PASSED
7439.4	36.06	63.54	31.57	4.49	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4958.9	45.4	186.294	45.12	0.28	HORIZONTAL	PASSED
7439.4	49.09	284.675	44.6	4.49	HORIZONTAL	PASSED

Channel 0 / 2402 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4803.4	32.2	40.752	30.98	1.22	HORIZONTAL	PASSED

7205.9	35.22	57.657	32	3.22	VERTICAL	PASSED
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Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4803.4	48.76	274.284	47.54	1.22	HORIZONTAL	PASSED
7205.9	48.74	273.653	45.52	3.22	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
12157.415	43.03	141.808	30.38	12.65	VERTICAL	PASSED
12373.747	43.09	142.758	30.81	12.28	VERTICAL	PASSED
17926.454	49.14	286.319	28.95	20.19	HORIZONTAL	PASSED

Quasi peak (RBW: 100 kHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
31.704	25.69	19.253	34.88	-9.19	VERTICAL	PASSED
31.706	29.81	30.924	39.01	-9.2	VERTICAL	PASSED
31.88	23.43	14.842	32.73	-9.3	VERTICAL	PASSED
32.084	26.51	21.152	35.94	-9.43	VERTICAL	PASSED
32.103	26.36	20.787	35.8	-9.44	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
12157.415	55.95	626.975	43.3	12.65	VERTICAL	PASSED
12373.747	56.49	667.268	44.21	12.28	VERTICAL	PASSED
17926.454	62.11	1274.677	41.92	20.19	HORIZONTAL	PASSED

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

EUT with DUT number	RM-469, DUT 14675
Accessories with DUT numbers	BP-4L, DUT 14561 ; HS-48, DUT 14677 ; AC-10E, DUT 14676
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 100.2
Date of measurements	10-Apr-2010
Measured by	Sami Lehtonen

6.1. 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

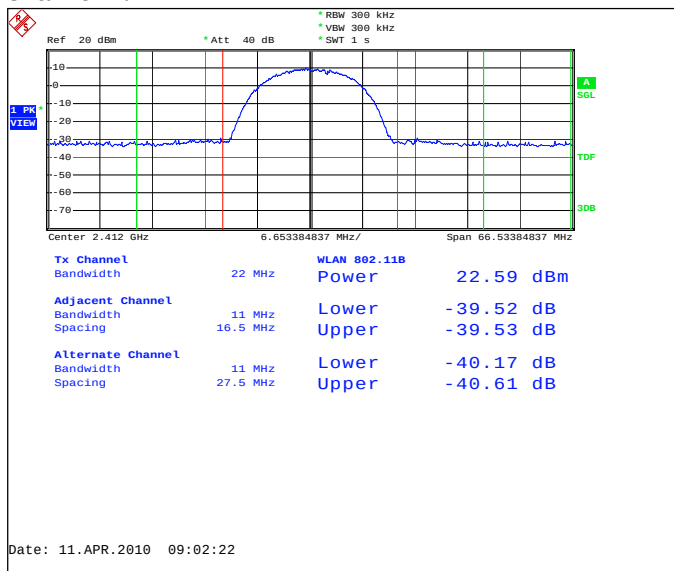
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

6.2. WLAN Test results

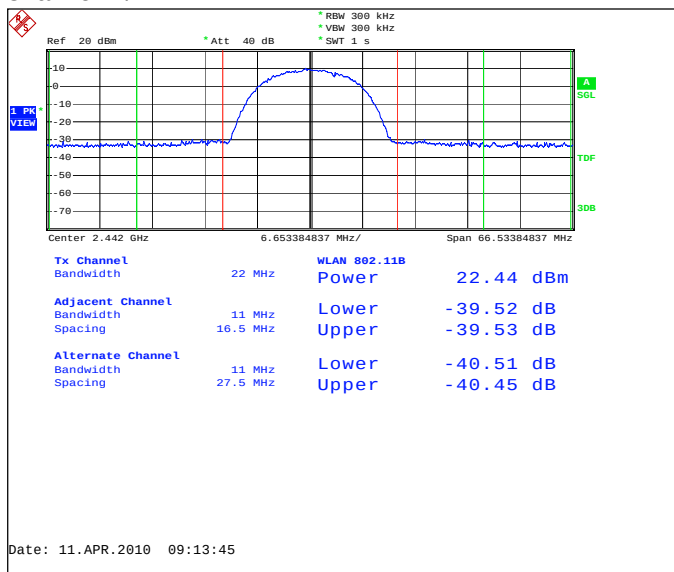
6.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [W]	Result
1 / 2412	22.59	0.182	PASSED
7 / 2442	22.44	0.175	PASSED
11 / 2462	22.77	0.189	PASSED

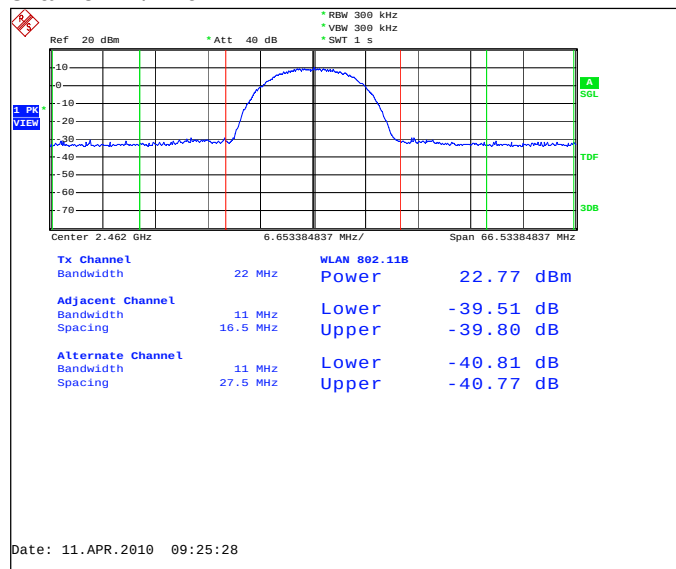
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



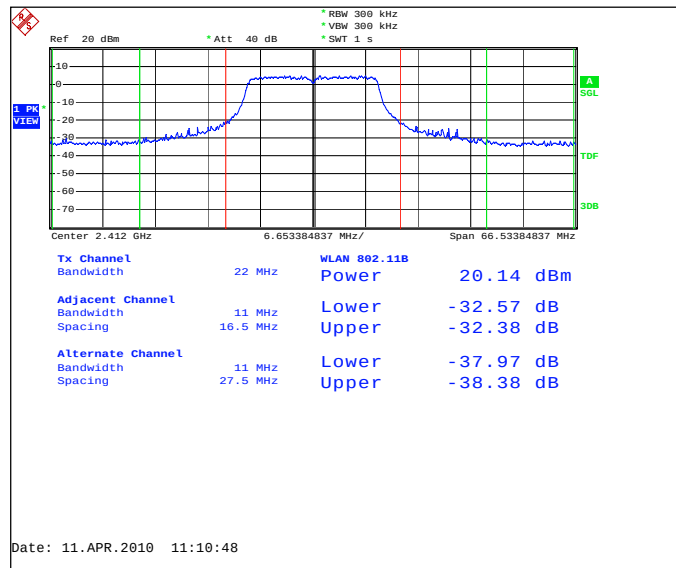
Channel 11 / 2462 MHz



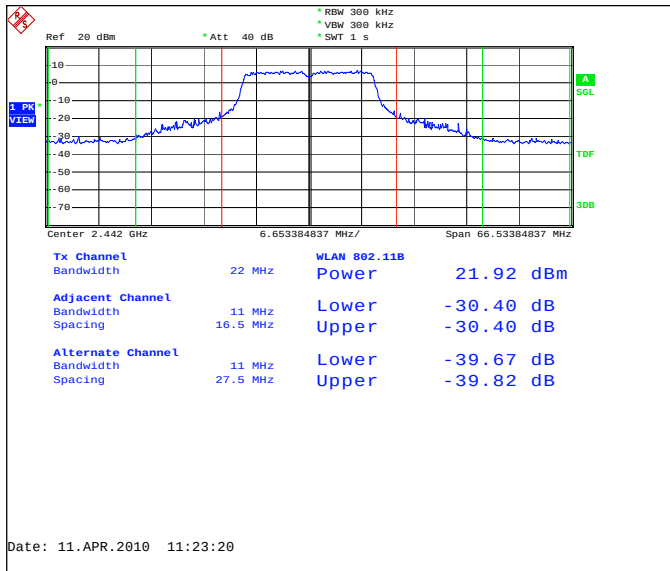
6.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f _c [MHz]	P [dBm]	P [W]	Result
1 / 2412	20.14	0.103	PASSED
7 / 2442	21.92	0.156	PASSED
11 / 2462	20.31	0.107	PASSED

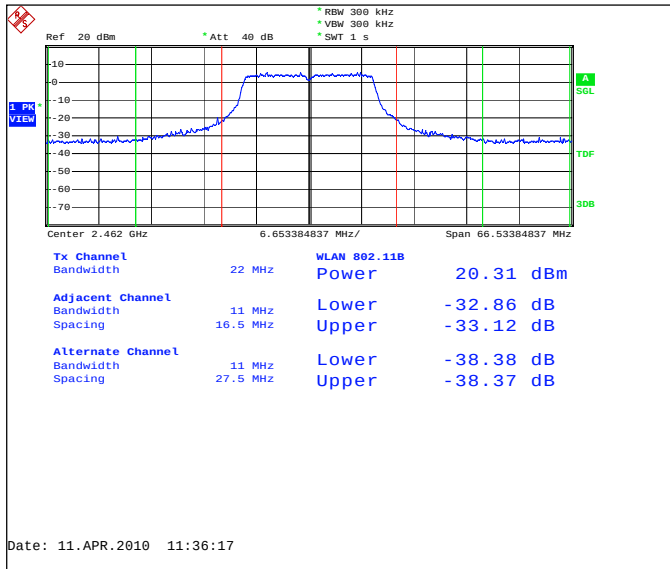
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



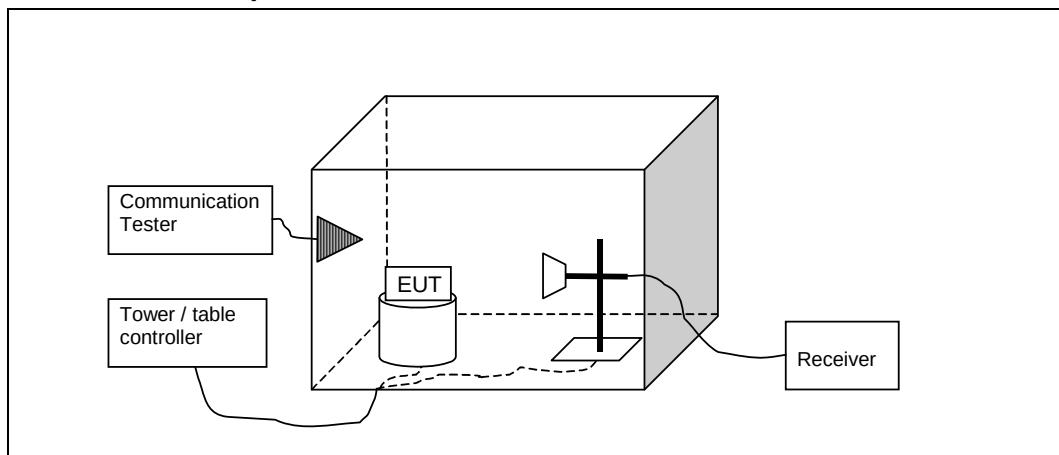
Channel 11 / 2462 MHz



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

EUT with DUT number	RM-469, DUT 14675
Accessories with DUT numbers	BP-4L, DUT 14561 ; HS-48, DUT 14677 ; AC-10E, DUT 14676
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 100.2
Date of measurements	07-Apr-2010
Measured by	Sami Lehtonen

7.1. Test Setup



7.2. 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

7.3. WLAN Test results

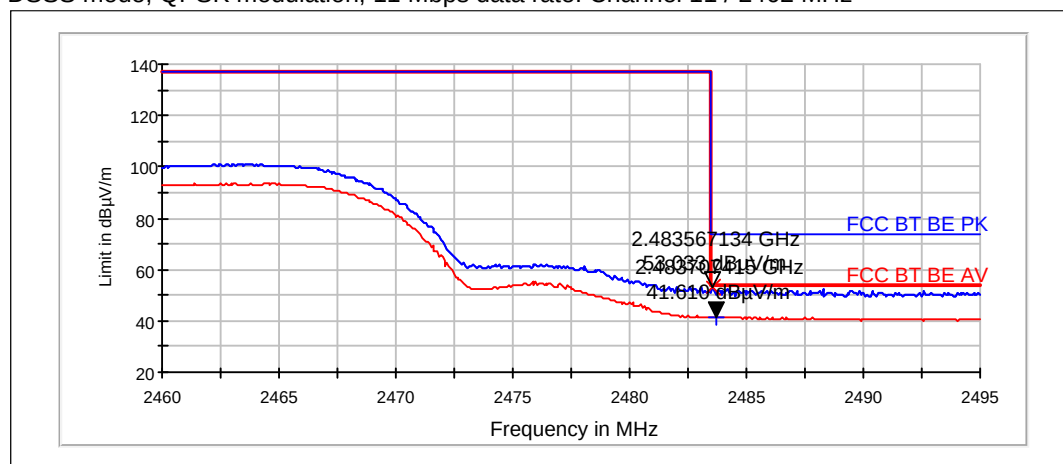
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
11 / 2462 (DSSS,QPSK,11)	41.61	PASSED
1 / 2412 (DSSS,QPSK,11)	41.65	PASSED

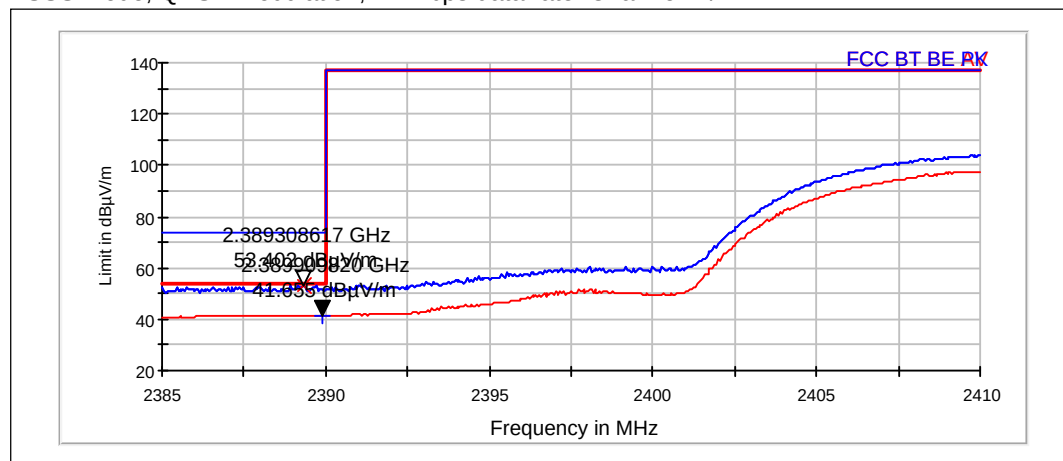
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
11 / 2462 (DSSS,QPSK,11)	53.03	PASSED
1 / 2412 (DSSS,QPSK,11)	53.4	PASSED

DSSS mode, QPSK modulation, 11 Mbps data rate. Channel 11 / 2462 MHz



DSSS mode, QPSK modulation, 11 Mbps data rate. Channel 1 / 2412 MHz



7.4. WLAN Test results

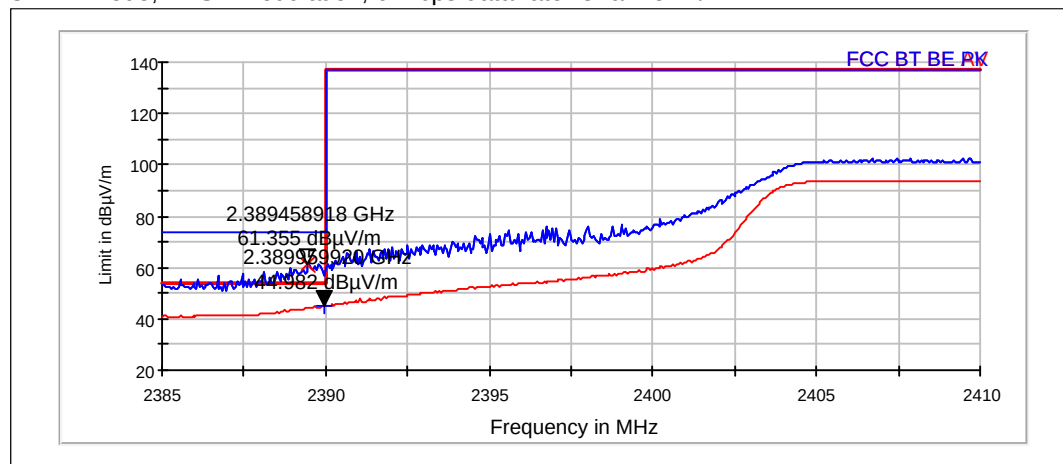
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412 (OFDM,BOSK,6)	44.98	PASSED
11 / 2462 (OFDM,BPSK,6)	47.1	PASSED

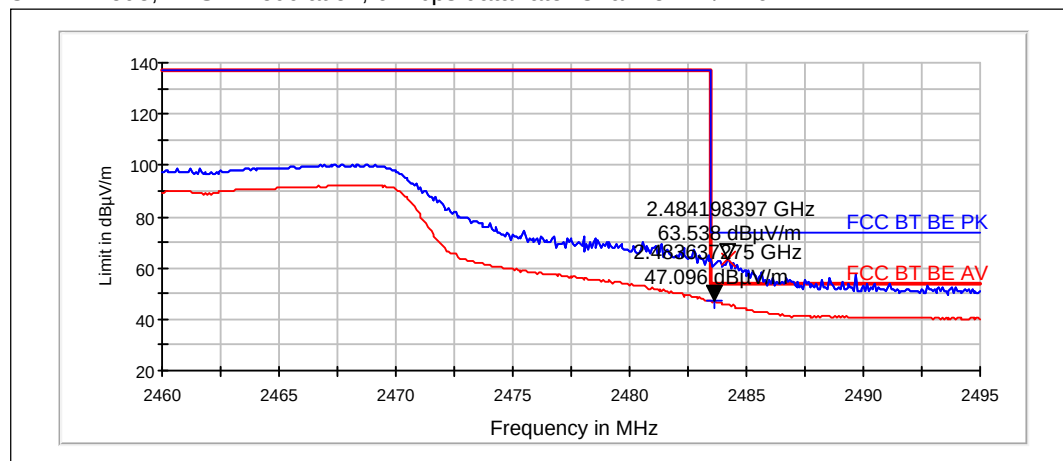
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412 (OFDM,BOSK,6)	61.36	PASSED
11 / 2462 (OFDM,BPSK,6)	63.54	PASSED

OFDM mode, BPSK modulation, 6 Mbps data rate. Channel 1 / 2412 MHz



OFDM mode, BPSK modulation, 6 Mbps data rate. Channel 11 / 2462 MHz



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

EUT with DUT number	RM-469, DUT 14675
Accessories with DUT numbers	BP-4L, DUT 14561 ; HS-48, DUT 14677 ; AC-10E, DUT 14676
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 100.2
Date of measurements	11-Apr-2010
Measured by	Sami Lehtonen

8.1. Test method and limit

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

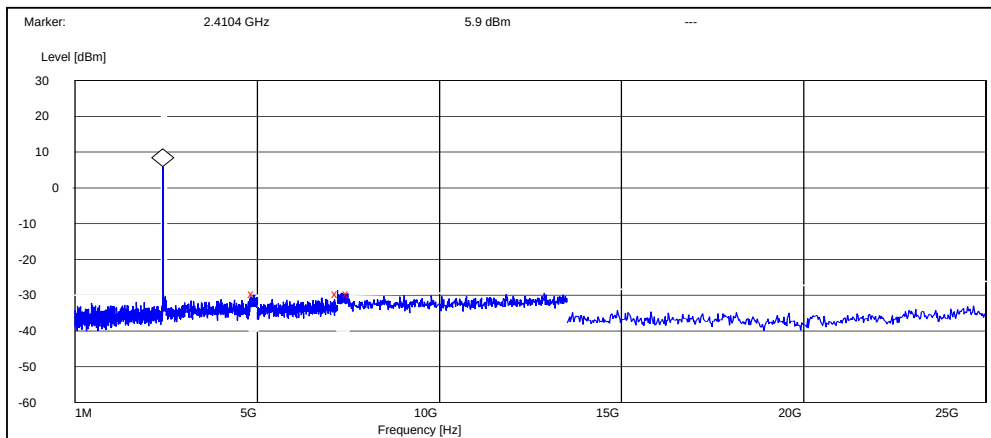
Limits for spurious RF conducted emissions measurements

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

8.2. WLAN Test results

8.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

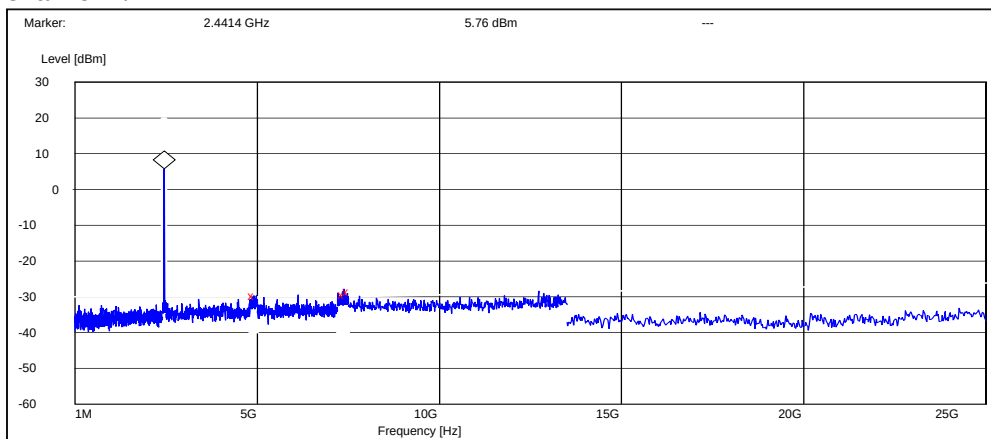
Channel 1 / 2412 MHz



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

Frequency [MHz]	P [dBc]	Result
4905.200000	-35.500616	PASSED
7208.400000	-35.400616	PASSED
7500.000000	-35.500616	PASSED

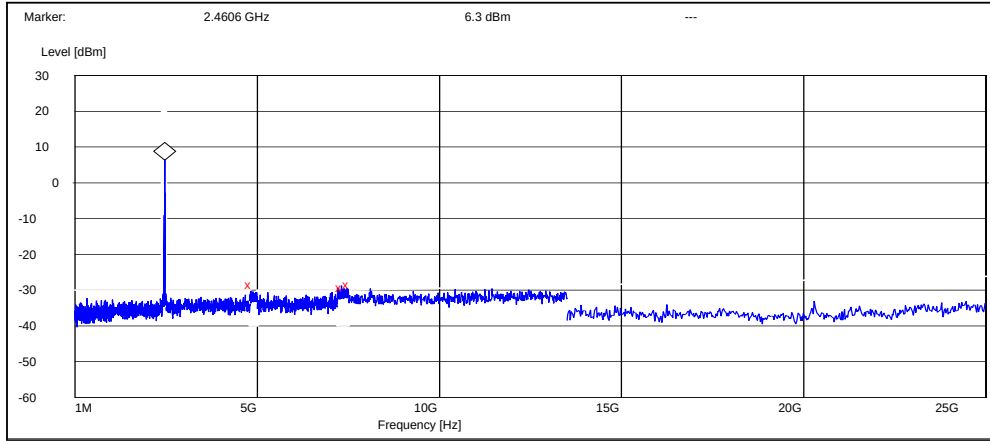
Channel 7 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4904.000000	-35.356241	PASSED
7386.000000	-35.256241	PASSED
7500.000000	-34.256241	PASSED

Channel 11 / 2462 MHz

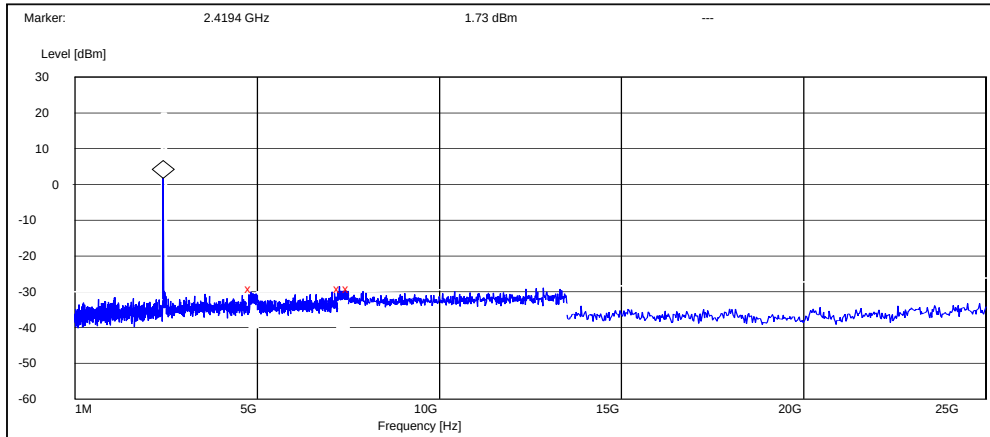


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4822.000000	-34.797274	PASSED
7318.800000	-35.597274	PASSED
7500.000000	-34.897274	PASSED

8.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

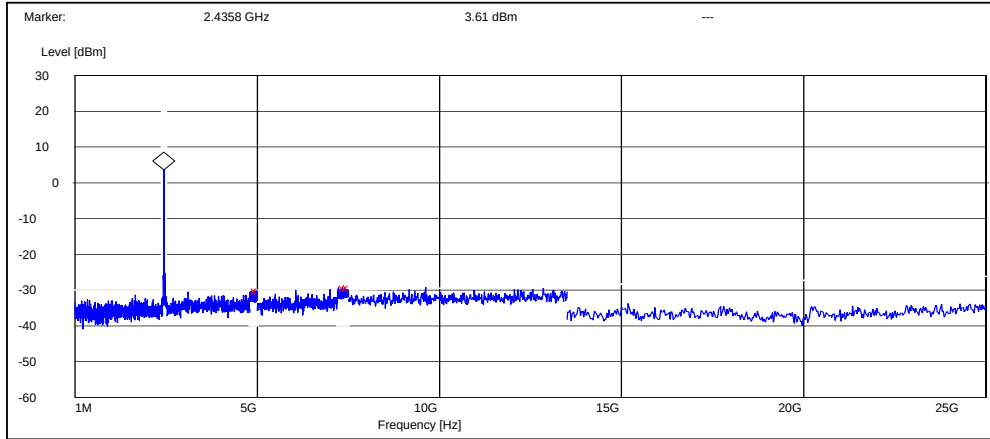
Channel 1 / 2412 MHz



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

Frequency [MHz]	P [dBc]	Result
4823.200000	-30.932346	PASSED
7262.400000	-30.932346	PASSED
7500.000000	-30.832346	PASSED

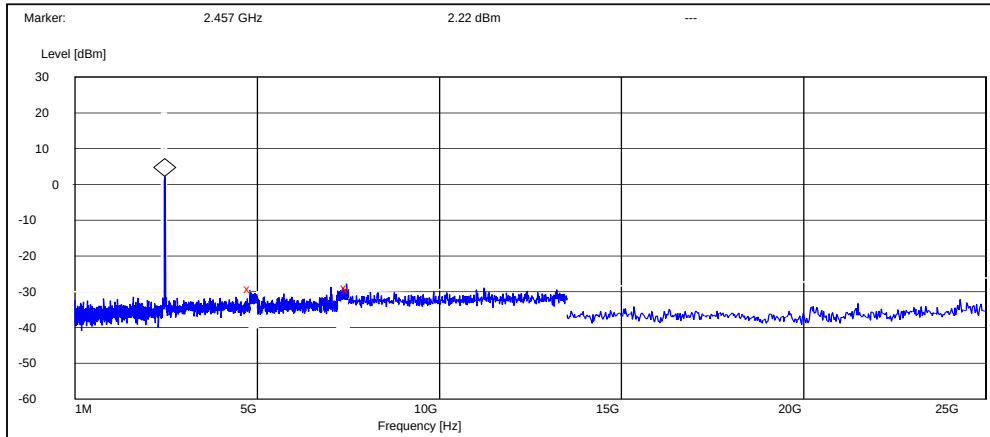
Channel 7 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4992.400000	-33.706468	PASSED
7392.000000	-32.906468	PASSED
7500.000000	-32.806468	PASSED

Channel 11 / 2462 MHz



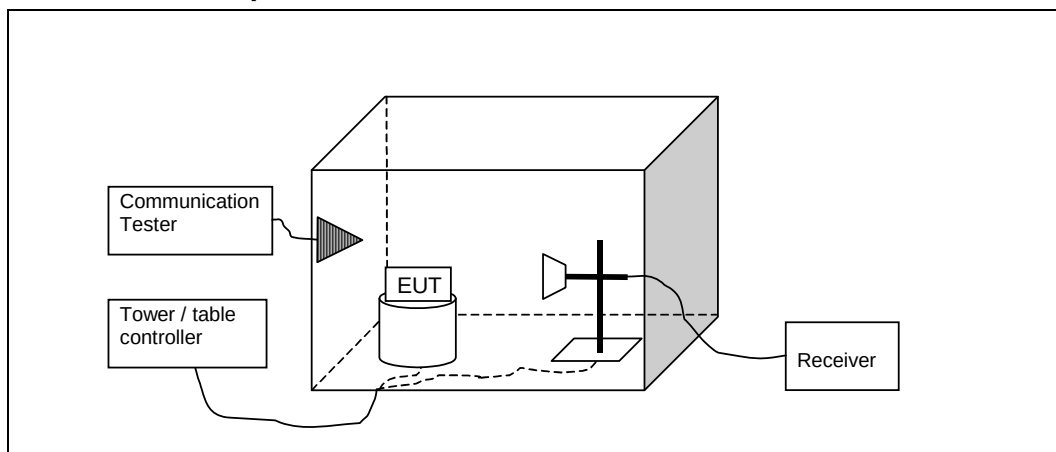
Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4802.400000	-31.415727	PASSED
7451.400000	-31.115727	PASSED
7500.000000	-31.715727	PASSED

9. Spurious radiated emissions (FCC §22.917(a), §24.238(a), §2.1053, RSS-132 4.5, RSS-133 6.5)

EUT with DUT number	RM-469, DUT 14675
Accessories with DUT numbers	BP-4L, DUT 14561 ; HS-48, DUT 14677 ; AC-10E, DUT 14676
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 100.2
Date of measurements	07-Apr-2010
Measured by	Sami Lehtonen

9.1. Test Setup



9.2. 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 ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

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

Frequency range [MHz]	Limit [$\mu V/m$]	Limit [dB $\mu V/m$]	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

9.3. WLAN Test results

9.3.1 OFDM mode, QPSK modulation, 6 Mbps data rate

Channel 1 / 2412 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4822.9	32.59	42.594	31.2	1.39	VERTICAL	PASSED
7237.3	35.22	57.663	32.01	3.21	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4822.9	45.35	185.14	43.96	1.39	VERTICAL	PASSED
7237.3	48.35	261.397	45.14	3.21	HORIZONTAL	PASSED

Channel 7 / 2442 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
12282.763	42.89	139.396	30.63	12.26	HORIZONTAL	PASSED
12469.738	43.48	149.262	31.11	12.37	HORIZONTAL	PASSED
17921.642	49.11	285.299	28.91	20.2	VERTICAL	PASSED

Quasi peak (RBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
30.92	28.34	26.119	37.04	-8.7	VERTICAL	PASSED
37.445	29.31	29.194	42	-12.69	VERTICAL	PASSED
37.974	28.76	27.422	41.76	-13	VERTICAL	PASSED
64.749	29.65	30.384	52.86	-23.21	VERTICAL	PASSED
64.81	29.68	30.489	52.89	-23.21	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
12282.763	55.69	608.765	43.43	12.26	HORIZONTAL	PASSED
12469.738	56.85	695.585	44.48	12.37	HORIZONTAL	PASSED
17921.642	62.01	1260.521	41.81	20.2	VERTICAL	PASSED

Channel 11 / 2462 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4923.8	33.7	48.401	32.73	0.97	VERTICAL	PASSED
7387.9	35.81	61.723	31.72	4.09	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4923.8	47.15	227.851	46.18	0.97	VERTICAL	PASSED
7387.9	48.57	268.256	44.48	4.09	HORIZONTAL	PASSED

9.3.2 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 1 / 2412 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4806	32.14	40.467	30.89	1.25	VERTICAL	PASSED
7205.1	35.27	57.996	32.06	3.21	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4806	44.94	176.583	43.69	1.25	VERTICAL	PASSED
7205.1	49.64	303.354	46.43	3.21	VERTICAL	PASSED

Channel 7 / 2442 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
12198.901	42.47	132.831	30.53	11.94	VERTICAL	PASSED
12476.05	43.49	149.469	30.96	12.53	VERTICAL	PASSED
17925.248	49.17	287.376	28.94	20.23	VERTICAL	PASSED

Quasi peak (RBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
30.66	28.48	26.549	37.02	-8.54	VERTICAL	PASSED
30.684	28.47	26.503	37.03	-8.56	VERTICAL	PASSED
30.81	28.43	26.388	37.07	-8.64	VERTICAL	PASSED
30.9	28.61	26.953	37.3	-8.69	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
12198.901	55.37	586.746	43.43	11.94	VERTICAL	PASSED
12476.05	56.74	686.752	44.21	12.53	VERTICAL	PASSED
17925.248	62.27	1299.122	42.04	20.23	VERTICAL	PASSED

Channel 11 / 2462 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4961.1	31.89	39.31	31.61	0.28	HORIZONTAL	PASSED
7441.1	36.08	63.694	31.57	4.51	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4961.1	44.62	170.275	44.34	0.28	HORIZONTAL	PASSED
7441.1	49.26	290.269	44.75	4.51	HORIZONTAL	PASSED

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

EUT with DUT number	RM-469, DUT 14675
Accessories with DUT numbers	BP-4L, DUT 14561 ; HS-48, DUT 14677 ; AC-10E, DUT 14676
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 100.2
Date of measurements	11-Apr-2010
Measured by	Sami Lehtonen

10.1. 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.

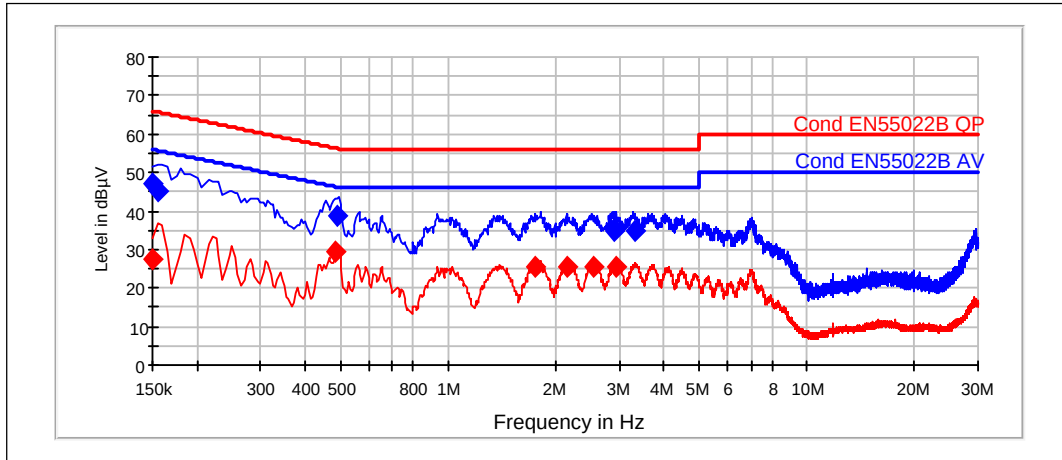
CISPR 22 Class B limits

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

10.2. WLAN Test results

10.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 7 / 2442 MHz



Quasi peak (RBW: 9 kHz)

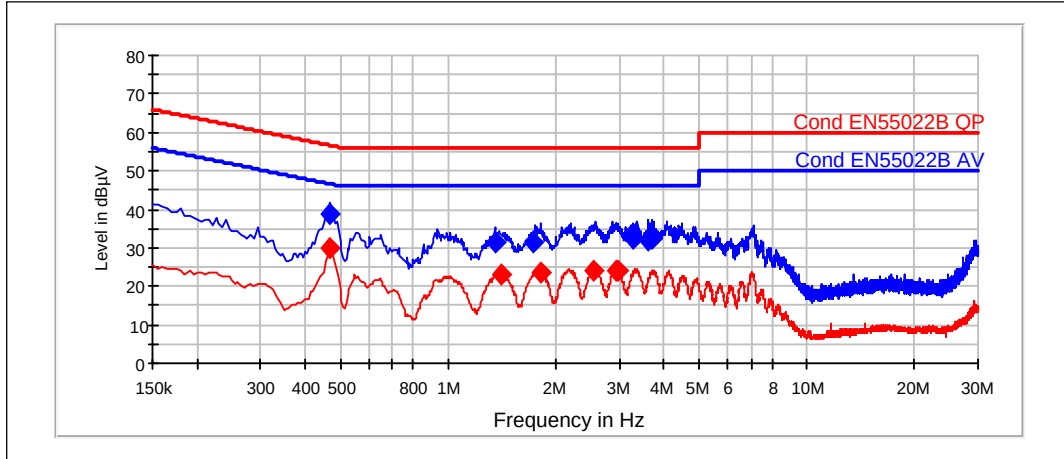
Frequency [MHz]	Quasi peak [dBμV]	Line	Margin [dB]	Result
0.150	47.15	L1	18.90	PASSED
0.155	45.17	L1	20.53	PASSED
0.490	38.78	N	17.37	PASSED
2.910	35.14	N	20.90	PASSED
2.920	35.01	N	21.00	PASSED
3.310	34.92	N	21.10	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	Average [dBμV]	Line	Margin [dB]	Result
0.150	27.47	N	28.50	PASSED
0.485	29.47	N	16.75	PASSED
1.740	25.29	N	20.70	PASSED
2.135	25.34	N	20.70	PASSED
2.550	25.75	N	20.30	PASSED
2.935	25.70	N	20.30	PASSED

10.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel 7 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	Quasi peak [dBμV]	Line	Margin [dB]	Result
0.465	38.66	N	17.90	PASSED
1.360	31.24	N	24.80	PASSED
1.735	31.34	N	24.70	PASSED
3.290	32.50	N	23.50	PASSED
3.625	31.87	N	24.10	PASSED
3.700	32.48	N	23.50	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	Average [dBμV]	Line	Margin [dB]	Result
0.470	30.05	N	16.41	PASSED
1.400	22.85	N	23.20	PASSED
1.805	23.49	N	22.50	PASSED
2.545	24.12	N	21.90	PASSED
2.945	24.19	N	21.80	PASSED
2.970	24.13	N	21.90	PASSED

11. 6 dB bandwidth (FCC §15.247(a)(2), RSS-210 A8.2 (a))

EUT with DUT number	RM-469, DUT 14675
Accessories with DUT numbers	BP-4L, DUT 14561 ; HS-48, DUT 14677 ; AC-10E, DUT 14676
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 100.2
Date of measurements	11-Apr-2010
Measured by	Sami Lehtonen

11.1. 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

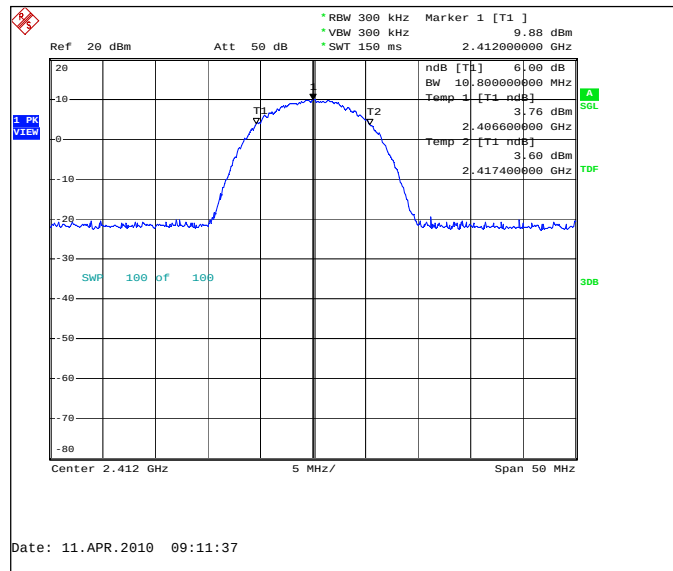
Limit [kHz]
≥ 500

11.2. WLAN test results

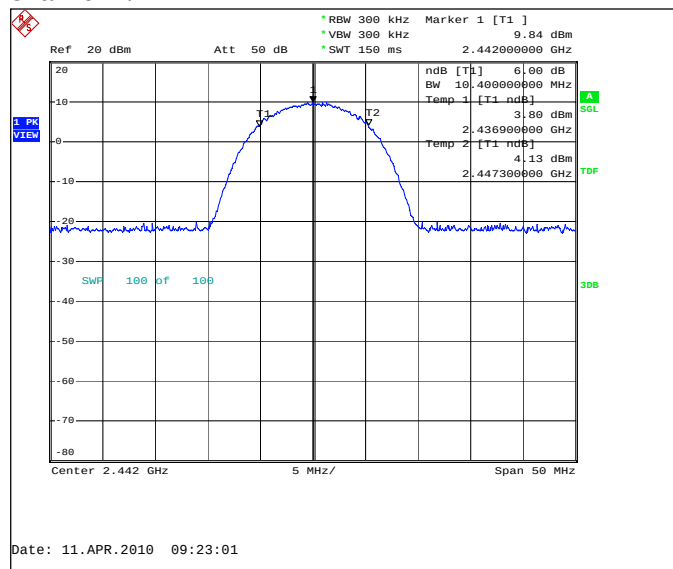
11.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
1	10800.000	PASSED
7	10400.000	PASSED
11	10800.000	PASSED

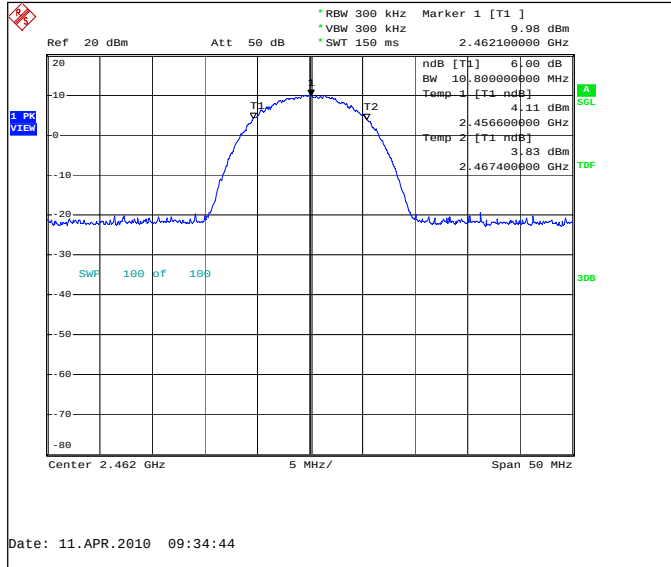
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



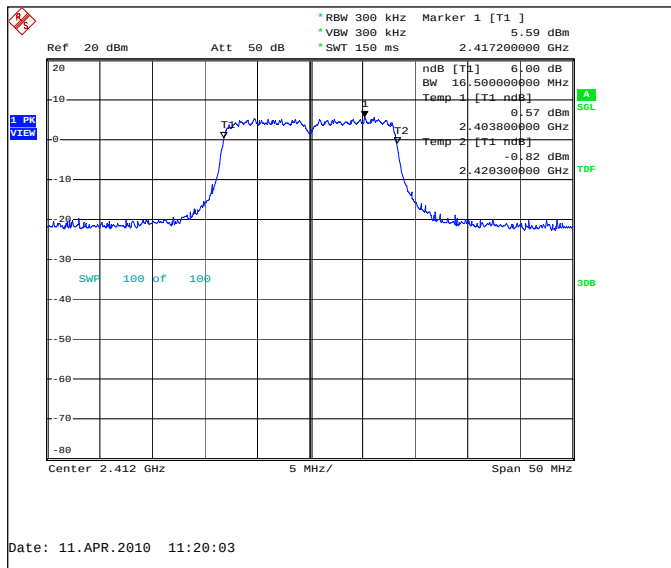
Channel 11 / 2462 MHz



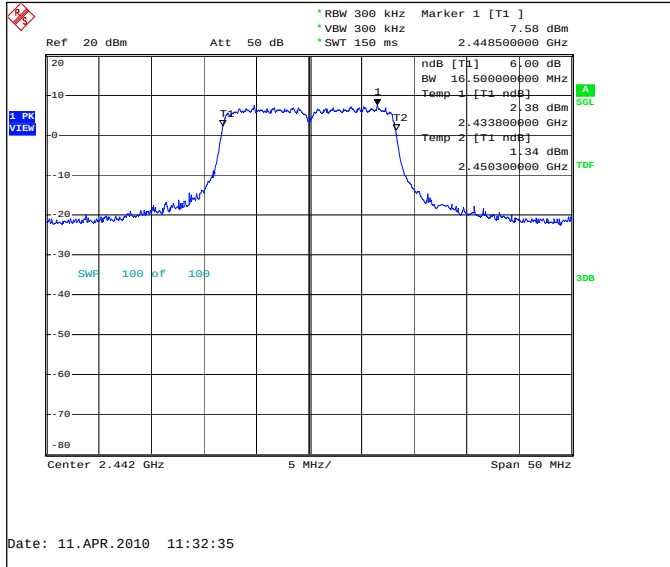
11.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

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

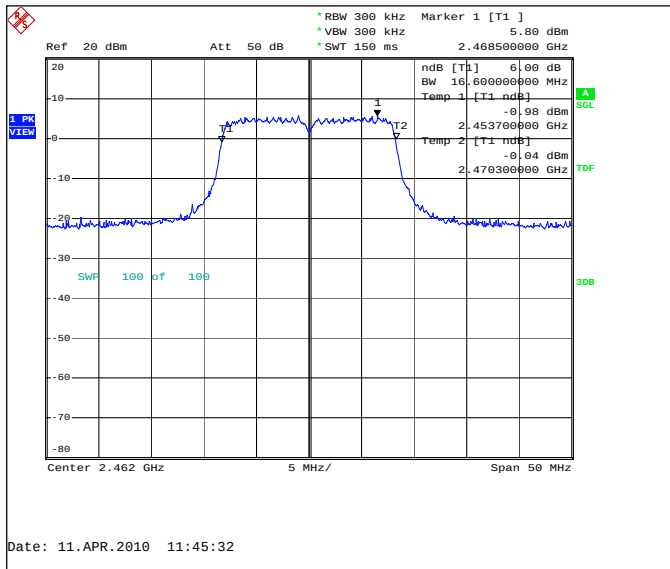
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



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

EUT with DUT number	RM-469, DUT 14675
Accessories with DUT numbers	BP-4L, DUT 14561 ; HS-48, DUT 14677 ; AC-10E, DUT 14676
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 100.2
Date of measurements	11-Apr-2010
Measured by	Sami Lehtonen

12.1. 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

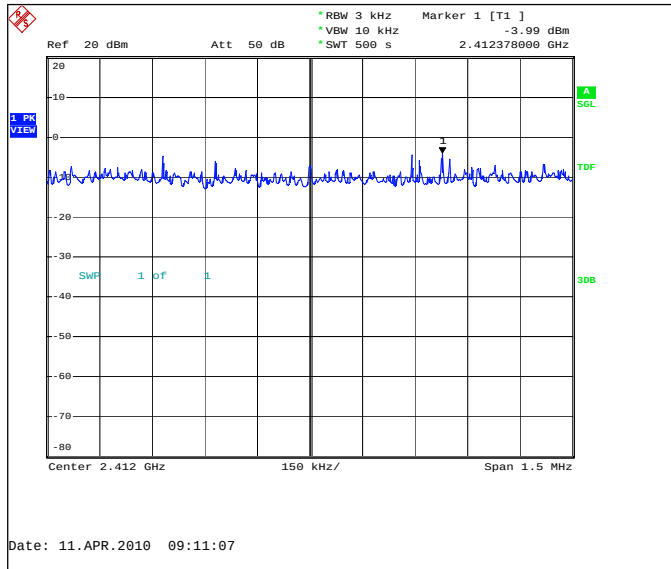
Limit [dBm] @ 3 kHz
≤ 8

12.2. WLAN test results

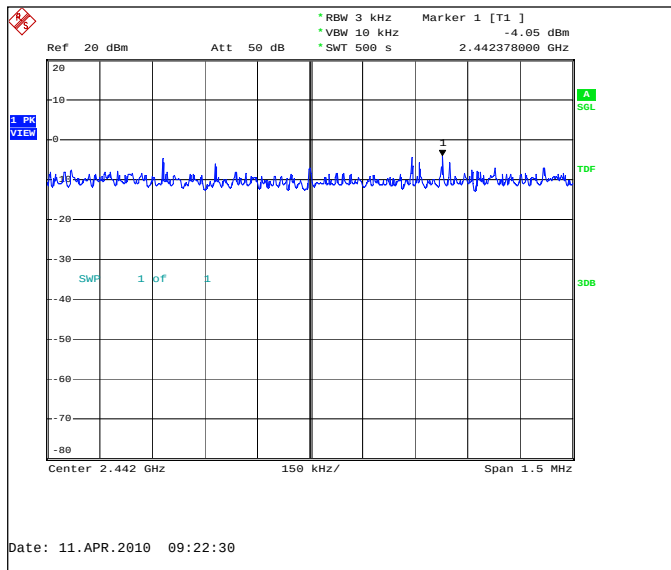
12.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-3.99	PASSED
7 / 2442	-4.05	PASSED
11 / 2462	-3.71	PASSED

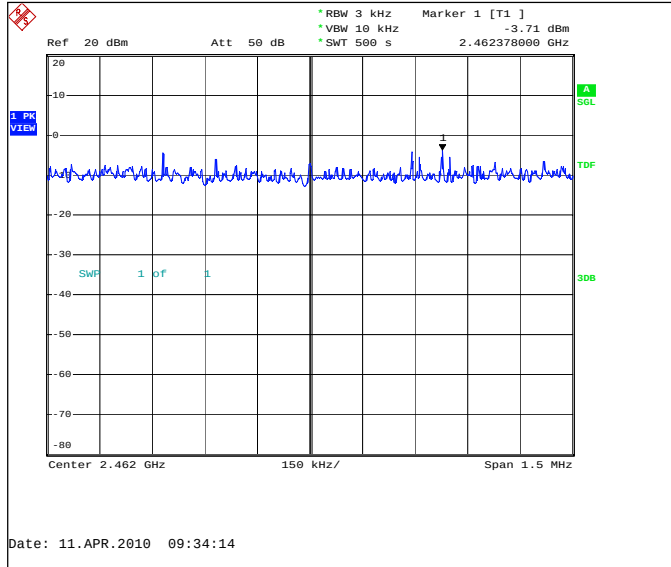
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



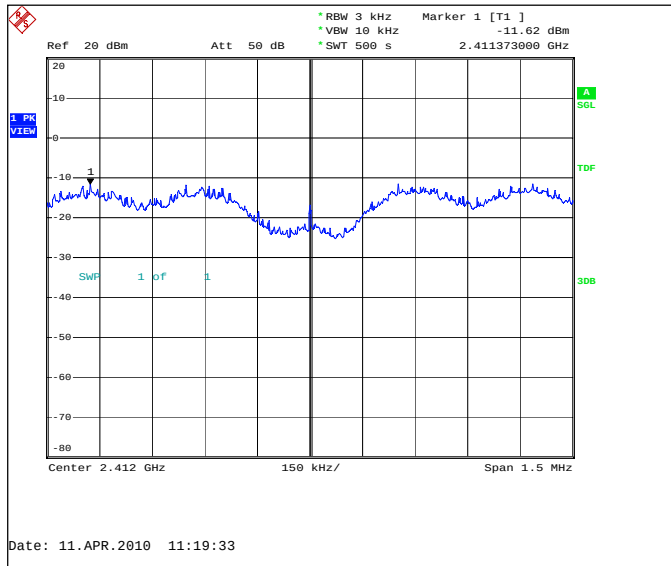
Channel 11 / 2462 MHz



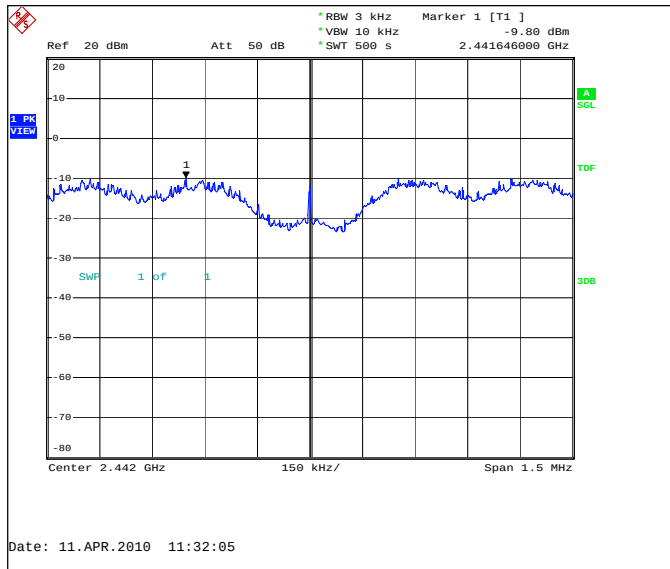
12.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-11.62	PASSED
7 / 2442	-9.80	PASSED
11 / 2462	-11.58	PASSED

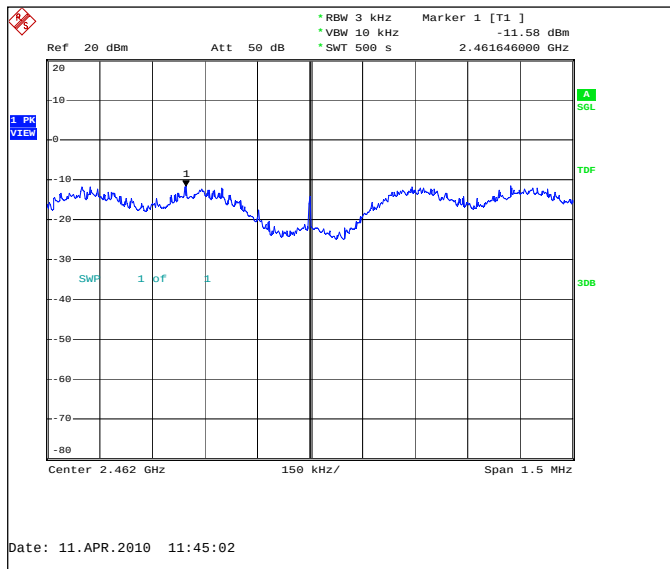
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



13. Test Equipment

13.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
1916	Communication Tester	CMTA84	R&S	15B
1986	GPS Antenna	AMHP10-15R/390	European	15C, 15B
1992	Signal Generator	83630B	Agilent	15C, 15B
2039	Power Supply	PL330QMD	Thurlby	15C, 15B
2060	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
2068	CDN	S1	NMP	15C, 15B
2097	Pulse Limiter	ESH3-Z2	R&S	15C, 15B
2156	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2180	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2206	Signal Generator	SMX	R&S	15C, 15B
2347	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2352	Spectrum Analyzer	FSP-30	R&S	22/24/27, 15C
2359	Temperature Test Chamber	VT4002	Vötsch	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	15B
2389	Signal Generator	SMJ 100A	R&S	15B
2390	Directional Coupler	DC2600	AR	-
6009	GPS Antenna	SA-700	Chronos	15C
6010	GPS Network amplifier	NLA20FPDC	GPS	15C
6011	GPS signal Splitter	LDCBS1x4	GPS	15C
6012	CDN	CDN USB/c	Teseq	-
6015	Receiver	ESI	R&S	22/24, 15C, 15B
6016	ESD gun	PESD 1610	HAEFELY	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	RF Emission Software	ES-K1 v.1.71	R&S	22/24/27, 15C, 15B
6036	Data Logger	175-H2	Testo	22/24/27, 15C, 15B
6038	Data Logger	Testo 580	Testo	23/24/27, 15C, 15B
6039	USB Interface	5541765	Testo	23/24/27, 15C, 15B

13.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
1984	Antenna	BBHA 9120 D	Schwarzbeck	22/24/27, 15C, 15B
1986	GPS Antenna	AMHP10-15R/390	European	15C, 15B
1988	Antenna	HL562	R&S	22/24/27, 15C, 15B
1989	Relay Switch Unit	TS-RSP	R&S	22/24/27, 15C, 15B
2009	Signal Generator	SMP 22	R&S	22/24/27, 15C, 15B
2027	CDN	M2 (modified) DC1	MEB	22/24/27, 15C, 15B
2028	CDN	M3 (modified) DC2	MEB	22/24/27, 15C, 15B
2029	Power Supply	PL330	Thurlby	22/24/27, 15C
2043	Band Reject Filter	WRCA824/849-0,2-6SS	Wainwright	22
2047	Band Reject Filter	WRCC1800/2000-0.2-	Wainwright	24
2051	High Pass Filter	4HC1700-1-KK	R&S	22
2109	Power Supply	PL330QMD	Thurlby	22/24/27, 15C, 15B
2116	Controller	EMCO 2090	ETS	22/24/27, 15C, 15B
2135	CDN	CDN 801-M3	Lüthi	22/24/27, 15C, 15B
2140	Antenna	EMCO93110B	EMCO	22/24/27, 15C

2142	Antenna	3146	EMCO	22/24/27, 15C
2150	High Pass Filter	F-15041	RLC	22/24/27, 15C
2156	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2176	CDN	CDN 801-M3	Lüthi	22/24/27, 15C, 15B
2180	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2188	Preamplifier	AFS4-00100300-20-	Miteq	22/24/27, 15C, 15B
2347	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2348	Controller	G-1000DXC	Yaesu	22/24/27, 15C, 15B
2349	Computer Controller	GS-232B	Yaesu	22/24/27, 15C, 15B
2350	Preamplifier	AMF-6D-020180-29-	Miteq	22/24/27, 15C, 15B
2353	Receiver	ESIB26	R&S	22/24/27, 15C, 15B
2357	Band Reject Filter	WRCG2400/2483-	Wainwright	15C
2361	Anechoic Chamber	3 m Semi / Full	Euroshield	22/24/27, 15C, 15B
2364	Band Reject Filter	WRCG1877/1883 -	Wainwright	24
2366	Relay Switch Unit	TS-RSP	R&S	22/24/27, 15C, 15B
2384	Band Reject Filter	WRCG832/838-	Wainwright	22
2388	Bluetooth Tester	CBT	R&S	15B
2389	Signal Generator	SMJ 100A	R&S	15B
2391	Band Reject Filter	WRCG1729.4/1735.4-	Wainwright	27
6009	GPS Antenna	SA-700	Chronos	15C
6010	GPS Network amplifier	NLA20FPDC	GPS	15C
6011	GPS signal Splitter	LDCBS1x4	GPS	15C
6014	Substitute Calibration Cable	Sucoflex 104PB	Suhner	-
6017	Antenna	SBA 9113	Schwarzbeck	22 / 24 / 27
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	RF Emission Software	ES-K1 v.1.71	R&S	22/24/27, 15C, 15B
-	RF immunity / Emission	EMC32	R&S	22/24/27, 15C, 15B
6037	Data Logger	175-H2	Testo	23/24/27, 15C, 15B
6038	Data Logger	Testo 580	Testo	23/24/27, 15C, 15B
6039	USB Interface	5541765	Testo	23/24/27, 15C, 15B