TCC Nokia

FINAS Finnish Accreditation Service T117 (EN ISO/IEC 17025)

FCC Part 15C Compliance Test Report

Test Report no.:	Tre_FCC_0722_02.doc	**Date of Report:**	26.6.2007
Number of pages:	68	**Customer's Contact person:**	Pasi Vainio
Testing laboratory:	TCC Nokia Tampere Laboratory P.O. Box 68 Sinitaival 5 FIN-33720 TAMPERE, FINLAND Tel. +358 (0) 7180 46800 Fax. +358 (0) 7180 46880	**Customer:**	Nokia Corporation P.O. Box 68 Sinitaival 5 FIN-33721 TAMPERE, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 46880
FCC listing no.: **IC recognition no.:**	94436 3608		
Tested devices/ accessories:	**GSM phone RM-320 / Audio Adapter AD-54, Headset HS-45, Battery BL-6F, AC charger AC-5**		
FCC ID:	PDNRM-320	**IC:**	661R-RM320
Supplement reports:	-		
Testing has been carried out in accordance with:	**CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2003), Public Notice DA 00-705, DTS procedures KDB 558074, IC standards RSS-GEN and RSS-210. Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".**		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test Results:	**The EUT complies with the requirements in respect of all parameters subject to the test.** The test results relate only to devices specified in this document.		
Date and signature for the contents:	 Digitally signed by Jari Jantunen Date: 2007.06.26 12:10:23 +03'00'		

Jari Jantunen, System Manager

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	28.5.2007
Testing completed	4.6.2007
The customer's contact person	Pasi Vainio
Test Plan referred to	T:\Projects\
Notes	-
Document name	T:\Projects\RM-320\EMC\Results\FCC\Tre_FCC_0722_02.doc

1.1. EUT and Accessory Information

The EUT is a 5-band (GSM850/900/1800/1900 and WCDMA Band I) 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-320	004401013435165	3040	-	V1.19.008	41092
GSM phone	RM-320	004401013435124	3040	-	V1.19.008	41093
Battery	BL-6F	-	-	-	-	41094
Audio Adapter	AD-54	-	-	-	-	41098
Headset	HS-45	-	-	-	-	41100
Ac Charger	AC-5	-	-	-	-	41096

1.2. Summary of Test Results

Bluetooth:

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

WLAN:

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

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

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

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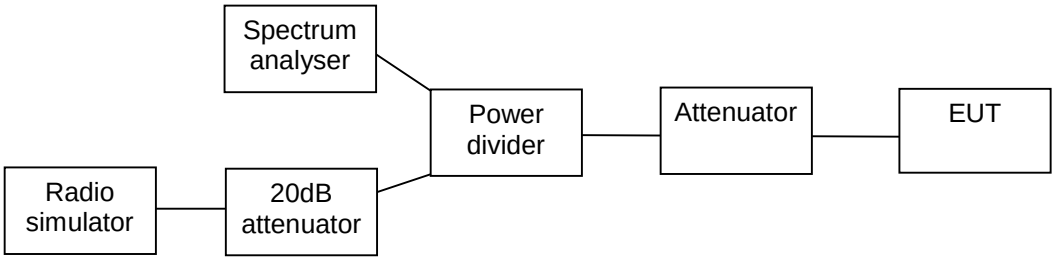
TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

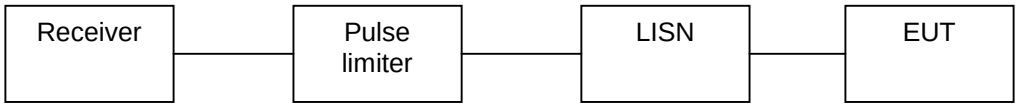
TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

2. Test setups

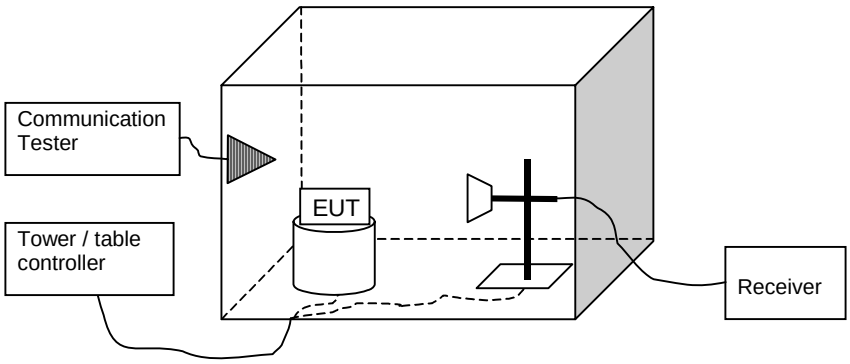
2.1. Conducted RF test setup



2.2. AC powerline conducted emissions test setup



2.3. Spurious radiated emissions test setup



TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

3. Conducted peak output power

(FCC §15.247(b)(1), RSS-210 A8.4 (2))

EUT with DUT number	RM-320 DUT 41092
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 42 / 100,8
Date of measurements	30.05.2007
Measured by	Petteri Suni

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

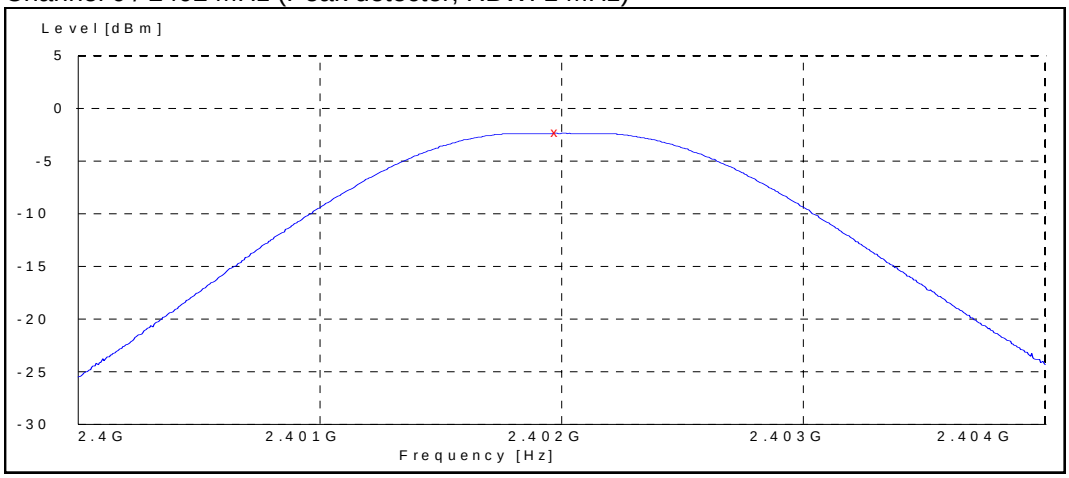
TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

3.2. Bluetooth Test results

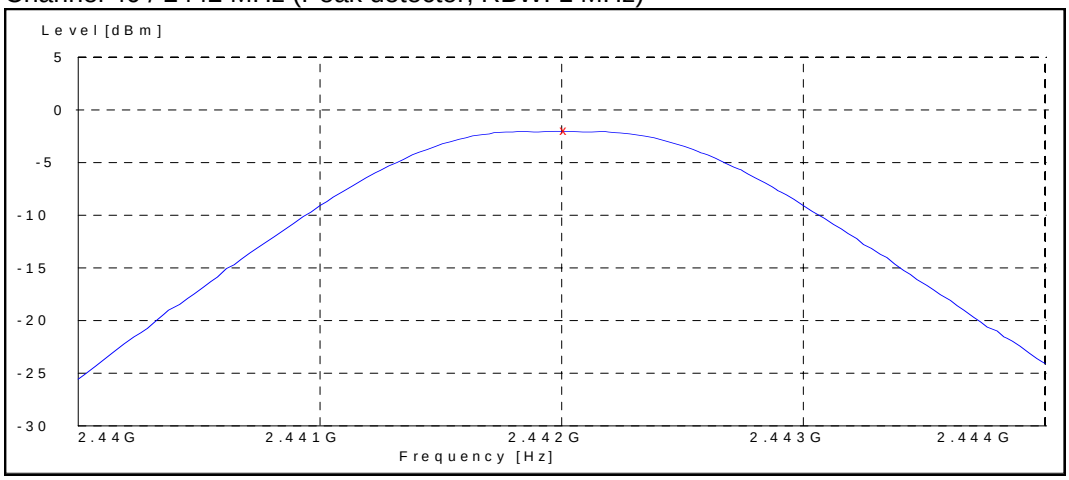
3.2.1 GFSK modulation, PRBS packet type

Channel / f_C [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-2.30	0.589	PASSED
40 / 2442	-2.00	0.631	PASSED
78 / 2480	-1.60	0.692	PASSED

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

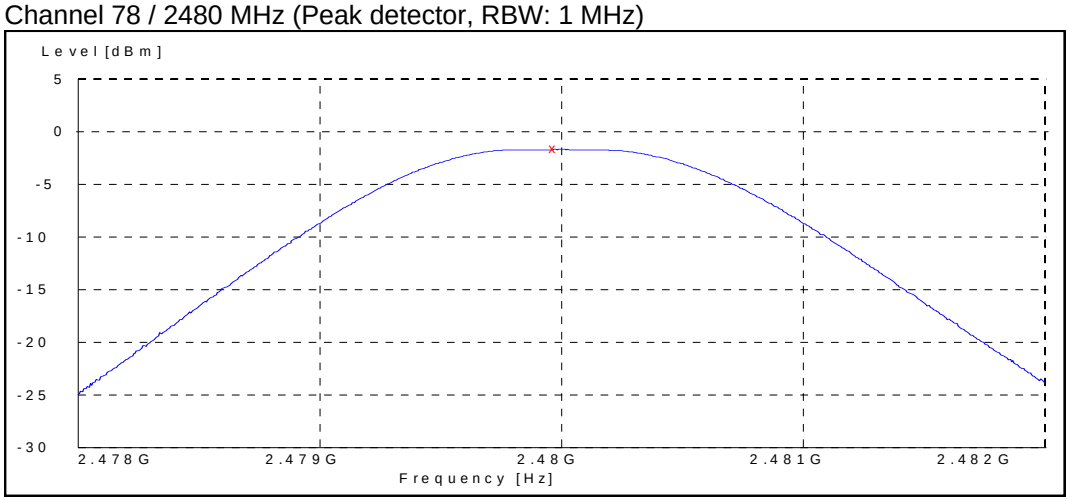


Channel 40 / 2442 MHz (Peak detector, RBW: 1 MHz)



TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

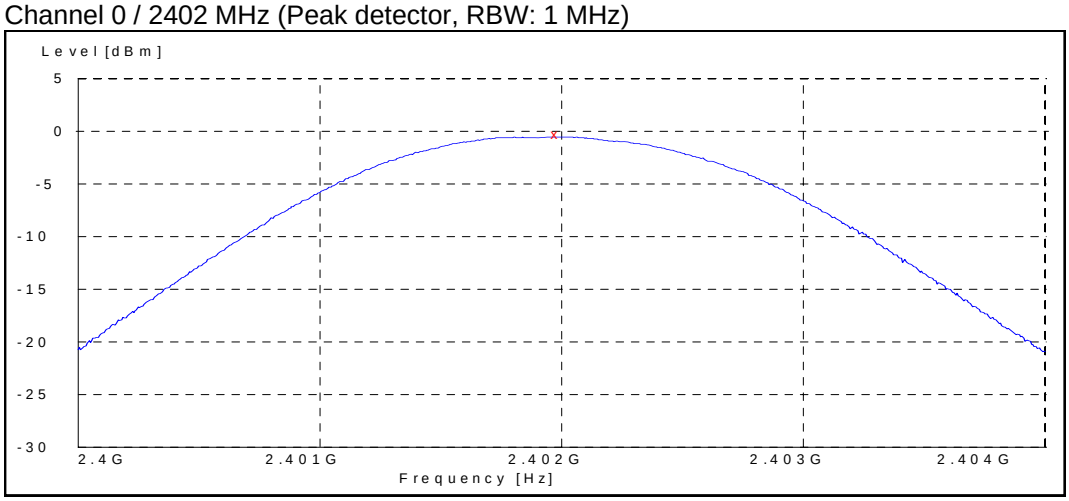
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz)



3.2.2 8DPSK modulation, PRBS packet type

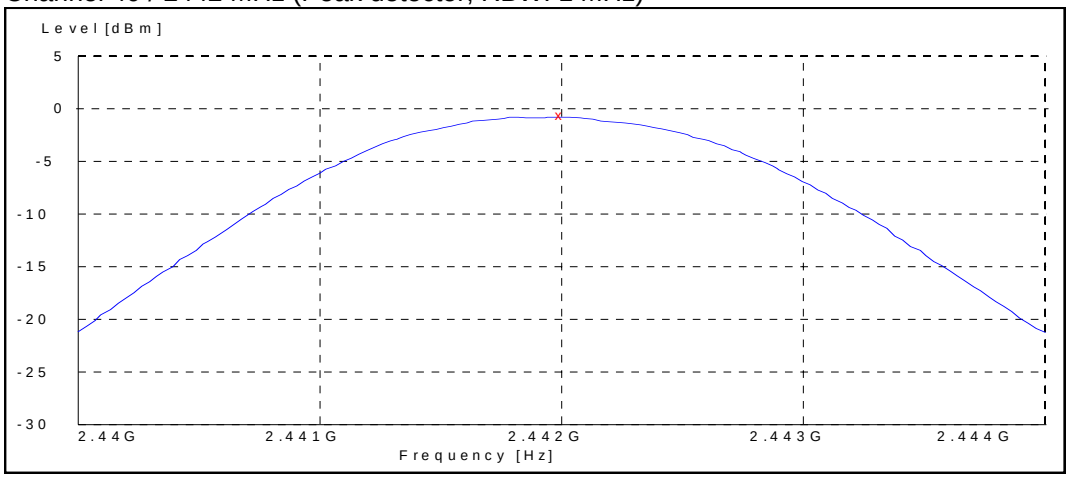
Channel / f_C [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-0.30	0.933	PASSED
40 / 2442	-0.60	0.871	PASSED
78 / 2480	-1.00	0.794	PASSED

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

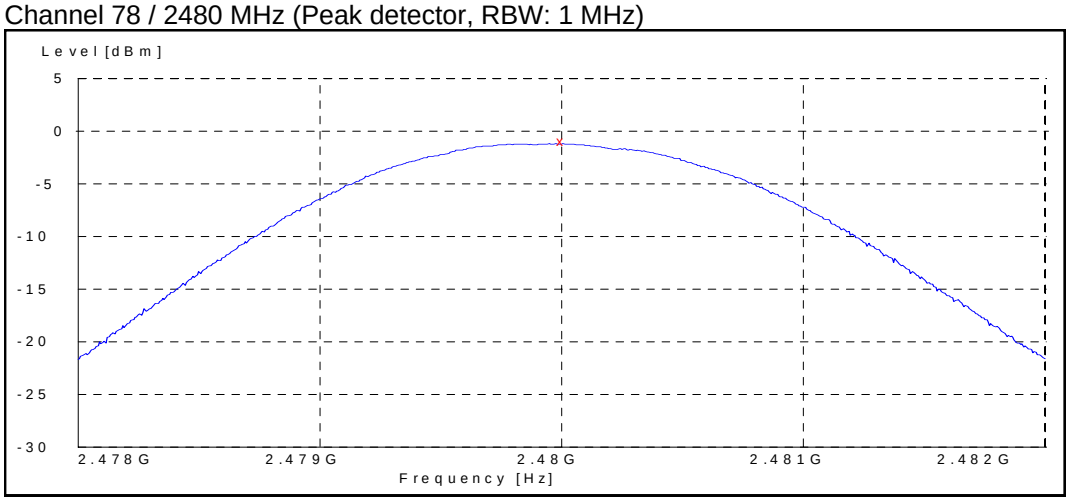


TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

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



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



TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

4. Band edge compliance of RF emissions

(FCC §15.247(c), RSS-210 A8.5)

EUT with DUT number	RM-320 DUT 41093
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 102.9
Date of measurements	1.6.2007
Measured by	Jari Jantunen

4.1. Test method and limit

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

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

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

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

4.2. Bluetooth Test results

4.2.1 GFSK modulation, PRBS packet type

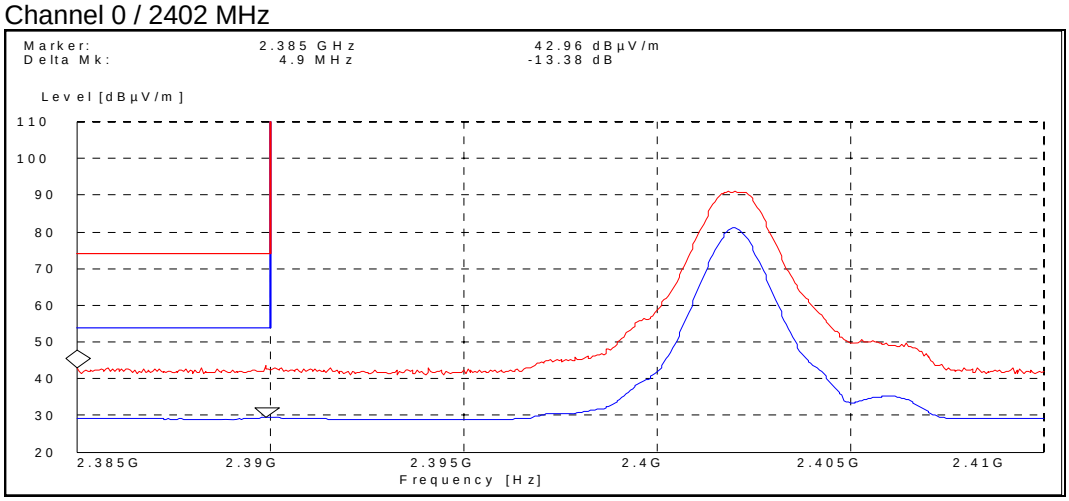
Average (RBW: 1 MHz)

Channel / f_C [MHz]	E [dBµV/m]	Result
0 / 2402	29.58	PASSED
78 / 2480	35.42	PASSED
Hopping on, low end	33.95	PASSED
Hopping on, high end	44.32	PASSED

Peak (RBW: 1 MHz)

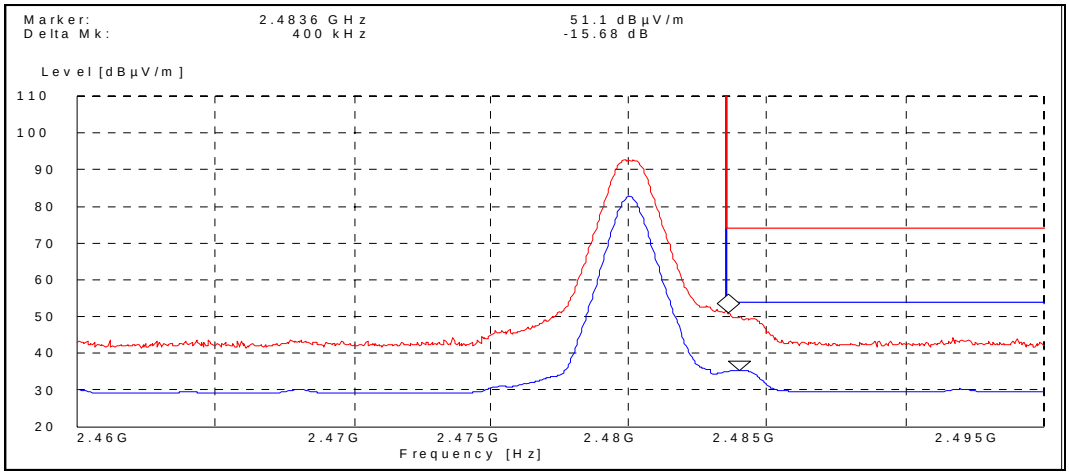
Channel / f_C [MHz]	E [dBµV/m]	Result
0 / 2402	42.96	PASSED
78 / 2480	51.10	PASSED
Hopping on, low end	45.78	PASSED
Hopping on, high end	51.58	PASSED

Channel 0 / 2402 MHz

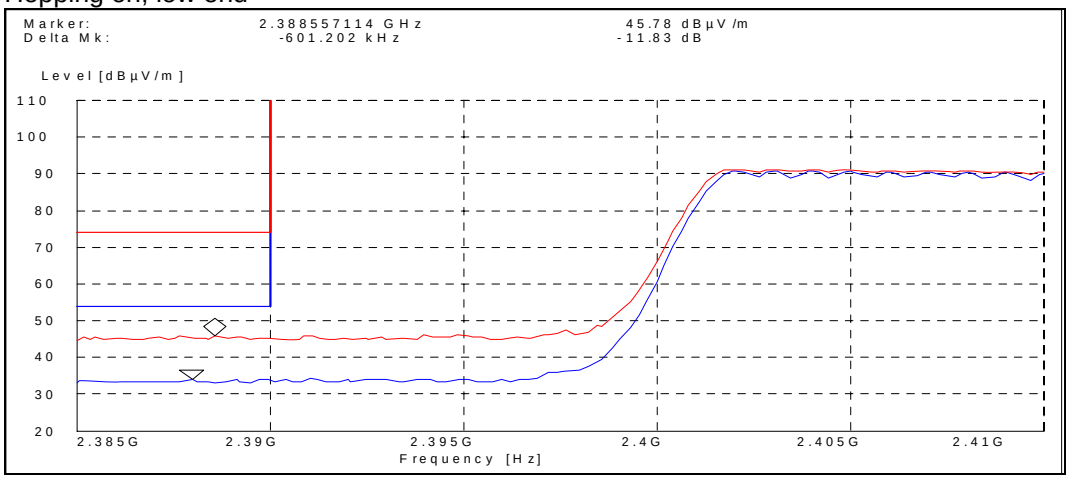


TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

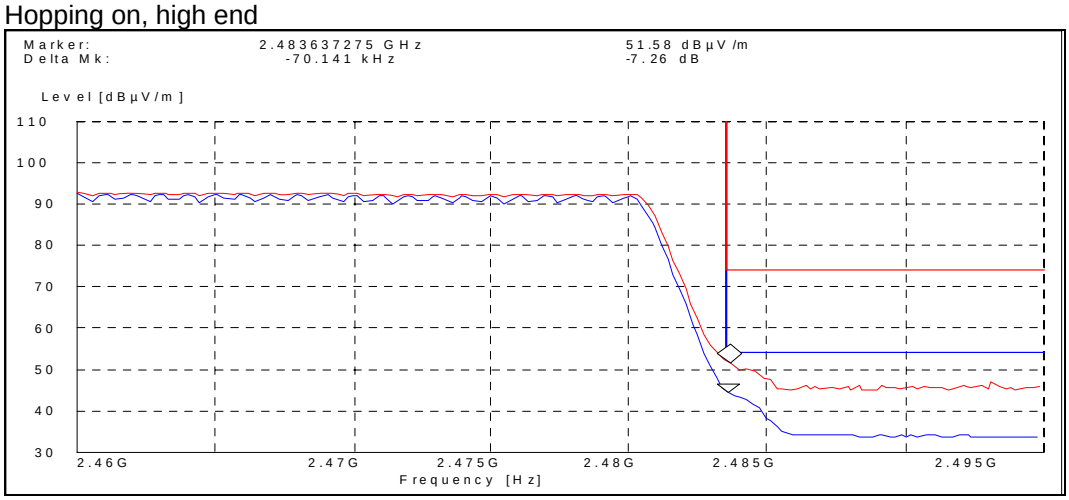
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

4.2.2 8DPSK modulation, PRBS packet type

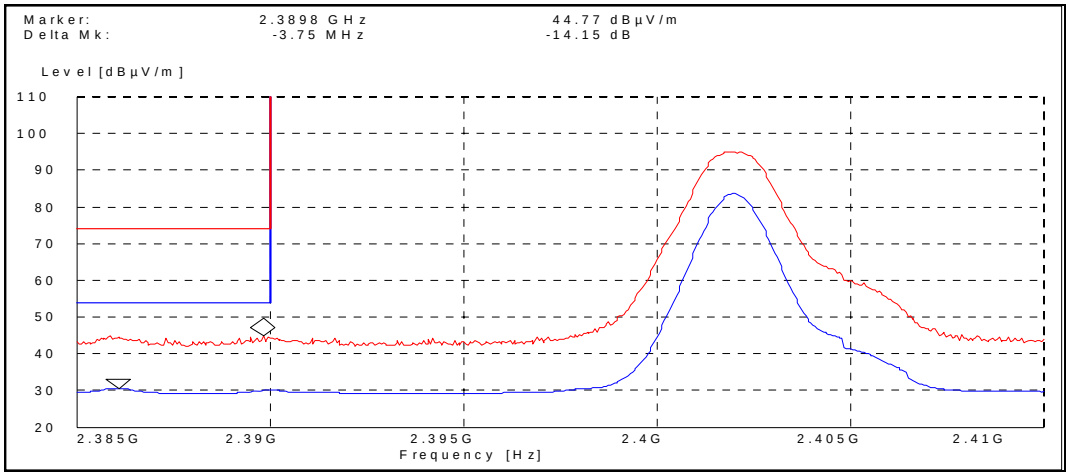
Average (RBW: 1 MHz)

Channel / f_C [MHz]	E [dBµV/m]	Result
0 / 2402	30.62	PASSED
78 / 2480	38.68	PASSED
Hopping on, low end	35.81	PASSED
Hopping on, high end	49.22	PASSED

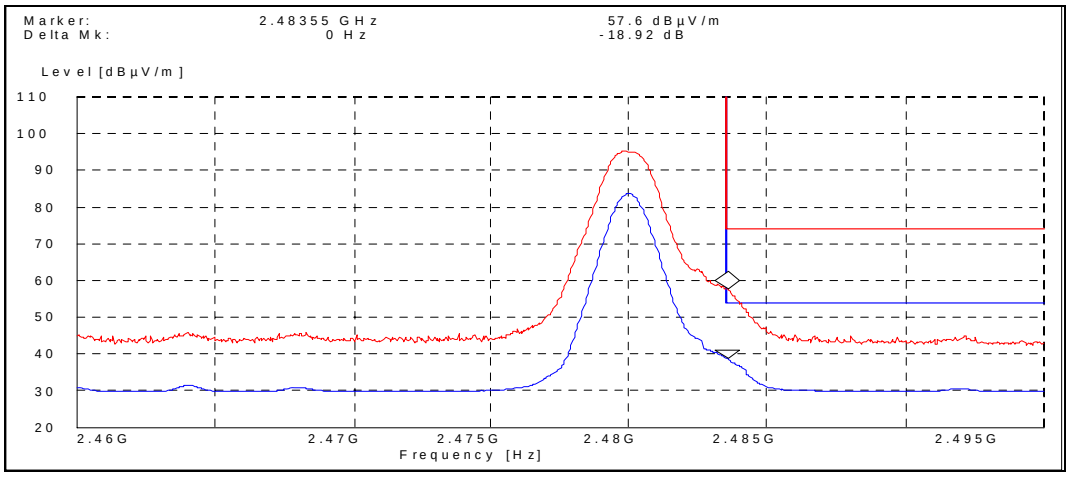
Peak (RBW: 1 MHz)

Channel / f_C [MHz]	E [dBµV/m]	Result
0 / 2402	44.77	PASSED
78 / 2480	57.6	PASSED
Hopping on, low end	46.4	PASSED
Hopping on, high end	57.9	PASSED

Channel 0 / 2402 MHz

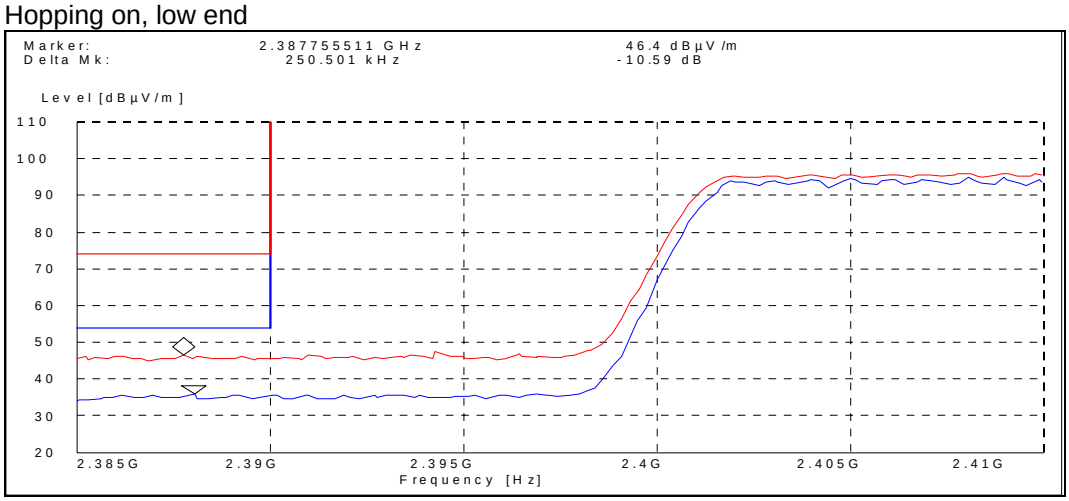


Channel 78 / 2480 MHz

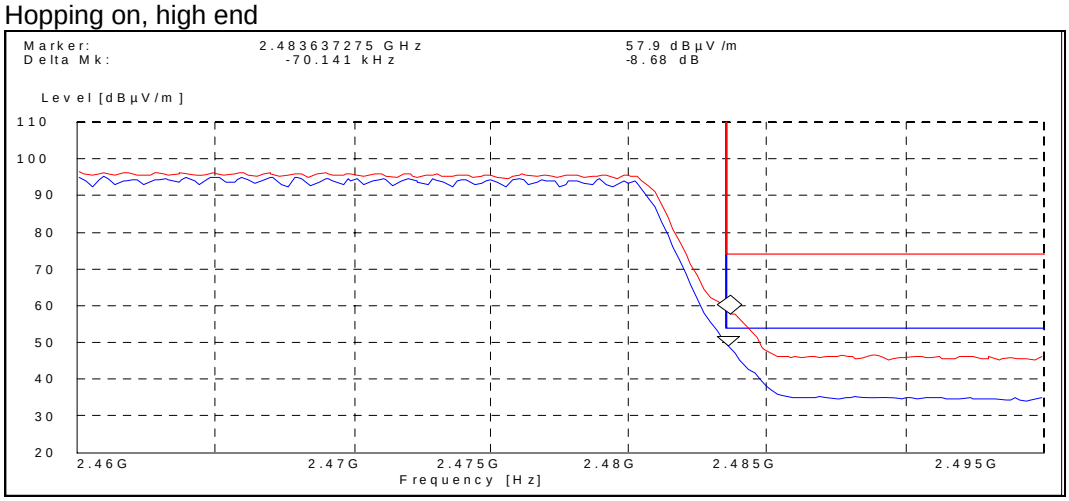


TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

Hopping on, low end



Hopping on, high end



TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

5. Spurious RF conducted emissions

(FCC §15.247(c), RSS-A8.5)

EUT with DUT number	RM-320 DUT 41092
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 42 / 100,8
Date of measurements	30.05.2007
Measured by	Petteri Suni

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

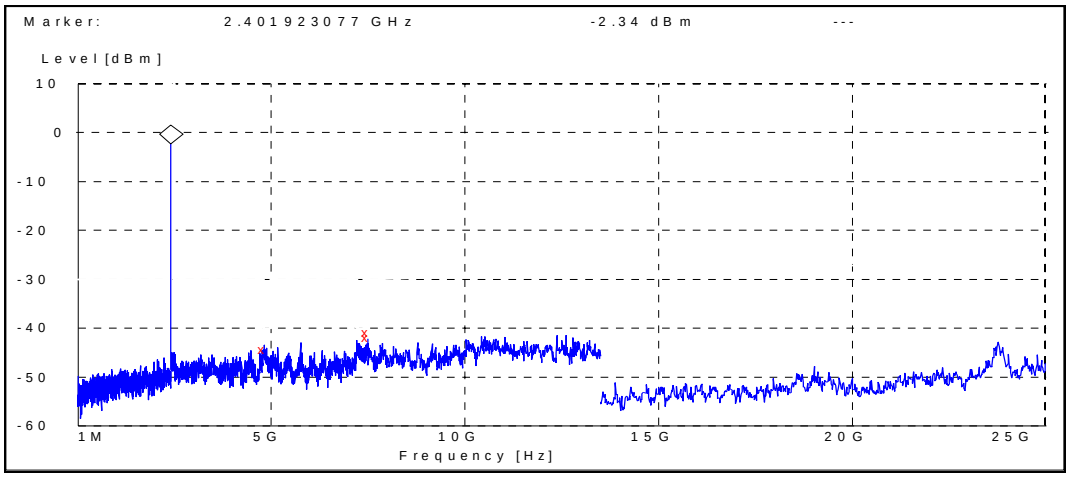
Frequency range [MHz]	Limit [dBc]
1 – 25000	≤ -20

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

5.2. Bluetooth Test results

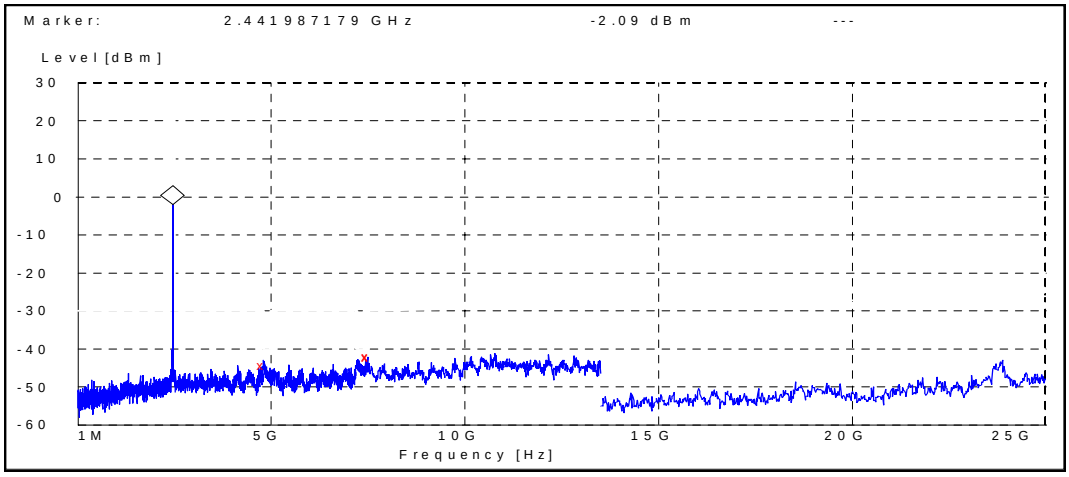
5.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



Frequency [MHz]	P [dBc]	Result
4816.346154	-41.962071	PASSED
7499.038462	-38.562071	PASSED
7500.000000	-39.562071	PASSED

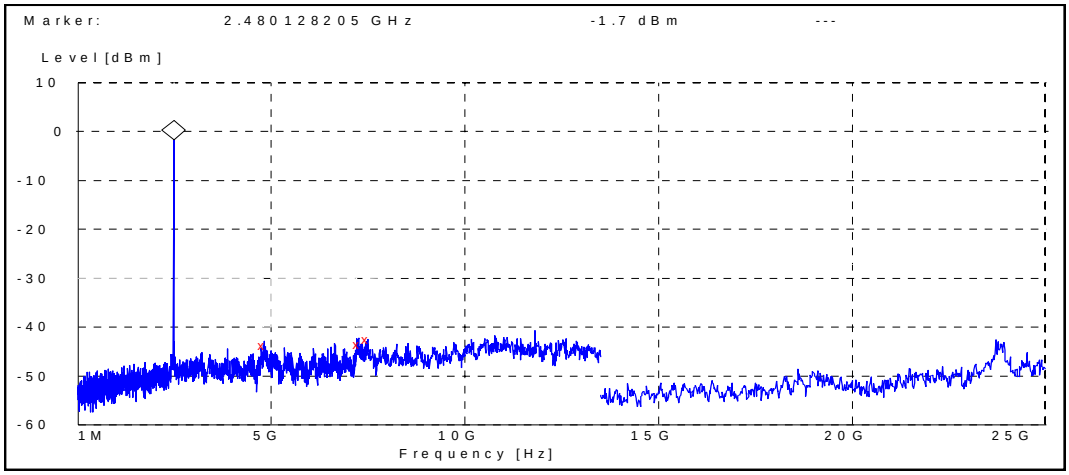
Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4802.564103	-42.114874	PASSED
7497.596154	-39.814874	PASSED
7500.000000	-40.114874	PASSED

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

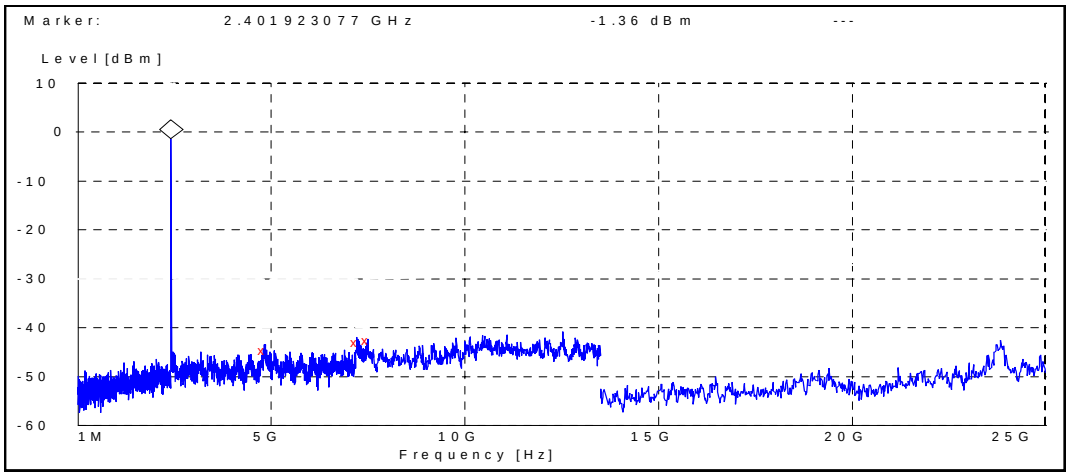
Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4808.653846	-42.101132	PASSED
7262.500000	-41.801132	PASSED
7500.000000	-40.901132	PASSED

5.2.2 8DPSK modulation, PRBS packet type

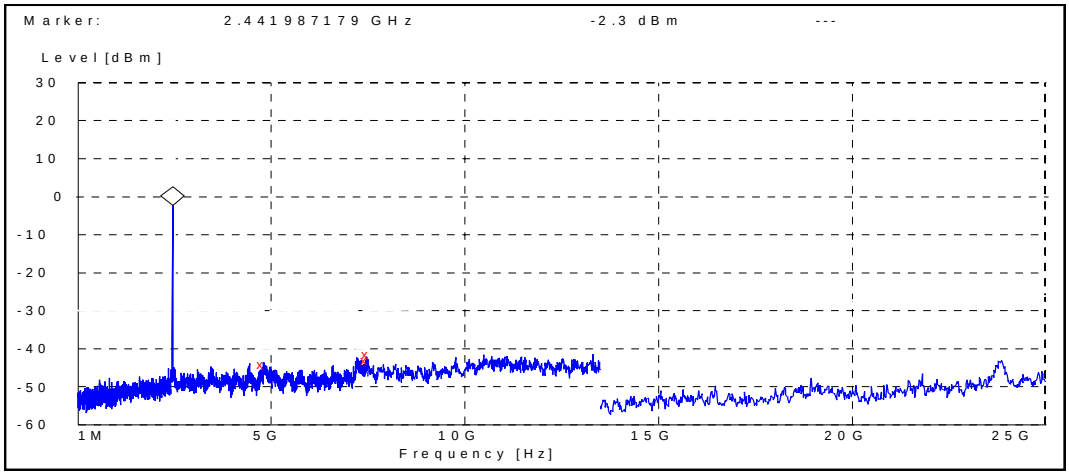
Channel 0 / 2402 MHz



Frequency [MHz]	P [dBc]	Result
4819.871795	-43.340343	PASSED
7207.692308	-41.740343	PASSED
7500.000000	-41.140343	PASSED

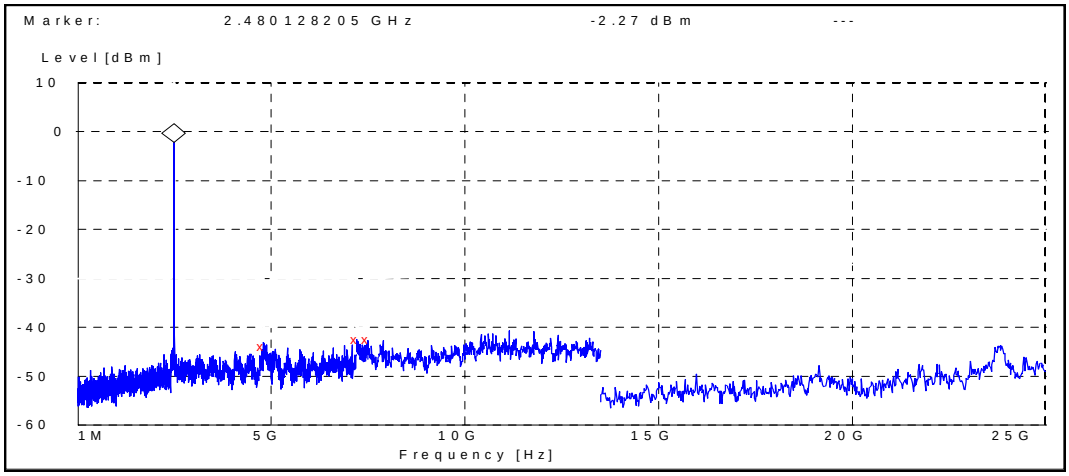
TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4802.564103	-41.696688	PASSED
7470.192308	-40.696688	PASSED
7500.000000	-39.196688	PASSED

Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4803.525641	-41.626577	PASSED
7210.576923	-40.126577	PASSED
7500.000000	-40.226577	PASSED

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

6. Spurious radiated emissions

(FCC §15.247(c), §15.209, RSS-210 A8.5)

EUT with DUT number	RM-320 DUT 41093
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 102.9
Date of measurements	1.6.2007
Measured by	Jari Jantunen

6.1. Test method and limit

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

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

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

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

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

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

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

The measurement results are obtained as described below:

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

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

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

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

Frequency range [MHz[	Limit [µV/m]	Limit [dBµV/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)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4804.000000	39.00	89.13	40.70	-1.7	VERTICAL	PASSED
7206.000000	42.10	127.35	40.40	1.7	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4804.000000	26.20	20.42	27.90	-1.7	HORIZONTAL	PASSED
7206.000000	28.40	26.30	26.70	1.7	HORIZONTAL	PASSED

Channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
37.695391	7.50	2.37	18.60	-11.1	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4950.899800	40.60	107.15	41.80	-1.2	HORIZONTAL	PASSED
7273.541082	42.80	138.04	40.50	2.3	VERTICAL	PASSED
7278.563126	42.80	138.04	40.40	2.4	VERTICAL	PASSED
7418.837675	43.00	141.25	40.20	2.8	VERTICAL	PASSED
7438.871743	42.50	133.35	39.80	2.7	VERTICAL	PASSED
17994.483968	55.50	595.66	34.20	21.3	HORIZONTAL	PASSED

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Sinitaival 5
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Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4953.399800	27.30	23.17	28.50	-1.2	HORIZONTAL	PASSED
7272.541082	29.60	30.20	27.30	2.3	VERTICAL	PASSED
7282.063126	29.70	30.55	27.30	2.4	VERTICAL	PASSED
7419.337675	29.90	31.26	27.10	2.8	VERTICAL	PASSED
7434.371743	29.70	30.55	27.00	2.7	VERTICAL	PASSED
17991.983968	42.40	131.83	21.10	21.3	HORIZONTAL	PASSED

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4960.000000	40.10	101.16	41.30	-1.2	HORIZONTAL	PASSED
7440.000000	42.50	133.35	39.80	2.7	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4960.000000	27.10	22.65	28.30	-1.2	HORIZONTAL	PASSED
7440.000000	29.60	30.20	26.90	2.7	HORIZONTAL	PASSED

6.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4804.000000	39.10	90.16	40.80	-1.7	HORIZONTAL	PASSED
7206.000000	41.40	117.49	39.70	1.7	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4804.000000	26.00	19.95	27.70	-1.7	HORIZONTAL	PASSED
7206.000000	28.40	26.30	26.70	1.7	VERTICAL	PASSED

Channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
37.895391	7.40	2.34	18.60	-11.2	VERTICAL	PASSED

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Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
2497.024048	45.20	181.97	38.90	6.3	VERTICAL	PASSED
2881.581162	46.40	208.93	37.70	8.7	VERTICAL	PASSED
4940.379760	40.20	102.33	41.50	-1.3	VERTICAL	PASSED
4954.405812	40.30	103.51	41.50	-1.2	HORIZONTAL	PASSED
7281.059118	42.60	134.90	40.20	2.4	HORIZONTAL	PASSED
7284.061122	42.90	139.64	40.50	2.4	VERTICAL	PASSED
7417.337675	43.60	151.36	40.80	2.8	HORIZONTAL	PASSED
17922.337675	55.40	588.84	34.30	21.1	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
2497.024048	31.90	39.36	25.60	6.3	VERTICAL	PASSED
2883.081162	33.50	47.32	24.80	8.7	VERTICAL	PASSED
4940.379760	27.20	22.91	28.50	-1.3	VERTICAL	PASSED
4951.905812	27.30	23.17	28.50	-1.2	HORIZONTAL	PASSED
7278.061122	29.70	30.55	27.30	2.4	VERTICAL	PASSED
7282.059118	29.70	30.55	27.30	2.4	HORIZONTAL	PASSED
7415.337675	29.80	30.90	27.00	2.8	HORIZONTAL	PASSED
17922.837675	42.00	125.89	20.90	21.1	VERTICAL	PASSED

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4960.000000	39.60	95.50	40.80	-1.2	VERTICAL	PASSED
7440.000000	42.70	136.46	40.00	2.7	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4960.000000	27.10	22.65	28.30	-1.2	HORIZONTAL	PASSED
7440.000000	29.60	30.20	26.90	2.7	HORIZONTAL	PASSED

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7. AC powerline conducted emissions

(FCC §15.207, RSS-GEN 7.2.2)

EUT with DUT number	RM-320 DUT 41093
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	18 / 51 / 100.9
Date of measurements	30.5.2007
Measured by	Jari Jantunen

7.1. Test method and limit

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

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

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

The measurement results are obtained as described below:

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

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

CISPR 22 Class B limits

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

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Sinitaival 5
FIN-33720 TAMPERE, FINLAND
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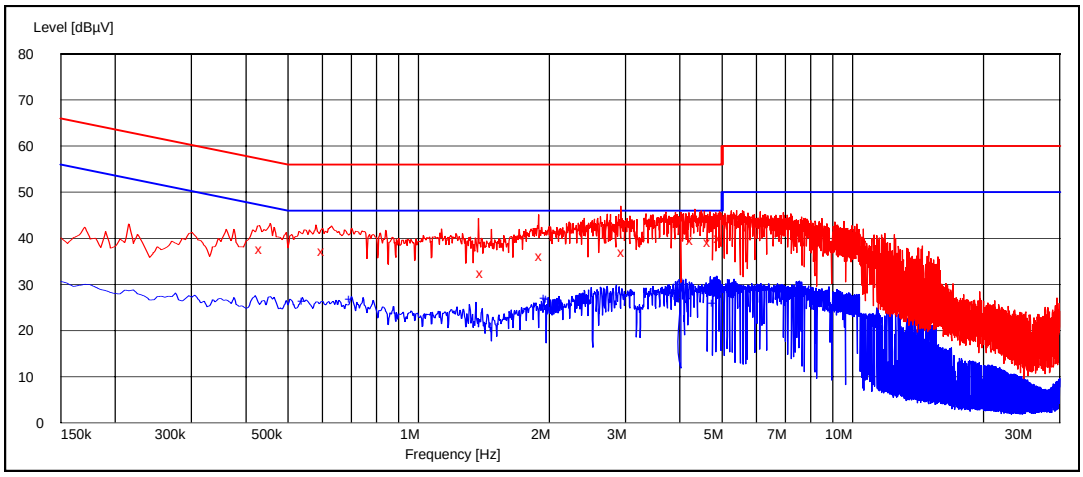
7.2. Bluetooth Test results

7.2.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.435000	37.70	L1	PASSED
0.605000	37.20	L1	PASSED
1.405000	32.50	L1	PASSED
1.925000	36.20	L1	PASSED
2.975000	37.00	L1	PASSED
4.285000	39.70	L1	PASSED
4.700000	39.20	L1	PASSED
4.960000	40.20	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.545000	26.50	L1	PASSED
0.700000	26.80	L1	PASSED
1.965000	27.10	L1	PASSED
1.990000	26.80	L1	PASSED
4.805000	25.90	L1	PASSED
4.830000	30.20	L1	PASSED

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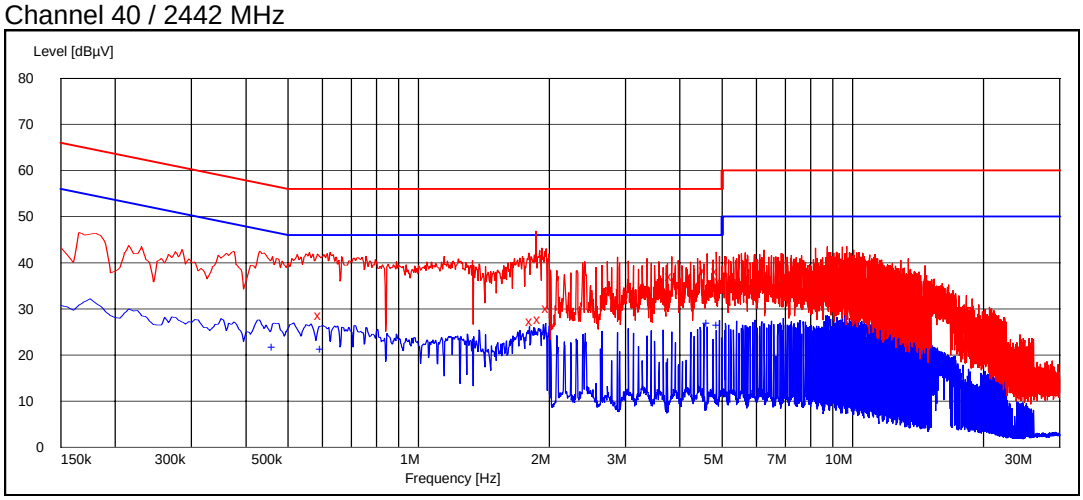
7.2.2 8DPSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.595000	28.60	N	PASSED
1.825000	27.40	N	PASSED
1.905000	27.80	N	PASSED
1.990000	30.10	L1	PASSED
3.825000	37.00	L1	PASSED
4.585000	38.40	L1	PASSED
4.895000	38.10	L1	PASSED
4.975000	36.00	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.465000	21.80	N	PASSED
0.600000	21.20	L1	PASSED
4.660000	27.00	L1	PASSED
4.915000	26.40	N	PASSED

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8. 20 dB bandwidth

(FCC §15.247(a)(1), RSS-210 A8.1 (1))

EUT with DUT number	RM-320 DUT 41092
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 42 / 100,8
Date of measurements	30.05.2007
Measured by	Petteri Suni

8.1. Test method and limit

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

Limits for 20 dB bandwidth measurements

Limit [MHz]
N/A

8.2. Bluetooth Test results

8.2.1 GFSK modulation, PRBS packet type

Channel / f_C [MHz]	**20 dB bandwidth [kHz]**	**Result**
0 / 2402	791.667	PASSED
40 / 2442	791.667	PASSED
78 / 2480	798.077	PASSED

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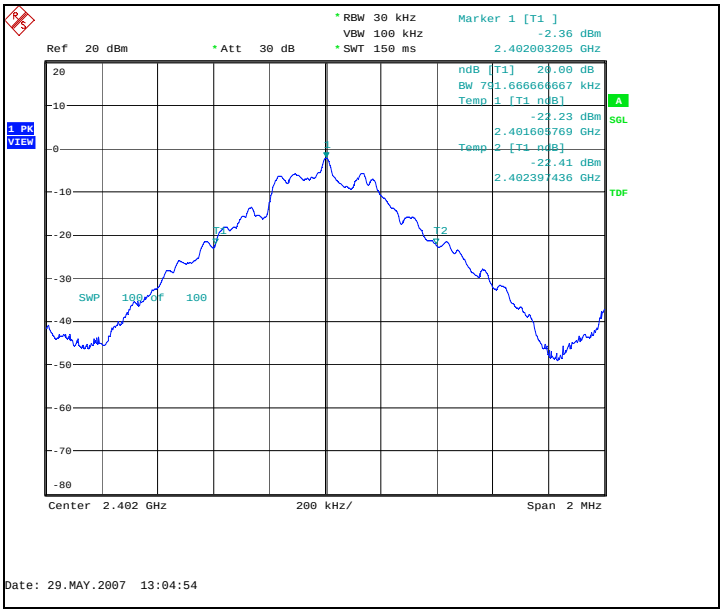
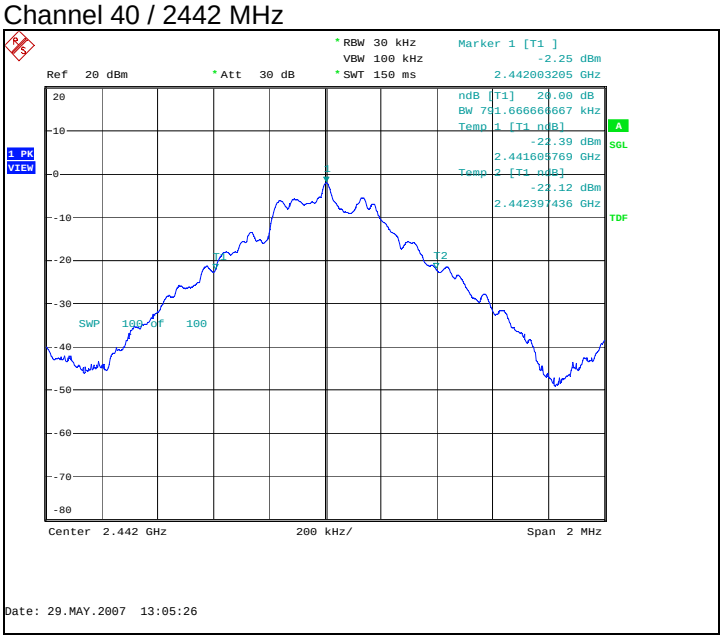
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



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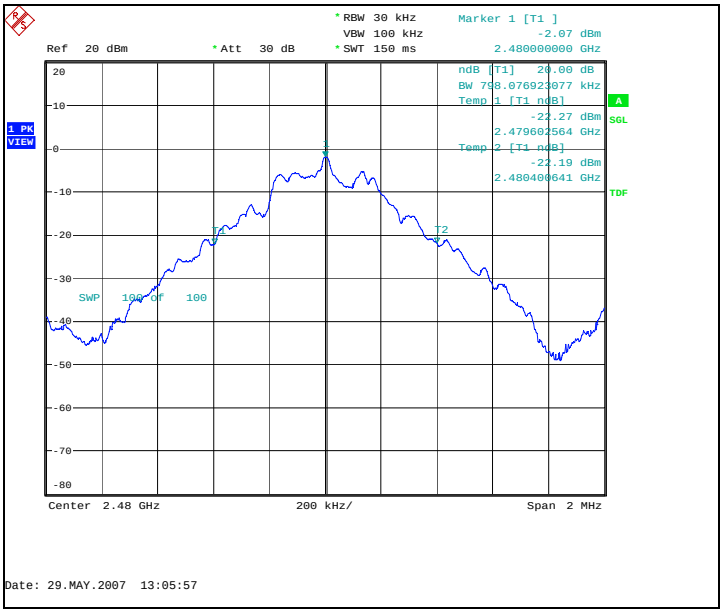
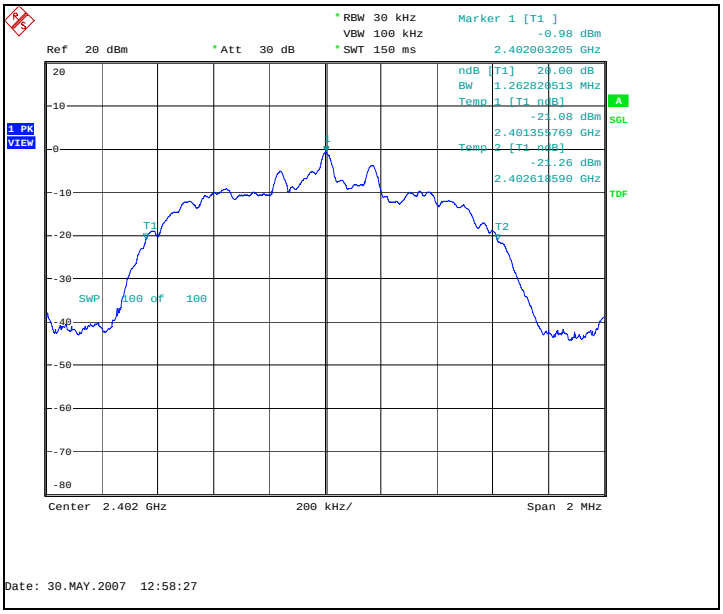
Channel 78 / 2480 MHz



8.2.2 8DPSK modulation, PRBS packet type

Channel / f_C [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1262.821	PASSED
40 / 2442	1259.615	PASSED
78 / 2480	1262.821	PASSED

Channel 0 / 2402 MHz



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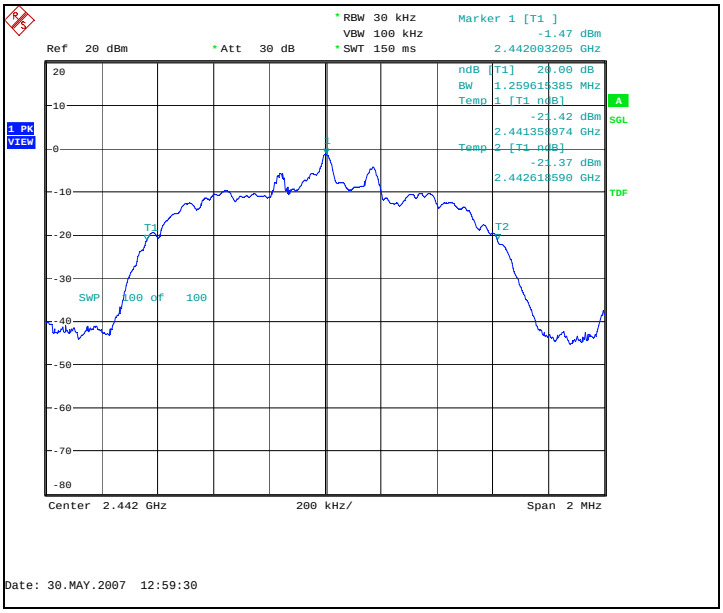
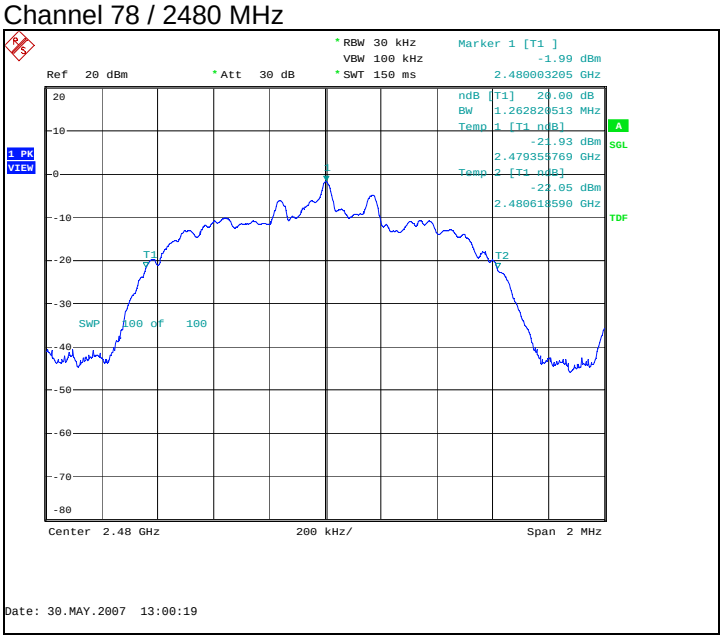
Channel 40 / 2442 MHz



Channel 78 / 2480 MHz



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9. Carrier frequency separation

(FCC §15.247(a)(1), RSS-210 A8.1 (2))

EUT with DUT number	RM-320 DUT 41092
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 42 / 100,8
Date of measurements	30.05.2007
Measured by	Petteri Suni

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

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P.O. Box 68
Sinitaival 5
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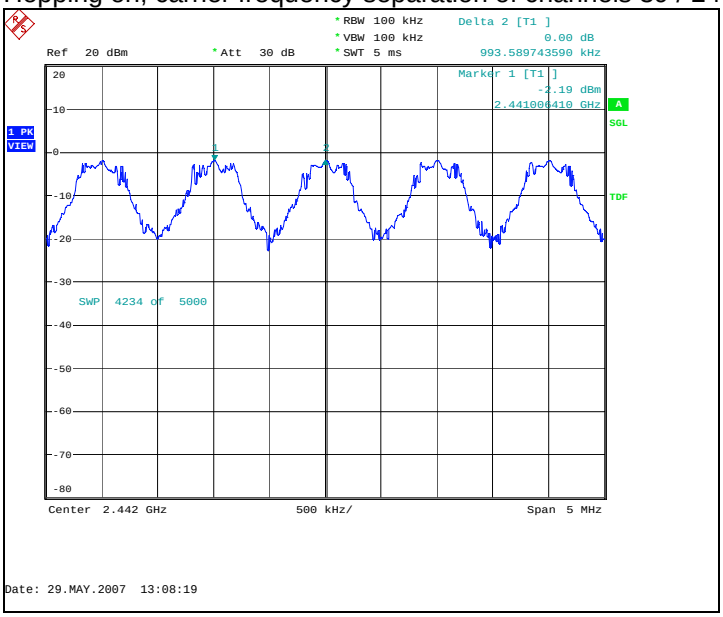
9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
993.59	PASSED

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



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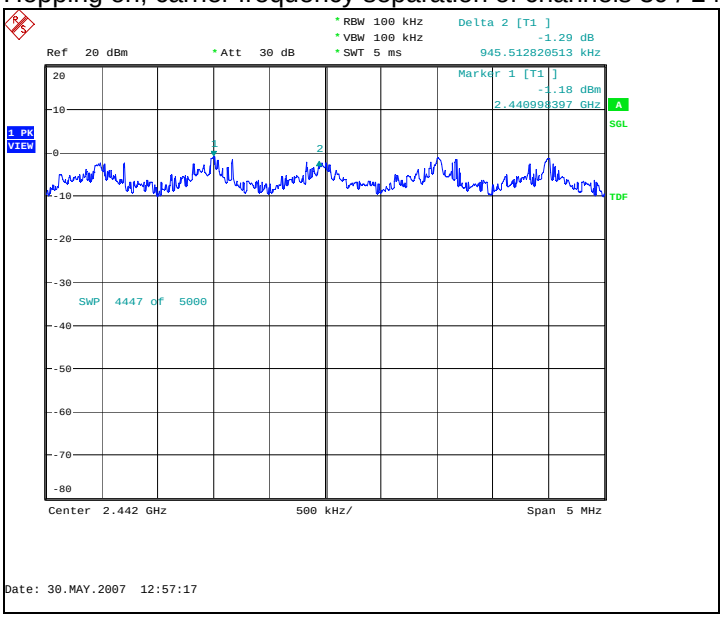
9.2.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
945.513	PASSED

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



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Fax. +358 (0) 7180 46880

10. Number of hopping frequencies

(FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))

EUT with DUT number	RM-320 DUT 41092
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 42 / 100,8
Date of measurements	30.05.2007
Measured by	Petteri Suni

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

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Sinitaival 5
FIN-33720 TAMPERE, FINLAND
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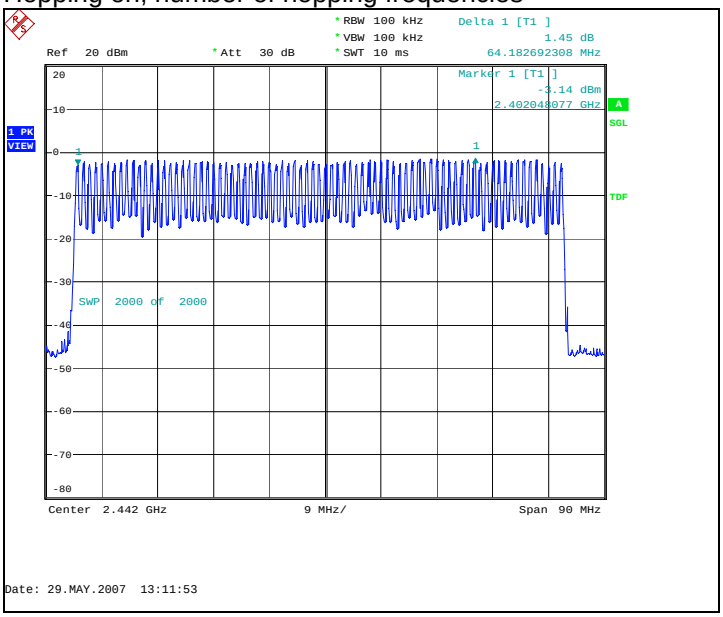
Fax. +358 (0) 7180 46880

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



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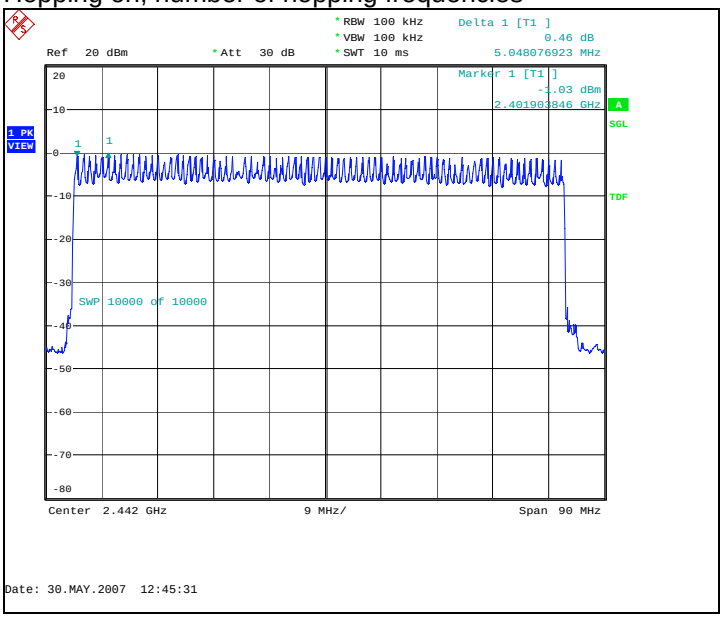
10.2.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
75	PASSED

Hopping on, number of hopping frequencies



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Sinitaival 5
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11. Time of occupancy

(FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))

EUT with DUT number	RM-320 DUT 41092
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 42 / 100,8
Date of measurements	30.05.2007
Measured by	Petteri Suni

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

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Sinitaival 5
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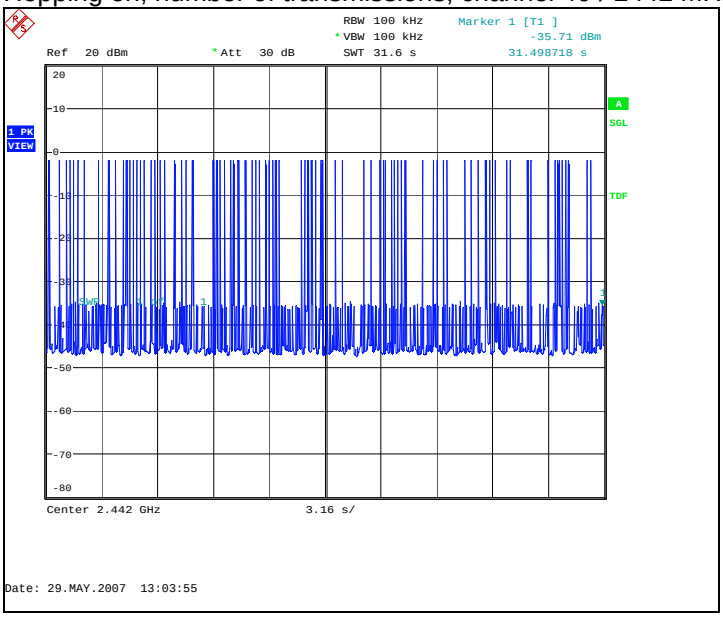
11.2. Bluetooth test results

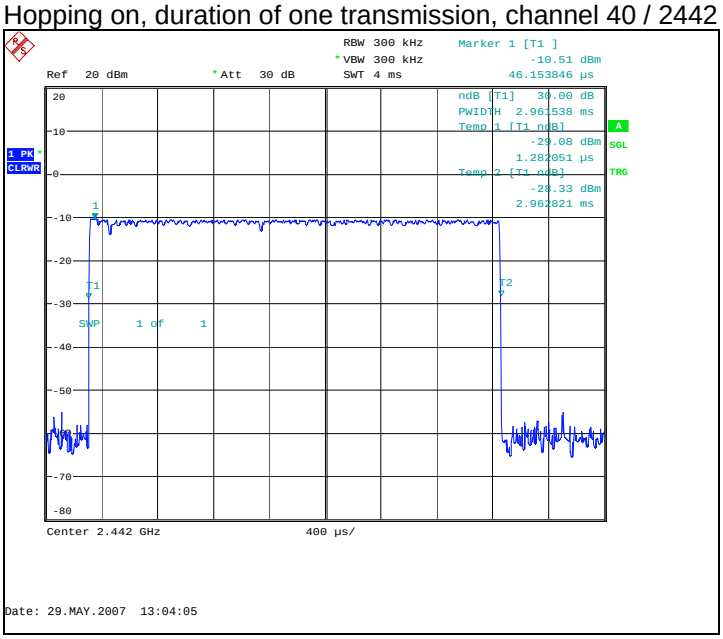
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [µs]	Time of occupancy [s]	Result
82	2 962	0.242846	PASSED

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



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



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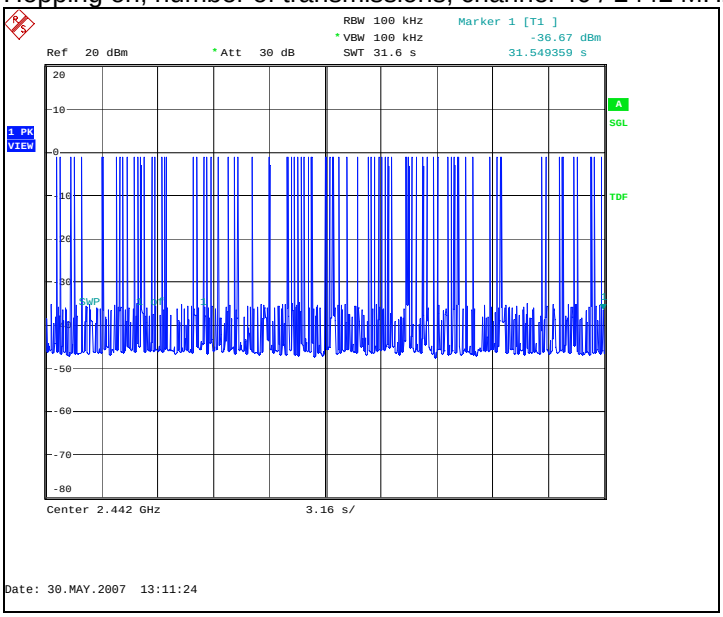
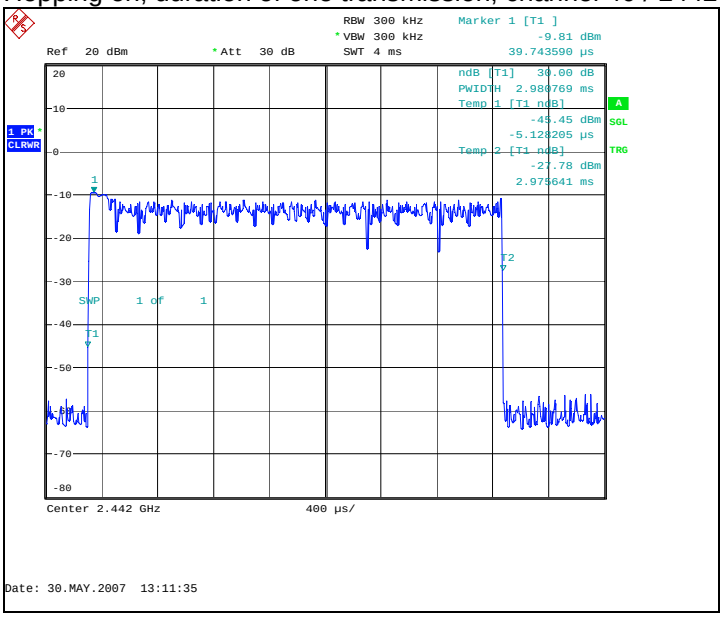
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [µs]	Time of occupancy [s]	Result
78	2 981	0.232500	PASSED

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



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



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12. Conducted peak output power

(FCC §15.247(b)(1), RSS-210 A8.4 (4))

EUT with DUT number	RM-320 DUT 41092
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 42 / 100,8
Date of measurements	30.05.2007
Measured by	Petteri Suni

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

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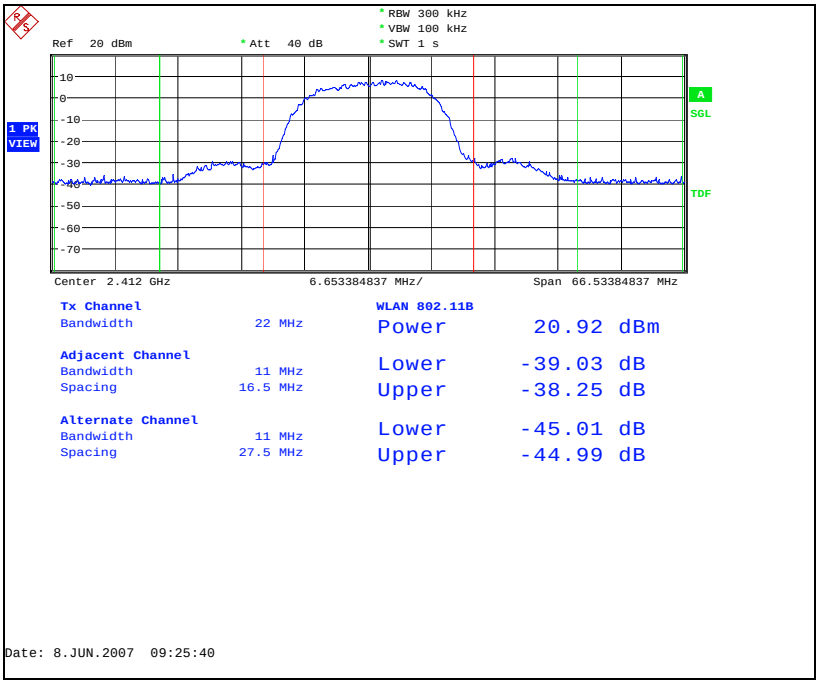
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

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	20.92	0.124	PASSED
7 / 2442	20.59	0.115	PASSED
11 / 2462	21.11	0.129	PASSED

Channel 1 / 2412 MHz



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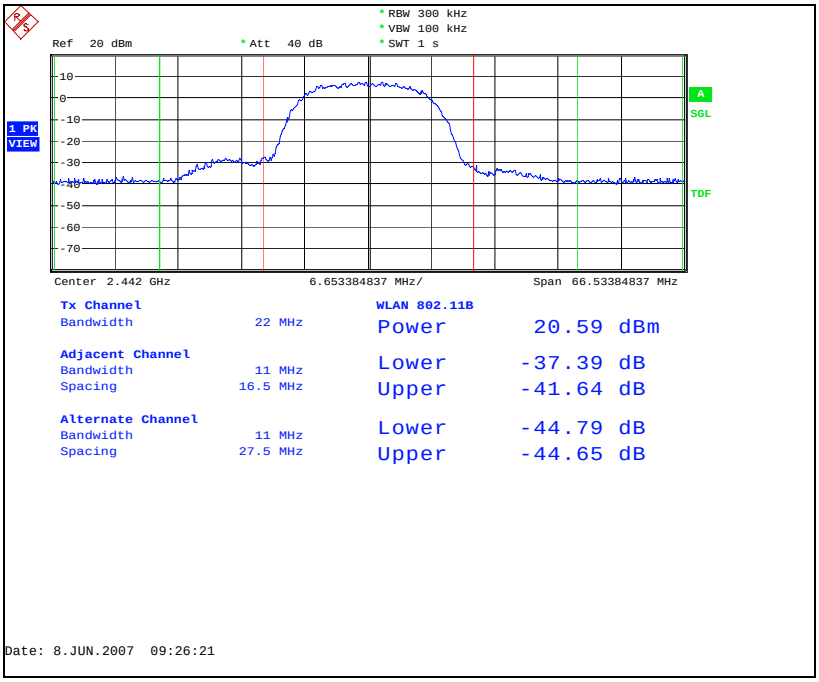
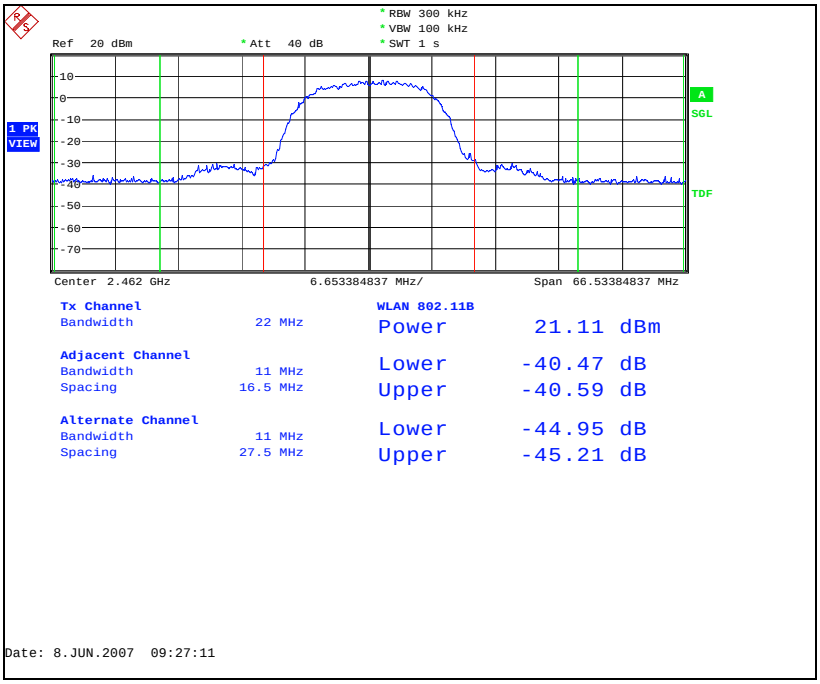
Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



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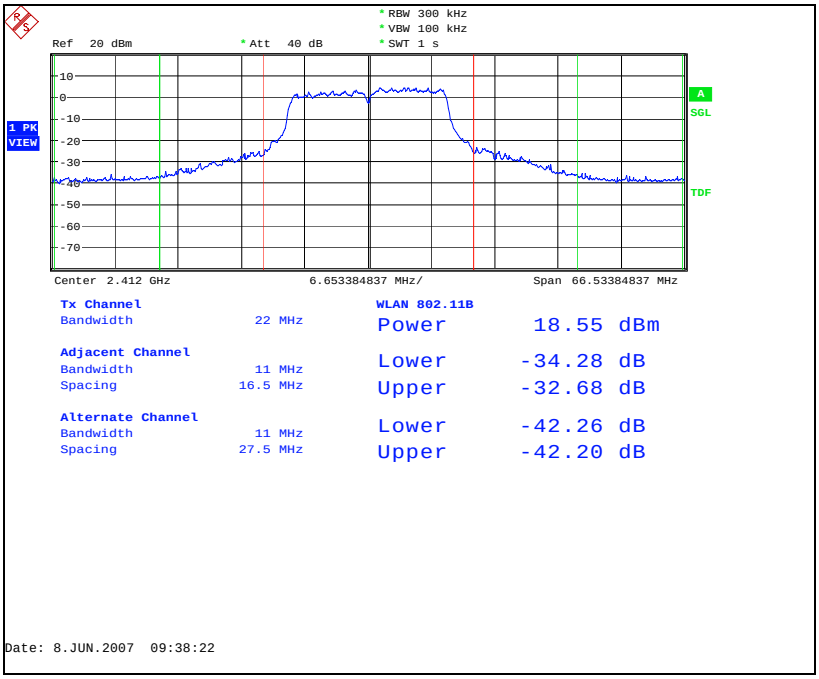
12.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_C [MHz]	P [dBm]	P [W]	Result
1 / 2412	18.55	0.072	PASSED
7 / 2442	18.28	0.067	PASSED
11 / 2462	18.58	0.072	PASSED

Channel 1 / 2412 MHz



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Sinitaival 5
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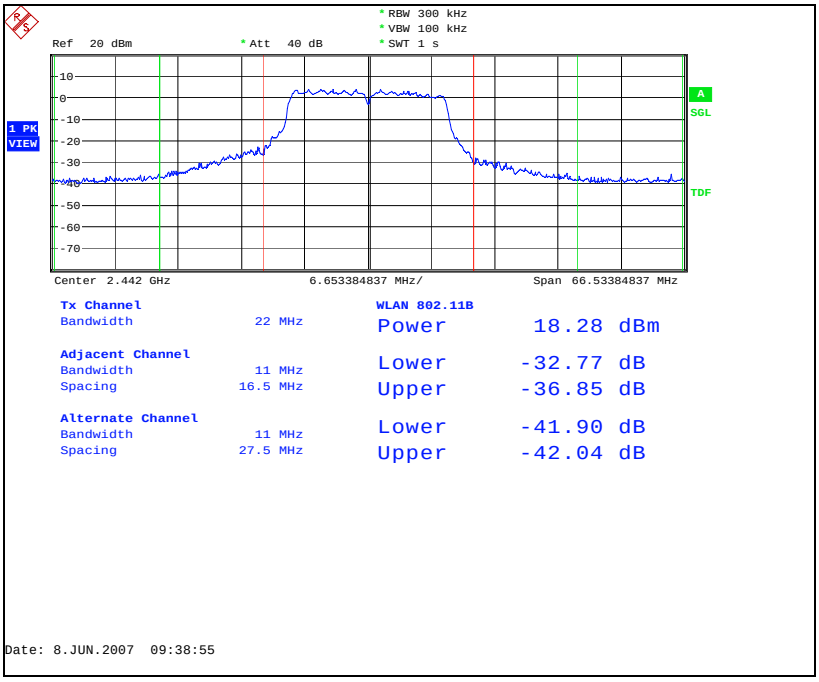
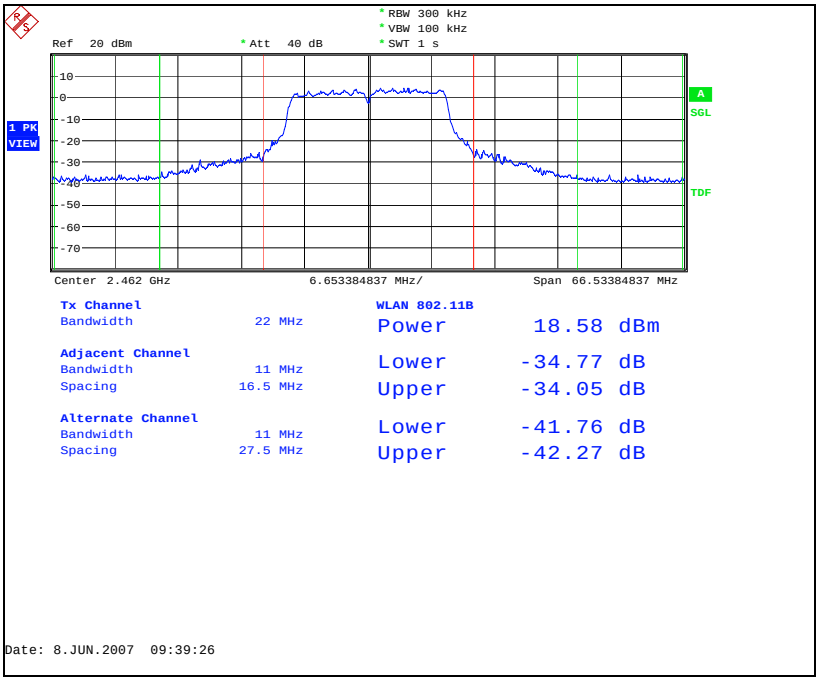
Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



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P.O. Box 68
Sinitaival 5
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13. Band edge compliance of RF emissions

(FCC §15.247(c), RSS-210 A8.5)

EUT with DUT number	RM-320 DUT 41093
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	Slide Open
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 102.9
Date of measurements	01.06.2007
Measured by	Jari Jantunen

13.1. Test method and limit

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

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

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

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P.O. Box 68
Sinitaival 5
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Fax. +358 (0) 7180 46880

13.2. WLAN Test results

13.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

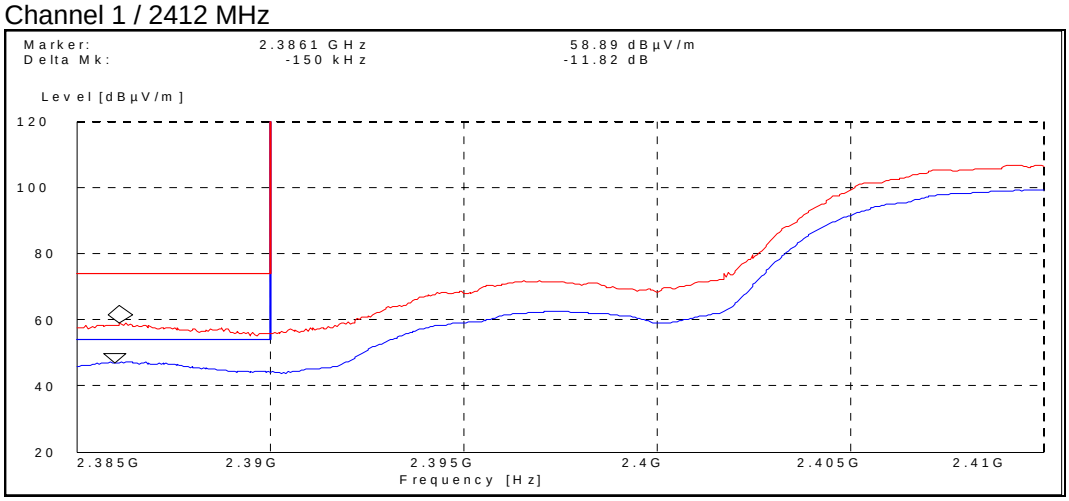
Average (RBW: 1 MHz)

Channel / f_C [MHz]	E [dBµV/m]	Result
1 / 2412	47.07	PASSED
11 / 2462	38.79	PASSED

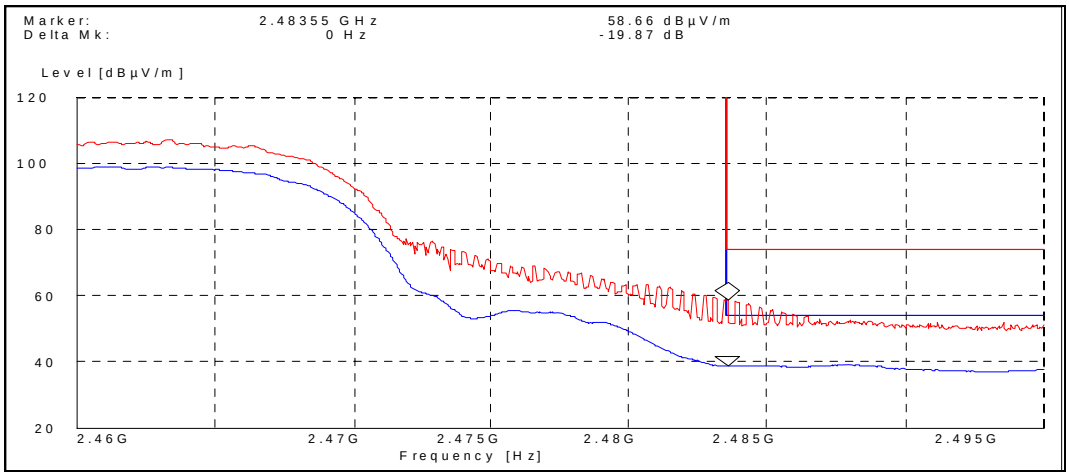
Peak (RBW: 1 MHz)

Channel / f_C [MHz]	E [dBµV/m]	Result
1 / 2412	58.89	PASSED
11 / 2462	58.66	PASSED

Channel 1 / 2412 MHz



Channel 11 / 2462 MHz



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Sinitaival 5
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13.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

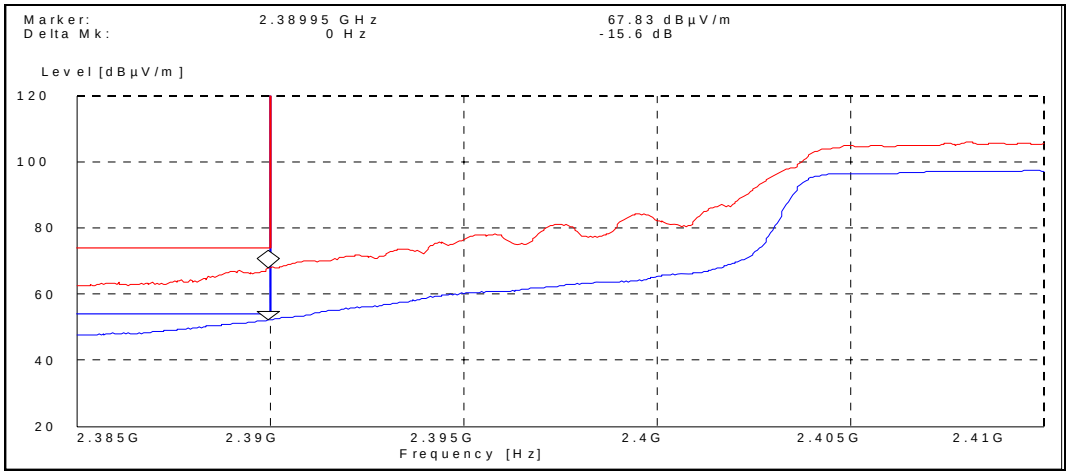
Average (RBW: 1 MHz)

Channel / f_C [MHz]	E [dBµV/m]	Result
1 / 2412	52.23	PASSED
11 / 2462	43.52	PASSED

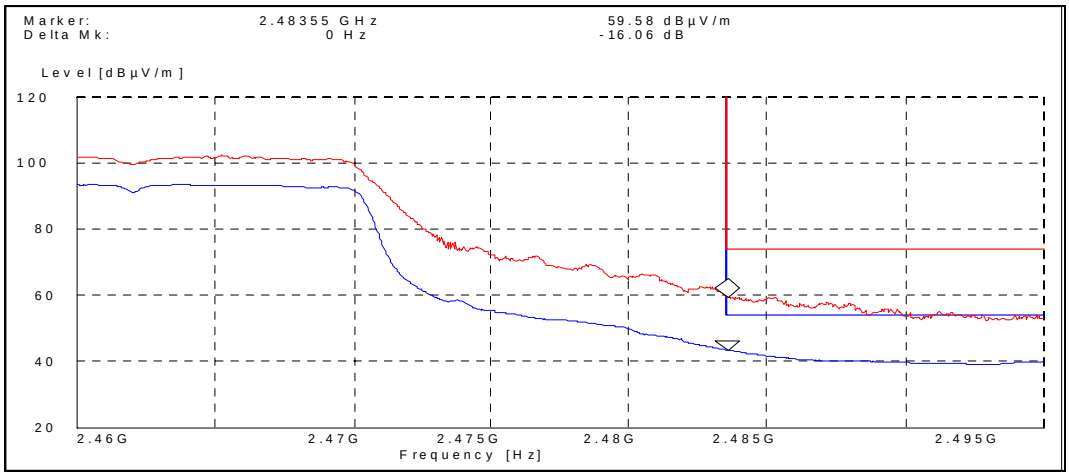
Peak (RBW: 1 MHz)

Channel / f_C [MHz]	E [dBµV/m]	Result
1 / 2412	67.83	PASSED
11 / 2462	59.58	PASSED

Channel 1 / 2412 MHz



Channel 11 / 2462 MHz



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P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
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14. Spurious RF conducted emissions

(FCC §15.247(c), RSS-210 A8.5)

EUT with DUT number	RM-320 DUT 41092
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 42 / 100,8
Date of measurements	30.05.2007
Measured by	Petteri Suni

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

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P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
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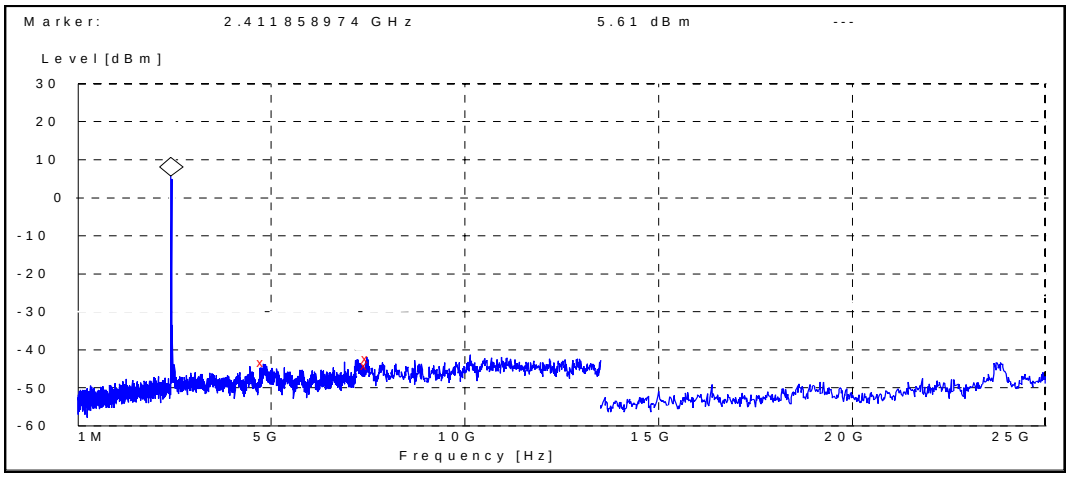
14.2. WLAN Test results

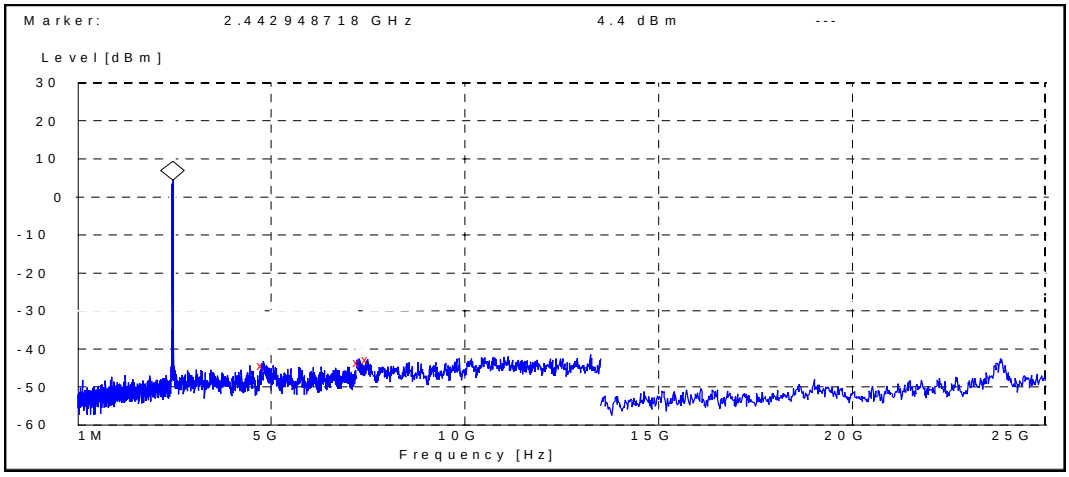
14.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 1 / 2412 MHz



Frequency [MHz]	P [dBc]	Result
4804.166667	-49.012165	PASSED
7460.576923	-49.712165	PASSED
7500.000000	-47.812165	PASSED

Channel 7 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4803.846154	-48.595839	PASSED
7256.250000	-48.095839	PASSED
7500.000000	-47.195839	PASSED

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Sinitaival 5
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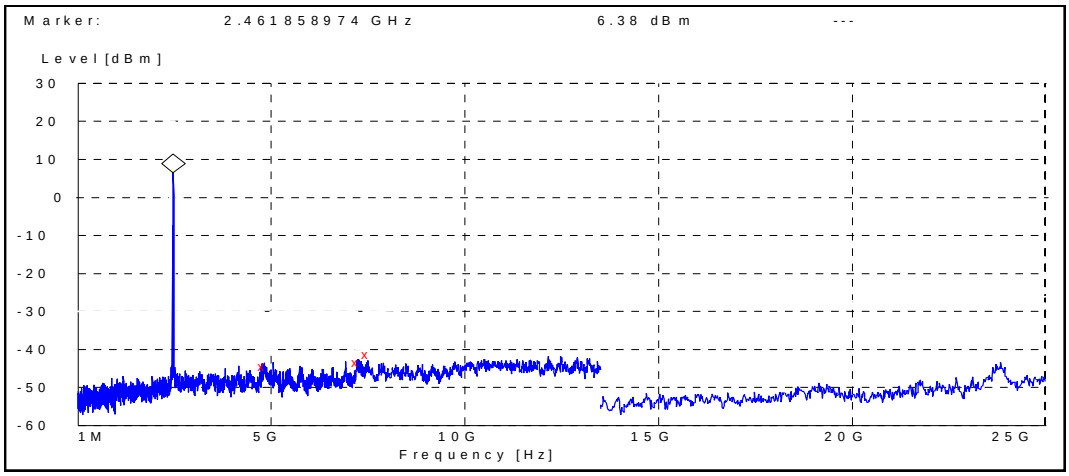
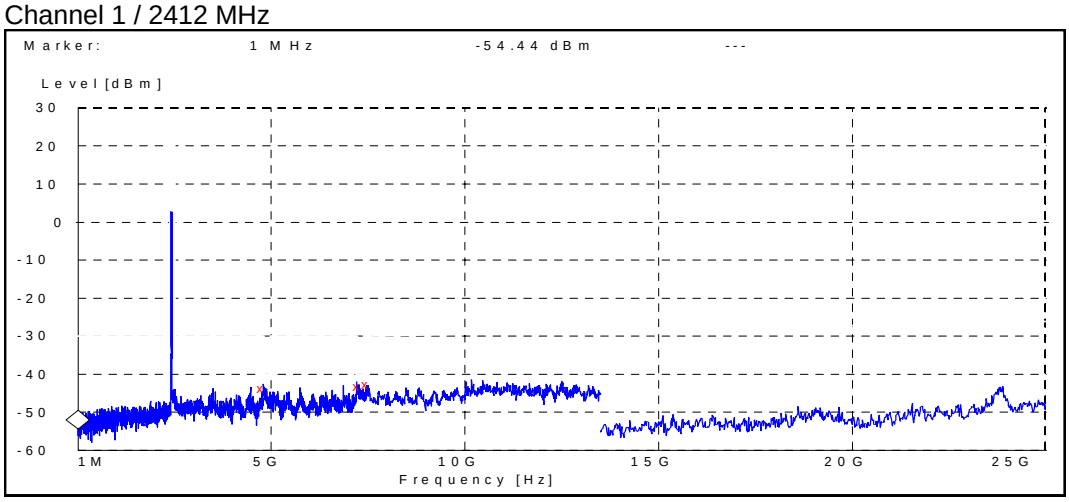
Channel 11 / 2462 MHz



Frequency [MHz]	P [dBc]	Result
4826.602564	-50.776794	PASSED
7235.096154	-49.676794	PASSED
7500.000000	-47.676794	PASSED

14.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel 1 / 2412 MHz



Frequency [MHz]	P [dBc]	Result
4803.205128	10.742136	PASSED
7257.211538	11.342136	PASSED
7500.000000	11.742136	PASSED

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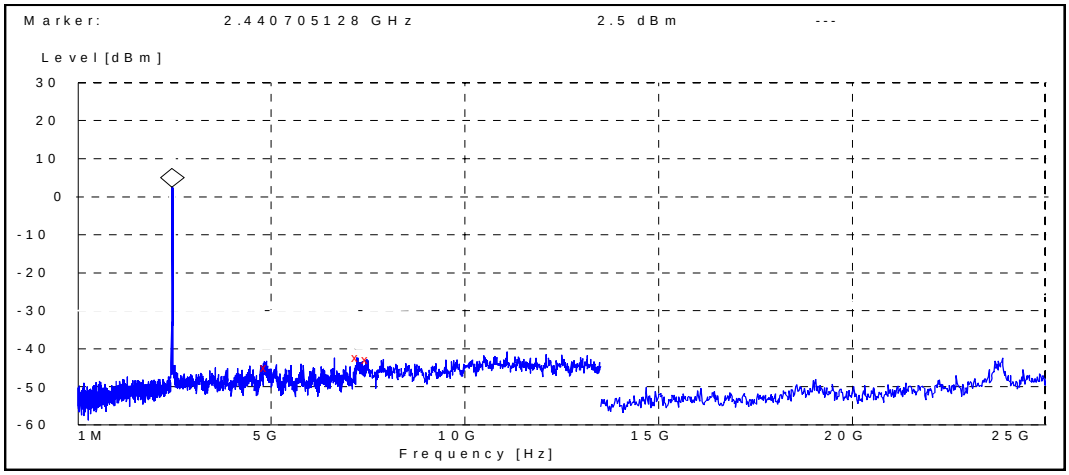
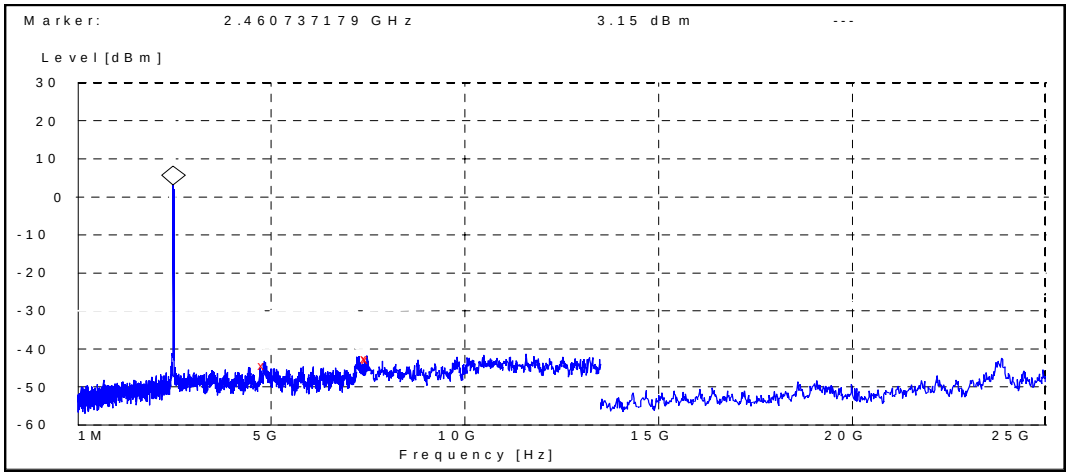
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

Channel 7 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4860.897436	-47.300741	PASSED
7226.923077	-44.700741	PASSED
7500.000000	-45.200741	PASSED

Channel 11 / 2462 MHz



Frequency [MHz]	P [dBc]	Result
4821.794872	-47.354201	PASSED
7480.769231	-45.554201	PASSED
7500.000000	-45.954201	PASSED

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P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

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

EUT with DUT number	RM-320 DUT 41093
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 45 / 102.9
Date of measurements	4.6.2007
Measured by	Jari Jantunen

15.1. Test method and limit

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

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

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

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

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

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

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

The measurement results are obtained as described below:

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

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

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P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

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

Frequency range [MHz[	Limit [µV/m]	Limit [dBµV/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)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4824.000000	44.50	167.88	46.20	-1.7	HORIZONTAL	PASSED
7236.000000	42.80	138.04	40.80	2.0	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4824.000000	31.90	39.36	33.60	-1.7	HORIZONTAL	PASSED
7236.000000	30.30	32.73	28.30	2.0	HORIZONTAL	PASSED

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
37.595391	7.60	2.40	18.60	-11.0	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4883.769539	43.00	141.25	44.60	-1.6	HORIZONTAL	PASSED
7250.003006	42.50	133.35	40.40	2.1	VERTICAL	PASSED
7323.143287	42.70	136.46	40.40	2.3	HORIZONTAL	PASSED
7415.829659	42.30	130.32	39.50	2.8	HORIZONTAL	PASSED
7417.337675	43.30	146.22	40.50	2.8	VERTICAL	PASSED
17987.473948	55.60	602.56	34.30	21.3	HORIZONTAL	PASSED

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P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4883.769539	29.40	29.51	31.00	-1.6	HORIZONTAL	PASSED
7253.503006	29.20	28.84	27.10	2.1	VERTICAL	PASSED
7317.643287	29.40	29.51	27.10	2.3	HORIZONTAL	PASSED
7416.829659	29.80	30.90	27.00	2.8	HORIZONTAL	PASSED
7420.837675	29.70	30.55	26.90	2.8	VERTICAL	PASSED
17988.473948	42.30	130.32	21.00	21.3	HORIZONTAL	PASSED

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	43.60	151.36	45.00	-1.4	VERTICAL	PASSED
7386.000000	42.60	134.90	40.00	2.6	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4924.000000	30.20	32.36	31.60	-1.4	VERTICAL	PASSED
7386.000000	30.20	32.36	27.60	2.6	HORIZONTAL	PASSED

15.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

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	40.30	103.51	42.00	-1.7	HORIZONTAL	PASSED
7236.000000	44.90	175.79	42.90	2.0	HORIZONTAL	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	29.70	-1.7	HORIZONTAL	PASSED
7236.000000	30.40	33.11	28.40	2.0	HORIZONTAL	PASSED

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
37.535872	7.60	2.40	18.50	-10.9	HORIZONTAL	PASSED

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P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4880.261523	41.90	124.45	43.50	-1.6	HORIZONTAL	PASSED
4884.769539	40.50	105.93	42.10	-1.6	HORIZONTAL	PASSED
7270.535070	42.50	133.35	40.20	2.3	HORIZONTAL	PASSED
7282.061122	43.20	144.54	40.80	2.4	VERTICAL	PASSED
7416.831663	43.10	142.89	40.30	2.8	HORIZONTAL	PASSED
17937.367735	54.50	530.88	33.40	21.1	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4877.761523	27.40	23.44	29.00	-1.6	HORIZONTAL	PASSED
4886.769539	27.60	23.99	29.20	-1.6	HORIZONTAL	PASSED
7268.035070	29.60	30.20	27.30	2.3	HORIZONTAL	PASSED
7282.561122	29.70	30.55	27.30	2.4	VERTICAL	PASSED
7414.831663	29.70	30.55	26.90	2.8	HORIZONTAL	PASSED
17933.367735	42.00	125.89	20.90	21.1	VERTICAL	PASSED

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	40.70	108.39	42.10	-1.4	VERTICAL	PASSED
7386.000000	42.40	131.83	39.80	2.6	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4924.000000	28.00	25.12	29.40	-1.4	VERTICAL	PASSED
7386.000000	30.00	31.62	27.40	2.6	VERTICAL	PASSED

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FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
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16. AC powerline conducted emissions

(FCC §15.207, RSS-GEN 7.2.2)

EUT with DUT number	RM-320 DUT 41093
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	18 / 51 / 100.9
Date of measurements	30.5.2007
Measured by	Jari Jantunen

16.1. Test method and limit

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

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

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

The measurement results are obtained as described below:

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

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

CISPR 22 Class B limits

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

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P.O. Box 68
Sinitaival 5
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Tel. +358 (0) 7180 46800
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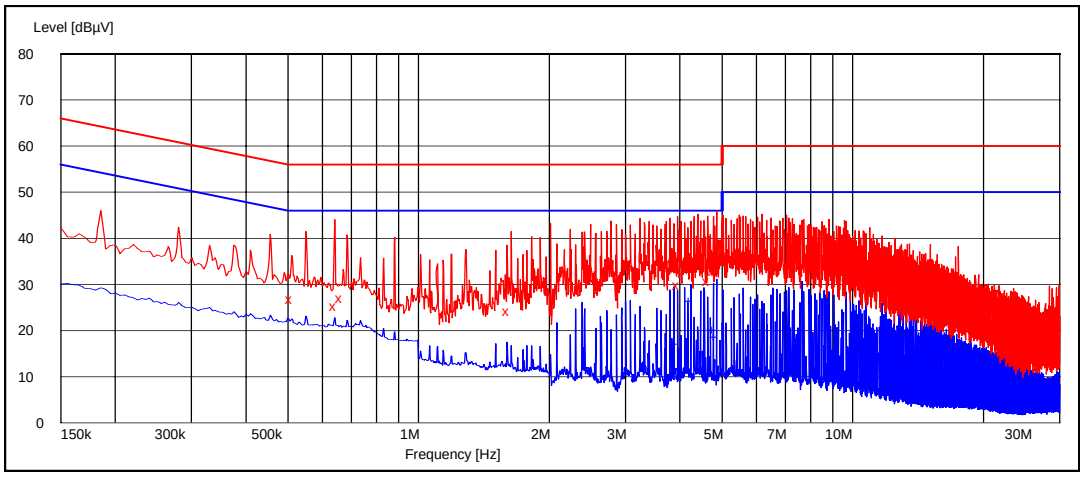
16.2. WLAN Test results

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
0.510000	26.90	N	PASSED
0.645000	25.40	N	PASSED
0.665000	27.00	L1	PASSED
1.610000	24.20	L1	PASSED
3.975000	29.80	N	PASSED
4.375000	33.60	L1	PASSED
4.665000	30.70	N	PASSED
4.820000	32.80	N	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
3.915000	17.20	N	PASSED
4.240000	26.40	L1	PASSED
4.815000	20.20	L1	PASSED
4.855000	18.60	L1	PASSED

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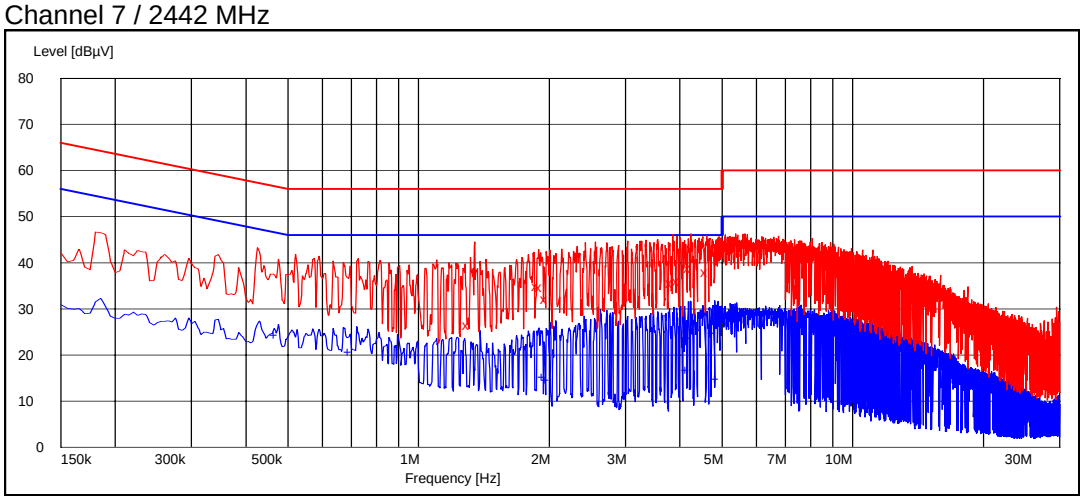
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

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
1.305000	26.40	N	PASSED
1.885000	35.00	L1	PASSED
1.920000	34.70	L1	PASSED
1.970000	32.20	L1	PASSED
3.845000	35.60	L1	PASSED
3.970000	36.10	L1	PASSED
4.220000	38.80	L1	PASSED
4.625000	37.90	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.470000	24.40	L1	PASSED
0.695000	20.50	L1	PASSED
1.945000	15.20	L1	PASSED
1.985000	14.50	N	PASSED
4.175000	16.70	N	PASSED
4.215000	23.70	L1	PASSED
4.790000	24.80	L1	PASSED
4.875000	14.70	N	PASSED

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Sinitaival 5
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Tel. +358 (0) 7180 46800
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17. 6 dB bandwidth

(FCC §15.247(a)(2), RSS-210 A8.2 (1))

EUT with DUT number	RM-320 DUT 41092
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 42 / 100,8
Date of measurements	30.05.2007
Measured by	Petteri Suni

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

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P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
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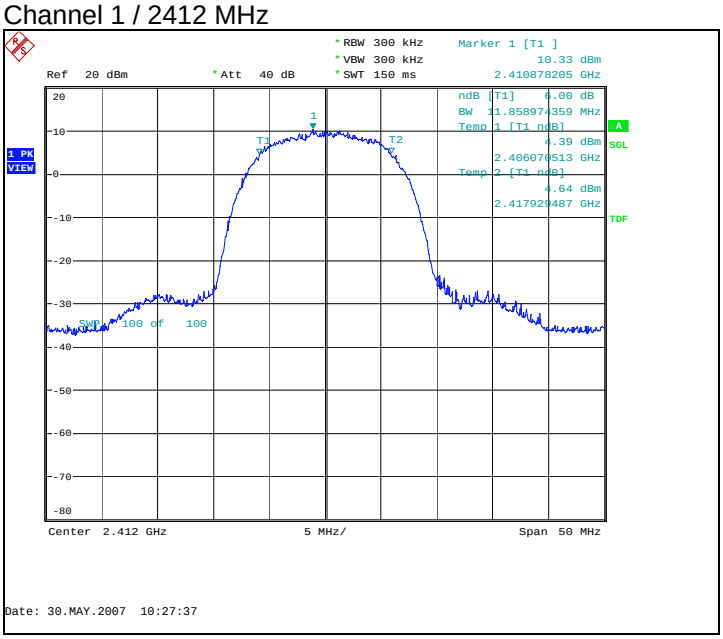
17.2. WLAN test results

17.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_C [MHz]	6 dB bandwidth [kHz]	Result
1	11858.974	PASSED
7	12419.872	PASSED
11	12419.872	PASSED

Channel 1 / 2412 MHz



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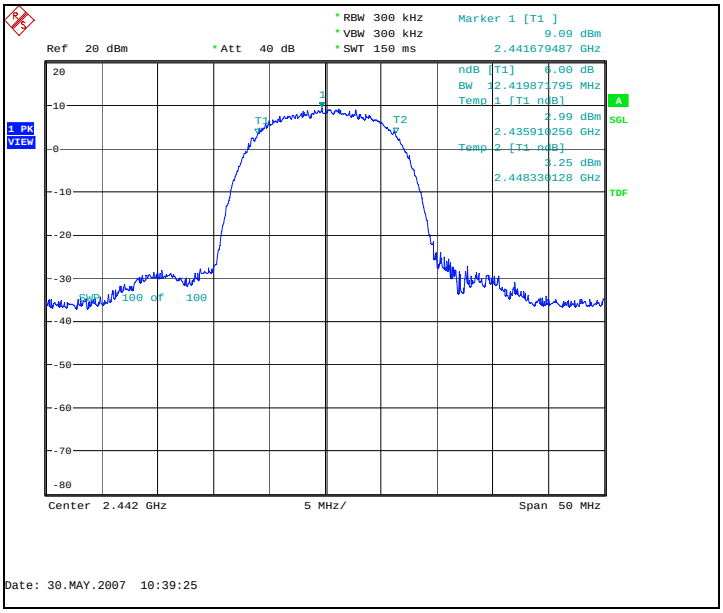
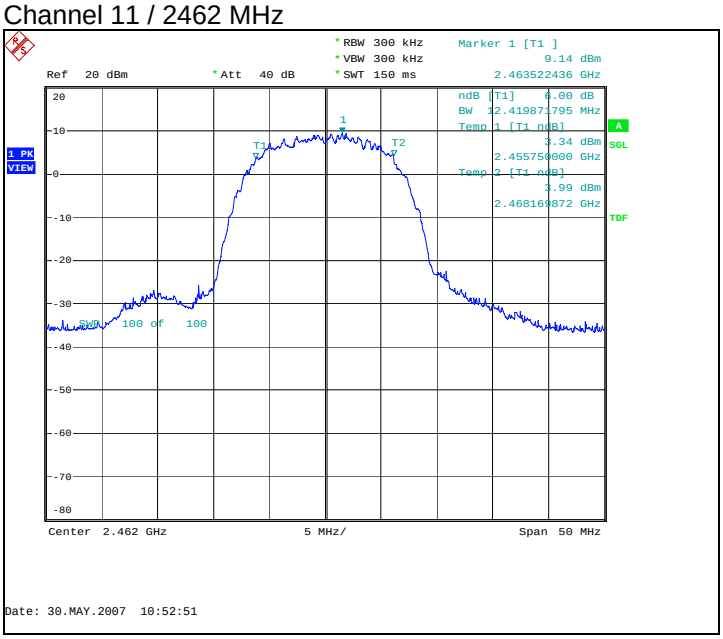
Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



17.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

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

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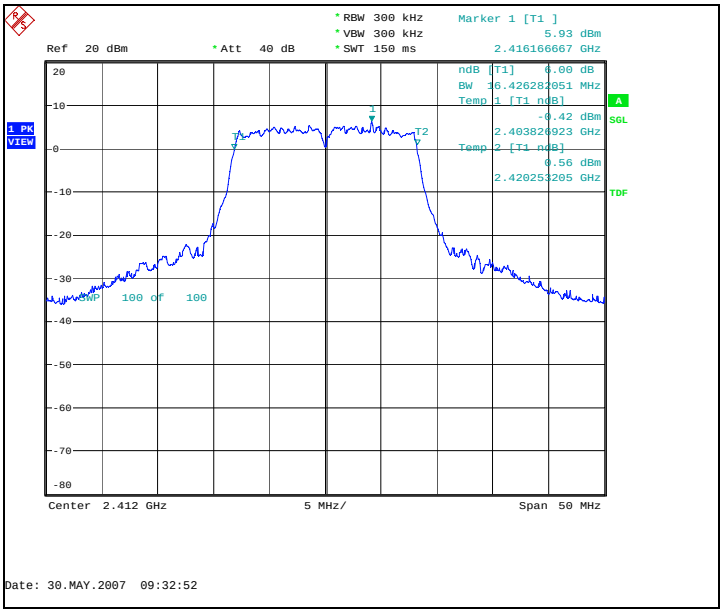
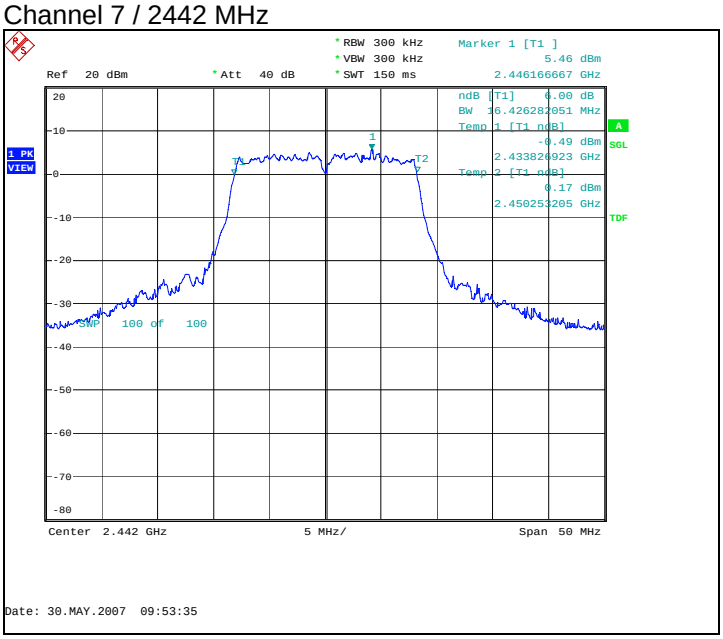
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



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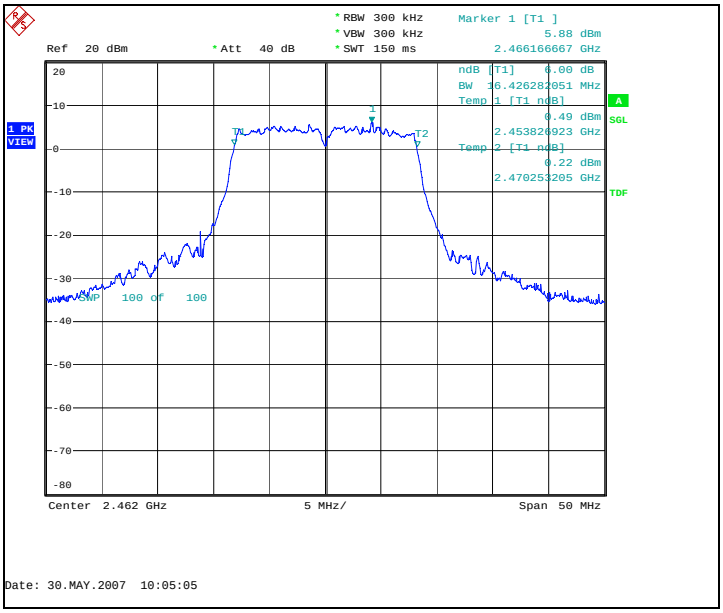
Channel 11 / 2462 MHz



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Sinitaival 5
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18. Power spectral density

(FCC §15.247(e), RSS-210 A8.2 (2))

EUT with DUT number	RM-320 DUT 41092
Accessories with DUT numbers	AD-54 DUT 41099, HS-45 DUT 41100, BL-6F DUT 41094, AC-5 DUT 41096
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 42 / 100,8
Date of measurements	30.05.2007
Measured by	Petteri Suni

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

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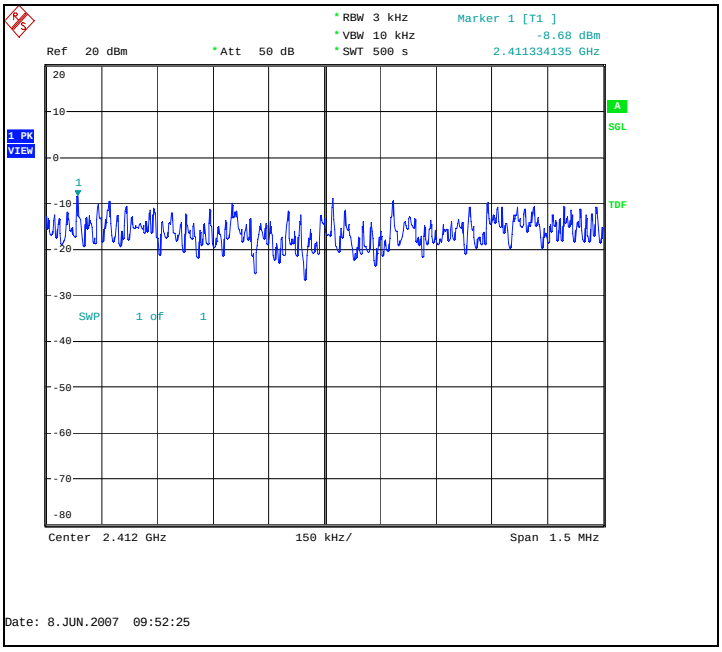
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

18.2. WLAN test results

18.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_C [MHz]	P [dBm]	P [W]	Result
1 / 2412	-8.68	0.000	PASSED
7 / 2442	-8.59	0.000	PASSED
11 / 2462	-8.11	0.000	PASSED

Channel 1 / 2412 MHz



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Sinitaival 5
FIN-33720 TAMPERE, FINLAND
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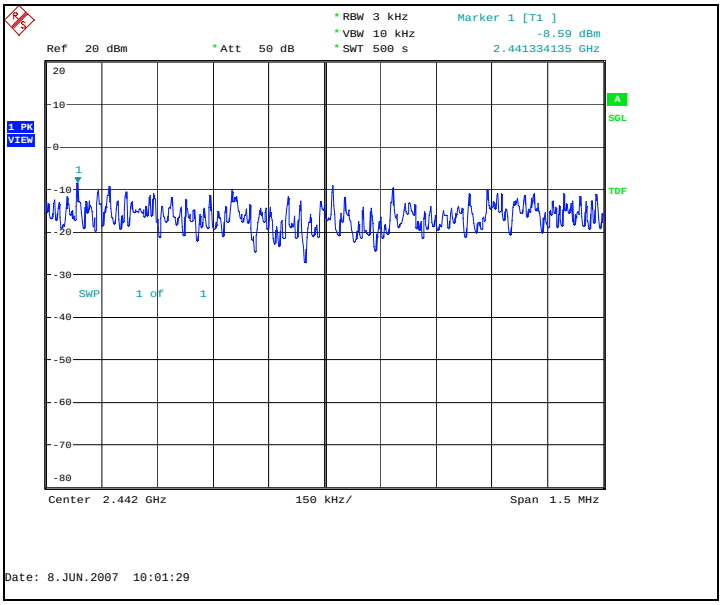
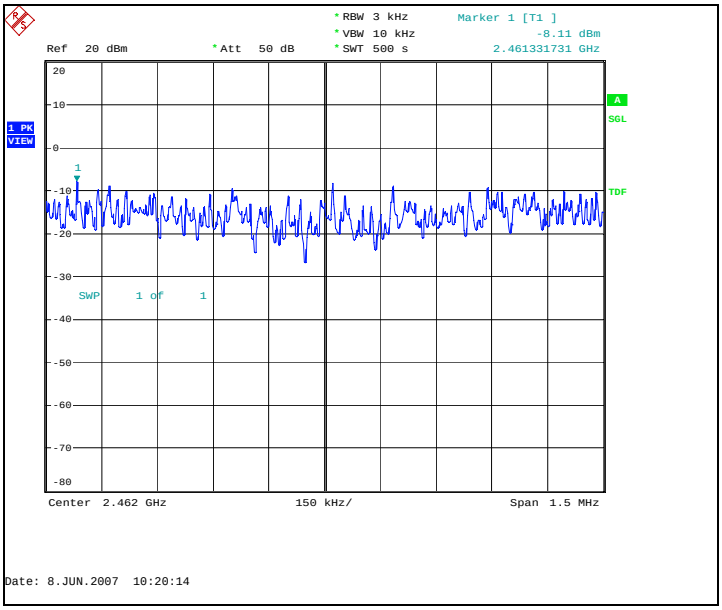
Channel 7 / 2442 MHz



Channel 11 / 2462 MHz



18.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_C [MHz]	P [dBm]	P [W]	Result
1 / 2412	-13.97	0.000	PASSED
7 / 2442	-14.57	0.000	PASSED
11 / 2462	-13.93	0.000	PASSED

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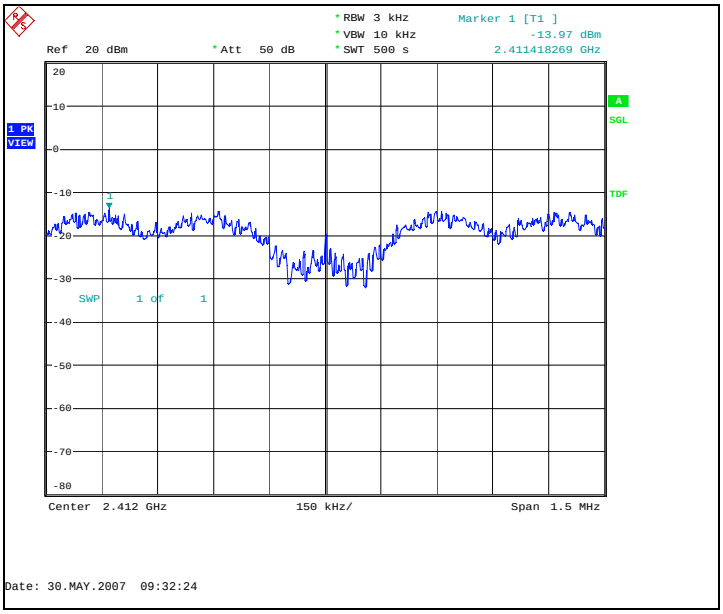
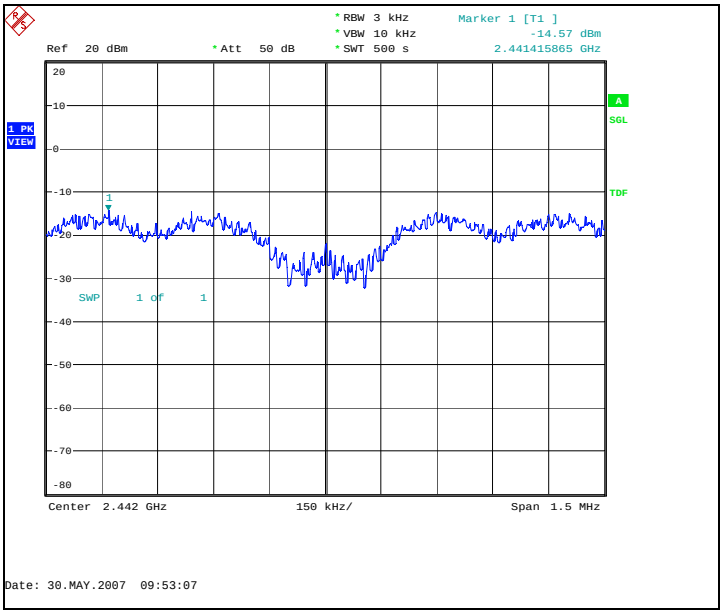
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



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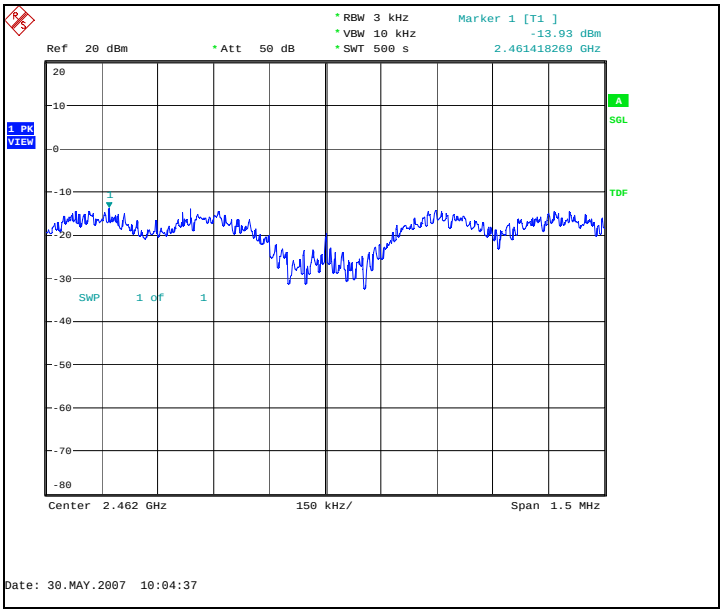
Channel 11 / 2462 MHz



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Sinitaival 5
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Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

19. Test Equipment

19.1. Conducted measurements

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

19.2. Radiated measurements

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

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880