

FCC Part 15C Compliance Test Report

Test Report no.:	Cph_FCC_0739_03.doc	Date of Report:	11-10-2007
Number of pages:	41	Customer's Contact person:	Nina Powers Bates
Testing laboratory:	TCC Nokia Copenhagen Laboratory Frederikskaj 1790 COPENHAGEN V DENMARK Tel. +45 33 292929 Fax. +45 33 292934	Customer:	Nokia Corporation Frederikskaj 1790 COPENHAGEN V DENMARK Tel. +45 33 292929 Fax. +45 33 292934
FCC listing no.:	99059		
IC recognition no.:	661AD-1		
Tested devices/ accessories:	Phone: RM-397 (hw9014), Battery: BL-6P, Headset: HS-82 AC charger: AC-6C, USB data cable: CA-101		
FCC ID:	QTKRM-397	IC:	661AD-RM397
Supplement reports:	None		
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2003), Public Notice DA 00-705, DTS procedures KDB 558074, IC standards RSS-GEN (Issue 2, June 2007) and RSS-210 (Issue 7, June 2007). Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test Results:	The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document.		
Date and signature for the contents:			

Allan F. Henriksen, Engineer

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	01-10-2007
Testing completed	11-10-2007
The customer's contact person	Nina Powers Bates
Test Plan referred to	T:\Projects\RM-397\TestPlan_RS\RS_Test_Plan_RM-397.xls
Notes	None
Document name	T:\Projects\RM-397\EMC\Results\FCC\Cph_FCC_0739_03.doc

1.1. EUT and Accessory Information

The EUT is a 4-band (GSM850/900/1800/1900) mobile phone with GPRS, EGPRS and Bluetooth. Bluetooth is tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-397	004401/01/618062/8	9014	-	lyg4.52	27078
Battery	BL-6P	3635637355610101737;0670564	-	-	-	27083
Headset	HS-82	0694737735402603505	-	-	-	27079
AC charger	AC-6C	3943497354070614634;0675594	2.2	-	-	27076
USB data cable	CA-101	07306347316013010418	-	-	-	27077

1.2. Summary of Test Results

Bluetooth:

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

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 Copenhagen Laboratory.

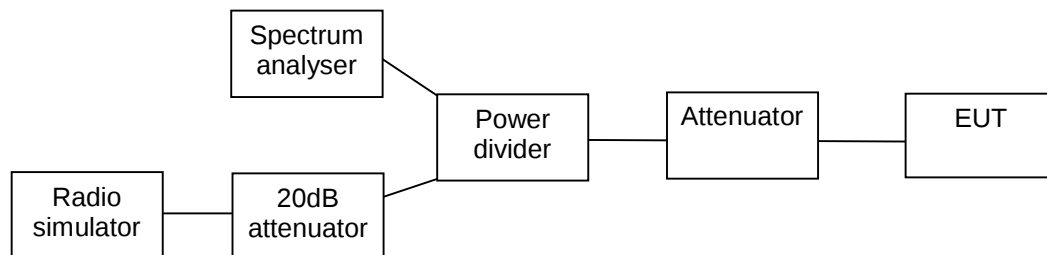
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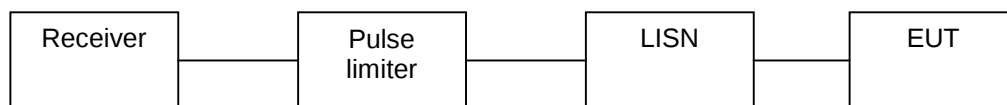
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2. Test setups

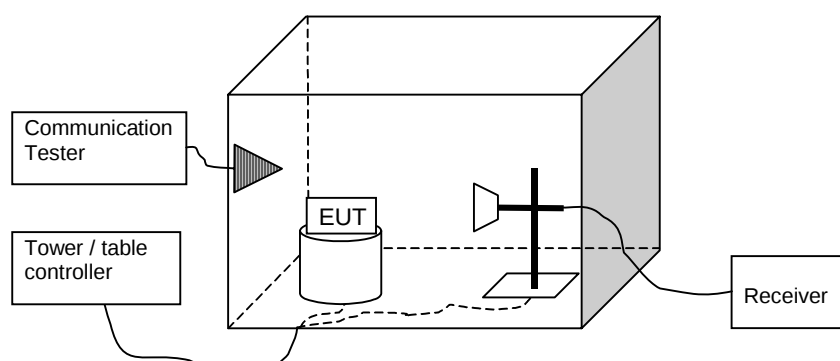
2.1. Conducted RF test setup



2.2. AC powerline conducted emissions test setup



2.3. Spurious radiated emissions test setup



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

EUT with DUT number	RM-397 dut 27078, BL-6P dut 27083
Accessories with DUT numbers	HS-82 Dut 27079
Operation Voltage [V] / [Hz]	Battery
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23.6 / 39.5 102.69
Date of measurements	04-10-2007
Measured by	Jan Engelbrechtsen

3.1. Test method and limit

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

Limits for conducted peak output power measurements

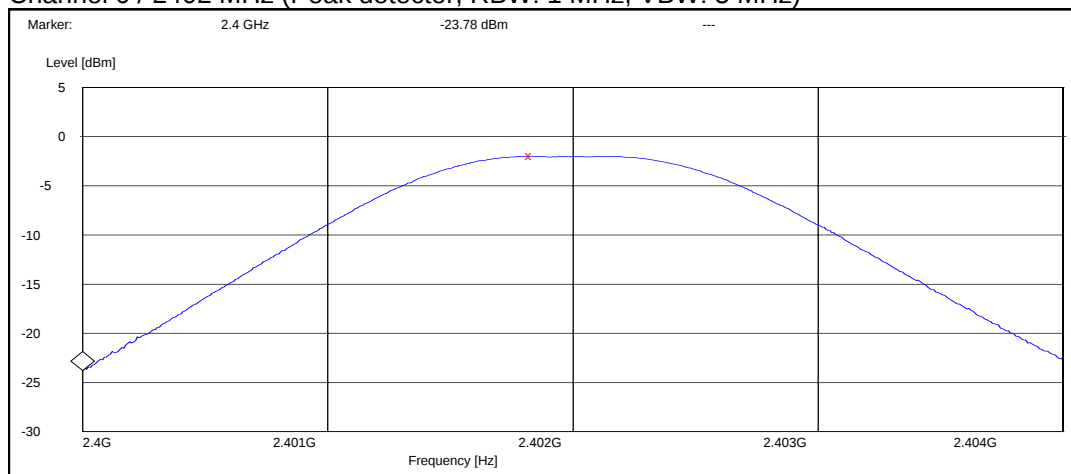
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

3.2. Bluetooth Test results

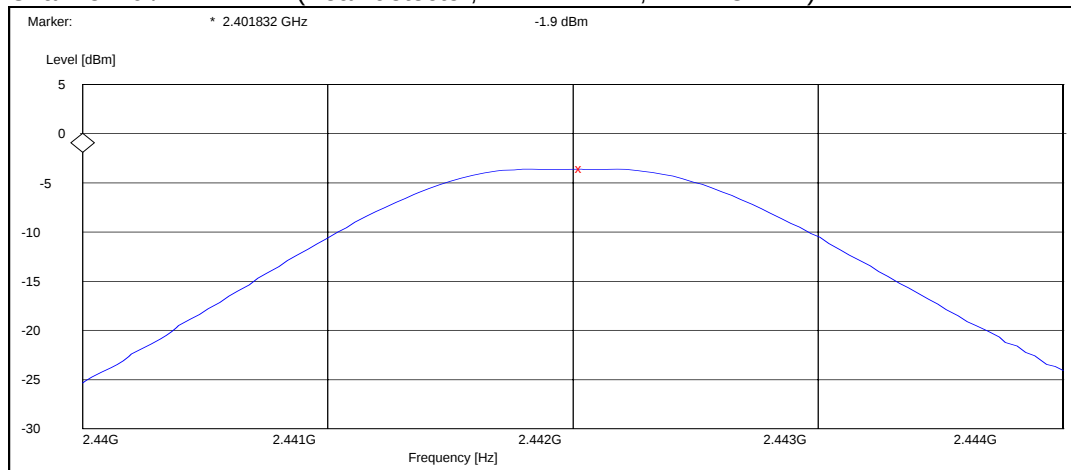
3.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-1.90	0.646	Passed
40 / 2442	-3.50	0.447	Passed
78 / 2480	-4.40	0.363	Passed

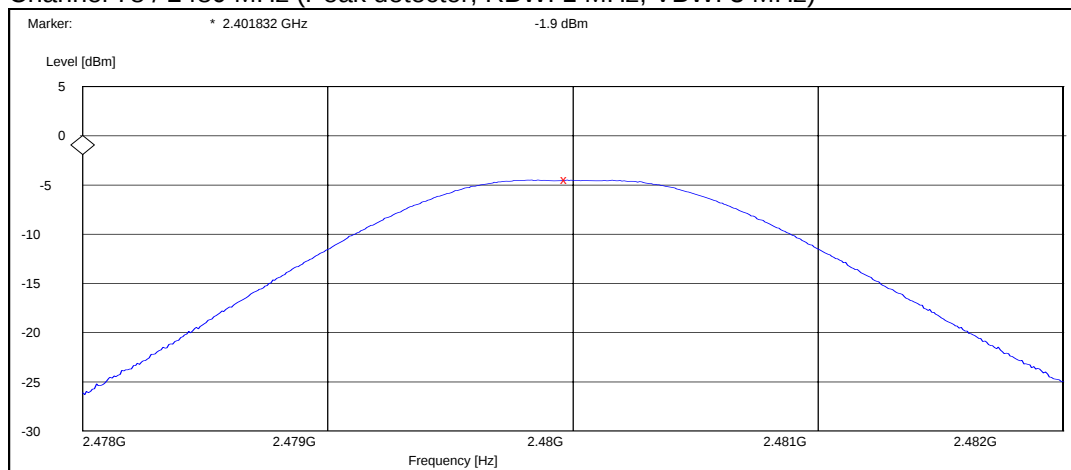
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



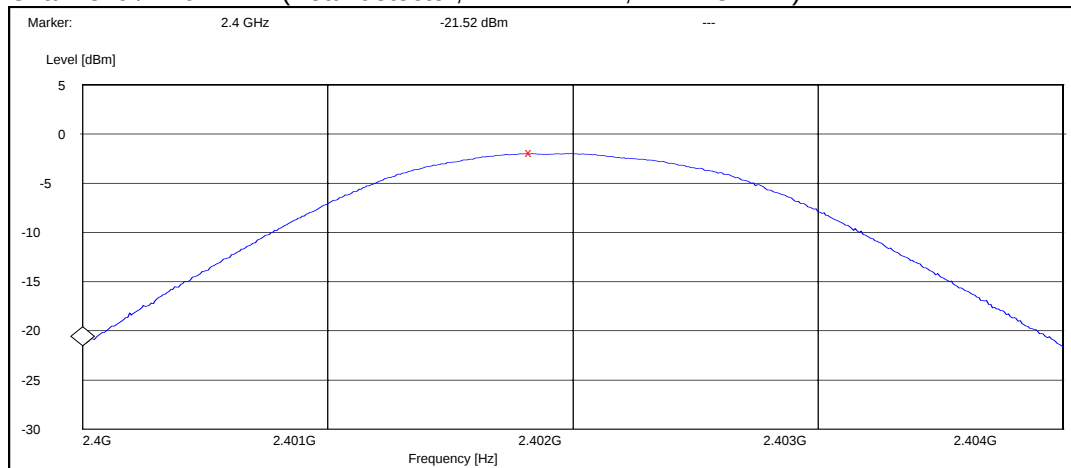
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



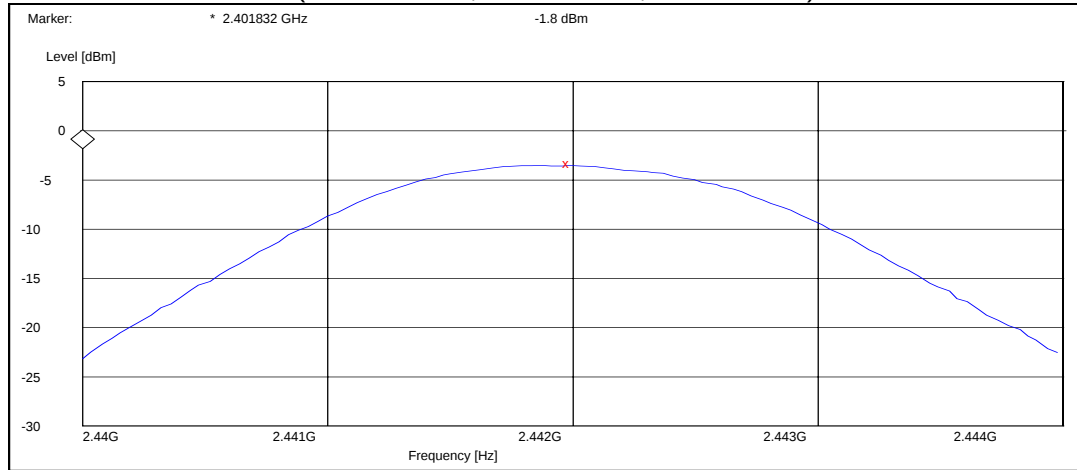
3.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-1.80	0.661	Passed
40 / 2442	-3.30	0.468	Passed
78 / 2480	-4.70	0.339	Passed

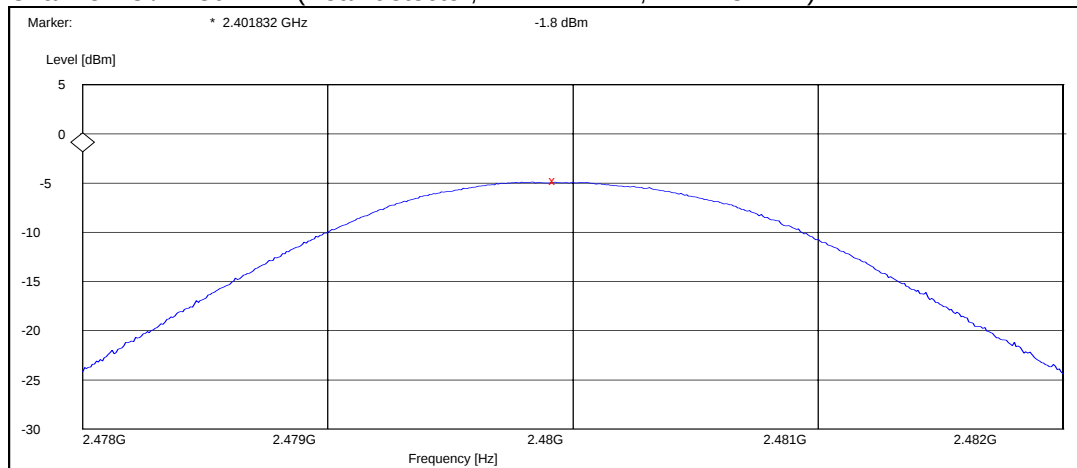
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



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



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

EUT with DUT number	RM-397 dut 26735, BL-6P dut 26734
Accessories with DUT numbers	HS-82 dut 26732
Operation Voltage [V] / [Hz]	Battery
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.7 / 41.0 102.69
Date of measurements	04-10-2007
Measured by	Allan Henriksen

4.1. Test method and limit

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

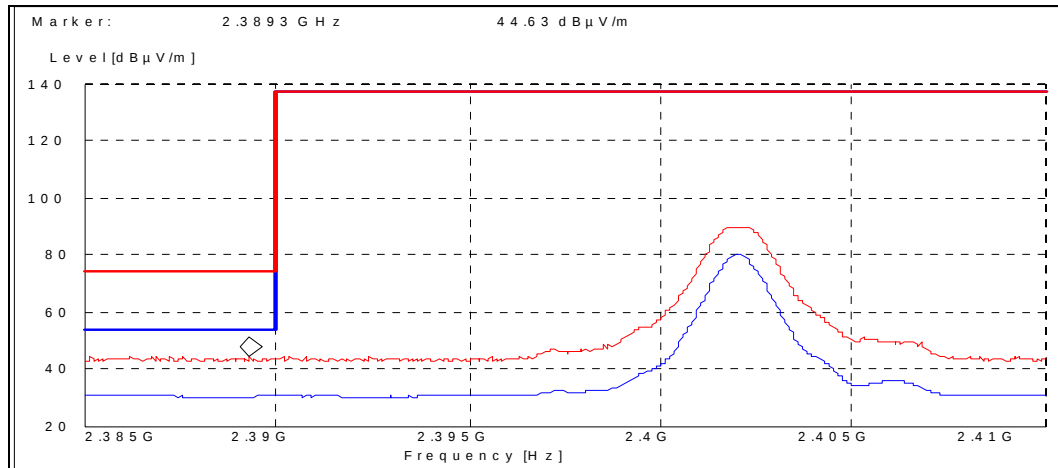
Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

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

4.2. Bluetooth Test results

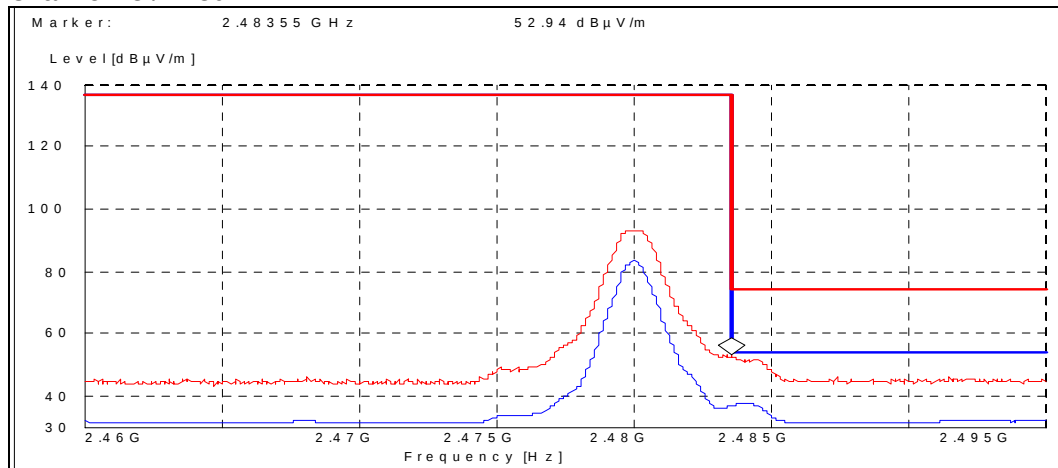
4.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



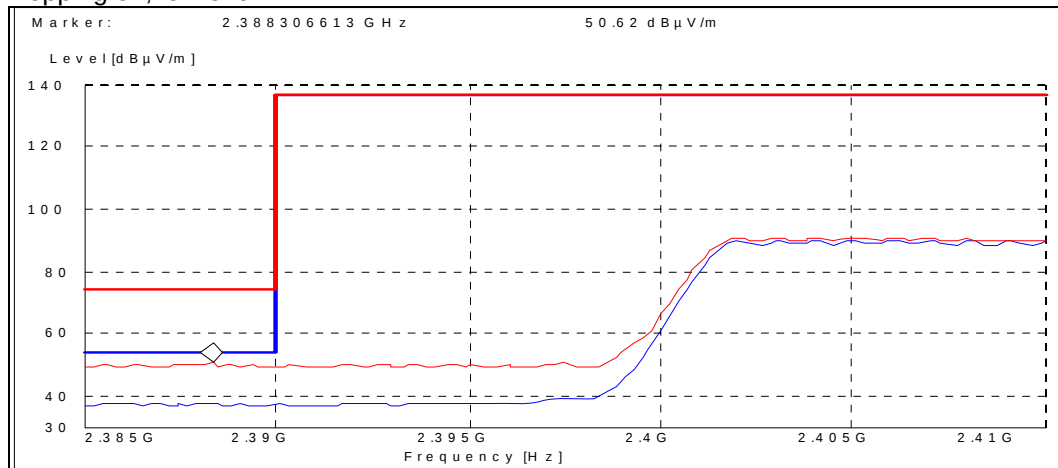
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	44.60	Passed
Average	30.70	Passed

Channel 78 / 2480 MHz



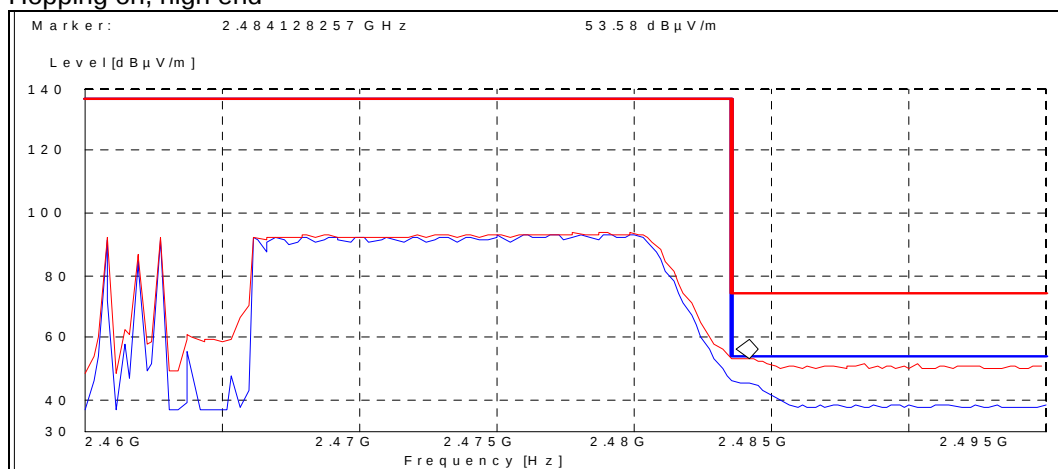
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	52.90	Passed
Average	37.60	Passed

Hopping on, low end



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	50.60	Passed
Average	37.50	Passed

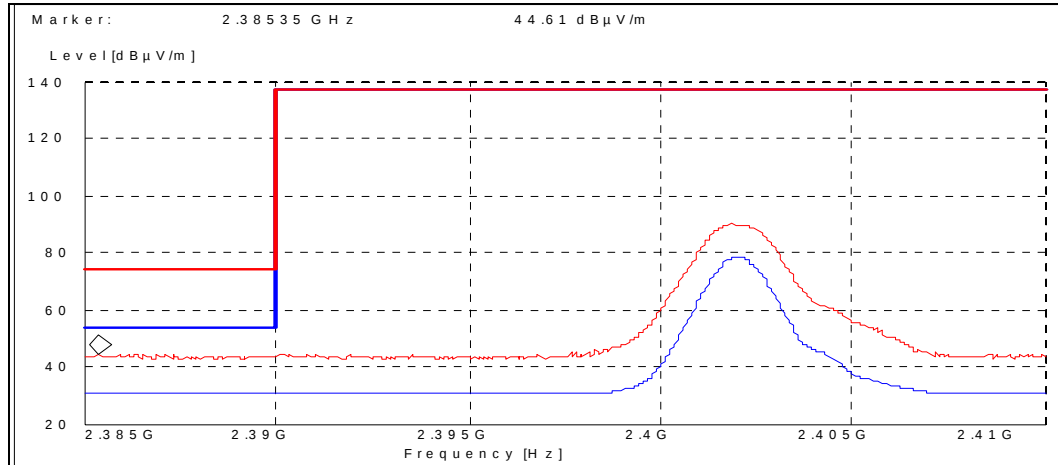
Hopping on, high end



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	53.60	Passed
Average	46.50	Passed

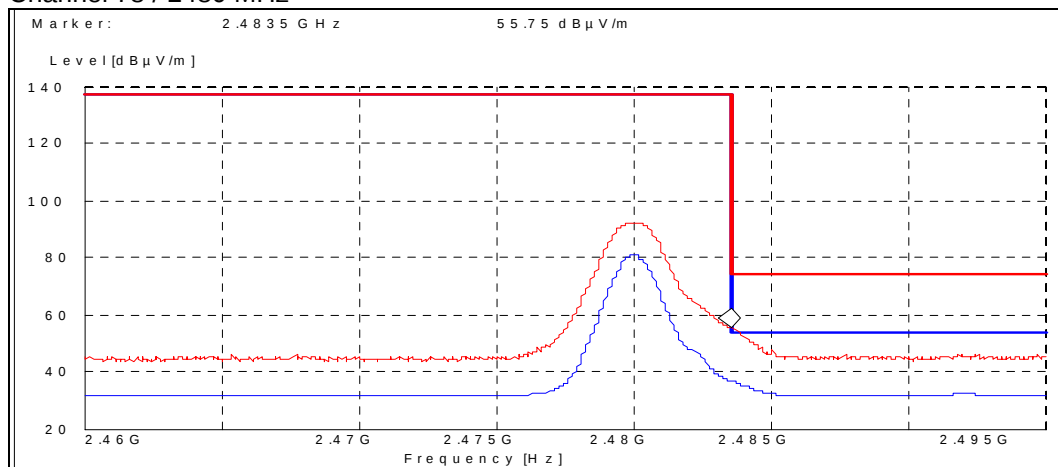
4.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



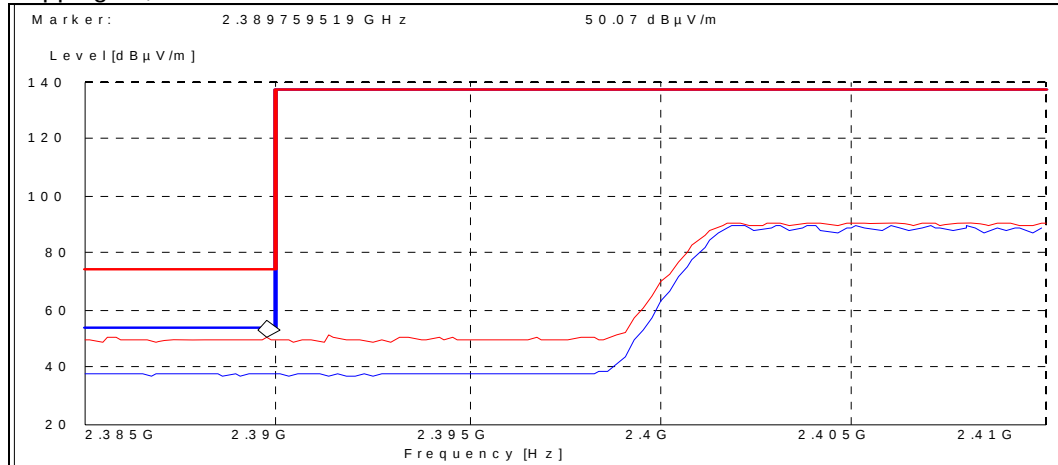
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	44.61	Passed
Average	30.89	Passed

Channel 78 / 2480 MHz



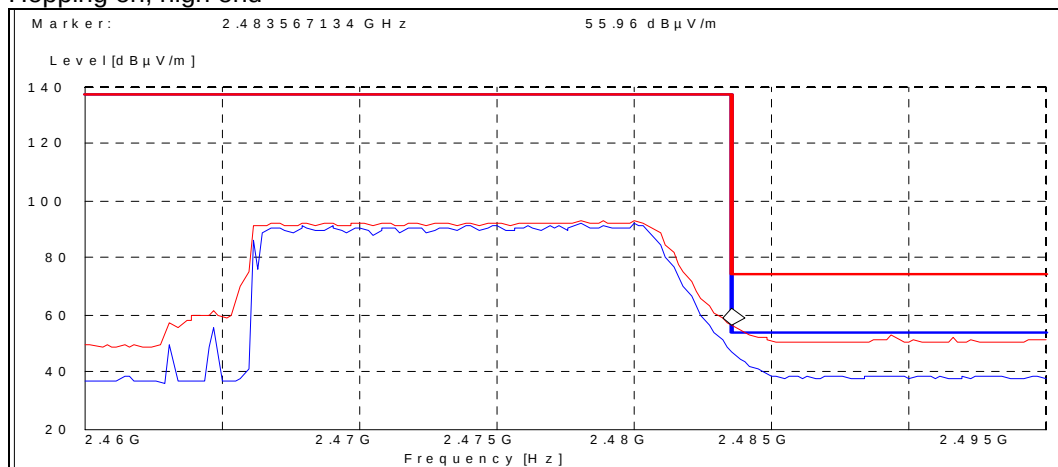
Peak	E [dBμV/m]	Result
Peak	55.75	Passed
Average	37.02	Passed

Hopping on, low end



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	50.07	Passed
Average	37.48	Passed

Hopping on, high end



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	55.96	Passed
Average	47.41	Passed

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

EUT with DUT number	RM-397 dut 27078, BL-6P dut 27083
Accessories with DUT numbers	HS-82 Dut 27079
Operation Voltage [V] / [Hz]	Battery
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23.6 / 39.5 102.69
Date of measurements	04-10-2007
Measured by	Jan Engelbrechtsen

5.1. Test method and limit

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

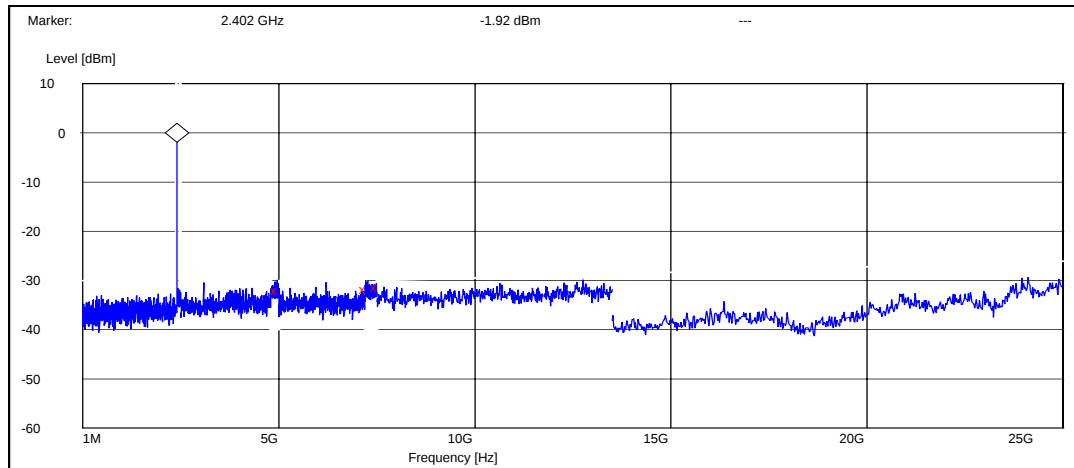
Limits for spurious RF conducted emissions measurements

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

5.2. Bluetooth Test results

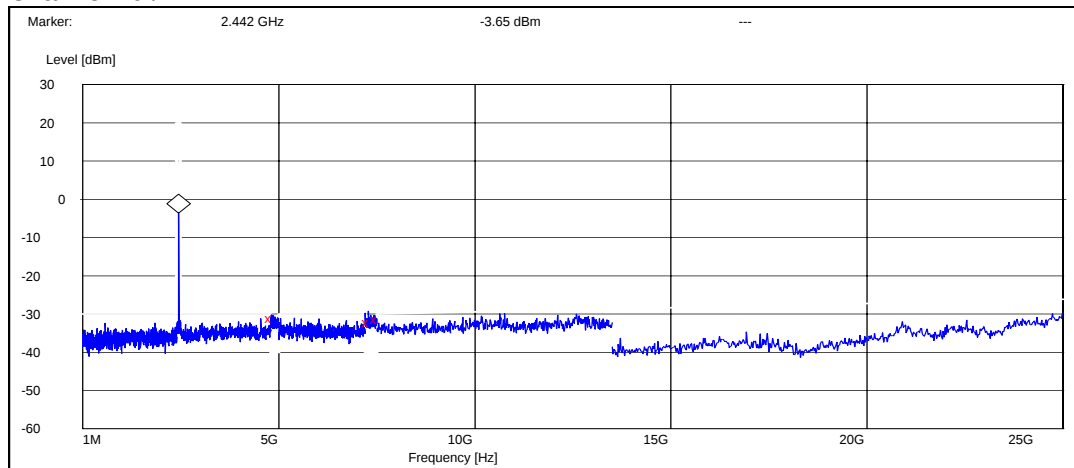
5.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



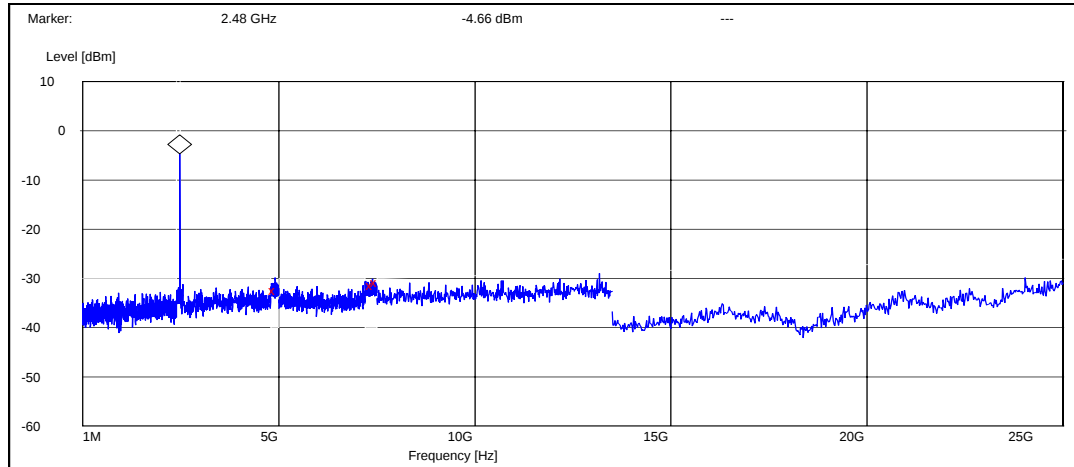
Frequency [MHz]	P [dBc]	Result
4966.000000	-30.081621	Passed
7219.200000	-29.781621	Passed
7500.000000	-29.481621	Passed

Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4808.000000	-27.347734	Passed
7281.000000	-28.447734	Passed
7500.000000	-27.847734	Passed

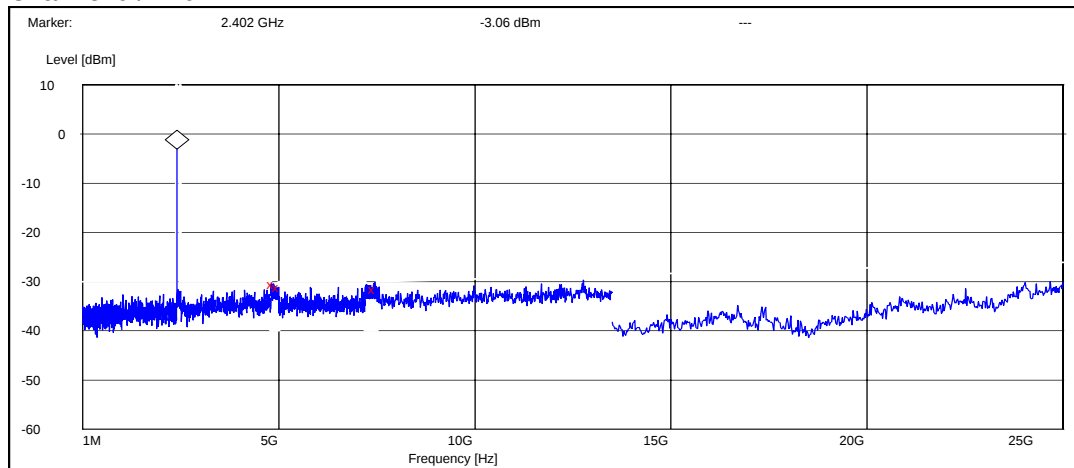
Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4908.800000	-27.741454	Passed
7392.000000	-26.641454	Passed
7500.000000	-26.141454	Passed

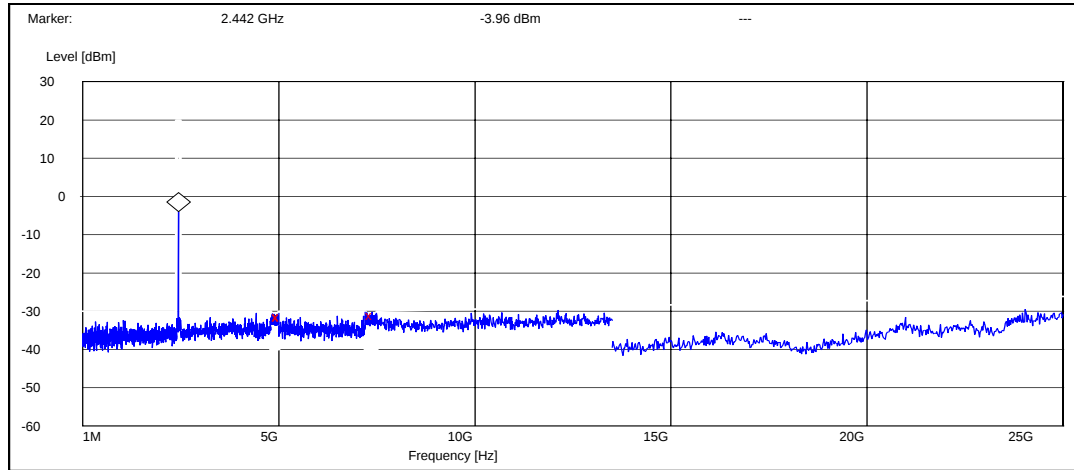
5.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



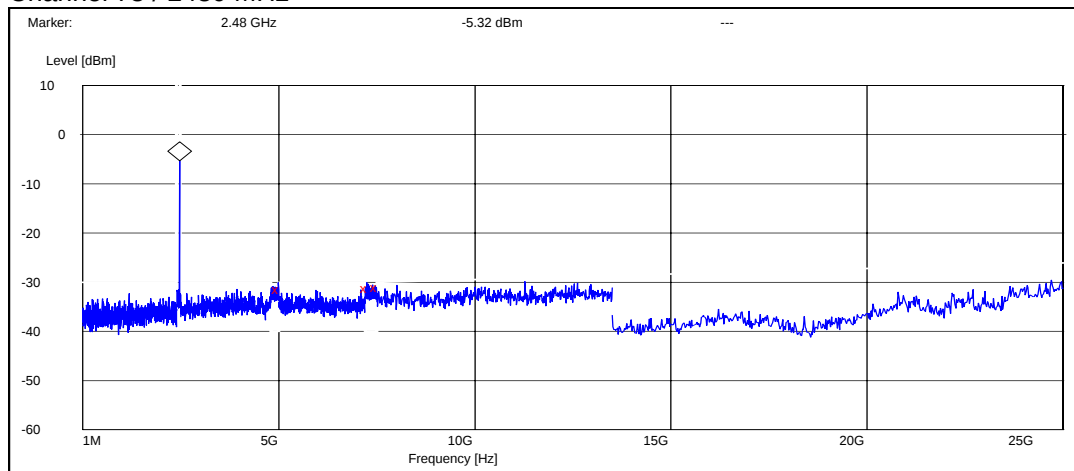
Frequency [MHz]	P [dBc]	Result
4873.600000	-27.444277	Passed
5000.000000	-28.044277	Passed
7446.600000	-28.444277	Passed

Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4997.200000	-27.643328	Passed
5000.000000	-27.343328	Passed
7386.000000	-27.043328	Passed

Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4992.800000	-26.083258	Passed
7238.400000	-25.983258	Passed
7500.000000	-25.683258	Passed

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

EUT with DUT number	RM-397 dut 26735, BL-6P dut 26734
Accessories with DUT numbers	HS-82 dut 26732
Operation Voltage [V] / [Hz]	Battery
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.7 / 41.0 102.69
Date of measurements	04-10-2007
Measured by	Allan Henriksen

6.1. Test method and limit

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

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

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

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

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

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

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

The measurement results are obtained as described below:

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

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

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

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

6.2. Bluetooth Test results

6.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz

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

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	38.10	80.35	37.40	0.7	VERTICAL	Passed
7206.000000	40.40	104.71	33.30	7.1	HORIZONTAL	Passed

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

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	24.60	16.98	23.90	0.7	VERTICAL	Passed
7206.000000	27.90	24.83	20.80	7.1	VERTICAL	Passed

Channel 40 / 2442 MHz

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

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
30.100000	25.20	18.20	38.00	-12.8	VERTICAL	Passed
37.795391	14.40	5.25	32.10	-17.7	VERTICAL	Passed
41.543086	16.00	6.31	36.10	-20.1	VERTICAL	Passed

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

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4954.405812	38.80	87.10	37.50	1.3	VERTICAL	Passed
4964.927856	38.90	88.10	37.50	1.4	VERTICAL	Passed
7329.651303	41.80	123.03	34.40	7.4	VERTICAL	Passed
7417.327655	42.80	138.04	34.70	8.1	VERTICAL	Passed
7421.343687	42.30	130.32	34.30	8.0	VERTICAL	Passed
17477.947896	53.30	462.38	29.50	23.8	VERTICAL	Passed
17849.195391	59.70	966.05	30.70	29.0	HORIZONTAL	Passed

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4952.905812	26.00	19.95	24.70	1.3	VERTICAL	Passed
4963.927856	26.20	20.42	24.90	1.3	VERTICAL	Passed
7322.651303	28.90	27.86	21.70	7.2	VERTICAL	Passed
7416.327655	30.00	31.62	21.90	8.1	VERTICAL	Passed
7422.343687	29.90	31.26	21.90	8.0	VERTICAL	Passed
17473.447896	40.40	104.71	16.60	23.8	VERTICAL	Passed
17849.695391	46.80	218.78	17.80	29.0	HORIZONTAL	Passed

Channel 78 / 2480 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	38.90	88.10	37.60	1.3	VERTICAL	Passed
7440.000000	42.50	133.35	34.30	8.2	VERTICAL	Passed

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	26.50	21.13	25.20	1.3	VERTICAL	Passed
7440.000000	29.40	29.51	21.20	8.2	VERTICAL	Passed

6.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	38.00	79.43	37.30	0.7	VERTICAL	Passed
7206.000000	39.90	98.86	32.80	7.1	HORIZONTAL	Passed

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	24.50	16.79	23.80	0.7	VERTICAL	Passed
7206.000000	27.70	24.27	20.60	7.1	VERTICAL	Passed

Channel 40 / 2442 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
30.400000	26.30	20.65	39.40	-13.1	VERTICAL	Passed
37.935872	13.80	4.90	31.60	-17.8	VERTICAL	Passed
41.943086	14.80	5.50	35.20	-20.4	VERTICAL	Passed

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4959.425852	39.10	90.16	37.80	1.3	VERTICAL	Passed
7324.143287	41.70	121.62	34.50	7.2	VERTICAL	Passed
7417.329659	42.80	138.04	34.70	8.1	VERTICAL	Passed
17493.987976	52.90	441.57	28.90	24.0	HORIZONTAL	Passed
17856.711423	59.90	988.55	30.90	29.0	HORIZONTAL	Passed

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4966.425852	26.00	19.95	24.60	1.4	VERTICAL	Passed
7321.143287	28.60	26.92	21.40	7.2	VERTICAL	Passed
7418.329659	29.80	30.90	21.70	8.1	VERTICAL	Passed
17497.987976	40.30	103.51	16.30	24.0	HORIZONTAL	Passed
17855.211423	46.80	218.78	17.80	29.0	HORIZONTAL	Passed

Channel 78 / 2480 MHz

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4960.000000	39.10	90.16	37.80	1.3	VERTICAL	Passed
7440.000000	42.60	134.90	34.40	8.2	VERTICAL	Passed

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4960.000000	26.00	19.95	24.70	1.3	VERTICAL	Passed
7440.000000	29.50	29.85	21.30	8.2	VERTICAL	Passed

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

EUT with DUT number	RM-397 dut 26735, BL-6P dut 26734
Accessories with DUT numbers	HS-82 dut 26732
Operation Voltage [V] / [Hz]	Battery
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.7 / 41.0 102.69
Date of measurements	04-10-2007
Measured by	Allan F. Henriksen

7.1. Test method and limit

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

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

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

The measurement results are obtained as described below:

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

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

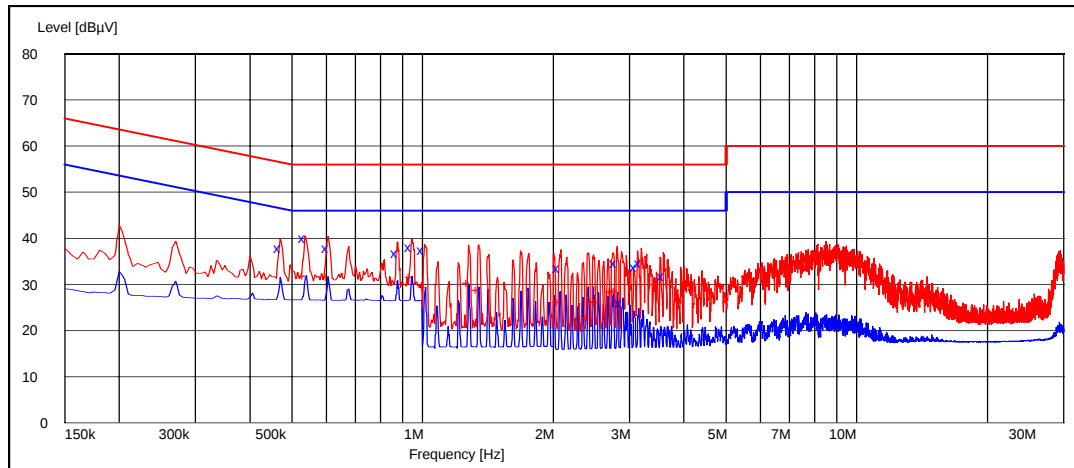
CISPR 22 Class B limits

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

7.2. Bluetooth Test results

7.2.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

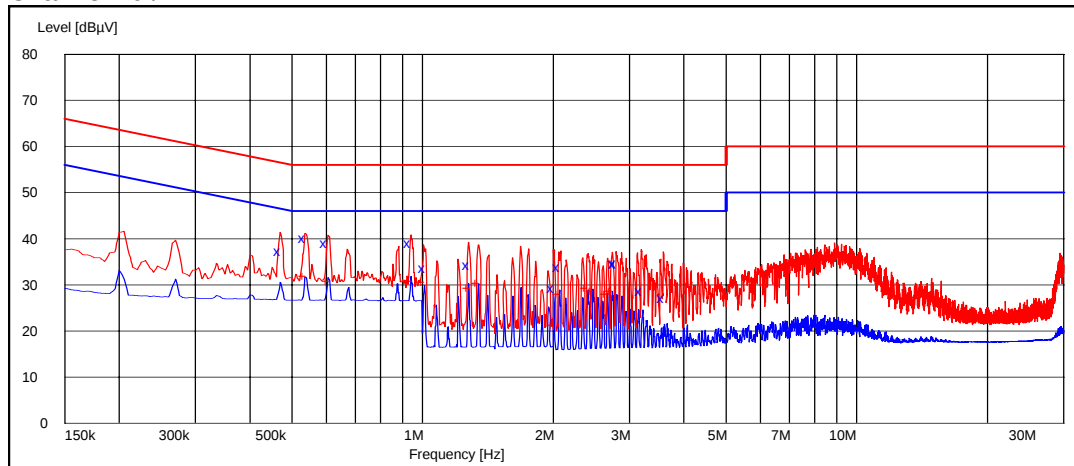
Frequency [MHz]	U [dBμV]	Line	Result
0.470000	37.80	L1	Passed
0.535000	40.10	L1	Passed
0.605000	37.90	L1	Passed
0.875000	36.90	L1	Passed
0.940000	38.10	L1	Passed
1.005000	37.40	L1	Passed
2.065000	33.60	L1	Passed
2.790000	34.70	L1	Passed
2.875000	25.90	N	Passed
3.115000	33.70	L1	Passed
3.185000	34.60	L1	Passed
3.585000	31.90	L1	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.535000	31.90	L1	Passed
0.605000	31.60	L1	Passed
0.940000	31.50	L1	Passed
1.010000	29.40	L1	Passed
1.275000	30.30	L1	Passed
1.345000	28.70	L1	Passed
2.065000	26.20	L1	Passed
2.405000	22.80	L1	Passed
2.465000	26.30	N	Passed
2.530000	26.30	N	Passed
2.730000	28.30	L1	Passed
2.795000	28.50	N	Passed

7.2.2 8DPSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.470000	37.20	L1	Passed
0.535000	40.20	L1	Passed
0.600000	39.10	L1	Passed
0.935000	39.10	L1	Passed
1.010000	33.50	L1	Passed
1.275000	34.30	L1	Passed
2.000000	29.40	L1	Passed
2.065000	33.70	L1	Passed
2.780000	34.40	L1	Passed
2.785000	34.60	L1	Passed
3.190000	28.60	L1	Passed
3.590000	27.10	L1	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.535000	31.90	L1	Passed
0.605000	30.70	L1	Passed
0.940000	30.70	L1	Passed
1.005000	30.60	L1	Passed
1.275000	29.30	L1	Passed
1.340000	30.30	L1	Passed
2.000000	21.30	L1	Passed
2.060000	28.10	L1	Passed
2.390000	29.30	L1	Passed
2.455000	28.70	L1	Passed
2.655000	28.10	L1	Passed
2.725000	28.60	L1	Passed

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

EUT with DUT number	RM-397 dut 27078, BL-6P dut 27083
Accessories with DUT numbers	HS-82 Dut 27079
Operation Voltage [V] / [Hz]	Battery
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23.6 / 39.5 102.69
Date of measurements	04-10-2007
Measured by	Jan Engelbrechtsen

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

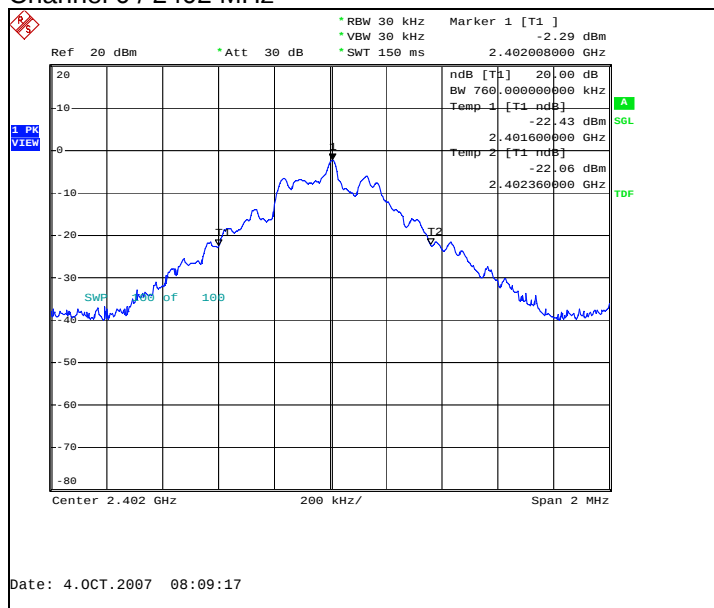
Limit [MHz]
N/A

8.2. Bluetooth Test results

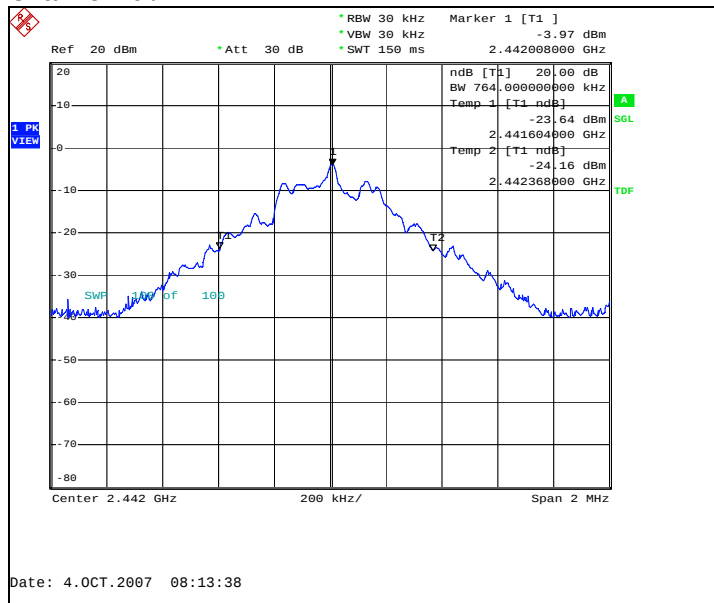
8.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	760.000	Passed
40 / 2442	764.000	Passed
78 / 2480	800.000	Passed

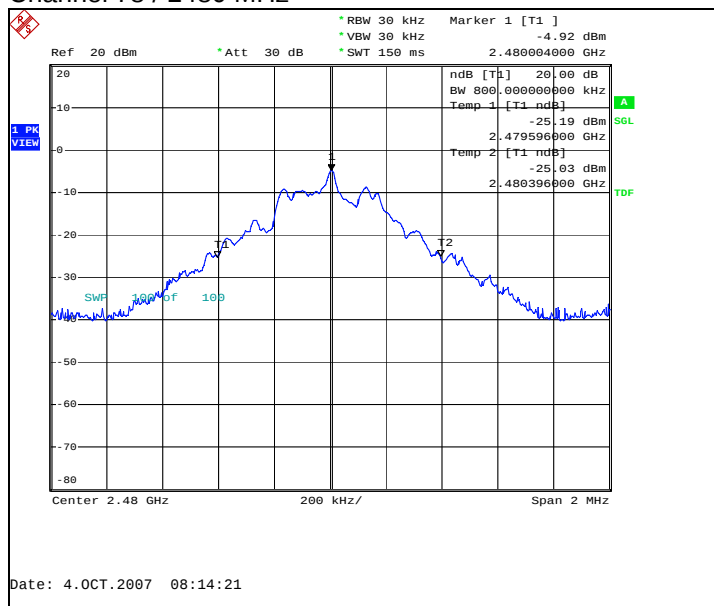
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



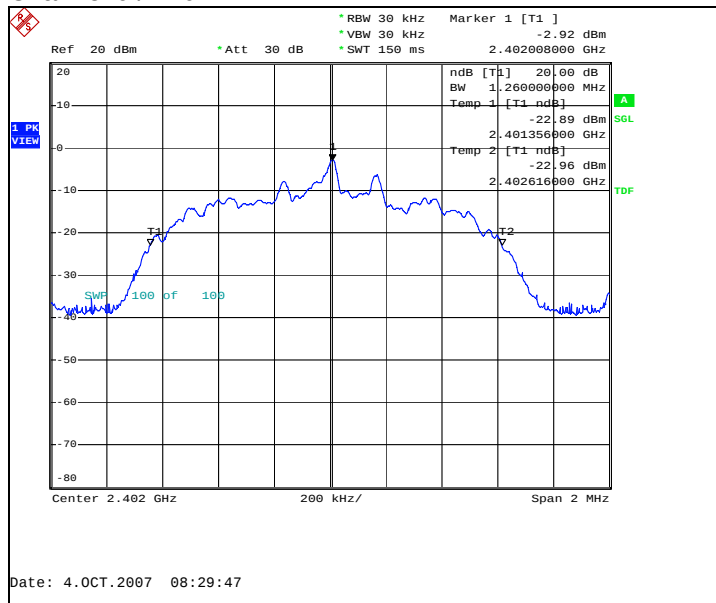
Channel 78 / 2480 MHz



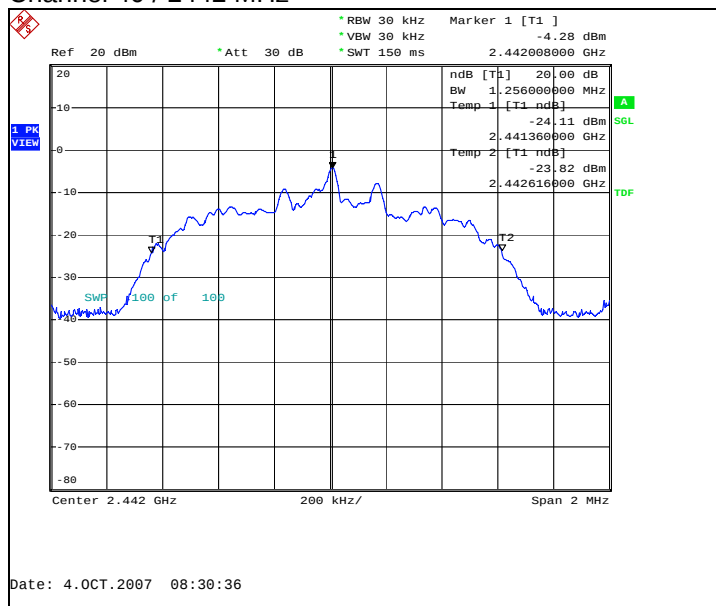
8.2.2 8DPSK modulation, PRBS packet type

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

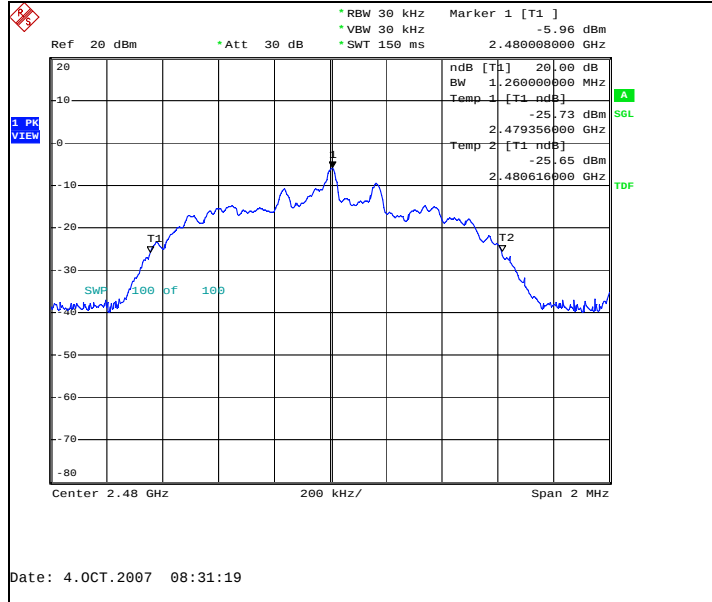
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



Channel 78 / 2480 MHz



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

EUT with DUT number	RM-397 dut 27078, BL-6P dut 27083
Accessories with DUT numbers	HS-82 Dut 27079
Operation Voltage [V] / [Hz]	Battery
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23.6 / 39.5 102.69
Date of measurements	04-10-2007
Measured by	Jan Engelbrechtsen

9.1. Test method and limit

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

Limits for carrier frequency separation measurements

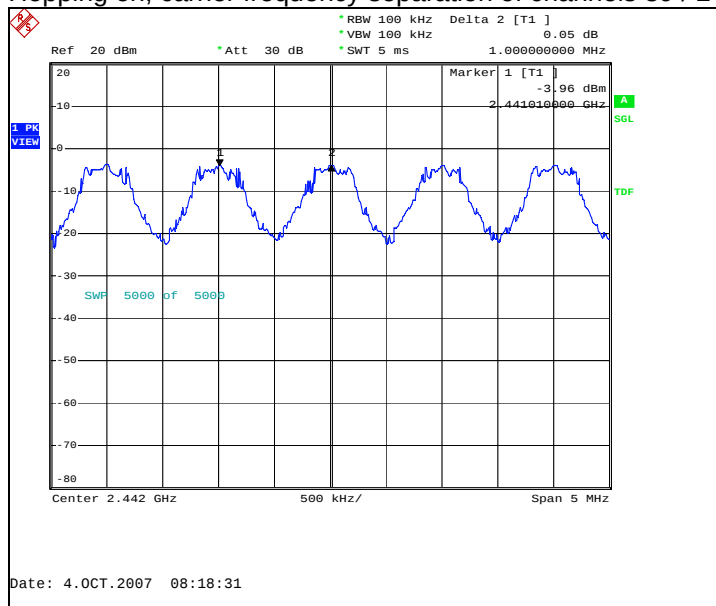
Limit [MHz]
≥ 0.025 or $2/3$ of the 20 dB bandwidth

9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1000	Passed

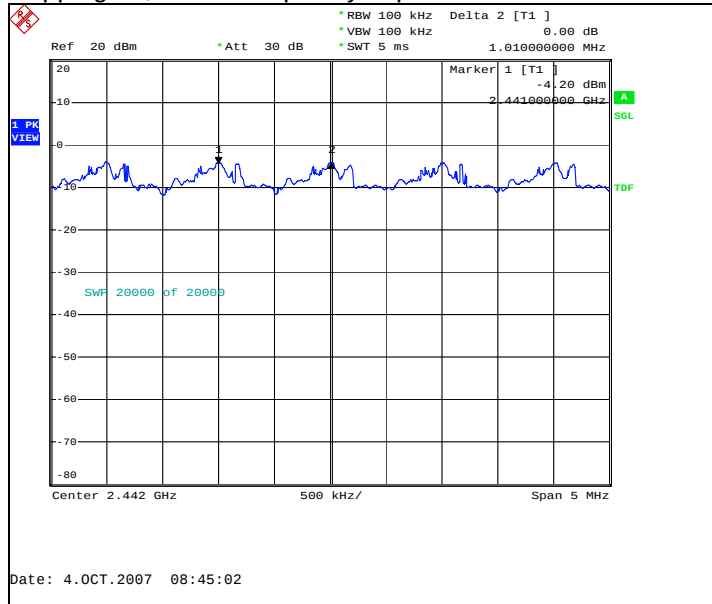
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



9.2.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1010	Passed

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



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

EUT with DUT number	RM-397 dut 27078, BL-6P dut 27083
Accessories with DUT numbers	HS-82 Dut 27079
Operation Voltage [V] / [Hz]	Battery
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23.6 / 39.5 102.69
Date of measurements	04-10-2007
Measured by	Jan Engelbrechtsen

10.1. Test method and limit

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

Limits for number of hopping frequencies measurements

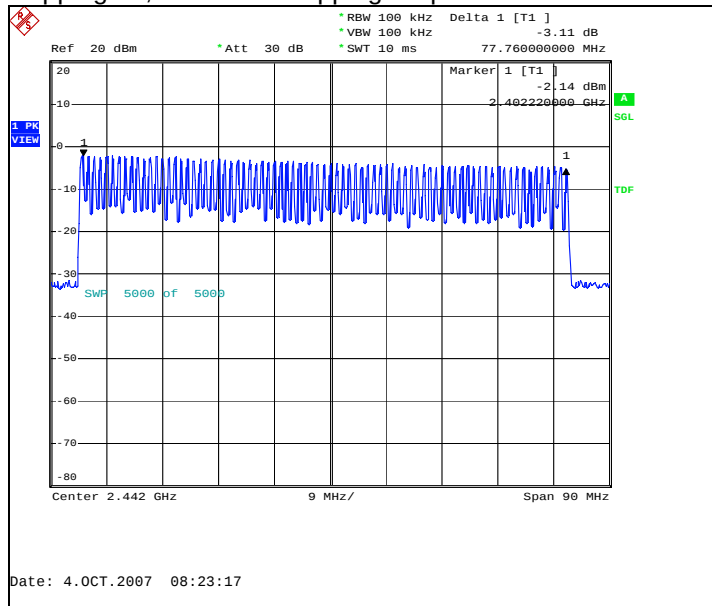
Limit [number]
≥ 15

10.2. Bluetooth Test results

10.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	Passed

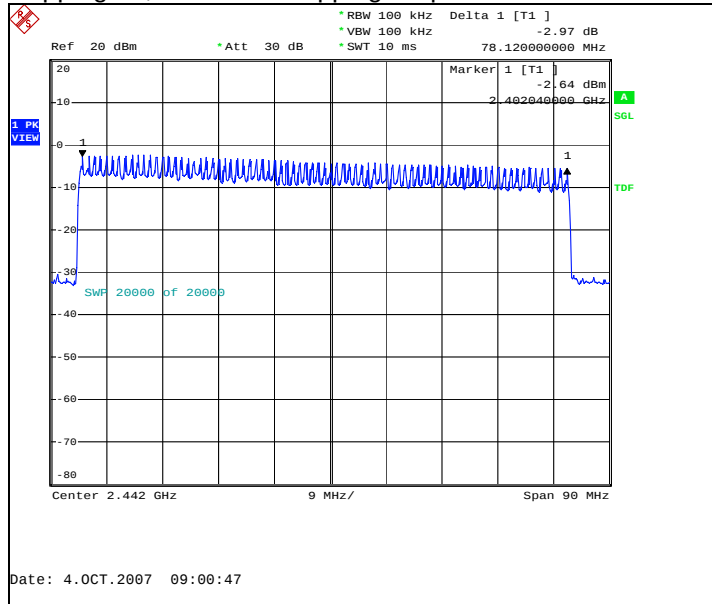
Hopping on, number of hopping frequencies



10.2.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
77	Passed

Hopping on, number of hopping frequencies



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

EUT with DUT number	RM-397 dut 27078, BL-6P dut 27083
Accessories with DUT numbers	HS-82 Dut 27079
Operation Voltage [V] / [Hz]	Battery
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23.6 / 39.5 102.69
Date of measurements	04-10-2007
Measured by	Jan Engelbrechtsen

11.1. Test method and limit

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

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

Limits for time of occupancy measurements

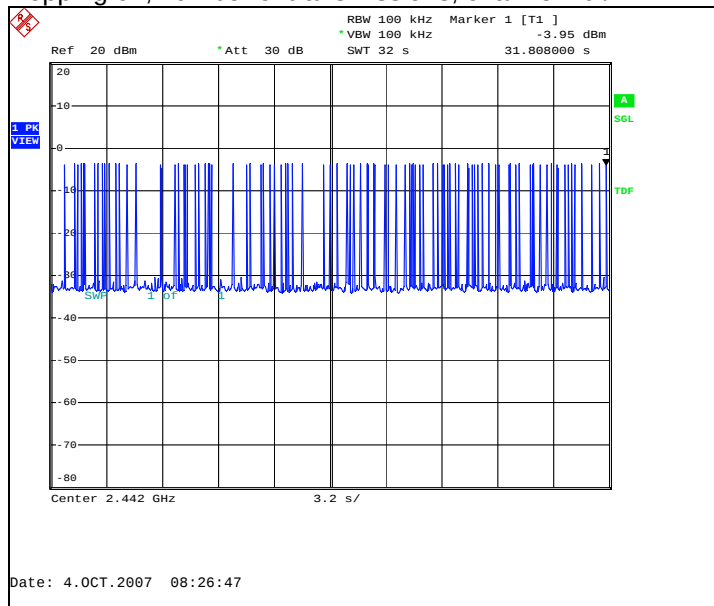
Limit [s]
≤ 0.4

11.2. Bluetooth test results

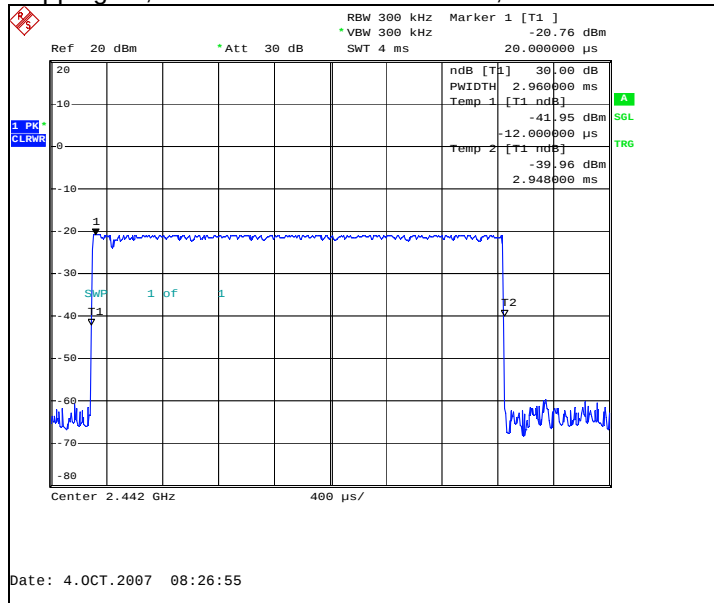
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
87	2960	0.257520	Passed

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



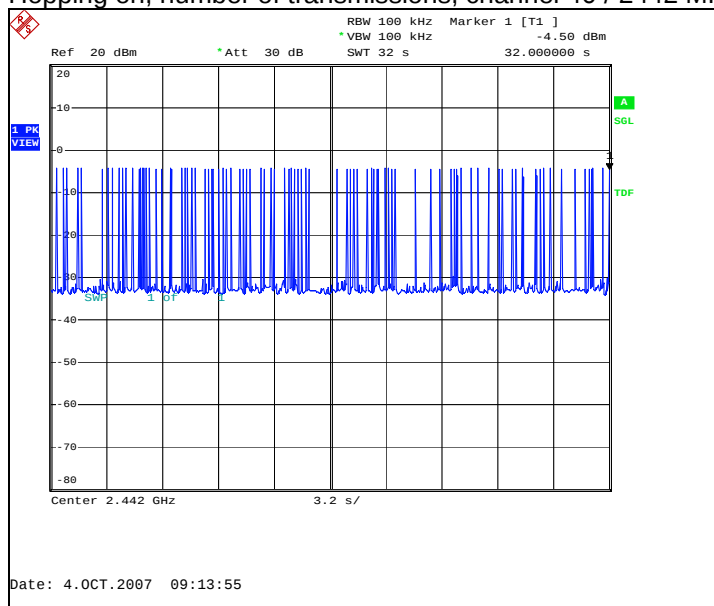
Hopping on, duration of one transmission, channel 40 / 2442 MHz



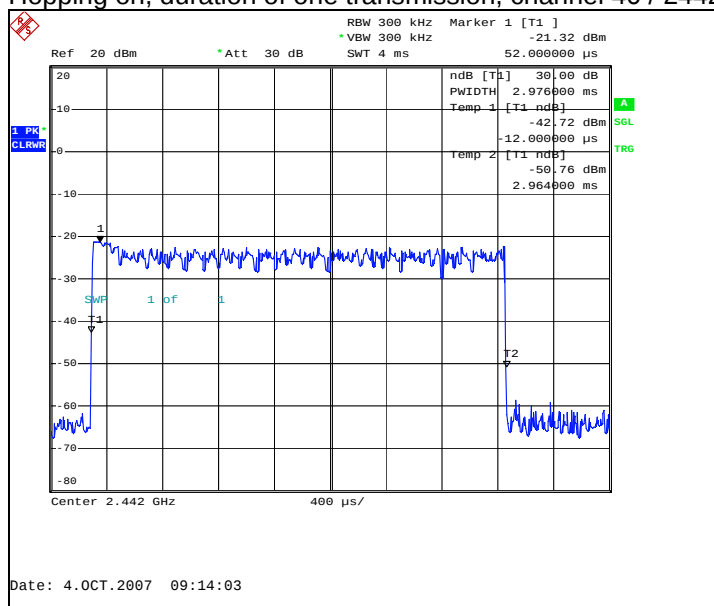
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
87	2976	0.258912	Passed

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



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



12. Test Equipment

12.1. Conducted measurements

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

12.2. Radiated measurements

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

Eq. No	Equipment	Type	Manufacturer	Used in
18773	Shielded Chamber	RFD-100	ETS-Lindgren	22/24/27, 15C, 15B
18774	Shielded Chamber	RFSD-F/A-100	ETS-Lindgren	22/24/27, 15C, 15B
19151	High Pass Filter 3GHz WHK3.0/18G-10ss	WHJS3000-10SS	Wainwright	22/24/27, 15C, 15B
13937	Ultra Stable Notch Filter 850MHz	WRCA902.4-0.2/40-6SS	Wainwright Instruments	22/24/27, 15C, 15B
13936	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright Instruments	22/24/27, 15C, 15B
14114	Highpass filter	WHK1000-12SS	Wainwright Instruments	22/24/27, 15C, 15B
14188	Ultra Stable Notch Filter 902,4MHz	WRCA902.4-0.2/40-6SS	Wainwright	22/24/27, 15C, 15B
14187	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright	22/24/27, 15C, 15B
16633	Ultra Stable Notch Filter 1880,0MHz	WRCD1880.0-0.2/40-10SS	Wainwright	22/24/27, 15C, 15B
19587	BT/WLAN Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	22/24/27, 15C, 15B
20115	WDCMA Band 2 filter		Wainwright	24, 15C, 15B
20114	WDCMA Band 4 filter	WRCG1737/1743-1733/1747-40/6SS	Wainwright	27, 15C, 15B
20116	WDCMA Band 5&6 filter	WRCG832/83/-825/845-40/5SS	Wainwright	22, 15C, 15B
18323	Band reject filter 1947-1953MHz 40dB	WRCG1947/1953-1940/1960-40/6SS	Wainwright	22/24/27, 15C, 15B
20031	Double Ridged Broadband Horn	BBHA 9120 D	SCHWARZBECK	22/24/27, 15C, 15B
19966	Magnetic Loop Antenna 9 kHz - 30 MHz	HFH2-Z2	Rohde&Schwarz	15C, 15B
14993	EMI Test Receiver 9KHz-2750MHz	ESCS30	Rohde&Schwarz	22/24/27, 15C, 15B
15191	Turntable Controller Unit	G-800SDX	YAESU	22/24/27, 15C, 15B
14900	Antenna Controller	HD100	HD GmbH	22/24/27, 15C, 15B
19374	Resonant Dipole Antenna 850MHz SMA m Conn.	-----	NMP Cph	22/24/27, 15C, 15B
19375	Resonant Dipole Antenna 1900MHz SMA m Conn.	-----	NMP Cph	22/24/27, 15C, 15B
20168	Bluetooth EDR Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B