

FCC Part 15C Compliance Test Report

Test Report no.:	Cph_FCC_0806_14.doc	Date of Report:	19-feb-2008
Number of pages:	38	Customer's Contact person:	Victoria Abadilla
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FCC listing no.:	99059		
IC recognition no.:	661AD-1		
Tested devices/ accessories:	Phone; RM-324 (HW: 3100), Battery; BP-4L, AC-Charger; AC-4, Headset; HS-9		
FCC ID:	QMNRM-324H	IC:	661X-RM324
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	29-Jan-2008
Testing completed	14-feb-2008
The customer's contact person	Victoria Abadilla
Test Plan referred to	T:\Projects\RM-324\TestPlan_RS\RS_Testplan_RM-324.xls
Notes	None
Document name	T:\Projects\RM-324\EMC\Results\FCC\Cph_FCC_0806_14.doc

1.1. EUT and Accessory Information

The EUT is a 6-band (GSM850/900/1800/1900 and WCDMA Band II(1900)/V(850)) mobile phone with GPRS, EGPRS and Bluetooth. Bluetooth is tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-324	004401/01/379296/1	3100	-	QS_02.14	27112
Battery	BP-4L	3932137314130266365;0670519	-	-	-	27101
Charger	AC-4E	4090495501560100163;0675384	-	-	-	29253
Headset	HS-9	-	-	-	-	27109
Headset	HS-9	-	-	-	-	29261
Phone	RM-324	004401/01/379300/1	3100	-	QS_02.14	27096
Battery	BP-4L	3932137314130266374;0670519	-	-	-	29251
Headset	HS-9	-	-	-	-	27109
AC charger	AC-4U	3943497381280401171;0675379	-	-	-	27103

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.

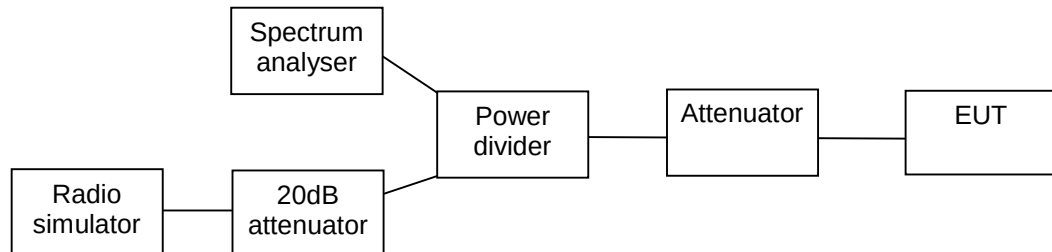
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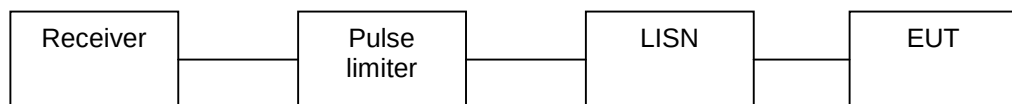
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2. Test setups

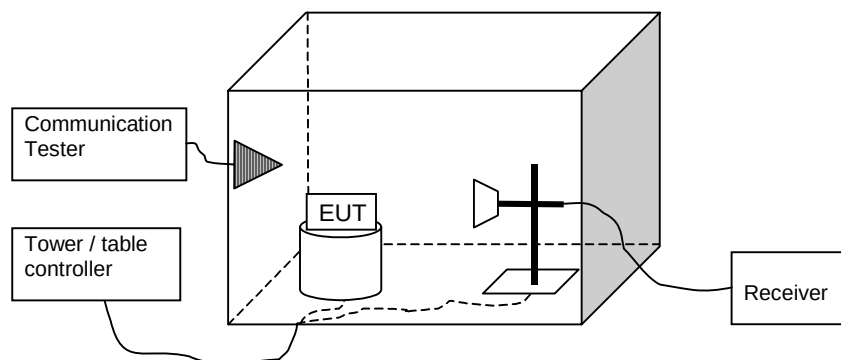
2.1. Conducted RF test setup



2.2. AC powerline conducted emissions test setup



2.3. Radiated test setup



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

EUT with DUT number	RM-324 dut 27096, BP-4L dut 29251
Accessories with DUT numbers	HS-9 dut 27109, AC-4U dut 27103
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.1 / 33.5 104.61
Date of measurements	12-feb-2008
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

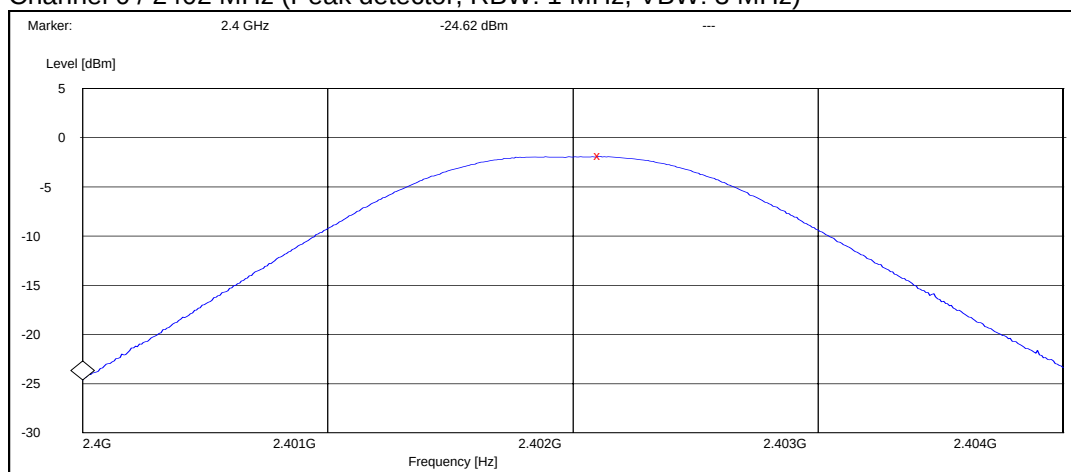
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

3.2. Bluetooth Test results

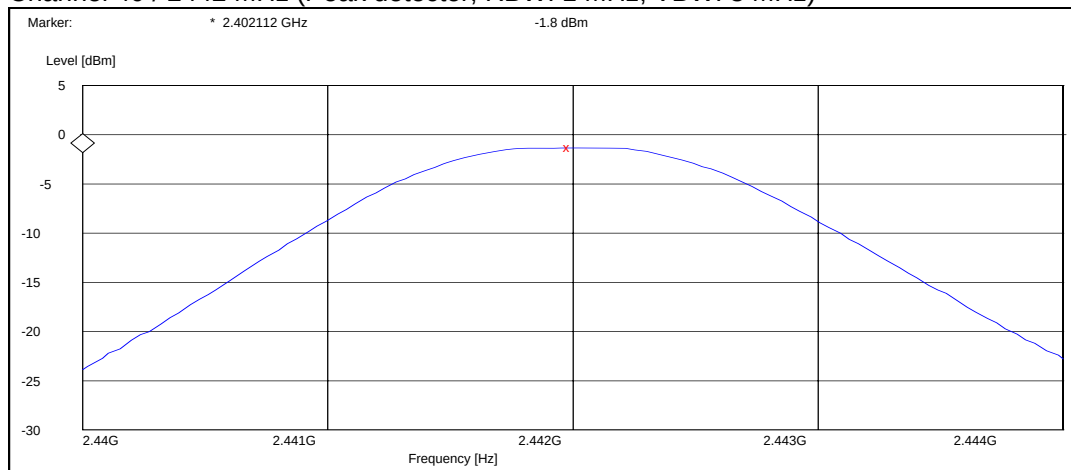
3.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-1.80	0.661	Pass
40 / 2442	-1.30	0.741	Pass
78 / 2480	-1.00	0.794	Pass

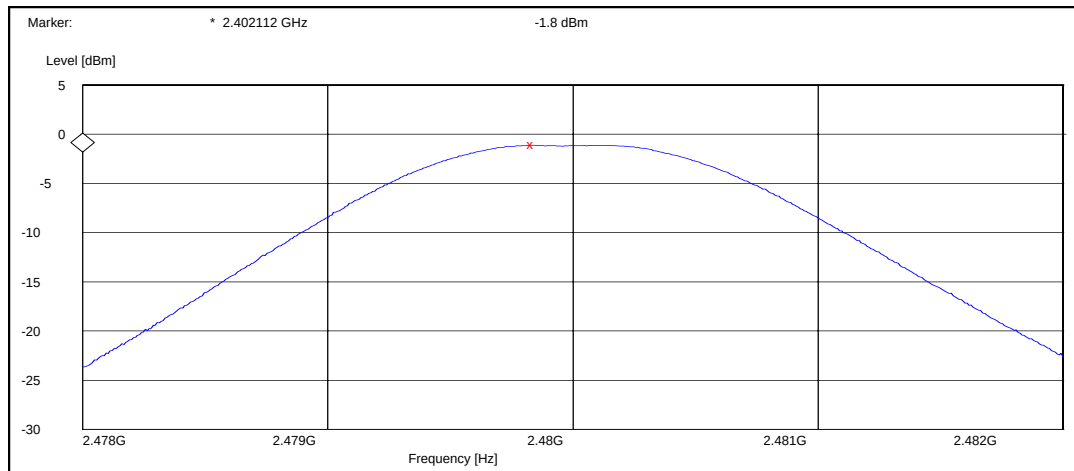
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



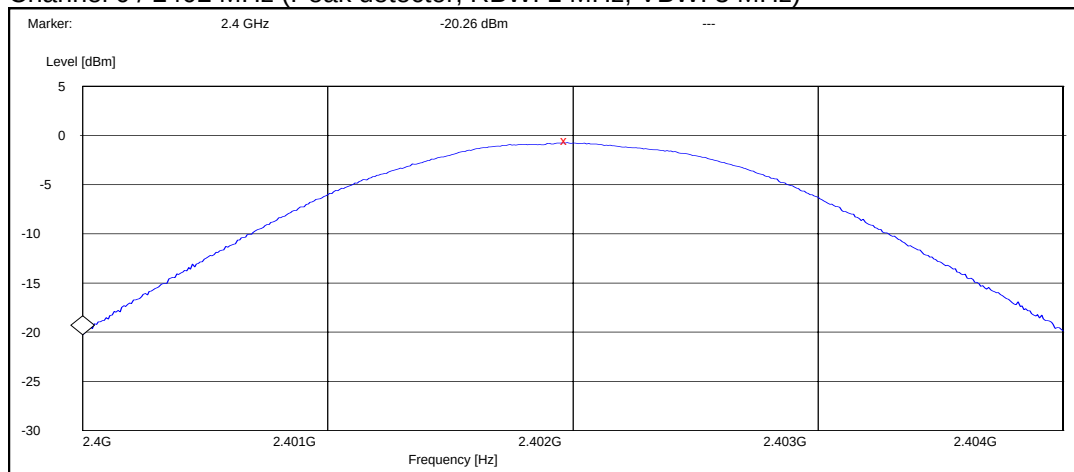
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



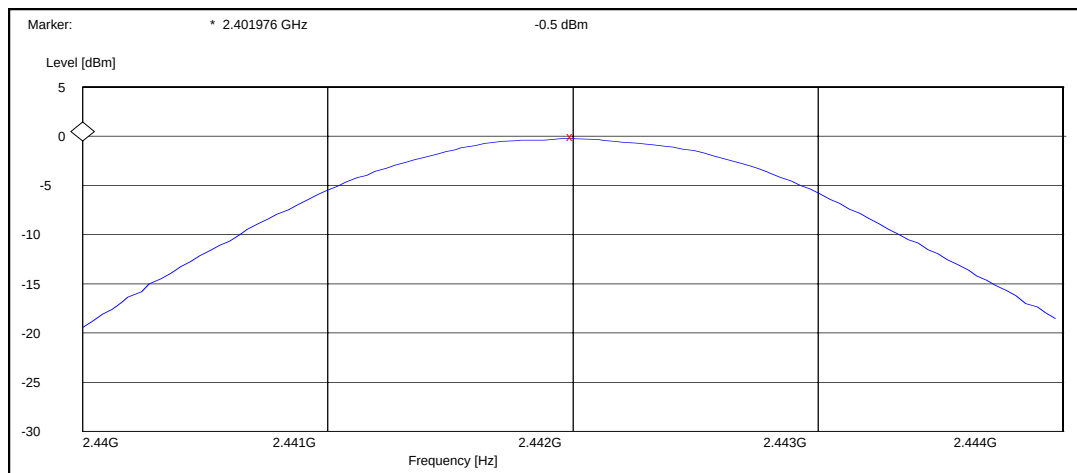
3.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-0.50	0.891	Pass
40 / 2442	0.00	1.000	Pass
78 / 2480	0.40	1.096	Pass

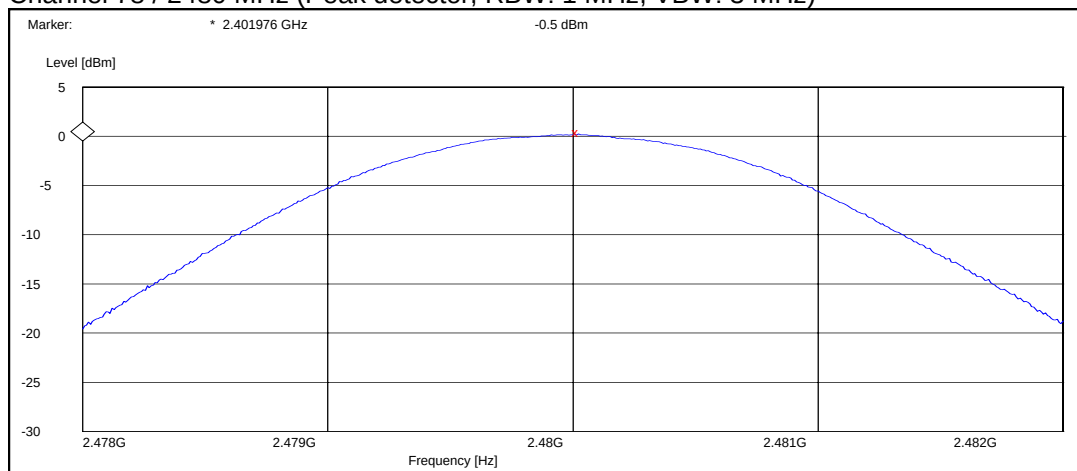
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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-324 DUT 27112
Accessories with DUT numbers	BP-4L DUT 27101, AC-4E DUT 29253, HS-9 DUT 29261
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	Phone tested in flip open mode.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 40 / 103.3
Date of measurements	11-Feb-2008
Measured by	Christian Andersen

4.1. Test method and limit

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

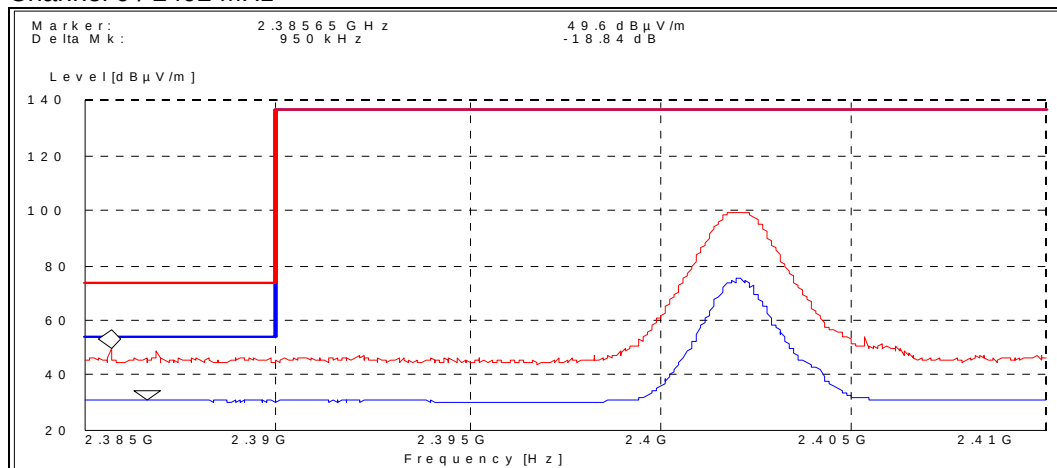
Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

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

4.2. Bluetooth Test results

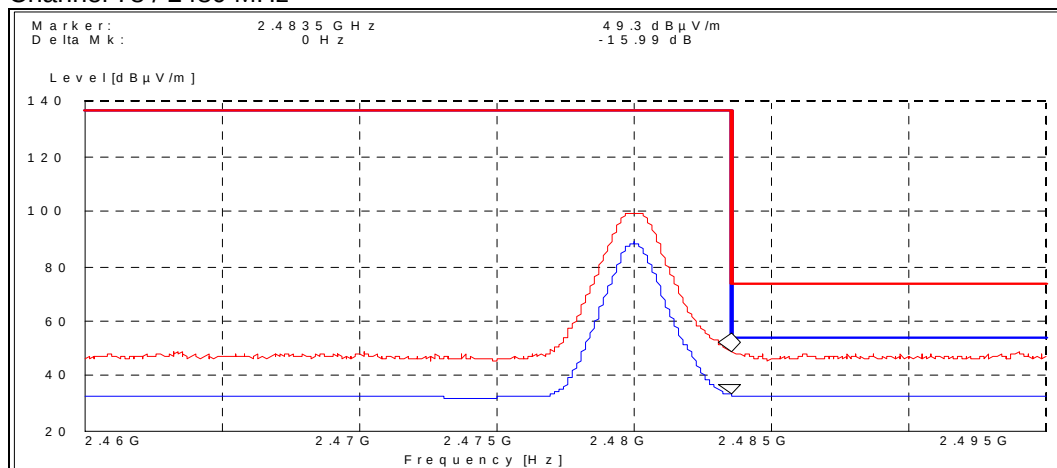
4.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



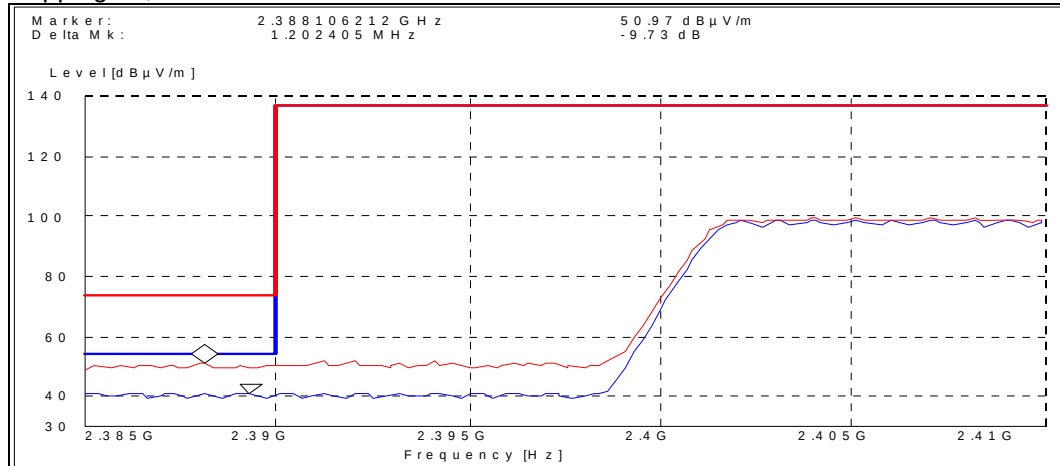
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	49.60	Passed
Average	30.80	Passed

Channel 78 / 2480 MHz



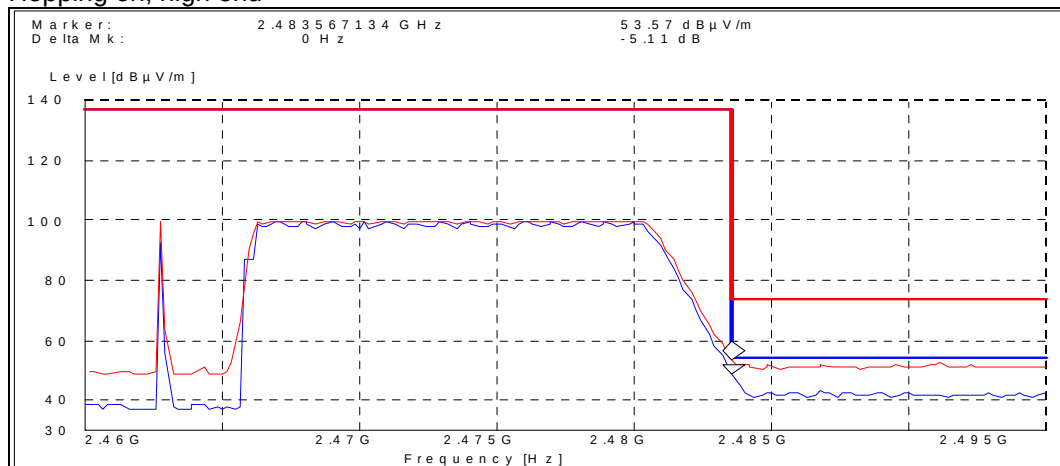
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	49.30	Passed
Average	33.30	Passed

Hopping on, low end



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	51.00	Passed
Average	41.20	Passed

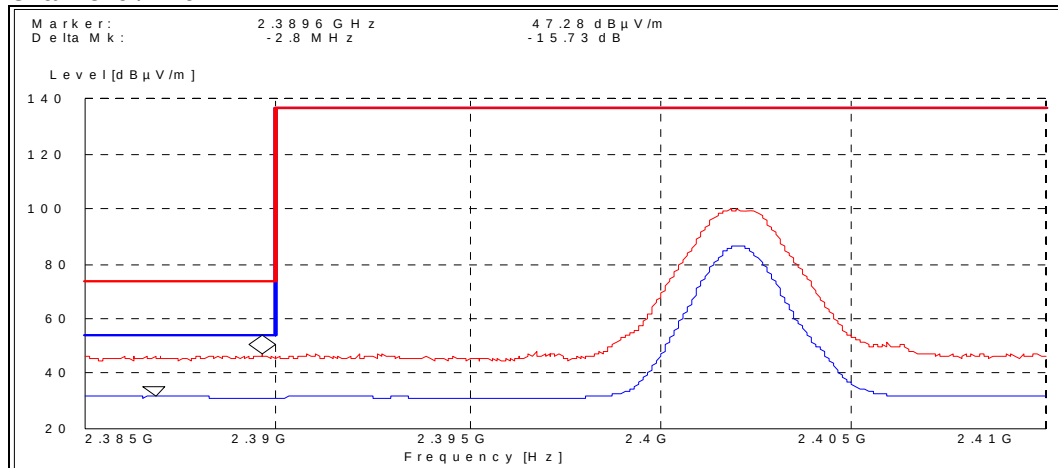
Hopping on, high end



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	53.60	Passed
Average	48.50	Passed

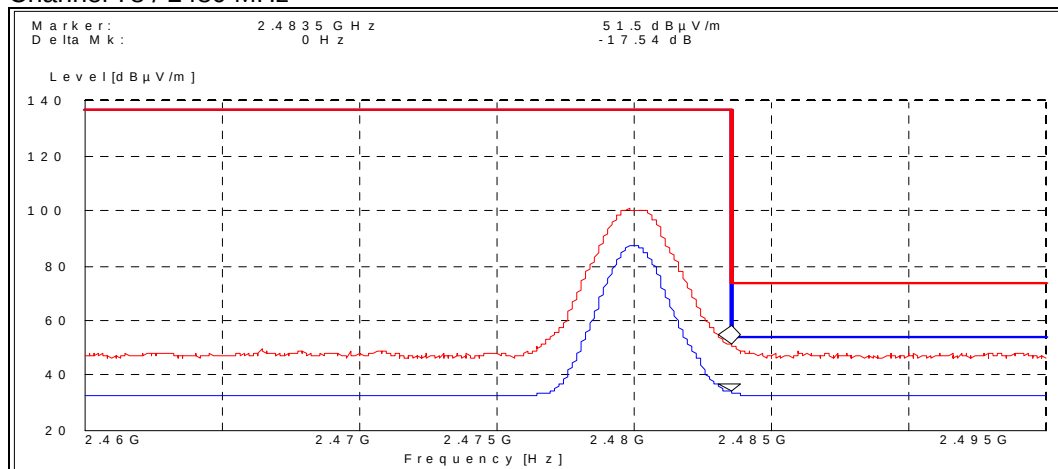
4.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



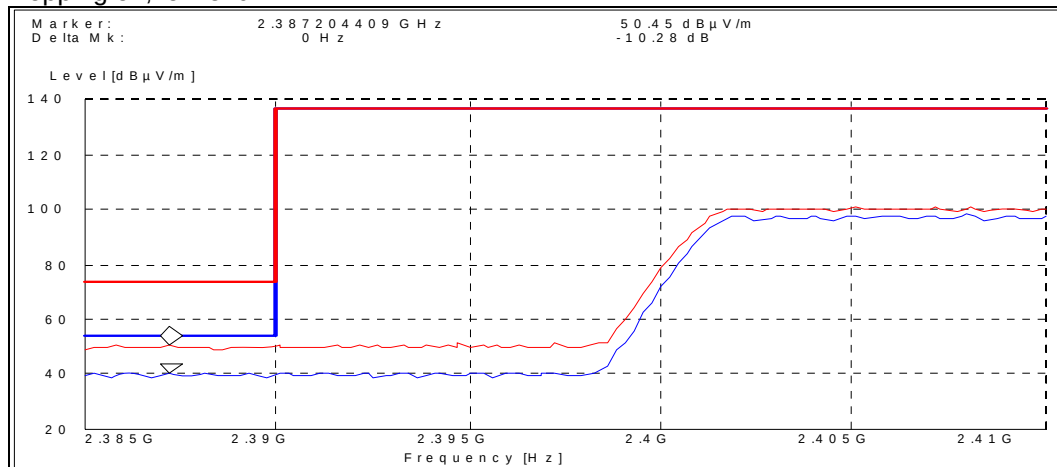
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	47.30	Passed
Average	31.50	Passed

Channel 78 / 2480 MHz



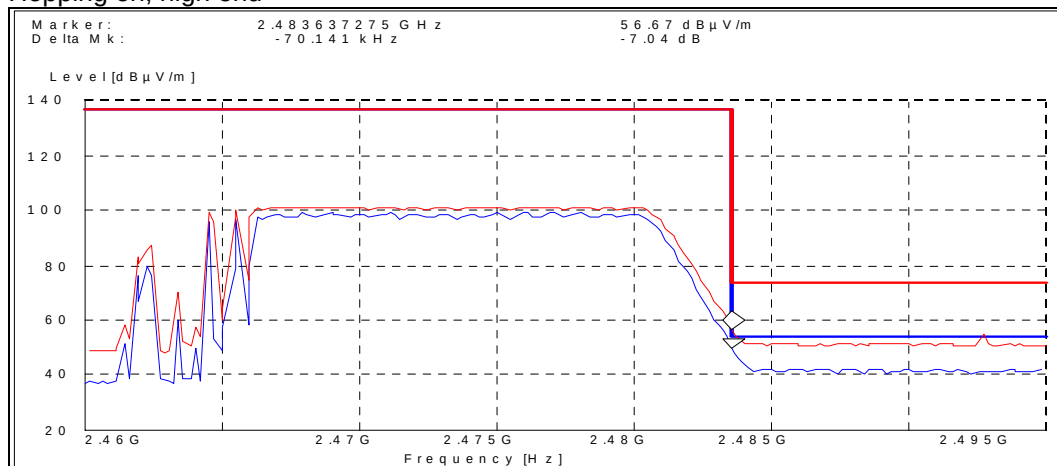
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	51.50	Passed
Average	34.00	Passed

Hopping on, low end



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	50.50	Passed
Average	40.20	Passed

Hopping on, high end



Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	56.70	Passed
Average	49.60	Passed

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

EUT with DUT number	RM-324 dut 27096, BP-4L dut 29251
Accessories with DUT numbers	HS-9 dut 27109, AC-4U dut 27103
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.1 / 33.5 104.61
Date of measurements	12-feb-2008
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.

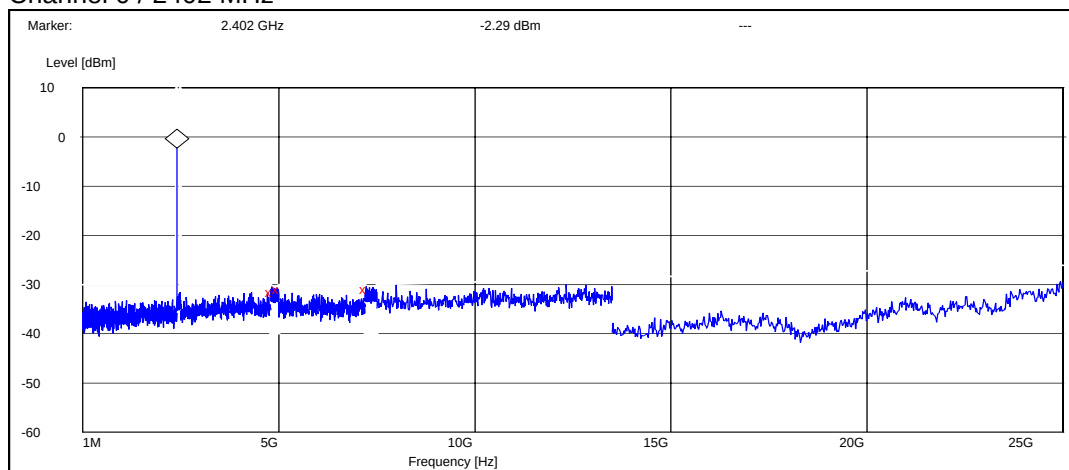
Limits for spurious RF conducted emissions measurements

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

5.2. Bluetooth Test results

5.2.1 GFSK modulation, PRBS packet type

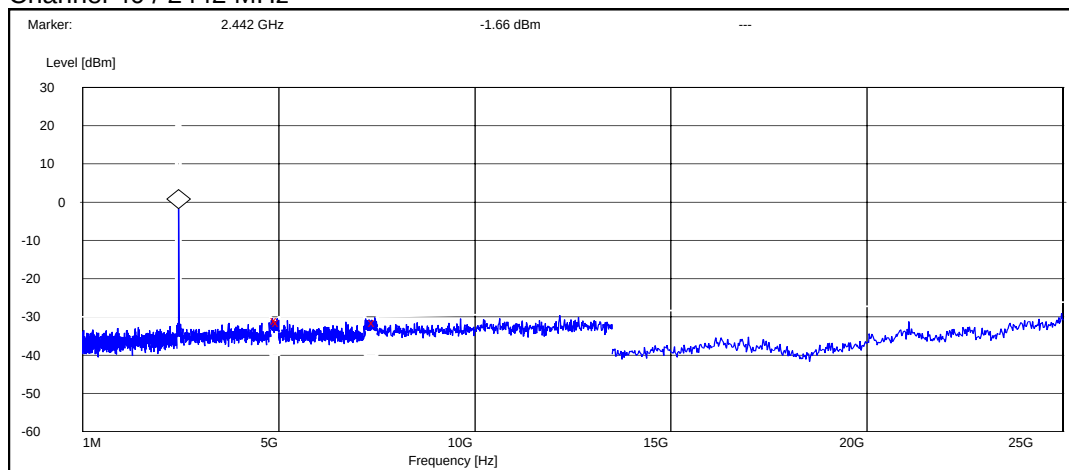
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4828.800000	-29.310177	Pass
5000.000000	-28.810177	Pass
7233.000000	-28.710177	Pass

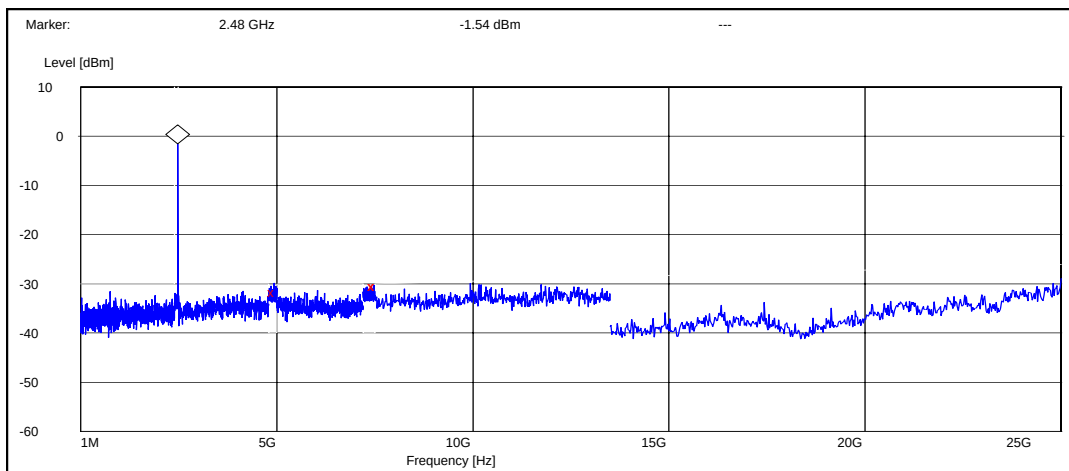
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4962.400000	-29.137625	Pass
5000.000000	-29.637625	Pass
7449.600000	-29.737625	Pass

Channel 78 / 2480 MHz

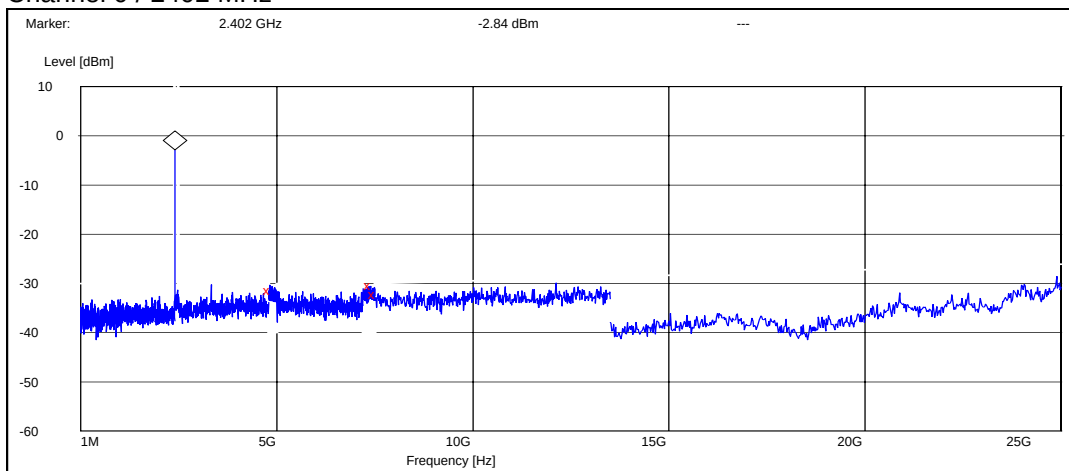


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4938.400000	-30.159938	Pass
7478.400000	-28.959938	Pass
7500.000000	-28.859938	Pass

5.2.2 8DPSK modulation, PRBS packet type

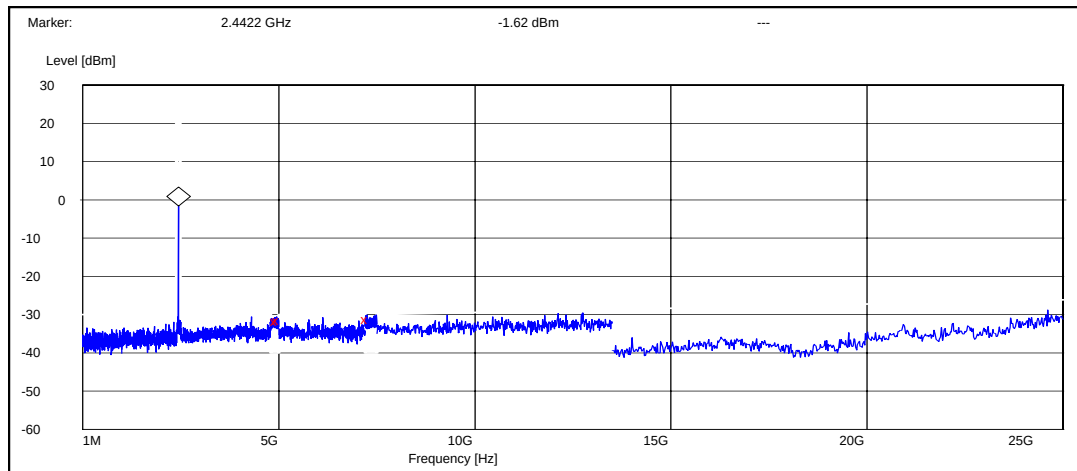
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4820.400000	-28.464507	Pass
7394.400000	-27.564507	Pass
7500.000000	-29.264507	Pass

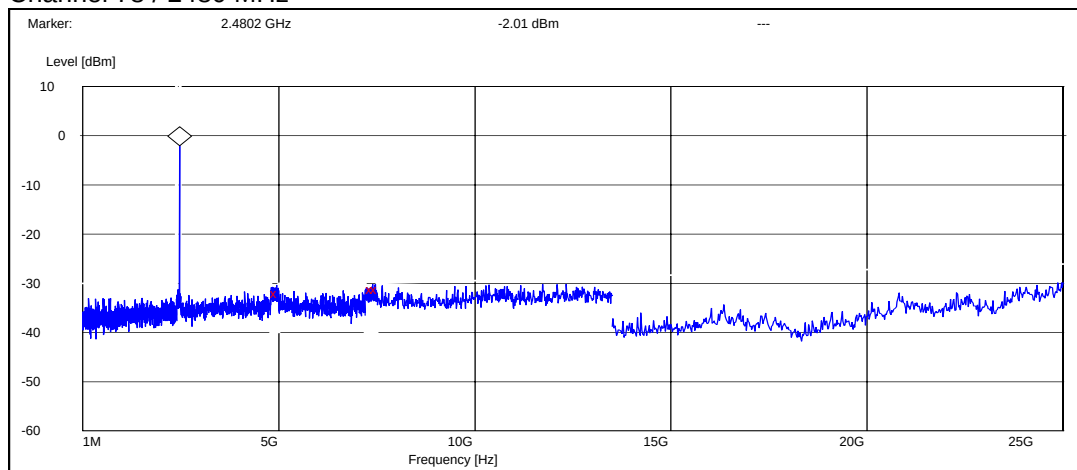
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4944.800000	-30.182831	Pass
5000.000000	-29.782831	Pass
7255.200000	-29.682831	Pass

Channel 78 / 2480 MHz



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

Frequency [MHz]	P [dBc]	Result
4950.800000	-29.986900	Pass
7401.600000	-29.186900	Pass
7500.000000	-29.286900	Pass

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

EUT with DUT number	RM-324 DUT 27112
Accessories with DUT numbers	BP-4L DUT 27101, AC-4E DUT 29253, HS-9 DUT 29261
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	Phone tested in flip open mode.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 40 / 103.8
Date of measurements	11-Feb-2008
Measured by	Christian Andersen

6.1. Test method and limit

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

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

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

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

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

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

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

The measurement results are obtained as described below:

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

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

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

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

6.2. Bluetooth Test results

6.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz

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

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	35.70	60.95	35.00	0.7	VERTICAL	Passed
7206.000000	40.20	102.33	33.10	7.1	VERTICAL	Passed

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

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	23.20	14.45	22.50	0.7	VERTICAL	Passed
7206.000000	27.40	23.44	20.30	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
30.000000	16.20	6.46	28.90	-12.7	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
4945.897796	37.00	70.79	35.80	1.2	HORIZONTAL	Passed
7261.021042	40.60	107.15	33.60	7.0	VERTICAL	Passed
7427.353707	42.40	131.83	34.50	7.9	VERTICAL	Passed
17470.433868	54.40	524.81	30.70	23.7	VERTICAL	Passed
17883.265531	59.80	977.24	30.70	29.1	VERTICAL	Passed

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

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4945.397796	23.60	15.14	22.40	1.2	HORIZONTAL	Passed
7261.521042	27.80	24.55	20.80	7.0	VERTICAL	Passed
7423.353707	29.00	28.18	21.10	7.9	VERTICAL	Passed
17467.433868	40.00	100.00	16.30	23.7	VERTICAL	Passed
17883.265531	46.30	206.54	17.20	29.1	VERTICAL	Passed

Channel 78 / 2480 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	37.10	71.61	35.80	1.3	VERTICAL	Passed
7440.000000	41.60	120.23	33.40	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	24.70	17.18	23.40	1.3	VERTICAL	Passed
7440.000000	28.80	27.54	20.60	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	35.80	61.66	35.10	0.7	VERTICAL	Passed
7206.000000	39.80	97.72	32.70	7.1	VERTICAL	Passed

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	23.10	14.29	22.40	0.7	VERTICAL	Passed
7206.000000	27.30	23.17	20.20	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
881.163527	45.00	177.83	56.40	-11.4	VERTICAL	Passed

*881 MHz frequency is coming from communication tester and thus ignored.

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
7336.179359	41.40	117.49	33.70	7.7	VERTICAL	Passed
7340.185371	41.60	120.23	33.80	7.8	VERTICAL	Passed
7427.349699	41.70	121.62	33.80	7.9	VERTICAL	Passed
7440.879760	41.90	124.45	33.70	8.2	VERTICAL	Passed
17461.919840	53.10	451.86	29.60	23.5	HORIZONTAL	Passed
17884.763527	59.70	966.05	30.60	29.1	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
4966.931864	24.70	17.18	23.30	1.4	VERTICAL	Passed
7342.685371	28.60	26.92	20.70	7.9	VERTICAL	Passed
7343.179359	28.50	26.61	20.50	8.0	VERTICAL	Passed
7422.349699	29.00	28.18	21.00	8.0	VERTICAL	Passed
7436.879760	28.90	27.86	20.80	8.1	VERTICAL	Passed
17462.919840	39.90	98.86	16.40	23.5	HORIZONTAL	Passed
17880.263527	46.40	208.93	17.30	29.1	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	37.10	71.61	35.80	1.3	VERTICAL	Passed
7440.000000	41.70	121.62	33.50	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	24.60	16.98	23.30	1.3	VERTICAL	Passed
7440.000000	28.90	27.86	20.70	8.2	VERTICAL	Passed

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

EUT with DUT number	RM-324 DUT 27112
Accessories with DUT numbers	BP-4L DUT 27101, AC-4U DUT 29253, HS-9 DUT 27109
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.3 / 31.5 103.6
Date of measurements	08-Feb-2008
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.

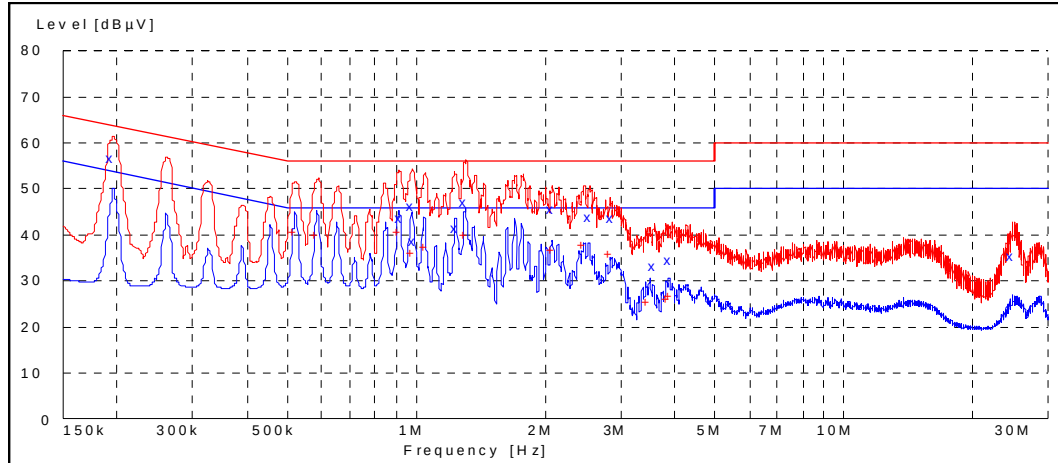
CISPR 22 Class B limits

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)

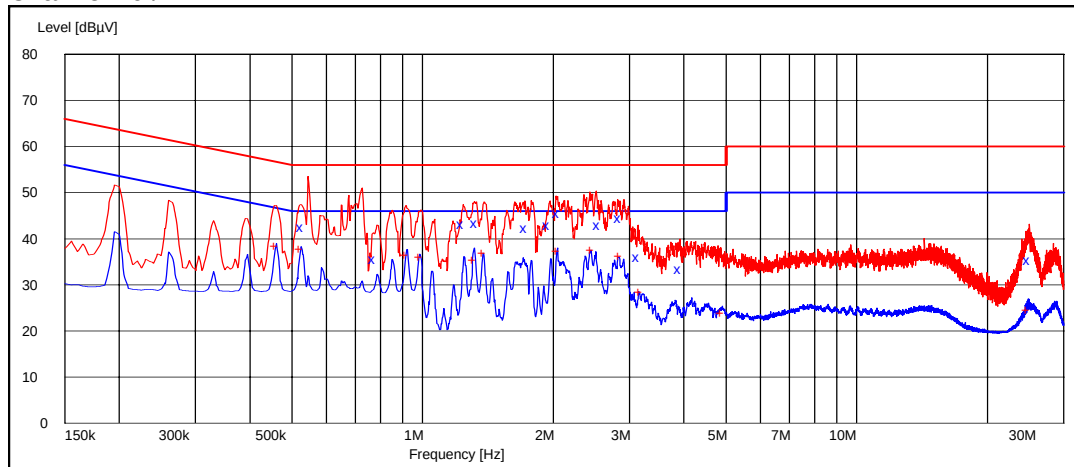
Frequency [MHz]	U [dBμV]	Line	Result
0.195000	56.60	L1	Passed
0.920000	43.60	N	Passed
0.980000	46.10	N	Passed
0.995000	38.50	N	Passed
1.245000	41.50	N	Passed
1.305000	47.10	N	Passed
2.090000	45.50	N	Passed
2.545000	43.90	N	Passed
2.870000	43.50	N	Passed
3.595000	33.30	N	Passed
3.925000	34.70	N	Passed
24.935000	35.40	N	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.520000	40.50	N	Passed
0.585000	40.10	N	Passed
0.910000	40.50	N	Passed
0.975000	36.10	L1	Passed
1.045000	37.50	N	Passed
1.300000	39.90	N	Passed
2.090000	36.60	N	Passed
2.470000	37.60	N	Passed
2.855000	35.70	N	Passed
3.465000	25.30	N	Passed
3.900000	26.00	N	Passed
3.915000	26.80	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
0.530000	42.60	L1	Passed
0.775000	35.70	L1	Passed
1.240000	43.10	L1	Passed
1.330000	43.30	N	Passed
1.735000	42.30	N	Passed
1.955000	42.90	N	Passed
2.060000	45.50	N	Passed
2.555000	43.00	N	Passed
2.860000	44.50	N	Passed
3.150000	36.10	N	Passed
3.930000	33.50	N	Passed
24.975000	35.40	N	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.460000	38.50	N	Passed
0.525000	37.70	N	Passed
0.920000	36.50	N	Passed
0.990000	36.00	N	Passed
1.315000	35.50	N	Passed
1.385000	36.80	N	Passed
2.055000	37.20	N	Passed
2.460000	37.50	N	Passed
2.855000	36.20	N	Passed
3.180000	28.40	N	Passed
4.900000	23.90	N	Passed
24.895000	24.60	N	Passed

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

EUT with DUT number	RM-324 dut 27096, BP-4L dut 29251
Accessories with DUT numbers	HS-9 dut 27109, AC-4U dut 27103
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.1 / 33.5 104.61
Date of measurements	12-feb-2008
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

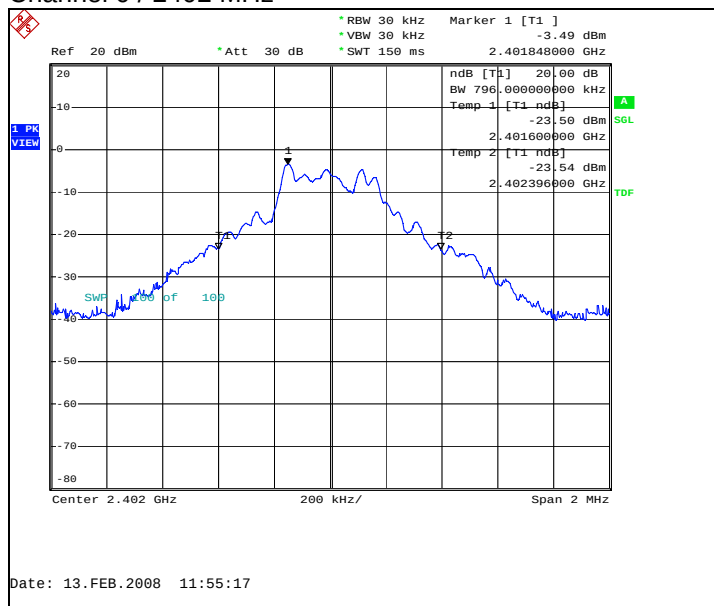
Limit [MHz]
N/A

8.2. Bluetooth Test results

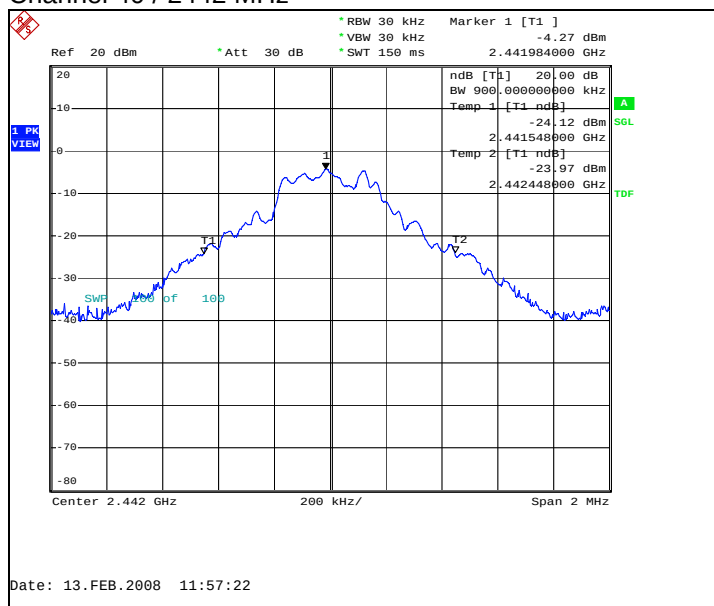
8.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	796.000	Pass
40 / 2442	900.000	Pass
78 / 2480	904.000	Pass

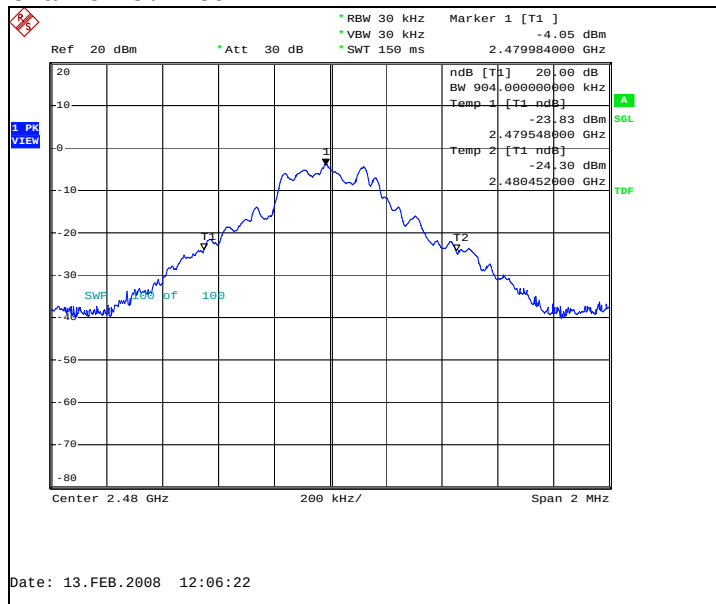
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



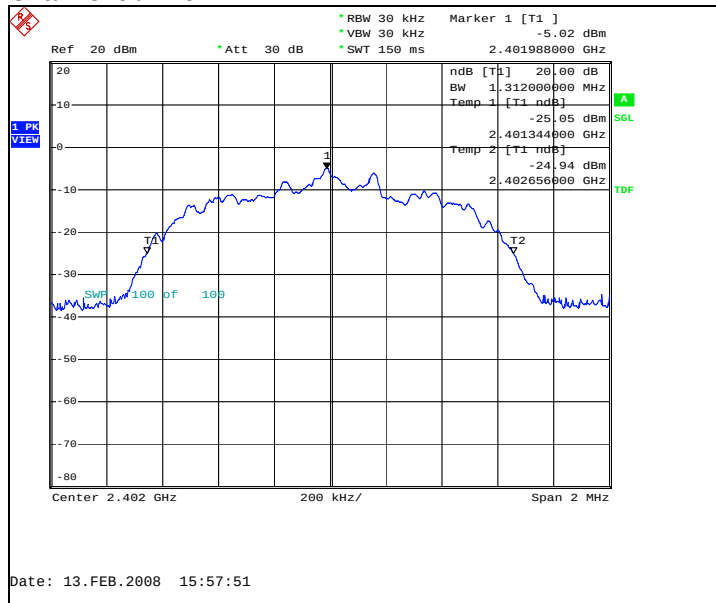
Channel 78 / 2480 MHz



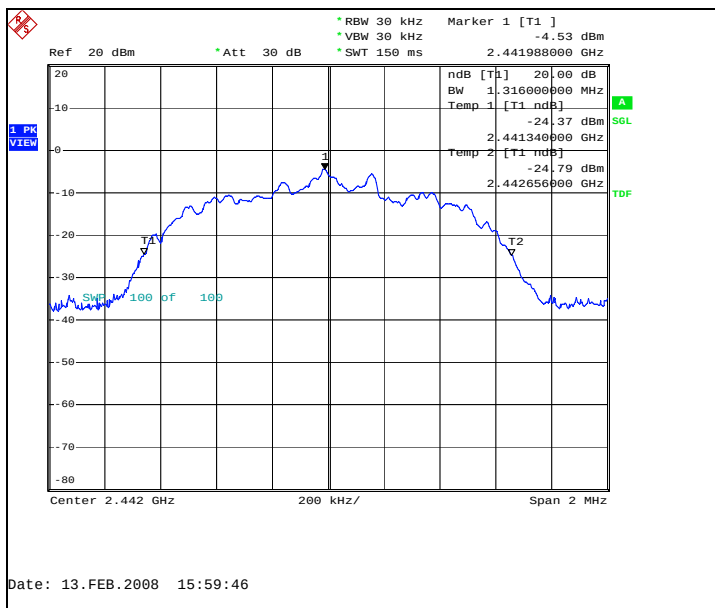
8.2.2 8DPSK modulation, PRBS packet type

Channel / f _c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1312.000	Pass
40 / 2442	1316.000	Pass
78 / 2480	1308.000	Pass

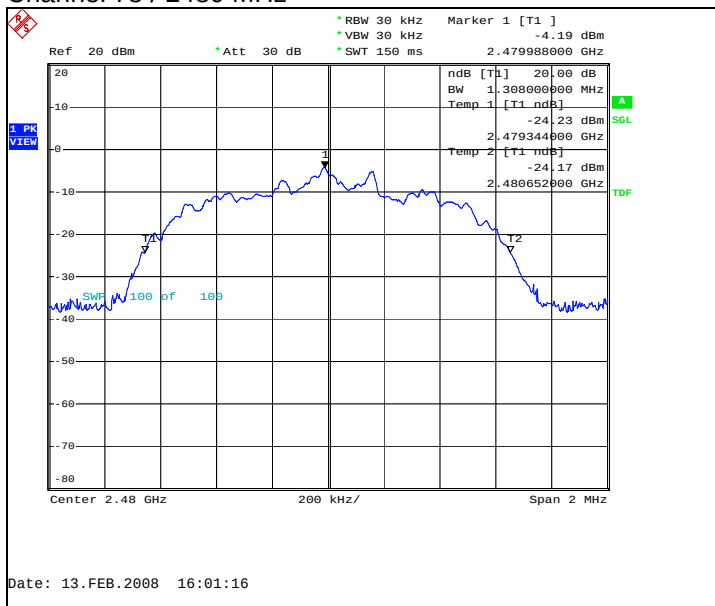
Channel 0 / 2402 MHz



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-324 dut 27096, BP-4L dut 29251
Accessories with DUT numbers	HS-9 dut 27109, AC-4U dut 27103
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.1 / 33.5 104.61
Date of measurements	12-feb-2008
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

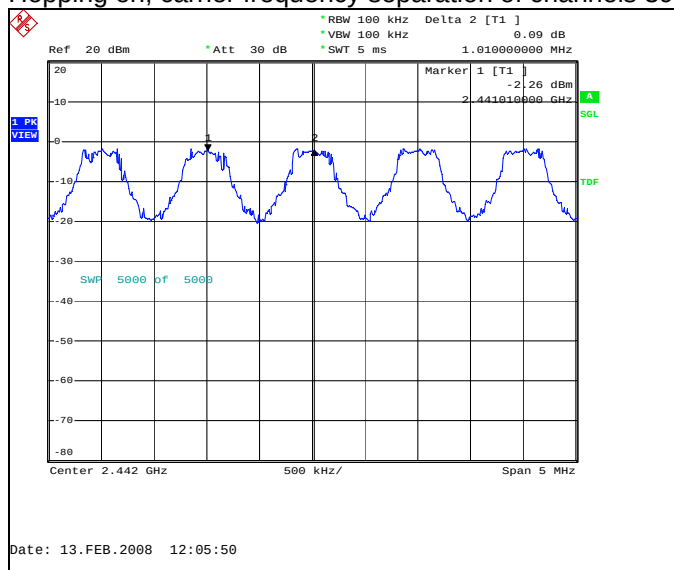
Limit [MHz]
≥ 0.025 or $2/3$ of the 20 dB bandwidth

9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1010	Pass

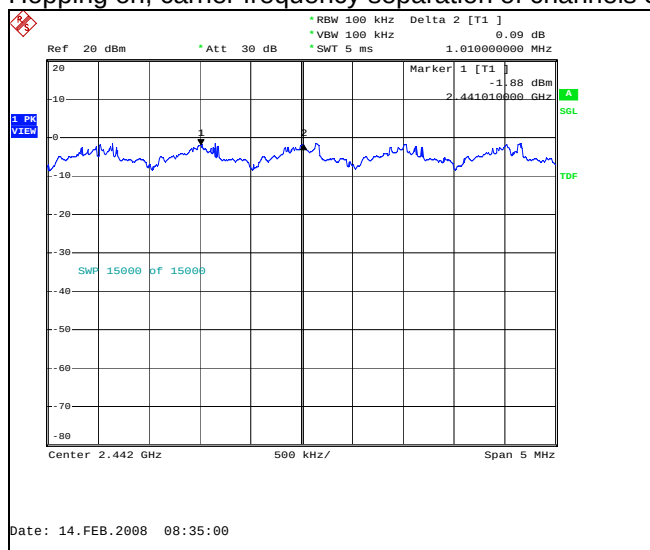
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



9.2.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1010	Pass

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-324 dut 27096, BP-4L dut 29251
Accessories with DUT numbers	HS-9 dut 27109, AC-4U dut 27103
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.1 / 33.5 104.61
Date of measurements	12-feb-2008
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

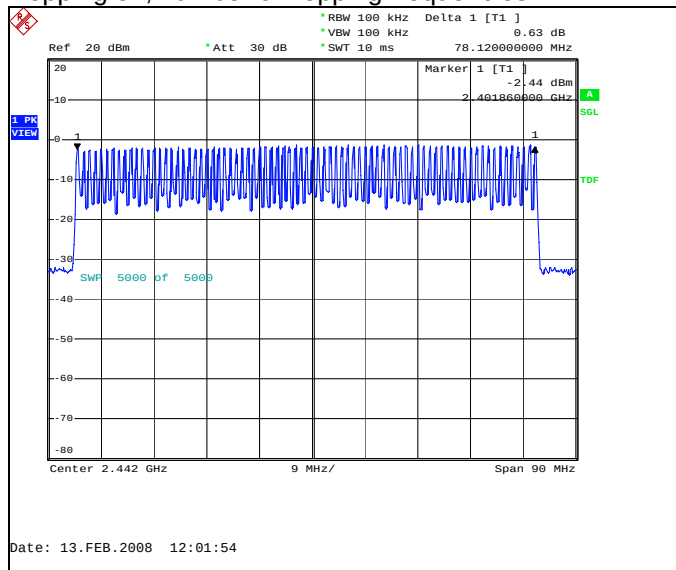
Limit [number]
≥ 15

10.2. Bluetooth Test results

10.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	Pass

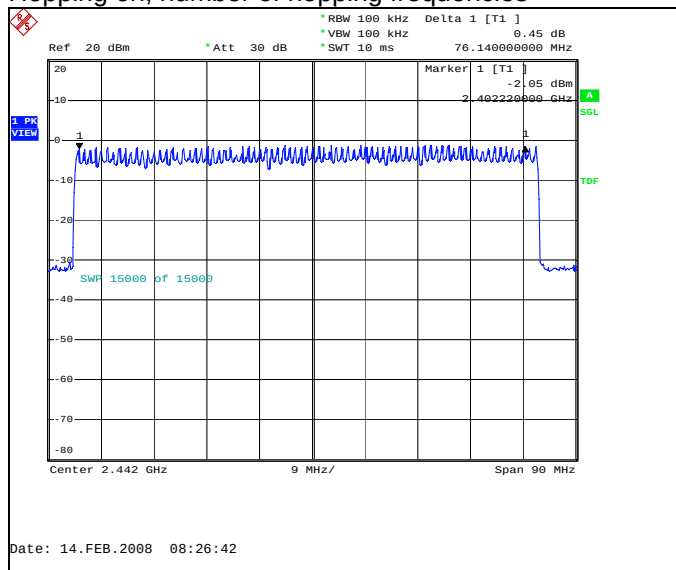
Hopping on, number of hopping frequencies



10.2.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	Pass

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-324 dut 27096, BP-4L dut 29251
Accessories with DUT numbers	HS-9 dut 27109, AC-4U dut 27103
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.1 / 33.5 104.61
Date of measurements	12-feb-2008
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

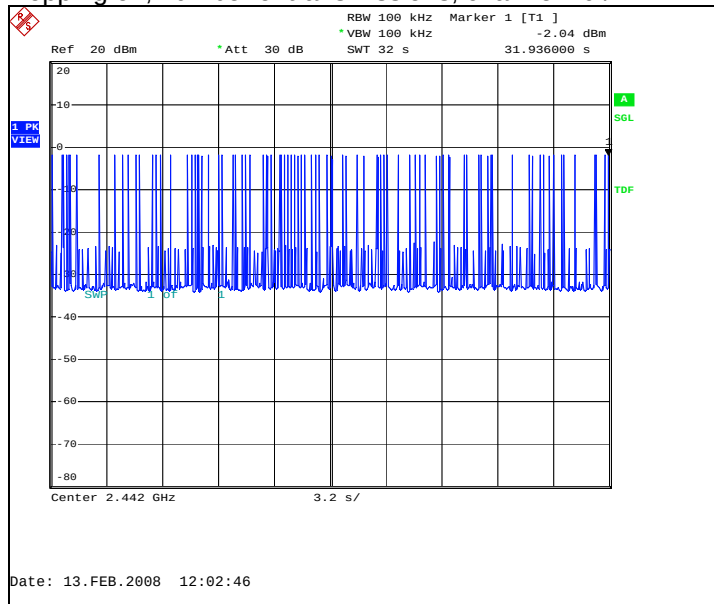
Limit [s]
≤ 0.4

11.2. Bluetooth test results

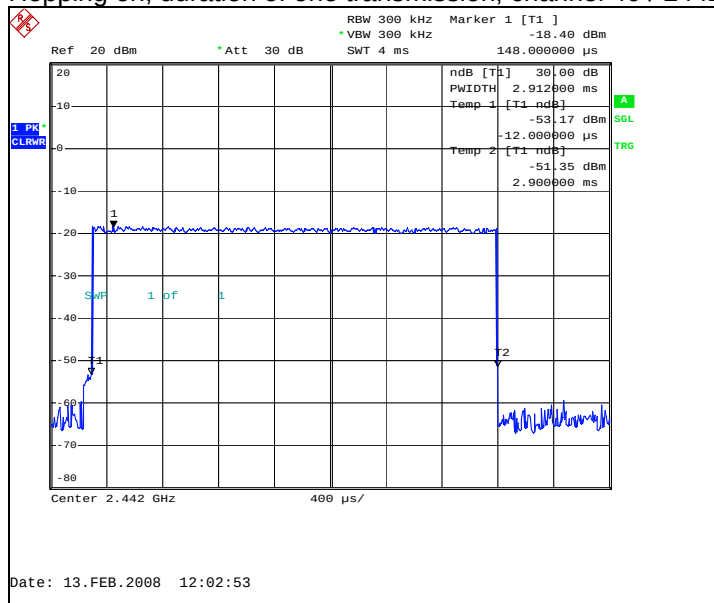
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
81	2912	0.235872	Pass

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



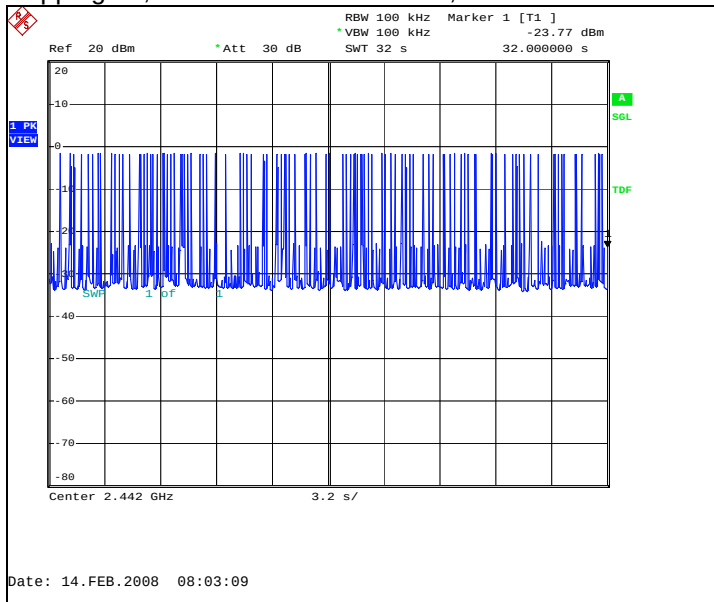
Hopping on, duration of one transmission, channel 40 / 2442 MHz



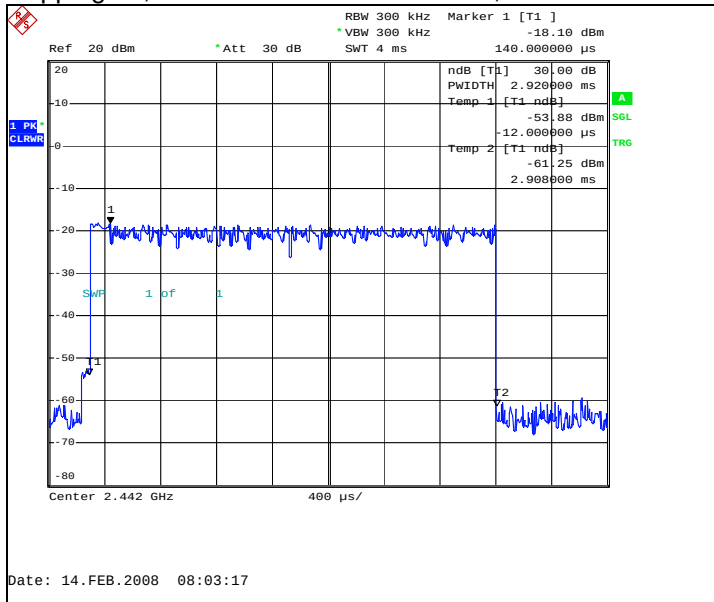
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
93	2920	0.271560	Pass

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 Reciever 9KHz-2,5GHz	ESPC	Rohde&Schwarz	15C, 15B
13935	Two Lines Artificial Mains Network	ESH3-Z5	Rohde&Schwarz	15C, 15B
16995	Directional Coupler 20dB 0,5-2,0 GHz SMA Conn.	1538RA-20	Weinschel	15C, 15B
18772	Shielded Chamber	RFD-100	ETS-Lindgren	15C, 15B
19171	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	15C, 15B
11386	System DC Power Supply	HP6632A	Hewlett Packard	22/24/27, 15C, 15B
19678	Spectrum Analyzer 26 GHz	FSP	Rohde&Schwarz	22/24/27, 15C, 15B
16601	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
19625	Vötsch Climatic Chamber	VT4002EMC	Vötsch	22/24/27, 15C, 15B
13357	Rohde & Schwartz Signal Generator	SMP02	Rohde&Schwarz	22/24/27, 15C, 15B
20168	Bluetooth EDR Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B

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 µWave Mux	10-785B-522	Pickering	22/24/27, 15C, 15B
14021	Relay Dual 6 Chnl µWave Mux	10-785-522		22/24/27, 15C, 15B
	Relay Dual 6 Chnl µWave Mux	10-785-522		22/24/27, 15C, 15B
17644	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16948	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16949	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
18792	Multi Device Controller	2090	ETS-EMCO	22/24/27, 15C, 15B
14963	RF Preamplifier 100MHz-4GHz (Metal Chassis)	AFS3-00100400	Miteq/NMP Cph	22/24/27, 15C, 15B
18861	EMI Test Receiver 20Hz-26,5GHz	ESI	Rohde&Schwarz	22/24/27, 15C, 15B
20335	Ultra Broadband Antenna Ultralog 30-3000MHz	HL562	Rohde&Schwarz	22/24/27, 15C, 15B
18773	Shielded Chamber	RFD-100	ETS-Lindgren	22/24/27, 15C, 15B
18774	Shielded Chamber	RFSD-F/A-100	ETS-Lindgren	22/24/27, 15C, 15B
19151	High Pass Filter 3GHz	WHJS3000-10SS	Wainwright	22/24/27, 15C, 15B

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