

FCC Part 15C Compliance Test Report

Test Report no.:	Cph_FCC_0822_16.doc	Date of Report:	12-Jun-2008
Number of pages:	39	Customer's Contact person:	Jyrki Juvani
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FCC listing no.:	99059		
IC recognition no.:	661AD-1		
Tested devices/ accessories:	Phone: RM-417 (HW: 0205), Battery: BL-5B, Headset: HS-45 AC charger: AC-8E		
FCC ID:	LJPRM-417	IC:	661E-RM417
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:			

Christian N. Andersen, Test System Manager

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	12-May-2008
Testing completed	12-Jun-2008
The customer's contact person	Jyrki Juvani
Test Plan referred to	T:\Projects\RM-417\TestPlan_RS\RS_Testplan_RM-417.xls
Notes	None
Document name	T:\Projects\RM-417\EMC\Results\FCC\Cph_FCC_0822_16.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-417	004401/10/047072/9	0205	-	v03.03	26995
Phone	RM-417	004401/10/047092/7	0205	-	v03.03	25374
Battery	BL-5B	0670528382066P09402HZ25399	-	-	-	25373
Battery	BL-5B	0670528382066P09402HZ25398	-	-	-	26996
Headset	HS-45	06942357231M1901502	-	-	-	26997
Headset	HS-45	06942357231M1901441	-	-	-	25377
AC charger	AC-8E	3997917506060303150;0675387	-	-	-	26998

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.

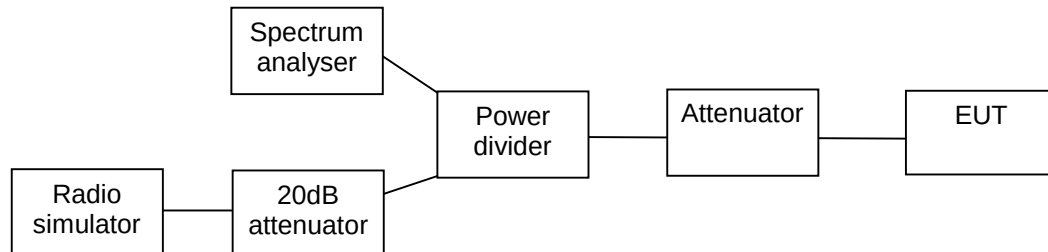
CONTENTS

1. Summary for FCC Part 15C Compliance Test Report.....	2
1.1. EUT and Accessory Information	2
1.2. Summary of Test Results	2
2. Test setups.....	5
2.1. Conducted RF test setup	5
2.2. AC powerline conducted emissions test setup	5
2.3. Radiated test setup	5
3. Conducted peak output power (FCC §15.247(b)(1), RSS-210 A8.4 (2))	6
3.1. Test method and limit	6
3.2. Bluetooth Test results	7
4. Band edge compliance of RF emissions (FCC §15.247(d), RSS-210 A8.5).....	10
4.1. Test method and limit	10
4.2. Bluetooth Test results	11
5. Spurious RF conducted emissions (FCC §15.247(d), RSS-A8.5).....	15
5.1. Test method and limit	15
5.2. Bluetooth Test results	16
6. Spurious radiated emissions (FCC §15.247(d), §15.209, RSS-210 A8.5).....	19
6.1. Test method and limit	19
6.2. Bluetooth Test results	20
7. AC powerline conducted emissions (FCC §15.207, RSS-GEN 7.2.2)	23
7.1. Test method and limit	23
7.2. Bluetooth Test results	24
8. 20 dB bandwidth (FCC §15.247(a)(1), RSS-210 A8.1 (1))	26
8.1. Test method and limit	26
8.2. Bluetooth Test results	27
9. Carrier frequency separation (FCC §15.247(a)(1), RSS-210 A8.1 (2))	30
9.1. Test method and limit	30
9.2. Bluetooth Test results	31
10. Number of hopping frequencies (FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))	33
10.1. Test method and limit	33
10.2. Bluetooth Test results	34
11. Time of occupancy (FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))	35
11.1. Test method and limit	35
11.2. Bluetooth test results	36

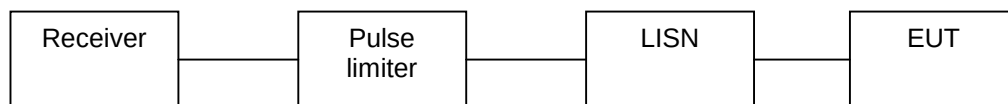
12.	Test Equipment	38
12.1.	Conducted measurements	38
12.2.	Radiated measurements	38

2. Test setups

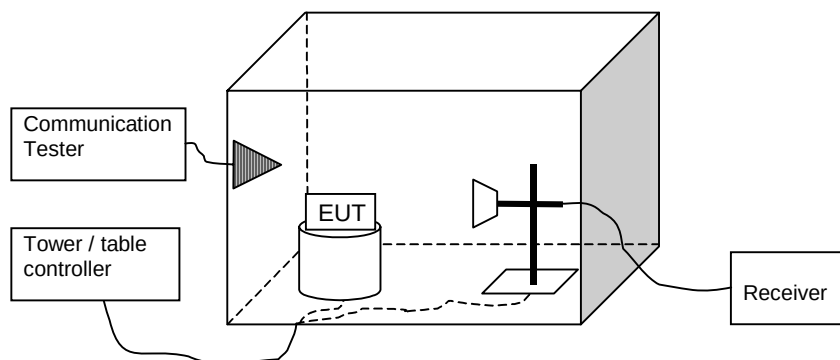
2.1. Conducted RF test setup



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-417 dut 26995, BL-5B dut 26996
Accessories with DUT numbers	HS-45 dut 26997, AC-8E dut 26998
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.8 / 35.0 102.76
Date of measurements	28-May-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

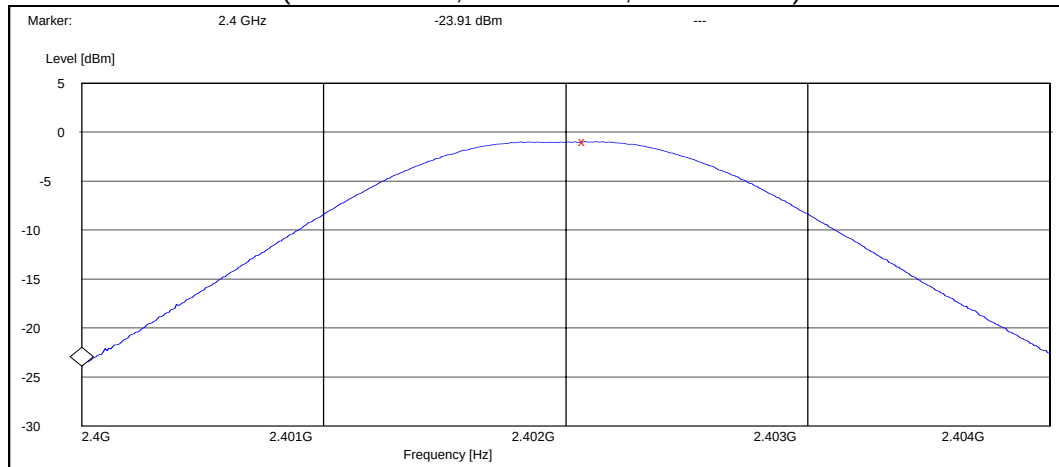
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

3.2. Bluetooth Test results

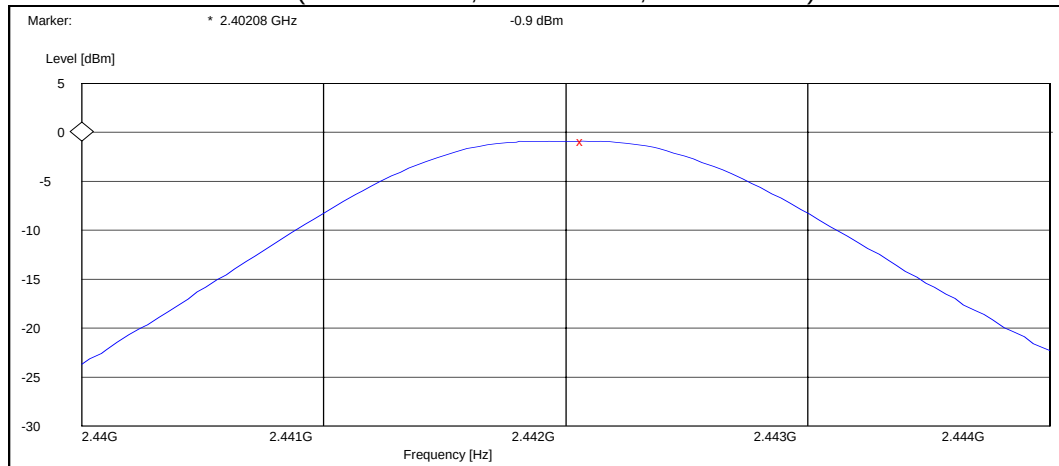
3.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-0.90	0.813	Pass
40 / 2442	-0.90	0.813	Pass
78 / 2480	-1.30	0.741	Pass

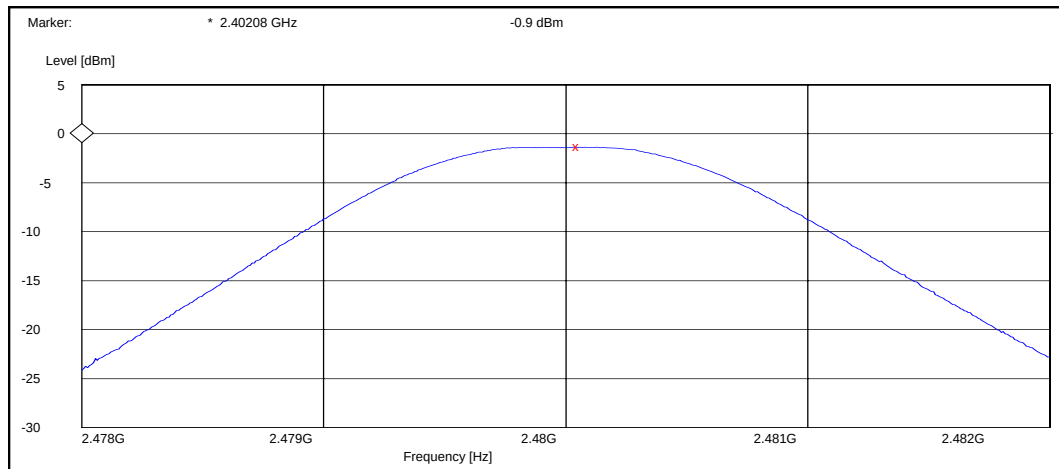
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



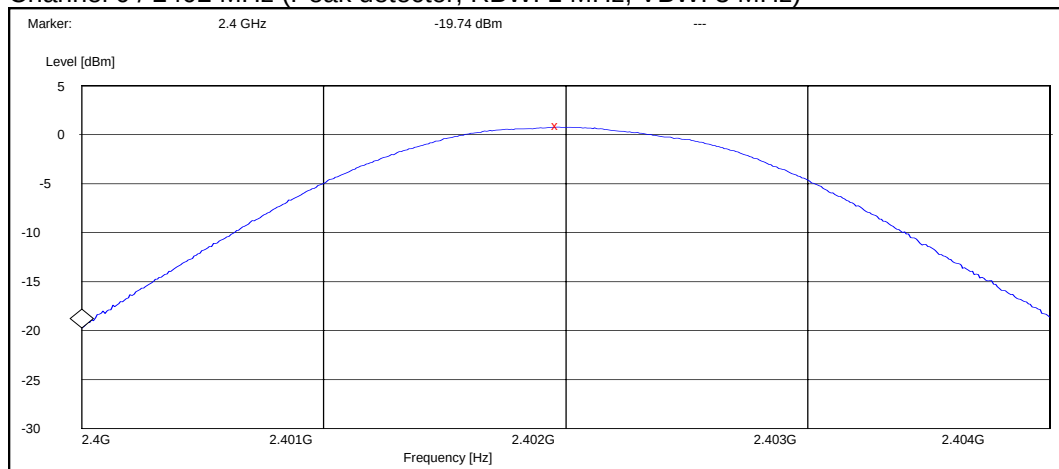
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



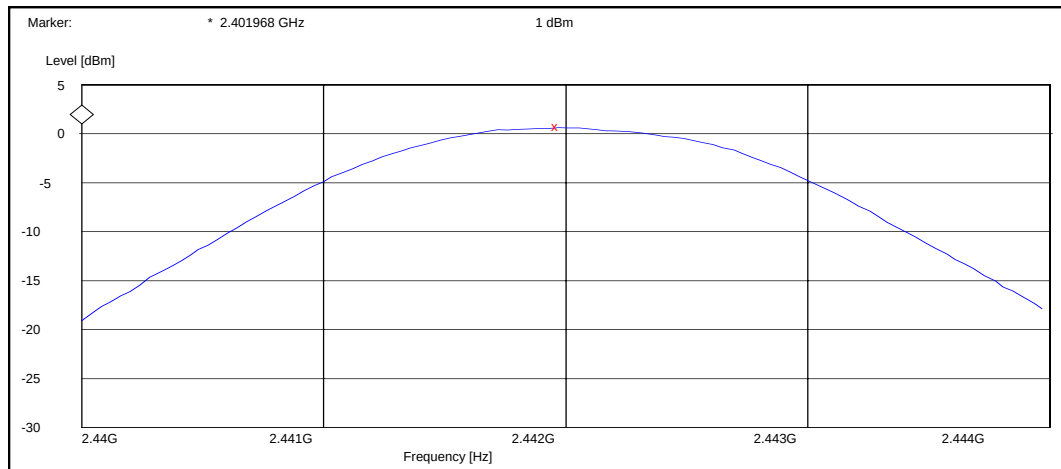
3.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	1.00	1.259	Pass
40 / 2442	0.80	1.202	Pass
78 / 2480	0.00	1.000	Pass

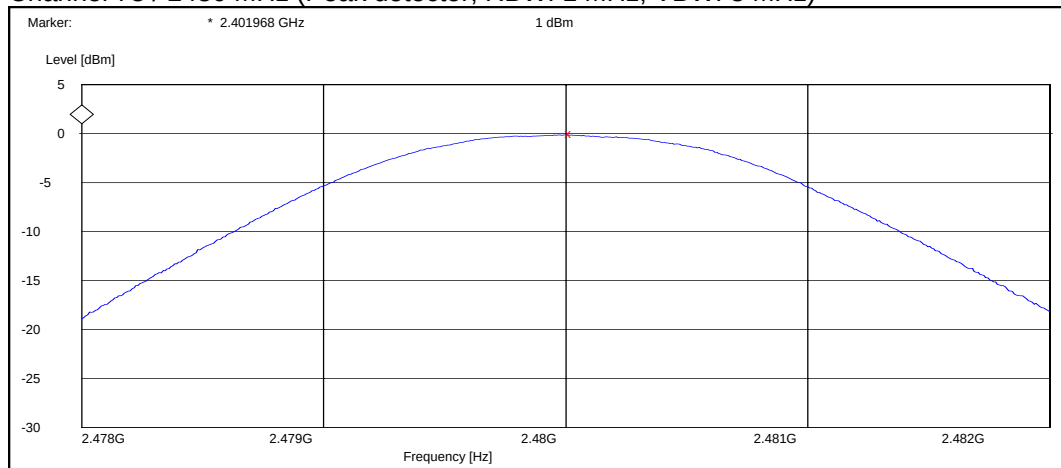
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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-417 DUT 25374
Accessories with DUT numbers	BL-5B DUT 26996, AC-8E DUT 26998, HS-45 DUT 25377
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.5 / 38 / 100.7
Date of measurements	12-Jun-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.

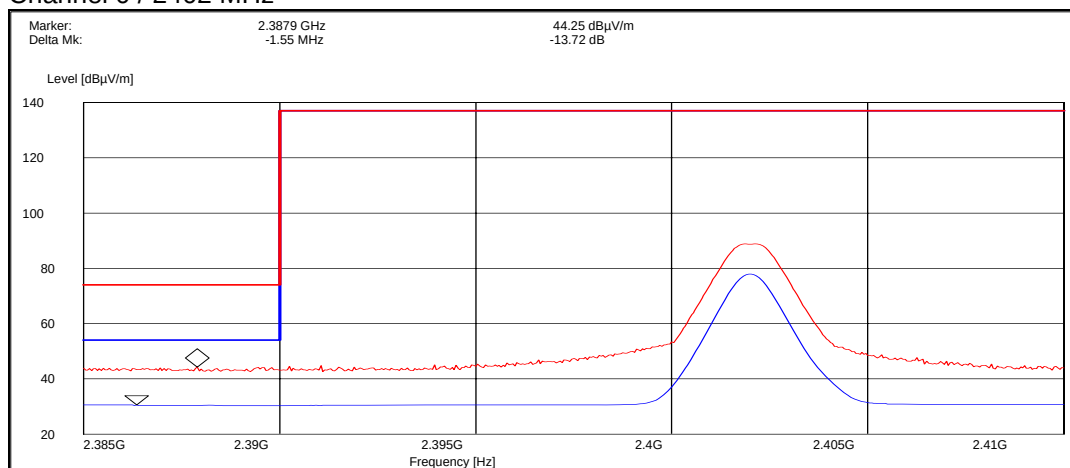
Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

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

4.2. Bluetooth Test results

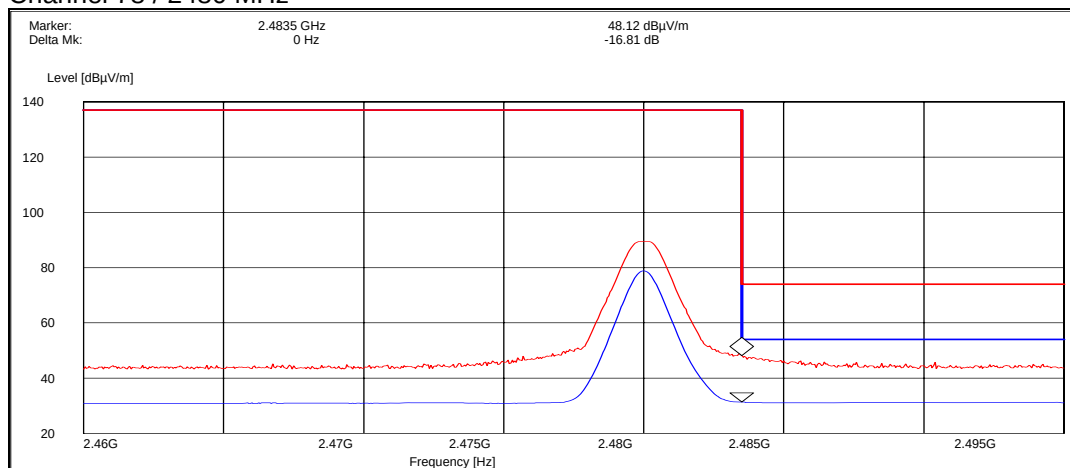
4.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



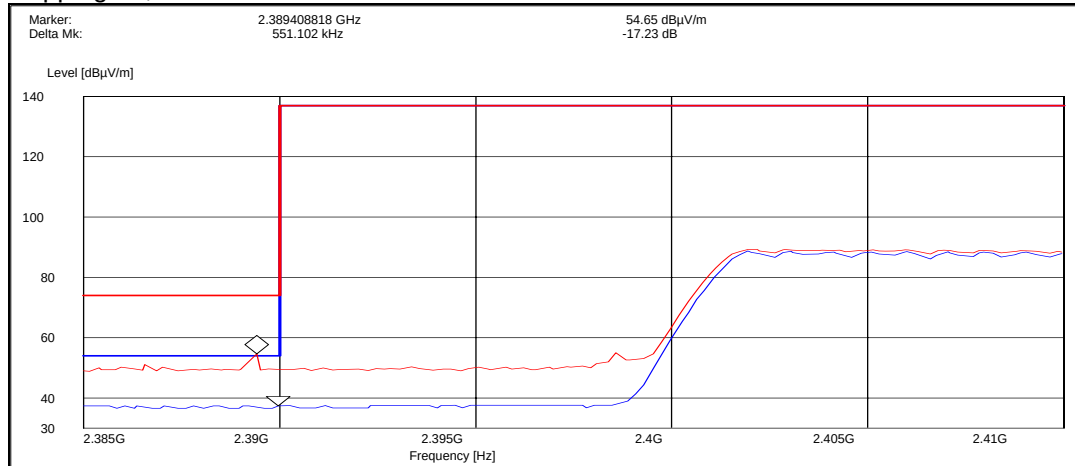
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	44.20	Passed
Average	30.50	Passed

Channel 78 / 2480 MHz



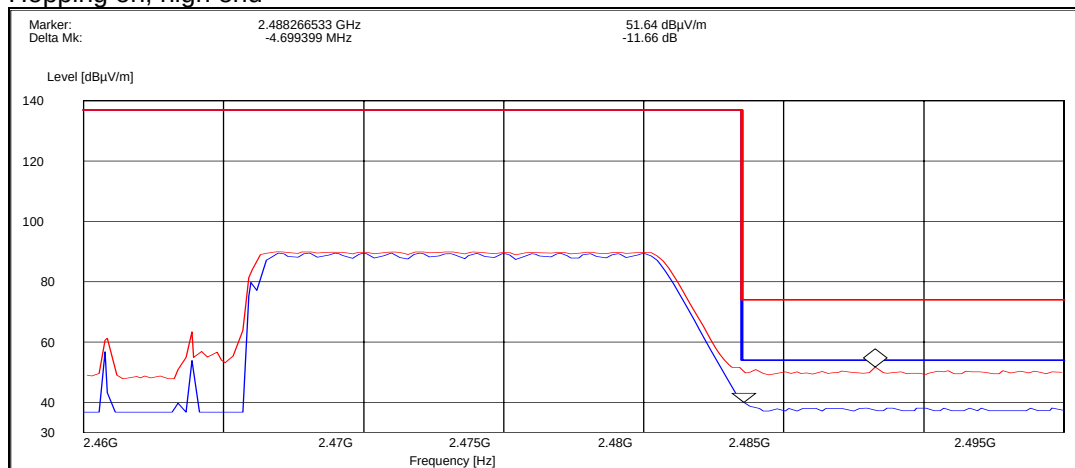
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	48.10	Passed
Average	31.30	Passed

Hopping on, low end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	54.60	Passed
Average	37.40	Passed

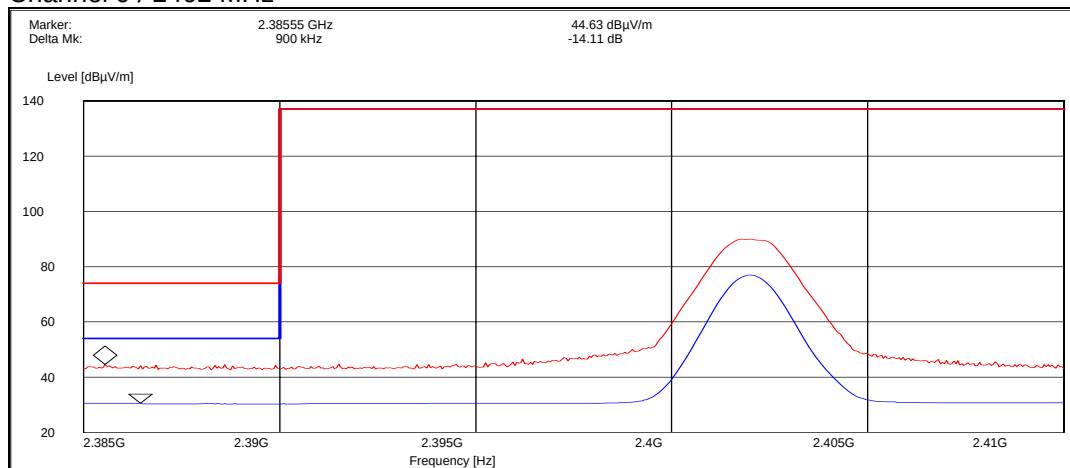
Hopping on, high end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	51.60	Passed
Average	40.00	Passed

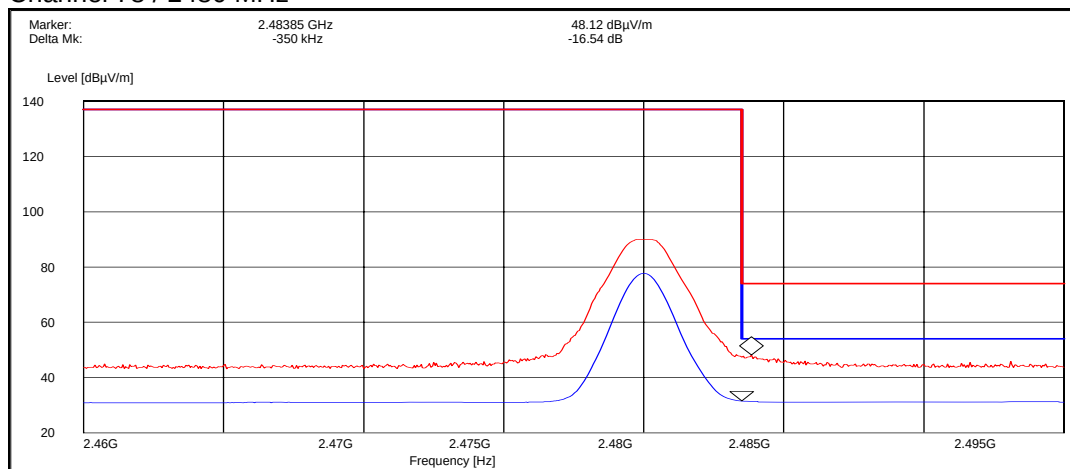
4.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



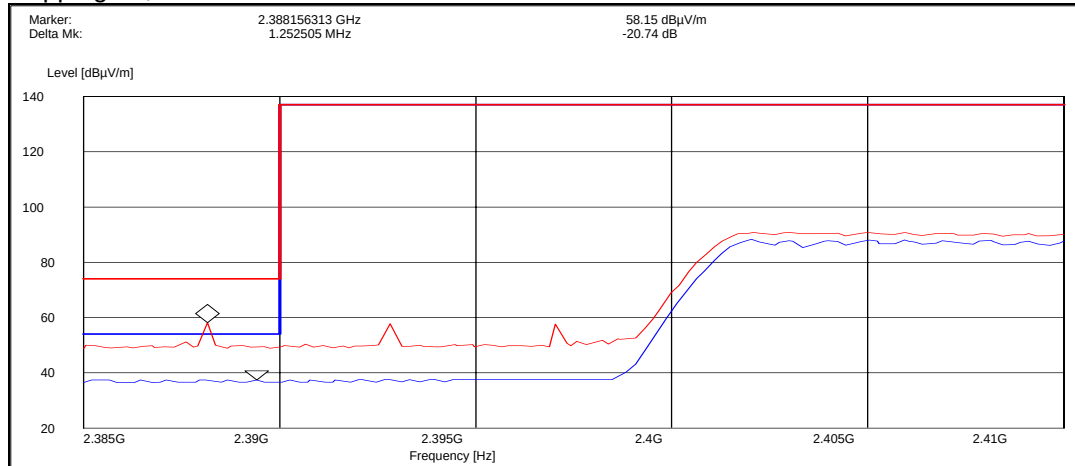
Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	44.60	Passed
Average	30.50	Passed

Channel 78 / 2480 MHz



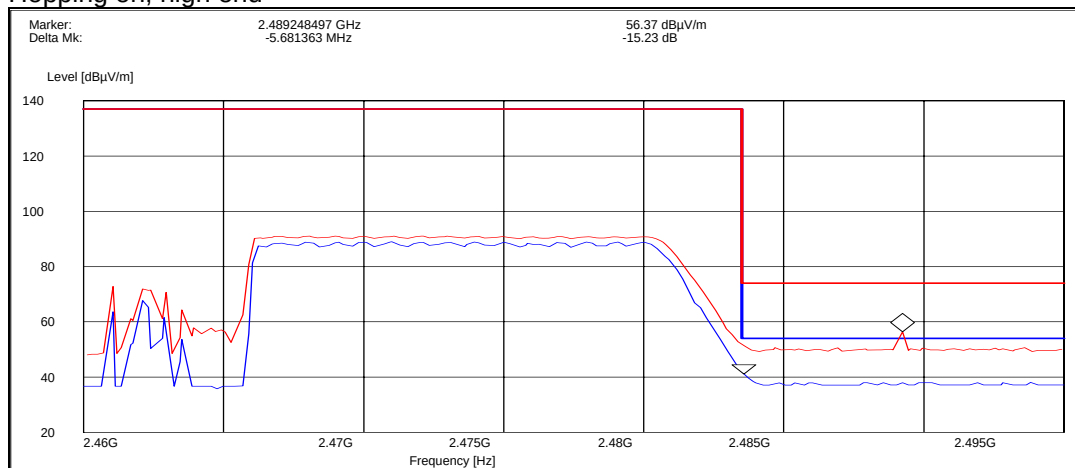
Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	48.10	Passed
Average	31.60	Passed

Hopping on, low end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	58.10	Passed
Average	37.40	Passed

Hopping on, high end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	56.40	Passed
Average	41.10	Passed

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

EUT with DUT number	RM-417 dut 26995, BL-5B dut 26996
Accessories with DUT numbers	HS-45 dut 26997, AC-8E dut 26998
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.8 / 35.0 102.76
Date of measurements	28-May-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.

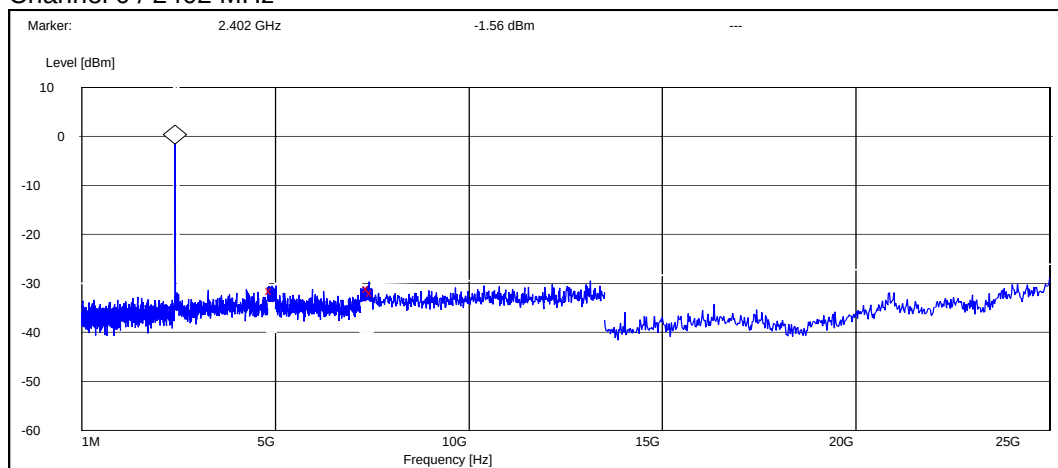
Limits for spurious RF conducted emissions measurements

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

5.2. Bluetooth Test results

5.2.1 GFSK modulation, PRBS packet type

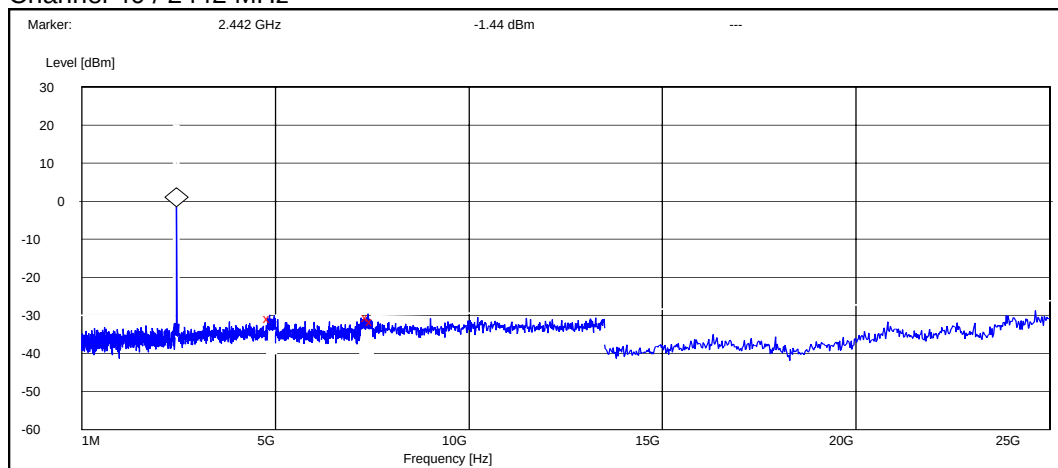
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4911.200000	-29.842052	Pass
7418.400000	-29.542052	Pass
7500.000000	-30.242052	Pass

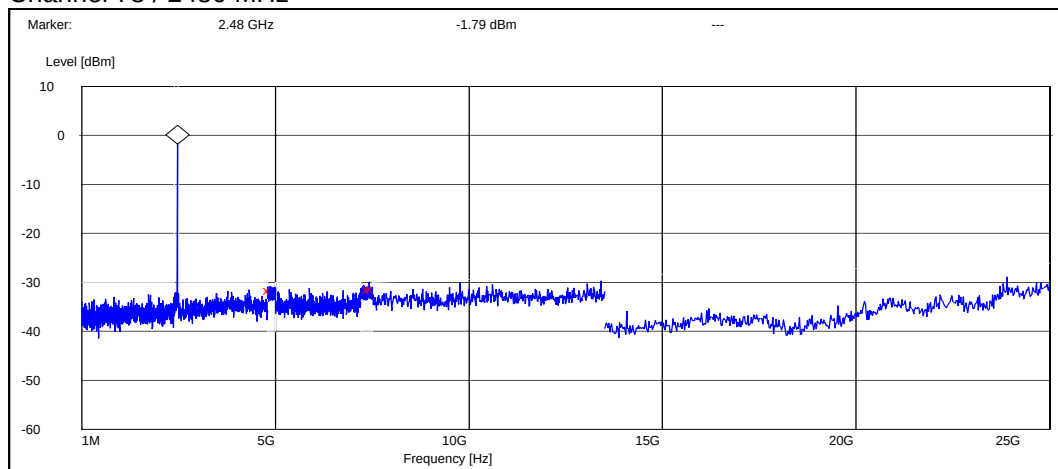
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4848.000000	-29.459521	Pass
7391.400000	-29.059521	Pass
7500.000000	-30.059521	Pass

Channel 78 / 2480 MHz

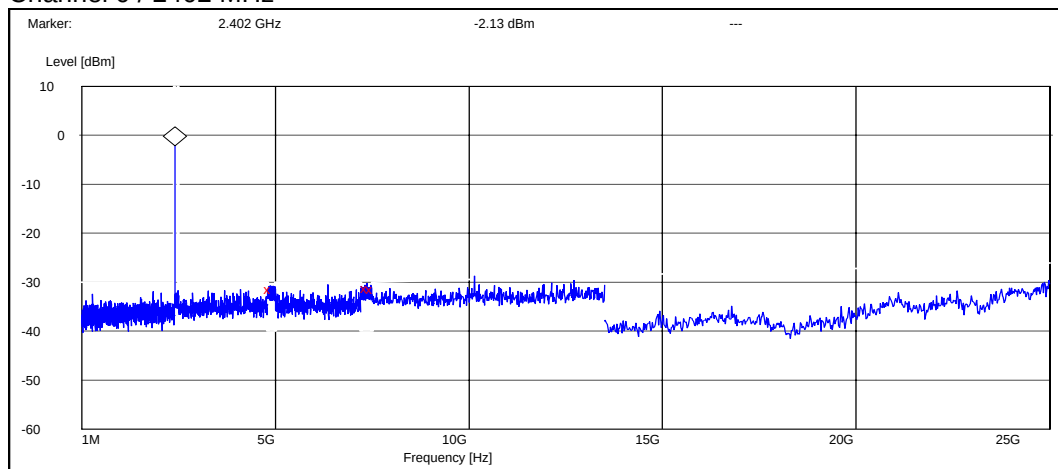


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4849.200000	-29.910080	Pass
7416.600000	-29.610080	Pass
7500.000000	-29.510080	Pass

5.2.2 8DPSK modulation, PRBS packet type

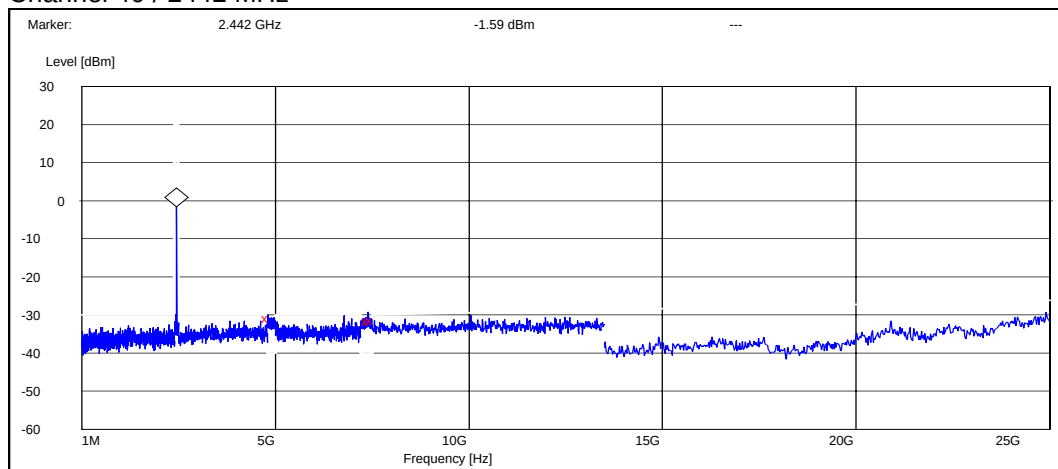
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4870.000000	-29.374905	Pass
7366.200000	-29.174905	Pass
7500.000000	-29.374905	Pass

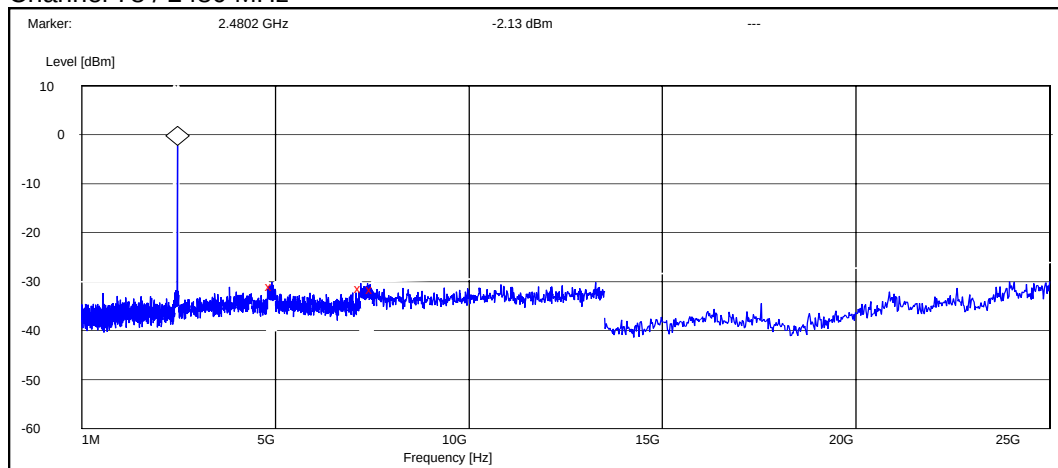
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4812.000000	-29.209596	Pass
7394.400000	-30.109596	Pass
7500.000000	-29.809596	Pass

Channel 78 / 2480 MHz



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

Frequency [MHz]	P [dBc]	Result
4902.400000	-28.870007	Pass
7207.800000	-29.270007	Pass
7500.000000	-29.370007	Pass

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

EUT with DUT number	RM-417 DUT 25374
Accessories with DUT numbers	BL-5B DUT 26996, AC-8E DUT 26998, HS-45 DUT 25377
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.5 / 38 / 100.7
Date of measurements	12-Jun-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	36.40	66.07	36.30	0.1	HORIZONTAL	Passed
7206.000000	41.90	124.45	33.00	8.9	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	22.70	13.65	22.60	0.1	HORIZONTAL	Passed
7206.000000	28.90	27.86	20.00	8.9	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
37.895391	23.60	15.14	41.40	-17.8	VERTICAL	Passed
73.286573	25.70	19.28	52.70	-27.0	HORIZONTAL	Passed
74.169940	22.60	13.49	49.40	-26.8	HORIZONTAL	Passed
130.702004	21.80	12.30	47.40	-25.6	HORIZONTAL	Passed
893.787575	51.30	367.28	62.00	-10.7	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
7340.183367	43.00	141.25	33.70	9.3	HORIZONTAL	Passed
7422.851703	42.70	136.46	33.40	9.3	VERTICAL	Passed
17399.799599	51.80	389.05	29.60	22.2	HORIZONTAL	Passed
17900.793587	58.50	841.40	29.50	29.0	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
7343.683367	29.70	30.55	20.40	9.3	HORIZONTAL	Passed
7428.851703	30.20	32.36	20.80	9.4	VERTICAL	Passed
17403.799599	39.00	89.13	16.70	22.3	HORIZONTAL	Passed
17895.793587	45.60	190.55	16.80	28.8	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	36.10	63.83	35.80	0.3	VERTICAL	Passed
7440.000000	43.50	149.62	34.00	9.5	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	23.60	15.14	23.30	0.3	HORIZONTAL	Passed
7440.000000	30.00	31.62	20.50	9.5	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	36.40	66.07	36.30	0.1	HORIZONTAL	Passed
7206.000000	42.40	131.83	33.50	8.9	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	22.90	13.96	22.80	0.1	HORIZONTAL	Passed
7206.000000	28.80	27.54	19.90	8.9	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
37.935872	9.40	2.95	27.20	-17.8	VERTICAL	Passed
893.787575	51.30	367.28	62.00	-10.7	VERTICAL	Passed

*893.8 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
4814.123246	35.80	61.66	35.70	0.1	HORIZONTAL	Passed
7297.101202	42.80	138.04	33.40	9.4	VERTICAL	Passed
7300.605210	42.60	134.90	33.10	9.5	HORIZONTAL	Passed
7431.855711	42.80	138.04	33.40	9.4	VERTICAL	Passed
17423.351703	52.00	398.11	29.50	22.5	VERTICAL	Passed
17897.289579	59.00	891.25	30.20	28.8	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
4814.623246	22.80	13.80	22.70	0.1	HORIZONTAL	Passed
7300.601202	29.70	30.55	20.20	9.5	VERTICAL	Passed
7305.605210	29.80	30.90	20.40	9.4	HORIZONTAL	Passed
7431.855711	30.10	31.99	20.70	9.4	VERTICAL	Passed
17425.351703	39.00	89.13	16.40	22.6	VERTICAL	Passed
17898.789579	45.80	194.98	16.90	28.9	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	35.70	60.95	35.40	0.3	VERTICAL	Passed
7440.000000	43.50	149.62	34.00	9.5	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
4960.000000	23.50	14.96	23.20	0.3	HORIZONTAL	Passed
7440.000000	29.90	31.26	20.40	9.5	VERTICAL	Passed

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

EUT with DUT number	RM-417 Dut 25374
Accessories with DUT numbers	BL-5B Dut 25373, HS-45 Dut 25377, AC-8E Dut 26998
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24.2 / 35.5 102.4
Date of measurements	30-May-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.

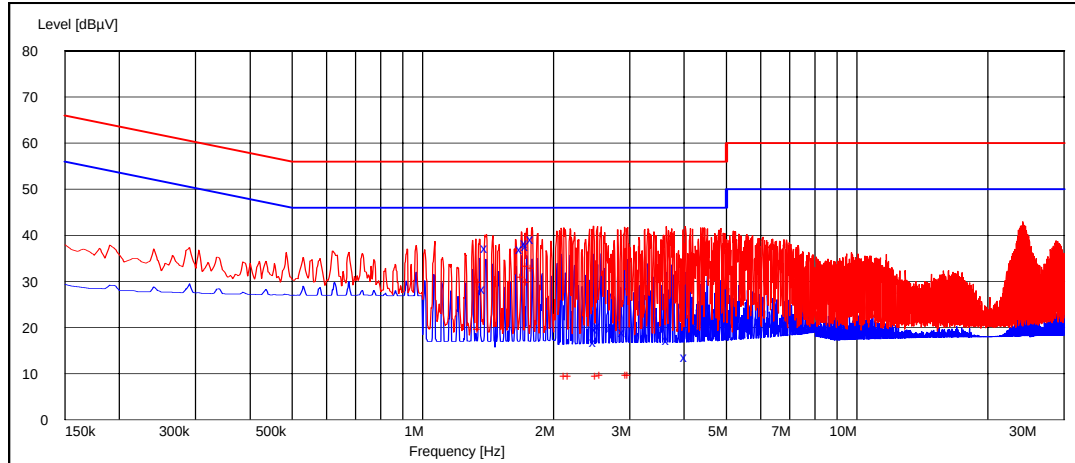
CISPR 22 Class B limits

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)

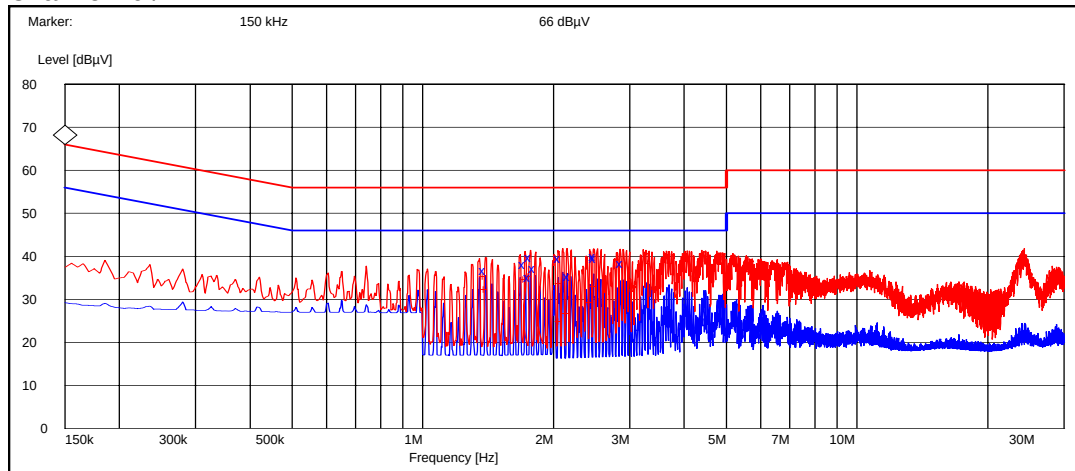
Frequency [MHz]	U [dBμV]	Line	Result
1.390000	28.40	N	Passed
1.405000	37.30	N	Passed
1.690000	37.00	L1	Passed
1.740000	38.40	L1	Passed
1.745000	37.70	L1	Passed
1.795000	39.10	N	Passed
2.505000	16.90	L1	Passed
2.530000	19.80	N	Passed
2.565000	20.40	N	Passed
2.925000	19.10	N	Passed
3.690000	17.40	N	Passed
4.050000	13.70	L1	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.350000	19.70	L1	Passed
1.360000	29.80	N	Passed
1.700000	30.90	N	Passed
1.745000	33.40	N	Passed
1.750000	29.90	N	Passed
1.795000	33.00	N	Passed
2.135000	9.50	N	Passed
2.185000	9.60	N	Passed
2.525000	9.50	N	Passed
2.585000	9.70	N	Passed
2.965000	9.70	N	Passed
3.000000	9.70	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
1.395000	36.90	L1	Passed
1.720000	38.10	L1	Passed
1.765000	35.20	L1	Passed
1.775000	39.80	N	Passed
1.815000	37.30	L1	Passed
2.075000	39.40	N	Passed
2.180000	35.30	N	Passed
2.500000	39.90	N	Passed
2.505000	39.60	N	Passed
2.885000	38.40	N	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.395000	35.40	N	Passed
1.400000	32.30	N	Passed
1.725000	34.60	N	Passed
1.775000	35.30	N	Passed
2.080000	33.80	N	Passed
2.085000	24.80	N	Passed
2.165000	26.70	N	Passed
2.450000	29.40	N	Passed
2.500000	33.10	N	Passed

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

EUT with DUT number	RM-417 dut 26995, BL-5B dut 26996
Accessories with DUT numbers	HS-45 dut 26997, AC-8E dut 26998
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.8 / 35.0 102.76
Date of measurements	28-May-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

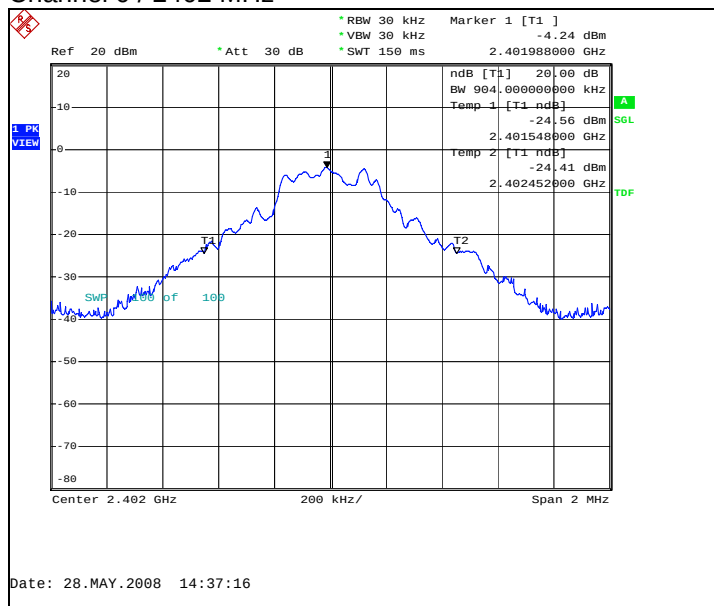
Limit [MHz]
N/A

8.2. Bluetooth Test results

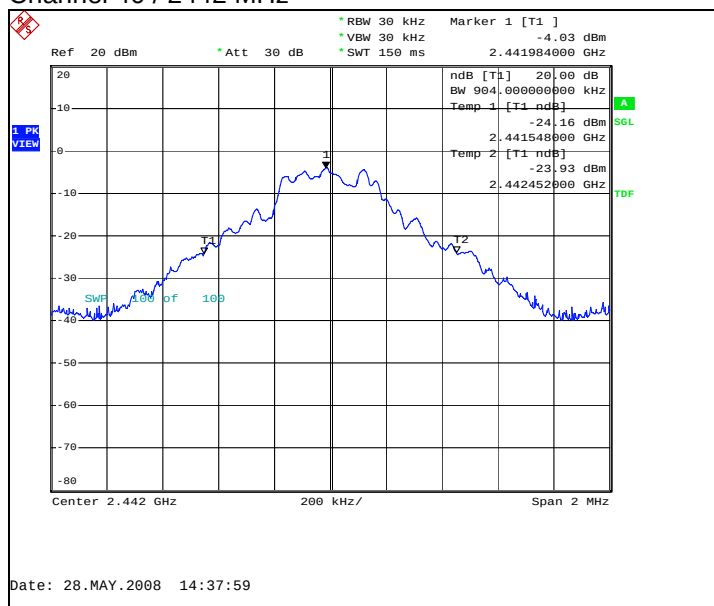
8.2.1 GFSK modulation, PRBS packet type

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

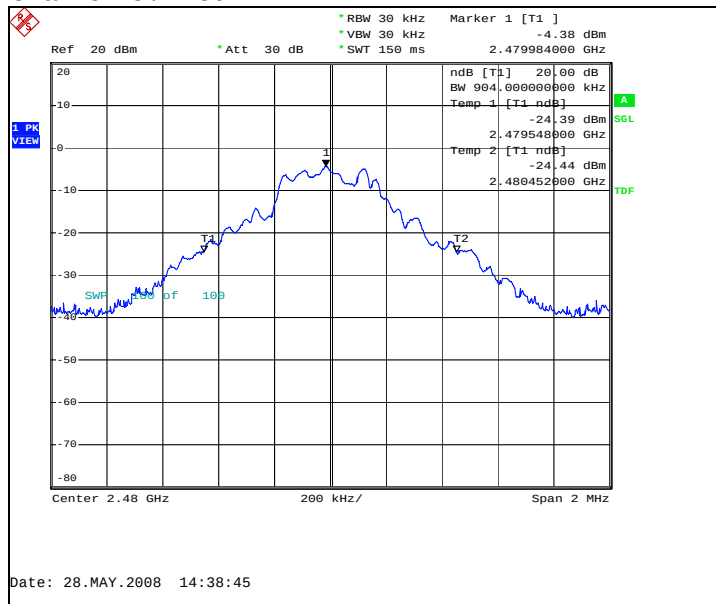
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



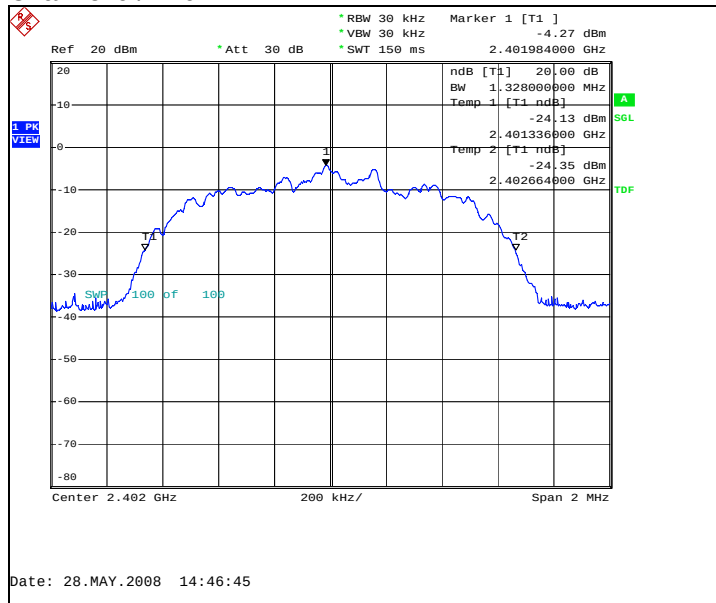
Channel 78 / 2480 MHz



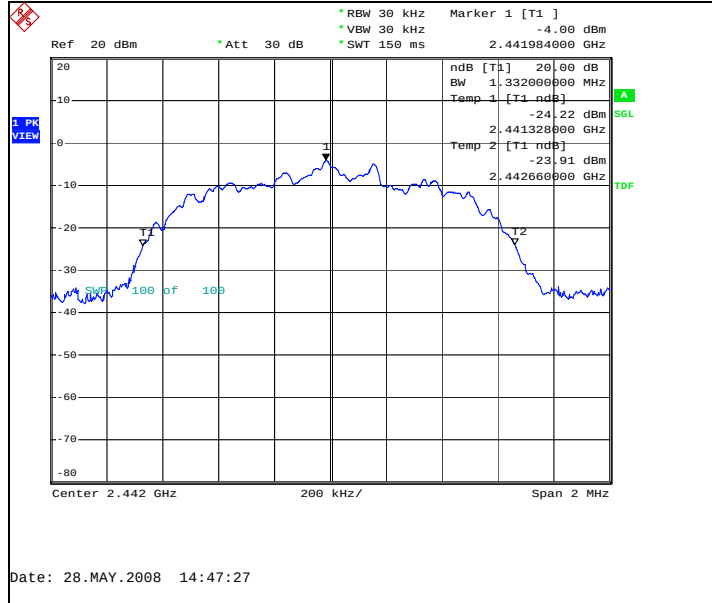
8.2.2 8DPSK modulation, PRBS packet type

Channel / f _c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1328.000	Pass
40 / 2442	1332.000	Pass
78 / 2480	1336.000	Pass

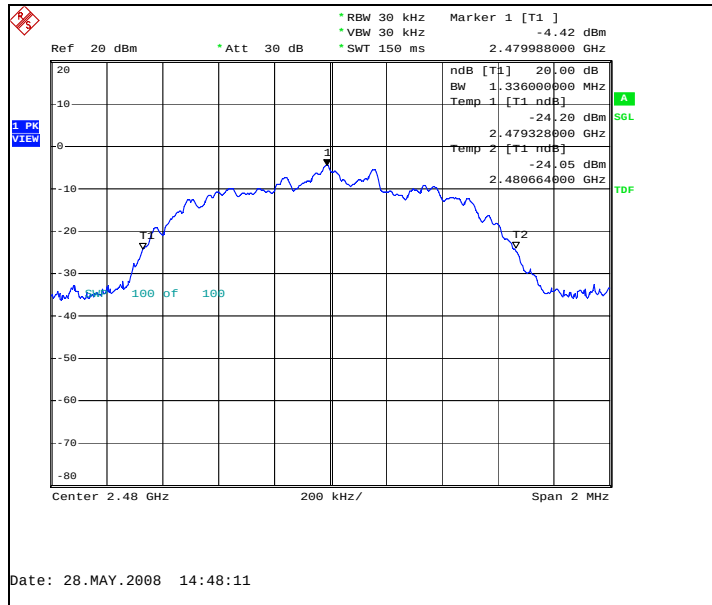
Channel 0 / 2402 MHz



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-417 dut 26995, BL-5B dut 26996
Accessories with DUT numbers	HS-45 dut 26997, AC-8E dut 26998
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.8 / 35.0 102.76
Date of measurements	28-May-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

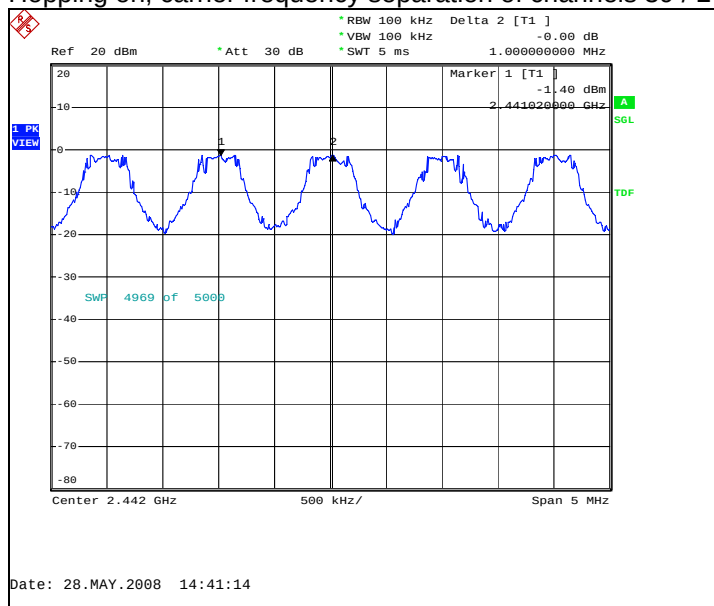
Limit [MHz]
≥ 0.025 or 2/3 of the 20 dB bandwidth

9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1000	Pass

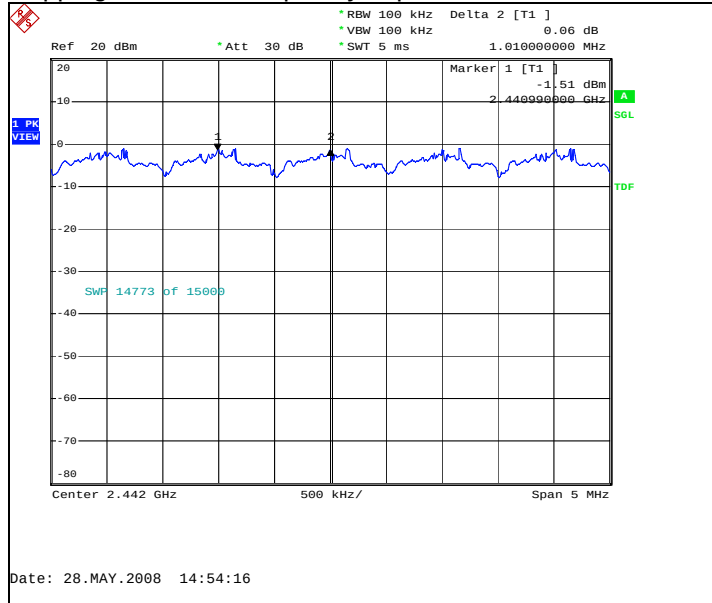
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



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-417 dut 26995, BL-5B dut 26996
Accessories with DUT numbers	HS-45 dut 26997, AC-8E dut 26998
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.8 / 35.0 102.76
Date of measurements	28-May-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

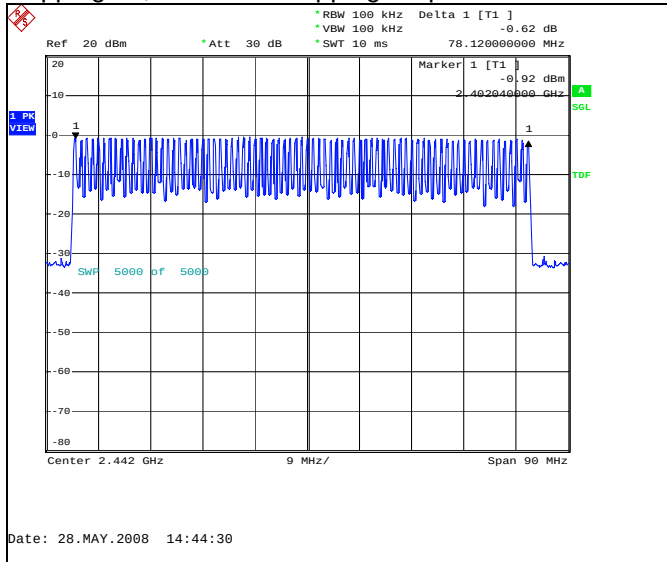
Limit [number]
≥ 15

10.2. Bluetooth Test results

10.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	Pass

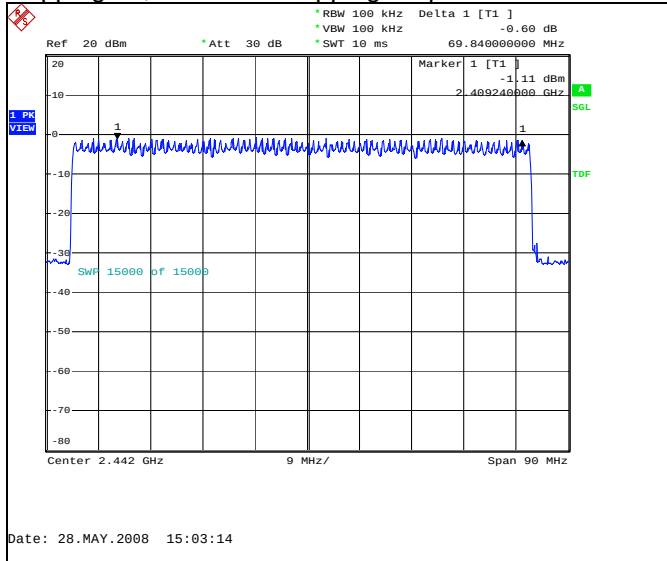
Hopping on, number of hopping frequencies



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-417 dut 26995, BL-5B dut 26996
Accessories with DUT numbers	HS-45 dut 26997, AC-8E dut 26998
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.8 / 35.0 102.76
Date of measurements	28-May-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

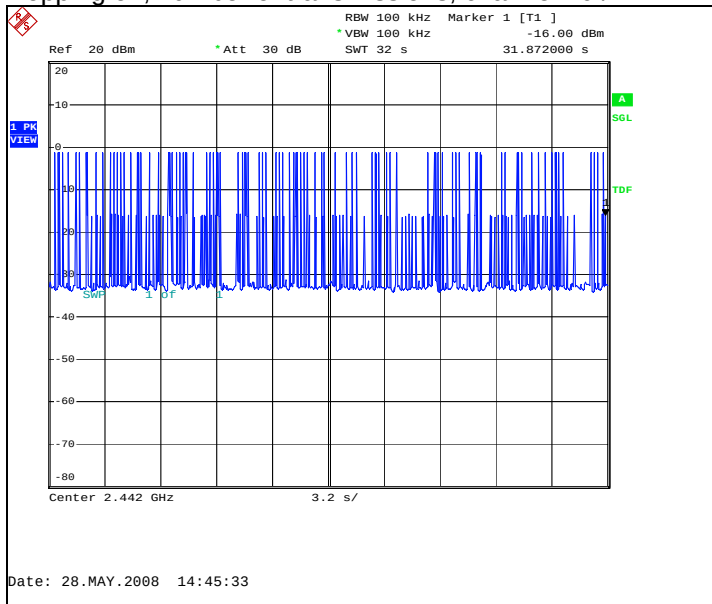
Limit [s]
≤ 0.4

11.2. Bluetooth test results

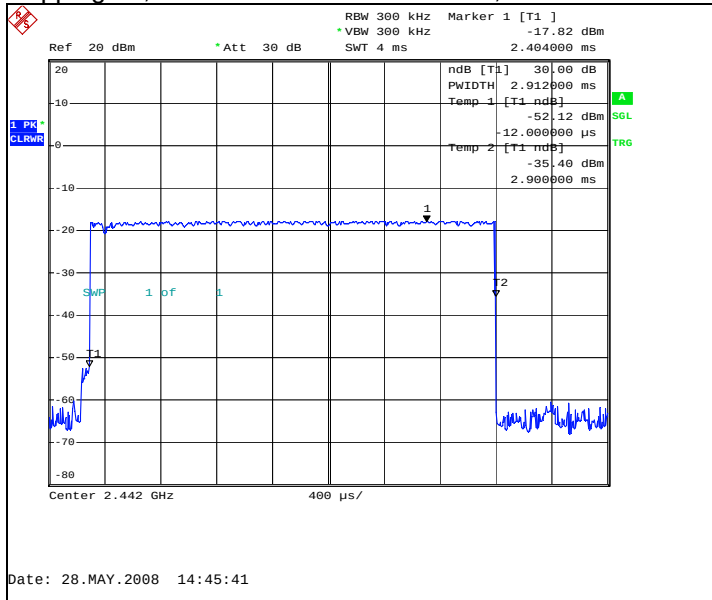
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
85	2,912	0.247520	Pass

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



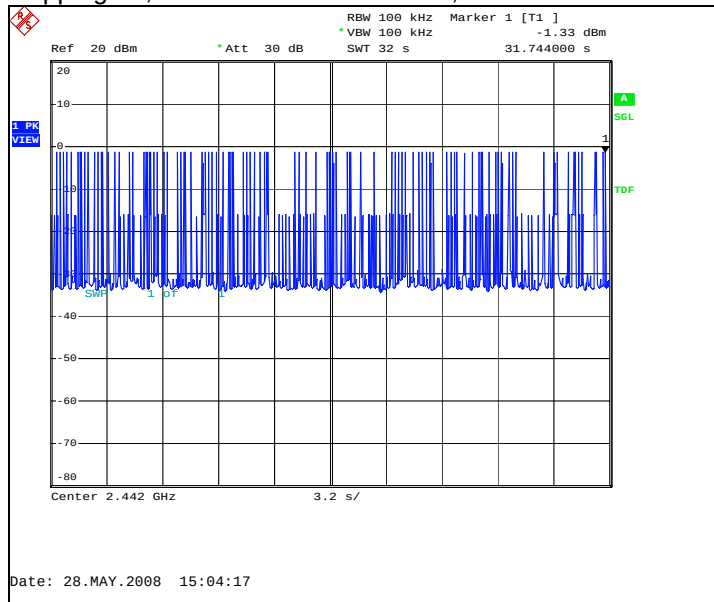
Hopping on, duration of one transmission, channel 40 / 2442 MHz



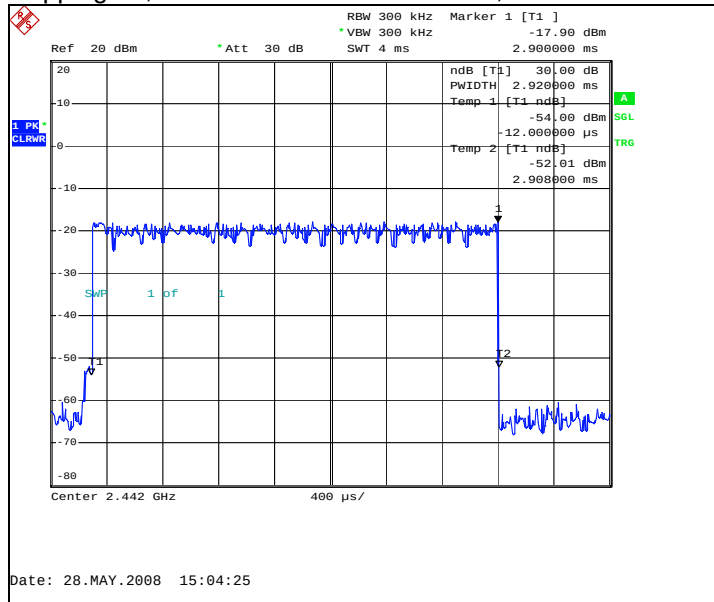
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
92	2,920	0.268640	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 μ Wave Mux	10-785B-522	Pickering	22/24/27, 15C, 15B
14021	Relay Dual 6 Chnl μ Wave Mux	10-785-522		22/24/27, 15C, 15B
	Relay Dual 6 Chnl μ Wave Mux	10-785-522		22/24/27, 15C, 15B
17644	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16948	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16949	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
18792	Multi Device Controller	2090	ETS-EMCO	22/24/27, 15C, 15B
14963	RF Preamplifier 100MHz-4GHz (Metal Chassis)	AFS3-00100400	Miteq/NMP Cph	22/24/27, 15C, 15B
18861	EMI Test Receiver 20Hz-26,5GHz	ESI	Rohde&Schwarz	22/24/27, 15C, 15B
20335	Ultra Broadband Antenna Ultralog 30-3000MHz	HL562	Rohde&Schwarz	22/24/27, 15C, 15B
18773	Shielded Chamber	RFD-100	ETS-Lindgren	22/24/27, 15C, 15B
18774	Shielded Chamber	RFSD-F/A-100	ETS-Lindgren	22/24/27, 15C, 15B
19151	High Pass Filter 3GHz	WHJS3000-10SS	Wainwright	22/24/27, 15C, 15B

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