

FCC Part 15C Compliance Test Report

Test Report no.:	Cph_FCC_0705_01.doc	Date of Report:	06-02-2007
Number of pages:	41	Customer's Contact person:	Niko Balabanis
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FCC listing no.:	99059		
IC recognition no.:	661AD-1		
Tested devices/ accessories:	Phone; RM-194 (HW: 1001), Battery; BP-6M, AC-Charger; AC-4E, Headset; HS-28, Audio Adapter; AD-41		
FCC ID:	LJPRM-194	IC:	661E-RM194
Supplement reports:			
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2003), Public Notice DA 00-705, DTS procedures KDB 558074, IC standards RSS-GEN and RSS-210. Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test Results:	The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document.		
Date and signature for the contents:			

Allan F. Henriksen, Engineer

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	29.01.2007
Testing completed	01.02.2007
The customer's contact person	Niko Balabanis
Test Plan referred to	T:\Projects\RM-194\TestPlan_RS\RS_testplan_RM-194.xls
Notes	None
Document name	T:\Projects\RM-194\EMC\Results\FCC\Cph_FCC_0705_01.doc

1.1. EUT and Accessory Information

The EUT is a 4-band (GSM900/1800/1900 and WCDMA Band I) mobile phone with GPRS, EGPRS and Bluetooth. Bluetooth is tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-194	004400/88/166273/6	1001	-	1.0704.1.0.1	27721
Phone	RM-194	004400/88/166259/5	1001	-	1.0704.1.0.1	27716
Phone	RM-194	004400/88/166277/7	1001	-	1.0704.1.0.1	29131
Battery	BP-6M	0670505393213N481920233214	-	-	-	27722
Battery	BP-6M	0670505393213M435120159288	-	-	-	27712
Battery	BP-6M	0670505393213N481920233216	-	-	-	29135
AC-Charger	AC-4E	3997915474151202934;0675384	-	-	-	27723
AC Charger	AC-4E	3997915194051100716;0675384	-	-	-	28517
AC-Charger	AC-4E	3997915474151202929;0675384	-	-	-	29134
Headset	HS-28	350853641208	-	-	-	27719
Headset	HS-28	350853641208	-	-	-	27714
Headset	HS-28	350853639401	-	-	-	29133
Audio adapter Unit	AD-41	386349646701	-	-	-	27718
Audio adapter Unit	AD-41	386349631301	-	-	-	27713
Audio adapter Unit	AD-41	386349646701	-	-	-	29132

1.2. Summary of Test Results

Bluetooth:

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

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.

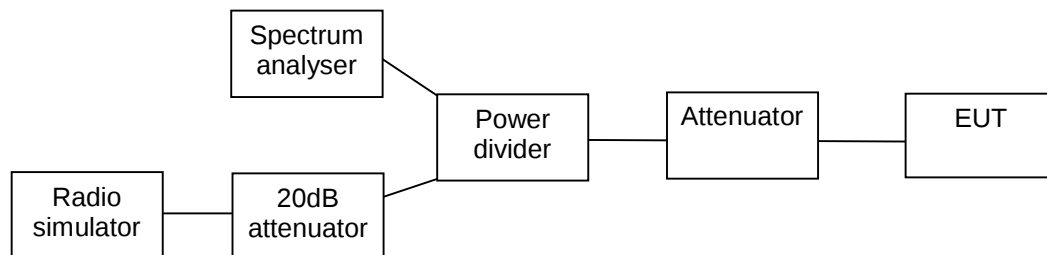
CONTENTS

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. Spurious radiated emissions 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(c), 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(c), RSS-A8.5).....	15
5.1. Test method and limit.....	15
5.2. Bluetooth Test results	16
6. Spurious radiated emissions (FCC §15.247(c), §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))	31
9.1. Test method and limit.....	31
9.2. Bluetooth Test results	32
10. Number of hopping frequencies (FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))....	34
10.1. Test method and limit.....	34
10.2. Bluetooth Test results	35
11. Time of occupancy (FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))	37

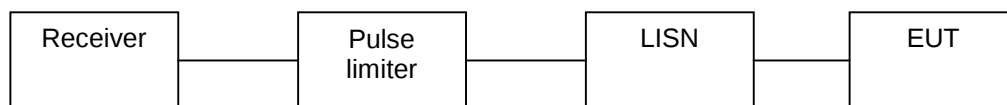
11.1.	Test method and limit	37
11.2.	Bluetooth test results	38
12.	Test Equipment	40
12.1.	Conducted measurements	40
12.2.	Radiated measurements	40

2. Test setups

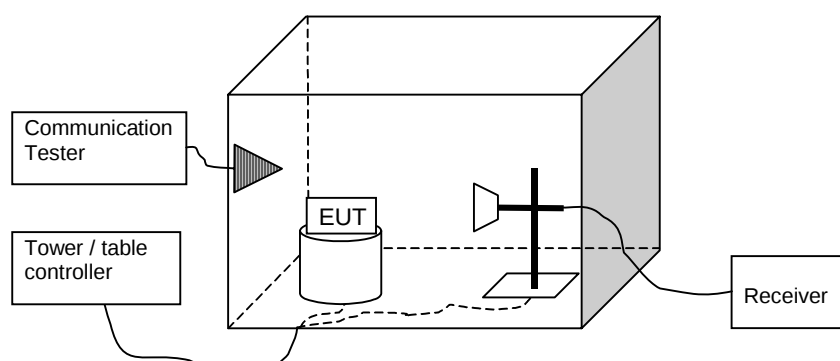
2.1. Conducted RF test setup



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-194 dut 27716, BP-6M dut 27712
Accessories with DUT numbers	AC-4E dut 28517, HS-28 dut 27714, AD-41 dut 27713
Operation Voltage [V] / [Hz]	220 / 50
Result	-
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.3 / 35.0 1009.1
Date of measurements	31-01-2007
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

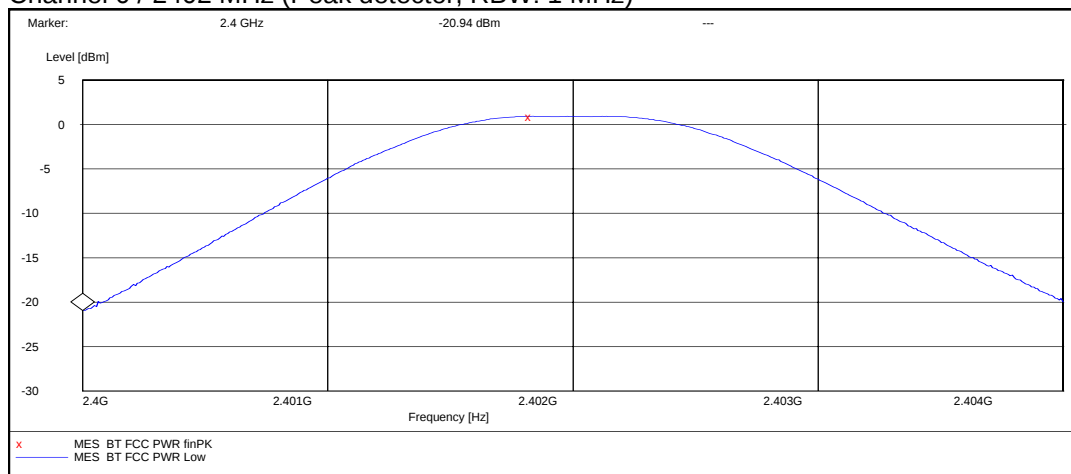
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

3.2. Bluetooth Test results

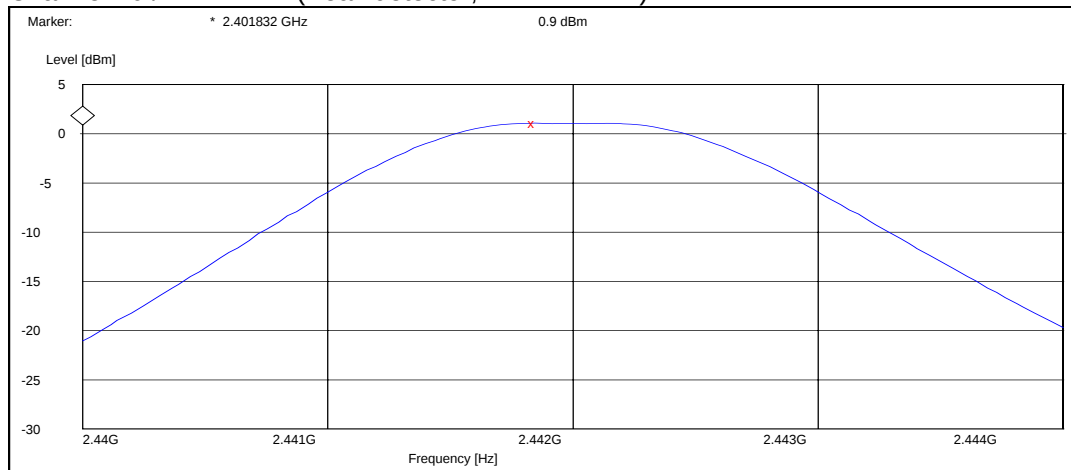
3.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	0.90	1.230	Passed
40 / 2442	1.10	1.288	Passed
78 / 2480	1.00	1.259	Passed

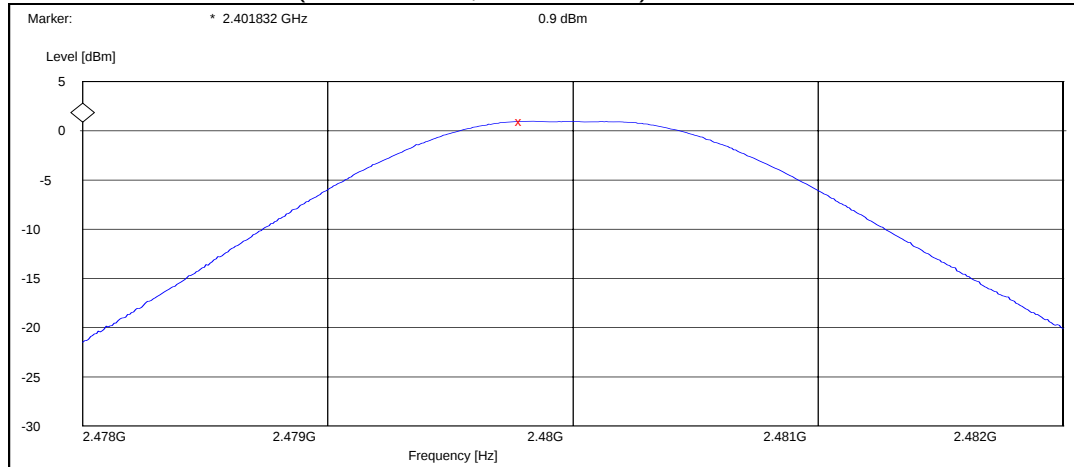
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz)



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



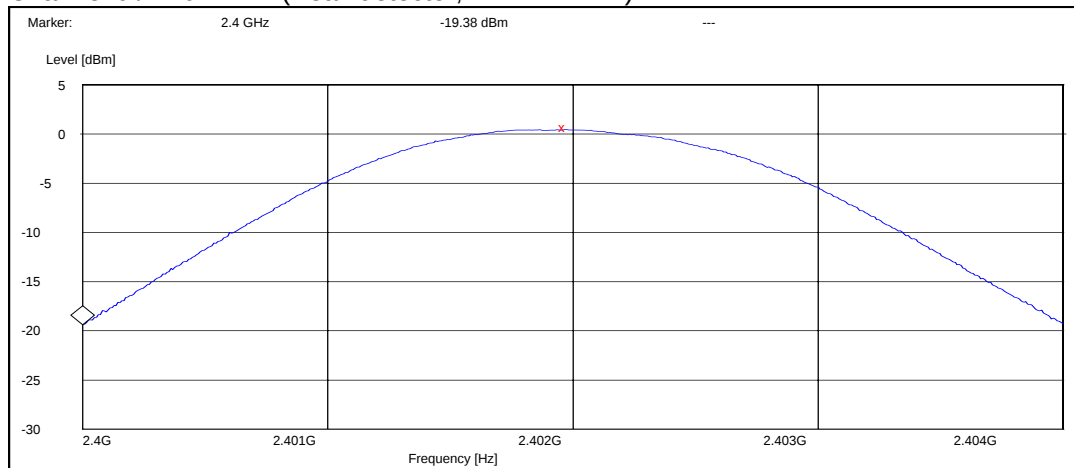
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz)



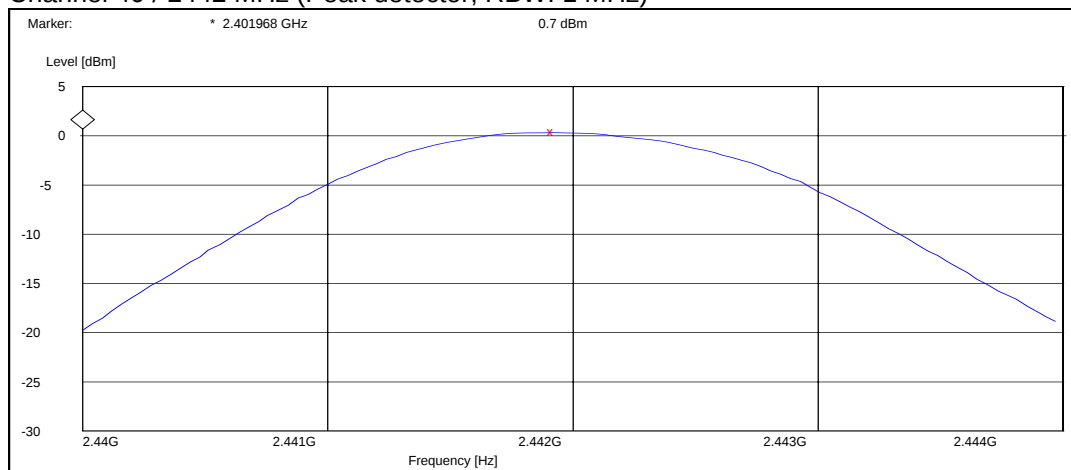
3.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	0.70	1.175	Passed
40 / 2442	0.50	1.122	Passed
78 / 2480	-0.20	0.955	Passed

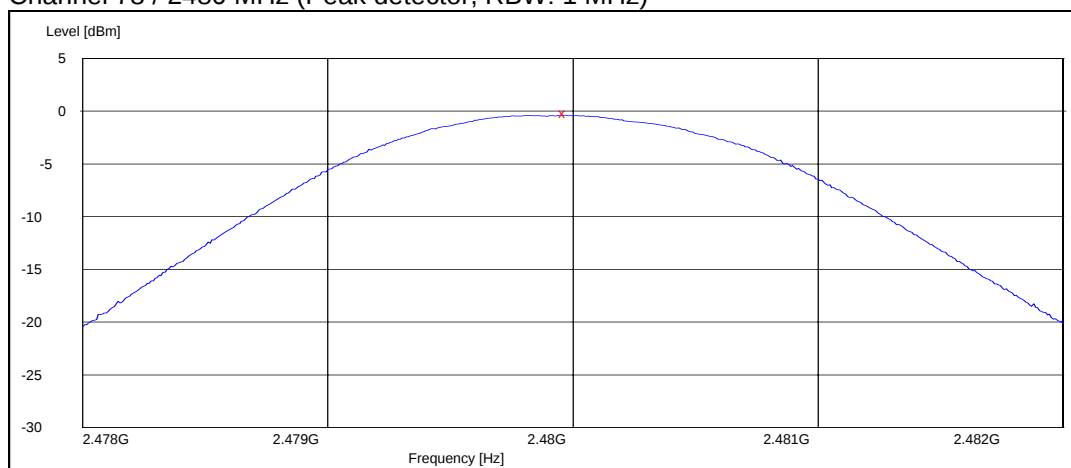
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz)



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



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



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

EUT with DUT number	RM-194 Dut#29131
Accessories with DUT numbers	BP-6M Dut#29135, AC-4E Dut#29134, HS-28 Dut#29133, AD-41 Dut#29132
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mbar]	20 / 43 / 1003
Date of measurements	30-01-2007
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

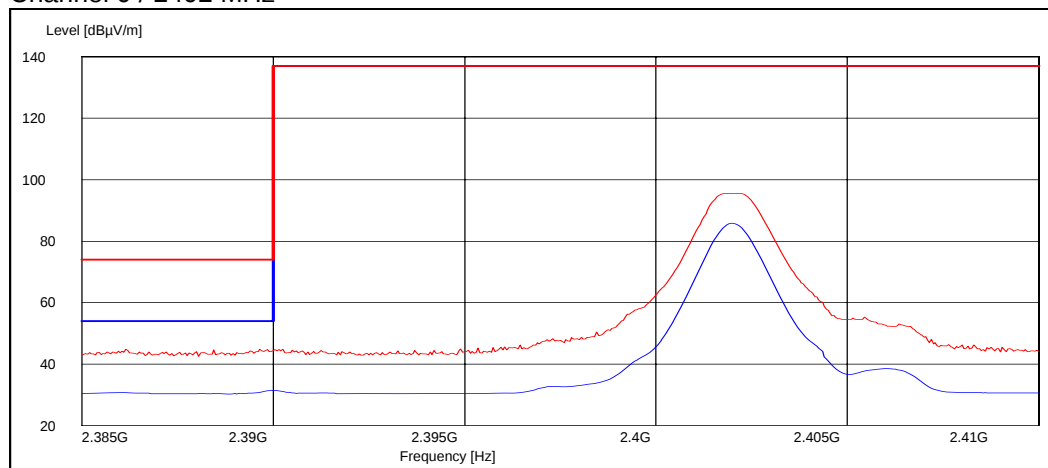
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	31.34	Passed
78 / 2480	35.50	Passed
Hopping on, low end	36.71	Passed
Hopping on, high end	47.53	Passed

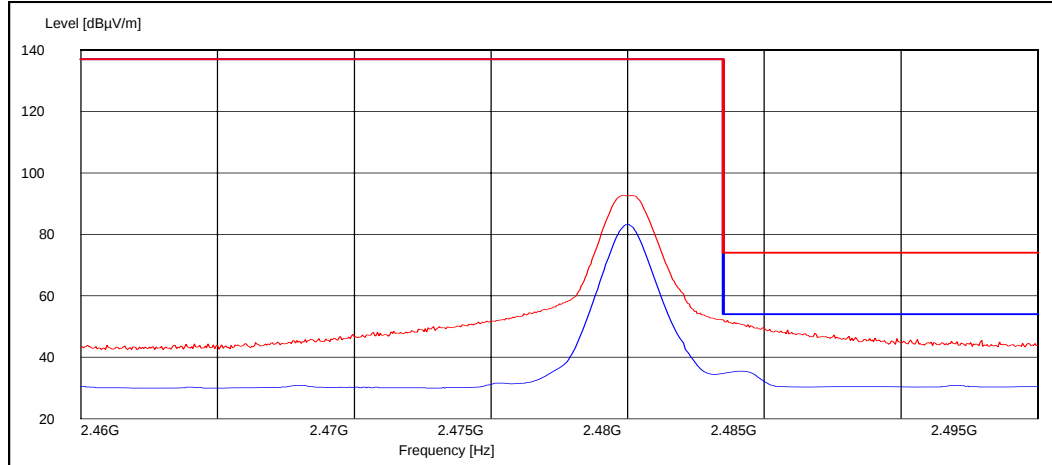
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	44.89	Passed
78 / 2480	52.15	Passed
Hopping on, low end	49.09	Passed
Hopping on, high end	55.14	Passed

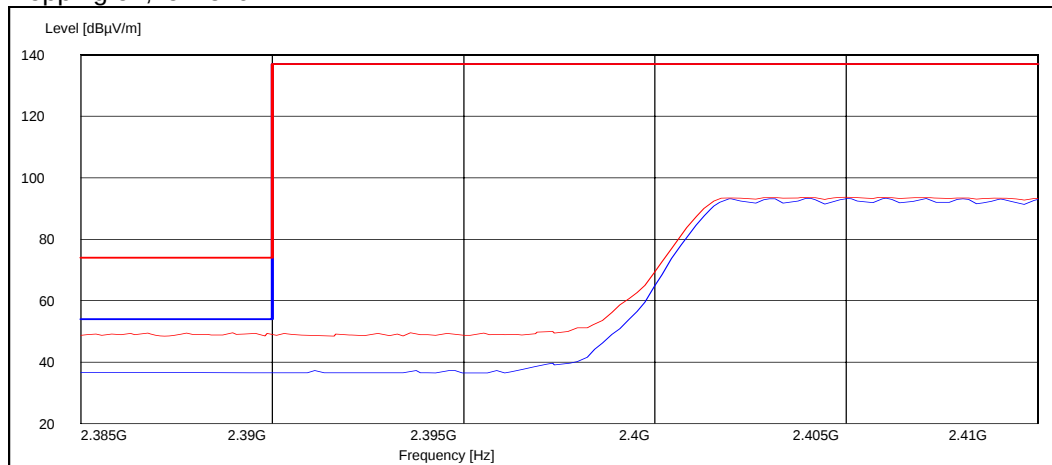
Channel 0 / 2402 MHz



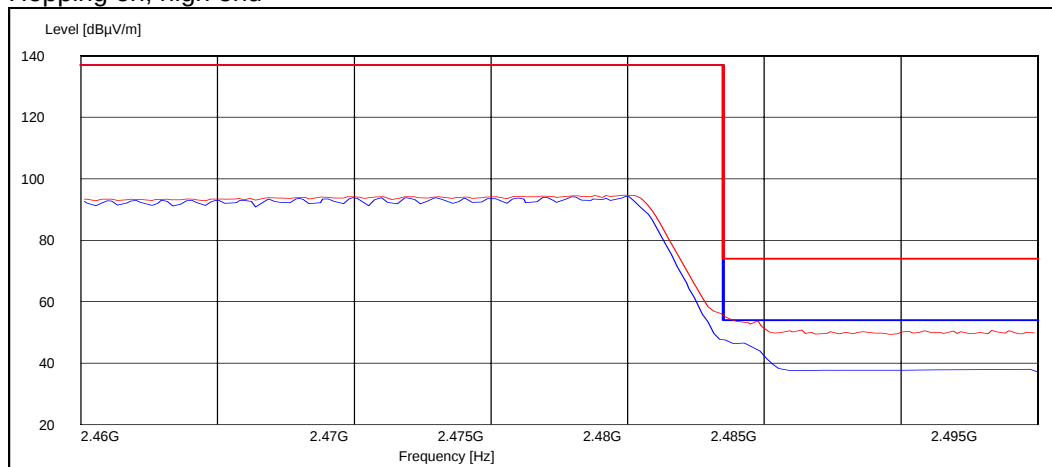
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



4.2.2 8DPSK modulation, PRBS packet type

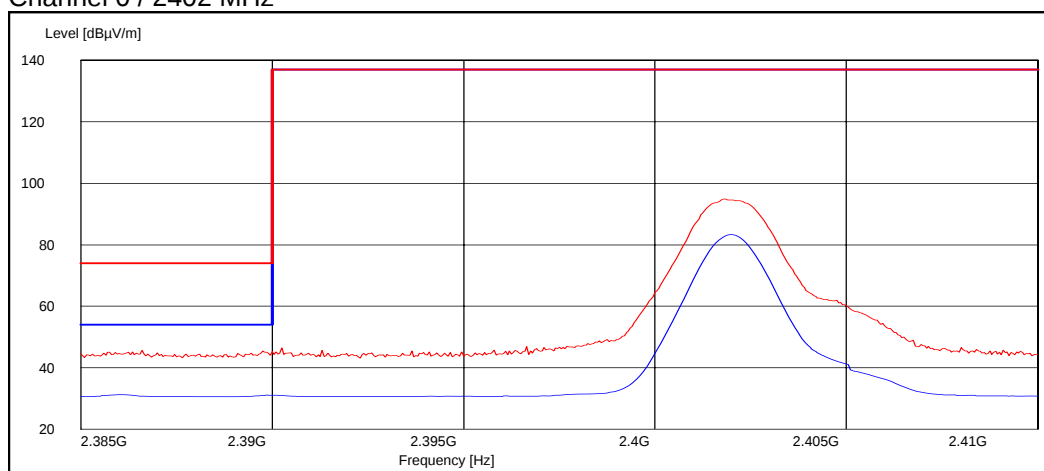
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	31.28	Passed
78 / 2480	36.73	Passed
Hopping on, low end	37.45	Passed
Hopping on, high end	46.48	Passed

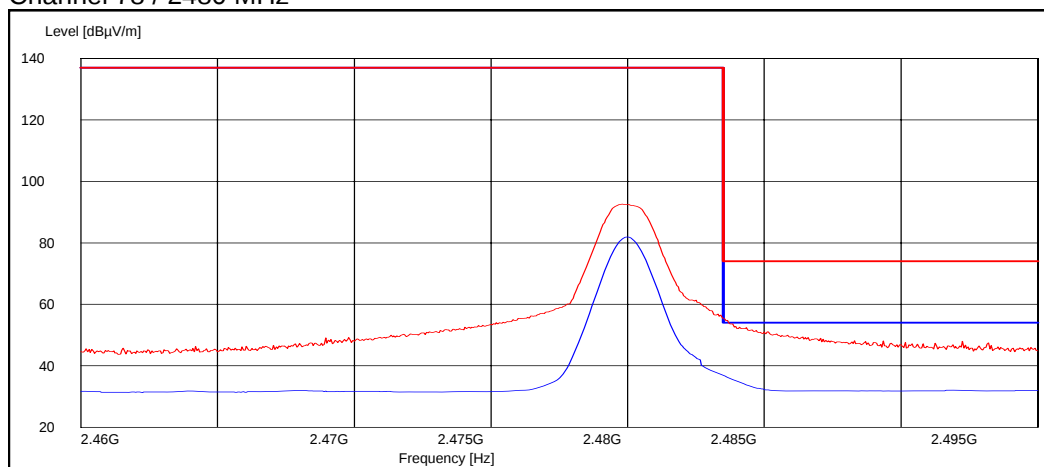
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	45.27	Passed
78 / 2480	55.20	Passed
Hopping on, low end	50.22	Passed
Hopping on, high end	59.41	Passed

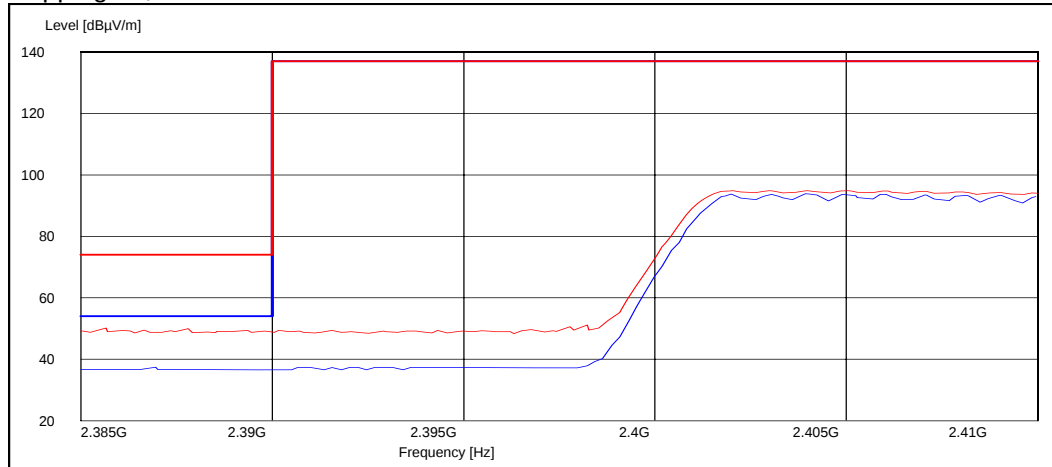
Channel 0 / 2402 MHz



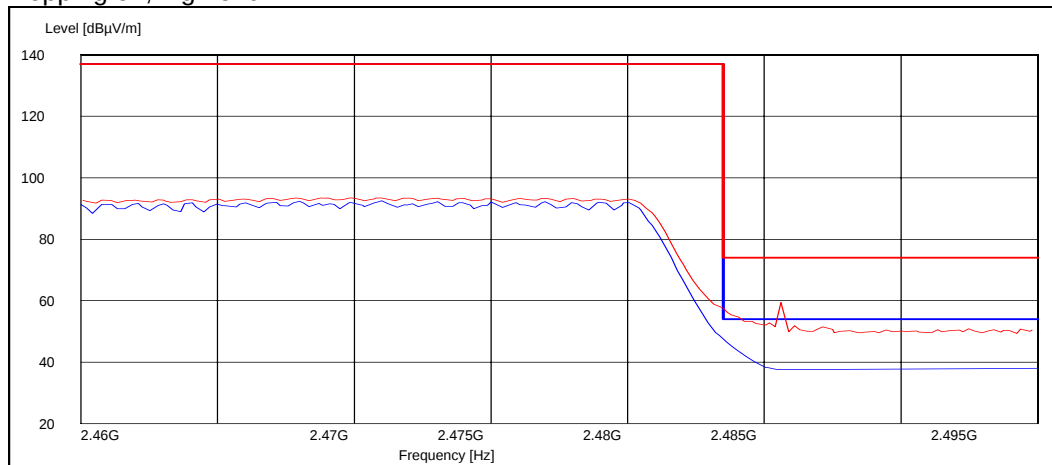
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



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

EUT with DUT number	RM-194 dut 27716, BP-6M dut 27712
Accessories with DUT numbers	AC-4E dut 28517, HS-28 dut 27714, AD-41 dut 27713
Operation Voltage [V] / [Hz]	220 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.3 / 35.0 1009.1
Date of measurements	31-01-2007
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.

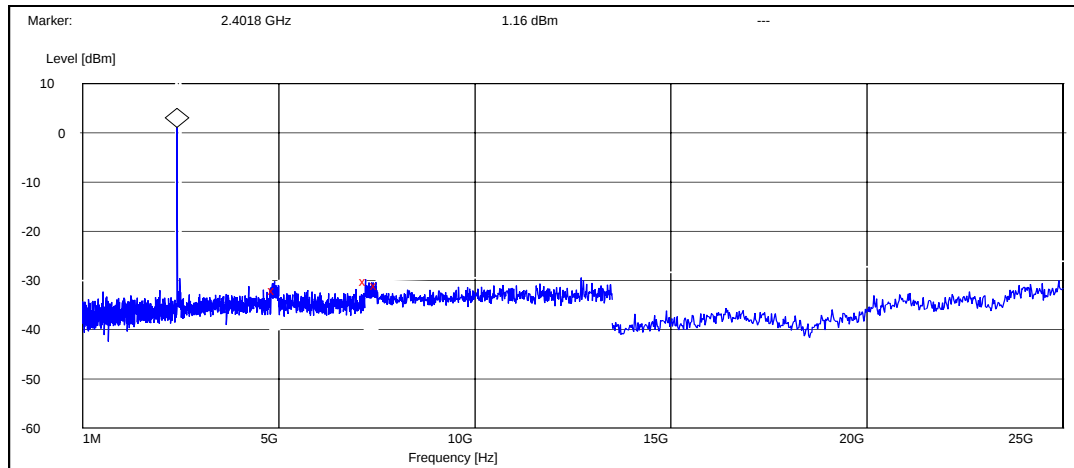
Limits for spurious RF conducted emissions measurements

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

5.2. Bluetooth Test results

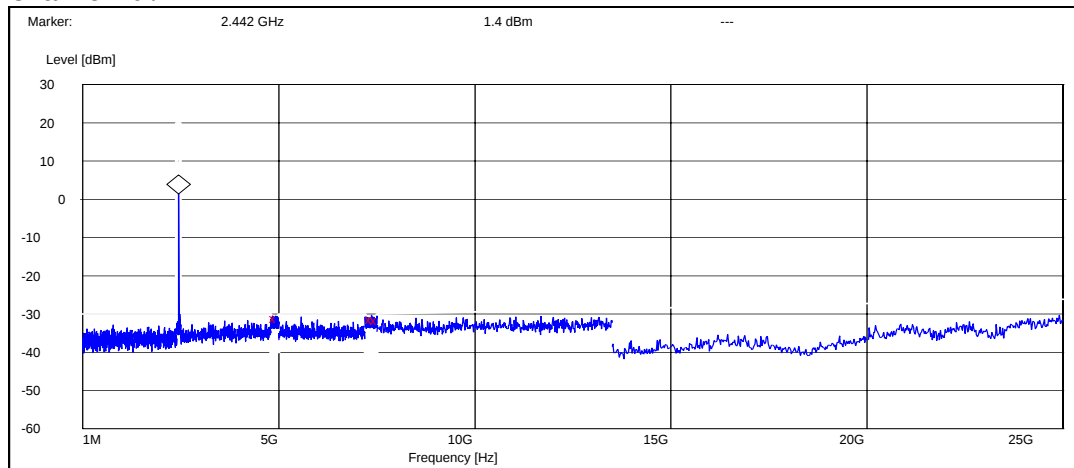
5.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



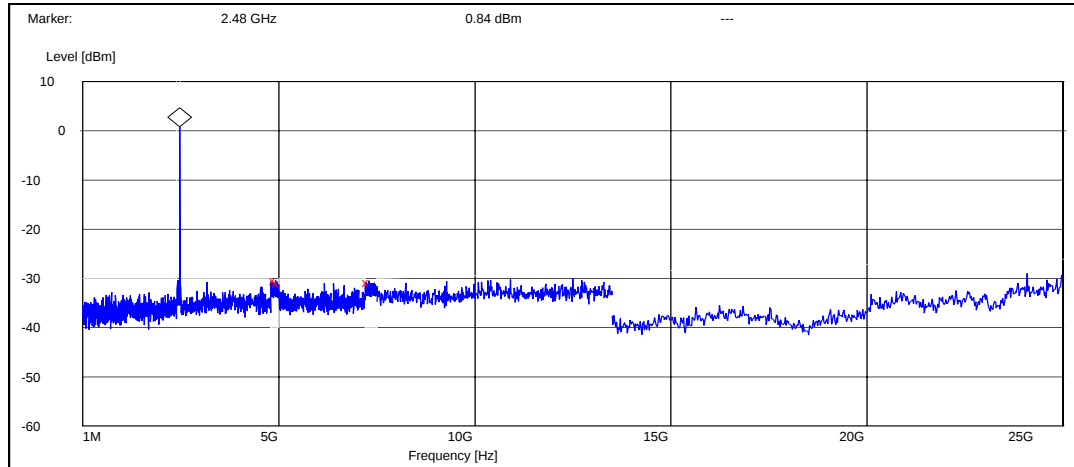
Frequency [MHz]	P [dBc]	Result
4862.000000	-29.529113	Passed
5000.000000	-29.429113	Passed
7388.400000	-27.229113	Passed

Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4920.000000	-32.504485	Passed
7361.400000	-32.704485	Passed
7500.000000	-33.004485	Passed

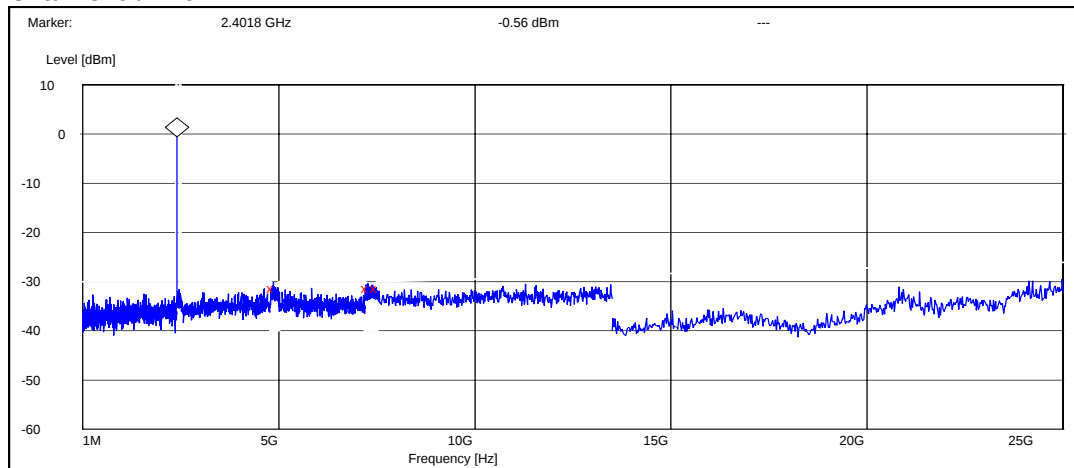
Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4914.800000	-31.236507	Passed
5000.000000	-31.936507	Passed
7297.200000	-31.636507	Passed

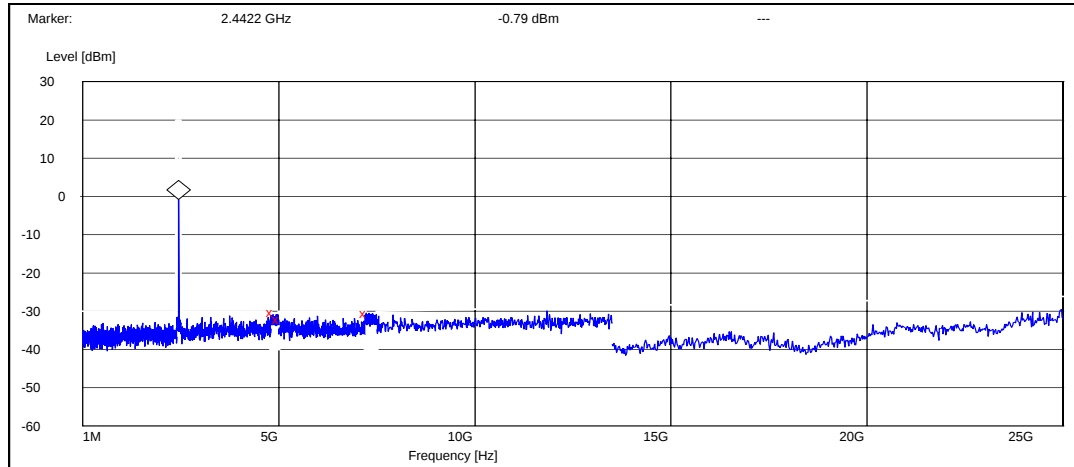
5.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



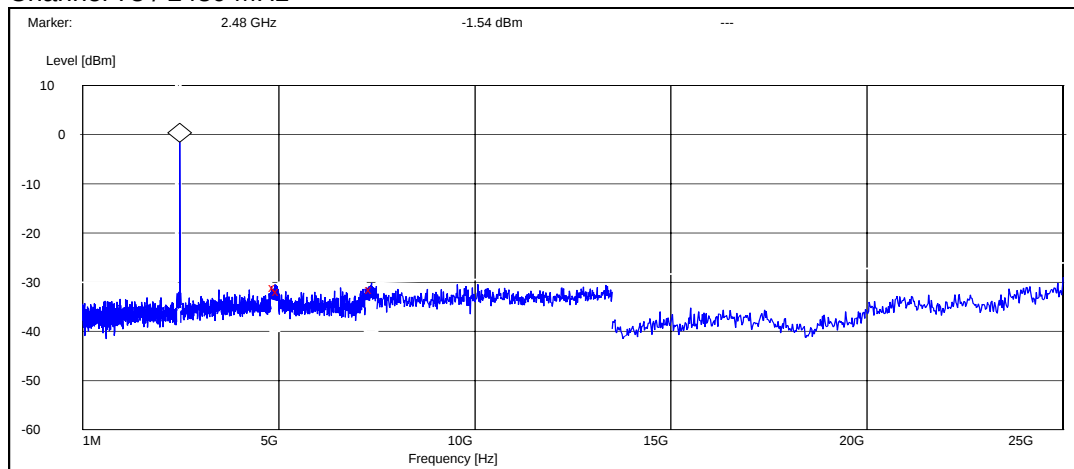
Frequency [MHz]	P [dBc]	Result
4860.400000	-30.736841	Passed
7269.000000	-30.736841	Passed
7500.000000	-30.836841	Passed

Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4850.800000	-29.510690	Passed
5000.000000	-31.210690	Passed
7233.600000	-29.710690	Passed

Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4908.800000	-29.455479	Passed
5000.000000	-30.255479	Passed
7363.200000	-29.855479	Passed

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

EUT with DUT number	RM-194 Dut#29131
Accessories with DUT numbers	BP-6M Dut#29135, AC-4E Dut#29134, HS-28 Dut#29133, AD-41 Dut#29132
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mbar]	20 / 43 / 1003
Date of measurements	29-01-2007
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:

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

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)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	36.90	69.98	38.90	-2.00	HORIZONTAL	Passed
7206.000000	39.60	95.50	35.40	4.20	VERTICAL	Passed

Average (RBW: 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	24.00	15.85	26.00	-2.00	VERTICAL	Passed
7206.000000	26.60	21.38	22.40	4.20	VERTICAL	Passed

Channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
38.235872	28.40	26.30	46.50	-18.10	VERTICAL	Passed
47.052705	25.40	18.62	49.50	-24.10	VERTICAL	Passed
73.948497	18.20	8.13	45.30	-27.10	HORIZONTAL	Passed
75.169940	18.60	8.51	45.50	-26.90	HORIZONTAL	Passed

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
1959.921844	59.80	977.24	62.40	-2.60	VERTICAL	Passed
4927.347695	37.20	72.44	38.70	-1.50	HORIZONTAL	Passed
4963.923848	37.30	73.28	38.80	-1.50	HORIZONTAL	Passed
7308.111222	40.30	103.51	35.90	4.40	VERTICAL	Passed
7330.161323	41.50	118.85	37.20	4.30	VERTICAL	Passed
7420.333667	41.50	118.85	36.60	4.90	VERTICAL	Passed
17875.255511	58.00	794.33	32.50	25.50	VERTICAL	Passed

*1960 MHz frequency is coming from communication tester and thus ignored.

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1959.921844	58.60	851.14	61.20	-2.60	VERTICAL	Passed
4923.847695	24.30	16.41	25.70	-1.40	HORIZONTAL	Passed
4960.923848	24.60	16.98	26.20	-1.60	HORIZONTAL	Passed
7306.111222	27.70	24.27	23.30	4.40	VERTICAL	Passed
7328.661323	27.90	24.83	23.60	4.30	VERTICAL	Passed
7418.833667	28.80	27.54	23.80	5.00	VERTICAL	Passed
17877.755511	44.80	173.78	19.40	25.40	VERTICAL	Passed

*1960 MHz frequency is coming from communication tester and thus ignored.

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	37.30	73.28	38.90	-1.60	VERTICAL	Passed
7440.000000	40.60	107.15	35.70	4.90	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	24.60	16.98	26.20	-1.60	VERTICAL	Passed
7440.000000	27.90	24.83	23.00	4.90	VERTICAL	Passed

6.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	35.80	61.66	37.80	-2.00	HORIZONTAL	Passed
7206.000000	39.00	89.13	34.80	4.20	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	23.10	14.29	25.10	-2.00	HORIZONTAL	Passed
7206.000000	26.30	20.65	22.10	4.20	VERTICAL	Passed

Channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
38.035872	29.60	30.20	47.60	-18.00	VERTICAL	Passed
74.467535	14.10	5.07	41.10	-27.00	HORIZONTAL	Passed
74.469940	14.90	5.56	41.90	-27.00	HORIZONTAL	Passed

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1959.921844	59.80	977.24	62.40	-2.60	VERTICAL	Passed
4918.833667	37.10	71.61	38.60	-1.50	HORIZONTAL	Passed
7325.657315	40.50	105.93	36.30	4.20	HORIZONTAL	Passed
7340.183367	40.40	104.71	35.80	4.60	VERTICAL	Passed
7419.333667	41.50	118.85	36.60	4.90	VERTICAL	Passed
7426.357715	41.60	120.23	36.80	4.80	VERTICAL	Passed
17874.741483	57.90	785.24	32.40	25.50	VERTICAL	Passed

*1960 MHz frequency is coming from communication tester and thus ignored.

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1959.921844	58.50	841.40	61.10	-2.60	VERTICAL	Passed
4918.833667	24.00	15.85	25.50	-1.50	HORIZONTAL	Passed
7329.657315	27.50	23.71	23.20	4.30	HORIZONTAL	Passed
7339.183367	27.60	23.99	23.00	4.60	VERTICAL	Passed
7418.333667	28.50	26.61	23.50	5.00	VERTICAL	Passed
7426.357715	28.30	26.00	23.50	4.80	VERTICAL	Passed
17868.241483	44.80	173.78	19.50	25.30	VERTICAL	Passed

*1960 MHz frequency is coming from communication tester and thus ignored.

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	38.00	79.43	39.60	-1.60	HORIZONTAL	Passed
7440.000000	41.40	117.49	36.50	4.90	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	24.10	16.03	25.70	-1.60	HORIZONTAL	Passed
7440.000000	27.70	24.27	22.80	4.90	VERTICAL	Passed

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

EUT with DUT number	RM-194 Dut # 27721
Accessories with DUT numbers	BP-6M Dut # 27722 + AC-4E Dut # 27723 + HS-28 Dut # 27719 + AD-41 Dut # 27718
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	21.8 / 31.0 1015.5
Date of measurements	30.01.2007
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.

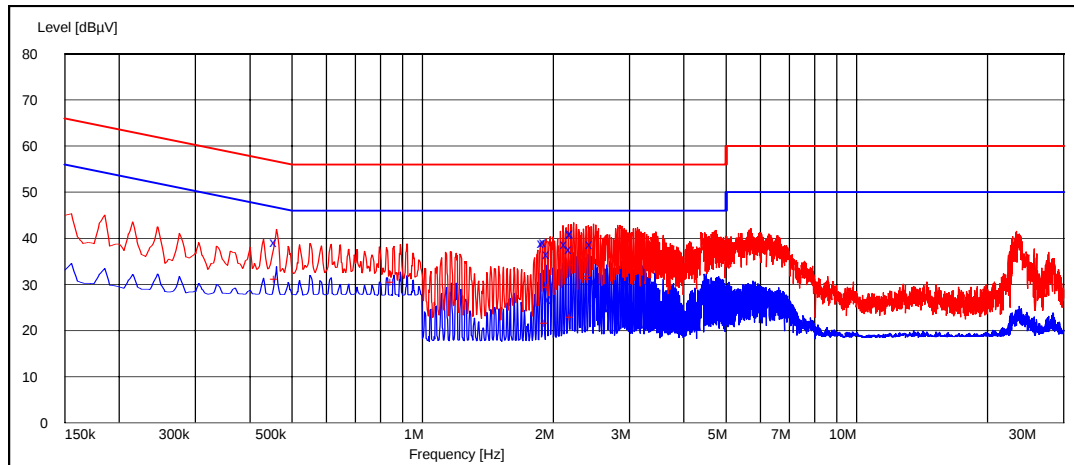
CISPR 22 Class B limits

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)

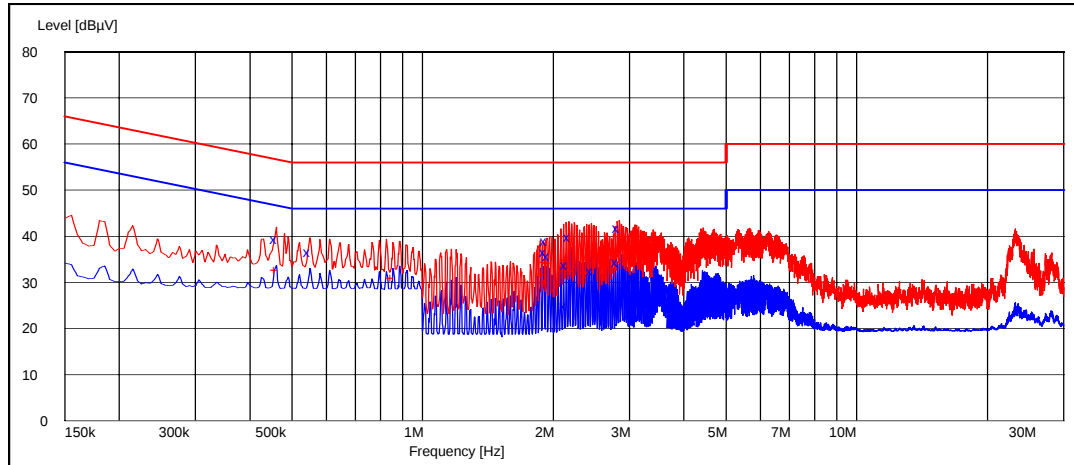
Frequency [MHz]	U [dBμV]	Line	Result
0.460000	39.10	L1	Passed
1.900000	38.90	N	Passed
1.925000	39.30	N	Passed
1.955000	36.50	L1	Passed
1.970000	26.80	N	Passed
2.150000	38.80	L1	Passed
2.205000	37.60	L1	Passed
2.210000	40.90	L1	Passed
2.215000	41.10	N	Passed
2.455000	38.70	N	Passed
2.520000	30.70	N	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.460000	31.10	L1	Passed
0.855000	30.60	N	Passed
1.930000	21.60	L1	Passed
1.955000	29.50	N	Passed
2.210000	22.90	N	Passed
2.215000	34.10	N	Passed
2.425000	31.10	N	Passed
2.430000	31.70	L1	Passed

7.2.2 8DPSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.460000	39.30	L1	Passed
0.550000	36.50	L1	Passed
1.925000	36.60	L1	Passed
1.930000	39.00	N	Passed
1.955000	35.70	L1	Passed
2.145000	24.90	N	Passed
2.150000	33.80	N	Passed
2.185000	39.80	L1	Passed
2.460000	32.40	N	Passed
2.820000	34.50	N	Passed
2.830000	41.70	L1	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.460000	32.60	L1	Passed
0.855000	31.00	N	Passed
1.895000	31.80	N	Passed
1.925000	34.50	N	Passed
1.930000	29.90	L1	Passed
1.955000	34.10	N	Passed
2.155000	34.90	N	Passed
2.180000	35.50	N	Passed
2.215000	32.40	N	Passed
2.395000	32.10	L1	Passed
2.405000	35.40	N	Passed
2.435000	35.10	N	Passed

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

EUT with DUT number	RM-194 dut 27716, BP-6M dut 27712
Accessories with DUT numbers	AC-4E dut 28517, HS-28 dut 27714, AD-41 dut 27713
Operation Voltage [V] / [Hz]	220 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.3 / 35.0 1009.1
Date of measurements	31-01-2007
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

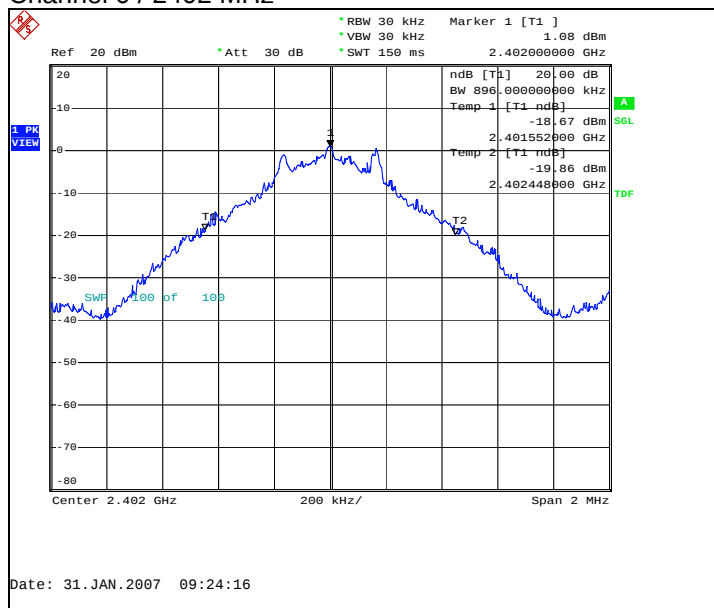
Limit [MHz]
N/A

8.2. Bluetooth Test results

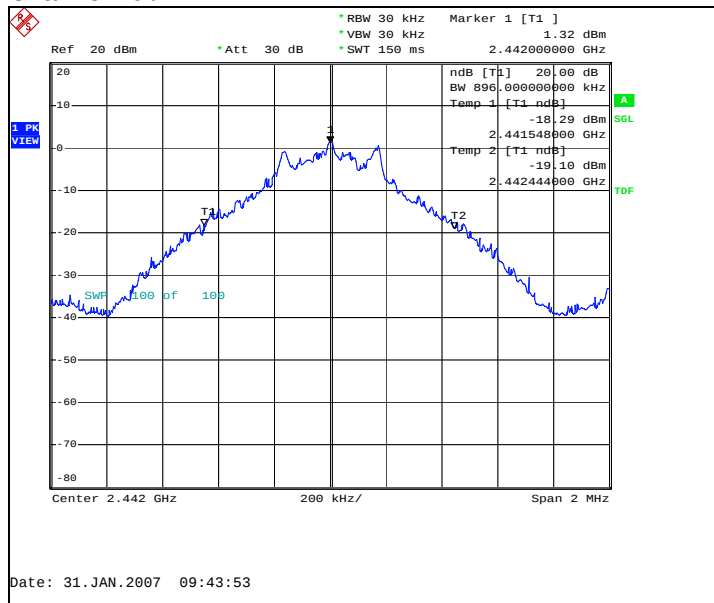
8.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	896.000	Passed
40 / 2442	896.000	Passed
78 / 2480	904.000	Passed

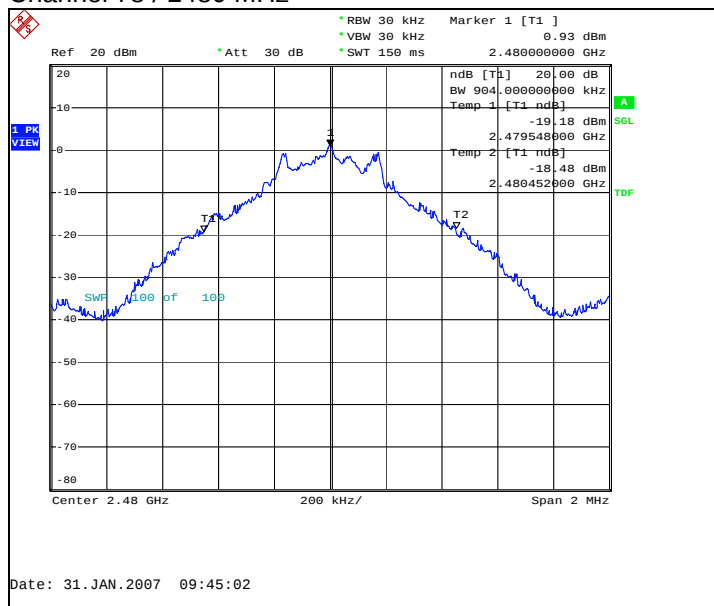
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



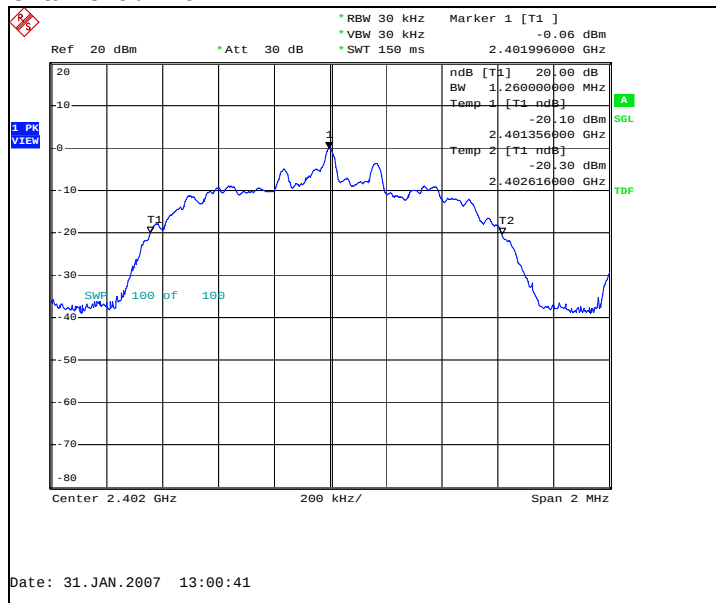
Channel 78 / 2480 MHz



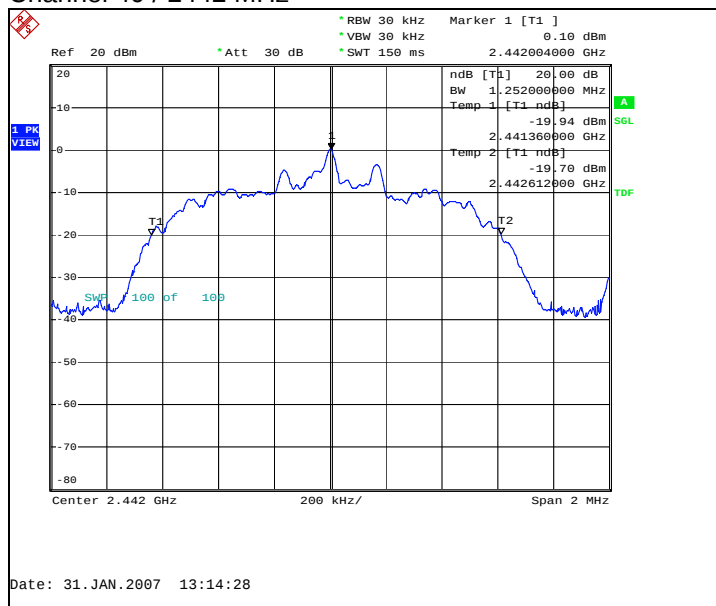
8.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1260.000	Passed
40 / 2442	1252.000	Passed
78 / 2480	1256.000	Passed

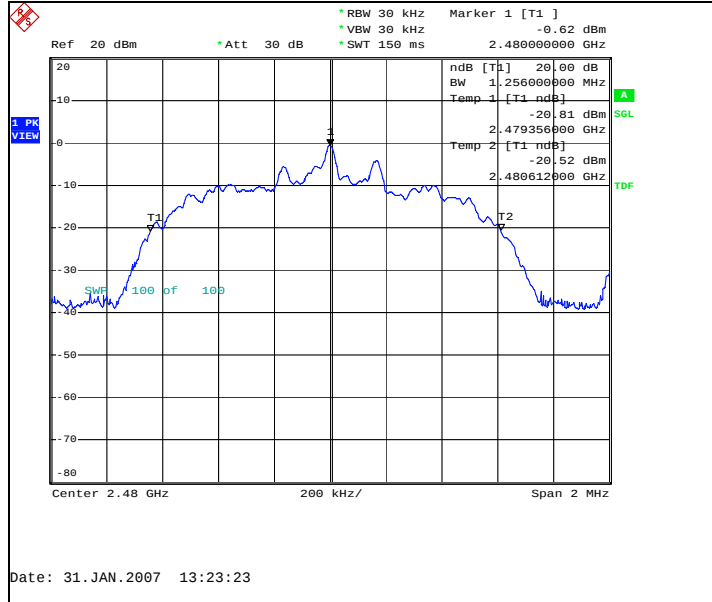
Channel 0 / 2402 MHz



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-194 dut 27716, BP-6M dut 27712
Accessories with DUT numbers	AC-4E dut 28517, HS-28 dut 27714, AD-41 dut 27713
Operation Voltage [V] / [Hz]	220 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.3 / 35.0 1009.1
Date of measurements	31-01-2007
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

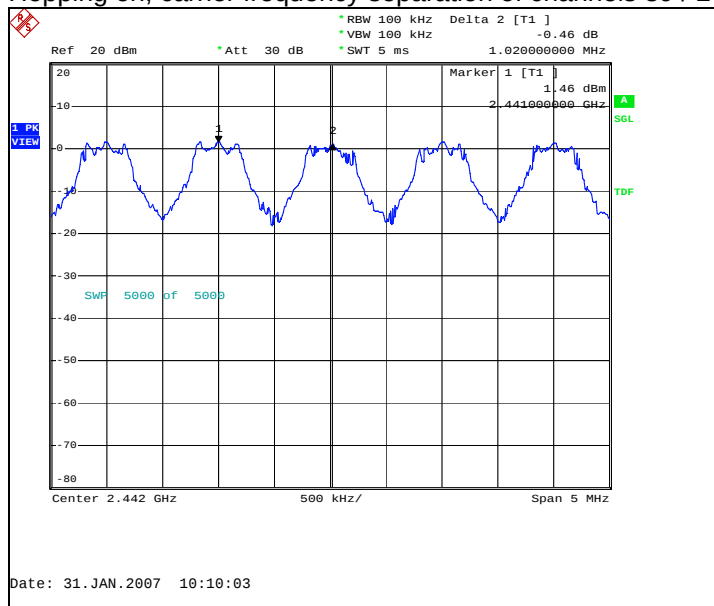
Limit [MHz]
≥ 0.025 or 2/3 of the 20 dB bandwidth

9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1020	Passed

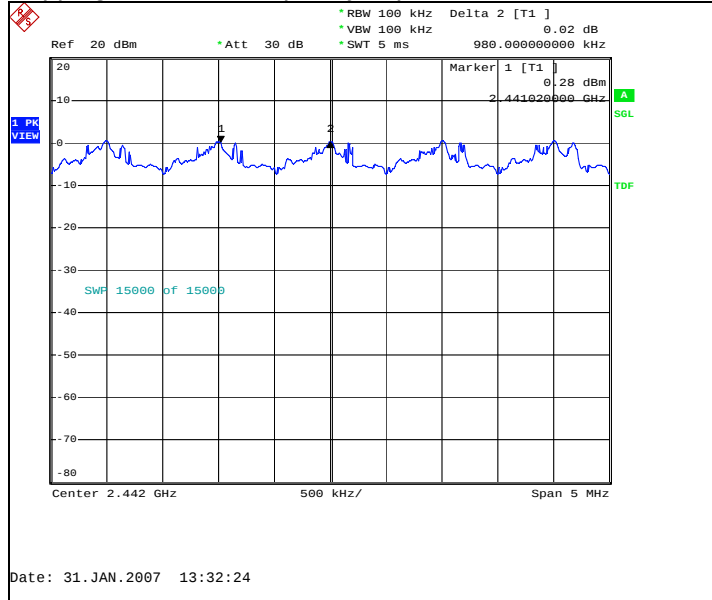
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



9.2.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
980	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-194 dut 27716, BP-6M dut 27712
Accessories with DUT numbers	AC-4E dut 28517, HS-28 dut 27714, AD-41 dut 27713
Operation Voltage [V] / [Hz]	220 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.3 / 35.0 1009.1
Date of measurements	31-01-2007
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

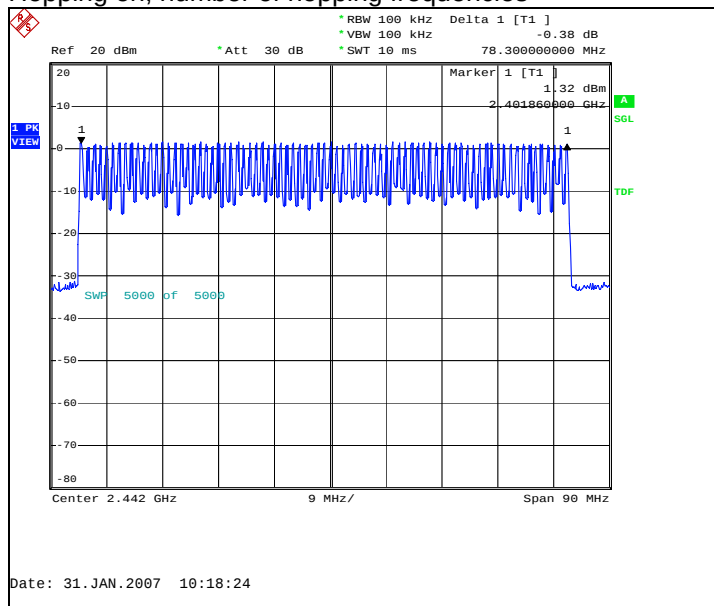
Limit [number]
≥ 15

10.2. Bluetooth Test results

10.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	Passed

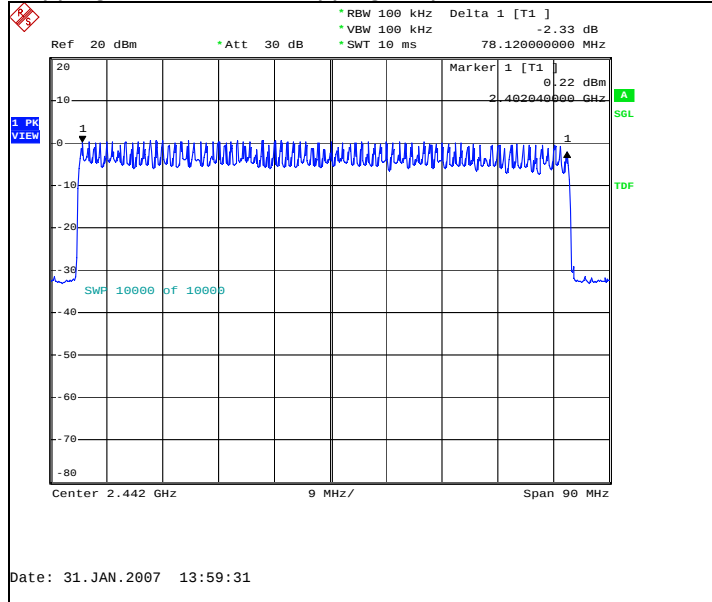
Hopping on, number of hopping frequencies



10.2.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
73	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-194 dut 27716, BP-6M dut 27712
Accessories with DUT numbers	AC-4E dut 28517, HS-28 dut 27714, AD-41 dut 27713
Operation Voltage [V] / [Hz]	220 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.3 / 35.0 1009.1
Date of measurements	31-01-2007
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

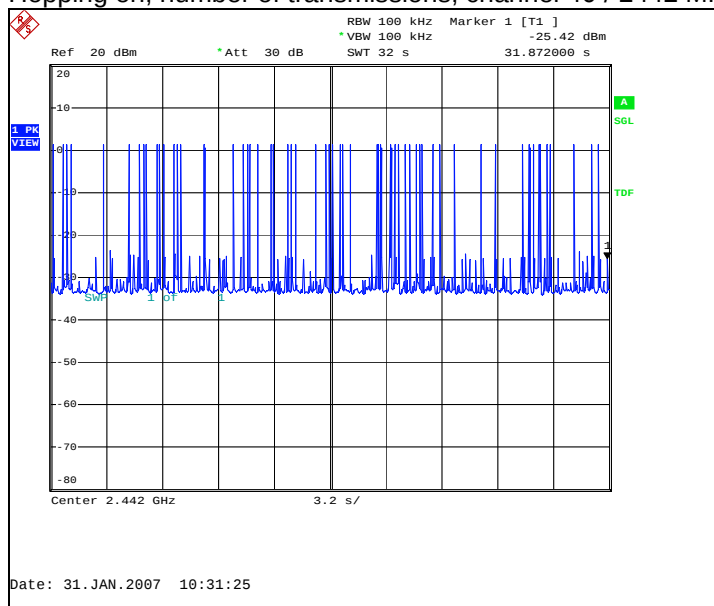
Limit [s]
≤ 0.4

11.2. Bluetooth test results

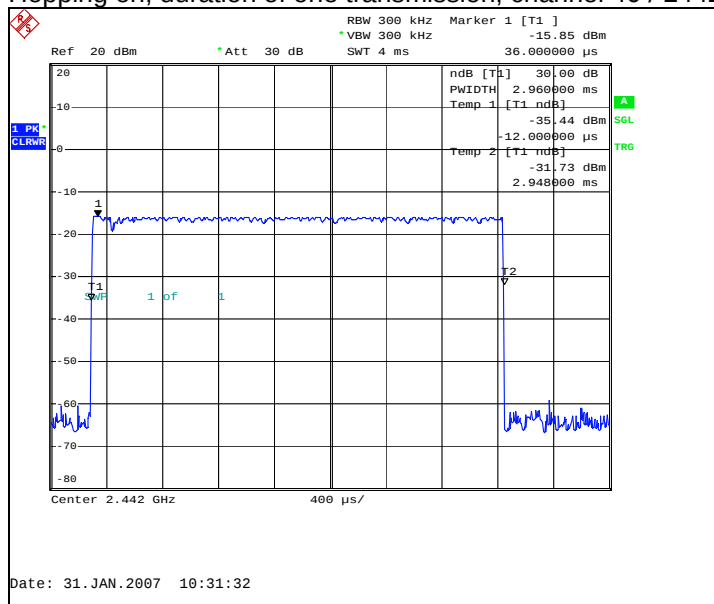
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
57	2960	0.168720	Passed

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



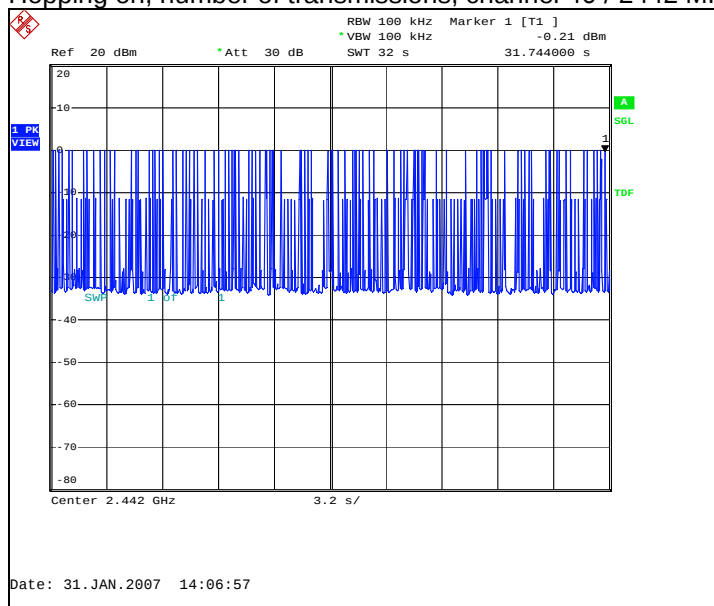
Hopping on, duration of one transmission, channel 40 / 2442 MHz



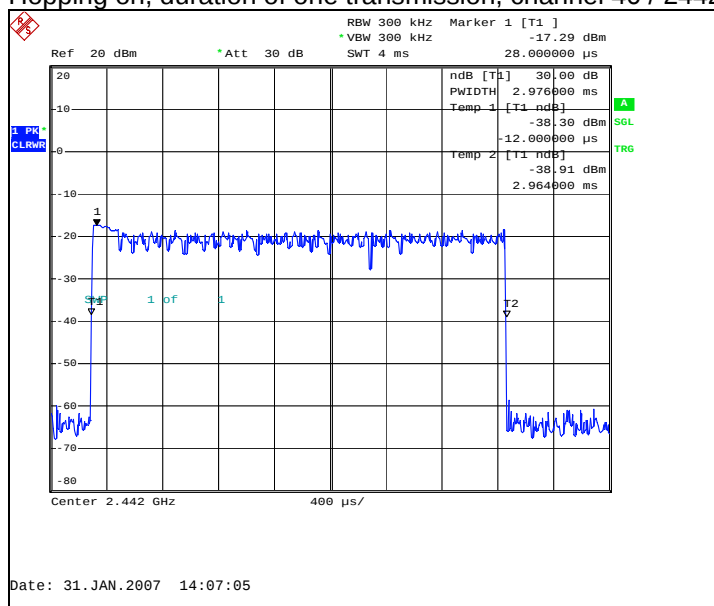
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
94	2976	0.279744	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, 15C, 15B
19678	Spectrum Analyzer 26 GHz	FSP	Rohde&Schwarz	22/24, 15C, 15B
16601	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24, 15C, 15B
19625	Vötsch Climatic Chamber	VT4002EMC	Vötsch	22/24, 15C, 15B
13357	Rohde & Schwartz Signal Generator	SMP02	Rohde&Schwarz	22/24, 15C, 15B

12.2. Radiated measurements

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

Eq. No	Equipment	Type	Manufacturer	Used in
18860	Ultra Broadband Antenna Ultralog 30-3000MHz	HL562	Rohde&Schwarz	22/24, 15C, 15B
19830	Ultra Broadband Antenna Ultralog 30-3000MHz	HL562	Rohde&Schwarz	22/24, 15C, 15B
18773	Shielded Chamber	RFD-100	ETS-Lindgren	22/24, 15C, 15B
18774	Shielded Chamber	RFSD-F/A-100	ETS-Lindgren	22/24, 15C, 15B
19151	High Pass Filter 3GHz WHK3.0/18G-10ss	WHJS3000-10SS	Wainwright	22/24, 15C, 15B
13937	Ultra Stable Notch Filter 850MHz	WRCA902.4-0.2/40-6SS	Wainwright Instruments	22/24, 15C, 15B
13936	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40- 10SS	Wainwright Instruments	22/24, 15C, 15B
13917	Highpass Filter 1000-3000MHz 50OHM SMA Conn	WHKS1000-10SS	Wainwright Instruments	22/24, 15C, 15B
14188	Ultra Stable Notch Filter 902,4MHz	WRCA902.4-0.2/40-6SS	Wainwright	22/24, 15C, 15B
14187	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40- 10SS	Wainwright	22/24, 15C, 15B
16633	Ultra Stable Notch Filter 1880,0MHz	WRCD1880.0-0.2/40- 10SS	Wainwright	22/24, 15C, 15B
19587	BT/WLAN Band Reject Filter	WRCG2400/2483- 2390/2493-35/10SS	Wainwright	22/24, 15C, 15B
	WDCMA Band 4 filter	WRCG1737/1743- 1733/1747-40/6SS	Wainwright	22/24, 15C, 15B
	WDCMA Band 5&6 filter	WRCG832/83/-825/845- 40/5SS	Wainwright	22/24, 15C, 15B
	WDCMA Band 8 filter	WRCG894.6/900.6- 890.6/904.6-40/80SS	Wainwright	22/24, 15C, 15B
18323	Band reject filter 1947-1953MHz 40dB	WRCG1947/1953- 1940/1960-40/6SS	Wainwright	22/24, 15C, 15B
20031	Double Ridged Broadband Horn	BBHA 9120 D	SCHWARZBECK	22/24, 15C, 15B
15190	Infra Red Remote Control Unit	4630	Emco	22/24, 15C, 15B
14993	EMI Test Receiver 9KHz- 2750MHz	ESCS30	Rohde&Schwarz	22/24, 15C, 15B
15191	Turntable Contoller Unit	G-800SDX	YAESU	22/24, 15C, 15B
14900	Antenna Controller	HD100	HD GmbH	22/24, 15C, 15B
15105	Attenuator 30dB DC-1000MHz 50 Ohm Nf - Nm	NAT-30	Mini-Circuits	22/24, 15C, 15B
13302	Spectrum Analyzer 9KHz- 12.8GHz	HP8596E	Hewlett Packard	22/24, 15C, 15B
11584	Spectrum analyzer 50Hz- 6,5GHz	HP8561B	Hewlett Packard	22/24, 15C, 15B
13134	Tracking generator	HP85645A	Hewlett Packard	22/24, 15C, 15B
19374	Resonant Dipole Antenna 850MHz SMA m Conn.	-----	NMP Cph	22/24, 15C, 15B
19375	Resonant Dipole Antenna 1900MHz SMA m Conn.	-----	NMP Cph	22/24, 15C, 15B
11487	Network analyzer 300KHz- 3,0GHz	HP8753A	Hewlett Packard	22/24, 15C, 15B
14807	S - Parameter Test Set 300KHz- 6GHz	HP85047A	Hewlett Packard	22/24, 15C, 15B
17277	Multimeter Digital 6 1/2 Digit	AT34401A	Agilent Technologies	22/24, 15C, 15B