

FCC Part 15C Compliance Test Report

Test Report no.:	Cph_FCC_0711_11.doc	Date of Report:	21-03-2007
Number of pages:	48	Customer's Contact person:	Bill Griffin/Victoria Abadilla
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FCC listing no.:	99059		
IC recognition no.:	661AD-1		
Tested devices/ accessories:	Phone; RM-277 (HW 3150) & Battery; BL-5C & AC Charger; AC-3U & Headset; HS-47		
FCC ID:	QMNRM-277	IC:	661X-RM277
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	15-03-2007
Testing completed	20-03-2007
The customer's contact person	Bill Griffin/Victoria Abadilla
Test Plan referred to	T:\Projects\RM-277\TestPlan_RS\RS_Testplan_RM-277.xls
Notes	None
Document name	T:\Projects\RM-277\EMC\Results\FCC\Cph_FCC_0711_11.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-277	004400/01/256208/4	3150	-	Vp bt06w47_07w06	29160
Battery	BL-5C	0670398380257 N09632LI68348	-	-	-	29161
AC-Charger	AC-3U	4090495305981007149;0675372	-	-	-	29162
Headset	HS-47	1064	0.3	0.4	-	29164
Phone	RM-277	004400/01/256223/3	3150	-	Vp bt06w47_07w06	27493
Battery	BL-5C	0670398380257N09632L168354	-	-	-	27494
AC-Charger	AC-3U	4090495305981007156;0675372	-	-	-	27495
Headset	HS-47	0000336	-	-	-	27752
Phone	RM-277	004400/01/256210/0	3150	-	Vp bt06w47_07w06	27496
Battery	BL-5C	0670398380257 N09632LI63674	-	-	-	27497
Headset	HS-47	1016	0.3	0.4	-	27732
AC Charger	AC-3E	4090496437171011390; 0675370	-	-	-	27490

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.

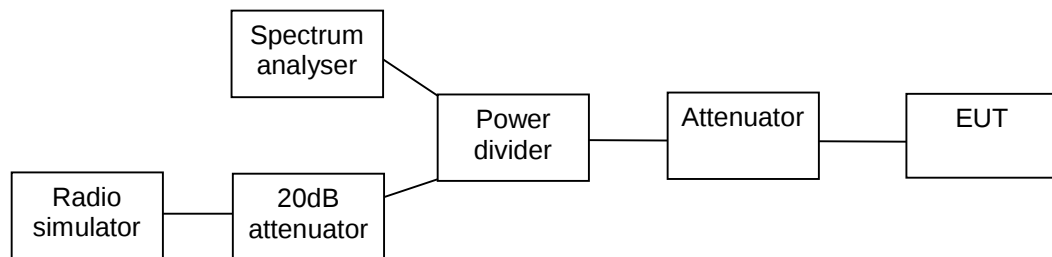
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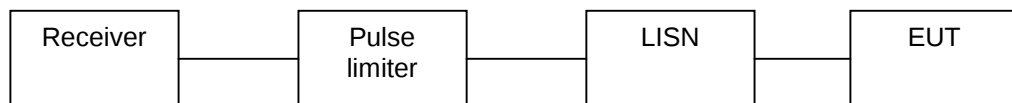
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2. Test setups

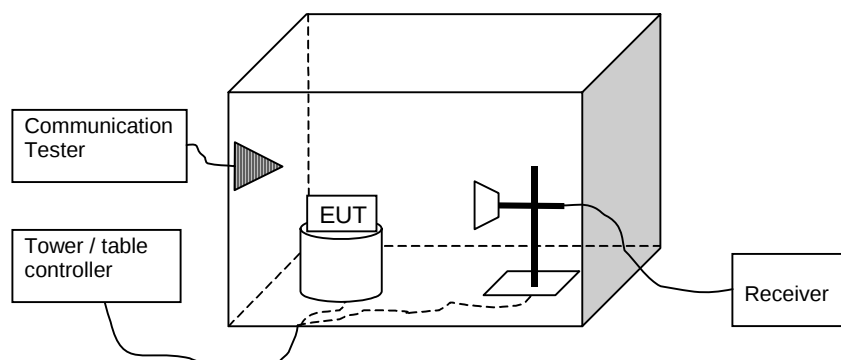
2.1. Conducted RF test setup



2.2. AC powerline conducted emissions test setup



2.3. Spurious radiated emissions test setup



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

EUT with DUT number	RM-277 dut 27496, BL-5C dut 27497
Accessories with DUT numbers	HS-47 dut 27732, AC-3E dut 27490
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.7 / 37.5 1003.4
Date of measurements	20-03-2007
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

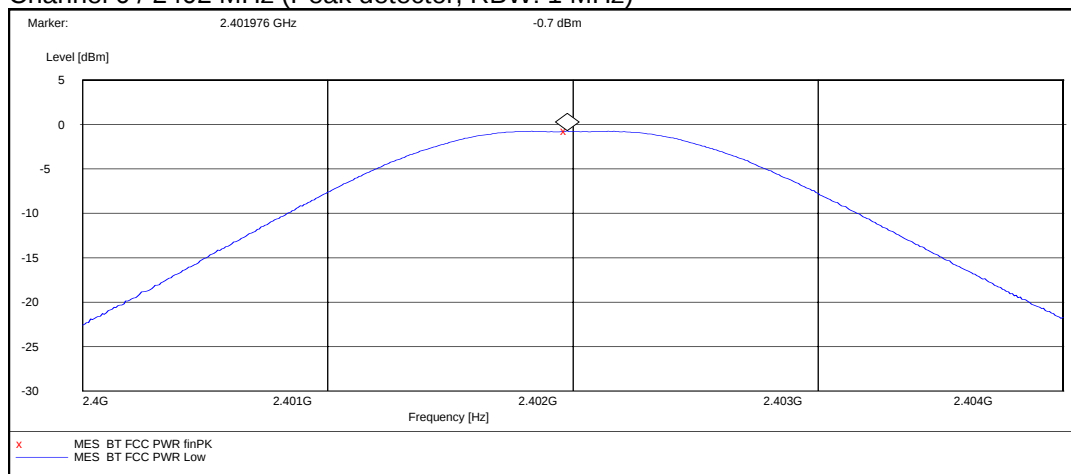
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

3.2. Bluetooth Test results

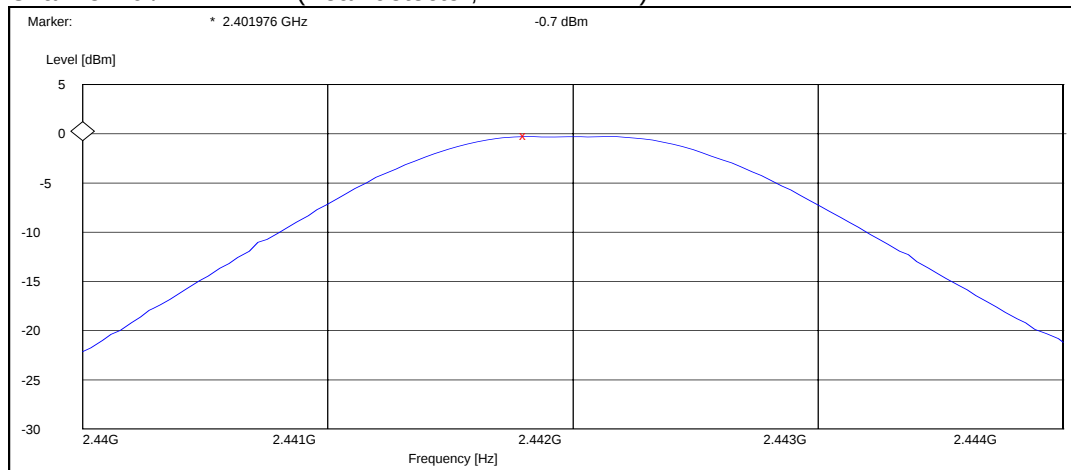
3.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-0.70	0.851	Passed
40 / 2442	-0.20	0.955	Passed
78 / 2480	-0.40	0.912	Passed

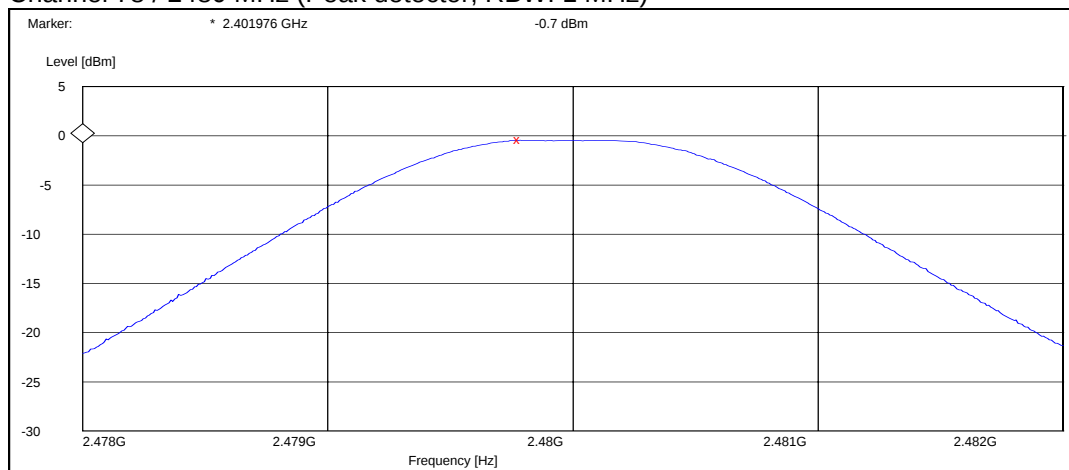
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz)



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



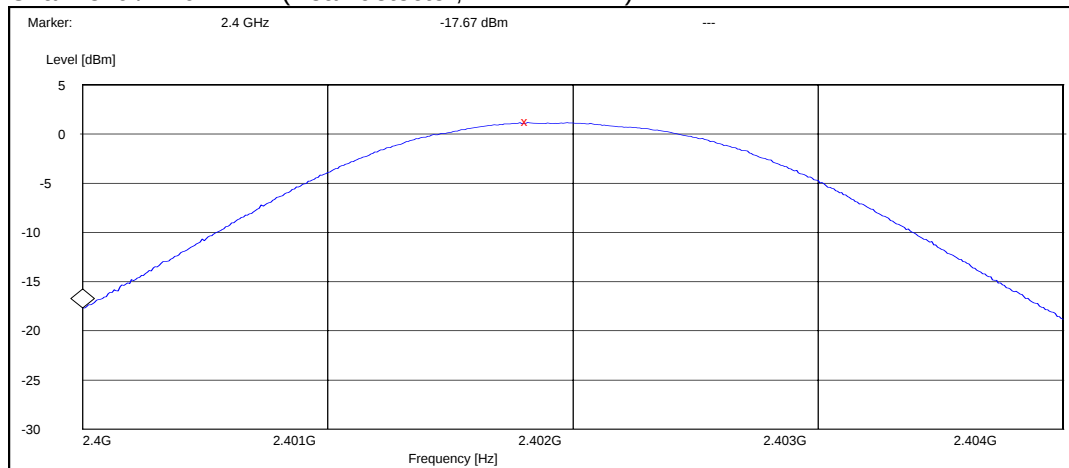
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz)



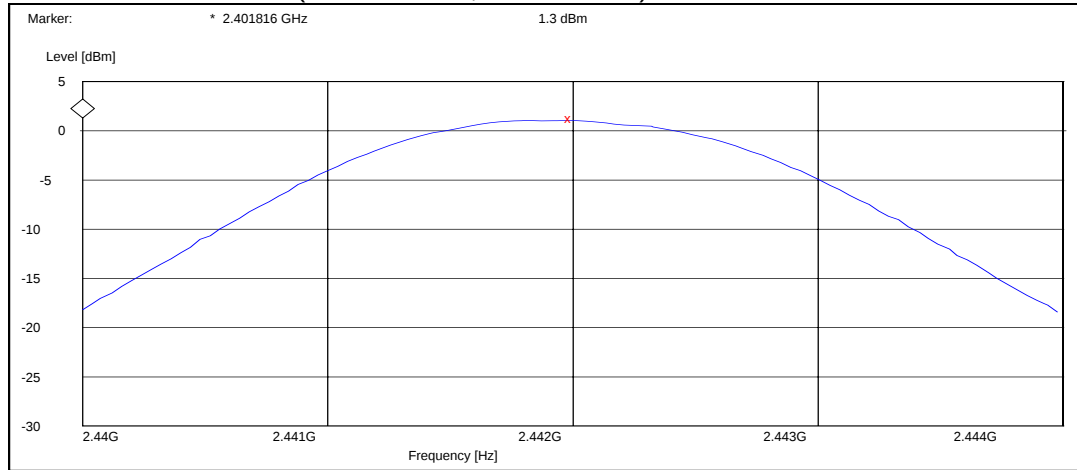
3.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	1.30	1.349	Passed
40 / 2442	1.30	1.349	Passed
78 / 2480	1.10	1.288	Passed

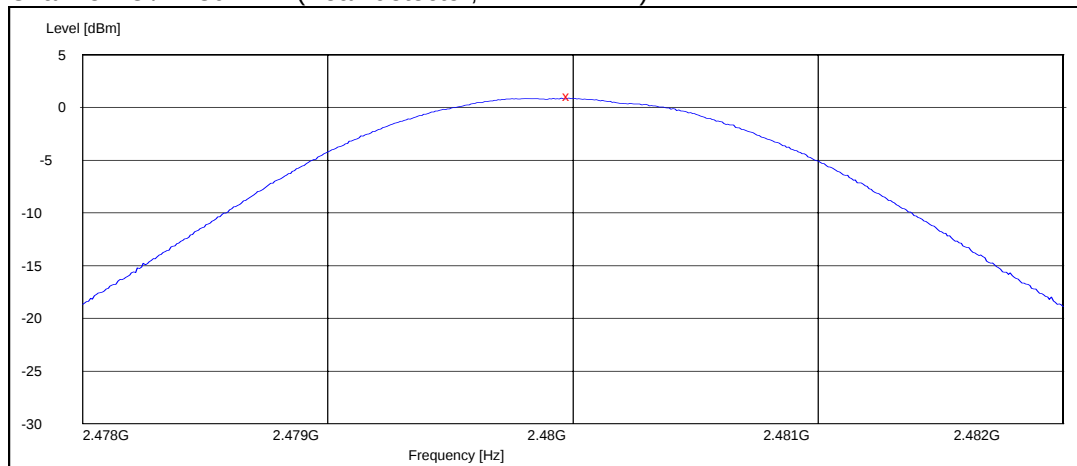
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz)



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-277 Dut#29160
Accessories with DUT numbers	BL-5C Dut#29161, AC-3U Dut#29162, HS-47 Dut#29164
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 45 / 1012
Date of measurements	19-03-2007
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 Phone flip open

4.2.1.1 GFSK modulation, PRBS packet type

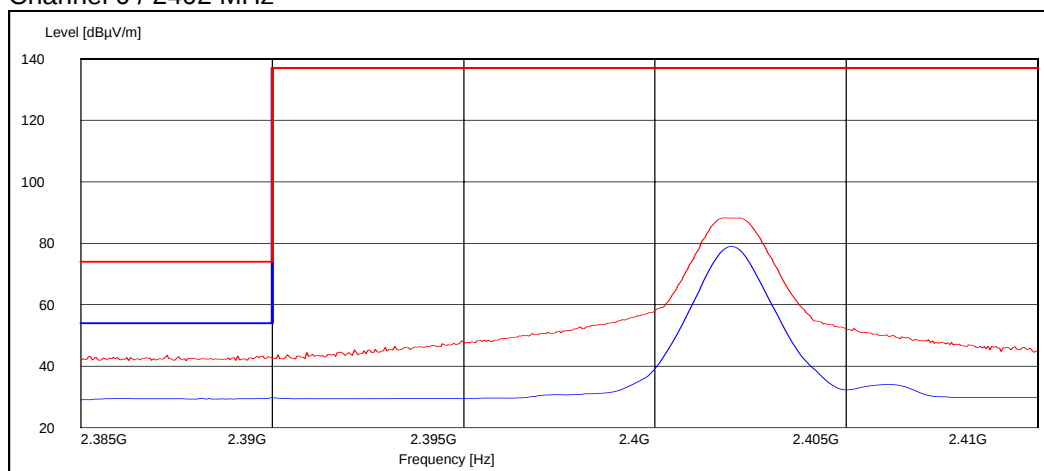
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	29.71	Passed
78 / 2480	34.31	Passed
Hopping on, low end	36.64	Passed
Hopping on, high end	41.76	Passed

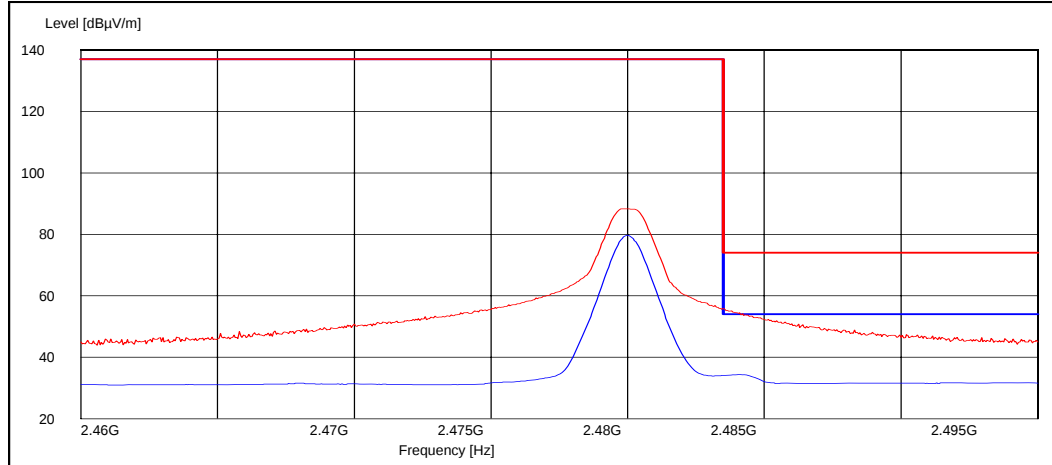
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	43.34	Passed
78 / 2480	55.91	Passed
Hopping on, low end	48.89	Passed
Hopping on, high end	58.09	Passed

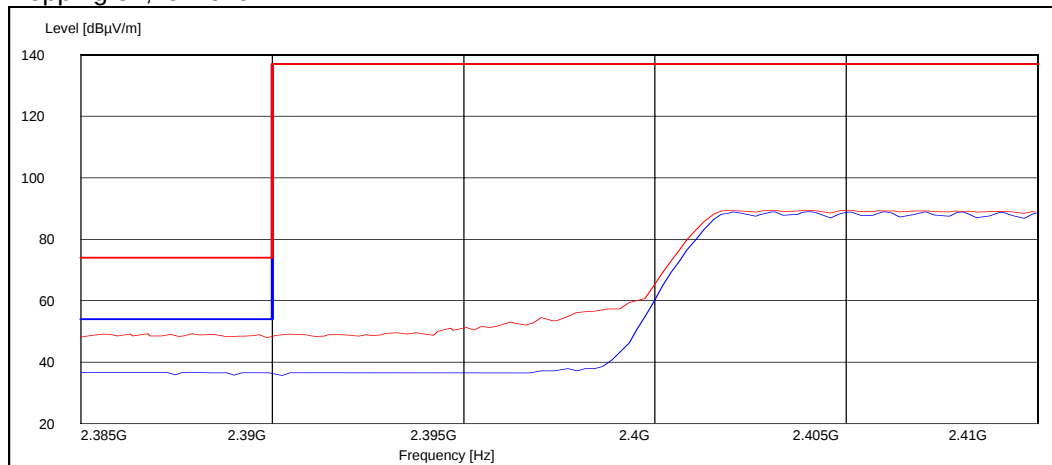
Channel 0 / 2402 MHz



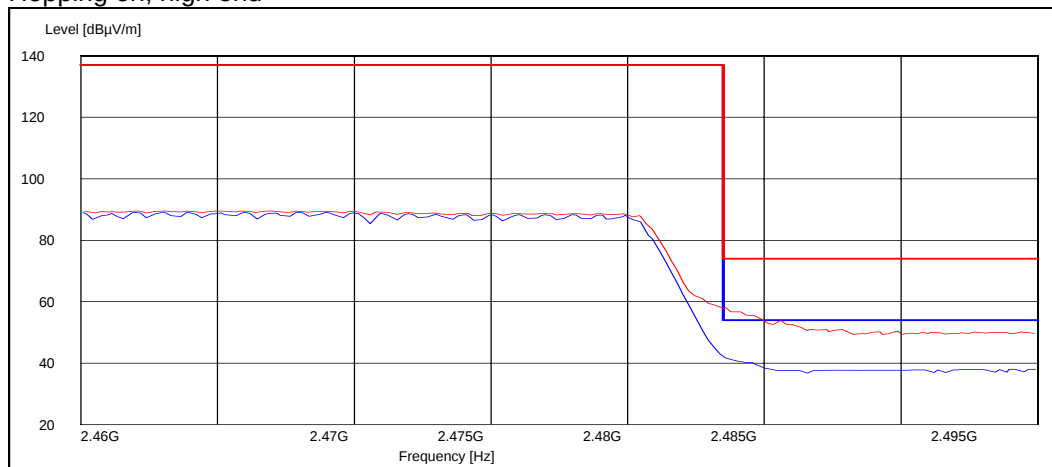
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



4.2.2 8DPSK modulation, PRBS packet type

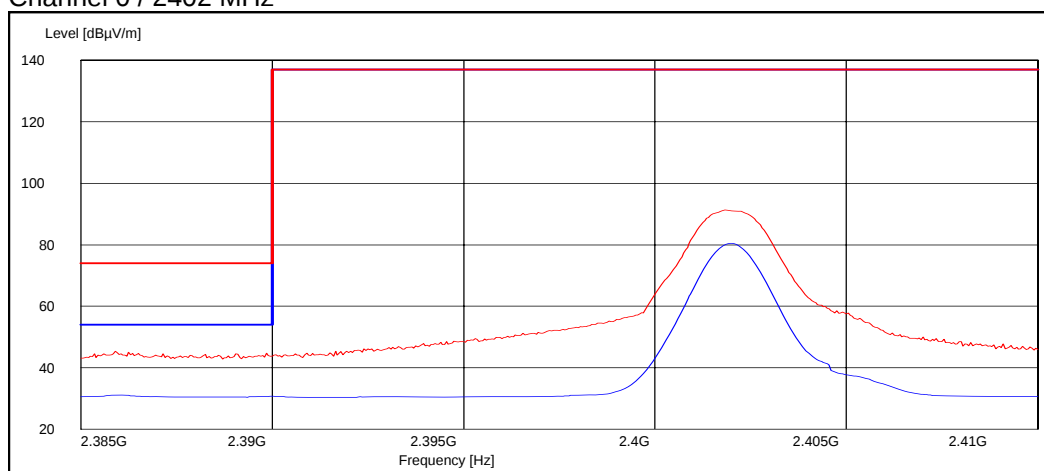
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	30.63	Passed
78 / 2480	35.86	Passed
Hopping on, low end	36.62	Passed
Hopping on, high end	44.25	Passed

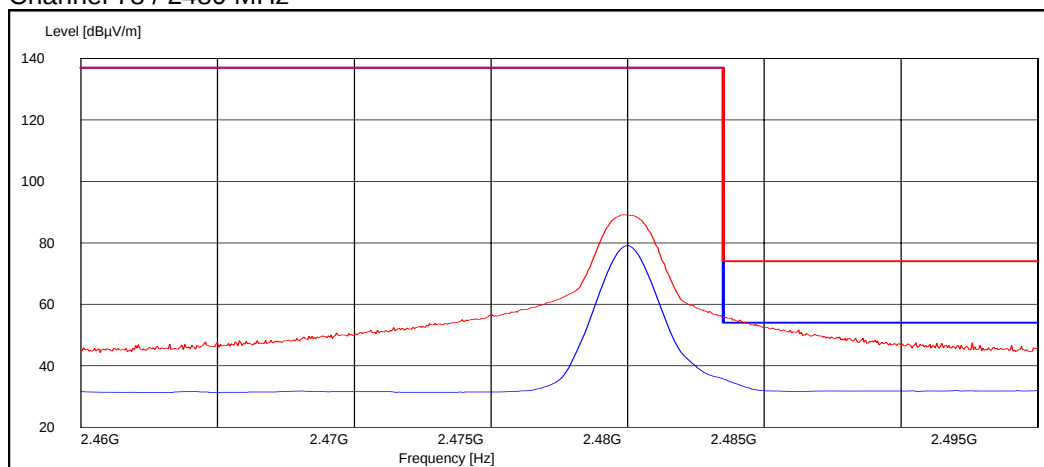
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	44.79	Passed
78 / 2480	55.91	Passed
Hopping on, low end	48.62	Passed
Hopping on, high end	58.32	Passed

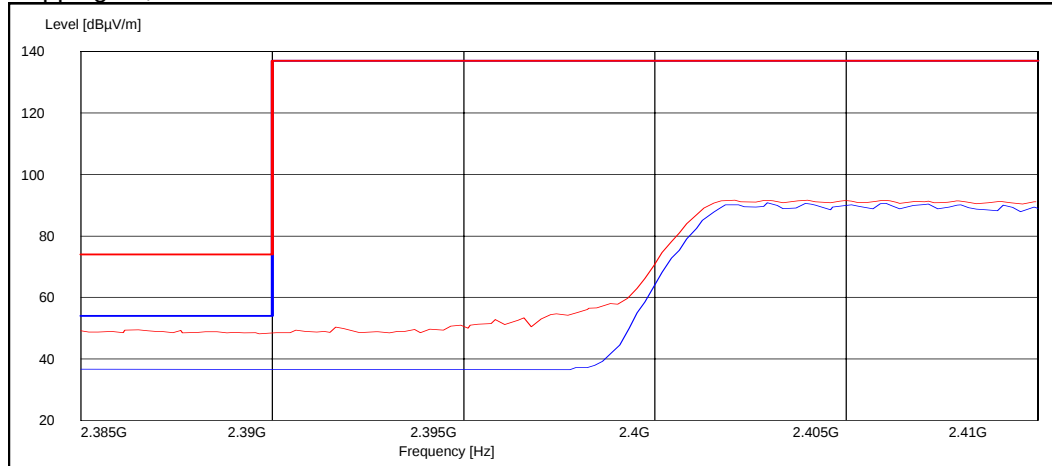
Channel 0 / 2402 MHz



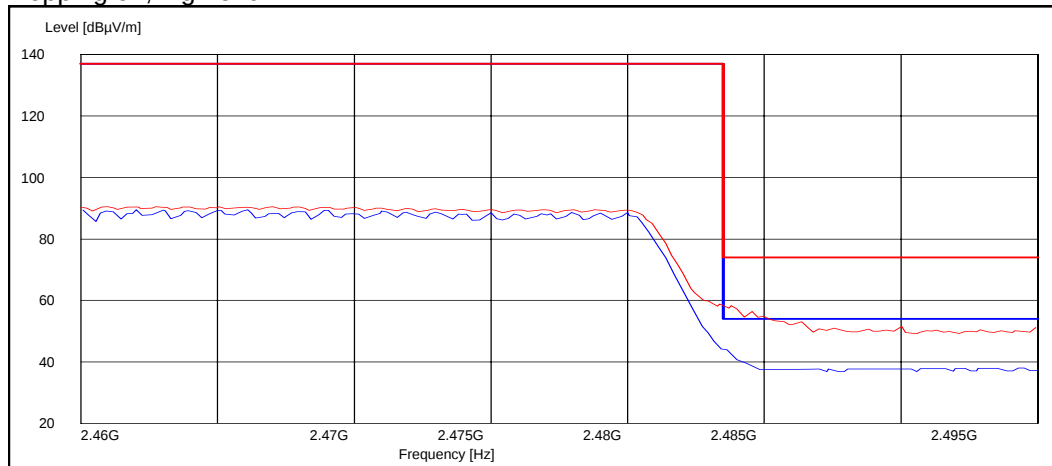
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



4.2.3 Phone flip closed

4.2.3.1 GFSK modulation, PRBS packet type

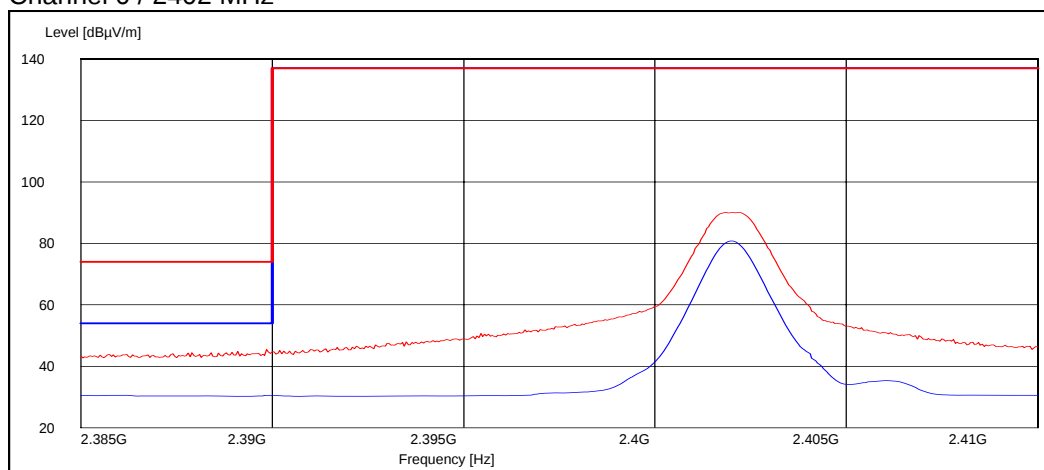
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	30.51	Passed
78 / 2480	35.71	Passed
Hopping on, low end	36.58	Passed
Hopping on, high end	43.50	Passed

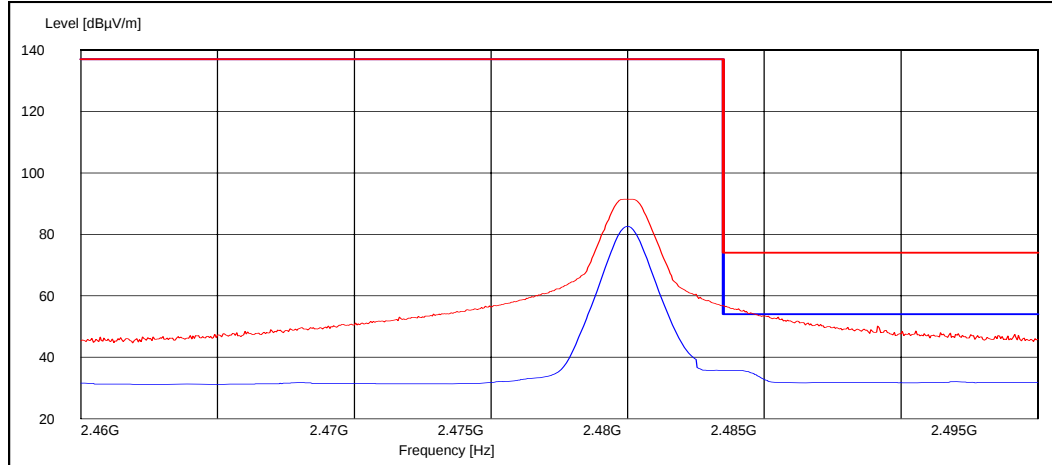
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	45.46	Passed
78 / 2480	56.83	Passed
Hopping on, low end	49.56	Passed
Hopping on, high end	59.00	Passed

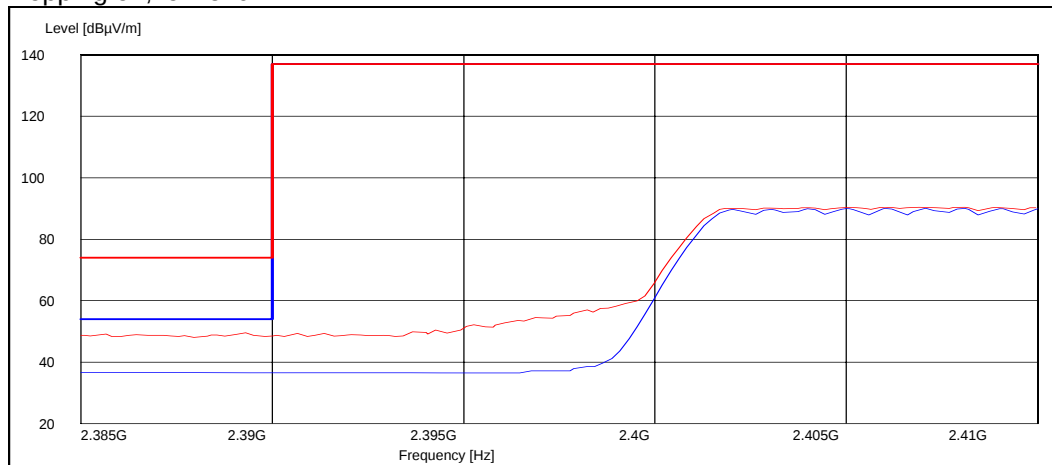
Channel 0 / 2402 MHz



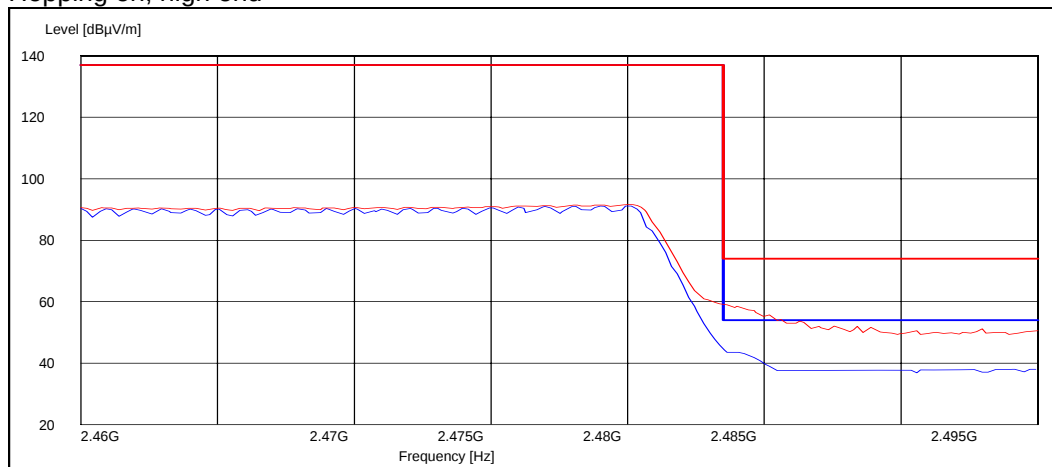
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



4.2.4 8DPSK modulation, PRBS packet type

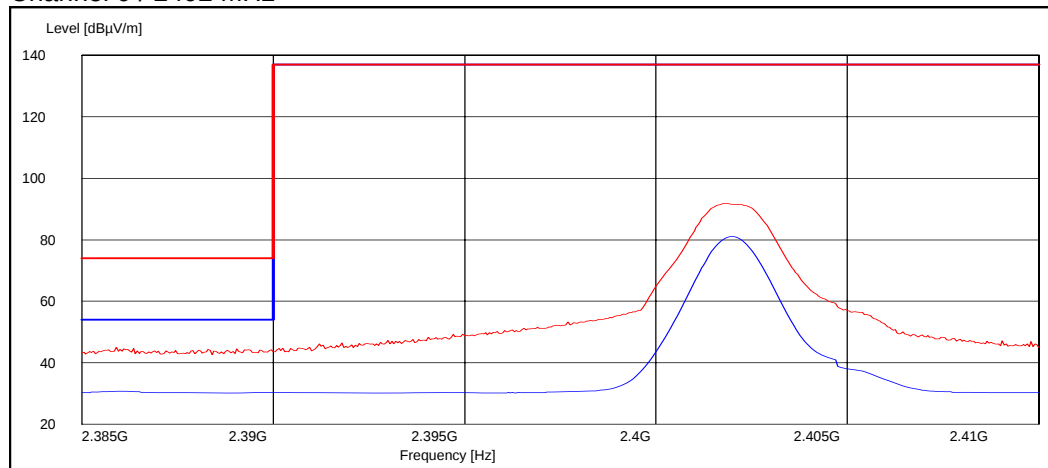
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	30.38	Passed
78 / 2480	37.26	Passed
Hopping on, low end	36.69	Passed
Hopping on, high end	47.28	Passed

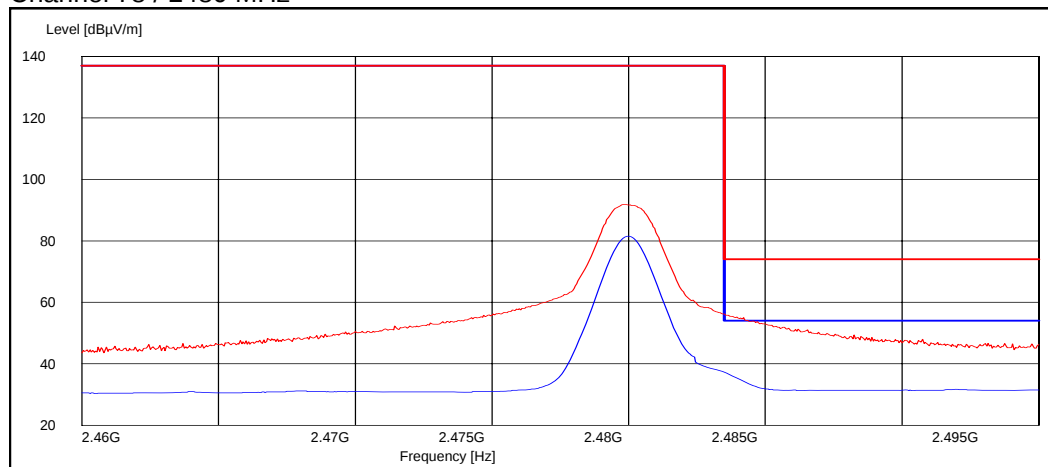
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	44.23	Passed
78 / 2480	56.18	Passed
Hopping on, low end	50.34	Passed
Hopping on, high end	60.51	Passed

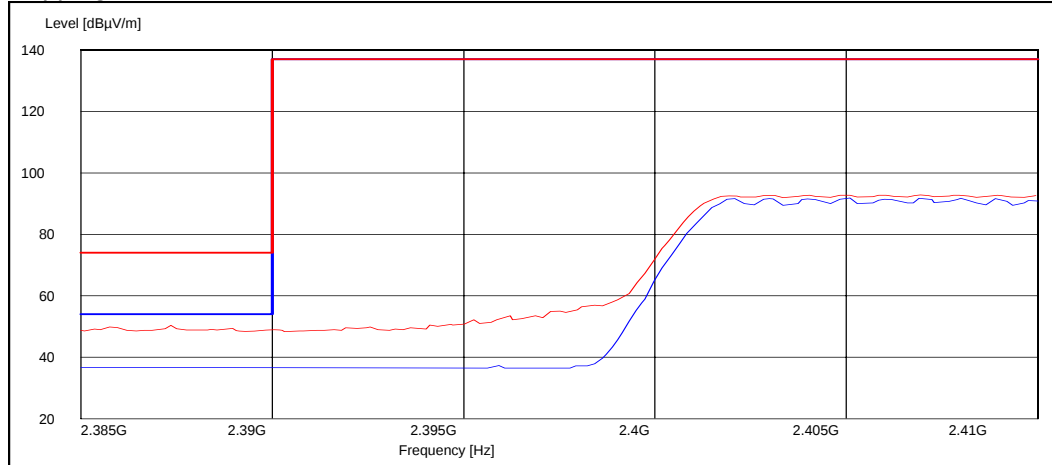
Channel 0 / 2402 MHz



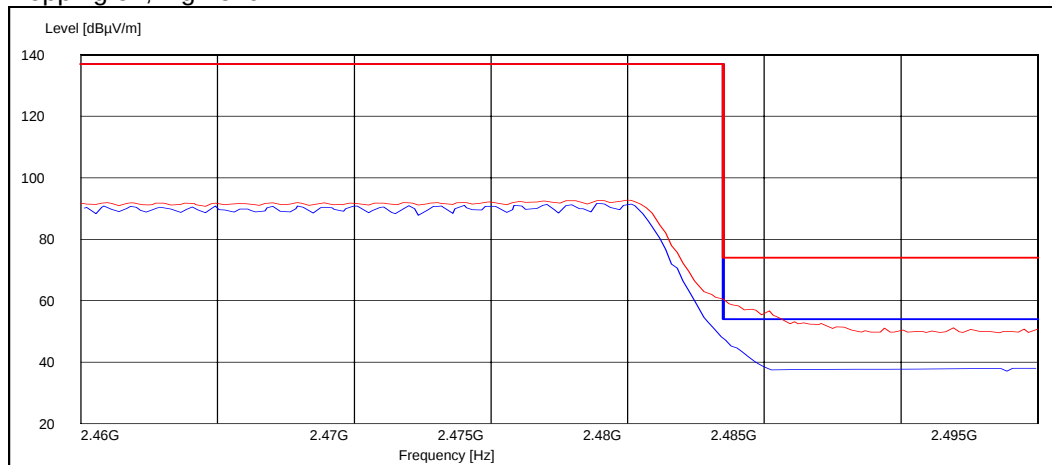
Channel 78 / 2480 MHz



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-277 dut 27496, BL-5C dut 27497
Accessories with DUT numbers	HS-47 dut 27732, AC-3E dut 27490
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.7 / 37.5 1003.4
Date of measurements	20-03-2007
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.

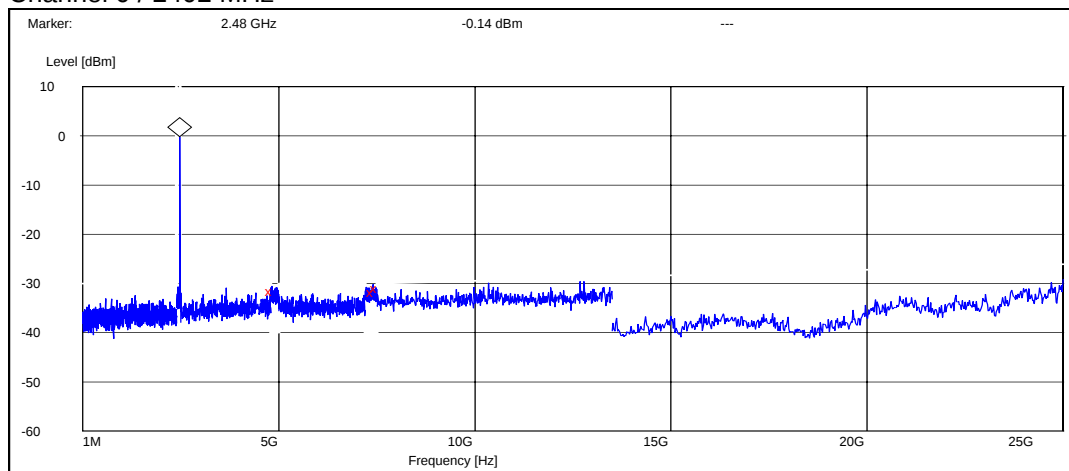
Limits for spurious RF conducted emissions measurements

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

5.2. Bluetooth Test results

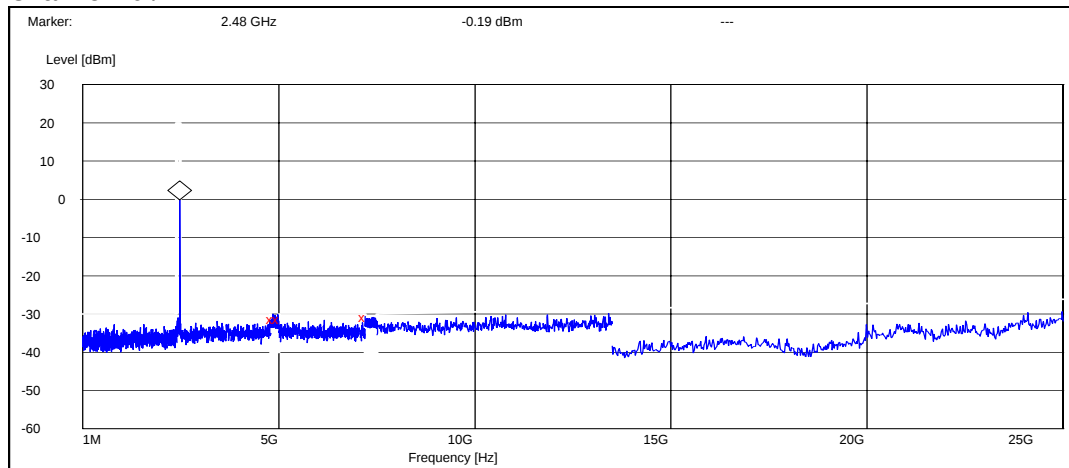
5.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



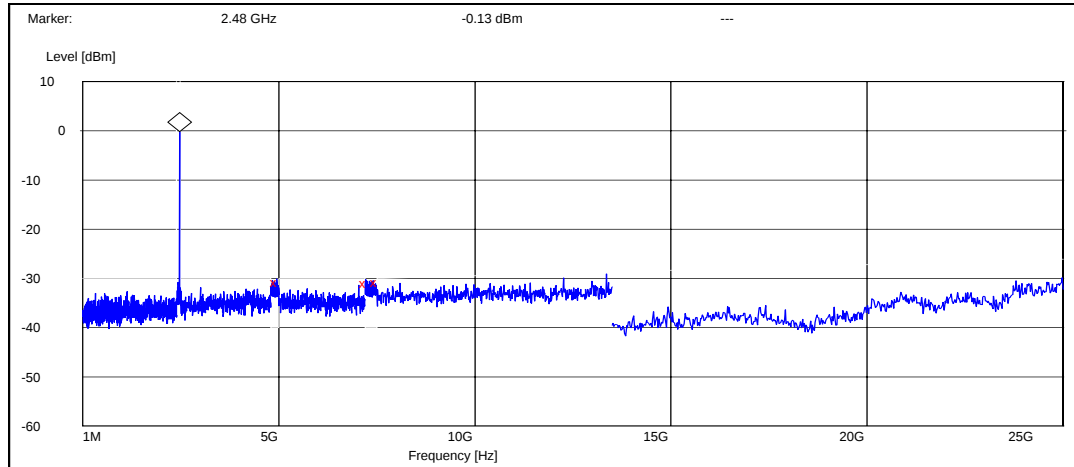
Frequency [MHz]	P [dBc]	Result
4828.000000	-31.460020	Passed
7406.400000	-31.560020	Passed
7500.000000	-30.960020	Passed

Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4852.400000	-31.210948	Passed
5000.000000	-31.110948	Passed
7209.600000	-30.510948	Passed

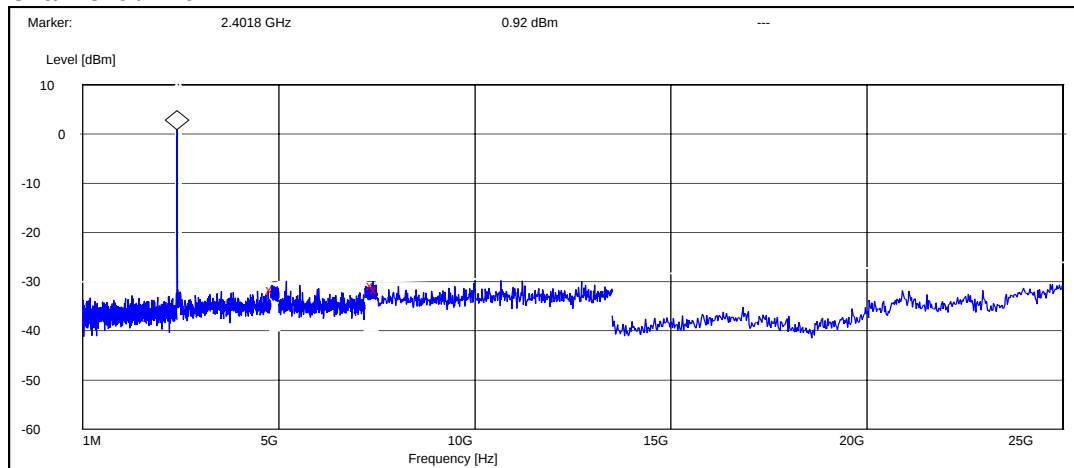
Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4944.400000	-30.574936	Passed
7220.400000	-30.974936	Passed
7500.000000	-30.674936	Passed

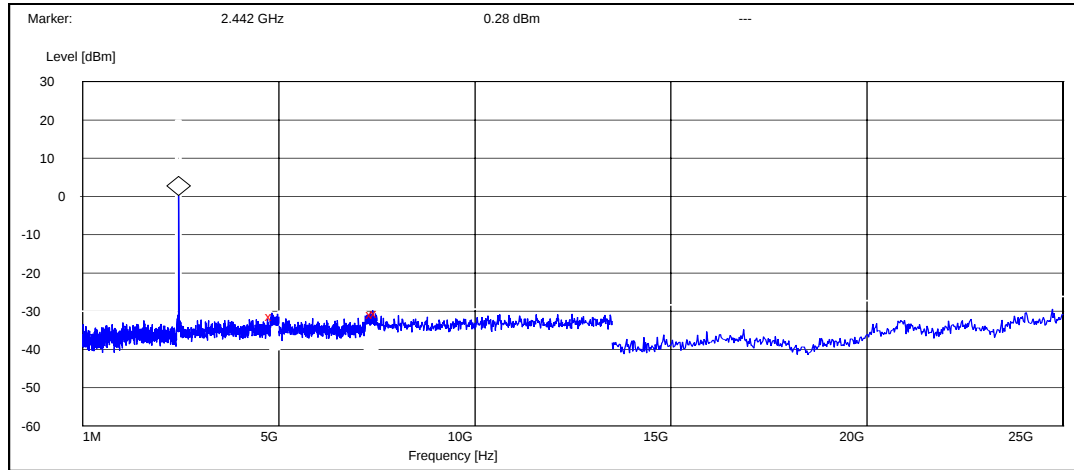
5.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



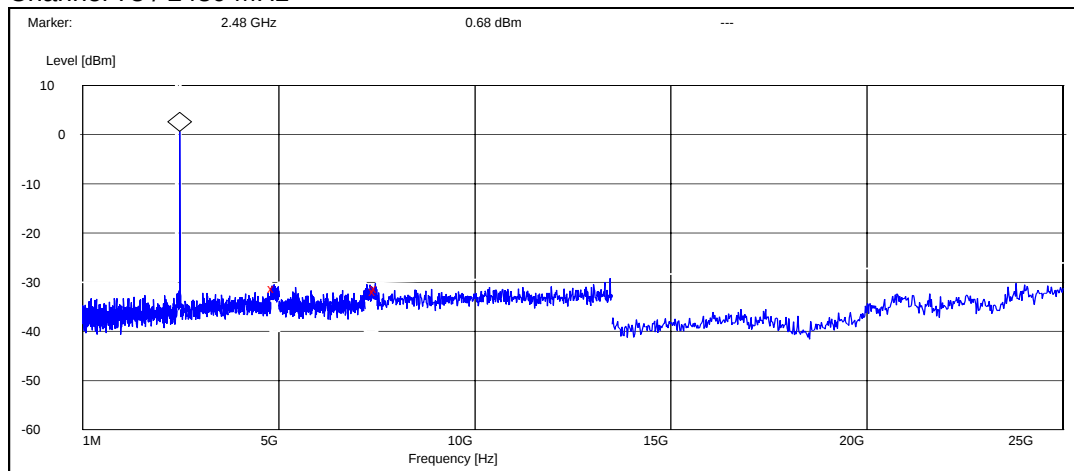
Frequency [MHz]	P [dBc]	Result
4839.200000	-32.516295	Passed
7405.800000	-31.616295	Passed
7500.000000	-32.516295	Passed

Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4823.200000	-31.683833	Passed
7395.600000	-31.183833	Passed
7500.000000	-30.783833	Passed

Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4879.600000	-31.976823	Passed
7470.000000	-32.476823	Passed
7500.000000	-31.976823	Passed

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

EUT with DUT number	RM-277 Dut#29160
Accessories with DUT numbers	BL-5C Dut#29161, AC-3U Dut#29162, HS-47 Dut#29164
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	20 / 45 / 1012
Date of measurements	16-03-2007
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 Phone flip open

6.2.1.1 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	36.30	65.31	38.30	-2.00	VERTICAL	Passed
7206.000000	39.40	93.33	35.20	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	23.40	14.79	25.40	-2.00	VERTICAL	Passed
7206.000000	26.50	21.13	22.30	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
38.035872	15.20	5.75	33.20	-18.00	VERTICAL	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
4887.269539	36.50	66.83	38.40	-1.90	VERTICAL	Passed
7312.121242	40.30	103.51	36.00	4.30	VERTICAL	Passed
7330.665331	40.50	105.93	36.10	4.40	VERTICAL	Passed
7418.837675	41.30	116.14	36.30	5.00	HORIZONTAL	Passed
17868.233467	58.00	794.33	32.70	25.30	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4884.269539	24.40	16.60	26.30	-1.90	VERTICAL	Passed
7308.121242	27.50	23.71	23.10	4.40	VERTICAL	Passed
7335.165331	27.70	24.27	23.20	4.50	VERTICAL	Passed
7419.837675	28.10	25.41	23.20	4.90	HORIZONTAL	Passed
17870.233467	44.90	175.79	19.50	25.40	VERTICAL	Passed

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	36.80	69.18	38.40	-1.60	VERTICAL	Passed
7440.000000	41.20	114.82	36.30	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	24.80	17.38	26.40	-1.60	VERTICAL	Passed
7440.000000	27.70	24.27	22.80	4.90	VERTICAL	Passed

6.2.1.2 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	35.50	59.57	37.50	-2.00	VERTICAL	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	23.00	14.13	25.00	-2.00	VERTICAL	Passed
7206.000000	26.40	20.89	22.20	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
37.876353	11.60	3.80	29.50	-17.90	VERTICAL	Passed
163.526453	0.80	1.10	27.70	-26.90	HORIZONTAL	Passed
880.459519	49.40	295.12	61.00	-11.60	VERTICAL	Passed

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

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
7336.667335	40.30	103.51	35.80	4.50	VERTICAL	Passed
7341.177355	41.10	113.50	36.40	4.70	VERTICAL	Passed
7420.343687	41.60	120.23	36.70	4.90	VERTICAL	Passed
17877.749499	57.60	758.58	32.20	25.40	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
7336.167335	27.70	24.27	23.20	4.50	VERTICAL	Passed
7340.677355	27.80	24.55	23.10	4.70	VERTICAL	Passed
7418.343687	28.60	26.92	23.60	5.00	VERTICAL	Passed
17874.749499	45.00	177.83	19.50	25.50	VERTICAL	Passed

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	36.80	69.18	38.40	-1.60	VERTICAL	Passed
7440.000000	41.10	113.50	36.20	4.90	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	24.20	16.22	25.80	-1.60	VERTICAL	Passed
7440.000000	27.80	24.55	22.90	4.90	VERTICAL	Passed

6.2.2 Phone flip closed

6.2.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	35.70	60.95	37.70	-2.00	VERTICAL	Passed
7206.000000	39.80	97.72	35.60	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	23.20	14.45	25.20	-2.00	VERTICAL	Passed
7206.000000	26.40	20.89	22.20	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
37.835872	21.80	12.30	39.70	-17.90	VERTICAL	Passed
879.157515	49.80	309.03	61.40	-11.60	VERTICAL	Passed

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

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4942.887776	36.00	63.10	37.70	-1.70	VERTICAL	Passed
7327.153307	40.20	102.33	36.00	4.20	HORIZONTAL	Passed
7336.673347	40.30	103.51	35.80	4.50	VERTICAL	Passed
7404.805611	41.10	113.50	35.70	5.40	VERTICAL	Passed
7424.345691	41.00	112.20	36.20	4.80	VERTICAL	Passed
17878.763527	57.50	749.89	32.10	25.40	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4940.887776	23.50	14.96	25.10	-1.60	VERTICAL	Passed
7325.153307	27.00	22.39	22.80	4.20	HORIZONTAL	Passed
7340.173347	27.60	23.99	23.00	4.60	VERTICAL	Passed
7403.305611	27.90	24.83	22.50	5.40	VERTICAL	Passed
7424.845691	28.30	26.00	23.50	4.80	VERTICAL	Passed
17881.263527	44.80	173.78	19.40	25.40	VERTICAL	Passed

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	37.80	77.62	39.40	-1.60	VERTICAL	Passed
7440.000000	40.40	104.71	35.50	4.90	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	25.30	18.41	26.90	-1.60	VERTICAL	Passed
7440.000000	27.70	24.27	22.80	4.90	VERTICAL	Passed

6.2.2.2 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	36.30	65.31	38.30	-2.00	HORIZONTAL	Passed
7206.000000	39.00	89.13	34.80	4.20	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	22.90	13.96	24.90	-2.00	VERTICAL	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
40.140681	9.80	3.09	29.20	-19.40	VERTICAL	Passed
50.802806	15.60	6.03	42.40	-26.80	VERTICAL	Passed
73.967535	3.60	1.51	30.70	-27.10	VERTICAL	Passed
241.682766	2.60	1.35	27.70	-25.10	VERTICAL	Passed

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1220.432866	36.30	65.31	43.90	-7.60	VERTICAL	Passed
4917.835671	36.20	64.57	37.80	-1.60	VERTICAL	Passed
4960.419840	37.20	72.44	38.80	-1.60	VERTICAL	Passed
7330.165331	41.50	118.85	37.20	4.30	VERTICAL	Passed
7340.673347	40.30	103.51	35.60	4.70	VERTICAL	Passed
7422.837675	41.00	112.20	36.20	4.80	VERTICAL	Passed
17471.449900	51.10	358.92	31.80	19.30	VERTICAL	Passed
17872.241483	57.20	724.44	31.80	25.40	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4916.335671	23.70	15.31	25.30	-1.60	VERTICAL	Passed
4958.919840	24.00	15.85	25.60	-1.60	VERTICAL	Passed
7332.673347	27.60	23.99	23.20	4.40	VERTICAL	Passed
7336.165331	27.60	23.99	23.10	4.50	VERTICAL	Passed
7416.837675	28.50	26.61	23.50	5.00	VERTICAL	Passed
17473.949900	38.10	80.35	18.80	19.30	VERTICAL	Passed
17874.741483	44.80	173.78	19.30	25.50	HORIZONTAL	Passed

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	36.80	69.18	38.40	-1.60	VERTICAL	Passed
7440.000000	40.70	108.39	35.80	4.90	VERTICAL	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	VERTICAL	Passed
7440.000000	27.80	24.55	22.90	4.90	VERTICAL	Passed

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

EUT with DUT number	RM-277 Dut # 27493
Accessories with DUT numbers	BL-5C Dut # 27494 + AC-3U Dut # 27495 + HS-47 Dut # 27752
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	22.7 / 32.0 1002.0
Date of measurements	20-03-2007
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.

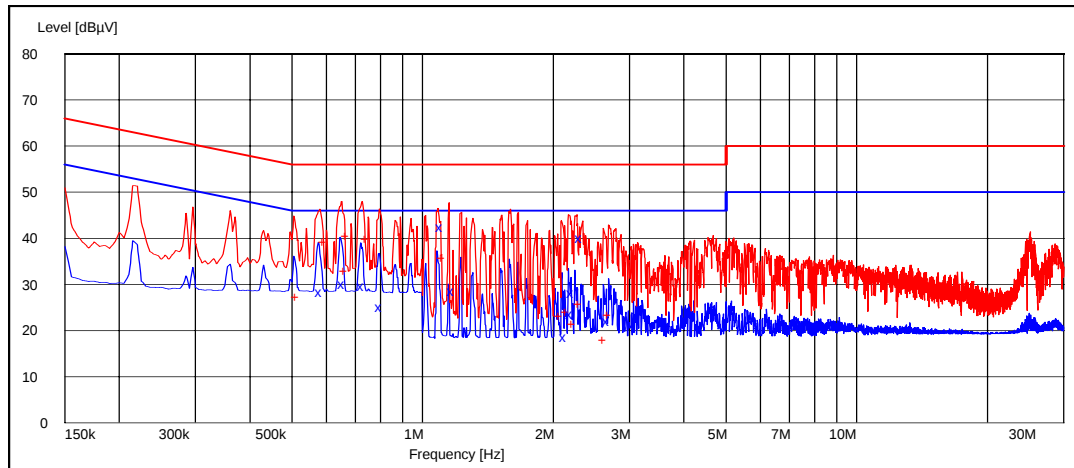
CISPR 22 Class B limits

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)

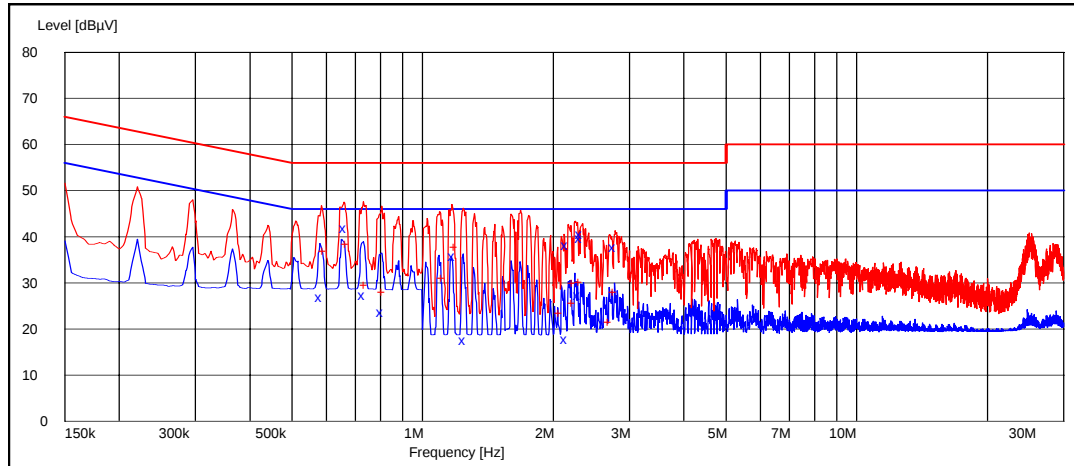
Frequency [MHz]	U [dBμV]	Line	Result
0.585000	28.30	N	Passed
0.660000	30.10	N	Passed
0.730000	29.60	N	Passed
0.805000	25.10	N	Passed
1.110000	42.40	N	Passed
1.180000	28.60	N	Passed
2.135000	18.60	L1	Passed
2.210000	23.70	N	Passed
2.225000	28.20	N	Passed
2.320000	40.00	N	Passed
2.685000	22.00	N	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.515000	27.30	N	Passed
0.595000	39.20	N	Passed
0.665000	33.00	N	Passed
0.670000	40.60	N	Passed
0.745000	39.90	N	Passed
1.115000	35.80	N	Passed
2.080000	23.20	N	Passed
2.155000	24.10	N	Passed
2.230000	21.40	N	Passed
2.310000	25.80	N	Passed
2.630000	18.00	N	Passed
2.695000	23.40	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
0.585000	26.90	N	Passed
0.665000	41.90	L1	Passed
0.735000	27.40	N	Passed
0.810000	23.70	L1	Passed
1.185000	35.80	N	Passed
1.255000	17.50	N	Passed
2.150000	17.80	L1	Passed
2.155000	38.20	L1	Passed
2.300000	27.40	L1	Passed
2.320000	39.70	N	Passed
2.330000	40.60	N	Passed
2.780000	37.70	N	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.595000	36.90	N	Passed
0.670000	38.50	N	Passed
0.740000	29.60	N	Passed
0.815000	28.10	N	Passed
1.115000	31.00	N	Passed
1.195000	37.70	N	Passed
2.080000	23.40	L1	Passed
2.230000	25.60	N	Passed
2.235000	30.00	N	Passed
2.315000	30.20	N	Passed
2.705000	21.50	L1	Passed
2.775000	28.00	N	Passed

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

EUT with DUT number	RM-277 dut 27496, BL-5C dut 27497
Accessories with DUT numbers	HS-47 dut 27732, AC-3E dut 27490
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.7 / 37.5 1003.4
Date of measurements	20-03-2007
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

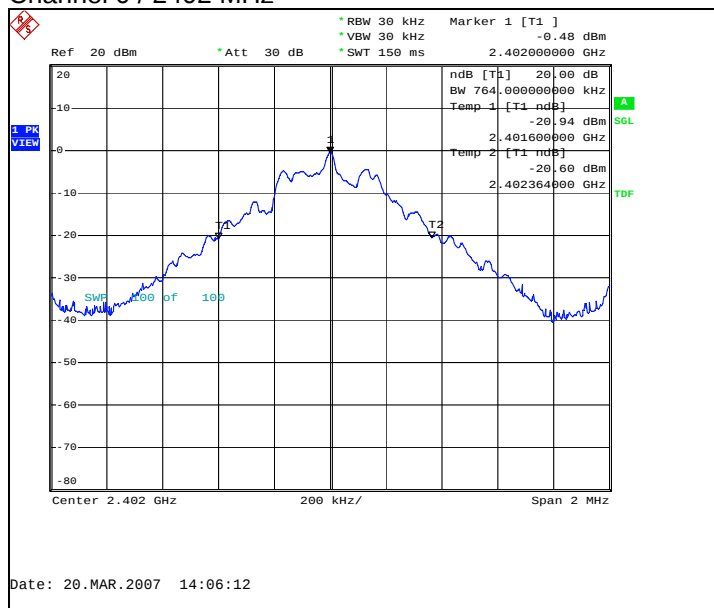
Limit [MHz]
N/A

8.2. Bluetooth Test results

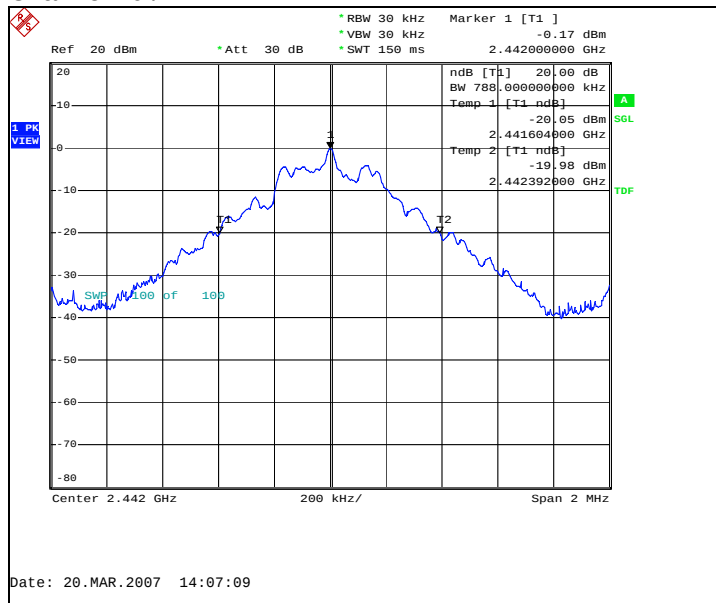
8.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	764.000	Passed
40 / 2442	788.000	Passed
78 / 2480	768.000	Passed

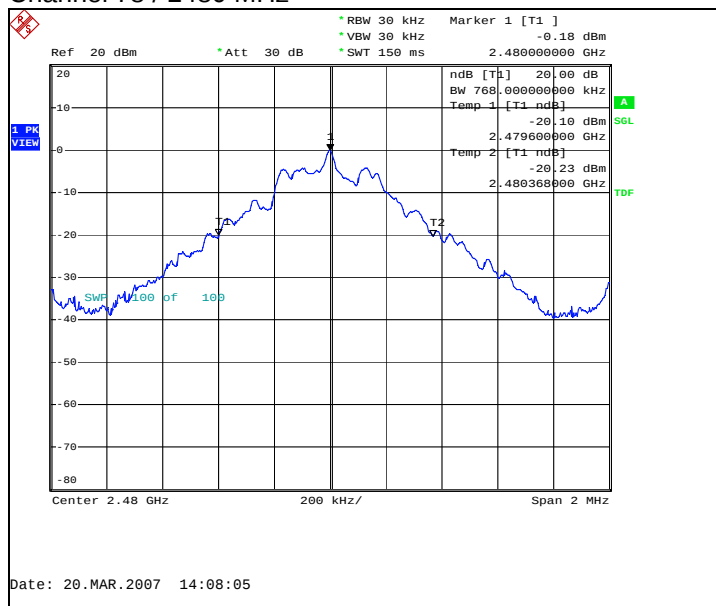
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



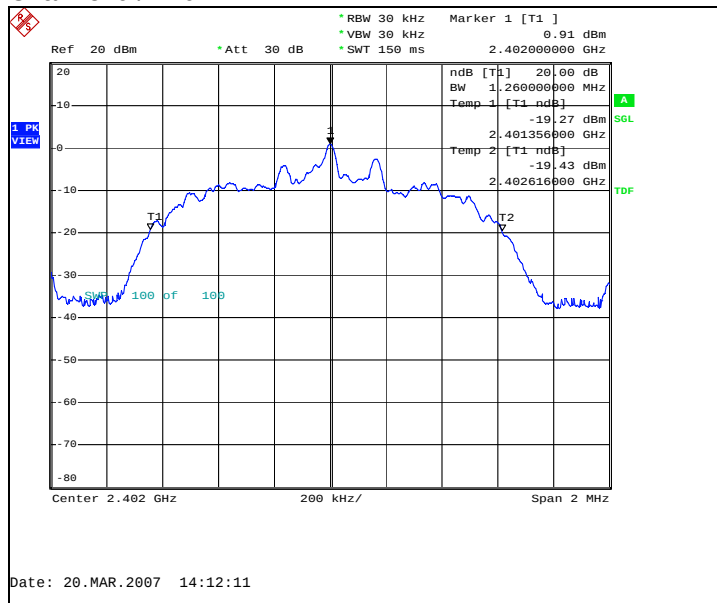
Channel 78 / 2480 MHz



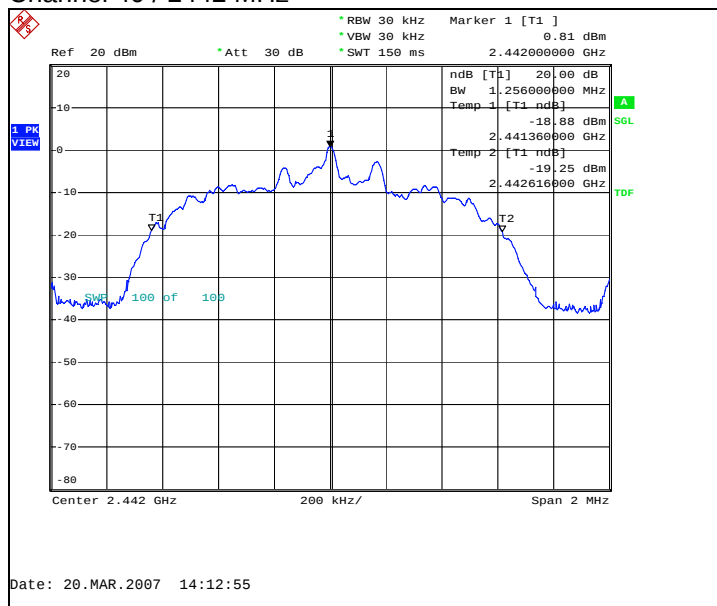
8.2.2 8DPSK modulation, PRBS packet type

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

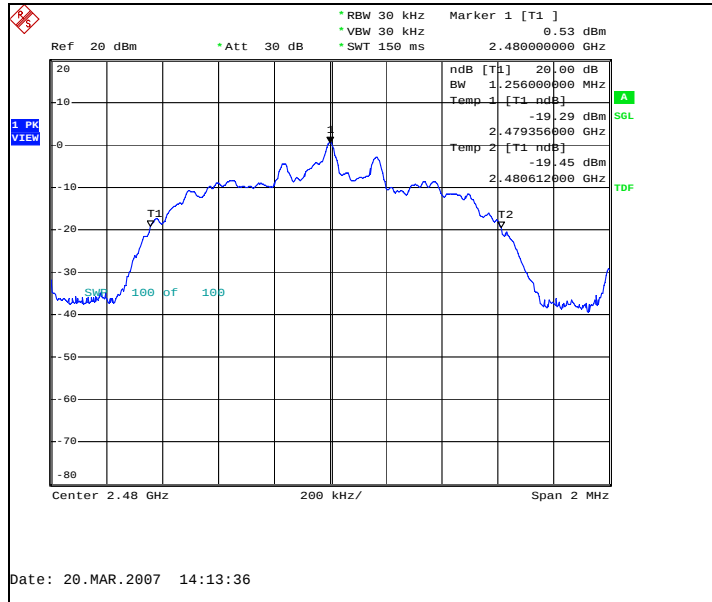
Channel 0 / 2402 MHz



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-277 dut 27496, BL-5C dut 27497
Accessories with DUT numbers	HS-47 dut 27732, AC-3E dut 27490
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.7 / 37.5 1003.4
Date of measurements	20-03-2007
Measured by	Jan Engelbrechtsen

9.1. Test method and limit

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

Limits for carrier frequency separation measurements

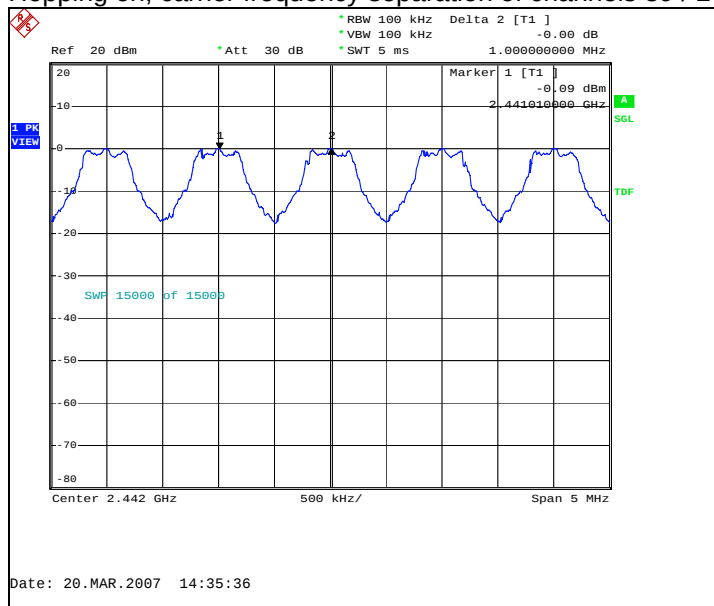
Limit [MHz]
≥ 0.025 or 2/3 of the 20 dB bandwidth

9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1000	Passed

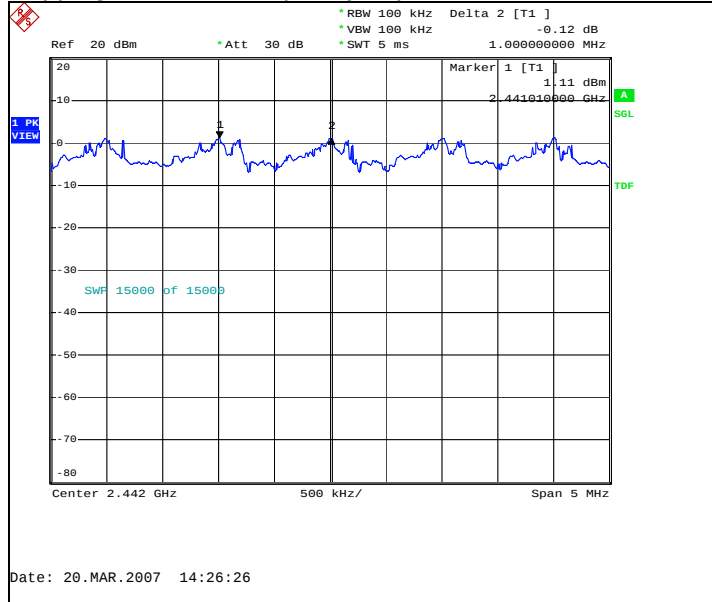
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



9.2.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1000	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-277 dut 27496, BL-5C dut 27497
Accessories with DUT numbers	HS-47 dut 27732, AC-3E dut 27490
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.7 / 37.5 1003.4
Date of measurements	20-03-2007
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

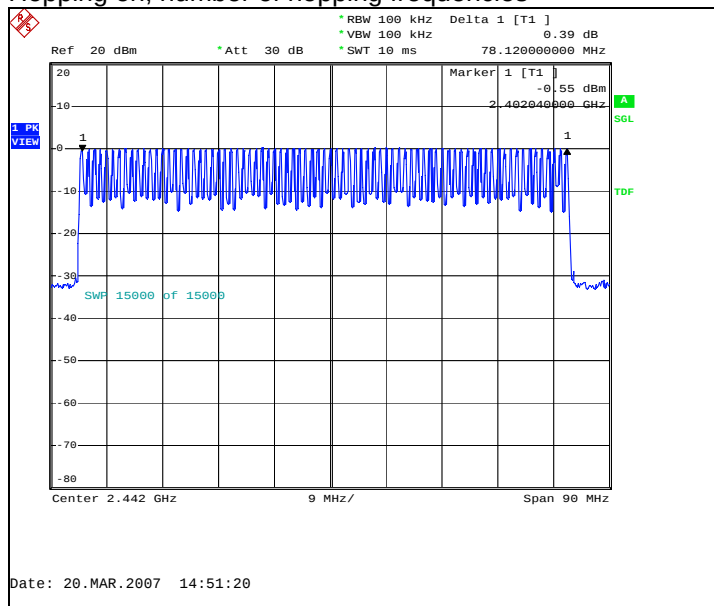
Limit [number]
≥ 15

10.2. Bluetooth Test results

10.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	Passed

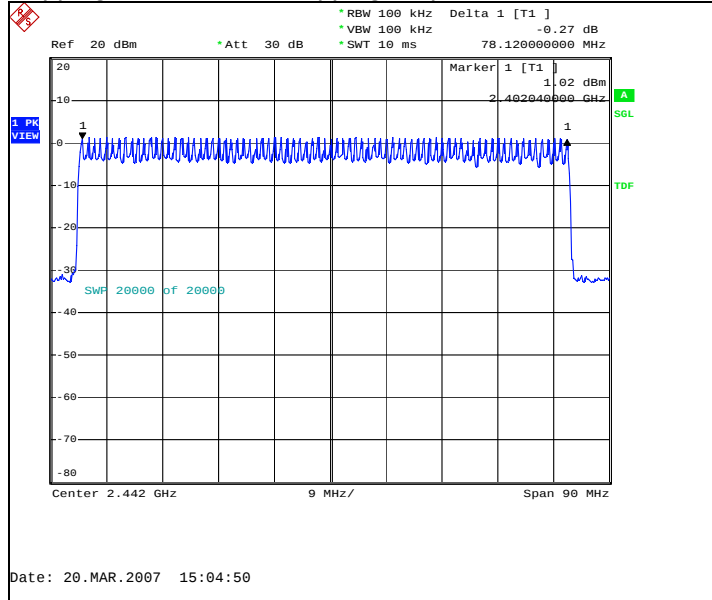
Hopping on, number of hopping frequencies



10.2.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	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-277 dut 27496, BL-5C dut 27497
Accessories with DUT numbers	HS-47 dut 27732, AC-3E dut 27490
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	24.7 / 37.5 1003.4
Date of measurements	20-03-2007
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

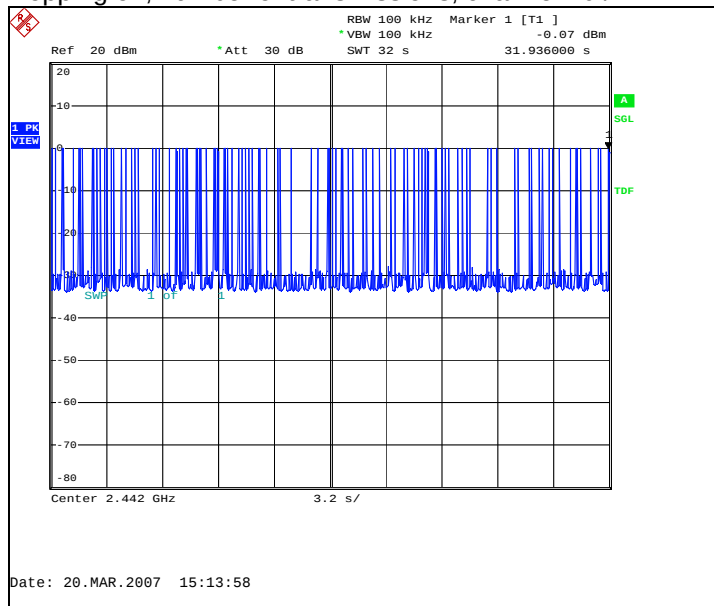
Limit [s]
≤ 0.4

11.2. Bluetooth test results

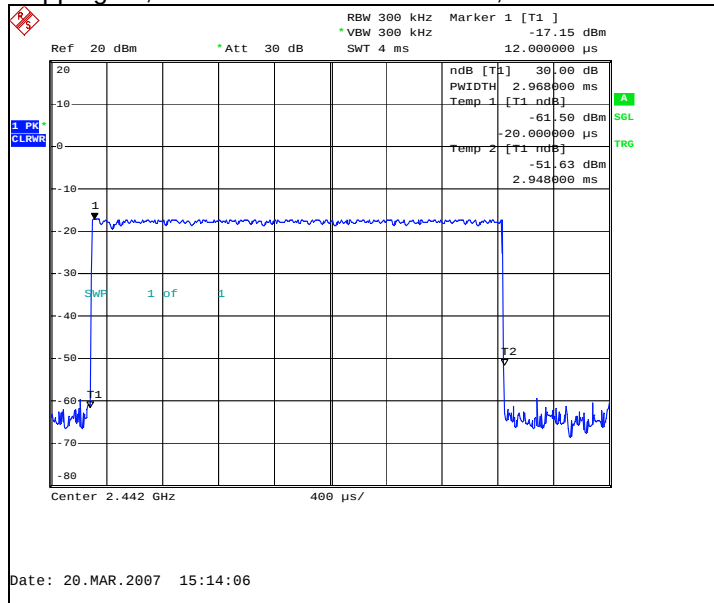
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μs]	Time of occupancy [s]	Result
93	2968	0.276024	Passed

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



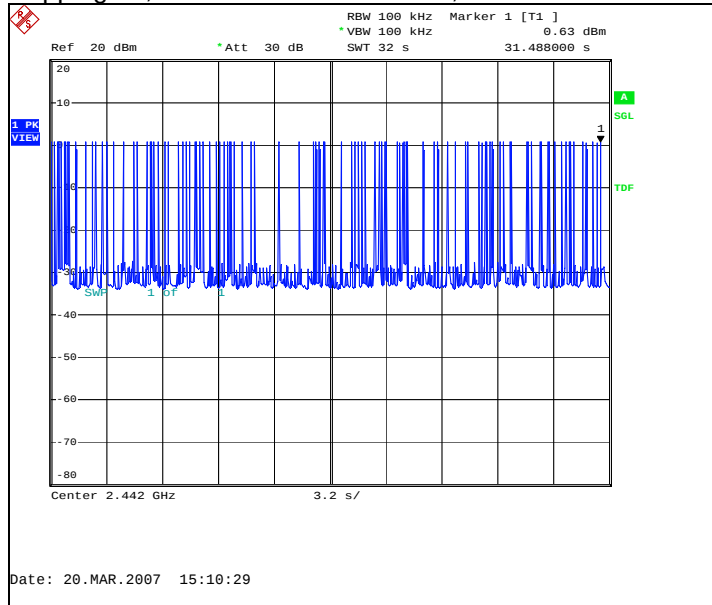
Hopping on, duration of one transmission, channel 40 / 2442 MHz



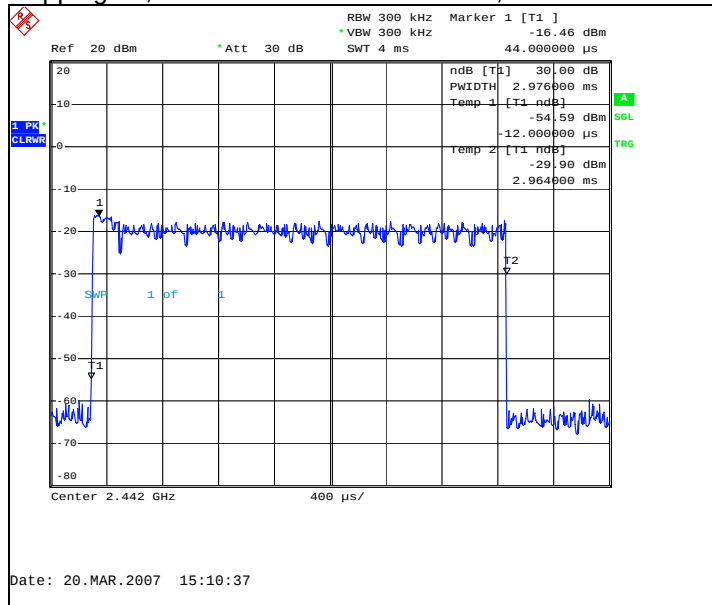
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
88	2976	0.261888	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 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, 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