

FCC Part 15C Compliance Test Report

Test Report no.:	Tre_FCC_0717_6.doc	Date of Report:	4.5.2007
Number of pages:	38	Customer's Contact person:	Helen Hu
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FCC listing no.:	94436		
IC recognition no.:	3608		
Tested devices/ accessories:	GSM-phone RM-259, AC-Charger AC-3, Headset HS-47, Battery BL-4B		
FCC ID:	QTLRM-259	IC:	661AB-RM259
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:			

Jari Jantunen, System Manager

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	20.4.2007
Testing completed	30.4.2007
The customer's contact person	Helen Hu
Test Plan referred to	T:\Projects\
Notes	-
Document name	T:\Projects\RM-259\EMC\Results\FCC\Tre_FCC_0717_6.doc

1.1. EUT and Accessory Information

The EUT is a 2-band (GSM850/1900) mobile phone with GPRS and Bluetooth. Bluetooth is tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
GSM-phone	RM-259	001004002435320	0302	-	pa 3.02	41054
GSM-phone	RM-259	001004002435056	0302	-	Pa3.02	41078
Headset	HS-47	-	-	-	-	41049
AC-Charger	AC-3	-	-	-	-	41052
Battery	BL-4B	-	-	-	-	41053

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 Tampere Laboratory.

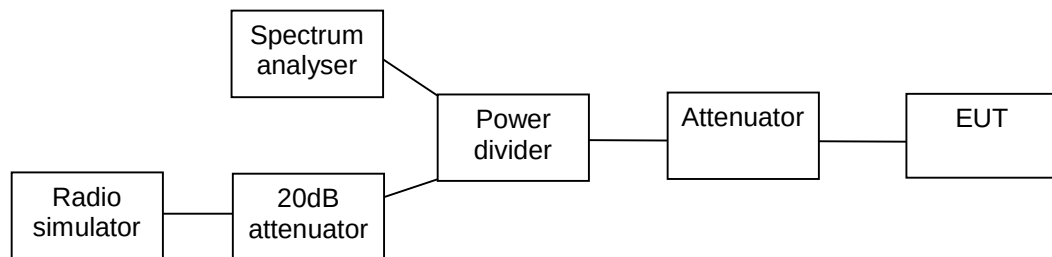
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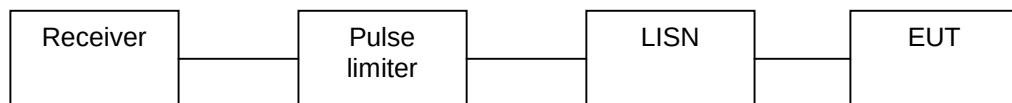
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2. Test setups

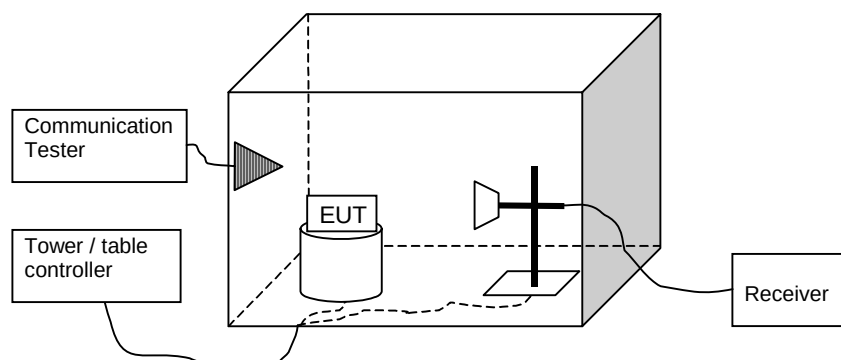
2.1. Conducted RF test setup



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-259 41078
Accessories with DUT numbers	AC-3 41052, HS-47 41049, BL-4B 41053
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20/45/101.7
Date of measurements	27.4.2007
Measured by	Petteri Suni

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

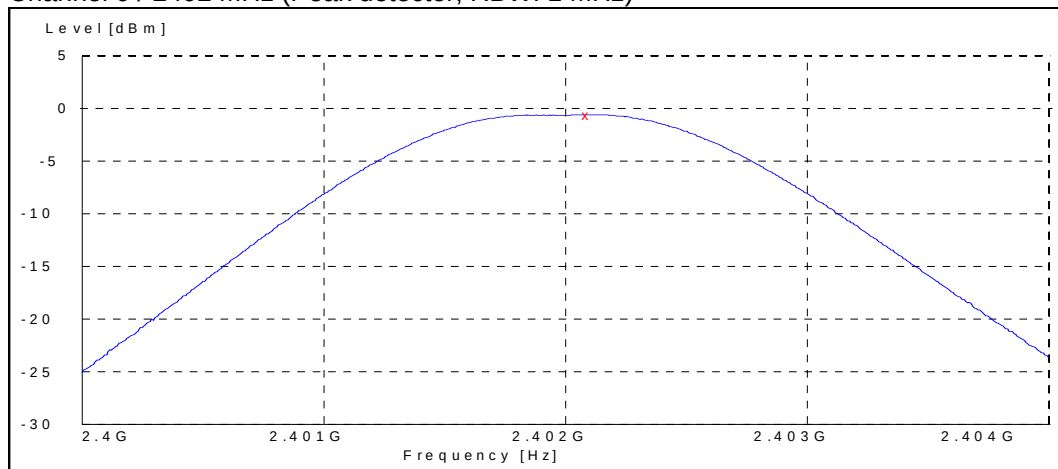
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

3.2. Bluetooth Test results

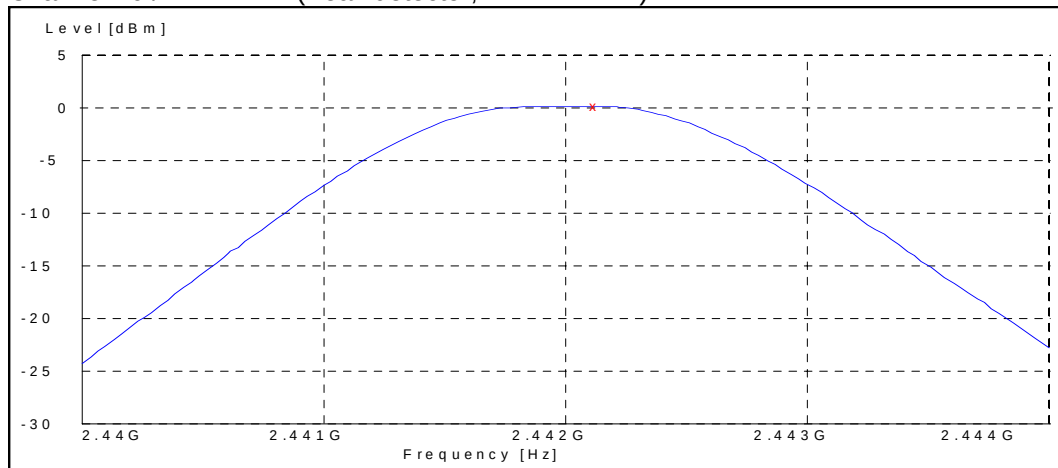
3.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-0.60	0.871	PASSED
40 / 2442	0.20	1.047	PASSED
78 / 2480	0.40	1.096	PASSED

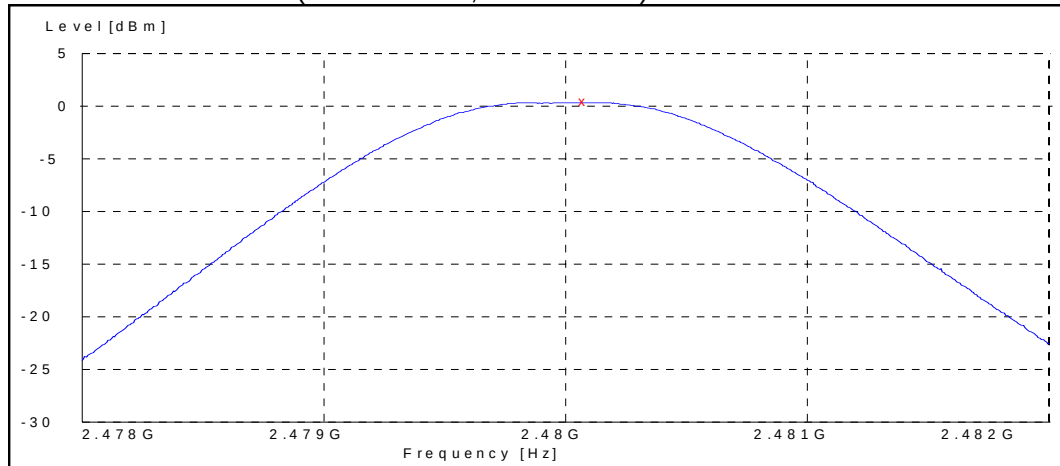
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz)



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



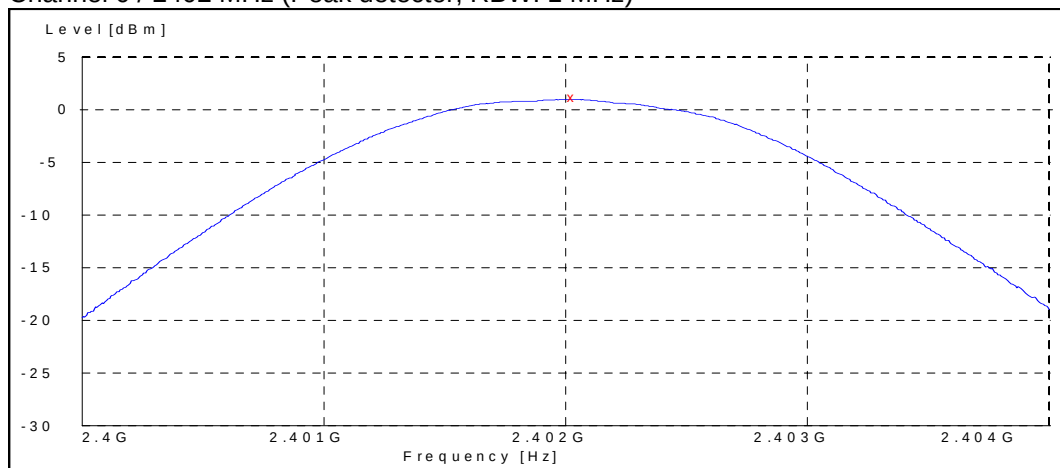
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz)



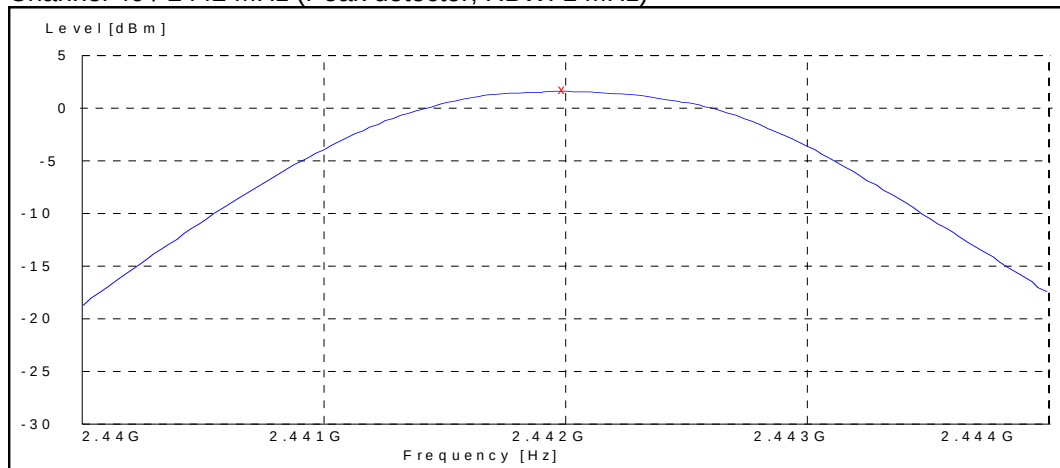
3.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	1.20	1.318	PASSED
40 / 2442	1.80	1.514	PASSED
78 / 2480	1.90	1.549	PASSED

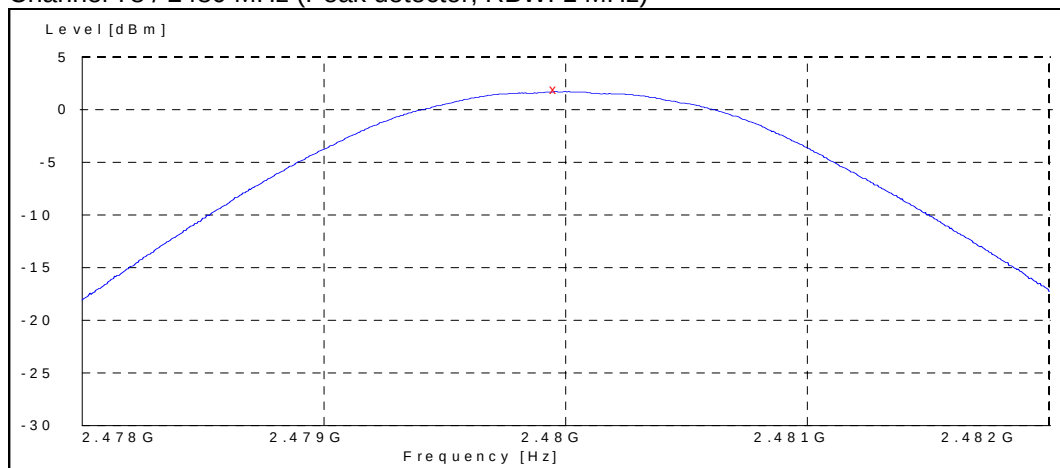
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz)



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-259 41054
Accessories with DUT numbers	AC-3 41052, HS-47 41049, BL-4B 41053
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22-23 / 44-45 / 101.8-102.2
Date of measurements	29-30.4.2007
Measured by	Jari Jantunen

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

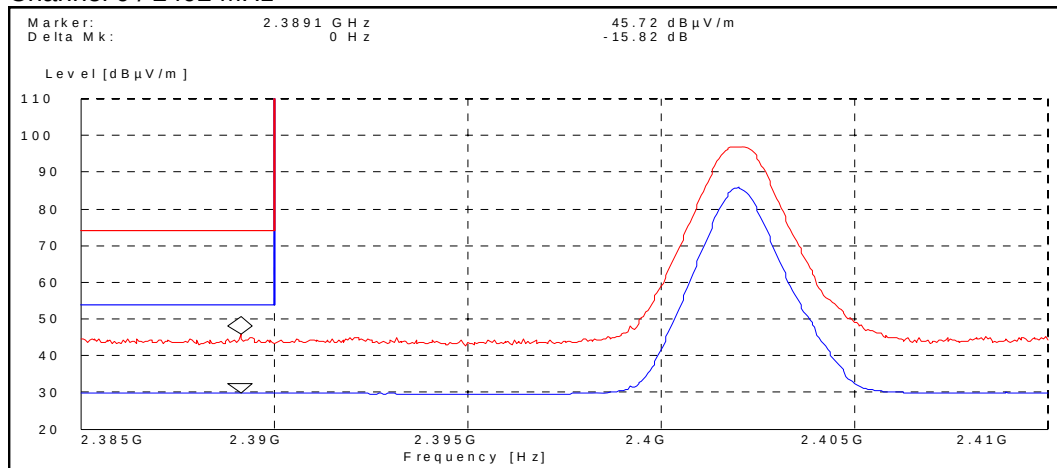
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	29.90	PASSED
78 / 2480	30.92	PASSED
Hopping on, low end	34.73	PASSED
Hopping on, high end	45.74	PASSED

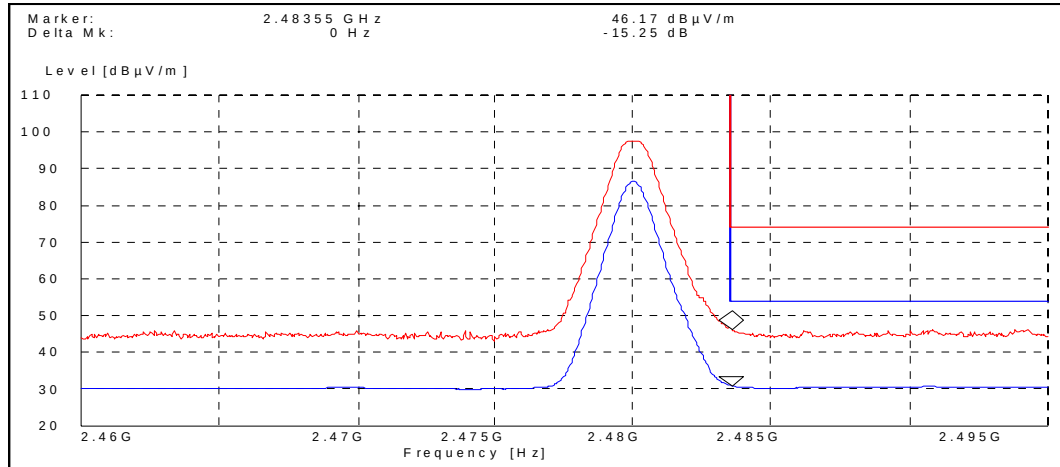
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	45.72	PASSED
78 / 2480	46.17	PASSED
Hopping on, low end	46.61	PASSED
Hopping on, high end	50.41	PASSED

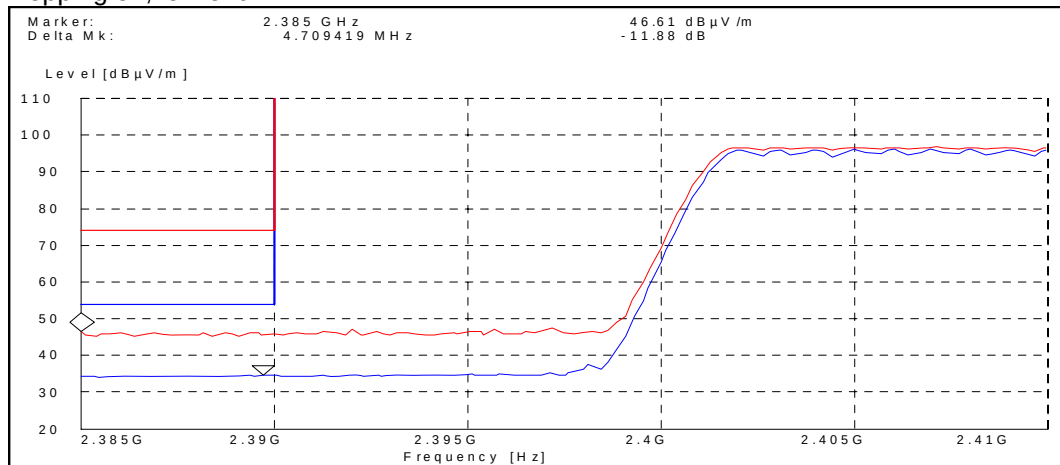
Channel 0 / 2402 MHz



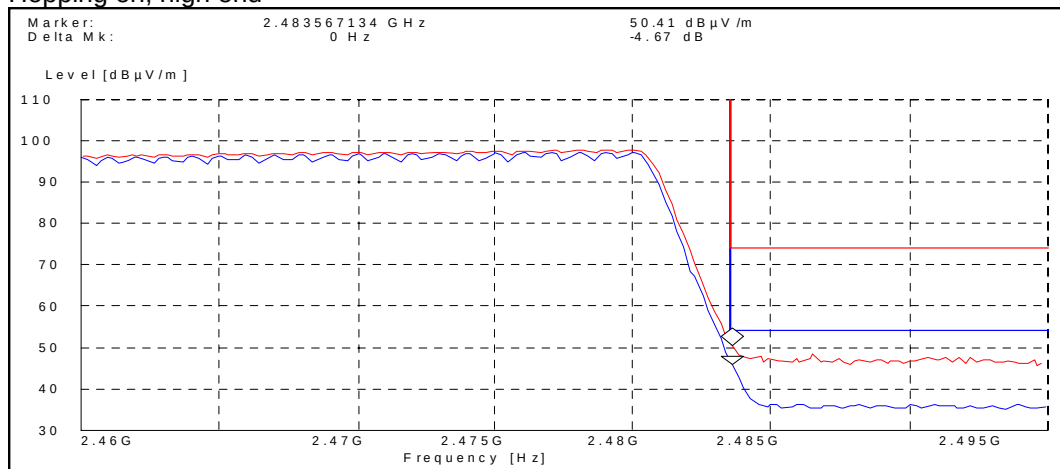
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



4.2.2 8DPSK modulation, PRBS packet type

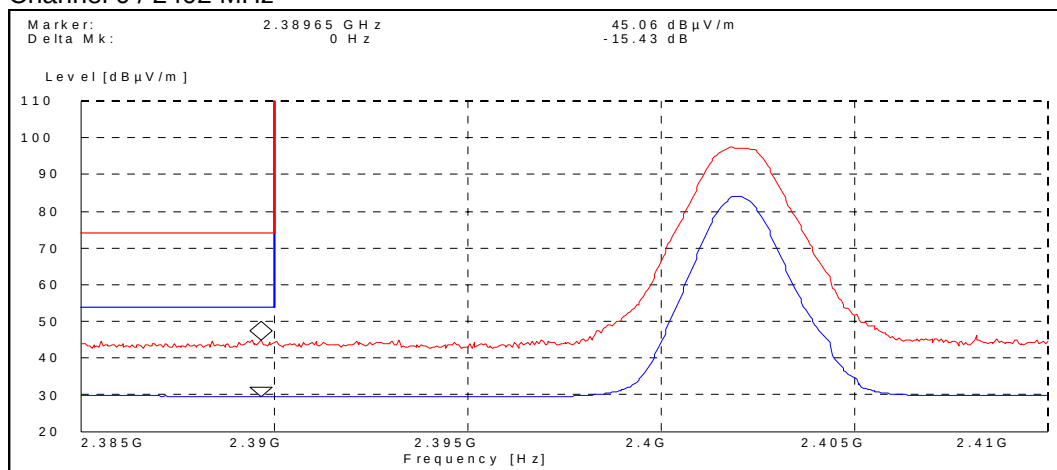
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	29.63	PASSED
78 / 2480	31.43	PASSED
Hopping on, low end	34.75	PASSED
Hopping on, high end	48.12	PASSED

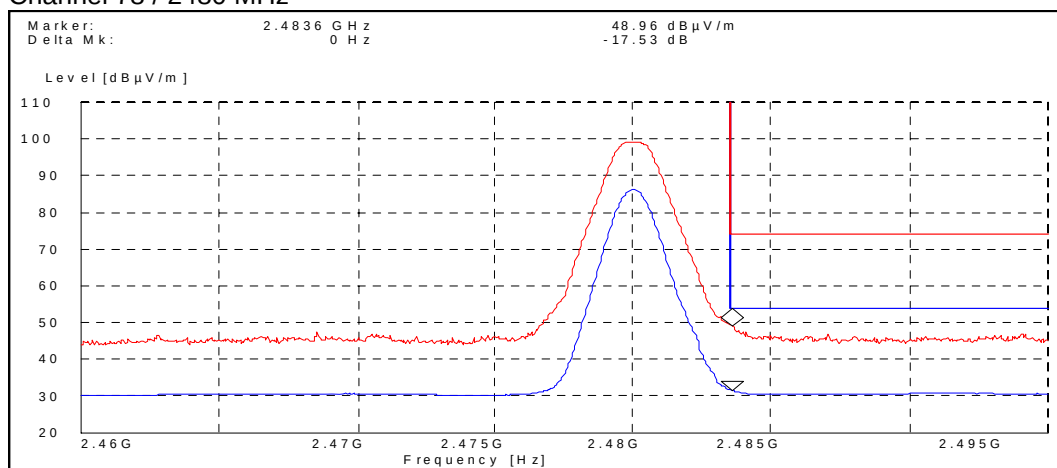
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	45.06	PASSED
78 / 2480	48.96	PASSED
Hopping on, low end	46.59	PASSED
Hopping on, high end	53.86	PASSED

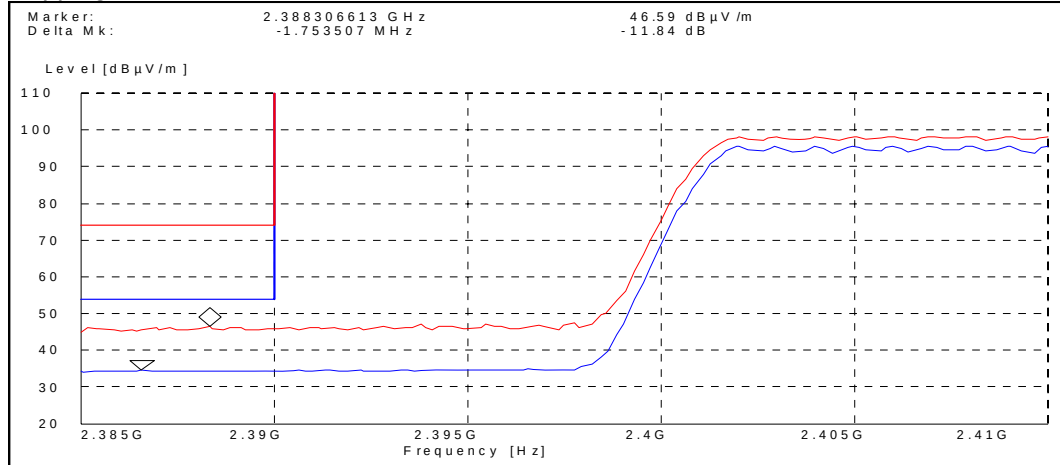
Channel 0 / 2402 MHz



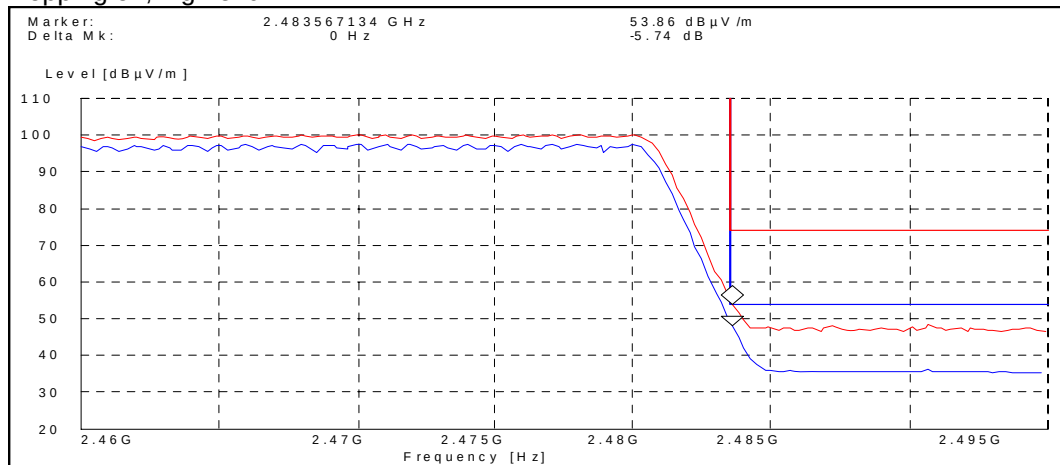
Channel 78 / 2480 MHz



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-259 41078
Accessories with DUT numbers	AC-3 41052, HS-47 41049, BL-4B 41053
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20/45/101.7
Date of measurements	27.4.2007
Measured by	Petteri Suni

5.1. Test method and limit

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

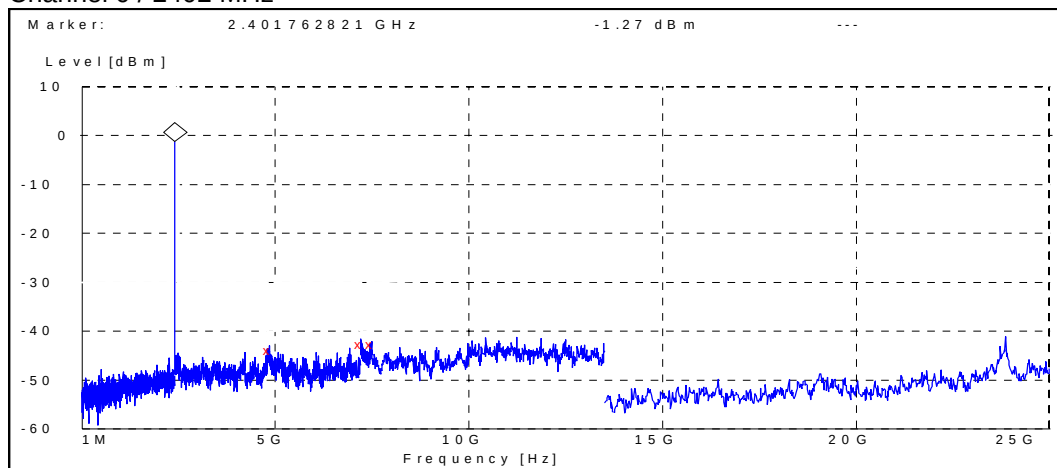
Limits for spurious RF conducted emissions measurements

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

5.2. Bluetooth Test results

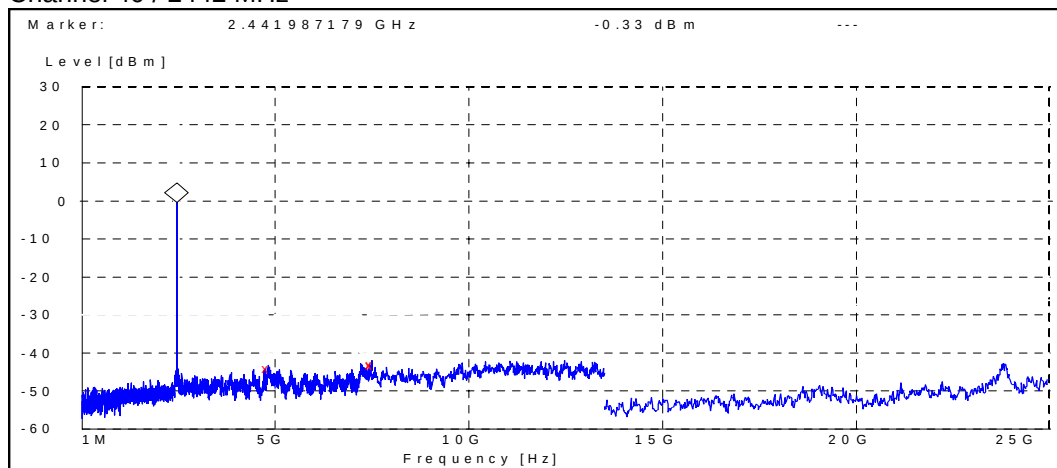
5.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



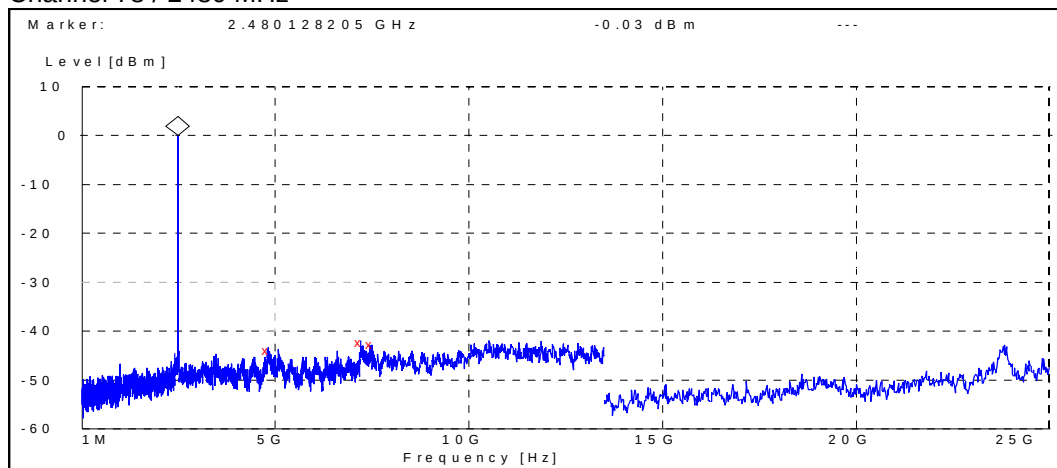
Frequency [MHz]	P [dBc]	Result
4858.012821	-42.834203	PASSED
7202.403846	-41.434203	PASSED
7500.000000	-41.434203	PASSED

Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4821.794872	-43.671549	PASSED
7494.711538	-42.971549	PASSED
7500.000000	-42.671549	PASSED

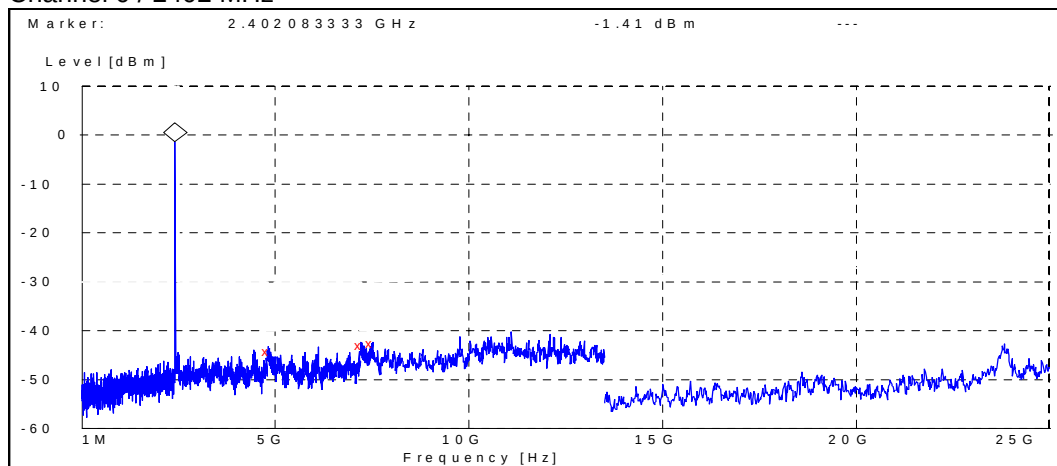
Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4816.666667	-43.867247	PASSED
7203.365385	-42.267247	PASSED
7500.000000	-42.667247	PASSED

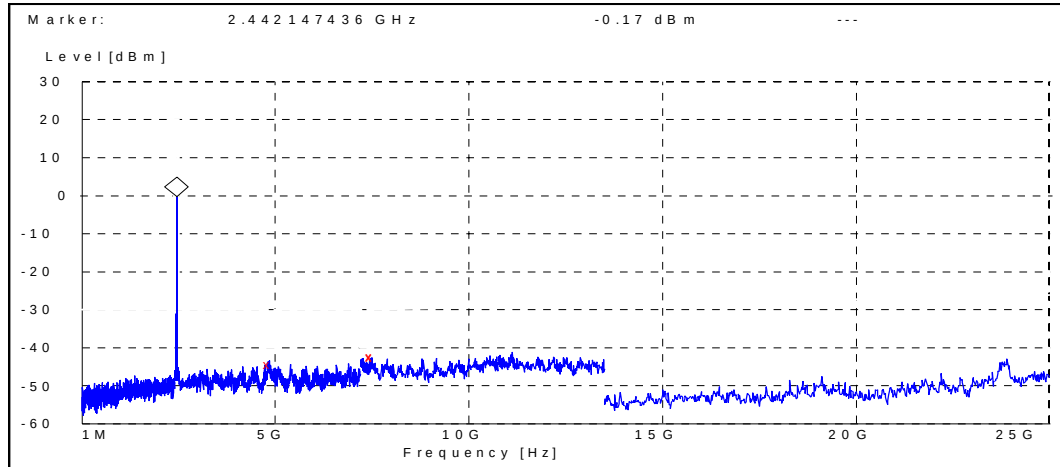
5.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



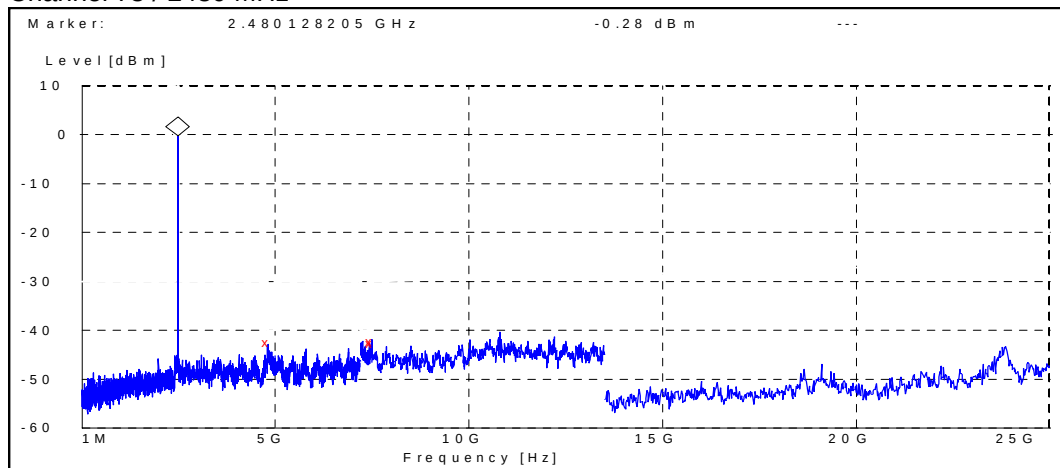
Frequency [MHz]	P [dBc]	Result
4820.192308	-42.887912	PASSED
7203.846154	-41.587912	PASSED
7500.000000	-41.087912	PASSED

Channel 40 / 2442 MHz



Frequency [MHz]	P [dBc]	Result
4835.256410	-44.133127	PASSED
7494.230769	-42.433127	PASSED
7500.000000	-42.133127	PASSED

Channel 78 / 2480 MHz



Frequency [MHz]	P [dBc]	Result
4806.410256	-42.222320	PASSED
7488.461538	-42.422320	PASSED
7500.000000	-42.022320	PASSED

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

EUT with DUT number	RM-259 41054
Accessories with DUT numbers	AC-3 41052, HS-47 41049, BL-4B 41053
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22-23 / 44-45 / 101.8-102.2
Date of measurements	29-30.4.2007
Measured by	Jari Jantunen

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	40.20	102.33	41.90	-1.7	HORIZONTAL	PASSED
7206.000000	42.10	127.35	40.40	1.7	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	26.90	22.13	28.60	-1.7	HORIZONTAL	PASSED
7206.000000	28.40	26.30	26.70	1.7	HORIZONTAL	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
37.895391	7.40	2.34	18.60	-11.2	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
2498.512024	45.10	179.89	38.80	6.3	VERTICAL	PASSED
2885.129259	47.00	223.87	38.20	8.8	VERTICAL	PASSED
3799.099198	38.90	88.10	41.30	-2.4	VERTICAL	PASSED
4899.793587	40.80	109.65	42.30	-1.5	VERTICAL	PASSED
4915.331663	40.00	100.00	41.40	-1.4	HORIZONTAL	PASSED
7272.045090	43.10	142.89	40.80	2.3	HORIZONTAL	PASSED
7282.065130	42.50	133.35	40.10	2.4	HORIZONTAL	PASSED
7422.839679	42.70	136.46	39.90	2.8	VERTICAL	PASSED
17979.455912	55.70	609.54	34.50	21.2	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
2492.012024	32.30	41.21	25.80	6.5	VERTICAL	PASSED
2885.129259	33.80	48.98	25.00	8.8	VERTICAL	PASSED
4900.293587	27.10	22.65	28.60	-1.5	VERTICAL	PASSED
4914.831663	27.20	22.91	28.60	-1.4	HORIZONTAL	PASSED
7269.045090	29.60	30.20	27.30	2.3	HORIZONTAL	PASSED
7284.565130	29.70	30.55	27.30	2.4	HORIZONTAL	PASSED
7421.339679	29.60	30.20	26.80	2.8	VERTICAL	PASSED
17979.955912	42.30	130.32	21.10	21.2	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	40.10	101.16	41.30	-1.2	HORIZONTAL	PASSED
7440.000000	42.70	136.46	40.00	2.7	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	27.30	23.17	28.50	-1.2	HORIZONTAL	PASSED
7440.000000	29.60	30.20	26.90	2.7	HORIZONTAL	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	39.80	97.72	41.50	-1.7	HORIZONTAL	PASSED
7206.000000	41.00	112.20	39.30	1.7	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	27.30	23.17	29.00	-1.7	HORIZONTAL	PASSED
7206.000000	28.40	26.30	26.70	1.7	HORIZONTAL	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
37.995391	7.50	2.37	18.80	-11.3	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4943.879760	39.80	97.72	41.00	-1.2	VERTICAL	PASSED
4955.409820	39.90	98.86	41.10	-1.2	HORIZONTAL	PASSED
7276.547094	43.10	142.89	40.70	2.4	HORIZONTAL	PASSED
7278.063126	42.70	136.46	40.30	2.4	VERTICAL	PASSED
7401.309619	42.60	134.90	39.80	2.8	HORIZONTAL	PASSED
17997.991984	55.70	609.54	34.40	21.3	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3798.599198	25.80	19.50	28.20	-2.4	VERTICAL	PASSED
4940.379760	27.30	23.17	28.60	-1.3	VERTICAL	PASSED
4953.909820	27.30	23.17	28.50	-1.2	HORIZONTAL	PASSED
7276.047094	29.60	30.20	27.20	2.4	HORIZONTAL	PASSED
7281.063126	29.70	30.55	27.30	2.4	VERTICAL	PASSED
7405.309619	29.60	30.20	26.80	2.8	HORIZONTAL	PASSED
17995.991984	42.40	131.83	21.10	21.3	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	39.70	96.61	40.90	-1.2	VERTICAL	PASSED
7440.000000	42.40	131.83	39.70	2.7	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	27.50	23.71	28.70	-1.2	HORIZONTAL	PASSED
7440.000000	29.60	30.20	26.90	2.7	HORIZONTAL	PASSED

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

EUT with DUT number	RM-259 41054
Accessories with DUT numbers	AC-3 41052, HS-47 41049, BL-4B 41053
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22/55/102.3
Date of measurements	28.4.2007
Measured by	Jari Jantunen

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.

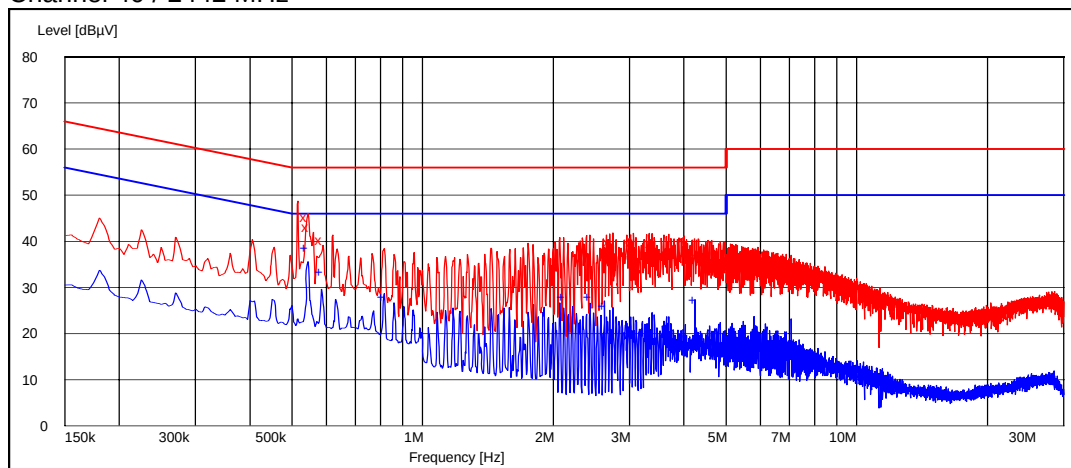
CISPR 22 Class B limits

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)

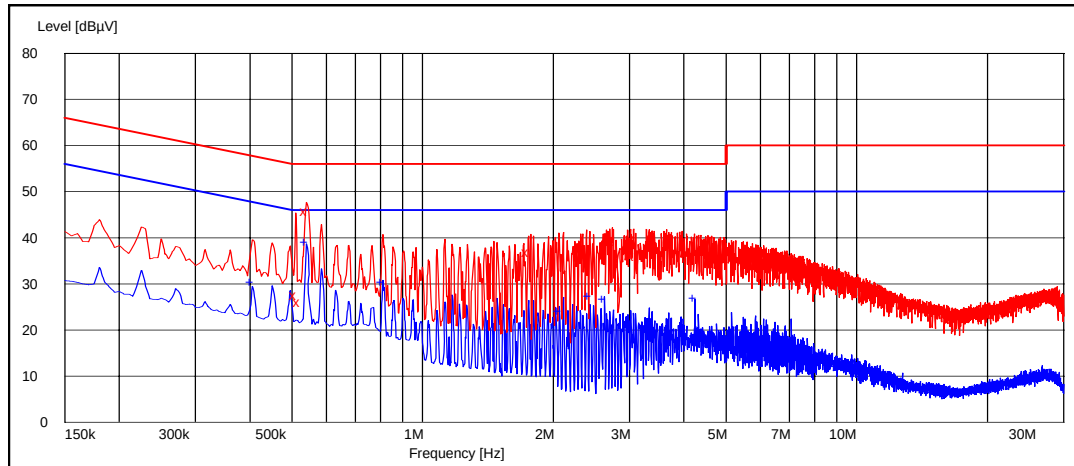
Frequency [MHz]	U [dBμV]	Line	Result
0.540000	45.20	L1	PASSED
0.545000	43.10	N	PASSED
0.585000	40.40	L1	PASSED
2.700000	39.90	L1	PASSED
3.050000	39.80	L1	PASSED
3.375000	39.60	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.540000	38.50	L1	PASSED
0.585000	33.40	L1	PASSED
0.815000	27.90	N	PASSED
2.115000	28.00	L1	PASSED
2.430000	27.80	L1	PASSED
2.625000	26.00	L1	PASSED
4.240000	27.30	N	PASSED

7.2.2 8DPSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.510000	27.50	N	PASSED
0.520000	26.10	N	PASSED
0.540000	45.90	L1	PASSED
1.750000	36.90	L1	PASSED
2.750000	39.20	L1	PASSED
3.055000	36.10	L1	PASSED
3.065000	39.70	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.405000	30.30	L1	PASSED
0.540000	39.00	L1	PASSED
0.810000	30.40	L1	PASSED
2.070000	24.20	L1	PASSED
2.430000	27.40	L1	PASSED
2.625000	26.70	N	PASSED
4.240000	26.80	L1	PASSED

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

EUT with DUT number	RM-259 41078
Accessories with DUT numbers	AC-3 41052, HS-47 41049, BL-4B 41053
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20/45/101.7
Date of measurements	27.4.2007
Measured by	Petteri Suni

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

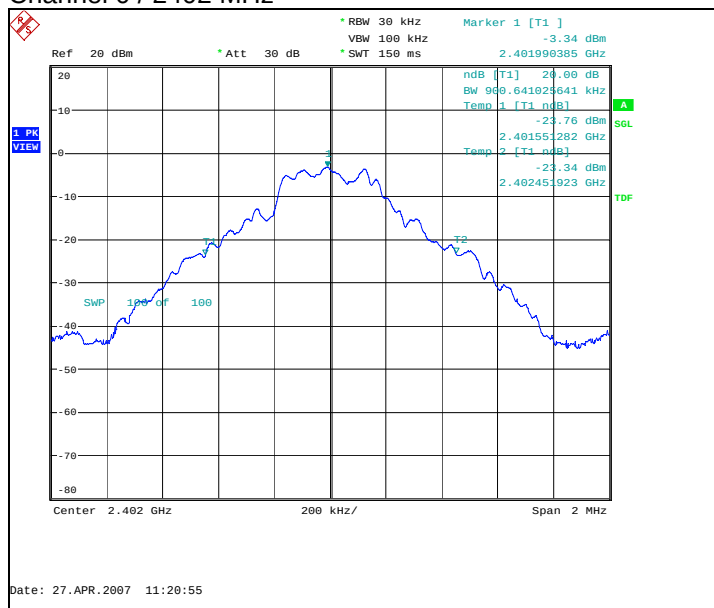
Limit [MHz]
N/A

8.2. Bluetooth Test results

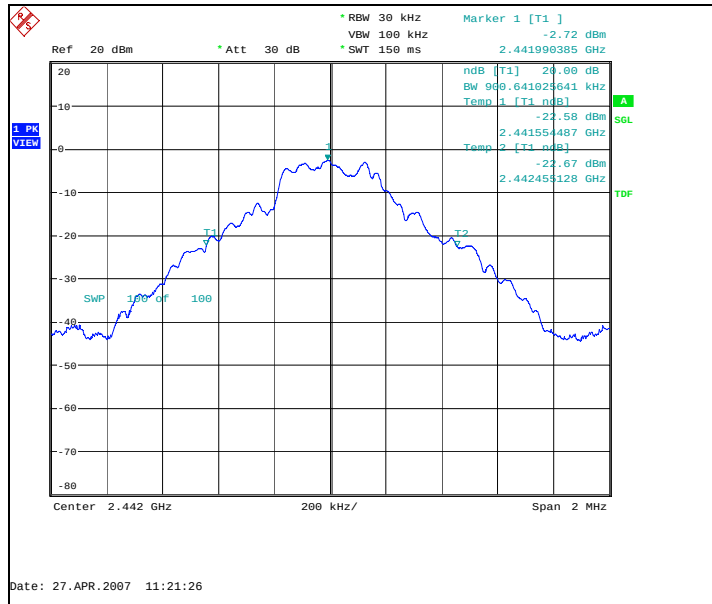
8.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	900.641	PASSED
40 / 2442	900.641	PASSED
78 / 2480	903.846	PASSED

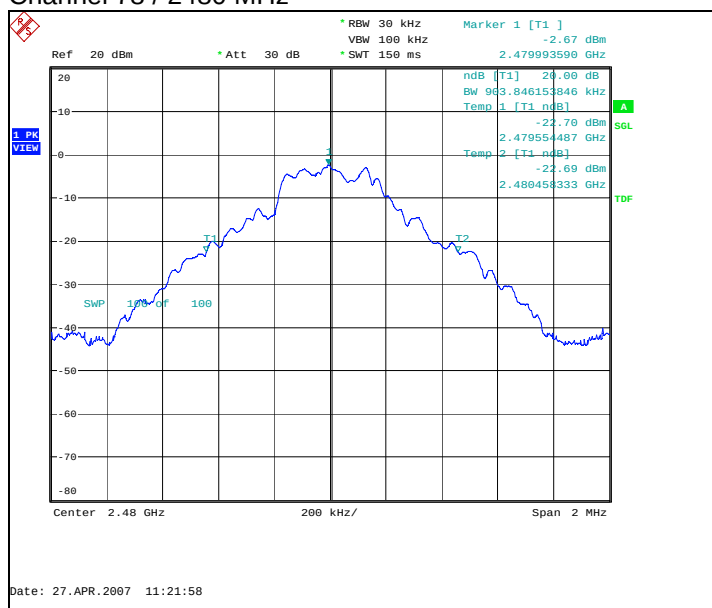
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



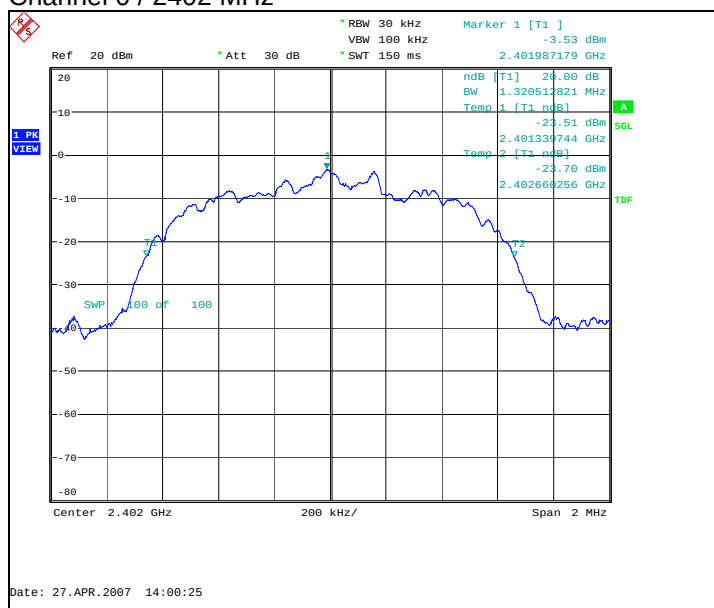
Channel 78 / 2480 MHz



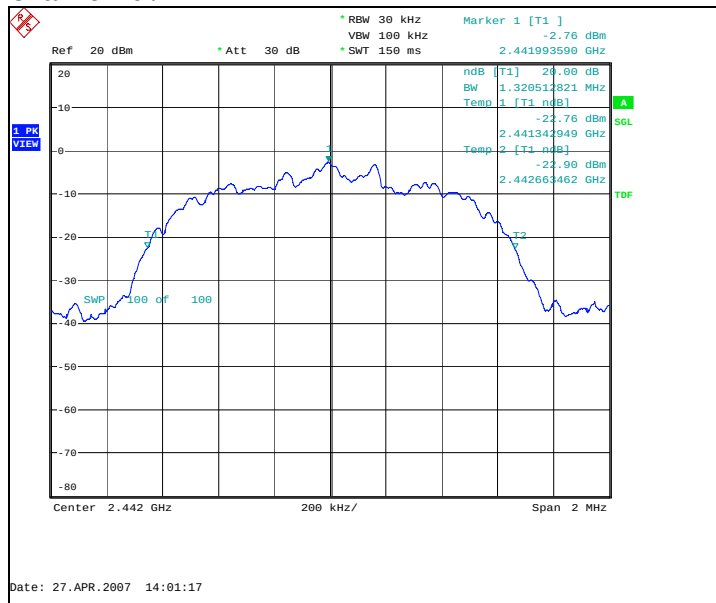
8.2.2 8DPSK modulation, PRBS packet type

Channel / f _c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1320.513	PASSED
40 / 2442	1320.513	PASSED
78 / 2480	1320.513	PASSED

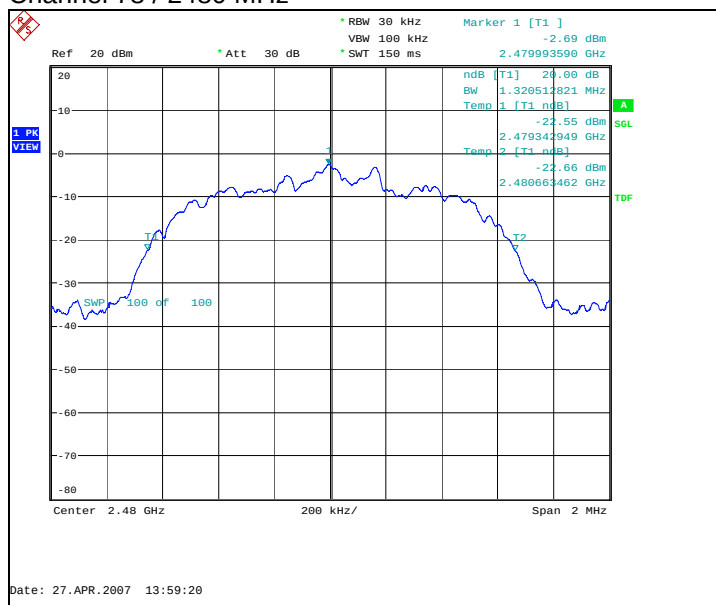
Channel 0 / 2402 MHz



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-259 41078
Accessories with DUT numbers	AC-3 41052, HS-47 41049, BL-4B 41053
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20/45/101.7
Date of measurements	27.4.2007
Measured by	Petteri Suni

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

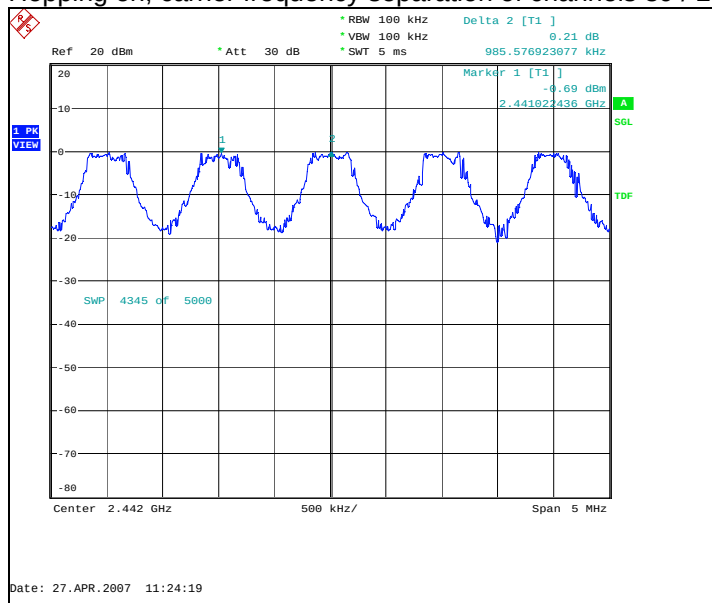
Limit [MHz]
≥ 0.025 or $2/3$ of the 20 dB bandwidth

9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
985.577	PASSED

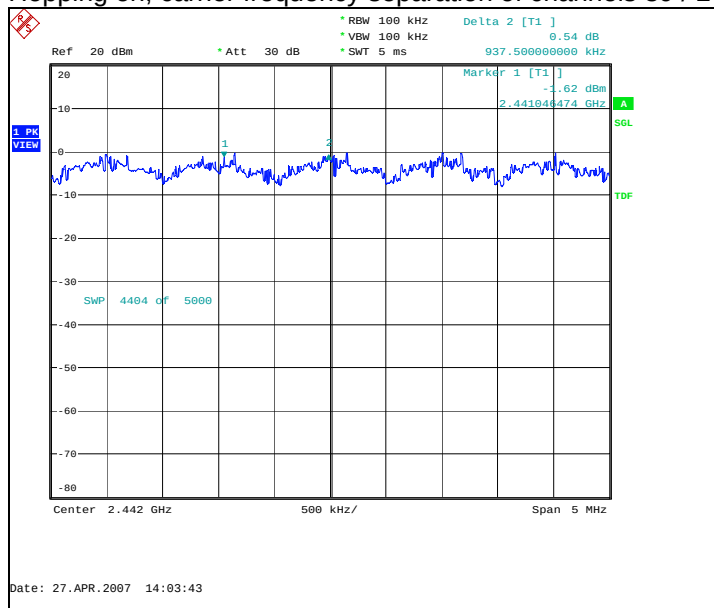
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



9.2.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
937.5	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-259 41078
Accessories with DUT numbers	AC-3 41052, HS-47 41049, BL-4B 41053
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20/45/101.7
Date of measurements	27.4.2007
Measured by	Petteri Suni

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

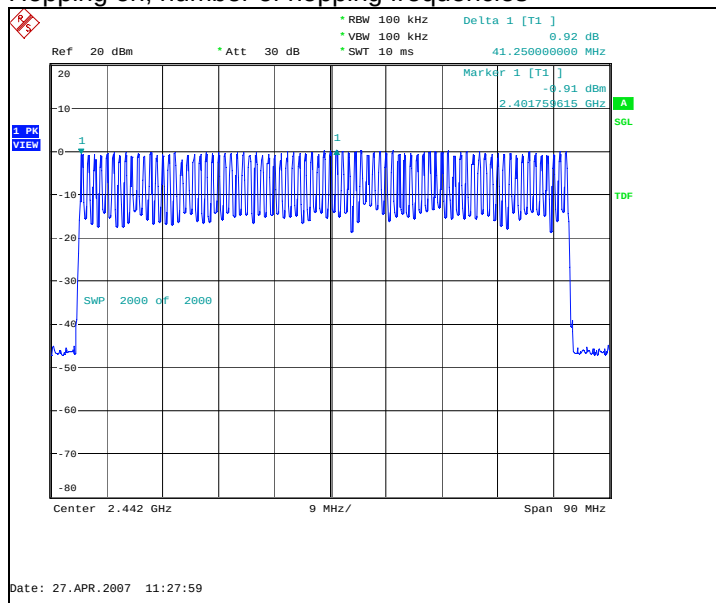
Limit [number]
≥ 15

10.2. Bluetooth Test results

10.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	PASSED

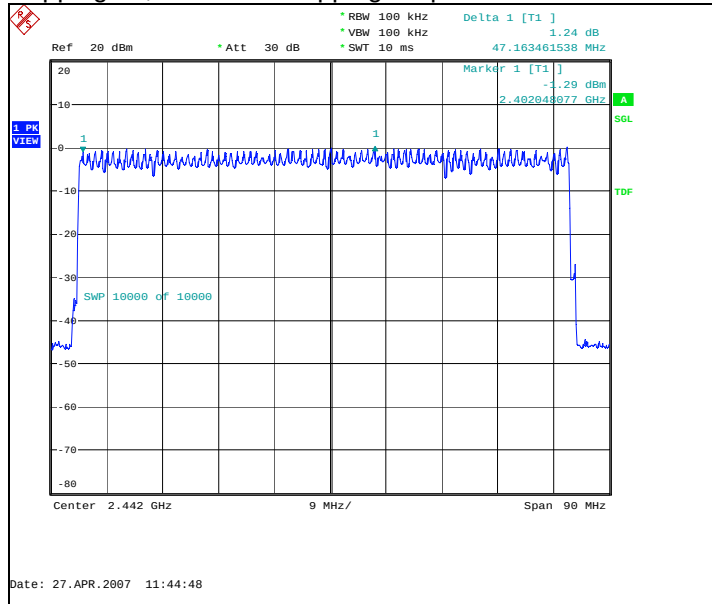
Hopping on, number of hopping frequencies



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-259 41078
Accessories with DUT numbers	AC-3 41052, HS-47 41049, BL-4B 41053
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20/45/101.7
Date of measurements	27.4.2007
Measured by	Petteri Suni

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

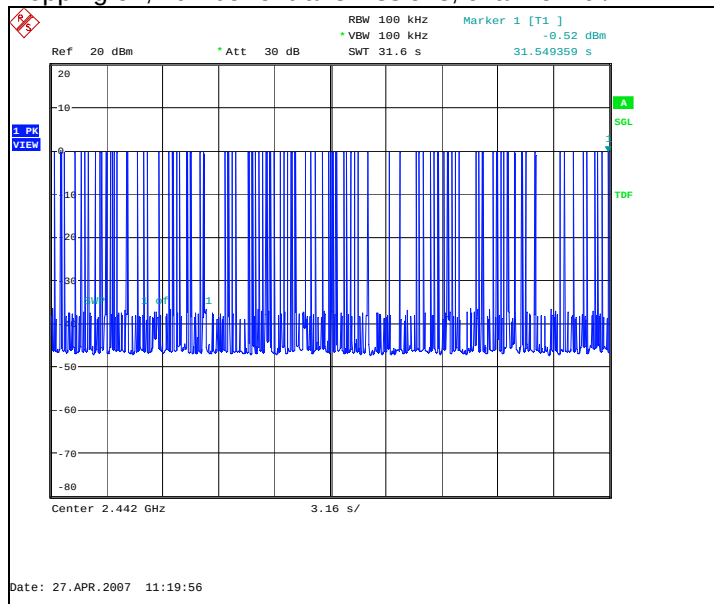
Limit [s]
≤ 0.4

11.2. Bluetooth test results

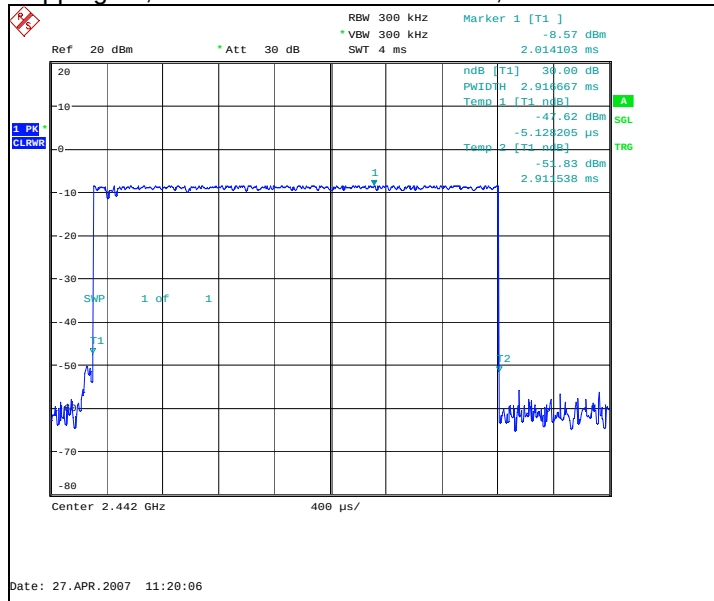
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
94	2 917	0.274167	PASSED

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



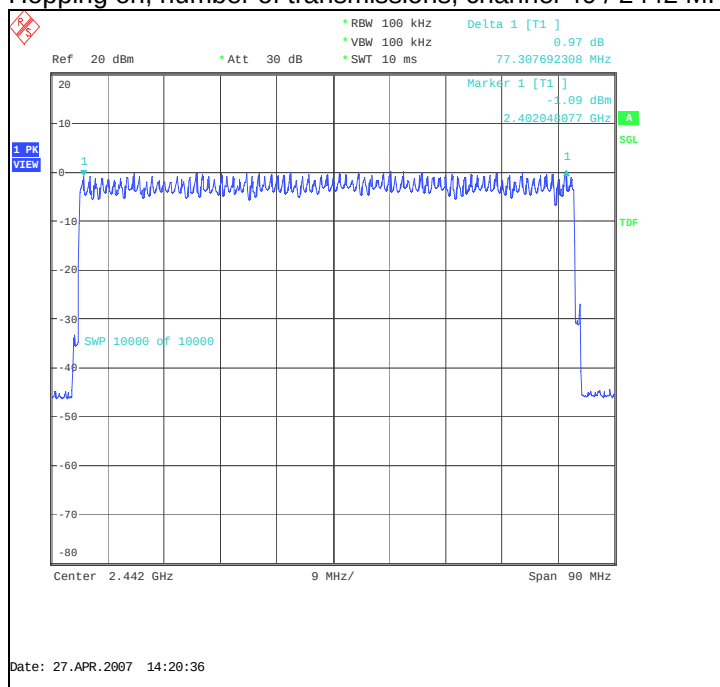
Hopping on, duration of one transmission, channel 40 / 2442 MHz



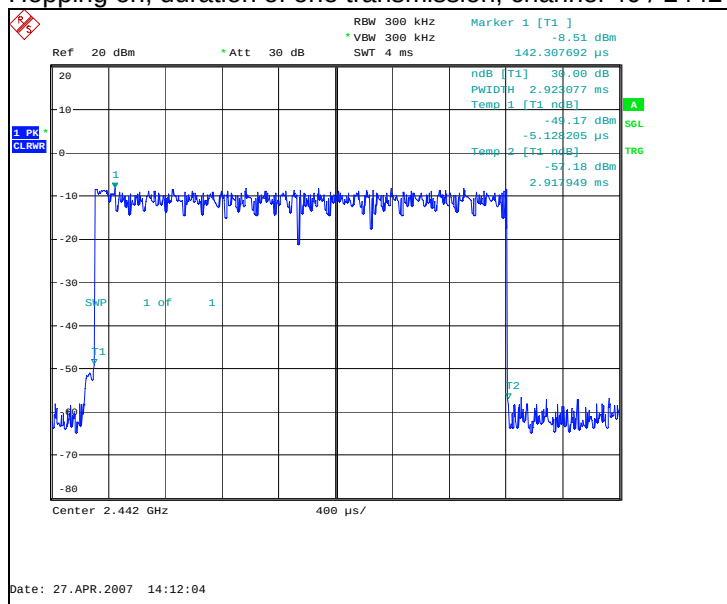
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μs]	Time of occupancy [s]	Result
88	2 917	0.256667	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
TM37610	Spectrum analyzer	FSU	R&S	22/24, 15C
TM37678	Radio communication tester	CMU-200	R&S	22/24, 15C
	Attenuator 10 dB	6251.17.A	Huber+Suhner AG	22/24, 15C
TM37499	Power splitter	11667A	Agilent	22/24, 15C
	Temperature chamber	VT4002	Vötsch	22/24, 15C
TM38112	DC power supply	6632A	Agilent	22/24, 15C
TM38111	Multimeter	34401A	Agilent	22/24, 15C
	EMI Test receiver	ESPC	R&S	15C, 15B
TM37773	Radio communication tester	CMU-200	R&S	15C, 15B
TM38631	Signal generator	83640L	Agilent	15C, 15B
TM38114	DC power supply	6632A	Agilent	15C, 15B
TM22835	Multimeter	87	Fluke	15C, 15B
TM30600	Pulse Limiter	ESH3-Z2	R&S	15C, 15B
TM26490	LISN 50 µH	ESH3-Z5/	R&S	15C, 15B
TM30636	LISN 50 µH	L2-16/	PMM	15C, 15B

12.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM30599	3m semi-anechoic chamber		TDK	22/24, 15C, 15B
TM38845	EMI receiver	ESI 40	R&S	22/24, 15C, 15B
TM37498	Preamplifier	AMF-5D-020180-26-10P	MITEQ	22/24, 15C, 15B
TM37523	Preamplifier	AMF-4D-10M-3G-25-20P	MITEQ	22/24, 15C, 15B
TM37516	Biconilog antenna	HL562	R&S	22/24, 15C, 15B
TM26496	Double ridged waveguide antenna	3115	EMCO	22/24, 15C, 15B
TM39158	Horn antenna	3116	EMCO	22/24, 15C, 15B
TM26492	Reference dipole set	UHAP/VHAP	Schwarzbeck	22/24, 15C, 15B
TM37501	Dipole antenna	3125-870	EMCO	22/24
TM37502	Dipole antenna	3125-1880	EMCO	22/24
TM37773	Radio communication tester	CMU-200	R&S	22/24, 15C, 15B
TM38631	Signal generator	83640L	Agilent	22/24, 15C, 15B
TM38066	High pass filter	4HC3000/18000-3-KK	Trilithic	22/24, 15C, 15B
	High pass filter	WHK2010-10SS	Trilithic	22/24, 15C, 15B
	Low pass filter	WLK1750-10SS	Trilithic	22/24, 15C, 15B
TM26511	Tunable notch filter	WRCA870	Wainwright	22/24
TM38215	Tunable notch filter	WRCD1850/1910-0.2/40	Wainwright	22/24
TM38214	Band reject filter	WRCT 2402/2480-2400/2483.5-30	Wainwright	15C
TM30642	Turntable controller	HD-100	Deisel	22/24, 15C, 15B
TM26500	Turntable	DS412	Deisel	22/24, 15C, 15B
TM38842	Antenna mast controller	2090	EMCO	22/24, 15C, 15B
TM38843	Antenna mast	2075	EMCO	22/24, 15C, 15B
TM38114	DC power supply	6632A	Agilent	22/24, 15C, 15B
TM22835	Multimeter	87	Fluke	22/24, 15C, 15B