

FCC Part 15C Compliance Test Report

Test Report no.:	Cph_FCC_0827_05.doc	Date of Report:	04-Jul-2008
Number of pages:	41	Customer's Contact person:	Shao Xu
Testing laboratory:	TCC Nokia Copenhagen Laboratory Frederikskaj 1790 COPENHAGEN V DENMARK Tel. +45 33 292929 Fax. +45 33 292934	Customer:	Nokia Corporation Frederikskaj 1790 COPENHAGEN V DENMARK Tel. +45 33 292929 Fax. +45 33 292934
FCC listing no.:	99059		
IC recognition no.:	661AD-1		
Tested devices/ accessories:	Phone; RM-414 (HW: 0300A), Battery; BL-4U, AC-Charger; AC-6C, USB Charger Cable; CA-100C, Headset; HS-83, Audio Adapter; AD-83		
FCC ID:	QTKRM-414	IC:	661AD-RM414
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 (Issue 2, June 2007) and RSS-210 (Issue 7, June 2007). Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test Results:	The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document.		
Date and signature for the contents:			

Niels Christian Andersen, Test System Manager

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	24-Jun-2008
Testing completed	04-Jul-2008
The customer's contact person	Shao Xu
Test Plan referred to	T:\Projects\RM-414
Notes	None
Document name	T:\Projects\RM-414\EMC\Results\FCC\Cph_FCC_0827_05.doc

1.1. EUT and Accessory Information

The EUT is a 5-band (GSM850/900/1800/1900 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-414	004401/10/135016/9	0300A	-	Vp vs.4.47	26983
Audio Adapter	AD-83	069430582041A600447				26970
AC-Charger	AC-6C	3943497354070622324;0675594	2.2	-	-	27088
Headset	HS-83	0694739823518600476	-	-	-	26973
USB Charger Cable	CA-100C	0730339730111800947	-	-	-	27144
Battery	BL-4U	4620407517J10121353;0670560	-	-	-	26979
Phone	RM-414	004401/10/135017/7	0300A	-	Vp vs.4.47	29310
Battery	BL-4U	4620407475J10120653;0670560	-	-	-	26976
AC-Charger	AC-6C	3943497355070600232;0675594	2.2	-	-	26737
Charging Data Cable	CA-100C	0730339730111800923	-	-	-	26736
Audio Adapter	AD-83	069430582041A600484	-	-	-	26971
Headset	HS-83	0694739823518600381	-	-	-	26975
Phone	RM-414	004401/10/135115/9	0300A	-	Vp vs.4.47	26980

1.2. Summary of Test Results

Bluetooth:

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

PASSED
FAILED
NP

The EUT complies with the essential requirements in the standard.
The EUT does not comply with the essential requirements in the standard.
The test was not performed by the TCC Nokia Copenhagen Laboratory.

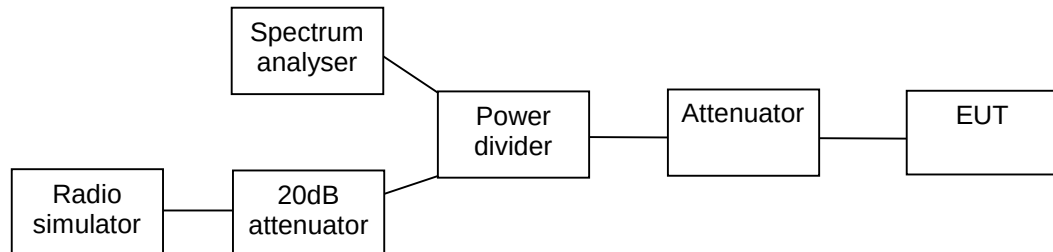
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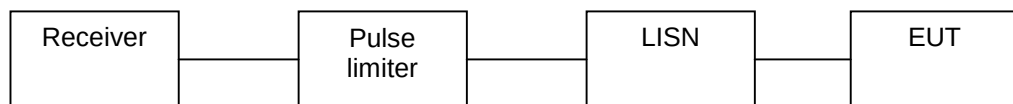
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2. Test setups

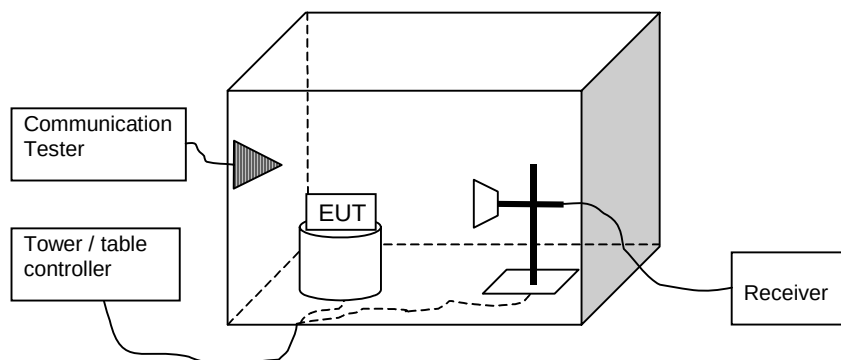
2.1. Conducted RF test setup



2.2. AC powerline conducted emissions test setup



2.3. Radiated test setup



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

EUT with DUT number	RM-414 DUT 26980
Accessories with DUT numbers	BL-4U DUT 26976, AC-6C DUT 26737, CA-100C DUT 26736, AD-83 DUT 26971, HS-83 DUT 26975
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 47 / 101.2
Date of measurements	04-Jul-2008
Measured by	Christian Andersen

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

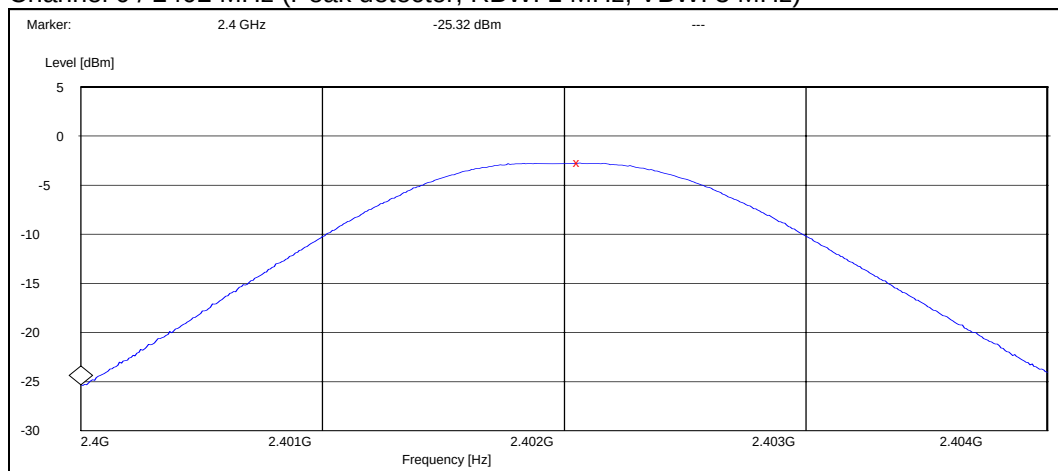
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

3.2. Bluetooth Test results

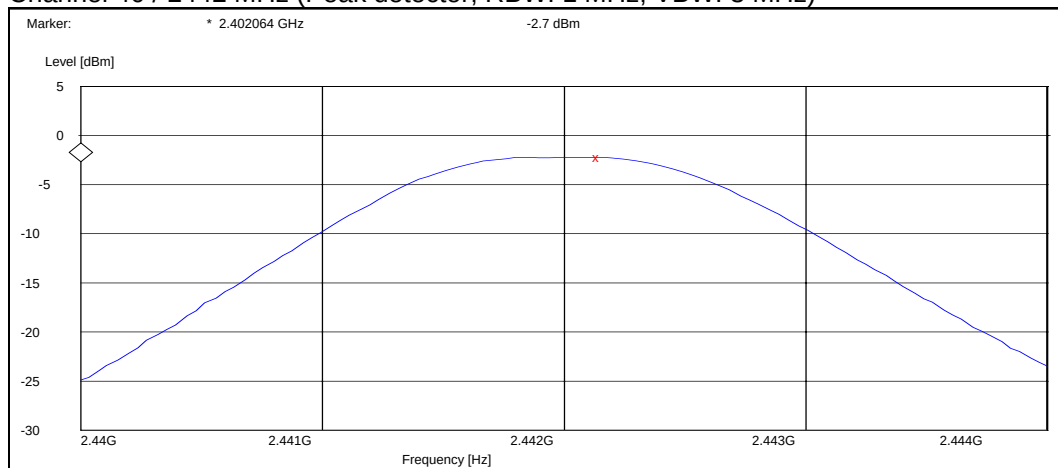
3.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-2.70	0.537	Passed
40 / 2442	-2.20	0.603	Passed
78 / 2480	-2.20	0.603	Passed

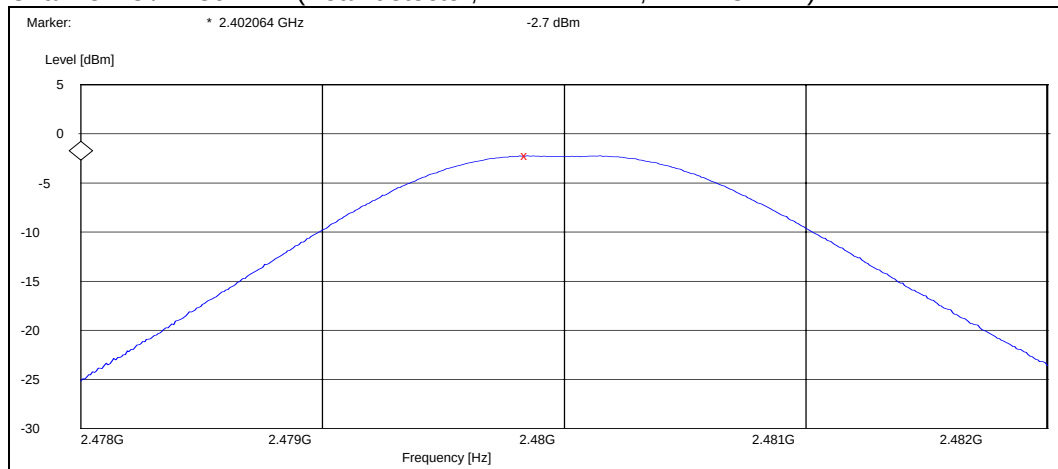
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



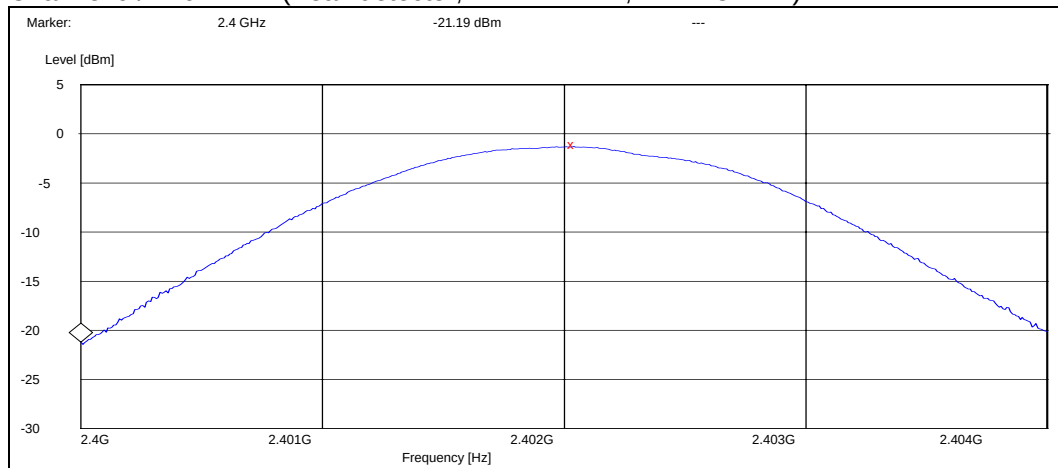
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



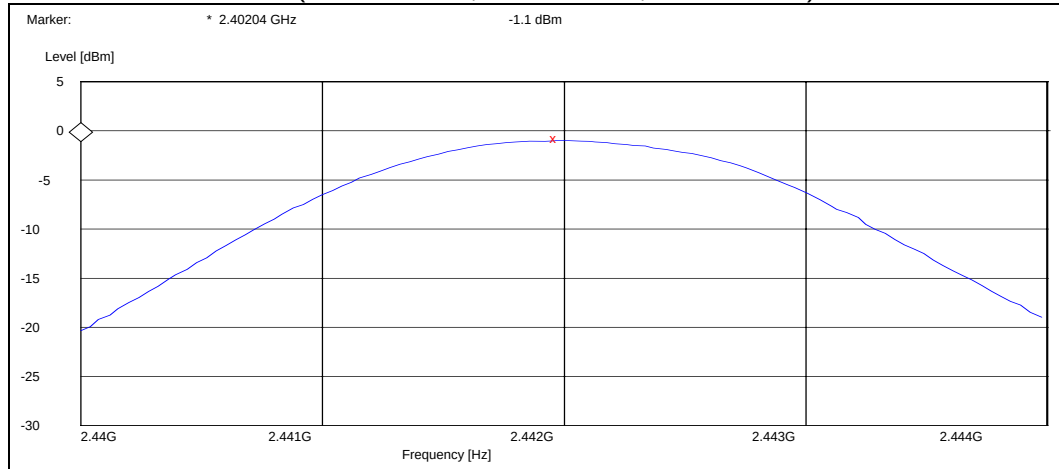
3.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-1.10	0.776	Passed
40 / 2442	-0.80	0.832	Passed
78 / 2480	-0.70	0.851	Passed

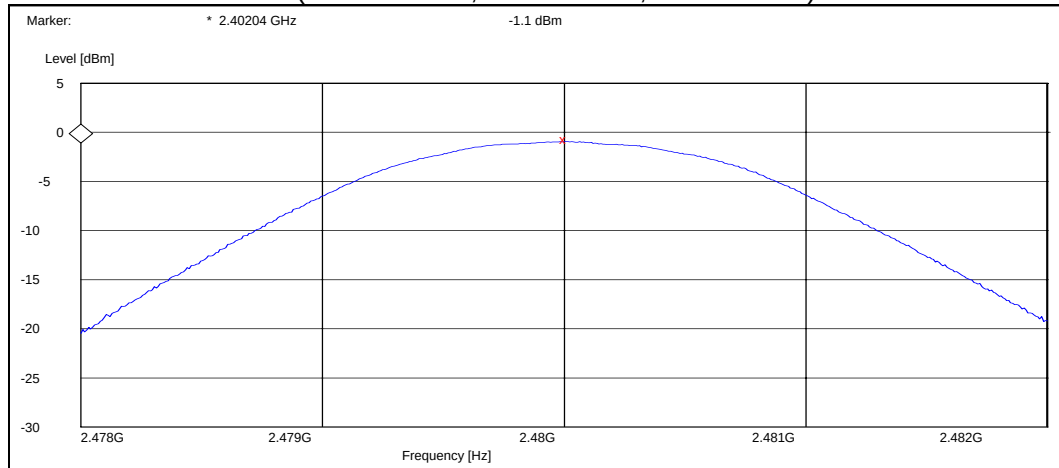
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



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



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

EUT with DUT number	RM-414 DUT 29310
Accessories with DUT numbers	BL-4U DUT 26976, AC-6C DUT 26737, CA-100C DUT 26736, AD-83 DUT 26971, HS-83 DUT 26975
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 47 / 101.2
Date of measurements	26-Jun-2008
Measured by	Christian Andersen

4.1. Test method and limit

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

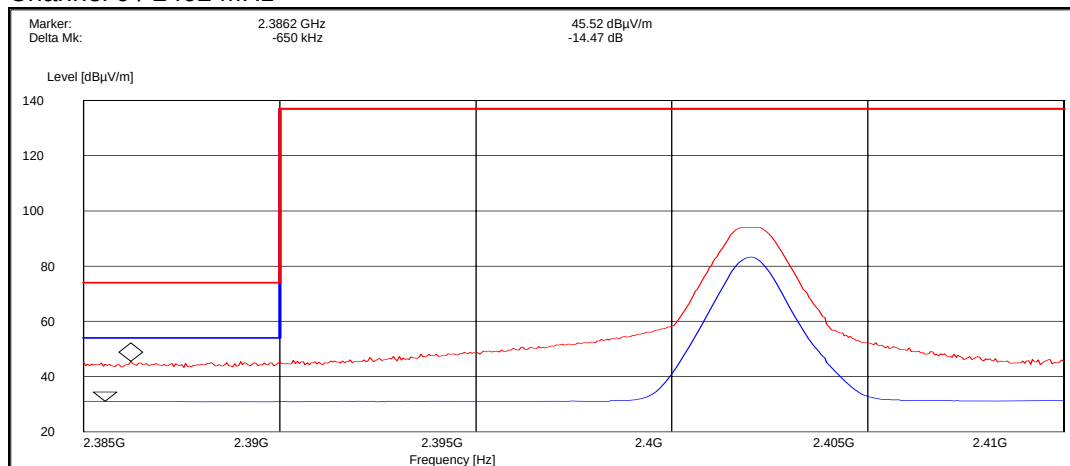
Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

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

4.2. Bluetooth Test results

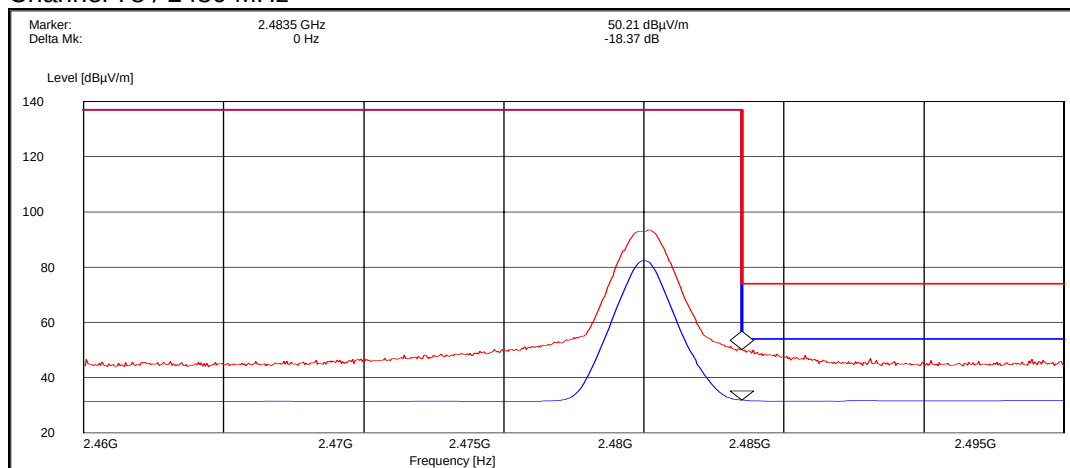
4.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



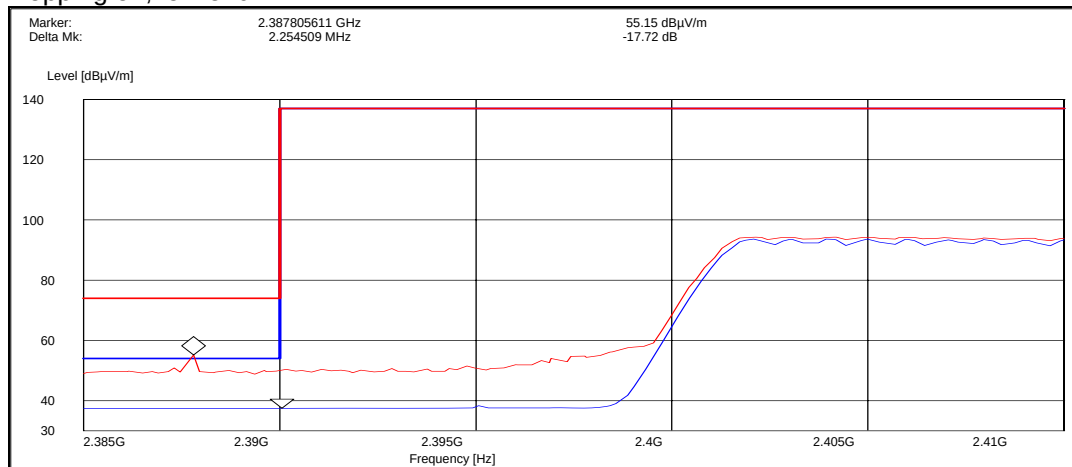
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	45.50	Passed
Average	31.10	Passed

Channel 78 / 2480 MHz



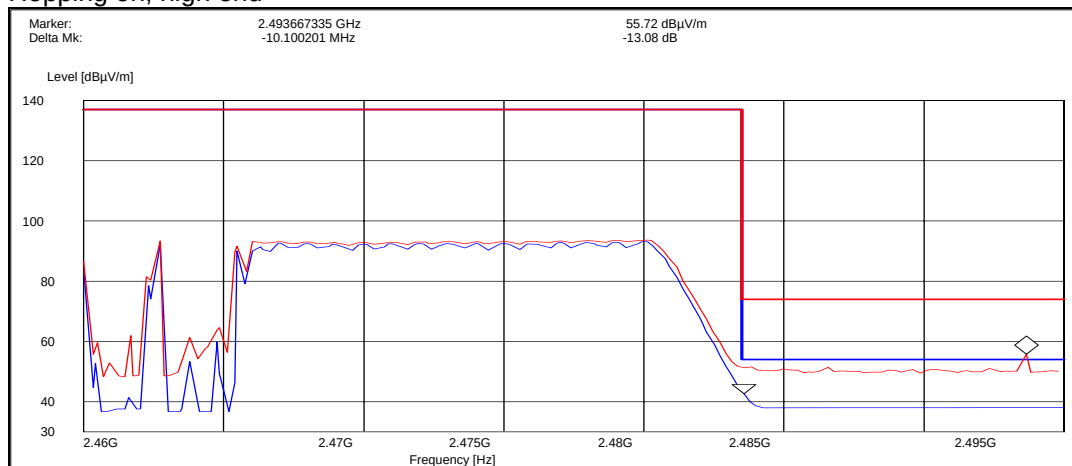
Detector (RBW: 1 MHz)	E [dBμV/m]	Result
Peak	50.20	Passed
Average	31.80	Passed

Hopping on, low end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	55.10	Passed
Average	37.40	Passed

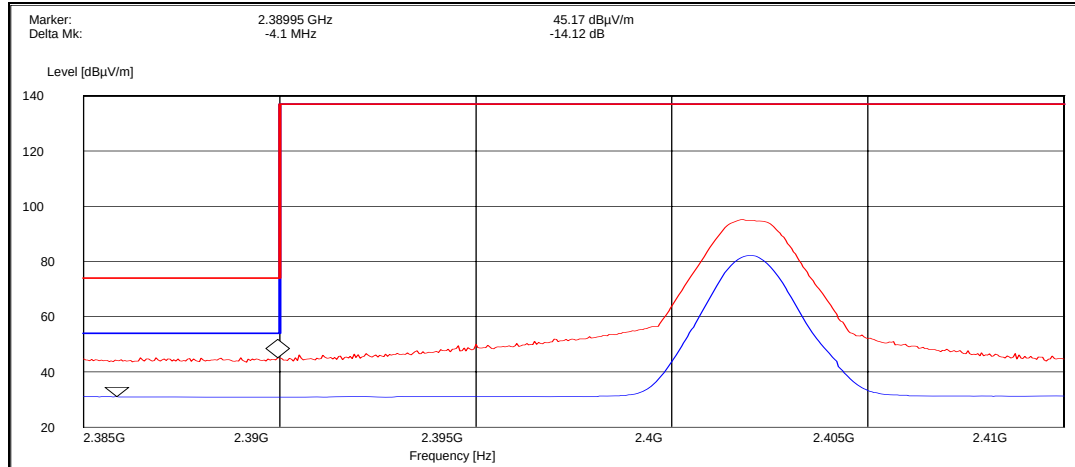
Hopping on, high end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	55.70	Passed
Average	42.60	Passed

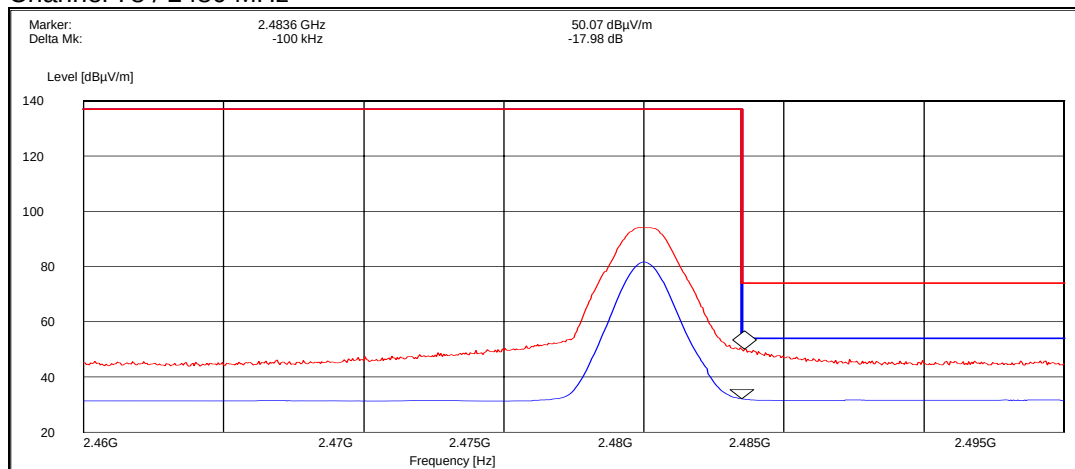
4.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



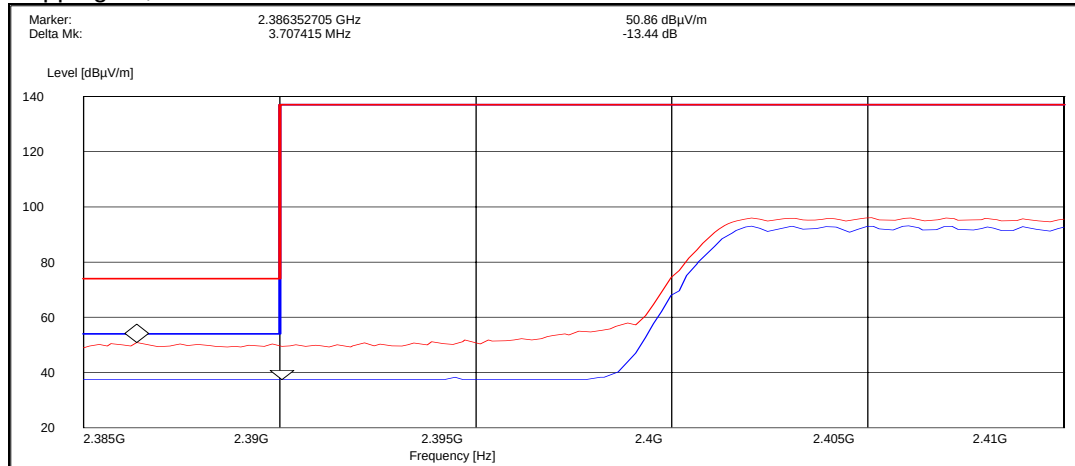
Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	45.20	Passed
Average	31.10	Passed

Channel 78 / 2480 MHz



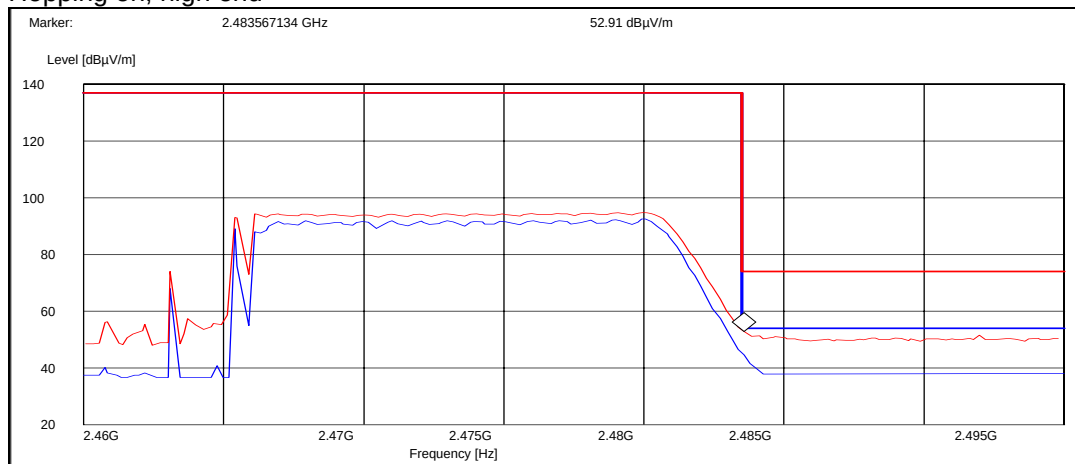
Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	50.10	Passed
Average	32.10	Passed

Hopping on, low end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	50.90	Passed
Average	37.40	Passed

Hopping on, high end



Detector (RBW: 1 MHz)	E [dB μ V/m]	Result
Peak	52.90	Passed
Average	44.70	Passed

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

EUT with DUT number	RM-414 DUT 26980
Accessories with DUT numbers	BL-4U DUT 26976, AC-6C DUT 26737, CA-100C DUT 26736, AD-83 DUT 26971, HS-83 DUT 26975
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 47 / 101.2
Date of measurements	04-Jul-2008
Measured by	Christian Andersen

5.1. Test method and limit

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

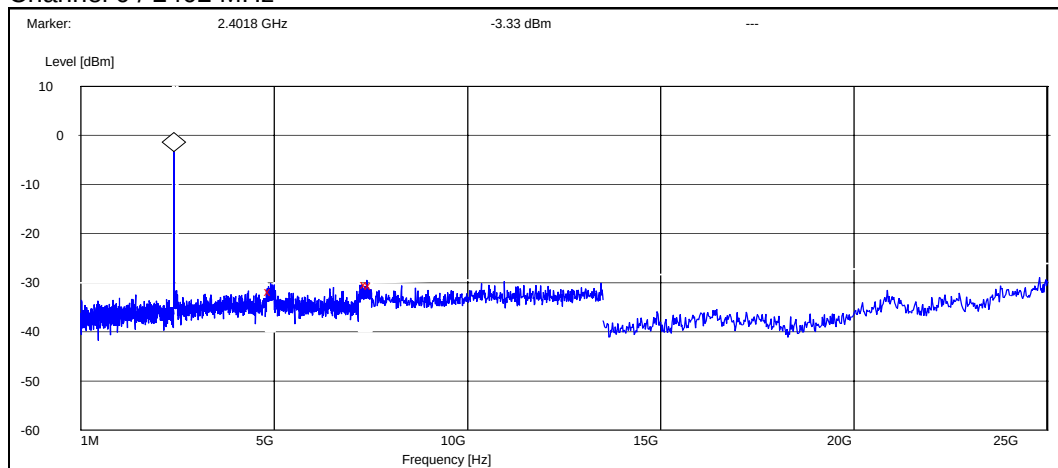
Limits for spurious RF conducted emissions measurements

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

5.2. Bluetooth Test results

5.2.1 GFSK modulation, PRBS packet type

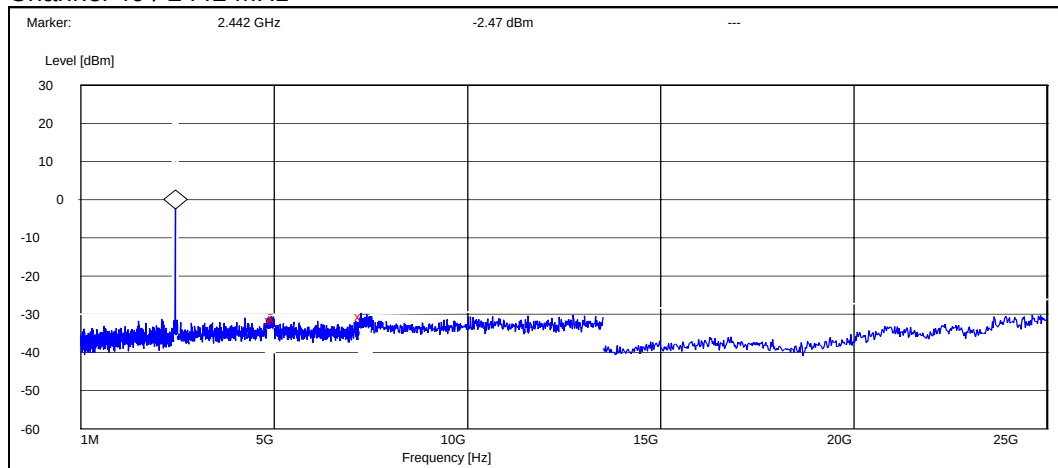
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4906.800000	-28.371452	Passed
7393.200000	-26.971452	Passed
7500.000000	-27.271452	Passed

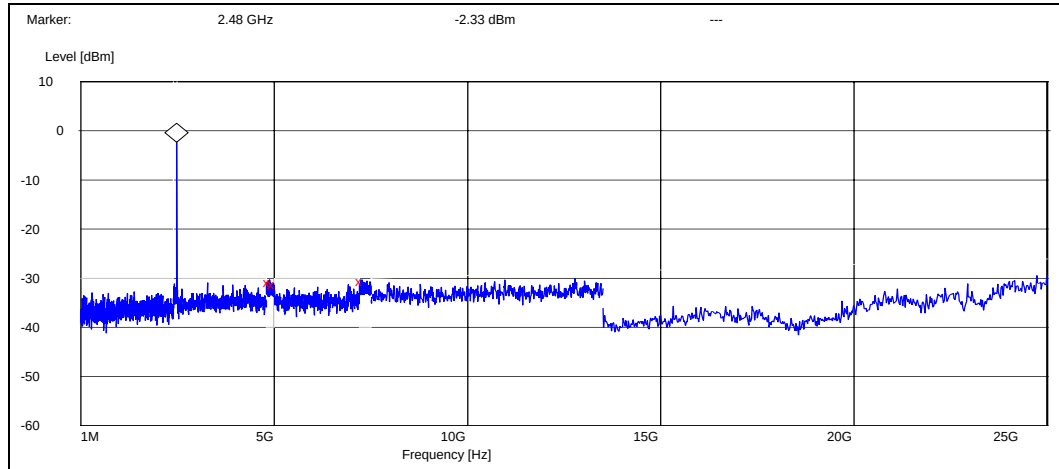
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4926.000000	-29.125487	Passed
5000.000000	-28.725487	Passed
7241.400000	-28.025487	Passed

Channel 78 / 2480 MHz

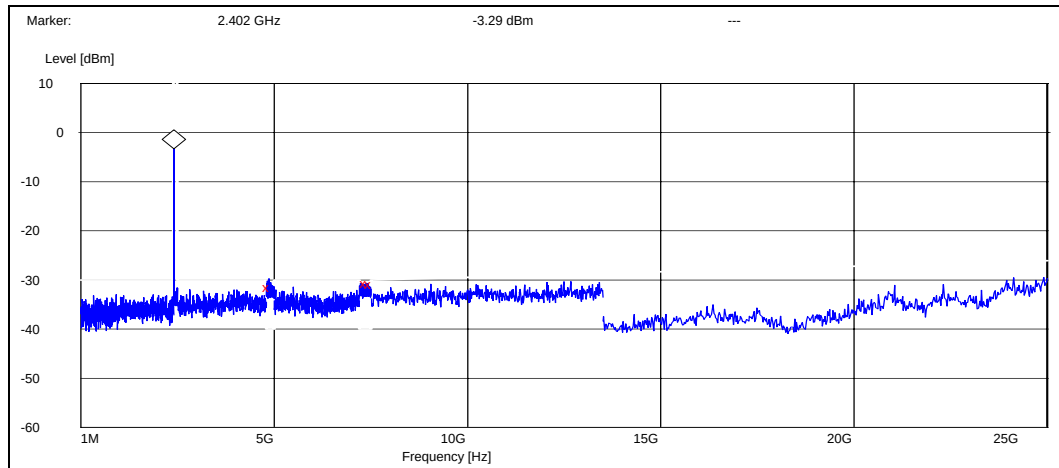


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4878.400000	-28.565524	Passed
5000.000000	-28.865524	Passed
7279.200000	-28.265524	Passed

5.2.2 8DPSK modulation, PRBS packet type

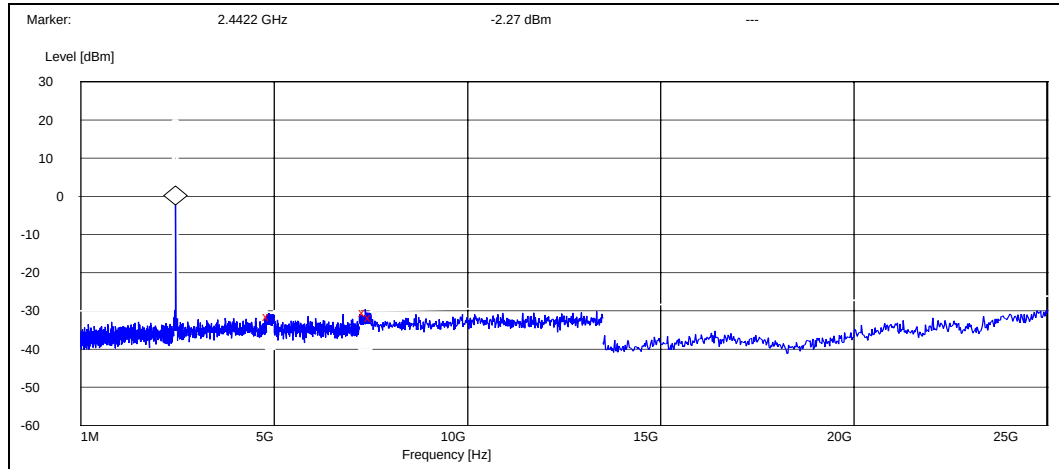
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4864.000000	-28.107547	Passed
7388.400000	-27.407547	Passed
7500.000000	-27.607547	Passed

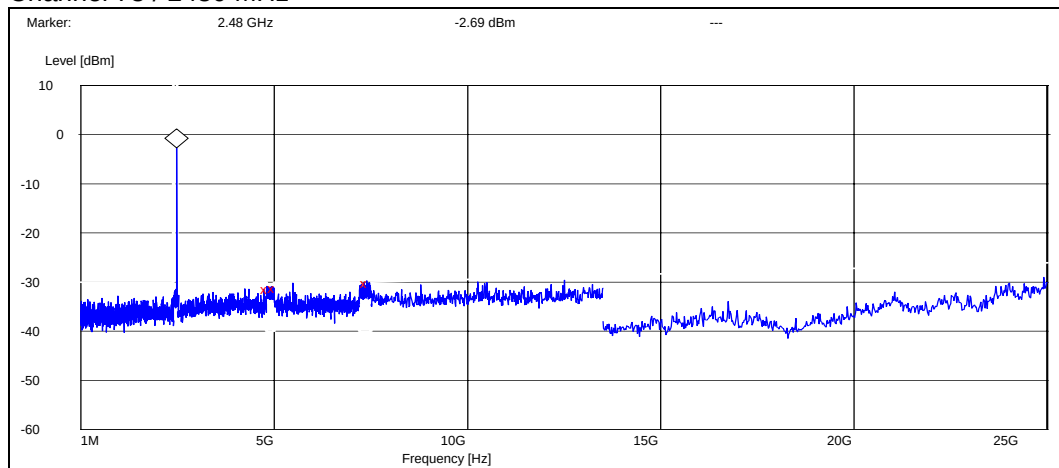
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4860.800000	-29.227986	Passed
7348.800000	-28.127986	Passed
7500.000000	-29.327986	Passed

Channel 78 / 2480 MHz



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

Frequency [MHz]	P [dBc]	Result
4807.200000	-28.711017	Passed
5000.000000	-28.511017	Passed
7400.400000	-27.611017	Passed

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

EUT with DUT number	RM-414 DUT 29310
Accessories with DUT numbers	BL-4U DUT 26976, AC-6C DUT 26737, CA-100C DUT 26736, AD-83 DUT 26971, HS-83 DUT 26975
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 47 / 101.2
Date of measurements	26-Jun-2008
Measured by	Christian Andersen

6.1. Test method and limit

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

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

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

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

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

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

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

The measurement results are obtained as described below:

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

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

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

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

6.2. Bluetooth Test results

6.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz

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

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	41.50	118.85	41.40	0.1	VERTICAL	Passed
7206.000000	41.90	124.45	33.00	8.9	HORIZONTAL	Passed

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

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	29.00	28.18	28.90	0.1	VERTICAL	Passed
7206.000000	29.50	29.85	20.60	8.9	HORIZONTAL	Passed

Channel 40 / 2442 MHz

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
37.576353	19.60	9.55	37.20	-17.6	VERTICAL	Passed
74.267535	16.10	6.38	42.90	-26.8	HORIZONTAL	Passed
74.269940	15.80	6.17	42.60	-26.8	HORIZONTAL	Passed

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

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4883.769539	39.10	90.16	39.30	-0.2	HORIZONTAL	Passed
4884.267535	39.20	91.20	39.40	-0.2	HORIZONTAL	Passed
7288.581162	42.20	128.82	33.20	9.0	HORIZONTAL	Passed
7330.669339	43.00	141.25	33.90	9.1	VERTICAL	Passed
7423.351703	43.20	144.54	33.80	9.4	VERTICAL	Passed
17277.049098	51.50	375.84	30.10	21.4	VERTICAL	Passed
17959.911824	58.10	803.53	29.10	29.0	VERTICAL	Passed

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.769539	25.70	19.28	25.90	-0.2	HORIZONTAL	Passed
4884.267535	26.60	21.38	26.80	-0.2	HORIZONTAL	Passed
7290.081162	29.70	30.55	20.60	9.1	HORIZONTAL	Passed
7337.669339	30.00	31.62	20.80	9.2	VERTICAL	Passed
7426.351703	30.40	33.11	21.00	9.4	VERTICAL	Passed
17278.049098	38.60	85.11	17.20	21.4	VERTICAL	Passed
17959.411824	45.20	181.97	16.20	29.0	VERTICAL	Passed

Channel 78 / 2480 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	41.10	113.50	40.80	0.3	HORIZONTAL	Passed
7440.000000	43.60	151.36	34.10	9.5	HORIZONTAL	Passed

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	28.70	27.23	28.40	0.3	HORIZONTAL	Passed
7440.000000	31.60	38.02	22.10	9.5	HORIZONTAL	Passed

6.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	44.30	164.06	44.20	0.1	HORIZONTAL	Passed
7206.000000	43.70	153.11	34.80	8.9	HORIZONTAL	Passed

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	33.90	49.55	33.80	0.1	HORIZONTAL	Passed
7206.000000	30.90	35.08	22.00	8.9	HORIZONTAL	Passed

Channel 40 / 2442 MHz

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
37.776353	18.10	8.04	35.80	-17.7	VERTICAL	Passed
73.927054	21.30	11.61	48.20	-26.9	VERTICAL	Passed
74.369940	17.90	7.85	44.70	-26.8	VERTICAL	Passed
240.880962	31.60	38.02	56.20	-24.6	VERTICAL	Passed

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.769539	40.30	103.51	40.50	-0.2	HORIZONTAL	Passed
7294.587174	43.00	141.25	33.70	9.3	HORIZONTAL	Passed
7326.151303	44.30	164.06	35.30	9.0	HORIZONTAL	Passed
7419.337675	42.90	139.64	33.60	9.3	HORIZONTAL	Passed
17454.915832	51.40	371.54	29.10	22.3	VERTICAL	Passed
17902.311623	59.10	901.57	30.20	28.9	HORIZONTAL	Passed

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.269539	26.60	21.38	26.80	-0.2	HORIZONTAL	Passed
7296.087174	29.80	30.90	20.50	9.3	HORIZONTAL	Passed
7326.151303	31.20	36.31	22.20	9.0	HORIZONTAL	Passed
7419.837675	30.20	32.36	20.90	9.3	HORIZONTAL	Passed
17453.915832	38.70	86.10	16.40	22.3	VERTICAL	Passed
17908.311623	45.60	190.55	16.80	28.8	HORIZONTAL	Passed

Channel 78 / 2480 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	41.60	120.23	41.30	0.3	HORIZONTAL	Passed
7440.000000	44.00	158.49	34.50	9.5	HORIZONTAL	Passed

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	30.80	34.67	30.50	0.3	HORIZONTAL	Passed
7440.000000	33.60	47.86	24.10	9.5	HORIZONTAL	Passed

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

EUT with DUT number	RM-414 Dut 26983
Accessories with DUT numbers	BL-4U Dut 26979, AC-6C Dut 27088, CA-100C Dut 27144, HS-83 Dut 26973, AD-83 Dut 26970
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23.5 / 39.0 102.6
Date of measurements	01-Jul-2008
Measured by	Allan F. Henriksen

7.1. Test method and limit

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

The EUT is placed on a wooden table 80 cm above the reference groundplane.

The EUT is connected via LISN to a test power supply.

The measurement results are obtained as described below:

$$U [dB\mu V] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

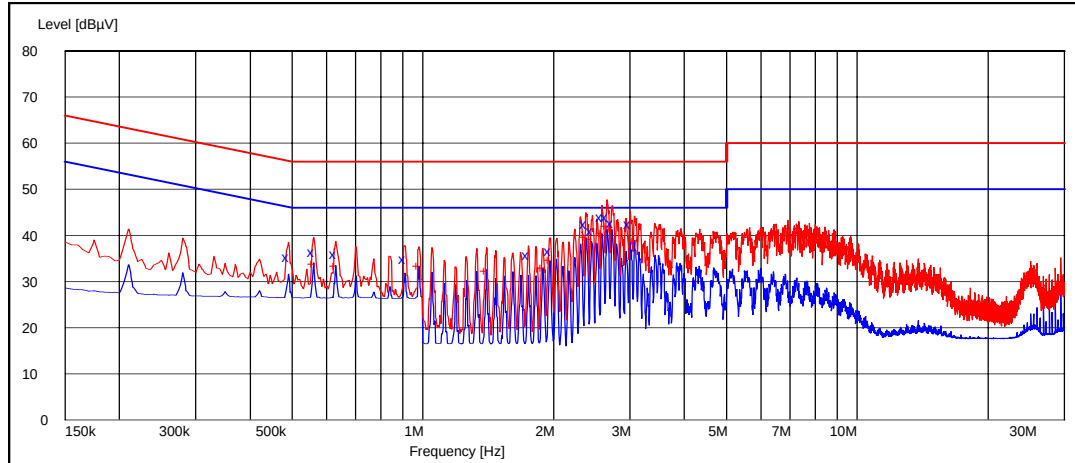
CISPR 22 Class B limits

Frequency range [MHz]	Quasi peak limit [dBμV]	Average limit [dBμV]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

7.2. Bluetooth Test results

7.2.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

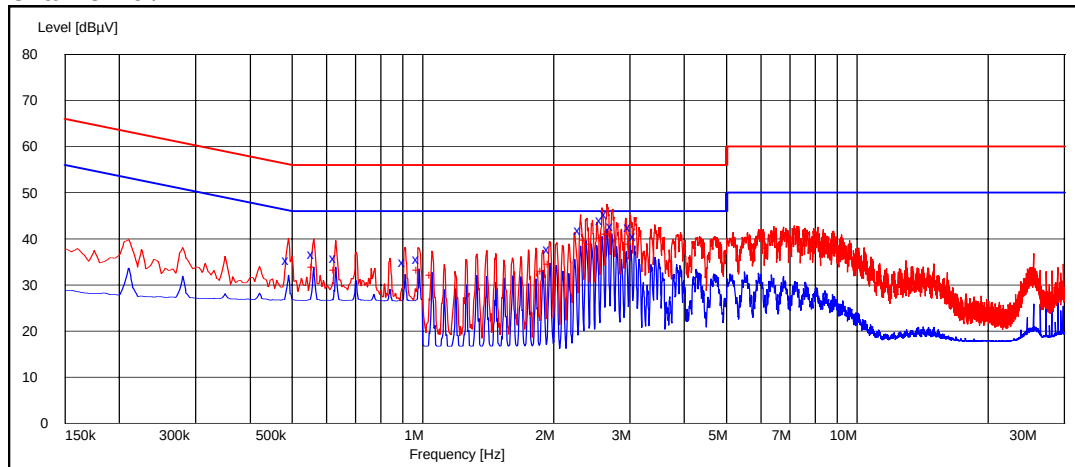
Frequency [MHz]	U [dBμV]	Line	Result
0.490000	35.30	L1	Passed
0.560000	36.50	L1	Passed
0.630000	36.00	L1	Passed
0.910000	34.90	L1	Passed
1.750000	35.70	L1	Passed
1.965000	36.70	N	Passed
2.375000	42.50	N	Passed
2.455000	40.90	N	Passed
2.585000	44.00	N	Passed
2.660000	43.90	N	Passed
2.735000	42.80	N	Passed
3.000000	42.50	N	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.560000	33.80	L1	Passed
0.630000	33.40	L1	Passed
0.980000	33.40	L1	Passed
1.400000	32.20	L1	Passed
1.890000	32.90	N	Passed
1.960000	34.70	N	Passed
2.375000	39.70	N	Passed
2.445000	39.20	N	Passed
2.585000	40.50	N	Passed
2.655000	42.00	N	Passed
2.725000	41.40	N	Passed
3.075000	38.90	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
0.490000	35.40	L1	Passed
0.560000	36.60	L1	Passed
0.630000	35.80	L1	Passed
0.910000	34.90	L1	Passed
0.980000	35.60	L1	Passed
1.955000	37.70	N	Passed
2.305000	42.00	N	Passed
2.585000	44.00	N	Passed
2.655000	45.30	N	Passed
2.740000	42.70	N	Passed
3.005000	42.50	N	Passed
3.085000	40.60	N	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.560000	33.80	L1	Passed
0.630000	33.20	L1	Passed
0.980000	33.30	L1	Passed
1.050000	32.20	L1	Passed
1.890000	32.90	N	Passed
1.960000	34.50	N	Passed
2.380000	39.60	N	Passed
2.450000	38.90	N	Passed
2.585000	40.10	N	Passed
2.660000	41.00	N	Passed
2.725000	41.10	N	Passed
3.005000	38.80	N	Passed

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

EUT with DUT number	RM-414 DUT 26980
Accessories with DUT numbers	BL-4U DUT 26976, AC-6C DUT 26737, CA-100C DUT 26736, AD-83 DUT 26971, HS-83 DUT 26975
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 47 / 101.2
Date of measurements	04-Jul-2008
Measured by	Christian Andersen

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

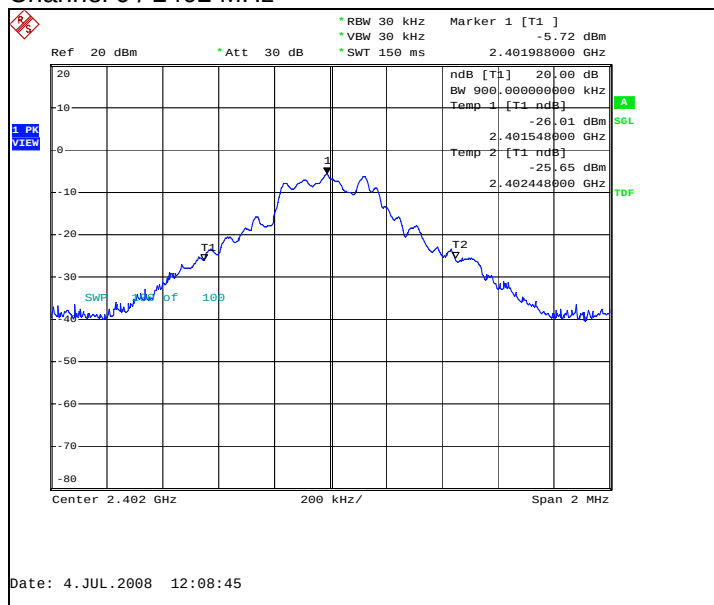
Limit [MHz]
N/A

8.2. Bluetooth Test results

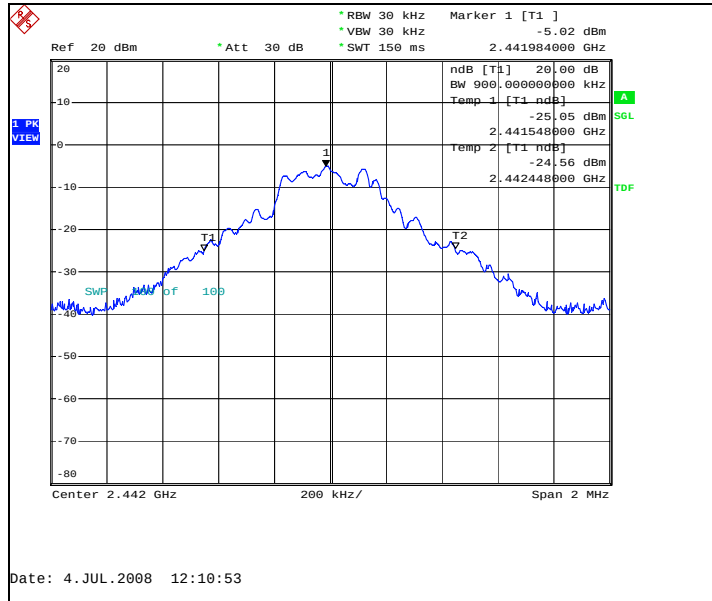
8.2.1 GFSK modulation, PRBS packet type

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

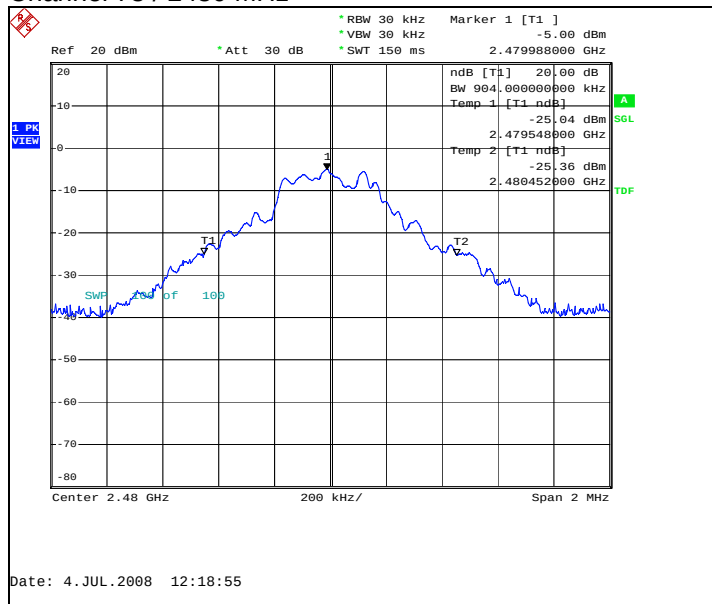
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



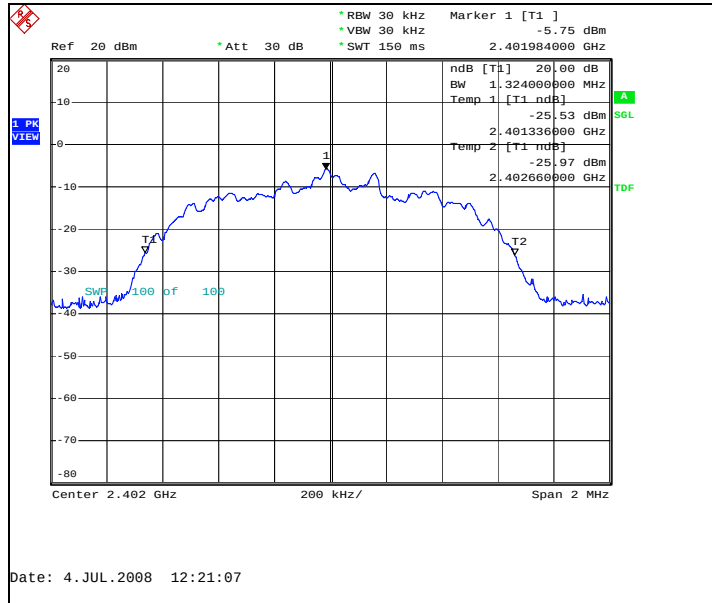
Channel 78 / 2480 MHz



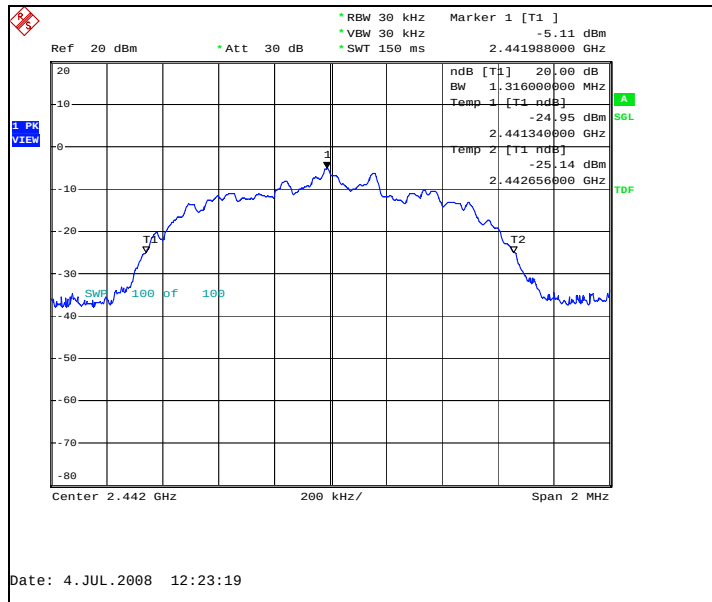
8.2.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1324.000	Passed
40 / 2442	1316.000	Passed
78 / 2480	1328.000	Passed

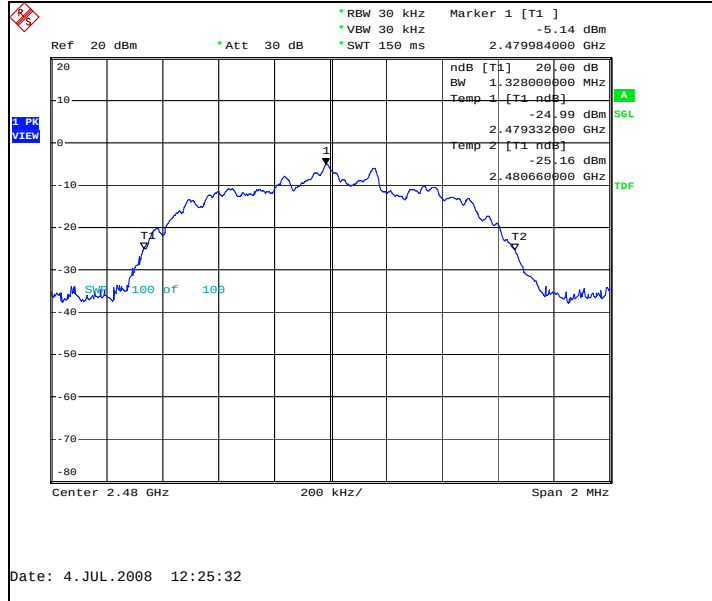
Channel 0 / 2402 MHz



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-414 DUT 26980
Accessories with DUT numbers	BL-4U DUT 26976, AC-6C DUT 26737, CA-100C DUT 26736, AD-83 DUT 26971, HS-83 DUT 26975
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 47 / 101.2
Date of measurements	04-Jul-2008
Measured by	Christian Andersen

9.1. Test method and limit

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

Limits for carrier frequency separation measurements

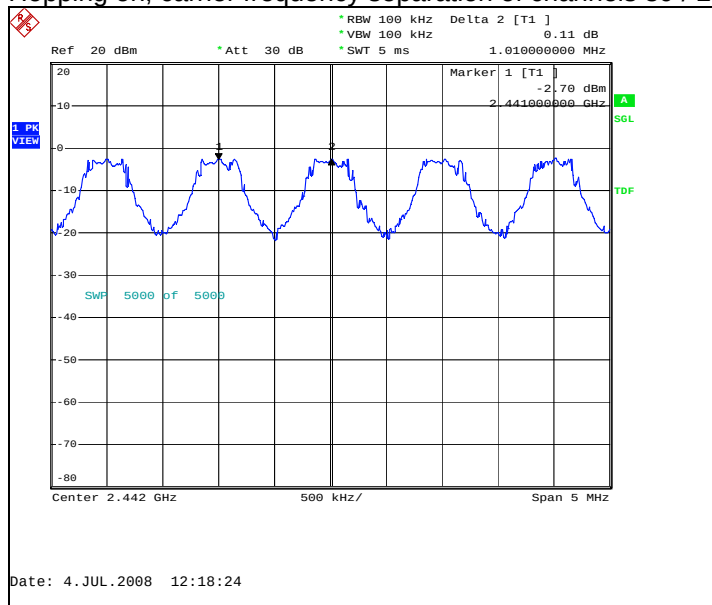
Limit [MHz]
≥ 0.025 or 2/3 of the 20 dB bandwidth

9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1010	Passed

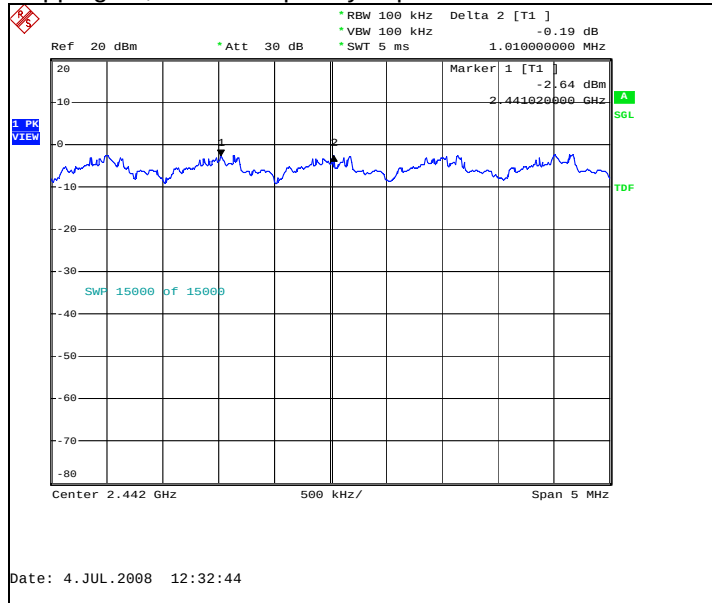
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



9.2.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1010	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-414 DUT 26980
Accessories with DUT numbers	BL-4U DUT 26976, AC-6C DUT 26737, CA-100C DUT 26736, AD-83 DUT 26971, HS-83 DUT 26975
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 47 / 101.2
Date of measurements	04-Jul-2008
Measured by	Christian Andersen

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

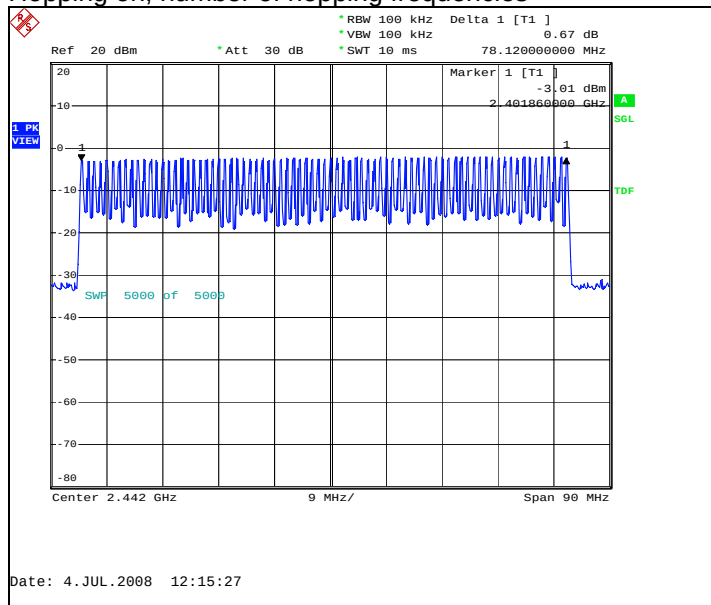
Limit [number]
≥ 15

10.2. Bluetooth Test results

10.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	Passed

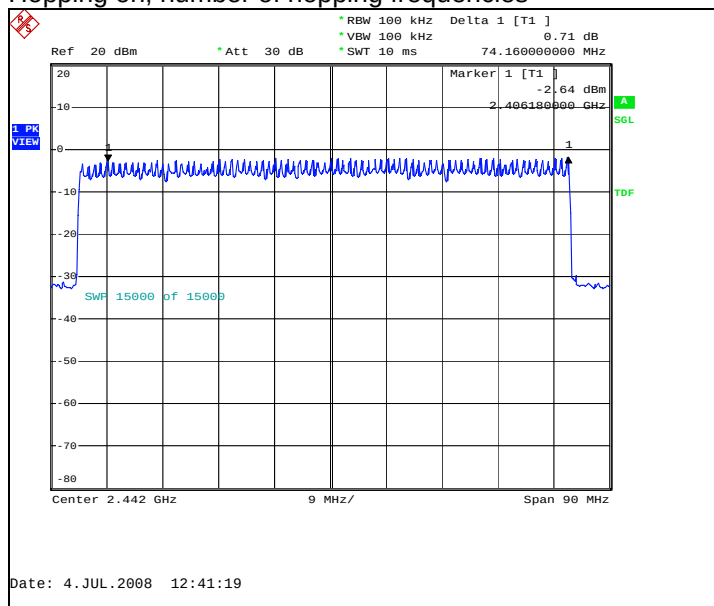
Hopping on, number of hopping frequencies



10.2.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
12	76

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-414 DUT 26980
Accessories with DUT numbers	BL-4U DUT 26976, AC-6C DUT 26737, CA-100C DUT 26736, AD-83 DUT 26971, HS-83 DUT 26975
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 47 / 101.2
Date of measurements	04-Jul-2008
Measured by	Christian Andersen

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

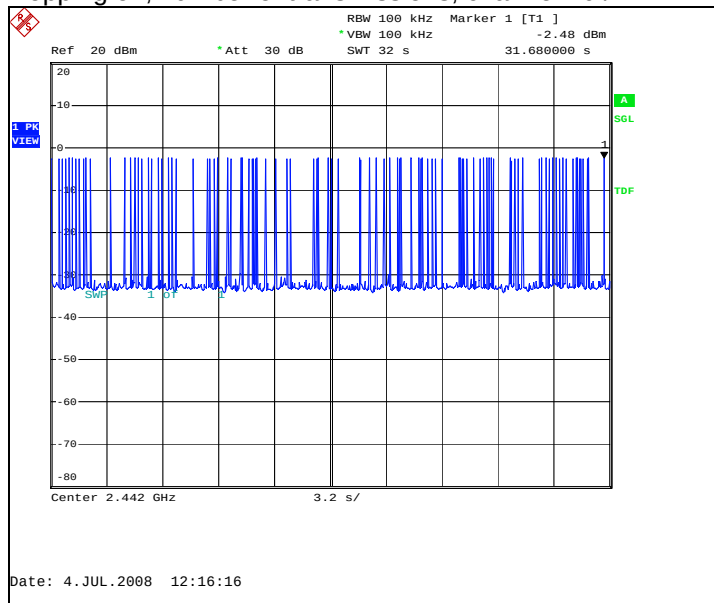
Limit [s]
≤ 0.4

11.2. Bluetooth test results

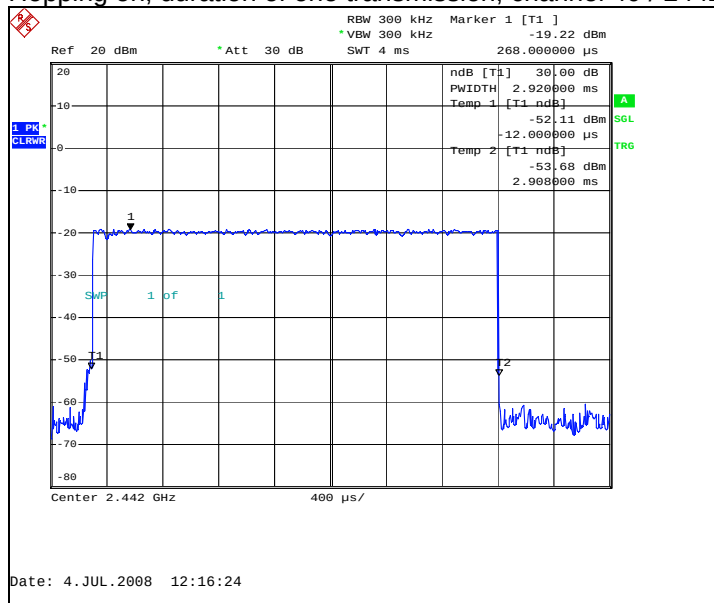
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
87	2920	0.254040	Passed

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



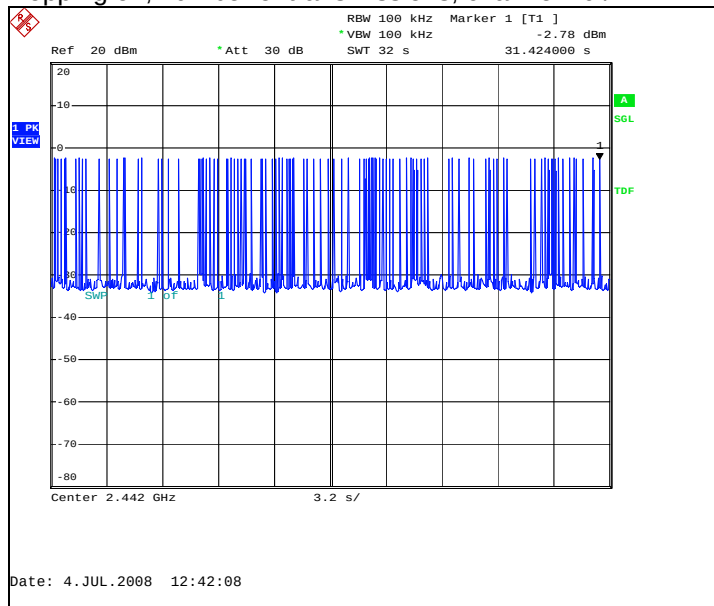
Hopping on, duration of one transmission, channel 40 / 2442 MHz



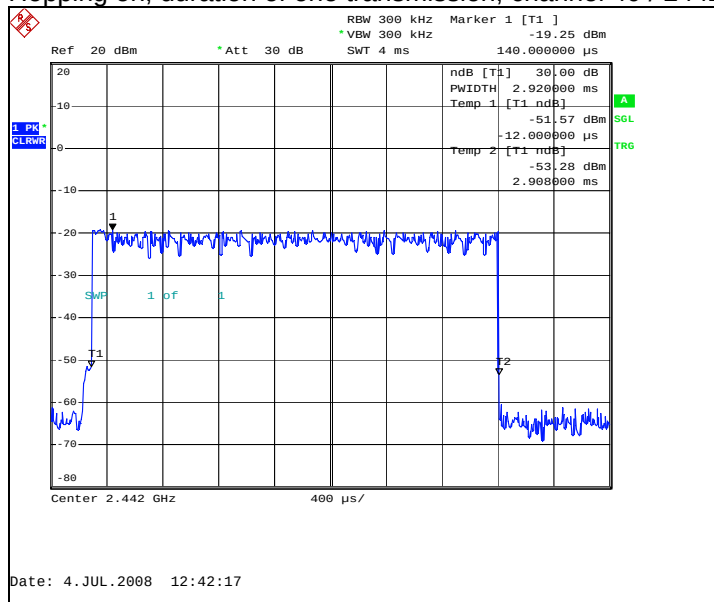
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
93	2920	0.271560	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	22/24/27, 15C, 15B
19678	Spectrum Analyzer 26 GHz	FSP	Rohde&Schwarz	22/24/27, 15C, 15B
16601	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
19625	Vötsch Climatic Chamber	VT4002EMC	Vötsch	22/24/27, 15C, 15B
13357	Rohde & Schwartz Signal Generator	SMP02	Rohde&Schwarz	22/24/27, 15C, 15B
20168	Bluetooth EDR Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B

12.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
18416	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
	Programmable Relay Switching System	-----	Pickering	22/24/27, 15C, 15B
15742	Programmable Relay Switching System	-----	Pickering	22/24/27, 15C, 15B
14020	Power Supply Module Relay Switching System 45W	10-910-002	Pickering	22/24/27, 15C, 15B
15743	Power Supply Module Relay Switching System 50W	10-910L-001	Pickering	22/24/27, 15C, 15B
16490	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24/27, 15C, 15B
	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24/27, 15C, 15B
20078	Relay 2x6 Chnl μ Wave Mux	10-785B-522	Pickering	22/24/27, 15C, 15B
14021	Relay Dual 6 Chnl μ Wave Mux	10-785-522		22/24/27, 15C, 15B
	Relay Dual 6 Chnl μ Wave Mux	10-785-522		22/24/27, 15C, 15B
17644	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16948	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16949	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
18792	Multi Device Controller	2090	ETS-EMCO	22/24/27, 15C, 15B
14963	RF Preamplifier 100MHz-4GHz (Metal Chassis)	AFS3-00100400	Miteq/NMP Cph	22/24/27, 15C, 15B
18861	EMI Test Receiver 20Hz-26,5GHz	ESI	Rohde&Schwarz	22/24/27, 15C, 15B
20335	Ultra Broadband Antenna Ultralog 30-3000MHz	HL562	Rohde&Schwarz	22/24/27, 15C, 15B
18773	Shielded Chamber	RFD-100	ETS-Lindgren	22/24/27, 15C, 15B
18774	Shielded Chamber	RFSD-F/A-100	ETS-Lindgren	22/24/27, 15C, 15B
19151	High Pass Filter 3GHz	WHJS3000-10SS	Wainwright	22/24/27, 15C, 15B

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