

FCC Part 15C Compliance Test Report

Test Report no.:	FCC15CBT_RM-730_01.docx	Date of Report:	01-Jul-2011
Number of pages:	39	Customer's Contact person:	Wang Ying-Echo
Testing laboratory:	TCC Nokia Copenhagen Laboratory Frederikskaj 1790 COPENHAGEN V DENMARK Tel. +45 33 292929 Fax. +45 33 292934	Customer:	Nokia Corporation Beijing Economic and Technological Development Area No.5 Donghuan Zhonglu Beijing PRC China 100176 Tel. +86 10 8711 8888 Fax. +86 10 8711 4550
FCC listing no.: IC recognition no.:			
Tested devices/ accessories:	Phone RM-730 / Battery BL-4D / Headset WH-102 / AC-Charger AC-8C		
FCC ID:	QTLRM-730	IC:	661AB-RM730
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-210 (Issue 8, December 2010). 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:			

Ruben Hansen, System Manager, EMC

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	25-May-2011
Testing completed	15-Jun-2011
The customer's contact person	Wang Ying-Echo
Test Plan referred to	T:\Projects\RM-730\TestPlan\RS_testplan_RM-730.xls
Notes	-
Document name	T:\Projects\RM-730\EMC\FCC15CBT_RM-730_01.docx

1.1. EUT and Accessory Information

The EUT is a 5-band (GSM850/900/1800/1900) and WCDMA Band (1900) mobile phone with GPRS, EGPRS, HSDPA, HSUPA and WLAN and Bluetooth. Bluetooth and WLAN are tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-730	008600/08/003879/6	0201	-	022.001	23642
Battery	BL-4D	4620401117N20510664;0670605	-	-	-	23629
Headset	WH-102	06943250432H2610503	-	-	-	23613
AC-Charger	AC-8C	4884750383170507326;0675391	-	-	-	23623
Phone	RM-730	008600/08/003891/1	0201	-	022.001	23647

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(0.4(2))	Conducted peak output power	Passed
15.247(d)	A8(0.5)	Band edge compliance of RF emissions	Passed
15.247(d)	A8(0.5)	Spurious RF conducted emissions	Passed
15.247(d), 15.209	A8(0.5)	Spurious radiated emissions	Passed
15.207	7.2.2	AC powerline conducted emissions	Passed
15.247(a)(1)	A8(0.1(1))	20dB(bandwidth)	Passed
15.247(a)(1)	A8(0.1(2))	Carrier frequency separation	Passed
15.247(a)(1)(iii)	A8(0.1(4))	Number of hopping frequencies	Passed
15.247(a)(1)(iii)	A8(0.1(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 Laboratory.

CONTENTS

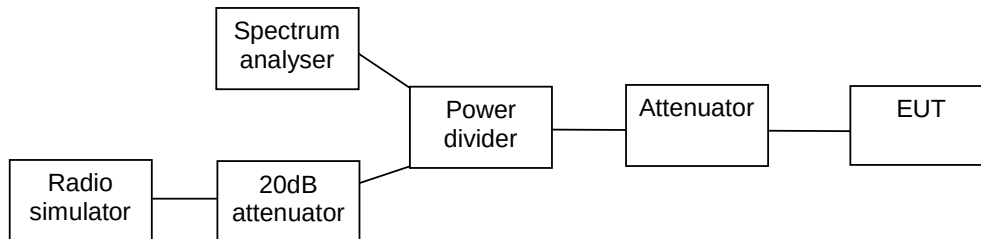
1. Summary for FCC Part 15C Compliance Test Report	2
1.1. EUT and Accessory Information	2
1.2. Summary of Test Results	2
2. Conducted peak output power (15.247(b)(1), RSS-210 A8.4 (2))	5
2.1. Test Setup	5
2.2. Test method and limit	5
2.3. Bluetooth Test results	6
3. Spurious RF conducted emissions (FCC §15.247(d), RSS-210 A8.5)	9
3.1. Test Setup	14
3.2. Test method and limit	14
3.3. Bluetooth Test results	15
4. AC powerline conducted emissions FCC §15.207, RSS-GEN 7.2.2	18
4.1. Test Setup	23
4.2. Test method and limit	23
4.3. Bluetooth Test results	24
5. 20 dB bandwidth 15.247(a)(1), A8.1 (a)	25
5.1. Test Setup	25
5.2. Test method and limit	25
5.3. Bluetooth Test results	26
6. Carrier frequency separation 15.247(a)(1), A8.1 (b)	29
6.1. Test Setup	29
6.2. Test method and limit	29
6.3. Bluetooth Test results	30
7. Number of hopping frequencies 15.247(a)(1)(iii), A8.1 (d)	32
7.1. Test Setup	32
7.2. Test method and limit	32
7.3. Bluetooth Test results	33
8. Time of occupancy 15.247(a)(1)(iii), A8.1 (d)	35
8.1. Test Setup	35
8.2. Test method and limit	35
8.3. Bluetooth Test results	36

9. Test Equipment	38
9.1. Conducted measurements	38
9.2. Radiated measurements	38

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

EUT with DUT number	RM-730, DUT 23642
Accessories with DUT numbers	BL-4D, DUT 23629 ; WH-102, DUT 23613 ; AC-8C, DUT 23623
Operation Voltage [V] / [Hz]	115 / 60
Results	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 43 / 100.1
Date of measurements	12-May-2011
Measured by	Ruben Hansen

2.1. Test Setup



2.2. 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

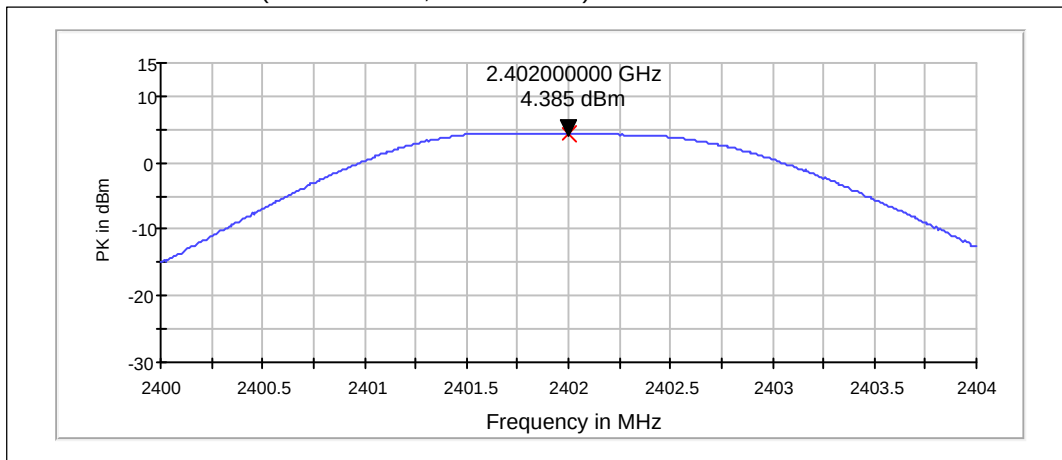
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	<= 1	<= 30

2.3. Bluetooth Test results

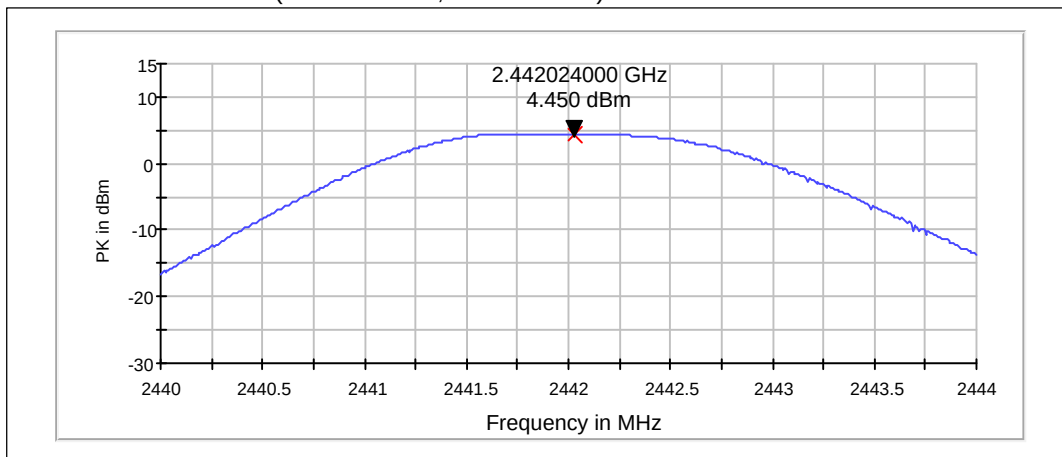
2.3.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	4.39	2.748	PASSED
40 / 2442	4.45	2.786	PASSED
78 / 2480	3.92	2.466	PASSED

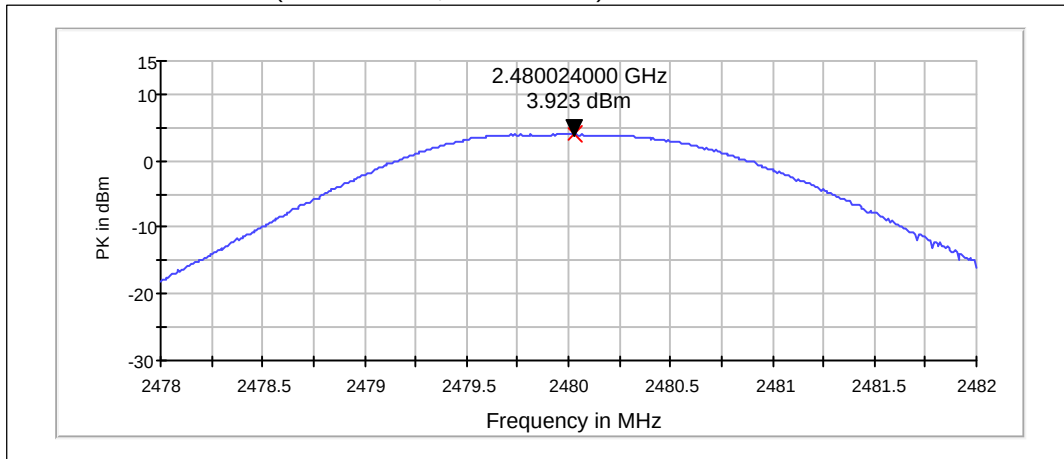
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz)



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



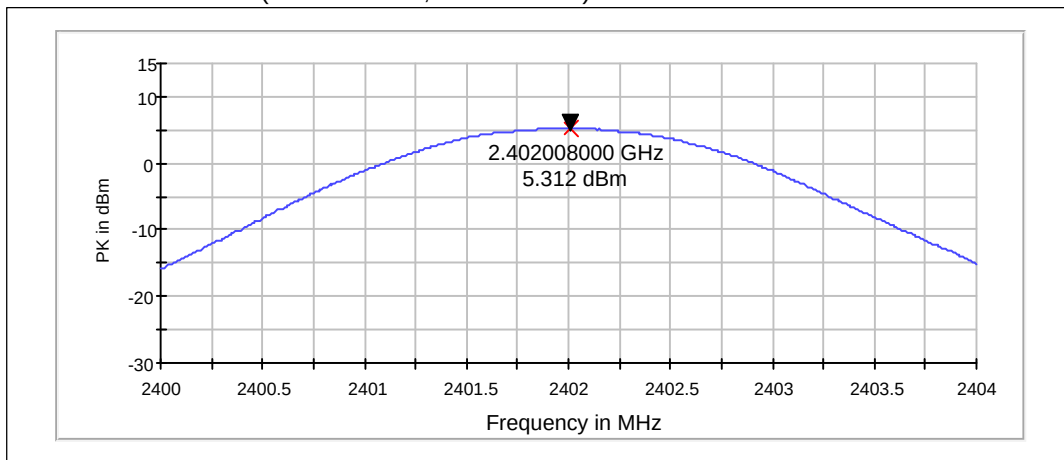
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz)



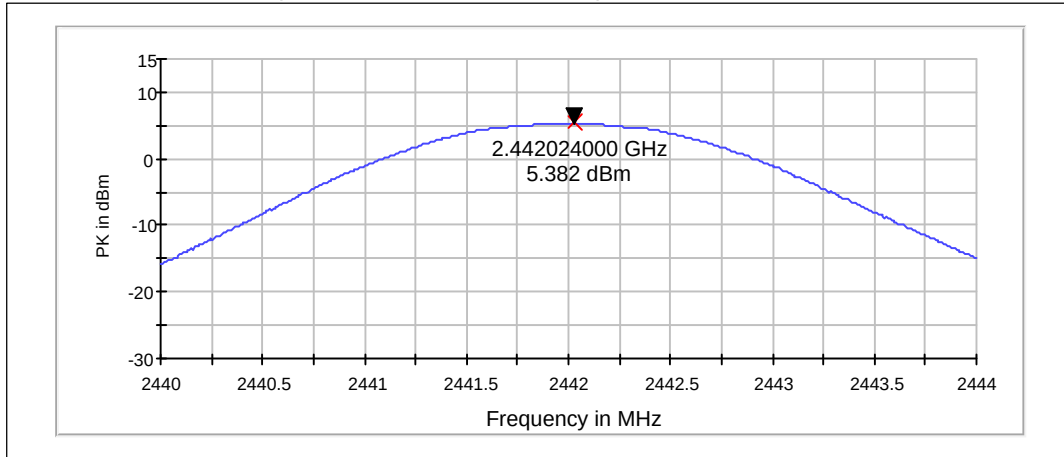
2.3.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	5.31	3.396	PASSED
40 / 2442	5.38	3.451	PASSED
78 / 2480	4.9	3.09	PASSED

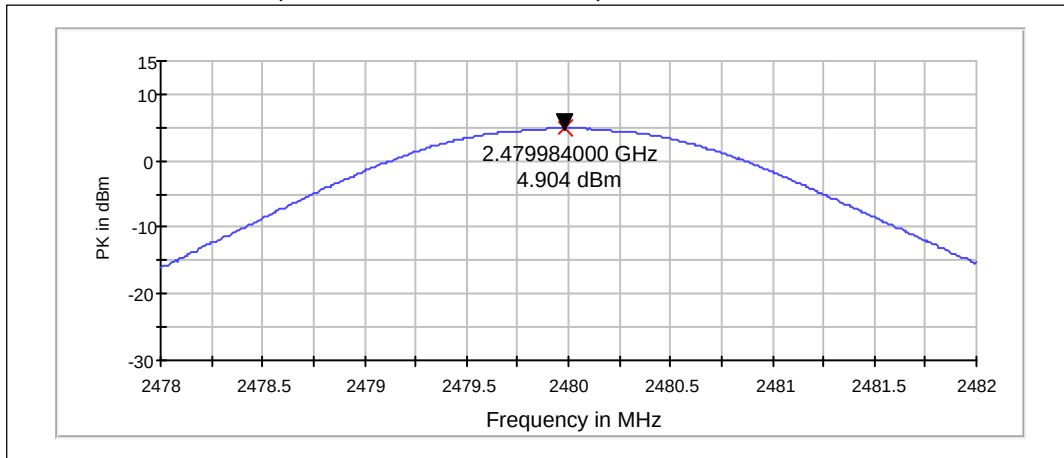
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz)



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



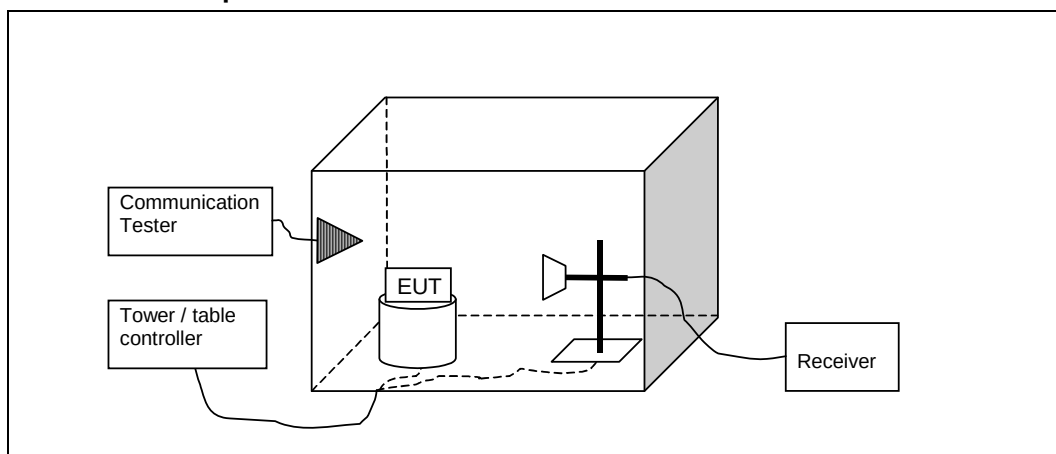
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz)



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

EUT with DUT number	RM-730, DUT 23647
Accessories with DUT numbers	BL-4D, DUT 23629 ; AC-8C, DUT 23623 ; WH-102, DUT 23613
Operation Voltage [V] / [Hz]	115 / 60
Results	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 43 / 100.1
Date of measurements	15-Jun-2011
Measured by	Christian Andersen

3.1.1 Test Setup



3.2. Test method and limit

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

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 ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

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

3.3. Bluetooth Test results

3.3.1 GFSK modulation, PRBS packet type

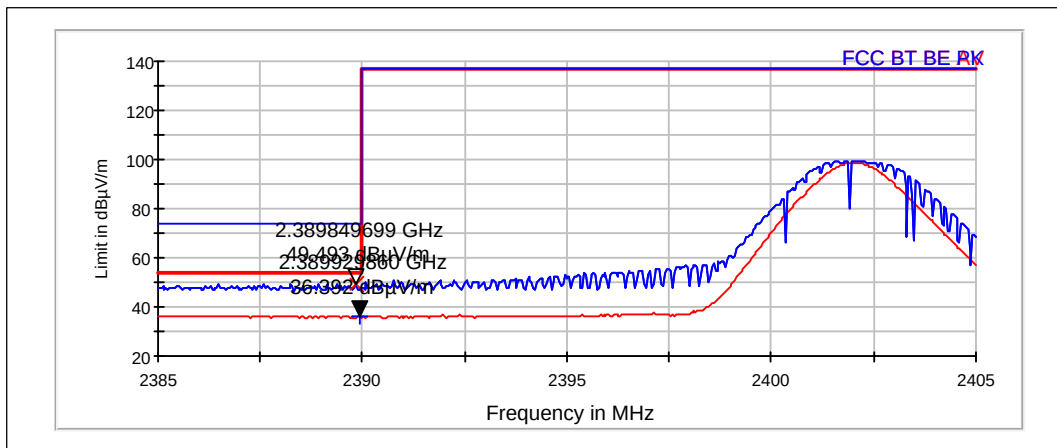
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U_{RX} [dB μ V]	A_{TOT} [dB]	Result
0 / 2402	36.39	66.006	36.77	-0.38	Passed
Hopping on, low end	38.19	81.176	38.57	-0.38	Passed
78 / 2480	46.47	210.557	45.92	0.55	Passed
Hopping on, high end	46.47	210.557	45.92	0.55	Passed

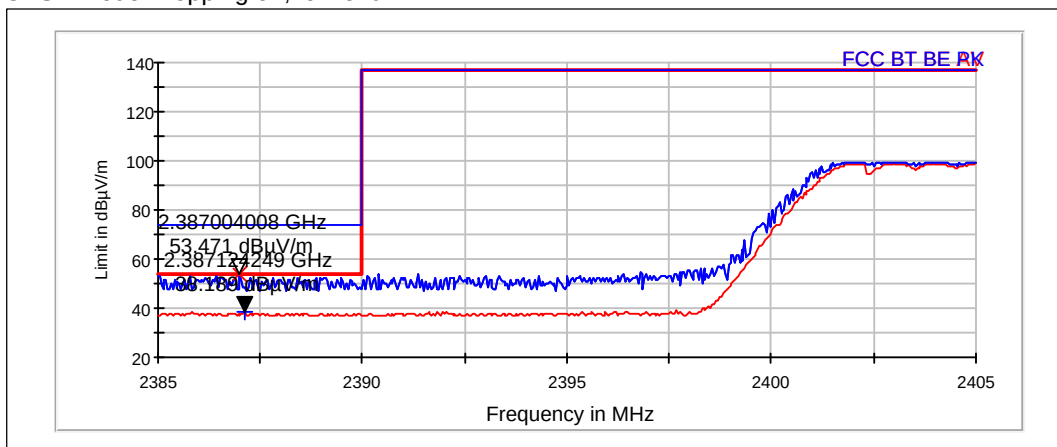
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U_{RX} [dB μ V]	A_{TOT} [dB]	Result
0 / 2402	49.49	298.306	49.87	-0.38	Passed
Hopping on, low end	53.47	471.557	53.85	-0.38	Passed
78 / 2480	54.51	531.218	53.96	0.55	Passed
Hopping on, high end	52.99	446.191	52.44	0.55	Passed

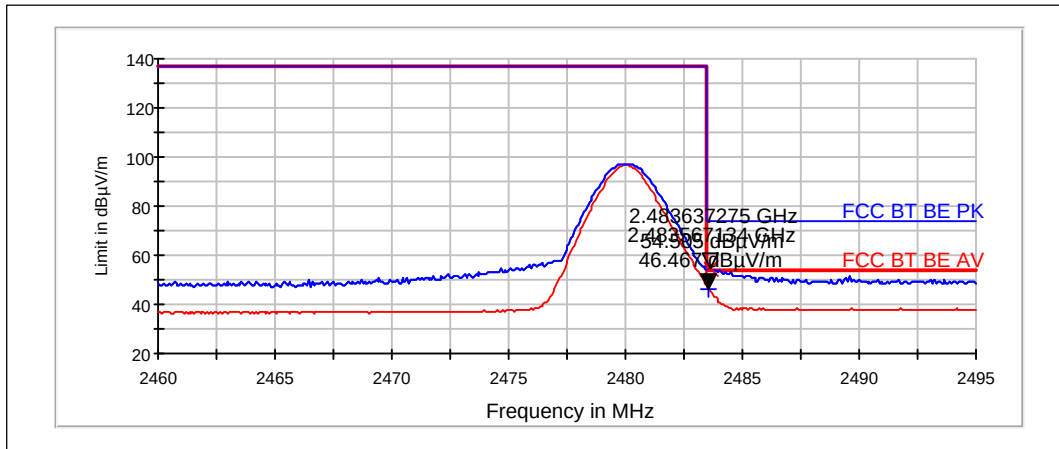
GFSK mode. Channel 0 / 2402 MHz



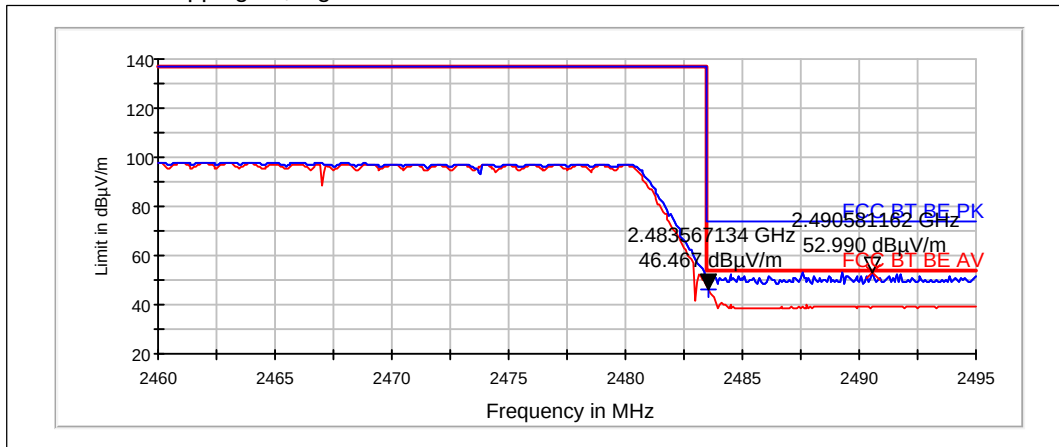
GFSK mode. Hopping on, low end



GFSK mode. Channel 78 / 2480 MHz



GFSK mode. Hopping on, high end



3.3.2 8DPSK modulation, PRBS packet type

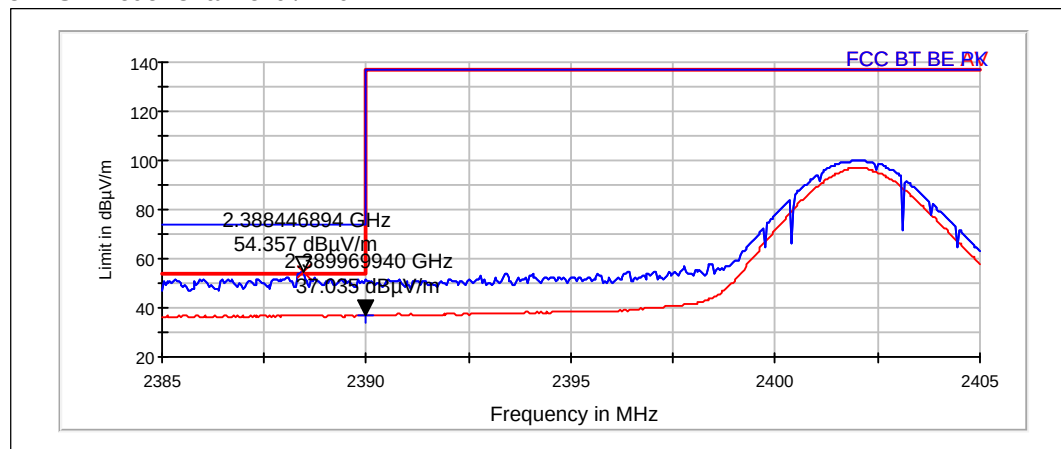
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U_{RX} [dB μ V]	A_{TOT} [dB]	Result
0 / 2402	37.04	71.084	37.42	-0.38	Passed
Hopping on, low end	40.96	111.657	41.34	-0.38	Passed
78 / 2480	47.57	239.011	47.02	0.55	Passed
Hopping on, high end	48.17	256.083	47.62	0.55	Passed

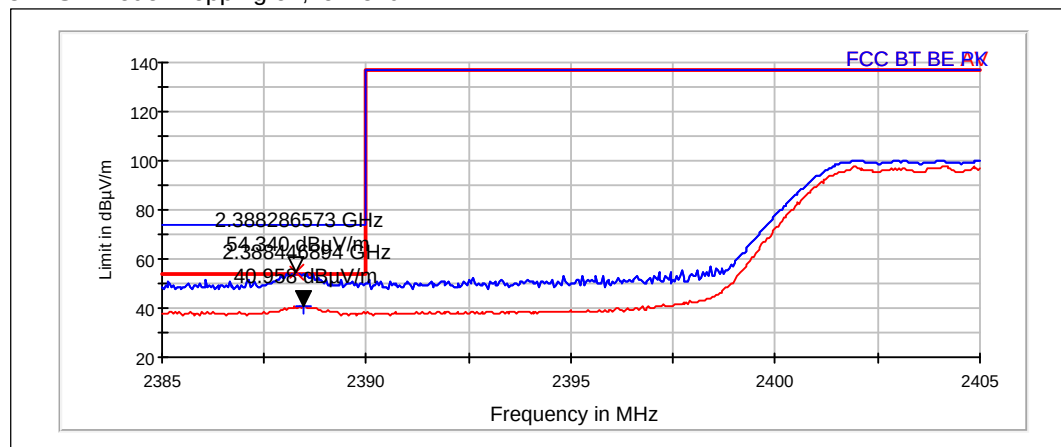
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U_{RX} [dB μ V]	A_{TOT} [dB]	Result
0 / 2402	54.36	522.199	54.74	-0.38	Passed
Hopping on, low end	54.34	521.199	54.72	-0.38	Passed
78 / 2480	55.63	604.322	55.08	0.55	Passed
Hopping on, high end	53.59	478.057	53.04	0.55	Passed

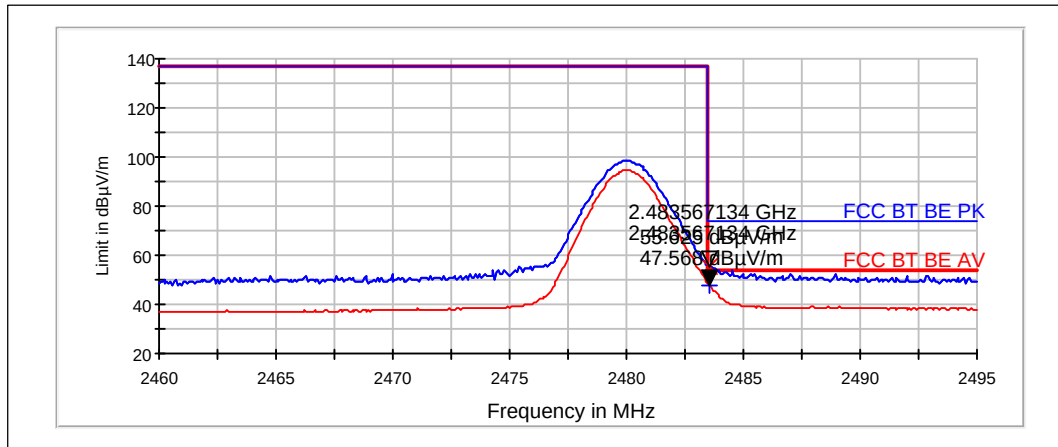
8DPSK mode. Channel 0 / 2402 MHz



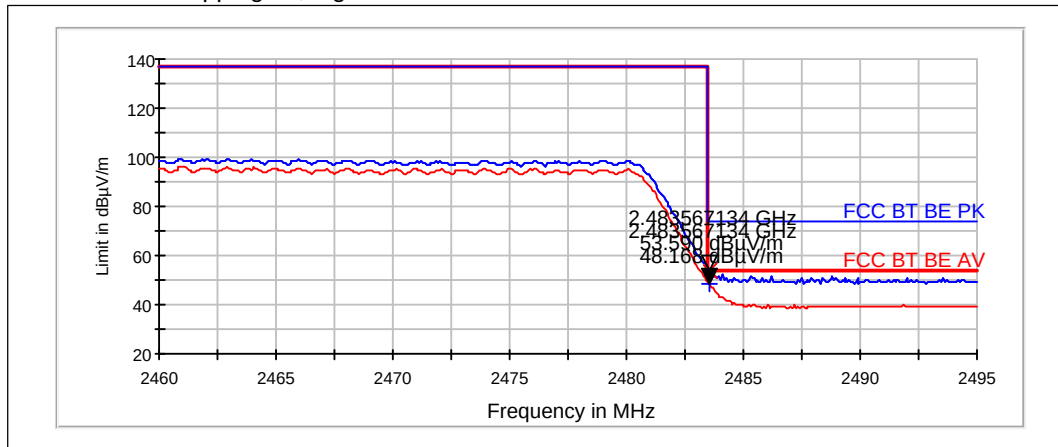
8DPSK mode. Hopping on, low end



8DPSK mode. Channel 78 / 2480 MHz



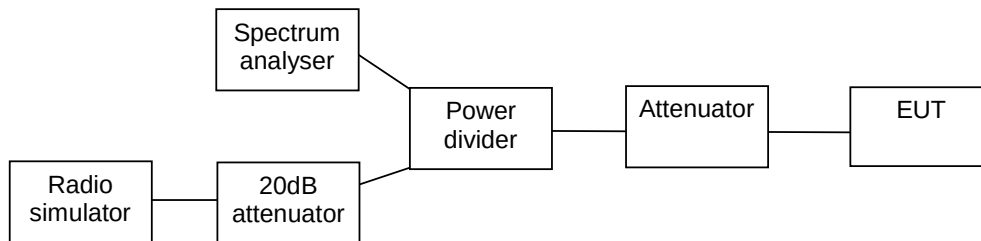
8DPSK mode. Hopping on, high end



4. Spurious RF conducted emissions (FCC §15.247(d), RSS-210 A8.5)

EUT with DUT number	RM-730, DUT 23642
Accessories with DUT numbers	BL-4D, DUT 23629 ; WH-102, DUT 23613 ; AC-8C, DUT 23623
Operation Voltage [V] / [Hz]	115 / 60
Results	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 43 / 100.1
Date of measurements	12-May-2011
Measured by	Ruben Hansen

4.1. Test Setup



4.2. Test method and limit

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

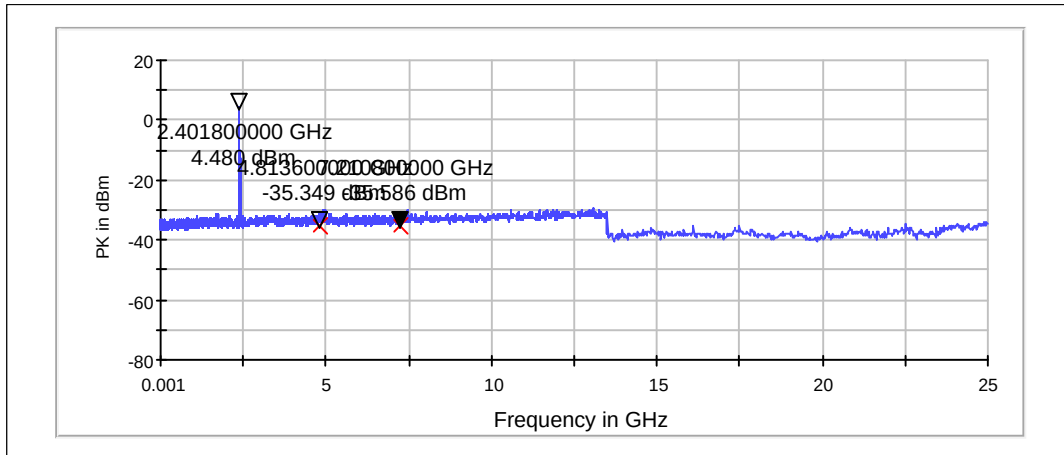
Limits for spurious RF conducted emissions measurements

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

4.3. Bluetooth Test results

4.3.1 GFSK modulation, PRBS packet type

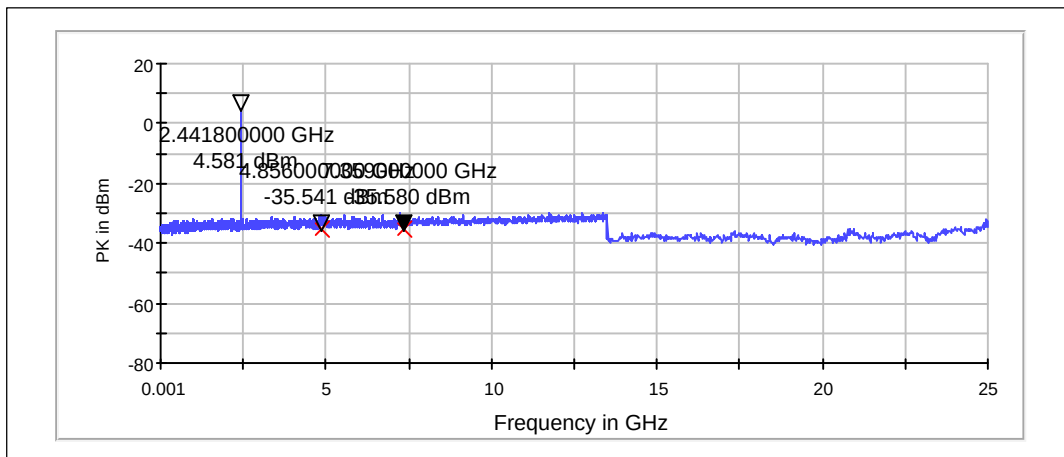
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4813.6	-35.35	PASSED
7210.8	-35.59	PASSED

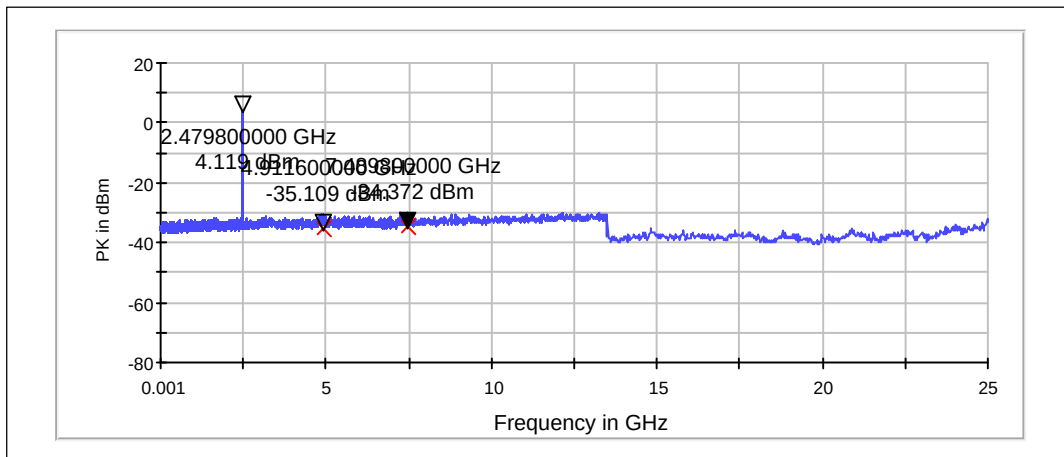
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4856	-35.54	PASSED
7359	-35.58	PASSED

Channel 78 / 2480 MHz

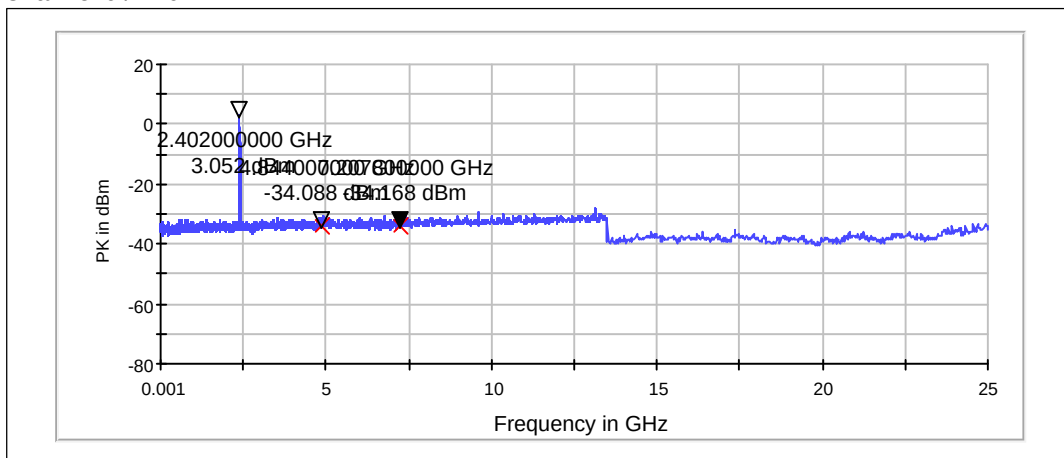


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4911.6	-35.11	PASSED
7489.8	-34.37	PASSED

4.3.2 8DPSK modulation, PRBS packet type

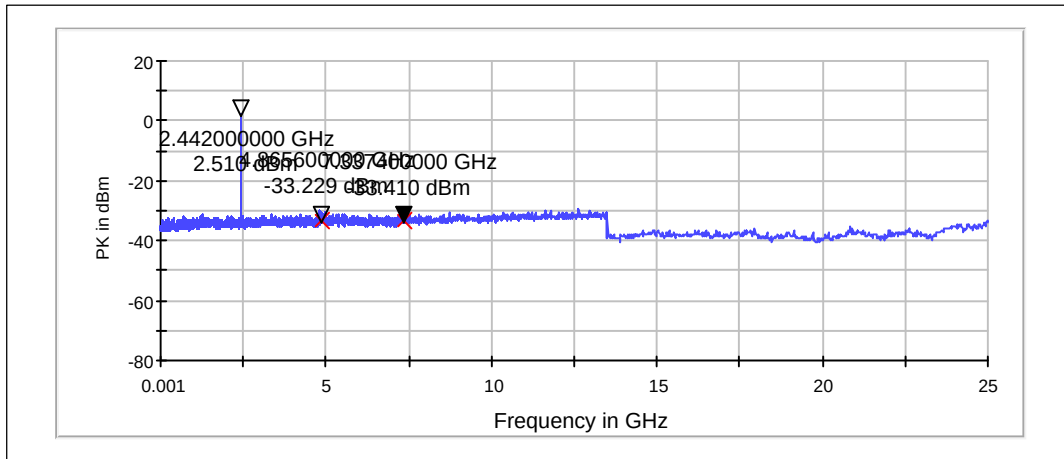
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4844	-34.09	PASSED
7207.8	-34.17	PASSED

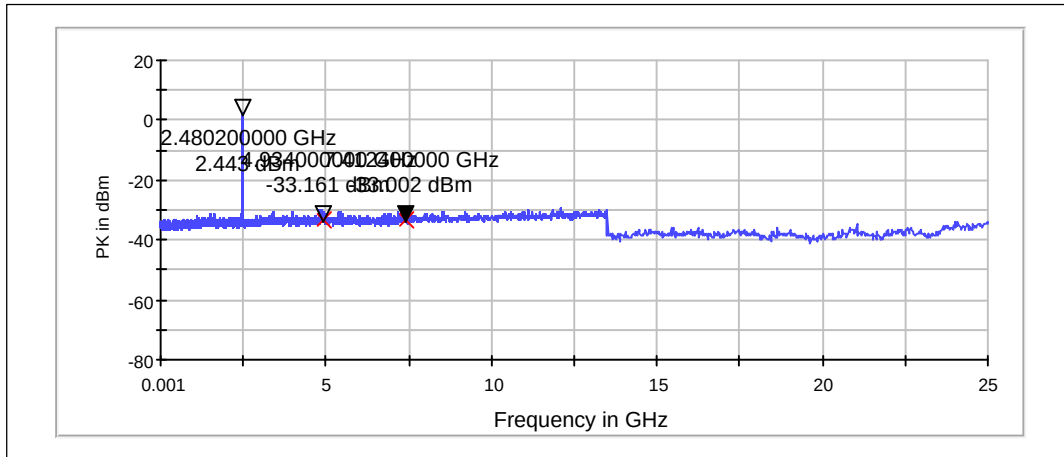
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4865.6	-33.23	PASSED
7337.4	-33.41	PASSED

Channel 78 / 2480 MHz



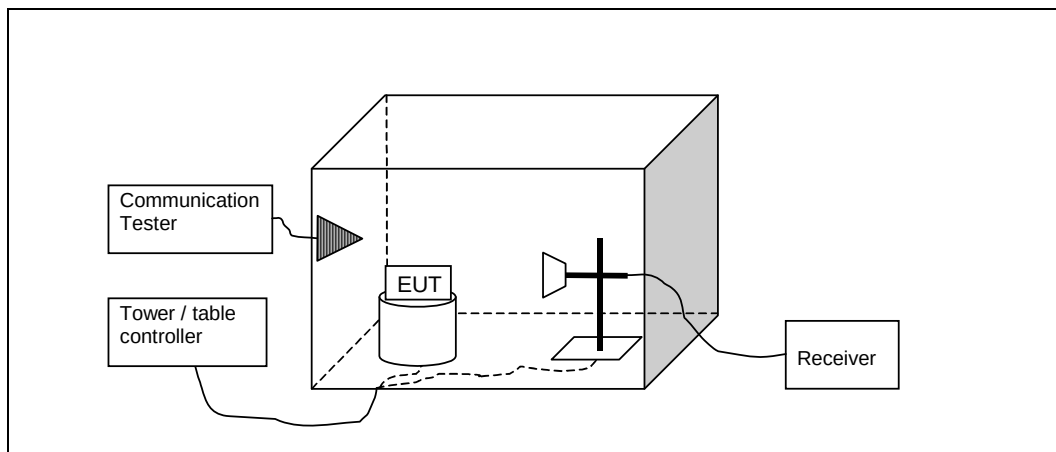
Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4934	-33.16	PASSED
7412.4	-33	PASSED

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

EUT with DUT number	RM-730, DUT 23647
Accessories with DUT numbers	BL-4D, DUT 23629 ; AC-8C, DUT 23623 ; WH-102, DUT 23613
Operation Voltage [V] / [Hz]	115 / 60
Results	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 43 / 100.1
Date of measurements	15-Jun-2011
Measured by	Christian Andersen

5.1.1 Test Setup



5.2. 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 ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

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

Frequency range [MHz]	Limit [$\mu V/m$]	Limit [dB $\mu V/m$]	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

5.3. Bluetooth Test results

5.3.1 GFSK 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
4805.7	46.33	207.276	44.24	2.09	VERTICAL	Passed
7206	48.18	256.389	37.07	11.11	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
4805.7	28.37	26.206	26.28	2.09	VERTICAL	Passed
7206	35.31	58.244	24.2	11.11	VERTICAL	Passed

Channel 40 / 2442 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
30.03	20.25	10.296	27.29	-7.04	VERTICAL	Passed
30.12	26.13	20.242	33.23	-7.1	VERTICAL	Passed
30.21	21.48	11.851	28.63	-7.15	VERTICAL	Passed
31.89	28.89	27.836	37.04	-8.15	VERTICAL	Passed
33.631	19.54	9.487	28.73	-9.19	VERTICAL	Passed
35.11	24.92	17.614	34.99	-10.07	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
3917.436	38.66	85.704	39.54	-0.88	HORIZONTAL	Passed
3943.988	38.64	85.497	39.54	-0.9	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
3917.436	25.7	19.264	26.58	-0.88	HORIZONTAL	Passed
3943.988	25.59	19.039	26.49	-0.9	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
4961.9	43.25	145.295	40.78	2.47	HORIZONTAL	Passed
7441.4	48.52	266.778	36.68	11.84	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
4961.9	30.61	33.939	28.14	2.47	HORIZONTAL	Passed
7441.4	35.86	62.087	24.02	11.84	HORIZONTAL	Passed

5.3.2 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
4804.3	43.64	152.055	41.53	2.11	HORIZONTAL	Passed
7204.5	47.83	246.405	36.81	11.02	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
4804.3	28.49	26.583	26.38	2.11	HORIZONTAL	Passed
7204.5	35.12	57.03	24.1	11.02	VERTICAL	Passed

Channel 40 / 2442 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
30.03	20.19	10.221	27.23	-7.04	VERTICAL	Passed
31.83	25.92	19.77	34.04	-8.12	VERTICAL	Passed
31.995	23.38	14.757	31.59	-8.21	VERTICAL	Passed
32.024	23.36	14.728	31.59	-8.23	VERTICAL	Passed
34.144	25.9	19.715	35.39	-9.49	VERTICAL	Passed
34.46	21.16	11.422	30.84	-9.68	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
3904.207	38.17	80.993	39.04	-0.87	HORIZONTAL	Passed
3929.956	38.53	84.421	39.42	-0.89	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
3904.207	25.51	18.852	26.38	-0.87	HORIZONTAL	Passed
3929.956	25.47	18.772	26.36	-0.89	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
4958.1	44.36	165.253	41.9	2.46	HORIZONTAL	Passed
7441.6	49.18	287.74	37.33	11.85	HORIZONTAL	Passed

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

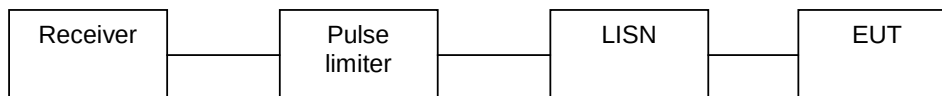
Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4958.1	30.59	33.849	28.13	2.46	HORIZONTAL	Passed
7441.6	35.83	61.894	23.98	11.85	HORIZONTAL	Passed

6. AC powerline conducted emissions

FCC §15.207, RSS-GEN 7.2.2

EUT with DUT number	RM-730, DUT 23647
Accessories with DUT numbers	BL-4D, DUT 23629 ; CA-100C, DUT 23621 ; AC-8C, DUT 23623
Operation Voltage [V] / [Hz]	115 / 60
Results	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 43 / 100.1
Date of measurements	07-Jun-2011
Measured by	Bo Moltved Christiansen

6.1. Test Setup



6.2. 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:

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

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

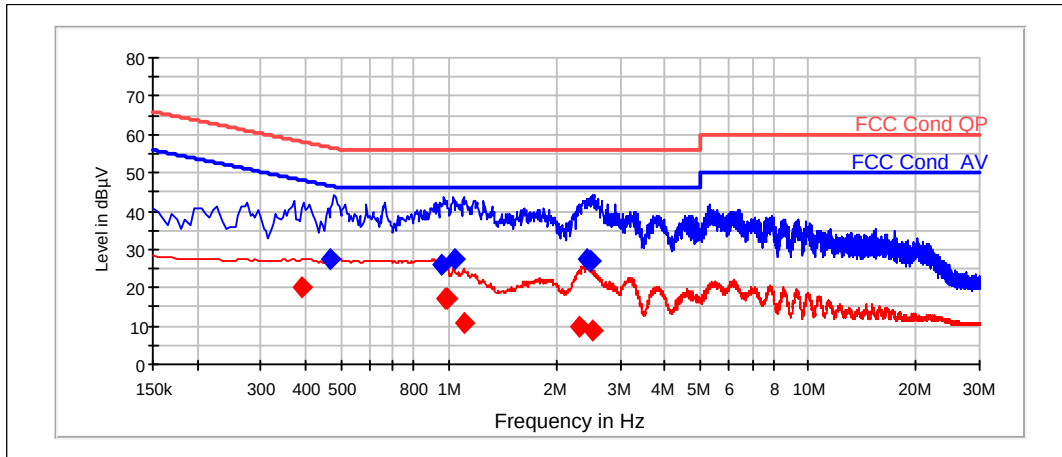
CISPR 22 Class B limits

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

6.3. Bluetooth Test results

6.3.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.47	27.29	N	PASSED
0.96	26.25	N	PASSED
1.035	27.29	N	PASSED
2.435	27.26	N	PASSED
2.495	26.92	N	PASSED

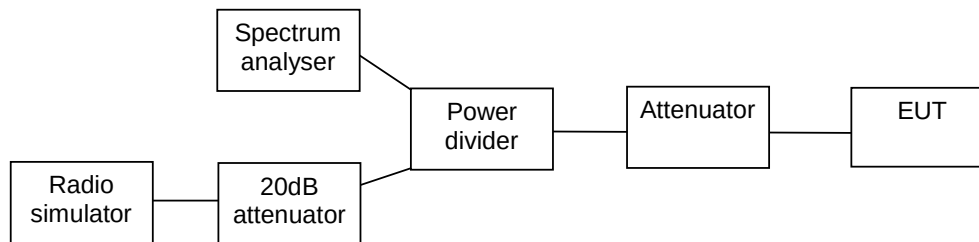
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.39	20.18	N	PASSED
0.975	17.19	N	PASSED
0.985	17.2	N	PASSED
1.105	11	N	PASSED
2.32	9.78	N	PASSED
2.51	8.91	N	PASSED

7. 20 dB bandwidth 15.247(a)(1), A8.1 (a)

EUT with DUT number	RM-730, DUT 23642
Accessories with DUT numbers	BL-4D, DUT 23629 ; WH-102, DUT 23613 ; AC-8C, DUT 23623
Operation Voltage [V] / [Hz]	115 / 60
Results	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 43 / 100.1
Date of measurements	12-May-2011
Measured by	Ruben Hansen

7.1. Test Setup



7.2. 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

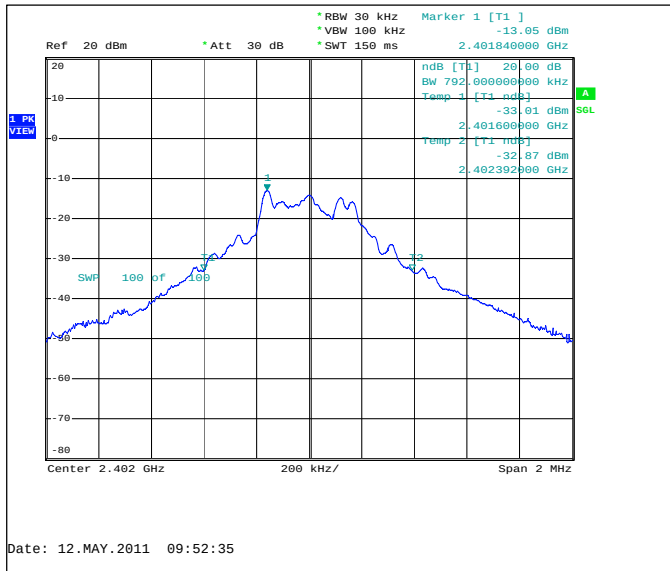
Limit [MHz]
N/A

7.3. Bluetooth Test results

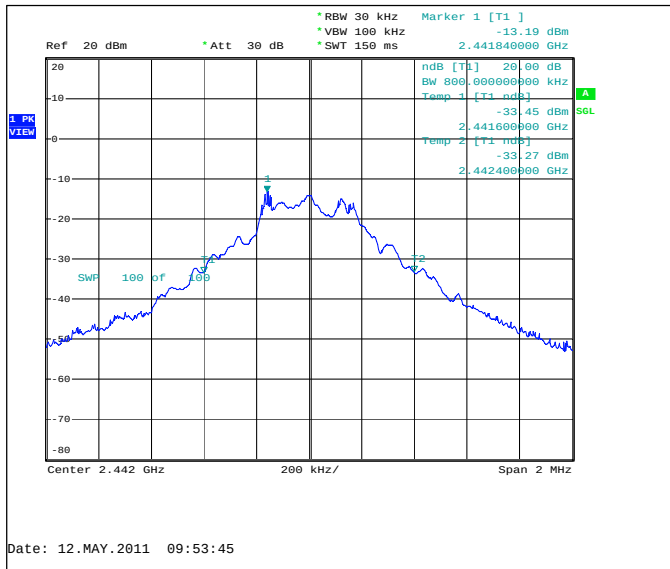
7.3.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]
0 / 2402	792
40 / 2442	800
78 / 2480	792

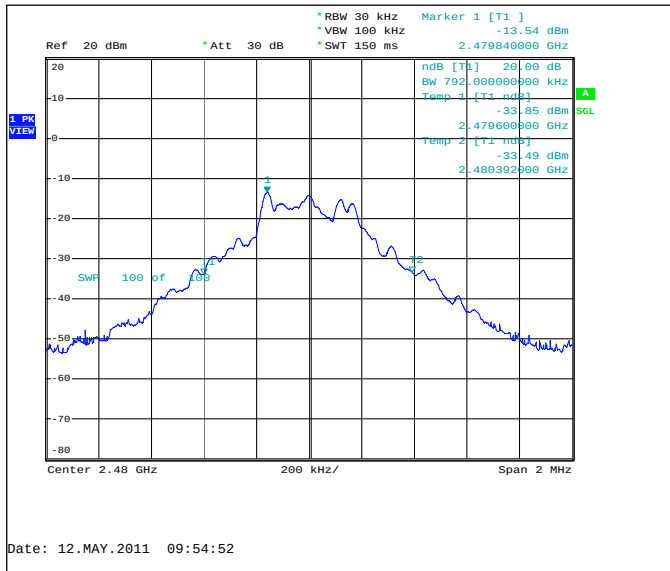
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



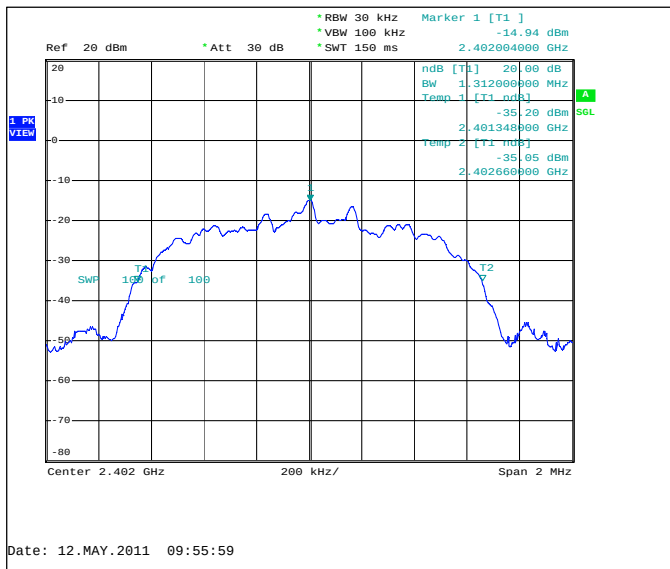
Channel 78 / 2480 MHz



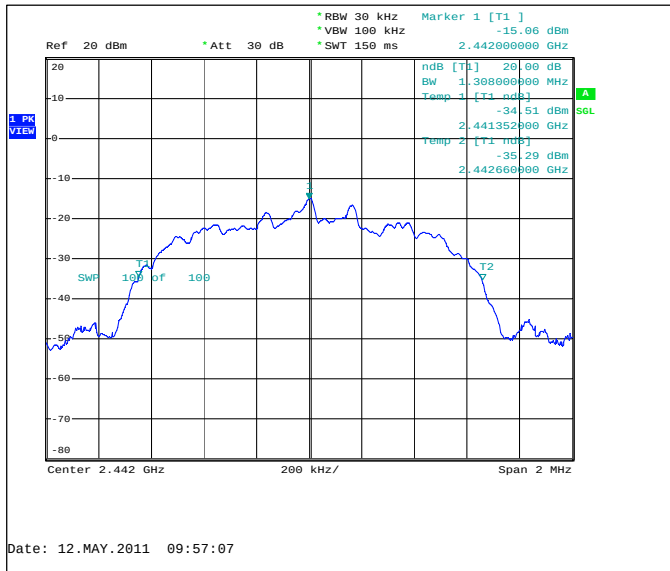
7.3.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]
0 / 2402	1312
40 / 2442	1308
78 / 2480	1304

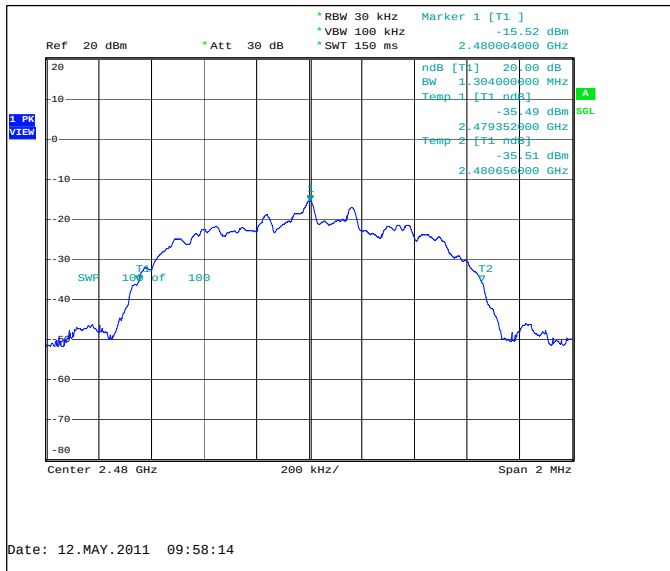
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



Channel 78 / 2480 MHz

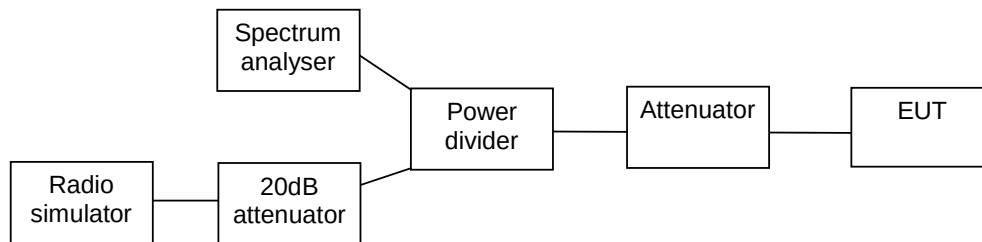


8. Carrier frequency separation

15.247(a)(1), A8.1 (b)

EUT with DUT number	RM-730, DUT 23642
Accessories with DUT numbers	BL-4D, DUT 23629 ; WH-102, DUT 23613 ; AC-8C, DUT 23623
Operation Voltage [V] / [Hz]	115 / 60
Results	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 43 / 100.1
Date of measurements	12-May-2011
Measured by	Ruben Hansen

8.1. Test Setup



8.2. 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

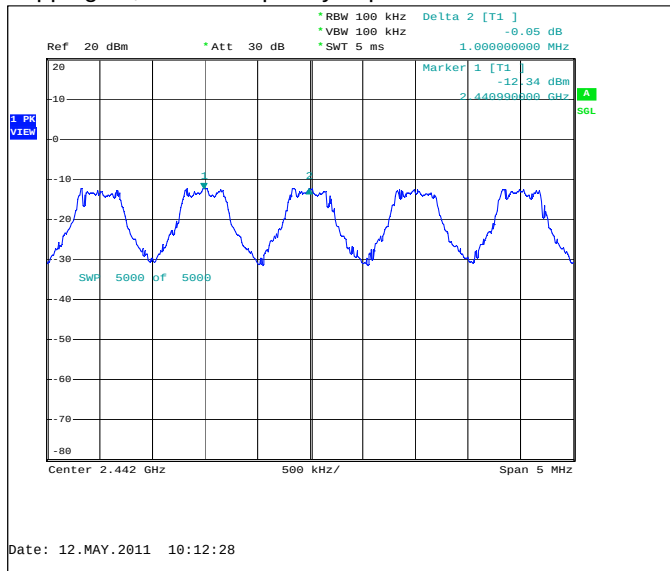
Limit [MHz]
≥ 0.025 or $2/3$ of the 20 dB bandwidth

8.3. Bluetooth Test results

8.3.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1000	PASSED

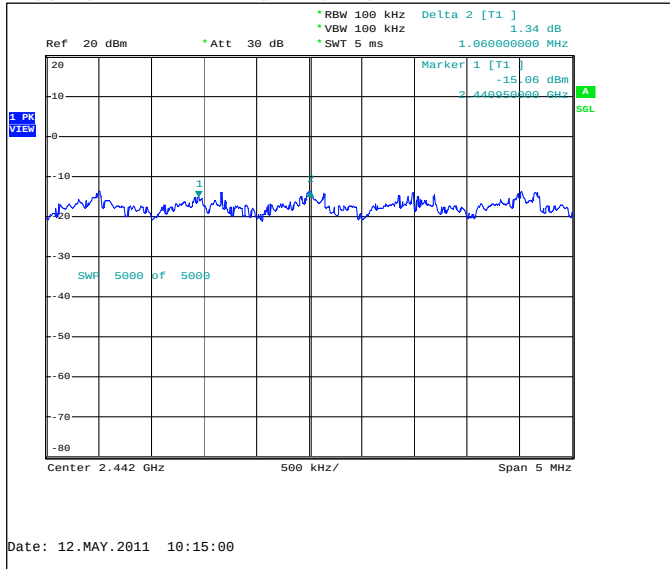
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



8.3.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1060	PASSED

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

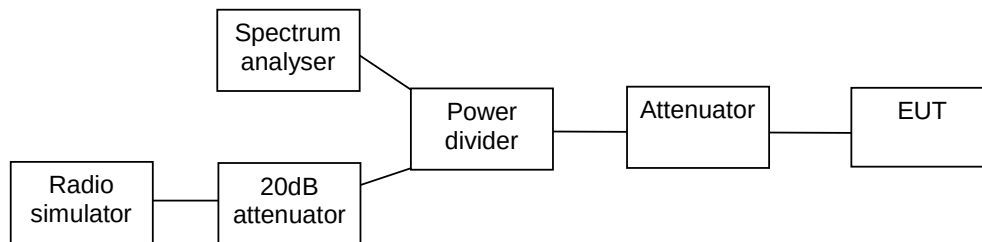


9. Number of hopping frequencies

15.247(a)(1)(iii), A8.1 (d)

EUT with DUT number	RM-730, DUT 23642
Accessories with DUT numbers	BL-4D, DUT 23629 ; WH-102, DUT 23613 ; AC-8C, DUT 23623
Operation Voltage [V] / [Hz]	115 / 60
Results	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 43 / 100.1
Date of measurements	12-May-2011
Measured by	Ruben Hansen

9.1. Test Setup



9.2. 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

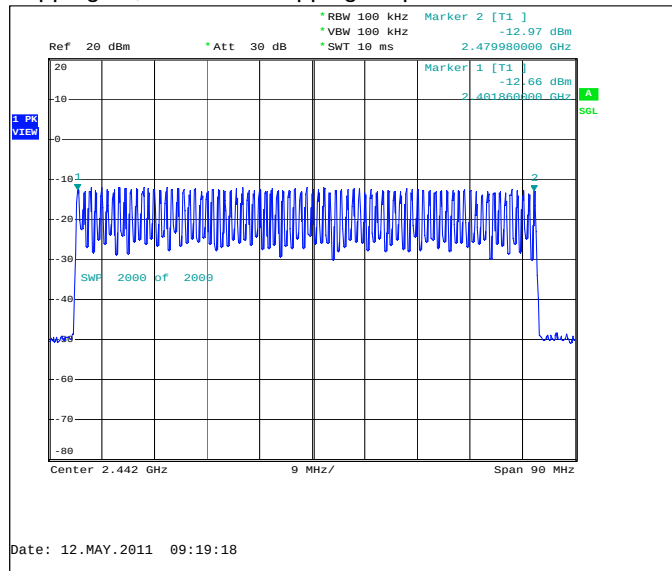
Limit [number]
>= 15

9.3. Bluetooth Test results

9.3.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
78	PASSED

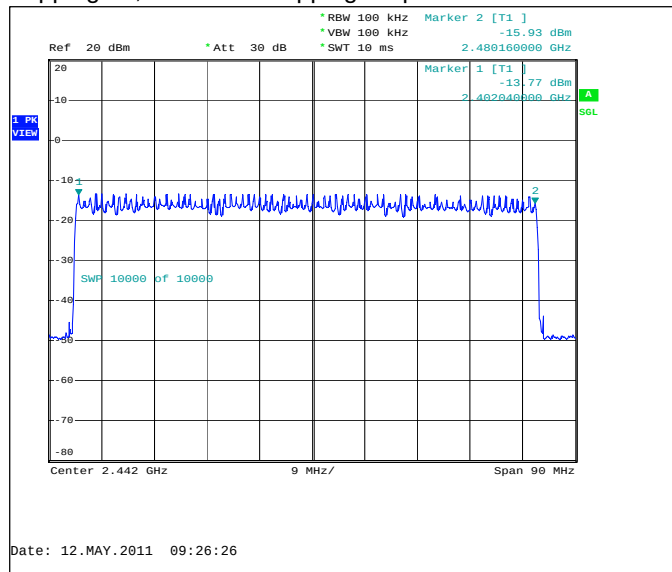
Hopping on, number of hopping frequencies



9.3.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
67	PASSED

Hopping on, number of hopping frequencies

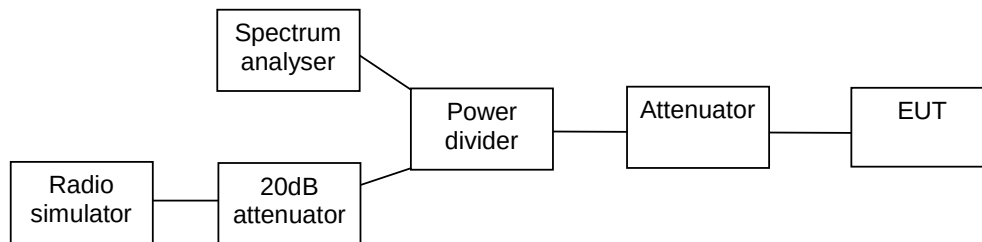


10. Time of occupancy

15.247(a)(1)(iii), A8.1 (d)

EUT with DUT number	RM-730, DUT 23642
Accessories with DUT numbers	BL-4D, DUT 23629 ; WH-102, DUT 23613 ; AC-8C, DUT 23623
Operation Voltage [V] / [Hz]	115 / 60
Results	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 43 / 100.1
Date of measurements	12-May-2011
Measured by	Ruben Hansen

10.1. Test Setup



10.2. Test method and limit

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

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

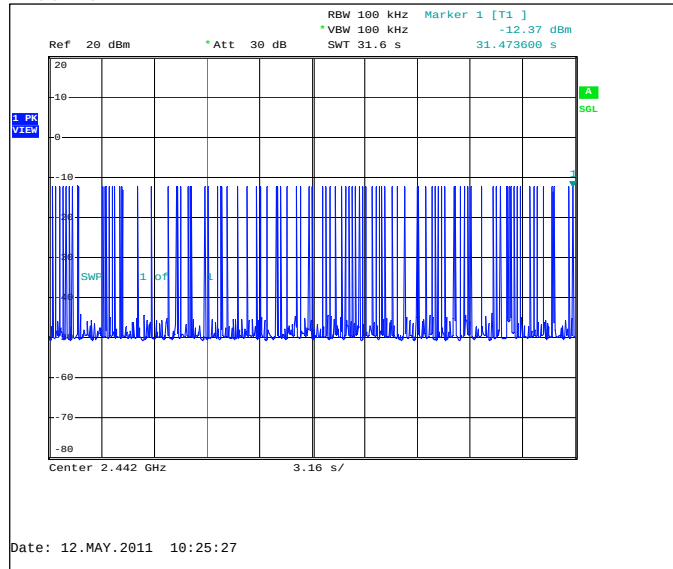
Limit [s]
<= 0.4

10.3. Bluetooth Test results

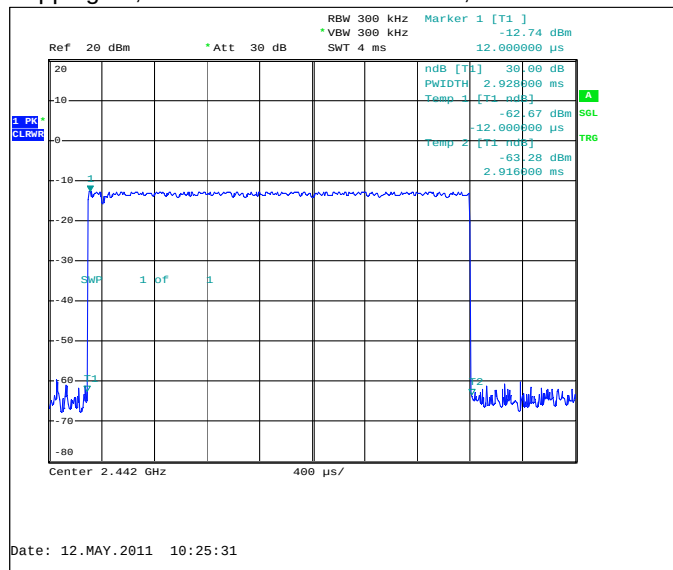
10.3.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [ms]	Time of occupancy [s]	Result
87	2.928	0.255	PASSED
93	2.928	0.272	PASSED

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



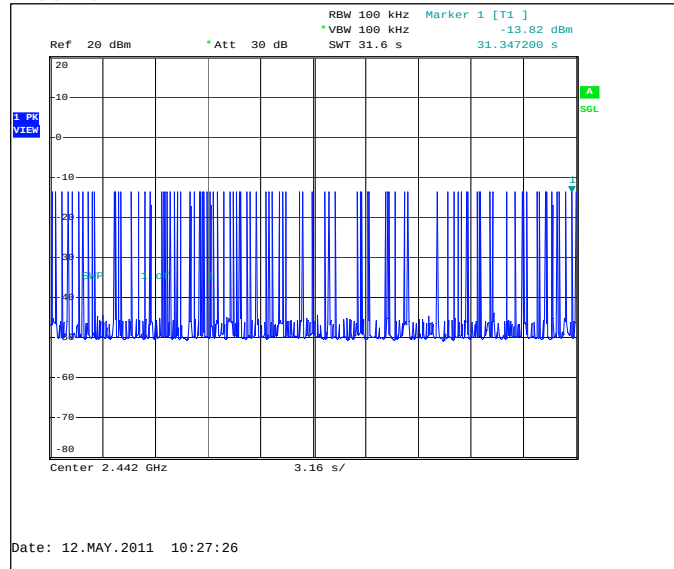
Hopping on, duration of one transmission, channel 40 / 2442 MHz



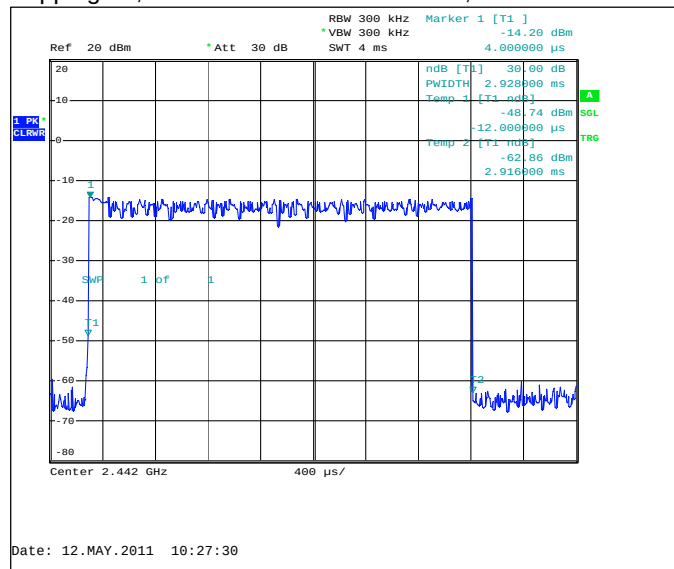
10.3.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [ms]	Time of occupancy [s]	Result
82	2.928	0.24	PASSED
78	2.928	0.228	PASSED

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



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



11. Test Equipment

11.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
13037	Power Supply 0-15V 10A	EA3012	LP Instruments	15C, 15B
13357	Signal Generator	SMP02	Rohde&Schwarz	22/24/27, 15C, 15B
13513	Pulse Limiter	ESH3Z2	Rohde&Schwarz	15C, 15B
13666	Receiver	ESPC	Rohde&Schwarz	15C, 15B
13935	LISN	ESH3-Z5	Rohde&Schwarz	15C, 15B
20682	LISN	ESH3-Z5	Rohde&Schwarz	15C, 15B
16601	Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 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
18772	Shielded Chamber	RFD-100	ETS-Lindgren	15C, 15B
19116	Power splitter	-	various	22/24/27, 15C, 15B
19171	Communication Tester	CMU200	Rohde&Schwarz	15C, 15B
19625	Climatic Chamber	VT4002EMC	Vötsch	22/24/27, 15C, 15B
19678	Spectrum Analyzer	FSP	Rohde&Schwarz	22/24/27, 15C, 15B
20168	Bluetooth Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B
20543	UPS. 700V/A 490W	PW 9120 700i	Powerware	22/24/27, 15C, 15B
20544	Transformer. 230/115V	-	Nokia	22/24/27, 15C, 15B
20739	Communication Tester	CMU200	Rohde&Schwarz	15C, 15B

11.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
13077	Power Supply	EA-3016	-	22/24/27, 15C, 15B
13799	Signal Generator	SMP02	Rohde&Schwarz	22/24/27, 15C, 15B
13936	Band reject filter	WRCD1747.5-0.2/40-10SS	Wainwright Instruments	22/24/27, 15C, 15B
13937	Band reject filter	WRCA902.4-0.2/40-6SS	Wainwright Instruments	22/24/27, 15C, 15B
14021	Relay Dual 6 Chnl μ Wave Mux	10-785-522	-	22/24/27, 15C, 15B
14114	Highpass Filter	WHK1000-12SS	Wainwright Instruments	22/24/27, 15C, 15B
14187	Band reject filter	WRCD1747.5-0.2/40-10SS	Wainwright	22/24/27, 15C, 15B
14188	Band reject filter	WRCA902.4-0.2/40-6SS	Wainwright	22/24/27, 15C, 15B
14900	Antenna Controller	HD100	HD GmbH	22/24/27, 15C, 15B
15191	Turntable Controller Unit	G-800SDX	YAESU	22/24/27, 15C, 15B
15742	Programmable Relay Switching System	-----	Pickering	22/24/27, 15C, 15B
16633	Band reject filter	WRCD1880.0-0.2/40-10SS	Wainwright	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
17644	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
18416	Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
18773	Anechoic chamber	RFD-100	ETS-Lindgren	22/24/27, 15C, 15B
18774	Anechoic chamber	RFSD-F/A-100	ETS-Lindgren	22/24/27, 15C, 15B
18792	Mast/turntable controller	2090	ETS-EMCO	22/24/27, 15C, 15B
18860	Antenna	HL562	Rohde&Schwarz	22/24/27, 15C, 15B
19151	High Pass Filter	WHJS3000-10SS	Wainwright	22/24/27, 15C, 15B
19587	Band reject filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	22/24/27, 15C, 15B
19966	Antenna	HFH2-Z2	Rohde&Schwarz	15C, 15B
20078	Relay 2x6 Chnl μ Wave Mux	10-785B-522	Pickering	22/24/27, 15C, 15B
20114	Band reject filter	WRCG1737/1743-1733/1747-40/6SS	Wainwright	22/24/27, 15C, 15B
20115	Band reject filter	-	Wainwright	22/24/27, 15C, 15B
20116	Band reject filter	WRCG832/83/-825/845-40/5SS	Wainwright	22/24/27, 15C, 15B
20168	Bluetooth Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B
20543	UPS. 700V/A 490W	PW 9120 700i	Powerware	22/24/27, 15C, 15B
20544	Transformer. 230/115V	-	Nokia	22/24/27, 15C, 15B
20698	Antenna	BBHA 9120 D	SCHWARZBECK	22/24/27, 15C, 15B
-	Relay Dual 6 Chnl μ Wave Mux	10-785-522	-	22/24/27, 15C, 15B