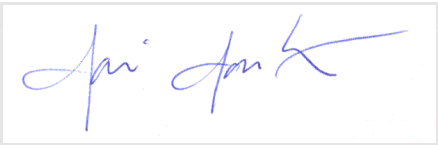
FCC Part 15C Compliance Test Report

Test Report no.:	Tre_FCC_0808_08.doc	**Date of Report:**	19-Mar-2008
Number of pages:	40	**Customer's Contact person:**	Jyrki Juvani
Testing laboratory:	TCC Nokia Tampere Laboratory P.O. Box 68 Sinitaival 5 FIN-33720 TAMPERE, FINLAND Tel. +358 (0) 7180 46800 Fax. +358 (0) 7180 46880	**Customer:**	Nokia Corporation P.O. Box 50 Elektroniikkatie 10 FIN-90571 OULU, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 47222
FCC listing no.: **IC recognition no.:**	94436 3608		
Tested devices/ accessories:	**GSM phone RM-328 / Battery BP-5M, AC-Charger AC-5E, Headset HS-47**		
FCC ID:	LJPRM-328	**IC:**	661E-RM328
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:	 Digitally signed by Jari Jantunen Date: 2008.03.19 08:24:27 +02'00'		

Jari Jantunen, System Manager

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	18-Feb-2008
Testing completed	26-Feb-2008
The customer's contact person	Jyrki Juvani
Test Plan referred to	T:\Projects\RM-328\TestPlan_RS\RS_Testplan_RM-328.xls
Notes	-
Document name	T:\Projects\RM-328\EMC\Results\FCC\Tre_FCC_0808_08.doc

1.1. EUT and Accessory Information

The EUT is a 6-band (GSM850/900/1800/1900 and WCDMA Band I/VIII) mobile phone with GPRS, EGPRS and Bluetooth. Bluetooth is tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
GSM-Phone	RM-328	004401014777060	1101	-	v2.01.01	41405
GSM-Phone	RM-328	004401014776476	1101	-	v2.01.01	41406
AC-Charger	AC-5E	-	-	-	-	41334
Battery	BP-5M	-	-	-	-	41416
Battery	BP-5M	-	-	-	-	40918
Headset	HS-47	-	-	-	-	41367
Headset	HS-47	-	-	-	-	41415

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

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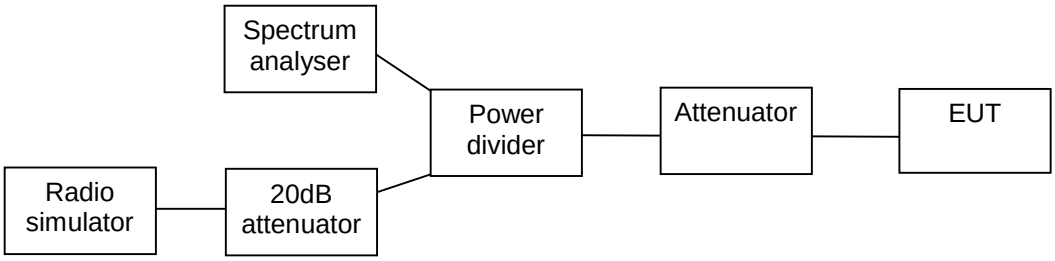
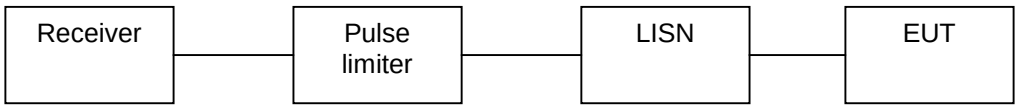
2. Test setups

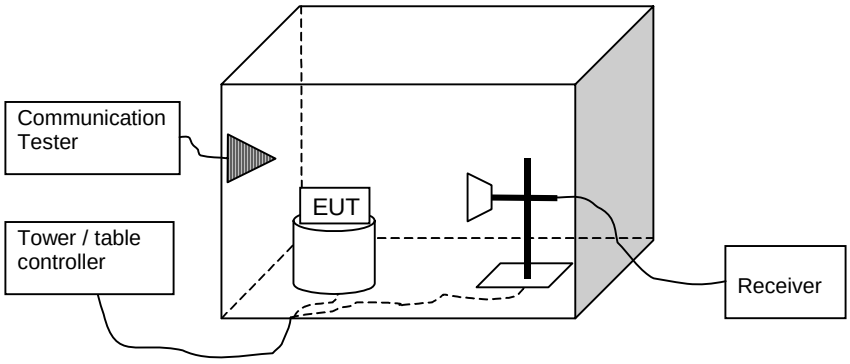
2.1. Conducted RF test setup



2.2. AC powerline conducted emissions test setup



2.3. Radiated test setup



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3. Conducted peak output power

(FCC §15.247(b)(1), RSS-210 A8.4 (2))

EUT with DUT number	RM-328 DUT 41405
Accessories with DUT numbers	BP-5M DUT 40918 / AC-5E DUT 41334 / HS-47 DUT 41367
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 50 / 101.3
Date of measurements	19-Feb-2008
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

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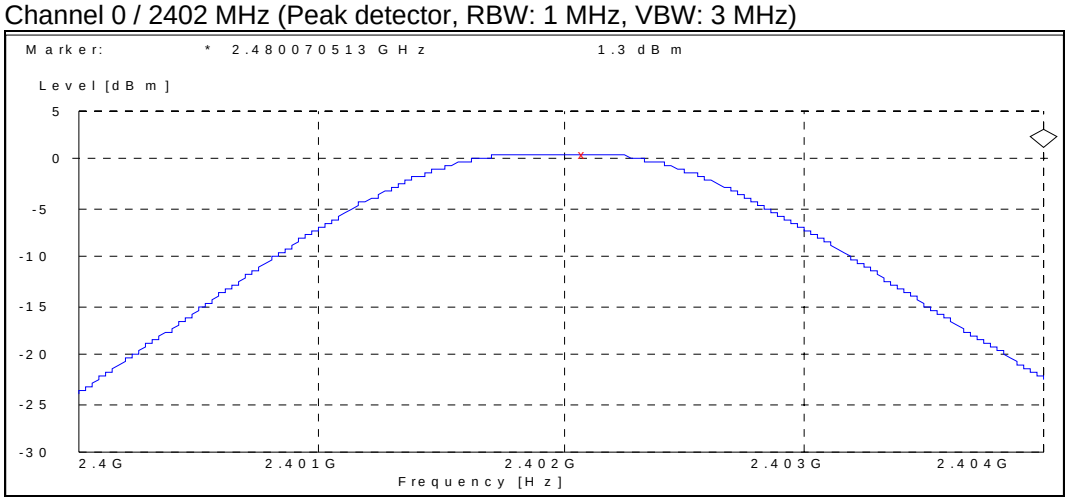
3.2. Bluetooth Test results

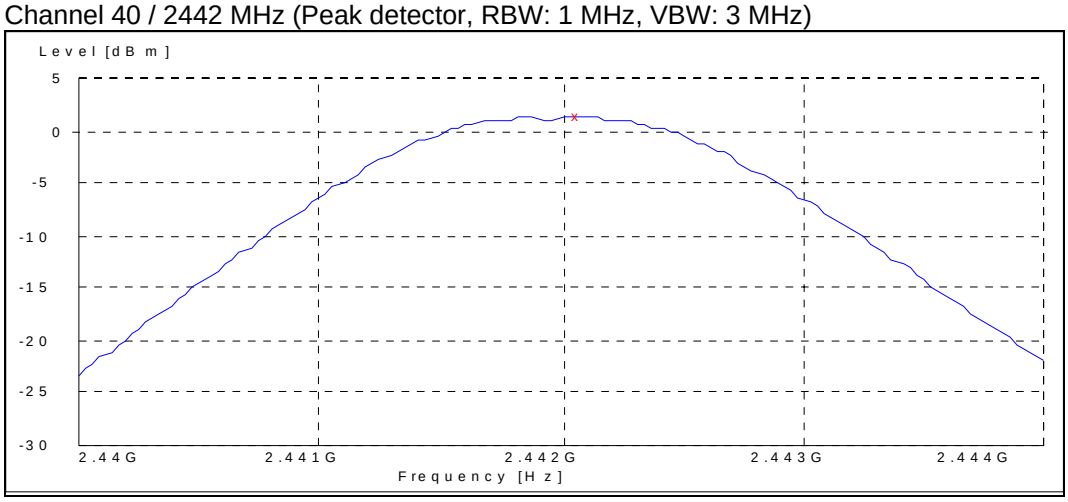
3.2.1 GFSK modulation, PRBS packet type

Channel / f_C [MHz]	P [dBm]	P [mW]	Result
0 / 2402	0.60	1.148	PASSED
40 / 2442	1.20	1.318	PASSED
78 / 2480	1.30	1.349	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)



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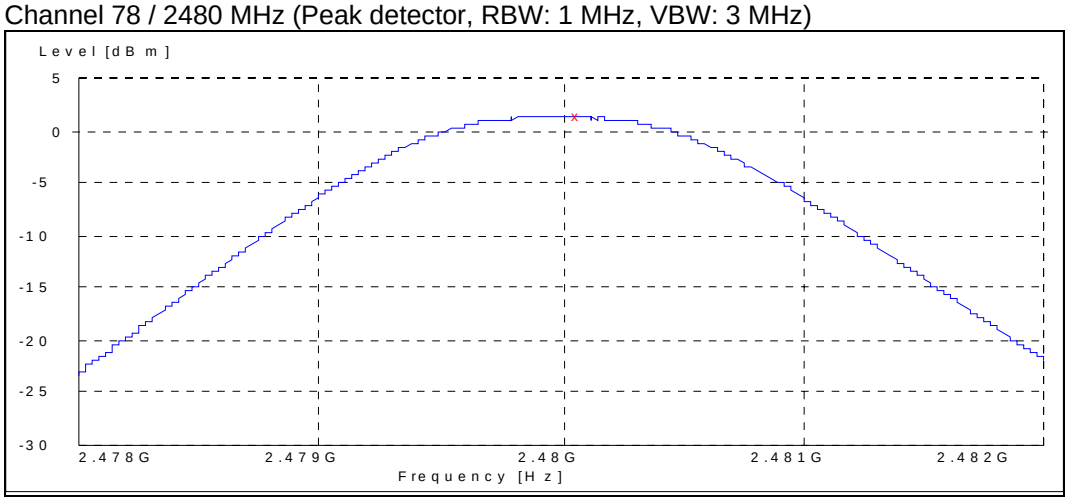
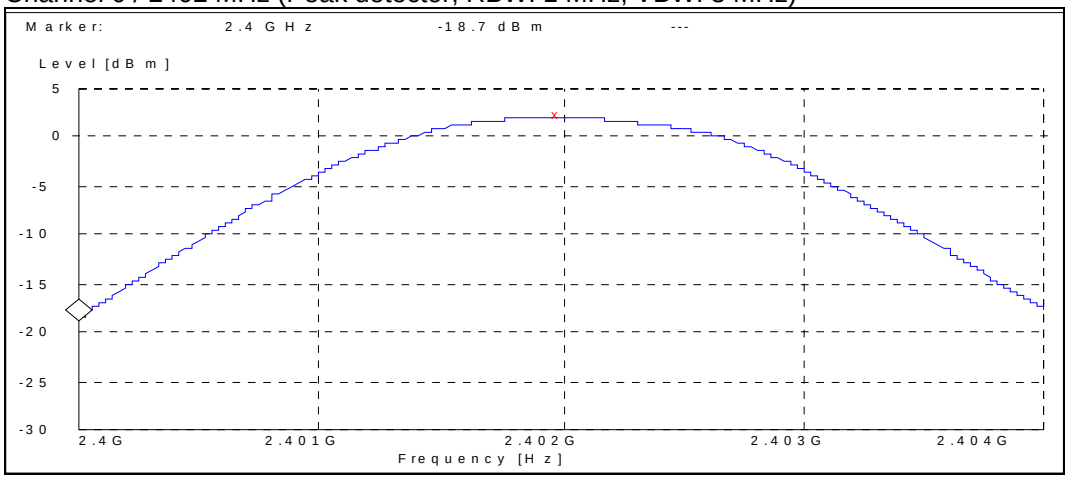
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



3.2.2 8DPSK modulation, PRBS packet type

Channel / f_C [MHz]	P [dBm]	P [mW]	Result
0 / 2402	2.30	1.698	PASSED
40 / 2442	3.10	2.042	PASSED
78 / 2480	3.10	2.042	PASSED

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



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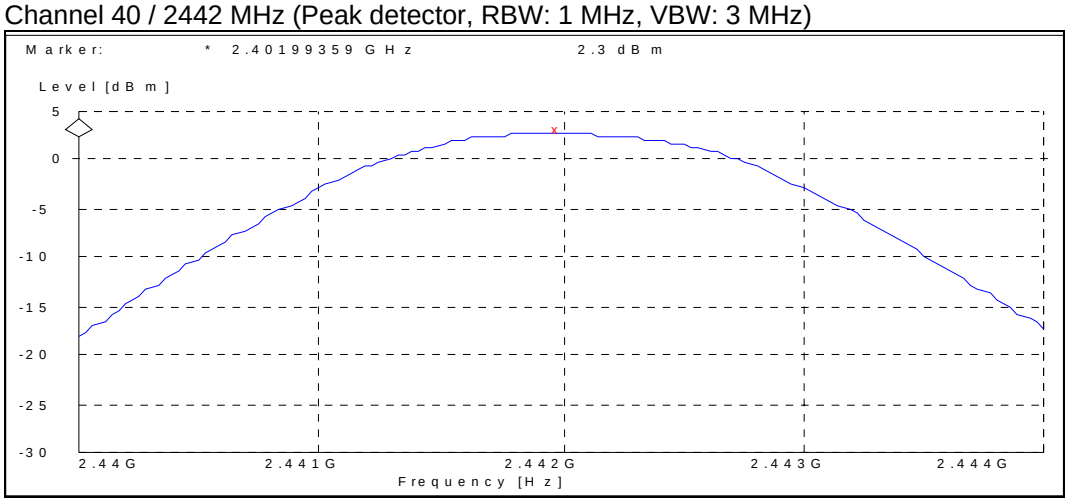
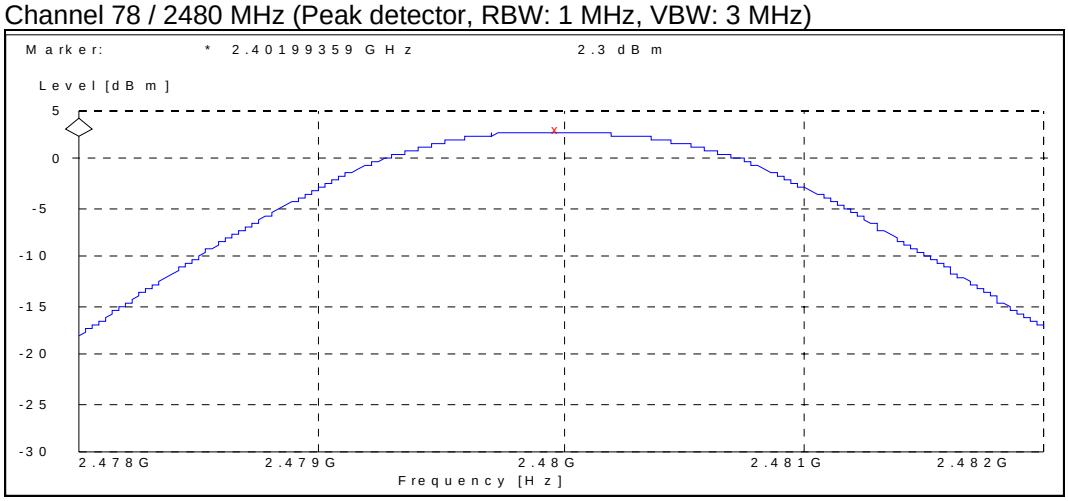
Channel 40 / 2442 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



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4. Band edge compliance of RF emissions

(FCC §15.247(d), RSS-210 A8.5)

EUT with DUT number	RM-328 DUT 41406
Accessories with DUT numbers	BP-5M DUT 41416, AC-5E DUT 41334, HS-47 DUT, 41415
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24 / 46 / 98.9
Date of measurements	25-Feb-2008
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

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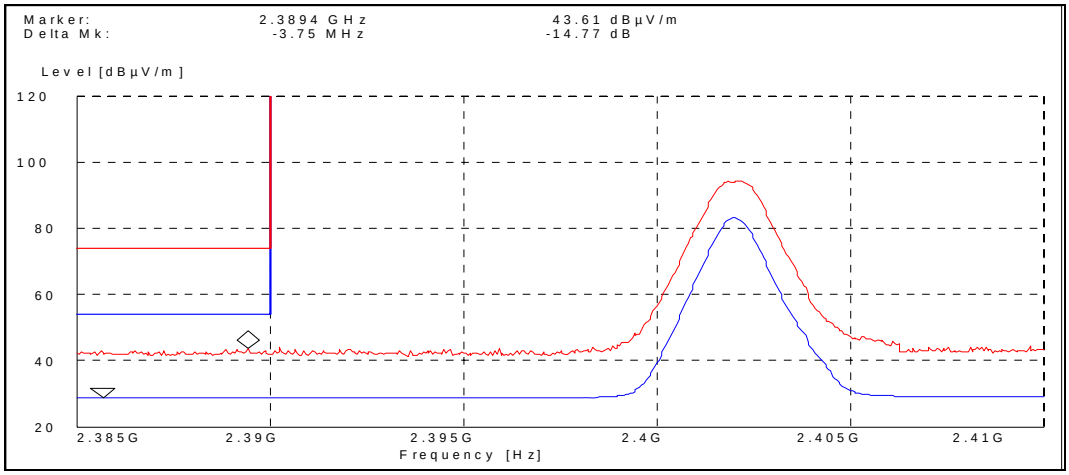
4.2. Bluetooth Test results

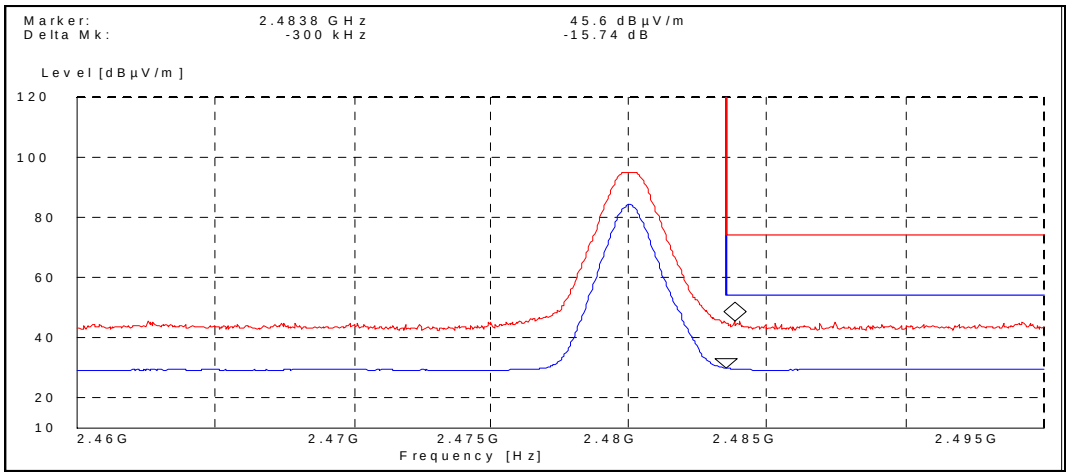
4.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	43.60	PASSED
Average	28.80	PASSED

Channel 78 / 2480 MHz



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	45.60	PASSED
Average	29.90	PASSED

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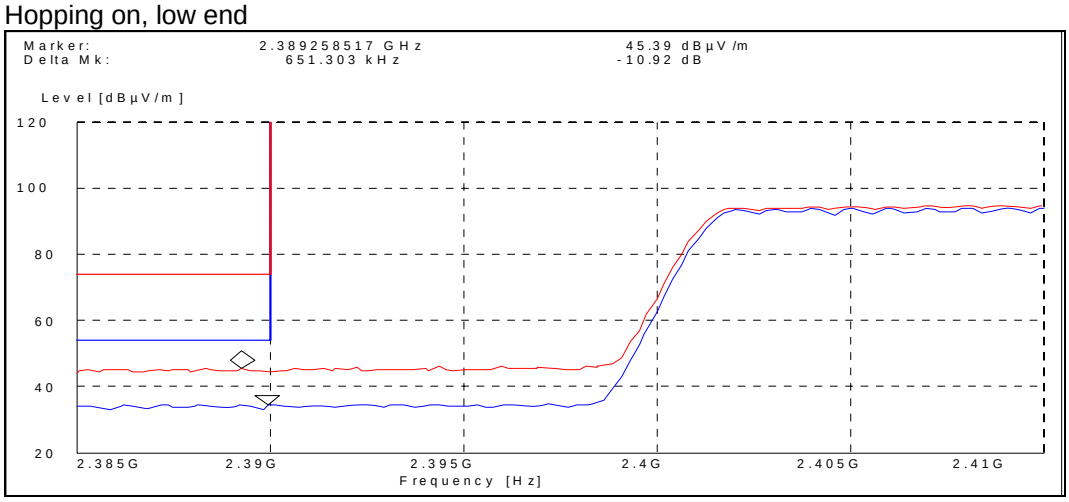
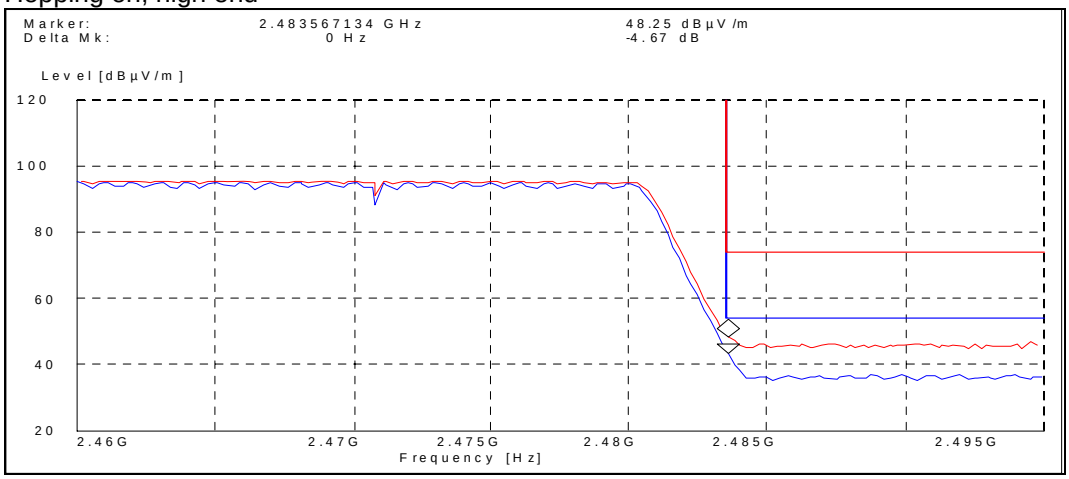
Hopping on, low end



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	45.40	PASSED
Average	34.50	PASSED

Hopping on, high end



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	48.20	PASSED
Average	43.60	PASSED

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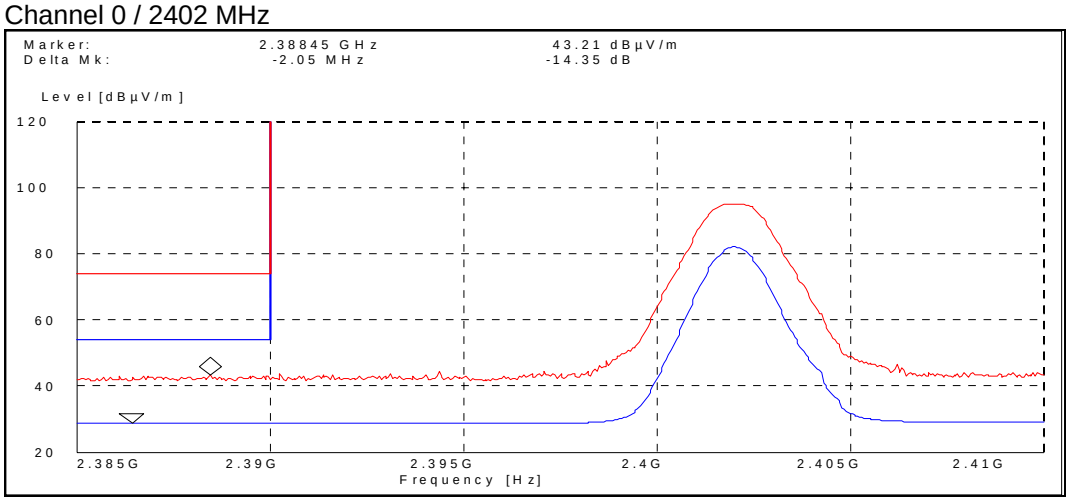
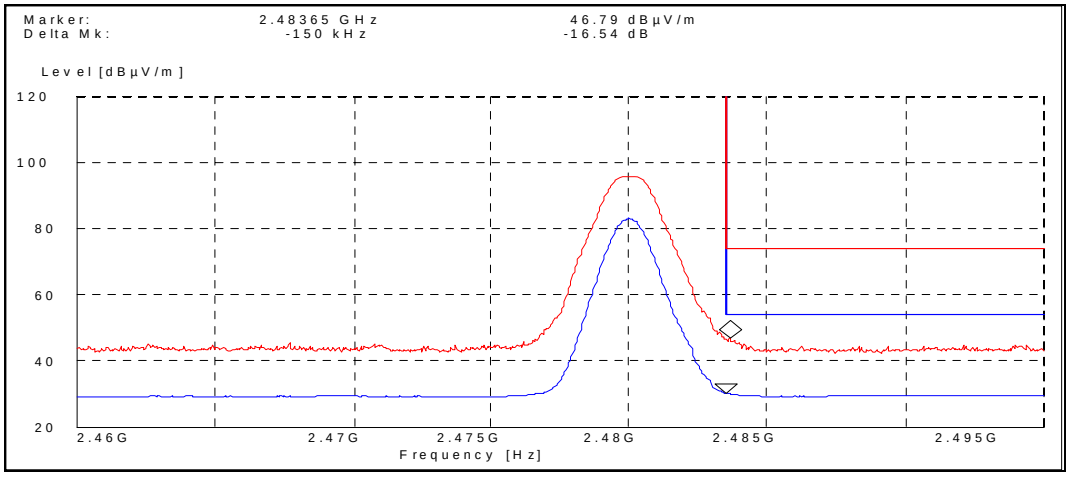
4.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	43.20	PASSED
Average	28.90	PASSED

Channel 78 / 2480 MHz



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	46.80	PASSED
Average	30.20	PASSED

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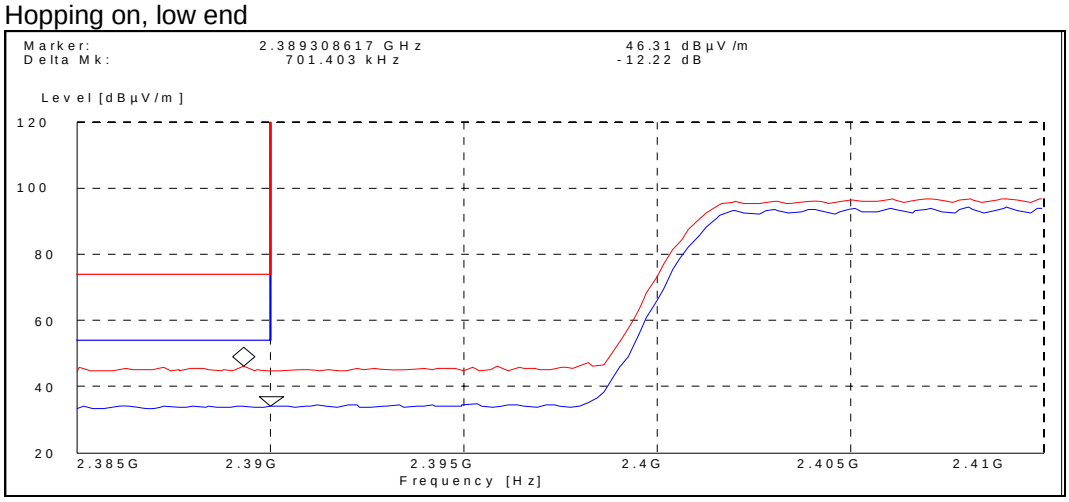
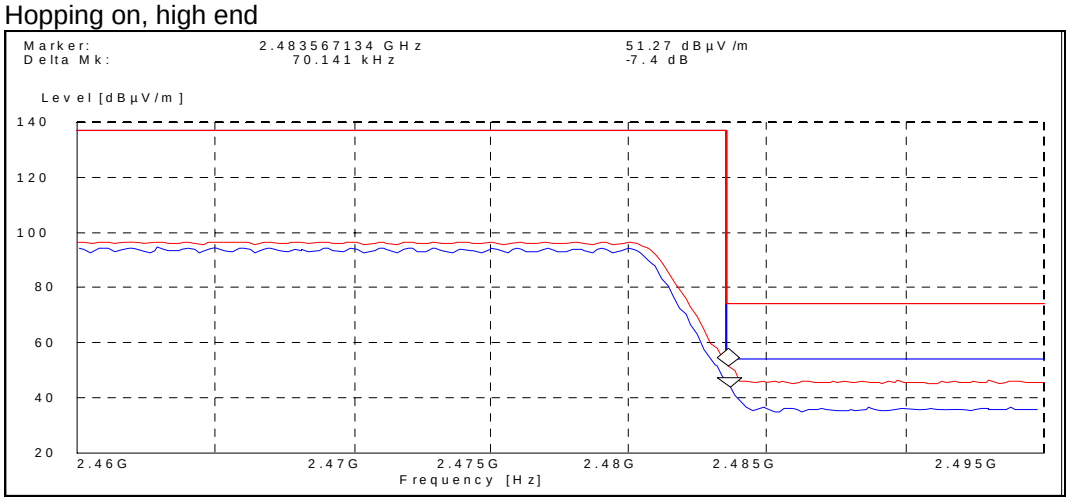
Hopping on, low end



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	46.30	PASSED
Average	34.10	PASSED

Hopping on, high end



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	51.30	PASSED
Average	43.90	PASSED

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5. Spurious RF conducted emissions

(FCC §15.247(d), RSS-A8.5)

EUT with DUT number	RM-328 DUT 41405
Accessories with DUT numbers	BP-5M DUT 40918 / AC-5E DUT 41334 / HS-47 DUT 41367
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 50 / 101.3
Date of measurements	19-Feb-2008
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

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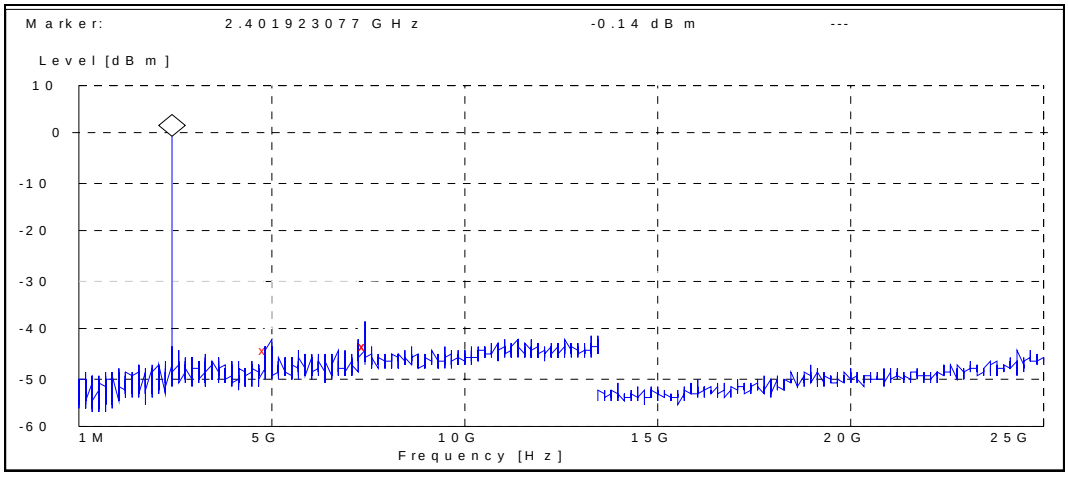
5.2. Bluetooth Test results

5.2.1 GFSK modulation, PRBS packet type

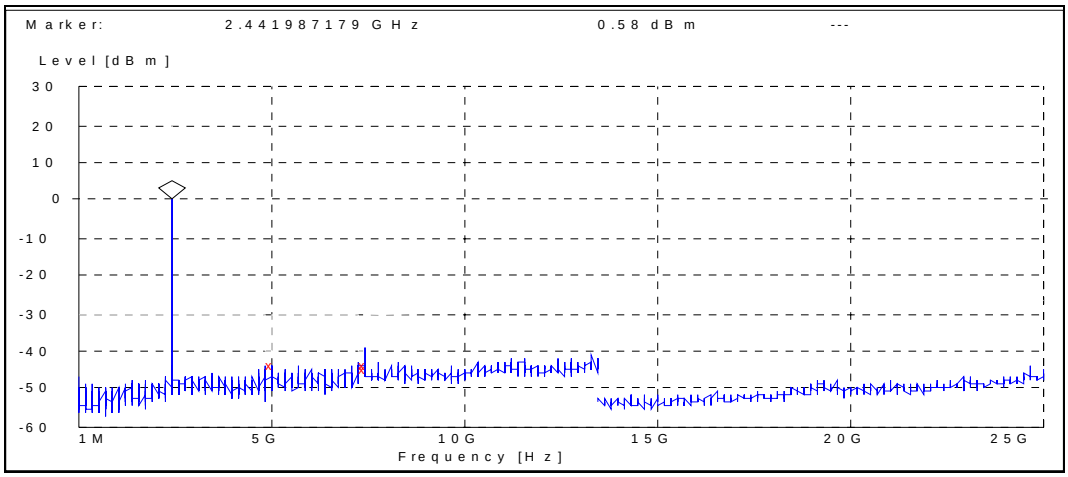
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4928.525641	-44.258523	PASSED
7421.634615	-43.858523	PASSED
7500.000000	-43.858523	PASSED

Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4993.269231	-44.084536	PASSED
7421.153846	-43.984536	PASSED
7500.000000	-44.884536	PASSED

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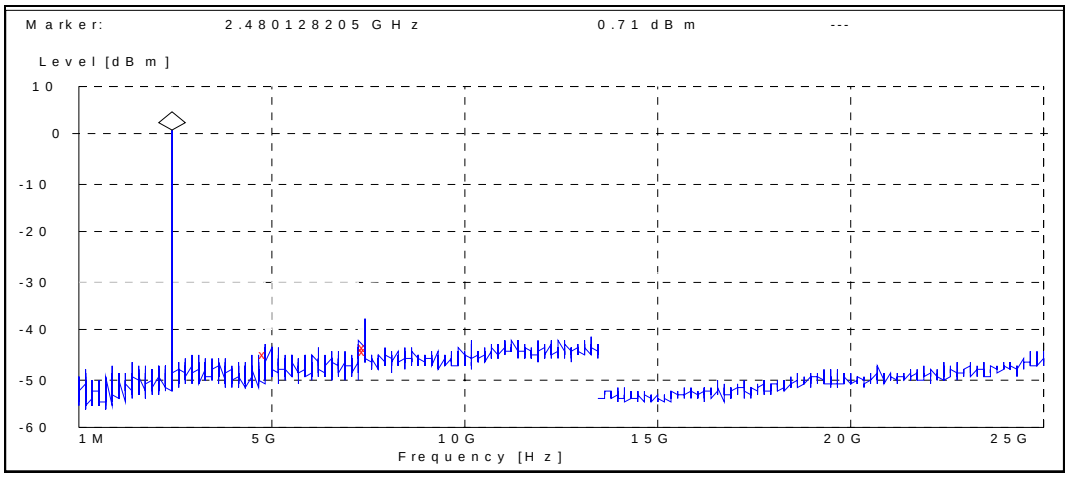
Channel 78 / 2480 MHz

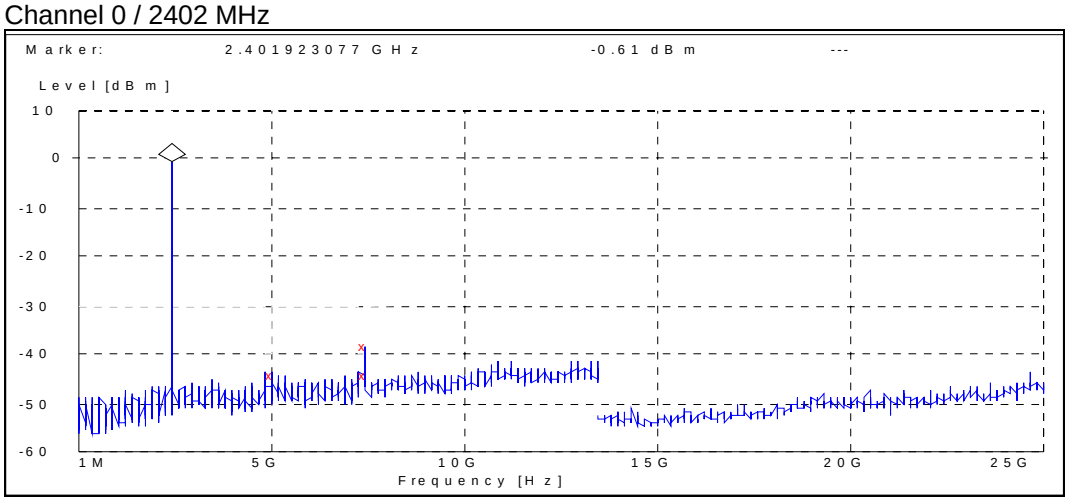


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4827.243590	-45.505456	PASSED
7421.153846	-44.605456	PASSED
7500.000000	-45.105456	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
4958.974359	-44.089872	PASSED
7422.115385	-37.889872	PASSED
7500.000000	-43.689872	PASSED

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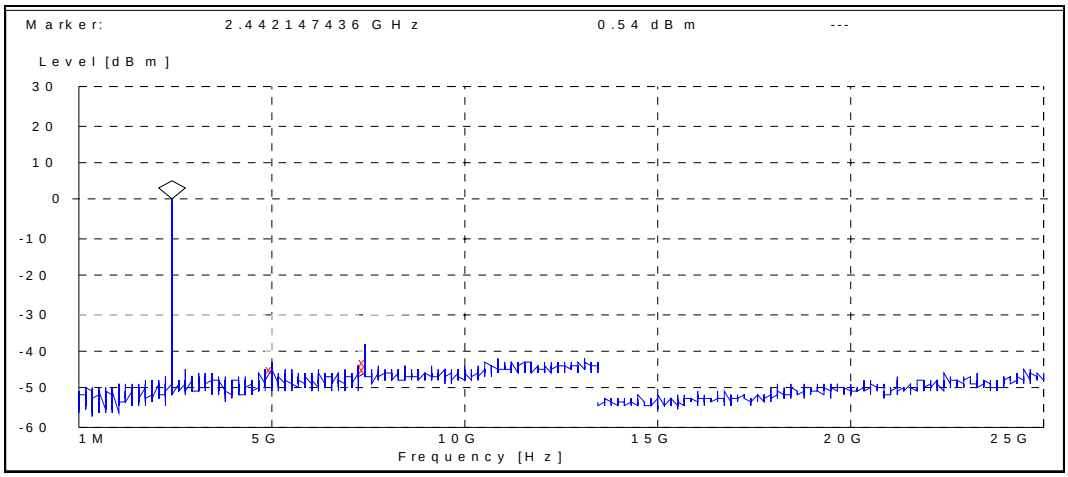
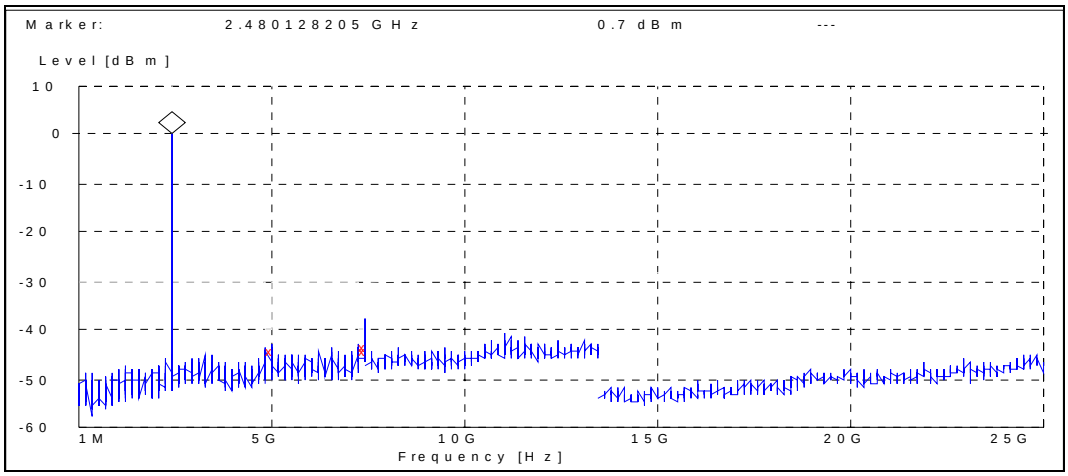
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4965.064103	-44.844299	PASSED
7422.115385	-43.144299	PASSED
7500.000000	-44.844299	PASSED

Channel 78 / 2480 MHz



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

Frequency [MHz]	P [dBc]	Result
4982.371795	-45.297071	PASSED
7422.596154	-44.697071	PASSED
7500.000000	-44.797071	PASSED

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6. Spurious radiated emissions

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

EUT with DUT number	RM-328 DUT 41406
Accessories with DUT numbers	BP-5M DUT 41416, AC-5E DUT 41334, HS-47 DUT, 41415
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24 / 46 / 98.9
Date of measurements	25-Feb-2008
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 ($A_{TOT} = L_{CABLES} + AF - G_{PREAMP}$).

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

Frequency range [MHz[	Limit [µV/m]	Limit [dBµV/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 [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4804.000000	39.10	90.16	40.90	-1.8	HORIZONTAL	PASSED
7206.000000	41.70	121.62	39.10	2.6	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
4804.000000	25.90	19.72	27.70	-1.8	HORIZONTAL	PASSED
7206.000000	29.20	28.84	26.60	2.6	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
38.176353	27.90	24.83	42.90	-15.0	VERTICAL	PASSED
66.993587	24.30	16.41	50.70	-26.4	VERTICAL	PASSED
73.746092	12.30	4.12	37.80	-25.5	HORIZONTAL	PASSED
95.591784	13.90	4.95	37.40	-23.5	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
4872.243487	38.80	87.10	40.70	-1.9	HORIZONTAL	PASSED
4966.435872	40.50	105.93	41.70	-1.2	HORIZONTAL	PASSED
7284.065130	43.10	142.89	40.10	3.0	HORIZONTAL	PASSED
7342.681363	43.10	142.89	39.90	3.2	VERTICAL	PASSED
7408.813627	43.20	144.54	39.50	3.7	HORIZONTAL	PASSED
17937.875752	52.80	436.52	33.30	19.5	VERTICAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4869.743487	26.20	20.42	28.10	-1.9	HORIZONTAL	PASSED
4965.935872	27.20	22.91	28.40	-1.2	HORIZONTAL	PASSED
7283.065130	30.30	32.73	27.30	3.0	HORIZONTAL	PASSED
7344.681363	30.10	31.99	26.90	3.2	VERTICAL	PASSED
7406.813627	30.50	33.50	26.80	3.7	HORIZONTAL	PASSED
17941.375752	40.30	103.51	20.80	19.5	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	39.70	96.61	41.00	-1.3	VERTICAL	PASSED
7440.000000	43.10	142.89	39.50	3.6	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	26.90	22.13	28.20	-1.3	HORIZONTAL	PASSED
7440.000000	30.40	33.11	26.80	3.6	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	38.40	83.18	40.20	-1.8	HORIZONTAL	PASSED
7206.000000	42.10	127.35	39.50	2.6	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	25.80	19.50	27.60	-1.8	HORIZONTAL	PASSED
7206.000000	29.20	28.84	26.60	2.6	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
38.176353	28.40	26.30	43.40	-15.0	VERTICAL	PASSED
67.374549	24.10	16.03	50.50	-26.4	VERTICAL	PASSED
73.346092	14.70	5.43	40.30	-25.6	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
7279.059118	43.30	146.22	40.30	3.0	VERTICAL	PASSED
7281.567134	43.20	144.54	40.20	3.0	HORIZONTAL	PASSED
7428.355711	42.90	139.64	39.30	3.6	HORIZONTAL	PASSED
17915.829659	53.30	462.38	33.70	19.6	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
7276.059118	30.10	31.99	27.10	3.0	VERTICAL	PASSED
7287.567134	30.20	32.36	27.20	3.0	HORIZONTAL	PASSED
7423.855711	30.50	33.50	26.80	3.7	HORIZONTAL	PASSED
17911.829659	40.50	105.93	20.90	19.6	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	39.70	96.61	41.00	-1.3	VERTICAL	PASSED
7440.000000	43.10	142.89	39.50	3.6	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	26.90	22.13	28.20	-1.3	HORIZONTAL	PASSED
7440.000000	30.40	33.11	26.80	3.6	HORIZONTAL	PASSED

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7. AC powerline conducted emissions

(FCC §15.207, RSS-GEN 7.2.2)

EUT with DUT number	RM-328 DUT 41406
Accessories with DUT numbers	BP-5M DUT 41416, AC-5E DUT 41334, HS-47 DUT, 41415
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 50 / 99.8
Date of measurements	26-Feb-2008
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

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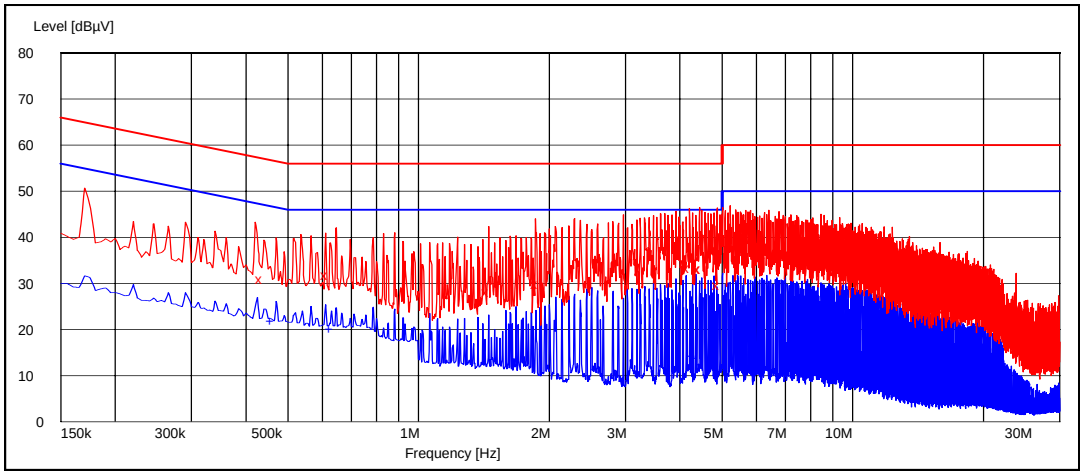
7.2. Bluetooth Test results

7.2.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.435000	30.90	N	PASSED
0.615000	31.80	L1	PASSED
1.445000	28.20	L1	PASSED
1.875000	29.90	L1	PASSED
4.190000	33.40	L1	PASSED
4.445000	33.20	L1	PASSED
4.450000	33.20	L1	PASSED
4.920000	29.60	N	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.460000	21.90	N	PASSED
0.630000	20.10	N	PASSED
4.305000	14.30	L1	PASSED
4.350000	13.80	L1	PASSED
4.825000	12.90	L1	PASSED

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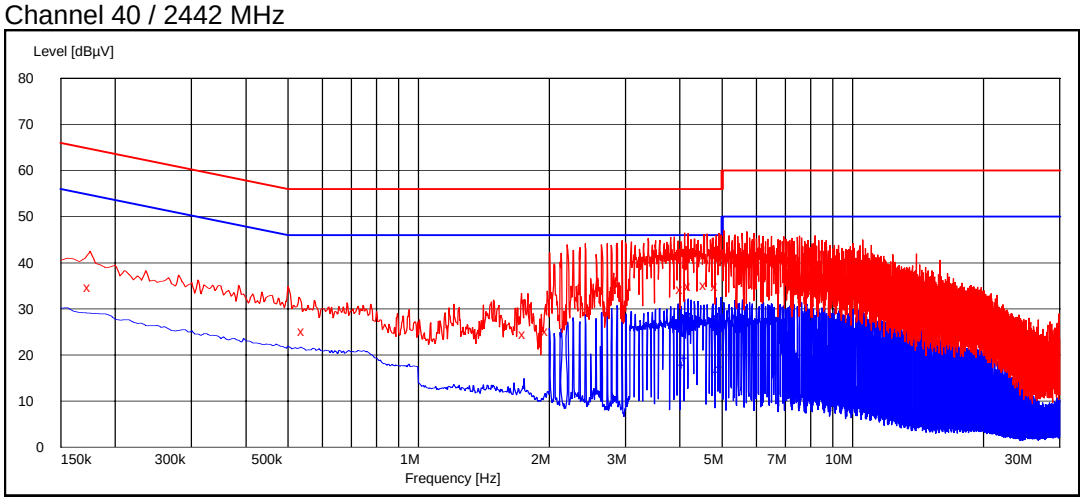
7.2.2 8DPSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.175000	34.70	N	PASSED
0.545000	25.20	L1	PASSED
1.760000	24.50	L1	PASSED
1.985000	25.10	L1	PASSED
4.055000	34.20	L1	PASSED
4.230000	35.00	L1	PASSED
4.600000	35.30	L1	PASSED
4.885000	34.90	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
4.085000	17.90	L1	PASSED
4.140000	19.30	L1	PASSED
4.880000	16.20	L1	PASSED
4.980000	17.30	L1	PASSED

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8. 20 dB bandwidth

(FCC §15.247(a)(1), RSS-210 A8.1 (1))

EUT with DUT number	RM-328 DUT 41405
Accessories with DUT numbers	BP-5M DUT 40918 / AC-5E DUT 41334 / HS-47 DUT 41367
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 50 / 101.3
Date of measurements	19-Feb-2008
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

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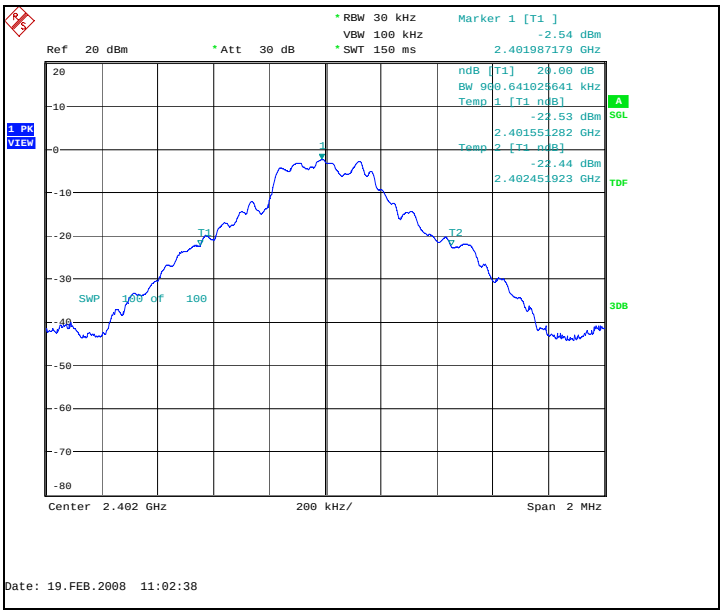
8.2. Bluetooth Test results

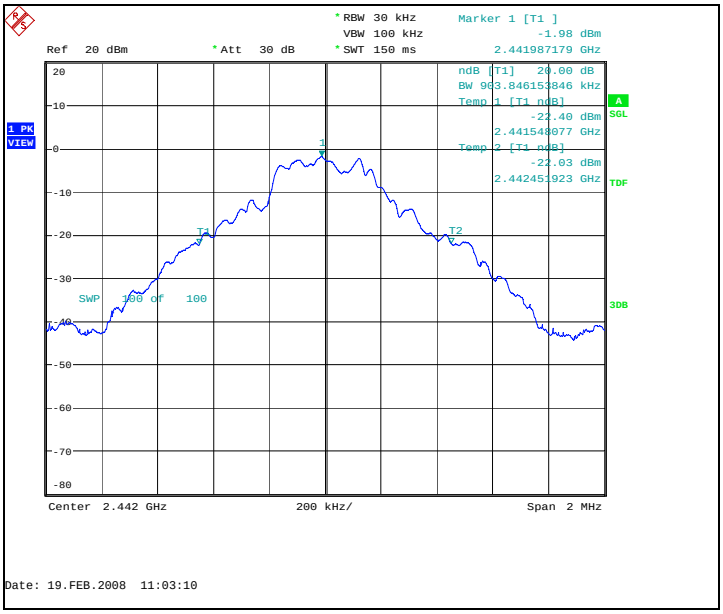
8.2.1 GFSK modulation, PRBS packet type

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

Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



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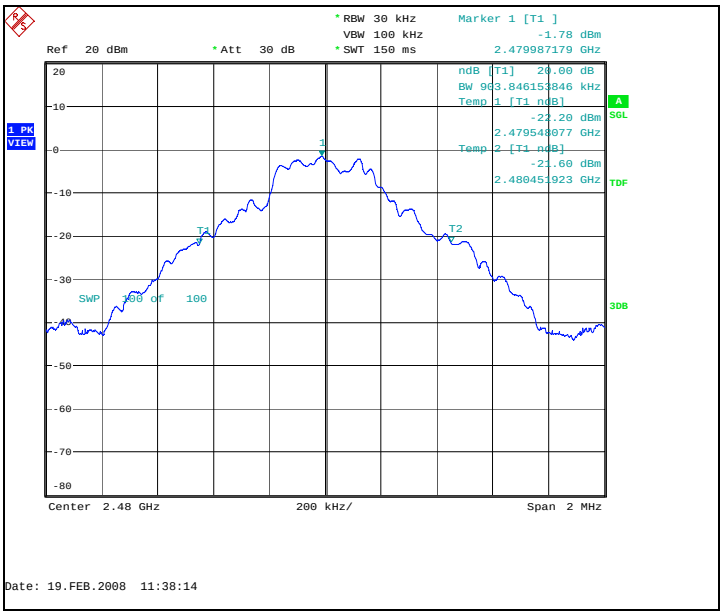
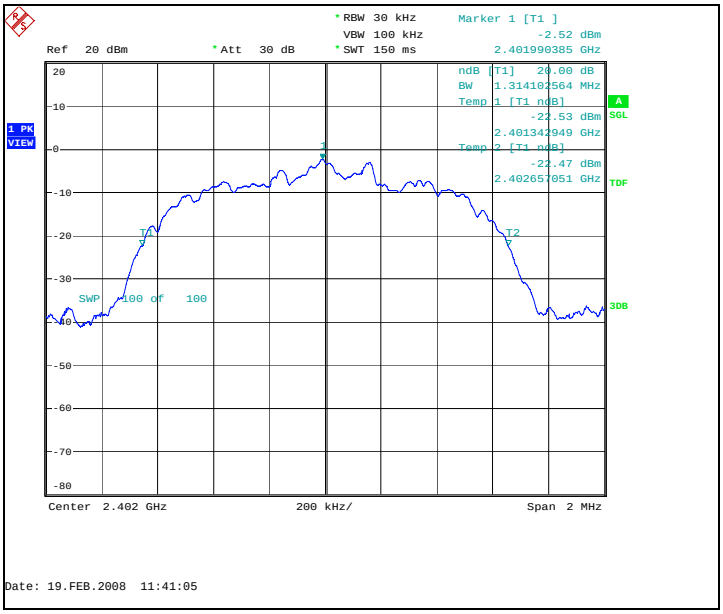
Channel 78 / 2480 MHz



8.2.2 8DPSK modulation, PRBS packet type

Channel / f_C [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1314.103	PASSED
40 / 2442	1314.103	PASSED
78 / 2480	1314.103	PASSED

Channel 0 / 2402 MHz



Channel 40 / 2442 MHz

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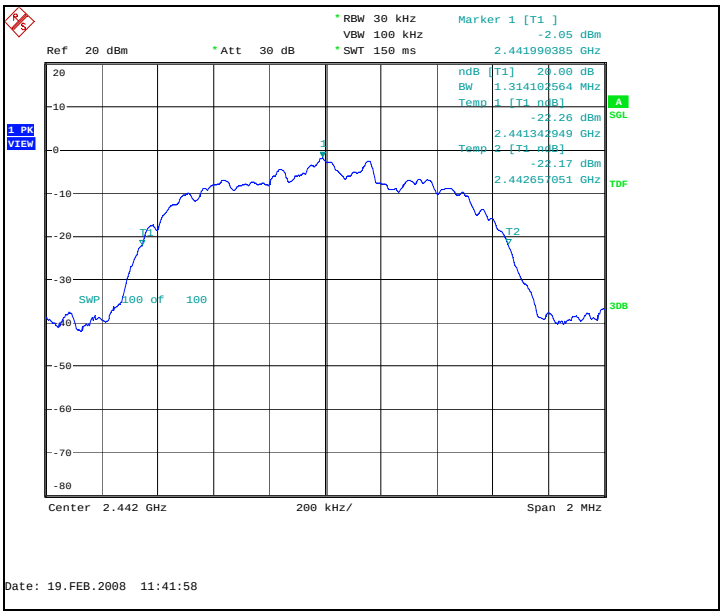
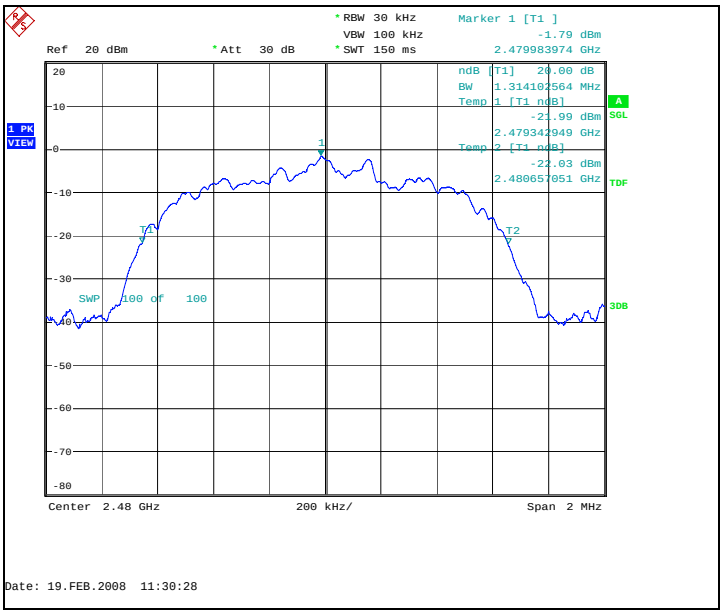


Channel 78 / 2480 MHz



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9. Carrier frequency separation

(FCC §15.247(a)(1), RSS-210 A8.1 (2))

EUT with DUT number	RM-328 DUT 41405
Accessories with DUT numbers	BP-5M DUT 40918 / AC-5E DUT 41334 / HS-47 DUT 41367
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 50 / 101.3
Date of measurements	19-Feb-2008
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

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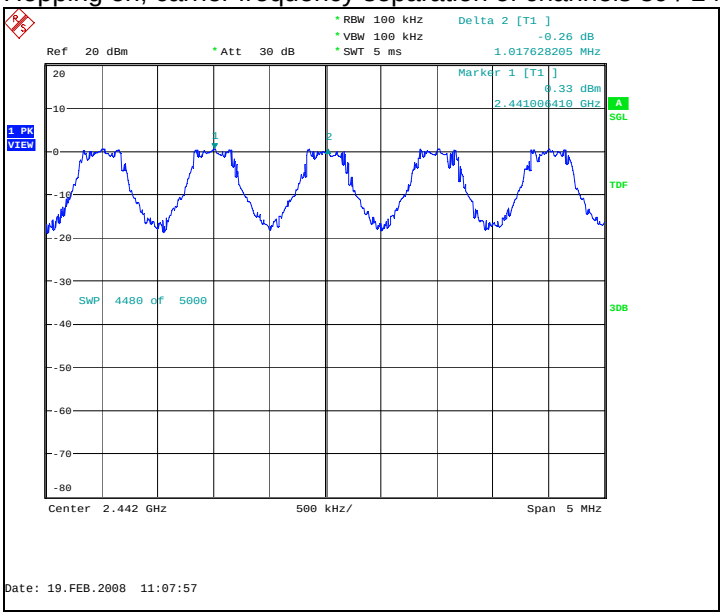
9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1017.628	PASSED

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



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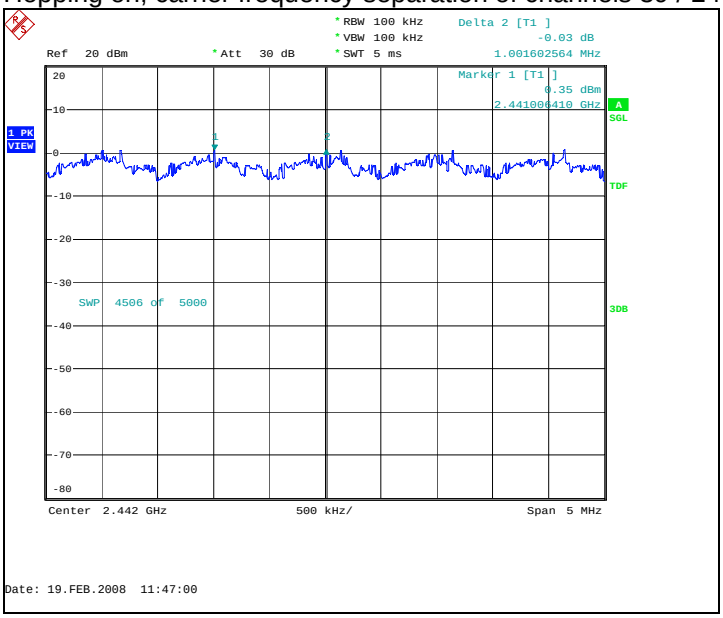
9.2.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1001.603	PASSED

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



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10. Number of hopping frequencies

(FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))

EUT with DUT number	RM-328 DUT 41405
Accessories with DUT numbers	BP-5M DUT 40918 / AC-5E DUT 41334 / HS-47 DUT 41367
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 50 / 101.3
Date of measurements	19-Feb-2008
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

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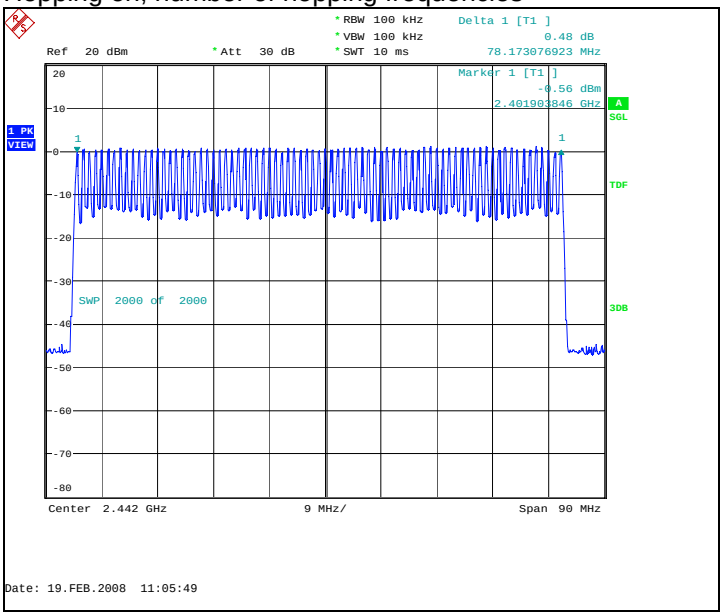
10.2. Bluetooth Test results

10.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	PASSED

Hopping on, number of hopping frequencies



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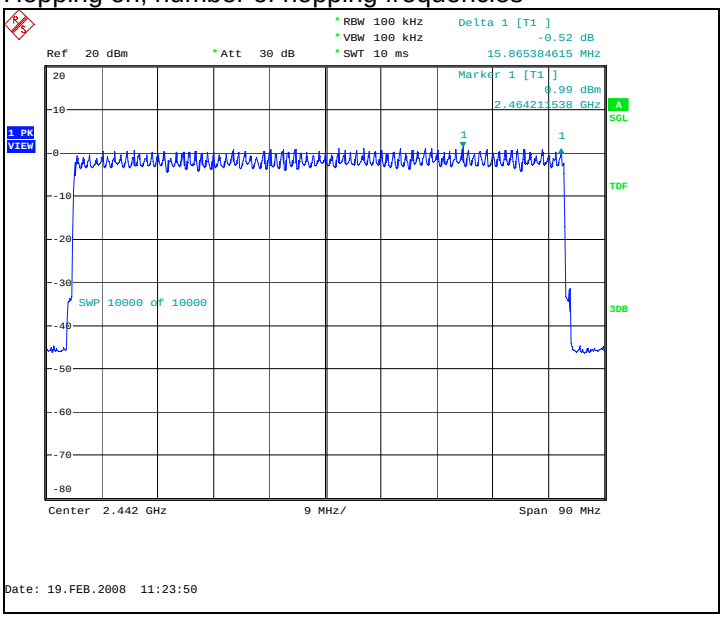
10.2.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	PASSED

Hopping on, number of hopping frequencies



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11. Time of occupancy

(FCC §15.247(a)(1)(iii), RSS-210 A8.1 (4))

EUT with DUT number	RM-328 DUT 41405
Accessories with DUT numbers	BP-5M DUT 40918 / AC-5E DUT 41334 / HS-47 DUT 41367
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 50 / 101.3
Date of measurements	19-Feb-2008
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

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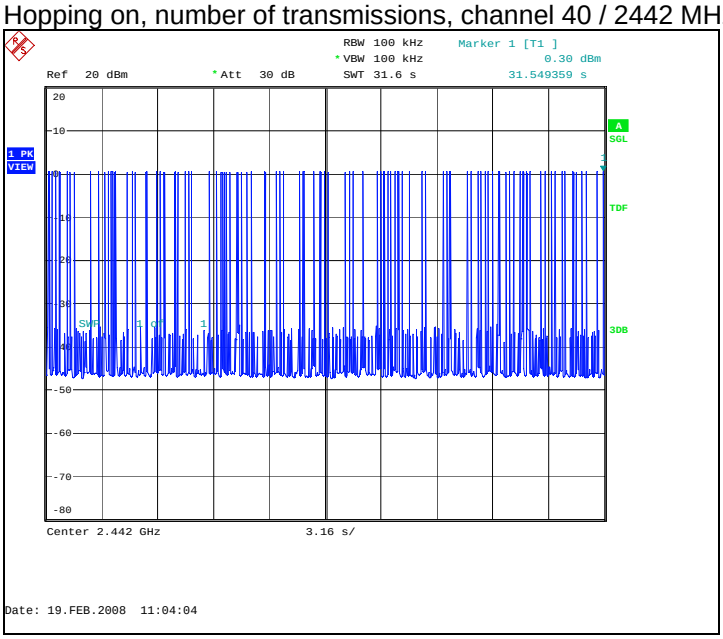
11.2. Bluetooth test results

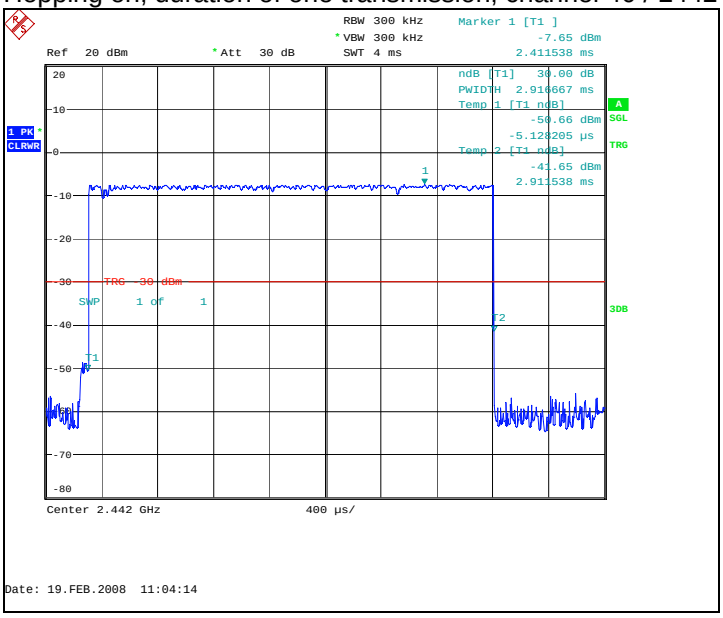
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [µs]	Time of occupancy [s]	Result
93	2,917	0.271250	PASSED

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



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



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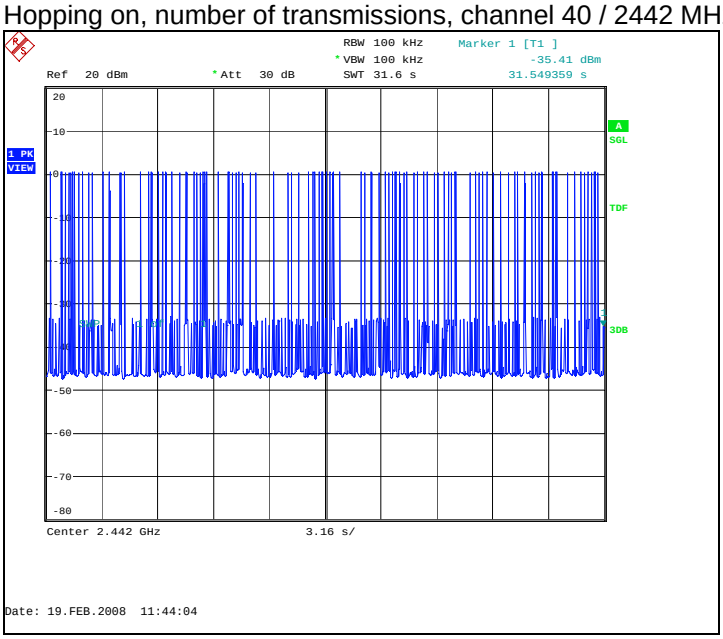
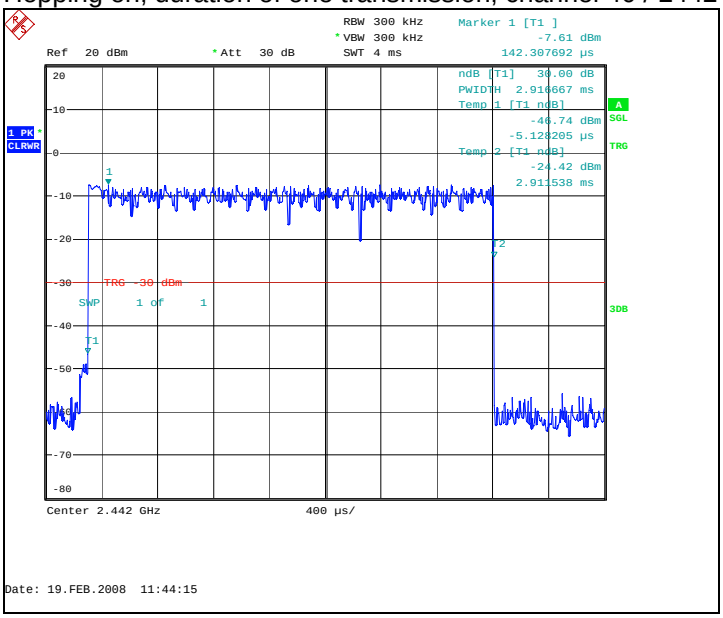
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [µs]	Time of occupancy [s]	Result
96	2,917	0.280000	PASSED

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



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



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12. Test Equipment

12.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM30597	Power splitter	11667A	Agilent	22/24/27, 15C
TM37499	Power splitter	11667A	Agilent	22/24/27, 15C
TM38111	Multimeter	34401A	Agilent	22/24/27, 15C
TM38112	DC power supply	6632A	Agilent	22/24/27, 15C
TM22901	Attenuator	8496A	Agilent	22/24/27, 15C
TM30636	Artificial mains net	L2-16	PMM	15C, 15B
TM37678	Radio communication tester	CMU-200	R&S	22/24/27, 15C, 15B
TM37773	Radio communication tester	CMU-200	R&S	22/24/27, 15C, 15B
TM30600	Pulse Limiter	ESH3-Z2	R&S	15C, 15B
TM26490	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
TM37610	Spectrum analyzer	FSU	R&S	22/24/27, 15C
TM22835	Multimeter	87	Fluke	15C, 15B
TM37500	Microwave switch system	7116-MSW	Keithley	22/24/27, 15C, 15B
TM22638	Power supply	OL63743-901	Transformatic	22/24/27, 15C, 15B
	Temperature chamber	VT4002	Vötsch	22/24/27, 15C
2058	EMI Test receiver	ESPC	R&S	15C, 15B
2001	Bluetooth tester	CBT	R&S	22/24/27, 15C, 15B
2002	Radio communication tester	CMU-200	R&S	22/24/27, 15C, 15B

12.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM30599	3m semi-anechoic chamber		TDK	22/24/27, 15C, 15B
TM38845	EMI receiver	ESI 40	R&S	22/24/27, 15C, 15B
TM37498	Preamplifier	AMF-5D-020180-26-10P	MITEQ	22/24/27, 15C, 15B
TM37523	Preamplifier	AMF-4D-10M-3G-25-20P	MITEQ	22/24/27, 15C, 15B
TM37516	Biconilog antenna	HL562	R&S	22/24/27, 15C, 15B
TM26496	Double ridged waveguide antenna	3115	EMCO	22/24/27, 15C, 15B
TM39158	Horn antenna	3116	EMCO	22/24/27, 15C, 15B
TM26492	Reference dipole set	UHAP/VHAP	Schwarzbeck	22/24/27, 15C, 15B
TM37501	Dipole antenna	3125-870	EMCO	22/24/27
TM37502	Dipole antenna	3125-1880	EMCO	22/24/27
TM37773	Radio communication tester	CMU-200	R&S	22/24/27, 15C, 15B
TM38631	Signal generator	83640L	Agilent	22/24/27, 15C, 15B
TM38066	High pass filter	4HC3000/18000-3-KK	Trilithic	22/24/27, 15C, 15B
TM26511	Tunable notch filter	WRCA870	Wainwright	22/24/27
TM38215	Tunable notch filter	WRCD1850/1910-0.2/40	Wainwright	22/24/27
TM38214	Band reject filter	WRCT 2402/2480-2400/2483.5-30	Wainwright	15C
TM30642	Mast/Turntable controller	HD-100	Deisel	22/24/27, 15C, 15B
TM26500	Turntable	DS412	Deisel	22/24/27, 15C, 15B
TM38842	Antenna mast controller	2090	EMCO	22/24/27, 15C, 15B
TM38843	Antenna mast	2075	EMCO	22/24/27, 15C, 15B
TM38114	DC power supply	6632A	Agilent	22/24/27, 15C, 15B
TM38323	Preamplifier	PA-02 18-26 GHz	EMC Automation	22/24/27, 15C, 15B
TM37678	Radio communication tester	CMU-200	R&S	22/24/27, 15C, 15B
TM22638	Power supply	OL63743-901	Transformatic	22/24/27, 15C, 15B
TM23892	Yaesu controller	G-1000SDX	Yaesu	22/24/27, 15C, 15B
2001	Bluetooth tester	CBT	R&S	22/24/27, 15C, 15B

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Eq. No	Equipment	Type	Manufacturer	Used in
2002	Radio communication tester	CMU-200	R&S	22/24/27, 15C, 15B

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