FCC Part 15C Compliance Test Report

Test Report no.:	Cph_FCC_0904_06.doc	**Date of Report:**	20-Jan-2009
Number of pages:	38	**Customer's Contact person:**	Jyrki Juvani
Testing laboratory:	TCC Nokia Copenhagen Laboratory Frederikskaj 1790 COPENHAGEN V DENMARK Tel. +45 33 292929 Fax. +45 33 292934	**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.:**	99059 661AD-1		
Tested devices/ accessories:	**Phone; RM-432 (HW 0310), Battery; BL-4CT, AC Charger; AC-10C, USB Cable; CA-101, Headset; HS-45, Audio Adapter; AD-54**		
FCC ID:	LJPRM-432	**IC:**	661E-RM432
Supplement reports:	None		
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:	Jan Engelbrechtsen cn=Jan Engelbrechtsen, c=DK, o=Nokia Mobile Phones, ou=Cph - TCC, email=jan.engelbrechtsen@nokia.com 2009.01.20 12:24:26 +01'00'		

Jan Engelbrechtsen, Test System Manager

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	17-Dec-2008
Testing completed	20-Jan-2009
The customer's contact person	Jyrki Juvani
Test Plan referred to	T:\Projects\RM
Notes	None
Document name	T:\Projects\RM-432\EMC\Results\FCC\Cph_FCC_0904_06.doc

1.1. EUT and Accessory Information

The EUT is a 4-band (GSM850/900/1800/1900) mobile phone with GPRS, EGPRS and Bluetooth. Bluetooth is tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-432	004401/10/180464/5	0310	-	v002.003	26831
Battery	BL-4CT	382066832522546028 5;0670565	-	-	-	26822
AC Charger	AC-10C	399791814224010031 0;0675412	-	-	-	26821
USB cable	CA-101	07306348286A01313217	-	-	-	26816
Headset	HS-45	0694235815201B21402	-	-	-	26811
Audio adapter	AD-54	07508388016J2100087	-	-	-	26813
Phone	RM-432	004401/10/180359/7	0310	-	v002.003	26824
Phone	RM-432	004401/10/180396/9	0310	-	v002.003	26829
Battery	BL-4CT	382066832522546029 0;0670565	-	-	-	26824
Headset	HS-45	0694235815201B21387	-	-	-	26812
Audio adapter	AD-54	07508387352J2106364	-	-	-	26815
AC charger	AC-10C	399791814224010002 8;0675412	-	-	-	26819
USB cable	CA-101	07306348094A1213383	-	-	-	26818

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 power line 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 Copenhagen Laboratory.

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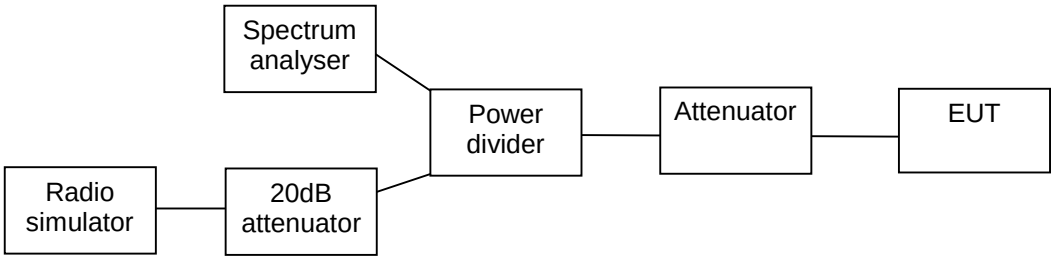
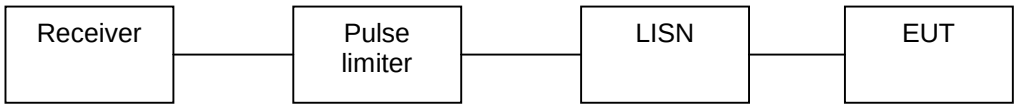
2. Test setups

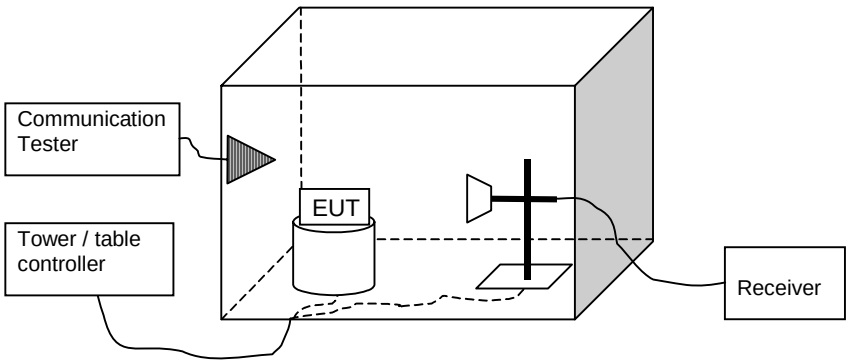
2.1. Conducted RF test setup



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-432 dut 26829, BL-4CT dut 26824
Accessories with DUT numbers	HS-45 dut 26812, AD-54 dut 26815, AC-10 dut 26919, CA-101 dut 26818
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.6 / 35.5 99.82
Date of measurements	20-Jan-2009
Measured by	Jan Engelbrechtsen

3.1. Test method and limit

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

Limits for conducted peak output power measurements

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

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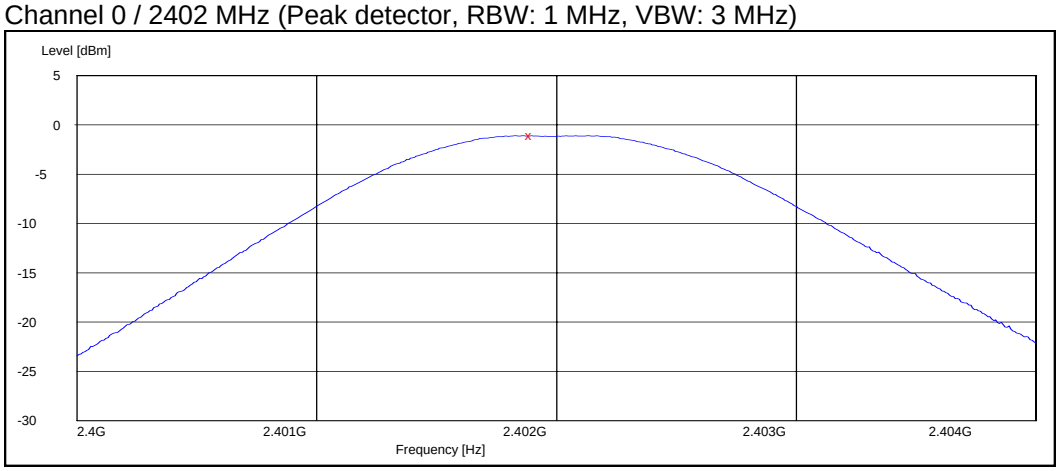
3.2. Bluetooth Test results

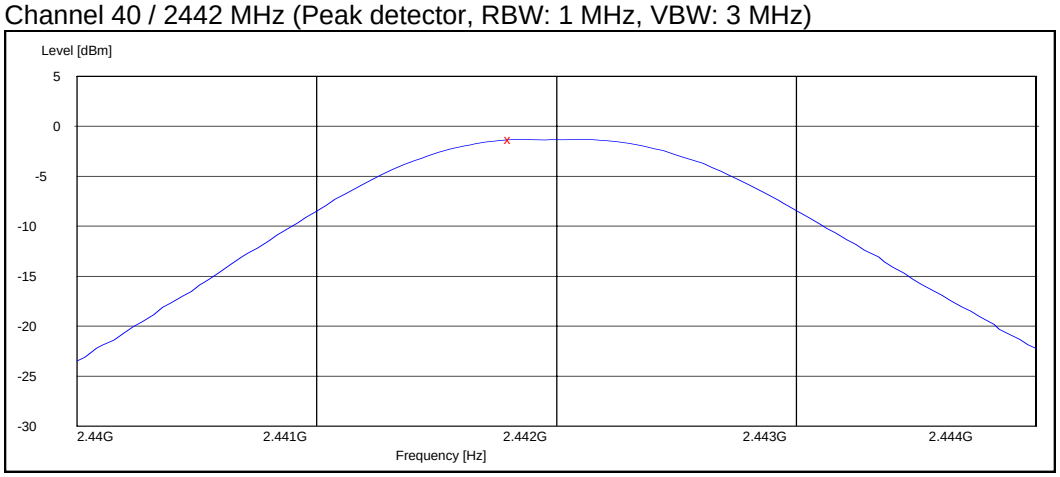
3.2.1 GFSK modulation, PRBS packet type

Channel / f_C [MHz]	P [dBm]	P [mW]	Result
0 / 2402	-1.00	0.794	Pass
40 / 2442	-1.30	0.741	Pass
78 / 2480	-1.80	0.661	Pass

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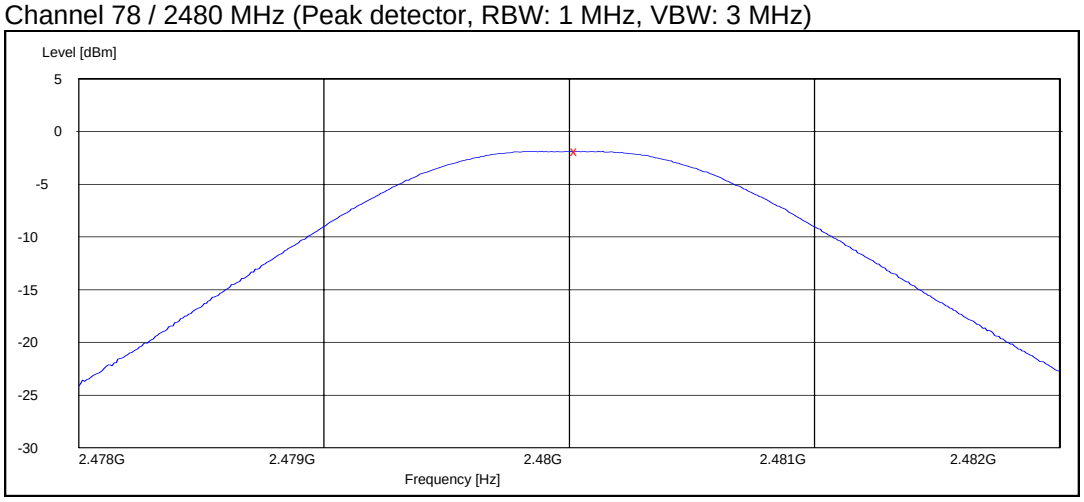
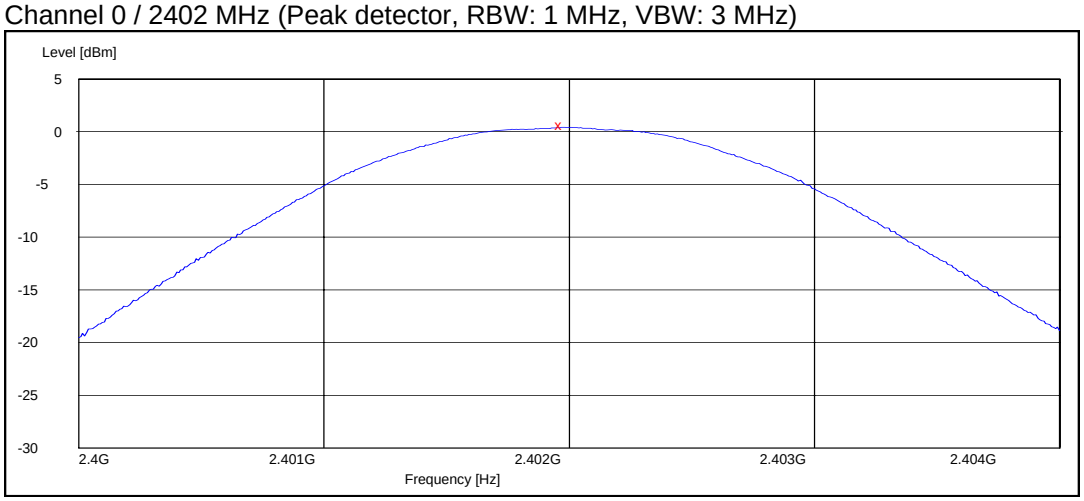
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



3.2.2 8DPSK modulation, PRBS packet type

Channel / f_C [MHz]	P [dBm]	P [mW]	Result
0 / 2402	0.60	1.148	Pass
40 / 2442	0.40	1.096	Pass
78 / 2480	0.00	1.000	Pass

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



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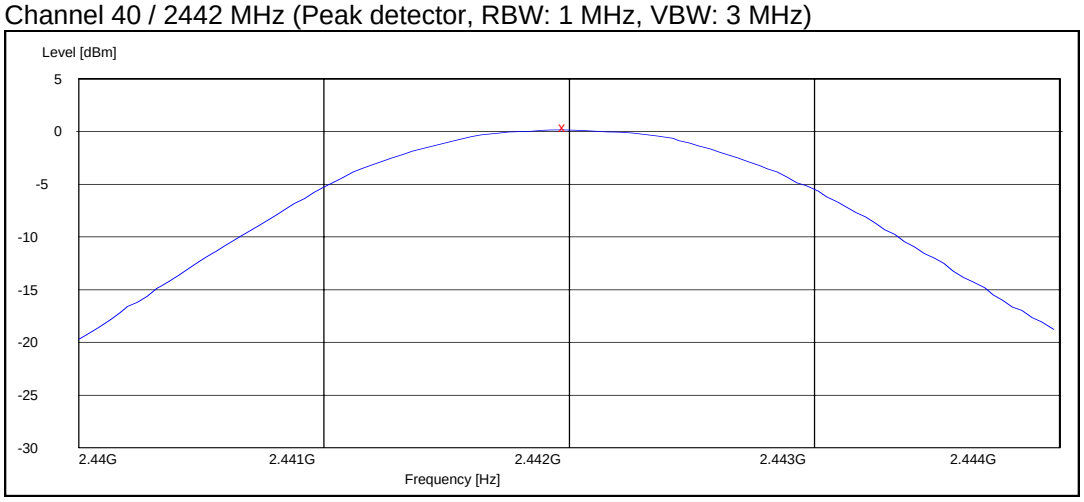
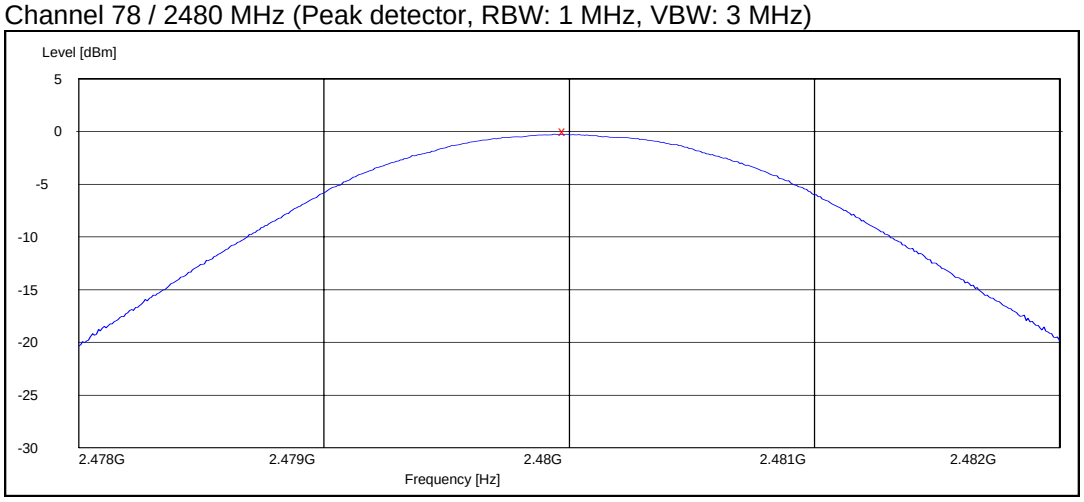
Channel 40 / 2442 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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-432 DUT 26831
Accessories with DUT numbers	BL-4CT DUT 26822, AC-10C DUT 26821, CA-101 DUT 26816, HS-45 DUT 26811, AD-54 DUT 26813
Operation Voltage [V] / [Hz]	115 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 40 / 99.1
Date of measurements	19-Jan-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

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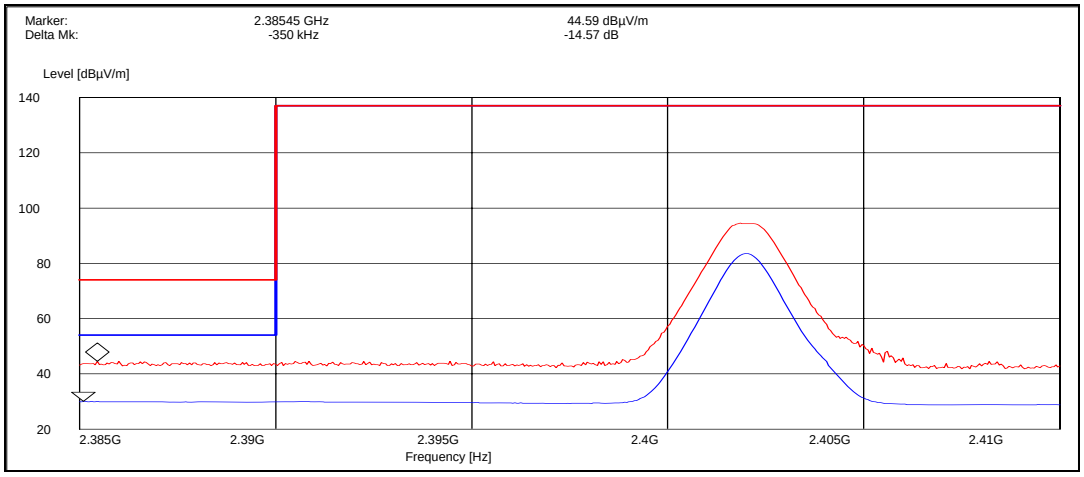
4.2. Bluetooth Test results

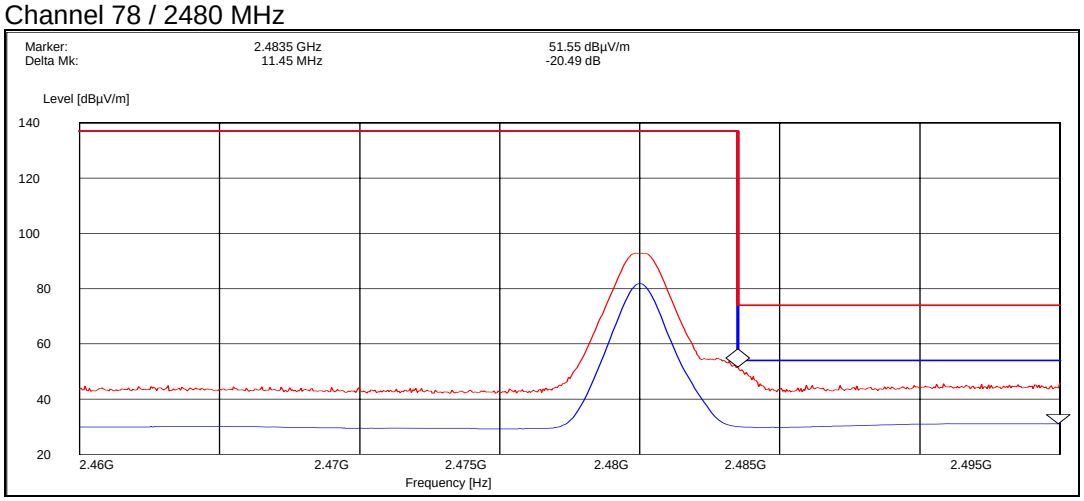
4.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	44.60	
Average	30.00	

Channel 78 / 2480 MHz



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	51.60	Passed
Average	31.10	Passed

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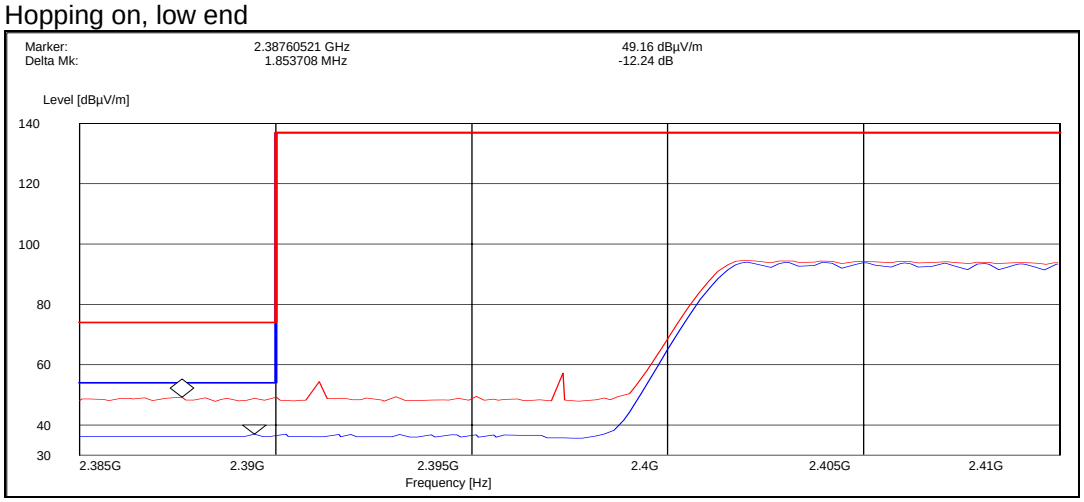
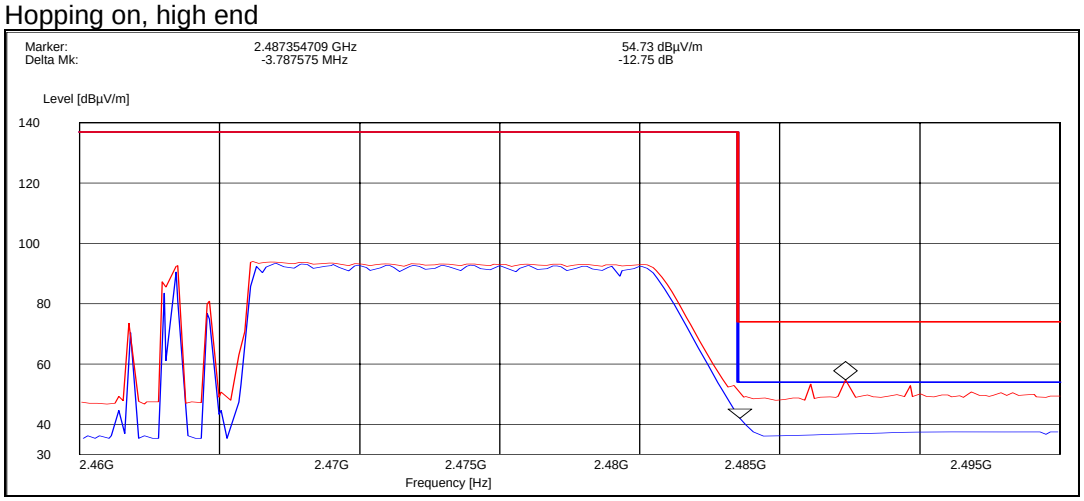
Hopping on, low end



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	49.20	Passed
Average	36.90	Passed

Hopping on, high end



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	54.70	Passed
Average	42.00	Passed

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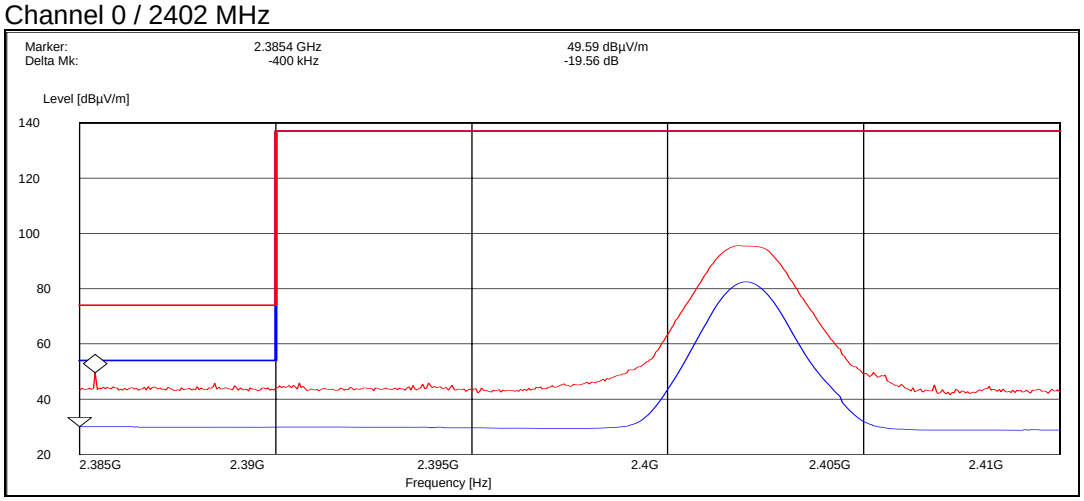
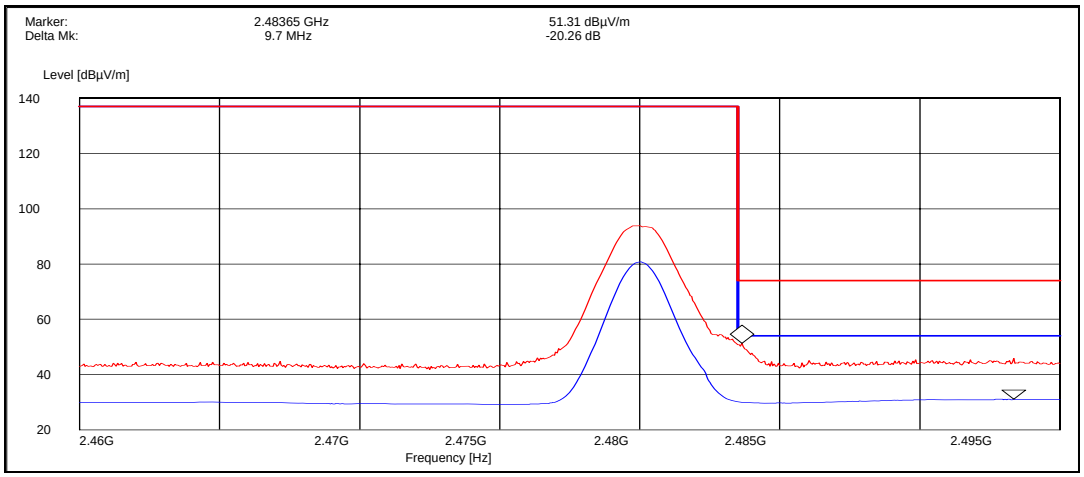
4.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	49.60	Passed
Average	30.00	Passed

Channel 78 / 2480 MHz



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	51.30	Passed
Average	31.00	Passed

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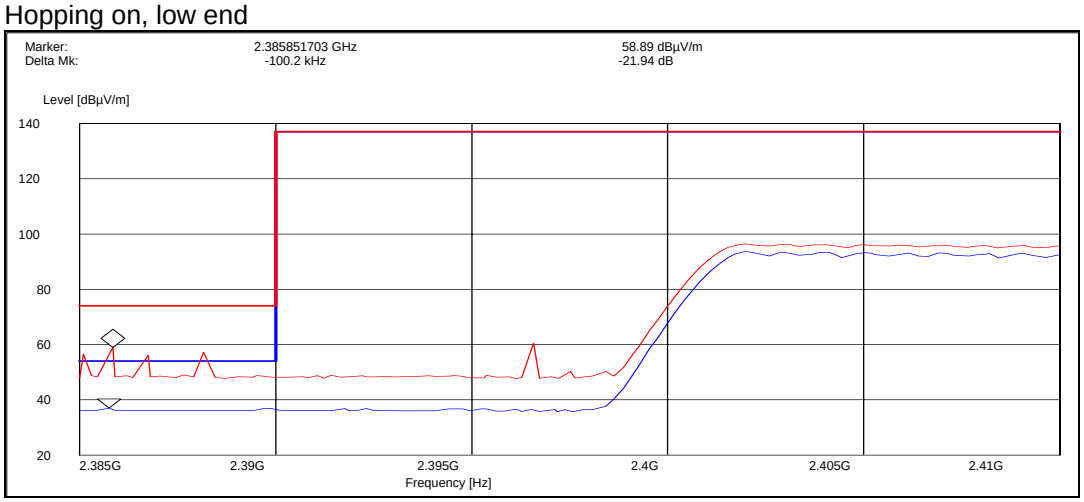
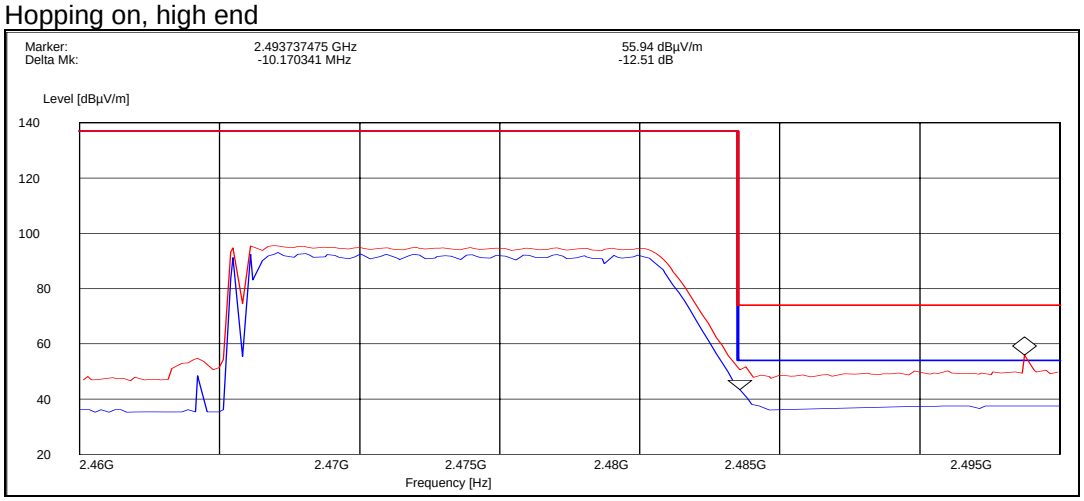
Hopping on, low end



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	58.90	Passed
Average	37.00	Passed

Hopping on, high end



Detector (RBW: 1 MHz)	E [dBµV/m]	Result
Peak	55.90	Passed
Average	43.40	Passed

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5. Spurious RF conducted emissions

(FCC §15.247(d), RSS-A8.5)

EUT with DUT number	RM-432 dut 26829, BL-4CT dut 26824
Accessories with DUT numbers	HS-45 dut 26812, AD-54 dut 26815, AC-10 dut 26919, CA-101 dut 26818
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.6 / 35.5 99.82
Date of measurements	20-Jan-2009
Measured by	Jan Engelbrechtsen

5.1. Test method and limit

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

Limits for spurious RF conducted emissions measurements

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

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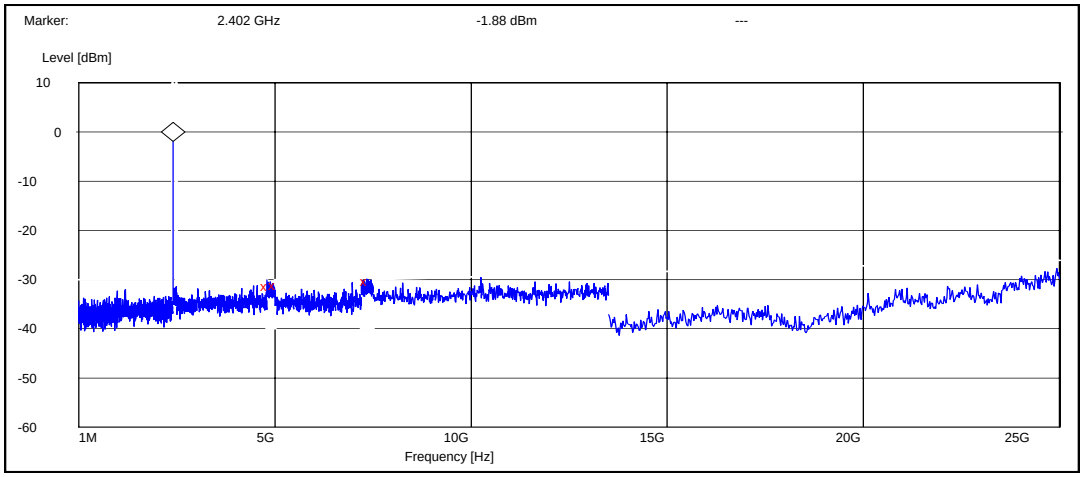
5.2. Bluetooth Test results

5.2.1 GFSK modulation, PRBS packet type

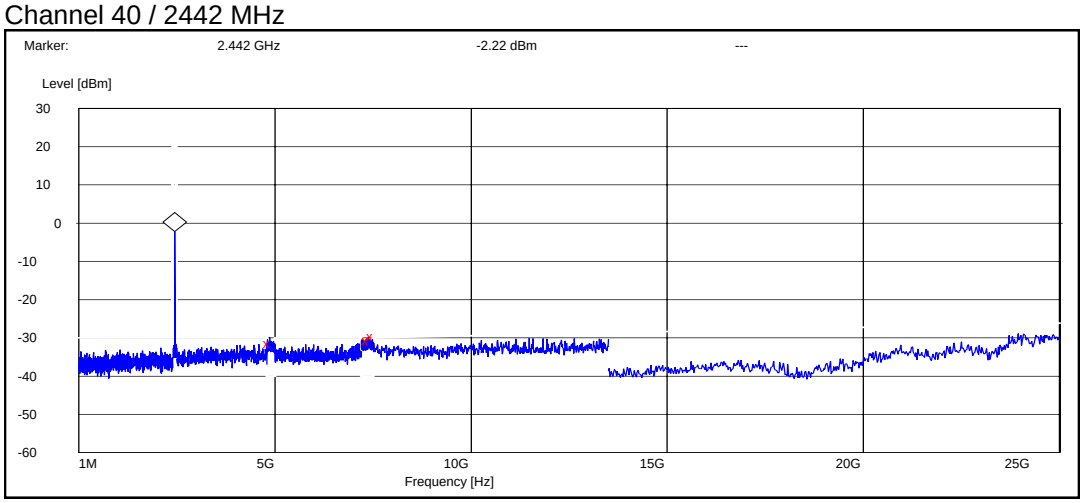
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4804.800000	-29.515157	Pass
5000.000000	-29.315157	Pass
7344.600000	-28.515157	Pass

Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4864.000000	-29.178387	Pass
7378.200000	-28.378387	Pass
7500.000000	-27.378387	Pass

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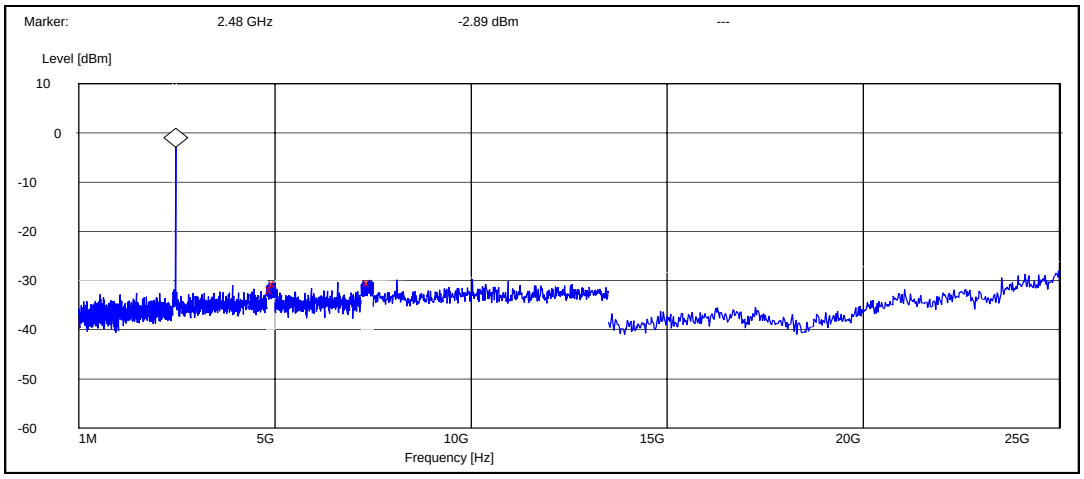
Channel 78 / 2480 MHz

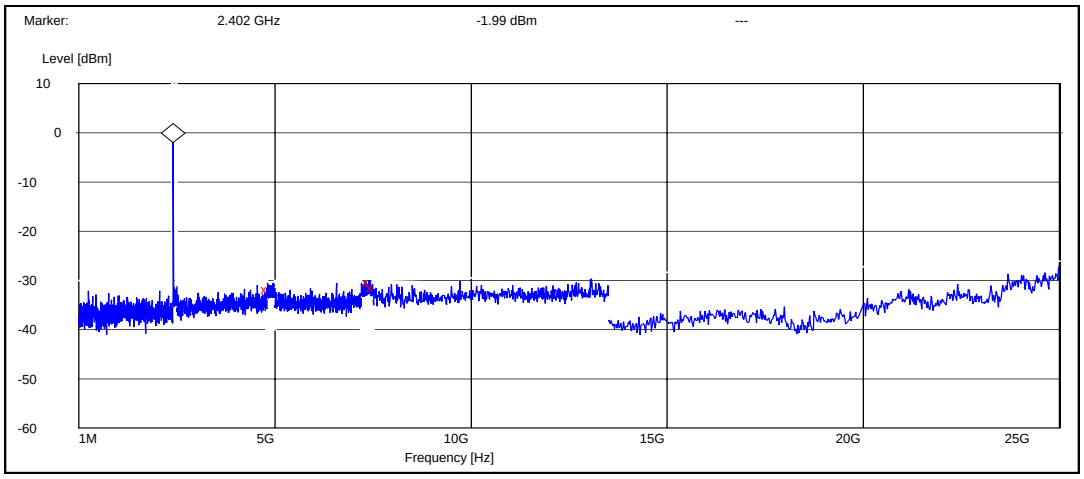


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4936.400000	-28.913661	Pass
5000.000000	-27.613661	Pass
7407.600000	-27.413661	Pass

5.2.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4811.200000	-29.809573	Pass
7390.800000	-28.309573	Pass
7500.000000	-29.409573	Pass

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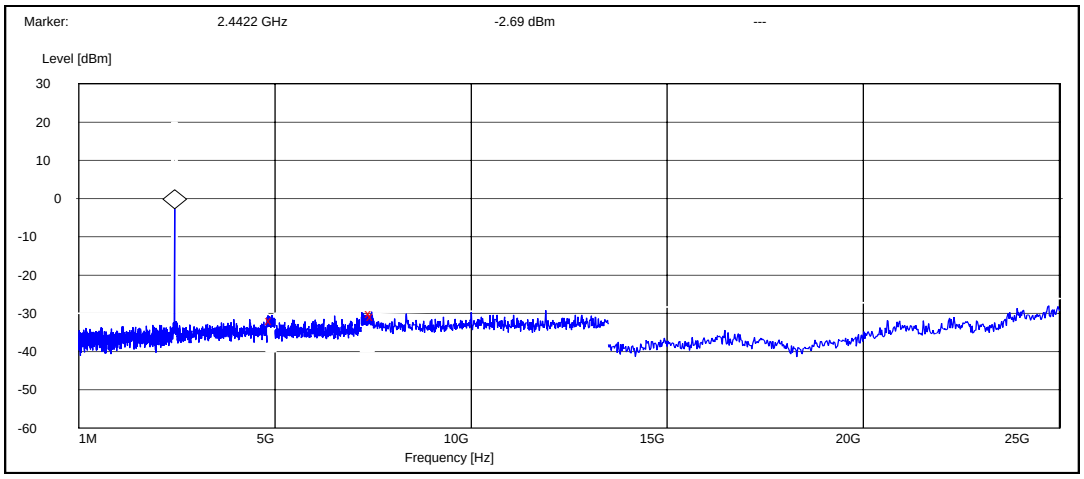
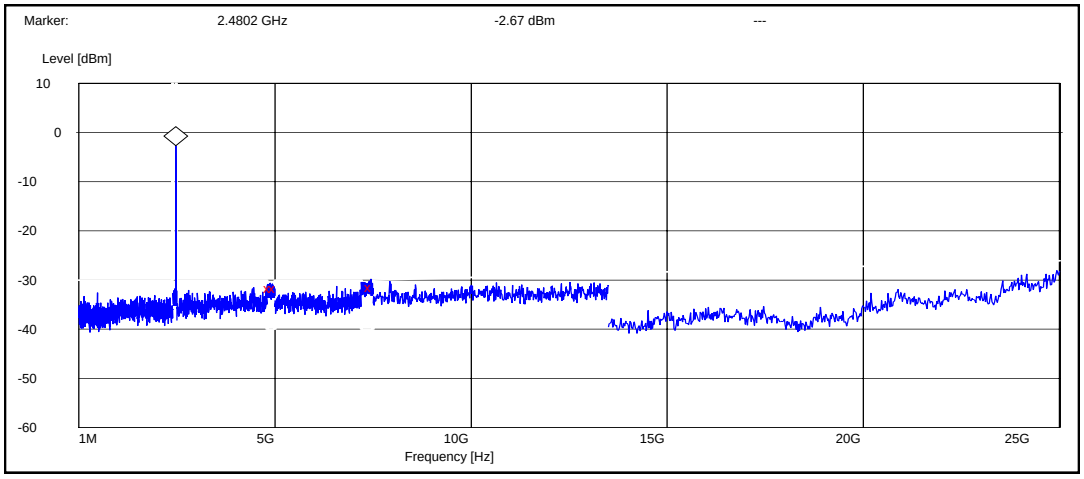
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4915.200000	-29.112491	Pass
7460.400000	-27.412491	Pass
7500.000000	-28.112491	Pass

Channel 78 / 2480 MHz



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

Frequency [MHz]	P [dBc]	Result
4878.000000	-28.927719	Pass
5000.000000	-28.927719	Pass
7448.400000	-28.727719	Pass

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6. Spurious radiated emissions

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

EUT with DUT number	RM-432 DUT 26831
Accessories with DUT numbers	BL-4CT DUT 26822, AC-10C DUT 26821, CA-101 DUT 26816, HS-45 DUT 26811, AD-54 DUT 26813
Operation Voltage [V] / [Hz]	115 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 40 / 99.1
Date of measurements	19-Jan-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:

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

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	39.00	0.1	HORIZONTAL	Passed
7206.000000	42.60	134.90	33.70	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	26.00	19.95	25.90	0.1	HORIZONTAL	Passed
7206.000000	30.20	32.36	21.30	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
73.308016	16.90	7.00	42.60	-25.7	HORIZONTAL	Passed
136.373547	20.70	10.84	45.70	-25.0	VERTICAL	Passed
167.834269	23.20	14.45	48.70	-25.5	VERTICAL	Passed
881.663527	60.30	1035.14	72.30	-12.0	VERTICAL	Passed

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

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
7311.631263	42.00	125.89	32.80	9.2	HORIZONTAL	Passed
7326.151303	43.20	144.54	34.20	9.0	VERTICAL	Passed
7421.843687	42.60	134.90	33.30	9.3	HORIZONTAL	Passed
7428.851703	43.30	146.22	33.90	9.4	VERTICAL	Passed
17415.327655	52.40	416.87	30.00	22.4	HORIZONTAL	Passed
17902.299599	58.60	851.14	29.70	28.9	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
7315.131263	29.50	29.85	20.30	9.2	HORIZONTAL	Passed
7326.151303	29.90	31.26	20.90	9.0	VERTICAL	Passed
7418.843687	29.90	31.26	20.60	9.3	HORIZONTAL	Passed
7424.851703	30.10	31.99	20.70	9.4	VERTICAL	Passed
17417.827655	38.90	88.10	16.40	22.5	HORIZONTAL	Passed
17896.299599	45.60	190.55	16.80	28.8	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	40.30	103.51	40.00	0.3	HORIZONTAL	Passed
7440.000000	42.80	138.04	33.30	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	27.30	23.17	27.00	0.3	HORIZONTAL	Passed
7440.000000	31.30	36.73	21.80	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	38.50	84.14	38.40	0.1	HORIZONTAL	Passed
7206.000000	46.20	204.17	37.30	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	27.50	23.71	27.40	0.1	HORIZONTAL	Passed
7206.000000	33.10	45.19	24.20	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
136.492585	20.90	11.09	45.90	-25.0	VERTICAL	Passed
164.928858	22.00	12.59	47.60	-25.6	VERTICAL	Passed
170.439679	22.60	13.49	47.90	-25.3	VERTICAL	Passed
881.663527	60.30	1035.14	72.30	-12.0	VERTICAL	Passed

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

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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
4884.269539	39.10	90.16	39.30	-0.2	HORIZONTAL	Passed
7252.005010	42.00	125.89	33.00	9.0	HORIZONTAL	Passed
7326.151303	44.20	162.18	35.20	9.0	VERTICAL	Passed
17311.621242	52.00	398.11	30.60	21.4	HORIZONTAL	Passed
17901.305611	59.00	891.25	30.00	29.0	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
4883.769539	28.40	26.30	28.60	-0.2	HORIZONTAL	Passed
7250.005010	29.40	29.51	20.40	9.0	HORIZONTAL	Passed
7326.151303	30.20	32.36	21.20	9.0	VERTICAL	Passed
17314.121242	38.30	82.22	16.90	21.4	HORIZONTAL	Passed
17906.305611	45.50	188.36	16.60	28.9	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
4960.000000	43.00	141.25	42.70	0.3	HORIZONTAL	Passed
7440.000000	45.60	190.55	36.10	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	29.40	29.51	29.10	0.3	HORIZONTAL	Passed
7440.000000	33.50	47.32	24.00	9.5	HORIZONTAL	Passed

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7. AC power line conducted emissions

(FCC §15.207, RSS-GEN 7.2.2)

EUT with DUT number	RM-432 dut 26830, BL-4CT dut 26824
Accessories with DUT numbers	HS-45 dut 26812, AD-54 dut 26815, AC-10 dut 26919, CA-101 dut 26818
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.6 / 35.5 99.82
Date of measurements	20-Jan-2009
Measured by	Jan Engelbrechtsen

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 ground plane.

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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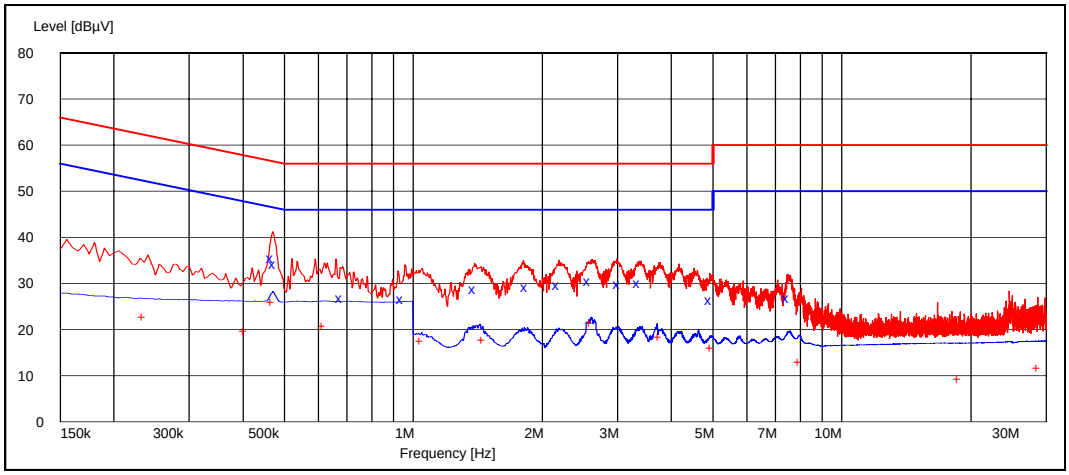
7.2. Bluetooth Test results

7.2.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.470000	35.60	N	Pass
0.475000	34.10	N	Pass
0.680000	26.90	N	Pass
0.945000	26.60	N	Pass
1.395000	28.70	N	Pass
1.840000	29.20	N	Pass
2.185000	29.60	N	Pass
2.580000	30.60	N	Pass
3.025000	29.90	N	Pass
3.370000	30.00	N	Pass
4.945000	26.50	N	Pass
7.500000	26.80	N	Pass

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.235000	22.80	N	Pass
0.405000	19.80	N	Pass
0.470000	26.00	N	Pass
0.620000	20.70	N	Pass
1.045000	17.60	N	Pass
1.460000	17.80	N	Pass
2.600000	21.30	N	Pass
3.760000	18.30	N	Pass
4.970000	15.90	N	Pass
7.990000	13.00	N	Pass
18.800000	9.40	N	Pass
28.825000	11.60	N	Pass

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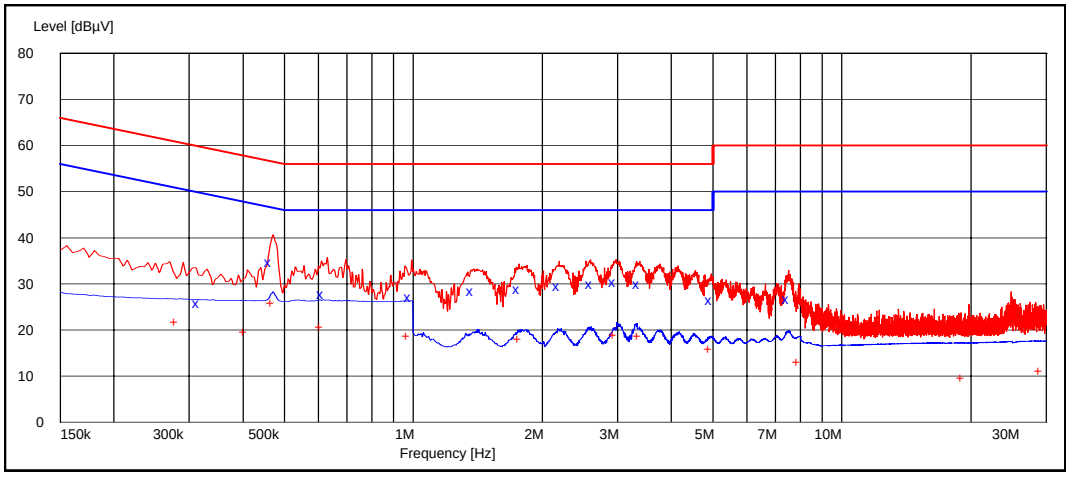
7.2.2 8DPSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.315000	25.80	L1	Pass
0.465000	34.70	N	Pass
0.615000	27.80	N	Pass
0.985000	27.00	N	Pass
1.375000	28.50	N	Pass
1.765000	28.90	N	Pass
2.185000	29.60	N	Pass
2.605000	30.00	N	Pass
2.955000	30.30	N	Pass
3.360000	29.90	N	Pass
4.960000	26.50	N	Pass
7.505000	26.70	N	Pass

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.280000	21.80	N	Pass
0.405000	19.60	N	Pass
0.470000	25.80	N	Pass
0.610000	20.60	N	Pass
0.975000	18.80	N	Pass
1.770000	18.10	N	Pass
2.955000	19.00	N	Pass
3.370000	18.80	N	Pass
4.935000	15.90	N	Pass
7.940000	13.00	N	Pass
19.110000	9.60	N	Pass
29.160000	11.10	N	Pass

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8. 20 dB bandwidth

(FCC §15.247(a)(1), RSS-210 A8.1 (1))

EUT with DUT number	RM-432 dut 26829, BL-4CT dut 26824
Accessories with DUT numbers	HS-45 dut 26812, AD-54 dut 26815, AC-10 dut 26919, CA-101 dut 26818
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.6 / 35.5 99.82
Date of measurements	20-Jan-2009
Measured by	Jan Engelbrechtsen

8.1. Test method and limit

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

Limits for 20 dB bandwidth measurements

Limit [MHz]
N/A

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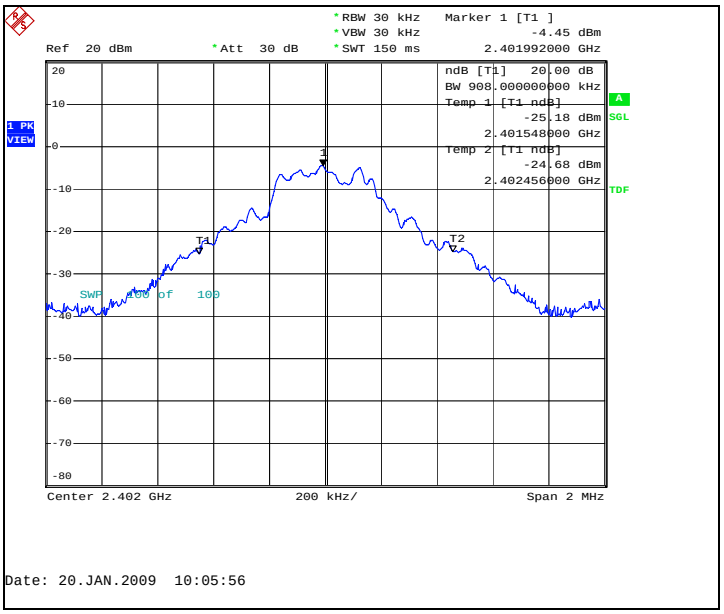
8.2. Bluetooth Test results

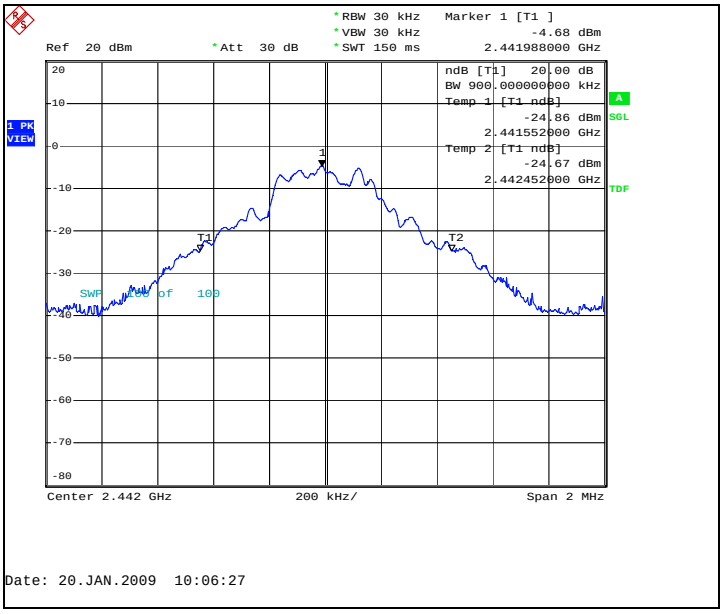
8.2.1 GFSK modulation, PRBS packet type

Channel / f_C [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	908.000	Pass
40 / 2442	900.000	Pass
78 / 2480	904.000	Pass

Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



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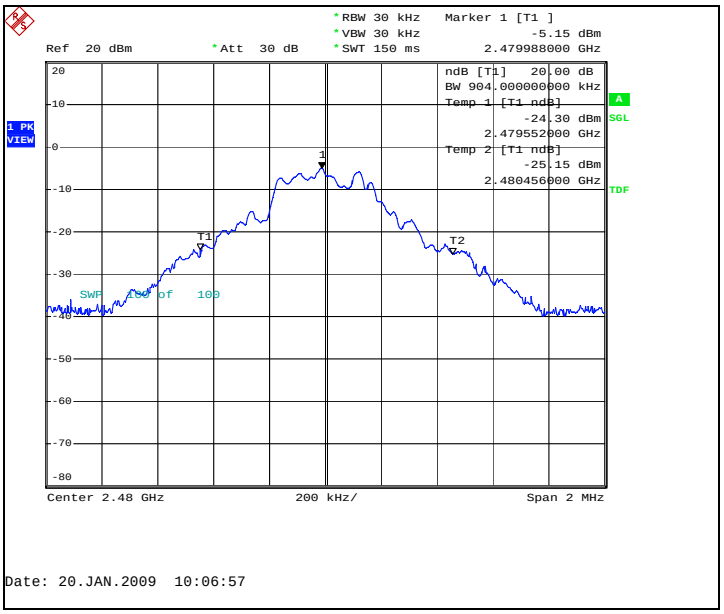
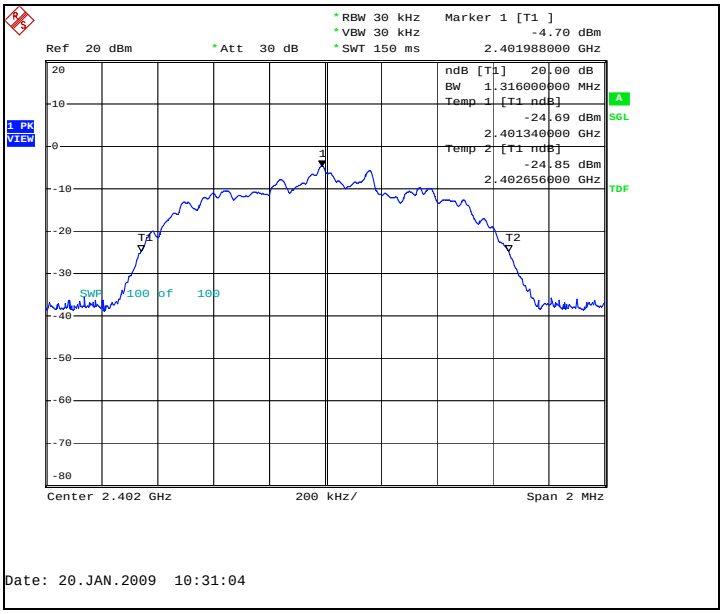
Channel 78 / 2480 MHz



8.2.2 8DPSK modulation, PRBS packet type

Channel / f_C [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1316.000	Pass
40 / 2442	1312.000	Pass
78 / 2480	1316.000	Pass

Channel 0 / 2402 MHz



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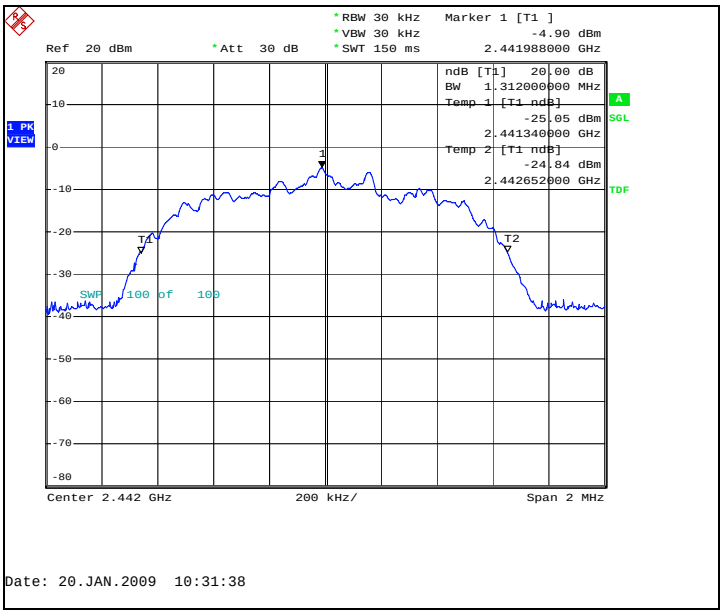
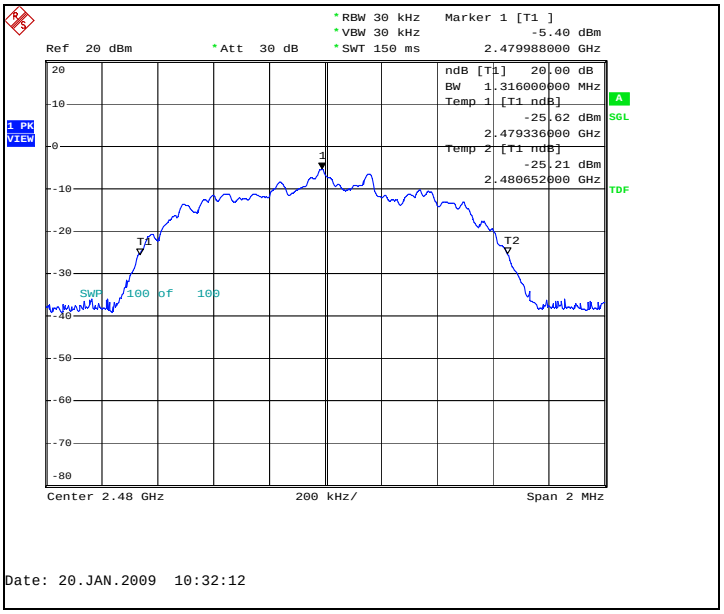
Channel 40 / 2442 MHz



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-432 dut 26829, BL-4CT dut 26824
Accessories with DUT numbers	HS-45 dut 26812, AD-54 dut 26815, AC-10 dut 26919, CA-101 dut 26818
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.6 / 35.5 99.82
Date of measurements	20-Jan-2009
Measured by	Jan Engelbrechtsen

9.1. Test method and limit

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

Limits for carrier frequency separation measurements

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

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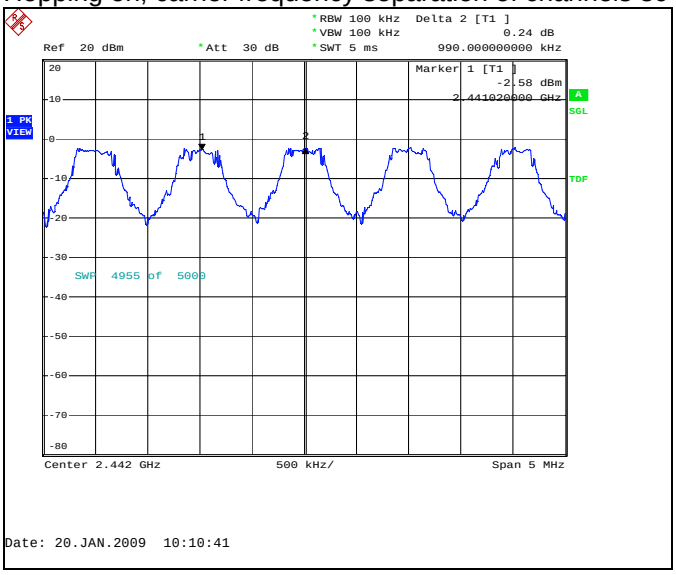
9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
990	Pass

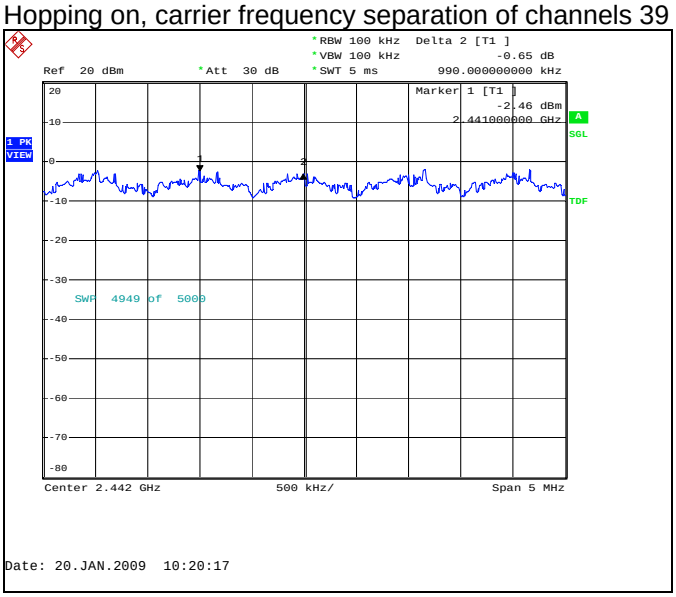
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



9.2.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
990	Pass

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-432 dut 26829, BL-4CT dut 26824
Accessories with DUT numbers	HS-45 dut 26812, AD-54 dut 26815, AC-10 dut 26919, CA-101 dut 26818
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.6 / 35.5 99.82
Date of measurements	20-Jan-2009
Measured by	Jan Engelbrechtsen

10.1. Test method and limit

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

Limits for number of hopping frequencies measurements

Limit [number]
≥ 15

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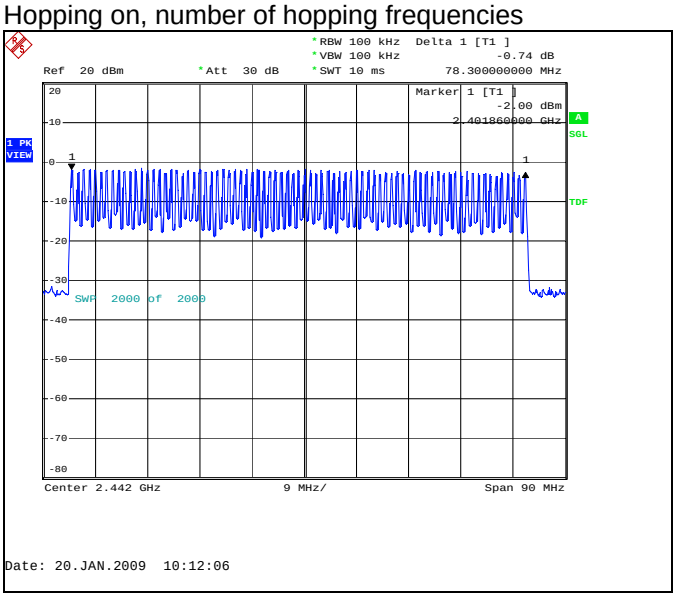
10.2. Bluetooth Test results

10.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
78	Pass

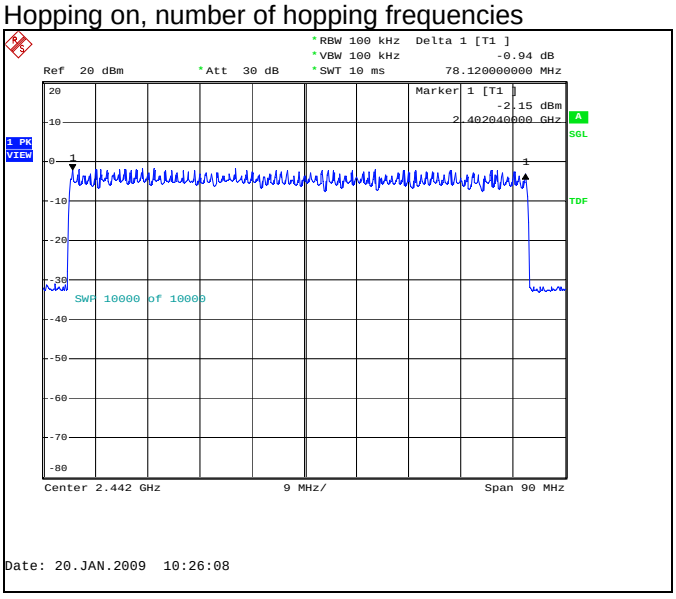
Hopping on, number of hopping frequencies



10.2.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
78	Pass

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-432 dut 26829, BL-4CT dut 26824
Accessories with DUT numbers	HS-45 dut 26812, AD-54 dut 26815, AC-10 dut 26919, CA-101 dut 26818
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.6 / 35.5 99.82
Date of measurements	20-Jan-2009
Measured by	Jan Engelbrechtsen

11.1. Test method and limit

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

The total time of occupancy is get by multiplying the measured number of transmissions occurred during 31.6 second period with the duration of one transmission.

Limits for time of occupancy measurements

Limit [s]
≤ 0.4

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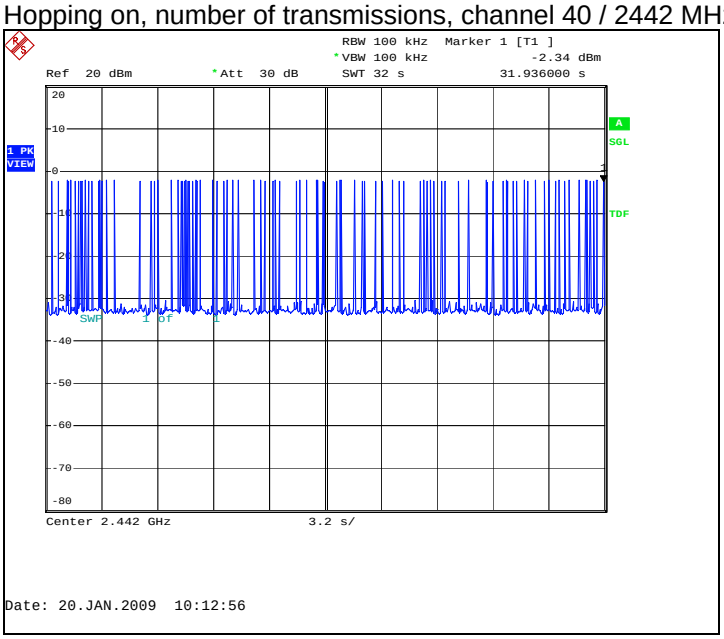
11.2. Bluetooth test results

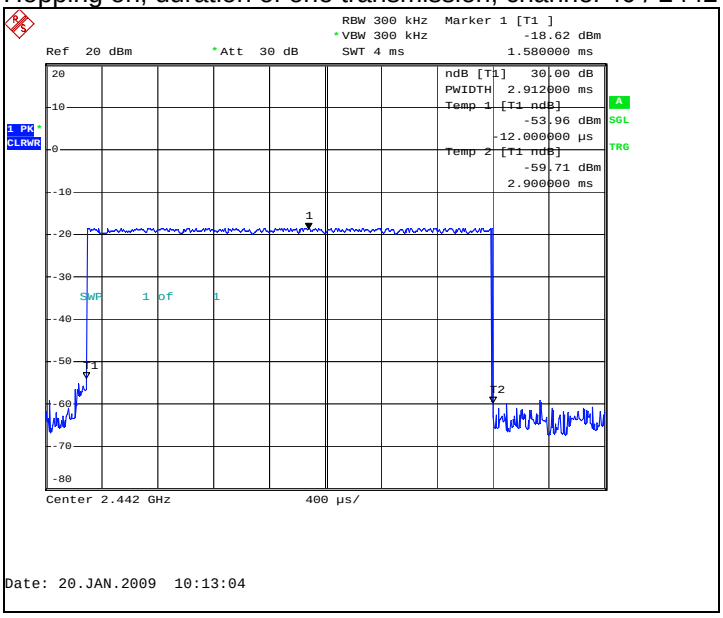
11.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [µs]	Time of occupancy [s]	Result
84	2,912	0.244608	Pass

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



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



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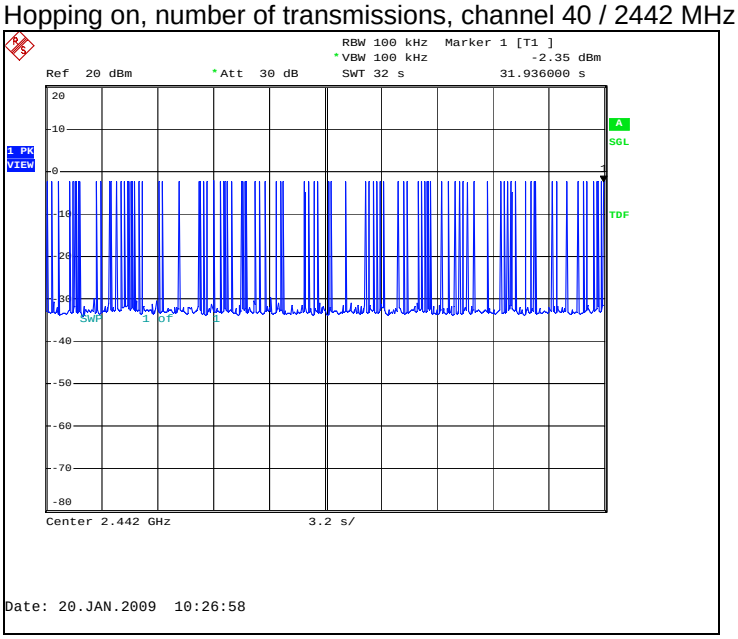
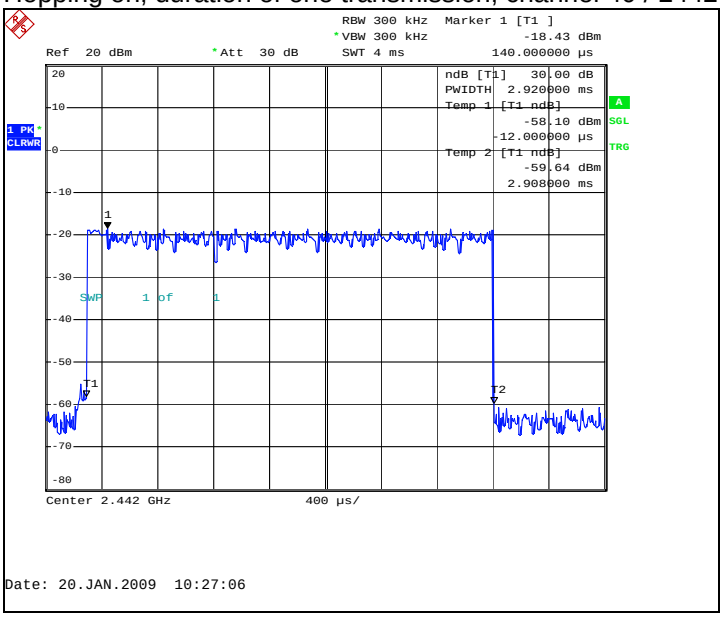
11.2.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [µs]	Time of occupancy [s]	Result
85	2,920	0.248200	Pass

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
13037	Power Supply 0-15V 10A	EA3012	LP Instruments	15C, 15B
13513	Pulse Limiter 9KHz-30MHz	ESH3Z2	Rohde&Schwarz	15C, 15B
13666	EMI Test Receiver 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 µWave Mux	10-785B-522	Pickering	22/24/27, 15C, 15B
14021	Relay Dual 6 Chnl µWave Mux	10-785-522		22/24/27, 15C, 15B
	Relay Dual 6 Chnl µWave 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

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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

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