FCC Part 15C Compliance Test Report

Test Report no.:	FCC15CBT_RM-917_02.docx	**Date of Report:**	14-Mar-2013
Number of pages:	43	**Customer's Contact person:**	Hu Ying
Testing laboratory:	TCC Nokia Salo Laboratory P.O.Box(86) Joensuunkatu 7H / Kiila 1B FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 45220	**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.:**	533467 661V-1		
Tested devices/ accessories:	**Phone RM-917 / Battery BL-5J / Headset WH-108 / AC-Charger AC-20U**		
FCC ID:	QTLRM-917	**IC:**	-
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. 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 Kalle Hannila DN: cn=Kalle Hannila, o=DRD/DQD/DCO/CMCL, ou=TCC Nokia, email=EXT-kalle.t.hannila@nokia.com, c=FI Date: 2013.03.14 09:00:27 +02'00'		

Kalle Hannila, System Manager, EMC

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	05-Feb-2013
Testing completed	15-Feb-2012
The customer's contact person	Hu Ying
Test Plan referred to	T:\Projects\RM-917\TestPlan\RS_testplan_RM-917.xlsm
Notes	-
Document name	T:\Projects\RM-917\EMC\FCC15CBT_RM-917_02.docx

1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:
GSM/WCDMA/WLAN/Bluetooth
The EUT is tested with maximum rated TX power.

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-917	355913050000442	0201	-	1030.6400.1304.10070	17234
Phone	RM-917	355913050000566	0201	-	1030.6400.1304.10070	17232
Battery	BL-5J	4955402215032307202ö0670574	-	-	-	17235
Headset	WH-108	3022D71	-	-	-	17236
AC-Charger	AC-20U	4868672512340507097ö0675629	-	-	-	17237
Dummy Battery	SD-50B	LT5020234	-	-	-	17242

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), 15.205(b)	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	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 Laboratory.

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

CONTENTS

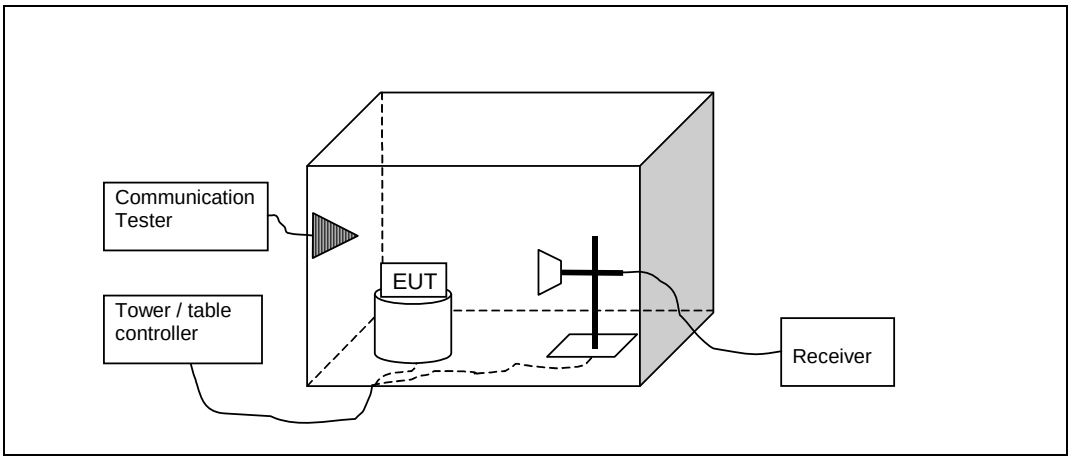
TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

2. Band edge compliance of RF emissions
(FCC §15.247(d), 15.205(b), RSS-210 A8.5)

EUT with DUT number	RM-917, DUT 17234
Accessories with DUT numbers	BL-5J, DUT 17235 ; WH-108, DUT 17236 ; AC-20U, DUT 17237
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 35 / 102
Date of measurements	06-Feb-2013
Measured by	Kalle Hannila

2.1.1 Test setup



2.2. Test method and limit

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

The measurement results are obtained as described below:

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

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)

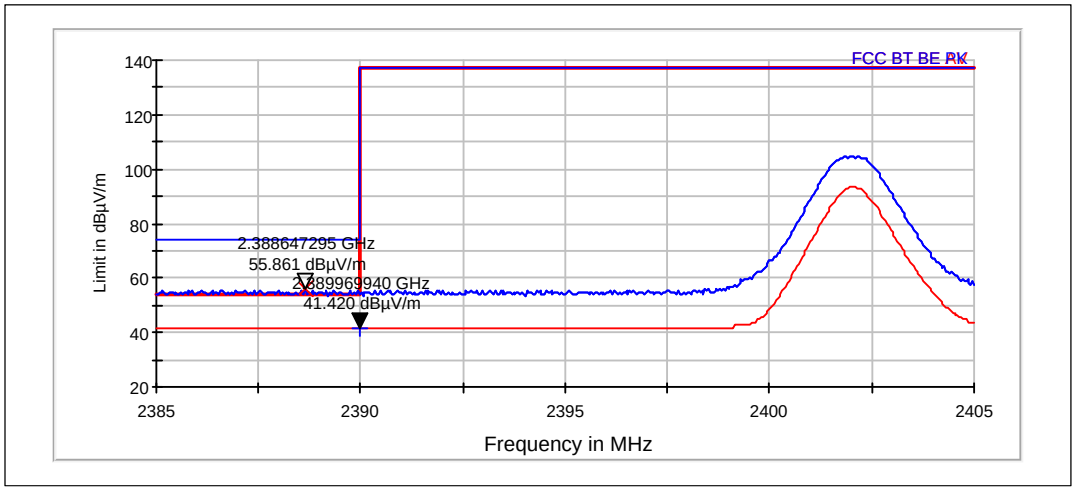
Frequency range [MHz]	Limit
Below 2390 and above 2483.5	54 dBuV/m (avg) and 74 dBuV/m (pk)

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

2.3. Bluetooth test results

2.3.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



Peak (RBW: 1 MHz, VBW: 3 MHz)

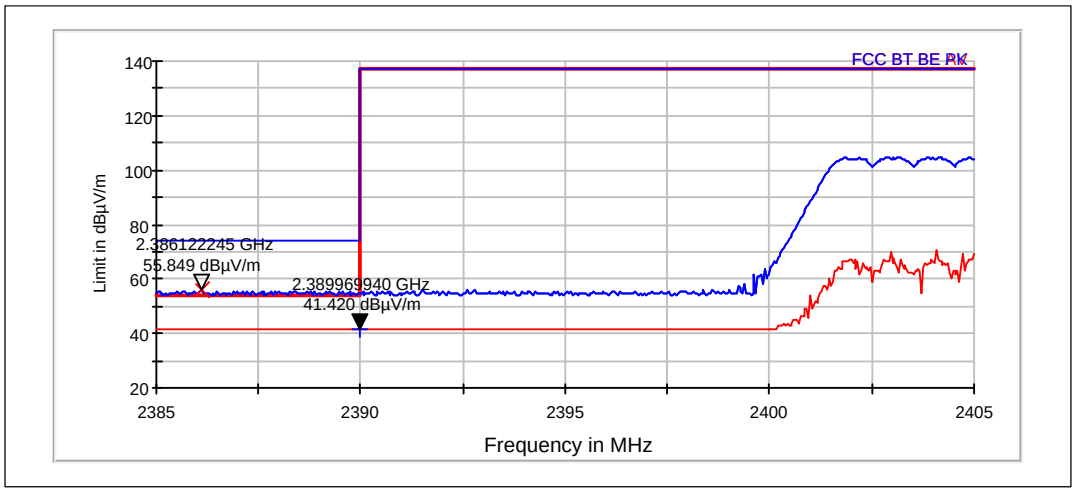
Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2389	55.86	620.941	55.52	0.34	0.341	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2390	41.42	117.761	41.08	0.34	0.341	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

Hopping on. Low end.



Peak (RBW: 1 MHz, VBW: 3 MHz)

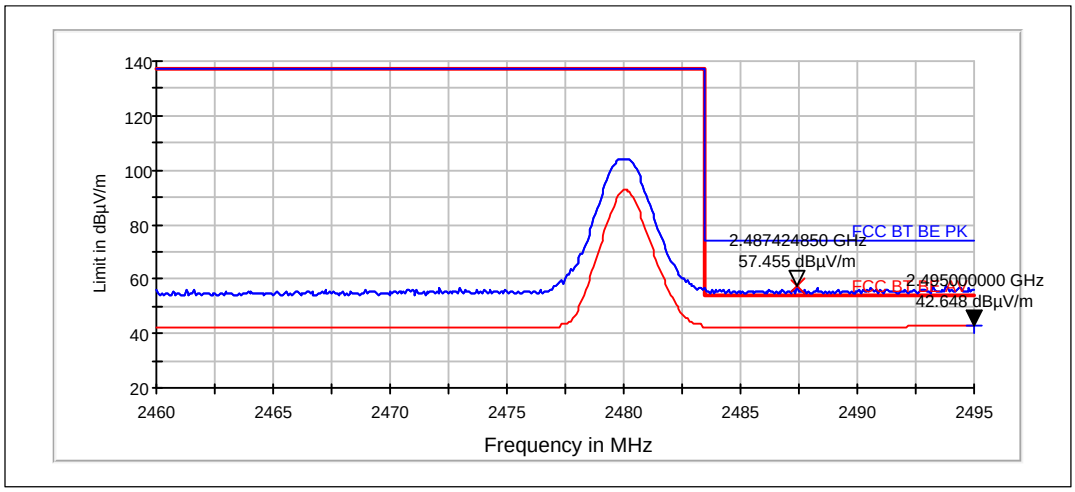
Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2386	55.85	620.083	55.51	0.34	0.341	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2390	41.42	117.761	41.08	0.34	0.341	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

Channel 78 / 2480 MHz



Peak (RBW: 1 MHz, VBW: 3 MHz)

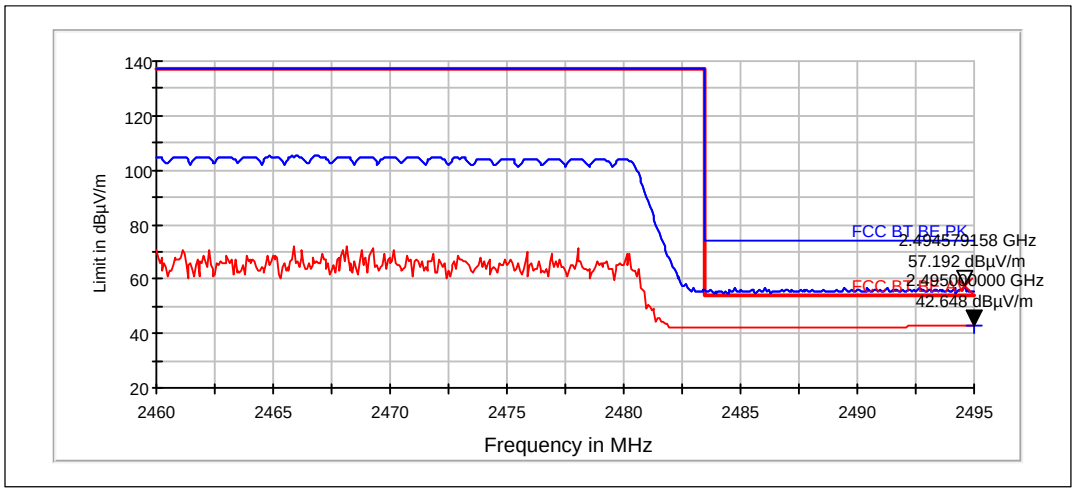
Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2487	57.46	746.019	56.43	1.03	1.032	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2495	42.65	135.644	41.62	1.03	1.032	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

Hopping on. High end.



Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2495	57.19	723.769	56.16	1.03	1.032	PASSED

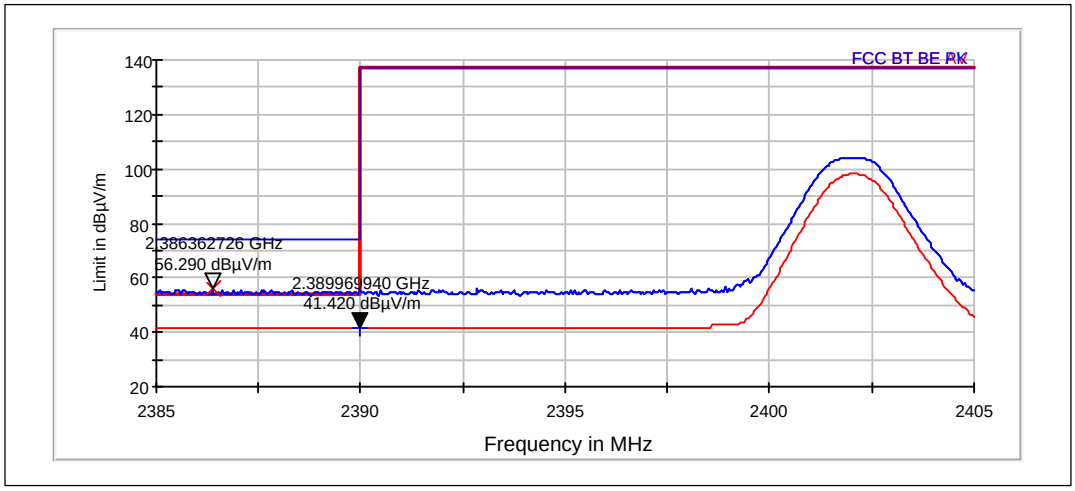
Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2495	42.65	135.644	41.62	1.03	1.032	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

2.3.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



Peak (RBW: 1 MHz, VBW: 3 MHz)

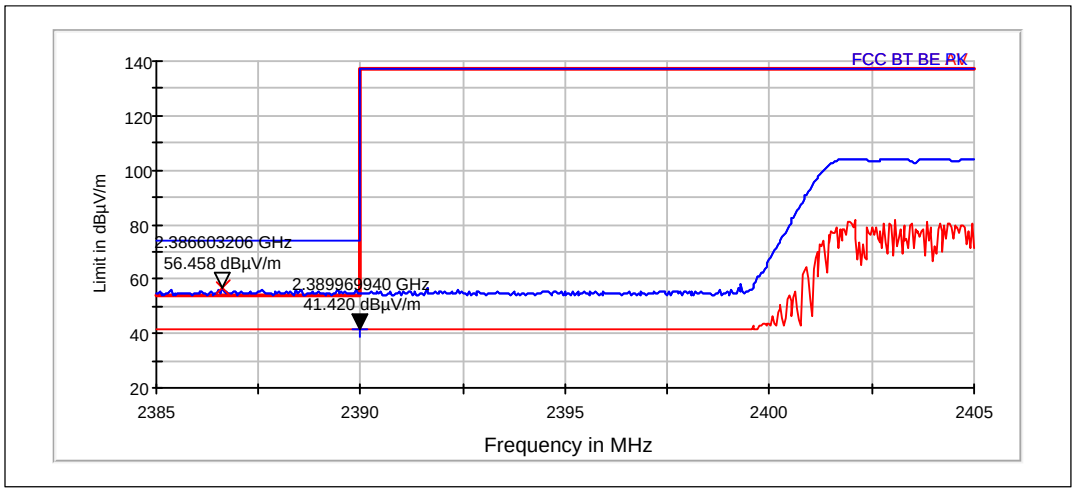
Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2386	56.29	652.379	55.95	0.34	0.341	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2390	41.42	117.761	41.08	0.34	0.341	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

Hopping on. Low end.



Peak (RBW: 1 MHz, VBW: 3 MHz)

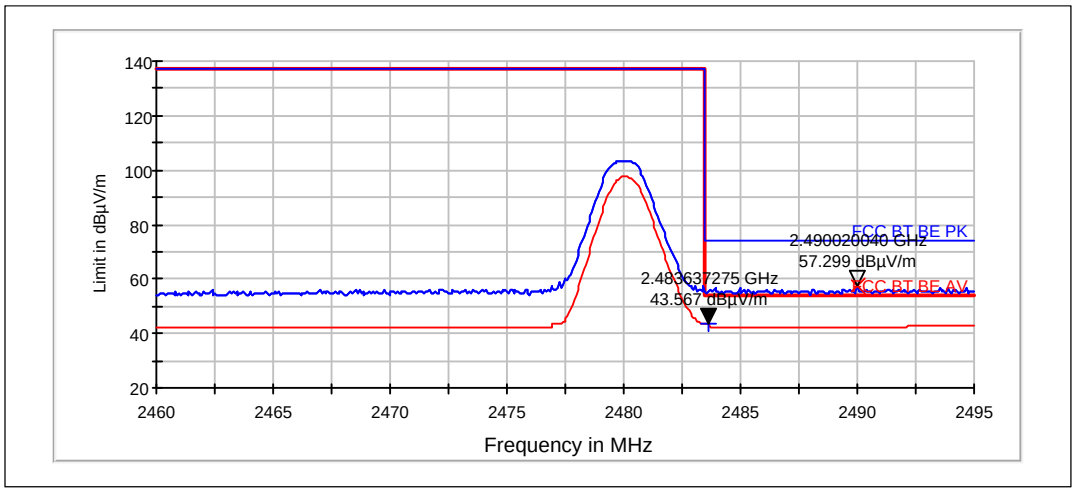
Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2387	56.46	665.12	56.12	0.34	0.341	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2390	41.42	117.761	41.08	0.34	0.341	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

Channel 78 / 2480 MHz



Peak (RBW: 1 MHz, VBW: 3 MHz)

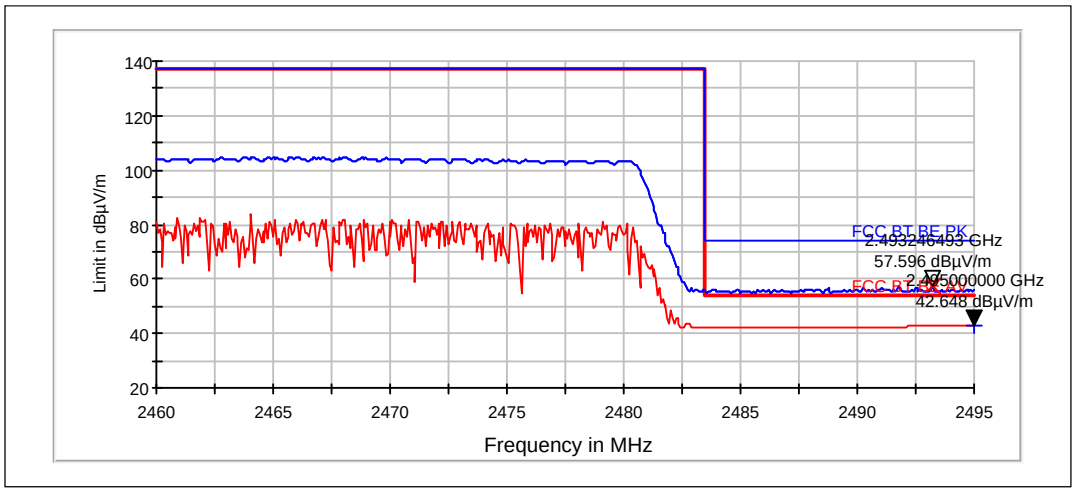
Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2490	57.3	732.74	56.27	1.03	1.032	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2484	43.57	150.782	42.54	1.03	1.032	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

Hopping on. High end.



Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2493	57.6	758.228	56.57	1.03	1.032	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

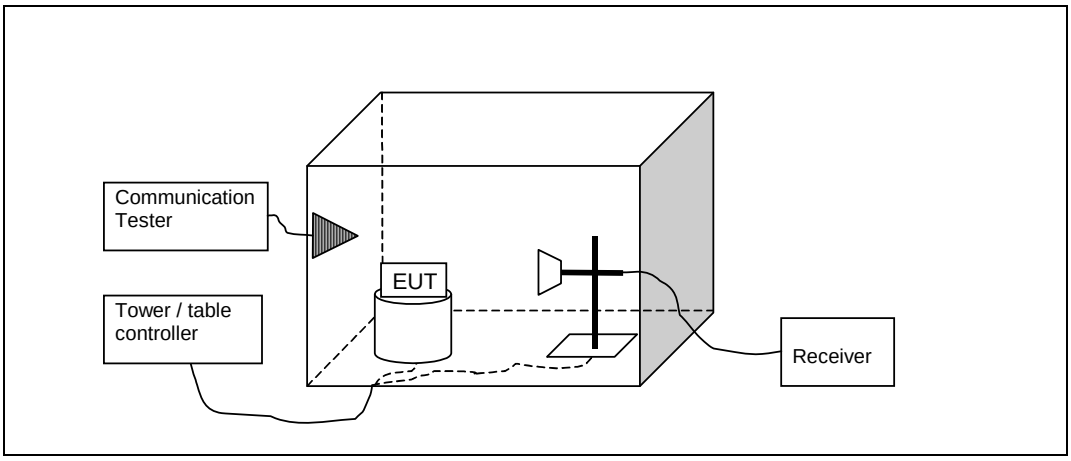
Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Correction [dB]	Results
2495	42.65	135.644	41.62	1.03	1.032	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

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

EUT with DUT number	RM-917, DUT 17234
Accessories with DUT numbers	BL-5J, DUT 17235 ; WH-108, DUT 17236 ; AC-20U, DUT 17237
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 35 / 102
Date of measurements	06-Feb-2013
Measured by	Kalle Hannila

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 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.

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

The measurement results are obtained as described below:

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

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 [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

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

3.3. Bluetooth test results

3.3.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
10858.019	57.29	732.15	40.87	16.42	16.7	74	PASSED
11475.054	57.81	777.141	41.49	16.32	16.2	74	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
30.75	28.35	26.143	32.67	-4.32	11.7	40	PASSED
30.99	28.36	26.179	32.84	-4.48	11.6	40	PASSED
32.668	26.63	21.449	32.19	-5.56	13.4	40	PASSED
33.952	26.12	20.221	32.5	-6.38	13.9	40	PASSED
35.986	25.69	19.249	33.38	-7.69	14.3	40	PASSED
38.109	24.01	15.86	33.07	-9.06	16	40	PASSED
46.695	19.57	9.515	34.38	-14.81	20.4	40	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
10858.019	44.64	170.628	28.22	16.42	9.3	54	PASSED
11475.054	44.48	167.475	28.16	16.32	9.5	54	PASSED

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
4803.7	42.95	140.394	42.24	0.72	31	74	PASSED
7206.1	49.79	308.71	40.38	9.41	75.4	125	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
4803.7	29.68	30.486	28.97	0.72	24.3	54	PASSED
7206.1	37.06	71.277	27.65	9.41	---	---	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
4961.2	42.7	136.474	42.11	0.59	31.3	74	PASSED
7439	50.64	340.291	40.88	9.76	23.3	74	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
4961.2	29.36	29.39	28.77	0.59	24.6	54	PASSED
7439	37.47	74.722	27.71	9.76	16.5	54	PASSED

3.3.2 8DPSK modulation, PRBS packet type

Channel 40 / 2442 MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
10986.173	56.78	690.399	40.63	16.16	17.2	74	PASSED
11042.783	56.33	655.541	40.5	15.83	17.6	74	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
30.51	26.42	20.939	30.59	-4.17	13.6	40	PASSED
30.54	27.14	22.743	31.33	-4.19	12.9	40	PASSED
33.478	26.28	20.611	32.36	-6.08	13.7	40	PASSED
33.832	26.46	21.045	32.76	-6.3	13.5	40	PASSED
35.776	25.95	19.829	33.51	-7.56	14.1	40	PASSED
37.719	18.68	8.586	27.49	-8.81	21.3	40	PASSED
40.293	21.09	11.337	31.56	-10.47	18.9	40	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
10986.173	44.03	159.111	27.88	16.16	9.9	54	PASSED
11042.783	43.94	157.38	28.11	15.83	10	54	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
4803.9	41.96	125.343	41.25	0.72	32	74	PASSED
7207.8	50.16	321.922	40.76	9.4	75.1	125	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
4803.9	28.98	28.132	28.27	0.72	25	54	PASSED
7207.8	37.04	71.08	27.64	9.4	---	---	PASSED

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
4962	42.46	132.785	41.86	0.6	31.5	74	PASSED
7439.6	50.64	340.408	40.88	9.77	23.3	74	PASSED

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

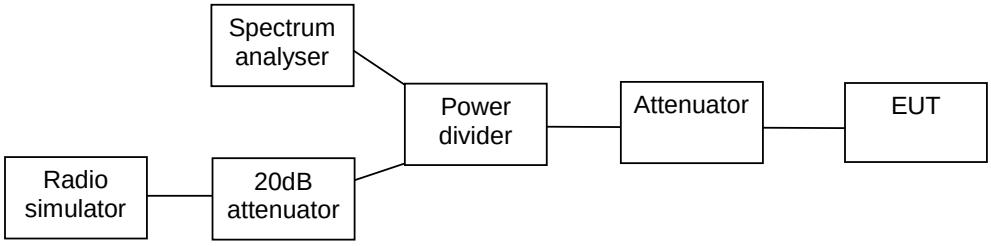
Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
4962	29.34	29.316	28.74	0.6	24.6	54	PASSED
7439.6	37.5	75.024	27.74	9.77	16.5	54	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

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

EUT with DUT number	RM-917, DUT 17232
Accessories with DUT numbers	SD-50B, DUT 17242
Operation Voltage [V] / [Hz]	-
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 35 / 102
Date of measurements	12-Feb-2013
Measured by	Tomi Lipponen

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 conducted peak output power measurements

Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5 5725 - 5850	<= 1	<= 30

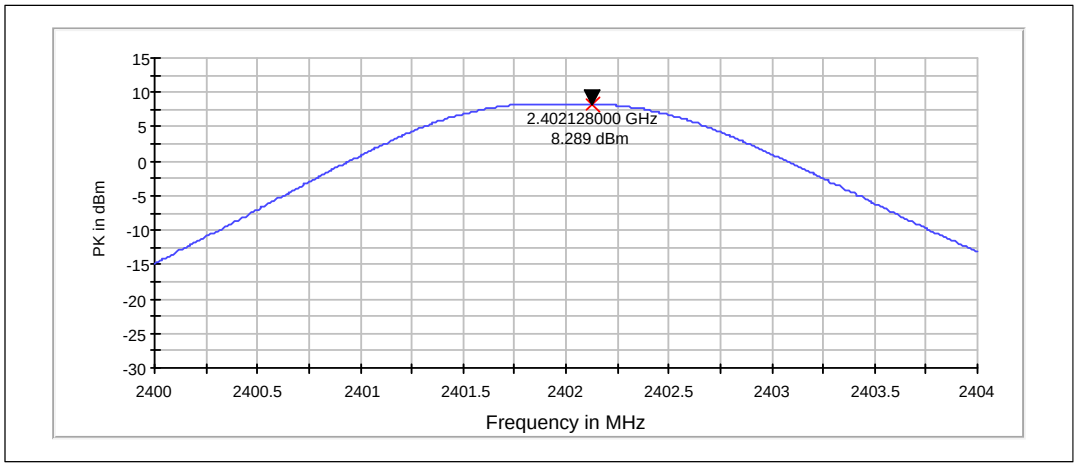
TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

4.3. Bluetooth Test results

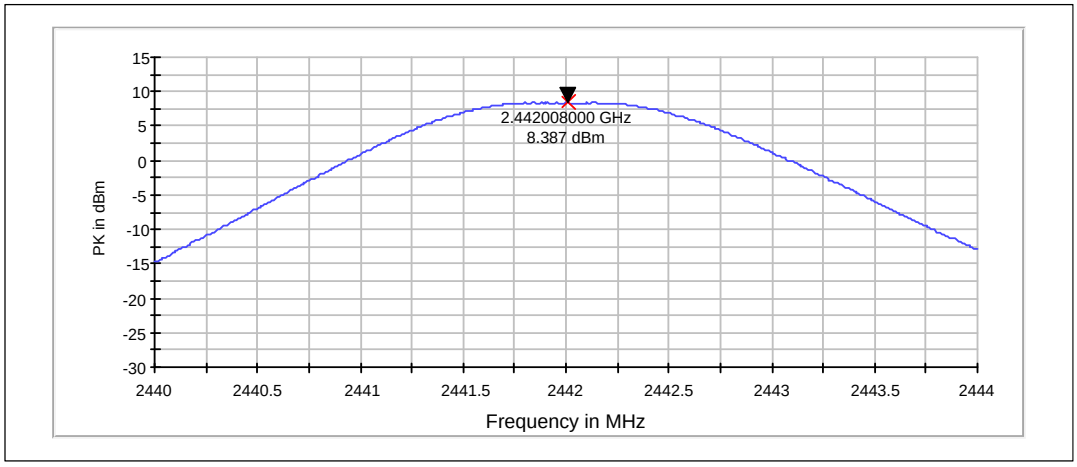
4.3.1 GFSK modulation, PRBS packet type

Channel / f_C [MHz]	P [dBm]	P [mW]	Result
0 / 2402	8.29	6.745	PASSED
40 / 2442	8.39	6.902	PASSED
78 / 2480	8.52	7.112	PASSED

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

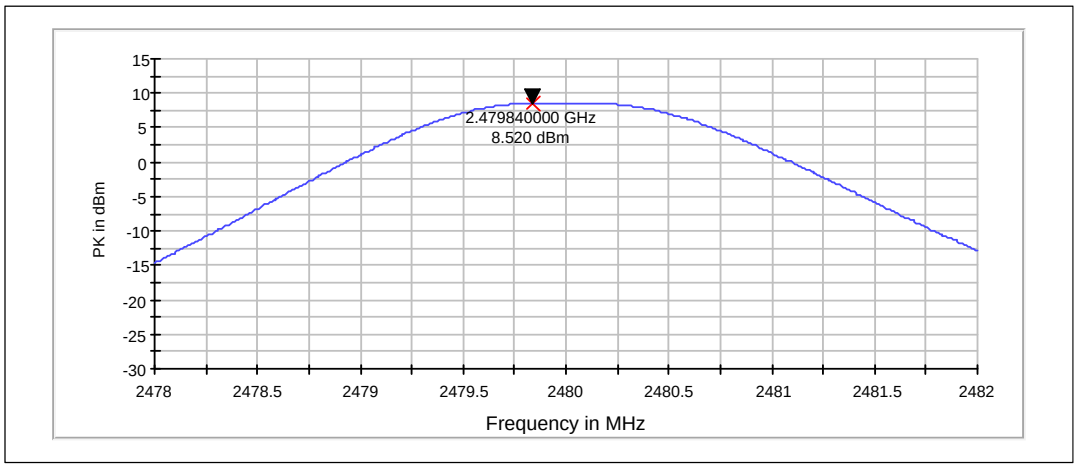


Channel 40 / 2442 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

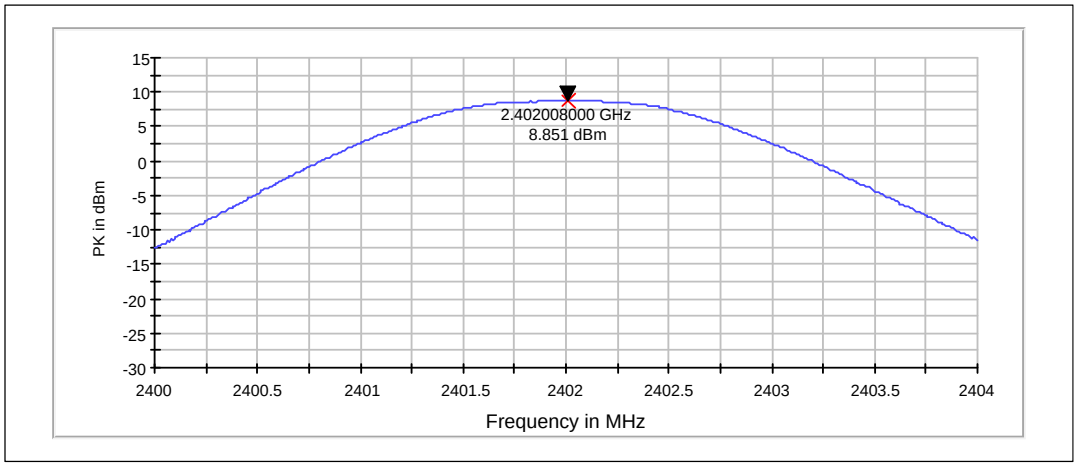
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



4.3.2 8DPSK modulation, PRBS packet type

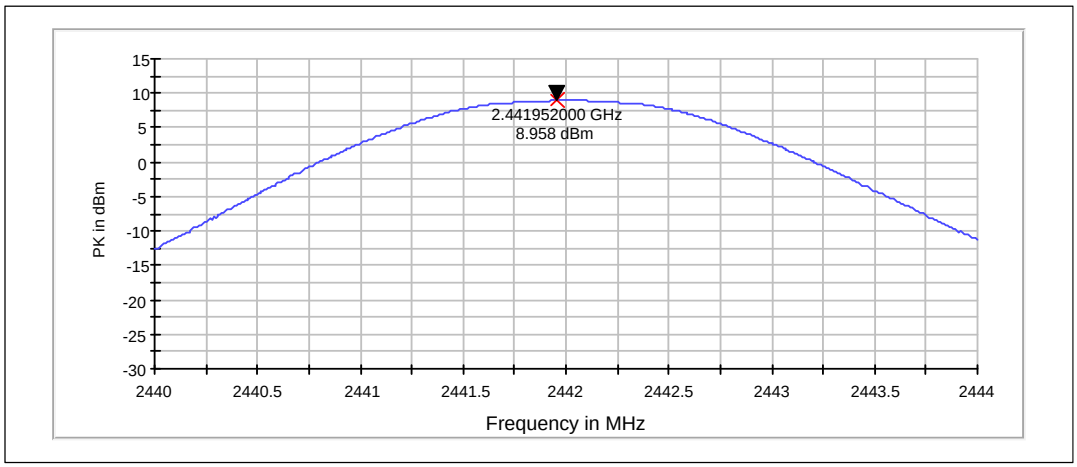
Channel / f_C [MHz]	P [dBm]	P [mW]	Result
0 / 2402	8.85	7.674	PASSED
40 / 2442	8.96	7.87	PASSED
78 / 2480	9.12	8.166	PASSED

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

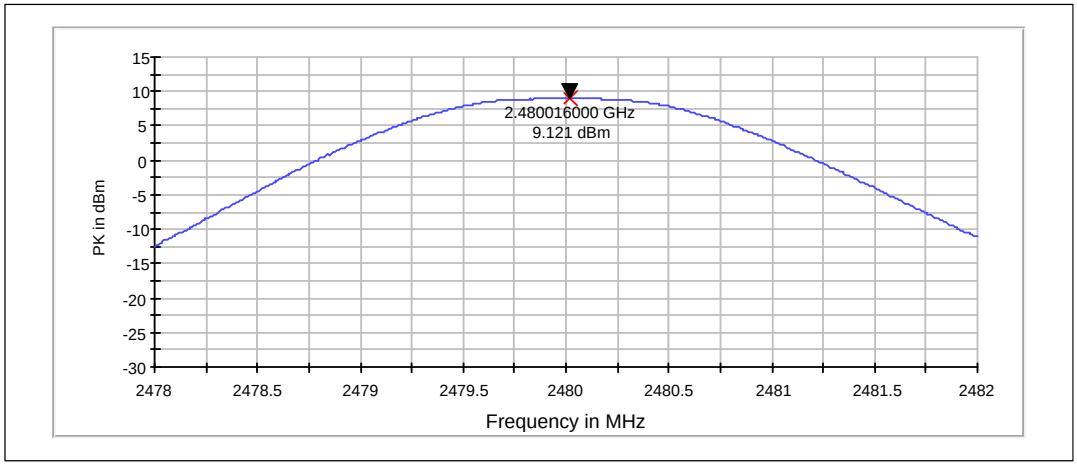


TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

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



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

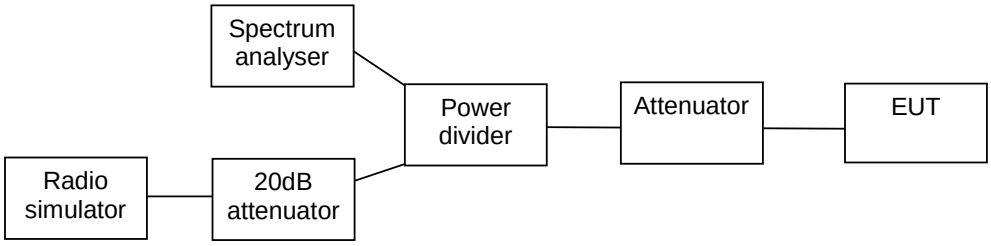


TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

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

EUT with DUT number	RM-917, DUT 17232
Accessories with DUT numbers	SD-50B, DUT 17242
Operation Voltage [V] / [Hz]	-
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 35 / 102
Date of measurements	12-Feb-2013
Measured by	Tomi Lipponen

5.1. Test Setup



5.2. Test method and limit

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

Limits for spurious RF conducted emissions measurements

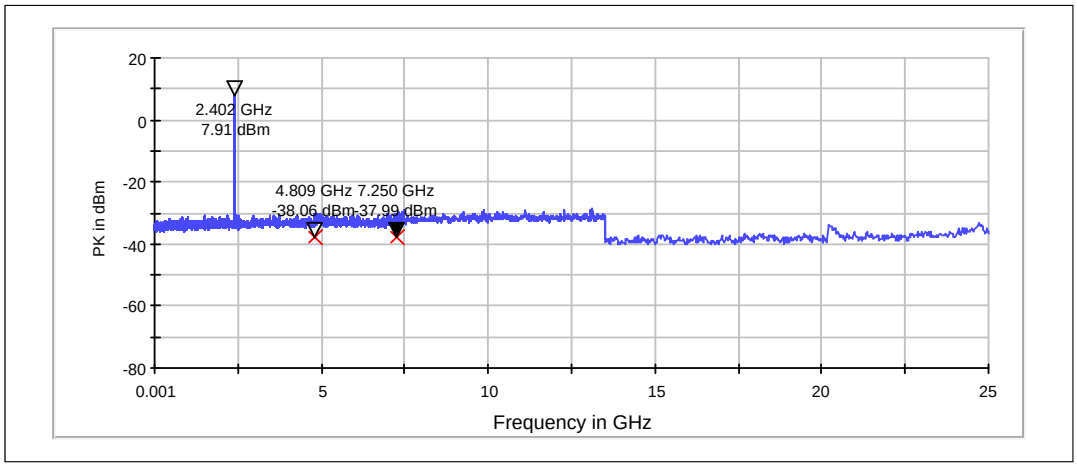
Frequency range [MHz]	Limit [dBc]
1 – 25000	<= -20

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

5.3. Bluetooth Test results

5.3.1 GFSK modulation, PRBS packet type

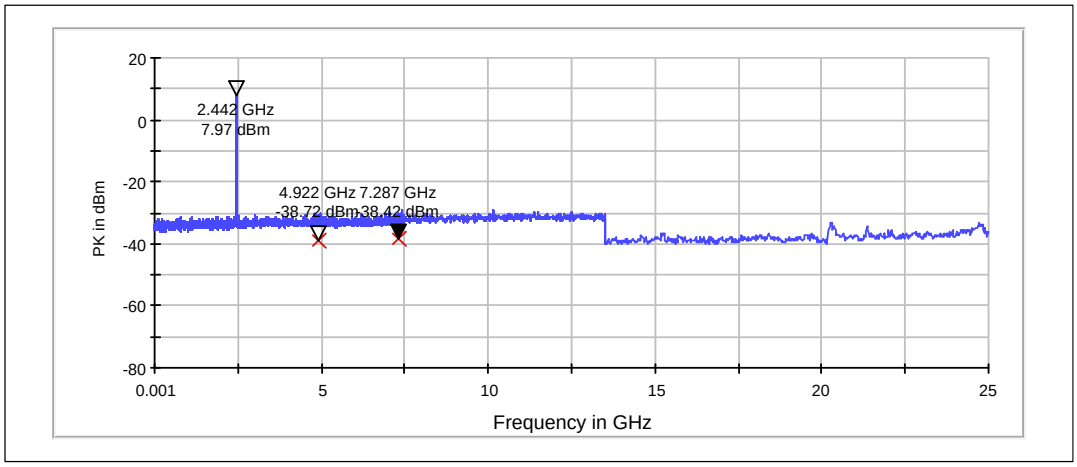
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4809.200	-38.06	PASSED
7249.800	-37.99	PASSED

Channel 40 / 2442 MHz

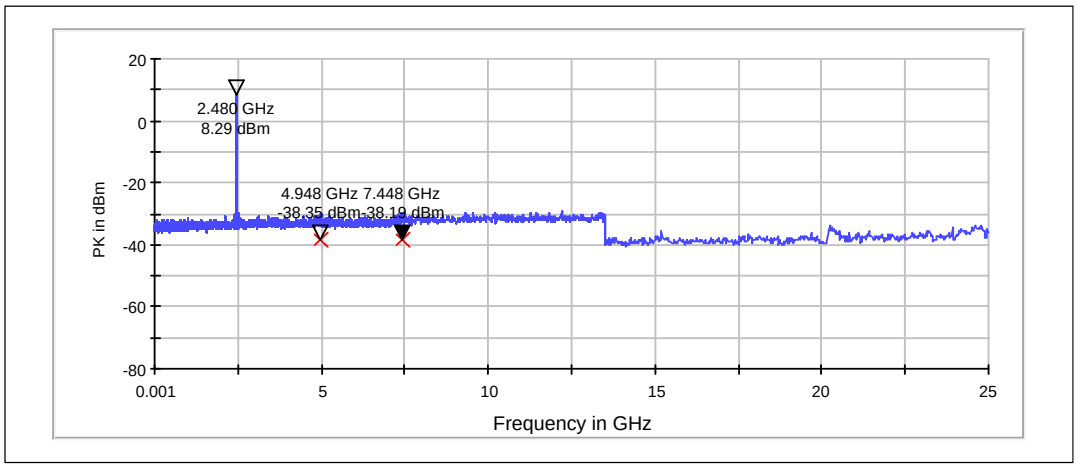


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4922.400	-38.72	PASSED
7287.000	-38.42	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

Channel 78 / 2480 MHz

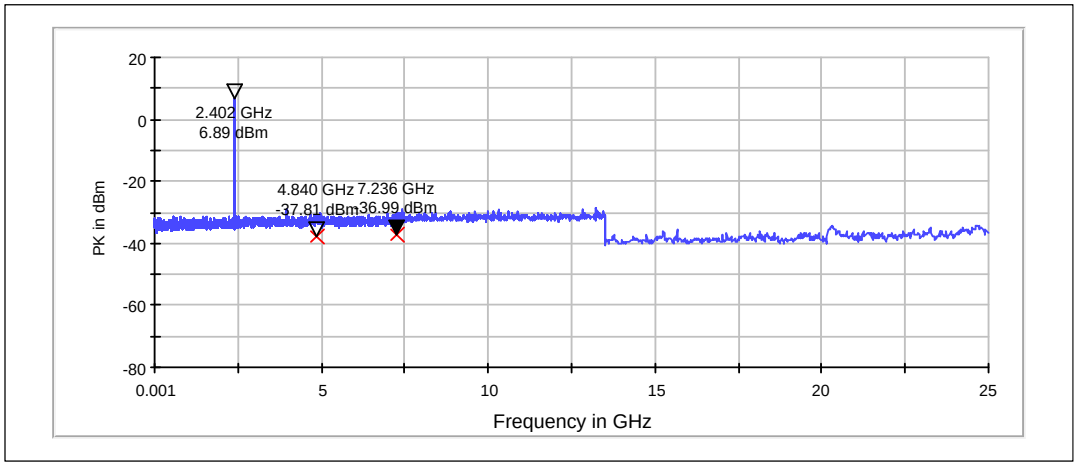


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4948.000	-38.35	PASSED
7448.400	-38.19	PASSED

5.3.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz

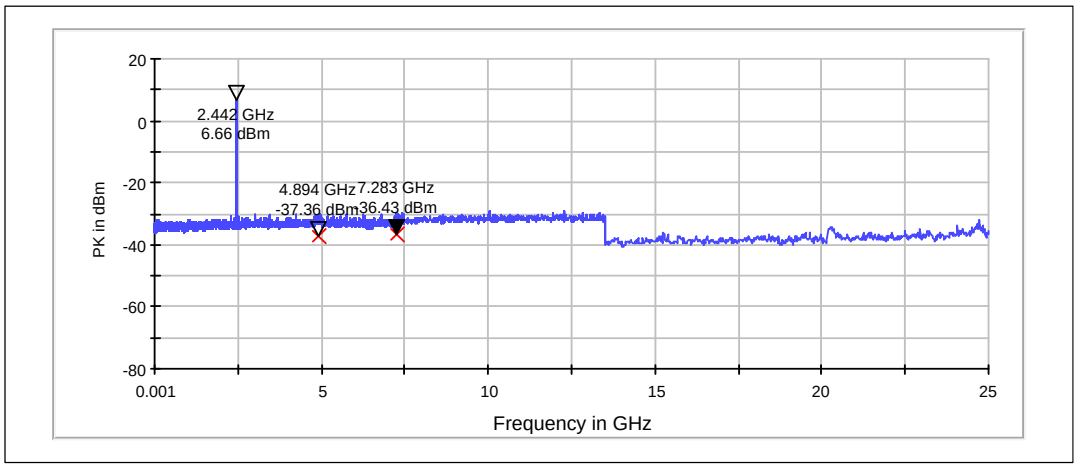


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4840.400	-37.81	PASSED
7236.000	-36.99	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

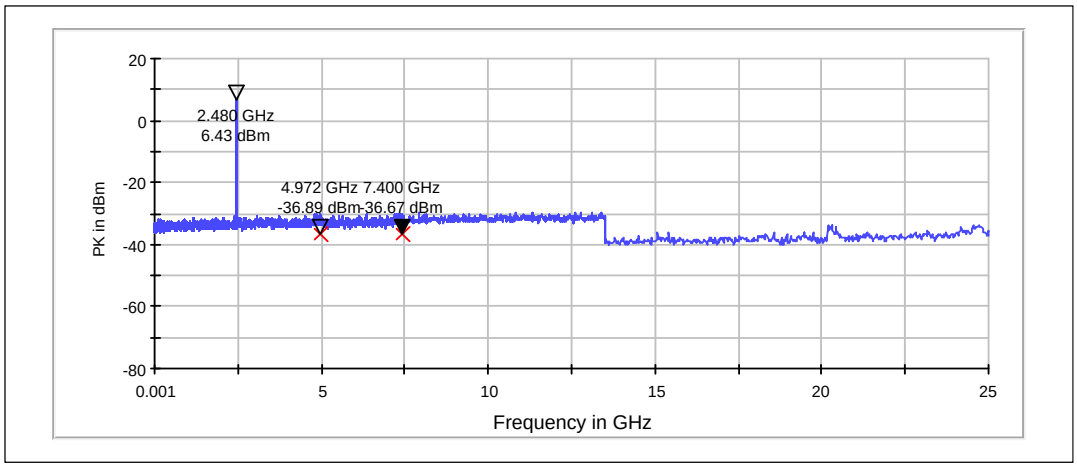
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4894.400	-37.36	PASSED
7282.800	-36.43	PASSED

Channel 78 / 2480 MHz



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

Frequency [MHz]	P [dBc]	Result
4972.000	-36.89	PASSED
7399.800	-36.67	PASSED

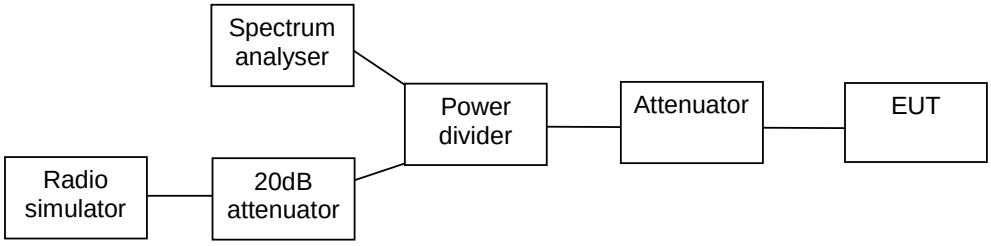
TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

6. 20 dB bandwidth

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

EUT with DUT number	RM-917, DUT 17232
Accessories with DUT numbers	SD-50B, DUT 17242
Operation Voltage [V] / [Hz]	-
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 35 / 102
Date of measurements	12-Feb-2013
Measured by	Tomi Lipponen

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-210.

Limits for 20 dB bandwidth measurements

Limit [MHz]
N/A

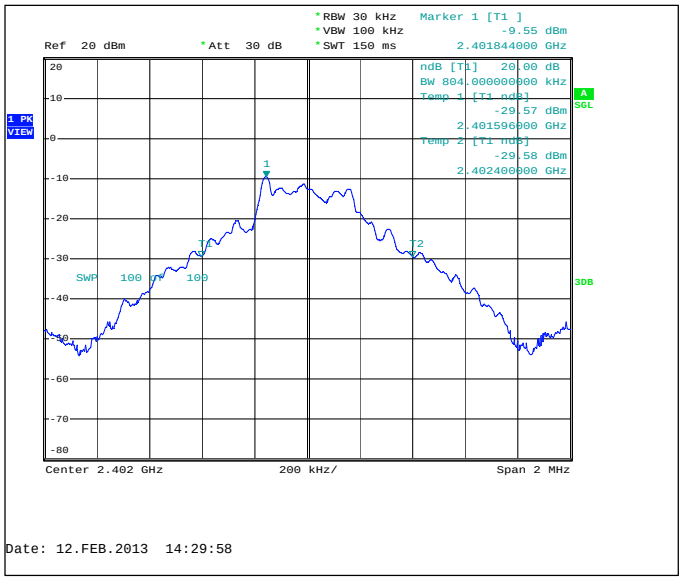
TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

6.3. Bluetooth Test results

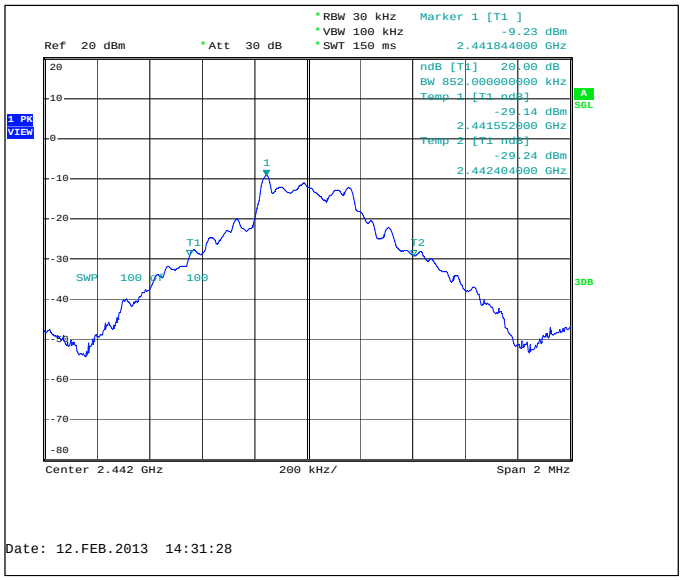
6.3.1 GFSK modulation, PRBS packet type

Channel / f_C [MHz]	20 dB bandwidth [kHz]
0 / 2402	804
40 / 2442	852
78 / 2480	848

0 / 2402

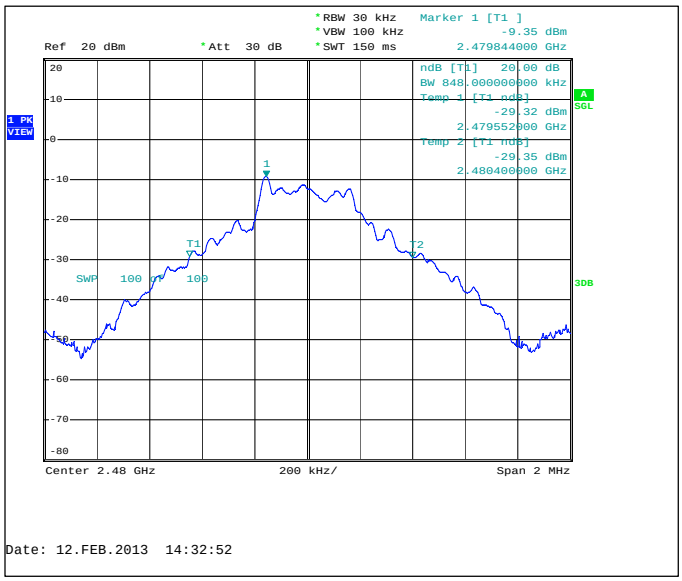


40 / 2442



TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

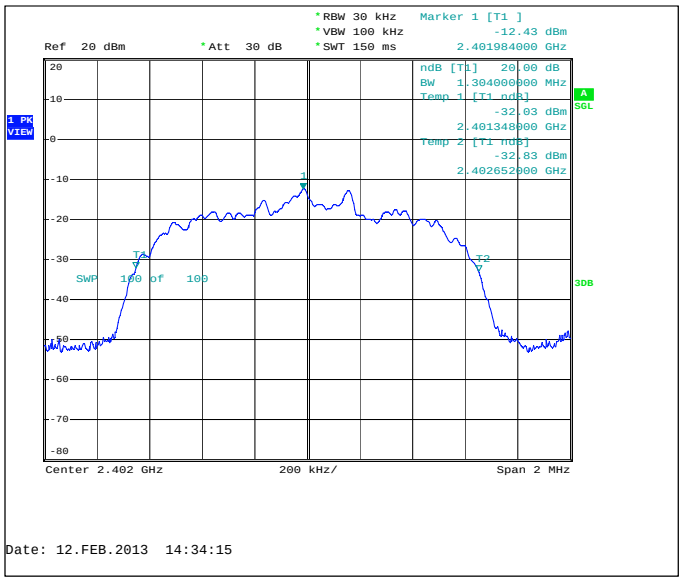
78 / 2480



6.3.2 8DPSK modulation, PRBS packet type

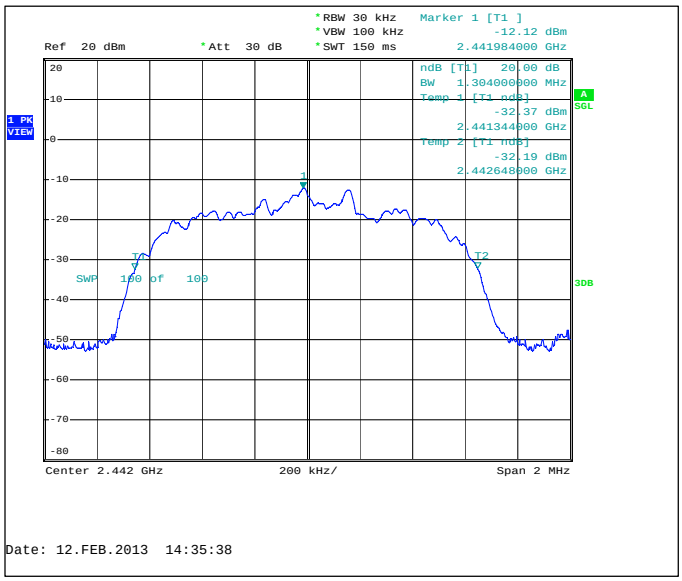
Channel / f_C [MHz]	20 dB bandwidth [kHz]
0 / 2402	1304
40 / 2442	1304
78 / 2480	1304

0 / 2402

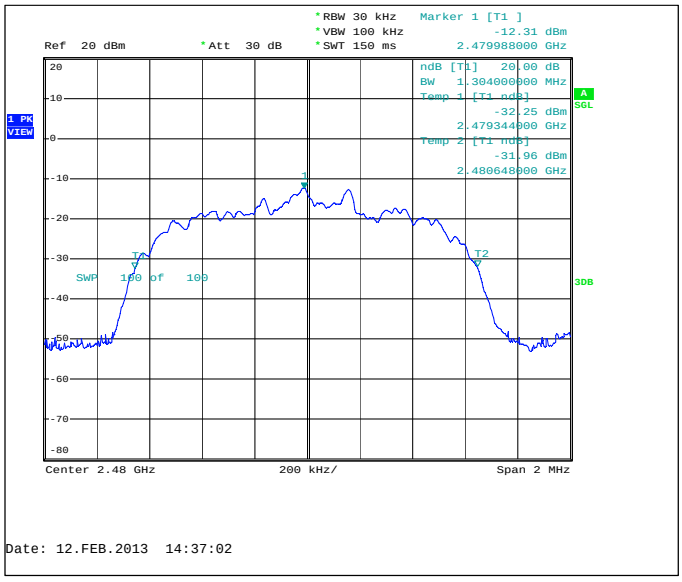


TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

40 / 2442



78 / 2480



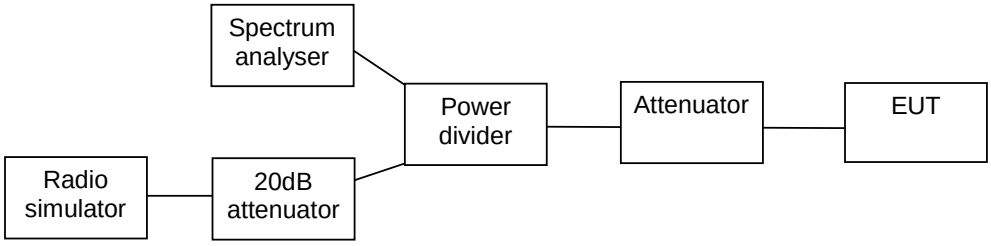
TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

7. Carrier frequency separation

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

EUT with DUT number	RM-917, DUT 17232
Accessories with DUT numbers	SD-50B, DUT 17242
Operation Voltage [V] / [Hz]	-
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 35 / 102
Date of measurements	13-Feb-2013
Measured by	Tomi Lipponen

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 carrier frequency separation measurements

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

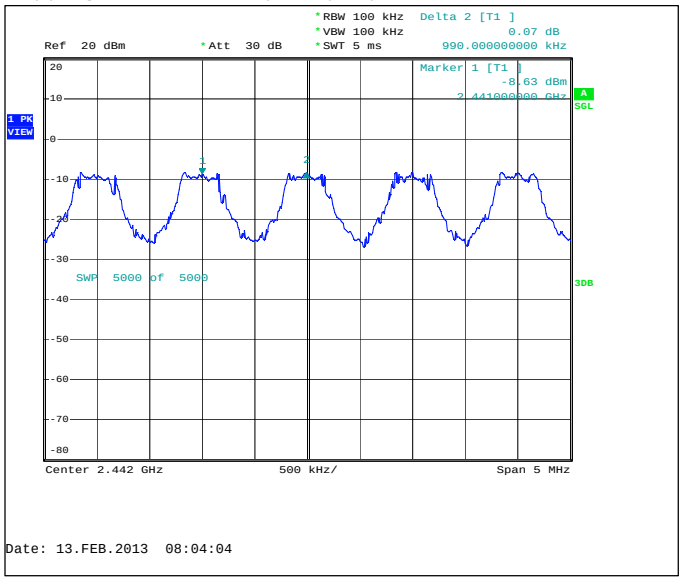
TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

7.3. Bluetooth Test results

7.3.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
990	PASSED

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

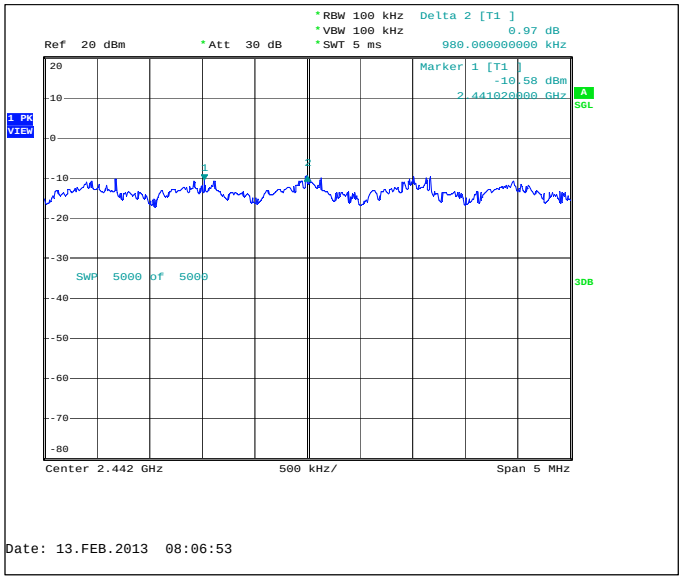


TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

7.3.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
980	PASSED

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



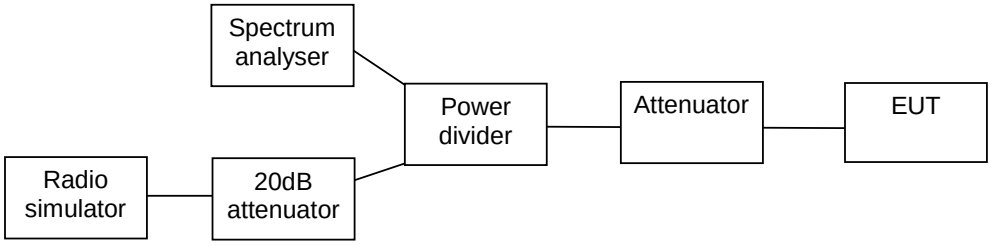
TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

8. Number of hopping frequencies

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

EUT with DUT number	RM-917, DUT 17232
Accessories with DUT numbers	SD-50B, DUT 17242
Operation Voltage [V] / [Hz]	-
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 35 / 102
Date of measurements	13-Feb-2013
Measured by	Tomi Lipponen

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 number of hopping frequencies measurements

Limit [number]
>= 15

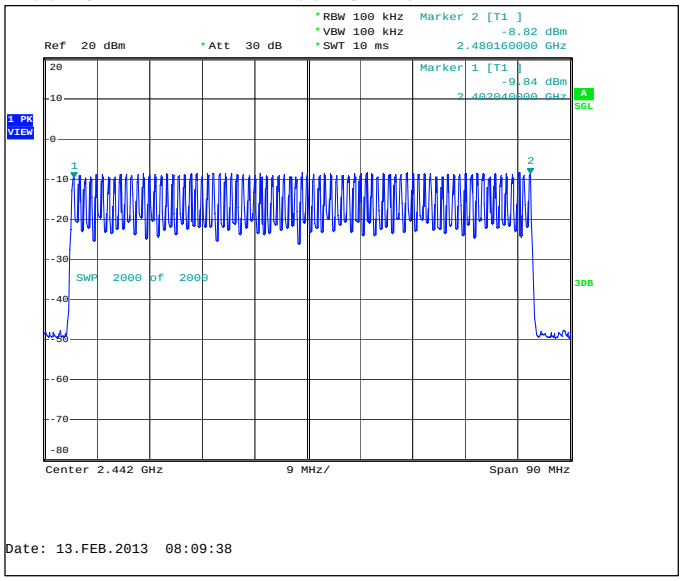
TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

8.3. Bluetooth Test results

8.3.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
78	PASSED

Hopping on, number of hopping frequencies

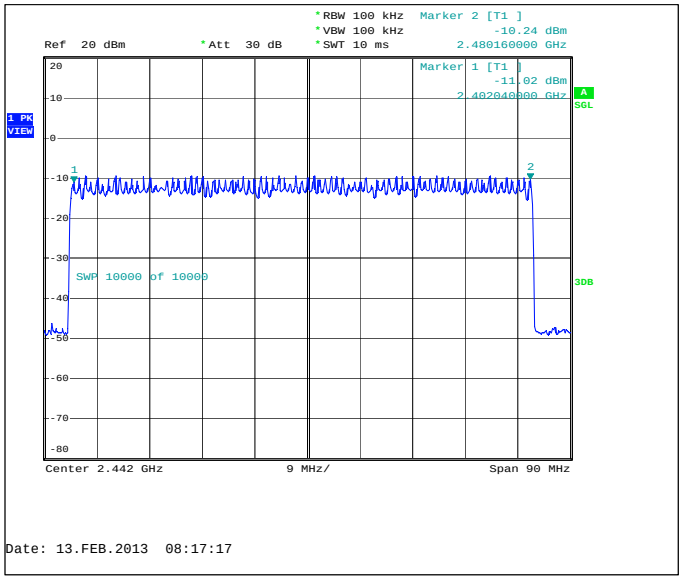


TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

8.3.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
73	PASSED

Hopping on, number of hopping frequencies



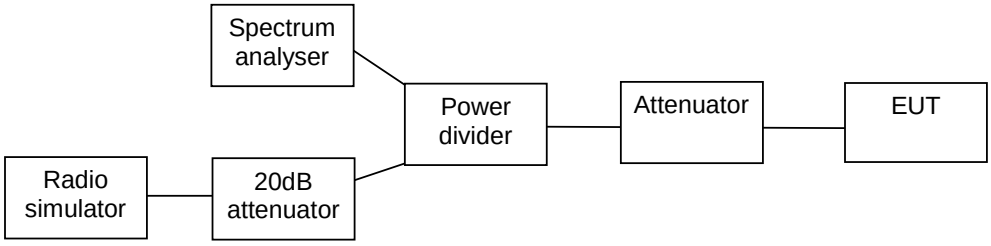
TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

9. Time of occupancy

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

EUT with DUT number	RM-917, DUT 17232
Accessories with DUT numbers	SD-50B, DUT 17242
Operation Voltage [V] / [Hz]	-
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 35 / 102
Date of measurements	13-Feb-2013
Measured by	Tomi Lipponen

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.

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

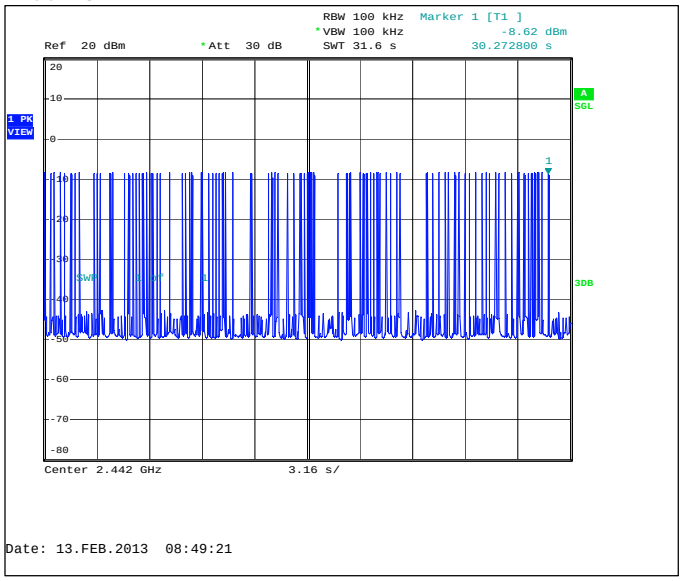
TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

9.3. Bluetooth Test results

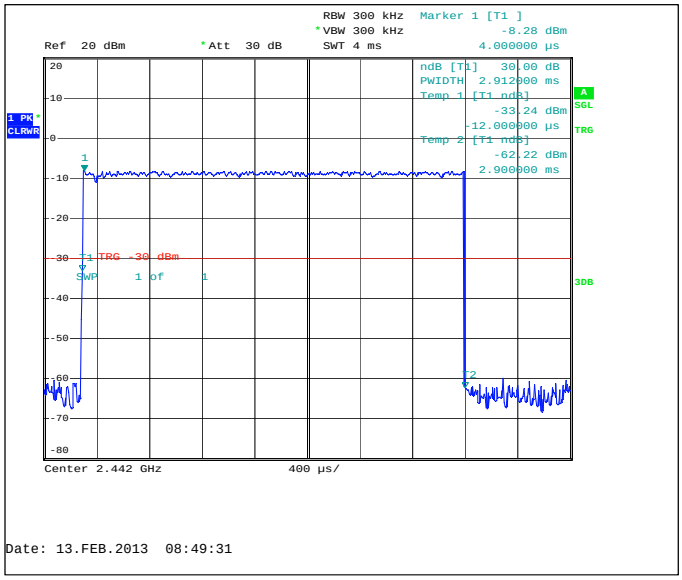
9.3.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [ms]	Time of occupancy [s]	Result
87	2.912	0.253	PASSED

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



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

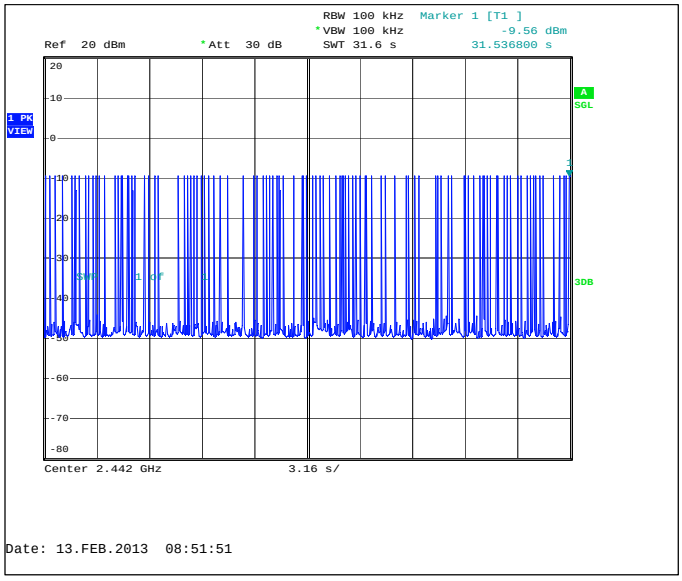


TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

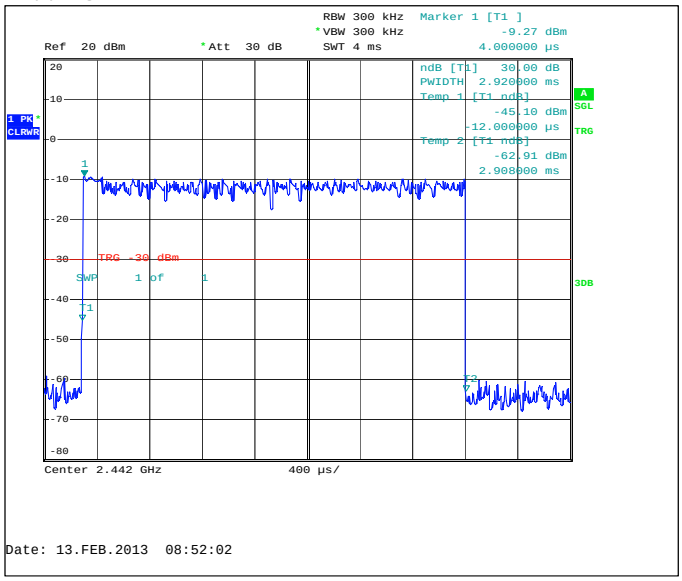
9.3.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [ms]	Time of occupancy [s]	Result
99	2.92	0.289	PASSED

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



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

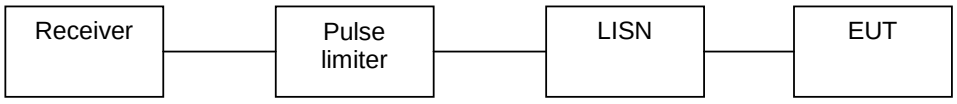


TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

10. AC powerline conducted emissions
FCC §15.207, RSS-GEN 7.2.2

EUT with DUT number	RM-917, DUT 17234
Accessories with DUT numbers	BL-5J, DUT 17235 ; WH-108, DUT 17236 ; AC-20U, DUT 17237
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 35 / 102
Date of measurements	14-Feb-2013
Measured by	Tomi Lipponen

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-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

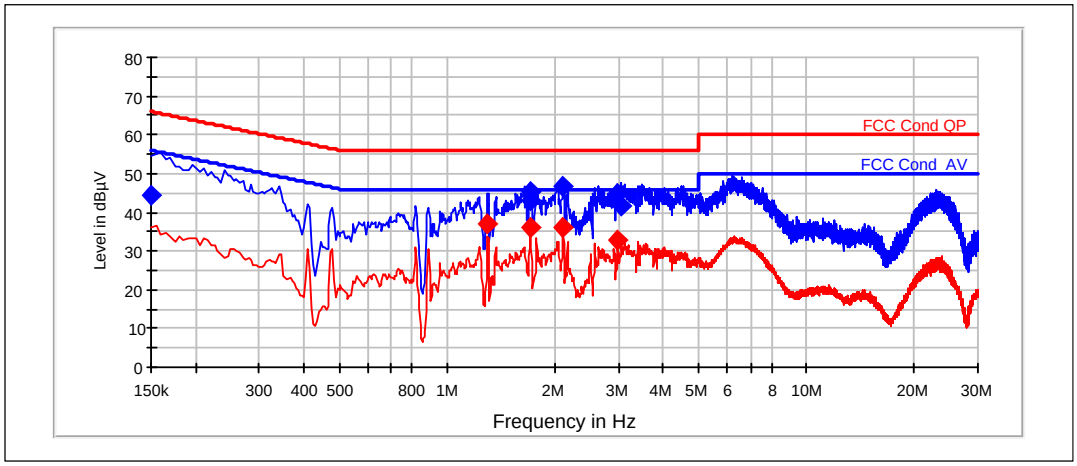
Frequency range [MHz]	Quasi peak limit [dBµV]	Average limit [dBµV]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

10.3. Bluetooth Test results

10.3.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.15	44.35	N	PASSED
1.7	45.16	L1	PASSED
1.705	43.15	N	PASSED
2.09	46.49	L1	PASSED
2.97	44.99	L1	PASSED
3.06	41.79	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
1.29	36.96	L1	PASSED
1.7	36.13	L1	PASSED
2.095	36	L1	PASSED
2.97	33	L1	PASSED

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

11. Test Equipment

11.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
6038	Data Logger	Testo 580	Testo	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
2389	Signal Generator	SMJ 100A	R&S	-
6009	GPS Antenna	SA-700	Chronos	-
6010	GPS Network amplifier	NLA20FPDC	GPS Networking, Inc	-
6011	GPS signal Splitter	LDCBS1x4	GPS Networking, Inc	-
6015	Receiver	ESI	R&S	-
2059	V-network	ESH3-Z6	R&S	-
6044	V-network	ESH3-Z6	R&S	-
1759	LISN 50 µH	ESH3-Z5	R&S	-
2390	Directional Coupler	DC2600	AR	-
1916	Communication Tester	CMTA84	R&S	-
6012	CDN	CDN USB/c	Teseq	-
2388	Bluetooth Tester	CBT	R&S	-
6046	Attenuator 10dB	8493C	Agilent	-
6047	Attenuator 20dB	8493C	Agilent	-
6036	Data Logger	175-H2	Testo	-
6045	Power splitter	11667B	Agilent	-
6039	USB Interface	5541765	Testo	-
10479	Communication Tester	CMW500	R&S	-
6094	Communication Tester	CMW500	R&S	-
6096	EMC Analyzer	E7405A	HP	-
6098	Signal Generator	8648C	Agilent	-
6103	Bluetooth tester	CBT	R&S	-
6113	Signal Generator	SMF100A	R&S	-
6120	Thermal Chamber	WT 20/40	Weiss	-
6121	Power Splitter	HP11667B	Agilent	-
6122	Power Splitter	HP11667B	Agilent	-
6134	Attenuator 10dB	BW-S10-2W263+	Mini-Circuits	-
6136	Attenuator 20dB	BW-S20-2W263+	Mini-Circuits	-
2359	Temperature Test Chamber	VT4002	Vötsch	-
2347	Communication Tester	CMU200	R&S	-
2180	Communication Tester	CMU200	R&S	-
2156	Communication Tester	CMU200	R&S	-
1999	Receiver	ESIB26	R&S	-
2352	Spectrum Analyzer	FSP-30	R&S	-
2097	Pulse Limiter	ESH3-Z2	R&S	-
2039	Power Supply	PL330QMD	Thurlby	-
1992	Signal Generator	83630B	Agilent	-
2206	Signal Generator	SMX	R&S	-

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

11.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
2391	Band Reject Filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
6038	Data Logger	Testo 580	Testo	-
6014	Substitute Calibration Cable	Sucoflex 104PB	Suhner	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
2389	Signal Generator	SMJ 100A	R&S	-
6009	GPS Antenna	SA-700	Chronos	-
6010	GPS Network amplifier	NLA20FPDC	GPS Networking, Inc	-
6011	GPS signal Splitter	LDCBS1x4	GPS Networking, Inc	-
-	RF immunity / Emission Software	EMC32	R&S	-
1917	Communication Tester	CMTA84	R&S	-
2388	Bluetooth Tester	CBT	R&S	-
6037	Data Logger	175-H2	Testo	-
6039	USB Interface	5541765	Testo	-
6087	Antenna	BBHA 9120D	Scharzbeck	-
6088	Antenna	VUBA 9117	Scharzbeck	-
6089	Antenna	HFH2-Z2	R&S	-
10479	Communication Tester	CMW500	R&S	-
6094	Communication Tester	CMW500	R&S	-
6103	Bluetooth tester	CBT	R&S	-
6113	Signal Generator	SMF100A	R&S	-
6115	Open switch and control unit	OSP 130	R&S	-
6116	Open switch and control unit	OSP 150	R&S	-
6130	Notch Filter	WRCD1880-1.1.25/50-10SS	Wainwright	-
6131	Notch Filter	WRCT902.4-0.4/40-8SS	Wainwright	-
6135	Notch Filter	WRCJV2531/2539-2523/2547-60/12SS	Wainwright	-
2140	Antenna	EMCO93110B	EMCO	-
2142	Antenna	3146	EMCO	-
2357	Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	-
2364	Band Reject Filter	WRCG1877/1883 - 1870/1890-40/6SS	Wainwright	24
2043	Band Reject Filter	WRCA824/849-0,2-6SS	Wainwright	22
2347	Communication Tester	CMU200	R&S	-
2180	Communication Tester	CMU200	R&S	-
2156	Communication Tester	CMU200	R&S	-
2176	CDN	CDN 801-M3	Lüthi	-
2027	CDN	M2 (modified) DC1	MEB	-
2028	CDN	M3 (modified) DC2	MEB	-
1984	Antenna	BBHA 9120 D	Schwarzbeck	-
6017	Antenna	SBA 9113	Schwarzbeck	-
2009	Signal Generator	SMP 22	R&S	-
2029	Power Supply	PL330	Thurlby	-
2361	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	Euroshield	-
2353	Receiver	ESIB26	R&S	-
2135	CDN	CDN 801-M3	Lüthi	-

TCC Nokia Salo Laboratory
P.O.Box(86)
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220