

FCC Part 15C Compliance Test Report

Test Report no.:	FCC15CBT_RM-693_03.docx	Date of Report:	25-Mar-2011
Number of pages:	42	Customer's Contact person:	Zhang David
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FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-693 / Battery BL-5C / AC-charger AC-3E / Headset WH-102		
FCC ID:	QTLRM-693	IC:	661AB-RM693
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:			

Jia Dongsheng, System Manager

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	15-Mar-2011
Testing completed	18-Mar-2011
The customer's contact person	Zhang David
Test Plan referred to	T:\Projects\RM-693\TestPlan\RS_testplan_RM-693.xls
Notes	-
Document name	FCC15CBT_RM-693_03.docx

1.1. EUT and Accessory Information

The EUT is a 2-band (GSM850/1900) mobile phone with GPRS and Bluetooth. Bluetooth and WLAN are tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-693	001004004139235	0402	-	so104_11w06	52118
Phone	RM-693	001004004139227	0402	-	so104_11w06	52121
Battery	BL-5C	0670400382066R24210GL25830	-	-	-	52124
AC-charger	AC-3E	4090498272171205946;0675370	-	-	-	52127
Headset	WH-102	06943250432H2610549	-	-	-	52128

1.2. Summary of Test Results

Bluetooth:

Section in CFR 47	Section in RSS-GEN or RSS-210	Name of the test	Result
15.247(b)(1)	A8(0.4(2))	Conducted peak output power	PASSED
15.247(d)	A8(0.5)	Band edge compliance of RF emissions	PASSED
15.247(d)	A8(0.5)	Spurious RF conducted emissions	PASSED
15.247(d), 15.209	A8(0.5)	Spurious radiated emissions	PASSED
15.207	7.2.2	AC powerline conducted emissions	PASSED
15.247(a)(1)	A8(0.1(1))	20dB(bandwidth)	PASSED
15.247(a)(1)	A8(0.1(2))	Carrier frequency separation	PASSED
15.247(a)(1)(iii)	A8(0.1(4))	Number of hopping frequencies	PASSED
15.247(a)(1)(iii)	A8(0.1(4))	Time of occupancy	PASSED

PASSED

FAILED

NP

The EUT complies with the essential requirements in the standard.

The EUT does not comply with the essential requirements in the standard.

The test was not performed by the TCC Nokia Laboratory.

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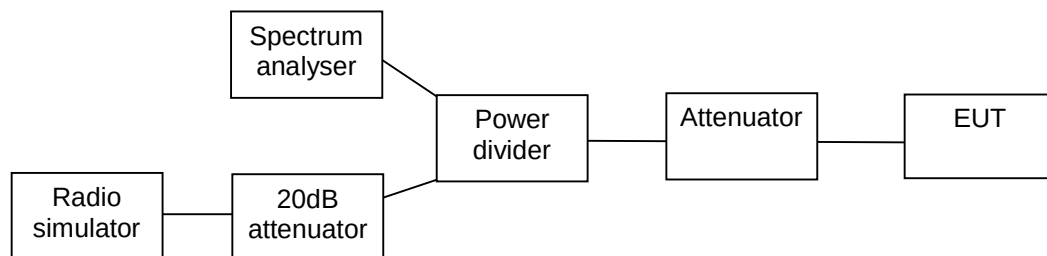
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2. Conducted peak output power (FCC §15.247(b)(1), RSS-210 A8.4 (2))

EUT with DUT number	RM-693, DUT52121
Accessories with DUT numbers	BL-5C, DUT 52124 ; AC-3E, DUT 52127 ; WH-102, DUT 52128
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 20 / 101.7
Date of measurements	16-Mar-2011
Measured by	Jia Dongsheng

2.1. Test Setup



2.2. Test method and limit

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

Limits for conducted peak output power measurements

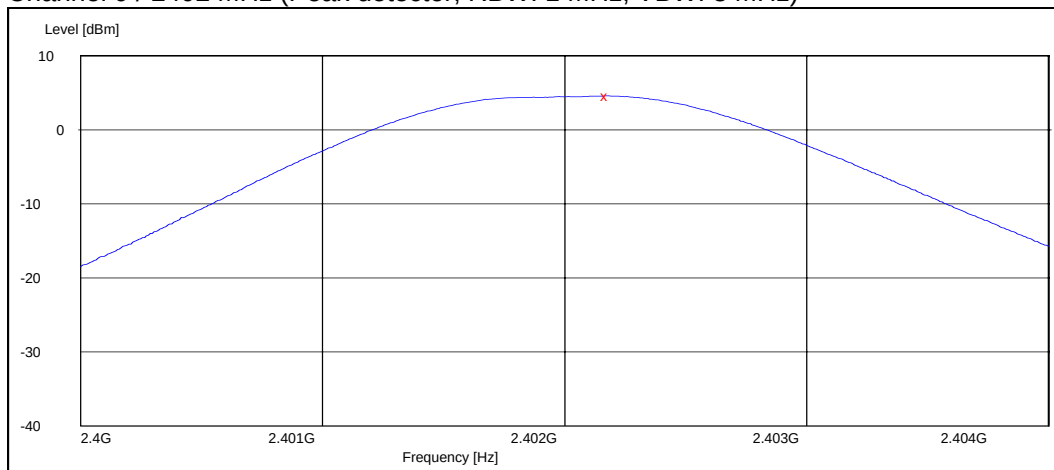
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

2.3. Bluetooth Test results

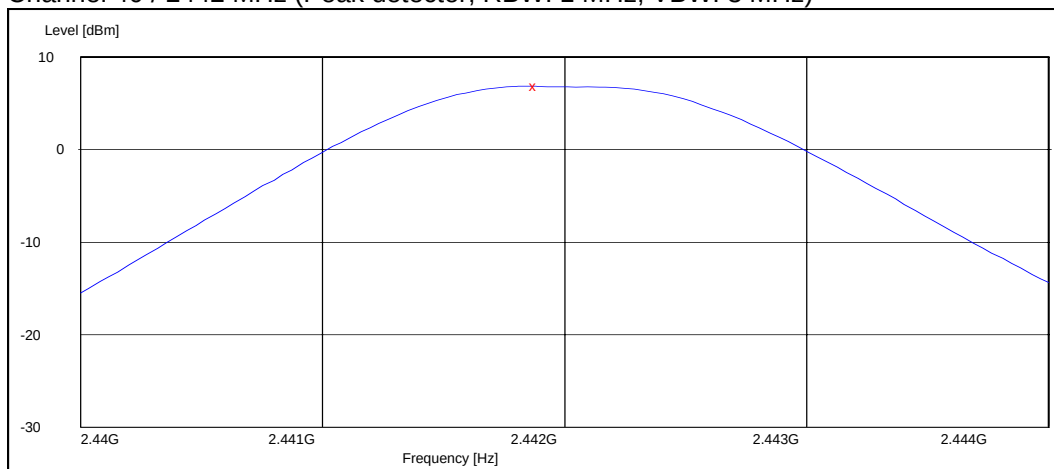
2.3.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	4.60	2.884	PASSED
40 / 2442	6.90	4.898	PASSED
78 / 2480	5.70	3.715	PASSED

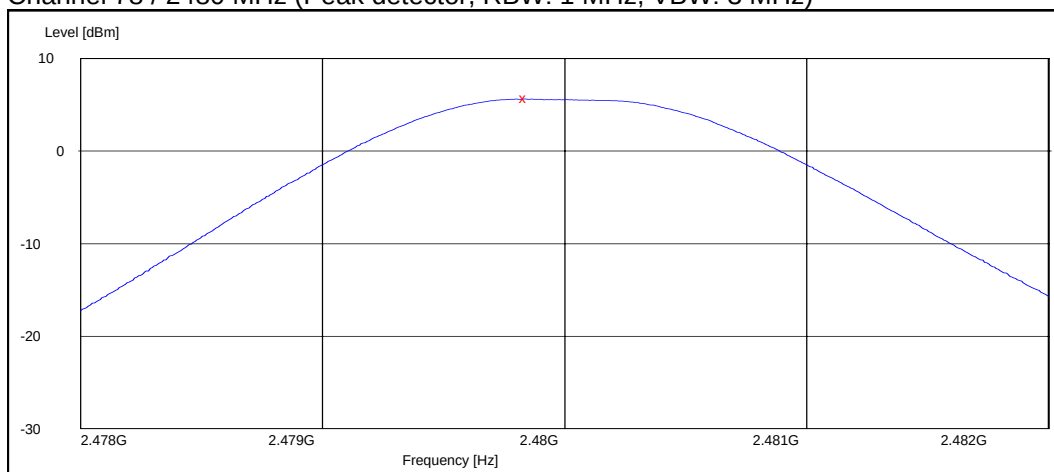
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



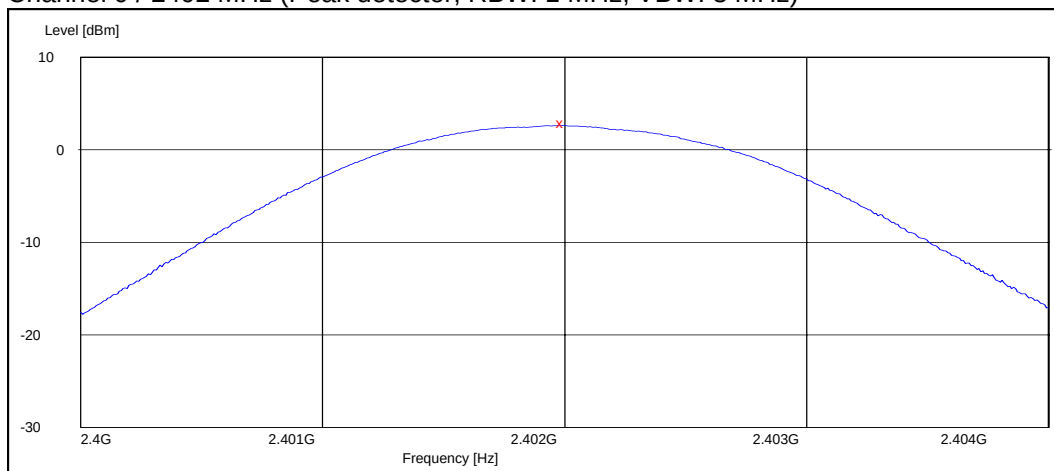
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



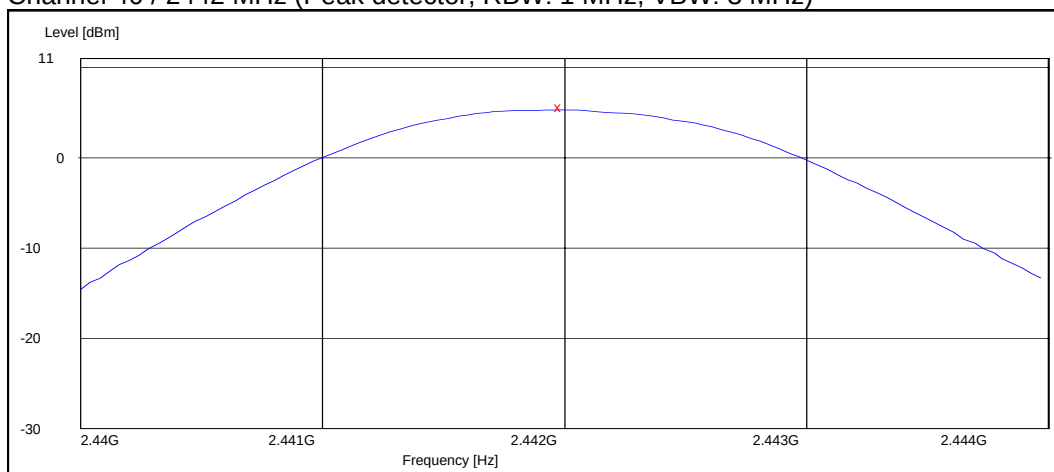
2.3.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	2.90	1.950	PASSED
40 / 2442	5.60	3.631	PASSED
78 / 2480	3.80	2.399	PASSED

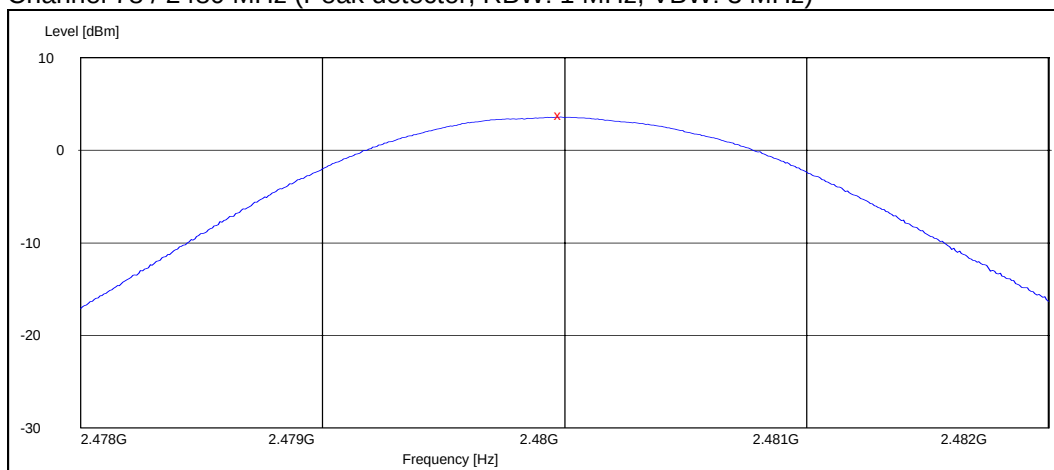
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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



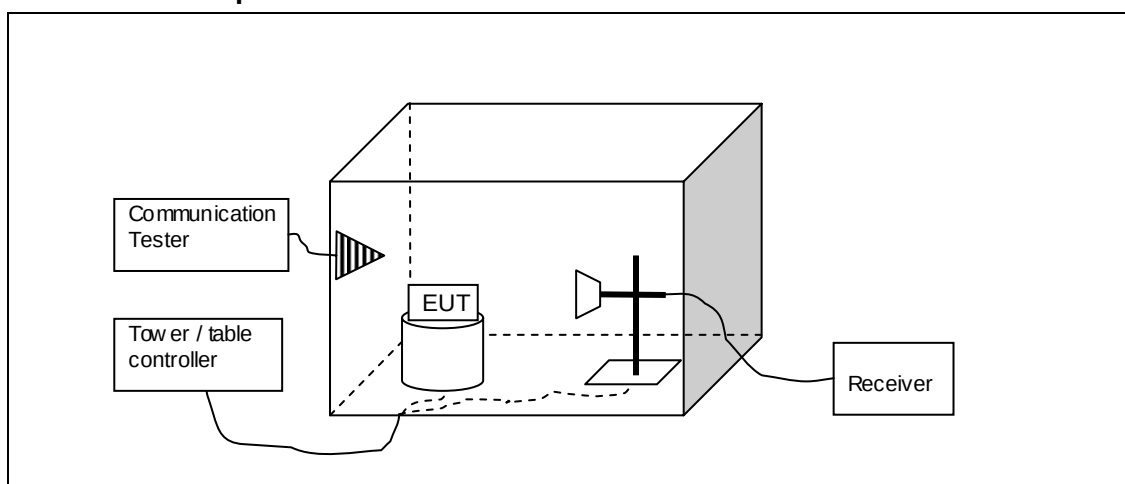
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



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

EUT with DUT number	RM-693, DUT 52118
Accessories with DUT numbers	BL-5C, DUT 52124 ; AC-3E, DUT 52127 ; WH-102, DUT 52128
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 28 / 100.9
Date of measurements	18-Mar-2011
Measured by	Jia Dongsheng

3.1.1 Test Setup



3.2. Test method and limit

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

The measurement results are obtained as described below:

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

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

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

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

3.3. Bluetooth Test results

3.3.1 GFSK modulation, PRBS packet type, slide open

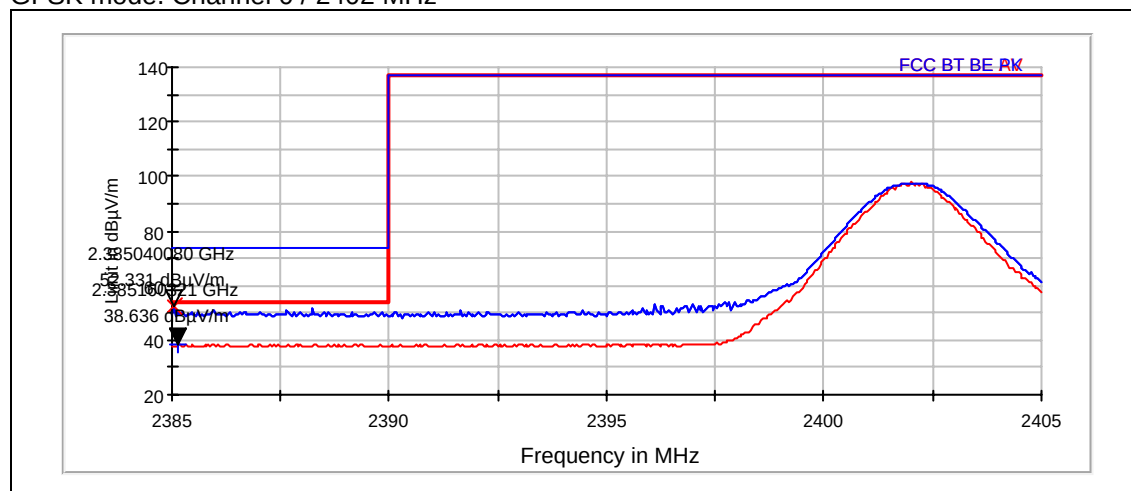
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U_{RX} [dB μ V]	A_{TOT} [dB]	Result
0 / 2402	38.64	85.468	36.79	1.85	PASSED
Hopping on, low end	39.89	98.732	38.04	1.85	PASSED
78 / 2480	48.15	255.485	45.64	2.51	PASSED
Hopping on, high end	48.15	255.485	45.64	2.51	PASSED

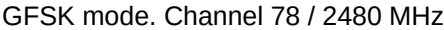
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U_{RX} [dB μ V]	A_{TOT} [dB]	Result
0 / 2402	52.33	413.581	50.48	1.85	PASSED
Hopping on, low end	51.25	365.082	49.4	1.85	PASSED
78 / 2480	53.99	500.782	51.48	2.51	PASSED
Hopping on, high end	52.57	425.12	50.06	2.51	PASSED

GFSK mode. Channel 0 / 2402 MHz



GFSK mode. Hopping on, low end



3.3.2 8DPSK modulation, PRBS packet type, slide open

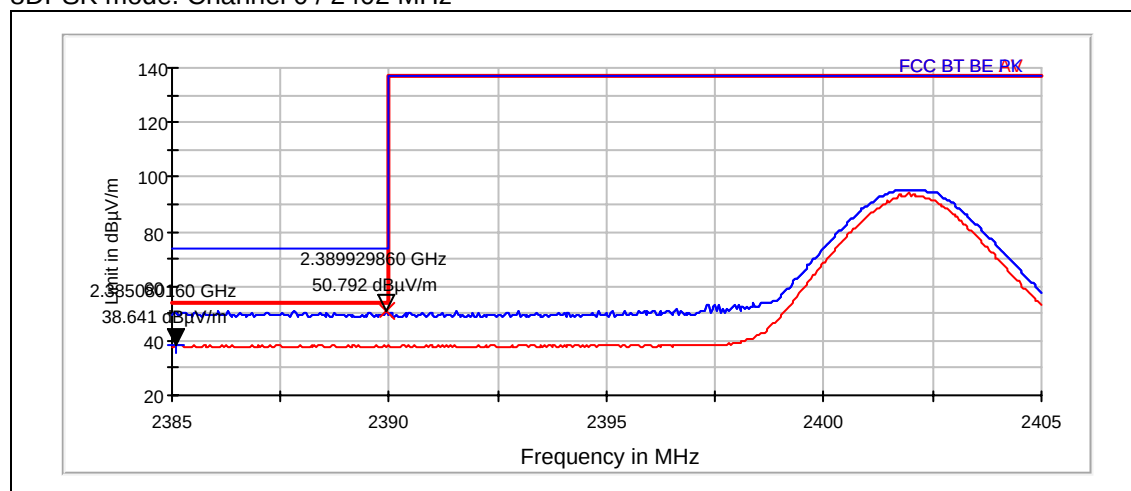
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U_{RX} [dB μ V]	A_{TOT} [dB]	Result
0 / 2402	38.64	85.518	36.79	1.85	PASSED
Hopping on, low end	39.87	98.473	38.02	1.85	PASSED
78 / 2480	46.21	204.388	43.7	2.51	PASSED
Hopping on, high end	46.21	204.388	43.7	2.51	PASSED

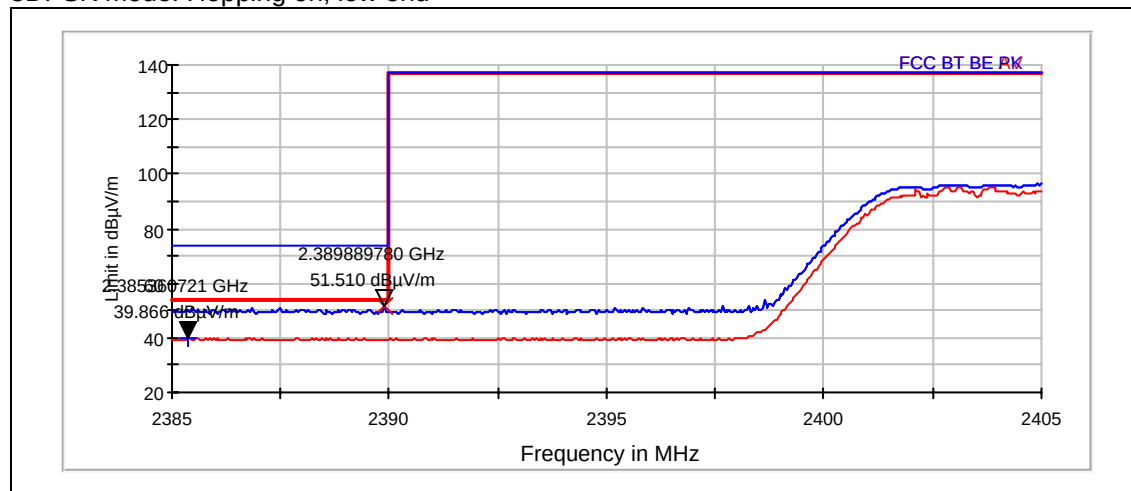
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U_{RX} [dB μ V]	A_{TOT} [dB]	Result
0 / 2402	50.79	346.402	48.94	1.85	PASSED
Hopping on, low end	51.51	376.271	49.66	1.85	PASSED
78 / 2480	52.79	436.175	50.28	2.51	PASSED
Hopping on, high end	53.07	450.181	50.56	2.51	PASSED

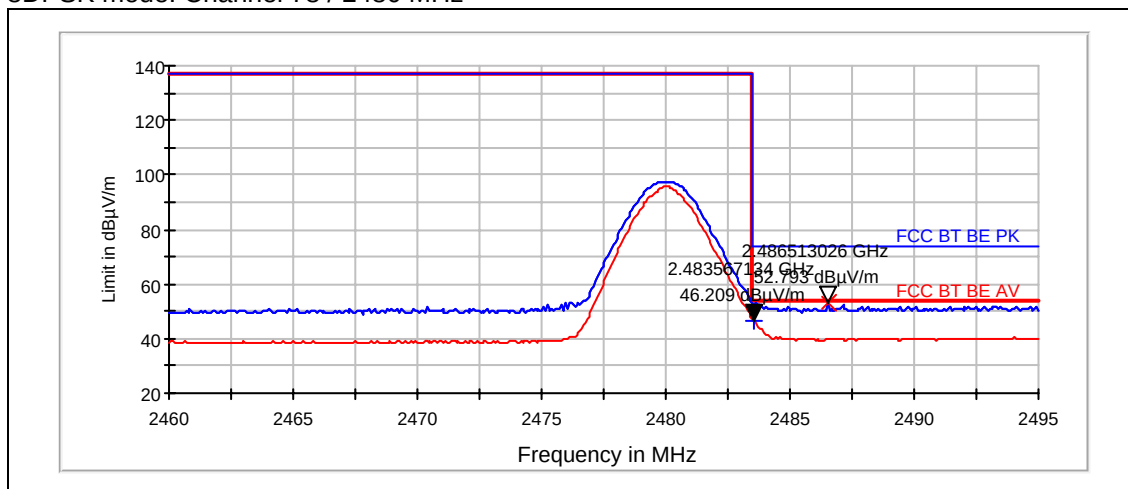
8DPSK mode. Channel 0 / 2402 MHz



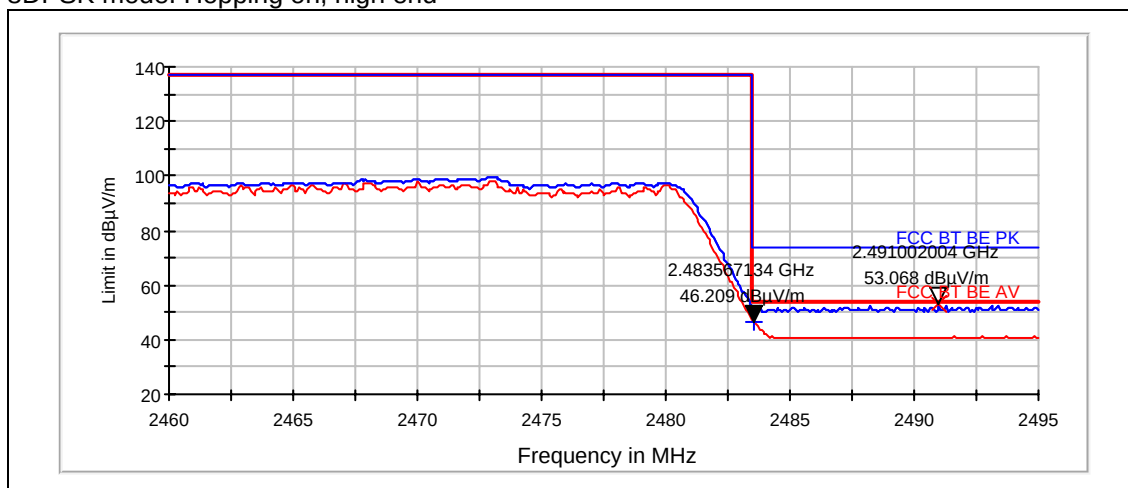
8DPSK mode. Hopping on, low end



8DPSK mode. Channel 78 / 2480 MHz



8DPSK mode. Hopping on, high end



3.3.3 GFSK modulation, PRBS packet type, slide closed

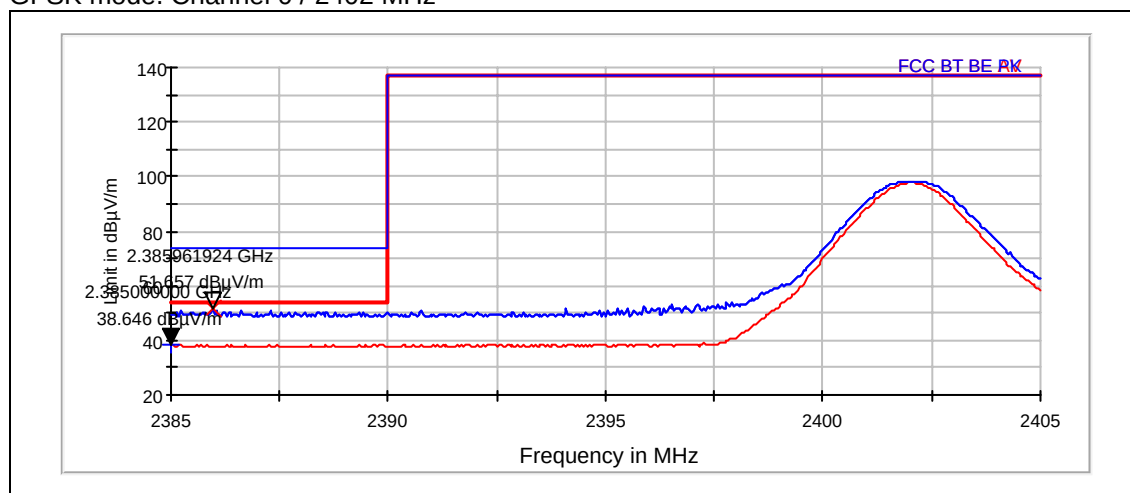
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Result
0 / 2402	38.65	85.568	36.8	1.85	PASSED
Hopping on, low end	40.41	104.793	38.56	1.85	PASSED
78 / 2480	49.94	313.881	47.43	2.51	PASSED
Hopping on, high end	50.13	321.181	47.62	2.51	PASSED

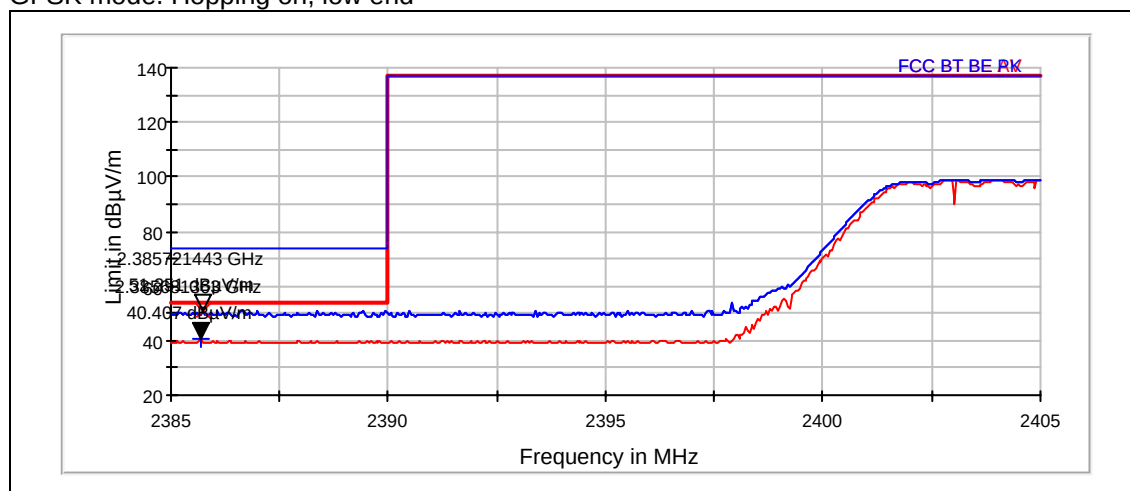
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Result
0 / 2402	51.66	382.679	49.81	1.85	PASSED
Hopping on, low end	51.25	365.213	49.4	1.85	PASSED
78 / 2480	54.45	528.119	51.94	2.51	PASSED
Hopping on, high end	53.45	470.434	50.94	2.51	PASSED

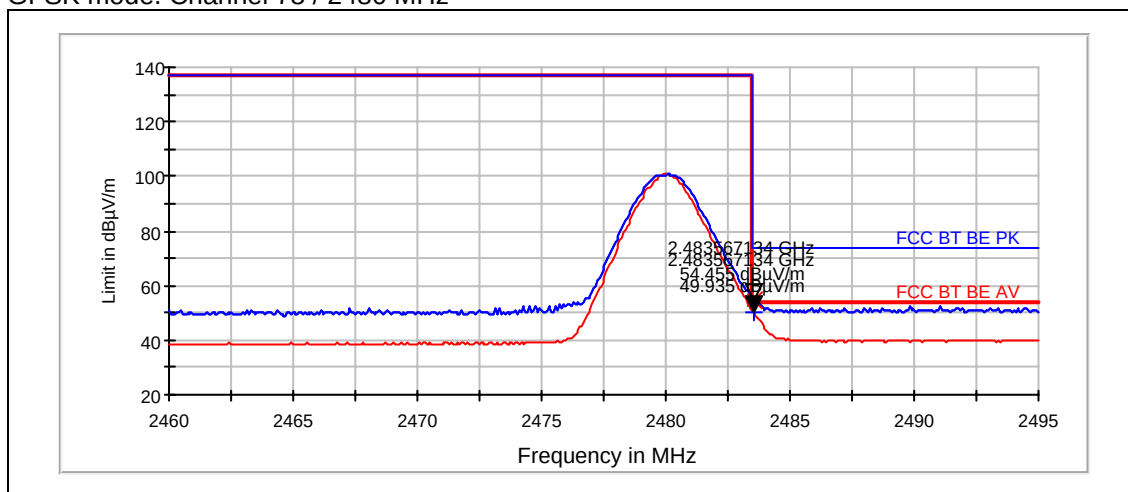
GFSK mode. Channel 0 / 2402 MHz



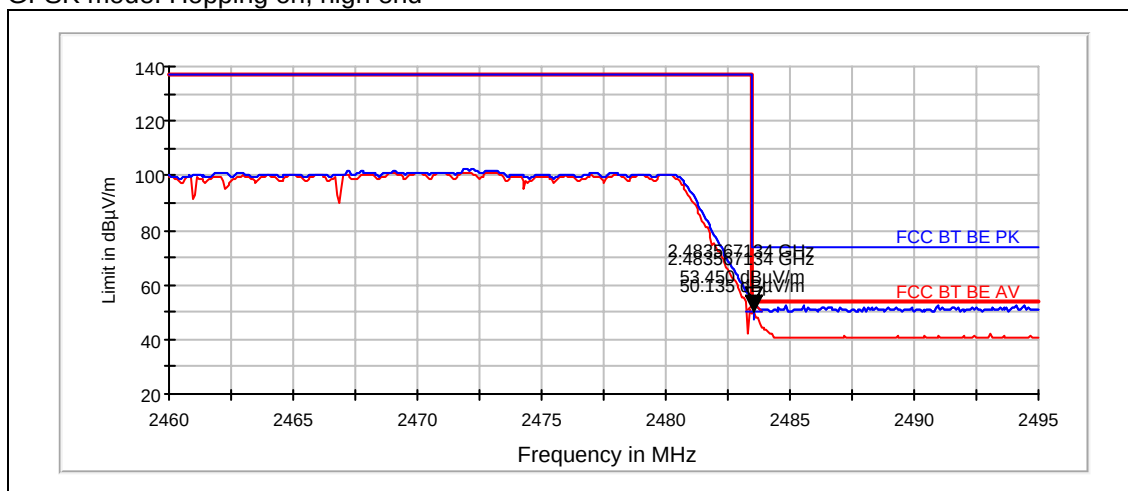
GFSK mode. Hopping on, low end



GFSK mode. Channel 78 / 2480 MHz



GFSK mode. Hopping on, high end



3.3.4 8DPSK modulation, PRBS packet type, slide closed

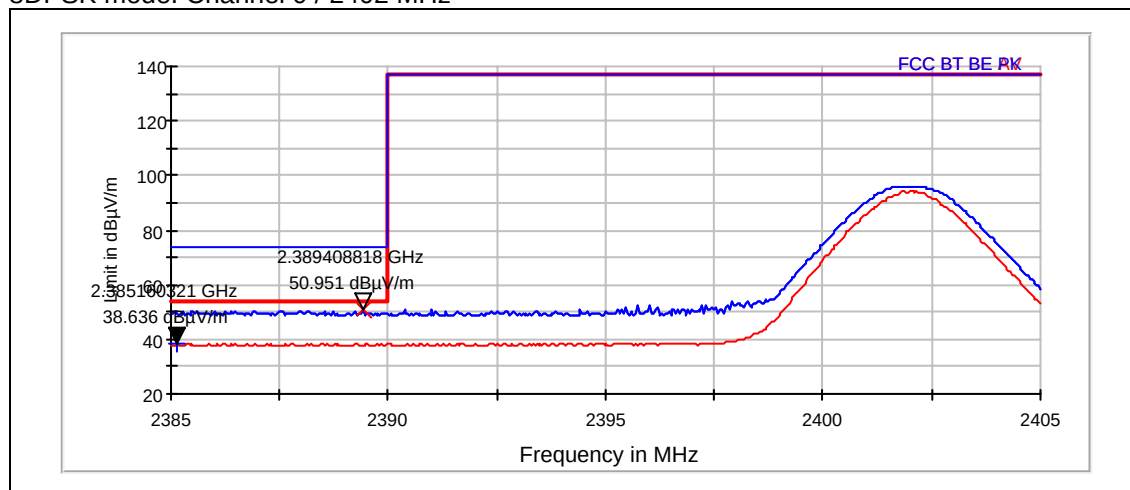
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U_{RX} [dB μ V]	A_{TOT} [dB]	Result
0 / 2402	38.64	85.468	36.79	1.85	PASSED
Hopping on, low end	39.89	98.703	38.04	1.85	PASSED
78 / 2480	47.09	226.286	44.58	2.51	PASSED
Hopping on, high end	47.37	233.586	44.86	2.51	PASSED

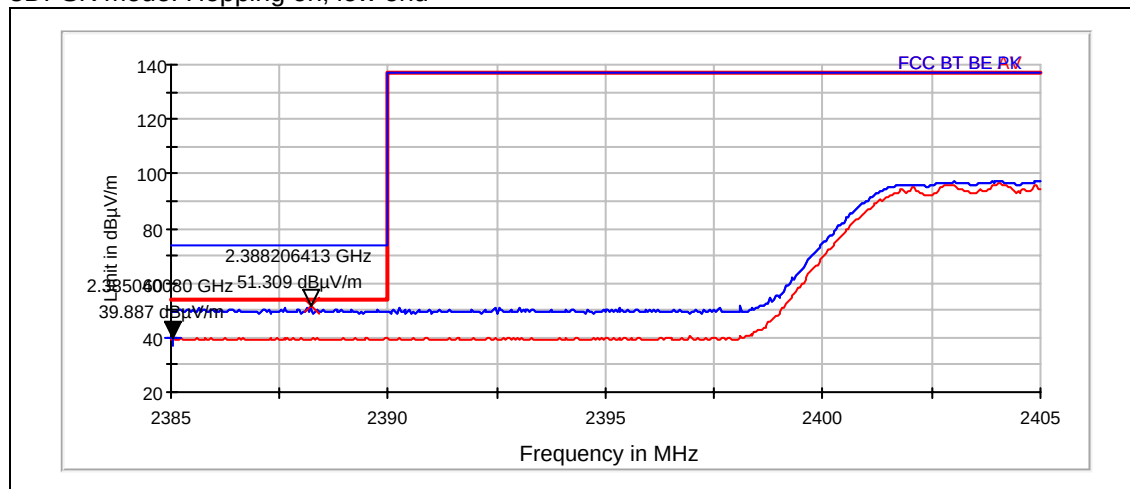
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	E [μ V/m]	U_{RX} [dB μ V]	A_{TOT} [dB]	Result
0 / 2402	50.95	352.803	49.1	1.85	PASSED
Hopping on, low end	51.31	367.679	49.46	1.85	PASSED
78 / 2480	53.64	480.565	51.13	2.51	PASSED
Hopping on, high end	52.95	444.373	50.44	2.51	PASSED

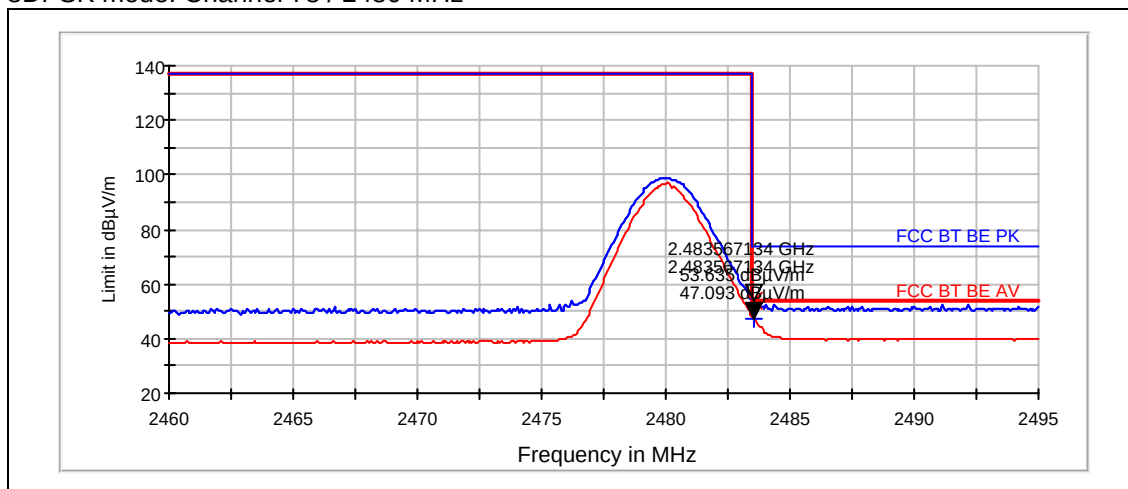
8DPSK mode. Channel 0 / 2402 MHz



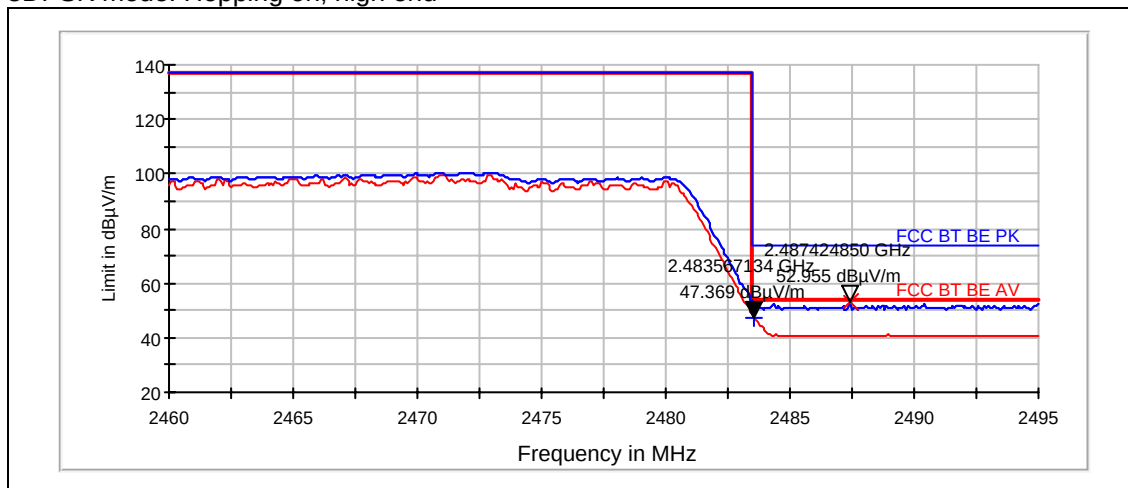
8DPSK mode. Hopping on, low end



8DPSK mode. Channel 78 / 2480 MHz



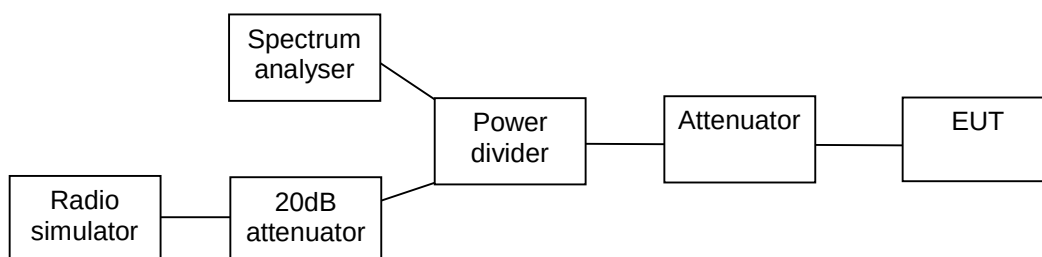
8DPSK mode. Hopping on, high end



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

EUT with DUT number	RM-693, DUT52121
Accessories with DUT numbers	BL-5C, DUT 52124 ; AC-3E, DUT 52127 ; WH-102, DUT 52128
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 20 / 101.7
Date of measurements	16-Mar-2011
Measured by	Jia Dongsheng

4.1. Test Setup



4.2. Test method and limit

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

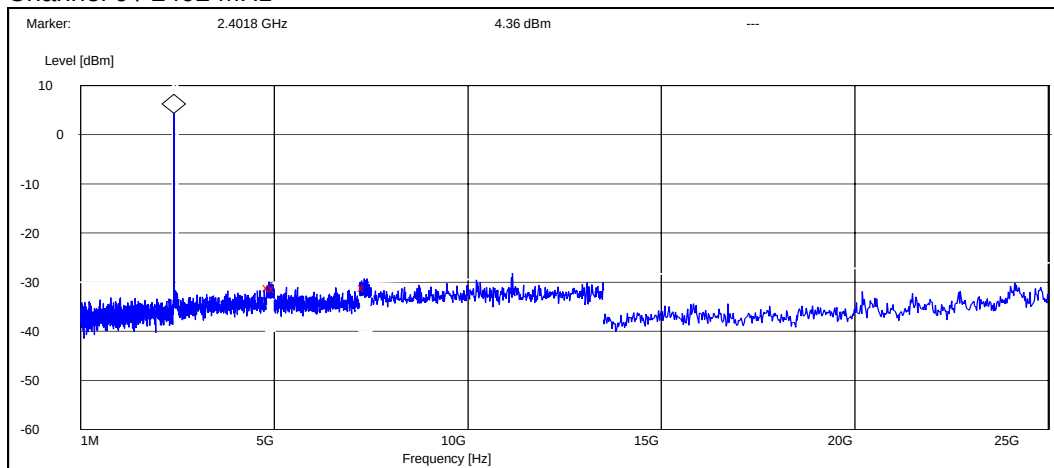
Limits for spurious RF conducted emissions measurements

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

4.3. Bluetooth Test results

4.3.1 GFSK modulation, PRBS packet type

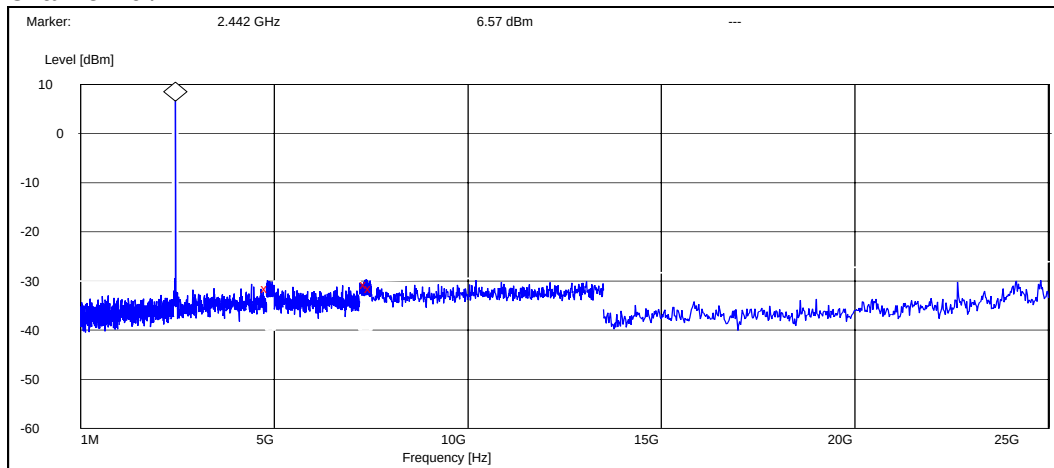
Channel 0 / 2402 MHz



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

Frequency [MHz]	P [dBc]	Result
4869.600000	-35.364466	PASSED
5000.000000	-35.564466	PASSED
7329.000000	-35.364466	PASSED

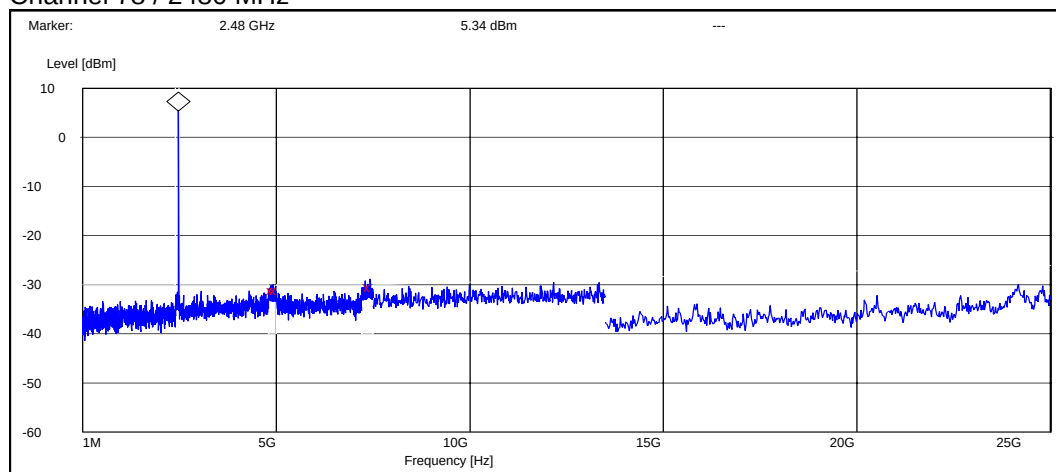
Channel 40 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4826.000000	-38.068169	PASSED
7386.000000	-37.268169	PASSED
7500.000000	-37.968169	PASSED

Channel 78 / 2480 MHz

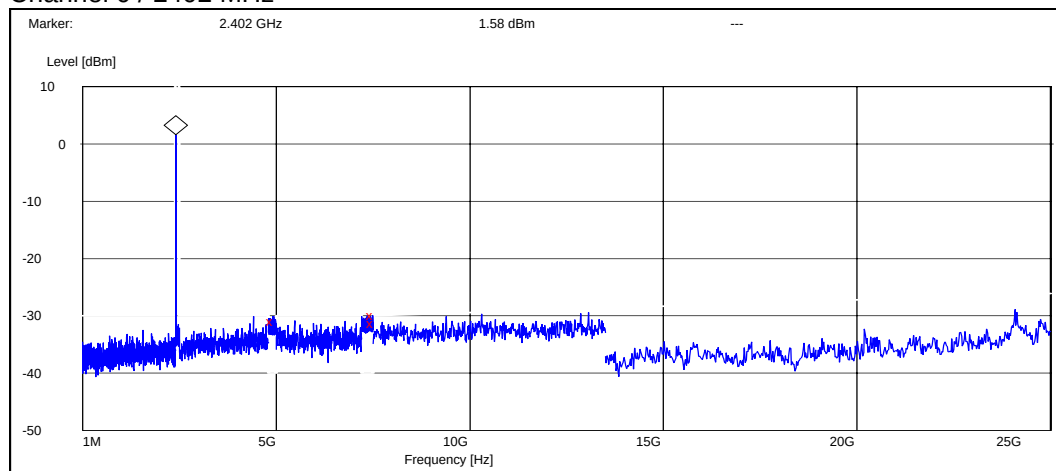


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4915.200000	-36.539651	PASSED
5000.000000	-36.539651	PASSED
7416.600000	-35.939651	PASSED

4.3.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz

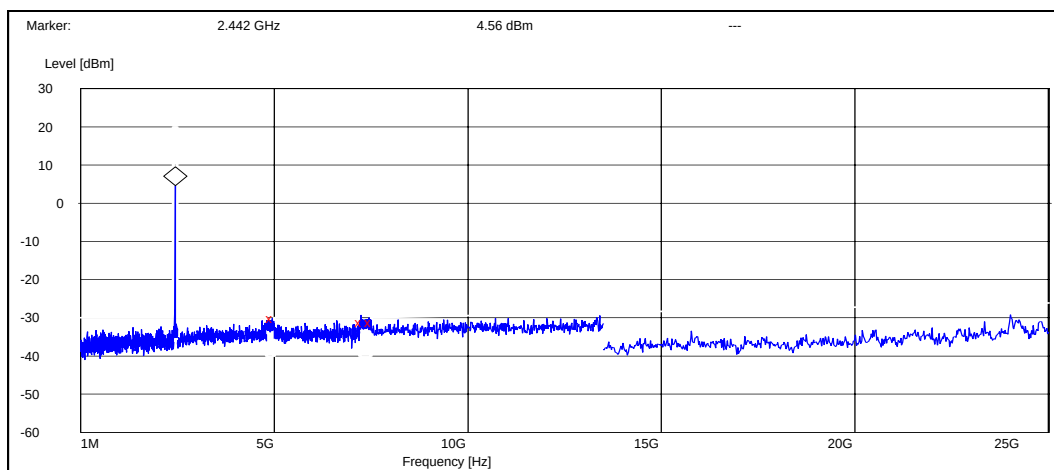


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4904.800000	-32.484883	PASSED
7491.000000	-31.584883	PASSED
7500.000000	-32.884883	PASSED

Channel 40 / 2442 MHz

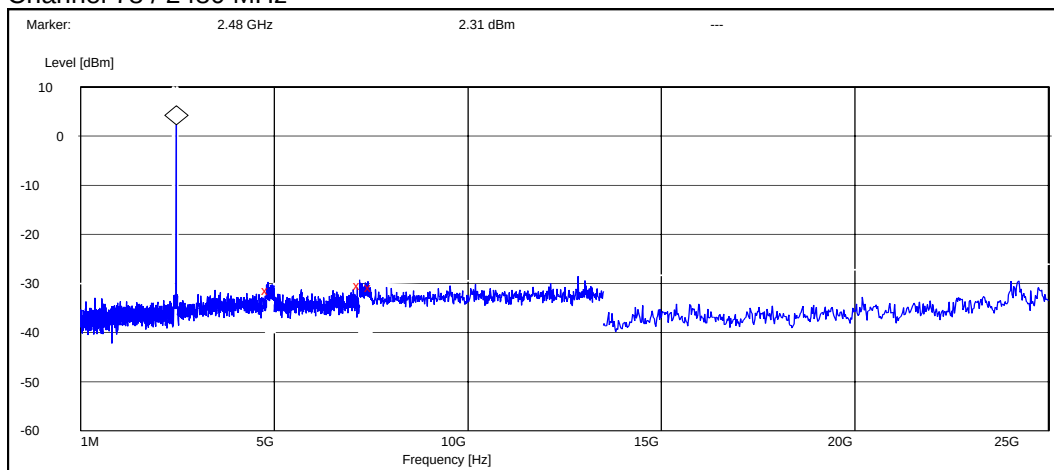
20 (42)



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

Frequency [MHz]	P [dBc]	Result
4951.600000	-34.860883	PASSED
7243.200000	-35.660883	PASSED
7500.000000	-35.860883	PASSED

Channel 78 / 2480 MHz



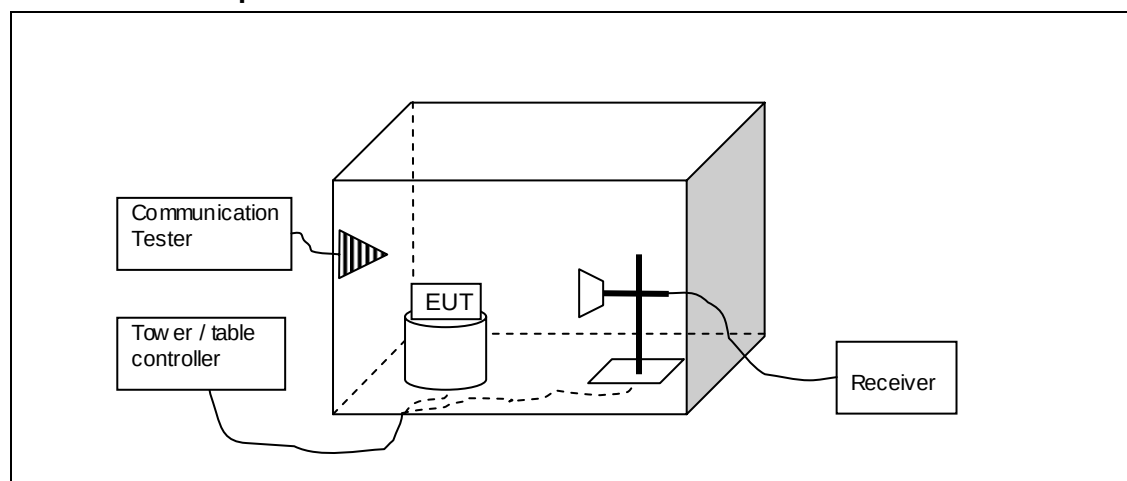
Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4840.800000	-33.709386	PASSED
7206.600000	-32.609386	PASSED
7500.000000	-33.009386	PASSED

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

EUT with DUT number	RM-693, DUT 52118
Accessories with DUT numbers	BL-5C, DUT 52124 ; AC-3E, DUT 52127 ; WH-102, DUT 52128
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	Test was done in slide open as worst case.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 28 / 100.9
Date of measurements	18-Mar-2011
Measured by	Jia Dongsheng

5.1.1 Test Setup



5.2. Test method and limit

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

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

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

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

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

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

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

The measurement results are obtained as described below:

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

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

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

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

5.3. Bluetooth Test results

5.3.1 GFSK modulation, PRBS packet type

Channel 78 / 2480 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4961.1	44.13	160.953	44.05	0.08	VERTICAL	PASSED
7438.2	46.94	222.331	41.85	5.09	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
4961.1	31.47	37.441	31.39	0.08	VERTICAL	PASSED
7438.2	33.7	48.423	28.61	5.09	VERTICAL	PASSED

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
4802.8	42.97	140.734	43.2	-0.23	HORIZONTAL	PASSED
7205.5	46.07	201.21	41.05	5.02	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
4802.8	29.27	29.07	29.5	-0.23	HORIZONTAL	PASSED
7205.5	33.13	45.337	28.11	5.02	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
33.326	24.56	16.902	29.25	-4.69	VERTICAL	PASSED
37.054	31.23	36.421	38.74	-7.51	VERTICAL	PASSED
40.482	30.96	35.326	41.1	-10.14	VERTICAL	PASSED
40.791	31.45	37.364	41.77	-10.32	VERTICAL	PASSED
44.259	31.9	39.373	44.32	-12.42	VERTICAL	PASSED
44.429	27.58	23.93	40.1	-12.52	VERTICAL	PASSED
48.806	28.99	28.151	44.12	-15.13	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3919.238	41.24	115.385	42.65	-1.41	VERTICAL	PASSED
3928.152	41.61	120.31	43.06	-1.45	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
3919.238	28.35	26.137	29.76	-1.41	VERTICAL	PASSED
3928.152	28.15	25.556	29.6	-1.45	VERTICAL	PASSED

5.3.2 8DPSK modulation, PRBS packet type

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
4960.3	42.85	138.883	42.78	0.07	HORIZONTAL	PASSED
7440	46.81	218.902	41.73	5.08	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
4960.3	30.34	32.9	30.27	0.07	HORIZONTAL	PASSED
7440	33.77	48.809	28.69	5.08	HORIZONTAL	PASSED

Channel 0 / 2402 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4805.6	42.01	125.98	42.26	-0.25	HORIZONTAL	PASSED
7205	46.07	201.187	41.05	5.02	VERTICAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4805.6	29.27	29.067	29.52	-0.25	HORIZONTAL	PASSED
7205	33.09	45.128	28.07	5.02	VERTICAL	PASSED

Channel 40 / 2442 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
30	31.01	35.518	33.32	-2.31	VERTICAL	PASSED
40.831	31.1	35.896	41.45	-10.35	VERTICAL	PASSED
47.987	28.57	26.81	43.21	-14.64	HORIZONTAL	PASSED
47.996	29.48	29.789	44.12	-14.64	HORIZONTAL	PASSED
48.036	29.35	29.336	44.02	-14.67	HORIZONTAL	PASSED
48.085	32.41	41.725	47.11	-14.7	HORIZONTAL	PASSED
48.186	29.3	29.161	44.06	-14.76	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3923.351	41.24	115.359	42.65	-1.41	VERTICAL	PASSED
3934.47	40.87	110.548	42.39	-1.52	HORIZONTAL	PASSED

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

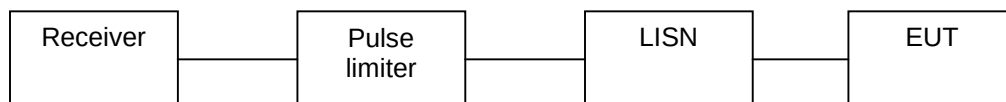
Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3923.351	28.28	25.948	29.69	-1.41	VERTICAL	PASSED
3934.47	28.27	25.9	29.79	-1.52	HORIZONTAL	PASSED

6. AC powerline conducted emissions

FCC §15.207, RSS-GEN 7.2.2

EUT with DUT number	RM-693, DUT 52118
Accessories with DUT numbers	BL-5C, DUT 52124 ; AC-3E, DUT 52127 ; WH-102, DUT 52128
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 21 / 100.9
Date of measurements	18-Mar-2011
Measured by	Zou Ming

6.1. Test Setup



6.2. Test method and limit

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

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

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

The measurement results are obtained as described below:

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

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

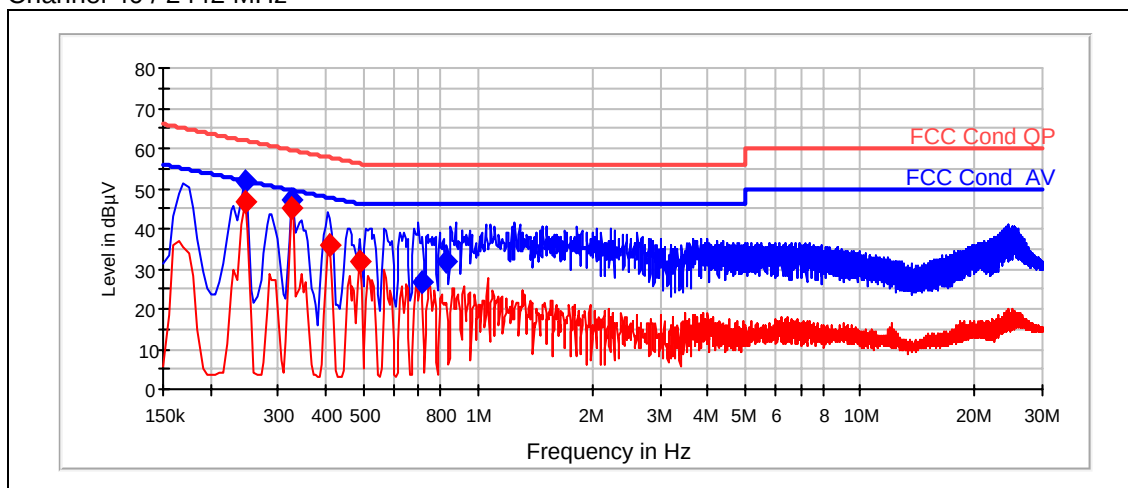
CISPR 22 Class B limits

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

6.3. Bluetooth Test results

6.3.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.245	51.91	N	PASSED
0.325	47.06	N	PASSED
0.71	26.62	N	PASSED
0.83	31.56	L1	PASSED

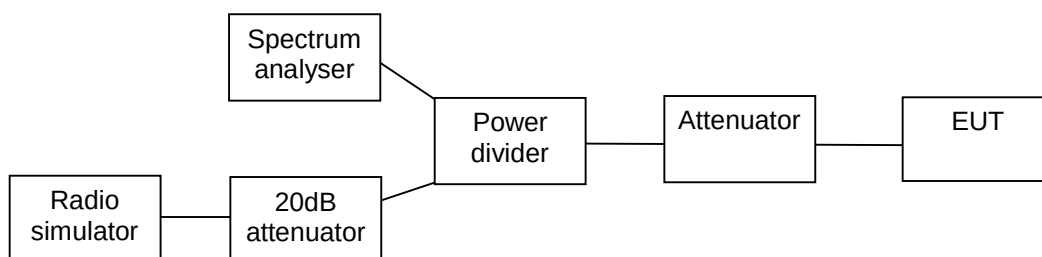
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.245	46.56	N	PASSED
0.325	45.24	N	PASSED
0.41	35.8	N	PASSED
0.49	31.8	N	PASSED

7. 20 dB bandwidth (FCC §15.247(a)(1), RSS-210 A8.1 (a))

EUT with DUT number	RM-693, DUT52121
Accessories with DUT numbers	BL-5C, DUT 52124 ; AC-3E, DUT 52127 ; WH-102, DUT 52128
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 20 / 101.7
Date of measurements	16-Mar-2011
Measured by	Jia Dongsheng

7.1. Test Setup



7.2. Test method and limit

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

Limits for 20 dB bandwidth measurements

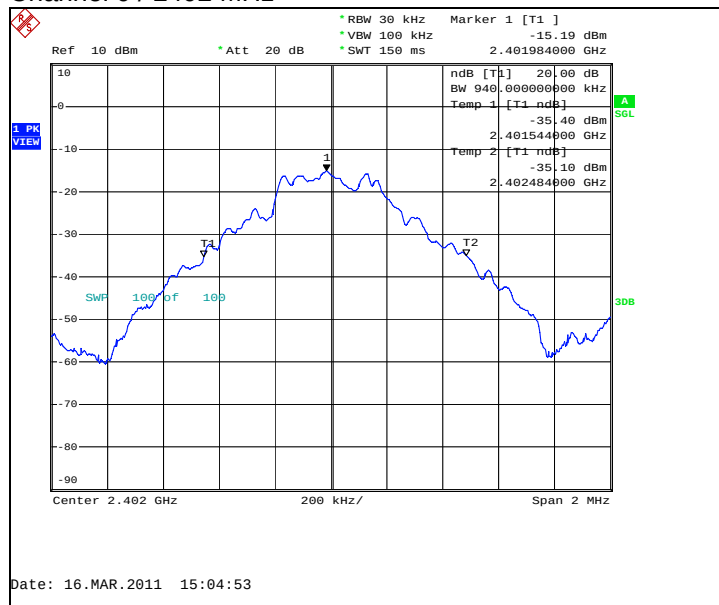
Limit [MHz]
N/A

7.3. Bluetooth Test results

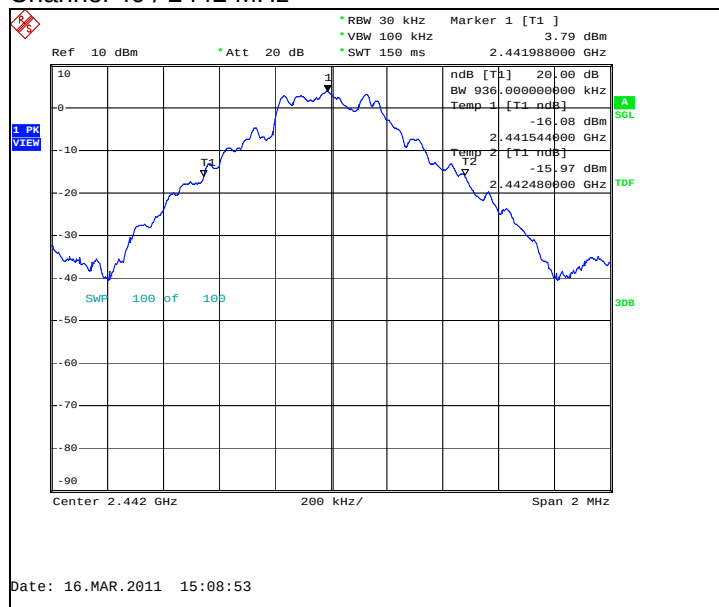
7.3.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	940.000	PASSED
40 / 2442	936.000	PASSED
78 / 2480	940.000	PASSED

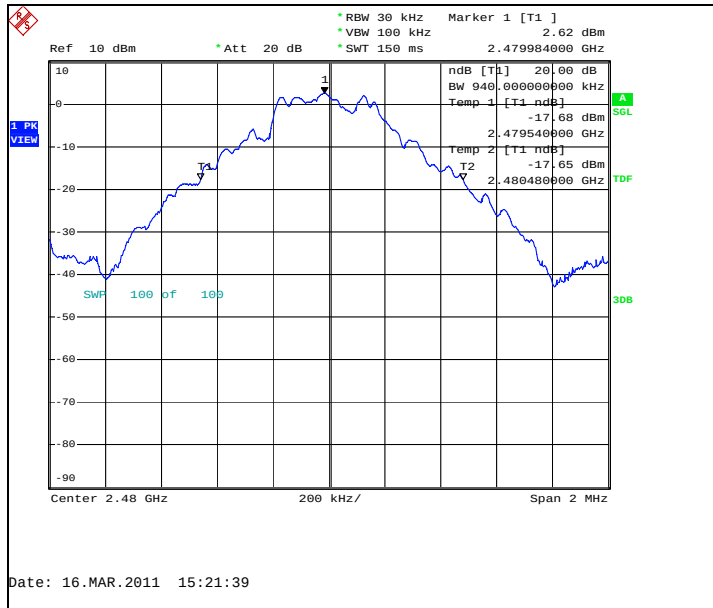
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



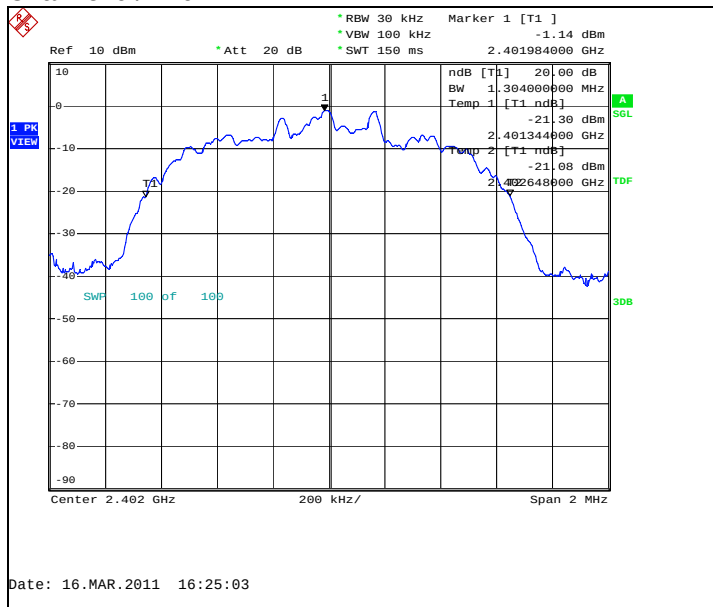
Channel 78 / 2480 MHz



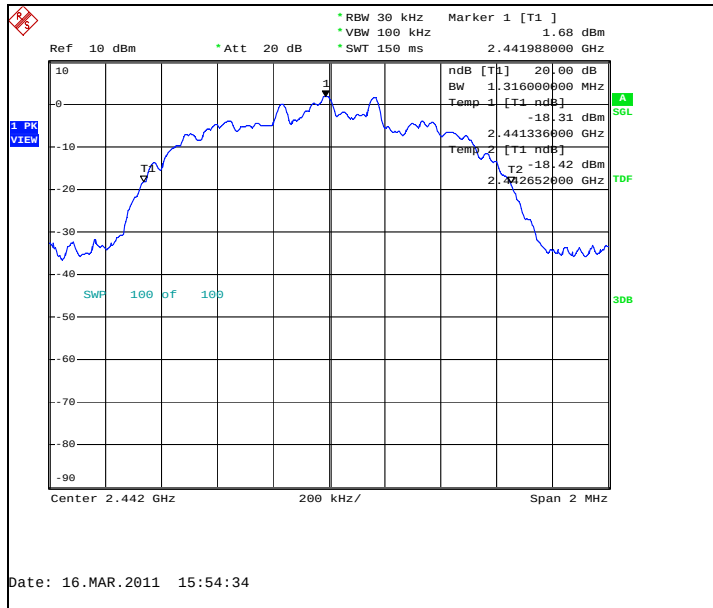
7.3.2 8DPSK modulation, PRBS packet type

Channel / f _c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1304.000	PASSED
40 / 2442	1316.000	PASSED
78 / 2480	1304.000	PASSED

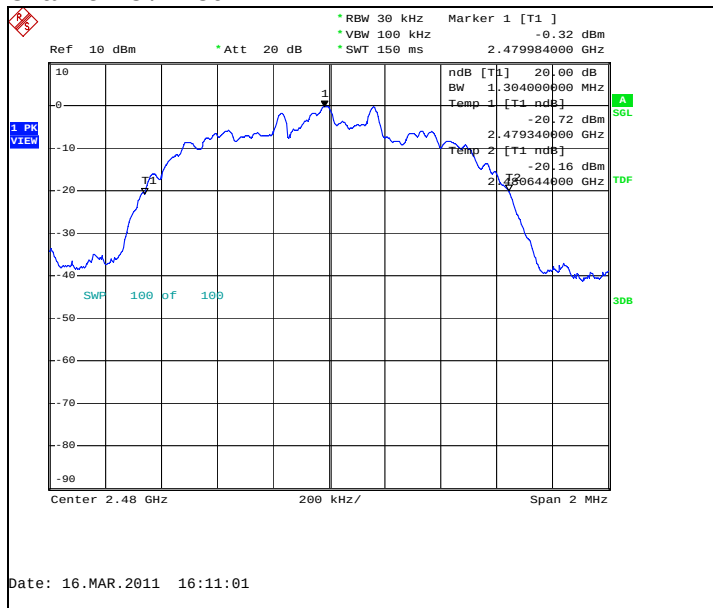
Channel 0 / 2402 MHz



Channel 40 / 2442 MHz



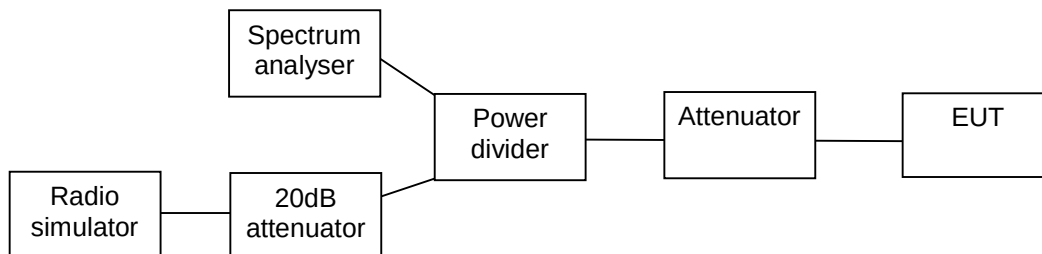
Channel 78 / 2480 MHz



8. Carrier frequency separation (FCC §15.247(a)(1), RSS-210 A8.1 (b))

EUT with DUT number	RM-693, DUT52121
Accessories with DUT numbers	BL-5C, DUT 52124 ; AC-3E, DUT 52127 ; WH-102, DUT 52128
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 20 / 101.7
Date of measurements	16-Mar-2011
Measured by	Jia Dongsheng

8.1. Test Setup



8.2. Test method and limit

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

Limits for carrier frequency separation measurements

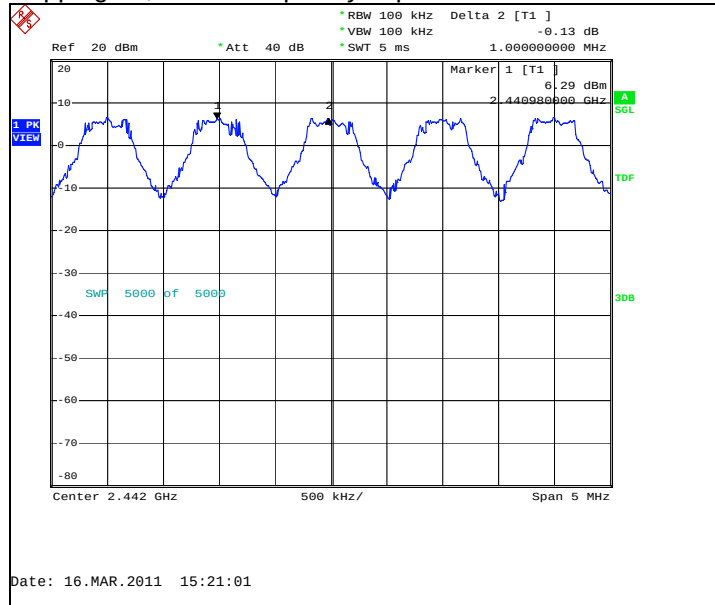
Limit [MHz]
≥ 0.025 or $2/3$ of the 20 dB bandwidth

8.3. Bluetooth Test results

8.3.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1000	PASSED

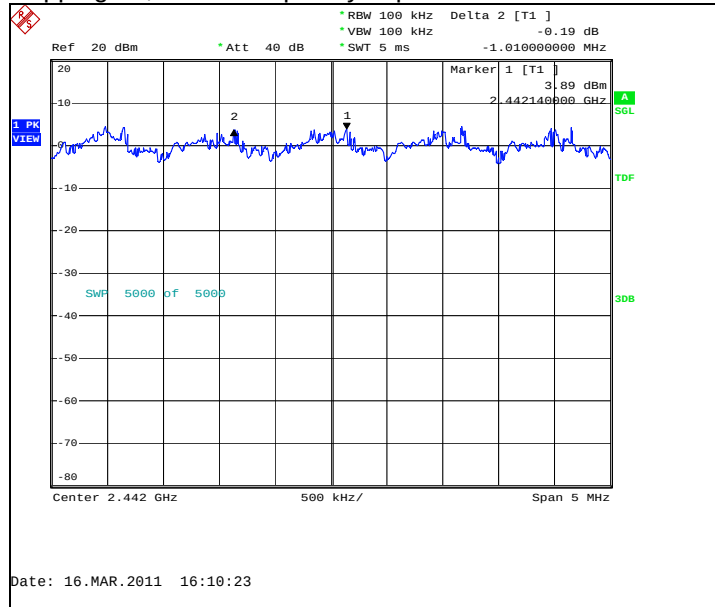
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



8.3.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1010	PASSED

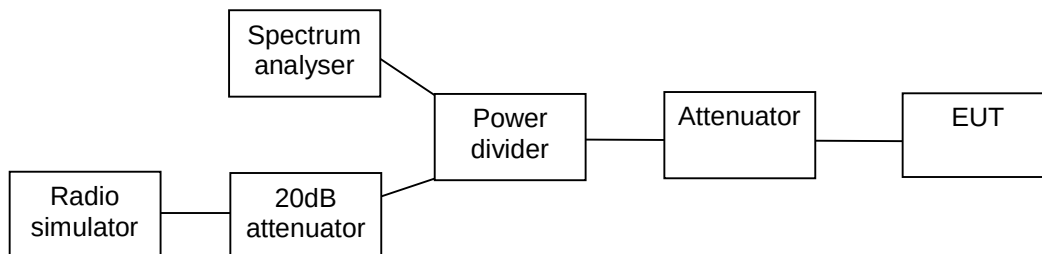
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



9. Number of hopping frequencies (FCC §15.247(a)(1)(iii), RSS-210 A8.1 (d))

EUT with DUT number	RM-693, DUT52121
Accessories with DUT numbers	BL-5C, DUT 52124 ; AC-3E, DUT 52127 ; WH-102, DUT 52128
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 20 / 101.7
Date of measurements	16-Mar-2011
Measured by	Jia Dongsheng

9.1. Test Setup



9.2. Test method and limit

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

Limits for number of hopping frequencies measurements

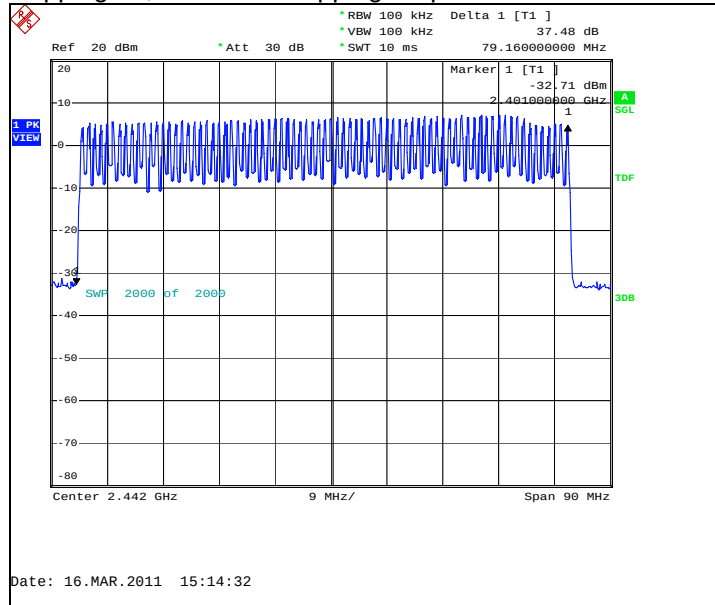
Limit [number]
≥ 15

9.3. Bluetooth Test results

9.3.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	PASSED

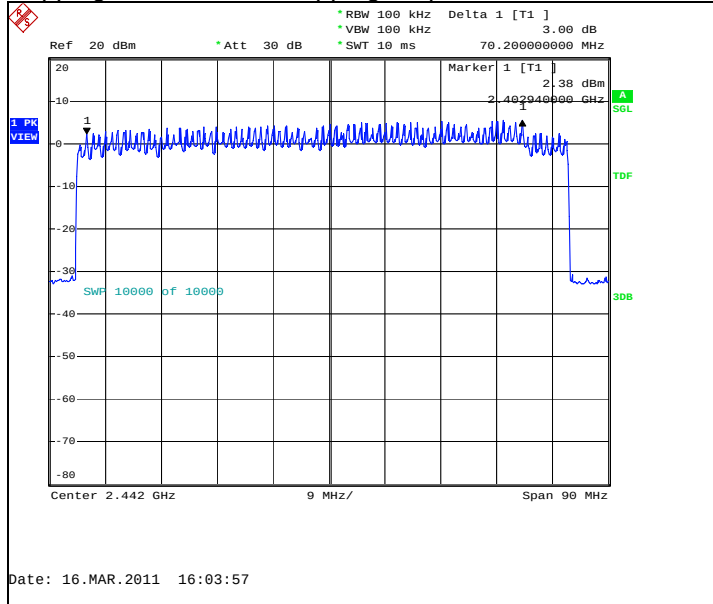
Hopping on, number of hopping frequencies



9.3.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	PASSED

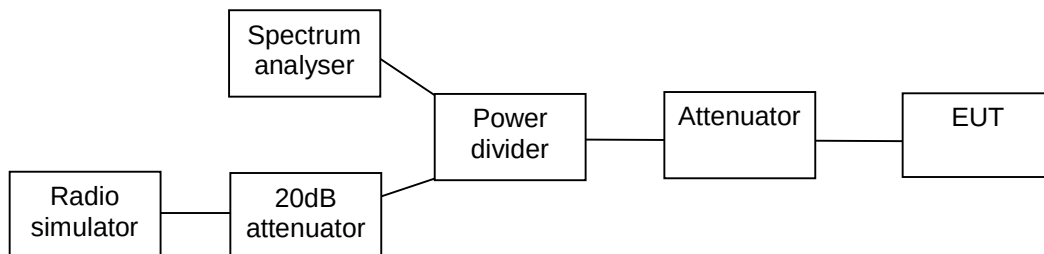
Hopping on, number of hopping frequencies



10. Time of occupancy (FCC §15.247(a)(1)(iii), RSS-210 A8.1 (d))

EUT with DUT number	RM-693, DUT52121
Accessories with DUT numbers	BL-5C, DUT 52124 ; AC-3E, DUT 52127 ; WH-102, DUT 52128
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 20 / 101.7
Date of measurements	16-Mar-2011
Measured by	Jia Dongsheng

10.1. Test Setup



10.2. Test method and limit

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

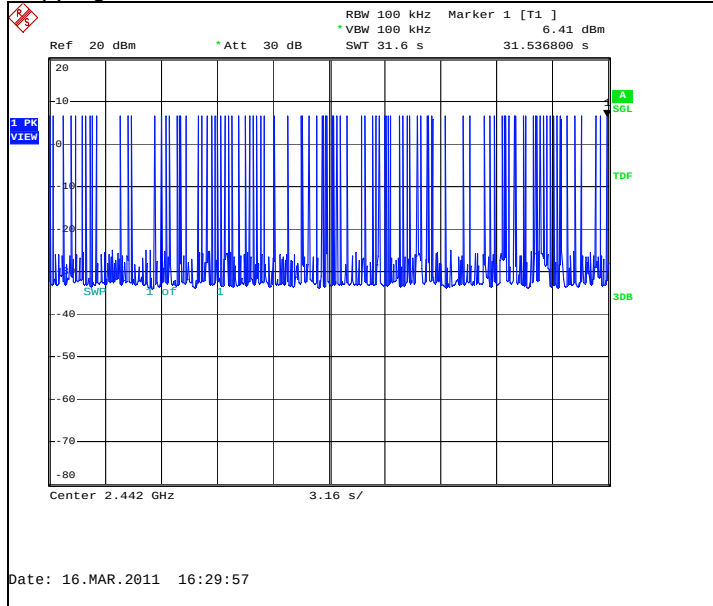
Limit [s]
≤ 0.4

10.3. Bluetooth test results

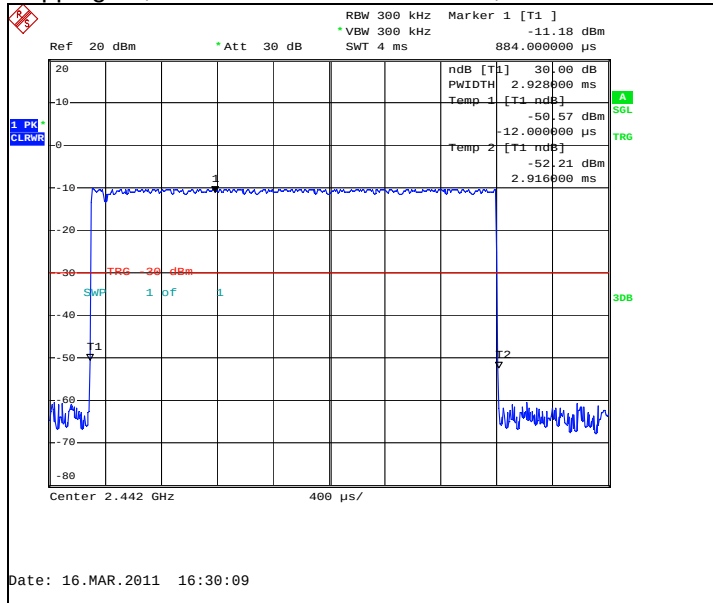
10.3.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μs]	Time of occupancy [s]	Result
91	2,928	0.266448	PASSED

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



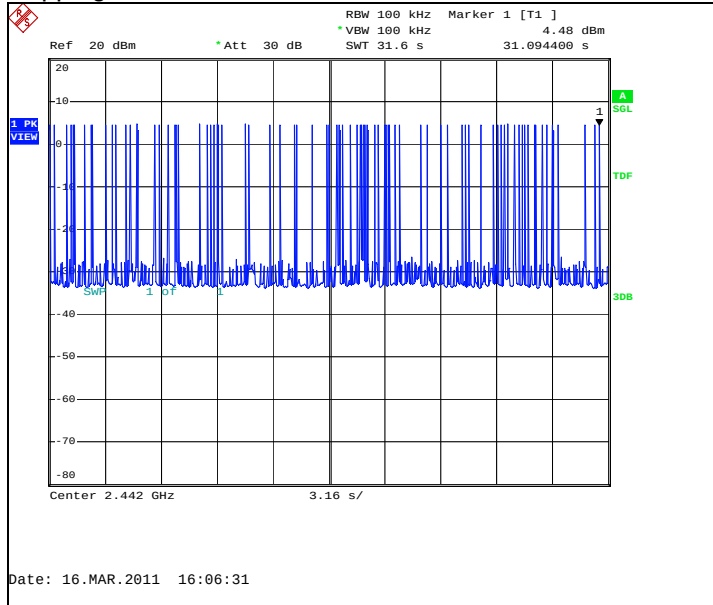
Hopping on, duration of one transmission, channel 40 / 2442 MHz



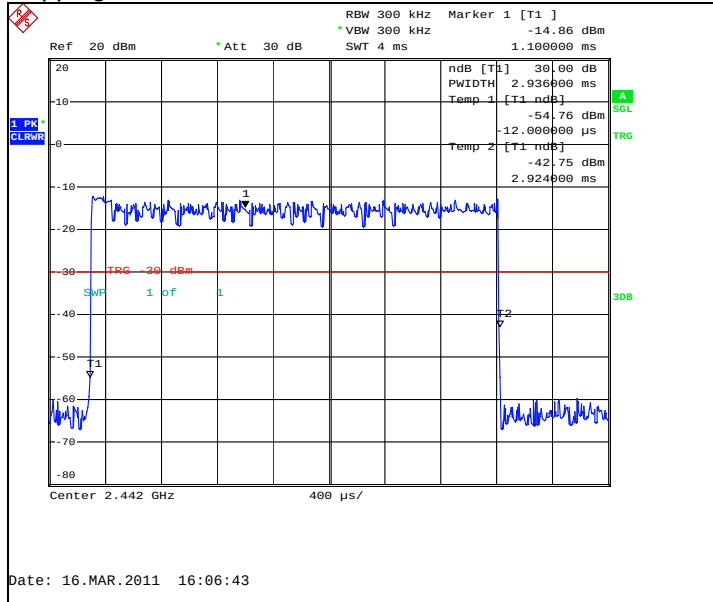
10.3.2 8DPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μs]	Time of occupancy [s]	Result
73	2,936	0.214328	PASSED

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



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



11. Test Equipment

11.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	RF Emission Software	EMC32 Test Software	R&S	22/24/27, 15C, 15B
BJPCHW0020	DC Power supply	Hp6632B	HP	22/24/27, 15C
BJPCPT0040	Receiver	ESCS30	R&S	15C,15B
BJPCPT0073	Signal Generator	SMR 20	R&S	22/24/27, 15C, 15B
BJPCPT0079	LISN 50 μ H	ESH3-Z5	R&S	15C,15B
BJPCPT0131	Communication Tester	CMU200	R&S	15C,15B
BJPCPT0191	Pulse Limiter	ESH3-Z2	R&S	15C,15B
BJPCTC0017	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0067	Bluetooth Tester	CBT	R&S	22/24/27, 15C
BJPCTC0089	Temperature Test chamber	VT4002	Votsch industrietechnik	22/24/27, 15C
BJPCTC0090	FSP spectrum analyzer	FSP30	R&S	22/24/27, 15C
BJPCTC0094	GPIO-RS232 convertor	GPIO-RS232	NI	22/24/27, 15C
BJPCTC0112	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0114	Signal Generator	E8357C	Agilent	22/24/27, 15C
BJPCTC0115	Communication Tester	CMU200	R&S	22/24/27, 15B, 15C

11.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	RF Emission Software	EMC32 Test Software	R&S	22/24/27, 15C, 15B
BJPCPT0072	Receiver	ESI B26	R&S	22/24/27, 15C, 15B
BJPCPT0130	Relay Switch Unit	TS-RSP	R&S	22/24/27, 15C, 15B
BJPCPT0150	High Pass Filter	WHKS1200-10SS	Wainwright	22/24/27, 15C, 15B
BJPCPT0151	Band Reject Filter	WRCD1880/2000-0.2/40-5SSK	Wainwright	24, 15B
BJPCPT0154	Band Reject Filter	WRCT2402/2480-2400/2483.5-30-20SS	Wainwright	15C, 15B
BJPCPT0162	Antenna	HF906	R&S	22/24/27, 15C, 15B
BJPCTC0007	Antenna	HL562	R&S	22/24/27, 15C, 15B
BJPCTC0029	Antenna	HF906	R&S	22/24/27, 15C, 15B
BJPCTC0034	Band Reject Filter	WRCT 800/880-0.2/40-5SSK	Wainwright	22, 15B
BJPCTC0049	Preamplifier	Blma 0118-1A-Bt	Bonn	22/24/27, 15C, 15B
BJPCTC0055	Communication Tester	CMU200	R&S	22/24/27,15C,15B
BJPCTC0058	Bluetooth Tester	CBT	R&S	15C, 15B
BJPCTC0064	Band Reject Filter	WRCG1877/1883-1870/1890-40/6SS	Wainwright	24, 15B
BJPCTC0065	Band Reject Filter	WRCG832/838-825/845-40/5SS	Wainwright	27, 15B
BJPCTC0071	Multi-Device Controller	2090	EMCO	22/24/27, 15C, 15B
BJPCTC0072	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	ETS	22/24/27, 15C, 15B
BJPCTC0073	MAST	Model-TR/POL	ETS	22/24/27, 15C, 15B
BJPCTC0074	MAST	Model 2070-2	ETS	22/24/27, 15C, 15B
BJPCTC0075	Turntable	Model 2188	ETS-EMCO	22/24/27, 15C, 15B
BJPCTC0096	Preamplifier	AFS4-00100300-20-23P-6	Miteq	22/24/27, 15C, 15B
BJPCTC0113	Receiver	ESI B26	R&S	22/24/27, 15B, 15C
BJPCTC0115	Communication Tester	CMU200	R&S	22/24/27, 15B, 15C