

FCC Part 15C Compliance Test Report

Test Report no.:	EMC_BO_001662	Date of Report:	16-Sep-2011
Number of pages:	52	Project support engineer:	Robert Müller

Customer:	novero International GmbH, Parsevalstr. 7A, 40468 Düsseldorf, Germany		
Customers contact:	Bernhard Bläcker		
Manufacturer	Novero International GmbH		
EUT ident.:	Bluetooth Stereo Headset, NBHS-4		
FCC ID	ZORNBHS-4	IC:	7347C-NBHS4

Referred documents:	CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2009), Public Notice DA 00-705, IC standards RSS-GEN and RSS-210. Deviations or clarifications to these standards are noted in the related test result under "test method and limit".
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	FCC listing no.:	881111	IC recognition no.:	7847A-1
	Laboratory manager:	Jürgen Mitterer		

Test result	The EUT complies with the requirements made in the referred test documents.
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Date and signature:

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Project support engineer: Robert Müller
Date of issue: 16-Sep-2011
Report No.: EMC_BO_001662

Test Report for FCC Part 15C
Template version 1.0
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1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	02-Sep-2011
Testing completed	14-Sep-2011
The customer's contact person	Bernhard Bläcker
Notes	none
Document name	EMC_BO_001662_FCC15C

1.1. EUT and Accessory Information

The EUT is a Bluetooth device. Bluetooth is tested with maximum rated TX power. Device is deactivating the BT transmitter automatically during charging mode.

Product	Type	SN	HW	MV	SW	DUT
BT Stereo Headset	NBHS-4	DAV015	R1B	-	P1D	DAV015
BT Stereo Headset	NBHS-4	DAV009	R1B	-	P1D	DAV009

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 (b)	Conducted peak output power	PASSED
15.247(d)	A8.5	Band edge compliance of RF emissions	PASSED
15.247(c)	A8.5	Spurious RF conducted emissions	PASSED
15.247(c), 15.209	A8.5	Spurious radiated emissions	PASSED
15.207	7.2.2	AC powerline conducted emissions	NP
15.247(a)(1)	A8.1 (a)	20 dB bandwidth	PASSED
15.247(a)(1)	A8.1 (b)	Carrier frequency separation	PASSED
15.247(a)(1)(iii)	A8.1 (d)	Number of hopping frequencies	PASSED
15.247(a)(1)(iii)	A8.1 (d)	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.

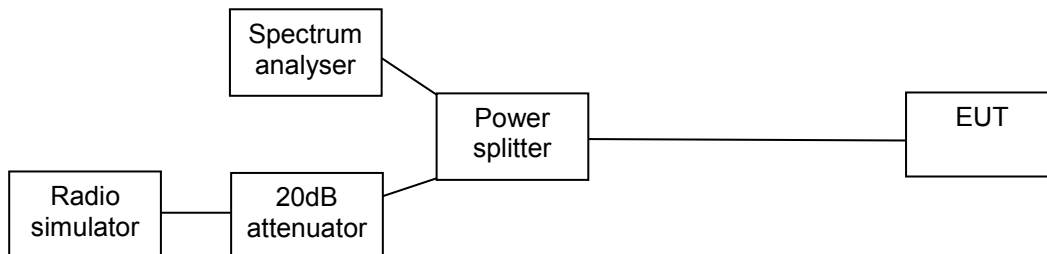
NP: The test was not performed.

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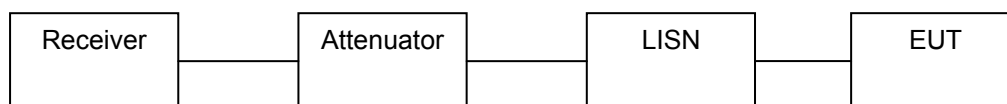
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2. Test setups

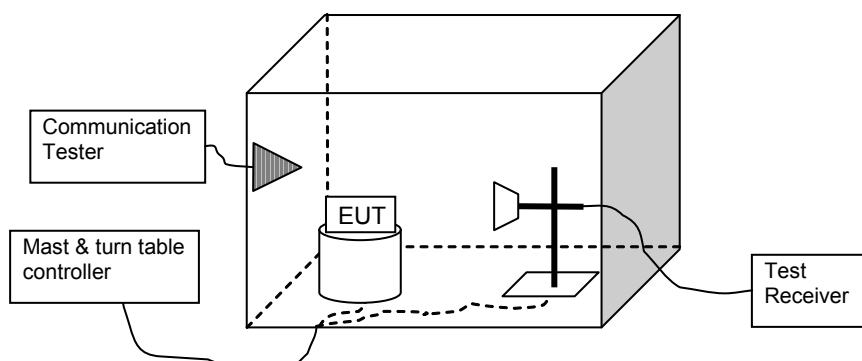
2.1. Conducted RF test setup



2.2. AC power line conducted emissions test setup



2.3. Spurious radiated emissions test setup



3. Conducted peak output power

(FCC §15.247(b)(1), RSS-210 A8.4 (2))

EUT with DUT number	DAV015
Accessories with DUT numbers	None
Operation Voltage [V] / [Hz]	3.7 / DC
Result	PASSED
Remarks	None
Temp [°C] / Humidity [%RH]	25 / 50
Date of measurements	06-Sep-2011
Measured by	Robert Müller

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

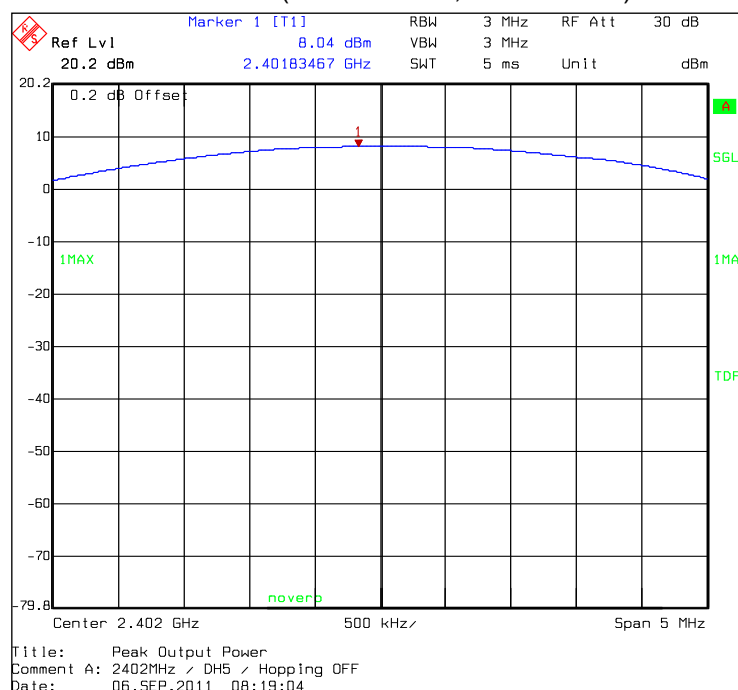
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

3.2. Bluetooth Test results

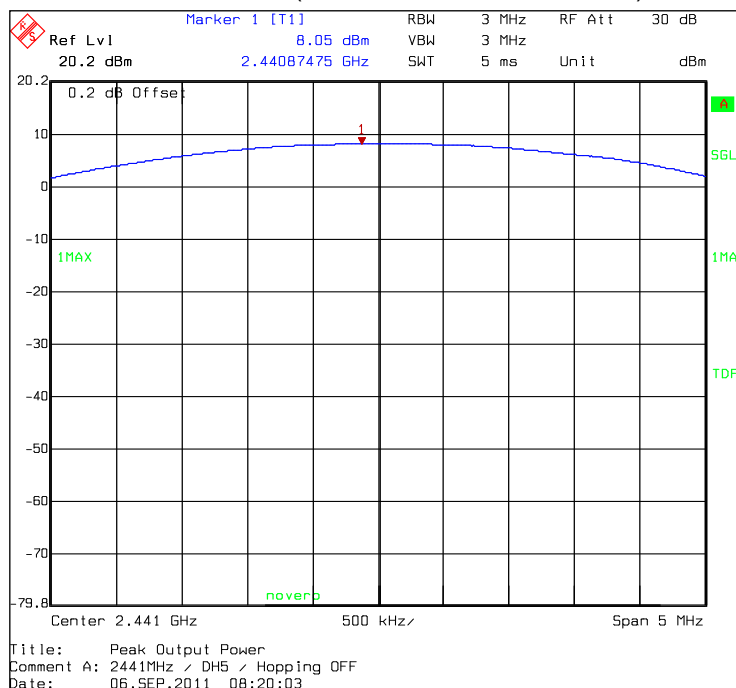
3.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	8.04	6.37	PASSED
39 / 2441	8.05	6.38	PASSED
78 / 2480	7.99	6.30	PASSED

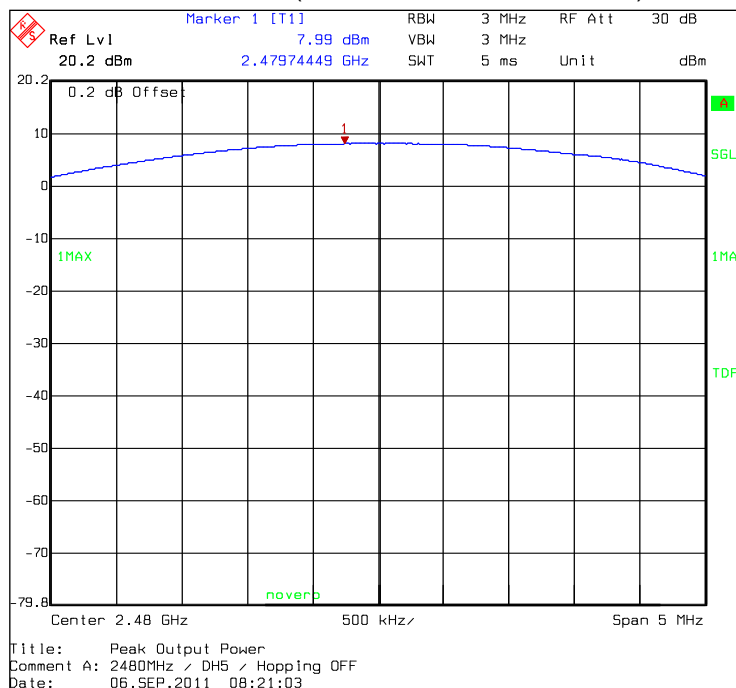
Channel 0 / 2402 MHz (Peak detector, RBW: 3 MHz)



Channel 39 / 2441 MHz (Peak detector, RBW: 3 MHz)



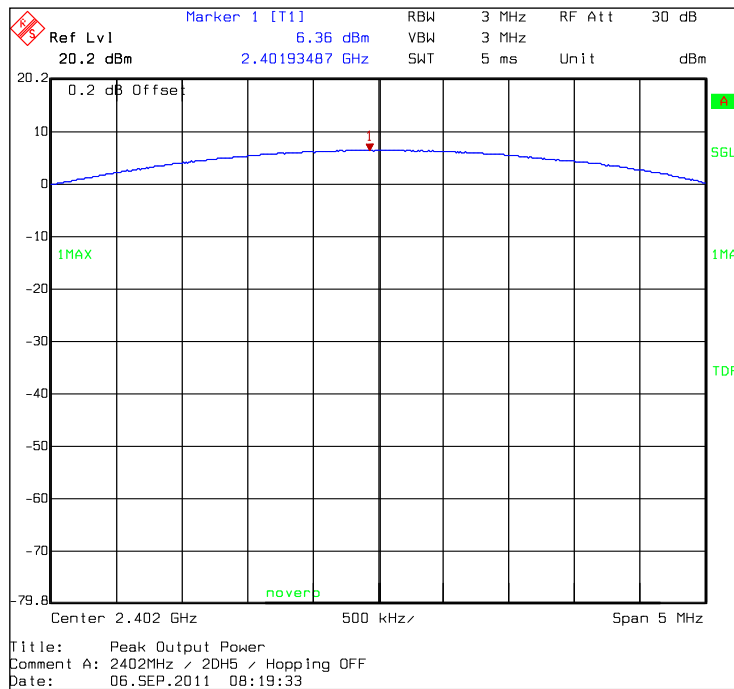
Channel 78 / 2480 MHz (Peak detector, RBW: 3 MHz)



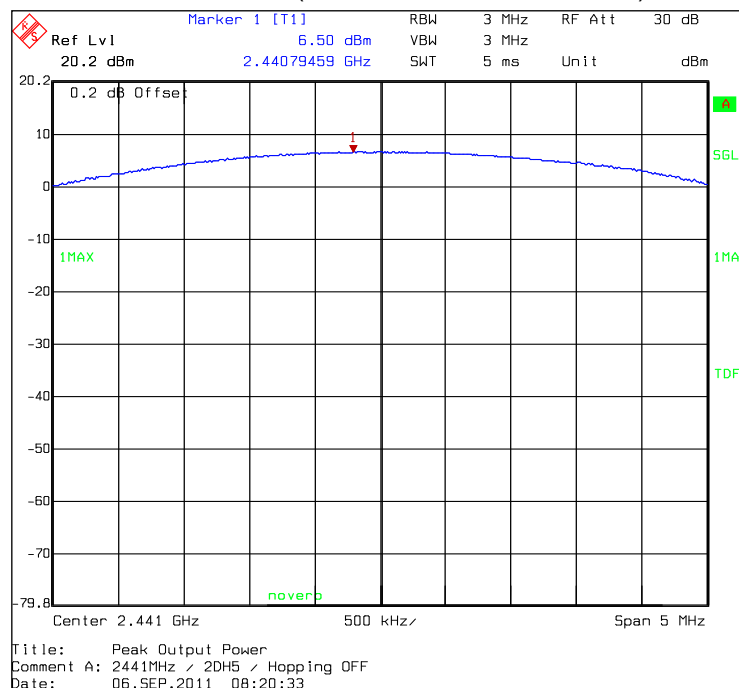
3.2.2 $\pi/4$ -DQPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	6.36	4.33	PASSED
39 / 2441	6.50	4.47	PASSED
78 / 2480	6.44	4.41	PASSED

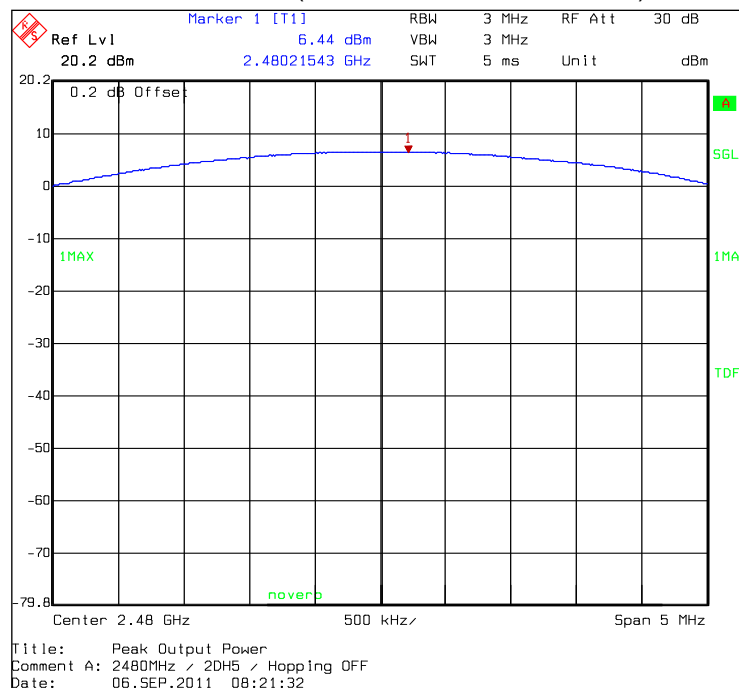
Channel 0 / 2402 MHz (Peak detector, RBW: 3 MHz)



Channel 39 / 2441 MHz (Peak detector, RBW: 3 MHz)



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



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

EUT with DUT number	DAV009
Accessories with DUT numbers	None
Operation Voltage [V] / [Hz]	Battery powered
Result	PASSED
Remarks	None
Temp [°C] / Humidity [%RH]	22.5 / 55
Date of measurements	06-Sep-2011
Measured by	Robert Müller

4.1. Test method and limit

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

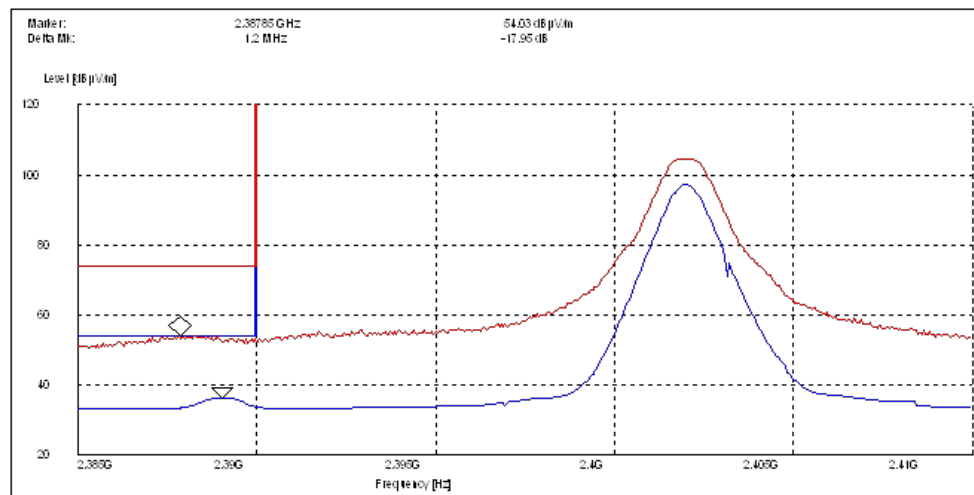
Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

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

4.2. Bluetooth Test results

4.2.1 GFSK modulation, PRBS packet type

Radiated, channel 0 / 2402 MHz, hopping off



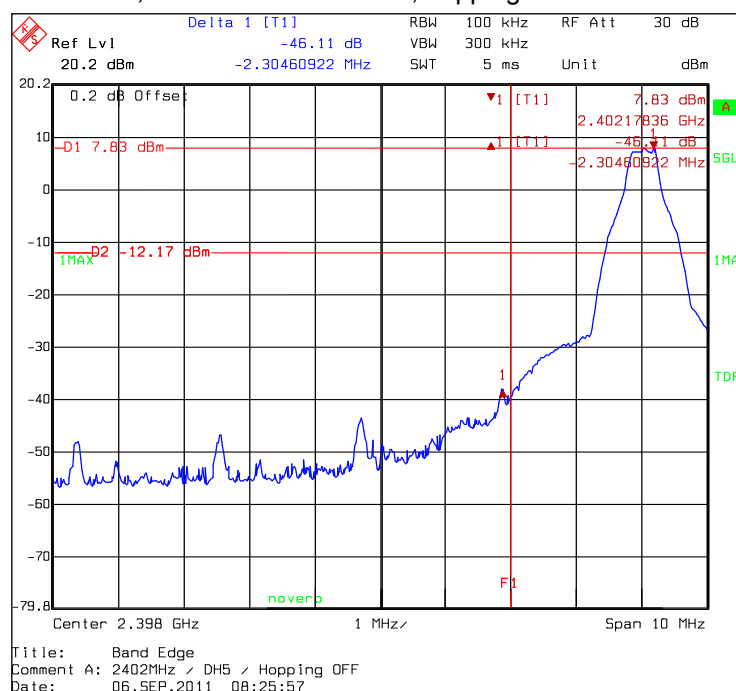
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
0 / 2402	54.03	PASSED

Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
0 / 2402	36.08	PASSED

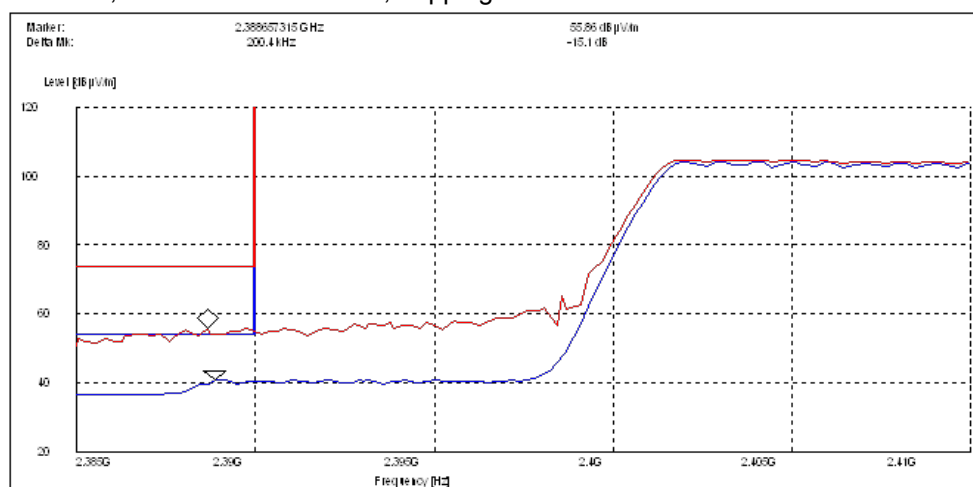
Conducted, channel 0 / 2402 MHz, hopping off



Peak (RBW: 100 KHz)

Channel / f _c [MHz]	P [dBc]	Result
0 / 2402		PASSED

Radiated, channel 0 / 2402 MHz, hopping on



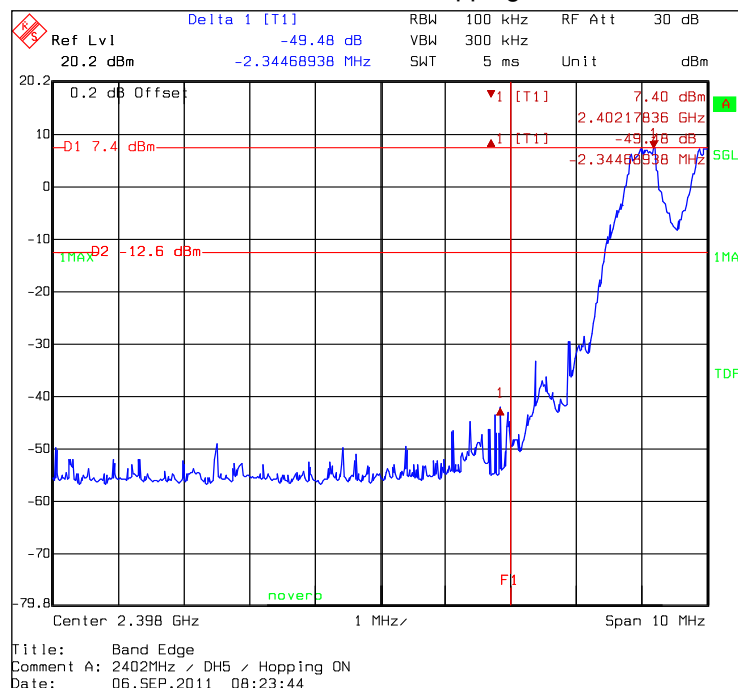
Peak (RBW: 1 MHz)

Channel / f _c [MHz]	E [dBµV/m]	Result
0 / 2402	55.86	PASSED

Average (RBW: 1 MHz)

Channel / f _c [MHz]	E [dBµV/m]	Result
0 / 2402	40.76	PASSED

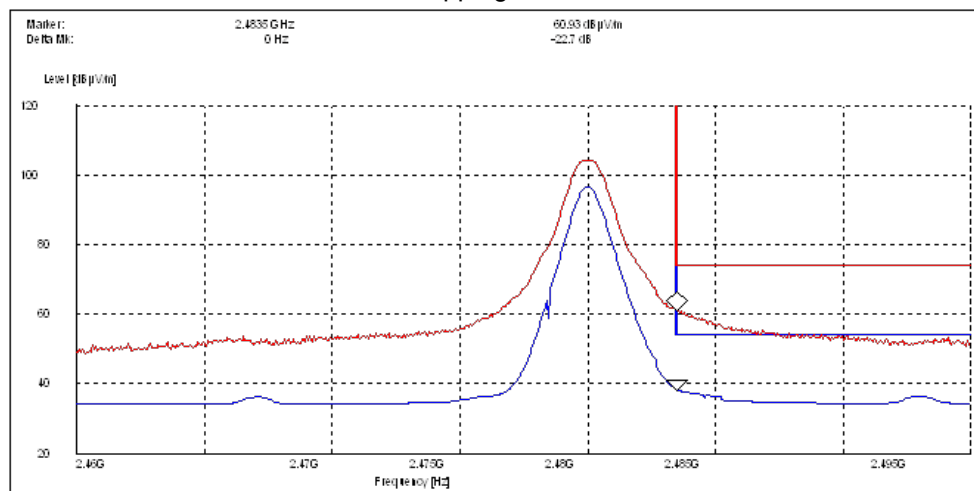
Conducted, channel 0 / 2402 MHz, hopping on



Peak (RBW: 100 KHz)

Channel / f_c [MHz]	P [dBc]	Result
0 / 2402	-49.48	PASSED

Radiated, channel 78 / 2480 MHz, hopping off



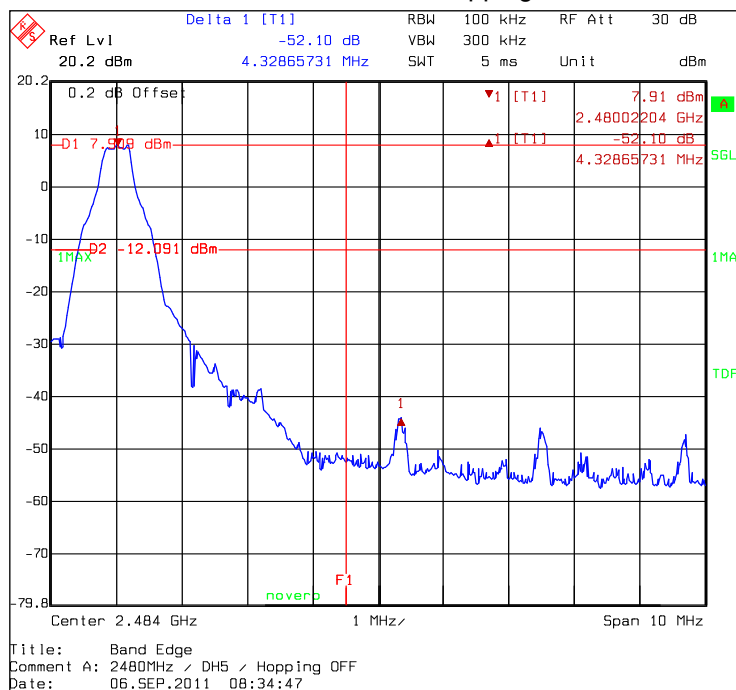
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
78 / 2480	60.93	PASSED

Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
78 / 2480	38.23	PASSED

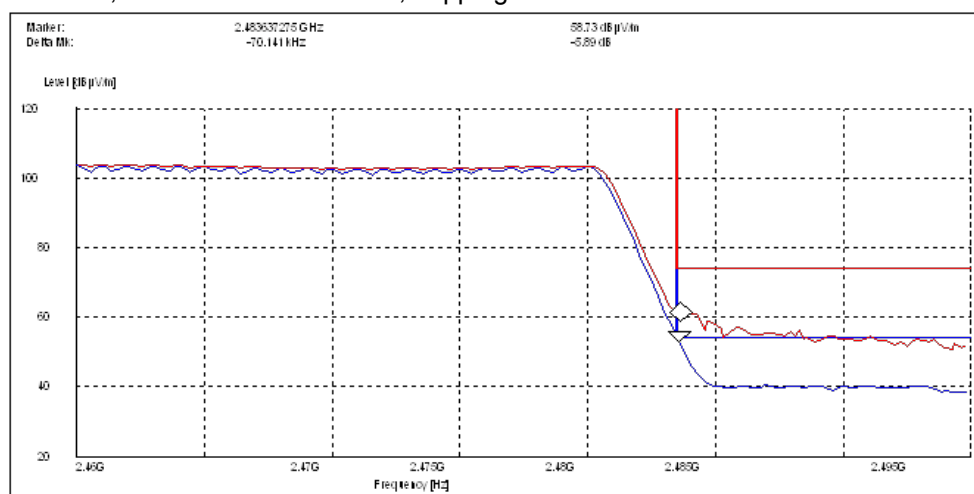
Conducted, channel 78 / 2480 MHz, hopping off



Peak (RBW: 100 KHz)

Channel / f_c [MHz]	P [dBc]	Result
0 / 2402	-52.10	PASSED

Radiated, channel 78 / 2480 MHz, hopping on



Peak (RBW: 1 MHz)

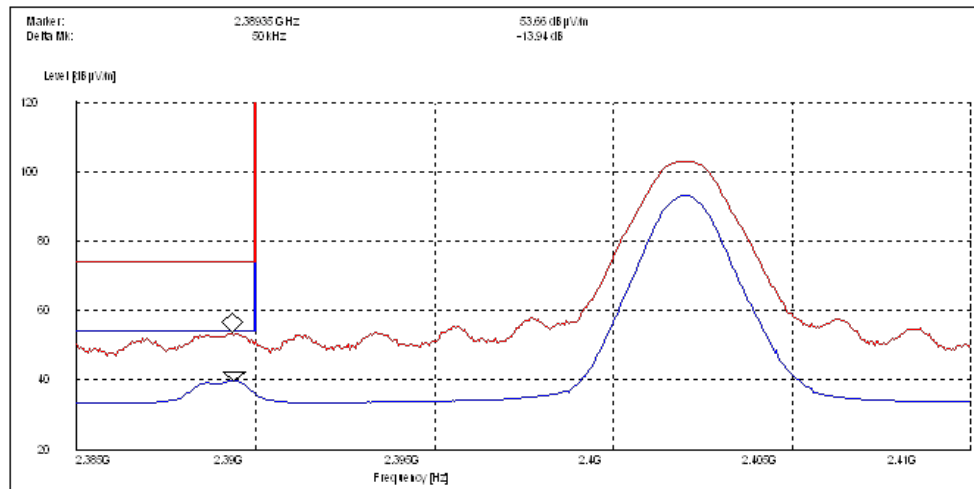
Channel / f _c [MHz]	E [dBµV/m]	Result
78 / 2480	58.73	PASSED

Average (RBW: 1 MHz)

Channel / f _c [MHz]	E [dBµV/m]	Result
78 / 2480	52.84	PASSED

4.2.2 $\pi/4$ -DQPSK modulation, PRBS packet type

Radiated, channel 0 / 2402 MHz, hopping off



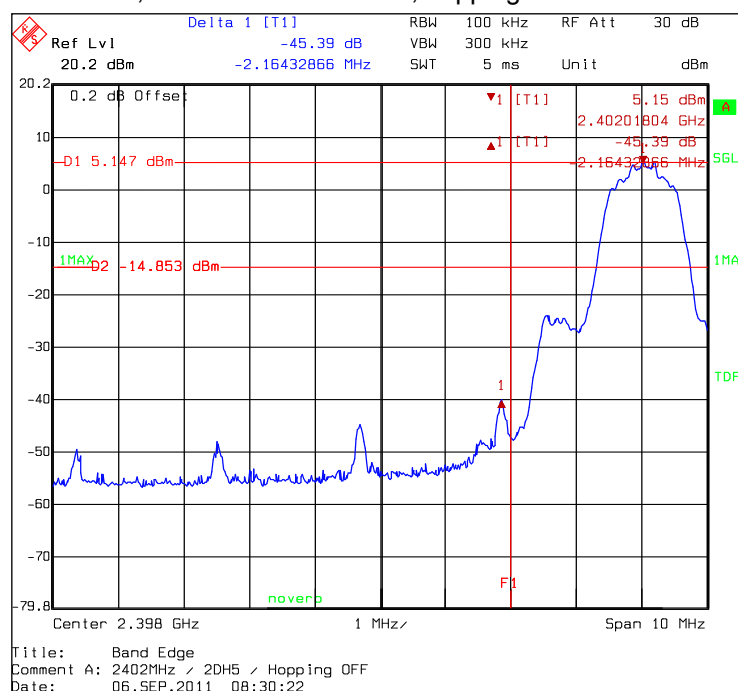
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
0 / 2402	53.66	PASSED

Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
0 / 2402	39.72	PASSED

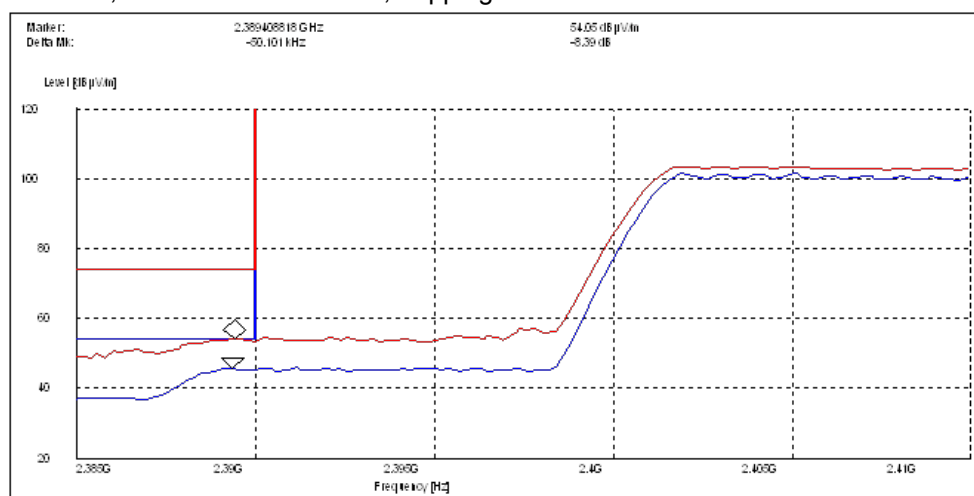
Conducted, channel 0 / 2402 MHz, hopping off



Peak (RBW: 100 KHz)

Channel / f _c [MHz]	P [dBc]	Result
0 / 2402	-45.39	PASSED

Radiated, channel 0 / 2402 MHz, hopping on



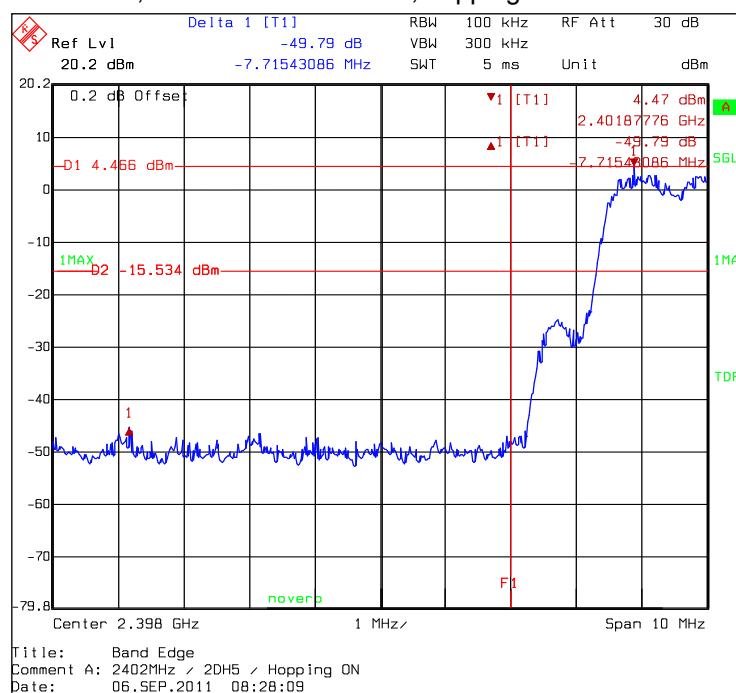
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBµV/m]	Result
0 / 2402	54.05	PASSED

Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBµV/m]	Result
0 / 2402	45.66	PASSED

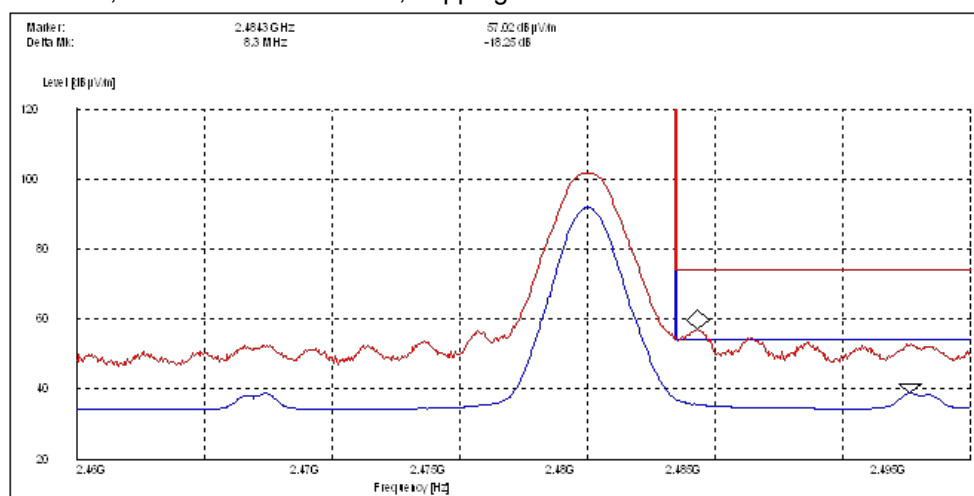
Conducted, channel 0 / 2402 MHz, hopping on



Peak (RBW: 100 KHz)

Channel / f _c [MHz]	P [dBc]	Result
0 / 2402	-49.79	PASSED

Radiated, channel 78 / 2480 MHz, hopping off



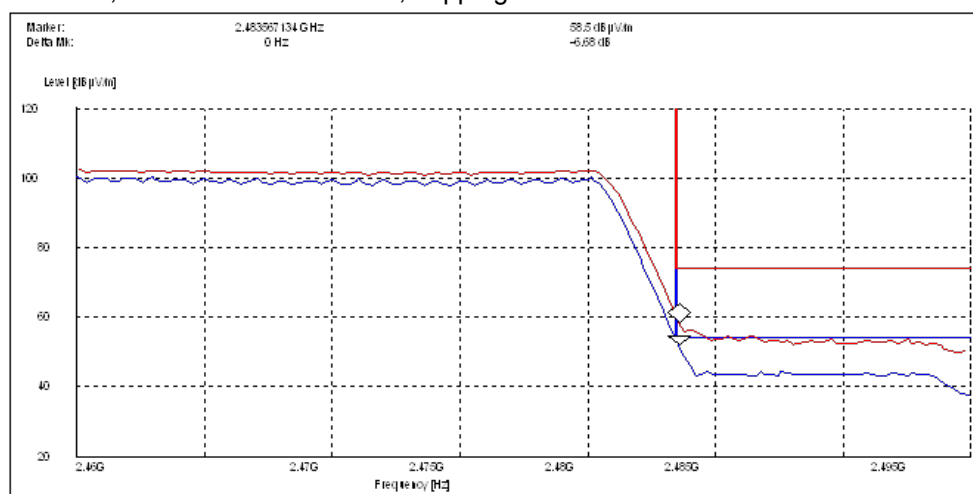
Peak (RBW: 1 MHz)

Channel / f _c [MHz]	E [dBµV/m]	Result
78 / 2480	57.02	PASSED

Average (RBW: 1 MHz)

Channel / f _c [MHz]	E [dBµV/m]	Result
78 / 2480	38.77	PASSED

Radiated, channel 78 / 2480 MHz, hopping on



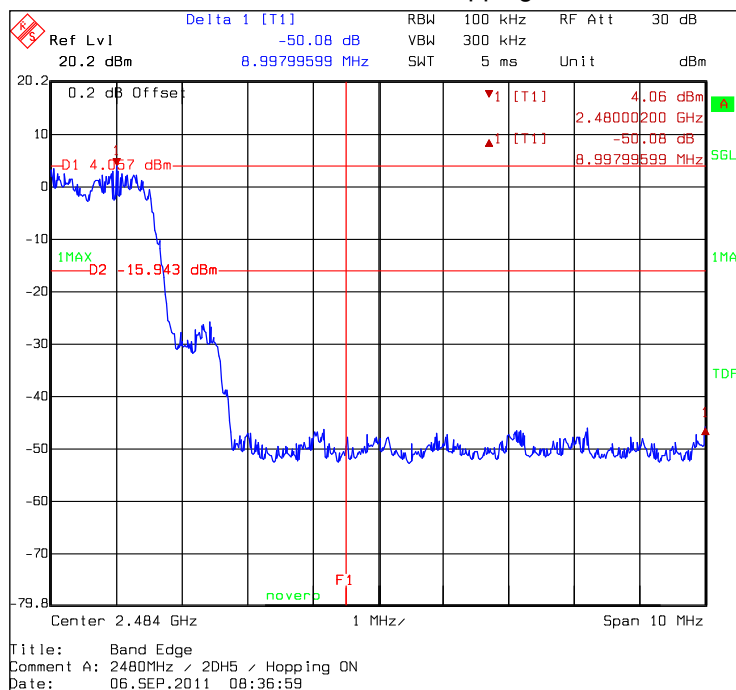
Peak (RBW: 1 MHz)

Channel / f _c [MHz]	E [dBµV/m]	Result
78 / 2480	58.50	PASSED

Average (RBW: 1 MHz)

Channel / f _c [MHz]	E [dBµV/m]	Result
78 / 2480	51.82	PASSED

Conducted, channel 78 / 2480 MHz, hopping on



Peak (RBW: 100 KHz)

Channel / f _c [MHz]	P [dBc]	Result
78 / 2480	-50.08	PASSED

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

EUT with DUT number	DAV015
Accessories with DUT numbers	None
Operation Voltage [V] / [Hz]	3.7 / DC
Result	PASSED
Remarks	None
Temp [°C] / Humidity [%RH]	25 / 50
Date of measurements	06-Sep-2011
Measured by	Robert Müller

5.1. Test method and limit

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

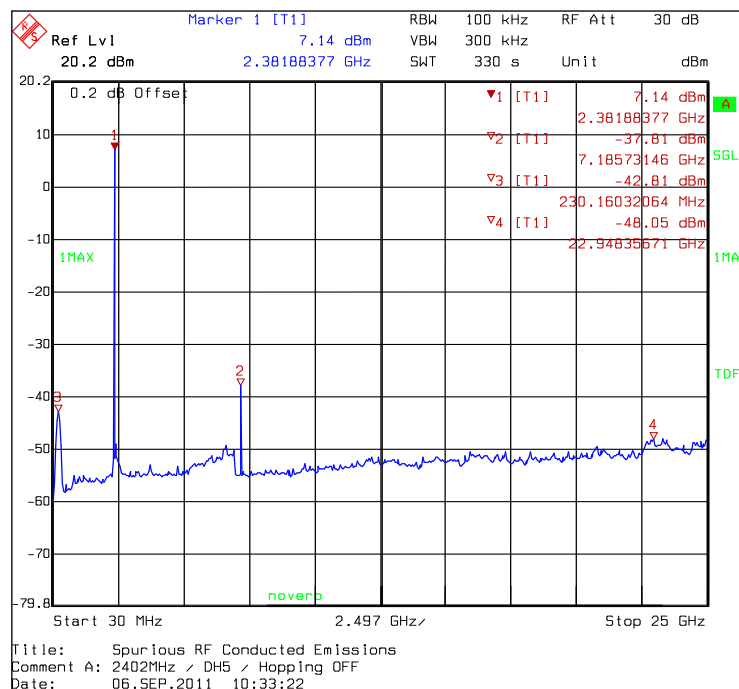
Limits for spurious RF conducted emissions measurements

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

5.2. Bluetooth Test results

5.2.1 GFSK modulation, PRBS packet type

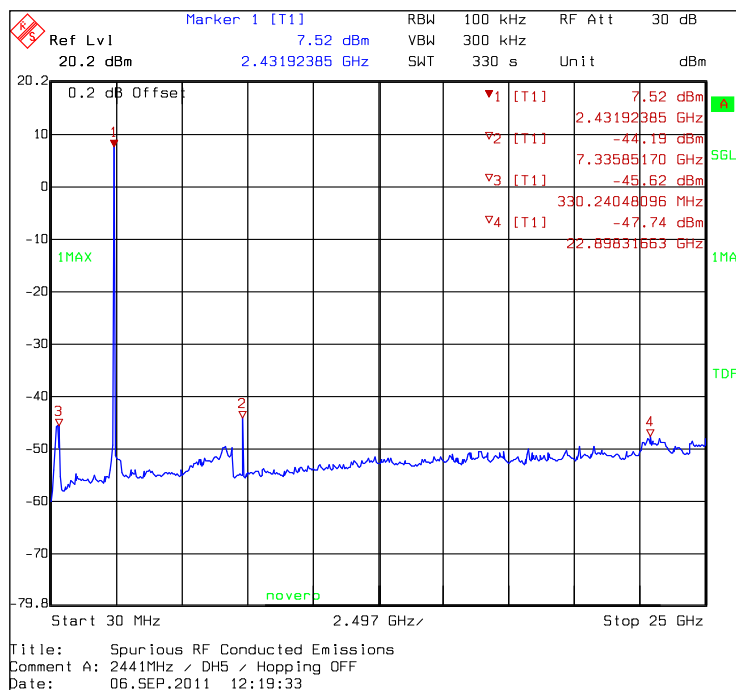
Channel 0 / 2402 MHz



Peak (RBW: 100 KHz)

Frequency [MHz]	P [dBc]	Result
230	-42-81	PASSED
7186	-37.81	PASSED
22948	-48.05	PASSED

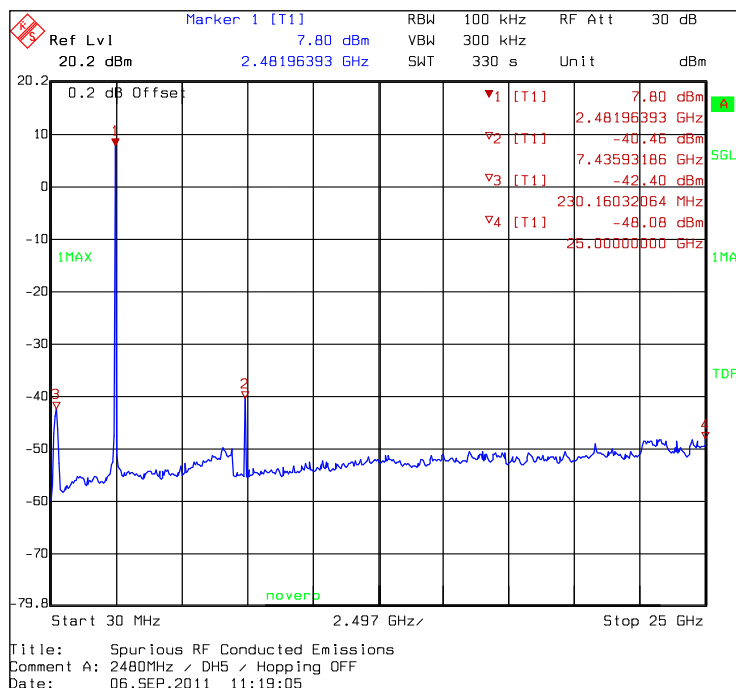
Channel 39 / 2441 MHz



Peak (RBW: 100 KHz)

Frequency [MHz]	P [dBc]	Result
330	-45.62	PASSED
7336	-44.19	PASSED
22898	-47.74	PASSED

Channel 78 / 2480 MHz

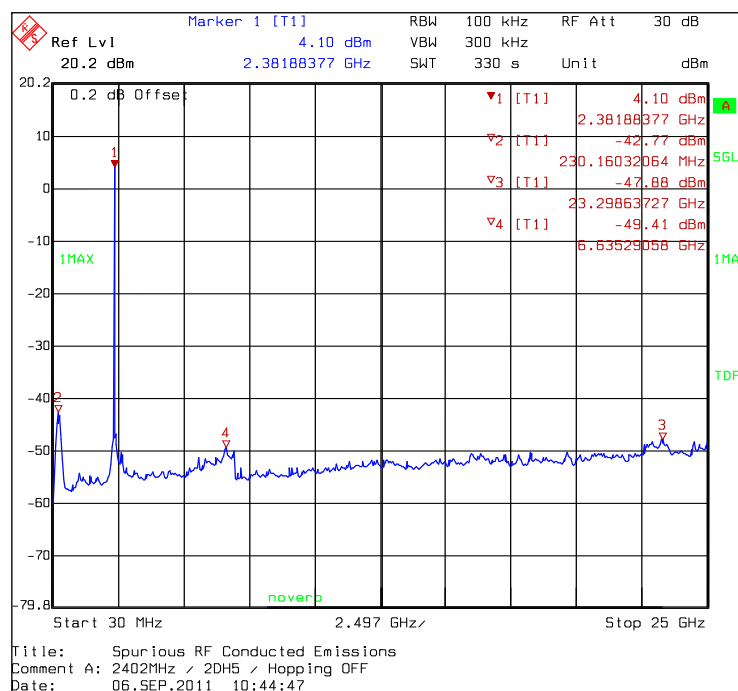


Peak (RBW: 100 KHz)

Frequency [MHz]	P [dBc]	Result
230	-42.40	PASSED
7436	-40.46	PASSED
25000	-48.08	PASSED

5.2.2 $\pi/4$ -DQPSK modulation, PRBS packet type

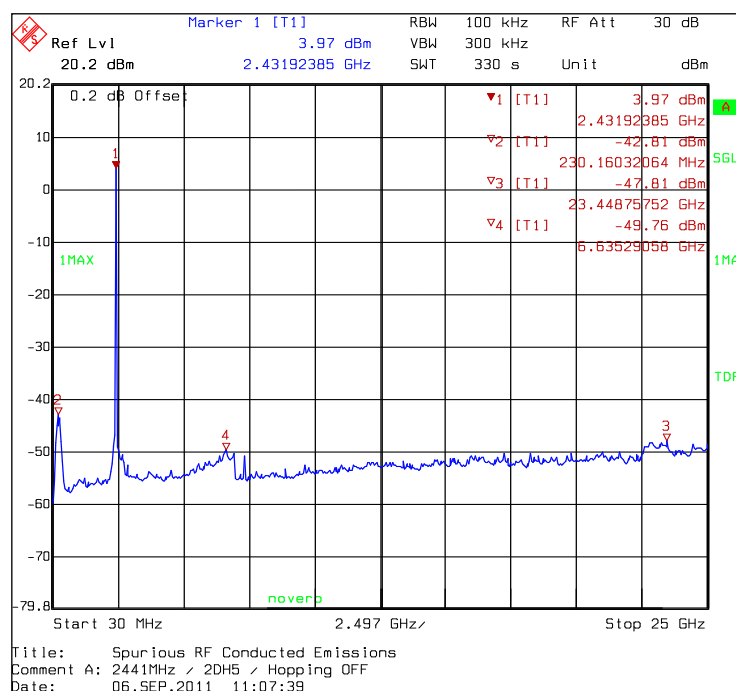
Channel 0 / 2402 MHz



Peak (RBW: 100 KHz)

Frequency [MHz]	P [dBc]	Result
230	-47.88	PASSED
6635	-49.41	PASSED
23299	-47.88	PASSED

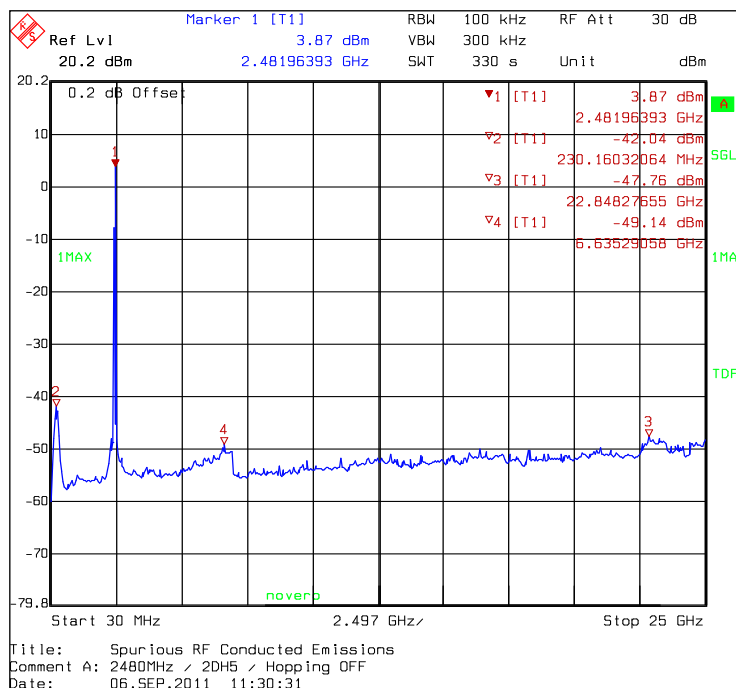
Channel 39 / 2441 MHz



Peak (RBW: 100 KHz)

Frequency [MHz]	P [dBc]	Result
230	-42.81	PASSED
6635	-49.76	PASSED
23449	-47.81	PASSED

Channel 78 / 2480 MHz



Peak (RBW: 100 KHz)

Frequency [MHz]	P [dBc]	Result
230	-42.04	PASSED
6635	-49.14	PASSED
22848	-47.76	PASSED

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

EUT with DUT number	DAV009
Accessories with DUT numbers	None
Operation Voltage [V] / [Hz]	Battery powered
Result	PASSED
Remarks	None
Temp [°C] / Humidity [%RH]	22.5 / 55.5
Date of measurements	13-Sep-2011
Measured by	Robert Müller

6.1. Test method and limit

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

Below 1GHz:

The Preliminary Measurement and the Final Measurement is performed in 3m distance by rotating the turntable of 360 degrees and moving the antenna height between 1-4m.

The Preliminary Measurement is performed with floor absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system.

The Final Measurement is performed without floor absorbers, if the Preliminary Measurement results are closer than 20 dB to the permissible limit.

Between 1-3GHz:

The Preliminary Measurement and the Final Measurement is performed in 3m distance by rotating the turntable of 360 degrees at fixed height.

The Preliminary Measurement and the Final Measurement with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system.

The Final Measurement is performed, if the Preliminary Measurement results are closer than 20 dB to the permissible limit.

Above 3GHz:

The Preliminary Measurement and the Final Measurement is performed in 1.5m distance by rotating the turntable of 360 degrees at fixed height.

The Preliminary Measurement and the Final Measurement with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system.

The Final Measurement is performed, if the Preliminary Measurement results are closer than 20 dB to the permissible limit.

General:

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

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

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

The measurement results are obtained as described below:

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

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

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

6.2. Bluetooth Test results

6.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB $\mu V/m$]	E [$\mu V/m$]	U_{RX} [dB μV]	A_{CF} [dB]	Polarisation	Result
4803.61	40.80	110	56.70	-15.90	HORIZONTAL	PASSED
7206.41	46.20	204	56.50	-10.30	HORIZONTAL	PASSED
17408.81	54.70	543	50.80	3.90	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB $\mu V/m$]	E [$\mu V/m$]	U_{RX} [dB μV]	A_{CF} [dB]	Polarisation	Result
4803.61	27.50	23.7	43.40	-15.90	HORIZONTAL	PASSED
7206.41	33.10	45.2	43.40	-10.30	HORIZONTAL	PASSED
17408.31	41.80	123	37.90	3.90	HORIZONTAL	PASSED

No further emissions found less than 20dB to the regulatory limit

Channel 39 / 2441 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U _{RX} [dBµV]	A _{CF} [dB]	Polarisation	Result
197.29	5.70	1.93	39.10	-33.40	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U _{RX} [dBµV]	A _{CF} [dB]	Polarisation	Result
4881.77	42.30	130	58.50	-16.20	HORIZONTAL	PASSED
7323.65	46.10	202	54.90	-8.80	HORIZONTAL	PASSED
17426.86	54.40	525	50.30	4.10	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U _{RX} [dBµV]	A _{CF} [dB]	Polarisation	Result
4881.77	27.40	23.4	43.60	-16.20	HORIZONTAL	PASSED
7322.65	32.50	42.2	41.30	-8.80	HORIZONTAL	PASSED
17425.86	41.50	119	37.40	4.10	VERTICAL	PASSED

No further emissions found less than 20dB to the regulatory limit

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U _{RX} [dBµV]	A _{CF} [dB]	Polarisation	Result
4959.92	41.10	114	57.10	-16.00	HORIZONTAL	PASSED
7440.38	48.80	275	55.60	-6.80	HORIZONTAL	PASSED
17426.35	54.70	543	50.60	4.10	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U _{RX} [dBµV]	A _{CF} [dB]	Polarisation	Result
4959.42	26.20	20.4	42.20	-16.00	HORIZONTAL	PASSED
7439.38	35.40	58.9	42.30	-6.90	HORIZONTAL	PASSED
17425.85	41.20	115	37.10	4.10	VERTICAL	PASSED

No further emissions found less than 20dB to the regulatory limit

6.2.2 $\pi/4$ -DQPSK modulation, PRBS packet type

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{CF} [dB]	Polarisation	Result
4803.61	38.90	88.10	54.80	-15.90	HORIZONTAL	PASSED
17747.99	54.50	531.00	48.80	5.70	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{CF} [dB]	Polarisation	Result
4807.11	25.00	17.80	41.00	-16.00	HORIZONTAL	PASSED
17748.99	41.10	114.00	35.40	5.70	HORIZONTAL	PASSED

No further emissions found less than 20dB to the regulatory limit

Channel 39 / 2441 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{CF} [dB]	Polarisation	Result
197.29	5.70	1.93	39.10	-33.40	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{CF} [dB]	Polarisation	Result
4921.35	38.70	86.10	55.00	-16.30	HORIZONTAL	PASSED
17747.99	54.50	531.00	48.80	5.70	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{CF} [dB]	Polarisation	Result
4925.85	25.40	18.60	41.70	-16.30	HORIZONTAL	PASSED
17748.99	41.10	114.00	35.40	5.70	HORIZONTAL	PASSED

No further emissions found less than 20dB to the regulatory limit

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{CF} [dB]	Polarisation	Result
4961.42	38.40	83.20	54.40	-16.00	VERTICAL	PASSED
17696.39	54.70	543.00	49.00	5.70	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{CF} [dB]	Polarisation	Result
4960.42	25.40	18.60	41.40	-16.00	VERTICAL	PASSED
17693.89	41.20	115.00	35.50	5.70	HORIZONTAL	PASSED

No further emissions found less than 20dB to the regulatory limit

7. 20 dB bandwidth

(FCC §15.247(a)(1), RSS-210 A8.1 (a))

EUT with DUT number	DAV015
Accessories with DUT numbers	None
Operation Voltage [V] / [Hz]	3.7 / DC
Result	PASSED
Remarks	None
Temp [°C] / Humidity [%RH]	25 / 50
Date of measurements	06-Sep-2011
Measured by	Robert Müller

7.1. 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

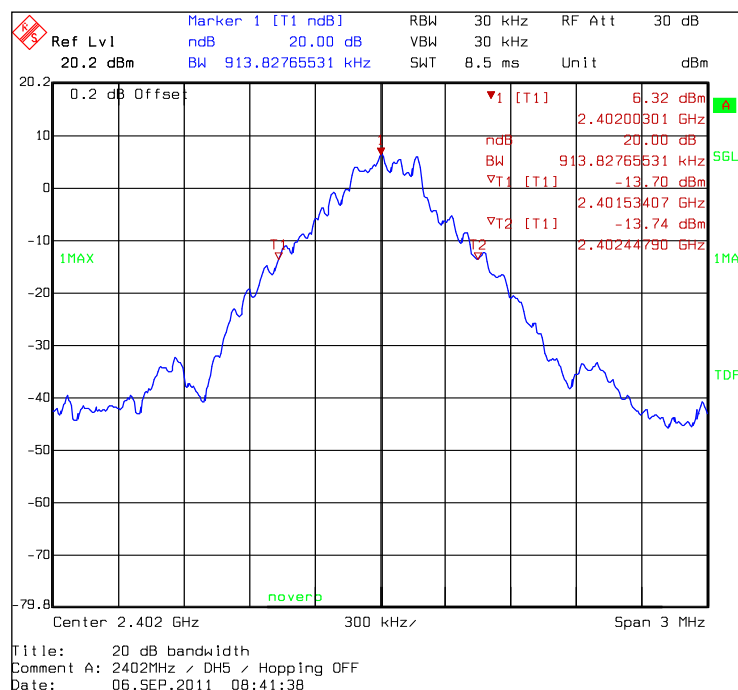
Limit [MHz]
N/A

7.2. Bluetooth Test results

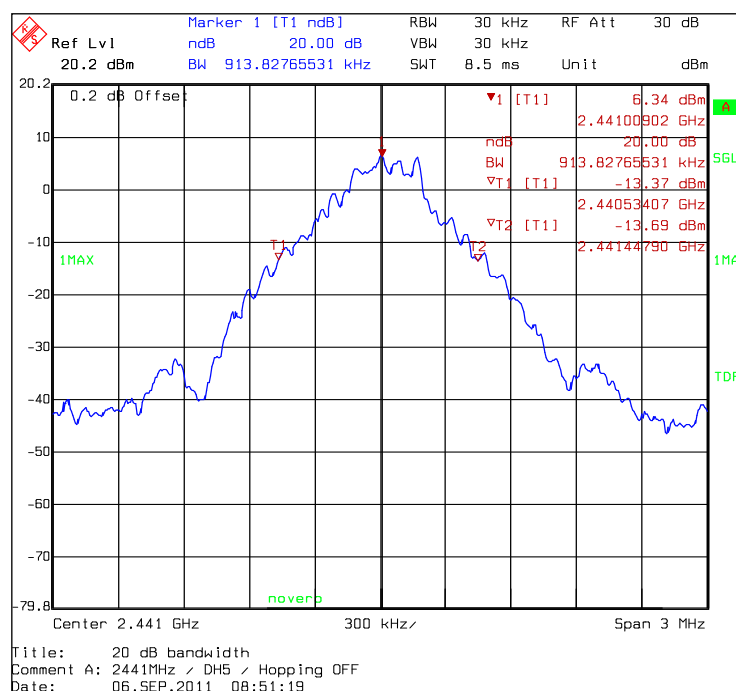
7.2.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	913.83	PASSED
39 / 2442	913.83	PASSED
78 / 2480	913.83	PASSED

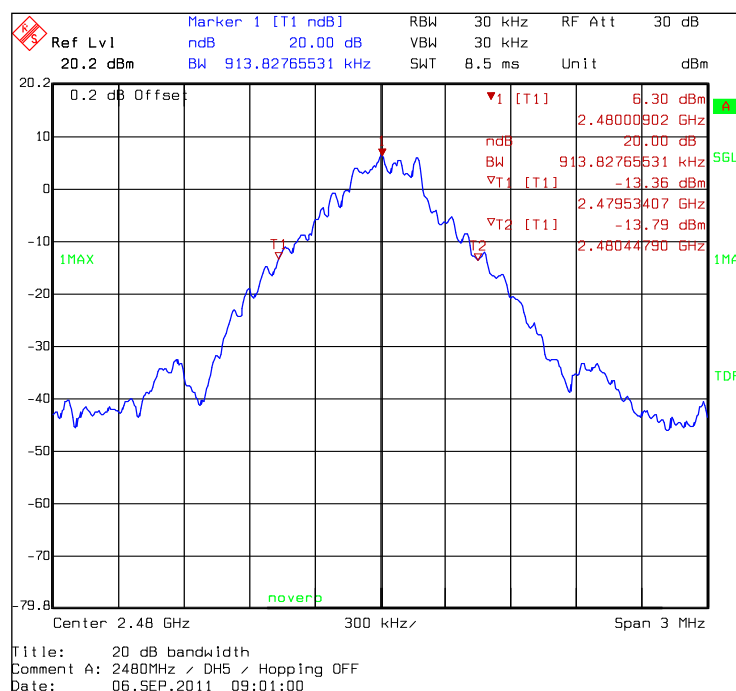
Channel 0 / 2402 MHz



Channel 39 / 2442 MHz



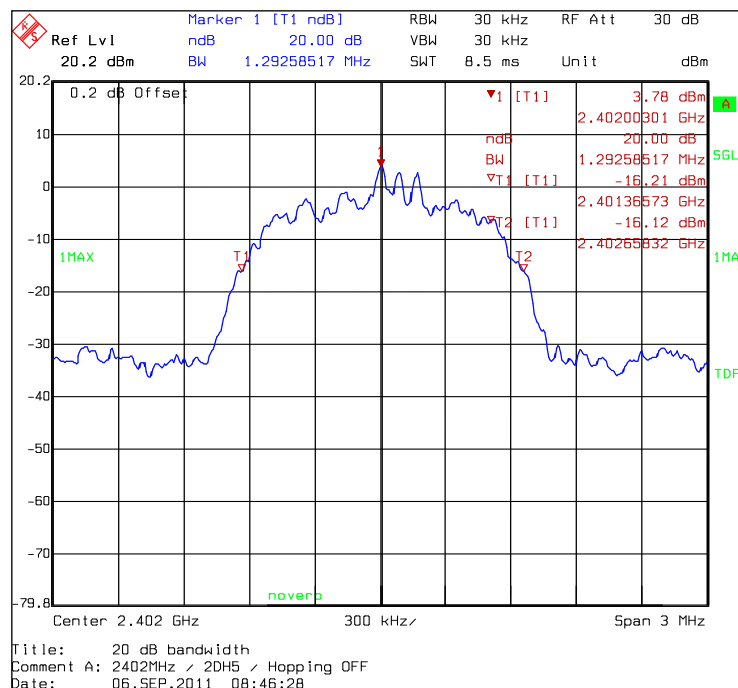
Channel 78 / 2480 MHz



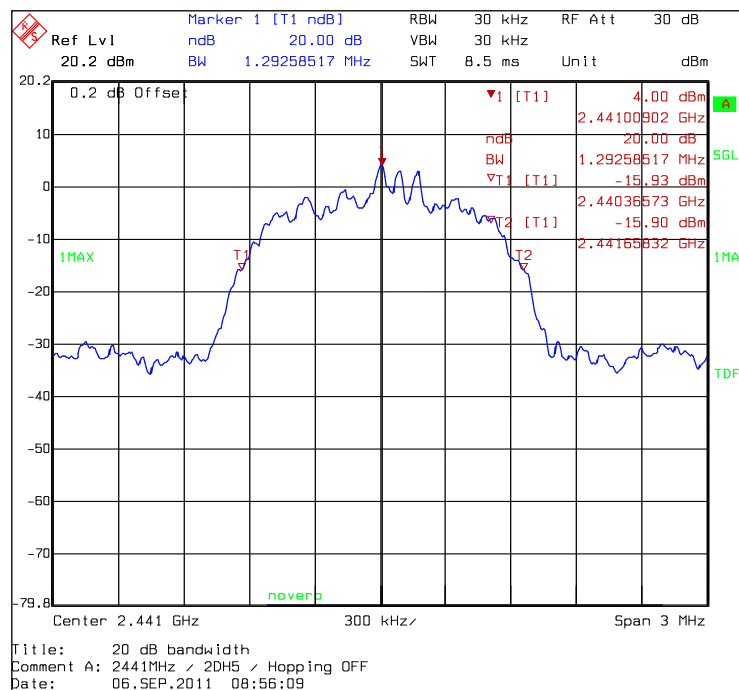
7.2.2 $\pi/4$ -DQPSK modulation, PRBS packet type

Channel / f _c [MHz]	20 dB bandwidth [kHz]	Result
0 / 2402	1293	PASSED
39 / 2441	1293	PASSED
78 / 2480	1293	PASSED

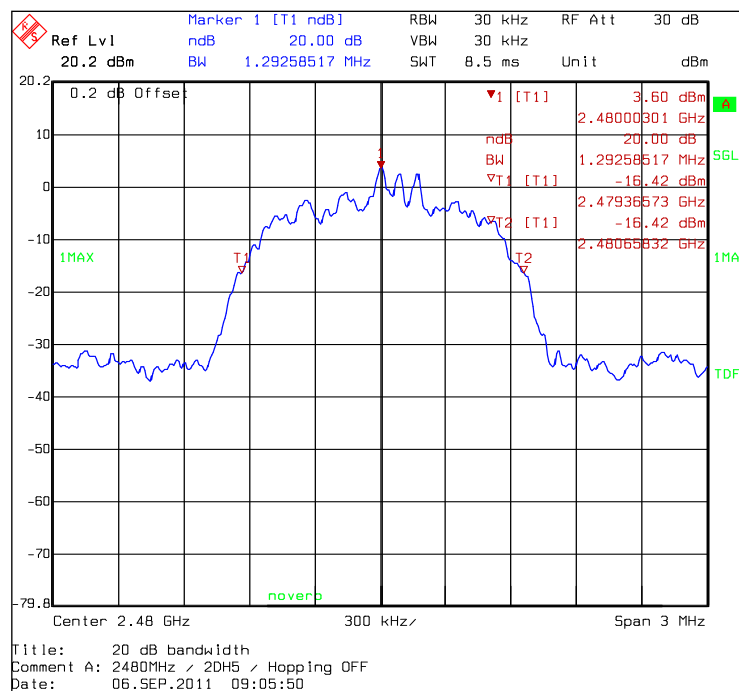
Channel 0 / 2402 MHz



Channel 39 / 2441 MHz



Channel 78 / 2480 MHz



8. Carrier frequency separation

(FCC §15.247(a)(1), RSS-210 A8.1 (b))

EUT with DUT number	DAV015
Accessories with DUT numbers	None
Operation Voltage [V] / [Hz]	3.7 / DC
Result	PASSED
Remarks	None
Temp [°C] / Humidity [%RH]	25 / 50
Date of measurements	06-Sep-2011
Measured by	Robert Müller

8.1. 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

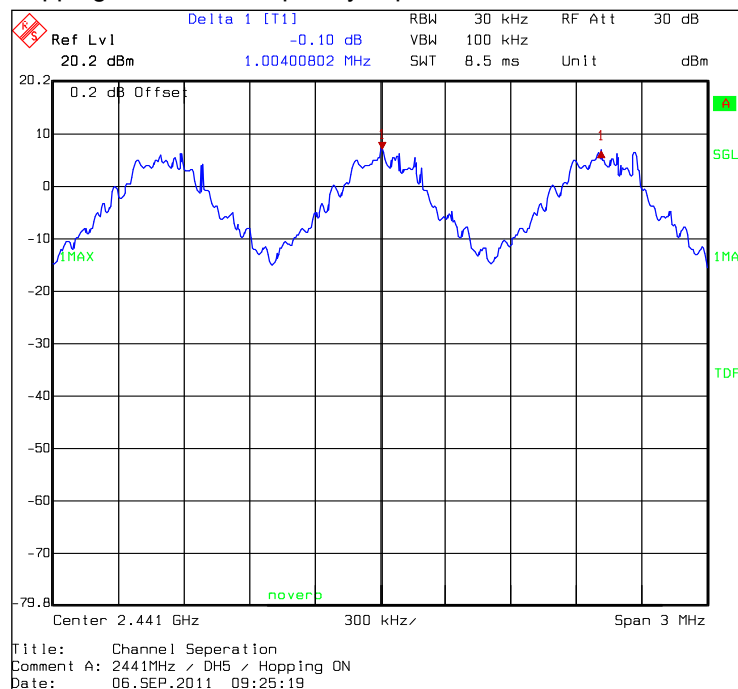
Limit [MHz]
≥ 0.025 or $2/3$ of the 20 dB bandwidth

8.2. Bluetooth Test results

8.2.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1004	PASSED

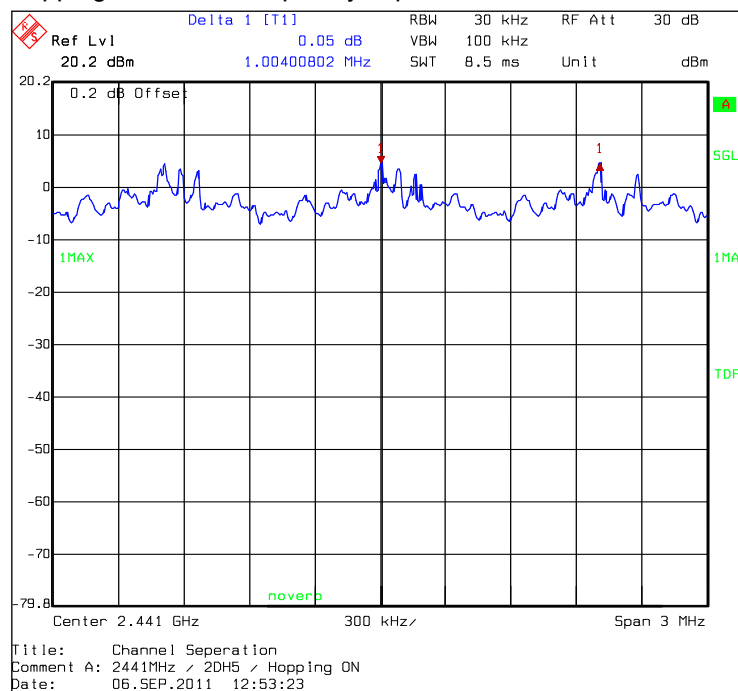
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 39 / 2442 MHz



8.2.2 $\pi/4$ -DQPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1004	PASSED

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



9. Number of hopping frequencies

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

EUT with DUT number	DAV015
Accessories with DUT numbers	None
Operation Voltage [V] / [Hz]	3.7 / DC
Result	PASSED
Remarks	None
Temp [°C] / Humidity [%RH]	25 / 50
Date of measurements	06-Sep-2011
Measured by	Robert Müller

9.1. 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

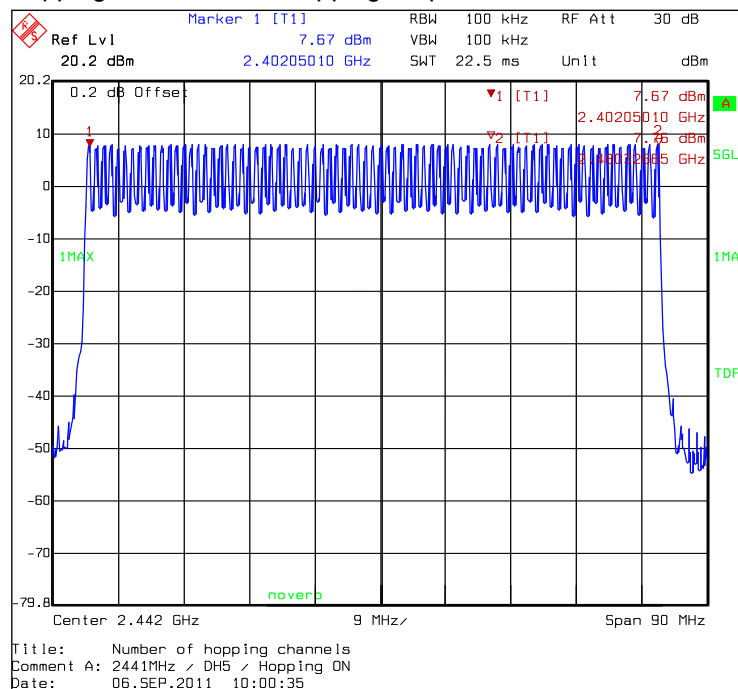
Limit [number]
≥ 15

9.2. Bluetooth Test results

9.2.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
79	PASSED

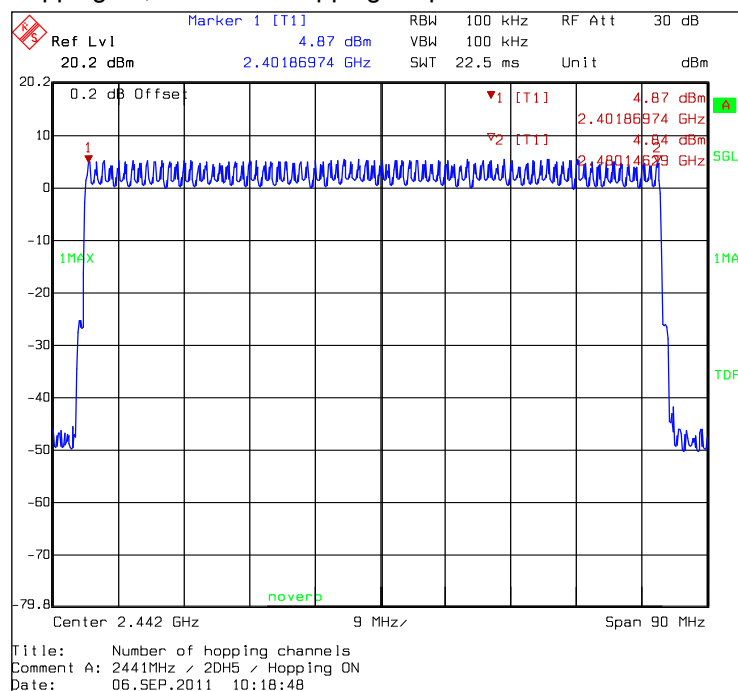
Hopping on, number of hopping frequencies



9.2.2 $\pi/4$ -DQPSK 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	DAV015
Accessories with DUT numbers	None
Operation Voltage [V] / [Hz]	3.7 / DC
Result	PASSED
Remarks	None
Temp [°C] / Humidity [%RH]	25 / 50
Date of measurements	06-Sep-2011
Measured by	Robert Müller

10.1. 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

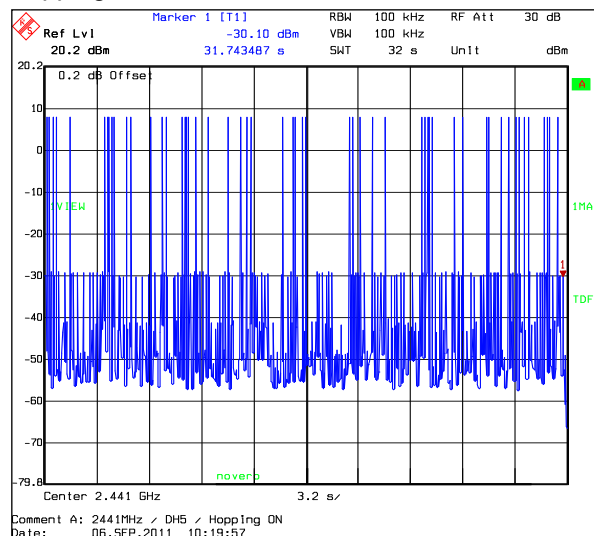
Limit [s]
≤ 0.4

10.2. Bluetooth test results

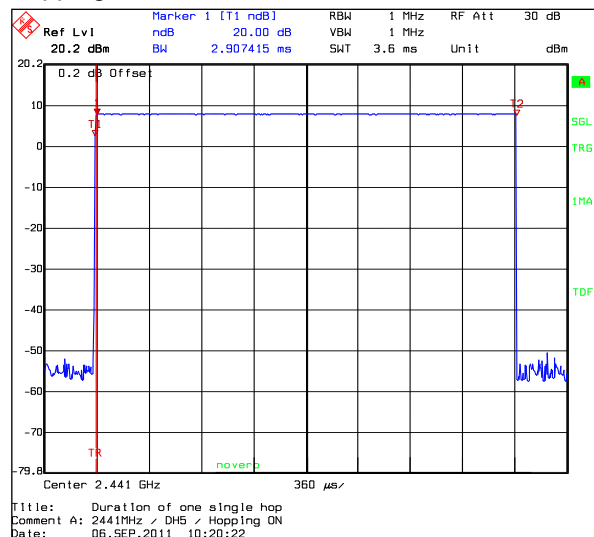
10.2.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μs]	Time of occupancy [s]	Result
51	2907	0.148257	PASSED

Hopping on, number of transmissions, channel 39 / 2441 MHz, DH5



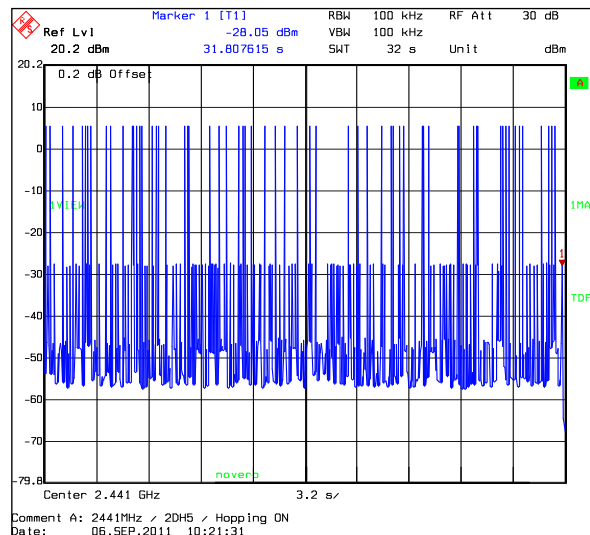
Hopping on, duration of one transmission, channel 39 / 2441 MHz, DH5



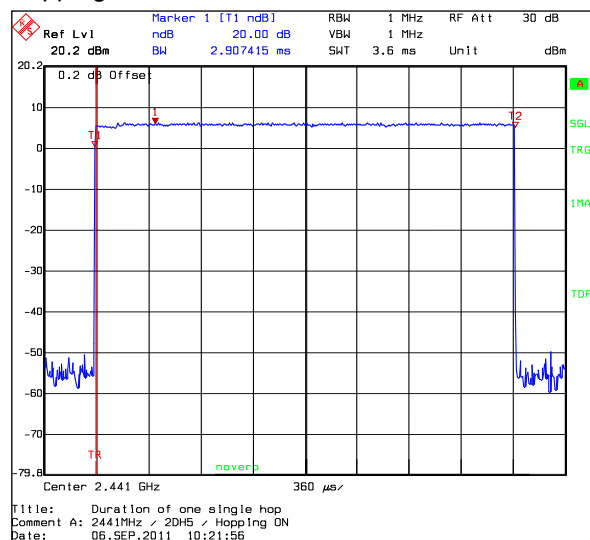
10.2.2 $\pi/4$ -DQPSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [μ s]	Time of occupancy [s]	Result
58	2907	0.16863007	PASSED

Hopping on, number of transmissions, channel 39 / 2441 MHz



Hopping on, duration of one transmission, channel 39 / 2441 MHz



11. Test Equipment

11.1. Conducted measurements

Equipment	Type	Manufacturer	Calibrated	Cycle [Years]
EMI Test Receiver	ESCS 30	R&S	May 2011	1
LISN 50 µH	ESH3-Z5	R&S	Jul 2011	1
LISN 50 µH	ESH3-Z5	R&S	Jul 2011	1
V network	ESH3-Z6	R&S	May 2011	1
V network	ESH3-Z6	R&S	May 2011	1
T-ISN	ISN T800	Teseq	Jul 2010	2
Thermo- Hygrograph	OPUS 10	Lufft	Jun 2011	2
EM Injection clamp	F-33-1	Fischer	Feb 2011	2
Signal generator	SML01	R&S	Feb 2010	2
Digital Radio Communication Tester	CMU200	R&S	Feb 2010	2
Bluetooth Tester	MT8850A	Anritsu	Feb 2010	2
RF Emission Software	ES-K1 v.1.71	R&S	n.a.	--
EMI Test Receiver	FSEM30	R&S	Jul 2011	1
Temperature Test system	VT4004	Vötsch	May 2010	2
Power Supply	E3632A	Agilent	May 2011	2
Signal generator	SMP02	R&S	Jun 2011	2
Bluetooth/WLAN Tester	N 4010 A	Agilent	May 2011	2
RF Radio Software	RADIO	novero	n.a.	--

11.2. Radiated measurements

Equipment	Type	Manufacturer	Calibrated	Cycle [Years]
Controller	2090	ETS	n.a.	--
MAST	2075	ETS	n.a.	--
Ultra Broadband Antenna	HL562	R&S	May 2009	3
Digital Radio Communication Tester	CMU200	R&S	Jul 2011	2
EMI Test receiver	ESIB26	R&S	May 2011	1
Yaesu controller	G-1000DXC	YAESU	n.a.	--
Computer controller (Yaesu)	GS-232B	YAESU	n.a.	--
Anechoic chamber	3 meter semi/full anechoic chamber	ETS Euroshield	Mar 2011	3
Horn Antenna	3115	EMCO	Jun 2009	3
Standard Horn Antenna	3160-09	EMCO	n.a.	--
Thermo- Hygrograph	OPUS 10	Lufft	Jun 2011	2
Band Reject Filter	WRCG 2400/2485 - 2375/2510 - 60/20EE	Wainwright	Jun 2011	1
Notch Filter GSM850	WRCD 800/880-0,2/40-5SSSD	Wainwright	Jun 2011	1
Notch Filter GSM1900	WRCD 1700/2000-0,2/40-5SSSD	Wainwright	Jun 2011	1
Bluetooth Tester	MT8850A	Anritsu	Feb 2010	2
RF Emission Software	ES-K1 v.1.71	R&S	n.a.	--