

FCC Part 15C Compliance Test Report

Test Report no.:	FCC15CWLAN_RM-885_07.docx	Date of Report:	27-Feb-2013
Number of pages:	45	Customer's Contact person:	Li Craig.K
Testing laboratory:	TCC Nokia Beijing Laboratory Beijing Economic and Technological Development Area No.5 Donghuan Zhonglu Beijing PRC China 100176 Tel. +86 10 8711 8888 Fax. +86 10 8711 4550	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.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-885 / Battery BP-4GWA / AC-Charger AC-50U / USB data cable CA-190CD / Headset WH-108		
FCC ID:	QTLA	IC:	
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2003), 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:			

Zou Ming, Engineer, EMC

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	29-Jan-2013
Testing completed	07-Feb-2013
The customer's contact person	Li Craig.K
Test Plan referred to	T:\Projects\RM-885\TestPlan\RS_testplan_RM-885_EMC_FCC.xlsm
Notes	-
Document name	FCC15CWLAN_RM-885_07.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-885	004402472085004	0203	-	1030.6300.1302.10055	53148
Battery	BP-4GWA	2L0648BM044UK20A	2.0	-	-	53146
AC-Charger	AC-50U	4090492342270514284;0675620	-	-	-	53130
USB data cable	CA-190CD	07304562453Y2F	-	-	-	53139
Headset	WH-108	2483171	-	-	-	53143
Phone	RM-885	004402472083926	0203	-	1030.6300.1302.10055	53120
Battery	BP-4GWA	-	2.0	-	-	53128
Phone	RM-885	004402472084890	0203	-	1030.6300.1302.10055	53118
Battery	BP-4GWA	-	2.0	-	-	53125
AC-Charger	AC-50U	4090492342270514297;0675620	-	-	-	53129
USB data cable	CA-190CD	07304562453Y2F	-	-	-	53141
Headset	WH-108	2483171	-	-	-	53142

1.2. Summary of Test Results

WLAN:

Section in CFR 47	Section in RSS-GEN or RSS-210	Name of the test	Result
15.247(b)(1)	A8(0.4(4))	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)(2)	A8(0.1(1))	6dB(bandwidth)	PASSED
15.247(e)	A8(0.1(2))	Power spectral density	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.

CONTENTS

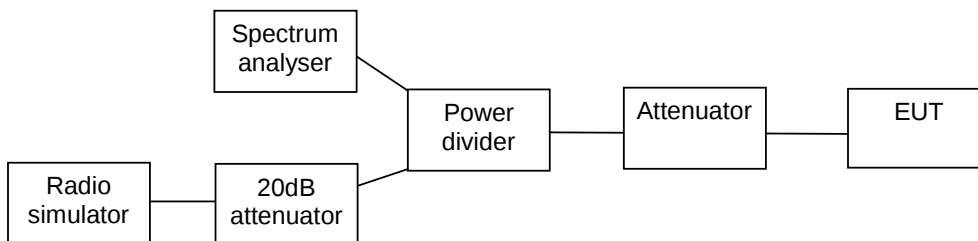
1. Summary for FCC Part 15C Compliance Test Report.....	2
1.1. EUT and Accessory Information.....	2
1.2. Summary of Test Results.....	2
2. Conducted peak output power (15.247(b)(1), RSS-210 A8.4 (4))	5
2.1. Test Setup.....	5
2.2. Test method and limit.....	5
2.3. Power results summary.....	6
2.4. WLAN Test results	6
3. Band edge compliance of RF emissions (FCC §15.247(d), 15.205(b), RSS-210 A8.5).....	12
3.2. Test method and limit.....	12
3.3. WLAN test results	13
4. Spurious RF conducted emissions (FCC §15.247(d), RSS-210 A8.5).....	19
4.1. Test Setup.....	19
4.2. Test method and limit.....	19
4.3. WLAN Test results	20
5. Spurious radiated emissions (FCC §15.247(d), §15.209, RSS-210 A8.5)	25
5.2. Test method and limit.....	25
6. AC powerline conducted emissions (FCC §15.207, RSS-GEN 7.2.2)	27
6.1. Test Setup.....	30
6.2. Test method and limit.....	30
6.3. WLAN Test results	31
7. 6 dB bandwidth (FCC §15.247(a)(2), RSS-210 A8.2 (1)).....	32
7.1. Test Setup.....	32
7.2. Test method and limit.....	32
7.3. WLAN Test results	33
8. Power spectral density (FCC §15.247(e), RSS-210 A8.2 (2))	38
8.1. Test Setup.....	38
8.2. Test method and limit.....	38
8.3. WLAN Test results	39

9. Test Equipment.....	44
9.1. Conducted measurements	44
9.2. Radiated measurements	44

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

EUT with DUT number	RM-885, DUT 53148
Accessories with DUT numbers	BP-4GWA, DUT 53146 ; AC-50U, DUT 53130 ; CA-190CD, DUT 53139 ; WH-108, DUT 53143
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21/37/102.6
Date of measurements	01-Feb-2013
Measured by	Gao Sherina

2.1. Test Setup



2.2. Test method and limit

The measurement is made according to DTS procedures KDB 558074 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

2.3. Power results summary

Channel / f_c [MHz]	Mode	Modulation	Data rate	Level [dBm]
1 / 2412	DSSS	QPSK	11 Mbps	20.19
6 / 2437	DSSS	QPSK	11 Mbps	20.07
11 / 2462	DSSS	QPSK	11 Mbps	19.87
1 / 2412	OFDM	BPSK	6 Mbps	17.97
6 / 2437	OFDM	BPSK	6 Mbps	21.48
11 / 2462	OFDM	BPSK	6 Mbps	18.05
1 / 2412	n-mode, 20 MHz CBW	BPSK	6.5 / 7.25 Mbps	18.7
6 / 2437	n-mode, 20 MHz CBW	BPSK	6.5 / 7.25 Mbps	21.48
11 / 2462	n-mode, 20 MHz CBW	BPSK	6.5 / 7.25 Mbps	18.72

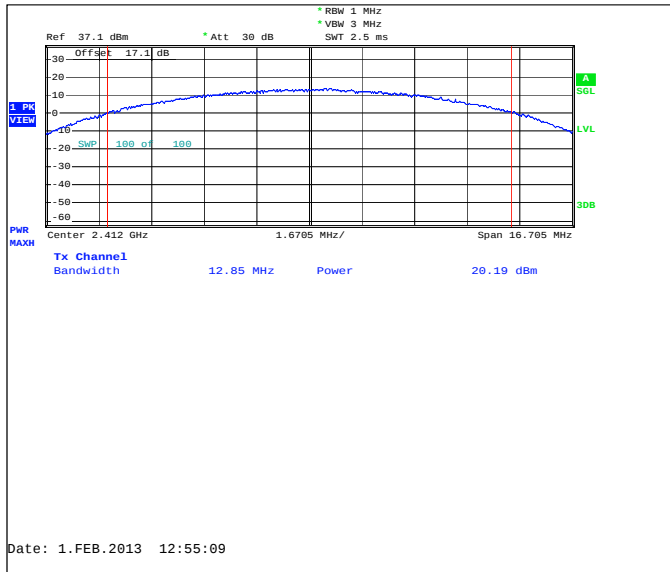
2.4. WLAN Test results

WLAN 2.4 GHz, peak output power [dBm]	
Mode & data speed	Ch 6
b-mode WLAN DSSS 1 Mbps	17.19
b-mode WLAN DSSS 2 Mbps	17.39
b-mode WLAN DSSS 5.5 Mbps	18.74
b-mode WLAN DSSS 11 Mbps	19.97
g-mode WLAN OFDM 6 Mbps	21.31
g-mode WLAN OFDM 9 Mbps	21.22
g-mode WLAN OFDM 12 Mbps	20.92
g-mode WLAN OFDM 18 Mbps	20.84
g-mode WLAN OFDM 24 Mbps	21.14
g-mode WLAN OFDM 36 Mbps	21.07
g-mode WLAN OFDM 48 Mbps	21.16
g-mode WLAN OFDM 54 Mbps	21.04

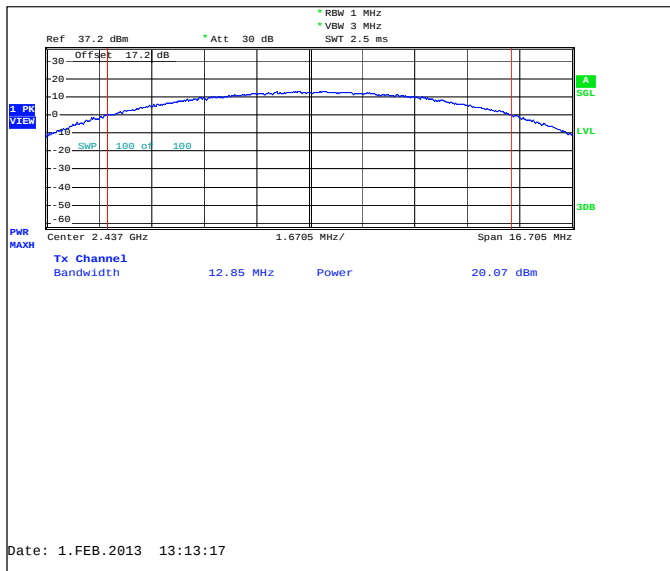
2.4.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
1 / 2412	20.19	104.472	PASSED
6 / 2437	20.07	101.625	PASSED
11 / 2462	19.87	97.051	PASSED

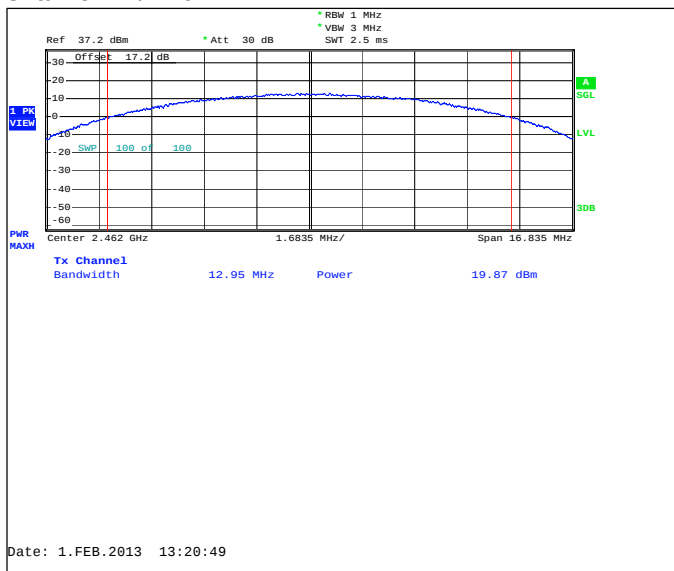
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



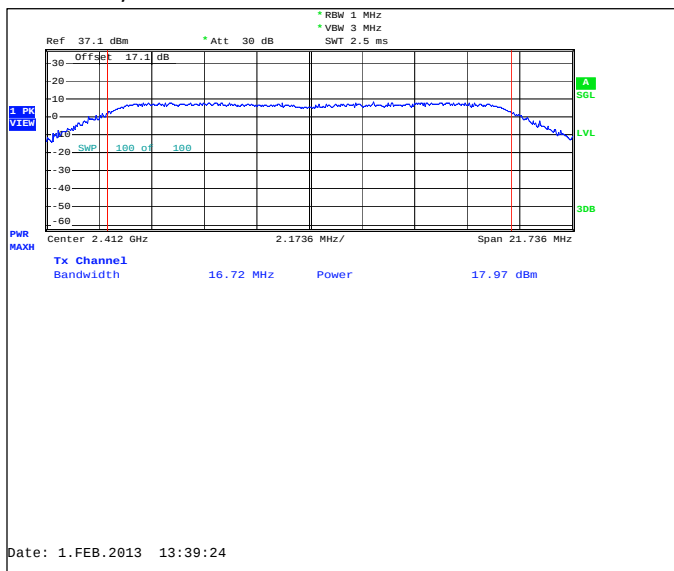
Channel 11 / 2462 MHz



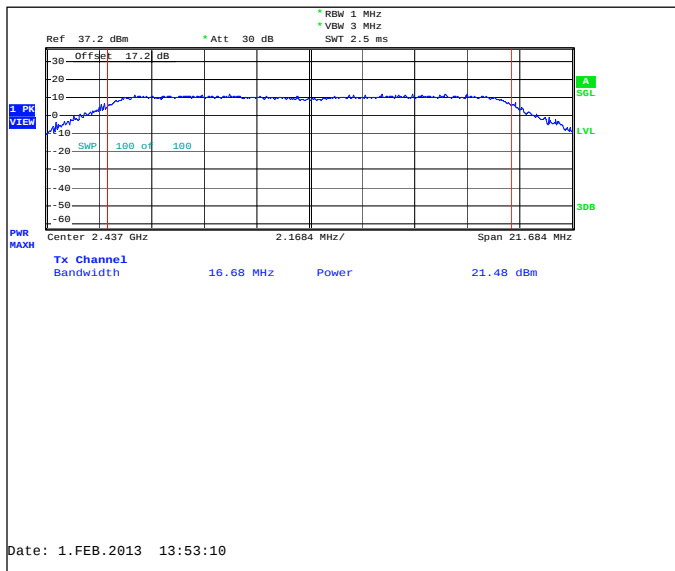
2.4.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f _C [MHz]	P [dBm]	P [mW]	Result
1 / 2412	17.97	62.661	PASSED
6 / 2437	21.48	140.605	PASSED
11 / 2462	18.05	63.826	PASSED

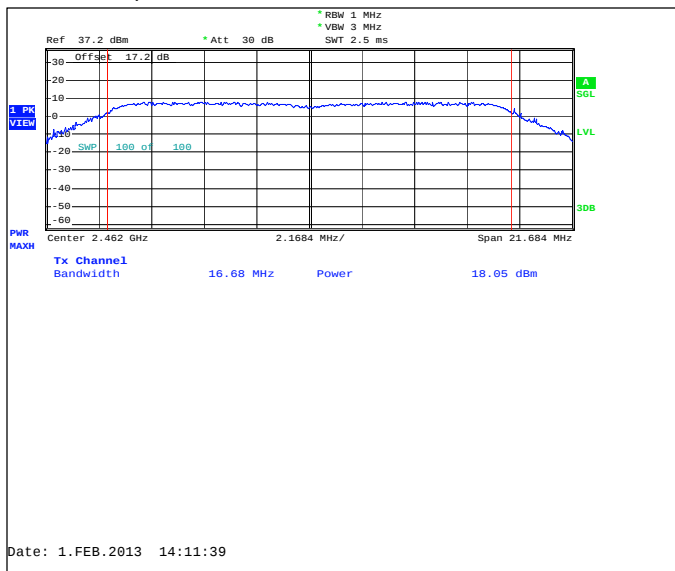
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



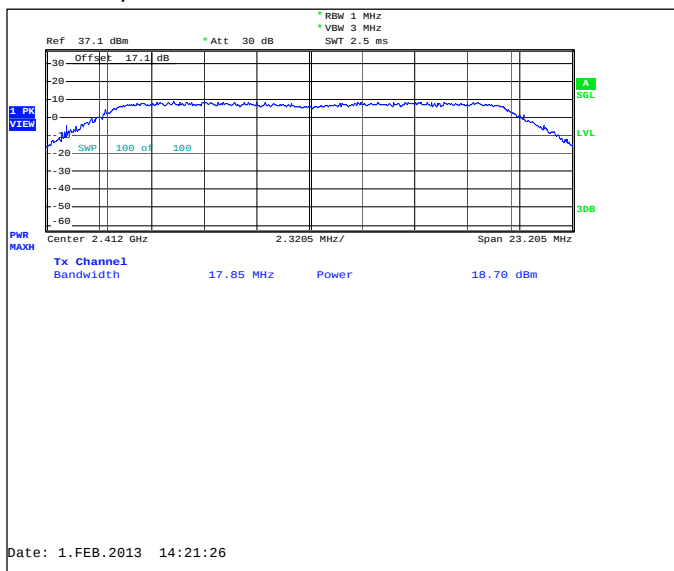
Channel 11 / 2462 MHz



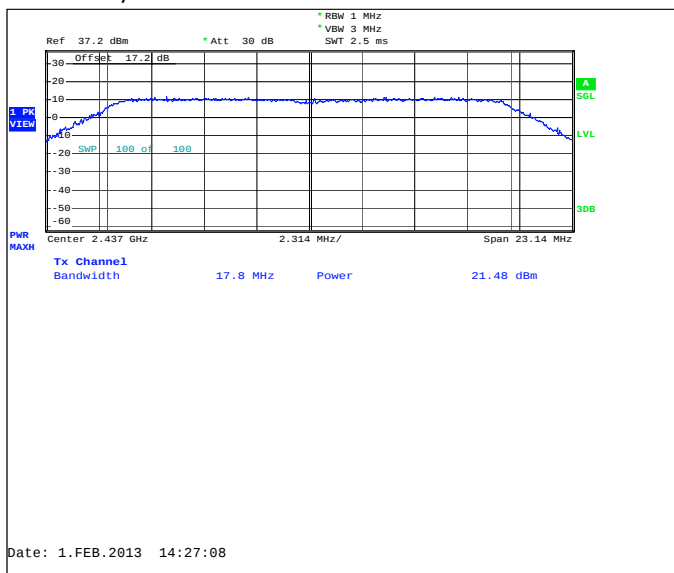
2.4.3 N-mode, 20 MHz CBW mode, BPSK modulation, 6.5 / 7.25 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
1 / 2412	18.7	74.131	PASSED
6 / 2437	21.48	140.605	PASSED
11 / 2462	18.72	74.473	PASSED

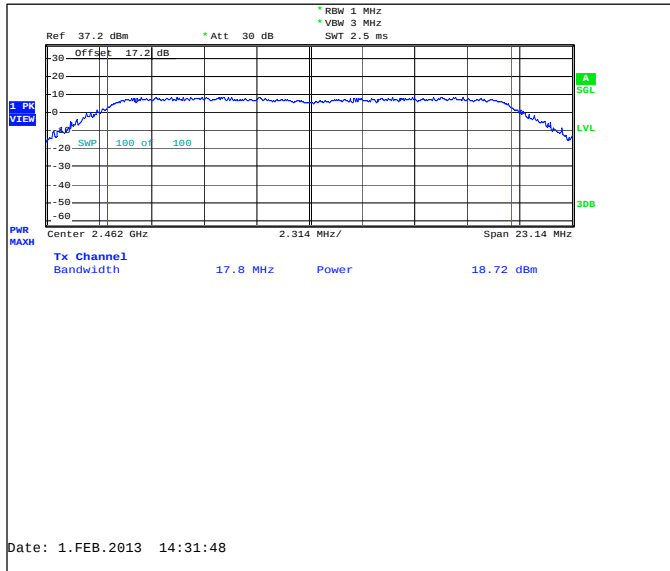
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



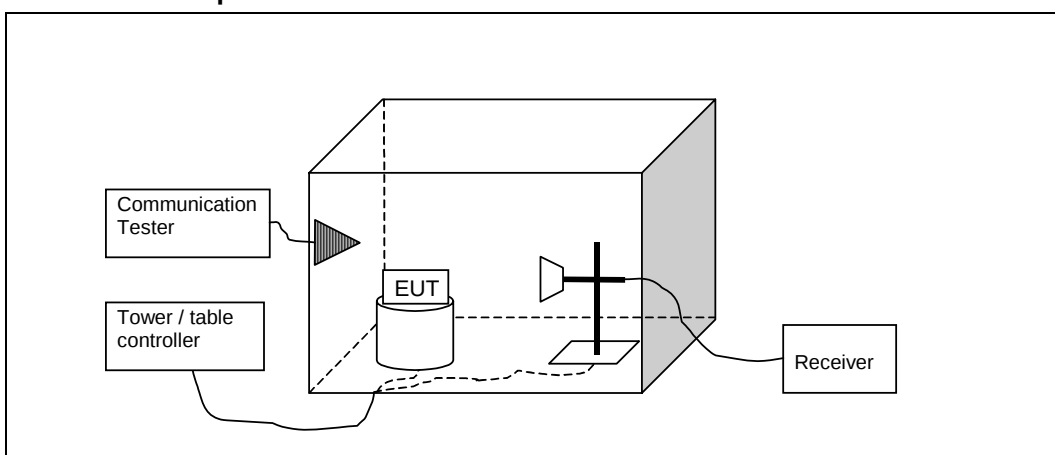
Channel 11 / 2462 MHz



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

EUT with DUT number	RM-885, DUT 53118
Accessories with DUT numbers	BP-4GWA, DUT 53125 ; AC-50U, DUT 53129 ; CA-190CD, DUT 53141 ;WH-108, DUT 53142
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 18 / 103.7
Date of measurements	07-Feb-2013
Measured by	Jia Dongsheng

3.1.1 Test setup



3.2. Test method and limit

The measurement is made according to DTS procedures KDB 558074 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 ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

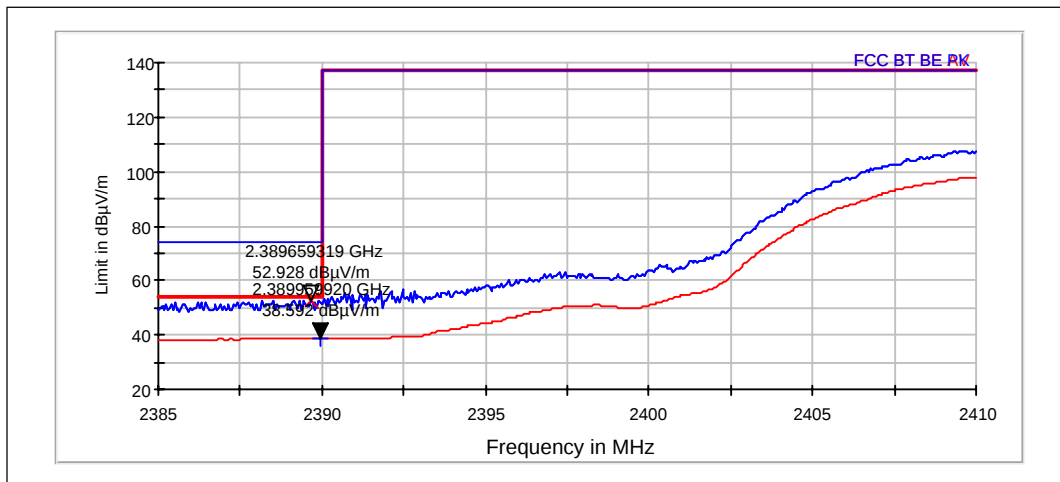
Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

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

3.3. WLAN test results

3.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate.

Channel 1 / 2412 MHz



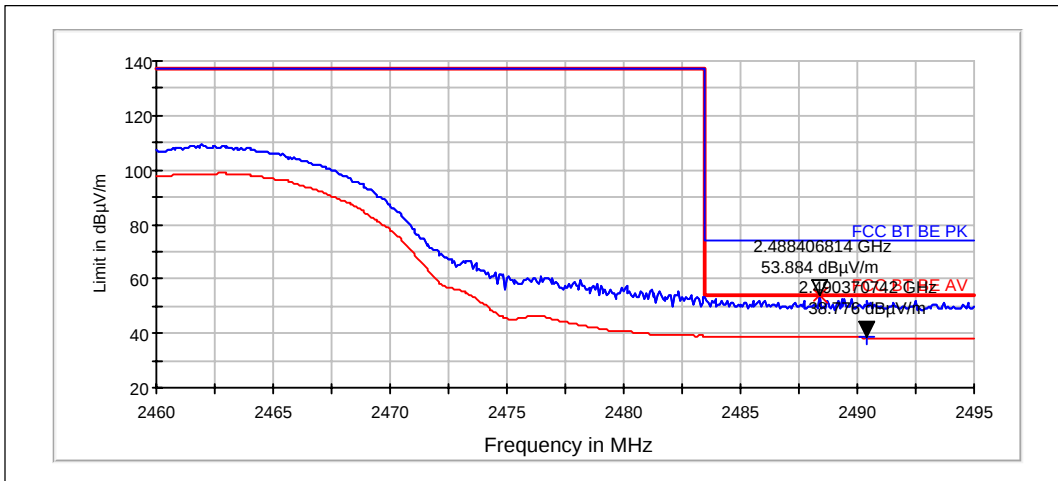
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	Peak [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2389.659	52.928	DSSS,QPSK	1	2412000000	1.217	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2389.96	38.592	DSSS,QPSK	1	2412000000	1.217	PASSED

Channel 11 / 2462 MHz



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

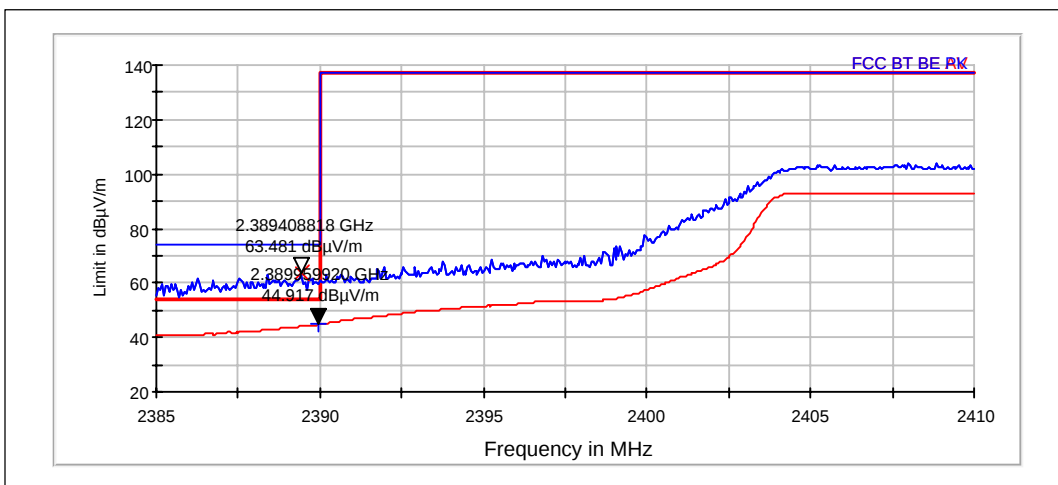
Frequency [MHz]	Peak [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2488.407	53.884	DSSS,QPSK	11	2462000000	1.372	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2490.371	38.776	DSSS,QPSK	11	2462000000	1.372	PASSED

3.3.2 OFDM mode, BPSK modulation, 6 Mbps data rate.

Channel 1 / 2412 MHz



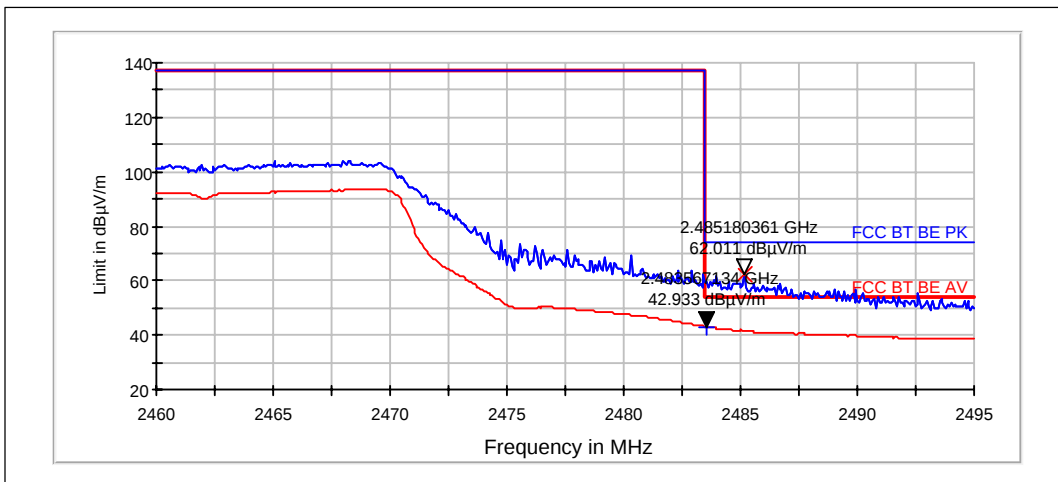
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	Peak [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2389.409	63.401	OFDM,BPSK	1	2412000000	1.217	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2389.96	44.917	OFDM,BPSK	1	2412000000	1.217	PASSED

Channel 11 / 2462 MHz



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

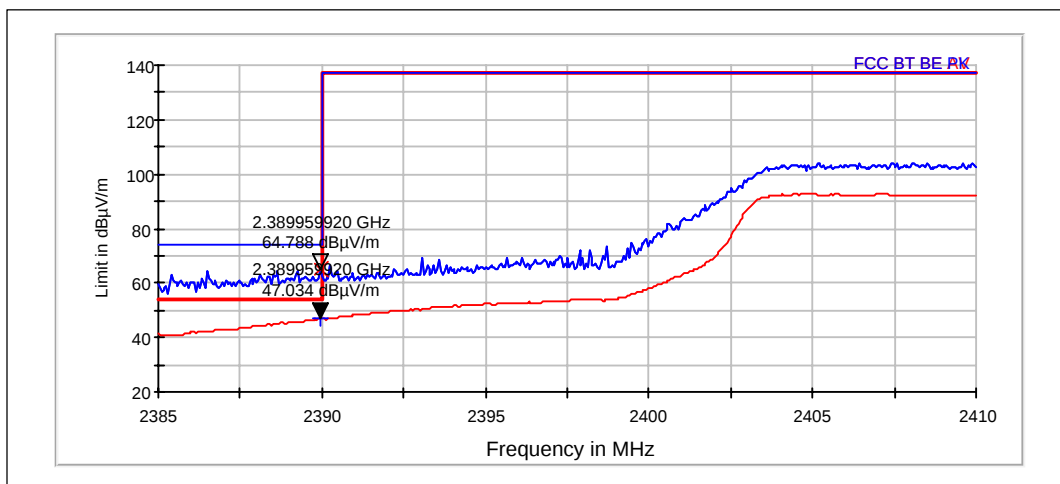
Frequency [MHz]	Peak [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2485.18	62.011	OFDM,BPSK	11	2462000000	1.372	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2483.567	42.933	OFDM,BPSK	11	2462000000	1.372	PASSED

3.3.3 N-mode, 20 MHz CBW, BPSK modulation, 6.5 / 7.25 Mbps data rate.

Channel 1 / 2412 MHz



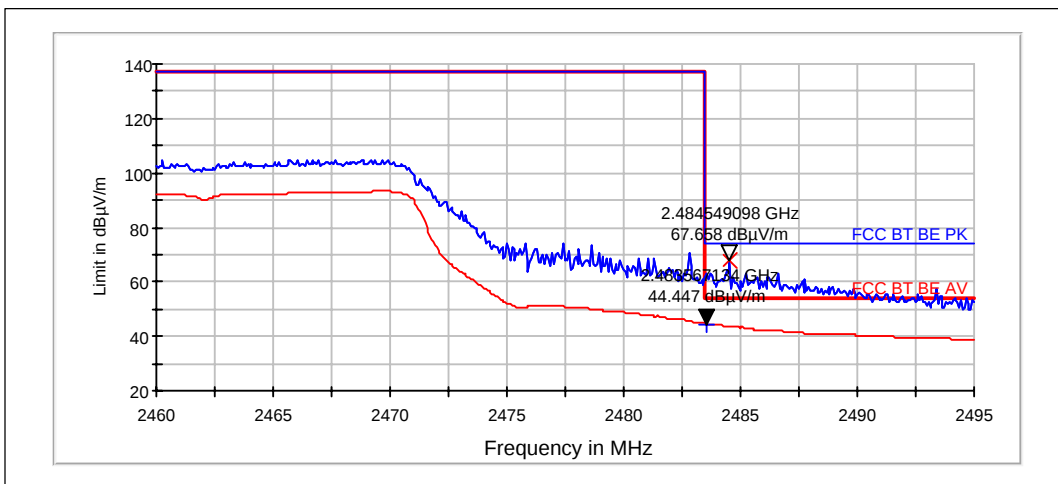
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	Peak [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2389.96	64.788	N-mode, BPSK	1	2412000000	1.217	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2389.96	47.034	N-mode, BPSK	1	2412000000	1.217	PASSED

Channel 11 / 2462 MHz



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

Frequency [MHz]	Peak [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2484.549	67.658	N-mode, BPSK	11	2462000000	1.372	PASSED

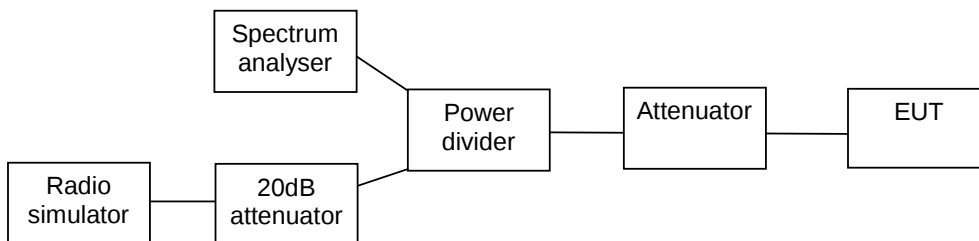
Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	Average [dBμV/m]	Mode	Channel number	Channel frequency	Correction [dB]	Results
2483.567	44.447	N-mode, BPSK	11	2462000000	1.372	PASSED

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

EUT with DUT number	RM-885, DUT 53148
Accessories with DUT numbers	BP-4GWA, DUT 53146 ; AC-50U, DUT 53130 ; CA-190CD, DUT 53139 ; WH-108, DUT 53143
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21/37/102.6
Date of measurements	01-Feb-2013
Measured by	Gao Sherina

4.1. Test Setup



4.2. Test method and limit

The measurement is made according to Public notice KDB 558 074 and IC standard RSS-210.

The reference level for the -20 dBc measurement was obtained as instructed in section 5.4.1.1 of the KDB 558074, using 5-30 % wider span than the EBW.

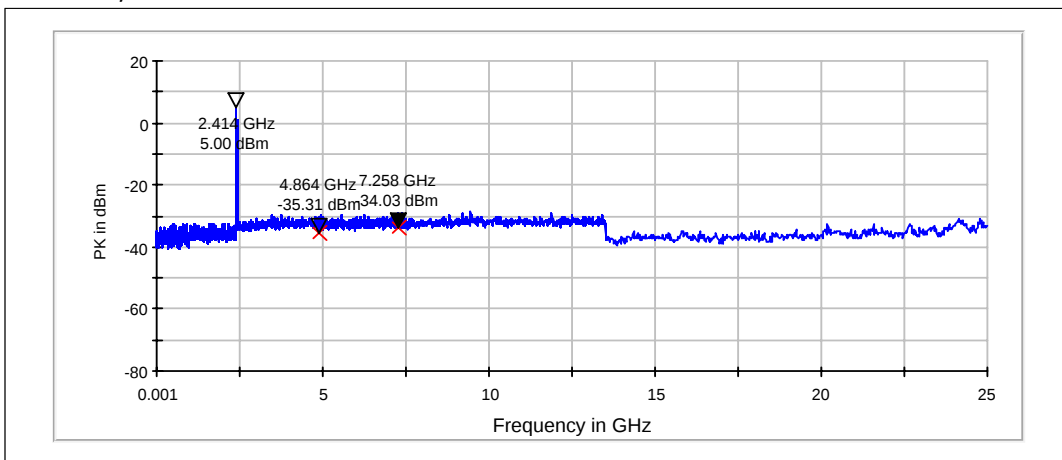
Limits for spurious RF conducted emissions measurements

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

4.3. WLAN Test results

4.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

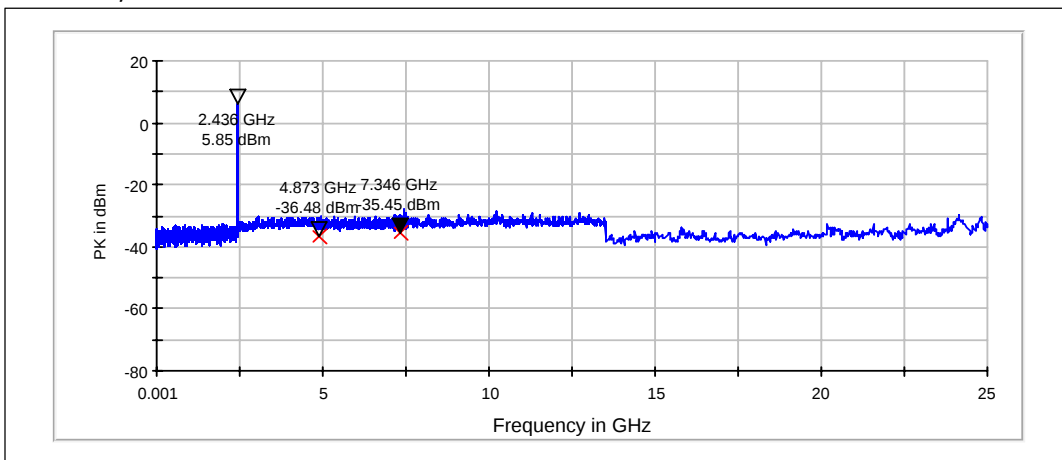
Channel 1 / 2412 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4864.400	-35.31	PASSED
7257.600	-34.03	PASSED

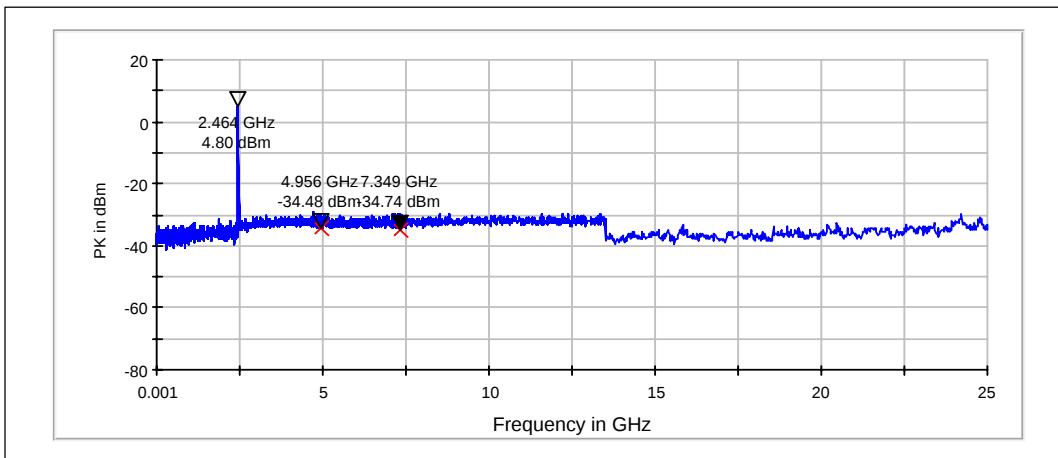
Channel 6 / 2437 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4872.800	-36.48	PASSED
7346.400	-35.45	PASSED

Channel 11 / 2462 MHz

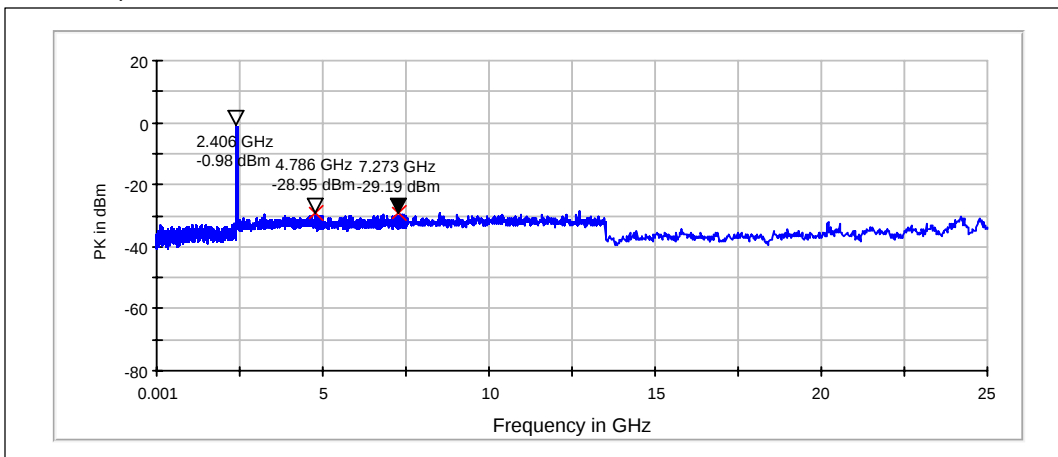


Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4956.000	-34.48	PASSED
7348.800	-34.74	PASSED

4.3.2 OFDM mode, BPSK modulation, 6 Mbps data rate

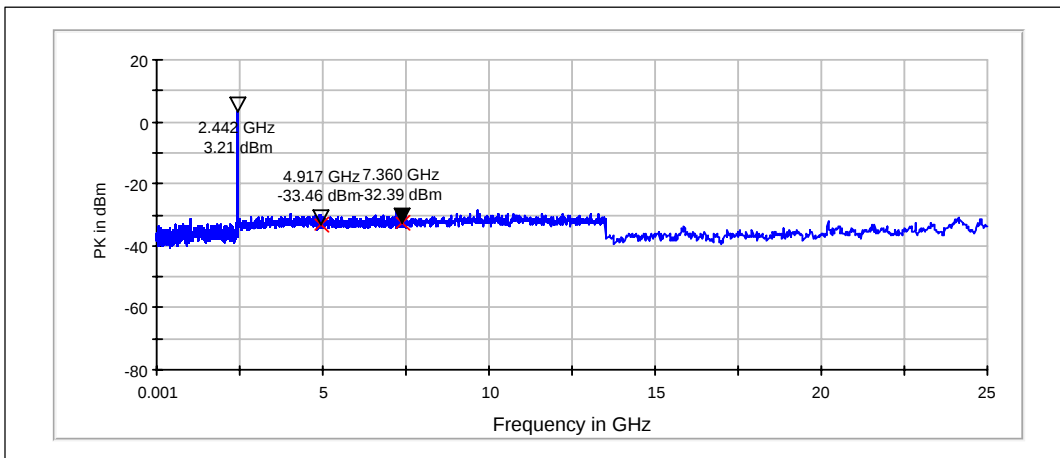
Channel 1 / 2412 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4785.720	-28.95	PASSED
7272.600	-29.19	PASSED

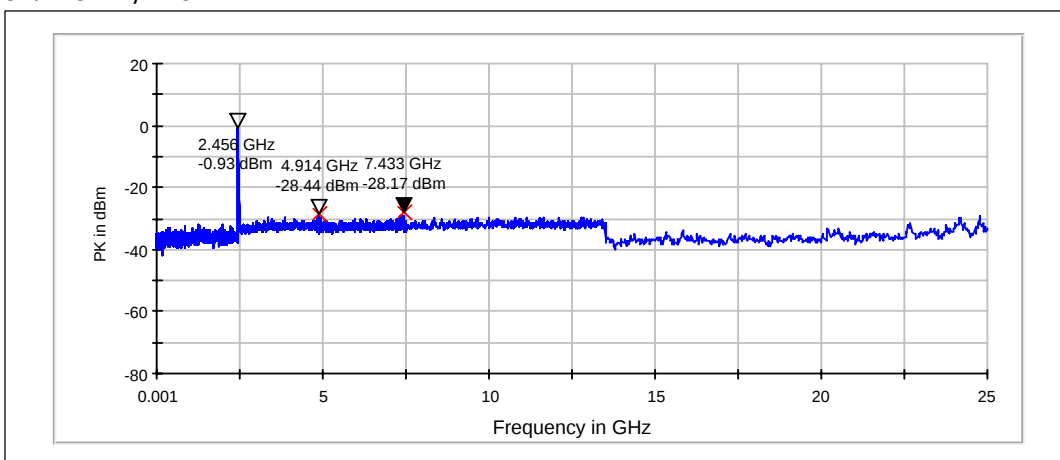
Channel 6 / 2437 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4917.200	-33.46	PASSED
7359.600	-32.39	PASSED

Channel 11 / 2462 MHz

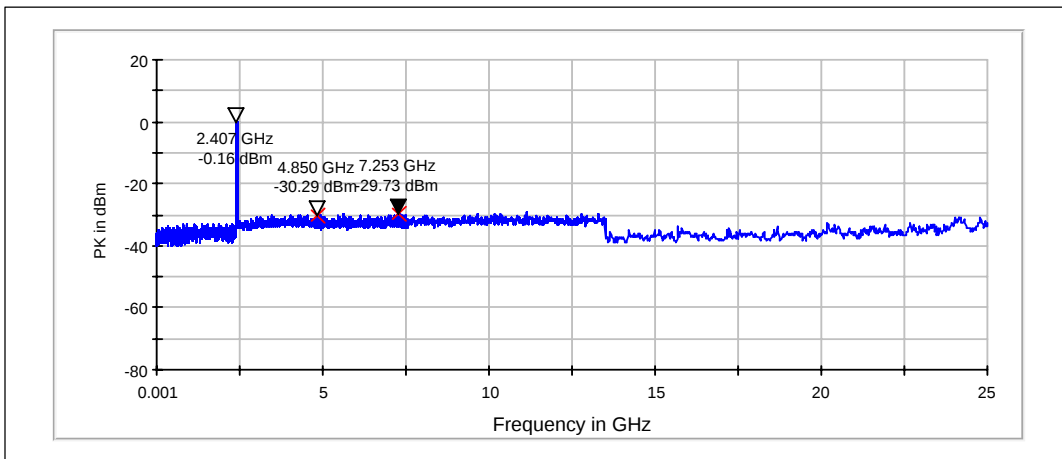


Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4913.600	-28.44	PASSED
7433.400	-28.17	PASSED

4.3.3 N-mode, 20 MHz CBW mode, BPSK modulation, 6.5 / 7.25 Mbps data rate

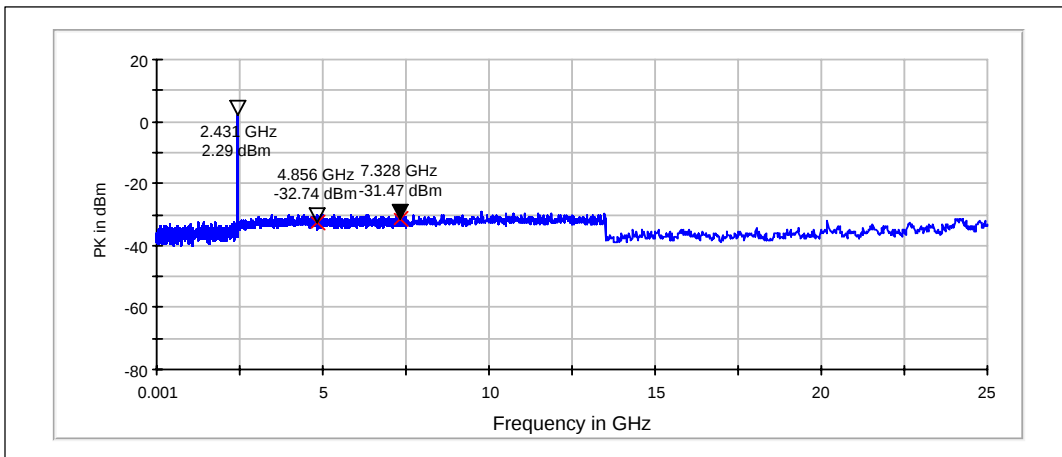
Channel 1 / 2412 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4849.600	-30.29	PASSED
7253.400	-29.73	PASSED

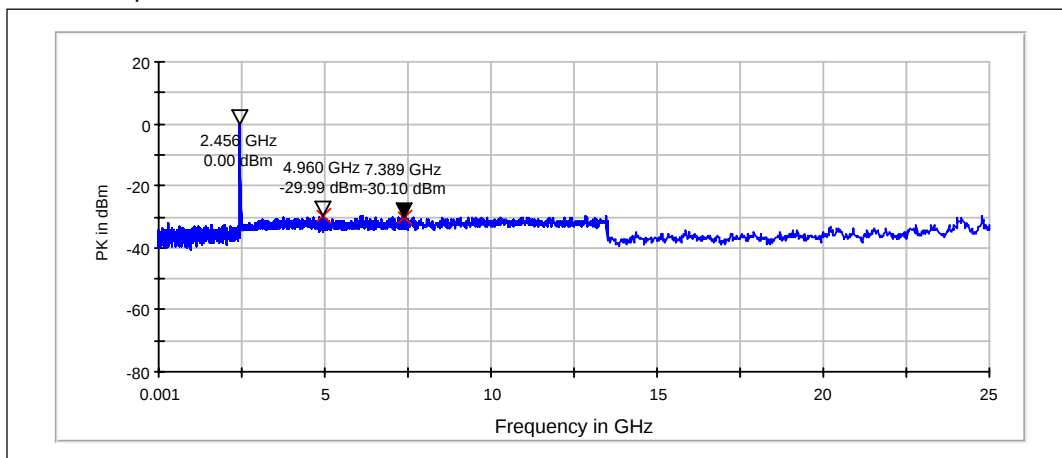
Channel 6 / 2437 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4856.400	-32.74	PASSED
7327.800	-31.47	PASSED

Channel 11 / 2462 MHz



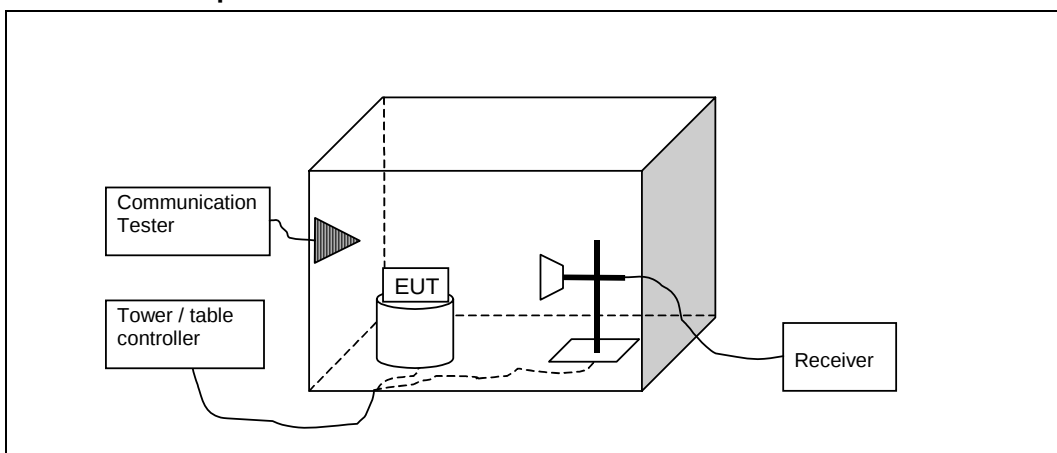
Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4960.000	-29.99	PASSED
7389.000	-30.10	PASSED

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

EUT with DUT number	RM-885, DUT 53118
Accessories with DUT numbers	BP-4GWA, DUT 53125 ; AC-50U, DUT 53129 ; CA-190CD, DUT 53141 ;WH-108, DUT 53142
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 29 / 102.1
Date of measurements	06-Feb-2013
Measured by	Jia Dongsheng

5.1.1 Test setup



5.2. Test method and limit

The measurement is made according to DTS procedures KDB 558074 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:

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

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 [$\mu V/m$]	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

5.2.1 DSSS mode, QPSK modulation, 11 Mbps data rate.

Channel 1 / 2412 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
4824.1	51.45	373.508	51.37	0.08	22.5	74	PASSED
7235.7	46.55	212.545	41.32	5.23	78.7	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
4824.1	38.14	80.686	38.06	0.08	15.8	54	PASSED
7235.7	33.78	48.876	28.55	5.23	---	---	PASSED

Channel 6 / 2437 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
4879.3	43.78	154.437	43.45	0.33	30.2	74	PASSED
7319.3	46.79	218.474	41.45	5.34	27.2	74	PASSED
14283.166	53.86	492.947	40.93	12.93	71.4	125	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
31.86	32.53	42.291	36.08	-3.55	7.5	40	PASSED
31.95	32.97	44.514	36.58	-3.61	7	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
4879.3	30.62	33.947	30.29	0.33	23.4	54	PASSED
7319.3	33.5	47.288	28.16	5.34	20.5	54	PASSED
14283.166	40.45	105.342	27.52	12.93	---	---	PASSED

Channel 11 / 2462 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
4924.1	48.81	275.677	48.43	0.38	25.2	74	PASSED
7387.1	46.29	206.182	41.07	5.22	27.7	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
4924.1	34.67	54.156	34.29	0.38	19.3	54	PASSED
7387.1	33.68	48.317	28.46	5.22	20.3	54	PASSED

5.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate.

Channel 1 / 2412 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
4825.4	46.32	207.109	46.2	0.12	27.7	74	PASSED
7235.7	46.68	215.65	41.45	5.23	78.6	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
4825.4	32.53	42.325	32.41	0.12	21.4	54	PASSED
7235.7	33.79	48.905	28.56	5.23	---	---	PASSED

Channel 6 / 2437 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
4880.9	43.78	154.561	43.44	0.34	30.2	74	PASSED
7320	46.01	199.664	40.67	5.34	28	74	PASSED
14264.03	53.69	483.615	40.8	12.89	71.5	125	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
31.95	33.03	44.844	36.64	-3.61	7	40	PASSED
909.997	26.47	21.064	28.57	-2.1	19.6	46	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
4880.9	30.43	33.209	30.09	0.34	23.6	54	PASSED
7320	33.46	47.098	28.12	5.34	20.5	54	PASSED
14264.03	40.34	104.004	27.45	12.89	---	---	PASSED

Channel 11 / 2462 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
4923.6	44.93	176.482	44.55	0.38	29	74	PASSED
7386	46.93	221.973	41.71	5.23	27.1	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
4923.6	32.28	41.134	31.9	0.38	21.7	54	PASSED
7386	33.61	47.929	28.39	5.23	20.4	54	PASSED

5.2.3 N-mode, 20 MHz CBW mode, BPSK modulation, 6.5 / 7.25 Mbps data rate

Channel 1 / 2412 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
4824.6	45.6	190.634	45.5	0.1	28.4	74	PASSED
7235.8	47.06	225.476	41.83	5.23	78.2	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
4824.6	31.48	37.515	31.38	0.1	22.5	54	PASSED
7235.8	33.26	46.026	28.03	5.23	---	---	PASSED

Channel 6 / 2437 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
4880.7	43.92	156.982	43.59	0.34	30.1	74	PASSED
7318.2	46.92	221.794	41.57	5.35	27.1	74	PASSED
7339.175	46.67	215.576	41.32	5.36	27.3	74	PASSED
14172.341	53.17	455.512	40.8	12.37	72.1	125	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
31.92	32.77	43.521	36.36	-3.59	7.2	40	PASSED
32.01	33.1	45.175	36.76	-3.66	6.9	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
4880.7	30.46	33.331	30.13	0.34	23.5	54	PASSED
7318.2	33.51	47.381	28.16	5.35	20.5	54	PASSED
7339.175	33.42	46.86	28.07	5.36	20.6	54	PASSED
14172.341	39.51	94.515	27.14	12.37	---	---	PASSED

Channel 11 / 2462 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
4923.2	43.82	155.31	43.44	0.38	30.2	74	PASSED
7386.4	46.28	206.158	41.06	5.22	27.7	74	PASSED

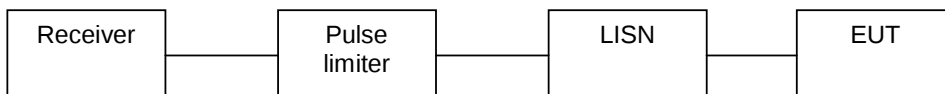
Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
4923.2	30.95	35.294	30.57	0.38	23	54	PASSED
7386.4	33.14	45.378	27.92	5.22	20.8	54	PASSED

6. AC powerline conducted emissions (FCC §15.207, RSS-GEN 7.2.2)

EUT with DUT number	RM-885, DUT 53120
Accessories with DUT numbers	BP-4GWA, DUT 53128 ; AC-50U, DUT 53130 ; CA-190CD, DUT 53139 ; WH-108, DUT 53143
Operation Voltage [V] / [Hz]	115/60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21/37/102.6
Date of measurements	01-Feb-2013
Measured by	Gao Sherina

6.1. Test Setup



6.2. Test method and limit

The measurement is made according to procedure KDB 558074 D01 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.

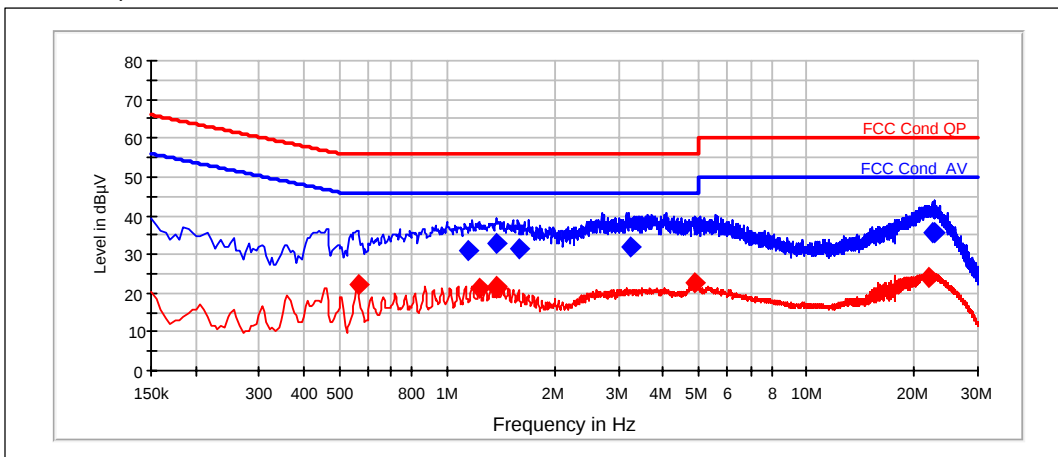
CISPR 22 Class B limits

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

6.3. WLAN Test results

6.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 6 / 2437 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.15	30.77	L1	PASSED
1.365	32.78	L1	PASSED
1.595	31.51	L1	PASSED
3.25	32.06	L1	PASSED
22.415	35.81	N	PASSED
22.84	35.68	L1	PASSED

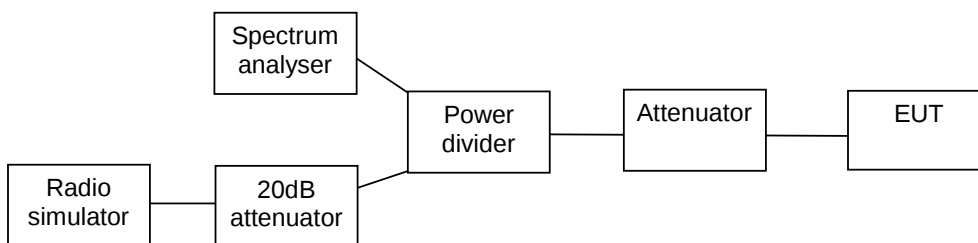
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.565	21.97	N	PASSED
1.225	21.44	L1	PASSED
1.375	21.6	N	PASSED
1.38	21.4	N	PASSED
4.87	22.59	N	PASSED
21.935	24.09	L1	PASSED

7. 6 dB bandwidth (FCC §15.247(a)(2), RSS-210 A8.2 (1))

EUT with DUT number	RM-885, DUT 53148
Accessories with DUT numbers	BP-4GWA, DUT 53146 ; AC-50U, DUT 53130 ; CA-190CD, DUT 53139 ; WH-108, DUT 53143
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21/37/102.6
Date of measurements	01-Feb-2013
Measured by	Gao Sherina

7.1. Test Setup



7.2. Test method and limit

The measurement is made according to DTS procedures KDB 558074 and IC standard RSS-210.

Limits for 6 dB bandwidth measurements

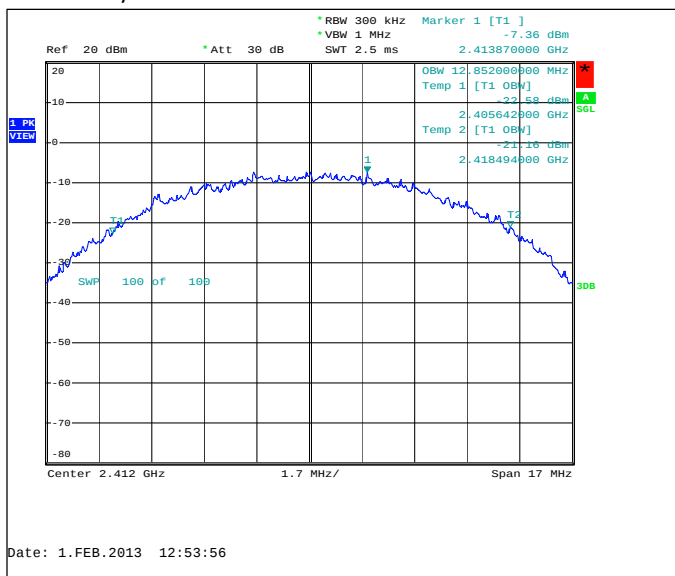
Limit [kHz]
>= 500

7.3. WLAN Test results

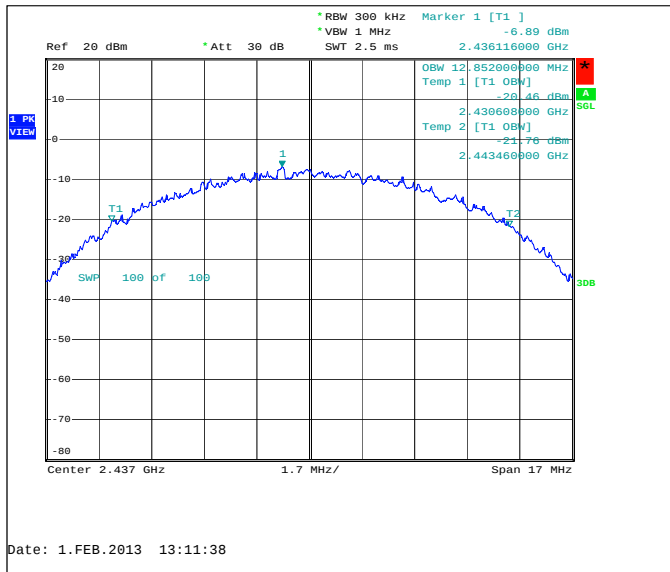
7.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
1 / 2412	12852	PASSED
6 / 2437	12852	PASSED
11 / 2462	12954	PASSED

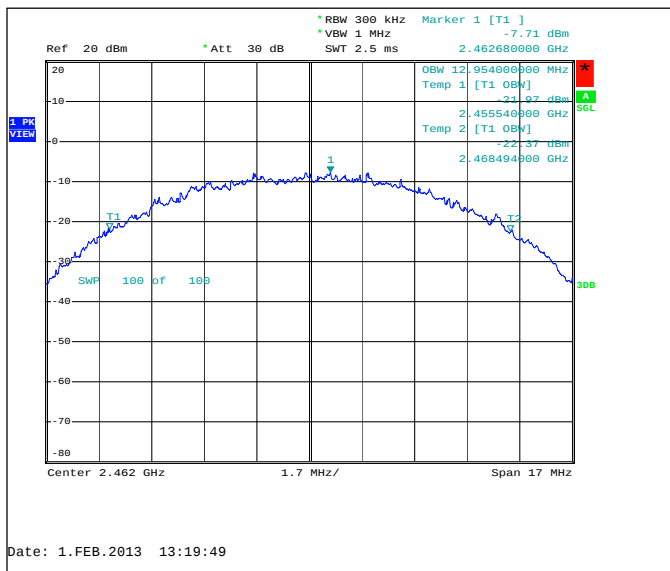
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



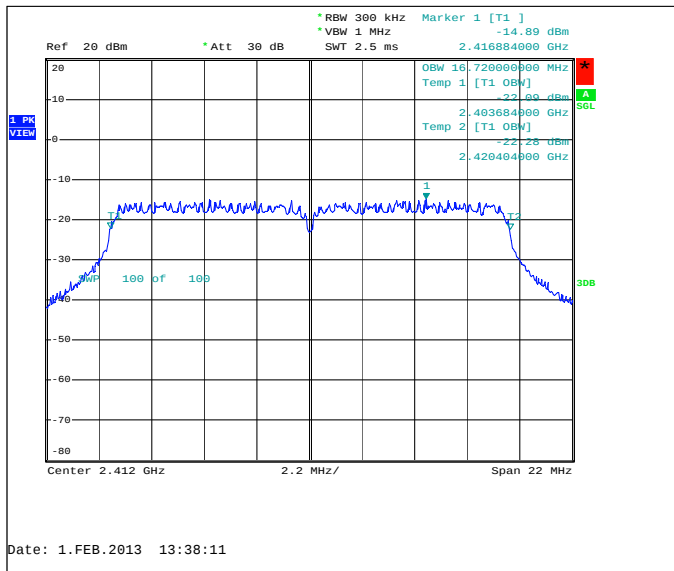
Channel 11 / 2462 MHz



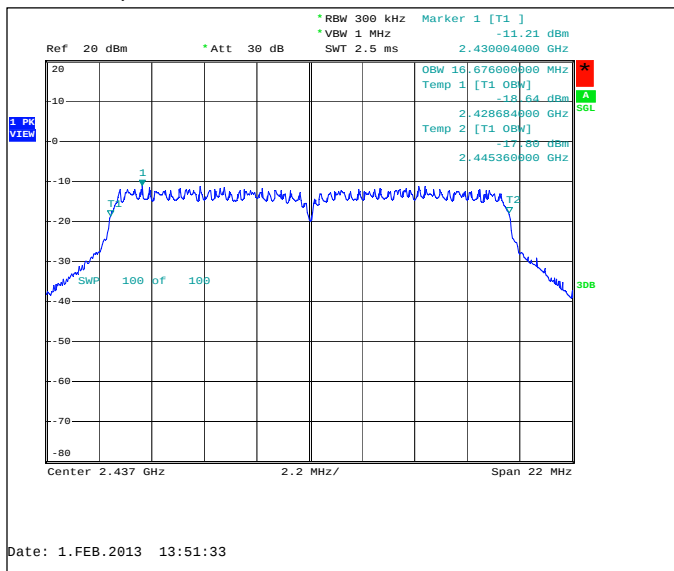
7.3.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	6 dB bandwidth [kHz]	Result
1 / 2412	16720	PASSED
6 / 2437	16676	PASSED
11 / 2462	16676	PASSED

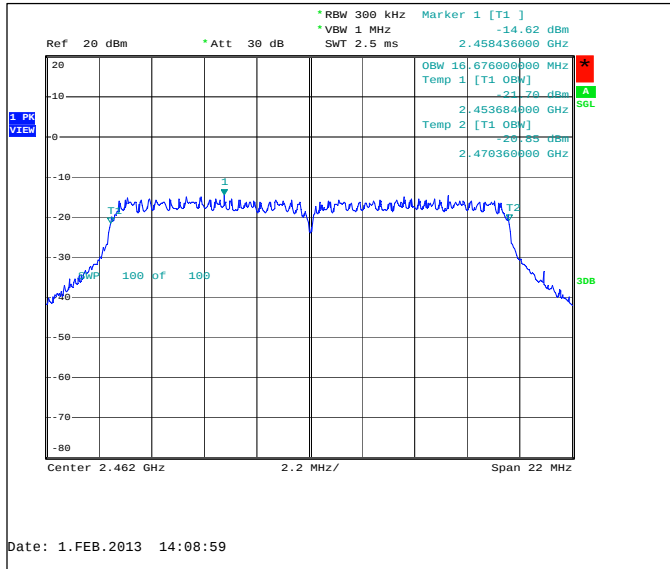
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



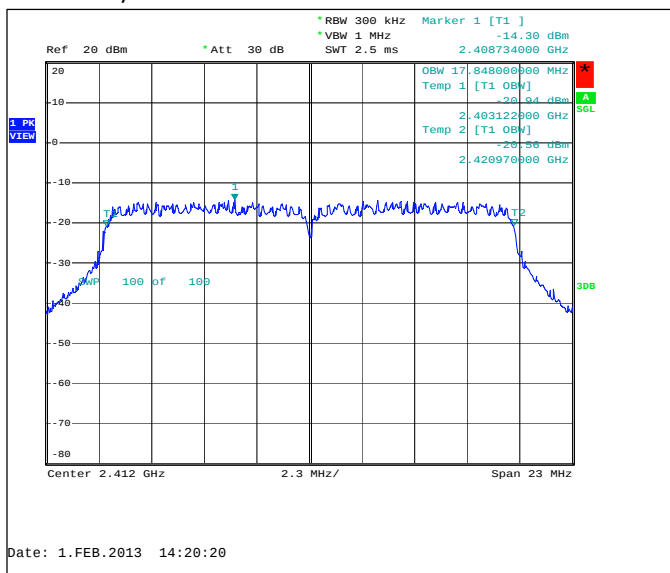
Channel 11 / 2462 MHz



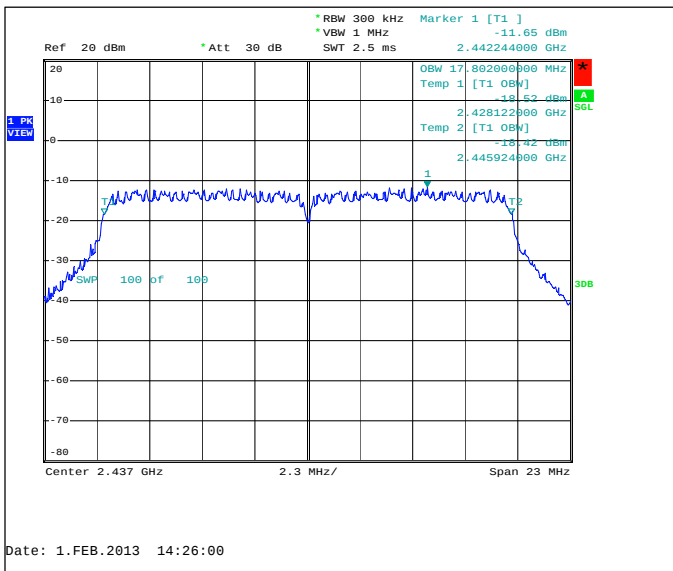
7.3.3 N-mode, 20 MHz CBW mode, BPSK modulation, 6.5 / 7.25 Mbps data rate

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
1 / 2412	17848	PASSED
6 / 2437	17802	PASSED
11 / 2462	17802	PASSED

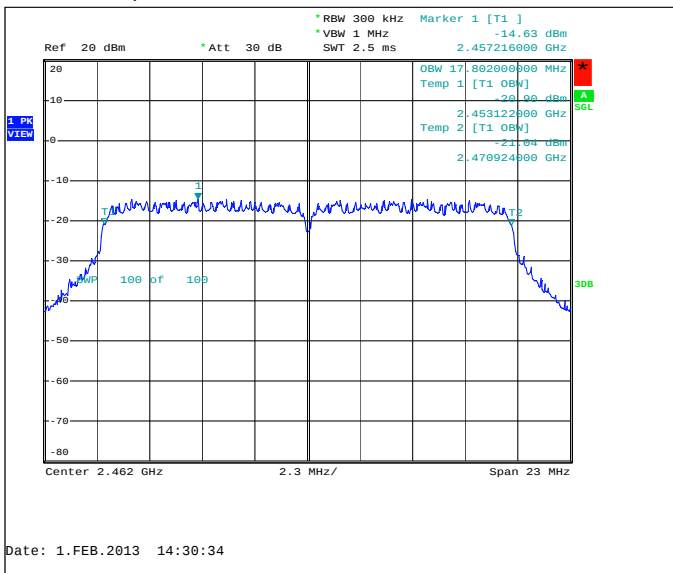
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



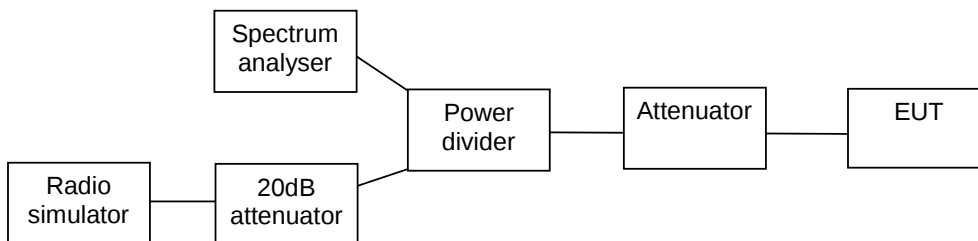
Channel 11 / 2462 MHz



8. Power spectral density (FCC §15.247(e), RSS-210 A8.2 (2))

EUT with DUT number	RM-885, DUT 53148
Accessories with DUT numbers	BP-4GWA, DUT 53146 ; AC-50U, DUT 53130 ; CA-190CD, DUT 53139 ; WH-108, DUT 53143
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21/37/102.6
Date of measurements	01-Feb-2013
Measured by	Gao Sherina

8.1. Test Setup



8.2. Test method and limit

The measurement is made according to DTS procedures KDB 558074 and IC standard RSS-210.

Result is corrected by bandwidth correction factor -15.2dB (BWCF = $10\log(3\text{ kHz}/100\text{ kHz}) = -15.2\text{ dB}$).

Limits for power spectral density measurements

Limit [dBm] @ 3 kHz
<= 8

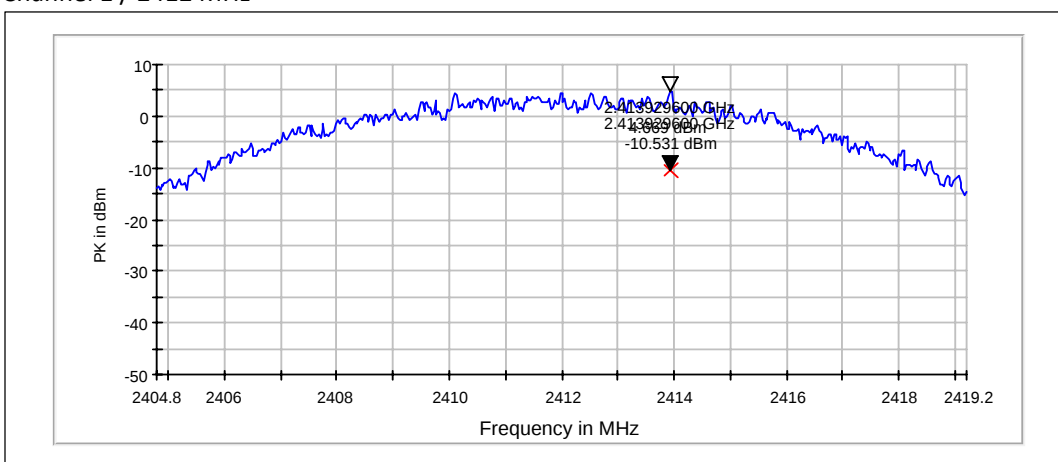
8.3. WLAN Test results

8.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

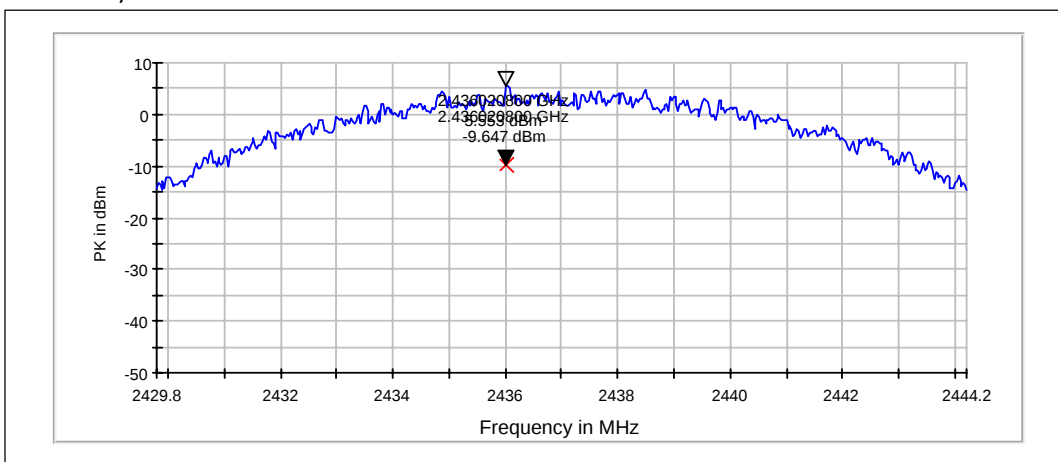
Peak (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-10.53	PASSED
6 / 2437	-9.65	PASSED
11 / 2462	-10.92	PASSED

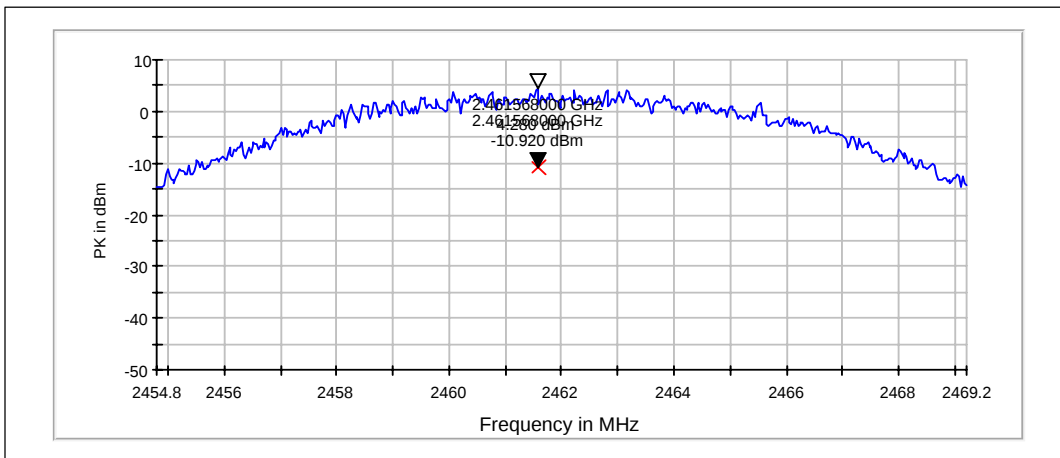
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



Channel 11 / 2462 MHz

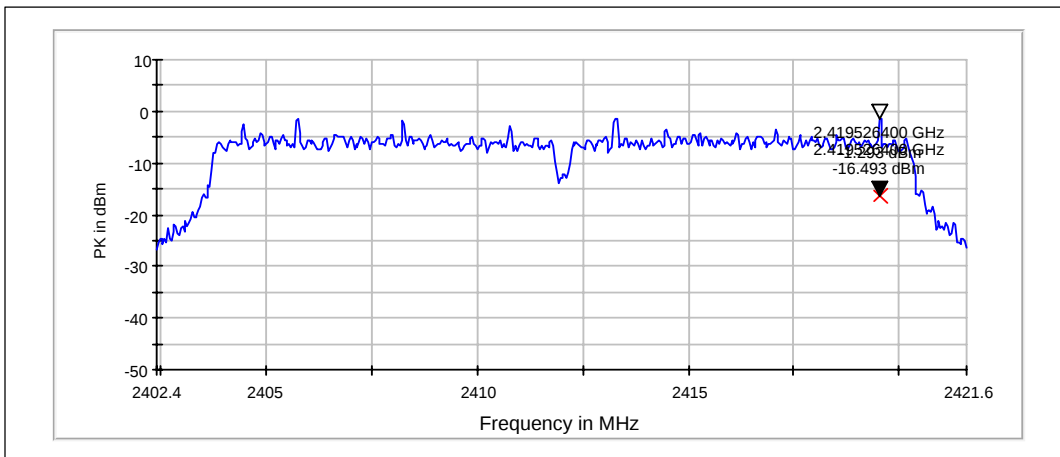


8.3.2 OFDM mode, BPSK modulation, 6 Mbps data rate

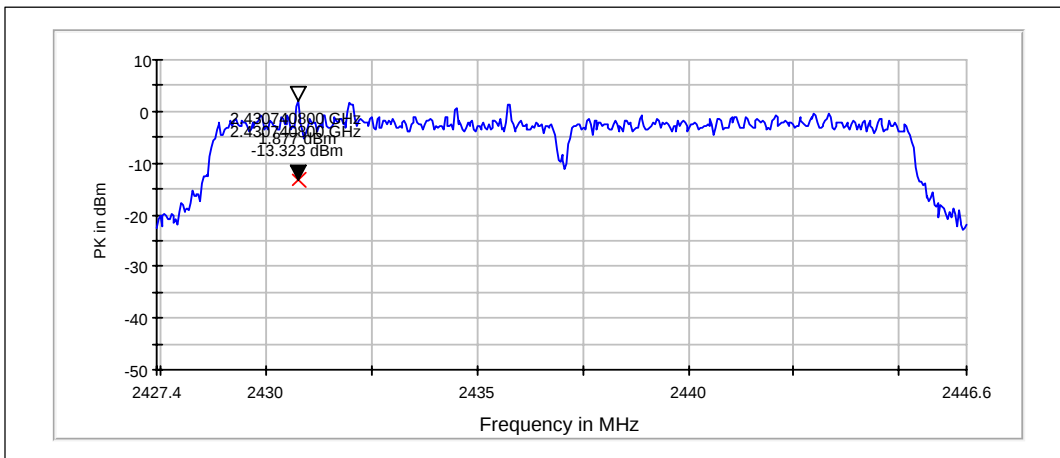
Peak (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Channel / f _c [MHz]	P [dBm]	Result
1 / 2412	-16.49	PASSED
6 / 2437	-13.32	PASSED
11 / 2462	-16.53	PASSED

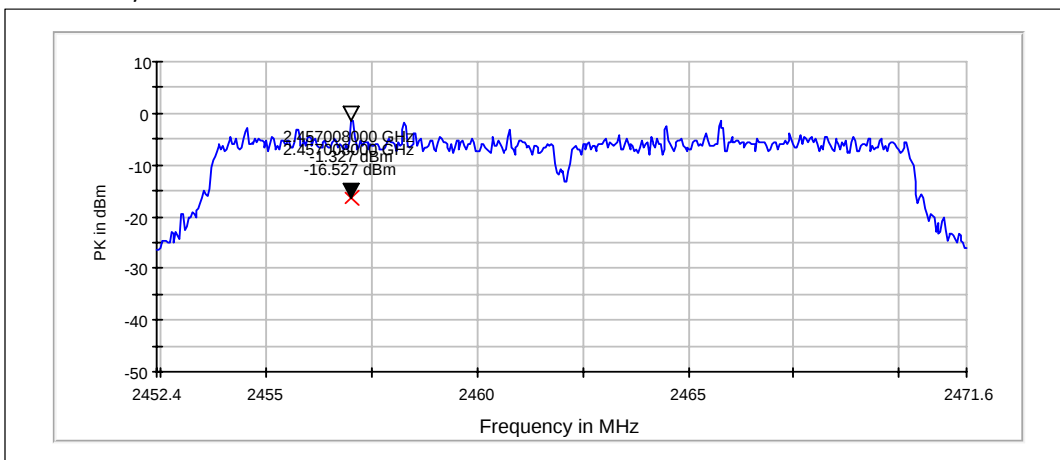
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



Channel 11 / 2462 MHz

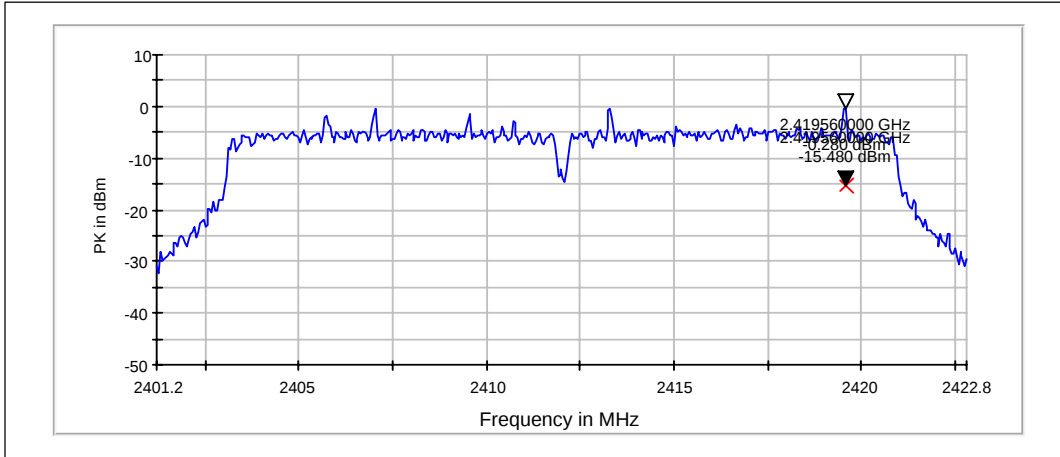


8.3.3 n-mode, 20 MHz CBW mode, BPSK modulation, 6.5 / 7.25 Mbps data rate

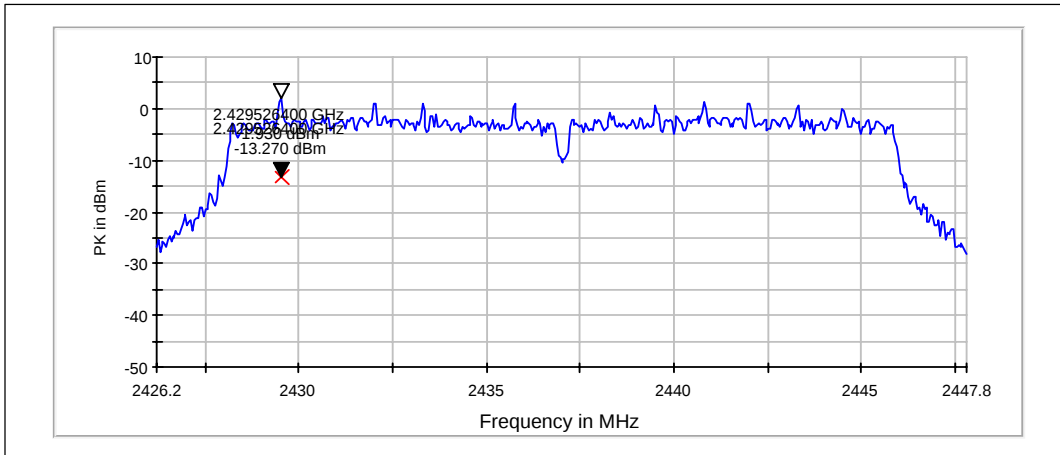
Peak (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Channel / f _c [MHz]	P [dBm]	Result
1 / 2412	-15.48	PASSED
6 / 2437	-13.27	PASSED
11 / 2462	-16.61	PASSED

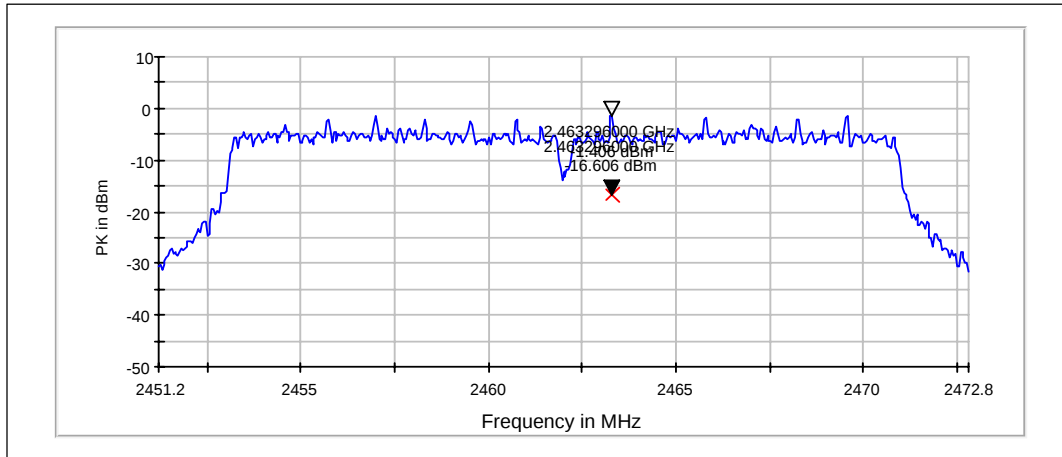
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



Channel 11 / 2462 MHz



9. Test Equipment

9.1. 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
BJPCPT0069	LISN 50 μ H	ESH3-Z5	R&S	15C, 15B
BJPCPT0073	Signal Generator	SMR 20	R&S	22/24/27, 15C, 15B
BJPCPT0191	Pulse Limiter	ESH3-Z2	R&S	15C, 15B
BJPCPT0208	UPS	PULSAR RX10	Merlin gerin	15C, 15B
BJPCTC0001	DIGITAL CAMERA	PC1015	CANON	15C, 15R
BJPCTC0017	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0062	AC Power source	6812B	Hp	15C, 15B
BJPCTC0067	Bluetooth Tester	CBT	R&S	22/24/27, 15C
BJPCTC0082	Humidity and Temperature Sensor	175-H2	Testo	15B, 15C
BJPCTC0088	Absolut pressure meter	testo 511	Testo	22/24/27, 15B, 15C
BJPCTC0089	Tempreture 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	E8257C	Agilent	22/24/27, 15C
BJPCTC0115	Communication Tester	CMU200	R&S	22/24/27, 15B, 15C
BJPCTC0127	AC Power source	SOYI-500VA	SOYI	15B 15C
BJPCTC0128	Communication antenna	JXTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0129	Communication antenna	JXTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0131	Communication tester	CMW500	R&S	22/24/27 15B 15C
BJPCTC0136	Communication antenna	JXTXLB-880-NF	A-INFOMW	15B 15C

9.2. 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
BJPCPT0208	UPS	PULSAR RX10	Merlin gerin	15C, 15B
BJPCTC0001	DIGITAL CAMERA	PC1015	CANON	15C, 15R
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
BJPCTC0062	AC Power source	6812B	Hp	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

Eq. No	Equipment	Type	Manufacturer	Used in
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
BJPCTC0081	Humidity and Temperature Sensor	175-H2	Testo	15B, 15C
BJPCTC0088	Absolut pressure meter	testo 511	Testo	22/24/27, 15B, 15C
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
BJPCTC0124	Attenuator	SA18N200W-40	Fairview Microwave	-
BJPCTC0125	Loop Antenna	HFH2-Z2	R&S	15C
BJPCTC0126	Tripod	FHU-Z	R&S	15C
BJPCTC0128	Communication antenna	JXTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0129	Communication antenna	JXTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0131	Communication tester	CMW500	R&S	22/24/27 15B 15C
BJPCTC0133	Open Swith and contril unit	OSP 150	R&S	15B, 15C
BJPCTC0134	Open Swith and contril unit	OSP 150	R&S	15B, 15C
BJPCTC0135	Open Swith and contril unit	OSP 130	R&S	15B, 15C
BJPCTC0136	Communication antenna	JXTXLB-880-NF	A-INFOMW	15B 15C