

FCC Part 15C Compliance Test Report

Test Report no.:	FCC15CWLAN_RM-679_10.docx	Date of Report:	08-Apr-2011
Number of pages:	40	Customer's Contact person:	Li Hongwei-Henry
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-679 / Battery BL-4D / AC-charger AC-10C / Charging data cable CA-100C / Headset WH-205		
FCC ID:	QTLRM-679	IC:	661AB-RM679
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, RSS-210 (Issue 8, December 2010). 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	07-Mar-2011
Testing completed	28-Mar-2011
The customer's contact person	Li Hongwei-Henry
Test Plan referred to	T:\Projects\RM-679\TestPlan\RS_testplan_RM-679.xls
Notes	-
Document name	FCC15CWLAN_RM-679_10.docx

1.1. EUT and Accessory Information

The EUT is a 5-band (GSM850/900/1800/1900) and TD-SCDMA Band I/II mobile phone with GPRS, EGPRS, HSDPA and WLAN and Bluetooth and FM transmitter. Bluetooth and WLAN are tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-679	008600080055923	0301	-	021.002	52100
Phone	RM-679	008600080055063	0301	-	021.002	52104
Battery	BL-4D	4620401012N10312266;0670605	-	-	-	52101
Battery	BL-4D	4620401012N10310290;0670605	-	-	-	52105
AC-charger	AC-10C	3997910096012001230;0675412	-	-	-	52108
Charging data cable	CA-100C	07303390131L2605514	-	-	-	52109
Headset	WH-205	0694821030681R08469	-	-	-	52115

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)	A8.4 (4)	Conducted peak output power	PASSED
15.247(d)	A8.5	Band edge compliance of RF emissions	PASSED
15.247(d)	A8.5	Spurious RF conducted emissions	PASSED
15.247(d), 15.209	A8.5	Spurious radiated emissions	PASSED
15.207	7.2.2	AC powerline conducted emissions	PASSED
15.247(a)(2)	A8.2 (a)	6dB(bandwidth)	PASSED
15.247(e)	A8.2 (b)	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.

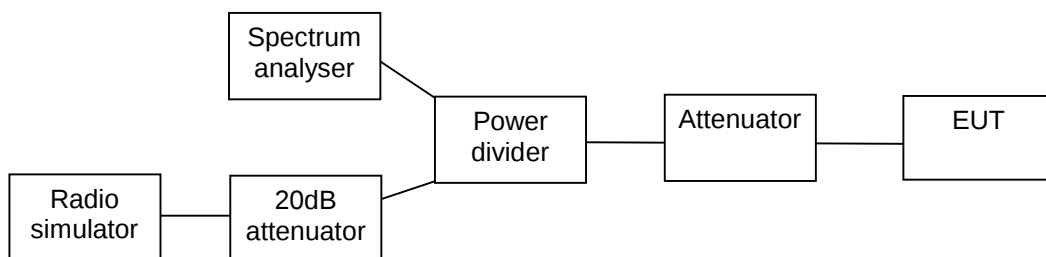
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2. Conducted peak output power (FCC §15.247(b)(1), RSS-210 A8.4 (4))

EUT with DUT number	RM-679, DUT52104
Accessories with DUT numbers	BL-4D, DUT52105; AC-10C, DUT52108; CA-100C, DUT52109; WH-205, DUT52115
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 20 / 102.5
Date of measurements	22-Mar-2011
Measured by	Jia Dongsheng

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

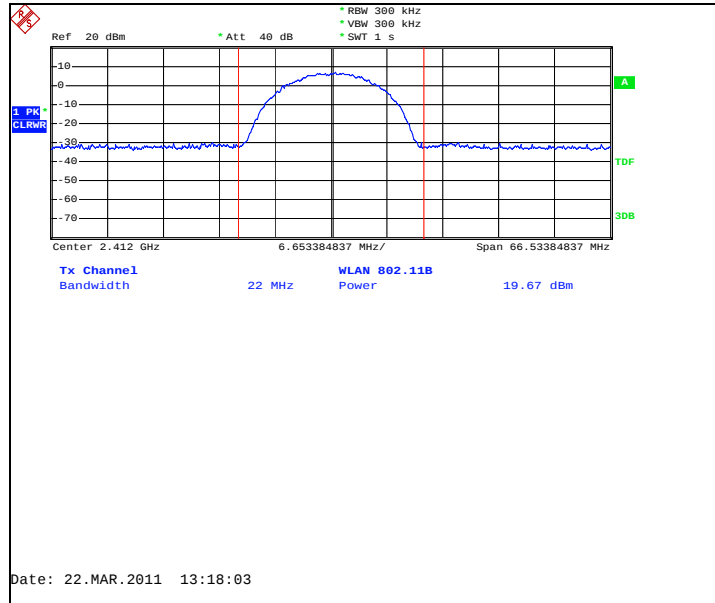
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5	≤ 1	≤ 30

2.3. WLAN Test results

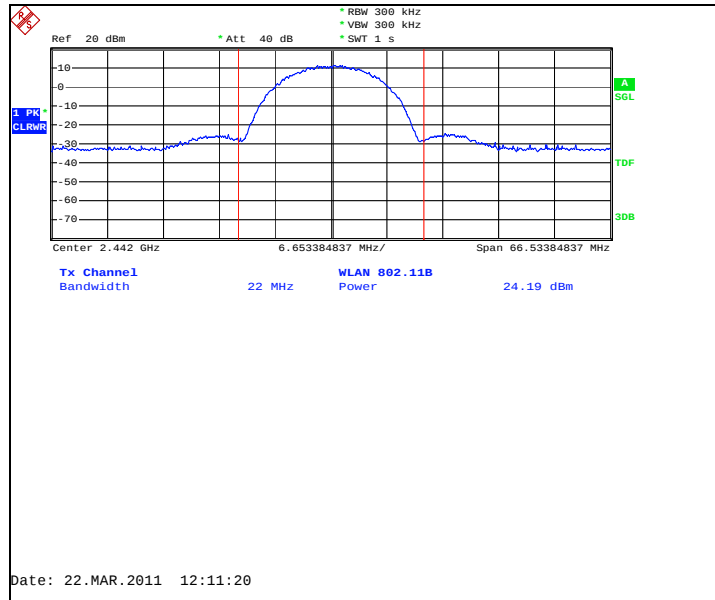
2.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [W]	Result
1 / 2412	19.67	0.093	PASSED
7 / 2442	24.19	0.262	PASSED
11 / 2462	20.61	0.115	PASSED

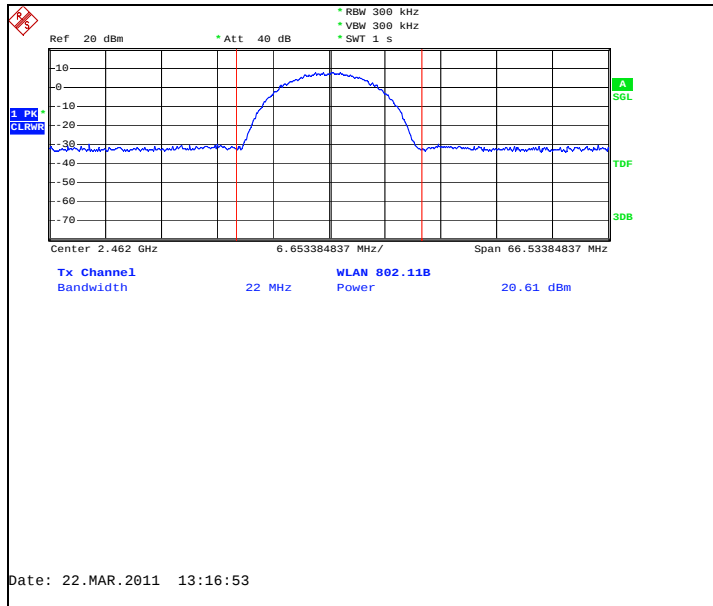
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



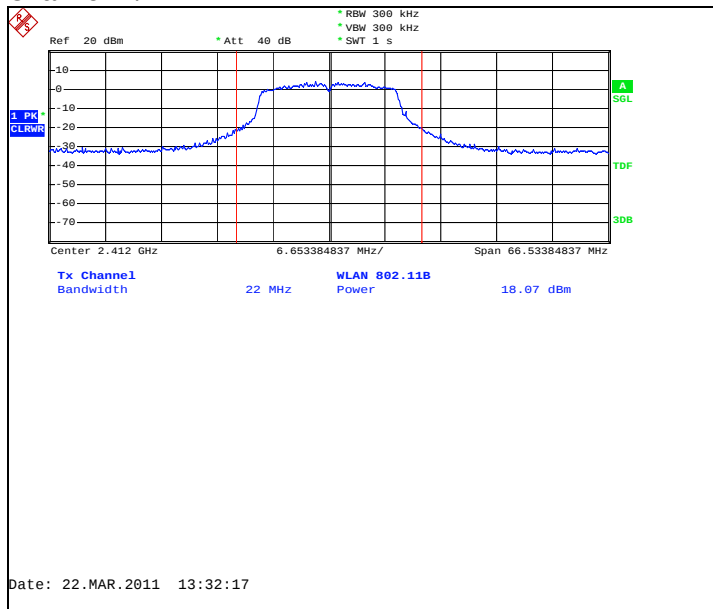
Channel 11 / 2462 MHz



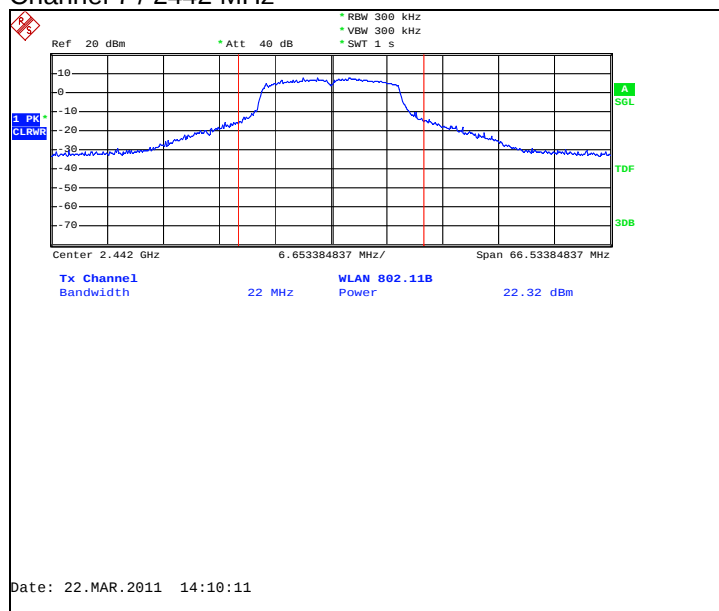
2.3.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [W]	Result
1 / 2412	18.07	0.064	PASSED
7 / 2442	22.32	0.171	PASSED
11 / 2462	18.87	0.077	PASSED

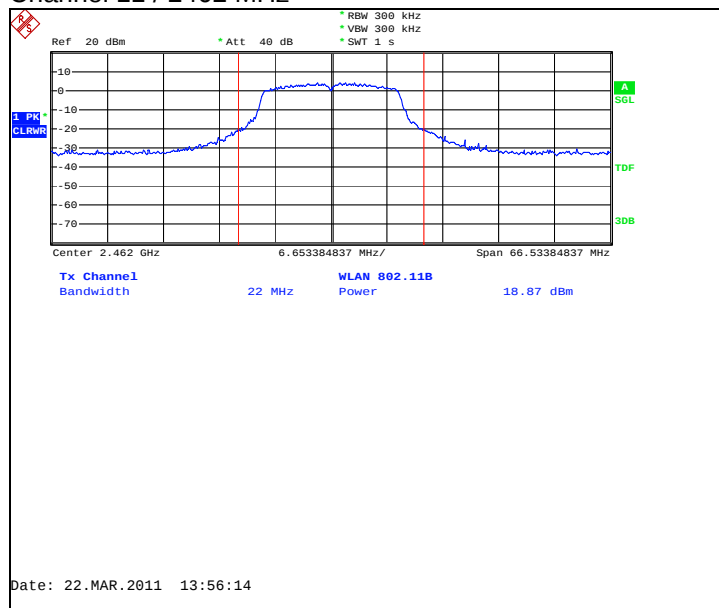
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



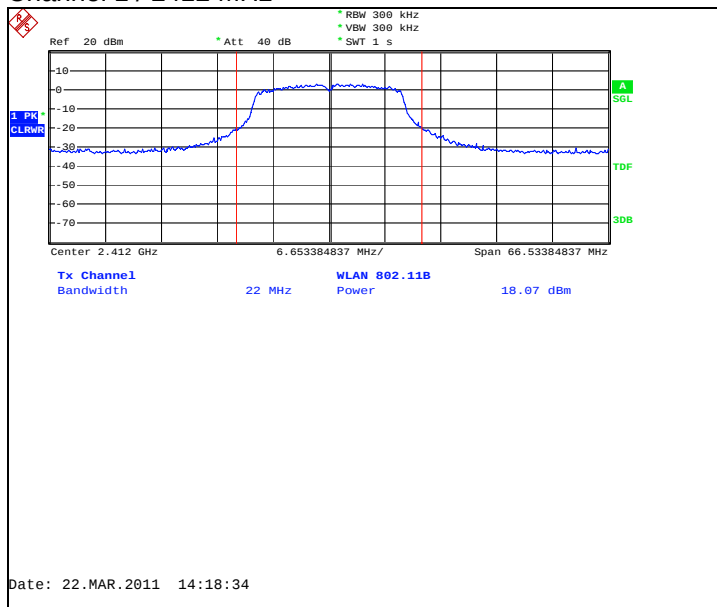
Channel 11 / 2462 MHz



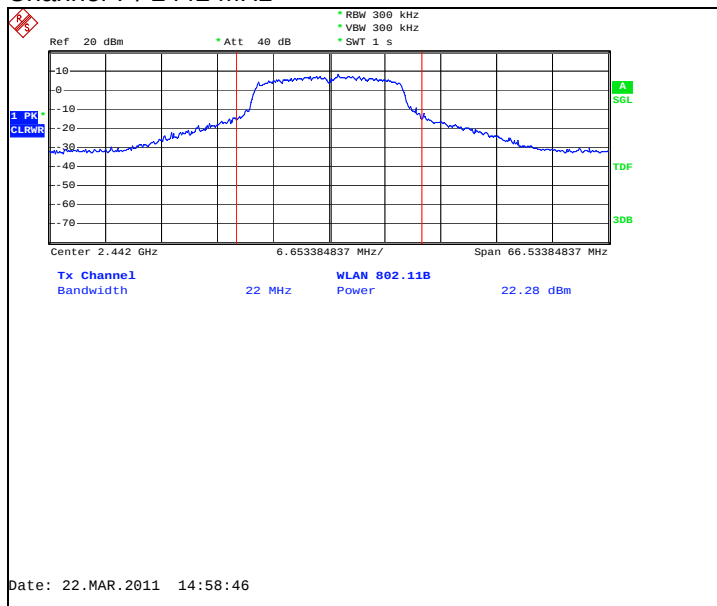
2.3.3 802.11n HT20 MCS 0

Channel / f _c [MHz]	P [dBm]	P [W]	Result
1 / 2412	18.07	0.064	PASSED
7 / 2442	22.28	0.169	PASSED
11 / 2462	19.11	0.082	PASSED

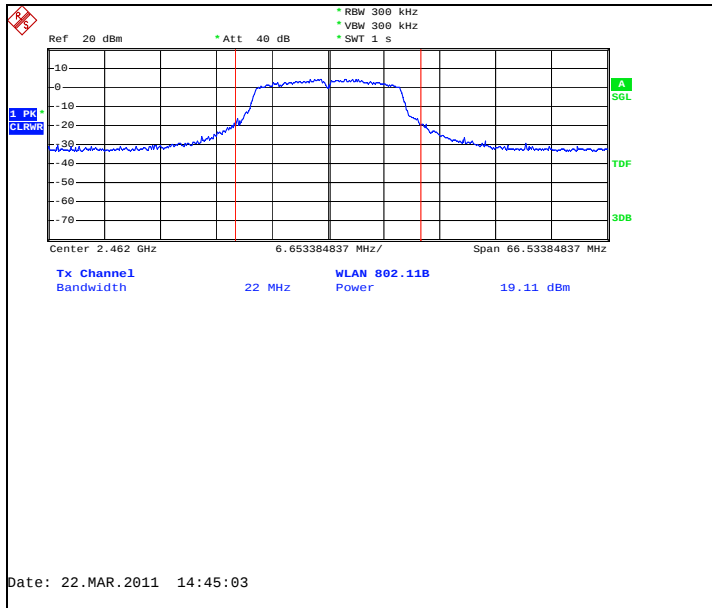
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



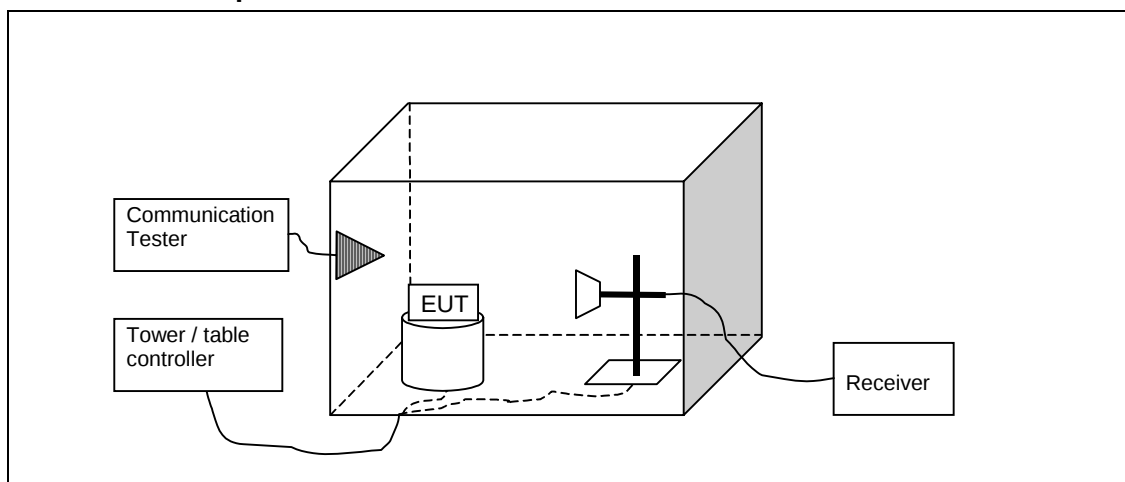
Channel 11 / 2462 MHz



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

EUT with DUT number	RM-679, DUT 52100
Accessories with DUT numbers	BL-4D, DUT 52101 ; AC-10C, DUT 52108 ; CA-100C, DUT 52109 ; WH-205, DUT 52115
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 27 / 102.6
Date of measurements	28-Mar-2011
Measured by	Zou Ming

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.

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. WLAN Test results

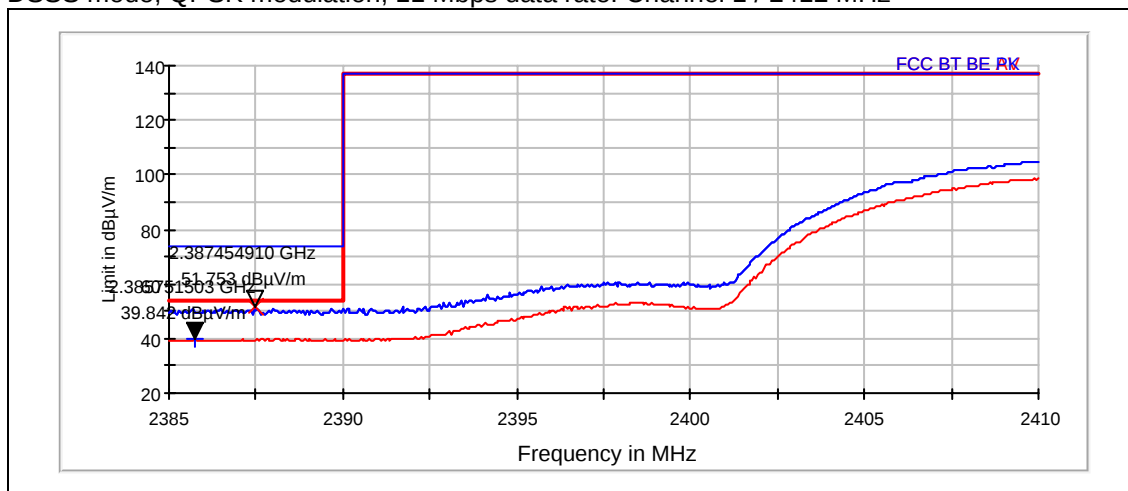
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412 (DSSS, QPSK,11)	39.84	PASSED
11 / 2462 (DSSS, QPSK,11)	41.98	PASSED
1 / 2412 (OFDM,BPSK,6)	42.92	PASSED
11 / 2462 (OFDM,BPSK,6)	48.63	PASSED
1 / 2412 (n mode, MCS0)	45.6	PASSED
11 / 2462 (n mode, MSC 0)	50.15	PASSED

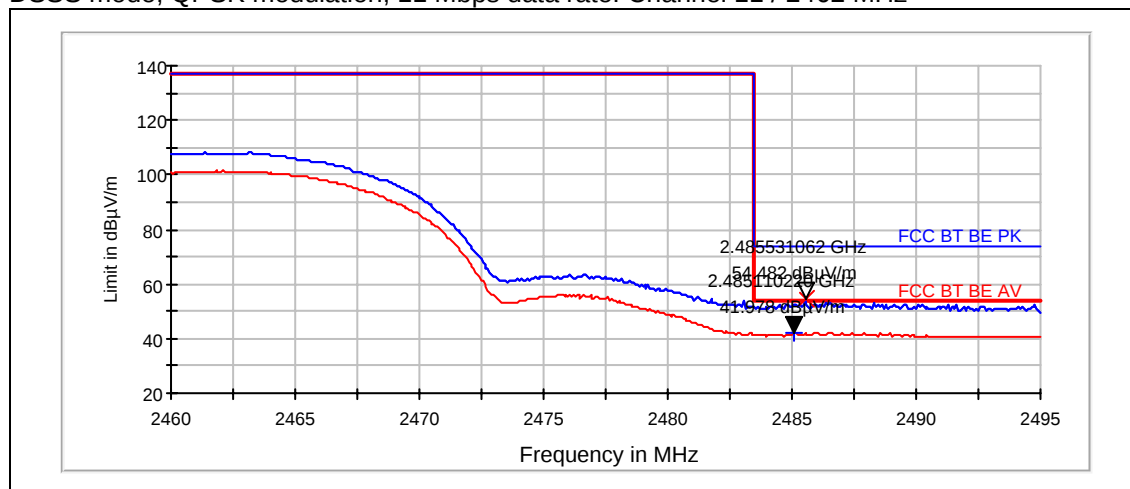
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412 (DSSS, QPSK,11)	51.75	PASSED
11 / 2462 (DSSS, QPSK,11)	54.48	PASSED
1 / 2412 (OFDM,BPSK,6)	59.43	PASSED
11 / 2462 (OFDM,BPSK,6)	65.57	PASSED
1 / 2412 (n mode, MCS0)	62.68	PASSED
11 / 2462 (n mode, MSC 0)	66.79	PASSED

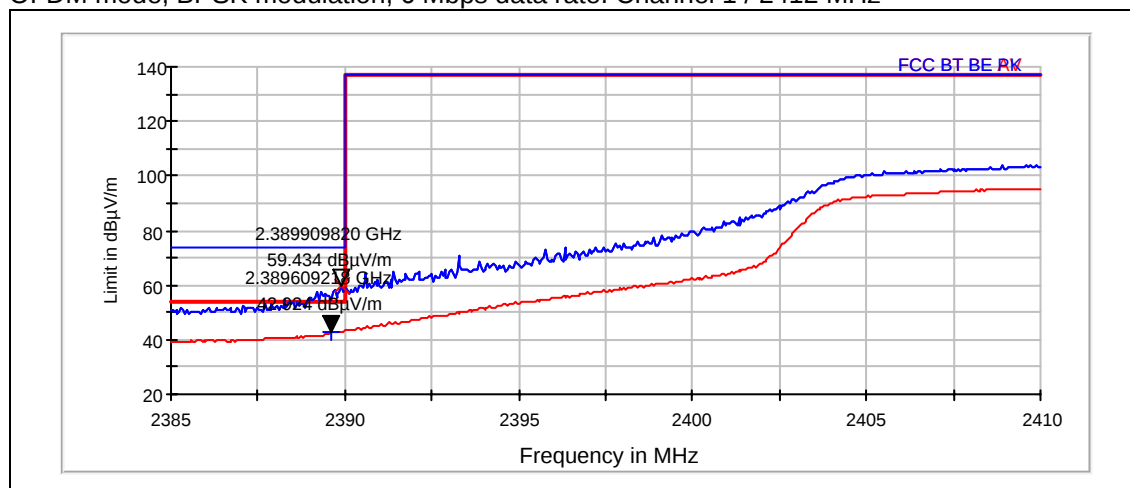
DSSS mode, QPSK modulation, 11 Mbps data rate. Channel 1 / 2412 MHz



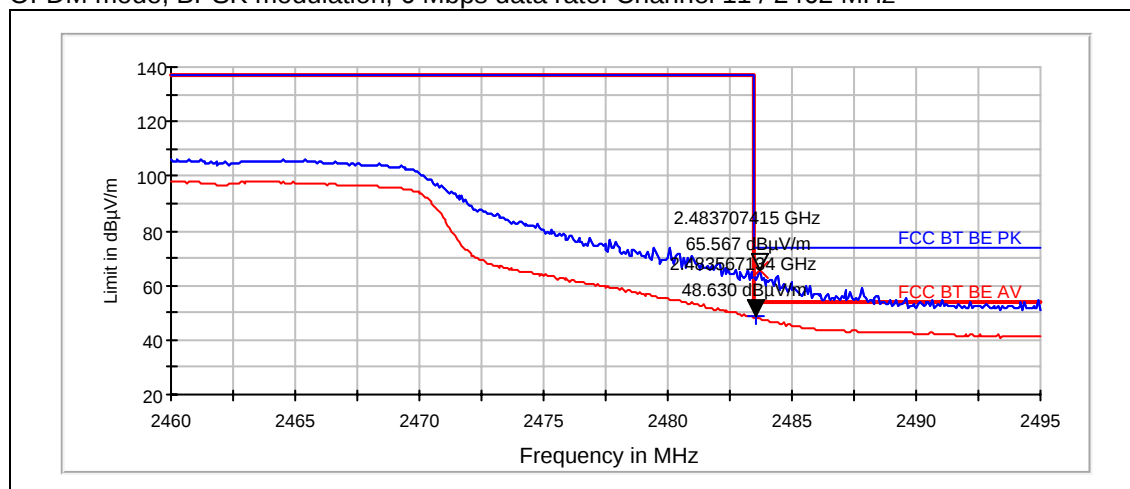
DSSS mode, QPSK modulation, 11 Mbps data rate. Channel 11 / 2462 MHz



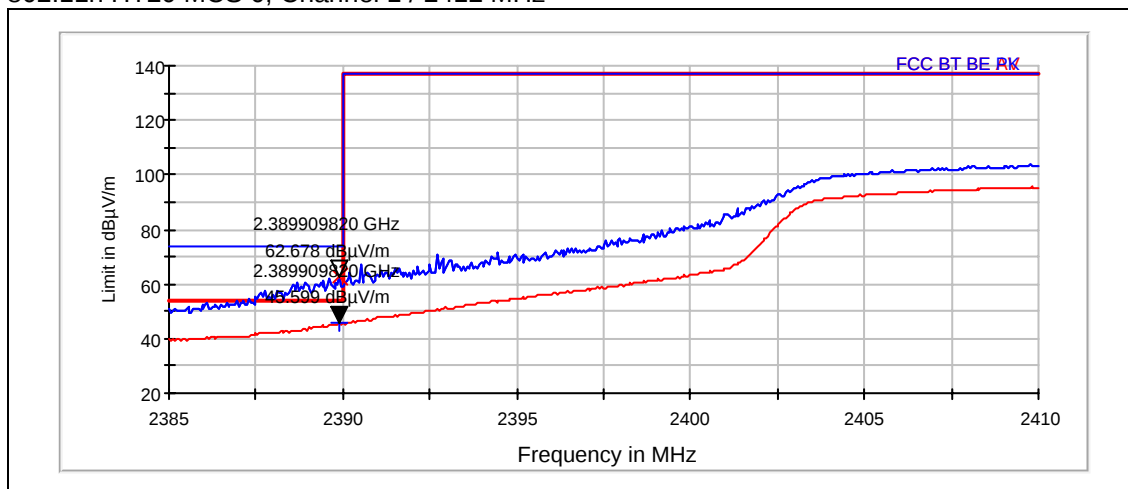
OFDM mode, BPSK modulation, 6 Mbps data rate. Channel 1 / 2412 MHz



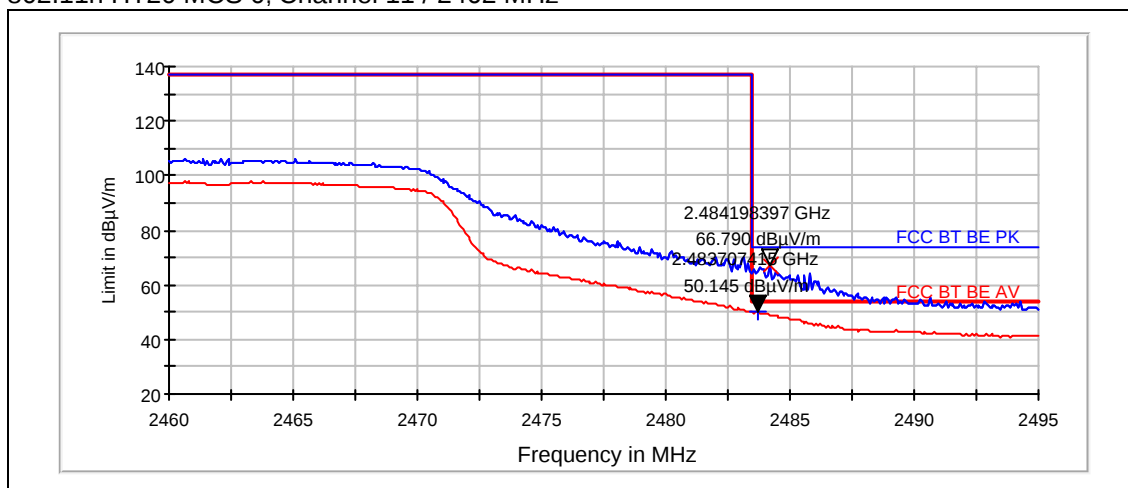
OFDM mode, BPSK modulation, 6 Mbps data rate. Channel 11 / 2462 MHz



802.11n HT20 MCS 0, Channel 1 / 2412 MHz



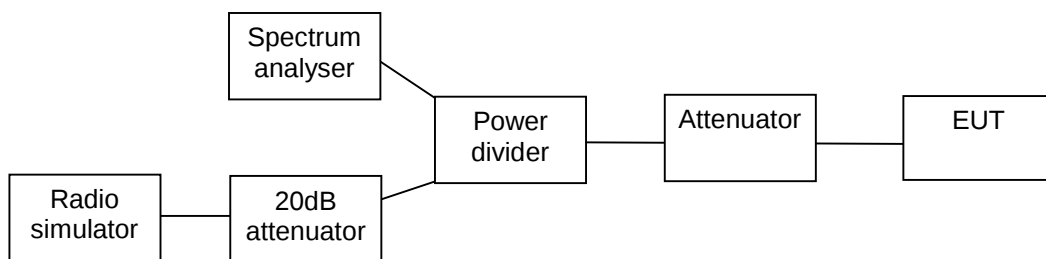
802.11n HT20 MCS 0, Channel 11 / 2462 MHz



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

EUT with DUT number	RM-679, DUT52104
Accessories with DUT numbers	BL-4D, DUT52105; AC-10C, DUT52108; CA-100C, DUT52109; WH-205, DUT52115
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 20 / 102.5
Date of measurements	22-Mar-2011
Measured by	Jia Dongsheng

4.1. Test Setup



4.2. Test method and limit

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

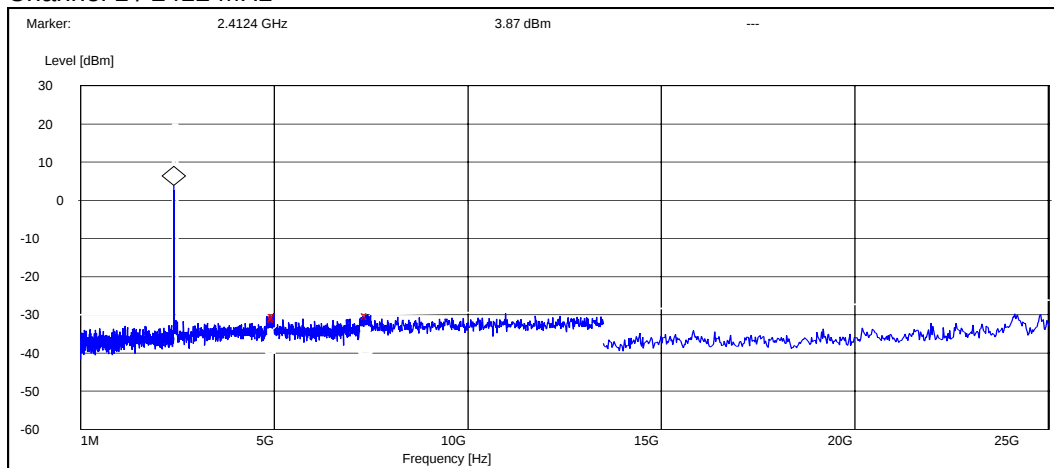
Limits for spurious RF conducted emissions measurements

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

4.3. WLAN Test results

4.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

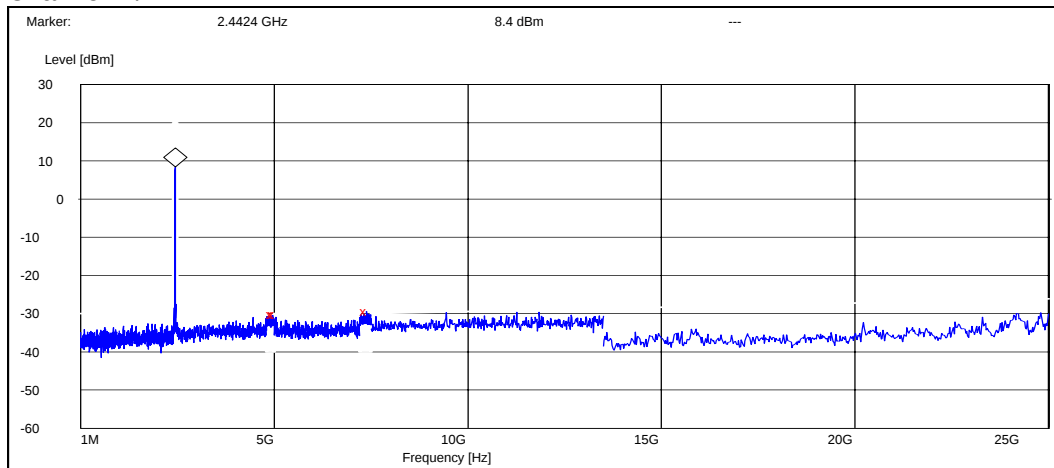
Channel 1 / 2412 MHz



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

Frequency [MHz]	P [dBc]	Result
4994.400000	-34.665895	PASSED
5000.000000	-34.265895	PASSED
7403.400000	-33.965895	PASSED

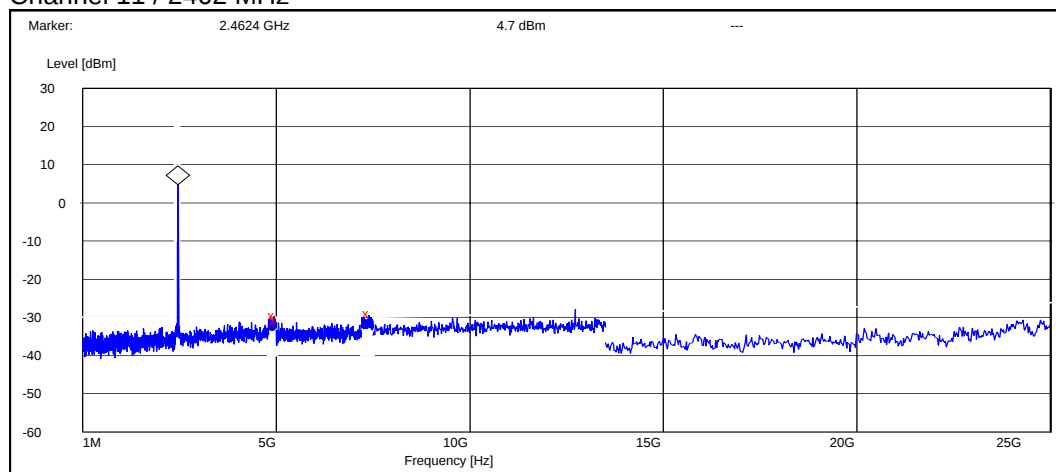
Channel 7 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4962.400000	-38.597369	PASSED
5000.000000	-38.597369	PASSED
7382.400000	-37.697369	PASSED

Channel 11 / 2462 MHz

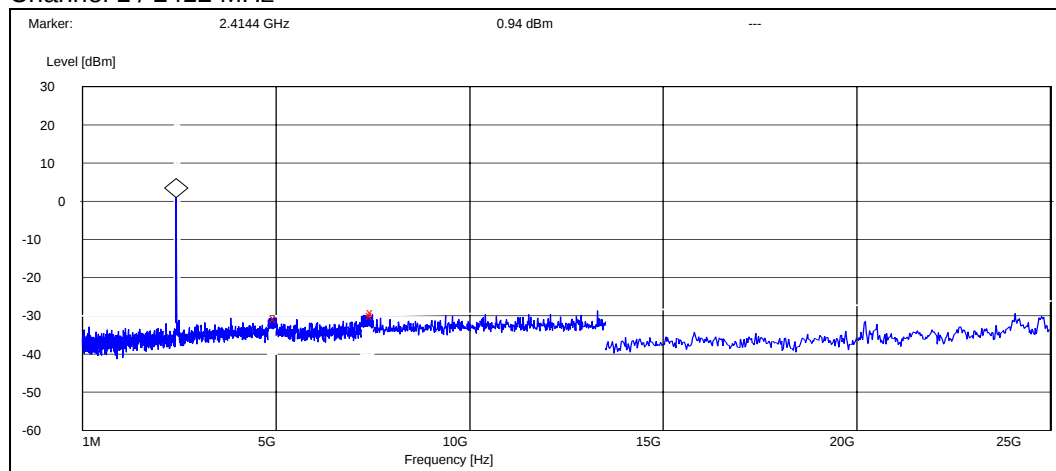


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4948.400000	-34.298209	PASSED
5000.000000	-35.398209	PASSED
7390.800000	-33.698209	PASSED

4.3.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel 1 / 2412 MHz

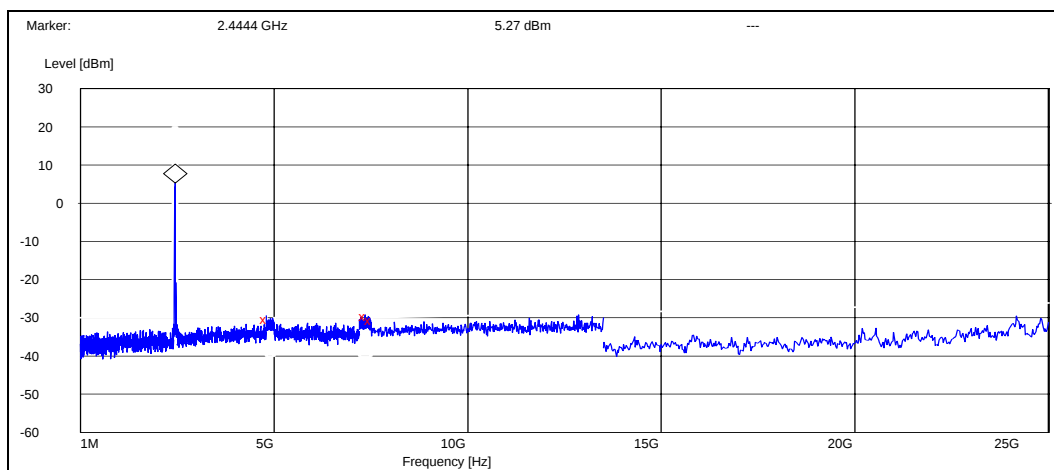


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4998.000000	-31.535557	PASSED
7489.200000	-30.735557	PASSED
7500.000000	-29.935557	PASSED

Channel 7 / 2442 MHz

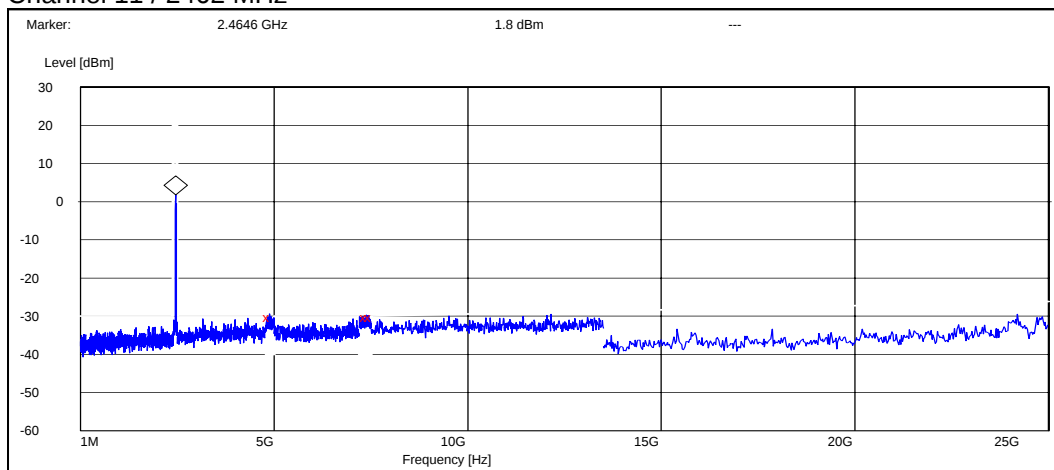
16 (40)



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

Frequency [MHz]	P [dBc]	Result
4800.800000	-35.765724	PASSED
7356.600000	-34.865724	PASSED
7500.000000	-35.865724	PASSED

Channel 11 / 2462 MHz



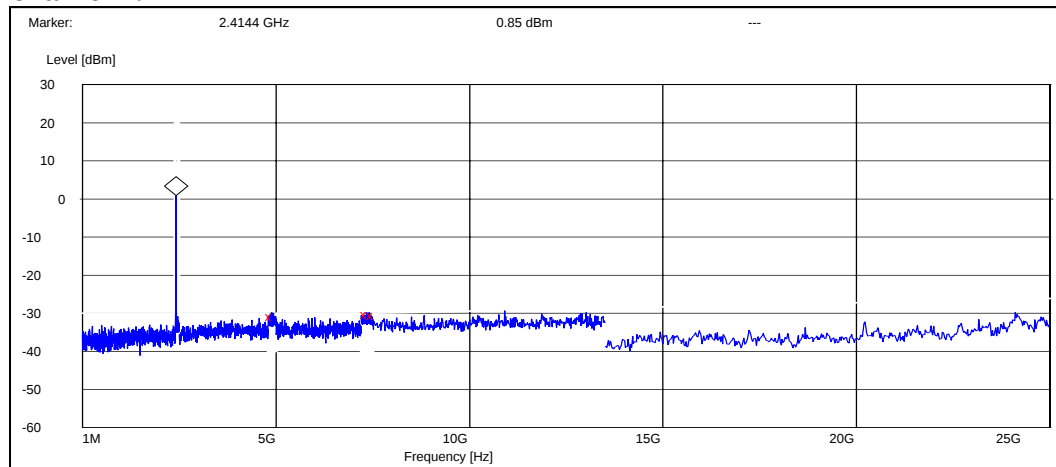
Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4875.600000	-32.100521	PASSED
7378.800000	-32.000521	PASSED
7500.000000	-32.100521	PASSED

4.3.3 802.11n HT20 MCS 0

17 (40)

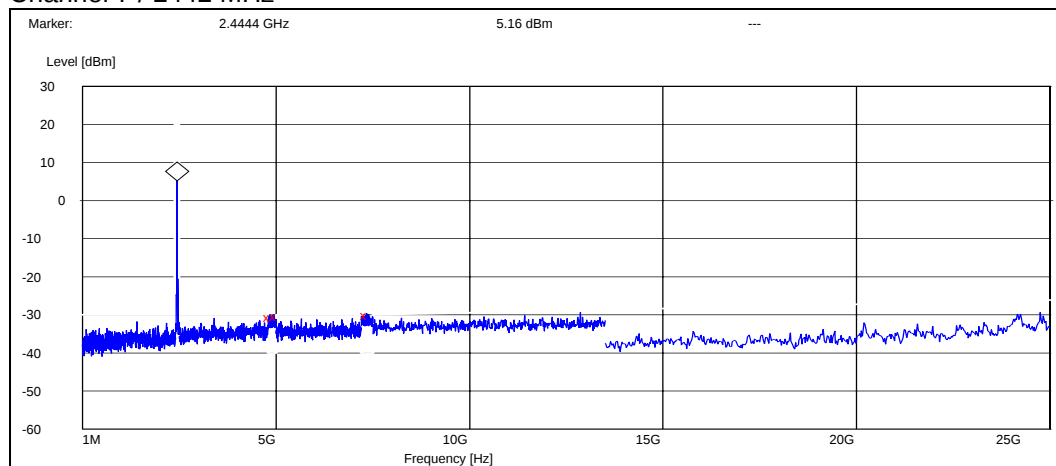
Channel 1 / 2412 MHz



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

Frequency [MHz]	P [dBc]	Result
4896.400000	-31.651992	PASSED
7338.600000	-31.151992	PASSED
7500.000000	-31.351992	PASSED

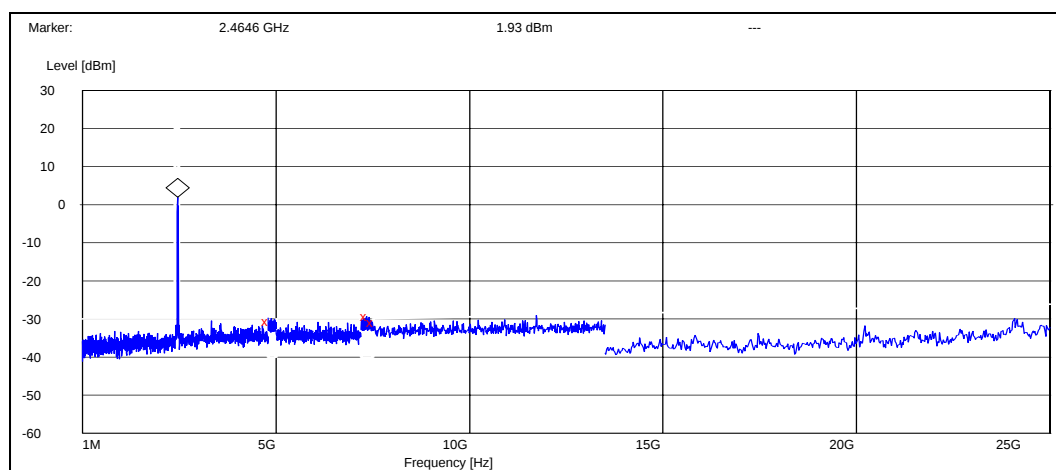
Channel 7 / 2442 MHz



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

Frequency [MHz]	P [dBc]	Result
4836.800000	-35.758623	PASSED
5000.000000	-35.558623	PASSED
7339.800000	-35.358623	PASSED

Channel 11 / 2462 MHz



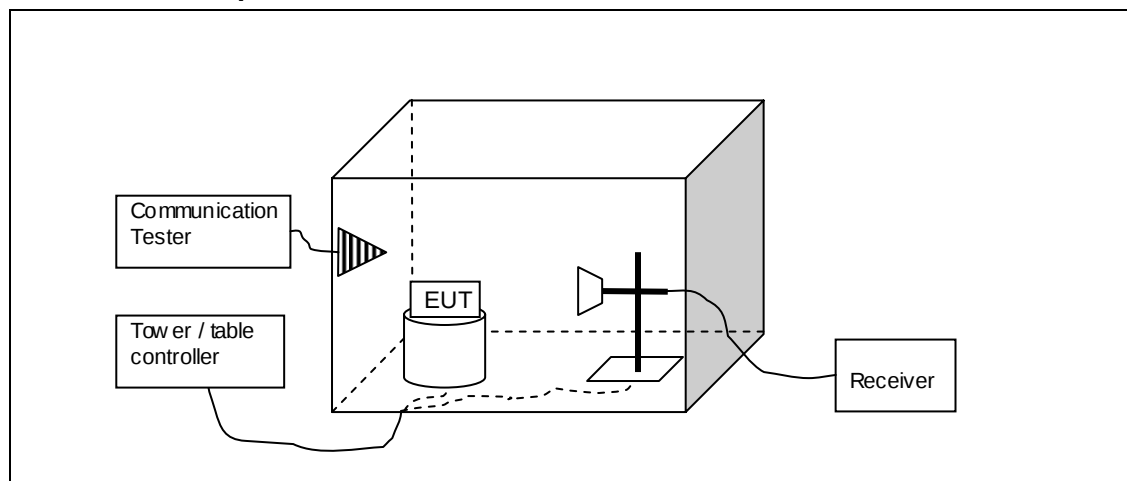
Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4802.000000	-32.428778	PASSED
7342.200000	-31.228778	PASSED
7500.000000	-32.728778	PASSED

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

EUT with DUT number	RM-679, DUT 52100
Accessories with DUT numbers	BL-4D, DUT 52101 ; AC-10C, DUT 52108 ; CA-100C, DUT 52109 ; WH-205, DUT 52115
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 27 / 102.6
Date of measurements	28-Mar-2011
Measured by	Zou Ming

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:

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

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. WLAN Test results

5.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 7 / 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
44.098	28.03	25.214	40.35	-12.32	VERTICAL	PASSED
47.715	28.95	28.006	43.43	-14.48	VERTICAL	PASSED
47.757	28.71	27.268	43.21	-14.5	VERTICAL	PASSED
74.591	27.08	22.587	46.07	-18.99	HORIZONTAL	PASSED
75.239	26.98	22.338	45.93	-18.95	HORIZONTAL	PASSED
78.237	27.51	23.736	46.21	-18.7	VERTICAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3904.011	41.87	124.051	43.27	-1.4	VERTICAL	PASSED
3939.078	41.16	114.327	42.73	-1.57	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
3904.011	28.57	26.832	29.97	-1.4	VERTICAL	PASSED
3939.078	28.27	25.897	29.84	-1.57	HORIZONTAL	PASSED

Channel 11 / 2462 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4922.2	43.85	155.704	43.84	0.01	HORIZONTAL	PASSED
7385.5	46.39	208.641	41.4	4.99	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
4922.2	30.28	32.67	30.27	0.01	HORIZONTAL	PASSED
7385.5	33.59	47.797	28.6	4.99	VERTICAL	PASSED

Channel 1 / 2412 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4822.2	42.36	131.265	42.59	-0.23	VERTICAL	PASSED
7236.1	46.39	208.569	41.26	5.13	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
4822.2	29.33	29.268	29.56	-0.23	VERTICAL	PASSED
7236.1	33.52	47.413	28.39	5.13	VERTICAL	PASSED

5.3.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel 7 / 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
47.756	29.11	28.556	43.61	-14.5	VERTICAL	PASSED
47.775	28.66	27.108	43.17	-14.51	VERTICAL	PASSED
892.054	24.24	16.295	27.23	-2.99	HORIZONTAL	PASSED
899.729	24.58	16.934	27.17	-2.59	HORIZONTAL	PASSED
902.156	24.58	16.939	27.11	-2.53	HORIZONTAL	PASSED
903.909	24.99	17.752	27.55	-2.56	HORIZONTAL	PASSED
905.814	24.69	17.163	27.23	-2.54	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
3907.318	41.73	122.039	43.13	-1.4	VERTICAL	PASSED
3937.272	41.45	118.127	43	-1.55	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
3907.318	28.57	26.819	29.97	-1.4	VERTICAL	PASSED
3937.272	28.25	25.861	29.8	-1.55	VERTICAL	PASSED

Channel 11 / 2462 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.7	42.81	138.245	42.86	-0.05	VERTICAL	PASSED
7387.6	46.4	208.857	41.4	5	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.7	30.07	31.89	30.12	-0.05	VERTICAL	PASSED
7387.6	33.59	47.819	28.59	5	HORIZONTAL	PASSED

Channel 1 / 2412 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824	42.23	129.3	42.46	-0.23	VERTICAL	PASSED
7235.3	46.25	205.234	41.13	5.12	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
4824	29.31	29.215	29.54	-0.23	VERTICAL	PASSED
7235.3	33.32	46.355	28.2	5.12	HORIZONTAL	PASSED

5.3.3 802.11n HT20 MCS 0

Channel 7 / 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
44.338	24.88	17.537	37.34	-12.46	VERTICAL	PASSED
44.439	28.14	25.53	40.67	-12.53	VERTICAL	PASSED
47.727	28.41	26.318	42.89	-14.48	VERTICAL	PASSED
47.766	28.59	26.875	43.1	-14.51	VERTICAL	PASSED
47.776	28.24	25.82	42.75	-14.51	VERTICAL	PASSED
75.615	27.12	22.686	46.04	-18.92	HORIZONTAL	PASSED
834.983	23.46	14.892	27.17	-3.71	VERTICAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3925.949	41.31	116.212	42.73	-1.42	VERTICAL	PASSED

3930.058	41.26	115.611	42.73	-1.47	HORIZONTAL	PASSED
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Average(RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3925.949	28.25	25.843	29.67	-1.42	VERTICAL	PASSED
3930.058	28.29	25.975	29.76	-1.47	HORIZONTAL	PASSED

Channel 1 / 2412 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4825.8	41.96	125.314	42.2	-0.24	HORIZONTAL	PASSED
7236.7	46.24	205.187	41.12	5.12	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
4825.8	29.38	29.451	29.62	-0.24	HORIZONTAL	PASSED
7236.7	33.36	46.559	28.24	5.12	HORIZONTAL	PASSED

Channel 11 / 2462 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4922.4	42.87	139.155	42.86	0.01	HORIZONTAL	PASSED
7384.8	46.67	215.427	41.67	5	HORIZONTAL	PASSED

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

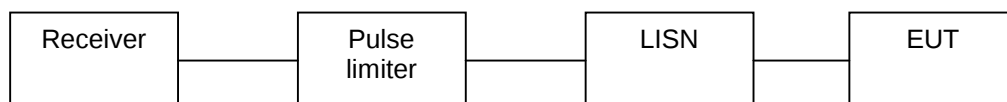
Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4922.4	30.18	32.266	30.17	0.01	HORIZONTAL	PASSED
7384.8	33.61	47.896	28.61	5	HORIZONTAL	PASSED

6. AC powerline conducted emissions

FCC §15.207, RSS-GEN 7.2.2

EUT with DUT number	RM-679, DUT 52100
Accessories with DUT numbers	BL-4D, DUT 52101 ; AC-10C, DUT 52108 ; CA-100C, DUT 52109 ; WH-205, DUT 52115
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 27 / 101.4
Date of measurements	30-Mar-2011
Measured by	Jia Dongsheng

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.

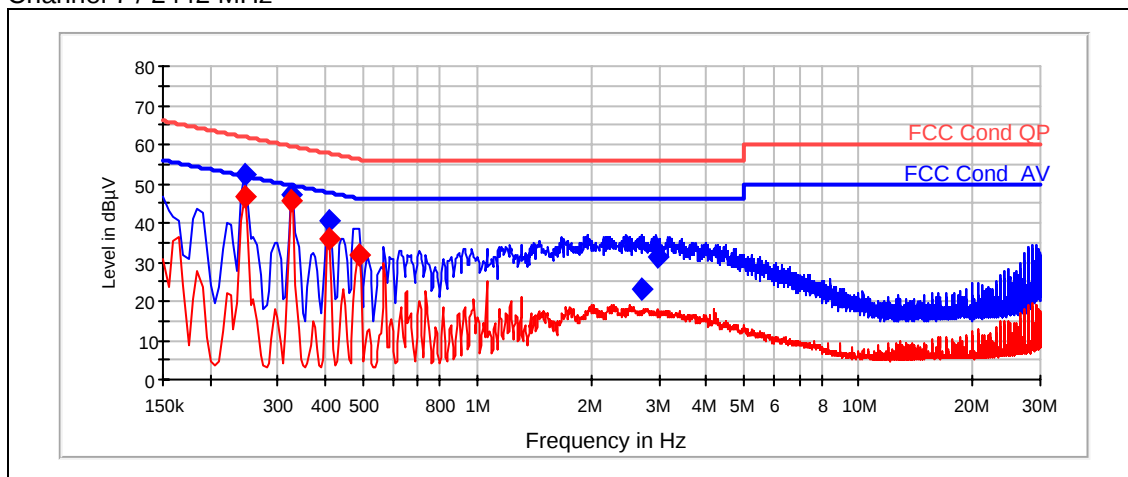
CISPR 22 Class B limits

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. WLAN Test results

6.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 7 / 2442 MHz



Quasi peak

Frequency [MHz]	Level [dBμV]	IF-BW[kHz]	Line	Margin	Result
0.245	52.13	9	N	9.8	PASSED
0.325	47.26	9	N	12.3	PASSED
0.41	40.37	9	N	17.3	PASSED
2.69	23.13	9	N	32.9	PASSED
2.96	31.16	9	N	24.8	PASSED

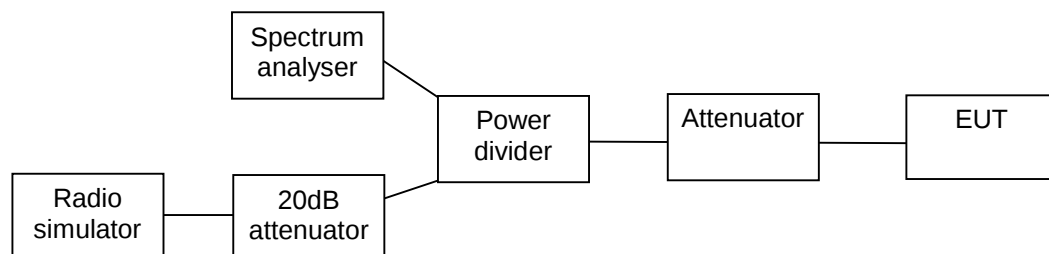
Average

Frequency [MHz]	Level [dBμV]	IF-BW[kHz]	Line	Margin	Result
0.245	46.73	9	N	5.2	PASSED
0.325	45.39	9	N	4.2	PASSED
0.41	36.05	9	N	11.6	PASSED
0.49	31.92	9	N	14.2	PASSED

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

EUT with DUT number	RM-679, DUT52104
Accessories with DUT numbers	BL-4D, DUT52105; AC-10C, DUT52108; CA-100C, DUT52109; WH-205, DUT52115
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 20 / 102.5
Date of measurements	22-Mar-2011
Measured by	Jia Dongsheng

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

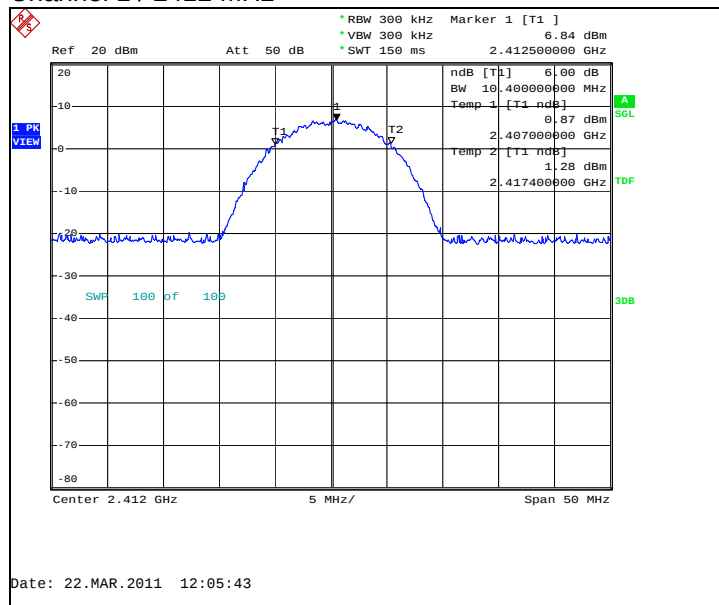
Limit [kHz]
≥ 500

7.3. WLAN test results

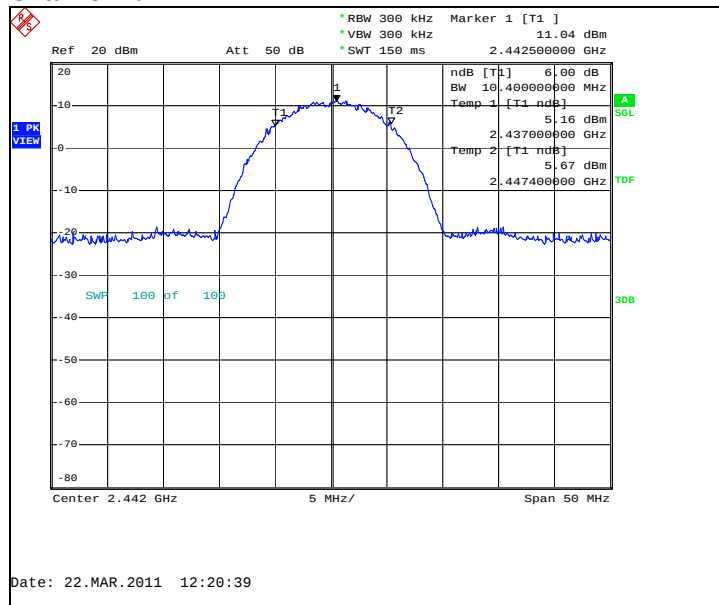
7.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	6 dB bandwidth [kHz]	Result
1	10400.000	PASSED
7	10400.000	PASSED
11	10000.000	PASSED

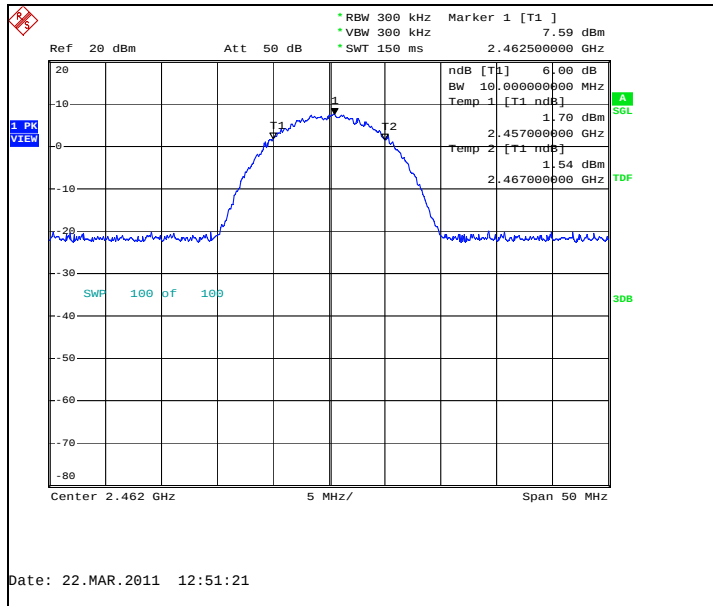
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



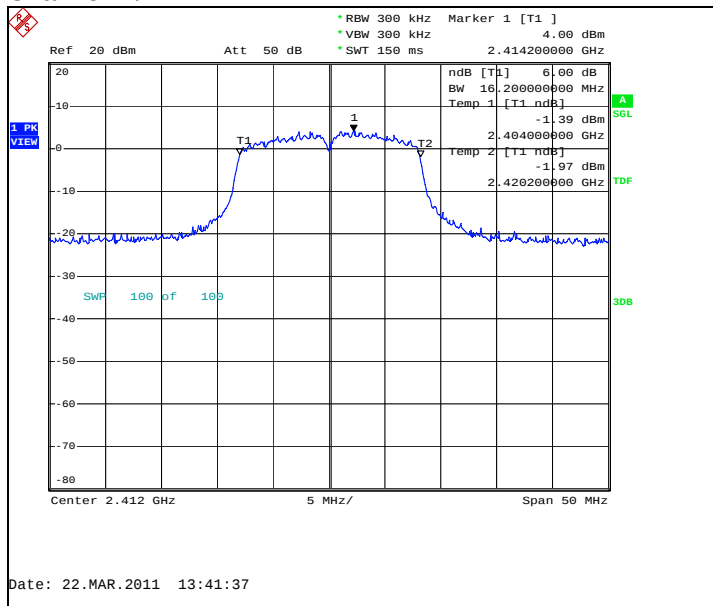
Channel 11 / 2462 MHz



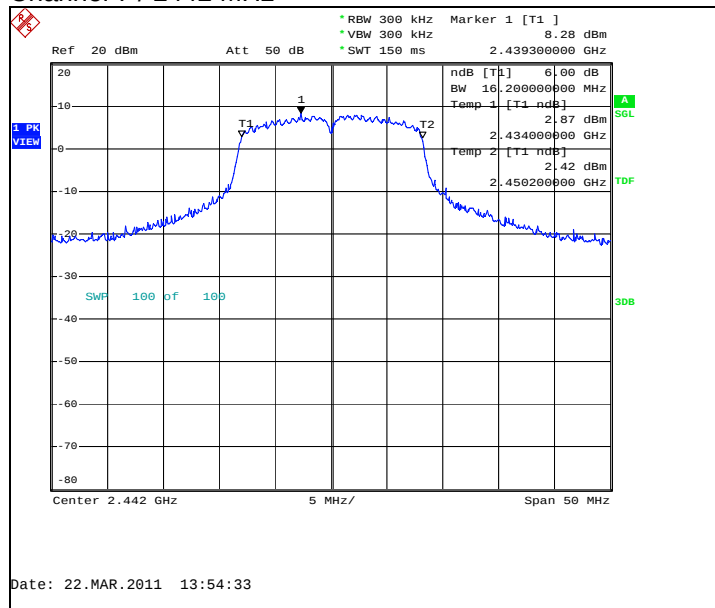
7.3.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	6 dB bandwidth [kHz]	Result
1	16200.000	PASSED
7	16200.000	PASSED
11	16200.000	PASSED

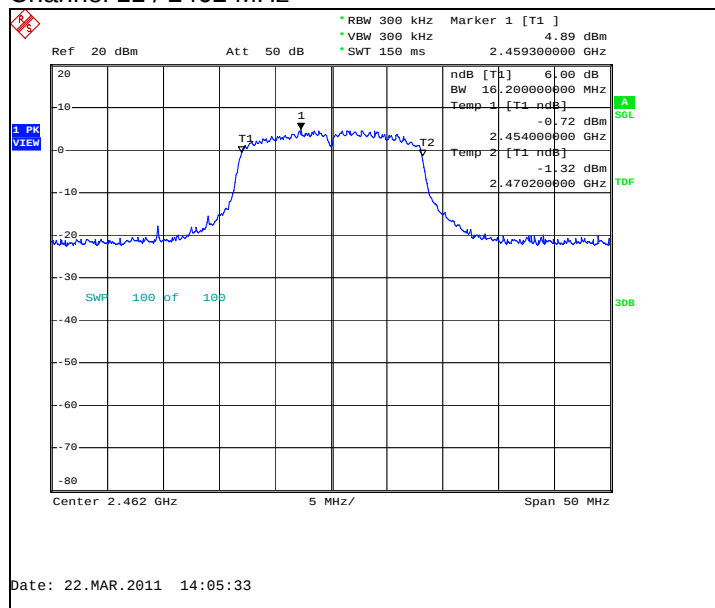
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



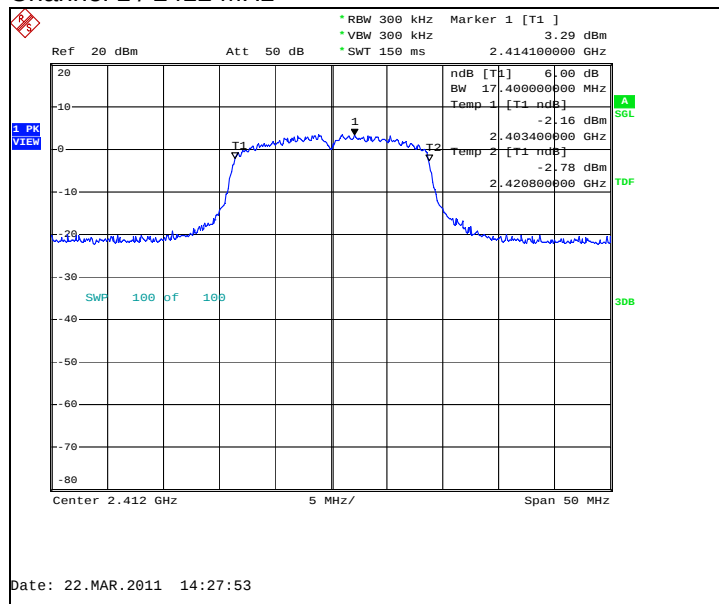
Channel 11 / 2462 MHz



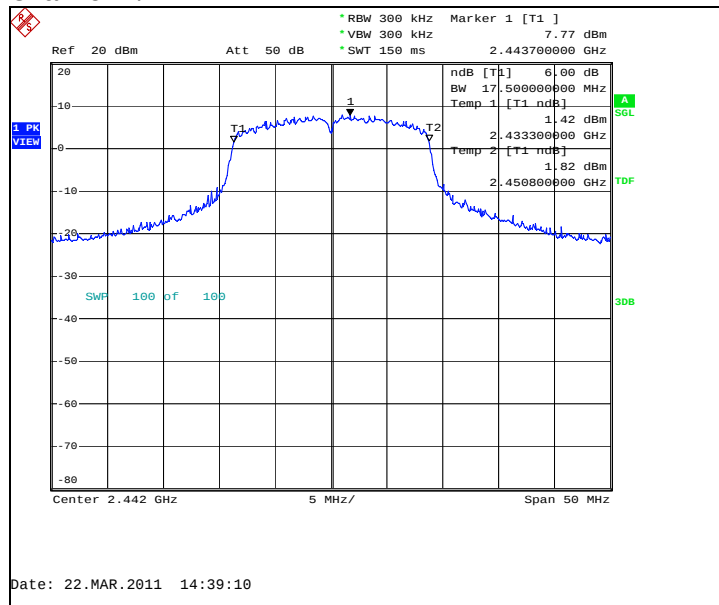
7.3.3 802.11n HT20 MCS 0

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
1	17400.000	PASSED
7	17500.000	PASSED
11	17400.000	PASSED

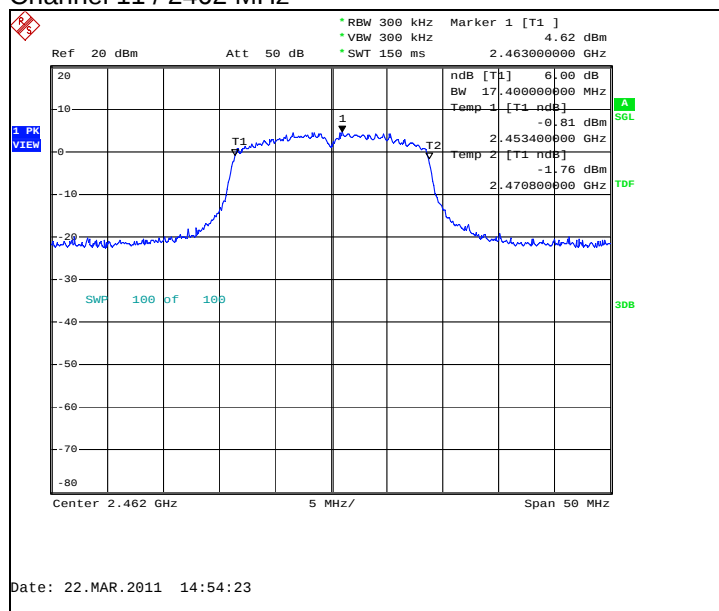
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



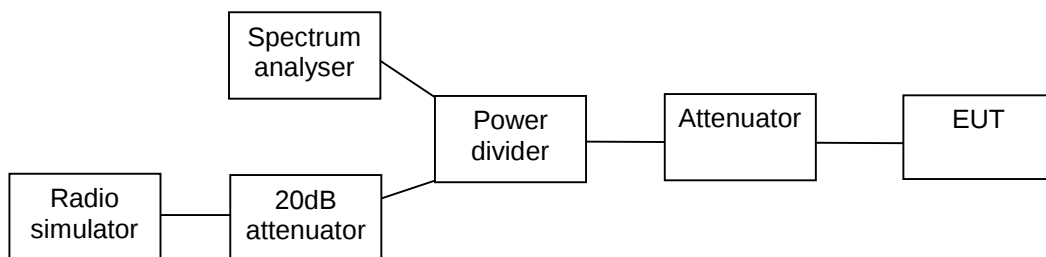
Channel 11 / 2462 MHz



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

EUT with DUT number	RM-679, DUT52104
Accessories with DUT numbers	BL-4D, DUT52105; AC-10C, DUT52108; CA-100C, DUT52109; WH-205, DUT52115
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 20 / 102.5
Date of measurements	22-Mar-2011
Measured by	Jia Dongsheng

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.

Limits for power spectral density measurements

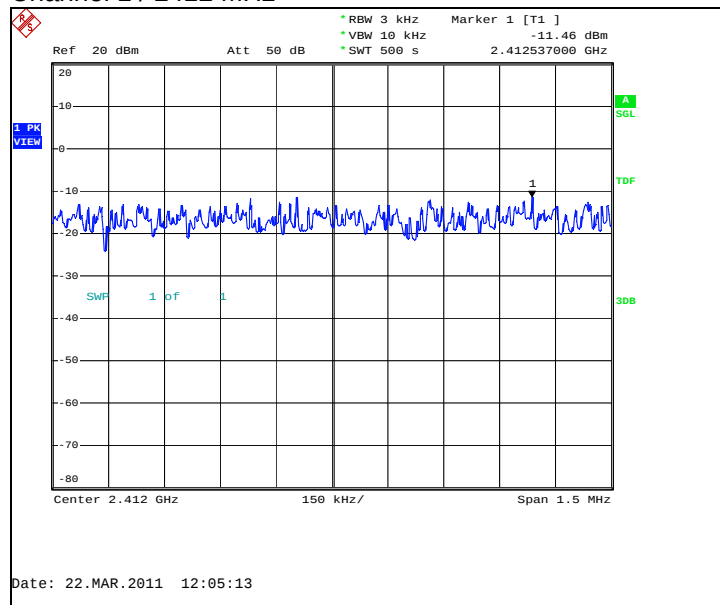
Limit [dBm] @ 3 kHz
≤ 8

8.3. WLAN test results

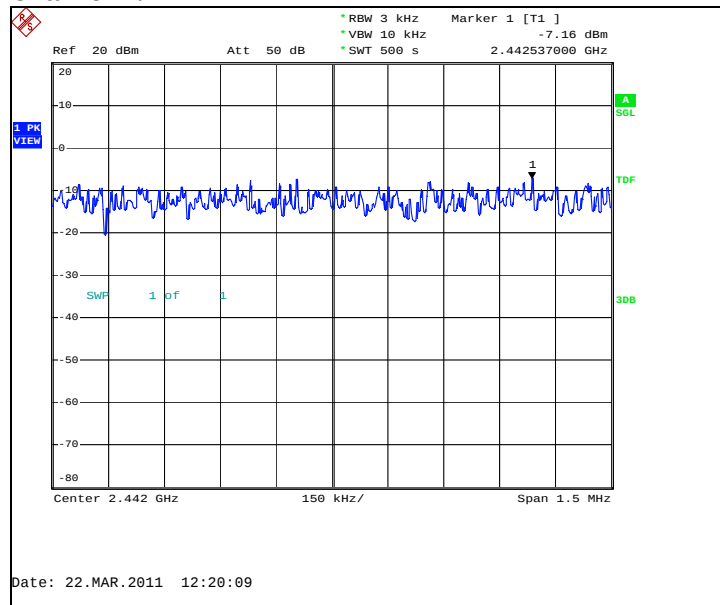
8.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-11.46	PASSED
7 / 2442	-7.16	PASSED
11 / 2462	-10.68	PASSED

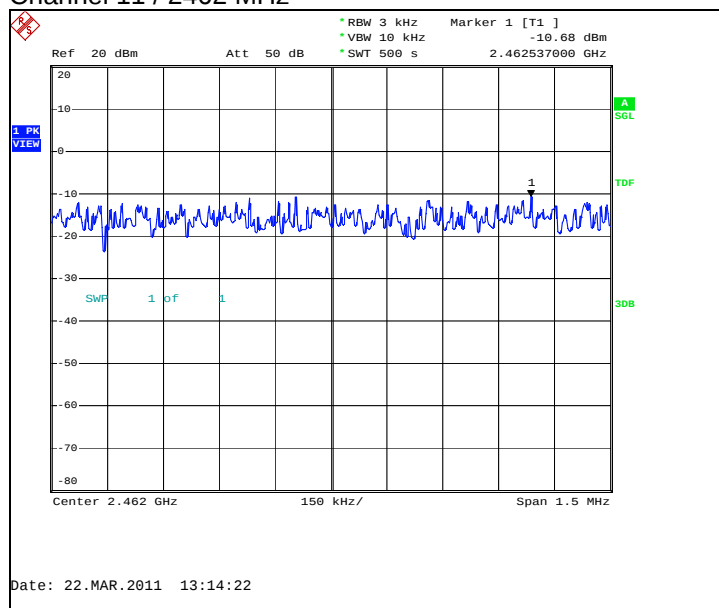
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



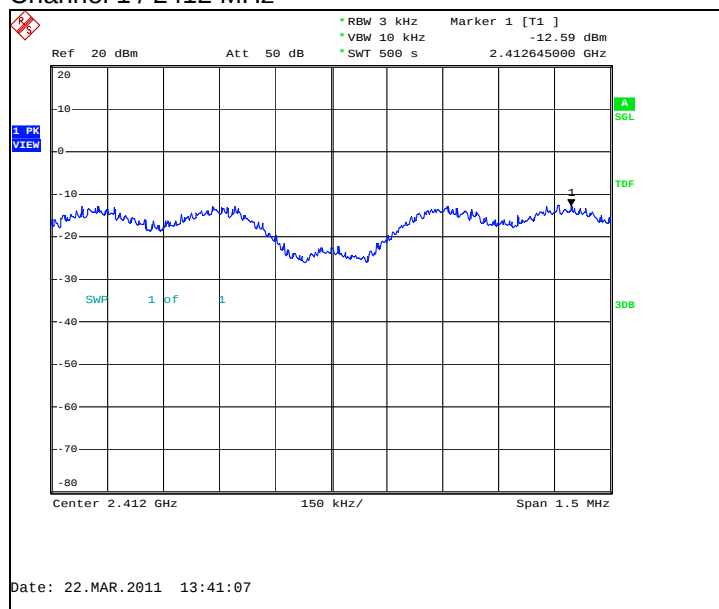
Channel 11 / 2462 MHz



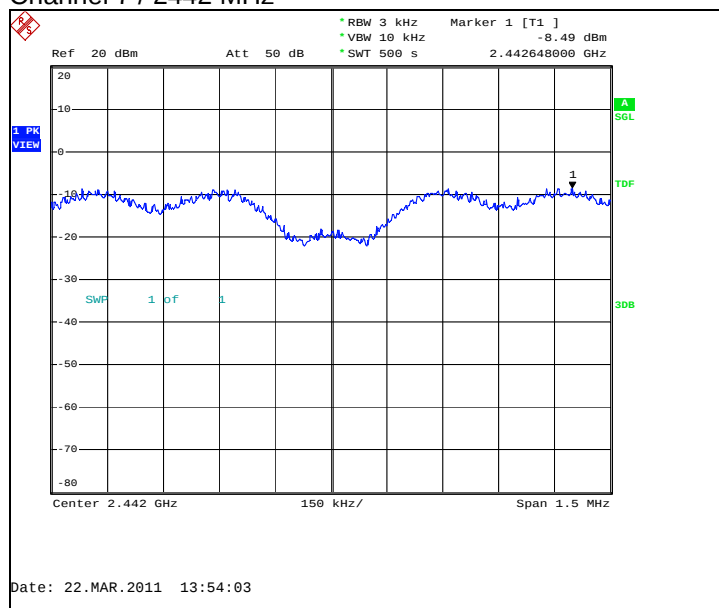
8.3.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-12.59	PASSED
7 / 2442	-8.49	PASSED
11 / 2462	-11.79	PASSED

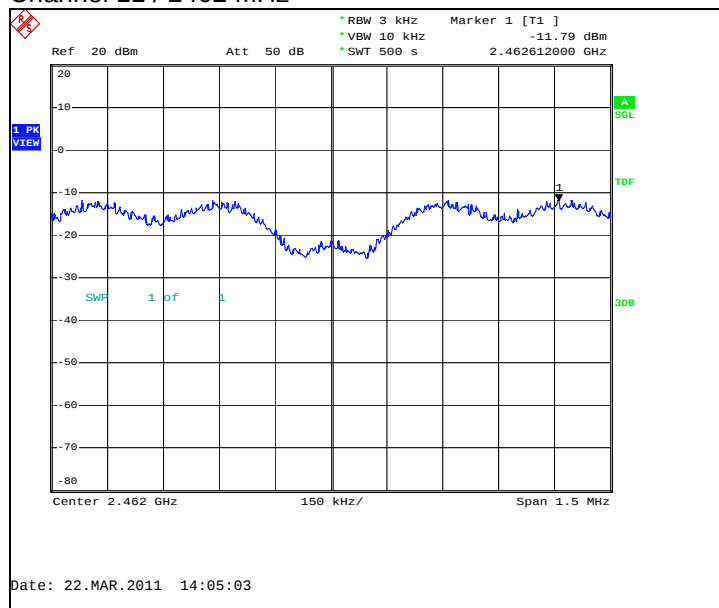
Channel 1 / 2412 MHz



Channel 7 / 2442 MHz



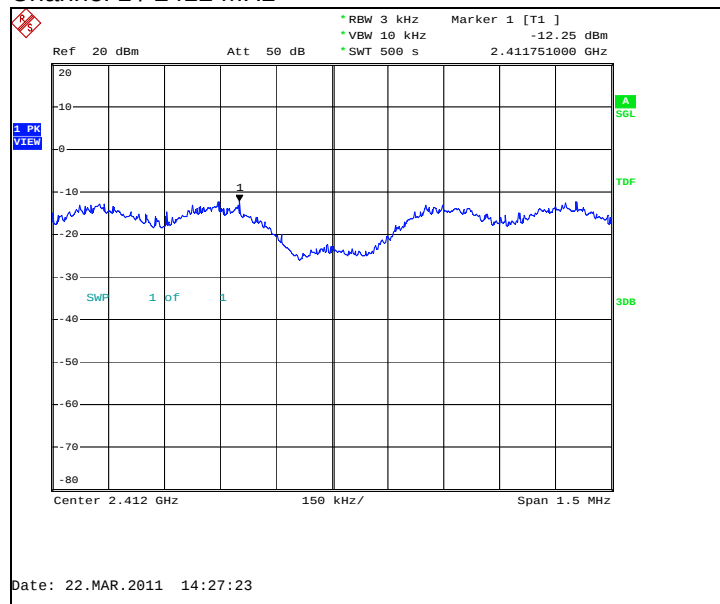
Channel 11 / 2462 MHz



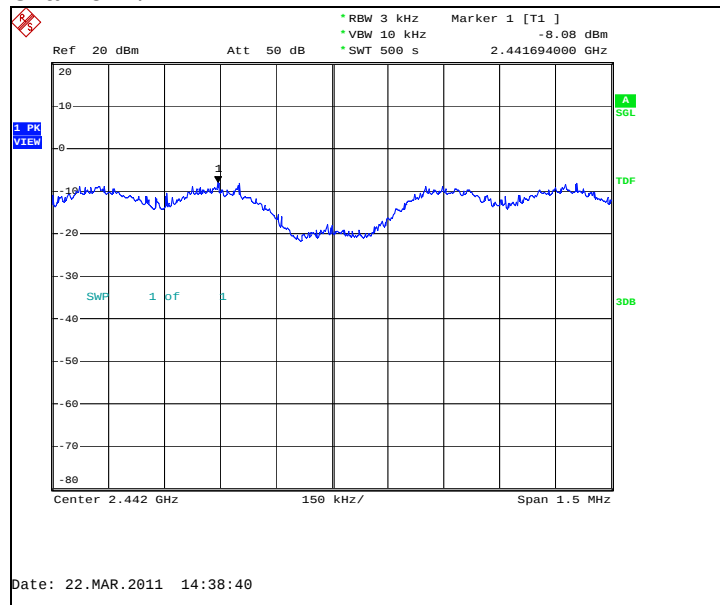
8.3.3 802.11n HT20 MCS 0

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-12.25	PASSED
7 / 2442	-8.08	PASSED
11 / 2462	-11.17	PASSED

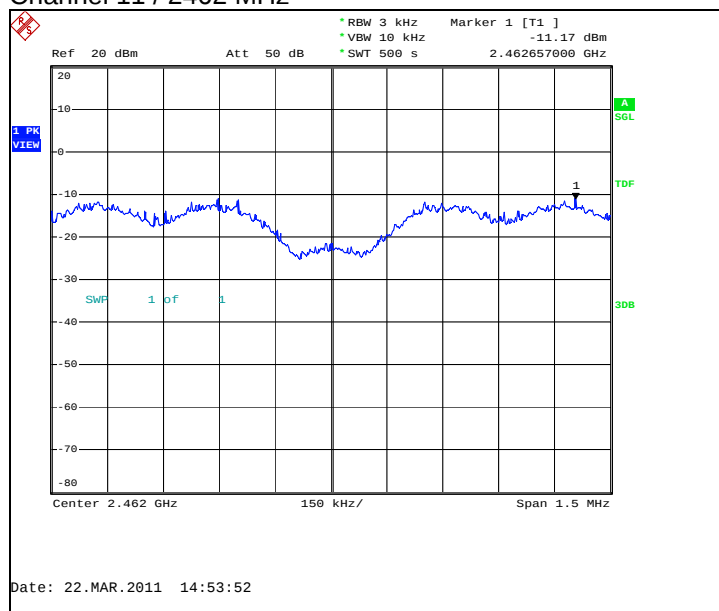
Channel 1 / 2412 MHz



Channel 7 / 2442 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
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

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
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