FCC Part 15C Compliance Test Report

Test Report no.:	FCC15CWLAN_RM-1014_11.docx	**Date of Report:**	19-Jun-2014
Number of pages:	29	**Customer's Contact person:**	Qiu Rain
Testing laboratory:	TCC Microsoft 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:**	Microsoft Mobile Oy Beijing Economic and Technological Development Area No.5 Donghuan Zhonglu Beijing PRC China 100176 Tel. +86 10 8711 8888 Fax. +86 10 8711 4550
FCC listing no.: **IC recognition no.:**	975940 661AH-1		
Tested devices/ accessories:	**Phone RM-1014 / AC Charger AC-20E / Battery BV-5S / Headset WH-108**		
FCC ID:	QTLRM-1014	**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 Microsoft.		
Test Results:	**The EUT complies with the requirements in respect of all parameters subject to the test.** The test results relate only to devices specified in this document		
Date and signature for the contents:	Digitally signed by Jia Dongsheng DN: cn=Jia Dongsheng, o=Microsoft, ou=TCC RCL, email=Dongsheng.jia@microsoft.com, c=CN Date: 2014.06.19 09:50:58 +08'00'		

Jia Dongsheng, Manager

TCC Microsoft 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

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	22-Apr-2014
Testing completed	09-May-2014
The customer's contact person	Qiu Rain
Test Plan referred to	T:\Projects\RM-1013\TestPlan\RS_testplan_RM-1013.xlsm
Notes	-
Document name	FCC15CWLAN_RM-1014_11.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-1013	SIM1:004402477644441;SIM2:004402477644458	0211	-	1.1415.103_ta	54327
AC Charger	AC-20E	409049321155040487 1;0675628	-	-	-	54358
Battery	BV-5S	4955404074040105275;0670718	-	-	-	54316
Headset	WH-108	3395571	-	-	-	54359
Phone	RM-1013	SIM1:004402477644680;SIM2: 004402477644698	0211		1.1415.103_ta	54314
Battery	BV-5S	4955404074040105278;0670718	-	-	-	54318
Charger	AC-20E	4868673306350600477;0675628	-	-	-	54320
Headset	WH-108	3395571	-	-	-	54323
Phone	RM-1013	SIM1:004402477644862;SIM2: 004402477644870	0211		1.1415.103_ta	54313
Battery	BV-5S	4955404074040105277;0670718	-	-	-	54317
Charger	AC-20E	4868673306310604923;0675628	-	-	-	54319
Headset	WH-108	3395571	-	-	-	54324

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	NP
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	The EUT complies with the essential requirements in the standard.
FAILED	The EUT does not comply with the essential requirements in the standard.
NP	The test was not performed by the TCC Microsoft Laboratory.

The test results of RM-1013 are re-used for certification of the QTLRM-1014. The table above indicates the results, which will be re-used.

TCC Microsoft 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

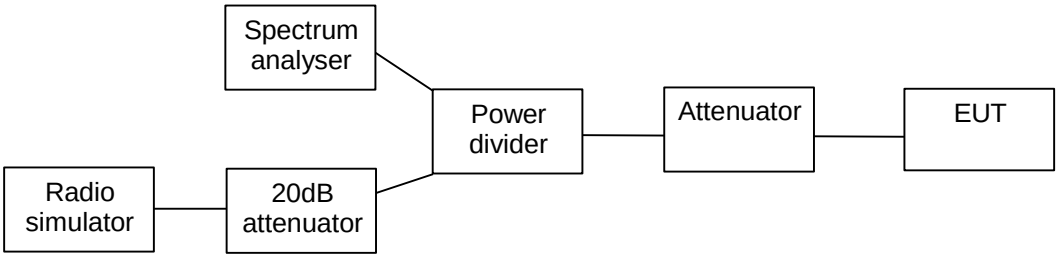
CONTENTS

TCC Microsoft 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

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

EUT with DUT number	RM-1013, DUT 54327
Accessories with DUT numbers	AC-20E, DUT 54358 ; BV-5S, DUT 54316;WH-108,DUT54359
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22/45/101
Date of measurements	09-May-2014
Measured by	Mark Ma

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

TCC Microsoft 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

2.3. WLAN Test results

2.4. Power results summary

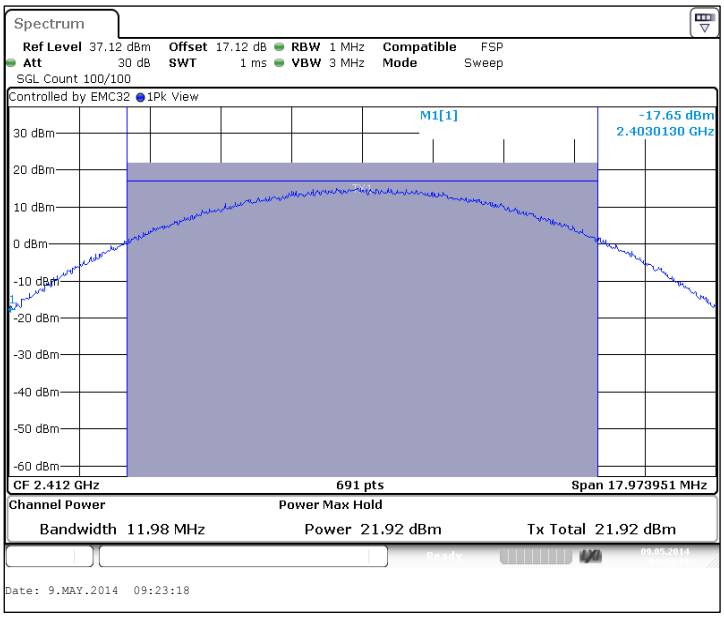
Channel / f_C [MHz]	Mode	Modulation	Data rate	Level [dBm]
6 / 2437	802.11b	BPSK	1 Mbps	19.93
6 / 2437	802.11b	QPSK	2 Mbps	20.2
6 / 2437	802.11b	QPSK	5.5 Mbps	22.1
6 / 2437	802.11b	QPSK	11 Mbps	23.28
6 / 2437	802.11g	BPSK	6 Mbps	22
6 / 2437	802.11g	BPSK	9 Mbps	22.01
6 / 2437	802.11g	QPSK	12 Mbps	21.71
6 / 2437	802.11g	QPSK	18 Mbps	21.69
6 / 2437	802.11g	16QAM	24 Mbps	22.23
6 / 2437	802.11g	16QAM	36 Mbps	22.12
6 / 2437	802.11g	64QAM	48 Mbps	22.11
6 / 2437	802.11g	64QAM	54 Mbps	22.31
6 / 2437	802.11n	BPSK	6.5 / 7.25 Mbps	22.13
6 / 2437	802.11n	QPSK	13.0 / 14.4 Mbps	21.71
6 / 2437	802.11n	QPSK	19.5 / 21.7 Mbps	21.97
6 / 2437	802.11n	16QAM	26.0 / 28.9 Mbps	22.39
6 / 2437	802.11n	16QAM	39.0 / 43.3 Mbps	22.18
6 / 2437	802.11n	64QAM	52.0 / 57.8 Mbps	22.31
6 / 2437	802.11n	64QAM	58.5 / 65.0 Mbps	22.19
6 / 2437	802.11n	64QAM	65.0 / 72.2 Mbps	22.11

2.4.1 802.11b mode, QPSK modulation, 11 Mbps data rate

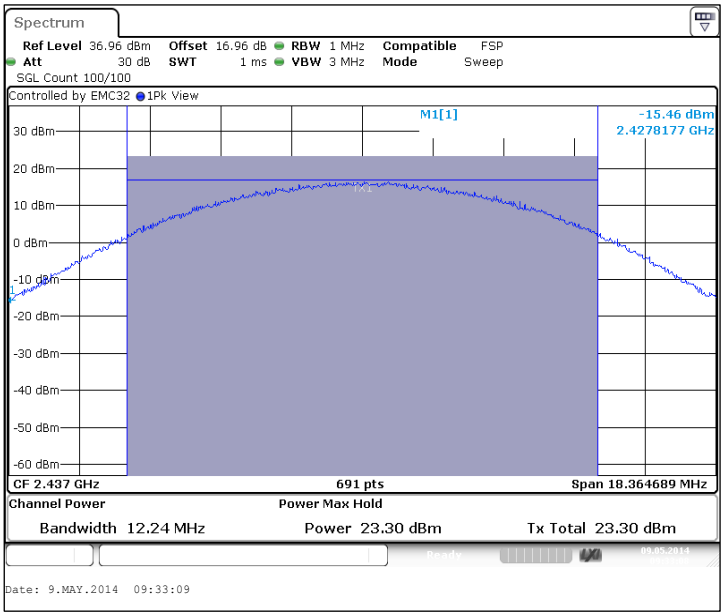
Channel / f_C [MHz]	P [dBm]	P [mW]	Result
1 / 2412	21.92	155.597	PASSED
6 / 2437	23.3	213.796	PASSED
11 / 2462	23.3	213.796	PASSED

TCC Microsoft 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

Channel 1 / 2412 MHz

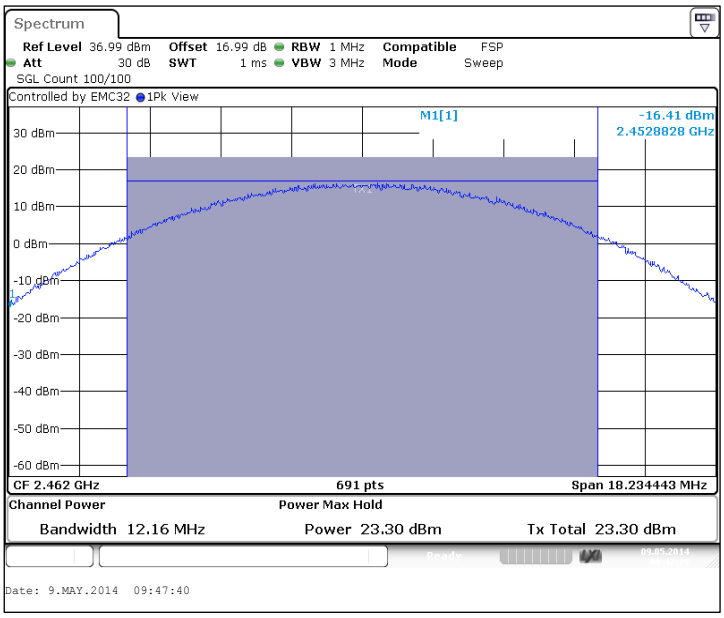


Channel 6 / 2437 MHz



TCC Microsoft 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

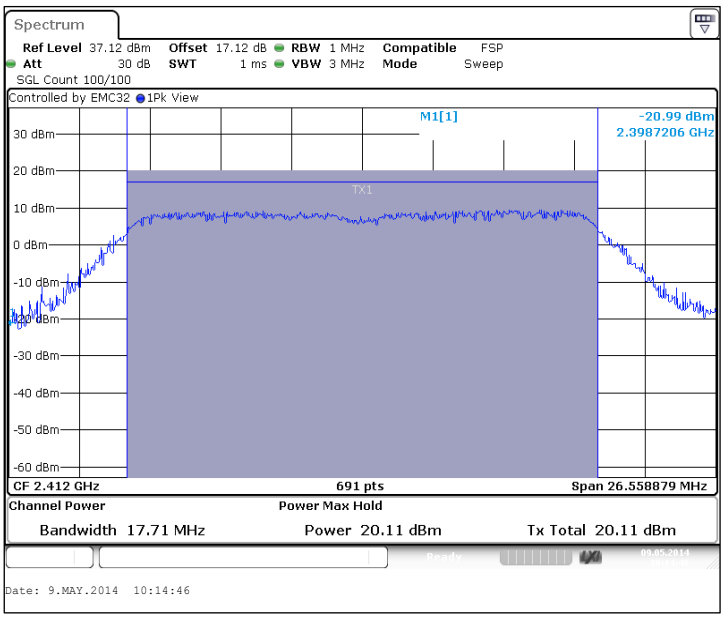
Channel 11 / 2462 MHz



2.4.2 802.11n mode, BPSK modulation, 6.5 / 7.25 Mbps data rate

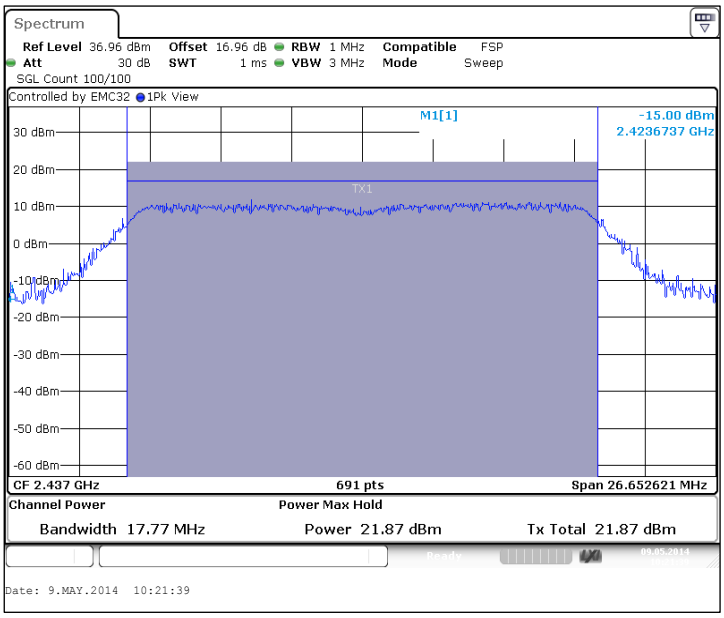
Channel / f_C [MHz]	P [dBm]	P [mW]	Result
1 / 2412	20.11	102.565	PASSED
6 / 2437	21.87	153.815	PASSED
11 / 2462	20.7	117.49	PASSED

Channel 1 / 2412 MHz

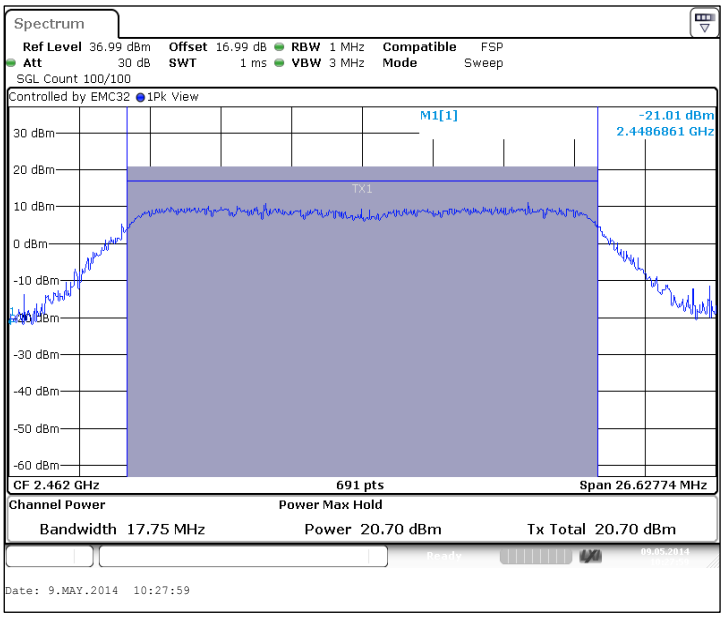


TCC Microsoft Beijing Laboratory
Beijing Economic and
Technological Development Area
No.5 Donghuan Zhonglu Beijing
PRC China 100176
Tel. +86 10 8711 8888
Fax. +86 10 8711 4550

Channel 6 / 2437 MHz



Channel 11 / 2462 MHz

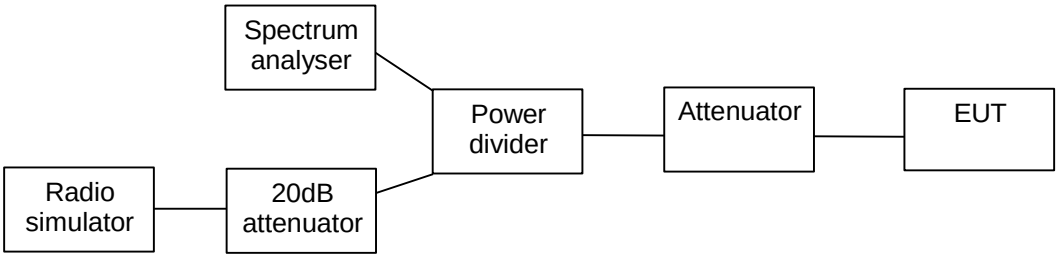


TCC Microsoft Beijing Laboratory
Beijing Economic and
Technological Development Area
No.5 Donghuan Zhonglu Beijing
PRC China 100176
Tel. +86 10 8711 8888
Fax. +86 10 8711 4550

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

EUT with DUT number	RM-1013, DUT 54327
Accessories with DUT numbers	AC-20E, DUT 54358 ; BV-5S, DUT 54316; WH-108,DUT 54359
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22/45/101
Date of measurements	09-May-2014
Measured by	Mark Ma

3.1. Test Setup



3.2. 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 11.2 of the KDB 558074, using span of 1.5 times the OBW.

Limits for spurious RF conducted emissions measurements

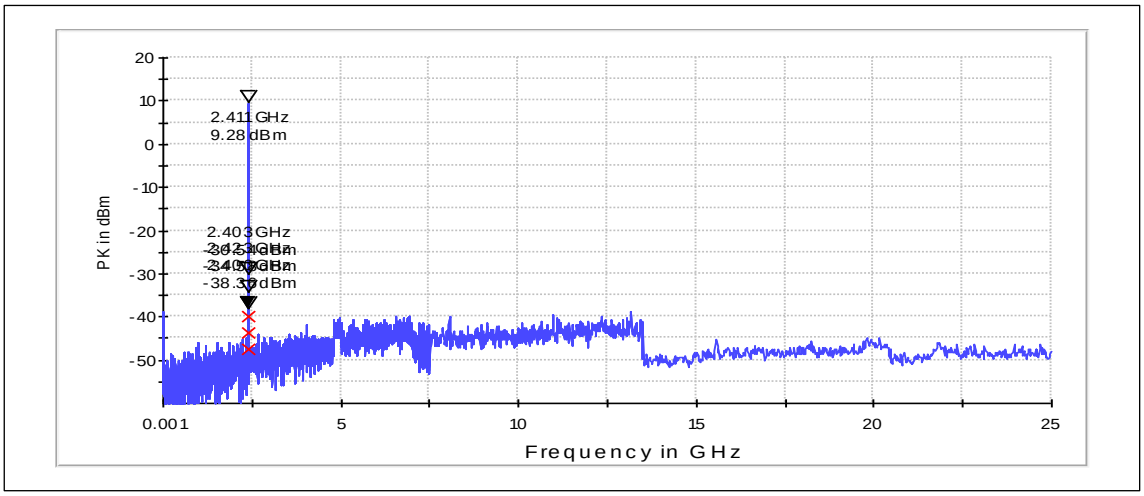
Frequency range [MHz]	Limit [dBc]
1 – 25000	<= -20

TCC Microsoft 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

3.3. WLAN Test results

3.3.1 802.11b mode, QPSK modulation, 11 Mbps data rate

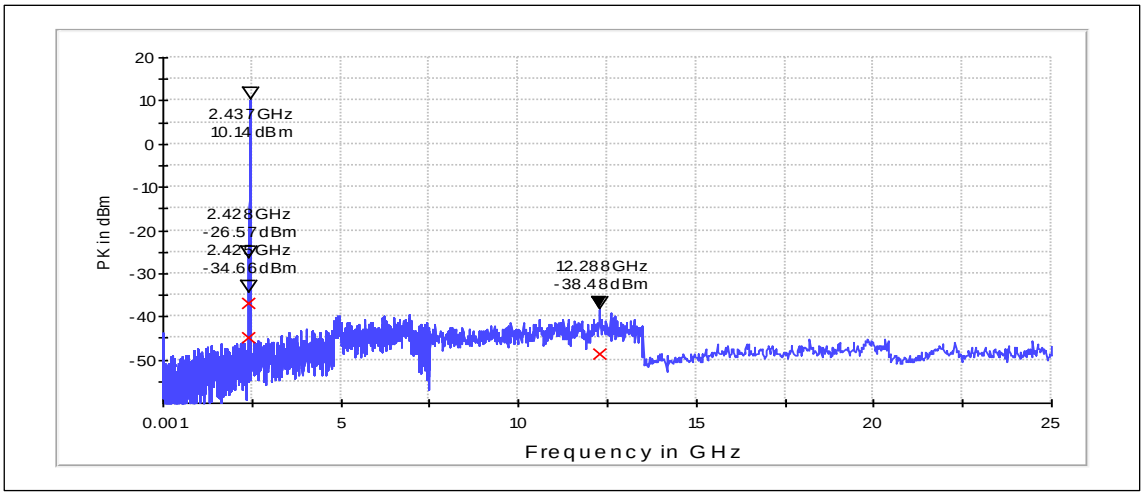
Channel 1 / 2412 MHz



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

Frequency [MHz]	P [dBc]	Result
2403.188	-39.83	PASSED
2422.764	-43.86	PASSED
2400.376	-47.64	PASSED

Channel 6 / 2437 MHz

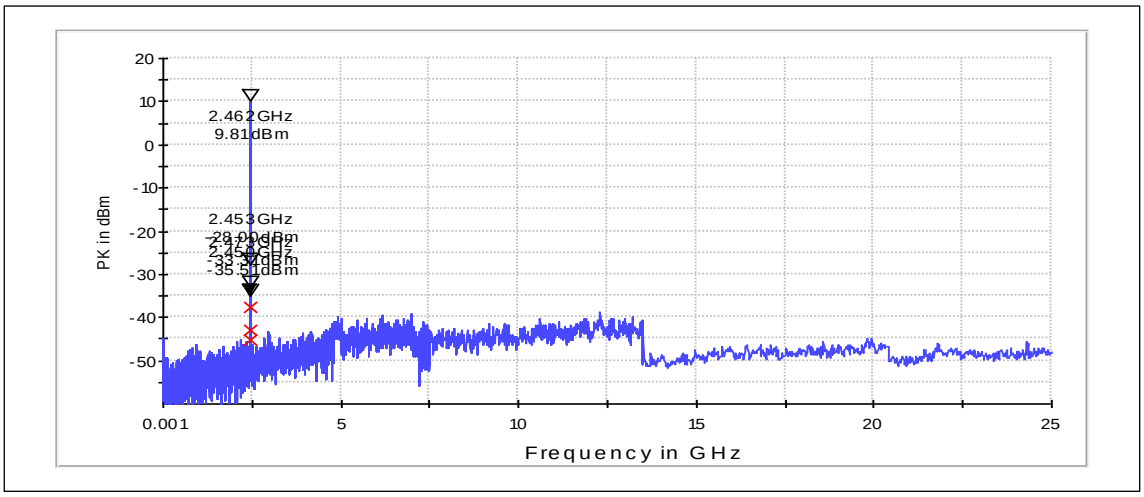


Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
2428.138	-36.71	PASSED
2425.276	-44.80	PASSED
12288.000	-48.62	PASSED

TCC Microsoft 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

Channel 11 / 2462 MHz

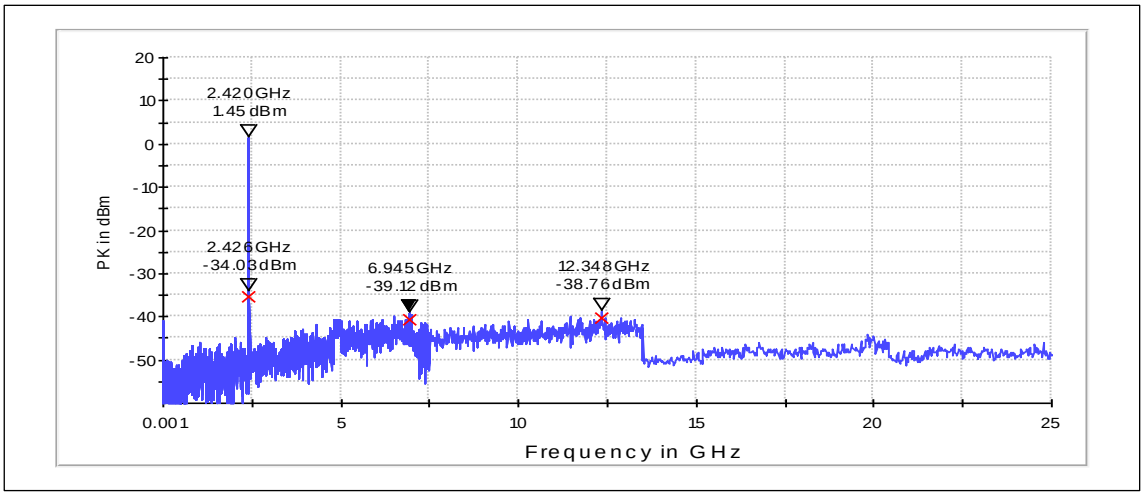


Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
2453.088	-37.81	PASSED
2472.664	-43.12	PASSED
2450.176	-45.32	PASSED

3.3.2 802.11n mode, BPSK modulation, 6.5 / 7.25 Mbps data rate

Channel 1 / 2412 MHz

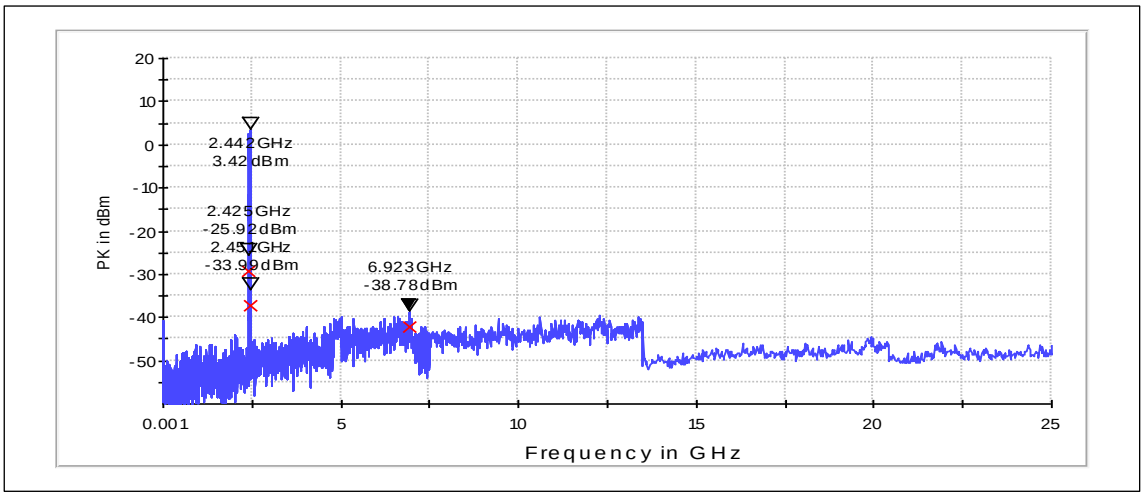


Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
2425.758	-35.48	PASSED
12348.000	-40.21	PASSED
6944.800	-40.57	PASSED

TCC Microsoft 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

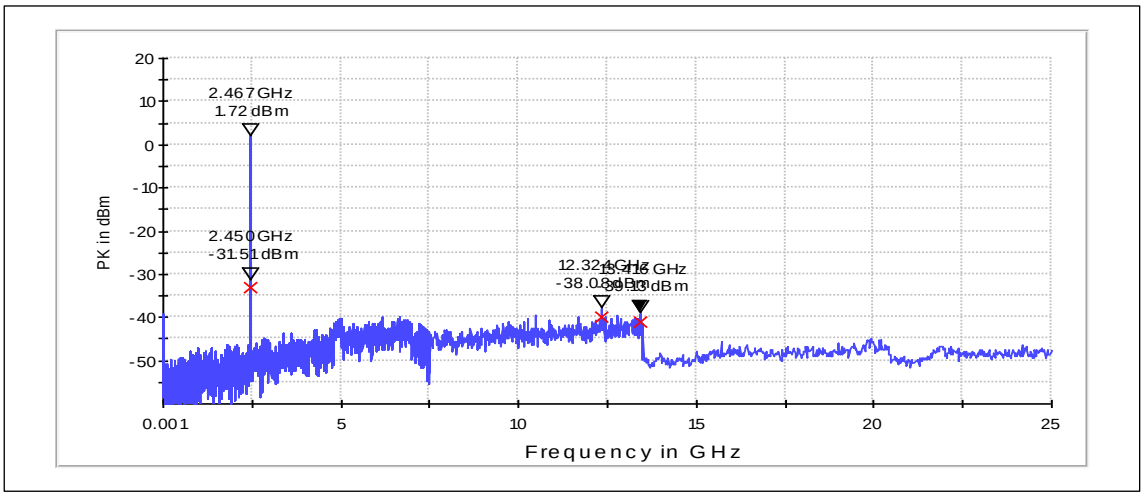
Channel 6 / 2437 MHz



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

Frequency [MHz]	P [dBc]	Result
2425.144	-29.35	PASSED
2450.708	-37.41	PASSED
6922.800	-42.20	PASSED

Channel 11 / 2462 MHz



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

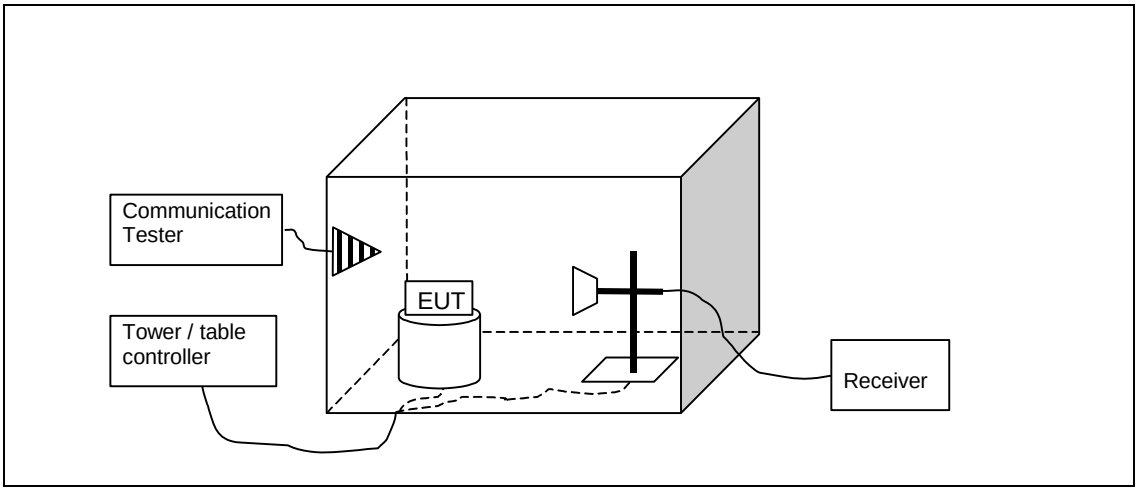
Frequency [MHz]	P [dBc]	Result
2450.094	-33.23	PASSED
12324.000	-39.80	PASSED
13416.000	-40.86	PASSED

TCC Microsoft 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

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

EUT with DUT number	RM-1013, DUT 54314
Accessories with DUT numbers	BV-5S, DUT 54318 ; AC-20E, DUT 54320 ; WH-108, DUT 54323
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21/37/101.2
Date of measurements	05-May-2014
Measured by	Gao Sherina

4.1.1 Test setup



4.2. 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.

TCC Microsoft 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

The measurement results are obtained as described below:

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

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

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

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

TCC Microsoft 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

4.3. WLAN test results

4.3.1 802.11b, QPSK modulation, 11 Mbps data rate.

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]	Limit [dBµV/m]	Margin	Results
4823.9	58.06	799.834	56.76	1.3	74	15.92	PASSED
7236	56.59	675.305	46.79	9.8	95	38.64	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Limit [dBµV/m]	Margin	Results
4823.9	44.82	174.181	43.52	1.3	54	9.16	PASSED
7236	41.55	119.536	31.75	9.8	---	---	PASSED

Channel 6 / 2437 MHz

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Limit [dBµV/m]	Margin	Results
39.106	30.3	32.734	43.3	-13	40	9.7	PASSED
836.663	44.01	158.672	48.81	-4.8	46	2.01	PASSED
955.324	39.67	96.272	43.07	-3.4	46	6.35	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Limit [dBµV/m]	Margin	Results
4879.5	47.87	247.457	46.47	1.4	74	26.11	PASSED
7320.7	49.96	314.775	39.56	10.4	74	24.02	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Limit [dBµV/m]	Margin	Results
4879.5	33.69	48.362	32.29	1.4	54	20.29	PASSED
7320.7	36.6	67.608	26.2	10.4	54	17.38	PASSED

TCC Microsoft 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

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]	Limit [dBµV/m]	Margin	Results
4924	54.5	530.884	53.1	1.4	74	19.48	PASSED
7385.8	54.16	510.505	43.46	10.7	74	19.82	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Limit [dBµV/m]	Margin	Results
4924	40.71	108.518	39.31	1.4	54	13.27	PASSED
7385.8	40.07	100.809	29.37	10.7	54	13.91	PASSED

4.3.2 802.11n, BPSK modulation, 6.5 / 7.25 Mbps data rate.

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]	Limit [dBµV/m]	Margin	Results
4822.7	48.85	277.013	47.55	1.3	74	25.13	PASSED
7237.6	51.82	389.942	42.02	9.8	95	43.41	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Limit [dBµV/m]	Margin	Results
4822.7	33.73	48.585	32.43	1.3	54	20.25	PASSED
7237.6	38.1	80.353	28.3	9.8	---	---	PASSED

Channel 6 / 2437 MHz

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Limit [dBµV/m]	Margin	Results
39.189	28.8	27.542	41.9	-13.1	40	11.2	PASSED
39.286	28.77	27.447	41.87	-13.1	40	11.23	PASSED
955.414	39.61	95.609	43.01	-3.4	46	6.41	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Limit [dBµV/m]	Margin	Results
4881.2	45	177.828	43.6	1.4	74	28.98	PASSED
7320.7	51.74	386.367	41.34	10.4	74	22.24	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Limit [dBµV/m]	Margin	Results
4881.2	31.92	39.446	30.52	1.4	54	22.06	PASSED
7320.7	37.85	78.073	27.45	10.4	54	16.13	PASSED

TCC Microsoft 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

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]	Limit [dBµV/m]	Margin	Results
4923	48.46	264.85	47.06	1.4	74	25.52	PASSED
7386.1	50.88	349.945	40.18	10.7	74	23.1	PASSED

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

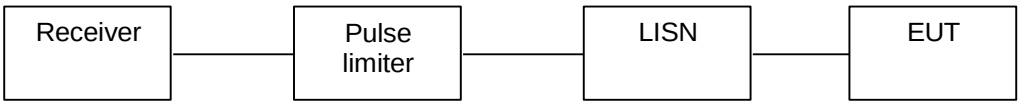
Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Limit [dBµV/m]	Margin	Results
4923	35.03	56.429	33.63	1.4	54	18.95	PASSED
7386.1	37.62	76.033	26.92	10.7	54	16.36	PASSED

TCC Microsoft 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

5. AC powerline conducted emissions
(FCC §15.207, RSS-210 7.2.2)

EUT with DUT number	RM-1013, DUT 54313
Accessories with DUT numbers	BV-5S, DUT 54317 ; AC-20E, DUT 54319 ; WH-108, DUT 54324
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21/30/101.2
Date of measurements	05-May-2014
Measured by	Mark Ma

5.1. Test Setup



5.2. Test method and limit

The measurement is made according to procedure KDB 558074 and IC standard RSS-GEN as follows:

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

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

The measurement results are obtained as described below:

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

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

CISPR 22 Class B limits

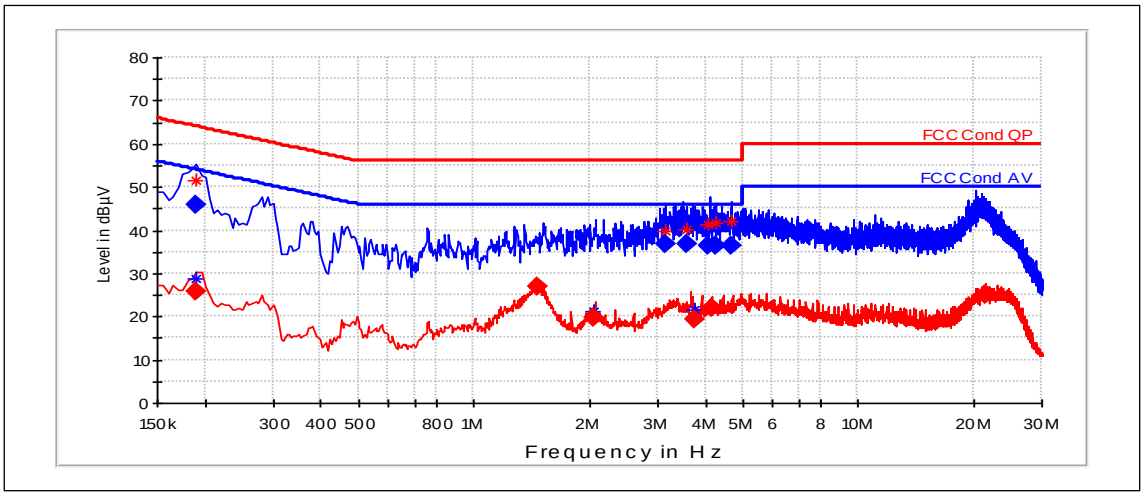
Frequency range [MHz]	Quasi peak limit [dBµV]	Average limit [dBµV]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

TCC Microsoft 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

5.3. WLAN Test results

5.3.1 802.11b mode, QPSK modulation, 11 Mbps data rate

Channel 6 / 2437 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.19	45.86	L1	PASSED
3.14	36.9	L1	PASSED
3.56	36.78	L1	PASSED
4.045	36.52	L1	PASSED
4.28	36.36	L1	PASSED
4.68	36.4	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.19	25.86	N	PASSED
1.47	26.87	N	PASSED
2.055	19.67	N	PASSED
3.745	19.18	N	PASSED
4.17	21.81	L1	PASSED
21.49	25.03	L1	PASSED

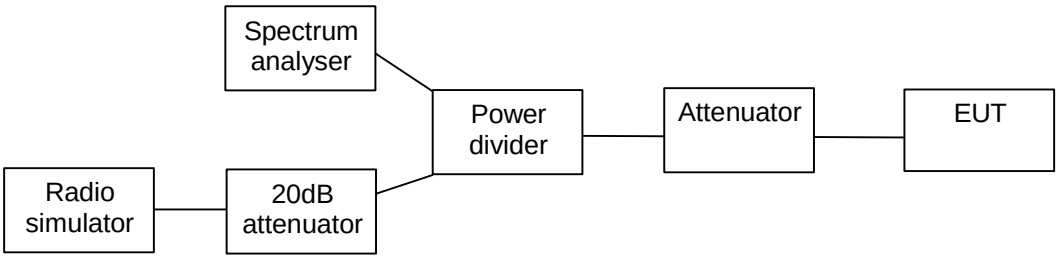
TCC Microsoft Beijing Laboratory
Beijing Economic and
Technological Development Area
No.5 Donghuan Zhonglu Beijing
PRC China 100176
Tel. +86 10 8711 8888
Fax. +86 10 8711 4550

6. 6 dB bandwidth

(FCC §15.247(a)(2), RSS-210 A8.2 (1))

EUT with DUT number	RM-1013, DUT 54327
Accessories with DUT numbers	AC-20E, DUT 54358 ; BV-5S, DUT 54316; WH-108,DUT 54359
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22/45/101
Date of measurements	09-May-2014
Measured by	Mark Ma

6.1. Test Setup



6.2. 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

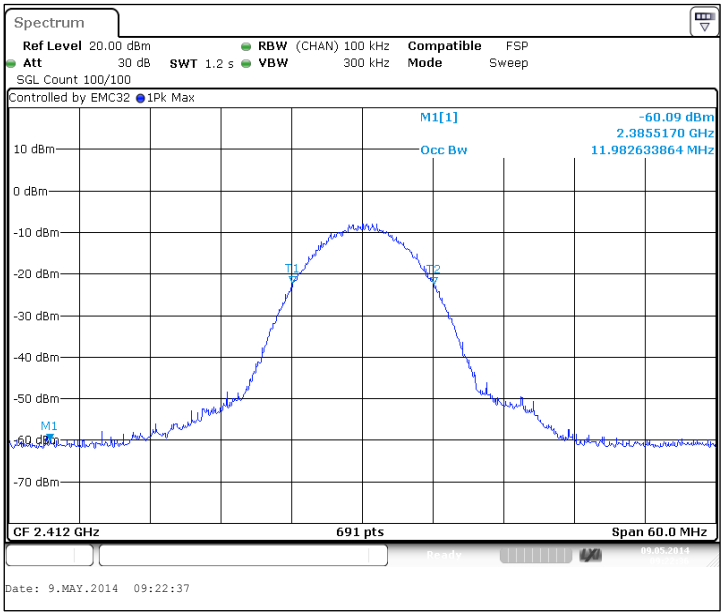
TCC Microsoft Beijing Laboratory
Beijing Economic and Technological Development Area
No.5 Donghuan Zhonglu Beijing
PRC China 100176
Tel. +86 10 8711 8888
Fax. +86 10 8711 4550

6.3. WLAN Test results

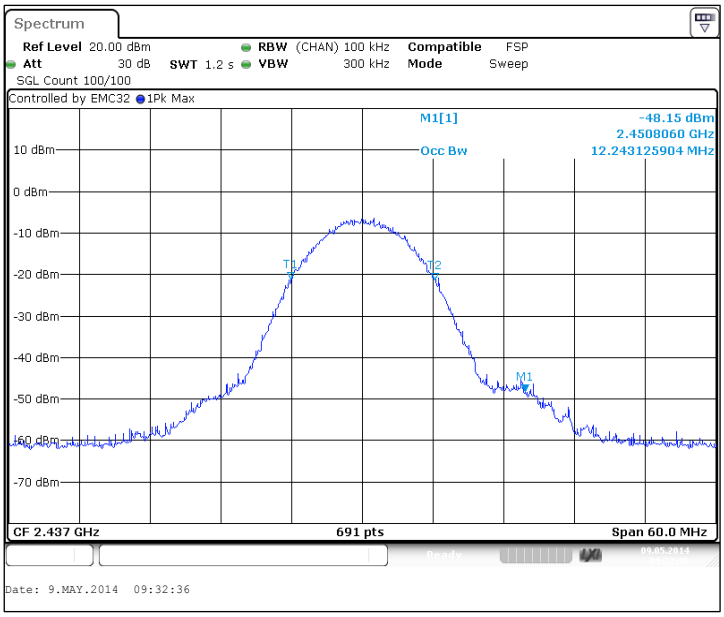
6.3.1 802.11b mode, QPSK modulation, 11 Mbps data rate

Channel / f_C [MHz]	6 dB bandwidth [kHz]	Result
1 / 2412	11982.6	PASSED
6 / 2437	12243.1	PASSED
11 / 2462	12156.3	PASSED

Channel 1 / 2412 MHz

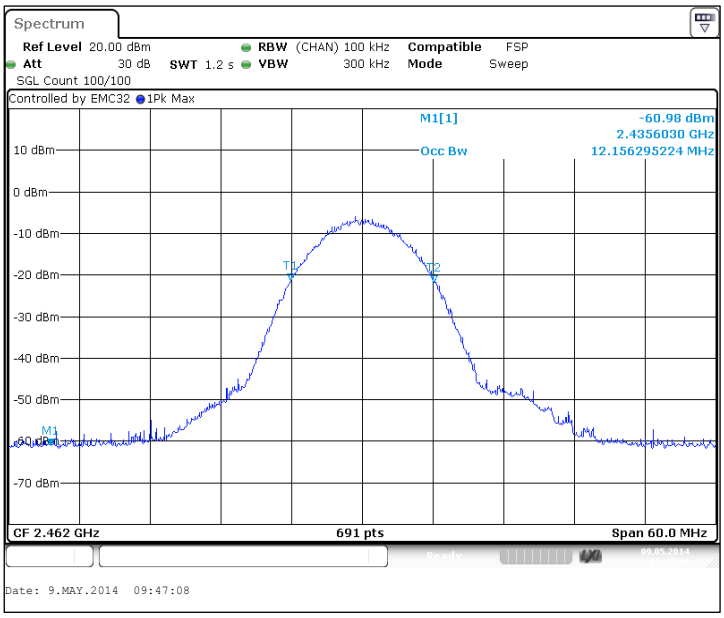


Channel 6 / 2437 MHz



TCC Microsoft 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

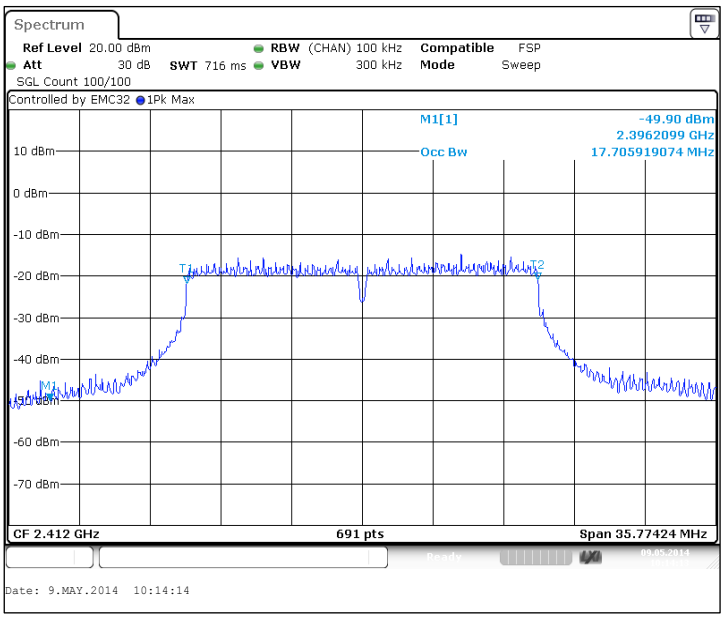
Channel 11 / 2462 MHz



6.3.2 802.11n mode, BPSK modulation, 6.5 / 7.25 Mbps data rate

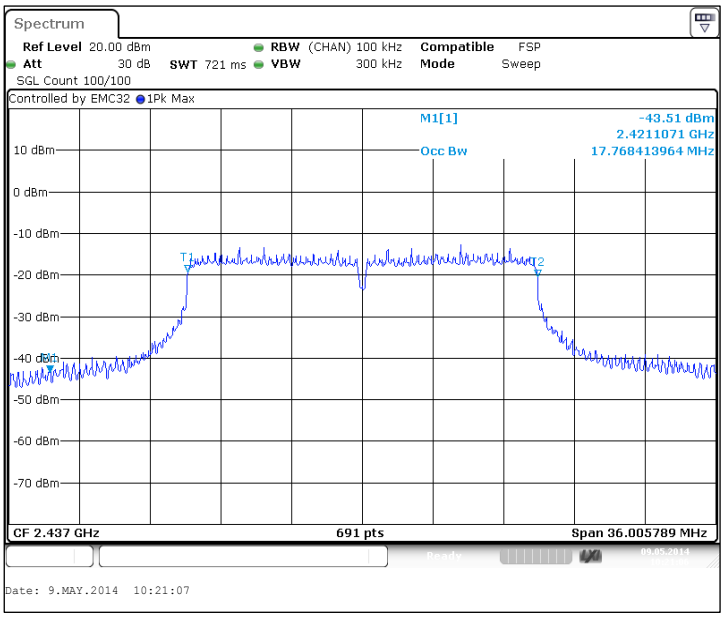
Channel / f_C [MHz]	6 dB bandwidth [kHz]	Result
1 / 2412	17705.9	PASSED
6 / 2437	17768.4	PASSED
11 / 2462	17751.8	PASSED

Channel 1 / 2412 MHz

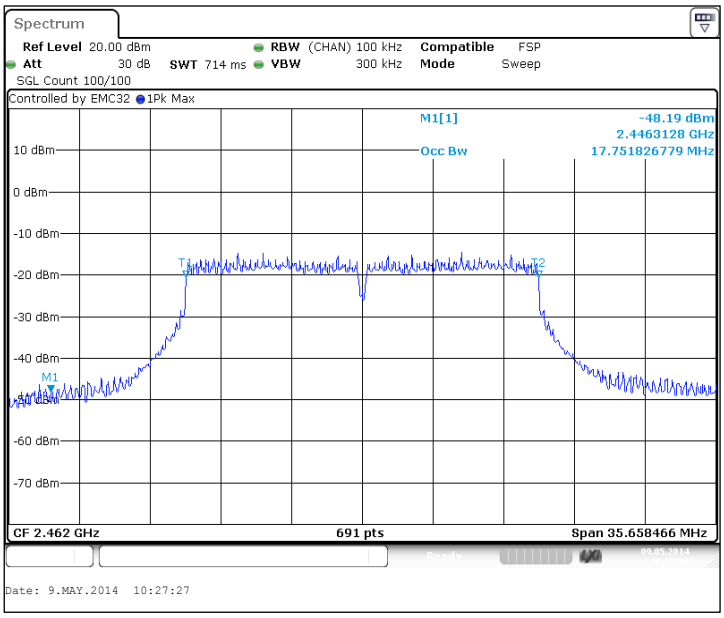


TCC Microsoft Beijing Laboratory
Beijing Economic and
Technological Development Area
No.5 Donghuan Zhonglu Beijing
PRC China 100176
Tel. +86 10 8711 8888
Fax. +86 10 8711 4550

Channel 6 / 2437 MHz



Channel 11 / 2462 MHz

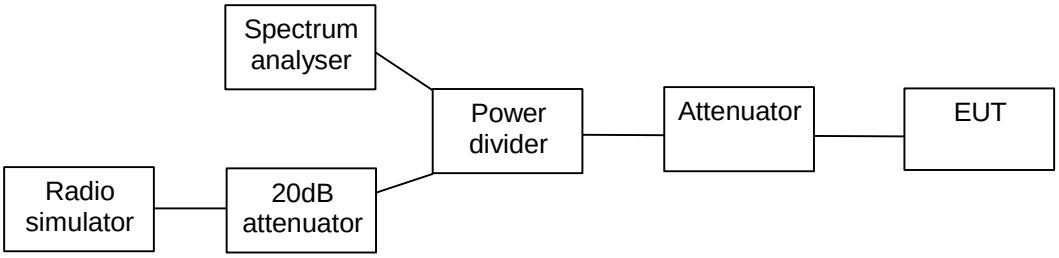


TCC Microsoft Beijing Laboratory
Beijing Economic and
Technological Development Area
No.5 Donghuan Zhonglu Beijing
PRC China 100176
Tel. +86 10 8711 8888
Fax. +86 10 8711 4550

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

EUT with DUT number	RM-1013, DUT 54327
Accessories with DUT numbers	AC-20E, DUT 54358 ; BV-5S, DUT 54316; WH-108,DUT 54359
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22/45/101
Date of measurements	09-May-2014
Measured by	Mark Ma

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 power spectral density measurements

Limit [dBm] @ 3 kHz
<= 8

TCC Microsoft 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

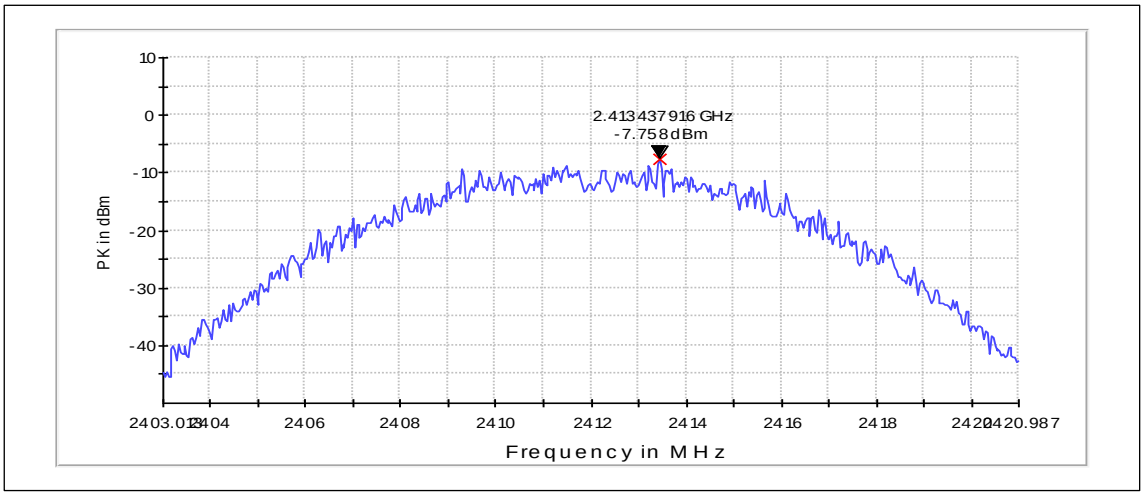
7.3. WLAN Test results

7.3.1 802.11b mode, QPSK modulation, 11 Mbps data rate

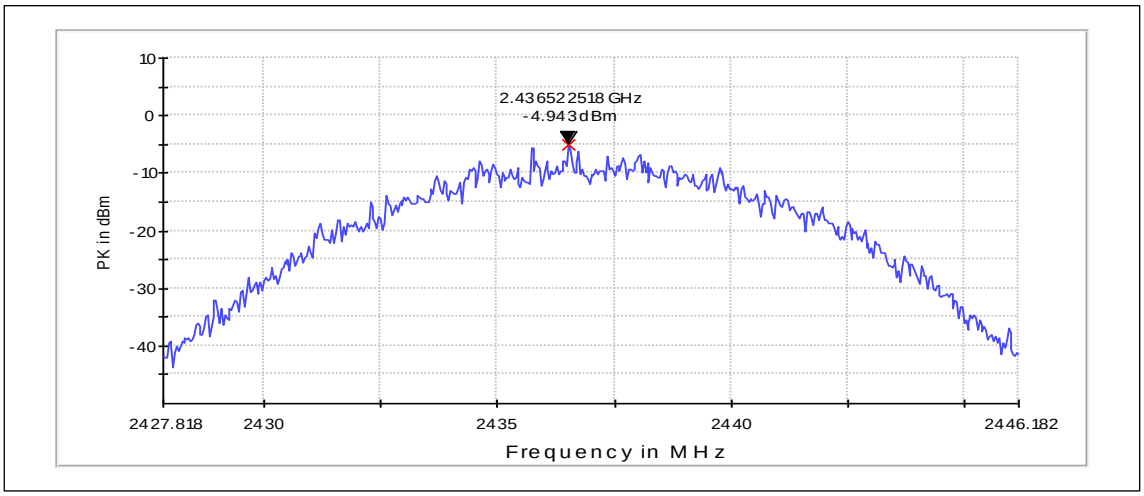
Peak (RBW: 3 kHz, VBW: 10 kHz, Max hold)

Channel / f_C [MHz]	P [dBm]	Result
1 / 2412	-7.76	PASSED
6 / 2437	-4.94	PASSED
11 / 2462	-5.99	PASSED

Channel 1 / 2412 MHz

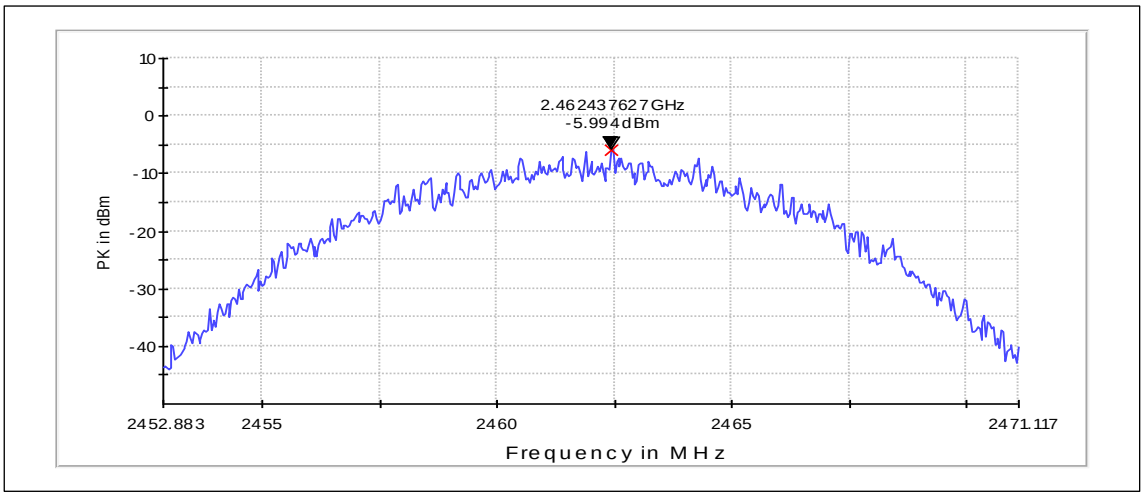


Channel 6 / 2437 MHz



TCC Microsoft 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

Channel 11 / 2462 MHz

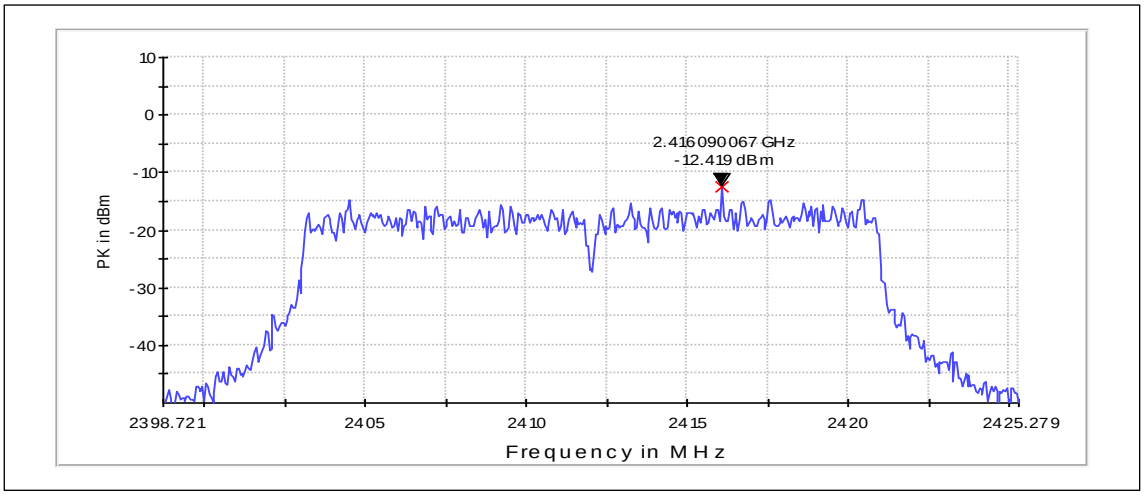


7.3.2 802.11n mode, BPSK modulation, 6.5 / 7.25 Mbps data rate

Peak (RBW: 3 kHz, VBW: 10 kHz, Max hold)

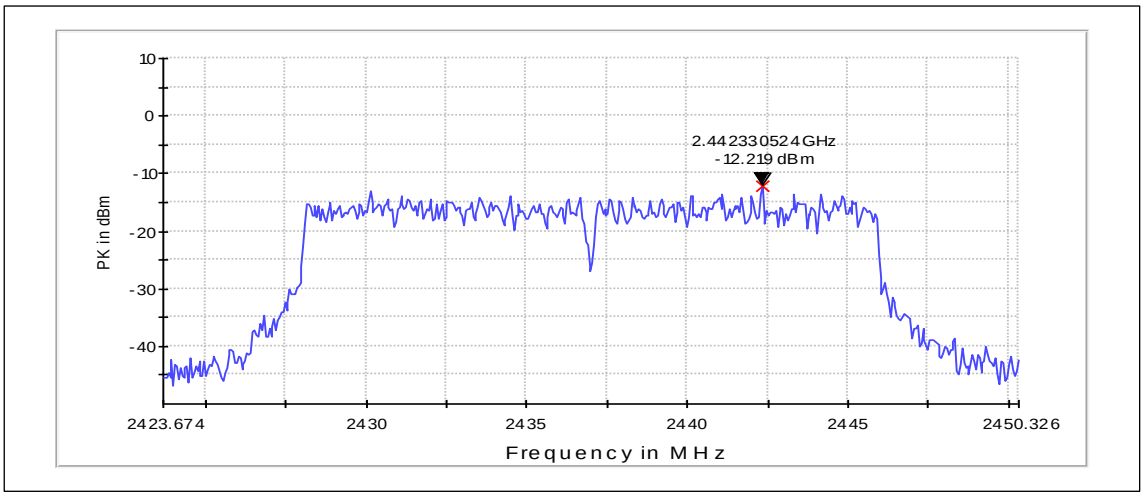
Channel / f_C [MHz]	P [dBm]	Result
1 / 2412	-12.42	PASSED
6 / 2437	-12.22	PASSED
11 / 2462	-13.99	PASSED

Channel 1 / 2412 MHz

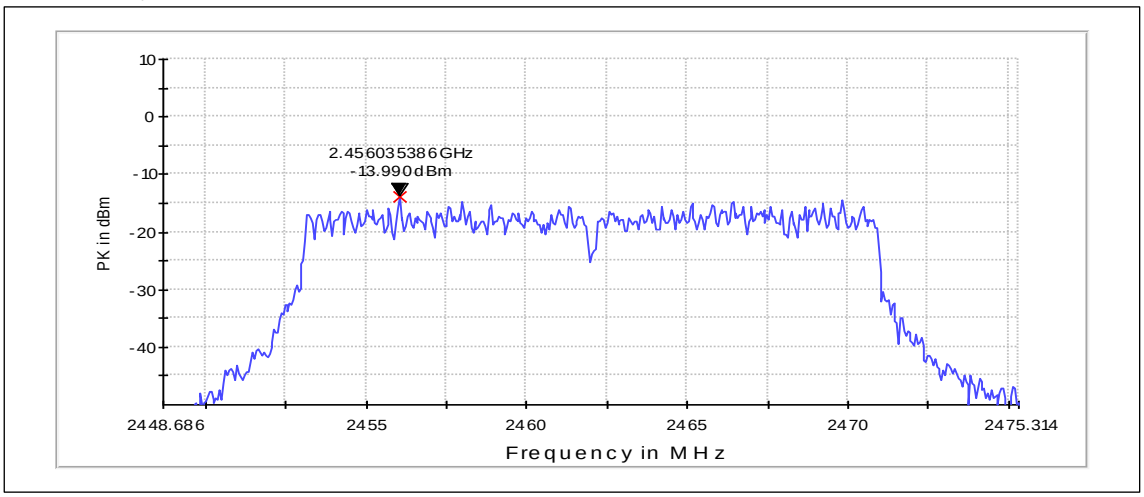


TCC Microsoft Beijing Laboratory
Beijing Economic and
Technological Development Area
No.5 Donghuan Zhonglu Beijing
PRC China 100176
Tel. +86 10 8711 8888
Fax. +86 10 8711 4550

Channel 6 / 2437 MHz



Channel 11 / 2462 MHz



TCC Microsoft 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

8. Test Equipment

8.1. Conducted 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
BJPCHW0020	DC Power supply	Hp6632B	HP	22/24/27, 15C
BJPCPT0040	Receiver	ESCS30	R&S	15C,15B
BJPCPT0069	LISN 50 µH	ESH3-Z5	R&S	15C,15B
BJPCTC0323	Signal Generator	SMR 27	R&S	22/24/27, 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	GPIB-RS232 convertor	GPIB-RS232	NI	22/24/27, 15C
BJPCTC0112	Power Splitter	11667B	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
BJPCTC0306	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0305	GPIB converter	GPIB-RS232	NI	22/24/27, 15C
BJPCTC0304	Spectrum Analyser	FSV30	R&S	22/24/27, 15C
BJPCTC0309	GPIB-RS232 convertor	RS232	NI	22/24/27, 15C
BJPCTC0307	Dual channel battery/charger simulator	2306	KEITHLEY	22/24/27, 15C
BJPCTC0308	Dual channel battery/charger simulator	2306	KEITHLEY	22/24/27, 15C
BJPCHW0571	Signal Generator 20GHz	MG3692B	Anritsu	22/24/27, 15C
BJBDATC0169	Tempreture Test chamber	VT4002	Votsch	22/24/27, 15C
BJPCTC0334	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0342	Communication Tester	CMU200	R&S	15B, 15C

8.2. 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
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
BJPCPT0166	Antenna	VUBA 9117	Swarzbeck	22/24/27
BJPCPT0208	UPS	PULSAR RX10	Merlin gerin	15C.15B
BJPCTC0001	DIGITAL CAMERA	PC1015	CANON	15C.15R

TCC Microsoft 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

Eq. No	Equipment	Type	Manufacturer	Used in
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
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
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
BJPCTC0171	Broad-band Horn Antenna	BBHA9120 D	SCHWARZBECK MESS - ELEKTRONIK	22/24/27, 15C, 15B
BJPCTC0310	Horn Antenna	QSH20SMA	Q-par	22/24/27, 15C, 15B
BJPCTC0311	Horn Antenna	QSH18SMA	Q-par	22/24/27, 15C, 15B
BJPCTC0312	Relay Switch Unit	-	-	22/24/27, 15C, 15B
BJPCTC0313	High Pass Filter	WHKX1.0/15G-12SS	Wainwright	22/24/27, 15C, 15B
BJPCTC0314	High Pass Filter	WHKX8.0/18G-88SS	Wainwright	22/24/27, 15C, 15B
BJPCTC0315	High Pass Filter	WHKX3.0/18G-12SS	Wainwright	22/24/27, 15C, 15B
BJPCTC0316	Preamplifier	AMT-5F-18002550-25-108	-	22/24/27, 15C, 15B
BJPCTC0317	Preamplifier	AMF-6D-02001800-29-20P	-	22/24/27, 15C, 15B
BJPCTC0350	Preamplifier	AMF-4D-01000800-30-29P	Miteq	22/24/27, 15C, 15B
BJPCTC0324	Preamplifier	AFS4-00100300-20-23P-6	Miteq	22/24/27, 15C, 15B
BJPCTC0329	Relay Switch Unit	-	-	22/24/27, 15C, 15B
BJPCTC0334	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0342	Communication Tester	CMU200	R&S	15B, 15C
BJPCTC0349	Preamplifier	AMF-4D-01000800-30-79P	Miteg	22/24/27, 15C, 15B
BJPCTC0350	Preamplifier	AMF-4D-01000800-30-29P	Miteg	22/24/27, 15C, 15B
BJPCTC0351	Preamplifier	AFS4-00101800	-	22/24/27, 15C, 15B

TCC Microsoft 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