

FCC WIFI TEST REPORT

No. 150209-WIFI

For

MFOURTEL MEXICO S.A. DE C.V.

Product Name: Mobile Phone

Model Name: M4 SS4350

Trade Name: M4

Issued Date: 2015-03-17

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of GCCT.

To verify test report authenticity, send full test report to Email: dr_xywen@126.com

Test Laboratory:

GCCT, *Guangdong Telecommunications Terminal Products Quality Supervision and Testing Center*

Technology Road, High-tech Zone, He Yuan, Guang Dong, PR China 517001

Tel:+86(0)762-3607181, Fax:+86(0)762-3603336 Email: nctmail@126.com. www.ncct.org.cn

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GENERAL SUMMARY

Product Name	Mobile Phone
Model Name	M4 SS4350
Applicant	MFOURTEL MEXICO S.A. DE C.V.
Manufacturer	CK Telecom Limited
Test Laboratory	GCCT, Guangdong Telecommunications Terminal Products Quality Supervision and Testing Center
Reference Standards	FCC CFR 47 Part 15C: "Radio Frequency Devices Sub-Part C: intentional Radiators"
Test Conclusion	<p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in annex B of this test report are below limits specified in the relevant standards.</p> <p>General Judgment: Pass</p> <p style="text-align: right;">Date of issue: 2015.03.17</p>
Comment	The test results in this report apply only to the tested sample of the stated device/equipment.

Approved by:



Luo Jian
Manager

Reviewed by:



Wen Xiaoyong
Deputy Manager

Tested by:



Gao Xiaoqing
Test Engineer

1. Test Laboratory

1.1 Testing Location

Company Name	GCCT, Guangdong Telecommunications Terminal Products Quality Supervision and Testing Center
Address	Technology Road, High-tech Zone, Heyuan, Guangdong Province, PR.China
Postal Code	517001
CNAS Registration No.	L4992
FCC Registration No.	303878
Telephone	+86-762-3607221
Fax	+86-762-3603336

1.2 Testing Environment

Environment Data	Temperature(°C)	Humidity(%)
Maximum Ambient	22.1	46
Minimum Ambient	17.2	40

EUT is under testing environment. The Extreme Temp. is provided by Applicant.

1.3 Project Data

Project Leader	Wen Xiaoyong
Testing Start Date	2015-02-10
Testing End Date	2015-03-17

2. Client Information

2.1 Applicant Information

Company Name	MFOURTEL MEXICO S.A. DE C.V
Address	Av.Egercito Nacional 436 Piso 3 Chapultepec Morales Miguel Hidalgo D.F 11570
City	Mexico
Postal Code	/
Country	Mexico
Telephone	/
Fax	/

2.2 Manufacturer Information

Company Name	CK Telecom Limited
Address	Technology Road.High-Tech Development Zone. Heyuan

City	heyuan
Postal Code	/
Country	China
Telephone	0755-26738515
Fax	0755-26739500

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1 About EUT

Model Name	M4 SS4350
FCC ID	CLNSS4350
Tx Frequency	GSM850:824.2~848.8 MHz UMTS Band V : 826.4~846.6MHz PCS1900 TX: 1850.2~1909.8MHz UMTS Band II TX: 1852.4~1907.6MHz Bluetooth/BLE: 2402 ~ 2480 MHz WIFI(802.11b/g/n-20): 2412 ~ 2462 MHz WIFI(n-40): 2422 ~ 2452 MHz
Rx Frequency	GSM850: 869.2~893.8 MHz UMTS Band V : 871.4~891.6 MHz PCS1900 TX: 1930.2~1989.8 MHz UMTS Band II TX: 1932.4~1987.6 MHz Bluetooth/BLE: 2402 ~ 2480 MHz WIFI(802.11b/g/n-20): 2412 ~ 2462 MHz WIFI(n-40): 2422 ~ 2452 MHz
Number of Channels	GSM850&WCDMA Band V:25 PCS1900&WCDMA Band II: 60 Bluetooth:79 WIFI(802.11b/g/n-20):11 WIFI(n-40):7 BLE:40
Modulation	GSM&DCS:GMSK WCDMA:BPSK/QPSK Bluetooth: GFSK& $\pi/4$ -DQPSK&8DPSK WIFI:CCK/OFDM BLE:GFSK
Antenna Type	PIFA(GSM/DCS/WCDMA); MONOPOLE (Bluetooth/WIFI)
Antenna Gain	GSM850:-0.5dBi DCS1900: -0.5dBi WCDMA850: -1dBi WCDMA1900: -1dBi Bluetooth/BLE/WIFI: -1dBi

Normal Voltage	3.7V
Extreme Low Voltage	3.6V
Extreme High Voltage	4.2V
Extreme Low Temperature	0°C
Extreme High Temperature	45°C

Note: Photographs of EUT are shown in ANNEX A of this test report.

Extreme Voltage and Temperature is provided by Applicant.

3.2 Internal Identification of EUT

EUT ID *	IMEI	HW Version	SW Version
150209-M01	867041020002461	SLFQPLUS-V1.0	SLFQPLUS15A-S00A_CKT_L2EN_102_150130
150209-M04	867041020002230	SLFQPLUS-V1.0	SLFQPLUS15A-S00A_CKT_L2EN_102_150130

*EUT ID: is used to identify the test sample in the lab internally. 150209-M01 and 150209-M04 are the same mobile phone.

3.3 Internal Identification of AE

AE ID *	Description	Type	SN
150209-B01	Battery	FH396070AR	/
150209-C01	Adapter	A8-501000	/
150209-B04	Battery	FH396070AR	/
150209-C04	Adapter	A8-501000	/

*AE ID: is used to identify the test sample in the lab internally. 150209-B01 and 150209-B04 are the same accessory , 150209-C01 and 150209-C04 are the same accessory ,

4. Test Results

4.1 Summary of Test Results

No	Test cases	Sample	Verdict
1	Maximum transmit power	M01	Pass
2	Maximum Power Spectral Density	M01	Pass
3	6dB Occupied Bandwidth	M01	Pass
4	Band Edge Compliance	M01	Pass
5	Conducted Transmission Spurious Emission	M01	Pass
6	AC Conducted Emission	M04	Pass
7	Radiated Emissions	M04	Pass
8	Antenna Requirements	M01	Pass

Note: please refer to Annex B in this test report for the detailed test results.

All measurement uncertainty is not taken into consideration for all presented test result.

4.2 Statements

GCCT has evaluated the test cases requested by the applicant/manufacturer as listed in section 4.1 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in

general summary.

5. Test Equipment Utilized

Table 1. Measurement Equipment

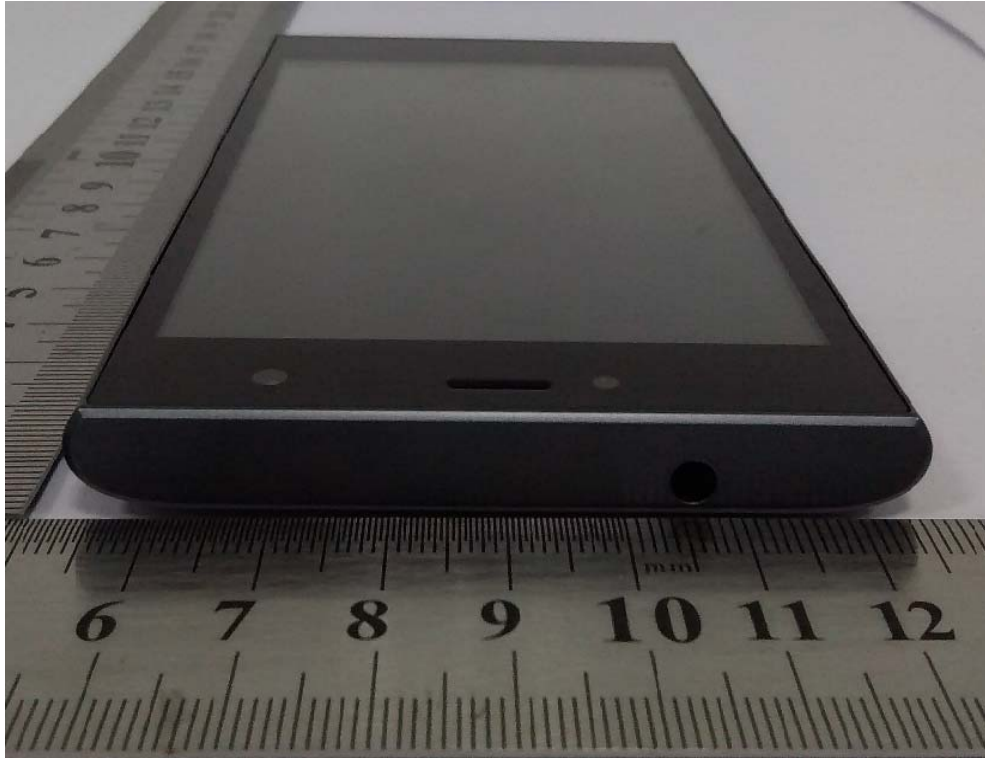
Hardware						
No.	Name	Model	SN	Manufacturer	Cal. Date	Cal. Due Date
1	Spectrum Analyzer	N9020A	MY52091261	Agilent	2014.08.15	2015.08.15
2	Switch Unit	/	E0112	/		/
Software						
Tech WIFI			v1.0.3			

Table 2. Radiated emission test system

No.	Name	Model	SN	Manufacturer	Cal. date	Cal. Due Date
1	Spectrum Analyzer	E4440A	MY48250641	Agilent	2014.08.15	2015.08.15
2	BiCoNilog Antenna	3142E	00142015	ETS-Lindgren	2014.08.15	2015.08.15
3	Horn Antenna	3117	129169	ETS-Lindgren	2014.08.15	2015.08.15
4	Signal Generator	N5183A-5 32	MY49060563	Agilent	2014.08.15	2015.08.15
5	Universal Radio Communication Tester	E5515C	MY48367105	Agilent	2014.08.15	2015.08.15
6	RF Preselector	N9039A	MY48260024	Agilent	/	/
7	Loop Antenna	HFH2	860015/00	R&S	2014.08.15	2015.08.15

ANNEX A: EUT Photograph

EUT Front View



EUT behind View



EUT Left View



EUT Right View



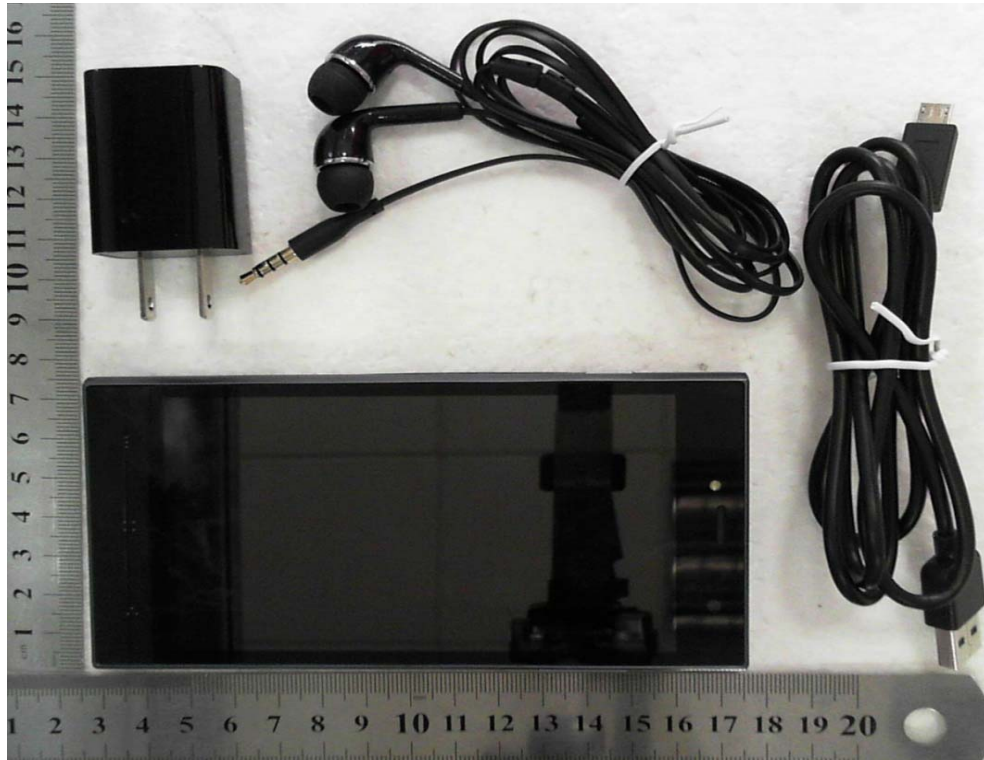
EUT Top View



EUT Rear View



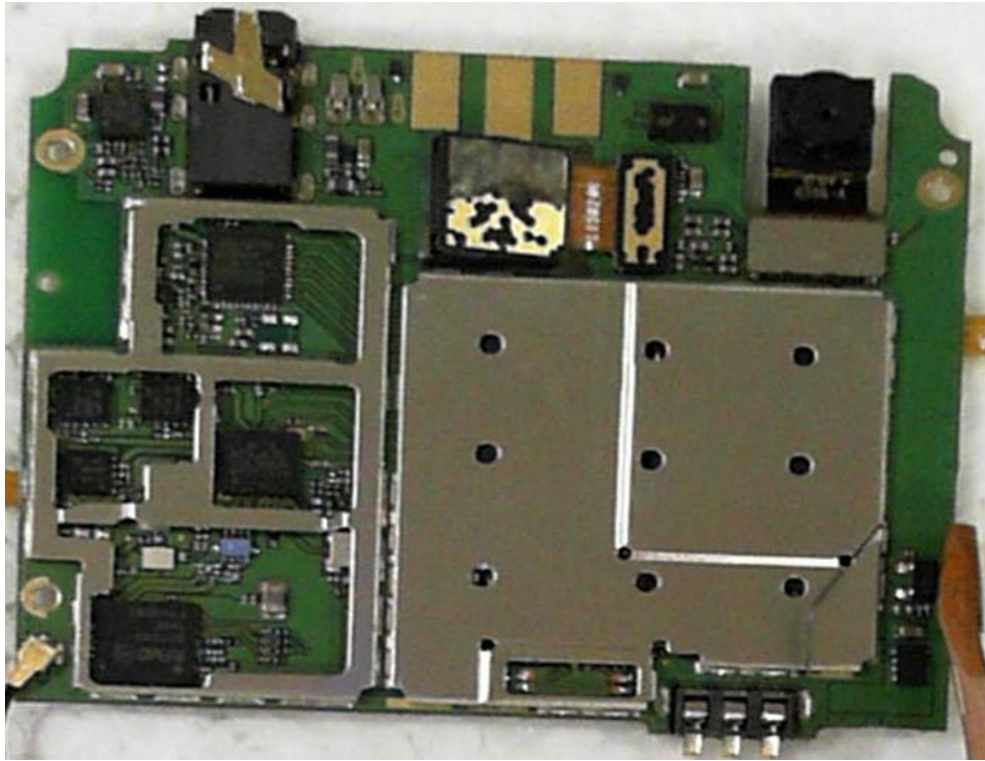
All



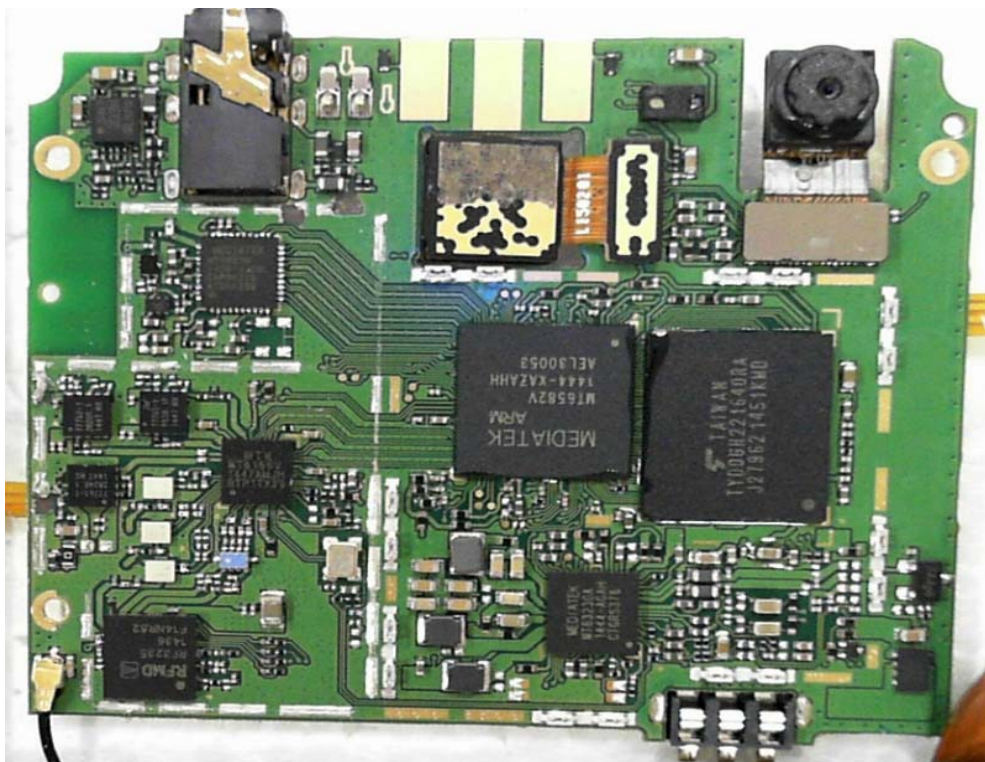
Cover off



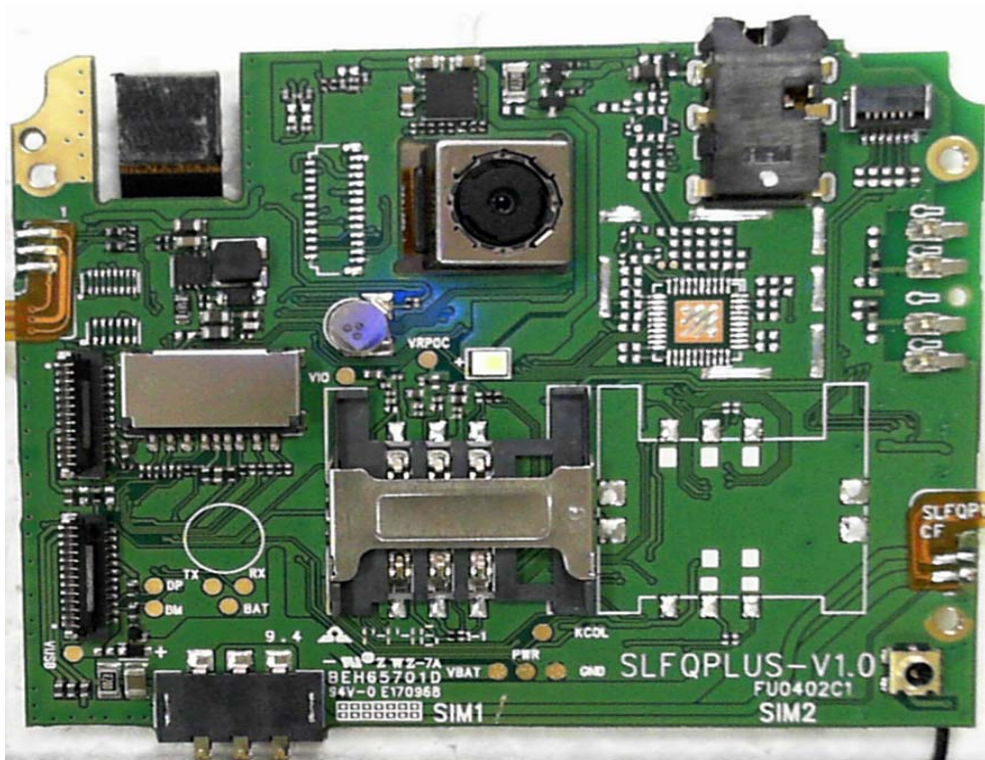
Main board With shielding Front View



Main board Without shielding Front View



Main board Rear



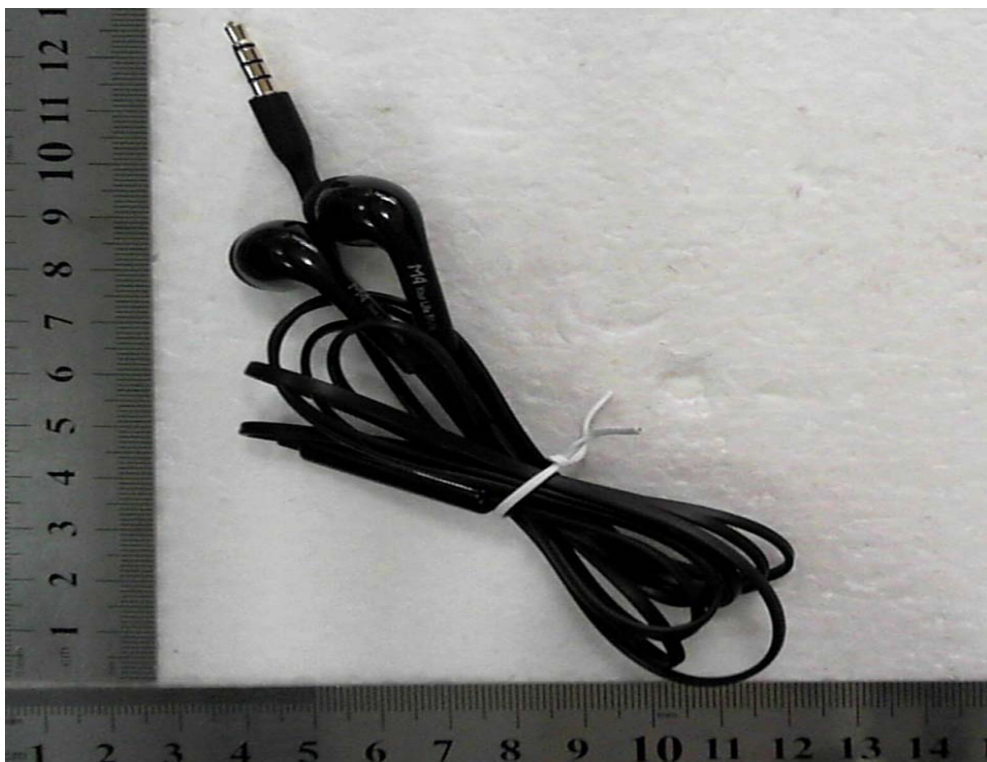
Battery Front View



USB Cable



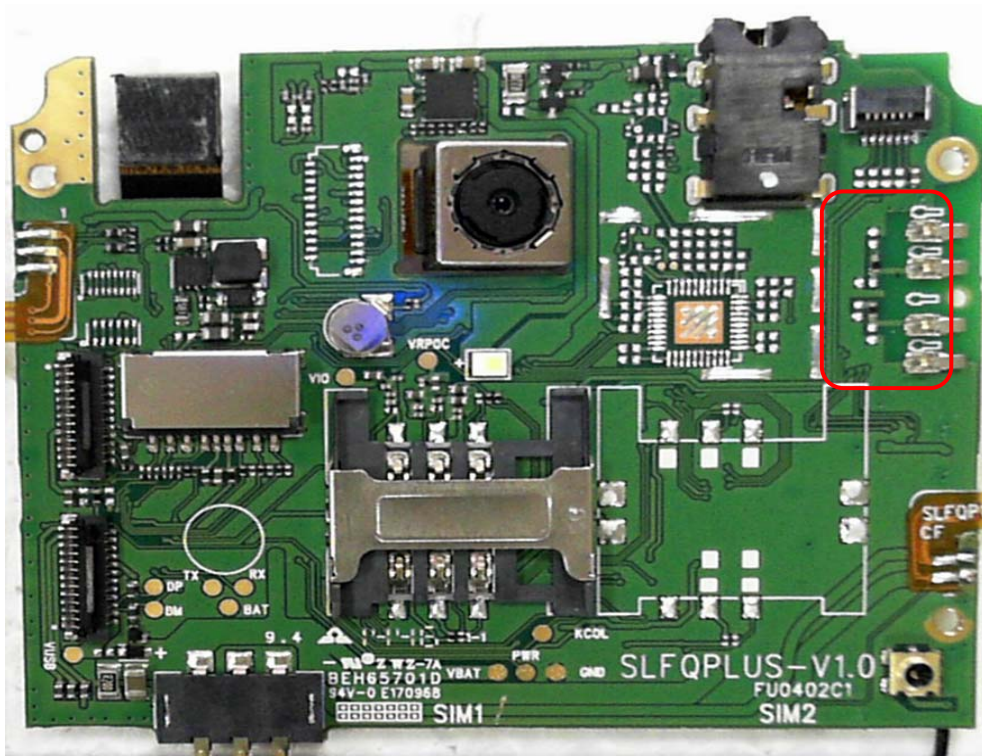
Headset



GSM/DCS/UMTS Antenna View



BT/WIFI Antenna View

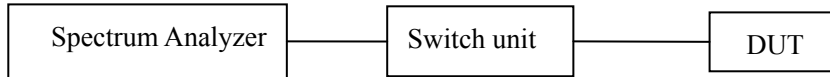


Adapter



ANNEX B: Detailed Test Results

The radiated test setup is shown in each radiated test case section. The conducted test setup is shown as following:



All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.

B.1 Maximum Transmit Power

B.1.1 Description

The maximum Peak Output power shall be equal to or less than 30dBm.

B.1.2 Test Results

Mode	Data rate(Mbps)	Maximum transmit power(dBm)			Verdict
		2412MHz (2.411GHz)	2437MHz (2.436GHz)	2462MHz (2.460GHz)	
802.11b	1	14.549 (2.411GHz)	14.359 (2.436GHz)	14.299 (2.460GHz)	Pass
802.11g	6	14.458 (2.413GHz)	14.269 (2.434GHz)	14.125 (2.462GHz)	Pass
802.11n-20	6.5/7.2	14.721 (2.413GHz)	14.591 (2.437GHz)	14.492 (2.461GHz)	Pass
Mode	Data rate(Mbps)	Maximum transmit power(dBm)			Verdict
		2422MHz (2.423GHz)	2437MHz (2.439GHz)	2452MHz (2.451GHz)	
802.11n-40	6.5/7.2	10.381 (2.423GHz)	11.389 (2.439GHz)	10.534 (2.451GHz)	Pass
Note	Antenna Gain is -1dBi				

B.2 Maximum Power Spectral Density

B.2.1 Description

The maximum Peak power spectral density shall be equal to or less than 8 dBm/3kHz.

B.2.2 Test Results

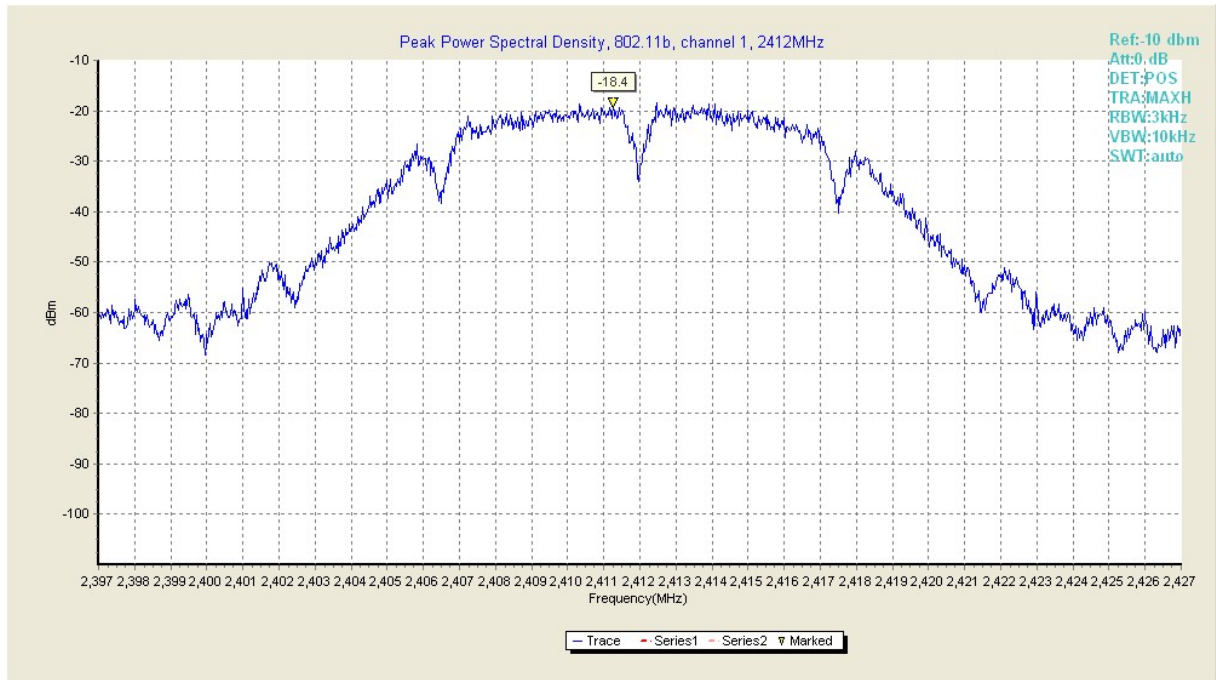
Test equipment parameter:

TRA: Max Hold RBW: 3kHz VBW: 10kHz Sweep time: AUTO

802.11b mode

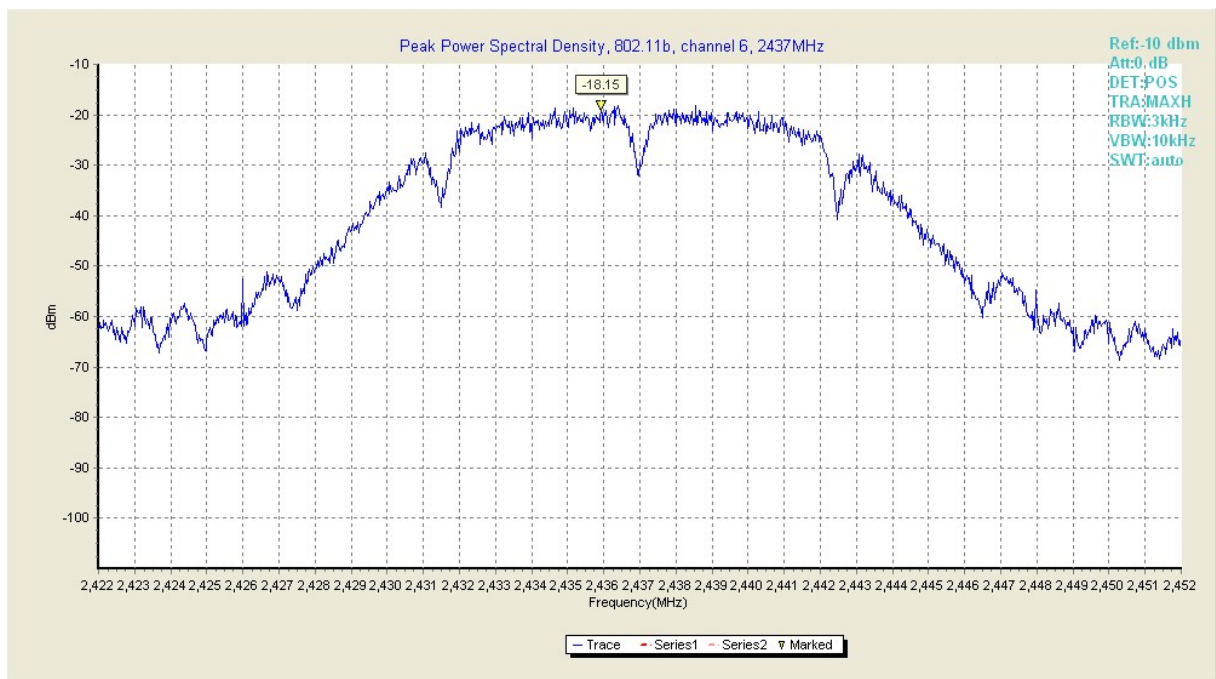
Limit (PSD dBm/3kHz)	PSD(dBm/3kHz)						Verdict
	Low Ch 2412MHz		Mid Ch 2437 MHz		High Ch 2462 MHz		
8	-18.40	Fig.1	-18.15	Fig.2	-17.40	Fig.3	Pass

Antenna Maximum Gain: -1dBi



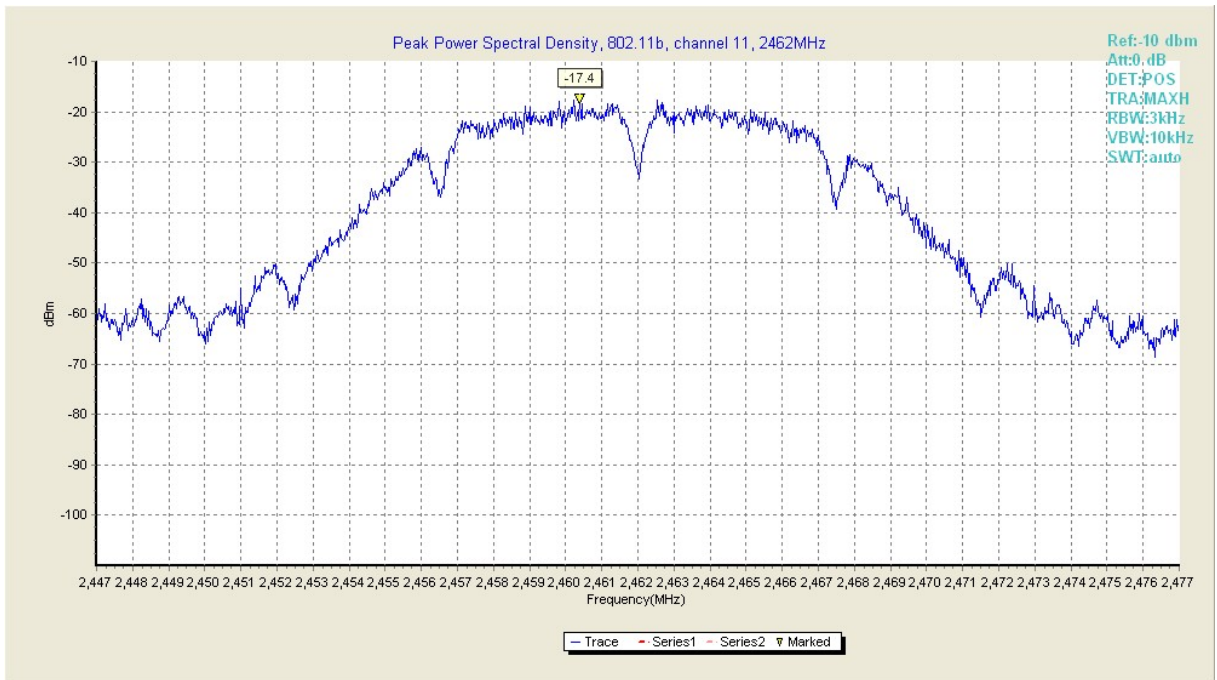
Test plot 1	2411.250000	-18.400000
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Fig.1 Peak power spectral density of 802.11b in channel 1,2412MHz



Test plot 1	2435.919922	-18.150000
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Fig.2 Peak power spectral density of 802.11b in channel 6,2437MHz



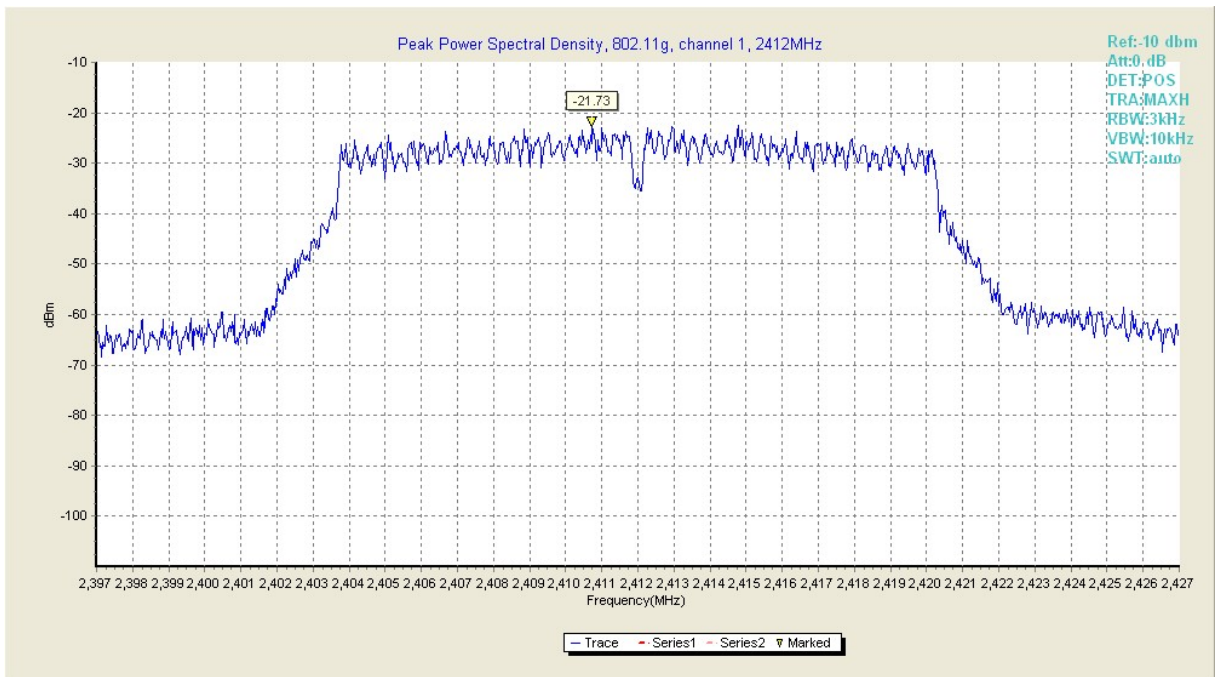
Test plot 1	2460.379883	-17.400000
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Fig.3 Peak power spectral density of 802.11b in channel 11,2462MHz

802.11g mode

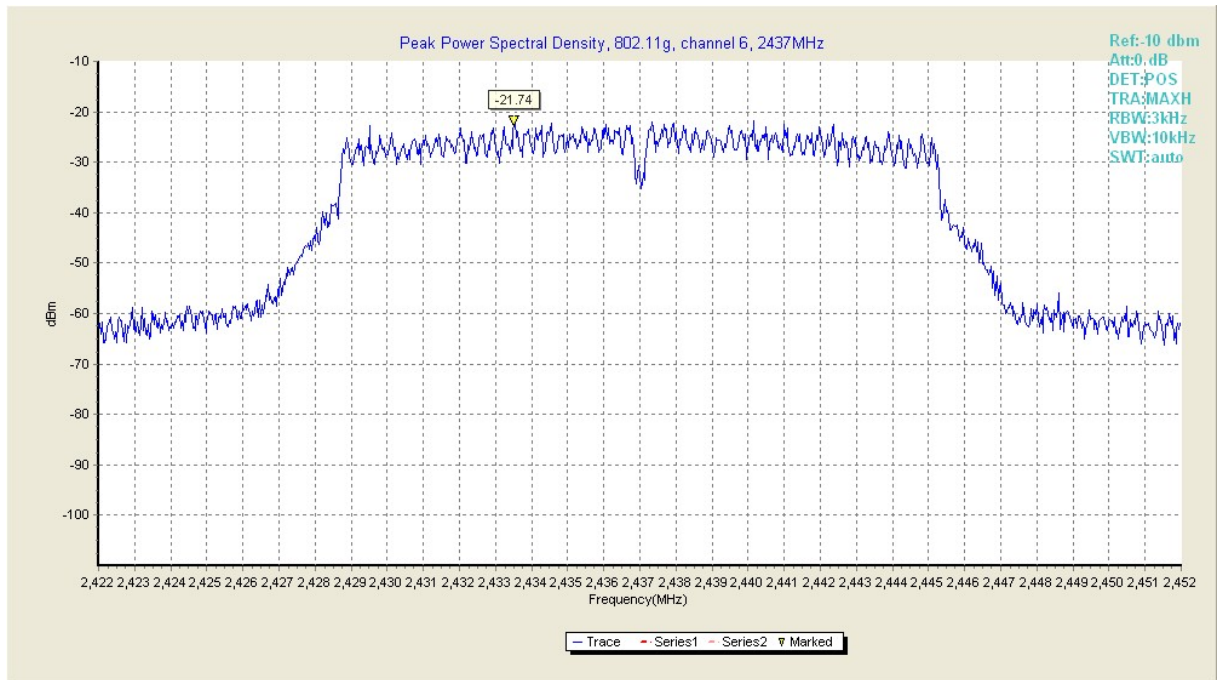
Limit (PSD dBm/3kHz)	PSD(dBm/3kHz)						Verdict
	2412MHz		2437 MHz		2462 MHz		
8	-21.73	Fig.4	-21.74	Fig.5	-20.88	Fig.6	Pass

Antenna Maximum Gain: -1dBi



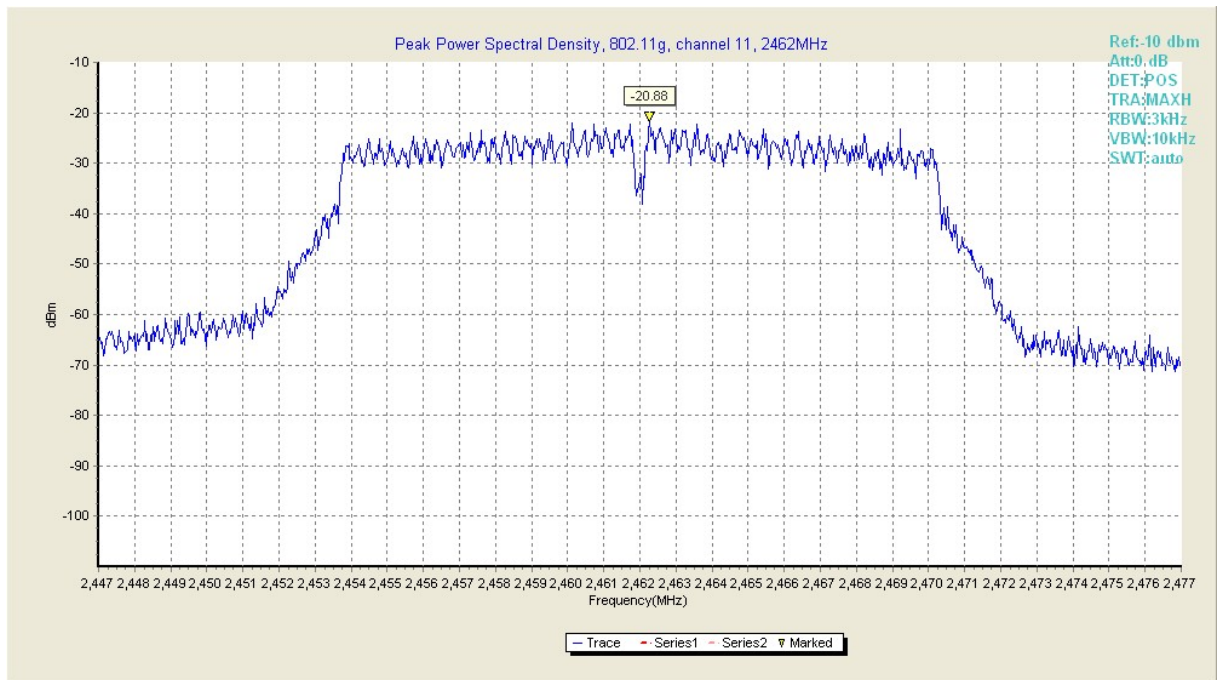
Test plot 1	2410.739990	-21.730000
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Fig.4 Peak power spectral density of 802.11g in channel 1,2412MHz



Test plot 1	2433.520020	-21.740000
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Fig.5 Peak power spectral density of 802.11g in channel 6,2437MHz

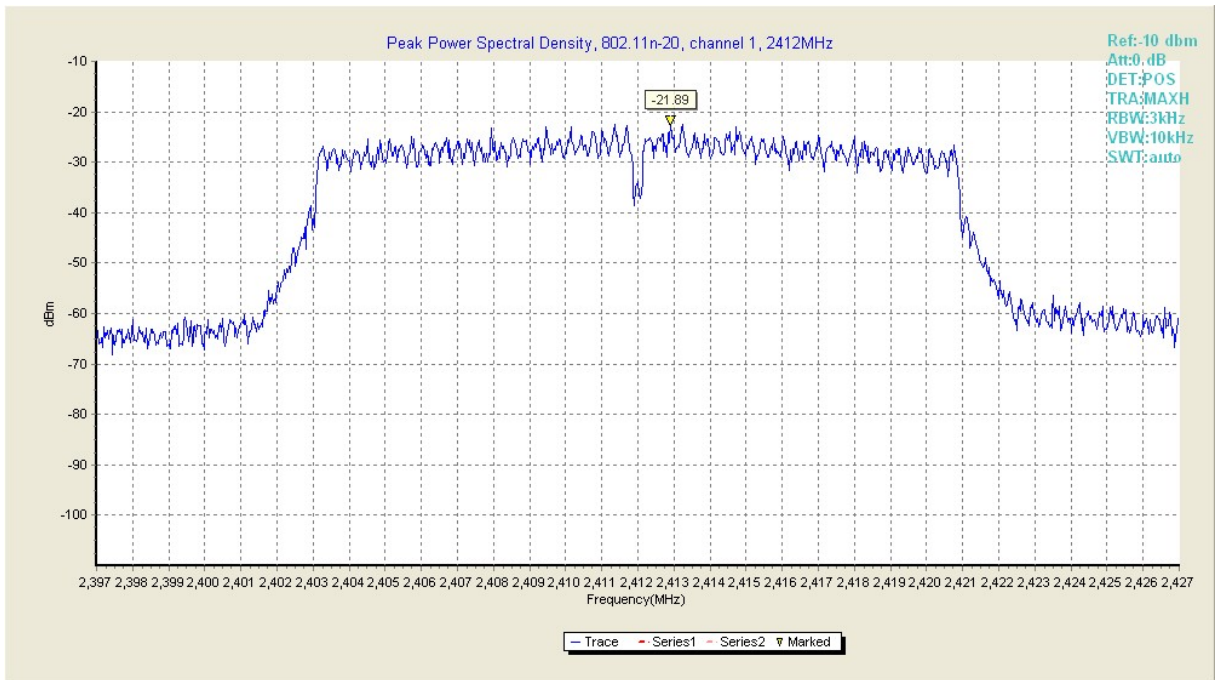


Test plot 1	2462.270020	-20.879999
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Fig.6 Peak power spectral density of 802.11g in channel 11,2462MHz

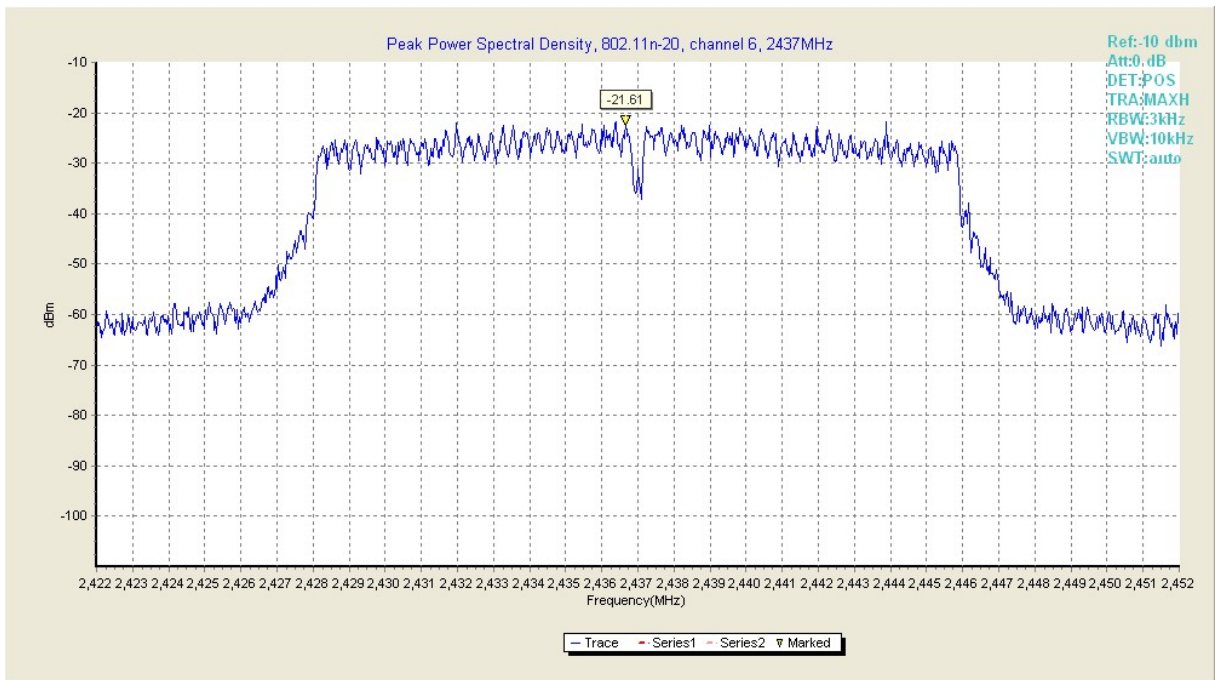
802.11n-20 mode

Limit (PSD dBm/3kHz)	PSD(dBm/3kHz)						Verdict
	2412MHz		2437 MHz		2462 MHz		
8	-21.88	Fig.7	-21.61	Fig.8	-22.32	Fig.9	Pass
Antenna Maximum Gain: -1dBi							



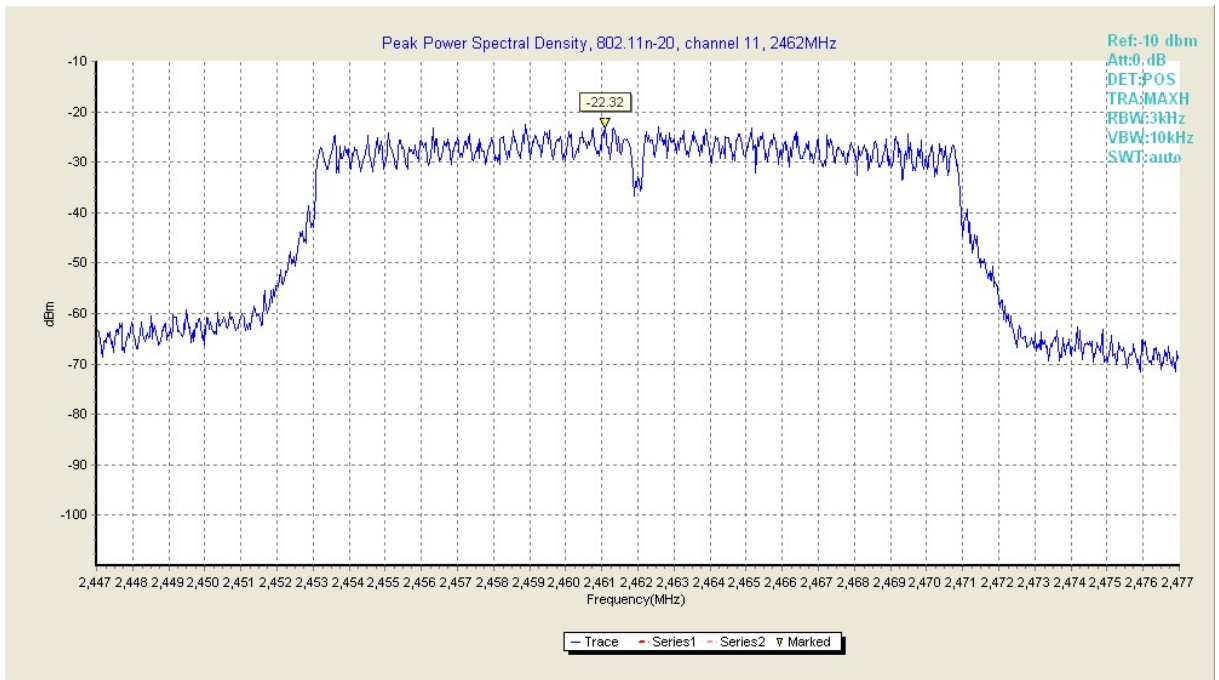
Test plot 1	2412.899902	-21.889999
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Fig.7 Peak power spectral density of 802.11n-20 in channel 1,2412MHz



Test plot 1	2436.669922	-21.610001
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Fig.8 Peak power spectral density of 802.11n-20 in channel 6,2437MHz



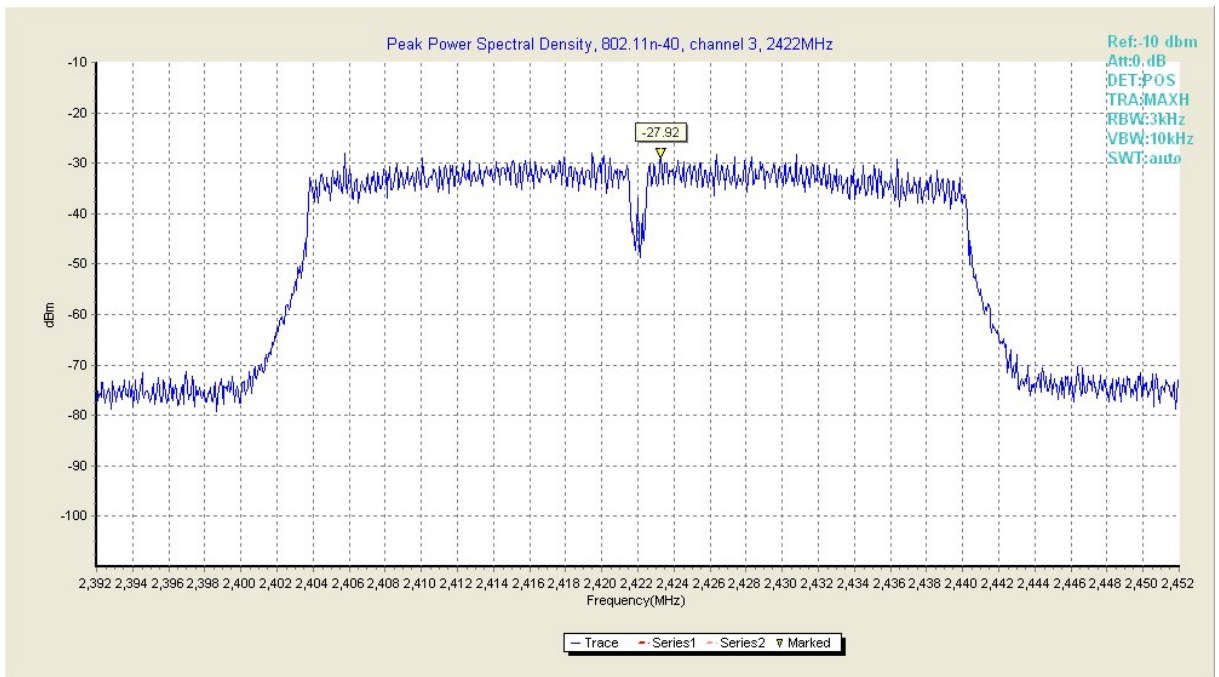
Test plot 1	2461.100098	-22.320000
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Fig.9 Peak power spectral density of 802.11n-20 in channel 11,2472MHz

802.11n-40 mode

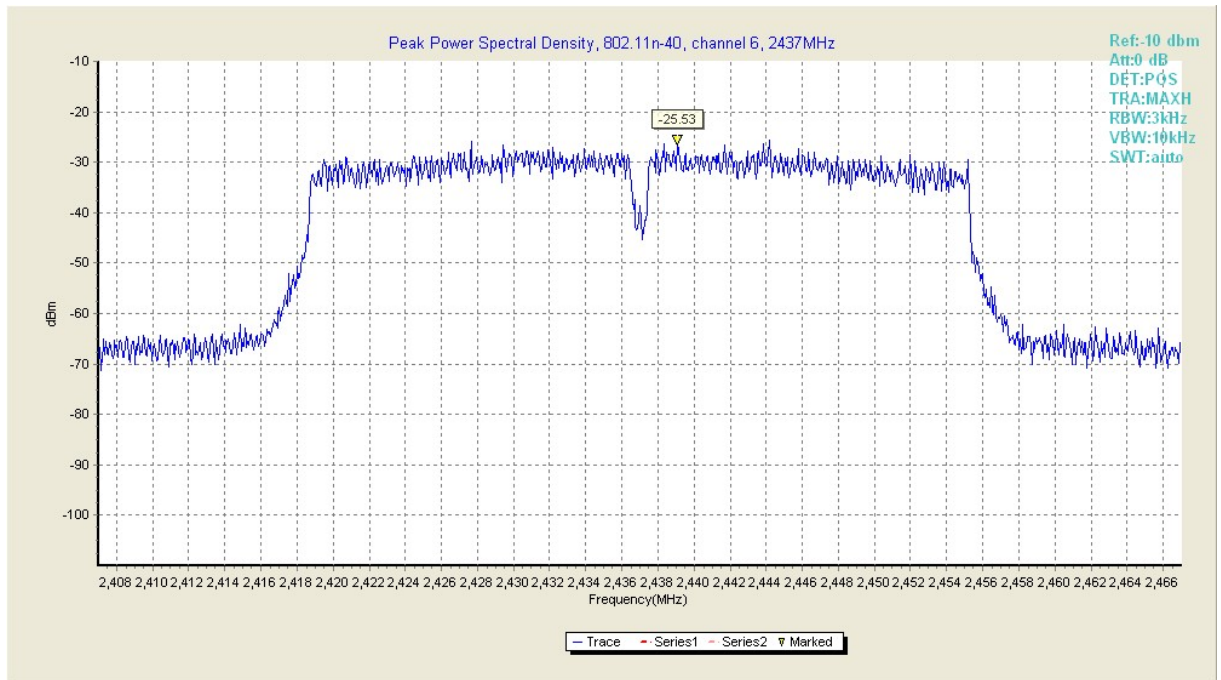
Limit (PSD dBm/3kHz)	PSD(dBm/3kHz)						Verdict
	2422MHz		2437 MHz		2452 MHz		
8	-27.92	Fig.10	-25.53	Fig.11	-27.12	Fig.12	Pass

Antenna Maximum Gain: -1dBi



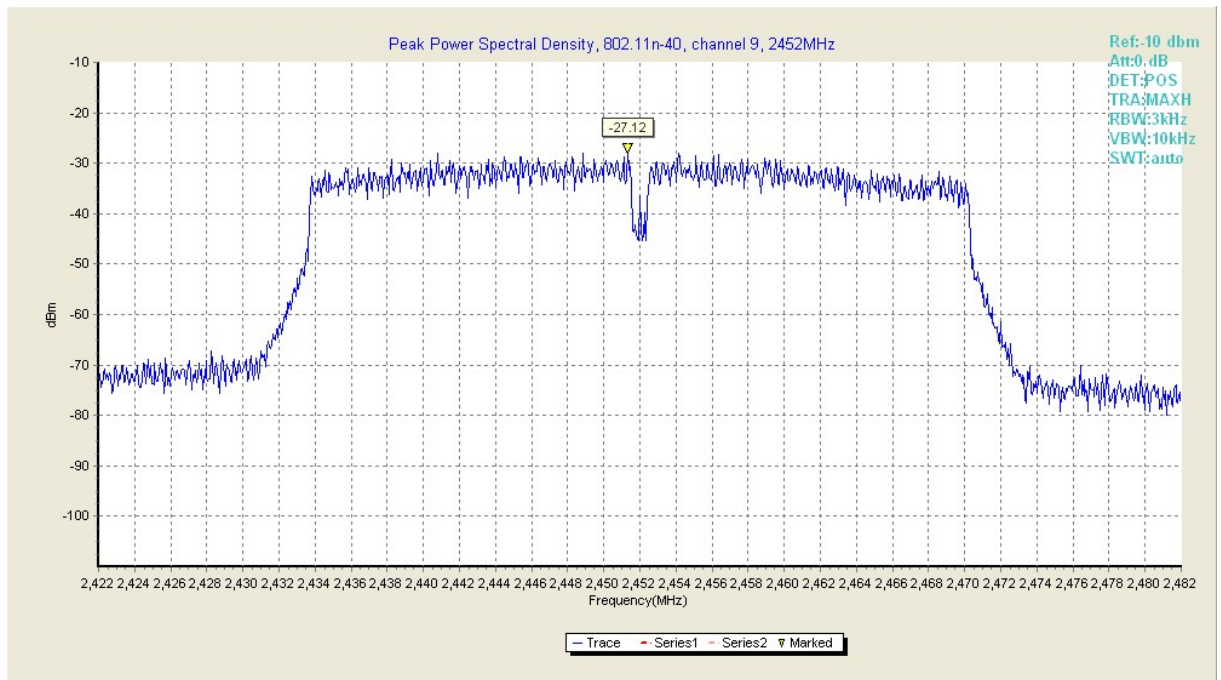
Test plot 1	2423.260010	-27.920000
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Fig.10 Peak power spectral density of 802.11n-40 in channel 3,2422MHz



Test plot 1	2439.100098	-25.530001
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Fig.11 Peak power spectral density of 802.11n-40 in channel 6,2437MHz



Test plot 1	2451.340088	-27.120001
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Fig.12 Peak power spectral density of 802.11n-40 in channel 9,2452MHz

B.3 6dB Occupied Bandwidth

B.3.1 Description

The Occupied 6dB Bandwidth shall be equal to or more than 500 kHz.

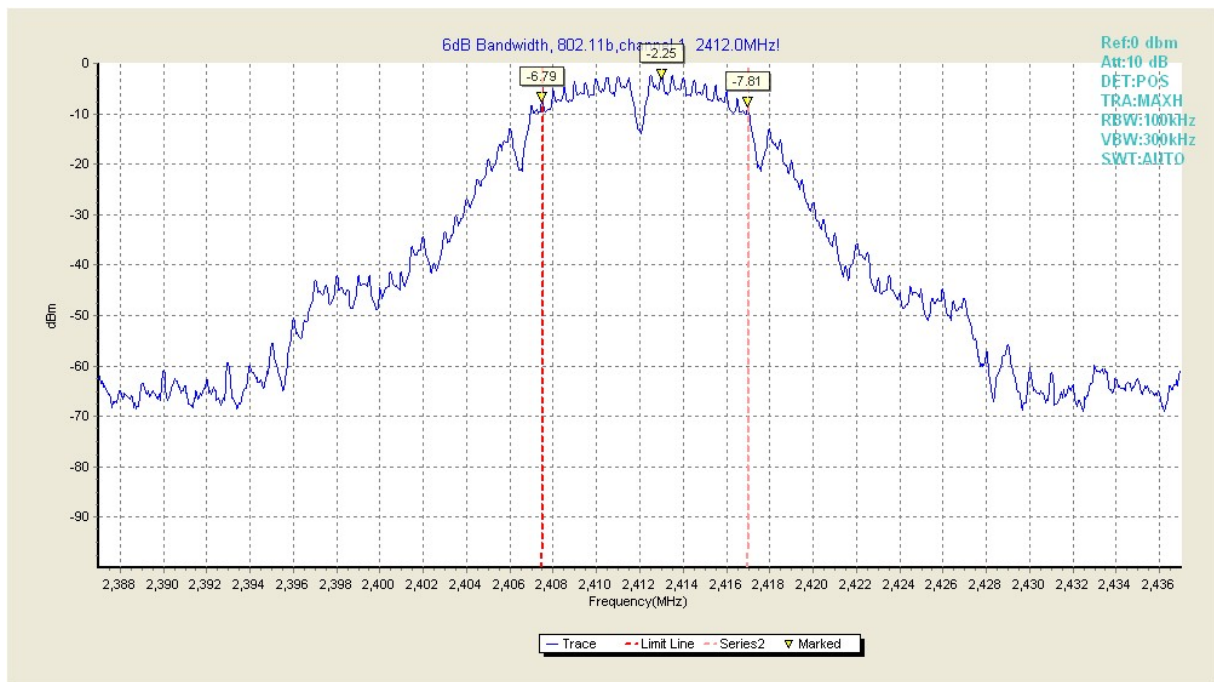
B.3.4 Test Results

Test equipment parameter:

TRA: Max Hold RBW: 100kHz VBW: 300kHz Sweep time: AUTO

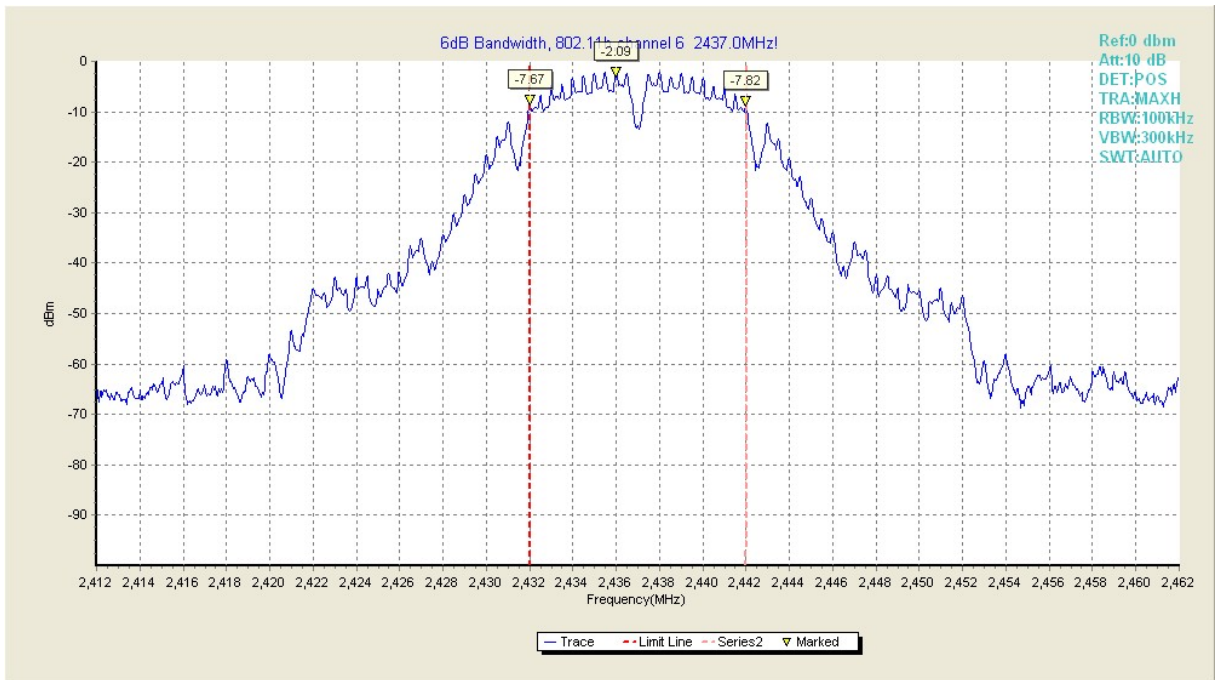
802.11 b mode

Channel	Frequency (MHz)	Limit (MHz)	Occupied Bandwidth (MHz)	Test Results	Verdict
1	2412	0.5	9.55	Fig.13	Pass
6	2437		10.00	Fig.14	Pass
11	2462		10.10	Fig.15	Pass



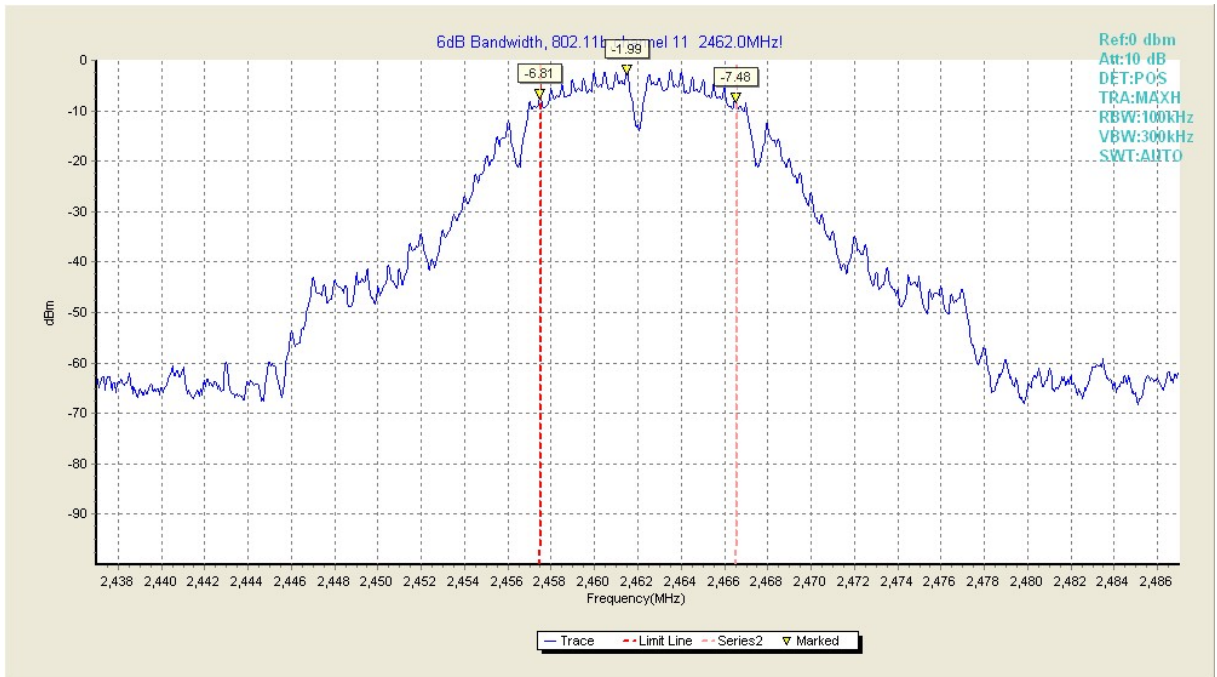
Test plot 1	2407.449951	-6.790000
Test plot 2	2413.000000	-2.250000
Test plot 3	2417.000000	-7.810000

Fig.13 6dB Bandwidth of 802.11b in channel 1,2412MHz



Test plot 1	2432.000000	-7.670000
Test plot 2	2436.000000	-2.090000
Test plot 3	2442.000000	-7.820000

Fig.14 6dB Bandwidth of 802.11b in channel 6,2437MHz

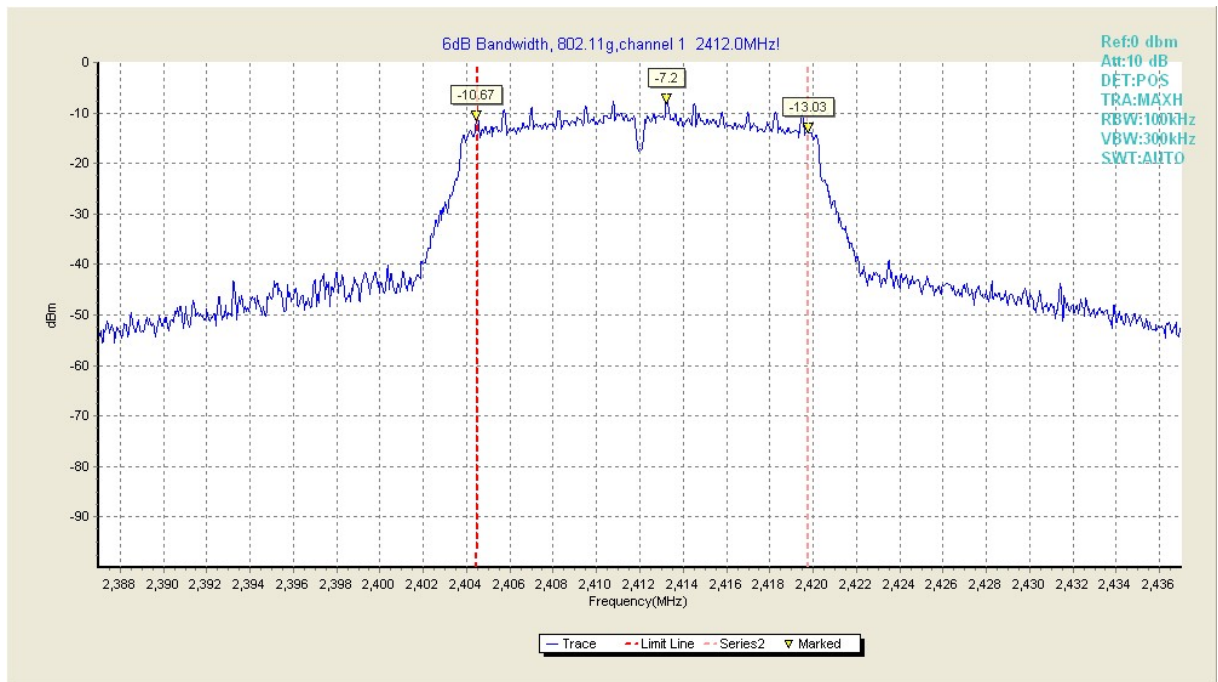


Test plot 1	2457.449951	-6.810000
Test plot 2	2461.500000	-1.990000
Test plot 3	2466.550049	-7.480000

Fig.15 6dB Bandwidth of 802.11b in channel 11,2462MHz

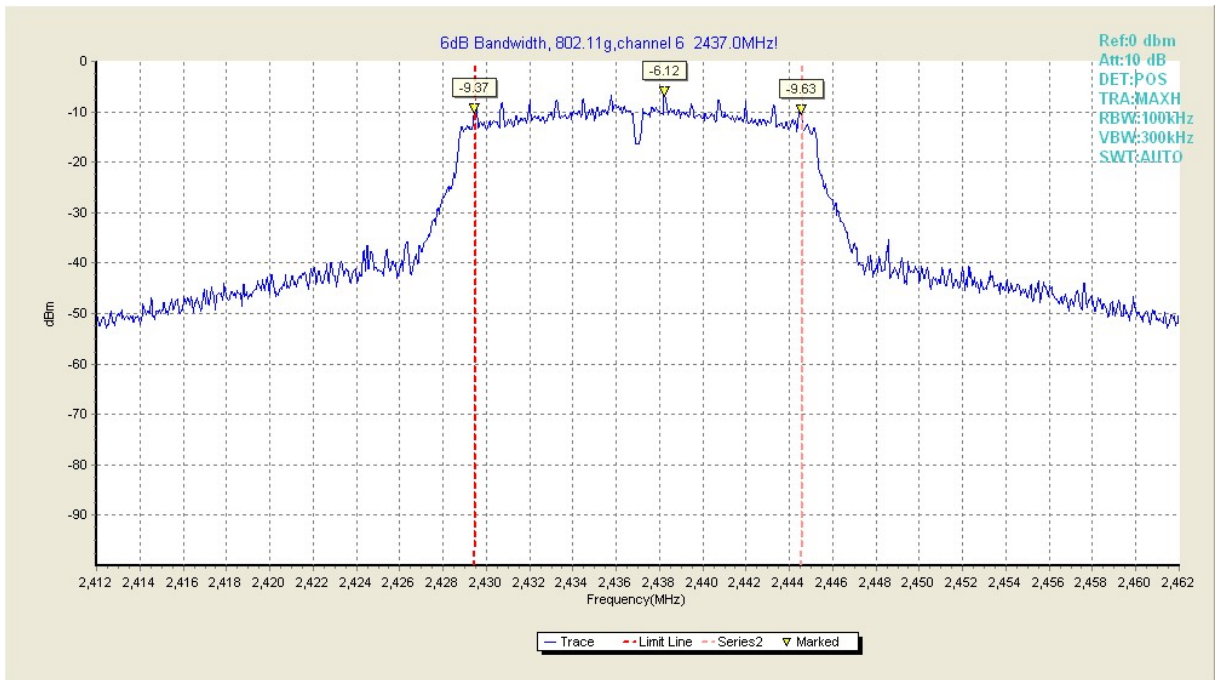
802.11 g mode

Channel	Frequency (MHz)	Limit (MHz)	Occupied Bandwidth (MHz)	Test Results	Verdict
1	2412	0.5	15.30	Fig.16	Pass
6	2437		15.10	Fig.17	Pass
11	2462		15.10	Fig.18	Pass



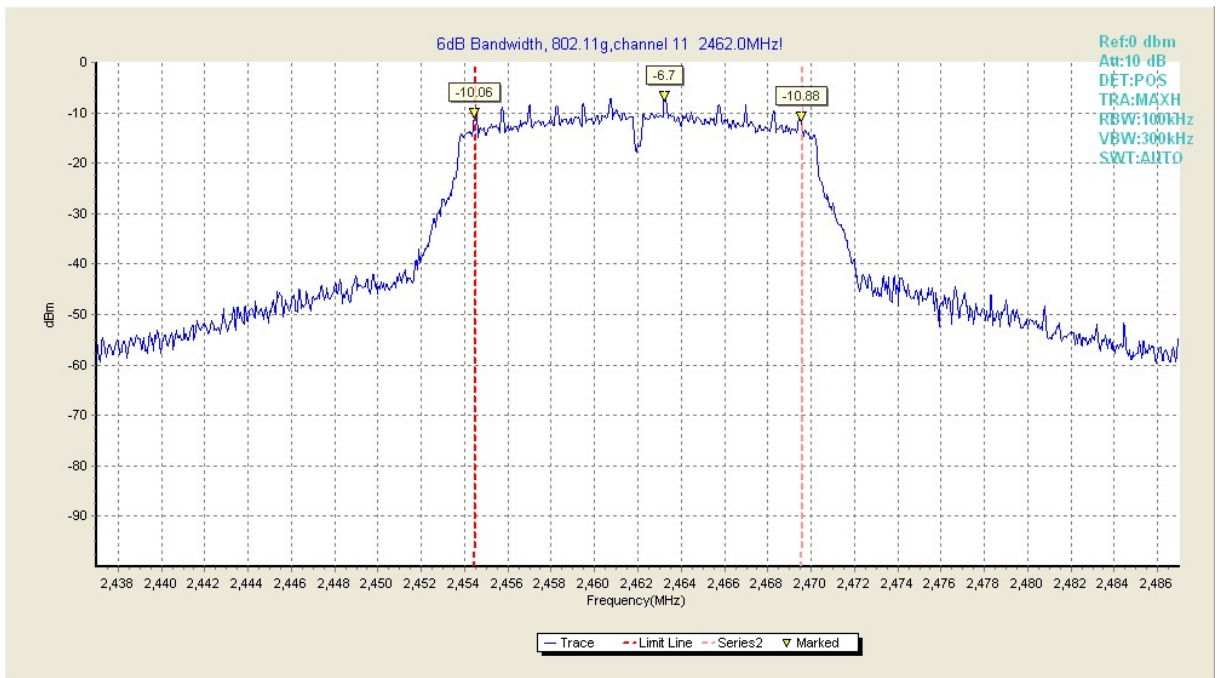
Test plot 1	2404.449951	-10.670000
Test plot 2	2413.250000	-7.200000
Test plot 3	2419.750000	-13.030000

Fig.16 6dB Bandwidth of 802.11g in channel 1,2412MHz



Test plot 1	2429.449951	-9.370000
Test plot 2	2438.250000	-6.120000
Test plot 3	2444.550049	-9.630000

Fig.17 6dB Bandwidth of 802.11g in channel 1,2437MHz



Test plot 1	2454.449951	-10.060000
Test plot 2	2463.250000	-6.700000
Test plot 3	2469.550049	-10.880000

Fig.18 6dB Bandwidth of 802.11g in channel 1,2462MHz

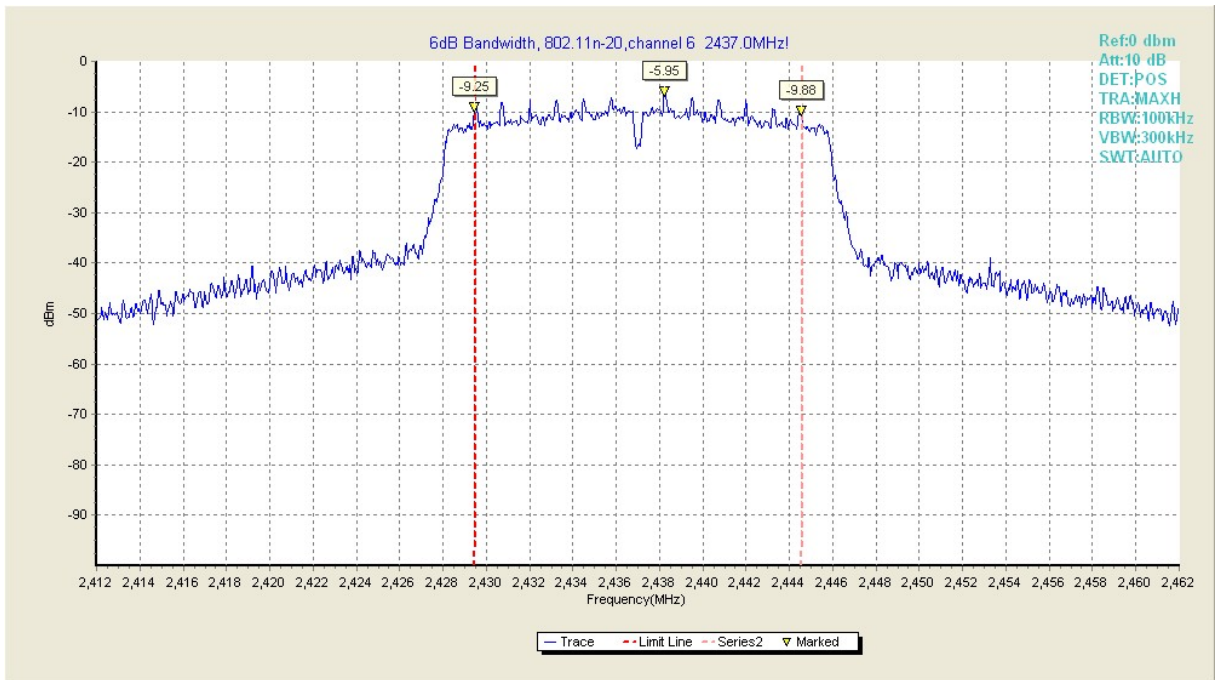
802.11 n-20 mode

Channel	Frequency (MHz)	Limit (MHz)	Occupied Bandwidth (MHz)	Test Results	Verdict
1	2412	0.5	15.10	Fig.19	Pass
6	2437		15.10	Fig.20	Pass
11	2462		15.45	Fig.21	Pass



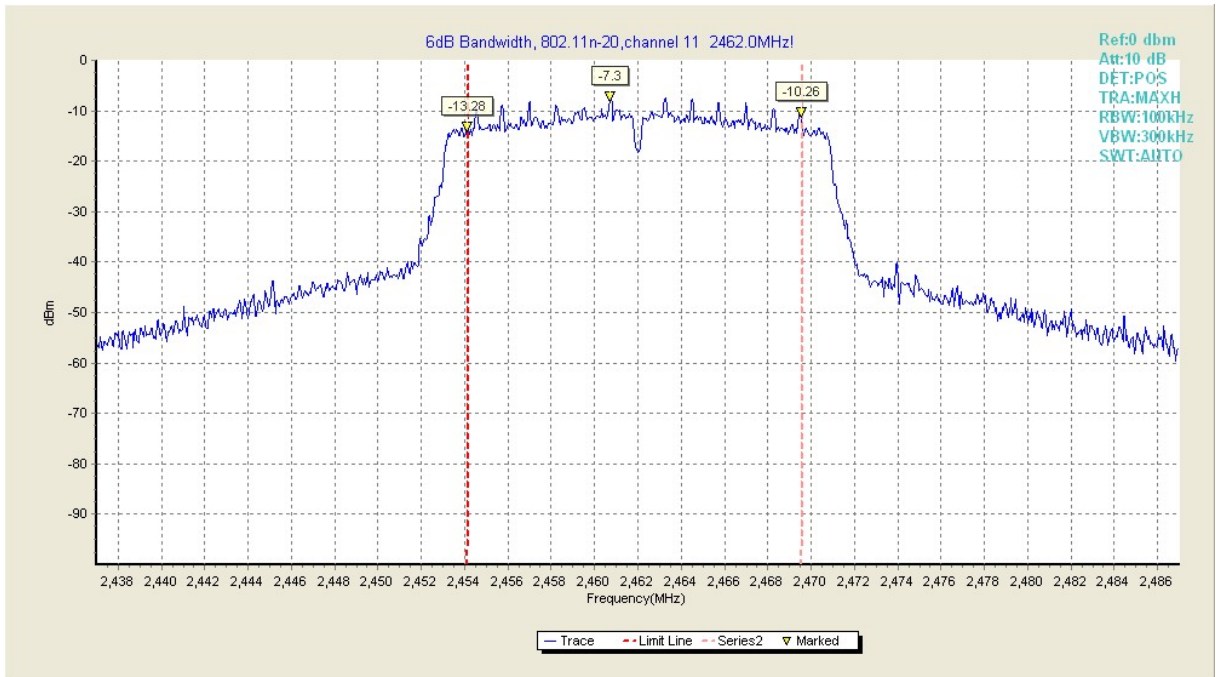
Test plot 1	2404.449951	-10.450000
Test plot 2	2413.250000	-7.110000
Test plot 3	2419.550049	-11.530000

Fig.19 6dB Bandwidth of 802.11n-20 in channel 1,2412MHz



Test plot 1	2429.449951	-9.250000
Test plot 2	2438.250000	-5.950000
Test plot 3	2444.550049	-9.880000

Fig.20 6dB Bandwidth of 802.11 n-20 in channel 6,2437MHz

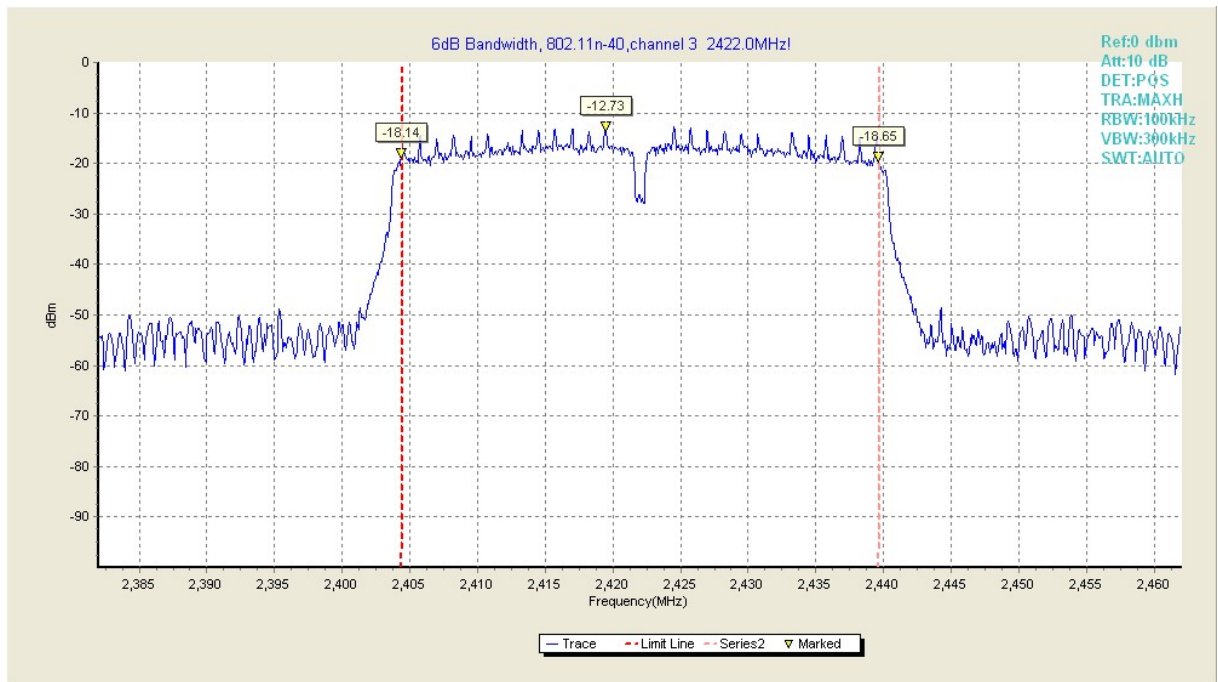


Test plot 1	2454.100098	-13.280000
Test plot 2	2460.699951	-7.300000
Test plot 3	2469.550049	-10.260000

Fig.21 6dB Bandwidth of 802.11 n-20 in channel 11,2462MHz

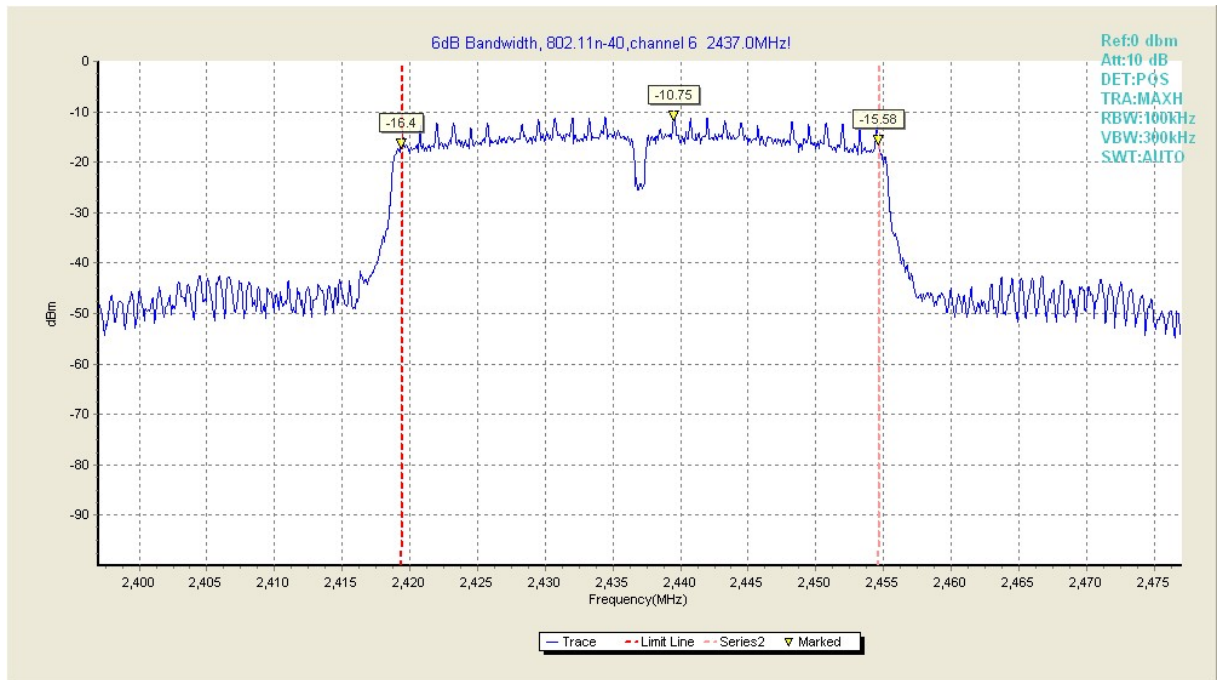
802.11 n-40 mode

Channel	Frequency (MHz)	Limit (MHz)	Occupied Bandwidth (MHz)	Test Results	Verdict
3	2422	0.5	35.20	Fig.22	Pass
6	2437		35.20	Fig.23	Pass
9	2452		35.12	Fig.24	Pass



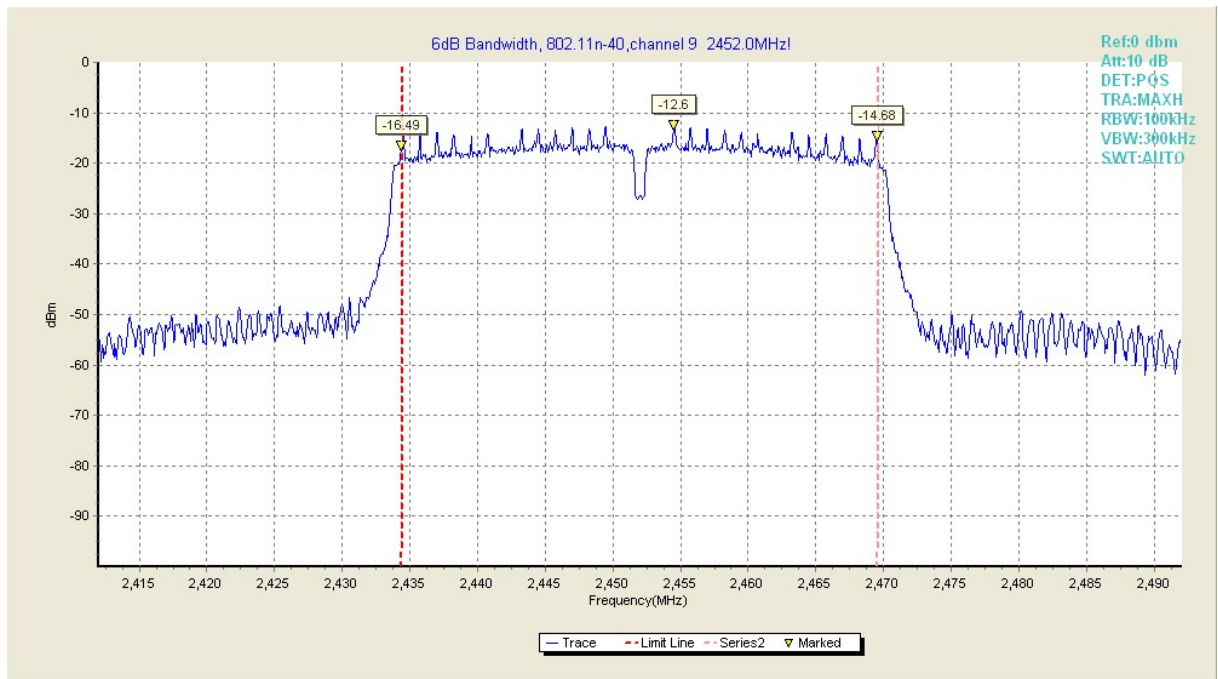
Test plot 1	2404.399902	-18.139999
Test plot 2	2419.520020	-12.730000
Test plot 3	2439.600098	-18.650000

Fig.22 6dB Bandwidth of 802.11 n-40 in channel 3,2422MHz



Test plot 1	2419.399902	-16.400000
Test plot 2	2439.479980	-10.750000
Test plot 3	2454.600098	-15.580000

Fig.23 6dB Bandwidth of 802.11 n-40 in channel 6,2437MHz



Test plot 1	2434.399902	-16.490000
Test plot 2	2454.479980	-12.600000
Test plot 3	2469.520020	-14.680000

Fig.24 6dB Bandwidth of 802.11 n-40 in channel 9,2452MHz

B.4 Band Edge Compliance

B.4.1 Description

The Band Edges Compliance shall be equal to or more than 20 dB.

B.4.2 Test Results

Test equipment parameter:

TRA: Max Hold RBW: 100kHz VBW: 300kHz Sweep time: AUTO

802.11b mode

Channel	Frequency(MHz)	Limit (dB)	Test Result(MHz)		Verdict
1	2400	≥20	29.33	Fig.25	Pass
11	2483.5		49.51	Fig.26	Pass



Fig25. Frequency Band Edges of 802.11b in channel 1,2400MHz



Fig26. Frequency Band Edges of 802.11b in channel 11,2483.5MHz

802.11g mode

Channel	Frequency(MHz)	Limit (dB)	Test Result(MHz)		Verdict
1	2400	≥20	29.33	Fig.27	Pass
11	2483.5		49.51	Fig.28	Pass



Fig27. Frequency Band Edges of 802.11g in channel 1,2400MHz



Fig28. Frequency Band Edges of 802.11g in channel 11,2483.5MHz

802.11n-20 mode

Channel	Frequency(MHz)	Limit (dB)	Test Result(MHz)		Verdict
1	2400	≥20	21.42	Fig.29	Pass
11	2483.5		34.30	Fig.30	Pass

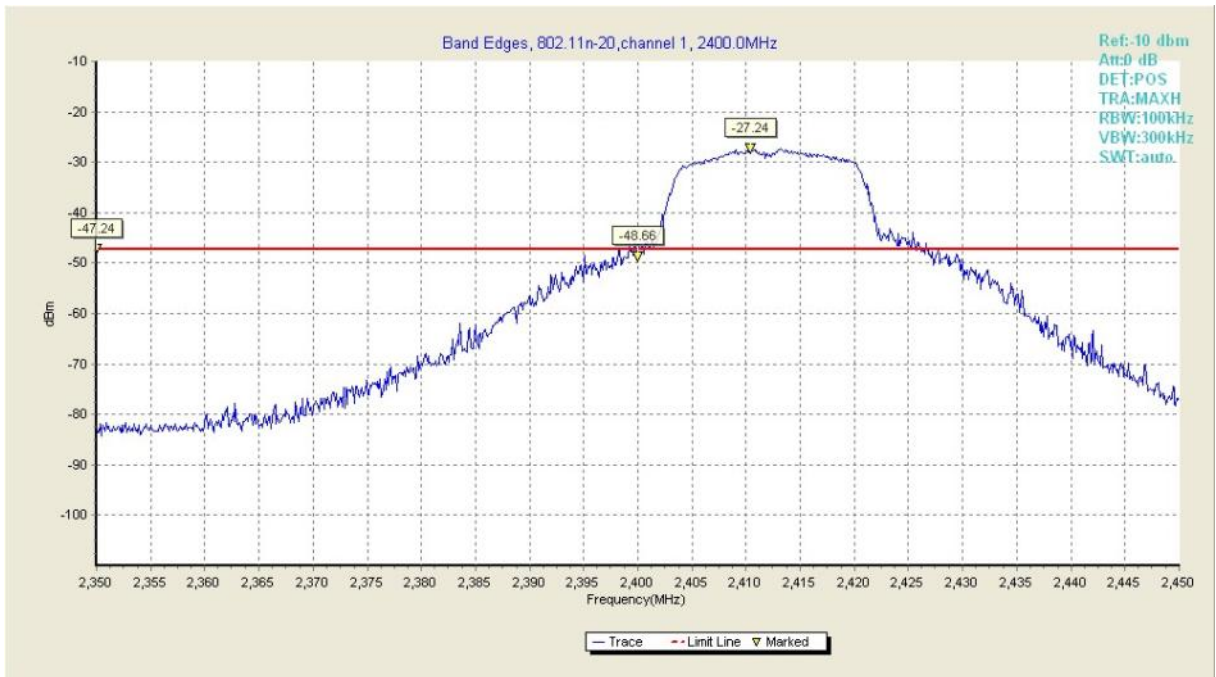


Fig29. Frequency Band Edges of 802.11n-20 in channel 1,2400MHz



Fig30. Frequency Band Edges of 802.11n-20 in channel 11,2483.5MHz

802.11n-40 mode

Channel	Frequency(MHz)	Limit (dB)	Test Result(MHz)		Verdict
3	2400	≥20	21.37	Fig.31	Pass
9	2483.5		30.84	Fig.32	Pass



Fig31. Frequency Band Edges of 802.11n-40 in channel 1,2400MHz

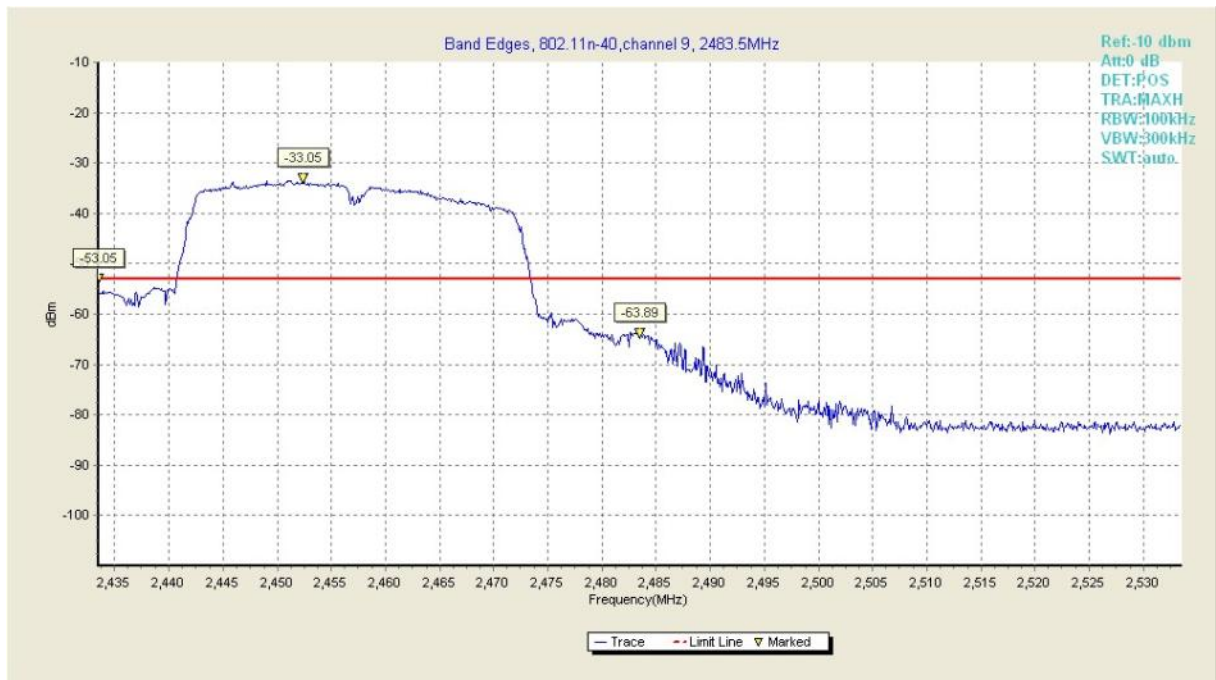


Fig32. Frequency Band Edges of 802.11n-40 in channel 11,2483.5MHz

B.5 Conducted Transmission Spurious Emission

B.5.1 Description

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band. For the following out of band conducted spurious emissions plots, the EUT was investigated in all available data rates for "b", "g" and "n" modes. The worst case spurious emissions for the 2.4GHz band were found while transmitting in "b" mode at 1 Mbps and are shown in the plots below.

B.5.2 Test Result

Test equipment parameter:

TRA: Max Hold RBW: 100kHz VBW: 300kHz Sweep time: AUTO

802.11b mode

Channel	Frequency Range	Test Results	Verdict
1	30MHz ~ 1GHz	Fig.33	Pass
	1GHz ~ 2.5GHz	Fig.34	Pass
	2.5GHz ~ 7.5GHz	Fig.35	Pass
	7.5GHz ~ 10GHz	Fig.36	Pass
	10GHz ~ 15GHz	Fig.37	Pass
	15GHz ~ 20GHz	Fig.38	Pass
	20GHz ~ 26GHz	Fig.39	Pass
6	30MHz ~ 1GHz	Fig.40	Pass
	1GHz ~ 2.5GHz	Fig.41	Pass
	2.5GHz ~ 7.5GHz	Fig.42	Pass
	7.5GHz ~ 10GHz	Fig.43	Pass