EMC TEST REPORT for Intentional Radiator

No. 140300227SHA-001

Applicant : China Hualu Group Co., Ltd
No.1 Hua Road Qixianling Hi-tech Zone, Dalian, China

Manufacturer : Dalian Golden Hualu Digital Technology Co., Ltd.
No.1 Hua Road, Qixianling Hi-Tech Zone, Dalian, China

Product Name : Wi-Fi module

Type/Model : BL-R7601RM1-U-411-R0

SUMMARY

The equipment complies with the requirements according to the following standard(s):

47CFR Part 15 (2013): Radio Frequency Devices（Subpart C）

ANSI C63.4 (2009): American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

RSS-210 Issue 8 (December 2010): Low-power Licence-exempt Radio communication Devices (All Frequency Bands): Category I Equipment

RSS-Gen Issue 3 (December 2010): General Requirements and Information for the Certification of Radio communication Equipment

Date of issue: November 4, 2014

Prepared by: Reviewed by:

Nemo Li (*Project Engineer*) Daniel Zhao (*Reviewer*)

Description of Test Facility

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1. General Information

1.1 Applicant Information

Applicant	:	China Hualu Group Co., Ltd
		No.1 Hua Road Qixianling Hi-tech Zone, Dalian, China
Name of contact	:	Che Yongjin
Tel	:	86 411 84790599
Fax	:	86 411 84790944
Email	:	cheyji@hualu.com.cn
Manufacturer	:	Dalian Golden Hualu Digital Technology Co., Ltd.
		No.1 Hua Road, Qixianling Hi-Tech Zone, Dalian, China

1.2 Identification of the EUT

Product Name	:	Wi-Fi module
Type/model	:	BL-R7601RM1-U-411-R0
FCC ID	:	YLZ-BLR7601HL
IC	:	9088A-BLR7601HL

1.3 Technical specification

Operation Frequency Band	:	2412~2462 MHz; 2422~2452 MHz
Type of Modulation	:	CCK,BPSK,QPSK,DSSS,OFDM
EUT Modes of Modulation	:	802.11b/g; 802.11n (HT20), 802.11n (HT40);
Channel Number	:	11Channel for 2412MHz~2462MHz for 11b,11g,11n(HT20); 7 Channel for 2422MHz~2452MHz for 11n(HT40);
Description of EUT	:	EUT is a RF module and has only one model.
Antenna	:	Pole antenna with RPSMA-J Connector, Gain: 2.5dBi max Model: RF-AN2400LRP-3dBi
Cable	:	The Insertion Loss of the cable between the antenna and PCB board is 0.6dB.
Rating	:	DC 5V
Category of EUT	:	Class B
EUT type	:	☒ Table top☐ Floor standing
Sample received date	:	September 01, 2014
Date of test	:	September 01, 2014 – September 11, 2014

2. Test Specification

2.1 Instrument list

Equipment	Type	Manu.	Internal no.	Cal. Date	Due date
Test Receiver	ESCS 30	R&S	EC 2107	2013-10-21	2014-10-20
Test Receiver	ESIB 26	R&S	EC 3045	2013-10-21	2014-10-19
Test Receiver	ESCI 7	R&S	EC4501	2013-12-29	2014-12-28
Spectrum Analyzer	N9010	Agilent	EC4890	2013-10-21	2014-10-20
Spectrum Analyzer	E4446	Agilent	/	2013-10-21	2014-10-20
Power meter	ML 2495A	Anritsu	EC 4895	2013-10-21	2014-10-20
A.M.N.	ESH2-Z5	R&S	EC 3119	2014-1-9	2015-1-8
Bilog Antenna	CBL 6112D	TESEQ	EC 4206	2014-5-15	2015-5-14
Horn antenna	HF 906	R&S	EC 3049	2014-5-12	2015-5-11
Pre-amplifier	Pre-amp 18	R&S	EC 3222	2014-4-11	2015-4-10
Pre-amplifier	Tpa0118-40	R&S	EC 4792-2	2014-4-11	2015-4-10
Log-period antenna	AT 1080	AR	EC 3044-7	2014-5-21	2015-5-20
Biconical antenna	3109PX	ETS	EC3564	2014-8-25	2015-8-24
Semi-anechoic chamber	-	Albatross project	EC 3048	2014-5-20	2015-5-19
Shielded room	-	Zhongyu	EC 2838	2014-1-12	2015-1-9
Shielded room	-	Zhongyu	EC 2839	2014-1-12	2015-1-9
High Pass Filter	WHKX 1.0/15G-10SS	Wainwright	EC4297-1	2014-2-1	2015-1-31
High Pass Filter	WHKX 2.8/18G-12SS	Wainwright	EC4297-2	2014-2-1	2015-1-31
High Pass Filter	WHKX 7.0/1.8G-8SS	Wainwright	EC4297-3	2014-2-1	2015-1-31
Band Reject Filter	WRCGV 2400/2483-2390/2493-35/10SS	Wainwright	EC4297-4	2014-2-1	2015-1-31

2.2 Test Standard

47CFR Part 15 (2013)
ANSI C63.4 (2009)
KDB 558074 (V03R02)
RSS-210 Issue 8 (December 2010)
RSS-Gen Issue 3 (December 2010)

2.3 Mode of operation during the test / Test peripherals used

While testing transmitting mode of EUT, the internal modulation and continuously transmission was applied.

EUT was tested with software MT7601USB provided by the customer. EUT was connected to the computer by USB cable.

The lowest, middle and highest channel were tested as representatives.

Freq. Band	Modulation	Lowest(MHz)	Middle(MHz)	Highest(MHz)
2412-2462MHz	802.11b	2412	2437	2462
	802.11g	2412	2437	2462
	802.11n HT20	2412	2437	2462
	802.11n HT40	2422	2437	2452

Test peripherals used:

Item No	Description	Band and Model	S/No
1	Laptop computer	HP ProBook 6470b	NA
2	USB Cable	-	-

Data rate VS Power

The pre-scan for the conducted power with all data rates in each modulation and bands was used, and the worst case was found and used in all test cases.

After this pre-scan, we choose the following table of the data rata as the worst case:

Freq. Band	Modulation	Worst case data rate
2400-2483.5MHz	802.11b	1Mbps
	802.11g	6Mbps
	802.11n(HT20)	MCS0
	802.11n(HT40)	MCS0

2.4 Test Summary

This report applies to tested sample only. This report shall not be reproduced in part without written approval of Intertek Testing Service Shanghai Limited.

TEST ITEM	FCC REFERANCE	IC REFERANCE	RESULT
Minimum 6dB Bandwidth	15.247(a)(2)	RSS-210 Issue 8 Annex 8 RSS-Gen Issue 3 Clause 4.6.1	Pass
Maximum peak output power	15.247(b)	RSS-210 Issue 8 Annex 8	Pass
Power spectrum density	15.247(e)	RSS-210 Issue 8 Annex 8	Pass
Radiated emission	15.205 & 15.209	RSS-210 Issue 8 Clause 2	Pass
Emission outside the frequency band	15.247(d)	RSS-210 Issue 8 Annex 8	Pass
Power line conducted emission	15.207	RSS-Gen Issue 3 Clause 7.2.4	Pass

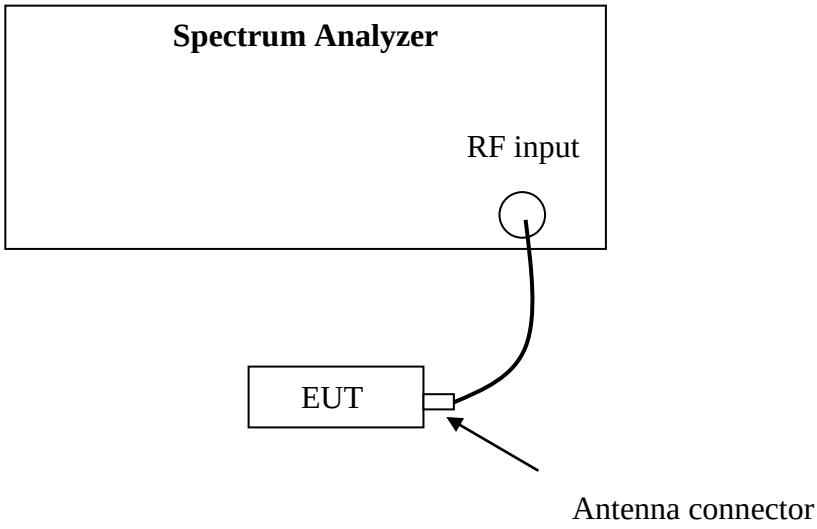
3. Minimum 6dB Bandwidth

Test result: PASS

3.1 Limit

For systems using digital modulation techniques that may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz bands, the minimum 6 dB bandwidth shall be at least 500 kHz.

3.2 Test Configuration



3.3 Test Procedure and test setup

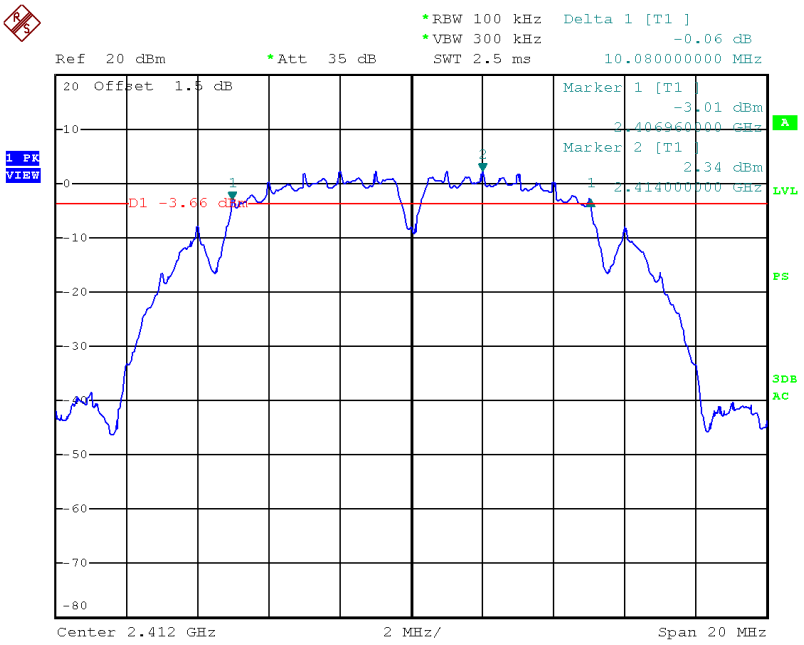
The minimum 6dB bandwidth per FCC §15.247(a)(2) is measured using the Spectrum Analyzer according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance v03r02" for compliance to FCC 47CFR 15.247 requirements(clause 8.2).

3.4 Test Protocol

Temperature : 25°C
Relative Humidity : 55%

Mode	CH	6dB Bandwidth (MHz)	Limit (MHz)
802.11b	L	10.08	⩾0.5
	M	10.08	
	H	10.08	

Channel L



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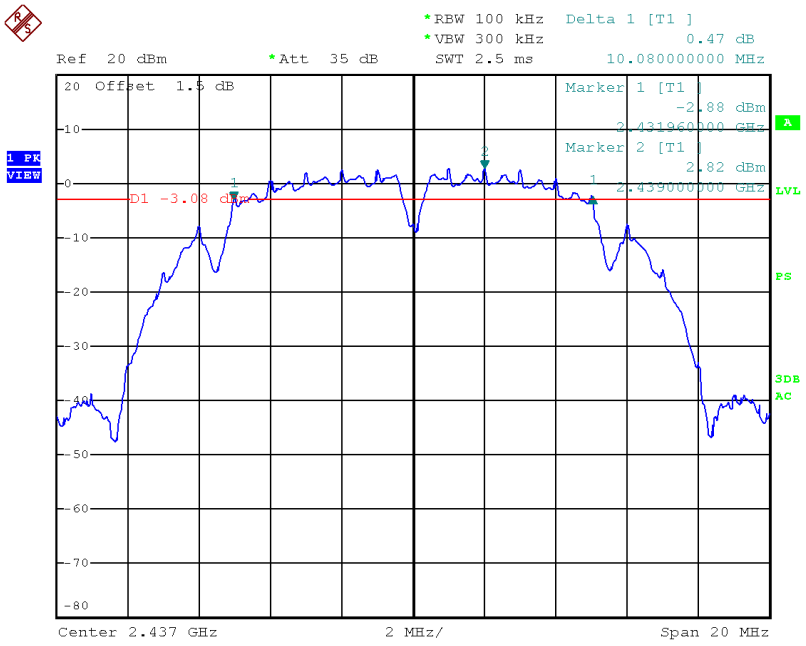

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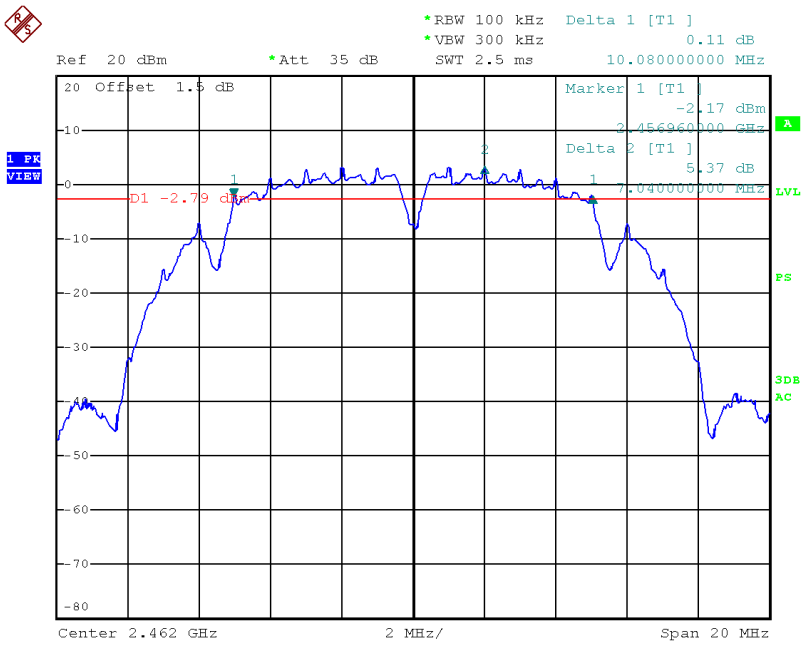
Channel H



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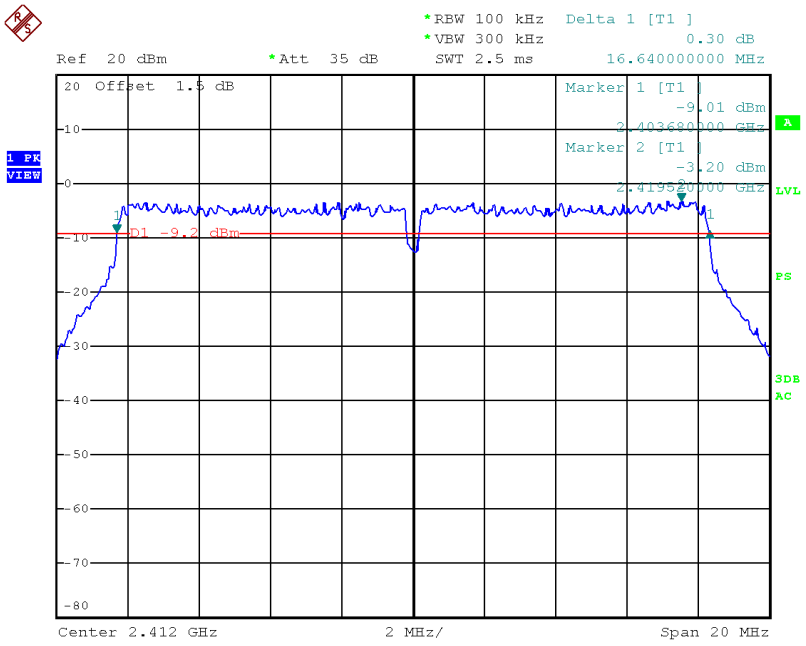
Mode	CH	6dB Bandwidth (MHz)	Limit (MHz)
802.11g	L	16.64	⩾0.5
	M	16.60	
	H	16.64	

Channel L



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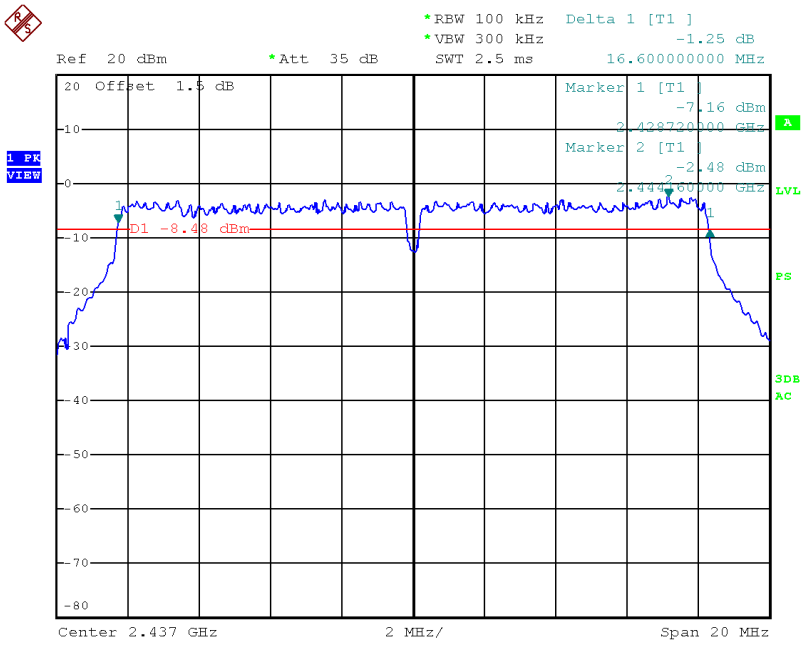

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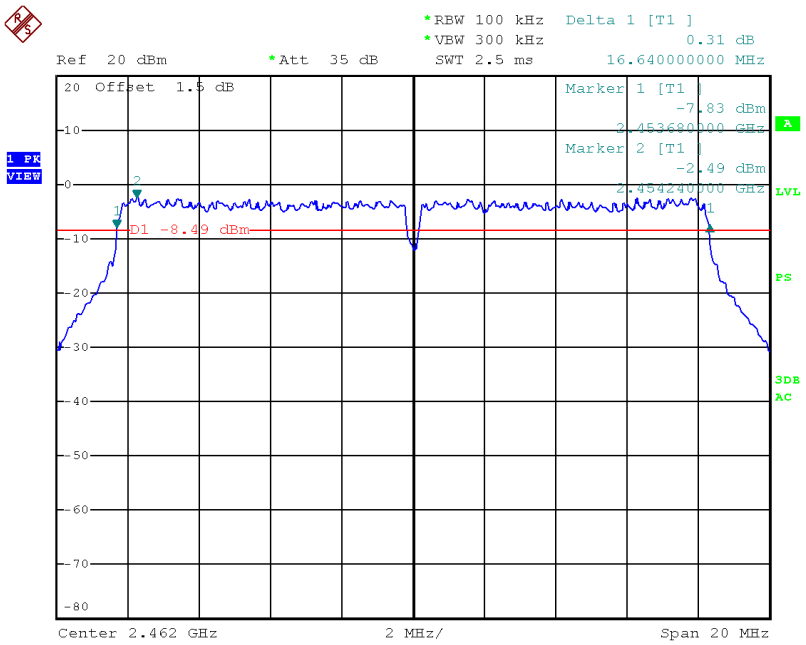
Channel H



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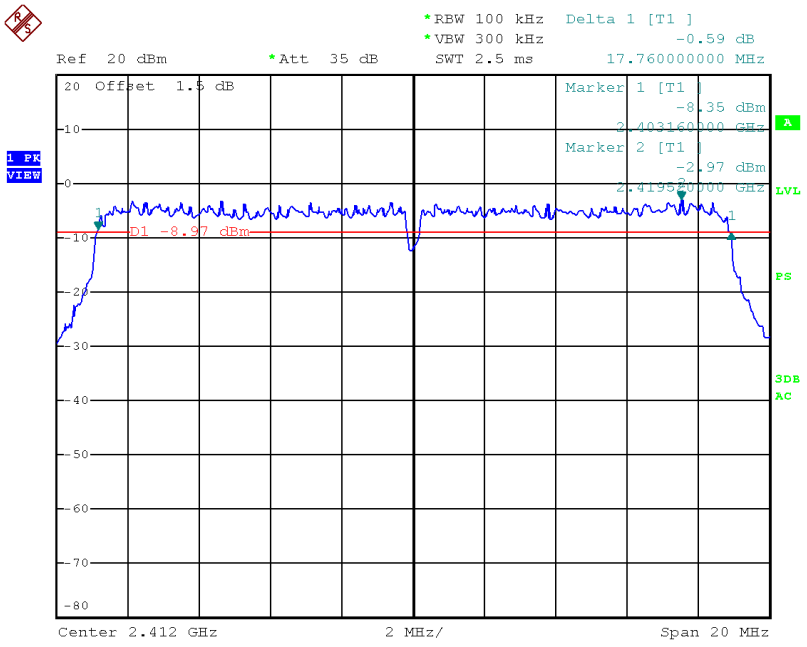
Mode	CH	6dB Bandwidth (MHz)	Limit (MHz)
802.11n(HT20)	L	17.76	⩾0.5
	M	17.76	
	H	17.76	

Channel L



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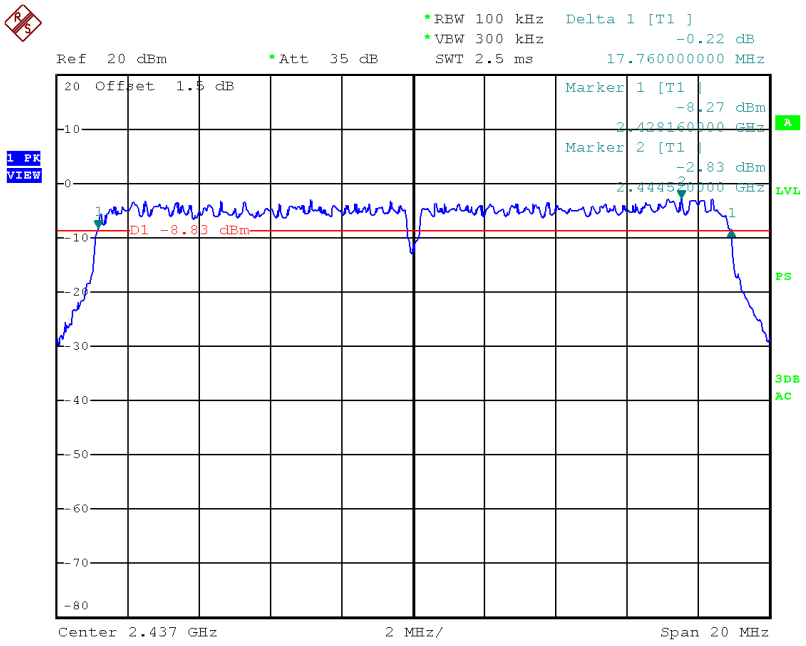
Channel M



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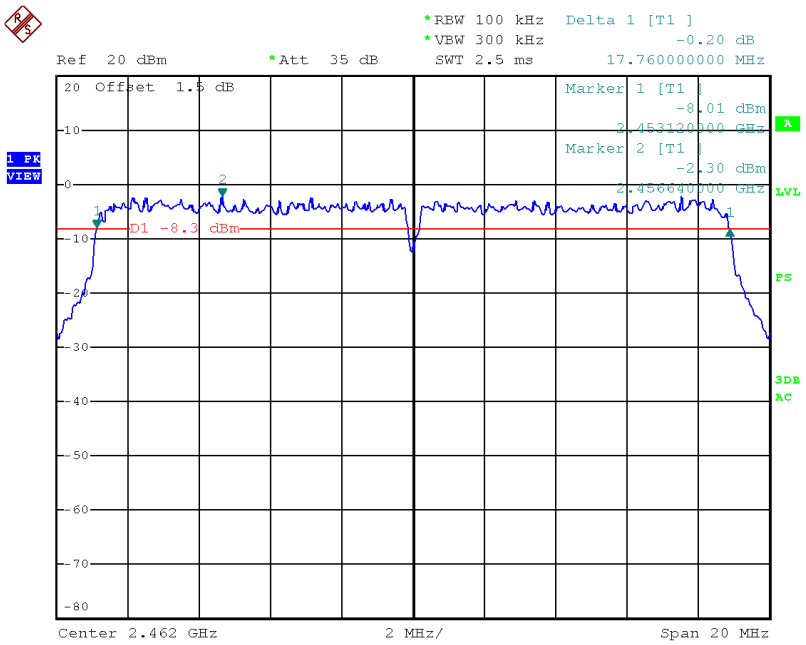
Channel H



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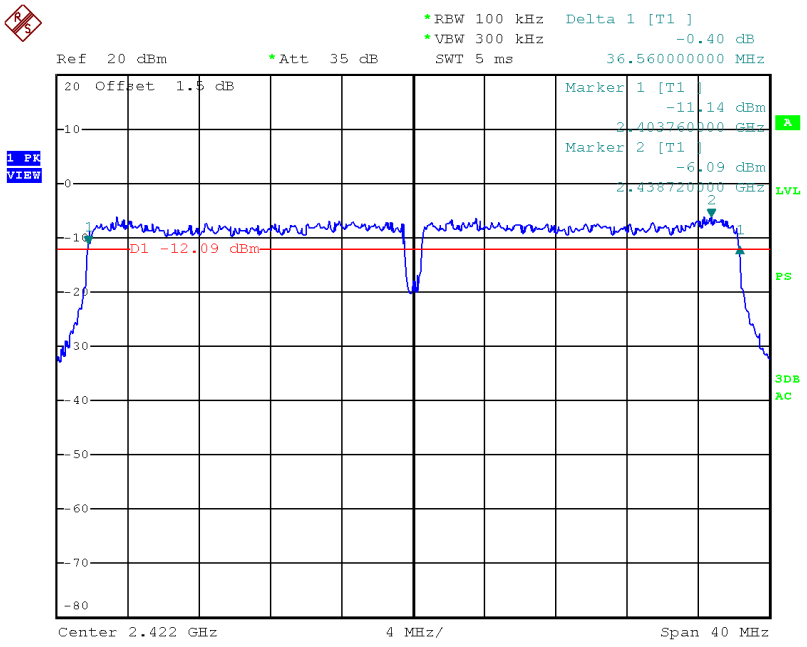
Mode	CH	6dB Bandwidth (MHz)	Limit (MHz)
802.11n(HT40)	L	36.56	⩾0.5
	M	36.52	
	H	36.56	

Channel L



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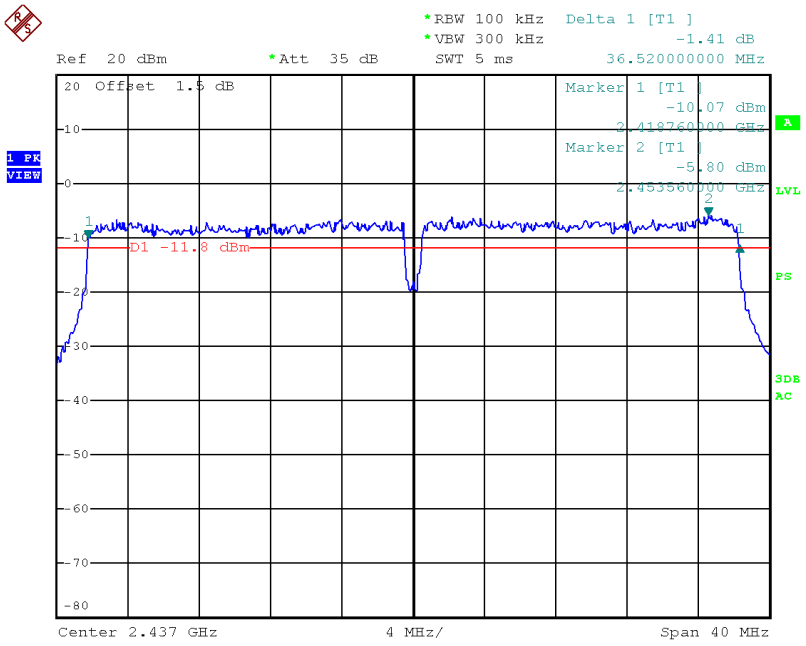
Channel M



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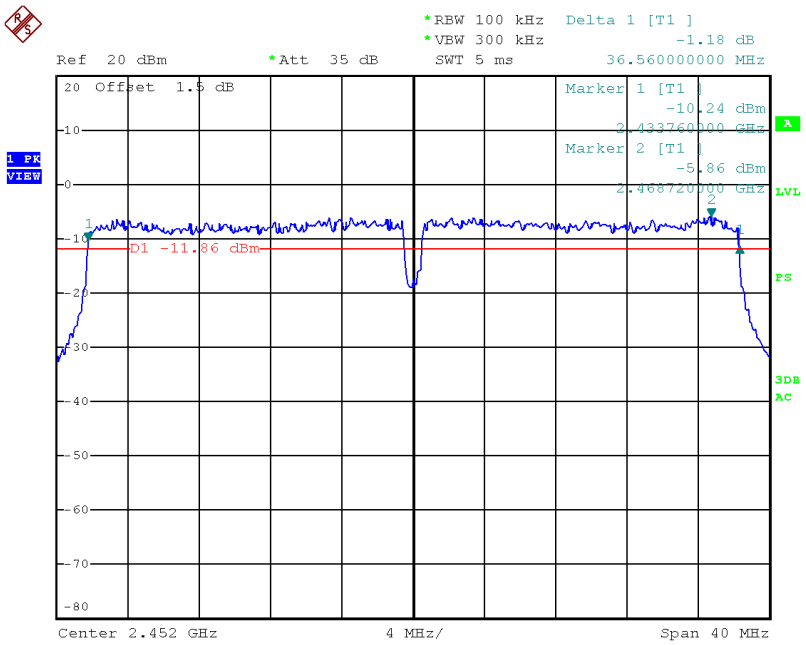
Channel H



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4. Maximum peak output power

Test result: Pass

4.1 Test limit

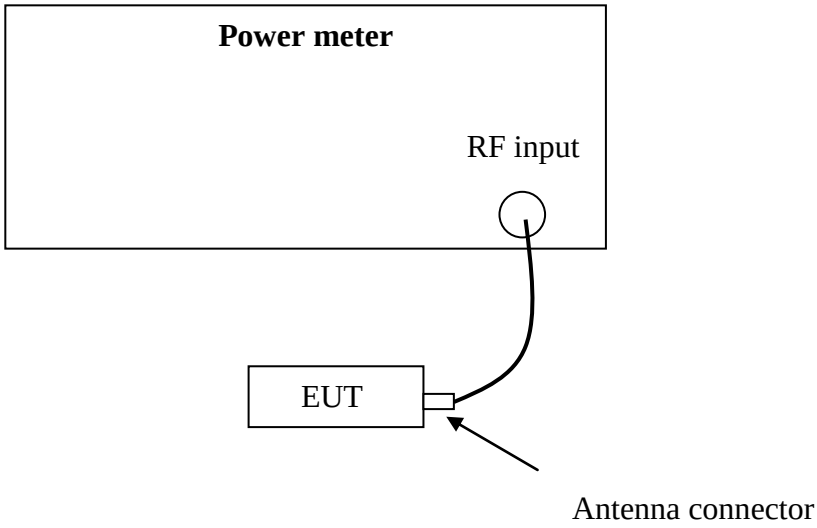
☐ For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt

☐ For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts

☒ For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

If the transmitting antenna of directional gain greater than 6dBi is used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.2 Test Configuration



4.3 Test procedure and test setup

The EUT was tested according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance v03r02" for compliance to FCC 47CFR 15.247 requirements (clause 9.1.2).

4.4 Test protocol

Temperature : 25 °C
Relative Humidity : 55 %

Mode	CH	Cable loss (dB)	Conducted Power (dBm)	Limit (dBm)
802.11b	L	1.50	18.04	≤30
	M	1.50	18.86	
	H	1.50	19.22	

Mode	CH	Cable loss (dB)	Conducted Power (dBm)	Limit (dBm)
802.11g	L	1.50	23.30	≤30
	M	1.50	24.03	
	H	1.50	24.20	

Mode	CH	Cable loss (dB)	Conducted Power (dBm)	Limit (dBm)
802.11n(HT20)	L	1.50	22.05	≤30
	M	1.50	22.86	
	H	1.50	23.89	

Mode	CH	Cable loss (dB)	Conducted Power (dBm)	Limit (dBm)
802.11n(HT40)	L	1.50	21.39	≤30
	M	1.50	21.82	
	H	1.50	22.22	

The maximum EIRP of the EUT = 24.20dBm + 2.50dBi = 26.70dBm = 467.74mW which is lower than the EIRP limit of RSS-210.

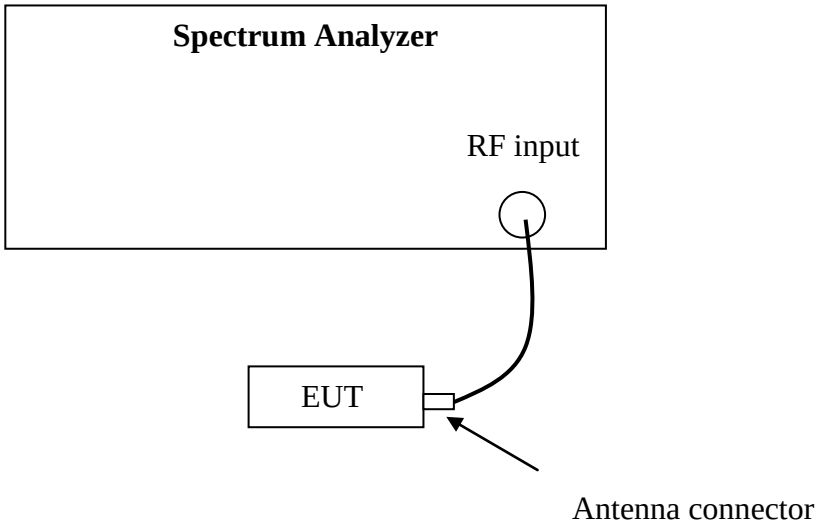
5. Power spectrum density

Test result: **Pass**

5.1 Test limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

5.2 Test Configuration



5.3 Test procedure and test setup

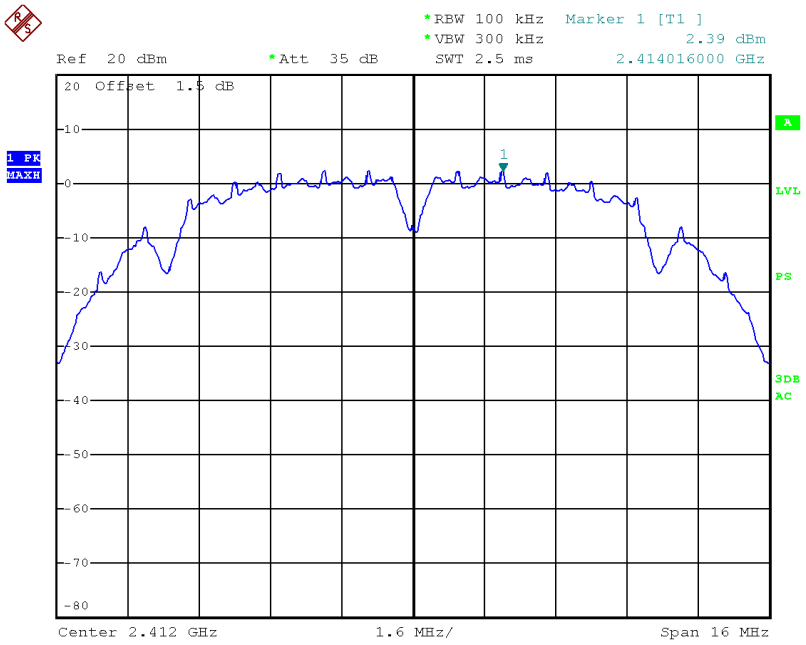
The power output per FCC §15.247(e) was tested according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance v03r02" (clause 10.2) for compliance to FCC 47CFR 15.247 requirements.

5.4 Test Protocol

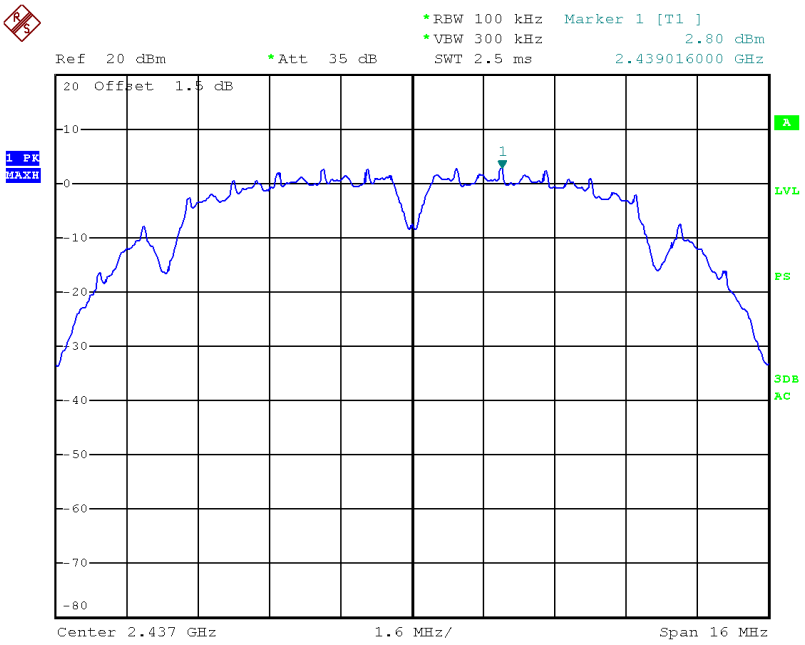
Temperature : 25 °C
Relative Humidity: 55 %

Mode	CH	Cable loss (dB)	Spectrum Density (dBm/100kHz)	Limit (dBm/3kHz)
802.11b	L	1.50	2.39	≤8.00
	M	1.50	2.80	
	H	1.50	3.21	

Channel L



Channel M



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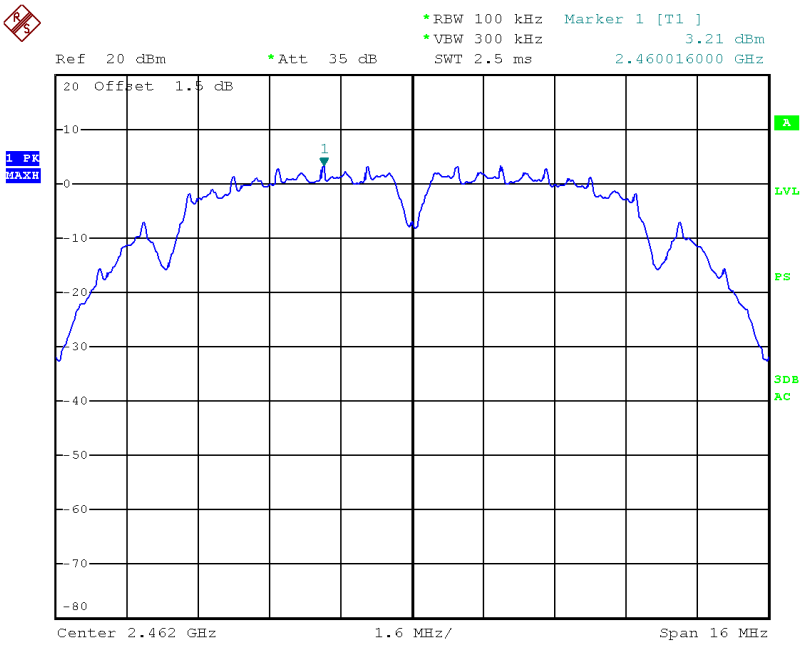
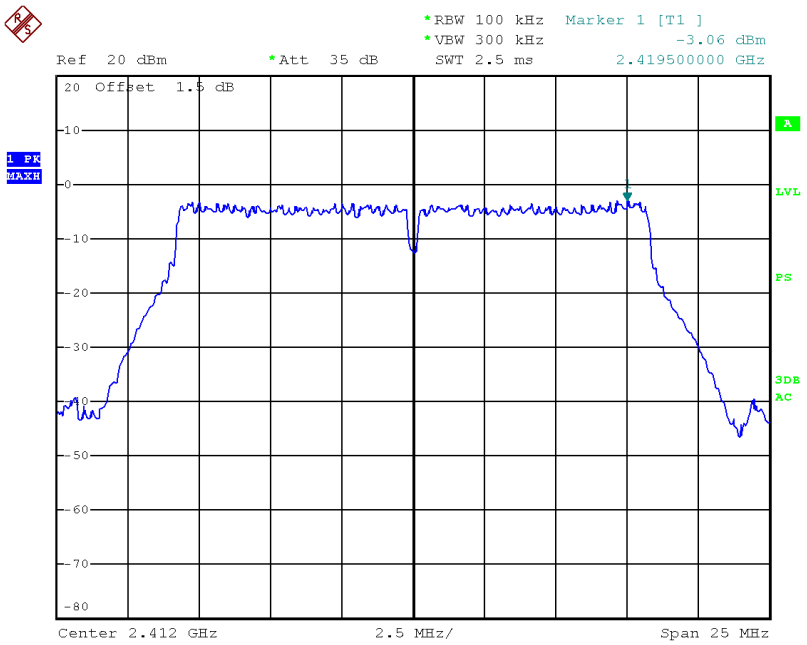
Channel H



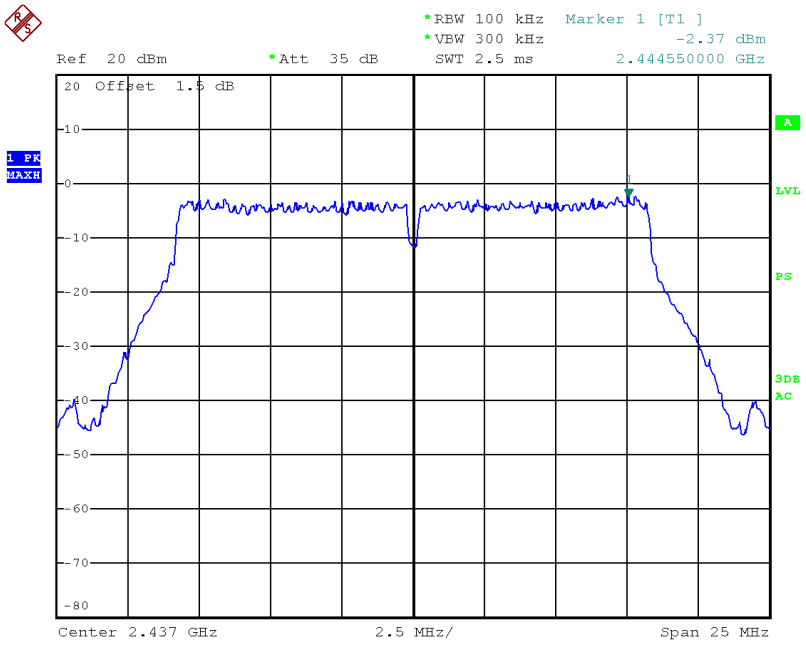
Date: 11.SEP.2014 20:06:48

Mode	CH	Cable loss (dB)	Spectrum Density (dBm/100kHz)	Limit (dBm/3kHz)
802.11g	L	1.50	-3.06	≤8.00
	M	1.50	-2.37	
	H	1.50	-1.92	

Channel L



Channel M



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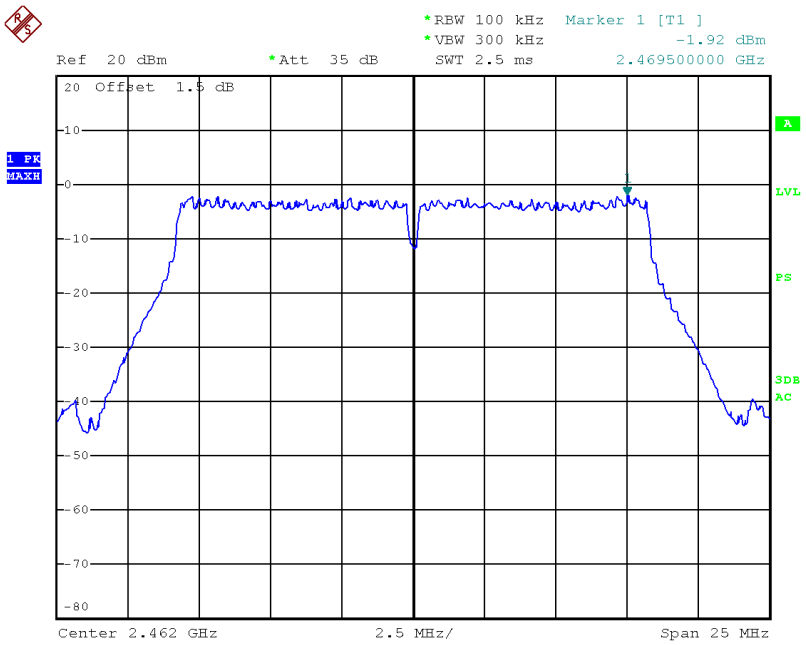
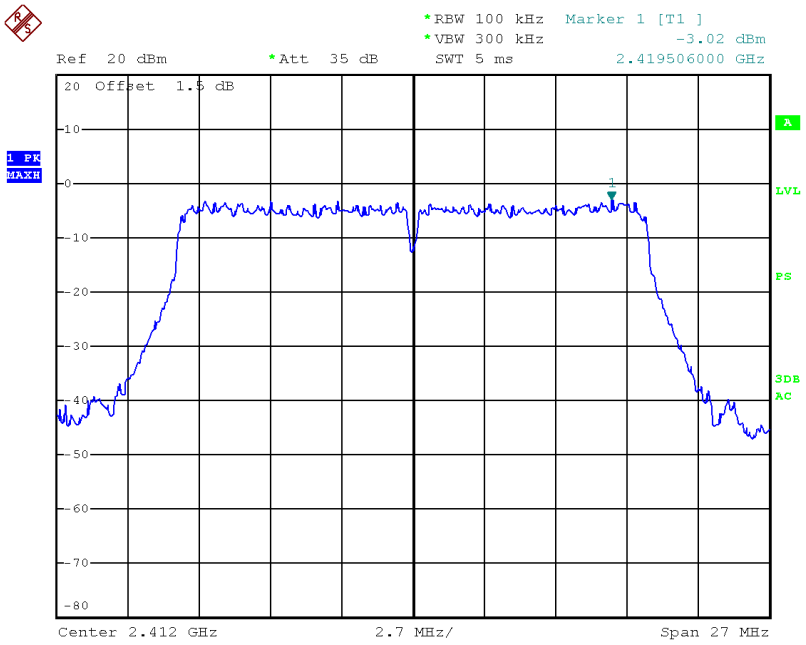
Channel H



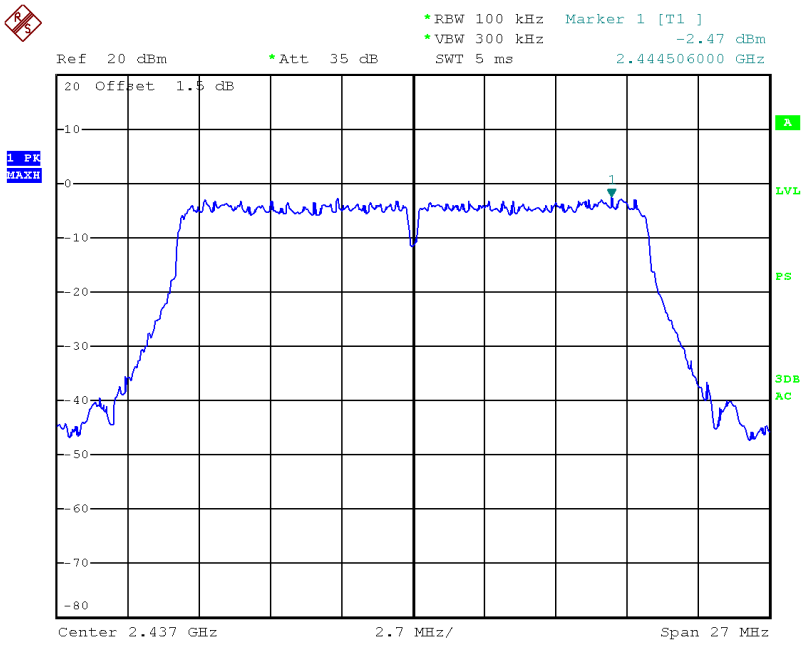
Date: 11.SEP.2014 20:09:28

Mode	CH	Cable loss (dB)	Spectrum Density (dBm/100kHz)	Limit (dBm/3kHz)
802.11n(HT20)	L	1.50	-3.02	≤8.00
	M	1.50	-2.47	
	H	1.50	-2.22	

Channel L



Channel M



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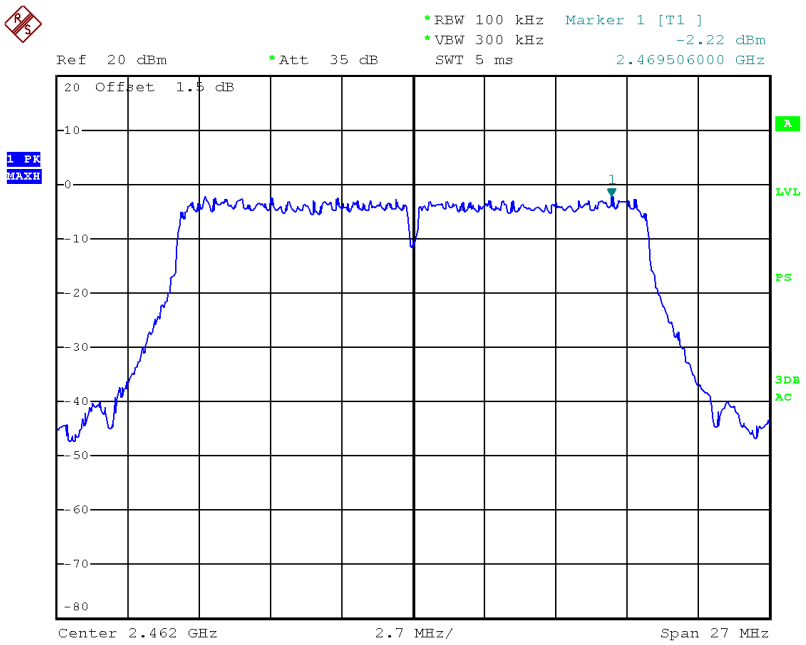
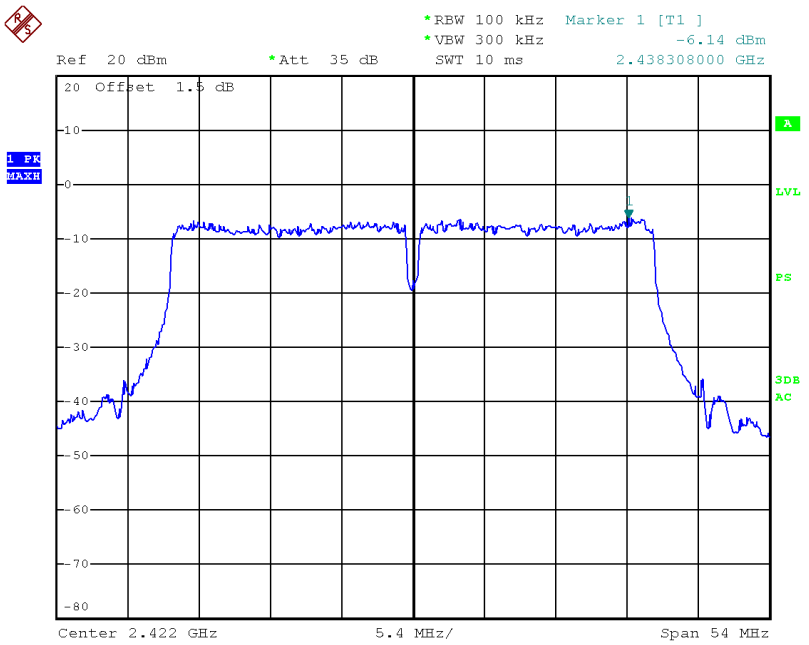
Channel H



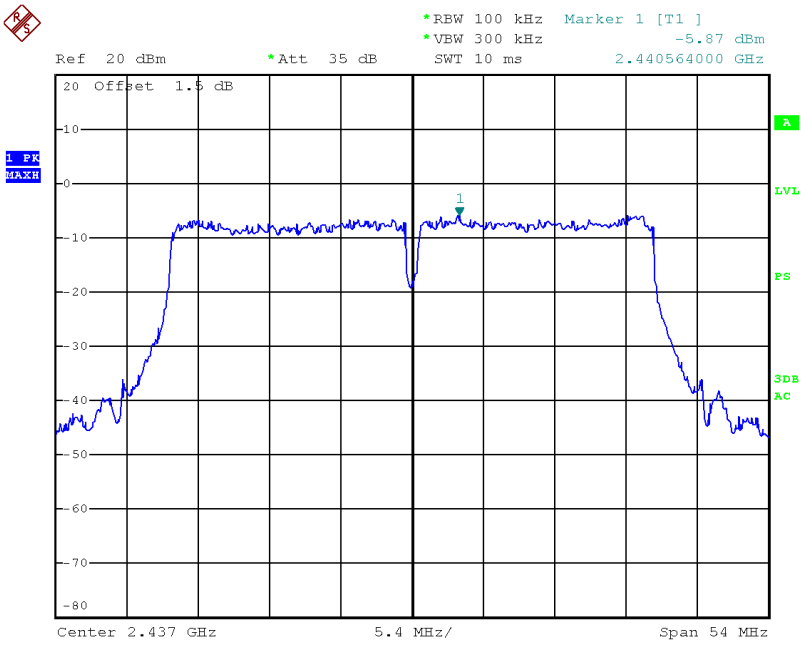
Date: 11.SEP.2014 20:12:15

Mode	CH	Cable loss (dB)	Spectrum Density (dBm/100kHz)	Limit (dBm/3kHz)
802.11n(HT40)	L	1.50	-6.14	≤8.00
	M	1.50	-5.87	
	H	1.50	-5.65	

Channel L



Channel M



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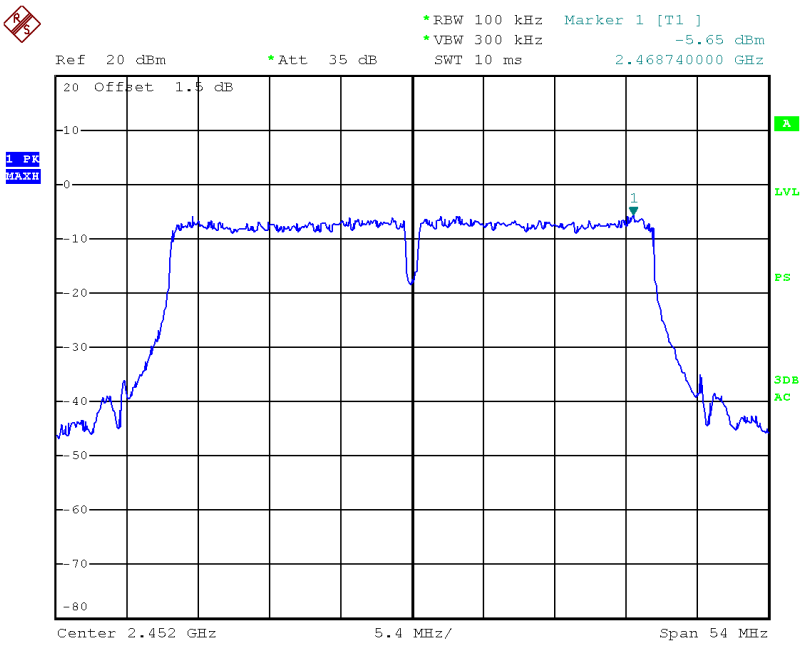
Channel H



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6. Radiated emission in the restricted bands

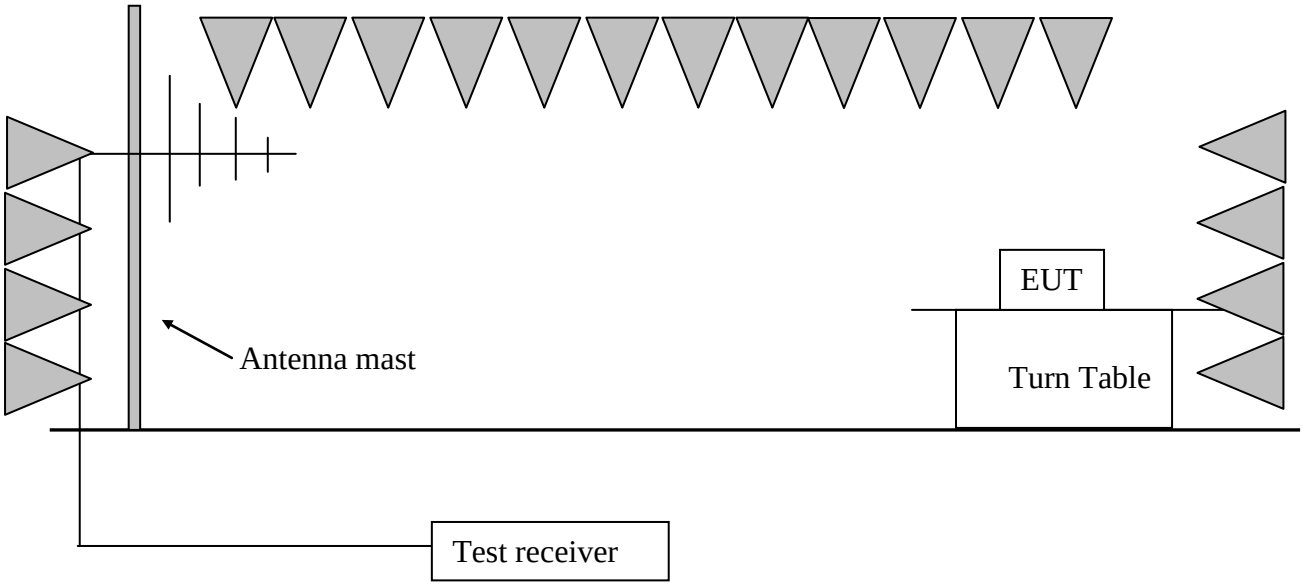
Test result: PASS

6.1 Test limit

The radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) showed as below:

Frequency (MHz)	Field Strength (dBuV/m)	Measurement Distance (m)
30 - 88	40.0	3
88 - 216	43.5	3
216 - 960	46.0	3
Above 960	54.0	3

6.2 Test Configuration



6.3 Test procedure and test setup

The measurement was applied in a semi-anechoic chamber. While testing for spurious emission higher than 1GHz, if applied, the pre-amplifier would be equipped just at the output terminal of the antenna.
The EUT and simulators were placed on a 0.8m high wooden turntable above the horizontal metal ground plane. The turn table rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mast. The antenna moved up and down between from 1meter to 4 meters to find out the maximum emission level.
The EUT was tested according to DTS test procedure of KDB558074 D01 DTS “Meas Guidance v03r02” (clause 12) for compliance to FCC 47CFR 15.247 requirements.

6.4 Test protocol

Temperature : 25 °C Relative Humidity : 55 %

EUT was tested in the frequency range of 9kHz to 26GHz, and the worst data was listed as below:

Mode 802.11b

CH	Polarization	Frequency (MHz)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
L	V	2412.83	34.10	109.30	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	V	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2389.24	34.00	61.50	74.00	12.50	PK
	V	2389.24	34.00	47.00	54.00	7.00	AV
	V	3210.42	-8.00	51.60	74.00	22.40	PK
	V	4824.61	-3.60	46.80	74.00	27.20	PK
M	H	2437.87	34.20	108.90	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	V	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2389.24	34.00	61.00	74.00	13.00	PK
	V	2389.24	34.00	47.00	54.00	7.00	AV
	V	3210.42	-8.00	50.00	74.00	24.00	PK
	V	4874.52	-3.60	48.30	74.00	25.70	PK
H	H	2462.93	34.40	109.30	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	V	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2484.79	34.00	61.50	74.00	12.50	PK
	V	2484.79	34.00	47.00	54.00	7.00	AV
	V	3270.54	-8.00	46.30	74.00	27.70	PK
	V	4924.35	-3.60	49.20	74.00	24.80	PK

Mode 802.11g

CH	Polarization	Frequency (MHz)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
L	V	2412.37	34.10	108.90	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	V	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2387.27	34.00	63.00	74.00	11.00	PK
	V	2387.27	34.00	48.50	54.00	5.50	AV
	V	3210.42	-8.00	53.80	74.00	20.20	PK
	V	4824.55	-3.60	44.00	74.00	30.00	PK
M	H	2437.45	34.20	108.80	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	V	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2377.65	34.00	61.00	74.00	13.00	PK
	V	2377.65	34.00	47.00	54.00	7.00	AV
	V	3240.48	-8.00	52.30	74.00	21.70	PK
	V	4874.63	-3.60	44.30	74.00	29.70	PK
H	H	2462.54	34.40	108.90	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	V	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2483.80	34.00	64.00	74.00	10.00	PK
	V	2483.80	34.00	48.50	54.00	5.50	AV
	V	3270.54	-8.00	49.40	74.00	24.60	PK
	V	4924.26	-3.60	45.40	74.00	28.60	PK

Mode 802.11n(HT20)

CH	Polarization	Frequency (MHz)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
L	V	2412.25	34.10	109.10	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	V	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2389.20	34.00	64.00	74.00	10.00	PK
	V	2389.20	34.00	49.00	54.00	5.00	AV
	V	3210.42	-8.00	53.80	74.00	20.20	PK
	V	4824.69	-3.60	45.10	74.00	28.90	PK
M	H	2437.36	34.20	108.80	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	V	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2383.43	34.00	61.00	74.00	13.00	PK
	V	2383.43	34.00	47.00	54.00	7.00	AV
	V	3210.42	-8.00	52.60	74.00	21.40	PK
	V	4874.58	-3.60	44.50	74.00	29.50	PK
H	H	2462.61	34.40	109.20	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	V	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2484.13	34.00	64.00	74.00	10.00	PK
	V	2484.13	34.00	48.50	54.00	5.50	AV
	V	3270.54	-8.00	49.20	74.00	24.80	PK
	V	4924.35	-3.60	46.60	74.00	27.40	PK

Mode 802.11n(HT40)

CH	Polarization	Frequency (MHz)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
L	V	2422.62	34.10	105.70	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	V	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2388.56	34.00	65.00	74.00	9.00	PK
	V	2388.56	34.00	51.00	54.00	3.00	AV
	V	3210.42	-8.00	53.50	74.00	20.50	PK
	V	4844.52	-3.60	42.30	74.00	31.70	PK
M	H	2437.35	34.20	105.60	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	V	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2388.40	34.00	62.00	74.00	12.00	PK
	V	2388.40	34.00	48.00	54.00	6.00	AV
	V	3210.42	-8.00	52.20	74.00	21.80	PK
	V	4874.52	-3.60	42.30	74.00	31.70	PK
H	H	2452.38	34.40	105.70	Fundamental	/	PK
	H	156.35	14.00	37.70	43.50	7.20	QP
	H	241.88	12.80	38.90	46.00	7.10	QP
	V	414.89	19.30	37.60	46.00	8.40	QP
	V	2483.62	34.00	65.00	74.00	9.00	PK
	V	2483.62	34.00	50.00	54.00	4.00	AV
	V	3270.54	-8.00	49.40	74.00	24.60	PK
	V	4904.38	-3.60	40.20	74.00	29.80	PK

Remark:
1. Factor= Antenna Factor + Cable Loss (-Amplifier, is employed)
2. Measure level= Reading level + Factor
3. Over Limit = Limit – Measure level
4. If the PK measured level is lower than AV limit, the AV test can be elided.

Example:
Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB,
Gain of Preamplifier = 32.00dB, Original Receiver Reading level = 10dBuV.
Then Factor = 30.20 + 2.00 – 32.00 = 0.20dB/m;
Measure level = 10dBuV + 0.20dB/m = 10.20dBuV/m
Assuming limit = 54dBuV/m, Measure level = 10.20dBuV/m,
then Over Limit = 10.20 - 54= -43.80dBuV/m

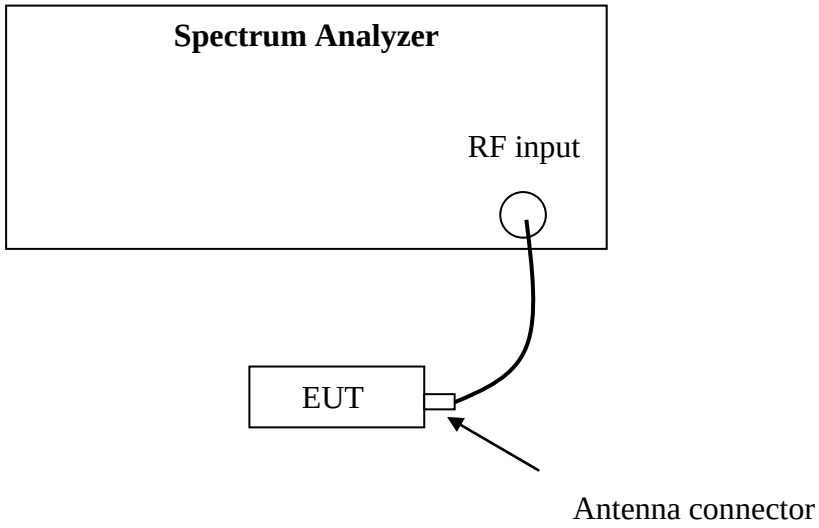
7. Emission outside the frequency Band

Test result: **PASS**

7.1 Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

7.2 Test Configuration



7.3 Test procedure and test setup

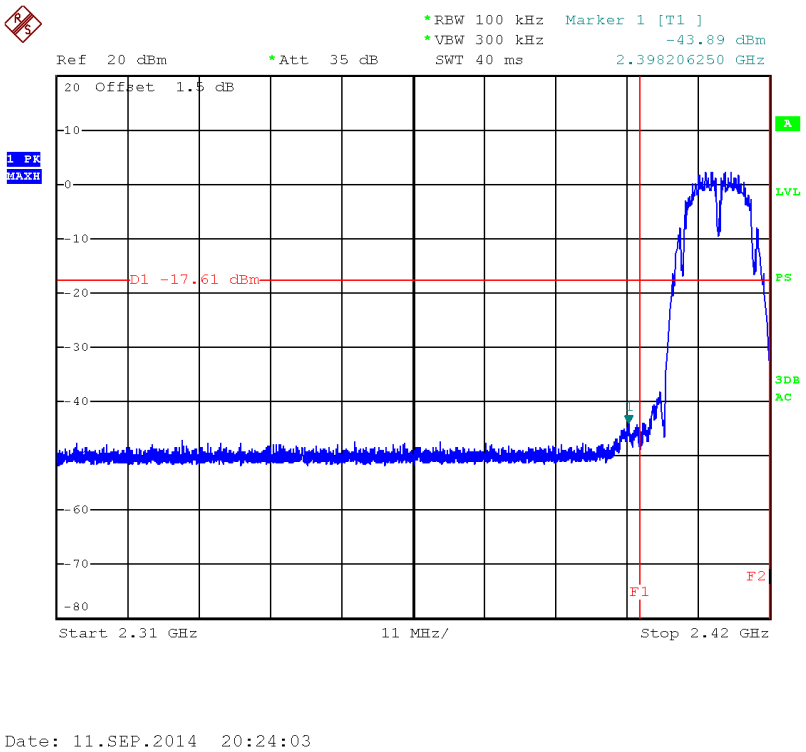
The Emission outside the frequency Band per FCC §15.247(d) is measured using the Spectrum Analyzer with the resolutions bandwidth set at 100kHz, the video bandwidth set at 300kHz, and the SPAN>>RBW.
The EUT was tested according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance v03r02" (clause 11.0) for compliance to FCC 47CFR 15.247 requirements.

7.4 Test protocol

Temperature : 25 °C
Relative Humidity : 55 %

Mode	CH	Max PSD among band (dBm)	The most restrict Attenuation outside band (dB)	Limit (dB)
802.11b	L	2.39	46.28	≥20
	M	2.80	50.25	
	H	3.21	50.18	

Note: The test was performed from 9kHz to 26GHz and the worst graph of band edge emission is listed below.



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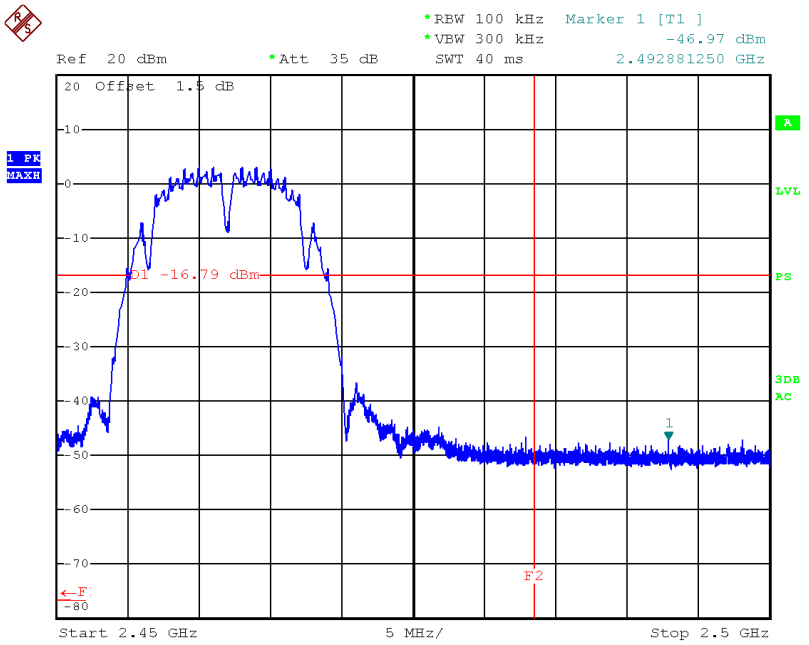
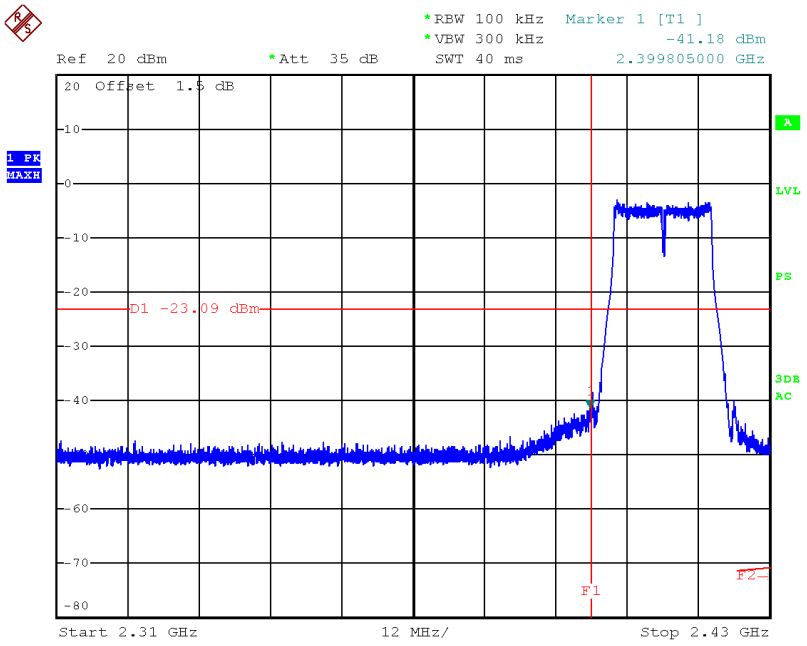


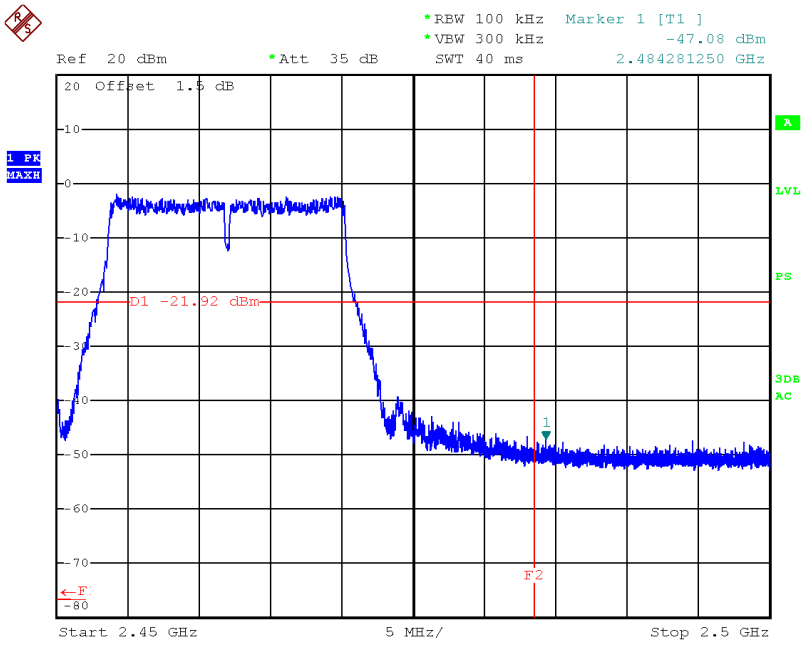
Date: 11.SEP.2014 20:26:00

Mode	CH	Max PSD among band (dBm)	The most restrict Attenuation outside band (dB)	Limit (dB)
802.11g	L	-3.06	38.12	≥20
	M	-2.37	46.21	
	H	-1.92	45.16	

Note: The test was performed from 9kHz to 26GHz and the worst graph of band edge emission is listed below.



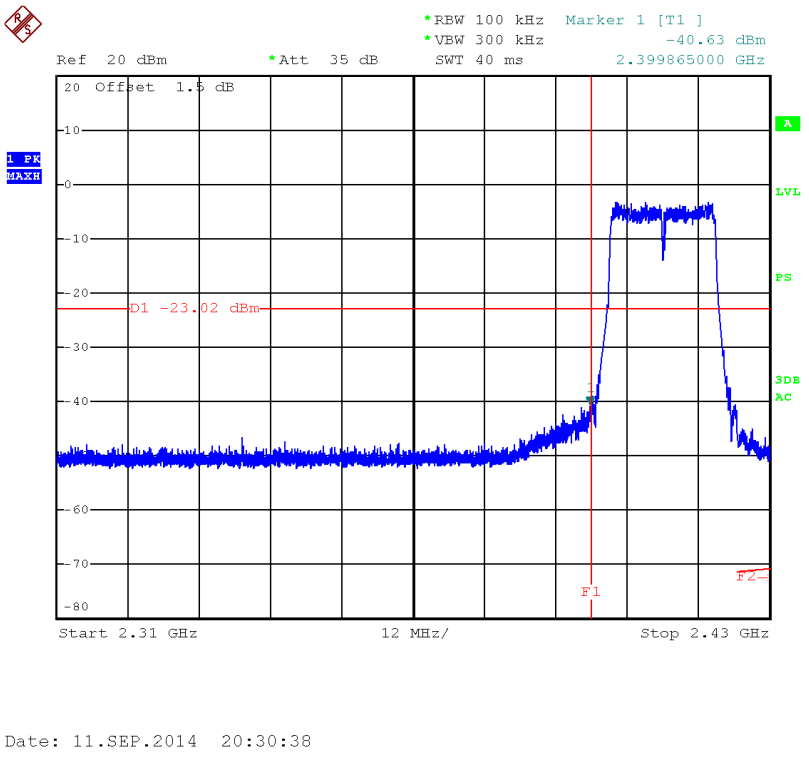
Date: 11.SEP.2014 20:29:07

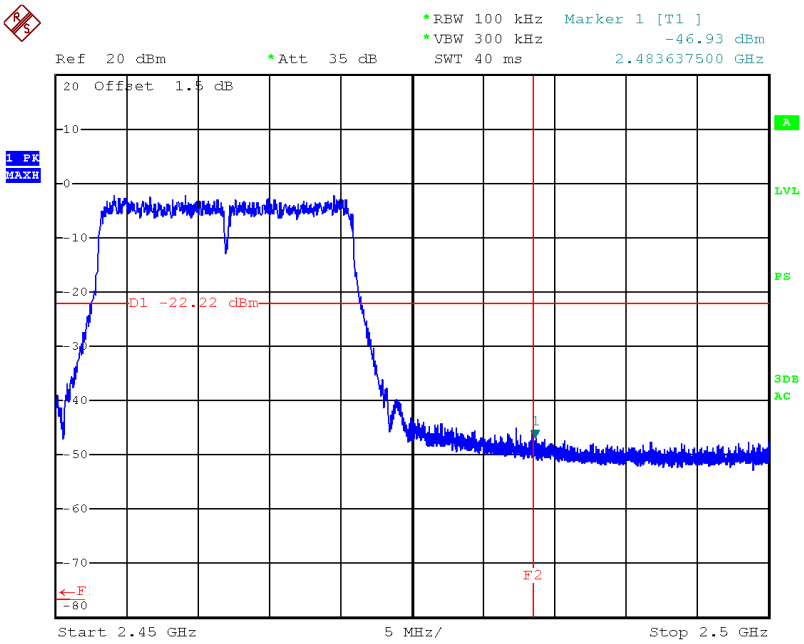


Date: 11.SEP.2014 20:27:03

Mode	CH	Max PSD among band (dBm)	The most restrict Attenuation outside band (dB)	Limit (dB)
802.11n(HT20)	L	-3.02	37.61	≥20
	M	-2.47	46.24	
	H	-2.22	44.71	

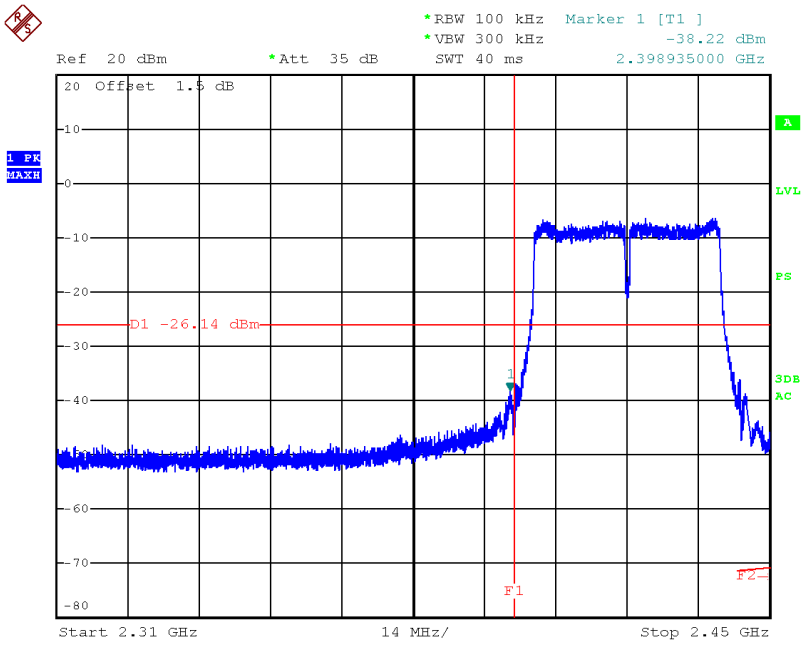
Note: The test was performed from 9kHz to 26GHz and the worst graph of band edge emission is listed below.





Mode	CH	Max PSD among band (dBm)	The most restrict Attenuation outside band (dB)	Limit (dB)
802.11b	L	-6.14	32.08	≥20
	M	-5.87	42.83	
	H	-5.65	40.08	

Note: The test was performed from 9kHz to 26GHz and the worst graph of band edge emission is listed below.



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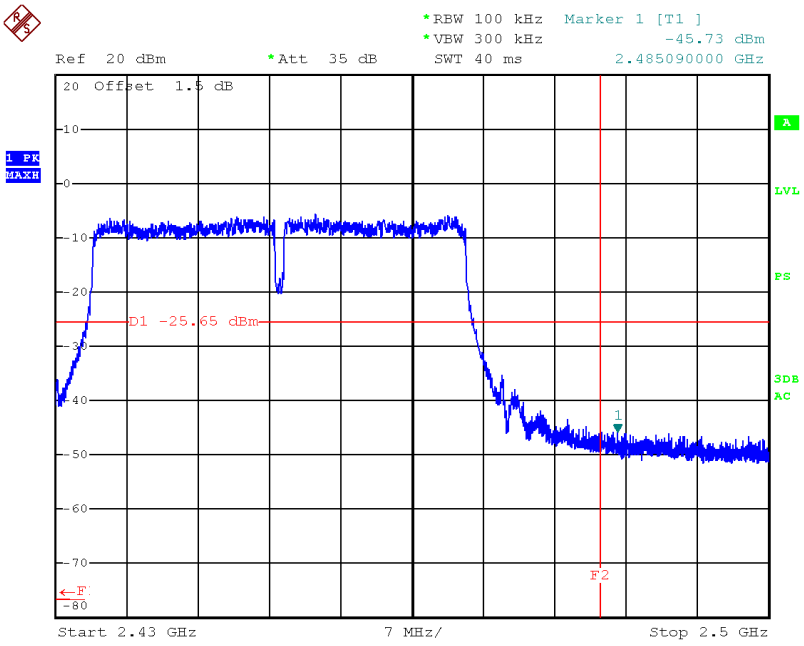

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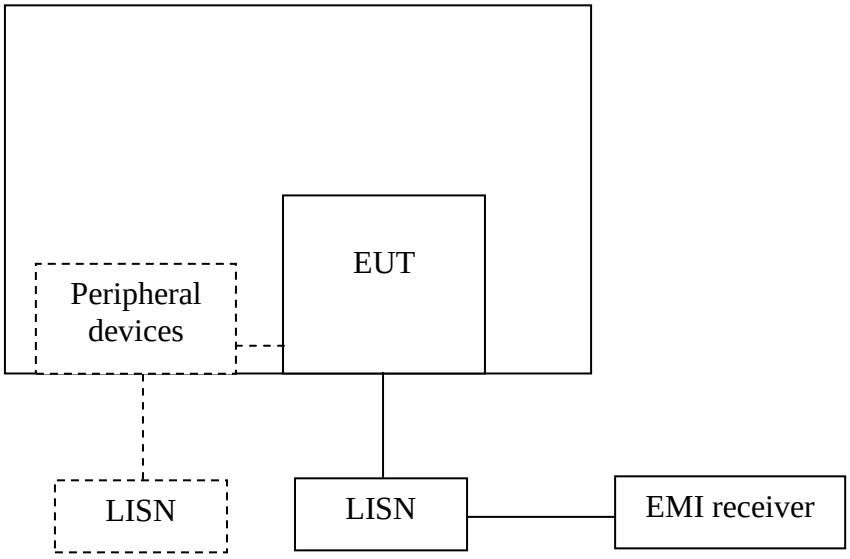
8. Power line conducted emission

Test result: **PASS**

8.1 Limit

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	QP	AV
0.15-0.5	66 to 56*	56 to 46 *
0.5-5	56	46
5-30	60	50
* Decreases with the logarithm of the frequency.		

8.2 Test configuration



☒ For table top equipment, wooden support is 0.8m height table

☐ For floor standing equipment, wooden support is 0.1m height rack.

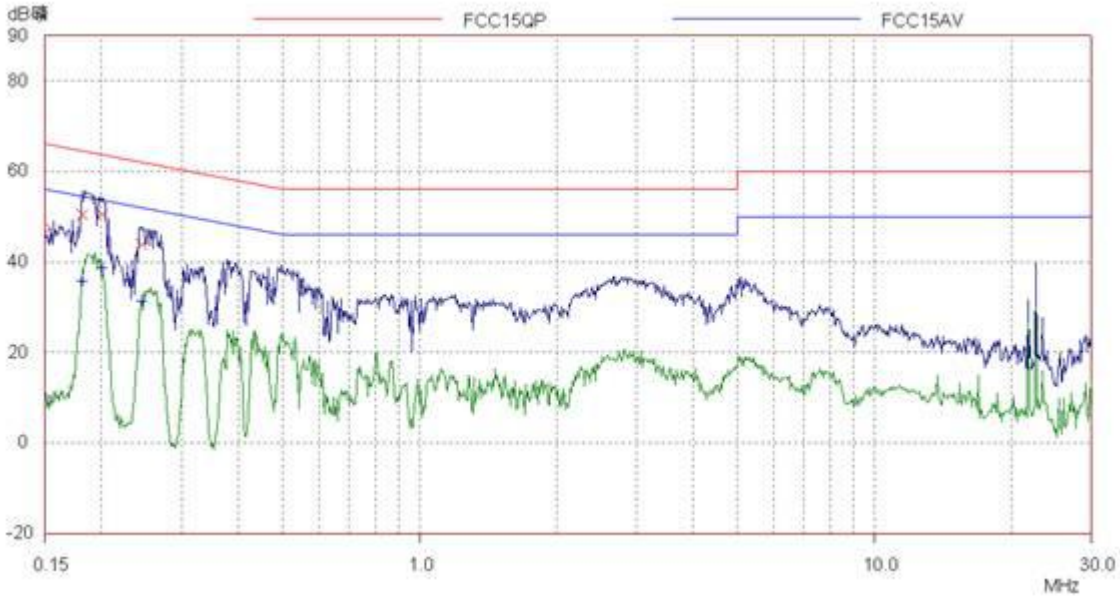
8.3 Test procedure and test set up

The EUT are connected to the main power through a line impedance stabilization network (LISN). This provides a 50Ω/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50Ω/50uH coupling impedance with 50Ω termination.
Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4 on conducted measurement.
The bandwidth of the test receiver is set at 9 kHz.

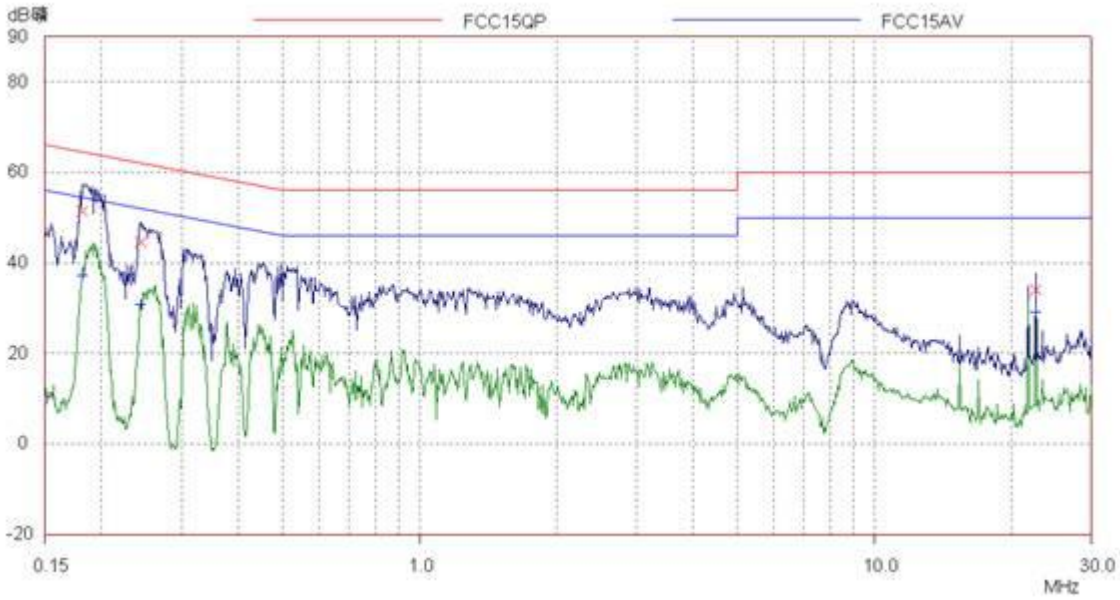
8.4 Test protocol

Temperature : 22°C
Relative Humidity : 54 %

L Line



N Line



Test data:

Line	Frequency	Corrected Reading (dBuV)		Limit (dBuV)		Margin (dB)	
		QP	AV	QP	AV	QP	AV
L	0.18	50.49	35.78	64.44	54.44	13.95	18.66
	0.19	50.53	38.63	63.61	53.61	13.08	14.98
	0.24	43.89	31.26	61.92	51.92	18.03	20.66
N	0.18	51.37	37.26	64.44	54.44	13.07	17.18
	0.24	44.65	30.90	61.95	51.95	17.30	21.05
	0.22	34.05	29.16	60.00	50.00	25.95	20.84

Remark: Margin (dB) = Limit - Corrected Reading.