FCC PART 15C
TEST REPORT
No.I22Z61923-IOT01

for

Honor Device Co., Ltd.

Smart Phone

VNA-LX3

With

FCC ID: 2AYGCVNA-LX3

Hardware Version: HL2VNEM

Software Version: VNA-LX3 6.1.0.29(C605E1R1P1)

Issued Date: 2022-11-08

Note:

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The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S.Government.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: cttl_terminals@caict.ac.cn, website: www.caict.ac.cn

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z61923-IOT01	Rev.0	1st edition	2022-10-27
I22Z61923-IOT01	Rev.1	Update the plots of Transmitter Spurious Emission.	2022-11-08

CONTENTS

1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0, and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (ISED#: 24849). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Location 1:CTTL(Huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China100191

Location 2:CTTL(BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology Development Area, Beijing, P. R. China 100176

1.3. Testing Environment

Normal Temperature: 15-35℃

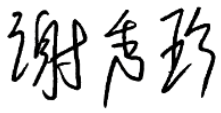
Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2022-10-10

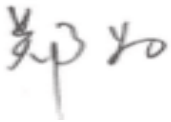
Testing End Date: 2022-10-27

1.5. Signature



Xie Xiuzhen

(Prepared this test report)



Zheng Wei

(Reviewed this test report)

Pang Shuai

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	Honor Device Co., Ltd.
Address:	Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China
City:	Shenzhen
Country:	China

2.2. Manufacturer Information

Company Name:	Honor Device Co., Ltd.
Address:	Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China
City:	Shenzhen
Country:	China

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

3.1. About EUT

Description	Smart Phone
Model name	VNA-LX3
FCC ID	2AYGCVNA-LX3
With WLAN Function	Yes
Frequency Band	ISM 2400MHz~2483.5MHz
Type of Modulation	DSSS/CCK/OFDM
Number of Channels	11
Antenna	Integral Antenna
Antenna Gain	-2.1dBi
MAX Conducted Power	25.51dBm
Power Supply	3.87V

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version
UT18a	868254060006081/ 868254060021486	HL2VNEM	VNA-LX3 6.1.0.29(C605E1R1P1)
UT25a	868254060009416/ 868254060024811	HL2VNEM	VNA-LX3 6.1.0.29(C605E1R1P1)
UT04a	868254060009077/ 868254060024472	HL2VNEM	VNA-LX3 6.1.0.29(C605E1R1P1)
UT26a	868254060009135/ 868254060024530	HL2VNEM	VNA-LX3 6.1.0.29(C605E1R1P1)
UT28a	868254060006941/ 868254060022344	HL2VNEM	VNA-LX3 6.1.0.29(C605E1R1P1)

*EUT ID: is used to identify the test sample in the lab internally.

UT28a is used for Conduction test, UT18a/25a/04a/26a is used for Radiation test.

3.3. Internal Identification of AE

AE ID*	Description		SN
AE1	Charger	HW-050200B02	Huntkey
AE2	Charger	HW-050200U02	Huntkey
AE3	Charger	HW-050200B02	BYD
AE4	Charger	HW-050200U02	BYD
AE5	Charger	HW-050200E02	Huntkey
AE6	Charger	HW-050200E02	BYD
AE7	Charger	HW-050100E01	Huntkey
AE8	Charger	HW-050100B01	Huntkey
AE9	Charger	HN-050100U01	Huntkey
AE10	Charger	HW-050100E01	BYD
AE11	Charger	HW-050100B01	BYD

AE12	Charger	HN-050100U01	BYD
AE13	Battery	HB496590EFW	SCUD
AE14	Battery	HB496590EFW	NVT
AE15	Battery	HB496590EFW-F	SCUD
AE16	Battery	HB496590EFW-F	NVT
AE17	Headset	MEND1532B528C00	Hongsheng
AE18	Headset	1293-3283-3.5MM-339	QUANCHENG
AE19	USB	04072297(NB)	/

*AE ID: is used to identify the test sample in the lab internally.

3.4. EUT set-ups

Set up	EUT	Battery	Charger	Headset
Set.1	EUT1	HB496590EFW SCUD	HW-050200U02 Huntkey	MEND1532B528C00
Set.2	EUT2	HB496590EFW NVT	HW-050200U02 BYD	1293-3283-3.5MM-339
Set.3	EUT3	HB496590EFW-F SCUD	HW-050200E02 Huntkey	MEND1532B528C00
Set.4	EUT4	HB496590EFW-F NVT	HW-050200E02 BYD	1293-3283-3.5MM-339
Set.5	EUT1	HB496590EFW SCUD	HN-050100U01 Huntkey	MEND1532B528C00
Set.6	EUT2	HB496590EFW NVT	HN-050100U01 BYD	1293-3283-3.5MM-339

3.5. General Description

The Equipment under Test (EUT) is a model of Smart Phone with integrated antenna and inbuilt battery.

It has Bluetooth (EDR) function.

It consists of normal options: travel charger, USB cable.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

3.6. Interpretation of the Test Environment

For the test methods, the test environment uncertainty figures correspond to an expansion factor k=2.

Measurement Uncertainty

Parameter	Uncertainty
temperature	0.48°C
humidity	2 %
DC voltages	0.003V

4. Reference Documents

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part15	FCC CFR 47, Part 15, Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902-928MHz, 2400-2483.5 MHz, and 5725-5850 MHz.	2021
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013
KDB 558074 D01	Federal Communications Commission Office of Engineering and Technology Laboratory Division GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES	2019

5. Test Results

5.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.247 (b)	/	P
Peak Power Spectral Density	15.247 (e)	/	P
Occupied 6dB Bandwidth	15.247 (a)	/	P
Band Edges Compliance	15.247 (d)	/	P
Transmitter Spurious Emission - Conducted	15.247 (d)	/	P
Transmitter Spurious Emission - Radiated	15.247, 15.205, 15.209	/	P
AC Powerline Conducted Emission	15.107, 15.207	/	P

Please refer to **ANNEX A** for detail.

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NP	Not Perform, The test was not performed by CTTL
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard

5.2. Statements

The test cases as listed in section 5.1 of this report for the EUT specified in section 3 was performed by CTTL and according to the standards or reference documents listed in section 4.2 The EUT met all requirements of the standards or reference documents, and only the WLAN function was tested in this report.

5.3. Test Conditions

T nom	Normal Temperature
T min	Low Temperature
T max	High Temperature
V nom	Normal Voltage

For this report, if the test cases listed above are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

Temperature	T nom	26℃
Voltage	V nom	3.87V
Humidity	H nom	20-75%

6. Test Facilities Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	1 year	2023-05-15
2	LISN	ENV216	101459	Rohde & Schwarz	1 year	2023-03-16
3	Test Receiver	ESCI	100766	Rohde & Schwarz	1 year	2023-03-02
4	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESW44	103015	Rohde & Schwarz	1 year	2023-02-23
2	BiLog Antenna	VULB9163	01177	Schwarzbeck	1 year	2023-08-03
3	Antenna	HFH2-Z2	829324/007	Rohde & Schwarz	1 year	2022-12-22
4	Dual-Ridge Waveguide Horn Antenna	3117	00119024	ETS-Lindgren	1 year	2023-06-07
5	Antenna	3115	00167252	ETS-Lindgren	1 year	2022-12-26
6	Dual-Ridge Waveguide Horn Antenna	LB-180400-25-C-KF	J211060826	A-INFO	1 year	2023-02-27

7. Measurement Uncertainty

7.1. Maximum Output Power

Measurement Uncertainty: 0.387dB,k=1.96

7.2. Peak Power Spectral Density

Measurement Uncertainty: 0.705dB,k=1.96

7.3. DTS 6-dB Signal Bandwidth

Measurement Uncertainty: 60.80Hz,k=1.96

7.4. Band Edges Compliance

Measurement Uncertainty : 0.62dB,k=1.96

7.5. Transmitter Spurious Emission

Conducted (k=1.96)

Frequency Range	Uncertainty(dB)
30MHz ≤ f ≤ 2GHz	1.22
2GHz ≤ f ≤3.6GHz	1.22
3.6GHz ≤ f ≤8GHz	1.22
8GHz ≤ f ≤12.75GHz	1.51
12.75GHz ≤ f ≤26GHz	1.51
26GHz ≤ f ≤40GHz	1.59

Radiated (k=2)

Frequency Range	Uncertainty(dB) k=2
f ≤ 1GHz	5.73
1GHz ≤ f ≤18GHz	5.58
18GHz ≤ f ≤40GHz	3.37

7.6. AC Power-line Conducted Emission

Measurement Uncertainty : 3.10dB,k=2

ANNEX A: Detailed Test Results

A.1. Measurement Method

A.1.1. Conducted Measurements

Connect the EUT to the test system as Fig.A.1.1.1 shows.
Set the EUT to the required work mode.
Set the EUT to the required channel.
Set the Vector Signal Analyzer and start measurement.
Record the values. Vector Signal Analyzer

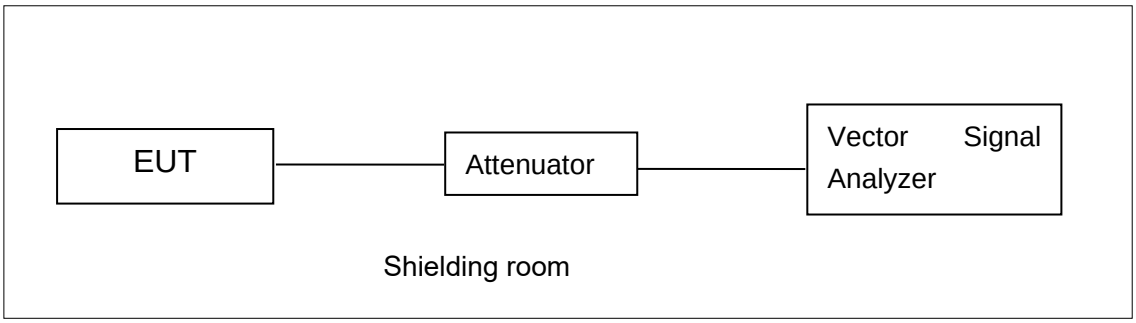


Fig.A.1.1.1: Test Setup Diagram for Conducted Measurements

A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows,
Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;
Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 10Hz;

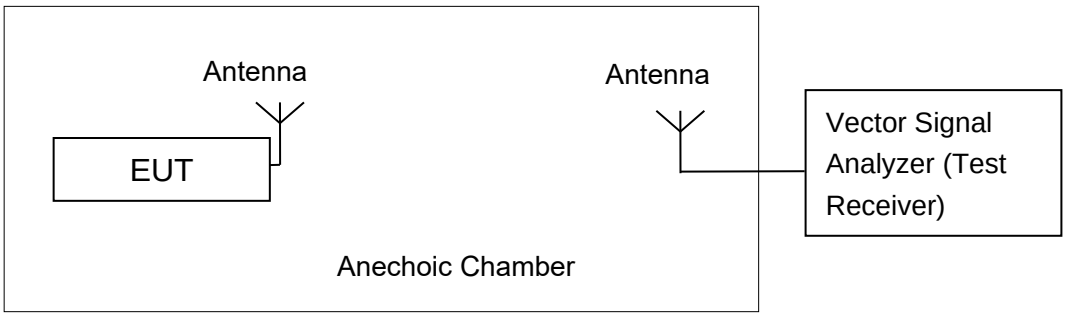


Fig.A.1.2.1: Test Setup Diagram for Radiated Measurements

A.2. Maximum Output Power

Method of Measurement: See ANSI C63.10-2013-clause 11.9.1.1

a) Set the RBW ≥ DTS bandwidth.
b) Set VBW ≥ [3 × RBW].
c) Set span ≥ [3 × RBW].
d) Sweep time = auto couple.
e) Detector = peak.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use peak marker function to determine the peak amplitude level.

Measurement Limit:

Standard	Limit (dBm)
FCC CRF Part 15.247(b)	< 30

EUT ID: EUT2

A.2.1. Peak Output Power-conducted

Measurement Results:

802.11b/g mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	1	19.02	19.82	20.08
	2	/	19.80	/
	5.5	/	19.56	/
	11	/	19.70	/
802.11g	6	/	25.17	/
	9	/	25.11	/
	12	/	25.10	/
	18	/	25.03	/
	24	/	24.90	/
	36	/	25.00	/
	48	23.40	25.49	22.10
	54	/	25.33	/

The data rate 1Mbps and 48Mbps are selected as worst condition, and the following cases are performed with this condition.

802.11n-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11n (20MHz)	MCS0	/	25.11	/
	MCS1	/	24.96	/
	MCS2	/	24.73	/
	MCS3	/	25.00	/
	MCS4	/	25.01	/
	MCS5	/	25.35	/
	MCS6	/	25.48	/
	MCS7	23.75	25.51	21.91

The data rate MCS7 is selected as worst condition, and the following cases are performed with this condition.

The duty cycle of all mode are 100%

Conclusion: Pass

A.3. Peak Power Spectral Density

Method of Measurement: See ANSI C63.10-2013-clause 11.10.2

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to RBW = 3 kHz.
d) Set the VBW = 10 kHz.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.

Measurement Limit:

Standard	Limit
FCC CRF Part 15.247(e)	< 8 dBm/3 kHz

Measurement Results:

802.11b/g mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11b	1	Fig.A.3.1	-4.22	**P**
	6	Fig.A.3.2	-4.93	**P**
	11	Fig.A.3.3	-4.36	**P**
802.11g	1	Fig.A.3.4	-11.61	**P**
	6	Fig.A.3.5	-6.74	**P**
	11	Fig.A.3.6	-12.81	**P**

802.11n-HT20 mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11n (HT20)	1	Fig.A.3.7	-11.53	**P**
	6	Fig.A.3.8	-7.11	**P**
	11	Fig.A.3.9	-13.59	**P**

Conclusion: Pass

Test graphs as below:

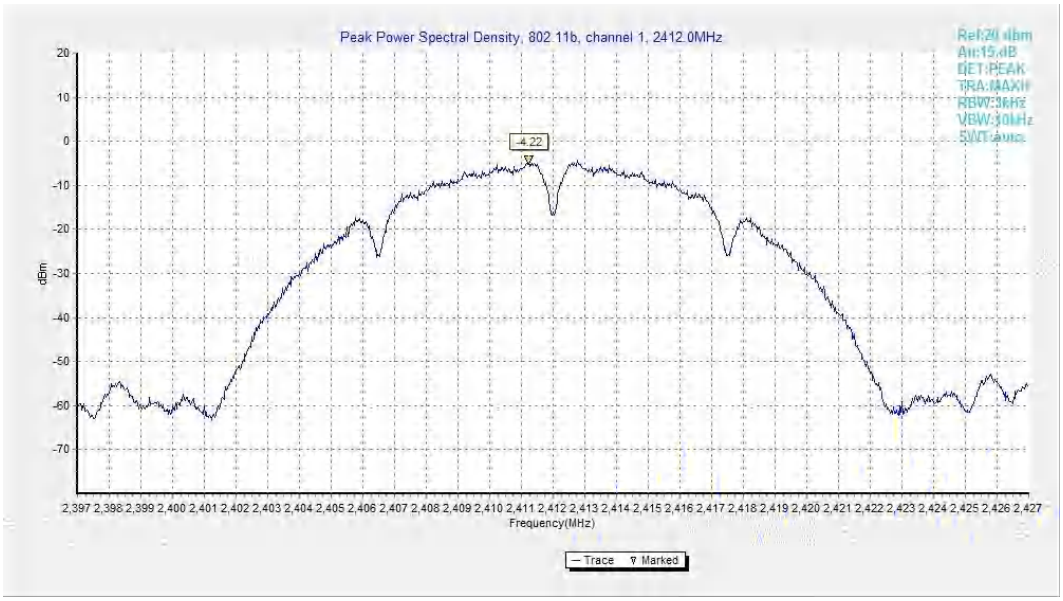


Fig.A.3.1 Power Spectral Density(802.11b,Ch1)

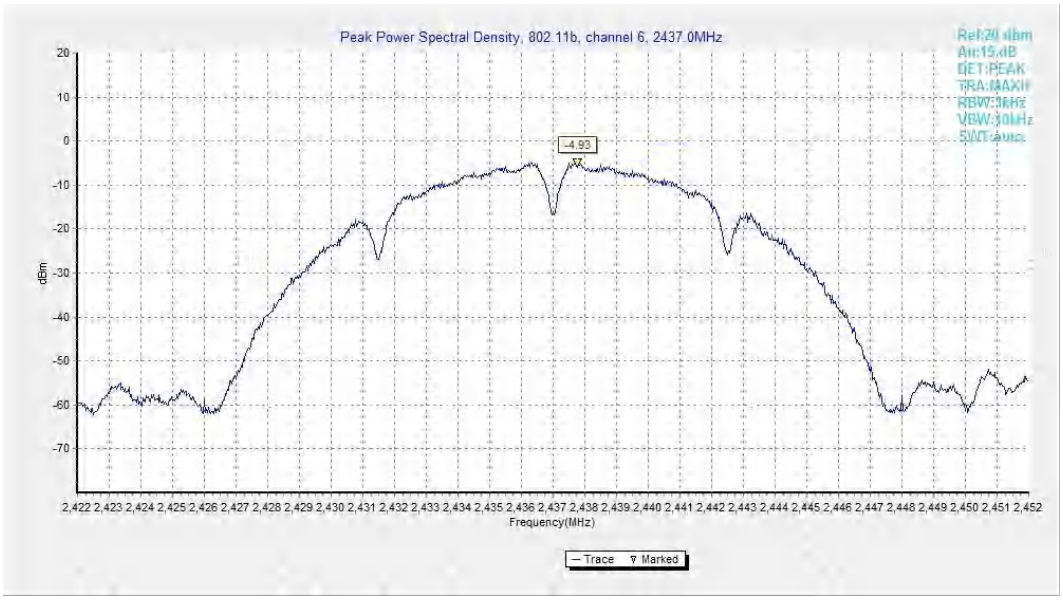


Fig.A.3.2 Power Spectral Density (802.11b, Ch 6)

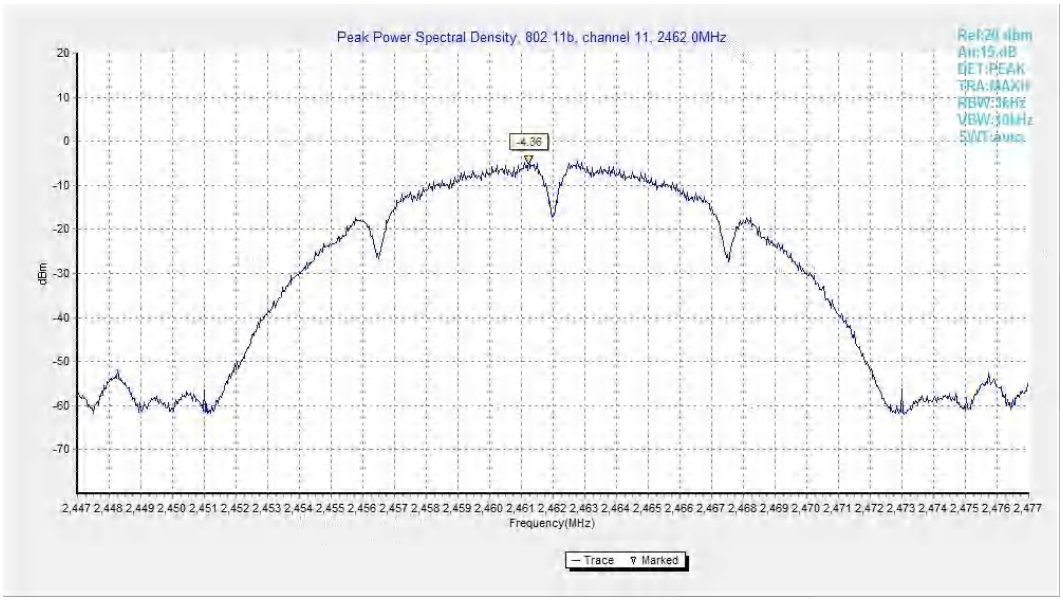


Fig.A.3.3 Power Spectral Density (802.11b, Ch 11)

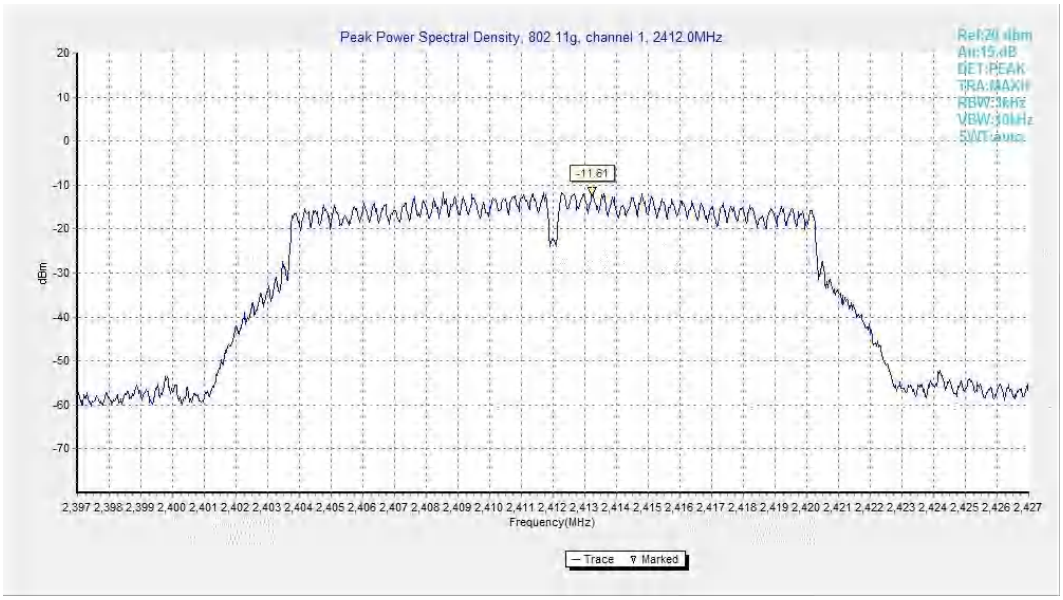


Fig.A.3.4 Power Spectral Density (802.11g, Ch 1)

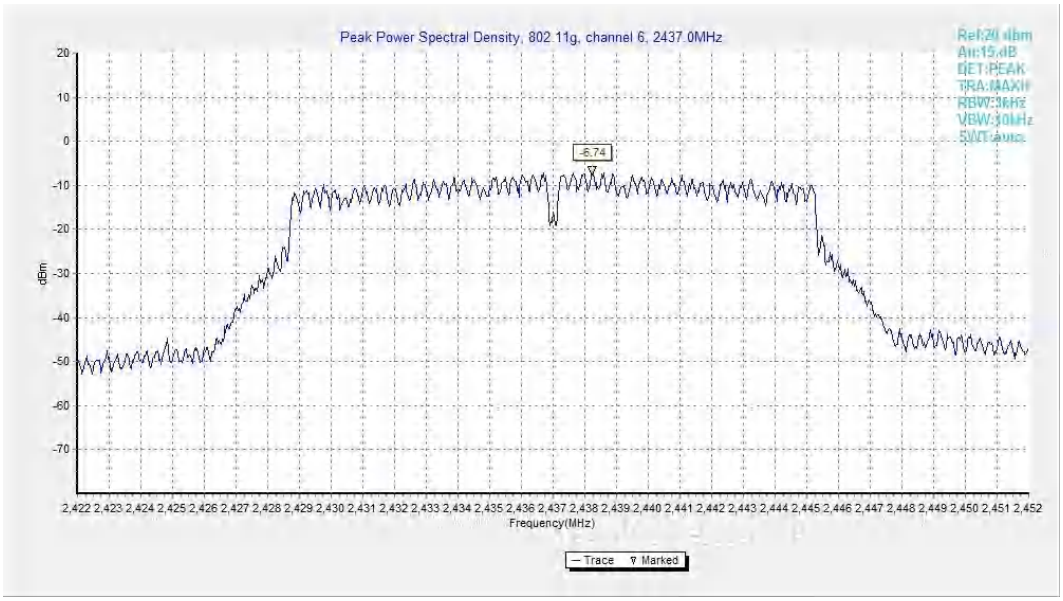


Fig.A.3.5 Power Spectral Density (802.11g, Ch 6)

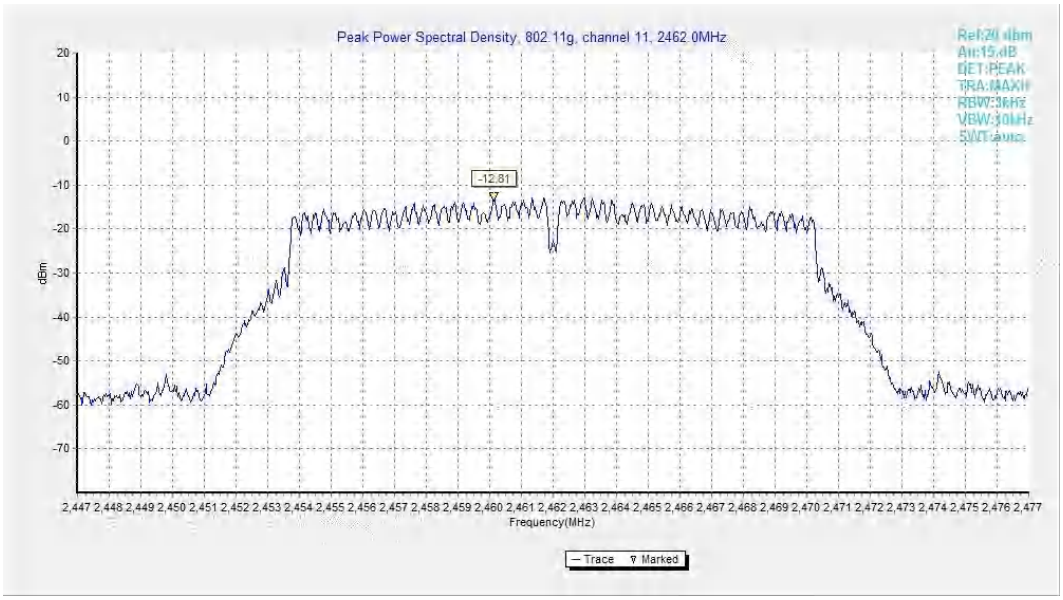


Fig.A.3.6 Power Spectral Density (802.11g, Ch 11)

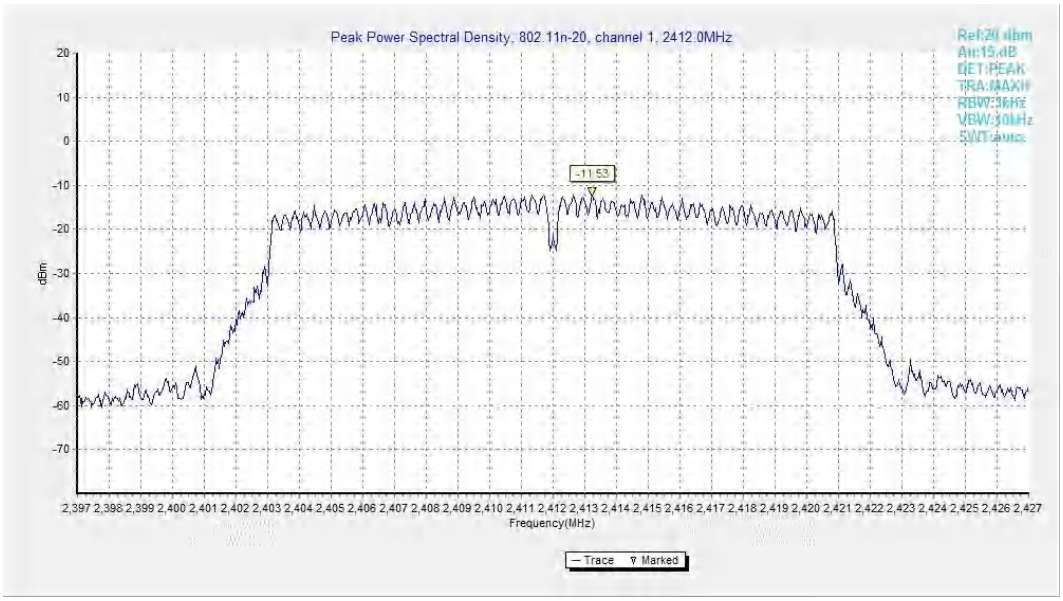


Fig.A.3.7 Power Spectral Density (802.11n-HT20, Ch 1)

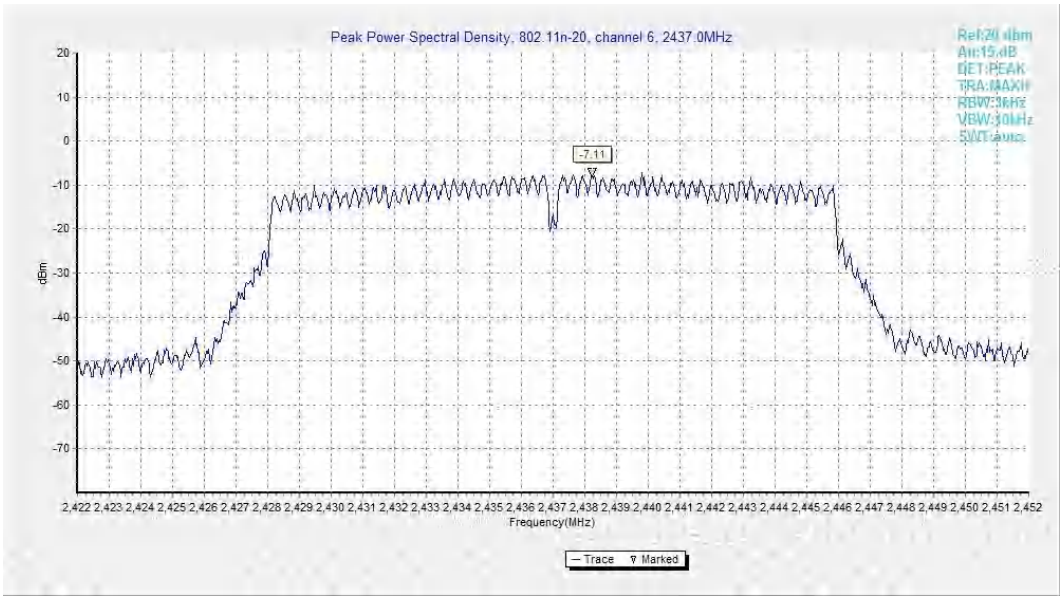


Fig.A.3.8 Power Spectral Density (802.11n-HT20, Ch 6)

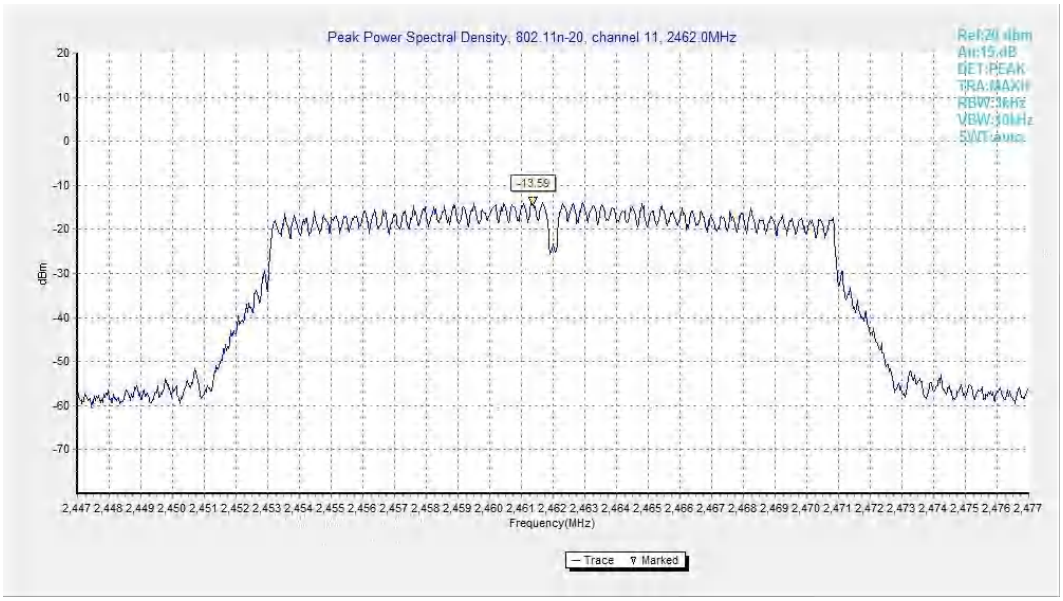


Fig.A.3.9 Power Spectral Density (802.11n-HT20, Ch 11)

A.4. DTS 6-dB Signal Bandwidth

Method of Measurement: See ANSI C63.10-2013 section 11.8.1.

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) = 300 kHz.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a)	≥ 500

EUT ID: EUT2

Measurement Result:

802.11b/g mode

Mode	Channel	Occupied 6dB Bandwidth (MHz)		conclusion
802.11b	1	Fig.A.4.1	8.05	P
	6	Fig.A.4.2	8.55	P
	11	Fig.A.4.3	8.05	P
802.11g	1	Fig.A.4.4	16.35	P
	6	Fig.A.4.5	16.40	P
	11	Fig.A.4.6	16.40	P

802.11n-HT20 mode

Mode	Channel	Occupied 6dB Bandwidth (MHz)		conclusion
802.11n (HT20)	1	Fig.A.4.7	17.60	P
	6	Fig.A.4.8	17.65	P
	11	Fig.A.4.9	17.55	P

Conclusion: Pass

Test graphs as below:

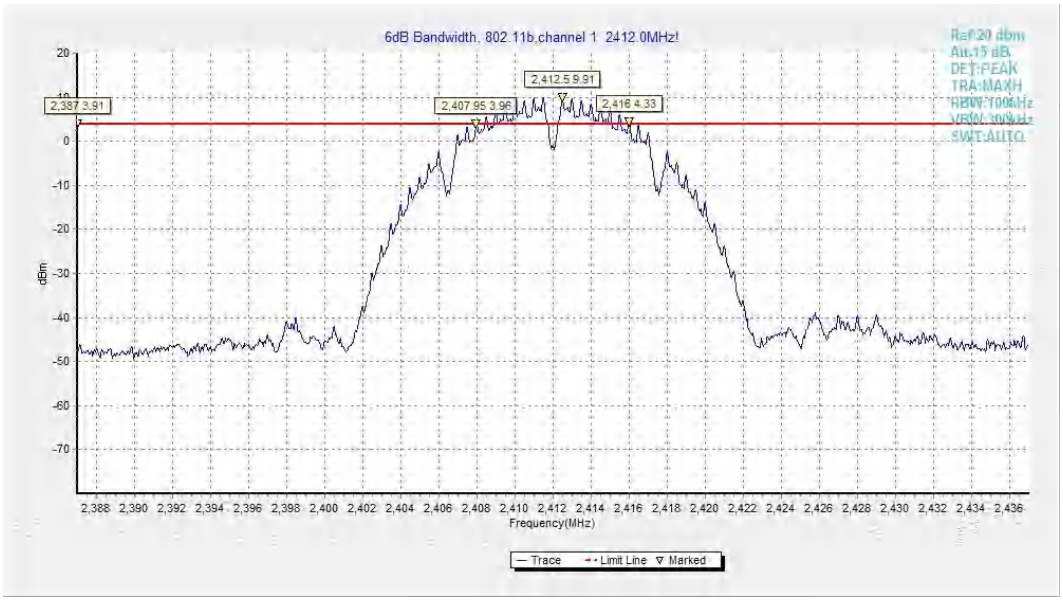


Fig.A.4.1 Occupied 6dB Bandwidth(802.11b,Ch 1)

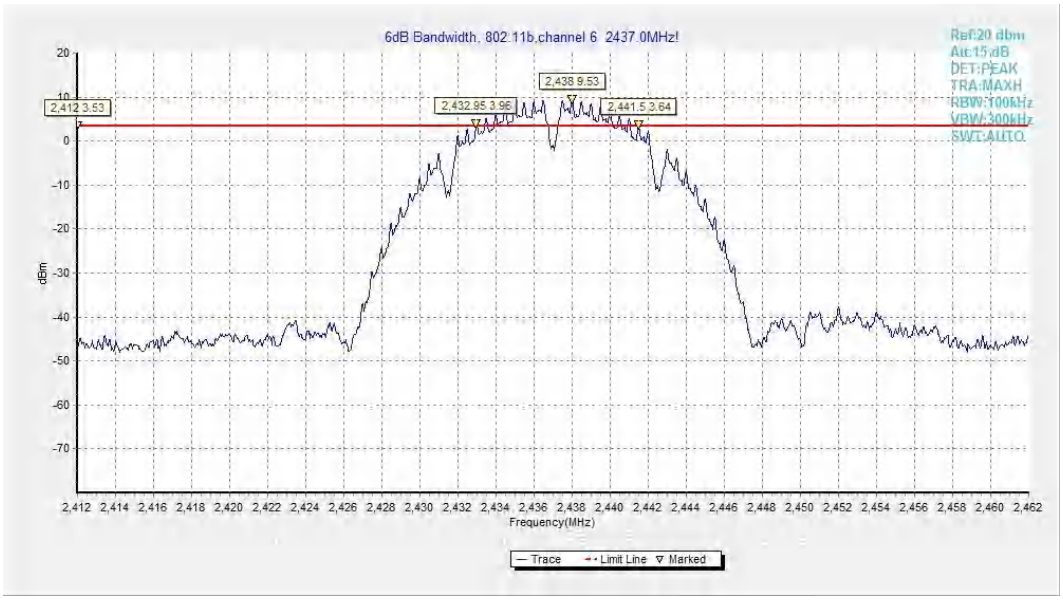


Fig.A.4.2 Occupied 6dB Bandwidth (802.11b, Ch 6)

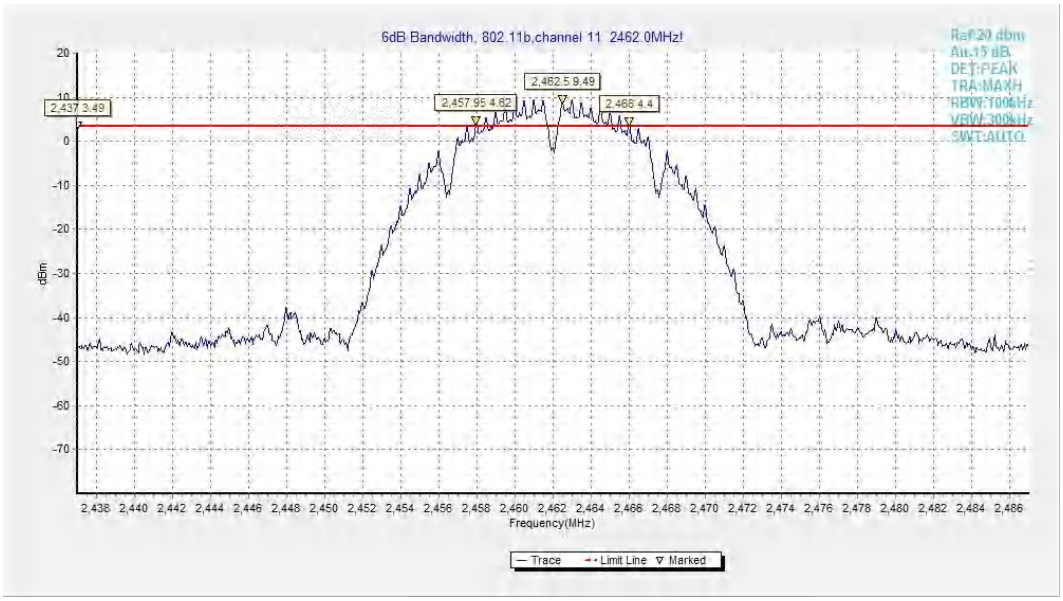


Fig.A.4.3 Occupied 6dB Bandwidth (802.11b, Ch 11)

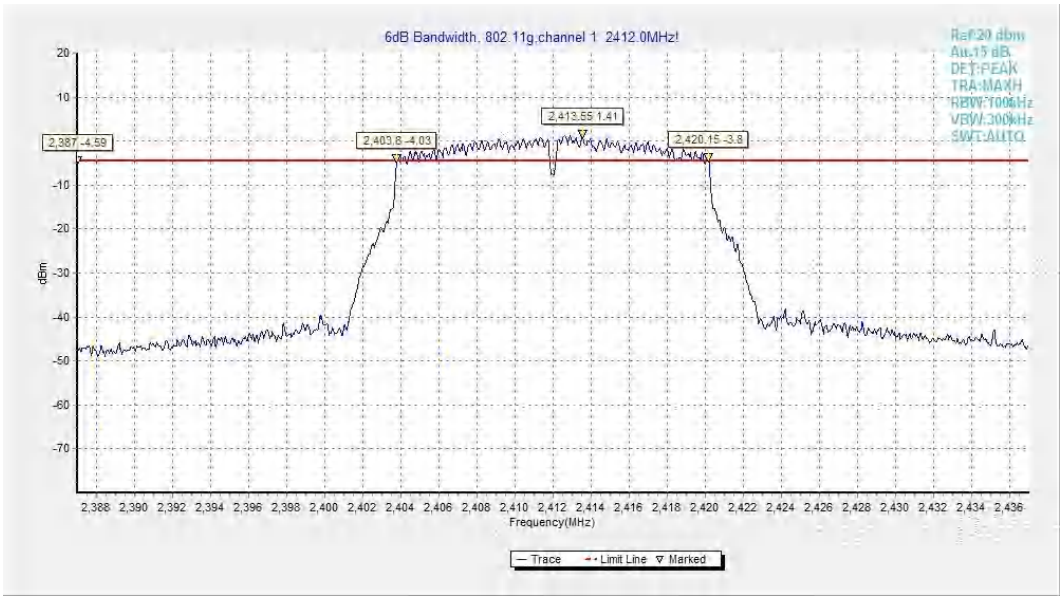


Fig.A.4.4 Occupied 6dB Bandwidth (802.11g, Ch 1)

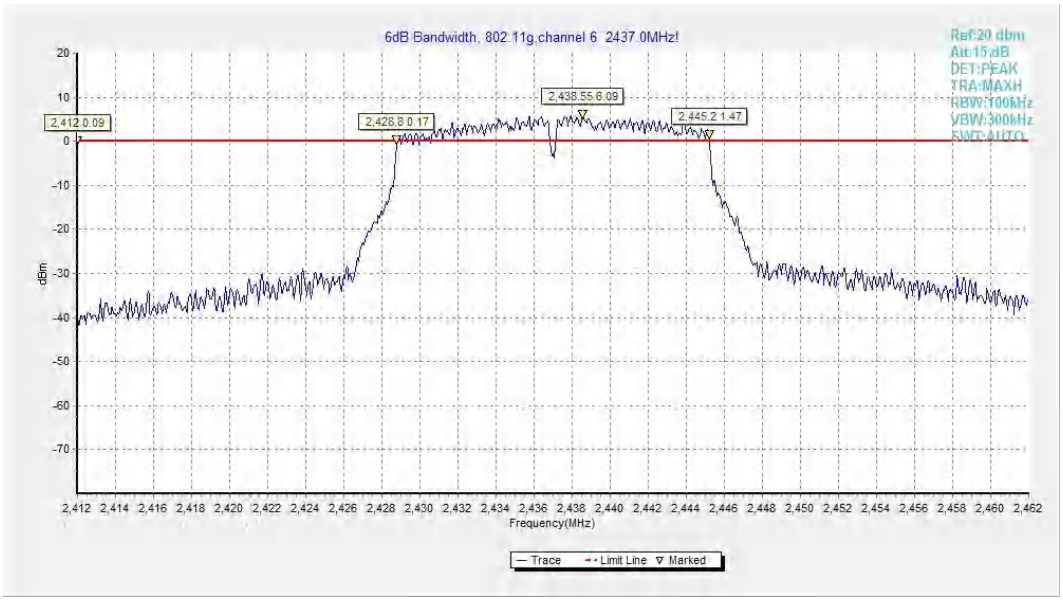


Fig.A.4.5 Occupied 6dB Bandwidth (802.11g, Ch 6)

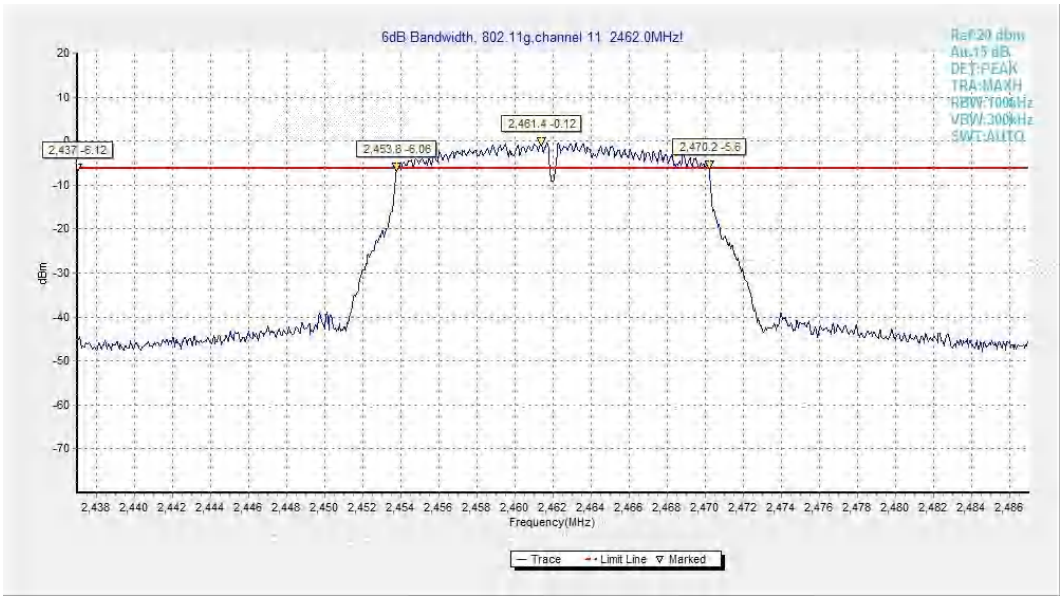


Fig.A.4.6 Occupied 6dB Bandwidth (802.11g, Ch 11)

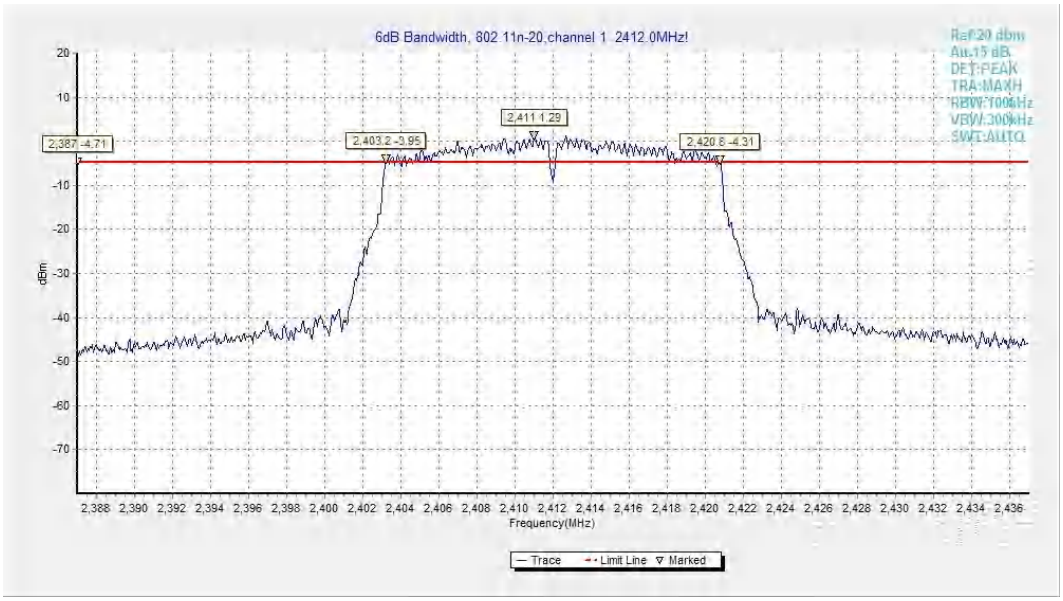


Fig.A.4.7 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 1)

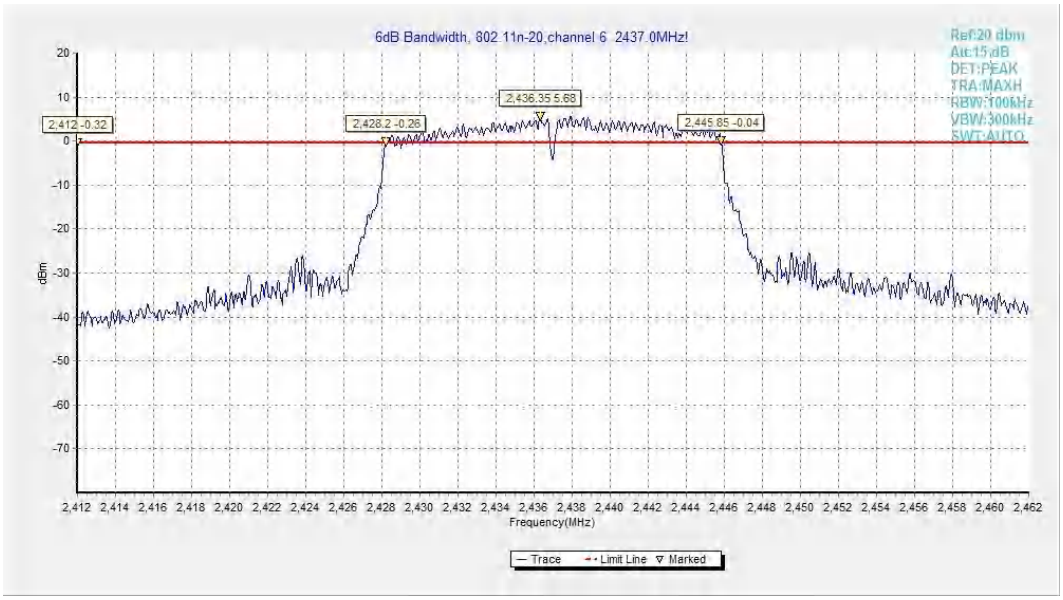


Fig.A.4.8 Occupied 6dB Bandwidth (802.11n-HT20, Ch 6)

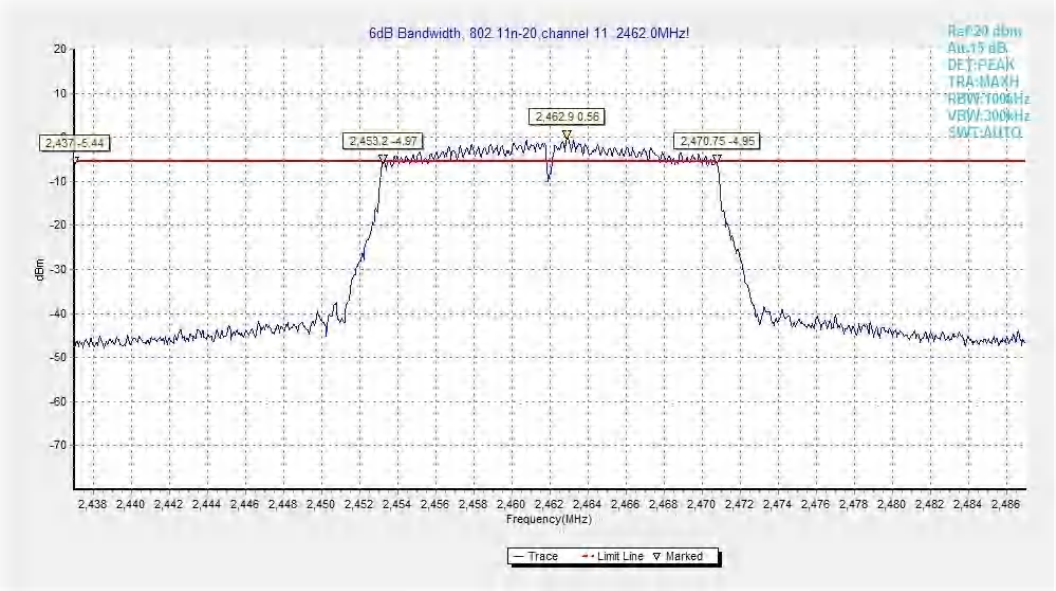


Fig.A.4.9 Occupied 6dB Bandwidth (802.11n-HT20, Ch 11)

A.5. Band Edges Compliance

A.5.1 Band Edges Compliance – Conducted

Method of Measurement: See ANSI C63.10-2013-clause 6.10.4

Connect the spectrum analyzer to the EUT using an appropriate RF cable connected to the EUT output. Configure the spectrum analyzer settings as described below.

a) Set Span = 100MHz
b) Sweep Time: coupled
c) Set the RBW= 100 kHz
c) Set the VBW= 300 kHz
d) Detector: Peak
e) Trace: Max hold

Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.247 (d)	> 20

EUT ID: EUT2

Measurement Result:

802.11b/g mode

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.A.5.1.1	**P**
	11	Fig.A.5.1.2	**P**
802.11g	1	Fig.A.5.1.3	**P**
	11	Fig.A.5.1.4	**P**

802.11n-HT20 mode

Mode	Channel	Test Results	Conclusion
802.11n (HT20)	1	Fig.A.5.1.5	**P**
	11	Fig.A.5.1.6	**P**

Conclusion: Pass

Test graphs as below:

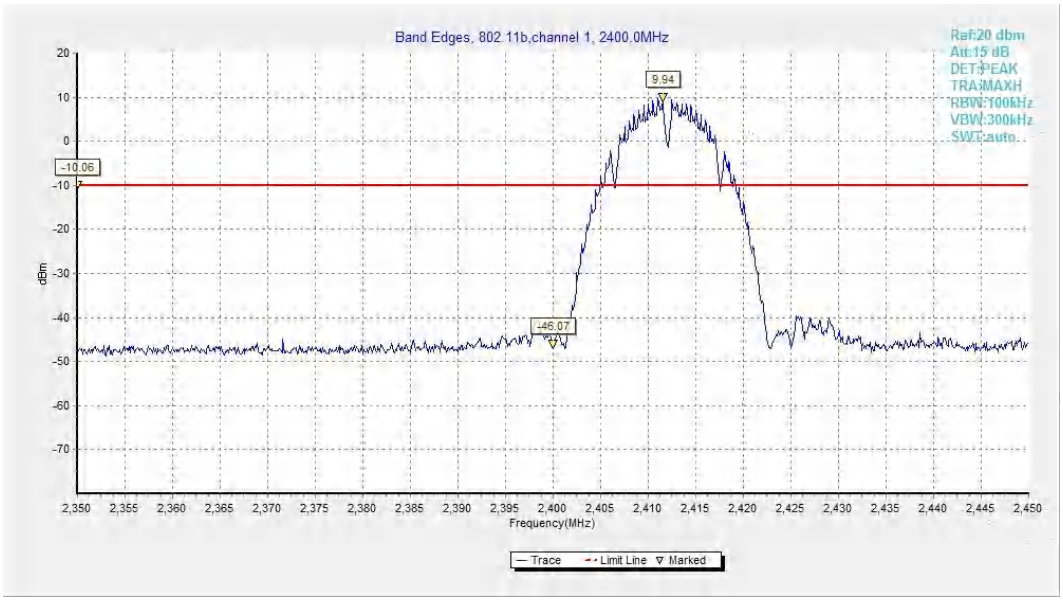


Fig.A.5.1.1 Band Edges (802.11b, Ch 1)

Fig.A.5.1.2 Band Edges (802.11b, Ch 11)

Fig.A.5.1.3 Band Edges (802.11g, Ch 1)

Fig.A.5.1.4 Band Edges (802.11g, Ch 11)

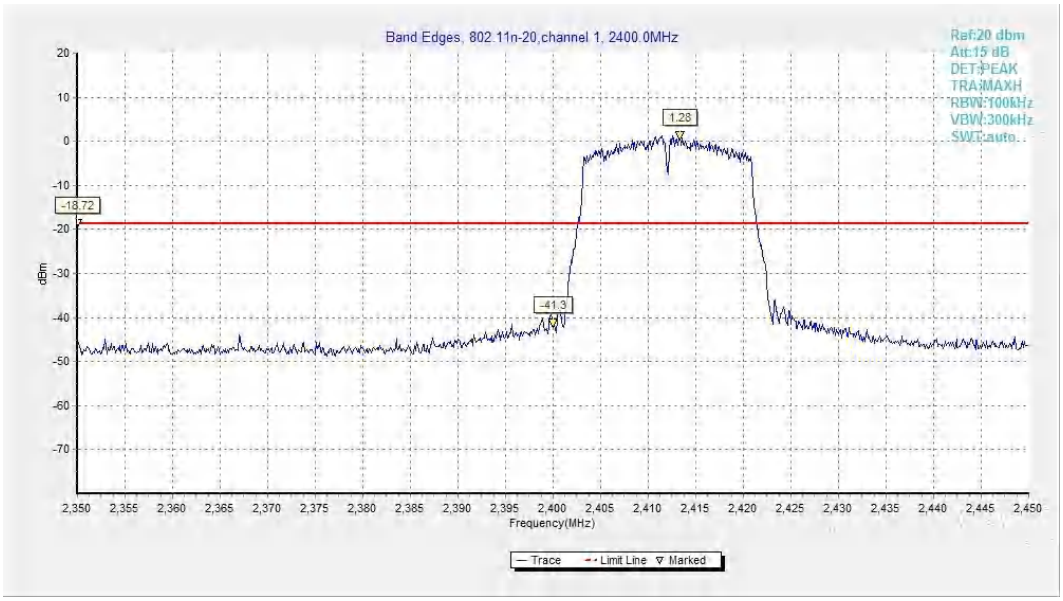


Fig.A.5.1.5 Band Edges (802.11n-HT20, Ch 1)

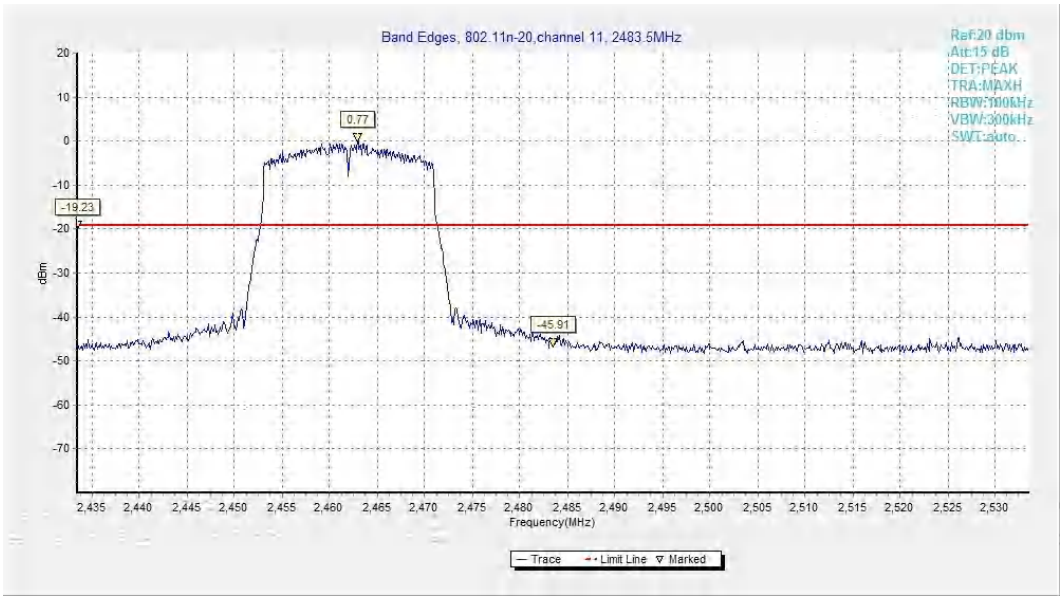


Fig.A.5.1.6 Band Edges (802.11n-HT20, Ch 11)

A.5.2 Band Edges Compliance –Radiated

Method of Measurement: See ANSI C63.10-2013-clause 6.4 &6.5 & 6.6

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

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) (see § 15.205(c)).

Limit in restricted band:

Frequency (MHz)	Field strength(μV/m)	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Set up:

Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m and the table height shall be 1.5 m.

The EUT and transmitting antenna shall be centered on the turntable.

Test Condition

The EUT shall be tested 1 near top, 1 near middle, and 1 near bottom. Set the unlicensed wireless device to operate in continuous transmit mode. For unlicensed wireless devices unable to be configured for 100% duty cycle even in test mode, configure the system for the maximum duty cycle supported.

When required for unlicensed wireless devices, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Exploratory radiated emissions measurements

Exploratory radiated measurements shall be performed at the measurement distance or at a closer distance than that specified for compliance to determine the emission characteristics of the EUT and, if applicable, the EUT configuration that produces the maximum level of emissions. The frequencies of maximum emission may be determined by manually positioning the antenna close to the EUT, and then moving the antenna over all sides of the EUT while observing a spectral

display. It is advantageous to have prior knowledge of the frequencies of emissions, although this may be determined from such a near-field scan. The near-field scan shall only be used to determine the frequency but not the amplitude of the emissions. Where exploratory measurements are not adequate to determine the worst-case operating modes and are used only to identify the frequencies of the highest emissions, additional preliminary tests can be required.
For emissions from the EUT, the maximum level shall be determined by rotating the EUT and its antenna through 0° to 360°. For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.
Broadband antennas and a spectrum analyzer or a radio-noise meter with a panoramic display are often useful in this type of test. If either antenna height or EUT azimuth are not fully measured during exploratory testing, then complete testing can be required at the OATS or semi-anechoic chamber when the final full spectrum testing is performed.

Final radiated emissions measurements

The final measurements are using the orientation and equipment arrangement of the EUT based on the measurement results found during the preliminary (exploratory) measurements, the EUT arrangement, appropriate modulation, and modes of operation that produce the emissions that have the highest amplitude relative to the limit shall be selected for the final measurement.
For emissions from the EUT, the maximum level shall be determined by rotating the EUT and its antenna through 0° to 360°. Final measurements for the EUT require a measurement antenna height scan of 1 m to 4 m and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.
For each mode selected, record the frequency and amplitude of the highest fundamental emission (if applicable), as well as the frequency and amplitude of the six highest spurious emissions relative to the limit. Emissions more than 20 dB below the limit do not need to be reported.
This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Measurement Result:

These are the worst case

EUT ID: Set.1(UT18a + AE13 + AE2 + AE17 + AE19)

802.11b/g mode

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.A.5.2.1	**P**
	11	Fig.A.5.2.2	**P**
802.11g	1	Fig.A.5.2.3	**P**
	2	Fig.A.5.2.4	**P**
	3	Fig.A.5.2.5	**P**
	4	Fig.A.5.2.6	**P**
	5	Fig.A.5.2.7	**P**
	6	Fig.A.5.2.8	**P**
	7	Fig.A.5.2.9	**P**

	8	Fig.A.5.2.10	**P**
	9	Fig.A.5.2.11	**P**
	10	Fig.A.5.2.12	**P**
	11	Fig.A.5.2.13	**P**

802.11n-HT20 mode

Mode	Channel	Test Results	Conclusion
802.11n (HT20)	1	Fig.A.5.2.14	**P**
	2	Fig.A.5.2.15	**P**
	3	Fig.A.5.2.16	**P**
	4	Fig.A.5.2.17	**P**
	5	Fig.A.5.2.18	**P**
	6	Fig.A.5.2.19	**P**
	7	Fig.A.5.2.20	**P**
	8	Fig.A.5.2.21	**P**
	9	Fig.A.5.2.22	**P**
	10	Fig.A.5.2.23	**P**
	11	Fig.A.5.2.24	**P**

UT25a + AE14 + AE4 + AE18 +AE19
802.11n-HT20 mode

Mode	Channel	Test Results	Conclusion
802.11n (HT20)	2	Fig.A.5.2.25	**P**

UT04a + AE15 + AE5 + AE17 +AE19

Mode	Channel	Test Results	Conclusion
802.11n (HT20)	2	Fig.A.5.2.26	**P**

UT26a + AE16 +AE6 + AE18 +AE19

Mode	Channel	Test Results	Conclusion
802.11n (HT20)	2	Fig.A.5.2.27	**P**

UT18a + AE13 + AE9 + AE17 +AE19

Mode	Channel	Test Results	Conclusion
802.11n (HT20)	2	Fig.A.5.2.28	**P**

UT25a + AE14 +AE12 + AE18 +AE19

Mode	Channel	Test Results	Conclusion
802.11n (HT20)	2	Fig.A.5.2.29	**P**

Conclusion: Pass

Note: The plot above is the combination results of both vertical and horizontal polarizations

EUT ID:UT18a + AE13 + AE2 + AE17 + AE19

Test graphs as below:

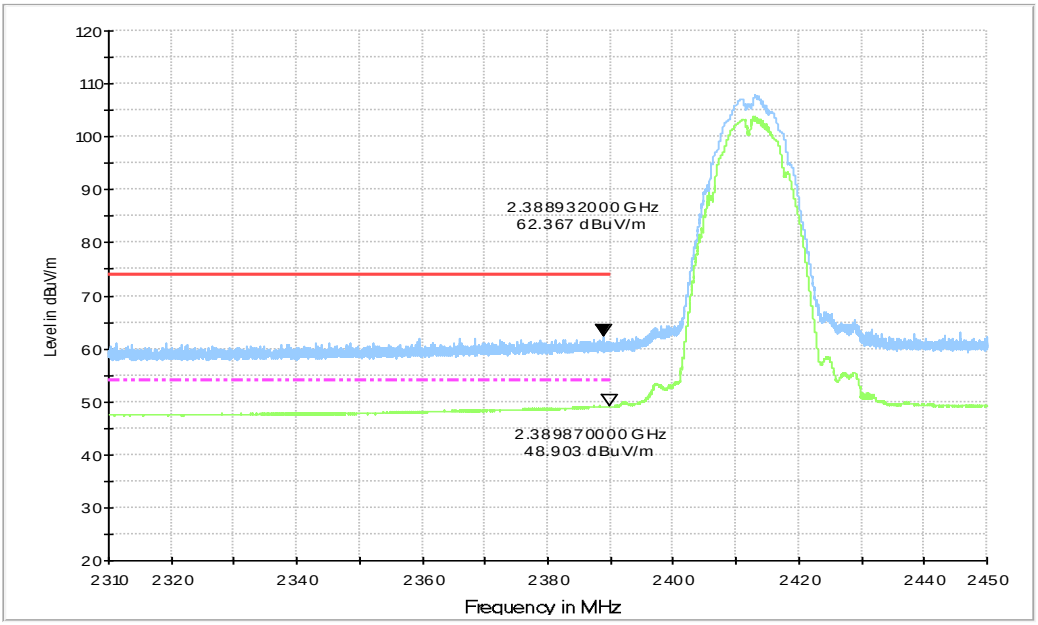


Fig.A.5.2.1 Radiated band Edges (802.11b, Ch 1)

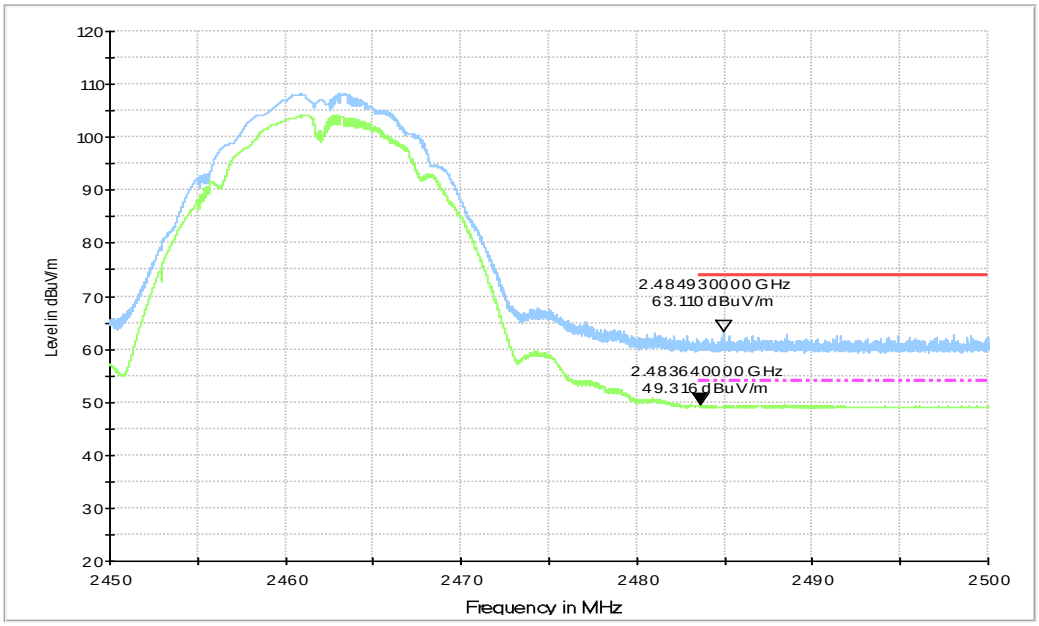


Fig.A.5.2.2 Radiated band Edges (802.11b, Ch 11)

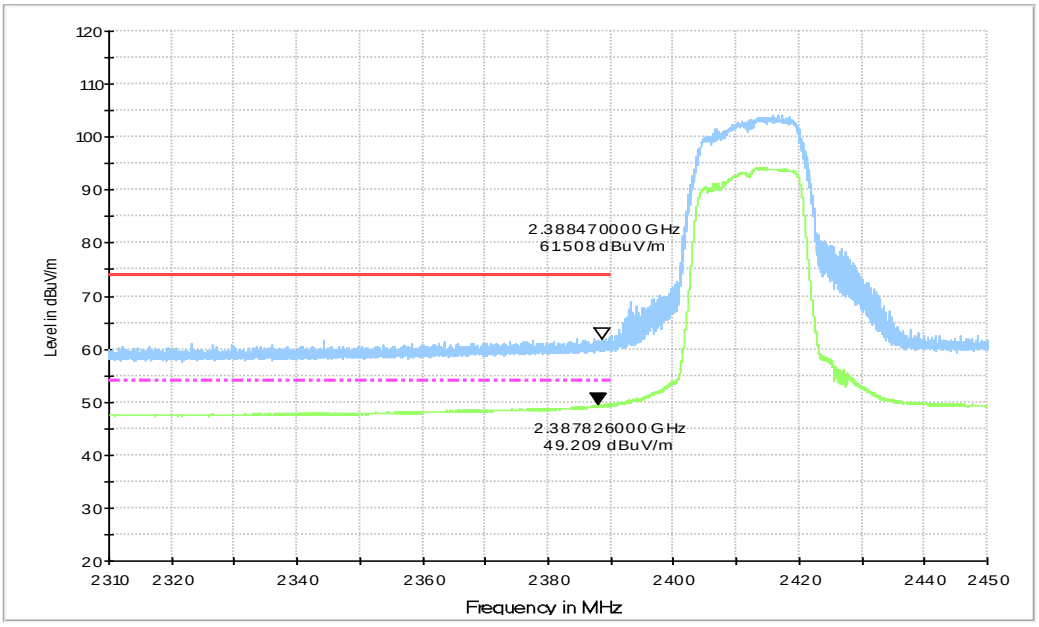


Fig.A.5.2.3 Radiated band Edges (802.11g, Ch 1)

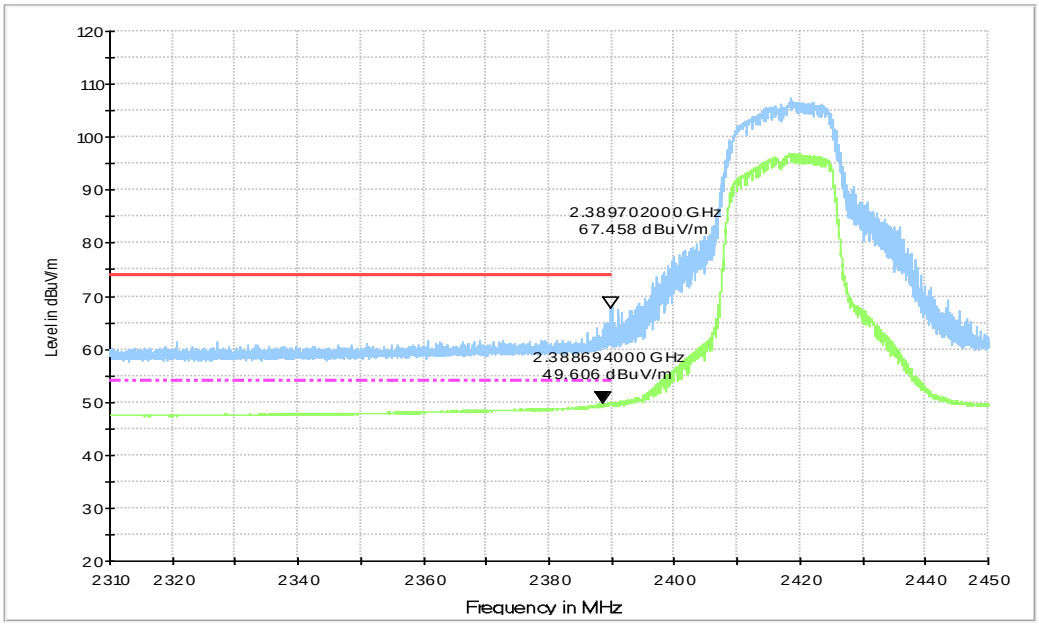


Fig.A.5.2.4 Radiated band Edges (802.11g, Ch 2)

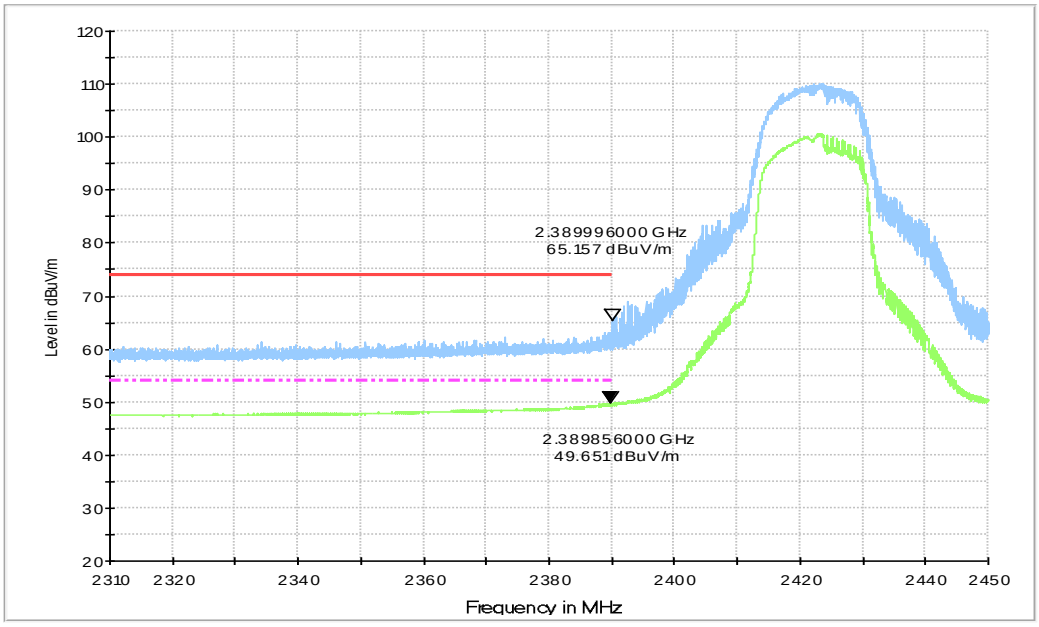


Fig.A.5.2.5 Radiated band Edges (802.11g, Ch 3)

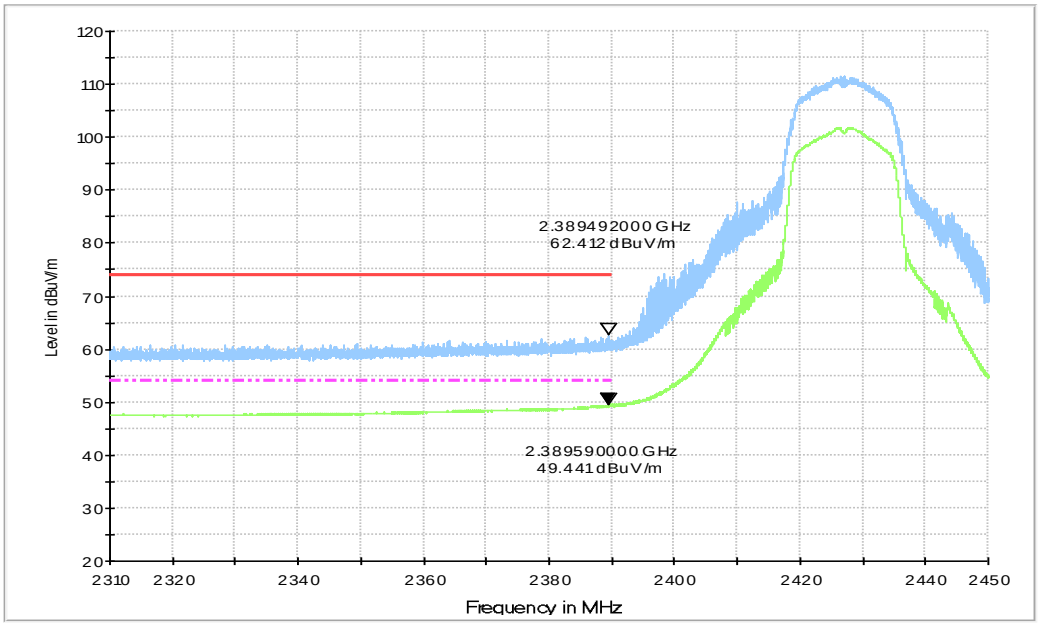


Fig.A.5.2.6 Radiated band Edges (802.11g, Ch 4)

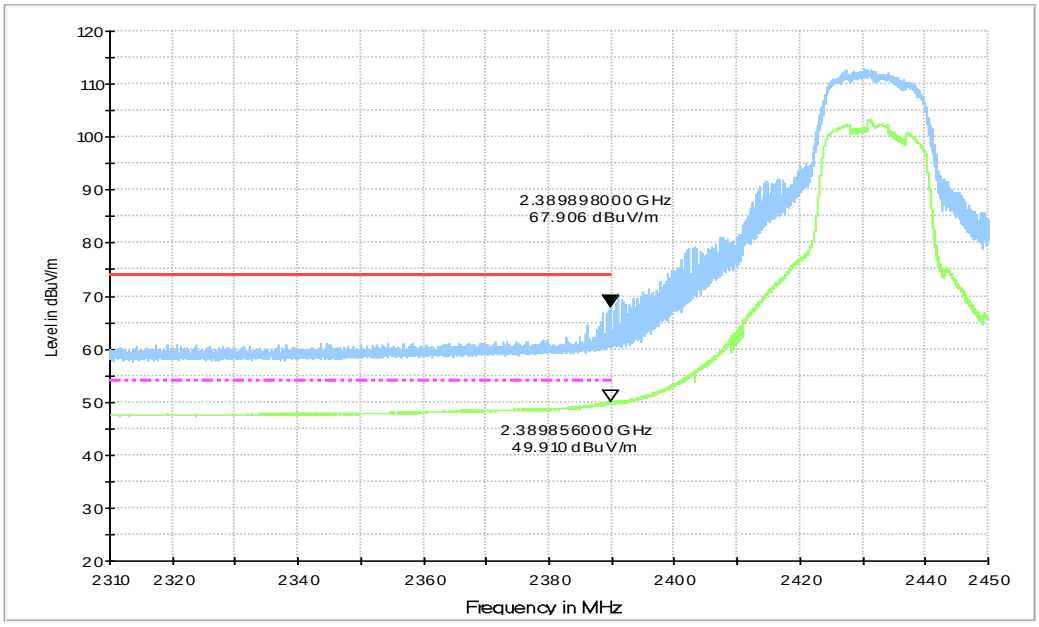


Fig.A.5.2.7 Radiated band Edges (802.11g, Ch 5)

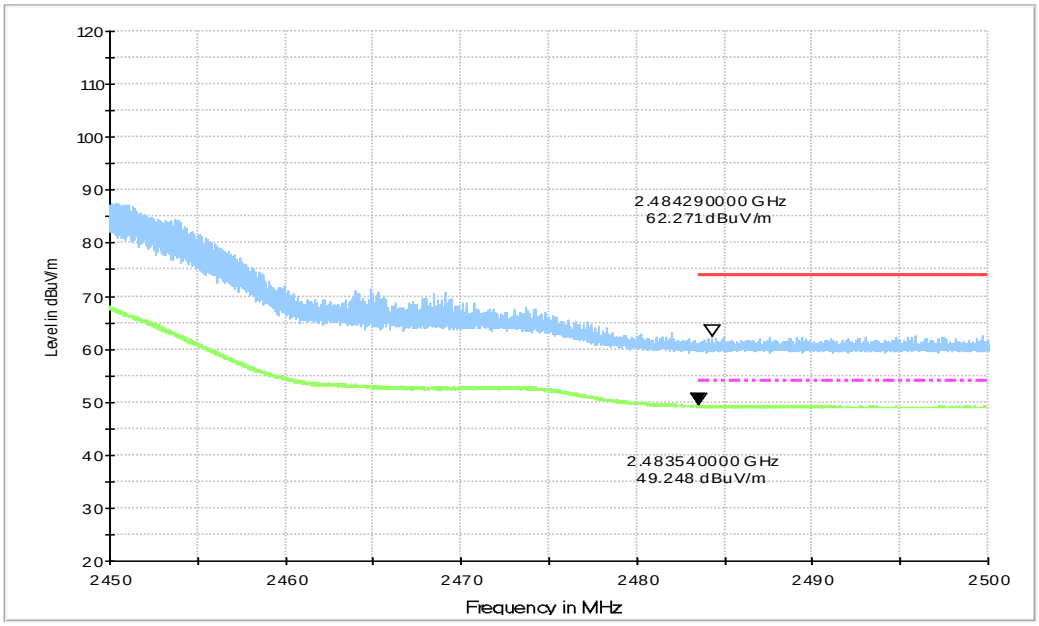


Fig.A.5.2.8 Radiated band Edges (802.11g, Ch 6)

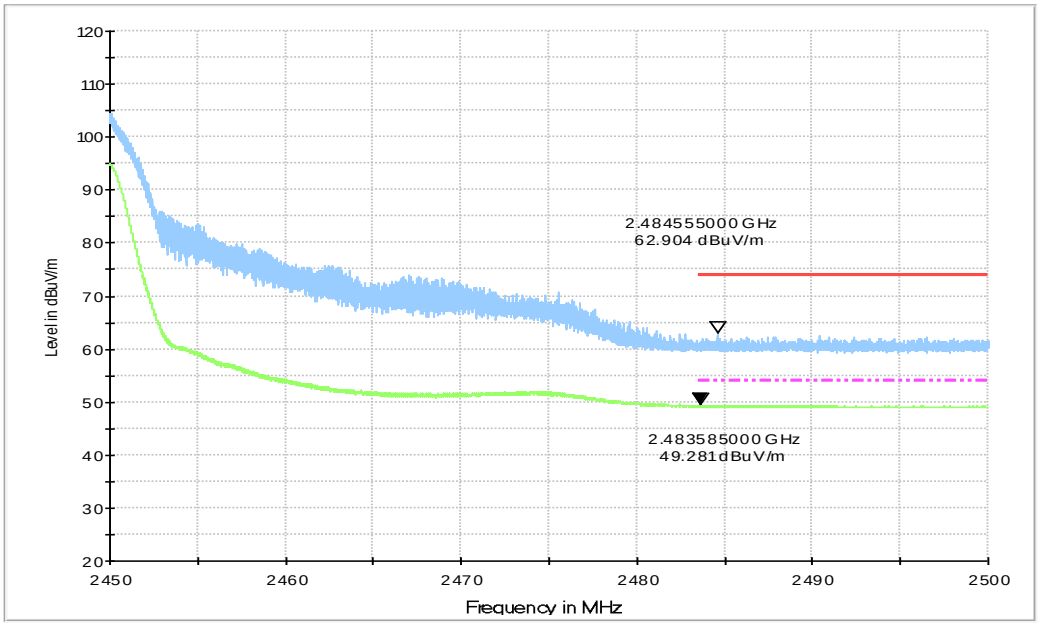


Fig.A.5.2.9 Radiated band Edges (802.11g, Ch 7)

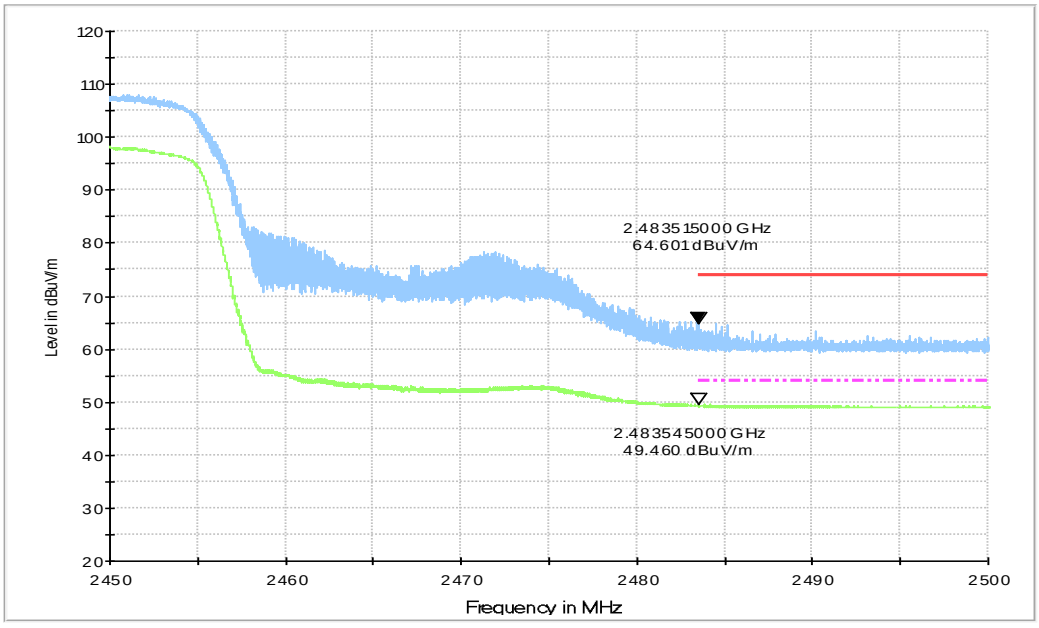


Fig.A.5.2.10 Radiated band Edges (802.11g, Ch 8)

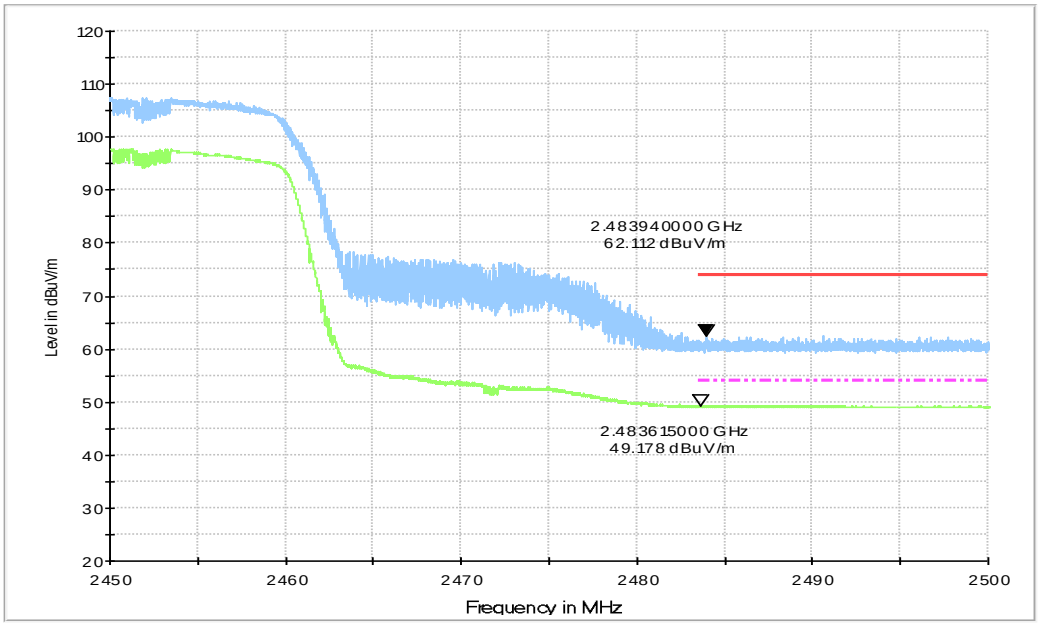


Fig.A.5.2.11 Radiated band Edges (802.11g, Ch 9)

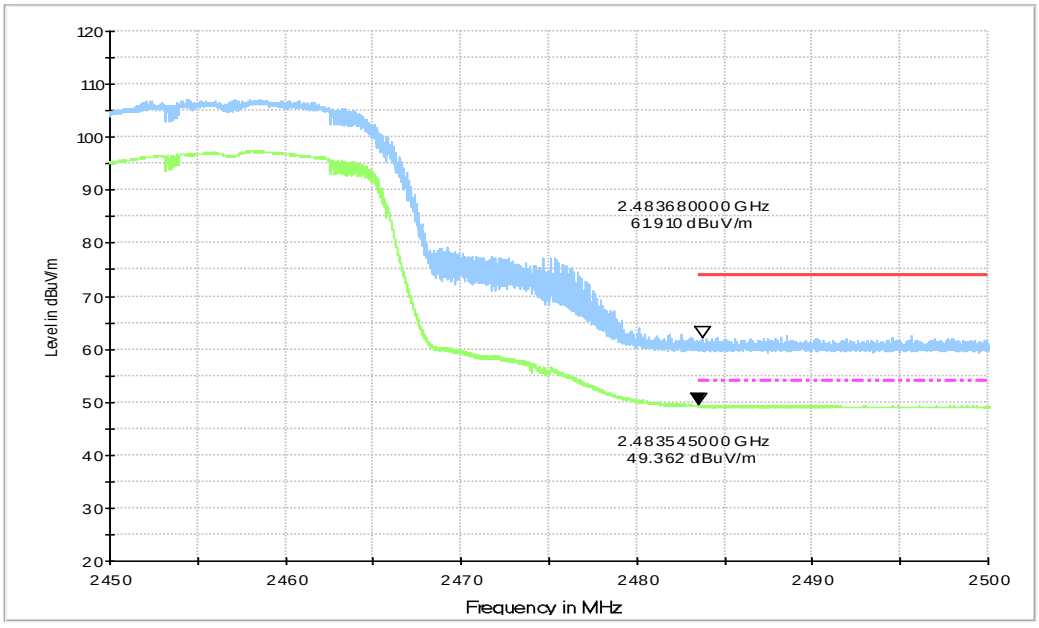


Fig.A.5.2.12 Radiated band Edges (802.11g, Ch 10)

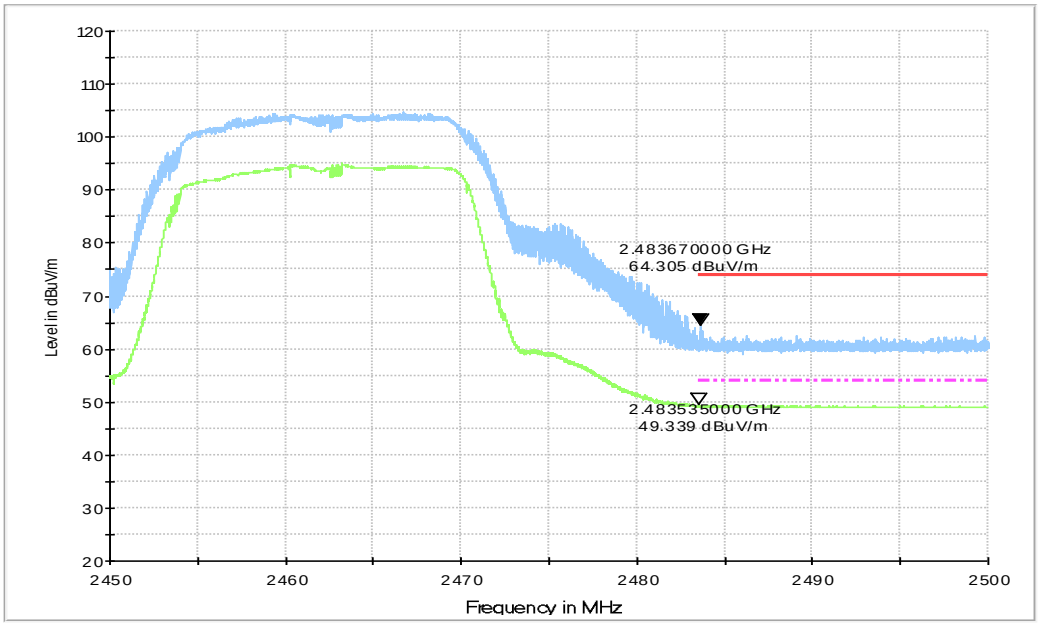


Fig.A.5.2.13 Radiated band Edges (802.11g, Ch 11)

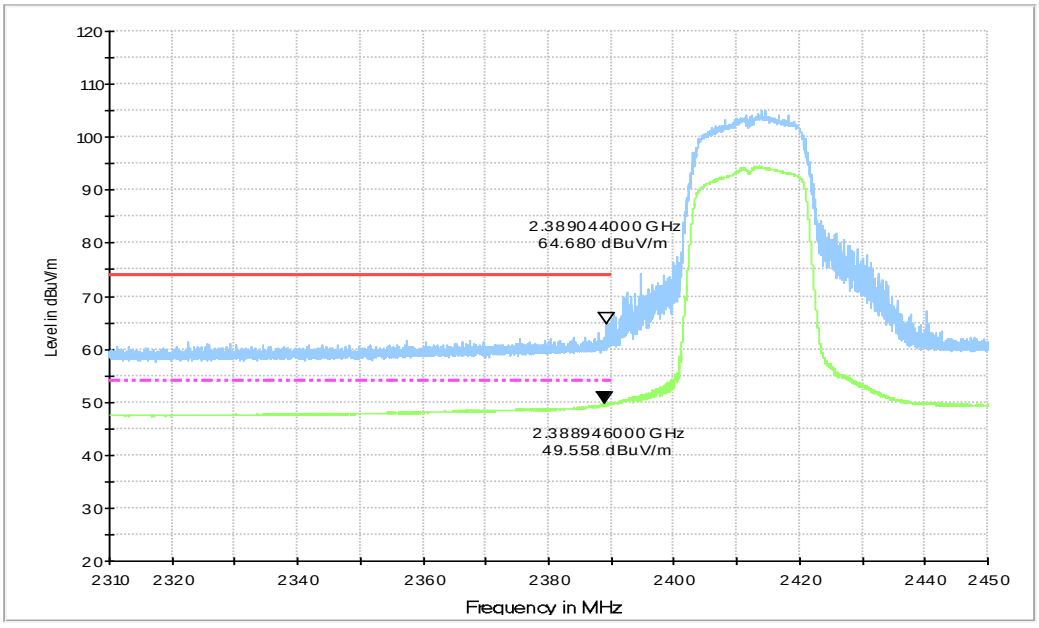


Fig.A.5.2.14 Radiated band Edges (802.11n-HT20, Ch 1)

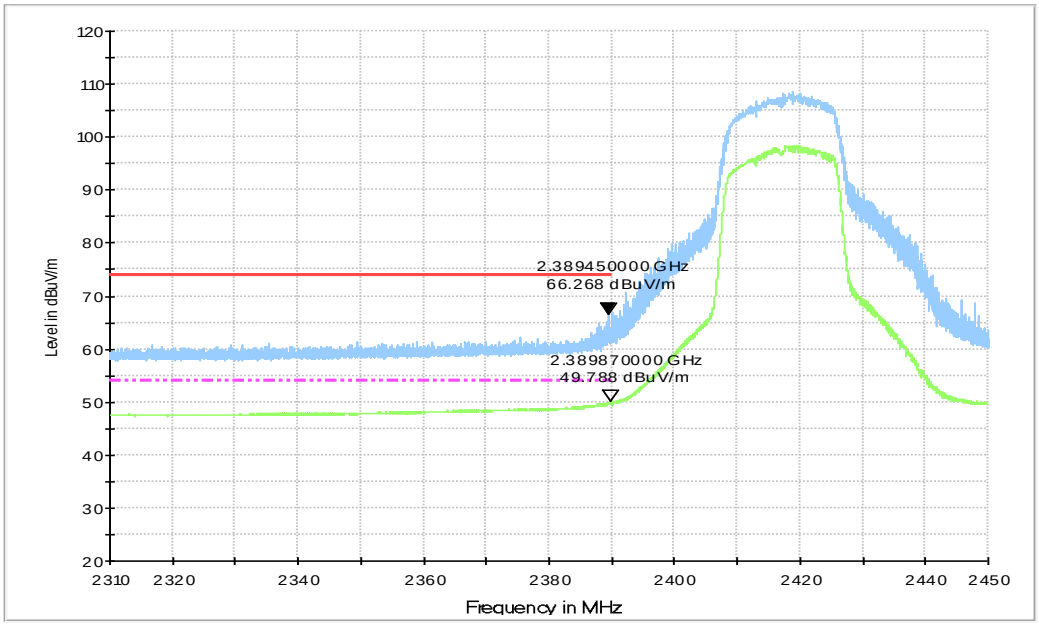


Fig.A.5.2.15 Radiated band Edges (802.11n-HT20, Ch 2)

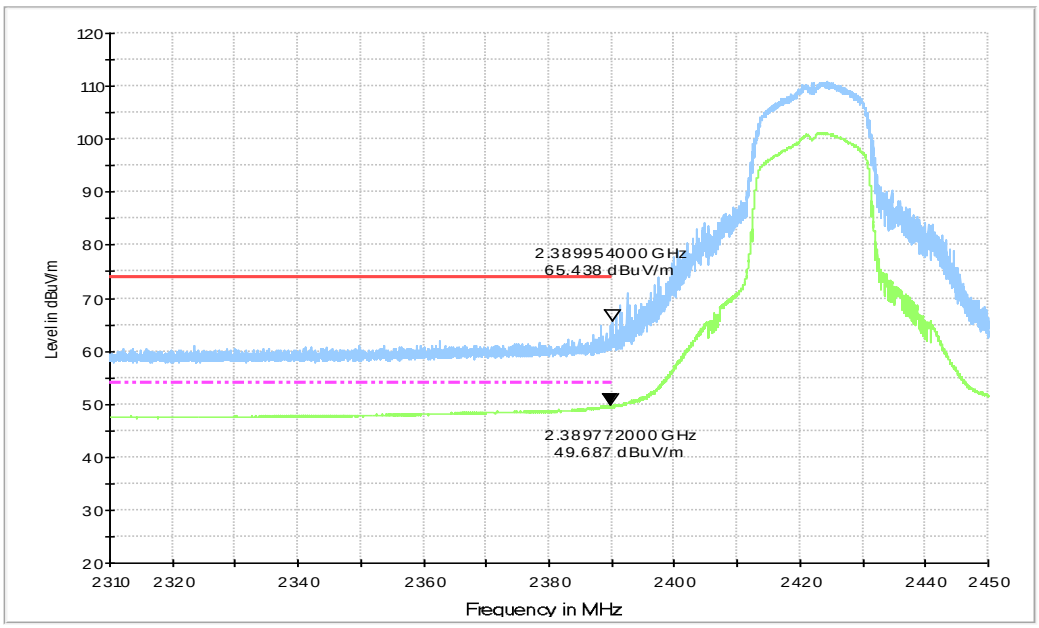


Fig.A.5.2.16 Radiated band Edges (802.11n-HT20, Ch 3)

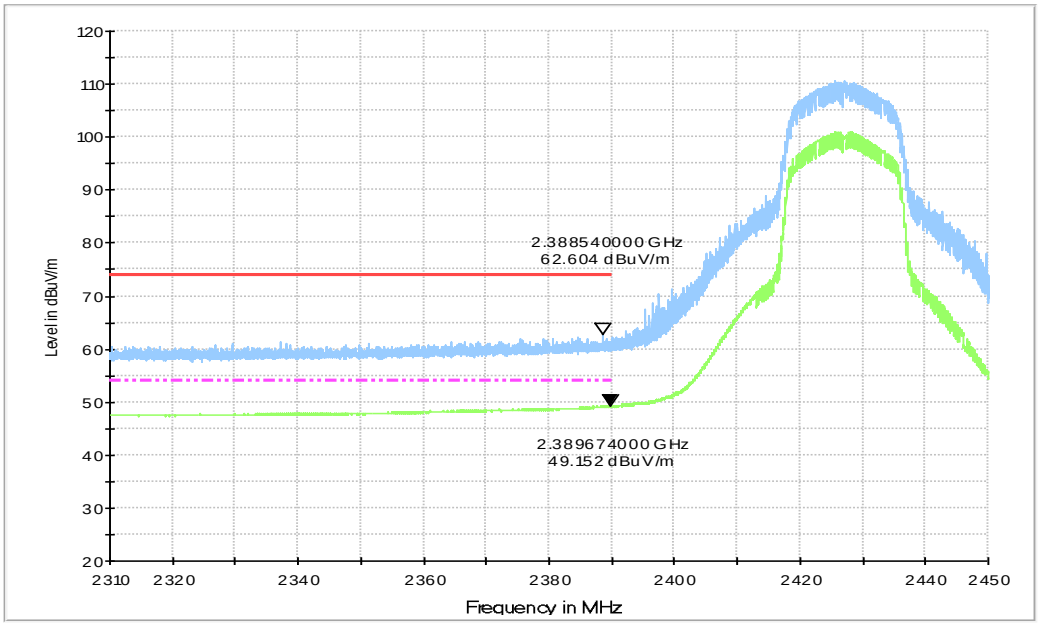


Fig.A.5.2.17 Radiated band Edges (802.11n-HT20, Ch 4)

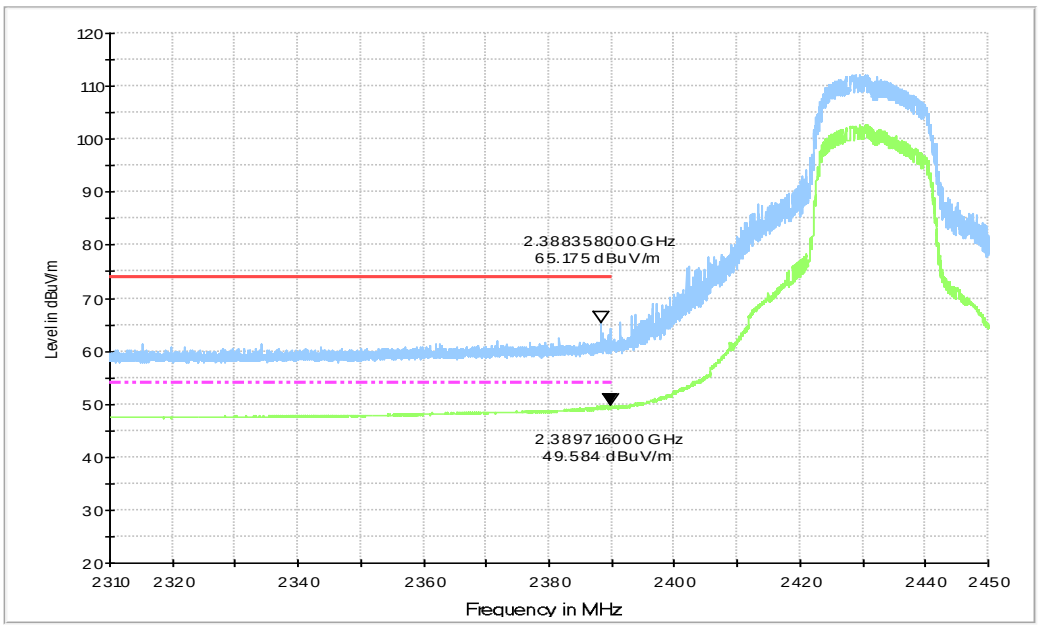


Fig.A.5.2.18 Radiated band Edges (802.11n-HT20, Ch 5)

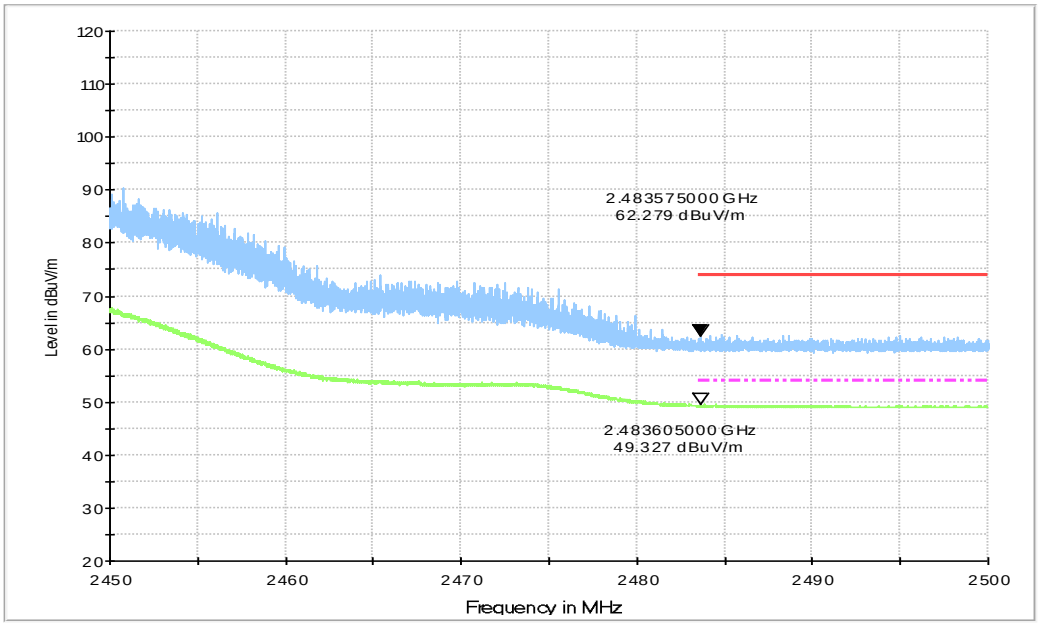


Fig.A.5.2.19 Radiated band Edges (802.11n-HT20, Ch 6)

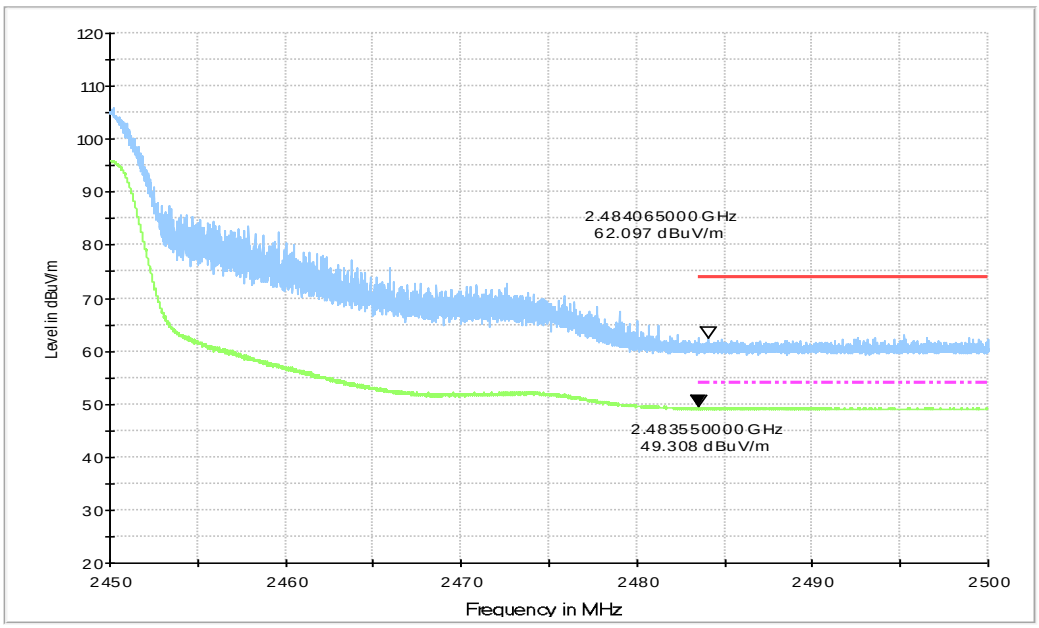


Fig.A.5.2.20 Radiated band Edges (802.11n-HT20, Ch 7)

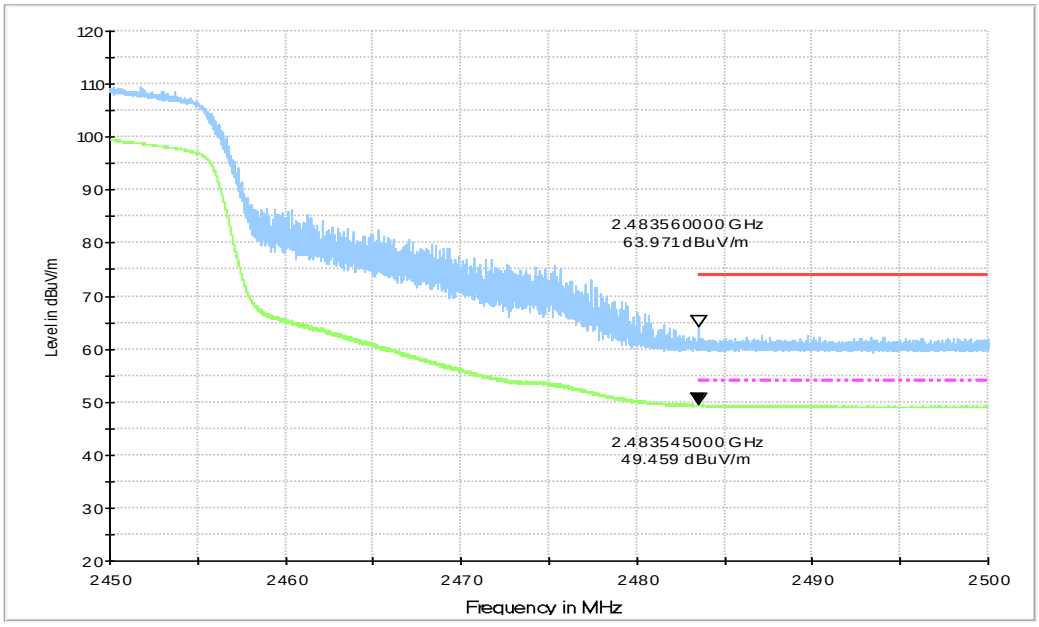


Fig.A.5.2.21 Radiated band Edges (802.11n-HT20, Ch 8)

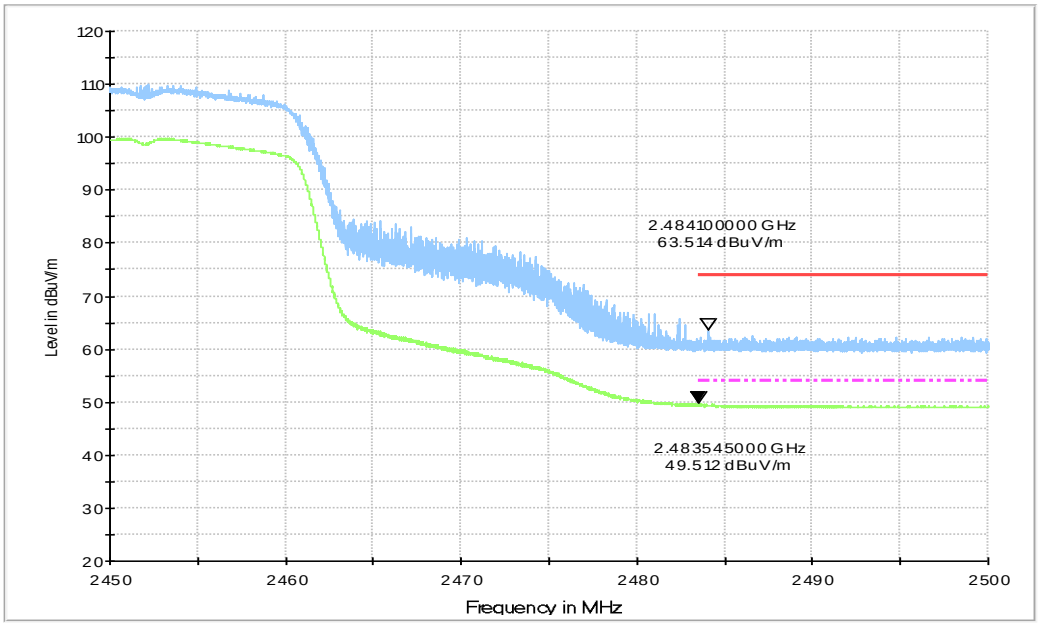


Fig.A.5.2.22 Radiated band Edges (802.11n-HT20, Ch 9)

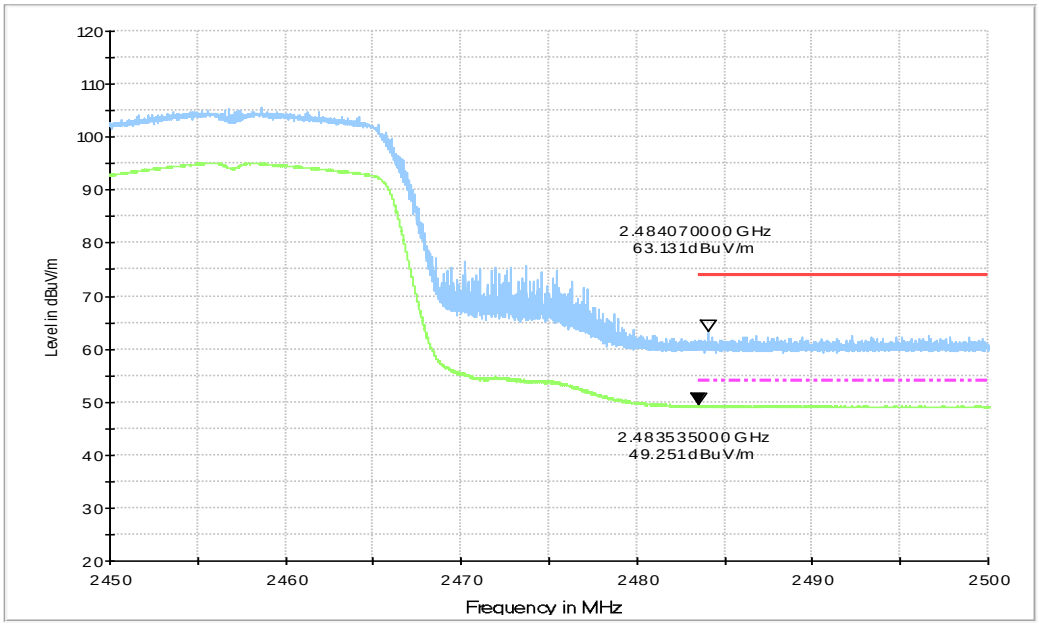


Fig.A.5.2.23 Radiated band Edges (802.11n-HT20, Ch 10)

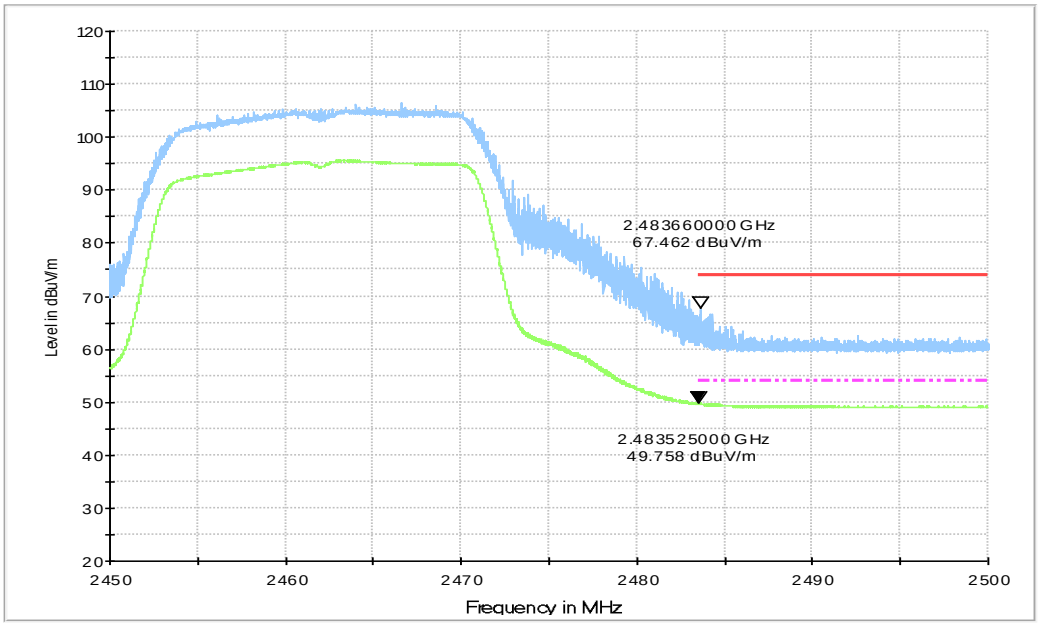


Fig.A.5.2.24 Radiated band Edges (802.11n-HT20, Ch 11)

UT25a + AE14 + AE4 + AE18 +AE19

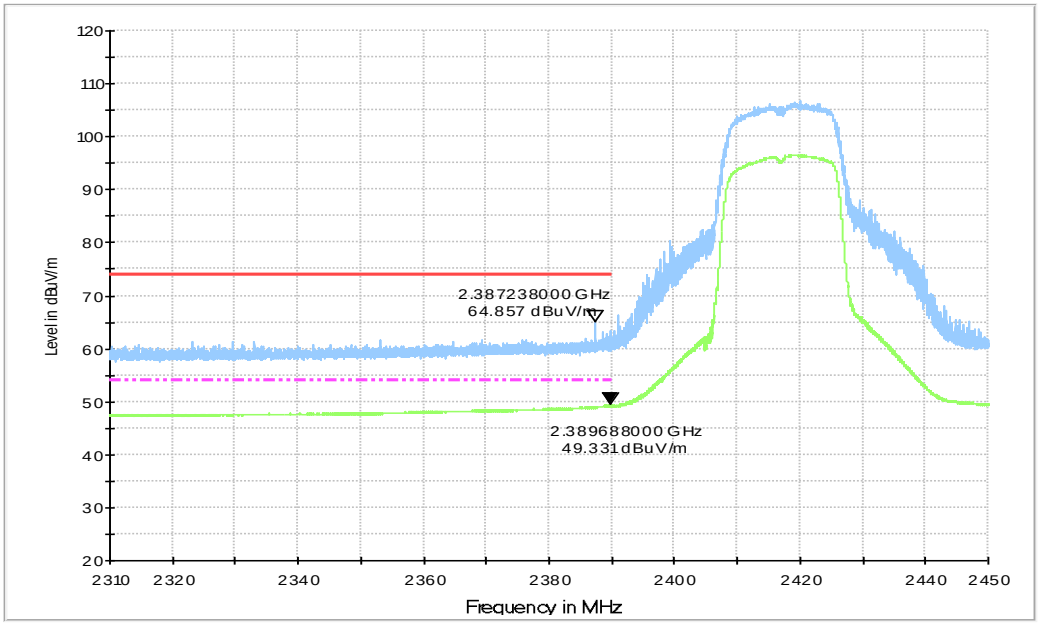


Fig.A.5.2.25 Radiated band Edges (802.11n-HT20, Ch 2)

UT04a + AE15 + AE5 + AE17 +AE19

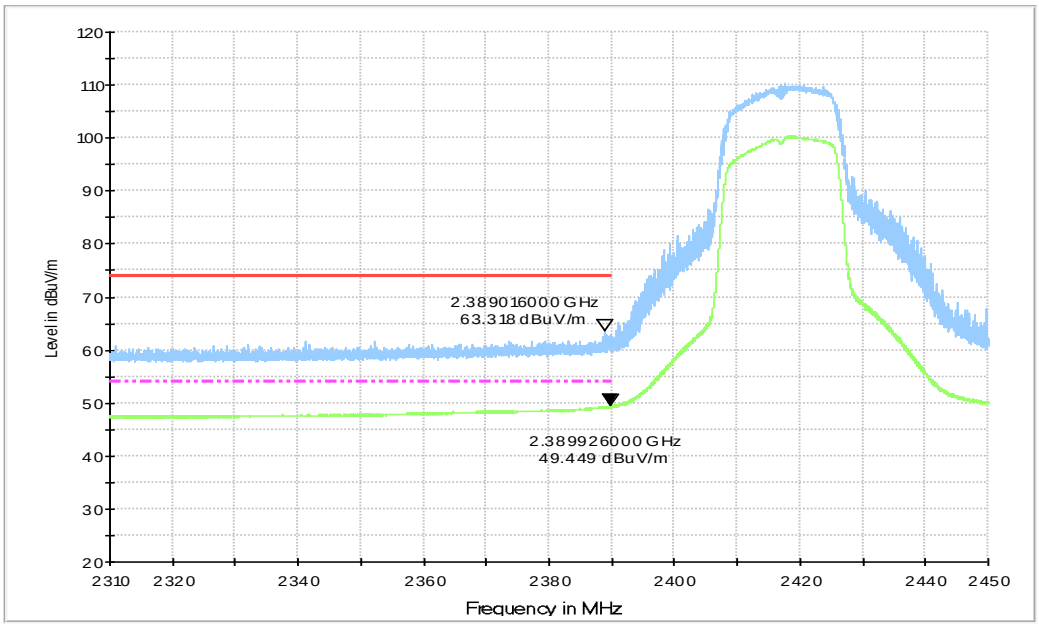


Fig.A.5.2.26 Radiated band Edges (802.11n-HT20, Ch 2)

UT26a + AE16 +AE6 + AE18 +AE19

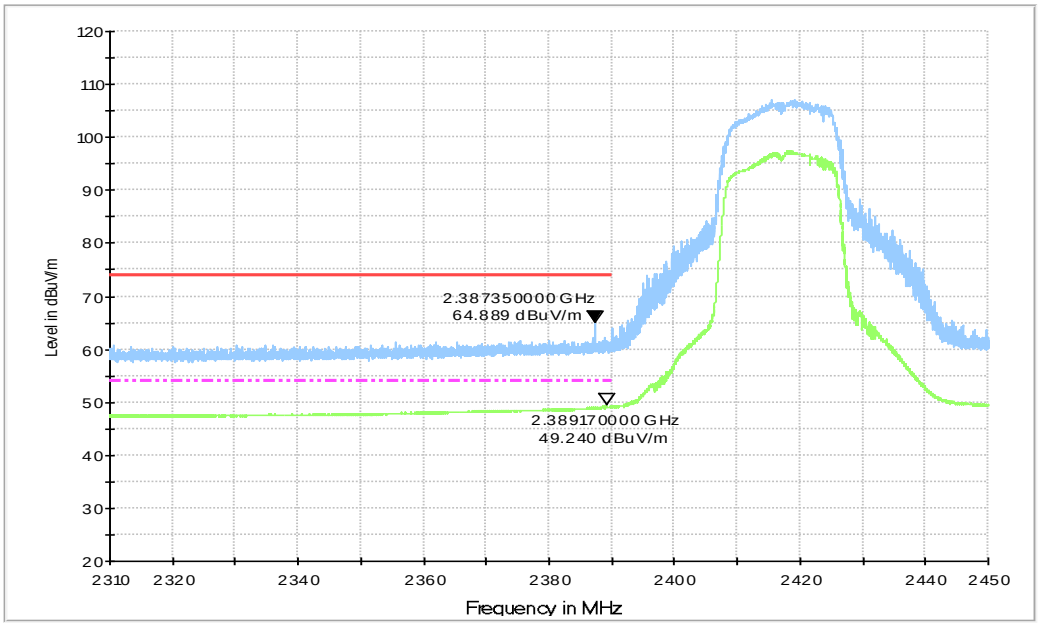


Fig.A.5.2.27 Radiated band Edges (802.11n-HT20, Ch 2)

UT18a + AE13 + AE9 + AE17 +AE19

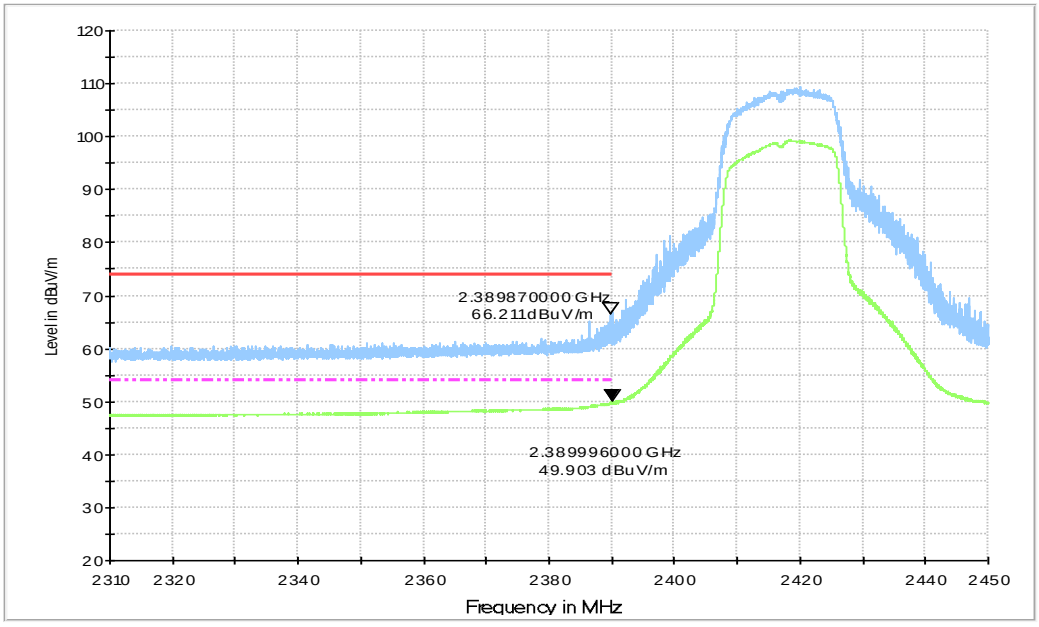


Fig.A.5.2.28 Radiated band Edges (802.11n-HT20, Ch 2)

UT25a + AE14 +AE12 + AE18 +AE19

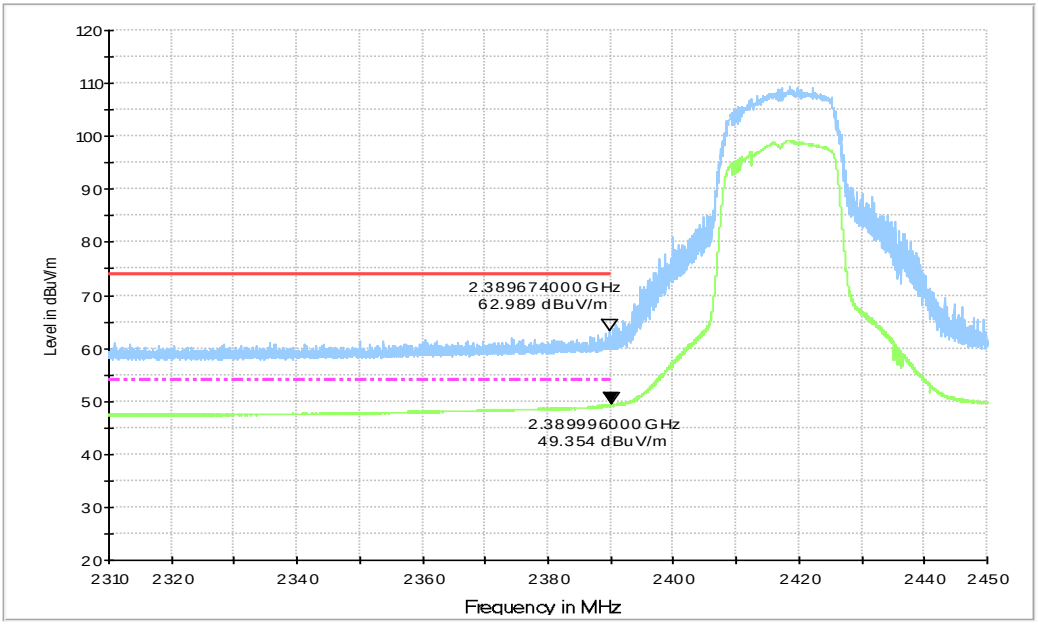


Fig.A.5.2.29 Radiated band Edges (802.11n-HT20, Ch 2)

A.6. Transmitter Spurious Emission

A.6.1 Transmitter Spurious Emission – Conducted

Method of Measurement: See ANSI C63.10-2013-clause 11.11

Establish a reference level by using the following procedure:

a) Set instrument center frequency to DTS channel center frequency

b) Set the span to ≥ 1.5 times the DTS bandwidth

c) Set the RBW= 100 kHz

d) Set the VBW= 300 kHz

e) Detector = Peak

f) Sweep time = auto couple

g) Trace mode = max hold

h) Allow trace to fully stabilize

i) Use the peak marker function to determine the maximum PSD level

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Establish an emission level by using the following procedure:

a) Set the center frequency and span to encompass frequency range to be measured.

b) Set the RBW = 100 kHz.

c) Set the VBW = 300 kHz.

d) Detector = peak.

e) Sweep time = auto couple.

f) Trace mode = max hold.

g) Allow trace to fully stabilize.

h) Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247 (d)	20dB below peak output power in 100 kHz bandwidth

EUT ID: EUT2

Measurement Results:

802.11b mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.412 GHz	Fig.A.6.1.1	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.2	**P**
		1 GHz ~ 2.5 GHz	Fig.A.6.1.3	**P**
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.4	**P**
		7.5 GHz ~ 10 GHz	Fig.A.6.1.5	**P**
		10 GHz ~ 15 GHz	Fig.A.6.1.6	**P**
		15 GHz ~ 20 GHz	Fig.A.6.1.7	**P**
		20 GHz ~ 26 GHz	Fig.A.6.1.8	**P**
	6	2.437 GHz	Fig.A.6.1.9	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.10	**P**
		1 GHz ~ 2.5 GHz	Fig.A.6.1.11	**P**
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.12	**P**
		7.5 GHz ~ 10 GHz	Fig.A.6.1.13	**P**
		10 GHz ~ 15 GHz	Fig.A.6.1.14	**P**
		15 GHz ~ 20 GHz	Fig.A.6.1.15	**P**
		20 GHz ~ 26 GHz	Fig.A.6.1.16	**P**
	11	2.462 GHz	Fig.A.6.1.17	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.18	**P**
		1 GHz ~ 2.5 GHz	Fig.A.6.1.19	**P**
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.20	**P**
		7.5 GHz ~ 10 GHz	Fig.A.6.1.21	**P**
		10 GHz ~ 15 GHz	Fig.A.6.1.22	**P**
		15 GHz ~ 20 GHz	Fig.A.6.1.23	**P**
		20 GHz ~ 26 GHz	Fig.A.6.1.24	**P**

802.11g mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11g	1	2.412 GHz	Fig.A.6.1.25	P
		30 MHz ~ 1 GHz	Fig.A.6.1.26	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.27	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.28	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.29	P
		10 GHz ~ 15 GHz	Fig.A.6.1.30	P
		15 GHz ~ 20 GHz	Fig.A.6.1.31	P
		20 GHz ~ 26 GHz	Fig.A.6.1.32	P
	6	2.437 GHz	Fig.A.6.1.33	P
		30 MHz ~ 1 GHz	Fig.A.6.1.34	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.35	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.36	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.37	P
		10 GHz ~ 15 GHz	Fig.A.6.1.38	P
		15 GHz ~ 20 GHz	Fig.A.6.1.39	P
		20 GHz ~ 26 GHz	Fig.A.6.1.40	P
	11	2.462 GHz	Fig.A.6.1.41	P
		30 MHz ~ 1 GHz	Fig.A.6.1.42	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.43	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.44	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.45	P
		10 GHz ~ 15 GHz	Fig.A.6.1.46	P
		15 GHz ~ 20 GHz	Fig.A.6.1.47	P
		20 GHz ~ 26 GHz	Fig.A.6.1.48	P

802.11n-HT20 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	1	2.412 GHz	Fig.A.6.1.49	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.50	**P**
		1 GHz ~ 2.5 GHz	Fig.A.6.1.51	**P**
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.52	**P**
		7.5 GHz ~ 10 GHz	Fig.A.6.1.53	**P**
		10 GHz ~ 15 GHz	Fig.A.6.1.54	**P**
		15 GHz ~ 20 GHz	Fig.A.6.1.55	**P**
		20 GHz ~ 26 GHz	Fig.A.6.1.56	**P**
	6	2.437 GHz	Fig.A.6.1.57	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.58	**P**
		1 GHz ~ 2.5 GHz	Fig.A.6.1.59	**P**
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.60	**P**
		7.5 GHz ~ 10 GHz	Fig.A.6.1.61	**P**
		10 GHz ~ 15 GHz	Fig.A.6.1.62	**P**
		15 GHz ~ 20 GHz	Fig.A.6.1.63	**P**
		20 GHz ~ 26 GHz	Fig.A.6.1.64	**P**
	11	2.462 GHz	Fig.A.6.1.65	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.66	**P**
		1 GHz ~ 2.5 GHz	Fig.A.6.1.67	**P**
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.68	**P**
		7.5 GHz ~ 10 GHz	Fig.A.6.1.69	**P**
		10 GHz ~ 15 GHz	Fig.A.6.1.70	**P**
		15 GHz ~ 20 GHz	Fig.A.6.1.71	**P**
		20 GHz ~ 26 GHz	Fig.A.6.1.72	**P**

Conclusion: Pass

Test graphs as below:

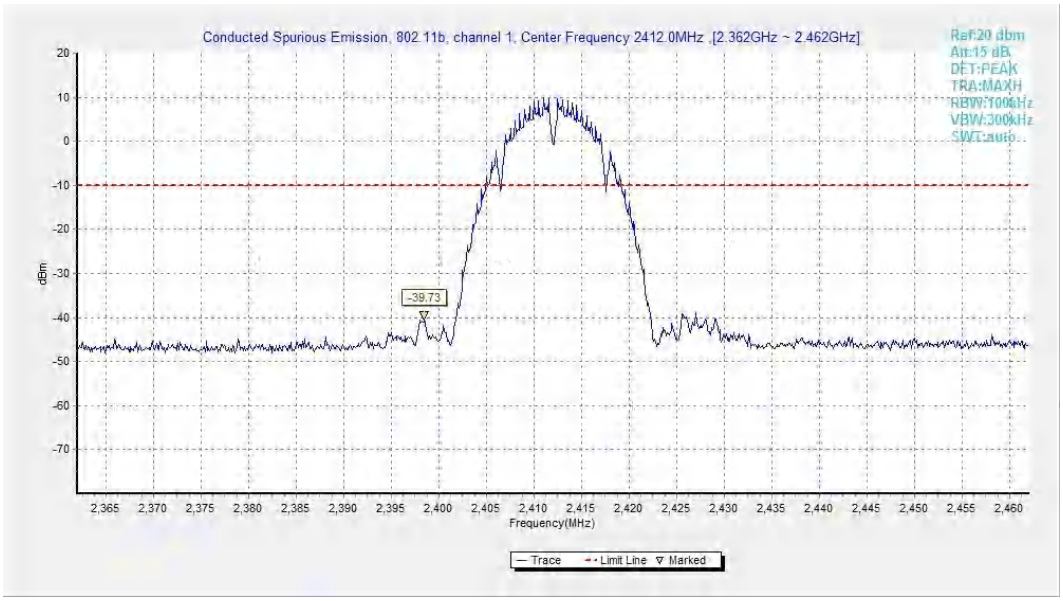


Fig.A.6.1.1 Transmitter Spurious Emission - Conducted (802.11b, Ch1, Center Frequency)

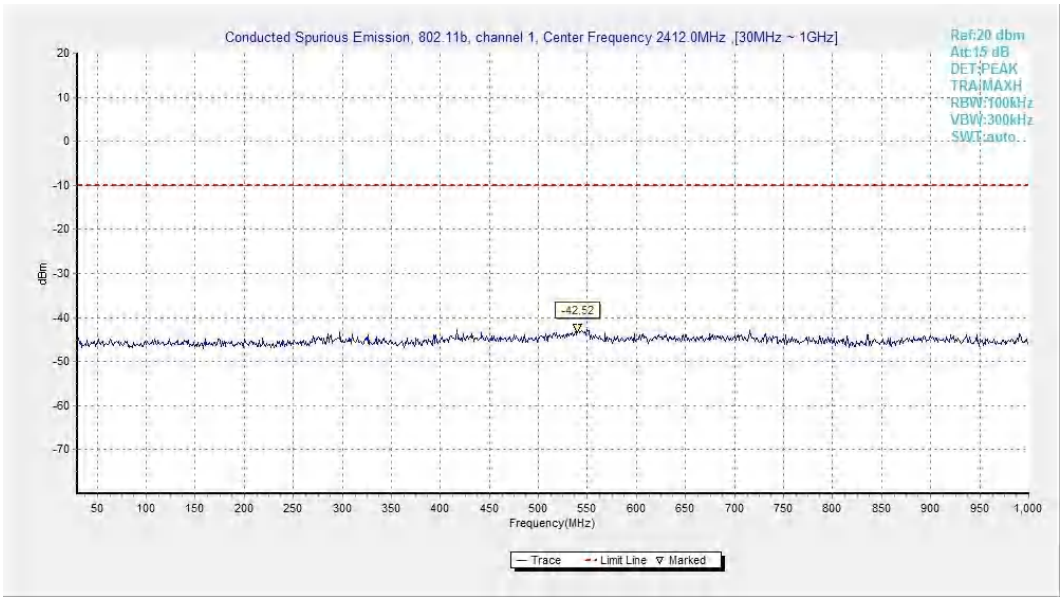


Fig.A.6.1.2 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 30 MHz-1 GHz)

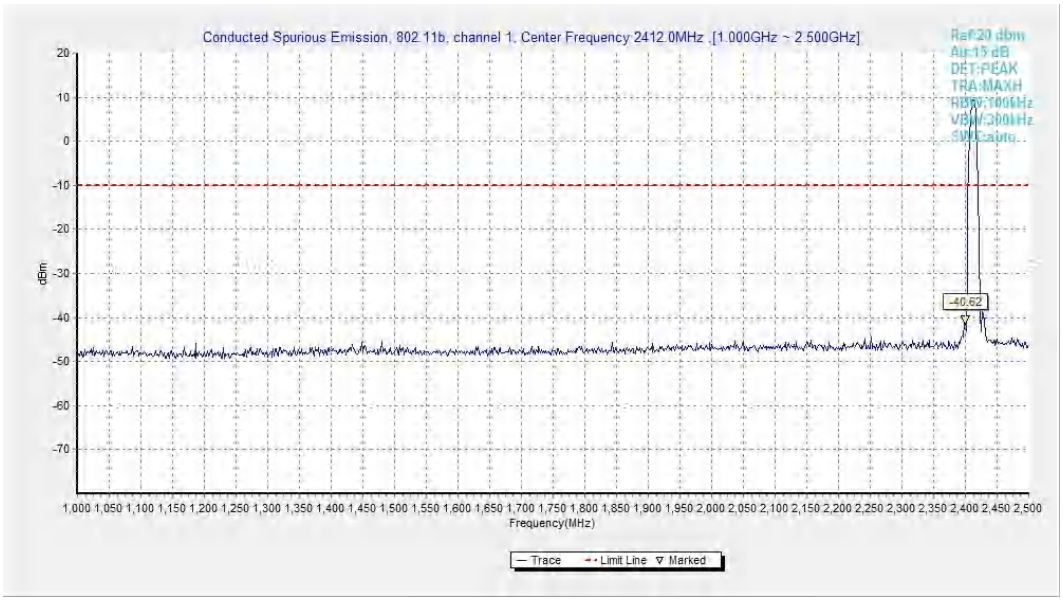


Fig.A.6.1.3 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 1 GHz-2.5 GHz)

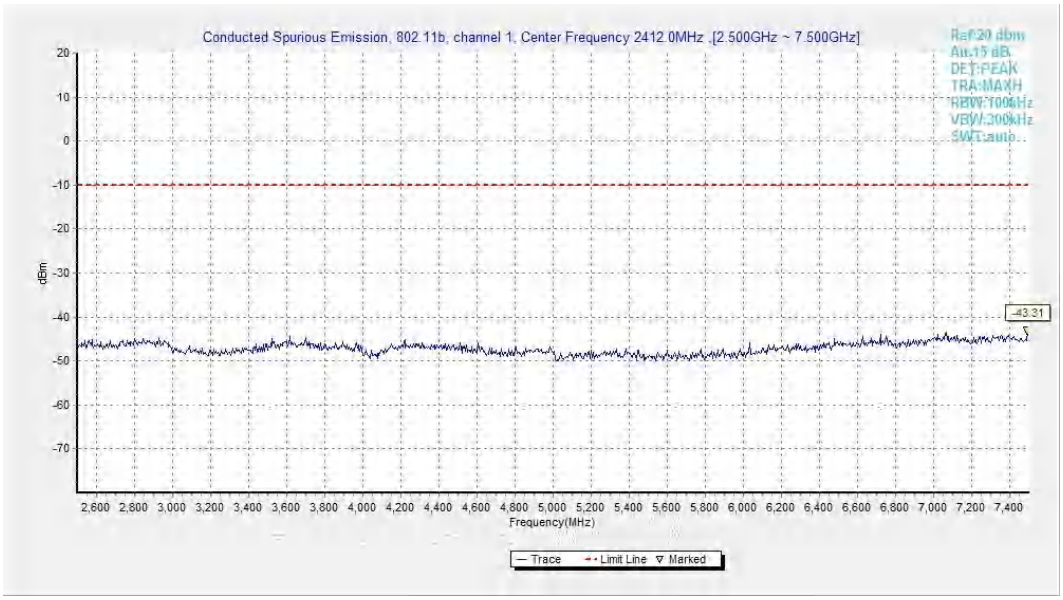


Fig.A.6.1.4 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 2.5 GHz-7.5 GHz)

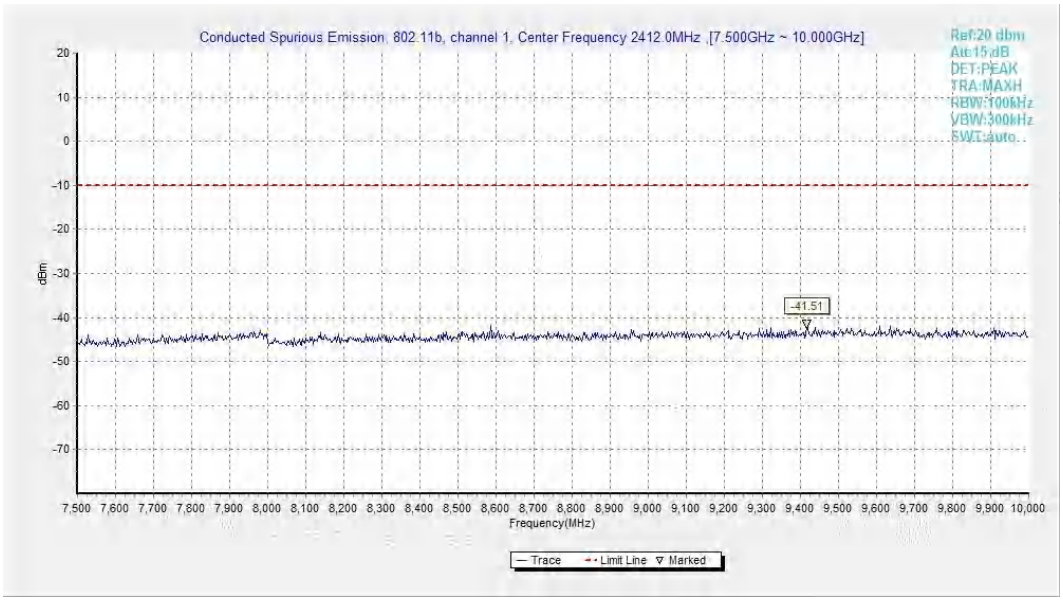


Fig.A.6.1.5 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 7.5 GHz-10 GHz)

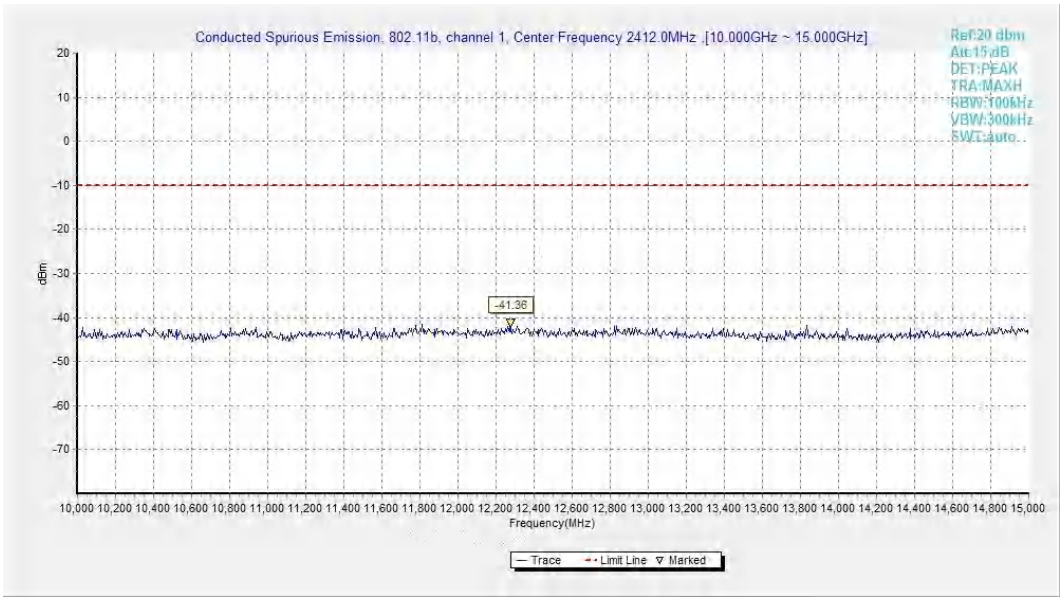


Fig.A.6.1.6 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 10 GHz-15 GHz)

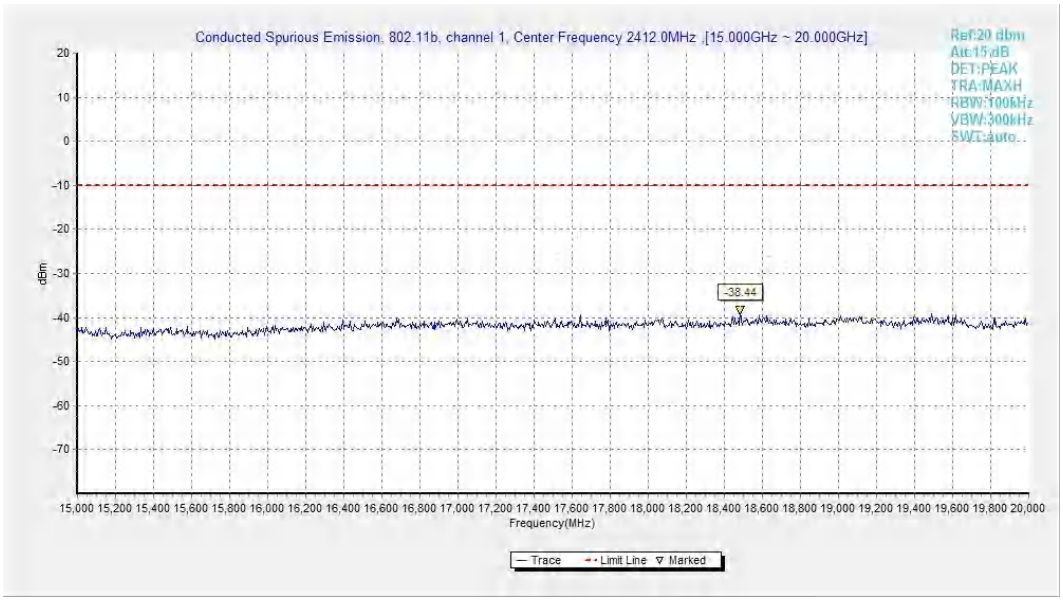


Fig.A.6.1.7 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 15 GHz-20 GHz)

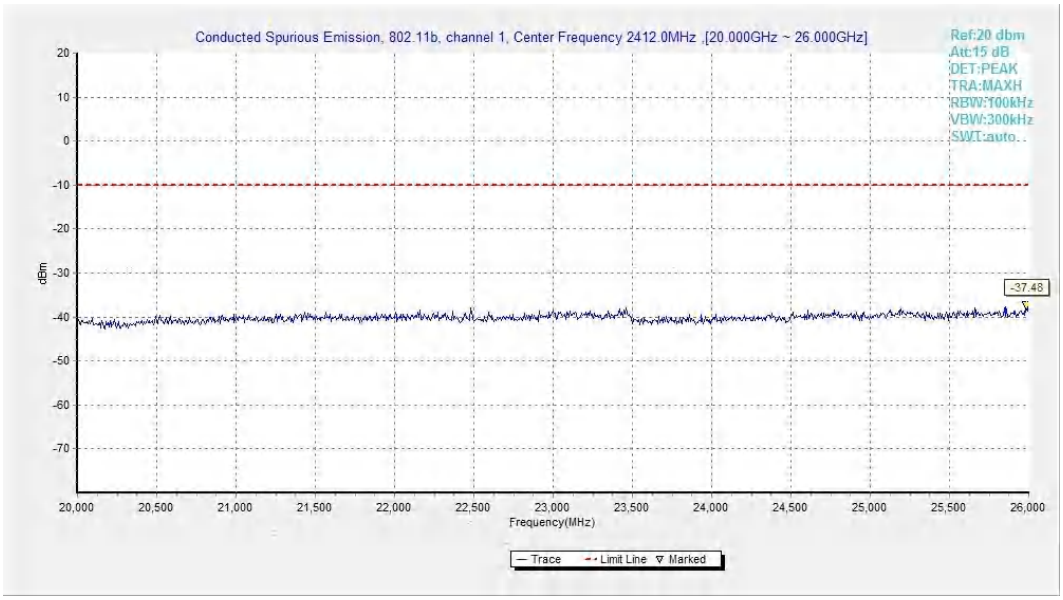


Fig.A.6.1.8 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 20 GHz-26 GHz)

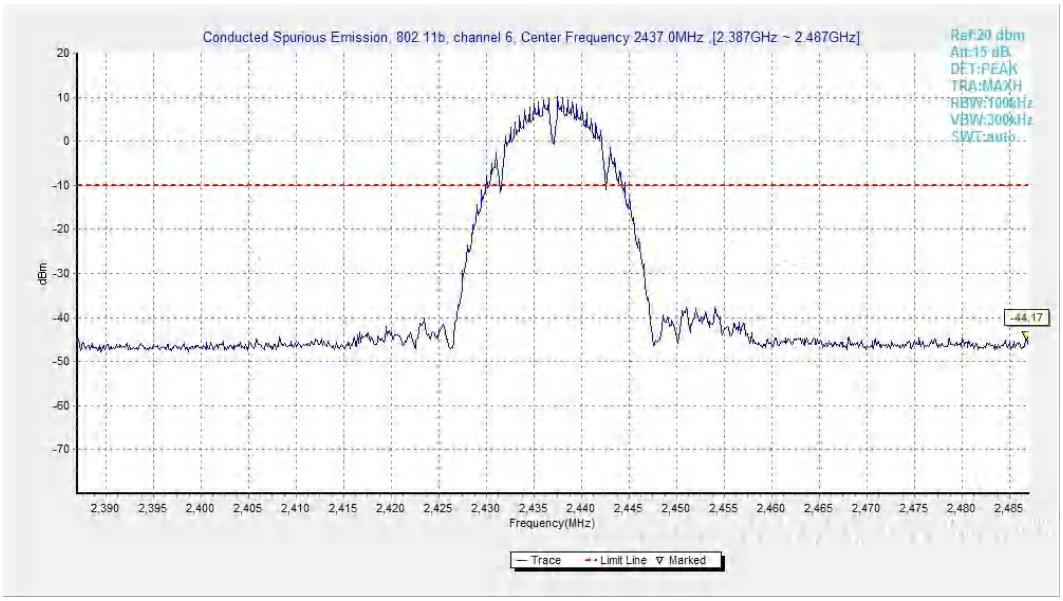


Fig.A.6.1.9 Transmitter Spurious Emission - Conducted (802.11b, Ch6, Center Frequency)

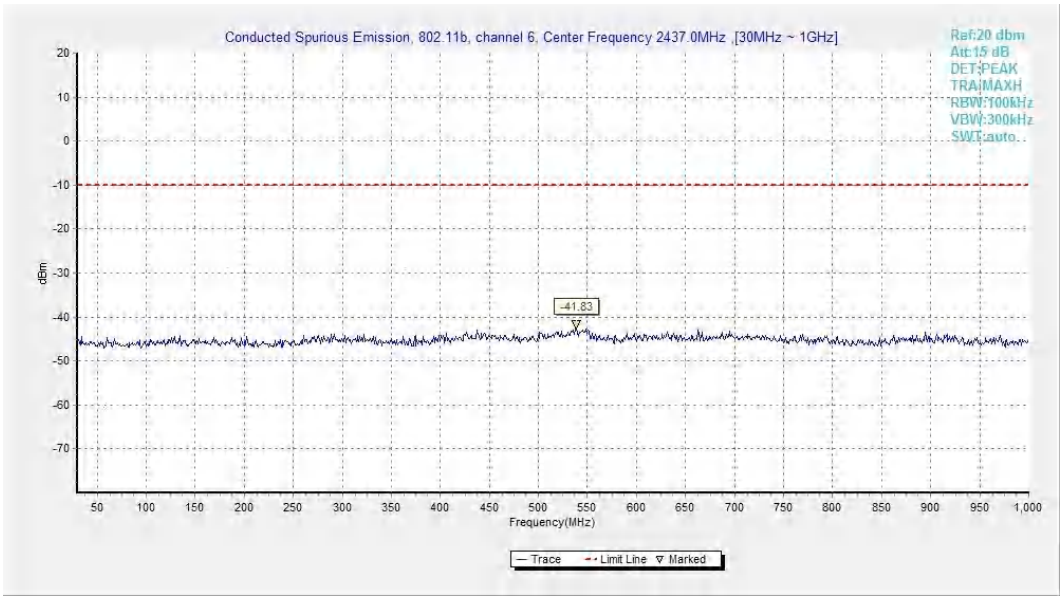


Fig.A.6.1.10 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 30 MHz-1 GHz)

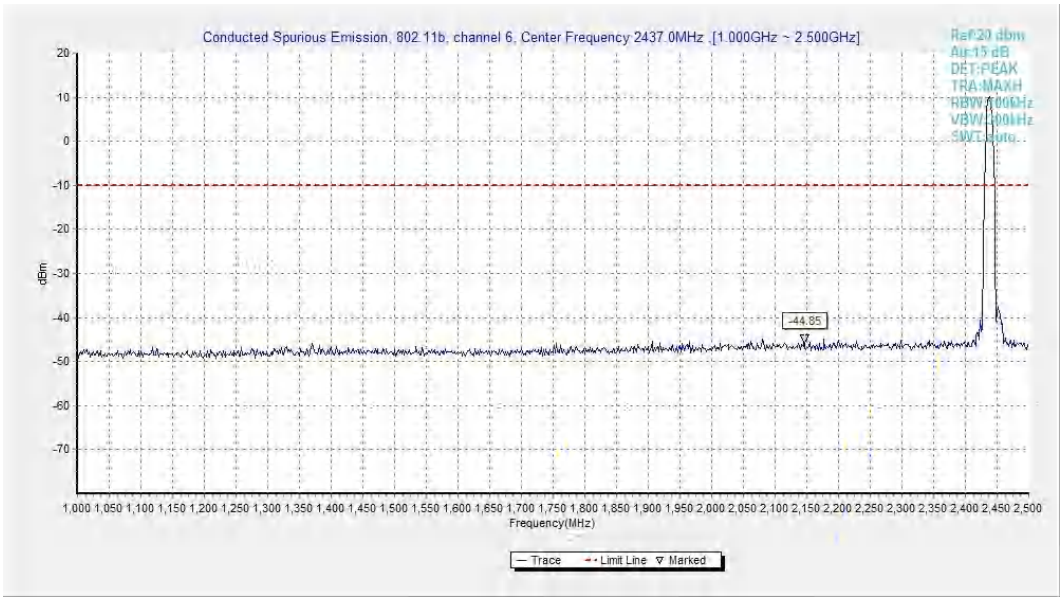


Fig.A.6.1.11 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 1 GHz-2.5 GHz)

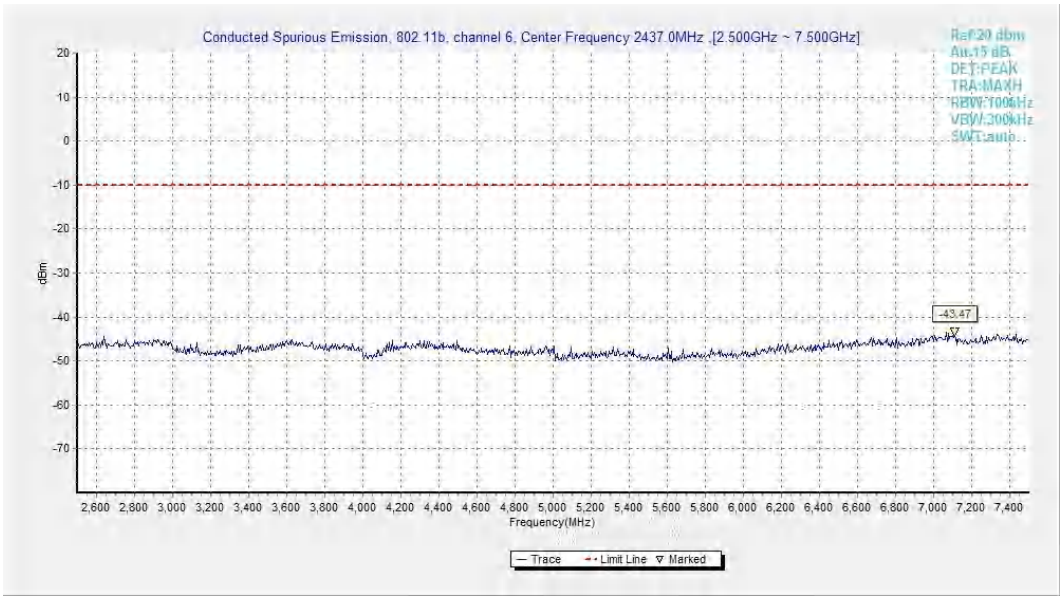


Fig.A.6.1.12 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 2.5 GHz-7.5 GHz)

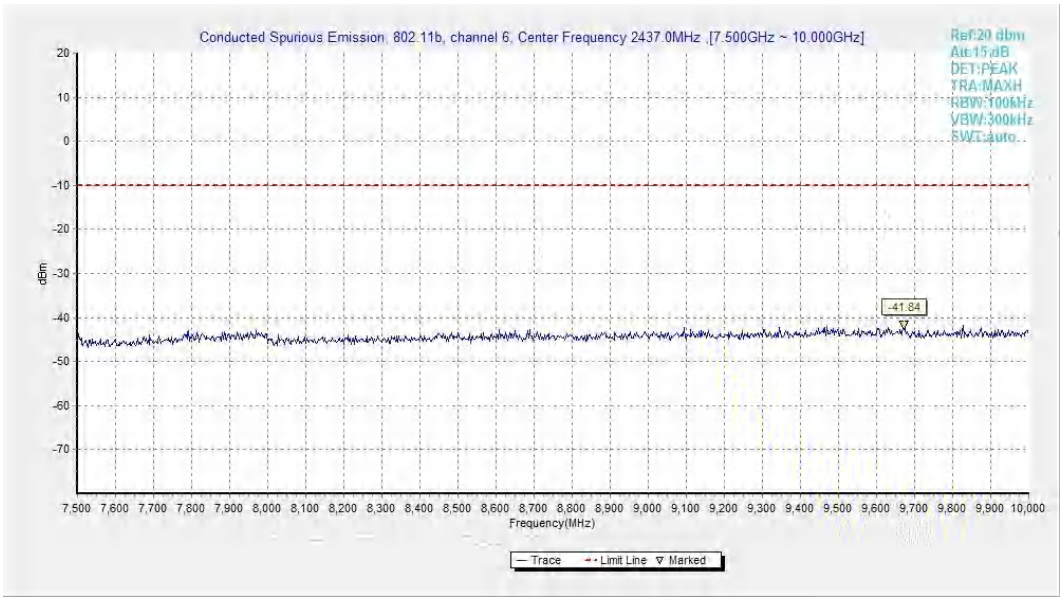


Fig.A.6.1.13 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 7.5 GHz-10 GHz)

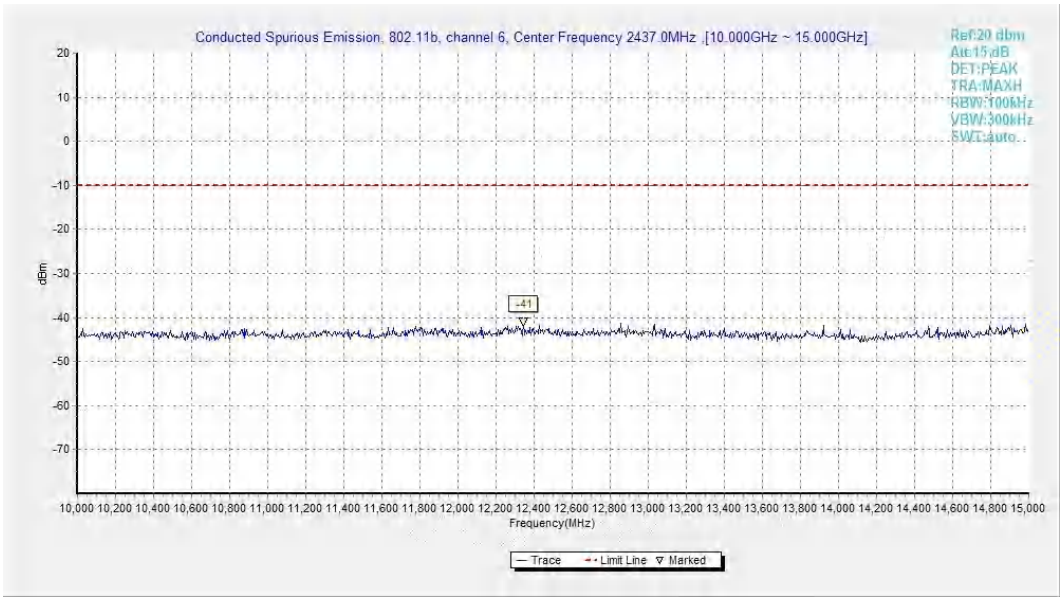


Fig.A.6.1.14 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 10 GHz-15 GHz)

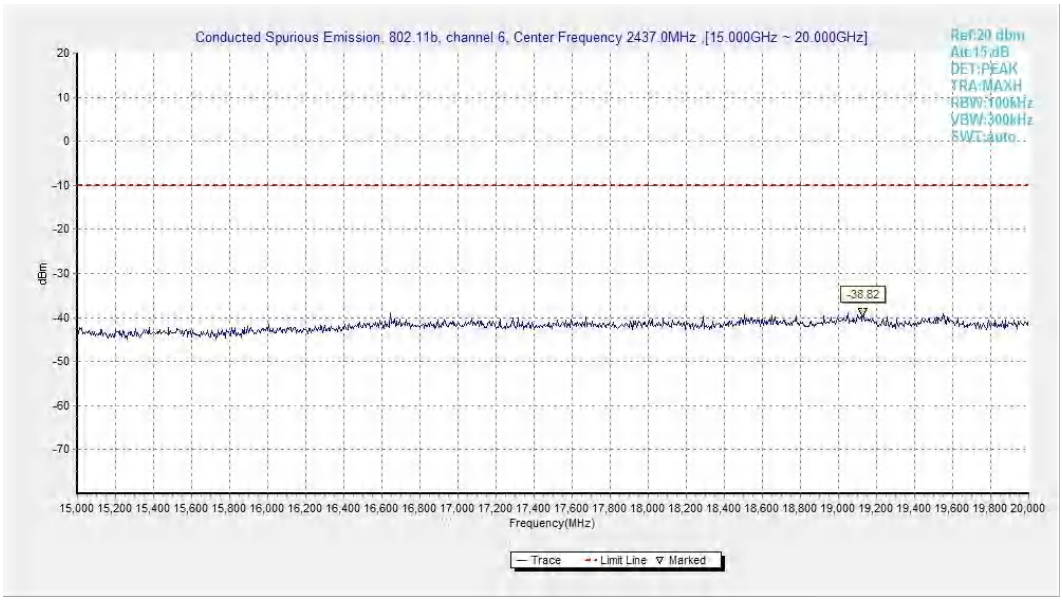


Fig.A.6.1.15 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 15 GHz-20 GHz)

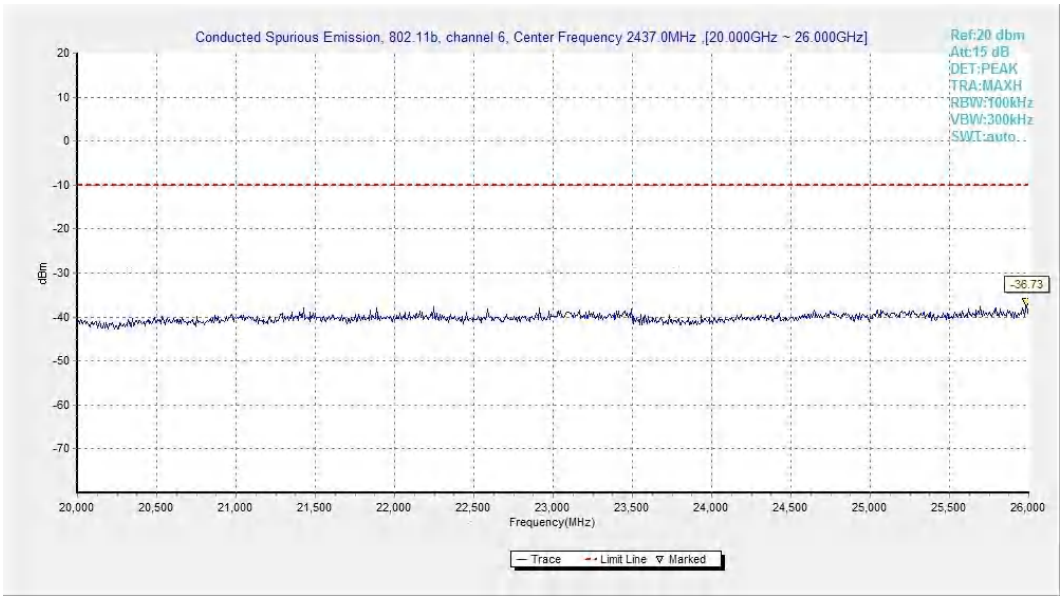


Fig.A.6.1.16 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 20 GHz-26 GHz)

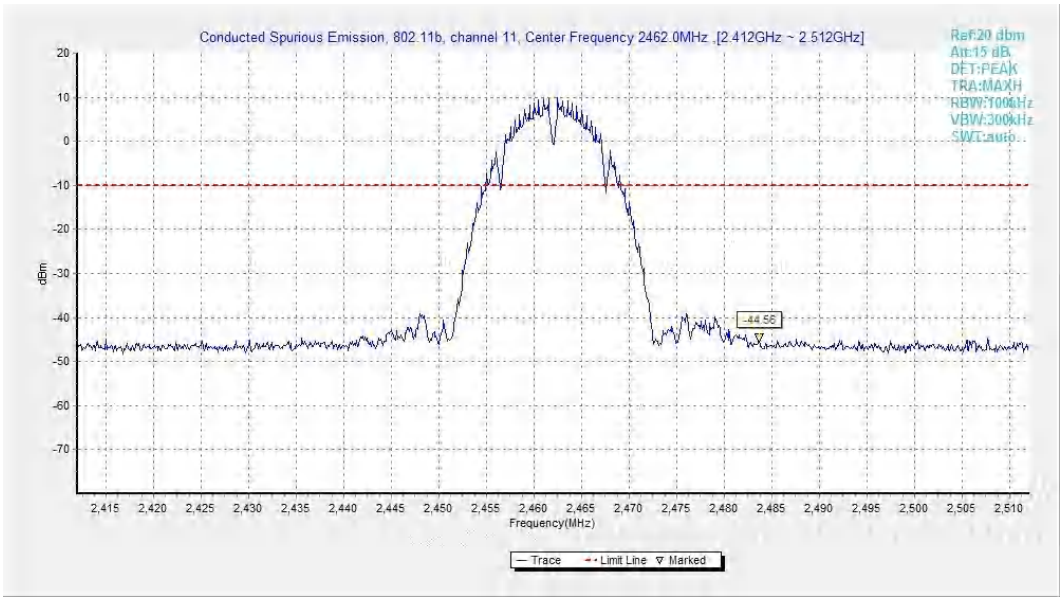


Fig.A.6.1.17 Transmitter Spurious Emission - Conducted (802.11b, Ch11, Center Frequency)

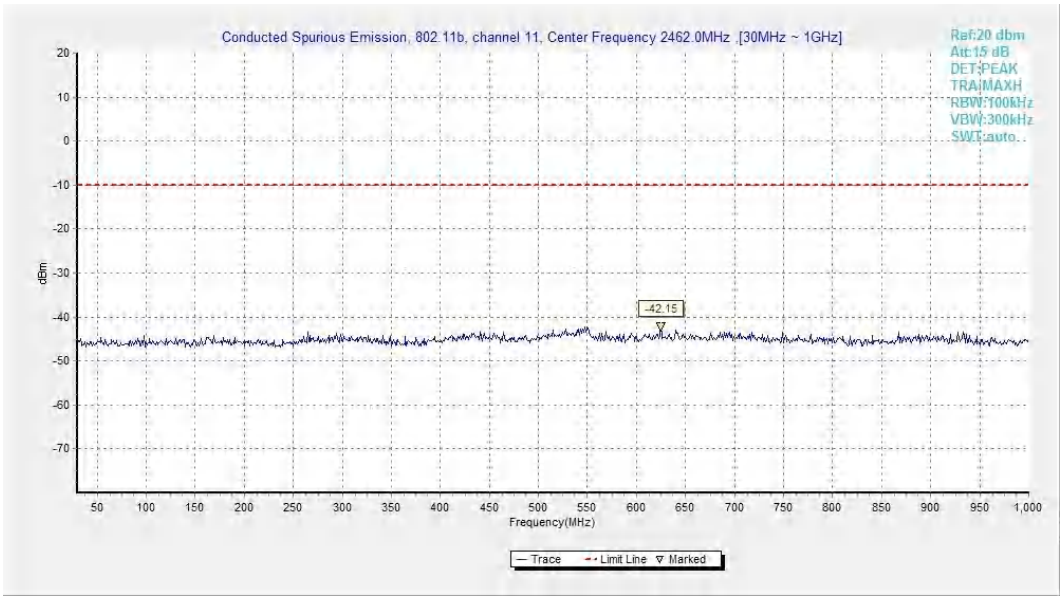


Fig.A.6.1.18 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 30 MHz-1 GHz)

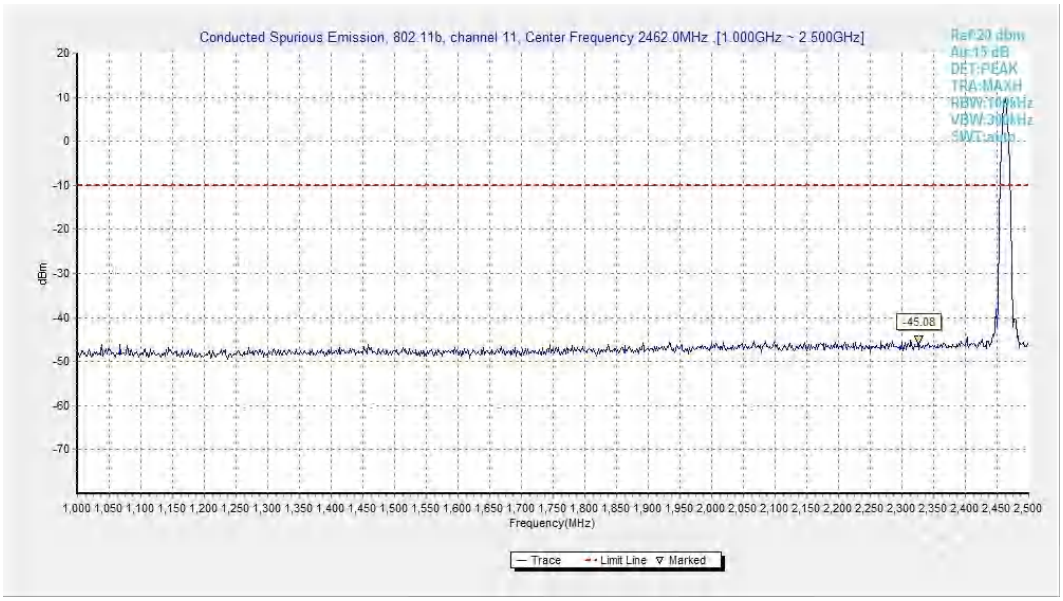


Fig.A.6.1.19 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 1 GHz-2.5 GHz)

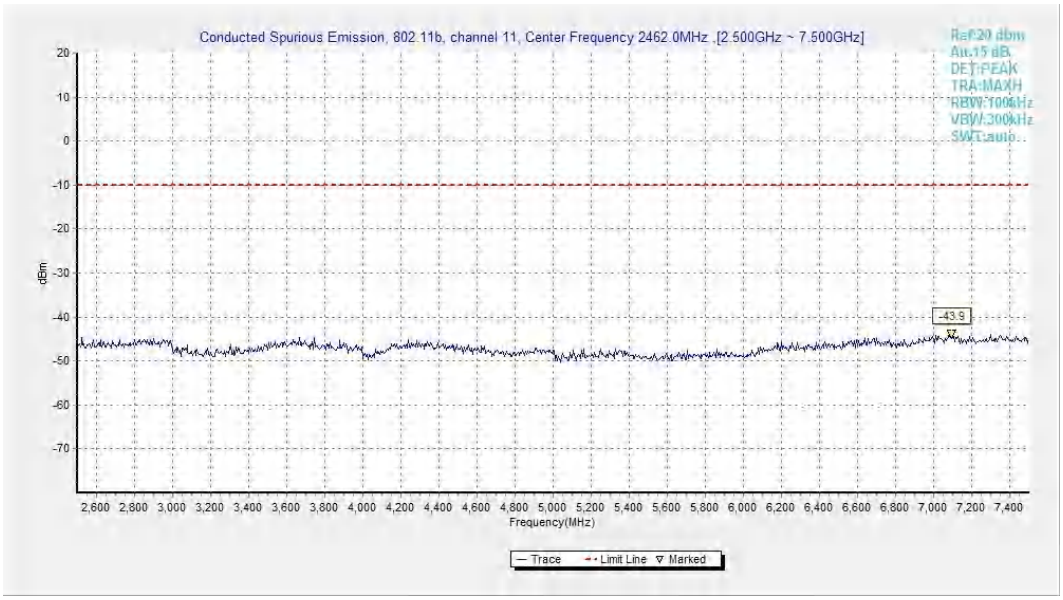


Fig.A.6.1.20 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 2.5 GHz-7.5 GHz)

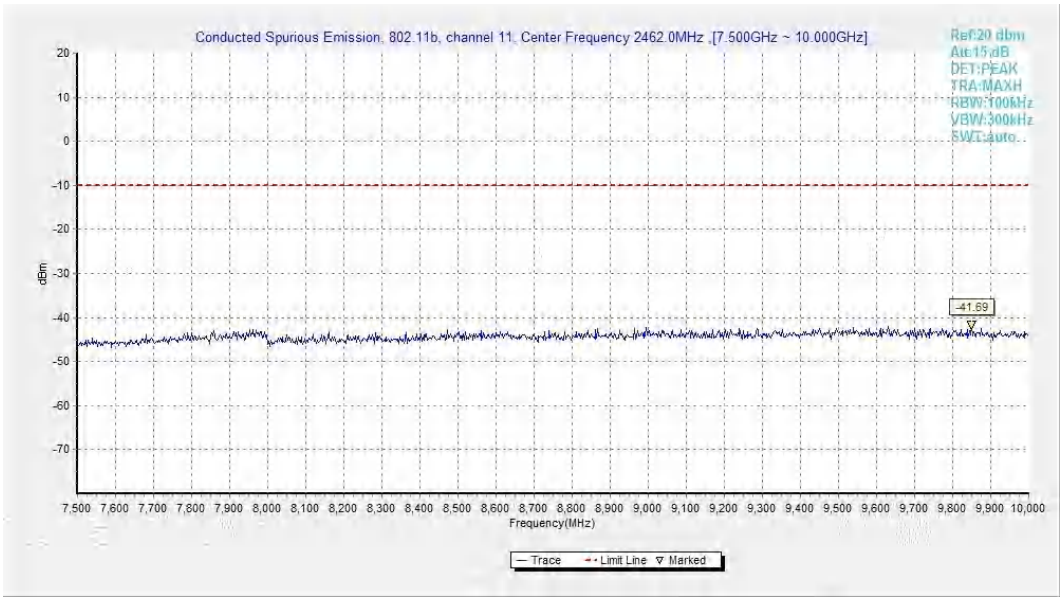


Fig.A.6.1.21 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 7.5 GHz-10 GHz)

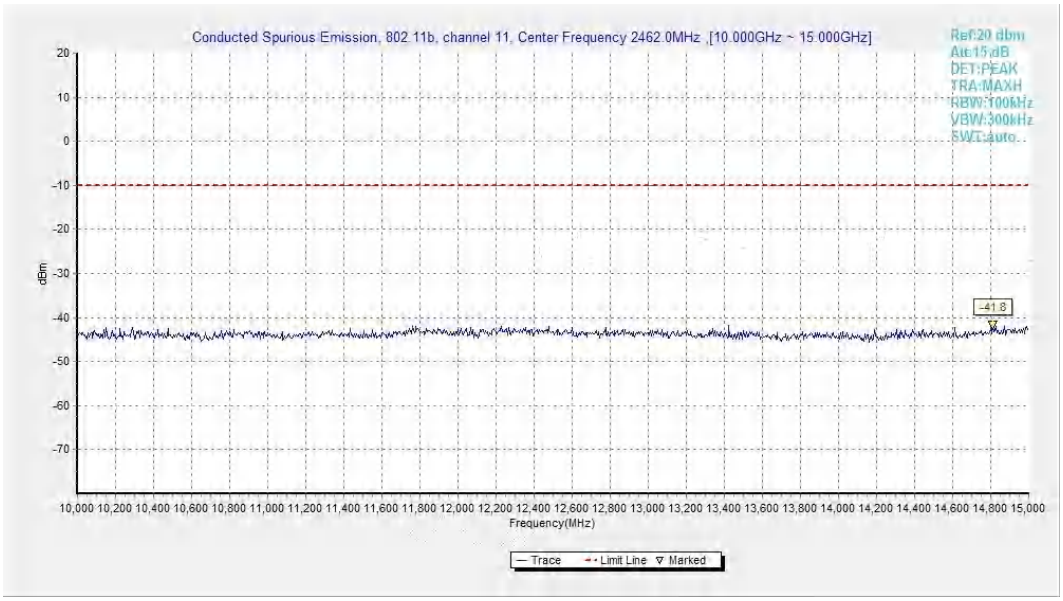


Fig.A.6.1.22 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 10 GHz-15 GHz)

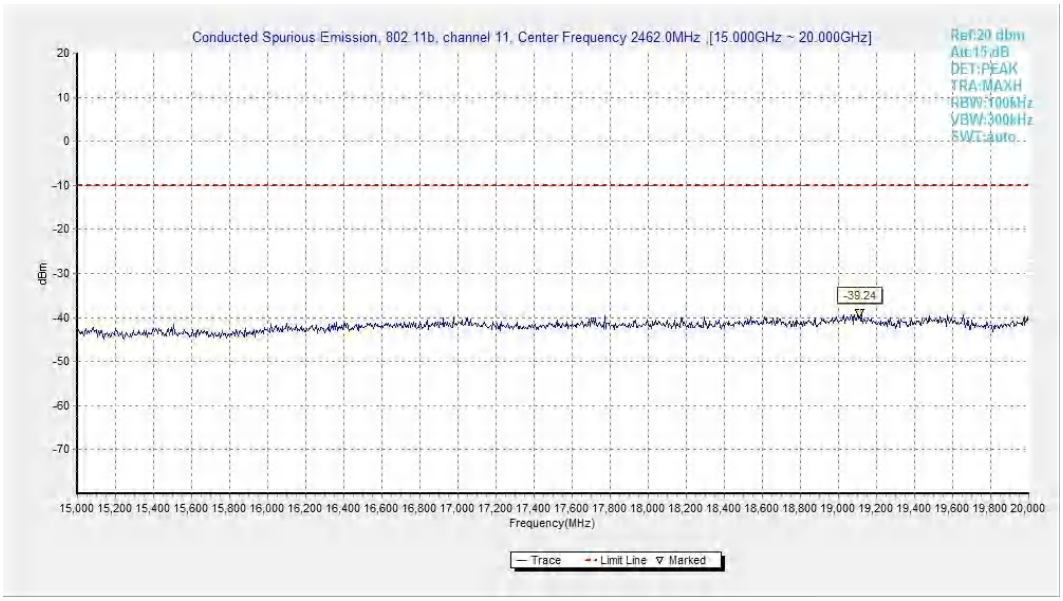


Fig.A.6.1.23 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 15 GHz-20 GHz)

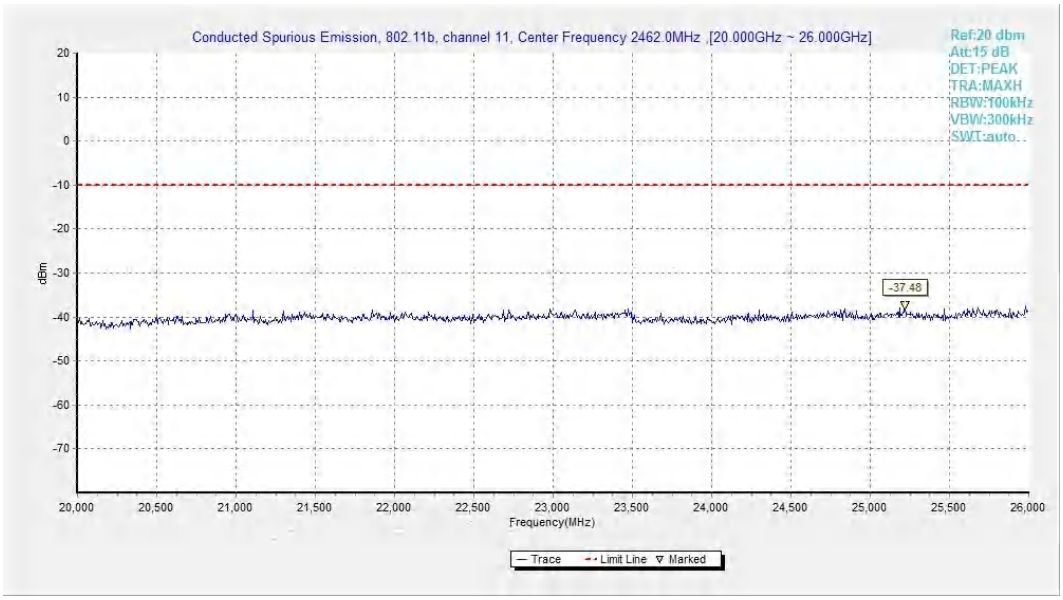


Fig.A.6.1.24 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 20 GHz-26 GHz)

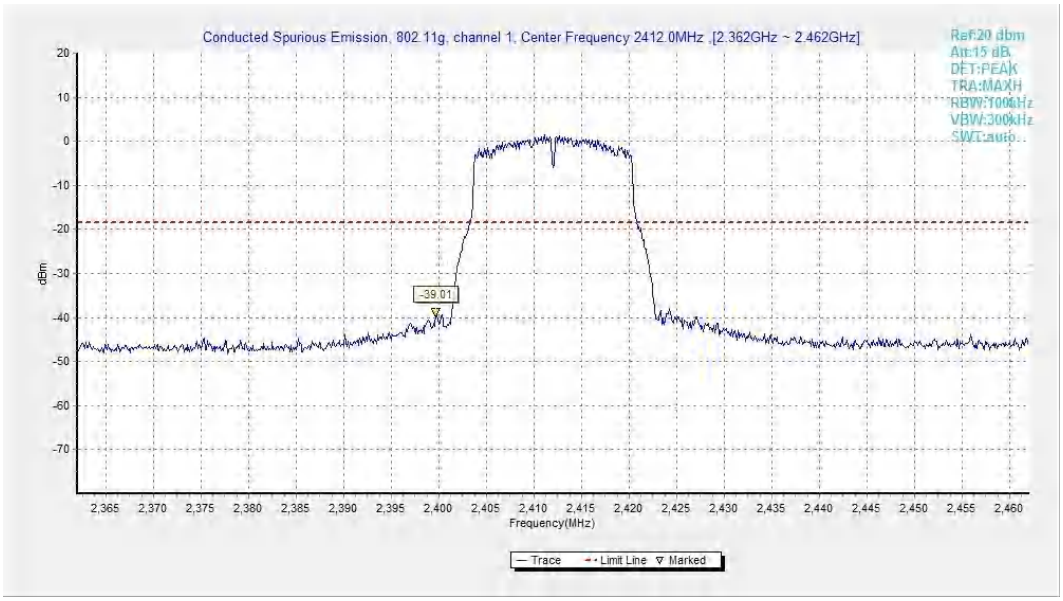


Fig.A.6.1.25 Transmitter Spurious Emission - Conducted (802.11g, Ch1, Center Frequency)

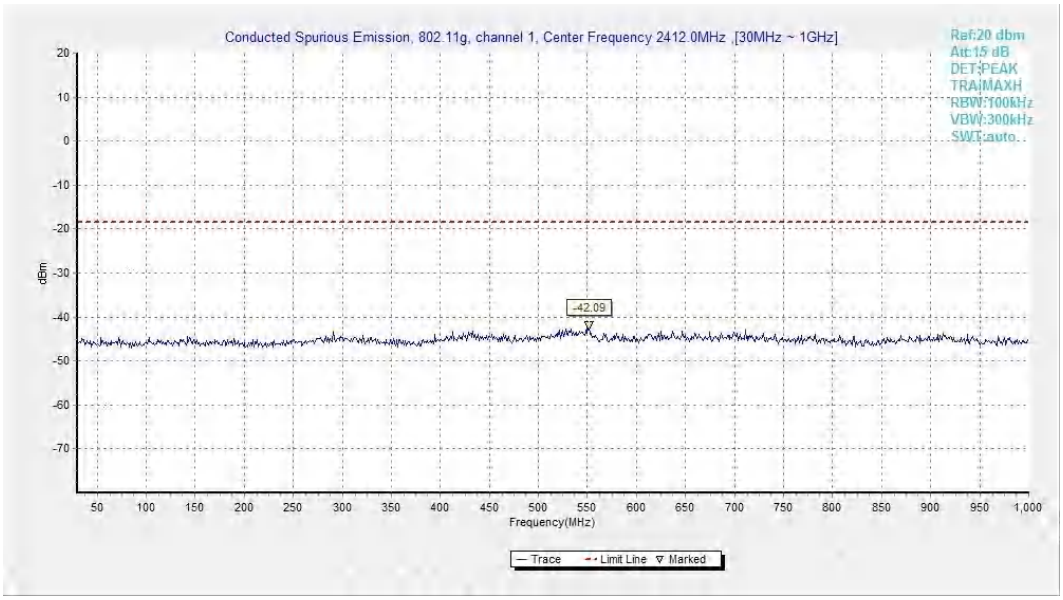


Fig.A.6.1.26 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 30 MHz-1 GHz)

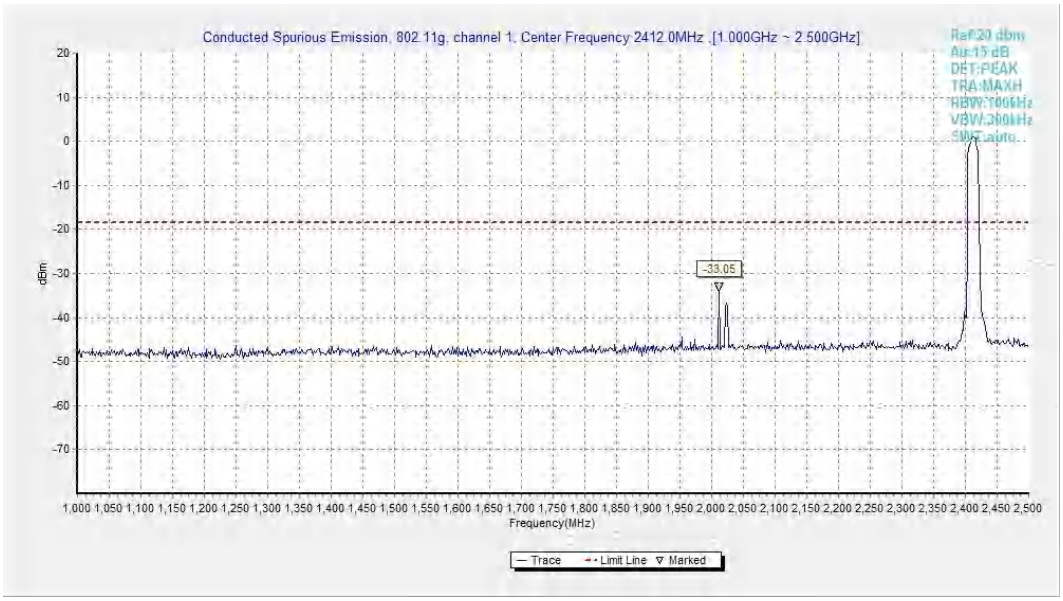


Fig.A.6.1.27 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 1 GHz-2.5 GHz)

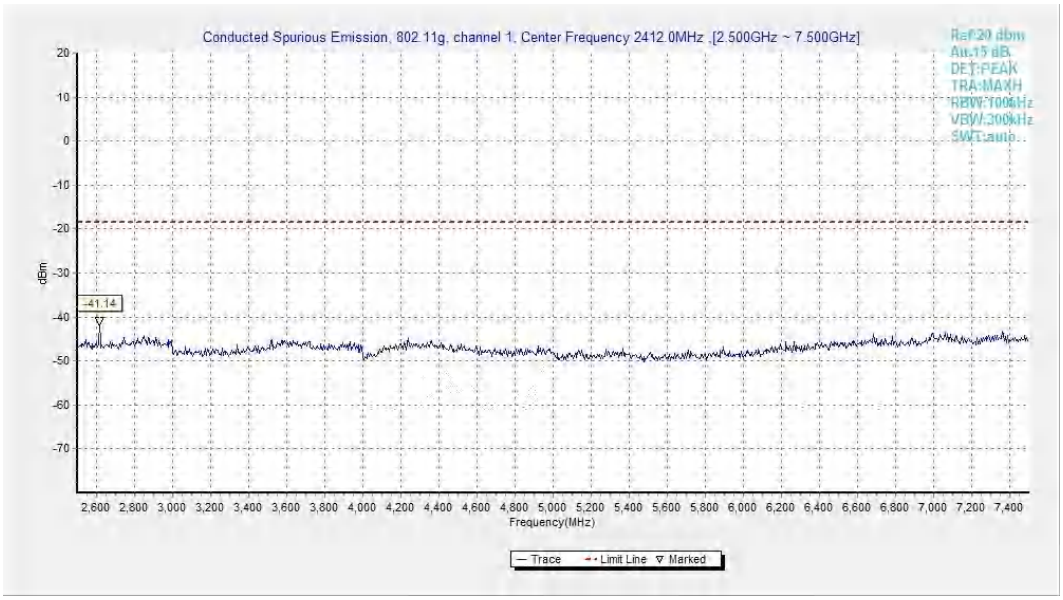


Fig.A.6.1.28 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 2.5 GHz-7.5 GHz)

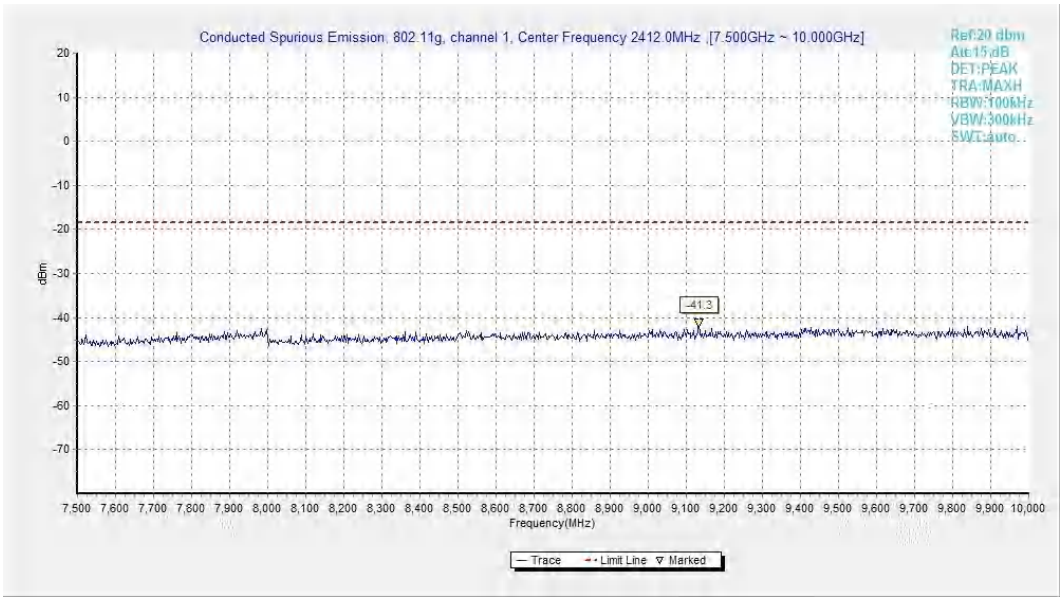


Fig.A.6.1.29 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 7.5 GHz-10 GHz)

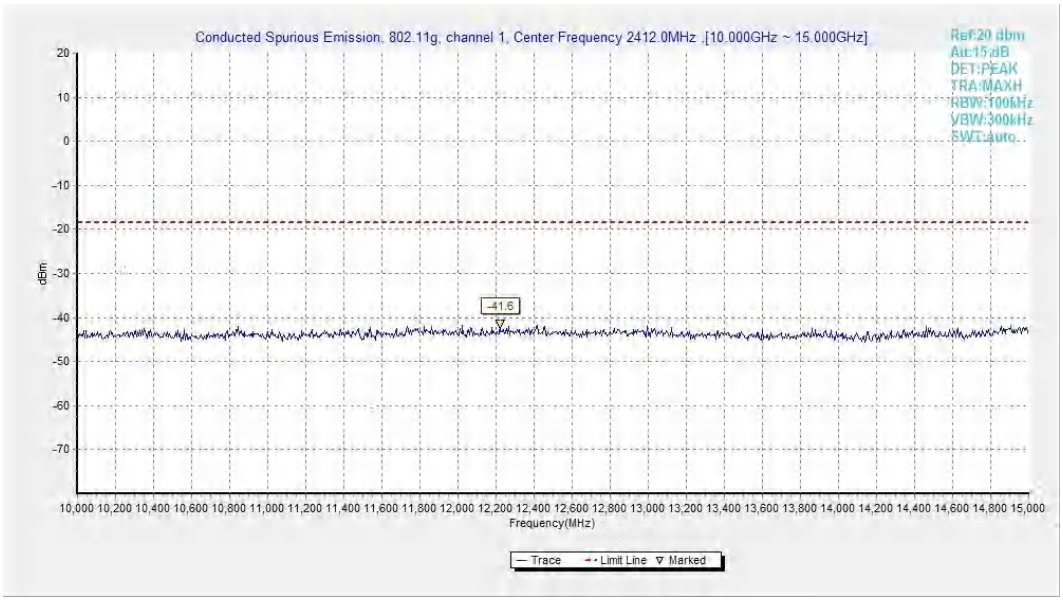


Fig.A.6.1.30 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 10 GHz-15 GHz)

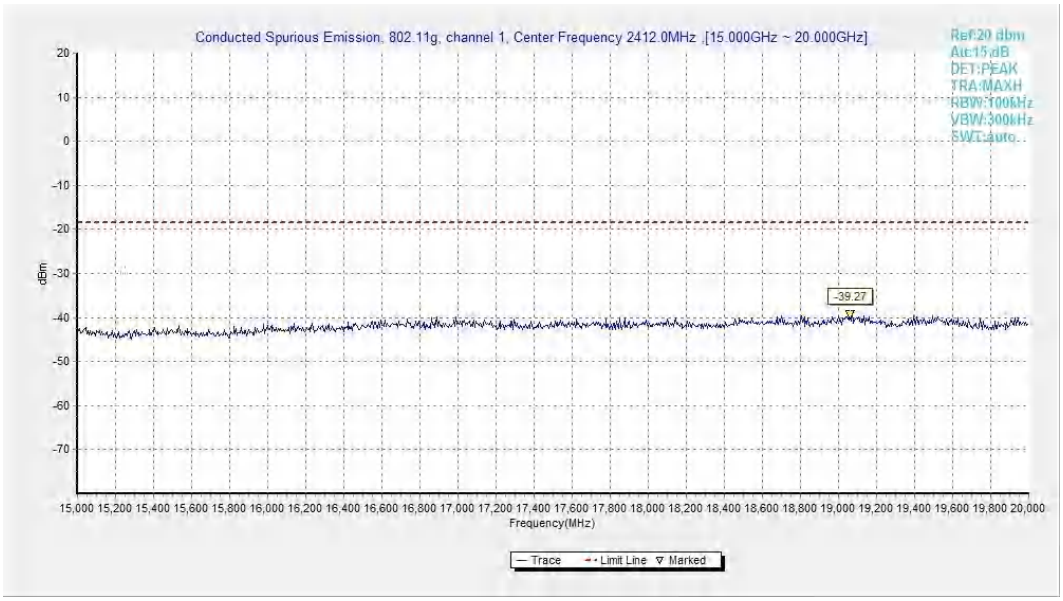


Fig.A.6.1.31 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 15 GHz-20 GHz)

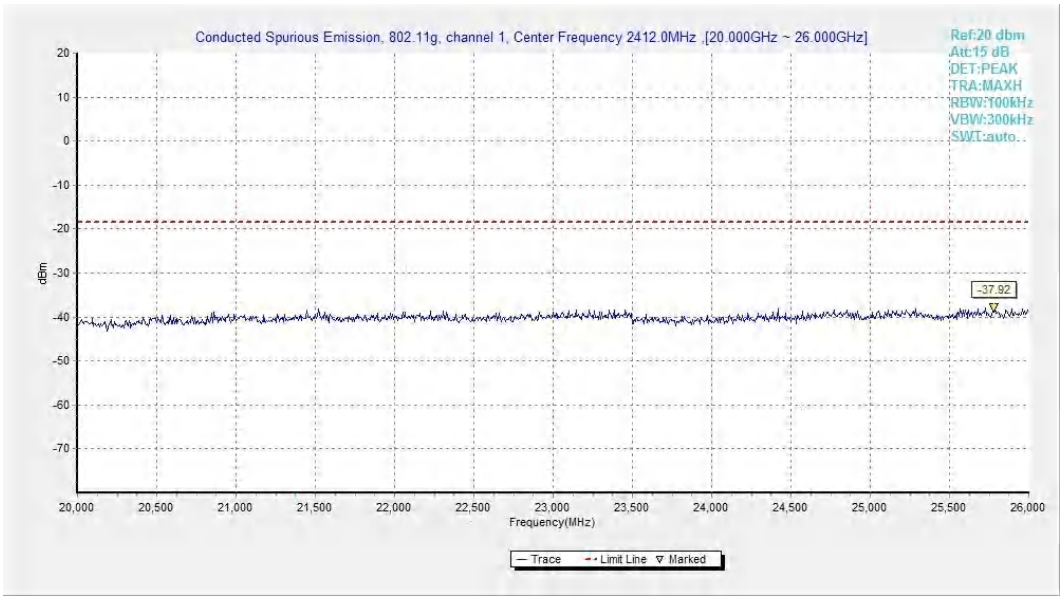


Fig.A.6.1.32 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 20 GHz-26 GHz)

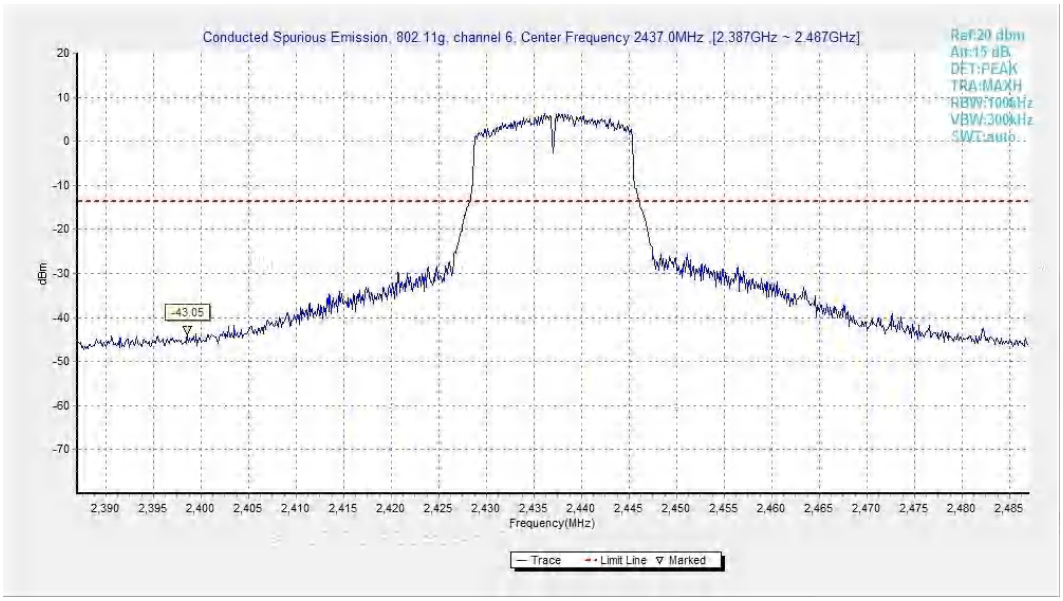


Fig.A.6.1.33 Transmitter Spurious Emission - Conducted (802.11g, Ch6, Center Frequency)

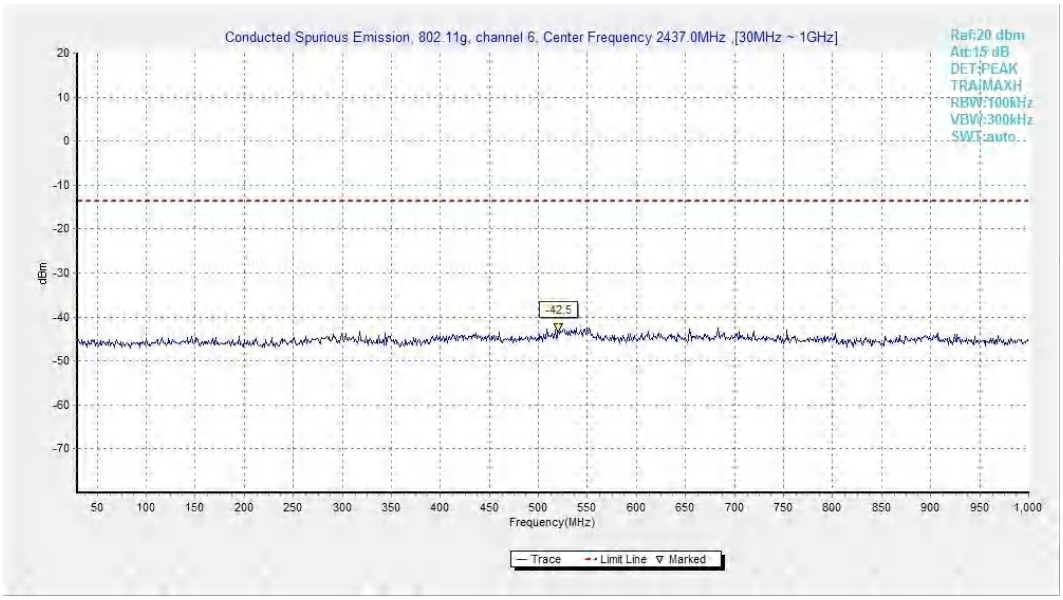


Fig.A.6.1.34 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 30 MHz-1 GHz)

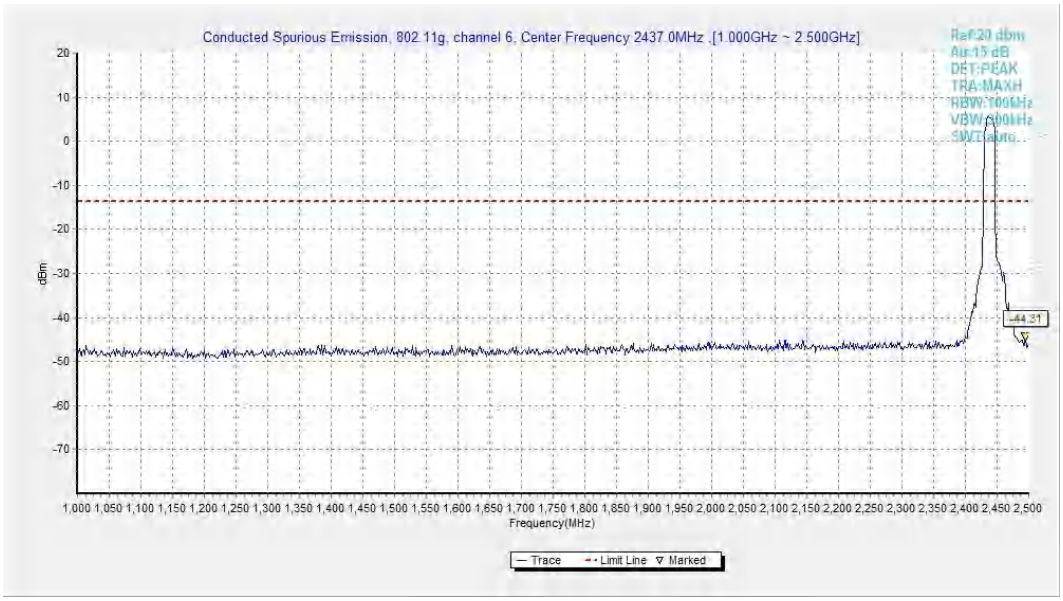


Fig.A.6.1.35 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 1 GHz-2.5 GHz)

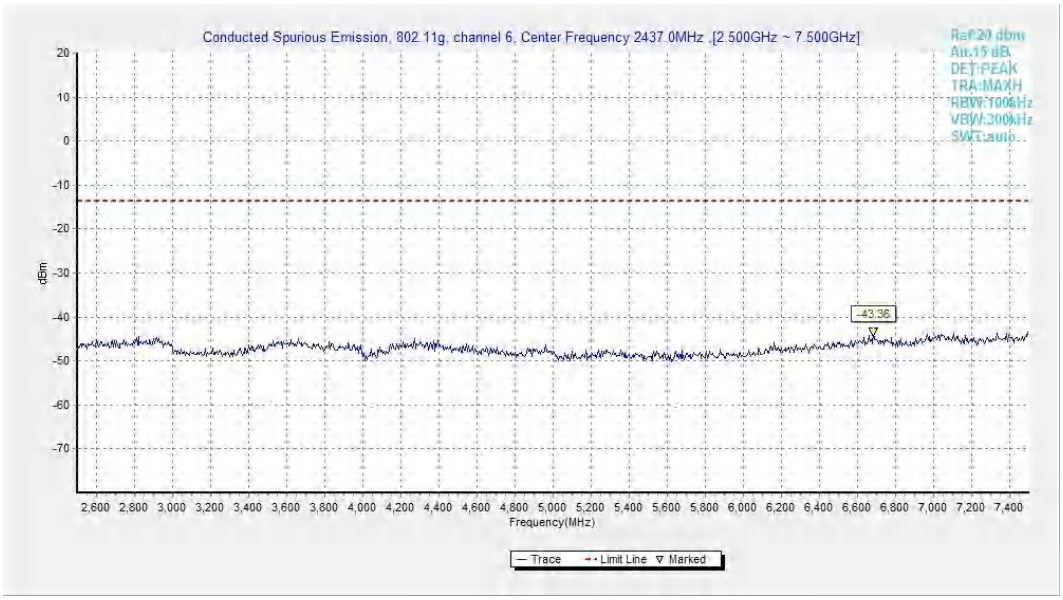


Fig.A.6.1.36 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 2.5 GHz-7.5 GHz)

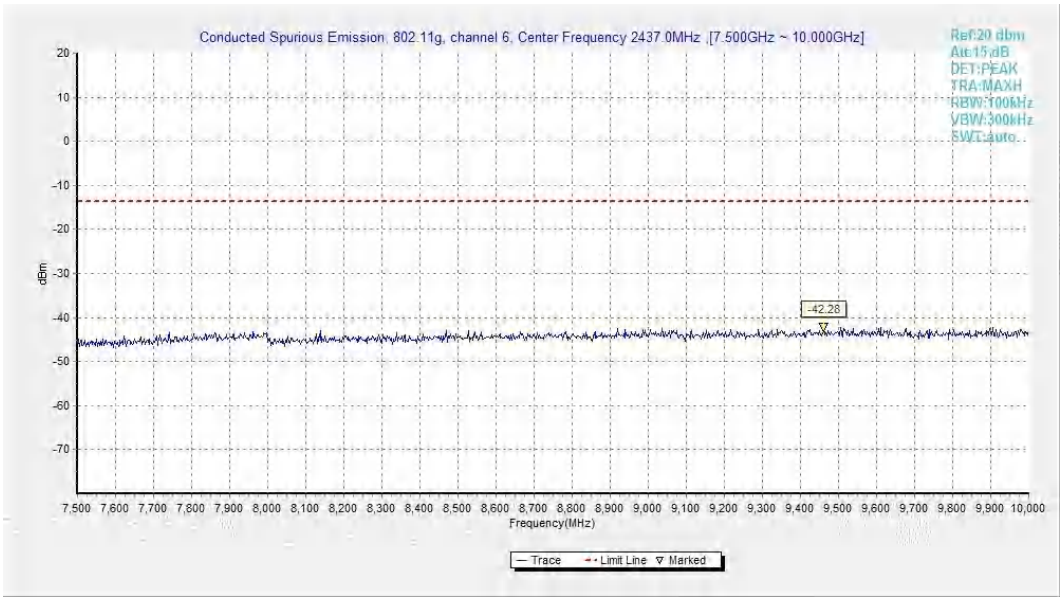


Fig.A.6.1.37 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 7.5 GHz-10 GHz)

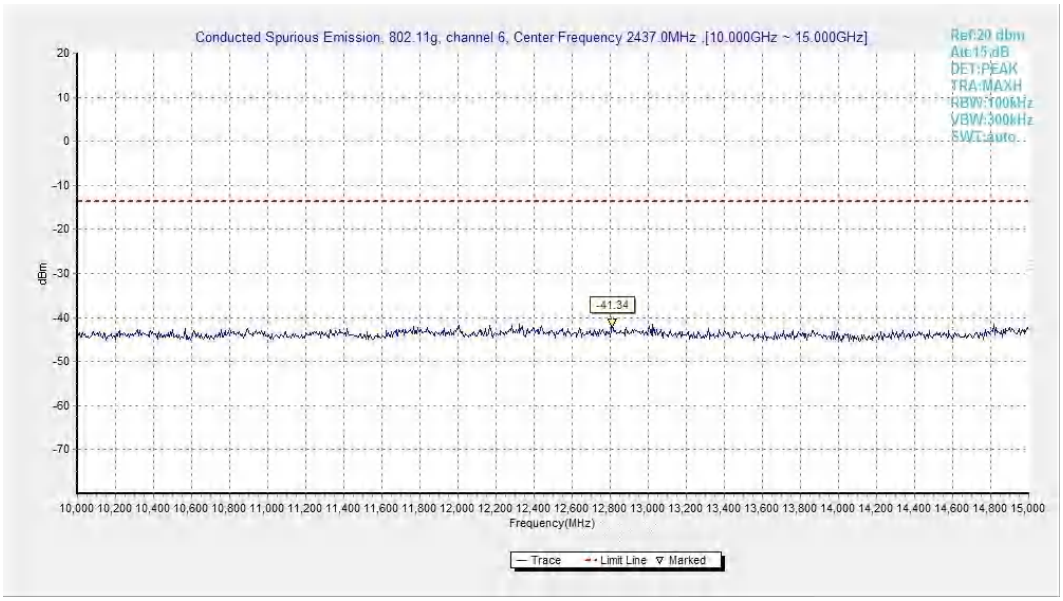


Fig.A.6.1.38 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 10 GHz-15 GHz)

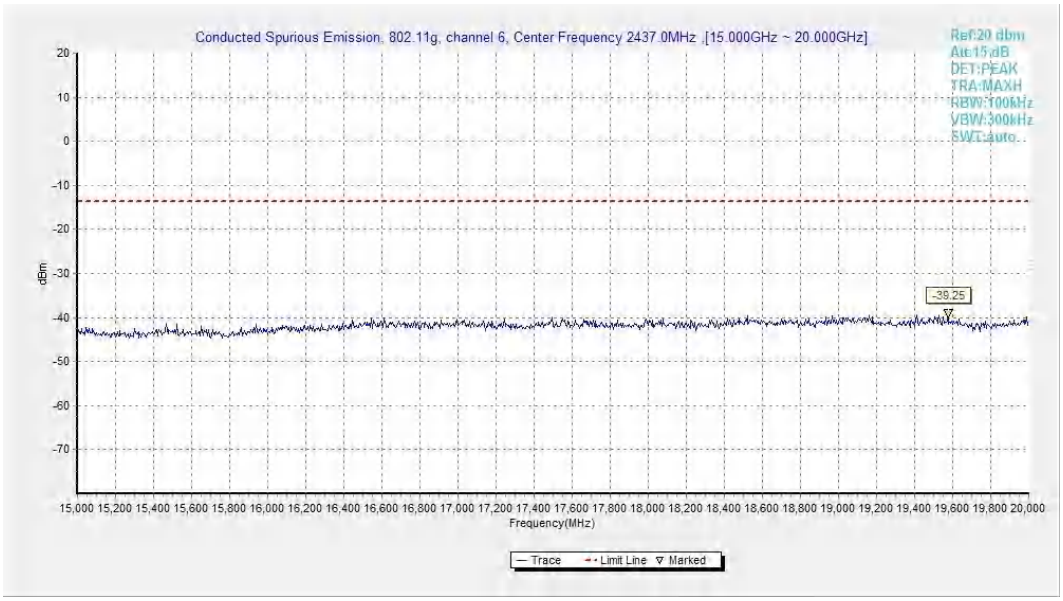


Fig.A.6.1.39 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 15 GHz-20 GHz)

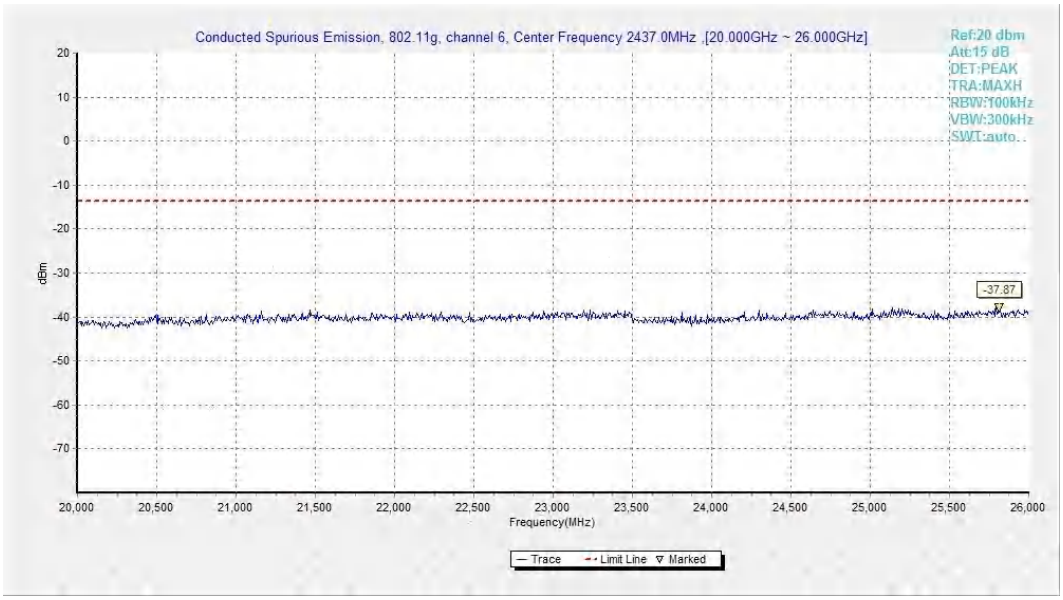


Fig.A.6.1.40 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 20 GHz-26 GHz)

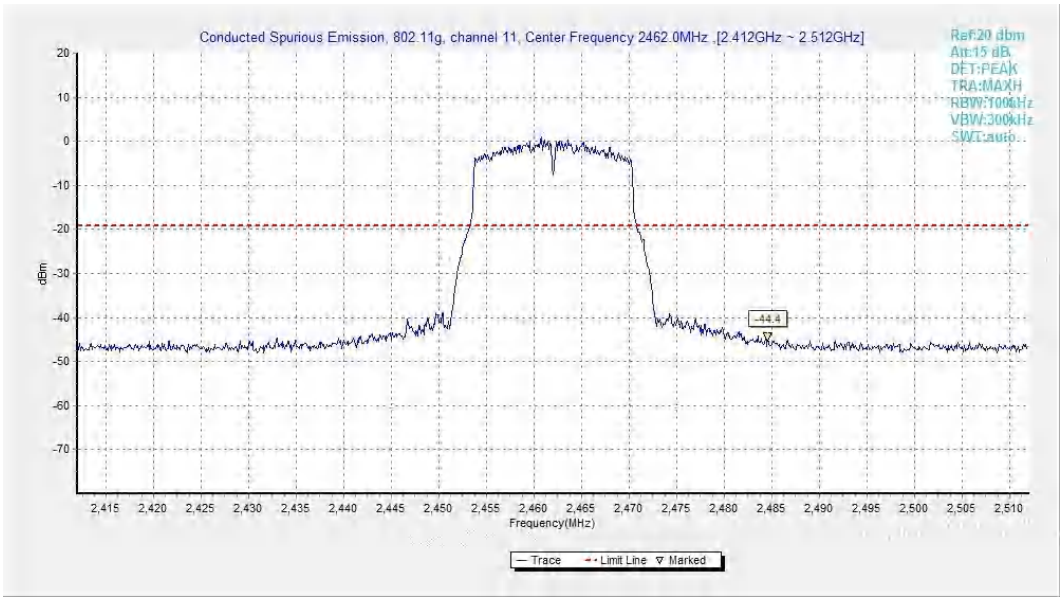


Fig.A.6.1.41 Transmitter Spurious Emission - Conducted (802.11g, Ch11, Center Frequency)

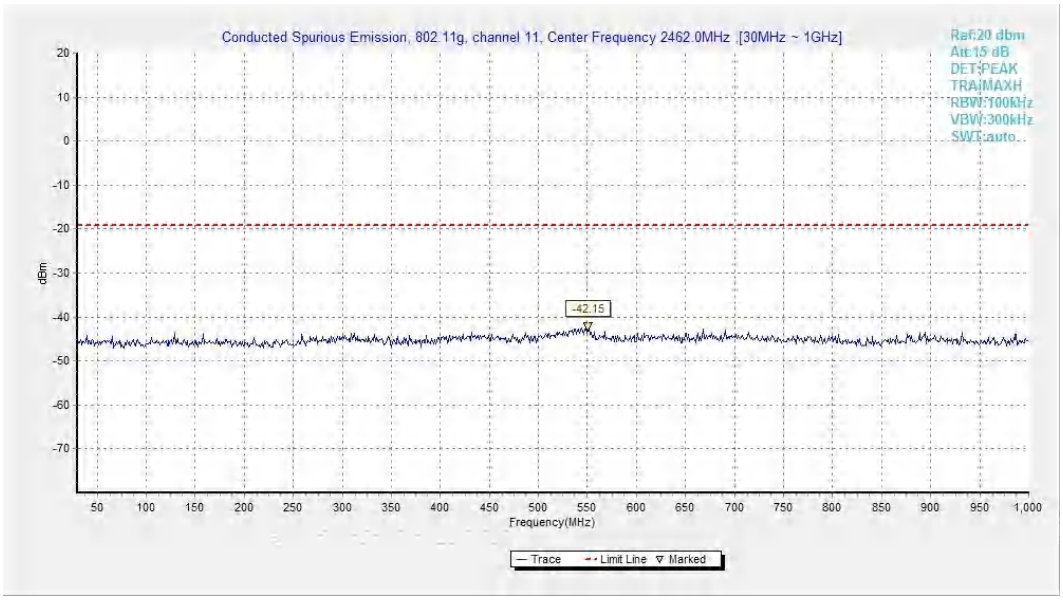


Fig.A.6.1.42 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 30 MHz-1 GHz)

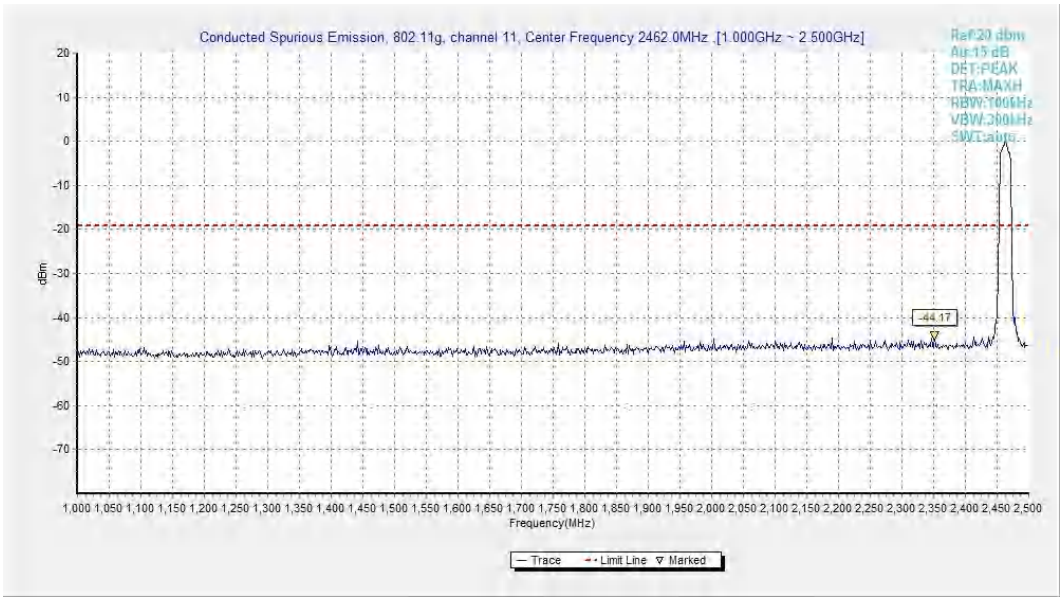


Fig.A.6.1.43 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 1 GHz-2.5 GHz)

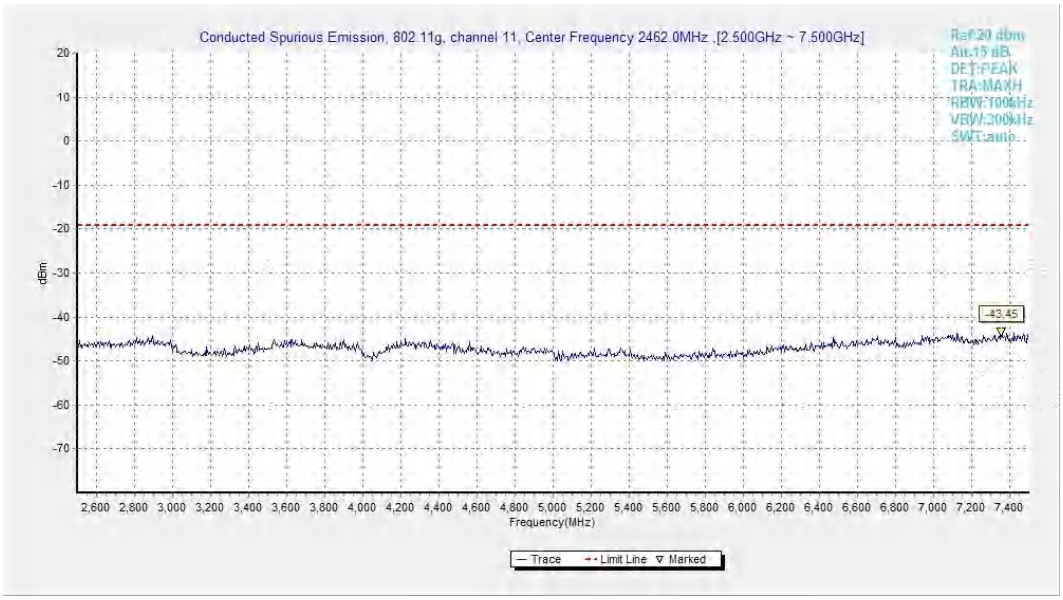


Fig.A.6.1.44 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 2.5 GHz-7.5 GHz)

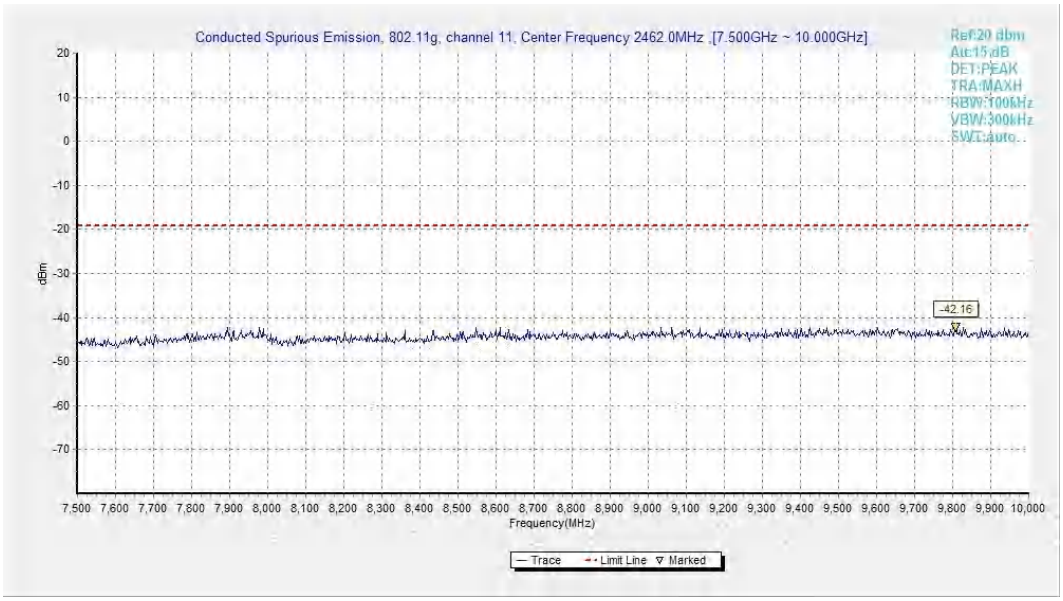


Fig.A.6.1.45 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 7.5 GHz-10 GHz)

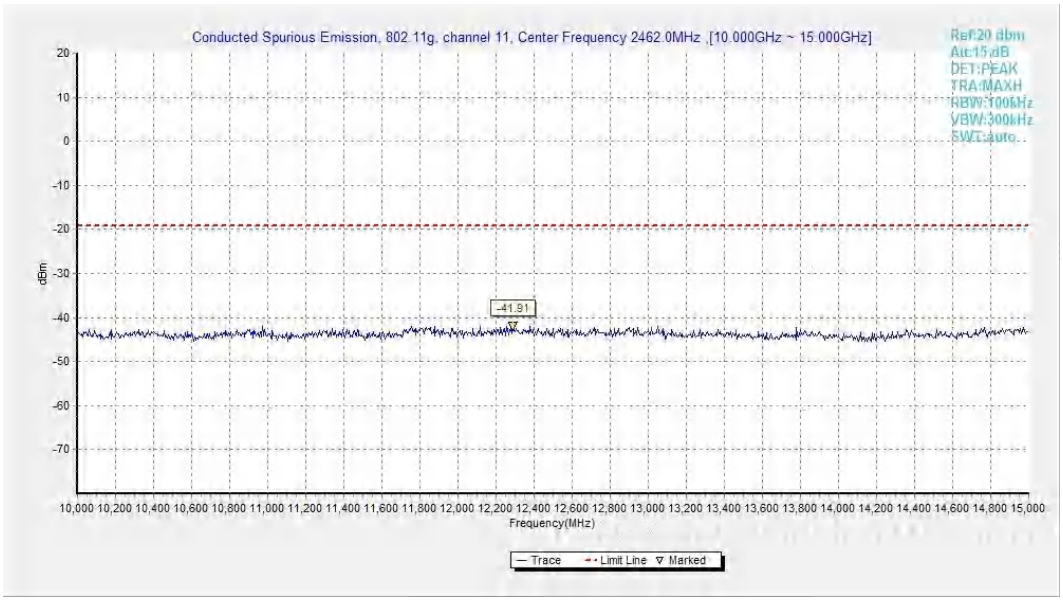


Fig.A.6.1.46 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 10 GHz-15 GHz)

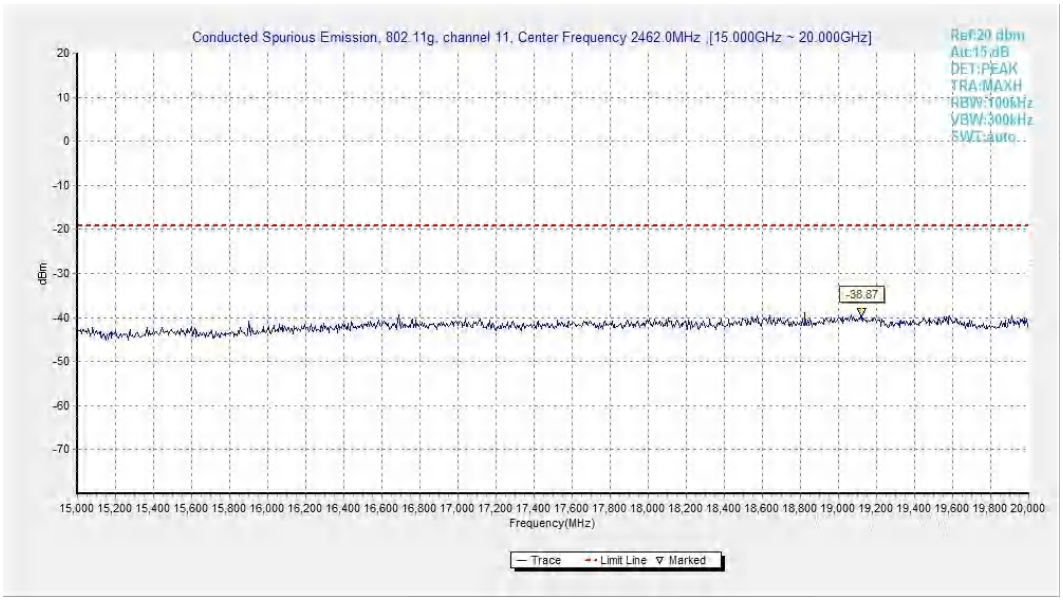


Fig.A.6.1.47 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 15 GHz-20 GHz)

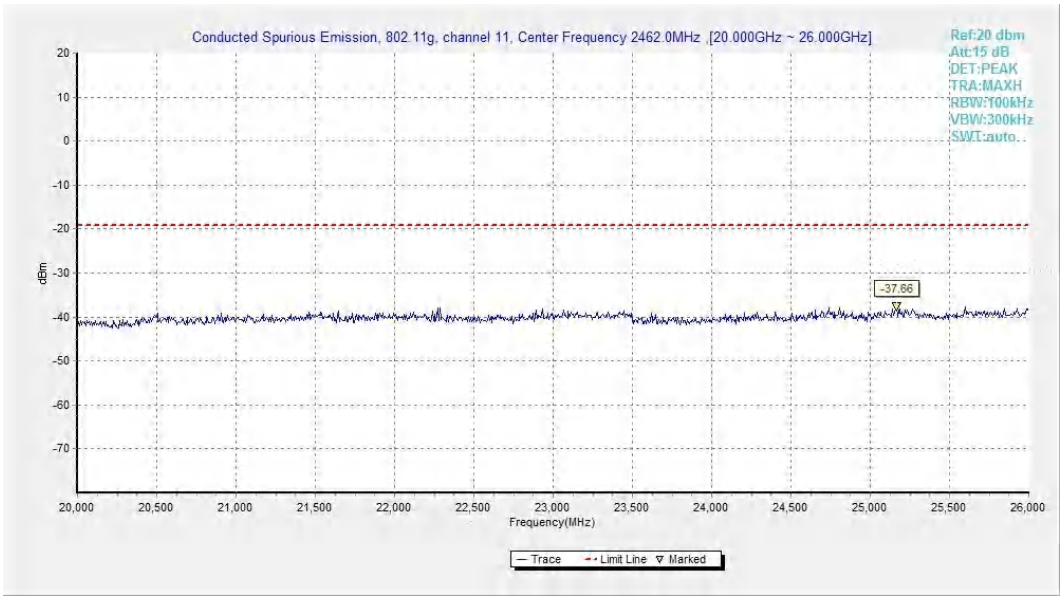


Fig.A.6.1.48 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 20 GHz-26 GHz)

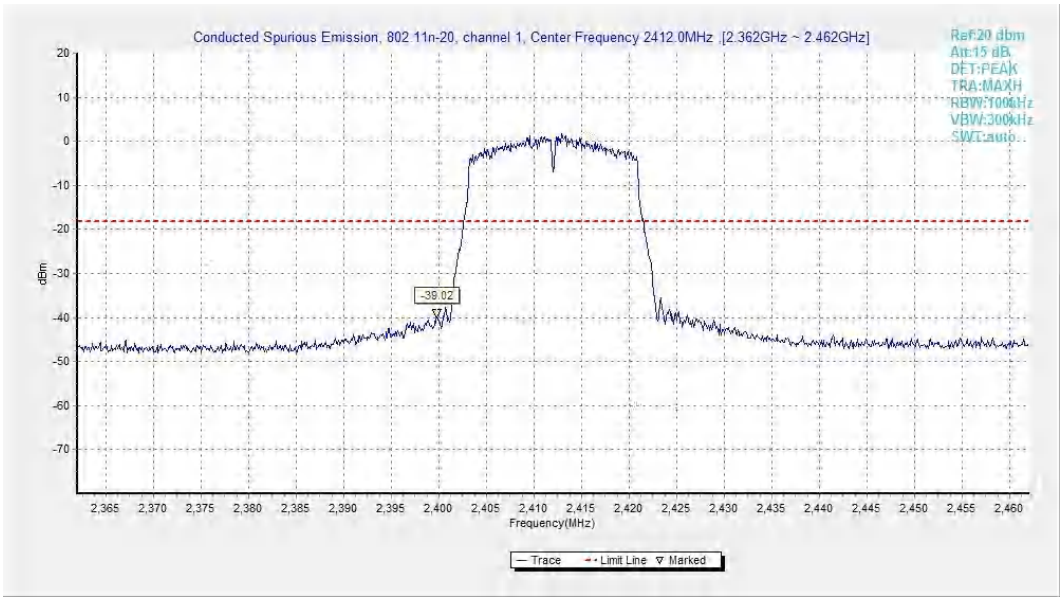


Fig.A.6.1.49 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, Center Frequency)

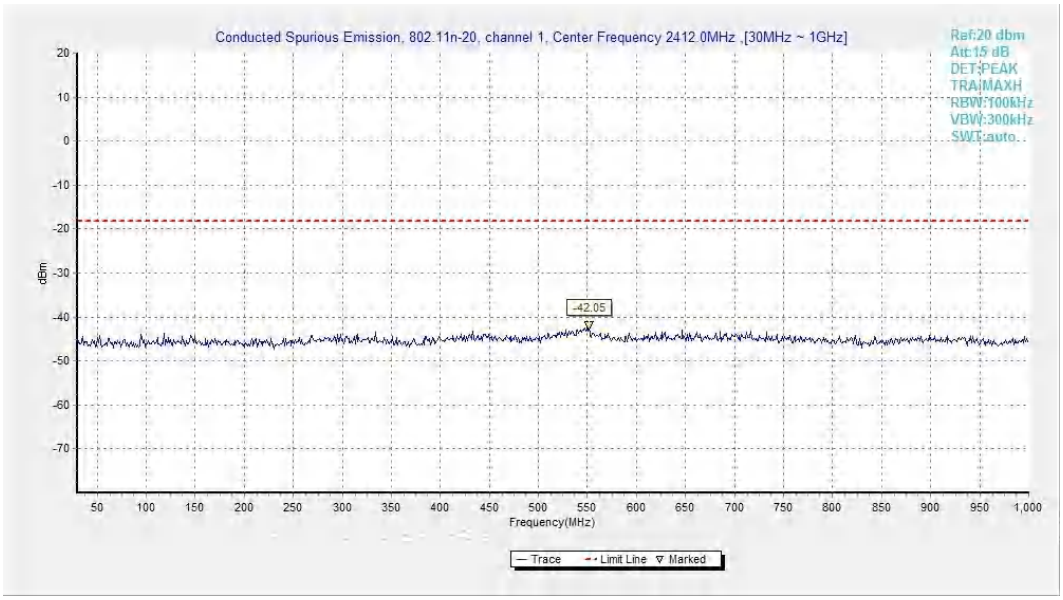


Fig.A.6.1.50 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 30 MHz-1 GHz)

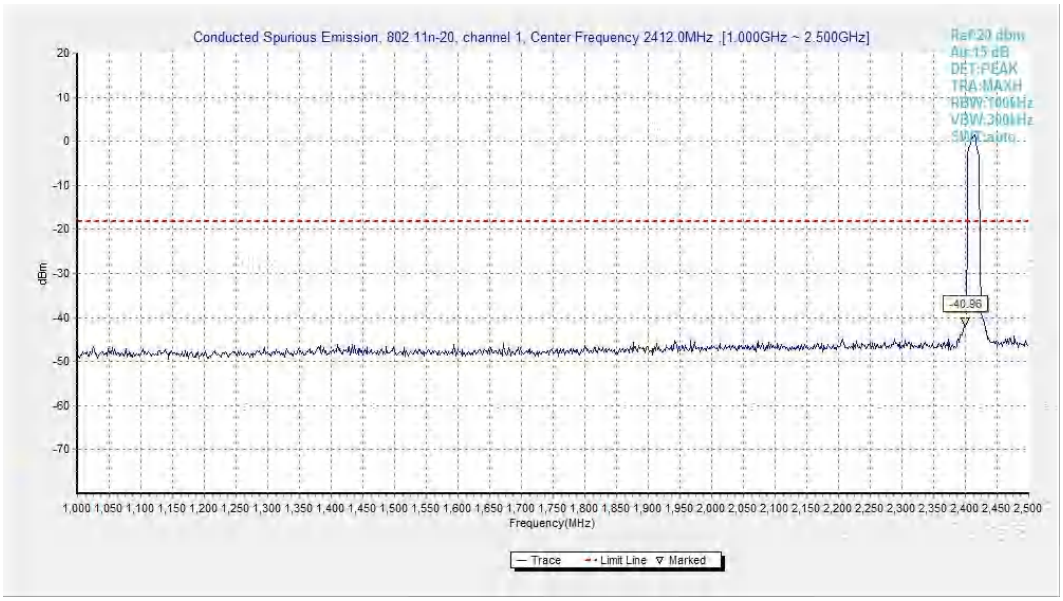


Fig.A.6.1.51 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 1 GHz-2.5 GHz)

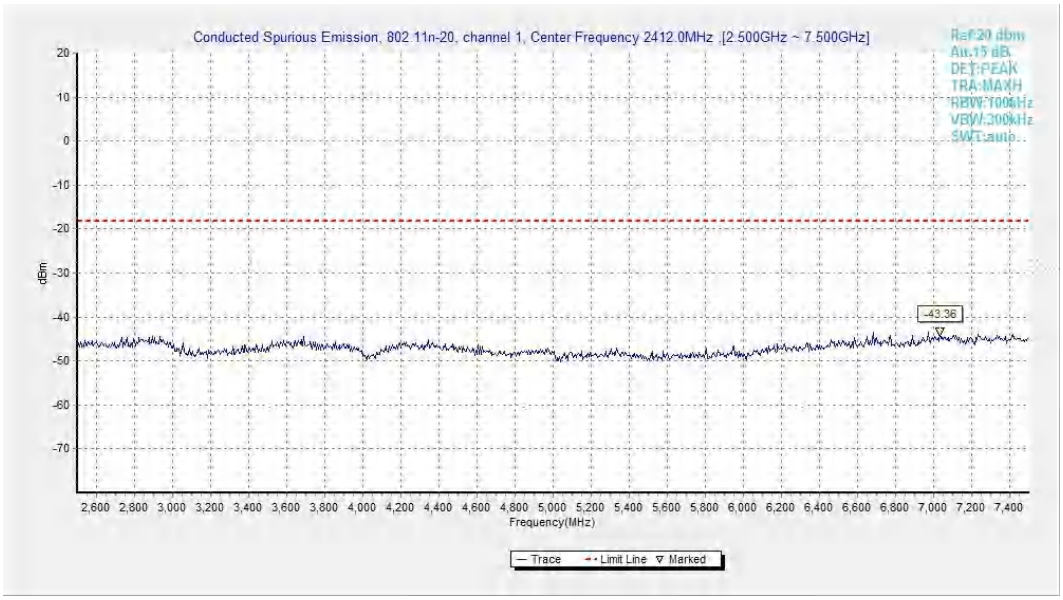


Fig.A.6.1.52 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 2.5 GHz-7.5 GHz)

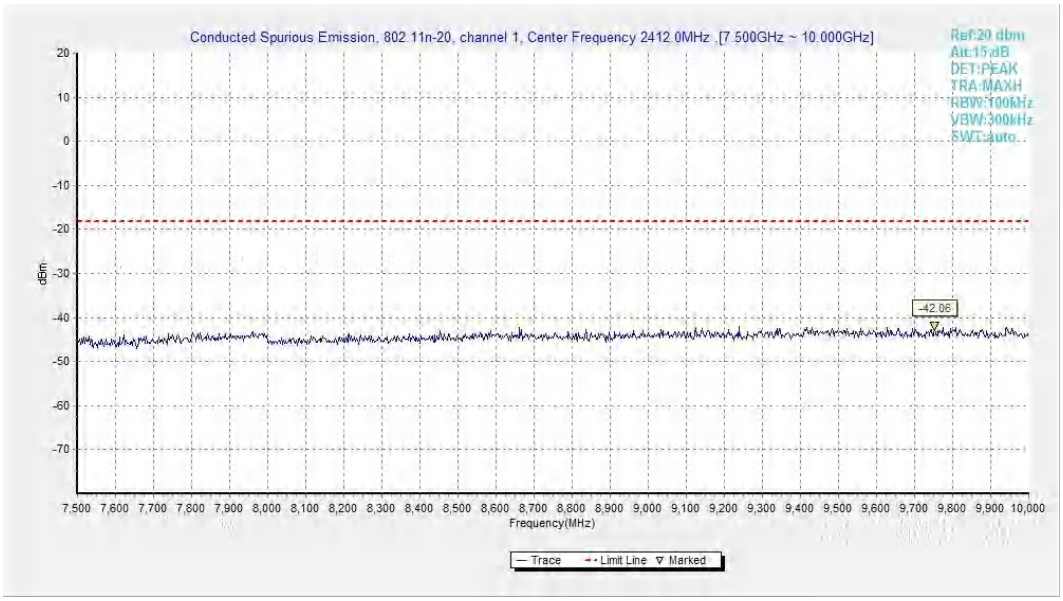


Fig.A.6.1.53 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 7.5 GHz-10 GHz)

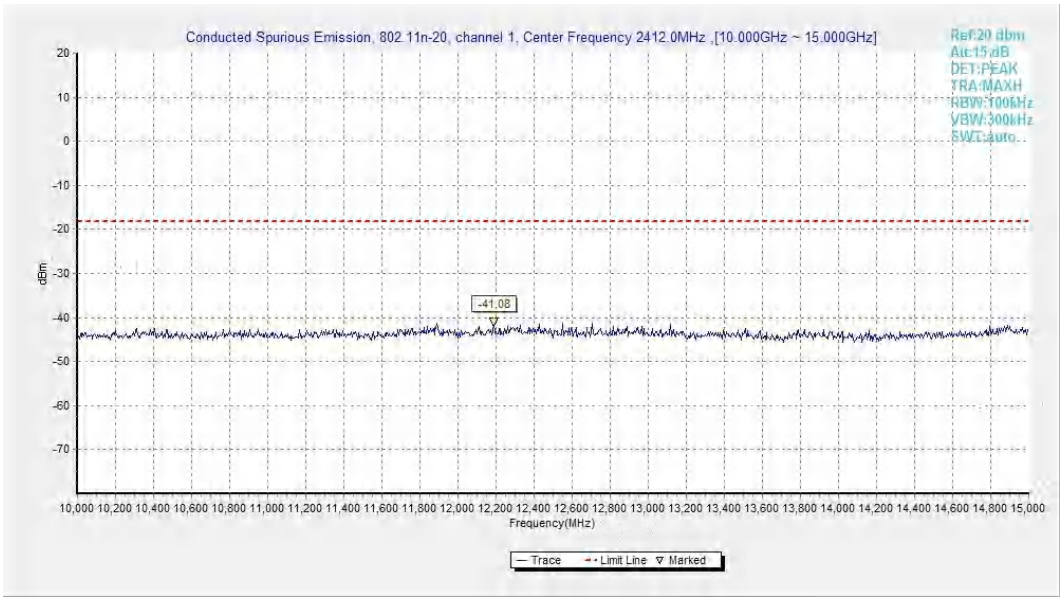


Fig.A.6.1.54 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 10 GHz-15 GHz)

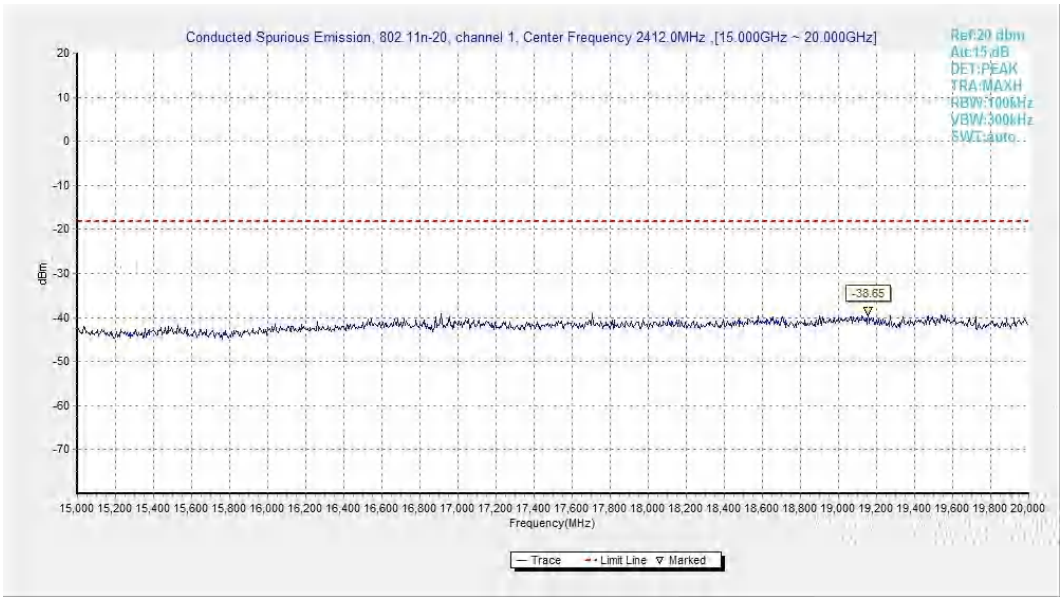


Fig.A.6.1.55 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 15 GHz-20 GHz)

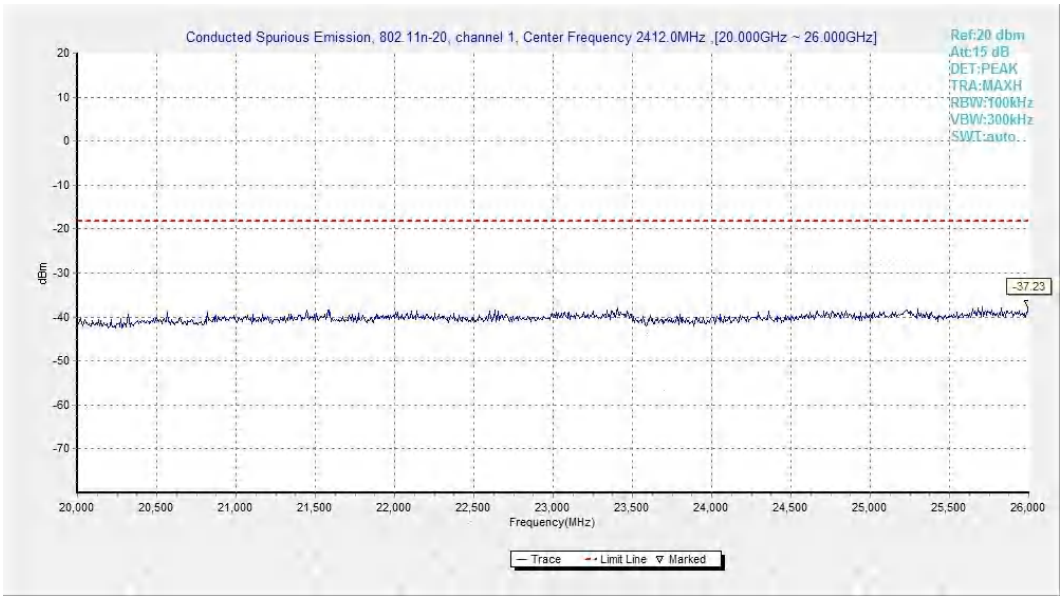


Fig.A.6.1.56 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 20 GHz-26 GHz)

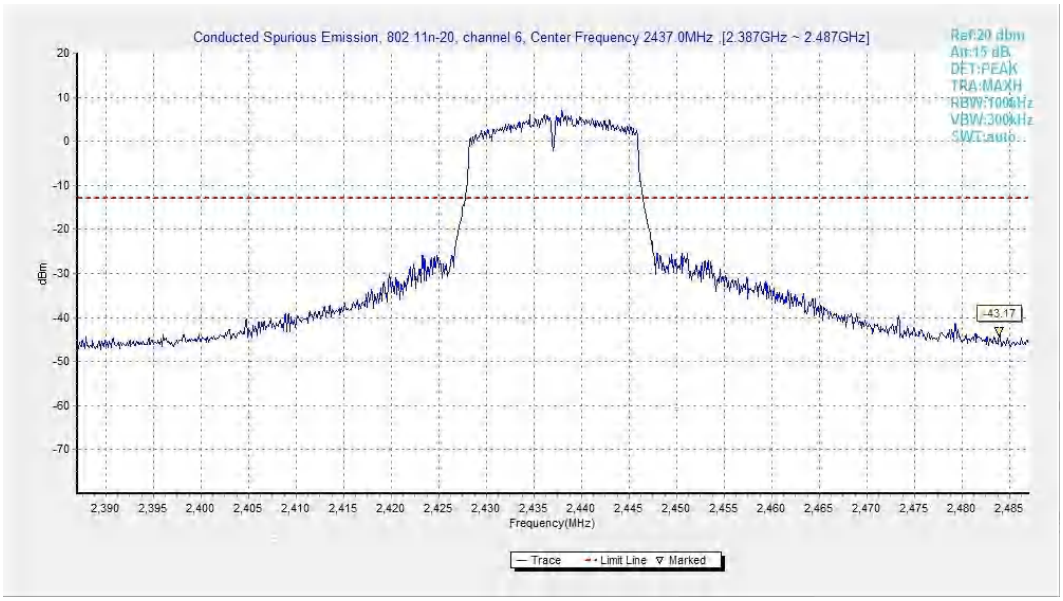


Fig.A.6.1.57 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, Center Frequency)

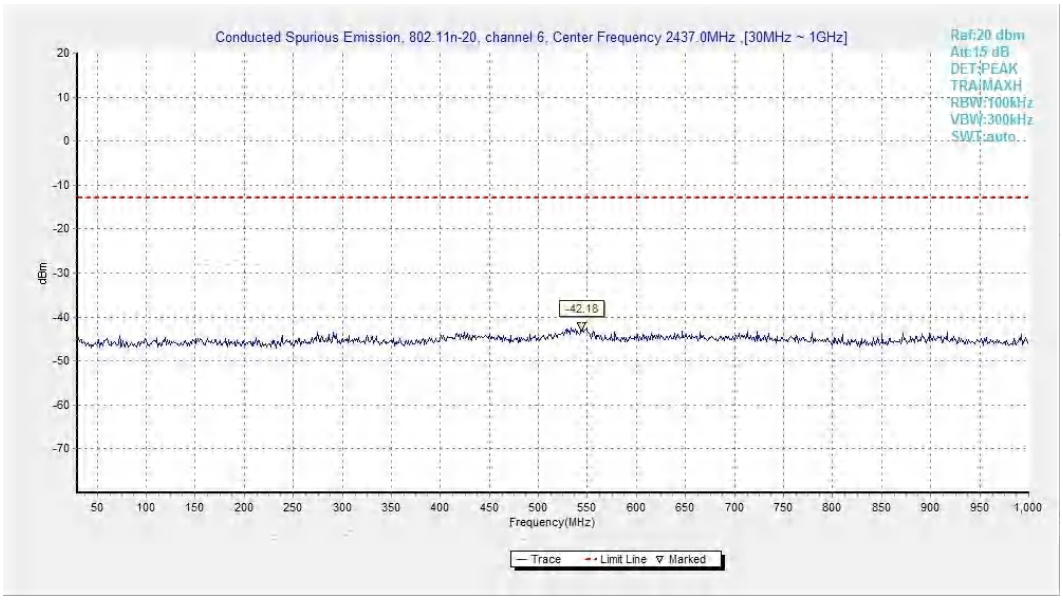


Fig.A.6.1.58 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 30 MHz-1 GHz)

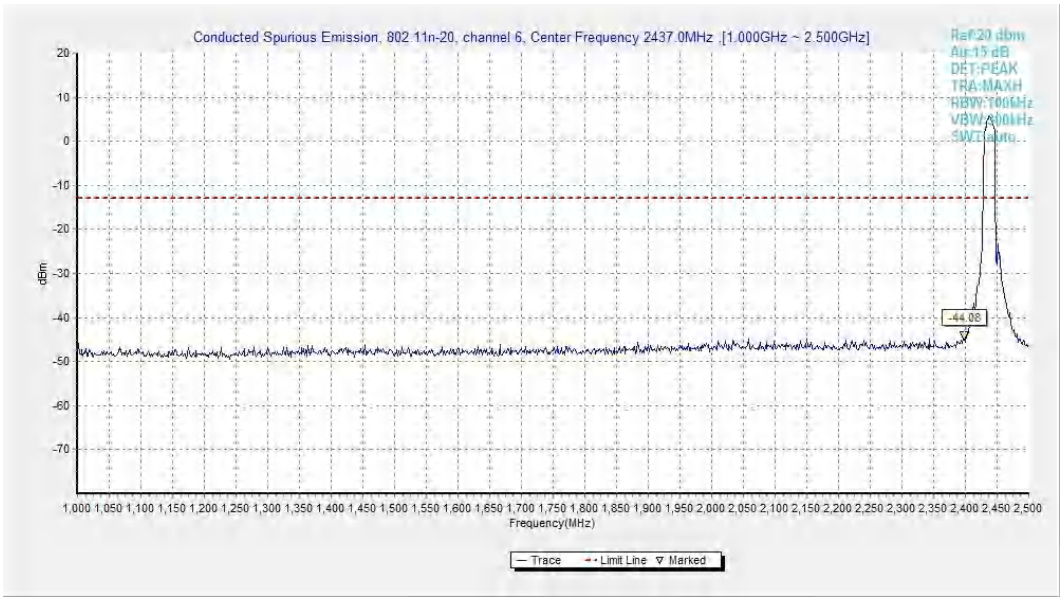


Fig.A.6.1.59 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 1 GHz-2.5 GHz)

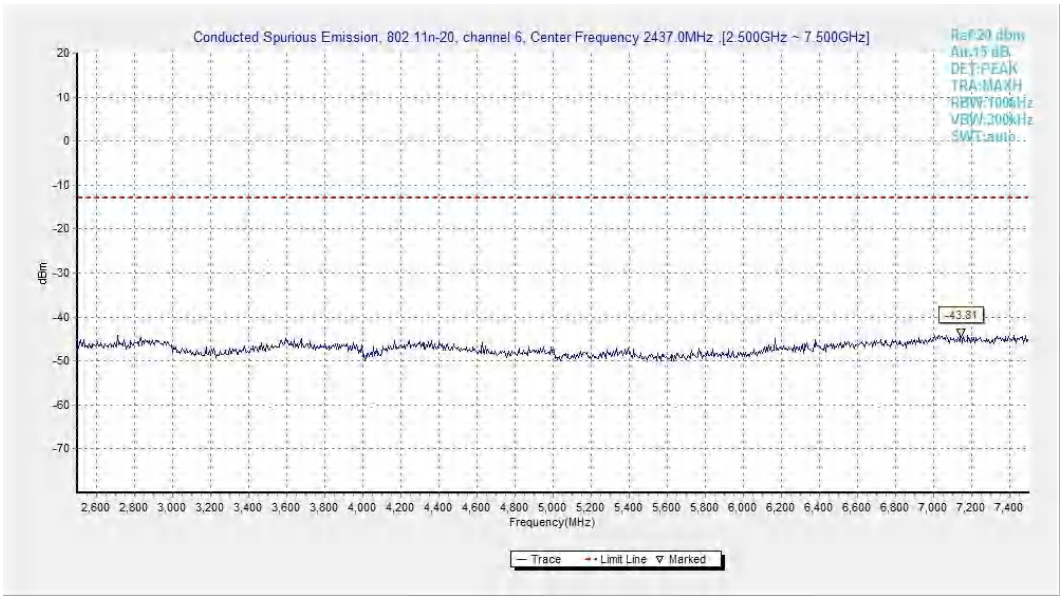


Fig.A.6.1.60 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 2.5 GHz-7.5 GHz)

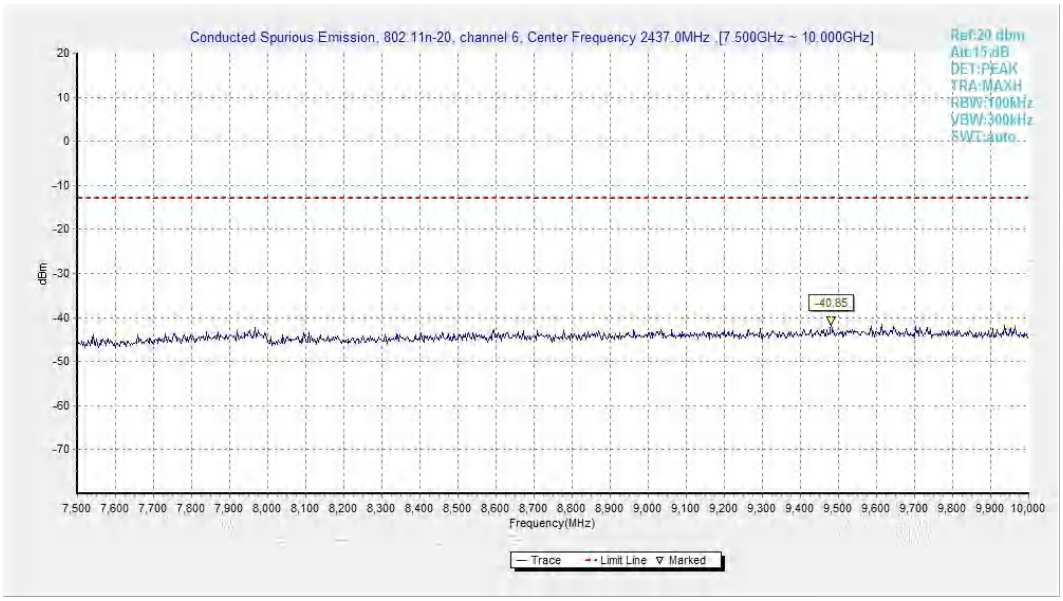


Fig.A.6.1.61 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 7.5 GHz-10 GHz)

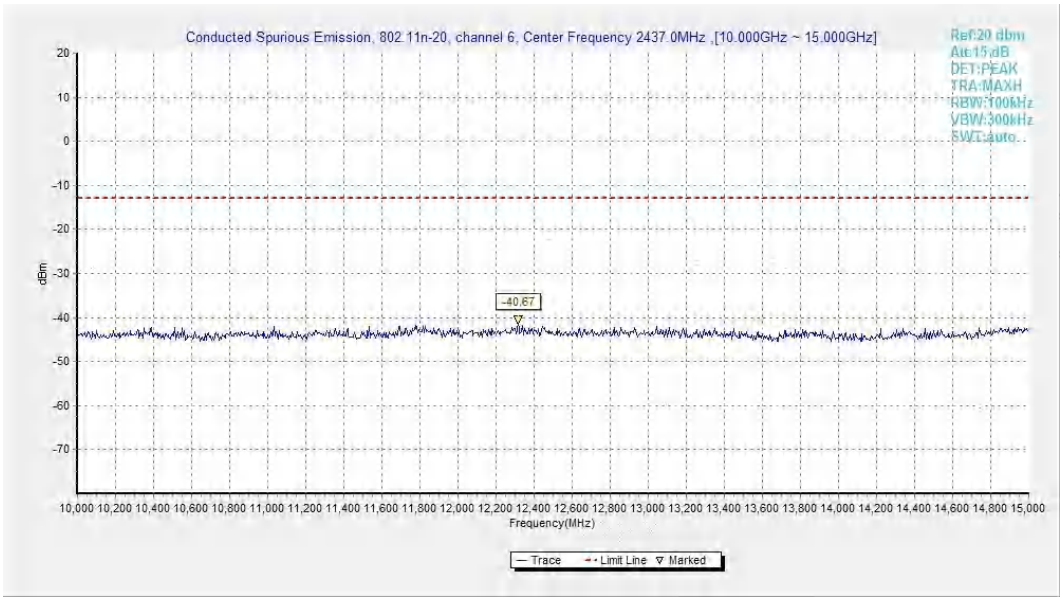


Fig.A.6.1.62 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 10 GHz-15 GHz)

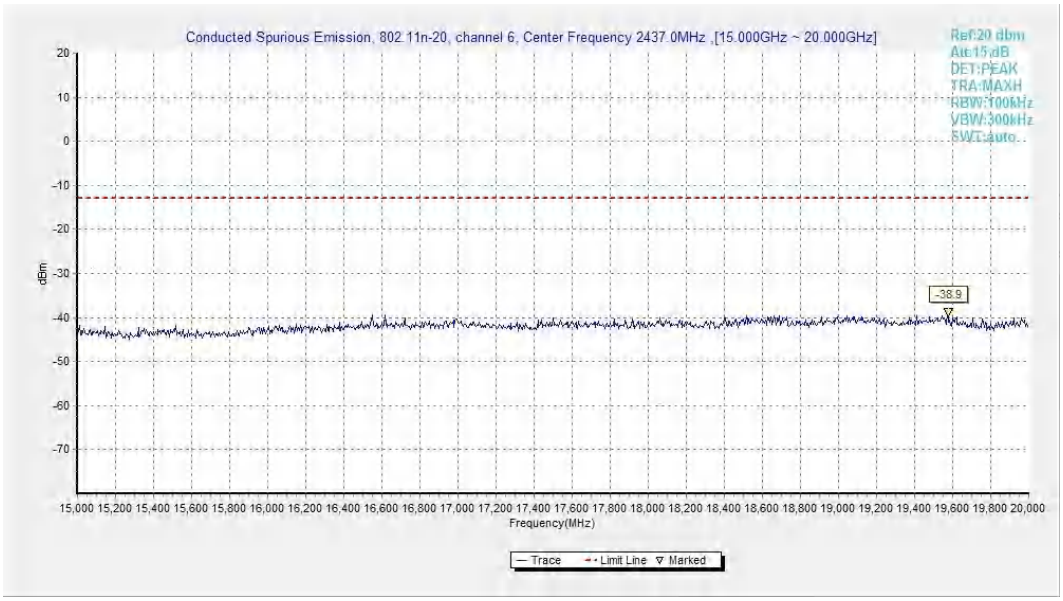


Fig.A.6.1.63 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 15 GHz-20 GHz)

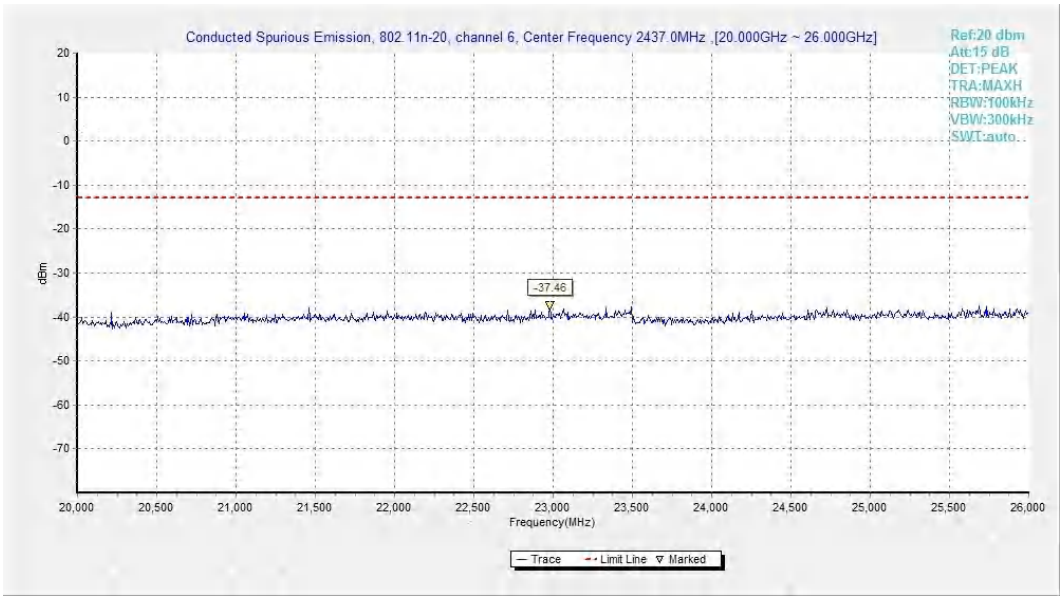


Fig.A.6.1.64 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 20 GHz-26 GHz)

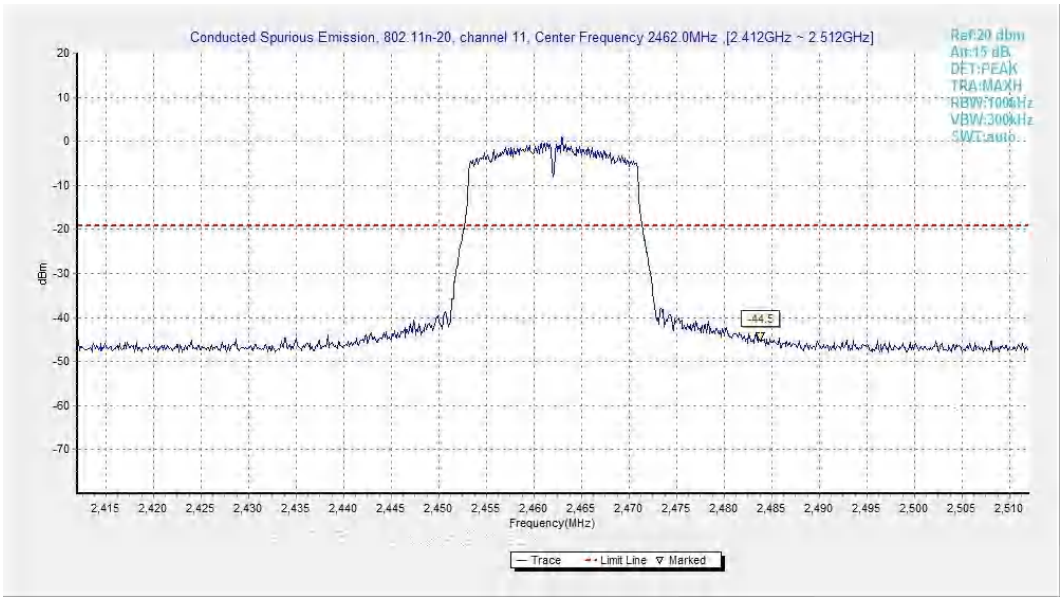


Fig.A.6.1.65 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, Center Frequency)

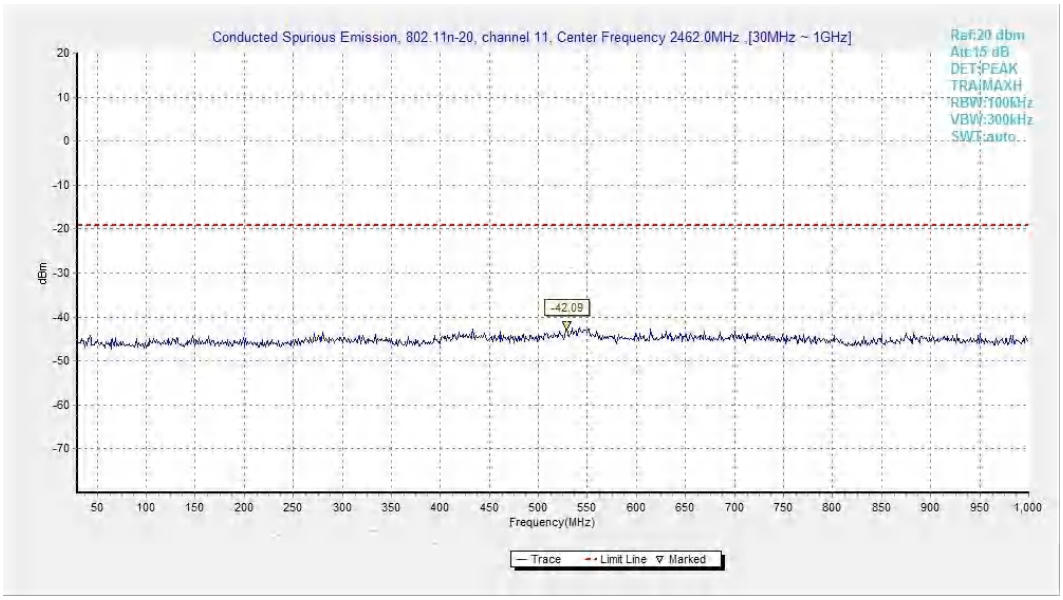


Fig.A.6.1.66 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 30 MHz-1 GHz)

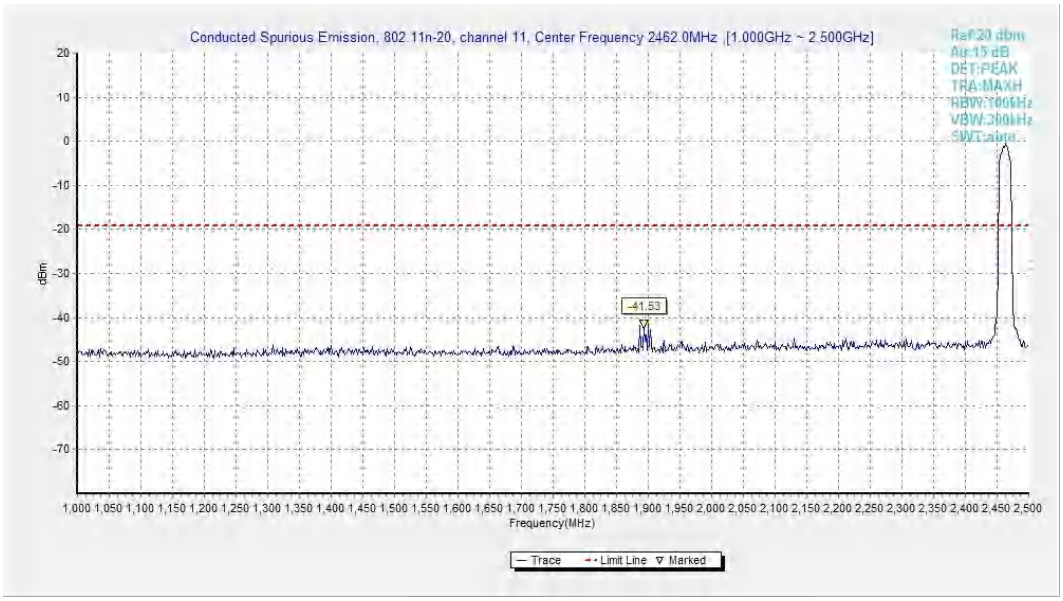


Fig.A.6.1.67 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 1 GHz-2.5 GHz)

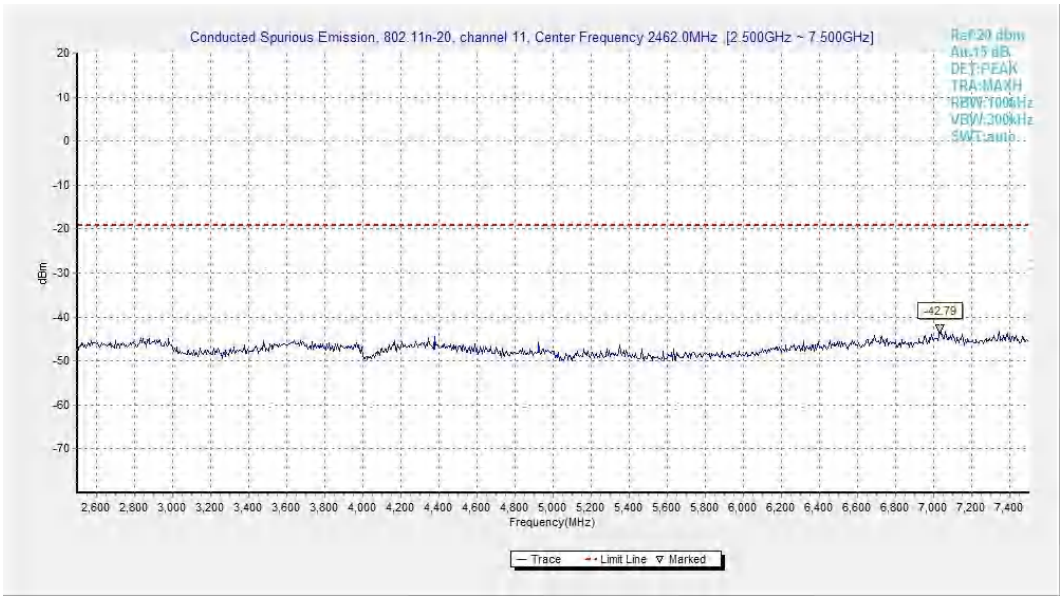


Fig.A.6.1.68 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 2.5 GHz-7.5 GHz)

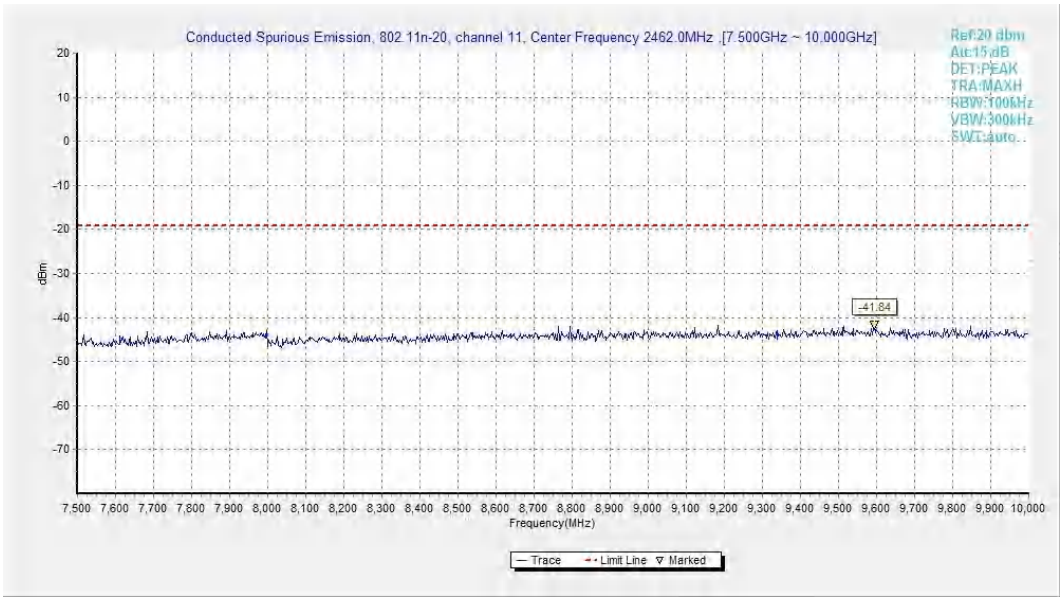


Fig.A.6.1.69 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 7.5 GHz-10 GHz)

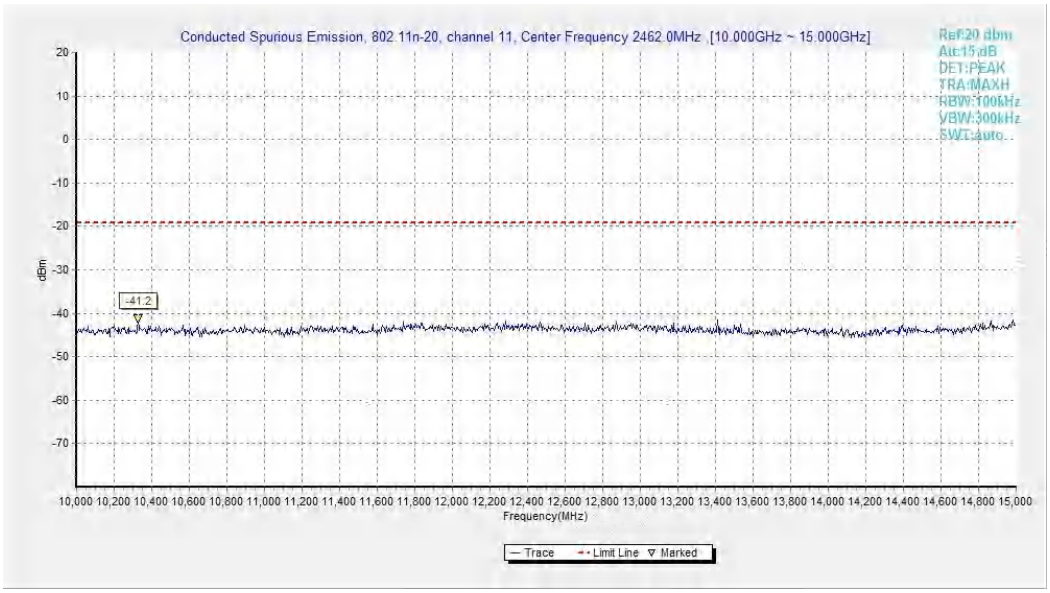


Fig.A.6.1.70 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 10 GHz-15 GHz)

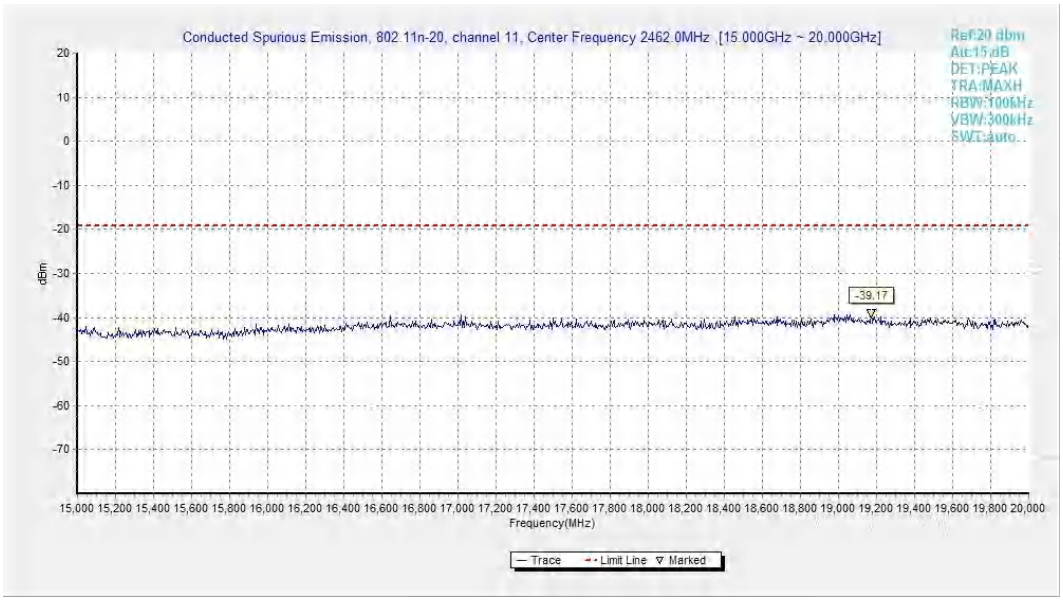


Fig.A.6.1.71 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 15 GHz-20 GHz)

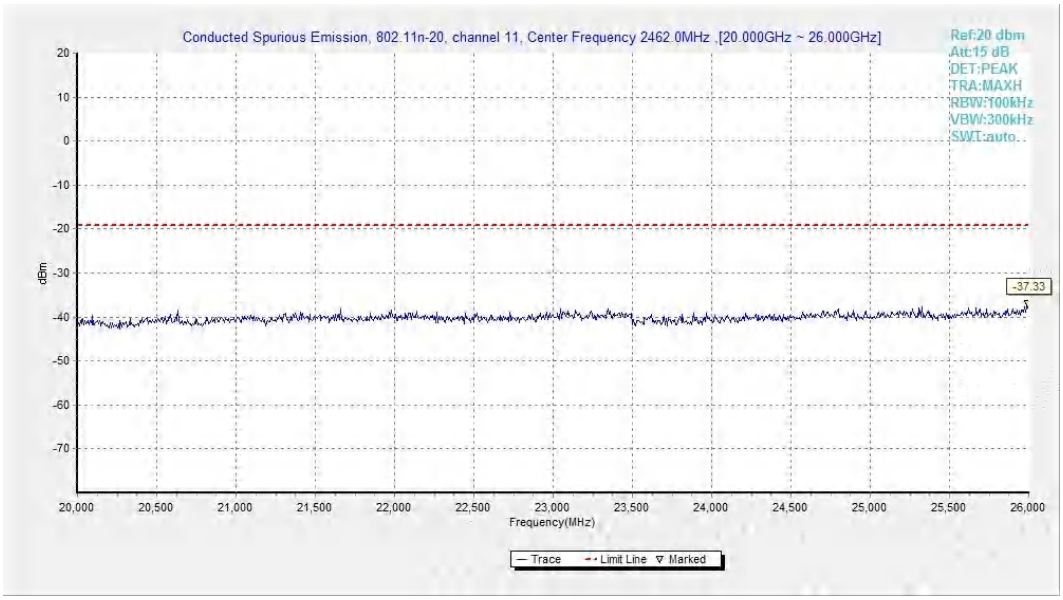


Fig.A.6.1.72 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 20 GHz-26 GHz)

A.6.2 Transmitter Spurious Emission - Radiated

Method of Measurement: See ANSI C63.10-2013-clause 6.4 &6.5 & 6.6

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

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) (see § 15.205(c)).

Limit in restricted band:

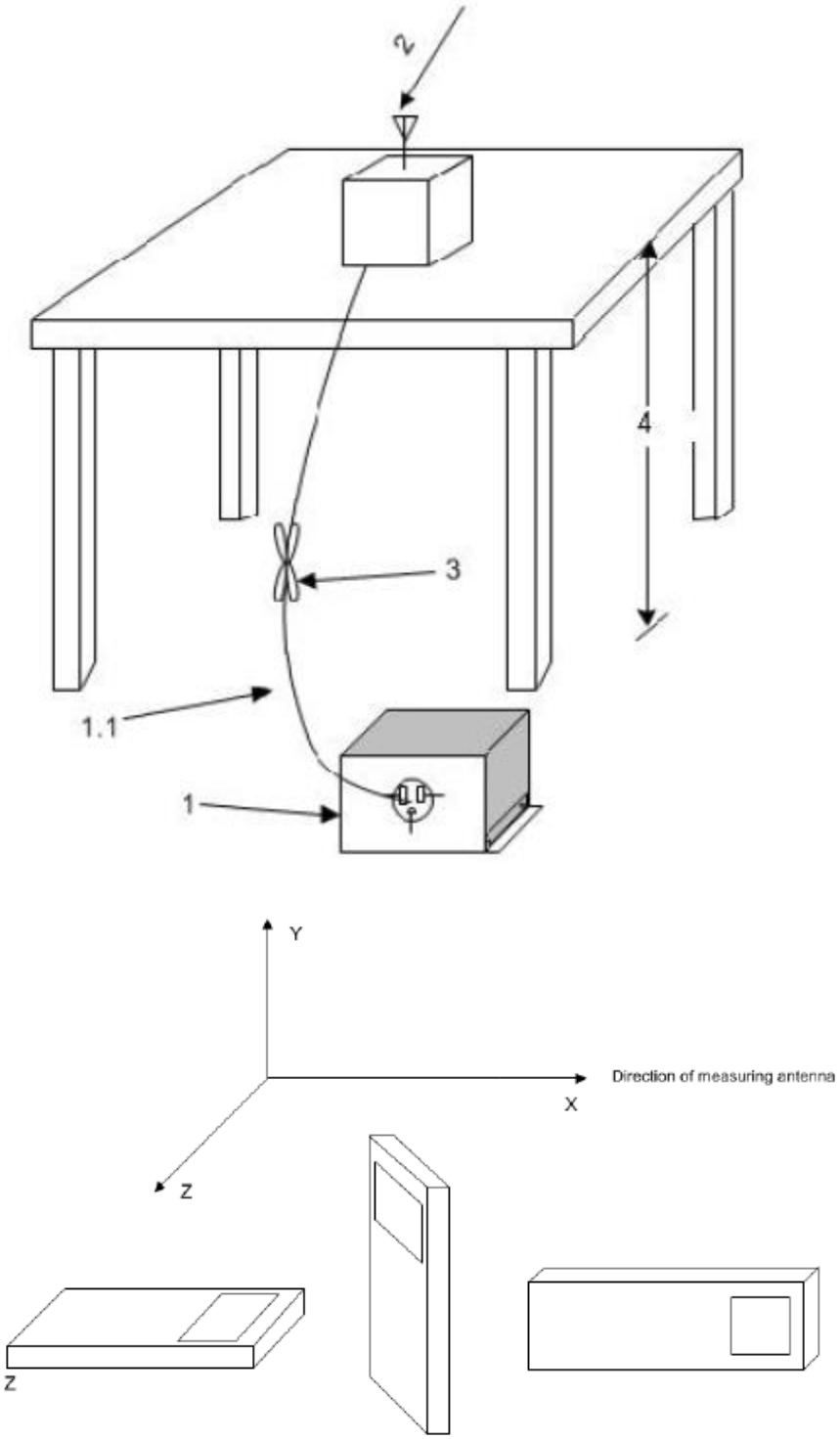
Frequency (MHz)	Field strength(μV/m)	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Set up:

Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m. For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m.

The EUT and transmitting antenna shall be centered on the turntable.



Test Condition

The EUT shall be tested 1 near top, 1 near middle, and 1 near bottom. Set the unlicensed wireless device to operate in continuous transmit mode. For unlicensed wireless devices unable to be configured for 100% duty cycle even in test mode, configure the system for the maximum duty cycle supported.

When required for unlicensed wireless devices, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as

appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Exploratory radiated emissions measurements

Exploratory radiated measurements shall be performed at the measurement distance or at a closer distance than that specified for compliance to determine the emission characteristics of the EUT and, if applicable, the EUT configuration that produces the maximum level of emissions. The frequencies of maximum emission may be determined by manually positioning the antenna close to the EUT, and then moving the antenna over all sides of the EUT while observing a spectral display. It is advantageous to have prior knowledge of the frequencies of emissions, although this may be determined from such a near-field scan. The near-field scan shall only be used to determine the frequency but not the amplitude of the emissions. Where exploratory measurements are not adequate to determine the worst-case operating modes and are used only to identify the frequencies of the highest emissions, additional preliminary tests can be required.

For emissions from the EUT, the maximum level shall be determined by rotating the EUT and its antenna through 0° to 360°. For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.

Broadband antennas and a spectrum analyzer or a radio-noise meter with a panoramic display are often useful in this type of test. If either antenna height or EUT azimuth are not fully measured during exploratory testing, then complete testing can be required at the OATS or semi-anechoic chamber when the final full spectrum testing is performed.

Final radiated emissions measurements

The final measurements are using the orientation and equipment arrangement of the EUT based on the measurement results found during the preliminary (exploratory) measurements, the EUT arrangement, appropriate modulation, and modes of operation that produce the emissions that have the highest amplitude relative to the limit shall be selected for the final measurement.

For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

For each mode selected, record the frequency and amplitude of the highest fundamental emission (if applicable), as well as the frequency and amplitude of the six highest spurious emissions relative to the limit. Emissions more than 20 dB below the limit do not need to be reported.

This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The receiver references:

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Measurement Results:

EUT ID: Set.1(UT18a + AE13 + AE2 + AE17 + AE19)

Conclusion: Pass

Note:

A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

P_{Mea} is the field strength recorded from the instrument.

The measurement results are obtained as described below:

Result=P_{Mea}+$A_{Rpl=}$ P_{Mea}+Cable Loss+Antenna Factor

Average Measurement results

802.11b

Ch1

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
2387.190	48.68	4.6	31.7	12.35	54.0	5.3	V
2389.770	48.48	4.6	31.8	12.11	54.0	5.5	V
4823.800	35.98	-35.9	33.8	38.11	54.0	18.0	H
7236.100	30.12	-34.5	35.5	29.12	54.0	23.9	H
9648.100	31.90	-33.5	36.8	28.59	54.0	22.1	H
12060.100	34.16	-31.8	38.9	27.05	54.0	19.8	H

Ch6

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
2417.220	49.62	4.6	31.9	13.04	54.0	4.4	V
2456.940	49.13	4.7	32.0	12.43	54.0	4.9	V
4873.900	43.33	-35.8	33.8	45.32	54.0	10.7	H
7311.100	30.53	-34.3	35.6	29.22	54.0	23.5	H
9748.000	31.55	-33.5	37.0	28.09	54.0	22.5	H
12184.900	33.72	-31.6	38.8	26.52	54.0	20.3	V

Ch11

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.550	48.93	4.7	32.1	12.14	54.0	5.1	V
2484.330	48.79	4.7	32.1	12.01	54.0	5.2	V
4924.000	37.51	-35.7	33.8	39.36	54.0	16.5	V
7386.000	30.73	-34.1	35.5	29.32	54.0	23.3	H
9848.000	31.76	-33.4	37.1	28.10	54.0	22.2	V
12310.000	33.57	-31.5	38.8	26.24	54.0	20.4	V

802.11g

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2387.220	48.59	4.6	31.7	12.26	54.0	5.4	V
2389.320	48.86	4.6	31.8	12.49	54.0	5.1	V
4824.100	29.03	-35.9	33.8	31.16	54.0	25.0	H
7236.100	29.95	-34.5	35.5	28.94	54.0	24.0	H
9648.100	31.96	-33.5	36.8	28.64	54.0	22.0	H
12060.100	34.12	-31.8	38.9	27.01	54.0	19.9	V

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.550	48.85	4.7	32.1	12.06	54.0	5.1	V
2483.610	48.84	4.7	32.1	12.05	54.0	5.2	V
4872.700	35.19	-35.8	33.8	37.18	54.0	18.8	V
7311.100	30.60	-34.3	35.6	29.30	54.0	23.4	V
9748.000	31.50	-33.5	37.0	28.04	54.0	22.5	H
12184.900	33.78	-31.6	38.8	26.58	54.0	20.2	V

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.580	48.77	4.7	32.1	11.98	54.0	5.2	V
2483.670	48.76	4.7	32.1	11.97	54.0	5.2	V
4924.000	29.04	-35.7	33.8	30.89	54.0	25.0	V
7386.100	30.65	-34.1	35.5	29.25	54.0	23.3	V
9847.900	31.98	-33.4	37.1	28.32	54.0	22.0	V
12310.000	33.70	-31.5	38.8	26.36	54.0	20.3	H

802.11n-HT20

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2382.180	48.24	4.6	31.7	11.99	54.0	5.8	V
2388.810	49.16	4.6	31.7	12.80	54.0	4.8	V
4824.100	28.67	-35.9	33.8	30.80	54.0	25.3	V
7236.100	29.97	-34.5	35.5	28.96	54.0	24.0	H
9648.100	31.87	-33.5	36.8	28.56	54.0	22.1	V
12060.100	34.03	-31.8	38.9	26.93	54.0	20.0	V

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.640	48.78	4.7	32.1	11.99	54.0	5.2	V
2483.670	48.76	4.7	32.1	11.98	54.0	5.2	V
4873.300	35.89	-35.8	33.8	37.88	54.0	18.1	H
7311.100	30.67	-34.3	35.6	29.37	54.0	23.3	H
9748.000	31.58	-33.5	37.0	28.12	54.0	22.4	H
12184.900	33.79	-31.6	38.8	26.59	54.0	20.2	H

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.520	49.51	4.7	32.1	12.72	54.0	4.5	V
2483.550	49.49	4.7	32.1	12.70	54.0	4.5	V
4924.000	29.14	-35.7	33.8	30.99	54.0	24.9	V
7386.100	30.71	-34.1	35.5	29.30	54.0	23.3	V
9847.900	31.98	-33.4	37.1	28.33	54.0	22.0	V
12310.000	33.77	-31.5	38.8	26.43	54.0	20.2	H

Peak Measurement results

802.11b

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2388.932	62.37	4.6	31.7	26.01	74.0	11.6	H
2385.754	61.31	4.6	31.7	25.01	74.0	12.7	H
4824.000	44.49	-35.9	33.8	46.62	74.0	29.5	H
7236.000	43.22	-34.5	35.5	42.21	74.0	30.8	H
9647.500	44.30	-33.5	36.8	40.99	74.0	29.7	V
12060.000	46.05	-31.8	38.9	38.94	74.0	28.0	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2370.200	45.44	-36.8	31.5	50.72	74.0	74.0	V
2504.600	46.12	-36.6	32.2	50.51	74.0	74.0	V
4873.500	47.86	-35.8	33.8	49.85	74.0	26.1	H
7310.500	42.79	-34.3	35.6	41.49	74.0	31.2	V
9748.000	44.23	-33.5	37.0	40.77	74.0	29.8	H
12185.000	46.11	-31.6	38.8	38.90	74.0	27.9	H

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2484.930	63.11	4.6	32.1	26.32	74.0	10.9	V
2485.310	62.45	4.6	32.1	25.66	74.0	11.5	H
4924.000	45.22	-35.7	33.8	47.08	74.0	28.8	H
7385.500	43.73	-34.1	35.5	42.32	74.0	30.3	V
9847.500	45.73	-33.4	37.1	42.08	74.0	28.3	H
12311.000	46.81	-31.5	38.8	39.47	74.0	27.2	V

802.11g

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2384.494	61.94	4.6	31.7	25.66	74.0	12.1	V
2388.470	61.51	4.6	31.7	25.16	74.0	12.5	V
4824.000	41.64	-35.9	33.8	43.77	74.0	32.4	V
7237.000	42.82	-34.5	35.5	41.80	74.0	31.2	V
9648.000	44.56	-33.5	36.8	41.24	74.0	29.4	V
12060.000	47.61	-31.8	38.9	40.50	74.0	26.4	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2484.040	62.06	4.7	32.1	25.28	74.0	11.9	V
2484.290	62.27	4.7	32.1	25.48	74.0	11.7	H
4867.000	52.09	-35.8	33.8	54.09	74.0	21.9	H
7310.500	43.13	-34.3	35.6	41.83	74.0	30.9	V
9747.500	43.98	-33.5	37.0	40.52	74.0	30.0	H
12185.500	45.29	-31.6	38.8	38.09	74.0	28.7	H

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.670	64.31	4.7	32.1	27.52	74.0	9.7	V
2483.735	63.38	4.7	32.1	26.59	74.0	10.6	V
4924.000	43.77	-35.7	33.8	45.62	74.0	30.2	V
7386.000	42.64	-34.1	35.5	41.23	74.0	31.4	V
9848.000	43.88	-33.4	37.1	40.22	74.0	30.1	H
12309.500	45.92	-31.5	38.8	38.58	74.0	28.1	H

802.11n-HT20

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2388.050	63.02	4.6	31.7	26.68	74.0	11.0	V
2389.044	64.68	4.6	31.7	28.32	74.0	9.3	V
4824.000	40.71	-35.9	33.8	42.84	74.0	33.3	V
7235.500	43.32	-34.5	35.5	42.32	74.0	30.7	V
9647.000	44.37	-33.5	36.8	41.06	74.0	29.6	V
12059.500	46.52	-31.8	38.9	39.41	74.0	27.5	V

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.575	62.28	4.7	32.1	25.49	74.0	11.7	H
2483.910	61.99	4.7	32.1	25.20	74.0	12.0	H
4875.000	51.56	-35.8	33.8	53.55	74.0	22.4	V
7311.000	43.30	-34.3	35.6	42.00	74.0	30.7	H
9748.000	43.72	-33.5	37.0	40.26	74.0	30.3	V
12185.000	46.53	-31.6	38.8	39.32	74.0	27.5	V

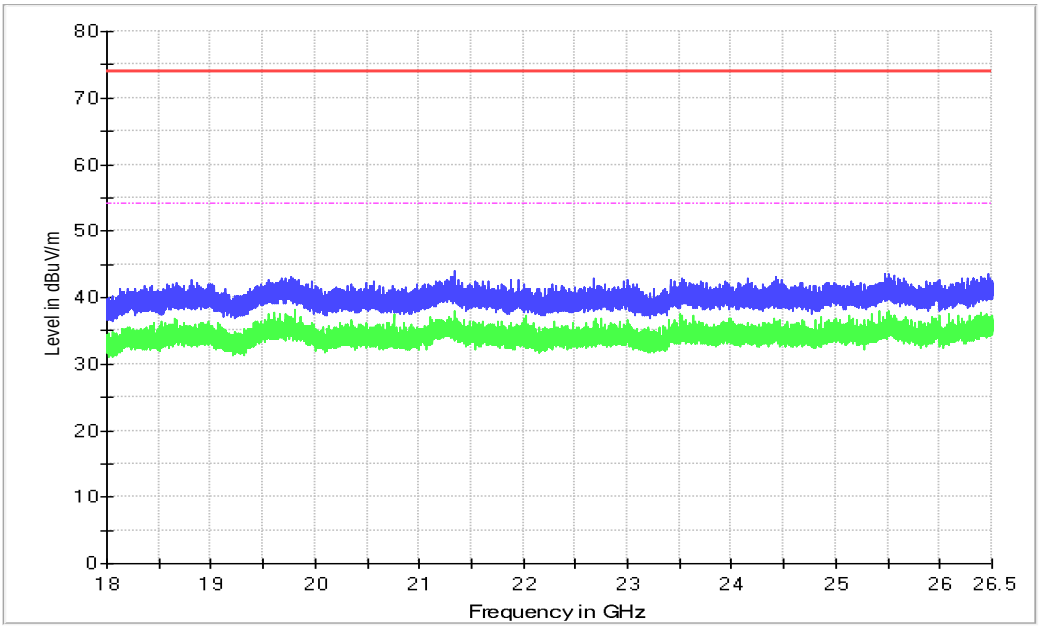
Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.660	67.46	4.7	32.1	30.68	74.0	6.5	V
2484.120	66.70	4.7	32.1	29.92	74.0	7.3	V
4923.500	42.05	-35.7	33.8	43.91	74.0	31.9	H
7386.000	43.67	-34.1	35.5	42.26	74.0	30.3	H
9848.000	45.41	-33.4	37.1	41.75	74.0	28.6	V
12309.500	46.55	-31.5	38.8	39.21	74.0	27.5	V

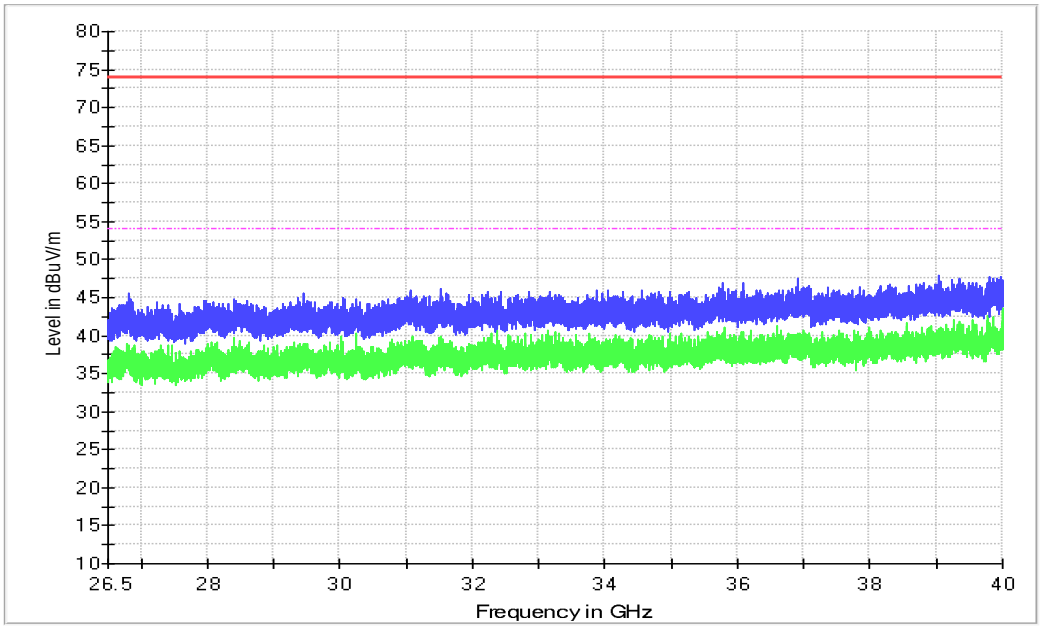
Sample calculation: 802.11n CH11–Peak, 2483.660 MHz

Peak ERP(dBm) = P_{Mea}(30.68dBuV/m) + Cable Loss(4.7) + Antenna Factor(32.1) =67.46 dBuV/m

WOSRT CASE 18GHz-26.5 GHz



WOSRT CASE 26.5GHz-40GHz



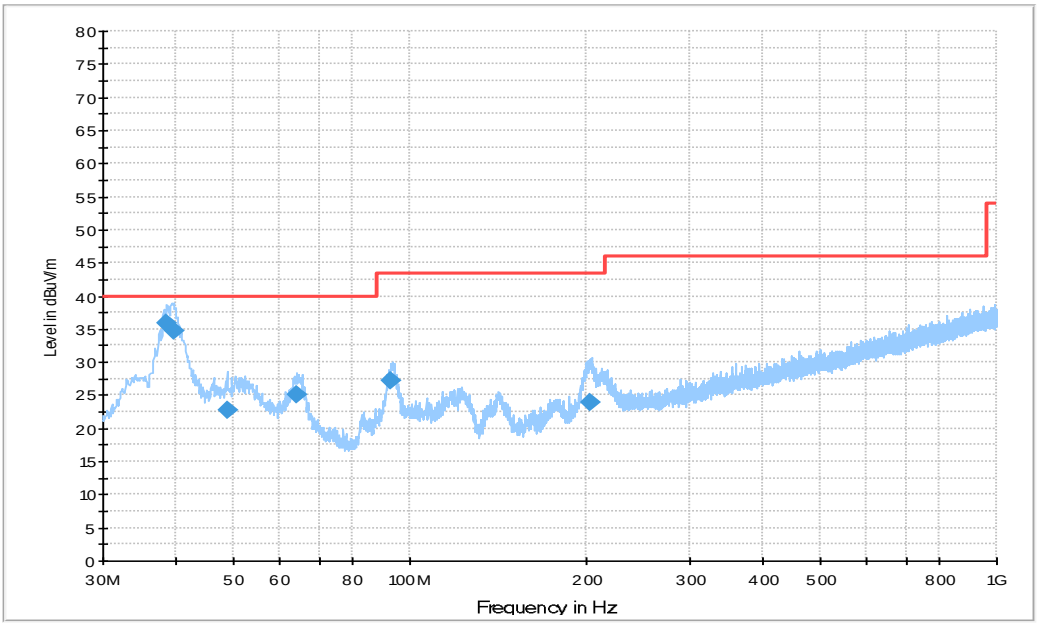
Note: the spurious emission above 18G is noise only

WOSRT CASE BELOW 1GHz

FCC Part 15C 30-1G Limit

Peak Preview Result

Final Result QPK



Frequency (MHz)	QuasiPeak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBuV/m)
38.536000	35.8	100.0	V	101.0	-0.5	4.2	40.0
39.603000	34.8	100.0	V	63.0	-0.2	5.2	40.0
48.818000	22.8	100.0	V	5.0	1.0	17.2	40.0
64.144000	25.0	100.0	V	282.0	-2.0	15.0	40.0
93.050000	27.3	100.0	V	160.0	-2.1	16.2	43.5
202.660000	23.9	100.0	V	-1.0	-0.3	19.6	43.5

BELOW 30MHz

No emissions were found within 20dB of the limit below 30MHz.

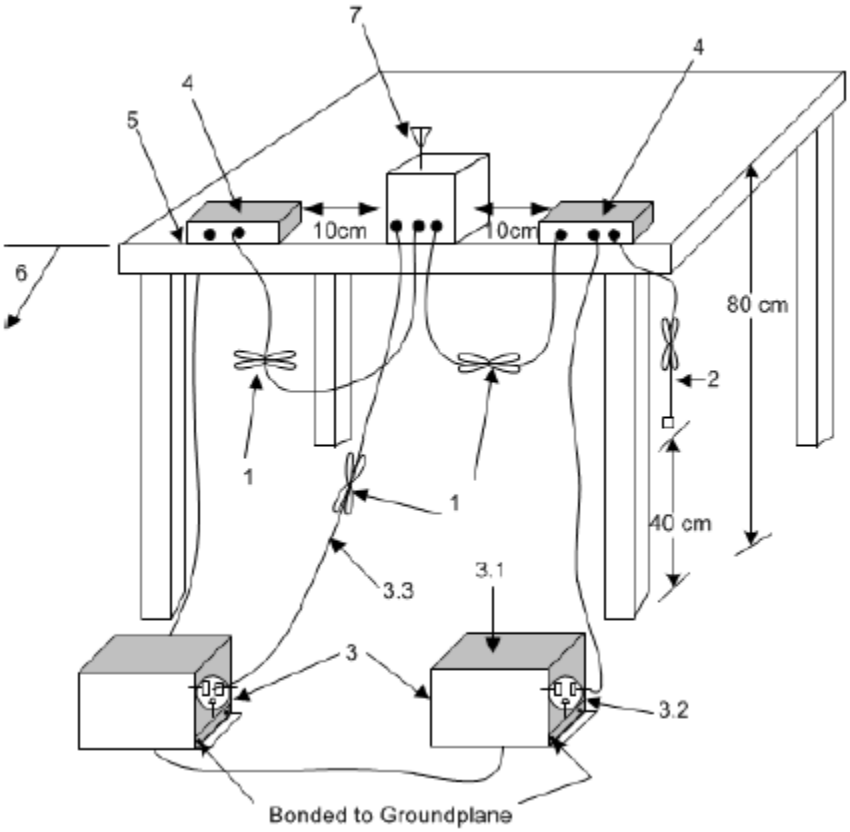
A.7. AC Power-line Conducted Emission

Method of Measurement: See ANSI C63.10-clause 6.2

Setup:

A stand-alone EUT shall be placed in the center along the back edge of the tabletop. For multiunit tabletop systems, the EUT shall be centered laterally (left to right facing the tabletop) on the tabletop and its rear shall be flush with the rear of the table.

Accessories that are part of an EUT system tested on a tabletop shall be placed in a test arrangement on one or both sides of the host with a 10 cm separation between the nearest points of the cabinets. The rear of the host and accessories shall be flush with the back of the supporting tabletop unless that would not be typical of normal use. If more than two accessories are present, then an equipment test arrangement shall be chosen that maintains 10 cm spacing between cabinets unless the equipment is normally located closer together.



Exploratory ac power-line conducted emission measurements

Exploratory measurements shall be used to identify the frequency of the emission that has the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable positions, and with a typical system equipment configuration and arrangement. For each mode of operation and for each ac power current-carrying conductor, cable manipulation shall be performed within the range of likely configurations. For this measurement or series of measurements, the frequency spectrum of interest shall be monitored looking for the emission that has the highest amplitude relative to the limit. Once that emission is found for each current-carrying conductor of each power cord associated with the EUT (but not the cords associated with non-EUT equipment in the overall system), the one configuration and

arrangement and mode of operation that produces the emission closest to the limit over all of the measured conductors shall be recorded.

Final ac power-line conducted emission measurements

Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT. If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation. If the EUT is composed of equipment units that have their own separate ac power connections (e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network), then each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be measured separately. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Conclusion: Pass

EUT ID: Set.1(UT18a + AE13 + AE2 + AE17 + AE19)

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	66 to 56	Fig.A.7.1	Fig.A.7.2	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.7.1	Fig.A.7.2	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

EUT ID: Set.2(UT25a + AE14 + AE4 + AE18 +AE19)

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	67 to 56	Fig.A.7.3	/	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.7.3	/	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

EUT ID: Set.3(UT04a + AE15 + AE5 + AE17 +AE19)

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	68 to 56	Fig.A.7.4	/	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.7.4	/	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

EUT ID: Set.4(UT26a + AE16 +AE6 + AE18 +AE19)

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	69 to 56	Fig.A.7.5	/	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.7.5	/	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

EUT ID: Set.5(UT18a + AE13 + AE9 + AE17 +AE19)

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	70 to 56	Fig.A.7.6	/	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.7.6	/	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

EUT ID: Set.6(UT25a + AE14 +AE12 + AE18 +AE19)

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	71 to 56	Fig.A.7.7	/	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.7.7	/	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Test graphs as below:

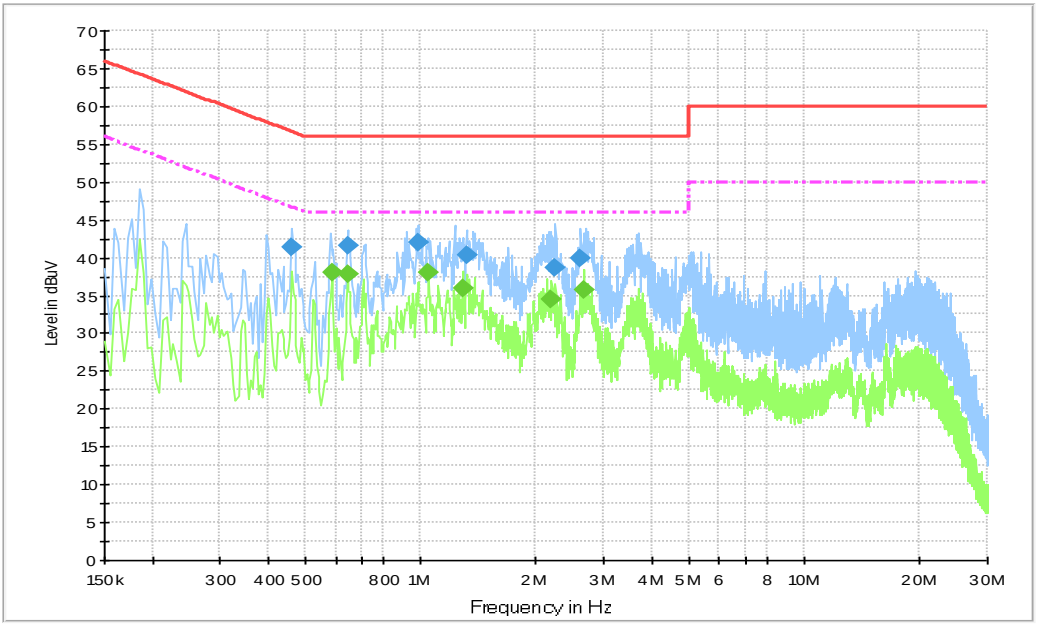


Fig.A.7.1 AC Powerline Conducted Emission-802.11b(Set.1, UT18a + AE13 + AE2 + AE17 + AE19)

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.461	41.39	15.30	L1	56.70
0.645	41.62	14.40	L1	56.00
0.987	42.04	14.00	L1	56.00
1.316	40.42	15.60	L1	56.00
2.247	38.67	17.30	L1	56.00
2.616	39.99	16.00	L1	56.00

Final Result 2

Frequency (MHz)	AveragePeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.587	38.07	7.90	L1	46.00
0.645	37.74	8.30	L1	46.00
1.050	38.03	8.00	L1	46.00
1.284	35.85	10.20	L1	46.00
2.193	34.57	11.40	L1	46.00
2.661	35.64	10.40	L1	46.00

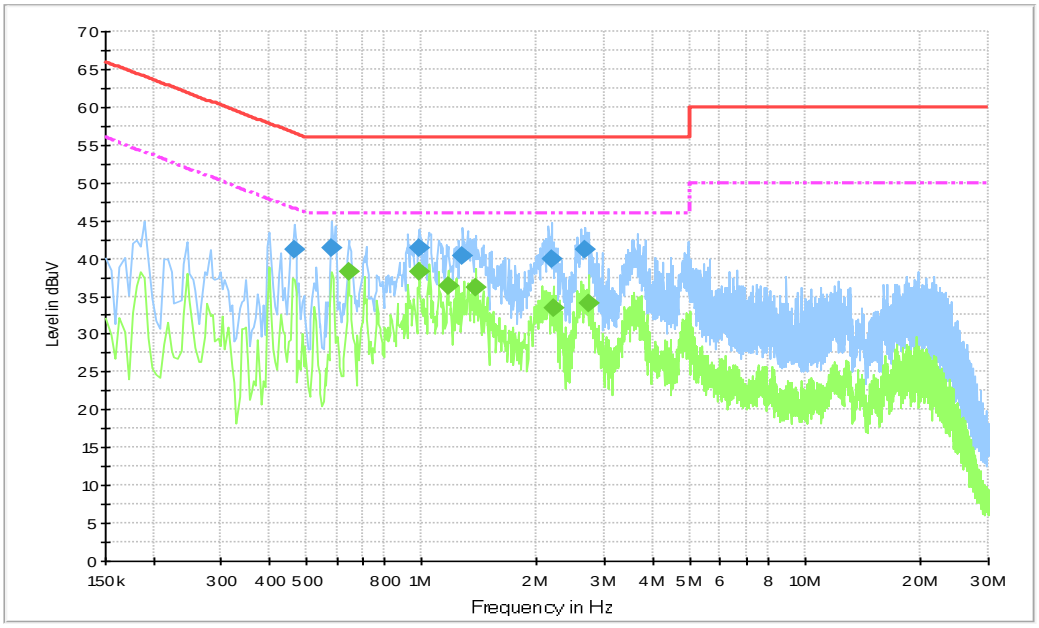


Fig.A.7.2 AC Powerline Conducted Emission-Idle(Set.1, UT18a + AE13 + AE2 + AE17 + AE19)

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.465	41.23	15.40	L1	56.60
0.582	41.30	14.70	L1	56.00
0.983	41.42	14.60	L1	56.00
1.280	40.33	15.70	L1	56.00
2.180	39.83	16.20	L1	56.00
2.670	41.23	14.80	L1	56.00

Final Result 2

Frequency (MHz)	AveragePeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.645	38.23	7.80	L1	46.00
0.987	38.30	7.70	L1	46.00
1.172	36.37	9.60	L1	46.00
1.383	36.25	9.80	L1	46.00
2.198	33.41	12.60	L1	46.00
2.720	34.11	11.90	L1	46.00

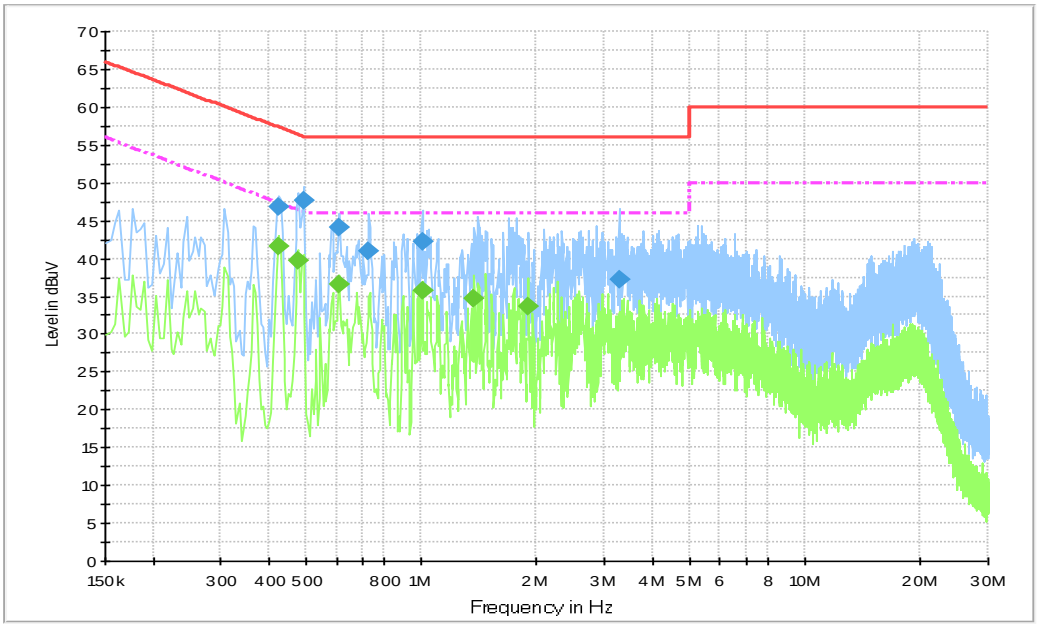


Fig.A.7.3 AC Powerline Conducted Emission-802.11b(Set.2, UT25a + AE14 + AE4 + AE18 +AE19)

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.425	46.75	10.60	L1	57.40
0.492	47.68	8.50	L1	56.10
0.614	44.06	11.90	L1	56.00
0.731	40.93	15.10	L1	56.00
1.005	42.28	13.70	L1	56.00
3.273	37.26	18.70	L1	56.00

Final Result 2

Frequency (MHz)	AveragePeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.425	41.67	5.70	L1	47.40
0.479	39.61	6.80	L1	46.40
0.609	36.50	9.50	L1	46.00
1.005	35.70	10.30	L1	46.00
1.374	34.61	11.40	L1	46.00
1.901	33.71	12.30	L1	46.00

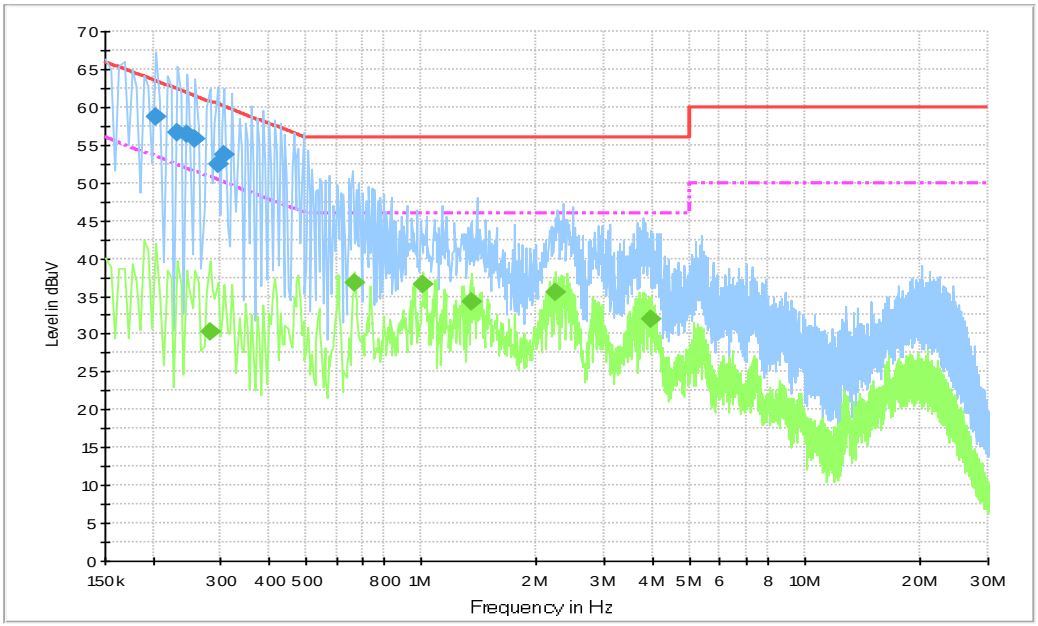


Fig.A.7.4 AC Powerline Conducted Emission-802.11b(Set.3, UT04a + AE15 + AE5 + AE17 +AE19)

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.204	58.65	4.80	L1	63.40
0.231	56.67	5.70	N	62.40
0.245	56.51	5.40	N	61.90
0.258	55.89	5.60	N	61.50
0.294	52.38	8.00	L1	60.40
0.308	53.80	6.20	N	60.00

Final Result 2

Frequency (MHz)	AveragePeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.281	30.23	20.60	N	50.80
0.672	36.75	9.20	L1	46.00
1.014	36.48	9.50	L1	46.00
1.356	34.35	11.60	L1	46.00
2.234	35.51	10.50	L1	46.00
3.944	31.89	14.10	L1	46.00

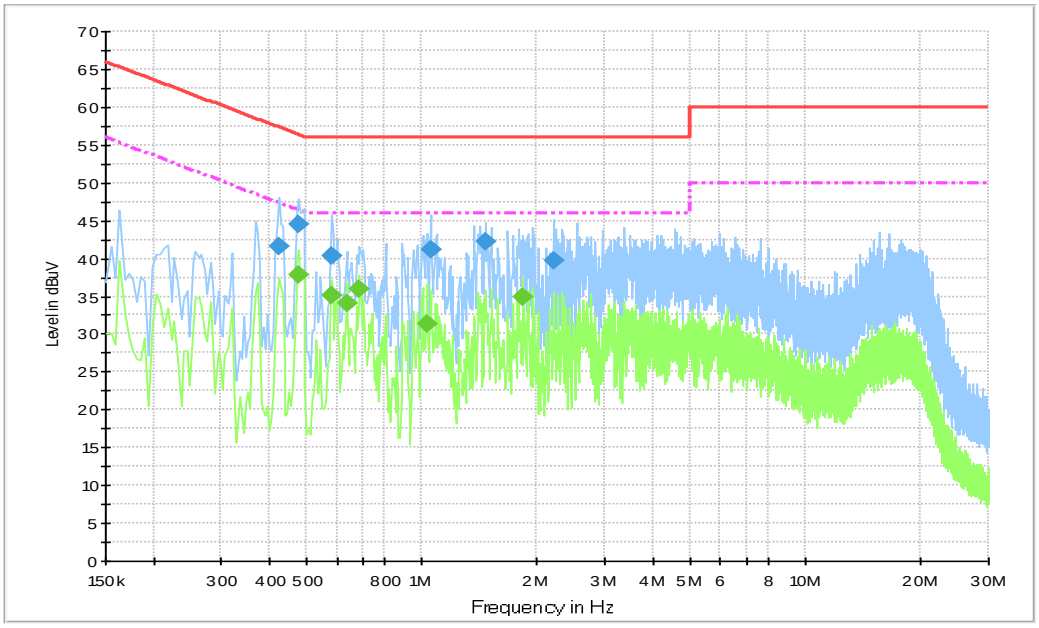


Fig.A.7.5 AC Powerline Conducted Emission-802.11b(Set.4, UT26a + AE16 +AE6 + AE18 +AE19)

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.425	41.53	15.80	L1	57.40
0.479	44.45	11.90	L1	56.40
0.582	40.25	15.80	L1	56.00
1.055	41.17	14.80	N	56.00
1.464	42.22	13.80	N	56.00
2.198	39.76	16.20	N	56.00

Final Result 2

Frequency (MHz)	AveragePeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.479	37.80	8.60	N	46.40
0.582	35.14	10.90	N	46.00
0.636	34.07	11.90	N	46.00
0.690	35.92	10.10	N	46.00
1.032	31.39	14.60	L1	46.00
1.833	34.88	11.10	N	46.00

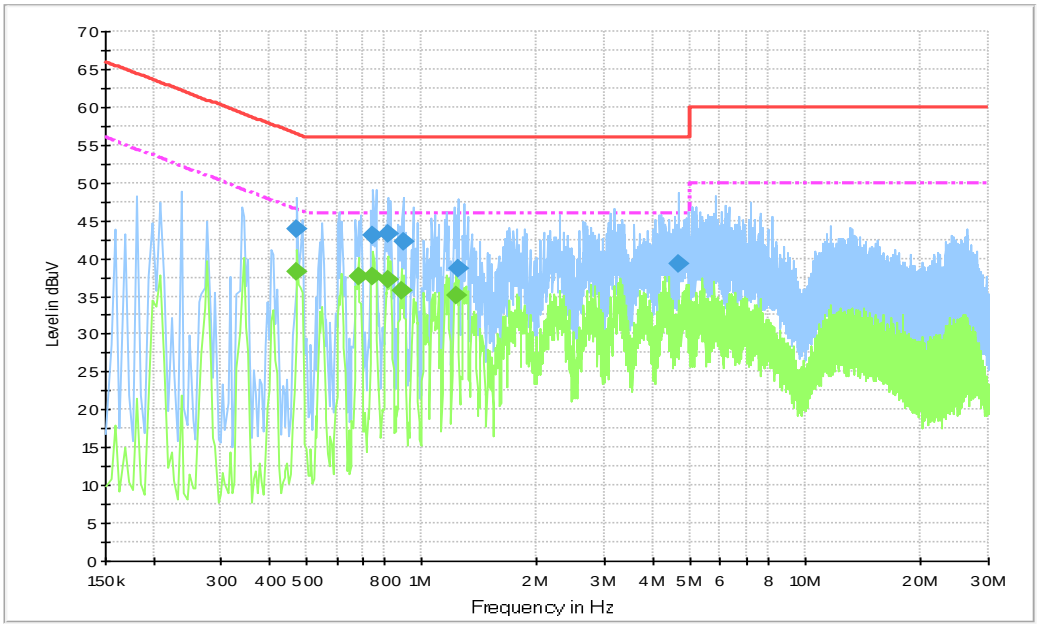


Fig.A.7.6 AC Powerline Conducted Emission-802.11b(Set.5, UT18a + AE13 + AE9 + AE17 +AE19)

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.474	43.88	12.60	L1	56.40
0.749	43.09	12.90	L1	56.00
0.816	43.15	12.80	L1	56.00
0.897	42.14	13.90	L1	56.00
1.248	38.59	17.40	L1	56.00
4.655	39.31	16.70	L1	56.00

Final Result 2

Frequency (MHz)	AveragePeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.474	38.17	8.30	L1	46.40
0.686	37.68	8.30	L1	46.00
0.749	37.60	8.40	L1	46.00
0.816	37.15	8.80	L1	46.00
0.884	35.82	10.20	L1	46.00
1.226	35.13	10.90	L1	46.00

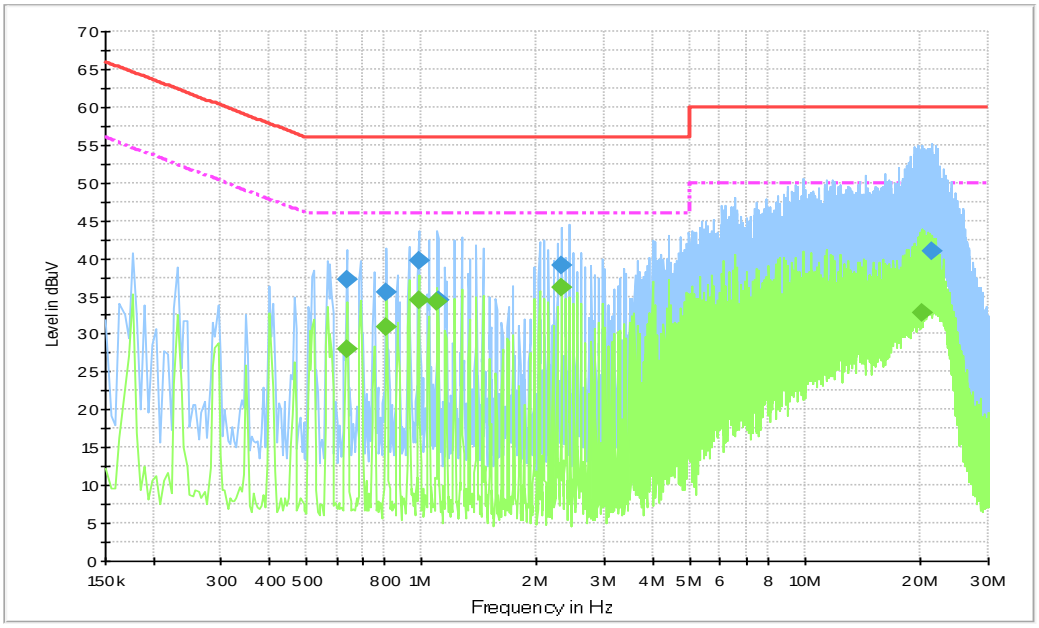


Fig.A.7.7 AC Powerline Conducted Emission-802.11b(Set.6, UT25a + AE14 +AE12 + AE18 +AE19)

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.636	37.28	18.70	N	56.00
0.812	35.43	20.60	N	56.00
0.983	39.64	16.40	N	56.00
1.104	34.41	21.60	N	56.00
2.319	39.04	17.00	L1	56.00
21.314	40.91	19.10	N	60.00

Final Result 2

Frequency (MHz)	AveragePeak (dBuV)	Margin (dB)	Line(L /N)	Limit (dBuV)
0.641	27.90	18.10	N	46.00
0.812	30.95	15.00	L1	46.00
0.983	34.51	11.50	N	46.00
1.100	34.25	11.80	L1	46.00
2.315	36.18	9.80	N	46.00
20.252	32.73	17.30	N	50.00

ANNEX B: EUT parameters

Disclaimer: The antenna gain provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

ANNEX C: Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ilac-MRA

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2022-10-01 through 2023-09-30
Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

*****END OF REPORT*****