FCC PART 15C
TEST REPORT
No.I22Z70343-IOT03

for

SAMSUNG Electronics Co., Ltd.

Multi-band GSM/WCDMA/LTE/5GNR Phone with Bluetooth, WLAN

SM-A146P/DSN, SM-A146P/N

With

FCC ID: ZCASMA146PN

Hardware Version: REV1.0

Software Version: A146P.001

Issued Date: 2022-11-09

Note:

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

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

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REPORT HISTORY

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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

Conducted testing:CTTL(Huayuan North Road)

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

Radiated testing Location:CTTL (BDA)

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

Radiated testing Location:CTTL(huayuan North Road)

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

1.3. Testing Environment

Normal Temperature: 15-35℃

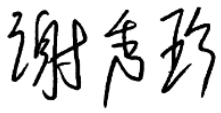
Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2022-09-15

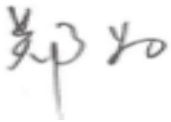
Testing End Date: 2022-11-09

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:	SAMSUNG Electronics Co., Ltd.
Address /Post:	19 Chapin Rd.,Building D Pine Brook, NJ 07058
Contact:	Jenni Chun
Email:	j1.chun@samsung.com
Telephone:	+1-201-937-4203

2.2. Manufacturer Information

Company Name:	Samsung Electronics Co., Ltd.
Address /Post:	Samsung R5, Maetan dong 129, Samsung ro Youngtong gu, Suwon city 443 742, Korea
Contact:	Sunghoon Cho
Email:	ggobi.cho@samsung.com
Telephone:	+82-10-2722-4159

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

3.1. About EUT

Description	Multi-band GSM/WCDMA/LTE/5GNR Phone with Bluetooth, WLAN
Model name	SM-A146P/DSN, SM-A146P/N
FCC ID	ZCASMA146PN
With WLAN Function	Yes
Frequency Band	ISM 2400MHz~2483.5MHz
Type of Modulation	DSSS/CCK/OFDM
Number of Channels	11
Antenna	Integral Antenna
MAX Conducted Power	24.50dBm
Power Supply	3.85V

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version
UT27a	2270343UT27a	REV1.0	A146P.001
UT25a	2270343UT25a	REV1.0	A146P.001

*EUT ID: is used to identify the test sample in the lab internally.
UT27a is used for Conduction test, UT25a is used for Radiation test.

3.3. Internal Identification of AE

AE ID*	Description	Remark	
AE1	Adapter	/	/
AE2	USB Cable1	/	/
AE3	USB Cable2	/	/
AE4	USB Cable3	/	/
AE5	USB Cable4	/	/
AE6	Headset	/	/
AE7	Battery1	/	/
AE8	Battery2	/	/

AE1

Model	EP-T1510
Manufacturer	HAEM Co.,Ltd
Length of cable	/

AE2

Model	EP-DT725BWE
Manufacturer	RFTECH Co., Ltd..
Length of cable	/

AE3

Model	EP-DN980BWZ
Manufacturer	RFTECH Co., Ltd.
Length of cable	/

AE4

Model	EP-DT725BWE
Manufacturer	CRESYN HANOI Co., Ltd
Length of cable	/

AE5

Model	EP-DN980BWE
Manufacturer	Guangxi Broad Telecommunication Co.,Ltd.
Length of cable	/

AE6

Model	EHS61ASFWE
Manufacturer	Shenzhen Grandsound Electronics Co.,Ltd
Length of cable	/

AE7

Model	WT-S-W1
Type	Secondary Li-ion Polymer Battery
Manufacturer	SCUD (Fujian) Electronics CO.,LTD

AE8

Model	SCUD-WT-W1
Type	Secondary Li-ion Polymer Battery
Manufacturer	SCUD (Fujian) Electronics CO.,LTD

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

3.4. General Description

The Equipment under Test (EUT) is a model of Multi-band GSM/WCDMA/LTE/5GNR Phone with Bluetooth, WLAN 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.

3.5. 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.	2018
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	3.85V
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	FSW67	104051	Rohde & Schwarz	1 year	2022-12-02
2	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Manufacturer	Serial Number	Calibration Period	Calibration Due date
1	Test Receiver	ESU26	R&S	100376	1 year	2023-09-22
2	Test Receiver	ESW44	R&S	103015	1 year	2023-02-23
3	Test Receiver	ESU26	R&S	100235	1 year	2023-03-08
4	Loop Antenna	HFH2-Z2	R&S	829324/007	1 year	2022-12-22
5	EMI Antenna	VULB9163	Schwarzbeck	01176	1 year	2022-11-15
6	EMI Antenna	3117	ETS-Lindgren	00119024	1 year	2023-06-07
7	EMI Antenna	3115	ETS-Lindgren	00167252	1 year	2022-12-26
8	EMI Antenna	LB-180400-25-C-KF	A-INFO	J211060826	1 year	2023-02-27

AC Power Line Conducted Emission

No.	Equipment	Model	Manufacturer	Serial Number	Calibration Period	Calibration Due date
1	LISN	ENV216	R&S	101459	1 year	2023-03-26
2	Test Receiver	ESCI	R&S	100766	1 year	2023-03-02

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)
9kHz-30MHz	4.92
30MHz ≤ 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

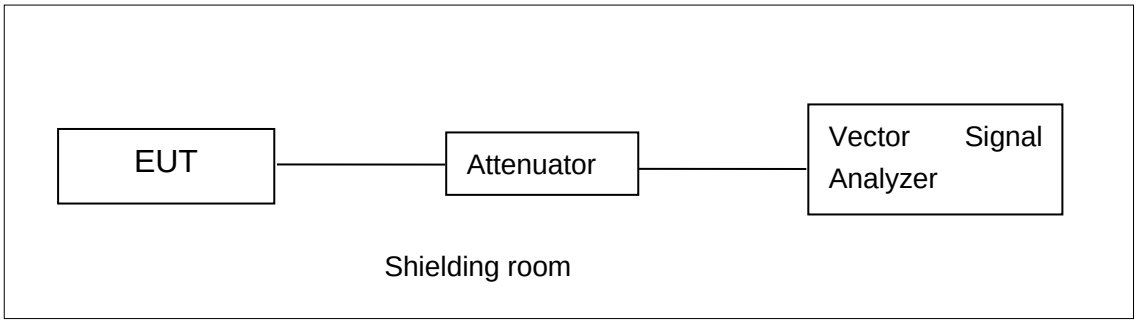


Fig.A.1.1.1: Test Setup Diagram for Conducted Measurements

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 = 3MHz;

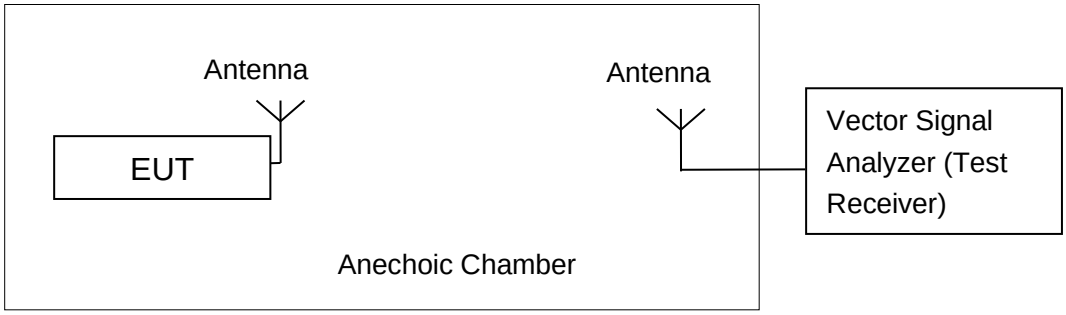


Fig.A.1.2.1: Test Setup Diagram for Radiated Measurements

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: UT27a

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	19.35	19.75	19.98
	2	/	19.71	/
	5.5	/	19.48	/
	11	/	19.55	/
802.11g	6	23.45	24.50	23.53
	9	/	24.43	/
	12	/	23.89	/
	18	/	24.34	/
	24	/	24.28	/
	36	/	23.96	/
	48	/	23.74	/
	54	/	24.35	/

The data rate 1Mbps and 6Mbps 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	23.77	23.21	22.30
	MCS1	23.50	/	/
	MCS2	23.44	/	/
	MCS3	23.22	/	/
	MCS4	23.41	/	/
	MCS5	23.65	/	/
	MCS6	23.75	/	/
	MCS7	23.60	/	/

The data rate MCS0 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	-4.80	**P**
	6	Fig.A.3.2	-4.03	**P**
	11	Fig.A.3.3	-3.84	**P**
802.11g	1	Fig.A.3.4	-8.49	**P**
	6	Fig.A.3.5	-8.93	**P**
	11	Fig.A.3.6	-8.87	**P**

802.11n-HT20 mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11n (HT20)	1	Fig.A.3.7	-8.23	**P**
	6	Fig.A.3.8	-11.56	**P**
	11	Fig.A.3.9	-11.43	**P**

Conclusion: Pass

Test graphs as below:

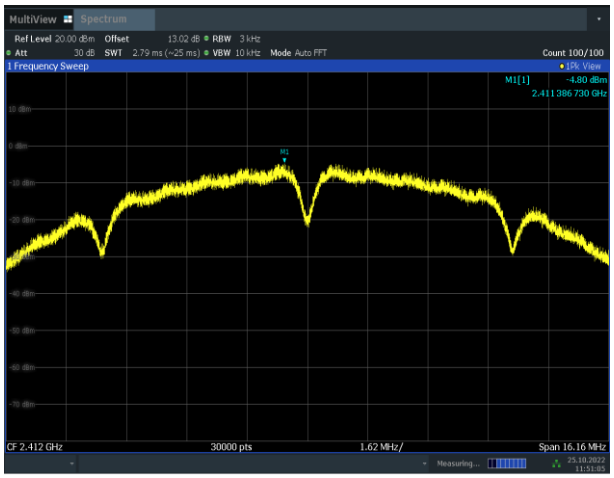


Fig.A.3.1 Power Spectral Density(802.11b,Ch1)

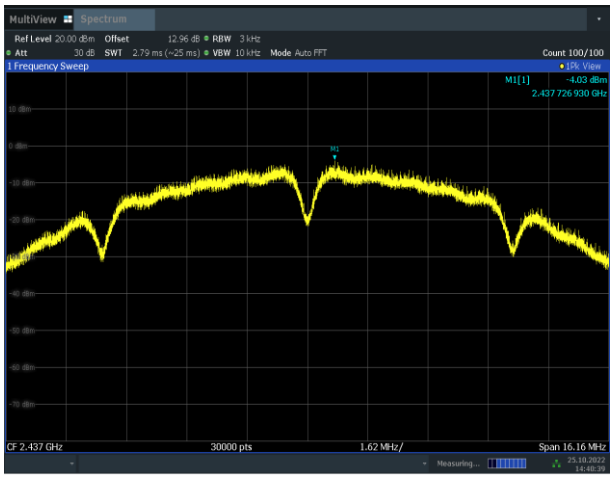


Fig.A.3.2 Power Spectral Density (802.11b, Ch 6)

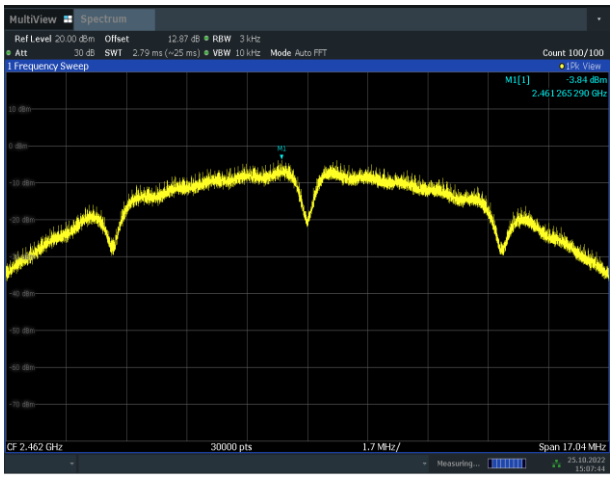


Fig.A.3.3 Power Spectral Density (802.11b, Ch 11)

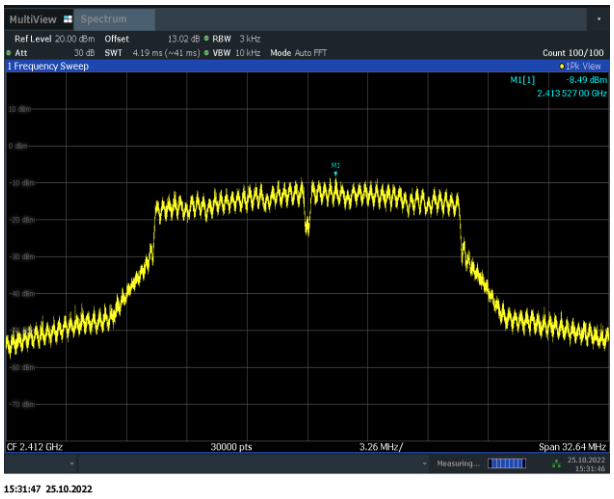


Fig.A.3.4 Power Spectral Density (802.11g, Ch 1)

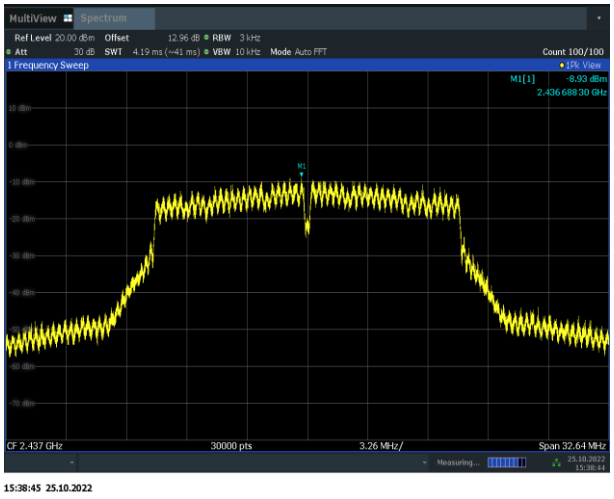


Fig.A.3.5 Power Spectral Density (802.11g, Ch 6)

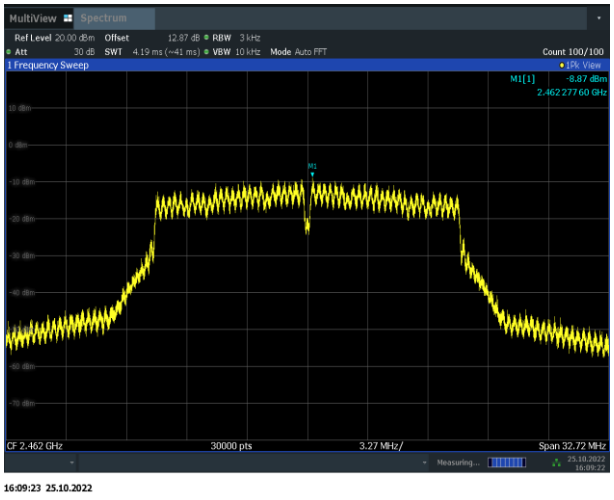


Fig.A.3.6 Power Spectral Density (802.11g, Ch 11)

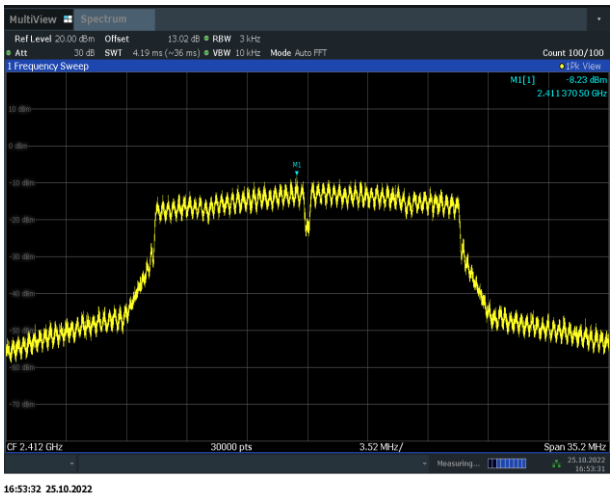


Fig.A.3.7 Power Spectral Density (802.11n-HT20, Ch 1)

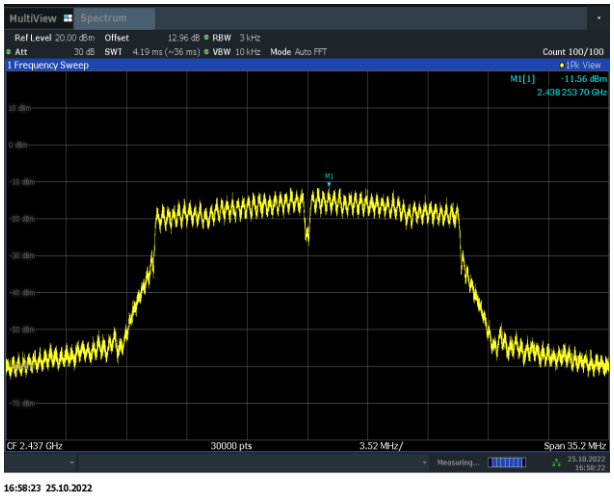


Fig.A.3.8 Power Spectral Density (802.11n-HT20, Ch 6)

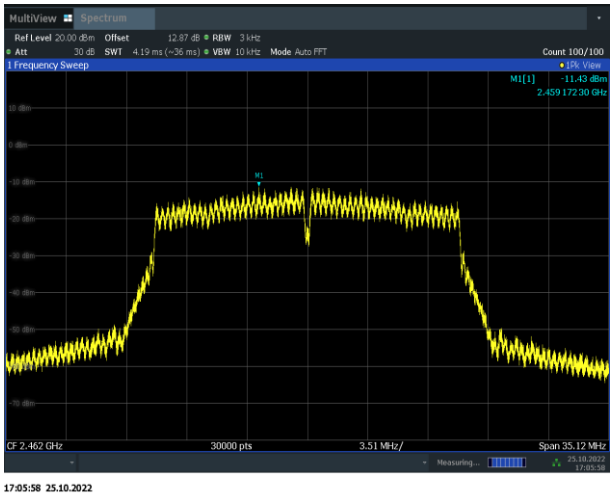


Fig.A.3.9 Power Spectral Density (802.11n-HT20, Ch 11)

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: UT27a

Measurement Result:

802.11b/g mode

Mode	Channel	Occupied 6dB Bandwidth (MHz)		conclusion
802.11b	1	Fig.A.4.1	8.08	**P**
	6	Fig.A.4.2	8.08	**P**
	11	Fig.A.4.3	8.52	**P**
802.11g	1	Fig.A.4.4	16.32	**P**
	6	Fig.A.4.5	16.32	**P**
	11	Fig.A.4.6	16.36	**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	17.60	**P**
	11	Fig.A.4.9	17.56	**P**

Conclusion: Pass

Test graphs as below:

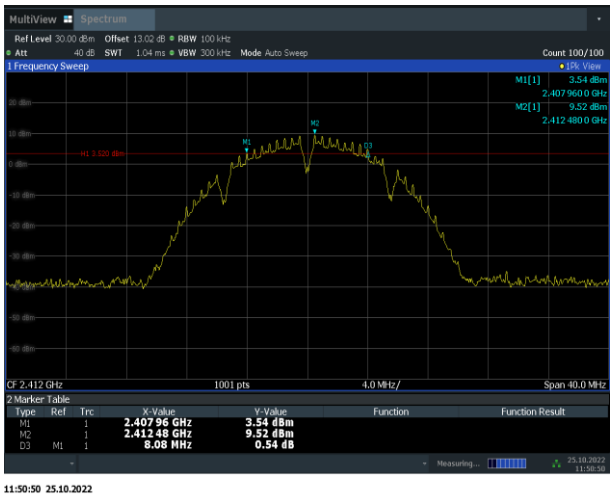


Fig.A.4.1 Occupied 6dB Bandwidth(802.11b,Ch 1)

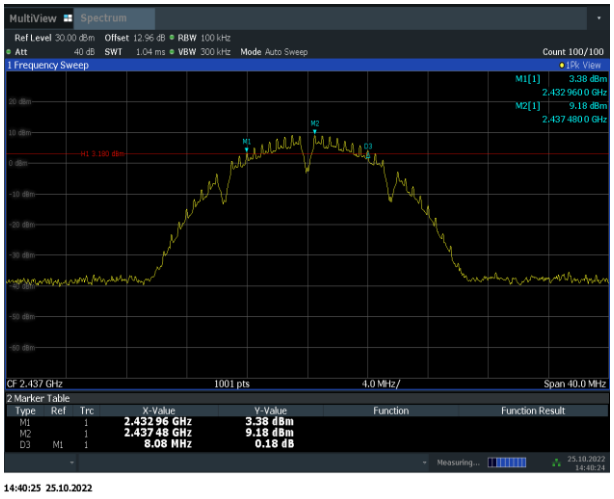


Fig.A.4.2 Occupied 6dB Bandwidth (802.11b, Ch 6)

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

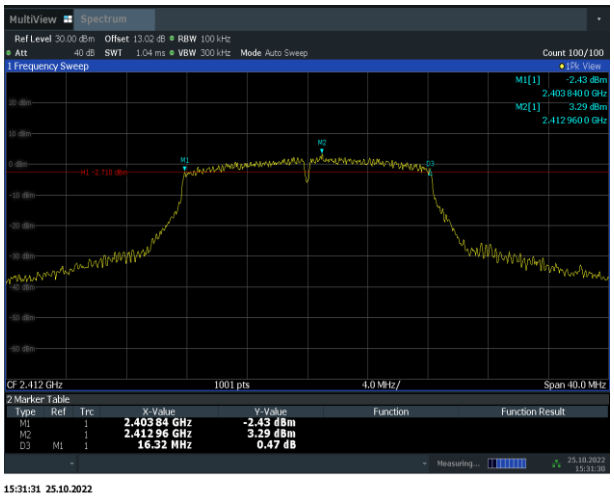


Fig.A.4.4 Occupied 6dB Bandwidth (802.11g, Ch 1)

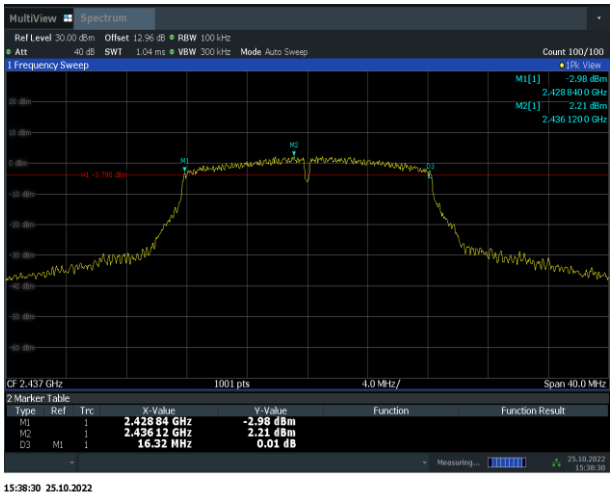


Fig.A.4.5 Occupied 6dB Bandwidth (802.11g, Ch 6)

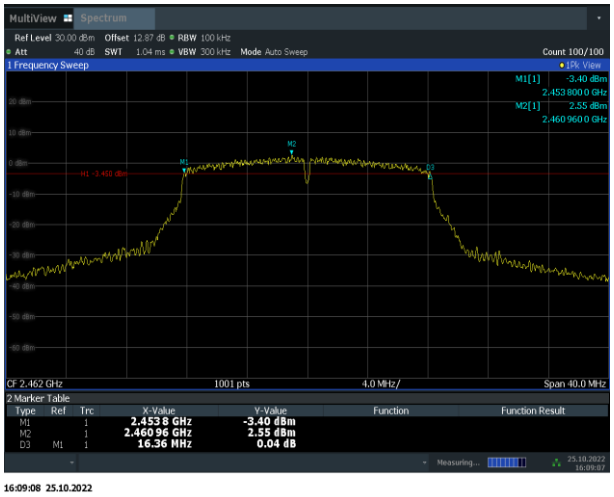


Fig.A.4.6 Occupied 6dB Bandwidth (802.11g, Ch 11)

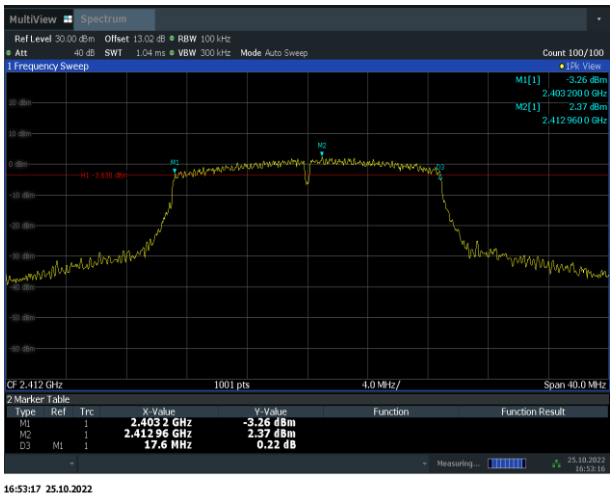


Fig.A.4.7 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 1)

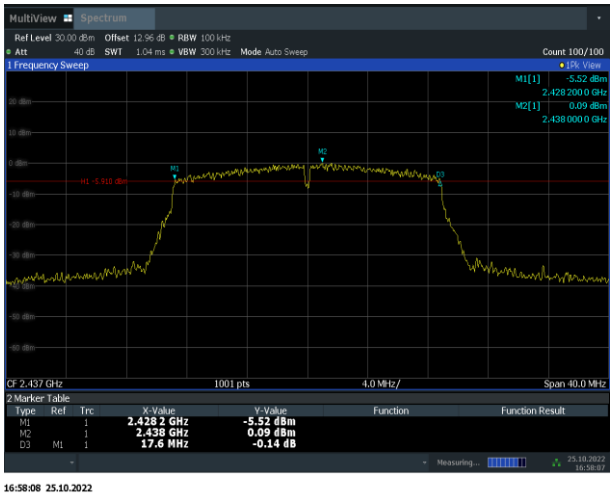


Fig.A.4.8 Occupied 6dB Bandwidth (802.11n-HT20, Ch 6)

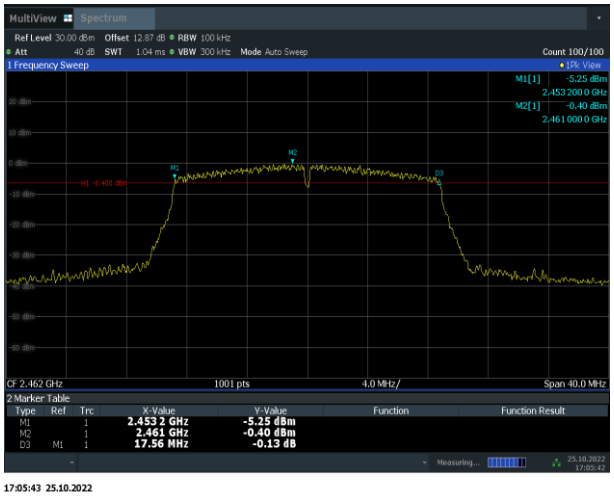


Fig.A.4.9 Occupied 6dB Bandwidth (802.11n-HT20, Ch 11)

A.5. Band Edges Compliance

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: UT27a

Measurement Result:

802.11b/g mode

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.A.5.1	**P**
	11	Fig.A.5.2	**P**
802.11g	1	Fig.A.5.3	**P**
	11	Fig.A.5.4	**P**

802.11n-HT20 mode

Mode	Channel	Test Results	Conclusion
802.11n (HT20)	1	Fig.A.5.5	**P**
	11	Fig.A.5.6	**P**

Conclusion: Pass

Test graphs as below:

Fig.A.5.1 Band Edges (802.11b, Ch 1)

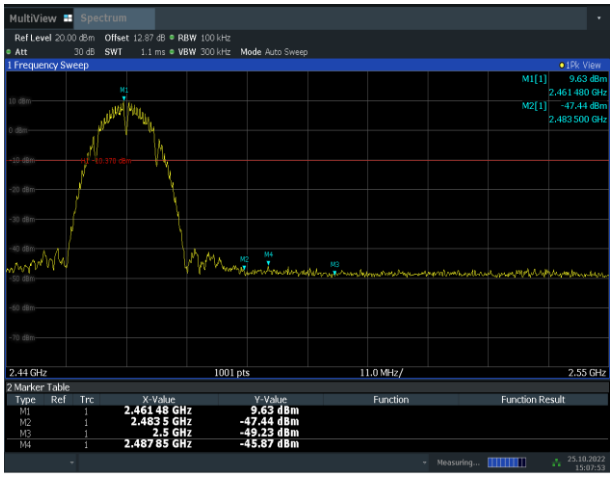


Fig.A.5.2 Band Edges (802.11b, Ch 11)

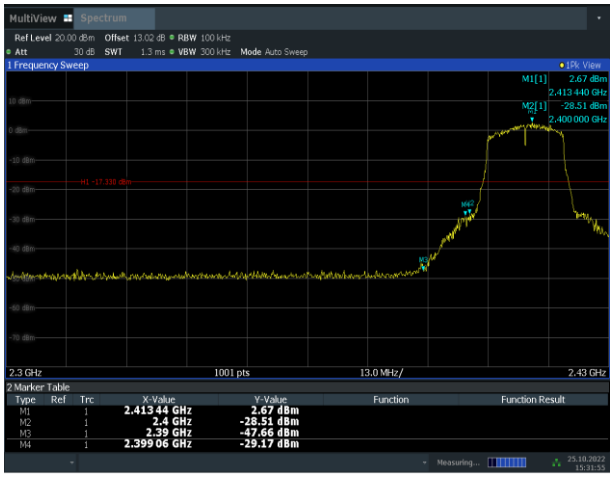


Fig.A.5.3 Band Edges (802.11g, Ch 1)

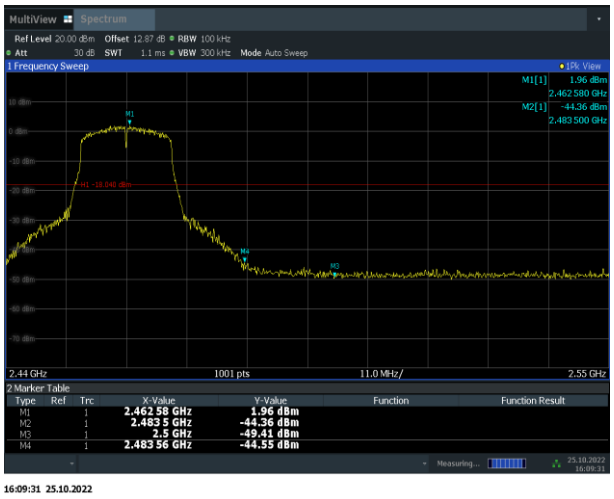


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Fig.A.5.4 Band Edges (802.11g, Ch 11)

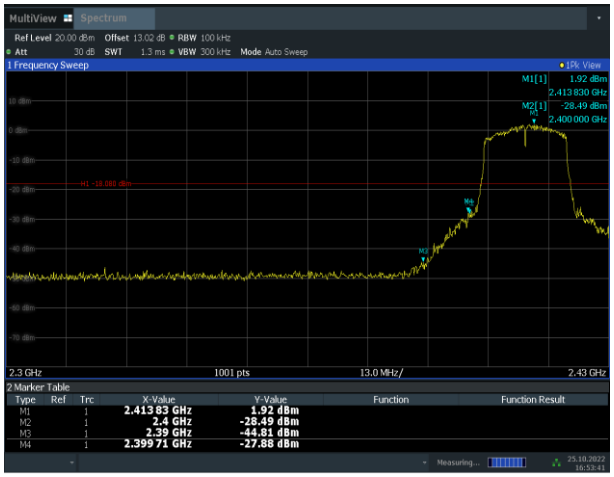

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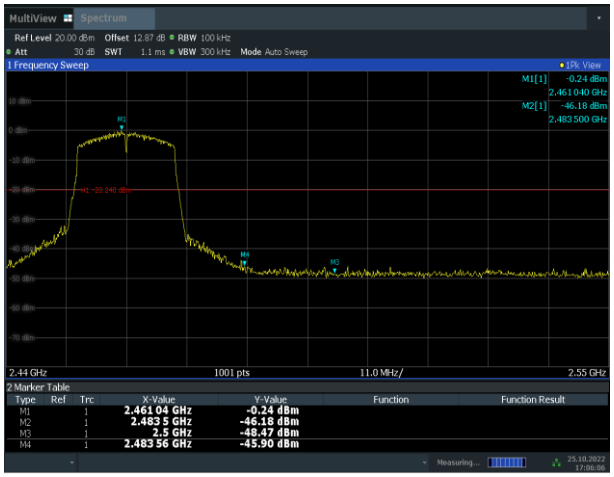
Fig.A.5.5 Band Edges (802.11n-HT20, Ch 1)



17:06:07 25.10.2022

Fig.A.5.6 Band Edges (802.11n-HT20, Ch 11)

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: UT27a

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 ~ 26.5 GHz	Fig.A.6.1.3	**P**
	6	2.437 GHz	Fig.A.6.1.4	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.5	**P**
		1 GHz ~ 26.5 GHz	Fig.A.6.1.6	**P**
	11	2.462 GHz	Fig.A.6.1.7	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.8	**P**
		1 GHz ~ 26.5 GHz	Fig.A.6.1.9	**P**

802.11g mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11g	1	2.412 GHz	Fig.A.6.1.10	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.11	**P**
		1 GHz ~ 26.5 GHz	Fig.A.6.1.12	**P**
	6	2.437 GHz	Fig.A.6.1.13	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.14	**P**
		1 GHz ~ 26.5 GHz	Fig.A.6.1.15	**P**
	11	2.462 GHz	Fig.A.6.1.16	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.17	**P**
		1 GHz ~ 26.5 GHz	Fig.A.6.1.18	**P**

802.11n-HT20 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	1	2.412 GHz	Fig.A.6.1.19	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.20	**P**
		1 GHz ~ 26.5 GHz	Fig.A.6.1.21	**P**
	6	2.437 GHz	Fig.A.6.1.22	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.23	**P**
		1 GHz ~ 26.5 GHz	Fig.A.6.1.24	**P**
	11	2.462 GHz	Fig.A.6.1.25	**P**
		30 MHz ~ 1 GHz	Fig.A.6.1.26	**P**
		1 GHz ~ 26.5 GHz	Fig.A.6.1.27	**P**

Conclusion: Pass

Test graphs as below:

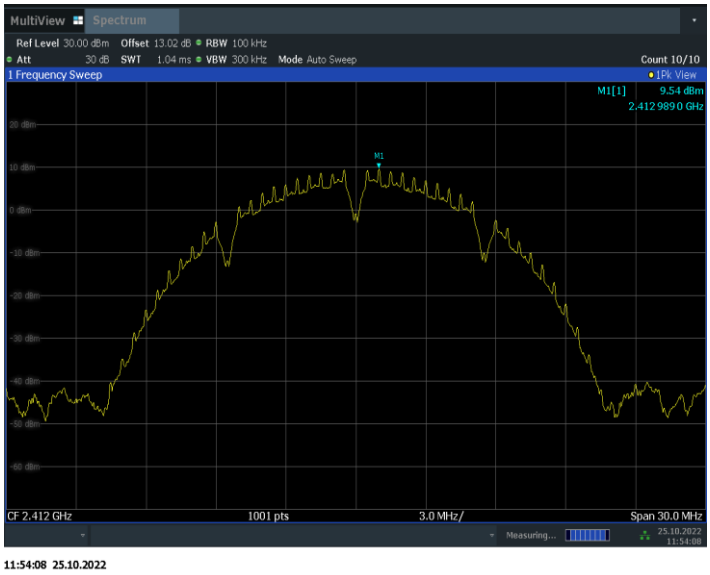


Fig.A.6.1.1 Transmitter Spurious Emission - Conducted (802.11b, Ch1, Center Frequency)

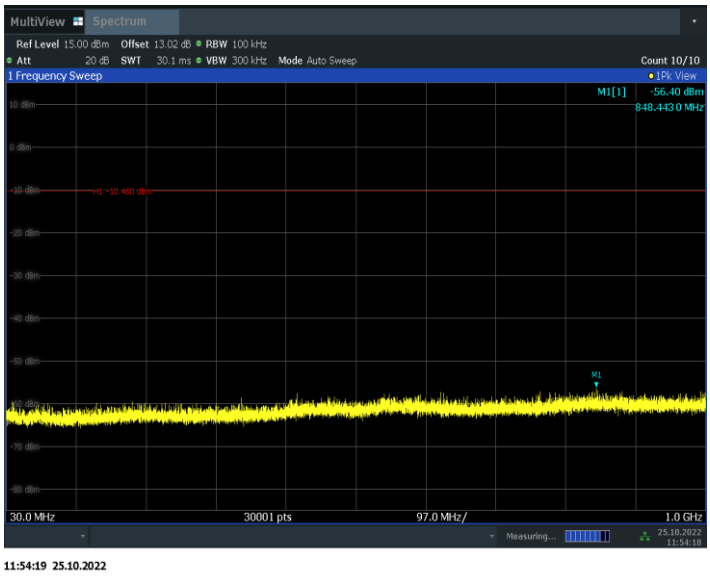


Fig.A.6.1.2 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 30 MHz-1 GHz)

Fig.A.6.1.3 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 1 GHz-26.5 GHz)

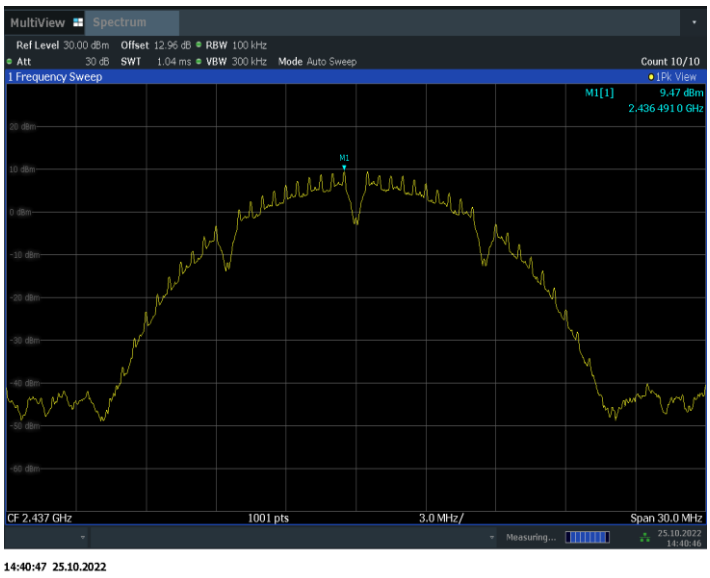


Fig.A.6.1.4 Transmitter Spurious Emission - Conducted (802.11b, Ch6, Center Frequency)

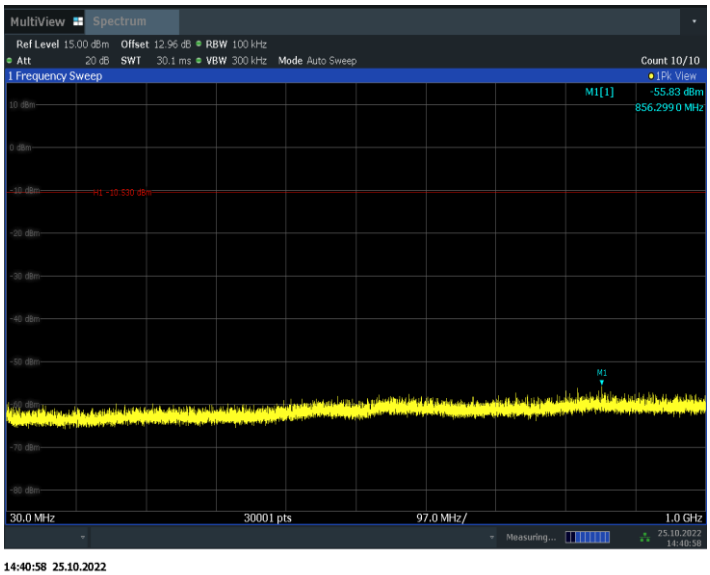


Fig.A.6.1.5 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 30 MHz-1 GHz)

Fig.A.6.1.6 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 1 GHz-26.5 GHz)

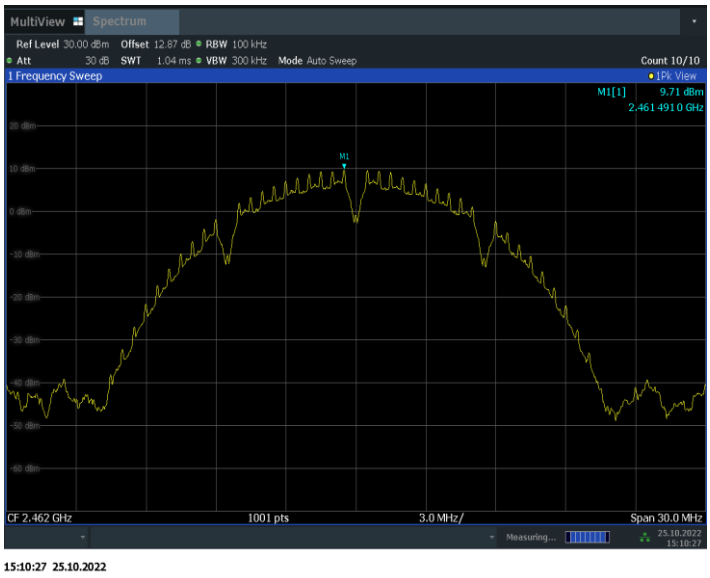


Fig.A.6.1.7 Transmitter Spurious Emission - Conducted (802.11b, Ch11, Center Frequency)

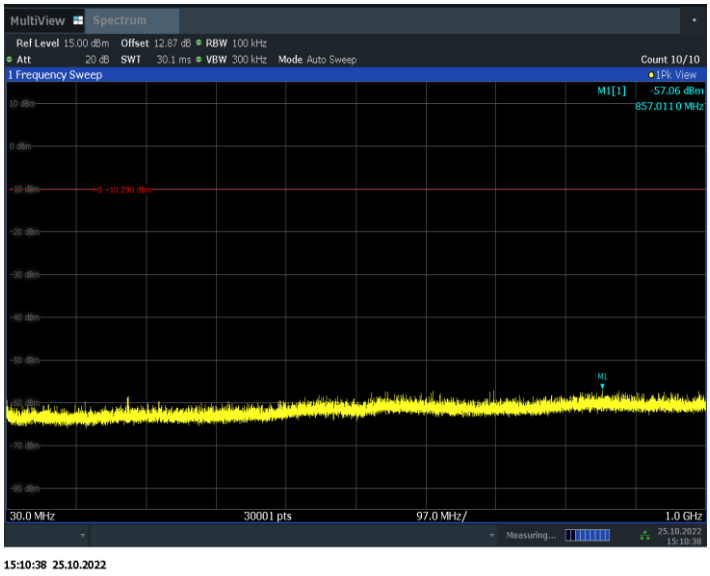


Fig.A.6.1.8 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 30 MHz-1 GHz)

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Fig.A.6.1.9 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 1 GHz-26.5 GHz)

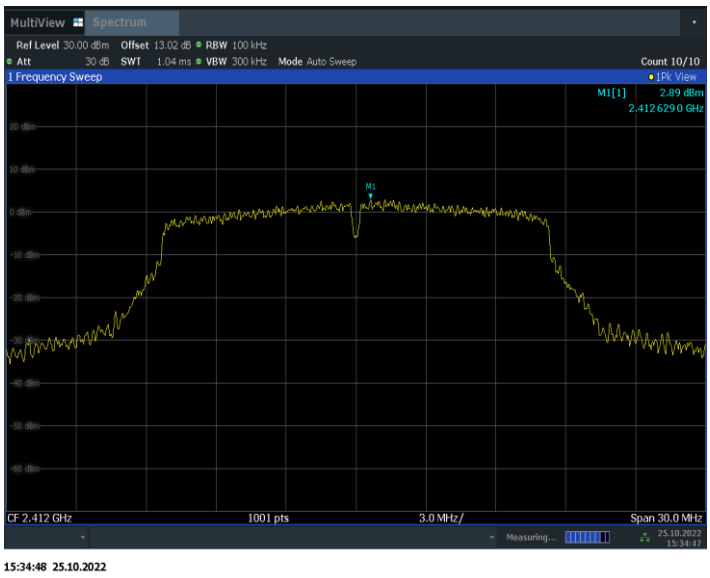

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Fig.A.6.1.10 Transmitter Spurious Emission - Conducted (802.11g, Ch1, Center Frequency)

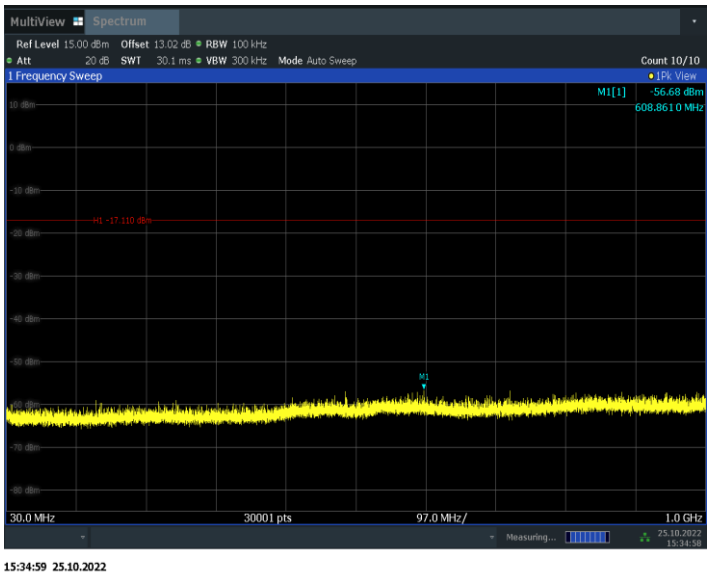

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Fig.A.6.1.11 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 30 MHz-1 GHz)

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Fig.A.6.1.12 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 1 GHz-26.5 GHz)

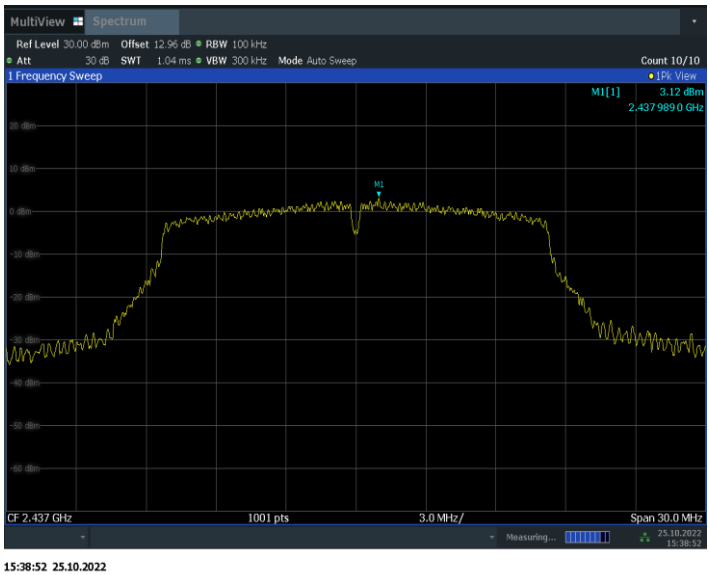

Fig.A.6.1.13 Transmitter Spurious Emission - Conducted (802.11g, Ch6, Center Frequency)

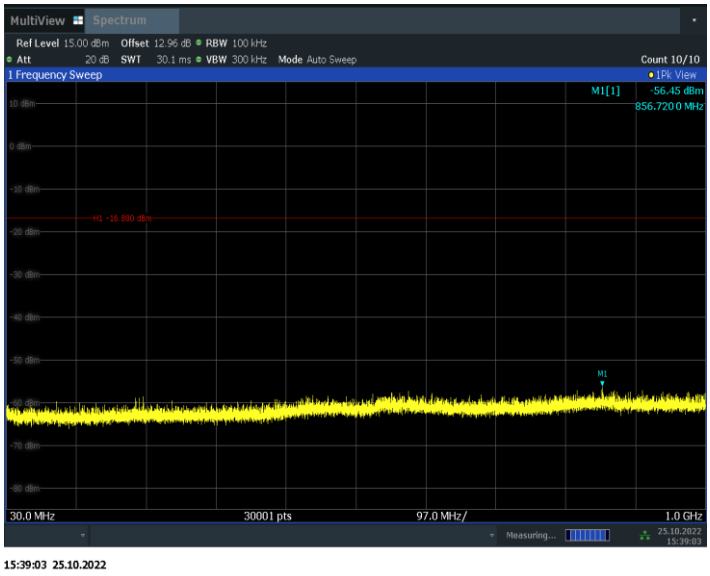

Fig.A.6.1.14 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 30 MHz-1 GHz)

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Fig.A.6.1.15 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 1 GHz-26.5 GHz)

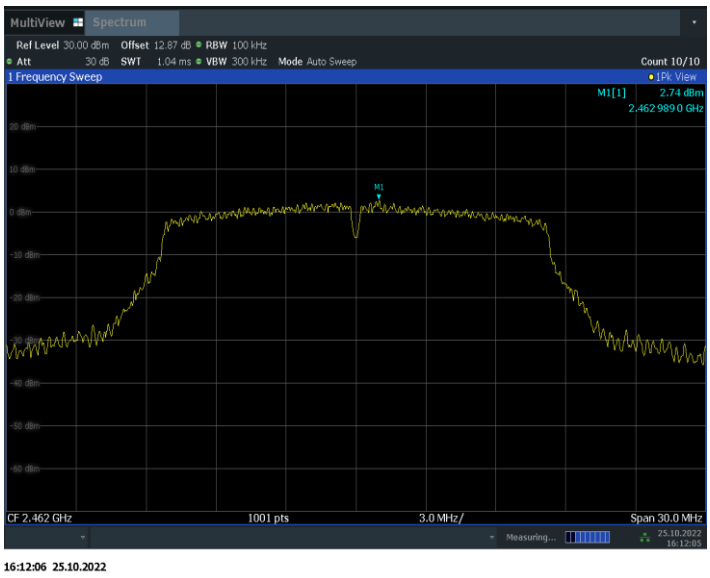

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Fig.A.6.1.16 Transmitter Spurious Emission - Conducted (802.11g, Ch11, Center Frequency)

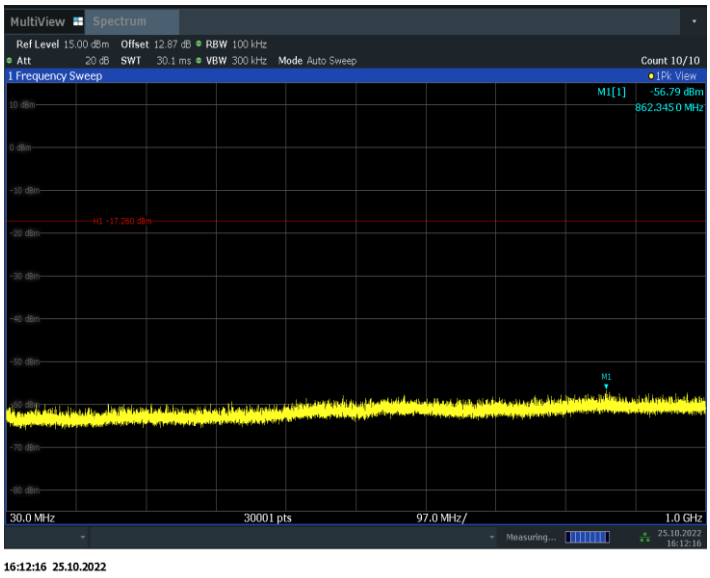

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Fig.A.6.1.17 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 30 MHz-1 GHz)

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Fig.A.6.1.18 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 1 GHz-26.5 GHz)

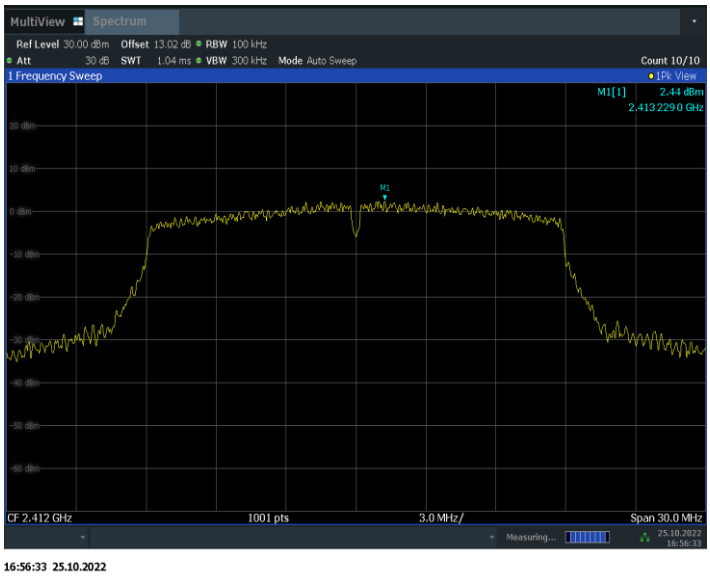

Fig.A.6.1.19 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, Center Frequency)

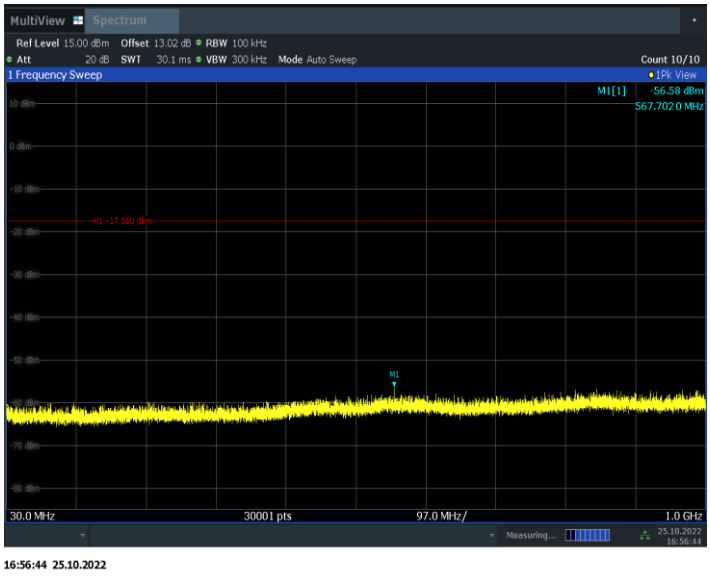

Fig.A.6.1.20 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 30 MHz-1 GHz)

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Fig.A.6.1.21 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 1 GHz-26.5 GHz)

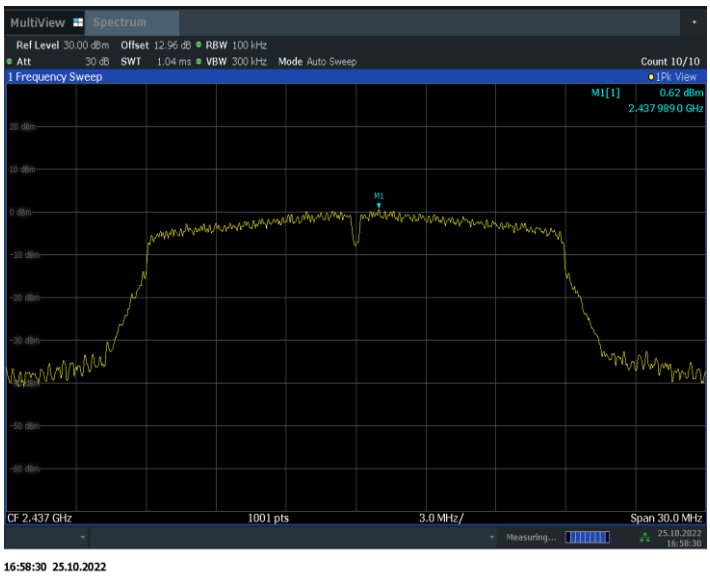

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Fig.A.6.1.22 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, Center Frequency)

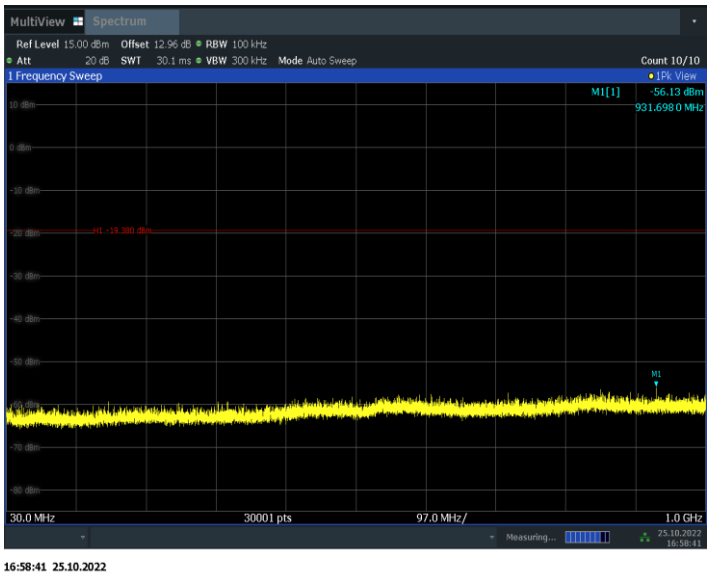


Fig.A.6.1.23 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 30 MHz-1 GHz)

Fig.A.6.1.24 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 1 GHz-26.5 GHz)

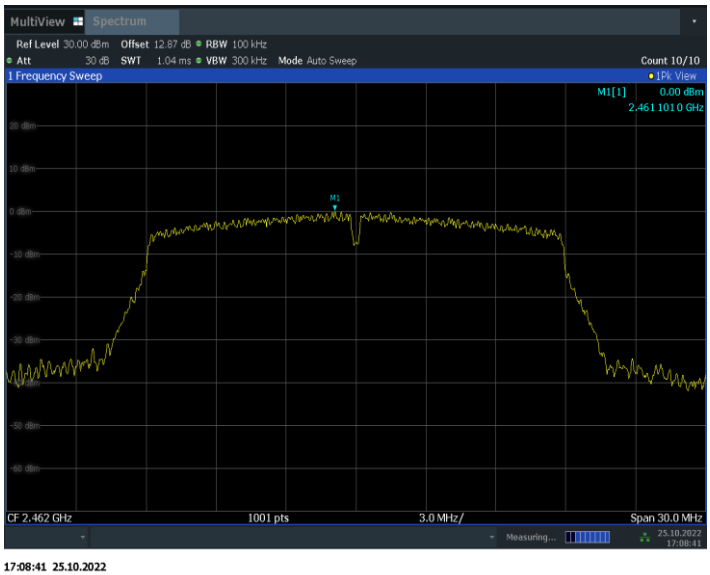


Fig.A.6.1.25 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, Center Frequency)

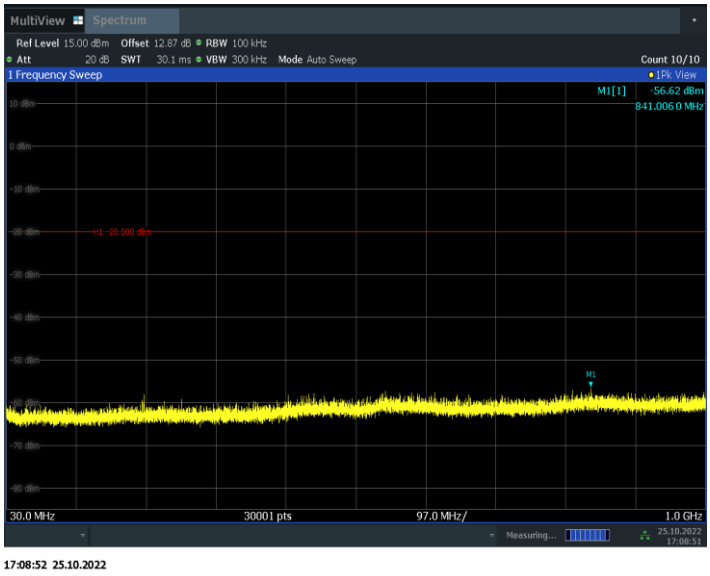


Fig.A.6.1.26 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 30 MHz-1 GHz)

Fig.A.6.1.27 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 1 GHz-26.5 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

In addition, 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 of emission (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

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

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 Procedure

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result. 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:

802.11b mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.31GHz~2.43GHz---L	Fig.A.6.2.1	**P**
	11	2.45GHz~2.50GHz---H	Fig.A.6.2.2	**P**

802.11g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	1	2.31GHz~2.43GHz---L	Fig.A.6.2.3	**P**
	11	2.45GHz~2.50GHz---H	Fig.A.6.2.4	**P**

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	1	2.31GHz~2.43GHz---L	Fig.A.6.2.5	**P**
	11	2.45GHz~2.50GHz---H	Fig.A.6.2.6	**P**

Conclusion: Pass

Note:

1. 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
2. The range of evaluated frequency is from 9 kHz to 26GHz. Measurement value show only up to 6 maximum emissions noted.

Peak

802.11b

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2386.188	59.52	4.61	32.05	22.86	74.00	14.48	H
2387.476	59.17	4.61	32.06	22.51	74.00	14.83	V
4823.500	52.01	-35.93	33.83	54.10	74.00	21.99	H
7236.000	41.00	-34.54	35.55	39.99	74.00	33.00	V
9648.000	44.76	-33.48	36.84	41.40	74.00	29.24	H
12060.000	44.27	-31.76	38.80	37.23	74.00	29.73	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2368.600	43.93	4.57	32.03	7.34	74.00	30.07	V
2503.000	44.35	4.64	32.20	7.50	74.00	29.65	H
4874.000	52.75	-35.79	33.82	54.72	74.00	21.25	V
7311.000	41.57	-34.28	35.56	40.29	74.00	32.43	V
9748.000	42.18	-33.54	37.00	38.71	74.00	31.82	V
12185.000	44.55	-31.61	38.80	37.36	74.00	29.45	H

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2487.930	61.74	4.64	32.18	24.92	74.00	12.26	H
2488.510	62.17	4.64	32.19	25.34	74.00	11.83	V
4924.000	52.48	-35.70	33.81	54.36	74.00	21.52	V
7386.000	43.38	-34.09	35.58	41.90	74.00	30.62	V
9848.000	42.74	-33.44	37.16	39.03	74.00	31.26	H
12310.000	44.90	-31.47	38.80	37.57	74.00	29.10	V

802.11g

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.674	66.69	4.61	32.06	30.02	74.00	7.31	V
2389.842	66.18	4.62	32.06	29.51	74.00	7.82	H
4826.000	50.97	-35.92	33.83	53.05	74.00	23.03	H
7236.500	42.55	-34.54	35.55	41.54	74.00	31.45	V
9646.500	43.73	-33.48	36.84	40.37	74.00	30.27	V
12060.000	45.84	-31.76	38.80	38.79	74.00	28.16	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2369.600	44.08	4.57	32.03	7.48	74.00	29.92	H
2510.200	45.60	4.67	32.21	8.72	74.00	28.40	H
4870.500	47.51	-35.79	33.82	49.48	74.00	26.49	V
7311.000	42.15	-34.28	35.56	40.87	74.00	31.85	H
9748.000	42.59	-33.54	37.00	39.12	74.00	31.41	H
12185.000	44.33	-31.61	38.80	37.14	74.00	29.67	V

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.515	70.56	4.65	32.18	33.73	74.00	3.44	H
2483.805	70.36	4.65	32.18	33.53	74.00	3.64	V
4925.500	50.47	-35.70	33.81	52.36	74.00	23.53	V
7386.000	42.12	-34.09	35.58	40.63	74.00	31.88	V
9848.000	43.26	-33.44	37.16	39.54	74.00	30.74	H
12310.000	43.94	-31.47	38.80	36.61	74.00	30.06	V

802.11n-HT20

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.198	69.43	4.61	32.06	32.76	74.00	4.57	H
2389.324	69.20	4.61	32.06	32.53	74.00	4.80	V
4824.000	47.62	-35.93	33.83	49.71	74.00	26.38	V
7236.000	40.86	-34.54	35.55	39.85	74.00	33.14	H
9648.000	42.97	-33.48	36.84	39.61	74.00	31.03	H
12060.000	44.06	-31.76	38.80	37.01	74.00	29.94	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2372.800	44.45	4.57	32.04	7.84	74.00	29.55	V
2501.000	45.02	4.63	32.20	8.19	74.00	28.98	V
4870.000	45.66	-35.80	33.83	47.63	74.00	28.34	V
7311.000	42.01	-34.28	35.56	40.73	74.00	31.99	V
9748.000	43.13	-33.54	37.00	39.66	74.00	30.87	H
12185.000	44.38	-31.61	38.80	37.19	74.00	29.62	H

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.590	69.42	4.65	32.18	32.59	74.00	4.58	H
2484.450	69.70	4.65	32.18	32.87	74.00	4.30	V
4920.500	48.91	-35.71	33.82	50.80	74.00	25.09	H
7386.000	42.31	-34.09	35.58	40.83	74.00	31.69	V
9848.000	42.77	-33.44	37.16	39.06	74.00	31.23	V
12310.000	44.70	-31.47	38.80	37.38	74.00	29.30	H

Average

802.11b

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2385.525	47.71	4.60	32.05	11.05	54.00	6.29	V
2386.838	47.65	4.61	32.05	10.99	54.00	6.35	V
4823.800	50.18	-35.93	33.83	52.27	54.00	3.82	V
7236.100	29.41	-34.54	35.55	28.40	54.00	24.59	H
9648.100	31.67	-33.48	36.84	28.31	54.00	22.33	H
12060.100	32.86	-31.76	38.80	25.82	54.00	21.14	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2408.625	49.29	4.64	32.08	12.56	54.00	4.71	V
2465.287	50.30	4.68	32.16	13.47	54.00	3.70	V
4873.900	50.37	-35.79	33.82	52.33	54.00	3.63	V
7311.000	29.83	-34.28	35.56	28.55	54.00	24.17	H
9748.000	30.66	-33.54	37.00	27.19	54.00	23.34	V
12184.900	32.80	-31.61	38.80	25.61	54.00	21.20	V

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2487.750	49.50	4.64	32.18	12.67	54.00	4.50	V
2487.825	49.50	4.64	32.18	12.68	54.00	4.50	V
4923.700	49.98	-35.70	33.81	51.86	54.00	4.02	H
7386.100	30.00	-34.09	35.58	28.51	54.00	24.00	V
9847.000	30.26	-33.45	37.16	26.54	54.00	23.74	V
12310.000	32.72	-31.47	38.80	25.39	54.00	21.28	H

802.11g

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.875	48.43	4.62	32.06	11.75	54.00	5.57	V
2389.950	48.49	4.62	32.06	11.81	54.00	5.51	V
4825.900	37.24	-35.92	33.83	39.33	54.00	16.76	H
7375.900	30.93	-34.09	35.58	29.44	54.00	23.07	H
9408.700	31.57	-33.37	36.53	28.41	54.00	22.43	V
12060.100	33.29	-31.76	38.80	26.24	54.00	20.71	V

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2404.575	49.10	4.64	32.08	12.38	54.00	4.90	V
2472.300	49.33	4.68	32.17	12.48	54.00	4.67	V
4873.300	34.88	-35.79	33.82	36.84	54.00	19.12	V
7311.100	30.29	-34.28	35.56	29.00	54.00	23.71	V
9748.000	30.80	-33.54	37.00	27.34	54.00	23.20	V
12184.900	33.00	-31.61	38.80	25.81	54.00	21.00	H

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.512	49.98	4.65	32.18	13.14	54.00	4.02	V
2483.662	49.80	4.65	32.18	12.97	54.00	4.20	V
4922.800	36.49	-35.70	33.81	38.38	54.00	17.51	H
7386.100	30.20	-34.09	35.58	28.71	54.00	23.80	V
9847.900	30.51	-33.44	37.16	26.79	54.00	23.49	V
12310.000	33.11	-31.47	38.80	25.78	54.00	20.89	H

802.11n-HT20

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.762	49.15	4.61	32.06	12.48	54.00	4.85	V
2389.988	49.43	4.62	32.06	12.76	54.00	4.57	V
4825.000	34.36	-35.92	33.83	36.45	54.00	19.64	V
7236.100	29.83	-34.54	35.55	28.82	54.00	24.17	V
9648.000	31.54	-33.48	36.84	28.18	54.00	22.46	H
12060.100	33.06	-31.76	38.80	26.02	54.00	20.94	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2404.650	48.66	4.64	32.08	11.94	54.00	5.34	V
2469.938	49.76	4.68	32.16	12.92	54.00	4.24	V
4875.400	34.03	-35.78	33.82	35.99	54.00	19.97	V
7311.100	30.26	-34.28	35.56	28.97	54.00	23.74	H
9748.000	30.81	-33.54	37.00	27.35	54.00	23.19	V
12184.900	33.07	-31.61	38.80	25.88	54.00	20.93	V

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.887	47.33	4.65	32.18	10.50	54.00	6.67	V
2484.787	47.03	4.65	32.18	10.20	54.00	6.97	V
4924.000	35.56	-35.70	33.81	37.45	54.00	18.44	H
7386.100	30.30	-34.09	35.58	28.82	54.00	23.70	H
9847.000	30.34	-33.45	37.16	26.63	54.00	23.66	H
12310.000	32.67	-31.47	38.80	25.34	54.00	21.33	H

Test graphs as below:

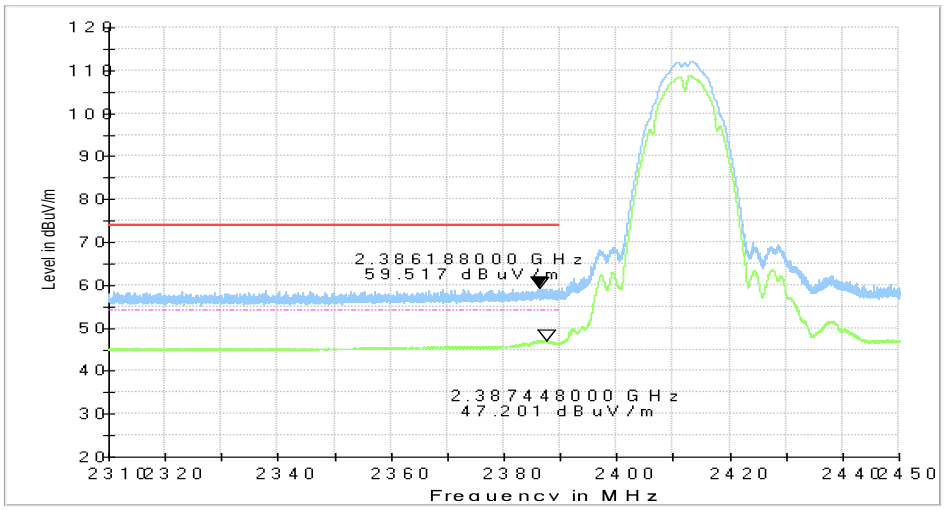


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.45GHz

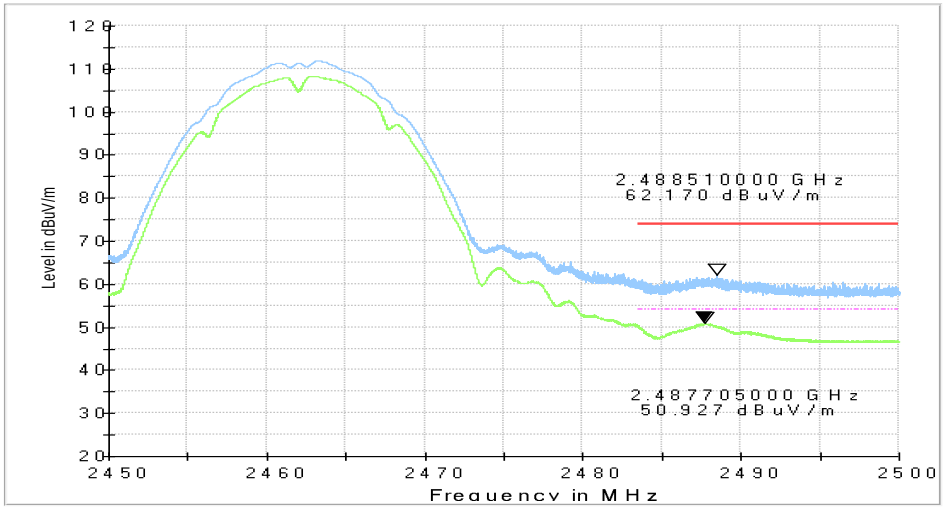


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

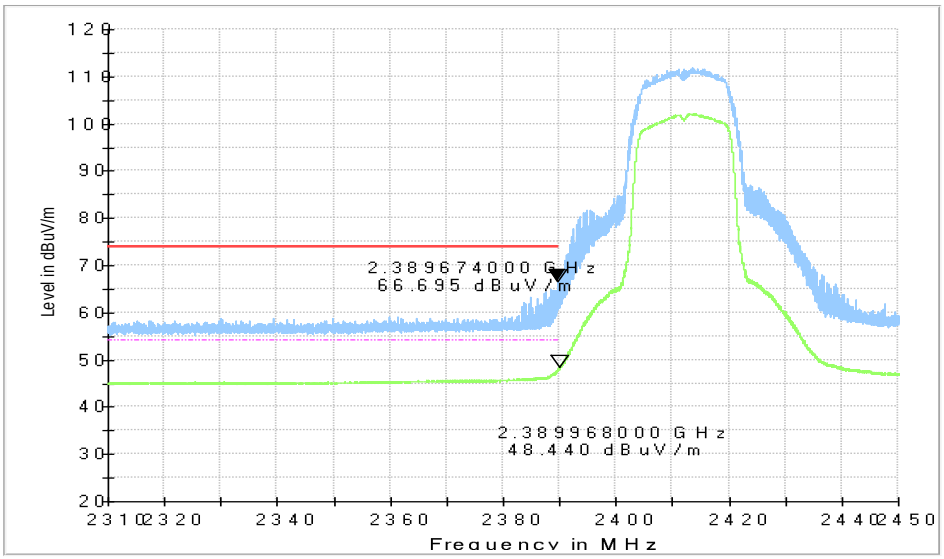


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.45GHz

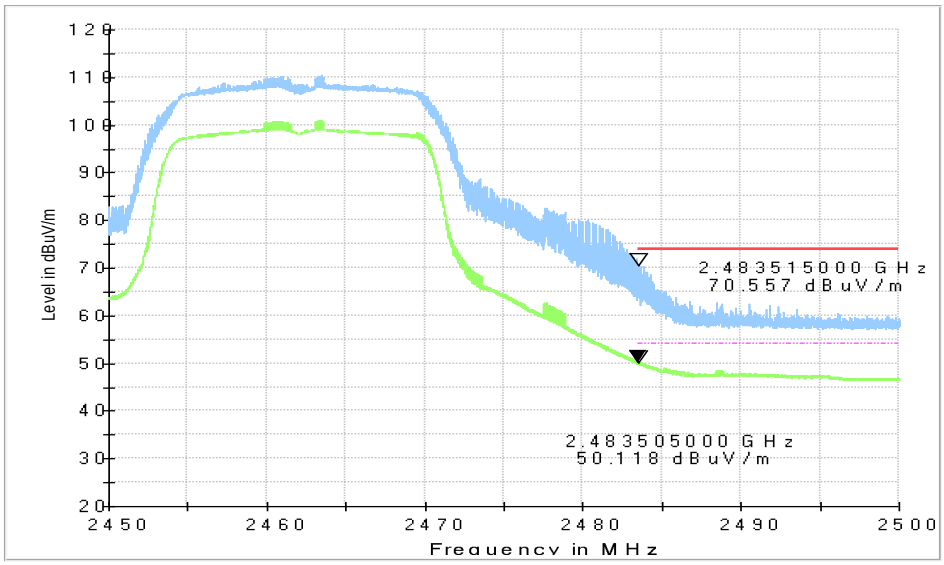


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

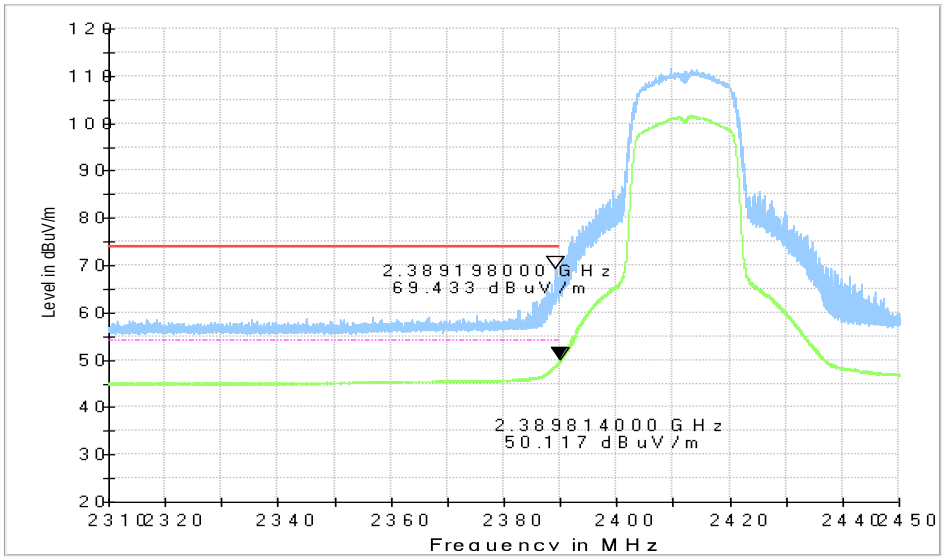


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31 GHz - 2.45GHz

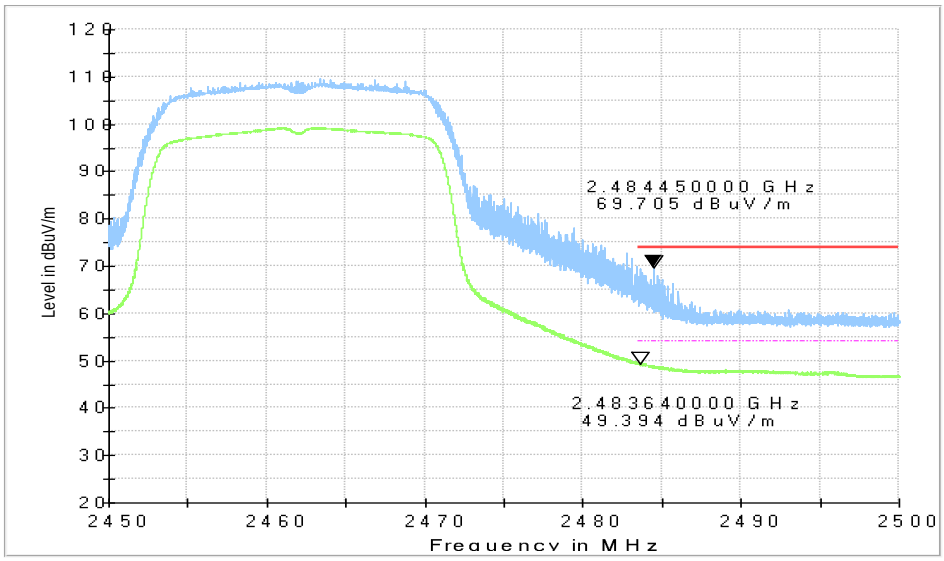


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

A.7. AC Power-line Conducted Emission

Method of Measurement:

See Clause 6.2 of ANSI C63.10-2013 specifically.

See Clause 4 and Clause 5 of ANSI C63.10-2013 generally.

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver: Quasi-Peak / Average Detector.

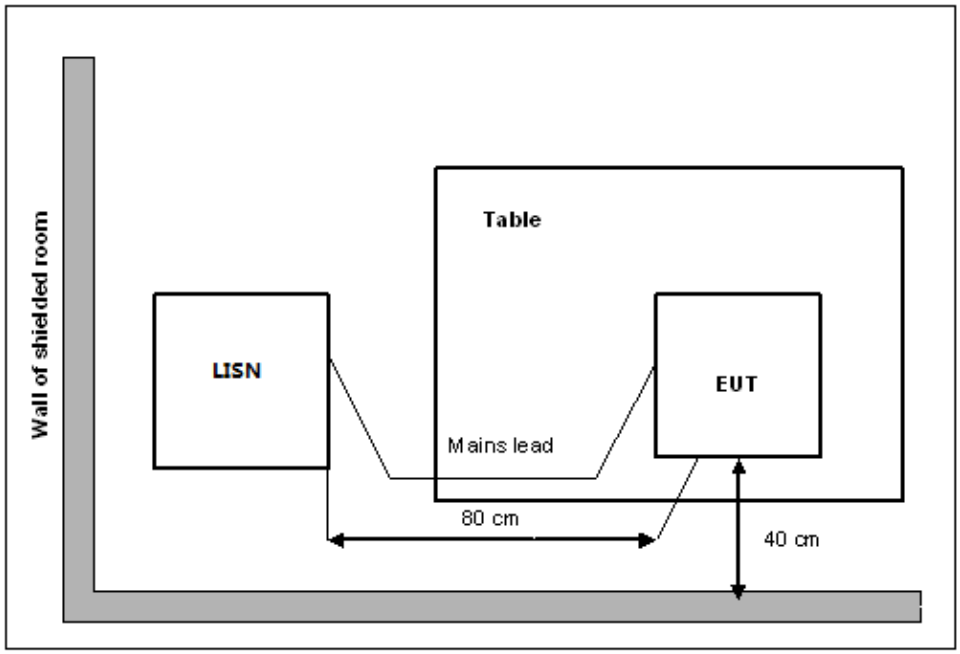
The measurement bandwidth is:

Frequency of Emission (MHz)	RBW/IF bandwidth
0.15-30	9kHz

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Measurement Setup



Measurement Result and limit:

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.				

Conclusion: Pass

Test graphs as below:

Result for Traffic:

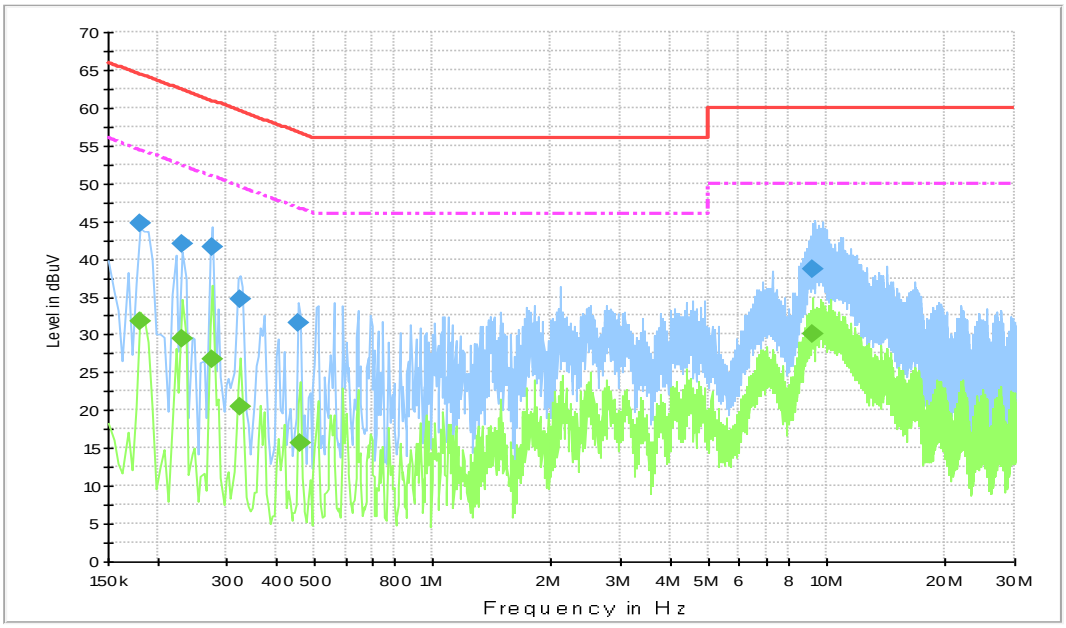


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.181500	44.7	3000.	9.000	L1	19.8	19.8	64.4
0.231000	42.0	3000.	9.000	L1	19.8	20.5	62.4
0.276000	41.6	3000.	9.000	N	19.8	19.3	60.9
0.325500	34.7	3000.	9.000	L1	19.7	24.9	59.6
0.456000	31.5	3000.	9.000	L1	19.8	25.3	56.8
9.249000	38.7	3000.	9.000	N	19.8	21.3	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.181500	31.7	3000.0	9.000	N	19.8	22.7	54.4
0.231000	29.4	3000.0	9.000	L1	19.8	23.0	52.4
0.276000	26.7	3000.0	9.000	L1	19.8	24.3	50.9
0.325500	20.6	3000.0	9.000	L1	19.7	29.0	49.6
0.460500	15.6	3000.0	9.000	N	19.8	31.0	46.7
9.249000	30.1	3000.0	9.000	N	19.8	19.9	50.0

Result for Idle:

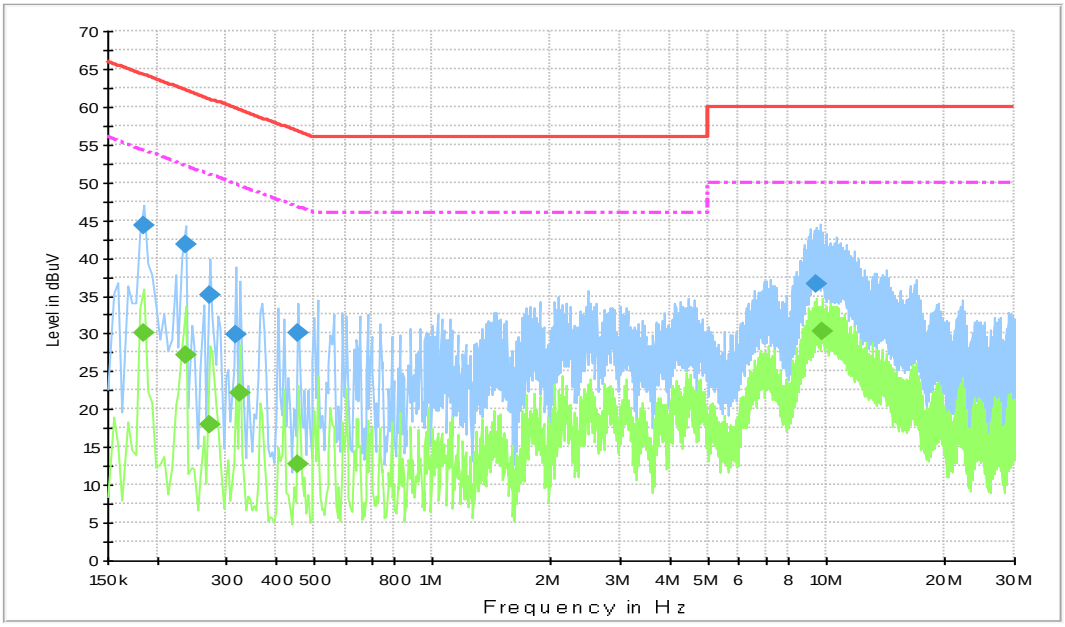


Fig.A.7.2 AC Powerline Conducted Emission-Idle

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186000	44.2	3000.	9.000	L1	19.8	20.0	64.2
0.235500	41.8	3000.	9.000	N	19.8	20.4	62.3
0.271500	35.2	3000.	9.000	N	19.8	25.9	61.1
0.316500	29.9	3000.	9.000	N	19.8	29.9	59.8
0.456000	30.1	3000.	9.000	L1	19.8	26.7	56.8
9.420000	36.5	3000.	9.000	L1	19.8	23.5	60.0

Final Result 2

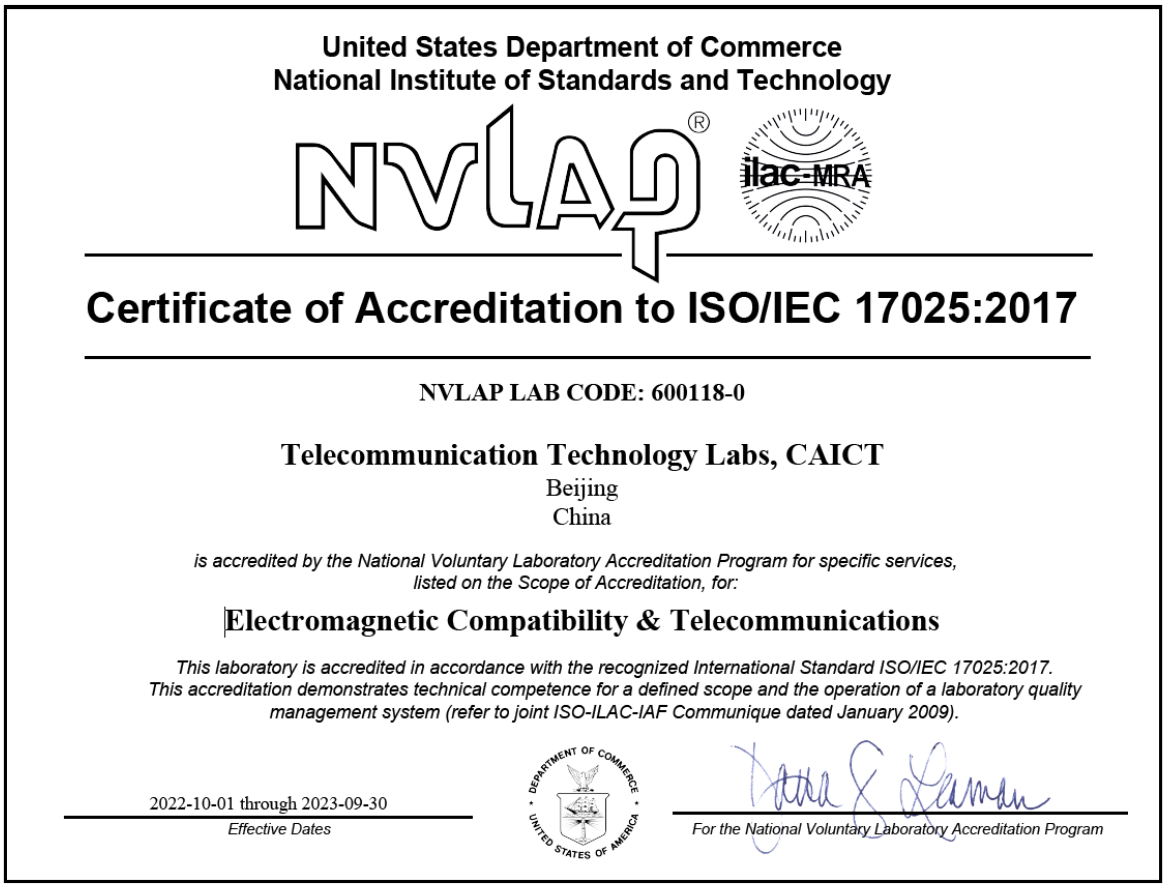
Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186000	30.1	3000.0	9.000	N	19.8	24.1	54.2
0.235500	27.2	3000.0	9.000	L1	19.8	25.1	52.3
0.271500	17.9	3000.0	9.000	L1	19.8	33.2	51.1
0.325500	22.2	3000.0	9.000	N	19.7	27.4	49.6
0.456000	12.8	3000.0	9.000	N	19.8	33.9	46.8
9.712500	30.3	3000.0	9.000	N	19.8	19.7	50.0

Note: The measurement results showed here are worst cases.

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
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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*****