FCC PART 15C
TEST REPORT
No.23T04Z80263-07

for

BLU Products, Inc.

Smart Phone

B170D

FCC ID: YHLBLUB170D

with

Hardware Version: V1.0

Software Version: BLU_B170D_V14.0.01.05.01.01_FSec

Issued Date: 2023-11-28

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.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
23T04Z80263-07	Rev.0	1st edition	2023-11-16
23T04Z80263-07	Rev.1	Adding the Loop Antenna in P11 Adding the description “In total, three EUT elevation positions are measured” in P57	2023-11-28

Note: the latest revision of the test report supersedes all previous version.

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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 American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA 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°C
Relative Humidity:	20-75%

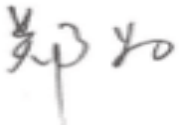
1.4. Project date

Testing Start Date:	2023-10-11
Testing End Date:	2023-11-06

1.5. Signature

Yao Xingyu

(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:	BLU Products, Inc.
Address:	8600 NW 36th Street, Suite #200, Doral, FL 33166
City:	Doral
Postal Code:	/
Country:	US
Telephone:	305.715.7171
Fax:	305.436.8819

2.2. Manufacturer Information

Company Name:	BLU Products, Inc.
Address:	8600 NW 36th Street, Suite #200, Doral, FL 33166
City:	Doral
Postal Code:	/
Country:	US
Telephone:	305.715.7171
Fax:	305.436.8819

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

3.1. About EUT

Description	Smart Phone
Model name	B170D
FCC ID	YHLBLUB170D
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	25.01dBm
Nominal Voltage	3.85V
Extreme High Voltage	4.40V
Extreme Low Voltage	3.60V

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
UT02a	359979710002017	V1.0	BLU_B170D_V14.0.01.05.01.01_FSec	2023-10-12
UT16a	359979710001274	V1.0	BLU_B170D_V14.0.01.05.01.01_FSec	2023-10-12

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

UT16a is used for Conduction test, UT02a is used for Radiation test.

3.3. Internal Identification of AE

AE ID*	Description	Note	Manufacturer
AE1	Battery	C926547500P	Hunan Gaoyuan Battery Co., LTD
AE2	Charger	US-SP-2000	ShenZhen BaiJunDa Electronic CO.,LTD.
AE3	USB cable	CL2105-4	Dongguan Yuwei Electronic Technology 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 Smart Phone with integrated antenna and inbuilt battery.

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.	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. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

6. Test Results

6.1. 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

6.2. Statements

CTTL has evaluated the test cases as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.

This report only deals with the WLAN function among the features described in section 3.

6.3. Test Conditions

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

Temperature	26°C
Voltage	3.85V
Humidity	44%

7. 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	2024-07-04
2	Vector Signal Analyzer	FSW67	104051	Rohde & Schwarz	1 year	2024-03-06
3	Test Receiver	ESCI	100766	R&S	1 year	2024-03-29
4	LISN	ENV216	101459	R&S	1 year	2024-05-04
5	Attenuator	10dB/2W	/	Rosenberger	/	/
6	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

FACT3-2

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESU26	100376	R&S	1 year	2024-06-29
2	EMI Antenna	VULB 9163	01223	SCHWARZBECK	1 year	2024-08-18
3	EMI Antenna	3117	00119012	ETS-Lindgren	1 year	2024-06-24
4	Loop Antenna	HFH2-Z2	829324/007	R&S	2 year	2024-12-23

8. Measurement Uncertainty

8.1. Maximum Output Power

Measurement Uncertainty: 0.387dB,k=1.96

8.2. Peak Power Spectral Density

Measurement Uncertainty: 0.705dB,k=1.96

8.3. DTS 6-dB Signal Bandwidth

Measurement Uncertainty: 60.80Hz,k=1.96

8.4. Band Edges Compliance

Measurement Uncertainty : 0.62dB,k=1.96

8.5. 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

FACT3-2

Frequency Range	Uncertainty(dBm) (k=2)
9kHz-30MHz	/
30MHz ≤ f ≤ 1GHz	5.73
1GHz ≤ f ≤18GHz	5.58

8.6. 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

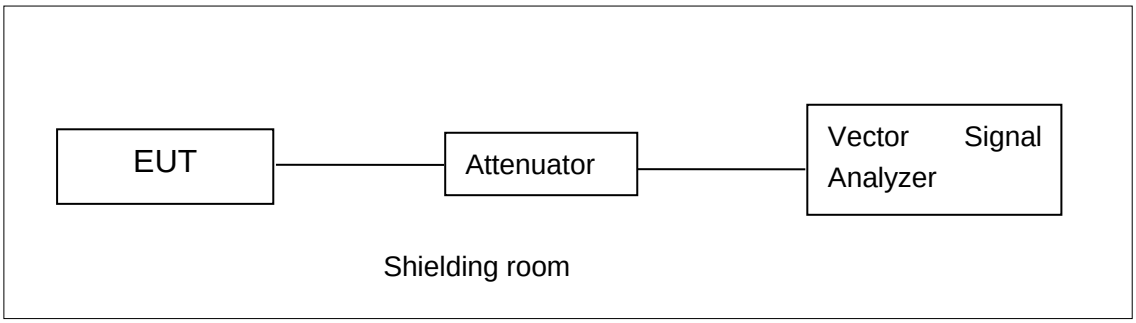


Fig.A.1.1.1: Test Setup Diagram for Conducted Measurements

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;

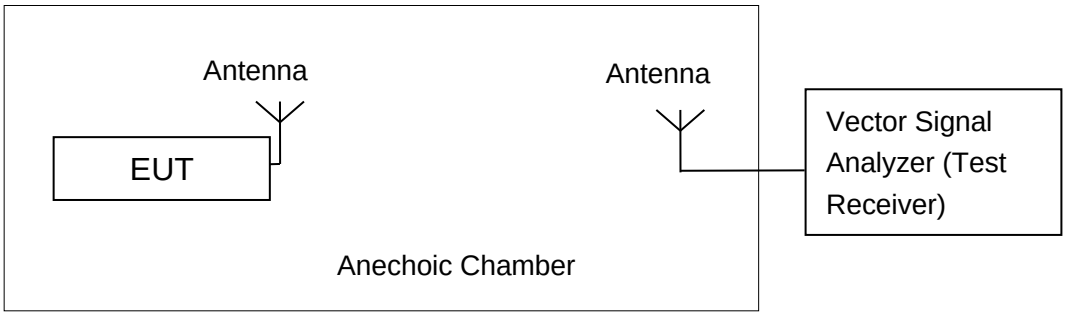


Fig.A.1.2.1: Test Setup Diagram for Radiated Measurements

A.2. Maximum Output Power

Method of Measurement: See ANSI C63.10-2013-clause 11.9.1.3

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

Measurement Limit:

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

A.2.1 Antenna Gain

Antenna gain is -4.0dBi and the value is supplied by the applicant or manufacturer.

A.2.2. Peak Output Power-conducted

EUT ID: UT16a

Measurement Results:

802.11b/g mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	1	21.64	21.42	21.66
802.11g	6	24.63	24.65	24.59

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	24.53	24.75	24.65

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11n-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)
802.11n (40MHz)	MCS0	25.01	24.61	24.79

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

EUT ID: UT16a

Measurement Results:

802.11b/g mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11b	1	Fig.A.3.1	-2.59	P
	6	Fig.A.3.2	-2.61	P
	11	Fig.A.3.3	-2.59	P
802.11g	1	Fig.A.3.4	-8.58	P
	6	Fig.A.3.5	-8.41	P
	11	Fig.A.3.6	-8.79	P

802.11n-HT20 mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11n (HT20)	1	Fig.A.3.7	-7.60	P
	6	Fig.A.3.8	-8.94	P
	11	Fig.A.3.9	-7.90	P

802.11n-HT40 mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11n (HT40)	3	Fig.A.3.10	-11.64	P
	6	Fig.A.3.11	-12.38	P
	9	Fig.A.3.12	-12.16	P

Test graphs as below:

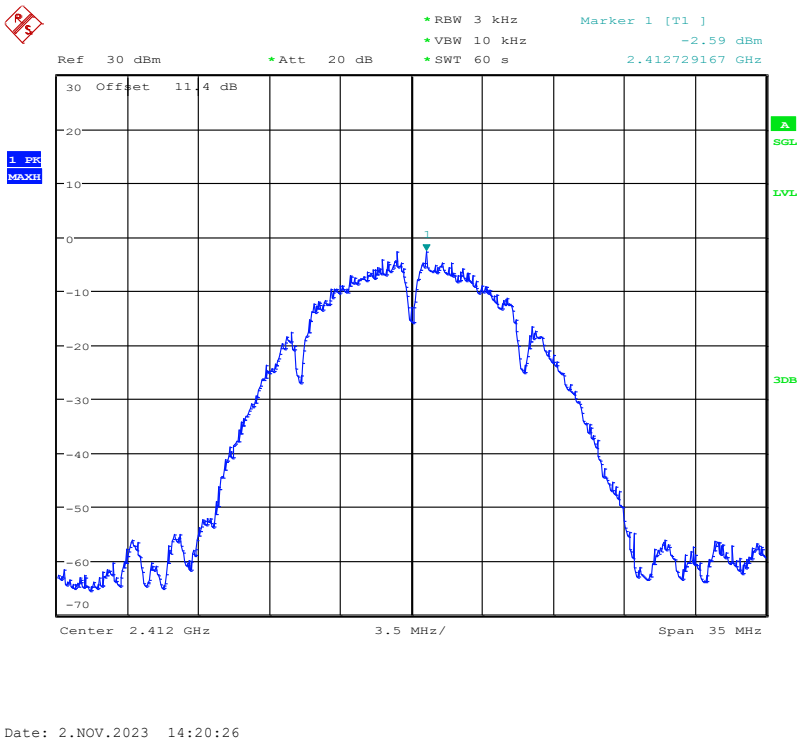


Fig.A.3.1 Power Spectral Density(802.11b,Ch1)

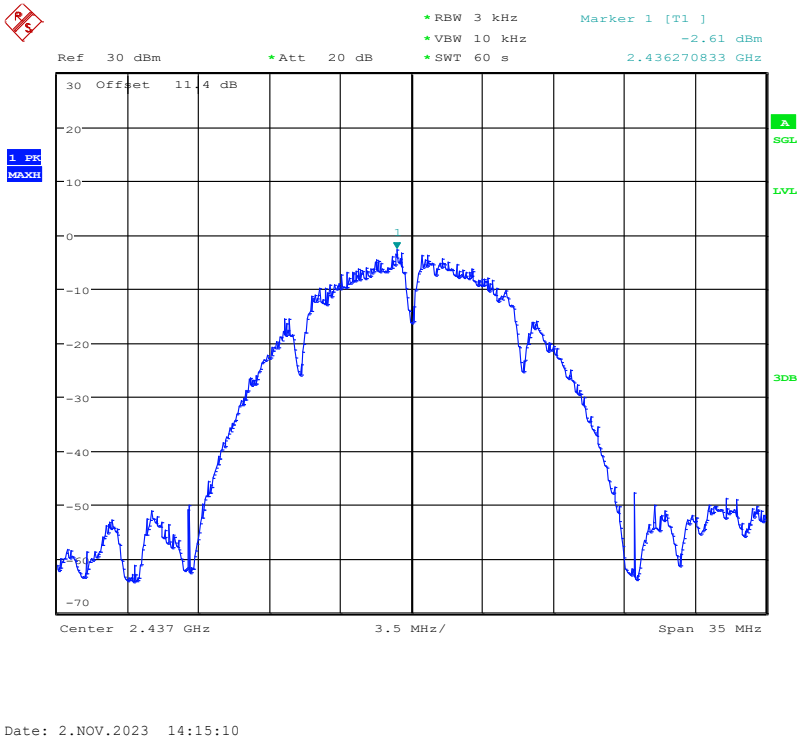


Fig.A.3.2 Power Spectral Density (802.11b, Ch 6)

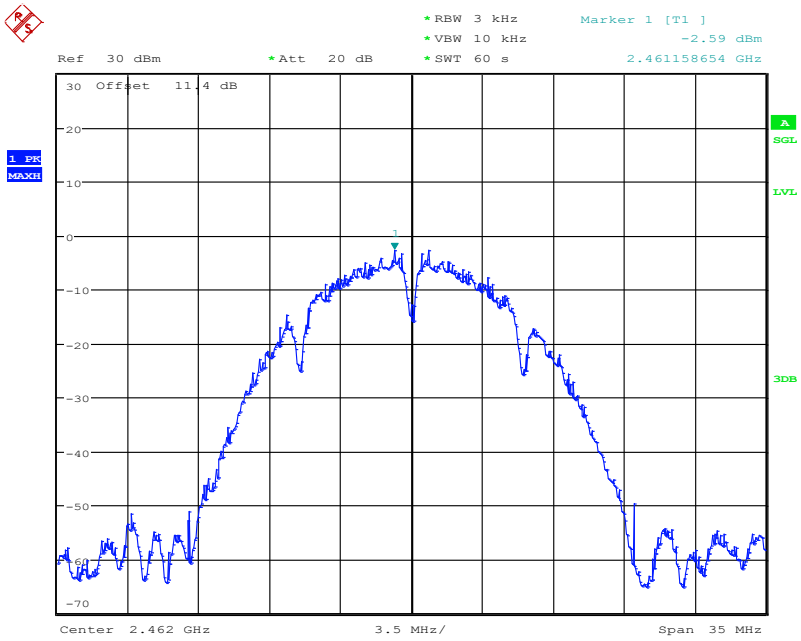


Fig.A.3.3 Power Spectral Density (802.11b, Ch 11)

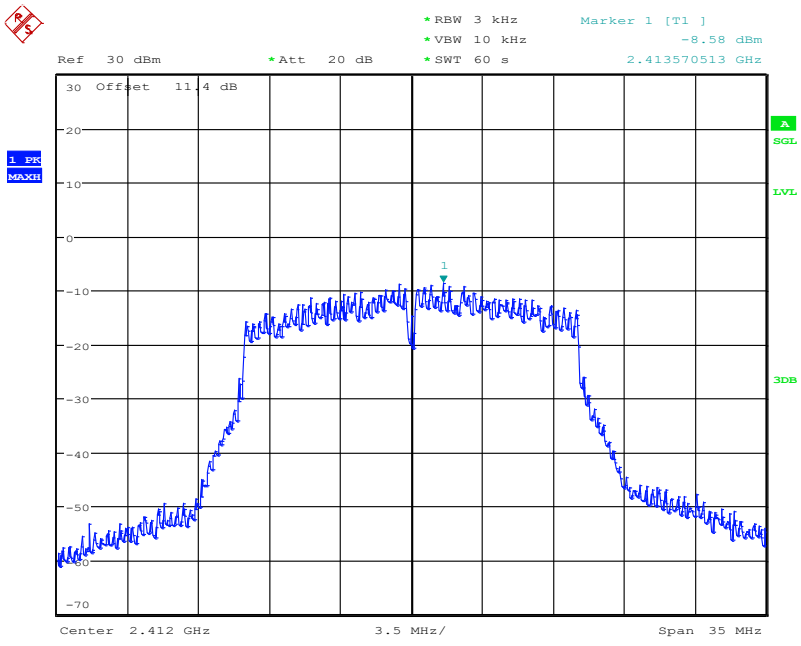


Fig.A.3.4 Power Spectral Density (802.11g, Ch 1)

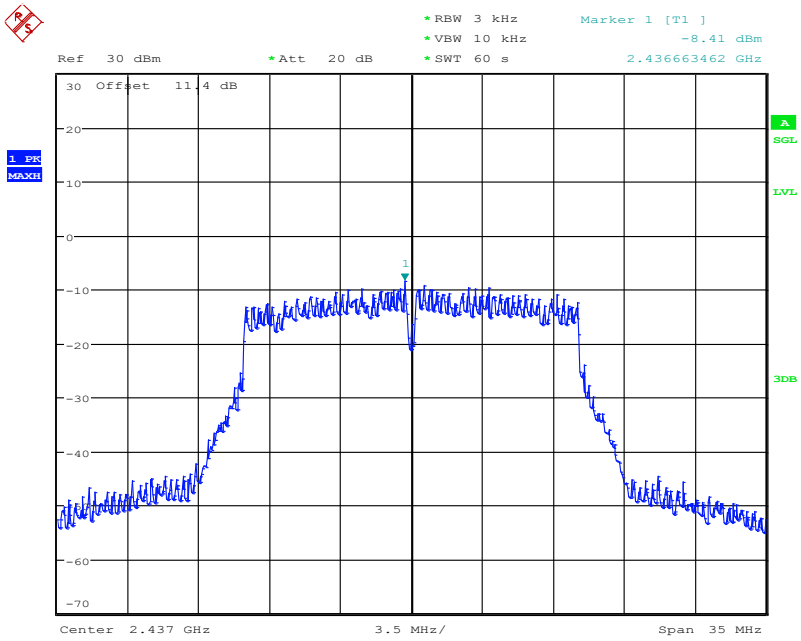


Fig.A.3.5 Power Spectral Density (802.11g, Ch 6)

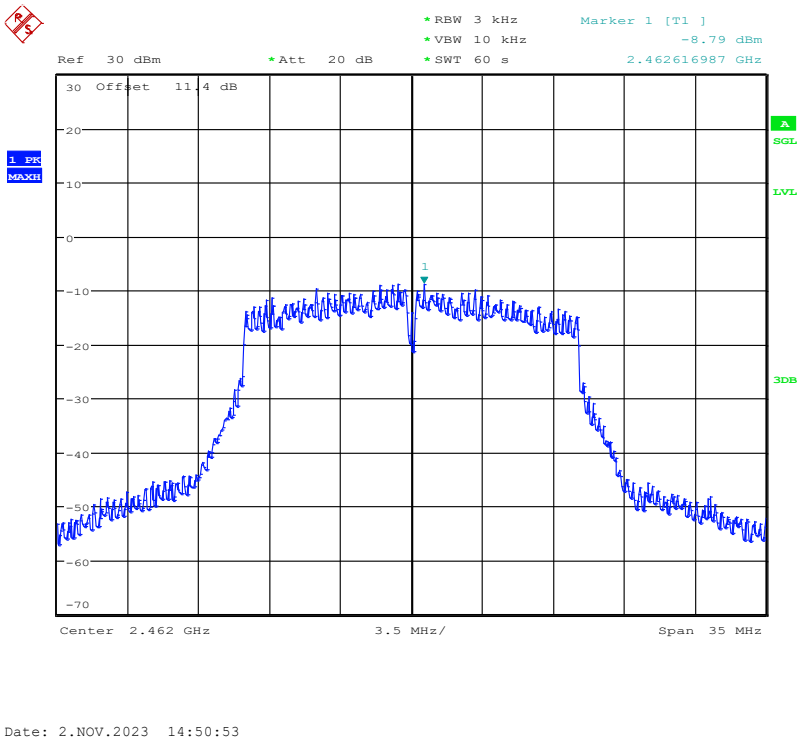


Fig.A.3.6 Power Spectral Density (802.11g, Ch 11)

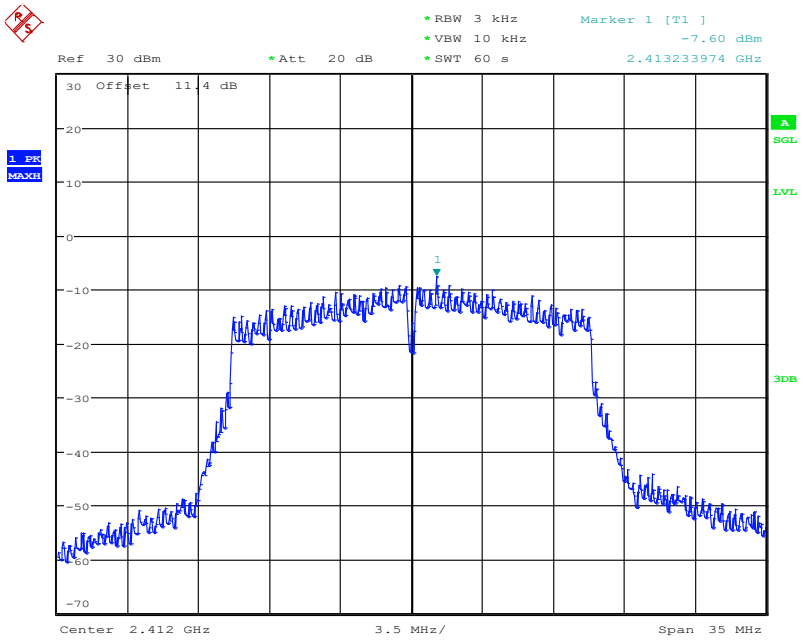


Fig.A.3.7 Power Spectral Density (802.11n-HT20, Ch 1)

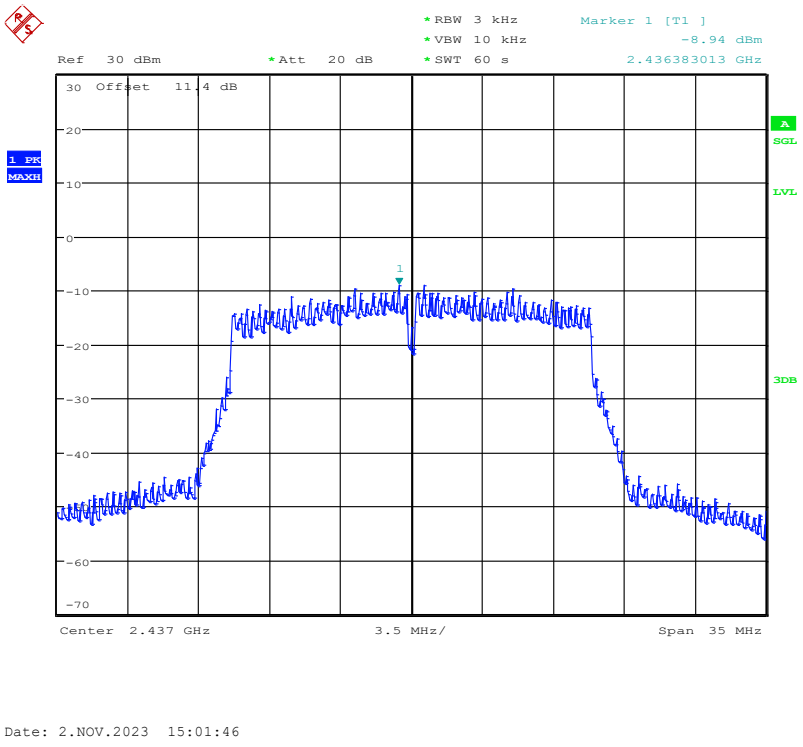


Fig.A.3.8 Power Spectral Density (802.11n-HT20, Ch 6)

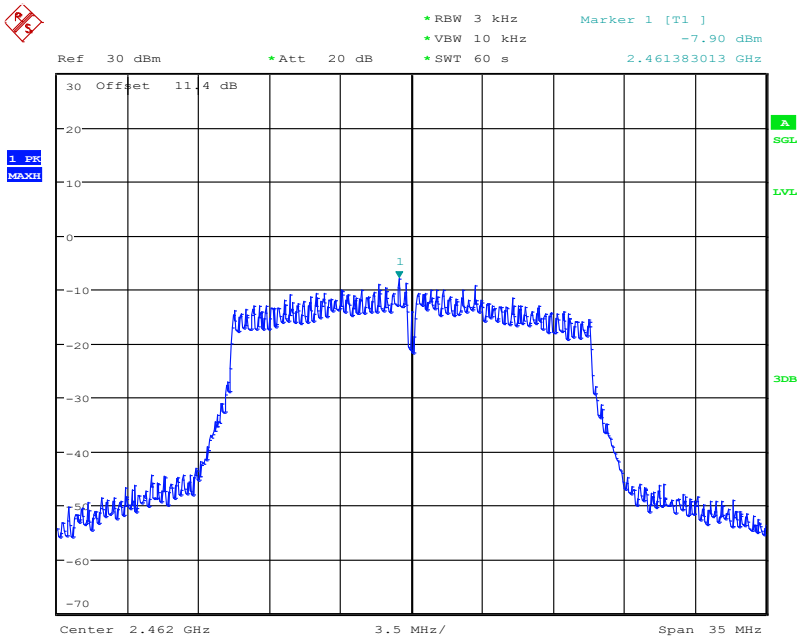


Fig.A.3.9 Power Spectral Density (802.11n-HT20, Ch 11)

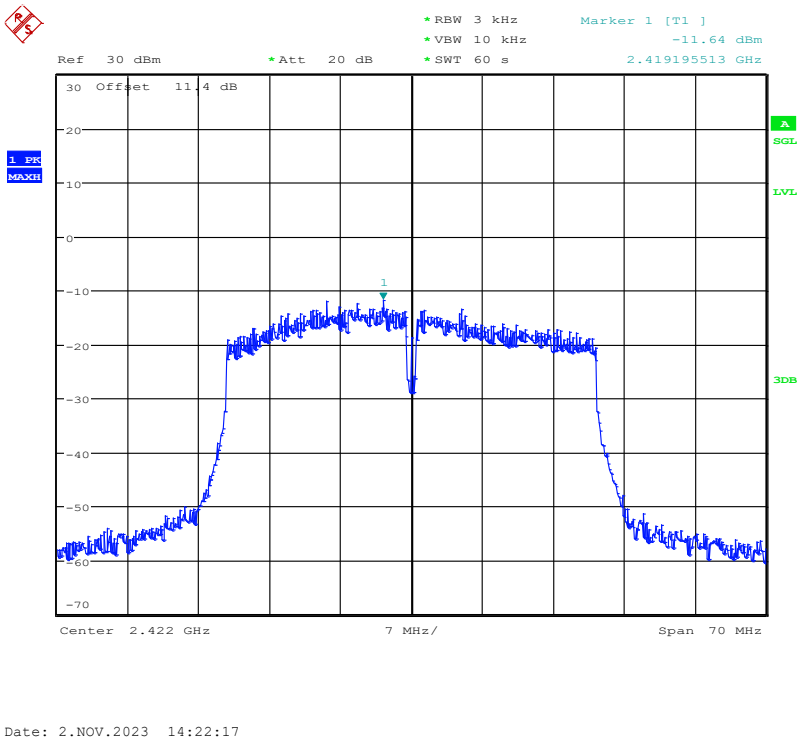


Fig.A.3.10 Power Spectral Density (802.11n-HT40, Ch 3)

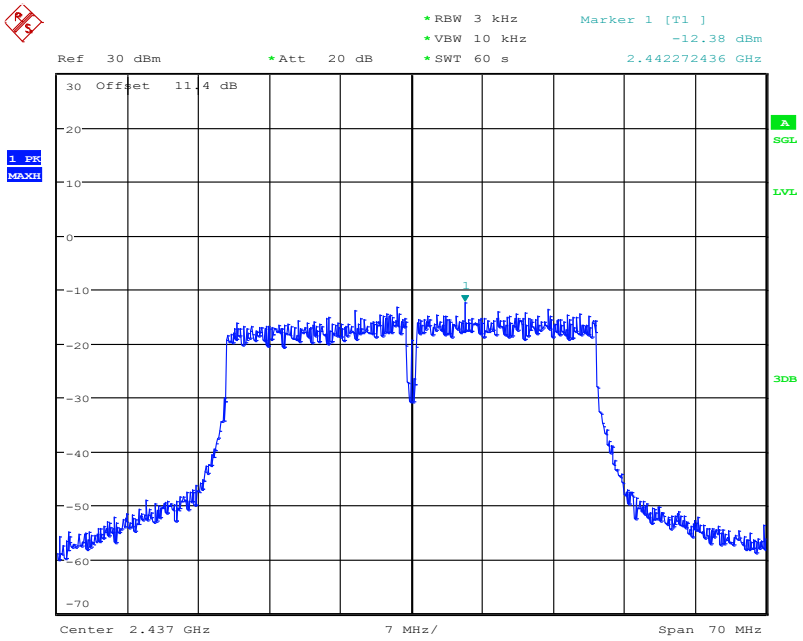


Fig.A.3.11 Power Spectral Density (802.11n-HT40, Ch 6)

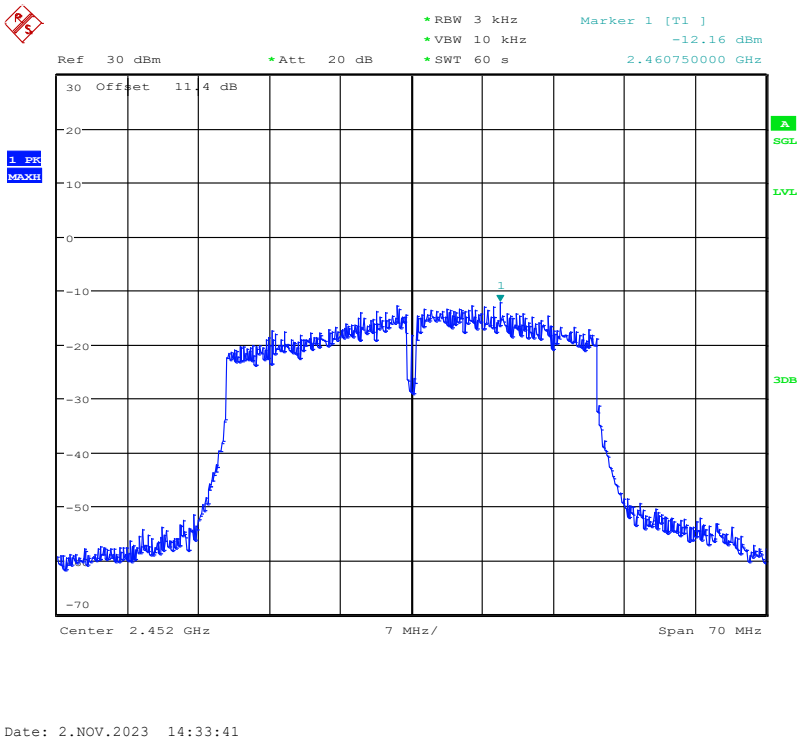


Fig.A.3.12 Power Spectral Density (802.11n-HT40, Ch 9)

Conclusion: Pass

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: UT16a

Measurement Result:

802.11b/g mode

Mode	Channel	DTS Bandwidth (kHz)		conclusion
802.11b	1	Fig.A.4.1	8.01	P
	6	Fig.A.4.2	8.05	P
	11	Fig.A.4.3	7.57	P
802.11g	1	Fig.A.4.4	16.02	P
	6	Fig.A.4.5	16.40	P
	11	Fig.A.4.6	16.16	P

802.11n-HT20 mode

Mode	Channel	DTS Bandwidth (kHz)		conclusion
802.11n (HT20)	1	Fig.A.4.7	17.14	P
	6	Fig.A.4.8	17.70	P
	11	Fig.A.4.9	17.32	P

802.11n-HT40 mode

Mode	Channel	DTS Bandwidth (kHz)		conclusion
802.11n (HT40)	3	Fig.A.4.10	34.47	P
	6	Fig.A.4.11	36.44	P
	9	Fig.A.4.12	31.63	P

Test graphs as below:

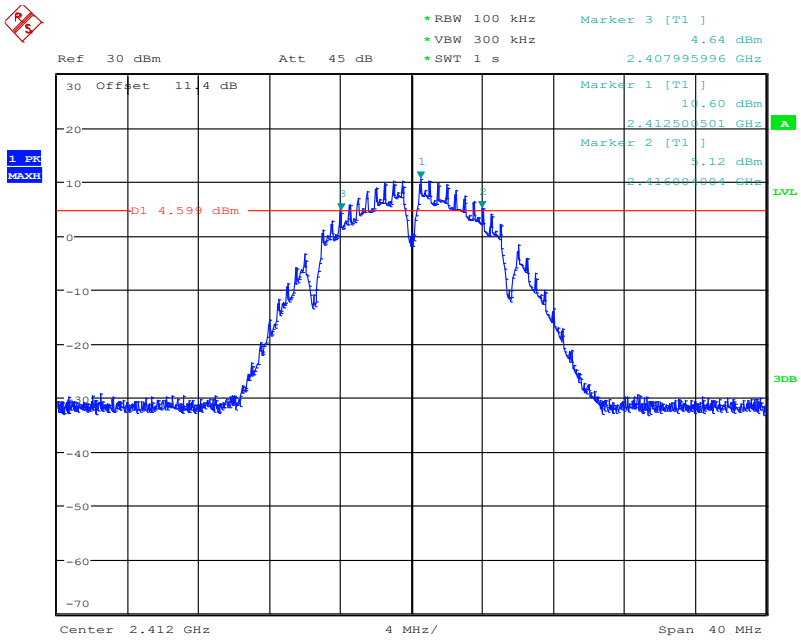


Fig.A.4.1 DTS Bandwidth(802.11b,Ch 1)

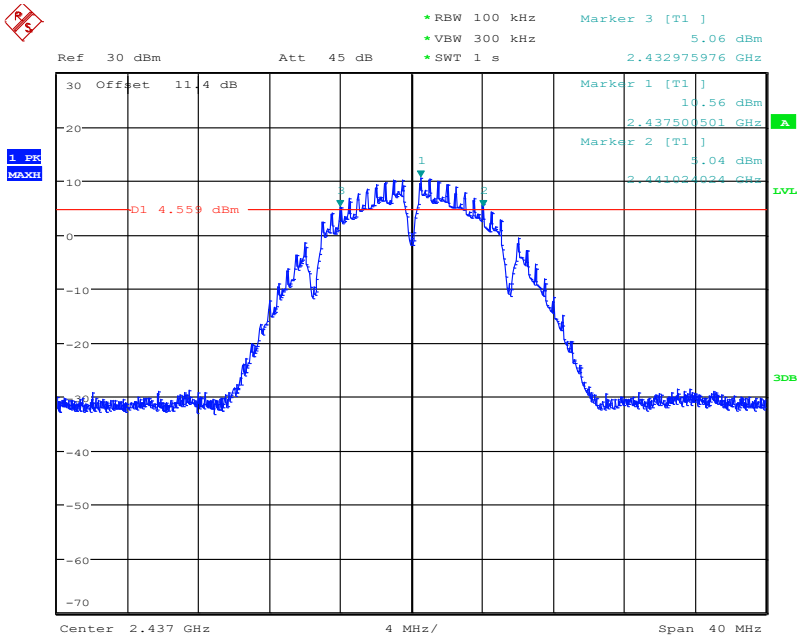


Fig.A.4.2 DTS Bandwidth (802.11b, Ch 6)

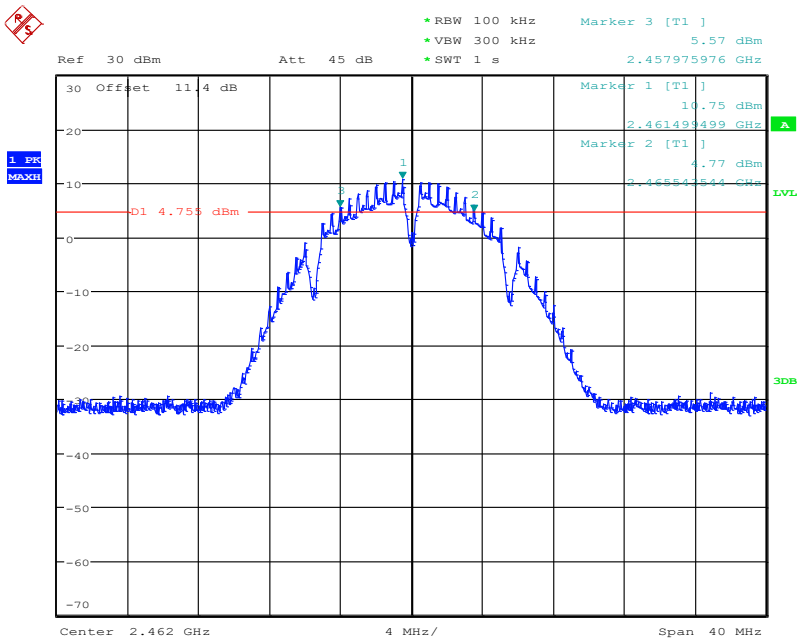


Fig.A.4.3 DTS Bandwidth (802.11b, Ch 11)

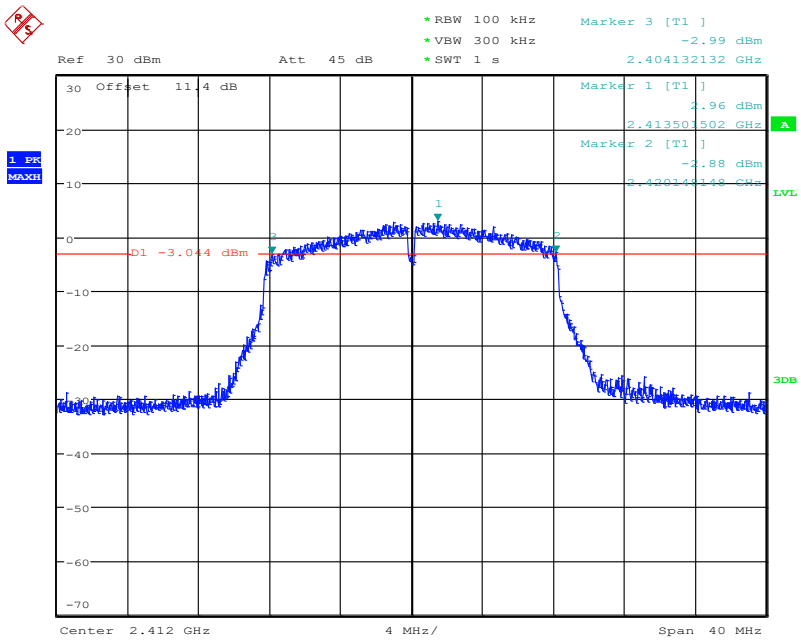


Fig.A.4.4 DTS Bandwidth (802.11g, Ch 1)

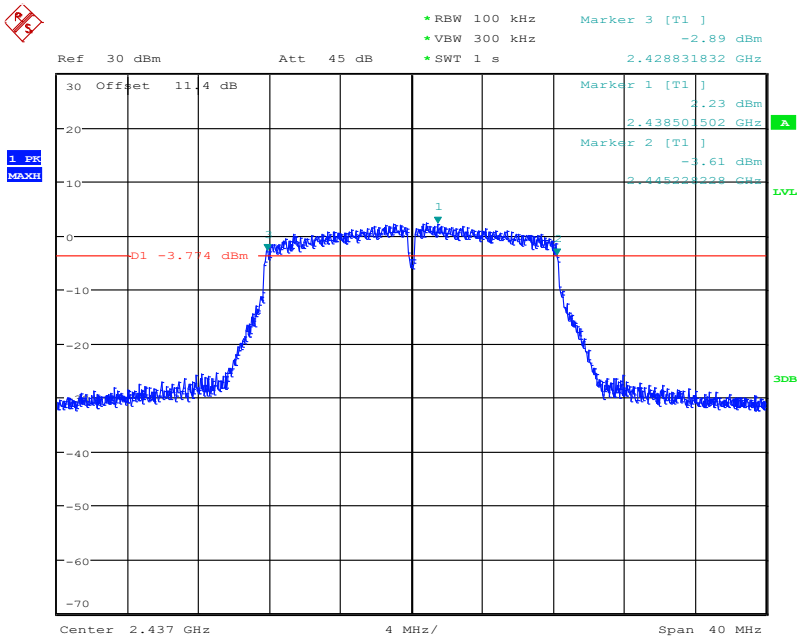


Fig.A.4.5 DTS Bandwidth (802.11g, Ch 6)

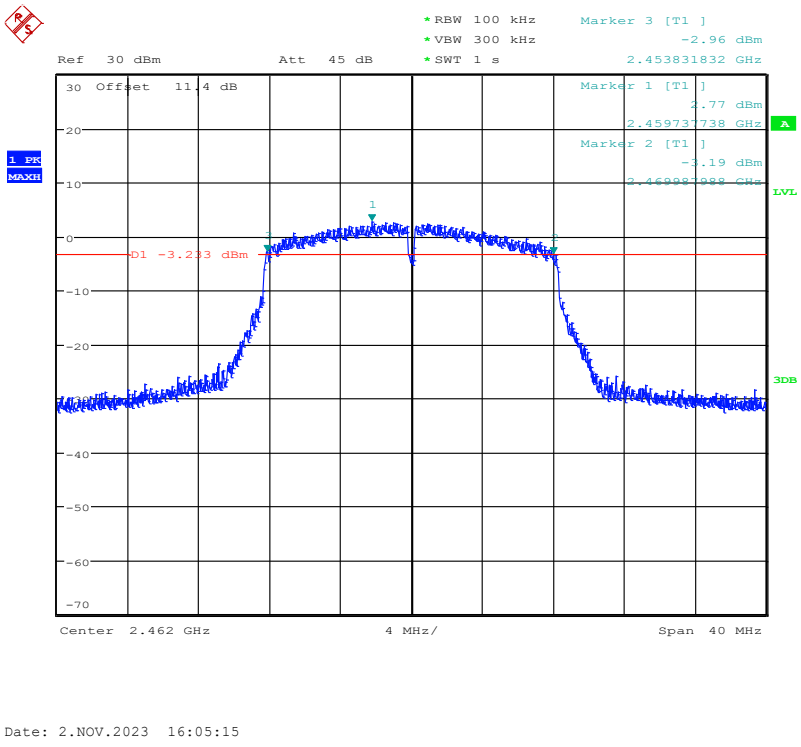


Fig.A.4.6 DTS Bandwidth (802.11g, Ch 11)

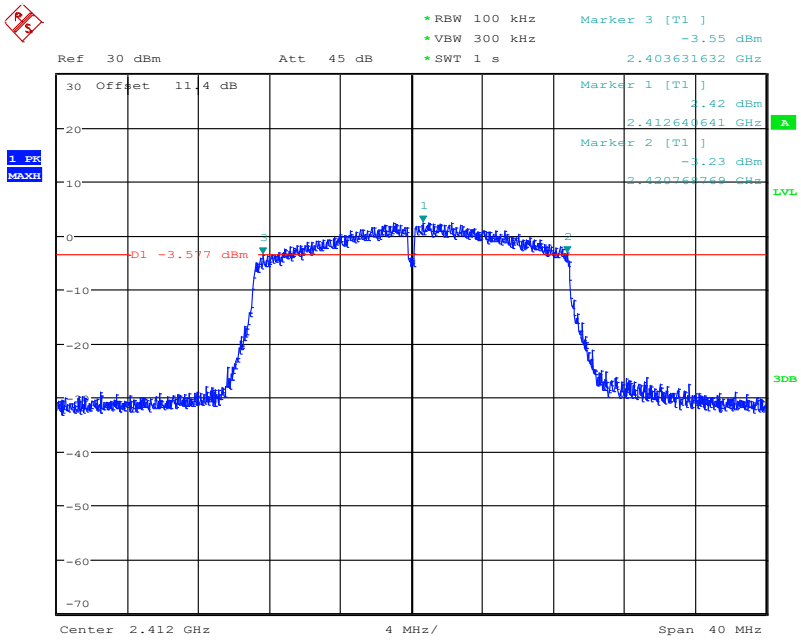


Fig.A.4.7 DTS Bandwidth (802.11n-20MHz, Ch 1)

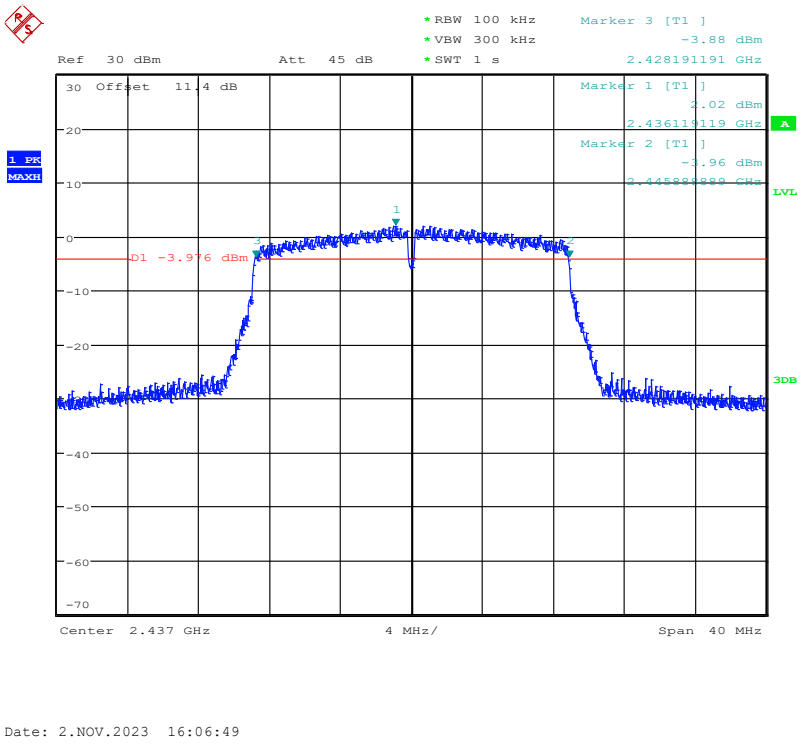


Fig.A.4.8 DTS Bandwidth (802.11n-HT20, Ch 6)

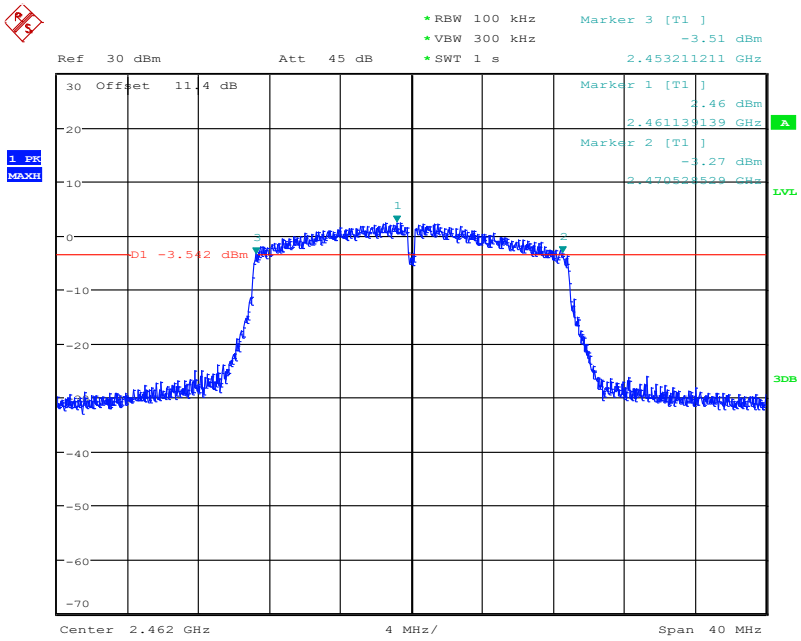


Fig.A.4.9 DTS Bandwidth (802.11n-HT20, Ch 11)

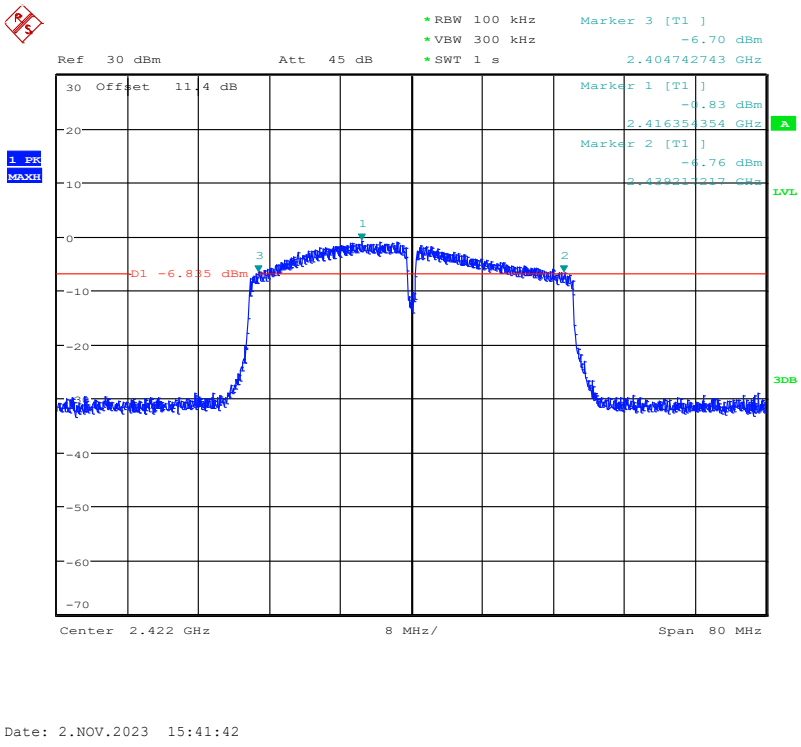


Fig.A.4.10 DTS Bandwidth (802.11n-40MHz, Ch 3)

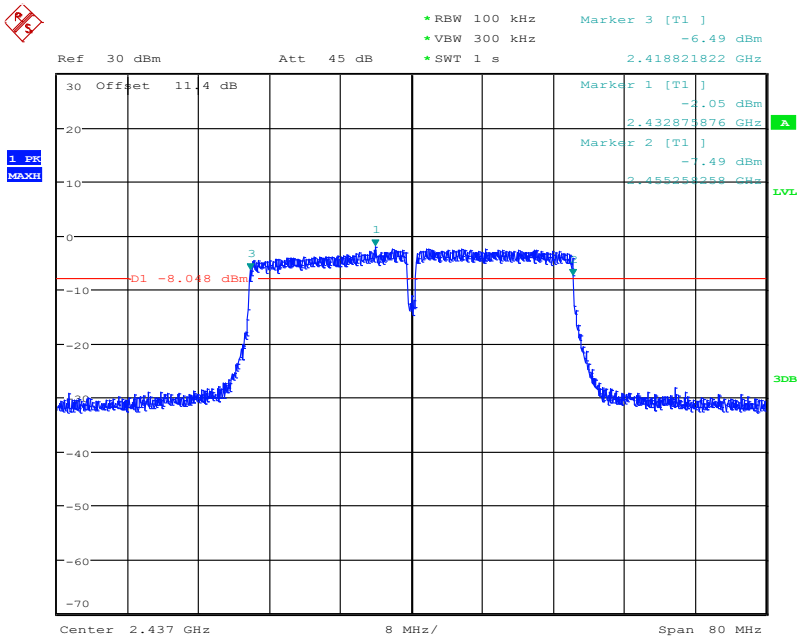


Fig.A.4.11 DTS Bandwidth (802.11n-HT40, Ch 6)

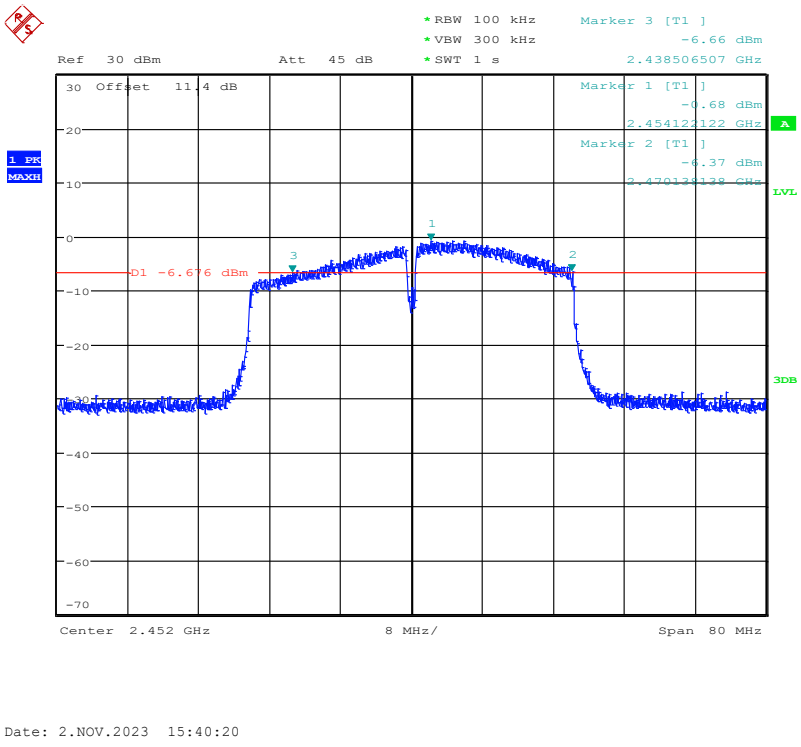


Fig.A.4.12 DTS Bandwidth (802.11n-HT40, Ch 9)

Conclusion: Pass

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: UT16a

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**

802.11n-HT40 mode

Mode	Channel	Test Results	Conclusion
802.11n (HT40)	3	Fig.A.5.7	**P**
	9	Fig.A.5.8	**P**

Test graphs as below:

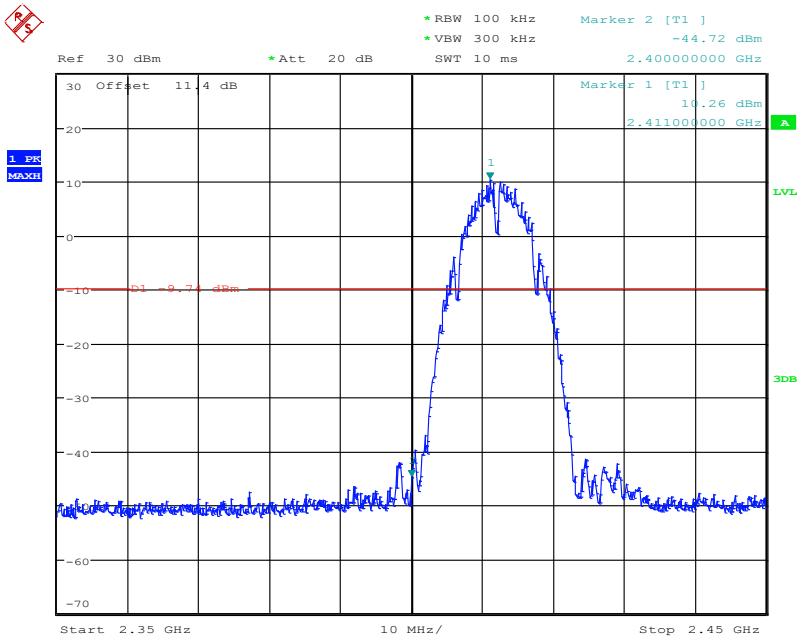


Fig.A.5.1 Band Edges (802.11b, Ch 1)

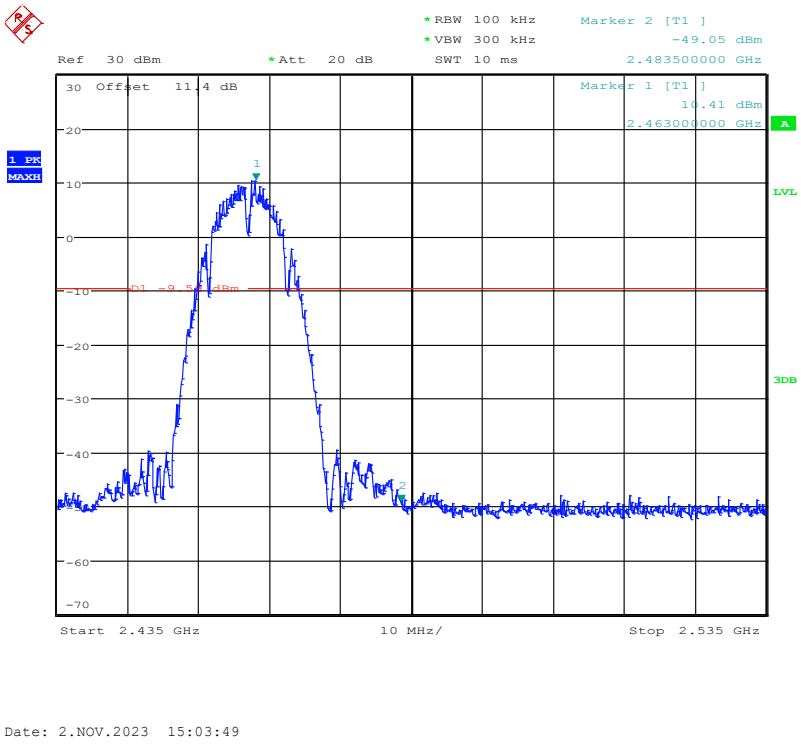


Fig.A.5.2 Band Edges (802.11b, Ch 11)

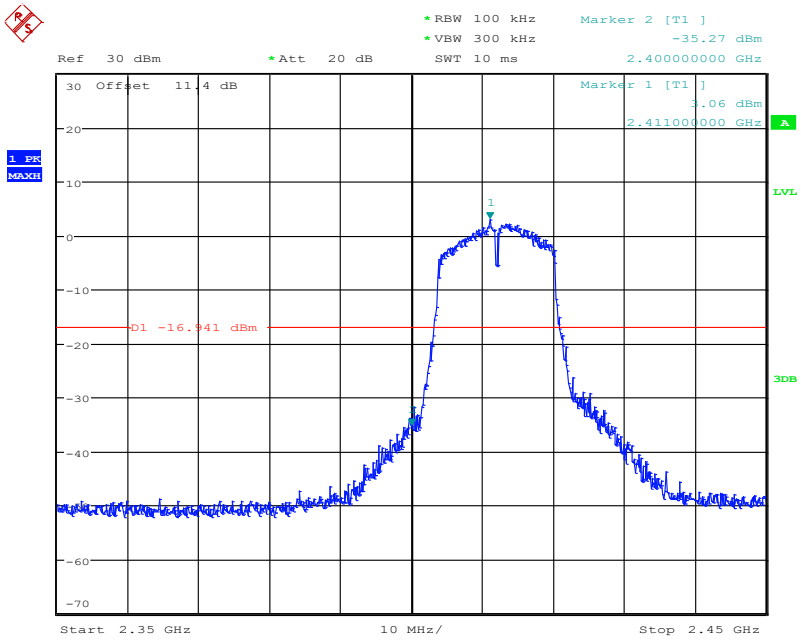


Fig.A.5.3 Band Edges (802.11g, Ch 1)

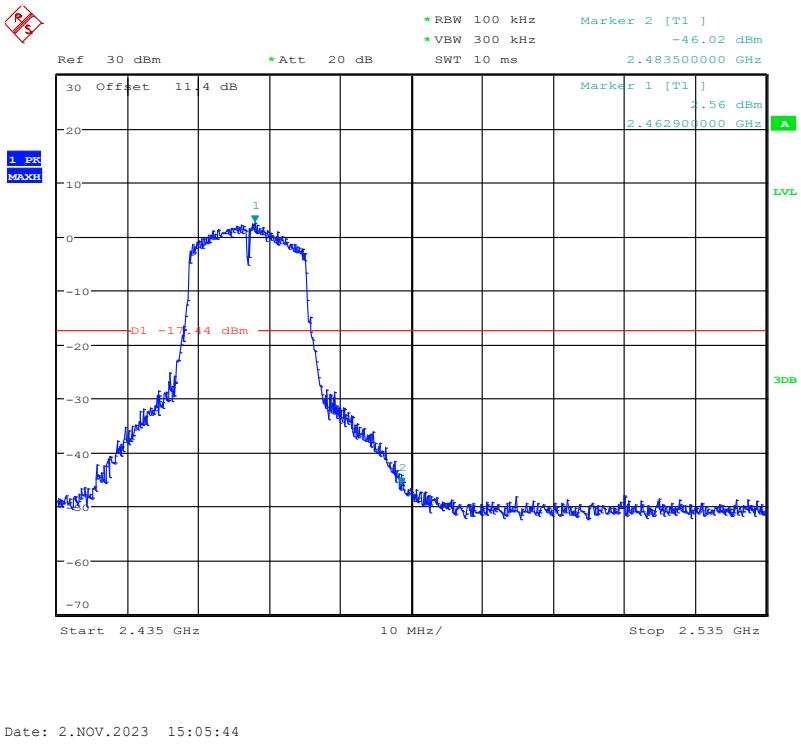


Fig.A.5.4 Band Edges (802.11g, Ch 11)

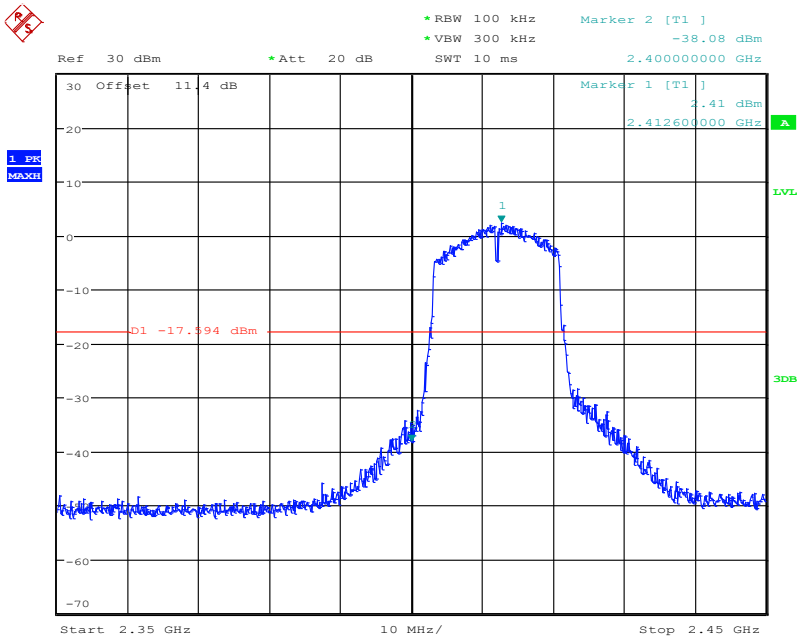


Fig.A.5.5 Band Edges (802.11n-HT20, Ch 1)

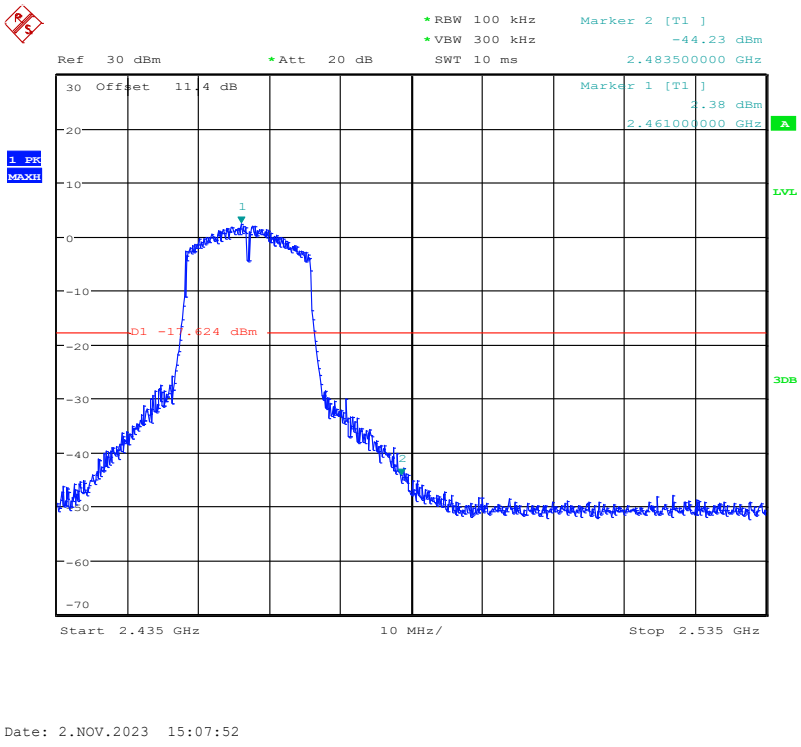


Fig.A.5.6 Band Edges (802.11n-HT20, Ch 11)

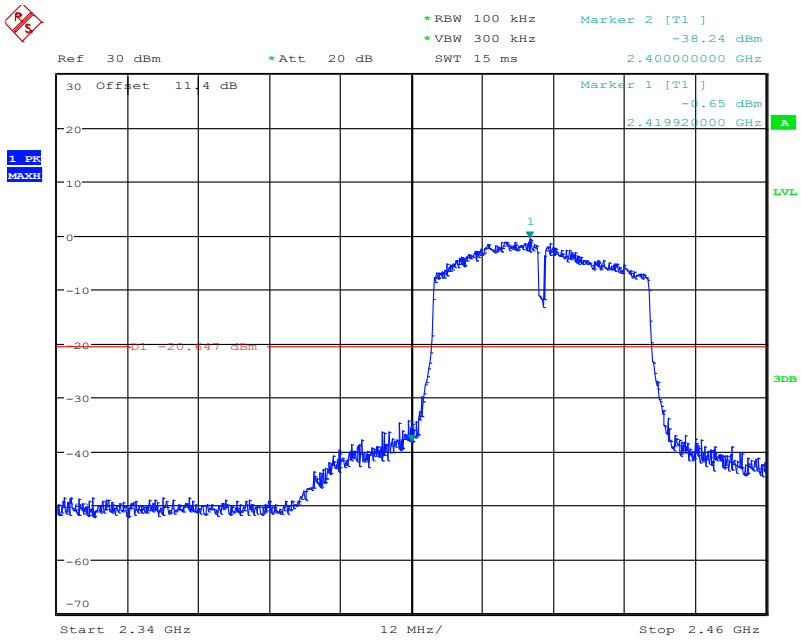


Fig.A.5.7 Band Edges (802.11n-HT40, Ch 3)

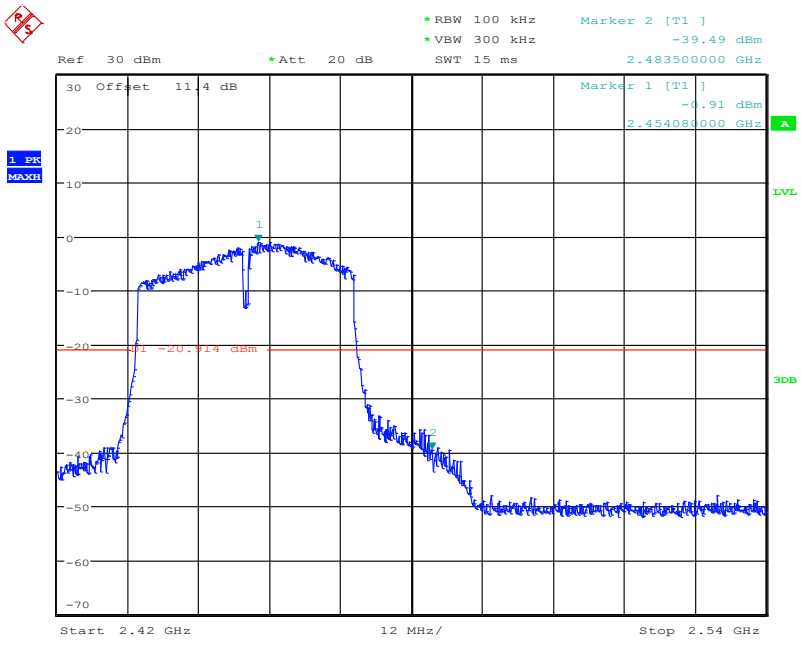


Fig.A.5.8 Band Edges (802.11n-HT40, Ch 9)

Conclusion: Pass

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:

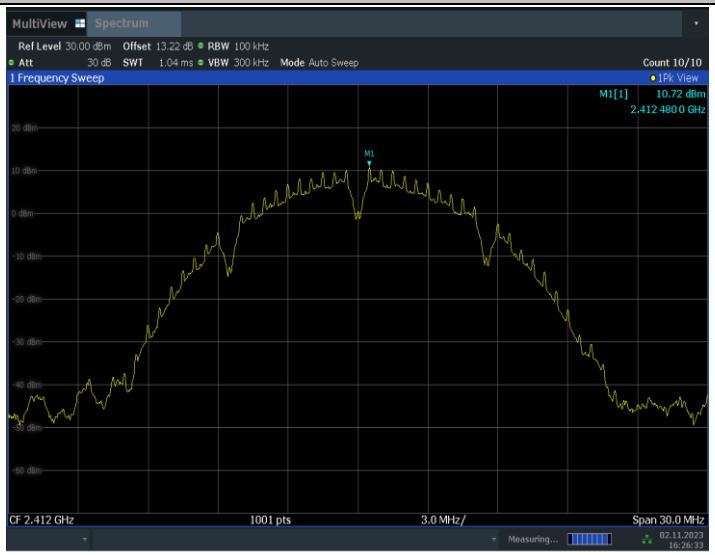
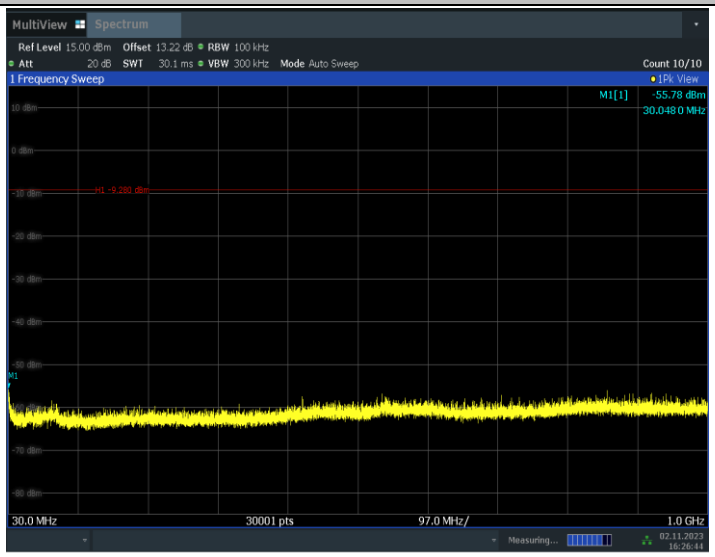
Standard	Limit
FCC 47 CFR Part 15.247 (d)	20dB below peak output power in 100 kHz bandwidth

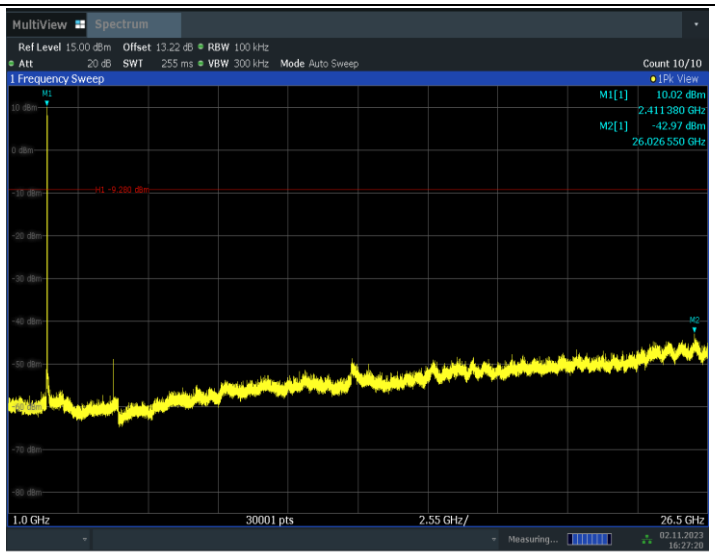
EUT ID: UT16a

Test Result

TestMode	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	2412	Reference	10.72	10.72	---	PASS
		30~1000	10.72	-55.78	≤-9.28	PASS
		1000~26500	10.72	-42.97	≤-9.28	PASS
	2437	Reference	10.11	10.11	---	PASS
		30~1000	10.11	-54.48	≤-9.89	PASS
		1000~26500	10.11	-43.21	≤-9.89	PASS
	2462	Reference	10.48	10.48	---	PASS
		30~1000	10.48	-56.08	≤-9.52	PASS
		1000~26500	10.48	-44.42	≤-9.52	PASS
11G	2412	Reference	2.86	2.86	---	PASS
		30~1000	2.86	-55.53	≤-17.14	PASS
		1000~26500	2.86	-43.04	≤-17.14	PASS
	2437	Reference	1.92	1.92	---	PASS
		30~1000	1.92	-56.35	≤-18.08	PASS
		1000~26500	1.92	-43.77	≤-18.08	PASS
	2462	Reference	2.92	2.92	---	PASS
		30~1000	2.92	-56.09	≤-17.08	PASS
		1000~26500	2.92	-43.94	≤-17.08	PASS
11N20SISO	2412	Reference	2.47	2.47	---	PASS
		30~1000	2.47	-56.8	≤-17.53	PASS
		1000~26500	2.47	-43.14	≤-17.53	PASS
	2437	Reference	2.22	2.22	---	PASS
		30~1000	2.22	-55.39	≤-17.78	PASS
		1000~26500	2.22	-43.59	≤-17.78	PASS
	2462	Reference	2.04	2.04	---	PASS
		30~1000	2.04	-56.46	≤-17.96	PASS
		1000~26500	2.04	-43.84	≤-17.96	PASS
11N40SISO	2422	Reference	-1.19	-1.19	---	PASS
		30~1000	-1.19	-56.03	≤-21.19	PASS
		1000~26500	-1.19	-43.67	≤-21.19	PASS
	2437	Reference	-2.31	-2.31	---	PASS
		30~1000	-2.31	-56.37	≤-22.31	PASS
		1000~26500	-2.31	-44	≤-22.31	PASS
	2452	Reference	-0.74	-0.74	---	PASS
		30~1000	-0.74	-56.01	≤-20.74	PASS
		1000~26500	-0.74	-43.86	≤-20.74	PASS

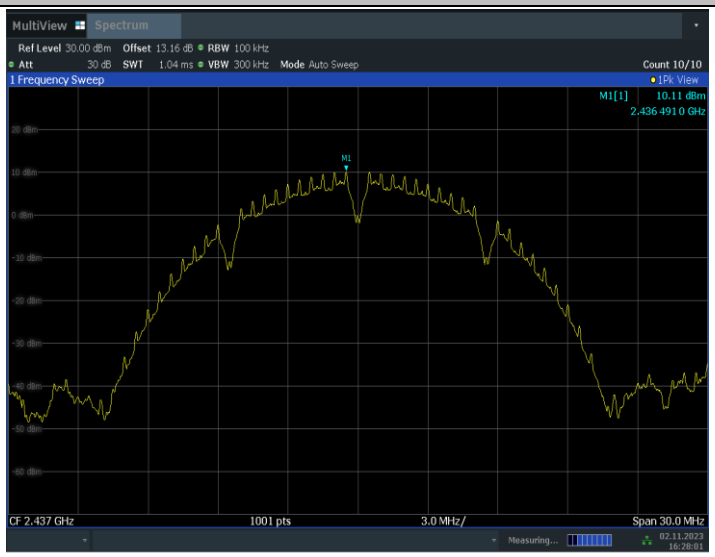
Test Graphs

11B_2412_0~Reference
 16:26:33 02.11.2023
11B_2412_30~1000
 16:26:44 02.11.2023
11B _2412_1000~26500



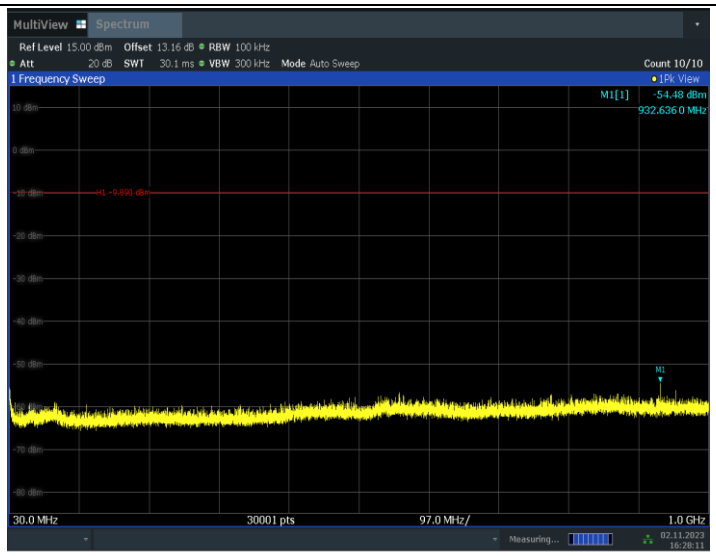
16:27:20 02.11.2023

11B _2437_0~Reference



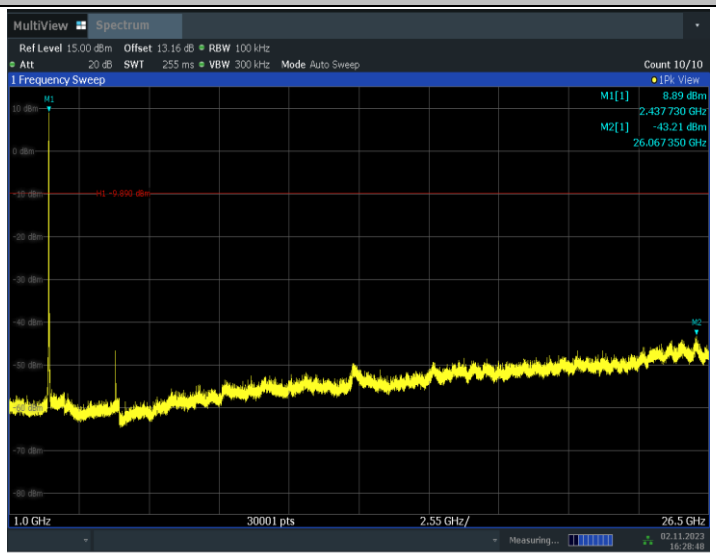
16:28:01 02.11.2023

11B _2437_30~1000



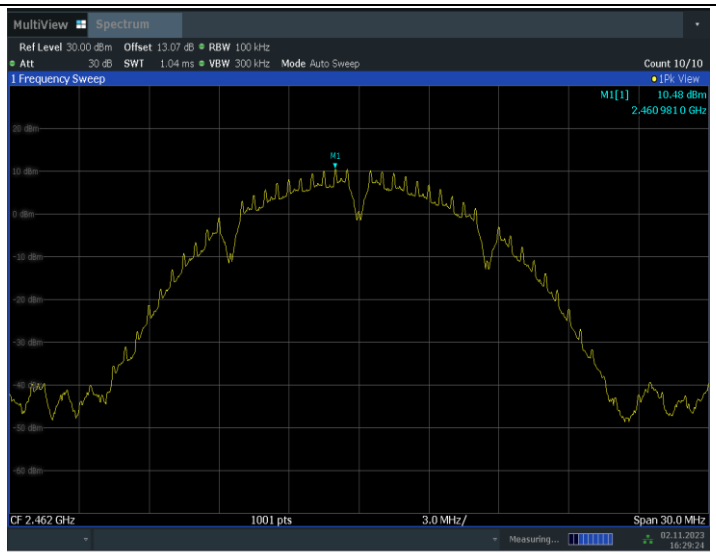
16:28:12 02.11.2023

11B _2437_1000~26500



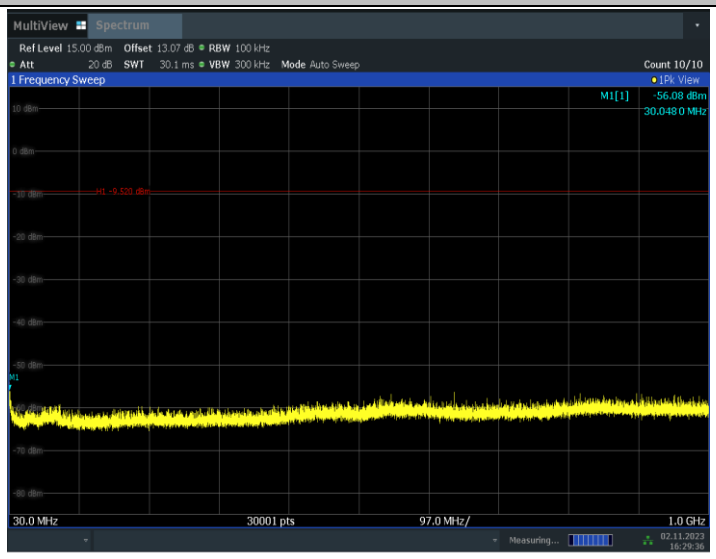
16:28:48 02.11.2023

11B_2462_0~Reference



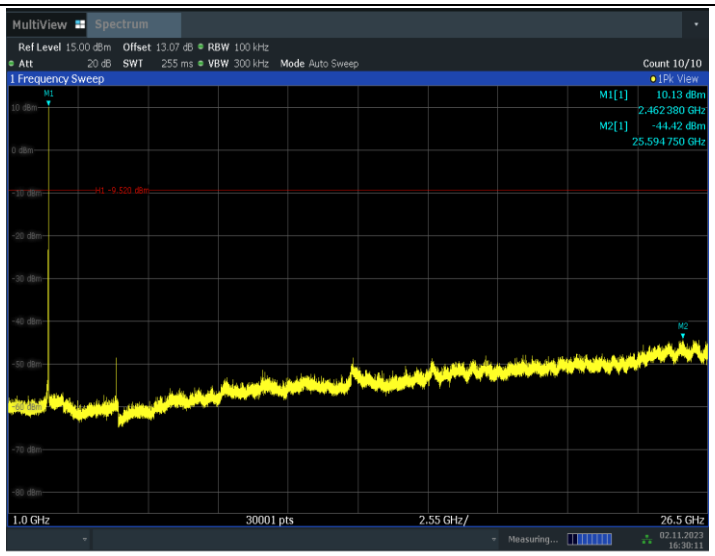
16:29:25 02.11.2023

11B_2462_30~1000



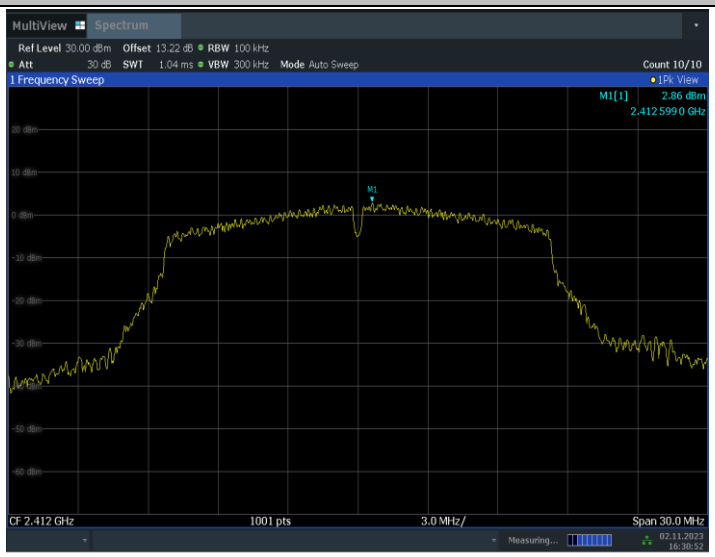
16:29:36 02.11.2023

11B_2462_1000~26500



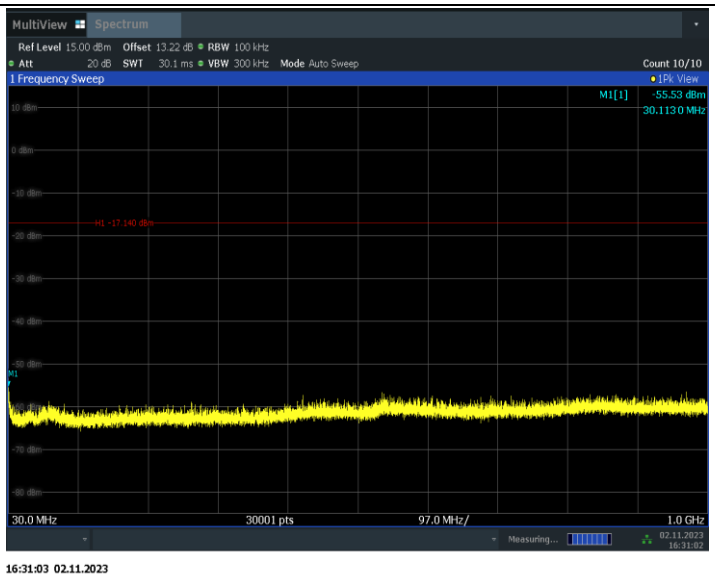
16:30:12 02.11.2023

11G_2412_0~Reference



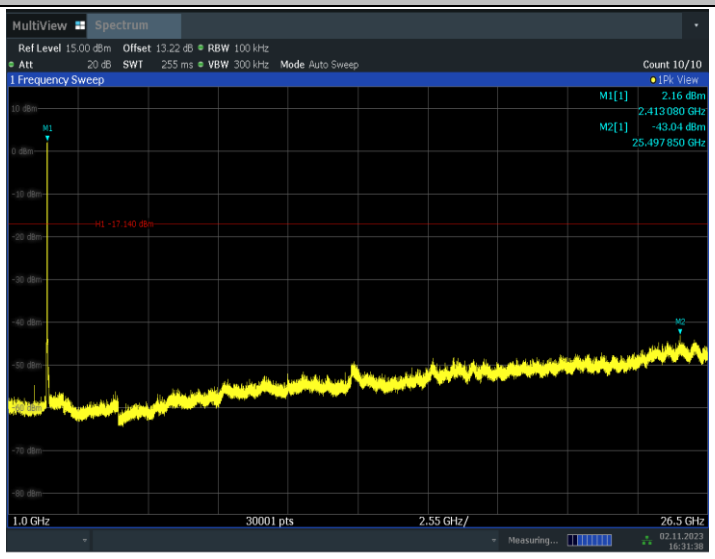
16:30:52 02.11.2023

11G_2412_30~1000



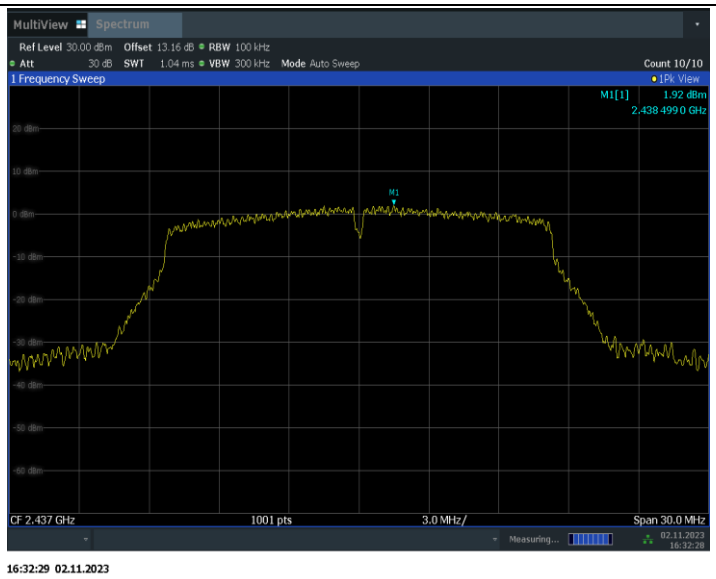
16:31:03 02.11.2023

11G_2412_1000~26500



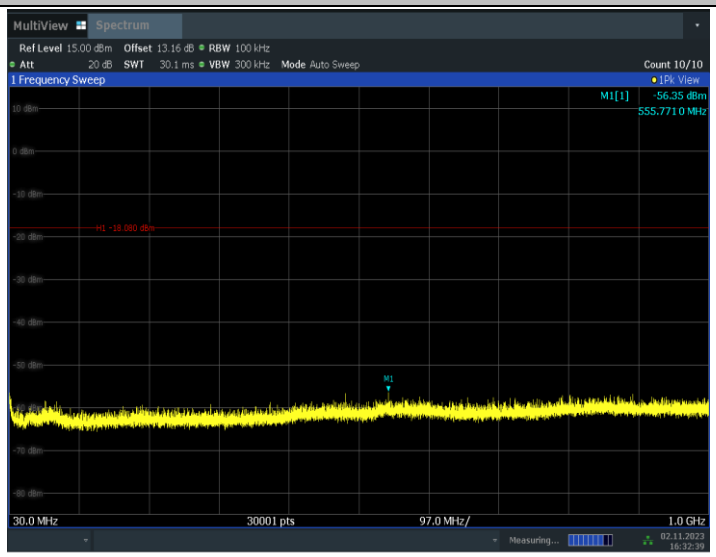
16:31:39 02.11.2023

11G _2437_0~Reference



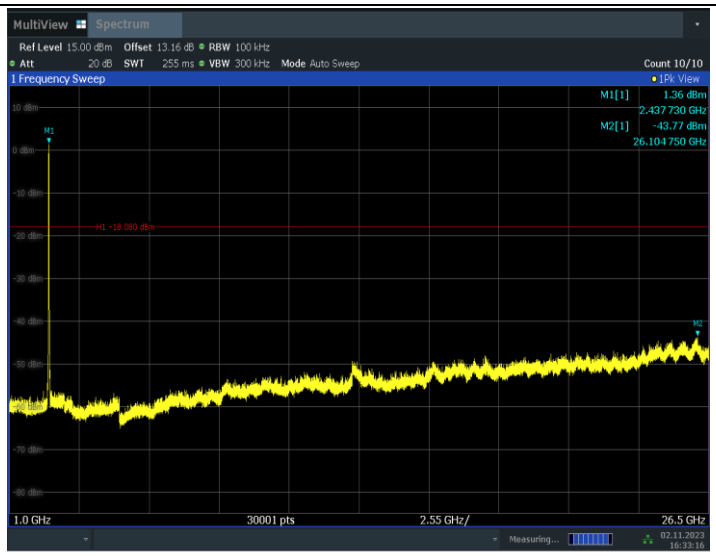
16:32:29 02.11.2023

11G _2437_30~1000

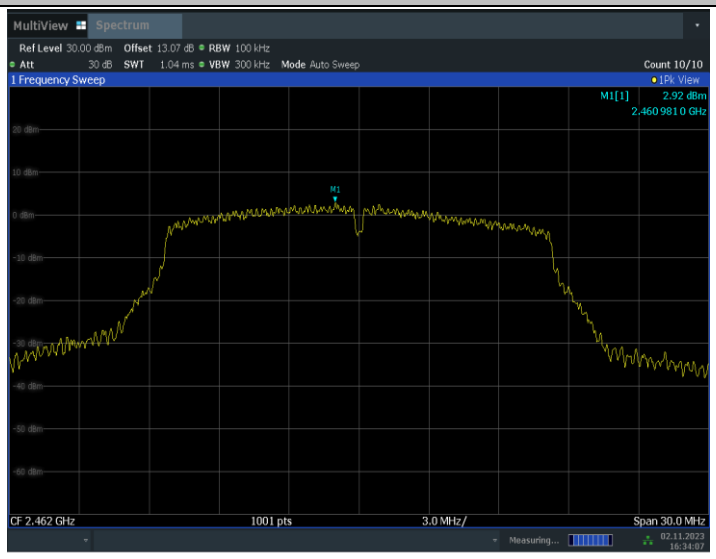


16:32:40 02.11.2023

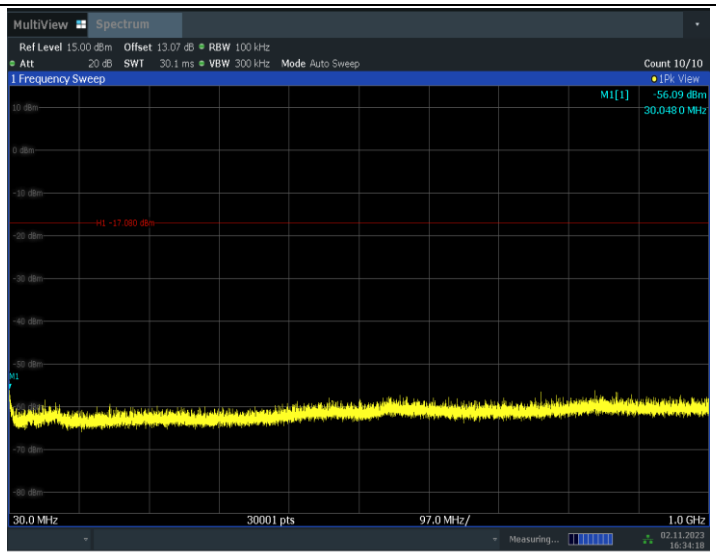
11G_2437_1000~26500



11G_2462_0~Reference

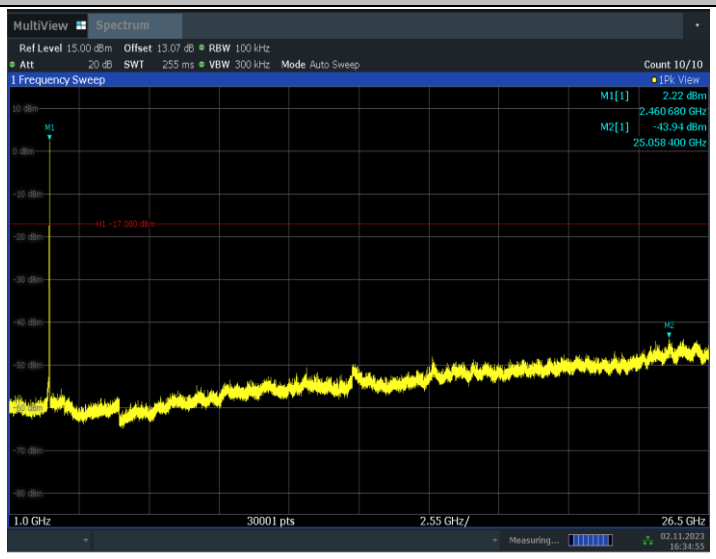


11G_2462_30~1000



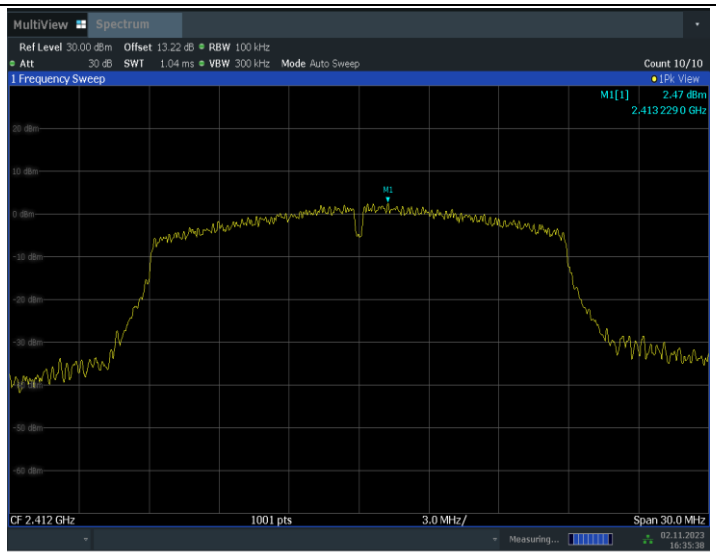
16:34:19 02.11.2023

11G_2462_1000~26500

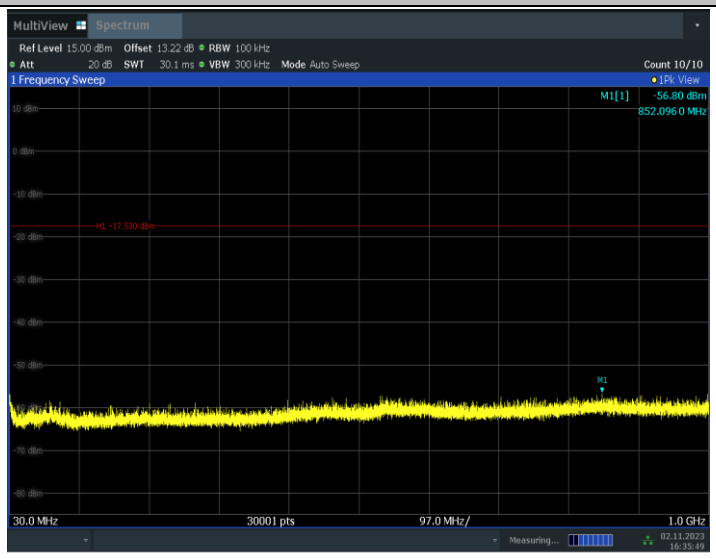


16:34:55 02.11.2023

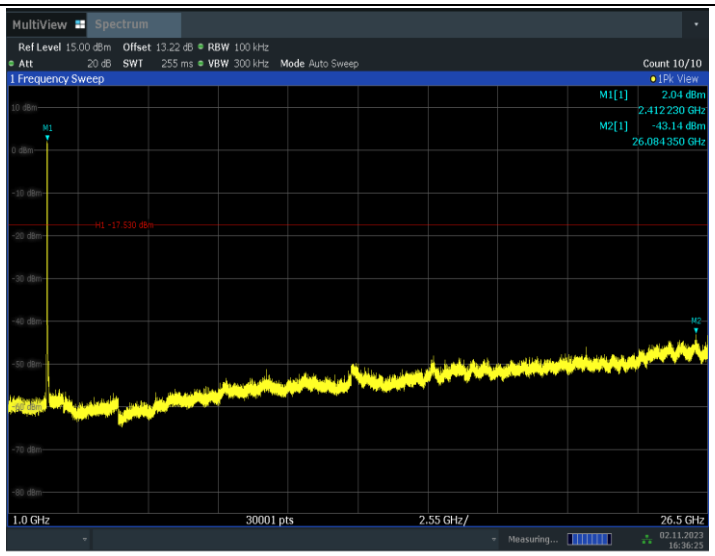
11N20SISO_2412_0~Reference



11N20SISO_2412_30~1000



11N20SISO_2412_1000~26500



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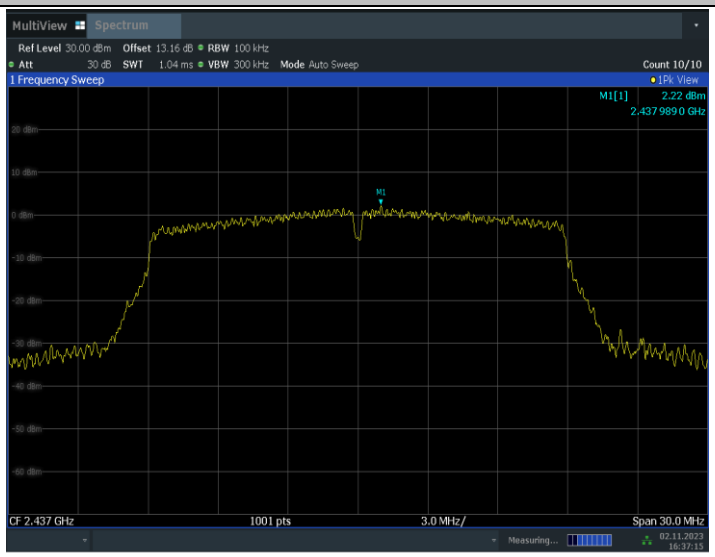
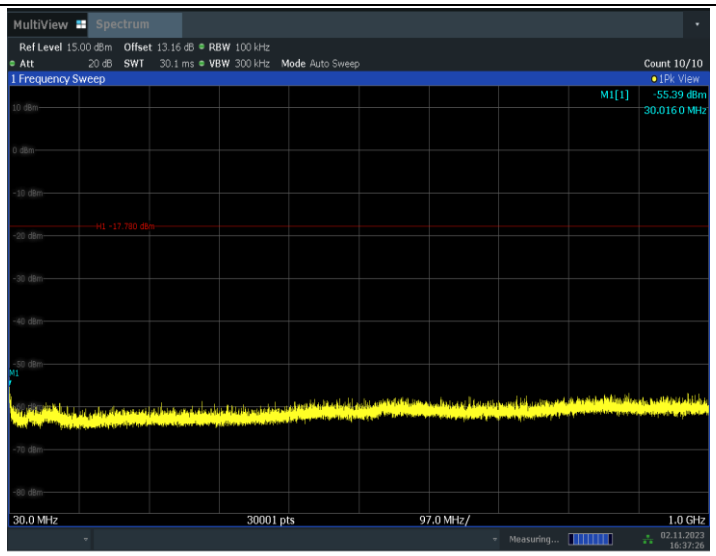
11N20SISO_2437_0~Reference



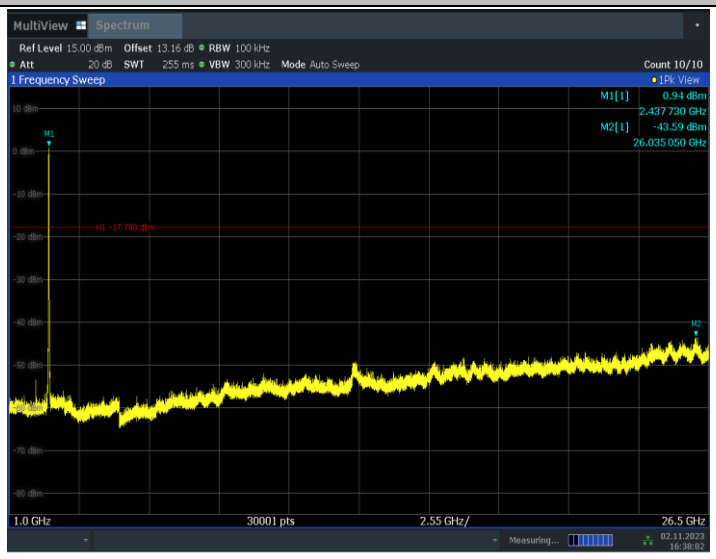
16:37:15 02.11.2023

11N20SISO_2437_30~1000



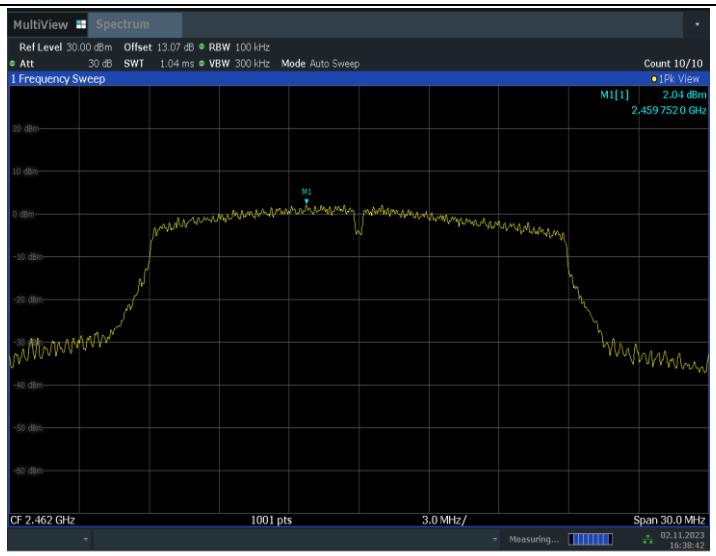
16:37:26 02.11.2023

11N20SISO_2437_1000~26500



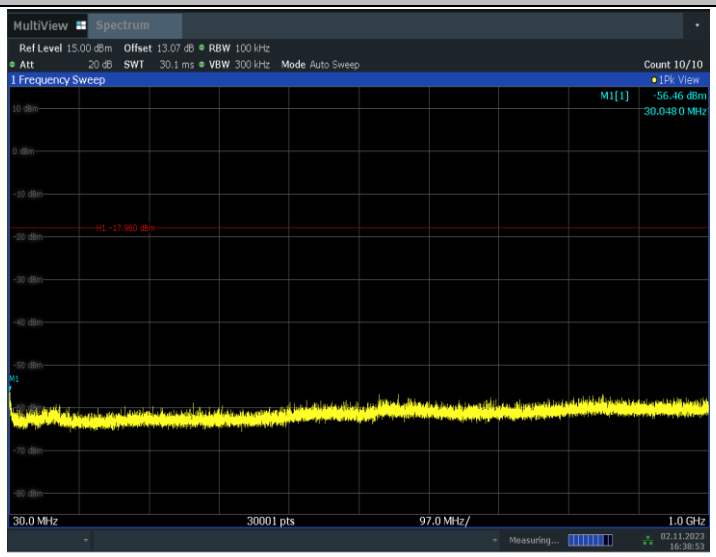
16:38:02 02.11.2023

11N20SISO_2462_0~Reference



16:38:42 02.11.2023

11N20SISO_2462_30~1000



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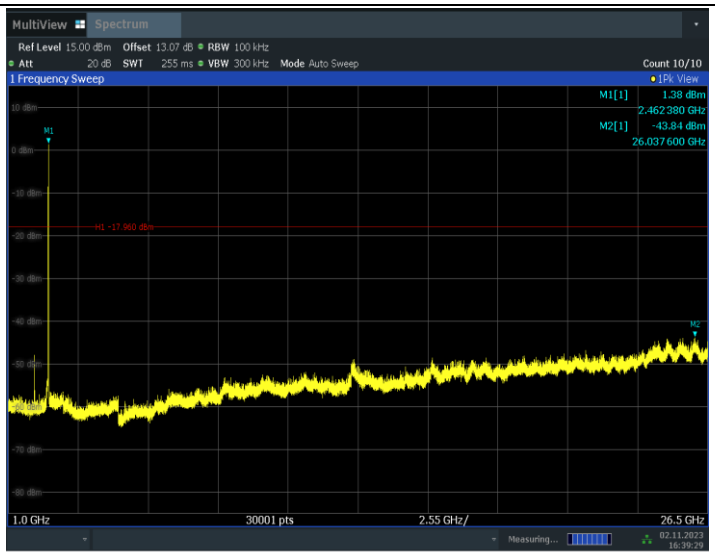
11N20SISO_2462_1000~26500



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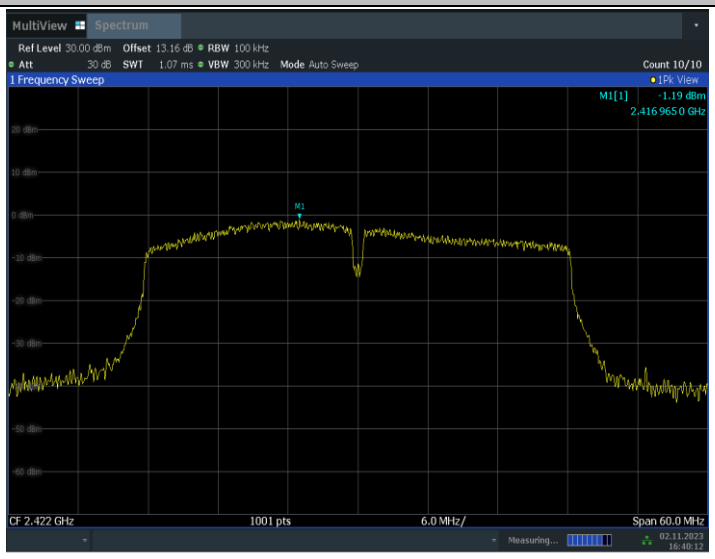

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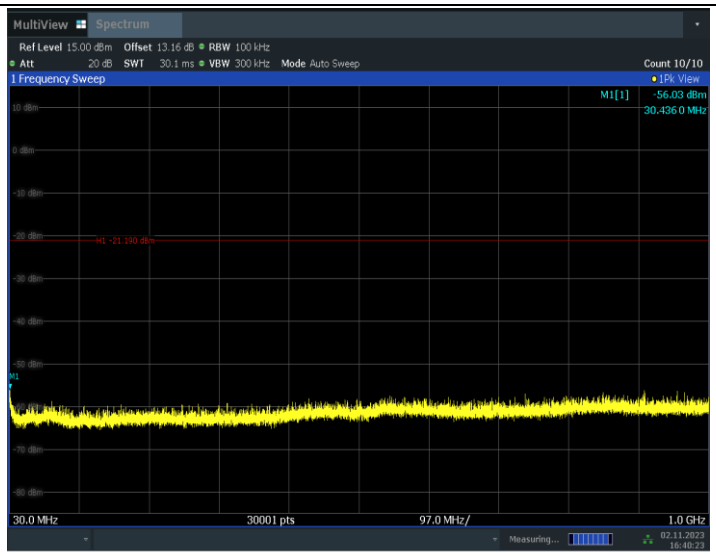

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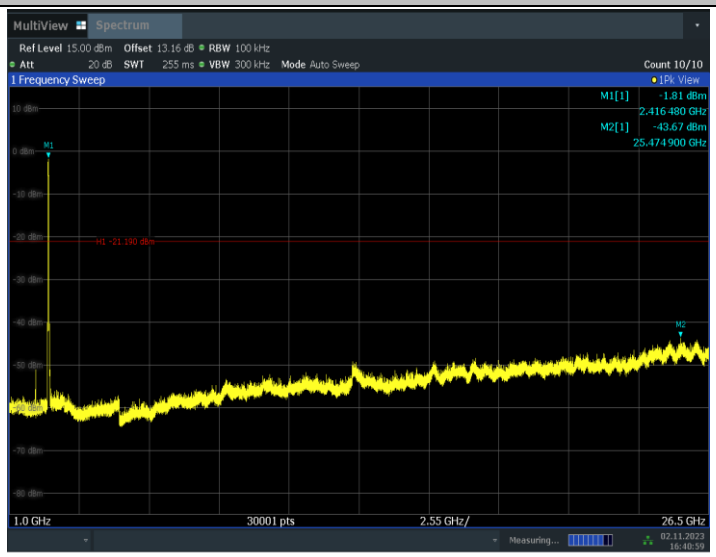
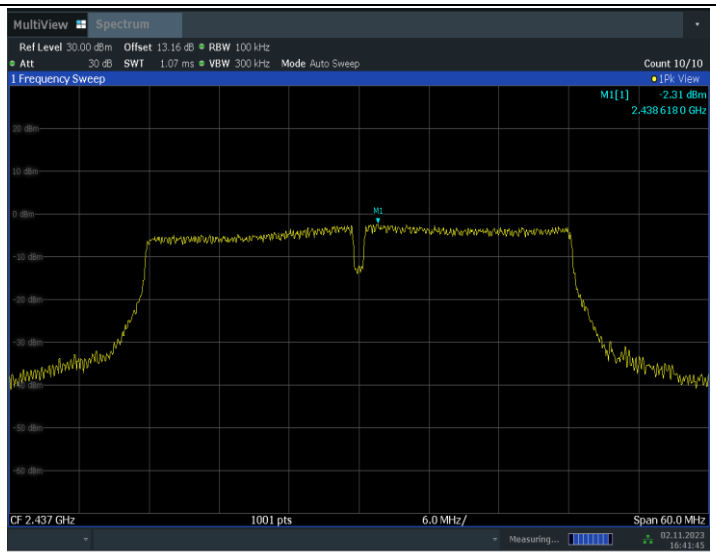


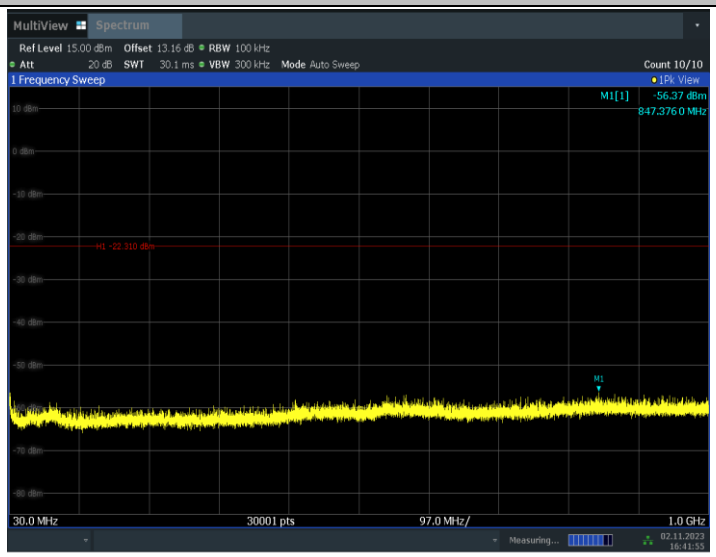
16:41:00 02.11.2023

11N40SISO_2437_0~Reference



16:41:45 02.11.2023

11N40SISO_2437_30~1000



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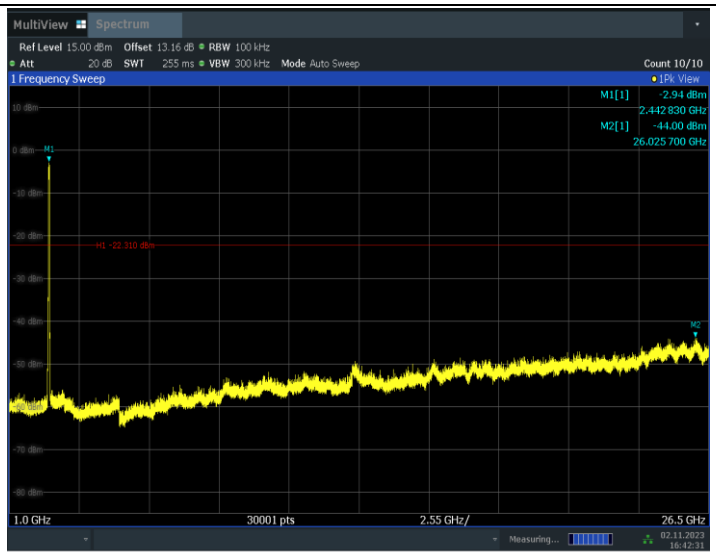

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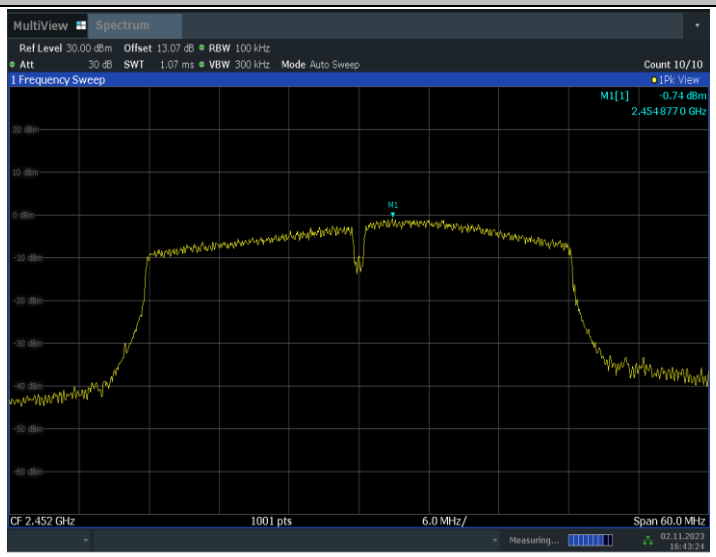
11N40SISO_2452_0~Reference



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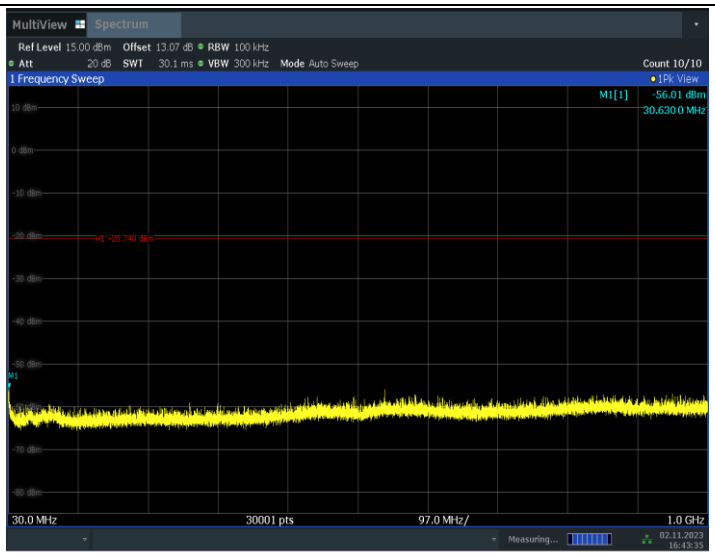
11N40SISO_2452_30~1000



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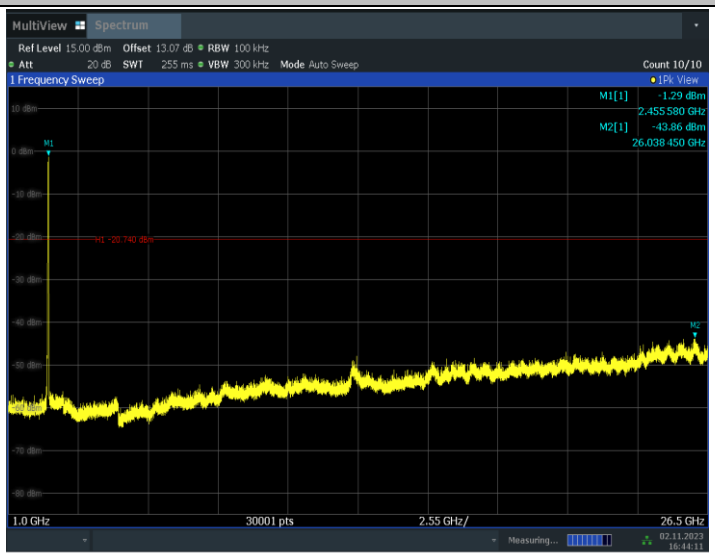
11N40SISO_2452_1000~26500



16:44:12 02.11.2023

Conclusion: Pass

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)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

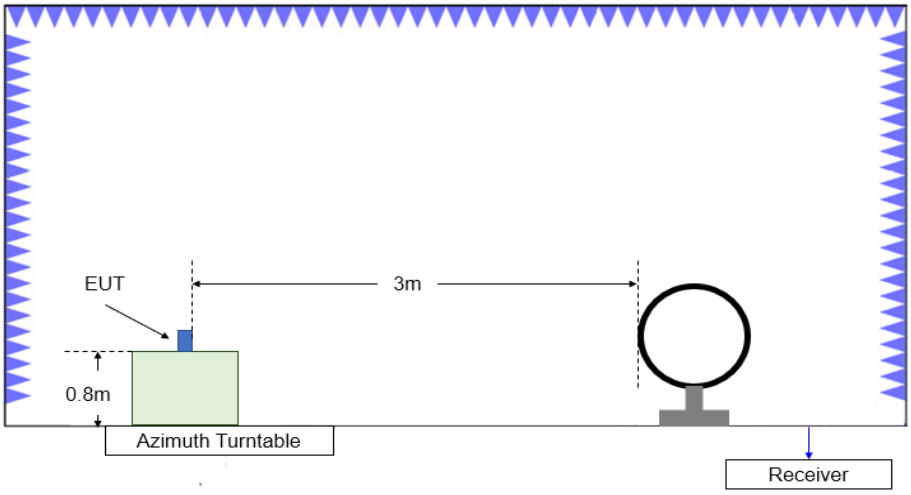
Frequency (MHz)	Field strength(μV/m)	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Test Condition

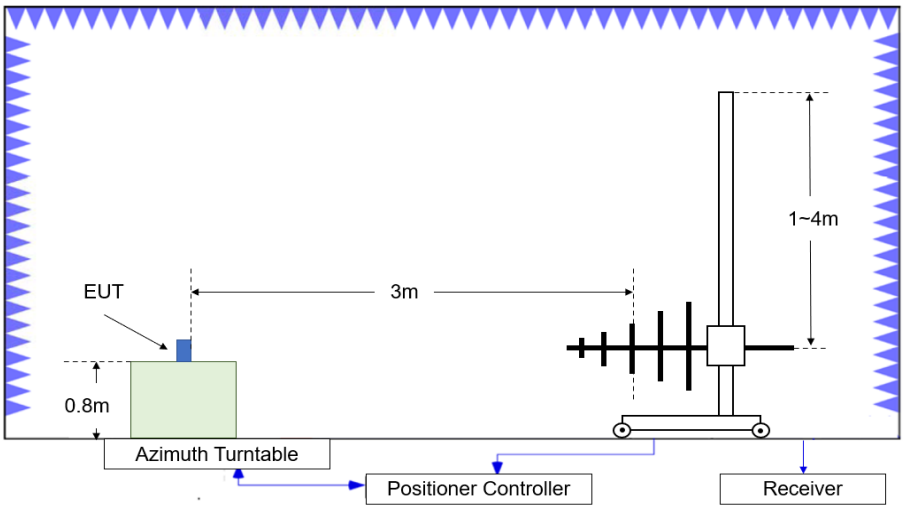
The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

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

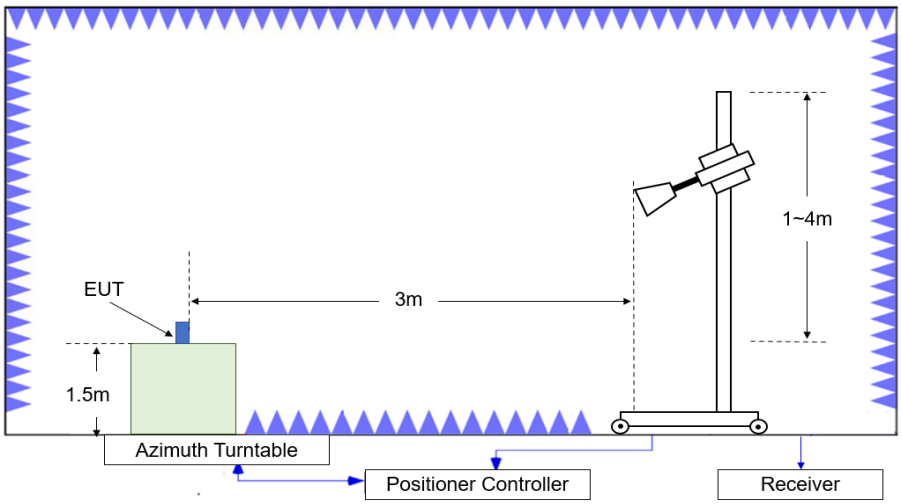
Test setup



Test Site Diagram (9kHz-30MHz)



Test Site Diagram (30MHz-1GHz)



Test Site Diagram (1GHz-40GHz)

EUT ID: UT02a

Measurement Results:

802.11b mode

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.A.6.2.1	**P**
	11	Fig.A.6.2.2	**P**

802.11g mode

Mode	Channel	Test Results	Conclusion
802.11g	1	Fig.A.6.2.3	**P**
	11	Fig.A.6.2.4	**P**

802.11n-HT20 mode

Mode	Channel	Test Results	Conclusion
802.11n (HT20)	1	Fig.A.6.2.5	**P**
	11	Fig.A.6.2.6	**P**

802.11n-HT40 mode

Mode	Channel	Test Results	Conclusion
802.11n (HT40)	3	Fig.A.6.2.7	**P**
	9	Fig.A.6.2.8	**P**

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

Test note

1. Investigation has been done on all modes and modulations/data rates. In total, three EUT elevation positions are measured. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

2. Spurious emissions for all channels were investigated and almost the same below 1GHz. According to FCC 47 CFR §15.31, emission levels are not report much lower than the limit by over 20dB

3. Measurement frequencies were performed from 9 kHz to the 10^{th} harmonic of highest fundamental frequency or 40GHz, whichever is lower.

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)
2382.870	62.30	4.60	31.60	26.11	74.00	11.70	V
2389.282	61.65	4.61	31.67	25.37	74.00	12.35	V
4823.500	45.07	-35.02	33.86	46.23	74.00	28.93	H
7236.000	43.11	-33.18	35.64	40.64	74.00	30.89	H
9648.000	44.41	-32.05	36.40	40.06	74.00	29.59	V
12060.000	46.45	-29.99	38.80	37.63	74.00	27.55	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)
2354.800	44.84	-35.88	31.26	49.47	74.00	29.16	H
2531.600	45.54	-36.19	32.53	49.21	74.00	28.46	H
4874.000	49.80	-34.48	33.80	50.49	74.00	24.20	H
7311.000	42.71	-33.10	35.40	40.41	74.00	31.29	H
9748.000	44.26	-31.86	36.60	39.52	74.00	29.74	V
12185.000	47.07	-29.45	38.80	37.72	74.00	26.93	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)
2484.280	62.57	4.65	32.31	25.61	74.00	11.43	V
2484.915	62.12	4.65	32.31	25.16	74.00	11.88	V
4923.500	47.70	-34.80	33.85	48.65	74.00	26.30	H
7386.000	42.79	-32.81	35.47	40.13	74.00	31.21	H
9848.000	44.70	-32.00	36.60	40.11	74.00	29.30	H
12310.000	46.51	-29.70	38.60	37.61	74.00	27.49	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)
2389.016	63.17	4.61	31.67	26.88	74.00	10.83	V
2389.688	63.25	4.61	31.68	26.96	74.00	10.75	V
4824.000	42.75	-35.02	33.86	43.92	74.00	31.25	H
7236.000	43.18	-33.18	35.64	40.71	74.00	30.82	H
9648.000	44.51	-32.05	36.40	40.16	74.00	29.49	V
12060.000	46.59	-29.99	38.80	37.77	74.00	27.41	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)
2359.400	47.05	-35.79	31.31	51.53	74.00	26.95	H
2542.600	46.74	-35.98	32.57	50.15	74.00	27.26	V
4874.000	42.24	-34.48	33.80	42.93	74.00	31.76	V
7311.000	42.43	-33.10	35.40	40.13	74.00	31.57	V
9748.000	43.57	-31.86	36.60	38.83	74.00	30.43	V
12185.000	47.38	-29.45	38.80	38.03	74.00	26.62	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)
2484.450	62.34	4.65	32.31	25.39	74.00	11.66	V
2484.570	62.50	4.65	32.31	25.54	74.00	11.50	H
4924.000	41.46	-34.80	33.85	42.41	74.00	32.54	H
7386.000	44.15	-32.81	35.47	41.49	74.00	29.85	V
9848.000	44.28	-32.00	36.60	39.68	74.00	29.72	H
12310.000	46.60	-29.70	38.60	37.70	74.00	27.40	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)
2389.570	63.65	4.61	31.68	27.36	74.00	10.35	V
2387.980	63.75	4.61	31.66	27.48	74.00	10.25	H
4824.000	42.77	-35.02	33.86	43.93	74.00	31.23	H
7236.000	42.46	-33.18	35.64	39.99	74.00	31.54	V
9648.000	44.25	-32.05	36.40	39.91	74.00	29.75	H
12060.000	47.59	-29.99	38.80	38.77	74.00	26.41	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)
2339.400	44.52	-36.05	31.24	49.33	74.00	29.48	V
2539.400	46.57	-36.04	32.56	50.05	74.00	27.43	H
4874.000	42.20	-34.48	33.80	42.88	74.00	31.80	V
7311.000	43.85	-33.10	35.40	41.55	74.00	30.15	V
9748.000	43.62	-31.86	36.60	38.88	74.00	30.38	H
12185.000	47.23	-29.45	38.80	37.88	74.00	26.77	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)
2483.865	62.42	4.65	32.30	25.46	74.00	11.58	V
2483.985	62.34	4.65	32.30	25.39	74.00	11.66	H
4924.000	41.19	-34.80	33.85	42.15	74.00	32.81	H
7386.000	43.20	-32.81	35.47	40.53	74.00	30.80	H
9848.000	43.80	-32.00	36.60	39.21	74.00	30.20	H
12310.000	46.80	-29.70	38.60	37.91	74.00	27.20	H

802.11n-HT40

Ch3

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)
2384.060	65.05	4.60	31.61	28.84	74.00	8.95	H
2386.440	64.88	4.61	31.64	28.63	74.00	9.12	V
4844.000	40.81	-34.90	33.74	41.97	74.00	33.19	H
7266.000	43.11	-33.31	35.60	40.82	74.00	30.89	V
9688.000	44.71	-31.89	36.48	40.13	74.00	29.29	V
12110.000	47.58	-29.78	38.80	38.56	74.00	26.42	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)
2344.000	44.78	-36.01	31.22	49.57	74.00	29.22	H
2508.800	46.64	-35.72	32.44	49.93	74.00	27.36	H
4874.000	42.31	-34.48	33.80	43.00	74.00	31.69	H
7311.000	43.26	-33.10	35.40	40.96	74.00	30.74	V
9748.000	45.02	-31.86	36.60	40.28	74.00	28.98	H
12185.000	46.48	-29.45	38.80	37.13	74.00	27.52	V

Ch9

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)
2483.635	66.50	4.65	32.30	29.55	74.00	7.50	V
2484.340	67.06	4.65	32.31	30.11	74.00	6.94	V
4904.000	41.15	-34.56	33.89	41.82	74.00	32.85	V
7356.000	44.05	-32.86	35.41	41.50	74.00	29.95	H
9808.000	43.76	-31.93	36.52	39.17	74.00	30.24	V
12260.000	46.82	-29.55	38.68	37.69	74.00	27.18	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)
2389.920	47.80	4.62	31.68	11.51	54.00	6.20	V
2389.980	47.80	4.62	31.68	11.50	54.00	6.20	V
4823.666	39.64	-35.02	33.86	40.81	54.00	14.36	V
7236.000	30.61	-33.18	35.64	28.15	54.00	23.39	V
9648.000	31.98	-32.05	36.40	27.63	54.00	22.02	H
12060.000	34.56	-29.99	38.80	25.75	54.00	19.44	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)
2388.660	47.77	4.61	31.67	11.49	54.00	6.23	V
2487.360	48.43	4.64	32.32	11.46	54.00	5.57	V
4873.660	45.06	-34.49	33.79	45.76	54.00	8.94	V
7311.000	30.69	-33.10	35.40	28.39	54.00	23.31	V
9748.000	31.88	-31.86	36.60	27.14	54.00	22.12	H
12185.000	34.59	-29.45	38.80	25.24	54.00	19.41	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)
2483.550	48.60	4.65	32.30	11.65	54.00	5.40	V
2483.730	48.61	4.65	32.30	11.65	54.00	5.39	V
4924.000	43.13	-34.80	33.85	44.08	54.00	10.87	H
7386.000	31.17	-32.81	35.47	28.51	54.00	22.83	H
9848.000	31.98	-32.00	36.60	27.38	54.00	22.02	V
12310.000	34.32	-29.70	38.60	25.42	54.00	19.68	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)
2389.860	48.19	4.62	31.68	11.90	54.00	5.81	V
2389.920	48.20	4.62	31.68	11.90	54.00	5.80	V
4824.000	29.36	-35.02	33.86	30.52	54.00	24.64	H
7236.000	30.88	-33.18	35.64	28.41	54.00	23.12	V
9648.000	32.19	-32.05	36.40	27.85	54.00	21.81	V
12060.000	34.84	-29.99	38.80	26.03	54.00	19.16	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)
2387.670	47.81	4.61	31.65	11.55	54.00	6.19	V
2486.340	48.40	4.65	32.32	11.44	54.00	5.60	V
4874.000	30.58	-34.48	33.80	31.27	54.00	23.42	V
7311.000	30.74	-33.10	35.40	28.44	54.00	23.26	H
9748.000	32.12	-31.86	36.60	27.39	54.00	21.88	H
12185.000	34.80	-29.45	38.80	25.45	54.00	19.20	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)
2483.610	48.63	4.65	32.30	11.68	54.00	5.37	V
2483.790	48.67	4.65	32.30	11.71	54.00	5.33	V
4924.000	29.86	-34.80	33.85	30.81	54.00	24.14	V
7386.000	31.47	-32.81	35.47	28.81	54.00	22.53	H
9848.000	32.29	-32.00	36.60	27.69	54.00	21.71	V
12310.000	34.59	-29.70	38.60	25.69	54.00	19.41	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)
2389.380	48.70	4.61	31.67	12.41	54.00	5.30	V
2389.770	48.78	4.61	31.68	12.48	54.00	5.22	V
4824.000	29.76	-35.02	33.86	30.92	54.00	24.24	V
7236.000	30.93	-33.18	35.64	28.46	54.00	23.07	V
9648.000	32.32	-32.05	36.40	27.97	54.00	21.68	H
12060.000	35.11	-29.99	38.80	26.30	54.00	18.89	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)
2382.810	47.68	4.60	31.60	11.49	54.00	6.32	V
2489.400	48.39	4.64	32.34	11.42	54.00	5.61	V
4874.000	31.18	-34.48	33.80	31.86	54.00	22.82	V
7311.000	31.01	-33.10	35.40	28.71	54.00	22.99	V
9748.000	32.21	-31.86	36.60	27.47	54.00	21.79	V
12185.000	34.98	-29.45	38.80	25.63	54.00	19.02	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)
2483.640	48.63	4.65	32.30	11.68	54.00	5.37	V
2483.790	48.66	4.65	32.30	11.71	54.00	5.34	V
4924.000	29.53	-34.80	33.85	30.48	54.00	24.47	V
7386.000	31.48	-32.81	35.47	28.82	54.00	22.52	H
9848.000	32.30	-32.00	36.60	27.70	54.00	21.70	H
12310.000	34.65	-29.70	38.60	25.75	54.00	19.35	V

802.11n-HT40

Ch3

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)
2385.030	49.66	4.60	31.62	13.44	54.00	4.34	V
2385.720	49.70	4.60	31.63	13.46	54.00	4.30	V
4844.000	29.69	-34.90	33.74	30.86	54.00	24.31	V
7266.000	30.93	-33.31	35.60	28.63	54.00	23.07	V
9688.000	32.55	-31.89	36.48	27.96	54.00	21.45	H
12110.000	34.99	-29.78	38.80	25.96	54.00	19.01	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)
2386.740	47.86	4.61	31.64	11.61	54.00	6.14	V
2484.270	49.82	4.65	32.31	12.86	54.00	4.18	V
4874.000	29.92	-34.48	33.80	30.60	54.00	24.08	V
7311.000	31.01	-33.10	35.40	28.71	54.00	22.99	V
9748.000	32.31	-31.86	36.60	27.57	54.00	21.69	V
12185.000	35.03	-29.45	38.80	25.68	54.00	18.97	V

Ch9

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)
2483.550	49.72	4.65	32.30	12.76	54.00	4.28	V
2483.610	49.72	4.65	32.30	12.76	54.00	4.28	V
4904.000	29.86	-34.56	33.89	30.53	54.00	24.14	H
7356.000	31.52	-32.86	35.41	28.97	54.00	22.48	H
9808.000	32.24	-31.93	36.52	27.65	54.00	21.76	V
12260.000	34.88	-29.55	38.68	25.75	54.00	19.12	H

Test graphs as below:

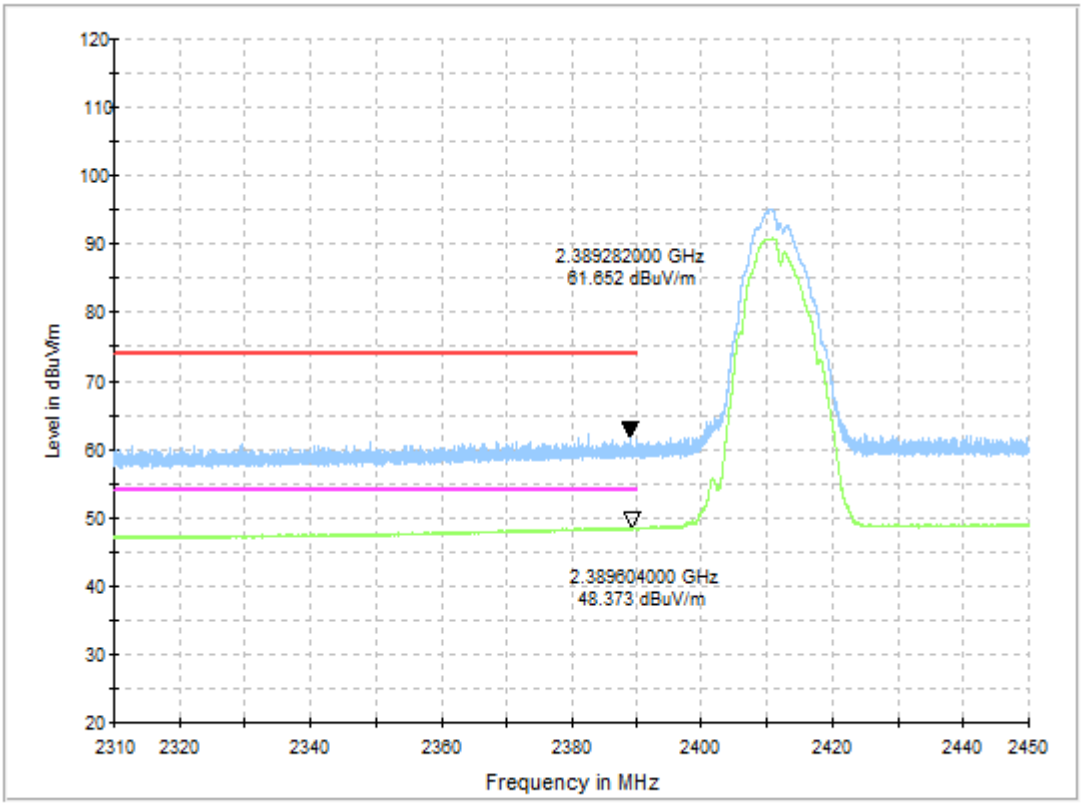


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.43GHz

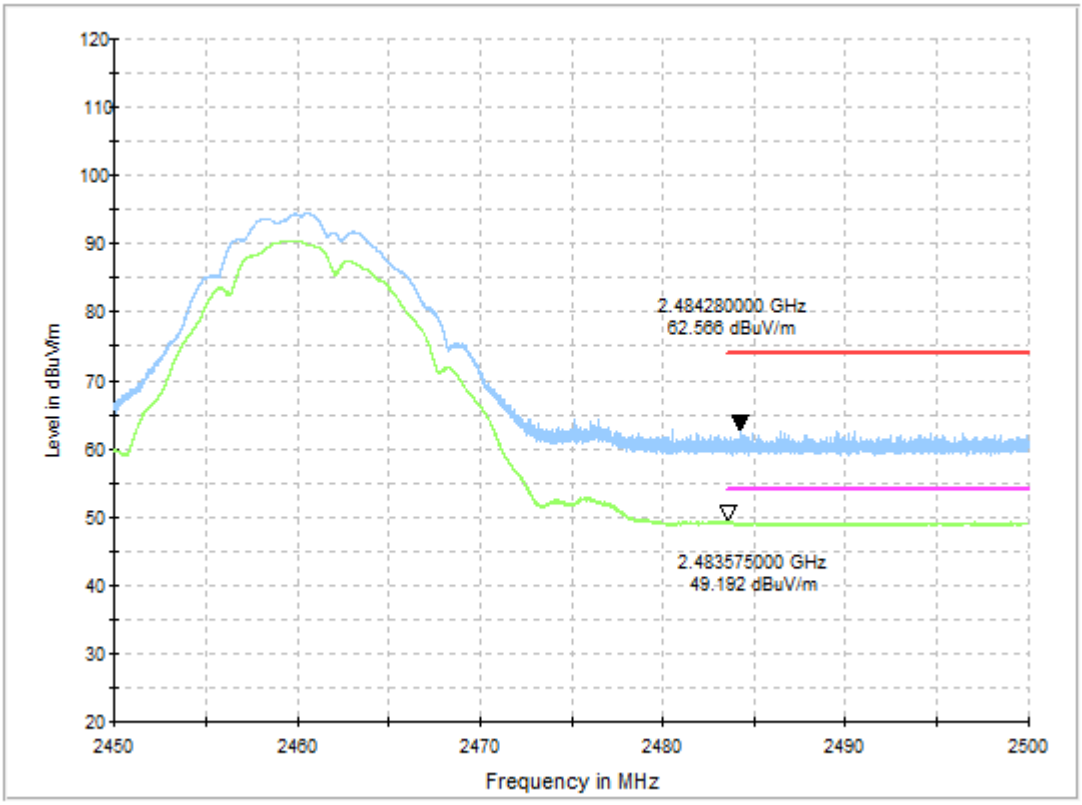


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

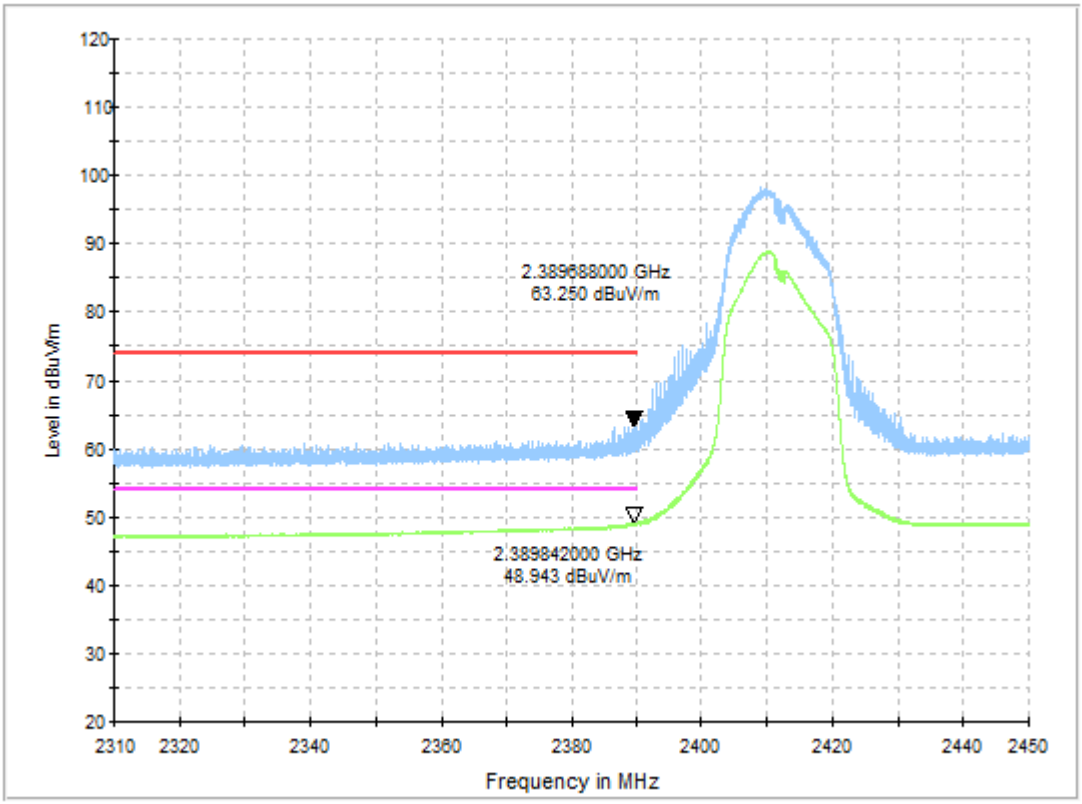


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.43GHz

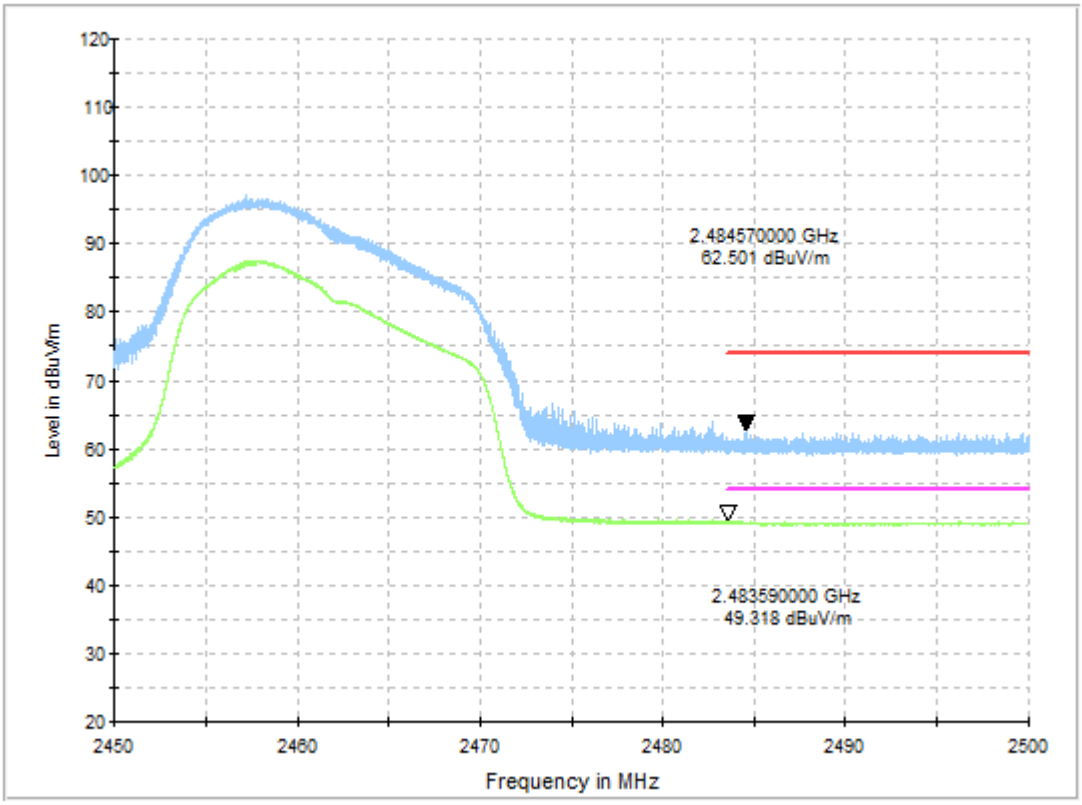


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

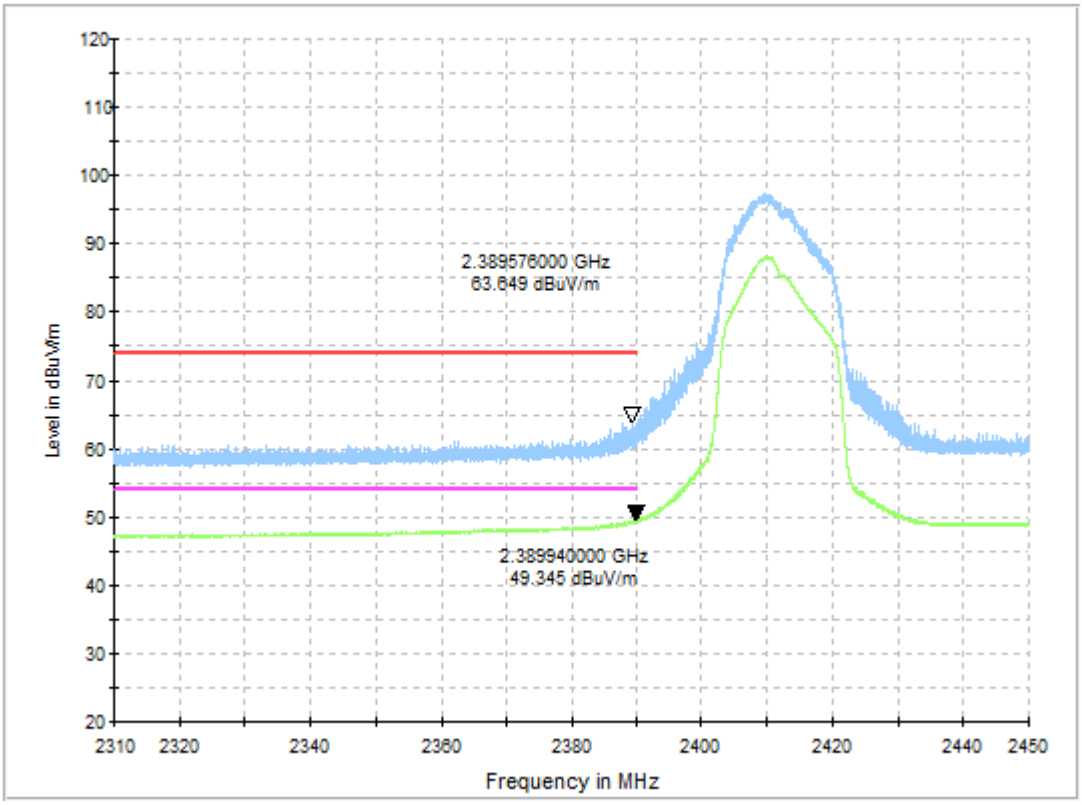


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31 GHz - 2.43GHz

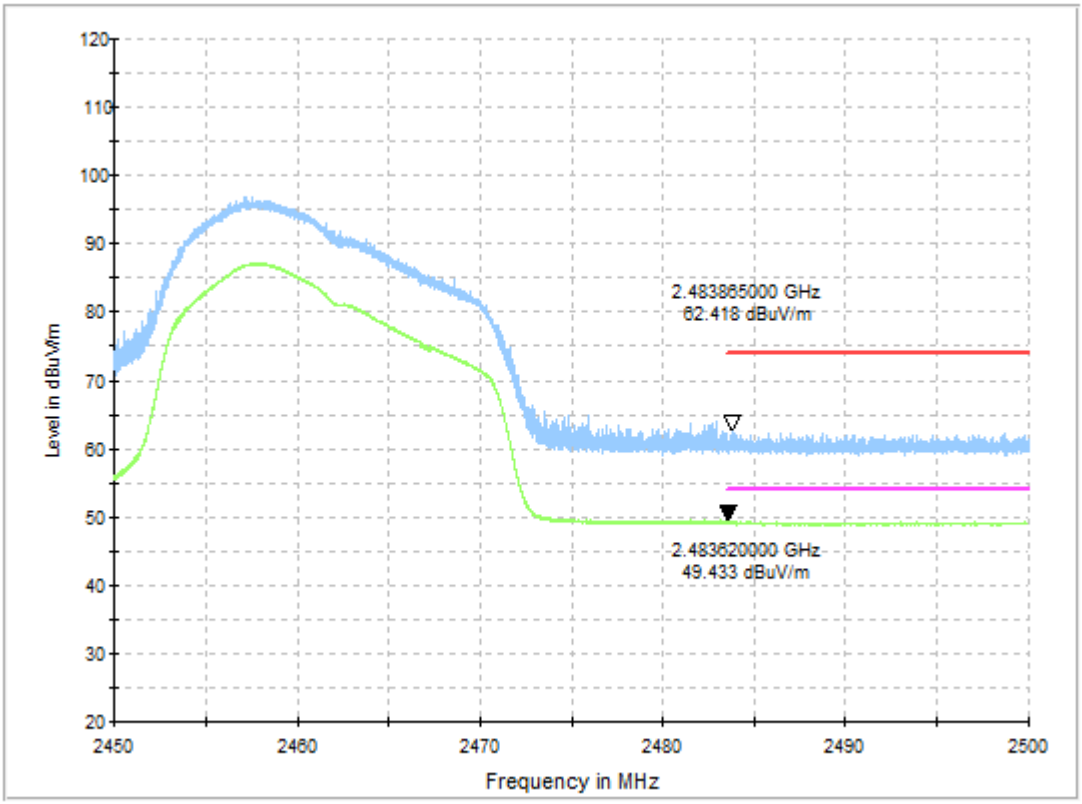


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

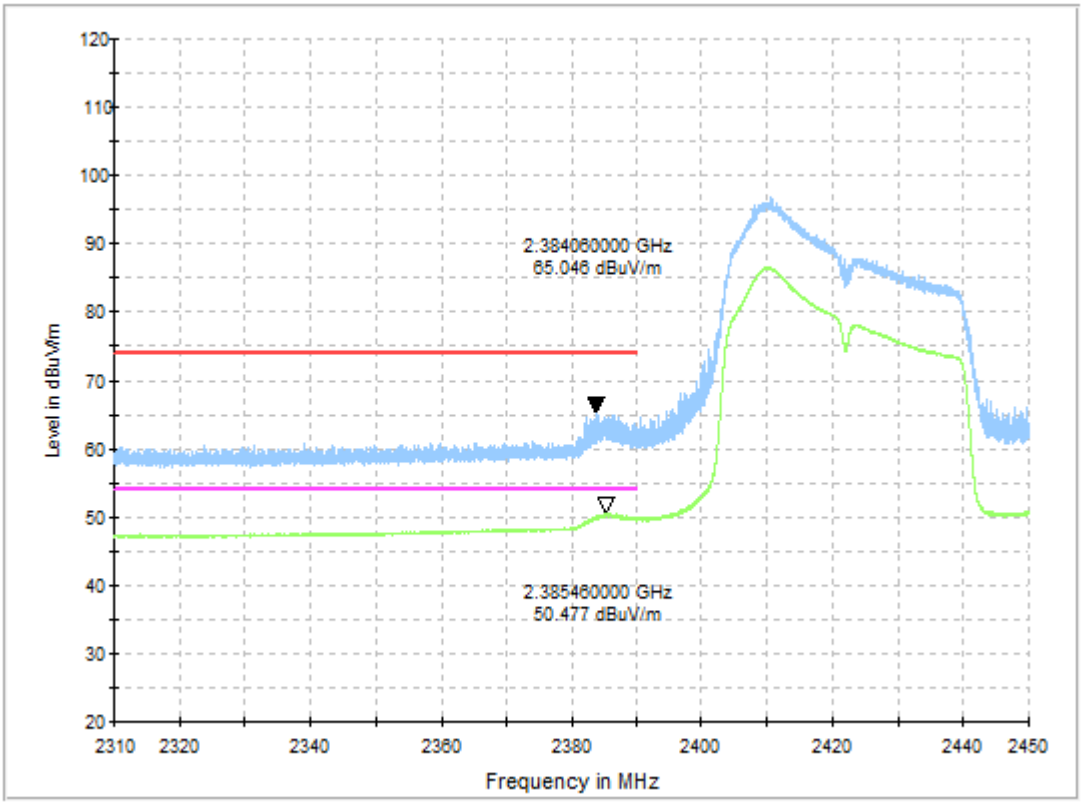


Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.31 GHz - 2.43GHz

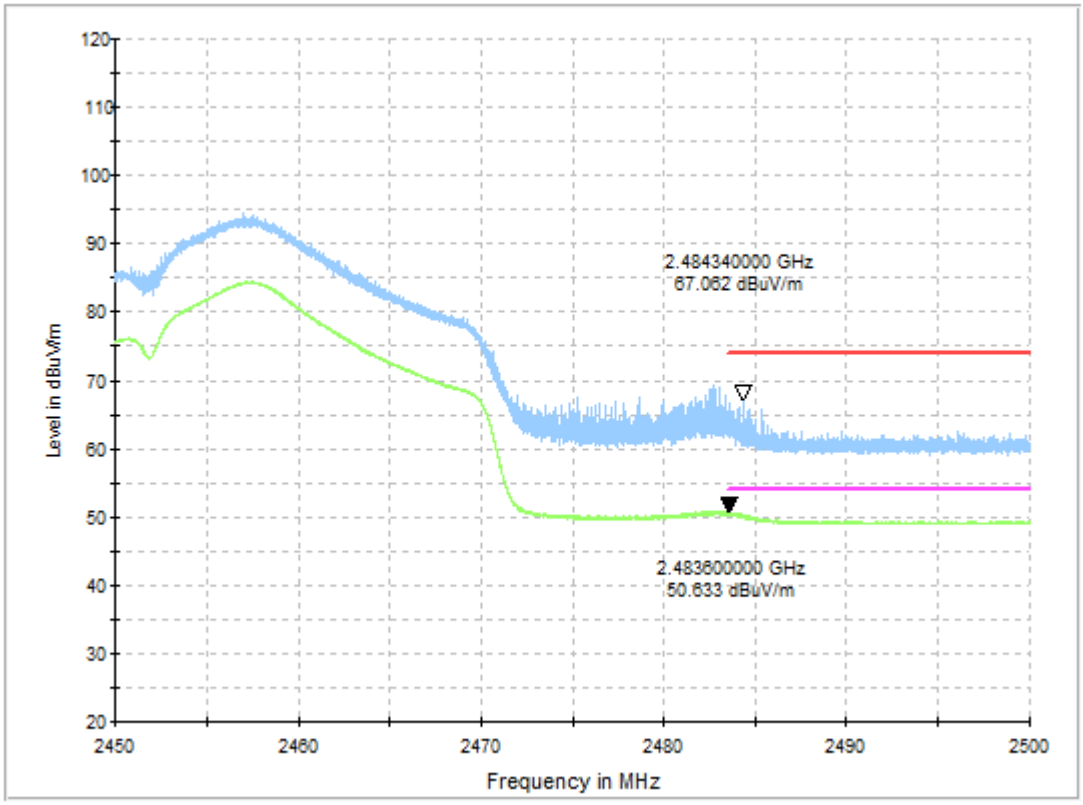


Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz

A.7. AC Power-line Conducted Emission

Method of Measurement: See ANSI C63.10-2013-clause 6.2

1 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.

2 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.

3 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.

4 If the EUT is comprised 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, 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 separately measured. 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.

5 If the EUT uses a detachable antenna, these measurements shall be made with a suitable dummy load connected to the antenna output terminals; otherwise, the tests shall be made with the antenna connected and, if adjustable, fully extended. When measuring the ac conducted emissions from a device that operates between 150 kHz and 30 MHz a non-detachable antenna may be replaced with a dummy load for the measurements within the fundamental emission band of the transmitter, but only for those measurements.36 Record the six highest EUT emissions relative to the limit of each of the current-carrying conductors of the power cords of the equipment that comprises the EUT over the frequency range specified by the procuring or regulatory agency. Diagram or photograph the test setup that was used. See Clause 8 for full reporting requirements.

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

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:

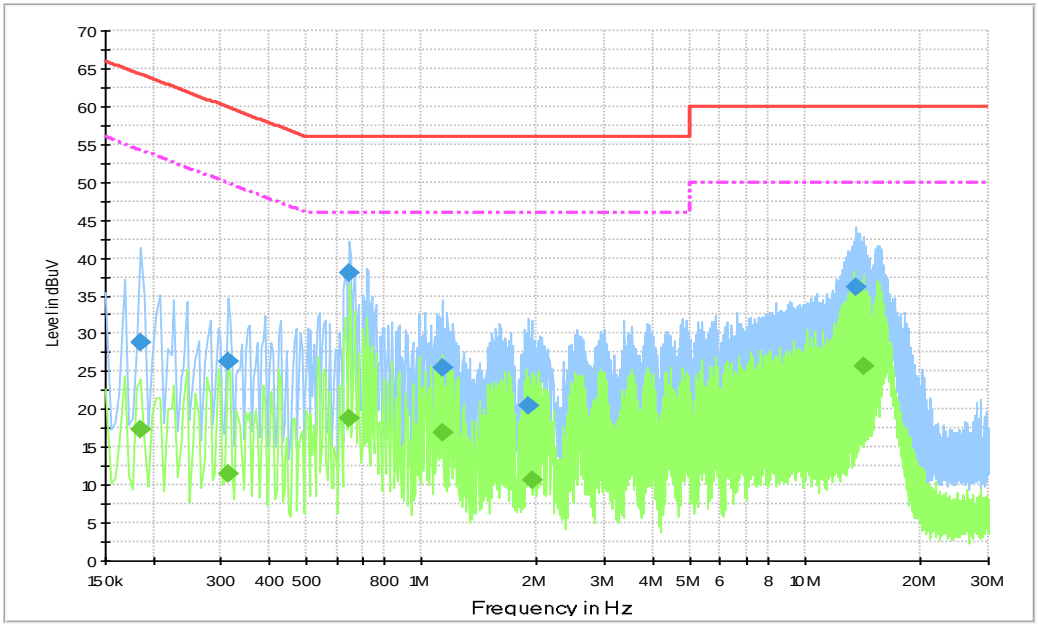


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186000	28.7	L1	19.5	35.5	64.2
0.312000	26.4	L1	19.5	33.5	59.9
0.649500	38.0	L1	19.5	18.0	56.0
1.131000	25.5	L1	19.5	30.5	56.0
1.896000	20.4	L1	19.5	35.6	56.0
13.524000	36.2	L1	19.8	23.8	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186000	17.4	L1	19.5	36.8	54.2
0.312000	11.4	N	19.5	38.5	49.9
0.649500	18.8	N	19.5	27.2	46.0
1.131000	17.0	L1	19.5	29.0	46.0
1.932000	10.6	N	19.5	35.4	46.0
14.253000	25.8	L1	19.8	24.2	50.0

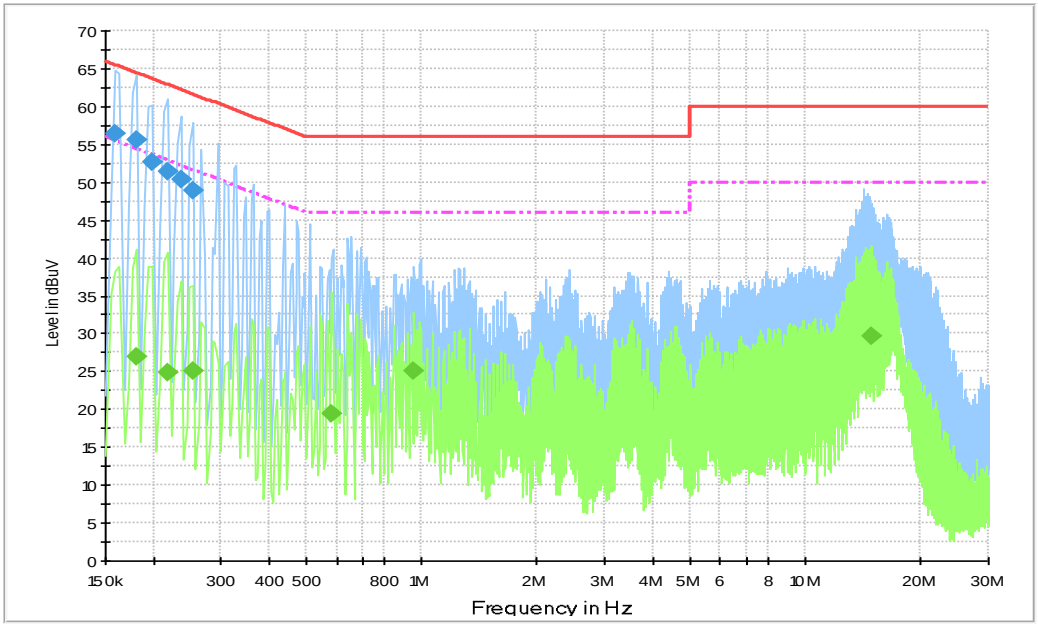


Fig.A.7.2 AC Powerline Conducted Emission-Idle

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159000	56.5	L1	19.5	9.0	65.5
0.181500	55.6	N	19.5	8.8	64.4
0.199500	52.7	L1	19.4	11.0	63.6
0.217500	51.4	L1	19.5	11.5	62.9
0.235500	50.4	L1	19.5	11.8	62.3
0.253500	48.8	N	19.4	12.8	61.6

Final Result 2

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.181500	26.9	N	19.5	27.5	54.4
0.217500	24.8	N	19.5	28.1	52.9
0.253500	25.1	L1	19.4	26.6	51.6
0.582000	19.5	N	19.4	26.5	46.0
0.955500	25.1	L1	19.5	20.9	46.0
14.802000	29.8	L1	19.8	20.2	50.0

ANNEX B: EUT parameters

Disclaimer: The antenna gain and worse case 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

Accredited Laboratory

A2LA has accredited

TELECOMMUNICATION TECHNOLOGY LABS, CAICT

Beijing, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 26th day of June 2023.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 7049.01
Valid to July 31, 2024

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

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