FCC PART 15C
TEST REPORT
No. I22Z60839-IOT01

for

TCL Communication Ltd.

GSM/UMTS/LTE Mobile phone

T501C

FCC ID : 2ACCJH166

with

Hardware Version: 03

Software Version: ER2D

Issued Date: 2022-06-08

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

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

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

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

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z60839-IOT01	Rev.0	1st edition	2022-06-08

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1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2005 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 (CN0066). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Conducted testing Location: CTTL(huayuan North Road)

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

Radiated testing Location: CTTL(huayuan North Road)

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

1.3. Testing Environment

Normal Temperature: 15-35℃

Relative Humidity: 20-75%

1.4. Project date

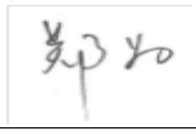
Testing Start Date: 2022-05-28

Testing End Date: 2022-05-30

1.5. Signature

Feng Aiyu

(Prepared this test report)



Zheng Wei

(Reviewed this test report)

Hu Xiaoyu

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
City:	/
Postal Code:	/
Country:	/
Contact:	Peter Yang
Telephone	+86 755 3664 5759
E-mail:	peter.yang@tcl.com

2.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
City:	/
Postal Code:	/
Country:	/
Contact:	Peter Yang
Telephone	+86 755 3664 5759
E-mail:	peter.yang@tcl.com

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

3.1. About EUT

Description	GSM/UMTS/LTE Mobile phone
Model name	T501C
FCC ID	2ACCJH166
With WLAN Function	Yes
Frequency Range	ISM 2400MHz~2483.5MHz
Type of Modulation	DSSS/CCK/OFDM
Number of Channels	11
Antenna	Integral Antenna
MAX Conducted Power	23.12dBm
Power Supply	3.85V

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	016249000001938	03	ER2D
UT20a	016249000001862	03	ER2D

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

3.3. Internal Identification of AE

AE ID*	Description	SN
AE1	Battery1	/
AE2	Battery2	/
AE3	USB Cable	/
AE4	Charger1	/
AE5	Charger2	/

AE1

Model	CAB2880012C7, TLi028C7
Manufacturer	VEKEN
Capacity	2880mAh
Nominal Voltage	3.85V

AE2

Model	CAB2880006C1, TLi028C1
Manufacturer	BYD
Capacity	2880mAh
Nominal Voltage	3.85V

AE3

Model	CDA0000131C1
Manufacturer	JUWEI

Length of cable	/

AE4

Model	CBA0058AGTC5
Manufacturer	PUAN
Length of cable	/

AE5

Model	CBA0058AGTC7
Manufacturer	CHENYANG
Length of cable	/

*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 GSM/UMTS/LTE Mobile Phone with WLAN 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

3.6. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	UT20a + AE1/2 + AE3+ AE4	

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:	2018

	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.	
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	Test Receiver	ESCI	100344	R&S	1 year	2023-03-21
2	LISN	ENV216	101200	R&S	1 year	2022-06-29
3	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESW44	103023	R&S	1 year	2022-10-28
2	EMI Antenna	VULB 9163	302	SCHWARZBECK	1 year	2022-12-28
3	EMI Antenna	3115	00167250	ETS-Lindgren	1 year	2022-07-01

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	/
30MHz ≤ f ≤ 1GHz	5.15
1GHz ≤ f ≤18GHz	5.54
18GHz ≤ f ≤40GHz	5.26

7.6. AC Power-line Conducted Emission

Measurement Uncertainty: 3.08dB, 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

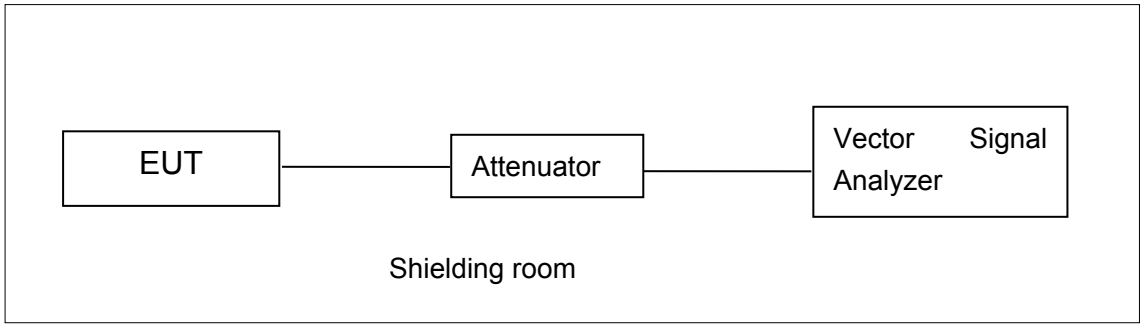


Fig.A.1.1.1: Test Setup Diagram for Conducted Measurements

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;

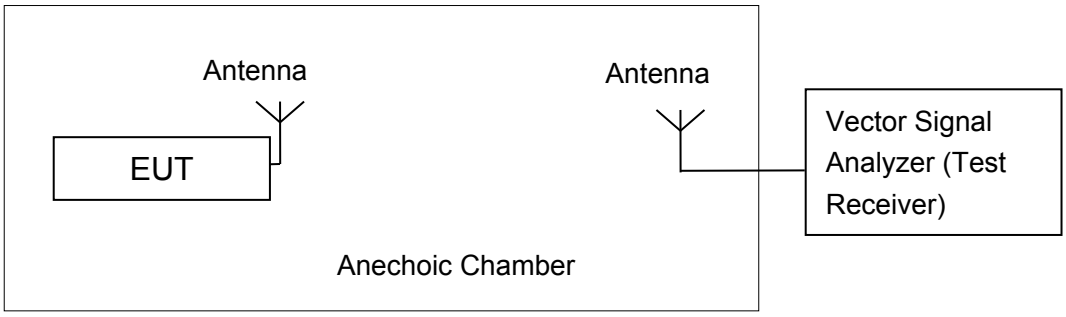


Fig.A.1.2.1: Test Setup Diagram for Radiated Measurements

A.2. Maximum Output Power

Method of Measurement: See ANSI C63.10-2013-clause 11.9.1.2

a) Set the RBW = 1 MHz.
b) Set the VBW = 3 MHz.
c) Set the span ≥ [1.5 × DTS bandwidth].
d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select the peak detector).

Measurement Limit:

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

EUT ID: EUT1

A.2.1. Peak Output Power-conducted

Measurement Results:

TestMode	Antenna	Frequency[MHz]	Set Power	Peak Powert[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	---	19.96	≤30.00	PASS
		2437	---	20.41	≤30.00	PASS
		2462	---	20.14	≤30.00	PASS
11G	Ant1	2412	---	22.95	≤30.00	PASS
		2437	---	23.12	≤30.00	PASS
		2462	---	22.82	≤30.00	PASS
11N20SISO	Ant1	2412	---	22.77	≤30.00	PASS
		2437	---	23.01	≤30.00	PASS
		2462	---	22.65	≤30.00	PASS
11N40SISO	Ant1	2422	---	21.50	≤30.00	PASS
		2437	---	22.13	≤30.00	PASS
		2452	---	22.00	≤30.00	PASS

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

Note:The duty cycle of the EUT is :

TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11B	Ant1	2412	27.00	27.00	100.00
		2437	27.00	27.00	100.00
		2462	27.00	27.00	100.00
11G	Ant1	2412	27.00	27.00	100.00
		2437	27.00	27.00	100.00
		2462	27.00	27.00	100.00
11N20SISO	Ant1	2412	27.00	27.00	100.00
		2437	27.00	27.00	100.00
		2462	27.00	27.00	100.00
11N40SISO	Ant1	2422	27.00	27.00	100.00
		2437	27.00	27.00	100.00
		2452	27.00	27.00	100.00

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

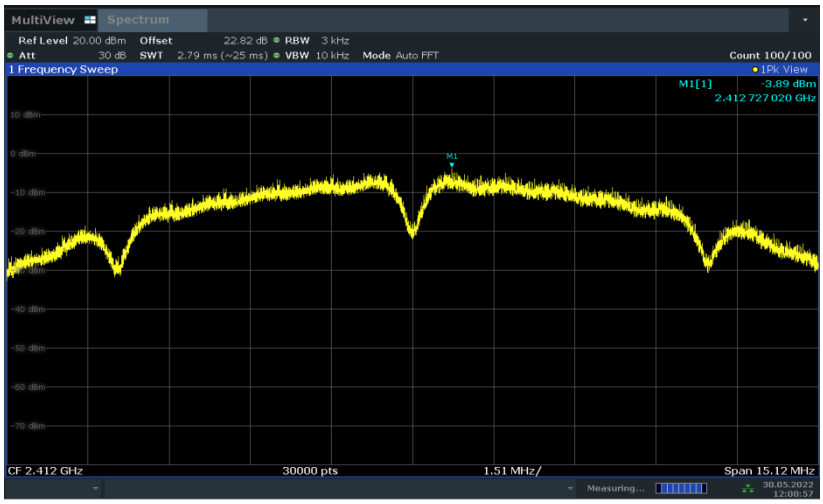
Measurement Results:

TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-3.89	≤8.00	PASS
		2437	-3.81	≤8.00	PASS
		2462	-4.36	≤8.00	PASS
11G	Ant1	2412	-7.79	≤8.00	PASS
		2437	-8.75	≤8.00	PASS
		2462	-8.78	≤8.00	PASS
11N20SISO	Ant1	2412	-8.18	≤8.00	PASS
		2437	-8.91	≤8.00	PASS
		2462	-9.07	≤8.00	PASS
11N40SISO	Ant1	2422	-12.69	≤8.00	PASS
		2437	-12.56	≤8.00	PASS
		2452	-10.83	≤8.00	PASS

Conclusion: Pass

Test graphs as below:

11B_Ant1_2412



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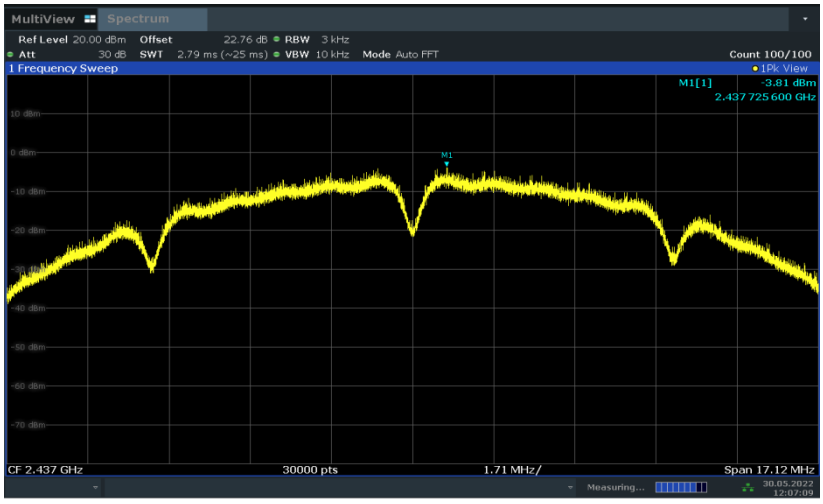
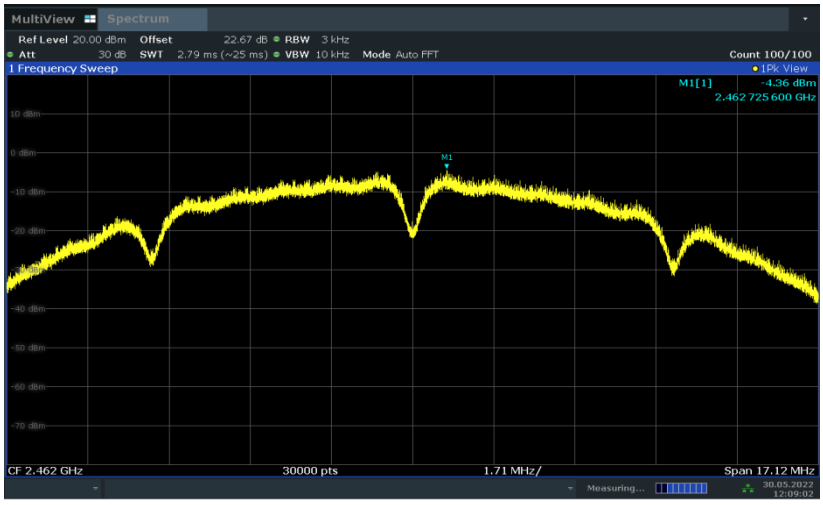
11B_Ant1_2437



12:07:10 30.05.2022

11B_Ant1_2462



12:09:02 30.05.2022

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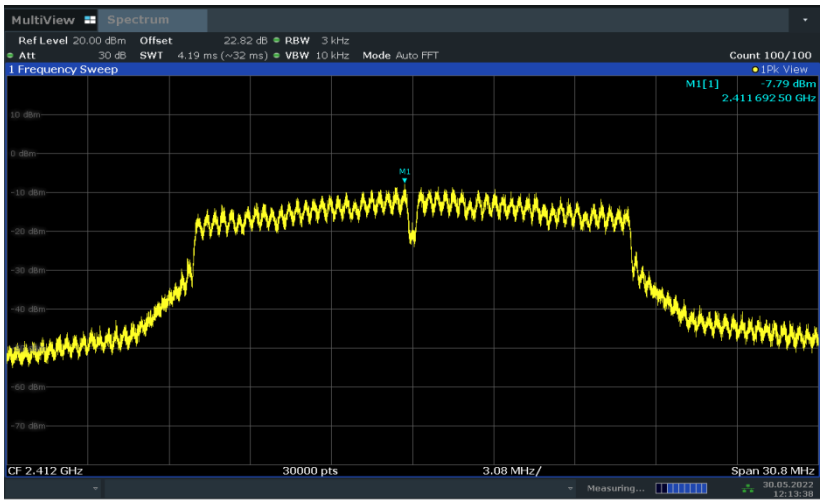 12:13:38 30.05.2022
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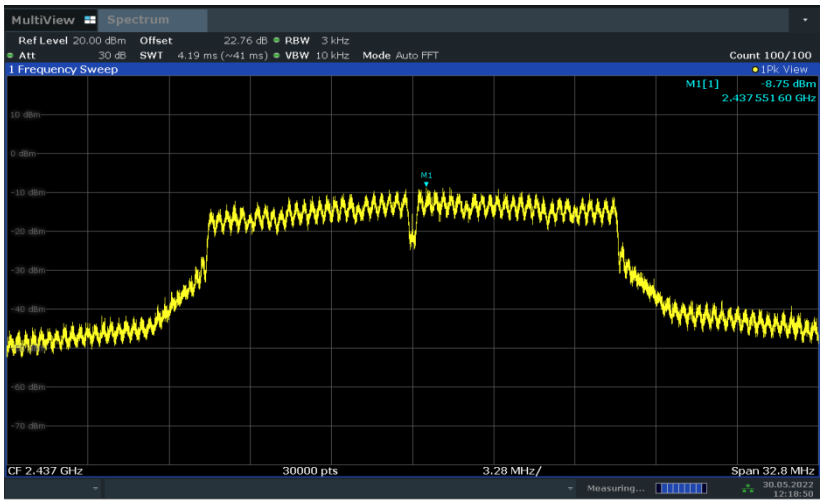 12:18:50 30.05.2022
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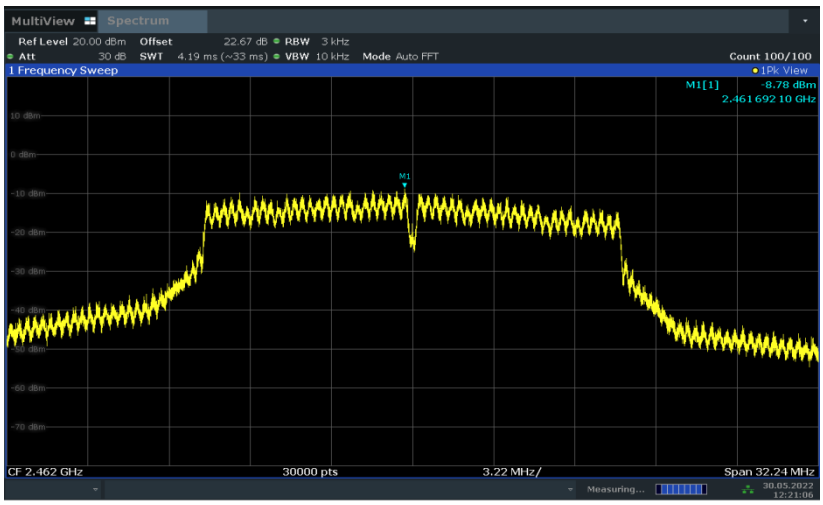 12:21:07 30.05.2022

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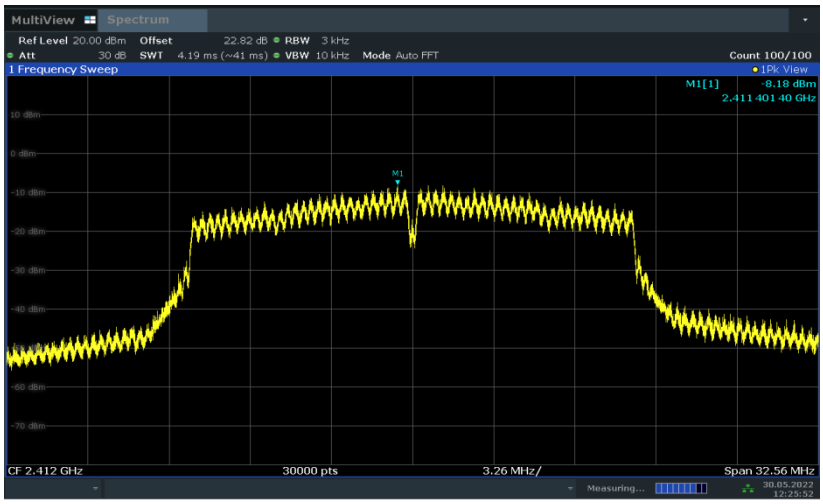 12:25:52 30.05.2022
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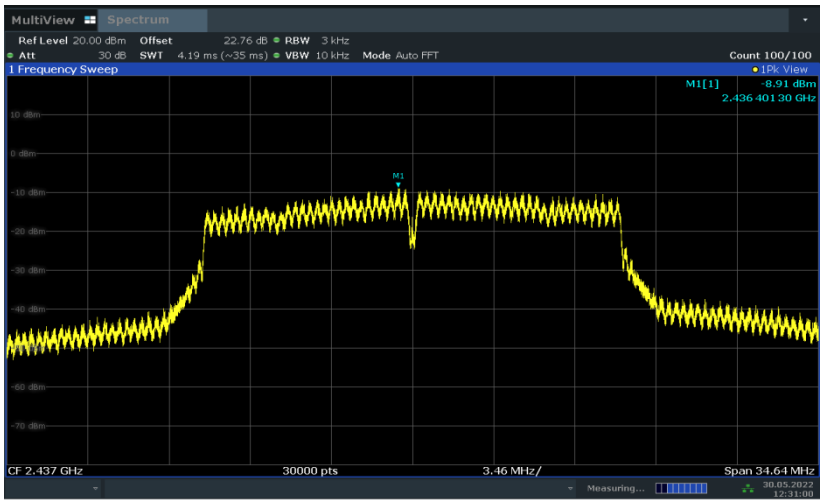 12:31:00 30.05.2022
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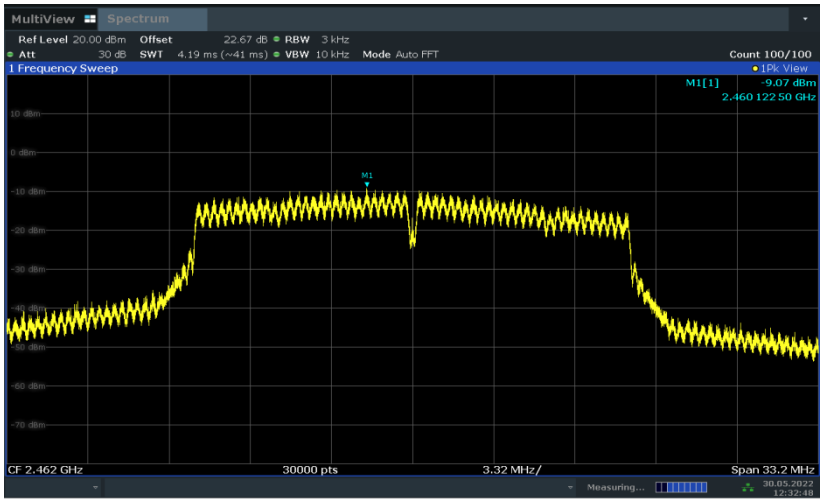 12:32:48 30.05.2022

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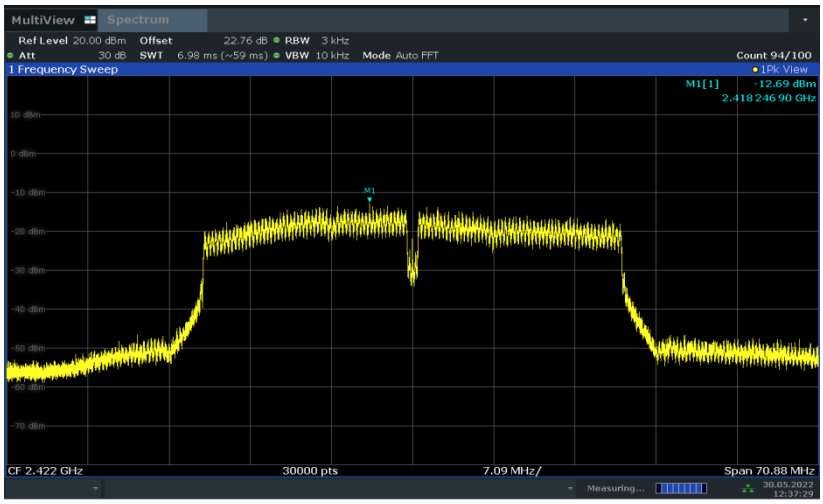 12:37:30 30.05.2022
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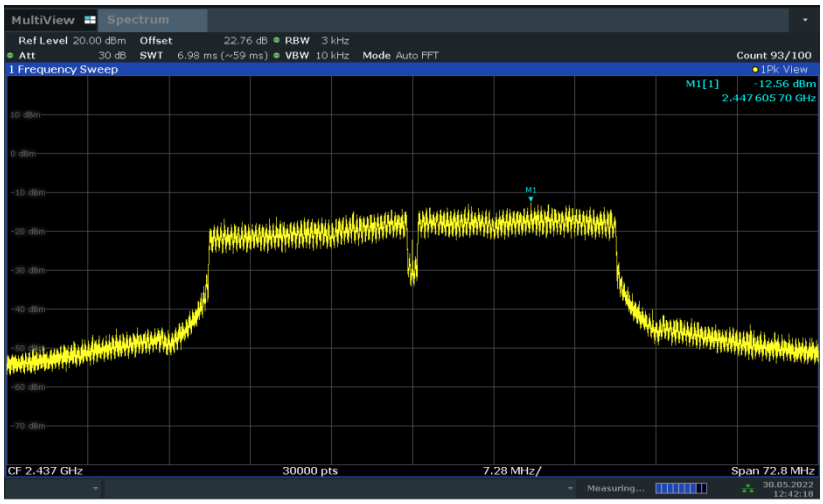 12:42:19 30.05.2022
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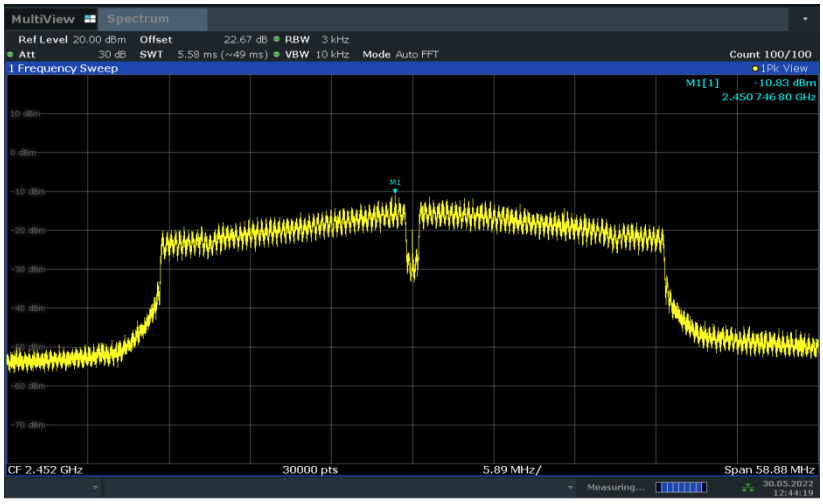
 12:44:20 30.05.2022

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:

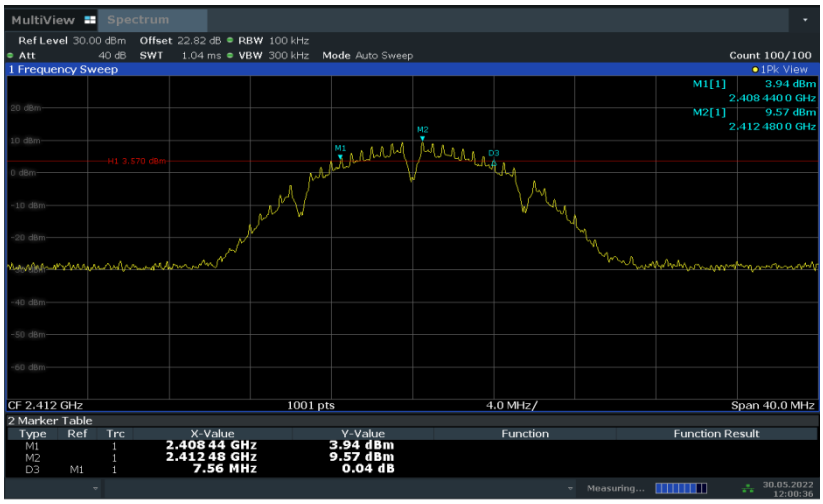
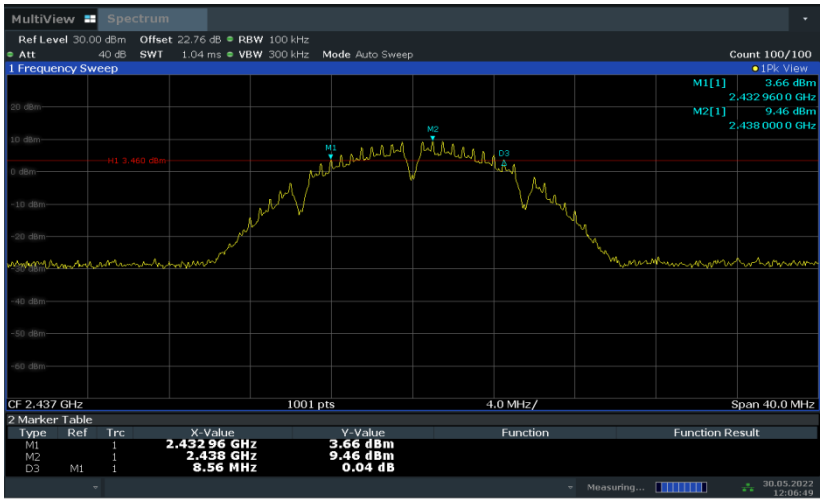
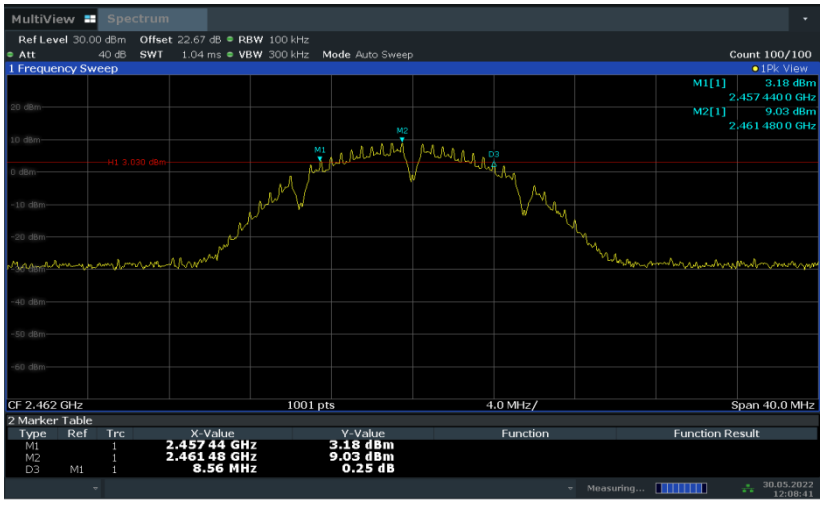
Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a)	≥ 500

EUT ID: EUT1

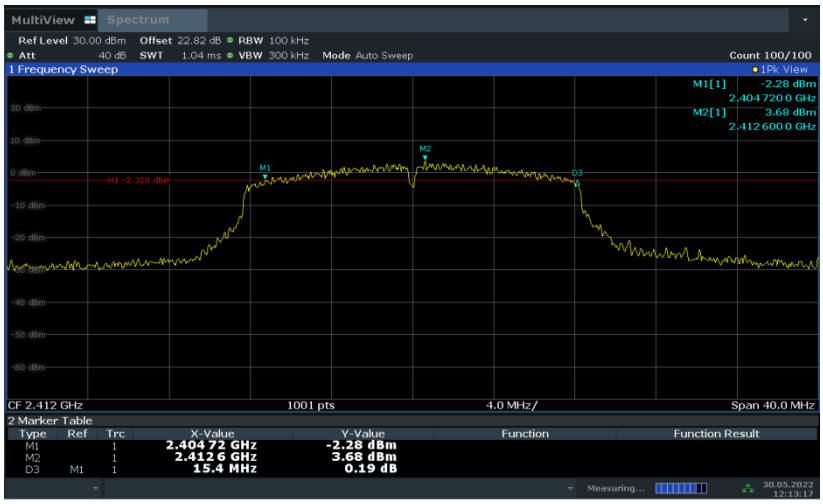
Measurement Result:

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	7.56	2408.44	2416.00	0.5	PASS
		2437	8.56	2432.96	2441.52	0.5	PASS
		2462	8.56	2457.44	2466.00	0.5	PASS
11G	Ant1	2412	15.40	2404.72	2420.12	0.5	PASS
		2437	16.40	2428.84	2445.24	0.5	PASS
		2462	16.12	2453.76	2469.88	0.5	PASS
11N20SISO	Ant1	2412	16.28	2404.24	2420.52	0.5	PASS
		2437	17.32	2428.48	2445.80	0.5	PASS
		2462	16.60	2453.16	2469.76	0.5	PASS
11N40SISO	Ant1	2422	35.44	2404.72	2440.16	0.5	PASS
		2437	36.40	2418.84	2455.24	0.5	PASS
		2452	29.44	2439.20	2468.64	0.5	PASS

Test graphs as below:

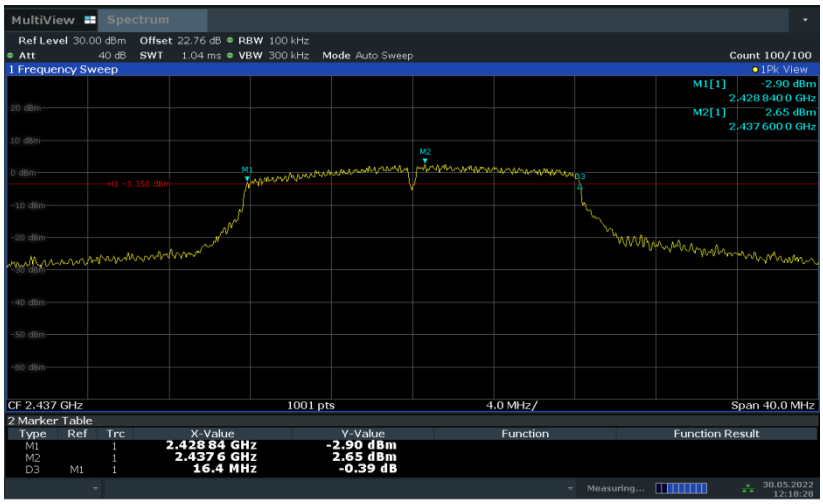
11B_Ant1_2412
 12:00:37 30.05.2022
11B_Ant1_2437
 12:06:49 30.05.2022
11B_Ant1_2462
 12:08:41 30.05.2022

11G_Ant1_2412



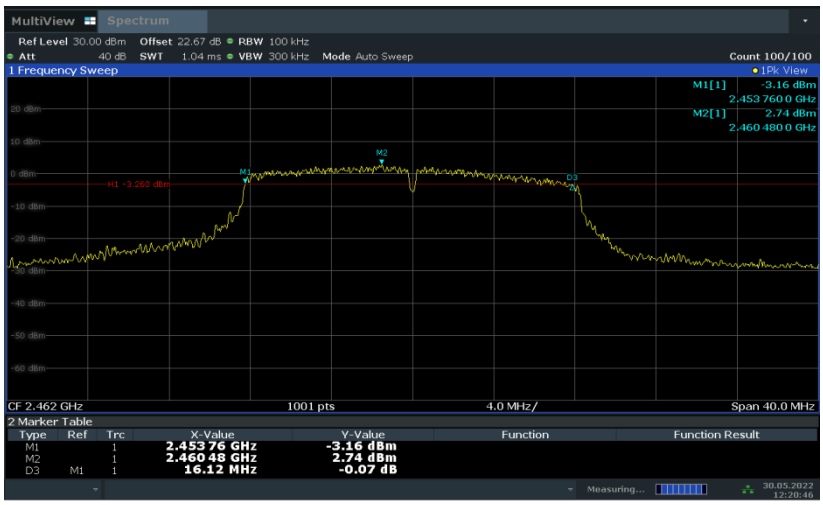
12:13:18 30.05.2022

11G_Ant1_2437

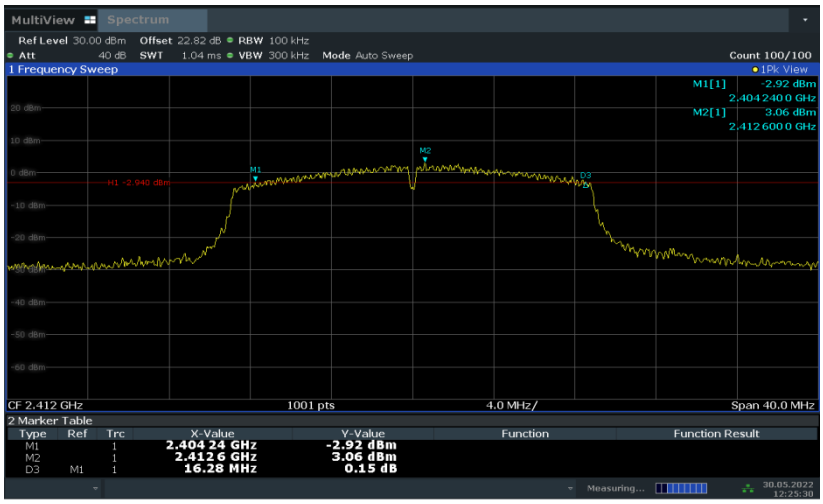
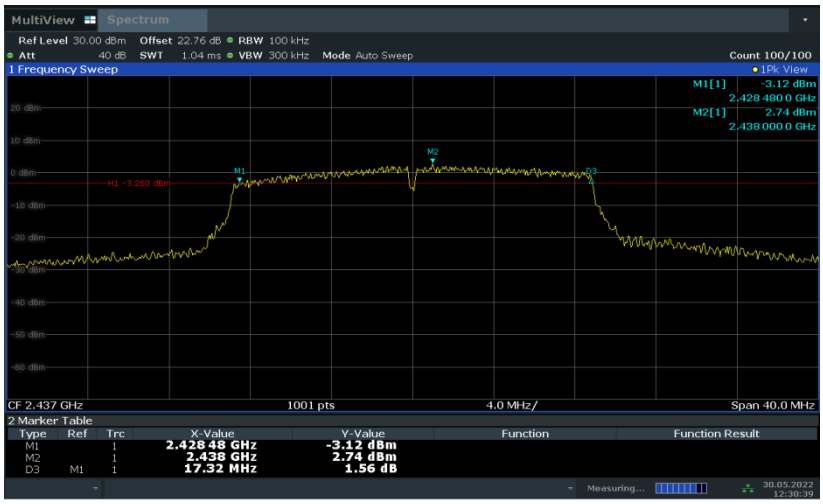
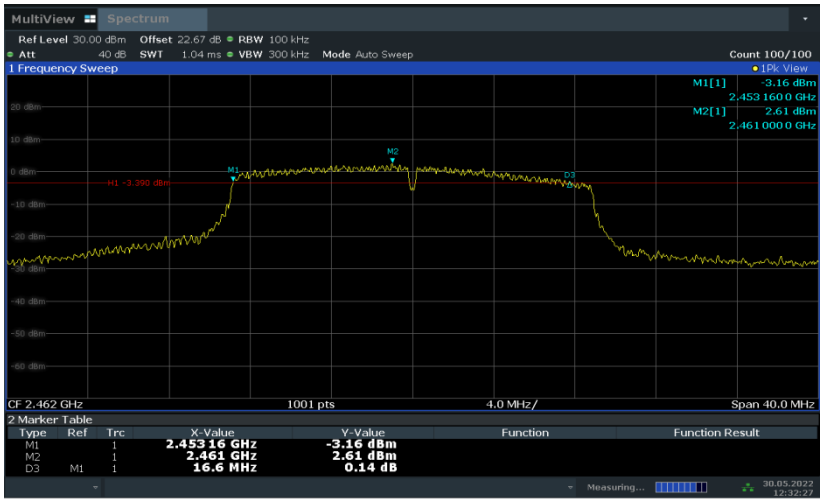


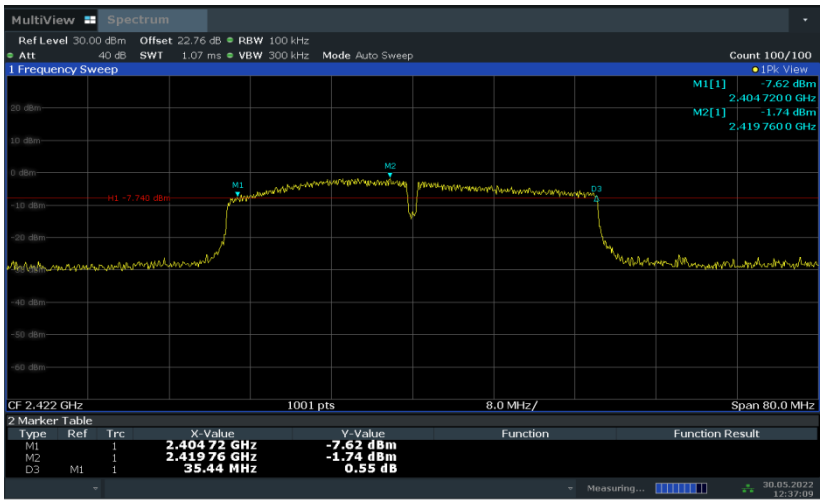
12:18:28 30.05.2022

11G_Ant1_2462

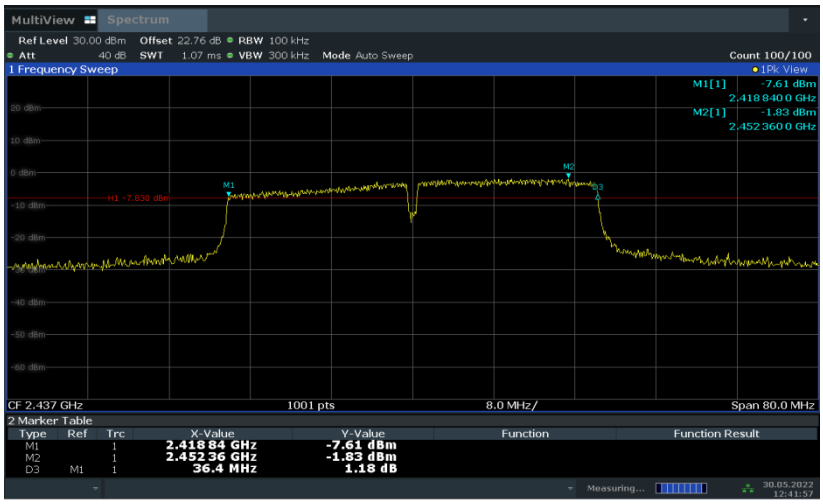


12:20:46 30.05.2022

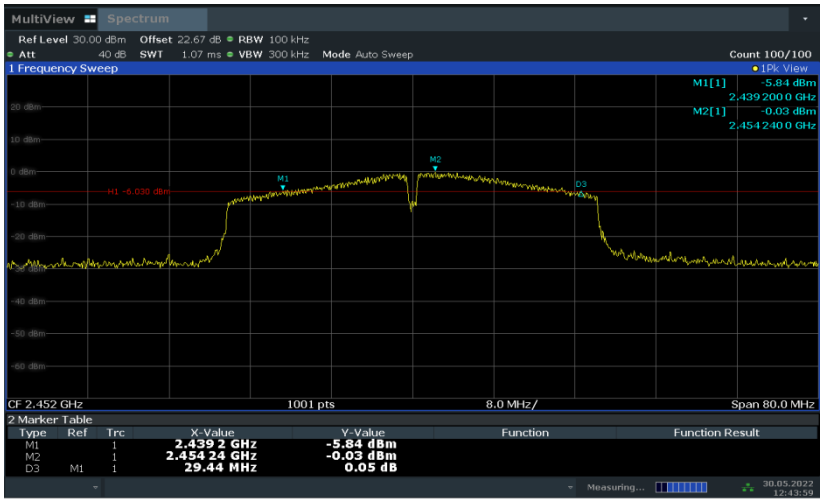
11N20SISO_Ant1_2412
 12:25:31 30.05.2022
11N20SISO_Ant1_2437
 12:30:39 30.05.2022
11N20SISO_Ant1_2462
 12:32:27 30.05.2022

11N40SISO_Ant1_2422


12:37:09 30.05.2022

11N40SISO_Ant1_2437


12:41:58 30.05.2022

11N40SISO_Ant1_2452


12:43:59 30.05.2022

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:

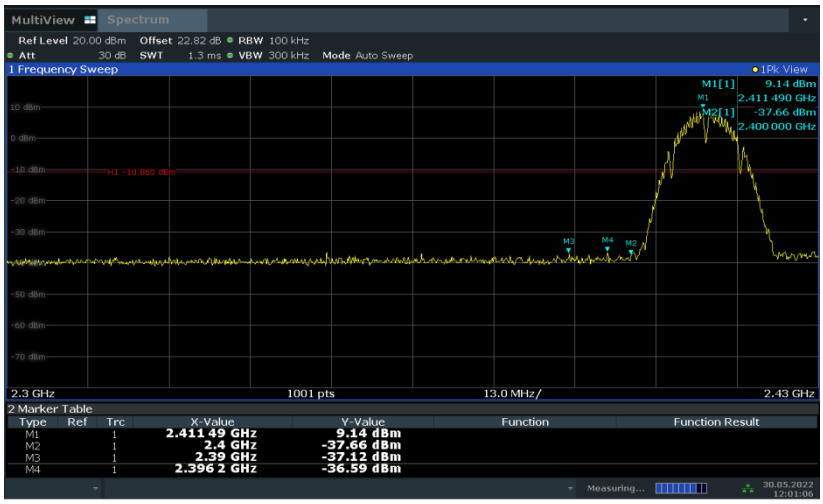
Standard	Limit (dBc)
FCC 47 CFR Part 15.247 (d)	> 20

EUT ID: EUT1

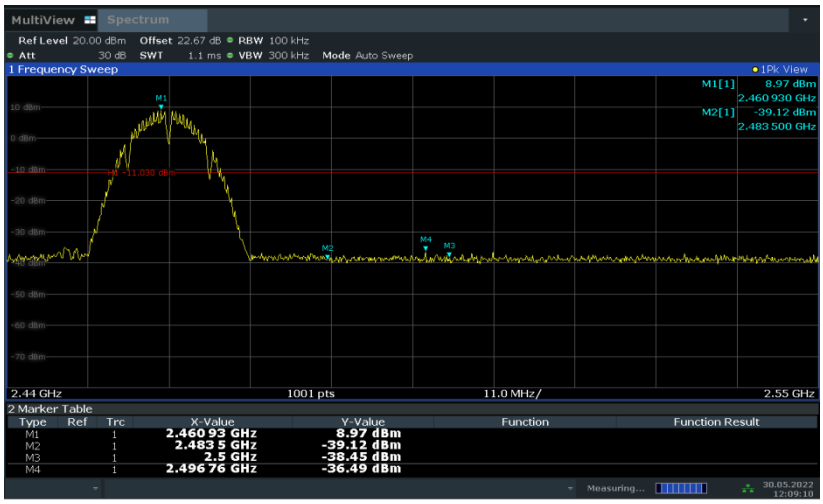
Measurement Result:

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	9.14	-36.59	≤-10.86	PASS
		High	2462	8.97	-36.49	≤-11.03	PASS
11G	Ant1	Low	2412	3.18	-28.2	≤-16.82	PASS
		High	2462	2.11	-35.35	≤-17.89	PASS
11N20SISO	Ant1	Low	2412	2.45	-30.23	≤-17.55	PASS
		High	2462	2.22	-35.45	≤-17.78	PASS
11N40SISO	Ant1	Low	2422	-2.18	-32.8	≤-22.18	PASS
		High	2452	-0.12	-32.21	≤-20.12	PASS

Test graphs as below:

11B_Ant1_Low_2412


12:01:06 30.05.2022

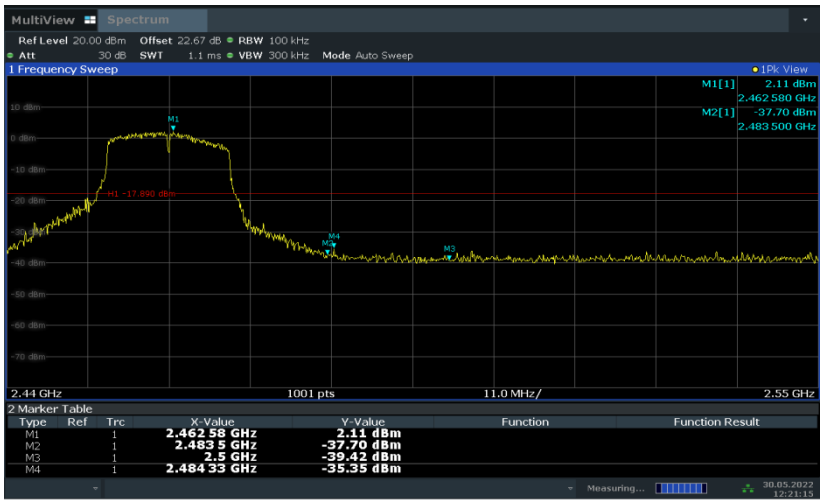
11B_Ant1_High_2462


12:09:11 30.05.2022

11G_Ant1_Low_2412


12:13:47 30.05.2022

11G_Ant1_High_2462

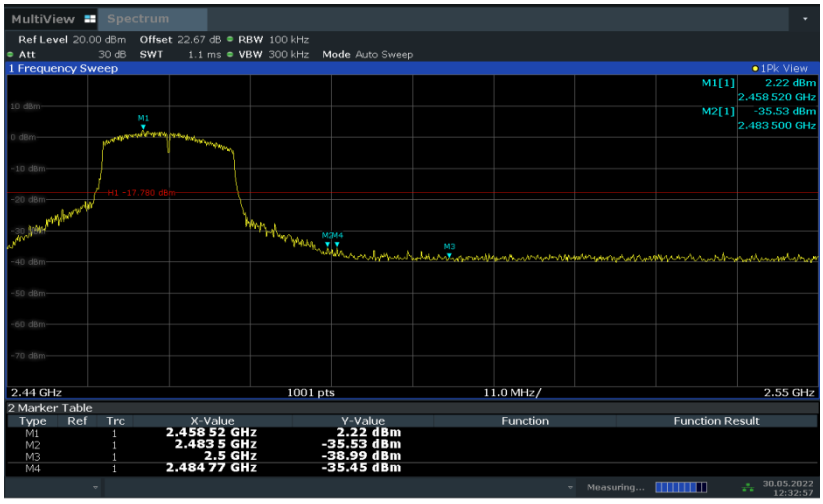


12:21:15 30.05.2022

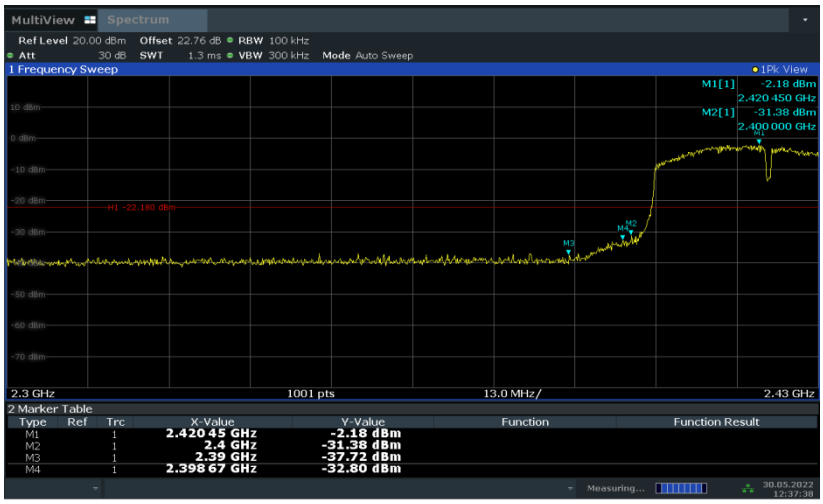
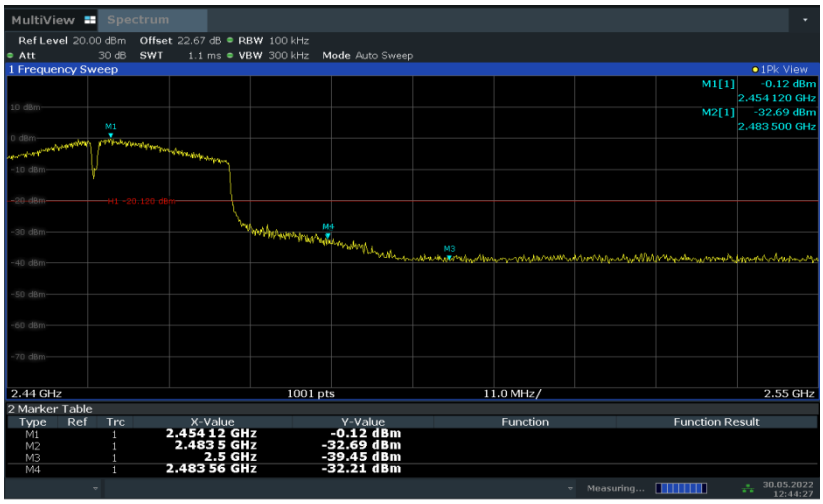
11N20SISO_Ant1_Low_2412

12:26:01 30.05.2022

11N20SISO_Ant1_High_2462



12:32:57 30.05.2022

11N40SISO_Ant1_Low_2422
 12:37:38 30.05.2022
11N40SISO_Ant1_High_2452
 12:44:28 30.05.2022

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:

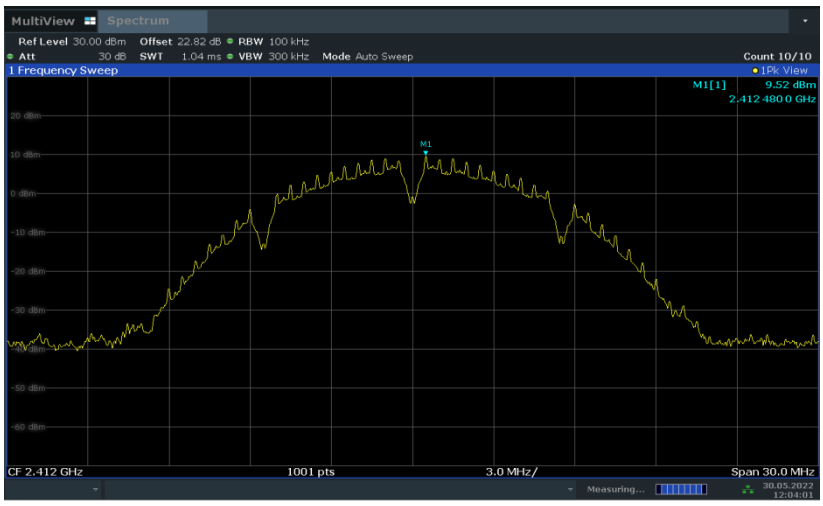
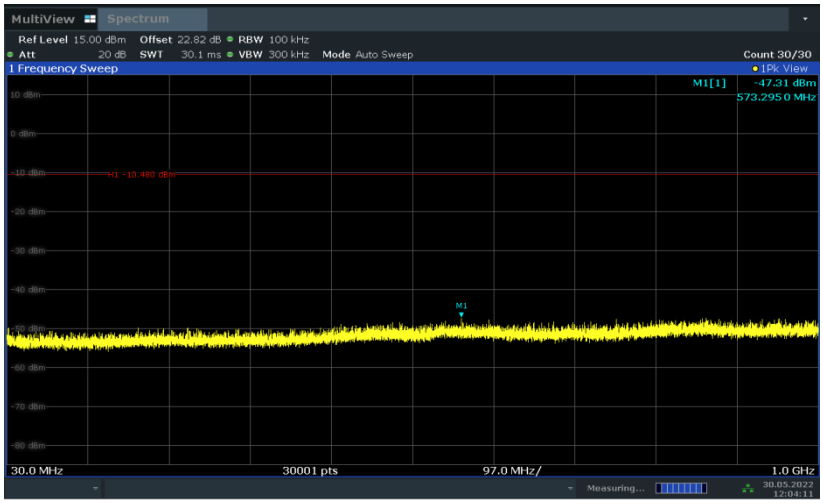
Standard	Limit
FCC 47 CFR Part 15.247 (d)	20dB below peak output power in 100 kHz bandwidth

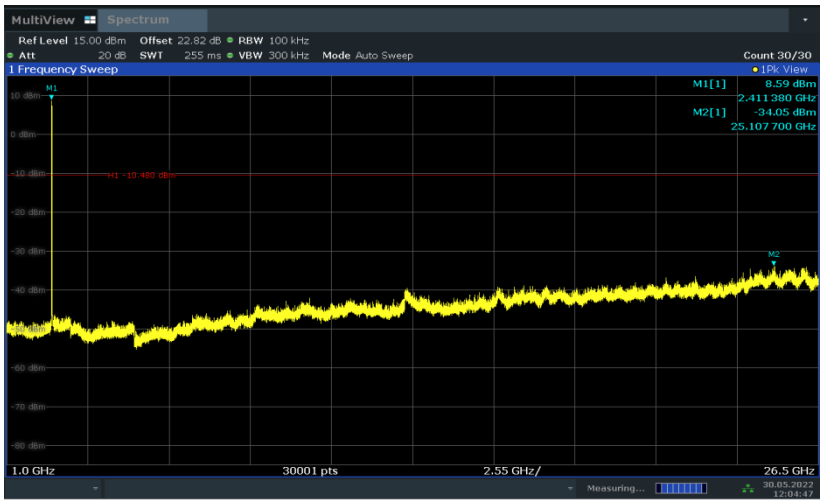
EUT ID: EUT54

Measurement Results:

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	9.52	9.52	---	PASS
			30~1000	9.52	-47.31	≤-10.48	PASS
			1000~26500	9.52	-34.05	≤-10.48	PASS
		2437	Reference	9.46	9.46	---	PASS
			30~1000	9.46	-46.6	≤-10.54	PASS
			1000~26500	9.46	-33.75	≤-10.54	PASS
		2462	Reference	9.21	9.21	---	PASS
			30~1000	9.21	-47.81	≤-10.79	PASS
			1000~26500	9.21	-34	≤-10.79	PASS
11G	Ant1	2412	Reference	3.27	3.27	---	PASS
			30~1000	3.27	-46.92	≤-16.73	PASS
			1000~26500	3.27	-33.92	≤-16.73	PASS
		2437	Reference	2.70	2.70	---	PASS
			30~1000	2.70	-46.93	≤-17.3	PASS
			1000~26500	2.70	-33.86	≤-17.3	PASS
		2462	Reference	3.03	3.03	---	PASS
			30~1000	3.03	-46.72	≤-16.97	PASS
			1000~26500	3.03	-33.8	≤-16.97	PASS
11N20SISO	Ant1	2412	Reference	2.78	2.78	---	PASS
			30~1000	2.78	-47.01	≤-17.22	PASS
			1000~26500	2.78	-33.61	≤-17.22	PASS
		2437	Reference	2.39	2.39	---	PASS
			30~1000	2.39	-47.15	≤-17.61	PASS
			1000~26500	2.39	-33.71	≤-17.61	PASS
		2462	Reference	2.77	2.77	---	PASS
			30~1000	2.77	-46.7	≤-17.23	PASS
			1000~26500	2.77	-33.72	≤-17.23	PASS
11N40SISO	Ant1	2422	Reference	-1.93	-1.93	---	PASS
			30~1000	-1.93	-46.82	≤-21.93	PASS
			1000~26500	-1.93	-33.89	≤-21.93	PASS
		2437	Reference	-1.59	-1.59	---	PASS
			30~1000	-1.59	-46.93	≤-21.59	PASS
			1000~26500	-1.59	-34.01	≤-21.59	PASS
		2452	Reference	0.17	0.17	---	PASS
			30~1000	0.17	-47.21	≤-19.83	PASS
			1000~26500	0.17	-33.24	≤-19.83	PASS

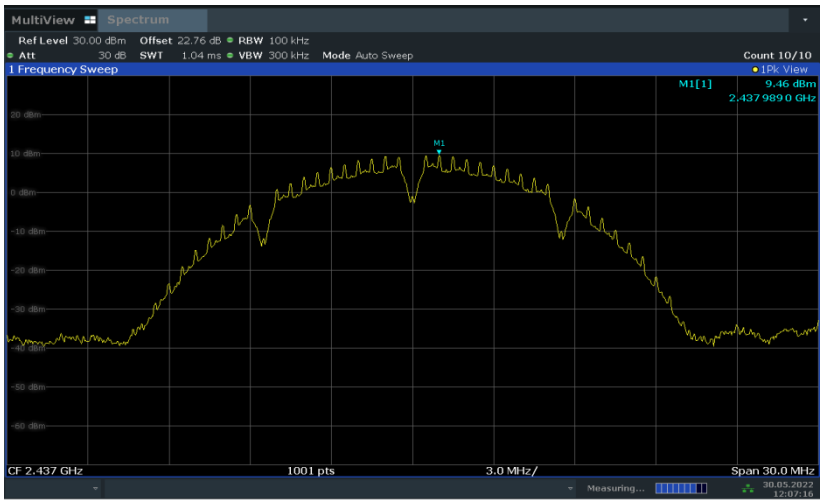
Test Graphs

11B_Ant1_2412_0~Reference
 12:04:01 30.05.2022
11B_Ant1_2412_30~1000
 12:04:12 30.05.2022
11B_Ant1_2412_1000~26500



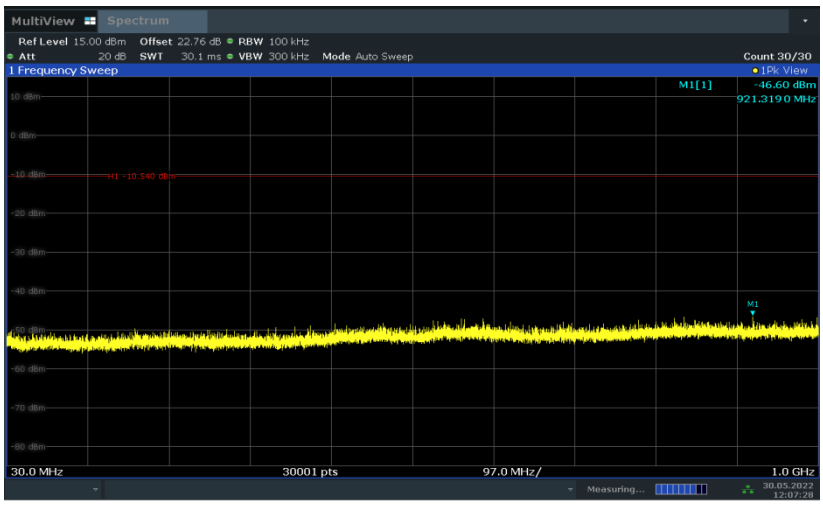
12:04:48 30.05.2022

11B_Ant1_2437_0~Reference

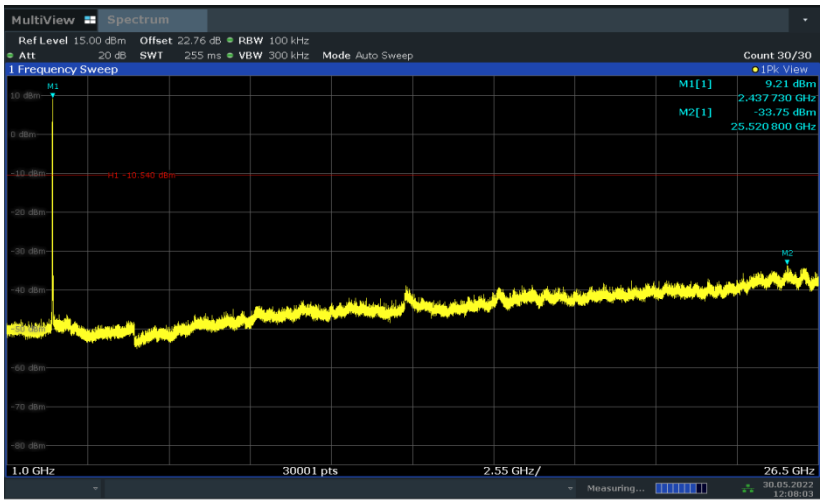
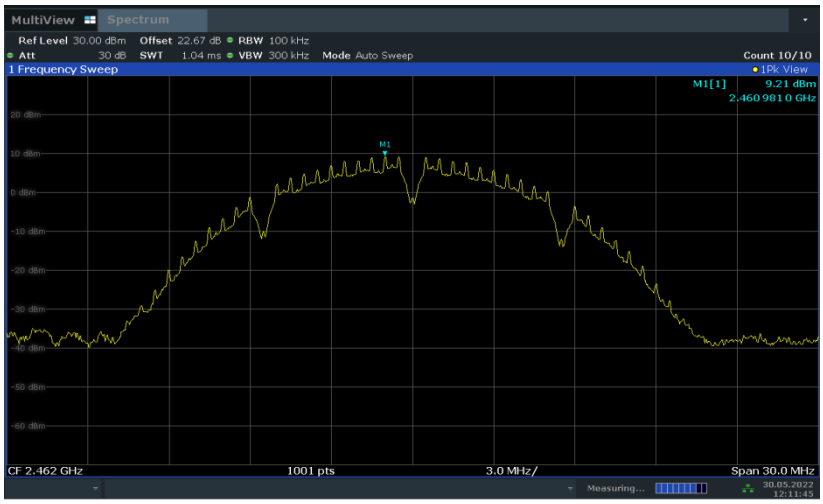
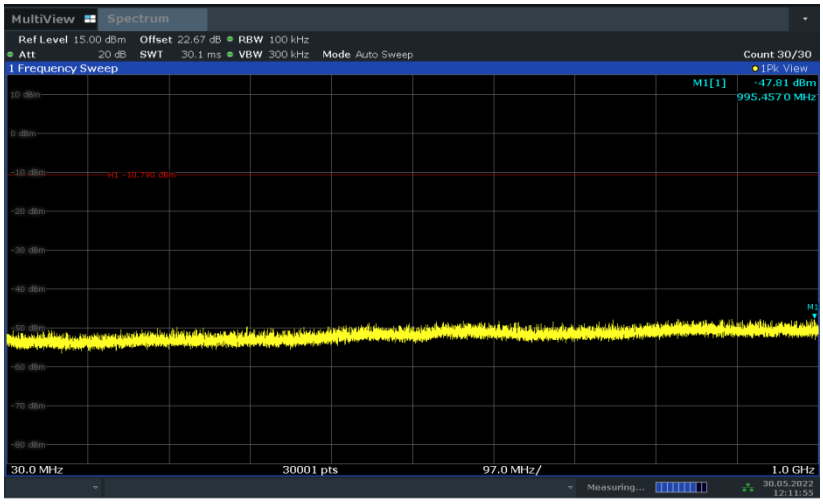


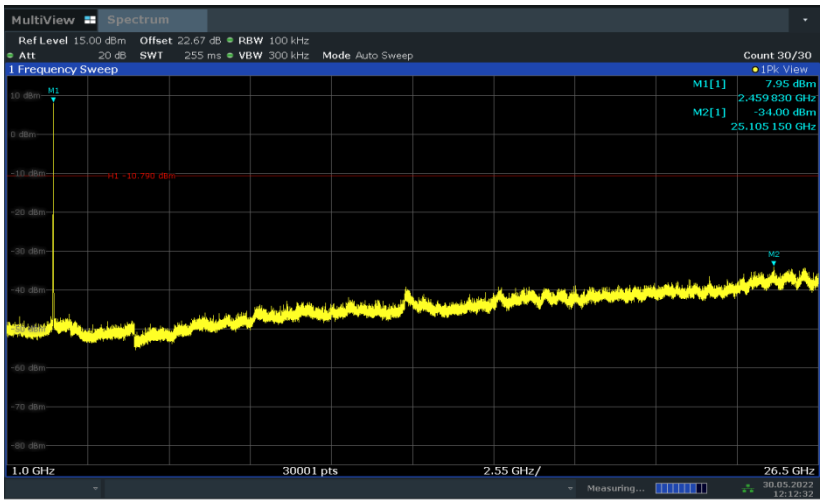
12:07:17 30.05.2022

11B_Ant1_2437_30~1000

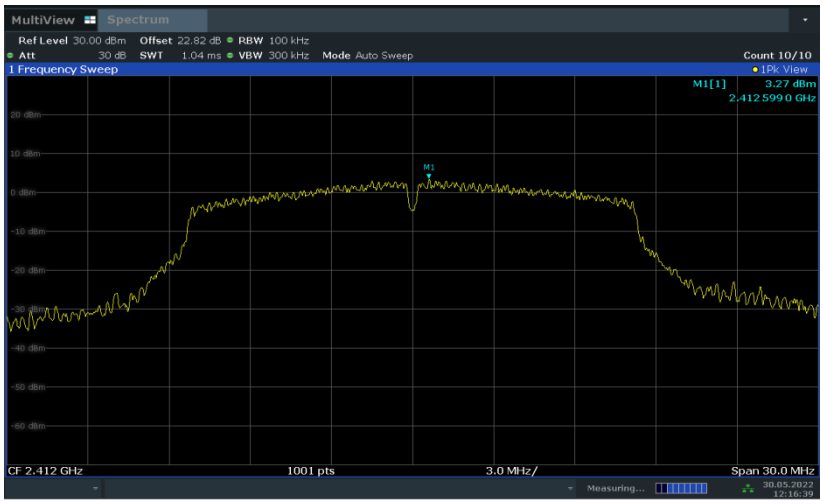


12:07:28 30.05.2022

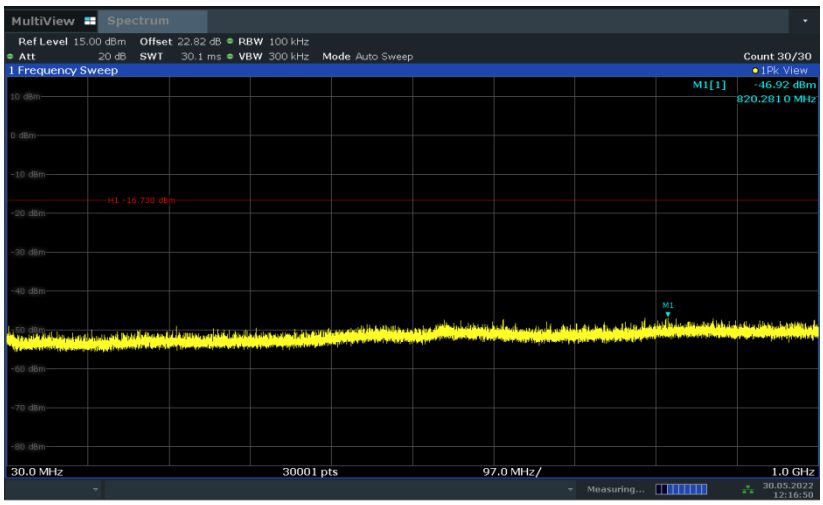
11B_Ant1_2437_1000~26500

12:08:04 30.05.2022
11B_Ant1_2462_0~Reference

12:11:45 30.05.2022
11B_Ant1_2462_30~1000

12:11:56 30.05.2022

11B_Ant1_2462_1000~26500


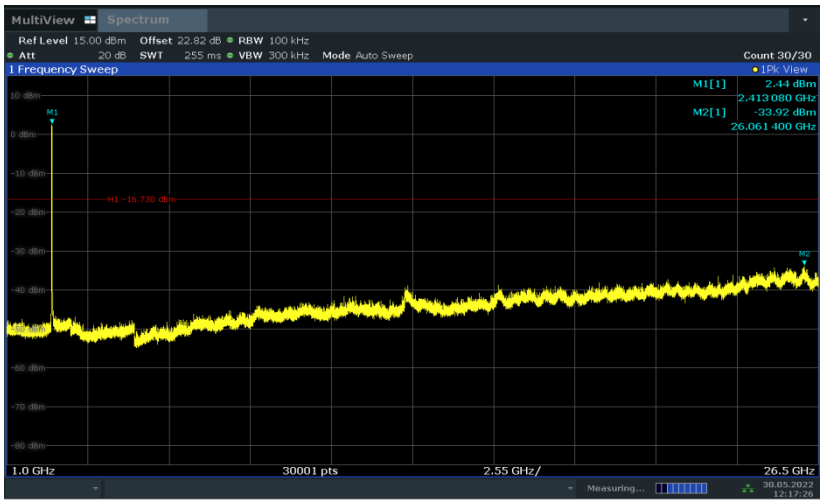
12:12:32 30.05.2022

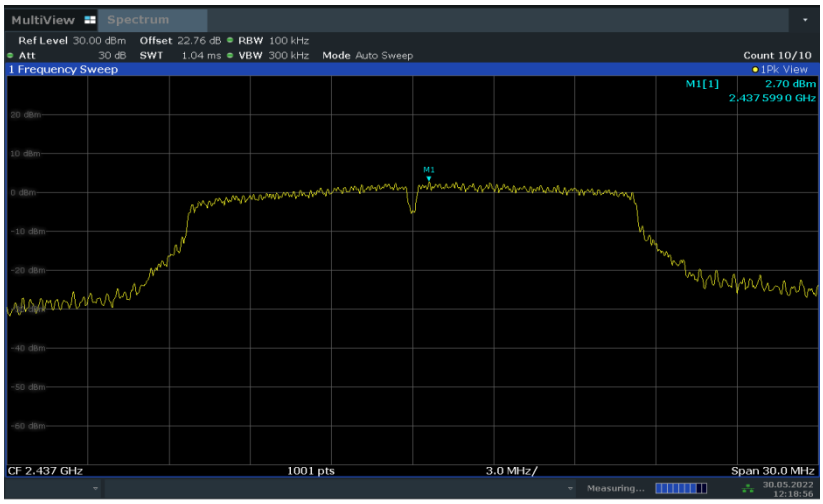
11G_Ant1_2412_0~Reference


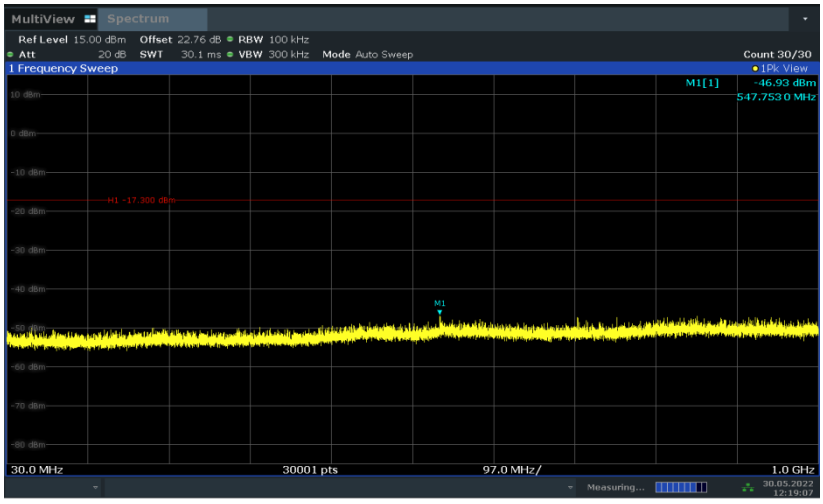
12:16:40 30.05.2022

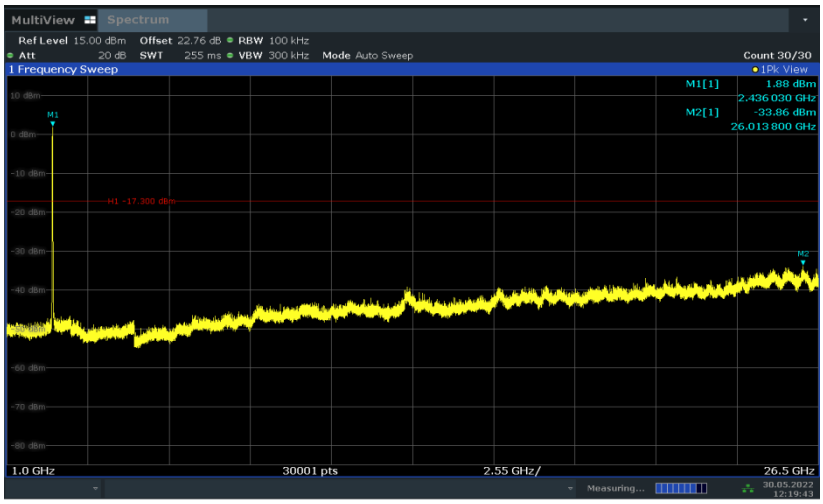
11G_Ant1_2412_30~1000


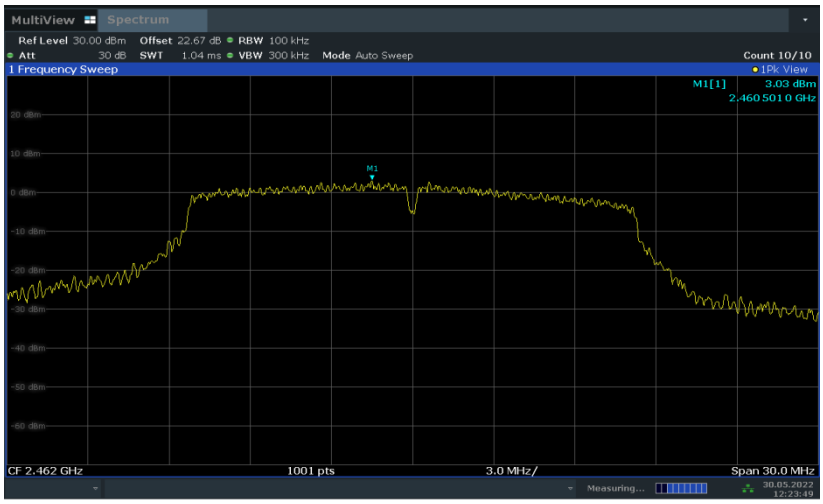
12:16:51 30.05.2022

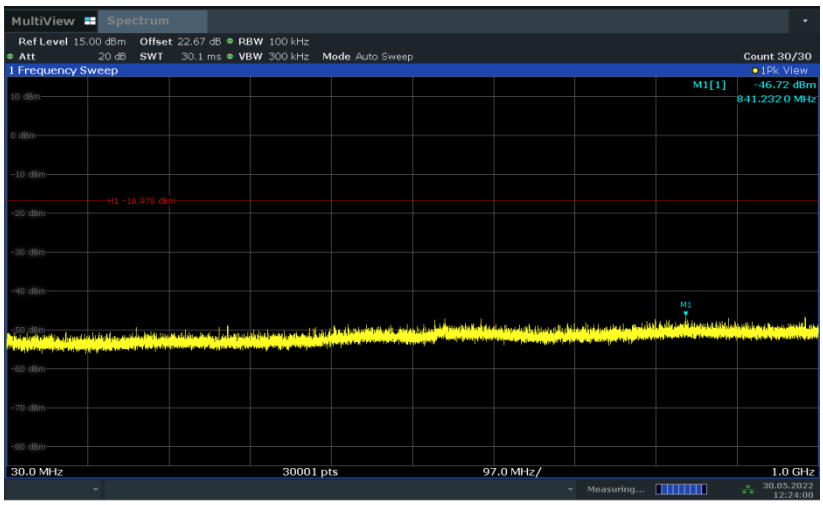
11G_Ant1_2412_1000~26500

12:17:27 30.05.2022

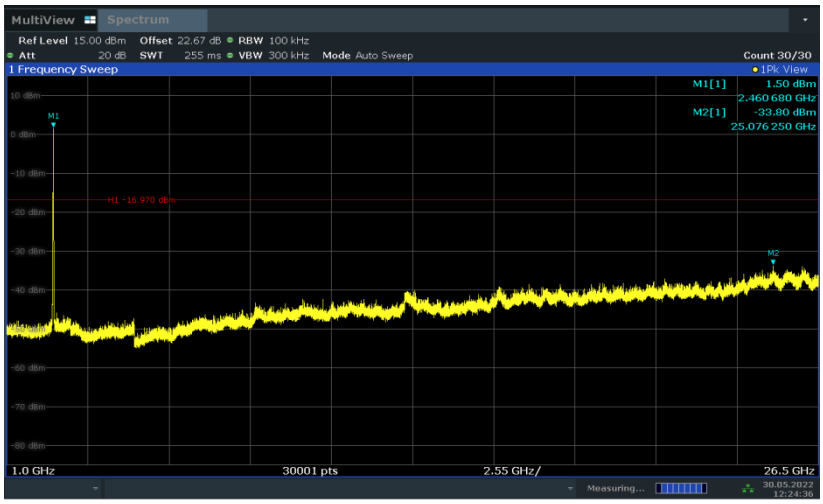
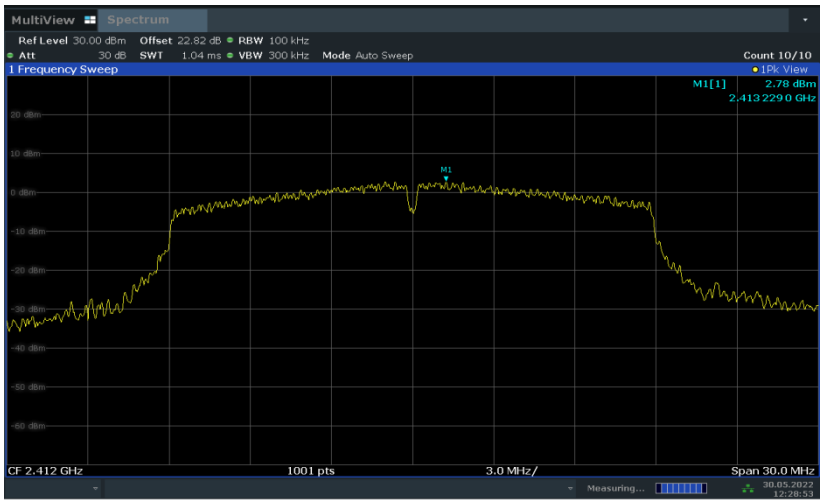
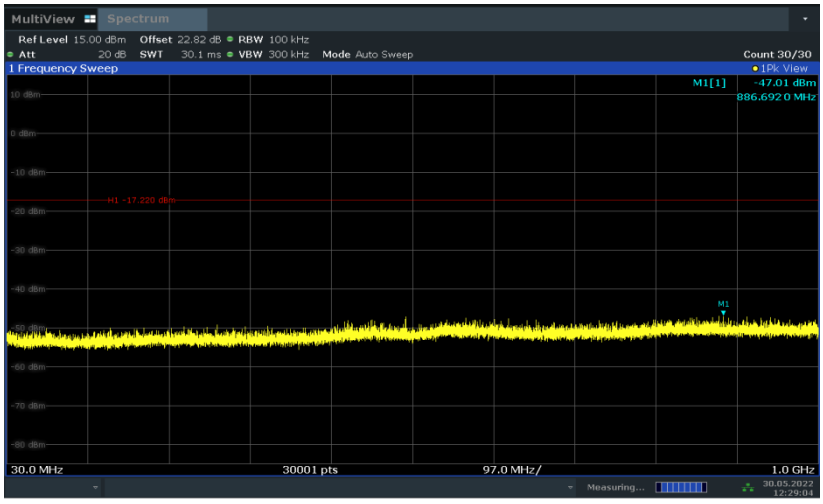
11G_Ant1_2437_0~Reference

12:18:57 30.05.2022

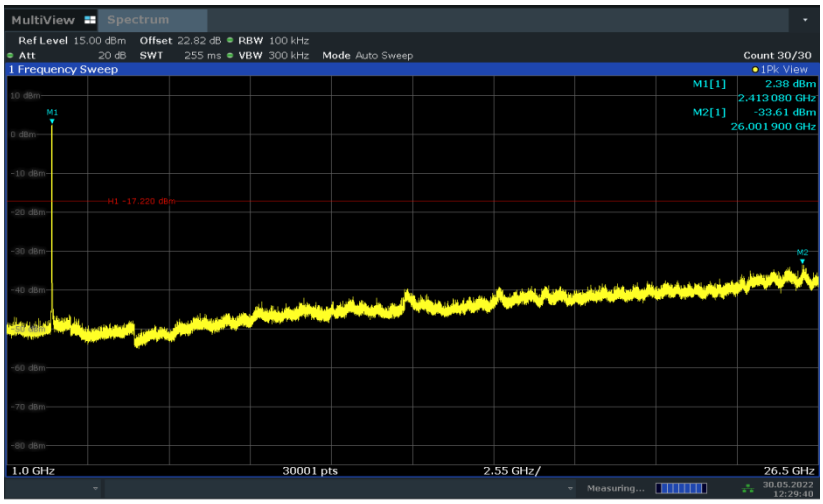
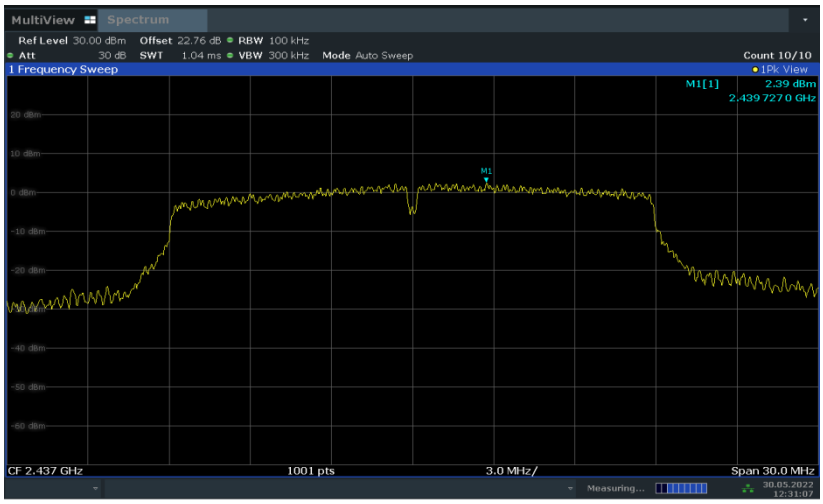
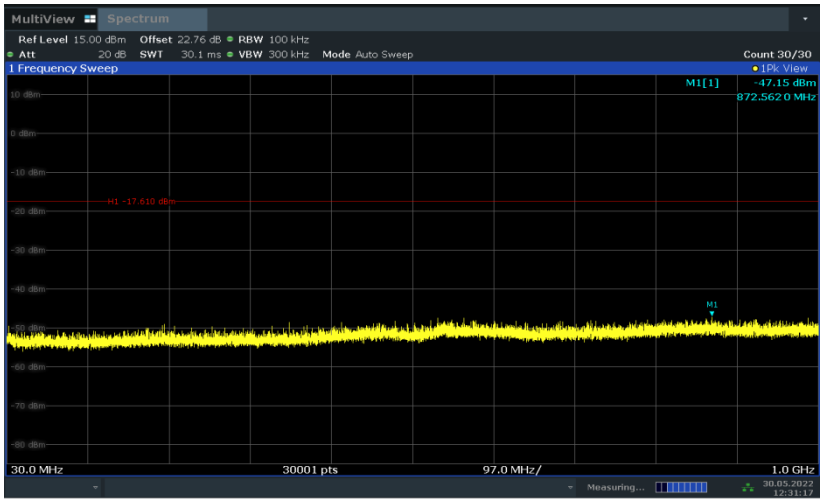
11G_Ant1_2437_30~1000

12:19:08 30.05.2022

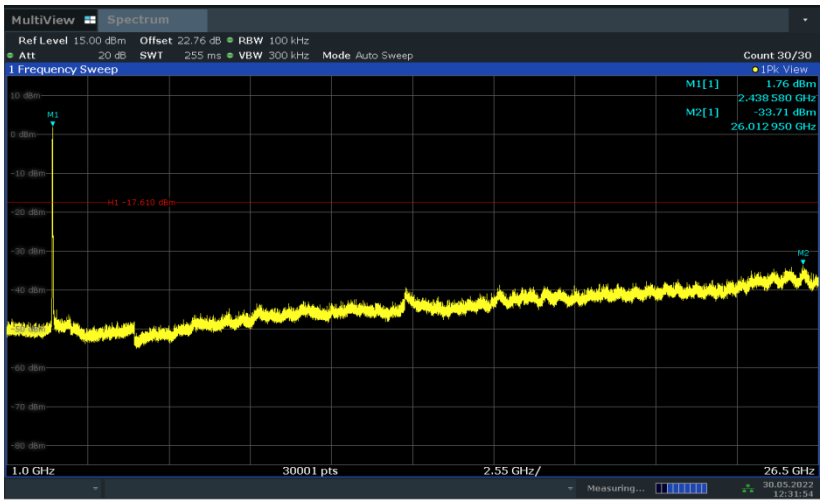
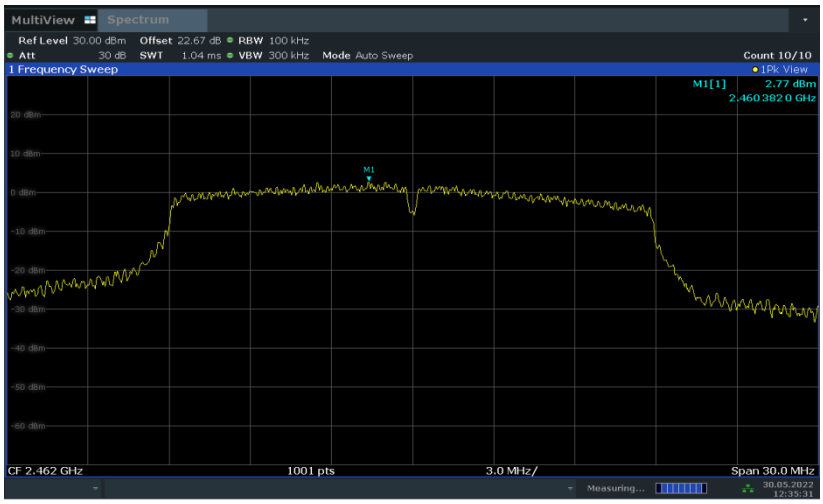
11G_Ant1_2437_1000~26500

12:19:44 30.05.2022

11G_Ant1_2462_0~Reference

12:23:50 30.05.2022

11G_Ant1_2462_30~1000

12:24:00 30.05.2022

11G_Ant1_2462_1000~26500
 12:24:36 30.05.2022
11N20SISO_Ant1_2412_0~Reference
 12:28:54 30.05.2022
11N20SISO_Ant1_2412_30~1000
 12:29:05 30.05.2022

11N20SISO_Ant1_2412_1000~26500
 12:29:41 30.05.2022
11N20SISO_Ant1_2437_0~Reference
 12:31:07 30.05.2022
11N20SISO_Ant1_2437_30~1000
 12:31:18 30.05.2022

11N20SISO_Ant1_2437_1000~26500
 12:31:54 30.05.2022
11N20SISO_Ant1_2462_0~Reference
 12:35:32 30.05.2022
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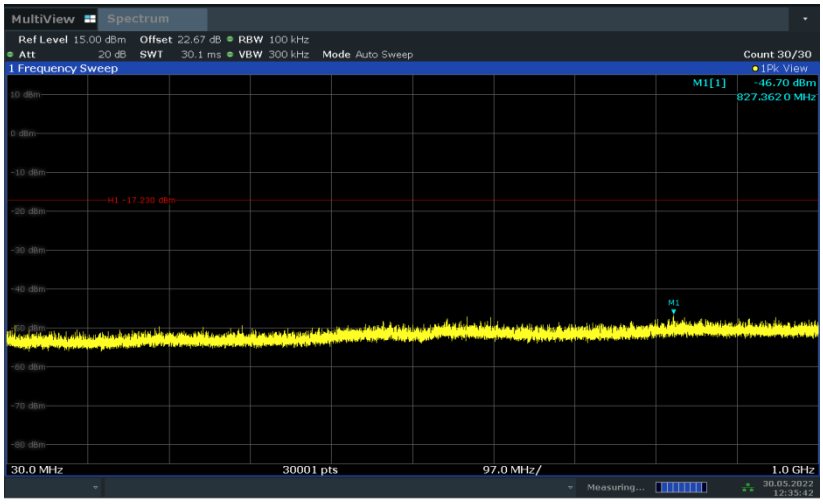 12:35:42 30.05.2022

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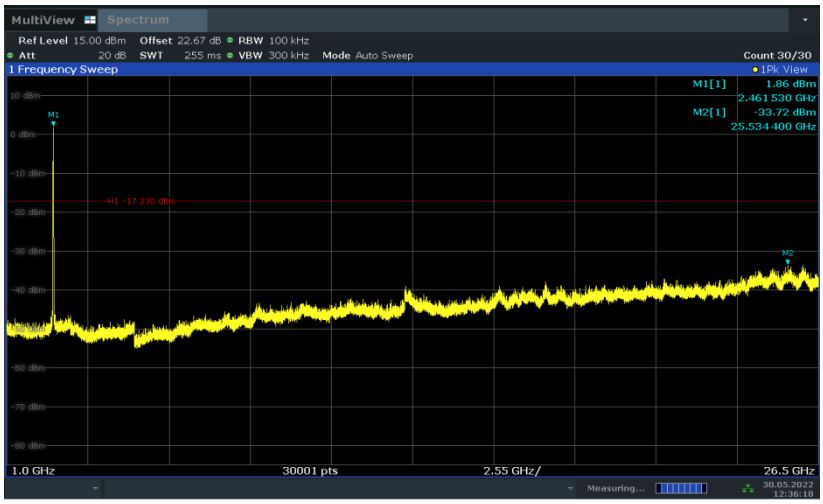 12:36:18 30.05.2022
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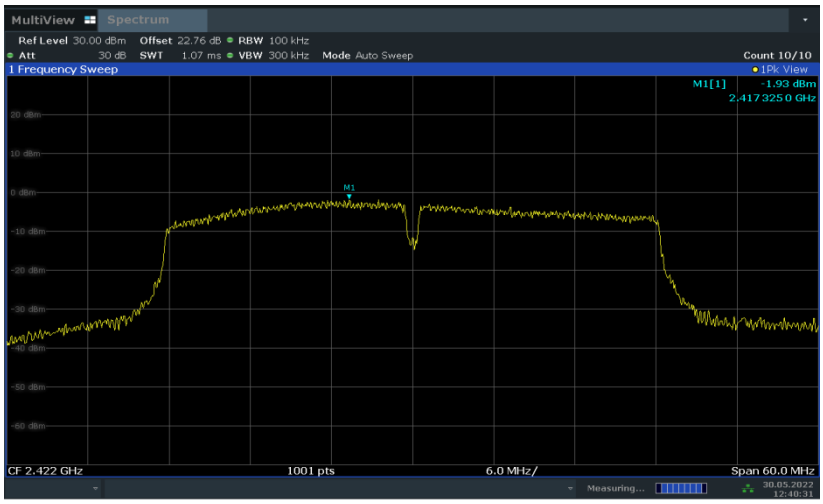 12:40:31 30.05.2022
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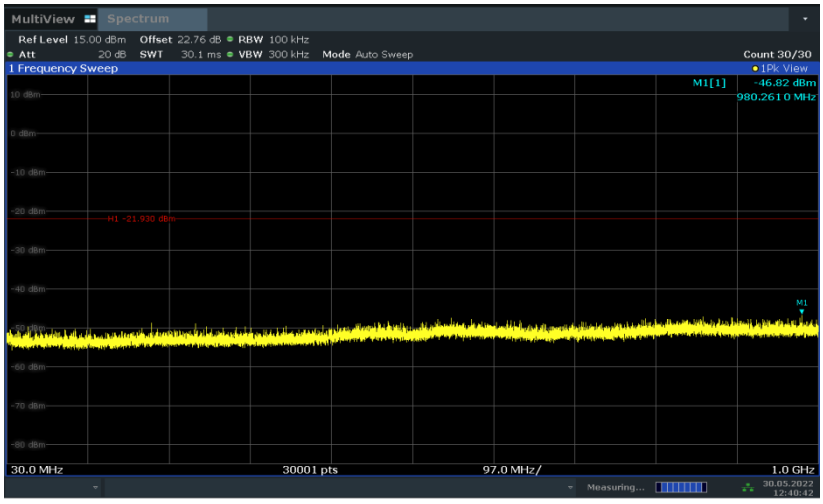 12:40:42 30.05.2022

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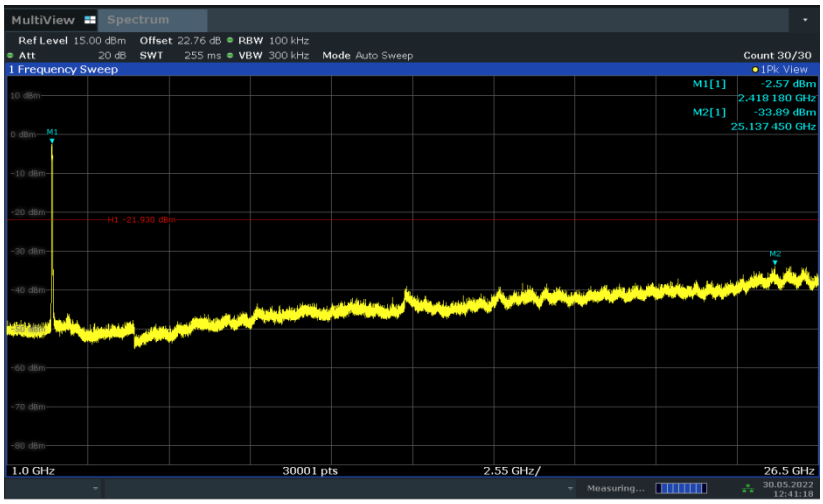 12:41:18 30.05.2022
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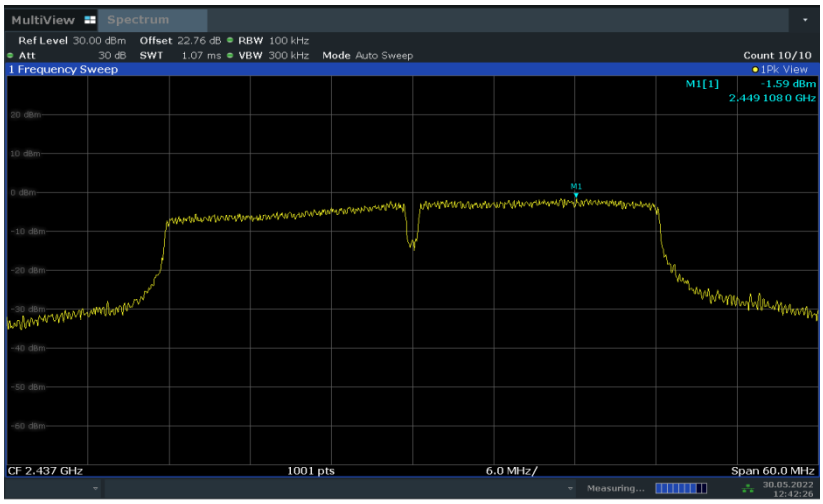 12:42:26 30.05.2022
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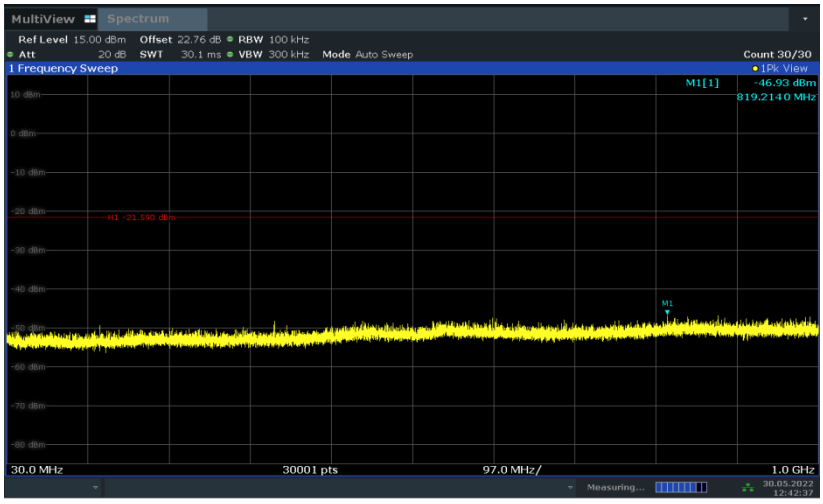 12:42:37 30.05.2022

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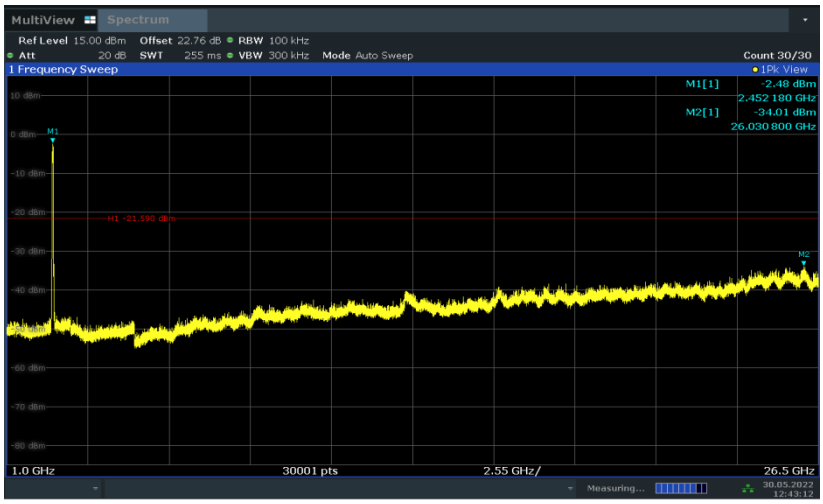 12:43:13 30.05.2022
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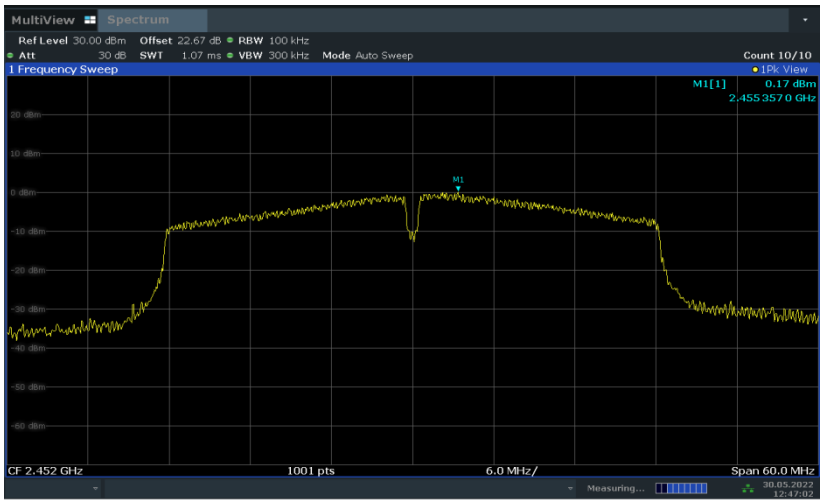
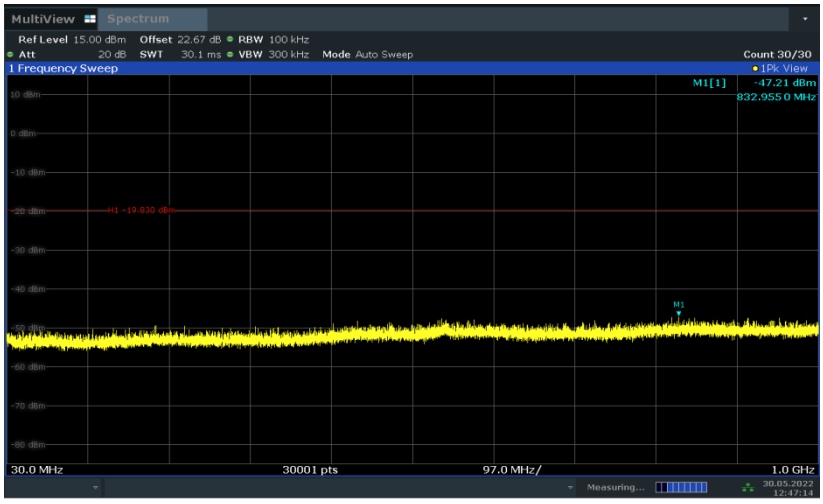
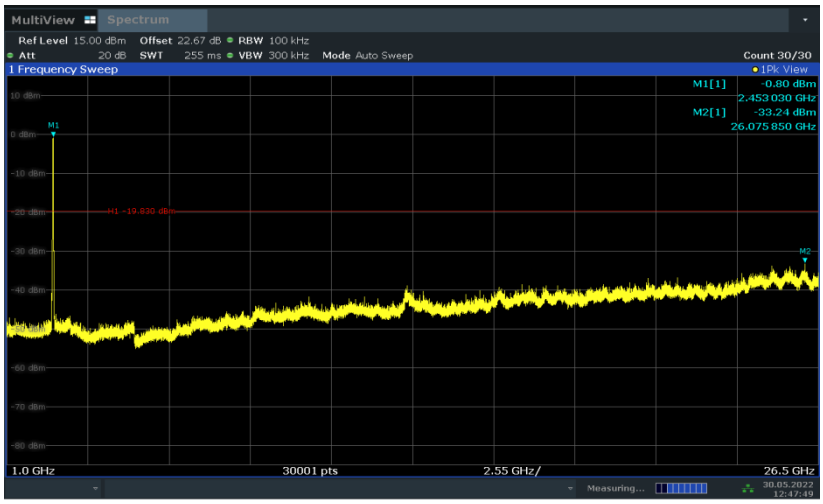
 12:47:03 30.05.2022
11N40SISO_Ant1_2452_30~1000
 12:47:14 30.05.2022

11N40SISO_Ant1_2452_1000~26500


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

EUT ID: UT20a

Measurement results for Set.1:

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**

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	3	2.31GHz~2.43GHz---L	Fig.A.6.2.7	**P**
	9	2.45GHz~2.50GHz---H	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

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)
17988.000	53.07	-25.50	46.70	31.87	74.00	20.93	H
14115.000	50.29	-29.00	42.00	37.29	74.00	23.71	V
12853.000	48.53	-30.70	39.10	40.03	74.00	25.47	V
9237.000	46.25	-33.70	38.00	41.95	74.00	27.75	H
7115.000	45.10	-35.40	36.30	44.20	74.00	28.90	V
2389.600	55.67	-20.00	28.10	47.67	74.00	18.33	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)
17790.500	53.46	-25.50	46.70	32.26	74.00	20.54	V
13600.000	51.01	-29.50	40.40	40.11	74.00	22.99	V
12861.000	48.33	-30.70	39.10	39.83	74.00	25.67	H
9217.000	46.28	-33.70	38.00	41.98	74.00	27.72	H
7515.500	44.90	-34.50	36.80	42.60	74.00	29.10	H
4873.500	40.69	-37.20	33.20	44.69	74.00	33.31	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)
17702.500	52.76	-25.70	46.00	32.56	74.00	21.24	H
13568.500	50.30	-29.50	40.40	39.40	74.00	23.70	V
12442.500	48.58	-31.20	38.90	40.88	74.00	25.42	H
9385.000	46.27	-32.90	37.90	41.27	74.00	27.73	V
7986.500	45.06	-34.80	37.10	42.76	74.00	28.94	H
2498.800	55.69	-20.00	28.40	47.29	74.00	18.31	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)
17779.500	52.78	-25.50	46.70	31.58	74.00	21.22	H
14196.000	50.51	-29.00	42.00	37.51	74.00	23.49	H
12817.500	48.52	-30.70	39.10	40.02	74.00	25.48	V
9202.000	46.32	-33.70	38.00	42.02	74.00	27.68	V
7826.500	45.42	-35.10	37.00	43.52	74.00	28.58	H
2363.400	55.55	-20.10	28.00	47.55	74.00	18.45	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)
17765.000	54.08	-25.50	46.70	32.88	74.00	19.92	V
14243.500	51.00	-29.00	42.00	38.00	74.00	23.00	H
12950.500	48.19	-30.50	39.20	39.49	74.00	25.81	H
8772.000	45.97	-33.90	38.10	41.77	74.00	28.03	H
7257.500	44.94	-35.00	36.50	43.34	74.00	29.06	V
4925.000	40.10	-37.10	33.30	43.90	74.00	33.90	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)
17700.500	52.49	-25.70	46.00	32.29	74.00	21.51	V
13659.500	49.93	-29.50	40.40	39.03	74.00	24.07	H
12857.500	48.99	-30.70	39.10	40.49	74.00	25.01	H
9174.500	45.73	-33.80	38.10	41.53	74.00	28.27	V
7778.500	43.90	-35.10	37.00	42.00	74.00	30.10	H
2486.400	55.80	-20.00	28.30	47.50	74.00	18.20	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)
17777.000	52.87	-25.50	46.70	31.67	74.00	21.13	H
13954.000	49.84	-29.50	41.30	38.04	74.00	24.16	V
12350.000	48.18	-31.10	38.90	40.38	74.00	25.82	V
8977.500	45.38	-33.30	38.20	40.48	74.00	28.62	H
7094.500	44.35	-35.40	36.20	43.45	74.00	29.65	V
2339.700	55.08	-20.10	28.00	47.18	74.00	18.92	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)
17978.000	52.84	-25.50	46.70	31.64	74.00	21.16	V
13501.500	49.77	-29.60	40.00	39.37	74.00	24.23	V
12469.000	48.30	-31.20	38.90	40.60	74.00	25.70	H
9133.500	45.87	-33.80	38.10	41.67	74.00	28.13	V
7228.500	44.87	-35.50	36.40	43.97	74.00	29.13	V
4996.500	39.67	-36.60	33.40	42.87	74.00	34.33	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)
17404.500	52.97	-26.90	45.20	34.57	74.00	21.03	V
13603.500	50.27	-29.50	40.40	39.37	74.00	23.73	V
12856.500	47.73	-30.70	39.10	39.23	74.00	26.27	H
9047.500	45.91	-33.80	38.10	41.51	74.00	28.09	V
7418.500	44.55	-35.20	36.70	42.95	74.00	29.45	V
2490.000	55.45	-20.00	28.30	47.15	74.00	18.55	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)
17515.000	52.64	-26.90	45.20	34.24	74.00	21.36	V
14173.500	50.17	-29.00	42.00	37.17	74.00	23.83	V
12846.500	48.08	-30.70	39.10	39.58	74.00	25.92	H
9100.500	45.28	-33.80	38.10	40.88	74.00	28.72	H
7166.500	43.88	-35.40	36.30	42.98	74.00	30.12	V
2388.900	54.87	-20.00	28.10	46.87	74.00	19.13	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)
17710.000	52.54	-25.70	46.00	32.34	74.00	21.46	V
13767.500	49.88	-29.10	40.90	38.08	74.00	24.12	H
12404.000	47.55	-31.20	38.90	39.85	74.00	26.45	V
9144.000	46.14	-33.80	38.10	41.94	74.00	27.86	H
7982.000	43.90	-34.80	37.10	41.60	74.00	30.10	H
4972.000	39.60	-36.60	33.40	42.80	74.00	34.40	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)
17232.500	52.83	-25.90	44.40	34.43	74.00	21.17	V
13751.000	50.25	-29.10	40.90	38.45	74.00	23.75	V
12694.000	48.08	-30.50	39.10	39.48	74.00	25.92	V
9164.000	45.48	-33.80	38.10	41.28	74.00	28.52	V
7827.500	44.13	-35.10	37.00	42.23	74.00	29.87	H
2486.800	68.79	-20.00	28.30	60.49	74.00	5.21	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)
17613.000	41.38	-25.70	46.00	21.18	54.00	12.62	H
13610.000	39.24	-29.50	40.40	28.34	54.00	14.76	V
12856.500	37.16	-30.70	39.10	28.66	54.00	16.84	V
4824.000	36.91	-37.50	33.10	41.21	54.00	17.09	V
9234.500	34.44	-33.70	38.00	30.14	54.00	19.56	H
2380.200	44.08	-20.00	28.10	36.08	54.00	9.92	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)
17685.000	41.65	-25.70	46.00	21.45	54.00	12.35	V
14189.500	39.34	-29.00	42.00	26.34	54.00	14.66	V
12862.500	37.05	-30.70	39.10	28.55	54.00	16.95	H
4874.000	34.55	-37.20	33.20	38.55	54.00	19.45	V
9164.500	34.44	-33.80	38.10	30.24	54.00	19.56	V
7985.500	33.29	-34.80	37.10	30.99	54.00	20.71	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)
17680.000	41.53	-25.70	46.00	21.33	54.00	12.47	V
13591.000	39.12	-29.50	40.40	28.22	54.00	14.88	H
12861.500	37.14	-30.70	39.10	28.64	54.00	16.86	V
9130.500	34.58	-33.80	38.10	30.38	54.00	19.42	V
7997.000	33.43	-34.80	37.10	31.13	54.00	20.57	H
2499.100	44.40	-20.00	28.40	36.00	54.00	9.60	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)
17714.500	41.58	-25.70	46.00	21.38	54.00	12.42	V
13580.000	39.38	-29.50	40.40	28.48	54.00	14.62	V
12858.500	36.97	-30.70	39.10	28.47	54.00	17.03	H
9125.500	34.35	-33.80	38.10	30.15	54.00	19.65	V
7994.000	33.47	-34.80	37.10	31.17	54.00	20.53	V
2320.400	44.60	-20.10	27.90	36.70	54.00	9.40	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)
17808.000	41.57	-25.50	46.70	20.37	54.00	12.43	V
13590.500	39.10	-29.50	40.40	28.20	54.00	14.90	V
12877.000	37.17	-30.70	39.10	28.67	54.00	16.83	H
9126.500	34.45	-33.80	38.10	30.25	54.00	19.55	V
7218.500	33.32	-35.50	36.40	32.42	54.00	20.68	V
4882.000	28.17	-37.20	33.20	32.17	54.00	25.83	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)
17724.500	41.45	-25.70	46.00	21.25	54.00	12.55	V
13577.000	38.77	-29.50	40.40	27.87	54.00	15.23	V
12839.500	36.70	-30.70	39.10	28.20	54.00	17.30	H
9132.000	34.19	-33.80	38.10	29.99	54.00	19.81	H
7434.500	32.93	-35.20	36.70	31.33	54.00	21.07	H
2486.700	45.23	-20.00	28.30	36.93	54.00	8.77	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)
17785.500	41.25	-25.50	46.70	20.05	54.00	12.75	V
13613.500	38.88	-29.50	40.40	27.98	54.00	15.12	V
12853.500	36.59	-30.70	39.10	28.09	54.00	17.41	V
9792.000	34.05	-33.50	38.00	29.55	54.00	19.95	H
7240.000	32.93	-35.50	36.40	32.03	54.00	21.07	V
2348.300	44.07	-20.10	28.00	36.17	54.00	9.93	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)
17626.500	41.40	-25.70	46.00	21.20	54.00	12.60	V
13748.000	39.07	-29.10	40.90	27.27	54.00	14.93	H
12867.500	36.64	-30.70	39.10	28.14	54.00	17.36	H
9127.000	34.33	-33.80	38.10	30.13	54.00	19.67	H
7412.500	32.69	-35.20	36.70	31.09	54.00	21.31	H
4842.500	29.10	-37.50	33.10	33.40	54.00	24.90	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)
17702.500	41.40	-25.70	46.00	21.20	54.00	12.60	H
13575.500	38.93	-29.50	40.40	28.03	54.00	15.07	H
12865.000	36.81	-30.70	39.10	28.31	54.00	17.19	V
9164.000	34.37	-33.80	38.10	30.17	54.00	19.63	V
7996.000	32.76	-34.80	37.10	30.46	54.00	21.24	H
2485.000	44.80	-20.00	28.30	36.50	54.00	9.20	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)
17764.500	41.03	-25.50	46.70	19.83	54.00	12.97	H
13603.000	38.97	-29.50	40.40	28.07	54.00	15.03	H
12872.500	36.72	-30.70	39.10	28.22	54.00	17.28	H
9127.000	34.38	-33.80	38.10	30.18	54.00	19.62	V
7222.000	32.75	-35.50	36.40	31.85	54.00	21.25	H
2359.400	43.57	-20.10	28.00	35.57	54.00	10.43	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)
17702.000	41.25	-25.70	46.00	21.05	54.00	12.75	H
13616.000	39.11	-29.50	40.40	28.21	54.00	14.89	V
12861.000	36.69	-30.70	39.10	28.19	54.00	17.31	H
9128.500	34.42	-33.80	38.10	30.22	54.00	19.58	V
7223.000	33.01	-35.50	36.40	32.11	54.00	20.99	H
4971.500	29.22	-36.60	33.40	32.42	54.00	24.78	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)
17702.500	41.78	-25.70	46.00	21.58	54.00	12.22	V
13577.500	39.09	-29.50	40.40	28.19	54.00	14.91	V
12842.500	36.83	-30.70	39.10	28.33	54.00	17.17	H
9714.000	34.27	-33.00	38.00	29.27	54.00	19.73	V
7226.000	33.23	-35.50	36.40	32.33	54.00	20.77	V
2485.400	53.16	-20.00	28.30	44.86	54.00	0.84	H

Test graphs as below:

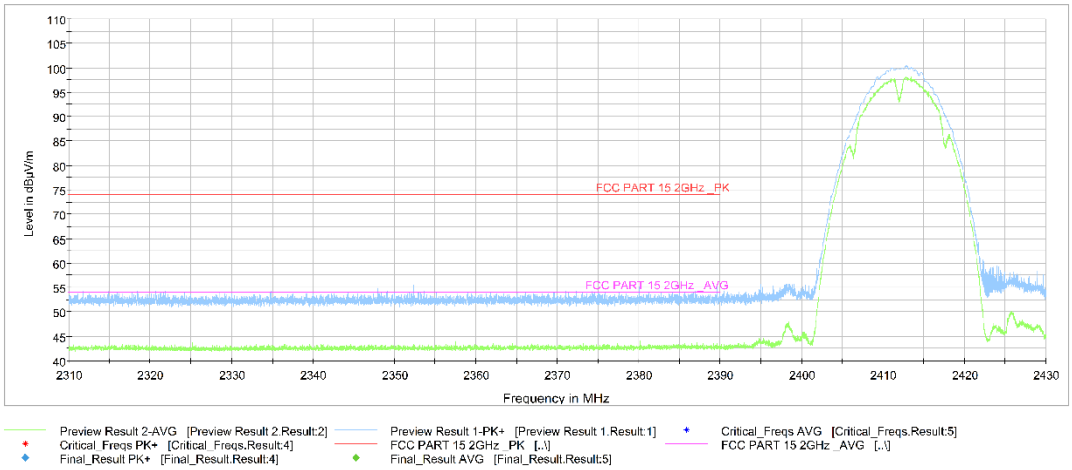


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.43GHz

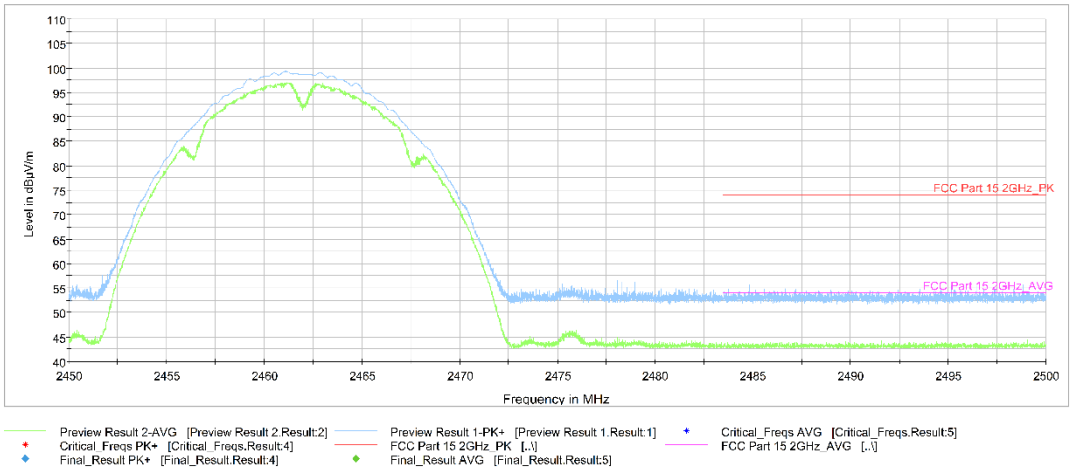


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

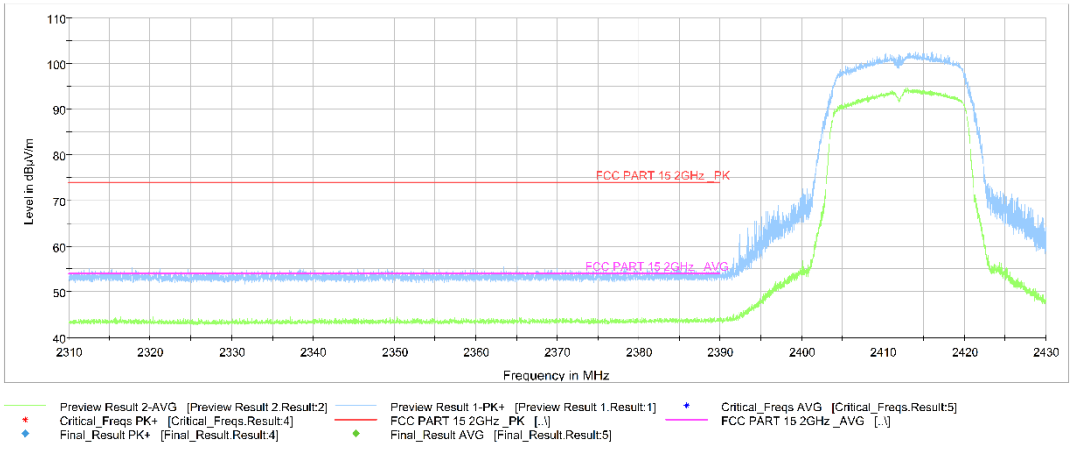


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.43GHz

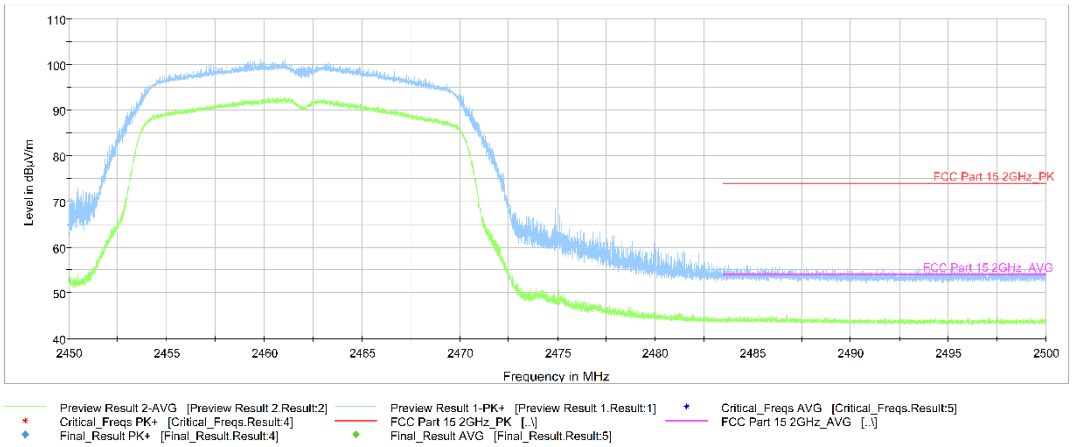


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

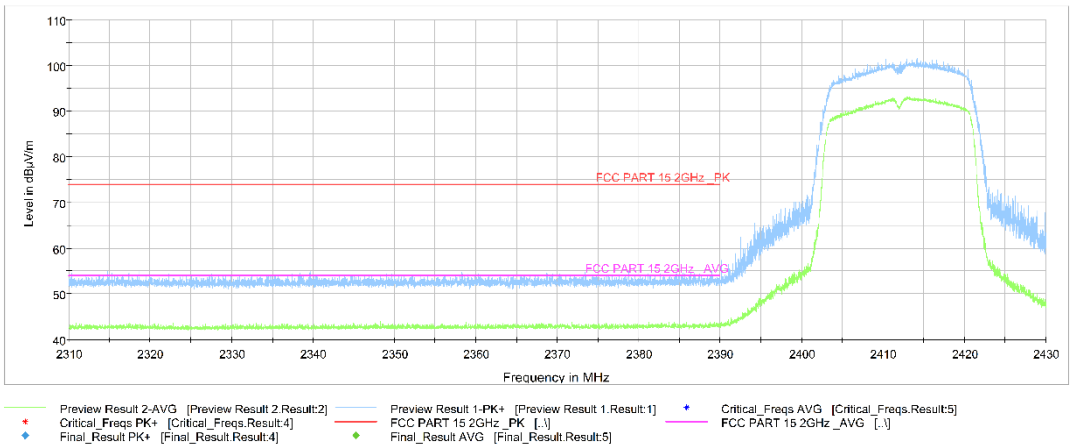


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31 GHz - 2.43GHz

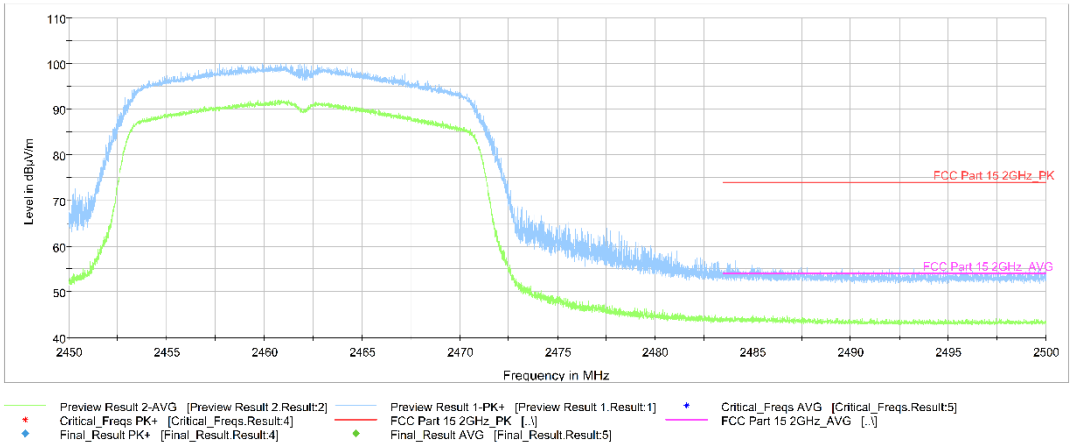


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

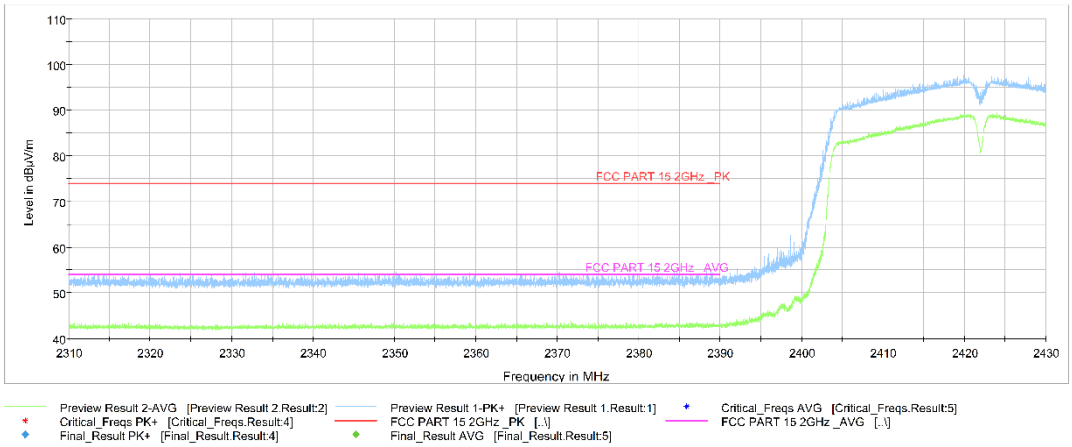


Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.31 GHz - 2.43GHz

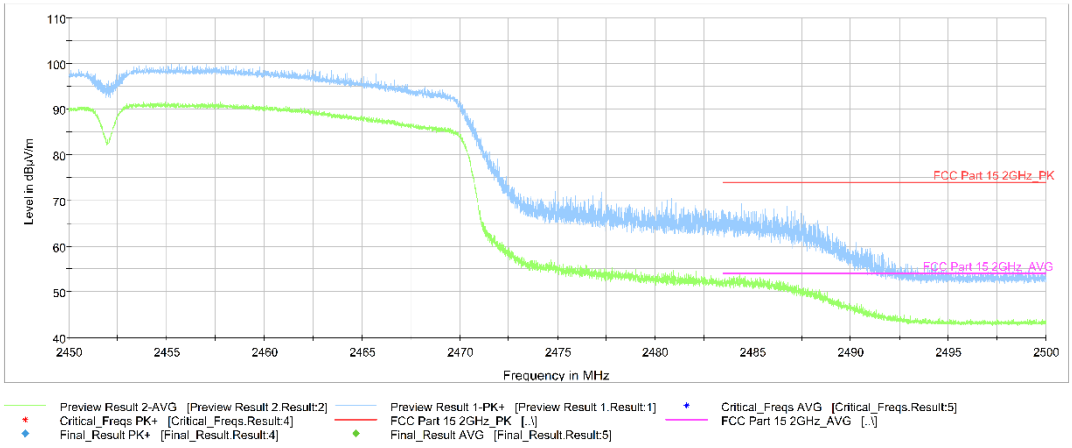


Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz

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:

Measurement results for Set.1:

Result for Traffic:

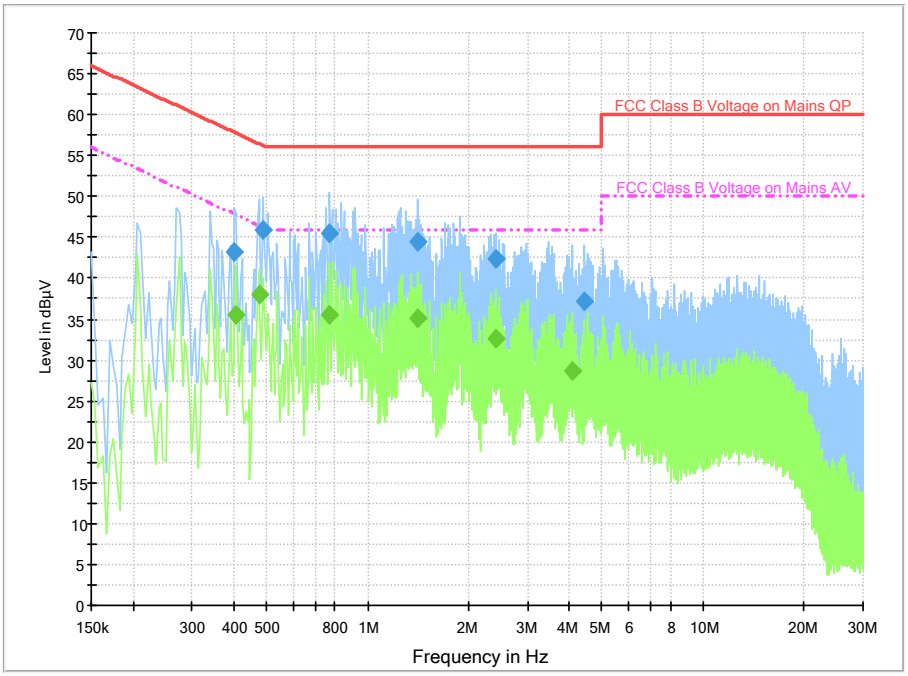


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.402000	43.2	5000.	9.000	On	L1	19.7	14.6	57.8	
0.490000	46.0	5000.	9.000	On	L1	19.8	10.2	56.2	
0.770000	45.5	5000.	9.000	On	L1	19.7	10.5	56.0	
1.406000	44.4	5000.	9.000	On	L1	19.7	11.6	56.0	
2.410000	42.4	5000.	9.000	On	L1	19.6	13.6	56.0	
4.450000	37.2	5000.	9.000	On	L1	19.6	18.8	56.0	

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.406000	35.5	5000.	9.000	On	L1	19.7	12.2	47.7	
0.474000	38.0	5000.	9.000	On	L1	19.8	8.4	46.4	
0.770000	35.4	5000.	9.000	On	L1	19.7	10.6	46.0	
1.406000	35.1	5000.	9.000	On	L1	19.7	10.9	46.0	
2.410000	32.7	5000.	9.000	On	L1	19.6	13.3	46.0	
4.066000	28.7	5000.	9.000	On	L1	19.6	17.3	46.0	

Measurement results for Set.1:

Result for Idle:

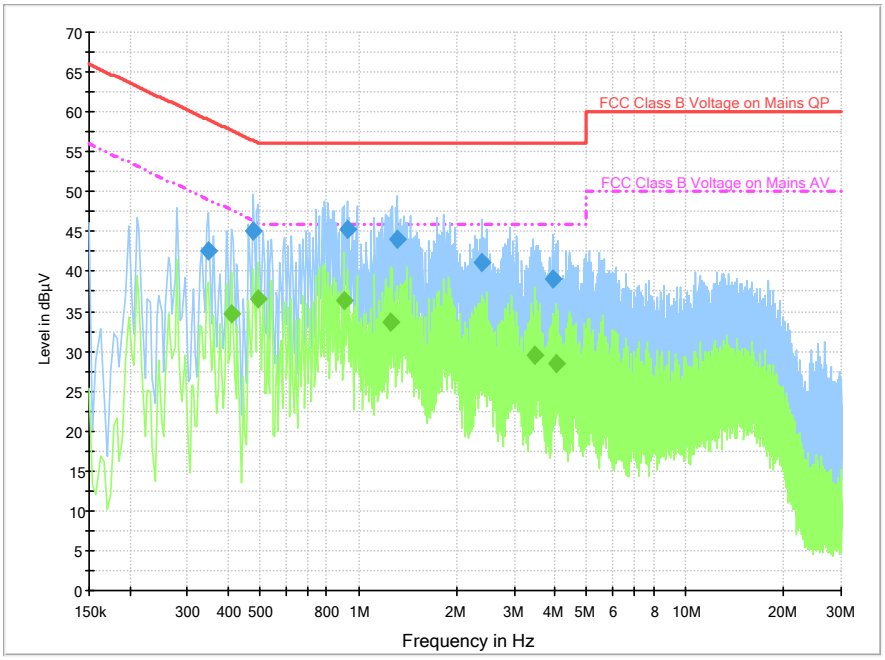


Fig.A.7.2 AC Powerline Conducted Emission-Idle

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.346000	42.7	5000.	9.000	On	L1	19.8	16.4	59.1	
0.478000	45.1	5000.	9.000	On	L1	19.8	11.3	56.4	
0.922000	45.4	5000.	9.000	On	L1	19.7	10.6	56.0	
1.318000	44.0	5000.	9.000	On	L1	19.7	12.0	56.0	
2.394000	41.1	5000.	9.000	On	L1	19.6	14.9	56.0	
3.918000	39.1	5000.	9.000	On	L1	19.6	16.9	56.0	

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.410000	34.7	5000.0	9.000	On	L1	19.7	12.9	47.6	
0.494000	36.6	5000.0	9.000	On	L1	19.8	9.5	46.1	
0.906000	36.4	5000.0	9.000	On	L1	19.7	9.6	46.0	
1.254000	33.7	5000.0	9.000	On	L1	19.7	12.3	46.0	
3.458000	29.6	5000.0	9.000	On	L1	19.6	16.4	46.0	
4.034000	28.4	5000.0	9.000	On	L1	19.6	17.6	46.0	

ANNEX B: Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology

NVLAP® ilac-MRA

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

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

Electromagnetic Compatibility & Telecommunications

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

2021-09-29 through 2022-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program

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