FCC PART 15C
TEST REPORT
No.23T04Z80206-04

for

OnePlus Technology (Shenzhen) Co., Ltd.

Mobile Phone

CPH2611

2ABZ2-AA560

With

Hardware Version: 11

Software Version: OxygenOS V14.0

Issued Date: 2023-11-27

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.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
23T04Z80206-04	Rev.0	1st edition	2023-11-08
23T04Z80206-04	Rev.1	Update page 10 note7. Update the 6.4Statements on page 11. Add the Antenna Gain for BF and Update the statements about antenna gain. Update the table on page 18-19	2023-11-27

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(huayuan North Road)

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

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1.3. Testing Environment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2023-09-26

Testing End Date: 2023-11-08

1.5. Signature

Yao Xingyu

(Prepared this test report)

Zheng Wei

(Reviewed this test report)

Pang Shuai

(Approved this test report)

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2. Client Information

2.1. Applicant Information

Company Name:	OnePlus Technology (Shenzhen) Co., Ltd.
Address:	18C02, 18C03, 18C04, and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen, Guangdong, P.R. China.
City:	Shenzhen
Postal Code:	/
Country:	China
Telephone:	(86)75561882366
Fax:	/

2.2. Manufacturer Information

Company Name:	OnePlus Technology (Shenzhen) Co., Ltd.
Address:	18C02, 18C03, 18C04, and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen, Guangdong, P.R. China.
City:	Shenzhen
Postal Code:	/
Country:	China
Telephone:	(86)75561882366
Fax:	/

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

3.1. About EUT

Description	Mobile Phone
Model name	CPH2611
FCC ID	2ABZ2-AA560
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	29.45dBm
Nominal Voltage	7.82V
Extreme High Voltage	9V
Extreme Low Voltage	6.6V

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
UT01a	869135060024092/ 869135060024084	11	OxygenOS V14.0	2023-09-26
UT11a	869135060027210/ 869135060027202	11	OxygenOS V14.0	2023-10-07

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

UT01a is used for Conduction test, UT11a is used for Radiation test.

3.3. Internal Identification of AE

AE ID*	Description	SN
AE1	Battery	---
AE2	Charger	---
AE3	USB Cable	

AE1

Model	BLPA33
Manufacturer	Sunwoda Electronic Co., Ltd.
Capacity	2680mAh
Nominal Voltage	/

AE2

Model	VCBAHBUH
Manufacturer	Shenzhen Huntkey Electric Co.,Ltd
Length of cable	/

AE3

Model	DL129
Manufacturer	Changzhou Duwei Electronics Co., Ltd.
Length of cable	/

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*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 Mobile 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
KDB 662911 D01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band(e.g., MIMO, Smart Antenna, etc)	2013-10

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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. For conducted result :

1. EUT support 802.11b/g/n/ax/be modes on 2.4G, and can't transmit simultaneously in 2.4G.
2. As WLAN SISO(1x1) & MIMO(2x2) mode have the same power setting, the whole testing has assessed only MIMO mode.
3. 802.11ax support full RU and single RU modes.
4. 802.11be support full RU, single RU, MRU, large MRU and puncturing modes.
5. For 802.11b/g/n/ax full RU/be full RU, the whole testing (PSD/6dB bandwidth/band edges/ Transmitter Spurious Emission-Conducted) has reported only 802.11b/g/ax-HE20/be-EHT40 by referring to the higher output power.
6. For 802.11ax single RU and 802.11be singlel RU modes, the whole testing (PSD/band edges/ Transmitter Spurious Emission-Conducted) has reported only 802.11ax-HE20-single RU by referring to the higher output power.
7. For 802.11be-EHT20/40MHz MRU mode, the whole testing (PSD/band edges/ Transmitter Spurious Emission-Conducted) has reported only 802.11be- EHT20 by referring to the higher output power.
   52 Tone,index38 + 26Tone,index1, 52 Tone,index39 + 26Tone,index7
   106 Tone,index53 + 26Tone,index4, 106 Tone,index54 + 26Tone,index4.

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6.3. Antenna Gain

Mode	Ant7(dBi)	Ant12(dBi)	Power(dBi)	PSD(dBi)
CDD	-2.5	-2	-2	0.76
BF	-2.5	-2	0.76	0.76

Note :

1. For BF transmissions, power and PSD directional gain is calculated as:

   Directional gain = 10 log $[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{Gn/20})^2 /NANT]$ dBi, as following table for PSD. NANT = number of transmit antennas NSS = number of spatial streams. (When NSS=1 or 2, both powersettings are the same,The worst case directional gain will occur when NSS = 1)

2. For CDD transmissions, directional gain is calculated as:

   a. For power, the directional gain GANT is set equal to the antenna having the highest gain, i.e.,Directional gain = GANT MAX (Ant.1 Gain, Ant.2 Gain, …) + Array Gain, where Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4.

   b. For PSD, the directional gain calculation is following:

   Directional gain = 10 log $[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{Gn/20})^2 /NANT]$ dBi. NANT = number of transmit antennas NSS = number of spatial streams. (When NSS=1 or 2, both powersettings are the same,The worst case directional gain will occur when NSS = 1).

3. 802.11g support CDD mode ;
4. 802.11n support CDD and STBC mode, as they use the same power setting, only eirp results of CDD have been reported.
5. 802.11ax/be support CDD, BF and STBC mode, as they use the same power setting, only eirp results of BF have been reported.
6. The device what use a permanently attached antenna were considered sufficient to comply withthe provisions of 15.203.

6.4. Statements

The test cases as listed in section 6.1 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.

6.5. 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	7.82V
Humidity	44%

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7. Test Facilities Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSW67	104051	Rohde & Schwarz	1 year	2024-03-06
2	LISN	ENV216	101200	Rohde & Schwarz	1 year	2024-06-05
3	Test Receiver	ESCI	100344	Rohde & Schwarz	1 year	2024-02-28
4	Attenuator	10dB/2W	/	Rosenberger	/	/
5	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	2024-07-08
2	EMI Antenna	VULB9163	01222	R&S	1 year	2024-02-28
3	EMI Antenna	3115	6914	R&S	1 year	2024-04-25

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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

Radiated (k=2)

Frequency Range	Uncertainty(dB)
9kHz-30MHz	/
30MHz ≤ f ≤ 1GHz	4.72
1GHz ≤ f ≤18GHz	4.84
18GHz ≤ f ≤40GHz	5.12

8.6. AC Power-line Conducted Emission

Measurement Uncertainty : 3.08dB,k=2

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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

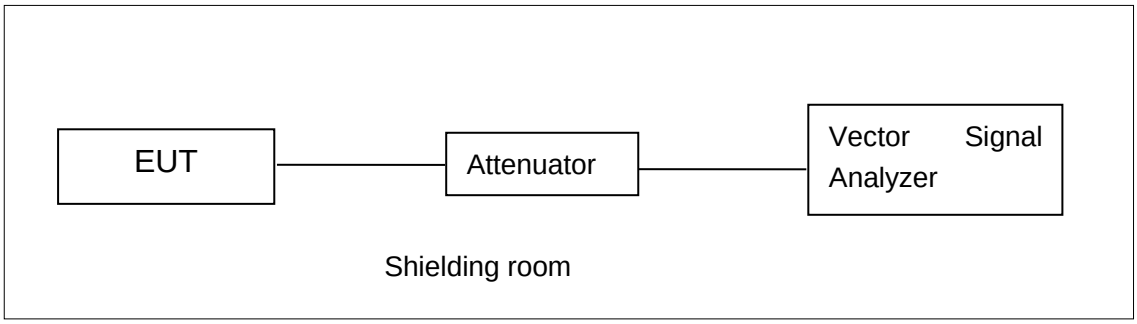

Fig.A.1.1.1: Test Setup Diagram for Conducted Measurements

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;

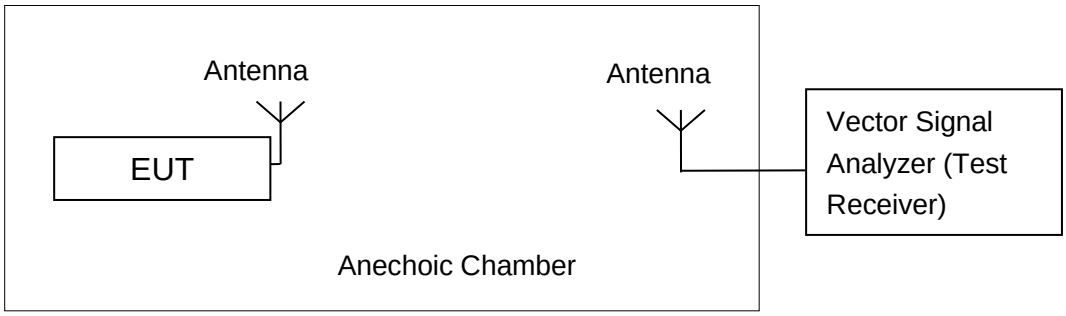

Fig.A.1.2.1: Test Setup Diagram for Radiated Measurements

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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. Peak Output Power-conducted

EUT ID: UT01a

Measurement Results:

MIMO

802.11b mode

Mode	Data Rate (Mbps)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	1	20.90	20.19	20.32	21.40	20.43	21.05	24.17	23.32	23.71

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

802.11g mode

Mode	Data Rate (Mbps)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11g	6	25.58	24.99	25.14	26.11	25.42	25.87	28.86	28.22	28.53

The data rate 6Mbps is selected as worst condition, and the following cases are performed with this condition.

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802.11n-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11n (20MHz)	MCS0	23.88	25.13	23.63	24.11	25.48	24.02	27.01	28.32	26.84

The data rate MSC0 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)								
		ANT12			ANT7			MIMO		
		2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)	2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)	2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)
802.11n (40MHz)	MCS0	21.93	25.57	21.95	22.12	25.93	21.98	25.04	28.76	24.98

The data rate MSC0 is selected as worst condition, and the following cases are performed with this condition.

802.11ax-HE20 mode

Mode	Data Rate (Index)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11ax (20MHz)	MCS0	24.76	26.28	24.73	24.93	26.60	25.10	27.86	29.45	27.93

The data rate MSC0 is selected as worst condition, and the following cases are performed with this condition.

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802.11ax-HE40 mode

Mode	Data Rate (Index)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)	2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)	2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)
802.11ax (40MHz)	MCS0	23.43	26.15	23.41	23.67	26.44	23.61	26.56	29.31	26.52

The data rate MSC0 is selected as worst condition, and the following cases are performed with this condition.

802.11be-EHT20 mode

Mode	Data Rate (Index)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11be (20MHz)	MCS0	24.33	25.83	24.31	24.52	26.19	24.67	27.44	29.02	27.50

The data rate MSC0 is selected as worst condition, and the following cases are performed with this condition.

802.11be-EHT40 mode

Mode	Data Rate (Index)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)	2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)	2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)
802.11be (40MHz)	MCS0	22.50	26.04	22.32	22.65	26.29	22.37	25.59	29.18	25.36

The data rate MSC0 is selected as worst condition, and the following cases are performed with this condition.

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RU MIMO

802.11ax-HE20-RU26 mode

Mode	Data Rate (Mbps)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)
802.11ax-HE 20-RU26-left	MCS0	17.81	17.60	18.07	18.36	17.95	18.54	21.10	20.79	21.32
802.11ax-HE 20-RU26-right	MCS0	18.24	18.21	17.20	17.99	18.12	17.26	21.13	21.18	20.24

The data rate MSC0 are selected as worst condition, and the following cases are performed with this condition.

802.11ax-HE20-RU52 mode

Mode	Data Rate (Mbps)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)
802.11ax-HE 20-RU52-left	MCS0	20.79	20.70	21.11	21.44	21.13	21.76	24.14	23.93	24.46
802.11ax-HE 20-RU52-right	MCS0	21.44	21.31	20.30	21.28	21.21	20.65	24.37	24.27	23.49

The data rate MSC0 are selected as worst condition, and the following cases are performed with this condition.

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802.11ax-HE20-RU106 mode

Mode	Data Rate (Mbps)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)
802.11ax-HE 20-RU106-left	MCS0	24.09	23.52	24.28	24.46	23.97	24.72	27.29	26.76	27.52
802.11ax-HE 20-RU106-right	MCS0	24.44	24.06	23.52	24.17	23.98	23.88	27.32	27.03	26.71

The data rate MSC0 are selected as worst condition, and the following cases are performed with this condition.

802.11be-EHT20-RU26 mode

Mode	Data Rate (Mbps)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)
802.11be-EHT 20-RU26-left	MCS0	17.39	17.38	18.06	18.24	18.01	18.67	20.85	20.72	21.39
802.11be-EHT 20-RU26-right	MCS0	17.67	17.85	17.21	17.98	18.08	17.47	20.84	20.98	20.35

The data rate MSC0 are selected as worst condition, and the following cases are performed with this condition.

802.11be-EHT20-RU52 mode

Mode	Data Rate (Mbps)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)
802.11be-EHT 20-RU52-left	MCS0	20.72	20.48	21.11	21.67	21.12	21.84	24.23	23.82	24.50
802.11be-EHT 20-RU52-right	MCS0	21.19	20.98	20.26	21.40	21.23	20.72	24.31	24.12	23.51

The data rate MSC0 are selected as worst condition, and the following cases are performed with this condition.

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802.11be-EHT20-RU106 mode

Mode	Data Rate (Mbps)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)
802.11be-EHT 20-RU106-left	MCS0	23.89	23.31	24.05	24.33	23.87	24.66	27.13	26.61	27.38
802.11be-EHT 20-RU106-right	MCS0	24.12	23.81	23.40	24.18	23.99	23.95	27.16	26.91	26.69

The data rate MSC0 are selected as worst condition, and the following cases are performed with this condition.

MRU MIMO

802.11be-EHT20 mode

Mode	Data Rate (Mbps)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)
52 Tone,index38 + 26Tone,index1	MCS0	20.89	20.86	21.13	21.61	20.99	21.77	24.28	23.94	24.47
52 Tone,index39 + 26Tone,index7	MCS0	21.03	20.77	20.39	21.30	21.10	21.01	24.18	23.95	23.72
Mode	Data Rate (Mbps)	Test Result (dBm)								
		ANT12			ANT7			MIMO		
		2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)	2412 MHz (Ch1)	2437 MHz (Ch6)	2462 MHz (Ch11)
106 Tone,index53 + 26Tone,index4	MCS0	23.72	23.53	23.83	24.24	23.79	24.51	27.00	26.67	27.19
106 Tone,index54 + 26Tone,index4	MCS0	23.96	23.54	23.31	24.14	23.91	23.95	27.06	26.74	26.65

The data rate MSC0 are selected as worst condition, and the following cases are performed with this condition.

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Duty Cycle

Mode	802.11b	802.11g	802.11n20	802.11n40	802.11ax-20	802.11ax-20 RU	802.11ax-40	802.11ax-40 RU
Duty Cycle	95%	99%	99%	99%	89%	95%	89%	95%

Mode	802.11BE-20	802.11BE-20 RU	802.11BE-40	802.11BE-40 RU
Duty Cycle	89%	95%	89%	95%

Mode	802.11BE-20 52-index38+26-index1 MRU1	802.11BE-20 52-index39+26-index7 MRU3	802.11BE-20 106-index53+26-index4 MRU1	802.11BE-20 106-index54+26-index4 MRU2
Duty Cycle	95%	95%	95%	95%

Conclusion: Pass

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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: UT01a

Measurement Results:

Test Mode	Antenna	Frequency [MHz]	Result[dBm/3-100kHz]	Limit [dBm/3kHz]	Verdict
11B-MIMO	Ant12	2412	-5.48	≤8.00	PASS
	Ant7	2412	-5.11	≤8.00	PASS
	total	2412	-2.28	≤8.00	PASS
	Ant12	2437	-6.50	≤8.00	PASS
	Ant7	2437	-6.25	≤8.00	PASS
	total	2437	-3.36	≤8.00	PASS
	Ant12	2462	-6.39	≤8.00	PASS
	Ant7	2462	-5.77	≤8.00	PASS
	total	2462	-3.06	≤8.00	PASS
11G-MIMO	Ant12	2412	-8.60	≤8.00	PASS
	Ant7	2412	-7.53	≤8.00	PASS
	total	2412	-5.02	≤8.00	PASS
	Ant12	2437	-9.14	≤8.00	PASS
	Ant7	2437	-8.34	≤8.00	PASS
	total	2437	-5.71	≤8.00	PASS
	Ant12	2462	-8.70	≤8.00	PASS
	Ant7	2462	-7.85	≤8.00	PASS
	total	2462	-5.24	≤8.00	PASS
11AX20MIMO full RU	Ant12	2412	-11.52	≤8.00	PASS
	Ant7	2412	-11.05	≤8.00	PASS
	total	2412	-8.27	≤8.00	PASS
	Ant12	2437	-9.77	≤8.00	PASS
	Ant7	2437	-9.27	≤8.00	PASS

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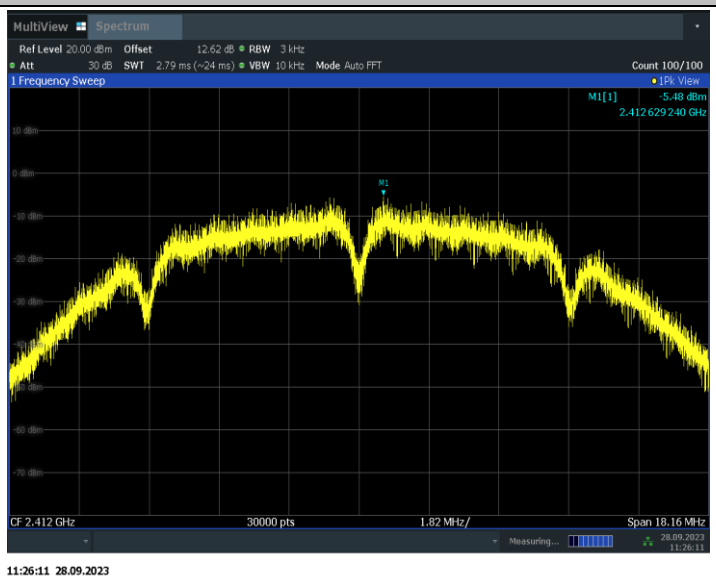
	total	2437	-6.50	≤8.00	PASS
	Ant12	2462	-11.64	≤8.00	PASS
	Ant7	2462	-10.29	≤8.00	PASS
	total	2462	-7.90	≤8.00	PASS
11BE40MIMO full RU	Ant12	2422	-15.46	≤8.00	PASS
	Ant7	2422	-15.84	≤8.00	PASS
	total	2422	-12.64	≤8.00	PASS
	Ant12	2437	-11.87	≤8.00	PASS
	Ant7	2437	-11.79	≤8.00	PASS
	total	2437	-8.82	≤8.00	PASS
	Ant12	2452	-15.84	≤8.00	PASS
	Ant7	2452	-16.24	≤8.00	PASS
	total	2452	-13.03	≤8.00	PASS

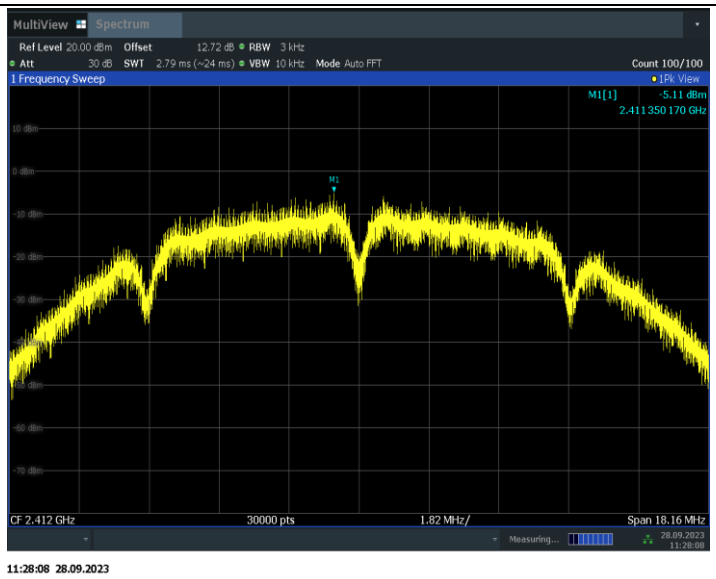
Test graphs as below:

11B-MIMO_Ant12_2412



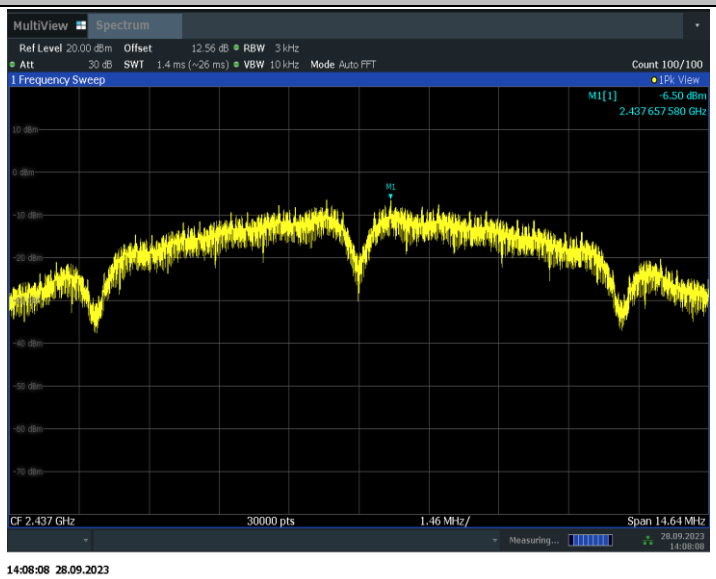
11:26:11 28.09.2023

11B-MIMO_Ant7_2412



11:28:08 28.09.2023

11B- MIMO_Ant12_2437



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11B- MIMO_Ant7_2437

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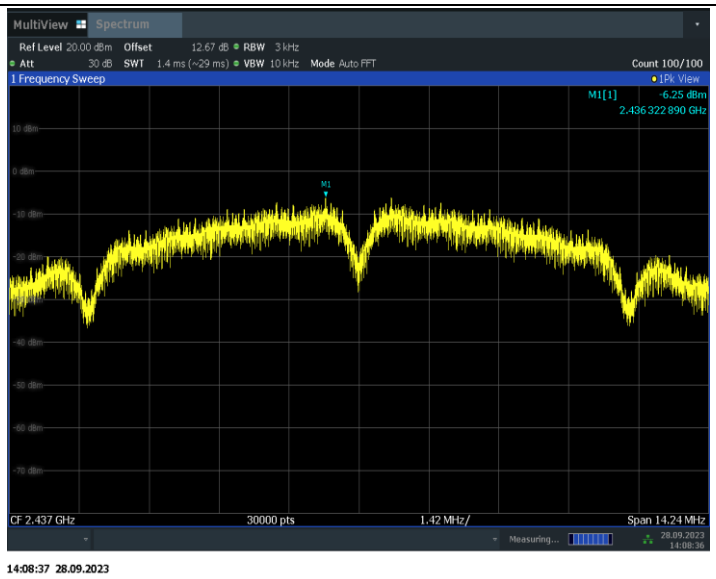
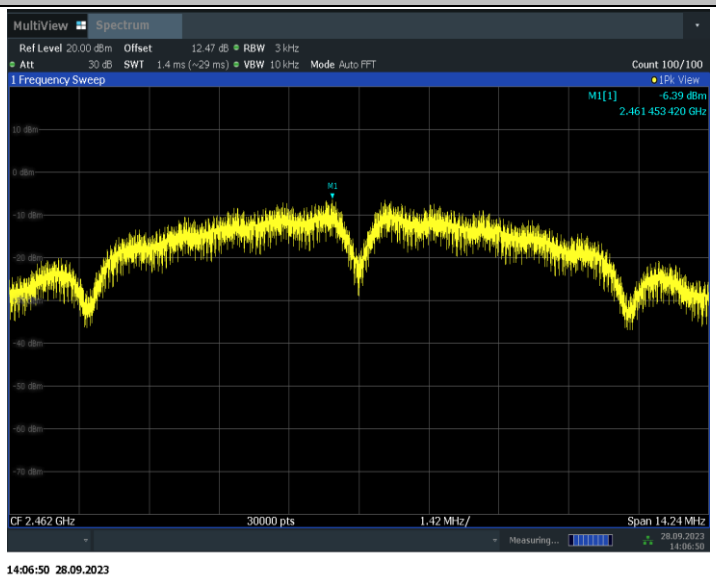


14:08:37 28.09.2023

11B- MIMO_Ant12_2462



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11B- MIMO_Ant7_2462

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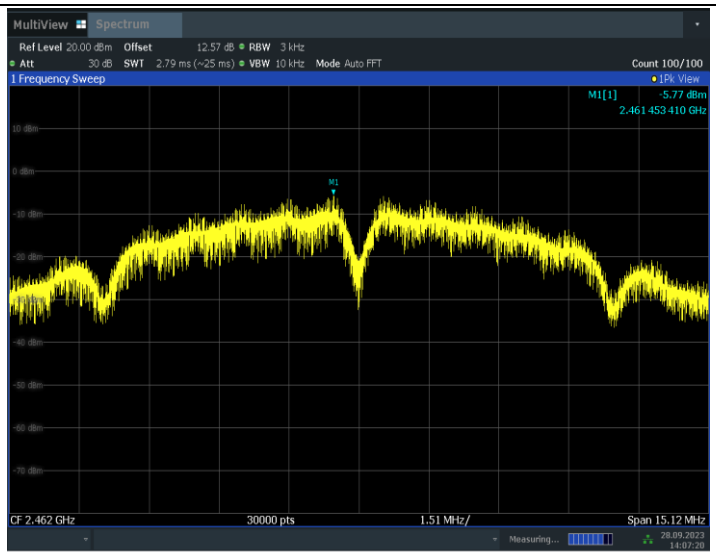

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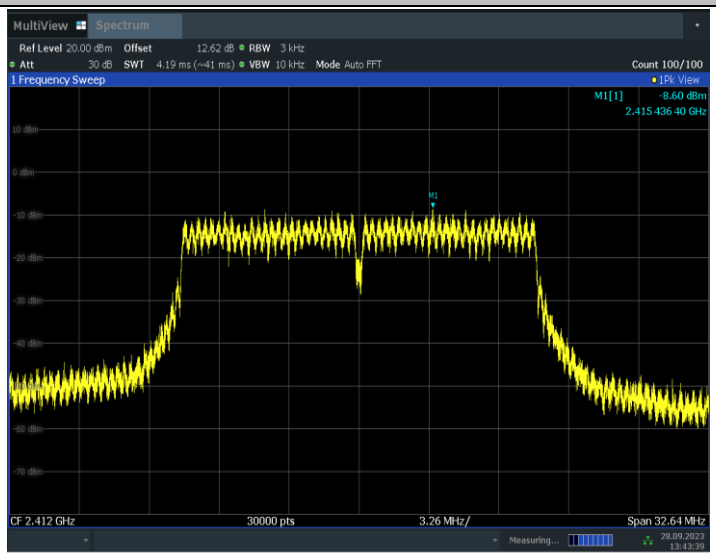
11G- MIMO_Ant12_2412



13:43:39 28.09.2023

11G- MIMO_Ant7_2412

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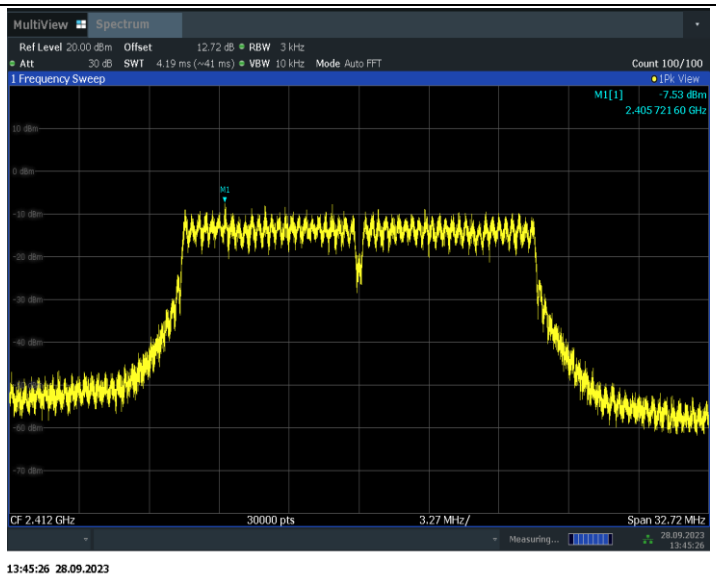

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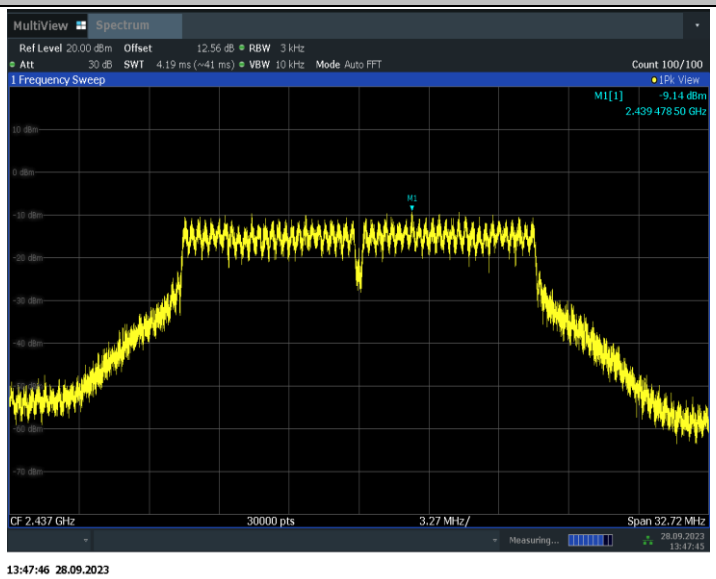
11G- MIMO_Ant12_2437



13:47:46 28.09.2023

11G- MIMO_Ant7_2437

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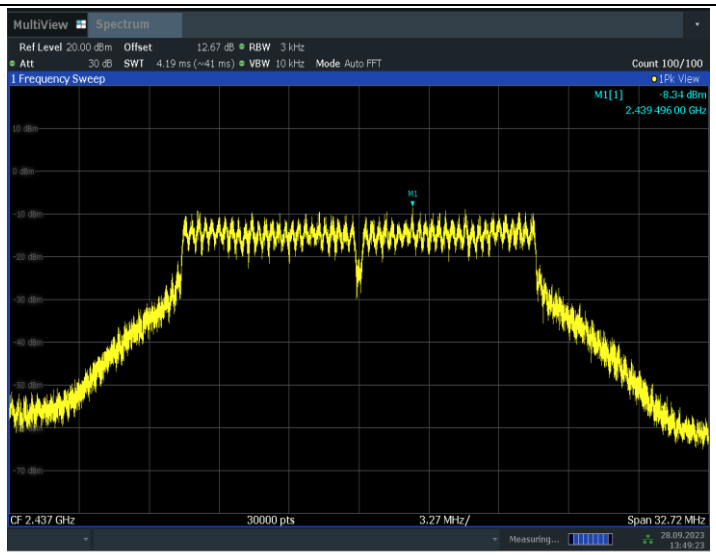

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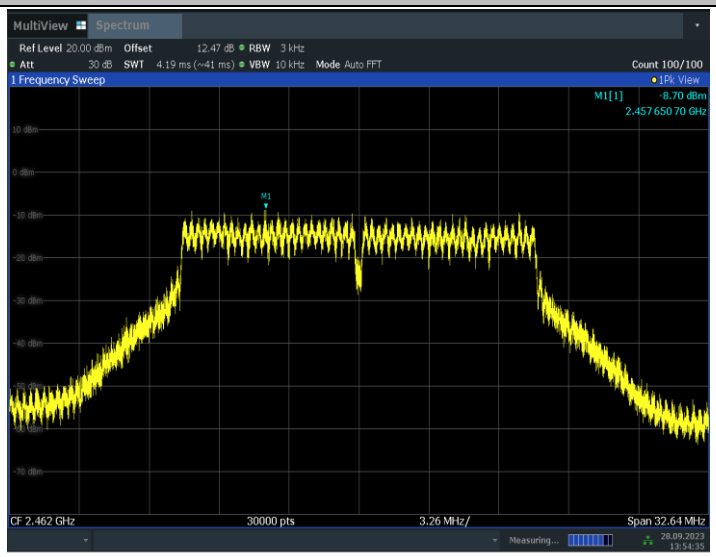
11G- MIMO_Ant12_2462



13:54:36 28.09.2023

11G- MIMO_Ant7_2462

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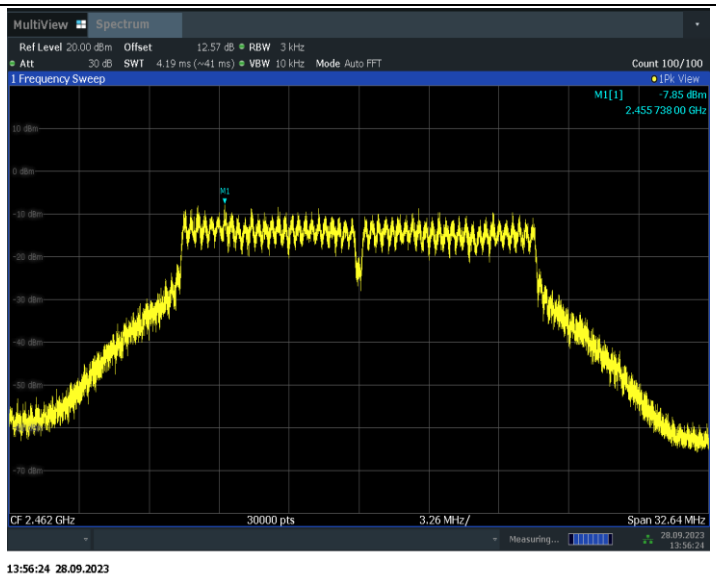
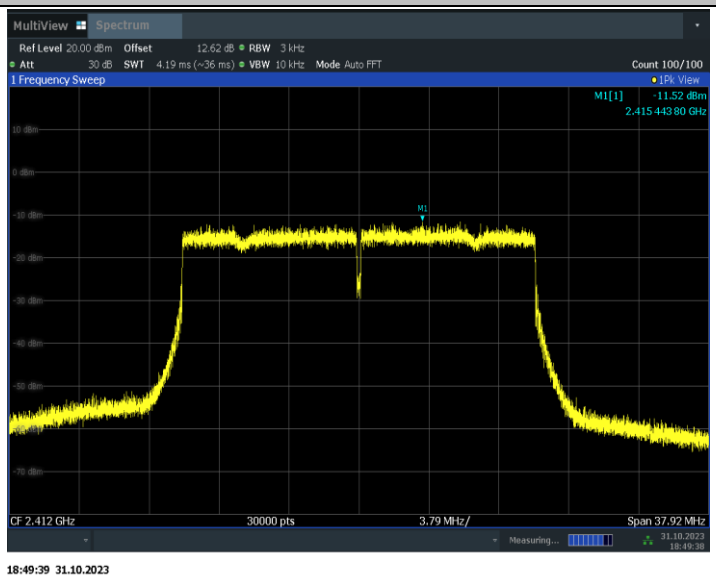


13:56:24 28.09.2023

11AX20MIMO_Ant12_2412



18:49:39 31.10.2023

11AX20MIMO_Ant7_2412

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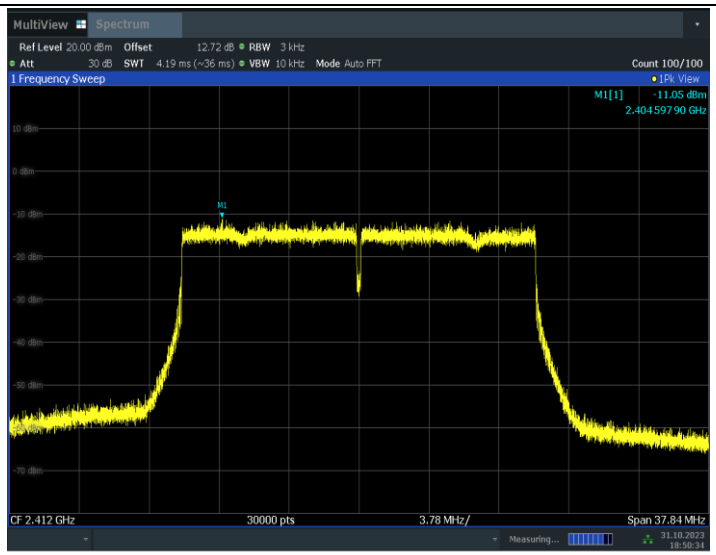

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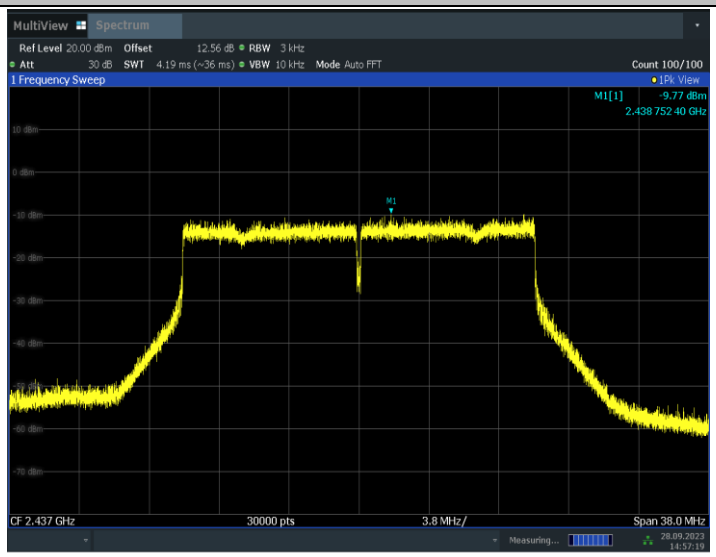
11AX20MIMO_Ant12_2437



14:57:20 28.09.2023

11AX20MIMO_Ant7_2437

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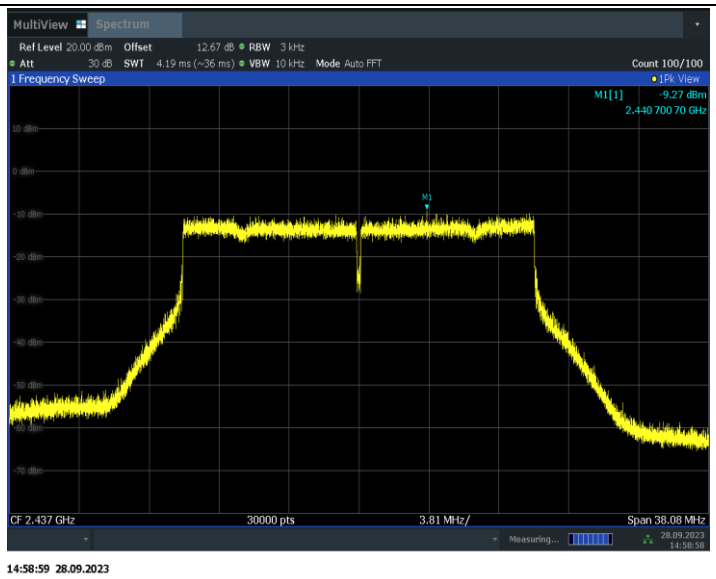

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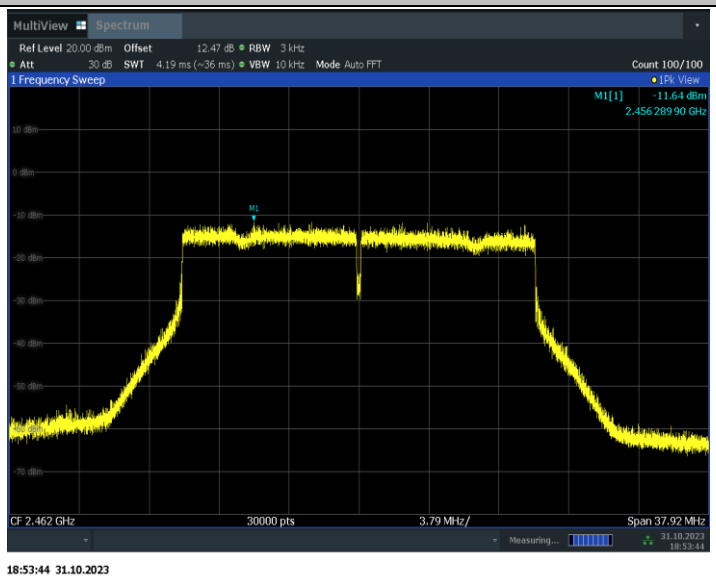
11AX20MIMO_Ant12_2462



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11AX20MIMO_Ant7_2462

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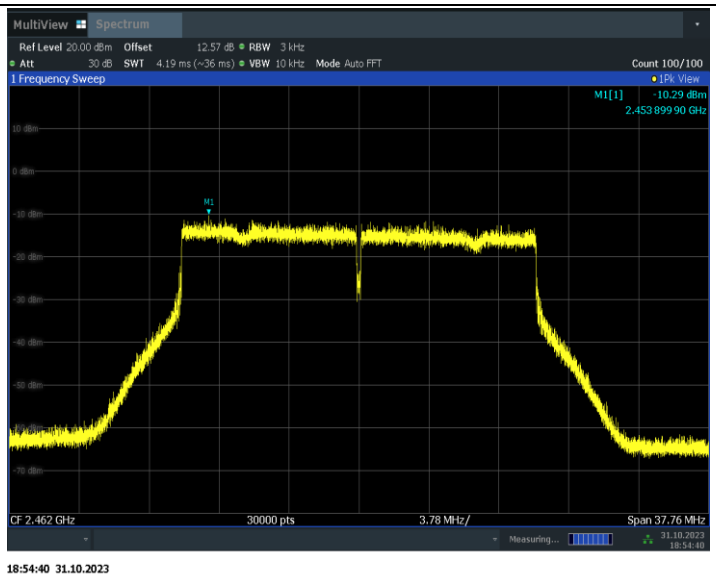
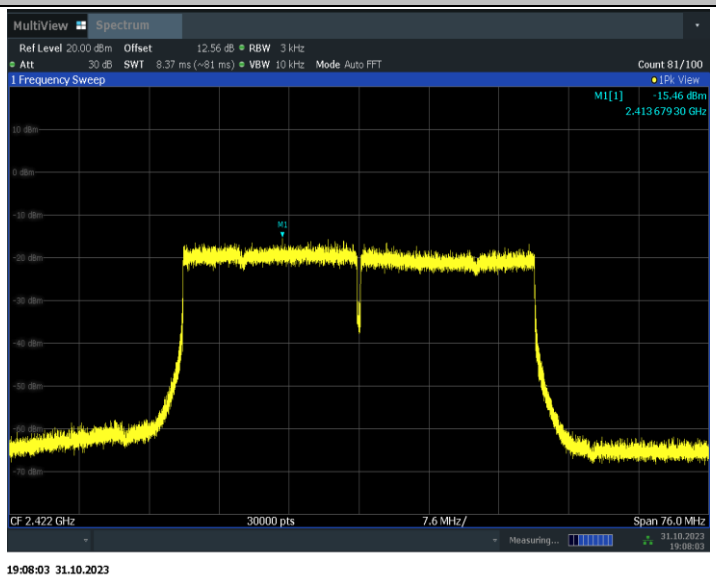


18:54:40 31.10.2023

11BE40MIMO_Ant12_2422



19:08:03 31.10.2023

11BE40MIMO_Ant7_2422

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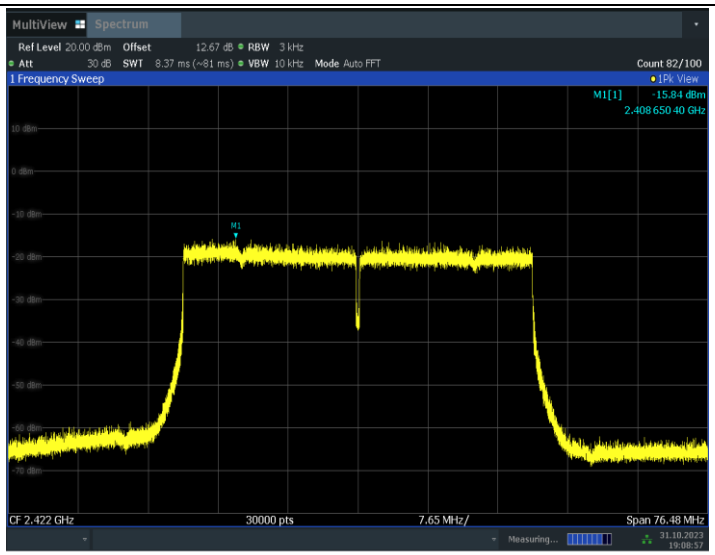
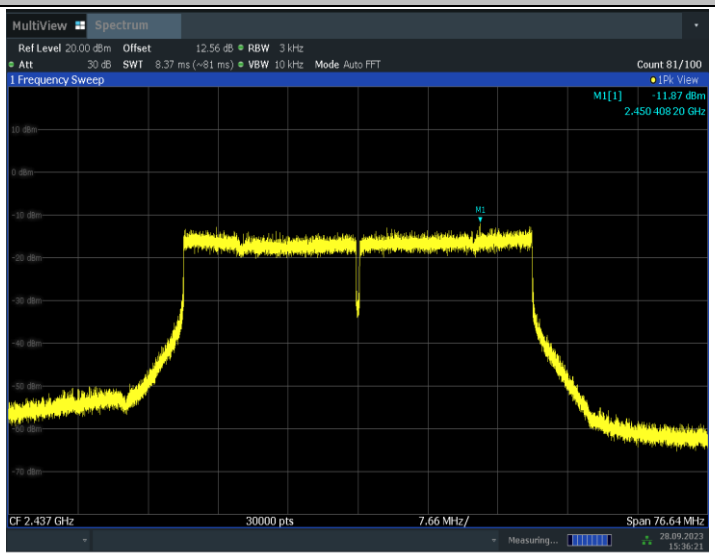


19:08:58 31.10.2023

11BE40MIMO_Ant12_2437



15:36:22 28.09.2023

11BE40MIMO_Ant7_2437

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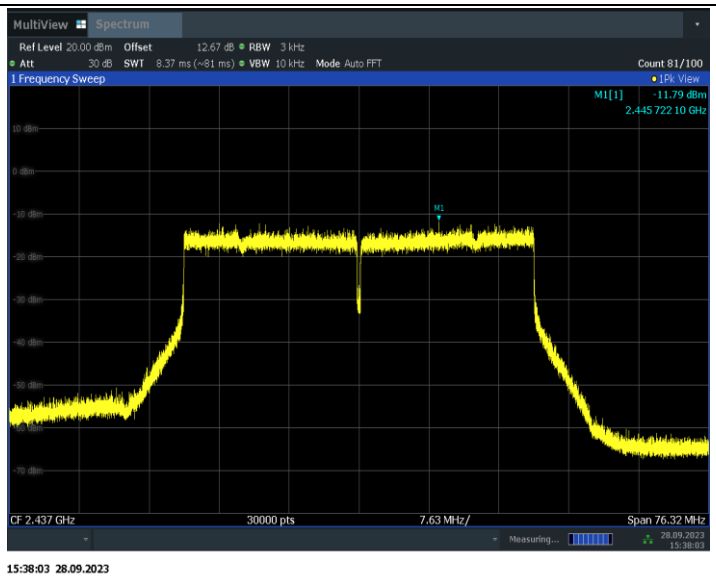
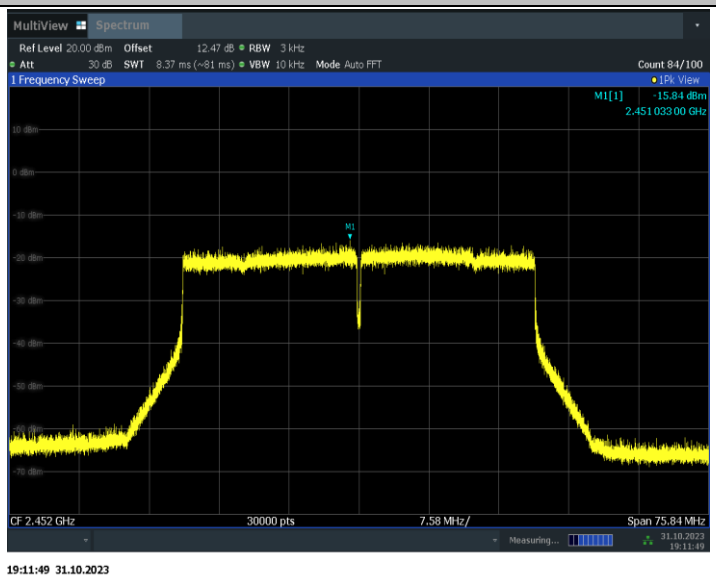


15:38:03 28.09.2023

11BE40MIMO_Ant12_2452



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11BE40MIMO_Ant7_2452

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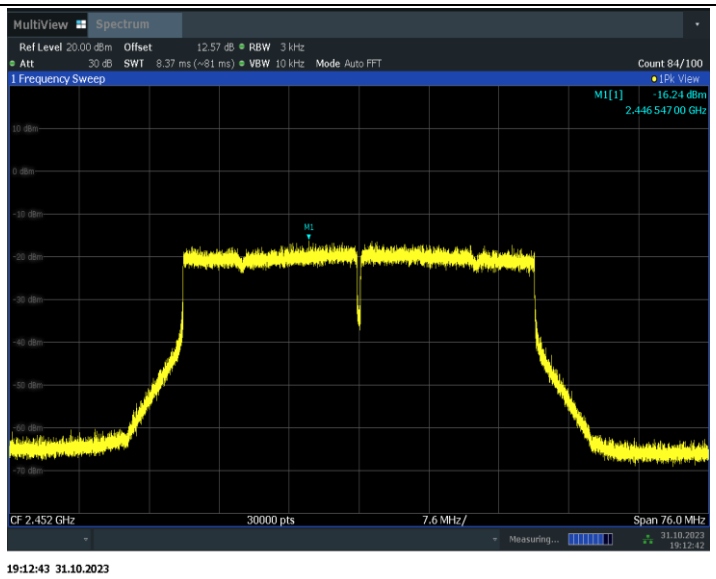

19:12:43 31.10.2023

RU mode

Test Mode	Antenna	Frequency [MHz]	RuSize	Ru Index	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11AX20MIMO	Ant12	2412	26Tone	RU0	-9.74	≤8.00	PASS
				RU8	-10.56	≤8.00	PASS
			52Tone	RU37	-9.95	≤8.00	PASS
				RU40	-9.33	≤8.00	PASS
			106Tone	RU53	-8.19	≤8.00	PASS
				RU54	-8.97	≤8.00	PASS
	Ant7	2412	26Tone	RU0	-8.69	≤8.00	PASS
				RU8	-9.32	≤8.00	PASS
			52Tone	RU37	-8.86	≤8.00	PASS
				RU40	-9.20	≤8.00	PASS
			106Tone	RU53	-7.71	≤8.00	PASS
				RU54	-8.68	≤8.00	PASS
	total	2412	26Tone	RU0	-6.17	≤8.00	PASS
				RU8	-6.89	≤8.00	PASS
			52Tone	RU37	-6.36	≤8.00	PASS
				RU40	-6.25	≤8.00	PASS
			106Tone	RU53	-4.93	≤8.00	PASS
				RU54	-5.81	≤8.00	PASS
	Ant12	2437	26Tone	RU0	-10.68	≤8.00	PASS
				RU8	-9.21	≤8.00	PASS
			52Tone	RU37	-10.29	≤8.00	PASS
				RU40	-9.22	≤8.00	PASS
			106Tone	RU53	-9.44	≤8.00	PASS
				RU54	-8.74	≤8.00	PASS
	Ant7	2437	26Tone	RU0	-9.87	≤8.00	PASS

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				RU8	-9.87	≤8.00	PASS
			52Tone	RU37	-9.20	≤8.00	PASS
				RU40	-9.06	≤8.00	PASS
			106Tone	RU53	-8.57	≤8.00	PASS
				RU54	-8.27	≤8.00	PASS
	total	2437	26Tone	RU0	-7.25	≤8.00	PASS
				RU8	-6.52	≤8.00	PASS
			52Tone	RU37	-6.70	≤8.00	PASS
				RU40	-6.13	≤8.00	PASS
			106Tone	RU53	-5.97	≤8.00	PASS
				RU54	-5.49	≤8.00	PASS
	Ant12	2462	26Tone	RU0	-9.66	≤8.00	PASS
				RU8	-10.65	≤8.00	PASS
			52Tone	RU37	-9.06	≤8.00	PASS
				RU40	-9.88	≤8.00	PASS
			106Tone	RU53	-8.60	≤8.00	PASS
				RU54	-9.80	≤8.00	PASS
	Ant7	2462	26Tone	RU0	-8.86	≤8.00	PASS
				RU8	-10.15	≤8.00	PASS
			52Tone	RU37	-8.42	≤8.00	PASS
				RU40	-9.56	≤8.00	PASS
			106Tone	RU53	-7.61	≤8.00	PASS
				RU54	-9.12	≤8.00	PASS
	total	2462	26Tone	RU0	-6.23	≤8.00	PASS
				RU8	-7.38	≤8.00	PASS
			52Tone	RU37	-5.72	≤8.00	PASS
				RU40	-6.71	≤8.00	PASS
			106Tone	RU53	-5.07	≤8.00	PASS
				RU54	-6.44	≤8.00	PASS
11AX40MIMO	Ant12	2422	26Tone	RU0	-9.95	≤8.00	PASS
				RU17	-10.52	≤8.00	PASS
			52Tone	RU37	-8.84	≤8.00	PASS
				RU44	-9.51	≤8.00	PASS
			106Tone	RU53	-9.18	≤8.00	PASS
				RU56	-9.42	≤8.00	PASS
	Ant7	2422	26Tone	RU0	-9.47	≤8.00	PASS
				RU17	-10.63	≤8.00	PASS
			52Tone	RU37	-8.74	≤8.00	PASS
				RU44	-8.98	≤8.00	PASS
			106Tone	RU53	-8.85	≤8.00	PASS
				RU56	-8.43	≤8.00	PASS
	total	2422	26Tone	RU0	-6.69	≤8.00	PASS

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				RU17	-7.56	≤8.00	PASS
			52Tone	RU37	-5.78	≤8.00	PASS
				RU44	-6.23	≤8.00	PASS
			106Tone	RU53	-6.00	≤8.00	PASS
				RU56	-5.89	≤8.00	PASS
	Ant12	2437	26Tone	RU0	-9.10	≤8.00	PASS
				RU17	-10.13	≤8.00	PASS
			52Tone	RU37	-8.67	≤8.00	PASS
				RU44	-8.80	≤8.00	PASS
			106Tone	RU53	-8.69	≤8.00	PASS
				RU56	-8.84	≤8.00	PASS
	Ant7	2437	26Tone	RU0	-9.64	≤8.00	PASS
				RU17	-10.42	≤8.00	PASS
			52Tone	RU37	-9.08	≤8.00	PASS
				RU44	-9.88	≤8.00	PASS
			106Tone	RU53	-8.53	≤8.00	PASS
				RU56	-8.31	≤8.00	PASS
	total	2437	26Tone	RU0	-6.35	≤8.00	PASS
				RU17	-7.26	≤8.00	PASS
			52Tone	RU37	-5.86	≤8.00	PASS
				RU44	-6.30	≤8.00	PASS
			106Tone	RU53	-5.60	≤8.00	PASS
				RU56	-5.56	≤8.00	PASS
	Ant12	2452	26Tone	RU0	-10.83	≤8.00	PASS
				RU17	-10.74	≤8.00	PASS
			52Tone	RU37	-9.53	≤8.00	PASS
				RU44	-11.03	≤8.00	PASS
			106Tone	RU53	-10.10	≤8.00	PASS
				RU56	-9.89	≤8.00	PASS
	Ant7	2452	26Tone	RU0	-10.34	≤8.00	PASS
				RU17	-10.33	≤8.00	PASS
			52Tone	RU37	-9.80	≤8.00	PASS
				RU44	-10.43	≤8.00	PASS
			106Tone	RU53	-9.19	≤8.00	PASS
				RU56	-8.61	≤8.00	PASS
	total	2452	26Tone	RU0	-7.57	≤8.00	PASS
				RU17	-7.52	≤8.00	PASS
			52Tone	RU37	-6.65	≤8.00	PASS
				RU44	-7.71	≤8.00	PASS
			106Tone	RU53	-6.61	≤8.00	PASS
				RU56	-6.19	≤8.00	PASS

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Test graphs as below:

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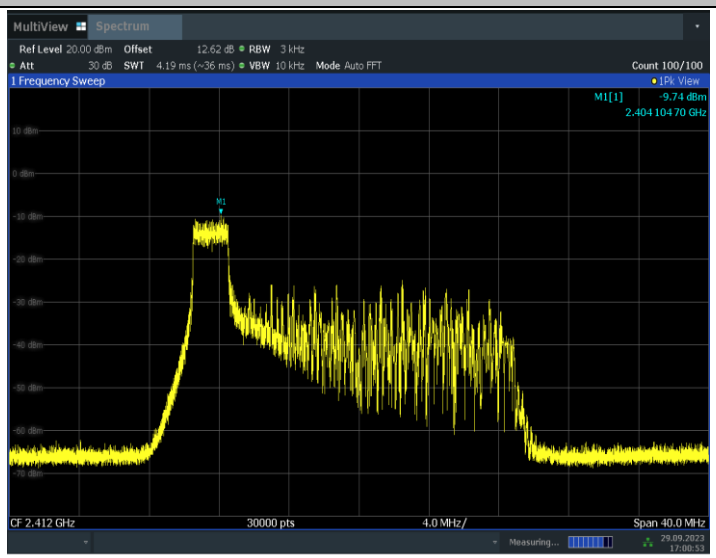 17:00:54 29.09.2023
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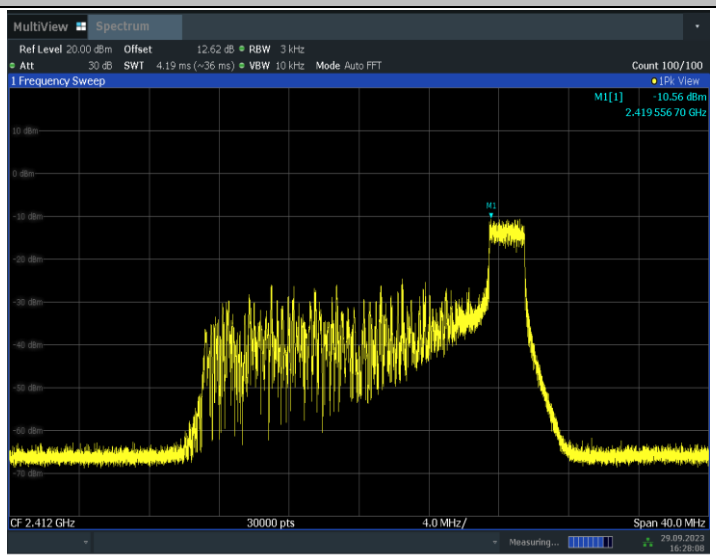 16:28:08 29.09.2023
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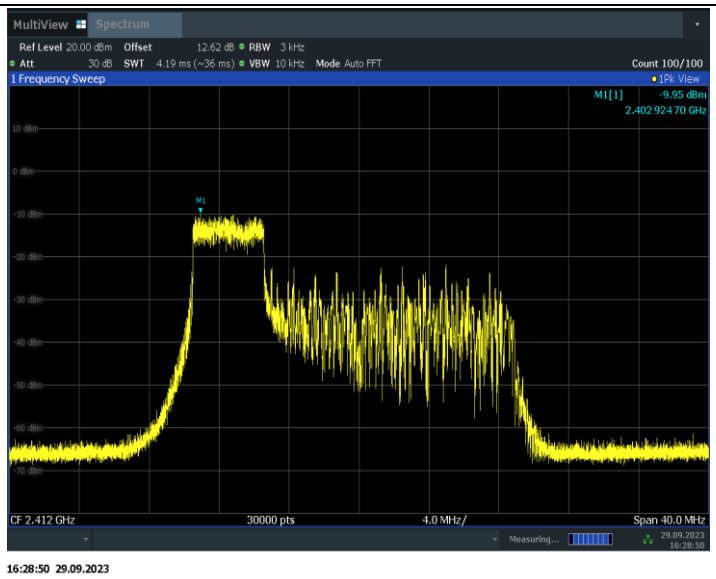

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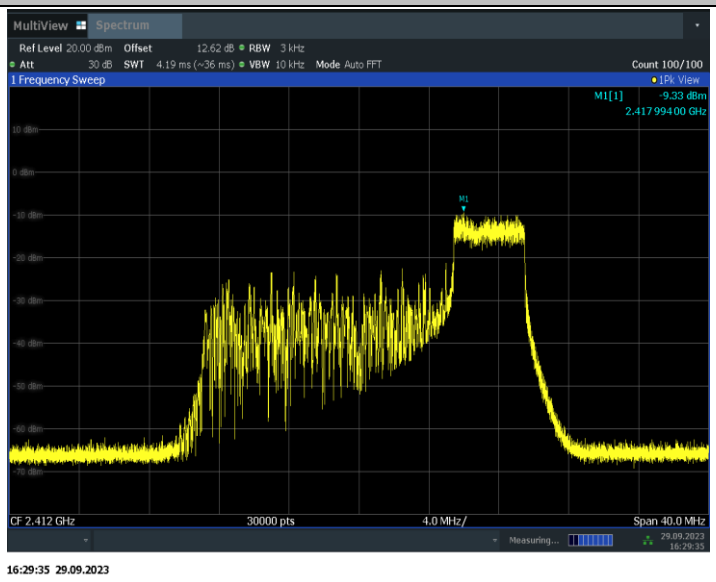

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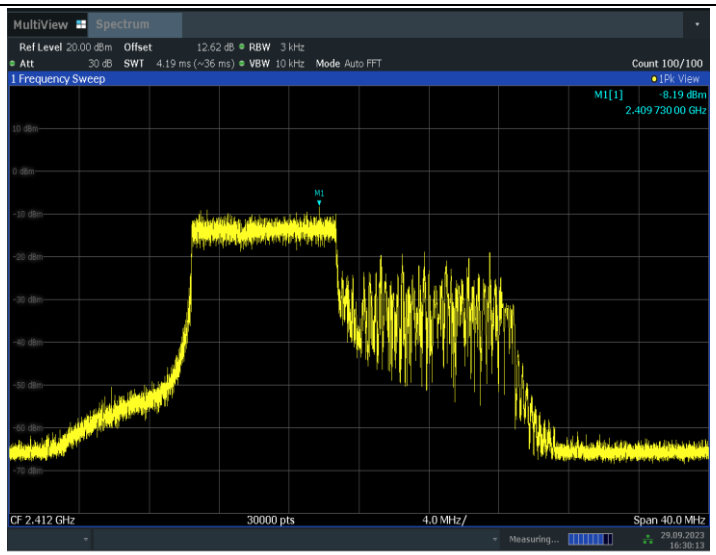

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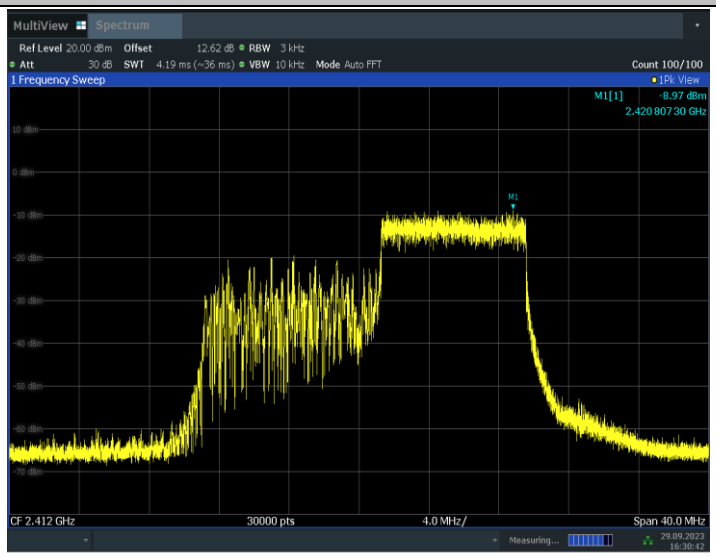

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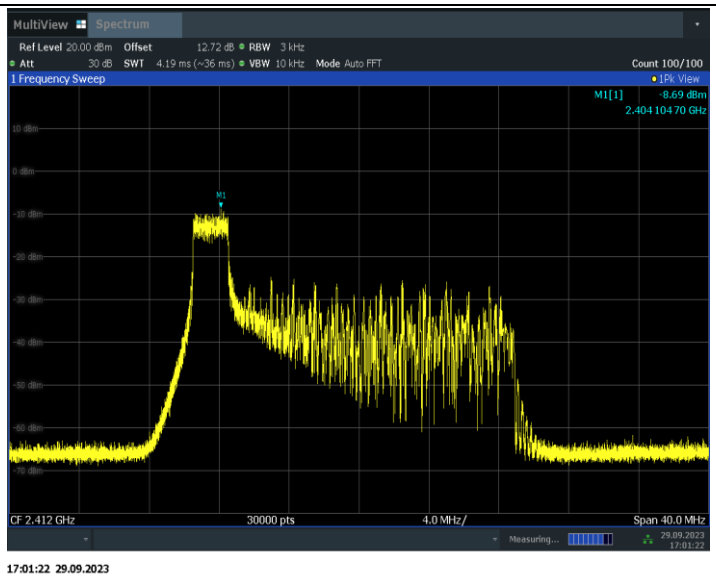

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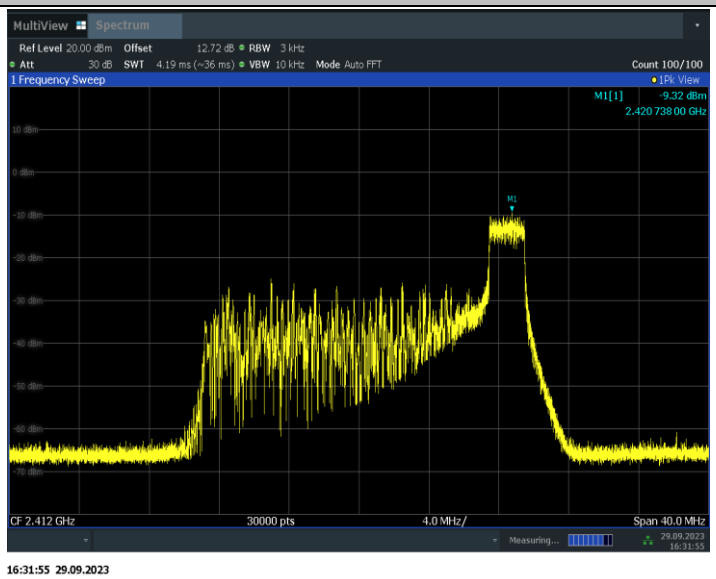

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11AX20MIMO_Ant7_2412_52Tone_RU37

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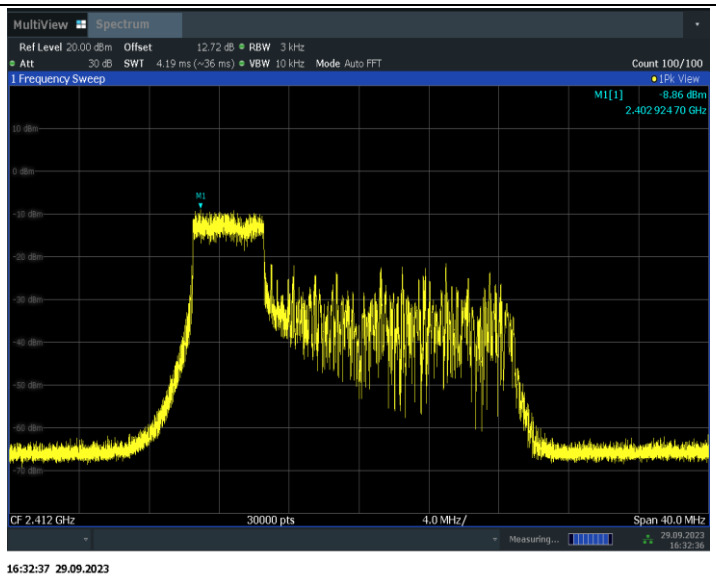

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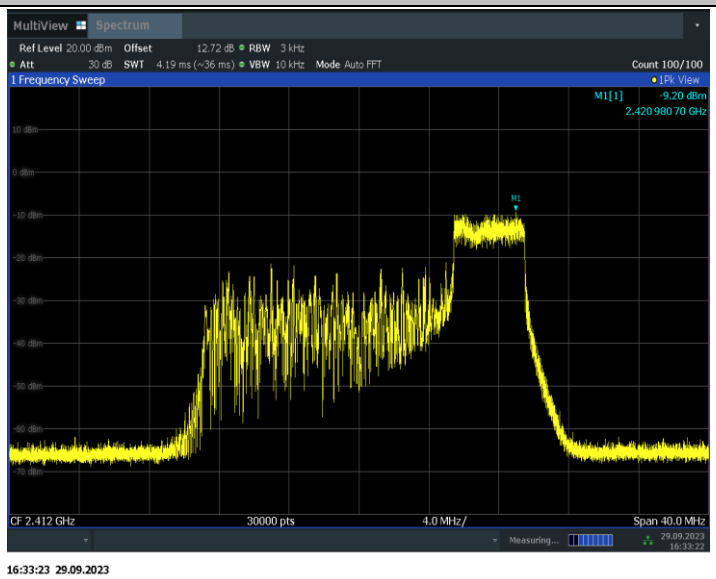

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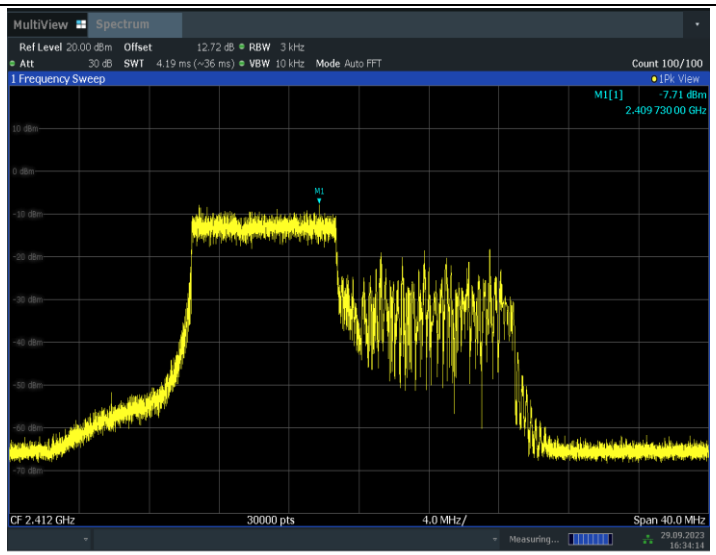

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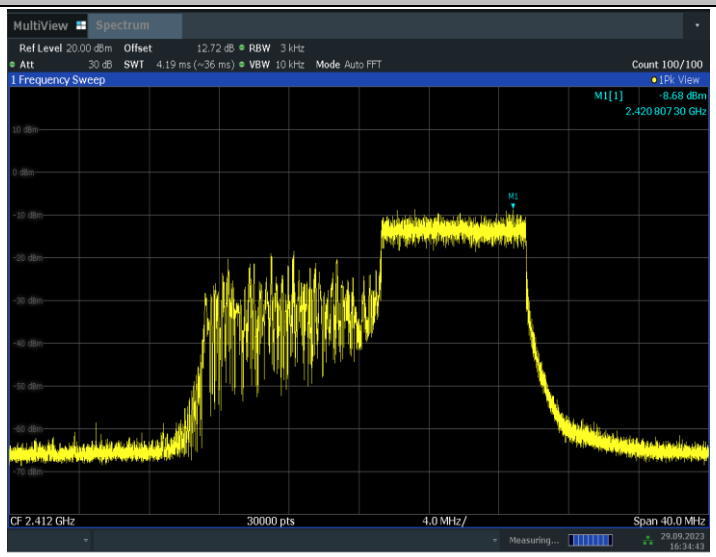

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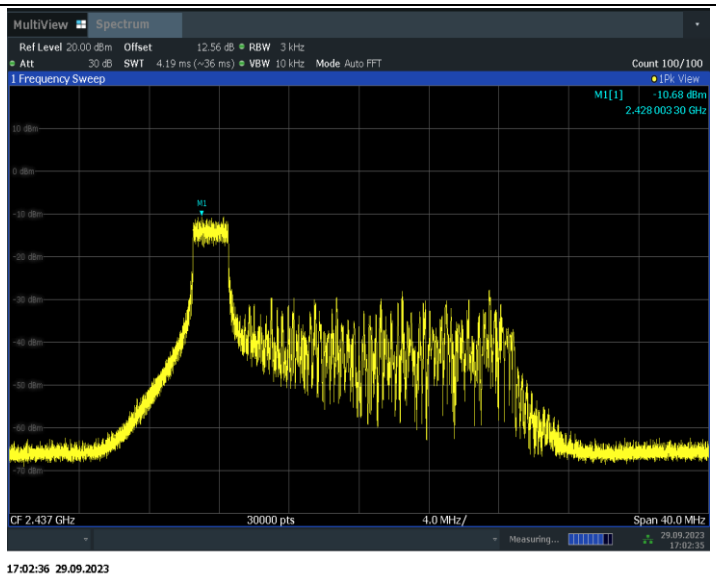

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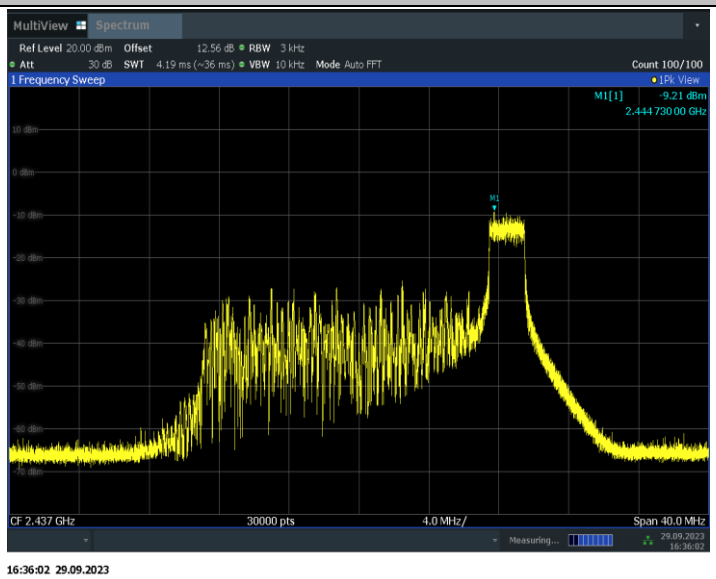

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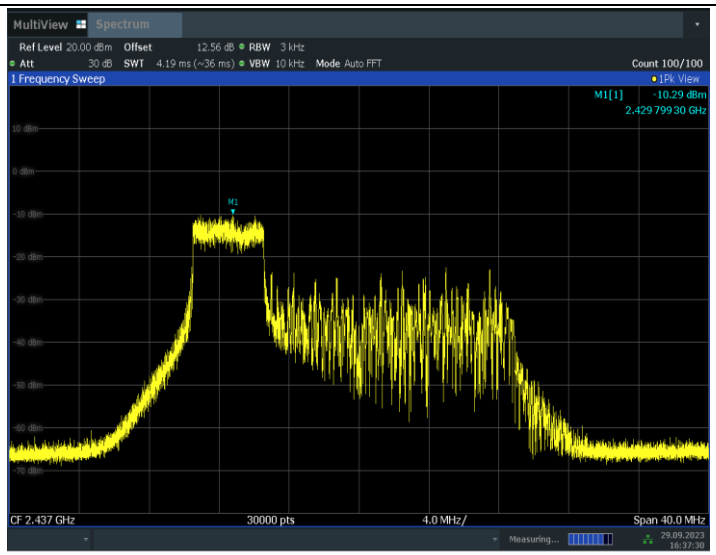

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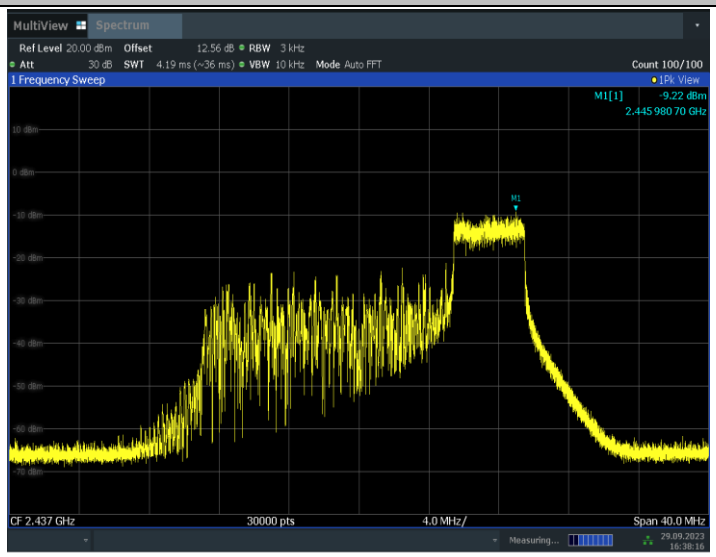

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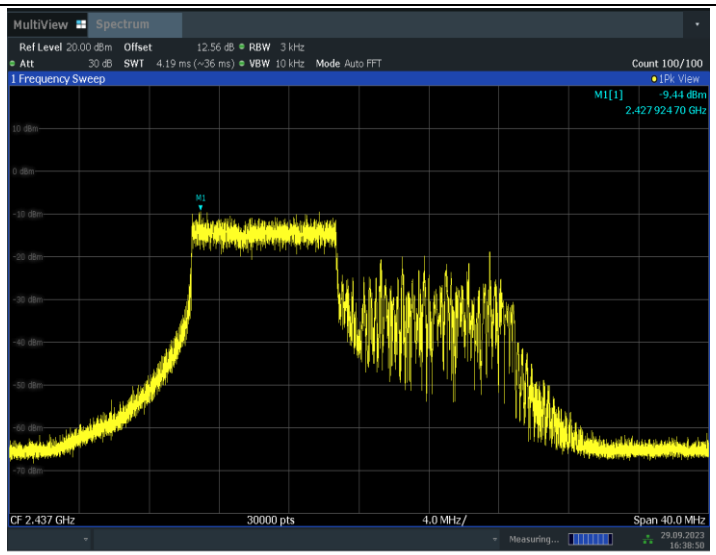

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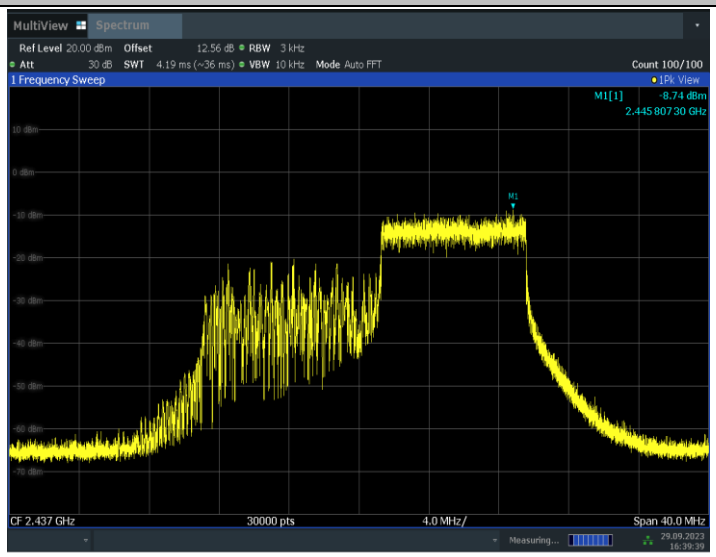

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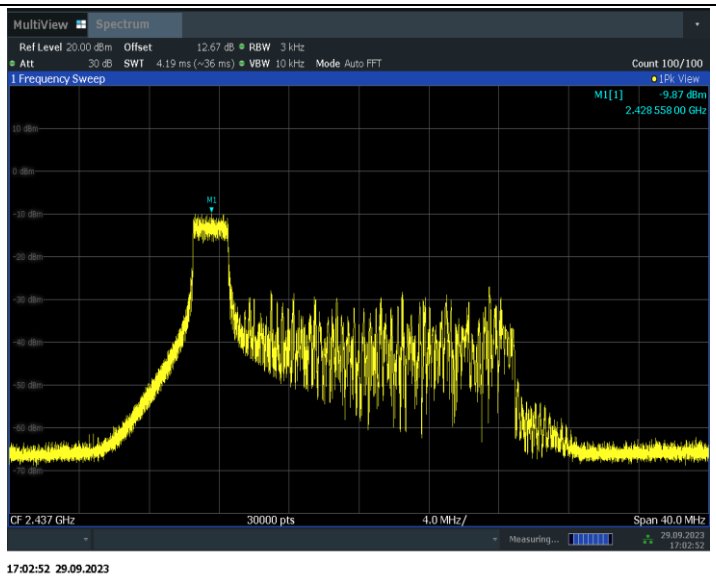

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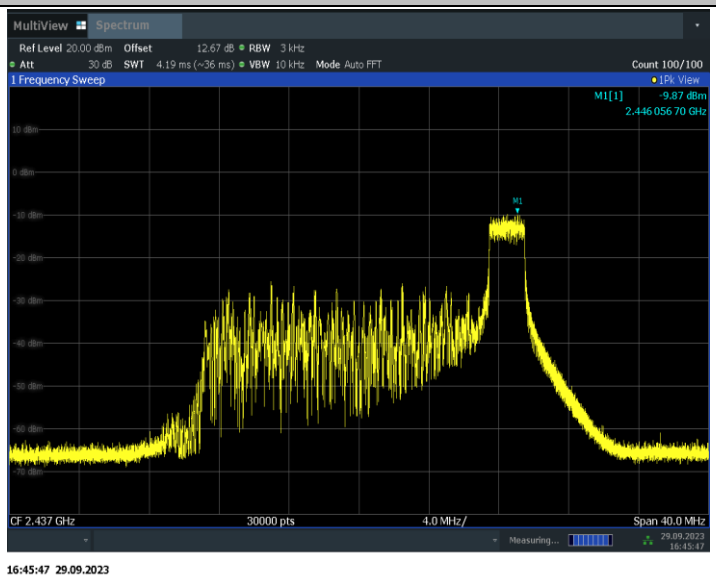

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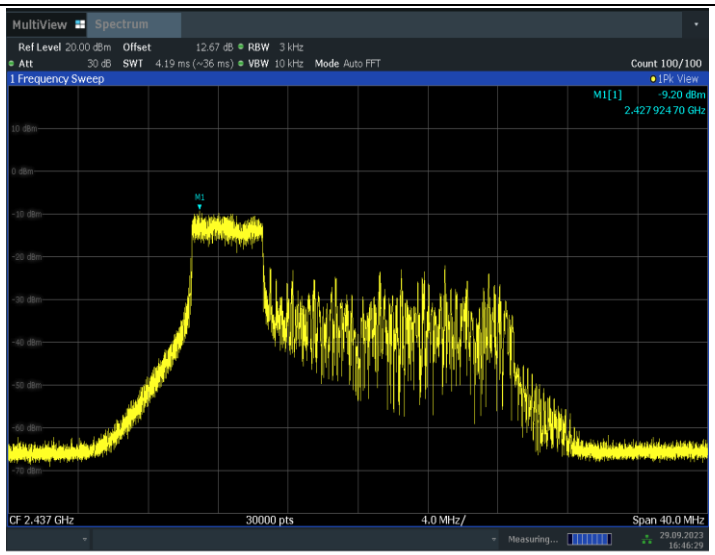

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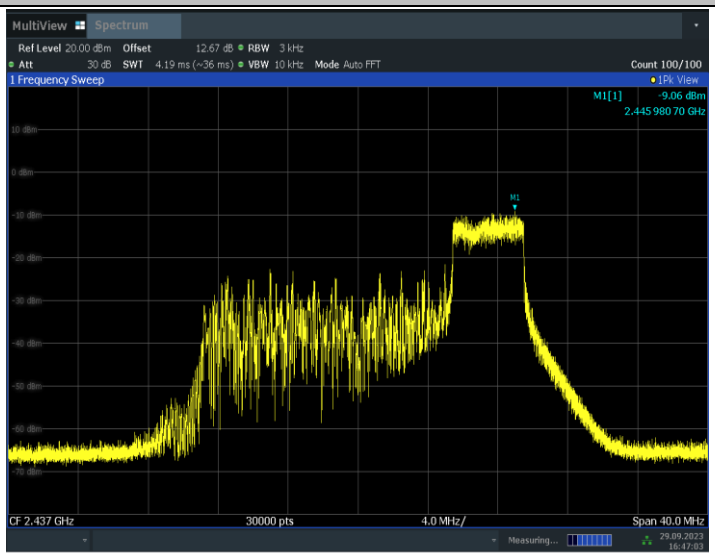

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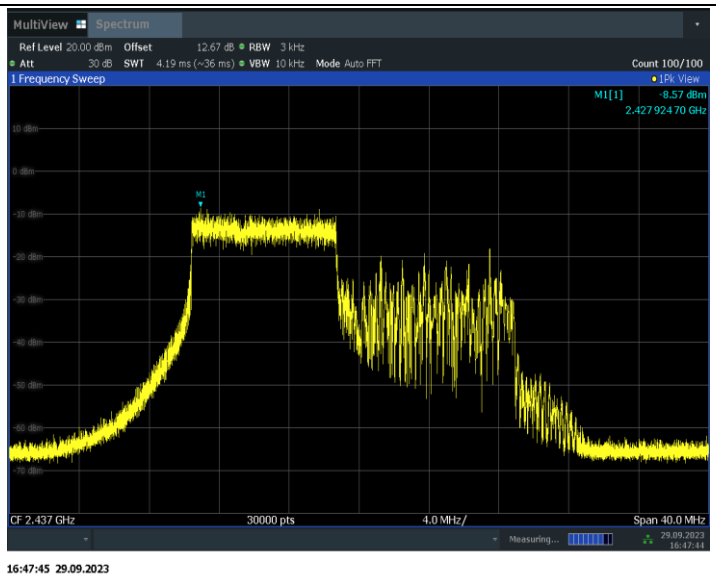

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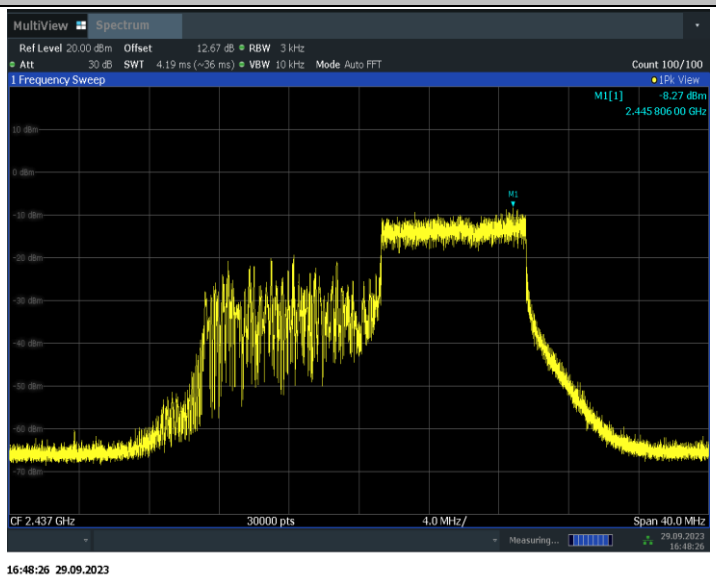

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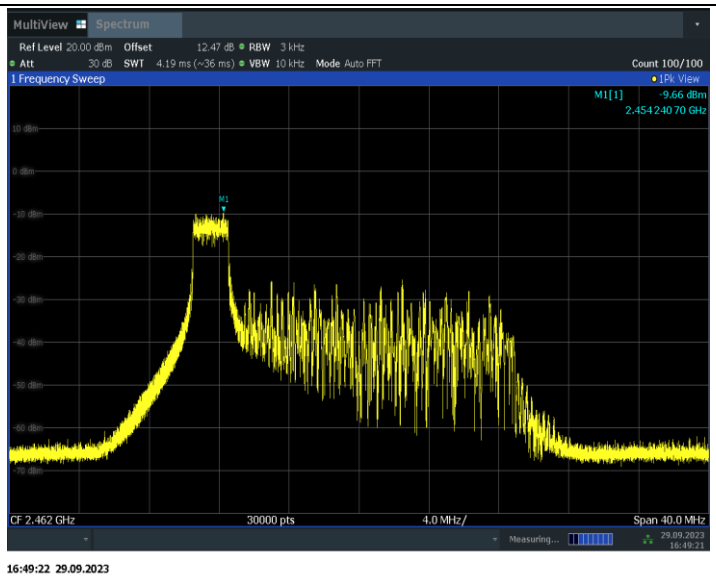

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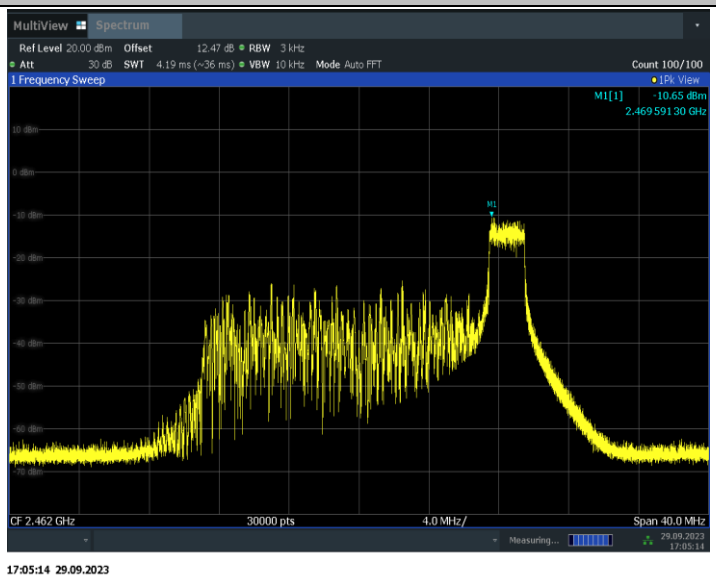

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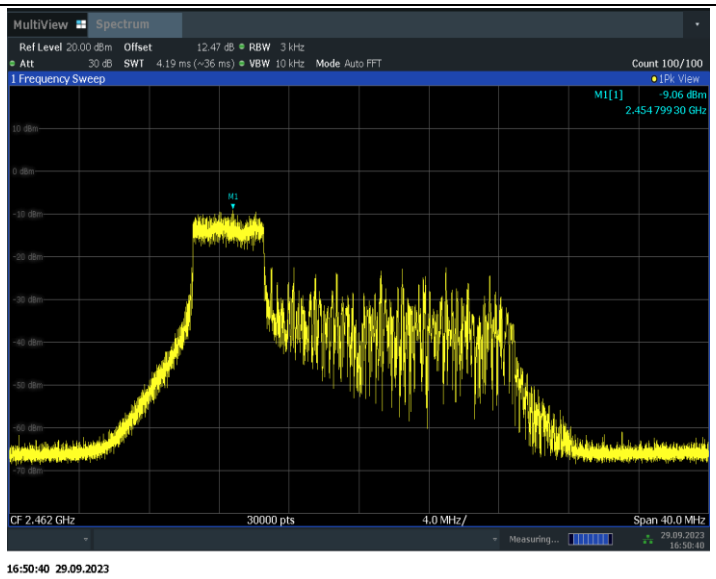

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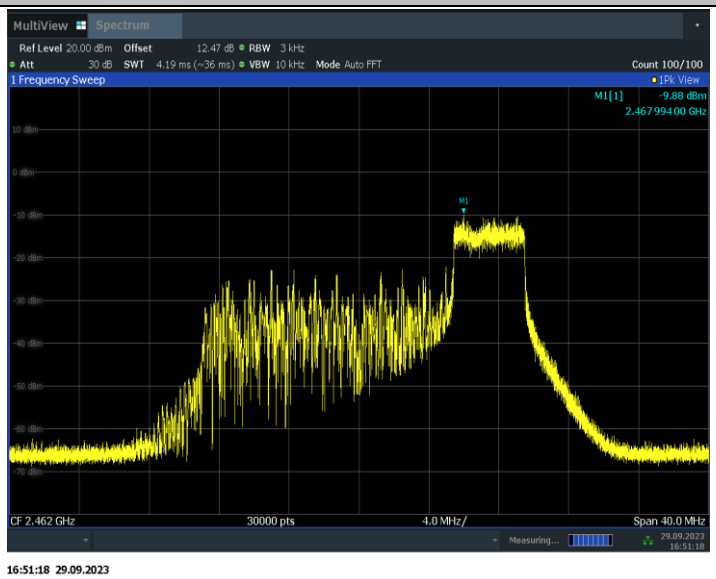

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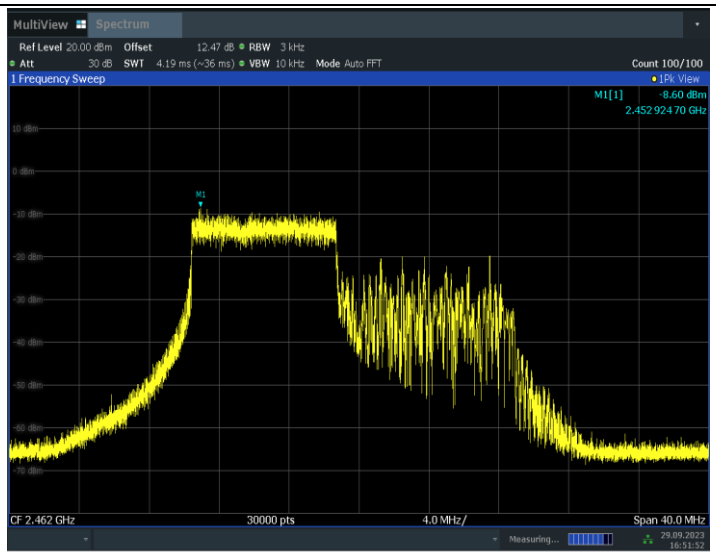

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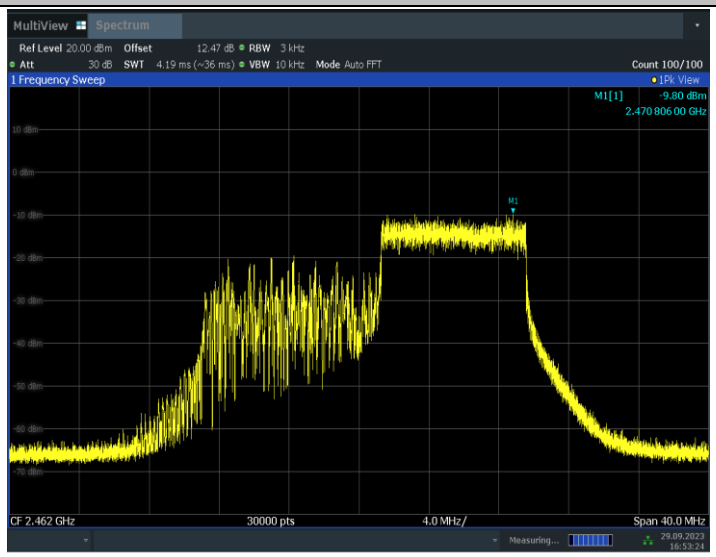

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