FCC PART 15
TEST REPORT
No.23T04Z81077-19

for

Wingtech Group (Hong Kong) Limited

5G Mobile Phone

Model Name: TMRV07P5G

FCC ID: 2APXW-TMRV07P5G

with

Hardware Version: V1.0

Software Version: TMRV07P5G_0.03.01

Issued Date: 2024-05-27

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.

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

©Copyright. All rights reserved by CTTL.

REPORT HISTORY

Report Number	Revision	Description	Issue Date
23T04Z81077-19	Rev.0	1st edition	2024-03-26
23T04Z81077-19	Rev.1	1.Added a column of information about antenna gain to the results of EIRP and EIRP PSD. 2.Clear explanation has been provided on whether the device is using channel punching or bandwidth reduction. 3. Added antenna gain in the CBP test results table. 4.Added antenna requirements.	2024-04-16
23T04Z81077-19	Rev.2	1.Added units to the table for Maximum output power and Peak Power Spectral Density. 2. Added note for Low Power Indoor access point and Standard Access Point sharing the same power level on page 26 and 35. 3. Revised A4 title to Emission Bandwidth. 4.Modified Measurement Limit and removed limits and verdict from the Emission Bandwidth and 99% occupied bandwidth results table.	2024-05-27

©Copyright. All rights reserved by CTTL.

CONTENTS

CONTENTS 3

1. TEST LATORATORY 5

1.1. INTRODUCTION & ACCREDITATION 5
1.2. TESTING LOCATION 5
1.3. TESTING ENVIRONMENT 5
1.4. PROJECT DATE 5
1.5. SIGNATURE 5

2. CLIENT INFORMATION 6

2.1 APPLICANT INFORMATION 6
2.2 MANUFACTURER INFORMATION 6

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARYEQUIPMENT(AE) 7

3.1. ABOUT EUT 7
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST 7
3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST 7
3.4. GENERAL DESCRIPTION 7
3.5. INTERPRETATION OF THE TEST ENVIRONMENT 8

4. REFERENCE DOCUMENTS 8

4.1. DOCUMENTS SUPPLIED BY APPLICANT 8
4.2. REFERENCE DOCUMENTS FOR TESTING 8

5. LABORATORY ENVIRONMENT 8

6. SUMMARY OF TEST RESULTS 9

6.1. SUMMARY OF TEST RESULTS 9
6.2. STATEMENTS 9
6.3. TEST CONDITIONS 9

7. TEST EQUIPMENTS UTILIZED 10

8. MEASUREMENT UNCERTAINTY 11

8.1 TRANSMITTER OUTPUT POWER 11
8.2 PEAK POWER SPECTRAL DENSITY 11
8.3 99% OCCUPIED BANDWIDTH 11
8.4 OCCUPIED CHANNEL BANDWIDTH 11
8.5 BAND EDGES COMPLIANCE 11
8.6 SPURIOUS EMISSIONS 11
8.7 AC POWER-LINE CONDUCTED EMISSION 11

ANNEX A: MEASUREMENT RESULTS 12

A.1. MEASUREMENT METHOD 12
A.2. MAXIMUM OUTPUT POWER 14

©Copyright. All rights reserved by CTTL.

A.3. PEAK POWER SPECTRAL DENSITY (CONDUCTED) 28
A.4. EMISSION BANDWIDTH(CONDUCTED) 37
A.5. 99% OCCUPIED BANDWIDTH 102
A.6. CONTENTION BASED PROTOCOL 168
A.7. IN-BAND EMISSIONS 179
A.8. TRANSMITTER SPURIOUS EMISSION 275
A.9. AC POWERLINE CONDUCTED EMISSION (150KHZ- 30MHZ) 310
A.10. ANTENNA REQUIREMENT 313

ANNEX B: EUT PARAMETERS 314

ANNEX C: ACCREDITATION CERTIFICATE 314

©Copyright. All rights reserved by CTTL.

1. TEST LATORATORY

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

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: 2024-01-16

Testing End Date: 2024-03-18

1.5. Signature

Dong Jiaxuan

(Prepared this test report)

Zheng Wei

(Reviewed this test report)

Pang Shuai

(Approved this test report)

©Copyright. All rights reserved by CTTL.

2. CLIENT INFORMATION

2.1 Applicant Information

Company Name:	Wingtech Group (Hong Kong) Limited
Address /Post:	Flat/RM 1903 19/F, Podium Plaza, 5 Hanoi Road, Tsim Sha Tsui, KL, HK
Contact:	sharui
Email:	sharui@wingtech.com
Telephone:	+86-21-53529900
Fax:	/

2.2 Manufacturer Information

Company Name:	Wingtech Group (Hong Kong) Limited
Address /Post:	Flat/RM 1903 19/F, Podium Plaza, 5 Hanoi Road, Tsim Sha Tsui, KL, HK
Contact:	sharui
Email:	sharui@wingtech.com
Telephone:	+86-21-53529900
Fax:	/

©Copyright. All rights reserved by CTTL.

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARYEQUIPMENT(AE)

3.1. About EUT

Description	5G Mobile Phone
Model name	TMRV07P5G
FCC ID	2APXW-TMRV07P5G
WLAN Frequency Band	ISM Bands: -5925MHz~6425MHz -6425MHz~6525MHz -6525MHz~6875MHz -6875MHz~7125MHz
Type of modulation	OFDMA
Antenna	Embedded Antenna
Voltage	3.87V
Equipment class	Dual Client

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
UT98a	860316070023386 860316070023394	V1.0	TMRV07P5G_0.03.01	2024-02-07
UT25a	860316070002869 860316070002877	V1.0	TMRV07P5G_0.03.01	2024-02-07

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

UT25a is used for Conduction test, UT98a is used for Radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Model	Manufacturer
AE1	Battery	TM002	SCUD (Fujian) Electronics Co.,Ltd.
AE2	Cable	HX-WT-60	Huizhou Washin Electronics Co., LTD

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

3.4. General Description

The Equipment under Test (EUT) is a model of 5G 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.

©Copyright. All rights reserved by CTTL.

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.

FCC Part15	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices	2021
ANSI C63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2013
UNII: KDB 789033 D02	General U-NII Test Procedures New Rules v02r01	2017-12
KDB 987594 D02	GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE 6 GHz (U-NII) DEVICES PART 15, SUBPART E	2021-02
KDB 662911 D01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band(e.g., MIMO, Smart Antenna, etc)	2013-10

5. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

©Copyright. All rights reserved by CTTL.

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15E	Sub-clause of IC	Verdict
Maximum Output Power	15.407	/	**P**
Peak Power Spectral Density	15.407	/	**P**
Occupied 26dB Bandwidth	15.403	/	**P**
99% Occupied bandwidth	/	/	**P**
Contention Based Protocol	/	/	**P**
In-Band Emissions	/	/	**P**
Radiated Unwanted Emission	15.209,15.407	/	**P**
AC Powerline Conducted Emission (150kHz- 30MHz)	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.
NM	Not measured, The test was not measured by CTTL
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard

6.2. Statements

CTTL has evaluated the test cases requested by the client/manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.2.

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

6.3. Test Conditions

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

Temperature	26℃
Voltage	3.87V
Humidity	44%

©Copyright. All rights reserved by CTTL.

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	1 year	2024-06-15
2	Vector Signal Generator	SMW200A	103421	Rohde & Schwarz	1 year	2024-06-15
3	LISN	ENV216	101200	R&S	13 months	2024-07-04
4	Test Receiver	ESCI	100344	R&S	13 months	2024-03-20
5	Attenuator	10dB/2W	/	Rosenberger	/	/
6	Shielding Room	S81	/	ETS-Lindgren	/	/

Instrument	Brand Name	Model
WLAN AP	ASUS	GT-AXE11000

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESW44	103023	R&S	13 months	2024-07-08
2	EMI Antenna	VULB9163	01223	SCHWARZBECK	13 months	2024-08-18
3	EMI Antenna	3115	6914	ETS-Lindgren	13 months	2024-06-07
4	EMI Antenna	3116	2663	ETS-Lindgren	13 months	2025-03-21

Test Software

Test Item	Test Software and Version	Software Vendor
Radiated Continuous Emission	EMC32 V11.50.020	R&S
Conducted Emission	EMC32 V8.53.0	R&S

©Copyright. All rights reserved by CTTL.

8. Measurement Uncertainty

8.1 Transmitter Output Power

Measurement Uncertainty: 0.387dB, k=1.96

8.2 Peak Power Spectral Density

Measurement Uncertainty: 0.705dB, k=1.96

8.3 99% Occupied bandwidth

Measurement Uncertainty: 60.80Hz, k=1.96

8.4 Occupied Channel Bandwidth

Measurement Uncertainty: 60.80Hz, k=1.96

8.5 Band Edges Compliance

Measurement Uncertainty : 0.62dB,k=1.96

8.6 Spurious Emissions

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

8.7 AC Power-line Conducted Emission

Measurement Uncertainty : 3.08,k=2

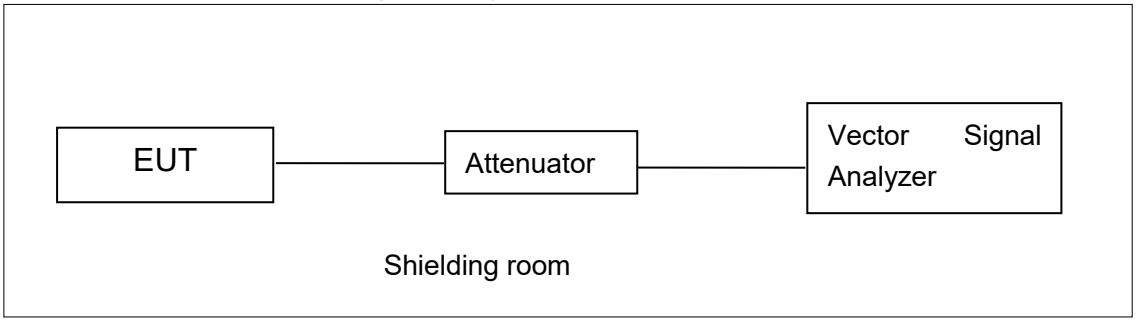
©Copyright. All rights reserved by CTTL.

ANNEX A: MEASUREMENT RESULTS

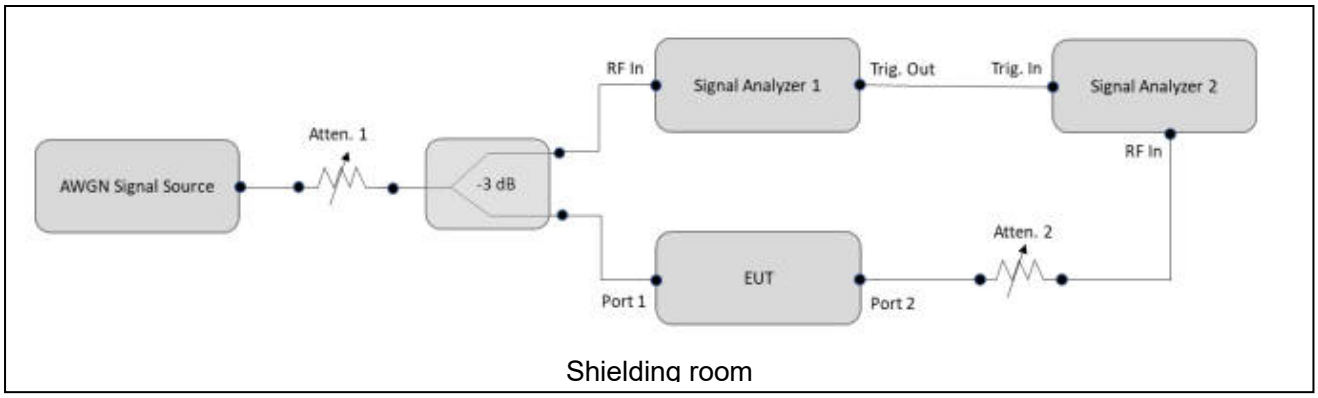
A.1. Measurement Method

A.1.1. Conducted Measurements

1). Connect the EUT to the test system correctly.
2). Set the EUT to the required work mode.
3). Set the EUT to the required channel.
4). Set the spectrum analyzer to start measurement.
5). Record the values. Vector Signal Analyzer



Test Setup for Maximum Output Power, Peak Power Spectral Density, Occupied 26dB Bandwidth, 99% Occupied bandwidth, In-Band Emissions



Test Setup for Contention Based Protocol

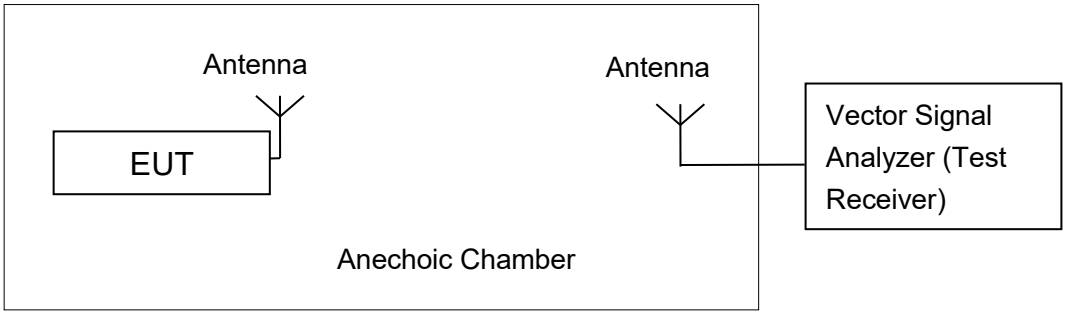
©Copyright. All rights reserved by CTTL.

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 40GHz, RBW = 1MHz, VBW = 10Hz;



The measurement is made according to KDB 789033 and 987594

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

©Copyright. All rights reserved by CTTL.

A.2. Maximum output Power

Measurement Limit and Method:

Standard	Frequency (MHz)	e.i.r.p Limit (dBm)
FCC CRF Part 15.407(a)	5925MHz~6425MHz	24dBm
	6425MHz~6525MHz	24dBm
	6525MHz~6875MHz	24dBm
	6875MHz~7125MHz	24dBm

The measurement method SA-2 is made according to KDB 987594 and KDB 789033.

Antenna Gain

WIFI 6E UNII-5

Mode	Ant10(dBi)	Ant7(dBi)	Power(dBi)	PSD(dBi)
CDD	1.00	4.24	4.24	5.78
BF	1.00	4.24	5.78	5.78

WIFI 6E UNII-6

Mode	Ant10(dBi)	Ant7(dBi)	Power(dBi)	PSD(dBi)
CDD	-1.40	-0.43	-0.43	2.11
BF	-1.40	-0.43	2.11	2.11

WIFI 6E UNII-7

Mode	Ant10(dBi)	Ant7(dBi)	Power(dBi)	PSD(dBi)
CDD	-2.30	0.63	0.63	2.30
BF	-2.30	0.63	2.30	2.30

WIFI 6E UNII-8

Mode	Ant10(dBi)	Ant7(dBi)	Power(dBi)	PSD(dBi)
CDD	-3.20	4.00	4.00	4.14
BF	-3.20	4.00	4.14	4.14

©Copyright. All rights reserved by CTTL.

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. 802.11ax support CDD, BF and STBC mode, as they use the same power setting, only eirp results of BF have been reported.

4. The device what use a permanently attached antenna were considered sufficient to comply withthe provisions of 15.203.

©Copyright. All rights reserved by CTTL.

Measurement Results:

SISO:

802.11ax HE20(full RU) mode

Channel	Test Result					
	Data Rate					
	802.11ax HE20 MCS0					
	Ant10(dBm)	Ant10 Gain(dBi)	Ant7(dBm)	Ant7 Gain(dBi)	Ant10 e.i.r.p(dBm)	Ant7 e.i.r.p(dBm)
5955MHz (Ch1)	8.91	1.00	6.47	4.24	9.91	10.71
6175MHz (Ch45)	8.93	1.00	5.88	4.24	9.93	10.12
6415MHz (Ch93)	8.74	1.00	6.01	4.24	9.74	10.25
6435MHz (Ch97)	8.34	-1.40	5.93	-0.43	6.94	5.50
6475MHz (Ch105)	8.72	-1.40	5.72	-0.43	7.32	5.29
6515MHz (Ch113)	8.46	-1.40	5.77	-0.43	7.06	5.34
6535MHz (Ch117)	8.20	-2.30	5.82	0.63	5.90	6.45
6695MHz (Ch149)	9.15	-2.30	6.10	0.63	6.85	6.73
6855MHz (Ch181)	8.68	-2.30	5.82	0.63	6.38	6.45
6875MHz (Ch185)	8.91	-2.30	6.03	0.63	6.61	6.66
6895MHz (ch189)	8.85	-3.20	5.95	4.00	5.65	9.95
6995MHz (Ch209)	8.37	-3.20	5.43	4.00	5.17	9.43
7115MHz (Ch233)	8.63	-3.20	5.75	4.00	5.43	9.75

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

©Copyright. All rights reserved by CTTL.

802.11ax-HE40 mode

Channel	Test Result					
	Data Rate					
	802.11ax HE40 MCS0					
	Ant10(dBm)	Ant10 Gain(dBi)	Ant7(dBm)	Ant7 Gain(dBi)	Ant10 e.i.r.p(dBm)	Ant7 e.i.r.p(dBm)
5965MHz (Ch3)	11.97	1.00	9.14	4.24	12.97	13.38
6165MHz (Ch43)	11.77	1.00	8.59	4.24	12.77	12.83
6405MHz (Ch91)	11.44	1.00	8.50	4.24	12.44	12.74
6445MHz (Ch99)	11.28	-1.40	8.53	-0.43	9.88	8.10
6485MHz (Ch107)	11.22	-1.40	8.57	-0.43	9.82	8.14
6525MHz (Ch115)	11.30	-1.40	8.55	-0.43	9.90	8.12
6565MHz (Ch123)	11.08	-2.30	8.69	0.63	8.78	9.32
6685MHz (Ch147)	11.87	-2.30	8.98	0.63	9.57	9.61
6845MHz (Ch179)	11.29	-2.30	8.41	0.63	8.99	9.04
6885MHz (Ch187)	11.59	-3.20	8.69	4.00	8.39	12.69
6925MHz (ch195)	11.53	-3.20	8.34	4.00	8.33	12.34
6965MHz (Ch203)	11.47	-3.20	8.03	4.00	8.27	12.03
7085MHz (Ch227)	11.44	-3.20	8.41	4.00	8.24	12.41

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

©Copyright. All rights reserved by CTTL.

802.11ax-HE80 mode

Channel	Test Result					
	Data Rate					
	802.11ax HE80 MCS0					
	Ant10(dBm)	Ant10 Gain(dBi)	Ant7(dBm)	Ant7 Gain(dBi)	Ant10 e.i.r.p(dBm)	Ant7 e.i.r.p(dBm)
5985MHz (Ch7)	15.04	1.00	11.64	4.24	16.04	15.88
6145MHz (Ch39)	15.11	1.00	11.17	4.24	16.11	15.41
6385MHz (Ch87)	14.87	1.00	10.93	4.24	15.87	15.17
6465MHz (Ch103)	14.64	-1.40	10.92	-0.43	13.24	10.49
6545MHz (Ch119)	14.54	-2.30	11.01	0.63	12.24	11.64
6625MHz (Ch135)	14.99	-2.30	11.19	0.63	12.69	11.82
6705MHz (Ch151)	15.01	-2.30	11.22	0.63	12.71	11.85
6785MHz (Ch167)	14.37	-2.30	10.85	0.63	12.07	11.48
6865MHz (Ch183)	14.73	-2.30	11.00	0.63	12.43	11.63
6945MHz (Ch199)	14.71	-3.20	10.81	4.00	11.51	14.81
7025MHz (Ch215)	14.50	-3.20	10.56	4.00	11.30	14.56

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

©Copyright. All rights reserved by CTTL.

802.11ax-HE160 mode

Channel	Test Result					
	Data Rate					
	802.11ax HE160 MCS0					
	Ant10(dBm)	Ant10 Gain(dBi)	Ant7(dBm)	Ant7 Gain(dBi)	Ant10 e.i.r.p(dBm)	Ant7 e.i.r.p(dBm)
6025MHz (Ch15)	15.55	1.00	13.36	4.24	16.55	17.60
6185MHz (Ch47)	15.65	1.00	13.28	4.24	16.65	17.52
6345MHz (Ch79)	15.24	1.00	12.93	4.24	16.24	17.17
6505MHz (Ch111)	15.10	-1.40	13.01	-0.43	13.70	12.58
6665MHz (Ch143)	15.76	-2.30	13.39	0.63	13.46	14.02
6825MHz (Ch175)	15.12	-2.30	13.07	0.63	12.82	13.70
6985MHz (Ch207)	15.17	-3.20	12.52	4.00	11.97	16.52

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

©Copyright. All rights reserved by CTTL.

MIMO:

802.11ax HE20(full RU) mode

Channel	Test Result				
	Data Rate				
	802.11ax HE20 MCS0				
	Ant10(dBm)	Ant7(dBm)	Sum Conducted(dBm)	Directional Gain(dBi)	Sum e.i.r.p(dBm)
5955MHz (Ch1)	-0.64	0.66	3.07	5.78	8.85
6175MHz (Ch45)	1.78	1.47	4.64	5.78	10.42
6415MHz (Ch93)	1.72	1.71	4.73	5.78	10.51
6435MHz (Ch97)	1.32	1.67	4.51	2.11	6.62
6475MHz (Ch105)	1.62	1.68	4.66	2.11	6.77
6515MHz (Ch113)	1.49	1.67	4.59	2.11	6.70
6535MHz (Ch117)	1.20	1.73	4.48	2.30	6.78
6695MHz (Ch149)	2.11	2.14	5.14	2.30	7.44
6855MHz (Ch181)	1.65	1.58	4.63	2.30	6.93
6875MHz (Ch185)	1.86	1.90	4.89	2.30	7.19
6895MHz (ch189)	1.80	1.66	4.74	4.14	8.88
6995MHz (Ch209)	1.45	1.11	4.29	4.14	8.43
7115MHz (Ch233)	-0.60	-0.01	2.72	4.14	6.86

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

©Copyright. All rights reserved by CTTL.

802.11ax-HE40 mode

Channel	Test Result				
	Data Rate				
	802.11ax HE40 MCS0				
	Ant10(dBm)	Ant7(dBm)	Sum Conducted(dBm)	Directional Gain(dBi)	Sum e.i.r.p(dBm)
5965MHz (Ch3)	3.66	3.69	6.69	5.78	12.47
6165MHz (Ch43)	3.61	3.23	6.43	5.78	12.21
6405MHz (Ch91)	3.27	3.26	6.28	5.78	12.06
6445MHz (Ch99)	3.26	3.29	6.29	2.11	8.40
6485MHz (Ch107)	3.26	3.38	6.33	2.11	8.44
6525MHz (Ch115)	3.30	3.39	6.36	2.11	8.47
6565MHz (Ch123)	3.20	3.55	6.39	2.30	8.69
6685MHz (Ch147)	4.02	3.84	6.94	2.30	9.24
6845MHz (Ch179)	3.41	3.40	6.42	2.30	8.72
6885MHz (Ch187)	3.82	3.47	6.66	4.14	10.80
6925MHz (ch195)	3.51	3.11	6.32	4.14	10.46
6965MHz (Ch203)	3.50	2.89	6.22	4.14	10.36
7085MHz (Ch227)	3.56	3.21	6.40	4.14	10.54

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

©Copyright. All rights reserved by CTTL.

802.11ax-HE80 mode

Channel	Test Result				
	Data Rate				
	802.11ax HE80 MCS0				
	Ant10(dBm)	Ant7(dBm)	Sum Conducted(dBm)	Directional Gain(dBi)	Sum e.i.r.p(dBm)
5985MHz (Ch7)	6.68	7.01	9.86	5.78	15.64
6145MHz (Ch39)	6.85	6.59	9.73	5.78	15.51
6385MHz (Ch87)	6.72	6.52	9.63	5.78	15.41
6465MHz (Ch103)	6.35	6.45	9.41	2.11	11.52
6545MHz (Ch119)	6.21	6.58	9.41	2.30	11.71
6625MHz (Ch135)	6.84	6.90	9.88	2.30	12.18
6705MHz (Ch151)	6.99	6.80	9.91	2.30	12.21
6785MHz (Ch167)	6.36	6.32	9.35	2.30	11.65
6865MHz (Ch183)	6.53	6.70	9.63	2.30	11.93
6945MHz (Ch199)	6.69	6.51	9.61	4.14	13.75
7025MHz (Ch215)	6.30	6.14	9.23	4.14	13.37

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

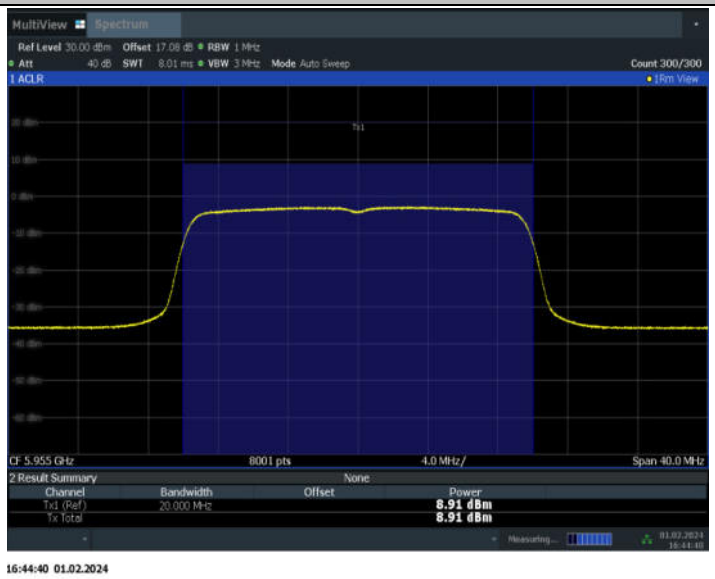
©Copyright. All rights reserved by CTTL.

802.11ax-HE160 mode

Channel	Test Result				
	Data Rate				
	802.11ax HE160 MCS0				
	Ant10(dBm)	Ant7(dBm)	Sum Conducted(dBm)	Directional Gain(dBi)	Sum e.i.r.p(dBm)
6025MHz (Ch15)	9.21	9.15	12.19	5.78	17.97
6185MHz (Ch47)	9.31	9.11	12.22	5.78	18.00
6345MHz (Ch79)	9.06	8.84	11.96	5.78	17.74
6505MHz (Ch111)	8.79	8.96	11.89	2.11	14.00
6665MHz (Ch143)	9.68	9.33	12.52	2.30	14.82
6825MHz (Ch175)	9.15	8.95	12.06	2.30	14.36
6985MHz (Ch207)	9.16	8.54	11.87	4.14	16.01

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

11AX20SISO_Ant10_5955



802.11ax HE20(full RU) mode 5955MHz (Ch1)

©Copyright. All rights reserved by CTTL.

11ax20-RU

MIMO

802.11ax-HE20 mode

Mode	Channel	Test Result				
		Ant10(dBm)	Ant7(dBm)	Sum Conducted(dBm)	Directional Gain(dBi)	Sum e.i.r.p(dBm)
		MCS0	MCS0	MCS0	MCS0	MCS0
RU26-I	5955MHz (Ch1)	-8.06	-7.51	-4.77	5.78	1.01
	6175MHz (Ch45)	-7.71	-7.78	-4.73	5.78	1.05
	6415MHz (Ch93)	-9.69	-10.20	-6.93	5.78	-1.15
	6435MHz (Ch97)	-7.98	-8.27	-5.11	2.11	-3.00
	6475MHz (Ch105)	-8.50	-8.37	-5.42	2.11	-3.31
	6515MHz (Ch113)	-9.13	-8.22	-5.64	2.11	-3.53
RU26-R	6535MHz (Ch117)	-9.42	-8.11	-5.71	2.30	-3.41
	6695MHz (Ch149)	-7.95	-7.62	-4.77	2.30	-2.47
	6855MHz (Ch181)	-8.66	-8.14	-5.38	2.30	-3.08
	6875MHz (Ch185)	-8.44	-8.03	-5.22	2.30	-2.92
	6895MHz (ch189)	-8.23	-8.19	-5.20	4.14	-1.06
	6995MHz (Ch209)	-8.79	-8.81	-5.79	4.14	-1.65
	7115MHz (Ch233)	-8.63	-8.59	-5.60	4.14	-1.46

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

©Copyright. All rights reserved by CTTL.

802.11ax-HE20 mode

Mode	Channel	Test Result				
		Ant10(dBm)	Ant7(dBm)	Sum Conducted(dBm)	Directional Gain(dBi)	Sum e.i.r.p(dBm)
		MCS0	MCS0	MCS0	MCS0	MCS0
RU52-I	5955MHz (Ch1)	-5.82	-4.73	-2.23	5.78	3.55
	6175MHz (Ch45)	-5.71	-5.06	-2.36	5.78	3.42
	6415MHz (Ch93)	-6.33	-7.71	-3.96	5.78	1.82
	6435MHz (Ch97)	-4.67	-5.50	-2.05	2.11	0.06
	6475MHz (Ch105)	-4.86	-5.69	-2.24	2.11	-0.13
	6515MHz (Ch113)	-5.36	-5.66	-2.50	2.11	-0.39
RU52-R	6535MHz (Ch117)	-5.92	-5.51	-2.70	2.30	-0.40
	6695MHz (Ch149)	-4.71	-4.91	-1.80	2.30	0.50
	6855MHz (Ch181)	-5.84	-5.34	-2.57	2.30	-0.27
	6875MHz (Ch185)	-5.69	-5.29	-2.48	2.30	-0.18
	6895MHz (ch189)	-5.41	-5.42	-2.40	4.14	1.74
	6995MHz (Ch209)	-6.00	-6.07	-3.02	4.14	1.12
	7115MHz (Ch233)	-5.49	-5.89	-2.68	4.14	1.46

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

©Copyright. All rights reserved by CTTL.

802.11ax-HE20 mode

Mode	Channel	Test Result				
		Ant10(dBm)	Ant7(dBm)	Sum Conducted(dBm)	Directional Gain(dBi)	Sum e.i.r.p(dBm)
		MCS0	MCS0	MCS0	MCS0	MCS0
RU106-I	5955MHz (Ch1)	-2.78	-1.79	0.75	5.78	6.53
	6175MHz (Ch45)	-2.75	-2.12	0.59	5.78	6.37
	6415MHz (Ch93)	-3.30	-4.60	-0.89	5.78	4.89
	6435MHz (Ch97)	-1.71	-2.45	0.95	2.11	3.06
	6475MHz (Ch105)	-1.73	-2.40	0.96	2.11	3.07
	6515MHz (Ch113)	-2.30	-2.53	0.60	2.11	2.71
RU106-R	6535MHz (Ch117)	-3.57	-2.69	-0.10	2.30	2.20
	6695MHz (Ch149)	-1.73	-1.94	1.18	2.30	3.48
	6855MHz (Ch181)	-2.53	-2.34	0.58	2.30	2.88
	6875MHz (Ch185)	-2.46	-2.21	0.68	2.30	2.98
	6895MHz (ch189)	-2.45	-2.36	0.61	4.14	4.75
	6995MHz (Ch209)	-3.06	-3.06	-0.05	4.14	4.09
	7115MHz (Ch233)	-2.58	-2.78	0.33	4.14	4.47

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

Note:Low power Indoor access point and standard access points share the same power level.

©Copyright. All rights reserved by CTTL.

The duty cycle of all mode are 99%.

11AX20MIMO_Ant10_7115_26Tone_RU8

802.11ax HE20(26Tone_RU8) mode 7115MHz (Ch233)

Conclusion: PASS

©Copyright. All rights reserved by CTTL.

A.3. Peak Power Spectral Density (conducted)

Measurement Limit and Method:

Standard	Frequency (MHz)	e.i.r.p Limit (dBm/MHz)
FCC CRF Part 15.407(a)	5925MHz~6425MHz	-1
	6425MHz~6525MHz	-1
	6525MHz~6875MHz	-1
	6875MHz~7125MHz	-1

The output power measurement method Section F is made according to KDB 987594 and KDB 789033.

Measurement Results:

SISO-Ant7

Mode	Channel	Power Spectral Density			
		Ant7(dBm/MHz)	Ant7 Gain(dBi)	Ant7 e.i.r.p(dBm/MHz)	Conclusion
802.11ax HE20 (full RU)	5955MHz (Ch1)	-6.40	4.24	-2.16	P
	6175MHz (Ch45)	-6.23	4.24	-1.99	P
	6415MHz (Ch93)	-6.14	4.24	-1.90	P
	6435MHz (Ch97)	-6.23	-0.43	-6.66	P
	6475MHz (Ch105)	-6.49	-0.43	-6.92	P
	6515MHz (Ch113)	-6.57	-0.43	-7.00	P
	6535MHz (Ch117)	-6.59	0.63	-5.96	P
	6695MHz (Ch149)	-6.37	0.63	-5.74	P
	6855MHz (Ch181)	-6.76	0.63	-6.13	P
	6875MHz (Ch185)	-6.45	0.63	-5.82	P
	6895MHz (ch189)	-6.67	4.00	-2.67	P
	6995MHz (Ch209)	-7.05	4.00	-3.05	P
	7115MHz (Ch233)	-6.77	4.00	-2.77	P

©Copyright. All rights reserved by CTTL.

802.11ax HE40 (full RU)	5965MHz (Ch3)	-6.12	4.24	-1.88	P
	6165MHz (Ch43)	-6.25	4.24	-2.01	P
	6405MHz (Ch91)	-6.34	4.24	-2.10	P
	6445MHz (Ch99)	-6.24	-0.43	-6.67	P
	6485MHz (Ch107)	-6.18	-0.43	-6.61	P
	6525MHz (Ch115)	-6.23	-0.43	-6.66	P
	6565MHz (Ch123)	-6.13	0.63	-5.50	P
	6685MHz (Ch147)	-5.95	0.63	-5.32	P
	6845MHz (Ch179)	-6.66	0.63	-6.03	P
	6885MHz (Ch187)	-6.35	4.00	-2.35	P
	6925MHz (ch195)	-6.46	4.00	-2.46	P
	6965MHz (Ch203)	-6.70	4.00	-2.70	P
	7085MHz (Ch227)	-6.67	4.00	-2.67	P
802.11ax HE80 (full RU)	5985MHz (Ch7)	-6.18	4.24	-1.94	P
	6145MHz (Ch39)	-6.81	4.24	-2.57	P
	6385MHz (Ch87)	-6.91	4.24	-2.67	P
	6465MHz (Ch103)	-7.21	-0.43	-7.64	P
	6545MHz (Ch119)	-7.16	0.63	-6.53	P
	6625MHz (Ch135)	-6.97	0.63	-6.34	P
	6705MHz (Ch151)	-6.82	0.63	-6.19	P
	6785MHz (Ch167)	-7.13	0.63	-6.50	P
	6865MHz	-7.16	0.63	-6.53	P

©Copyright. All rights reserved by CTTL.

	(Ch183)				
	6945MHz (Ch199)	-7.23	4.00	-3.23	P
	7025MHz (Ch215)	-7.39	4.00	-3.39	P
802.11ax HE160 (full RU)	6025MHz (Ch15)	-7.93	4.24	-3.69	P
	6185MHz (Ch47)	-7.49	4.24	-3.25	P
	6345MHz (Ch79)	-8.24	4.24	-4.00	P
	6505MHz (Ch111)	-7.97	-0.43	-8.40	P
	6665MHz (Ch143)	-7.68	0.63	-7.05	P
	6825MHz (Ch175)	-8.16	0.63	-7.53	P
	6985MHz (Ch207)	-8.44	4.00	-4.44	P

©Copyright. All rights reserved by CTTL.

MIMO

Mode	Channel	Power Spectral Density				
		Ant10 (dBm/MHz)	Ant7 (dBm/MHz)	Sum Conducted (dBm/MHz)	Directional Gain (dBi)	Sum e.i.r.p (dBm/MHz)
802.11ax HE20 (full RU)	5955MHz (Ch1)	-12.06	-10.75	-8.35	5.78	-2.57
	6175MHz (Ch45)	-11.34	-10.46	-7.87	5.78	-2.09
	6415MHz (Ch93)	-10.96	-10.09	-7.49	5.78	-1.71
	6435MHz (Ch97)	-10.58	-10.13	-7.34	2.11	-5.23
	6475MHz (Ch105)	-10.31	-10.02	-7.15	2.11	-5.04
	6515MHz (Ch113)	-10.28	-10.03	-7.14	2.11	-5.03
	6535MHz (Ch117)	-10.64	-10.01	-7.30	2.30	-5.00
	6695MHz (Ch149)	-9.57	-9.31	-6.43	2.30	-4.13
	6855MHz (Ch181)	-10.09	-9.85	-6.96	2.30	-4.66
	6875MHz (Ch185)	-9.9	-9.56	-6.72	2.30	-4.42
	6895MHz (ch189)	-10.07	-9.68	-6.86	4.14	-2.72
	6995MHz (Ch209)	-10.48	-10.09	-7.27	4.14	-3.13
	7115MHz (Ch233)	-12.11	-11.16	-8.60	4.14	-4.46
802.11ax HE40 (full RU)	5965MHz (Ch3)	-10.97	-11.15	-8.05	5.78	-2.27
	6165MHz (Ch43)	-11.15	-11.51	-8.32	5.78	-2.54
	6405MHz (Ch91)	-11.35	-11.51	-8.42	5.78	-2.64
	6445MHz (Ch99)	-11.71	-11.37	-8.53	2.11	-6.42
	6485MHz (Ch107)	-11.59	-11.24	-8.40	2.11	-6.29
	6525MHz (Ch115)	-11.41	-11.23	-8.31	2.11	-6.20
	6565MHz (Ch123)	-11.43	-11.1	-8.25	2.30	-5.95
	6685MHz (Ch147)	-10.72	-10.51	-7.60	2.30	-5.30
	6845MHz (Ch179)	-11.36	-10.91	-8.12	2.30	-5.82
	6885MHz (Ch187)	-10.84	-10.75	-7.78	4.14	-3.64
	6925MHz (ch195)	-10.99	-11.00	-7.98	4.14	-3.84
	6965MHz (Ch203)	-11.12	-11.22	-8.16	4.14	-4.02
	7085MHz (Ch227)	-11.06	-11.27	-8.15	4.14	-4.01
802.11ax HE80 (full RU)	5985MHz (Ch7)	-11.01	-10.77	-7.88	5.78	-2.10
	6145MHz(Ch39)	-10.65	-11.38	-7.99	5.78	-2.21
	6385MHz (Ch87)	-11.17	-11.18	-8.16	5.78	-2.38
	6465MHz (Ch103)	-11.05	-11.29	-8.16	2.11	-6.05
	6545MHz (Ch119)	-11.41	-11.05	-8.22	2.30	-5.92
	6625MHz (Ch135)	-10.85	-10.71	-7.77	2.30	-5.47
	6705MHz (Ch151)	-10.55	-10.52	-7.52	2.30	-5.22
	6785MHz (Ch167)	-11.15	-10.97	-8.05	2.30	-5.75
	6865MHz (Ch183)	-11	-10.86	-7.92	2.30	-5.62
	6945MHz (Ch199)	-10.75	-10.82	-7.77	4.14	-3.63
	7025MHz (Ch215)	-11.1	-11.23	-8.15	4.14	-4.01

©Copyright. All rights reserved by CTTL.

802.11ax HE160 (full RU)	6025MHz (Ch15)	-11.27	-10.94	-8.09	5.78	-2.31
	6185MHz (Ch47)	-10.54	-11.44	-7.96	5.78	-2.18
	6345MHz (Ch79)	-10.99	-11.89	-8.41	5.78	-2.63
	6505MHz (Ch111)	-10.89	-11.56	-8.20	2.11	-6.09
	6665MHz (Ch143)	-9.98	-10.98	-7.44	2.30	-5.14
	6825MHz (Ch175)	-10.78	-11.55	-8.14	2.30	-5.84
	6985MHz (Ch207)	-10.49	-11.61	-8.00	4.14	-3.86

11AX20SISO_Ant7_7115

802.11ax HE20(Full RU) mode 7115MHz (Ch233)

©Copyright. All rights reserved by CTTL.

11ax20-RU

Mode	Channel	Power Spectral Density				
		Ant10 (dBm/MHz)	Ant7 (dBm/MHz)	Sum Conducted (dBm/MHz)	Directional Gain (dBi)	Sum e.i.r.p (dBm/MHz)
RU26-I	5955MHz (Ch1)	-12.15	-10.00	-7.93	5.78	-2.15
	6175MHz (Ch45)	-10.33	-10.85	-7.57	5.78	-1.79
	6415MHz (Ch93)	-10.97	-12.71	-8.74	5.78	-2.96
	6435MHz (Ch97)	-9.39	-10.70	-6.99	2.11	-4.88
	6475MHz (Ch105)	-9.59	-10.82	-7.15	2.11	-5.04
	6515MHz (Ch113)	-10.43	-10.80	-7.60	2.11	-5.49
RU26-R	6535MHz (Ch117)	-10.29	-9.92	-7.09	2.30	-4.79
	6695MHz (Ch149)	-9.72	-9.55	-6.62	2.30	-4.32
	6855MHz (Ch181)	-11.06	-10.17	-7.58	2.30	-5.28
	6875MHz (Ch185)	-10.92	-10.30	-7.59	2.30	-5.29
	6895MHz (ch189)	-11.24	-10.71	-7.96	4.14	-3.82
	6995MHz (Ch209)	-11.82	-11.48	-8.64	4.14	-4.50
	7115MHz (Ch233)	-11.80	-11.02	-8.38	4.14	-4.24

©Copyright. All rights reserved by CTTL.

11ax20-RU

Mode	Channel	Power Spectral Density				
		Ant10 (dBm/MHz)	Ant7 (dBm/MHz)	Sum Conducted (dBm/MHz)	Directional Gain (dBi)	Sum e.i.r.p (dBm/MHz)
RU52-I	5955MHz (Ch1)	-12.01	-9.93	-7.84	5.78	-2.06
	6175MHz (Ch45)	-10.61	-10.53	-7.56	5.78	-1.78
	6415MHz (Ch93)	-10.50	-12.69	-8.45	5.78	-2.67
	6435MHz (Ch97)	-9.00	-10.68	-6.75	2.11	-4.64
	6475MHz (Ch105)	-9.22	-10.77	-6.92	2.11	-4.81
	6515MHz (Ch113)	-10.10	-10.80	-7.43	2.11	-5.32
RU52-R	6535MHz (Ch117)	-10.47	-9.55	-6.98	2.30	-4.68
	6695MHz (Ch149)	-10.40	-9.15	-6.72	2.30	-4.42
	6855MHz (Ch181)	-11.00	-10.15	-7.54	2.30	-5.24
	6875MHz (Ch185)	-10.97	-10.05	-7.48	2.30	-5.18
	6895MHz (ch189)	-11.25	-10.59	-7.90	4.14	-3.76
	6995MHz (Ch209)	-11.14	-11.41	-8.26	4.14	-4.12
	7115MHz (Ch233)	-11.14	-10.84	-7.98	4.14	-3.84

©Copyright. All rights reserved by CTTL.

11ax20-RU

Mode	Channel	Power Spectral Density				
		Ant10 (dBm/MHz)	Ant7 (dBm/MHz)	Sum Conducted (dBm/MHz)	Directional Gain (dBi)	Sum e.i.r.p (dBm/MHz)
RU106-I	5955MHz (Ch1)	-11.93	-9.93	-7.81	5.78	-2.03
	6175MHz (Ch45)	-10.59	-10.49	-7.53	5.78	-1.75
	6415MHz (Ch93)	-10.45	-12.69	-8.42	5.78	-2.64
	6435MHz (Ch97)	-9.04	-10.52	-6.71	2.11	-4.60
	6475MHz (Ch105)	-9.21	-10.82	-6.93	2.11	-4.82
	6515MHz (Ch113)	-9.90	-10.69	-7.27	2.11	-5.16
RU106-R	6535MHz (Ch117)	-9.97	-9.43	-6.68	2.30	-4.38
	6695MHz (Ch149)	-10.36	-9.09	-6.67	2.30	-4.37
	6855MHz (Ch181)	-10.99	-9.95	-7.43	2.30	-5.13
	6875MHz (Ch185)	-10.85	-9.84	-7.31	2.30	-5.01
	6895MHz (ch189)	-11.18	-10.54	-7.84	4.14	-3.70
	6995MHz (Ch209)	-11.10	-11.30	-8.19	4.14	-4.05
	7115MHz (Ch233)	-10.40	-10.63	-7.50	4.14	-3.36

Note:Low power Indoor access point and standard access points share the same power level.

©Copyright. All rights reserved by CTTL.

11AX20MIMO_Ant10_7115_26Tone_RU8

802.11ax HE20(26Tone_RU8) mode 7115MHz (Ch233)

Conclusion: PASS

©Copyright. All rights reserved by CTTL.

A.4. Emission Bandwidth(conducted)

Measurement Limit and Method:

The limit is 320 MHz for all channels except the 320 MHz.

The measurement is made according to KDB 987594 and KDB 789033

Test Result

TestMode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]
11AX20SISO	Ant10	5955	21.04	5944.48	5965.52
	Ant7	5955	21.20	5944.28	5965.48
	Ant10	6175	21.28	6164.32	6185.60
	Ant7	6175	21.24	6164.28	6185.52
	Ant10	6415	21.12	6404.40	6425.52
	Ant7	6415	21.20	6404.32	6425.52
	Ant10	6435	20.84	6424.56	6445.40
	Ant7	6435	20.96	6424.56	6445.52
	Ant10	6475	20.92	6464.52	6485.44
	Ant7	6475	21.16	6464.40	6485.56
	Ant10	6515	21.16	6504.44	6525.60
	Ant7	6515	21.08	6504.48	6525.56
	Ant10	6535	21.20	6524.40	6545.60
	Ant7	6535	21.36	6524.44	6545.80
	Ant10	6695	21.52	6684.08	6705.60
	Ant7	6695	21.00	6684.48	6705.48
	Ant10	6855	21.16	6844.36	6865.52
	Ant7	6855	21.08	6844.44	6865.52
	Ant10	6875	21.16	6864.40	6885.56
	Ant7	6875	21.12	6864.32	6885.44
	Ant10	6895	21.08	6884.40	6905.48
	Ant7	6895	21.36	6884.24	6905.60
	Ant10	6995	21.24	6984.24	7005.48
	Ant7	6995	21.20	6984.40	7005.60
	Ant10	7115	21.08	7104.44	7125.52
	Ant7	7115	21.44	7104.32	7125.76
11AX40SISO	Ant10	5965	40.80	5944.68	5985.48
	Ant7	5965	40.96	5944.60	5985.56
	Ant10	6165	40.96	6144.44	6185.40
	Ant7	6165	40.64	6144.68	6185.32
	Ant10	6405	40.72	6384.76	6425.48
	Ant7	6405	40.88	6384.52	6425.40
	Ant10	6445	41.04	6424.28	6465.32
	Ant7	6445	40.64	6424.68	6465.32
		6485	40.96	6464.44	6505.40
		6525	40.80	6504.52	6545.32

©Copyright. All rights reserved by CTTL.

		6565	40.72	6544.60	6585.32
		6685	40.64	6664.68	6705.32
		6845	40.80	6824.60	6865.40
		6885	40.88	6864.52	6905.40
		6925	40.40	6904.76	6945.16
		6965	40.88	6944.68	6985.56
		7085	40.80	7064.68	7105.48
11AX80SISO	Ant10	5985	82.56	5943.72	6026.28
	Ant7	5985	82.72	5943.40	6026.12
		6145	83.36	6102.92	6186.28
		6385	82.72	6343.56	6426.28
		6465	82.40	6423.56	6505.96
		6545	82.72	6503.56	6586.28
		6625	82.88	6583.40	6666.28
		6705	82.72	6663.56	6746.28
		6785	83.04	6743.40	6826.44
		6865	83.36	6823.08	6906.44
		6945	82.72	6903.72	6986.44
		7025	82.88	6983.40	7066.28
11AX160SISO	Ant10	6025	167.36	5941.48	6108.84
	Ant7	6025	167.04	5941.48	6108.52
		6185	167.36	6100.84	6268.20
		6345	167.36	6260.84	6428.20
		6505	167.36	6420.84	6588.20
		6665	166.08	6581.80	6747.88
		6825	167.36	6740.84	6908.20
		6985	166.08	6902.12	7068.20
11AX20MIMO	Ant10	5955	21.20	5944.36	5965.56
	Ant7	5955	21.28	5944.32	5965.60
	Ant10	6175	21.60	6164.08	6185.68
	Ant7	6175	21.28	6164.28	6185.56
	Ant10	6415	21.72	6404.00	6425.72
	Ant7	6415	21.60	6404.04	6425.64
	Ant10	6435	21.48	6424.20	6445.68
	Ant7	6435	21.12	6424.40	6445.52
	Ant10	6475	21.24	6464.32	6485.56
	Ant7	6475	21.28	6464.40	6485.68
	Ant10	6515	21.44	6504.20	6525.64
	Ant7	6515	21.64	6503.88	6525.52
	Ant10	6535	22.04	6523.88	6545.92
	Ant7	6535	21.88	6523.84	6545.72
	Ant10	6695	21.52	6683.92	6705.44
	Ant7	6695	21.72	6683.96	6705.68

©Copyright. All rights reserved by CTTL.

	Ant10	6855	21.24	6844.40	6865.64
	Ant7	6855	21.52	6844.28	6865.80
	Ant10	6875	21.56	6864.36	6885.92
	Ant7	6875	21.76	6863.84	6885.60
	Ant10	6895	21.48	6884.04	6905.52
	Ant7	6895	21.28	6884.32	6905.60
	Ant10	6995	21.44	6984.32	7005.76
	Ant7	6995	21.40	6984.36	7005.76
	Ant10	7115	21.16	7104.48	7125.64
	Ant7	7115	21.40	7104.24	7125.64
11AX40MIMO	Ant10	5965	40.96	5944.44	5985.40
	Ant7	5965	40.56	5944.68	5985.24
	Ant10	6165	40.88	6144.68	6185.56
	Ant7	6165	40.56	6144.60	6185.16
	Ant10	6405	40.56	6384.84	6425.40
	Ant7	6405	41.12	6384.52	6425.64
	Ant10	6445	40.80	6424.52	6465.32
	Ant7	6445	41.12	6424.44	6465.56
	Ant10	6485	40.88	6464.44	6505.32
	Ant7	6485	41.28	6464.36	6505.64
	Ant10	6525	41.12	6504.44	6545.56
	Ant7	6525	40.88	6504.52	6545.40
	Ant10	6565	40.88	6544.44	6585.32
	Ant7	6565	41.04	6544.52	6585.56
	Ant10	6685	40.96	6664.36	6705.32
	Ant7	6685	40.88	6664.44	6705.32
	Ant10	6845	40.64	6824.68	6865.32
	Ant7	6845	41.12	6824.60	6865.72
	Ant10	6885	41.20	6864.36	6905.56
	Ant7	6885	40.48	6864.76	6905.24
	Ant10	6925	40.64	6904.52	6945.16
	Ant7	6925	40.88	6904.52	6945.40
	Ant10	6965	40.80	6944.60	6985.40
	Ant7	6965	40.80	6944.68	6985.48
	Ant10	7085	40.48	7064.68	7105.16
	Ant7	7085	40.96	7064.44	7105.40
11AX80MIMO	Ant10	5985	82.56	5943.88	6026.44
	Ant7	5985	83.68	5943.24	6026.92
	Ant10	6145	82.40	6103.72	6186.12
	Ant7	6145	83.04	6103.24	6186.28
	Ant10	6385	82.24	6343.72	6425.96
	Ant7	6385	82.40	6343.72	6426.12
	Ant10	6465	82.88	6423.24	6506.12

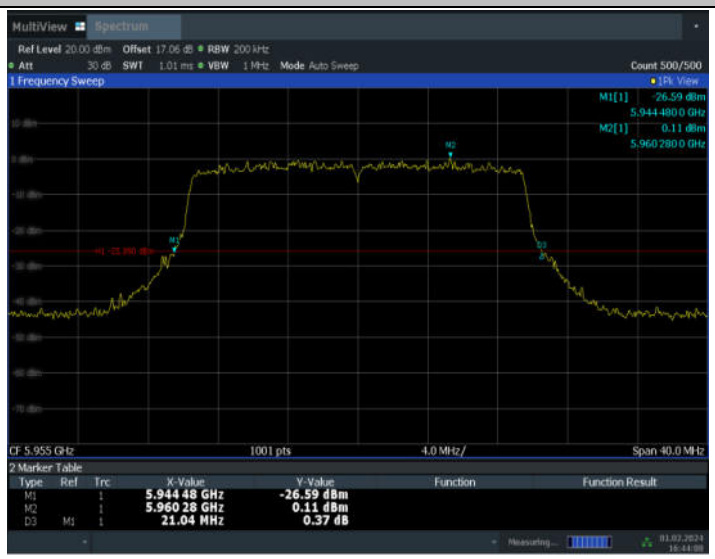
©Copyright. All rights reserved by CTTL.

	Ant7	6465	83.04	6423.40	6506.44
	Ant10	6545	82.72	6503.56	6586.28
	Ant7	6545	82.72	6503.72	6586.44
	Ant10	6625	82.56	6583.40	6665.96
	Ant7	6625	83.20	6583.56	6666.76
	Ant10	6705	82.72	6663.56	6746.28
	Ant7	6705	83.20	6663.24	6746.44
	Ant10	6785	82.72	6743.56	6826.28
	Ant7	6785	83.20	6743.08	6826.28
	Ant10	6865	82.72	6823.56	6906.28
	Ant7	6865	82.08	6823.72	6905.80
	Ant10	6945	83.20	6903.08	6986.28
	Ant7	6945	82.72	6903.72	6986.44
	Ant10	7025	83.36	6983.08	7066.44
	Ant7	7025	84.00	6982.92	7066.92
11AX160MIMO	Ant10	6025	163.84	5943.40	6107.24
	Ant7	6025	166.40	5941.80	6108.20
	Ant10	6185	164.48	6102.76	6267.24
	Ant7	6185	167.36	6100.52	6267.88
	Ant10	6345	164.80	6262.44	6427.24
	Ant7	6345	167.04	6260.84	6427.88
	Ant10	6505	164.48	6423.08	6587.56
	Ant7	6505	166.40	6421.48	6587.88
	Ant10	6665	164.48	6582.76	6747.24
	Ant7	6665	166.72	6581.48	6748.20
	Ant10	6825	164.16	6742.76	6906.92
	Ant7	6825	167.36	6741.48	6908.84
	Ant10	6985	163.52	6903.08	7066.60
	Ant7	6985	166.40	6901.80	7068.20

©Copyright. All rights reserved by CTTL.

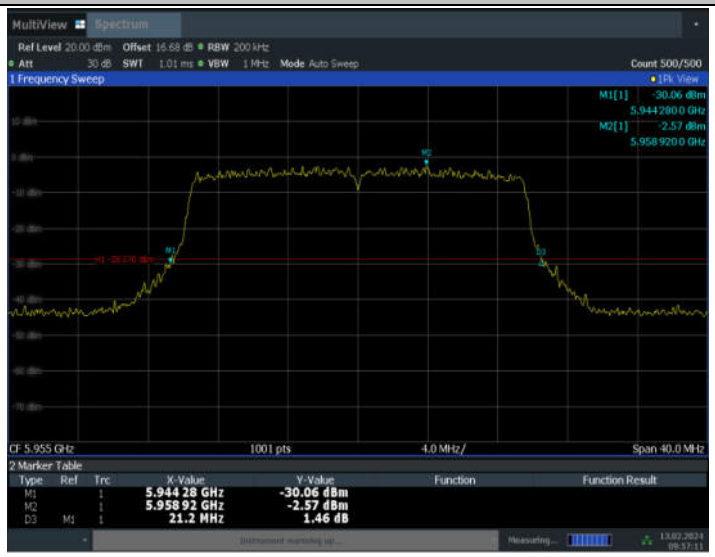
Test Graphs

11AX20SISO_Ant10_5955



16:44:08 01.02.2024

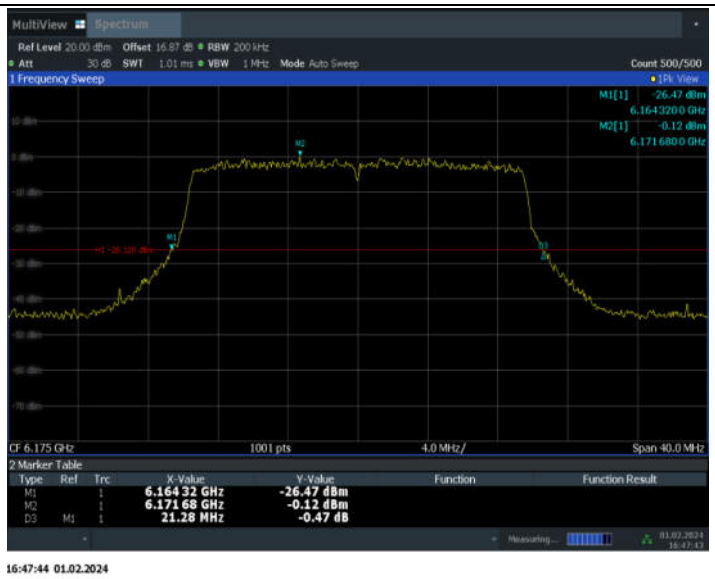
11AX20SISO_Ant7_5955



09:57:12 13.02.2024

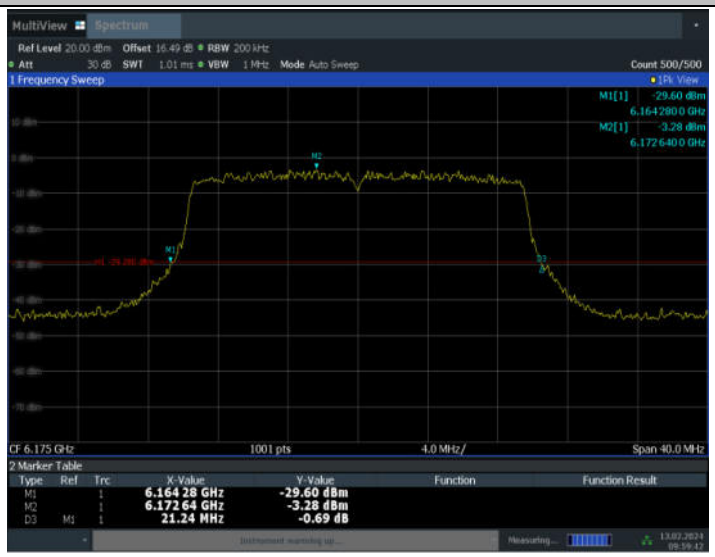
11AX20SISO_Ant10_6175

©Copyright. All rights reserved by CTTL.



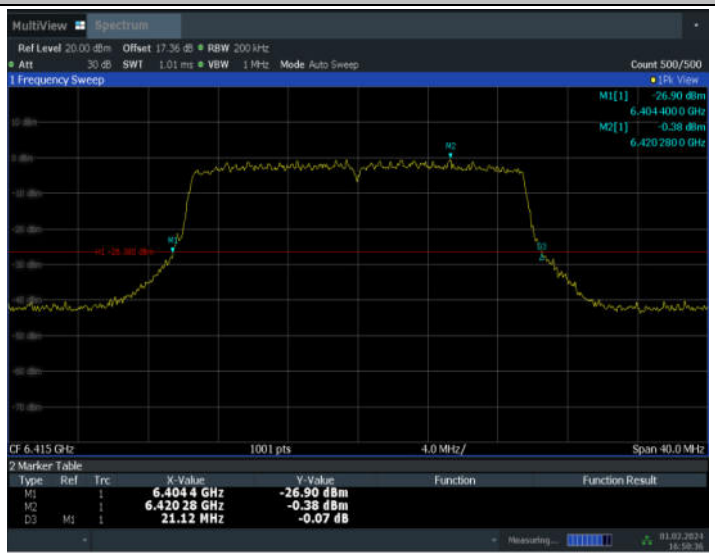
16:47:44 01.02.2024

11AX20SISO_Ant7_6175



09:59:42 13.02.2024

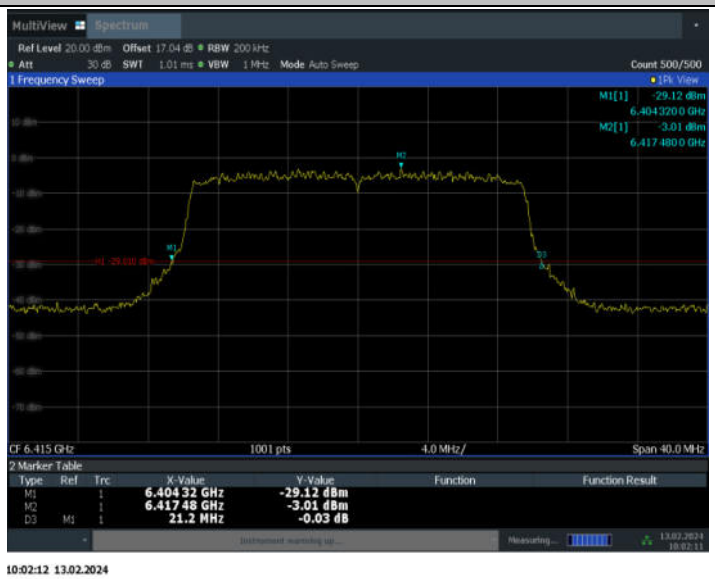
11AX20SISO_Ant10_6415



16:50:36 01.02.2024

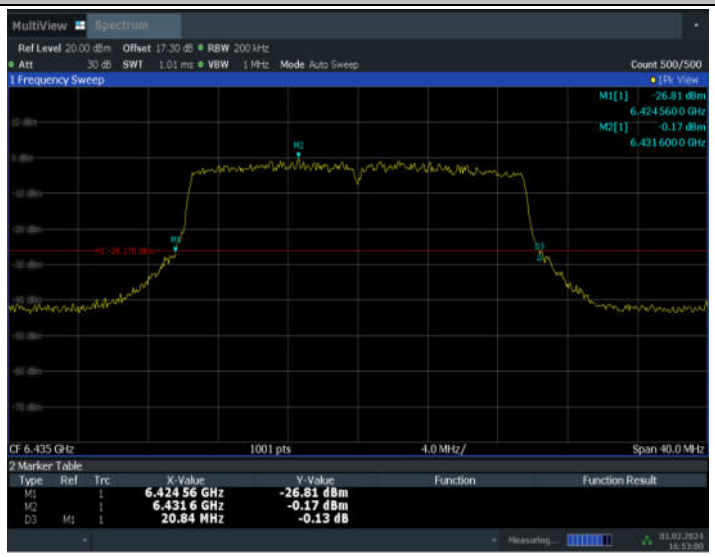
©Copyright. All rights reserved by CTTL.

11AX20SISO_Ant7_6415



10:02:12 13.02.2024

11AX20SISO_Ant10_6435



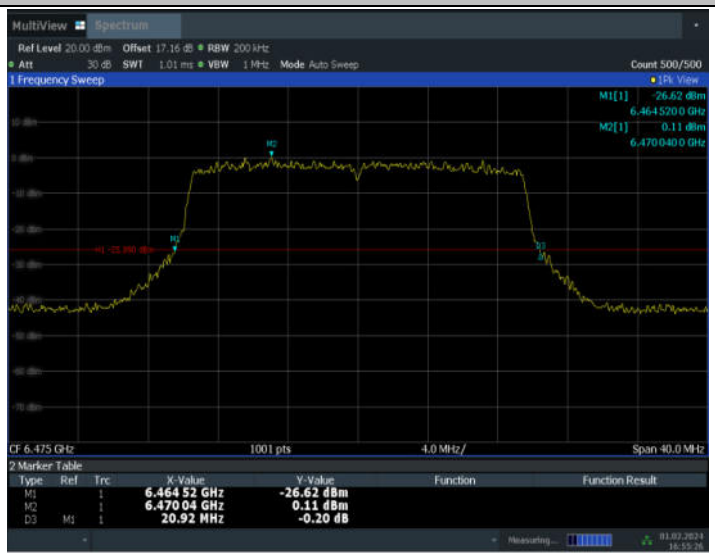
16:53:00 01.02.2024

11AX20SISO_Ant7_6435

©Copyright. All rights reserved by CTTL.

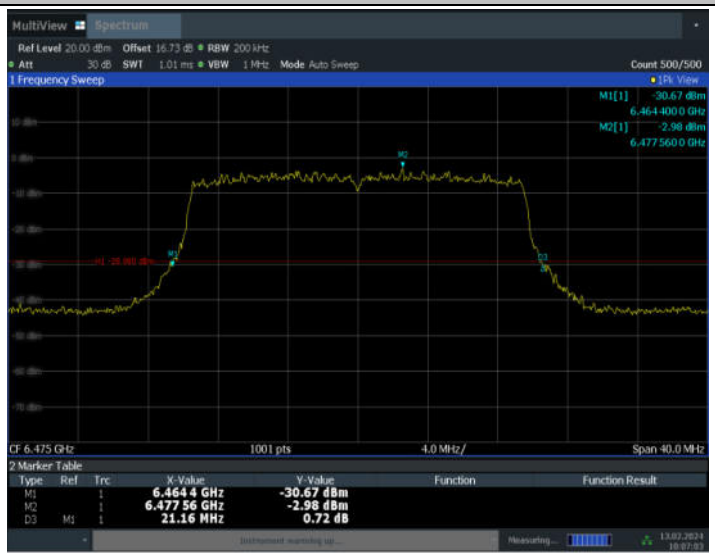
10:04:39 13.02.2024

11AX20SISO_Ant10_6475



16:55:26 01.02.2024

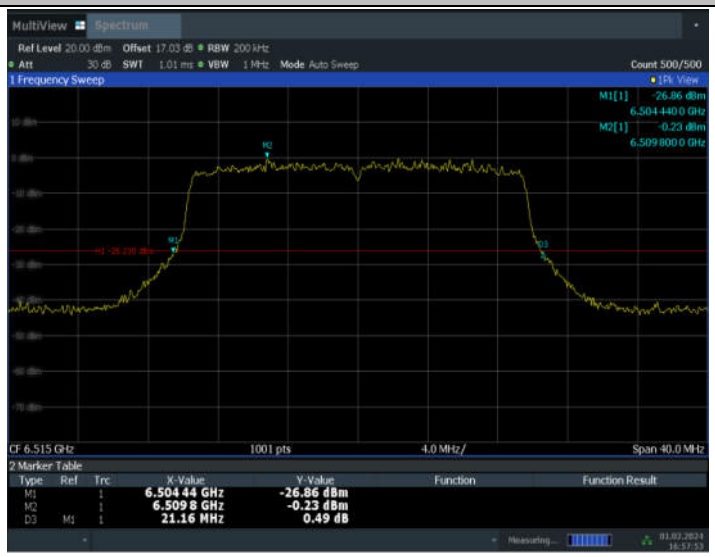
11AX20SISO_Ant7_6475



10:07:04 13.02.2024

©Copyright. All rights reserved by CTTL.

11AX20SISO_Ant10_6515



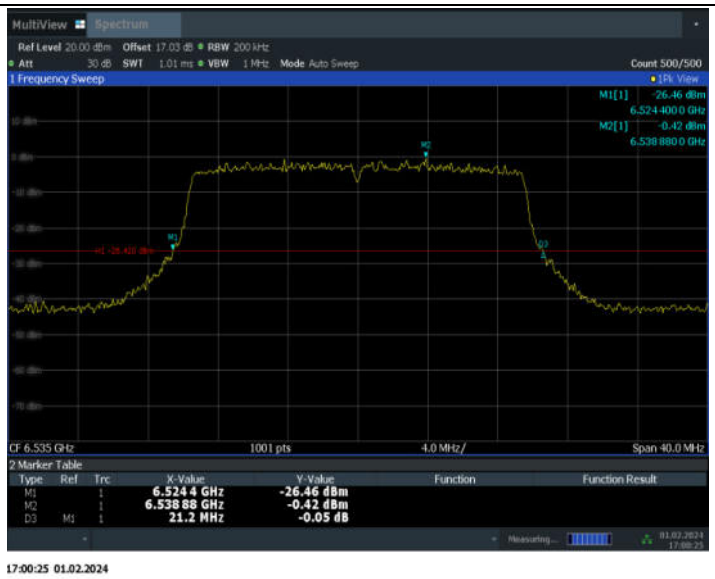
16:57:53 01.02.2024

11AX20SISO_Ant7_6515

10:09:29 13.02.2024

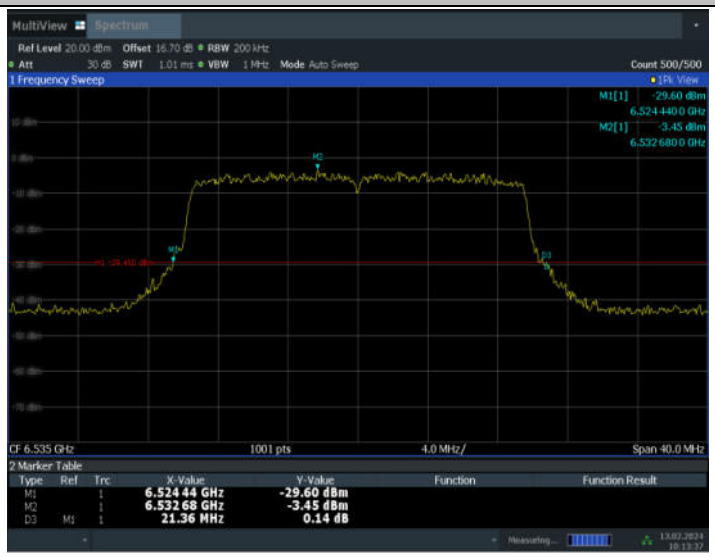
11AX20SISO_Ant10_6535

©Copyright. All rights reserved by CTTL.



17:00:25 01.02.2024

11AX20SISO_Ant7_6535

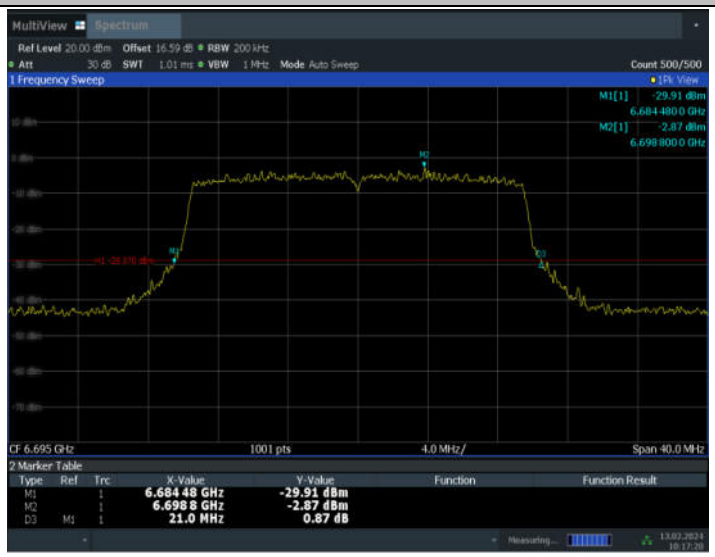
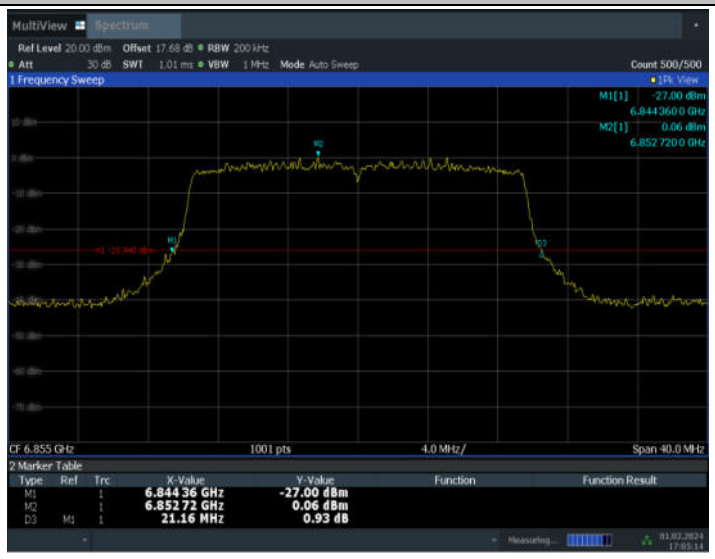


10:13:38 13.02.2024

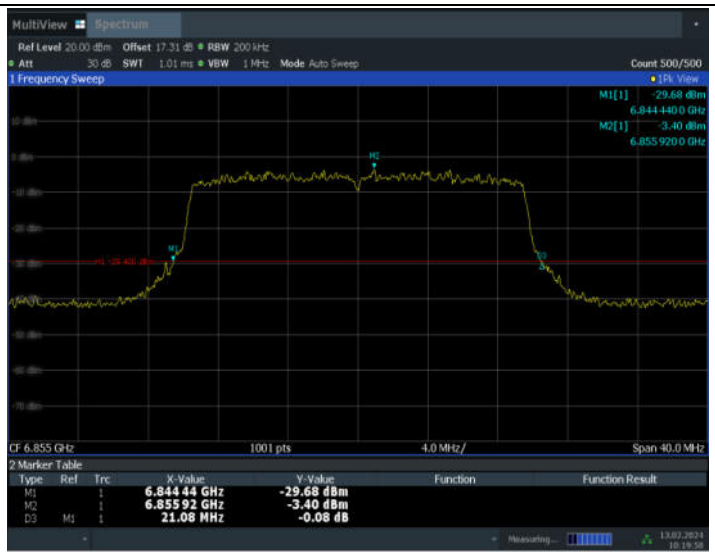
11AX20SISO_Ant10_6695

17:02:49 01.02.2024

©Copyright. All rights reserved by CTTL.

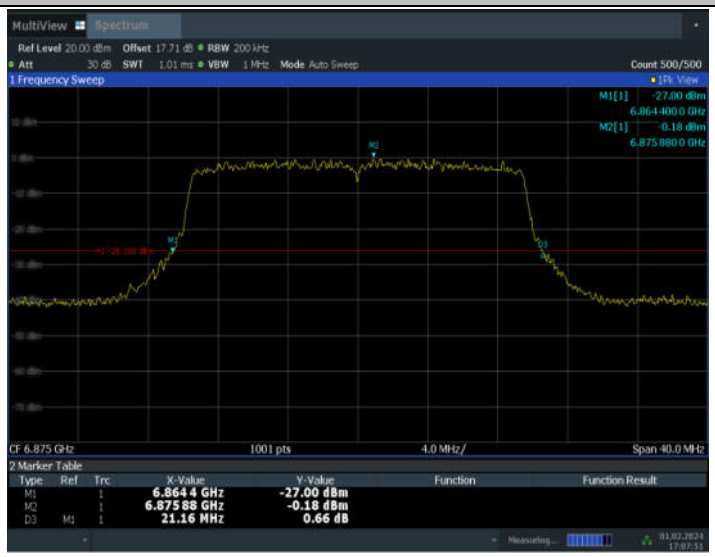
11AX20SISO_Ant7_6695

11AX20SISO_Ant10_6855

11AX20SISO_Ant7_6855

©Copyright. All rights reserved by CTTL.



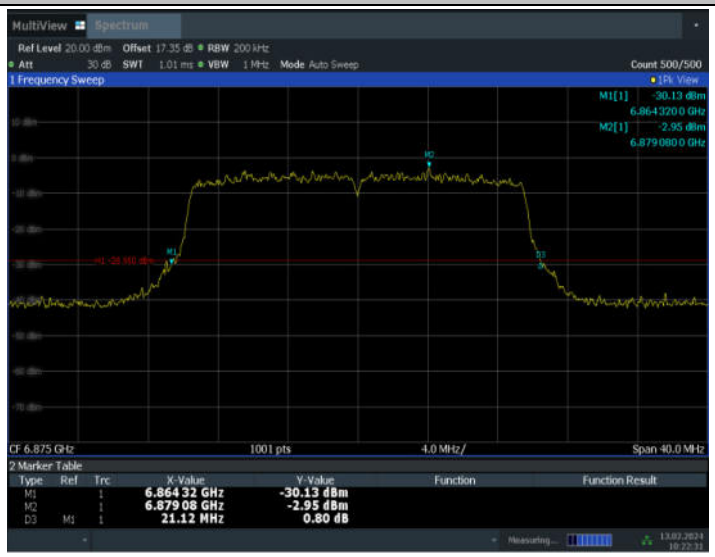
10:19:59 13.02.2024

11AX20SISO_Ant10_6875



17:07:51 01.02.2024

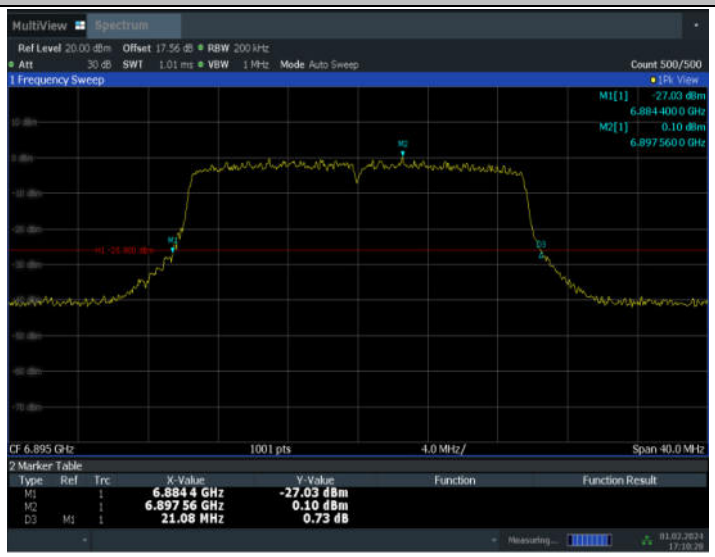
11AX20SISO_Ant7_6875



10:22:32 13.02.2024

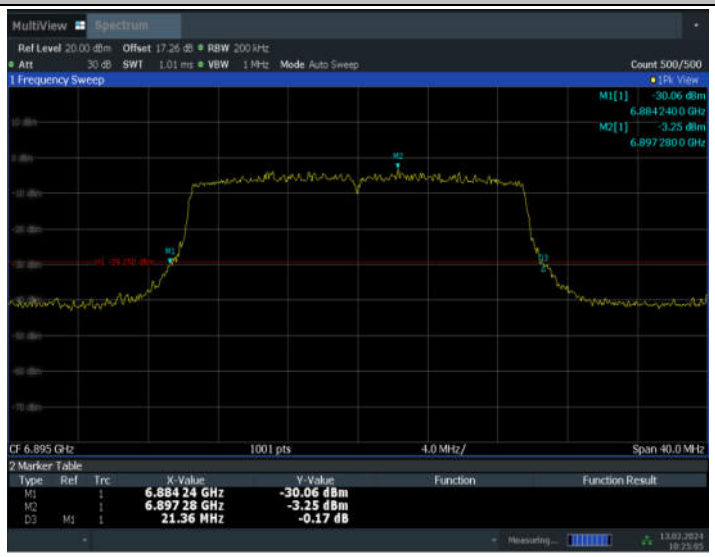
©Copyright. All rights reserved by CTTL.

11AX20SISO_Ant10_6895



17:10:28 01.02.2024

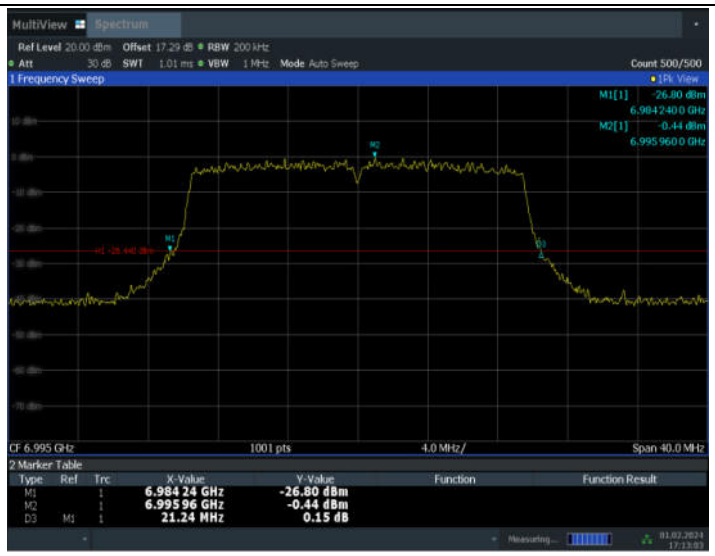
11AX20SISO_Ant7_6895



10:25:06 13.02.2024

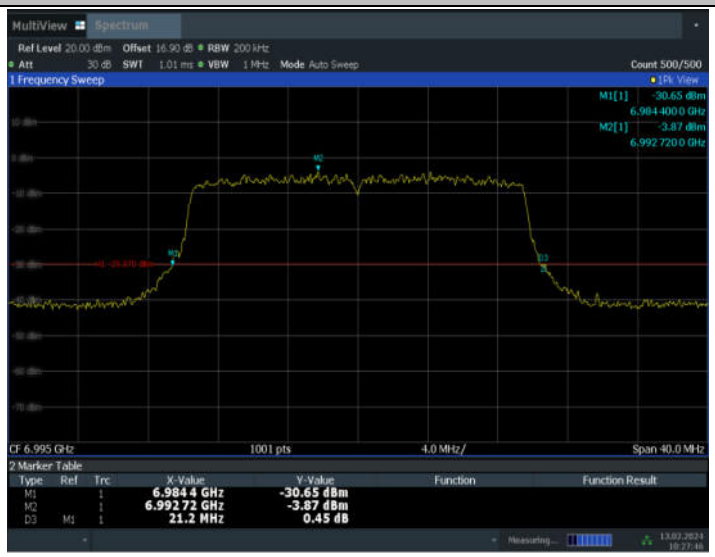
11AX20SISO_Ant10_6995

©Copyright. All rights reserved by CTTL.



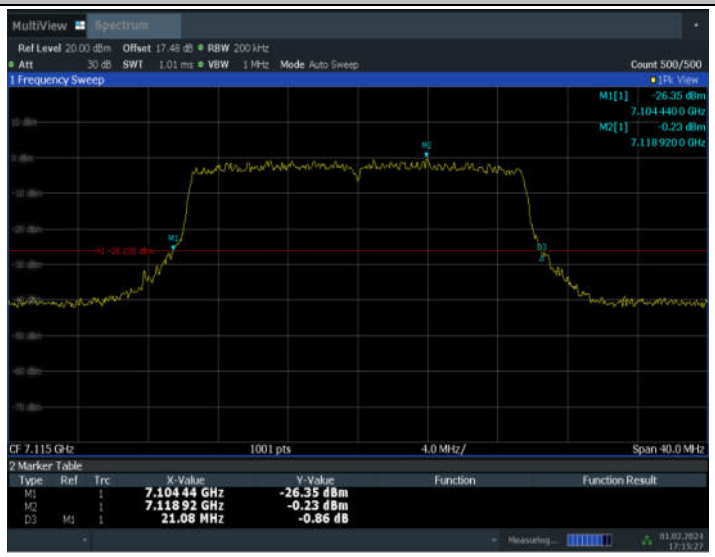
17:13:04 01.02.2024

11AX20SISO_Ant7_6995



10:27:46 13.02.2024

11AX20SISO_Ant10_7115



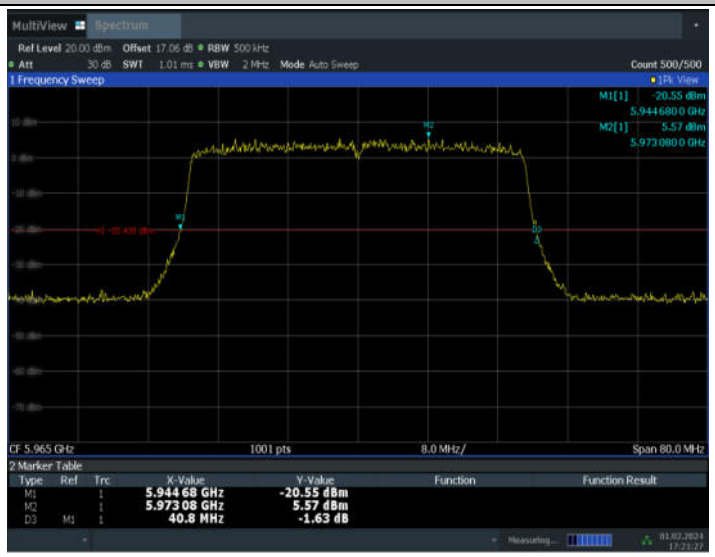
17:15:28 01.02.2024

©Copyright. All rights reserved by CTTL.

11AX20SISO_Ant7_7115

10:32:12 13.02.2024

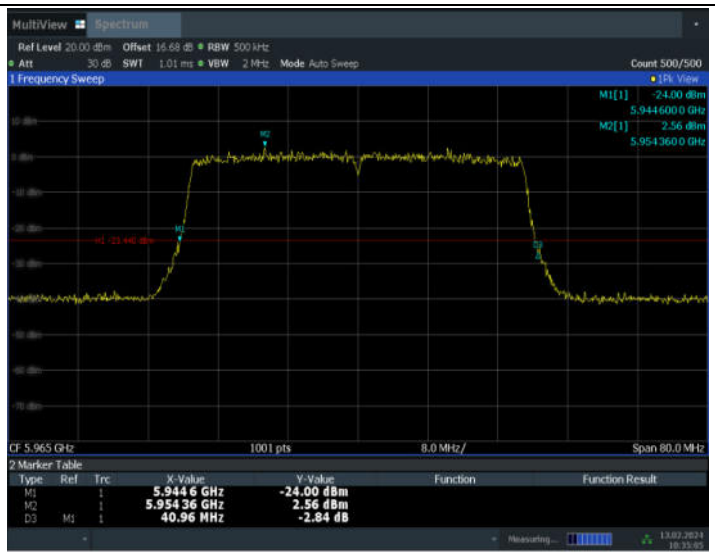
11AX40SISO_Ant10_5965



17:21:27 01.02.2024

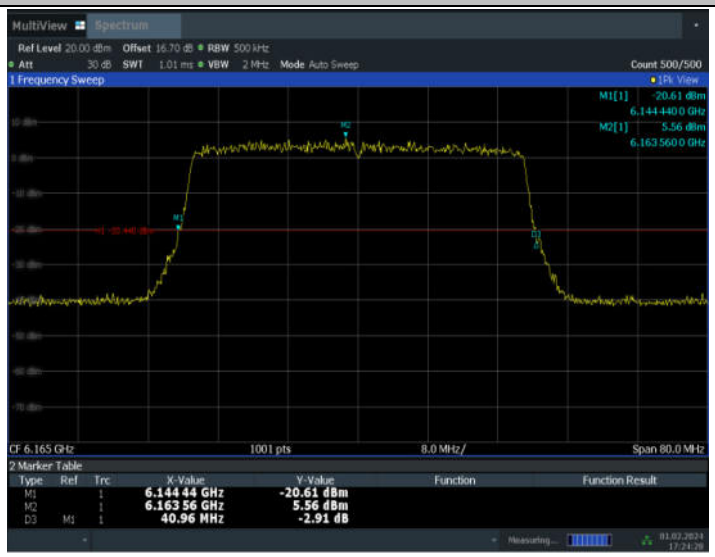
11AX40SISO_Ant7_5965

©Copyright. All rights reserved by CTTL.



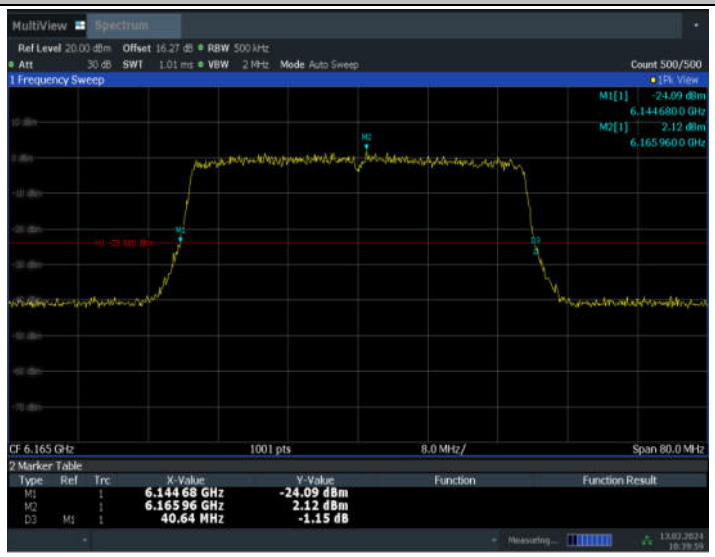
10:35:05 13.02.2024

11AX40SISO_Ant10_6165



17:24:28 01.02.2024

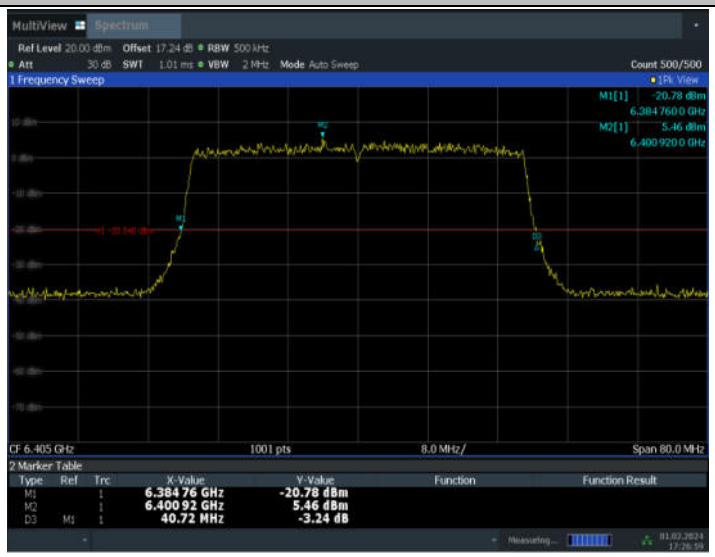
11AX40SISO_Ant7_6165



10:40:00 13.02.2024

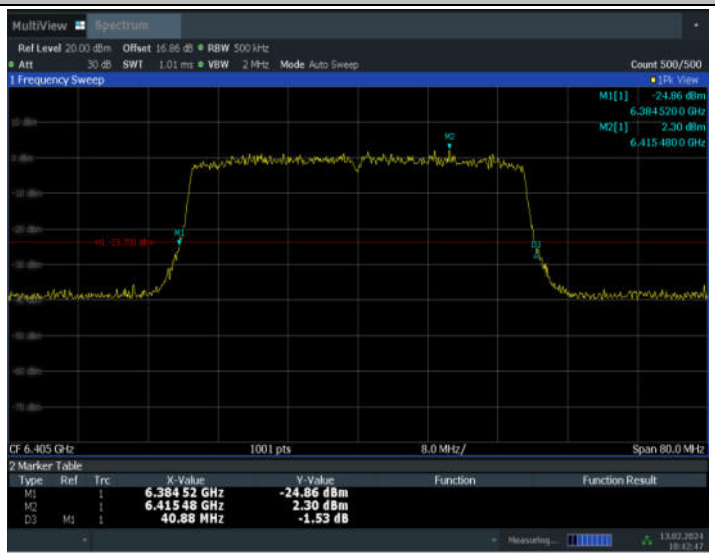
©Copyright. All rights reserved by CTTL.

11AX40SISO_Ant10_6405



17:26:59 01.02.2024

11AX40SISO_Ant7_6405



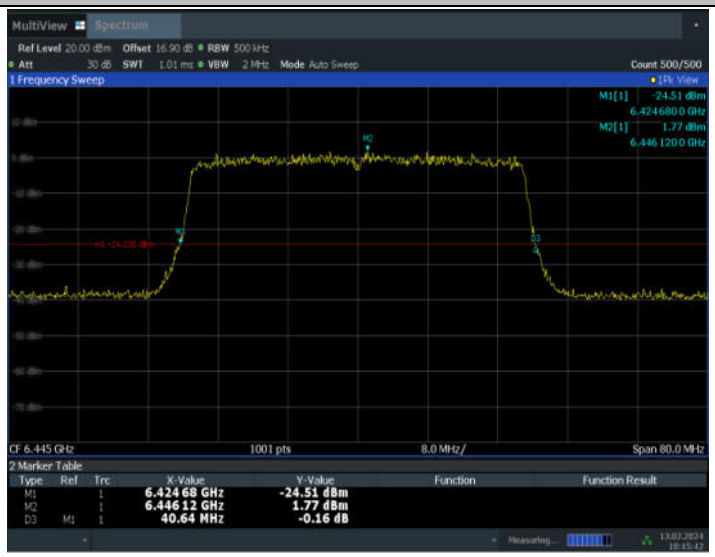
10:42:47 13.02.2024

11AX40SISO_Ant10_6445

©Copyright. All rights reserved by CTTL.

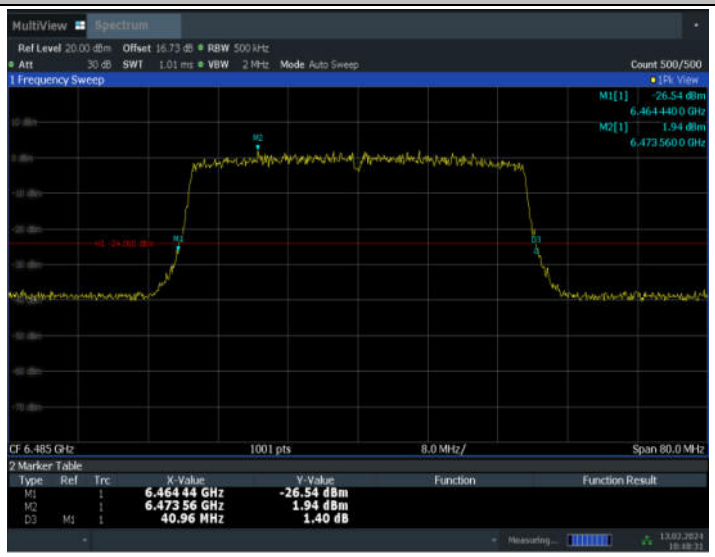
17:33:57 01.02.2024

11AX40SISO_Ant7_6445



10:45:42 13.02.2024

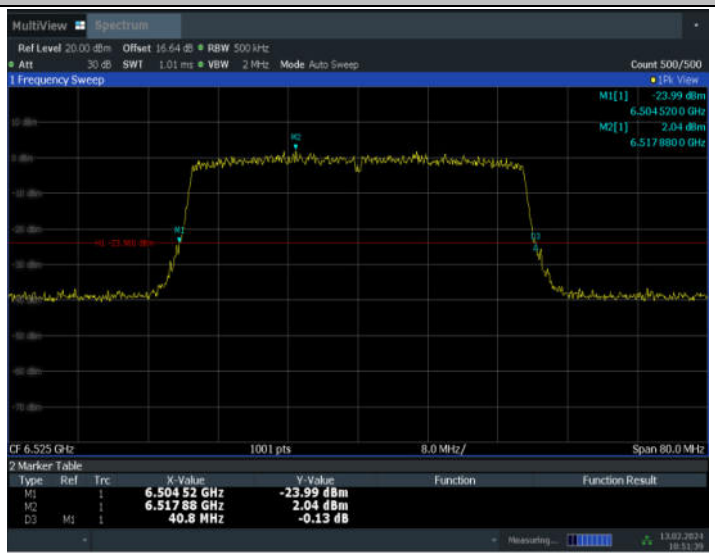
11AX40SISO_Ant7_6485



10:48:31 13.02.2024

©Copyright. All rights reserved by CTTL.

11AX40SISO_Ant7_6525



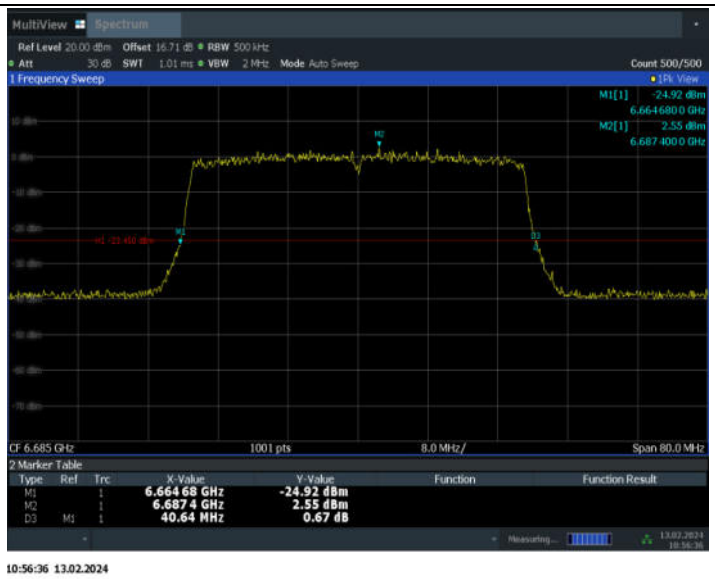
10:51:39 13.02.2024

11AX40SISO_Ant7_6565

10:54:05 13.02.2024

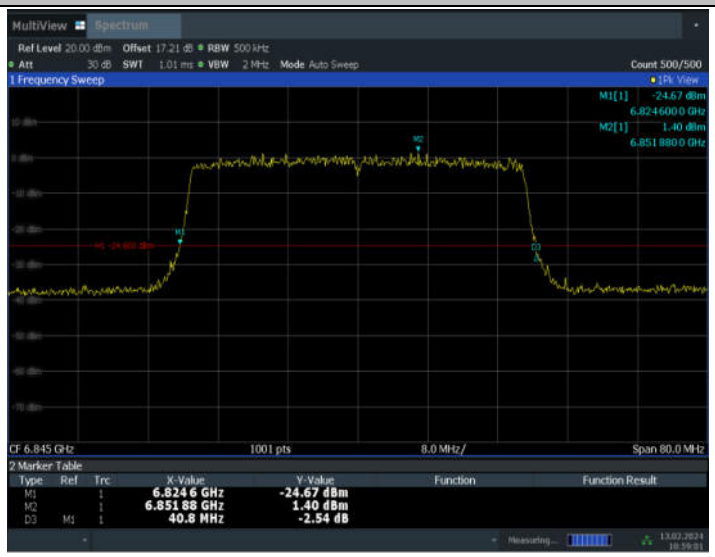
11AX40SISO_Ant7_6685

©Copyright. All rights reserved by CTTL.



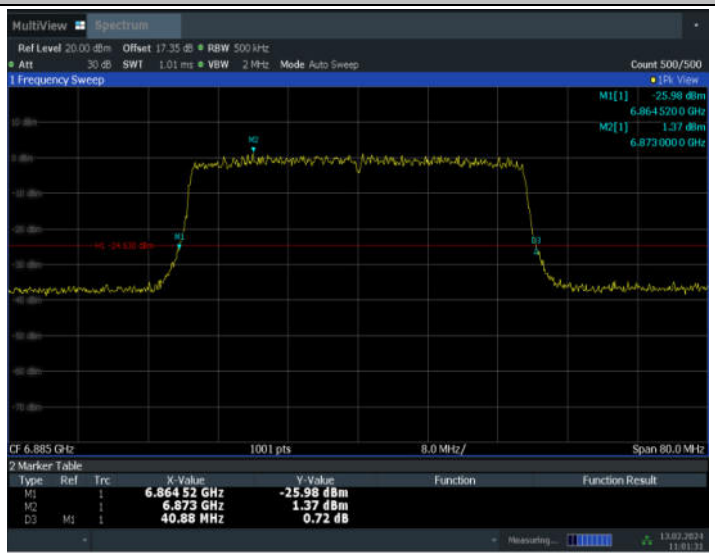
10:56:36 13.02.2024

11AX40SISO_Ant7_6845



10:59:02 13.02.2024

11AX40SISO_Ant7_6885



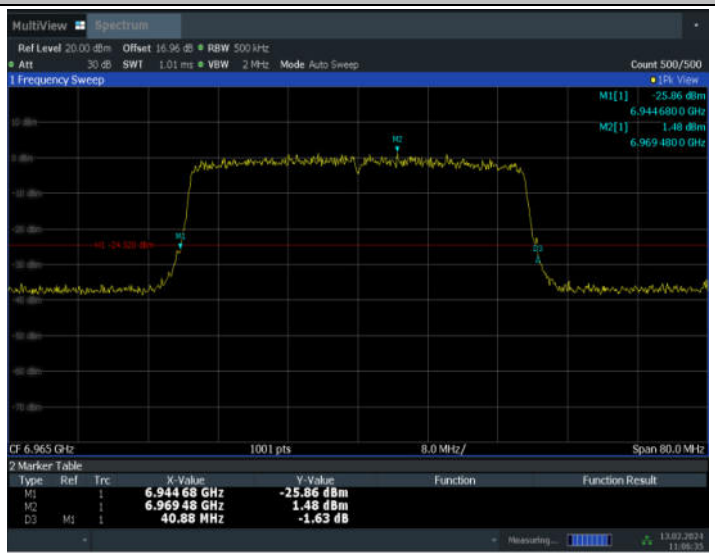
11:01:32 13.02.2024

©Copyright. All rights reserved by CTTL.

11AX40SISO_Ant7_6925

11:04:00 13.02.2024

11AX40SISO_Ant7_6965



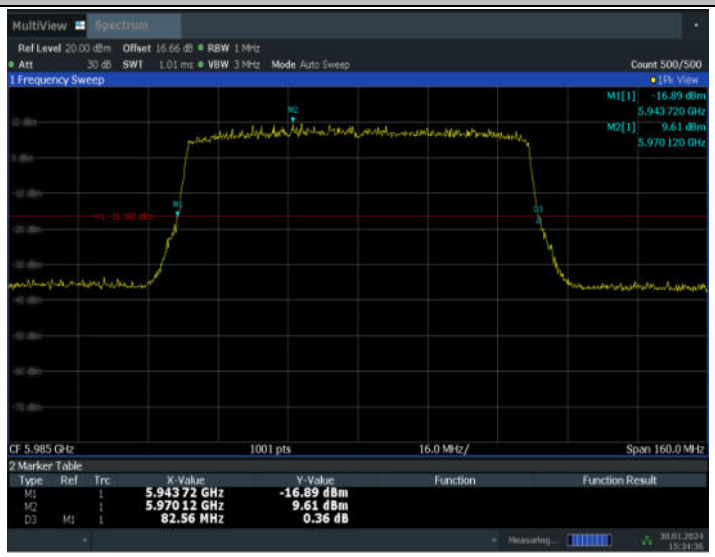
11:06:36 13.02.2024

11AX40SISO_Ant7_7085

©Copyright. All rights reserved by CTTL.

11:09:00 13.02.2024

11AX80SISO_Ant10_5985

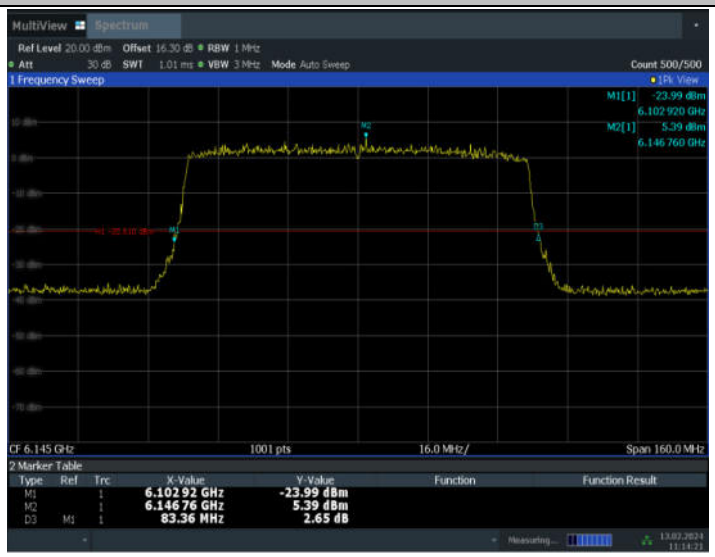


15:34:36 30.01.2024

11AX80SISO_Ant7_5985

11:11:52 13.02.2024

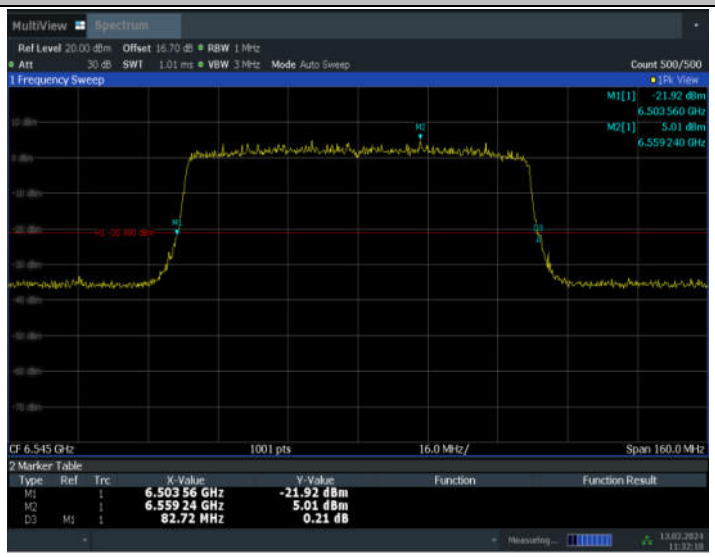
©Copyright. All rights reserved by CTTL.

11AX80SISO_Ant7_6145
 11:14:22 13.02.2024
11AX80SISO_Ant7_6385
 11:26:27 13.02.2024
11AX80SISO_Ant7_6465

©Copyright. All rights reserved by CTTL.

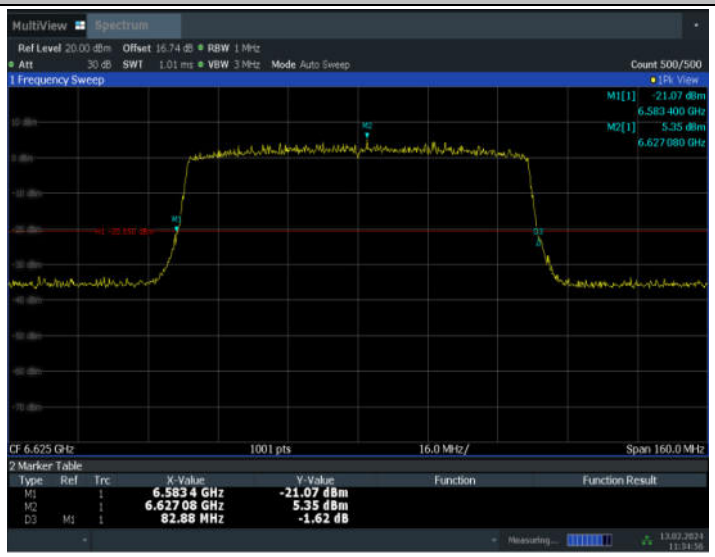
11:29:37 13.02.2024

11AX80SISO_Ant7_6545



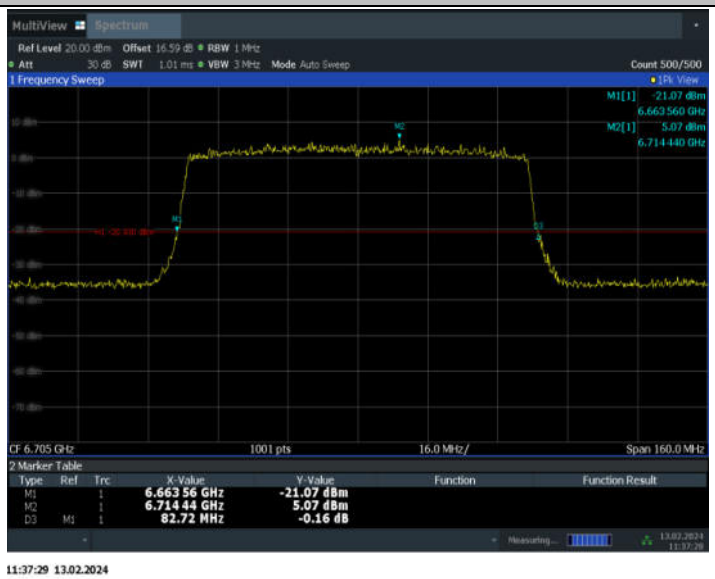
11:32:18 13.02.2024

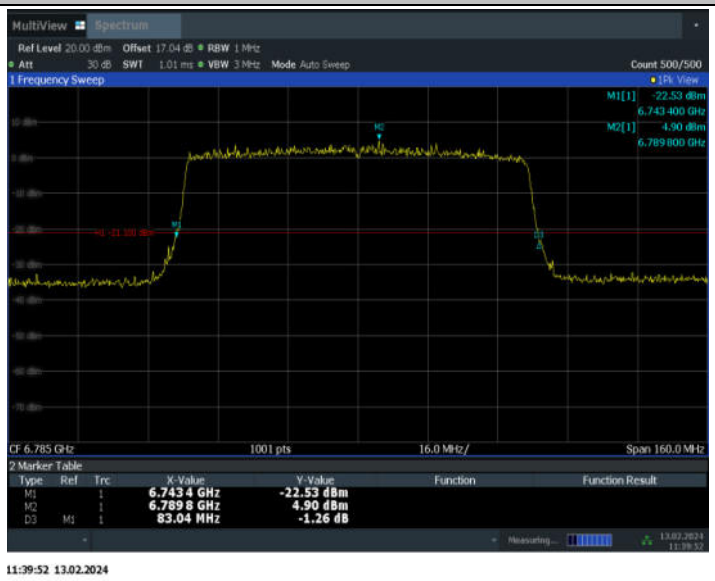
11AX80SISO_Ant7_6625



11:34:56 13.02.2024

©Copyright. All rights reserved by CTTL.

11AX80SISO_Ant7_6705


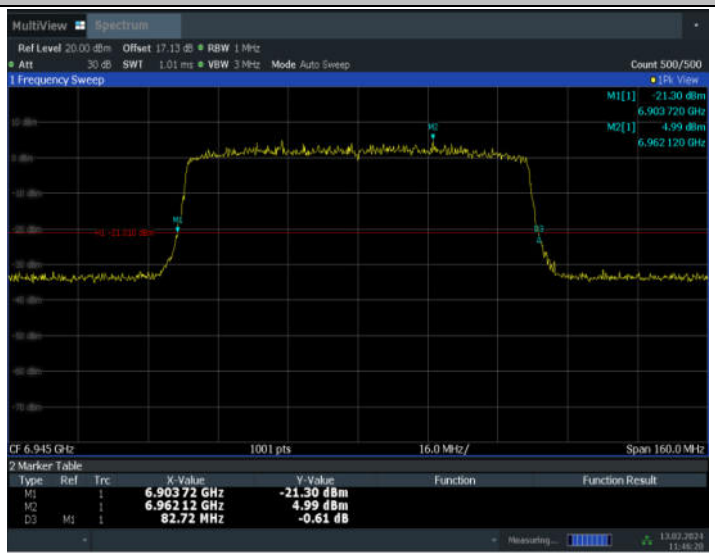
11AX80SISO_Ant7_6785


11AX80SISO_Ant7_6865

©Copyright. All rights reserved by CTTL.

11:42:51 13.02.2024

11AX80SISO_Ant7_6945



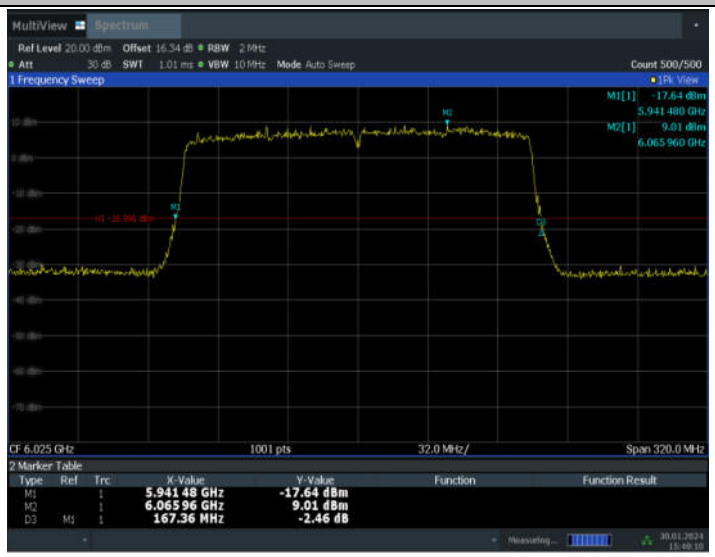
11:46:20 13.02.2024

11AX80SISO_Ant7_7025

11:51:04 13.02.2024

©Copyright. All rights reserved by CTTL.

11AX160SISO_Ant10_6025



15:40:11 30.01.2024

11AX160SISO_Ant7_6025

11:55:09 13.02.2024

11AX160SISO_Ant7_6185

©Copyright. All rights reserved by CTTL.

11:57:40 13.02.2024

11AX160SISO_Ant7_6345

12:00:11 13.02.2024

11AX160SISO_Ant7_6505

12:02:38 13.02.2024

©Copyright. All rights reserved by CTTL.

11AX160SISO_Ant7_6665

12:05:09 13.02.2024

11AX160SISO_Ant7_6825

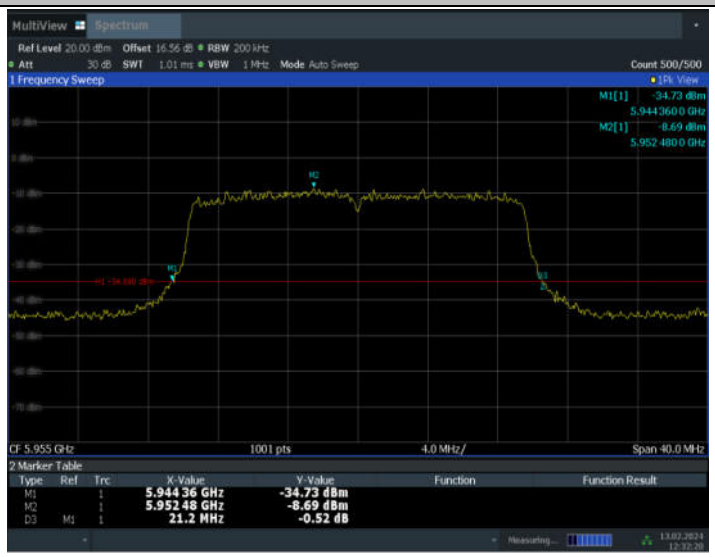
12:09:35 13.02.2024

11AX160SISO_Ant7_6985

©Copyright. All rights reserved by CTTL.

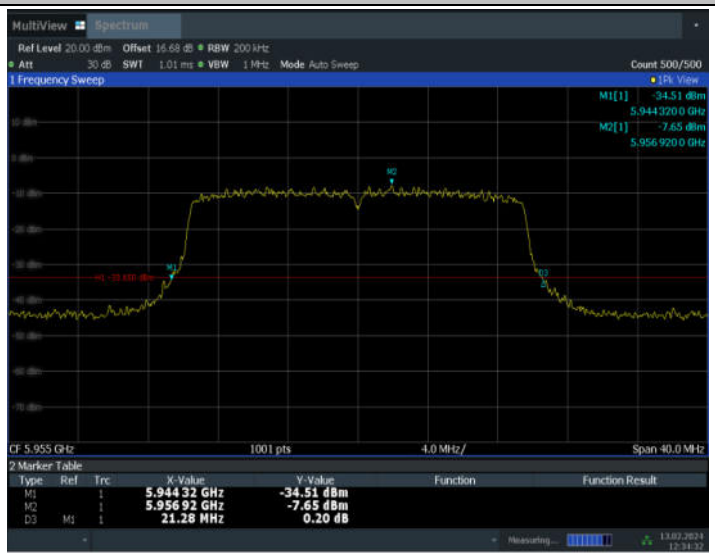
12:12:07 13.02.2024

11AX20MIMO_Ant10_5955



12:32:21 13.02.2024

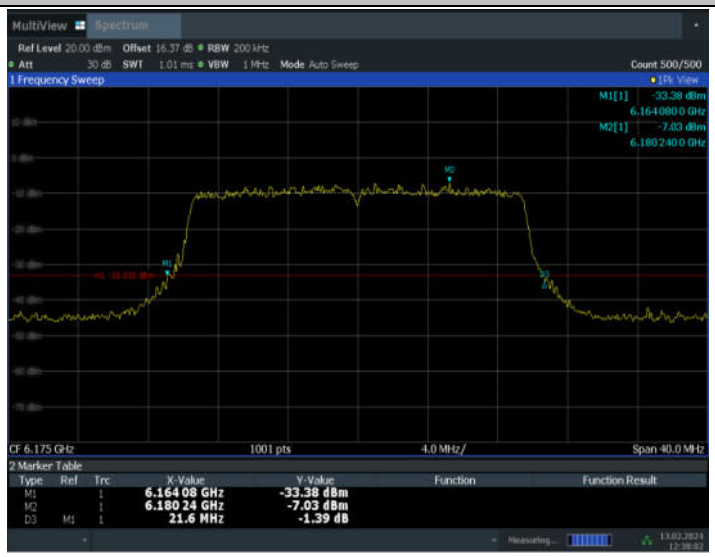
11AX20MIMO_Ant7_5955



12:34:33 13.02.2024

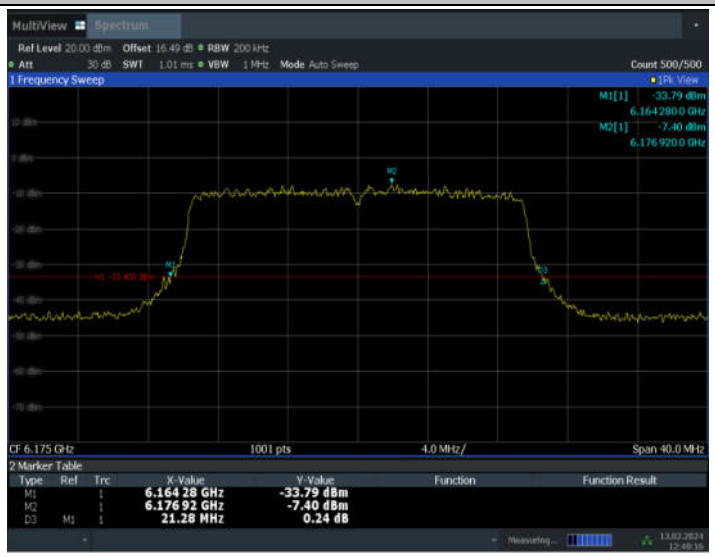
©Copyright. All rights reserved by CTTL.

11AX20MIMO_Ant10_6175



12:38:03 13.02.2024

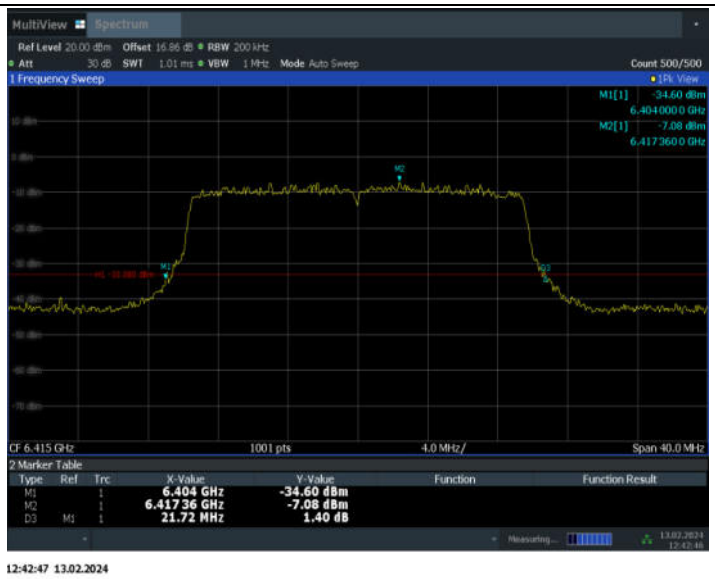
11AX20MIMO_Ant7_6175



12:40:17 13.02.2024

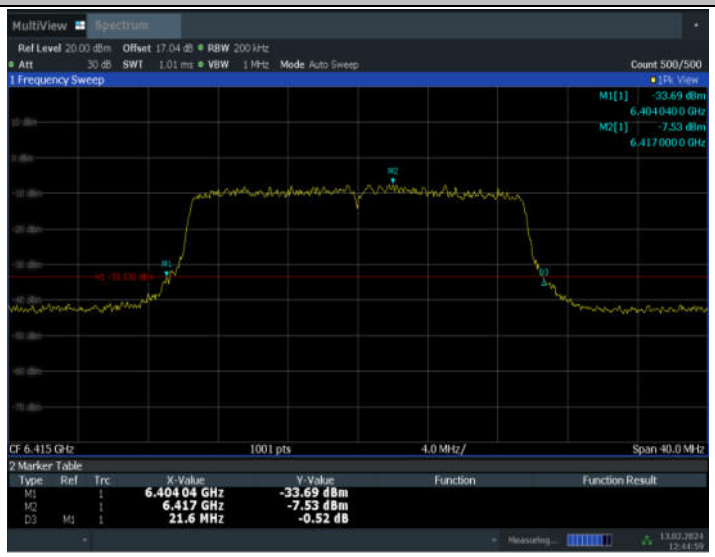
11AX20MIMO_Ant10_6415

©Copyright. All rights reserved by CTTL.



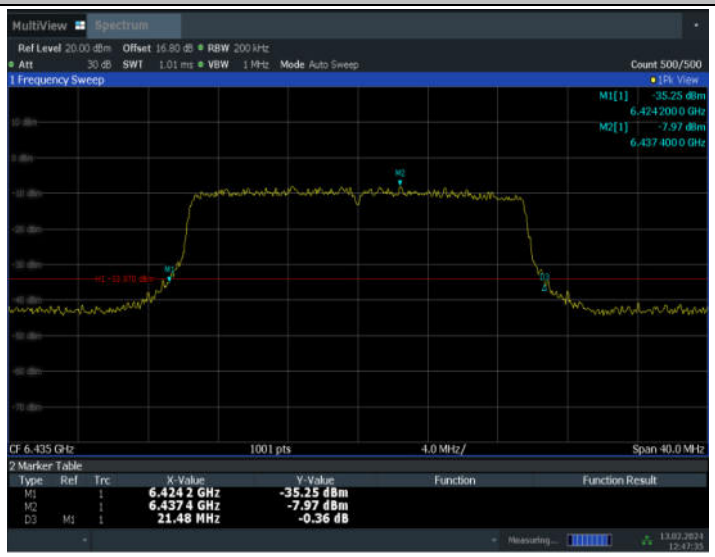
12:42:47 13.02.2024

11AX20MIMO_Ant7_6415



12:44:59 13.02.2024

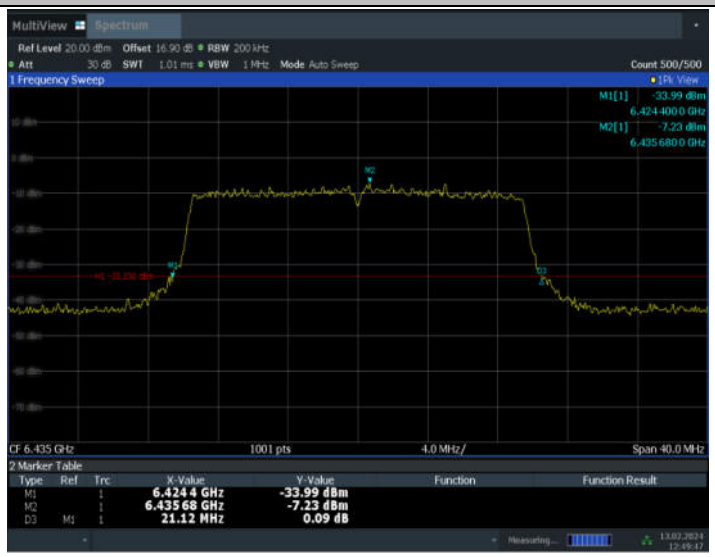
11AX20MIMO_Ant10_6435



12:47:35 13.02.2024

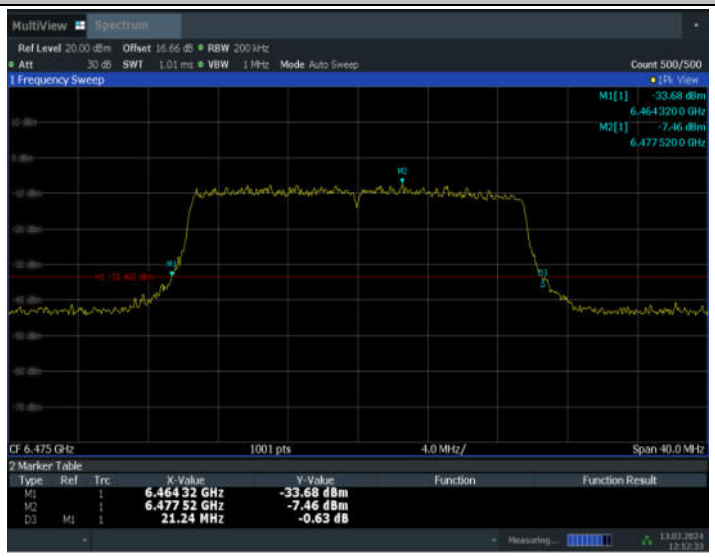
©Copyright. All rights reserved by CTTL.

11AX20MIMO_Ant7_6435



12:49:47 13.02.2024

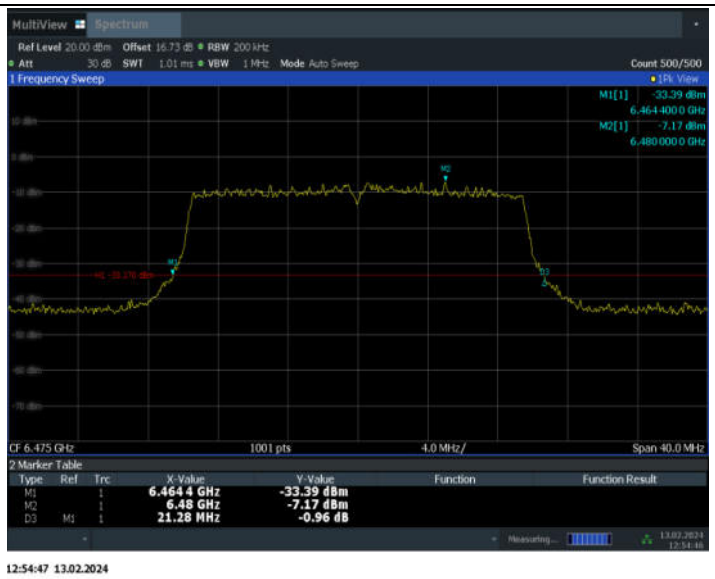
11AX20MIMO_Ant10_6475



12:52:34 13.02.2024

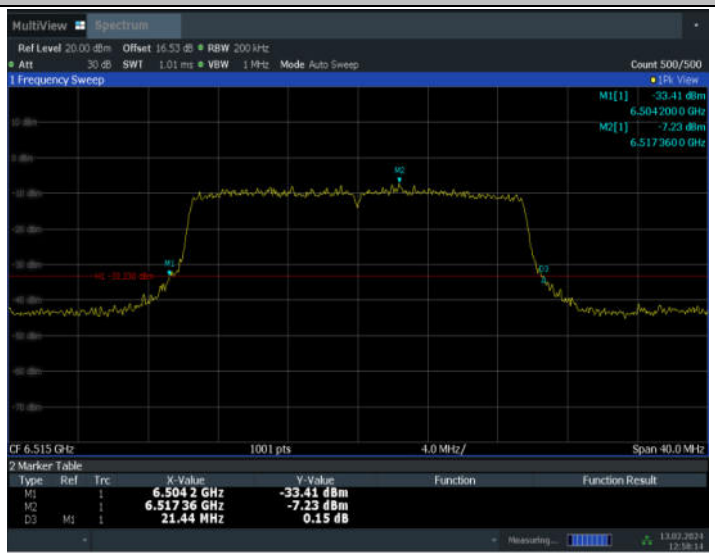
11AX20MIMO_Ant7_6475

©Copyright. All rights reserved by CTTL.



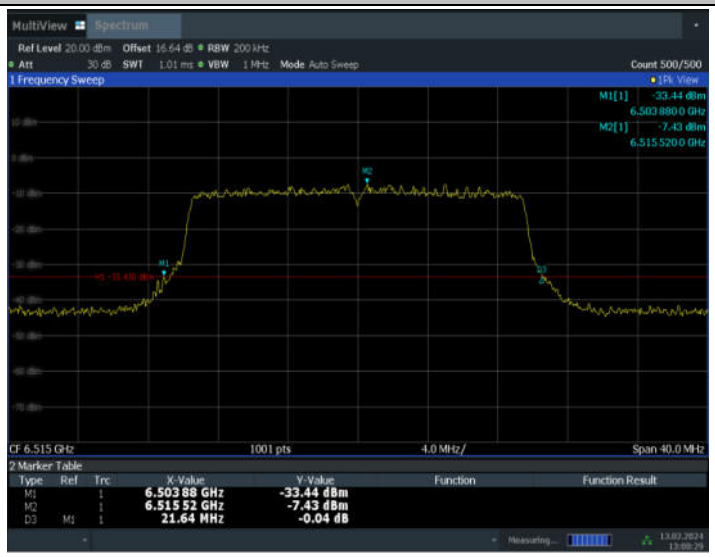
12:54:47 13.02.2024

11AX20MIMO_Ant10_6515



12:58:14 13.02.2024

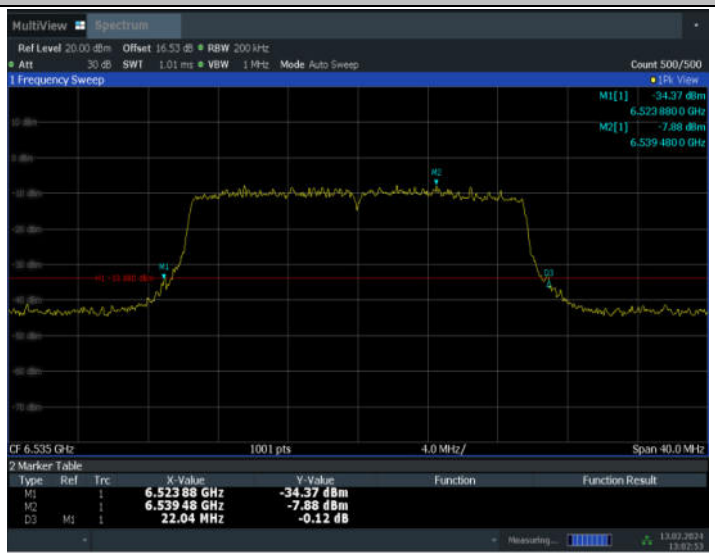
11AX20MIMO_Ant7_6515



13:00:29 13.02.2024

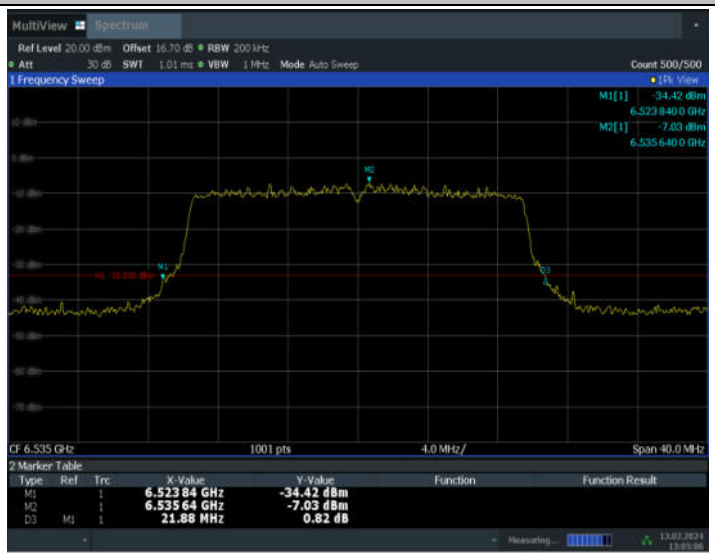
©Copyright. All rights reserved by CTTL.

11AX20MIMO_Ant10_6535



13:02:54 13.02.2024

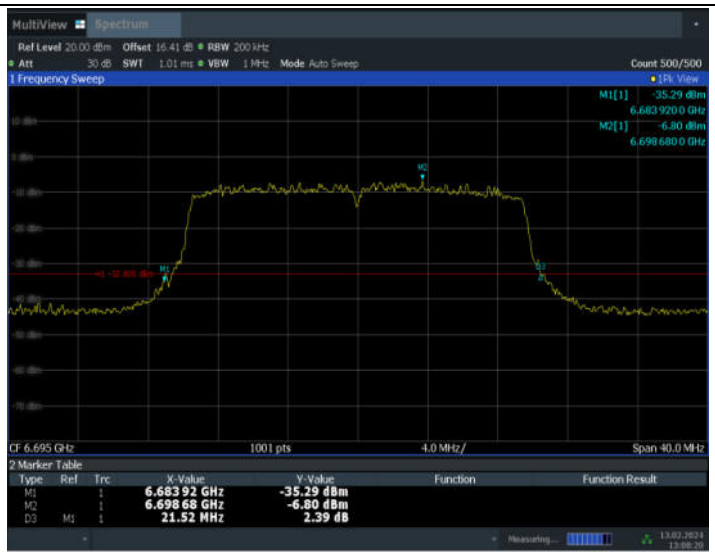
11AX20MIMO_Ant7_6535



13:05:07 13.02.2024

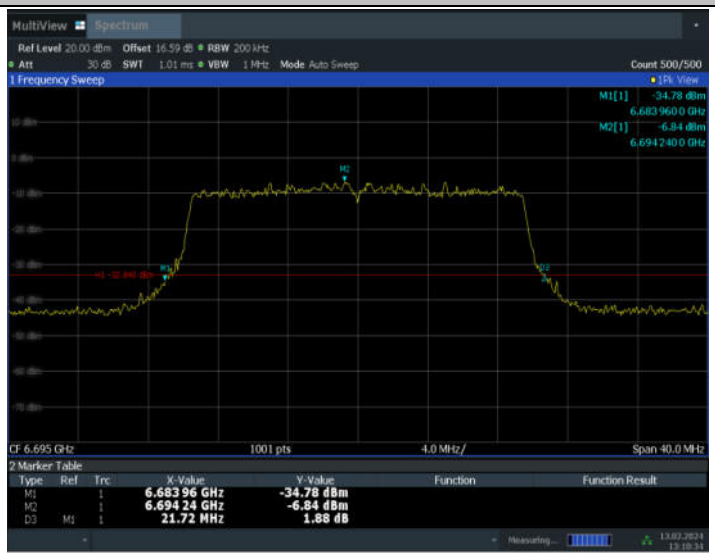
11AX20MIMO_Ant10_6695

©Copyright. All rights reserved by CTTL.



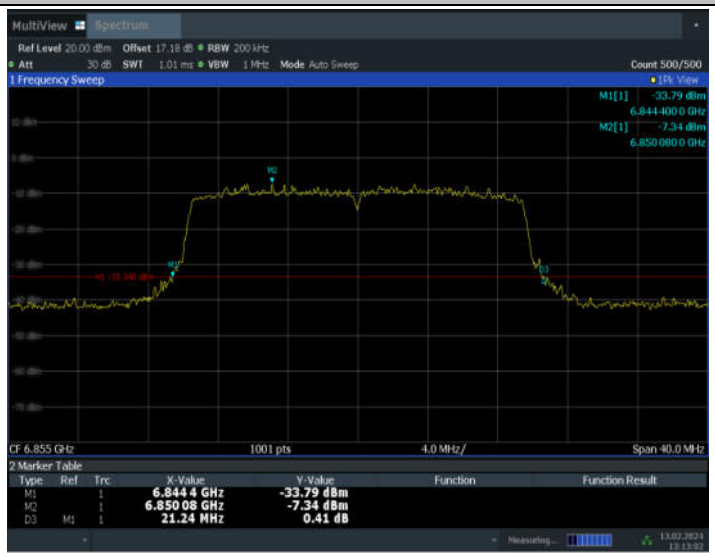
13:08:21 13.02.2024

11AX20MIMO_Ant7_6695



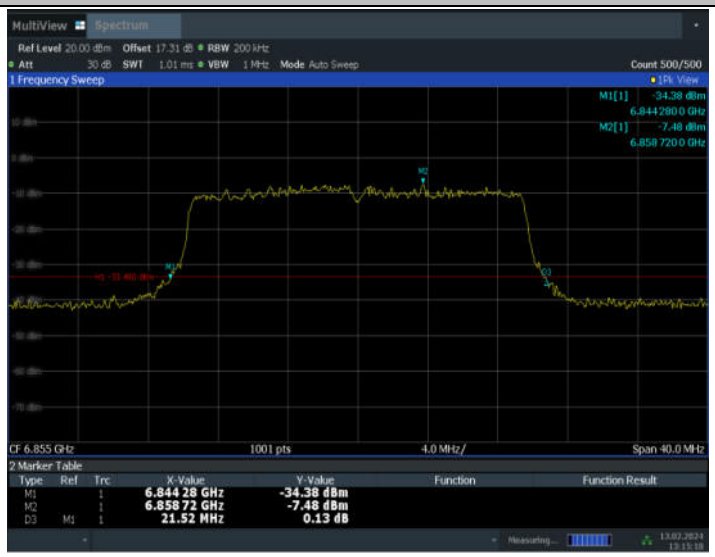
13:10:35 13.02.2024

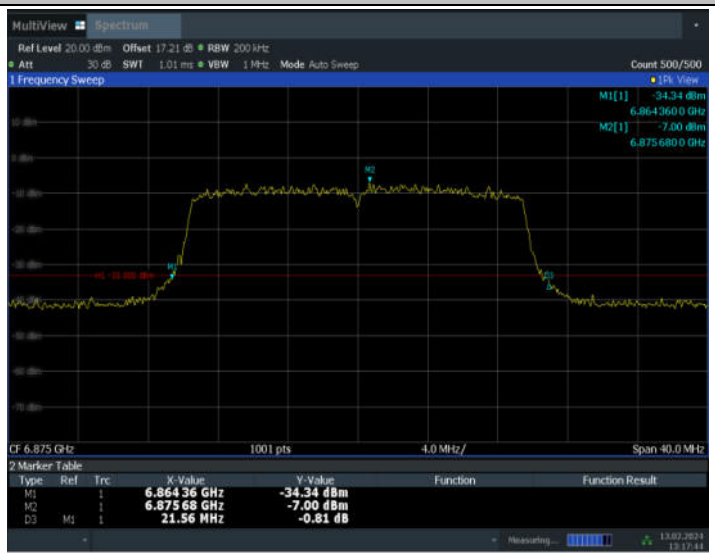
11AX20MIMO_Ant10_6855



13:13:03 13.02.2024

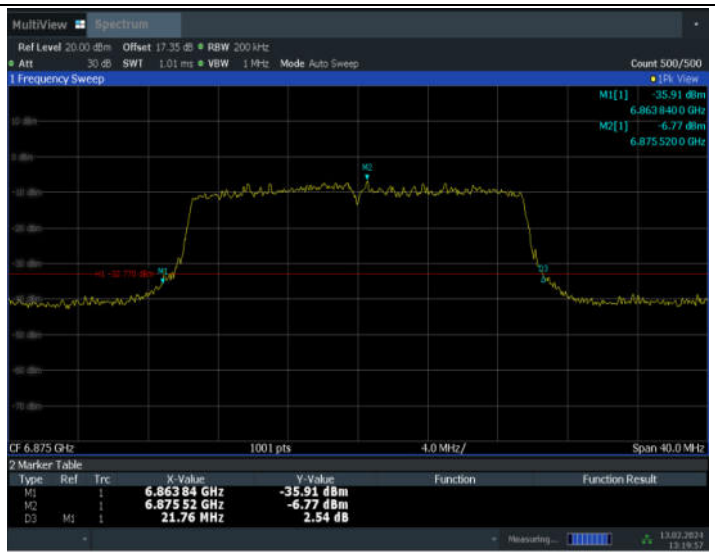
©Copyright. All rights reserved by CTTL.

11AX20MIMO_Ant7_6855


11AX20MIMO_Ant10_6875


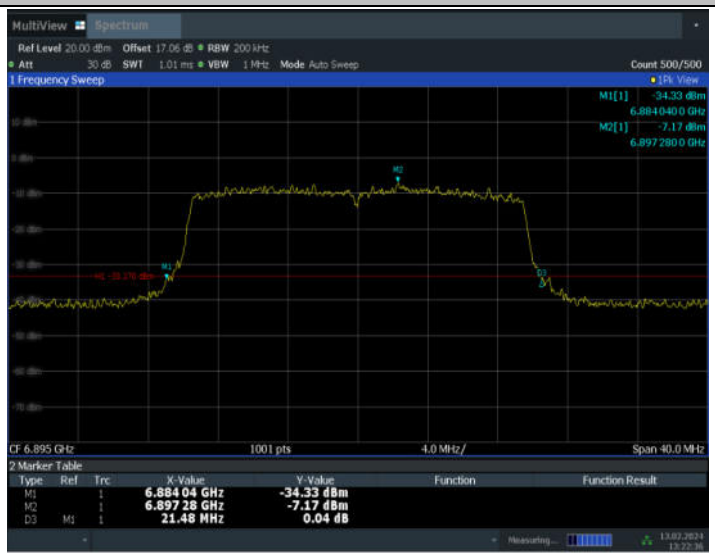
11AX20MIMO_Ant7_6875

©Copyright. All rights reserved by CTTL.



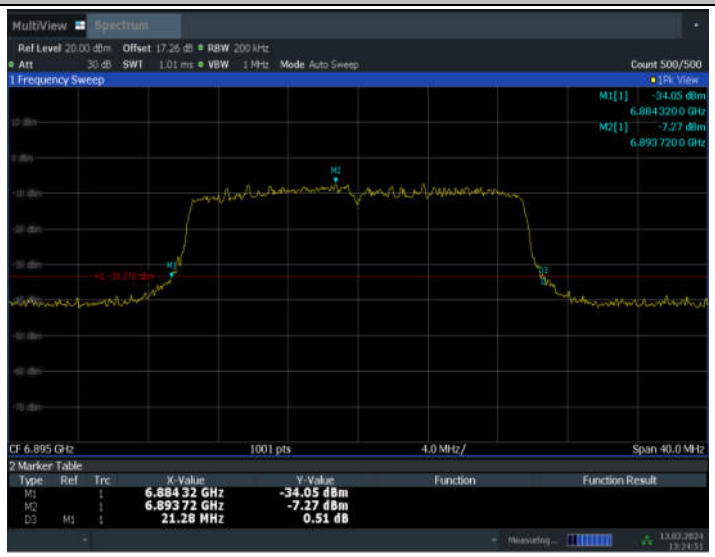
13:19:58 13.02.2024

11AX20MIMO_Ant10_6895



13:22:37 13.02.2024

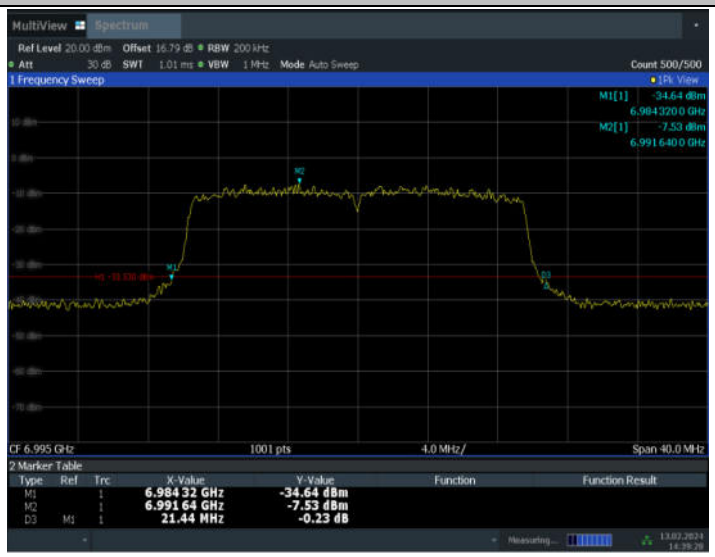
11AX20MIMO_Ant7_6895



13:24:51 13.02.2024

©Copyright. All rights reserved by CTTL.

11AX20MIMO_Ant10_6995



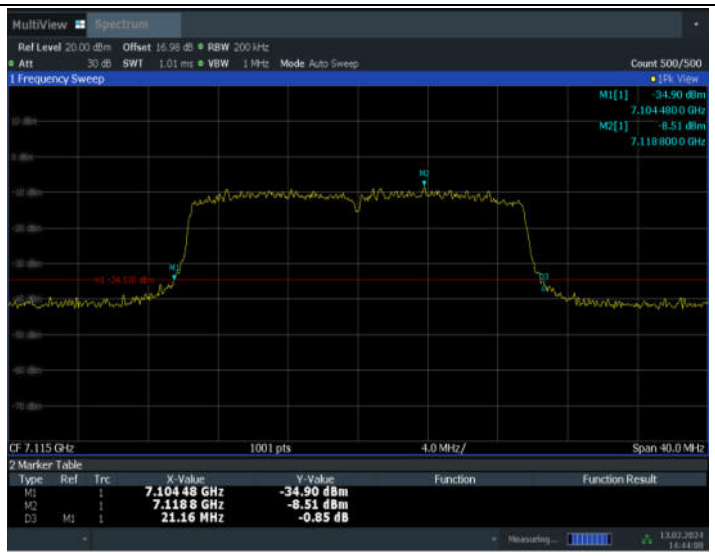
14:39:29 13.02.2024

11AX20MIMO_Ant7_6995

14:41:41 13.02.2024

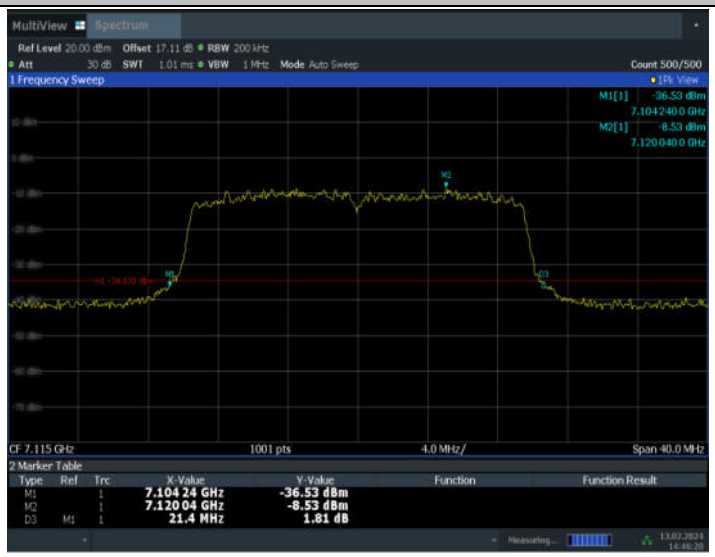
11AX20MIMO_Ant10_7115

©Copyright. All rights reserved by CTTL.



14:44:09 13.02.2024

11AX20MIMO_Ant7_7115



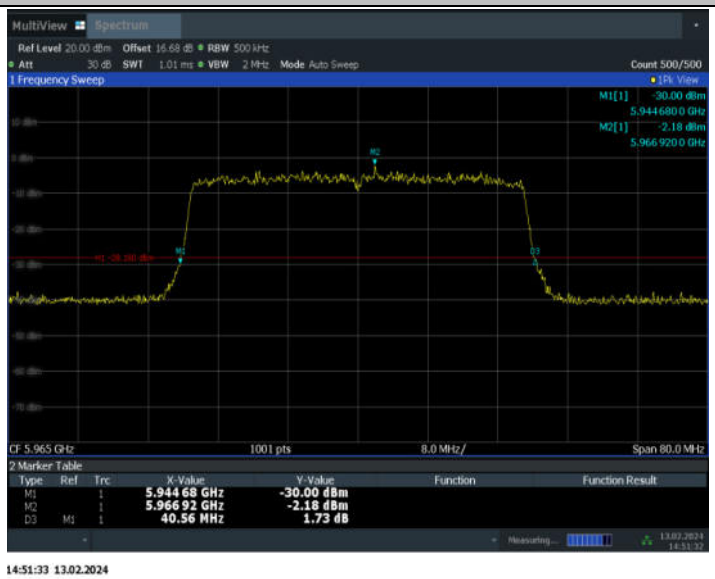
14:46:21 13.02.2024

11AX40MIMO_Ant10_5965

14:49:19 13.02.2024

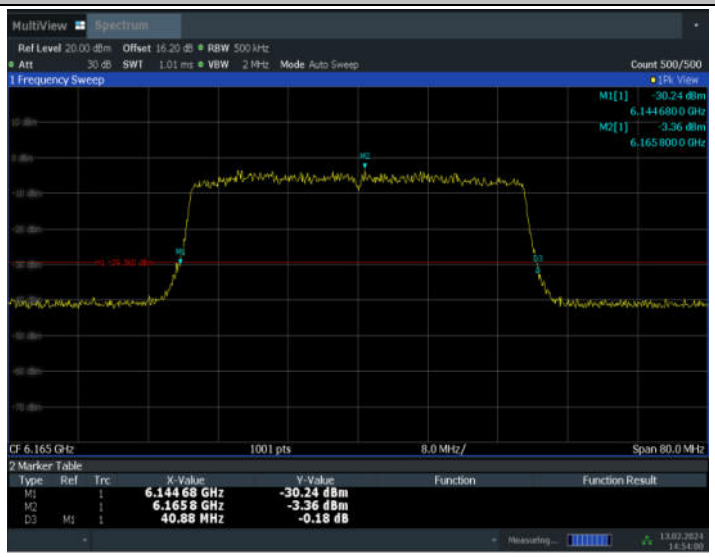
©Copyright. All rights reserved by CTTL.

11AX40MIMO_Ant7_5965



14:51:33 13.02.2024

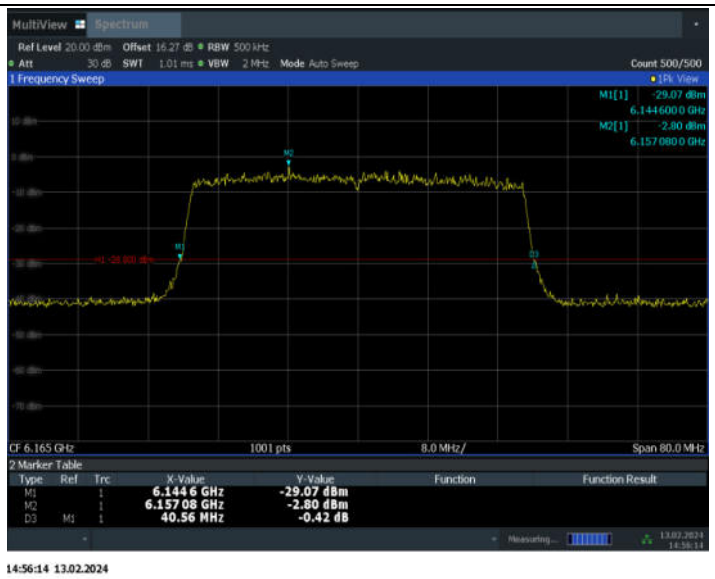
11AX40MIMO_Ant10_6165



14:54:00 13.02.2024

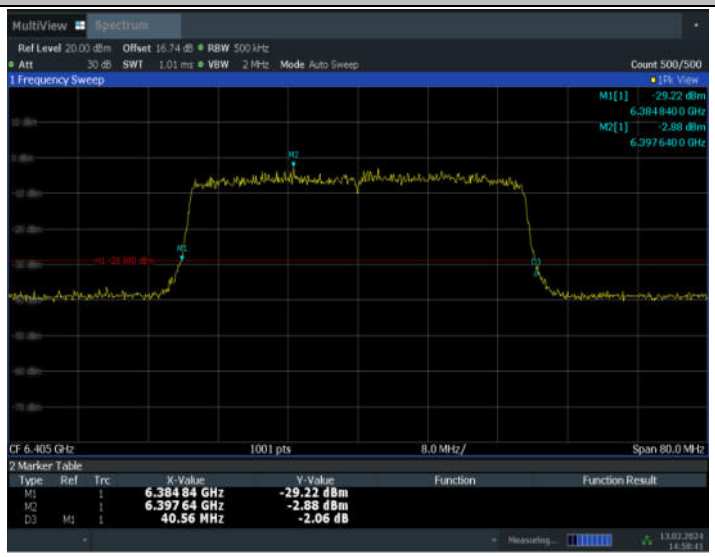
11AX40MIMO_Ant7_6165

©Copyright. All rights reserved by CTTL.



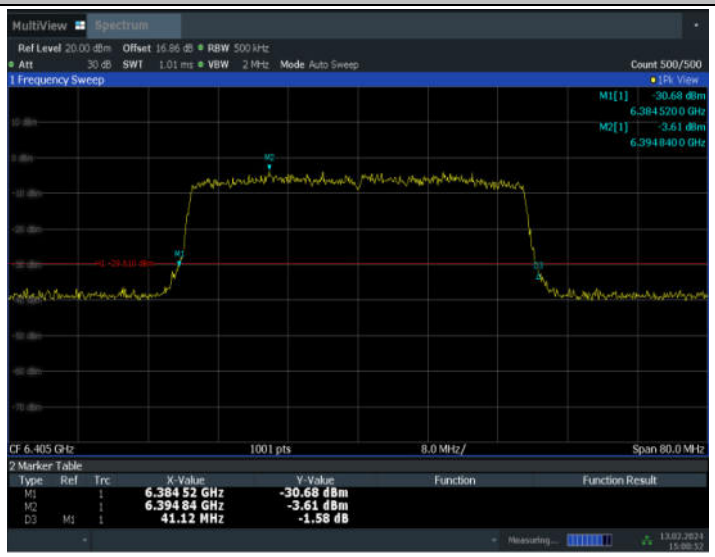
14:56:14 13.02.2024

11AX40MIMO_Ant10_6405



14:58:41 13.02.2024

11AX40MIMO_Ant7_6405



15:00:52 13.02.2024

©Copyright. All rights reserved by CTTL.

11AX40MIMO_Ant10_6445

15:03:31 13.02.2024

11AX40MIMO_Ant7_6445

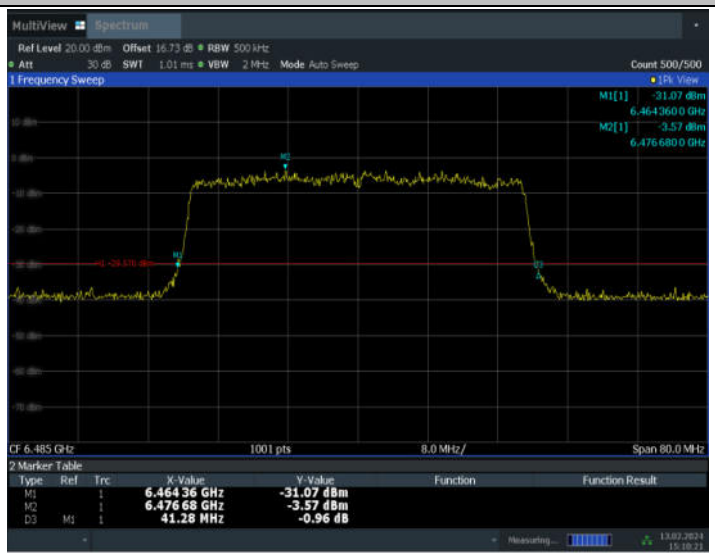
15:05:43 13.02.2024

11AX40MIMO_Ant10_6485

©Copyright. All rights reserved by CTTL.

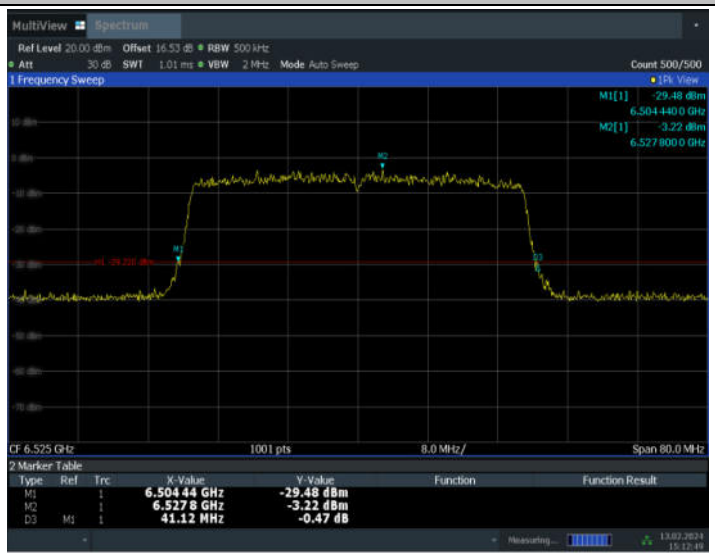
15:08:10 13.02.2024

11AX40MIMO_Ant7_6485



15:10:22 13.02.2024

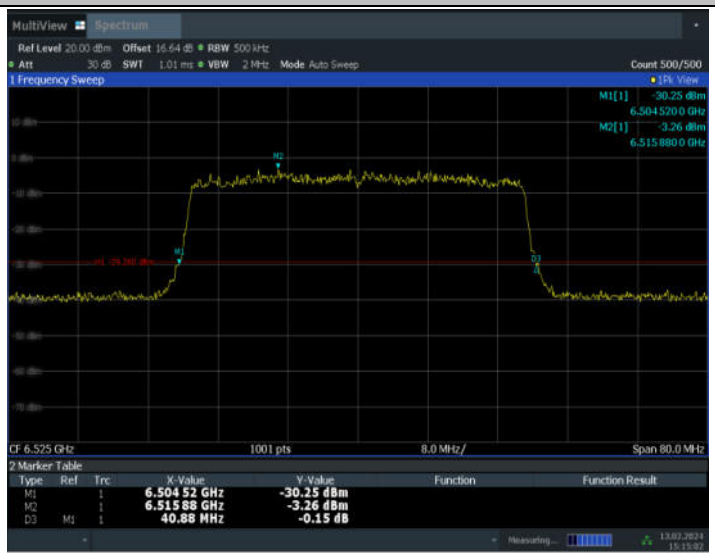
11AX40MIMO_Ant10_6525



15:12:50 13.02.2024

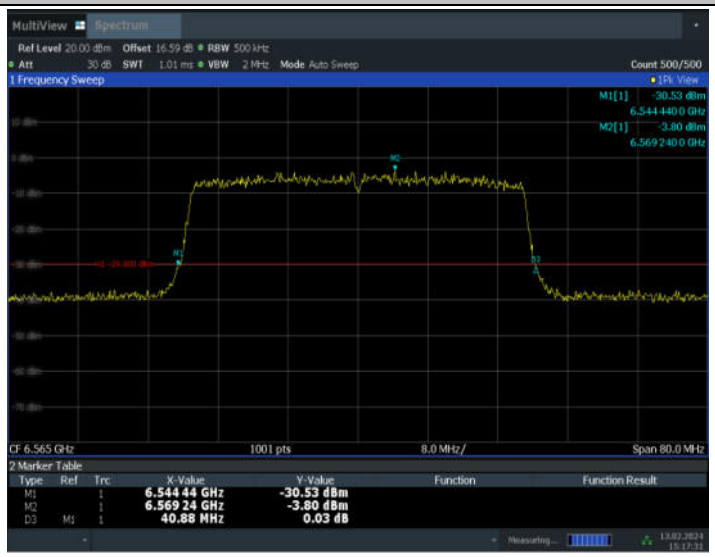
©Copyright. All rights reserved by CTTL.

11AX40MIMO_Ant7_6525



15:15:03 13.02.2024

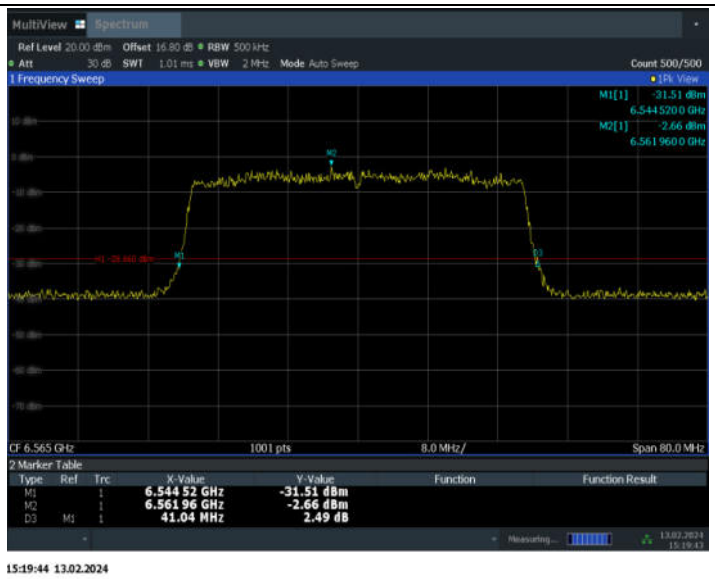
11AX40MIMO_Ant10_6565



15:17:31 13.02.2024

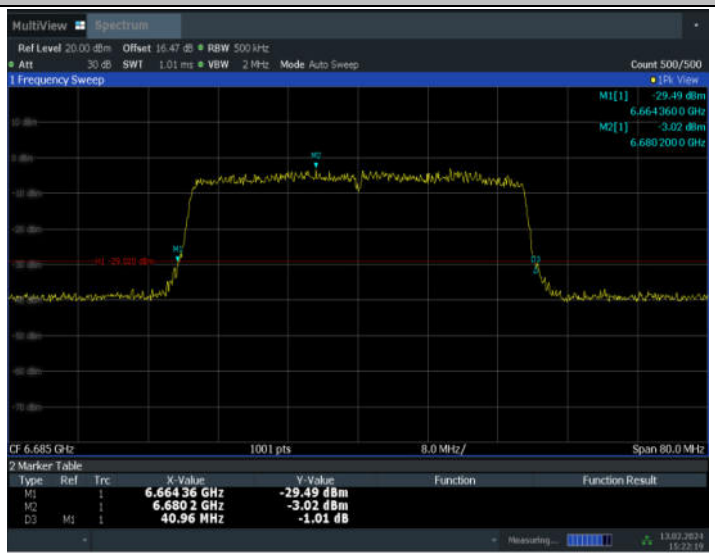
11AX40MIMO_Ant7_6565

©Copyright. All rights reserved by CTTL.



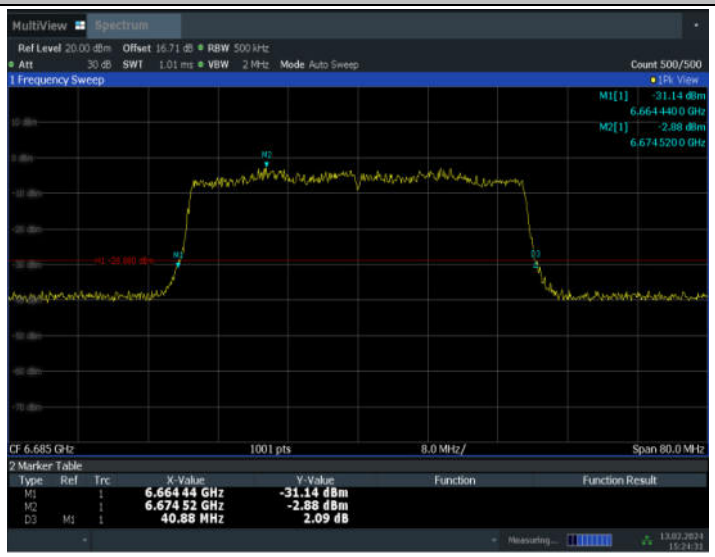
15:19:44 13.02.2024

11AX40MIMO_Ant10_6685



15:22:20 13.02.2024

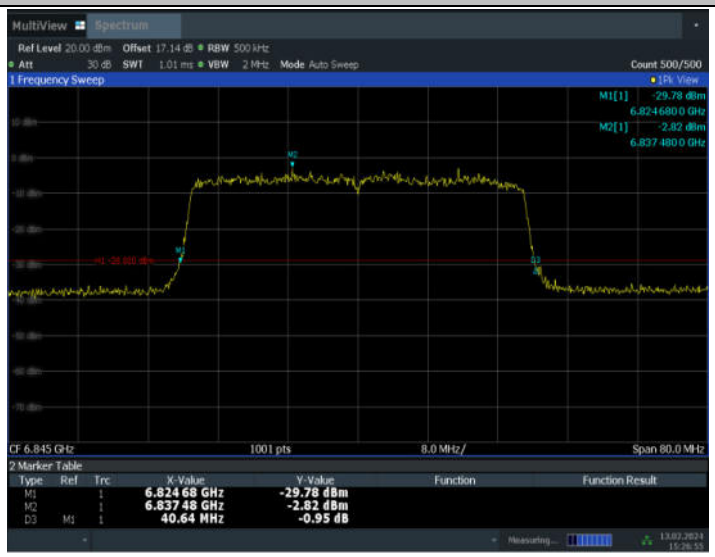
11AX40MIMO_Ant7_6685



15:24:32 13.02.2024

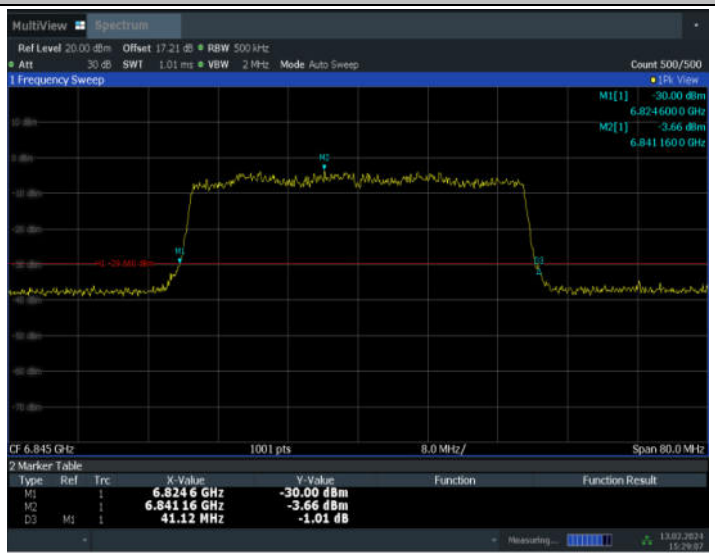
©Copyright. All rights reserved by CTTL.

11AX40MIMO_Ant10_6845



15:26:56 13.02.2024

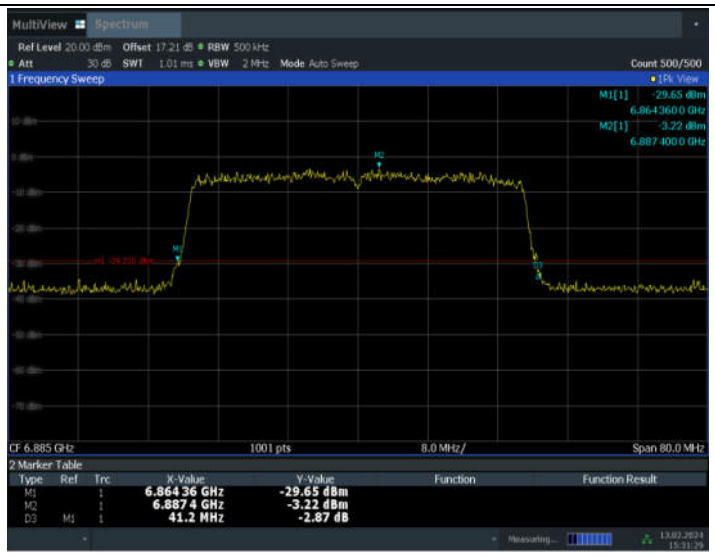
11AX40MIMO_Ant7_6845



15:29:07 13.02.2024

11AX40MIMO_Ant10_6885

©Copyright. All rights reserved by CTTL.

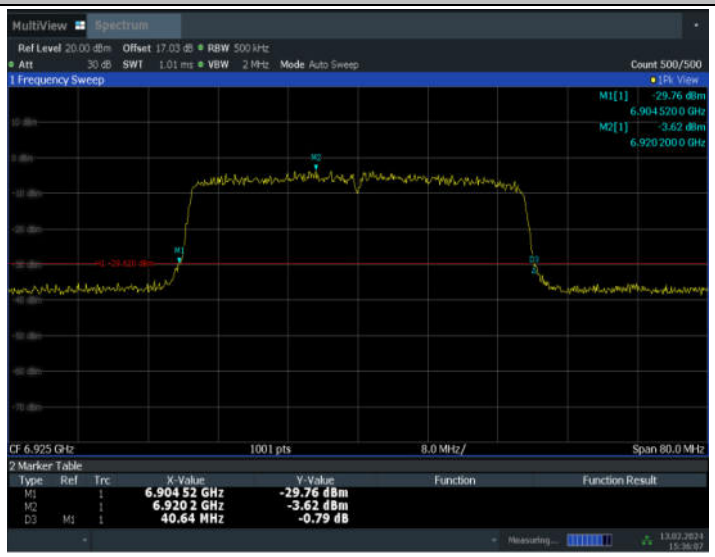


15:31:30 13.02.2024

11AX40MIMO_Ant7_6885

15:33:41 13.02.2024

11AX40MIMO_Ant10_6925



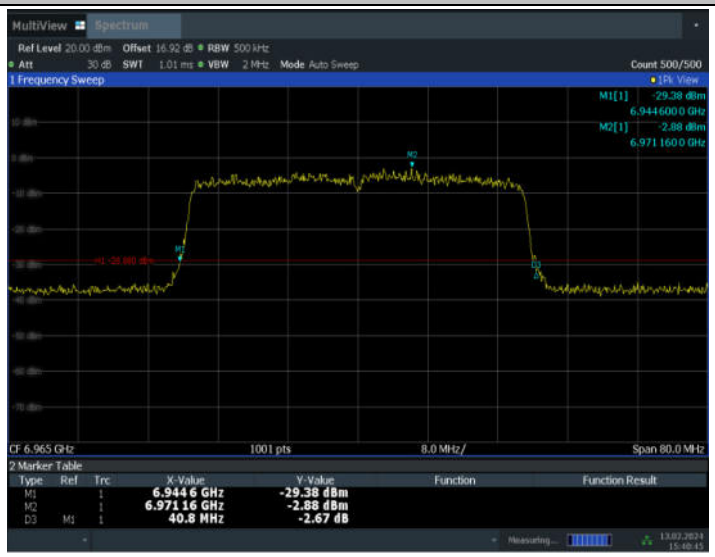
15:36:07 13.02.2024

©Copyright. All rights reserved by CTTL.

11AX40MIMO_Ant7_6925

15:38:18 13.02.2024

11AX40MIMO_Ant10_6965



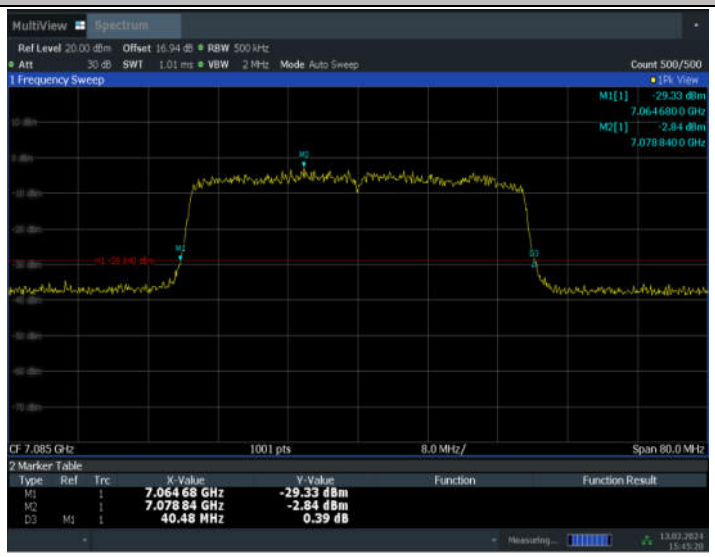
15:40:45 13.02.2024

11AX40MIMO_Ant7_6965

©Copyright. All rights reserved by CTTL.

15:42:57 13.02.2024

11AX40MIMO_Ant10_7085



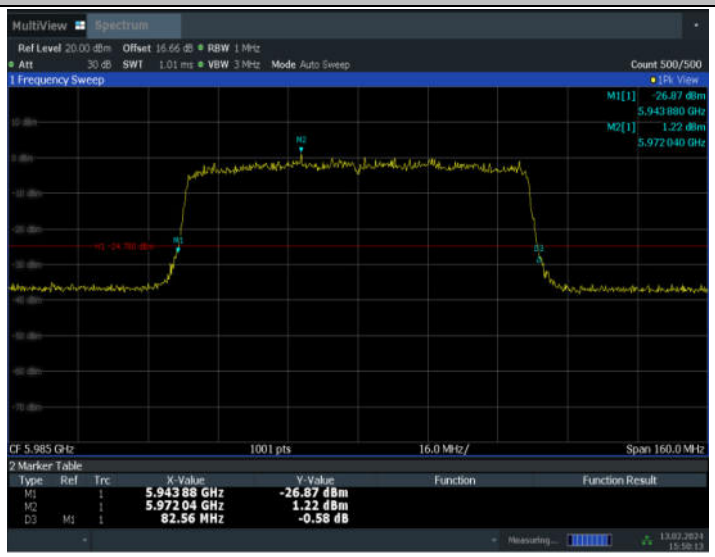
15:45:21 13.02.2024

11AX40MIMO_Ant7_7085

15:47:32 13.02.2024

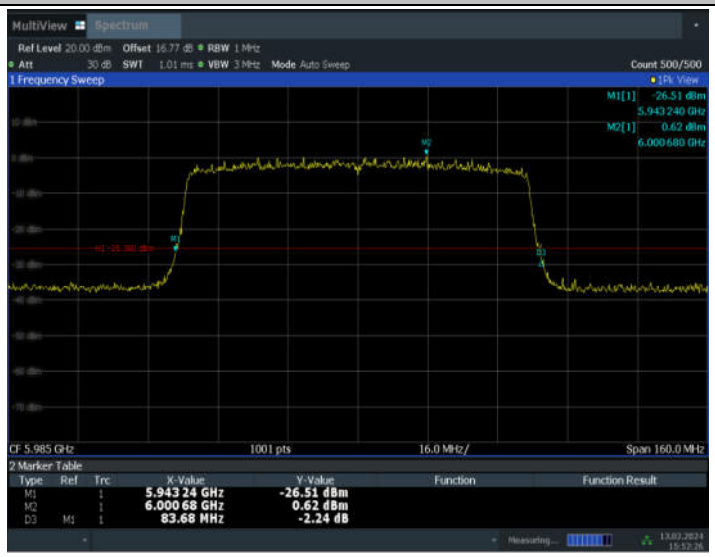
©Copyright. All rights reserved by CTTL.

11AX80MIMO_Ant10_5985



15:50:14 13.02.2024

11AX80MIMO_Ant7_5985



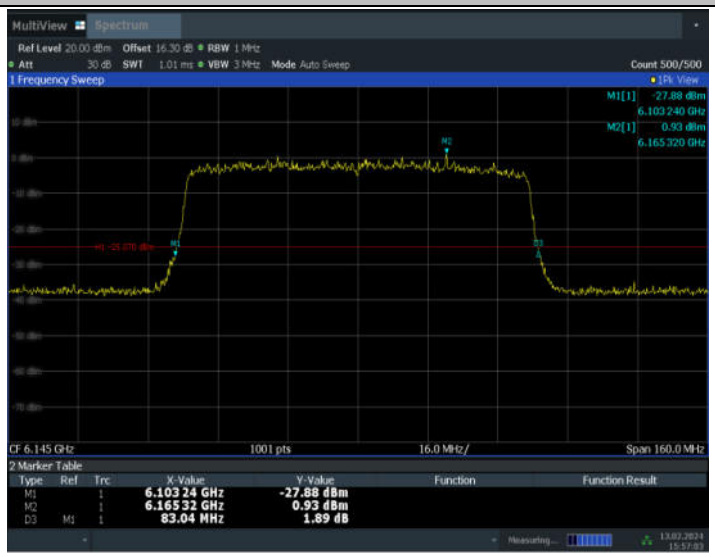
15:52:27 13.02.2024

11AX80MIMO_Ant10_6145

©Copyright. All rights reserved by CTTL.

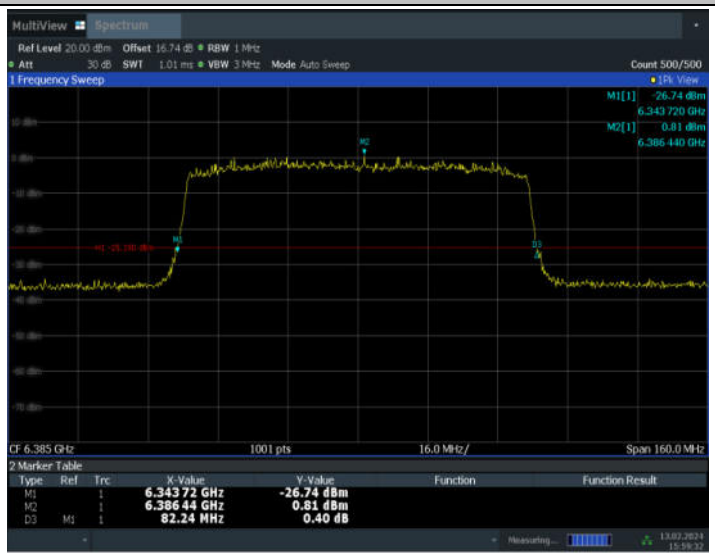
15:54:51 13.02.2024

11AX80MIMO_Ant7_6145



15:57:04 13.02.2024

11AX80MIMO_Ant10_6385



15:59:33 13.02.2024

©Copyright. All rights reserved by CTTL.

11AX80MIMO_Ant7_6385

16:01:44 13.02.2024

11AX80MIMO_Ant10_6465

16:04:13 13.02.2024

11AX80MIMO_Ant7_6465

©Copyright. All rights reserved by CTTL.

16:06:25 13.02.2024

11AX80MIMO_Ant10_6545

16:08:57 13.02.2024

11AX80MIMO_Ant7_6545

16:11:10 13.02.2024

©Copyright. All rights reserved by CTTL.