TEST REPORT

No.24T04N001247-005-RF LTE

for

HMD Global Oy

Mobile Phone

Model Name: TA-1689

FCC ID: 2AJOTTA-1689

with

Hardware Version: FF638-MB-V0.2

Software Version: 0.2420.17.00

Issued Date: 2024-07-24

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 SAICT.

Test Laboratory:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
24T04N001247-005-RF LTE	Rev.0	1st edition	2024-07-24

CONTENTS

1. SUMMARY OF TEST REPORT

1.1. Test Items

Description	Mobile Phone
Model Name	TA-1689
Brand Name	NOKIA
Applicant's name	HMD Global Oy
Manufacturer's Name	HMD Global Oy

1.2. Test Standards

FCC Part 2/22/24/27	10-1-23 Edition
ANSI C63.26	2015
KDB971168 D01	v03r01

1.3. Test Result

All test items are passed. Please refer to "6 Summary of Test Results" for detail.

1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China 518000

1.5. Project Data

Testing Start Date: 2024-06-04 Testing End Date: 2024-07-09

1.6. Signature

Wang Ping
(Prepared this test report)

Huang Qiuqin
(Reviewed this test report)

Zhang Hao
(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

Company Name: HMD Global Oy
Address /Post: Bertel Jungin aukio 9,02600 Espoo,Finland
Contact： reza.serafat
Email： reza.serafat@hmdglobal.com
Telephone: +491735287964
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2.2. Manufacturer Information

Company Name: HMD Global Oy
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3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)

3.1. About EUT

Description	Mobile Phone
Model Name	TA-1689
FCC ID	2AJOTTA-1689
Frequency Bands	LTE Bands 2/4/5/7/12/13/17/66
Antenna	Integrated
Extreme vol. Limits	3.60V to 4.20V (nominal: 3.80V)
Condition of EUT as received	No abnormality in appearance

Note1: Components list, please refer to documents of the manufacturer; it is also included in the original test record of SAICT.

3.2. Internal Identification of EUT

UT14aa	352178850000892	FF638-MB-V0.2	0.2420.17.00	2024-06-06
UT15aa	351768880001810	FF638-MB-V0.2	0.2420.17.00	2024-06-04

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

UT14aa are used for conduction test, UT15aa is used for radiation test.

3.3. Internal Identification of AE

AE ID*	Description
AE1	Battery

AE1

Model	BA-L4M
Manufacturer	SHENZHEN UTILITY ENERGY CO.,LTD.
Capacity	1450mAh
Nominal Voltage	3.8V

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

AE: ancillary equipment

3.4. General Description

The Equipment under Test (EUT) is a model of Mobile Phone with integrated antenna and battery. It consists of normal options: Lithium Battery and Charger. Manual and specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the client.

4. REFERENCE DOCUMENTS

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 22	PUBLIC MOBILE SERVICES	10-1-23 Edition
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	10-1-23 Edition
FCC Part 2	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS	10-1-23 Edition
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	10-1-23 Edition
ANSI C63.26	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services	2015
KDB971168 D01	Power Meas License Digital Systems	v03r01

5. LABORATORY ENVIRONMENT

Shielded room did not exceed following limits along the RF testing:

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz>60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	>2 MΩ
Ground system resistance	< 4 Ω

Fully-anechoic chamber did not exceed following limits along the EMC testing

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Voltage Standing Wave Ratio (VSWR)	≤ 6 dB, from 1 to 18 GHz， 3 m distance
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:		
Verdict Column	P	Pass
	F	Fail
	NA	Not applicable
	NM	Not measured

LTE Band 2

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/24.232	A.1	P
2	Field Strength of Spurious Radiation	2.1053/24.238	A.2	P
3	Frequency Stability	2.1055/24.235	A.3	P
4	Occupied Bandwidth	2.1049/24.238	A.4	P
5	Emission Bandwidth	2.1049/24.238	A.5	P
6	Band Edge Compliance	2.1051/24.238	A.6	P
7	Conducted Spurious Emission	2.1051/24.238	A.7	P
8	Peak-to-Average Power Ratio	24.232/KDB971168 D01	A.8	P

LTE Band 4

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/27.50(d)	A.1	P
2	Field Strength of Spurious Radiation	2.1053/27.53(h)	A.2	P
3	Frequency Stability	2.1055/27.54	A.3	P
4	Occupied Bandwidth	2.1049/27.53(g)	A.4	P
5	Emission Bandwidth	2.1049/27.53(g)	A.5	P
6	Band Edge Compliance	2.1051/27.53(h)	A.6	P
7	Conducted Spurious Emission	2.1051/27.53(h)	A.7	P
8	Peak-to-Average Power Ratio	27.50(d)/ KDB971168 D01	A.8	P

LTE band 5

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/22.913	A.1	P
2	Field Strength of Spurious Radiation	2.1053/22.917	A.2	P
3	Frequency Stability	2.1055/22.355	A.3	P
4	Occupied Bandwidth	2.1049/22.917	A.4	P
5	Emission Bandwidth	2.1049/22.917	A.5	P
6	Band Edge Compliance	2.1051/22.917	A.6	P
7	Conducted Spurious Emission	2.1051/22.917	A.7	P
8	Peak-to-Average Power Ratio	KDB971168 D01	A.8	P

LTE Band 7

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/27.50(h)	A.1	P
2	Field Strength of Spurious Radiation	2.1053/27.53(m)	A.2	P
3	Frequency Stability	2.1055/27.54	A.3	P
4	Occupied Bandwidth	2.1049/27.53(m)	A.4	P
5	Emission Bandwidth	2.1049/27.53(m)	A.5	P
6	Band Edge Compliance	2.1051/27.53(m)	A.6	P
7	Conducted Spurious Emission	2.1051/27.53(m)	A.7	P
8	Peak-to-Average Power Ratio	27.50(a)/ KDB971168 D01	A.8	P

LTE Band 12

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/27.50(c)	A.1	P
2	Field Strength of Spurious Radiation	2.1053/27.53(g)	A.2	P
3	Frequency Stability	2.1055/27.54	A.3	P
4	Occupied Bandwidth	2.1049/27.53(g)	A.4	P
5	Emission Bandwidth	2.1049/27.53(g)	A.5	P
6	Band Edge Compliance	2.1051/27.53(g)	A.6	P
7	Conducted Spurious Emission	2.1051/27.53(g)	A.7	P
8	Peak-to-Average Power Ratio	27.50(a)/ KDB971168 D01	A.8	P

LTE Band 13

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/27.50(b)	A.1	P
2	Field Strength of Spurious Radiation	2.1053/27.53(c)	A.2	P
3	Frequency Stability	2.1055/27.54	A.3	P
4	Occupied Bandwidth	2.1049/27.53(c)	A.4	P
5	Emission Bandwidth	2.1049/27.53(c)	A.5	P
6	Band Edge Compliance	2.1051/27.53(c)	A.6	P
7	Conducted Spurious Emission	2.1051/27.53(c)	A.7	P
8	Peak-to-Average Power Ratio	27.50(a)/ KDB971168 D01	A.8	P

LTE Band 17

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/27.50(c)	A.1	P
2	Field Strength of Spurious Radiation	2.1053/27.53(g)	A.2	P
3	Frequency Stability	2.1055/27.54	A.3	P
4	Occupied Bandwidth	2.1049/27.53(g)	A.4	P
5	Emission Bandwidth	2.1049/27.53(g)	A.5	P
6	Band Edge Compliance	2.1051/27.53(g)	A.6	P
7	Conducted Spurious Emission	2.1051/27.53(g)	A.7	P
8	Peak-to-Average Power Ratio	27.50(a)/ KDB971168 D01	A.8	P

LTE Band 66

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/27.50(d)	A.1	P
2	Field Strength of Spurious Radiation	2.1053/27.53(h)	A.2	P
3	Frequency Stability	2.1055/27.54	A.3	P
4	Occupied Bandwidth	2.1049/27.53(h)	A.4	P
5	Emission Bandwidth	2.1049/27.53(h)	A.5	P
6	Band Edge Compliance	2.1051/27.53(h)	A.6	P
7	Conducted Spurious Emission	2.1051/27.53(h)	A.7	P
8	Peak-to-Average Power Ratio	27.50(a)/KDB971168 D01	A.8	P

7. STATEMENT

The Mobile Phone, TA-1689, HMD Global Oy is a variant of TA-1686 for testing.

According to the declaration, retested RSE，spot-check Conduction power and reused all other data from No.24T04N001218-006-RF LTE. For detail information please check the declaration provided by the manufacturer.

Since the information of samples in this report is provided by the client, the laboratory is not responsible for the authenticity of sample information.

This report takes measured values as criterion of test conclusion. The test conclusion meets the limit requirements.

8. TEST EQUIPMENTS UTILIZED

No.	Description	Type	Manufacture	Series Number	Cal Due Date
1	Test Receiver	ESR7	R&S	101676	2024-11-22
2	Hybrid antenna	VULB 9163	Schwarzbeck	330	2027.04.21
3	Horn Antenna	3117	ETS-Lindgren	00066577	2025-04-17
4	Horn Antenna	QSH-SL-18-26-S-20	Q-par	17013	2026-02-01
5	Antenna	BBHA 9120D	Schwarzbeck	1593	2025-10-24
6	Antenna	QWH-SL-18-40-K-SG	Q-par	15979	2026-01-30
7	preamplifier	83017A	Agilent	MY39501110	/
8	Signal Generator	SMB100A	R&S	179725	2024-11-22
9	Fully Anechoic Chamber	FACT3-2.0	ETS-Lindgren	1285	2025-05-28
10	Spectrum Analyzer	FSV40	R&S	101192	2025-01-10
11	Universal Radio Communication Tester	CMU200	R&S	114545	2025-01-10
12	Universal Radio Communication Tester	CMW500	R&S	152499	2024-07-13
13	Power Supply	HMC8042	103284	R&S	2025-05-07
14	Universal Radio Communication Tester	CMW500	R&S	129146	2025-04-10
15	Spectrum Analyzer	FSW26	R&S	102197	2025-05-07
16	Temperature Chamber	SH-241	ESPEC	92007516	2024-10-15

Test software

Item	Name	Version
Radiated	EMC32	V10.50.40

ANNEX A: MEASUREMENT RESULTS

A.1 OUTPUT POWER

A.1.1 Summary

During the process of testing, the EUT was controlled via Communication tester to ensure max power transmission and proper modulation.

In all cases, output power is within the specified limits.

A.1.2 Conducted

A.1.2.1 Method of Measurements

The EUT was set up for the max output power with pseudo random data modulation.

These measurements were done at 3 frequencies (bottom, middle and top of operational frequency range) for each bandwidth.

A.1.2.2 Measurement result

LTE band 2

Bandwidth	RB size/offset	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
1.4MHz	1 RB high	1909.3	22.51	22.77
		1880.0	22.56	22.17
		1850.7	22.44	22.03
	1 RB low	1909.3	22.40	22.84
		1880.0	22.39	22.18
		1850.7	22.43	22.05
	50% RB mid	1909.3	22.60	22.40
		1880.0	22.58	22.19
		1850.7	22.51	22.42
	100% RB	1909.3	22.05	21.12
		1880.0	21.98	20.99
		1850.7	22.15	20.93
3MHz	1 RB high	1908.5	22.46	22.62
		1880.0	22.42	22.22
		1851.5	22.51	22.69
	1 RB low	1908.5	22.41	22.73
		1880.0	22.49	22.14
		1851.5	22.52	22.73
	50% RB mid	1908.5	22.10	21.34
		1880.0	21.96	21.17
		1851.5	22.02	21.32
	100% RB	1908.5	22.12	21.33
		1880.0	22.06	21.12
		1851.5	22.10	21.25
5MHz	1 RB high	1907.5	22.54	22.68

Bandwidth	RB size/offset	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		1880.0	22.34	22.66
		1852.5	22.49	22.58
	1 RB low	1907.5	22.50	22.75
		1880.0	22.40	22.70
		1852.5	22.52	22.70
	50% RB mid	1907.5	22.03	21.17
		1880.0	22.03	21.14
		1852.5	22.07	21.24
	100% RB	1907.5	22.05	21.40
		1880.0	22.03	21.32
		1852.5	21.94	21.28
10MHz	1 RB high	1905.0	22.53	22.13
		1880.0	22.48	22.61
		1855.0	22.49	22.61
	1 RB low	1905.0	22.36	22.04
		1880.0	22.49	22.71
		1855.0	22.50	22.73
	50% RB mid	1905.0	22.09	21.36
		1880.0	22.01	21.04
		1855.0	22.09	21.11
	100% RB	1905.0	22.03	21.23
		1880.0	21.95	21.11
		1855.0	22.07	21.10
15MHz	1 RB high	1902.5	22.43	22.63
		1880.0	22.33	22.68
		1857.5	22.40	22.55
	1 RB low	1902.5	22.29	22.58
		1880.0	22.40	22.67
		1857.5	22.53	22.68
	50% RB mid	1902.5	21.98	21.07
		1880.0	21.89	21.07
		1857.5	22.06	21.19
	100% RB	1902.5	22.05	21.12
		1880.0	22.04	21.10
		1857.5	21.86	21.06
20MHz	1 RB high	1900.0	22.55	22.66
		1880.0	22.51	22.11

Bandwidth	RB size/offset	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		1860.0	22.41	22.64
	1 RB low	1900.0	22.37	22.64
		1880.0	22.49	22.21
		1860.0	22.40	22.64
	50% RB mid	1900.0	22.00	21.09
		1880.0	21.95	21.08
		1860.0	21.93	21.06
	100% RB	1900.0	21.99	21.08
		1880.0	21.96	21.14
		1860.0	22.01	21.03

Note: Expanded measurement uncertainty is U = 0.49dB, k = 1.96

LTE band 4

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
1.4MHz	1 RB high	1754.3	22.22	22.45
		1732.5	22.20	22.44
		1710.7	22.33	21.97
	1 RB low	1754.3	22.22	22.54
		1732.5	22.12	22.48
		1710.7	22.26	21.98
	50% RB mid	1754.3	22.34	22.09
		1732.5	22.27	22.08
		1710.7	22.47	22.26
	100% RB	1754.3	21.75	20.71
		1732.5	21.85	20.76
		1710.7	21.93	20.93
3MHz	1 RB high	1753.5	22.24	22.44
		1732.5	22.29	22.41
		1711.5	22.39	22.39
	1 RB low	1753.5	22.19	22.58
		1732.5	22.39	22.51
		1711.5	22.39	22.55
	50% RB mid	1753.5	21.83	20.99
		1732.5	21.90	20.98
		1711.5	21.84	21.03
	100% RB	1753.5	21.78	21.09
		1732.5	21.86	20.99
		1711.5	22.00	21.10
5MHz	1 RB high	1752.5	22.16	22.48
		1732.5	22.17	21.89
		1712.5	22.32	21.89
	1 RB low	1752.5	22.20	22.49
		1732.5	22.21	21.96
		1712.5	22.41	21.93
	50% RB mid	1752.5	21.95	20.90
		1732.5	21.87	20.91
		1712.5	21.85	21.01
	100% RB	1752.5	21.85	21.11
		1732.5	21.75	21.14
		1712.5	21.77	21.14
10MHz	1 RB high	1750.0	22.31	21.82
		1732.5	22.03	22.43
		1715.0	22.18	22.08

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
	1 RB low	1750.0	22.31	21.85
		1732.5	22.35	22.62
		1715.0	22.29	21.95
	50% RB mid	1750.0	21.73	21.09
		1732.5	21.87	21.17
		1715.0	21.76	21.13
	100% RB	1750.0	21.94	20.99
		1732.5	21.79	20.96
		1715.0	21.86	20.89
15MHz	1 RB high	1747.5	22.22	22.51
		1732.5	22.15	22.44
		1717.5	22.22	22.52
	1 RB low	1747.5	22.35	22.64
		1732.5	22.28	22.52
		1717.5	22.20	22.62
	50% RB mid	1747.5	21.95	20.89
		1732.5	21.81	20.91
		1717.5	21.93	20.97
	100% RB	1747.5	21.93	21.07
		1732.5	21.75	20.99
		1717.5	21.87	21.02
20MHz	1 RB high	1745.0	22.13	22.10
		1732.5	22.33	22.38
		1720.0	22.23	21.79
	1 RB low	1745.0	22.34	22.09
		1732.5	22.41	22.56
		1720.0	22.28	21.94
	50% RB mid	1745.0	21.89	21.06
		1732.5	21.86	20.94
		1720.0	21.79	20.93
	100% RB	1745.0	21.93	21.04
		1732.5	21.82	20.94
		1720.0	21.88	20.90

Note: Expanded measurement uncertainty is U = 0.49dB, k = 1.96

LTE band 5

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
1.4MHz	1 RB high	848.3	22.17	22.11
		836.5	22.01	21.61
		824.7	22.03	22.19
	1 RB low	848.3	22.15	22.20
		836.5	22.03	21.59
		824.7	22.03	22.05
	50% RB mid	848.3	22.31	21.92
		836.5	22.12	22.07
		824.7	22.20	22.02
	100% RB	848.3	21.66	20.49
		836.5	21.60	20.56
		824.7	21.69	20.53
3MHz	1 RB high	847.5	22.12	22.42
		836.5	22.01	22.21
		825.5	22.09	22.12
	1 RB low	847.5	22.15	22.43
		836.5	22.02	22.23
		825.5	22.06	22.12
	50% RB mid	847.5	21.84	20.88
		836.5	21.67	20.81
		825.5	21.71	20.85
	100% RB	847.5	21.74	20.82
		836.5	21.71	20.90
		825.5	21.67	20.77
5MHz	1 RB high	846.5	22.11	21.79
		836.5	22.20	22.16
		826.5	22.06	21.74
	1 RB low	846.5	22.07	21.84
		836.5	22.13	22.25
		826.5	21.98	21.74
	50% RB mid	846.5	21.74	20.84
		836.5	21.77	20.71
		826.5	21.59	20.73
	100% RB	846.5	21.80	20.99
		836.5	21.60	20.99
		826.5	21.67	20.98
10MHz	1 RB high	844.0	22.12	22.39
		836.5	22.15	21.74
		829.0	22.10	22.29

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
	1 RB low	844.0	22.05	22.22
		836.5	21.99	21.72
		829.0	22.03	22.25
	50% RB mid	844.0	21.58	20.76
		836.5	21.71	20.97
		829.0	21.64	20.76
	100% RB	844.0	21.76	20.76
		836.5	21.61	20.67
		829.0	21.63	20.76

Note: Expanded measurement uncertainty is U = 0.49dB, k = 1.96

LTE band 7

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
5MHz	1 RB high	2567.5	22.79	22.92
		2535.0	22.60	22.80
		2502.5	22.58	22.70
	1 RB low	2567.5	22.77	22.85
		2535.0	22.53	22.73
		2502.5	22.51	22.68
	50% RB mid	2567.5	22.27	21.37
		2535.0	22.20	21.26
		2502.5	22.20	21.14
	100% RB	2567.5	22.26	21.62
		2535.0	22.10	21.38
		2502.5	22.23	21.27
10MHz	1 RB high	2565.0	22.76	23.04
		2535.0	22.62	22.17
		2505.0	22.53	22.18
	1 RB low	2565.0	22.77	22.95
		2535.0	22.52	22.04
		2505.0	22.54	22.13
	50% RB mid	2565.0	22.41	21.21
		2535.0	22.21	21.46
		2505.0	22.19	21.37
	100% RB	2565.0	22.37	21.63
		2535.0	22.26	21.13
		2505.0	22.18	21.32
15MHz	1 RB high	2562.5	22.80	23.18
		2535.0	22.59	22.96
		2507.5	22.54	23.01
	1 RB low	2562.5	22.54	23.01
		2535.0	22.37	22.69
		2507.5	22.48	22.86
	50% RB mid	2562.5	22.42	21.48
		2535.0	22.20	21.08
		2507.5	22.08	21.14
	100% RB	2562.5	22.42	21.31
		2535.0	22.14	21.28
		2507.5	22.01	21.23
20MHz	1 RB high	2560.0	22.91	23.09

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
		2535.0	22.79	22.42
		2510.0	22.67	22.06
	1 RB low	2560.0	22.60	22.94
		2535.0	22.59	22.24
		2510.0	22.49	22.07
	50% RB mid	2560.0	22.29	21.49
		2535.0	22.25	21.22
		2510.0	22.10	21.18
	100% RB	2560.0	22.31	21.41
		2535.0	22.03	21.18
		2510.0	22.02	21.18

Note: Expanded measurement uncertainty is U = 0.49 dB, k = 1.96

LTE band 12

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
1.4MHz	1 RB high	715.3	22.18	21.68
		707.5	22.07	22.18
		699.7	21.98	21.64
	1 RB low	715.3	22.17	21.60
		707.5	21.96	22.04
		699.7	21.91	21.63
	50% RB mid	715.3	22.29	22.00
		707.5	22.16	21.89
		699.7	22.13	21.94
	100% RB	715.3	21.79	20.55
		707.5	21.58	20.96
		699.7	21.57	20.37
3MHz	1 RB high	714.5	22.22	22.33
		707.5	22.01	22.09
		700.5	22.04	21.71
	1 RB low	714.5	22.26	22.39
		707.5	22.00	22.00
		700.5	22.02	21.71
	50% RB mid	714.5	21.71	21.34
		707.5	21.66	21.23
		700.5	21.69	20.71
	100% RB	714.5	21.67	21.38
		707.5	21.60	21.21
		700.5	21.66	20.73
5MHz	1 RB high	713.5	22.16	22.21
		707.5	22.20	22.20
		701.5	22.04	22.23
	1 RB low	713.5	22.13	22.34
		707.5	22.04	22.11
		701.5	21.93	22.03
	50% RB mid	713.5	21.70	21.36
		707.5	21.67	21.15
		701.5	21.76	21.14
	100% RB	713.5	21.77	21.50
		707.5	21.74	21.18
		701.5	21.58	21.14
10MHz	1 RB high	711.0	22.31	21.75

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
		707.5	22.18	22.29
		704.0	22.20	22.15
	1 RB low	711.0	22.07	21.56
		707.5	21.97	22.09
		704.0	21.96	21.99
	50% RB mid	711.0	21.71	20.75
		707.5	21.75	21.25
		704.0	21.79	21.15
	100% RB	711.0	21.72	20.72
		707.5	21.66	21.19
		704.0	21.66	21.18

Note: Expanded measurement uncertainty is U = 0.49dB, k = 1.96

LTE band 13

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
5MHz	1 RB high	784.5	22.24	21.85
		782.0	22.25	21.79
		779.5	22.23	22.23
	1 RB low	784.5	22.19	21.80
		782.0	22.17	21.72
		779.5	22.20	22.32
	50% RB mid	784.5	21.82	20.81
		782.0	21.80	21.03
		779.5	21.77	20.97
	100% RB	784.5	21.67	20.89
		782.0	21.71	21.23
		779.5	21.82	20.97
10MHz	1 RB high	782.0	22.17	22.21
	1 RB low	782.0	22.28	22.11
	50% RB mid	782.0	21.72	21.03
	100% RB	782.0	21.89	21.12

Note: Expanded measurement uncertainty is U = 0.49 dB, k = 1.96

LTE band 17

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
5MHz	1RB-High (24)	713.5	22.12	22.24
		710.0	22.17	21.66
		706.5	22.13	21.99
	1RB-Low (0)	713.5	22.11	22.28
		710.0	22.11	21.65
		706.5	22.08	22.18
	12RB-Middle (6)	713.5	21.73	21.27
		710.0	21.75	20.75
		706.5	21.73	20.66
	25RB (0)	713.5	21.64	21.49
		710.0	21.76	20.92
		706.5	21.61	20.85
10MHz	1RB-High (49)	711.0	22.23	22.27
		710.0	22.22	22.19
		709.0	22.19	21.73
	1RB-Low (0)	711.0	22.00	22.09
		710.0	22.03	21.97
		709.0	22.04	21.62
	25RB-Middle (12)	711.0	21.77	20.73
		710.0	21.74	20.77
		709.0	21.62	21.31
	50RB (0)	711.0	21.74	20.73
		710.0	21.77	20.83
		709.0	21.62	21.21

Note: Expanded measurement uncertainty is U = 0.49dB, k = 1.96

LTE band 66

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
1.4MHz	1 RB high	1779.3	22.28	22.03
		1745.0	22.28	22.53
		1710.7	22.31	22.56
	1 RB low	1779.3	22.23	22.10
		1745.0	22.30	22.40
		1710.7	22.35	22.50
	50% RB mid	1779.3	22.48	22.31
		1745.0	22.37	22.14
		1710.7	22.29	22.23
	100% RB	1779.3	21.88	20.77
		1745.0	21.89	20.88
		1710.7	21.88	20.81
3MHz	1 RB high	1778.5	22.20	22.55
		1745.0	22.31	22.14
		1711.5	22.38	22.42
	1 RB low	1778.5	22.26	22.58
		1745.0	22.32	22.07
		1711.5	22.41	22.49
	50% RB mid	1778.5	21.88	21.13
		1745.0	21.95	21.08
		1711.5	21.83	21.12
	100% RB	1778.5	21.98	21.09
		1745.0	21.78	21.19
		1711.5	21.78	21.09
5MHz	1 RB high	1777.5	22.26	22.50
		1745.0	22.22	22.61
		1712.5	22.21	22.47
	1 RB low	1777.5	22.28	22.45
		1745.0	22.22	22.52
		1712.5	22.19	22.46
	50% RB mid	1777.5	21.99	21.06
		1745.0	21.73	20.95
		1712.5	21.78	20.98
	100% RB	1777.5	21.85	20.93
		1745.0	21.95	21.17
		1712.5	21.95	20.86
10MHz	1 RB high	1775.0	22.40	22.02

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
		1745.0	22.35	22.44
		1715.0	22.30	22.56
	1 RB low	1775.0	22.37	21.99
		1745.0	22.42	22.43
		1715.0	22.36	22.44
	50% RB mid	1775.0	21.89	20.91
		1745.0	21.76	20.97
		1715.0	21.90	21.15
	100% RB	1775.0	21.92	21.07
		1745.0	21.74	20.99
		1715.0	21.78	20.90
15MHz	1 RB high	1772.5	22.32	22.63
		1745.0	22.39	22.42
		1717.5	22.23	22.41
	1 RB low	1772.5	22.42	22.54
		1745.0	22.38	22.42
		1717.5	22.23	22.41
	50% RB mid	1772.5	21.93	21.09
		1745.0	21.90	20.89
		1717.5	21.84	20.91
	100% RB	1772.5	21.83	21.14
		1745.0	21.81	21.06
		1717.5	21.92	20.93
20MHz	1 RB high	1770.0	22.20	22.50
		1745.0	22.15	22.44
		1720.0	22.20	22.48
	1 RB low	1770.0	22.24	22.35
		1745.0	22.23	22.37
		1720.0	22.22	22.54
	50% RB mid	1770.0	21.76	20.95
		1745.0	21.71	20.97
		1720.0	21.79	20.85
	100% RB	1770.0	21.89	20.98
		1745.0	21.80	21.03
		1720.0	21.75	20.92

Note: Expanded measurement uncertainty is U = 0.49dB, k = 1.96

A.1.3 Radiated

A.1.3.1 Description

This is the test for the maximum radiated power from the EUT.

Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

Rule Part 27.50(d) specifies “Fixed, mobile, and portable (handheld) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP”.

Rule Part 27.50(h)(2) specifies “Mobile stations are limited to 2.0 watts EIRP.”.

Rule Part 27.50(c) specifies “Portable stations (hand-held de-vices) are limited to 3 watts ERP.”.

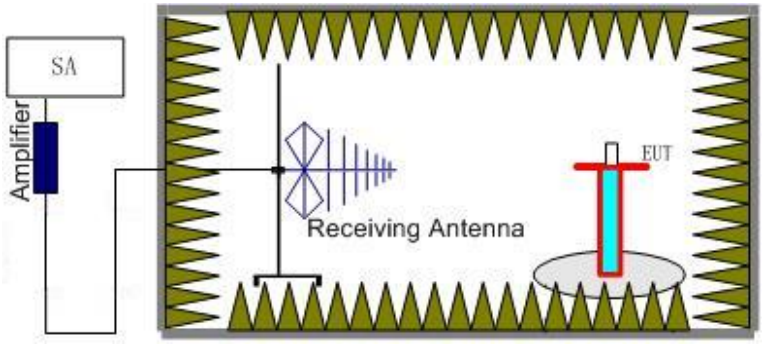
Rule Part 27.50(a)(3) specifies “For mobile and portable stations transmitting in the 2305–2315 MHz band or the 2350–2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth.”

Rule Part 22.913(a) specifies "The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts."

Rule Part 90.542 specifies "Portable stations (hand-held devices) transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 3 watts ERP."

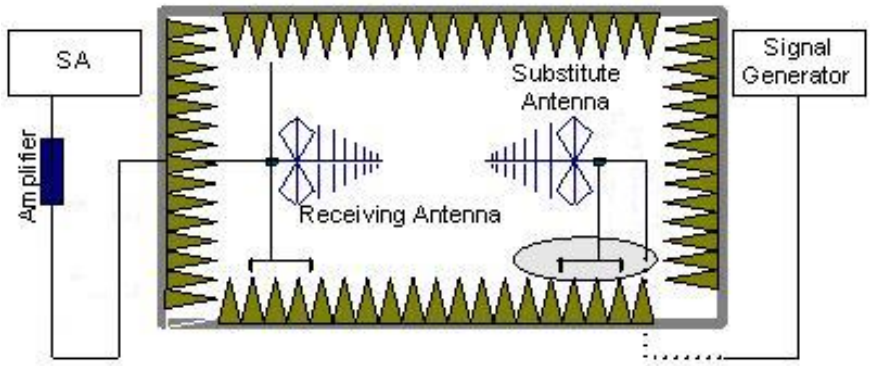
A.1.3.2 Method of Measurement

1. For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, EUT was placed on a 80 cm high non-conductive stand at a 3 meter test distance from the receive antenna. For radiated measurements performed at frequencies above 1 GHz, EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. Receiving antenna was placed on the antenna mast 3 meters from the EUT. For emission measurements. The receiving antenna shall be varied from 1 m to 4 m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).

3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna and adjusts the level of the signal generator output until the value of the receiver reaches the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. An amplifier should be connected to the Signal Source output port. And the cable should be connected between the amplifier and the substitution antenna.
   The cable loss (P_{cl}), the substitution Antenna Gain(dBi) (G_a) and the amplifier Gain (P_{Ag}) should be recorded after test.
   The measurement results are obtained as described below:
   Power (EIRP) = $P_{Mea} - P_{Ag} - P_{cl} + G_a$
5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dB.

A.1.3.3 Measurement result

LTE Band 2- EIRP Part 24. 232(c)

Limits: ≤33dBm (2W)

LTE Band 2_1.4MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1850.70	-15.11	-29.30	8.10	22.29	33.00	H
1880.00	-15.38	-29.40	8.10	22.12	33.00	H
1909.30	-15.38	-29.30	8.10	22.02	33.00	H

LTE Band 2_3MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1851.50	-15.32	-29.30	8.10	22.08	33.00	H
1880.00	-15.56	-29.40	8.10	21.94	33.00	H
1908.50	-15.63	-29.30	8.10	21.77	33.00	H

LTE Band 2_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1852.50	-15.46	-29.30	8.10	21.94	33.00	H
1880.00	-15.68	-29.40	8.10	21.82	33.00	H
1907.50	-15.79	-29.30	8.10	21.61	33.00	H

LTE Band 2_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1855.00	-15.34	-29.30	8.10	22.06	33.00	H
1880.00	-15.64	-29.40	8.10	21.86	33.00	H
1905.00	-15.59	-29.30	8.10	21.81	33.00	H

LTE Band 2_15MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1857.50	-15.34	-29.30	8.10	22.06	33.00	H
1880.00	-15.69	-29.40	8.10	21.81	33.00	H
1902.50	-15.77	-29.30	8.10	21.63	33.00	H

LTE Band 2_20MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1860.00	-15.40	-29.30	8.10	22.00	33.00	H
1880.00	-15.79	-29.40	8.10	21.71	33.00	H
1900.00	-15.73	-29.30	8.10	21.67	33.00	H

LTE Band 2_1.4MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1850.70	-16.23	-29.30	8.10	21.17	33.00	H
1880.00	-16.47	-29.40	8.10	21.03	33.00	H
1909.30	-16.63	-29.30	8.10	20.77	33.00	H

LTE Band 2_3MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1851.50	-16.31	-29.30	8.10	21.09	33.00	H
1880.00	-16.68	-29.40	8.10	20.82	33.00	H
1908.50	-16.81	-29.30	8.10	20.59	33.00	H

LTE Band 2_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1852.50	-16.60	-29.30	8.10	20.80	33.00	H
1880.00	-16.85	-29.40	8.10	20.65	33.00	H
1907.50	-17.08	-29.30	8.10	20.32	33.00	H

LTE Band 2_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1855.00	-16.47	-29.30	8.10	20.93	33.00	H
1880.00	-16.77	-29.40	8.10	20.73	33.00	H
1905.00	-16.73	-29.30	8.10	20.67	33.00	H

LTE Band 2_15MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1857.50	-16.56	-29.30	8.10	20.84	33.00	H
1880.00	-16.91	-29.40	8.10	20.59	33.00	H
1902.50	-16.98	-29.30	8.10	20.42	33.00	H

LTE Band 2_20MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1860.00	-16.60	-29.30	8.10	20.80	33.00	H
1880.00	-17.05	-29.40	8.10	20.45	33.00	H
1900.00	-16.93	-29.30	8.10	20.47	33.00	H

LTE Band 2_1.4MHz_64QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1850.70	-17.44	-29.30	8.10	19.96	33.00	H
1880.00	-17.57	-29.40	8.10	19.93	33.00	H
1909.30	-17.66	-29.30	8.10	19.74	33.00	H

LTE Band 4- EIRP Part 27.50(d)(4)

Limits: ≤30dBm (1W)

LTE Band 4_1.4MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1710.70	-16.29	-29.60	8.10	21.41	30.00	H
1732.50	-15.65	-29.60	8.10	22.05	30.00	H
1754.30	-15.88	-29.50	8.10	21.72	30.00	H

LTE Band 4_3MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1711.50	-16.51	-29.60	8.10	21.20	30.00	H
1732.50	-15.83	-29.60	8.10	21.87	30.00	H
1753.50	-16.13	-29.50	8.10	21.47	30.00	H

LTE Band 4_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1712.50	-16.64	-29.60	8.10	21.06	30.00	H
1732.50	-15.95	-29.60	8.10	21.75	30.00	H
1752.50	-16.29	-29.50	8.10	21.31	30.00	H

LTE Band 4_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1715.00	-16.73	-29.60	8.10	20.97	30.00	H
1732.50	-16.11	-29.60	8.10	21.59	30.00	H
1750.00	-16.40	-29.50	8.10	21.20	30.00	H

LTE Band 4_15MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1717.50	-16.83	-29.60	8.10	20.87	30.00	H
1732.50	-16.26	-29.60	8.10	21.44	30.00	H
1747.50	-16.47	-29.50	8.10	21.13	30.00	H

LTE Band 4_20MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1720.00	-16.99	-29.60	8.10	20.71	30.00	H
1732.50	-16.36	-29.60	8.10	21.34	30.00	H
1745.00	-16.64	-29.50	8.10	20.96	30.00	H

LTE Band 4_1.4MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1710.70	-17.41	-29.60	8.10	20.29	30.00	H
1732.50	-16.74	-29.60	8.10	20.96	30.00	H
1754.30	-17.14	-29.50	8.10	20.46	30.00	H

LTE Band 4_3MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1711.50	-17.49	-29.60	8.10	20.21	30.00	H
1732.50	-16.95	-29.60	8.10	20.75	30.00	H
1753.50	-17.31	-29.50	8.10	20.29	30.00	H

LTE Band 4_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1712.50	-17.79	-29.60	8.10	19.91	30.00	H
1732.50	-17.12	-29.60	8.10	20.58	30.00	H
1752.50	-17.58	-29.50	8.10	20.02	30.00	H

LTE Band 4_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1715.00	-17.86	-29.60	8.10	19.84	30.00	H
1732.50	-17.24	-29.60	8.10	20.46	30.00	H
1750.00	-17.53	-29.50	8.10	20.07	30.00	H

LTE Band 4_15MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1717.50	-18.04	-29.60	8.10	19.66	30.00	H
1732.50	-17.47	-29.60	8.10	20.23	30.00	H
1747.50	-17.68	-29.50	8.10	19.92	30.00	H

LTE Band 4_20MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1720.00	-18.18	-29.60	8.10	19.52	30.00	H
1732.50	-17.62	-29.60	8.10	20.08	30.00	H
1745.00	-17.83	-29.50	8.10	19.77	30.00	H

LTE Band 5- ERP Part 22.913(a)

Limits: ≤38.45dBm (7W)

LTE Band 5_1.4MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
824.70	-8.76	-33.60	-0.79	2.15	21.89	38.45	V
836.50	-9.20	-33.50	-0.74	2.15	21.41	38.45	V
848.30	-8.70	-33.50	-0.73	2.15	21.92	38.45	V

LTE Band 5_3MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
825.50	-8.89	-33.60	-0.84	2.15	21.72	38.45	V
836.50	-9.38	-33.50	-0.74	2.15	21.24	38.45	V
847.50	-8.91	-33.50	-0.73	2.15	21.71	38.45	V

LTE Band 5_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
826.50	-8.97	-33.60	-0.84	2.15	21.64	38.45	V
836.50	-9.49	-33.50	-0.74	2.15	21.12	38.45	V
846.50	-9.01	-33.50	-0.73	2.15	21.61	38.45	V

LTE Band 5_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
829.00	-9.05	-33.60	-0.84	2.15	21.56	38.45	V
836.50	-9.56	-33.50	-0.74	2.15	21.05	38.45	V
844.00	-9.06	-33.50	-0.78	2.15	21.50	38.45	V

LTE Band 5_1.4MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
824.70	-9.78	-33.60	-0.79	2.15	20.87	38.45	V
836.50	-10.21	-33.50	-0.74	2.15	20.40	38.45	V
848.30	-9.86	-33.50	-0.73	2.15	20.76	38.45	V

LTE Band 5_3MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
825.50	-9.88	-33.60	-0.84	2.15	20.73	38.45	V
836.50	-10.40	-33.50	-0.74	2.15	20.21	38.45	V
847.50	-9.99	-33.50	-0.73	2.15	20.63	38.45	V

LTE Band 5_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
826.50	-10.01	-33.60	-0.84	2.15	20.59	38.45	V
836.50	-10.56	-33.50	-0.74	2.15	20.05	38.45	V
846.50	-10.02	-33.50	-0.73	2.15	20.60	38.45	V

LTE Band 5_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
829.00	-10.08	-33.60	-0.84	2.15	20.52	38.45	V
836.50	-10.59	-33.50	-0.74	2.15	20.02	38.45	V
844.00	-10.10	-33.50	-0.78	2.15	20.47	38.45	V

LTE Band 7- EIRP Part 27.50(h)(2)

Limits: ≤33 dBm (2W)

LTE Band 7_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2502.50	-17.70	-28.70	10.70	21.70	33.00	H
2535.00	-17.45	-28.60	10.70	21.85	33.00	H
2567.50	-17.03	-28.60	10.70	22.27	33.00	H

LTE Band 7_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2505.00	-18.01	-28.70	10.70	21.39	33.00	H
2535.00	-17.67	-28.60	10.70	21.63	33.00	H
2565.00	-17.33	-28.60	10.70	21.97	33.00	H

LTE Band 7_15MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2507.50	-18.09	-28.70	10.70	21.31	33.00	H
2535.00	-17.86	-28.60	10.70	21.44	33.00	H
2562.50	-17.35	-28.60	10.70	21.95	33.00	H

LTE Band 7_20MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2510.00	-18.39	-28.70	10.70	21.01	33.00	H
2535.00	-18.01	-28.60	10.70	21.29	33.00	H
2560.00	-17.69	-28.60	10.70	21.61	33.00	H

LTE Band 7_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2502.50	-18.77	-28.70	10.70	20.63	33.00	H
2535.00	-18.59	-28.60	10.70	20.71	33.00	H
2567.50	-17.94	-28.60	10.70	21.36	33.00	H

LTE Band 7_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2505.00	-19.18	-28.70	10.70	20.22	33.00	H
2535.00	-18.90	-28.60	10.70	20.40	33.00	H
2565.00	-18.61	-28.60	10.70	20.69	33.00	H

LTE Band 7_15MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2507.50	-18.83	-28.70	10.70	20.57	33.00	H
2535.00	-18.75	-28.60	10.70	20.55	33.00	H
2562.50	-18.33	-28.60	10.70	20.97	33.00	H

LTE Band 7_20MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2510.00	-19.36	-28.70	10.70	20.04	33.00	H
2535.00	-19.06	-28.60	10.70	20.24	33.00	H
2560.00	-18.66	-28.60	10.70	20.64	33.00	H

LTE Band 12 - ERP Part 27.50(c)(10)

Limits: ≤34.77dBm (3W)

LTE Band 12_1.4MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
699.70	-9.92	-34.80	-0.93	2.15	21.80	34.77	V
707.50	-9.92	-34.70	-0.91	2.15	21.73	34.77	V
715.30	-10.33	-34.70	-0.68	2.15	21.54	34.77	V

LTE Band 12_3MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
700.50	-10.06	-34.80	-0.97	2.15	21.62	34.77	V
707.50	-10.10	-34.70	-0.91	2.15	21.55	34.77	V
714.50	-10.58	-34.70	-0.64	2.15	21.33	34.77	V

LTE Band 12_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
701.50	-10.13	-34.80	-0.97	2.15	21.55	34.77	V
707.50	-10.21	-34.70	-0.91	2.15	21.44	34.77	V
713.50	-10.68	-34.70	-0.64	2.15	21.22	34.77	V

LTE Band 12_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
704.00	-10.22	-34.80	-0.97	2.15	21.46	34.77	V
707.50	-10.28	-34.70	-0.91	2.15	21.37	34.77	V
711.00	-10.78	-34.70	-0.64	2.15	21.12	34.77	V

LTE Band 12_1.4MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
699.70	-10.94	-34.80	-0.93	2.15	20.78	34.77	V
707.50	-10.93	-34.70	-0.91	2.15	20.71	34.77	V
715.30	-11.49	-34.70	-0.68	2.15	20.38	34.77	V

LTE Band 12_3MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
700.50	-11.04	-34.80	-0.97	2.15	20.64	34.77	V
707.50	-11.12	-34.70	-0.91	2.15	20.52	34.77	V
714.50	-11.66	-34.70	-0.64	2.15	20.25	34.77	V

LTE Band 12_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
701.50	-11.18	-34.80	-0.97	2.15	20.50	34.77	V
707.50	-11.28	-34.70	-0.91	2.15	20.36	34.77	V
713.50	-11.69	-34.70	-0.64	2.15	20.22	34.77	V

LTE Band 12_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
704.00	-11.25	-34.80	-0.97	2.15	20.43	34.77	V
707.50	-11.31	-34.70	-0.91	2.15	20.33	34.77	V
711.00	-11.82	-34.70	-0.64	2.15	20.09	34.77	V

LTE Band 13- ERP Part 27.50(b)(10)

Limits: ≤34.77dBm (3W)

LTE Band 13_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
779.50	-10.09	-34.00	-0.08	2.15	21.68	34.77	V
782.00	-9.98	-34.00	-0.13	2.15	21.75	34.77	V
784.50	-10.14	-34.00	-0.13	2.15	21.58	34.77	V

LTE Band 13_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
782.00	-10.39	-34.00	-0.13	2.15	21.34	34.77	V

LTE Band 13_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
779.50	-11.18	-34.00	-0.08	2.15	20.59	34.77	V
782.00	-11.17	-34.00	-0.13	2.15	20.56	34.77	V
784.50	-11.28	-34.00	-0.13	2.15	20.44	34.77	V

LTE Band 13_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
782.00	-11.26	-34.00	-0.13	2.15	20.47	34.77	V

LTE Band 17- ERP 27.50(c)(10)

Limits: ≤34.77dBm (3W)

LTE Band 17_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
706.50	-10.40	-34.70	-0.91	2.15	21.25	34.77	V
710.00	-10.31	-34.70	-0.64	2.15	21.59	34.77	V
713.50	-10.60	-34.70	-0.64	2.15	21.31	34.77	V

LTE Band 17_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
709.00	-10.57	-34.70	-0.91	2.15	21.07	34.77	V
710.00	-10.49	-34.70	-0.64	2.15	21.41	34.77	V
711.00	-10.80	-34.70	-0.64	2.15	21.10	34.77	V

LTE Band 17_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
706.50	-11.42	-34.70	-0.91	2.15	20.23	34.77	V
710.00	-11.33	-34.70	-0.64	2.15	20.58	34.77	V
713.50	-11.75	-34.70	-0.64	2.15	20.16	34.77	V

LTE Band 17_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
709.00	-11.56	-34.70	-0.91	2.15	20.09	34.77	V
710.00	-11.51	-34.70	-0.64	2.15	20.39	34.77	V
711.00	-11.88	-34.70	-0.64	2.15	20.02	34.77	V

LTE Band 66- EIRP Part 27.50(d)(4)

Limits: ≤30dBm (1W)

LTE Band 66_1.4MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1710.70	-16.29	-29.60	8.10	21.41	30.00	H
1745.00	-15.88	-29.50	8.10	21.72	30.00	H
1779.30	-15.82	-29.50	8.10	21.78	30.00	H

LTE Band 66_3MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1711.50	-16.50	-29.60	8.10	21.20	30.00	H
1745.00	-16.05	-29.50	8.10	21.55	30.00	H
1778.50	-16.06	-29.50	8.10	21.54	30.00	H

LTE Band 66_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1712.50	-16.64	-29.60	8.10	21.06	30.00	H
1745.00	-16.18	-29.50	8.10	21.42	30.00	H
1777.50	-16.23	-29.50	8.10	21.37	30.00	H

LTE Band 66_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1715.00	-16.72	-29.60	8.10	20.98	30.00	H
1745.00	-16.34	-29.50	8.10	21.26	30.00	H
1775.00	-16.33	-29.50	8.10	21.27	30.00	H

LTE Band 66_15MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1717.50	-16.83	-29.60	8.10	20.87	30.00	H
1745.00	-16.49	-29.50	8.10	21.11	30.00	H
1772.53	-16.40	-29.50	8.10	21.20	30.00	H

LTE Band 66_20MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1720.00	-16.99	-29.60	8.10	20.71	30.00	H
1745.00	-16.59	-29.50	8.10	21.01	30.00	H
1770.00	-16.57	-29.50	8.10	21.03	30.00	H

LTE Band 66_1.4MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1710.70	-17.31	-29.60	8.10	20.39	30.00	H
1745.00	-16.97	-29.50	8.10	20.63	30.00	H
1779.30	-16.87	-29.50	8.10	20.73	30.00	H

LTE Band 66_3MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1711.50	-17.39	-29.60	8.10	20.31	30.00	H
1745.00	-17.08	-29.50	8.10	20.52	30.00	H
1778.50	-17.14	-29.50	8.10	20.46	30.00	H

LTE Band 66_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1712.50	-17.69	-29.60	8.10	20.01	30.00	H
1745.00	-17.25	-29.50	8.10	20.35	30.00	H
1777.50	-17.31	-29.50	8.10	20.29	30.00	H

LTE Band 66_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1715.00	-17.76	-29.60	8.10	19.94	30.00	H
1745.00	-17.37	-29.50	8.10	20.23	30.00	H
1775.00	-17.36	-29.50	8.10	20.24	30.00	H

LTE Band 66_15MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1717.50	-17.84	-29.60	8.10	19.86	30.00	H
1745.00	-17.50	-29.50	8.10	20.10	30.00	H
1772.53	-17.42	-29.50	8.10	20.18	30.00	H

LTE Band 66_20MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1720.00	-18.08	-29.60	8.10	19.62	30.00	H
1745.00	-17.64	-29.50	8.10	19.96	30.00	H
1770.00	-17.66	-29.50	8.10	19.94	30.00	H

ANALYZER SETTINGS:

RBW = VBW = 8MHz for occupied bandwidths equal to or less than 5MHz.

RBW = VBW = 20MHz for occupied bandwidths equal to or greater than 10MHz.

Note: The maximum value of expanded measurement uncertainty for this test item is U = 2.82dB(30MHz-3GHz)/3.06dB(3GHz-18GHz)/2.40dB(18GHz-40GHz), k = 2

Note: Both of Vertical and Horizontal polarizations are evaluated, but only the worst case is recorded in this report.

A.2 FIELD STRENGTH OF SPURIOUS RADIATION

Reference

FCC: CFR 2.1053, 22.917, 24.238, 27.53.

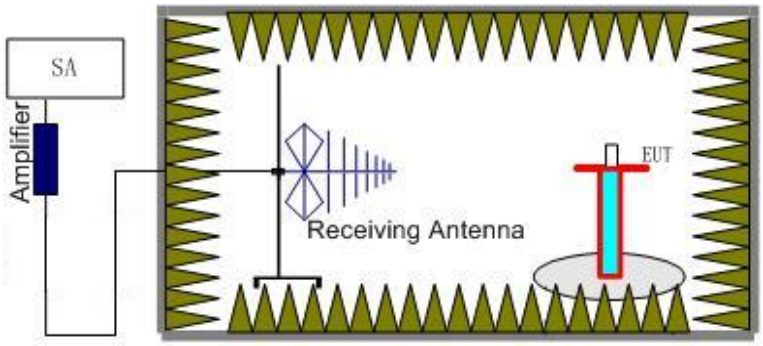
A.2.1 Measurement Method

This measurement is carried out in fully-anechoic chamber FAC-3.

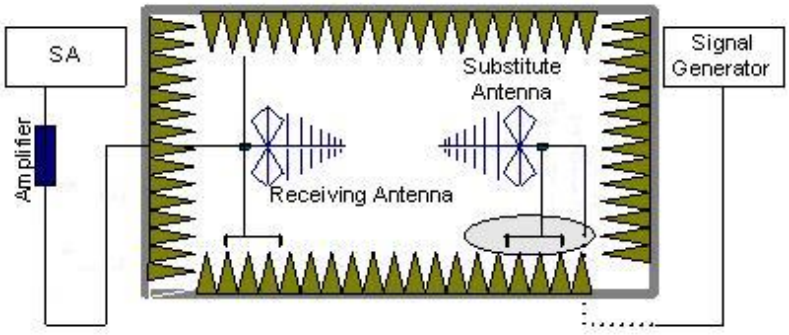
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz as outlined in Part 22.917, 24.238 and 27.53(h). The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the all LTE Bands

The procedure of radiated spurious emissions is as follows:

1. For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, EUT was placed on a 80 cm high non-conductive stand at a 3 meter test distance from the receive antenna. For radiated measurements performed at frequencies above 1 GHz, EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. Receiving antenna was placed on the antenna mast 3 meters from the EUT. For emission measurements. The receiving antenna shall be varied from 1 m to 4 m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the

reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna and adjusts the level of the signal generator output until the value of the receiver reaches the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss (P_{pl}) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain(dBi) (G_a) should be recorded after test.
   An amplifier should be connected in for the test.
   The Path loss (P_{pl}) is the summation of the cable loss and the gain of the amplifier.
   The measurement results are obtained as described below:
   Power (EIRP)=P_{Mea} - P_{pl} + G_a
5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit: dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dB.

A.2.2 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the test LTE Bands. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the test LTE Bands. into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.
Only worst case result is given below.

LTE Band 2, 1.4MHz, QPSK, Channel 18607

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16984.50	-44.39	2.90	16.50	-30.79	-13.00	H
17078.00	-43.21	2.90	14.50	-31.61	-13.00	H
17298.50	-42.41	3.20	14.50	-31.11	-13.00	H
17491.00	-41.60	2.90	14.50	-30.00	-13.00	H
17575.50	-39.00	3.30	12.80	-29.50	-13.00	H
17778.50	-39.43	3.60	12.80	-30.23	-13.00	H

LTE Band 2, 1.4MHz, QPSK, Channel 18900

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16947.00	-44.27	2.90	16.50	-30.67	-13.00	H
17120.00	-42.83	2.90	14.50	-31.23	-13.00	H
17264.00	-42.55	3.20	14.50	-31.25	-13.00	H
17451.50	-41.07	2.90	14.50	-29.47	-13.00	H
17635.50	-39.20	3.30	12.80	-29.70	-13.00	H
17838.50	-39.34	3.60	12.80	-30.14	-13.00	H

LTE Band 2, 1.4MHz, QPSK, Channel 19193

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16964.00	-44.55	2.90	16.50	-30.95	-13.00	H
17127.50	-42.86	2.90	14.50	-31.26	-13.00	H
17278.00	-42.54	3.20	14.50	-31.24	-13.00	H
17450.50	-39.98	2.90	14.50	-28.38	-13.00	H
17607.00	-39.18	3.30	12.80	-29.68	-13.00	H
17821.00	-39.39	3.60	12.80	-30.19	-13.00	H

LTE Band 2, 1.4MHz, 16QAM, Channel 18607

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16936.50	-44.62	2.90	16.50	-31.02	-13.00	H
17207.00	-42.85	2.90	14.50	-31.25	-13.00	H
17362.50	-42.03	3.20	14.50	-30.73	-13.00	H
17523.50	-39.06	2.90	12.80	-29.16	-13.00	H
17525.50	-39.48	2.90	12.80	-29.58	-13.00	H
17824.50	-39.55	3.60	12.80	-30.35	-13.00	H

LTE Band 2, 1.4MHz, 16QAM, Channel 18900

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16942.50	-44.80	2.90	16.50	-31.20	-13.00	H
17122.00	-43.09	2.90	14.50	-31.49	-13.00	H
17365.50	-42.35	3.20	14.50	-31.05	-13.00	H
17457.50	-41.26	2.90	14.50	-29.66	-13.00	H
17525.50	-39.46	2.90	12.80	-29.56	-13.00	H
17703.50	-39.71	3.30	12.80	-30.21	-13.00	H

LTE Band 2, 1.4MHz, 16QAM, Channel 19193

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16959.50	-44.82	2.90	16.50	-31.22	-13.00	H
17173.00	-43.37	2.90	14.50	-31.77	-13.00	H
17367.00	-43.05	3.20	14.50	-31.75	-13.00	H
17443.00	-41.42	2.90	14.50	-29.82	-13.00	H
17547.50	-39.43	2.90	12.80	-29.53	-13.00	H
17830.50	-39.83	3.60	12.80	-30.63	-13.00	H

LTE Band 4, 1.4MHz, QPSK, Channel 19957

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16956.00	-44.60	2.90	16.50	-31.00	-13.00	H
17214.50	-43.54	2.90	14.50	-31.94	-13.00	H
17366.50	-42.87	3.20	14.50	-31.57	-13.00	H
17460.00	-41.12	2.90	14.50	-29.52	-13.00	H
17624.50	-38.12	3.30	12.80	-28.62	-13.00	H
17833.00	-39.72	3.60	12.80	-30.52	-13.00	H

LTE Band 4, 1.4MHz, QPSK, Channel 20175

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16993.00	-43.61	2.90	16.50	-30.01	-13.00	H
17162.50	-42.16	2.90	14.50	-30.56	-13.00	H
17368.50	-41.38	3.20	14.50	-30.08	-13.00	H
17454.50	-39.32	2.90	14.50	-27.72	-13.00	H
17606.00	-37.23	3.30	12.80	-27.73	-13.00	H
17775.00	-37.40	3.60	12.80	-28.20	-13.00	H

LTE Band 4, 1.4MHz, QPSK, Channel 20393

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16498.50	-46.34	2.70	17.40	-31.64	-13.00	H
16983.00	-44.20	2.90	16.50	-30.60	-13.00	H
17230.00	-42.81	3.20	14.50	-31.51	-13.00	H
17502.50	-38.98	2.90	12.80	-29.08	-13.00	H
17575.50	-39.33	3.30	12.80	-29.83	-13.00	H
17778.00	-39.48	3.60	12.80	-30.28	-13.00	H

LTE Band 4, 1.4MHz, 16QAM, Channel 19957

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16927.50	-44.52	2.90	16.50	-30.92	-13.00	H
17131.50	-43.34	2.90	14.50	-31.74	-13.00	H
17253.50	-42.56	3.20	14.50	-31.26	-13.00	H
17501.00	-39.29	2.90	12.80	-29.39	-13.00	H
17577.50	-39.26	3.30	12.80	-29.76	-13.00	H
17706.00	-40.09	3.30	12.80	-30.59	-13.00	H

LTE Band 4, 1.4MHz, 16QAM, Channel 20175

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16956.50	-44.00	2.90	16.50	-30.40	-13.00	H
17118.00	-42.69	2.90	14.50	-31.09	-13.00	H
17339.50	-41.79	3.20	14.50	-30.49	-13.00	H
17455.50	-40.50	2.90	14.50	-28.90	-13.00	H
17629.50	-37.62	3.30	12.80	-28.12	-13.00	H
17820.00	-38.71	3.60	12.80	-29.51	-13.00	H

LTE Band 4, 1.4MHz, 16QAM, Channel 20393

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16958.00	-44.21	2.90	16.50	-30.61	-13.00	H
17188.00	-43.20	2.90	14.50	-31.60	-13.00	H
17302.00	-42.65	3.20	14.50	-31.35	-13.00	H
17425.50	-41.36	2.90	14.50	-29.76	-13.00	H
17586.50	-38.02	3.30	12.80	-28.52	-13.00	H
17777.00	-39.83	3.60	12.80	-30.63	-13.00	H

LTE Band 5, 1.4MHz, QPSK, Channel 20407

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8571.75	-52.64	2.10	12.00	-44.89	-13.00	H
9096.50	-52.26	2.20	11.60	-45.01	-13.00	H
9099.50	-51.94	2.20	11.60	-44.69	-13.00	H
9226.00	-50.60	2.10	11.60	-43.25	-13.00	H
9297.25	-50.75	2.00	11.60	-43.30	-13.00	H
9475.25	-50.83	2.10	11.60	-43.48	-13.00	V

LTE Band 5, 1.4MHz, QPSK, Channel 20525

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
9096.75	-51.83	2.20	11.60	-44.58	-13.00	H
9154.75	-51.62	2.10	11.60	-44.27	-13.00	H
9228.50	-51.45	2.10	11.60	-44.10	-13.00	H
9302.75	-51.43	2.00	11.60	-43.98	-13.00	H
9425.50	-51.69	2.10	11.60	-44.34	-13.00	H
9459.75	-50.70	2.10	11.60	-43.35	-13.00	V

LTE Band 5, 1.4MHz, QPSK, Channel 20643

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
9095.50	-52.02	2.20	11.60	-44.77	-13.00	H
9100.00	-51.77	2.20	11.60	-44.52	-13.00	H
9225.00	-51.29	2.10	11.60	-43.94	-13.00	H
9301.25	-50.14	2.00	11.60	-42.69	-13.00	H
9475.25	-51.35	2.10	11.60	-44.00	-13.00	V
9798.50	-50.95	2.30	11.20	-44.20	-13.00	H

LTE Band 5, 1.4MHz, 16QAM, Channel 20407

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8500.50	-52.65	2.10	12.00	-44.90	-13.00	H
9164.25	-51.47	2.10	11.60	-44.12	-13.00	H
9225.50	-51.87	2.10	11.60	-44.52	-13.00	H
9299.00	-51.18	2.00	11.60	-43.73	-13.00	H
9423.25	-51.79	2.10	11.60	-44.44	-13.00	H
9476.00	-51.18	2.10	11.60	-43.83	-13.00	V

LTE Band 5, 1.4MHz, 16QAM, Channel 20525

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8324.50	-51.82	1.90	11.30	-44.57	-13.00	H
8434.25	-52.00	1.80	11.30	-44.65	-13.00	H
9154.50	-51.81	2.10	11.60	-44.46	-13.00	H
9224.75	-50.87	2.10	11.60	-43.52	-13.00	H
9301.25	-51.20	2.00	11.60	-43.75	-13.00	H
9424.00	-51.81	2.10	11.60	-44.46	-13.00	H

LTE Band 5, 1.4MHz, 16QAM, Channel 20643

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
9108.00	-51.88	2.10	11.60	-44.53	-13.00	H
9221.75	-50.84	2.10	11.60	-43.49	-13.00	H
9301.75	-51.45	2.00	11.60	-44.00	-13.00	H
9426.00	-51.71	2.10	11.60	-44.36	-13.00	H
9476.00	-51.11	2.10	11.60	-43.76	-13.00	V
9745.00	-51.47	2.20	11.20	-44.62	-13.00	H

LTE Band 7, 5MHz, QPSK, Channel 20775

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16959.50	-54.58	2.90	16.50	-40.98	-25.00	H
17122.50	-53.37	2.90	14.50	-41.77	-25.00	H
17347.50	-52.72	3.20	14.50	-41.42	-25.00	H
17431.00	-51.06	2.90	14.50	-39.46	-25.00	H
17596.50	-49.10	3.30	12.80	-39.60	-25.00	H
17840.00	-49.55	3.60	12.80	-40.35	-25.00	H

LTE Band 7, 5MHz, QPSK, Channel 21100

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16982.00	-54.84	2.90	16.50	-41.24	-25.00	H
17122.50	-53.49	2.90	14.50	-41.89	-25.00	H
17295.00	-52.79	3.20	14.50	-41.49	-25.00	H
17456.00	-51.45	2.90	14.50	-39.85	-25.00	H
17606.00	-49.21	3.30	12.80	-39.71	-25.00	H
17829.50	-49.53	3.60	12.80	-40.33	-25.00	H

LTE Band 7, 5MHz, QPSK, Channel 21425

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16964.00	-54.64	2.90	16.50	-41.04	-25.00	H
17185.00	-53.59	2.90	14.50	-41.99	-25.00	H
17364.50	-52.63	3.20	14.50	-41.33	-25.00	H
17465.00	-51.37	2.90	14.50	-39.77	-25.00	H
17576.00	-49.05	3.30	12.80	-39.55	-25.00	H
17838.50	-49.37	3.60	12.80	-40.17	-25.00	H

LTE Band 7, 5MHz, 16QAM, Channel 20775

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16978.50	-54.41	2.90	16.50	-40.81	-25.00	H
17202.50	-53.46	2.90	14.50	-41.86	-25.00	H
17295.00	-52.37	3.20	14.50	-41.07	-25.00	H
17524.00	-49.63	2.90	12.80	-39.73	-25.00	H
17593.00	-49.10	3.30	12.80	-39.60	-25.00	H
17839.00	-48.96	3.60	12.80	-39.76	-25.00	H

LTE Band 7, 5MHz, 16QAM, Channel 21100

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16960.50	-54.63	2.90	16.50	-41.03	-25.00	H
17214.00	-53.04	2.90	14.50	-41.44	-25.00	H
17363.00	-52.68	3.20	14.50	-41.38	-25.00	H
17456.50	-51.03	2.90	14.50	-39.43	-25.00	H
17573.00	-49.05	3.30	12.80	-39.55	-25.00	H
17833.50	-49.19	3.60	12.80	-39.99	-25.00	H

LTE Band 7, 5MHz, 16QAM, Channel 21425

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16988.00	-54.78	2.90	16.50	-41.18	-25.00	H
17122.00	-53.42	2.90	14.50	-41.82	-25.00	H
17363.00	-52.52	3.20	14.50	-41.22	-25.00	H
17421.00	-51.36	2.90	14.50	-39.76	-25.00	H
17619.50	-49.12	3.30	12.80	-39.62	-25.00	H
17832.50	-49.53	3.60	12.80	-40.33	-25.00	H

LTE Band 12, 1.4MHz, QPSK, Channel 23017

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1398.50	-45.10	0.70	6.00	-41.95	-13.00	H
9226.25	-50.97	2.10	11.60	-43.62	-13.00	H
9299.50	-50.12	2.00	11.60	-42.67	-13.00	H
9423.75	-51.93	2.10	11.60	-44.58	-13.00	H
9478.25	-51.29	2.10	11.60	-43.94	-13.00	V
9733.50	-50.81	2.20	11.20	-43.96	-13.00	H

LTE Band 12, 1.4MHz, QPSK, Channel 23095

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1414.00	-47.40	0.70	6.00	-44.25	-13.00	H
7900.25	-52.20	1.70	11.30	-44.75	-13.00	H
9108.75	-51.71	2.10	11.60	-44.36	-13.00	H
9225.00	-50.43	2.10	11.60	-43.08	-13.00	H
9296.50	-50.22	2.00	11.60	-42.77	-13.00	H
9474.75	-51.40	2.10	11.60	-44.05	-13.00	V

LTE Band 12, 1.4MHz, QPSK, Channel 23173

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8474.25	-51.71	1.80	11.30	-44.36	-13.00	H
9104.75	-51.21	2.20	11.60	-43.96	-13.00	H
9224.25	-51.22	2.10	11.60	-43.87	-13.00	H
9300.75	-50.85	2.00	11.60	-43.40	-13.00	H
9475.00	-51.31	2.10	11.60	-43.96	-13.00	V
9789.75	-50.74	2.30	11.20	-43.99	-13.00	H

LTE Band 12, 1.4MHz, 16QAM, Channel 23017

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1398.75	-45.31	0.70	6.00	-42.16	-13.00	H
9227.75	-51.06	2.10	11.60	-43.71	-13.00	H
9300.75	-51.12	2.00	11.60	-43.67	-13.00	H
9345.00	-51.99	2.00	11.60	-44.54	-13.00	V
9475.50	-51.00	2.10	11.60	-43.65	-13.00	V
9744.25	-50.93	2.20	11.20	-44.08	-13.00	H

LTE Band 12, 1.4MHz, 16QAM, Channel 23095

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1414.00	-46.82	0.70	6.00	-43.67	-13.00	H
8474.50	-51.95	1.80	11.30	-44.60	-13.00	H
9222.75	-51.03	2.10	11.60	-43.68	-13.00	H
9304.25	-51.10	2.00	11.60	-43.65	-13.00	H
9424.50	-51.57	2.10	11.60	-44.22	-13.00	H
9474.25	-51.04	2.10	11.60	-43.69	-13.00	V

LTE Band 12, 1.4MHz, 16QAM, Channel 23173

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7328.25	-52.15	1.70	12.00	-44.00	-13.00	H
8465.50	-52.00	1.80	11.30	-44.65	-13.00	H
9224.25	-50.99	2.10	11.60	-43.64	-13.00	H
9304.75	-51.07	2.00	11.60	-43.62	-13.00	H
9417.75	-51.31	2.10	11.60	-43.96	-13.00	H
9475.75	-51.68	2.10	11.60	-44.33	-13.00	V

LTE Band 13, 5MHz, QPSK, Channel 23205

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1565.00	-58.21	0.70	8.10	-52.96	-40.00	V
9103.00	-51.81	2.20	11.60	-44.56	-13.00	H
9303.50	-50.22	2.00	11.60	-42.77	-13.00	H
9475.62	-50.61	2.10	11.60	-43.26	-13.00	V
9735.00	-50.80	2.20	11.20	-43.95	-13.00	H
9796.50	-51.10	2.30	11.20	-44.35	-13.00	H

LTE Band 13, 5MHz, QPSK, Channel 23230

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1561.00	-59.23	0.70	8.10	-53.98	-40.00	V
8457.00	-51.06	1.80	11.30	-43.71	-13.00	H
9102.25	-51.05	2.20	11.60	-43.80	-13.00	H
9298.25	-50.13	2.00	11.60	-42.68	-13.00	H
9474.75	-50.81	2.10	11.60	-43.46	-13.00	V
9760.00	-50.84	2.20	11.20	-43.99	-13.00	H

LTE Band 13, 5MHz, QPSK, Channel 23255

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1568.50	-59.85	0.70	8.10	-54.60	-40.00	V
9203.50	-50.32	2.10	11.60	-42.97	-13.00	V
9226.50	-49.59	2.10	11.60	-42.24	-13.00	H
9474.00	-51.01	2.10	11.60	-43.66	-13.00	V
9712.00	-50.83	2.20	11.20	-43.98	-13.00	H
9787.00	-50.89	2.30	11.20	-44.14	-13.00	H

LTE Band 13, 5MHz, 16QAM, Channel 23205

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1568.50	-59.64	0.70	8.10	-54.39	-40.00	V
8426.25	-51.98	1.80	11.30	-44.63	-13.00	H
9101.00	-51.53	2.20	11.60	-44.28	-13.00	H
9152.75	-50.80	2.10	11.60	-43.45	-13.00	H
9478.38	-51.18	2.10	11.60	-43.83	-13.00	V
9719.62	-50.84	2.20	11.20	-43.99	-13.00	H

LTE Band 13, 5MHz, 16QAM, Channel 23230

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1566.00	-59.81	0.70	8.10	-54.56	-40.00	V
8895.38	-52.57	1.90	12.00	-44.62	-13.00	H
9300.50	-50.28	2.00	11.60	-42.83	-13.00	H
9468.50	-50.36	2.10	11.60	-43.01	-13.00	V
9748.38	-51.13	2.20	11.20	-44.28	-13.00	H
9785.50	-50.88	2.30	11.20	-44.13	-13.00	H

LTE Band 13, 5MHz, 16QAM, Channel 23255

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1566.50	-59.83	0.70	8.10	-54.58	-40.00	V
9105.50	-51.45	2.20	11.60	-44.20	-13.00	H
9299.88	-50.31	2.00	11.60	-42.86	-13.00	H
9476.62	-51.04	2.10	11.60	-43.69	-13.00	V
9731.00	-50.03	2.20	11.20	-43.18	-13.00	H
9802.00	-51.33	2.30	11.20	-44.58	-13.00	H

LTE Band 17, 1.4MHz, QPSK, Channel 23755

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8412.75	-52.31	1.80	11.30	-44.96	-13.00	H
9103.50	-51.43	2.20	11.60	-44.18	-13.00	H
9221.75	-50.70	2.10	11.60	-43.35	-13.00	H
9300.50	-50.94	2.00	11.60	-43.49	-13.00	H
9427.25	-52.13	2.10	11.60	-44.78	-13.00	H
9481.50	-51.33	2.10	11.60	-43.98	-13.00	V

LTE Band 17, 1.4MHz, QPSK, Channel 23790

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1415.75	-46.79	0.70	6.00	-43.64	-13.00	H
8433.25	-51.35	1.80	11.30	-44.00	-13.00	H
9101.75	-51.31	2.20	11.60	-44.06	-13.00	H
9222.75	-51.27	2.10	11.60	-43.92	-13.00	H
9299.00	-50.92	2.00	11.60	-43.47	-13.00	H
9477.00	-51.21	2.10	11.60	-43.86	-13.00	V

LTE Band 17, 1.4MHz, QPSK, Channel 23825

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8519.75	-52.19	2.10	12.00	-44.44	-13.00	H
9103.25	-51.93	2.20	11.60	-44.68	-13.00	H
9218.25	-51.76	2.10	11.60	-44.41	-13.00	H
9293.00	-50.59	2.00	11.60	-43.14	-13.00	H
9425.50	-51.92	2.10	11.60	-44.57	-13.00	H
9477.00	-51.80	2.10	11.60	-44.45	-13.00	V

LTE Band 17, 1.4MHz, 16QAM, Channel 23755

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8422.75	-51.99	1.80	11.30	-44.64	-13.00	H
8978.50	-52.43	2.00	12.00	-44.58	-13.00	H
9225.25	-51.27	2.10	11.60	-43.92	-13.00	H
9306.50	-51.32	2.00	11.60	-43.87	-13.00	H
9417.75	-51.59	2.10	11.60	-44.24	-13.00	H
9474.50	-50.92	2.10	11.60	-43.57	-13.00	V

LTE Band 17, 1.4MHz, 16QAM, Channel 23790

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
1415.50	-46.99	0.70	6.00	-43.84	-13.00	H
9098.25	-51.47	2.20	11.60	-44.22	-13.00	H
9224.00	-50.85	2.10	11.60	-43.50	-13.00	H
9300.75	-50.85	2.00	11.60	-43.40	-13.00	H
9422.00	-51.25	2.10	11.60	-43.90	-13.00	H
9474.00	-51.18	2.10	11.60	-43.83	-13.00	V

LTE Band 17, 1.4MHz, 16QAM, Channel 23825

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
9099.00	-51.72	2.20	11.60	-44.47	-13.00	H
9226.25	-51.54	2.10	11.60	-44.19	-13.00	H
9301.25	-51.11	2.00	11.60	-43.66	-13.00	H
9357.75	-52.61	2.00	11.60	-45.16	-13.00	H
9469.50	-51.37	2.10	11.60	-44.02	-13.00	V
9759.00	-51.43	2.20	11.20	-44.58	-13.00	H

LTE Band 66, 1.4MHz, QPSK, Channel 131979

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16944.50	-44.10	2.90	16.50	-30.50	-13.00	H
17170.00	-43.47	2.90	14.50	-31.87	-13.00	H
17313.50	-42.11	3.20	14.50	-30.81	-13.00	H
17438.50	-41.11	2.90	14.50	-29.51	-13.00	H
17577.50	-39.32	3.30	12.80	-29.82	-13.00	H
17839.00	-39.75	3.60	12.80	-30.55	-13.00	H

LTE Band 66, 1.4MHz, QPSK, Channel 132322

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16985.00	-44.74	2.90	16.50	-31.14	-13.00	H
17201.00	-43.28	2.90	14.50	-31.68	-13.00	H
17239.00	-42.92	3.20	14.50	-31.62	-13.00	H
17513.00	-39.58	2.90	12.80	-29.68	-13.00	H
17625.00	-38.62	3.30	12.80	-29.12	-13.00	H
17838.50	-39.83	3.60	12.80	-30.63	-13.00	H

LTE Band 66, 1.4MHz, QPSK, Channel 132665

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16966.00	-44.21	2.90	16.50	-30.61	-13.00	H
17176.00	-43.58	2.90	14.50	-31.98	-13.00	H
17285.50	-42.74	3.20	14.50	-31.44	-13.00	H
17502.50	-38.96	2.90	12.80	-29.06	-13.00	H
17574.00	-38.75	3.30	12.80	-29.25	-13.00	H
17839.50	-39.27	3.60	12.80	-30.07	-13.00	H

LTE Band 66, 1.4MHz, 16QAM, Channel 131979

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16934.50	-44.80	2.90	16.50	-31.20	-13.00	H
17120.00	-43.85	2.90	14.50	-32.25	-13.00	H
17360.00	-42.21	3.20	14.50	-30.91	-13.00	H
17507.50	-39.43	2.90	12.80	-29.53	-13.00	H
17625.50	-38.42	3.30	12.80	-28.92	-13.00	H
17830.50	-39.29	3.60	12.80	-30.09	-13.00	H

LTE Band 66, 1.4MHz, 16QAM, Channel 132322

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16925.50	-44.51	2.90	16.50	-30.91	-13.00	H
17107.00	-43.44	2.90	14.50	-31.84	-13.00	H
17305.00	-42.67	3.20	14.50	-31.37	-13.00	H
17516.50	-39.26	2.90	12.80	-29.36	-13.00	H
17625.50	-39.43	3.30	12.80	-29.93	-13.00	H
17839.50	-39.51	3.60	12.80	-30.31	-13.00	H

LTE Band 66, 1.4MHz, 16QAM, Channel 132665

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
17000.00	-42.94	2.90	14.50	-31.34	-13.00	H
17096.00	-43.27	2.90	14.50	-31.67	-13.00	H
17303.50	-42.00	3.20	14.50	-30.70	-13.00	H
17496.00	-41.18	2.90	14.50	-29.58	-13.00	H
17613.50	-39.38	3.30	12.80	-29.88	-13.00	H
17770.00	-39.76	3.60	12.80	-30.56	-13.00	H

LTE Band 66, 1.4MHz, 64QAM, Channel 131979

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16992.00	-44.86	2.90	16.50	-31.26	-13.00	H
17214.50	-43.24	2.90	14.50	-31.64	-13.00	H
17358.50	-41.63	3.20	14.50	-30.33	-13.00	H
17453.50	-41.31	2.90	14.50	-29.71	-13.00	H
17588.50	-38.50	3.30	12.80	-29.00	-13.00	H
17705.00	-39.70	3.30	12.80	-30.20	-13.00	H

Note: The maximum value of expanded measurement uncertainty for this test item is U = 2.82dB(30MHz-3GHz)/3.06dB(3GHz-18GHz)/2.40dB(18GHz-40GHz), k = 2

A.3 FREQUENCY STABILITY

A.3.1 Method of Measurement

Frequency stability is a measure of the frequency drift due to temperature and supply voltage variations, with reference to the frequency measured at +20 °C and rated supply voltage. Two reference points are established at the applicable unwanted emissions limit using a RBW equal to the RBW required by the unwanted emissions specification of the applicable regulatory standard. These reference points measured using the lowest and highest channel of operation shall be identified as F_L and F_H respectively.

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a “call mode”. This is accomplished with the use of CMW500

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30℃.
3. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on mid channel of each band, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10℃ increments from -30℃ to +50℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments e-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50℃.
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the center channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10℃ increments from +50℃ to -30℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5℃ during the measurement procedure.

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of the lower, higher and nominal voltage. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress.

A.3.2 Measurement results

LTE Band 2, 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.80	1850.730	1909.320		
50				-4.59	0.0024
40				-3.22	0.0017
30				0.09	0.0000
10				0.76	0.0004
0				-1.36	0.0007
-10				-1.82	0.0010
-20				-2.35	0.0012
-30				-2.29	0.0012

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	1850.730	1909.320	-0.72	0.0004
4.20				4.45	0.0024

Expanded measurement uncertainty is 10 Hz, *k* = 2

LTE Band 4, 10MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
50	3.80	1710.760	1754.330		
40				10.66	0.0062
30				8.10	0.0047
20				9.33	0.0054
10				1.70	0.0010
0				-5.11	0.0029
-10				-9.47	0.0055
-20				8.61	0.0050
-30				2.78	0.0016

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	1710.760	1754.330	-0.67	0.0004
4.20				5.47	0.0032

Expanded measurement uncertainty is 10Hz, k = 2

LTE Band 5, 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
50	3.80	824.210	848.800		
40				9.47	0.0113
30				-6.41	0.0077
20				9.81	0.0117
10				6.50	0.0078
0				9.16	0.0109
-10				-5.61	0.0067
-20				6.37	0.0076
-30				-14.16	0.0169

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	824.210	848.800	16.54	0.0198
4.20				3.49	0.0042

Expanded measurement uncertainty is 10 Hz, k = 2

LTE Band 7, 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.80	2500.460	2569.640		
50				2.43	0.0010
40				-1.99	0.0008
30				5.79	0.0023
10				-2.27	0.0009
0				5.85	0.0023
-10				8.51	0.0034
-20				-0.87	0.0003
-30				1.77	0.0007

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	2500.460	2569.640	2.13	0.0008
4.20				-0.57	0.0002

Expanded measurement uncertainty is 10 Hz, k = 2

LTE Band 12, 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.80	699.430	715.550		
50				-9.83	0.0139
40				-19.31	0.0273
30				10.10	0.0143
10				9.81	0.0139
0				3.00	0.0042
-10				-3.82	0.0054
-20				-10.04	0.0142
-30				-17.42	0.0246

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	699.430	715.550	-21.90	0.0310
4.20				2.78	0.0039

Expanded measurement uncertainty is 10Hz, k = 2

LTE Band 13, 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.80	777.355	786.556		
50				-9.86	0.0126
40				30.57	0.0391
30				22.72	0.0290
10				12.59	0.0161
0				5.34	0.0068
-10				-3.83	0.0049
-20				-2.29	0.0029
-30				33.53	0.0429

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	777.355	786.556	26.04	0.0333
4.20				18.34	0.0235

Expanded measurement uncertainty is 10Hz, k = 2

LTE Band 17, 10MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
50	3.80	704.110	715.810		
40				-4.19	0.0059
30				-10.36	0.0146
20				-15.46	0.0218
10				-21.64	0.0305
0				-27.62	0.0389
-10				-32.49	0.0458
-20				-38.71	0.0545
-30				-43.26	0.0609

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	704.110	715.810	5.97	0.0084
4.20				0.44	0.0006

Expanded measurement uncertainty is 10Hz, k = 2

LTE Band 66, 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.80	1710.520	1779.500		
50				-6.47	0.0037
40				2.23	0.0013
30				-7.58	0.0043
10				8.70	0.0050
0				9.79	0.0056
-10				0.23	0.0001
-20				-8.44	0.0048
-30				13.82	0.0079

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	1710.520	1779.500	35.39	0.0203
4.20				29.78	0.0171

Expanded measurement uncertainty is 10Hz, k = 2

A.4 OCCUPIED BANDWIDTH

Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequency. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.
The measurement method is from ANSI C63.26:

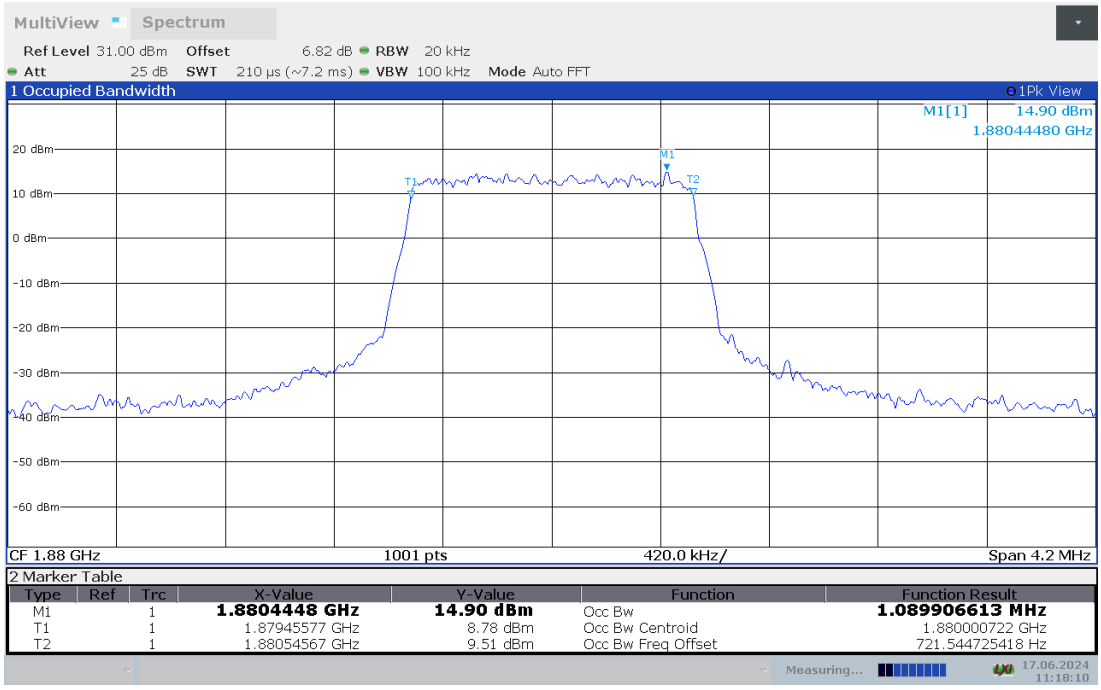
a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts.
b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.
c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.

Set the detection mode to peak, and the trace mode to max-hold.

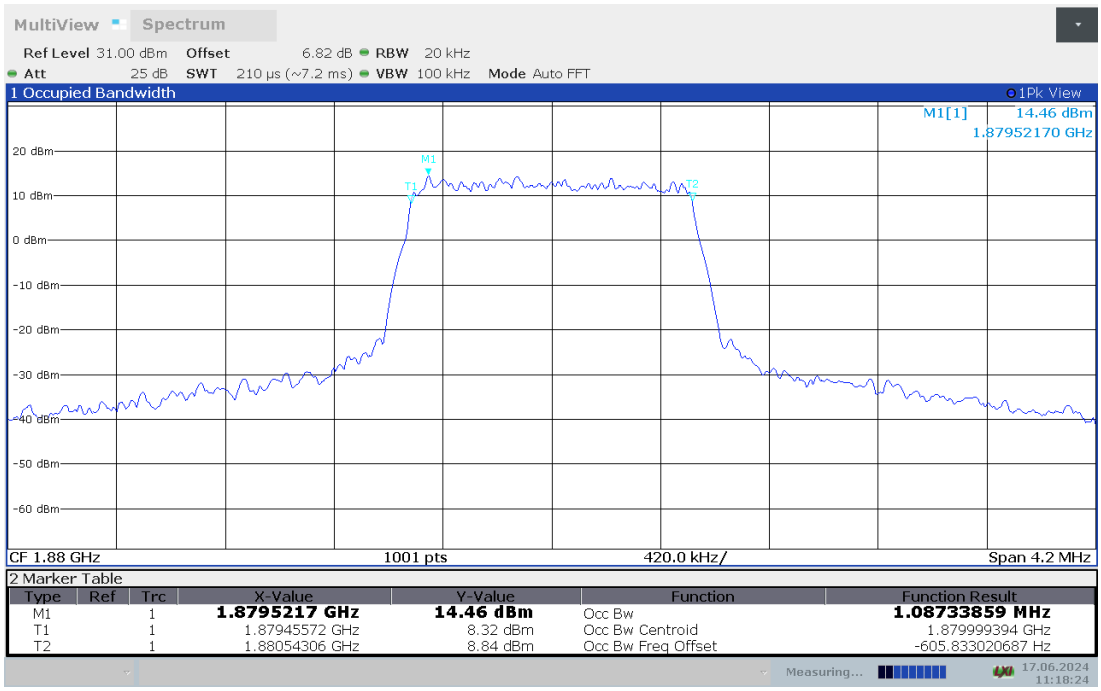
LTE band 2,1.4MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	1.090	1.087
1850.7	1.090	1.089
1909.3	1.086	1.094

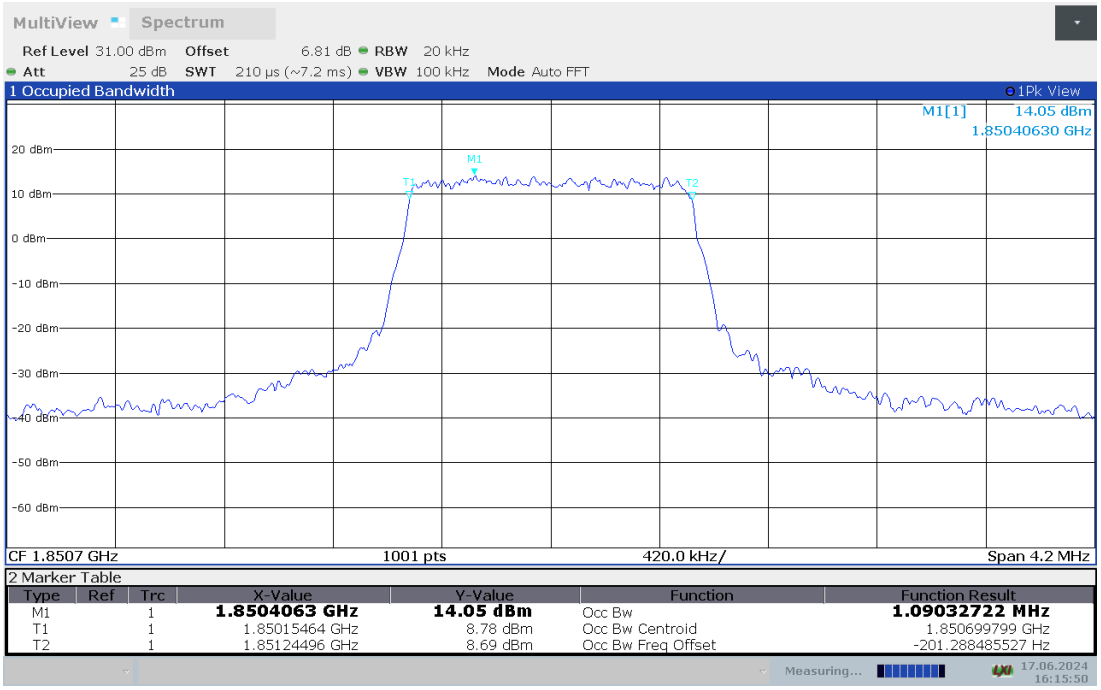
LTE band 2 , 1.4MHz Bandwidth,MID,QPSK (99% BW)



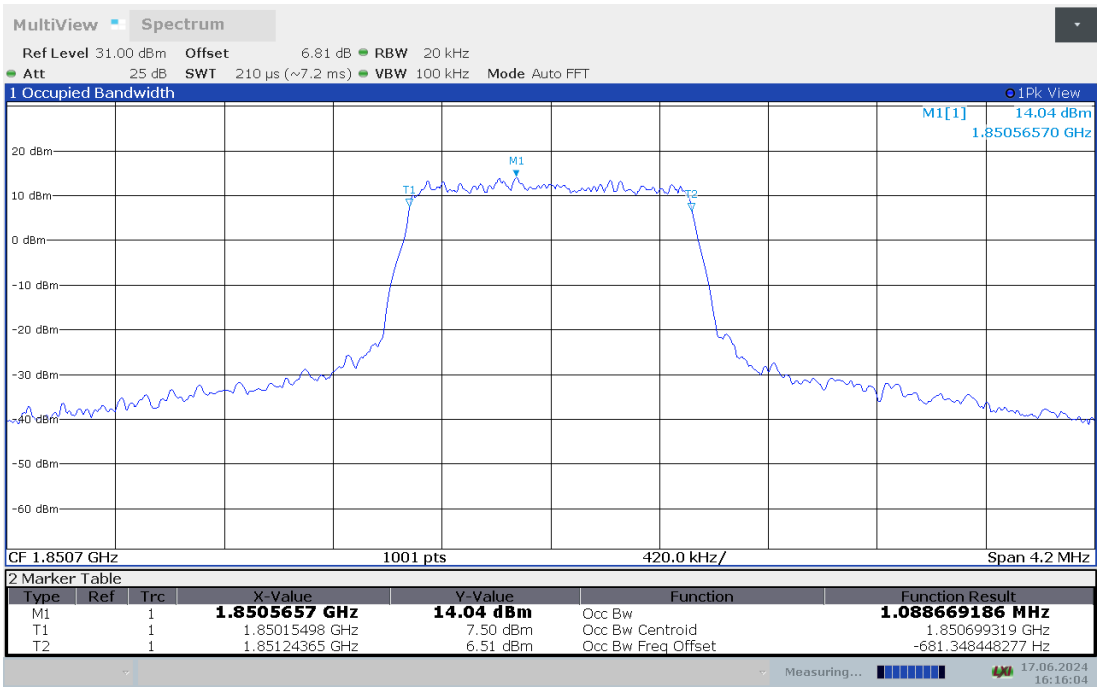
LTE band 2 , 1.4MHz Bandwidth,MID,16QAM (99% BW)



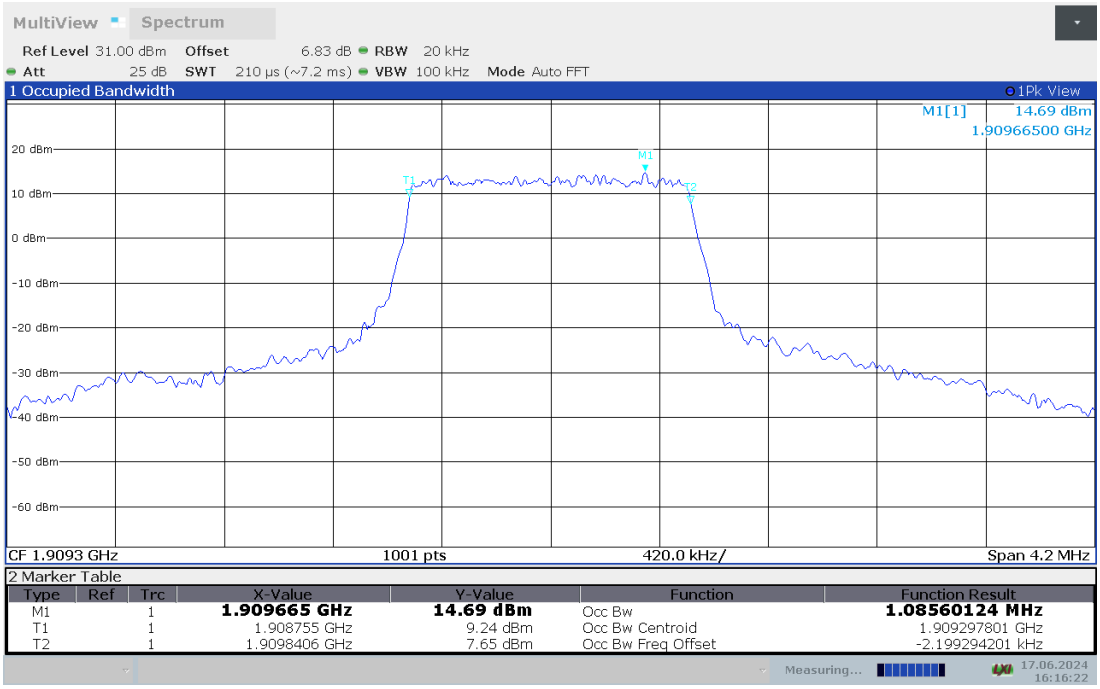
LTE band 2 , 1.4MHz Bandwidth,LOW,QPSK (99% BW)



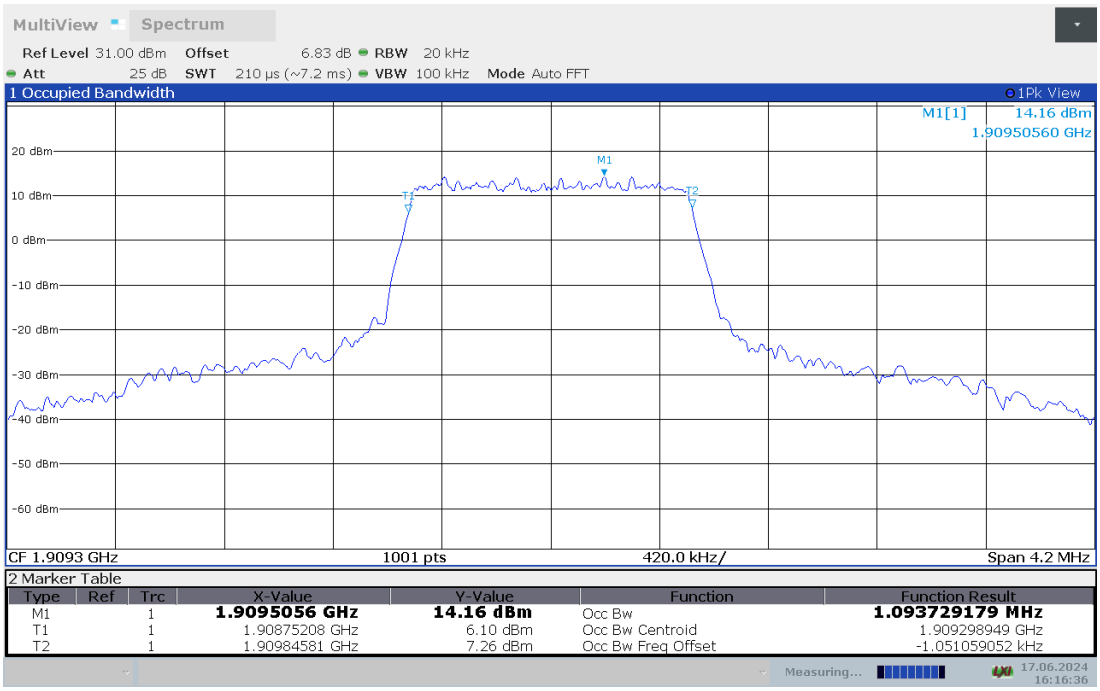
LTE band 2 , 1.4MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 2 , 1.4MHz Bandwidth,HIGH,QPSK (99% BW)



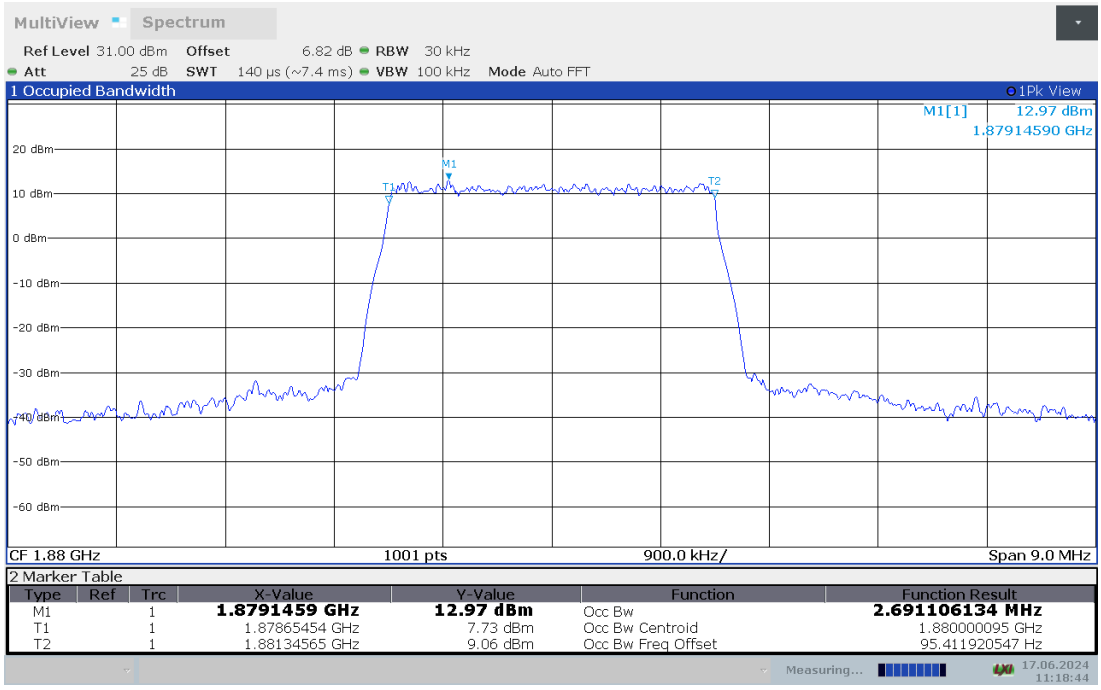
LTE band 2 , 1.4MHz Bandwidth,HIGH,16QAM (99% BW)



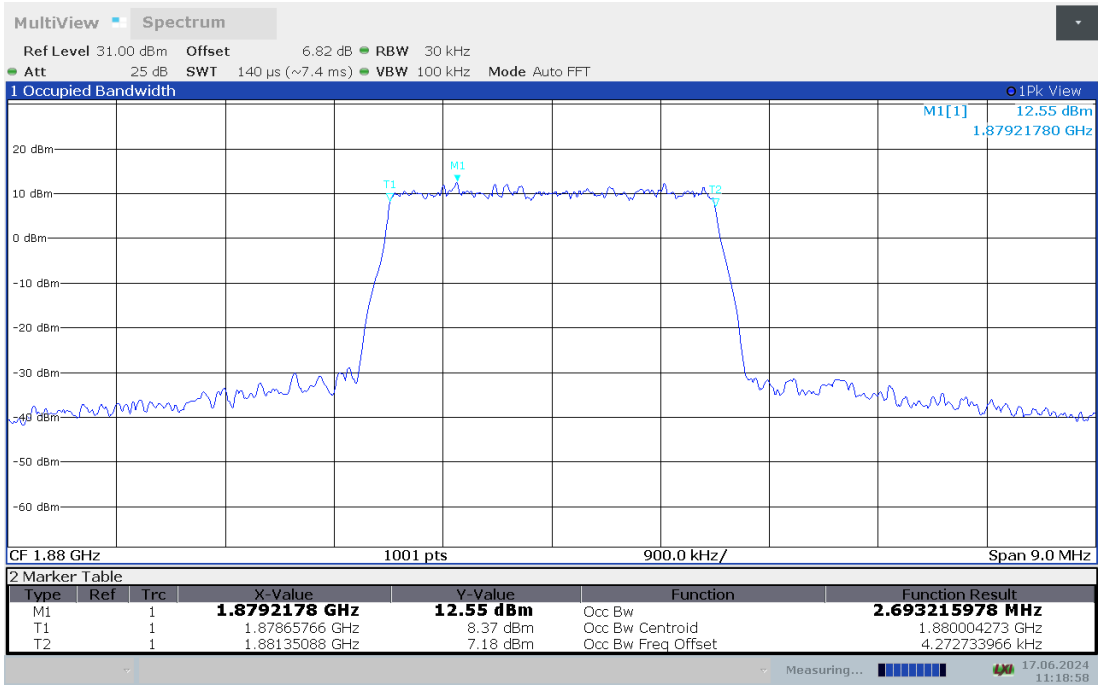
LTE band 2,3MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	2.691	2.693
1851.5	2.697	2.690
1908.5	2.700	2.693

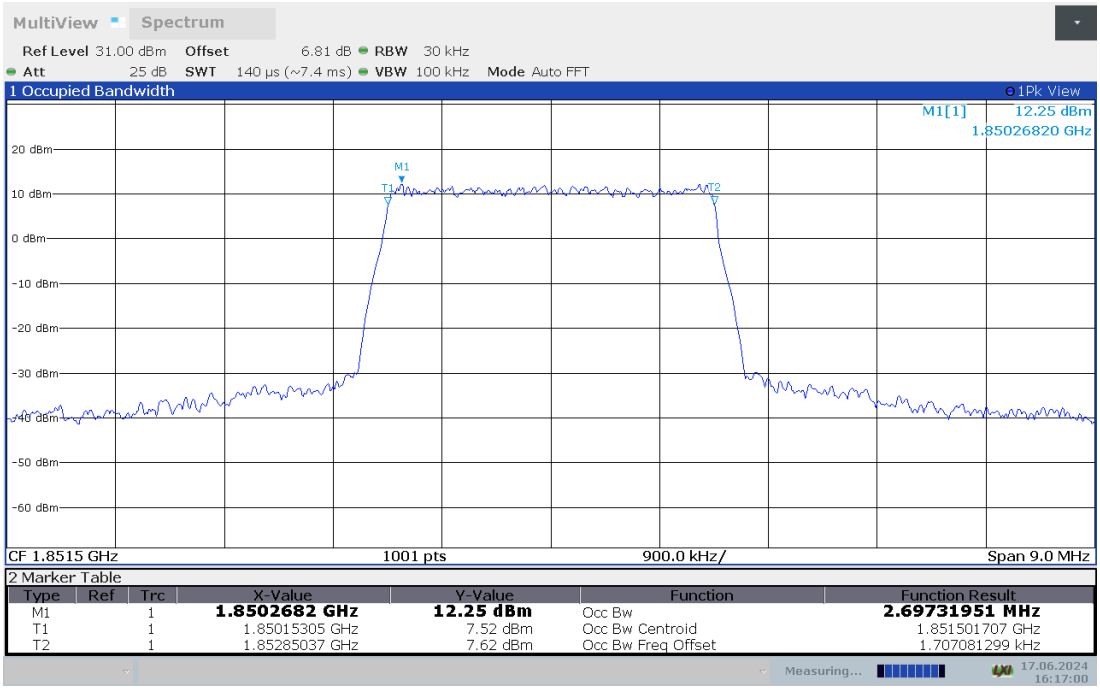
LTE band 2 , 3MHz Bandwidth,MID,QPSK (99% BW)



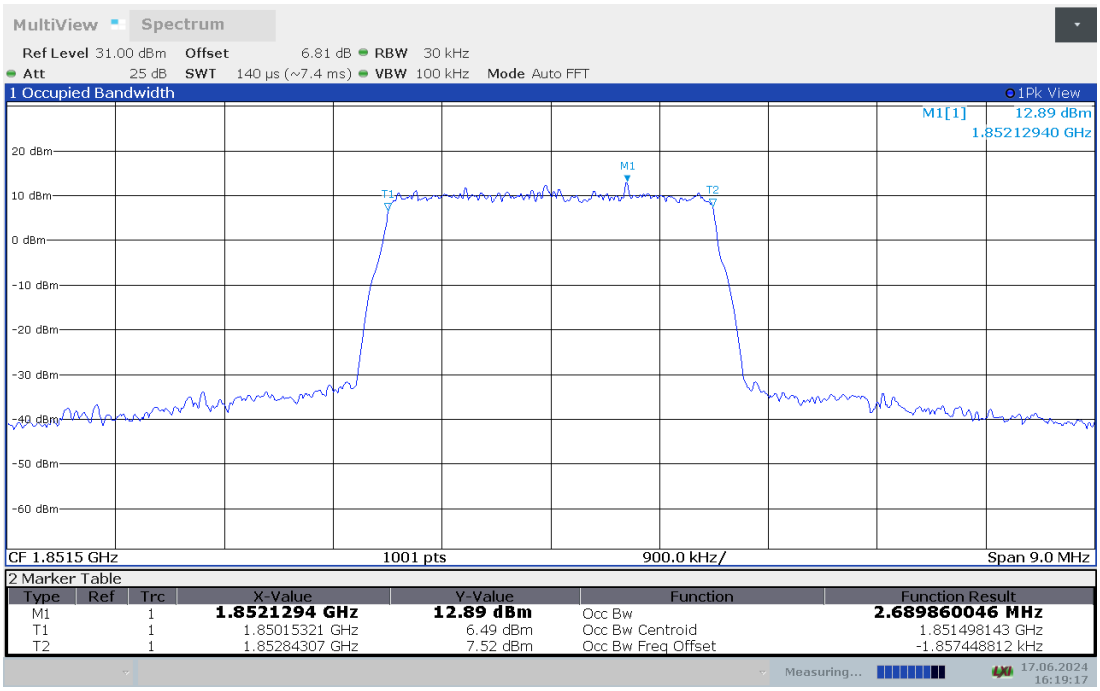
LTE band 2 , 3MHz Bandwidth,MID,16QAM (99% BW)



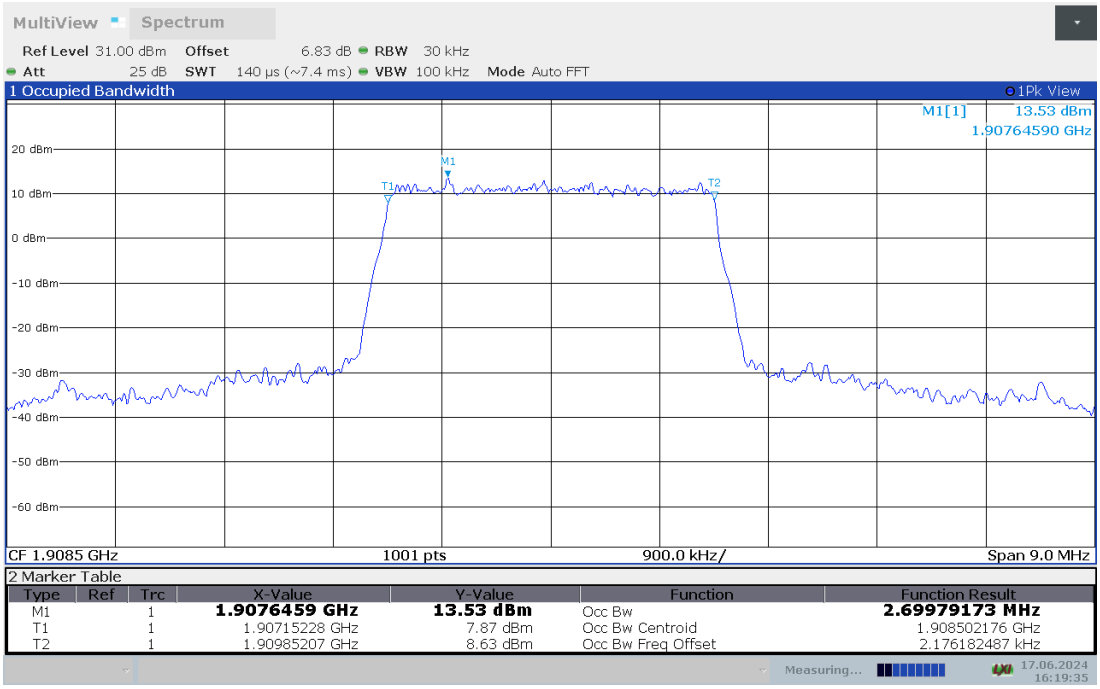
LTE band 2 , 3MHz Bandwidth,LOW,QPSK (99% BW)



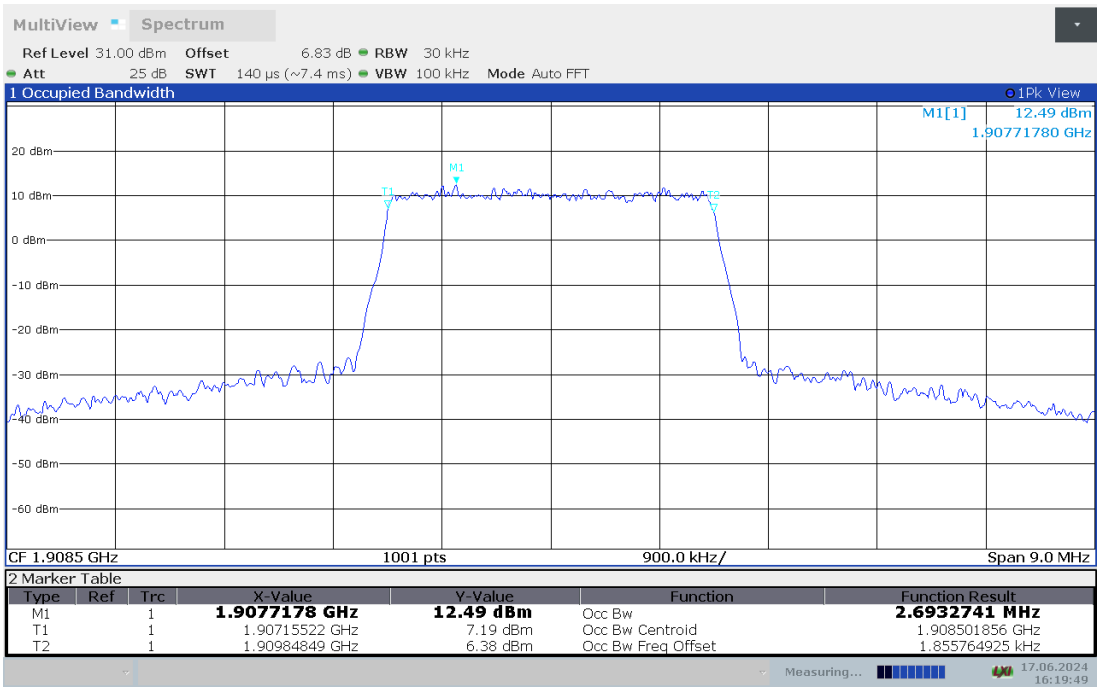
LTE band 2 , 3MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 2 , 3MHz Bandwidth,HIGH,QPSK (99% BW)



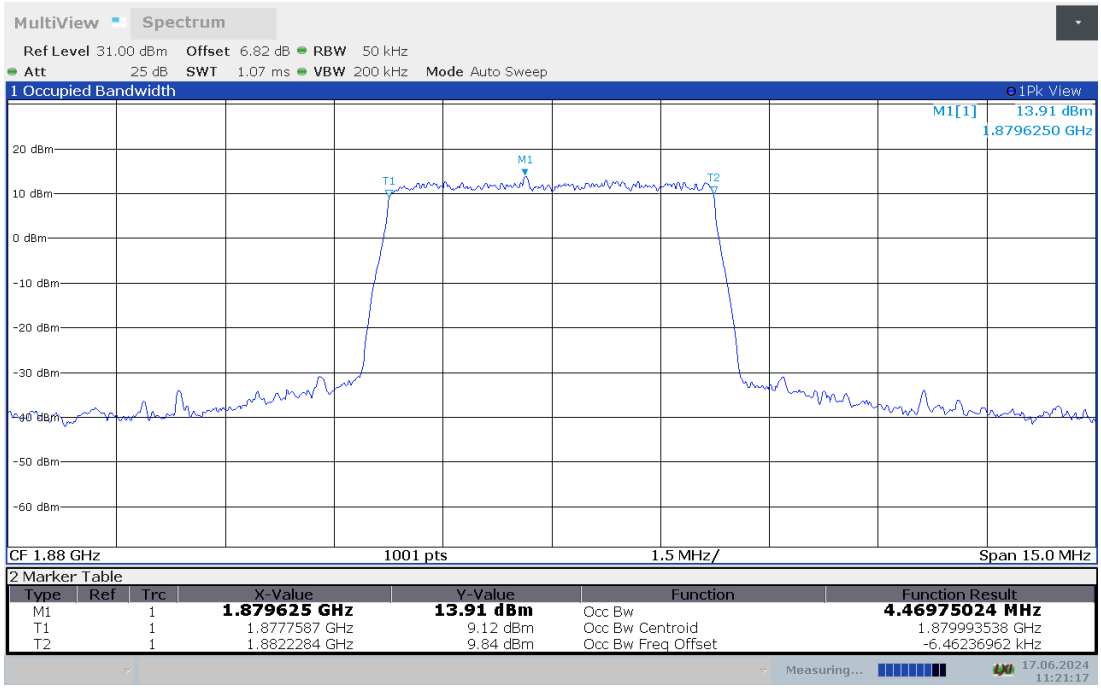
LTE band 2 , 3MHz Bandwidth,HIGH,16QAM (99% BW)



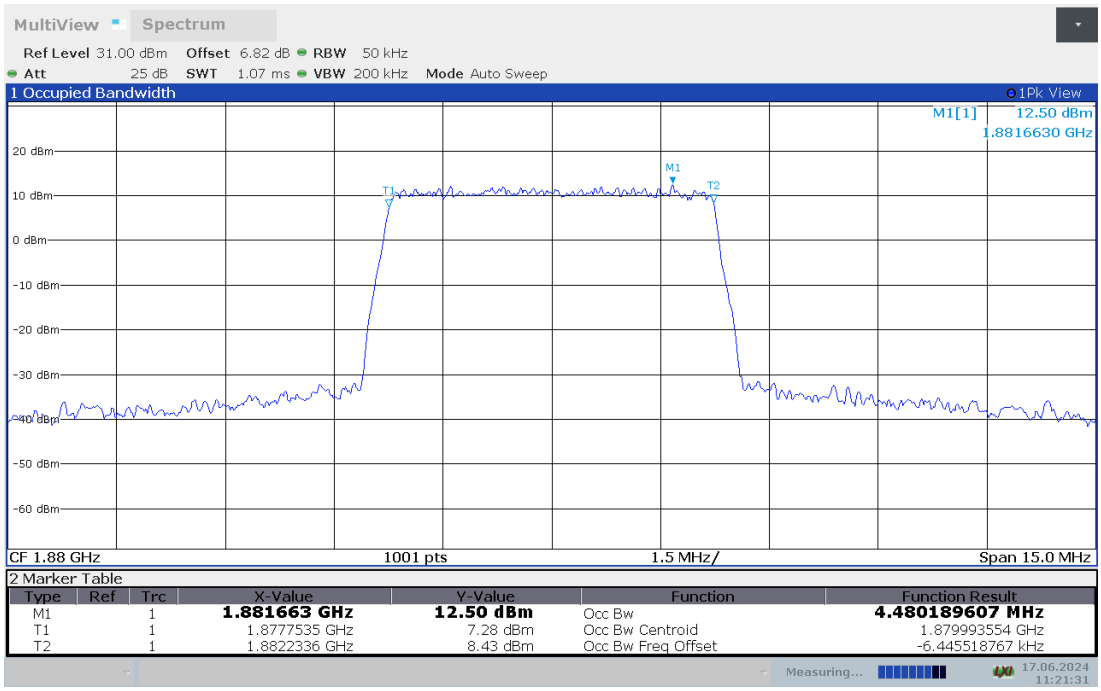
LTE band 2,5MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	4.470	4.480
1852.5	4.469	4.478
1907.5	4.484	4.469

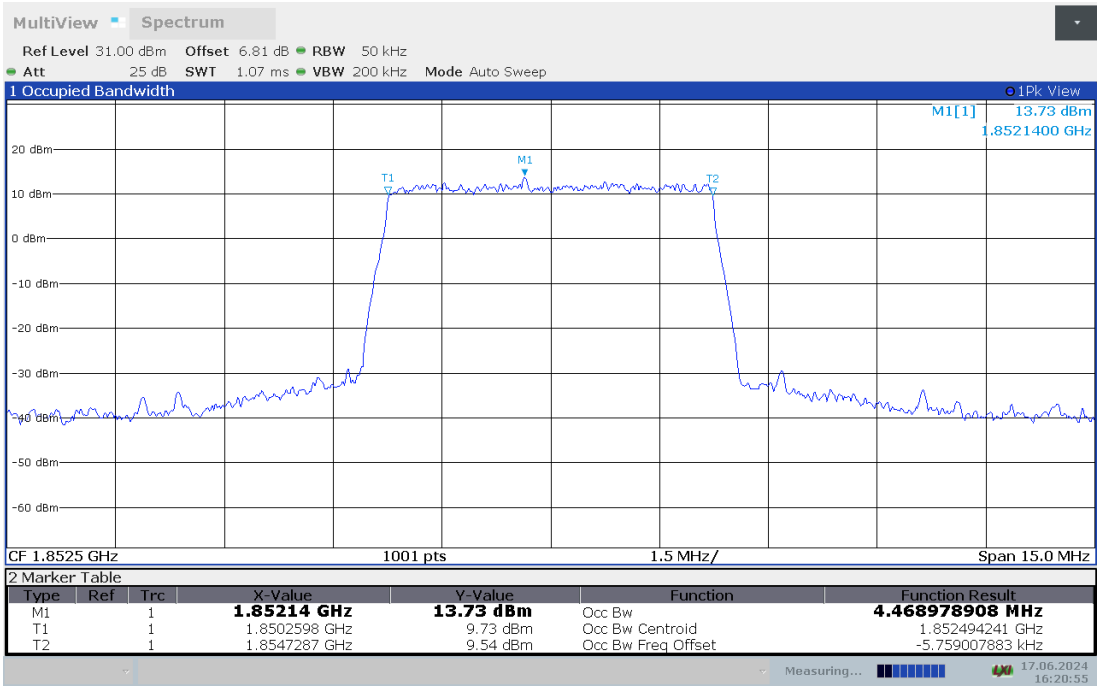
LTE band 2 , 5MHz Bandwidth,MID,QPSK (99% BW)



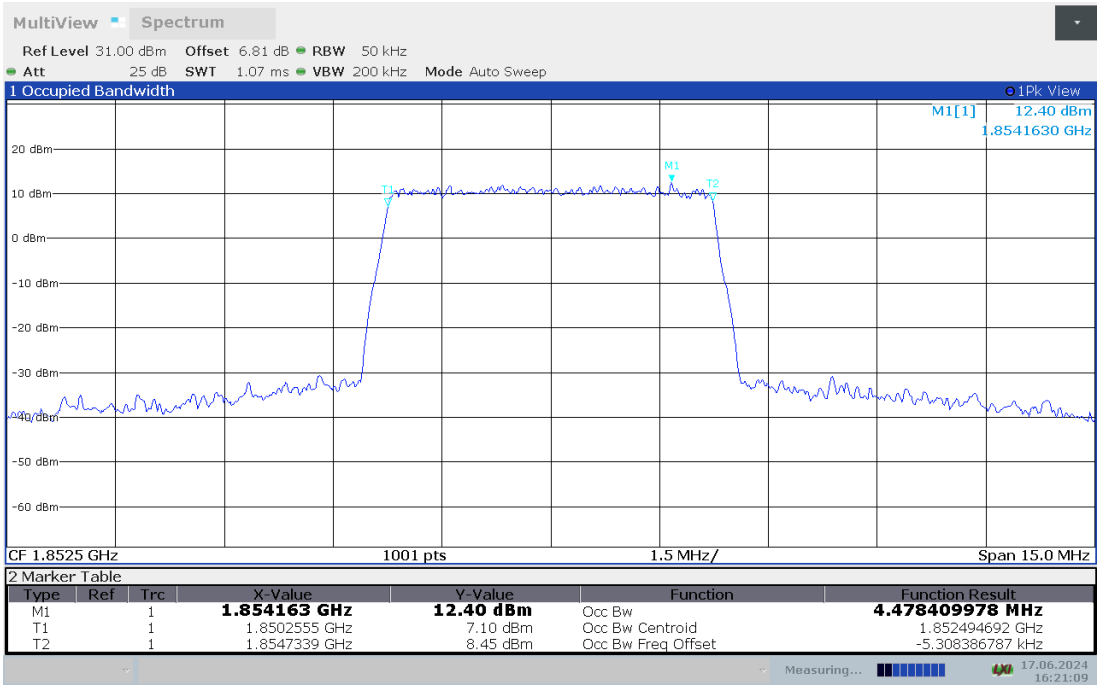
LTE band 2 , 5MHz Bandwidth,MID,16QAM (99% BW)



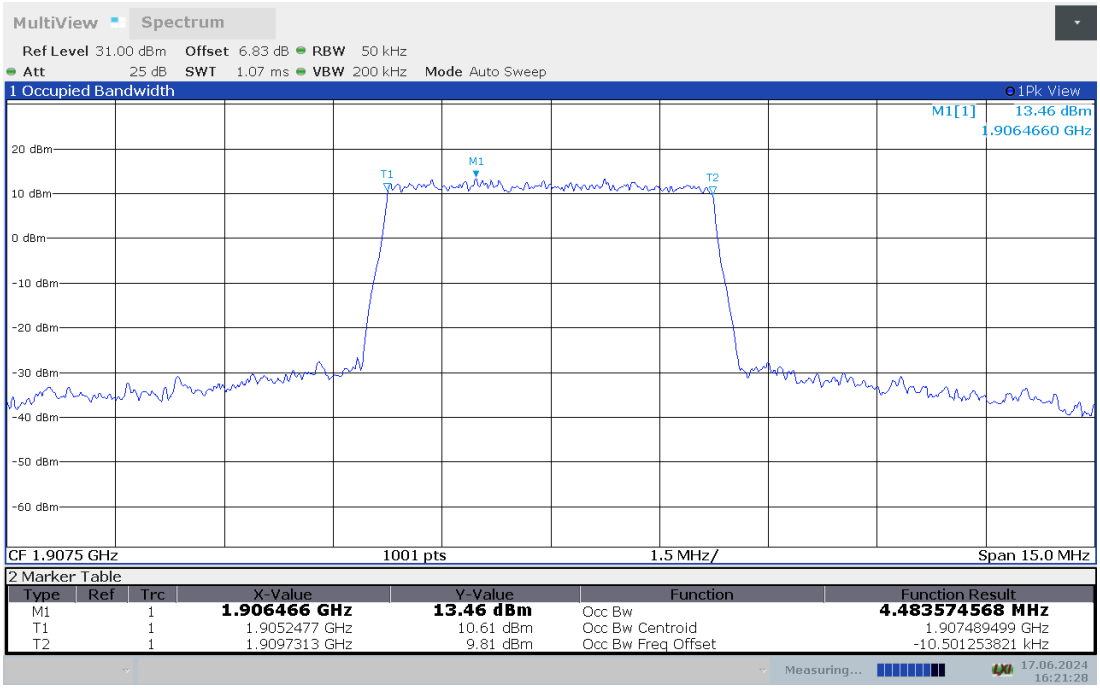
LTE band 2 , 5MHz Bandwidth,LOW,QPSK (99% BW)



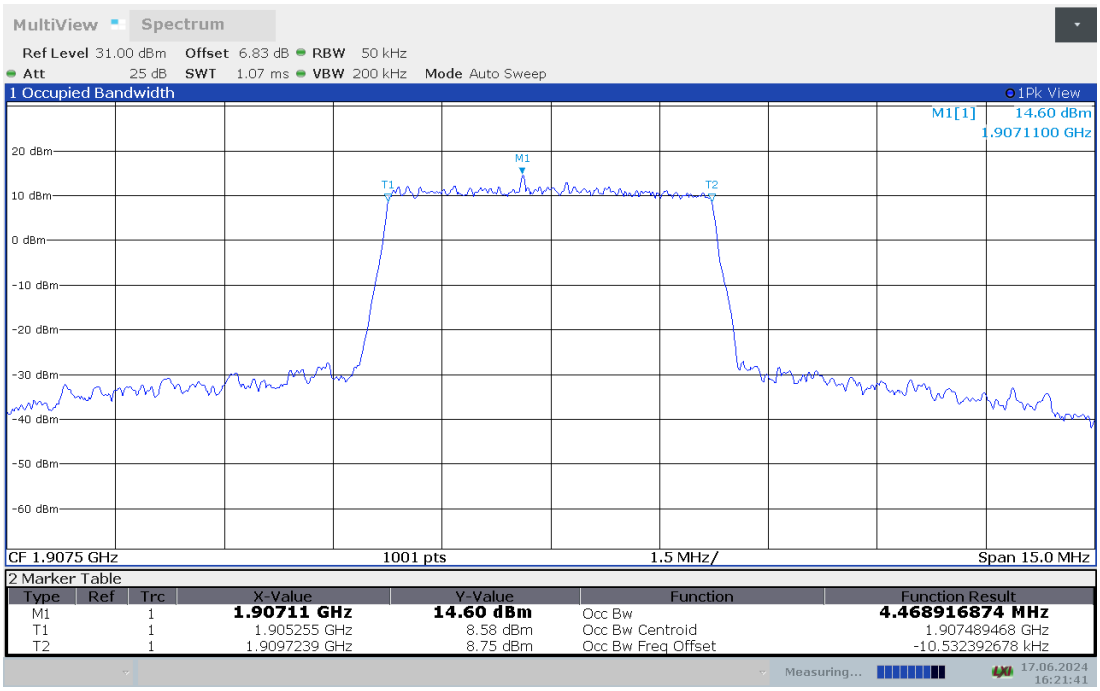
LTE band 2 , 5MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 2 , 5MHz Bandwidth,HIGH,QPSK (99% BW)



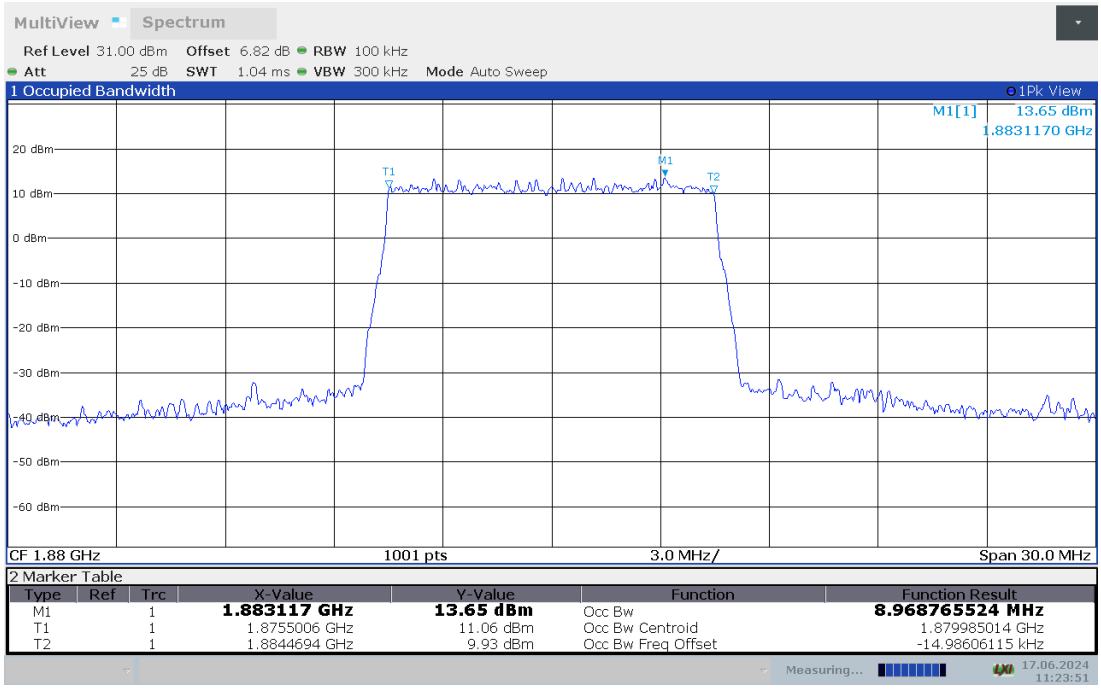
LTE band 2 , 5MHz Bandwidth,HIGH,16QAM (99% BW)



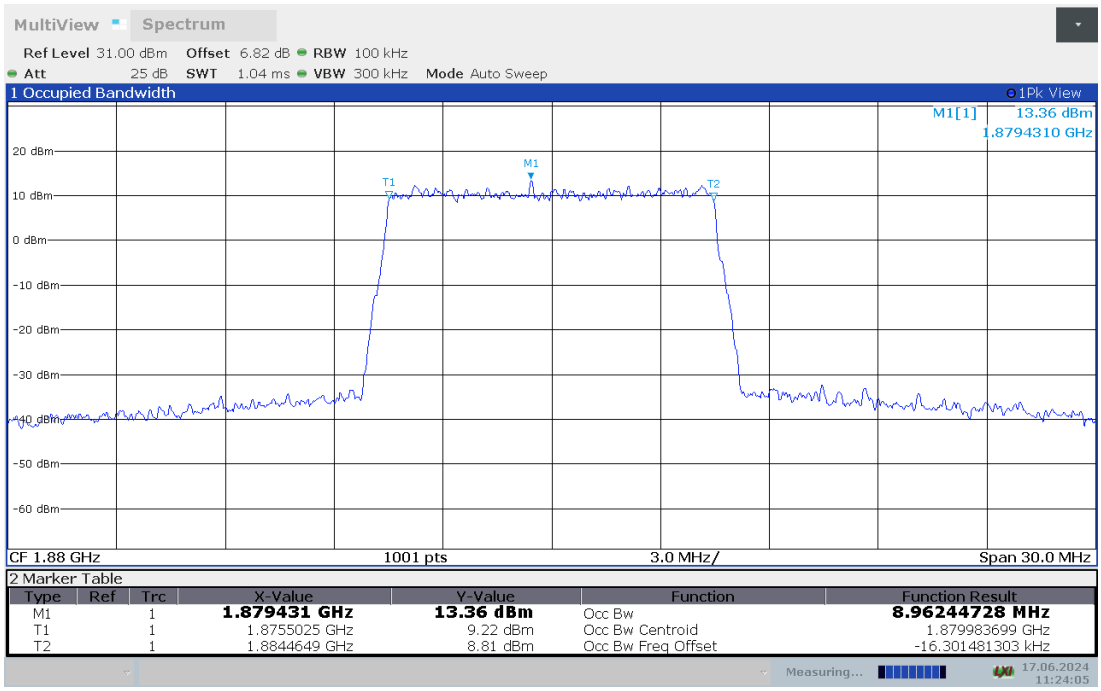
LTE band 2,10MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	8.969	8.962
1855	8.963	8.959
1905	8.969	8.959

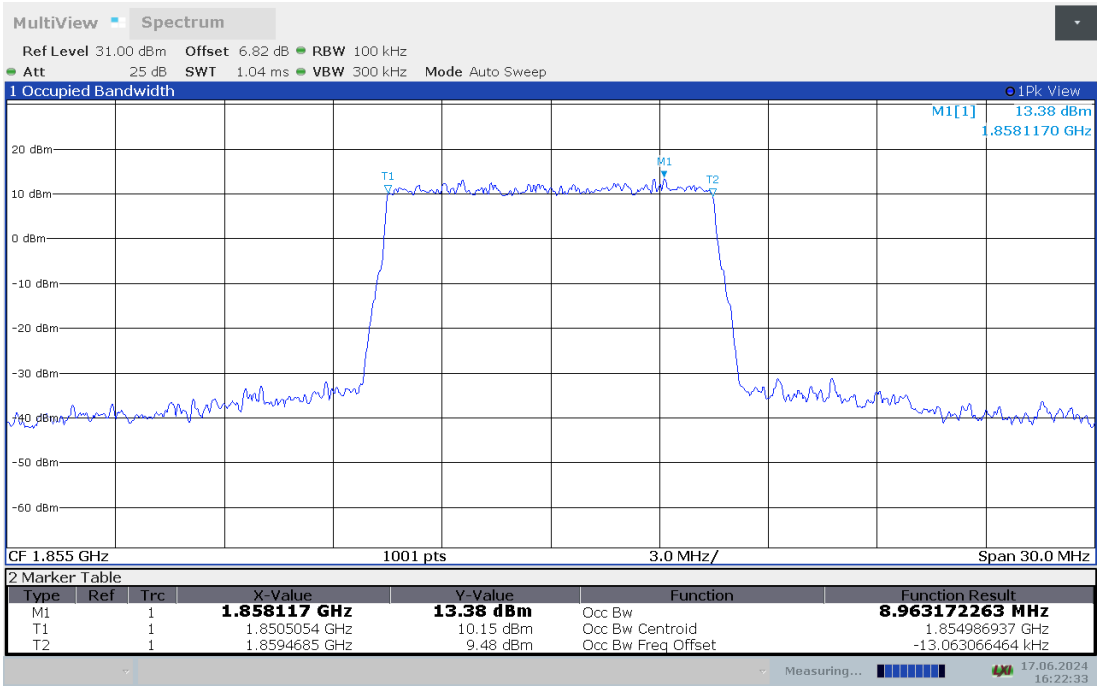
LTE band 2 , 10MHz Bandwidth,MID,QPSK (99% BW)



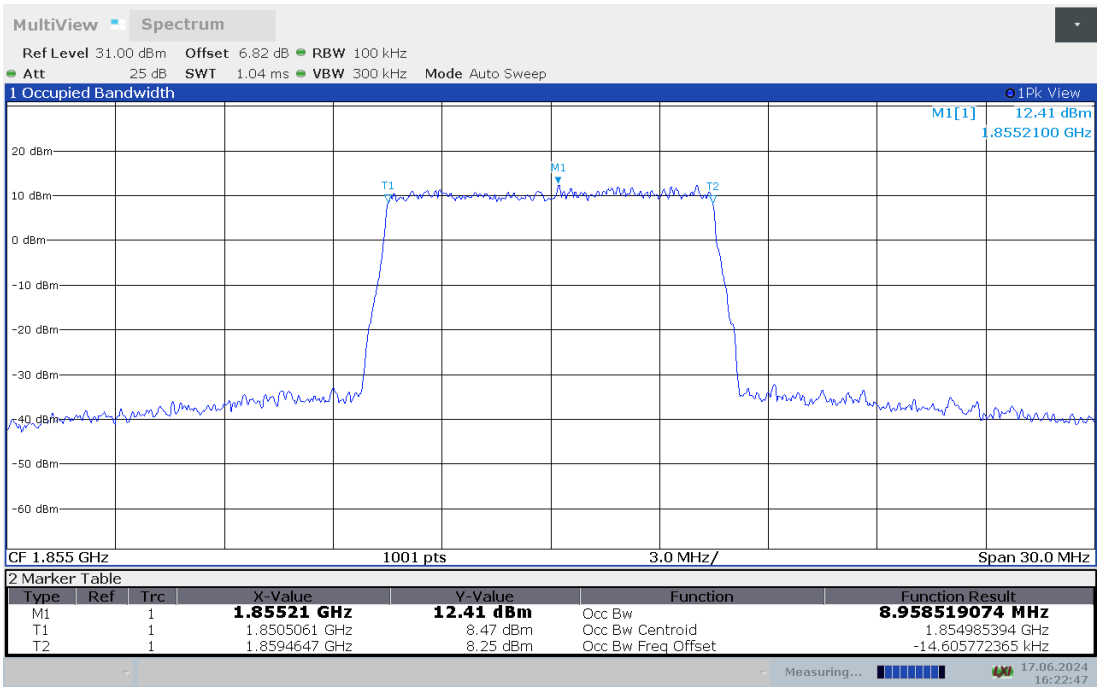
LTE band 2 , 10MHz Bandwidth,MID,16QAM (99% BW)



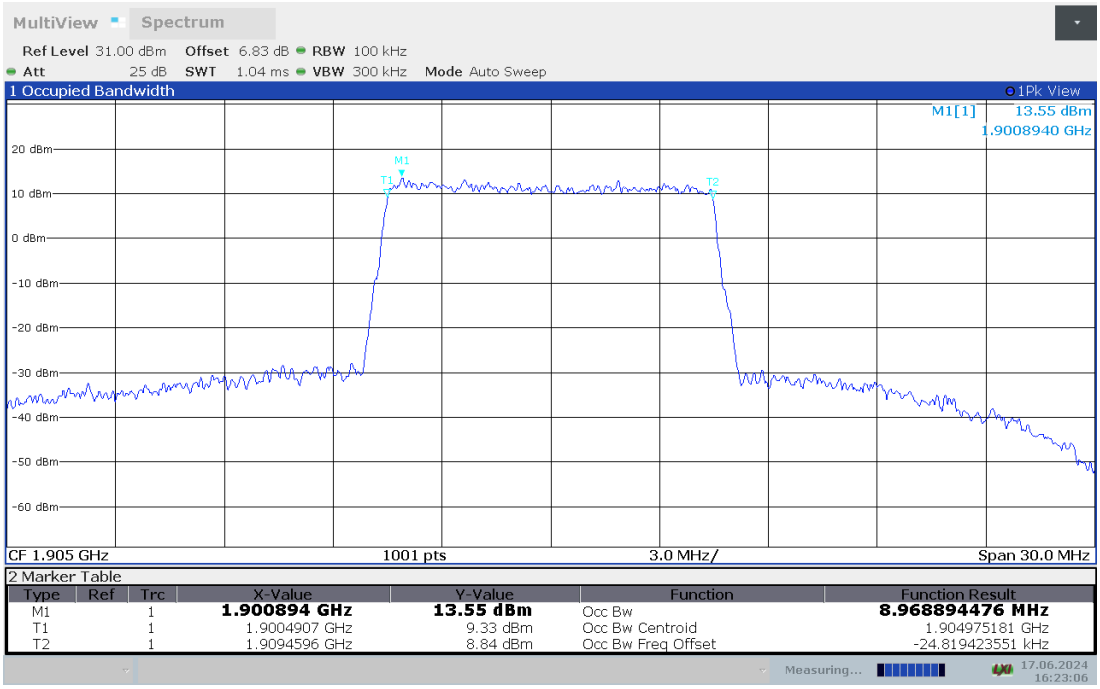
LTE band 2 , 10MHz Bandwidth,LOW,QPSK (99% BW)



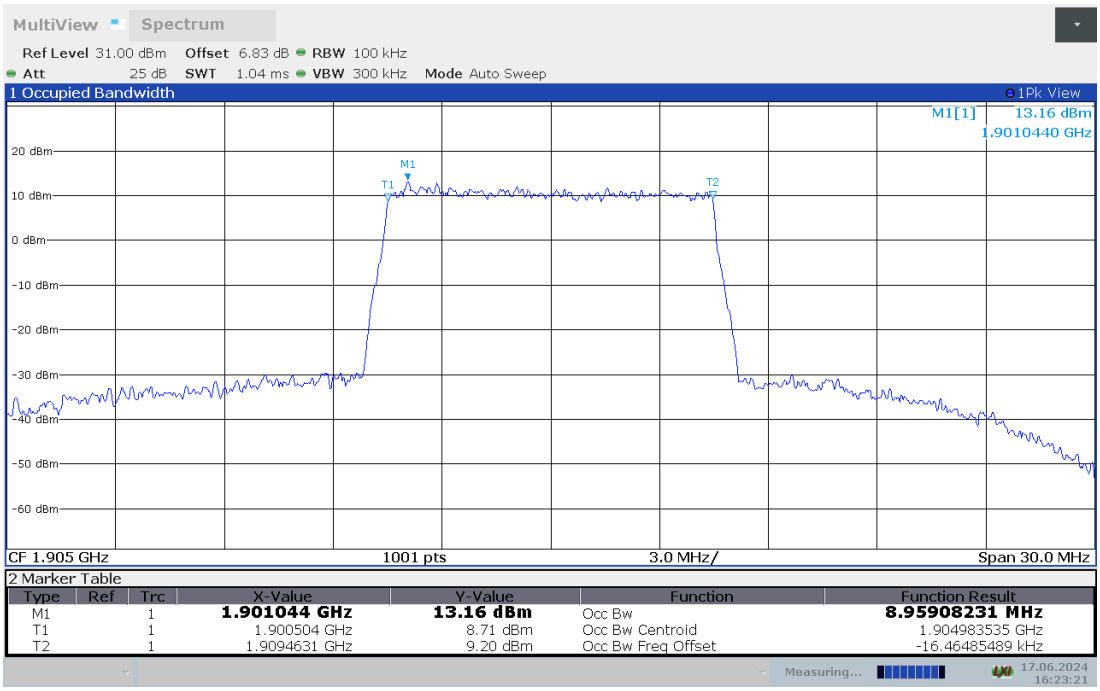
LTE band 2 , 10MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 2 , 10MHz Bandwidth,HIGH,QPSK (99% BW)



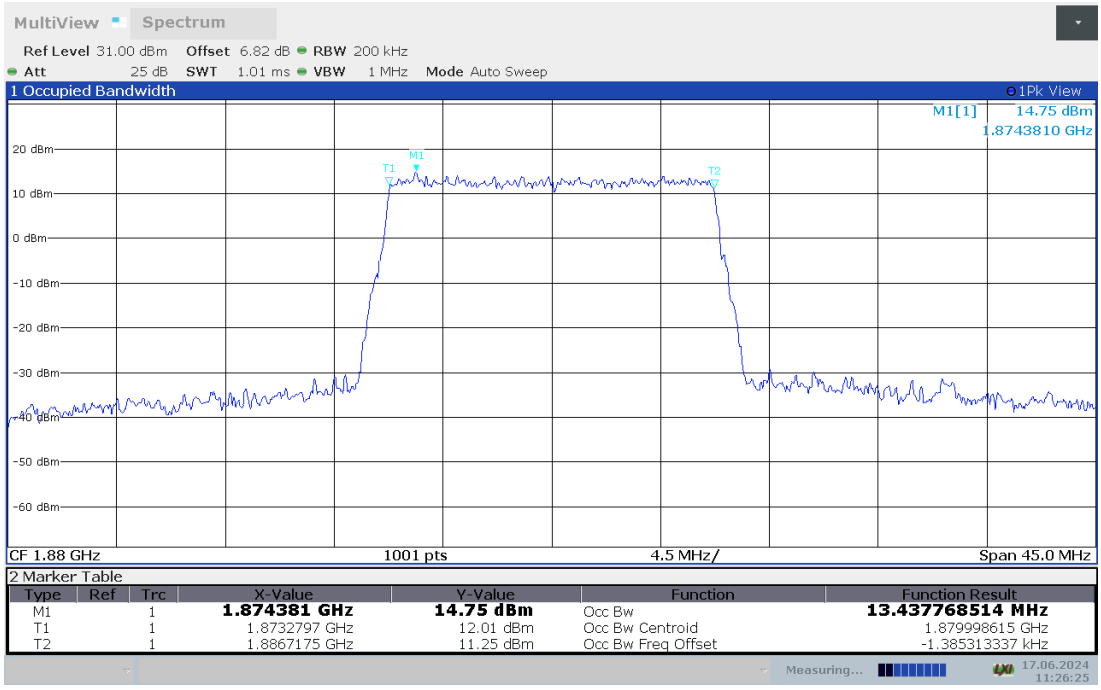
LTE band 2 , 10MHz Bandwidth,HIGH,16QAM (99% BW)



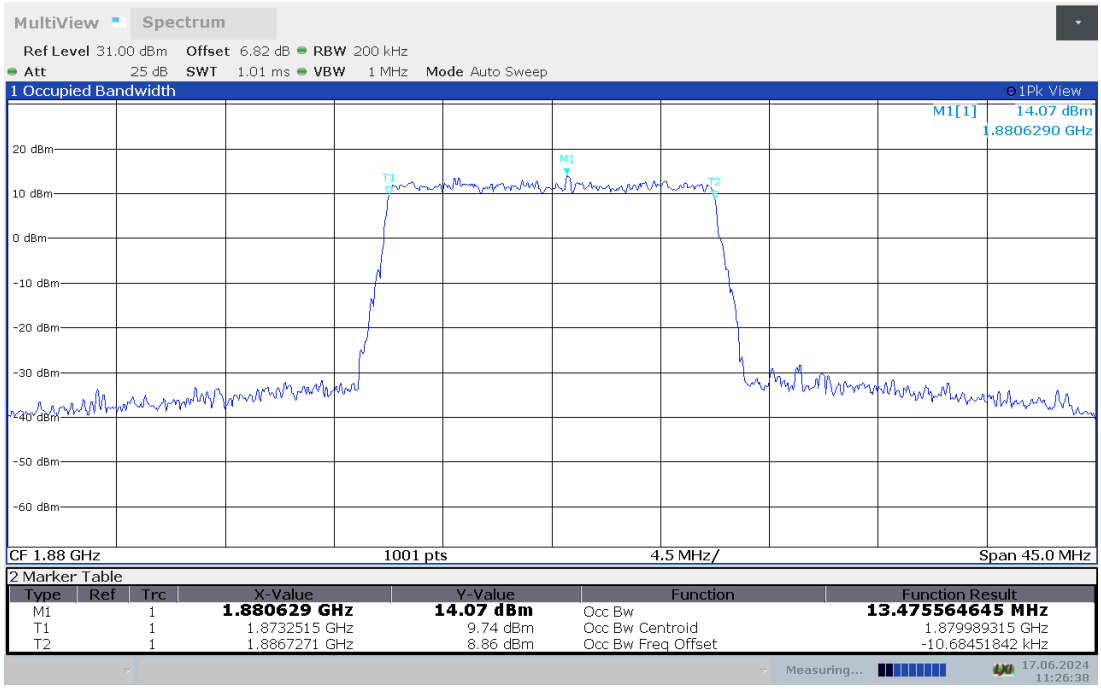
LTE band 2,15MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	13.438	13.476
1857.5	13.441	13.440
1902.5	13.428	13.458

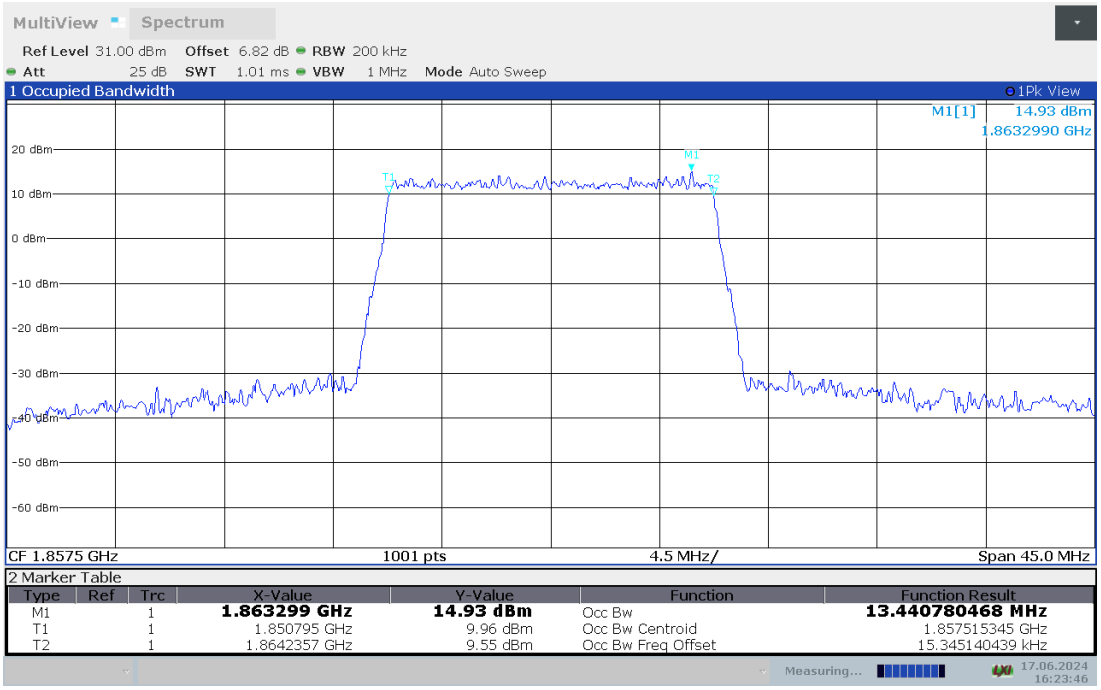
LTE band 2 , 15MHz Bandwidth,MID,QPSK (99% BW)



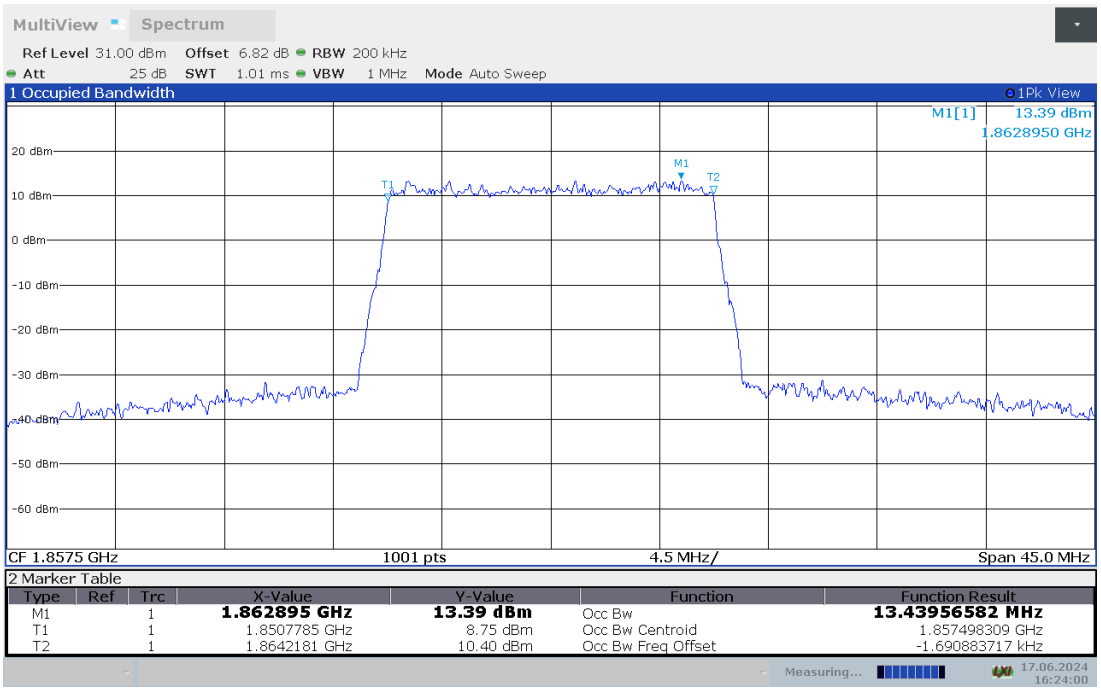
LTE band 2 , 15MHz Bandwidth,MID,16QAM (99% BW)



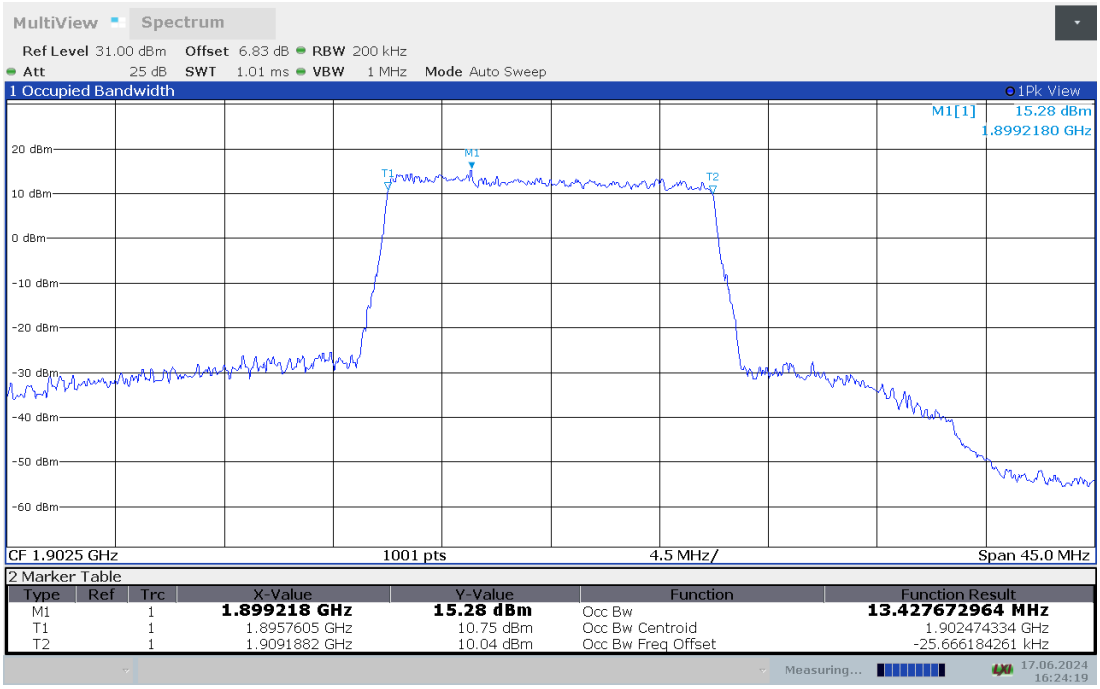
LTE band 2 , 15MHz Bandwidth,LOW,QPSK (99% BW)



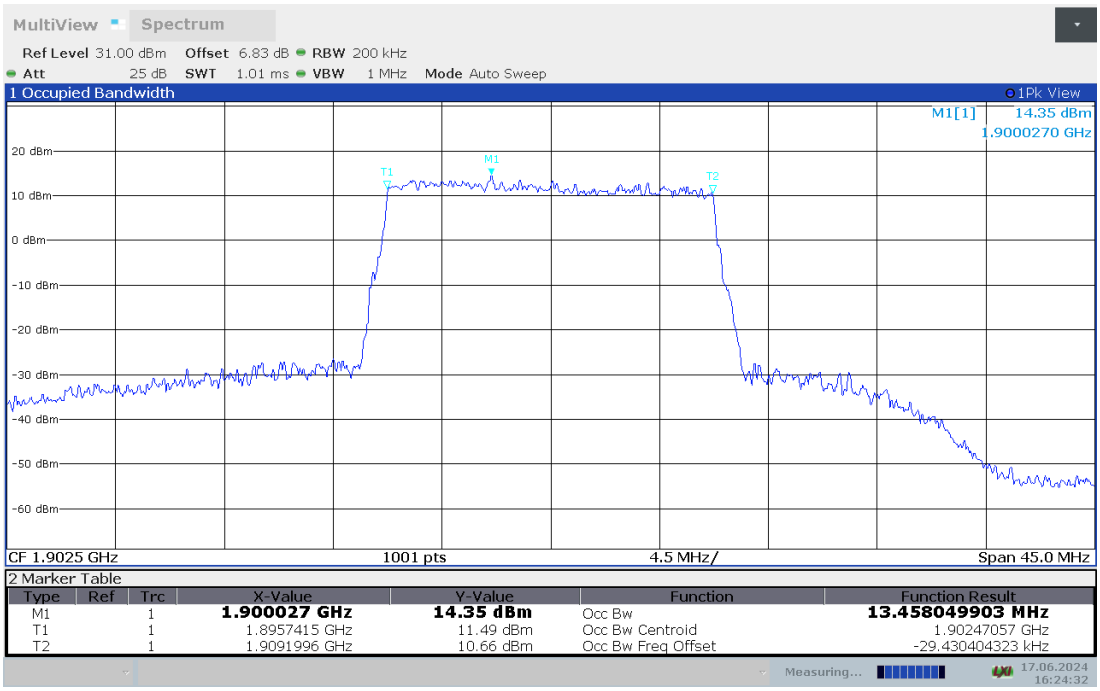
LTE band 2 , 15MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 2 , 15MHz Bandwidth,HIGH,QPSK (99% BW)



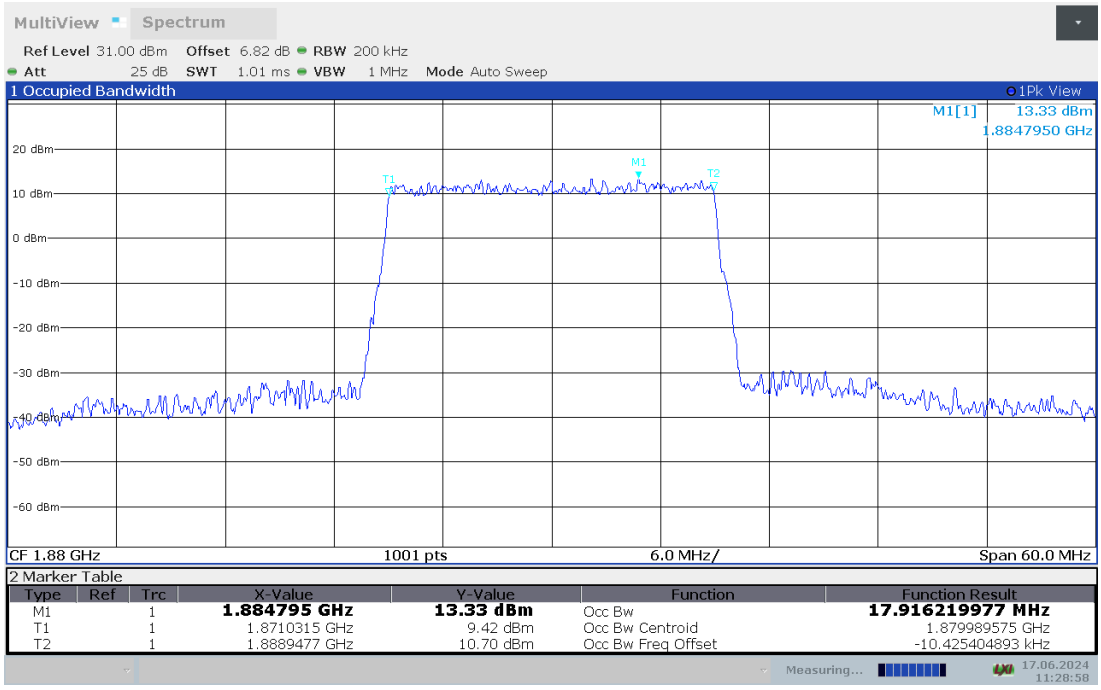
LTE band 2 , 15MHz Bandwidth,HIGH,16QAM (99% BW)



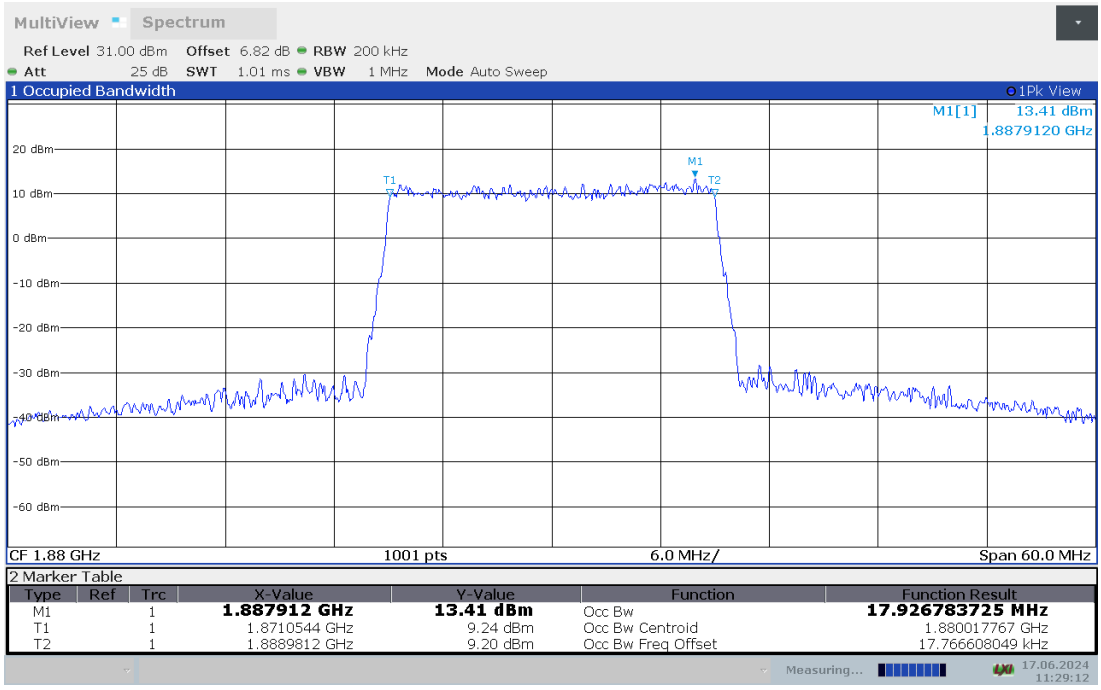
LTE band 2,20MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	17.916	17.927
1860	17.922	17.953
1900	17.914	17.888

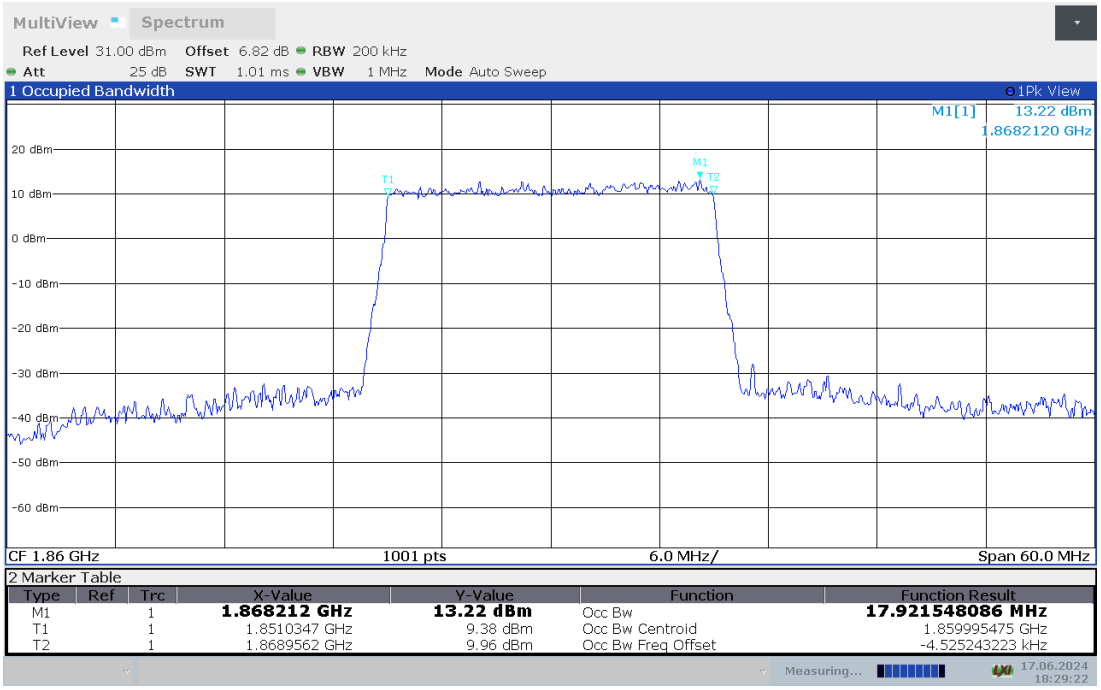
LTE band 2 , 20MHz Bandwidth,MID,QPSK (99% BW)



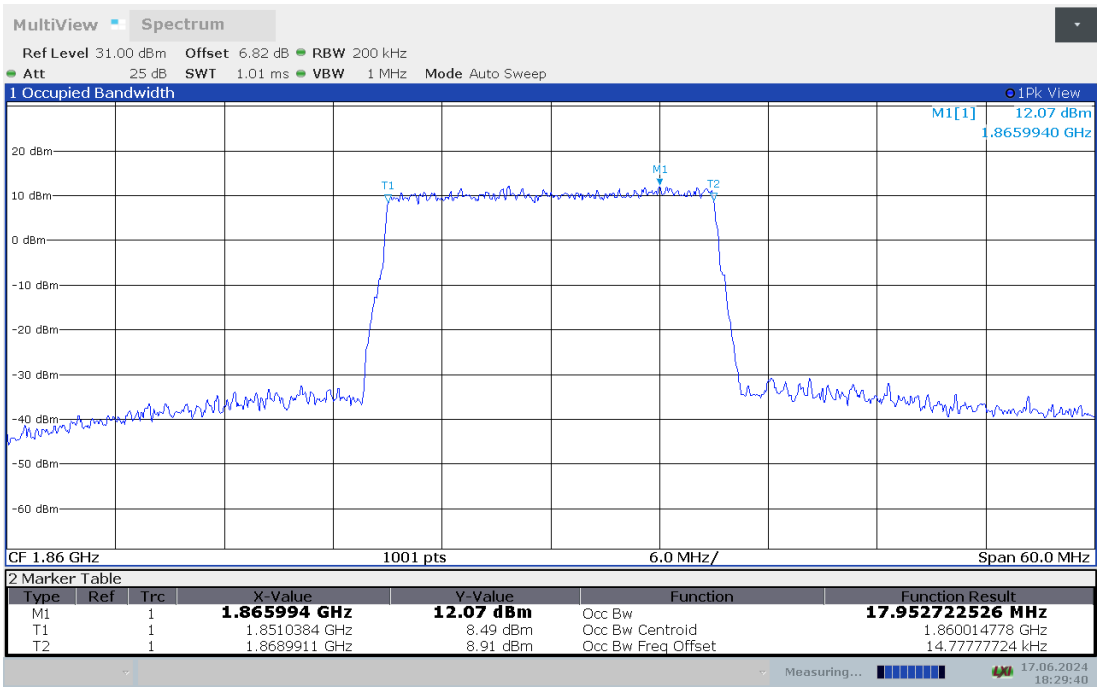
LTE band 2 , 20MHz Bandwidth,MID,16QAM (99% BW)



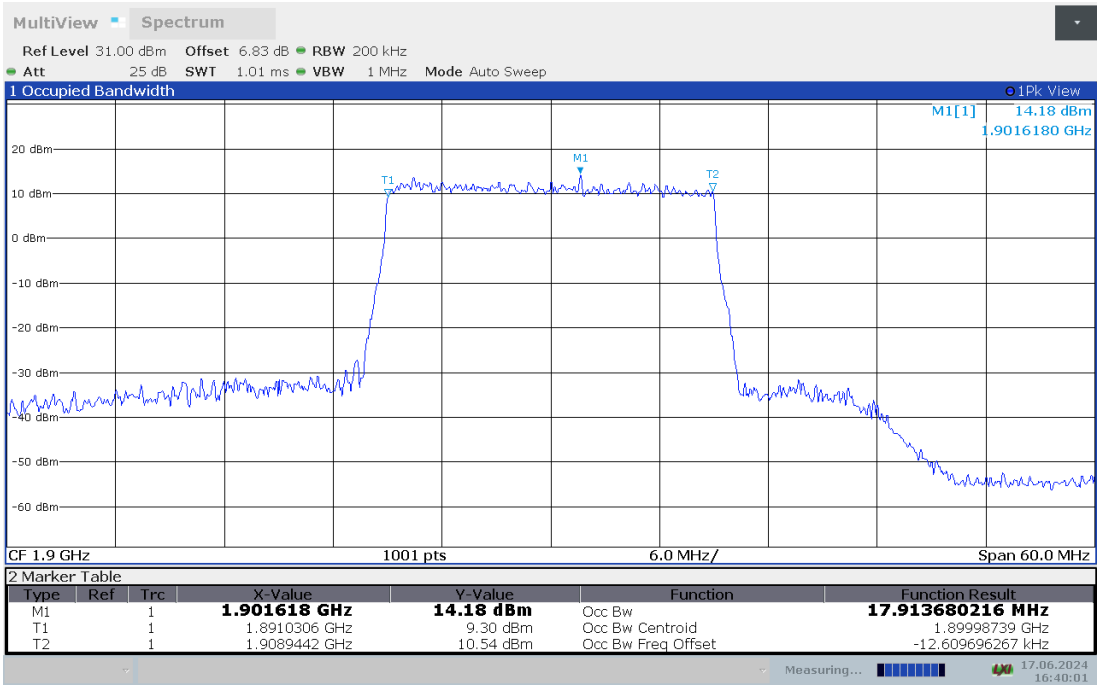
LTE band 2 , 20MHz Bandwidth,LOW,QPSK (99% BW)



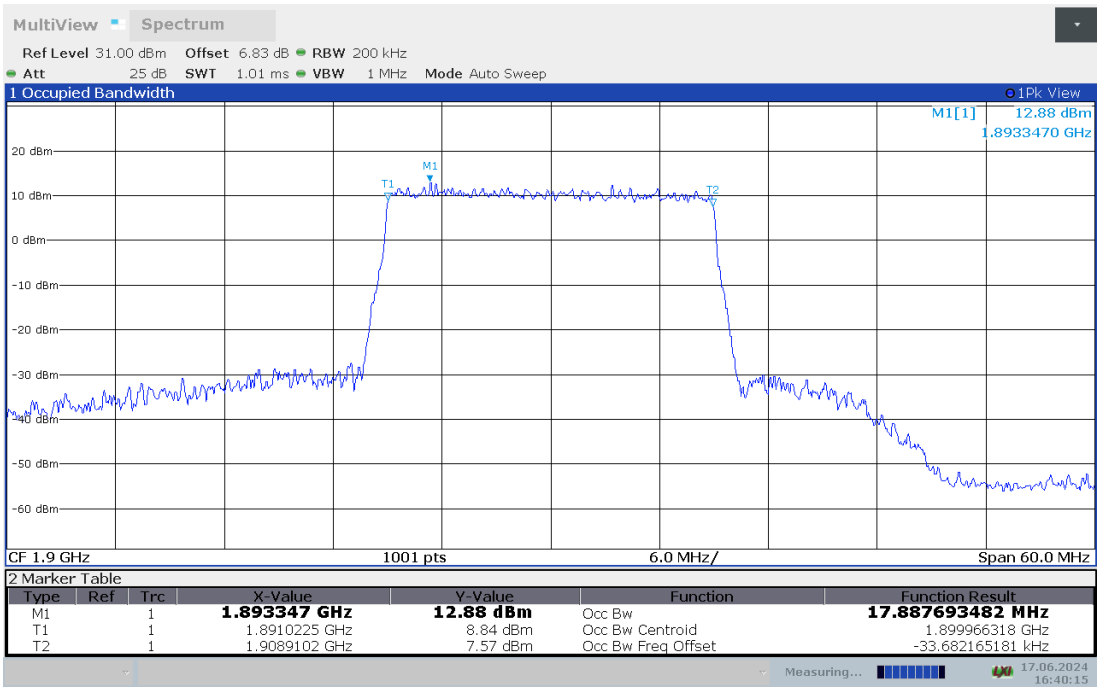
LTE band 2 , 20MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 2 , 20MHz Bandwidth,HIGH,QPSK (99% BW)



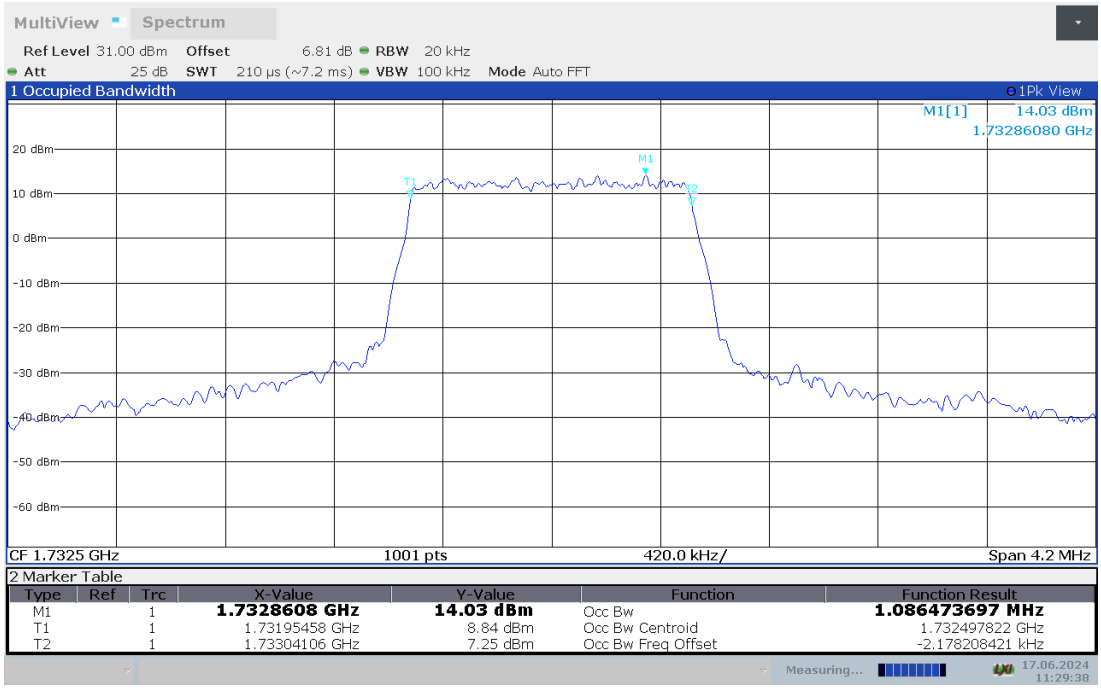
LTE band 2 , 20MHz Bandwidth,HIGH,16QAM (99% BW)



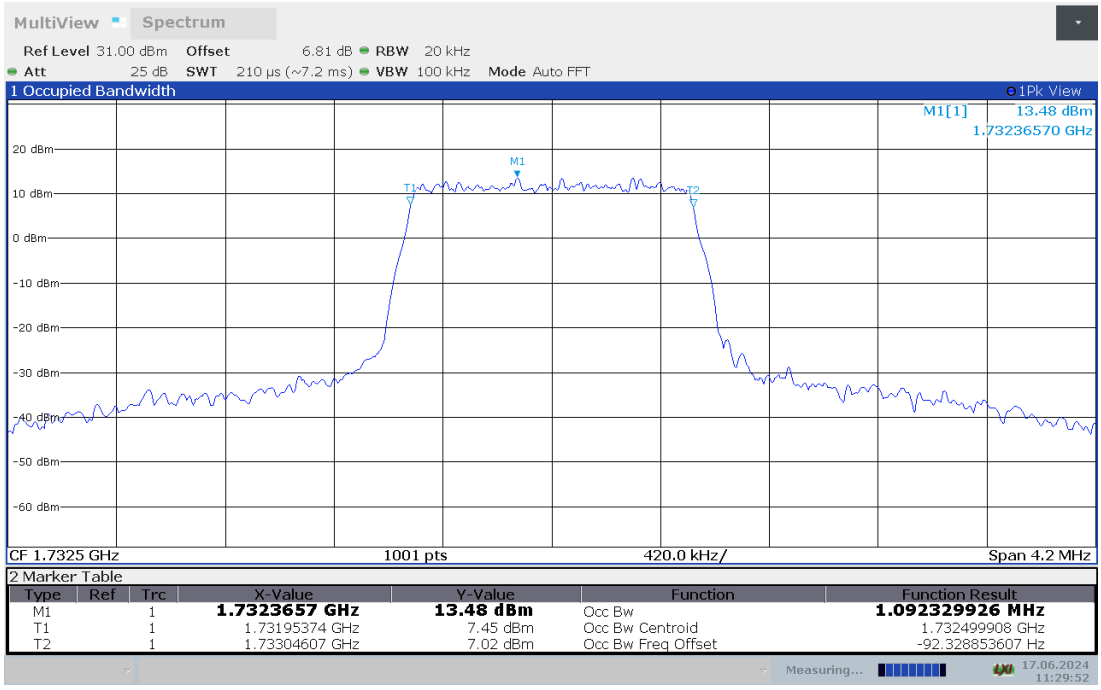
LTE band 4,1.4MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	1.086	1.092
1710.7	1.084	1.092
1754.3	1.086	1.082

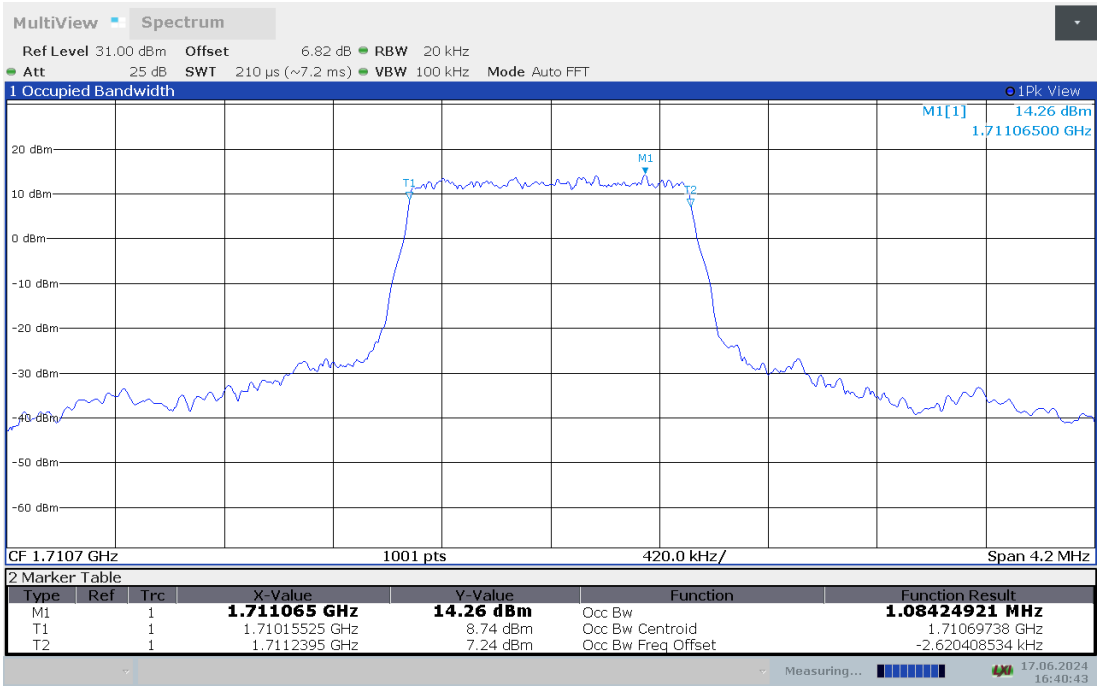
LTE band 4 , 1.4MHz Bandwidth,MID,QPSK (99% BW)



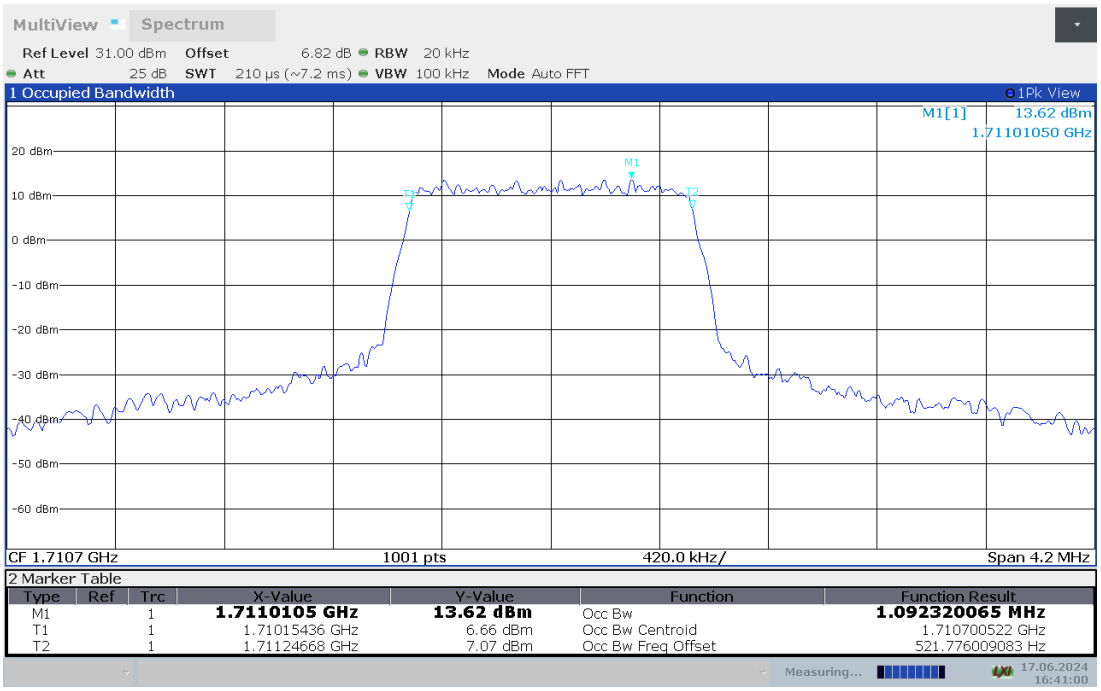
LTE band 4 , 1.4MHz Bandwidth,MID,16QAM (99% BW)



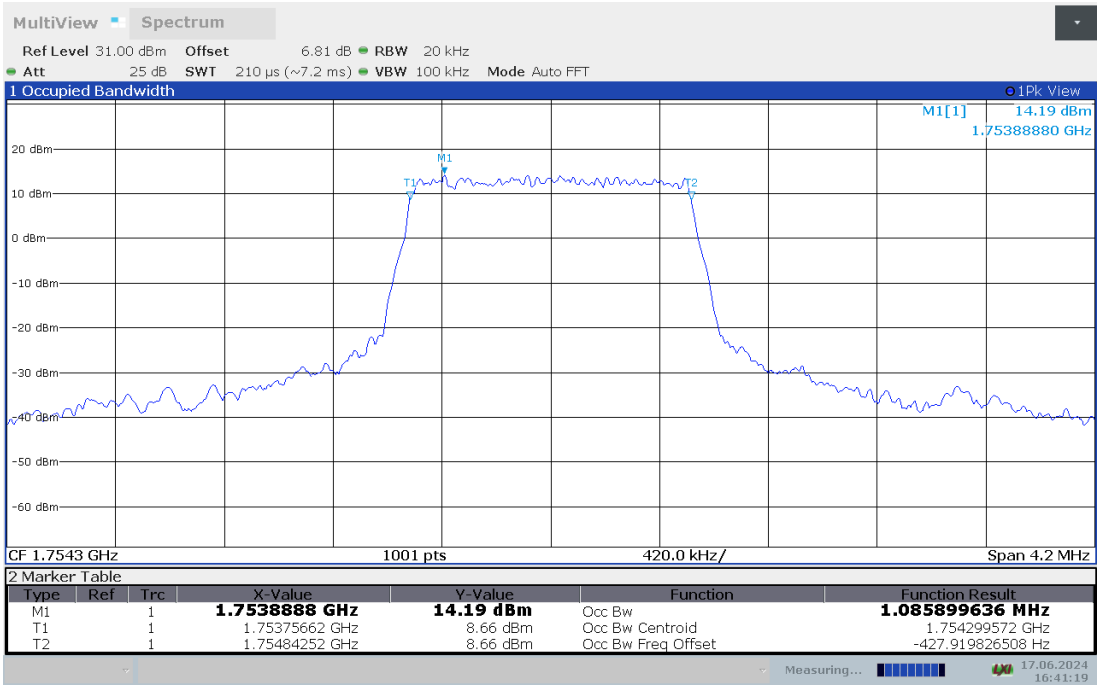
LTE band 4 , 1.4MHz Bandwidth,LOW,QPSK (99% BW)



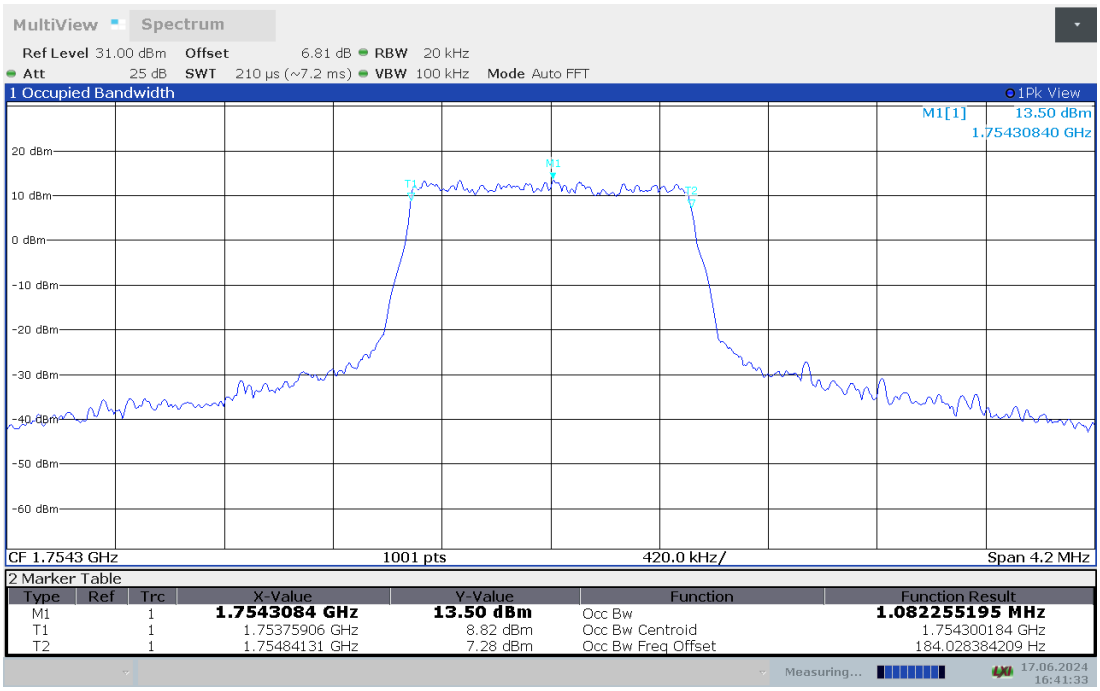
LTE band 4 , 1.4MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 4 , 1.4MHz Bandwidth,HIGH,QPSK (99% BW)



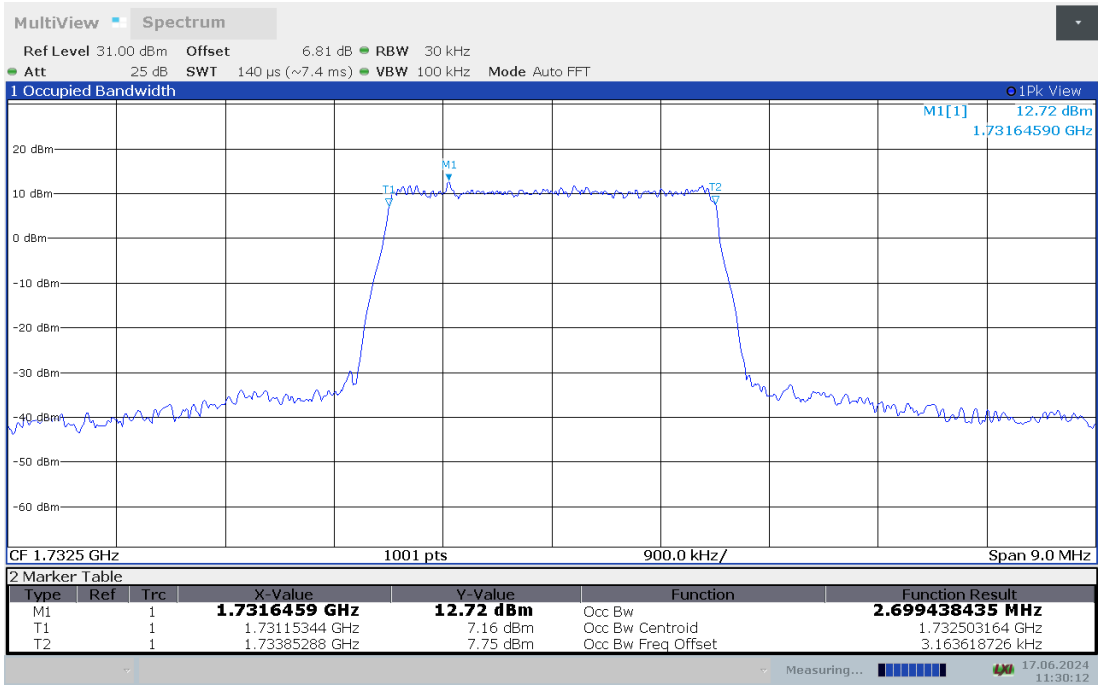
LTE band 4 , 1.4MHz Bandwidth,HIGH,16QAM (99% BW)



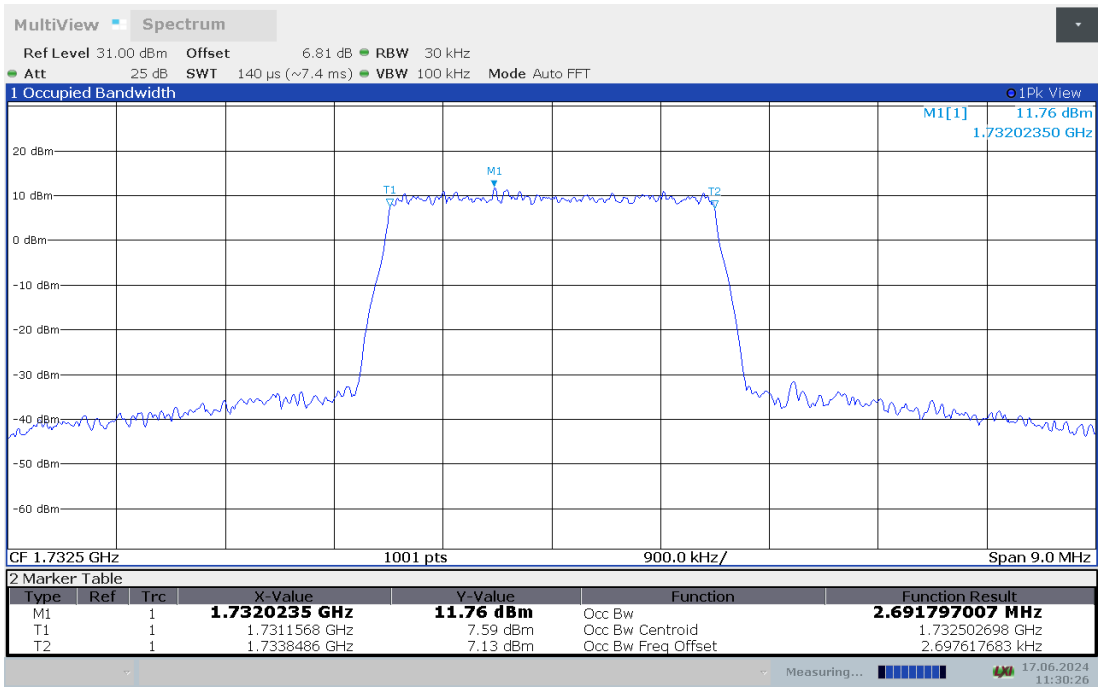
LTE band 4,3MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	2.699	2.692
1711.5	2.696	2.692
1753.5	2.695	2.689

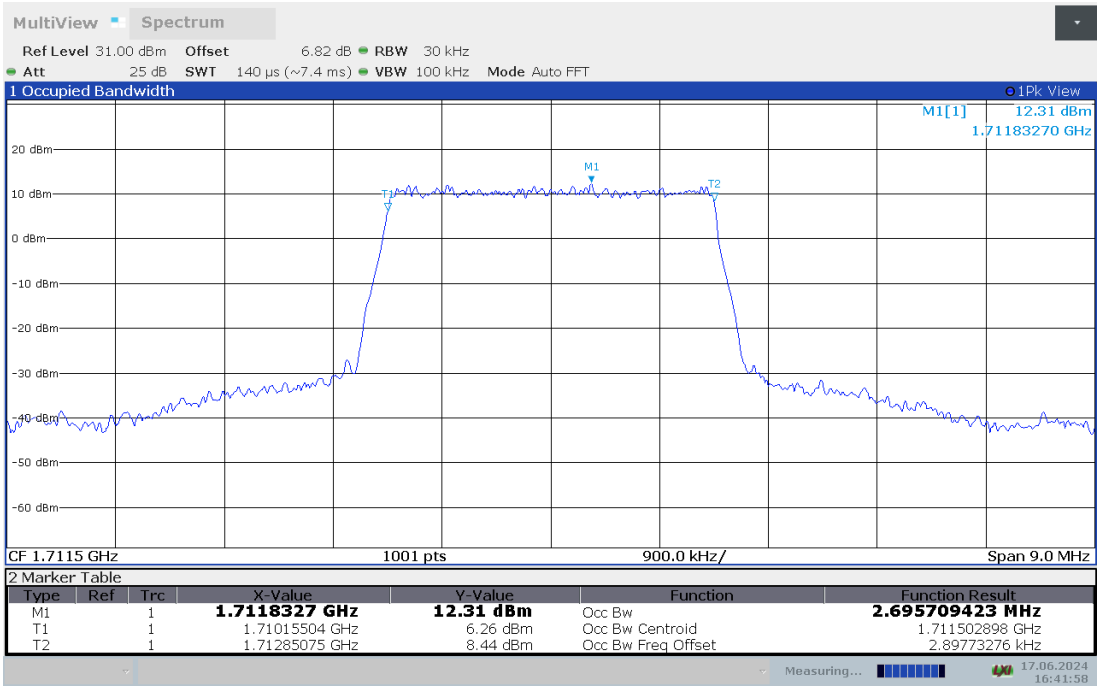
LTE band 4 , 3MHz Bandwidth,MID,QPSK (99% BW)



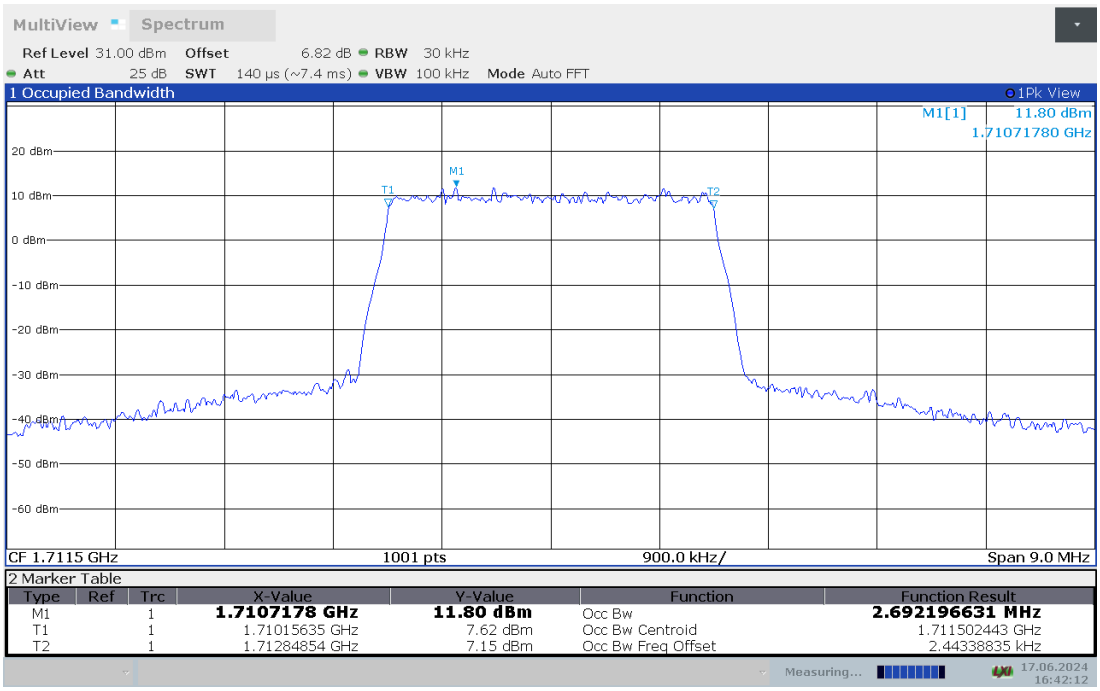
LTE band 4 , 3MHz Bandwidth,MID,16QAM (99% BW)



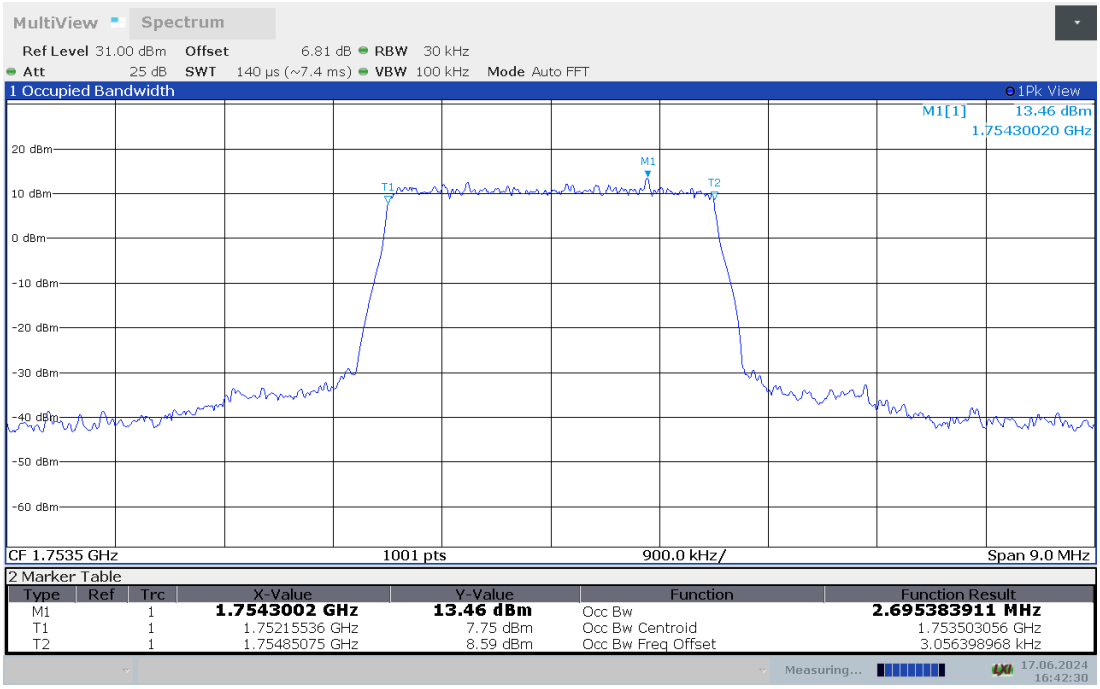
LTE band 4 , 3MHz Bandwidth,LOW,QPSK (99% BW)



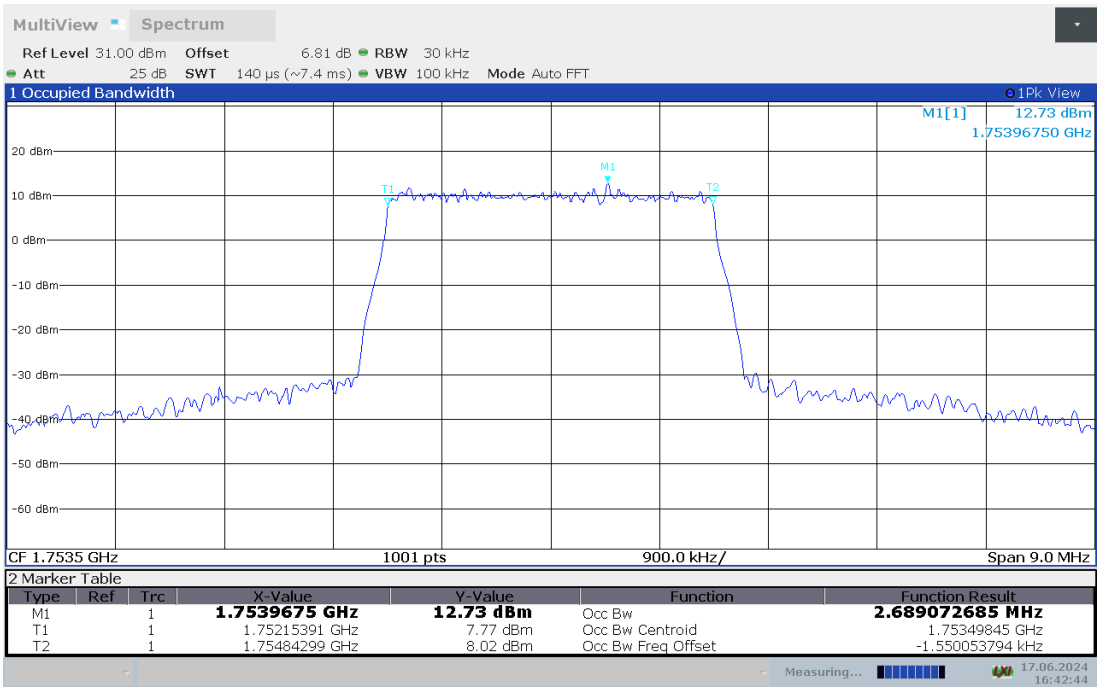
LTE band 4 , 3MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 4 , 3MHz Bandwidth,HIGH,QPSK (99% BW)



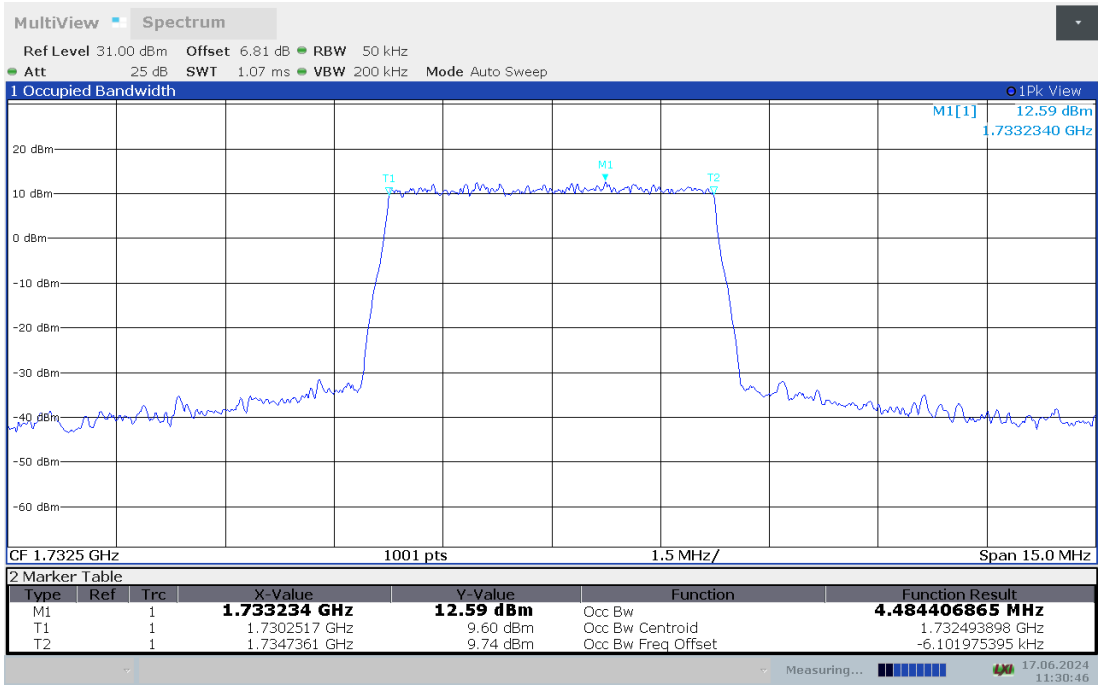
LTE band 4 , 3MHz Bandwidth,HIGH,16QAM (99% BW)



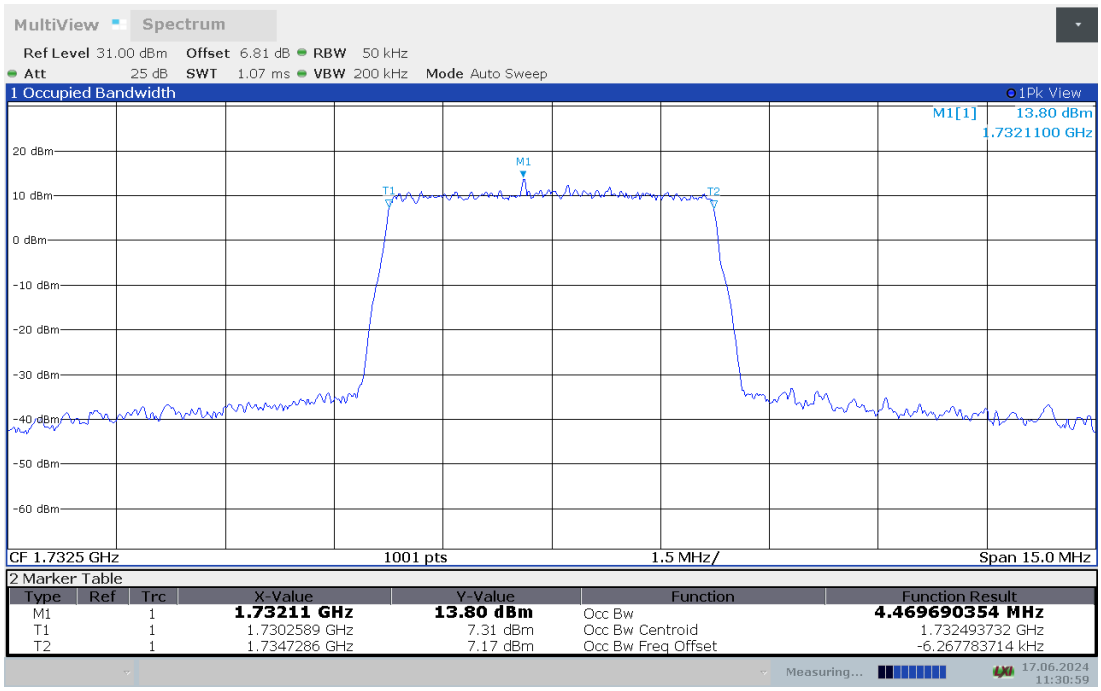
LTE band 4,5MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	4.484	4.470
1712.5	4.485	4.469
1752.5	4.483	4.487

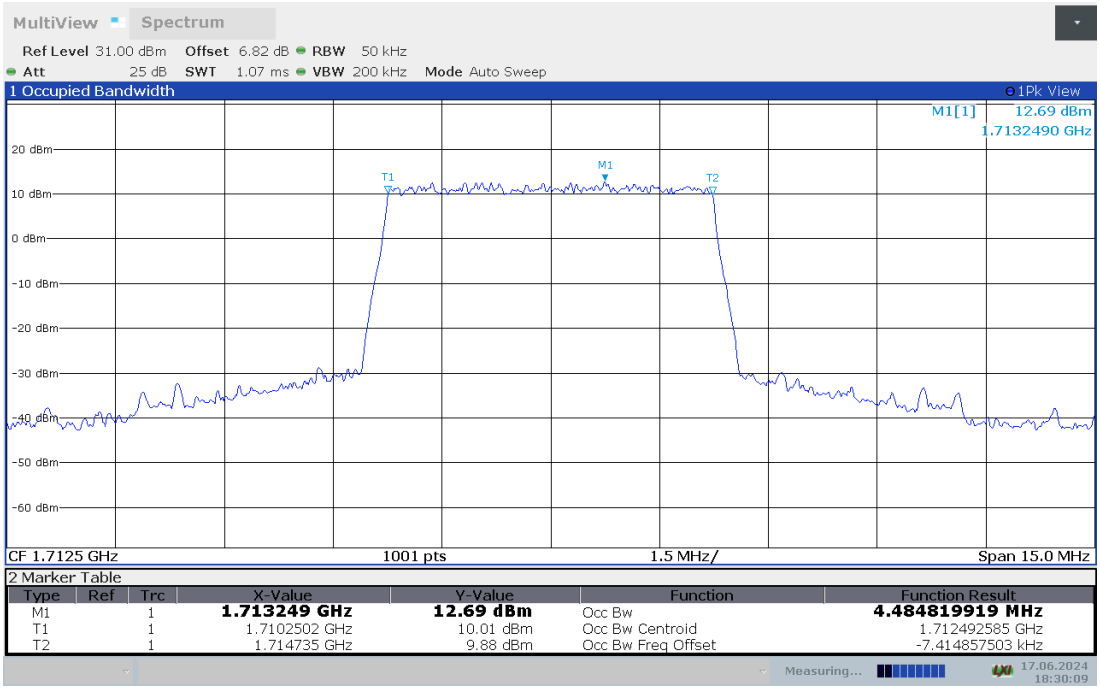
LTE band 4 , 5MHz Bandwidth,MID,QPSK (99% BW)



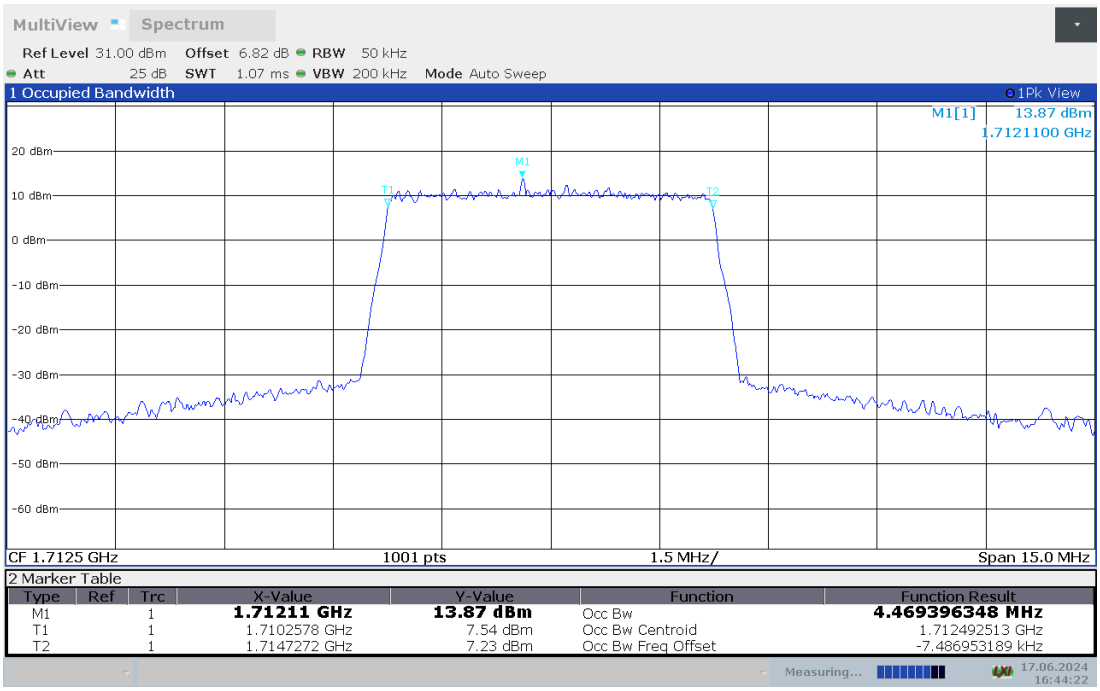
LTE band 4 , 5MHz Bandwidth,MID,16QAM (99% BW)



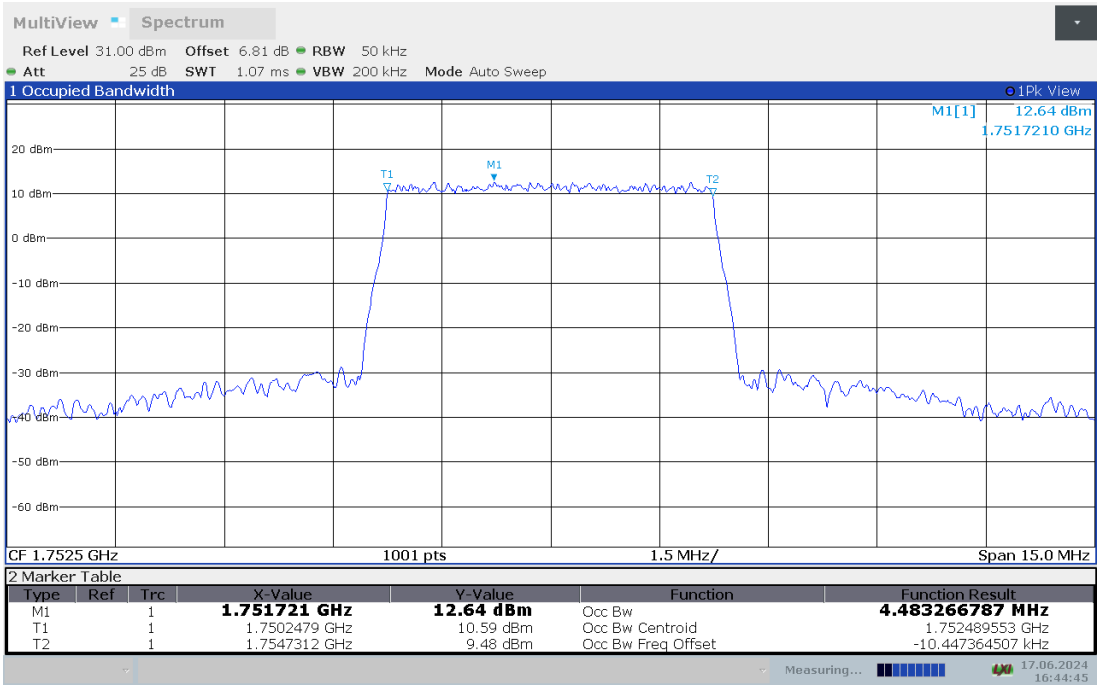
LTE band 4 , 5MHz Bandwidth,LOW,QPSK (99% BW)



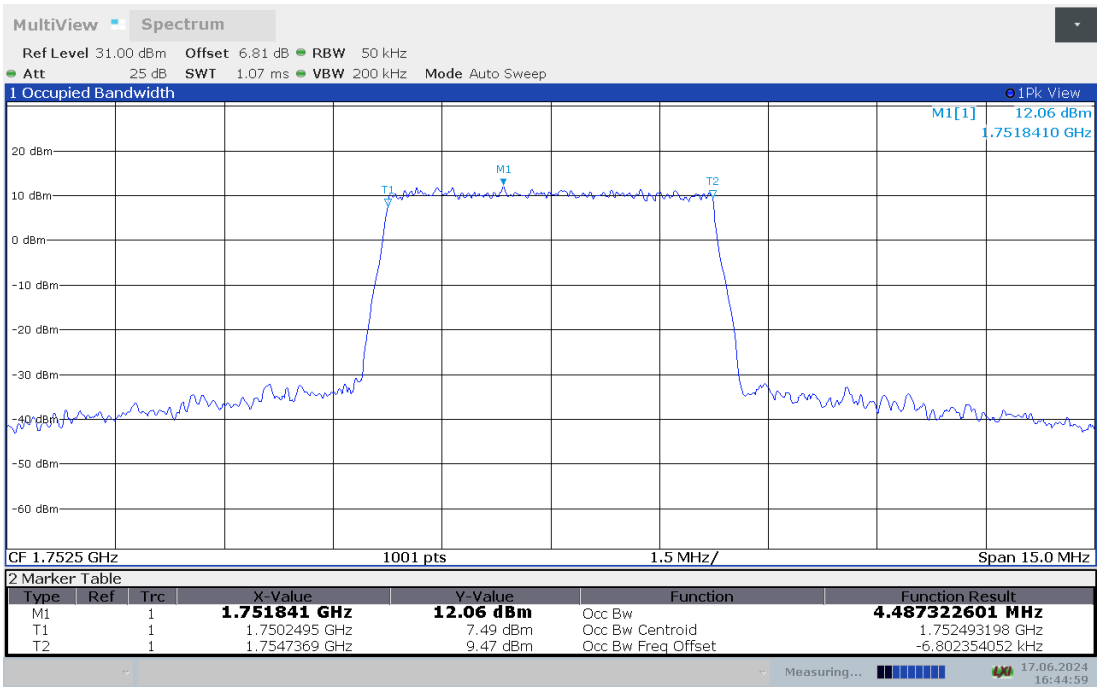
LTE band 4 , 5MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 4 , 5MHz Bandwidth,HIGH,QPSK (99% BW)



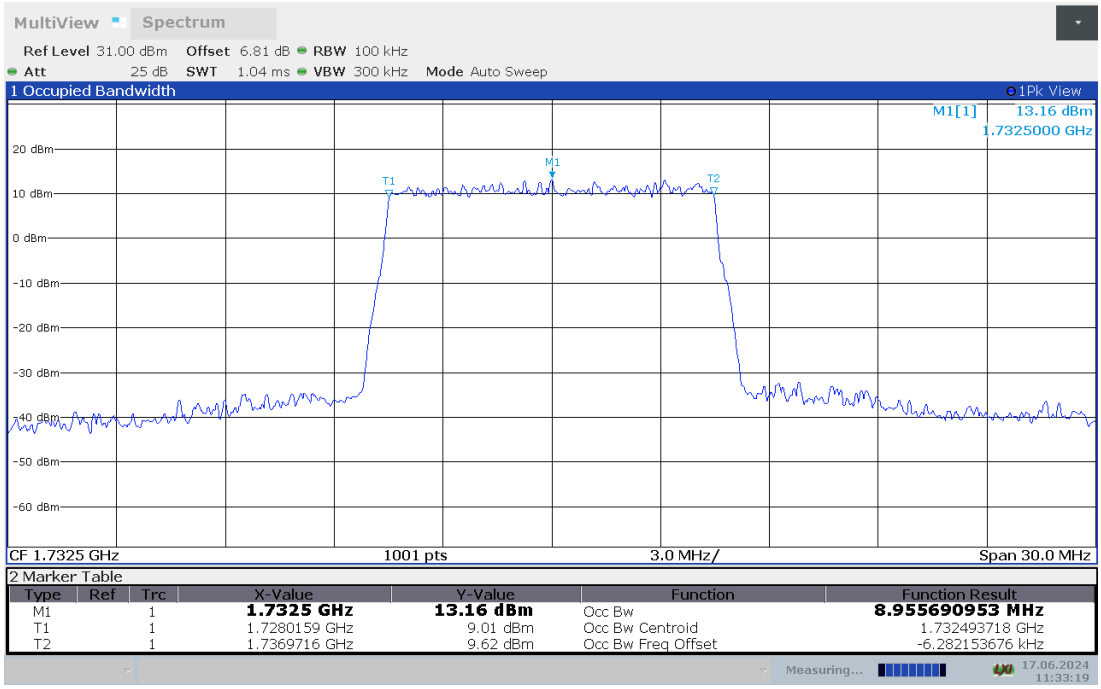
LTE band 4 , 5MHz Bandwidth,HIGH,16QAM (99% BW)



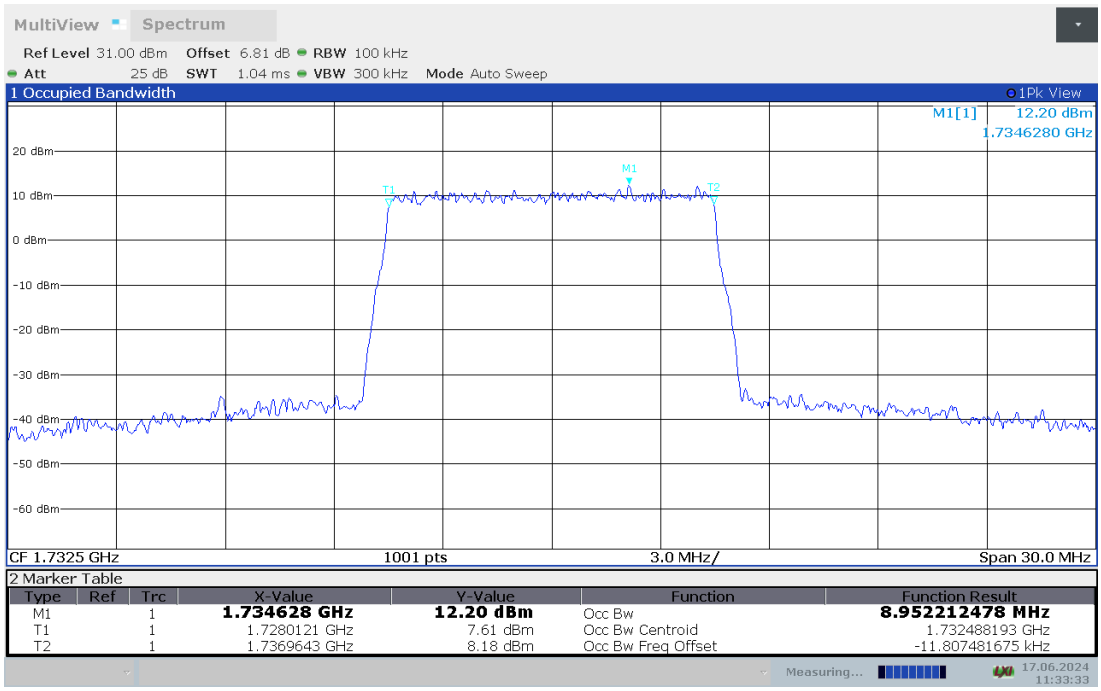
LTE band 4,10MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	8.956	8.952
1715	8.962	8.944
1750	8.960	8.958

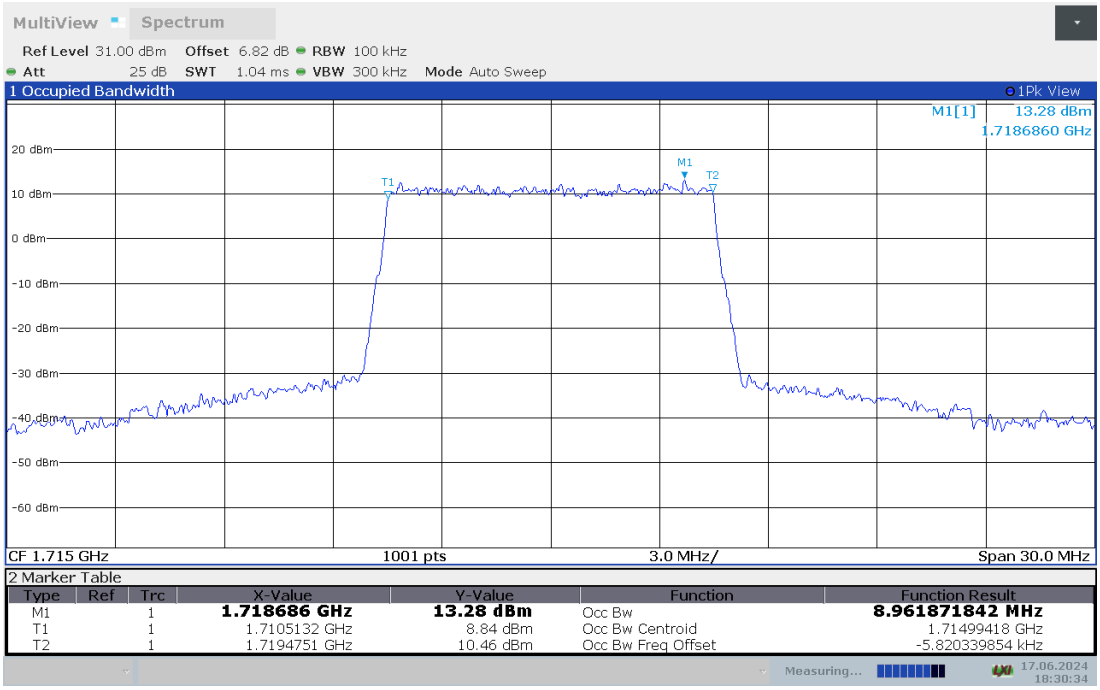
LTE band 4 , 10MHz Bandwidth,MID,QPSK (99% BW)



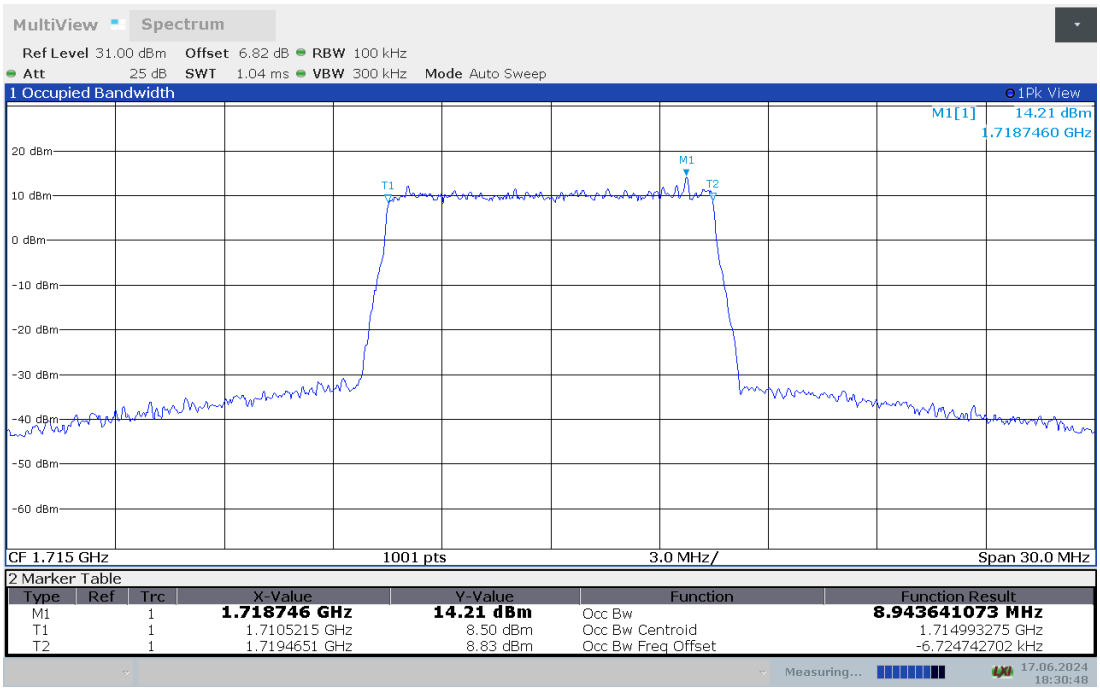
LTE band 4 , 10MHz Bandwidth,MID,16QAM (99% BW)



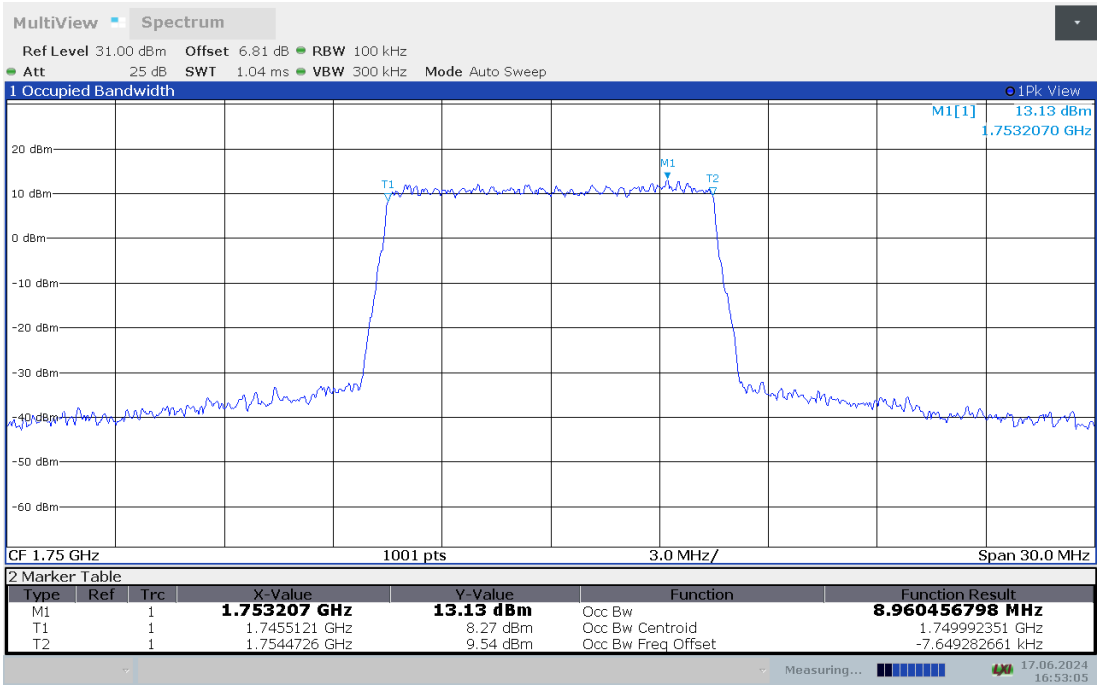
LTE band 4 , 10MHz Bandwidth,LOW,QPSK (99% BW)



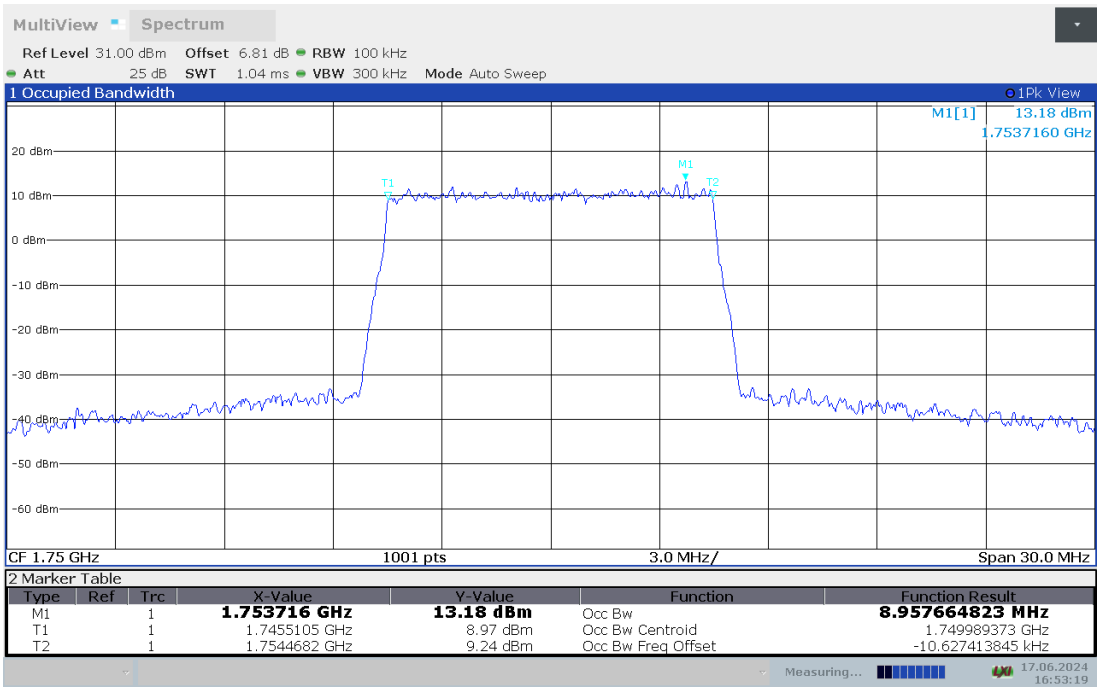
LTE band 4 , 10MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 4 , 10MHz Bandwidth,HIGH,QPSK (99% BW)



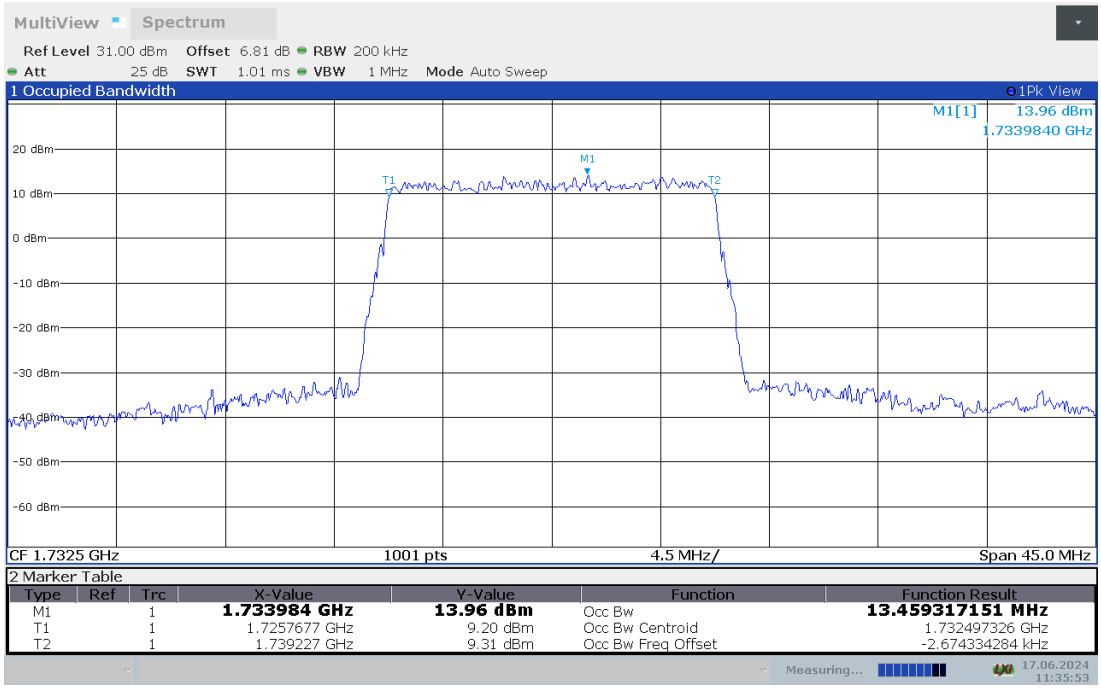
LTE band 4 , 10MHz Bandwidth,HIGH,16QAM (99% BW)



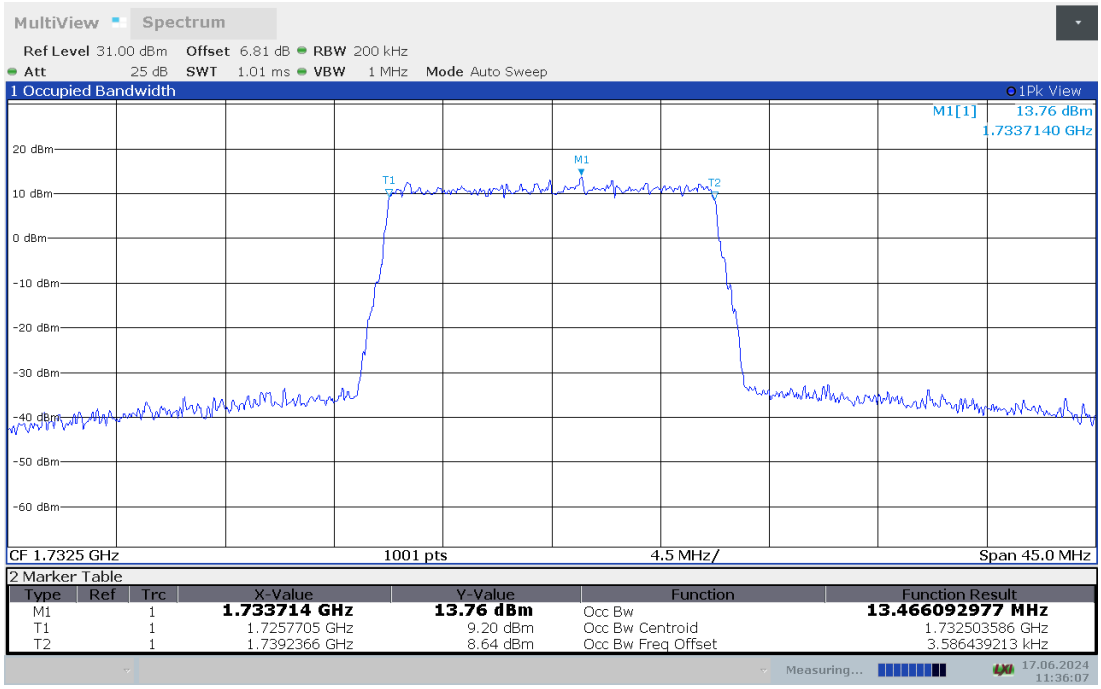
LTE band 4,15MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	13.459	13.466
1717.5	13.467	13.451
1747.5	13.409	13.426

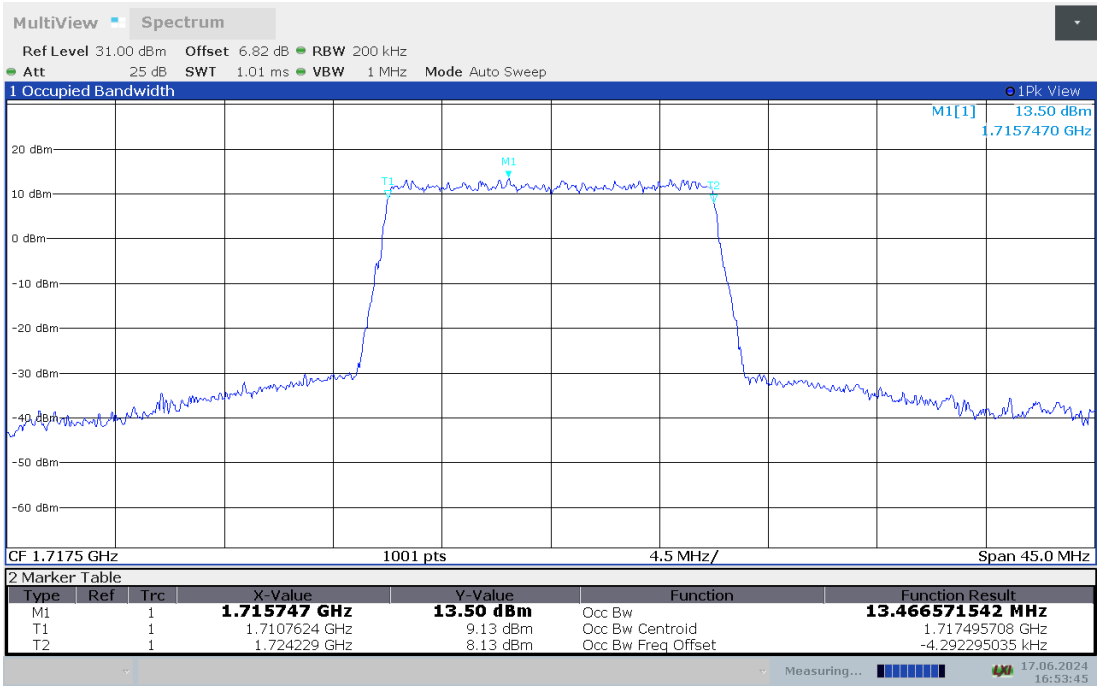
LTE band 4 , 15MHz Bandwidth,MID,QPSK (99% BW)



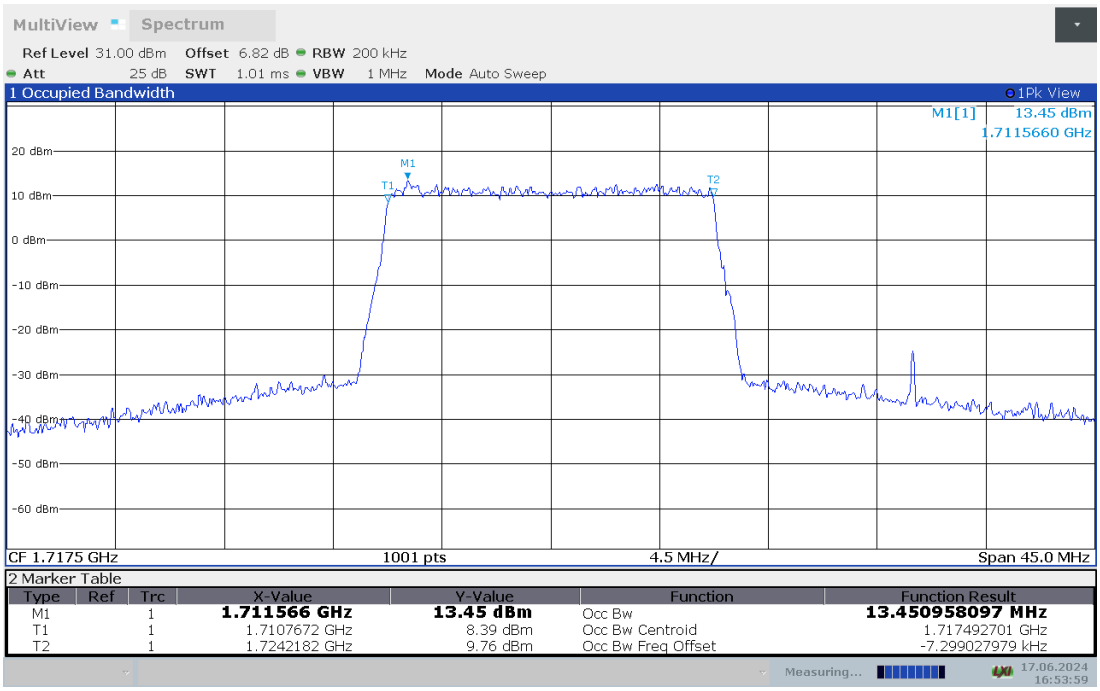
LTE band 4 , 15MHz Bandwidth,MID,16QAM (99% BW)



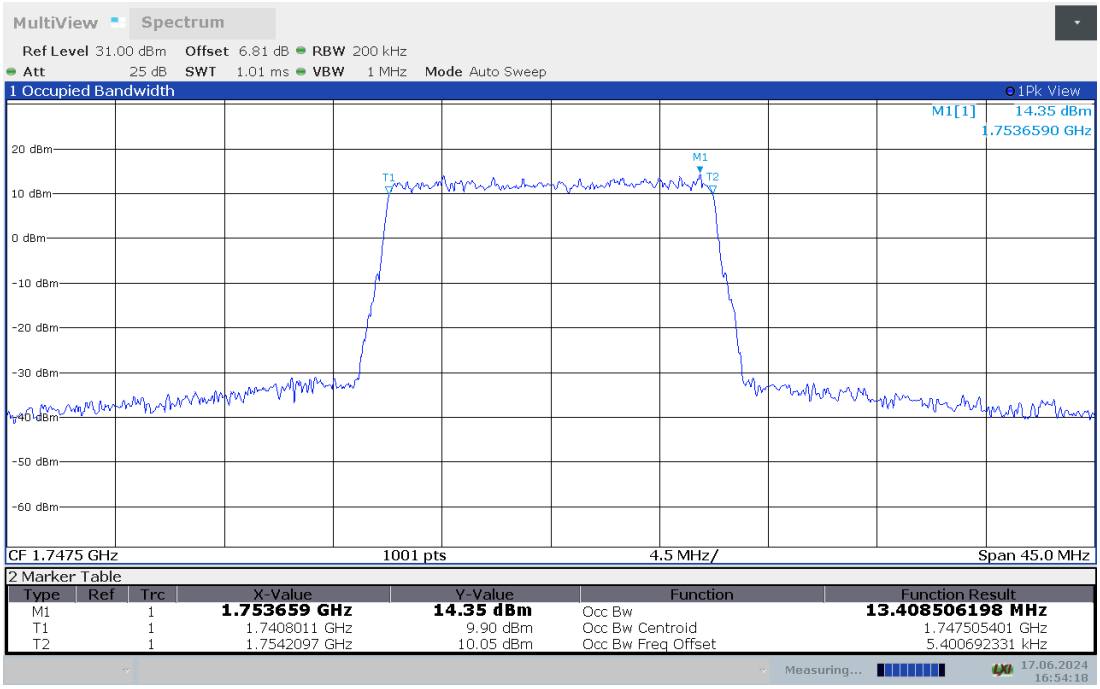
LTE band 4 , 15MHz Bandwidth,LOW,QPSK (99% BW)



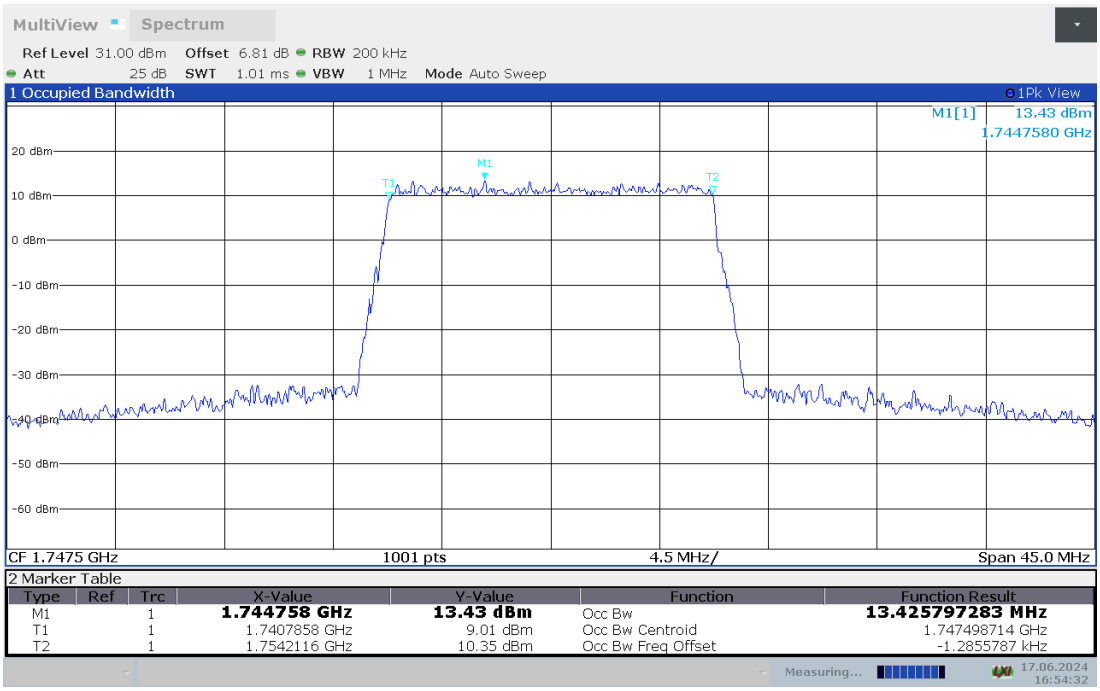
LTE band 4 , 15MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 4 , 15MHz Bandwidth,HIGH,QPSK (99% BW)



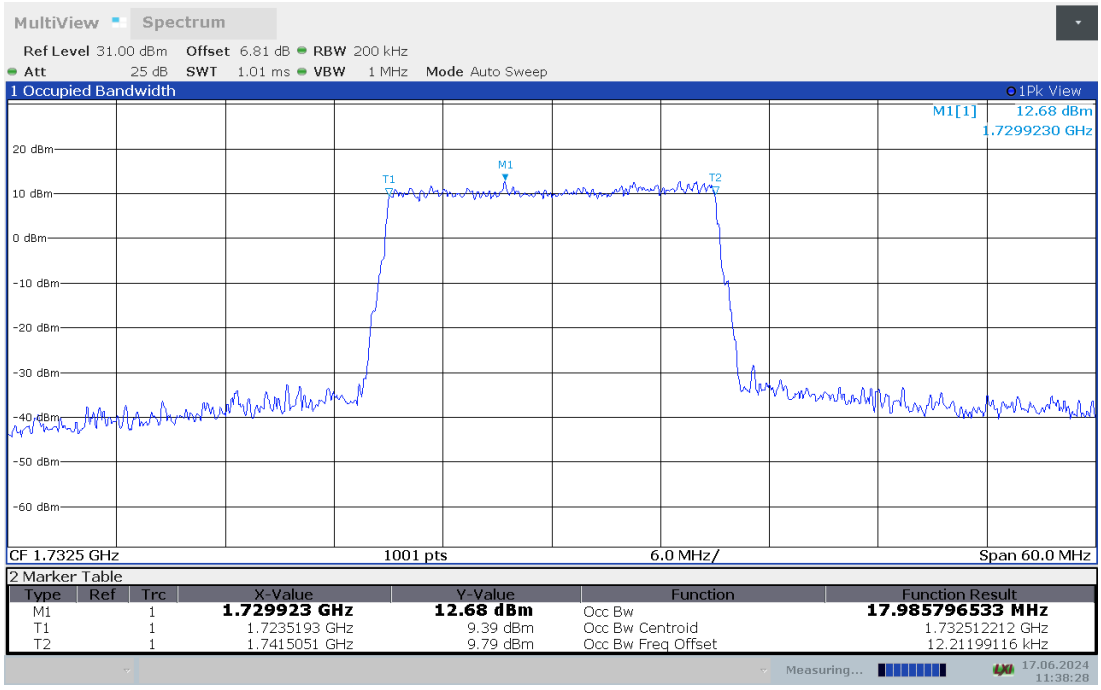
LTE band 4 , 15MHz Bandwidth,HIGH,16QAM (99% BW)



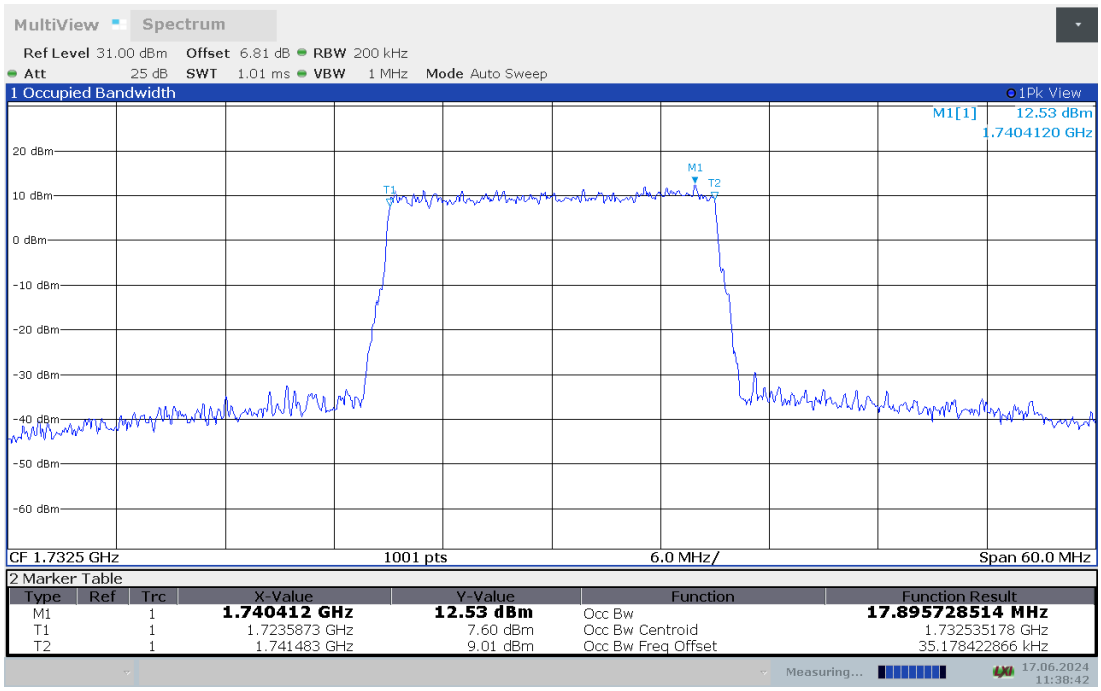
LTE band 4,20MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	17.986	17.896
1720	17.908	17.958
1745	17.906	17.901

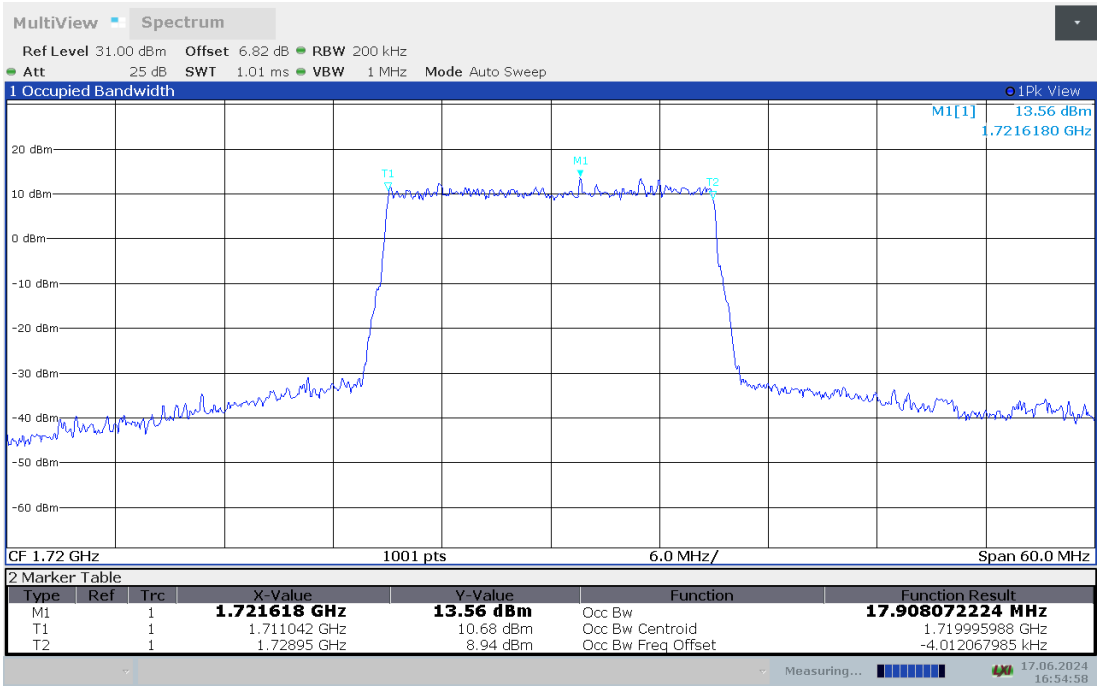
LTE band 4 , 20MHz Bandwidth,MID,QPSK (99% BW)



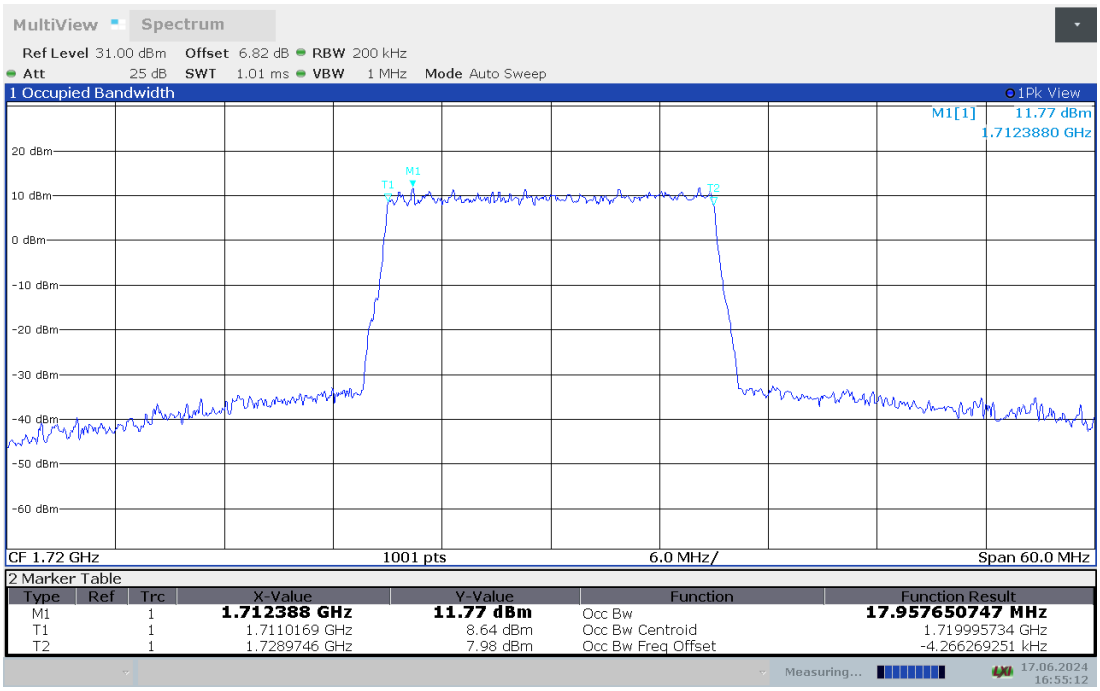
LTE band 4 , 20MHz Bandwidth,MID,16QAM (99% BW)



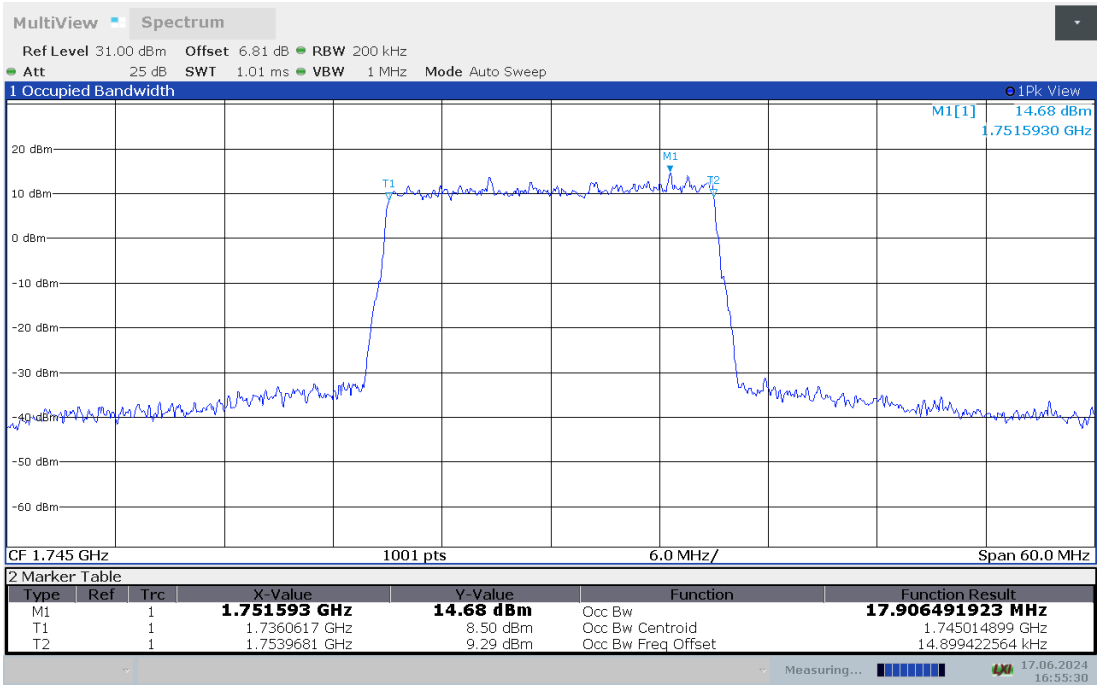
LTE band 4 , 20MHz Bandwidth,LOW,QPSK (99% BW)



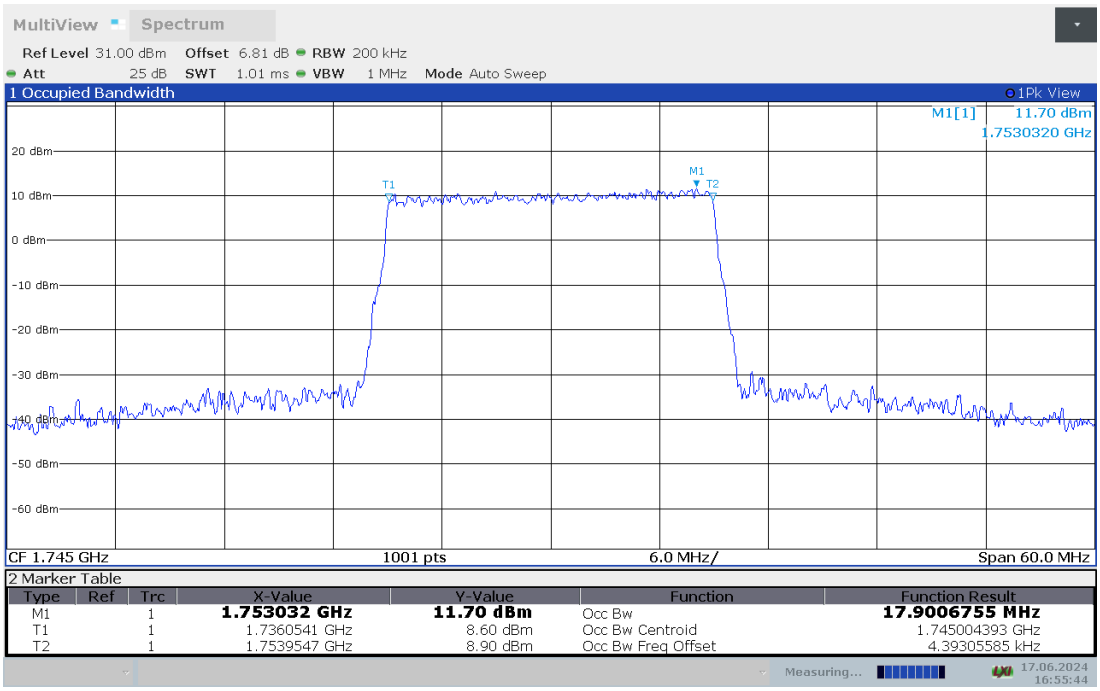
LTE band 4 , 20MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 4 , 20MHz Bandwidth,HIGH,QPSK (99% BW)



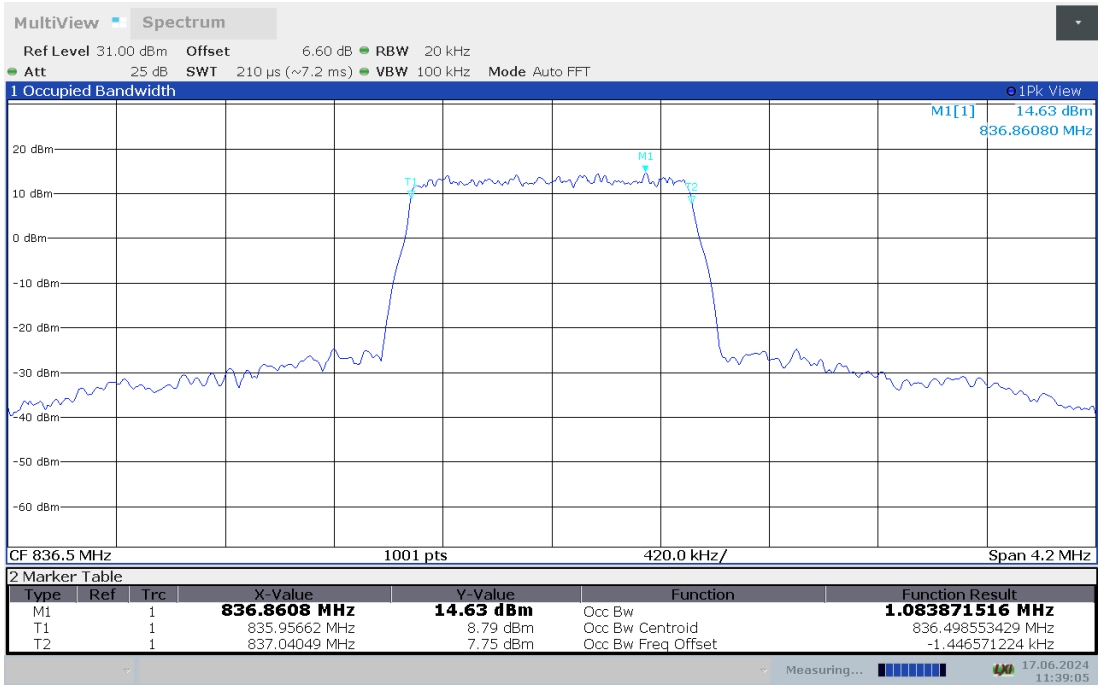
LTE band 4 , 20MHz Bandwidth,HIGH,16QAM (99% BW)



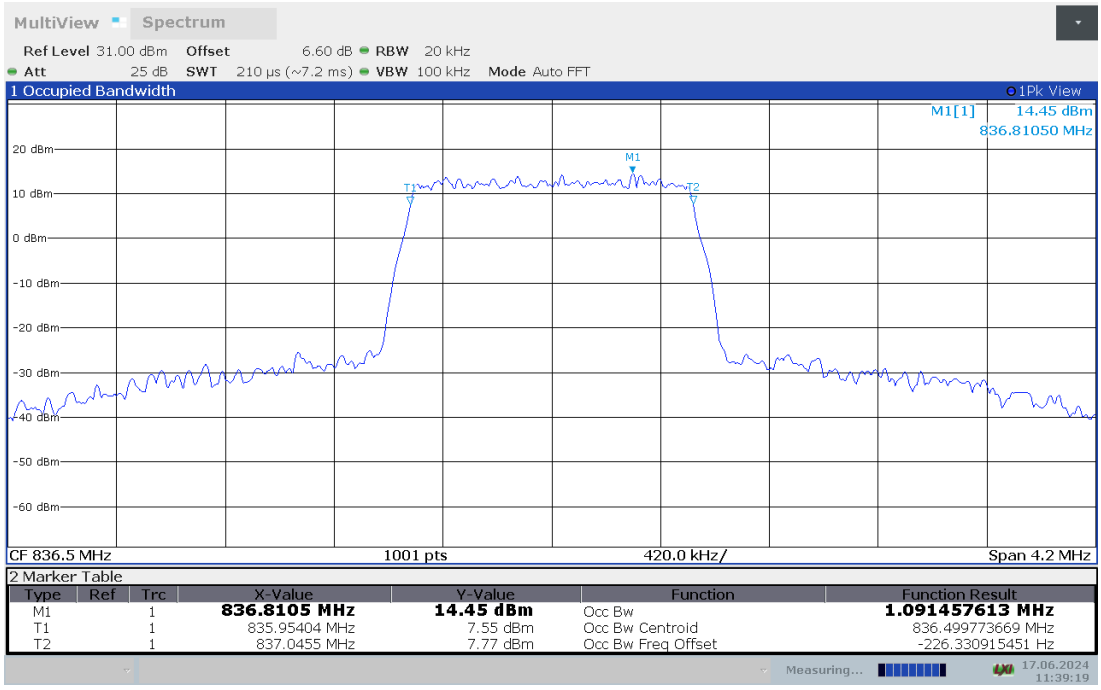
LTE band 5,1.4MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
836.5	1.084	1.091
824.7	1.085	1.092
848.3	1.087	1.082

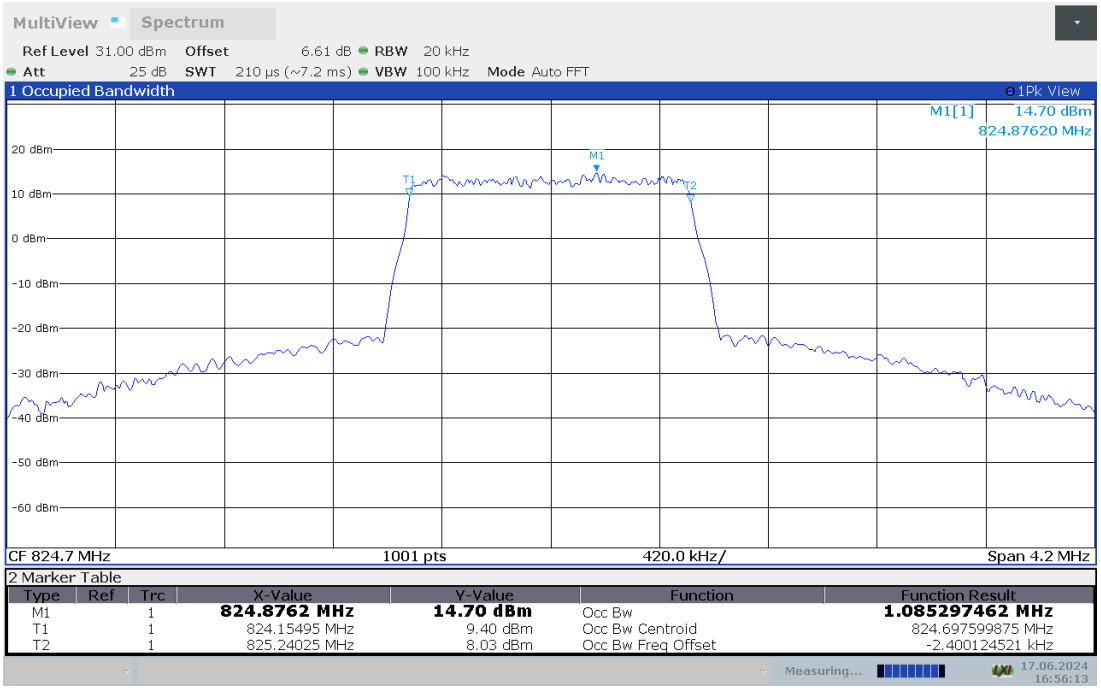
LTE band 5 , 1.4MHz Bandwidth,MID,QPSK (99% BW)



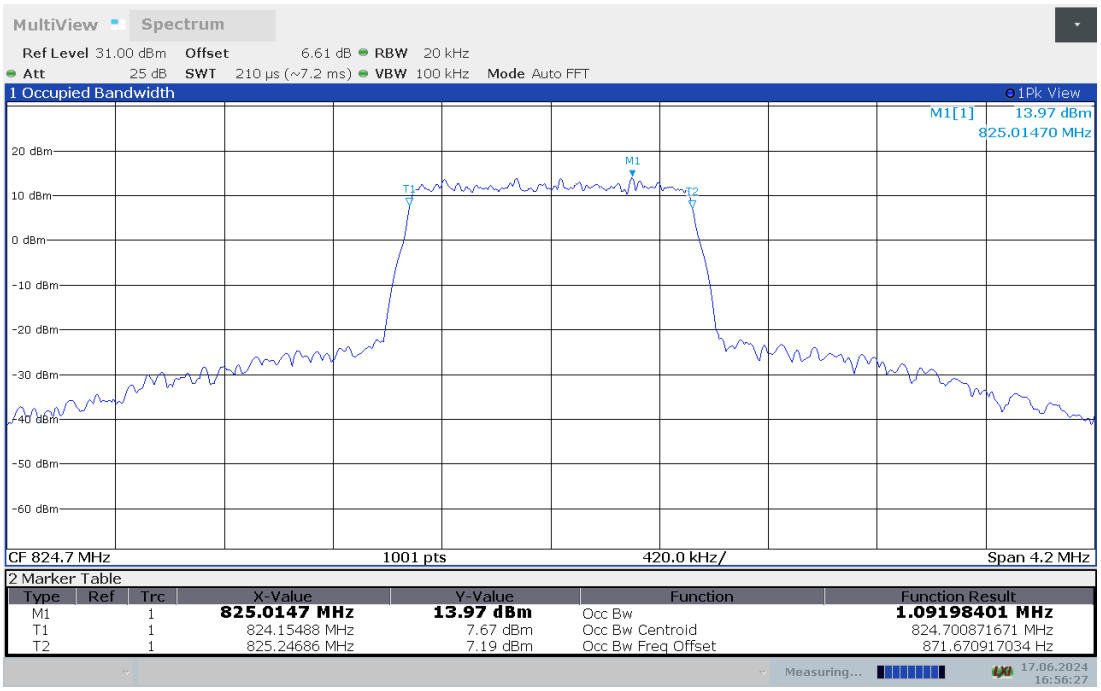
LTE band 5 , 1.4MHz Bandwidth,MID,16QAM (99% BW)



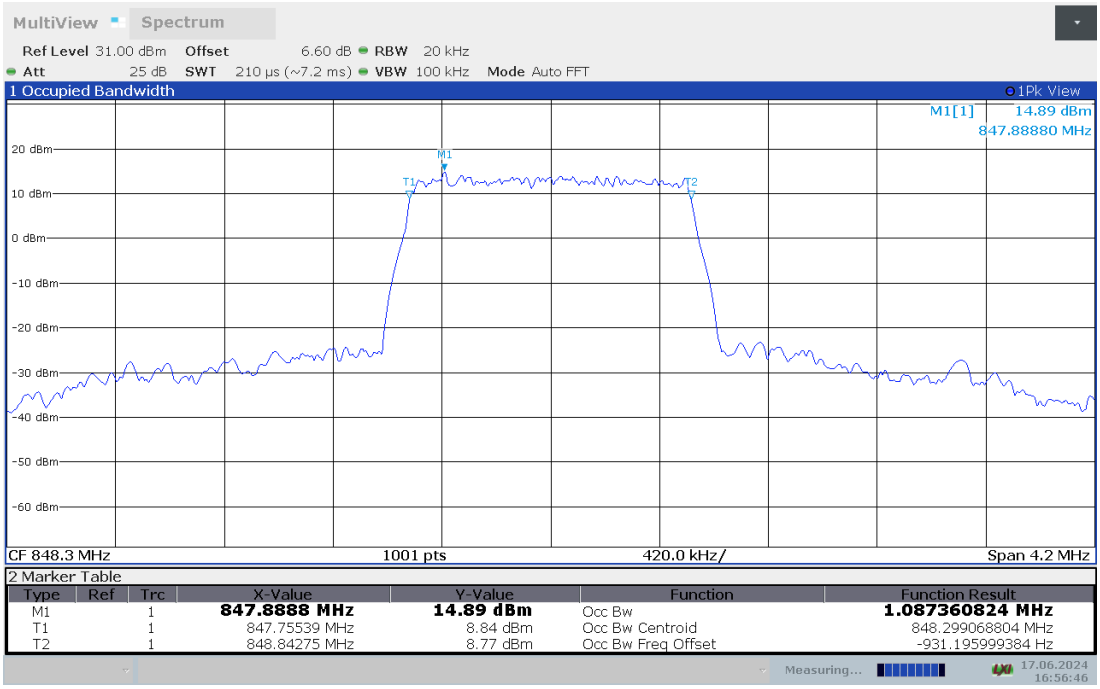
LTE band 5 , 1.4MHz Bandwidth,LOW,QPSK (99% BW)



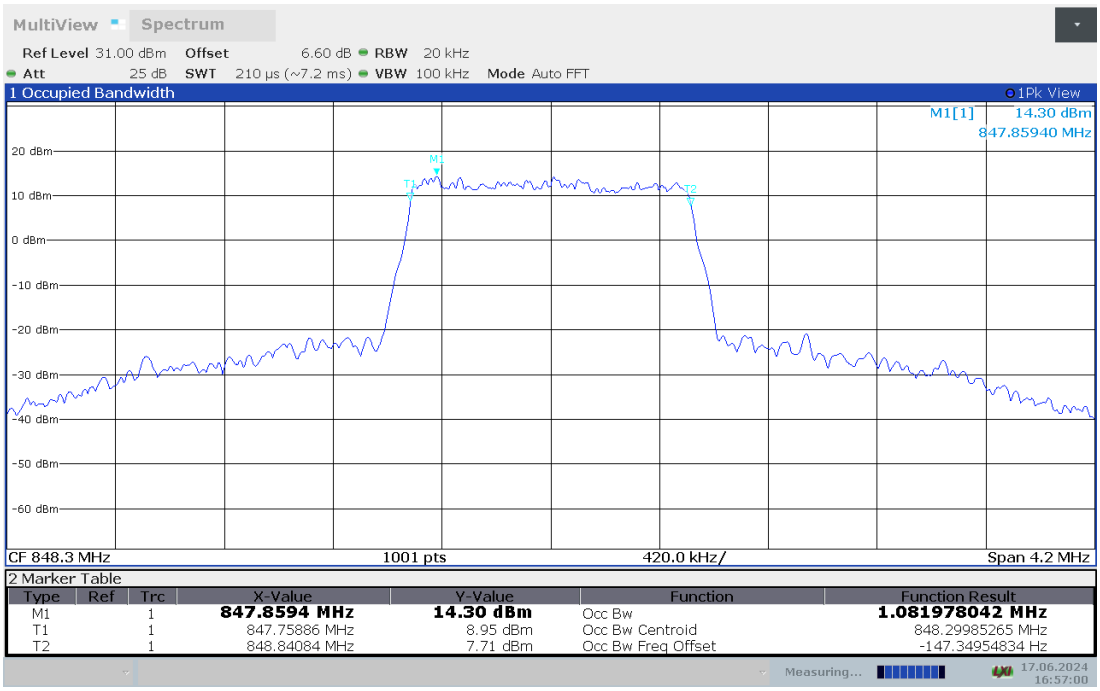
LTE band 5 , 1.4MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 5 , 1.4MHz Bandwidth,HIGH,QPSK (99% BW)



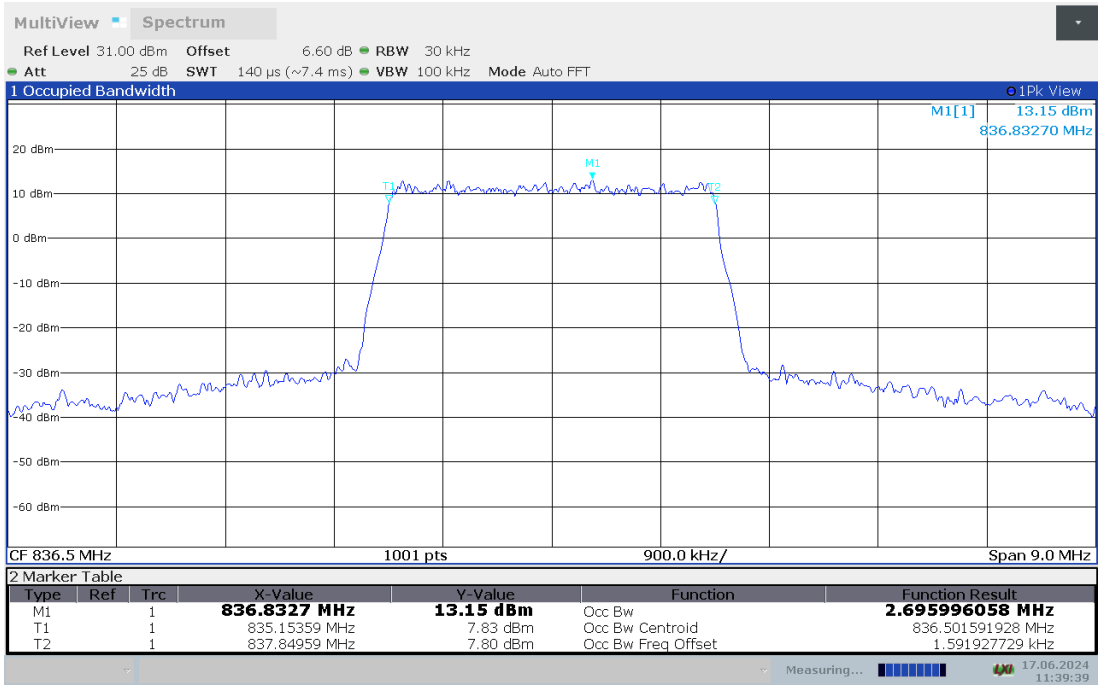
LTE band 5 , 1.4MHz Bandwidth,HIGH,16QAM (99% BW)



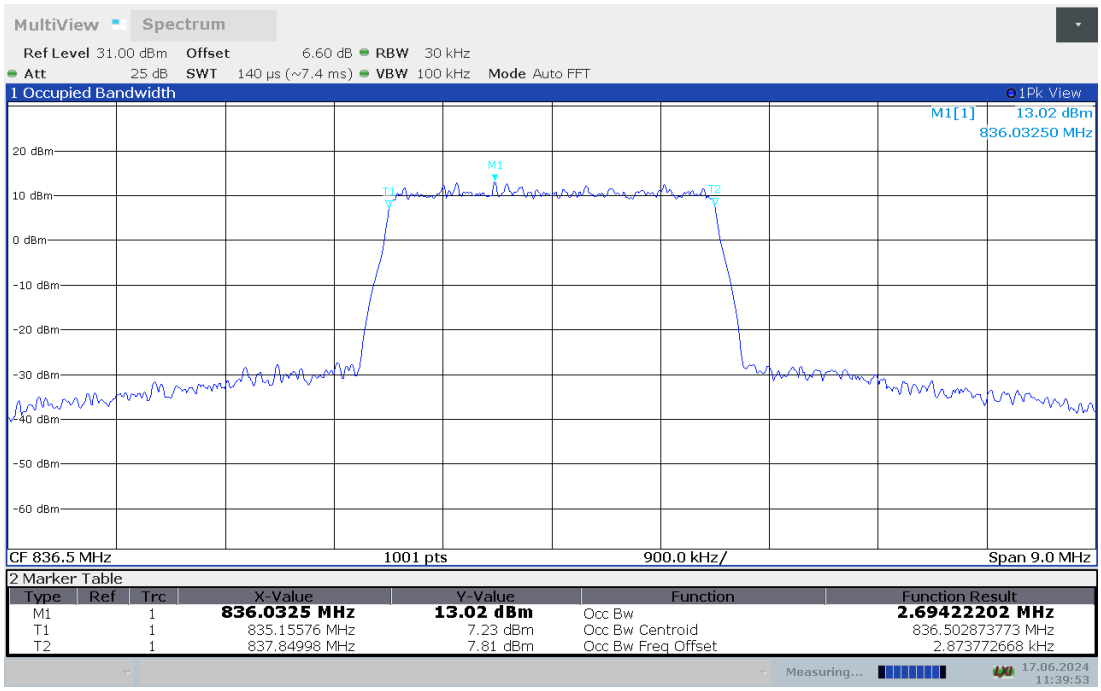
LTE band 5,3MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
836.5	2.696	2.694
825.5	2.690	2.694
847.5	2.694	2.689

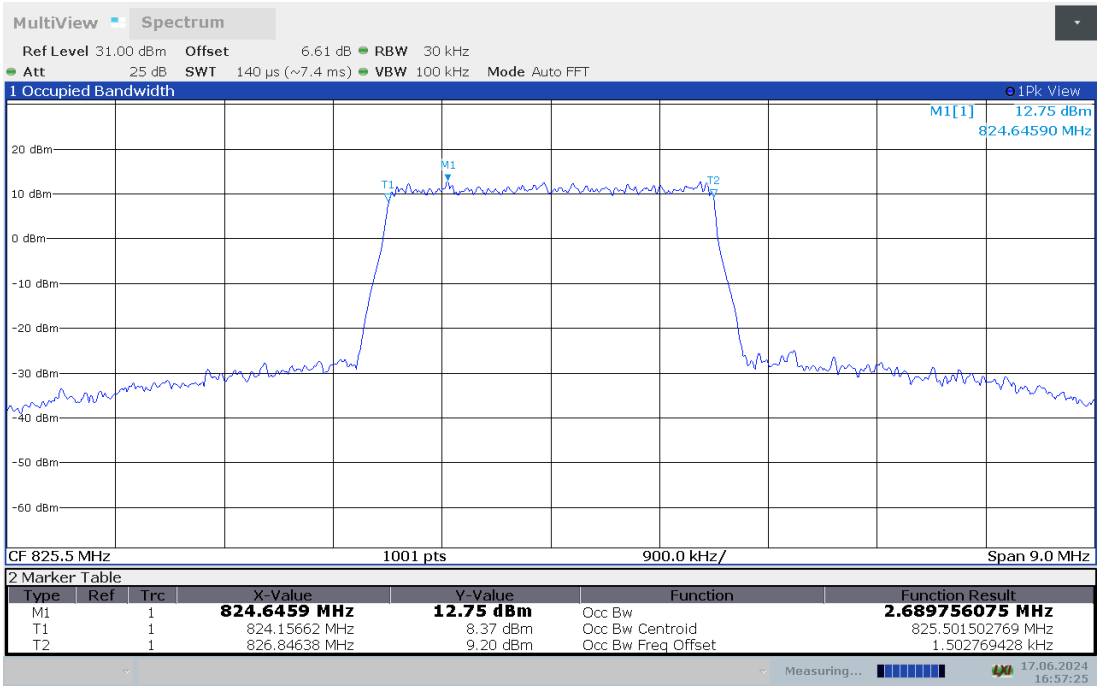
LTE band 5 , 3MHz Bandwidth,MID,QPSK (99% BW)



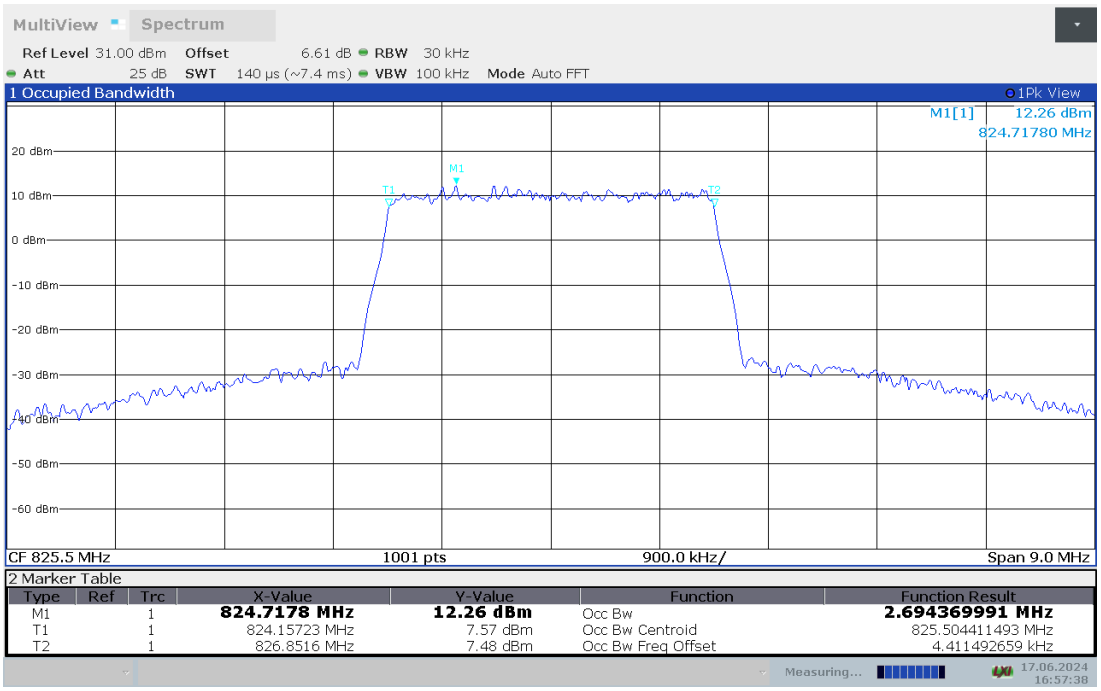
LTE band 5 , 3MHz Bandwidth,MID,16QAM (99% BW)



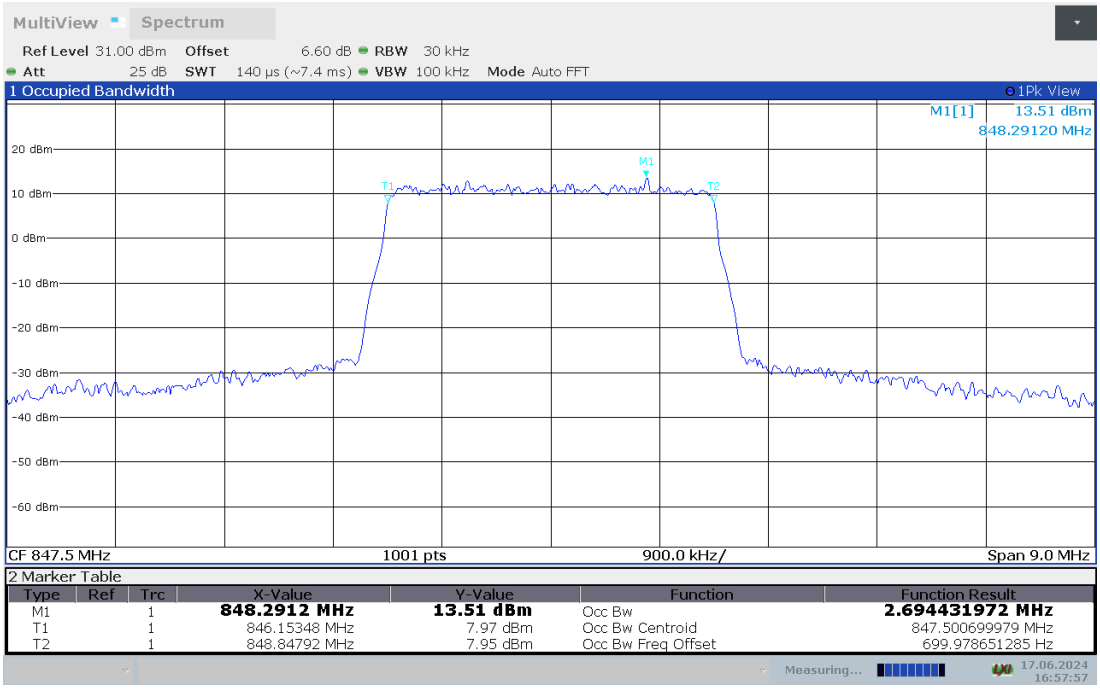
LTE band 5 , 3MHz Bandwidth,LOW,QPSK (99% BW)



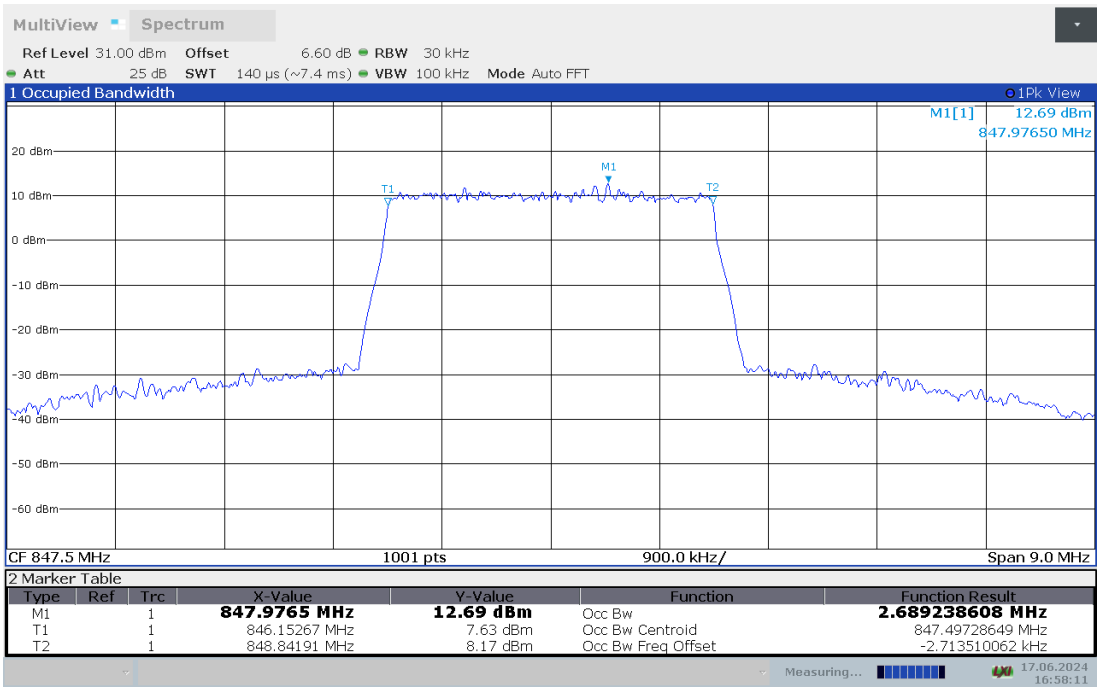
LTE band 5 , 3MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 5 , 3MHz Bandwidth,HIGH,QPSK (99% BW)



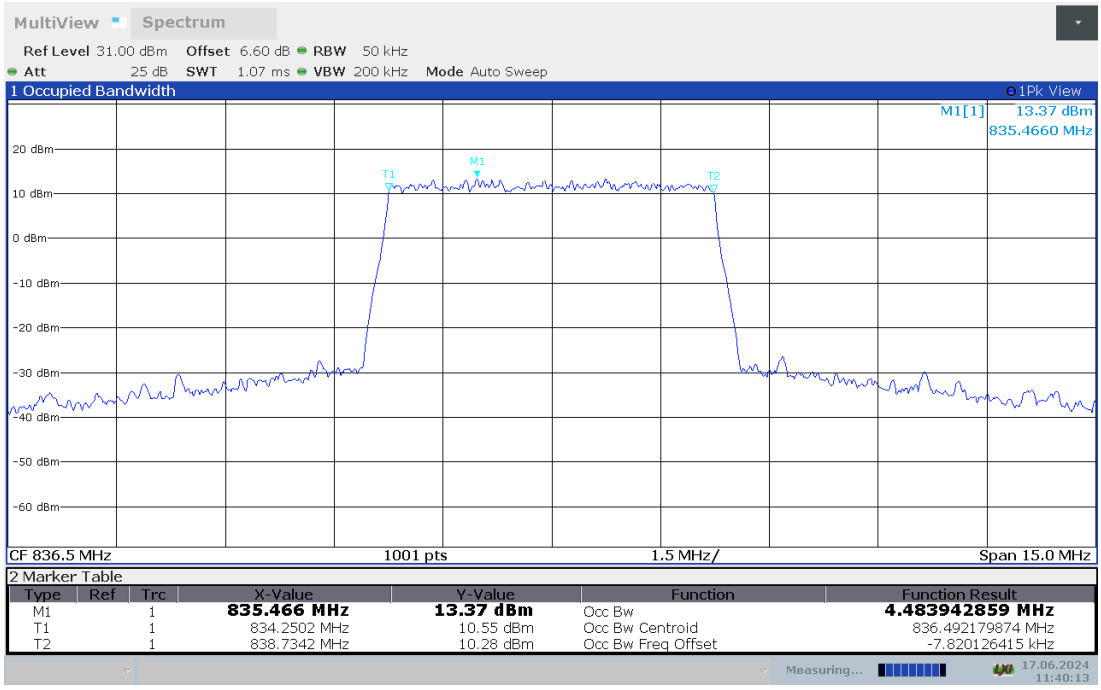
LTE band 5 , 3MHz Bandwidth,HIGH,16QAM (99% BW)



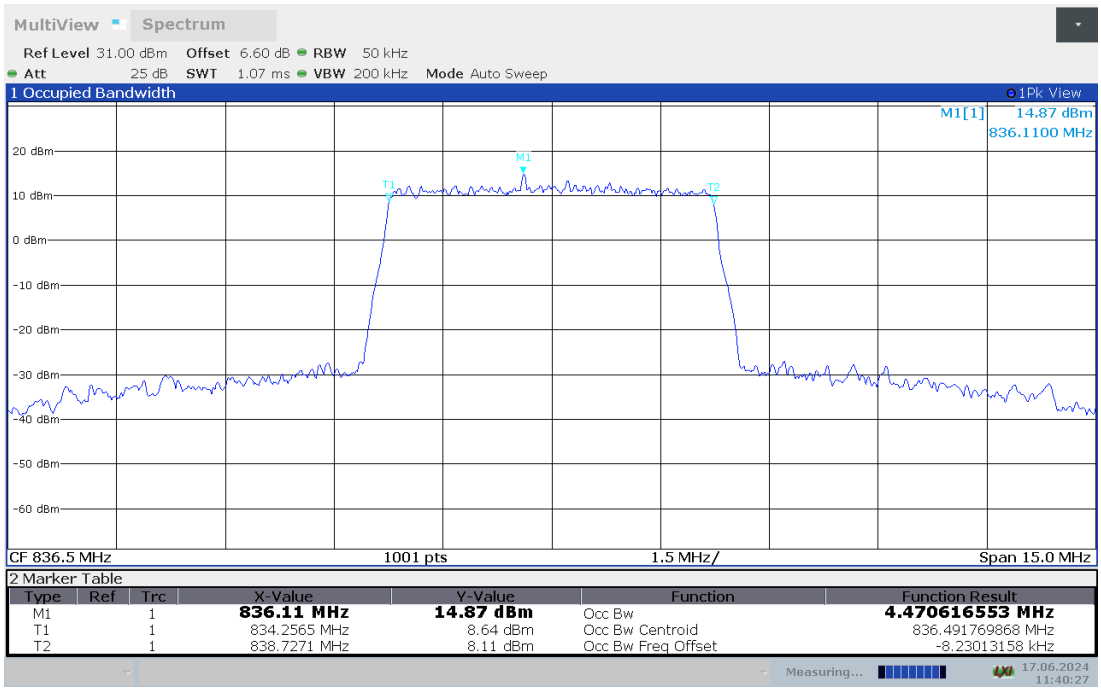
LTE band 5,5MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
836.5	4.484	4.471
826.5	4.484	4.470
846.5	4.483	4.487

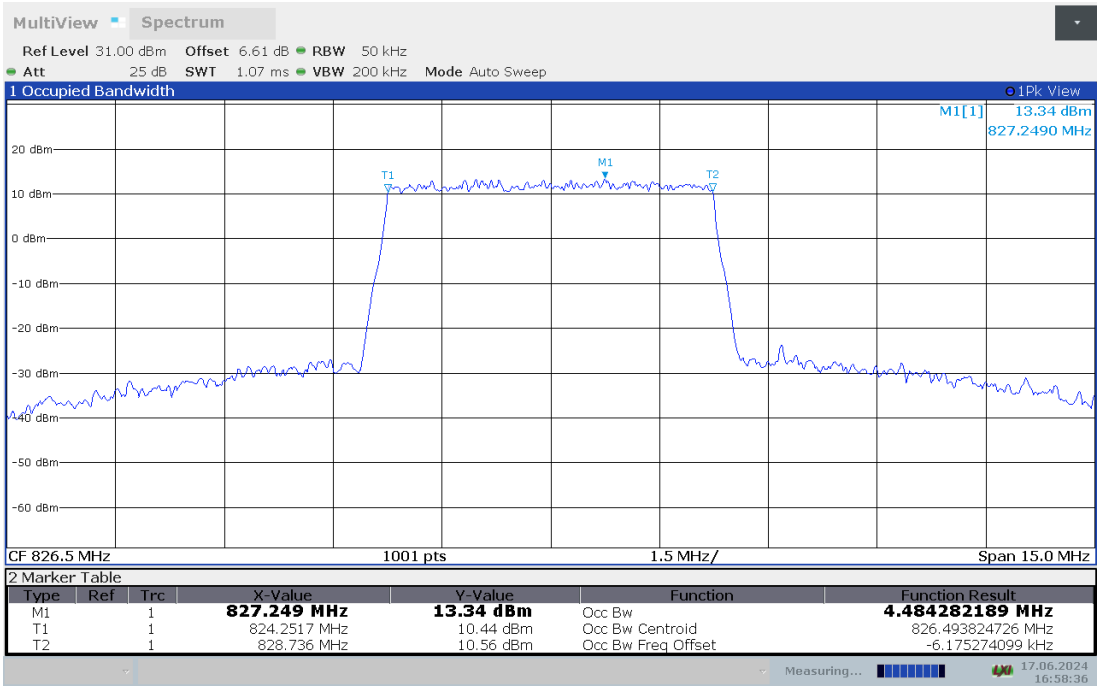
LTE band 5 , 5MHz Bandwidth,MID,QPSK (99% BW)



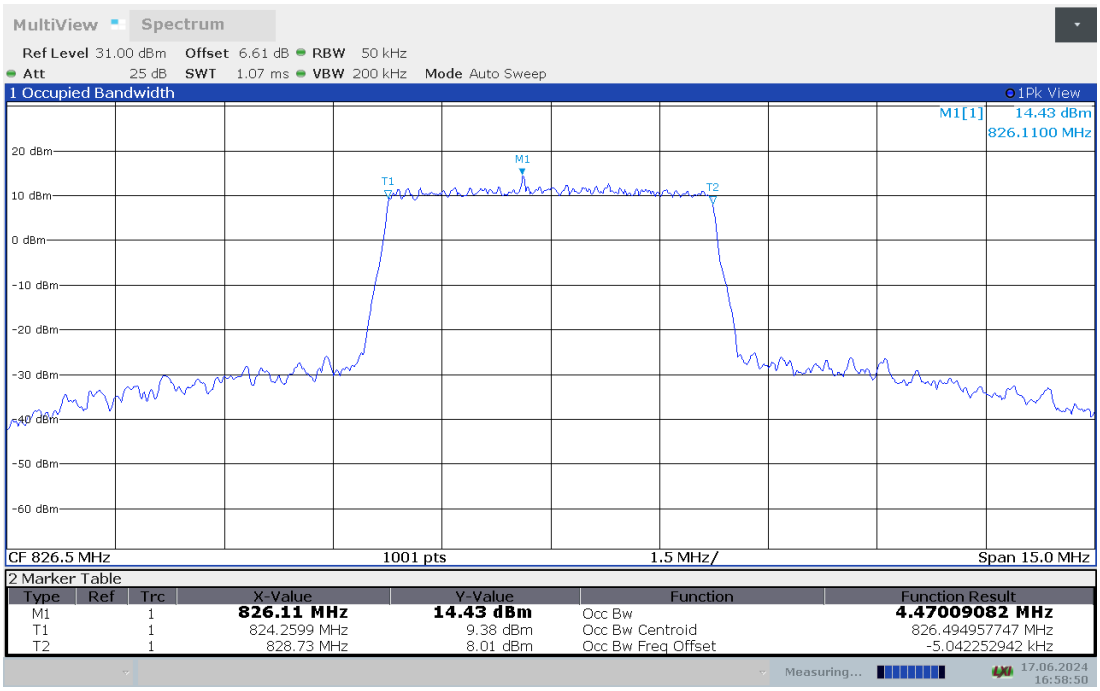
LTE band 5 , 5MHz Bandwidth,MID,16QAM (99% BW)



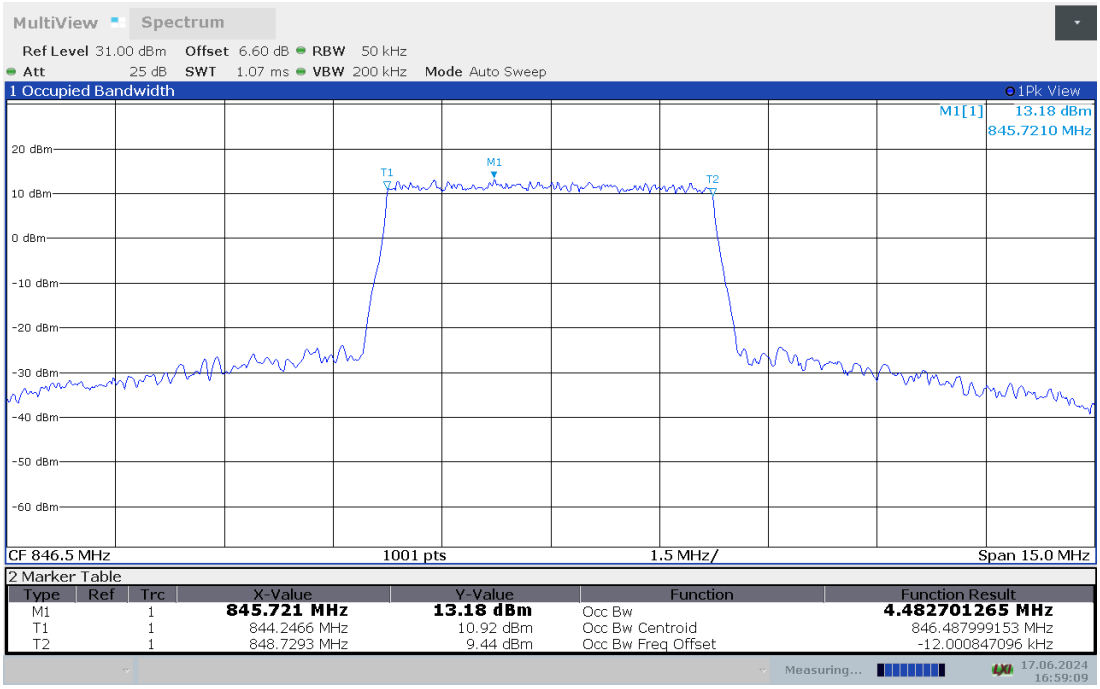
LTE band 5 , 5MHz Bandwidth,LOW,QPSK (99% BW)



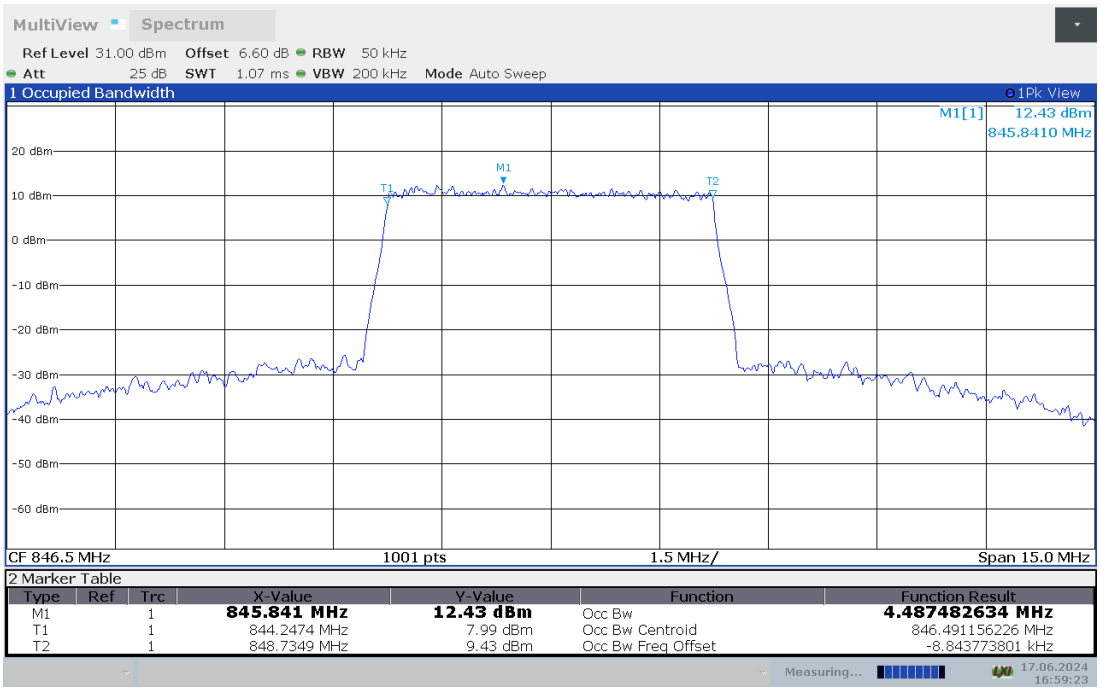
LTE band 5 , 5MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 5 , 5MHz Bandwidth,HIGH,QPSK (99% BW)



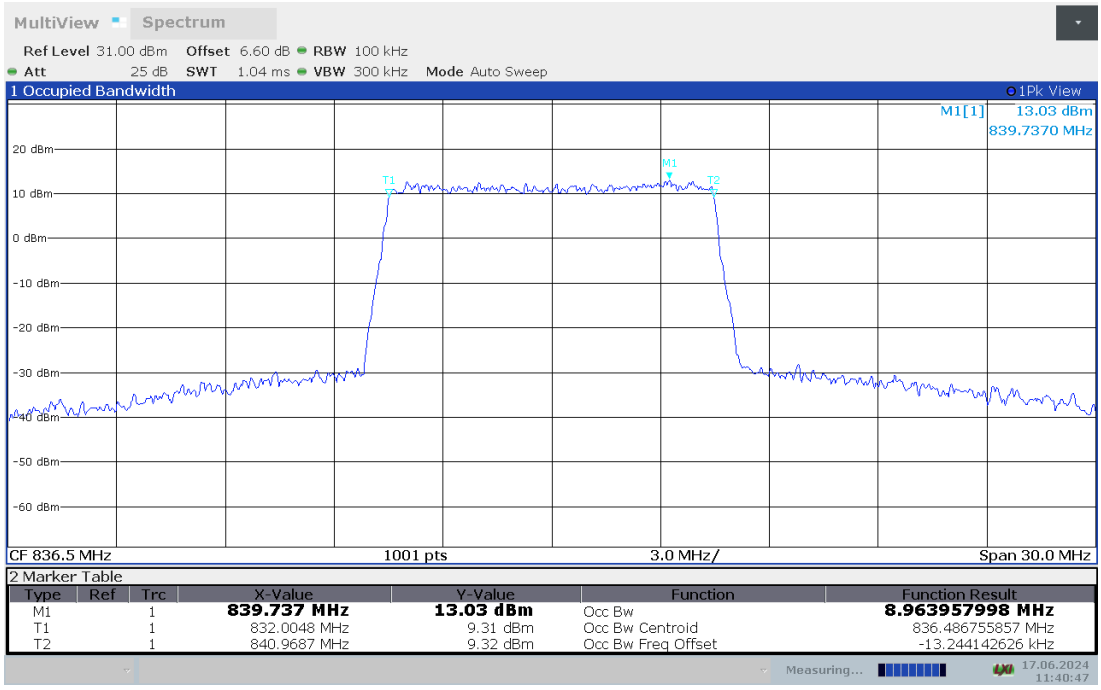
LTE band 5 , 5MHz Bandwidth,HIGH,16QAM (99% BW)



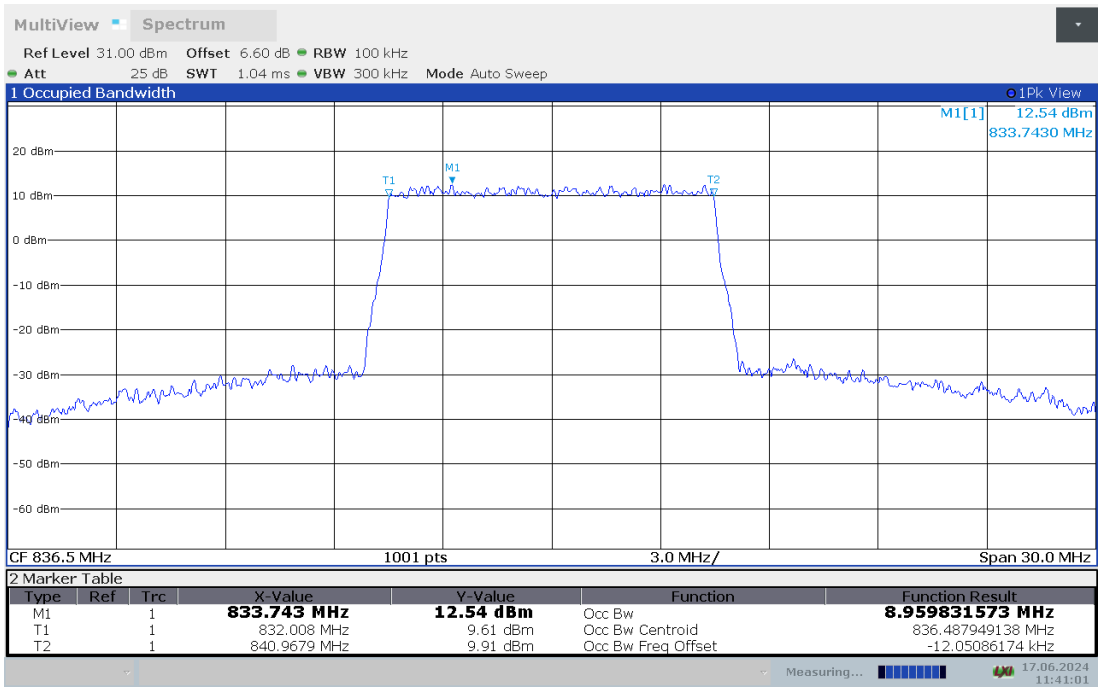
LTE band 5,10MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
836.5	8.964	8.960
829	8.949	8.957
844	8.955	8.962

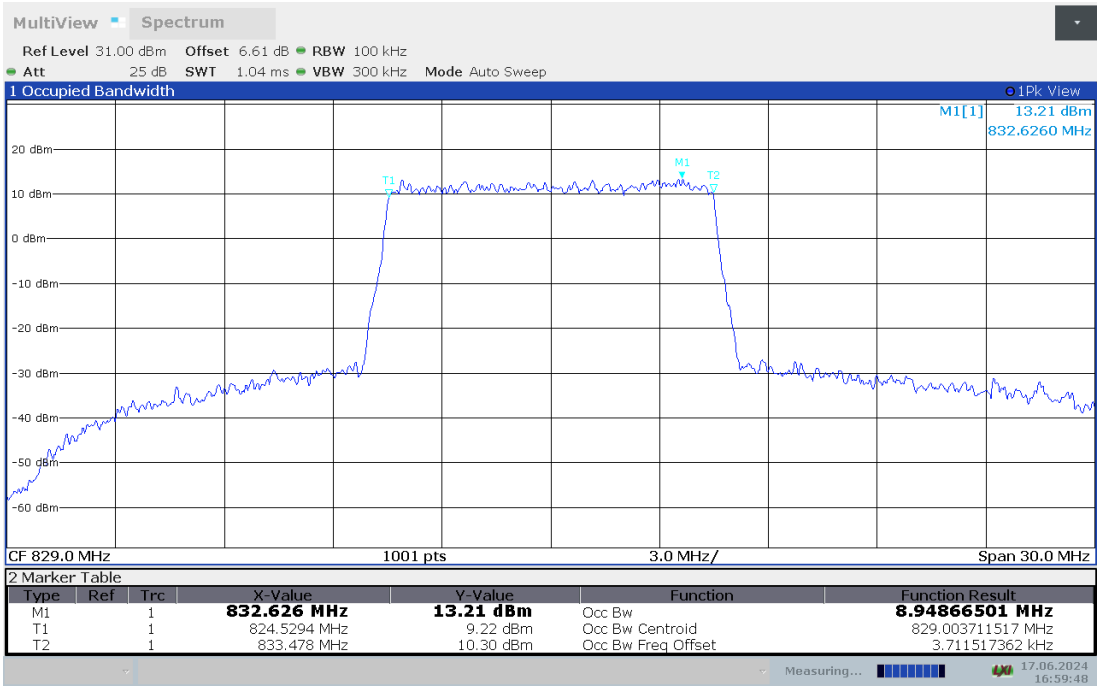
LTE band 5 , 10MHz Bandwidth,MID,QPSK (99% BW)



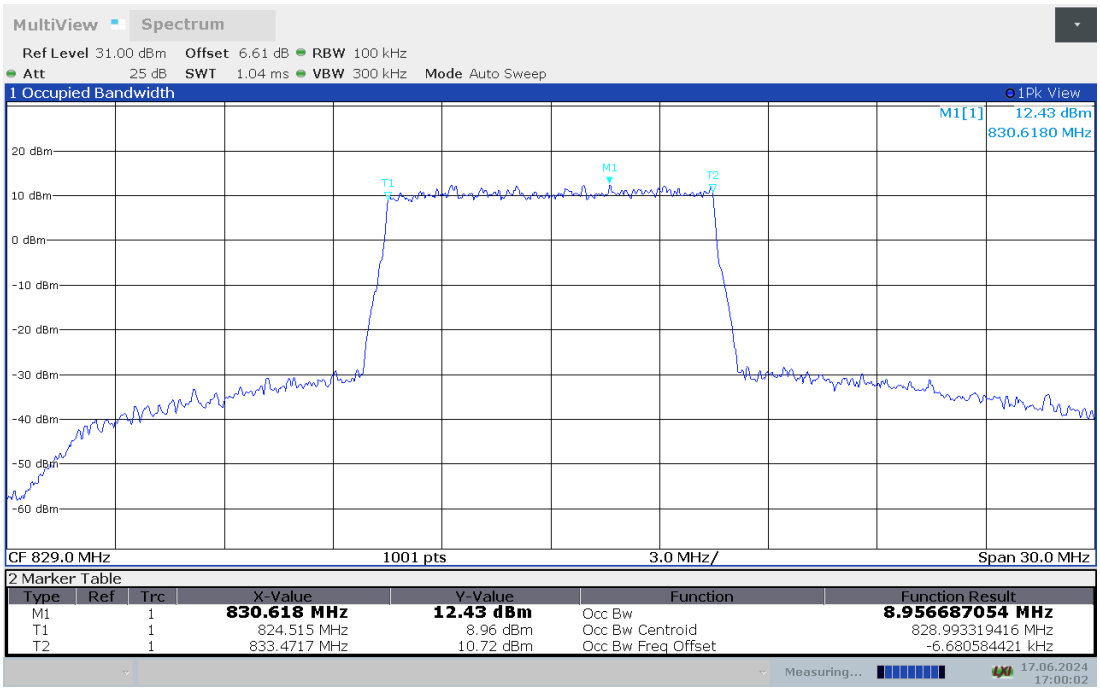
LTE band 5 , 10MHz Bandwidth,MID,16QAM (99% BW)



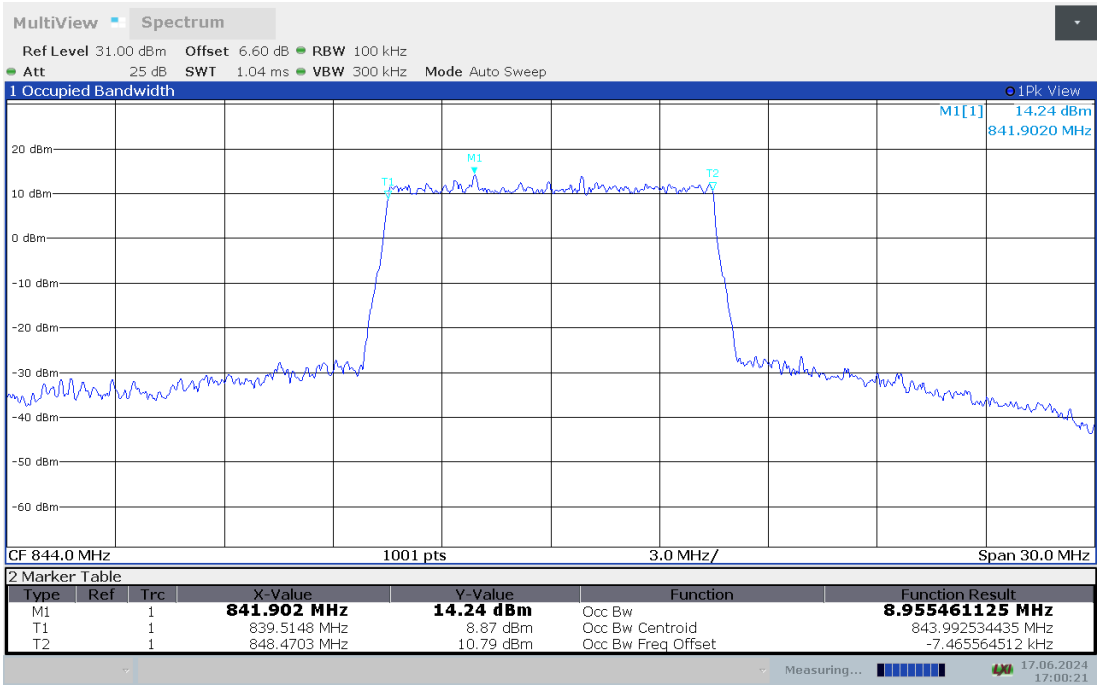
LTE band 5 , 10MHz Bandwidth,LOW,QPSK (99% BW)



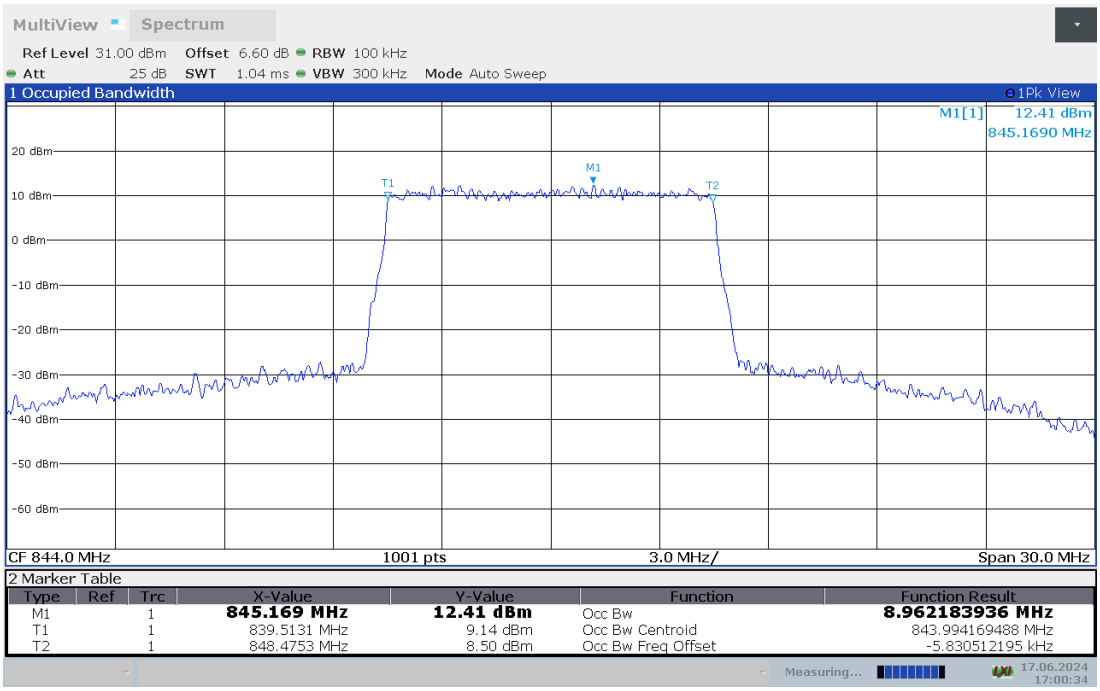
LTE band 5 , 10MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 5 , 10MHz Bandwidth,HIGH,QPSK (99% BW)



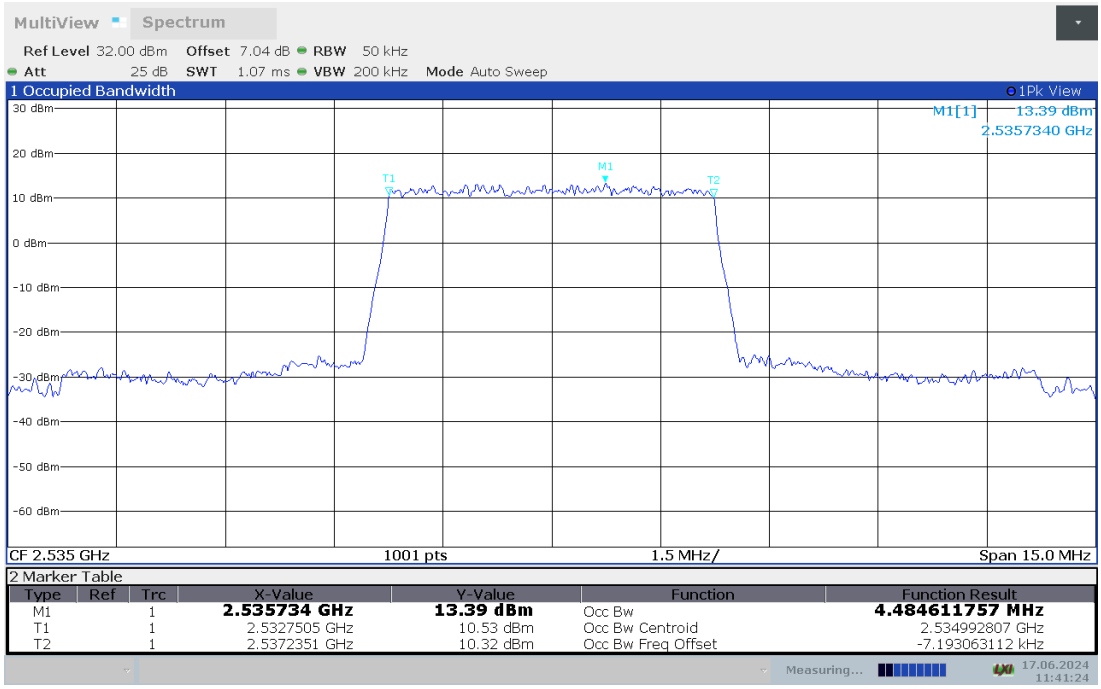
LTE band 5 , 10MHz Bandwidth,HIGH,16QAM (99% BW)



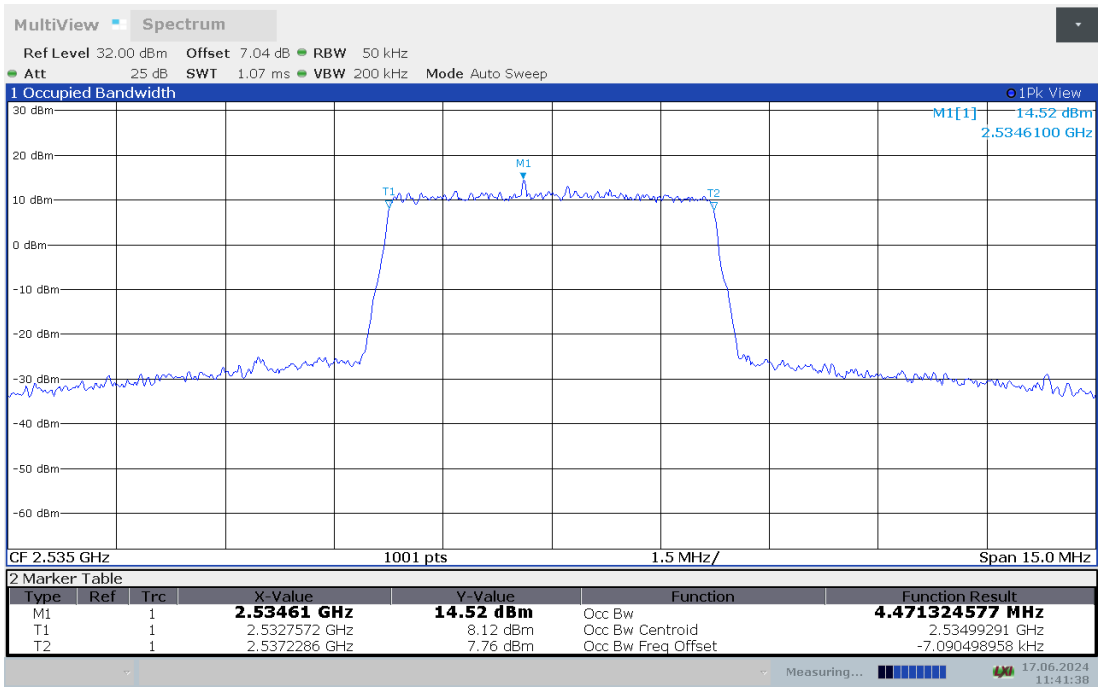
LTE band 7,5MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2535	4.485	4.471
2502.5	4.485	4.473
2567.5	4.482	4.488

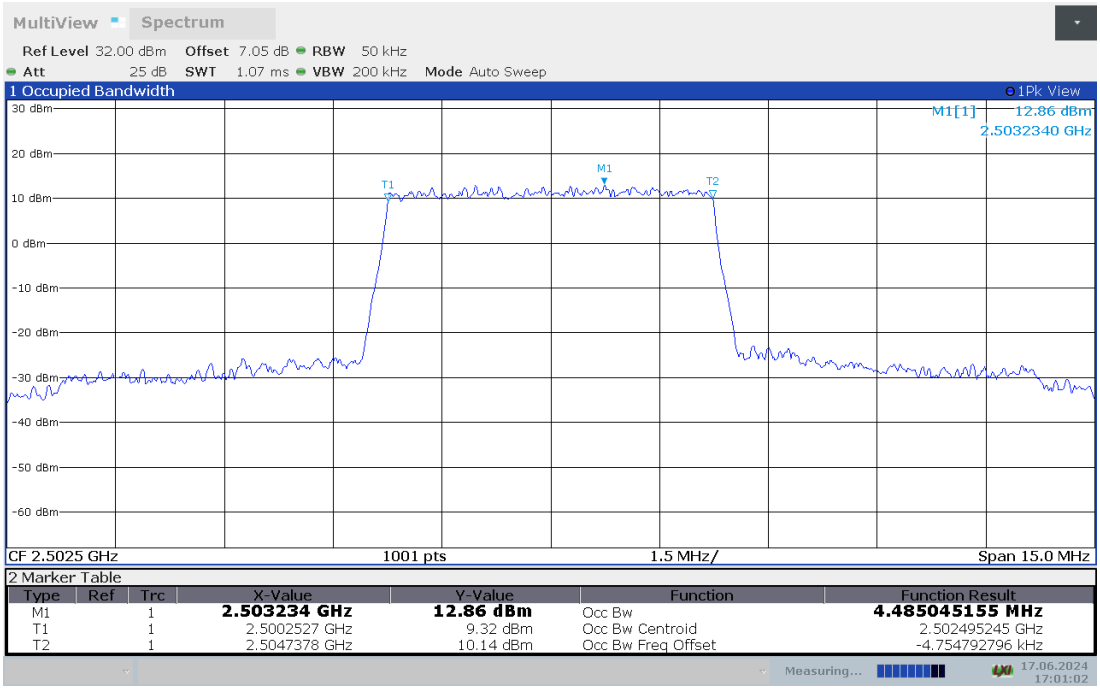
LTE band 7 , 5MHz Bandwidth,MID,QPSK (99% BW)



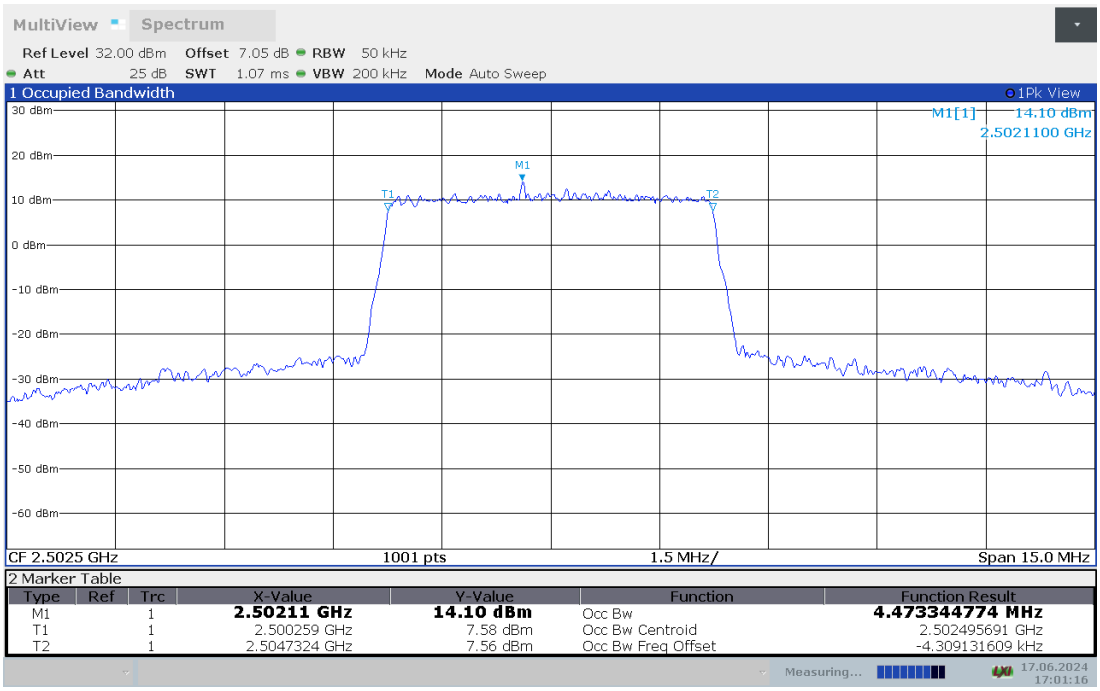
LTE band 7 , 5MHz Bandwidth,MID,16QAM (99% BW)



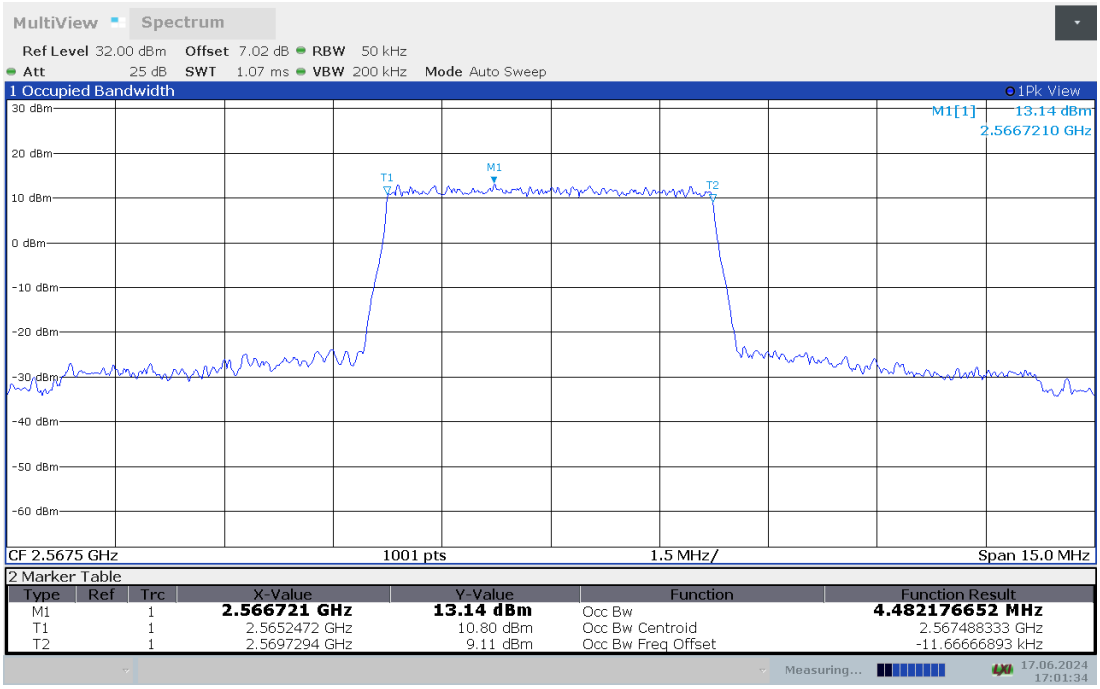
LTE band 7 , 5MHz Bandwidth,LOW,QPSK (99% BW)



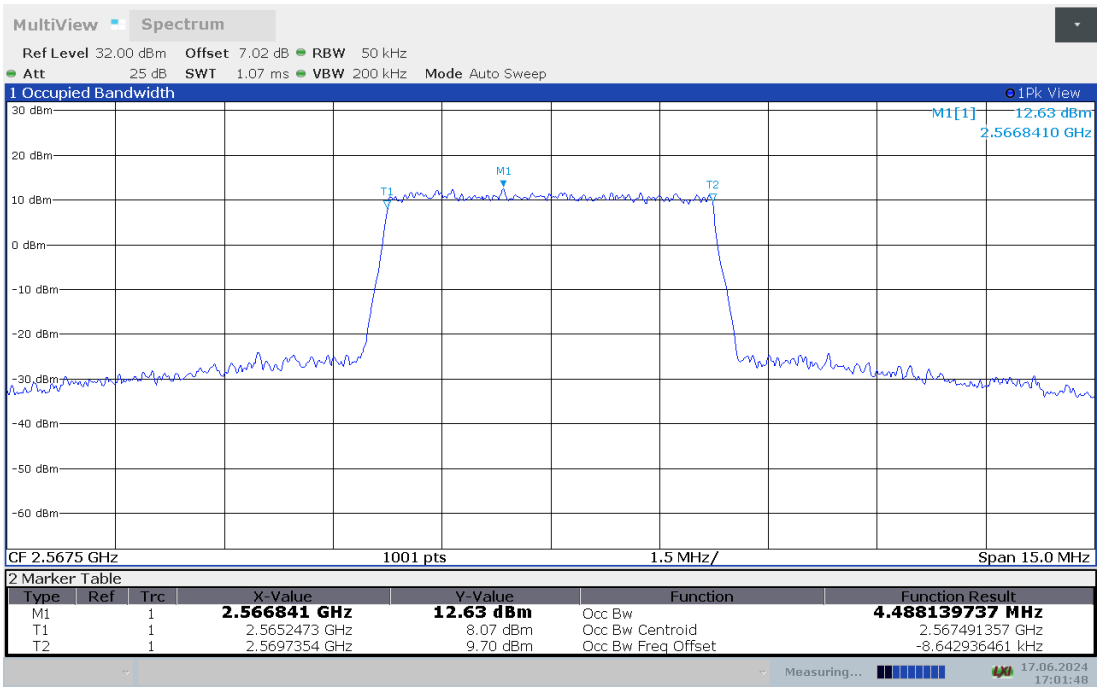
LTE band 7 , 5MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 7 , 5MHz Bandwidth,HIGH,QPSK (99% BW)



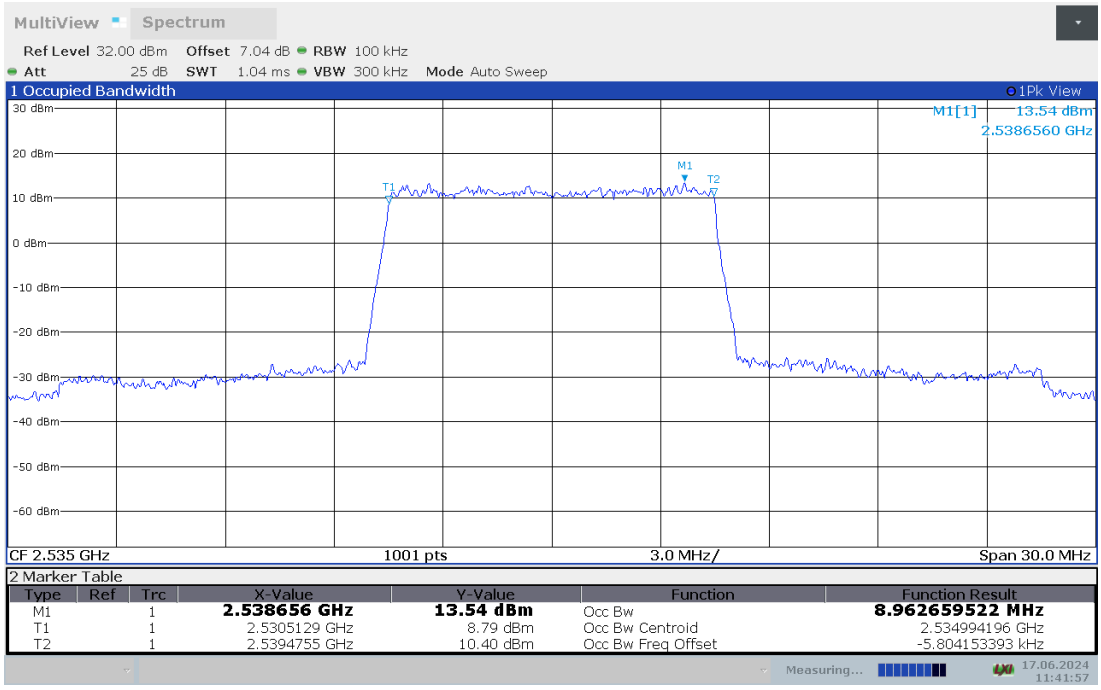
LTE band 7 , 5MHz Bandwidth,HIGH,16QAM (99% BW)



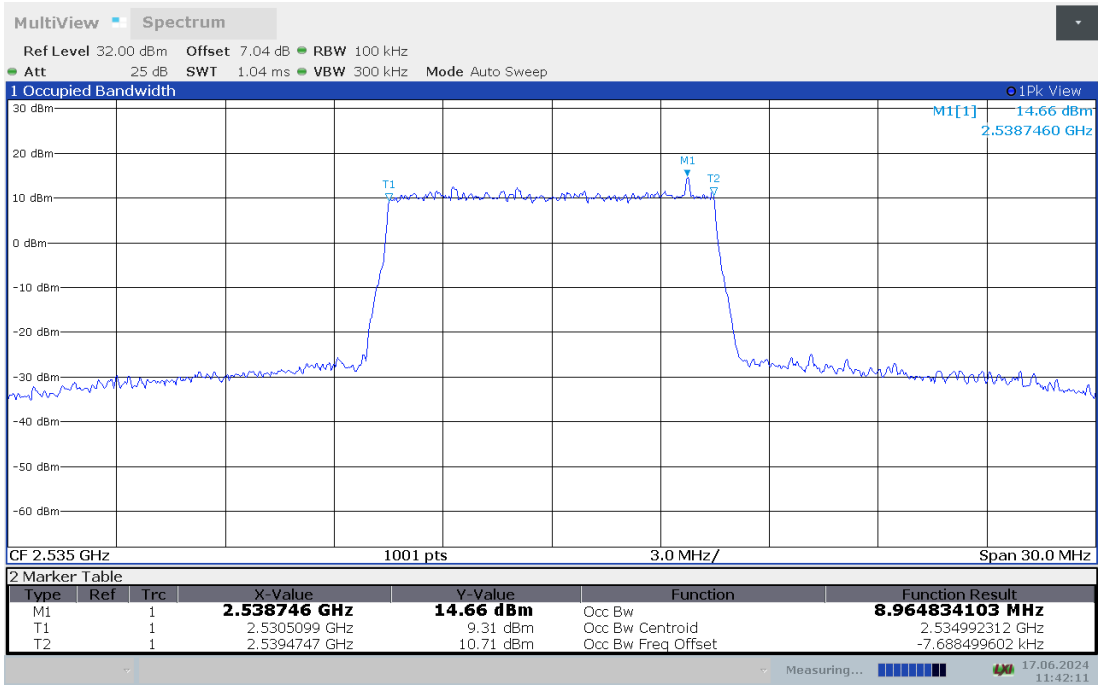
LTE band 7,10MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2535	8.963	8.965
2505	8.975	8.948
2565	8.952	8.959

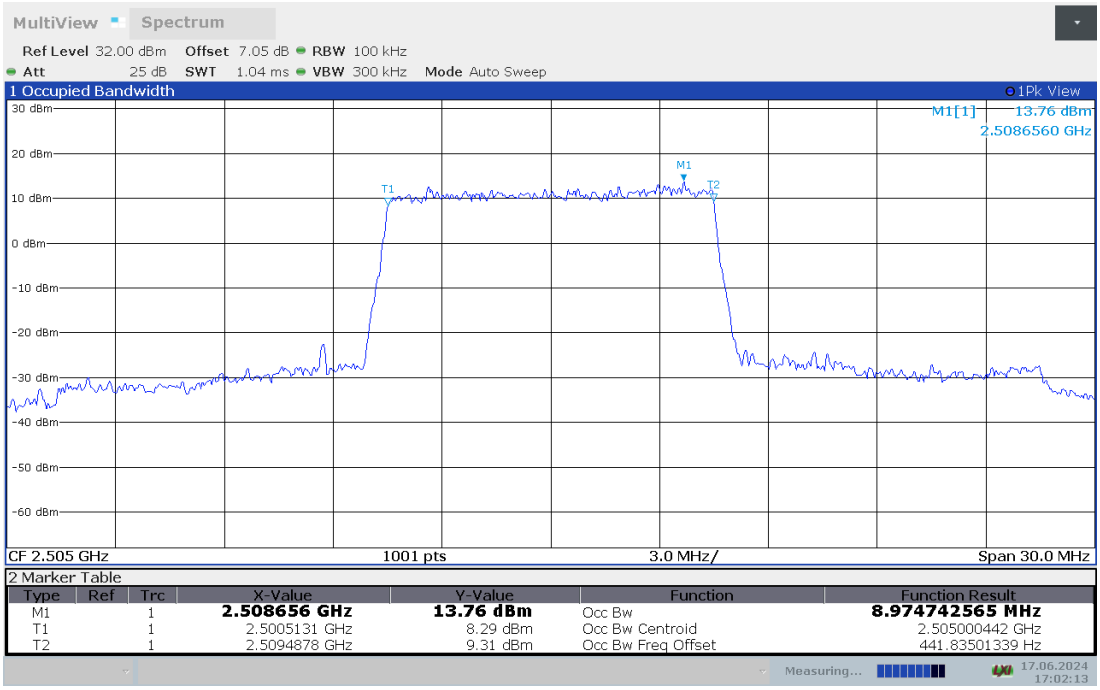
LTE band 7 , 10MHz Bandwidth,MID,QPSK (99% BW)



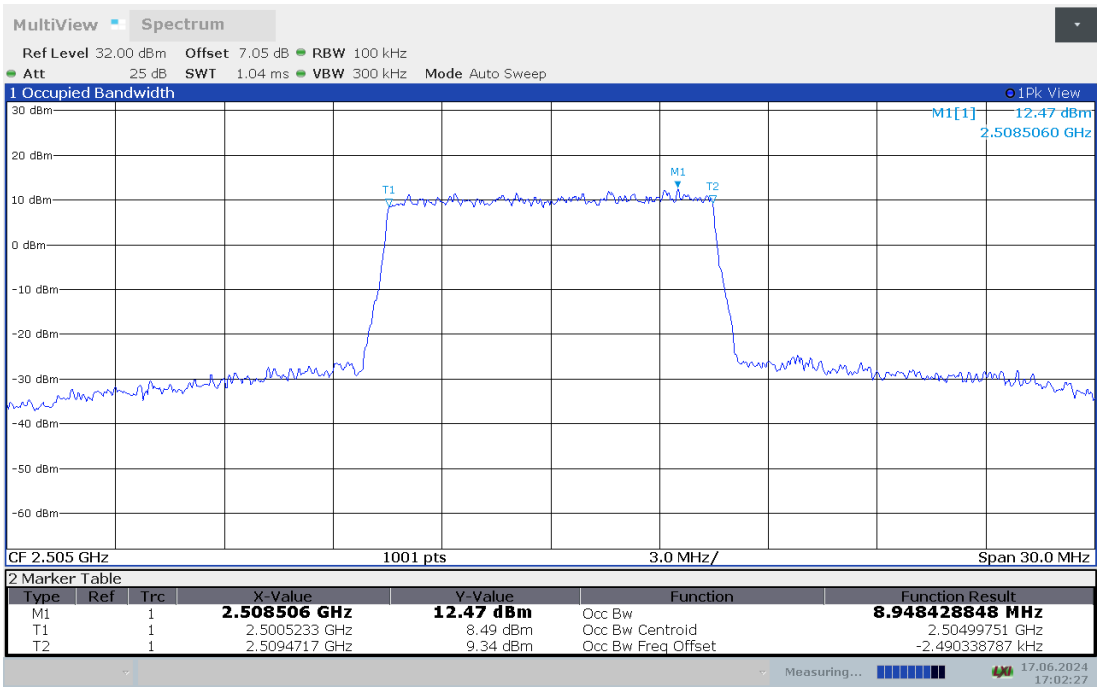
LTE band 7 , 10MHz Bandwidth,MID,16QAM (99% BW)



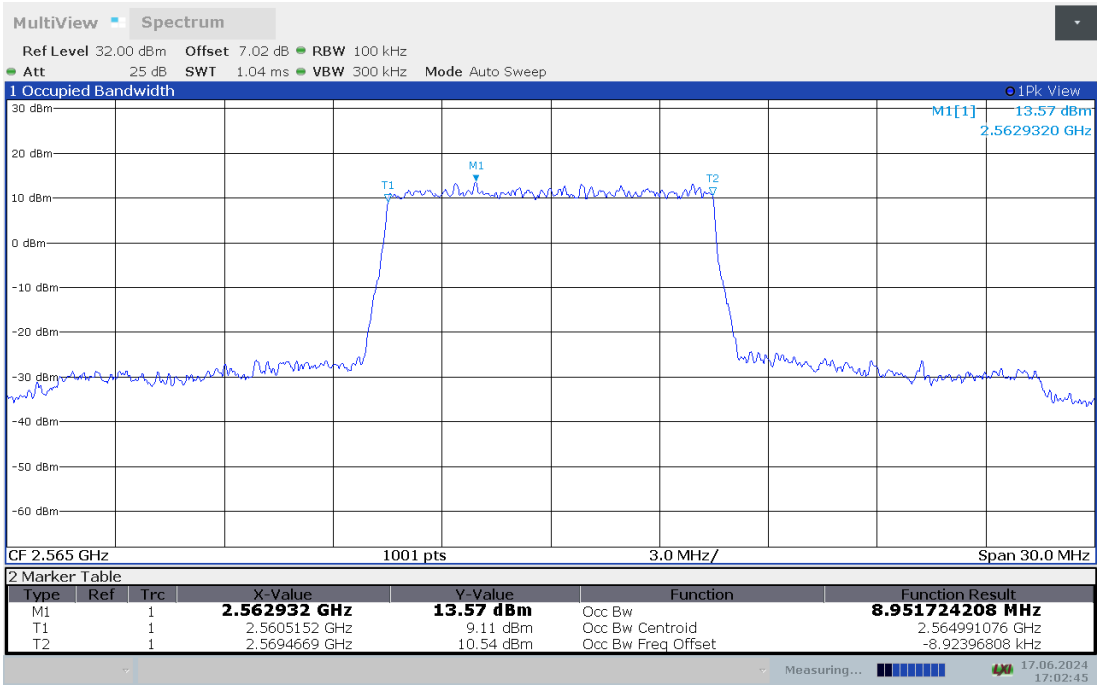
LTE band 7 , 10MHz Bandwidth,LOW,QPSK (99% BW)



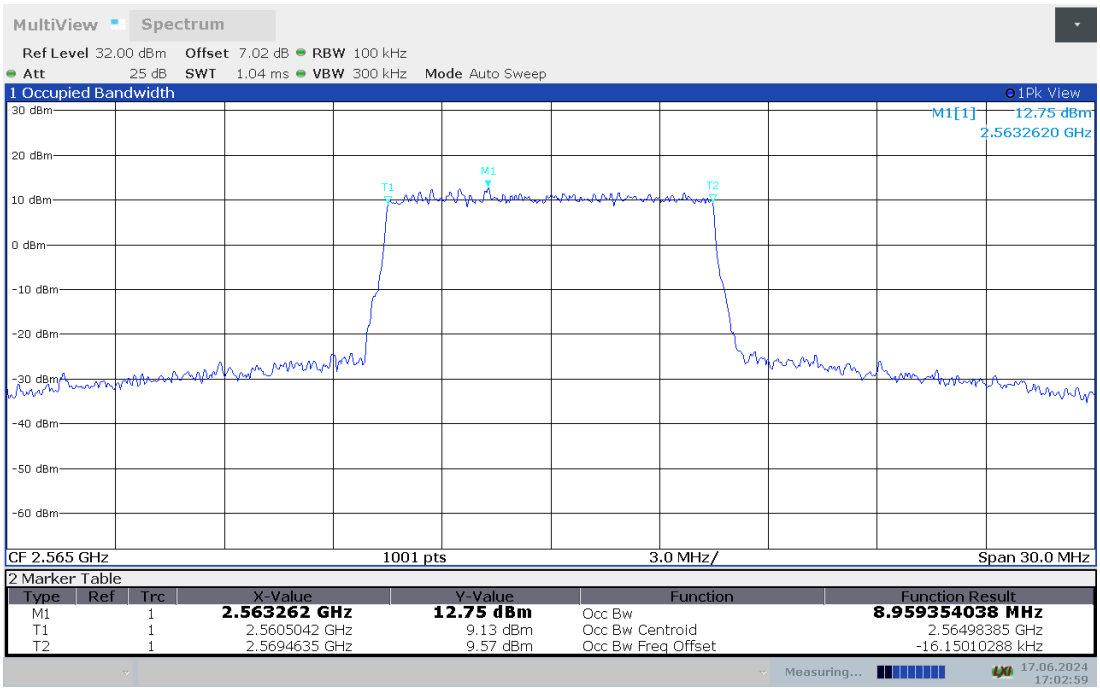
LTE band 7 , 10MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 7 , 10MHz Bandwidth,HIGH,QPSK (99% BW)



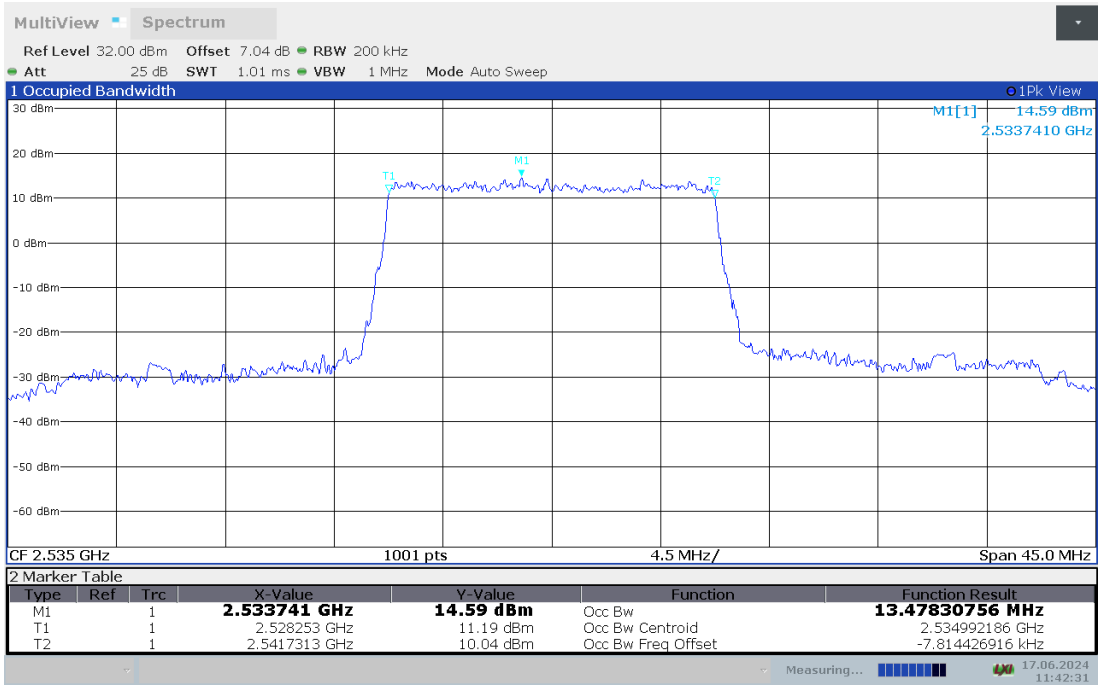
LTE band 7 , 10MHz Bandwidth,HIGH,16QAM (99% BW)



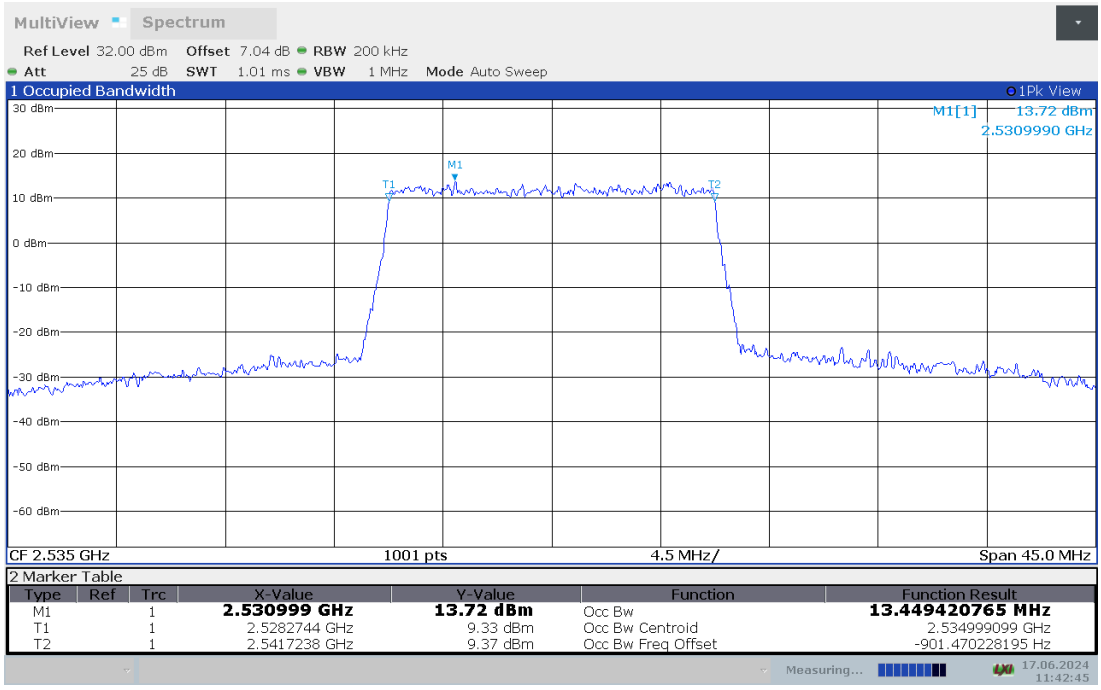
LTE band 7,15MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2535	13.478	13.449
2507.5	13.452	13.454
2562.5	13.435	13.469

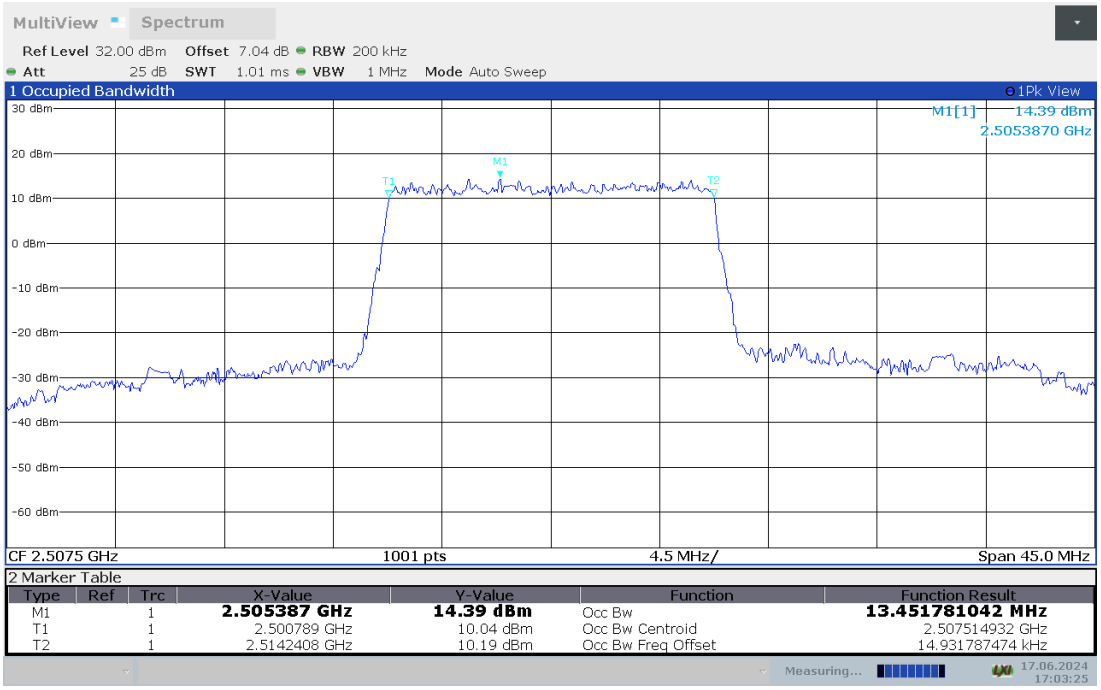
LTE band 7 , 15MHz Bandwidth,MID,QPSK (99% BW)



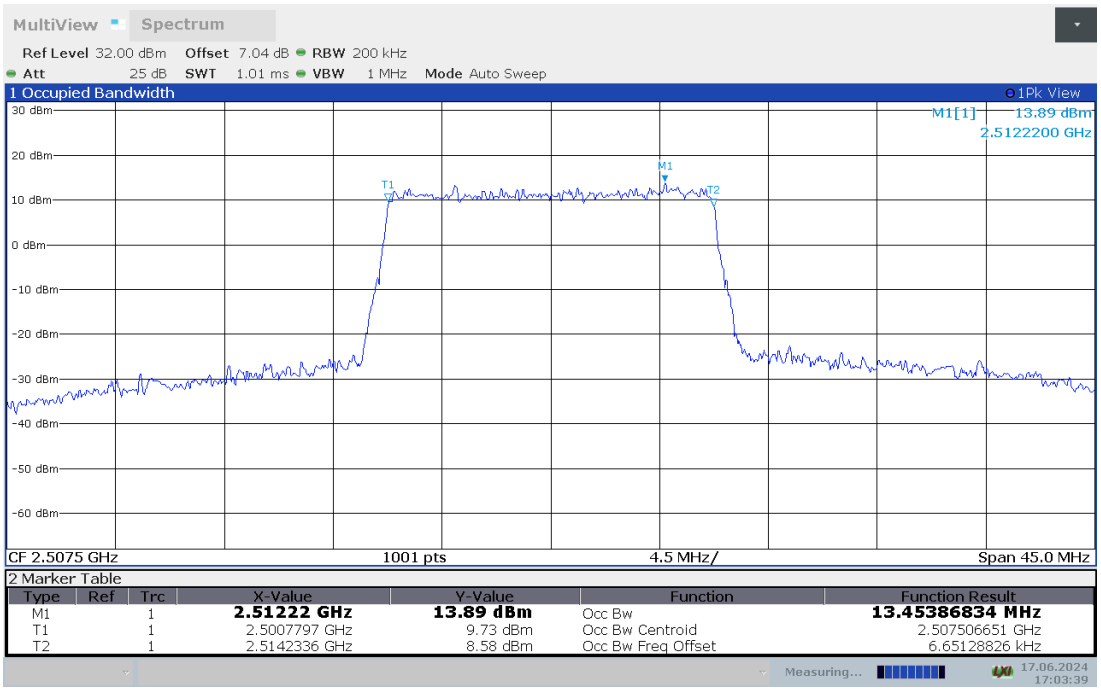
LTE band 7 , 15MHz Bandwidth,MID,16QAM (99% BW)



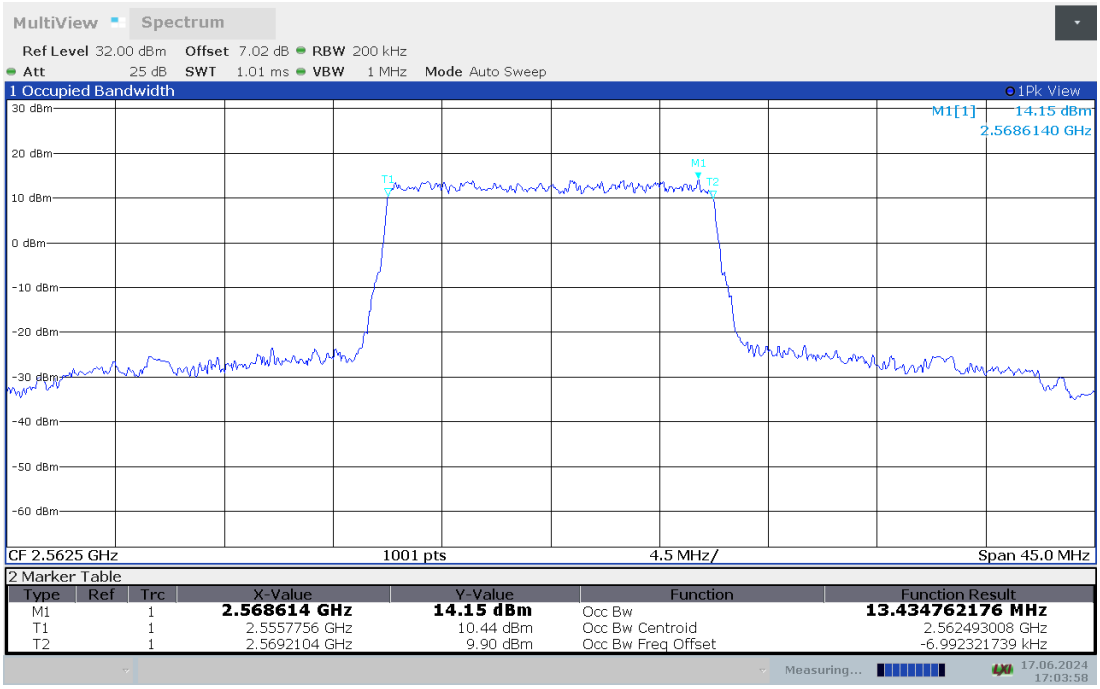
LTE band 7 , 15MHz Bandwidth,LOW,QPSK (99% BW)



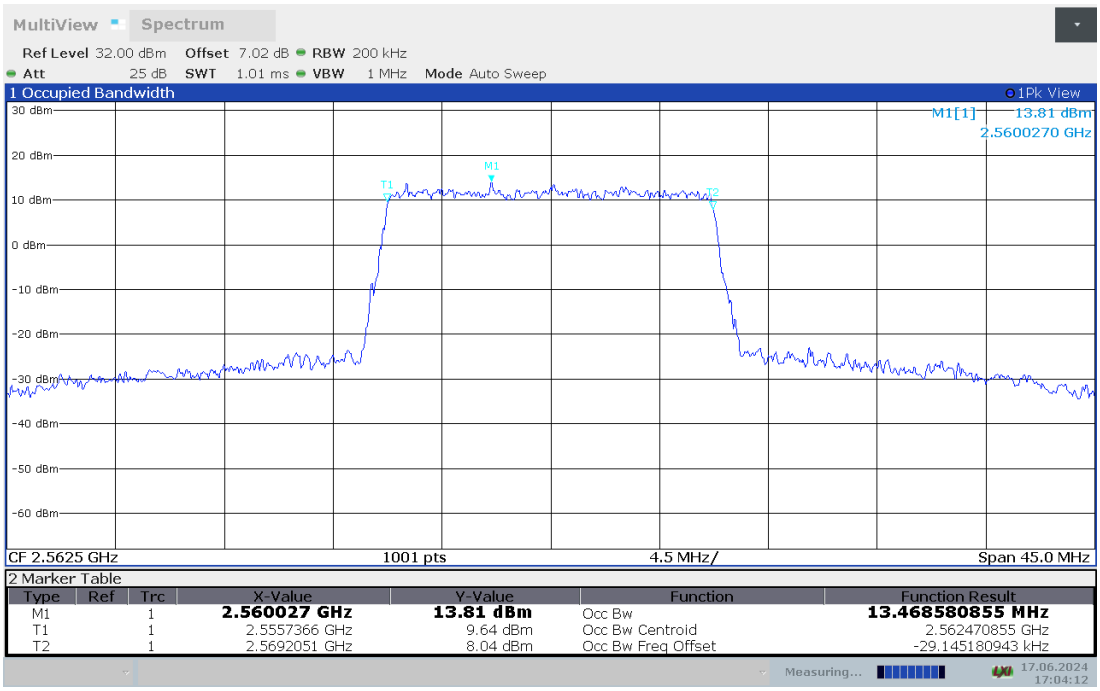
LTE band 7 , 15MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 7 , 15MHz Bandwidth,HIGH,QPSK (99% BW)



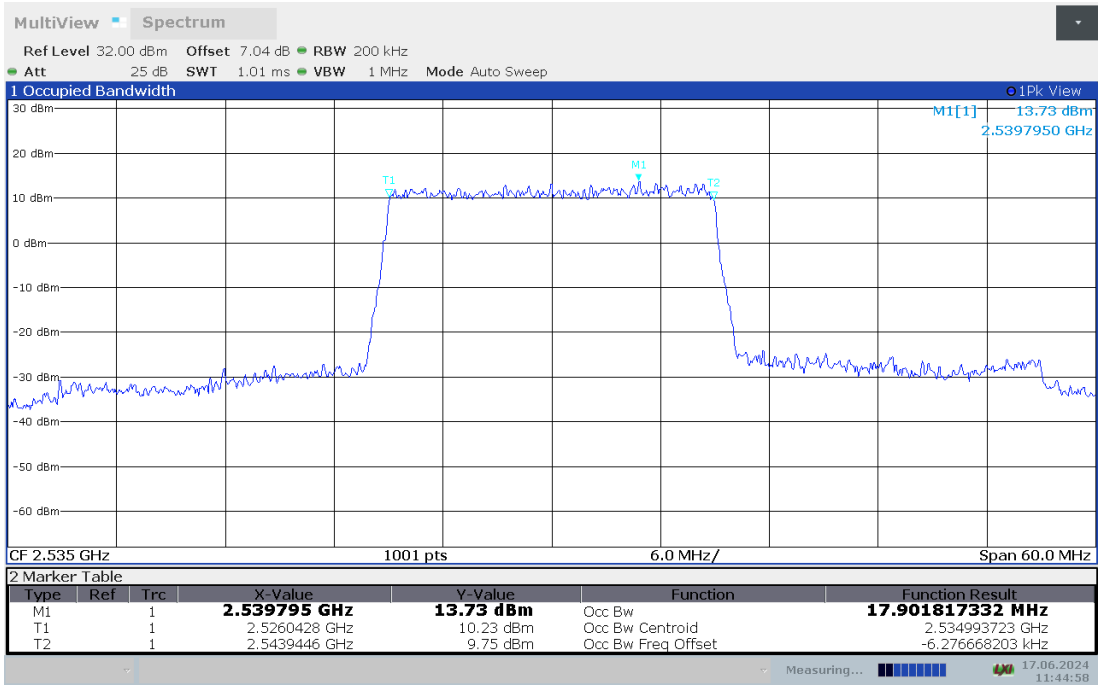
LTE band 7 , 15MHz Bandwidth,HIGH,16QAM (99% BW)



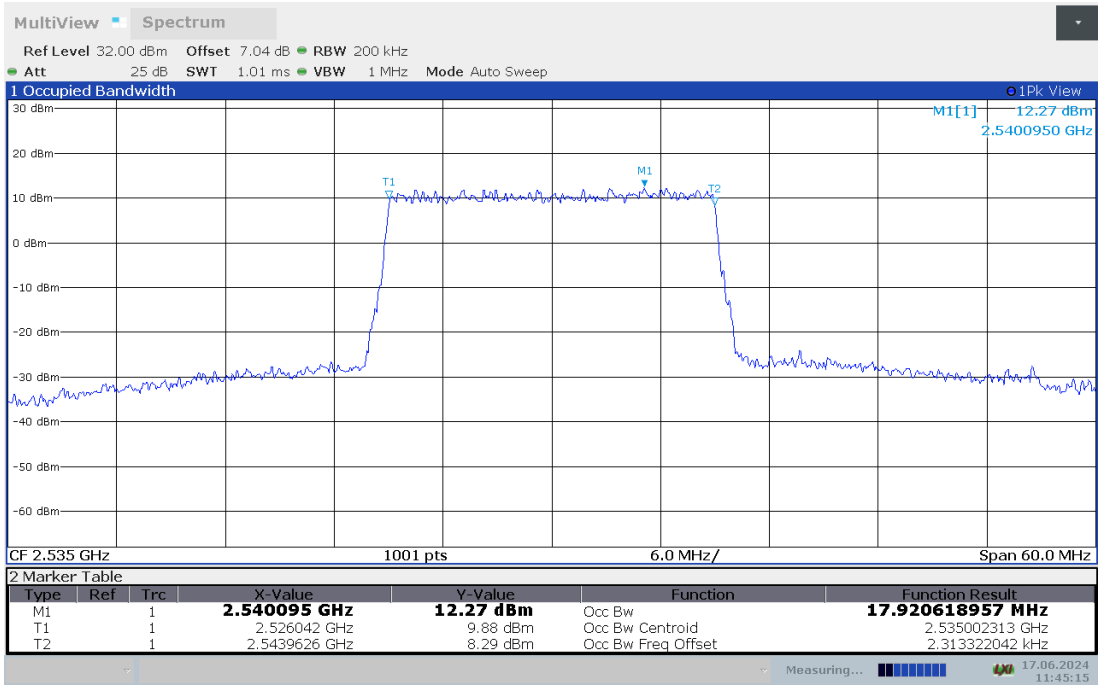
LTE band 7,20MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2535	17.902	17.921
2510	17.900	17.903
2560	17.920	17.915

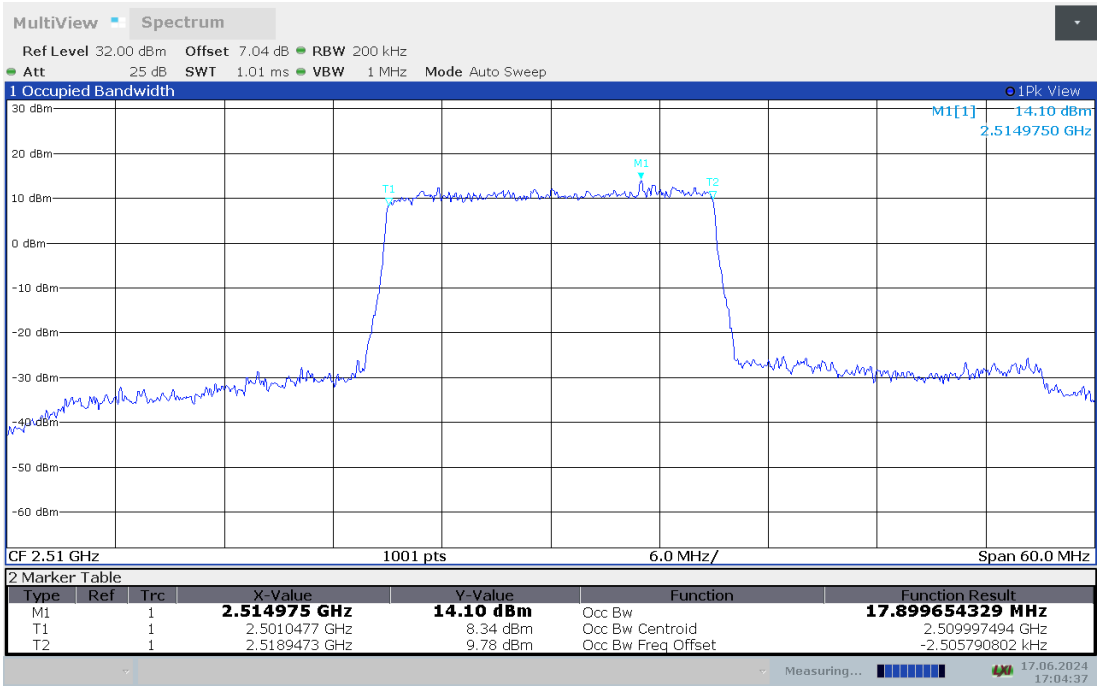
LTE band 7 , 20MHz Bandwidth,MID,QPSK (99% BW)



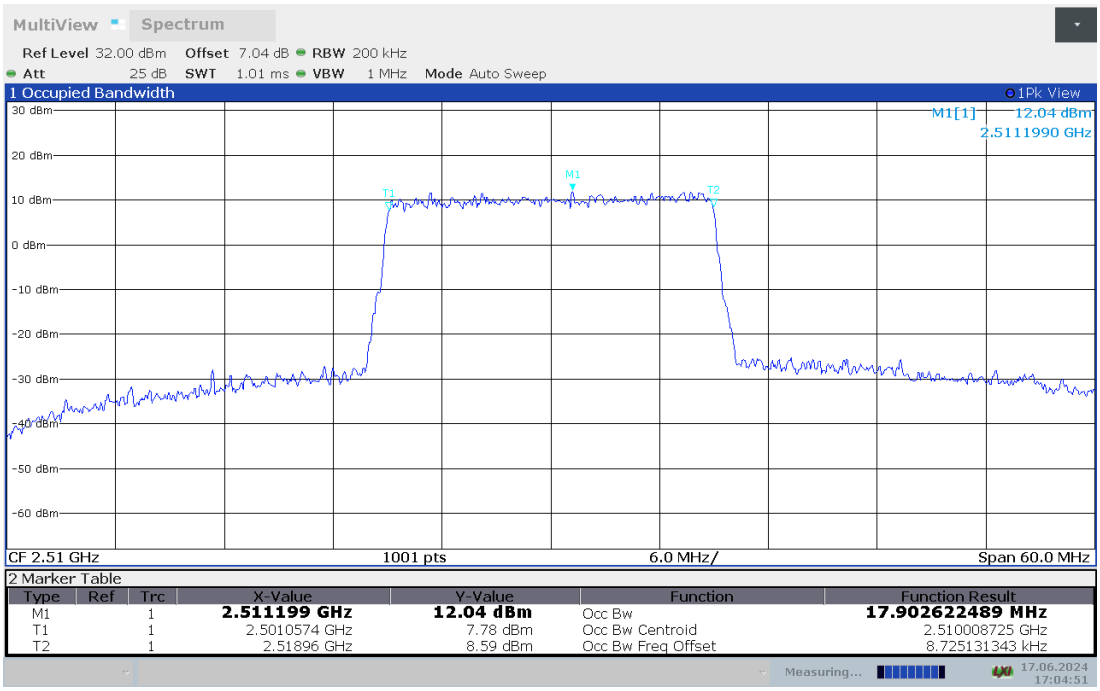
LTE band 7 , 20MHz Bandwidth,MID,16QAM (99% BW)



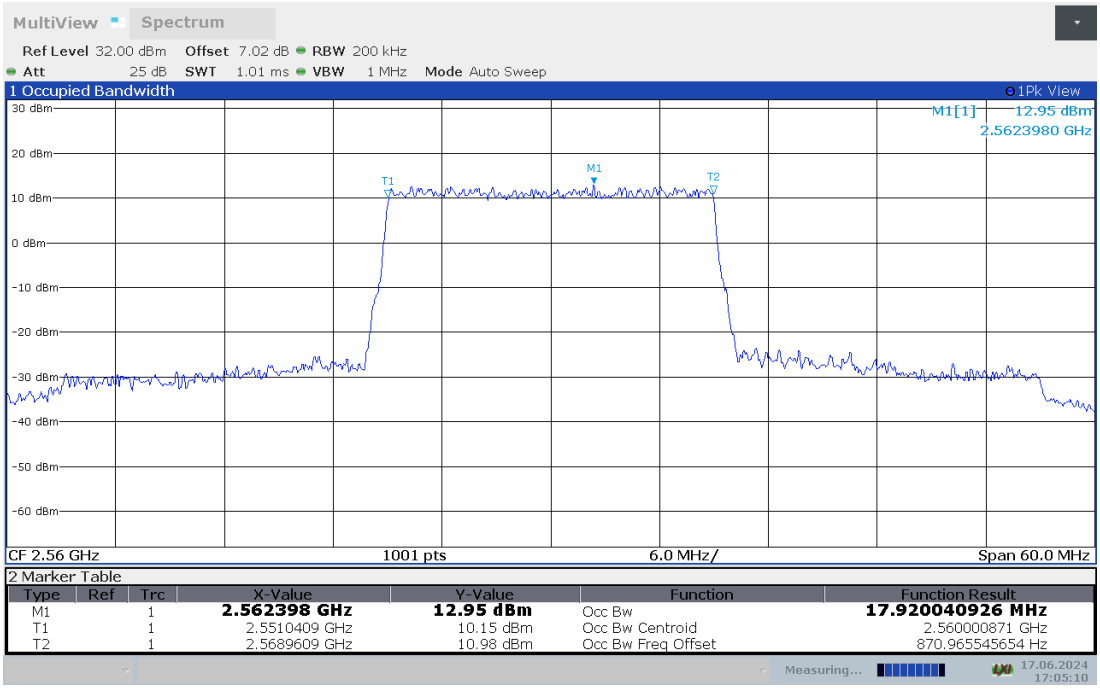
LTE band 7 , 20MHz Bandwidth,LOW,QPSK (99% BW)



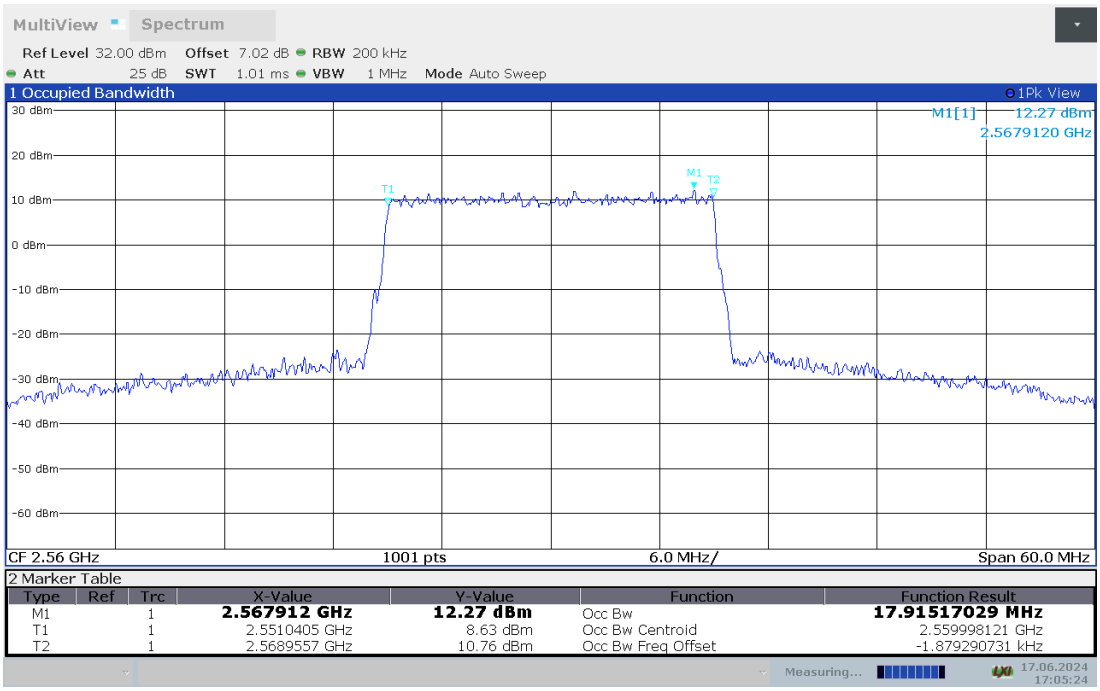
LTE band 7 , 20MHz Bandwidth,LOW,16QAM (99% BW)



LTE band 7 , 20MHz Bandwidth,HIGH,QPSK (99% BW)



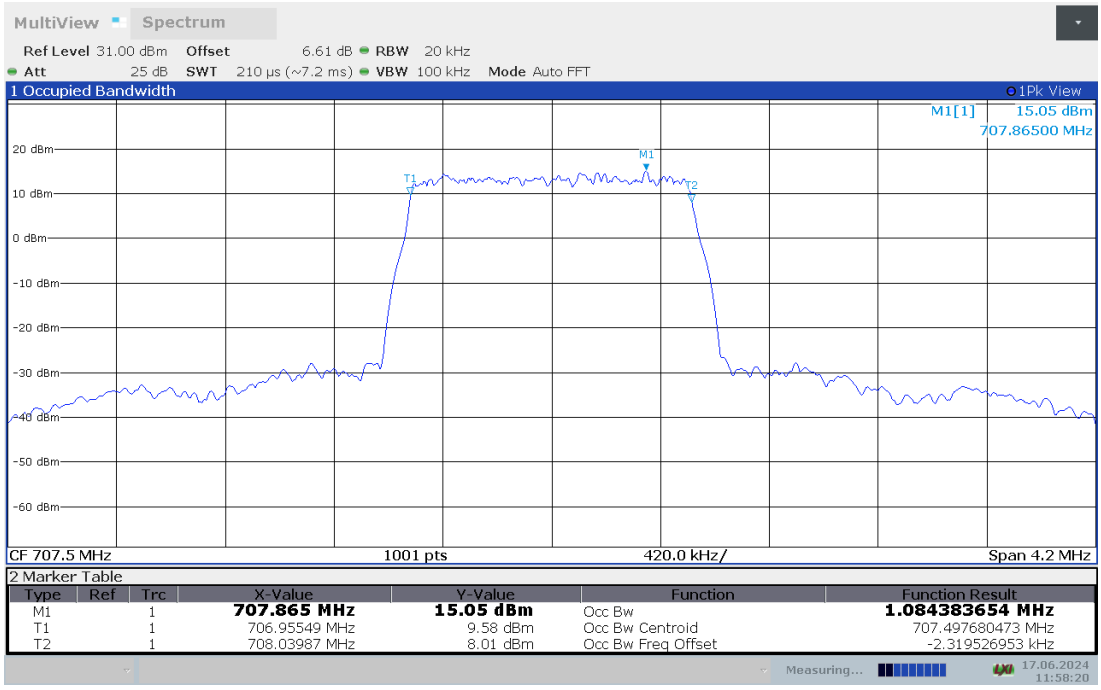
LTE band 7 , 20MHz Bandwidth,HIGH,16QAM (99% BW)



LTE band 12,1.4MHz (99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
707.5	1.084	1.092
699.7	1.090	1.088
715.3	1.083	1.092

LTE band 12 , 1.4MHz Bandwidth,MID,QPSK (99% BW)



LTE band 12 , 1.4MHz Bandwidth,MID,16QAM (99% BW)