TEST REPORT

No.I22N02185-RF LTE

for

unitech electronics co., ltd.

Rugged Handheld Computer

Model Name: PA768

FCC ID: HLEPA768BWNW

with

Hardware Version: FH09_MB_PCB_V1.3

Software Version: RAYA_V03.25b02_20221010

Issued Date: 2023-02-15

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:

SAICT, Shenzhen Academy of Information and Communications Technology

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

Tel:+86(0)755-33322000, Fax:+86(0)755-33322001

Email: yewu@caict.ac.cn. www.saict.ac.cn

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22N02185-RF LTE	Rev.0	1st edition	2023-02-15

CONTENTS

1. SUMMARY OF TEST REPORT

1.1. Test Items

Description	Rugged Handheld Computer
Model Name	PA768
Brand Name	unitech
Applicant's name	unitech electronics co., ltd.
Manufacturer's Name	unitech electronics co., ltd.

1.2. Test Standards

FCC Part 2/22/24/27	10-1-20 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: 2022-11-04 Testing End Date: 2022-11-28

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:	unitech electronics co., ltd.
Address /Post:	5F., No. 136, Ln. 235, Baoqiao Rd., Xindian Dist., New Taipei City 231028 , Taiwan
Contact：	Ben Chiang
Email：	BenC@tw.ute.com
Telephone:	886-2-8912-1122
Fax:	886-2-89121391

2.2. Manufacturer Information

Company Name:	unitech electronics co., ltd.
Address /Post:	5F., No. 136, Ln. 235, Baoqiao Rd., Xindian Dist., New Taipei City 231028 , Taiwan
Contact：	Ben Chiang
Email：	BenC@tw.ute.com
Telephone:	886-2-8912-1122
Fax:	886-2-89121391

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

3.1. About EUT

Description	Rugged Handheld Computer
Model Name	PA768
FCC ID	HLEPA768BWNW
Frequency Bands	LTE Bands 2/4/5/7/17/38/41/71
Antenna	Integrated
Extreme vol. Limits	3.40V to 4.40V (nominal: 3.85V)
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 used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Sample Arrival Date
UT09aa	358585240001568	FH09_MB_PCB_V1.3	RAYA_V03.25b02_20221010	2022-11-02
UT01aa	358585240005635	FH09_MB_PCB_V1.3	RAYA_V03.25b02_20221010	2022-10-20

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

UT01aa is used for conduction test, UT09aa is used for radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN
AE1	dummy battery	---
AE2	RF cable	---

3.4. General Description

The Equipment Under Test (EUT) is a model Rugged Handheld Computer with integrated antenna. It consists of normal options: lithium battery, 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	10-1-20 Edition
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	10-1-20 Edition
FCC Part 2	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS	10-1-20 Edition
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	10-1-20 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 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 38

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 41

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 71

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)/ KDB971108 D01	A.8	P

7. STATEMENT

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	2023-11-23
2	BiLog Antenna	3142E	ETS-Lindgren	0224831	2024-05-27
3	Horn Antenna	3117	ETS-Lindgren	00066577	2025-04-17
4	Horn Antenna	QSH-SL-18-26-S-20	Q-par	17013	2023-01-06
5	Antenna	BBHA 9120D	Schwarzbeck	1593	2022-12-05
6	Antenna	VUBA 9117	Schwarzbeck	207	2023-07-15
7	Antenna	QWH-SL-18-40-K-SG	Q-par	15979	2023-01-06
8	preamplifier	83017A	Agilent	MY39501110	/
9	Signal Generator	SMB100A	R&S	179725	2023-11-24
10	Fully Anechoic Chamber	FACT3-2.0	ETS-Lindgren	1285	2023-05-29
11	Spectrum Analyzer	FSV40	R&S	101192	2023-01-12
12	Universal Radio Communication Tester	CMU200	R&S	114545	2023-01-12
13	Universal Radio Communication Tester	CMW500	R&S	152499	2023-07-14
14	UXM 5G Wireless Test Platform	E7515B	Keysight	MY59322022	2023-04-14
15	Universal Radio Communication Tester	MT8821C	Anritsu	6262025268	2023-03-29
16	Universal Radio Communication Tester	MT8000A	Anritsu	6261987936	2023-03-29
17	Universal Radio Communication Tester	CMW500	R&S	129146	2023-04-24
18	Spectrum Analyzer	FSW26	R&S	102197	2023-11-24
19	Temperature Chamber	SH-241	ESPEC	92007516	2023-10-15
20	DC Power Supply	U3606A	Agilent Technologies	MY50450012	2023-11-13

Test software

Item	Name	Vesion
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 band.

A.1.2.2 Measurement result

A.1.2.2 Measurement result

LTE band 2

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
1.4MHz	1 RB high	1909.3	22.02	21.15	20.29	17.35
		1880.0	22.09	21.24	20.27	17.42
		1850.7	22.12	21.42	20.46	17.56
	1 RB low	1909.3	22.14	21.27	20.36	17.43
		1880.0	22.21	21.39	20.44	17.54
		1850.7	22.19	21.46	20.50	17.65
	50% RB mid	1909.3	22.20	21.45	19.35	17.52
		1880.0	22.29	21.40	19.37	17.55
		1850.7	22.27	21.52	19.25	17.59
	100% RB	1909.3	21.26	20.29	20.35	16.44
		1880.0	21.28	20.27	20.39	16.44
		1850.7	21.28	20.37	20.47	16.37
3MHz	1 RB high	1908.5	22.15	21.39	20.52	17.58
		1880.0	22.20	21.16	20.16	17.37
		1851.5	22.17	21.32	20.62	17.55
	1 RB low	1908.5	22.29	21.52	20.53	17.72
		1880.0	22.28	21.22	20.28	17.47
		1851.5	22.29	21.48	20.71	17.67
	50% RB mid	1908.5	21.36	20.39	19.37	16.56
		1880.0	21.34	20.28	19.38	16.45
		1851.5	21.35	20.44	19.50	16.64
	100% RB	1908.5	21.32	20.33	19.42	16.51
		1880.0	21.27	20.20	19.46	16.40

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
		1851.5	21.32	20.42	19.50	16.59
5MHz	1 RB high	1907.5	22.21	21.37	20.55	17.65
		1880.0	22.17	21.34	20.14	17.49
		1852.5	22.24	21.34	20.52	17.55
	1 RB low	1907.5	22.25	21.50	20.48	17.67
		1880.0	22.32	21.45	20.17	17.53
		1852.5	22.33	21.35	20.57	17.57
	50% RB mid	1907.5	21.37	20.43	19.22	16.65
		1880.0	21.25	20.28	19.25	16.50
		1852.5	21.42	20.44	19.33	16.65
	100% RB	1907.5	21.25	20.28	19.24	16.45
		1880.0	21.23	20.33	19.23	16.52
		1852.5	21.36	20.37	19.36	16.57
10MHz	1 RB high	1905.0	22.16	21.38	20.44	17.64
		1880.0	22.07	21.16	20.31	17.31
		1855.0	22.19	21.55	20.33	17.74
	1 RB low	1905.0	22.06	21.46	20.36	17.62
		1880.0	22.18	21.32	20.26	17.51
		1855.0	22.21	21.55	20.36	17.77
	50% RB mid	1905.0	21.25	20.34	19.24	16.54
		1880.0	21.28	20.34	19.28	16.55
		1855.0	21.39	20.37	19.37	16.63
	100% RB	1905.0	21.25	20.27	19.38	16.48
		1880.0	21.25	20.27	19.30	16.49
		1855.0	21.40	20.37	19.41	16.59
15MHz	1 RB high	1902.5	22.07	21.49	20.43	17.69
		1880.0	22.04	21.00	20.25	17.23
		1857.5	22.03	21.42	20.42	17.62
	1 RB low	1902.5	22.03	21.47	20.59	17.67
		1880.0	22.04	21.10	20.32	17.23
		1857.5	22.08	21.50	20.57	17.59
	50% RB mid	1902.5	21.08	20.16	19.43	16.35
		1880.0	21.13	20.14	19.29	16.34
		1857.5	21.24	20.25	19.50	16.47
	100% RB	1902.5	21.15	20.10	19.47	16.32
		1880.0	21.14	20.16	19.40	16.35
		1857.5	21.22	20.22	19.51	16.43

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
20MHz	1 RB high	1900.0	22.15	21.37	20.53	17.55
		1880.0	22.02	21.28	20.44	17.41
		1860.0	22.14	21.34	20.43	17.37
	1 RB low	1900.0	22.02	21.26	20.50	17.47
		1880.0	22.05	21.16	20.51	17.31
		1860.0	22.10	21.33	20.52	17.55
	50% RB mid	1900.0	21.19	20.28	19.36	16.48
		1880.0	21.18	20.18	19.45	16.36
		1860.0	21.27	20.25	19.47	16.47
	100% RB	1900.0	21.12	20.14	19.52	16.34
		1880.0	21.15	20.20	19.39	16.39
		1860.0	21.25	20.26	19.54	16.47

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

LTE band 4

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
1.4MHz	1 RB high	1754.3	21.87	21.00	20.09	17.22
		1732.5	22.13	21.35	20.40	17.56
		1710.7	22.04	21.14	20.19	17.31
	1 RB low	1754.3	21.90	20.98	20.13	17.17
		1732.5	22.15	21.37	20.49	17.55
		1710.7	21.98	21.10	20.26	17.26
	50% RB mid	1754.3	21.99	21.08	20.17	17.28
		1732.5	22.18	21.31	20.42	17.49
		1710.7	22.12	21.35	20.43	17.55
	100% RB	1754.3	21.04	20.14	19.15	16.38
		1732.5	21.23	20.10	19.18	16.27
		1710.7	21.17	20.17	19.29	16.38
3MHz	1 RB high	1753.5	22.00	21.24	20.32	17.40
		1732.5	22.20	21.19	20.19	17.31
		1711.5	22.10	21.38	20.53	17.59
	1 RB low	1753.5	22.05	21.24	20.29	17.54
		1732.5	22.26	21.11	20.21	17.31
		1711.5	22.08	21.42	20.50	17.54
	50% RB mid	1753.5	21.14	20.18	19.28	16.34
		1732.5	21.31	20.29	19.41	16.49
		1711.5	21.28	20.34	19.43	16.52
	100% RB	1753.5	21.10	20.08	19.16	16.26
		1732.5	21.30	20.26	19.38	16.44
		1711.5	21.21	20.29	19.39	16.48
5MHz	1 RB high	1752.5	22.06	21.17	20.27	17.38
		1732.5	22.23	21.33	20.41	17.62
		1712.5	22.20	21.22	20.40	17.41
	1 RB low	1752.5	22.08	21.26	20.34	17.52
		1732.5	22.24	21.30	20.39	17.49
		1712.5	22.18	21.25	20.35	17.44
	50% RB mid	1752.5	21.17	20.27	19.36	16.47
		1732.5	21.26	20.25	19.33	16.49
		1712.5	21.25	20.34	19.45	16.51
	100% RB	1752.5	21.12	20.18	19.24	16.36
		1732.5	21.34	20.36	19.52	16.62
		1712.5	21.25	20.29	19.33	16.44
10MHz	1 RB high	1750.0	21.95	21.22	20.29	17.45
		1732.5	22.11	21.07	20.26	17.30
		1715.0	22.11	21.47	20.57	17.69

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
	1 RB low	1750.0	22.01	21.30	20.40	17.49
		1732.5	22.06	21.28	20.33	17.29
		1715.0	22.03	21.46	20.50	17.61
	50% RB mid	1750.0	21.10	20.21	19.27	16.36
		1732.5	21.31	20.35	19.41	16.51
		1715.0	21.30	20.35	19.41	16.53
	100% RB	1750.0	21.12	20.19	19.25	16.39
		1732.5	21.34	20.35	19.44	16.54
		1715.0	21.30	20.26	19.38	16.49
15MHz	1 RB high	1747.5	21.84	21.26	20.35	17.40
		1732.5	22.02	21.02	20.13	17.18
		1717.5	21.95	21.25	20.36	17.41
	1 RB low	1747.5	22.07	21.36	20.48	17.61
		1732.5	21.95	21.06	20.17	17.25
		1717.5	21.90	21.25	20.28	17.47
	50% RB mid	1747.5	21.13	20.17	19.26	16.36
		1732.5	21.12	20.18	19.26	16.35
		1717.5	21.17	20.18	19.30	16.38
	100% RB	1747.5	20.96	20.02	19.11	16.21
		1732.5	21.16	20.19	19.29	16.44
		1717.5	21.16	20.17	19.26	16.34
20MHz	1 RB high	1745.0	21.96	21.09	20.26	17.26
		1732.5	21.97	21.19	20.34	17.38
		1720.0	22.20	21.31	20.40	17.49
	1 RB low	1745.0	22.16	21.32	20.45	17.56
		1732.5	21.96	21.19	20.32	17.42
		1720.0	22.03	21.19	20.30	17.36
	50% RB mid	1745.0	21.17	20.25	19.33	16.45
		1732.5	21.26	20.30	19.39	16.47
		1720.0	21.22	20.22	19.33	16.42
	100% RB	1745.0	21.06	20.06	19.13	16.27
		1732.5	21.23	20.27	19.34	16.45
		1720.0	21.22	20.23	19.31	16.42

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

LTE band 5

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
1.4MHz	1 RB high	848.3	22.04	21.35	20.45	17.54
		836.5	22.40	21.49	20.59	17.69
		824.7	22.55	21.76	20.86	17.93
	1 RB low	848.3	22.73	21.94	21.05	18.14
		836.5	22.37	21.49	20.62	17.67
		824.7	22.60	21.83	20.90	18.01
	50% RB mid	848.3	22.43	21.61	20.71	17.80
		836.5	22.47	21.56	20.62	17.76
		824.7	22.75	21.79	21.00	18.11
	100% RB	848.3	21.49	20.49	19.58	16.67
		836.5	21.45	20.51	19.56	16.69
		824.7	21.77	20.75	19.85	17.00
3MHz	1 RB high	847.5	22.13	21.41	20.52	17.61
		836.5	22.55	21.43	20.54	17.73
		825.5	22.65	21.89	21.00	18.18
	1 RB low	847.5	22.43	21.61	20.72	17.81
		836.5	22.56	21.50	20.55	17.67
		825.5	22.66	21.96	21.09	18.26
	50% RB mid	847.5	21.07	20.12	19.23	16.33
		836.5	21.70	20.58	19.72	16.81
		825.5	21.81	20.88	19.97	17.09
	100% RB	847.5	21.00	20.03	19.15	16.24
		836.5	21.58	20.53	19.63	16.71
		825.5	21.81	20.84	19.97	17.04
5MHz	1 RB high	846.5	22.28	21.63	20.73	17.83
		836.5	22.62	21.67	20.75	17.87
		826.5	22.68	21.82	20.93	18.00
	1 RB low	846.5	22.60	21.83	20.93	18.03
		836.5	22.74	21.71	20.92	17.92
		826.5	22.83	21.91	20.98	18.10
	50% RB mid	846.5	21.42	20.59	19.68	16.77
		836.5	21.59	20.61	19.76	16.83
		826.5	21.79	20.92	19.99	17.08
	100% RB	846.5	21.26	20.33	19.43	16.53
		836.5	21.65	20.70	19.80	16.91
		826.5	21.82	20.83	19.95	17.04
10MHz	1 RB high	844.0	22.17	21.53	20.65	17.75
		836.5	22.47	21.54	20.71	17.76
		829.0	22.64	21.88	21.14	18.15

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
	1 RB low	844.0	22.50	21.84	20.95	18.03
		836.5	22.66	21.62	20.69	17.84
		829.0	22.67	22.20	21.32	18.21
	50% RB mid	844.0	21.57	20.66	19.77	16.89
		836.5	21.73	20.72	19.84	16.93
		829.0	21.89	20.94	19.99	17.09
	100% RB	844.0	21.43	20.54	19.64	16.75
		836.5	21.72	20.72	19.80	16.89
		829.0	21.90	20.93	20.00	17.07

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

LTE band 7

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
5MHz	1 RB high	2567.5	22.00	21.05	20.13	17.33
		2535.0	22.20	21.49	20.48	17.58
		2502.5	21.82	20.90	20.09	17.08
	1 RB low	2567.5	22.07	21.11	20.22	17.29
		2535.0	21.99	21.29	20.36	17.43
		2502.5	21.82	20.81	19.99	17.05
	50% RB mid	2567.5	21.14	20.20	19.29	16.38
		2535.0	21.13	20.26	19.30	16.43
		2502.5	20.87	19.88	18.98	16.10
	100% RB	2567.5	21.09	20.10	19.19	16.32
		2535.0	21.03	20.07	19.15	16.26
		2502.5	20.83	19.90	19.01	16.08
10MHz	1 RB high	2565.0	21.97	21.25	20.40	17.46
		2535.0	22.11	21.20	20.29	17.33
		2505.0	21.70	21.03	20.15	17.27
	1 RB low	2565.0	22.01	21.32	20.44	17.52
		2535.0	21.88	20.95	19.91	17.06
		2505.0	21.69	21.11	20.19	17.30
	50% RB mid	2565.0	21.15	20.25	19.31	16.40
		2535.0	21.07	20.07	19.19	16.30
		2505.0	20.87	19.88	18.95	16.08
	100% RB	2565.0	21.08	20.11	19.20	16.32
		2535.0	21.05	20.07	19.16	16.28
		2505.0	20.83	19.82	18.95	16.03
15MHz	1 RB high	2562.5	21.82	21.22	20.29	17.42
		2535.0	22.02	21.06	20.16	17.20
		2507.5	21.49	20.80	19.85	17.03
	1 RB low	2562.5	21.95	21.30	20.40	17.52
		2535.0	21.63	20.64	19.78	16.85
		2507.5	21.44	20.80	19.95	17.02
	50% RB mid	2562.5	20.98	20.01	19.09	16.23
		2535.0	20.88	19.92	19.02	16.07
		2507.5	20.64	19.66	18.75	15.85
	100% RB	2562.5	20.96	20.01	19.08	16.17
		2535.0	20.88	19.92	19.01	16.10
		2507.5	20.64	19.66	18.73	15.84

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
20MHz	1 RB high	2560.0	21.91	21.12	20.20	17.32
		2535.0	21.96	21.22	20.31	17.44
		2510.0	21.65	20.75	19.85	16.90
	1 RB low	2560.0	22.05	21.28	20.35	17.45
		2535.0	21.51	20.72	19.79	16.93
		2510.0	21.54	20.70	19.81	16.87
	50% RB mid	2560.0	21.10	20.15	19.30	16.35
		2535.0	20.89	19.95	19.04	16.16
		2510.0	20.67	19.68	18.79	15.87
	100% RB	2560.0	21.02	20.05	19.15	16.24
		2535.0	20.94	19.94	19.02	16.14
		2510.0	20.68	19.69	18.77	15.89

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	64QAM	256QAM
5MHz	1RB-High (24)	713.5	22.82	21.96	21.02	18.07
		710.0	22.85	22.11	21.28	18.33
		706.5	22.79	21.87	20.95	18.05
	1RB-Low (0)	713.5	22.94	21.90	21.15	18.08
		710.0	22.92	22.20	21.24	18.37
		706.5	22.86	21.94	20.99	18.13
	12RB-Middle (6)	713.5	21.96	21.01	20.12	17.23
		710.0	21.82	20.98	20.05	17.14
		706.5	21.85	20.83	19.95	17.04
	25RB (0)	713.5	21.86	20.88	19.93	17.10
		710.0	21.84	20.85	19.97	17.05
		706.5	21.91	20.98	20.06	17.14
10MHz	1RB-High (49)	711.0	22.79	22.05	21.06	18.23
		710.0	22.79	21.65	21.05	17.95
		709.0	22.73	22.01	21.10	18.21
	1RB-Low (0)	711.0	22.71	22.01	21.10	18.21
		710.0	22.73	21.71	20.81	17.92
		709.0	22.61	22.00	21.02	18.18
	25RB-Middle (12)	711.0	21.89	20.87	20.02	17.12
		710.0	21.89	20.92	20.02	17.13
		709.0	21.90	20.96	20.05	17.16
	50RB (0)	711.0	21.86	20.88	19.98	17.08
		710.0	21.85	20.84	19.95	17.04
		709.0	21.81	20.77	19.91	16.97

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

LTE band 38

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
5MHz	1 RB high	2617.5	21.99	21.22	20.32	17.41
		2595.0	21.85	20.89	20.03	17.13
		2572.5	21.87	21.02	20.11	17.22
	1 RB low	2617.5	21.96	21.17	20.39	17.38
		2595.0	21.76	20.91	19.98	17.08
		2572.5	22.01	21.05	20.17	17.22
	50% RB mid	2617.5	21.03	20.19	19.27	16.40
		2595.0	20.89	19.93	19.02	16.08
		2572.5	21.01	20.06	19.18	16.28
	100% RB	2617.5	21.02	20.01	19.10	16.23
		2595.0	20.85	19.93	19.02	16.11
		2572.5	20.99	20.03	19.12	16.22
10MHz	1 RB high	2615.0	21.98	21.15	20.29	17.32
		2595.0	21.86	20.82	19.90	17.03
		2575.0	21.71	21.21	20.31	17.41
	1 RB low	2615.0	21.92	21.14	20.24	17.34
		2595.0	21.71	20.65	19.78	16.89
		2575.0	21.84	21.31	20.41	17.39
	50% RB mid	2615.0	21.05	20.05	19.15	16.24
		2595.0	20.90	19.91	19.00	16.13
		2575.0	20.97	19.97	19.08	16.22
	100% RB	2615.0	21.01	20.04	19.13	16.23
		2595.0	20.86	19.89	19.01	16.10
		2575.0	20.96	19.97	19.03	16.16
15MHz	1 RB high	2612.5	21.90	21.19	20.28	17.42
		2595.0	21.76	20.72	19.80	16.92
		2577.5	21.63	21.03	20.17	17.27
	1 RB low	2612.5	21.81	21.13	20.26	17.34
		2595.0	21.57	20.55	19.66	16.76
		2577.5	21.79	21.15	20.24	17.36
	50% RB mid	2612.5	20.92	19.95	19.05	16.15
		2595.0	20.76	19.75	18.87	15.98
		2577.5	20.78	19.82	18.93	16.03
	100% RB	2612.5	20.84	19.86	18.97	16.06
		2595.0	20.64	19.65	18.74	15.86

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
		2577.5	20.75	19.72	18.84	15.91
20MHz	1 RB high	2610.0	21.99	21.28	20.37	17.49
		2595.0	21.79	20.90	19.98	17.09
		2580.0	21.70	20.81	19.95	17.06
	1 RB low	2610.0	21.78	21.06	20.14	17.26
		2595.0	21.54	20.67	19.73	16.81
		2580.0	21.79	20.97	20.04	17.22
	50% RB mid	2610.0	20.88	19.94	19.06	16.17
		2595.0	20.78	19.82	18.91	16.02
		2580.0	20.81	19.79	18.86	16.01
	100% RB	2610.0	20.88	19.87	18.97	16.09
		2595.0	20.69	19.68	18.80	15.88
		2580.0	20.79	19.77	18.85	15.98

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

LTE band 41

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
5MHz	1 RB high	2687.5	22.90	21.98	21.07	18.17
		2593.0	22.84	22.15	21.23	18.35
		2498.5	22.94	22.01	21.04	18.35
	1 RB low	2687.5	22.82	21.93	21.02	18.12
		2593.0	22.71	21.88	21.13	18.17
		2498.5	23.03	22.09	21.18	18.23
	50% RB mid	2687.5	21.93	21.01	20.10	17.19
		2593.0	21.92	21.07	20.19	17.15
		2498.5	22.04	21.03	20.14	17.29
	100% RB	2687.5	21.91	20.94	20.03	17.13
		2593.0	21.92	20.88	19.98	17.09
		2498.5	21.99	21.05	20.10	17.21
10MHz	1 RB high	2685.0	22.87	22.11	21.19	18.26
		2593.0	22.82	21.77	20.88	17.96
		2501.0	22.77	22.27	21.25	18.34
	1 RB low	2685.0	22.84	22.06	21.15	18.23
		2593.0	22.76	21.69	20.79	17.86
		2501.0	22.92	22.27	21.37	18.61
	50% RB mid	2685.0	21.92	20.95	20.05	17.16
		2593.0	21.96	20.90	20.04	17.13
		2501.0	21.99	20.97	20.07	17.18
	100% RB	2685.0	21.92	20.87	20.01	17.16
		2593.0	21.93	20.93	20.05	17.15
		2501.0	21.95	20.96	20.07	17.15
15MHz	1 RB high	2682.5	22.72	22.07	21.16	18.27
		2593.0	22.67	21.66	20.77	17.87
		2503.5	22.56	21.97	21.04	18.14
	1 RB low	2682.5	22.61	21.99	21.10	18.24
		2593.0	22.54	21.56	20.64	17.75
		2503.5	22.69	22.05	21.15	18.23
	50% RB mid	2682.5	21.75	20.77	19.89	16.99
		2593.0	21.77	20.75	19.85	16.94

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
		2503.5	21.80	20.76	19.83	16.95
	100% RB	2682.5	21.65	20.67	19.79	16.86
		2593.0	21.77	20.76	19.86	16.97
		2503.5	21.80	20.72	19.84	16.94
20MHz	1 RB high	2680.0	22.82	22.11	21.20	18.33
		2593.0	22.76	21.89	20.99	18.11
		2506.0	22.60	21.75	20.89	18.00
	1 RB low	2680.0	22.62	21.91	20.98	18.11
		2593.0	22.58	21.70	20.79	17.94
		2506.0	22.70	21.87	20.96	18.02
	50% RB mid	2680.0	21.66	20.72	19.83	16.96
		2593.0	21.82	20.80	19.90	17.01
		2506.0	21.75	20.77	19.89	16.97
	100% RB	2680.0	21.66	20.65	19.77	16.90
		2593.0	21.79	20.80	19.89	17.02
		2506.0	21.78	20.78	19.86	16.96

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

LTE band 71

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
5MHz	1 RB high	695.5	22.63	21.78	20.76	17.78
		680.5	22.58	21.63	20.75	17.63
		665.5	22.78	21.90	20.90	17.90
	1 RB low	695.5	22.60	21.94	20.75	17.94
		680.5	22.67	21.75	20.68	17.75
		665.5	22.79	21.71	20.79	17.71
	50% RB mid	695.5	21.68	20.74	19.70	16.74
		680.5	21.66	20.65	19.65	16.65
		665.5	21.86	20.88	19.94	16.88
	100% RB	695.5	21.65	20.65	19.59	16.65
		680.5	21.73	20.78	19.76	16.78
		665.5	21.80	20.86	19.92	16.86
10MHz	1 RB high	693.0	22.61	21.80	20.87	17.80
		680.5	22.67	21.71	20.70	17.71
		668.0	22.65	21.96	20.99	17.96
	1 RB low	693.0	22.57	21.84	20.80	17.84
		680.5	22.72	21.64	20.66	17.64
		668.0	22.81	22.10	21.20	18.10
	50% RB mid	693.0	21.57	20.63	19.61	16.63
		680.5	21.76	20.75	19.79	16.75
		668.0	21.86	20.90	19.88	16.90
	100% RB	693.0	21.55	20.58	19.60	16.58
		680.5	21.73	20.73	19.73	16.73
		668.0	21.85	20.84	19.82	16.84
15MHz	1 RB high	690.5	22.43	21.81	20.76	17.81
		680.5	22.46	21.55	20.57	17.55
		670.5	22.51	21.85	20.81	17.85
	1 RB low	690.5	22.46	21.83	20.80	17.83
		680.5	22.59	21.55	20.53	17.55
		670.5	22.54	21.87	20.89	17.87
	50% RB mid	690.5	21.48	20.52	19.50	16.52
		680.5	21.66	20.64	19.65	16.64
		670.5	21.75	20.74	19.73	16.74
	100% RB	690.5	21.57	20.57	19.58	16.57
		680.5	21.62	20.64	19.65	16.64
		670.5	21.71	20.73	19.78	16.73

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)			
			QPSK	16QAM	64QAM	256QAM
20MHz	1 RB high	688.0	22.61	21.79	20.83	17.79
		683.0	22.38	21.57	20.58	17.57
		673.0	22.61	21.62	20.56	17.62
	1 RB low	688.0	22.61	21.74	20.80	17.74
		683.0	22.47	21.69	20.61	17.69
		673.0	22.70	21.78	20.81	17.78
	50% RB mid	688.0	21.62	20.62	19.62	16.62
		683.0	21.53	20.55	19.55	16.55
		673.0	21.74	20.72	19.74	16.72
	100% RB	688.0	21.62	20.61	19.61	16.61
		683.0	21.62	20.63	19.62	16.63
		673.0	21.83	20.73	19.83	16.73

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

Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power"

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.”

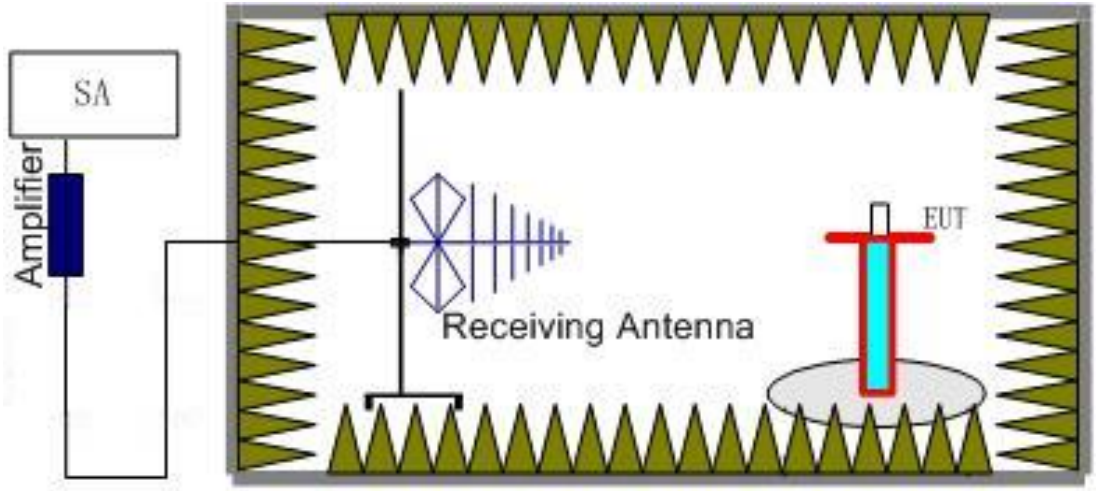
Rule Part 27.50(c)(10) specifies “Portable stations (hand-held de-vices) are limited to 3 watts ERP.”.

Rule Part 27.50(d)(4) 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.”.

A.1.3.2 Method of Measurement

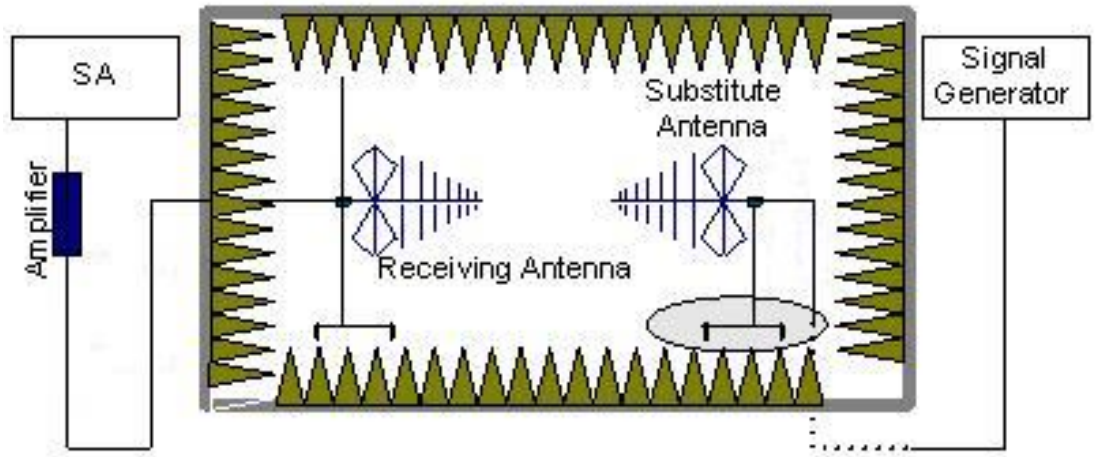
1. For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, EUT was placed on a 80 cm high non-conductive stand at a 3 meter test distance from the receive antenna. For radiated measurements performed at frequencies above 1 GHz, EUT was placed on a 1.5 meter high non-conductive 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	-14.96	-29.30	8.10	22.44	33.00	H
1880.00	-15.89	-29.40	8.10	21.61	33.00	H
1909.30	-15.95	-29.30	8.10	21.45	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	-15.00	-29.30	8.10	22.40	33.00	H
1880.00	-15.93	-29.40	8.10	21.57	33.00	H
1908.50	-15.98	-29.30	8.10	21.42	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	-15.04	-29.30	8.10	22.36	33.00	H
1880.00	-15.95	-29.40	8.10	21.55	33.00	H
1907.50	-16.02	-29.30	8.10	21.38	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	-15.07	-29.30	8.10	22.33	33.00	H
1880.00	-15.98	-29.40	8.10	21.52	33.00	H
1905.00	-16.05	-29.30	8.10	21.35	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	-16.09	-29.30	8.10	21.31	33.00	H
1880.00	-16.02	-29.40	8.10	21.48	33.00	H
1902.50	-16.07	-29.30	8.10	21.33	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	-16.12	-29.30	8.10	21.28	33.00	H
1880.00	-16.05	-29.40	8.10	21.45	33.00	H
1900.00	-16.11	-29.30	8.10	21.29	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	-15.01	-29.30	8.10	22.39	33.00	H
1880.00	-15.95	-29.40	8.10	21.55	33.00	H
1909.30	-15.97	-29.30	8.10	21.43	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	-15.04	-29.30	8.10	22.36	33.00	H
1880.00	-16.01	-29.40	8.10	21.49	33.00	H
1908.50	-15.99	-29.30	8.10	21.41	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	-15.08	-29.30	8.10	22.32	33.00	H
1880.00	-16.05	-29.40	8.10	21.45	33.00	H
1907.50	-16.05	-29.30	8.10	21.35	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	-15.12	-29.30	8.10	22.28	33.00	H
1880.00	-16.11	-29.40	8.10	21.39	33.00	H
1905.00	-16.07	-29.30	8.10	21.33	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	-15.16	-29.30	8.10	22.24	33.00	H
1880.00	-16.13	-29.40	8.10	21.37	33.00	H
1902.50	-16.11	-29.30	8.10	21.29	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	-15.22	-29.30	8.10	22.18	33.00	H
1880.00	-16.14	-29.40	8.10	21.36	33.00	H
1900.00	-16.12	-29.30	8.10	21.28	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	-16.68	-29.60	8.10	21.02	30.00	H
1732.50	-16.84	-29.60	8.10	20.86	30.00	H
1754.30	-16.24	-29.50	8.10	21.36	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	-16.70	-29.60	8.10	21.00	30.00	H
1732.50	-16.90	-29.60	8.10	20.80	30.00	H
1753.50	-16.28	-29.50	8.10	21.32	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	-16.73	-29.60	8.10	20.97	30.00	H
1732.50	-16.94	-29.60	8.10	20.76	30.00	H
1752.50	-16.33	-29.50	8.10	21.27	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	-16.78	-29.60	8.10	20.92	30.00	H
1732.50	-16.97	-29.60	8.10	20.73	30.00	H
1750.00	-16.35	-29.50	8.10	21.25	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	-16.79	-29.60	8.10	20.91	30.00	H
1732.50	-17.02	-29.60	8.10	20.68	30.00	H
1747.50	-16.37	-29.50	8.10	21.23	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	-16.84	-29.60	8.10	20.86	30.00	H
1732.50	-17.05	-29.60	8.10	20.65	30.00	H
1745.00	-16.42	-29.50	8.10	21.18	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	-16.70	-29.60	8.10	21.00	30.00	H
1732.50	-16.85	-29.60	8.10	20.85	30.00	H
1754.30	-16.27	-29.50	8.10	21.33	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	-16.74	-29.60	8.10	20.96	30.00	H
1732.50	-16.90	-29.60	8.10	20.80	30.00	H
1753.50	-16.31	-29.50	8.10	21.29	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	-16.77	-29.60	8.10	20.93	30.00	H
1732.50	-16.93	-29.60	8.10	20.77	30.00	H
1752.50	-16.35	-29.50	8.10	21.25	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	-16.81	-29.60	8.10	20.89	30.00	H
1732.50	-16.98	-29.60	8.10	20.72	30.00	H
1750.00	-16.40	-29.50	8.10	21.20	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	-16.85	-29.60	8.10	20.85	30.00	H
1732.50	-17.03	-29.60	8.10	20.67	30.00	H
1747.50	-16.44	-29.50	8.10	21.16	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	-16.89	-29.60	8.10	20.81	30.00	H
1732.50	-17.08	-29.60	8.10	20.62	30.00	H
1745.00	-16.47	-29.50	8.10	21.13	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	-10.40	-33.60	-0.79	2.15	20.25	38.45	V
836.50	-9.83	-33.50	-0.74	2.15	20.79	38.45	V
848.30	-9.79	-33.50	-0.73	2.15	20.83	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	-10.38	-33.60	-0.84	2.15	20.23	38.45	V
836.50	-9.86	-33.50	-0.74	2.15	20.75	38.45	V
847.50	-9.82	-33.50	-0.73	2.15	20.80	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	-10.42	-33.60	-0.84	2.15	20.19	38.45	V
836.50	-9.89	-33.50	-0.74	2.15	20.72	38.45	V
846.50	-9.84	-33.50	-0.73	2.15	20.78	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	-10.43	-33.60	-0.84	2.15	20.18	38.45	V
836.50	-9.93	-33.50	-0.74	2.15	20.68	38.45	V
844.00	-9.82	-33.50	-0.78	2.15	20.75	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	-10.43	-33.60	-0.79	2.15	20.23	38.45	V
836.50	-9.87	-33.50	-0.74	2.15	20.74	38.45	V
848.30	-9.81	-33.50	-0.73	2.15	20.81	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	-10.43	-33.60	-0.84	2.15	20.18	38.45	V
836.50	-9.90	-33.50	-0.74	2.15	20.71	38.45	V
847.50	-9.85	-33.50	-0.73	2.15	20.77	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	-10.45	-33.60	-0.84	2.15	20.16	38.45	V
836.50	-9.93	-33.50	-0.74	2.15	20.68	38.45	V
846.50	-9.89	-33.50	-0.73	2.15	20.73	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	-10.49	-33.60	-0.84	2.15	20.12	38.45	V
836.50	-9.96	-33.50	-0.74	2.15	20.65	38.45	V
844.00	-9.87	-33.50	-0.78	2.15	20.70	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	-16.94	-28.70	10.70	22.46	33.00	H
2535.00	-14.74	-28.60	10.70	24.56	33.00	H
2567.50	-16.59	-28.60	10.70	22.71	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	-16.98	-28.70	10.70	22.42	33.00	H
2535.00	-16.75	-28.60	10.70	22.55	33.00	H
2565.00	-16.62	-28.60	10.70	22.68	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	-17.01	-28.70	10.70	22.39	33.00	H
2535.00	-16.79	-28.60	10.70	22.51	33.00	H
2562.50	-16.65	-28.60	10.70	22.65	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	-17.04	-28.70	10.70	22.36	33.00	H
2535.00	-16.82	-28.60	10.70	22.48	33.00	H
2560.00	-16.68	-28.60	10.70	22.62	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	-16.97	-28.70	10.70	22.43	33.00	H
2535.00	-16.76	-28.60	10.70	22.54	33.00	H
2567.50	-16.67	-28.60	10.70	22.63	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	-17.00	-28.70	10.70	22.40	33.00	H
2535.00	-16.81	-28.60	10.70	22.49	33.00	H
2565.00	-16.71	-28.60	10.70	22.59	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	-17.04	-28.70	10.70	22.36	33.00	H
2535.00	-16.84	-28.60	10.70	22.46	33.00	H
2562.50	-16.75	-28.60	10.70	22.55	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	-17.08	-28.70	10.70	22.32	33.00	H
2535.00	-16.88	-28.60	10.70	22.42	33.00	H
2560.00	-16.79	-28.60	10.70	22.51	33.00	H

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	-11.81	-34.70	-0.91	2.15	19.83	34.77	V
710.00	-12.04	-34.70	-0.64	2.15	19.87	34.77	V
713.50	-11.98	-34.70	-0.64	2.15	19.93	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	-11.84	-34.70	-0.91	2.15	19.80	34.77	V
710.00	-12.08	-34.70	-0.64	2.15	19.83	34.77	V
711.00	-12.06	-34.70	-0.64	2.15	19.85	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	-11.84	-34.70	-0.91	2.15	19.80	34.77	V
710.00	-12.09	-34.70	-0.64	2.15	19.82	34.77	V
713.50	-12.01	-34.70	-0.64	2.15	19.90	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	-11.86	-34.70	-0.91	2.15	19.78	34.77	V
710.00	-12.11	-34.70	-0.64	2.15	19.80	34.77	V
711.00	-12.06	-34.70	-0.64	2.15	19.85	34.77	V

LTE Band 38 - EIRP Part 27.50(h)(2)

Limits: ≤33dBm (2W)

LTE Band 38_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2572.50	-16.68	-28.60	10.70	22.62	33.00	H
2595.00	-16.70	-28.60	10.70	22.60	33.00	H
2617.50	-16.94	-28.60	10.70	22.36	33.00	H

LTE Band 38_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2575.00	-16.73	-28.60	10.70	22.57	33.00	H
2595.00	-16.74	-28.60	10.70	22.56	33.00	H
2615.00	-16.98	-28.60	10.70	22.32	33.00	H

LTE Band 38_15MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2577.50	-16.76	-28.60	10.70	22.54	33.00	H
2595.00	-16.78	-28.60	10.70	22.52	33.00	H
2612.50	-17.01	-28.60	10.70	22.29	33.00	H

LTE Band 38_20MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2580.00	-16.81	-28.60	10.70	22.49	33.00	H
2595.00	-16.82	-28.60	10.70	22.48	33.00	H
2610.00	-17.05	-28.60	10.70	22.25	33.00	H

LTE Band 38_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2572.50	-16.72	-28.60	10.70	22.58	33.00	H
2595.00	-16.73	-28.60	10.70	22.57	33.00	H
2617.50	-16.98	-28.60	10.70	22.32	33.00	H

LTE Band 38_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2575.00	-16.76	-28.60	10.70	22.54	33.00	H
2595.00	-16.79	-28.60	10.70	22.51	33.00	H
2615.00	-16.99	-28.60	10.70	22.31	33.00	H

LTE Band 38_15MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2577.50	-16.78	-28.60	10.70	22.52	33.00	H
2595.00	-16.84	-28.60	10.70	22.46	33.00	H
2612.50	-17.05	-28.60	10.70	22.25	33.00	H

LTE Band 38_20MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2580.00	-16.86	-28.60	10.70	22.44	33.00	H
2595.00	-16.89	-28.60	10.70	22.41	33.00	H
2610.00	-17.08	-28.60	10.70	22.22	33.00	H

LTE Band 41- EIRP Part 27.50(d)(2)

Limits: ≤33dBm (2W)

LTE Band 41_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2498.50	-16.82	-28.70	10.70	22.58	33.00	H
2593.00	-16.79	-28.60	10.70	22.51	33.00	H
2687.50	-16.91	-28.50	10.70	22.29	33.00	H

LTE Band 41_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2501.00	-16.84	-28.70	10.70	22.56	33.00	H
2593.00	-16.84	-28.60	10.70	22.46	33.00	H
2685.00	-16.98	-28.50	10.70	22.22	33.00	H

LTE Band 41_15MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2503.50	-16.87	-28.70	10.70	22.53	33.00	H
2593.00	-16.87	-28.60	10.70	22.43	33.00	H
2682.50	-17.04	-28.50	10.70	22.16	33.00	H

LTE Band 41_20MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2506.00	-16.93	-28.70	10.70	22.47	33.00	H
2593.00	-16.91	-28.60	10.70	22.39	33.00	H
2680.00	-17.07	-28.50	10.70	22.13	33.00	H

LTE Band 41_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2498.50	-16.83	-28.70	10.70	22.57	33.00	H
2593.00	-16.82	-28.60	10.70	22.48	33.00	H
2687.50	-16.94	-28.50	10.70	22.26	33.00	H

LTE Band 41_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2501.00	-16.88	-28.70	10.70	22.52	33.00	H
2593.00	-16.87	-28.60	10.70	22.43	33.00	H
2685.00	-17.01	-28.50	10.70	22.19	33.00	H

LTE Band 41_15MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2503.00	-16.92	-28.70	10.70	22.48	33.00	H
2593.00	-16.91	-28.60	10.70	22.39	33.00	H
2682.50	-17.05	-28.50	10.70	22.15	33.00	H

LTE Band 41_20MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2506.00	-16.97	-28.70	10.70	22.43	33.00	H
2593.00	-16.94	-28.60	10.70	22.36	33.00	H
2680.00	-17.11	-28.50	10.70	22.09	33.00	H

LTE Band 71- ERP 27.50(c)(10)

Limits: ≤34.77 dBm (3W)

LTE Band 71_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
665.50	-13.56	-36.70	-1.11	2.15	19.87	34.77	V
680.50	-13.89	-36.80	-0.82	2.15	19.94	34.77	V
695.50	-11.57	-34.80	-0.93	2.15	20.15	34.77	V

LTE Band 71_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
668.00	-13.59	-36.70	-1.11	2.15	19.85	34.77	V
680.50	-13.91	-36.80	-0.82	2.15	19.92	34.77	V
693.00	-11.60	-34.80	-0.93	2.15	20.12	34.77	V

LTE Band 71_15MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
670.50	-13.61	-36.70	-1.11	2.15	19.83	34.77	V
680.50	-13.93	-36.80	-0.82	2.15	19.90	34.77	V
690.50	-11.65	-34.80	-0.93	2.15	20.07	34.77	V

LTE Band 71_20MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
673.00	-13.64	-36.70	-1.11	2.15	19.80	34.77	V
683.00	-13.96	-36.80	-0.82	2.15	19.87	34.77	V
688.00	-11.70	-34.80	-0.93	2.15	20.02	34.77	V

LTE Band 71_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
665.50	-13.60	-36.70	-1.11	2.15	19.84	34.77	V
680.50	-13.92	-36.80	-0.82	2.15	19.91	34.77	V
695.50	-11.63	-34.80	-0.93	2.15	20.09	34.77	V

LTE Band 71_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
668.00	-13.67	-36.70	-1.11	2.15	19.77	34.77	V
680.50	-13.99	-36.80	-0.82	2.15	19.84	34.77	V
693.00	-11.67	-34.80	-0.93	2.15	20.05	34.77	V

LTE Band 71_15MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
670.50	-13.70	-36.70	-1.11	2.15	19.74	34.77	V
680.50	-14.03	-36.80	-0.82	2.15	19.80	34.77	V
690.50	-11.71	-34.80	-0.93	2.15	20.01	34.77	V

LTE Band 71_20MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
673.00	-13.74	-36.70	-1.11	2.15	19.70	34.77	V
683.00	-14.07	-36.80	-0.82	2.15	19.76	34.77	V
688.00	-11.74	-34.80	-0.93	2.15	19.98	34.77	V

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 = 2.87dB(30MHz-3GHz)/3.35dB(3GHz-18GHz)/2.68dB(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.

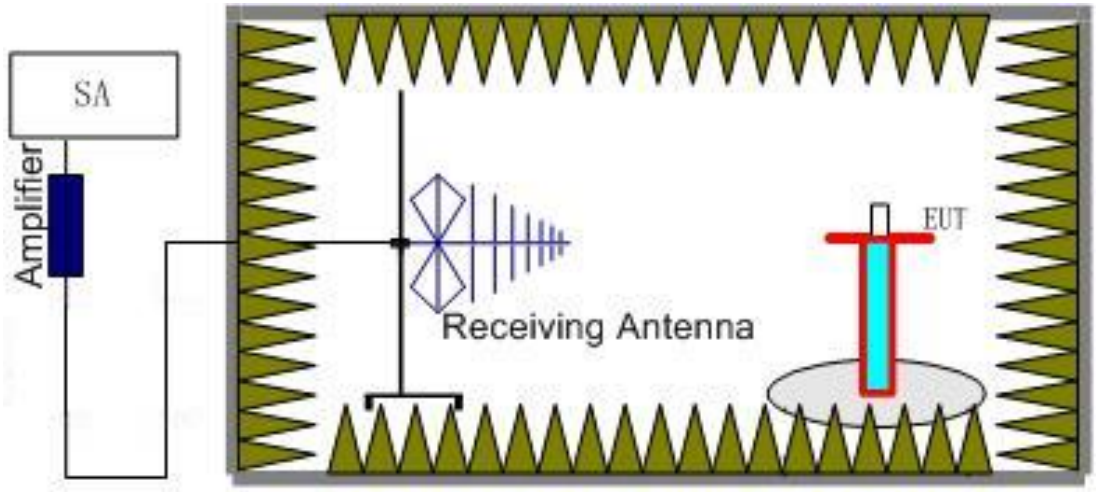
A.2.1 Measurement Method

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

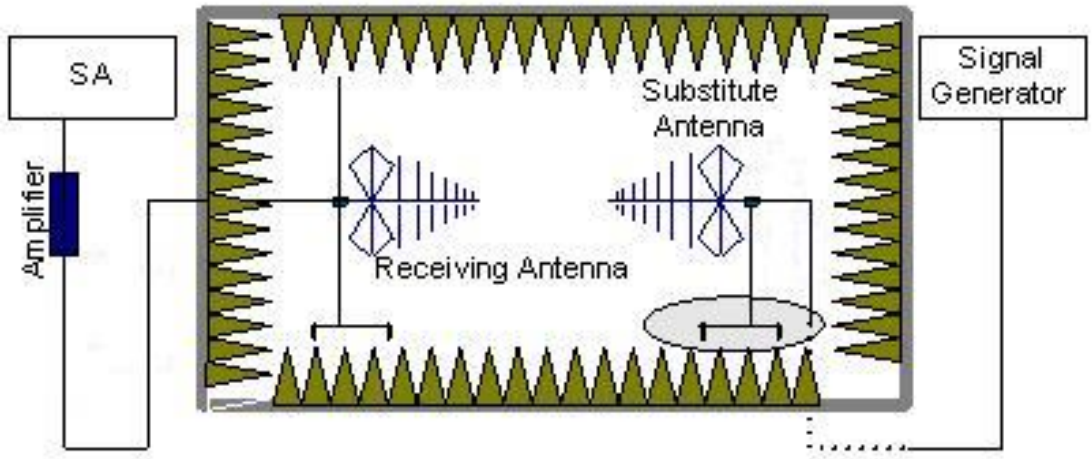
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz as outlined in Part 22.917, 24.238 and 27.53. The spectrum was scanned with the mobile station transmitting at carrier 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
16981.88	-45.88	2.90	16.50	-32.28	-13.00	H
17205.62	-44.14	2.90	14.50	-32.54	-13.00	H
17266.88	-43.34	3.20	14.50	-32.04	-13.00	H
17429.38	-42.54	2.90	14.50	-30.94	-13.00	H
17575.00	-39.59	3.30	12.80	-30.09	-13.00	H
17779.38	-40.53	3.60	12.80	-31.33	-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
17005.62	-42.64	2.90	14.50	-31.04	-13.00	H
17132.50	-44.57	2.90	14.50	-32.97	-13.00	H
17286.25	-43.73	3.20	14.50	-32.43	-13.00	H
17505.00	-40.07	2.90	12.80	-30.17	-13.00	H
17611.88	-39.91	3.30	12.80	-30.41	-13.00	H
17833.75	-40.00	3.60	12.80	-30.80	-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
16978.12	-45.13	2.90	16.50	-31.53	-13.00	H
17124.38	-43.91	2.90	14.50	-32.31	-13.00	H
17273.75	-43.39	3.20	14.50	-32.09	-13.00	H
17501.25	-40.79	2.90	12.80	-30.89	-13.00	H
17583.75	-40.59	3.30	12.80	-31.09	-13.00	H
17839.38	-39.65	3.60	12.80	-30.45	-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
16985.00	-45.35	2.90	16.50	-31.75	-13.00	H
17117.50	-44.67	2.90	14.50	-33.07	-13.00	H
17363.12	-43.51	3.20	14.50	-32.21	-13.00	H
17460.62	-42.01	2.90	14.50	-30.41	-13.00	H
17563.12	-40.12	3.30	12.80	-30.62	-13.00	H
17837.50	-40.04	3.60	12.80	-30.84	-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
16936.25	-45.13	2.90	16.50	-31.53	-13.00	H
17181.88	-43.72	2.90	14.50	-32.12	-13.00	H
17369.38	-43.79	3.20	14.50	-32.49	-13.00	H
17414.38	-41.89	2.90	14.50	-30.29	-13.00	H
17576.88	-40.42	3.30	12.80	-30.92	-13.00	H
17712.50	-40.90	3.30	12.80	-31.40	-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
16988.75	-45.85	2.90	16.50	-32.25	-13.00	H
17181.88	-43.81	2.90	14.50	-32.21	-13.00	H
17245.62	-43.79	3.20	14.50	-32.49	-13.00	H
17525.00	-40.58	2.90	12.80	-30.68	-13.00	H
17625.62	-40.36	3.30	12.80	-30.86	-13.00	H
17773.12	-40.27	3.60	12.80	-31.07	-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
16958.75	-45.47	2.90	16.50	-31.87	-13.00	H
17120.62	-43.54	2.90	14.50	-31.94	-13.00	H
17271.88	-43.88	3.20	14.50	-32.58	-13.00	H
17449.38	-41.96	2.90	14.50	-30.36	-13.00	H
17576.25	-40.02	3.30	12.80	-30.52	-13.00	H
17833.75	-40.09	3.60	12.80	-30.89	-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
16985.00	-45.50	2.90	16.50	-31.90	-13.00	H
17097.50	-43.52	2.90	14.50	-31.92	-13.00	H
17297.50	-43.08	3.20	14.50	-31.78	-13.00	H
17506.25	-40.84	2.90	12.80	-30.94	-13.00	H
17583.75	-39.85	3.30	12.80	-30.35	-13.00	H
17811.25	-40.36	3.60	12.80	-31.16	-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
16981.88	-45.30	2.90	16.50	-31.70	-13.00	H
17188.75	-44.27	2.90	14.50	-32.67	-13.00	H
17348.75	-43.73	3.20	14.50	-32.43	-13.00	H
17442.50	-41.92	2.90	14.50	-30.32	-13.00	H
17586.88	-38.85	3.30	12.80	-29.35	-13.00	H
17838.75	-40.21	3.60	12.80	-31.01	-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
16990.62	-45.51	2.90	16.50	-31.91	-13.00	H
17208.12	-43.79	2.90	14.50	-32.19	-13.00	H
17295.62	-43.82	3.20	14.50	-32.52	-13.00	H
17523.75	-40.67	2.90	12.80	-30.77	-13.00	H
17577.50	-40.24	3.30	12.80	-30.74	-13.00	H
17779.38	-40.43	3.60	12.80	-31.23	-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
16961.25	-45.50	2.90	16.50	-31.90	-13.00	H
17173.12	-44.21	2.90	14.50	-32.61	-13.00	H
17365.62	-43.52	3.20	14.50	-32.22	-13.00	H
17448.75	-41.52	2.90	14.50	-29.92	-13.00	H
17530.00	-40.72	2.90	12.80	-30.82	-13.00	H
17695.00	-41.18	3.30	12.80	-31.68	-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
16995.62	-45.75	2.90	16.50	-32.15	-13.00	H
17116.88	-44.05	2.90	14.50	-32.45	-13.00	H
17223.75	-43.12	3.20	14.50	-31.82	-13.00	H
17508.75	-40.73	2.90	12.80	-30.83	-13.00	H
17576.25	-39.62	3.30	12.80	-30.12	-13.00	H
17821.88	-40.83	3.60	12.80	-31.63	-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
7326.38	-53.00	1.70	12.00	-44.85	-13.00	H
8456.25	-52.04	1.80	11.30	-44.69	-13.00	H
9102.25	-51.69	2.20	11.60	-44.44	-13.00	H
9303.00	-50.82	2.00	11.60	-43.37	-13.00	H
9475.75	-51.08	2.10	11.60	-43.73	-13.00	V
9740.75	-50.28	2.20	11.20	-43.43	-13.00	H

LTE Band 5, 1.4MHz, QPSK, Channel 20525

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8456.62	-51.64	1.80	11.30	-44.29	-13.00	H
8743.12	-52.02	2.00	12.00	-44.17	-13.00	H
9103.50	-51.39	2.20	11.60	-44.14	-13.00	H
9305.38	-50.49	2.00	11.60	-43.04	-13.00	H
9478.75	-50.89	2.10	11.60	-43.54	-13.00	V
9764.00	-50.26	2.30	11.20	-43.51	-13.00	H

LTE Band 5, 1.4MHz, QPSK, Channel 20643

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7228.88	-52.84	1.80	12.00	-44.79	-13.00	H
8457.00	-52.28	1.80	11.30	-44.93	-13.00	H
9104.25	-51.73	2.20	11.60	-44.48	-13.00	H
9303.25	-49.83	2.00	11.60	-42.38	-13.00	H
9425.00	-51.15	2.10	11.60	-43.80	-13.00	H
9723.50	-50.88	2.20	11.20	-44.03	-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
8426.25	-52.06	1.80	11.30	-44.71	-13.00	H
9098.00	-51.35	2.20	11.60	-44.10	-13.00	H
9299.38	-50.39	2.00	11.60	-42.94	-13.00	H
9474.25	-51.29	2.10	11.60	-43.94	-13.00	V
9720.00	-50.65	2.20	11.20	-43.80	-13.00	H
9801.12	-50.79	2.30	11.20	-44.04	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7195.12	-52.83	1.80	12.00	-44.78	-13.00	V
8473.12	-51.69	1.80	11.30	-44.34	-13.00	H
9098.25	-51.85	2.20	11.60	-44.60	-13.00	H
9300.62	-50.69	2.00	11.60	-43.24	-13.00	H
9474.88	-50.31	2.10	11.60	-42.96	-13.00	V
9732.38	-50.87	2.20	11.20	-44.02	-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
7239.38	-53.10	1.80	12.00	-45.05	-13.00	H
8428.88	-52.05	1.80	11.30	-44.70	-13.00	H
9106.50	-51.74	2.10	11.60	-44.39	-13.00	H
9292.50	-50.71	2.00	11.60	-43.26	-13.00	H
9422.12	-51.36	2.10	11.60	-44.01	-13.00	H
9739.88	-51.16	2.20	11.20	-44.31	-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
17000.62	-47.87	2.90	14.50	-36.27	-25.00	H
17101.88	-48.32	2.90	14.50	-36.72	-25.00	H
17355.00	-47.32	3.20	14.50	-36.02	-25.00	H
17406.88	-47.99	2.90	14.50	-36.39	-25.00	H
17530.62	-46.13	2.90	12.80	-36.23	-25.00	H
17831.88	-45.76	3.60	12.80	-36.56	-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
16928.75	-50.46	2.90	16.50	-36.86	-25.00	H
17136.25	-47.78	2.90	14.50	-36.18	-25.00	H
17289.38	-48.10	3.20	14.50	-36.80	-25.00	H
17413.75	-47.89	2.90	14.50	-36.29	-25.00	H
17595.00	-46.30	3.30	12.80	-36.80	-25.00	H
17820.00	-45.18	3.60	12.80	-35.98	-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
16948.75	-50.89	2.90	16.50	-37.29	-25.00	H
17186.88	-48.37	2.90	14.50	-36.77	-25.00	H
17313.75	-47.50	3.20	14.50	-36.20	-25.00	H
17463.75	-47.62	2.90	14.50	-36.02	-25.00	H
17588.12	-46.14	3.30	12.80	-36.64	-25.00	H
17813.12	-45.49	3.60	12.80	-36.29	-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
16961.25	-50.95	2.90	16.50	-37.35	-25.00	H
17174.38	-47.93	2.90	14.50	-36.33	-25.00	H
17355.00	-47.63	3.20	14.50	-36.33	-25.00	H
17452.50	-48.02	2.90	14.50	-36.42	-25.00	H
17619.38	-46.22	3.30	12.80	-36.72	-25.00	H
17827.50	-45.30	3.60	12.80	-36.10	-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
16988.12	-50.63	2.90	16.50	-37.03	-25.00	H
17121.25	-48.34	2.90	14.50	-36.74	-25.00	H
17235.00	-47.67	3.20	14.50	-36.37	-25.00	H
17504.38	-46.94	2.90	12.80	-37.04	-25.00	H
17619.38	-45.89	3.30	12.80	-36.39	-25.00	H
17764.38	-45.05	3.60	12.80	-35.85	-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
16957.50	-49.84	2.90	16.50	-36.24	-25.00	H
17125.00	-48.43	2.90	14.50	-36.83	-25.00	H
17352.50	-47.98	3.20	14.50	-36.68	-25.00	H
17454.38	-47.98	2.90	14.50	-36.38	-25.00	H
17624.38	-45.60	3.30	12.80	-36.10	-25.00	H
17838.12	-45.55	3.60	12.80	-36.35	-25.00	H

LTE Band 17, 1.4MHz, QPSK, Channel 23755

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8474.25	-52.45	1.80	11.30	-45.10	-13.00	H
9091.00	-51.61	2.20	11.60	-44.36	-13.00	H
9214.75	-50.98	2.10	11.60	-43.63	-13.00	H
9474.12	-51.17	2.10	11.60	-43.82	-13.00	V
9738.00	-51.44	2.20	11.20	-44.59	-13.00	H
9804.62	-50.84	2.30	11.20	-44.09	-13.00	H

LTE Band 17, 1.4MHz, QPSK, Channel 23790

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7182.75	-53.45	1.80	12.00	-45.40	-13.00	H
8413.12	-51.13	1.80	11.30	-43.78	-13.00	H
9098.88	-51.78	2.20	11.60	-44.53	-13.00	H
9297.38	-50.72	2.00	11.60	-43.27	-13.00	H
9473.12	-50.96	2.10	11.60	-43.61	-13.00	V
9743.25	-50.54	2.20	11.20	-43.69	-13.00	H

LTE Band 17, 1.4MHz, QPSK, Channel 23825

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7201.50	-52.56	1.80	12.00	-44.51	-13.00	V
8427.75	-52.33	1.80	11.30	-44.98	-13.00	H
9102.88	-52.15	2.20	11.60	-44.90	-13.00	H
9224.38	-50.59	2.10	11.60	-43.24	-13.00	H
9478.12	-50.39	2.10	11.60	-43.04	-13.00	V
9736.00	-51.63	2.20	11.20	-44.78	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7387.12	-53.20	1.70	12.00	-45.05	-13.00	H
7911.00	-52.48	1.70	11.30	-45.03	-13.00	H
8889.75	-52.98	1.90	12.00	-45.03	-13.00	H
9231.38	-51.20	2.10	11.60	-43.85	-13.00	H
9425.75	-51.51	2.10	11.60	-44.16	-13.00	H
9767.88	-51.19	2.30	11.20	-44.44	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7159.88	-53.10	1.90	12.00	-45.15	-13.00	V
8429.25	-52.75	1.80	11.30	-45.40	-13.00	H
9094.50	-52.01	2.20	11.60	-44.76	-13.00	H
9304.88	-50.18	2.00	11.60	-42.73	-13.00	H
9476.75	-51.47	2.10	11.60	-44.12	-13.00	V
9743.12	-51.20	2.20	11.20	-44.35	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7378.88	-53.28	1.70	12.00	-45.13	-13.00	H
8412.00	-52.35	1.80	11.30	-45.00	-13.00	H
9100.00	-52.27	2.20	11.60	-45.02	-13.00	H
9295.38	-50.13	2.00	11.60	-42.68	-13.00	H
9476.12	-51.93	2.10	11.60	-44.58	-13.00	V
9737.75	-51.60	2.20	11.20	-44.75	-13.00	H

LTE Band 38, 5MHz, QPSK, Channel 37775

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16988.75	-49.87	2.90	16.50	-36.27	-25.00	H
17224.38	-47.51	3.20	14.50	-36.21	-25.00	H
17453.75	-48.16	2.90	14.50	-36.56	-25.00	H
17559.38	-46.61	2.90	12.80	-36.71	-25.00	H
17825.00	-45.44	3.60	12.80	-36.24	-25.00	H
17993.75	-46.06	3.20	12.80	-36.46	-25.00	H

LTE Band 38, 5MHz, QPSK, Channel 38000

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
17003.75	-48.43	2.90	14.50	-36.83	-25.00	H
17214.38	-47.93	2.90	14.50	-36.33	-25.00	H
17298.12	-47.85	3.20	14.50	-36.55	-25.00	H
17450.00	-48.27	2.90	14.50	-36.67	-25.00	H
17597.50	-45.66	3.30	12.80	-36.16	-25.00	H
17821.88	-45.86	3.60	12.80	-36.66	-25.00	H

LTE Band 38, 5MHz, QPSK, Channel 38225

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16936.25	-50.68	2.90	16.50	-37.08	-25.00	H
17205.62	-48.39	2.90	14.50	-36.79	-25.00	H
17313.12	-47.58	3.20	14.50	-36.28	-25.00	H
17511.25	-45.92	2.90	12.80	-36.02	-25.00	H
17615.62	-45.90	3.30	12.80	-36.40	-25.00	H
17835.00	-45.66	3.60	12.80	-36.46	-25.00	H

LTE Band 38, 5MHz, 16QAM, Channel 37775

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16960.62	-50.42	2.90	16.50	-36.82	-25.00	H
17127.50	-47.86	2.90	14.50	-36.26	-25.00	H
17298.75	-47.26	3.20	14.50	-35.96	-25.00	H
17438.75	-47.95	2.90	14.50	-36.35	-25.00	H
17603.12	-45.79	3.30	12.80	-36.29	-25.00	H
17827.50	-45.59	3.60	12.80	-36.39	-25.00	H

LTE Band 38, 5MHz, 16QAM, Channel 38000

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
17001.88	-48.16	2.90	14.50	-36.56	-25.00	H
17184.38	-48.17	2.90	14.50	-36.57	-25.00	H
17235.62	-47.84	3.20	14.50	-36.54	-25.00	H
17455.00	-47.91	2.90	14.50	-36.31	-25.00	H
17576.88	-46.03	3.30	12.80	-36.53	-25.00	H
17712.50	-46.66	3.30	12.80	-37.16	-25.00	H

LTE Band 38, 5MHz, 16QAM, Channel 38225

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16960.62	-50.24	2.90	16.50	-36.64	-25.00	H
17167.50	-48.16	2.90	14.50	-36.56	-25.00	H
17344.38	-47.56	3.20	14.50	-36.26	-25.00	H
17457.50	-49.01	2.90	14.50	-37.41	-25.00	H
17586.88	-45.77	3.30	12.80	-36.27	-25.00	H
17829.38	-46.01	3.60	12.80	-36.81	-25.00	H

LTE Band 41, 5MHz, QPSK, Channel 39675

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16980.00	-50.32	2.90	16.50	-36.72	-25.00	H
17139.38	-47.54	2.90	14.50	-35.94	-25.00	H
17279.38	-48.23	3.20	14.50	-36.93	-25.00	H
17411.88	-48.36	2.90	14.50	-36.76	-25.00	H
17596.25	-45.97	3.30	12.80	-36.47	-25.00	H
17821.88	-45.71	3.60	12.80	-36.51	-25.00	H

LTE Band 41, 5MHz, QPSK, Channel 40620

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16991.88	-49.60	2.90	16.50	-36.00	-25.00	H
17181.25	-46.54	2.90	14.50	-34.94	-25.00	H
17304.38	-47.01	3.20	14.50	-35.71	-25.00	H
17410.00	-46.75	2.90	14.50	-35.15	-25.00	H
17621.88	-44.45	3.30	12.80	-34.95	-25.00	H
17822.50	-44.55	3.60	12.80	-35.35	-25.00	H

LTE Band 41, 5MHz, QPSK, Channel 41565

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16976.88	-50.78	2.90	16.50	-37.18	-25.00	H
17190.62	-48.39	2.90	14.50	-36.79	-25.00	H
17367.50	-47.43	3.20	14.50	-36.13	-25.00	H
17443.12	-48.11	2.90	14.50	-36.51	-25.00	H
17598.12	-46.06	3.30	12.80	-36.56	-25.00	H
17804.38	-45.69	3.60	12.80	-36.49	-25.00	H

LTE Band 41, 5MHz, 16QAM, Channel 39675

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16957.50	-49.74	2.90	16.50	-36.14	-25.00	H
17188.12	-48.22	2.90	14.50	-36.62	-25.00	H
17281.88	-48.21	3.20	14.50	-36.91	-25.00	H
17441.25	-48.18	2.90	14.50	-36.58	-25.00	H
17531.25	-46.61	2.90	12.80	-36.71	-25.00	H
17835.00	-45.58	3.60	12.80	-36.38	-25.00	H

LTE Band 41, 5MHz, 16QAM, Channel 40620

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16948.12	-49.63	2.90	16.50	-36.03	-25.00	H
17161.88	-48.42	2.90	14.50	-36.82	-25.00	H
17295.62	-47.53	3.20	14.50	-36.23	-25.00	H
17408.75	-47.20	2.90	14.50	-35.60	-25.00	H
17624.38	-45.07	3.30	12.80	-35.57	-25.00	H
17806.25	-46.05	3.60	12.80	-36.85	-25.00	H

LTE Band 41, 5MHz, 16QAM, Channel 41565

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
16964.38	-49.92	2.90	16.50	-36.32	-25.00	H
17124.38	-48.52	2.90	14.50	-36.92	-25.00	H
17275.00	-47.63	3.20	14.50	-36.33	-25.00	H
17458.12	-47.86	2.90	14.50	-36.26	-25.00	H
17526.25	-46.79	2.90	12.80	-36.89	-25.00	H
17840.00	-45.13	3.60	12.80	-35.93	-25.00	H

LTE Band 71, 5MHz, QPSK, Channel 133147

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8445.38	-52.24	1.80	11.30	-44.89	-13.00	H
9094.88	-51.86	2.20	11.60	-44.61	-13.00	H
9299.38	-50.48	2.00	11.60	-43.03	-13.00	H
9466.12	-51.03	2.10	11.60	-43.68	-13.00	V
9758.38	-51.10	2.20	11.20	-44.25	-13.00	H
9797.12	-51.43	2.30	11.20	-44.68	-13.00	H

LTE Band 71, 5MHz, QPSK, Channel 133297

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7152.00	-53.30	1.90	12.00	-45.35	-13.00	H
8375.25	-52.56	1.80	11.30	-45.21	-13.00	H
9098.50	-51.54	2.20	11.60	-44.29	-13.00	H
9300.75	-50.90	2.00	11.60	-43.45	-13.00	H
9481.88	-51.23	2.10	11.60	-43.88	-13.00	V
9720.25	-51.46	2.20	11.20	-44.61	-13.00	H

LTE Band 71, 5MHz, QPSK, Channel 133447

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8726.25	-52.52	2.00	12.00	-44.67	-13.00	H
9100.00	-51.55	2.20	11.60	-44.30	-13.00	H
9300.25	-50.48	2.00	11.60	-43.03	-13.00	H
9475.25	-51.26	2.10	11.60	-43.91	-13.00	V
9757.00	-51.28	2.20	11.20	-44.43	-13.00	H
9788.12	-51.31	2.30	11.20	-44.56	-13.00	H

Note: The maximum value of expanded measurement uncertainty for this test item is U = 2.87dB(30MHz-3GHz)/3.35dB(3GHz-18GHz)/2.68dB(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, 20MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1850.810	1909.200		
50				-0.01	0.0000
40				0.74	0.0004
30				-0.33	0.0002
10				-0.89	0.0005
0				0.39	0.0002
-10				0.39	0.0002
-20				0.17	0.0001
-30				0.86	0.0005

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.40	20	1850.810	1909.200	-0.21	0.0001
4.40				0.96	0.0005

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

LTE Band 4, 20MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
50	3.85	1710.800	1754.230		
40				-0.63	0.0004
30				-0.53	0.0003
20				-0.49	0.0003
10				-0.82	0.0005
0				-0.32	0.0002
-10				-0.83	0.0005
-20				-0.93	0.0005
-30				-0.40	0.0002

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.40	20	1710.800	1754.230	-0.17	0.0001
4.40				-0.92	0.0005

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

LTE Band 5, 10MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
50	3.85	824.350	848.610		
40				-0.84	0.0010
30				-0.93	0.0011
20				-0.84	0.0010
10				-0.10	0.0001
0				0.50	0.0006
-10				-0.83	0.0010
-20				-0.99	0.0012
-30				-0.32	0.0004

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.40	20	824.350	848.610	-0.42	0.0005
4.40				-0.07	0.0001

Expanded measurement uncertainty is 10 Hz, k = 2

LTE Band 7, 20MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	2500.540	2569.480		
50				-0.67	0.0003
40				0.43	0.0002
30				-0.06	0.0000
10				-0.33	0.0001
0				0.49	0.0002
-10				-0.14	0.0001
-20				-0.24	0.0001
-30				0.32	0.0001

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.40	20	2500.540	2569.480	0.00	0.0000
4.40				-1.04	0.0004

Expanded measurement uncertainty is 10 Hz, 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)
20	3.85	704.340	715.610		
50				0.03	0.0000
40				-0.46	0.0006
30				-0.62	0.0009
10				-0.69	0.0010
0				-0.26	0.0004
-10				-1.17	0.0017
-20				-0.52	0.0007
-30				-0.53	0.0007

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.40	20	704.340	715.610	-1.10	0.0016
4.40				-1.20	0.0017

Expanded measurement uncertainty is 10Hz, k = 2

LTE Band 38, 20MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	2570.640	2619.360		
50				0.70	0.0003
40				0.41	0.0002
30				-1.02	0.0004
10				0.41	0.0002
0				0.19	0.0001
-10				1.65	0.0006
-20				0.50	0.0002
-30				-0.23	0.0001

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.40	20	2570.640	2619.360	0.13	0.0000
4.40				0.21	0.0001

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

LTE band 41, 20MHz bandwidth QPSK(worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	2496.560	2689.380		
50				-0.19	0.0001
40				-0.30	0.0001
30				-0.09	0.0000
10				-0.19	0.0001
0				0.34	0.0001
-10				-0.34	0.0001
-20				-0.37	0.0001
-30				0.09	0.0000

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.40	20	2496.560	2689.380	-0.17	0.0001
4.40				0.70	0.0003

Expanded measurement uncertainty is 10 Hz, k = 2

LTE Band 71, 20MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	663.800	697.210		
50				-0.24	0.0004
40				-0.92	0.0013
30				-1.09	0.0016
10				-0.60	0.0009
0				-0.37	0.0005
-10				-0.50	0.0007
-20				-0.33	0.0005
-30				-0.96	0.0014

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.40	20	663.800	697.210	-0.70	0.0010
4.40				-0.72	0.0011

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.

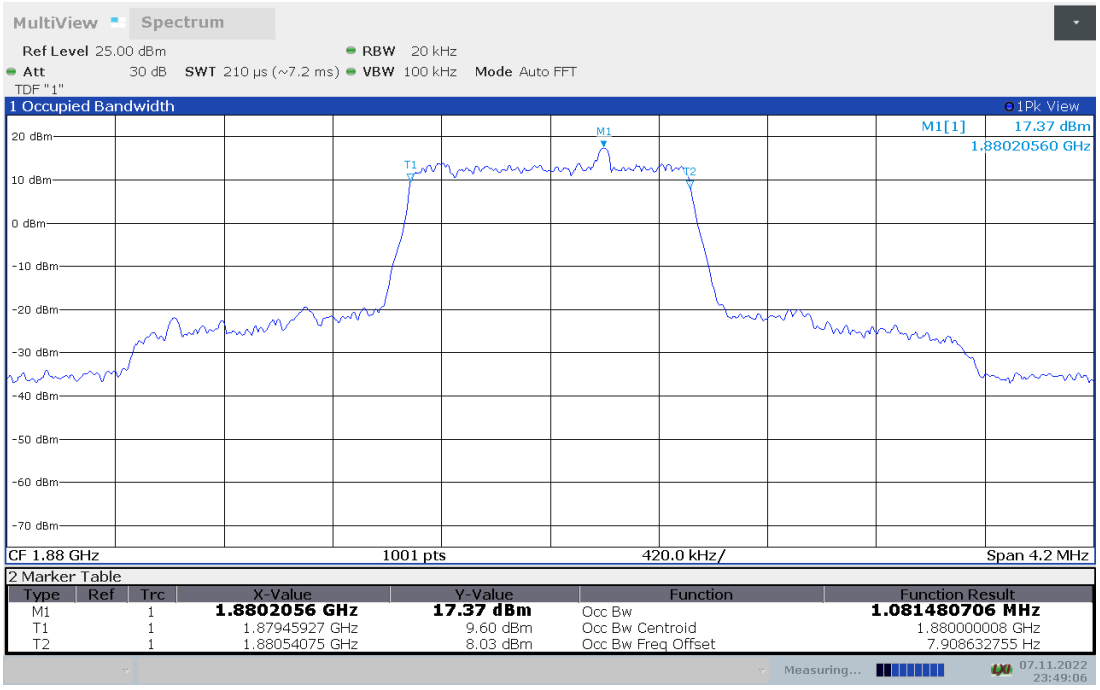
c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.

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

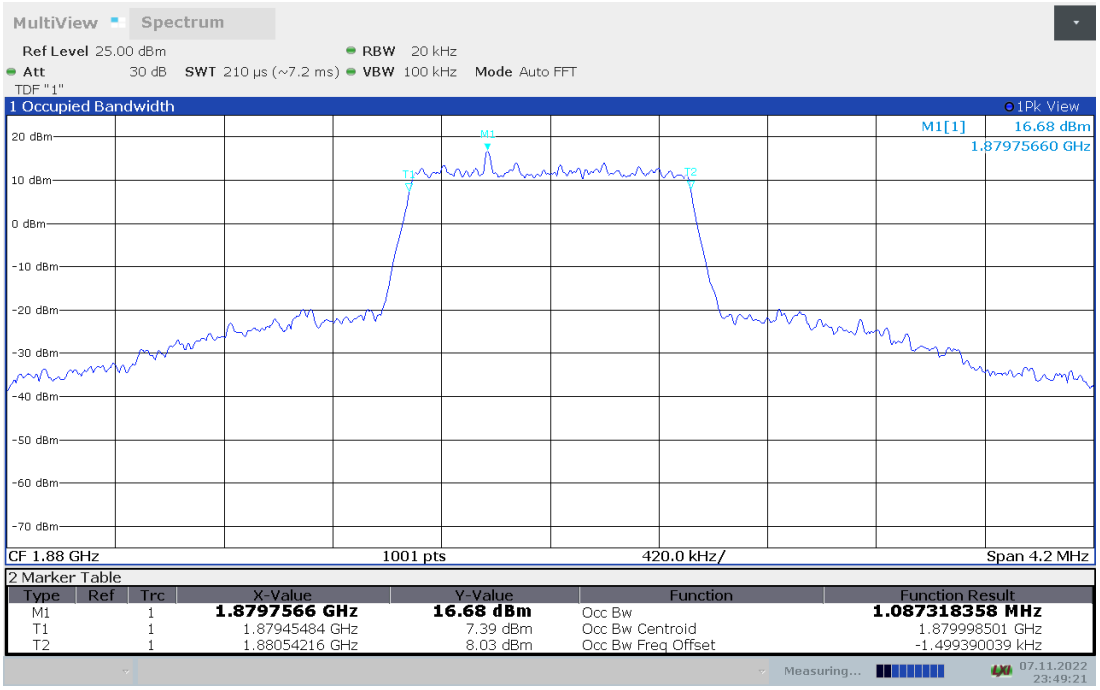
LTE band 2,1.4MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	1.081	1.087

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



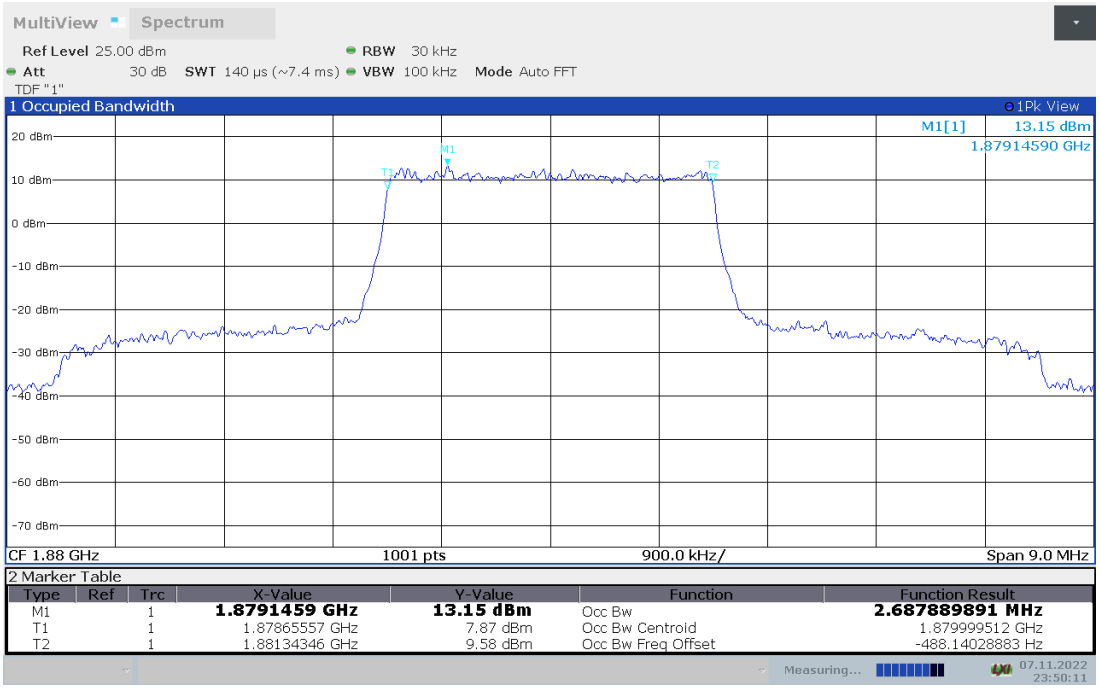
LTE band 2 , 1.4MHz Bandwidth,16QAM (99% BW)



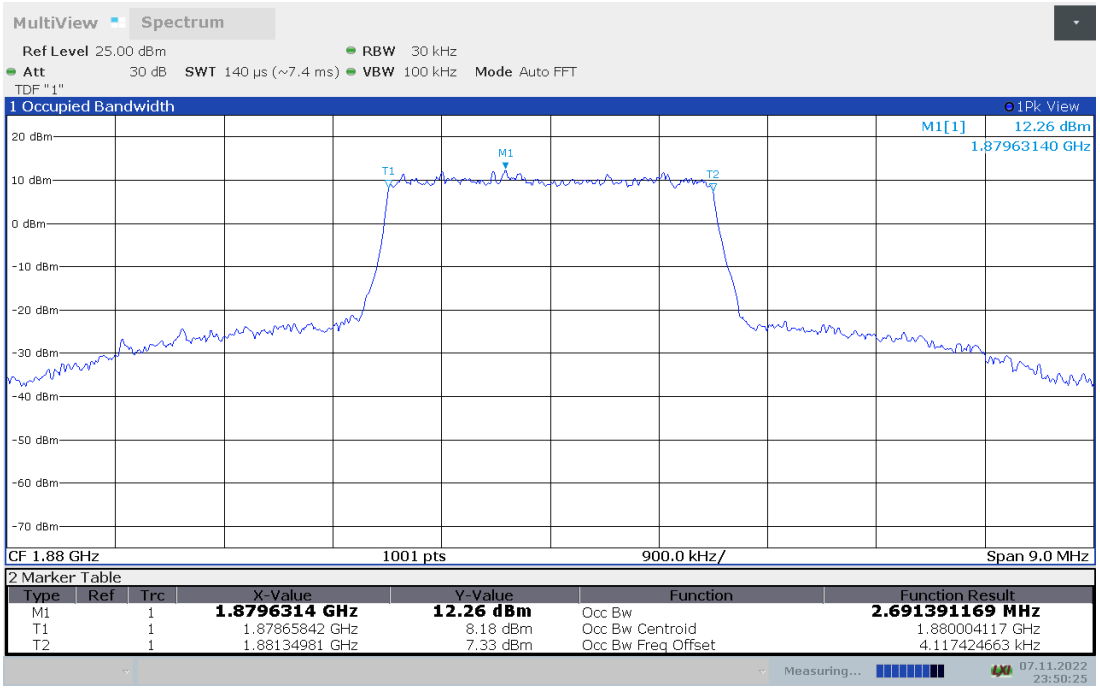
LTE band 2,3MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	2.688	2.691

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



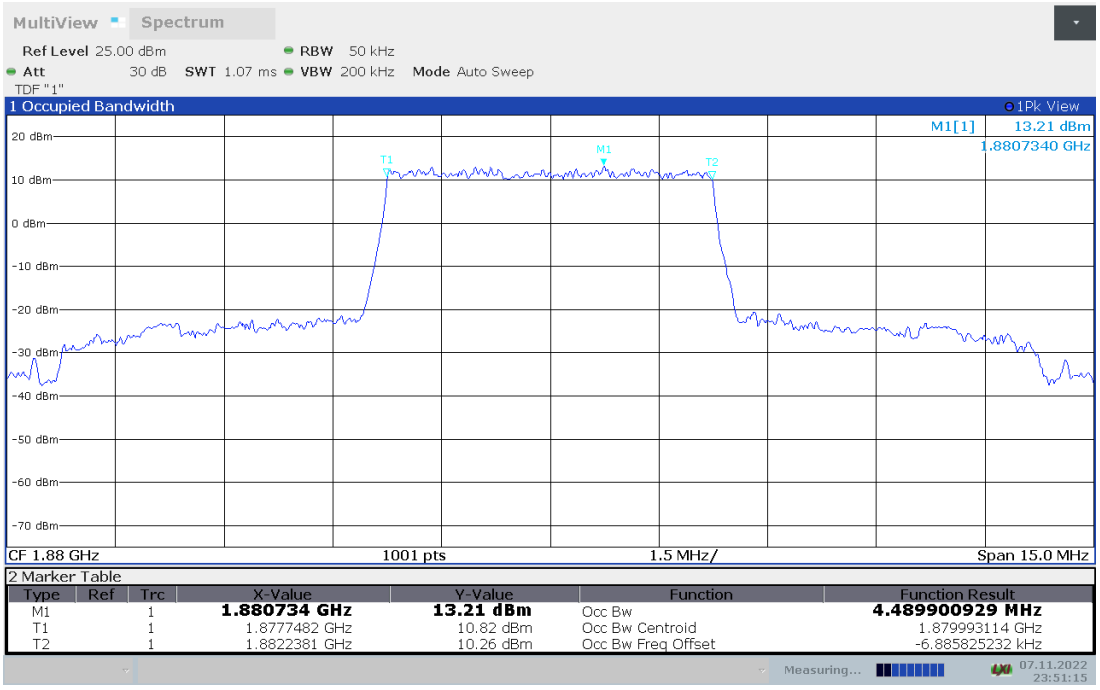
LTE band 2 , 3MHz Bandwidth,16QAM (99% BW)



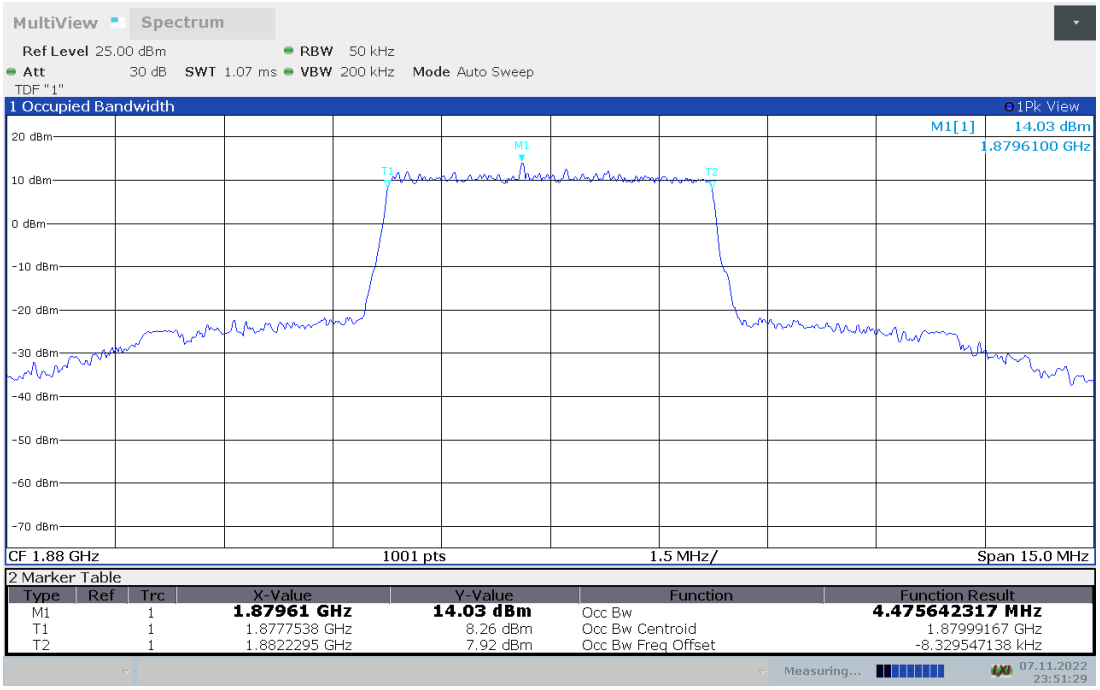
LTE band 2,5MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	4.490	4.476

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



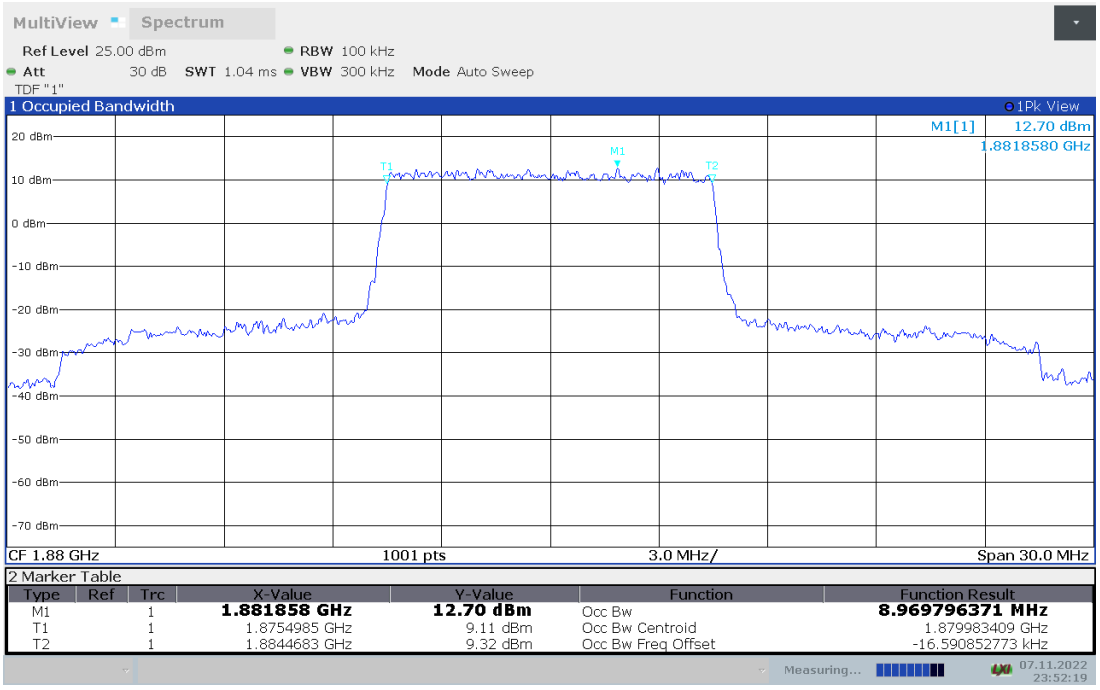
LTE band 2 , 5MHz Bandwidth,16QAM (99% BW)



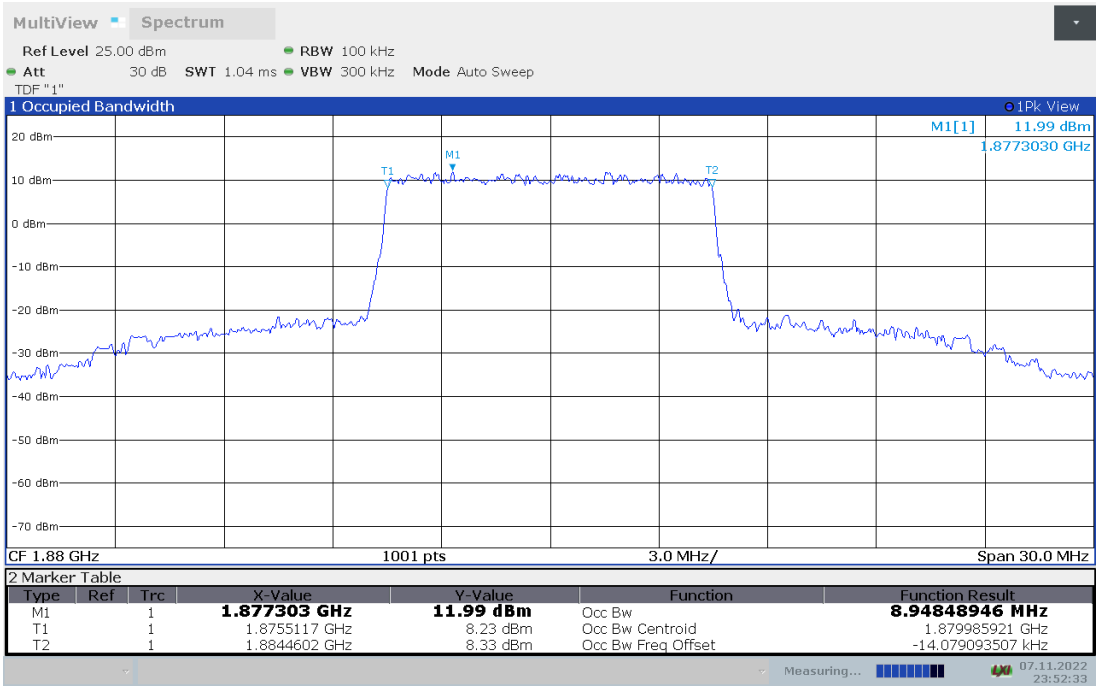
LTE band 2,10MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	8.970	8.948

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



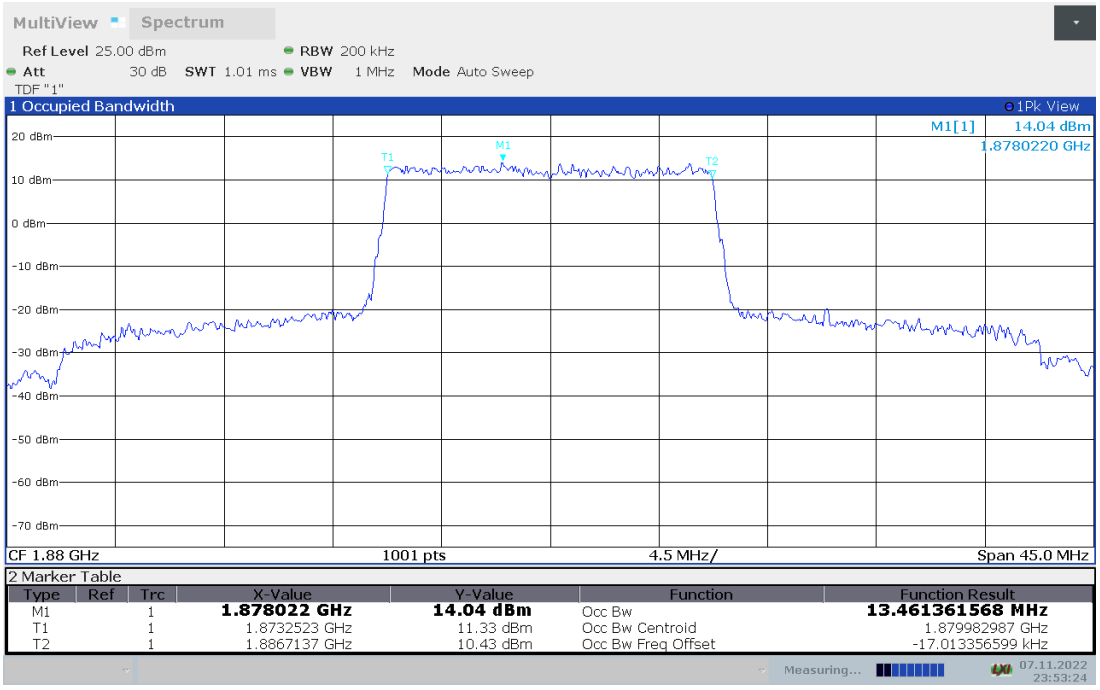
LTE band 2 , 10MHz Bandwidth,16QAM (99% BW)



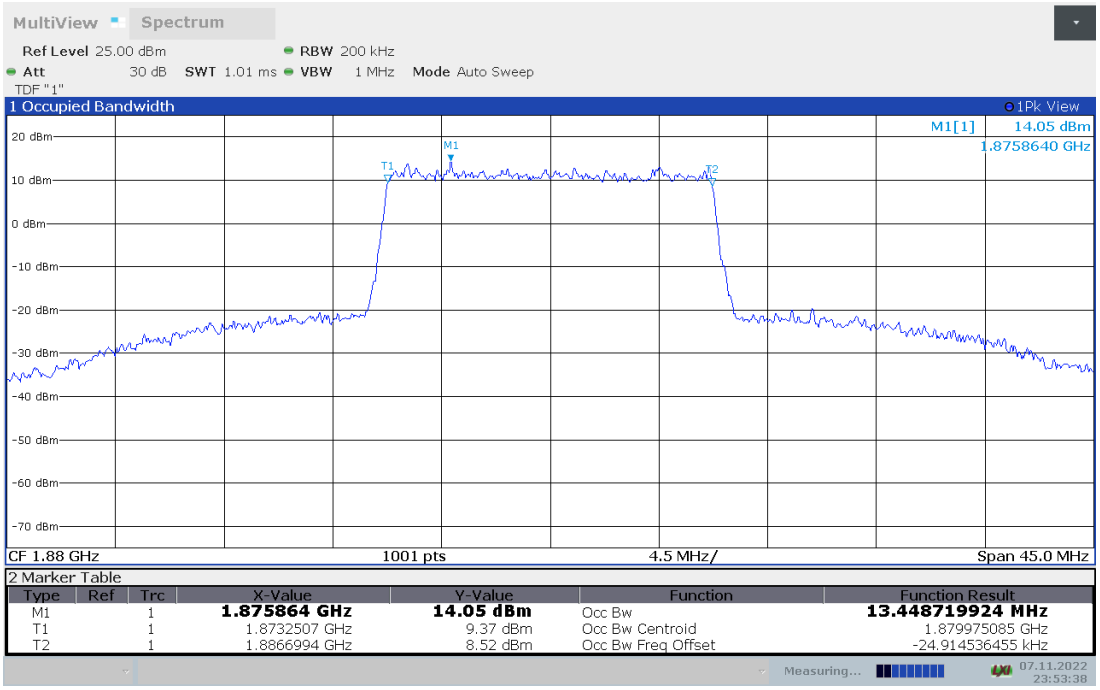
LTE band 2,15MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	13.461	13.449

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



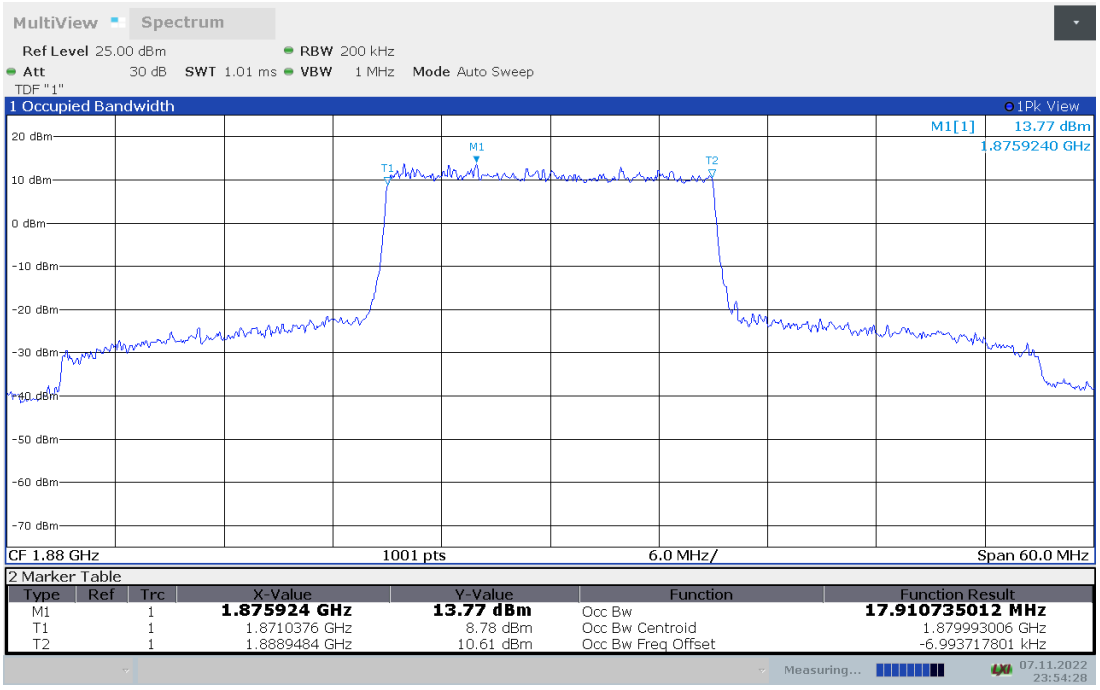
LTE band 2 , 15MHz Bandwidth,16QAM (99% BW)



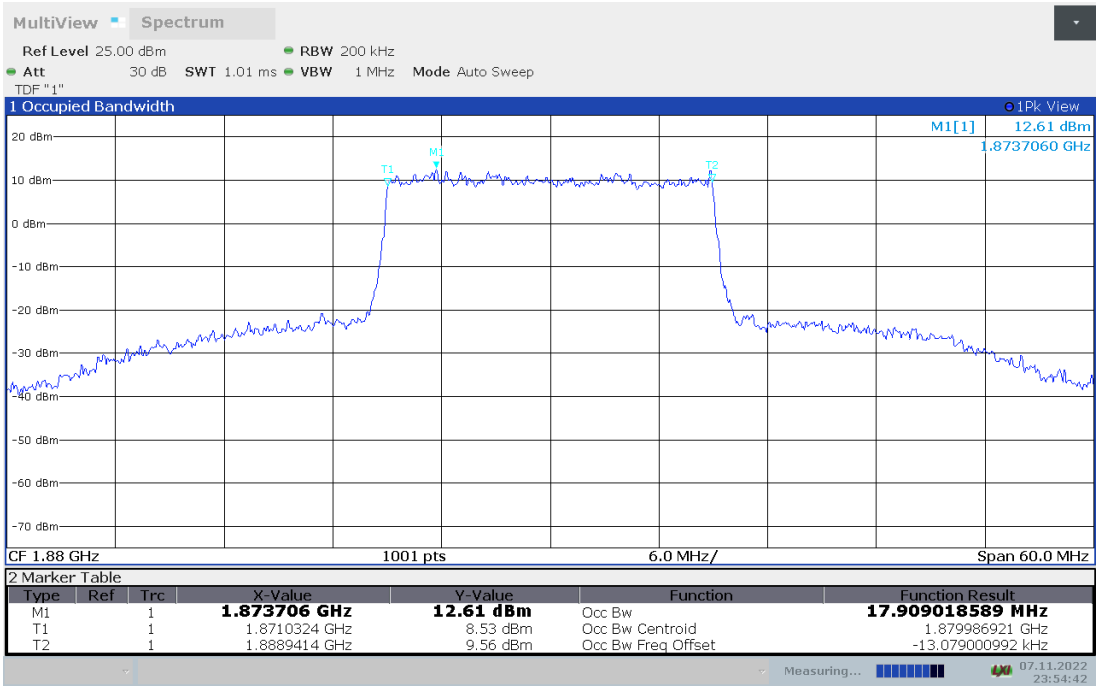
LTE band 2,20MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1880	17.911	17.909

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



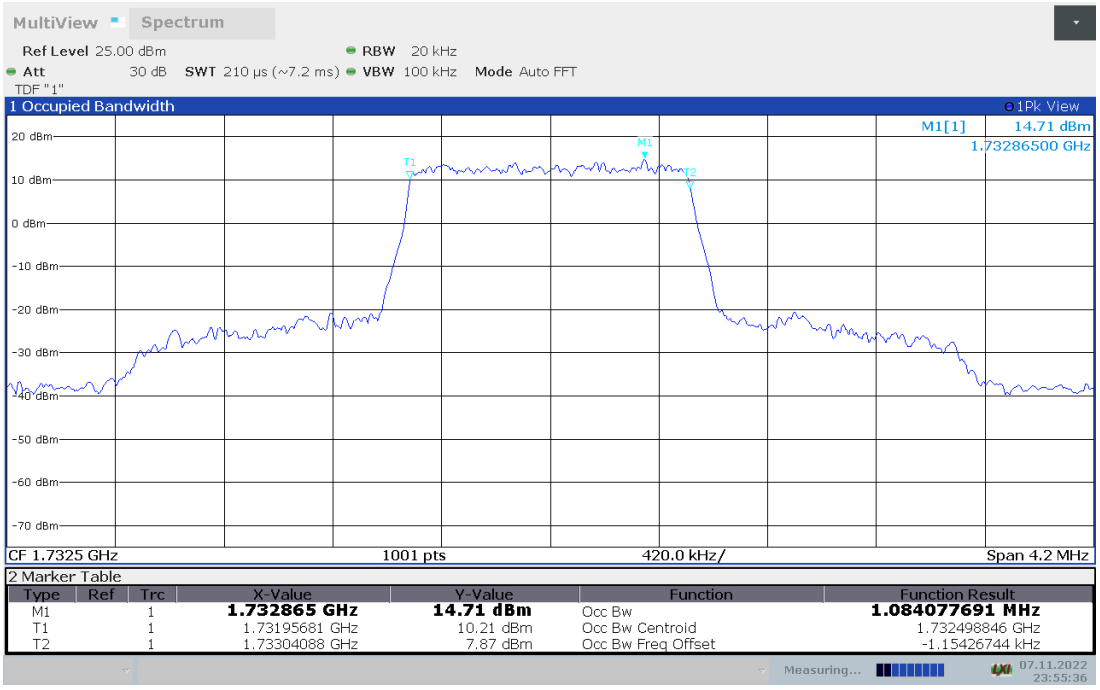
LTE band 2 , 20MHz Bandwidth,16QAM (99% BW)



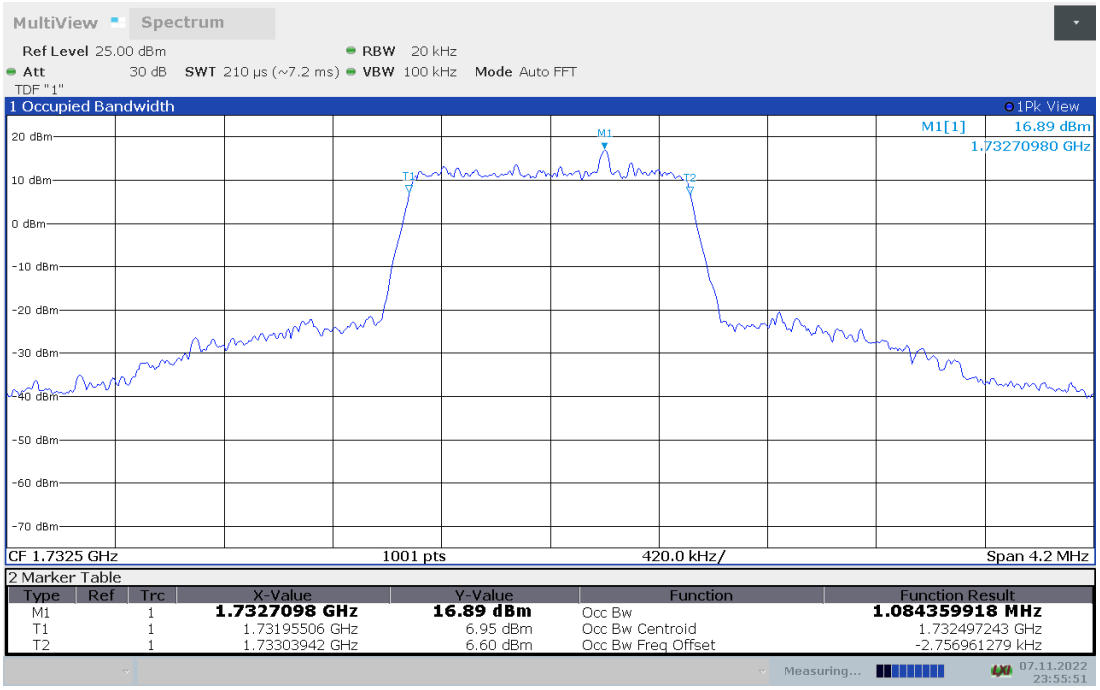
LTE band 4,1.4MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	1.084	1.084

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



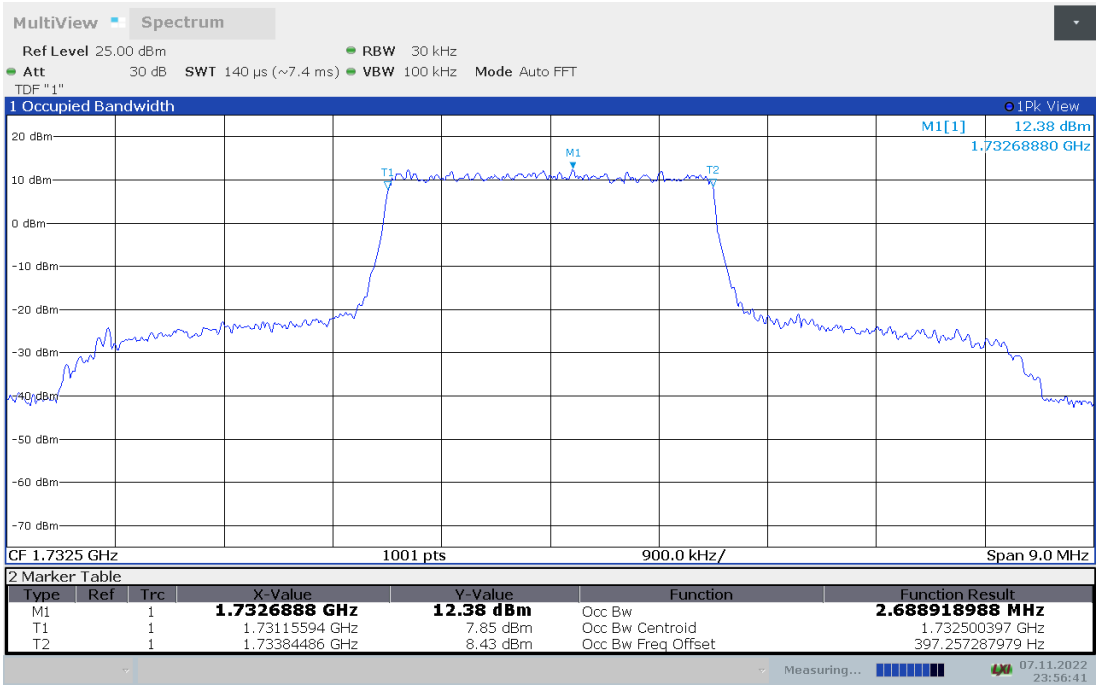
LTE band 4 , 1.4MHz Bandwidth,16QAM (99% BW)



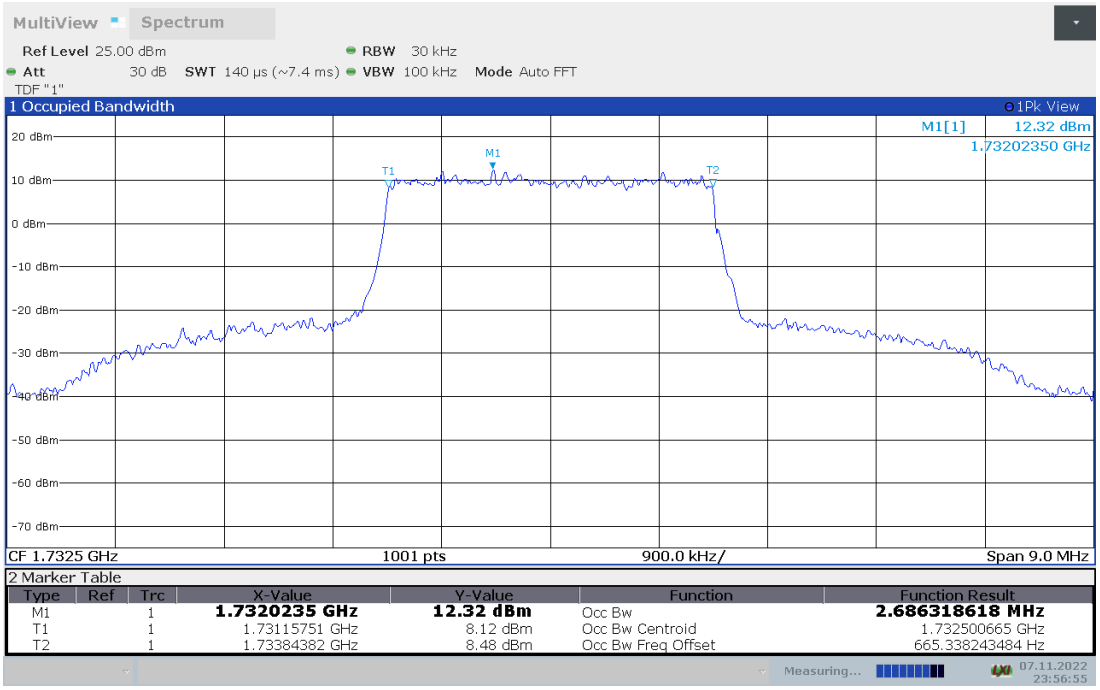
LTE band 4,3MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	2.689	2.686

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



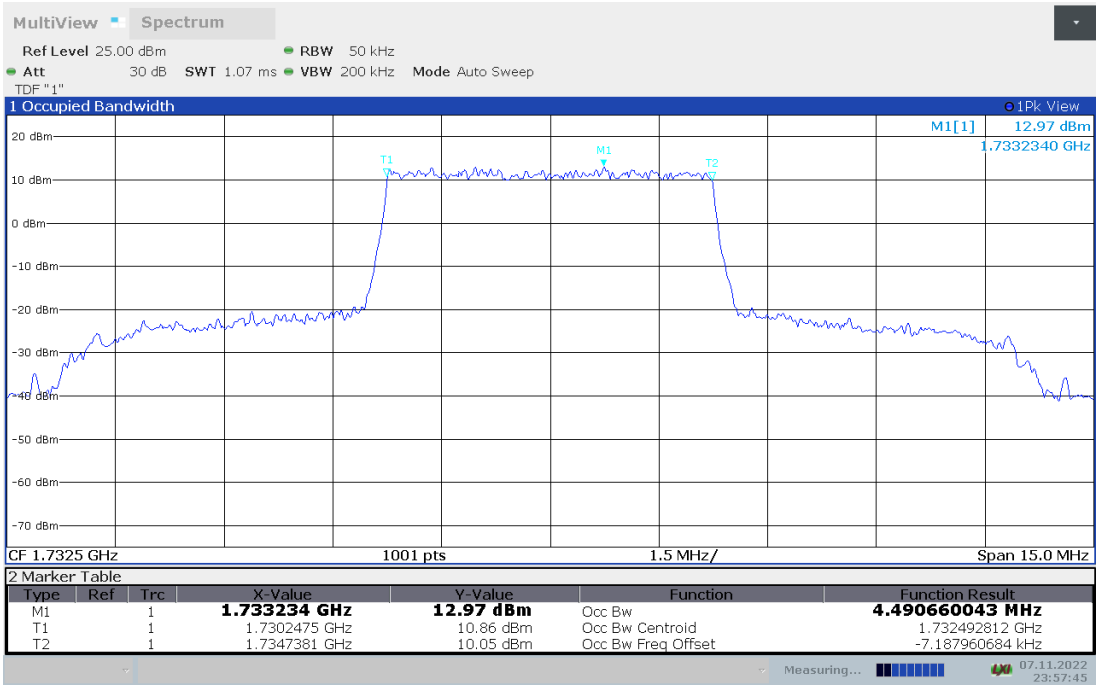
LTE band 4 , 3MHz Bandwidth,16QAM (99% BW)



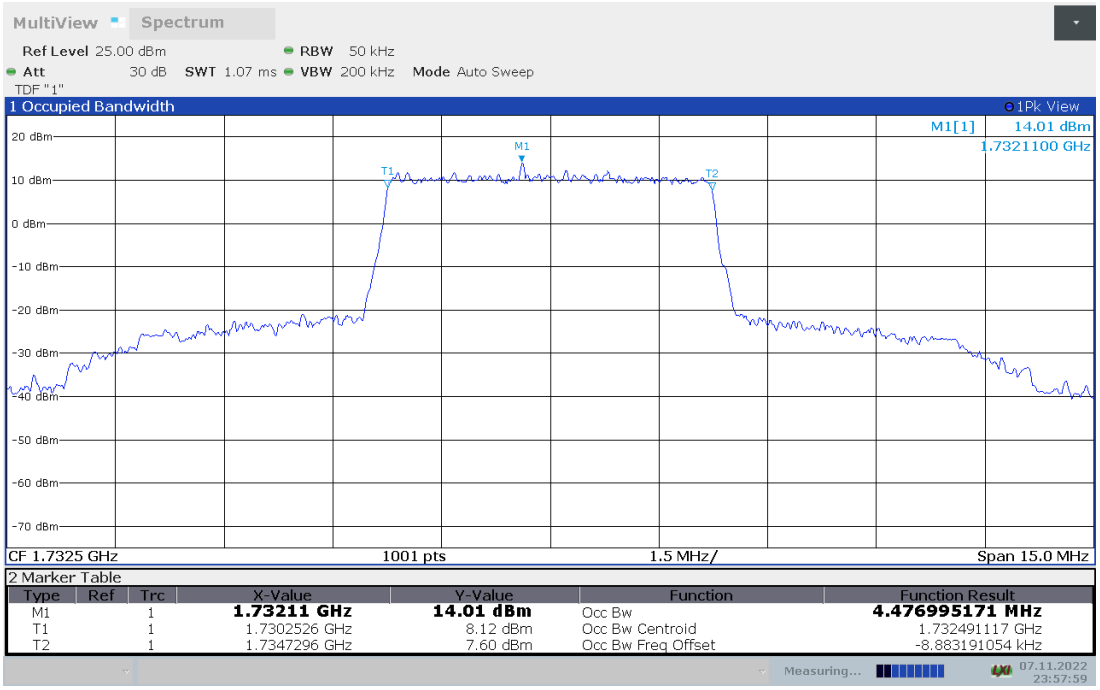
LTE band 4,5MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	4.491	4.477

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



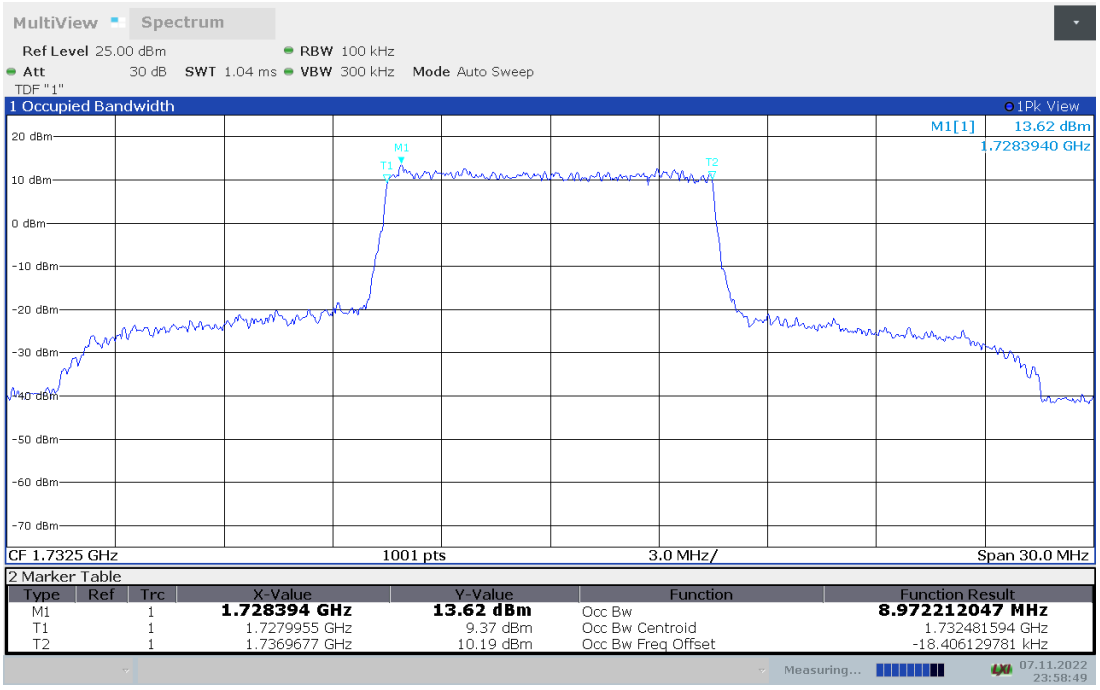
LTE band 4 , 5MHz Bandwidth,16QAM (99% BW)



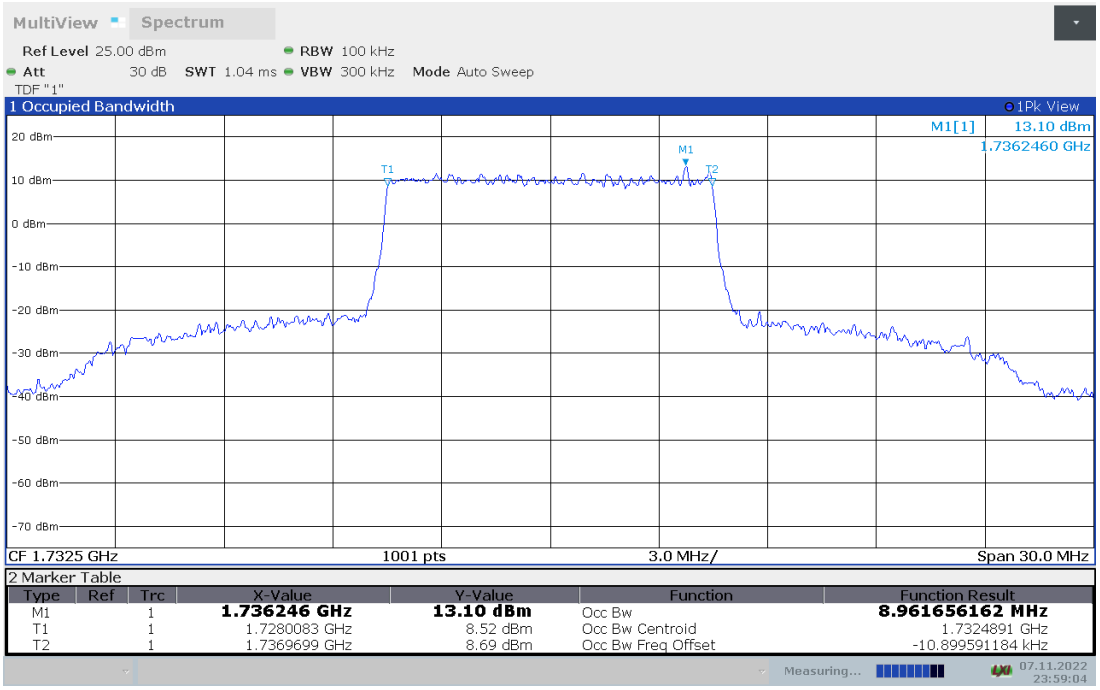
LTE band 4,10MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	8.972	8.962

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



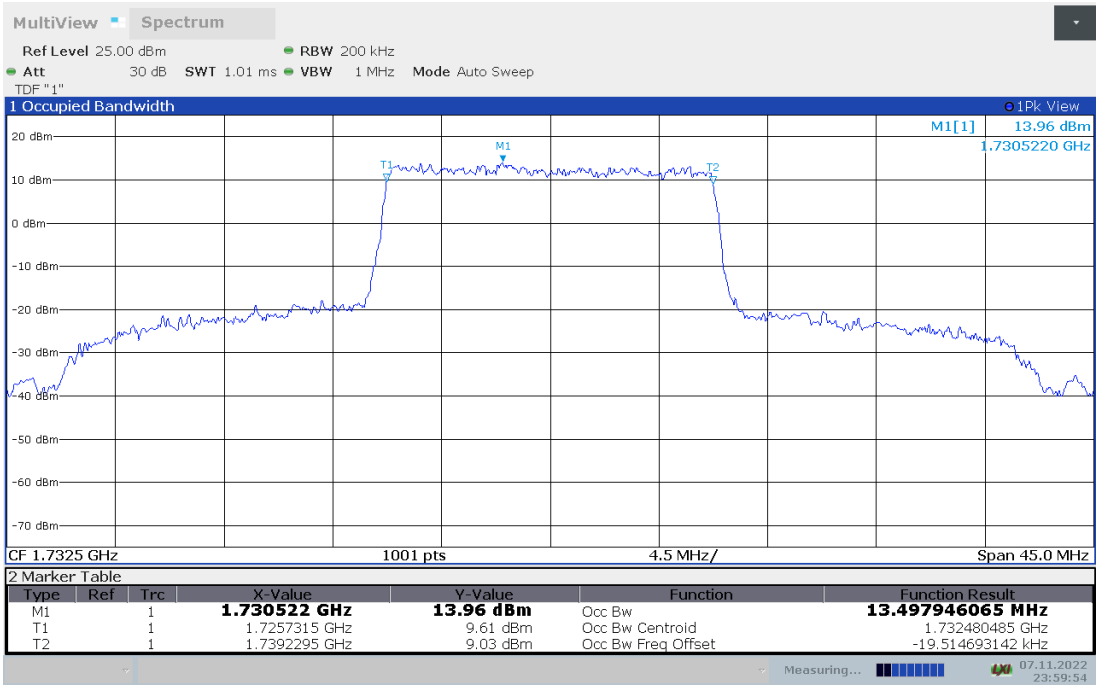
LTE band 4 , 10MHz Bandwidth,16QAM (99% BW)



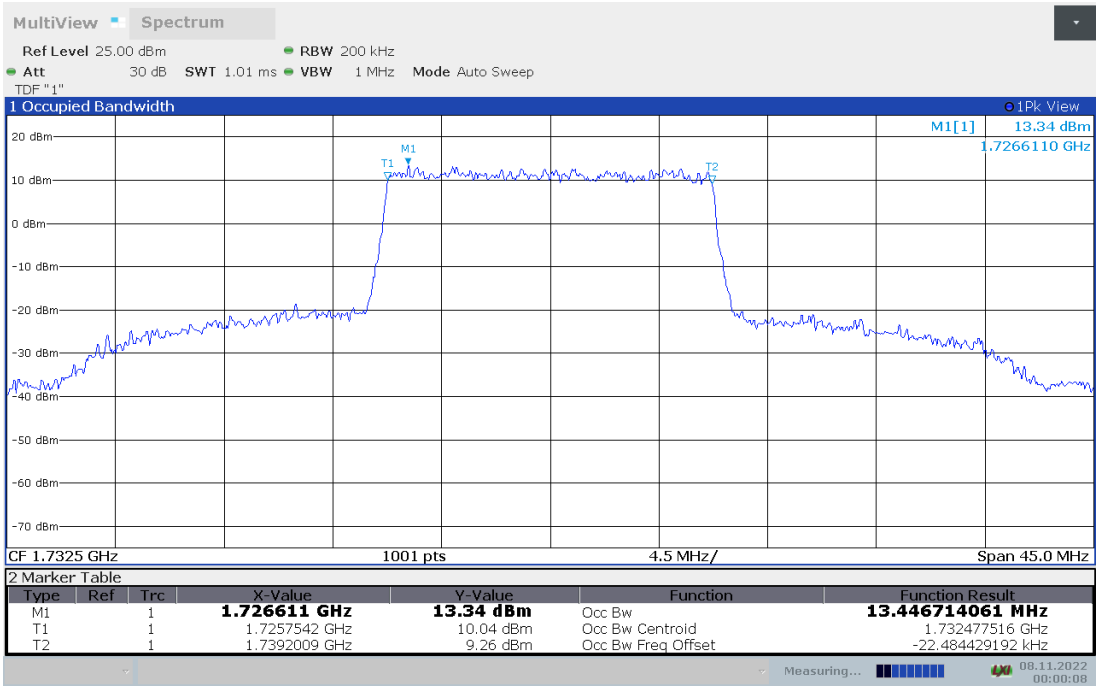
LTE band 4,15MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	13.498	13.447

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



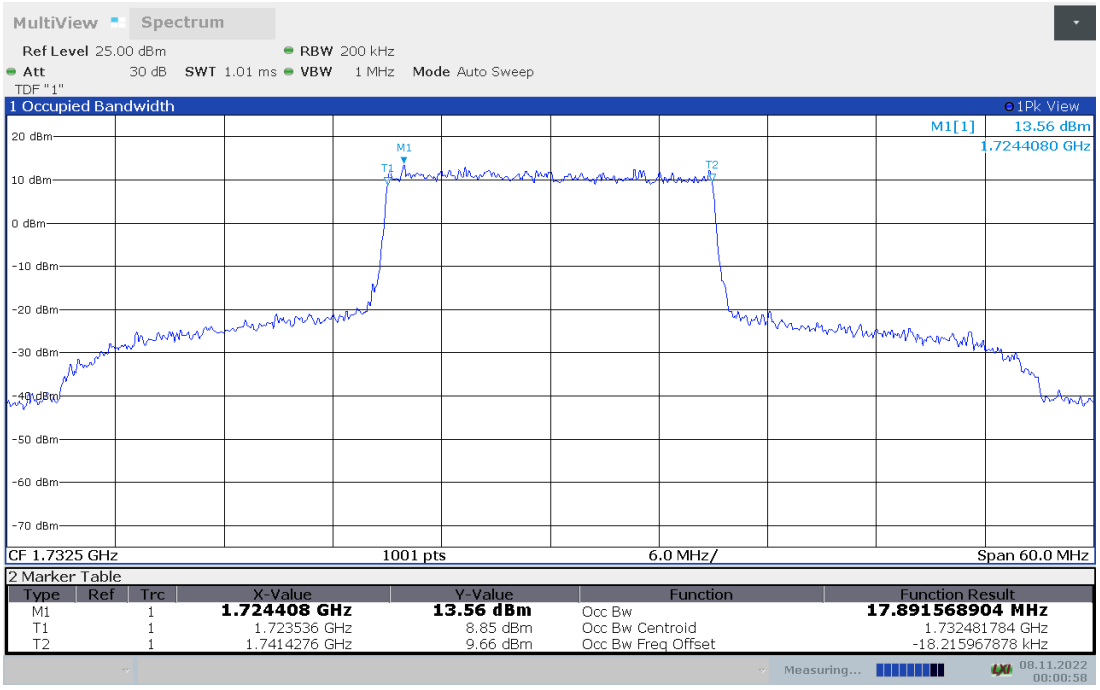
LTE band 4 , 15MHz Bandwidth,16QAM (99% BW)



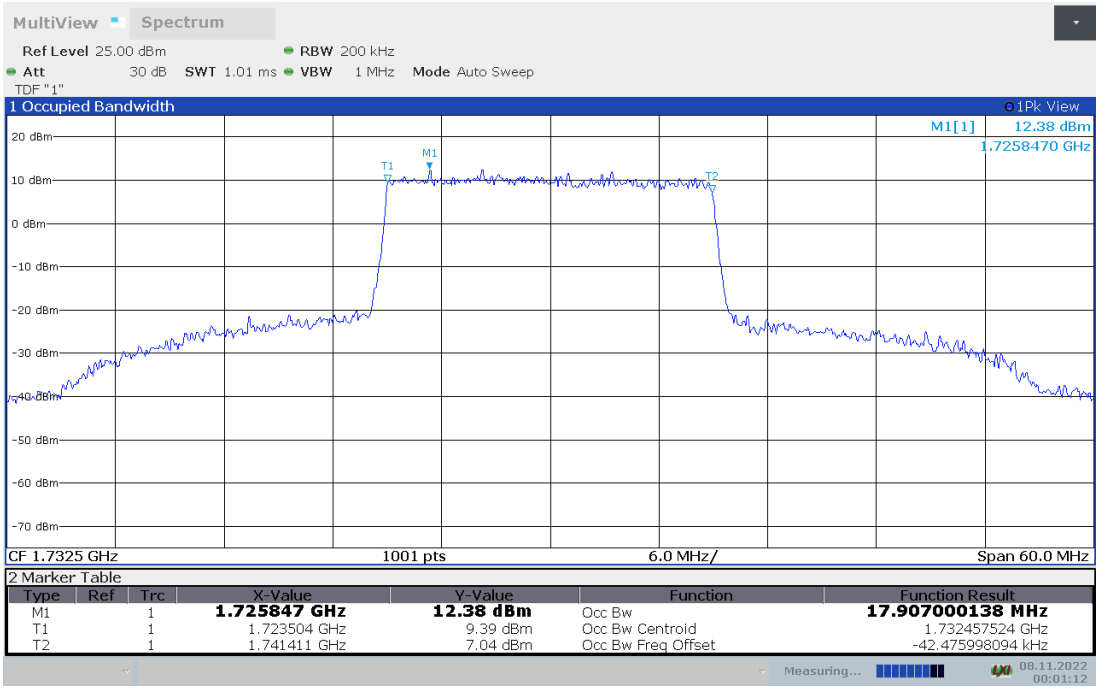
LTE band 4,20MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
1732.5	17.892	17.907

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



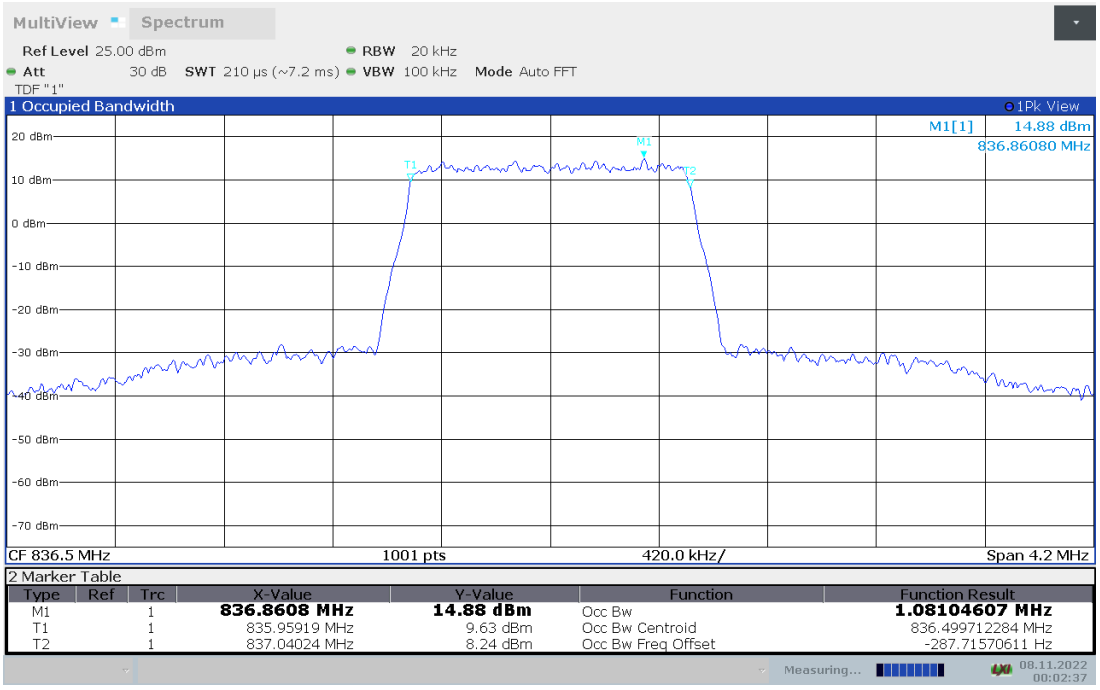
LTE band 4 , 20MHz Bandwidth,16QAM (99% BW)



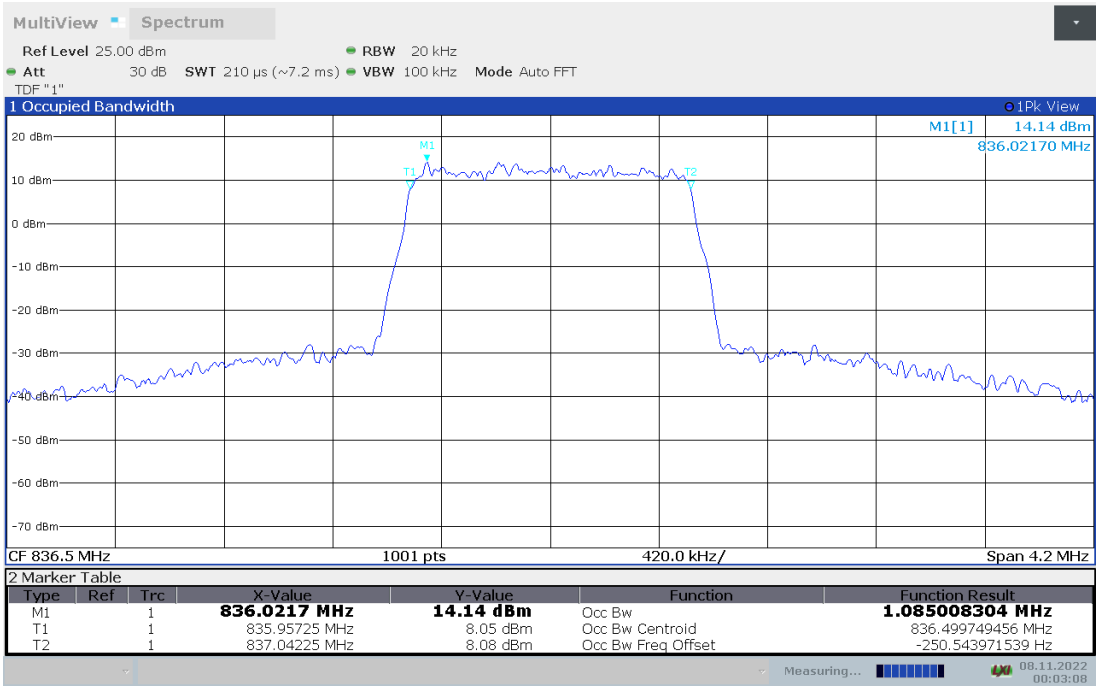
LTE band 5,1.4MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
836.5	1.081	1.085

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



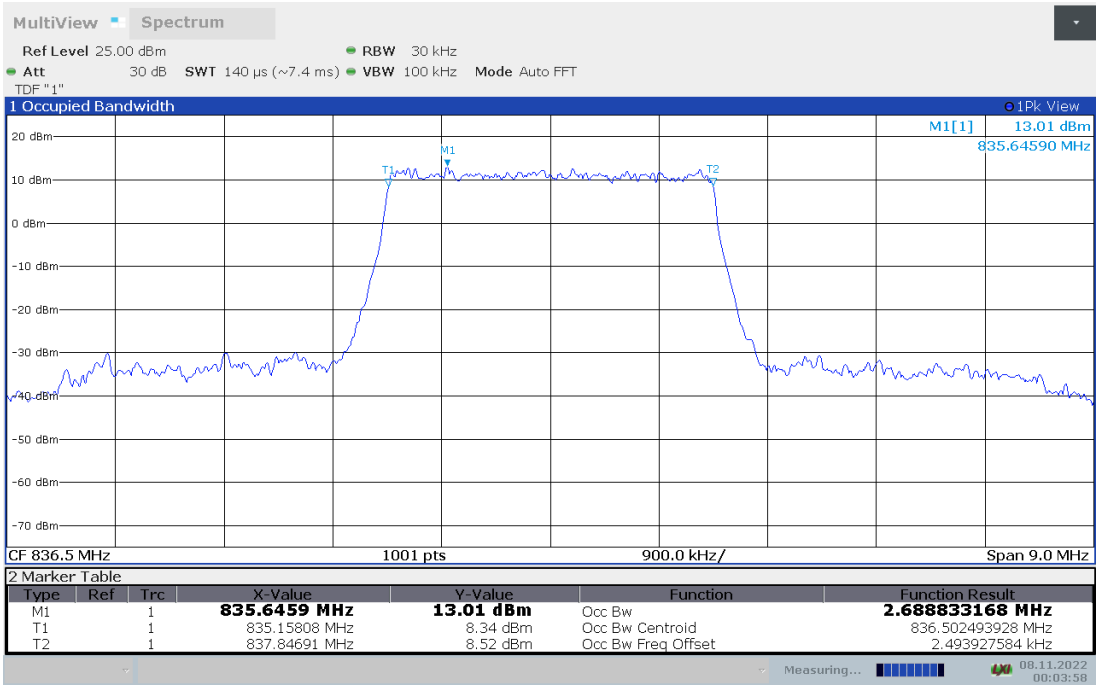
LTE band 5 , 1.4MHz Bandwidth,16QAM (99% BW)



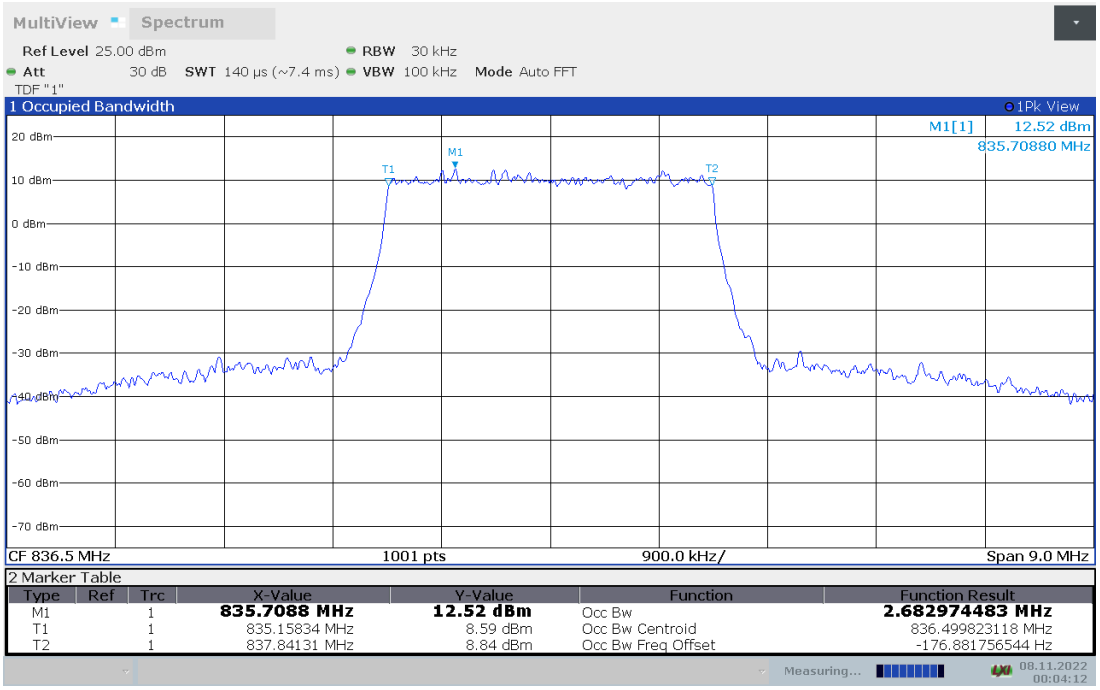
LTE band 5,3MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
836.5	2.689	2.683

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



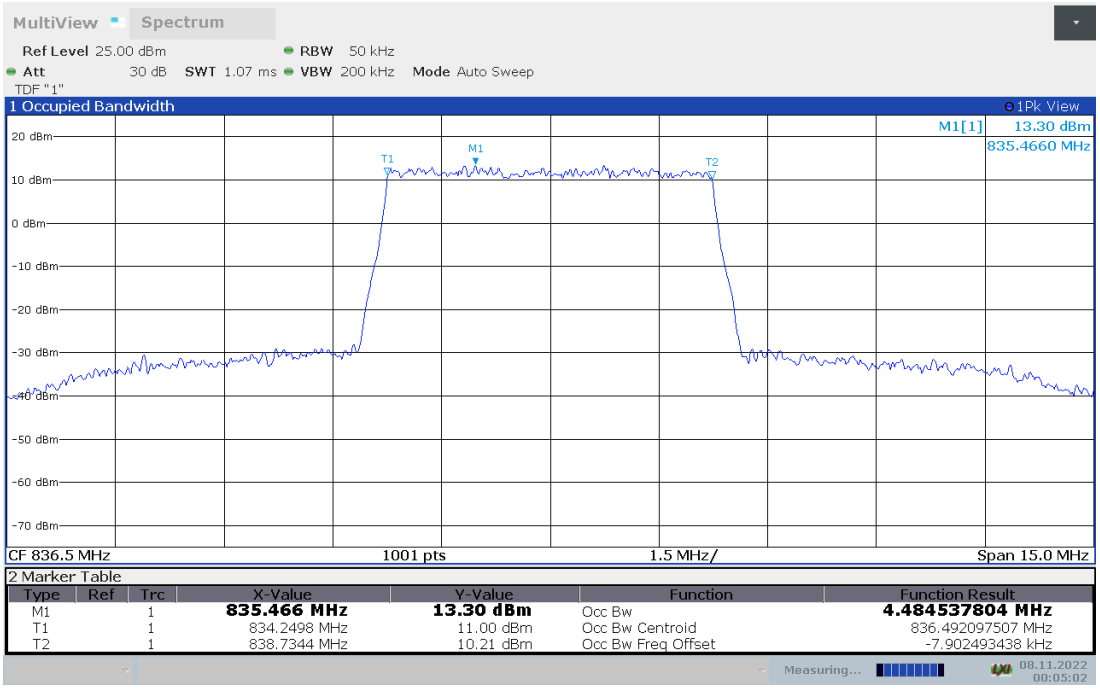
LTE band 5 , 3MHz Bandwidth,16QAM (99% BW)



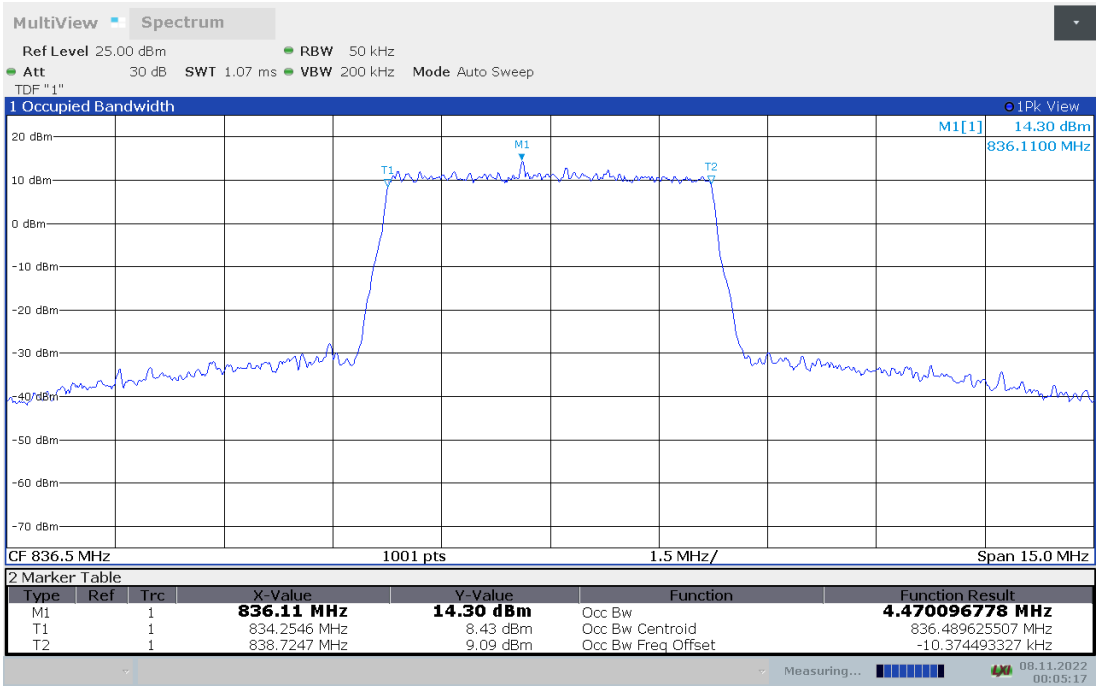
LTE band 5,5MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
836.5	4.485	4.470

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



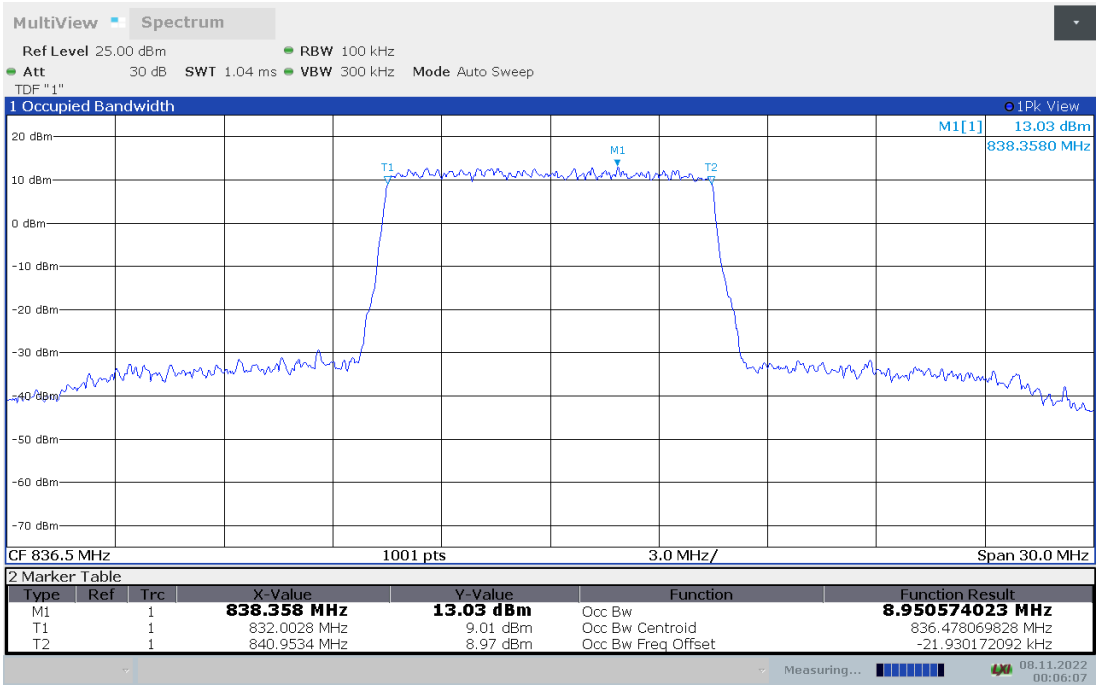
LTE band 5 , 5MHz Bandwidth,16QAM (99% BW)



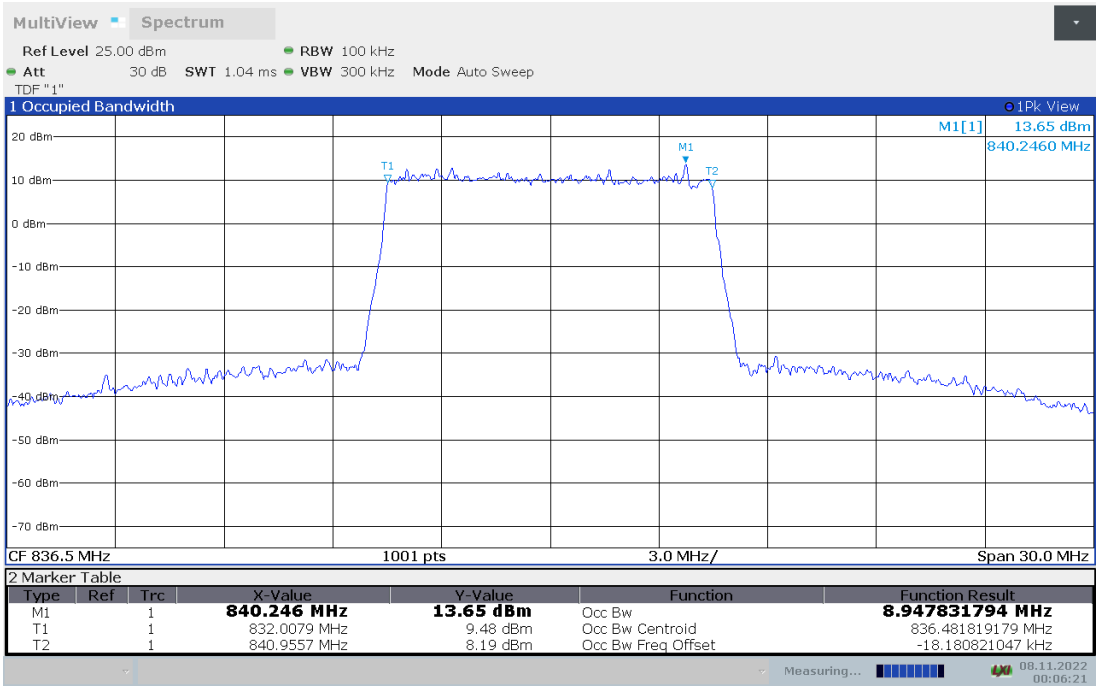
LTE band 5,10MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
836.5	8.951	8.948

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



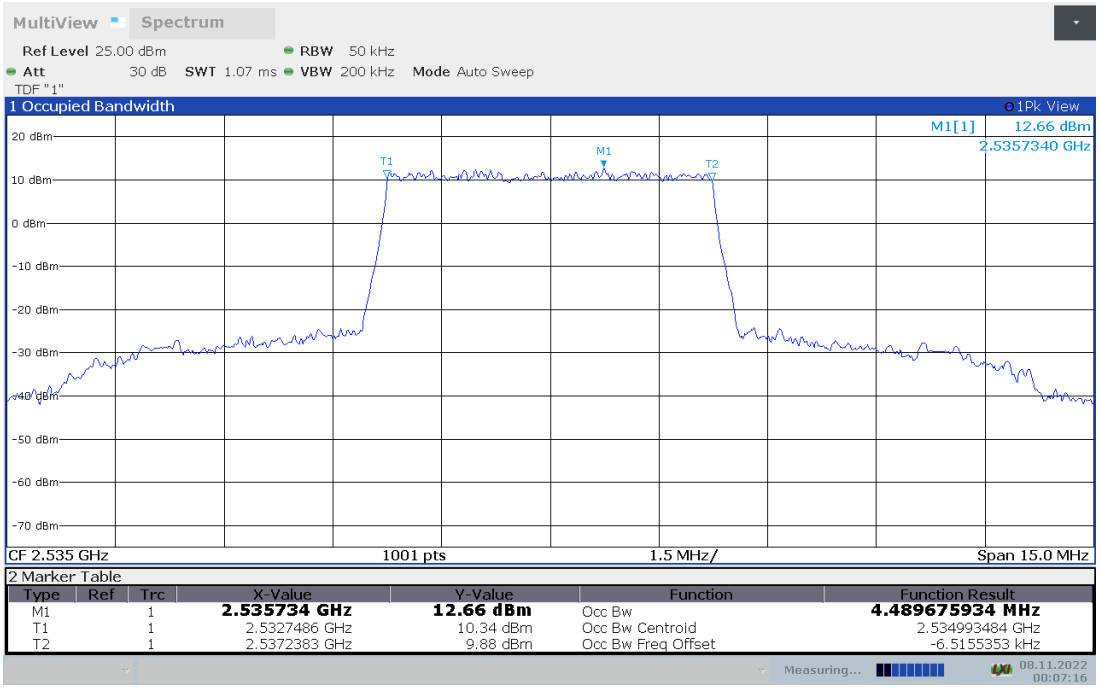
LTE band 5 , 10MHz Bandwidth,16QAM (99% BW)



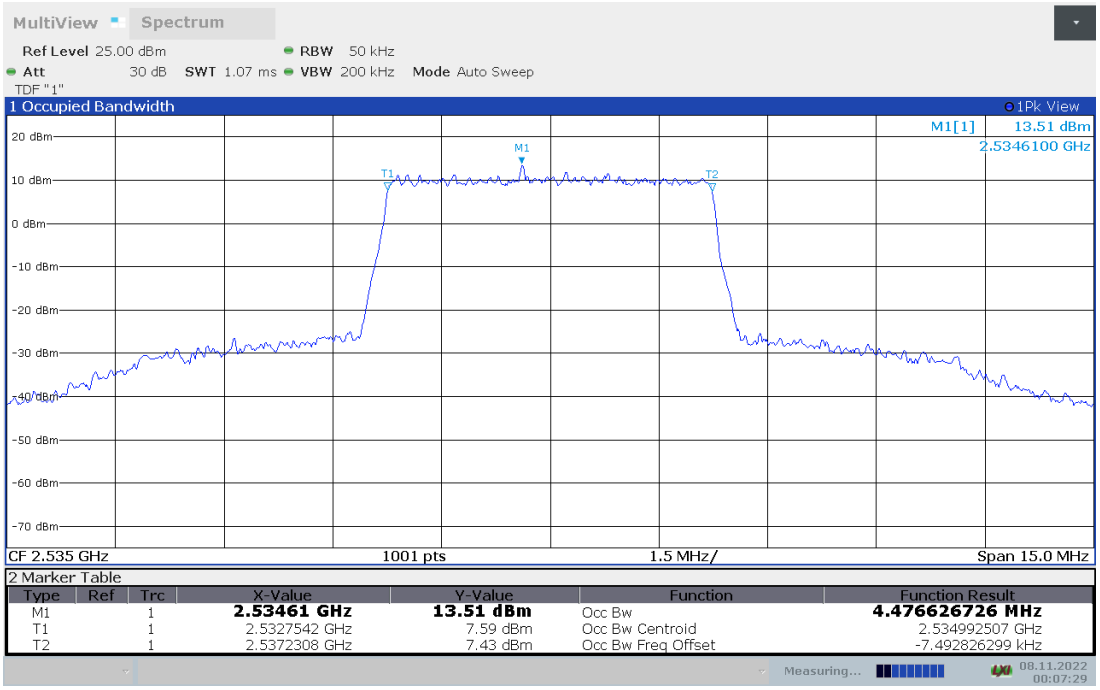
LTE band 7,5MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2535	4.490	4.477

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



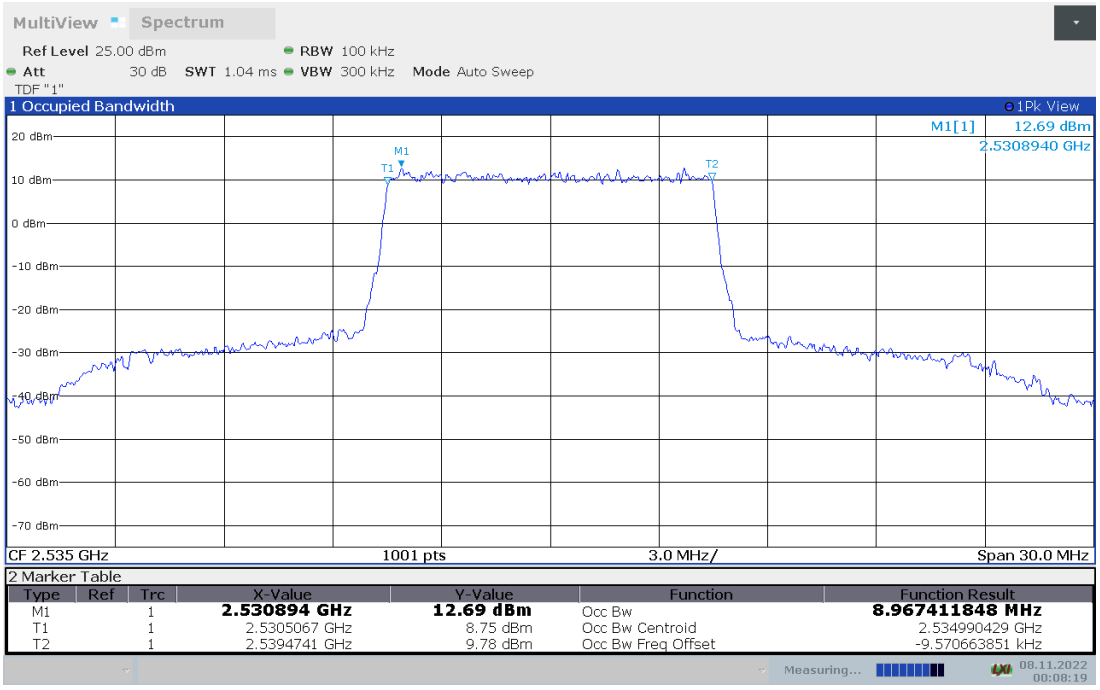
LTE band 7 , 5MHz Bandwidth,16QAM (99% BW)



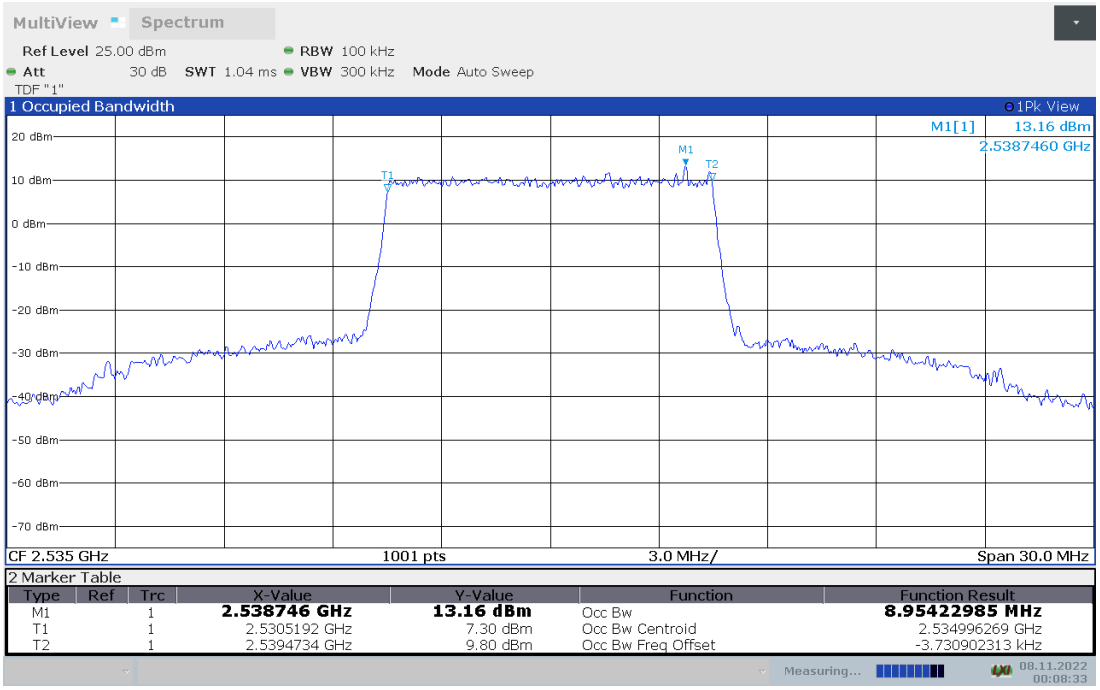
LTE band 7,10MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2535	8.967	8.954

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



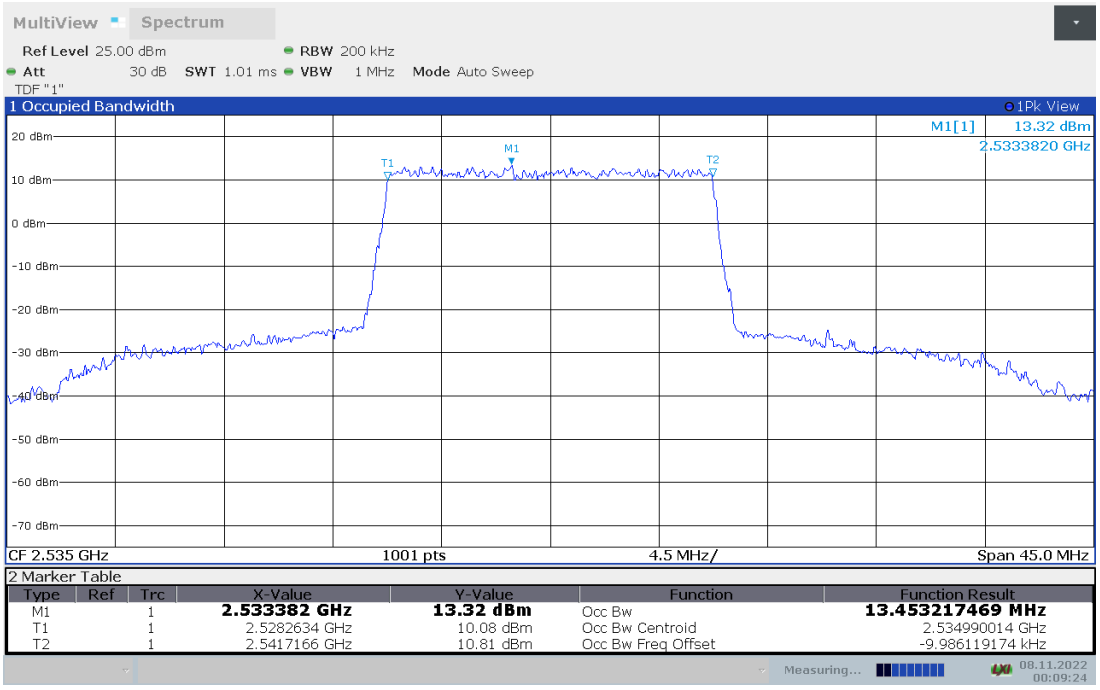
LTE band 7 , 10MHz Bandwidth,16QAM (99% BW)



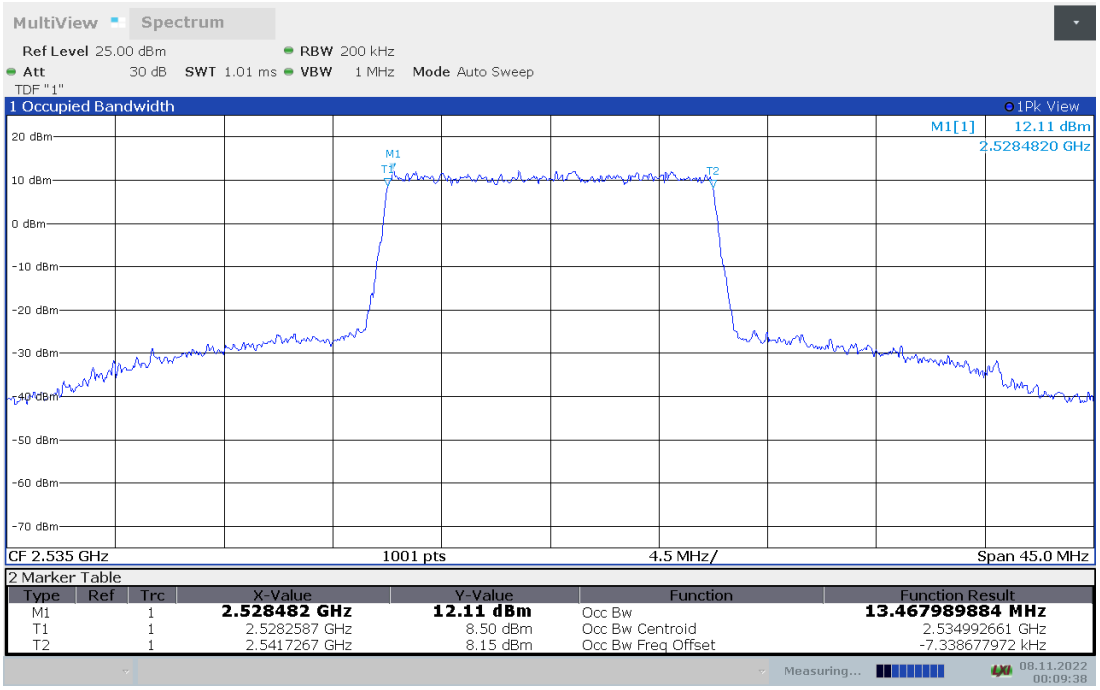
LTE band 7,15MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2535	13.453	13.468

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



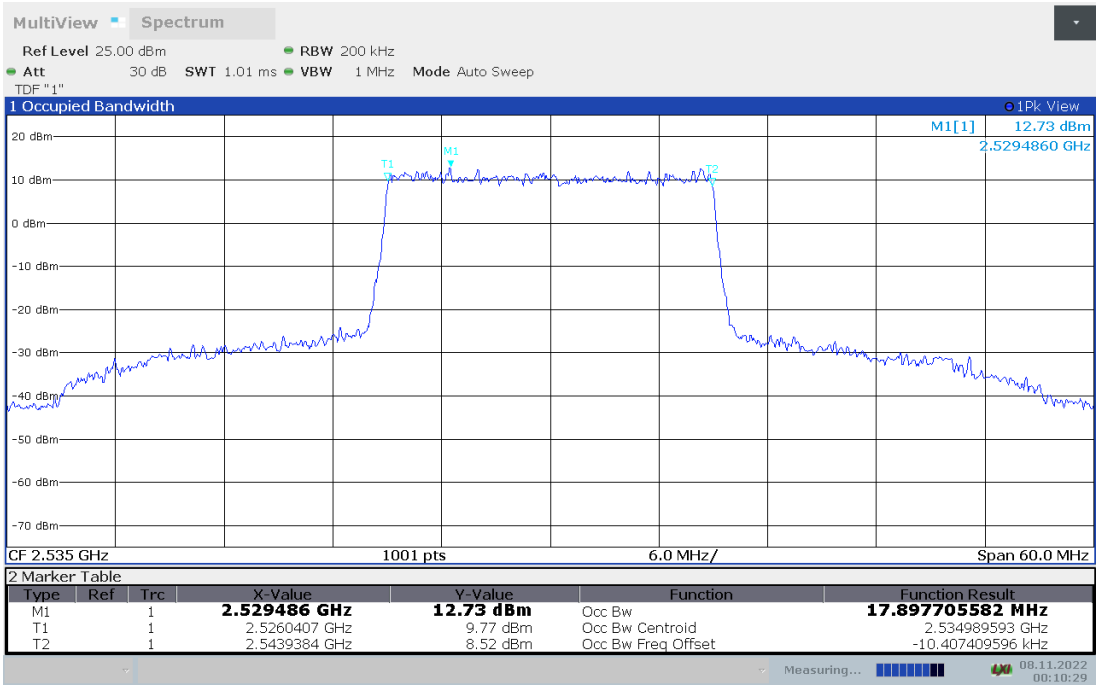
LTE band 7 , 15MHz Bandwidth,16QAM (99% BW)



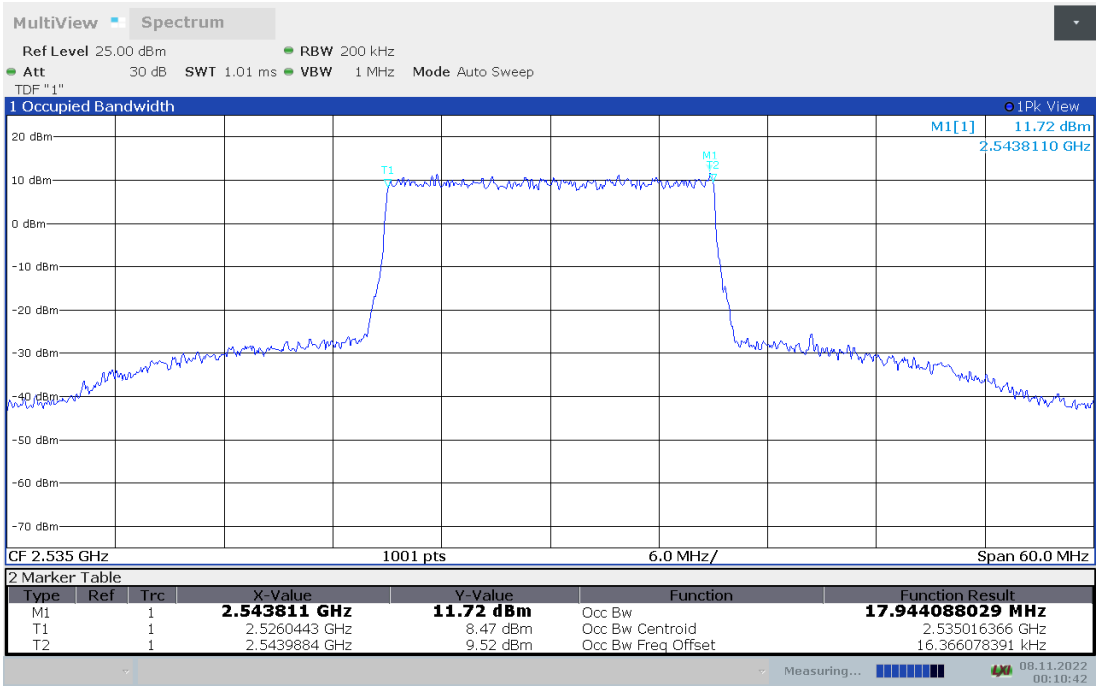
LTE band 7,20MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2535	17.898	17.944

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



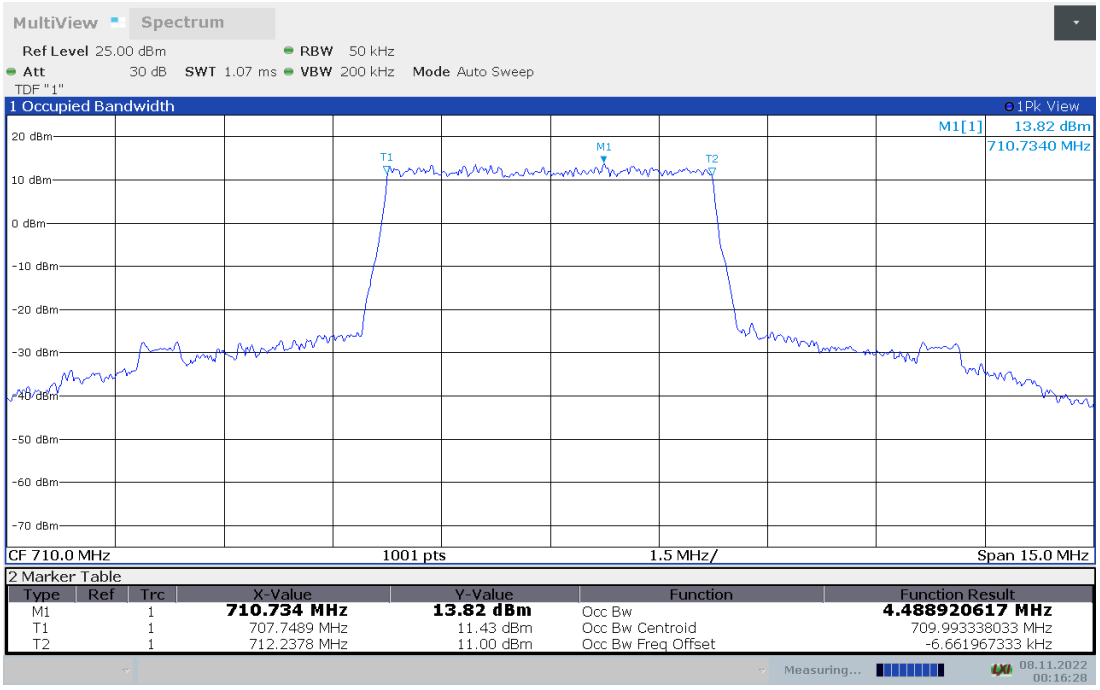
LTE band 7 , 20MHz Bandwidth,16QAM (99% BW)



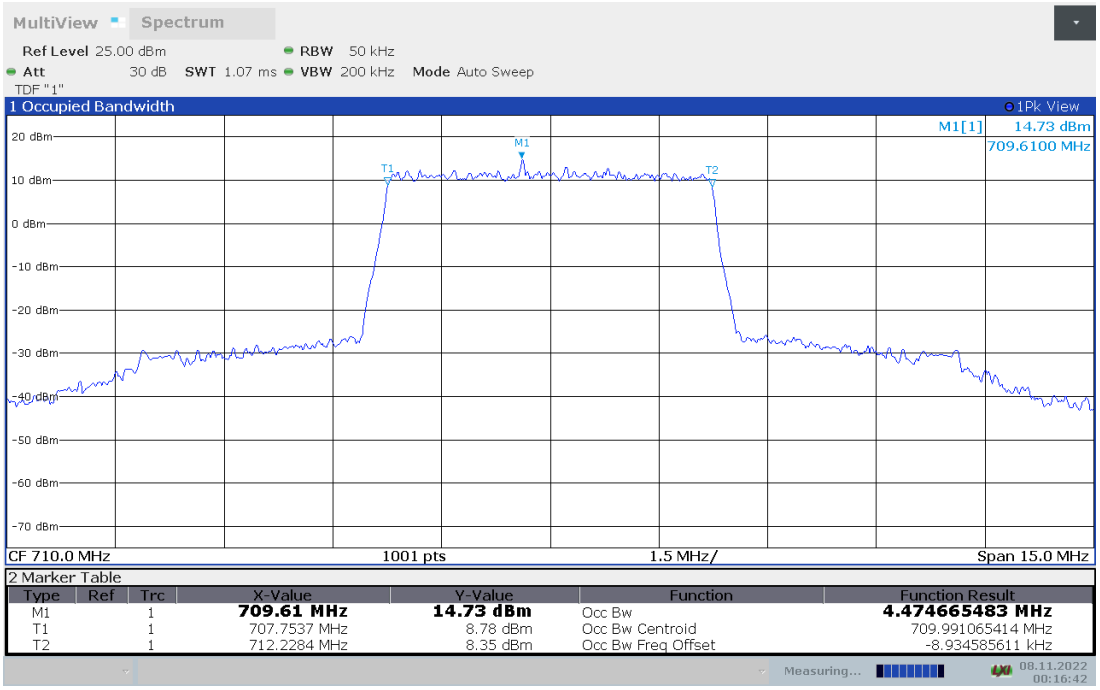
LTE band 17,5MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
710	4.489	4.475

LTE band 17 , 5MHz Bandwidth,QPSK (99% BW)



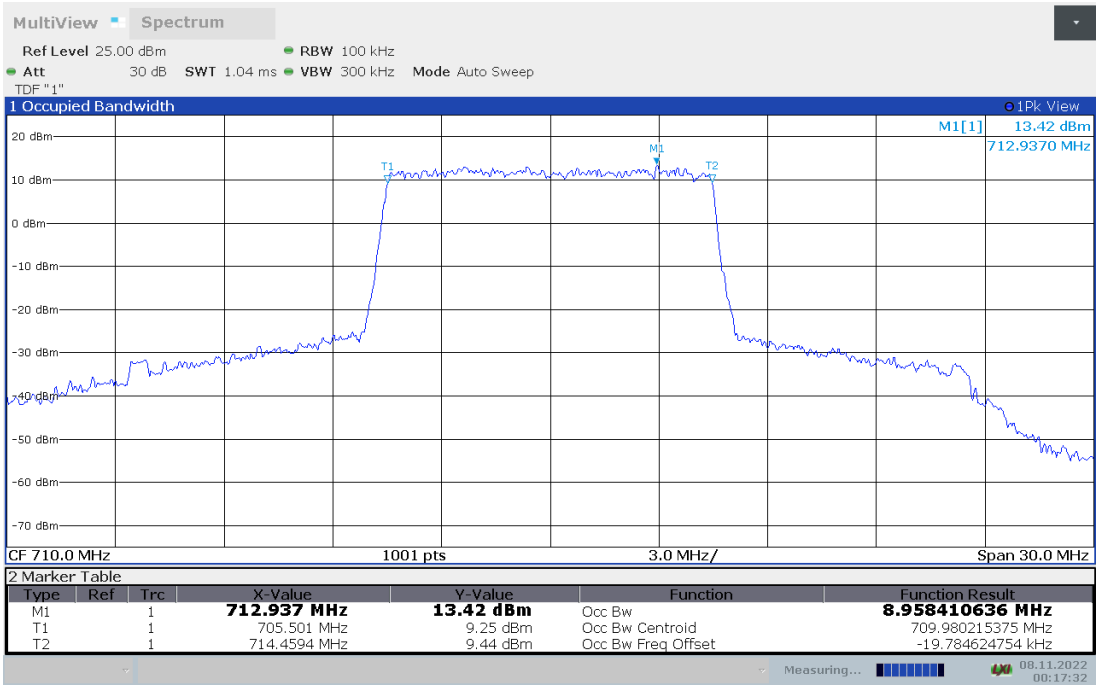
LTE band 17 , 5MHz Bandwidth,16QAM (99% BW)



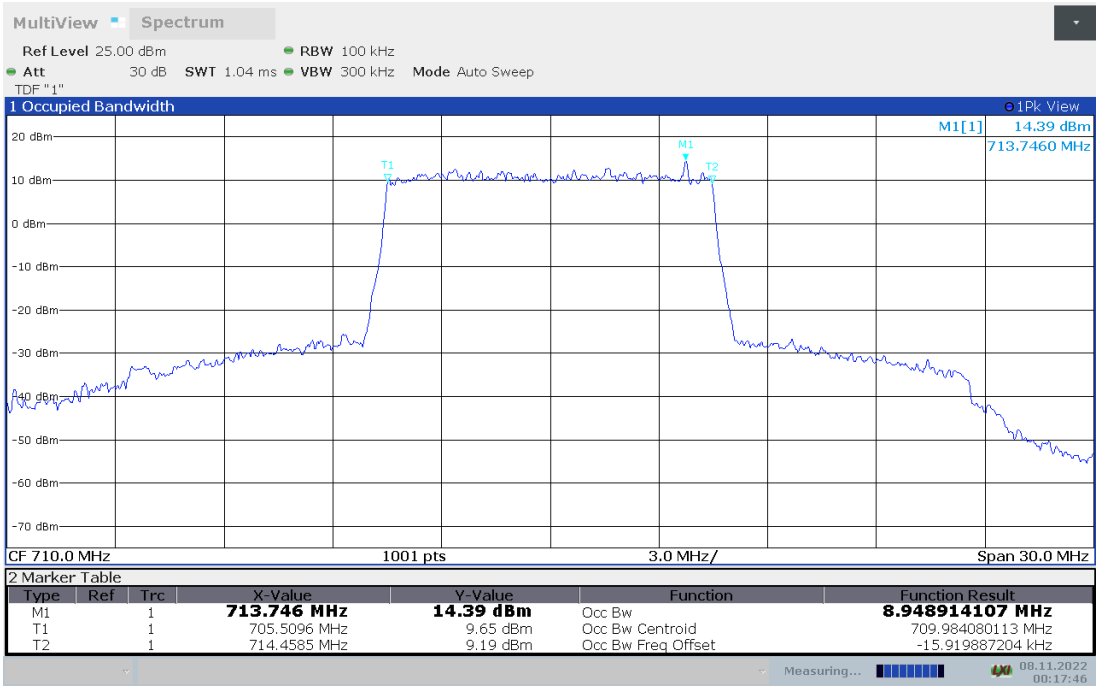
LTE band 17,10MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
710	8.958	8.949

LTE band 17 , 10MHz Bandwidth,QPSK (99% BW)



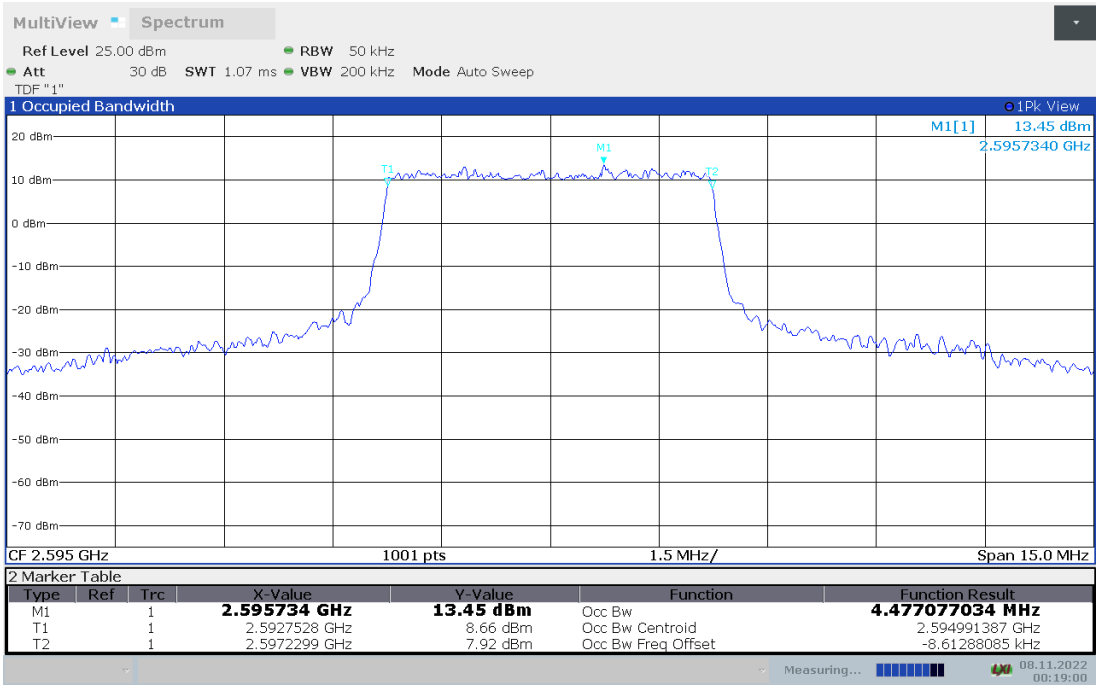
LTE band 17 , 10MHz Bandwidth,16QAM (99% BW)



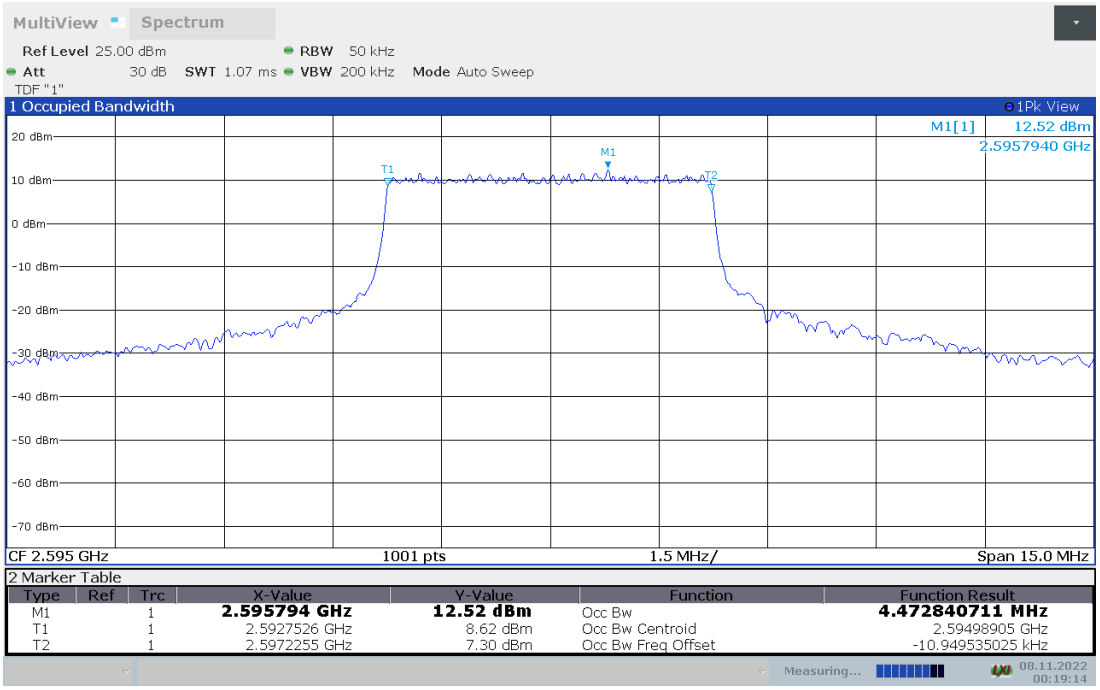
LTE band 38,5MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2595	4.477	4.473

LTE band 38 , 5MHz Bandwidth,QPSK (99% BW)



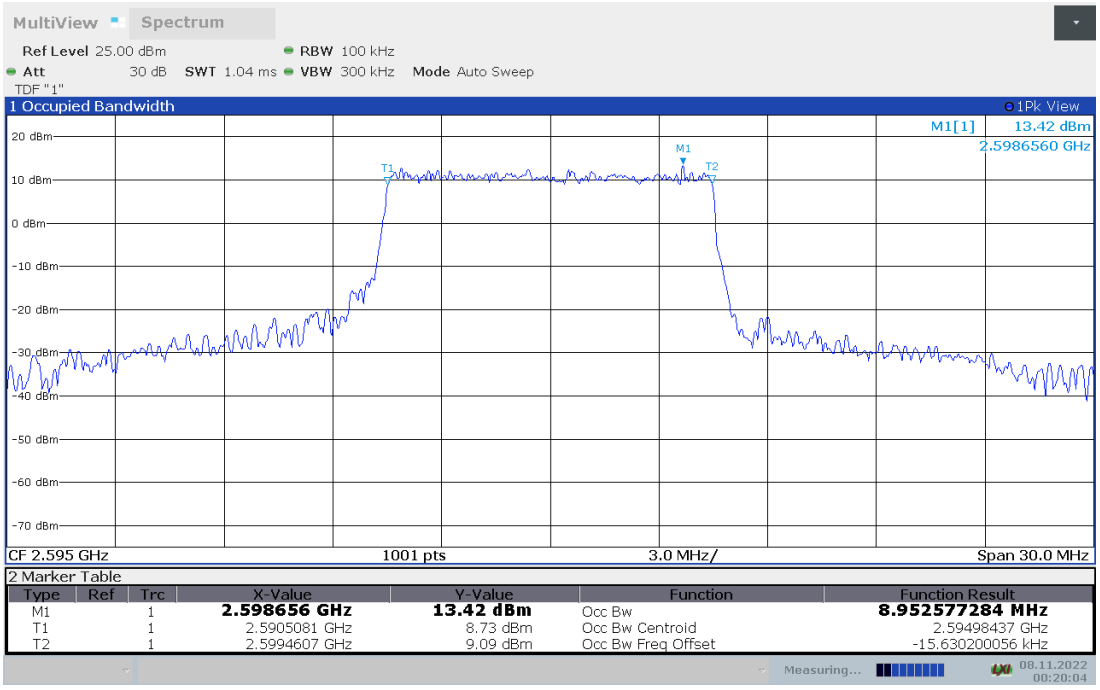
LTE band 38 , 5MHz Bandwidth,16QAM (99% BW)



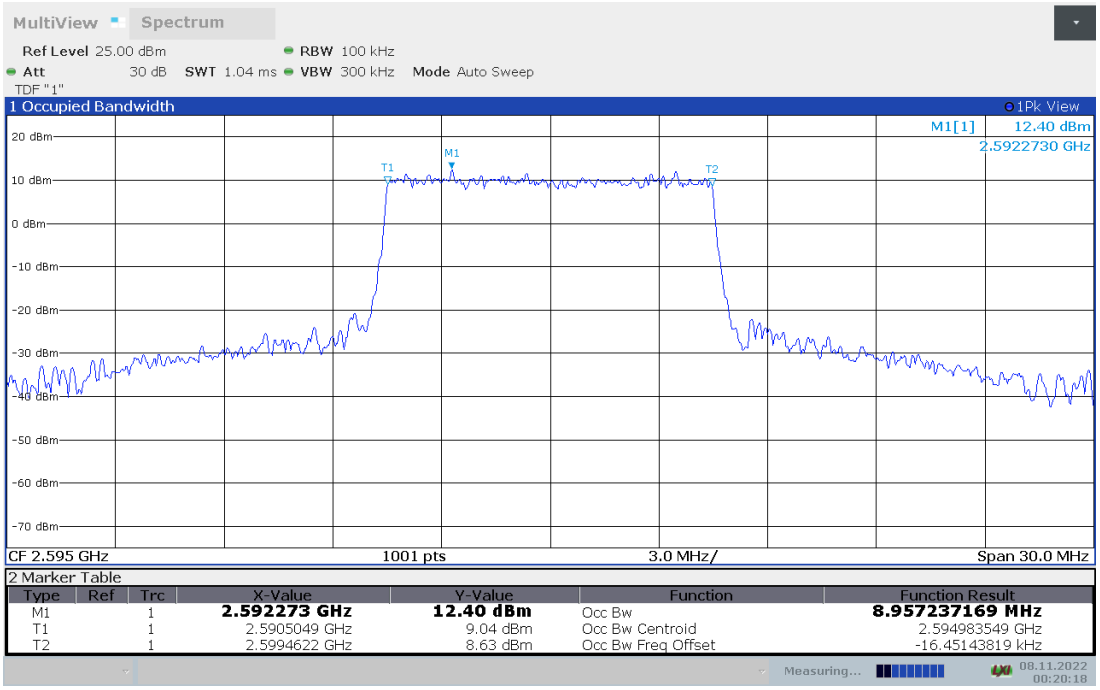
LTE band 38,10MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2595	8.953	8.957

LTE band 38 , 10MHz Bandwidth,QPSK (99% BW)



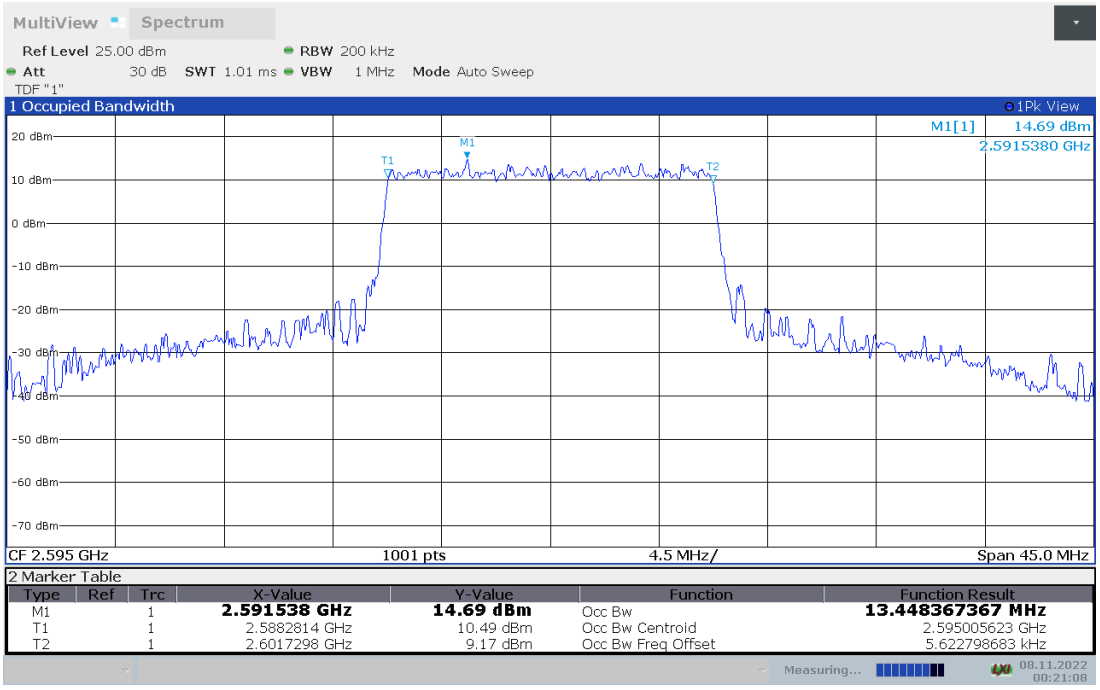
LTE band 38 , 10MHz Bandwidth,16QAM (99% BW)



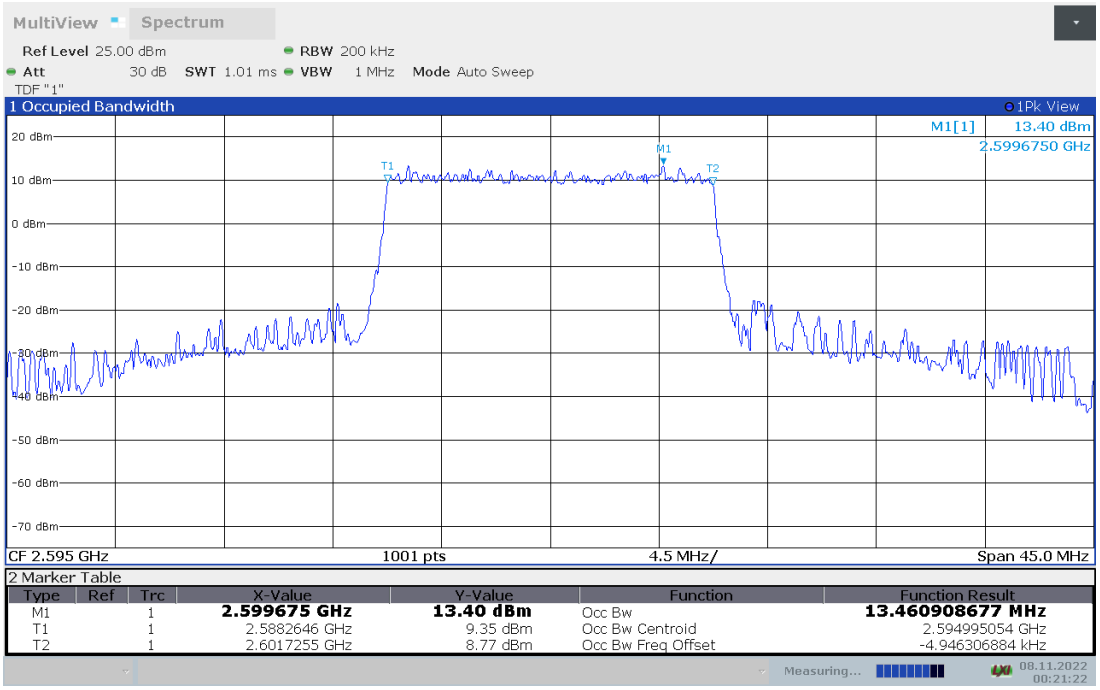
LTE band 38,15MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2595	13.448	13.461

LTE band 38 , 15MHz Bandwidth,QPSK (99% BW)



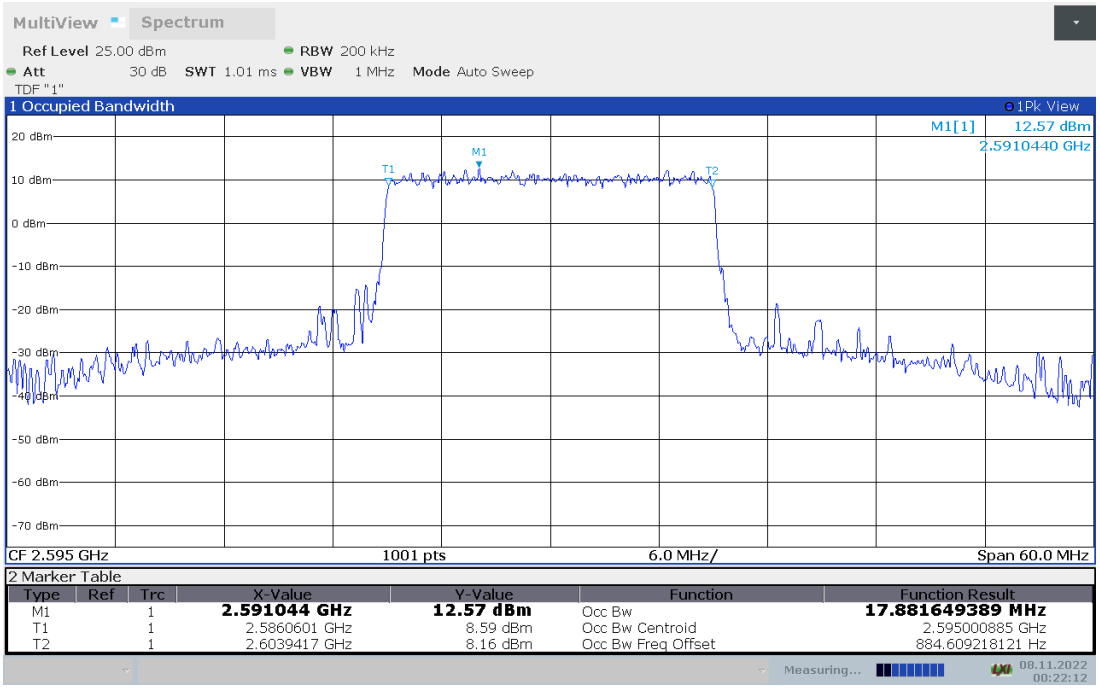
LTE band 38 , 15MHz Bandwidth,16QAM (99% BW)



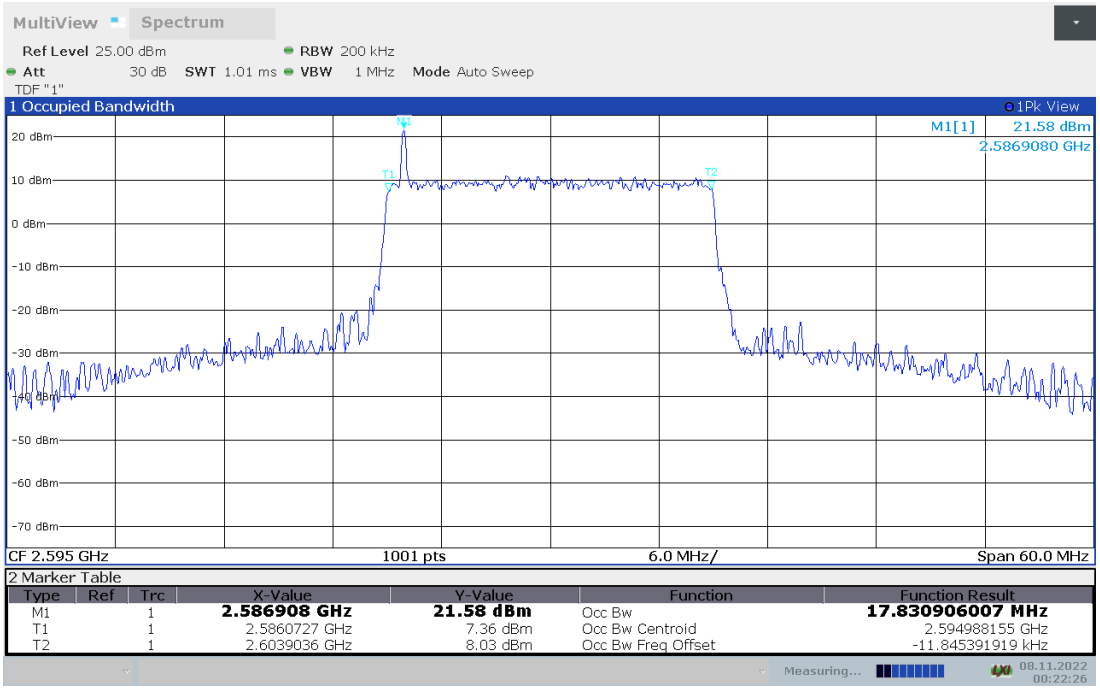
LTE band 38,20MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2595	17.882	17.831

LTE band 38 , 20MHz Bandwidth,QPSK (99% BW)



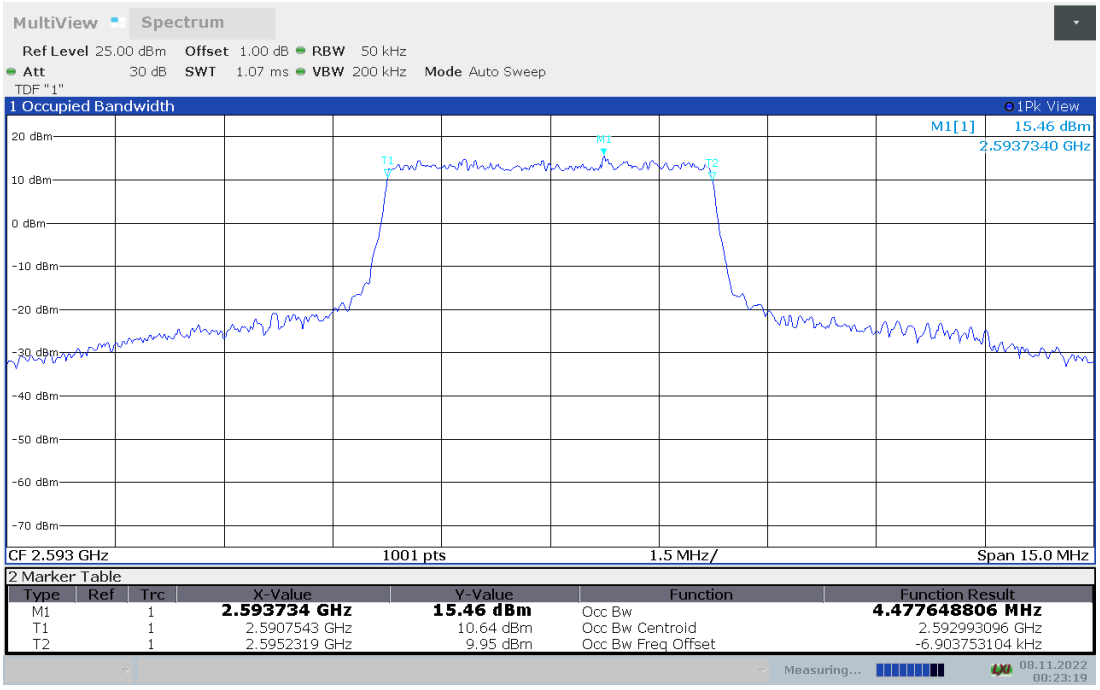
LTE band 38 , 20MHz Bandwidth,16QAM (99% BW)



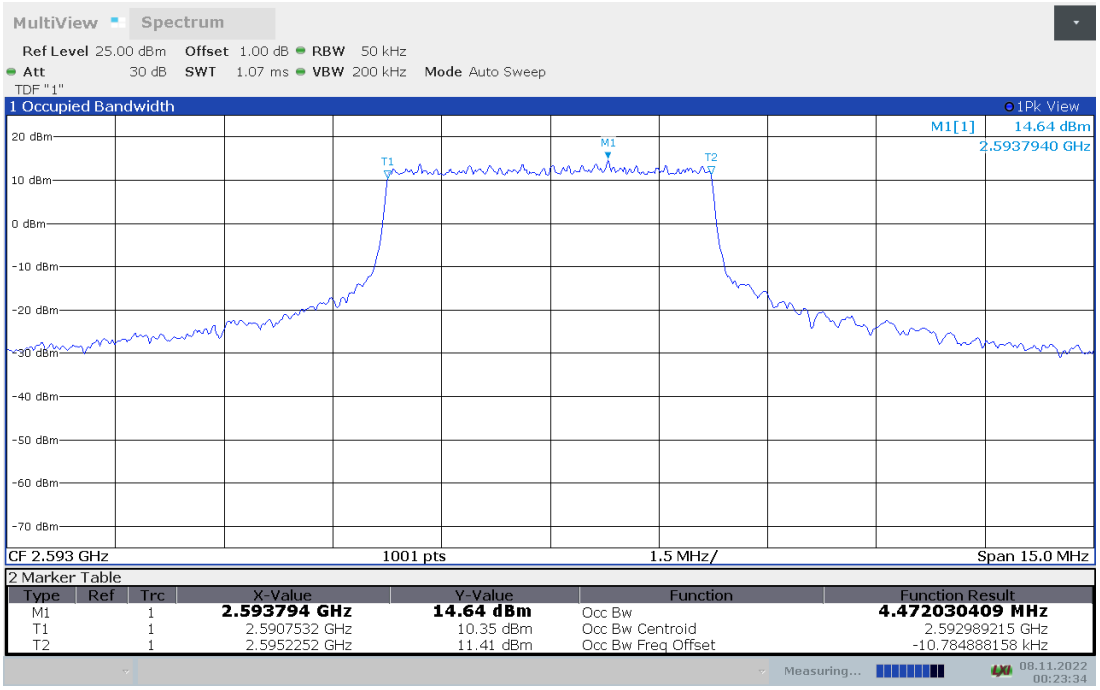
LTE band 41,5MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2593	4.478	4.472

LTE band 41 , 5MHz Bandwidth,QPSK (99% BW)



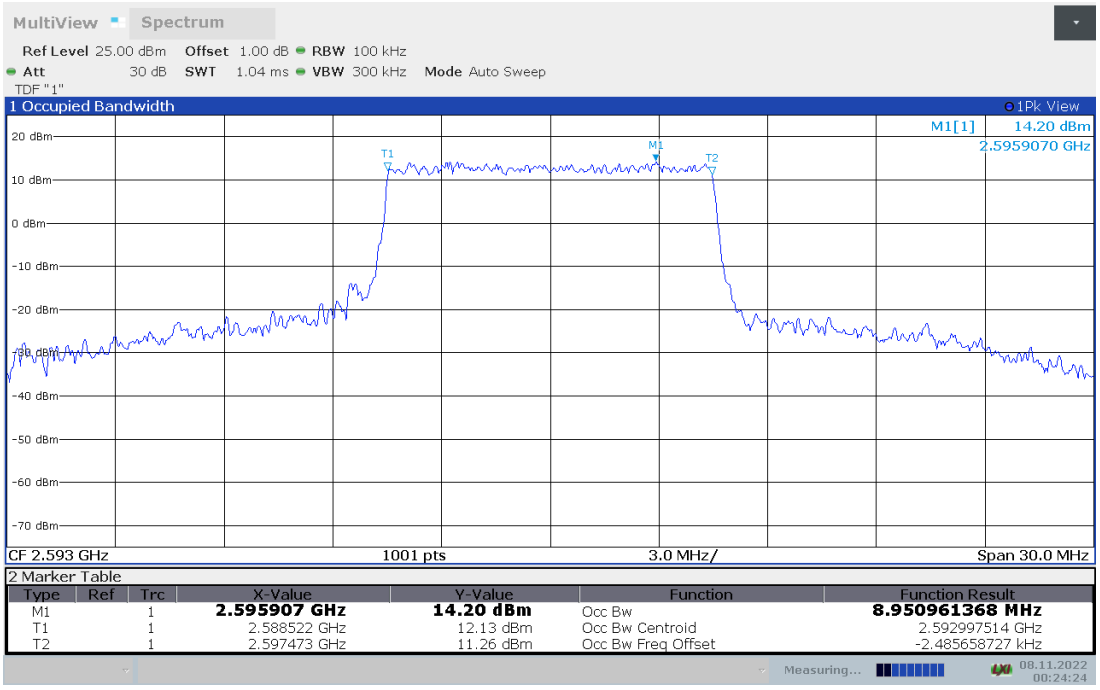
LTE band 41 , 5MHz Bandwidth,16QAM (99% BW)



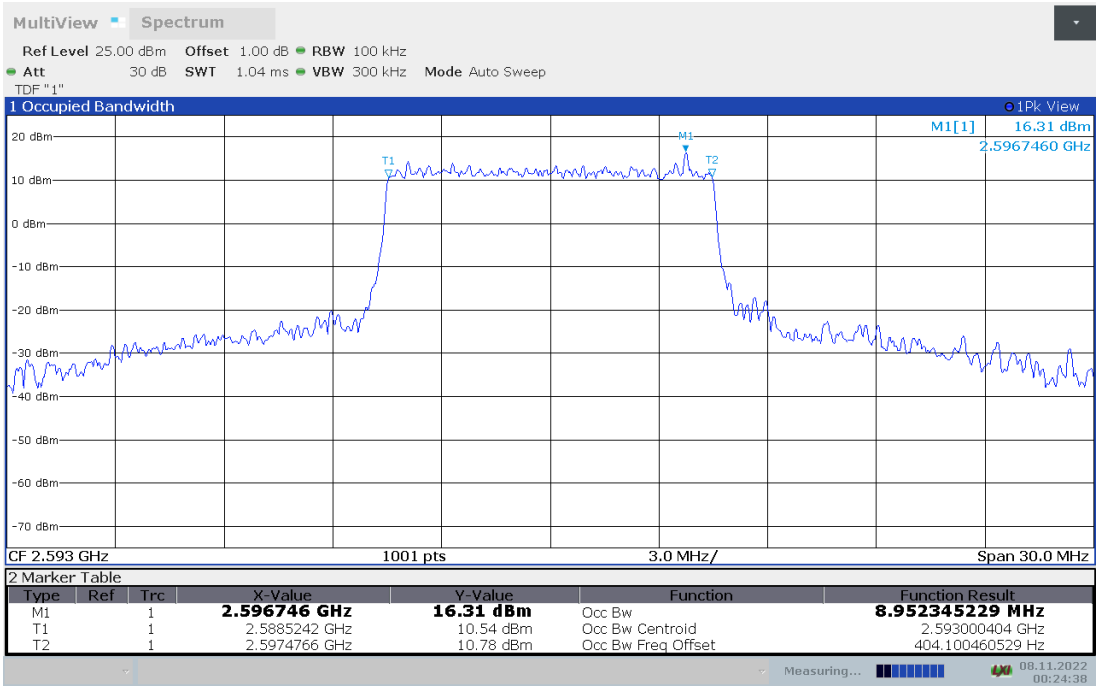
LTE band 41,10MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2593	8.951	8.952

LTE band 41 , 10MHz Bandwidth,QPSK (99% BW)



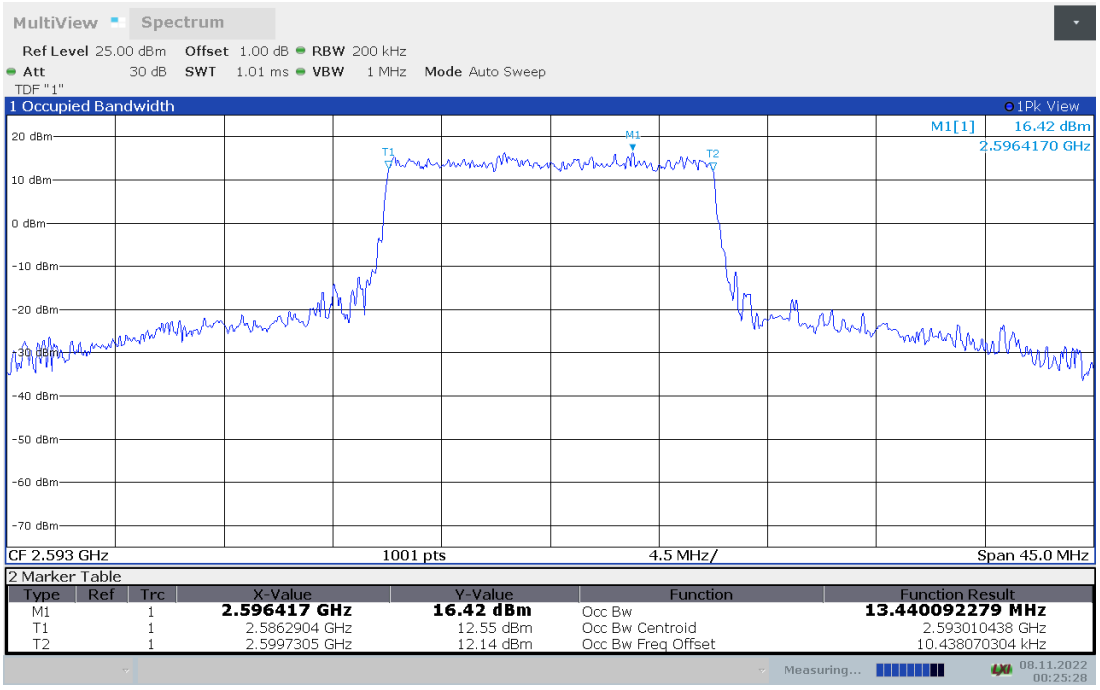
LTE band 41 , 10MHz Bandwidth,16QAM (99% BW)



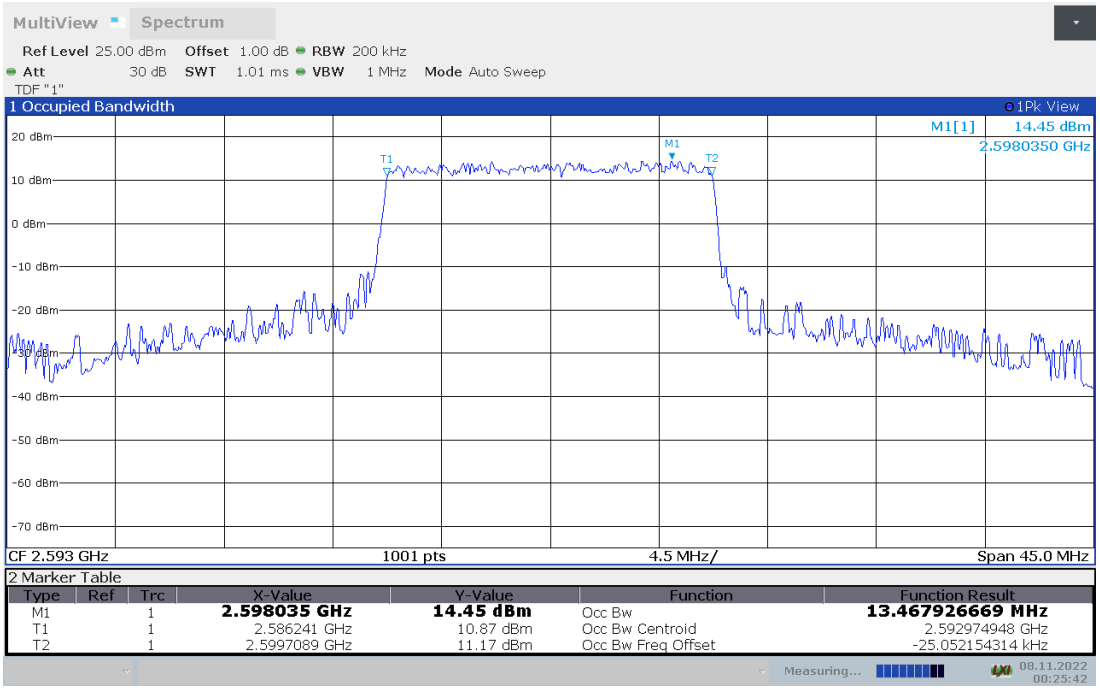
LTE band 41,15MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2593	13.440	13.468

LTE band 41 , 15MHz Bandwidth,QPSK (99% BW)



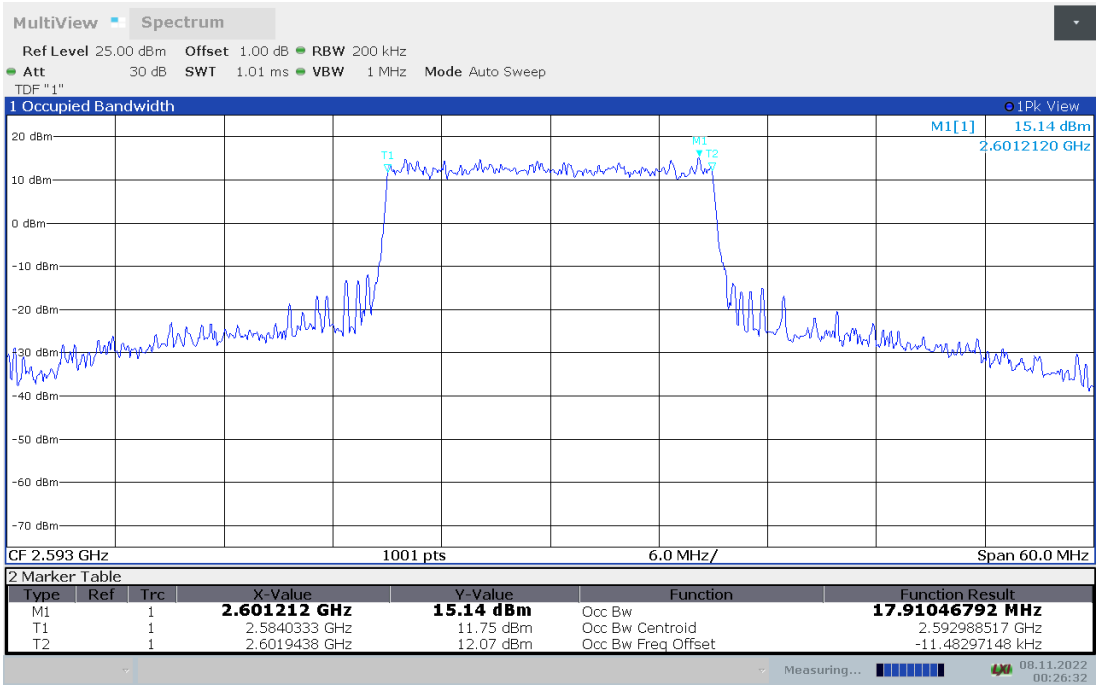
LTE band 41 , 15MHz Bandwidth,16QAM (99% BW)



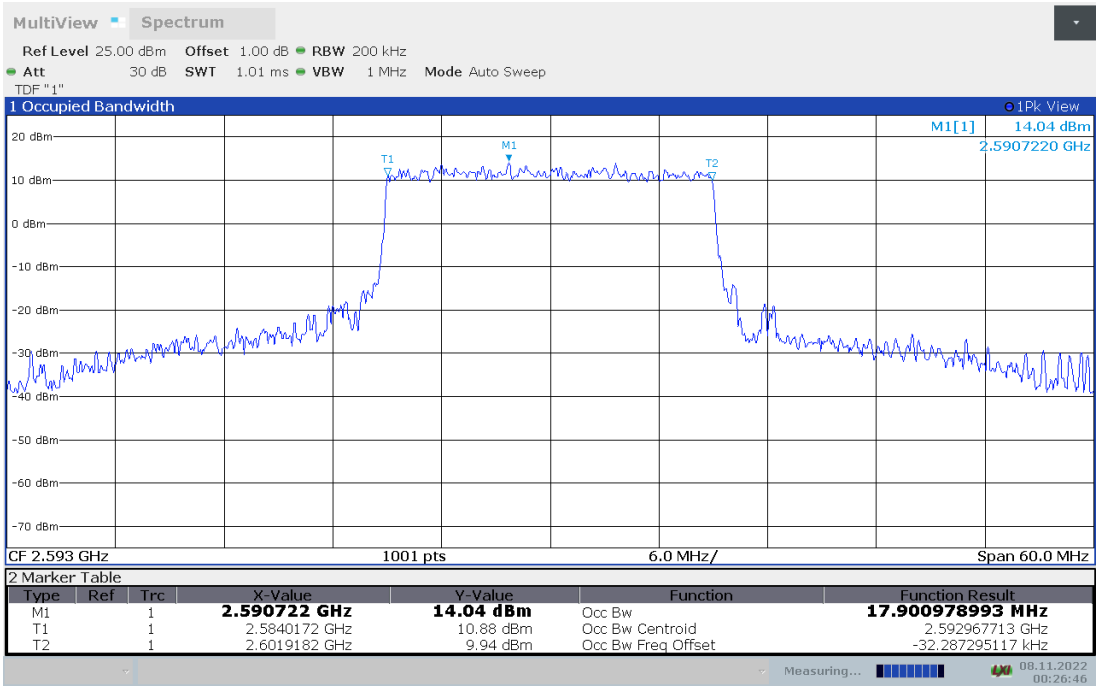
LTE band 41,20MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
2593	17.910	17.901

LTE band 41 , 20MHz Bandwidth,QPSK (99% BW)



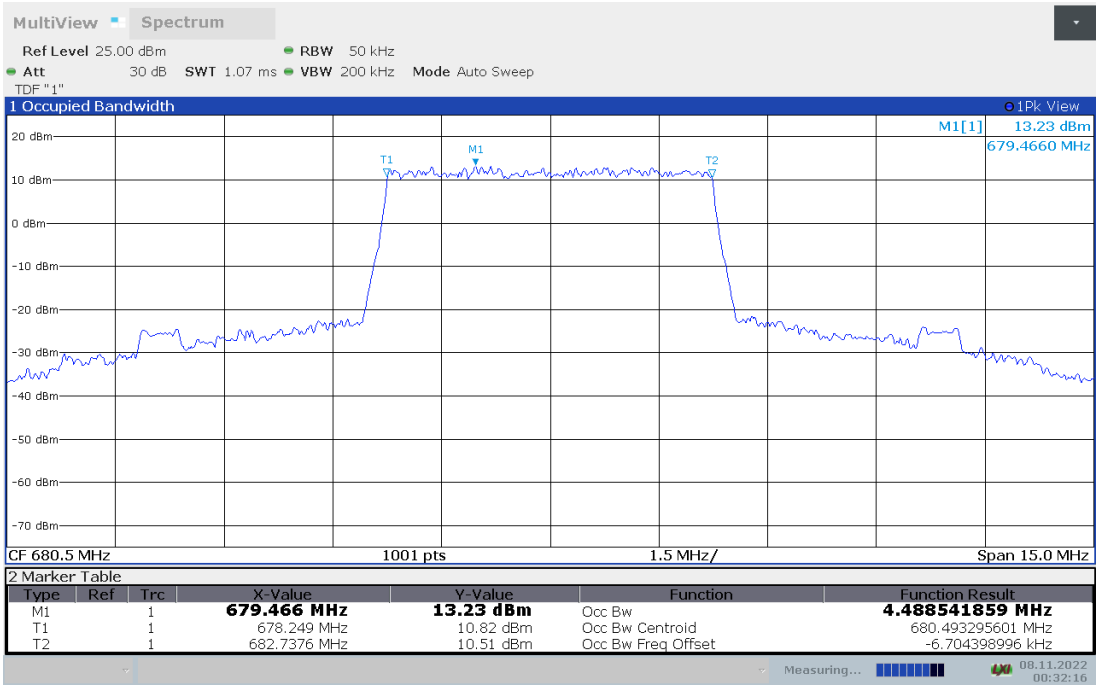
LTE band 41 , 20MHz Bandwidth,16QAM (99% BW)



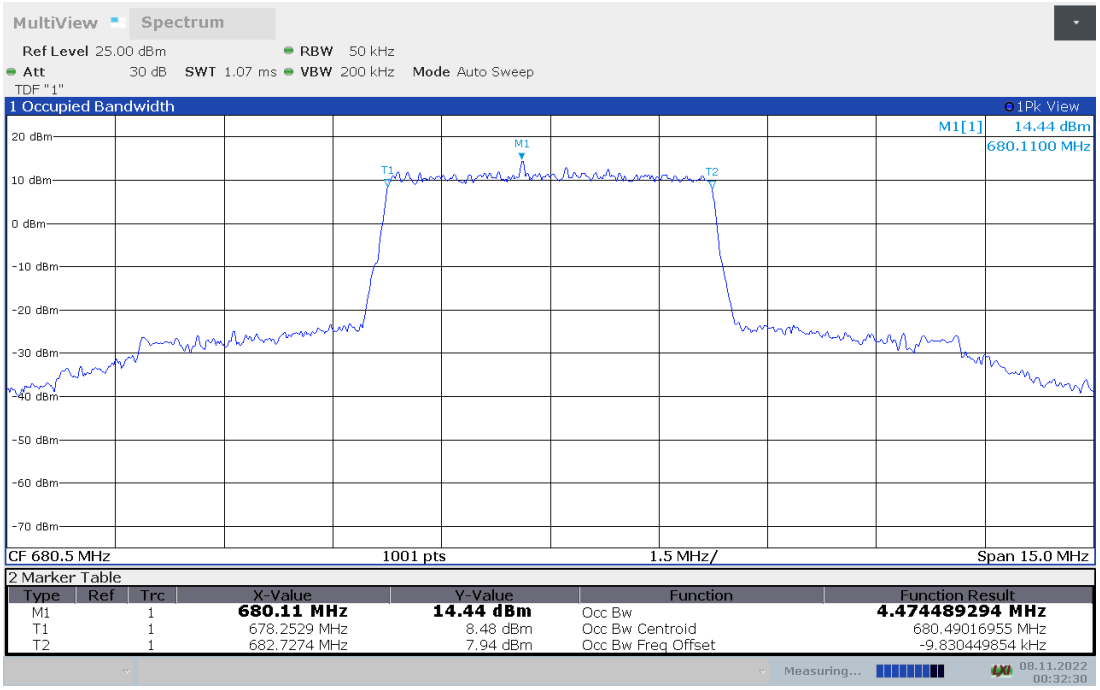
LTE band 71,5MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
680.5	4.489	4.474

LTE band 71 , 5MHz Bandwidth,QPSK (99% BW)



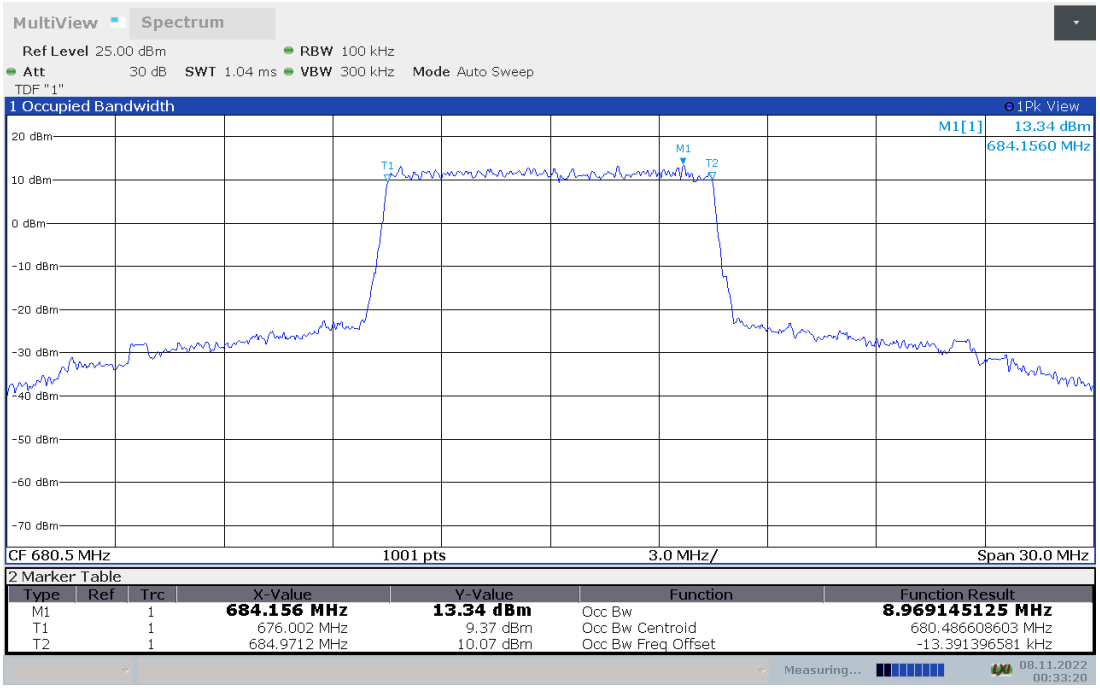
LTE band 71 , 5MHz Bandwidth,16QAM (99% BW)



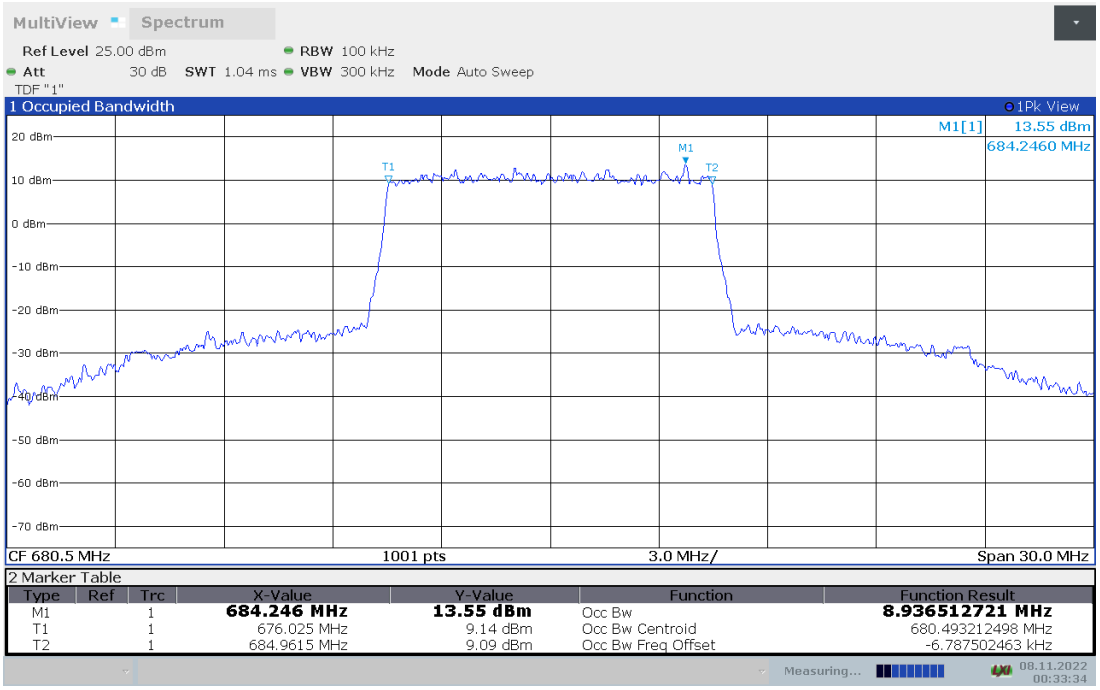
LTE band 71,10MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
680.5	8.969	8.937

LTE band 71 , 10MHz Bandwidth,QPSK (99% BW)



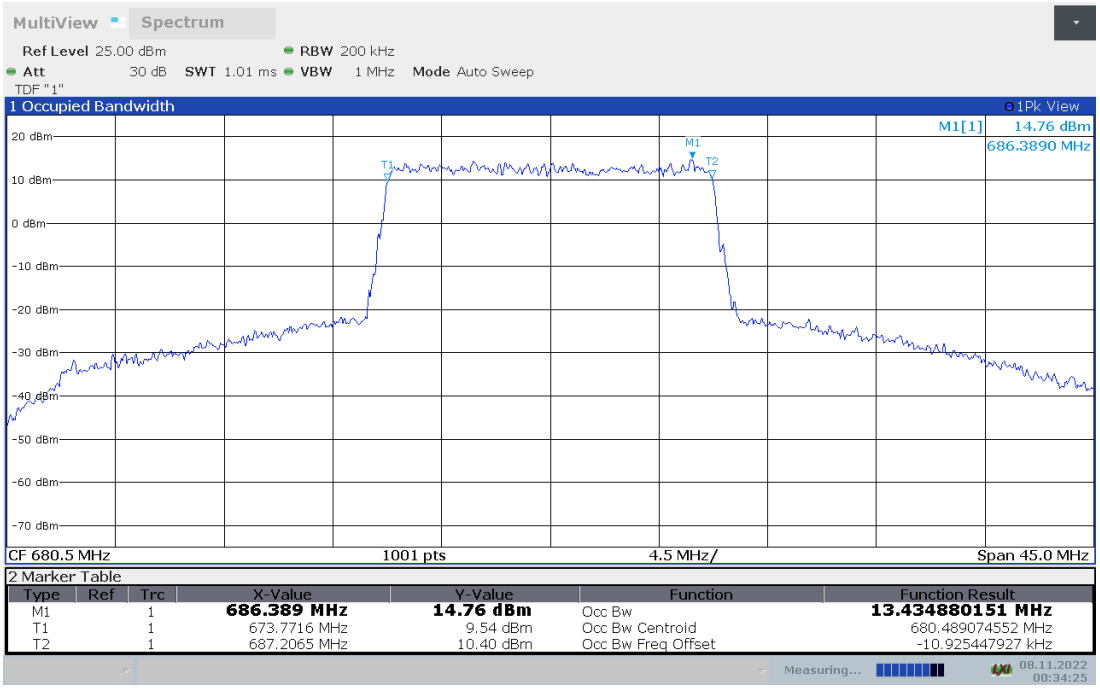
LTE band 71 , 10MHz Bandwidth,16QAM (99% BW)



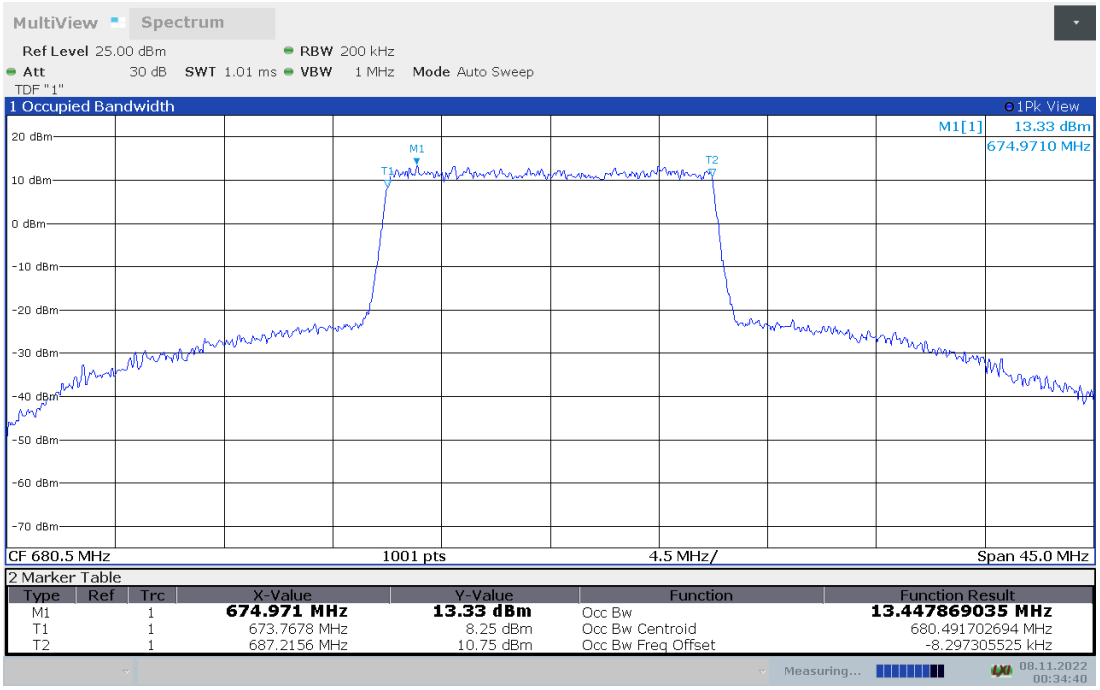
LTE band 71,15MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
680.5	13.435	13.448

LTE band 71 , 15MHz Bandwidth,QPSK (99% BW)



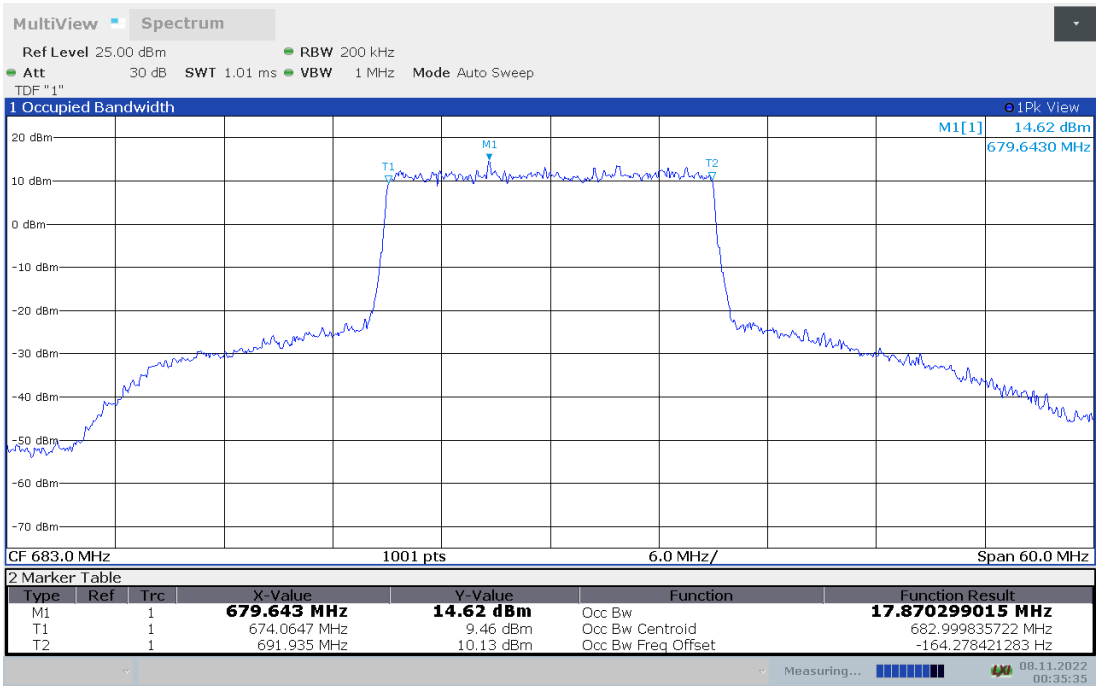
LTE band 71 , 15MHz Bandwidth,16QAM (99% BW)



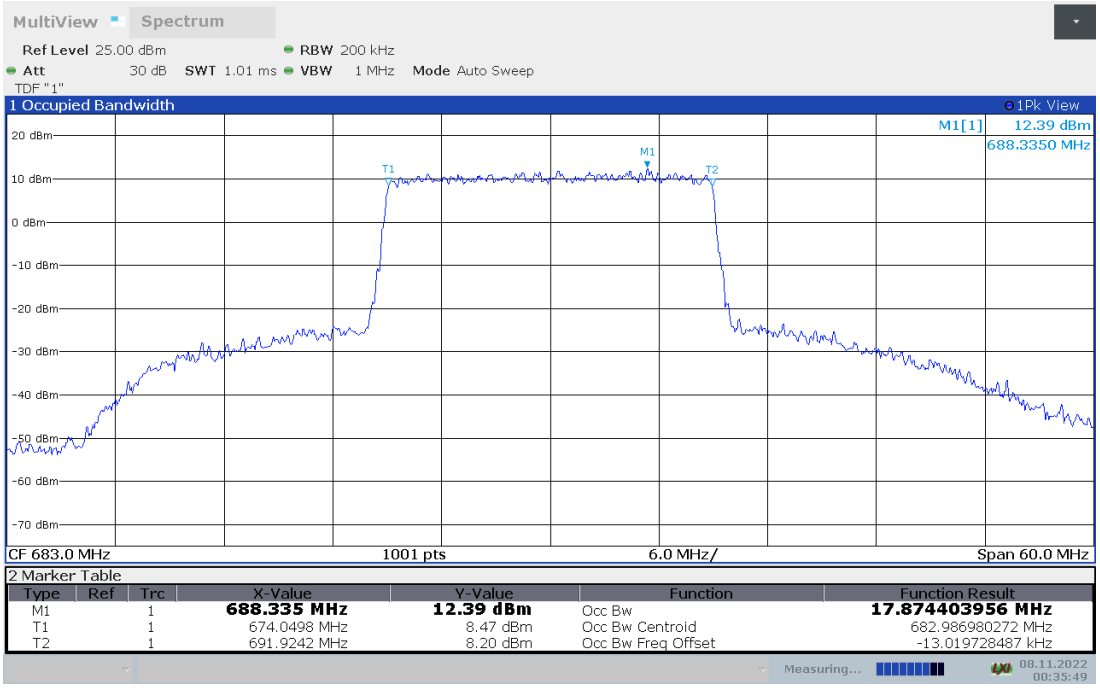
LTE band 71,20MHz(99% BW)

Frequency (MHz)	Occupied Bandwidth (99% BW)(MHz)	
	QPSK	16QAM
683	17.870	17.874

LTE band 71 , 20MHz Bandwidth,QPSK (99% BW)



LTE band 71 , 20MHz Bandwidth,16QAM (99% BW)



Note: Expanded measurement uncertainty is U = 3428 Hz, k = 2

A.5 EMISSION BANDWIDTH

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Table below lists the measured -26dBc 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 span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.

b) The nominal 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.

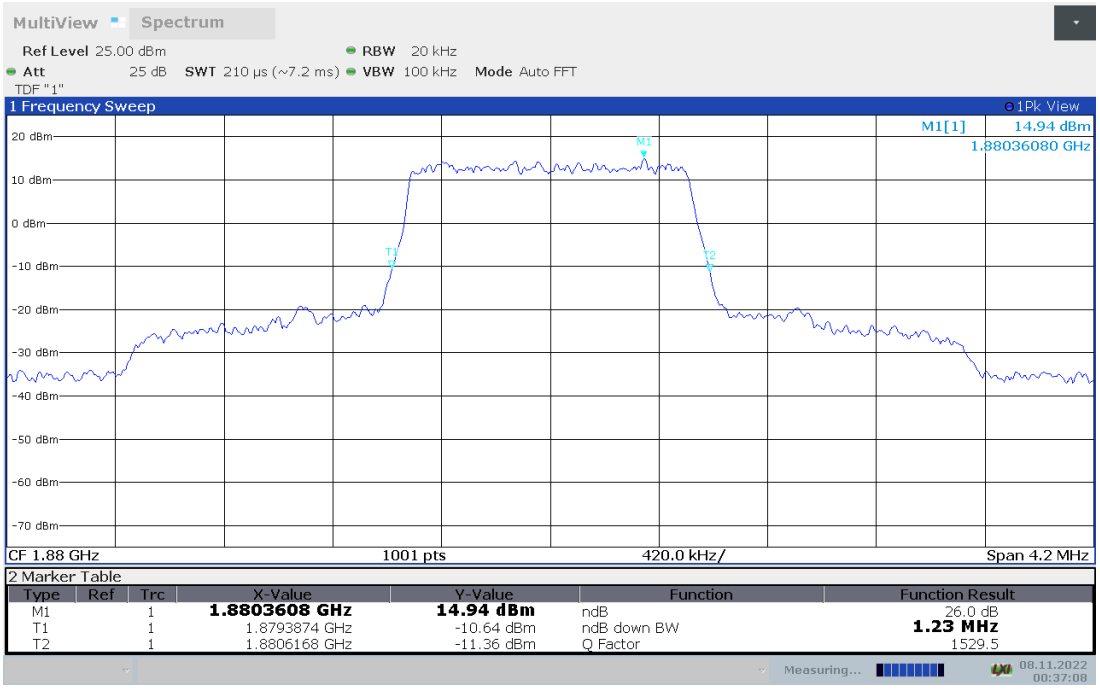
d) The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “−X dB” requirement, i.e., if the requirement calls for measuring the −26 dB OBW,the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.

e) Set spectrum analyzer detection mode to peak, and the trace mode to max hold.

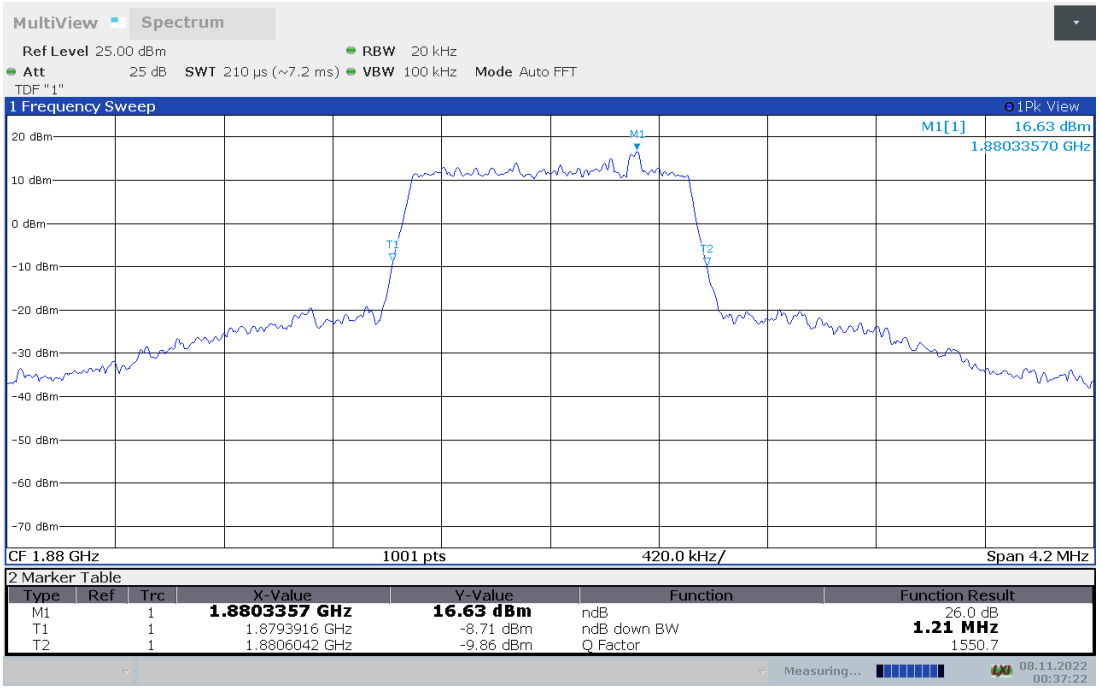
LTE band 2,1.4MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1880	1.229	1.213

LTE band 2 , 1.4MHz Bandwidth,QPSK (-26dBc BW)



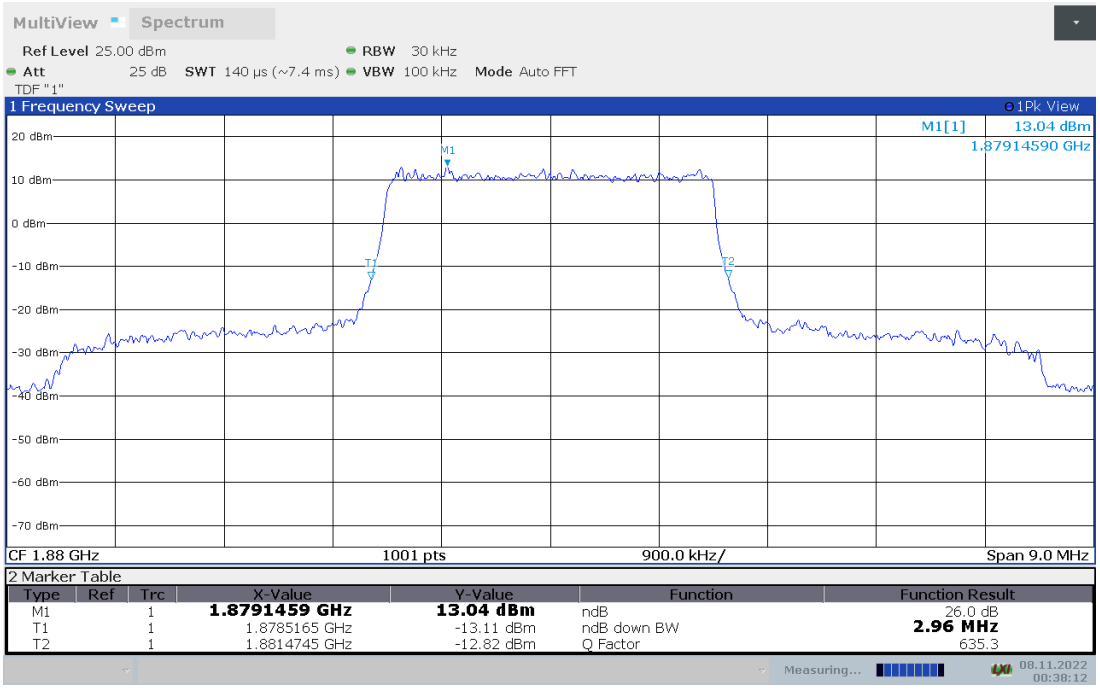
LTE band 2 , 1.4MHz Bandwidth,16QAM (-26dBc BW)



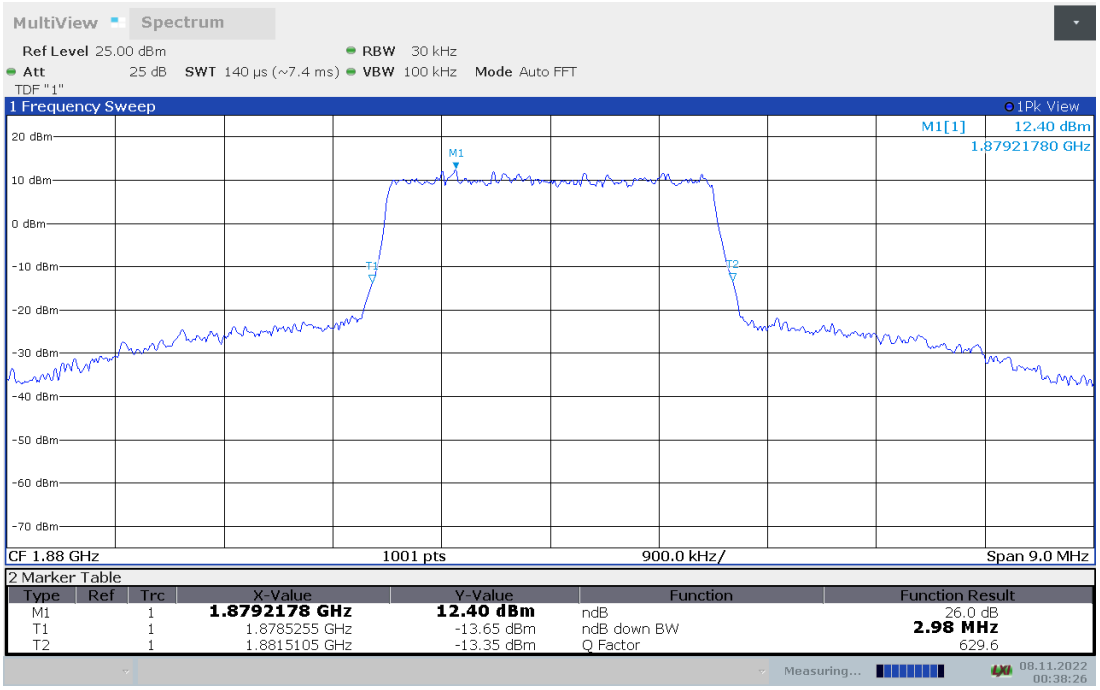
LTE band 2,3MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1880	2.958	2.985

LTE band 2 , 3MHz Bandwidth,QPSK (-26dBc BW)



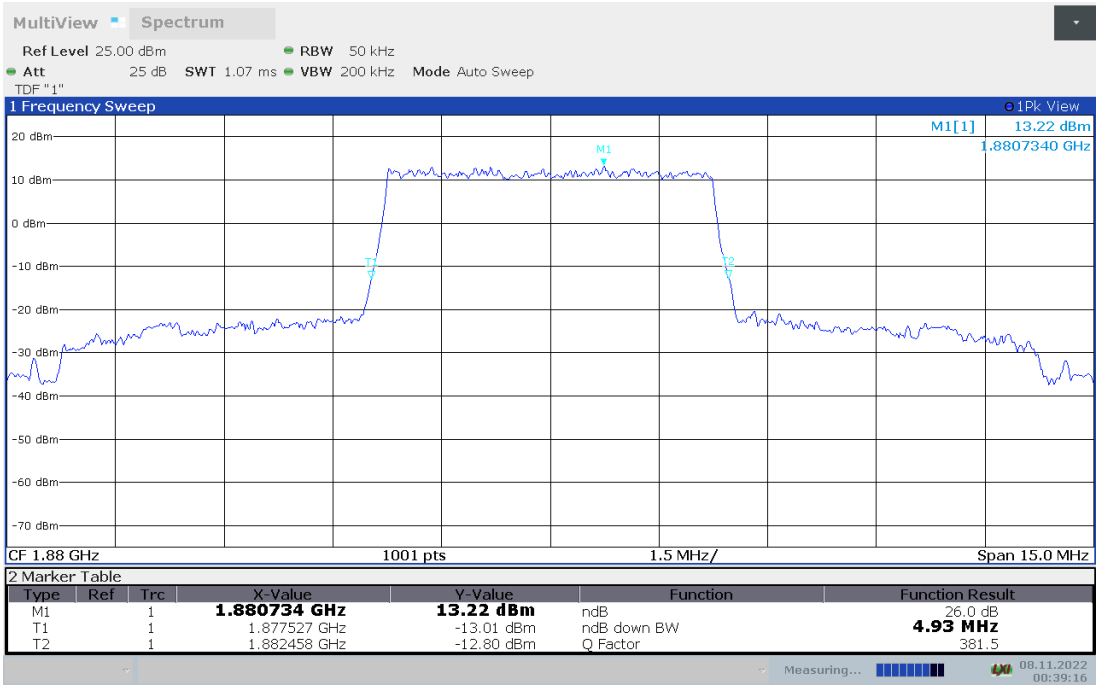
LTE band 2 , 3MHz Bandwidth,16QAM (-26dBc BW)



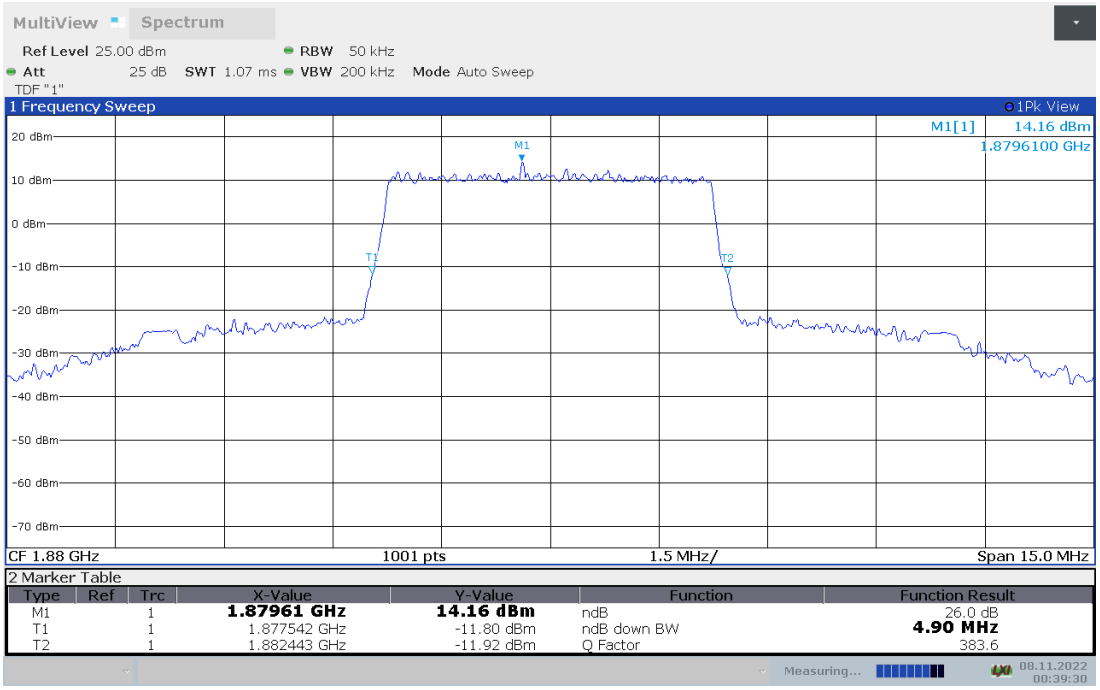
LTE band 2,5MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1880	4.930	4.900

LTE band 2 , 5MHz Bandwidth,QPSK (-26dBc BW)



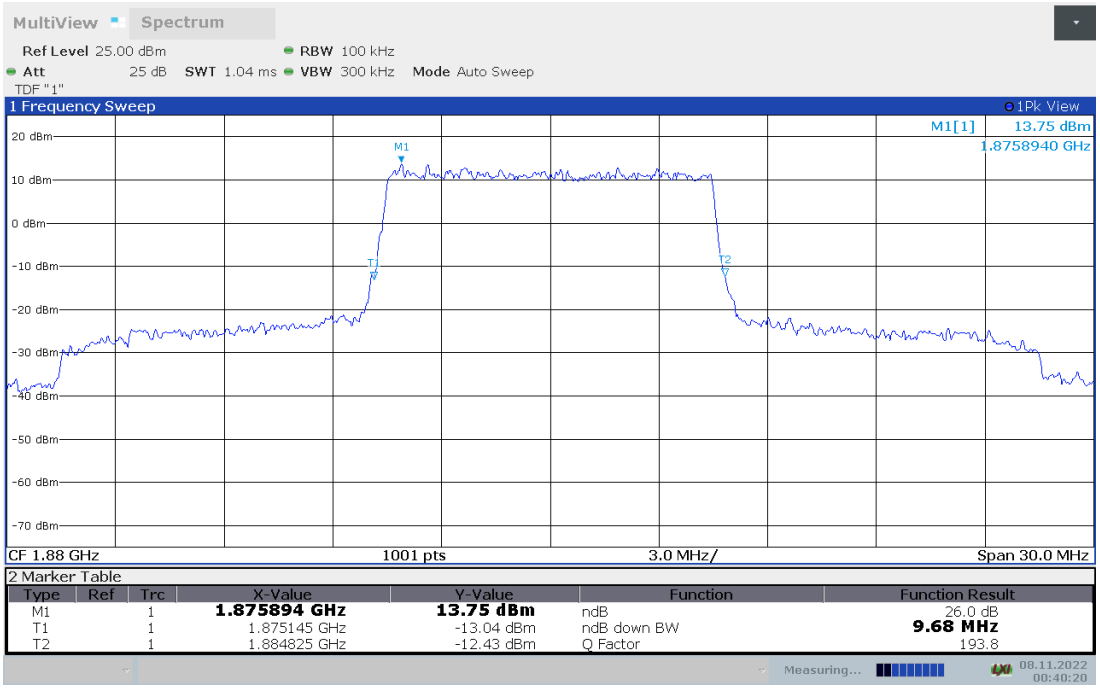
LTE band 2 , 5MHz Bandwidth,16QAM (-26dBc BW)



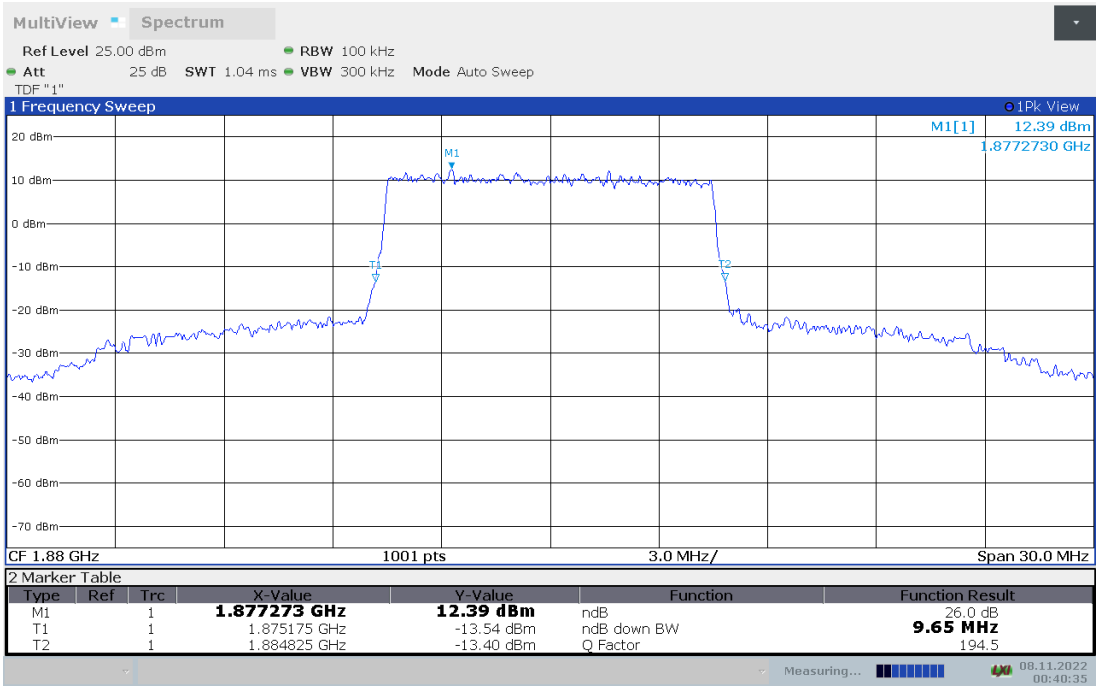
LTE band 2,10MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1880	9.680	9.650

LTE band 2 , 10MHz Bandwidth,QPSK (-26dBc BW)



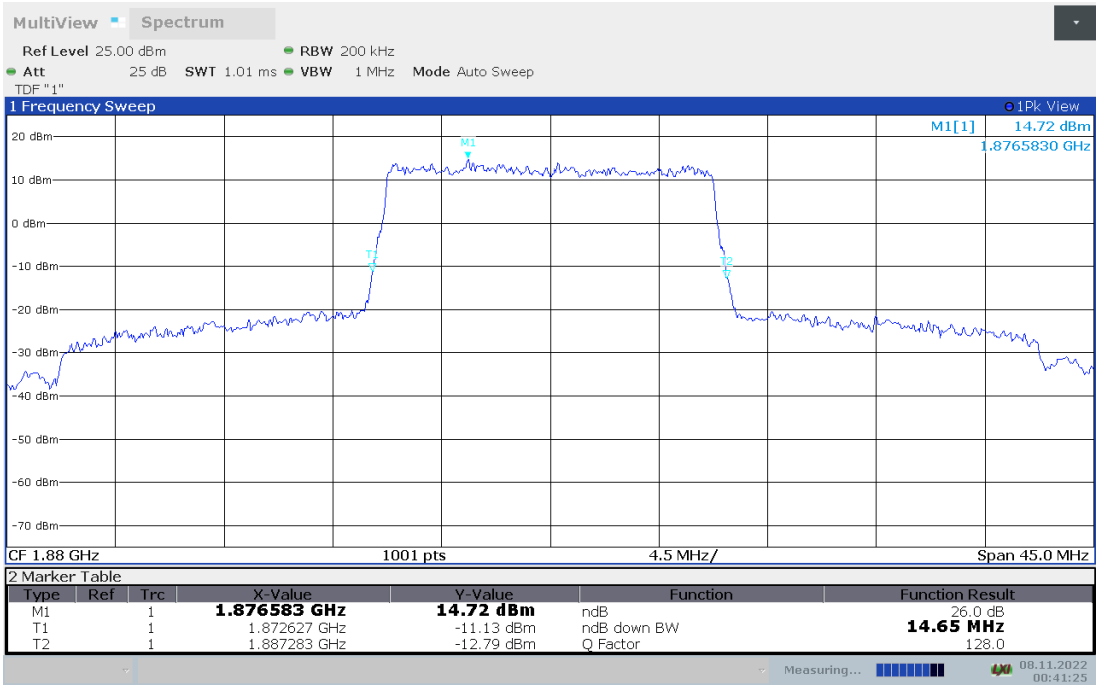
LTE band 2 , 10MHz Bandwidth,16QAM (-26dBc BW)



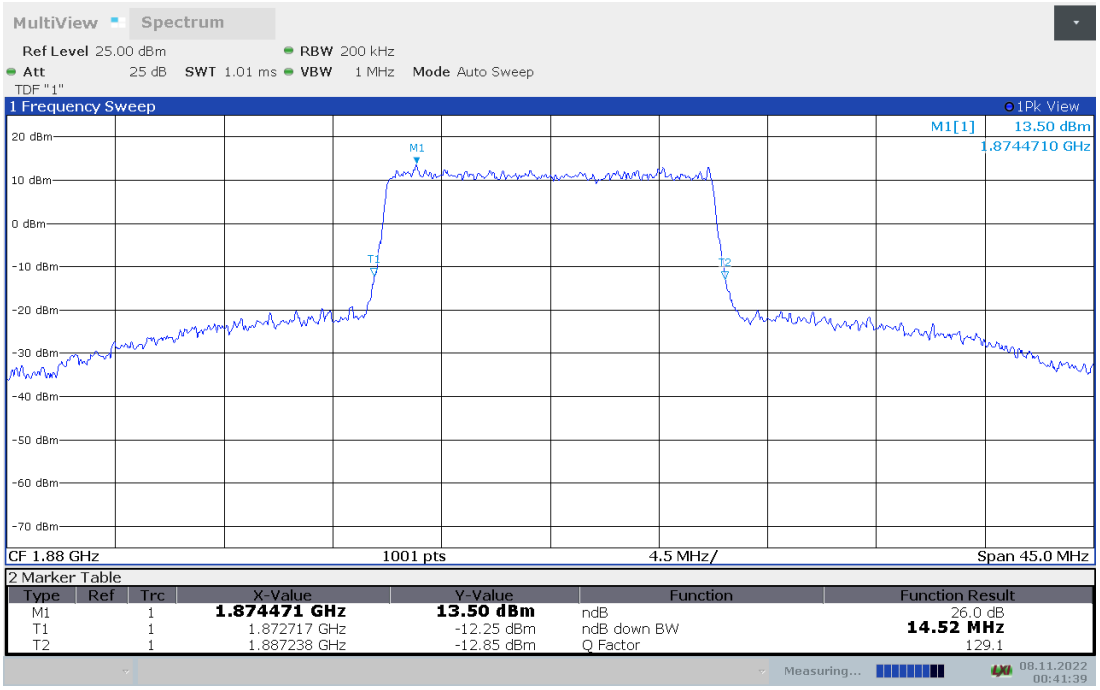
LTE band 2,15MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1880	14.655	14.520

LTE band 2 , 15MHz Bandwidth,QPSK (-26dBc BW)



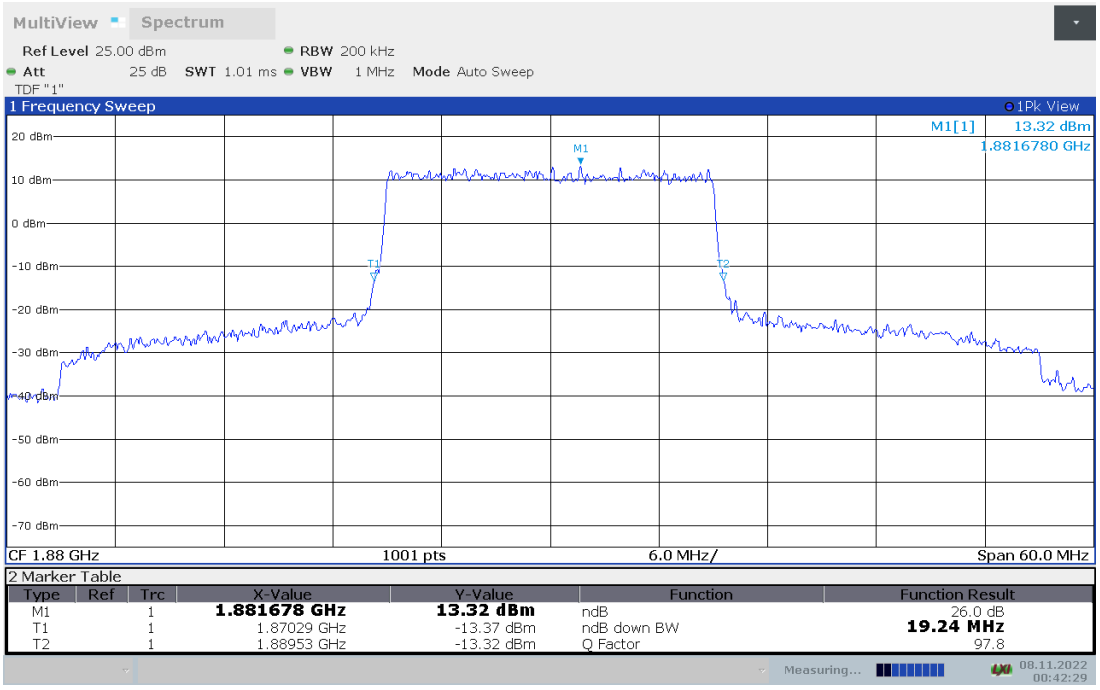
LTE band 2 , 15MHz Bandwidth,16QAM (-26dBc BW)



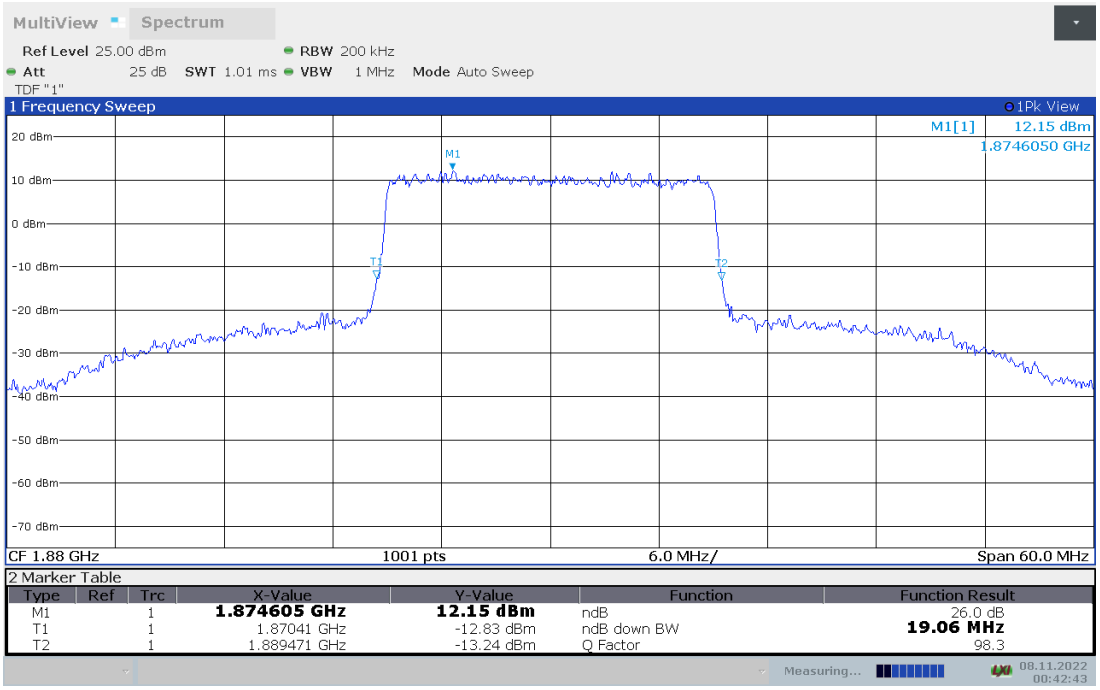
LTE band 2,20MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1880	19.241	19.061

LTE band 2 , 20MHz Bandwidth,QPSK (-26dBc BW)



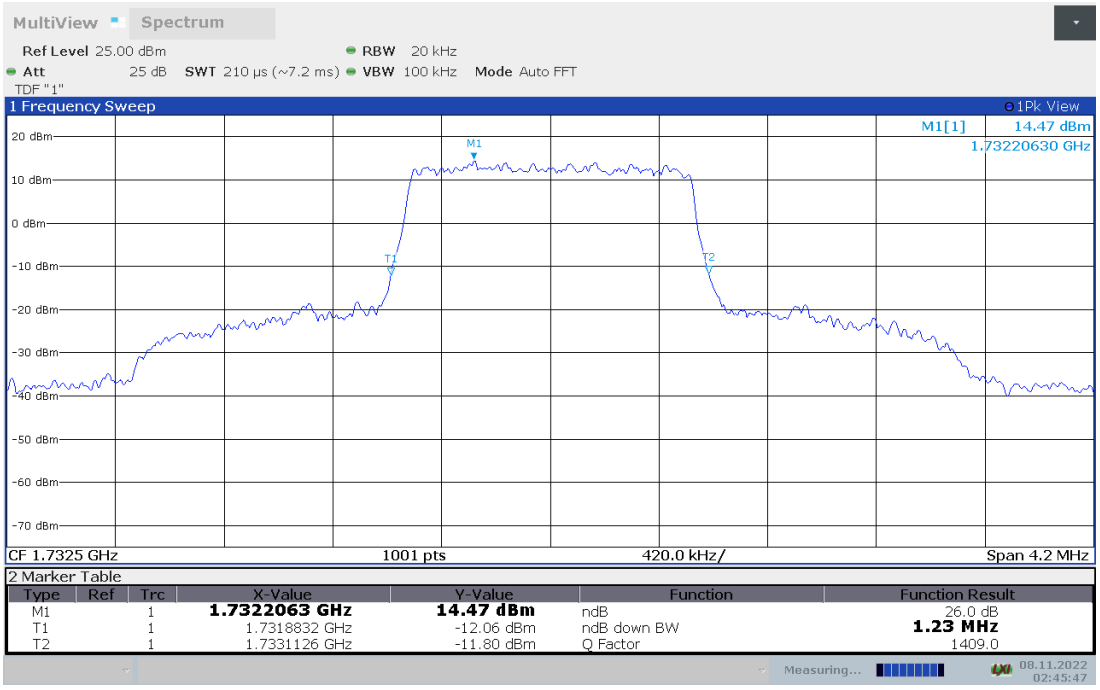
LTE band 2 , 20MHz Bandwidth,16QAM (-26dBc BW)



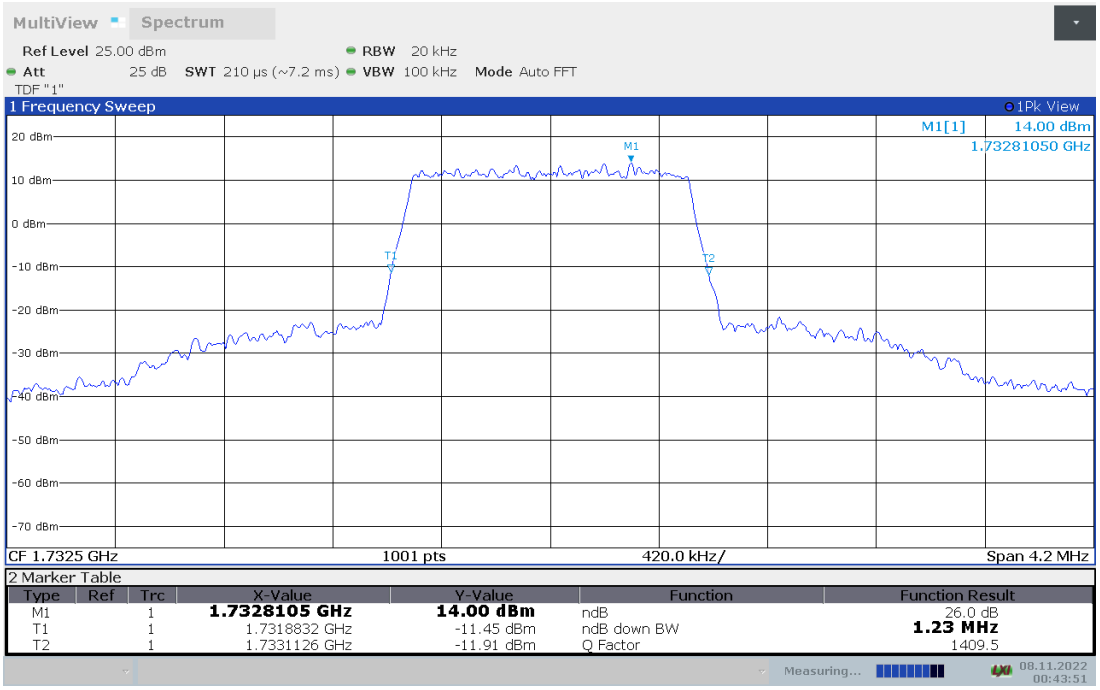
LTE band 4,1.4MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1732.5	1.229	1.229

LTE band 4 , 1.4MHz Bandwidth,QPSK (-26dBc BW)



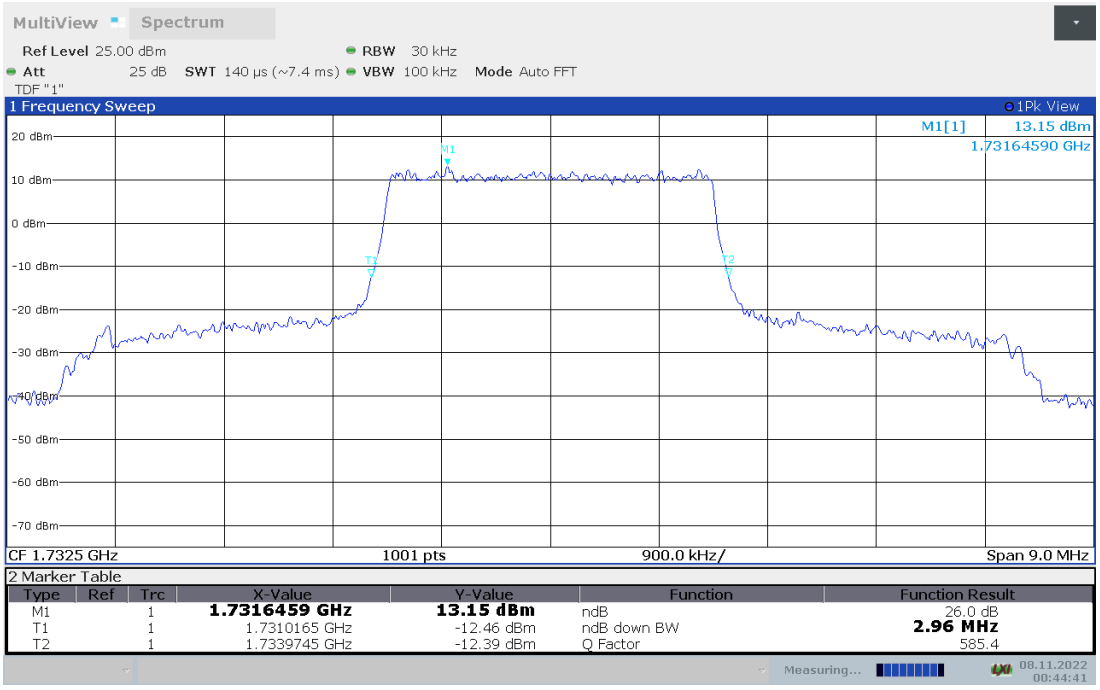
LTE band 4 , 1.4MHz Bandwidth,16QAM (-26dBc BW)



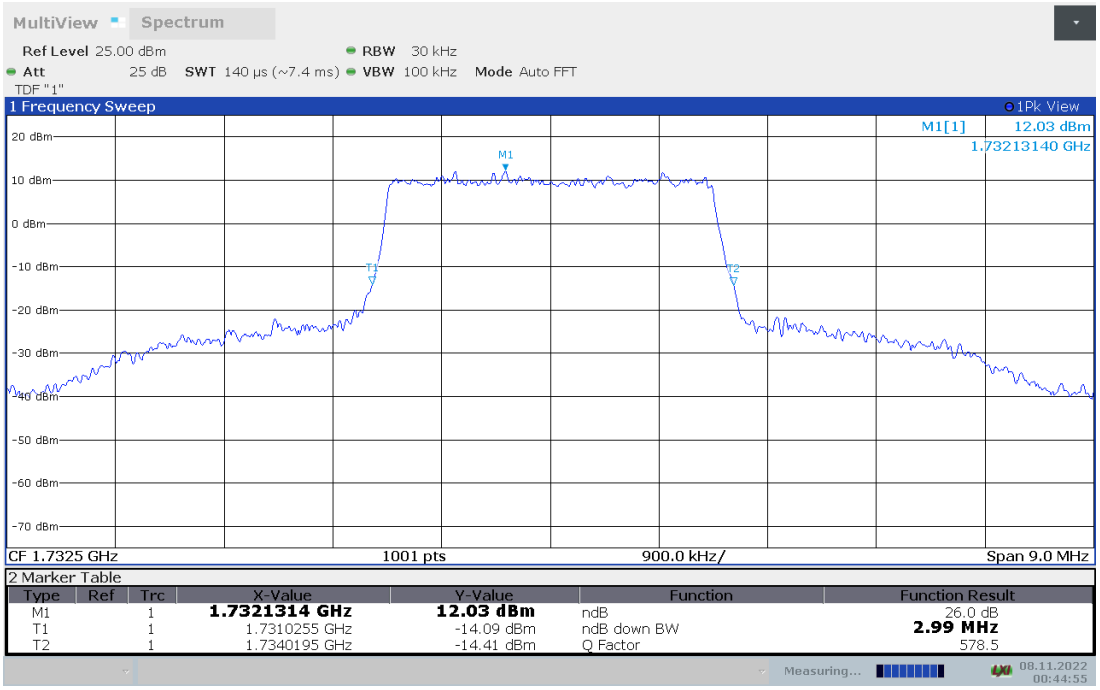
LTE band 4,3MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1732.5	2.958	2.994

LTE band 4 , 3MHz Bandwidth,QPSK (-26dBc BW)



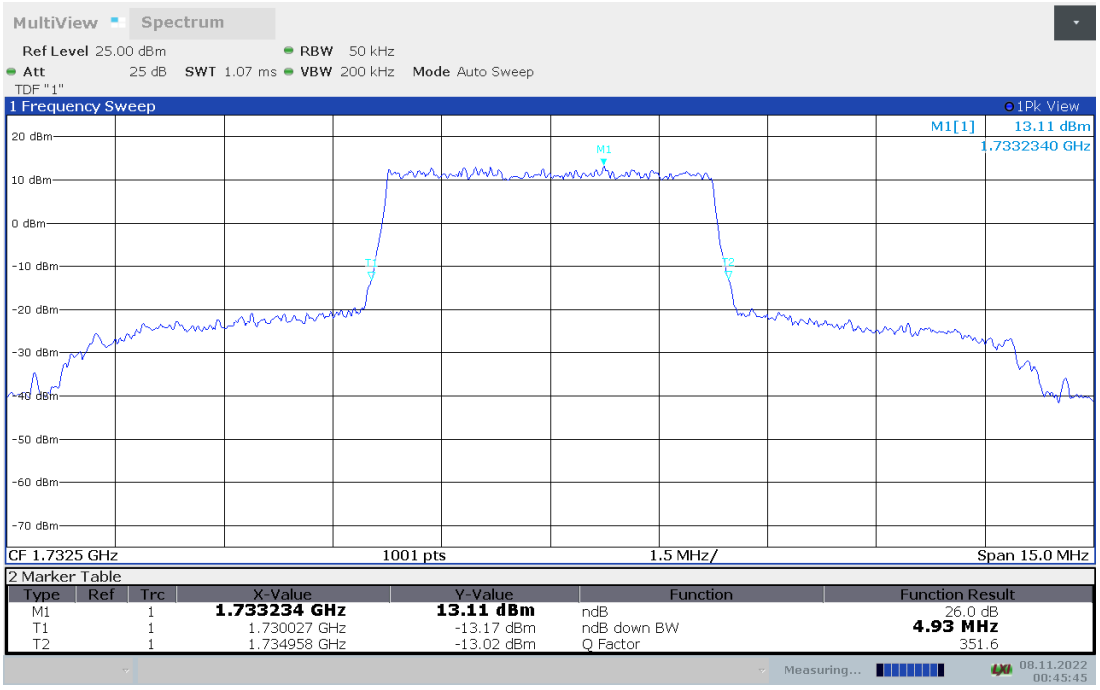
LTE band 4 , 3MHz Bandwidth,16QAM (-26dBc BW)



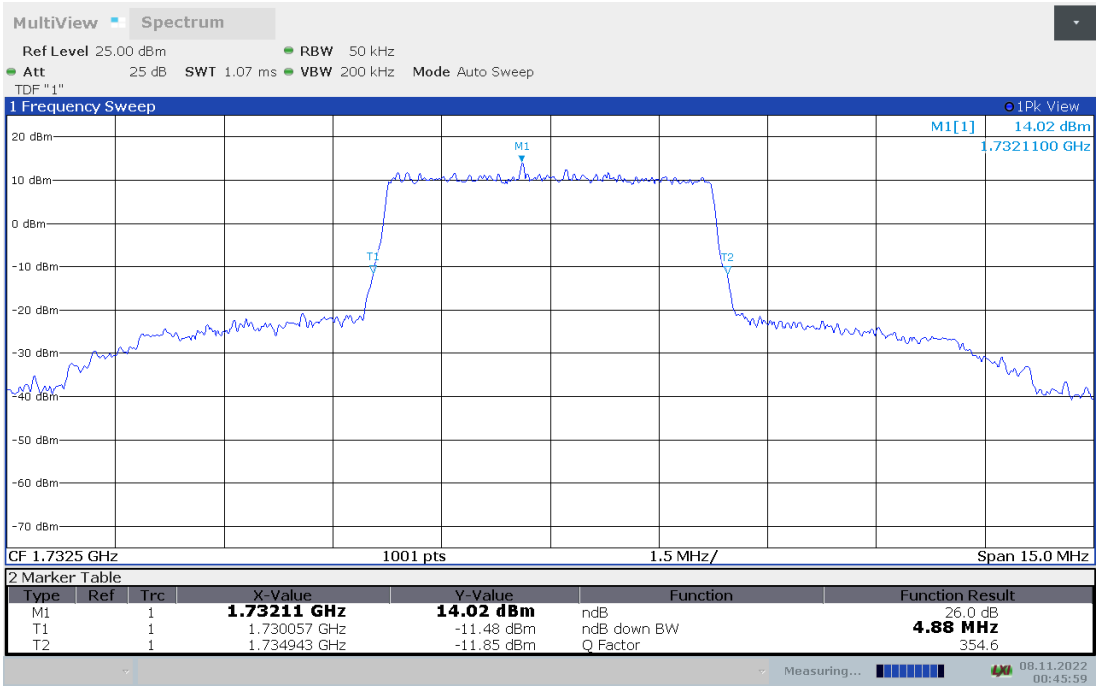
LTE band 4,5MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1732.5	4.930	4.885

LTE band 4 , 5MHz Bandwidth,QPSK (-26dBc BW)



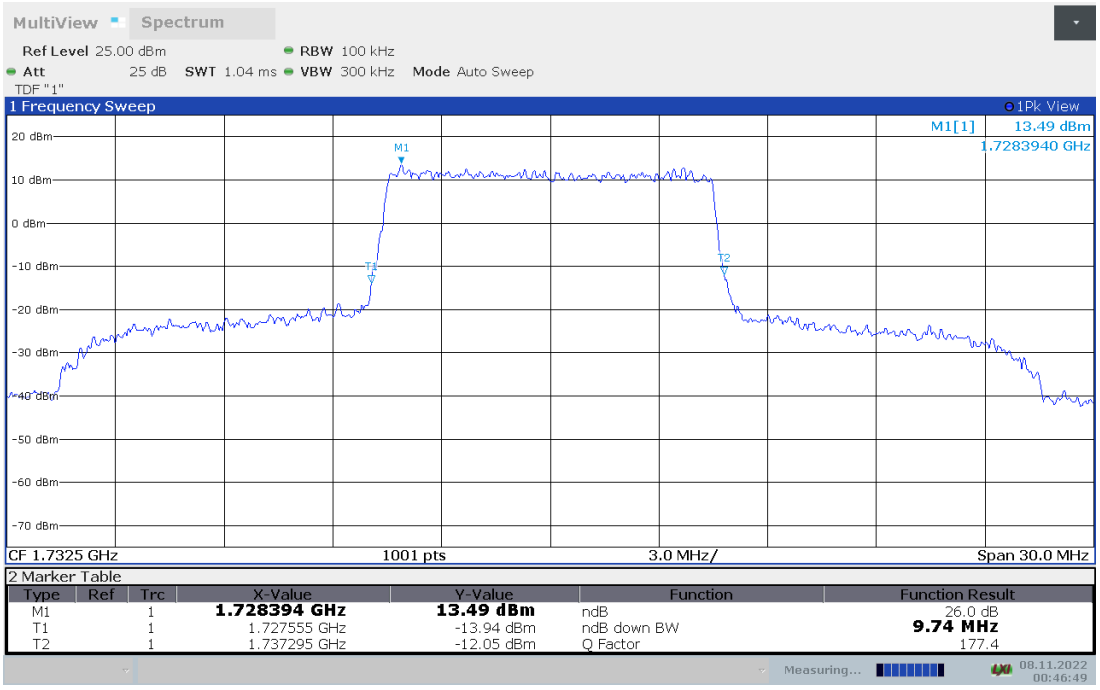
LTE band 4 , 5MHz Bandwidth,16QAM (-26dBc BW)



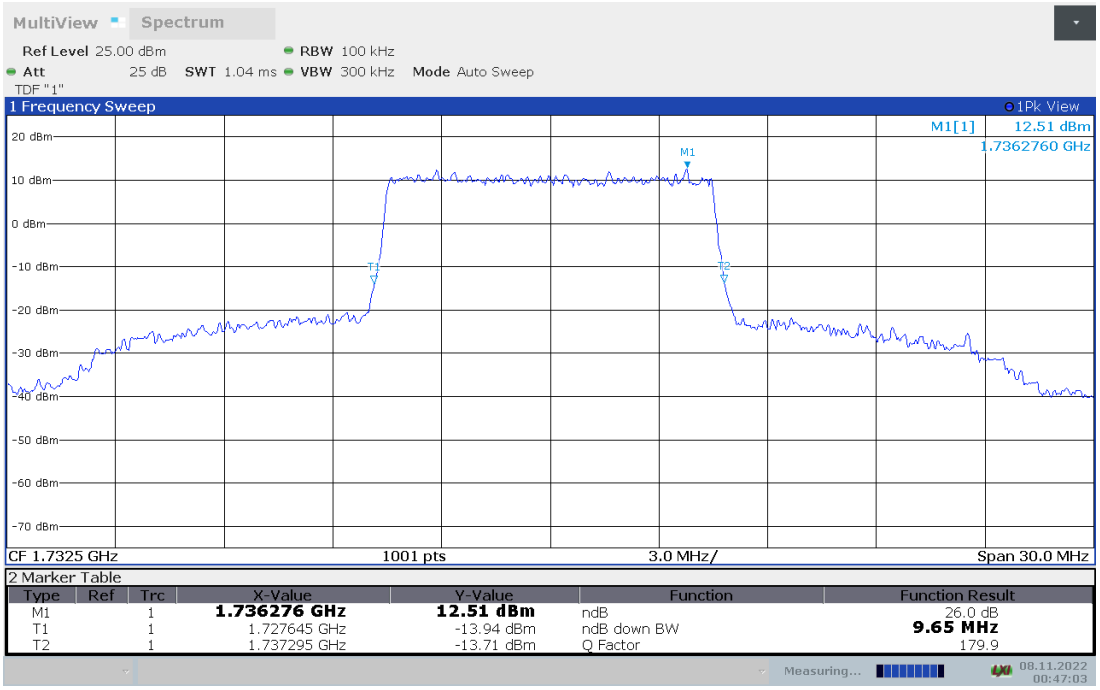
LTE band 4,10MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1732.5	9.740	9.650

LTE band 4 , 10MHz Bandwidth,QPSK (-26dBc BW)



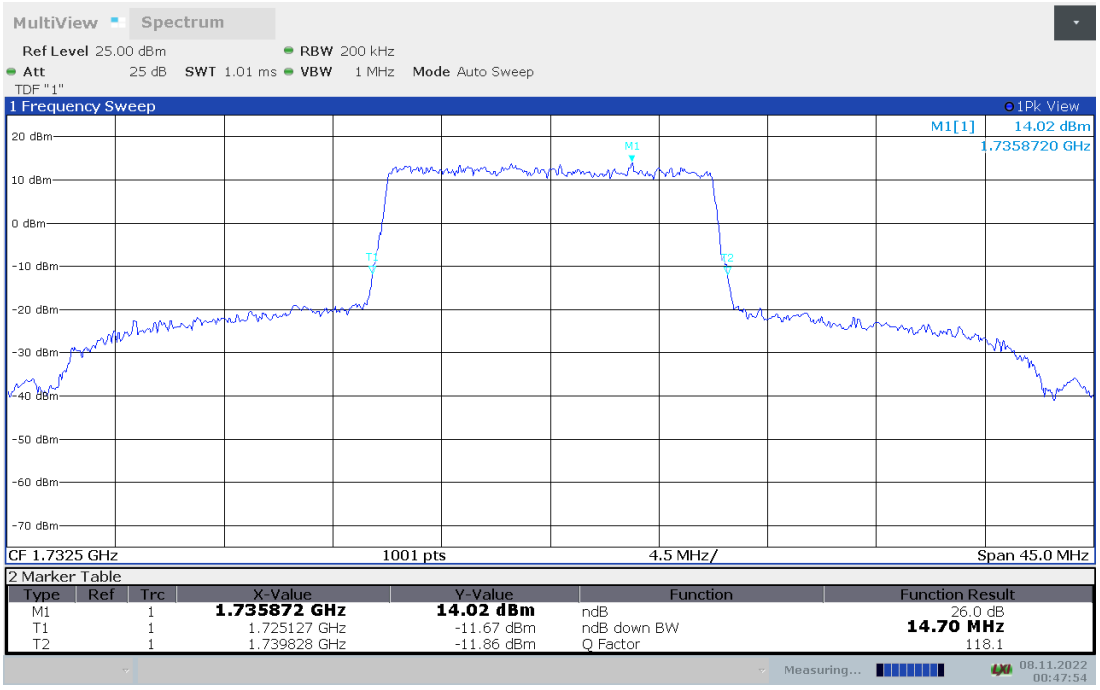
LTE band 4 , 10MHz Bandwidth,16QAM (-26dBc BW)



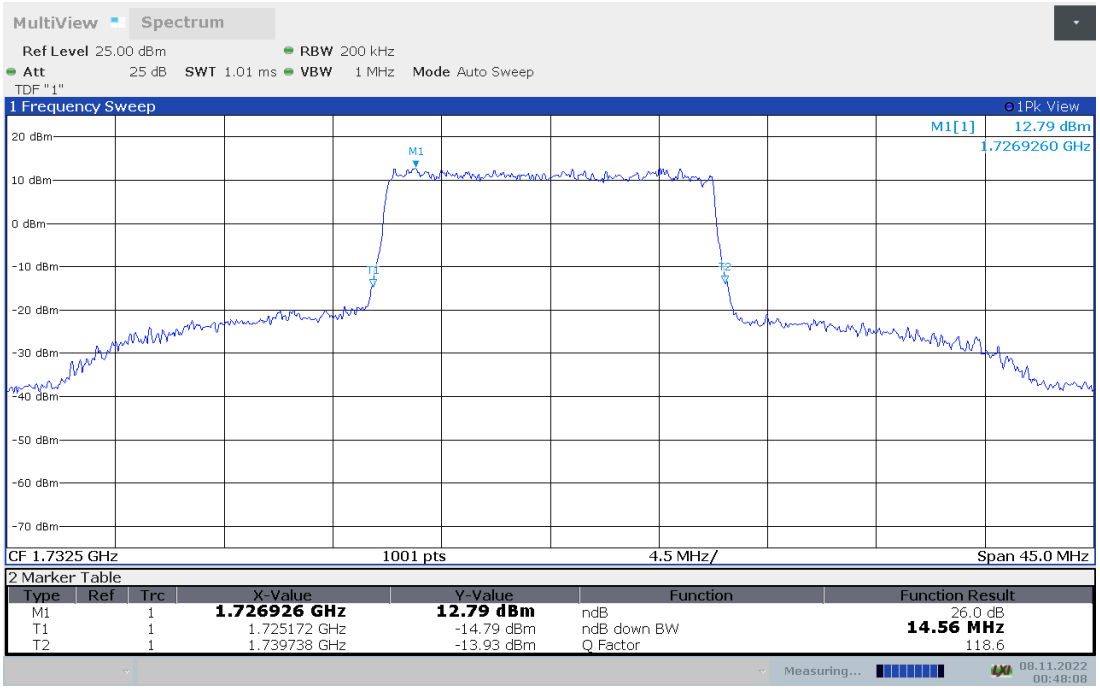
LTE band 4,15MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1732.5	14.700	14.565

LTE band 4 , 15MHz Bandwidth,QPSK (-26dBc BW)



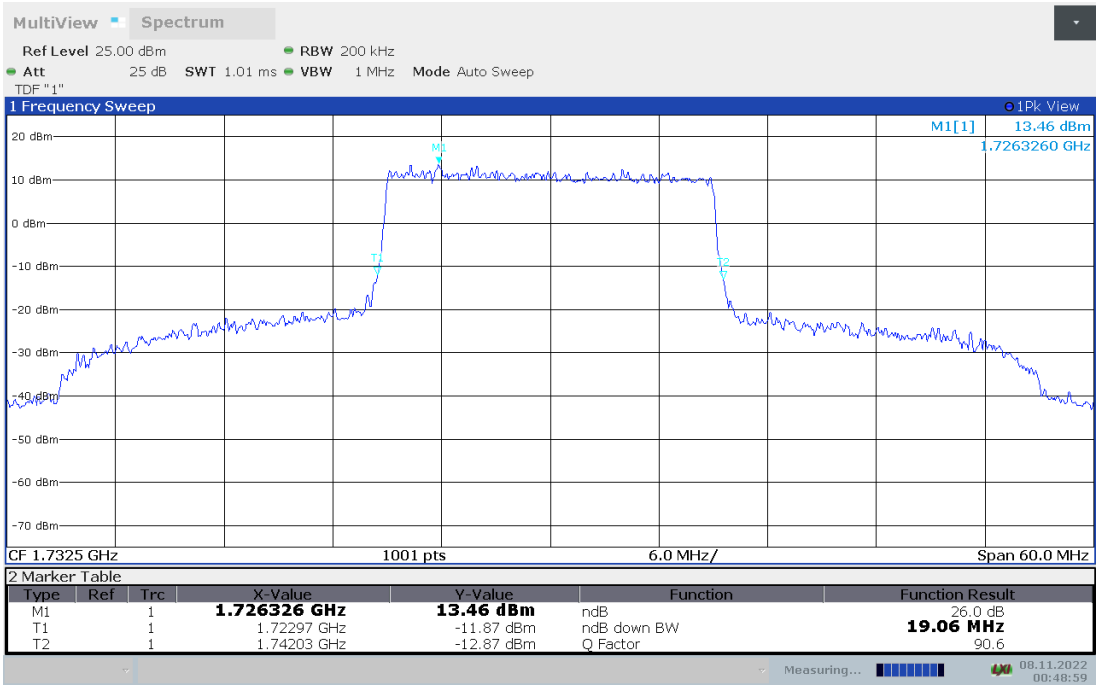
LTE band 4 , 15MHz Bandwidth,16QAM (-26dBc BW)



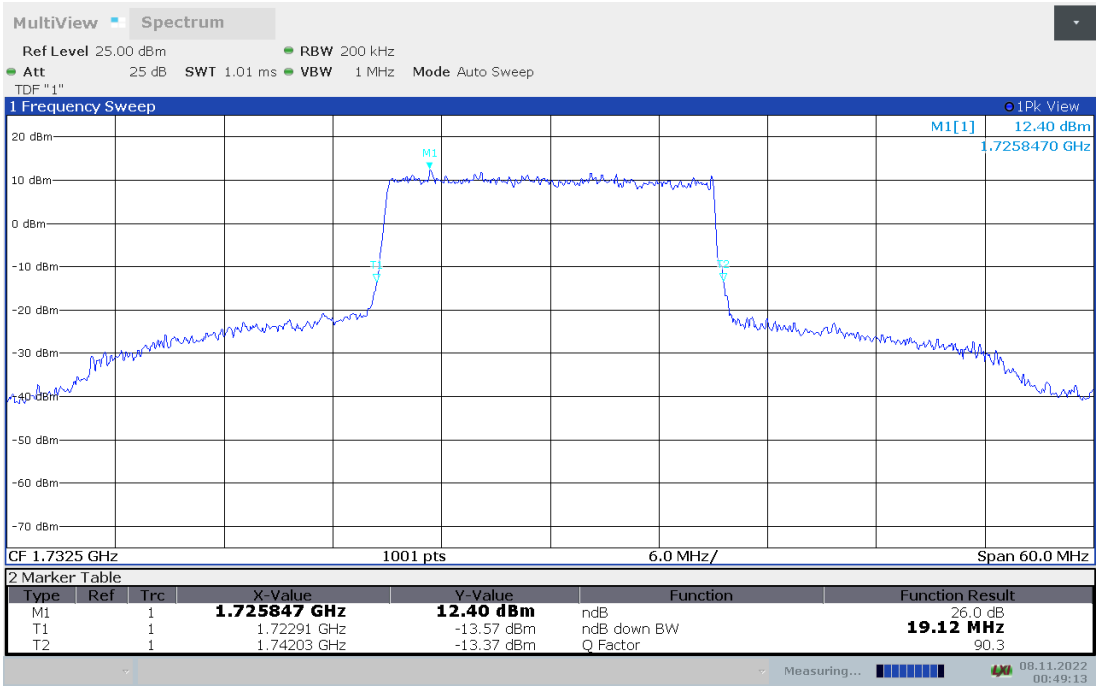
LTE band 4,20MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1732.5	19.061	19.121

LTE band 4 , 20MHz Bandwidth,QPSK (-26dBc BW)



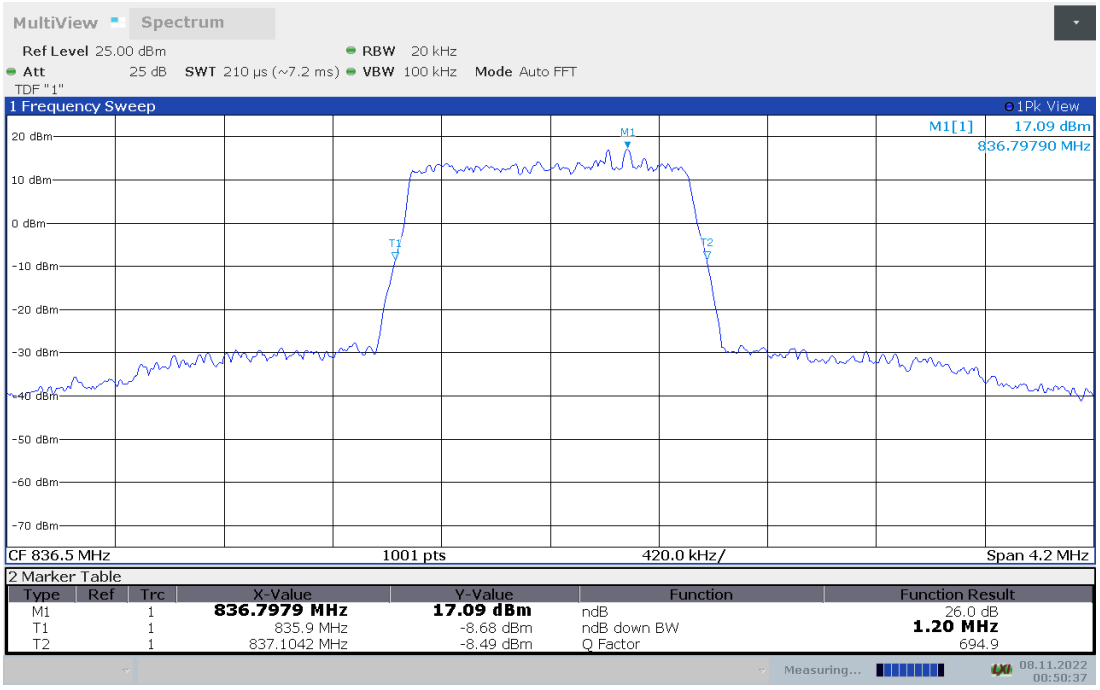
LTE band 4 , 20MHz Bandwidth,16QAM (-26dBc BW)



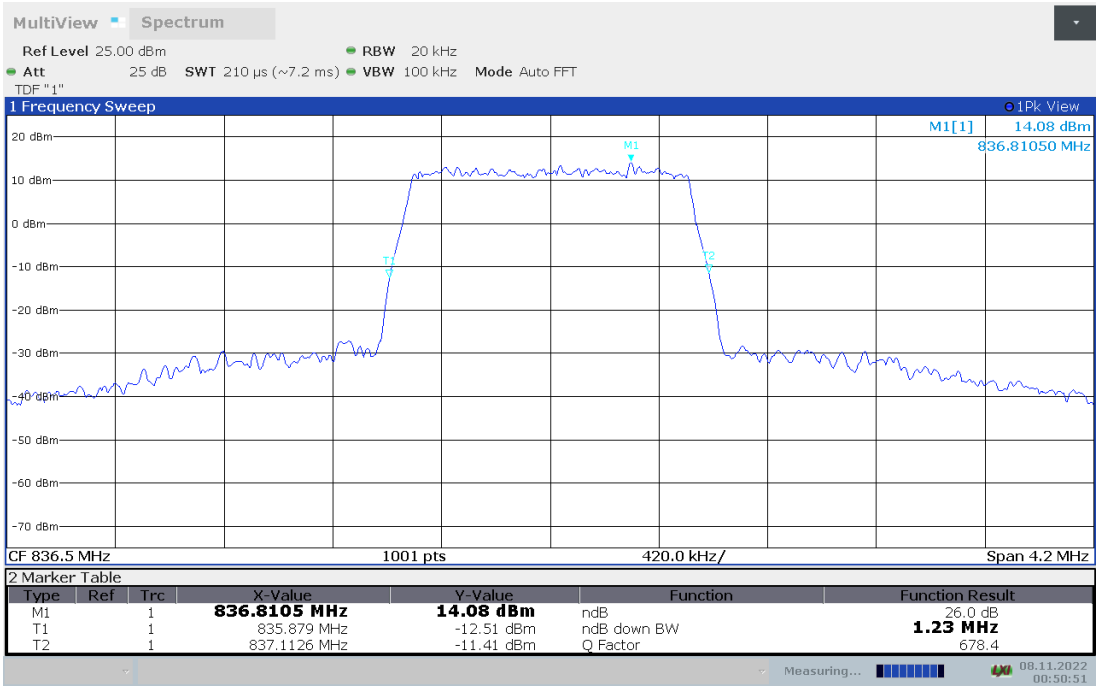
LTE band 5,1.4MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
836.5	1.204	1.234

LTE band 5 , 1.4MHz Bandwidth,QPSK (-26dBc BW)



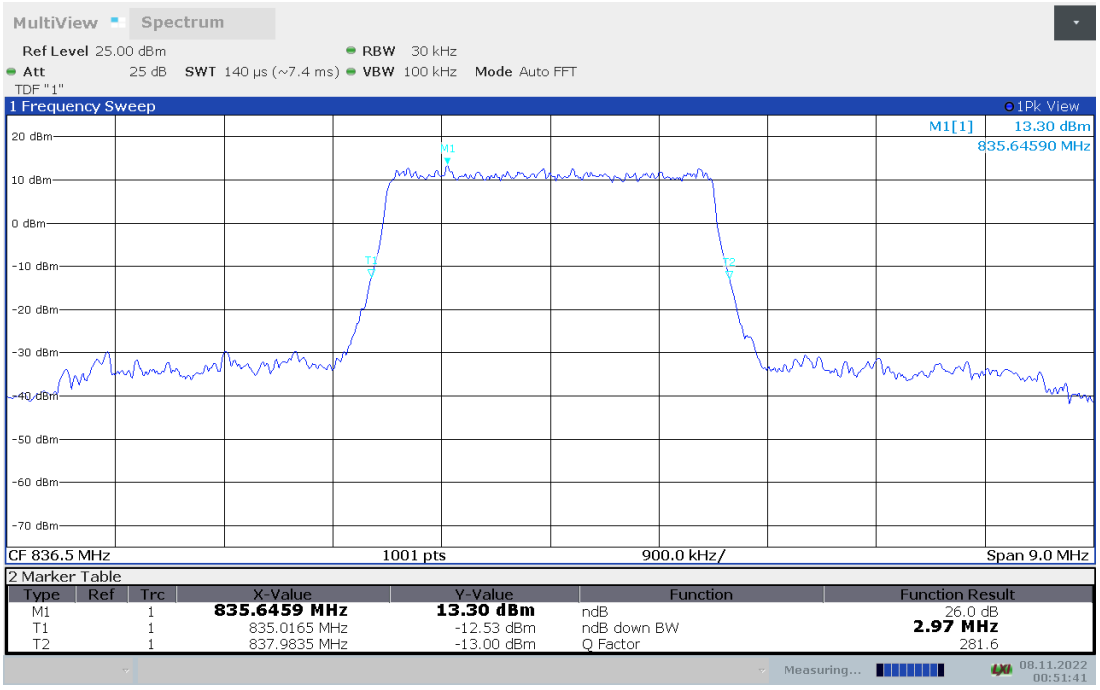
LTE band 5 , 1.4MHz Bandwidth,16QAM (-26dBc BW)



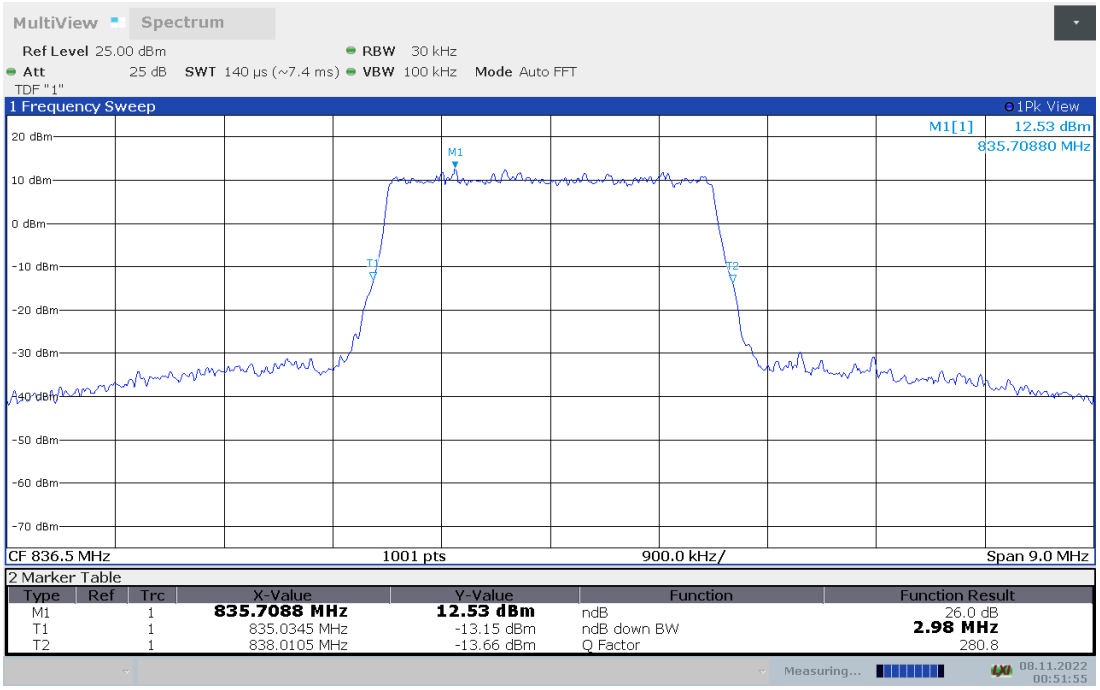
LTE band 5,3MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
836.5	2.967	2.976

LTE band 5 , 3MHz Bandwidth,QPSK (-26dBc BW)



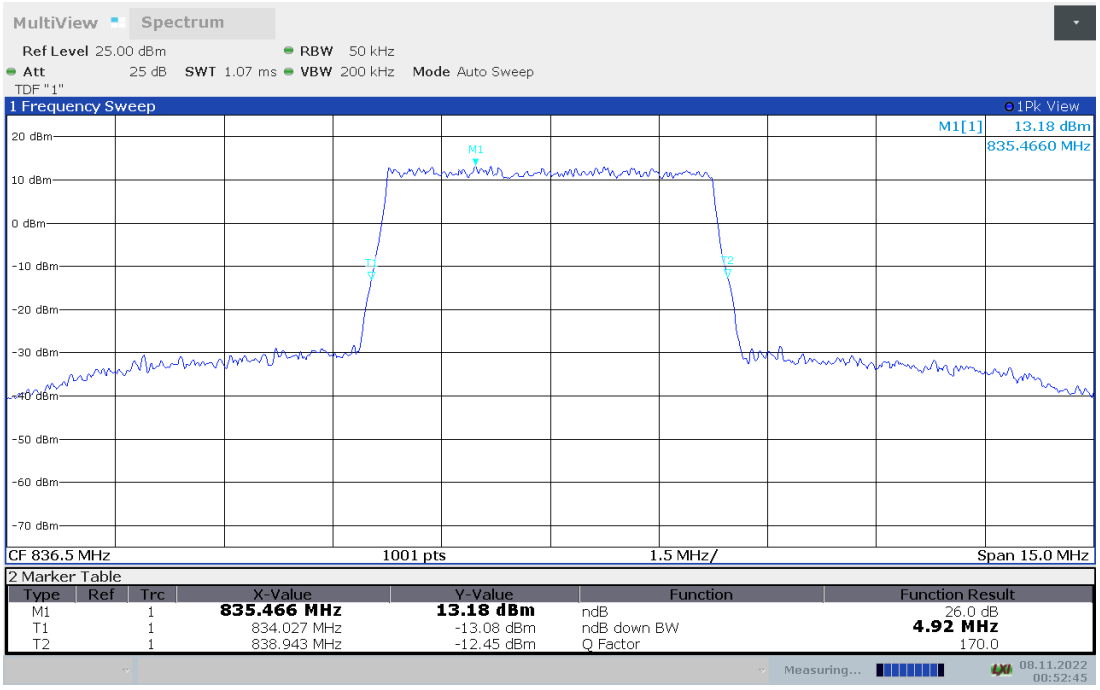
LTE band 5 , 3MHz Bandwidth,16QAM (-26dBc BW)



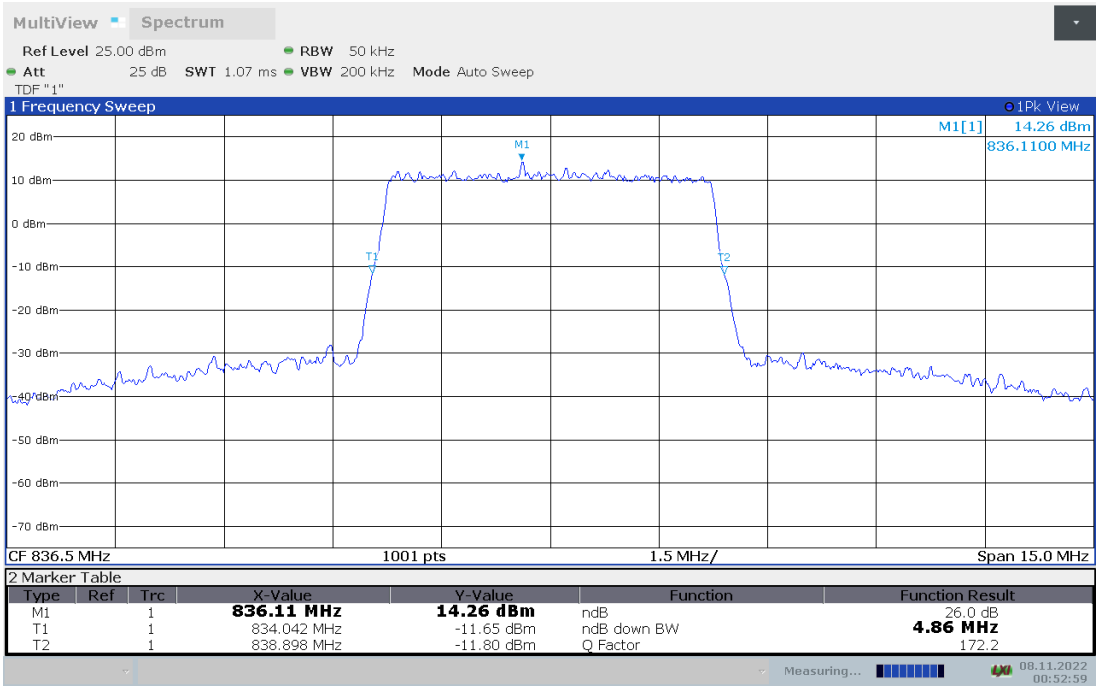
LTE band 5,5MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
836.5	4.915	4.855

LTE band 5 , 5MHz Bandwidth,QPSK (-26dBc BW)



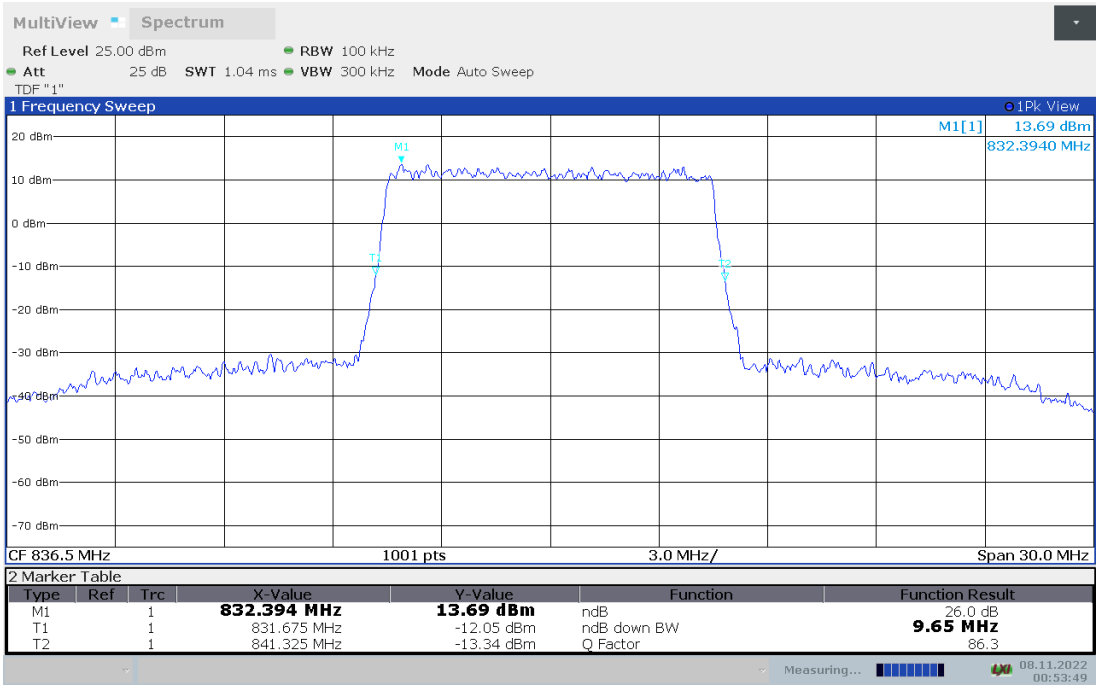
LTE band 5 , 5MHz Bandwidth,16QAM (-26dBc BW)



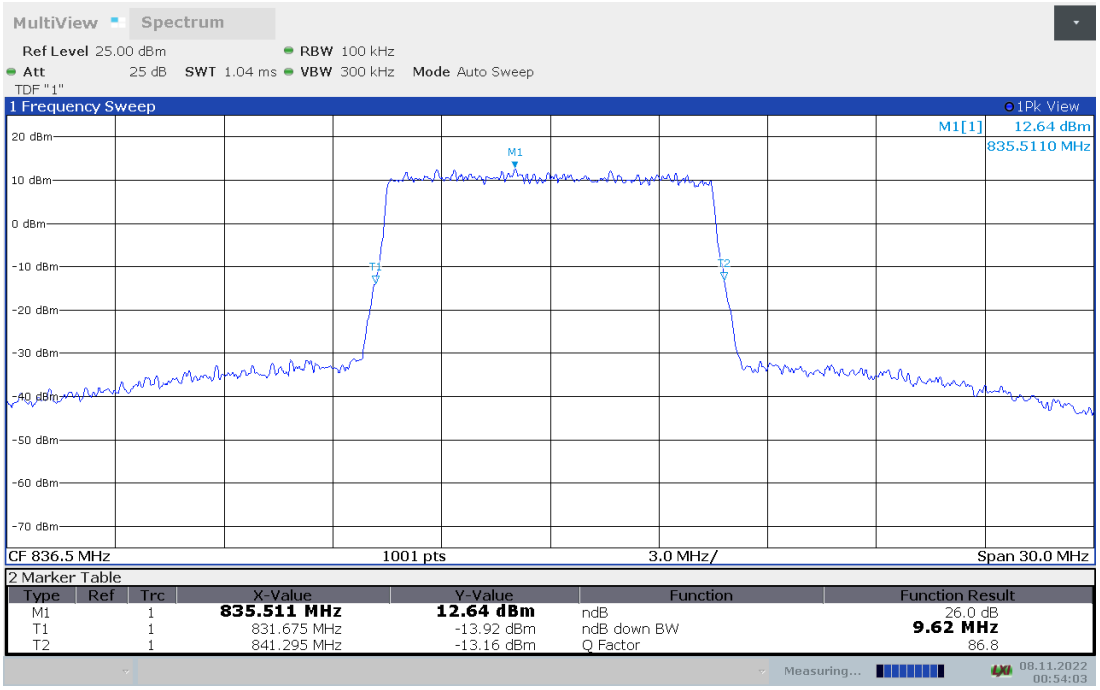
LTE band 5,10MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
836.5	9.650	9.620

LTE band 5 , 10MHz Bandwidth,QPSK (-26dBc BW)



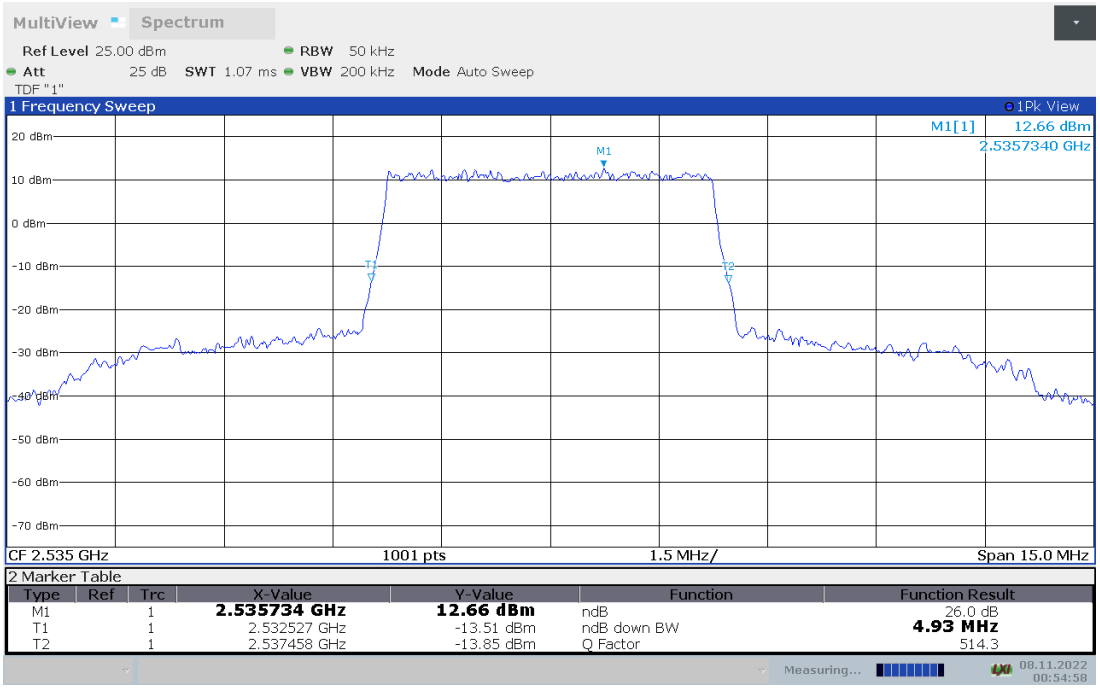
LTE band 5 , 10MHz Bandwidth,16QAM (-26dBc BW)



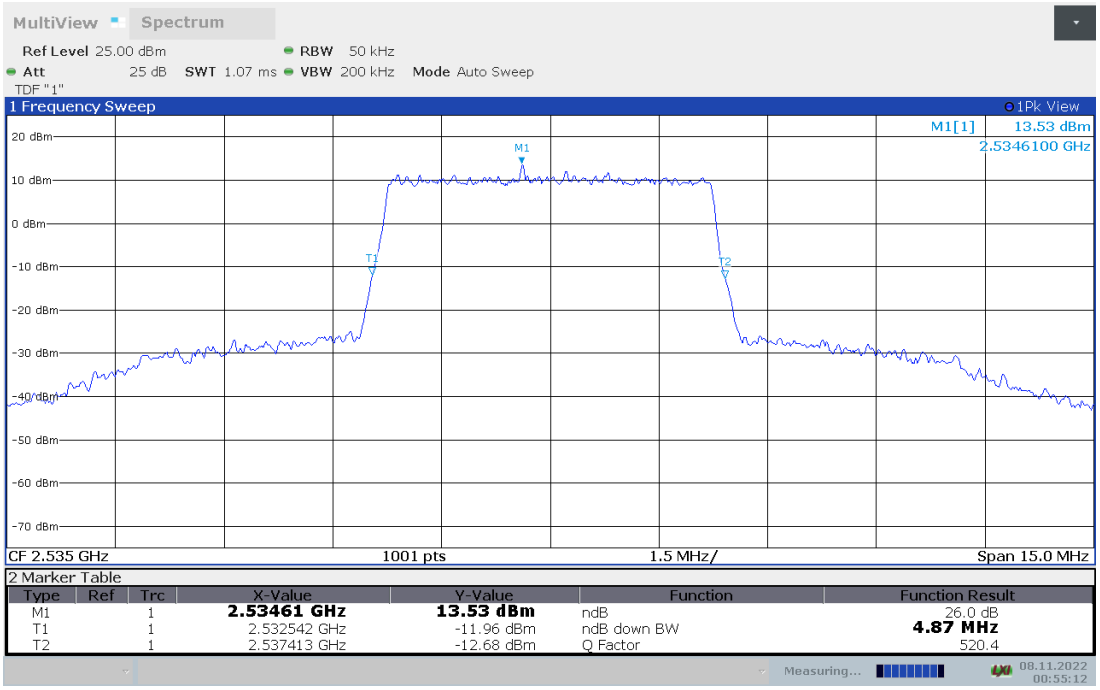
LTE band 7,5MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2535	4.930	4.870

LTE band 7 , 5MHz Bandwidth,QPSK (-26dBc BW)



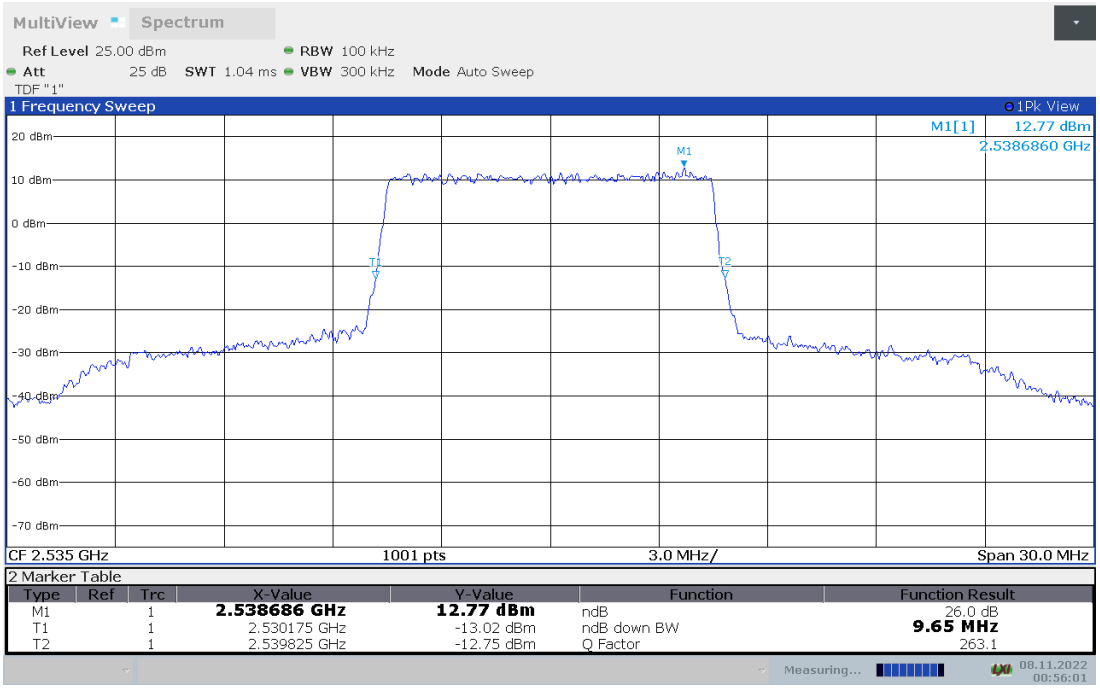
LTE band 7 , 5MHz Bandwidth,16QAM (-26dBc BW)



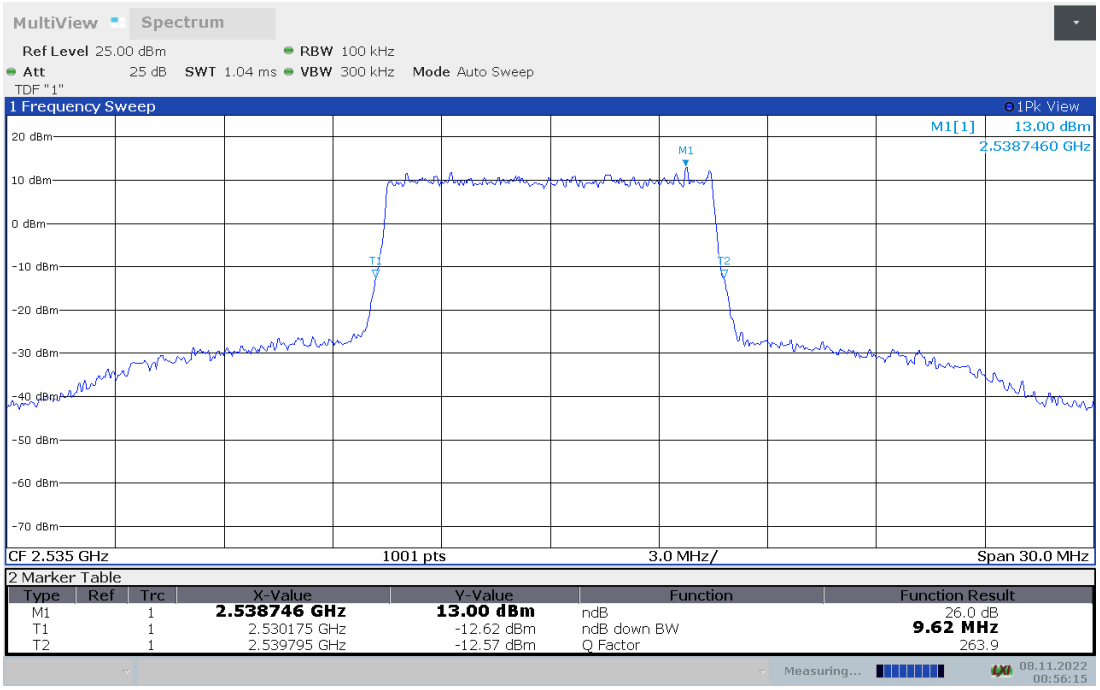
LTE band 7,10MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2535	9.650	9.620

LTE band 7 , 10MHz Bandwidth,QPSK (-26dBc BW)



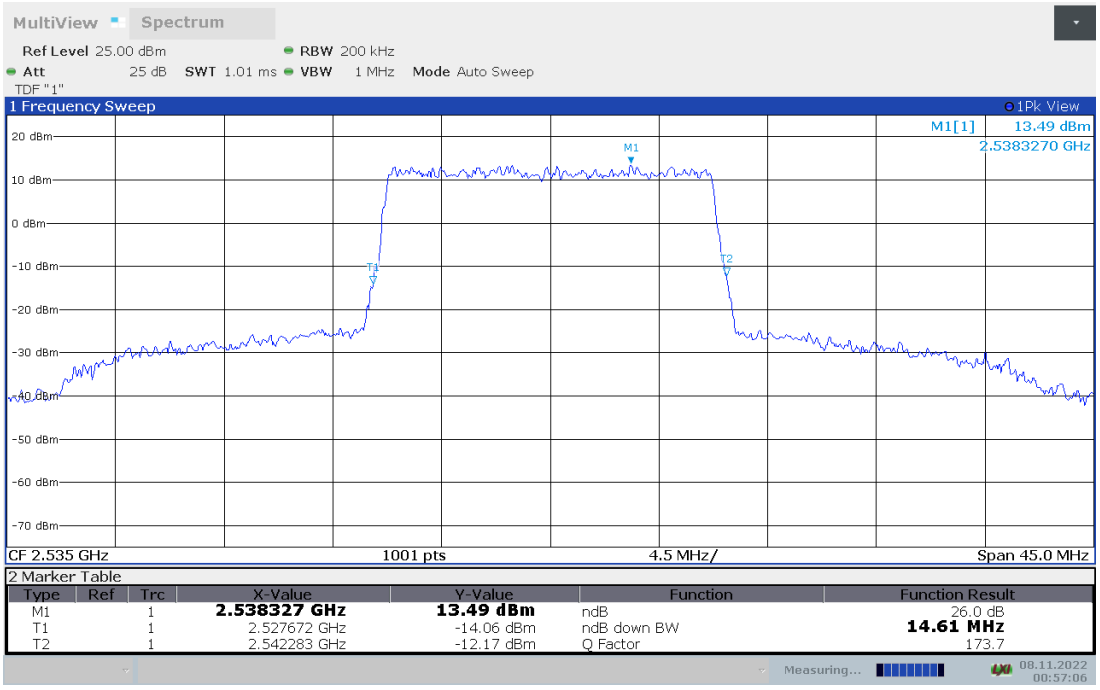
LTE band 7 , 10MHz Bandwidth,16QAM (-26dBc BW)



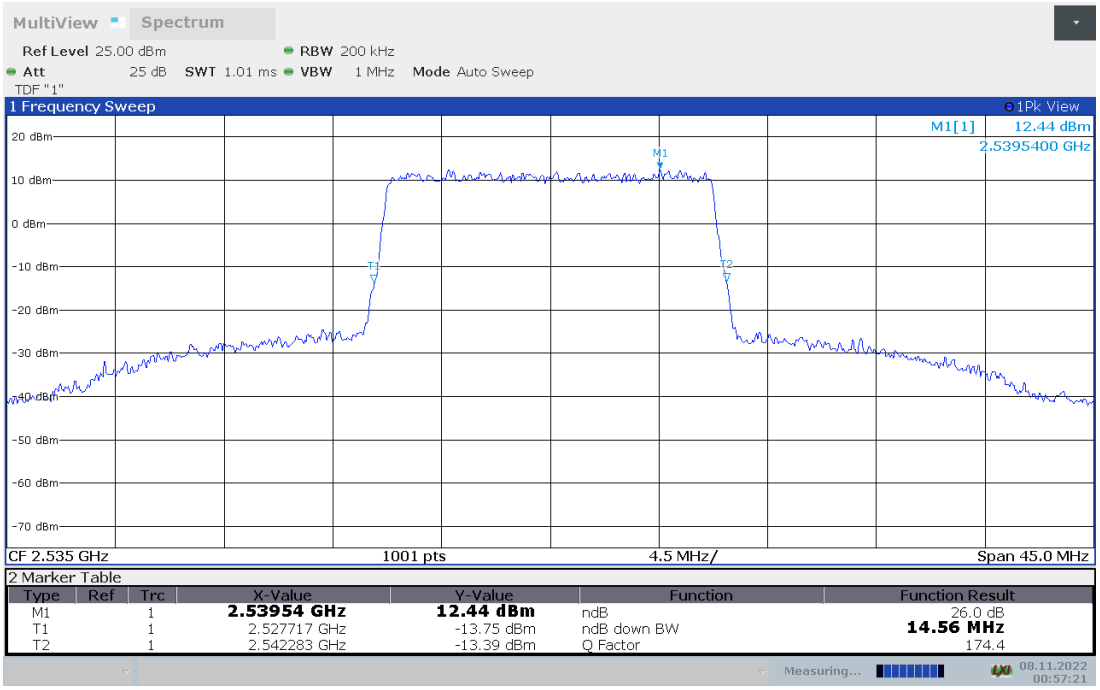
LTE band 7,15MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2535	14.610	14.565

LTE band 7 , 15MHz Bandwidth,QPSK (-26dBc BW)



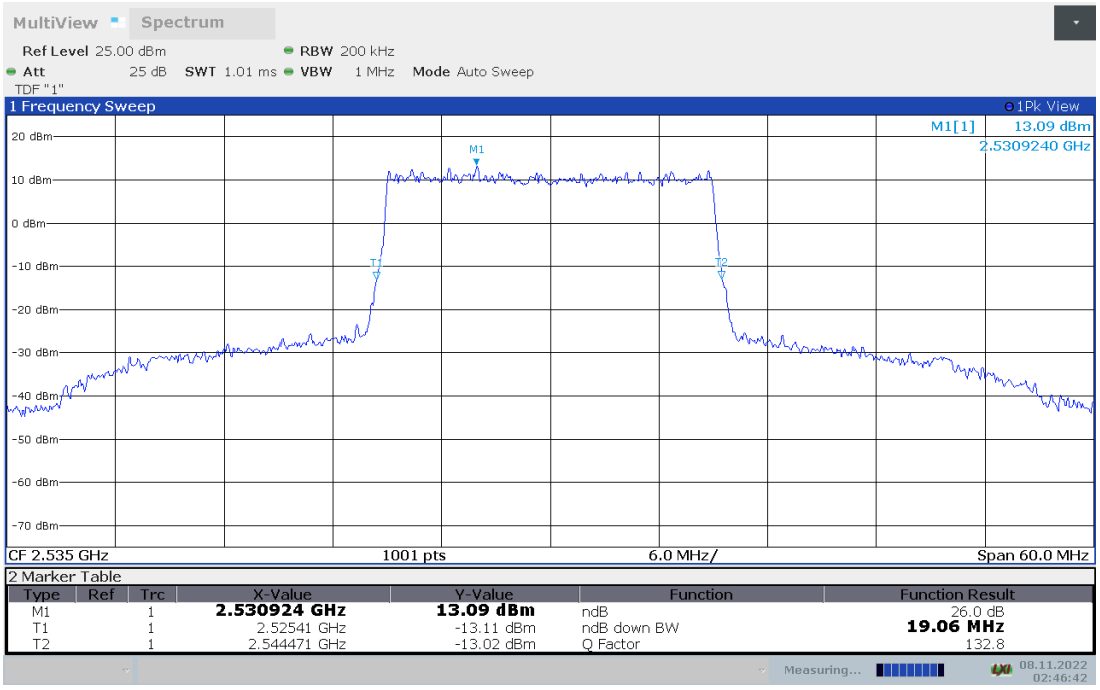
LTE band 7 , 15MHz Bandwidth,16QAM (-26dBc BW)



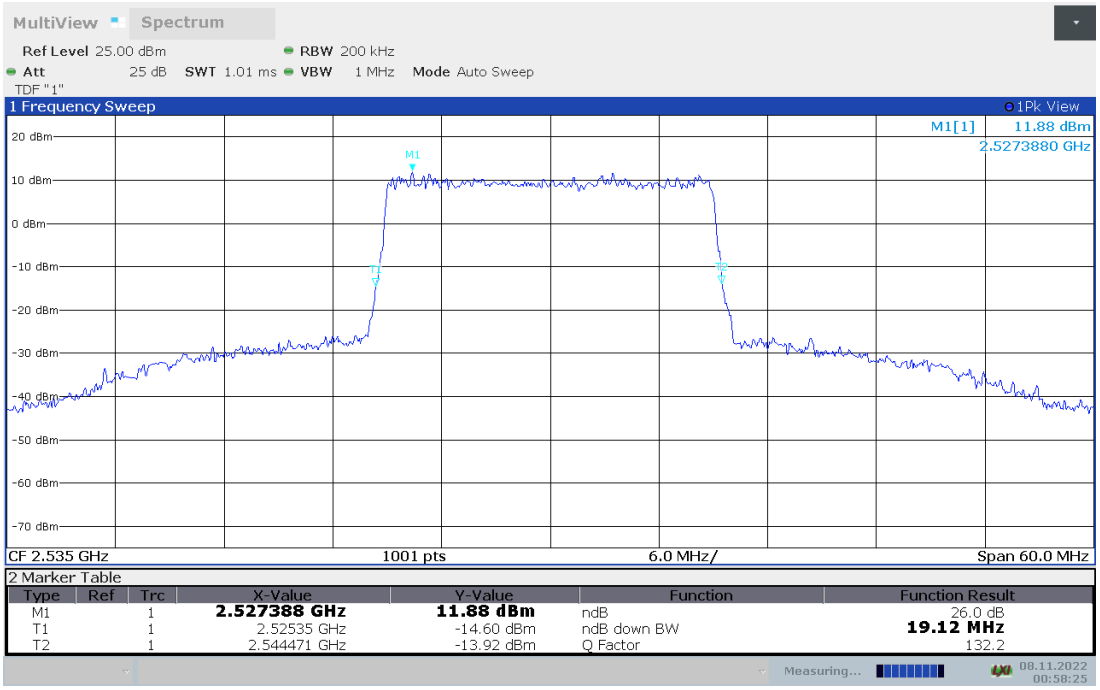
LTE band 7,20MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2535	19.061	19.121

LTE band 7 , 20MHz Bandwidth,QPSK (-26dBc BW)



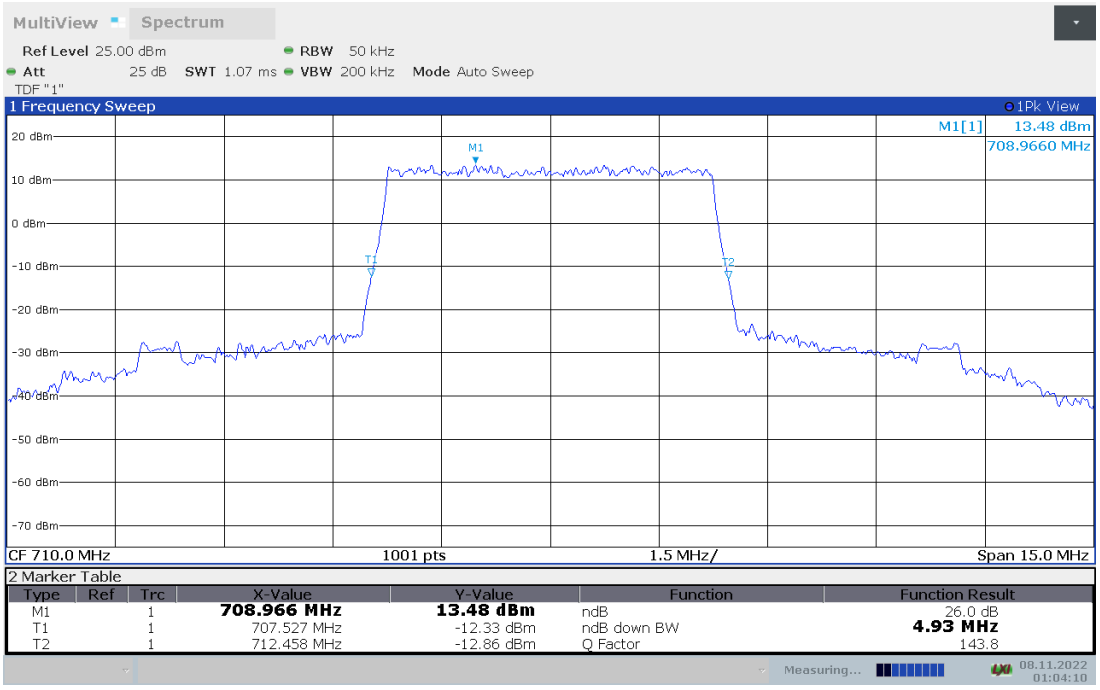
LTE band 7 , 20MHz Bandwidth,16QAM (-26dBc BW)



LTE band 17,5MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
710	4.930	4.930

LTE band 17 , 5MHz Bandwidth,QPSK (-26dBc BW)



LTE band 17 , 5MHz Bandwidth,16QAM (-26dBc BW)