TEST REPORT

No. I22N02642-RF LTE

for

TCL Communication Ltd.

Mobile Phone

Model Name: T507J

FCC ID: 2ACCJB186

with

Hardware Version: 05

Software Version: vVK54

Issued Date`: 2023-01-12

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

Test Laboratory:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22N02642-RF LTE	Rev.0	1st edition	2023-01-12

CONTENTS

1. SUMMARY OF TEST REPORT

1.1. Test Items

Description	Mobile Phone
Model Name	T507J
Code Name	T507J
Applicant's name	TCL Communication Ltd.
Manufacturer's Name	TCL Communication Ltd.

1.2. Test Standards

FCC Part 2/22/24/27/90	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: 2022-07-25 Testing End Date: 2022-09-05

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	TCL Communication Ltd.
Address	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact	Annie Jiang
Email	nianxiang.jiang@tcl.com
Tel.	+86 755 36611621
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2.2. Manufacturer Information

Company Name	TCL Communication Ltd.
Address	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact	Annie Jiang
Email	nianxiang.jiang@tcl.com
Tel.	+86 755 36611621
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3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)

3.1. About EUT

Description	Mobile Phone
Model Name	T507J
Code Name	T507J
FCC ID	2ACCJB186
Frequency Bands	LTE Bands 2,4,5,7,12,13,17,26,38,66
Antenna	Integrated
Extreme vol. Limits	3.60V to 4.40V (nominal: 3.85V)
Condition of EUT as received	No abnormality in appearance

Note: Components list, please refer to documents of the manufacturer

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version	Sample Arrival Date
UT03aa	350634890001581	05	vVK54	2022-07-25
UT28aa	353380540003042	05	vVK54	2022-08-16

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

UT03aa is used for conduction test, UT28aa is used for radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN
AE1	Battery	/

AE1-1

Model	TLp048A8
Manufacturer	Dongguan Ganfeng Electronics co.,LTD
Capacity	5000mAh
Nominal Voltage	3.85V

AE1-2

Model	TLp048A7
Manufacturer	VEKEN
Capacity	5000mAh
Nominal Voltage	3.85V

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

3.4. General Description

The Equipment Under Test (EUT) is a model Mobile Phone 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
FCC Part 90	PRIVATE LAND MOBILE RADIO 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
Location Column	A/B/C/D	The test is performed in test location A, B, C or D which are described in section 1.4 of this report

NOTE: As the frequency band range of LTE Band 12(699 MHz -716 MHz) overlaps the range of LTE Band17(704 MHz -716 MHz), LTE Band66(1710 MHz -1780 MHz) overlaps the range of LTE Band 4(1710 MHz -1755 MHz).The channel bandwidth and other perating parameters for LTE Band 17 are fully supported by LTE Band 12, the channel bandwidth and other perating parameters for LTE Band 4 are fully supported by LTE Band 66, we just need to test all the cases of LTE Band 12, LTE Band 66.

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 5

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

LTE Band 7

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

LTE Band 12

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

LTE Band 13

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

LTE Band 26(814MHz-824MHz)

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/90.635	A.1	P
2	Field Strength of Spurious Radiation	2.1053/90.691	A.2	P
3	Frequency Stability	2.1055/90.213	A.3	P
4	Occupied Bandwidth	2.1049/90.1215	A.4	P
5	Emission Bandwidth	2.1049/90.1215	A.5	P
6	Band Edge Compliance	2.1051/90.691	A.6	P
7	Conducted Spurious Emission	2.1051/90.691	A.7	P
8	Peak-to-Average Power Ratio	KDB971168 D01	A.8	P

LTE band 26(824MHz-849MHz)

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 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 66

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

7. STATEMENT

The Mobile Phone, T507J, manufactured by TCL Communication Ltd. is a variant of T506A for testing.

According to the declaration, reused all test data from No.I22N01585-RF-LTE. For detail information please check the declaration provided by the manufacturer.

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

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

8. TEST EQUIPMENTS UTILIZED

NO.	Description	TYPE	Manufacture	series number	CAL DUE DATE
1	Test Receiver	ESR7	R&S	101676	2022-11-24
2	BiLog Antenna	3142E	ETS-Lindgren	0224831	2024-05-27
3	Horn Antenna	3117	ETS-Lindgren	00066585	2025-03-15
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	2022-11-24
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	CMW500	R&S	152499	2023-07-14
13	Universal Radio Communication Tester	CMW500	R&S	129146	2023-04-24
14	Spectrum Analyzer	FSU	R&S	101506	2022-12-13
15	Temperature Chamber	SH-241	ESPEC	92007516	2022-10-15
16	DC Power Supply	U3606A	Agilent Technologies	MY50450012	2022-11-13
17	Spectrum Analyzer	FSW26	R&S	102197	2022-11-24

Test software

Item	Name	Vesion
Radiated	EMC32	V10.50.40

ANNEX A: MEASUREMENT RESULTS

A.1 OUTPUT POWER

Reference

FCC: CFR Part 2.1046, 22.913, 24.232, 27.50,90.635.

A.1.1 Summary

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMW500) to ensure max power transmission and proper modulation.

This result contains peak output power and ERP/EIRP measurements for the EUT.

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

A.1.2 Conducted

A.1.2.1 Method of Measurements

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

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

A.1.2.2 Measurement result

LTE band 2

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
1.4MHz	1RB-High (5)	1909.3 (19193)	22.24	21.57
		1880 (18900)	22.16	21.48
		1850.7 (18607)	22.20	21.60
	1RB-Middle (3)	1909.3 (19193)	22.40	21.65
		1880 (18900)	22.28	21.63
		1850.7 (18607)	22.30	21.70
	1RB-Low (0)	1909.3 (19193)	22.26	21.56
		1880 (18900)	22.19	21.55
		1850.7 (18607)	22.20	21.62
	3RB-High (3)	1909.3 (19193)	22.36	21.38
		1880 (18900)	22.25	21.38

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		1850.7 (18607)	22.28	21.36
	3RB-Middle (1)	1909.3 (19193)	22.42	21.45
		1880 (18900)	22.36	21.46
		1850.7 (18607)	22.37	21.38
	3RB-Low (0)	1909.3 (19193)	22.38	21.40
		1880 (18900)	22.26	21.35
		1850.7 (18607)	22.31	21.35
	6RB (0)	1909.3 (19193)	21.43	20.54
		1880 (18900)	21.31	20.41
		1850.7 (18607)	21.37	20.42
3MHz	1RB-High (14)	1908.5 (19185)	22.28	21.56
		1880 (18900)	22.22	21.59
		1851.5 (18615)	22.27	21.66
	1RB-Middle (7)	1908.5 (19185)	22.52	21.72
		1880 (18900)	22.44	21.77
		1851.5 (18615)	22.39	21.79
	1RB-Low (0)	1908.5 (19185)	22.27	21.60
		1880 (18900)	22.21	21.62
		1851.5 (18615)	22.21	21.67
	8RB-High (7)	1908.5 (19185)	21.31	20.31

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		1880 (18900)	21.29	20.33
		1851.5 (18615)	21.31	20.36
	8RB-Middle (4)	1908.5 (19185)	21.36	20.38
		1880 (18900)	21.32	20.38
		1851.5 (18615)	21.33	20.42
	8RB-Low (0)	1908.5 (19185)	21.39	20.40
		1880 (18900)	21.27	20.36
		1851.5 (18615)	21.35	20.41
	15RB (0)	1908.5 (19185)	21.35	20.35
		1880 (18900)	21.29	20.29
		1851.5 (18615)	21.31	20.35
5MHz	1RB-High (24)	1907.5 (19175)	22.16	21.49
		1880 (18900)	22.09	21.63
		1852.5 (18625)	22.14	21.55
	1RB-Middle (12)	1907.5 (19175)	22.46	21.81
		1880 (18900)	22.36	21.75
		1852.5 (18625)	22.44	21.85
	1RB-Low (0)	1907.5 (19175)	22.14	21.58
		1880 (18900)	22.12	21.51
		1852.5 (18625)	22.14	21.56

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
10MHz	12RB-High (13)	1907.5 (19175)	21.24	20.22
		1880 (18900)	21.38	20.31
		1852.5 (18625)	21.28	20.33
	12RB-Middle (6)	1907.5 (19175)	21.41	20.39
		1880 (18900)	21.34	20.33
		1852.5 (18625)	21.38	20.38
	12RB-Low (0)	1907.5 (19175)	21.35	20.32
		1880 (18900)	21.26	20.30
		1852.5 (18625)	21.34	20.32
	25RB (0)	1907.5 (19175)	21.32	20.30
		1880 (18900)	21.32	20.36
		1852.5 (18625)	21.31	20.31
	1RB-High (49)	1905 (19150)	22.21	21.53
		1880 (18900)	22.18	21.48
		1855 (18650)	22.21	21.54
	1RB-Middle (24)	1905 (19150)	22.36	21.70
		1880 (18900)	22.30	21.64
		1855 (18650)	22.40	21.70
	1RB-Low (0)	1905 (19150)	22.20	21.59
		1880 (18900)	22.18	21.55

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		1855 (18650)	22.25	21.59
	25RB-High (25)	1905 (19150)	21.33	20.33
		1880 (18900)	21.39	20.44
		1855 (18650)	21.29	20.34
	25RB-Middle (12)	1905 (19150)	21.37	20.37
		1880 (18900)	21.32	20.36
		1855 (18650)	21.38	20.38
	25RB-Low (0)	1905 (19150)	21.30	20.32
		1880 (18900)	21.26	20.33
		1855 (18650)	21.43	20.40
	50RB (0)	1905 (19150)	21.29	20.29
		1880 (18900)	21.37	20.37
		1855 (18650)	21.40	20.40
15MHz	1RB-High (74)	1902.5 (19125)	22.15	21.50
		1880 (18900)	22.14	21.51
		1857.5 (18675)	22.16	21.53
	1RB-Middle (37)	1902.5 (19125)	22.23	21.59
		1880 (18900)	22.21	21.59
		1857.5 (18675)	22.27	21.66
	1RB-Low (0)	1902.5 (19125)	22.14	21.54

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		1880 (18900)	22.22	21.46
		1857.5 (18675)	22.20	21.52
	36RB-High (38)	1902.5 (19125)	21.38	20.41
		1880 (18900)	21.36	20.36
		1857.5 (18675)	21.31	20.30
	36RB-Middle (19)	1902.5 (19125)	21.40	20.38
		1880 (18900)	21.37	20.36
		1857.5 (18675)	21.37	20.37
	36RB-Low (0)	1902.5 (19125)	21.35	20.37
		1880 (18900)	21.27	20.28
		1857.5 (18675)	21.39	20.43
	75RB (0)	1902.5 (19125)	21.38	20.37
		1880 (18900)	21.35	20.34
		1857.5 (18675)	21.41	20.39
20MHz	1RB-High (99)	1900 (19100)	22.50	21.37
		1880 (18900)	21.92	21.29
		1860 (18700)	21.93	21.39
	1RB-Middle (50)	1900 (19100)	22.75	21.71
		1880 (18900)	22.37	21.62
		1860 (18700)	22.29	21.75

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
	1RB-Low (0)	1900 (19100)	22.50	21.30
		1880 (18900)	21.99	21.42
		1860 (18700)	22.02	21.40
	50RB-High (50)	1900 (19100)	21.95	20.47
		1880 (18900)	21.28	20.30
		1860 (18700)	21.22	20.25
	50RB-Middle (25)	1900 (19100)	21.86	20.37
		1880 (18900)	21.62	20.36
		1860 (18700)	21.29	20.34
	50RB-Low (0)	1900 (19100)	21.96	20.46
		1880 (18900)	21.61	20.26
		1860 (18700)	21.47	20.51
	100RB (0)	1900 (19100)	21.45	20.50
		1880 (18900)	21.49	20.28
		1860 (18700)	21.39	20.38

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

LTE Band 5

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
1.4MHz	1RB-High (5)	848.3 (20643)	23.41	22.55
		836.5 (20525)	23.42	22.76
		824.7 (20407)	23.48	22.73
	1RB-Middle (3)	848.3 (20643)	23.59	22.65
		836.5 (20525)	23.50	22.78
		824.7 (20407)	23.61	22.95
	1RB-Low (0)	848.3 (20643)	23.47	22.64
		836.5 (20525)	23.43	22.70
		824.7 (20407)	23.44	22.64
	3RB-High (3)	848.3 (20643)	23.52	22.50
		836.5 (20525)	23.61	22.55
		824.7 (20407)	23.51	22.61
	3RB-Middle (1)	848.3 (20643)	23.48	22.60
		836.5 (20525)	23.52	22.57
		824.7 (20407)	23.66	22.57
	3RB-Low (0)	848.3 (20643)	23.60	22.44
		836.5 (20525)	23.53	22.47
		824.7 (20407)	23.50	22.55
	6RB (0)	848.3 (20643)	22.49	21.51

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		836.5 (20525)	22.55	21.75
		824.7 (20407)	22.55	21.63
3MHz	1RB-High (14)	847.5 (20635)	23.41	22.70
		836.5 (20525)	23.51	22.84
		825.5 (20415)	23.49	22.65
	1RB-Middle (7)	847.5 (20635)	23.64	22.87
		836.5 (20525)	23.65	22.99
		825.5 (20415)	23.89	22.93
	1RB-Low (0)	847.5 (20635)	23.52	22.68
		836.5 (20525)	23.45	22.83
		825.5 (20415)	23.53	22.68
	8RB-High (7)	847.5 (20635)	22.47	21.56
		836.5 (20525)	22.54	21.58
		825.5 (20415)	22.63	21.60
	8RB-Middle (4)	847.5 (20635)	22.60	21.62
		836.5 (20525)	22.60	21.64
		825.5 (20415)	22.51	21.61
	8RB-Low (0)	847.5 (20635)	22.60	21.64
		836.5 (20525)	22.62	21.64
		825.5 (20415)	22.51	21.60

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
	15RB (0)	847.5 (20635)	22.52	21.46
		836.5 (20525)	22.66	21.72
		825.5 (20415)	22.61	21.45
5MHz	1RB-High (24)	846.5 (20625)	23.38	22.64
		836.5 (20525)	23.54	22.73
		826.5 (20425)	23.34	22.71
	1RB-Middle (12)	846.5 (20625)	23.71	22.86
		836.5 (20525)	23.57	23.01
		826.5 (20425)	23.56	23.02
	1RB-Low (0)	846.5 (20625)	23.52	22.57
		836.5 (20525)	23.39	22.77
		826.5 (20425)	23.41	22.76
	12RB-High (13)	846.5 (20625)	22.48	21.39
		836.5 (20525)	22.50	21.61
		826.5 (20425)	22.73	21.65
	12RB-Middle (6)	846.5 (20625)	22.54	21.69
		836.5 (20525)	22.66	21.64
		826.5 (20425)	22.78	21.59
	12RB-Low (0)	846.5 (20625)	22.59	21.64
		836.5 (20525)	22.55	21.70

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		826.5 (20425)	22.54	21.57
	25RB (0)	846.5 (20625)	22.56	21.61
		836.5 (20525)	22.62	21.57
		826.5 (20425)	22.72	21.58
10MHz	1RB-High (49)	844 (20600)	23.52	22.59
		836.5 (20525)	23.69	22.84
		829 (20450)	23.51	22.72
	1RB-Middle (24)	844 (20600)	23.63	22.77
		836.5 (20525)	23.63	22.86
		829 (20450)	23.54	22.85
	1RB-Low (0)	844 (20600)	23.58	22.62
		836.5 (20525)	23.62	22.62
		829 (20450)	23.46	22.74
	25RB-High (25)	844 (20600)	22.34	21.34
		836.5 (20525)	22.62	21.69
		829 (20450)	22.77	21.75
	25RB-Middle (12)	844 (20600)	22.56	21.74
		836.5 (20525)	22.70	21.75
		829 (20450)	22.72	21.54
	25RB-Low (0)	844 (20600)	22.70	21.60

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		836.5 (20525)	22.77	21.75
		829 (20450)	22.63	21.57
	50RB (0)	844 (20600)	22.56	21.62
		836.5 (20525)	22.75	21.82
		829 (20450)	22.55	21.49

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

LTE band 7

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
5MHz	1RB-High (24)	2567.5 (21425)	22.06	21.24
		2535 (21100)	21.95	21.21
		2502.5 (20775)	21.80	21.02
	1RB-Middle (12)	2567.5 (21425)	22.28	21.56
		2535 (21100)	22.20	21.51
		2502.5 (20775)	22.07	21.30
	1RB-Low (0)	2567.5 (21425)	22.06	21.22
		2535 (21100)	21.88	21.19
		2502.5 (20775)	21.80	21.08
	12RB-High (13)	2567.5 (21425)	21.28	20.23
		2535 (21100)	21.16	20.11
		2502.5 (20775)	21.00	19.96
	12RB-Middle (6)	2567.5 (21425)	21.27	20.25
		2535 (21100)	21.16	20.18
		2502.5 (20775)	20.98	19.97
	12RB-Low (0)	2567.5 (21425)	21.21	20.23
		2535 (21100)	21.01	19.99
		2502.5 (20775)	20.86	19.84
	25RB (0)	2567.5 (21425)	21.25	20.20

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		2535 (21100)	21.12	20.12
		2502.5 (20775)	20.94	19.92
10MHz	1RB-High (49)	2565 (21400)	22.16	21.36
		2535 (21100)	22.05	21.19
		2505 (20800)	21.94	21.15
	1RB-Middle (24)	2565 (21400)	22.24	21.47
		2535 (21100)	22.16	21.33
		2505 (20800)	22.00	21.30
	1RB-Low (0)	2565 (21400)	22.08	21.34
		2535 (21100)	21.98	21.14
		2505 (20800)	21.91	21.15
	25RB-High (25)	2565 (21400)	21.34	20.32
		2535 (21100)	21.24	20.24
		2505 (20800)	21.07	20.00
	25RB-Middle (12)	2565 (21400)	21.32	20.31
		2535 (21100)	21.12	20.12
		2505 (20800)	20.98	19.96
	25RB-Low (0)	2565 (21400)	21.26	20.28
		2535 (21100)	21.06	20.04
		2505 (20800)	20.87	19.89

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
	50RB (0)	2565 (21400)	21.33	20.28
		2535 (21100)	21.18	20.13
		2505 (20800)	20.96	19.96
15MHz	1RB-High (74)	2562.5 (21375)	22.18	21.25
		2535 (21100)	22.03	21.16
		2507.5 (20825)	21.90	21.14
	1RB-Middle (37)	2562.5 (21375)	22.17	21.33
		2535 (21100)	22.06	21.24
		2507.5 (20825)	21.91	21.14
	1RB-Low (0)	2562.5 (21375)	21.99	21.16
		2535 (21100)	21.88	21.02
		2507.5 (20825)	21.81	21.08
	36RB-High (38)	2562.5 (21375)	21.34	20.31
		2535 (21100)	21.25	20.18
		2507.5 (20825)	21.03	20.00
	36RB-Middle (19)	2562.5 (21375)	21.29	20.26
		2535 (21100)	21.15	20.11
		2507.5 (20825)	21.05	19.96
	36RB-Low (0)	2562.5 (21375)	21.24	20.23
		2535 (21100)	21.09	20.03

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		2507.5 (20825)	20.90	19.83
	75RB (0)	2562.5 (21375)	21.30	20.27
		2535 (21100)	21.14	20.14
		2507.5 (20825)	20.96	19.91
20MHz	1RB-High (99)	2560 (21350)	22.03	21.23
		2535 (21100)	21.86	21.13
		2510 (20850)	21.76	21.10
	1RB-Middle (50)	2560 (21350)	22.26	21.45
		2535 (21100)	22.09	21.42
		2510 (20850)	22.01	21.31
	1RB-Low (0)	2560 (21350)	21.79	21.03
		2535 (21100)	21.66	20.97
		2510 (20850)	21.67	20.94
	50RB-High (50)	2560 (21350)	21.37	20.31
		2535 (21100)	21.35	20.34
		2510 (20850)	21.02	19.82
	50RB-Middle (25)	2560 (21350)	21.33	20.30
		2535 (21100)	21.12	20.15
		2510 (20850)	21.01	20.03
	50RB-Low (0)	2560 (21350)	21.27	20.26

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		2535 (21100)	20.96	19.97
		2510 (20850)	20.83	19.82
	100RB (0)	2560 (21350)	21.29	20.27
		2535 (21100)	21.19	20.18
		2510 (20850)	20.80	19.79

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

LTE band 12

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
1.4MHz	1RB-High (5)	715.3	23.60	22.74
		707.5	23.68	22.92
		699.7	23.78	23.03
	1RB-Middle (3)	715.3	23.68	22.92
		707.5	23.82	23.03
		699.7	23.89	23.10
	1RB-Low (0)	715.3	23.61	22.79
		707.5	23.70	22.90
		699.7	23.77	22.98
	3RB-High (3)	715.3	23.71	22.62
		707.5	23.79	22.82
		699.7	23.90	22.90
	3RB-Middle (1)	715.3	23.72	22.70
		707.5	23.82	22.84
		699.7	23.99	22.93
	3RB-Low (0)	715.3	23.71	22.64
		707.5	23.79	22.81
		699.7	23.92	22.87
	6RB (0)	715.3	22.81	21.87

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		707.5	22.89	21.92
		699.7	23.00	21.99
3MHz	1RB-High (14)	714.5	23.61	22.81
		707.5	23.73	23.02
		700.5	23.83	23.04
	1RB-Middle (7)	714.5	23.73	23.07
		707.5	23.85	23.18
		700.5	23.96	23.23
	1RB-Low (0)	714.5	23.64	22.85
		707.5	23.71	22.97
		700.5	23.81	23.11
	8RB-High (7)	714.5	22.74	21.75
		707.5	22.84	21.83
		700.5	22.89	21.99
	8RB-Middle (4)	714.5	22.74	21.79
		707.5	22.86	21.95
		700.5	22.91	21.98
	8RB-Low (0)	714.5	22.72	21.78
		707.5	22.82	21.91
		700.5	22.90	21.96

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
	15RB (0)	714.5	22.74	21.73
		707.5	22.87	21.87
		700.5	22.96	21.97
5MHz	1RB-High (24)	713.5	23.54	22.64
		707.5	23.63	22.84
		701.5	23.66	22.95
	1RB-Middle (12)	713.5	23.85	22.94
		707.5	23.98	23.04
		701.5	23.89	23.26
	1RB-Low (0)	713.5	23.54	22.74
		707.5	23.63	22.87
		701.5	23.68	22.93
	12RB-High (13)	713.5	22.78	21.76
		707.5	22.83	21.82
		701.5	22.90	21.92
	12RB-Middle (6)	713.5	22.85	21.85
		707.5	22.90	21.88
		701.5	22.98	21.94
	12RB-Low (0)	713.5	22.76	21.75
		707.5	22.84	21.91

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		701.5	22.93	21.91
	25RB (0)	713.5	22.76	21.78
		707.5	22.90	21.85
		701.5	22.94	21.87
10MHz	1RB-High (49)	711	23.70	22.86
		707.5	23.73	23.00
		704	23.77	23.11
	1RB-Middle (24)	711	23.86	23.06
		707.5	23.82	23.13
		704	23.87	23.18
	1RB-Low (0)	711	23.69	22.96
		707.5	23.70	23.05
		704	23.75	23.09
	25RB-High (25)	711	22.93	21.94
		707.5	22.93	21.91
		704	22.93	21.89
	25RB-Middle (12)	711	22.95	21.83
		707.5	22.94	21.90
		704	22.96	21.94
	25RB-Low (0)	711	22.85	21.85

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		707.5	22.93	21.87
		704	22.92	21.90
	50RB (0)	711	22.88	21.89
		707.5	22.94	21.93
		704	22.92	21.93

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

LTE band 13

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
5MHz	1RB-High (24)	784.5 (23255)	23.59	22.72
		782 (23230)	23.60	22.72
		779.5 (23205)	23.66	22.75
	1RB-Middle (12)	784.5 (23255)	23.86	22.92
		782 (23230)	23.83	22.95
		779.5 (23205)	23.88	23.09
	1RB-Low (0)	784.5 (23255)	23.62	22.71
		782 (23230)	23.66	22.77
		779.5 (23205)	23.63	22.84
	12RB-High (13)	784.5 (23255)	22.73	21.75
		782 (23230)	22.75	21.73
		779.5 (23205)	22.87	21.88
	12RB-Middle (6)	784.5 (23255)	22.83	21.76
		782 (23230)	22.83	21.81
		779.5 (23205)	22.85	21.89
	12RB-Low (0)	784.5 (23255)	22.78	21.80
		782 (23230)	22.75	21.77
		779.5 (23205)	22.78	21.79
	25RB (0)	784.5 (23255)	22.81	21.77

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		782 (23230)	22.75	21.78
		779.5 (23205)	22.82	21.86
10MHz	1RB-High (49)	782 (23230)	23.22	22.88
	1RB-Middle (24)	782 (23230)	23.38	22.96
	1RB-Low (0)	782 (23230)	23.26	23.01
	25RB-High (25)	782 (23230)	22.50	21.77
	25RB-Middle (12)	782 (23230)	22.84	21.87
	25RB-Low (0)	782 (23230)	22.75	21.75
	50RB (0)	782 (23230)	22.80	21.79

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

LTE band 26(814MHz-824MHz)

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
1.4MHz	1RB-High (5)	814.7 (26697)	23.65	22.30
		819(26740)	23.87	22.47
		823.3(26783)	24.04	23.21
	1RB-Middle (3)	814.7 (26697)	23.70	22.53
		819(26740)	23.98	22.59
		823.3(26783)	24.15	23.14
	1RB-Low (0)	814.7 (26697)	23.59	22.30
		819(26740)	23.85	22.64
		823.3(26783)	24.00	22.89
	3RB-High (3)	814.7 (26697)	23.74	22.17
		819(26740)	23.96	22.62
		823.3(26783)	24.19	22.61
	3RB-Middle (1)	814.7 (26697)	23.72	22.22
		819(26740)	24.01	22.65
		823.3(26783)	24.21	22.62
	3RB-Low (0)	814.7 (26697)	23.66	22.13
		819(26740)	23.94	22.72
		823.3(26783)	24.11	22.70
	6RB (0)	814.7 (26697)	22.67	21.32

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		819(26740)	22.94	21.97
		823.3(26783)	23.16	22.05
3MHz	1RB-High (14)	815.5 (26705)	23.64	22.92
		819(26740)	23.89	23.12
		822.5(26775)	23.99	23.13
	1RB-Middle (7)	815.5 (26705)	23.82	23.07
		819(26740)	24.06	23.15
		822.5(26775)	24.05	23.18
	1RB-Low (0)	815.5 (26705)	23.64	22.92
		819(26740)	23.88	23.05
		822.5(26775)	24.00	23.03
	8RB-High (7)	815.5 (26705)	22.67	21.82
		819(26740)	22.89	22.03
		822.5(26775)	23.01	22.00
	8RB-Middle (4)	815.5 (26705)	22.68	21.81
		819(26740)	22.98	22.04
		822.5(26775)	23.04	22.04
	8RB-Low (0)	815.5 (26705)	22.70	21.85
		819(26740)	22.90	21.99
		822.5(26775)	23.01	21.98

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
	15RB (0)	815.5 (26705)	22.70	21.71
		819(26740)	23.00	21.94
		822.5(26775)	23.04	21.94
5MHz	1RB-High (24)	816.5 (26715)	23.55	22.69
		819(26740)	23.76	22.98
		821.5(26765)	23.96	23.21
	1RB-Middle (12)	816.5 (26715)	23.74	23.02
		819(26740)	24.12	23.14
		821.5(26765)	24.26	23.45
	1RB-Low (0)	816.5 (26715)	23.59	22.75
		819(26740)	23.82	22.87
		821.5(26765)	23.96	23.09
	12RB-High (13)	816.5 (26715)	22.59	21.55
		819(26740)	22.85	21.83
		821.5(26765)	23.05	22.01
	12RB-Middle (6)	816.5 (26715)	22.76	21.72
		819(26740)	22.94	21.88
		821.5(26765)	23.15	22.11
	12RB-Low (0)	816.5 (26715)	22.80	21.75
		819(26740)	22.93	21.86

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		821.5(26765)	23.13	22.04
	25RB (0)	816.5 (26715)	22.71	21.68
		819(26740)	22.95	21.88
		821.5(26765)	23.11	22.05
10MHz	1RB-High (49)	819(26740)	23.96	23.21
	1RB-Middle (24)	819(26740)	24.08	23.43
	1RB-Low (0)	819(26740)	23.98	23.24
	25RB-High (25)	819(26740)	23.17	22.12
	25RB-Middle (12)	819(26740)	23.10	22.06
	25RB-Low (0)	819(26740)	23.24	22.21
	50RB (0)	819(26740)	23.22	22.15

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

LTE band 26(824MHz-849MHz)

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
1.4MHz	1RB-High (5)	848.3 (20643)	23.37	22.48
		836.5 (20525)	23.39	22.59
		824.7 (20407)	23.44	22.63
	1RB-Middle (3)	848.3 (20643)	23.40	22.59
		836.5 (20525)	23.50	22.72
		824.7 (20407)	23.48	22.79
	1RB-Low (0)	848.3 (20643)	23.29	22.50
		836.5 (20525)	23.35	22.60
		824.7 (20407)	23.41	22.57
	3RB-High (3)	848.3 (20643)	23.41	22.32
		836.5 (20525)	23.42	22.44
		824.7 (20407)	23.48	22.42
	3RB-Middle (1)	848.3 (20643)	23.45	22.44
		836.5 (20525)	23.49	22.47
		824.7 (20407)	23.54	22.47
	3RB-Low (0)	848.3 (20643)	23.43	22.36
		836.5 (20525)	23.44	22.41
		824.7 (20407)	23.48	22.45
	6RB (0)	848.3 (20643)	22.43	21.49

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		836.5 (20525)	22.48	21.58
		824.7 (20407)	22.50	21.59
3MHz	1RB-High (14)	847.5 (20635)	23.39	22.56
		836.5 (20525)	23.49	22.76
		825.5 (20415)	23.48	22.61
	1RB-Middle (7)	847.5 (20635)	23.56	22.71
		836.5 (20525)	23.58	22.81
		825.5 (20415)	23.70	22.86
	1RB-Low (0)	847.5 (20635)	23.39	22.59
		836.5 (20525)	23.45	22.64
		825.5 (20415)	23.42	22.64
	8RB-High (7)	847.5 (20635)	22.39	21.44
		836.5 (20525)	22.47	21.53
		825.5 (20415)	22.46	21.55
	8RB-Middle (4)	847.5 (20635)	22.45	21.48
		836.5 (20525)	22.48	21.55
		825.5 (20415)	22.47	21.57
	8RB-Low (0)	847.5 (20635)	22.40	21.49
		836.5 (20525)	22.49	21.55
		825.5 (20415)	22.45	21.49

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
	15RB (0)	847.5 (20635)	22.44	21.45
		836.5 (20525)	22.51	21.52
		825.5 (20415)	22.47	21.44
5MHz	1RB-High (24)	846.5 (20625)	23.29	22.47
		836.5 (20525)	23.36	22.57
		826.5 (20425)	23.33	22.55
	1RB-Middle (12)	846.5 (20625)	23.51	22.76
		836.5 (20525)	23.57	22.83
		826.5 (20425)	23.53	22.87
	1RB-Low (0)	846.5 (20625)	23.34	22.52
		836.5 (20525)	23.32	22.59
		826.5 (20425)	23.32	22.64
	12RB-High (13)	846.5 (20625)	22.35	21.33
		836.5 (20525)	22.42	21.44
		826.5 (20425)	22.55	21.50
	12RB-Middle (6)	846.5 (20625)	22.47	21.52
		836.5 (20525)	22.54	21.56
		826.5 (20425)	22.58	21.54
	12RB-Low (0)	846.5 (20625)	22.51	21.54
		836.5 (20525)	22.53	21.57

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		826.5 (20425)	22.42	21.41
	25RB (0)	846.5 (20625)	22.43	21.46
		836.5 (20525)	22.53	21.55
		826.5 (20425)	22.54	21.52
10MHz	1RB-High (49)	844 (20600)	23.44	22.55
		836.5 (20525)	23.51	22.72
		829 (20450)	23.48	22.64
	1RB-Middle (24)	844 (20600)	23.54	22.58
		836.5 (20525)	23.61	22.75
		829 (20450)	23.52	22.68
	1RB-Low (0)	844 (20600)	23.44	22.57
		836.5 (20525)	23.43	22.59
		829 (20450)	23.45	22.62
	25RB-High (25)	844 (20600)	22.34	21.33
		836.5 (20525)	22.58	21.60
		829 (20450)	22.57	21.57
	25RB-Middle (12)	844 (20600)	22.54	21.56
		836.5 (20525)	22.55	21.57
		829 (20450)	22.56	21.51
	25RB-Low (0)	844 (20600)	22.55	21.50

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
		836.5 (20525)	22.68	21.66
		829 (20450)	22.58	21.47
	50RB (0)	844 (20600)	22.44	21.48
		836.5 (20525)	22.65	21.65
		829 (20450)	22.51	21.47
15MHz	1RB-High (74)	831.5(20525)	23.54	22.64
		836.5 (20525)	23.75	22.99
		841.5 (26965)	23.82	22.94
	1RB-Middle (37)	831.5(20525)	**23.74**	22.86
		836.5 (20525)	**23.88**	22.94
		841.5 (26965)	**24.00**	23.24
	1RB-Low (0)	831.5(20525)	23.68	22.78
		836.5 (20525)	23.81	22.98
		841.5 (26965)	23.87	23.08
	36RB-High (38)	831.5(20525)	22.67	21.62
		836.5 (20525)	22.85	21.81
		841.5 (26965)	23.12	22.04
	36RB-Middle (19)	831.5(20525)	22.82	21.75
		836.5 (20525)	22.96	21.90
		841.5 (26965)	23.07	22.04

BANDWIDTH	Number of RBs	Frequency(MHz)	Power(dBm)	
			QPSK	16QAM
	36RB-Low (0)	831.5(20525)	**22.90**	21.87
		836.5 (20525)	**22.92**	21.84
		841.5 (26965)	**23.14**	22.12
	75RB (0)	831.5(20525)	22.76	21.75
		836.5 (20525)	22.94	21.81
		841.5 (26965)	23.11	22.09

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

LTE band 38

Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)	
			QPSK	16QAM
5MHz	1 RB high	2617.5	24.00	23.12
		2595.0	24.04	23.36
		2572.5	23.82	22.71
	1 RB low	2617.5	24.08	23.03
		2595.0	24.02	23.18
		2572.5	24.09	23.96
	50% RB mid	2617.5	23.10	22.20
		2595.0	23.09	22.26
		2572.5	23.07	22.29
	100% RB	2617.5	23.06	22.17
		2595.0	23.12	22.16
		2572.5	22.99	22.07
10MHz	1 RB high	2615.0	23.84	23.12
		2595.0	23.88	23.06
		2575.0	23.76	22.99
	1 RB low	2615.0	24.02	23.29
		2595.0	24.11	23.25
		2575.0	24.08	23.18
	50% RB mid	2615.0	23.20	22.14
		2595.0	23.19	22.21
		2575.0	23.14	22.11
	100% RB	2615.0	23.05	22.09
		2595.0	23.07	22.07
		2575.0	22.99	22.01
15MHz	1 RB high	2612.5	24.29	23.49
		2595.0	24.29	23.51
		2577.5	24.26	23.64
	1 RB low	2612.5	24.63	23.72
		2595.0	24.59	23.68
		2577.5	24.38	23.75
	50% RB mid	2612.5	23.32	22.37
		2595.0	23.35	22.35
		2577.5	23.18	22.25
	100% RB	2612.5	23.11	22.24
		2595.0	23.16	22.38
		2577.5	23.08	22.14

20MHz	1 RB high	2610.0	24.67	23.81
		2595.0	24.68	23.92
		2580.0	24.67	23.86
	1 RB low	2610.0	25.05	24.11
		2595.0	25.02	24.15
		2580.0	24.77	24.06
	50% RB mid	2610.0	23.34	22.36
		2595.0	23.32	22.36
		2580.0	23.25	22.25
	100% RB	2610.0	23.23	22.32
		2595.0	23.18	22.36
		2580.0	23.24	22.41

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

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Bandwidth	RB size/offset	Frequency (MHz)	Power(dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1779.3	22.50	21.57	20.59
		1745.0	22.48	21.37	20.98
		1710.7	22.44	21.28	20.79
	1 RB low	1779.3	22.48	21.16	20.87
		1745.0	22.45	21.36	20.87
		1710.7	22.40	21.28	20.50
	50% RB mid	1779.3	22.61	21.87	20.68
		1745.0	22.54	21.65	20.11
		1710.7	22.48	21.45	20.57
	100% RB	1779.3	21.63	20.63	19.65
		1745.0	21.71	19.97	19.51
		1710.7	21.43	20.15	19.44
3MHz	1 RB high	1778.5	22.47	21.44	20.60
		1745.0	22.44	21.57	20.88
		1711.5	22.45	21.93	20.48
	1 RB low	1778.5	22.56	21.66	20.66
		1745.0	22.68	21.58	20.70
		1711.5	22.48	21.35	20.48
	50% RB mid	1778.5	21.77	20.54	19.66
		1745.0	21.58	20.67	19.67
		1711.5	21.45	20.26	19.29

	100% RB	1778.5	21.59	20.54	19.53
		1745.0	21.51	20.46	19.54
		1711.5	21.39	20.12	19.57
5MHz	1 RB high	1777.5	22.16	21.42	20.51
		1745.0	22.48	21.40	20.87
		1712.5	22.15	21.46	20.25
	1 RB low	1777.5	22.59	21.55	20.58
		1745.0	22.27	21.46	20.47
		1712.5	22.20	21.29	20.34
	50% RB mid	1777.5	21.61	20.54	19.67
		1745.0	21.55	20.31	19.72
		1712.5	21.49	20.42	19.37
	100% RB	1777.5	21.65	20.39	19.80
		1745.0	21.59	20.63	19.53
		1712.5	21.46	20.49	19.19
10MHz	1 RB high	1775.0	22.35	21.35	20.56
		1745.0	22.59	21.41	20.86
		1715.0	22.33	21.29	20.29
	1 RB low	1775.0	22.63	21.31	21.04
		1745.0	22.63	21.52	20.46
		1715.0	22.46	21.27	20.32
	50% RB mid	1775.0	21.54	20.38	19.68
		1745.0	21.61	20.63	19.56
		1715.0	21.46	20.37	19.39
	100% RB	1775.0	21.63	20.62	19.62
		1745.0	21.57	20.61	19.61
		1715.0	21.49	20.52	19.43
15MHz	1 RB high	1772.5	22.51	21.73	20.44
		1745.0	22.32	21.31	20.86
		1717.5	22.38	21.05	20.84
	1 RB low	1772.5	22.57	21.46	20.54
		1745.0	22.56	21.40	20.61
		1717.5	22.61	21.26	20.67
	50% RB mid	1772.5	21.54	20.45	19.60
		1745.0	21.58	20.42	19.66
		1717.5	21.42	20.34	19.47
	100% RB	1772.5	21.53	20.46	19.66
		1745.0	21.52	20.56	19.48

		1717.5	21.37	20.30	19.28
20MHz	1 RB high	1770.0	22.57	21.82	20.88
		1745.0	22.45	21.34	20.57
		1720.0	22.21	21.18	20.21
	1 RB low	1770.0	22.65	21.57	20.65
		1745.0	22.47	21.34	20.61
		1720.0	22.36	21.38	20.73
	50% RB mid	1770.0	21.57	20.46	19.51
		1745.0	21.54	20.50	19.59
		1720.0	21.35	20.31	19.54
	100% RB	1770.0	21.60	20.54	19.54
		1745.0	21.50	20.54	19.65
		1720.0	21.36	20.29	19.67

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

A.1.3 Radiated

A.1.3.1 Description

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

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

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

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

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

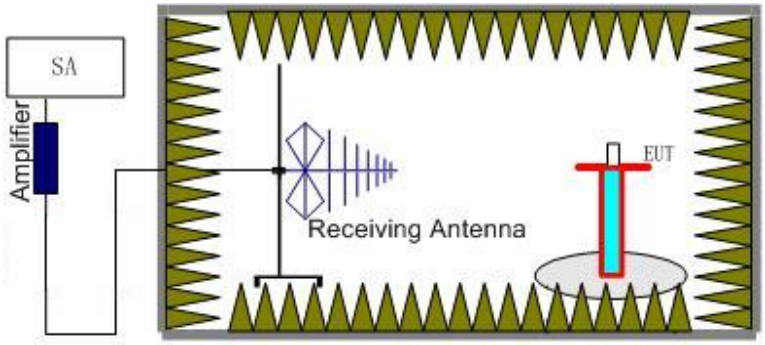
Rule Part 27.50(a)(3) specifies “For mobile and portable stations transmitting in the 2305–2315 MHz band or the 2350–2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards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

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

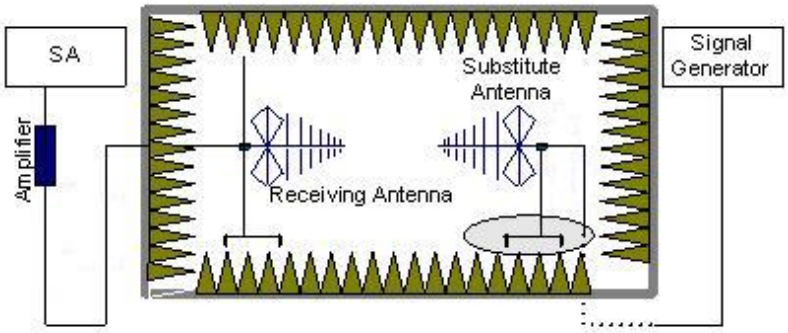
Rule Part 90.542 specifies "Portable stations (hand-held devices) transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 3 watts ERP."

A.1.3.2 Method of Measurement

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



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



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

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

A.1.3.3 Measurement result

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

Limits: ≤33dBm (2W)

LTE Band 2_1.4MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1850.70	-15.20	-29.30	8.10	22.20	33.00	H
1880.00	**-15.21**	**-29.40**	**8.10**	**22.29**	**33.00**	**H**
1909.30	-15.19	-29.30	8.10	22.21	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	-15.26	-29.30	8.10	22.14	33.00	H
1880.00	-15.39	-29.40	8.10	22.11	33.00	H
1908.50	-15.35	-29.30	8.10	22.05	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	-15.40	-29.30	8.10	22.00	33.00	H
1880.00	-15.46	-29.40	8.10	22.04	33.00	H
1907.50	-15.39	-29.30	8.10	22.02	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	-15.50	-29.30	8.10	21.90	33.00	H
1880.00	-15.56	-29.40	8.10	21.94	33.00	H
1905.00	-15.44	-29.30	8.10	21.96	33.00	H

LTE Band 2_15MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1857.50	-15.62	-29.30	8.10	21.78	33.00	H
1880.00	-15.70	-29.40	8.10	21.80	33.00	H
1902.50	-15.64	-29.30	8.10	21.76	33.00	H

LTE Band 2_20 MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1860.00	-15.68	-29.30	8.10	21.72	33.00	H
1880.00	-15.72	-29.40	8.10	21.78	33.00	H
1900.00	-15.65	-29.30	8.10	21.75	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	-15.33	-29.30	8.10	22.07	33.00	H
1880.00	-15.36	-29.40	8.10	22.14	33.00	H
1909.30	-15.28	-29.30	8.10	22.12	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	-15.41	-29.30	8.10	21.99	33.00	H
1880.00	-15.47	-29.40	8.10	22.03	33.00	H
1908.50	-15.35	-29.30	8.10	22.05	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	-15.47	-29.30	8.10	21.93	33.00	H
1880.00	-15.55	-29.40	8.10	21.95	33.00	H
1907.50	-15.41	-29.30	8.10	21.99	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	-15.55	-29.30	8.10	21.85	33.00	H
1880.00	-15.61	-29.40	8.10	21.90	33.00	H
1905.00	-15.48	-29.30	8.10	21.92	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	-15.58	-29.30	8.10	21.82	33.00	H
1880.00	-15.64	-29.40	8.10	21.86	33.00	H
1902.50	-15.54	-29.30	8.10	21.86	33.00	H

LTE Band 2_20 MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1860.00	-15.65	-29.30	8.10	21.75	33.00	H
1880.00	-15.70	-29.40	8.10	21.80	33.00	H
1900.00	-15.57	-29.30	8.10	21.83	33.00	H

Peak EIRP (dBm)=P_{Mea}(-15.21dBm)-(P_{cl}+P_{Ag})(-29.40dB)+G_a(9.80dB) =22.29dBm

LTE Band 5- ERP Part 22.913(a)

Limits: ≤38.45dBm (7W)

LTE Band 5_1.4MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
824.70	**-8.34**	**-33.60**	**-0.79**	**2.15**	**22.32**	**38.45**	**V**
836.50	-8.49	-33.50	-0.74	2.15	22.12	38.45	V
848.30	-9.27	-33.50	-0.73	2.15	21.35	38.45	V

LTE Band 5_3MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
825.50	-8.37	-33.60	-0.84	2.15	22.24	38.45	V
836.50	-8.56	-33.50	-0.74	2.15	22.06	38.45	V
847.50	-9.32	-33.50	-0.73	2.15	21.30	38.45	V

LTE Band 5_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
826.50	-8.50	-33.60	-0.84	2.15	22.11	38.45	V
836.50	-8.64	-33.50	-0.74	2.15	21.97	38.45	V
846.50	-9.39	-33.50	-0.73	2.15	21.23	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	-8.61	-33.60	-0.84	2.15	22.00	38.45	V
836.50	-8.71	-33.50	-0.74	2.15	21.90	38.45	V
844.00	-9.46	-33.50	-0.78	2.15	21.11	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	-8.40	-33.60	-0.79	2.15	22.26	38.45	V
836.50	-8.54	-33.50	-0.74	2.15	22.08	38.45	V
848.30	-9.32	-33.50	-0.73	2.15	21.30	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	-8.47	-33.60	-0.84	2.15	22.14	38.45	V
836.50	-8.65	-33.50	-0.74	2.15	21.97	38.45	V
847.50	-9.38	-33.50	-0.73	2.15	21.24	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	-8.56	-33.60	-0.84	2.15	22.05	38.45	V
836.50	-8.71	-33.50	-0.74	2.15	21.90	38.45	V
846.50	-9.43	-33.50	-0.73	2.15	21.19	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	-8.63	-33.60	-0.84	2.15	21.98	38.45	V
836.50	-8.77	-33.50	-0.74	2.15	21.85	38.45	V
844.00	-9.46	-33.50	-0.78	2.15	21.10	38.45	V

Peak ERP (dBm)=P_{Mea}(-8.34dBm)-(P_{cl}+P_{Ag})(-33.60dB)+G_a(-0.79dB) -2.15 =22.32dBm

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)	G_a Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2502.50	**-17.59**	**-28.70**	**10.70**	**21.82**	**33.00**	**H**
2535.00	-17.54	-28.60	10.70	21.76	33.00	H
2567.50	-17.53	-28.60	10.70	21.78	33.00	H

LTE Band 7_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	G_a Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2505.00	-17.67	-28.70	10.70	21.73	33.00	H
2535.00	-17.62	-28.60	10.70	21.68	33.00	H
2565.00	-17.61	-28.60	10.70	21.70	33.00	H

LTE Band 7_15MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	G_a Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2507.50	-17.74	-28.70	10.70	21.67	33.00	H
2535.00	-17.68	-28.60	10.70	21.62	33.00	H
2562.50	-17.74	-28.60	10.70	21.56	33.00	H

LTE Band 7_20MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	G_a Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2510.00	-17.79	-28.70	10.70	21.61	33.00	H
2535.00	-17.71	-28.60	10.70	21.59	33.00	H
2560.00	-17.75	-28.60	10.70	21.55	33.00	H

LTE Band 7_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	G_a Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2502.50	-17.71	-28.70	10.70	21.69	33.00	H
2535.00	-17.65	-28.60	10.70	21.65	33.00	H
2567.50	-17.66	-28.60	10.70	21.64	33.00	H

LTE Band 7_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	G_a Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2505.00	-17.77	-28.70	10.70	21.64	33.00	H
2535.00	-17.73	-28.60	10.70	21.57	33.00	H
2565.00	-17.74	-28.60	10.70	21.56	33.00	H

LTE Band 7_15MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	G_a Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2507.50	-17.85	-28.70	10.70	21.55	33.00	H
2535.00	-17.79	-28.60	10.70	21.51	33.00	H
2562.50	-17.81	-28.60	10.70	21.50	33.00	H

LTE Band 7_20MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	G_a Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2510.00	-17.93	-28.70	10.70	21.47	33.00	H
2535.00	-17.86	-28.60	10.70	21.44	33.00	H
2560.00	-17.86	-28.60	10.70	21.44	33.00	H

Peak EIRP (dBm)=P_{Mea}(-17.59dBm)-(P_{cl}+P_{Ag})(-28.70dB)+G_a(10.70dB) =21.82dBm

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

Limits: ≤34.77dBm (3W)

LTE Band 12_1.4MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
699.70	**-10.90**	**-34.80**	**-0.93**	**2.15**	**20.82**	**34.77**	**H**
707.50	-10.97	-34.70	-0.91	2.15	20.68	34.77	H
715.30	-11.54	-34.70	-0.68	2.15	20.33	34.77	H

LTE Band 12_3MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
700.50	-10.91	-34.80	-0.97	2.15	20.77	34.77	V
707.50	-11.04	-34.70	-0.91	2.15	20.60	34.77	V
714.50	-11.62	-34.70	-0.64	2.15	20.29	34.77	V

LTE Band 12_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
701.50	-10.98	-34.80	-0.97	2.15	20.70	34.77	V
707.50	-11.08	-34.70	-0.91	2.15	20.57	34.77	V
713.50	-11.67	-34.70	-0.64	2.15	20.23	34.77	V

LTE Band 12_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
704.00	-11.01	-34.80	-0.97	2.15	20.67	34.77	V
707.50	-11.11	-34.70	-0.91	2.15	20.53	34.77	V
711.00	-11.69	-34.70	-0.64	2.15	20.21	34.77	V

LTE Band 12_1.4MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
699.70	-10.93	-34.80	-0.93	2.15	20.79	34.77	H
707.50	-11.00	-34.70	-0.91	2.15	20.65	34.77	H
715.30	-11.57	-34.70	-0.68	2.15	20.30	34.77	H

LTE Band 12_3MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
700.50	-10.95	-34.80	-0.97	2.15	20.73	34.77	V
707.50	-11.05	-34.70	-0.91	2.15	20.59	34.77	V
714.50	-11.66	-34.70	-0.64	2.15	20.24	34.77	V

LTE Band 12_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
701.50	-11.07	-34.80	-0.97	2.15	20.61	34.77	V
707.50	-11.14	-34.70	-0.91	2.15	20.50	34.77	V
713.50	-11.70	-34.70	-0.64	2.15	20.20	34.77	V

LTE Band 12_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
704.00	-11.08	-34.80	-0.97	2.15	20.60	34.77	V
707.50	-11.19	-34.70	-0.91	2.15	20.46	34.77	V
711.00	-11.75	-34.70	-0.64	2.15	20.16	34.77	V

Peak ERP (dBm)=P_{Mea}(-10.90Bm)-(P_{cl}+P_{Ag})(-34.80dB)+G_a(-0.93dB) -2.15dB =20.82dBm

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

Limits: ≤34.77dBm (3W)

LTE Band 13_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
779.50	**-10.49**	**-34.00**	**-0.08**	**2.15**	**21.28**	**34.77**	**V**
782.00	-10.84	-34.00	-0.13	2.15	20.88	34.77	V
784.50	-11.31	-34.00	-0.13	2.15	20.41	34.77	V

LTE Band 13_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
782.00	-10.92	-34.00	-0.13	2.15	20.80	34.77	V

LTE Band 13_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
779.50	-10.69	-34.00	-0.08	2.15	21.08	34.77	V
782.00	-11.04	-34.00	-0.13	2.15	20.68	34.77	V
784.50	-11.41	-34.00	-0.13	2.15	20.31	34.77	V

LTE Band 13_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
782.00	-11.11	-34.00	-0.13	2.15	20.61	34.77	V

Peak ERP (dBm)=P_{Mea}(-10.49dBm)-(P_{cl}+P_{Ag})(-34.00dB)+G_a(-0.08dB) -2.15dB =21.28dBm

LTE band 26(824MHz-849MHz)- ERP Part 22.913(a)

Limits: ≤38.45dBm (7W)

LTE band 26(824MHz-849MHz)_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	**-10.06**	**-33.60**	**-0.79**	**2.15**	**20.60**	**38.45**	**V**
836.50	-9.39	-33.50	-0.74	2.15	21.22	38.45	V
848.30	-9.04	-33.50	-0.73	2.15	21.58	38.45	V

LTE band 26(824MHz-849MHz)_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	-10.13	-33.60	-0.79	2.15	20.53	38.45	V
836.50	-9.51	-33.50	-0.74	2.15	21.10	38.45	V
847.50	-9.28	-33.50	-0.73	2.15	21.34	38.45	V

LTE band 26(824MHz-849MHz)_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	-10.18	-33.60	-0.79	2.15	20.48	38.45	V
836.50	-9.58	-33.50	-0.74	2.15	21.04	38.45	V
846.50	-9.42	-33.50	-0.73	2.15	21.20	38.45	V

LTE band 26(824MHz-849MHz)_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	-10.25	-33.60	-0.79	2.15	20.41	38.45	V
836.50	-9.64	-33.50	-0.74	2.15	20.97	38.45	V
844.00	-9.48	-33.50	-0.73	2.15	21.13	38.45	V

LTE band 26(824MHz-849MHz)_15MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
831.50	-10.28	-33.60	-0.79	2.15	20.38	38.45	V
836.50	-9.69	-33.50	-0.74	2.15	20.92	38.45	V
841.50	-9.58	-33.50	-0.73	2.15	21.04	38.45	V

LTE band 26(824MHz-849MHz)_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	-10.11	-33.60	-0.79	2.15	20.54	38.45	V
836.50	-9.42	-33.50	-0.74	2.15	21.20	38.45	V
848.30	-9.12	-33.50	-0.73	2.15	21.50	38.45	V

LTE band 26(824MHz-849MHz)_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	-10.16	-33.60	-0.79	2.15	20.49	38.45	V
836.50	-9.48	-33.50	-0.74	2.15	21.13	38.45	V
847.50	-9.18	-33.50	-0.73	2.15	21.43	38.45	V

LTE band 26(824MHz-849MHz)_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	-10.26	-33.60	-0.79	2.15	20.40	38.45	V
836.50	-9.58	-33.50	-0.74	2.15	21.04	38.45	V
846.50	-9.32	-33.50	-0.73	2.15	21.30	38.45	V

LTE band 26(824MHz-849MHz)_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	-10.34	-33.60	-0.79	2.15	20.31	38.45	V
836.50	-9.64	-33.50	-0.74	2.15	20.97	38.45	V
844.00	-9.41	-33.50	-0.73	2.15	21.21	38.45	V

LTE band 26(824MHz-849MHz)_15MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
831.50	-10.36	-33.60	-0.79	2.15	20.30	38.45	V
836.50	-9.77	-33.50	-0.74	2.15	20.84	38.45	V
841.50	-9.52	-33.50	-0.73	2.15	21.10	38.45	V

Peak ERP (dBm)=P_{Mea}(-10.06dBm)-(P_{cl}+P_{Ag})(-33.60dB)+G_a(-0.79dB) -2.15 =21.60dBm

LTE band 26(814MHz-824MHz)- ERP Part 90.635(b)

Limits: ≤50.00dBm (100W)

LTE band 26(814MHz-824MHz)_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
814.70	**-9.01**	**-33.70**	**-0.80**	**2.15**	**21.74**	**50.00**	**V**
819.00	-9.04	-33.60	-0.75	2.15	21.66	50.00	V
823.30	-9.27	-33.60	-0.79	2.15	21.38	50.00	V

LTE band 26(814MHz-824MHz)_3MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
815.50	-9.14	-33.70	-0.80	2.15	21.61	50.00	V
819.00	-9.17	-33.60	-0.75	2.15	21.54	50.00	V
822.50	-9.44	-33.60	-0.79	2.15	21.21	50.00	V

LTE band 26(814MHz-824MHz)_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
816.50	-9.21	-33.70	-0.80	2.15	21.54	50.00	V
819.00	-9.27	-33.60	-0.75	2.15	21.44	50.00	V
821.50	-9.48	-33.60	-0.79	2.15	21.18	50.00	V

LTE band 26(814MHz-824MHz)_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
819.00	-9.20	-33.60	-0.80	2.15	21.45	50.00	V
819.00	-9.31	-33.60	-0.75	2.15	21.40	50.00	V
819.00	-9.56	-33.60	-0.79	2.15	21.10	50.00	V

LTE band 26(814MHz-824MHz)_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
814.70	-9.11	-33.70	-0.80	2.15	21.64	50.00	V
819.00	-9.13	-33.60	-0.75	2.15	21.58	50.00	V
823.30	-9.34	-33.60	-0.79	2.15	21.31	50.00	V

LTE band 26(814MHz-824MHz)_3MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
815.50	-9.23	-33.70	-0.80	2.15	21.52	50.00	V
819.00	-9.20	-33.60	-0.75	2.15	21.50	50.00	V
822.50	-9.34	-33.60	-0.79	2.15	21.32	50.00	V

LTE band 26(814MHz-824MHz)_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
816.50	-9.31	-33.70	-0.80	2.15	21.44	50.00	V
819.00	-9.30	-33.60	-0.75	2.15	21.40	50.00	V
821.50	-9.51	-33.60	-0.79	2.15	21.14	50.00	V

LTE band 26(814MHz-824MHz)_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
819.00	-9.19	-33.60	-0.80	2.15	21.46	50.00	V
819.00	-9.37	-33.60	-0.75	2.15	21.33	50.00	V
819.00	-9.55	-33.60	-0.79	2.15	21.11	50.00	V

Peak ERP (dBm)=P_{Mea}(-9.01dBm)-(P_{cl}+P_{Ag})(-33.70dB)+G_a(-0.80dB) -2.15=21.74dBm

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	**-17.35**	**-28.60**	**10.70**	**21.95**	**33.00**	**H**
2595.00	-17.41	-28.60	10.70	21.90	33.00	H
2617.50	-17.48	-28.60	10.70	21.82	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	-17.40	-28.60	10.70	21.90	33.00	H
2595.00	-17.48	-28.60	10.70	21.82	33.00	H
2615.00	-17.55	-28.60	10.70	21.76	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	-17.46	-28.60	10.70	21.84	33.00	H
2595.00	-17.55	-28.60	10.70	21.75	33.00	H
2612.50	-17.56	-28.60	10.70	21.74	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	-17.53	-28.60	10.70	21.78	33.00	H
2595.00	-17.61	-28.60	10.70	21.69	33.00	H
2610.00	-17.65	-28.60	10.70	21.65	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	-17.41	-28.60	10.70	21.89	33.00	H
2595.00	-17.53	-28.60	10.70	21.77	33.00	H
2617.50	-17.56	-28.60	10.70	21.74	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	-17.44	-28.60	10.70	21.86	33.00	H
2595.00	-17.58	-28.60	10.70	21.72	33.00	H
2615.00	-17.65	-28.60	10.70	21.65	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	-17.53	-28.60	10.70	21.77	33.00	H
2595.00	-17.67	-28.60	10.70	21.63	33.00	H
2612.50	-17.71	-28.60	10.70	21.59	33.00	H

LTE Band 38_20 MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
2580.00	-17.61	-28.60	10.70	21.69	33.00	H
2595.00	-17.75	-28.60	10.70	21.55	33.00	H
2610.00	-17.79	-28.60	10.70	21.51	33.00	H

Peak EIRP (dBm)=P_{Mea}(-17.35dBm)-(P_{cl}+P_{Ag}) (-28.60dB)+G_a(10.70dB) =21.95dBm

LTE Band 66- EIRP Part 27.50(d)

Limits: ≤30dBm (1W)

LTE Band 66_1.4MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1710.70	**-15.69**	**-29.60**	**8.10**	**22.02**	**30.00**	**H**
1745.00	-15.71	-29.50	8.10	21.90	30.00	H
1779.30	-15.74	-29.50	8.10	21.86	30.00	H

LTE Band 66_3MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1711.50	-15.73	-29.60	8.10	21.97	30.00	H
1745.00	-15.75	-29.50	8.10	21.85	30.00	H
1778.50	-15.82	-29.50	8.10	21.79	30.00	H

LTE Band 66_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1712.50	-15.80	-29.60	8.10	21.90	30.00	H
1745.00	-15.81	-29.50	8.10	21.79	30.00	H
1777.50	-15.85	-29.50	8.10	21.75	30.00	H

LTE Band 66_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1715.00	-15.90	-29.60	8.10	21.80	30.00	H
1745.00	-15.88	-29.50	8.10	21.72	30.00	H
1775.00	-15.95	-29.50	8.10	21.65	30.00	H

LTE Band 66_15MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1717.50	-15.91	-29.60	8.10	21.79	30.00	H
1745.00	-15.93	-29.50	8.10	21.67	30.00	H
1772.53	-16.03	-29.50	8.10	21.57	30.00	H

LTE Band 66_20MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1720.00	-15.95	-29.60	8.10	21.75	30.00	H
1745.00	-16.04	-29.50	8.10	21.56	30.00	H
1770.00	-16.07	-29.50	8.10	21.53	30.00	H

LTE Band 66_1.4MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1710.70	-15.70	-29.60	8.10	22.00	30.00	H
1745.00	-15.73	-29.50	8.10	21.88	30.00	H
1779.30	-15.77	-29.50	8.10	21.83	30.00	H

LTE Band 66_3MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1711.50	-15.81	-29.60	8.10	21.90	30.00	H
1745.00	-15.80	-29.50	8.10	21.80	30.00	H
1778.50	-15.83	-29.50	8.10	21.78	30.00	H

LTE Band 66_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1712.50	-15.88	-29.60	8.10	21.82	30.00	H
1745.00	-15.85	-29.50	8.10	21.75	30.00	H
1777.50	-15.92	-29.50	8.10	21.68	30.00	H

LTE Band 66_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1715.00	-15.96	-29.60	8.10	21.74	30.00	H
1745.00	-15.92	-29.50	8.10	21.68	30.00	H
1775.00	-15.99	-29.50	8.10	21.61	30.00	H

LTE Band 66_15MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1717.50	-16.05	-29.60	8.10	21.65	30.00	H
1745.00	-16.03	-29.50	8.10	21.57	30.00	H
1772.53	-16.08	-29.50	8.10	21.52	30.00	H

LTE Band 66_20MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)+ P_{Ag}(dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1720.00	-16.10	-29.60	8.10	21.60	30.00	H
1745.00	-16.06	-29.50	8.10	21.54	30.00	H
1770.00	-16.15	-29.50	8.10	21.45	30.00	H

Peak EIRP (dBm)=P_{Mea}(-15.69dBm)-(P_{cl}+P_{Ag})(-29.60dB)+G_a(8.10dB) =22.02dBm

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), 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, 27.53,90.691.

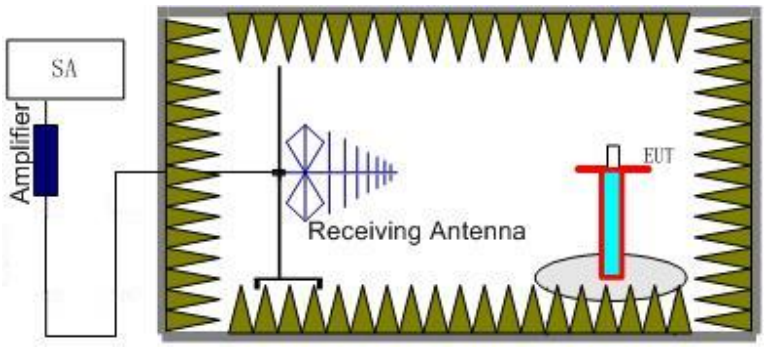
A.2.1 Measurement Method

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

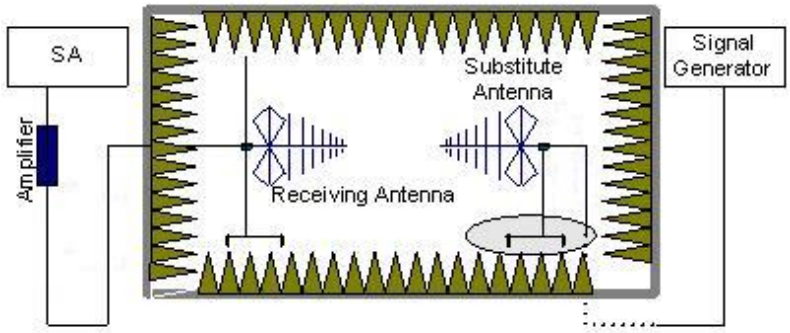
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz as outlined in Part 22.917, 24.238, 27.53(h) and 90.691. The spectrum was scanned with the mobile station transmitting 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 LTE Bands LTE Bands 2, 7,12,13,26,38,66. 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 LTE Bands LTE Bands 2, 7,12,13,26,38,66.. 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(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16941.88	-45.50	2.90	16.50	-31.90	-13.00	H
17141.88	-44.31	2.90	14.50	-32.71	-13.00	H
17231.88	-43.33	3.20	14.50	-32.03	-13.00	H
17485.00	-42.18	2.90	14.50	-30.58	-13.00	H
17593.75	-40.17	3.30	12.80	-30.67	-13.00	H
17756.25	-39.79	3.60	12.80	-30.59	-13.00	H

LTE Band 2, 1.4MHz, QPSK, Channel 18900

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16996.25	-44.32	2.90	16.50	-30.72	-13.00	H
17115.00	-44.16	2.90	14.50	-32.56	-13.00	H
17276.25	-43.45	3.20	14.50	-32.15	-13.00	H
17463.13	-42.21	2.90	14.50	-30.61	-13.00	H
17582.50	-39.46	3.30	12.80	-29.96	-13.00	H
17768.75	-40.48	3.60	12.80	-31.28	-13.00	H

LTE Band 2, 1.4MHz, QPSK, Channel 19193

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16968.75	-45.65	2.90	16.50	-32.05	-13.00	H
17097.50	-44.37	2.90	14.50	-32.77	-13.00	H
17265.00	-43.79	3.20	14.50	-32.49	-13.00	H
17460.00	-42.26	2.90	14.50	-30.66	-13.00	H
17551.25	-39.58	2.90	12.80	-29.68	-13.00	H
17820.63	-40.13	3.60	12.80	-30.93	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16986.88	-45.63	2.90	16.50	-32.03	-13.00	H
17141.25	-43.84	2.90	14.50	-32.24	-13.00	H
17254.38	-43.27	3.20	14.50	-31.97	-13.00	H
17392.50	-42.36	2.90	14.50	-30.76	-13.00	H
17578.75	-40.26	3.30	12.80	-30.76	-13.00	H
17801.88	-40.73	3.60	12.80	-31.53	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16945.00	-45.31	2.90	16.50	-31.71	-13.00	H
17206.25	-43.26	2.90	14.50	-31.66	-13.00	H
17284.38	-43.46	3.20	14.50	-32.16	-13.00	H
17460.00	-41.78	2.90	14.50	-30.18	-13.00	H
17590.00	-39.13	3.30	12.80	-29.63	-13.00	H
17813.75	-40.19	3.60	12.80	-30.99	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16938.13	-44.88	2.90	16.50	-31.28	-13.00	H
17211.88	-44.44	2.90	14.50	-32.84	-13.00	H
17305.63	-43.38	3.20	14.50	-32.08	-13.00	H
17523.75	-40.72	2.90	12.80	-30.82	-13.00	H
17594.38	-40.30	3.30	12.80	-30.80	-13.00	H
17836.25	-40.30	3.60	12.80	-31.10	-13.00	H

Note: The maximum value of expanded measurement uncertainty for this test item is U = 2.72dB(30MHz-3GHz)/3.60dB(3GHz-18GHz)/3.58dB(18GHz-40GHz), k = 2

LTE Band 5, 1.4MHz, QPSK, Channel 27033

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
8647.50	-52.10	2.00	12.00	-44.25	-13.00	H
9099.75	-51.48	2.20	11.60	-44.23	-13.00	H
9302.88	-50.74	2.00	11.60	-43.29	-13.00	H
9473.13	-51.39	2.10	11.60	-44.04	-13.00	V
9725.88	-50.16	2.20	11.20	-43.31	-13.00	H
9793.50	-51.39	2.30	11.20	-44.64	-13.00	H

LTE Band 5, 1.4MHz, QPSK, Channel 26915

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
7326.38	-53.30	1.70	12.00	-45.15	-13.00	H
9098.88	-52.15	2.20	11.60	-44.90	-13.00	H
9300.38	-50.54	2.00	11.60	-43.09	-13.00	H
9470.75	-50.82	2.10	11.60	-43.47	-13.00	V
9738.38	-51.02	2.20	11.20	-44.17	-13.00	H
9805.50	-51.38	2.30	11.20	-44.63	-13.00	H

LTE Band 5, 1.4MHz, QPSK, Channel 26797

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
7199.63	-53.24	1.80	12.00	-45.19	-13.00	V
9098.50	-51.58	2.20	11.60	-44.33	-13.00	H
9300.13	-50.42	2.00	11.60	-42.97	-13.00	H
9476.00	-51.25	2.10	11.60	-43.90	-13.00	V
9745.75	-50.31	2.20	11.20	-43.46	-13.00	H
9793.25	-50.93	2.30	11.20	-44.18	-13.00	H

LTE Band 5, 1.4MHz, 16QAM, Channel 27033

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
8431.13	-52.10	1.80	11.30	-44.75	-13.00	H
9100.25	-50.96	2.20	11.60	-43.71	-13.00	H
9295.50	-50.72	2.00	11.60	-43.27	-13.00	H
9477.13	-51.36	2.10	11.60	-44.01	-13.00	V
9728.00	-49.71	2.20	11.20	-42.86	-13.00	H
9804.00	-51.27	2.30	11.20	-44.52	-13.00	H

LTE Band 5, 1.4MHz, 16QAM, Channel 26915

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
8457.38	-51.90	1.80	11.30	-44.55	-13.00	H
9103.00	-51.88	2.20	11.60	-44.63	-13.00	H
9225.50	-50.50	2.10	11.60	-43.15	-13.00	H
9473.25	-50.92	2.10	11.60	-43.57	-13.00	V
9692.63	-50.72	2.20	11.20	-43.87	-13.00	H
9787.63	-50.47	2.30	11.20	-43.72	-13.00	H

LTE Band 5, 1.4MHz, 16QAM, Channel 26797

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
8844.75	-52.89	1.90	12.00	-44.94	-13.00	H
9100.75	-51.95	2.20	11.60	-44.70	-13.00	H
9309.25	-50.55	2.00	11.60	-43.10	-13.00	H
9473.63	-50.23	2.10	11.60	-42.88	-13.00	V
9725.25	-50.23	2.20	11.20	-43.38	-13.00	H
9800.00	-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 = 2.72dB(30MHz-3GHz)/3.60dB(3GHz-18GHz)/3.58dB(18GHz-40GHz), k = 2

LTE Band 7, 5 MHz, QPSK, Channel 20775

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16976.25	-47.56	2.90	16.50	-33.96	-25.00	H
17189.38	-46.27	2.90	14.50	-34.67	-25.00	H
17330.00	-45.67	3.20	14.50	-34.37	-25.00	H
17504.38	-44.51	2.90	12.80	-34.61	-25.00	H
17577.50	-44.29	3.30	12.80	-34.79	-25.00	H
17835.00	-43.81	3.60	12.80	-34.61	-25.00	H

LTE Band 7, 5 MHz, QPSK, Channel 21100

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16981.88	-48.35	2.90	16.50	-34.75	-25.00	H
17075.63	-45.92	2.90	14.50	-34.32	-25.00	H
17235.63	-46.05	3.20	14.50	-34.75	-25.00	H
17451.25	-45.71	2.90	14.50	-34.11	-25.00	H
17618.75	-44.04	3.30	12.80	-34.54	-25.00	H
17688.13	-43.80	3.30	12.80	-34.30	-25.00	H

LTE Band 7, 5 MHz, QPSK, Channel 21425

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16964.38	-47.66	2.90	16.50	-34.06	-25.00	H
17208.75	-45.65	2.90	14.50	-34.05	-25.00	H
17358.75	-45.36	3.20	14.50	-34.06	-25.00	H
17515.00	-44.56	2.90	12.80	-34.66	-25.00	H
17618.13	-44.10	3.30	12.80	-34.60	-25.00	H
17704.38	-43.67	3.30	12.80	-34.17	-25.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16966.88	-48.27	2.90	16.50	-34.67	-25.00	H
17141.88	-46.15	2.90	14.50	-34.55	-25.00	H
17230.00	-45.83	3.20	14.50	-34.53	-25.00	H
17505.00	-44.04	2.90	12.80	-34.14	-25.00	H
17615.00	-44.10	3.30	12.80	-34.60	-25.00	H
17836.88	-43.72	3.60	12.80	-34.52	-25.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16938.13	-48.31	2.90	16.50	-34.71	-25.00	H
17213.75	-45.88	2.90	14.50	-34.28	-25.00	H
17301.25	-45.94	3.20	14.50	-34.64	-25.00	H
17515.00	-43.76	2.90	12.80	-33.86	-25.00	H
17642.50	-43.78	3.30	12.80	-34.28	-25.00	H
17775.00	-43.40	3.60	12.80	-34.20	-25.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16942.50	-48.07	2.90	16.50	-34.47	-25.00	H
17136.25	-46.19	2.90	14.50	-34.59	-25.00	H
17295.00	-46.09	3.20	14.50	-34.79	-25.00	H
17437.50	-46.14	2.90	14.50	-34.54	-25.00	H
17605.00	-44.09	3.30	12.80	-34.59	-25.00	H
17838.75	-43.13	3.60	12.80	-33.93	-25.00	H

Note: The maximum value of expanded measurement uncertainty for this test item is U = 2.72dB(30MHz-3GHz)/3.60dB(3GHz-18GHz)/3.58dB(18GHz-40GHz), k = 2

LTE Band 12, 1.4MHz, QPSK, Channel 23017

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
3496.13	-53.38	1.10	11.50	-45.13	-13.00	V
8490.00	-52.02	1.80	11.30	-44.67	-13.00	V
9099.50	-51.90	2.20	11.60	-44.65	-13.00	H
9225.38	-50.14	2.10	11.60	-42.79	-13.00	H
9476.88	-51.07	2.10	11.60	-43.72	-13.00	V
9730.25	-51.21	2.20	11.20	-44.36	-13.00	H

LTE Band 12, 1.4MHz, QPSK, Channel 23095

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
8430.00	-51.73	1.80	11.30	-44.38	-13.00	H
9100.00	-51.79	2.20	11.60	-44.54	-13.00	H
9295.38	-51.04	2.00	11.60	-43.59	-13.00	H
9475.13	-51.04	2.10	11.60	-43.69	-13.00	V
9745.88	-50.68	2.20	11.20	-43.83	-13.00	H
9789.50	-51.43	2.30	11.20	-44.68	-13.00	H

LTE Band 12, 1.4MHz, QPSK, Channel 23173

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
3574.13	-53.49	1.10	12.20	-44.54	-13.00	V
9096.00	-51.32	2.20	11.60	-44.07	-13.00	H
9224.88	-50.45	2.10	11.60	-43.10	-13.00	H
9424.75	-50.91	2.10	11.60	-43.56	-13.00	H
9759.88	-50.90	2.20	11.20	-44.05	-13.00	H
9806.00	-49.56	2.30	11.20	-42.81	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
8458.88	-52.51	1.80	11.30	-45.16	-13.00	V
9106.88	-51.78	2.10	11.60	-44.43	-13.00	H
9296.25	-50.00	2.00	11.60	-42.55	-13.00	H
9475.13	-50.98	2.10	11.60	-43.63	-13.00	V
9705.13	-50.88	2.20	11.20	-44.03	-13.00	H
9789.25	-50.83	2.30	11.20	-44.08	-13.00	H

LTE Band 12, 1.4MHz 16QAM, Channel 23095

Frequency(MHz)	PMea(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
8757.00	-52.82	1.90	12.00	-44.87	-13.00	H
9107.50	-51.66	2.10	11.60	-44.31	-13.00	H
9297.25	-50.09	2.00	11.60	-42.64	-13.00	H
9474.25	-50.96	2.10	11.60	-43.61	-13.00	V
9733.38	-50.87	2.20	11.20	-44.02	-13.00	H
9803.00	-51.07	2.30	11.20	-44.32	-13.00	H

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

Frequency(MHz)	PMea(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
3574.13	-53.38	1.10	12.20	-44.43	-13.00	V
8417.25	-51.67	1.80	11.30	-44.32	-13.00	H
9101.25	-51.96	2.20	11.60	-44.71	-13.00	H
9223.13	-50.39	2.10	11.60	-43.04	-13.00	H
9475.50	-50.84	2.10	11.60	-43.49	-13.00	V
9764.38	-49.84	2.30	11.20	-43.09	-13.00	H

Note: The maximum value of expanded measurement uncertainty for this test item is U = 2.72dB(30MHz-3GHz)/3.60dB(3GHz-18GHz)/3.58dB(18GHz-40GHz), k = 2

LTE Band 13, 5 MHz, QPSK, Channel 23205

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
1563.00	-59.74	0.70	8.10	-54.49	-40.00	V
8468.25	-51.55	1.80	11.30	-44.20	-13.00	H
9300.38	-50.10	2.00	11.60	-42.65	-13.00	H
9476.25	-50.28	2.10	11.60	-42.93	-13.00	V
9738.25	-50.13	2.20	11.20	-43.28	-13.00	H
9786.63	-50.95	2.30	11.20	-44.20	-13.00	H

LTE Band 13, 5 MHz, QPSK, Channel 23230

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
1563.50	-58.07	0.70	8.10	-52.82	-40.00	H
8581.88	-52.30	2.00	12.00	-44.45	-13.00	H
9302.63	-50.58	2.00	11.60	-43.13	-13.00	H
9472.75	-51.07	2.10	11.60	-43.72	-13.00	V
9722.88	-51.31	2.20	11.20	-44.46	-13.00	H
9804.75	-51.17	2.30	11.20	-44.42	-13.00	H

LTE Band 13, 5 MHz, QPSK, Channel 23255

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
1568.00	-56.22	0.70	8.10	-50.97	-40.00	V
7319.63	-52.88	1.70	12.00	-44.73	-13.00	H
9222.50	-49.90	2.10	11.60	-42.55	-13.00	H
9477.75	-51.52	2.10	11.60	-44.17	-13.00	V
9736.63	-51.33	2.20	11.20	-44.48	-13.00	H
9809.00	-51.22	2.30	11.20	-44.47	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
1562.50	-59.68	0.70	8.10	-54.43	-40.00	V
9097.00	-51.59	2.20	11.60	-44.34	-13.00	H
9226.38	-50.35	2.10	11.60	-43.00	-13.00	H
9477.63	-51.17	2.10	11.60	-43.82	-13.00	V
9739.88	-51.08	2.20	11.20	-44.23	-13.00	H
9802.00	-50.70	2.30	11.20	-43.95	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
1563.00	-57.69	0.70	8.10	-52.44	-40.00	V
9103.25	-51.89	2.20	11.60	-44.64	-13.00	H
9299.25	-50.75	2.00	11.60	-43.30	-13.00	H
9475.88	-51.08	2.10	11.60	-43.73	-13.00	V
9731.63	-50.46	2.20	11.20	-43.61	-13.00	H
9784.50	-51.04	2.30	11.20	-44.29	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
1568.00	-57.94	0.70	8.10	-52.69	-40.00	V
8707.13	-52.43	2.00	12.00	-44.58	-13.00	V
9295.50	-50.00	2.00	11.60	-42.55	-13.00	H
9475.63	-51.09	2.10	11.60	-43.74	-13.00	V
9731.13	-51.41	2.20	11.20	-44.56	-13.00	H
9791.25	-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 = 2.72dB(30MHz-3GHz)/3.60dB(3GHz-18GHz)/3.58dB(18GHz-40GHz), k = 2

LTE Band 26(814MHz-824MHz), 1.4MHz, QPSK, Channel 26783

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit （dBm）	Polarization
2469.00	-51.41	0.90	9.80	-44.66	-13.00	H
9092.38	-52.32	2.20	11.60	-45.07	-13.00	H
9223.25	-50.58	2.10	11.60	-43.23	-13.00	H
9474.88	-51.15	2.10	11.60	-43.80	-13.00	V
9755.50	-51.49	2.20	11.20	-44.64	-13.00	H
9802.38	-51.11	2.30	11.20	-44.36	-13.00	H

LTE Band 26(814MHz-824MHz), 1.4MHz, QPSK, Channel 26740

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit （dBm）	Polarization
2456.00	-51.16	0.90	9.80	-44.41	-13.00	H
9054.88	-52.04	2.20	11.60	-44.79	-13.00	V
9307.25	-50.67	2.00	11.60	-43.22	-13.00	H
9474.75	-50.88	2.10	11.60	-43.53	-13.00	V
9734.88	-50.79	2.20	11.20	-43.94	-13.00	H
9787.63	-51.04	2.30	11.20	-44.29	-13.00	H

LTE Band 26(814MHz-824MHz), 1.4MHz, QPSK, Channel 26697

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit （dBm）	Polarization
8438.25	-52.81	1.80	11.30	-45.46	-13.00	H
9098.38	-51.64	2.20	11.60	-44.39	-13.00	H
9228.63	-50.70	2.10	11.60	-43.35	-13.00	H
9474.00	-51.02	2.10	11.60	-43.67	-13.00	V
9731.13	-50.81	2.20	11.20	-43.96	-13.00	H
9787.88	-51.19	2.30	11.20	-44.44	-13.00	H

LTE Band 26(814MHz-824MHz), 1.4MHz, 16QAM, Channel 26783

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit （dBm）	Polarization
7317.38	-53.35	1.70	12.00	-45.20	-13.00	H
9100.50	-51.58	2.20	11.60	-44.33	-13.00	H
9294.13	-50.45	2.00	11.60	-43.00	-13.00	H
9475.50	-50.59	2.10	11.60	-43.24	-13.00	V
9737.25	-51.35	2.20	11.20	-44.50	-13.00	H
9804.25	-51.52	2.30	11.20	-44.77	-13.00	H

LTE Band 26(814MHz-824MHz), 1.4MHz, 16QAM, Channel 26740

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit （dBm）	Polarization
8426.63	-51.76	1.80	11.30	-44.41	-13.00	H
9100.50	-51.63	2.20	11.60	-44.38	-13.00	H
9299.88	-50.36	2.00	11.60	-42.91	-13.00	H
9473.63	-51.20	2.10	11.60	-43.85	-13.00	V
9728.88	-51.30	2.20	11.20	-44.45	-13.00	H
9928.63	-51.51	2.20	11.20	-44.66	-13.00	H

LTE Band 26(814MHz-824MHz), 1.4MHz, 16QAM, Channel 26697

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit （dBm）	Polarization
8470.13	-52.50	1.80	11.30	-45.15	-13.00	H
9097.63	-52.10	2.20	11.60	-44.85	-13.00	H
9220.75	-51.01	2.10	11.60	-43.66	-13.00	H
9477.38	-51.31	2.10	11.60	-43.96	-13.00	V
9748.63	-51.14	2.20	11.20	-44.29	-13.00	H
9777.63	-51.48	2.30	11.20	-44.73	-13.00	V

Note: The maximum value of expanded measurement uncertainty for this test item is U = 4.92dB(30MHz-3GHz)/4.88dB(3GHz-18GHz)/5.66dB(18GHz-40GHz), k = 2

LTE band 26(824MHz-849MHz), 1.4MHz, QPSK, Channel 27033

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
7183.13	-52.44	1.80	12.00	-44.39	-13.00	V
9093.88	-51.83	2.20	11.60	-44.58	-13.00	H
9299.13	-49.95	2.00	11.60	-42.50	-13.00	H
9474.00	-50.51	2.10	11.60	-43.16	-13.00	V
9741.13	-50.51	2.20	11.20	-43.66	-13.00	H
9790.50	-51.31	2.30	11.20	-44.56	-13.00	H

LTE band 26(824MHz-849MHz), 1.4MHz, QPSK, Channel 26915

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
8797.50	-53.21	1.90	12.00	-45.26	-13.00	V
9098.88	-52.21	2.20	11.60	-44.96	-13.00	H
9225.00	-50.66	2.10	11.60	-43.31	-13.00	H
9367.63	-51.18	2.00	11.60	-43.73	-13.00	V
9736.75	-51.48	2.20	11.20	-44.63	-13.00	H
9781.25	-51.07	2.30	11.20	-44.32	-13.00	H

LTE band 26(824MHz-849MHz), 1.4MHz, QPSK, Channel 26797

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
7203.75	-53.07	1.80	12.00	-45.02	-13.00	V
9096.00	-51.67	2.20	11.60	-44.42	-13.00	H
9223.25	-50.82	2.10	11.60	-43.47	-13.00	H
9475.88	-51.14	2.10	11.60	-43.79	-13.00	V
9727.88	-51.40	2.20	11.20	-44.55	-13.00	H
9800.63	-51.31	2.30	11.20	-44.56	-13.00	H

LTE band 26(824MHz-849MHz), 1.4MHz, 16QAM, Channel 27033

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
7331.63	-52.41	1.70	12.00	-44.26	-13.00	H
9099.75	-51.56	2.20	11.60	-44.31	-13.00	H
9298.38	-50.51	2.00	11.60	-43.06	-13.00	H
9475.13	-51.11	2.10	11.60	-43.76	-13.00	V
9723.00	-50.89	2.20	11.20	-44.04	-13.00	H
9799.13	-51.50	2.30	11.20	-44.75	-13.00	H

LTE band 26(824MHz-849MHz), 1.4MHz, 16QAM, Channel 26915

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
8478.00	-52.44	1.80	11.30	-45.09	-13.00	H
9100.25	-51.20	2.20	11.60	-43.95	-13.00	H
9298.13	-50.75	2.00	11.60	-43.30	-13.00	H
9476.25	-50.95	2.10	11.60	-43.60	-13.00	V
9745.00	-50.36	2.20	11.20	-43.51	-13.00	H
9804.25	-51.18	2.30	11.20	-44.43	-13.00	H

LTE band 26(824MHz-849MHz), 1.4MHz, 16QAM, Channel 26797

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dBm)	Polarization
7195.50	-52.61	1.80	12.00	-44.56	-13.00	V
9102.00	-52.02	2.20	11.60	-44.77	-13.00	H
9297.63	-50.62	2.00	11.60	-43.17	-13.00	H
9474.63	-51.12	2.10	11.60	-43.77	-13.00	V
9749.00	-50.96	2.20	11.20	-44.11	-13.00	H
9792.25	-51.25	2.30	11.20	-44.50	-13.00	H

Note: The maximum value of expanded measurement uncertainty for this test item is U = 2.72dB(30MHz-3GHz)/3.60dB(3GHz-18GHz)/3.58dB(18GHz-40GHz), k = 2

LTE Band 38, 5MHz, QPSK, Channel 37775

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16994.38	-47.66	2.90	16.50	-34.06	-25.00	H
17188.13	-46.03	2.90	14.50	-34.43	-25.00	H
17327.50	-45.28	3.20	14.50	-33.98	-25.00	H
17505.63	-43.76	2.90	12.80	-33.86	-25.00	H
17605.63	-43.53	3.30	12.80	-34.03	-25.00	H
17824.38	-43.79	3.60	12.80	-34.59	-25.00	H

LTE Band 38, 5MHz, QPSK, Channel 38000

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16966.25	-47.77	2.90	16.50	-34.17	-25.00	H
17177.50	-45.80	2.90	14.50	-34.20	-25.00	H
17251.25	-45.31	3.20	14.50	-34.01	-25.00	H
17412.50	-45.68	2.90	14.50	-34.08	-25.00	H
17586.25	-44.20	3.30	12.80	-34.70	-25.00	H
17799.38	-43.70	3.60	12.80	-34.50	-25.00	H

LTE Band 38, 5MHz, QPSK, Channel 38225

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16998.13	-48.03	2.90	16.50	-34.43	-25.00	H
17206.88	-45.60	2.90	14.50	-34.00	-25.00	H
17294.38	-45.90	3.20	14.50	-34.60	-25.00	H
17435.00	-46.35	2.90	14.50	-34.75	-25.00	H
17562.50	-44.16	3.30	12.80	-34.66	-25.00	H
17836.25	-43.27	3.60	12.80	-34.07	-25.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16945.63	-47.49	2.90	16.50	-33.89	-25.00	H
17181.88	-45.59	2.90	14.50	-33.99	-25.00	H
17217.50	-45.70	3.20	14.50	-34.40	-25.00	H
17491.88	-46.17	2.90	14.50	-34.57	-25.00	H
17574.38	-43.83	3.30	12.80	-34.33	-25.00	H
17820.63	-43.44	3.60	12.80	-34.24	-25.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16992.50	-47.80	2.90	16.50	-34.20	-25.00	H
17166.25	-46.27	2.90	14.50	-34.67	-25.00	H
17300.63	-45.89	3.20	14.50	-34.59	-25.00	H
17507.50	-44.69	2.90	12.80	-34.79	-25.00	H
17574.38	-43.52	3.30	12.80	-34.02	-25.00	H
17797.50	-43.07	3.60	12.80	-33.87	-25.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16931.25	-47.74	2.90	16.50	-34.14	-25.00	H
17188.75	-46.60	2.90	14.50	-35.00	-25.00	H
17273.75	-45.50	3.20	14.50	-34.20	-25.00	H
17438.75	-45.65	2.90	14.50	-34.05	-25.00	H
17610.63	-43.55	3.30	12.80	-34.05	-25.00	H
17840.00	-43.48	3.60	12.80	-34.28	-25.00	H

Note: The maximum value of expanded measurement uncertainty for this test item is U = 2.72dB(30MHz-3GHz)/3.60dB(3GHz-18GHz)/3.58dB(18GHz-40GHz), k = 2

LTE Band 66, 1.4MHz QPSK, Channel 131979

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16958.13	-45.59	2.90	16.50	-31.99	-13.00	H
17210.63	-43.99	2.90	14.50	-32.39	-13.00	H
17353.13	-43.93	3.20	14.50	-32.63	-13.00	H
17480.63	-40.93	2.90	14.50	-29.33	-13.00	H
17526.88	-40.37	2.90	12.80	-30.47	-13.00	H
17819.38	-39.94	3.60	12.80	-30.74	-13.00	H

LTE Band 66, 1.4MHz, QPSK, Channel 132322

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16928.75	-44.97	2.90	16.50	-31.37	-13.00	H
17345.63	-43.03	3.20	14.50	-31.73	-13.00	H
17412.50	-41.82	2.90	14.50	-30.22	-13.00	H
17617.50	-39.68	3.30	12.80	-30.18	-13.00	H
17818.75	-39.83	3.60	12.80	-30.63	-13.00	H
18000.00	-31.32	3.20	6.20	-28.32	-13.00	H

LTE Band 66, 1.4MHz, QPSK, Channel 132665

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16974.38	-44.05	2.90	16.50	-30.45	-13.00	H
17206.88	-42.92	2.90	14.50	-31.32	-13.00	H
17280.00	-41.58	3.20	14.50	-30.28	-13.00	H
17510.63	-39.29	2.90	12.80	-29.39	-13.00	H
17628.75	-38.20	3.30	12.80	-28.70	-13.00	H
17823.13	-38.24	3.60	12.80	-29.04	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16938.13	-45.58	2.90	16.50	-31.98	-13.00	H
17124.38	-44.11	2.90	14.50	-32.51	-13.00	H
17368.75	-43.47	3.20	14.50	-32.17	-13.00	H
17461.25	-42.27	2.90	14.50	-30.67	-13.00	H
17595.00	-38.77	3.30	12.80	-29.27	-13.00	H
17791.25	-40.33	3.60	12.80	-31.13	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16953.75	-45.44	2.90	16.50	-31.84	-13.00	H
17190.63	-43.64	2.90	14.50	-32.04	-13.00	H
17280.00	-43.13	3.20	14.50	-31.83	-13.00	H
17423.75	-41.88	2.90	14.50	-30.28	-13.00	H
17581.88	-39.85	3.30	12.80	-30.35	-13.00	H
17793.75	-40.45	3.60	12.80	-31.25	-13.00	H

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

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dBm)	Polarization
16990.00	-44.46	2.90	16.50	-30.86	-13.00	H
17188.75	-43.12	2.90	14.50	-31.52	-13.00	H
17292.50	-42.94	3.20	14.50	-31.64	-13.00	H
17405.00	-41.68	2.90	14.50	-30.08	-13.00	H
17609.38	-38.05	3.30	12.80	-28.55	-13.00	H
17778.13	-39.25	3.60	12.80	-30.05	-13.00	H

Note: The maximum value of expanded measurement uncertainty for this test item is U = 2.72dB(30MHz-3GHz)/3.60dB(3GHz-18GHz)/3.58dB(18GHz-40GHz), k = 2

A.3 FREQUENCY STABILITY

Reference

FCC: CFR Part 2.1055, 22.355, 24.235, 27.54, 90.213.

A.3.1 Method of Measurement

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 R&S 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 all bands, 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. Remeasure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments remeasuring 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 centre 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 -30℃ to +50℃. Allow at least 1 1/2 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, 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1850.480	1909.620		
50				-0.59	0.0003
40				1.30	0.0007
30				0.80	0.0004
10				-0.80	0.0004
0				2.29	0.0012
-10				2.52	0.0013
-20				-0.37	0.0002
-30				-1.25	0.0007

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	1850.480	1909.620	-0.94	0.0005
4.40				-0.23	0.0001

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

LTE Band 5, 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	824.6500	848.830		
50				-0.79	0.0009
40				0.36	0.0004
30				-0.29	0.0003
10				0.82	0.0010
0				-0.43	0.0005
-10				-0.56	0.0007
-20				0.43	0.0005
-30				-0.42	0.0005

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	824.6500	848.830	-2.29	0.0027
4.40				-2.12	0.0025

Expanded measurement uncertainty is 10Hz, k = 2

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

Frequency Error vs Voltage

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	2500.820	2579.660		
50				-1.79	0.0007
40				-3.19	0.0013
30				-3.48	0.0014
10				-2.33	0.0009
0				-3.18	0.0013
-10				0.67	0.0003
-20				-0.23	0.0001
-30				-0.76	0.0003

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	2500.820	2579.660	-2.15	0.0008
4.40				0.10	0.0000

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

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

Frequency Error vs Voltage

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	699.580	715.640		
50				-0.14	0.0002
40				-0.66	0.0009
30				0.27	0.0004
10				2.19	0.0031
0				1.39	0.0020
-10				-0.37	0.0005
-20				2.26	0.0032
-30				0.24	0.0003

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	699.580	715.640	-0.84	0.0012
4.40				2.85	0.0040

Expanded measurement uncertainty is 10Hz, k = 2

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

Frequency Error vs Voltage

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	777.210	786.640		
50				-0.26	0.0003
40				-0.95	0.0012
30				-1.23	0.0016
10				-0.59	0.0008
0				-0.60	0.0008
-10				-0.90	0.0012
-20				-1.22	0.0016
-30				-0.67	0.0009

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	777.210	786.640	1.00	0.0013
4.40				3.29	0.0042

Expanded measurement uncertainty is 10Hz, k = 2

LTE Band 26(814MHz-824MHz), 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	814.320	823.610		
50				0.19	0.0002
40				-2.22	0.0027
30				-0.66	0.0008
10				-0.16	0.0002
0				0.64	0.0008
-10				0.69	0.0008
-20				-1.69	0.0021
-30				0.82	0.0010

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	814.320	823.610	2.89	0.0035
4.40				0.46	0.0006

Expanded measurement uncertainty is 10Hz, k = 2

LTE band 26(824MHz-849MHz), 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	824.3800	848.550		
50				-0.50	0.0006
40				-0.53	0.0006
30				-1.02	0.0012
10				-0.19	0.0002
0				-0.03	0.0000
-10				-0.89	0.0011
-20				-0.26	0.0003
-30				1.92	0.0023

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	824.3800	848.550	-0.04	0.0001
4.40				1.50	0.0018

Expanded measurement uncertainty is 10Hz, k = 2

LTE Band 38, 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	2570.880	2619.120		
50				-0.09	0.0000
40				-1.63	0.0006
30				-0.24	0.0001
10				-0.01	0.0000
0				-1.92	0.0007
-10				0.20	0.0001
-20				-1.27	0.0005
-30				0.09	0.0000

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	2570.880	2619.120	0.27	0.0001
4.40				-1.17	0.0005

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

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

Frequency Error vs Voltage

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1710.420	1779.580	0.72	0.0004
50				2.73	0.0016
40				-0.07	0.0000
30				-2.98	0.0017
10				-0.43	0.0002
0				1.29	0.0007
-10				1.14	0.0007
-20				-0.60	0.0003
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	1710.420	1779.580	-0.09	0.0000
4.40				-0.69	0.0004

Expanded measurement uncertainty is 10Hz, k = 2

A.4 OCCUPIED BANDWIDTH

Reference

FCC: CFR Part 2.1049, 22.917, 24.238, 27.53, 90.1215.

A.4.1 Occupied Bandwidth Results

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 frequencies of the US Cellular/PCS frequency bands. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.

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 (i.e., two to five times the OBW).

b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.

c) Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least 10log (OBW / RBW) below the reference level.

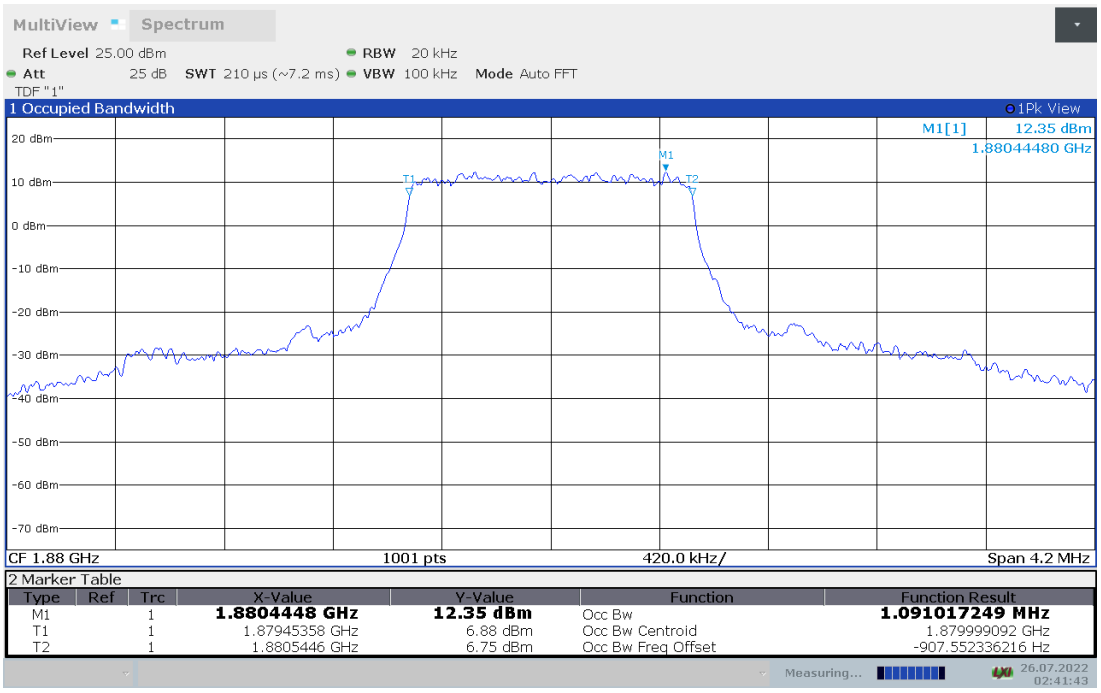
d) Set the detection mode to peak, and the trace mode to max hold.

e) Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

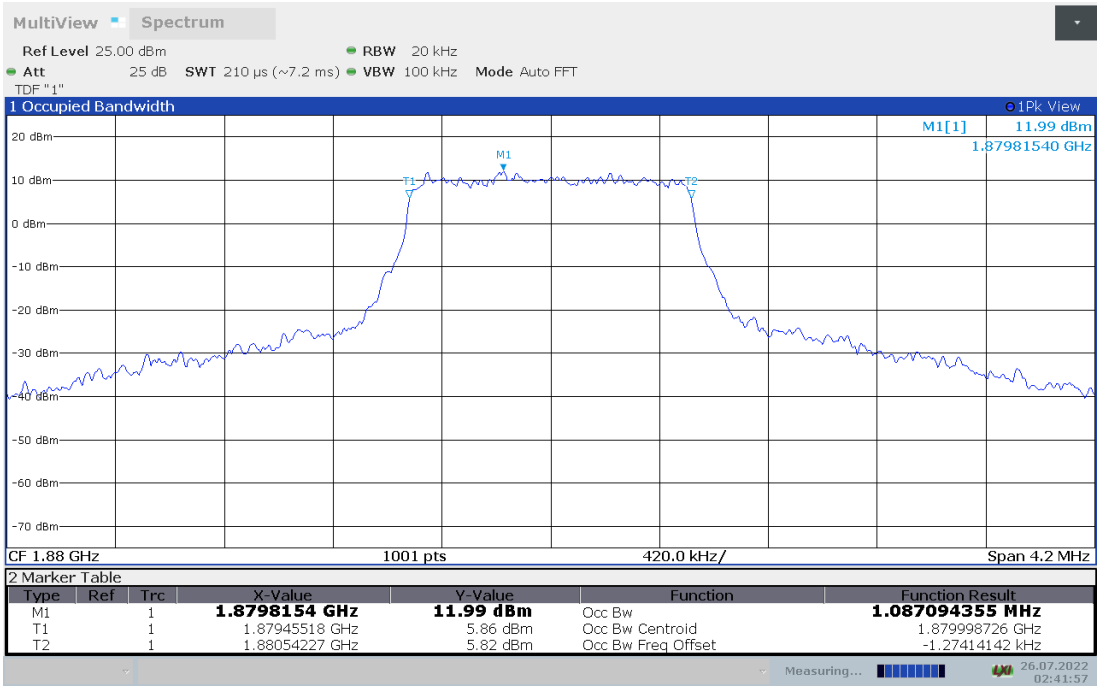
LTE band 2, 1.4MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
1880.0	1.091	1.087

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



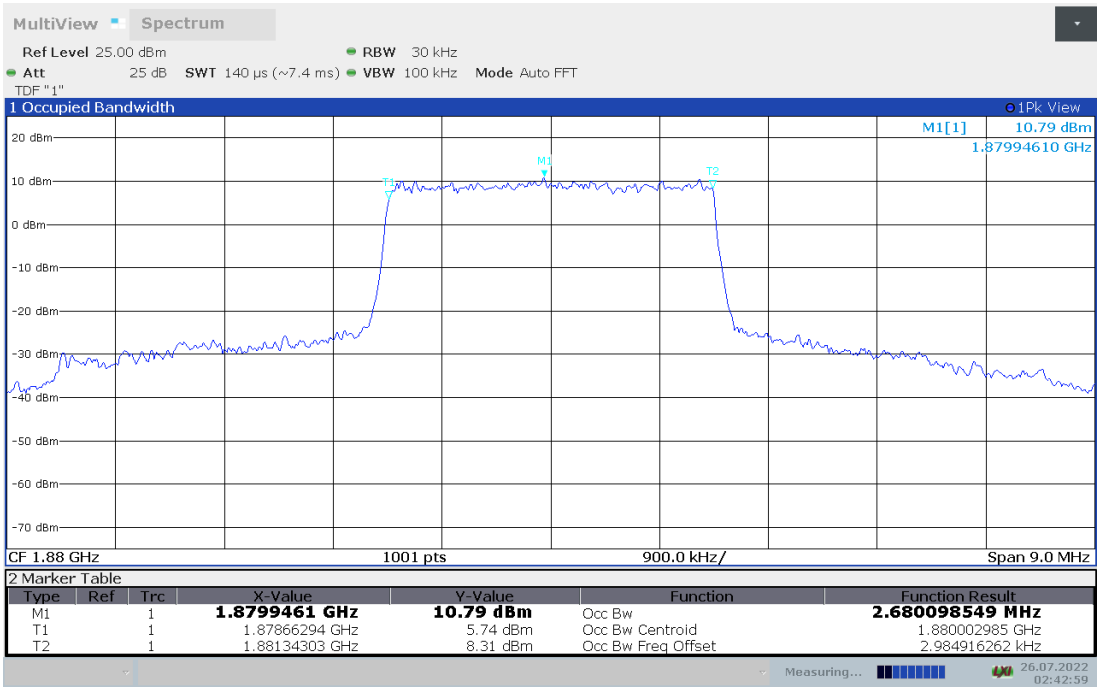
LTE band 2, 1.4MHz Bandwidth, 16QAM (99% BW)



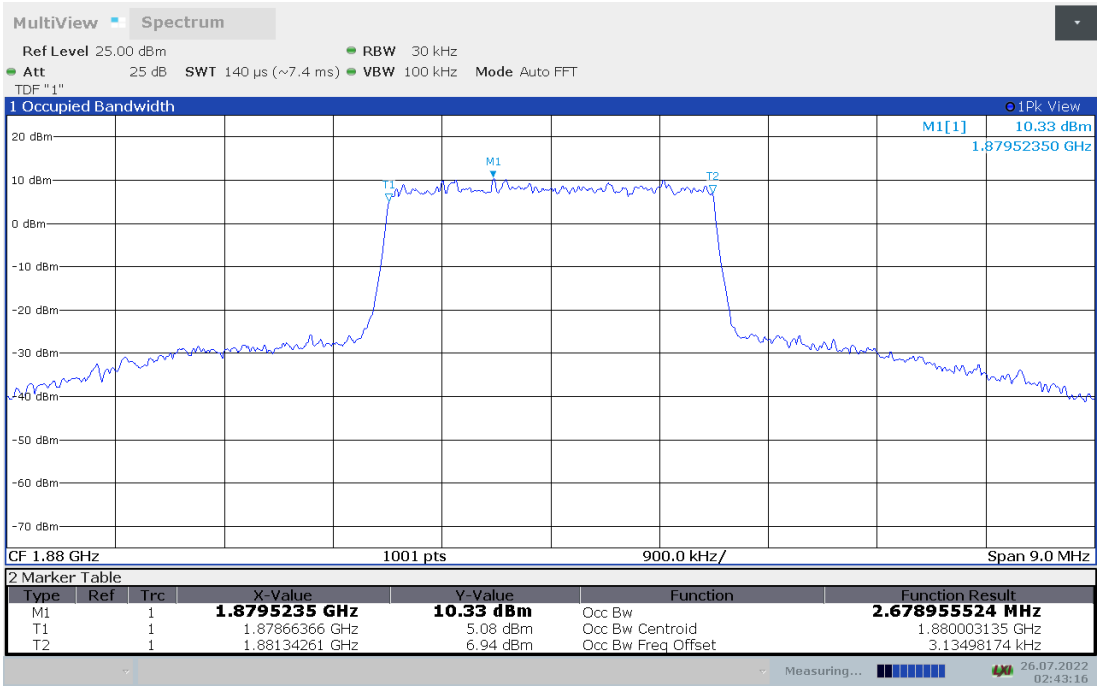
LTE band 2, 3MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
1880.0	2.680	2.679

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



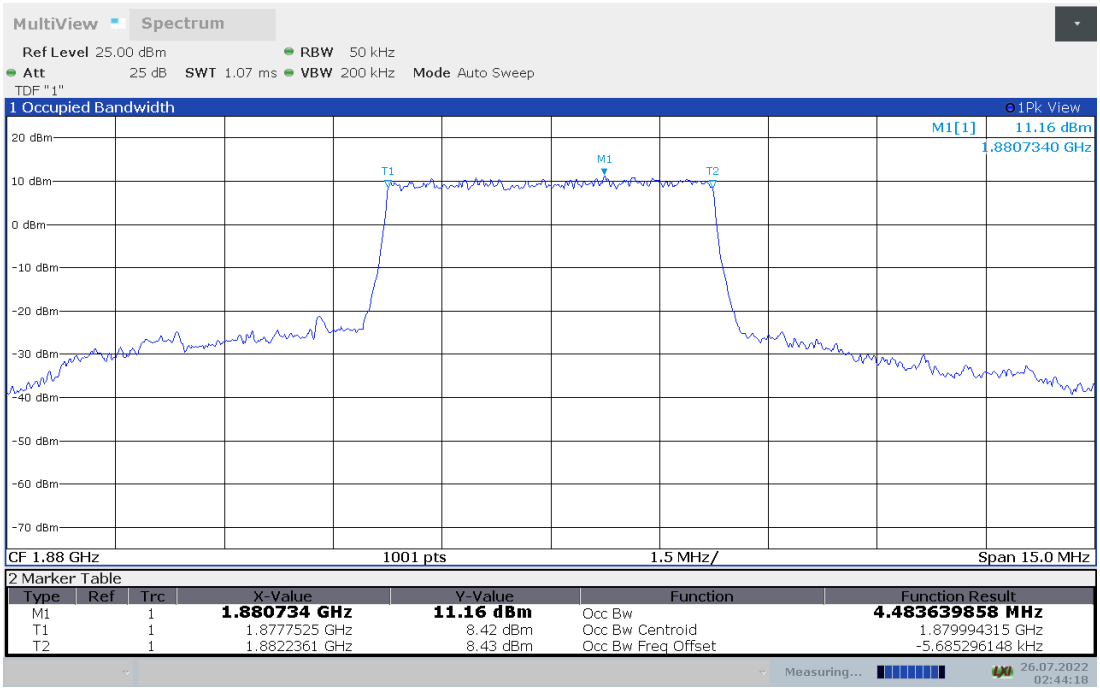
LTE band 2, 3MHz Bandwidth, 16QAM (99% BW)



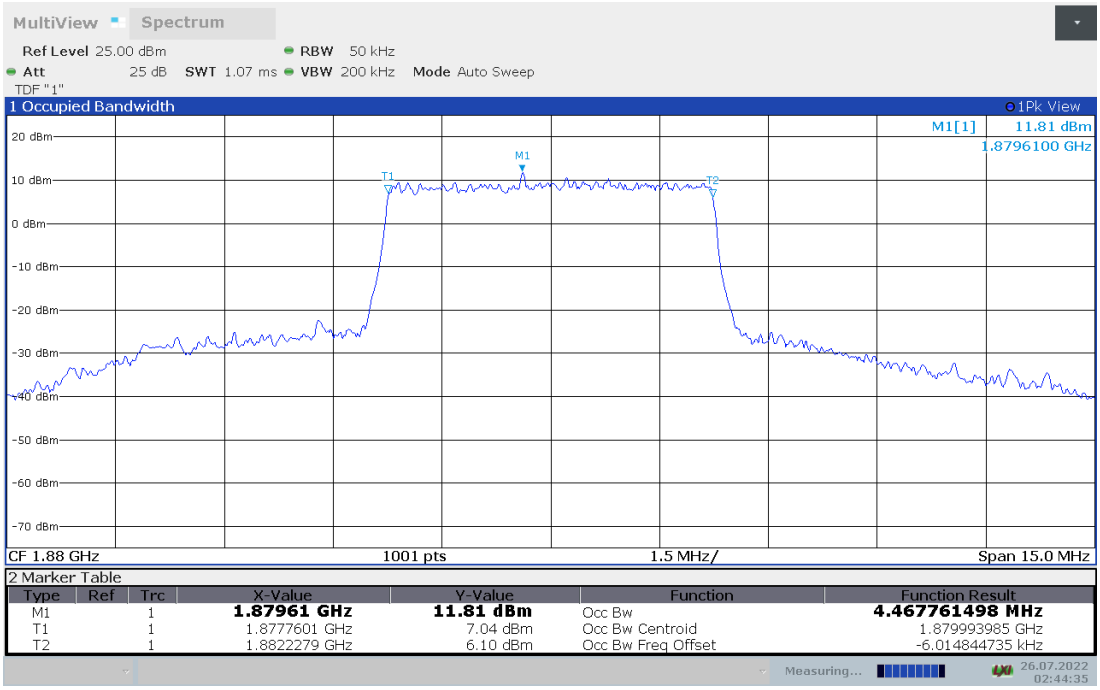
LTE band 2, 5MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
1880.0	4.484	4.468

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



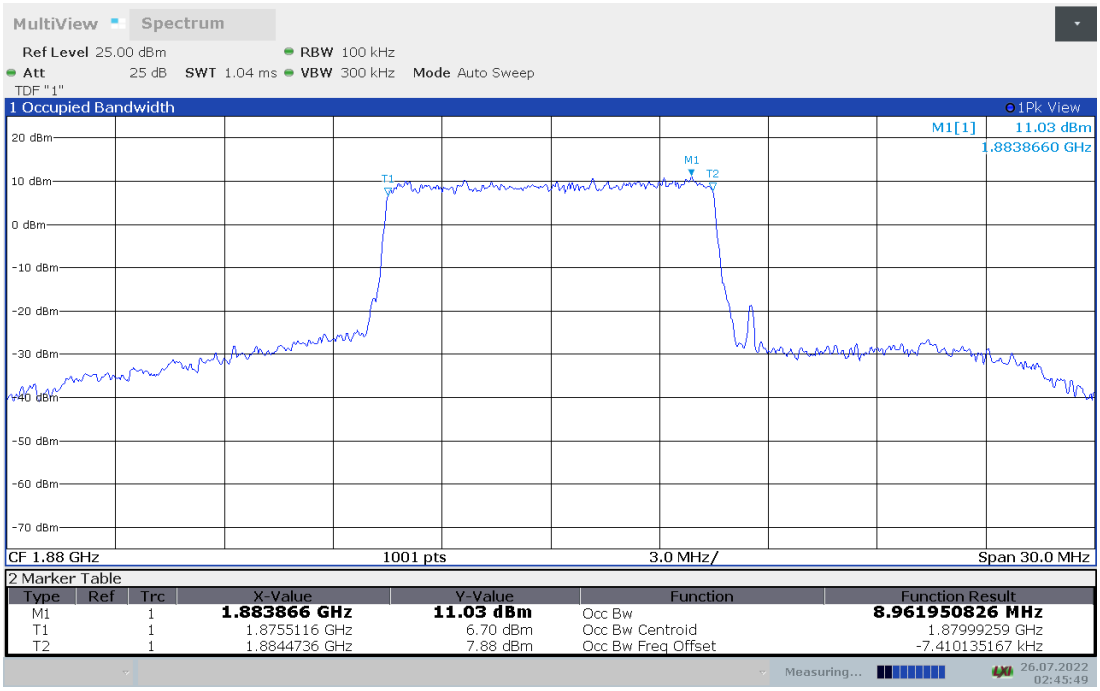
LTE band 2, 5MHz Bandwidth,16QAM (99% BW)



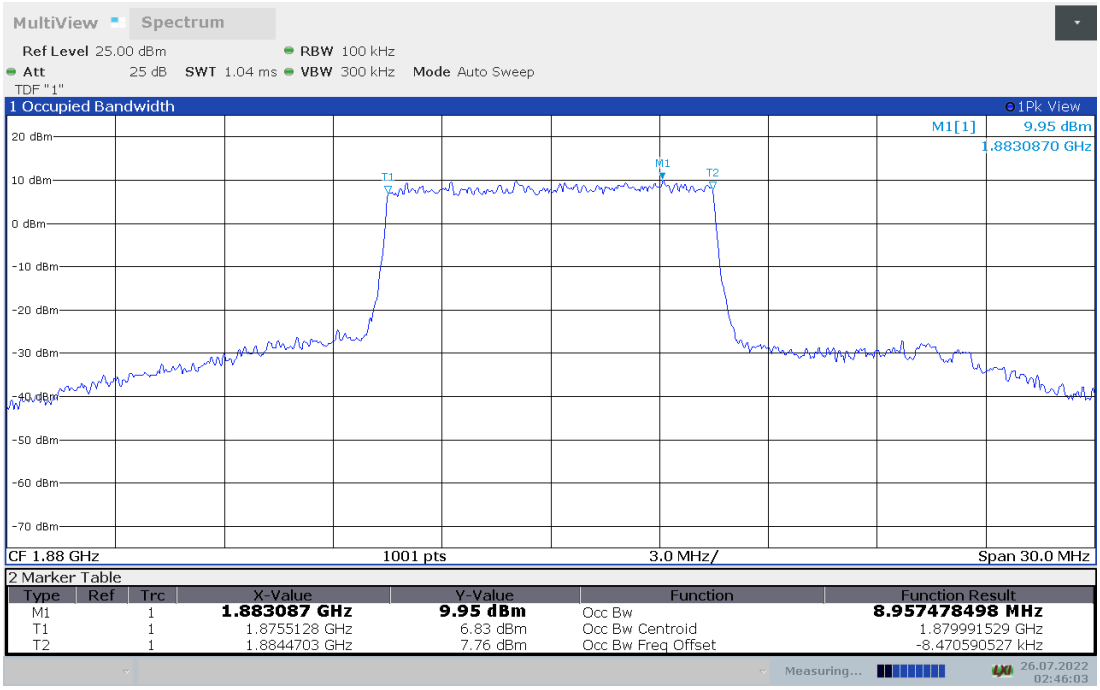
LTE band 2, 10MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
1880.0	8.962	8.957

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



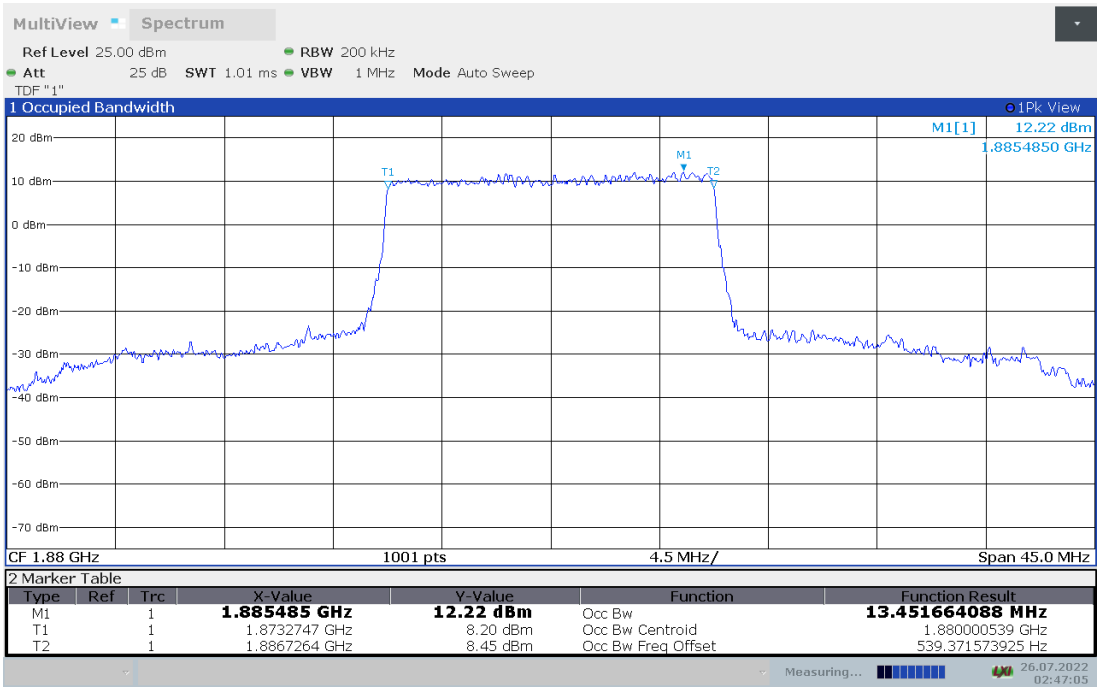
LTE band 2, 10MHz Bandwidth, 16QAM (99% BW)



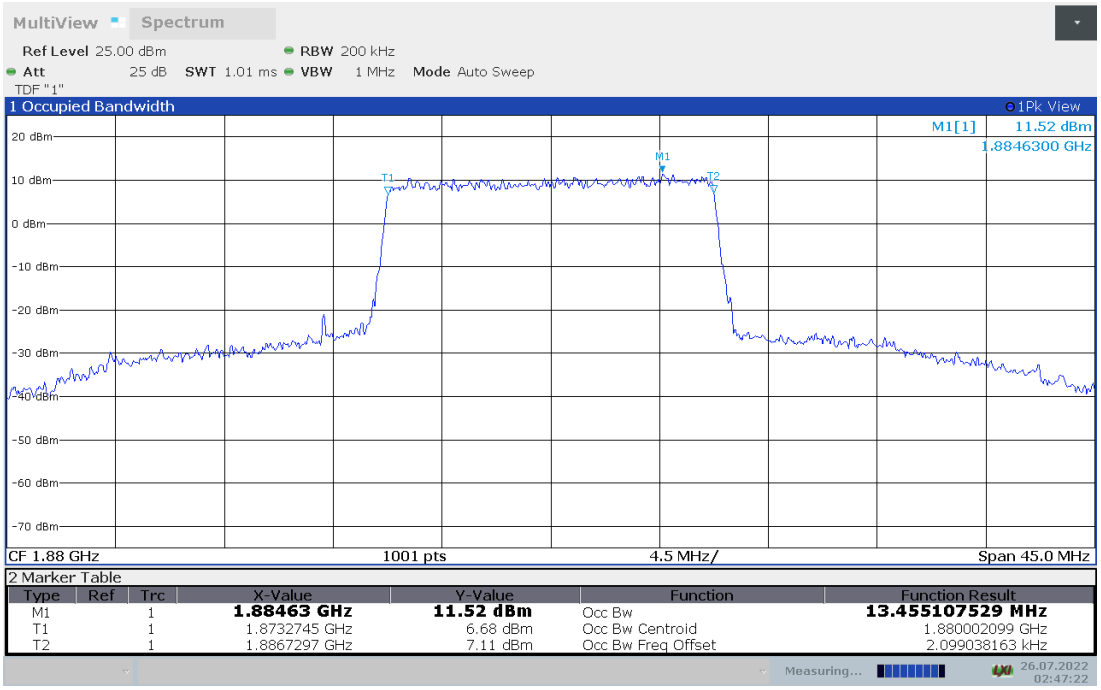
LTE band 2, 15MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
1880.0	13.452	13.455

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



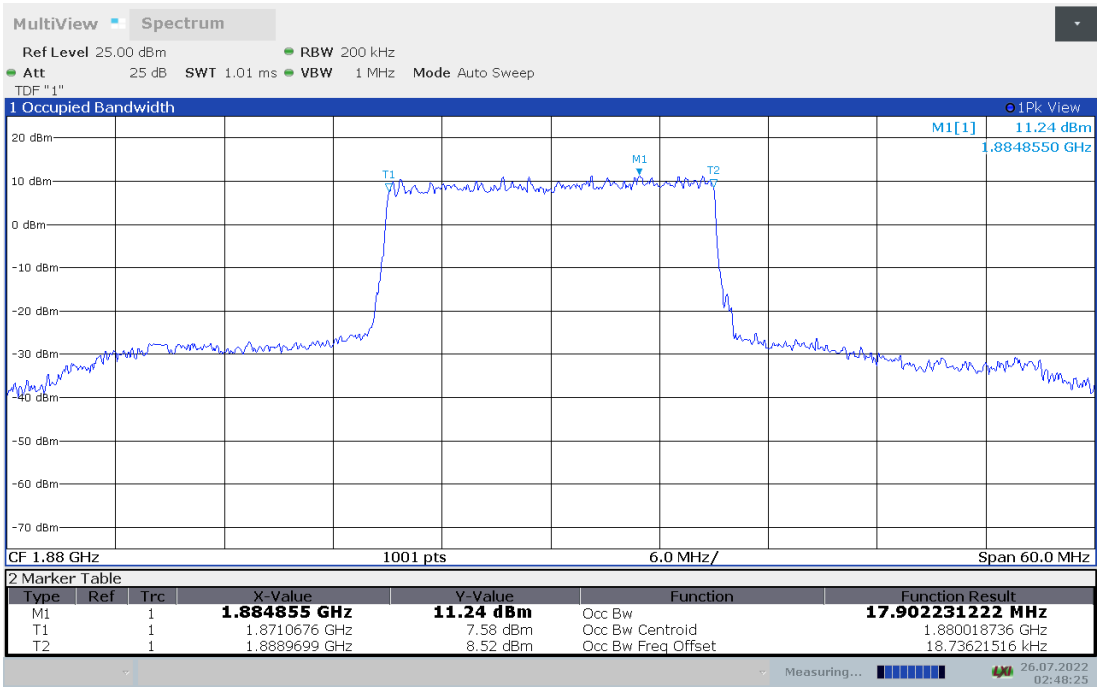
LTE band 2, 15MHz Bandwidth, 16QAM (99% BW)



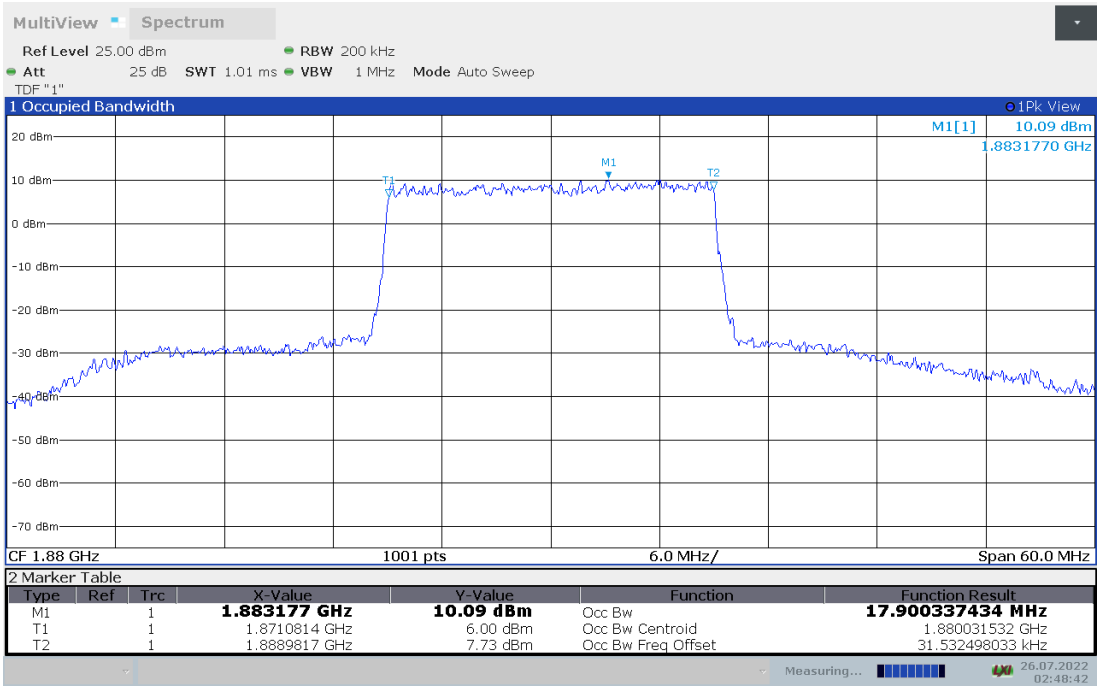
LTE band 2, 20MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
1880.0	QPSK	16QAM
	17.902	17.900

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



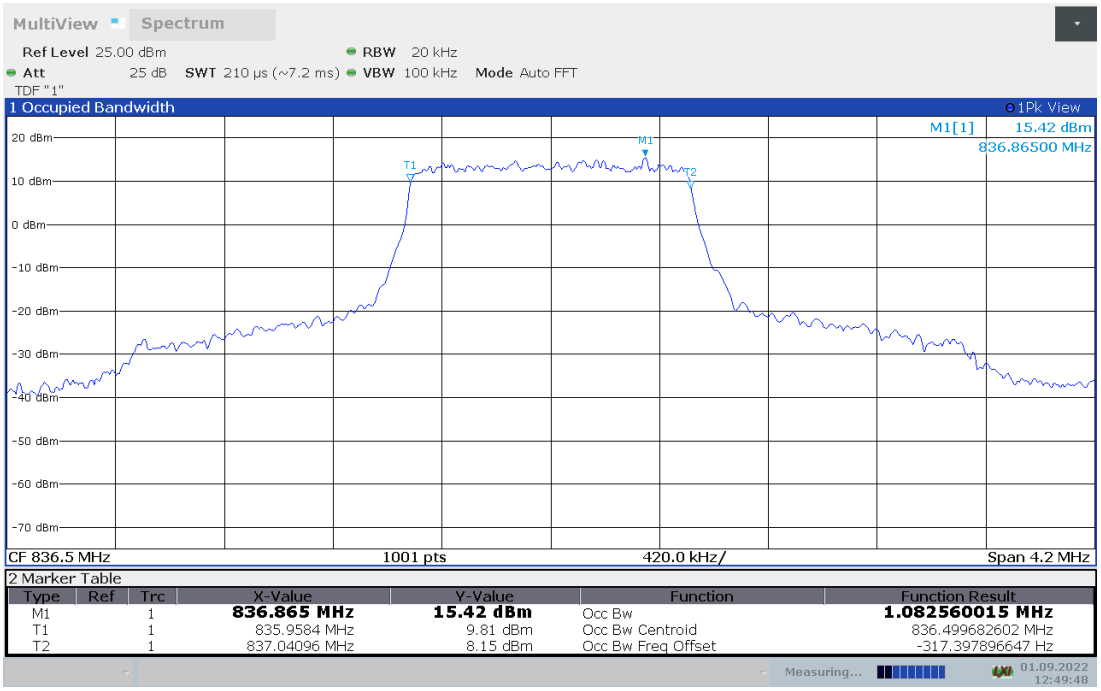
LTE band 2, 20MHz Bandwidth, 16QAM (99% BW)



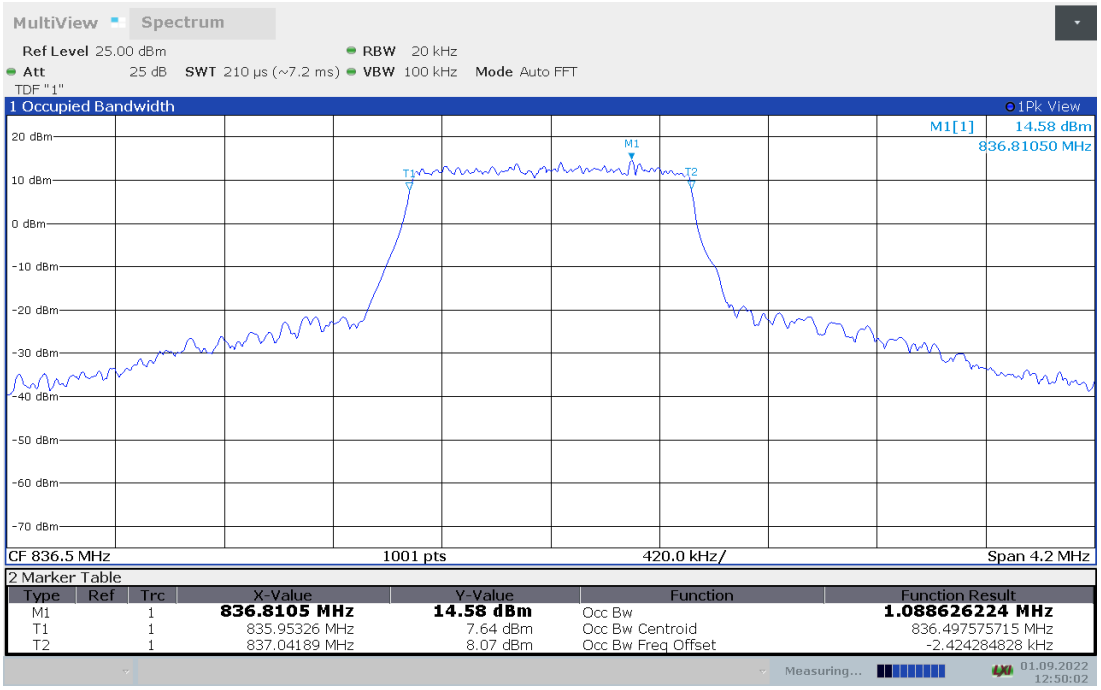
LTE Band 5, 1.4MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
836.5	QPSK	16QAM
	1.083	1.089

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



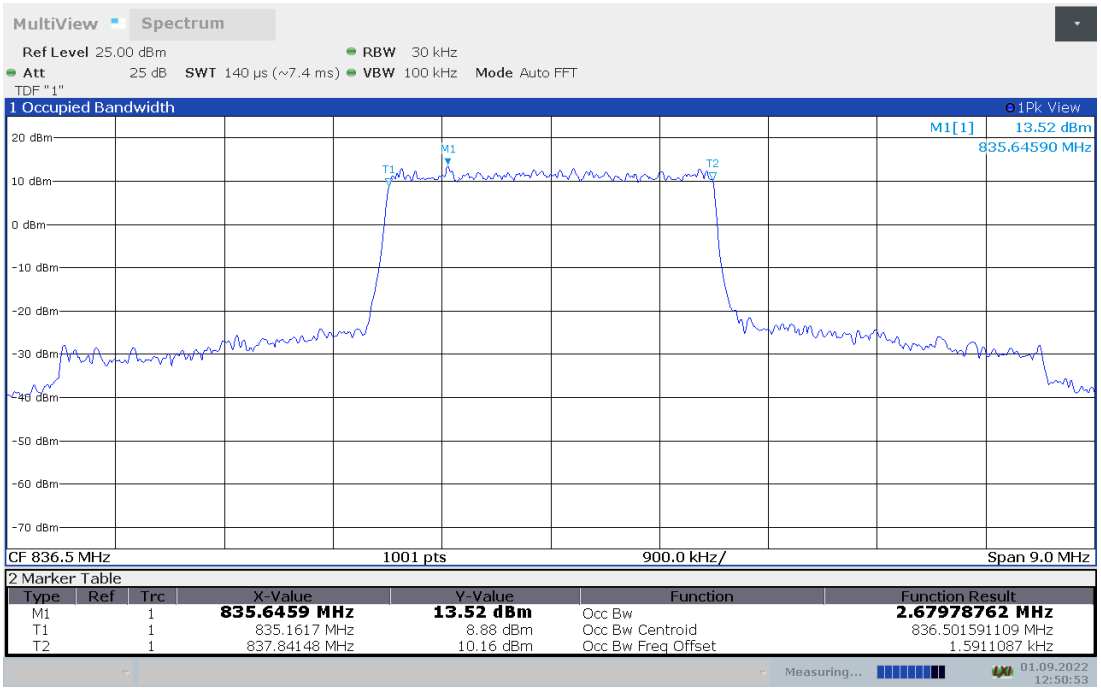
LTE Band 5, 1.4MHz Bandwidth, 16QAM (99% BW)



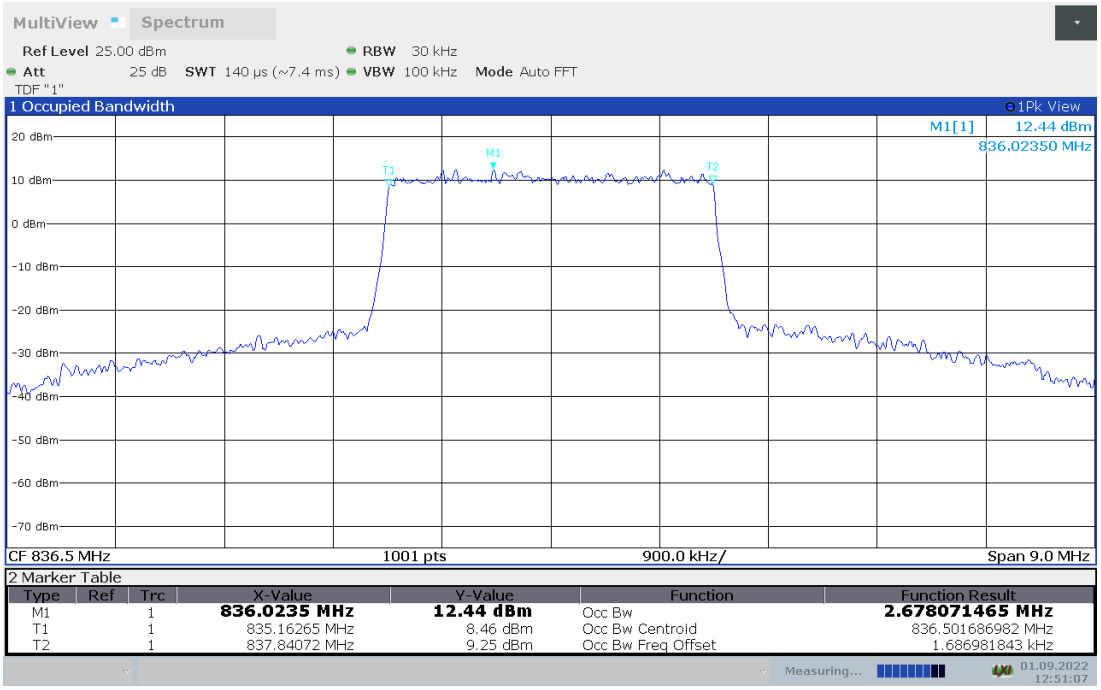
LTE Band 5, 3MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
836.5	QPSK	16QAM
	2.680	2.678

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



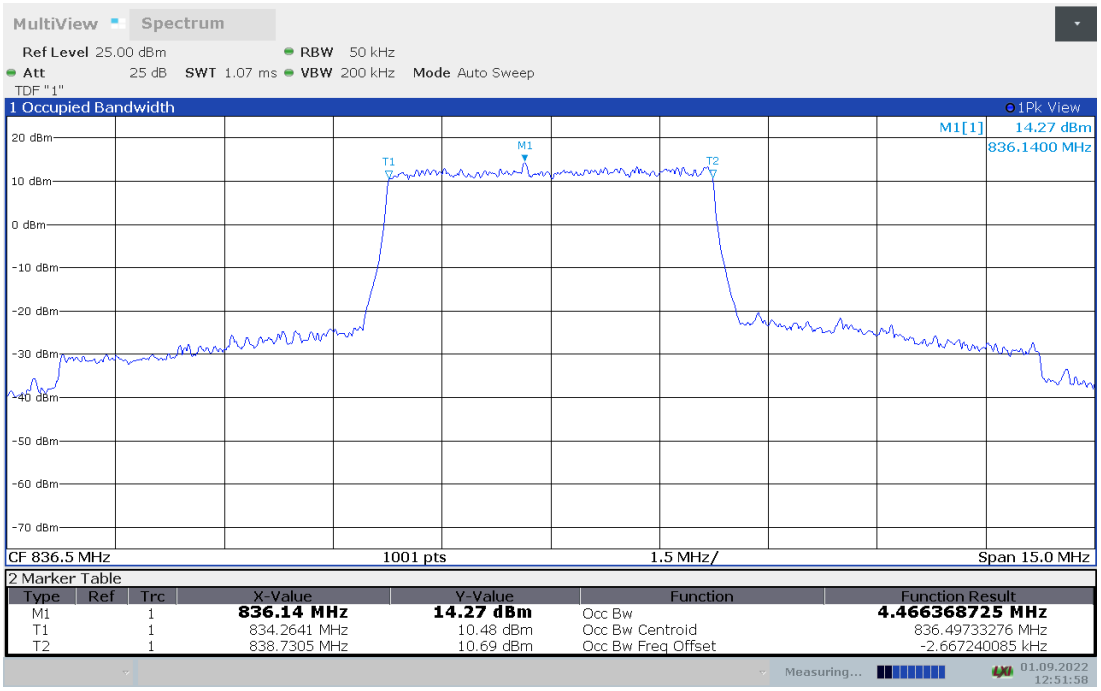
LTE Band 5, 3MHz Bandwidth, 16QAM (99% BW)



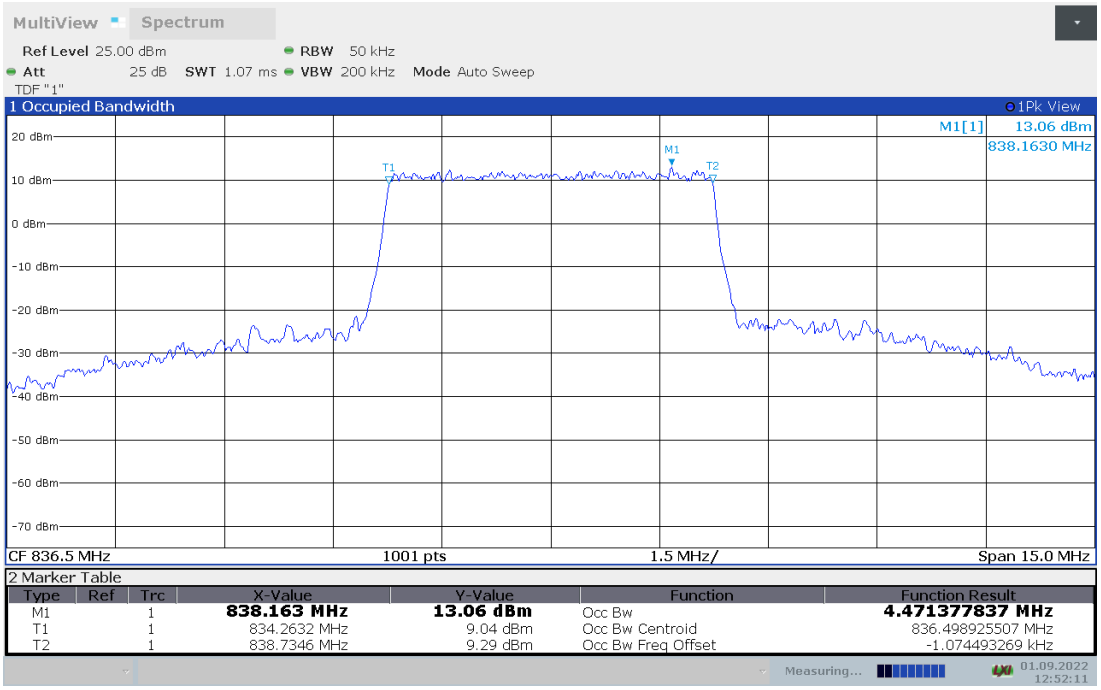
LTE Band 5, 5MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
836.5	4.466	4.471

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



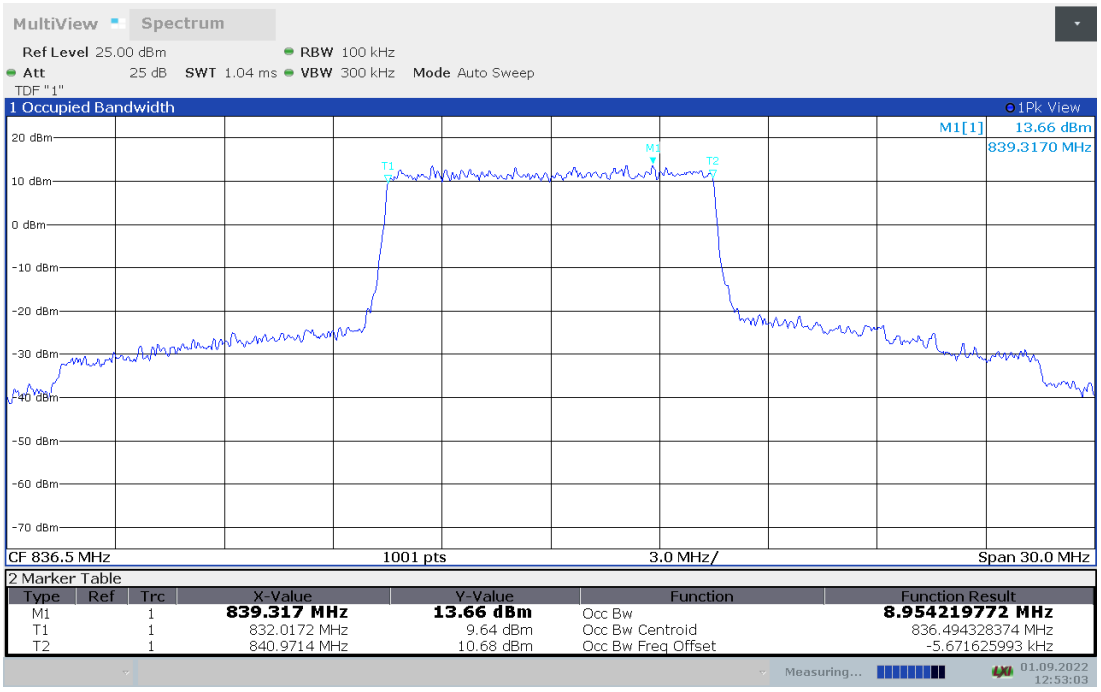
LTE Band 5, 5MHz Bandwidth,16QAM (99% BW)



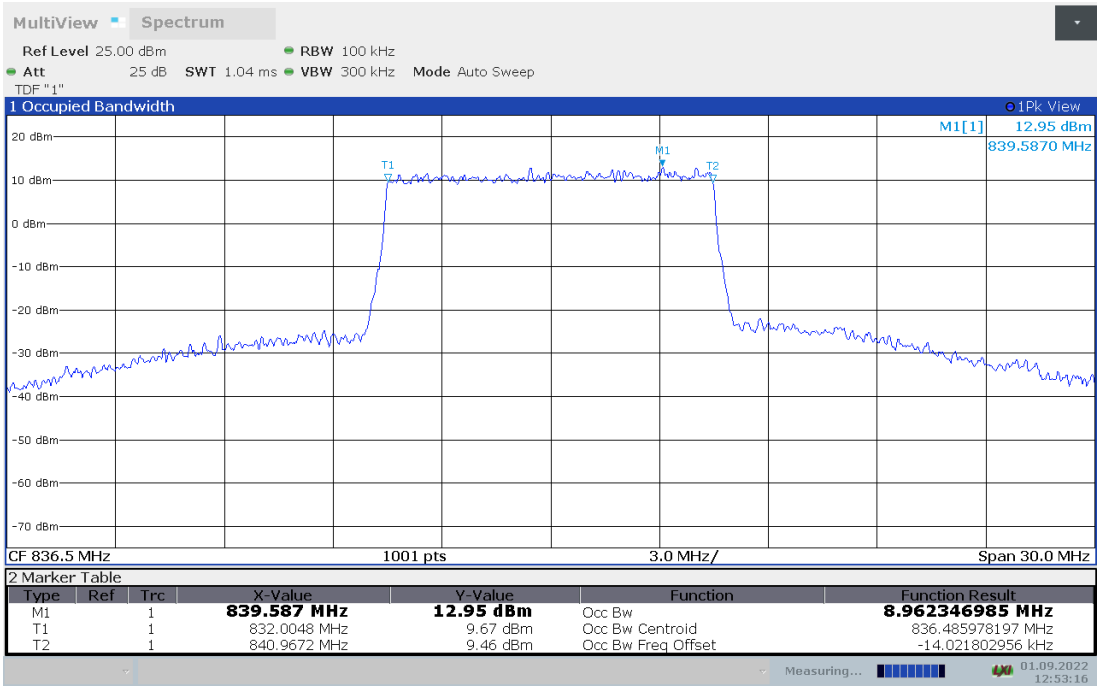
LTE Band 5, 10MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
836.5	8.954	8.962

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



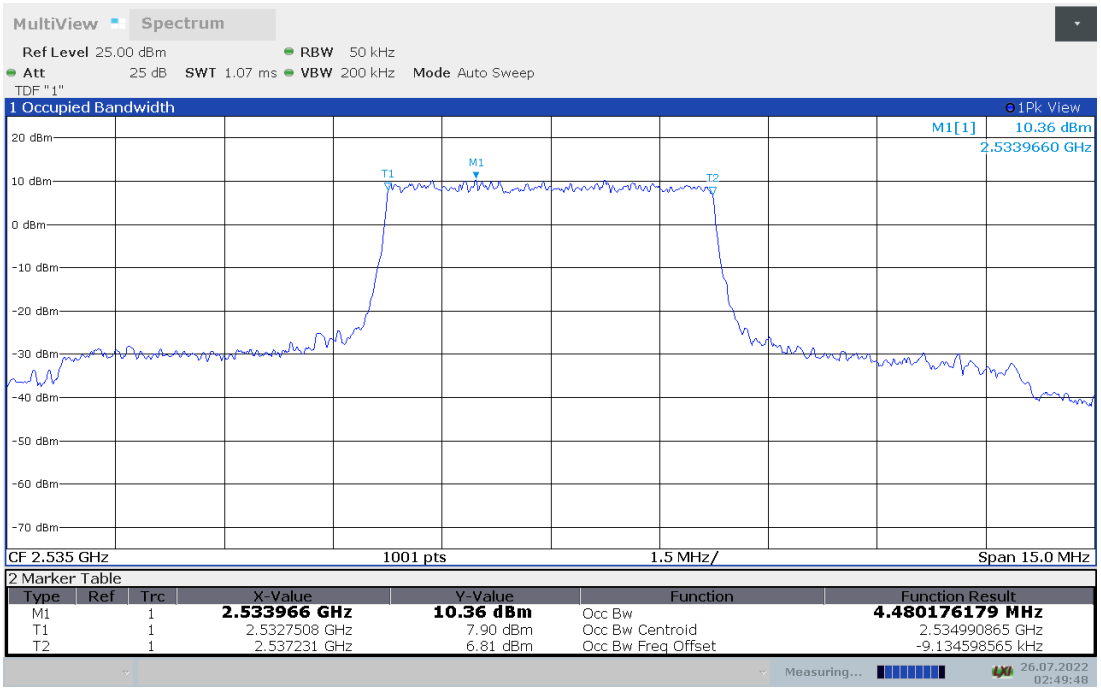
LTE Band 5, 10MHz Bandwidth, 16QAM (99% BW)



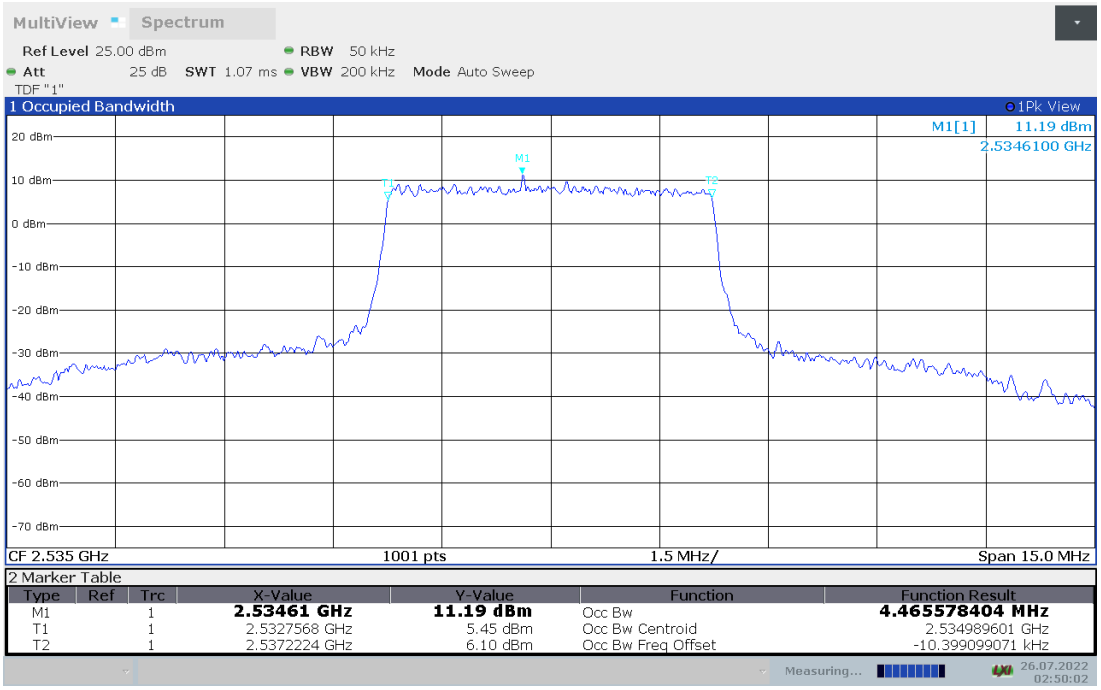
LTE band 7, 5MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
2535.0	4.480	4.466

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



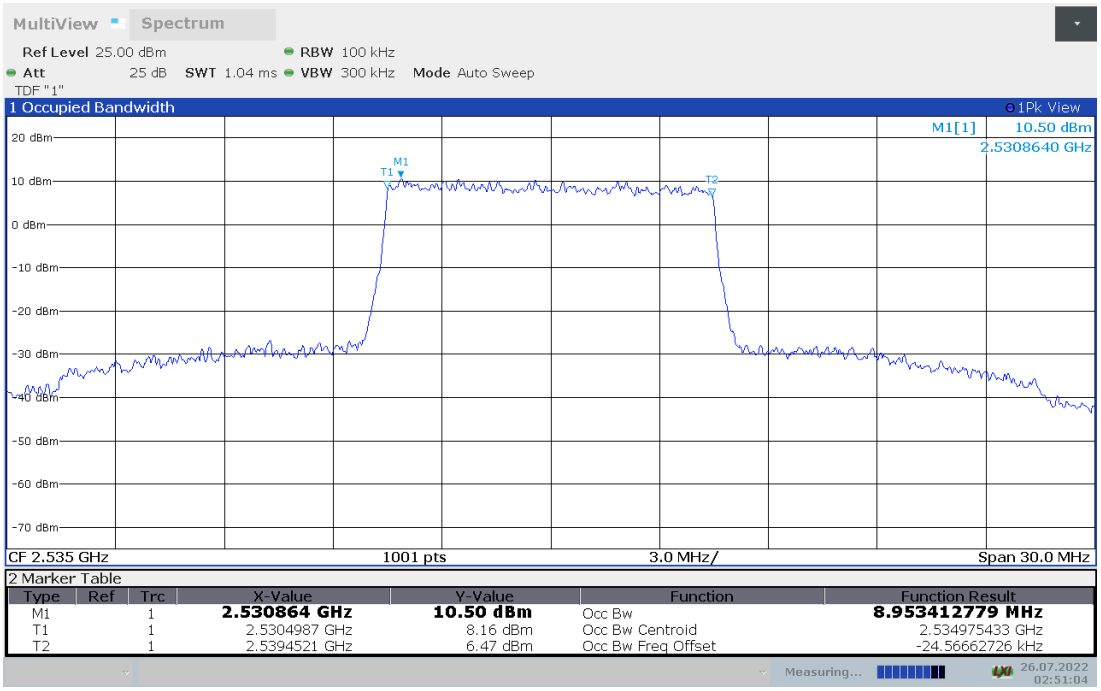
LTE band 7, 5MHz Bandwidth,16QAM (99% BW)



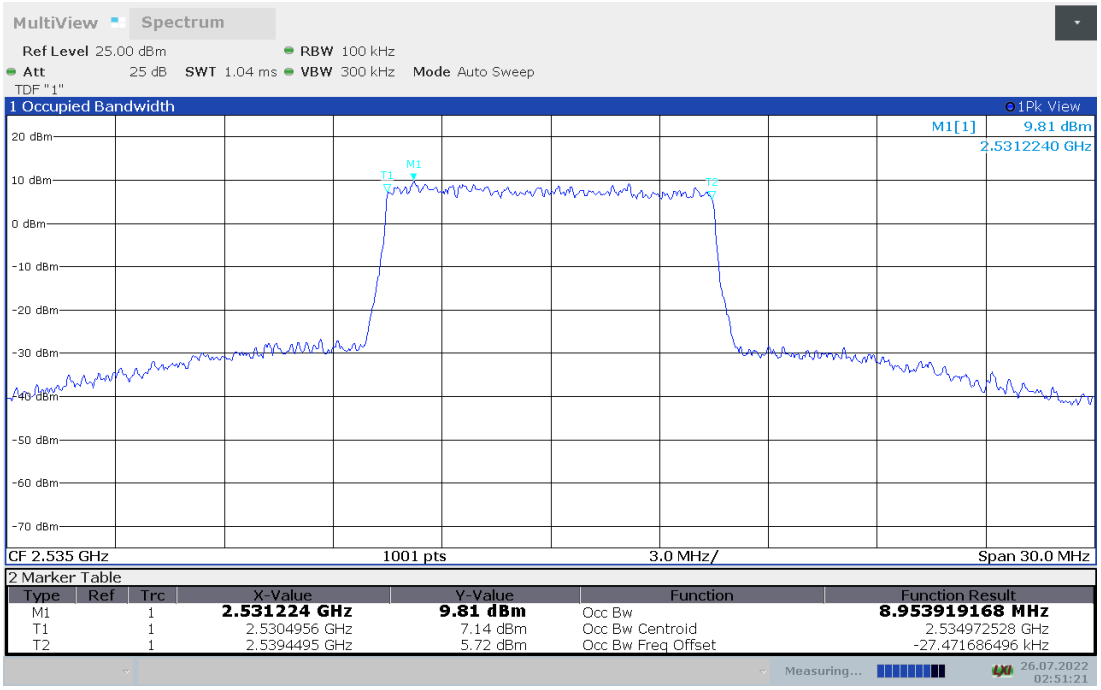
LTE band 7, 10MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
2535.0	8.953	8.954

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



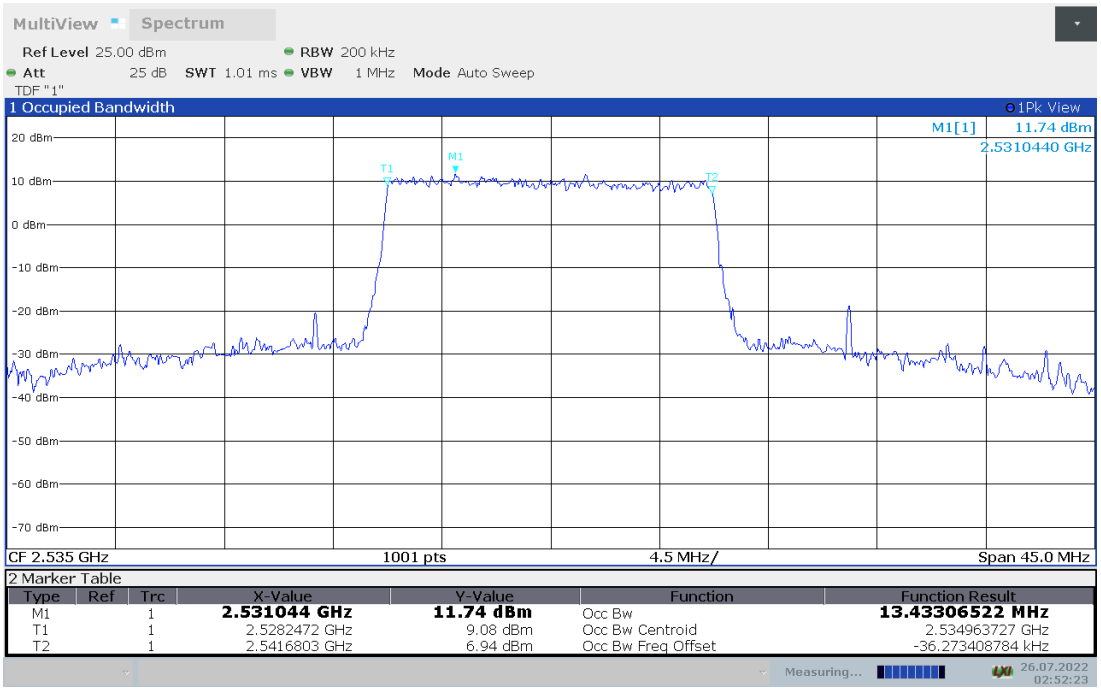
LTE band 7, 10MHz Bandwidth, 16QAM (99% BW)



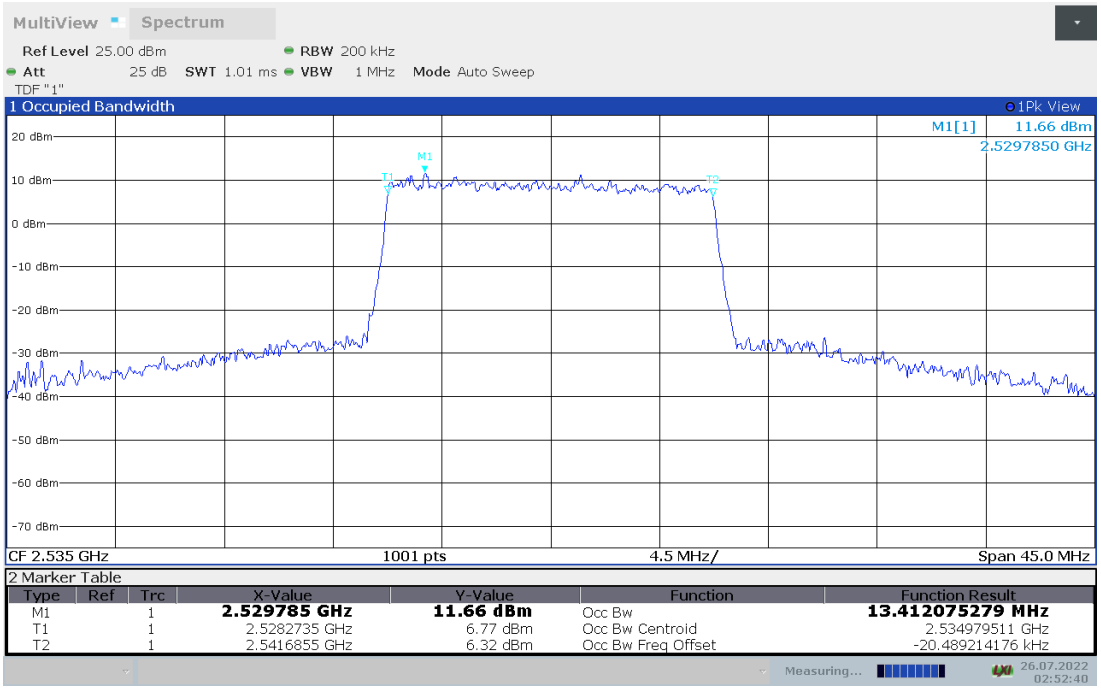
LTE band 7, 15MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
2535.0	13.433	13.412

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



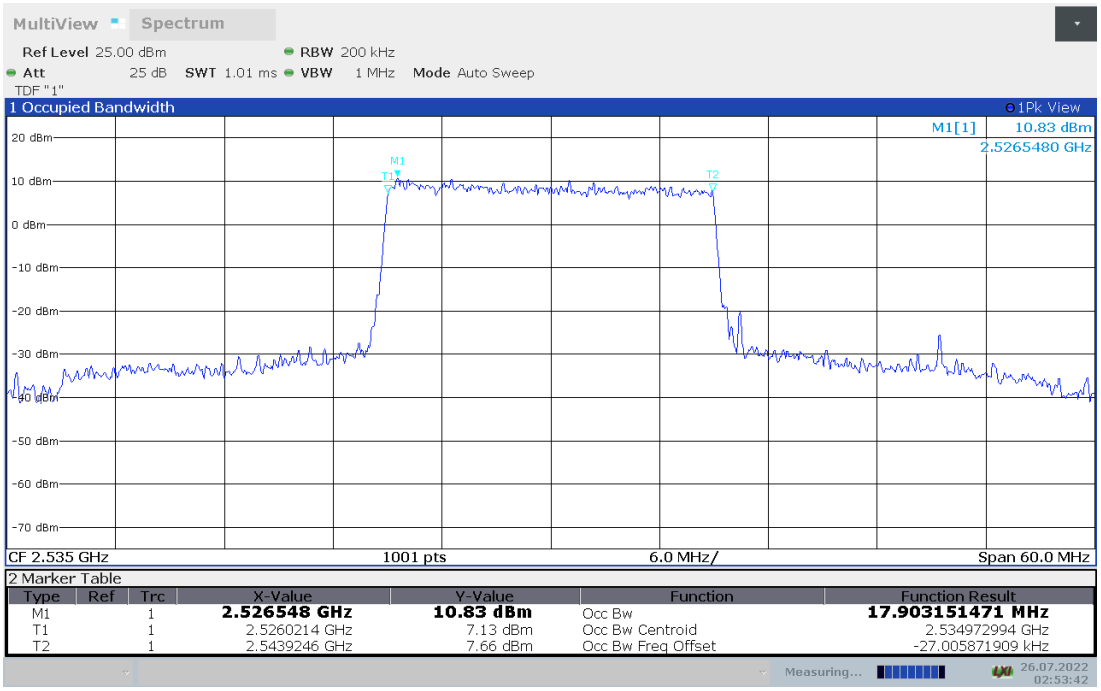
LTE band 7, 15MHz Bandwidth, 16QAM (99% BW)



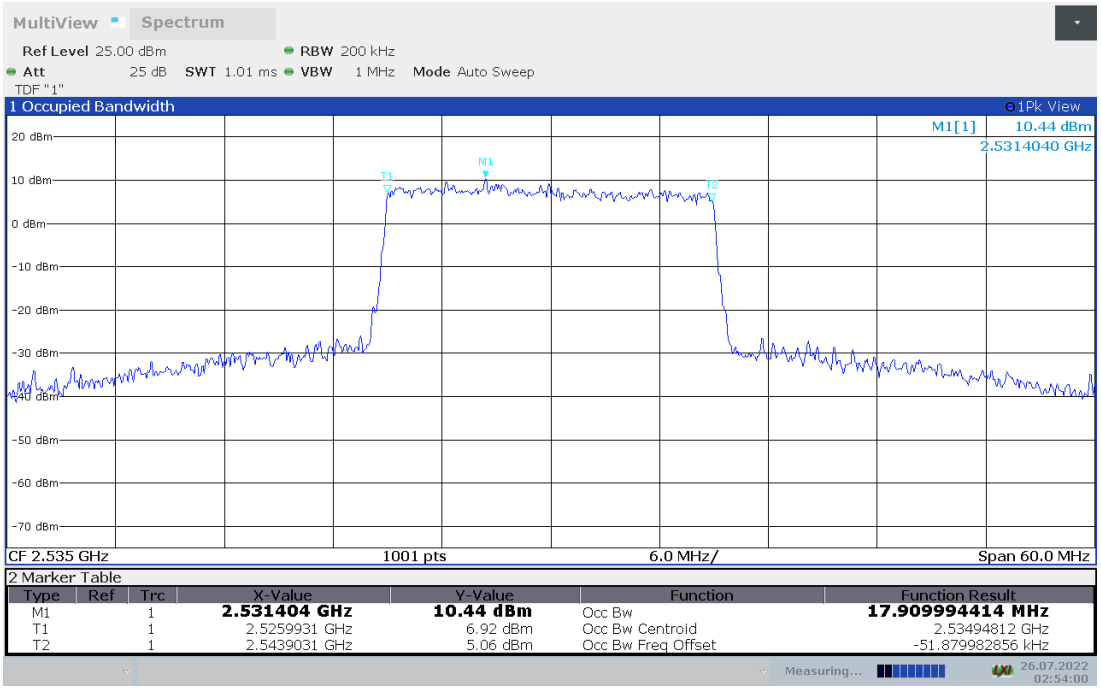
LTE band 7, 20MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
2535.0	QPSK	16QAM
	17.903	17.910

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



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

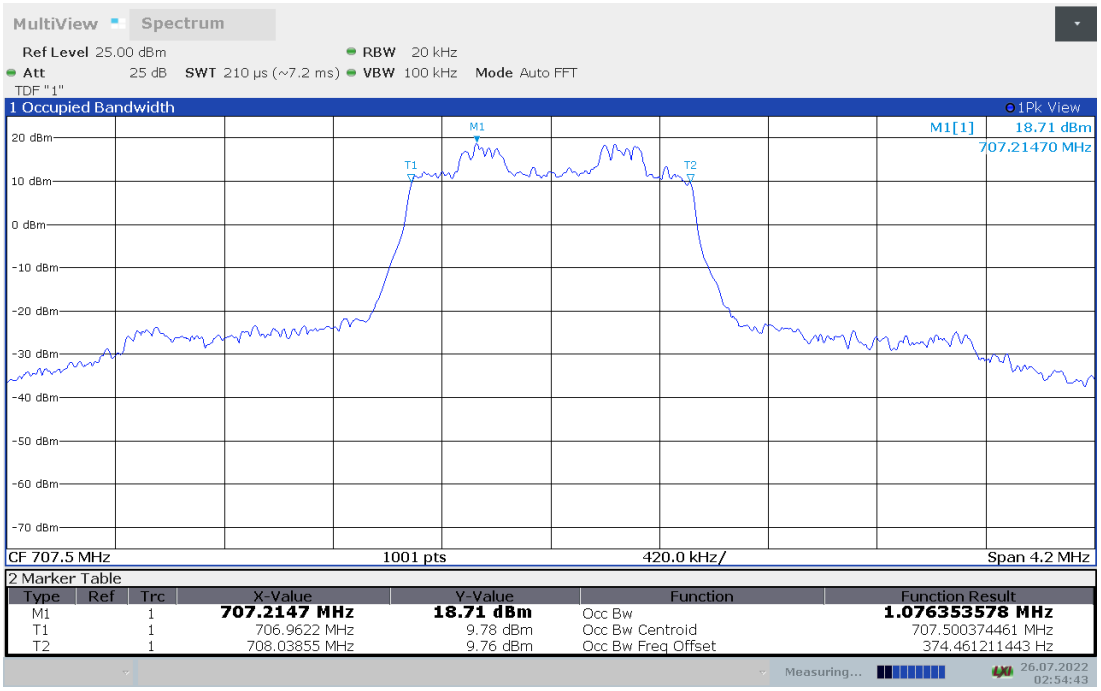


Note: Expanded measurement uncertainty is U = 3428Hz, k = 2

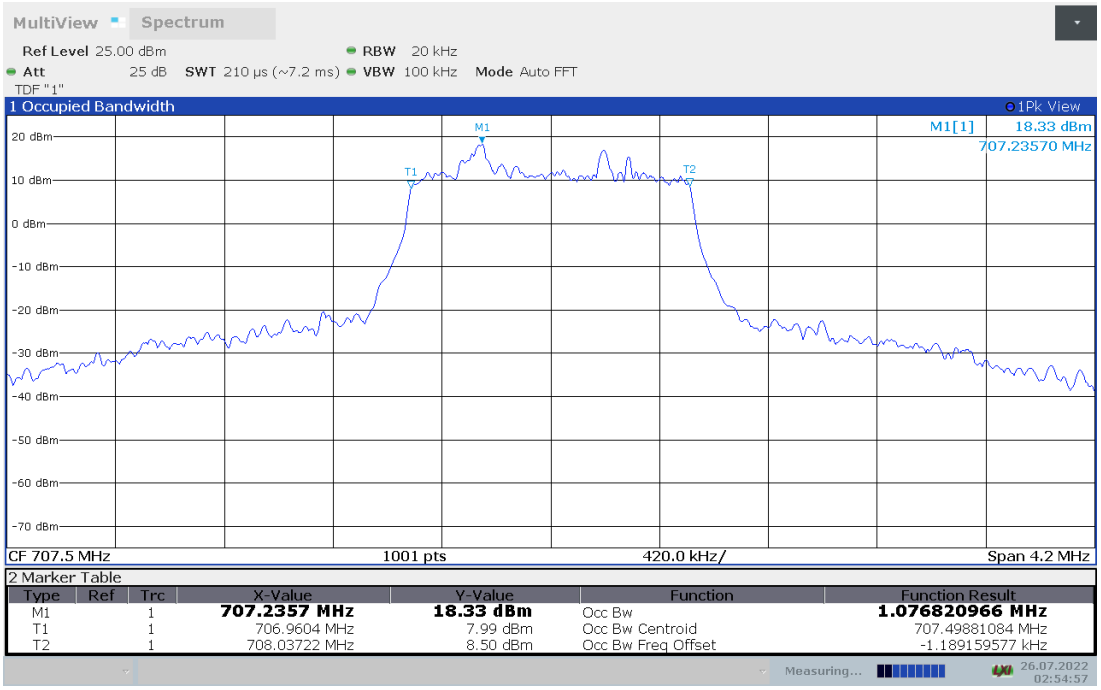
LTE band 12, 1.4MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
707.5	QPSK	16QAM
	1.076	1.077

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



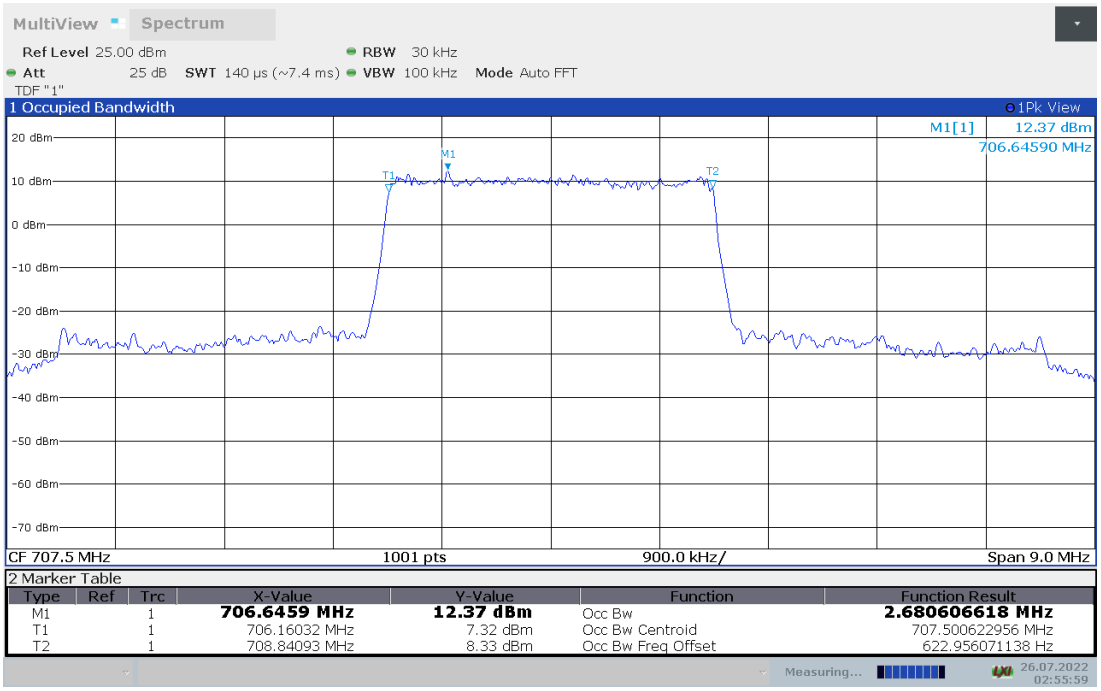
LTE band 12, 1.4MHz Bandwidth, 16QAM (99% BW)



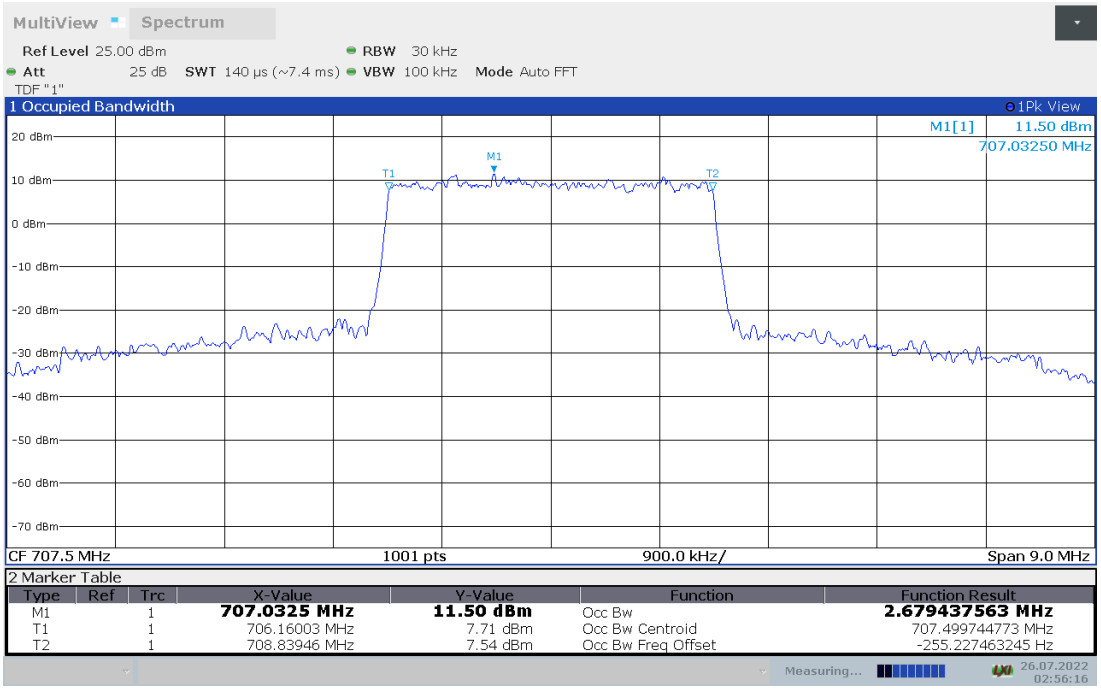
LTE band 12, 3MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
707.5	QPSK	16QAM
	2.681	2.679

LTE band 12, 3MHz Bandwidth, QPSK (99% BW)



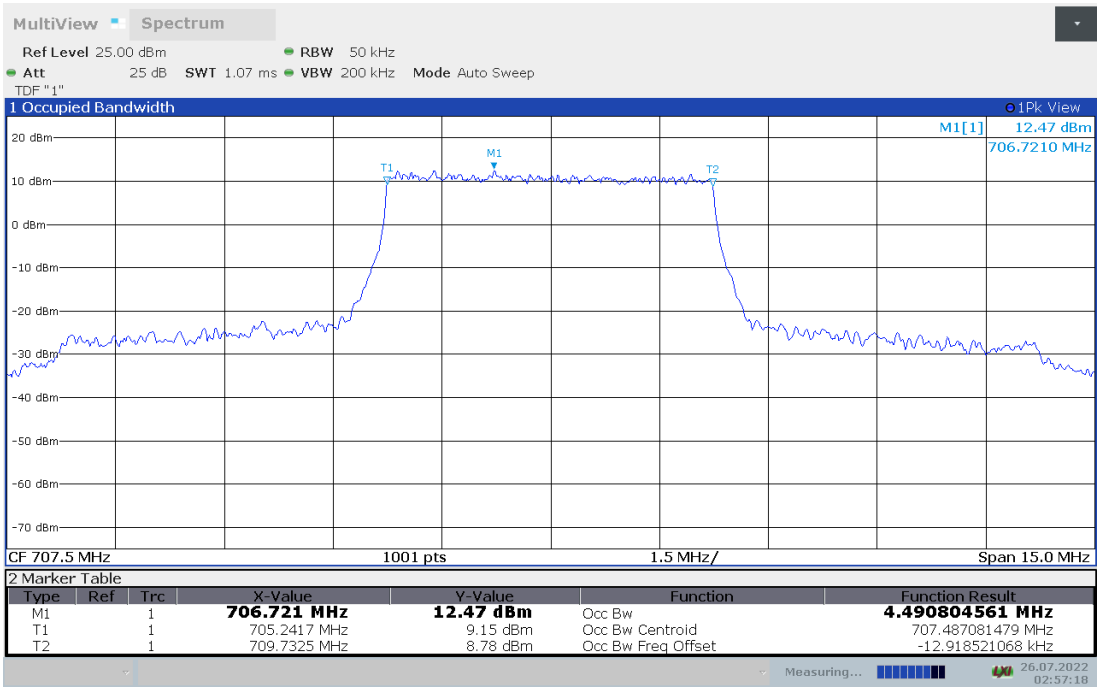
LTE band 12, 3MHz Bandwidth, 16QAM (99% BW)



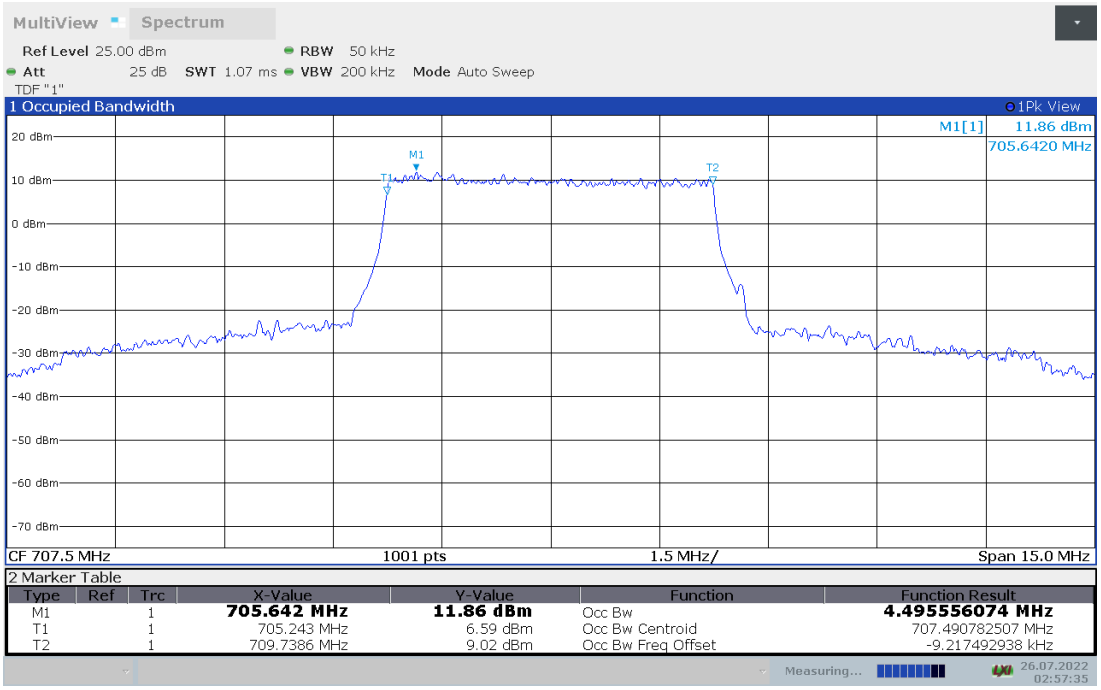
LTE band 12, 5MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
707.5	4.491	4.496

LTE band 12, 5MHz Bandwidth, QPSK (99% BW)



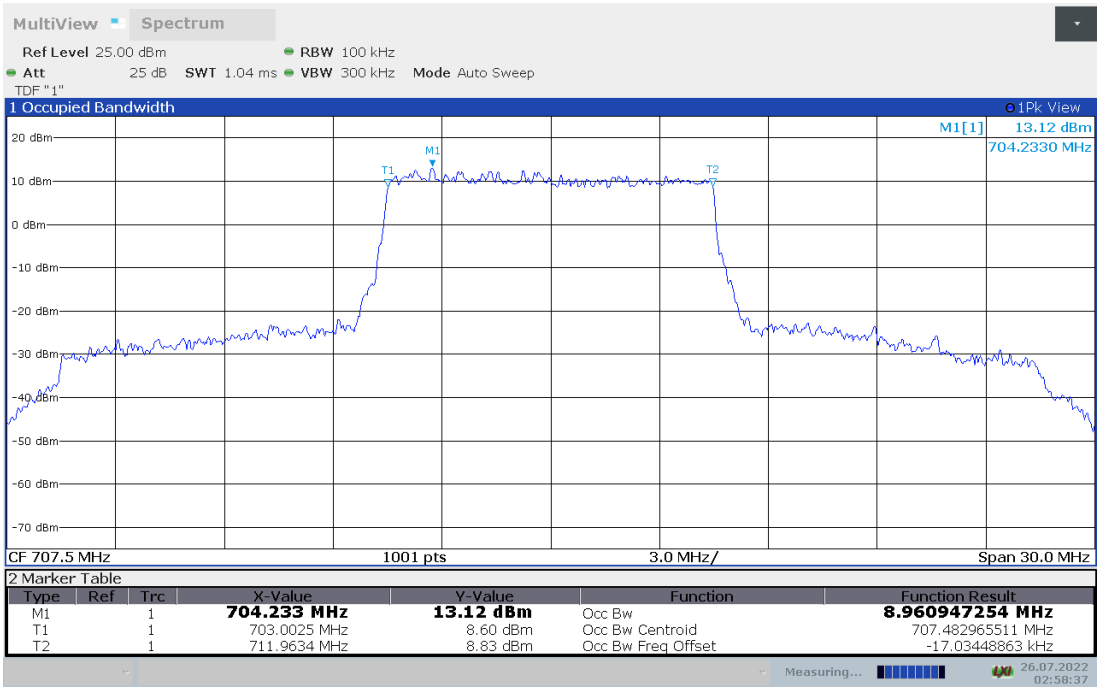
LTE band 12, 5MHz Bandwidth,16QAM (99% BW)



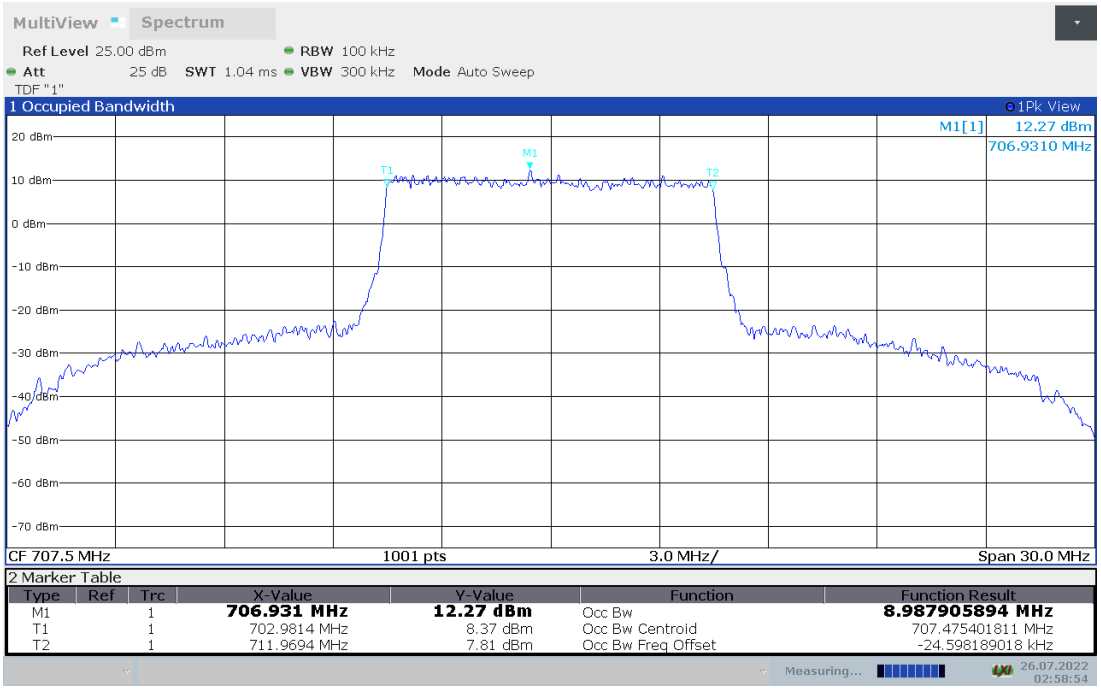
LTE band 12, 10MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
707.5	8.961	8.988

LTE band 12, 10MHz Bandwidth, QPSK (99% BW)



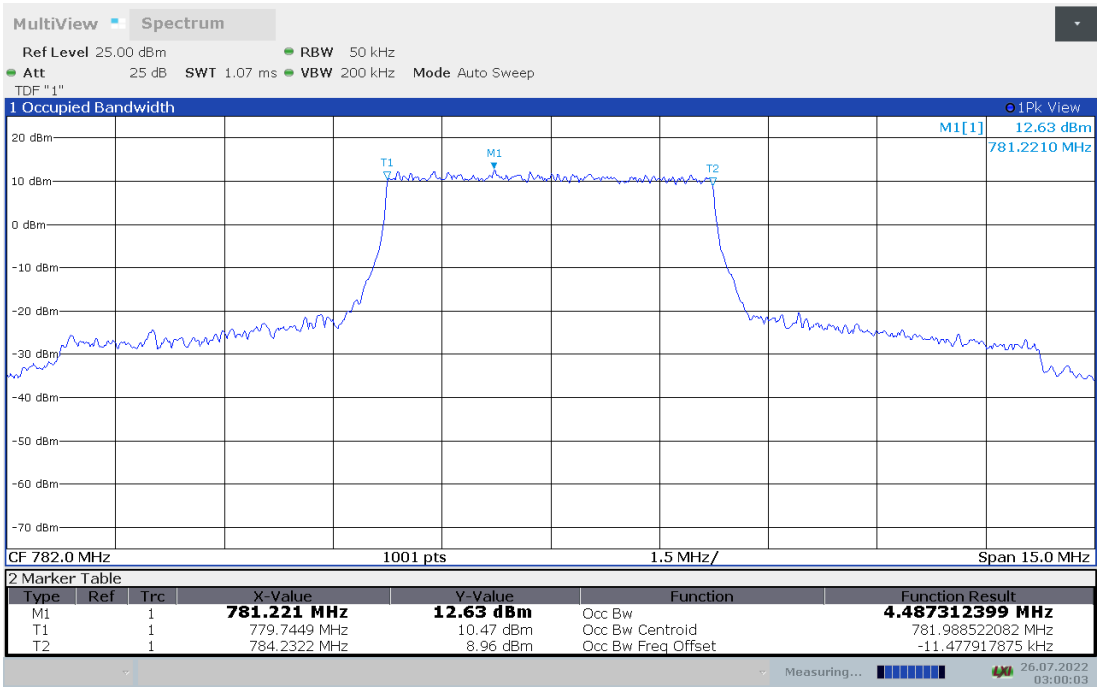
LTE band 12, 10MHz Bandwidth, 16QAM (99% BW)



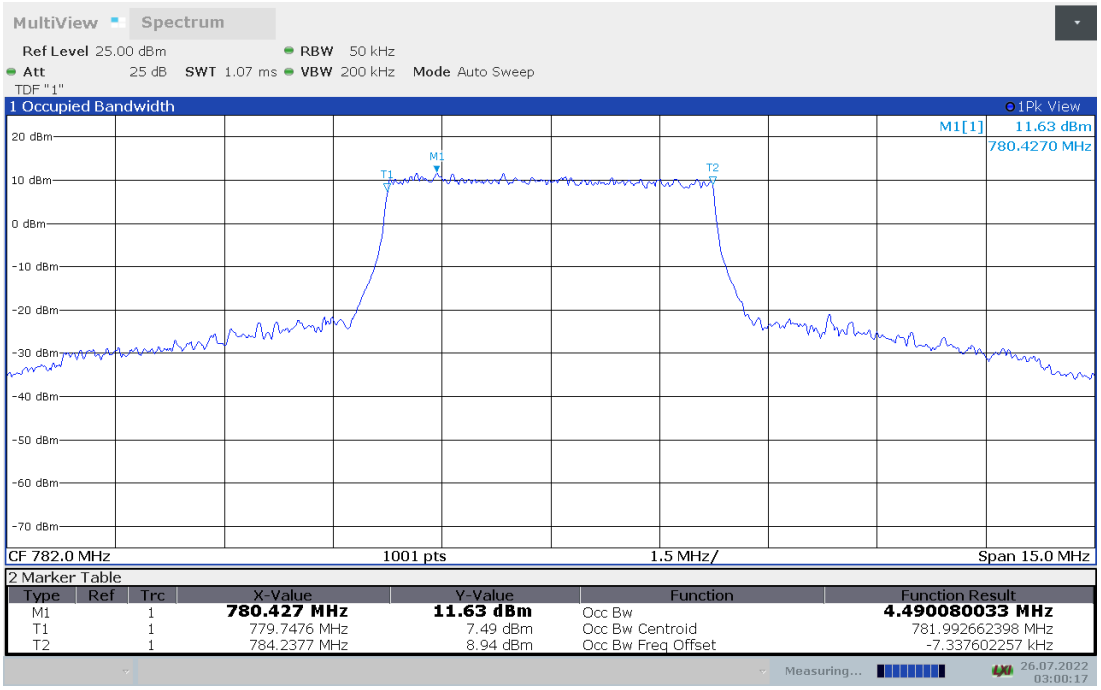
LTE band 13, 5MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
782.0	4.487	4.490

LTE band 13, 5MHz Bandwidth, QPSK (99% BW)



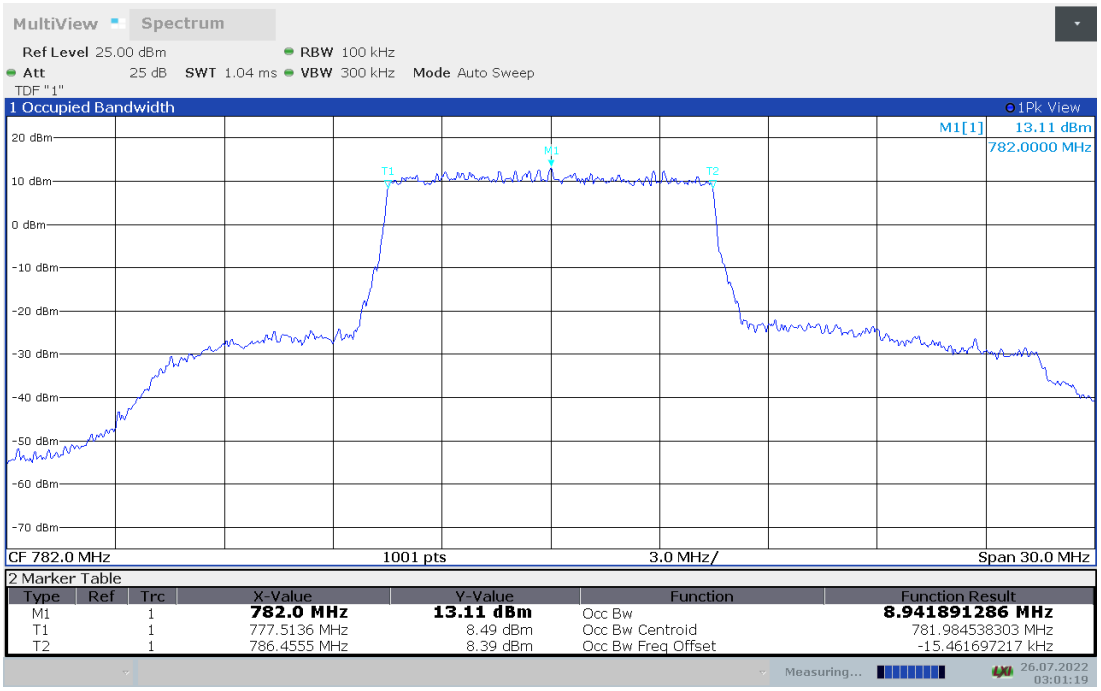
LTE band 13, 5MHz Bandwidth,16QAM (99% BW)



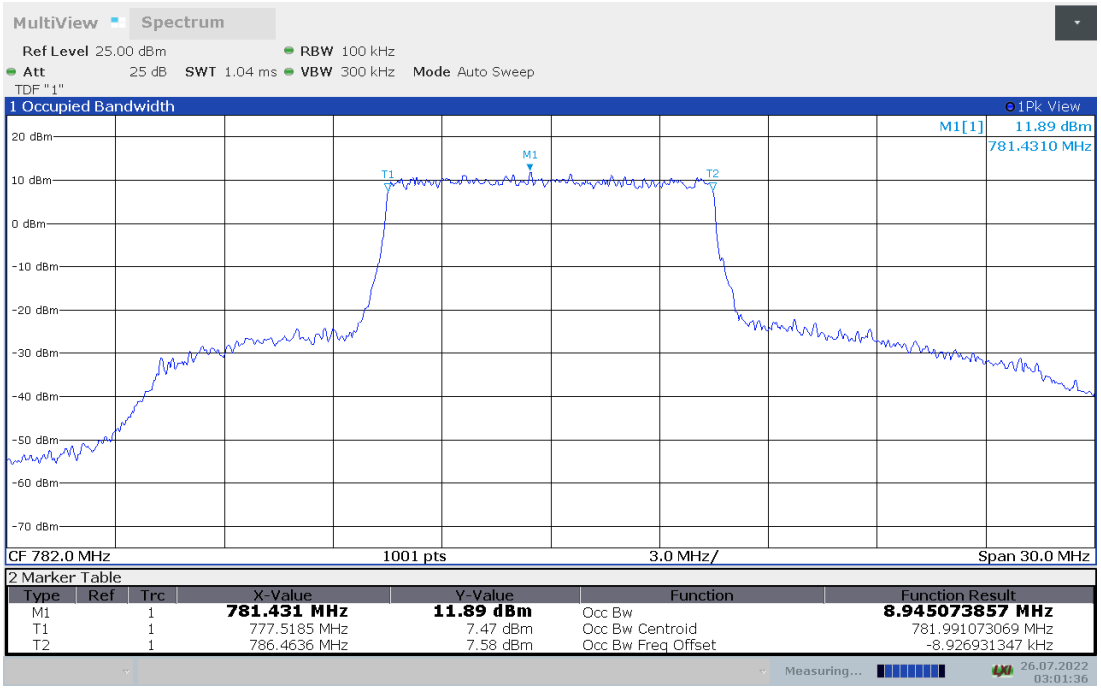
LTE band 13, 10MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
782.0	QPSK	16QAM
	8.942	8.945

LTE band 13, 10MHz Bandwidth, QPSK (99% BW)



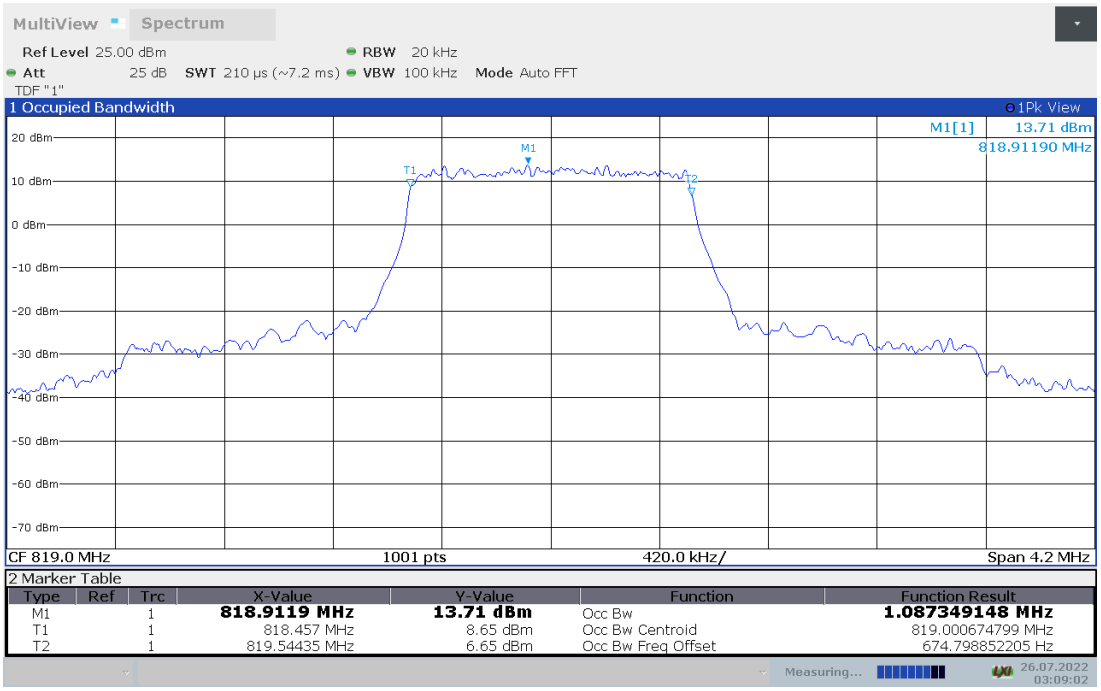
LTE band 13, 10MHz Bandwidth, 16QAM (99% BW)



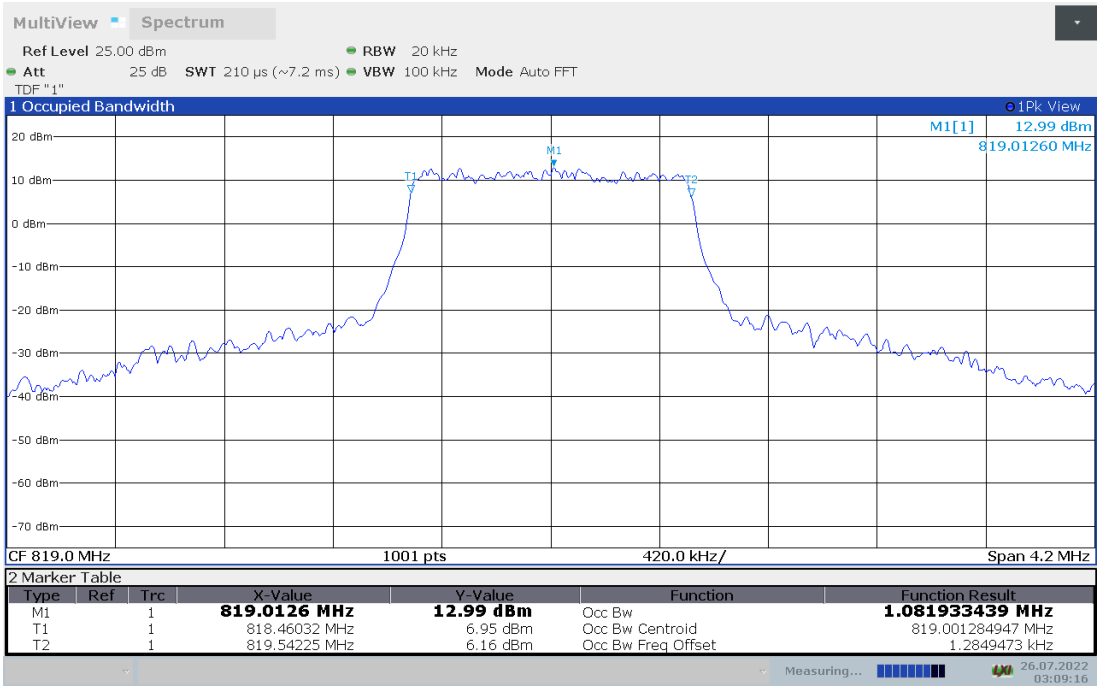
LTE band 26(814MHz-824MHz), 1.4MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
819.0	QPSK	16QAM
	1.087	1.082

LTE band 26(814MHz-824MHz), 1.4MHz Bandwidth, QPSK (99% BW)



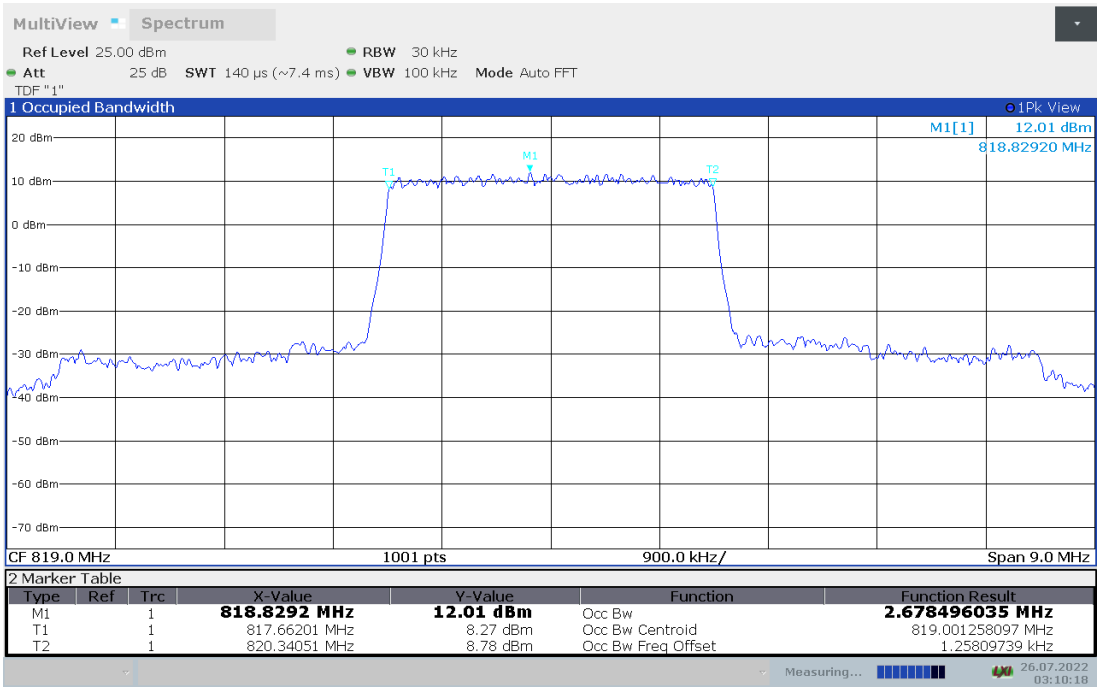
LTE band 26(814MHz-824MHz), 1.4MHz Bandwidth, 16QAM (99% BW)



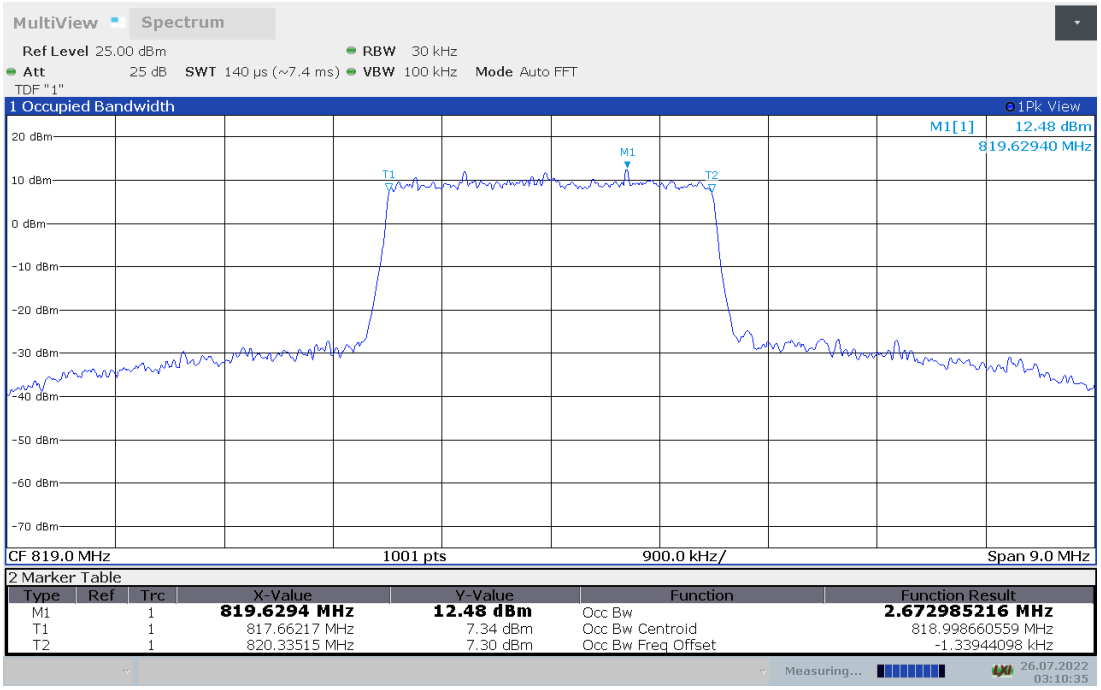
LTE band 26(814MHz-824MHz), 3MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
819.0	2.678	2.673

LTE band 26(814MHz-824MHz), 3MHz Bandwidth, QPSK (99% BW)



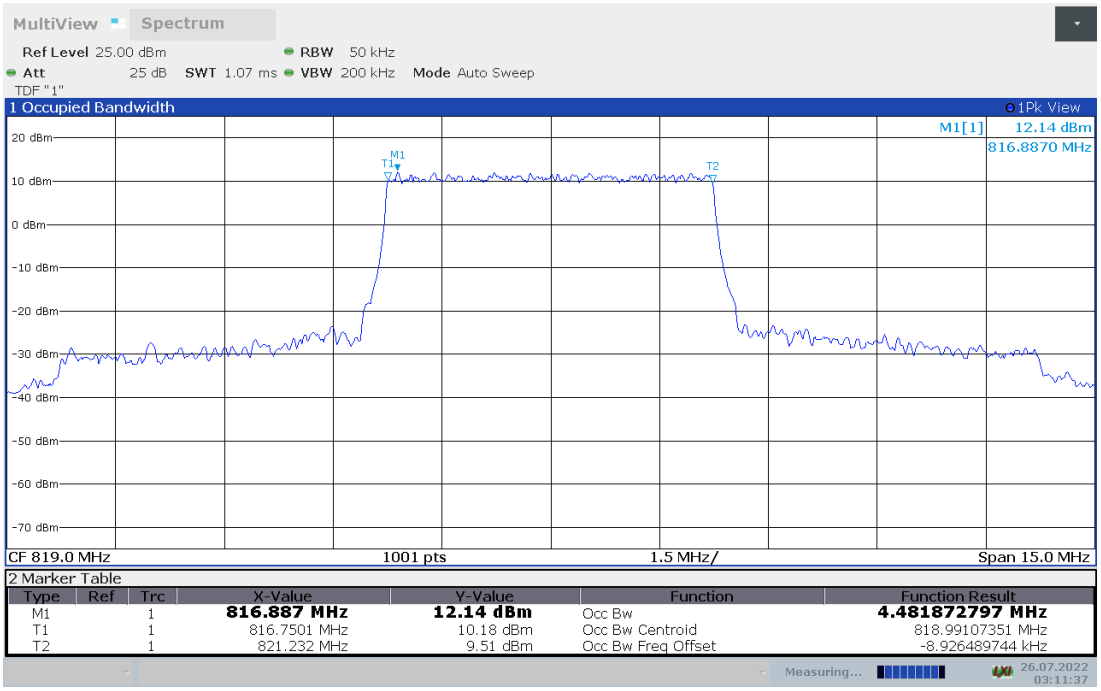
LTE band 26(814MHz-824MHz), 3MHz Bandwidth, 16QAM (99% BW)



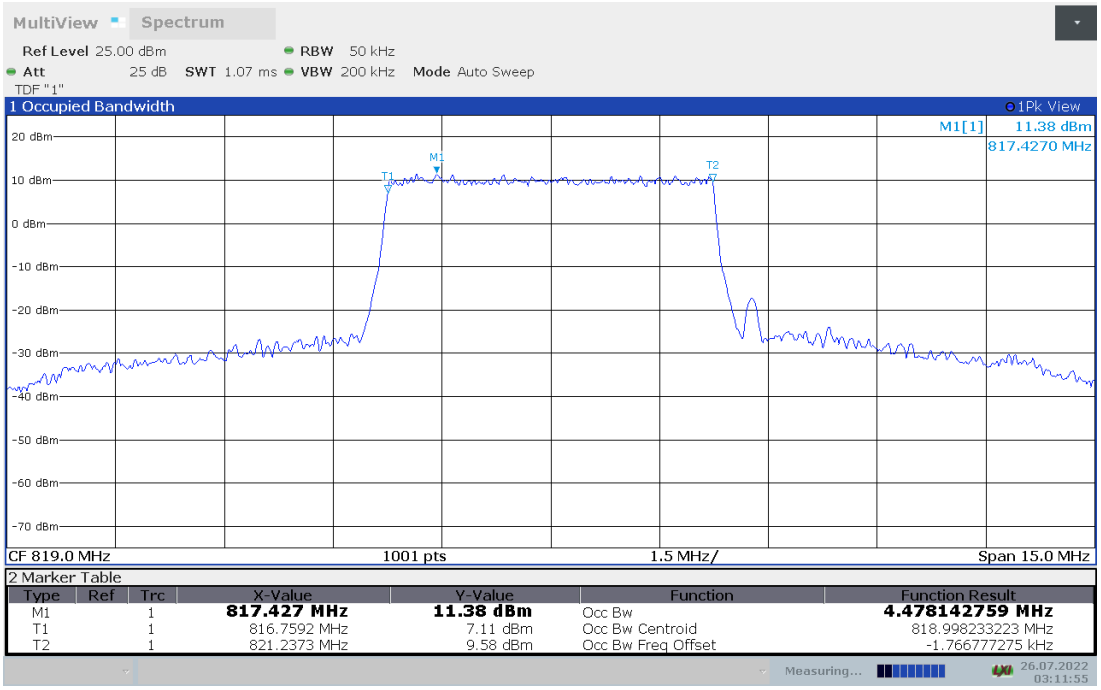
LTE band 26(814MHz-824MHz), 5MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
819.0	QPSK	16QAM
	4.482	4.478

LTE band 26(814MHz-824MHz), 5MHz Bandwidth, QPSK (99% BW)



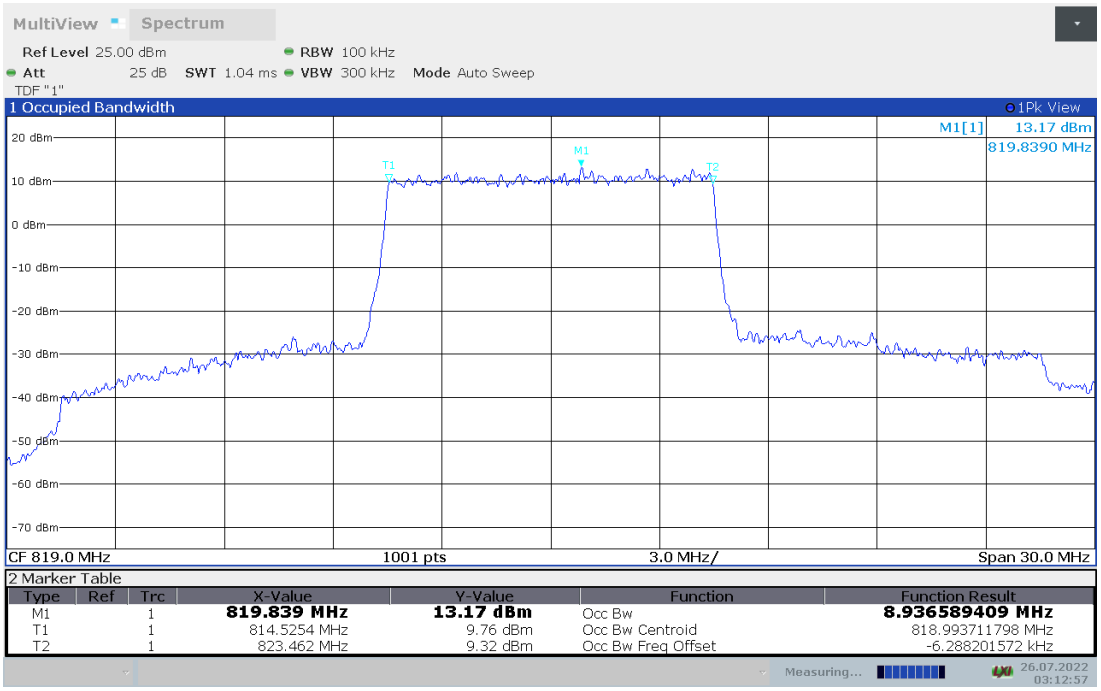
LTE band 26(814MHz-824MHz), 5MHz Bandwidth,16QAM (99% BW)



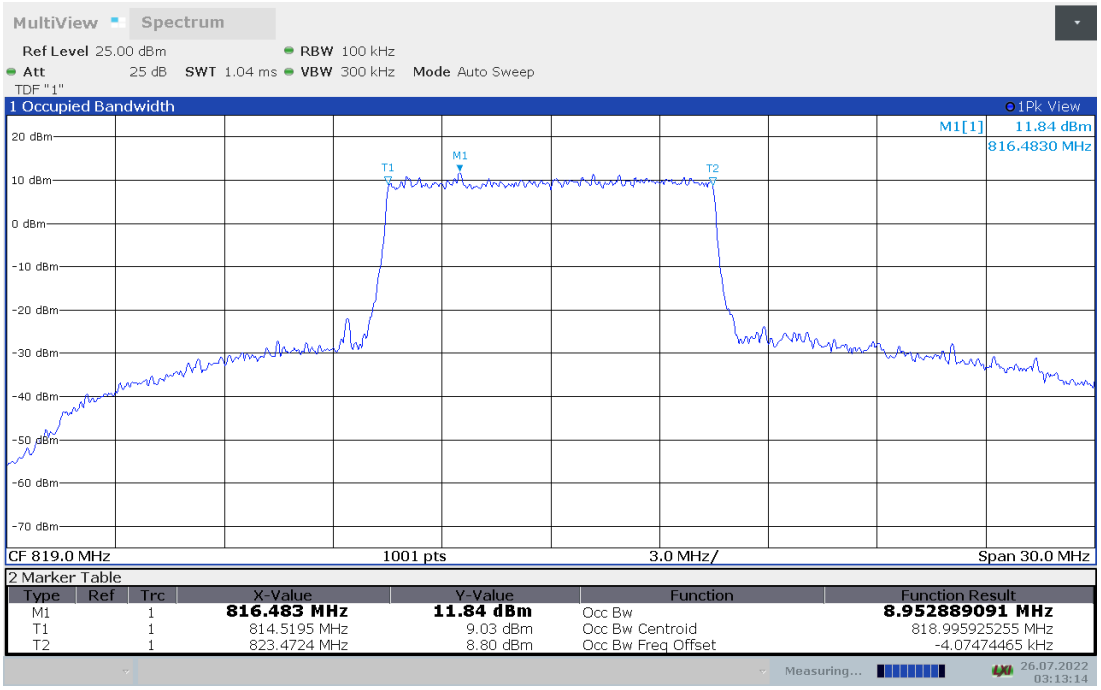
LTE band 26(814MHz-824MHz), 10MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
819.0	QPSK	16QAM
	8.937	8.953

LTE band 26(814MHz-824MHz), 10MHz Bandwidth, QPSK (99% BW)



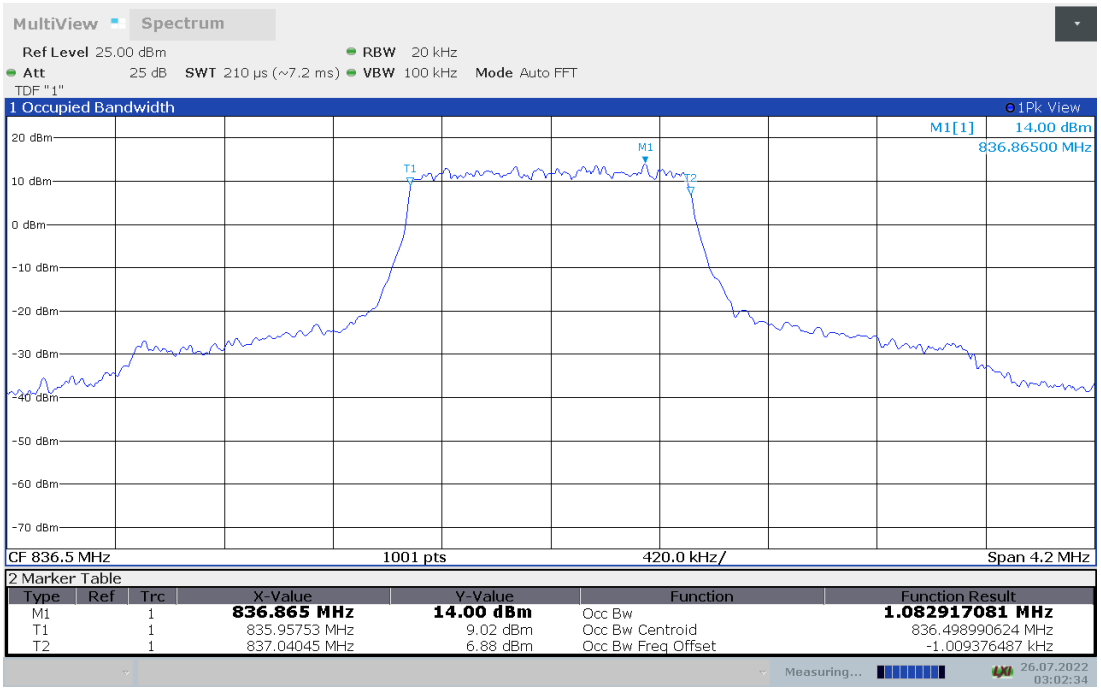
LTE band 26(814MHz-824MHz), 10MHz Bandwidth, 16QAM (99% BW)



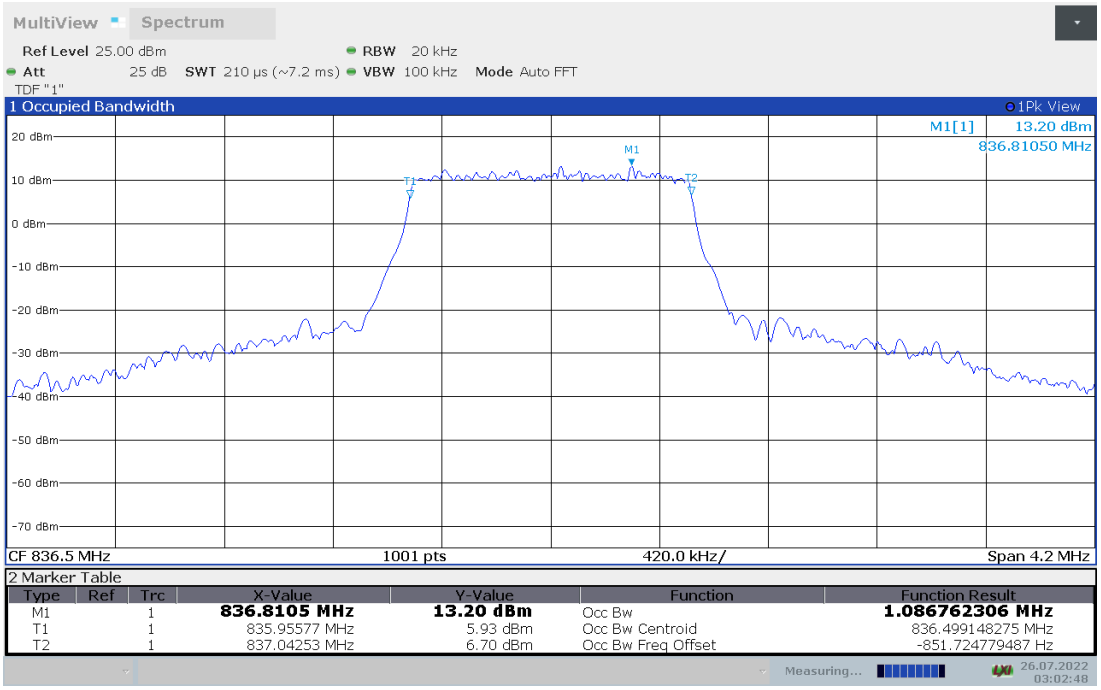
LTE band 26(824MHz-849MHz), 1.4MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
836.5	1.083	1.087

LTE band 26(824MHz-849MHz), 1.4MHz Bandwidth, QPSK (99% BW)



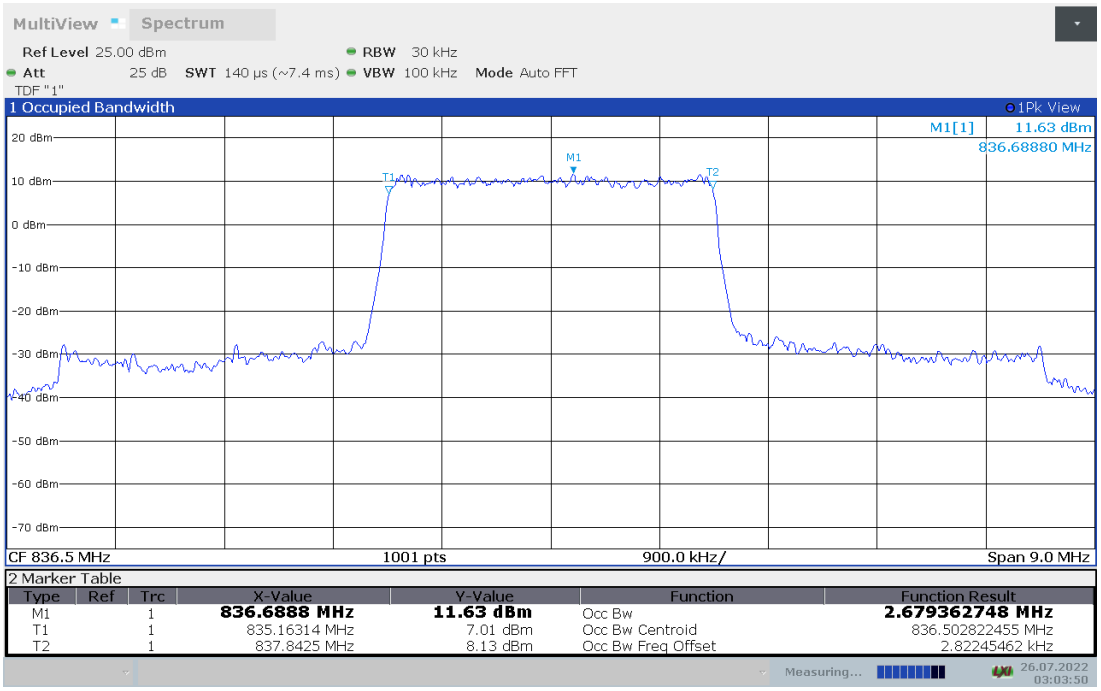
LTE band 26(824MHz-849MHz), 1.4MHz Bandwidth, 16QAM (99% BW)



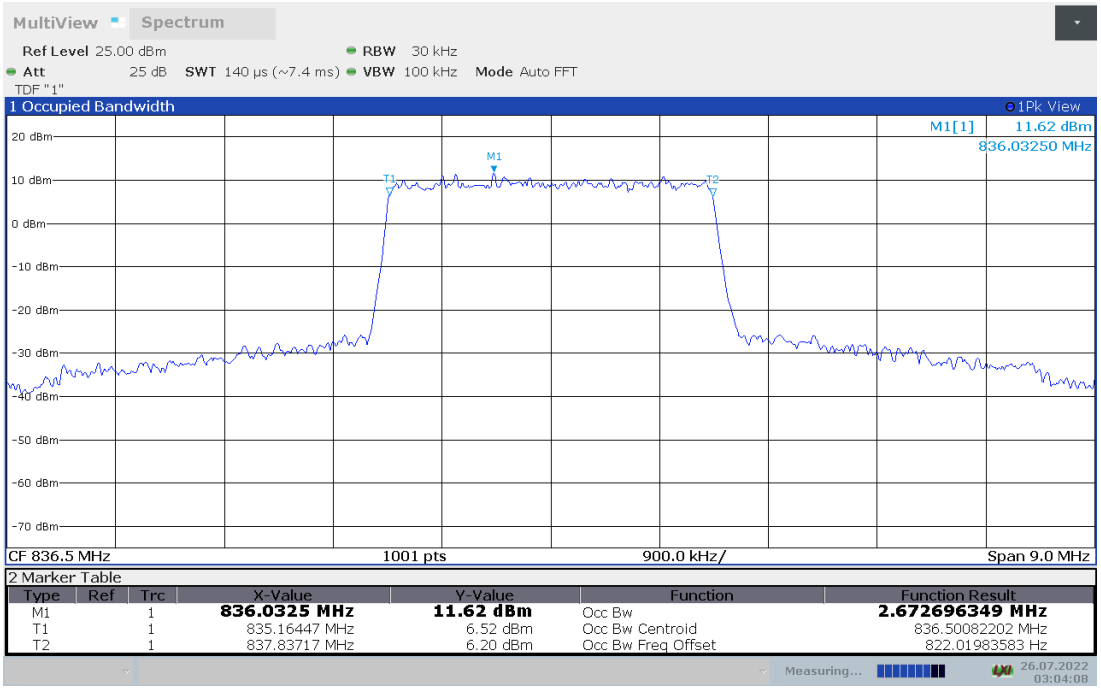
LTE band 26(824MHz-849MHz), 3MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
836.5	QPSK	16QAM
	2.679	2.673

LTE band 26(824MHz-849MHz), 3MHz Bandwidth, QPSK (99% BW)



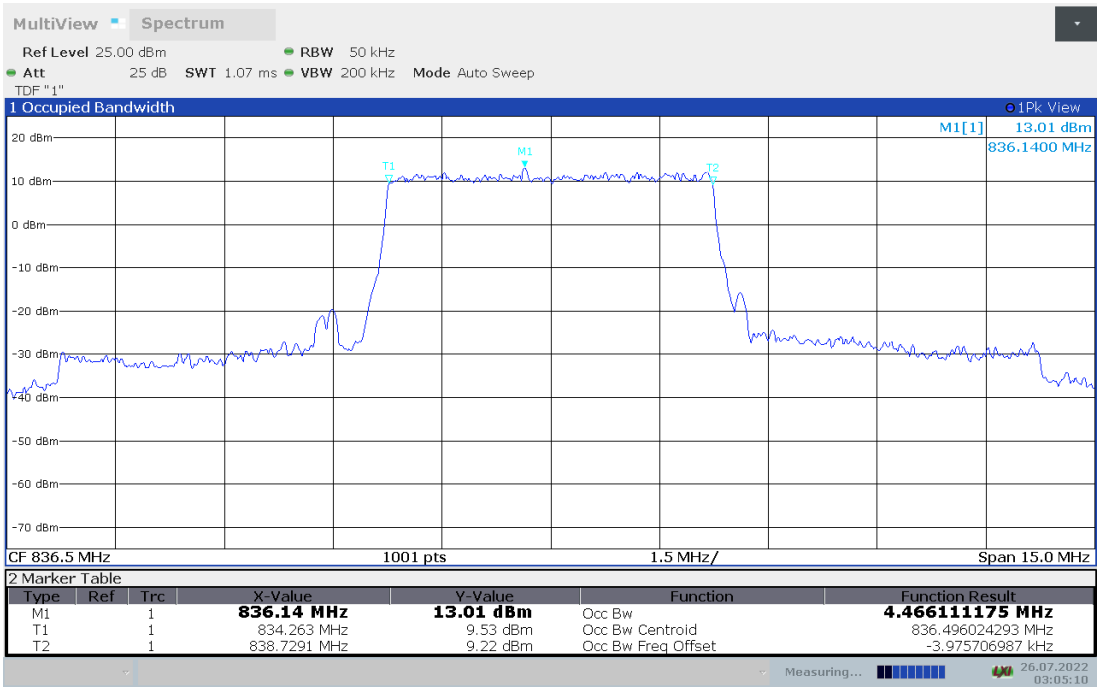
LTE band 26(824MHz-849MHz), 3MHz Bandwidth, 16QAM (99% BW)



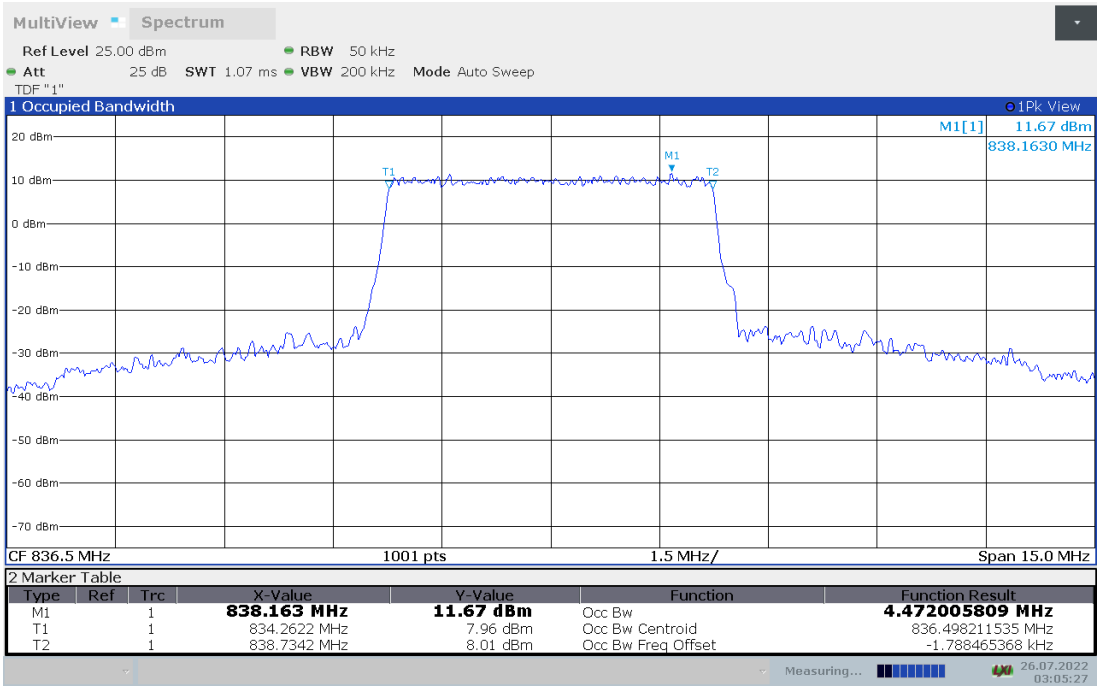
LTE band 26(824MHz-849MHz), 5MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
836.5	4.466	4.472

LTE band 26(824MHz-849MHz), 5MHz Bandwidth, QPSK (99% BW)



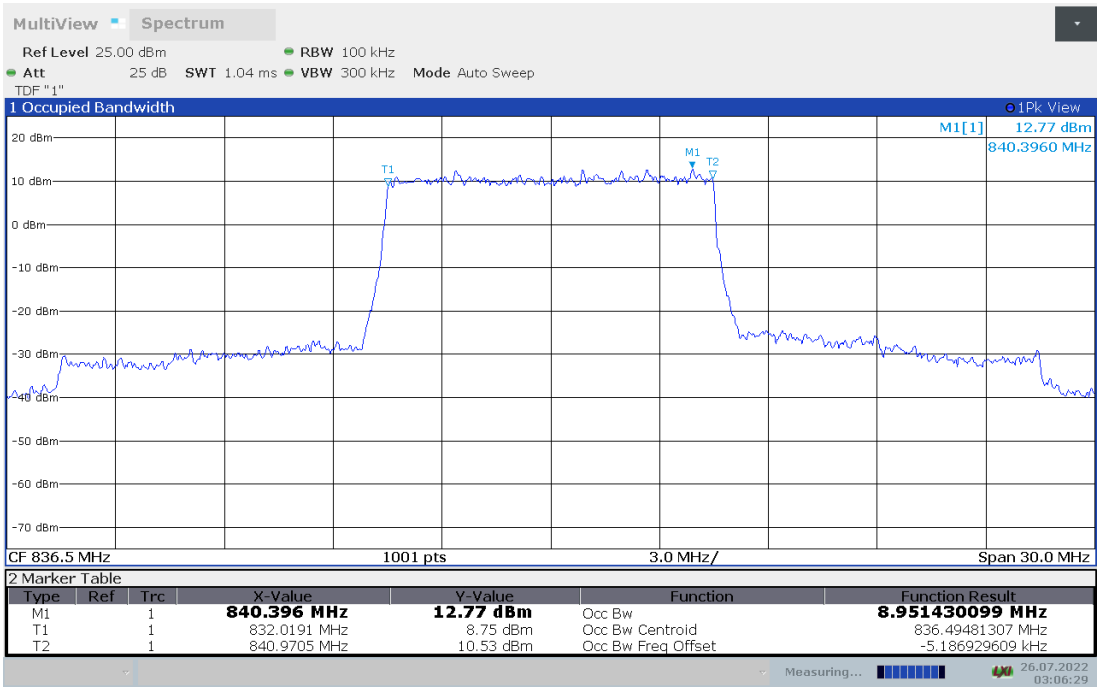
LTE band 26(824MHz-849MHz), 5MHz Bandwidth,16QAM (99% BW)



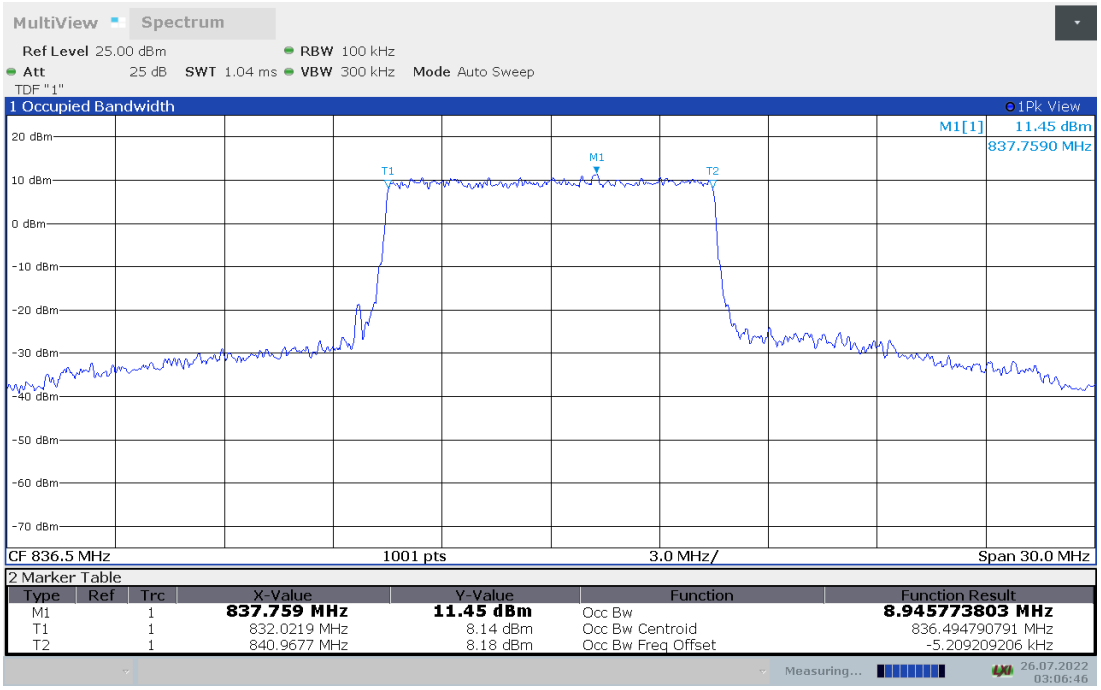
LTE band 26(824MHz-849MHz), 10MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
836.5	8.951	8.946

LTE band 26(824MHz-849MHz), 10MHz Bandwidth, QPSK (99% BW)



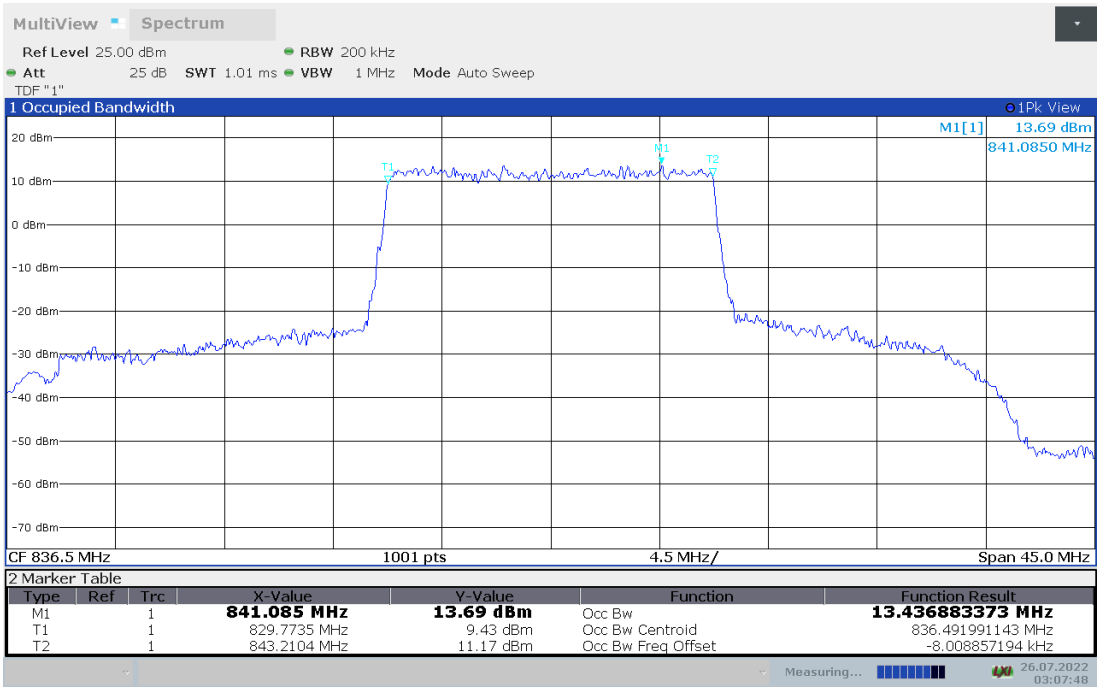
LTE band 26(824MHz-849MHz), 10MHz Bandwidth, 16QAM (99% BW)



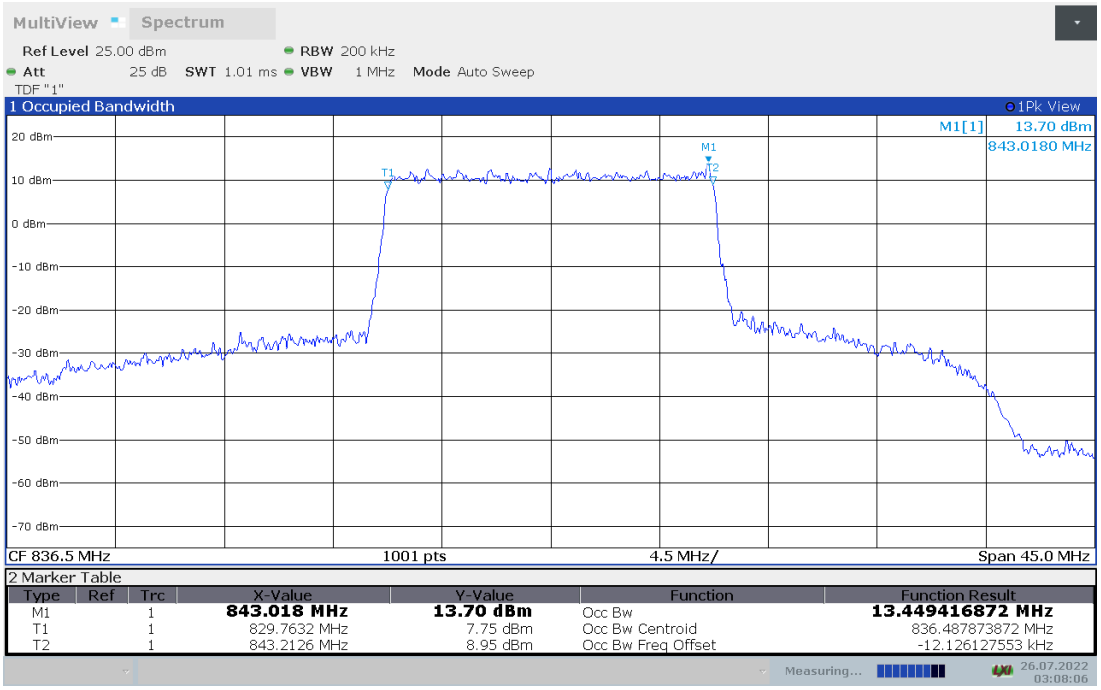
LTE band 26(824MHz-849MHz), 15MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
836.5	QPSK	16QAM
	13.437	13.449

LTE band 26(824MHz-849MHz), 15MHz Bandwidth, QPSK (99% BW)



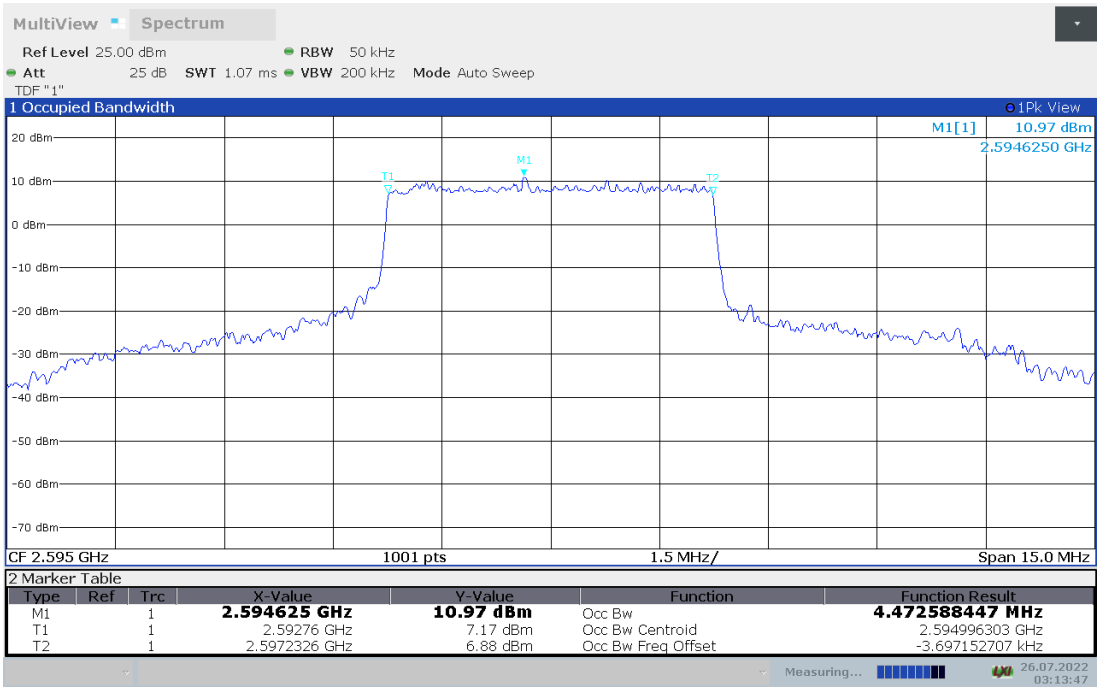
LTE band 26(824MHz-849MHz), 15MHz Bandwidth, 16QAM (99% BW)



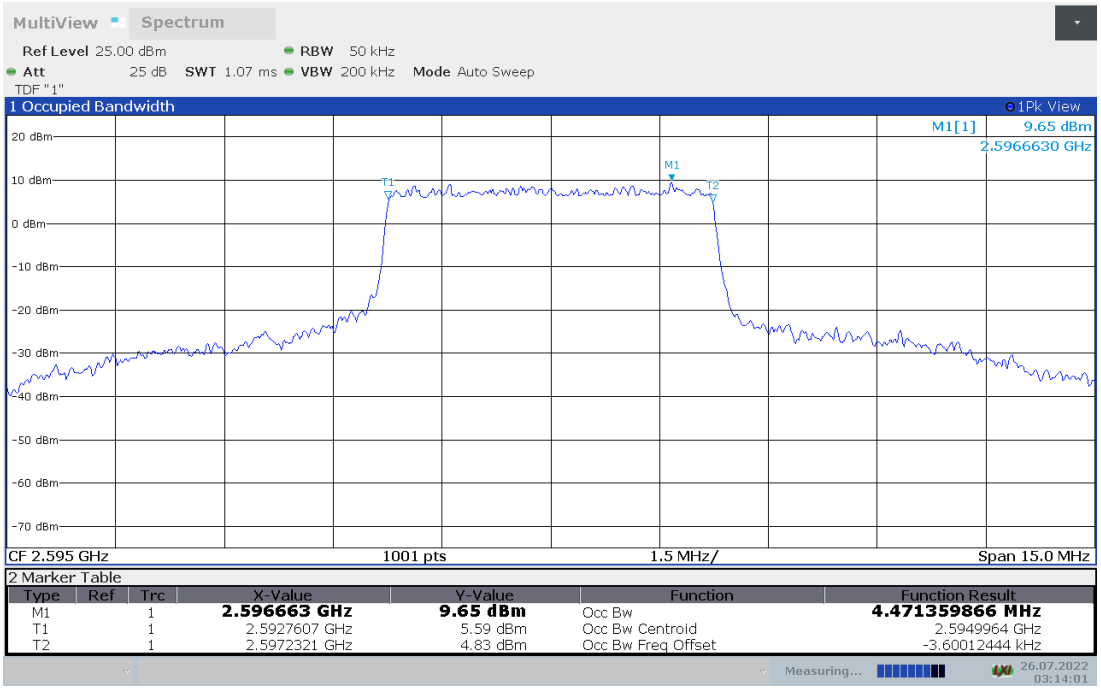
LTE band 38, 5MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
2595.0	4.473	4.471

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



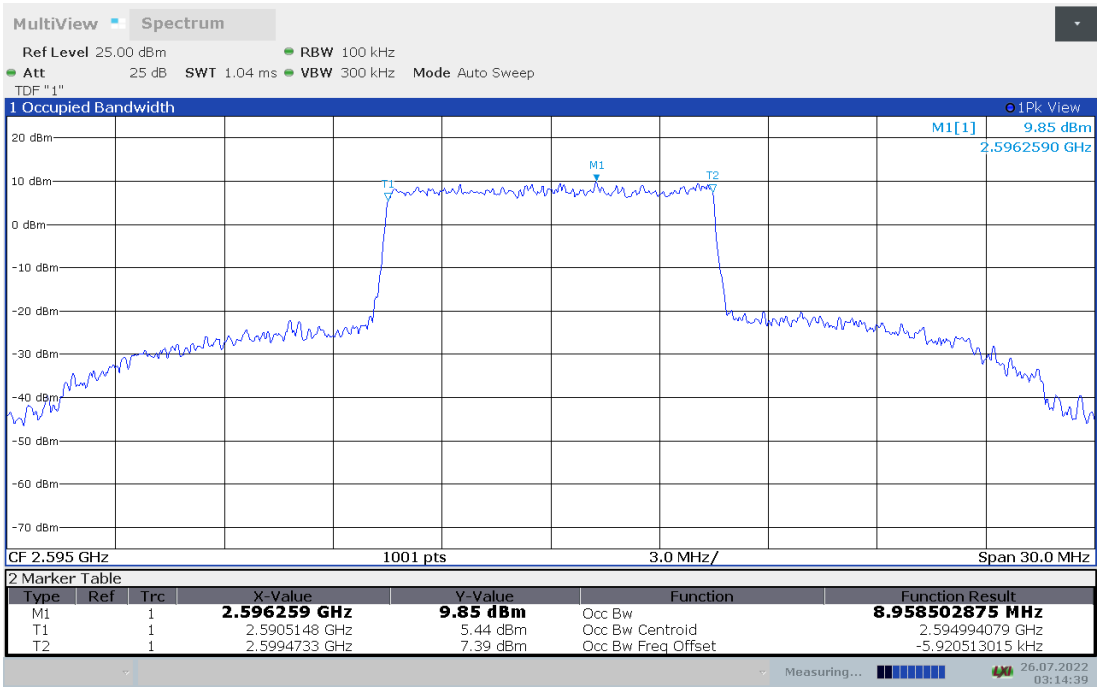
LTE band 38, 5MHz Bandwidth,16QAM (99% BW)



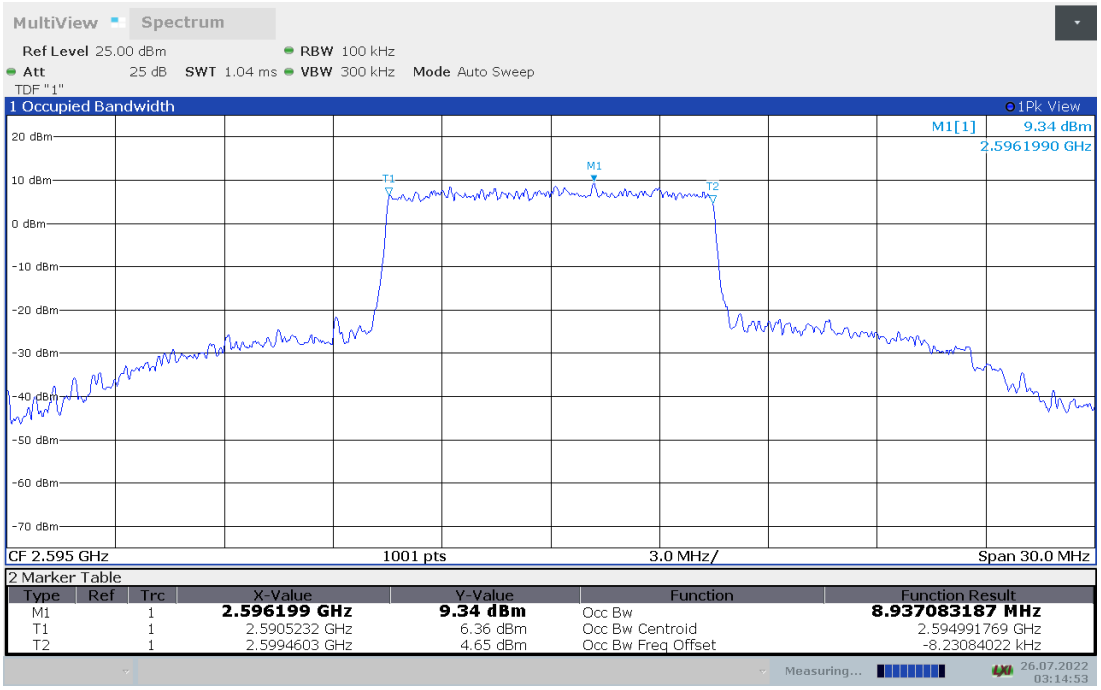
LTE band 38, 10MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
2595.0	8.959	8.937

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



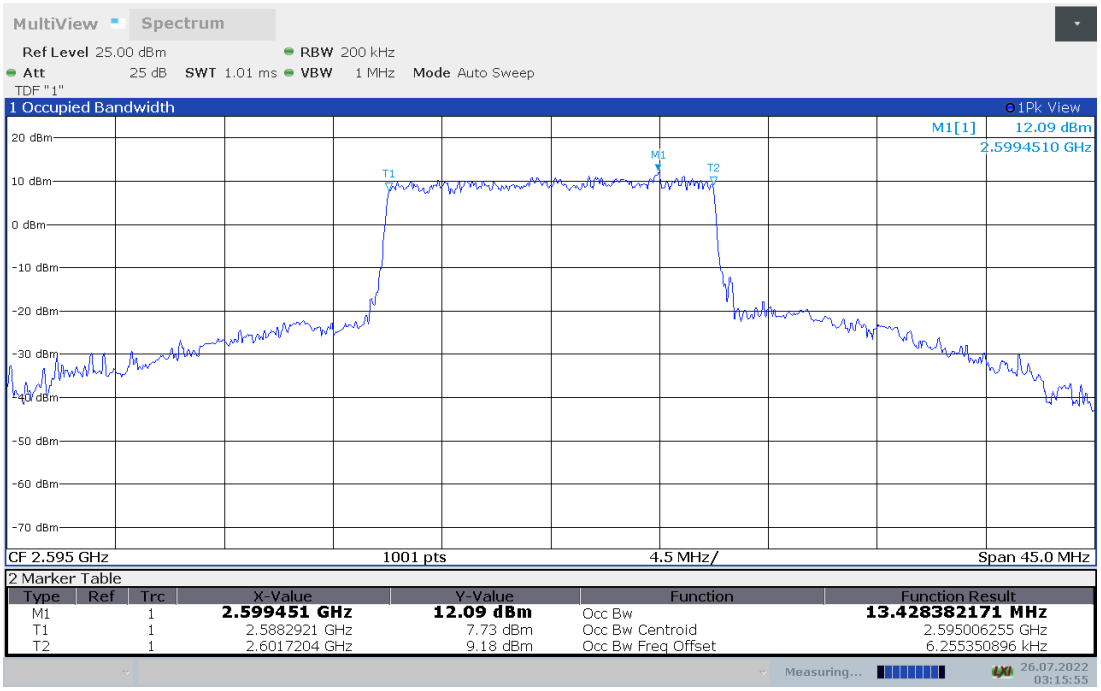
LTE band 38, 10MHz Bandwidth, 16QAM (99% BW)



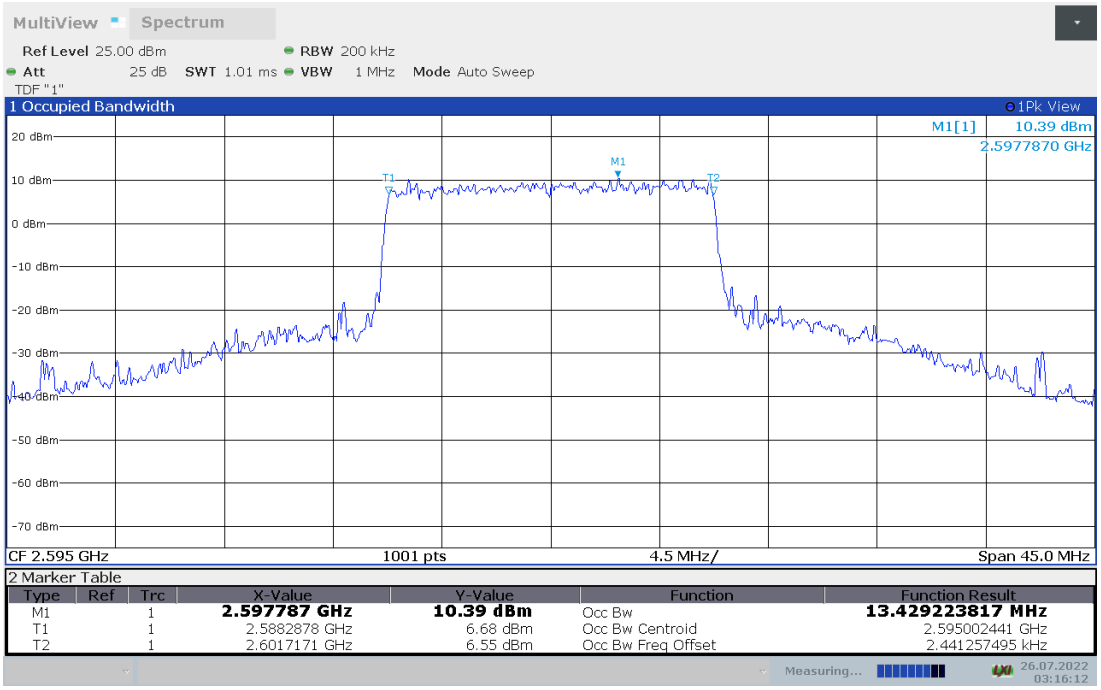
LTE band 38, 15MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
2595.0	13.428	13.429

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



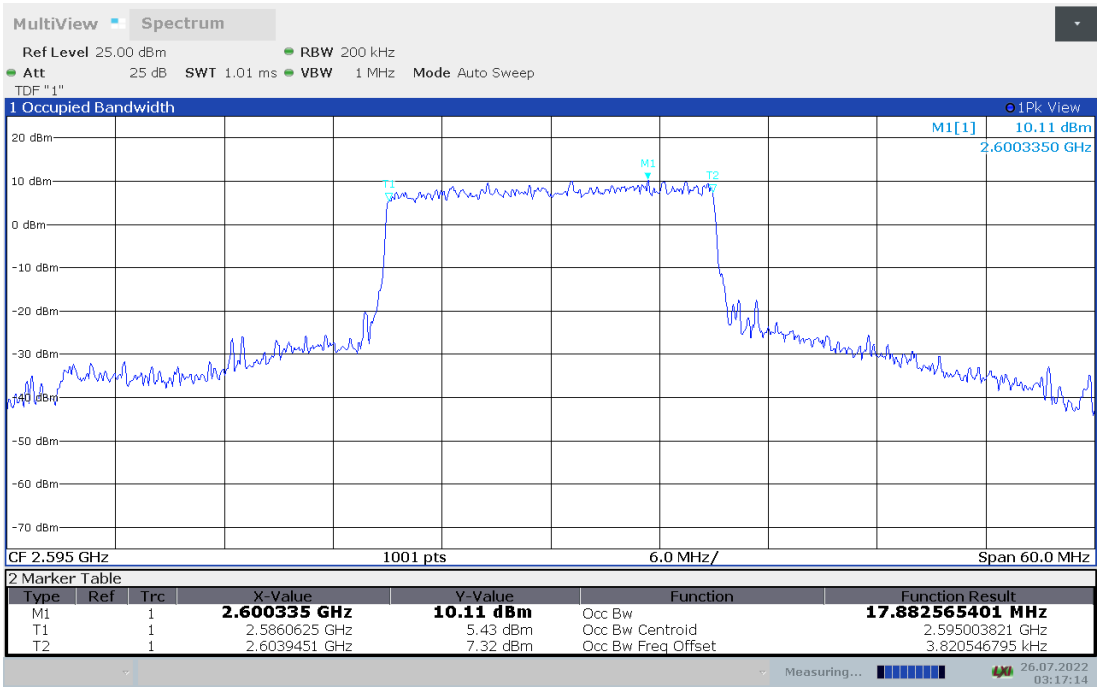
LTE band 38, 15MHz Bandwidth, 16QAM (99% BW)



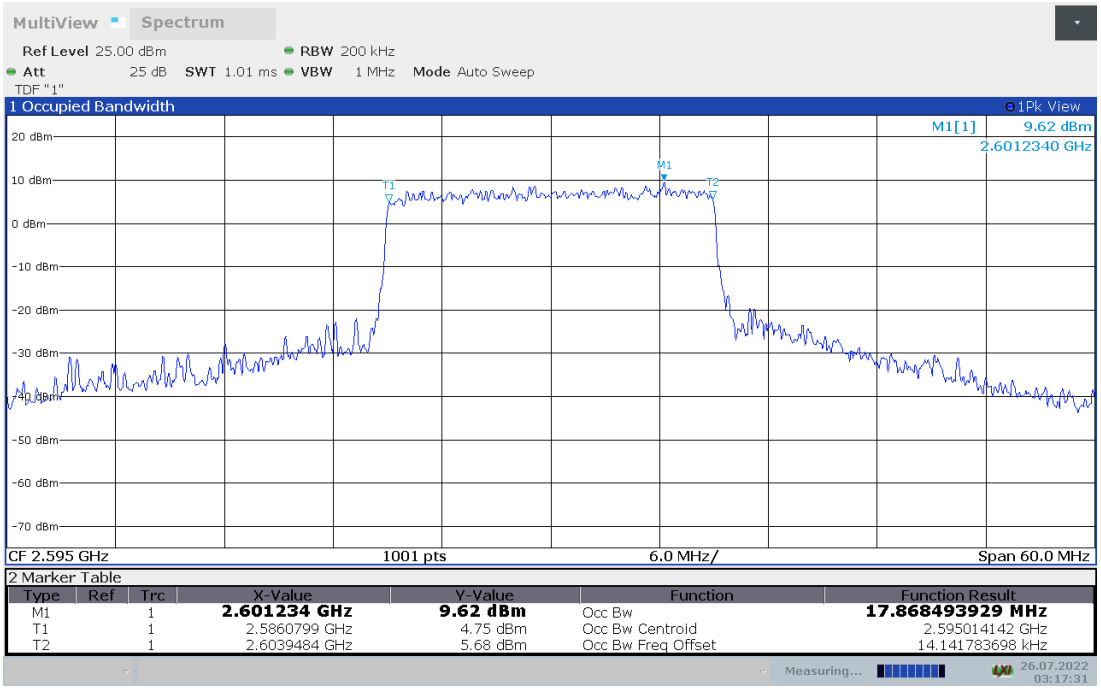
LTE band 38, 20MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
2595.0	17.883	17.868

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



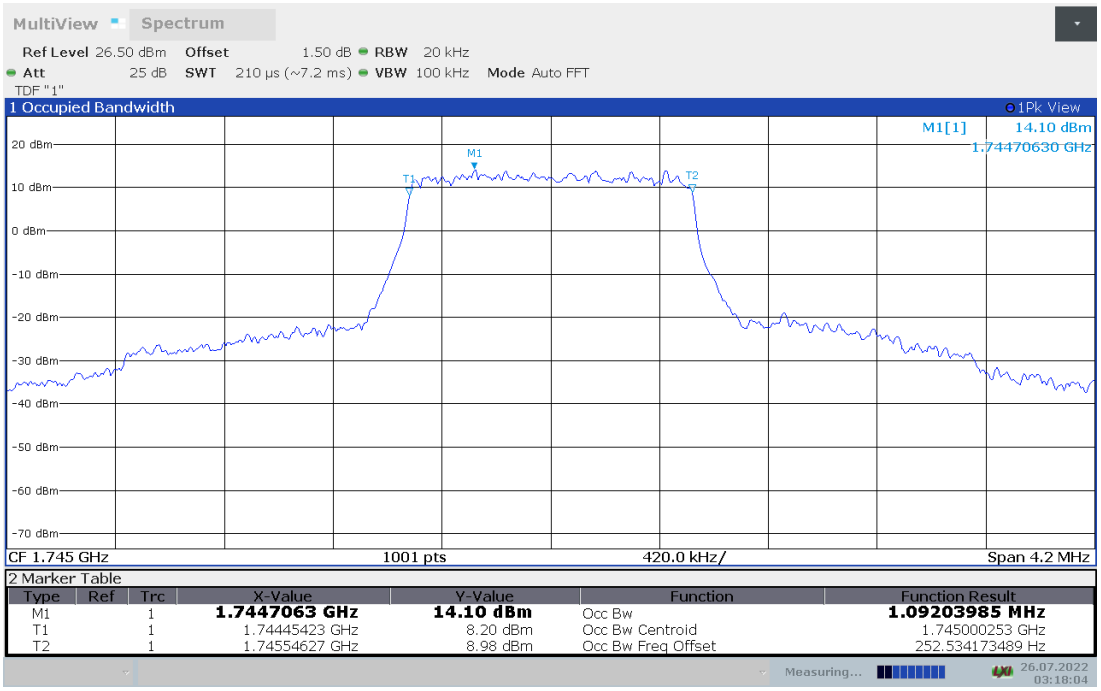
LTE band 38, 20MHz Bandwidth, 16QAM (99% BW)



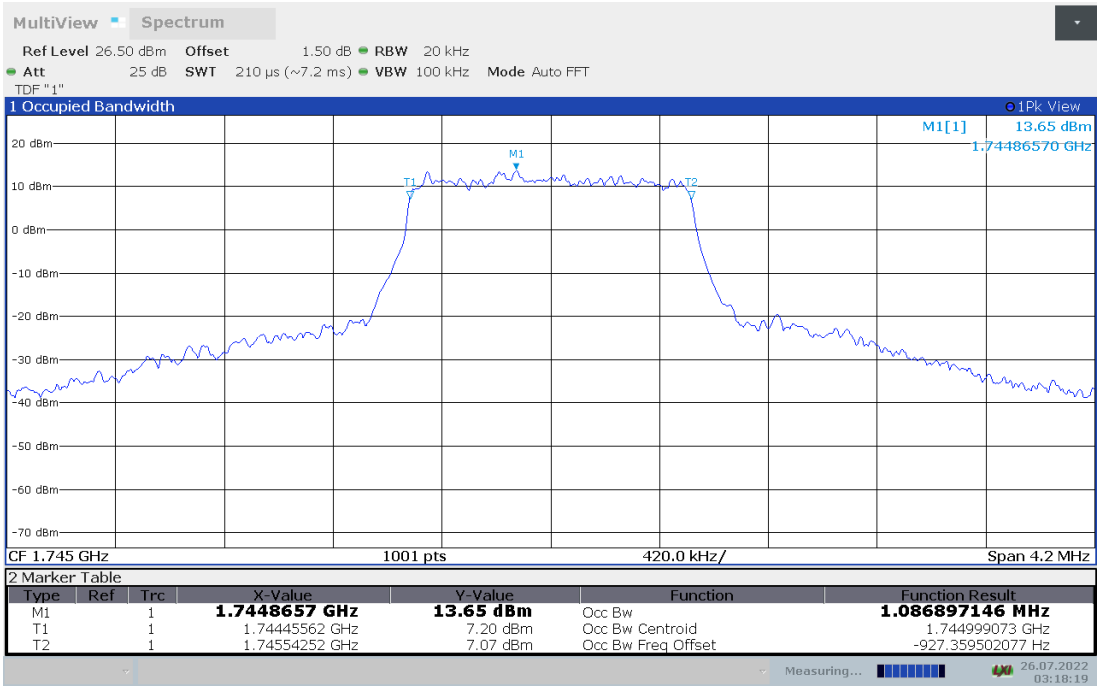
LTE band 66, 1.4MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
1745.0	1.092	1.087

LTE band 66, 1.4MHz Bandwidth, QPSK (99% BW)



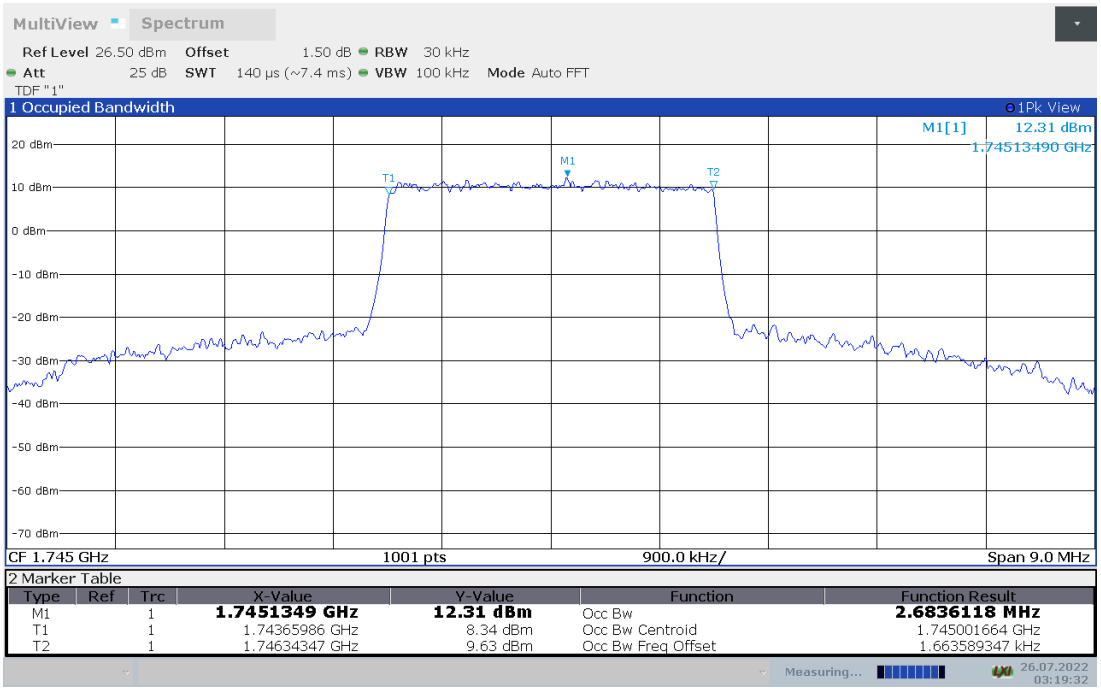
LTE band 66, 1.4MHz Bandwidth, 16QAM (99% BW)



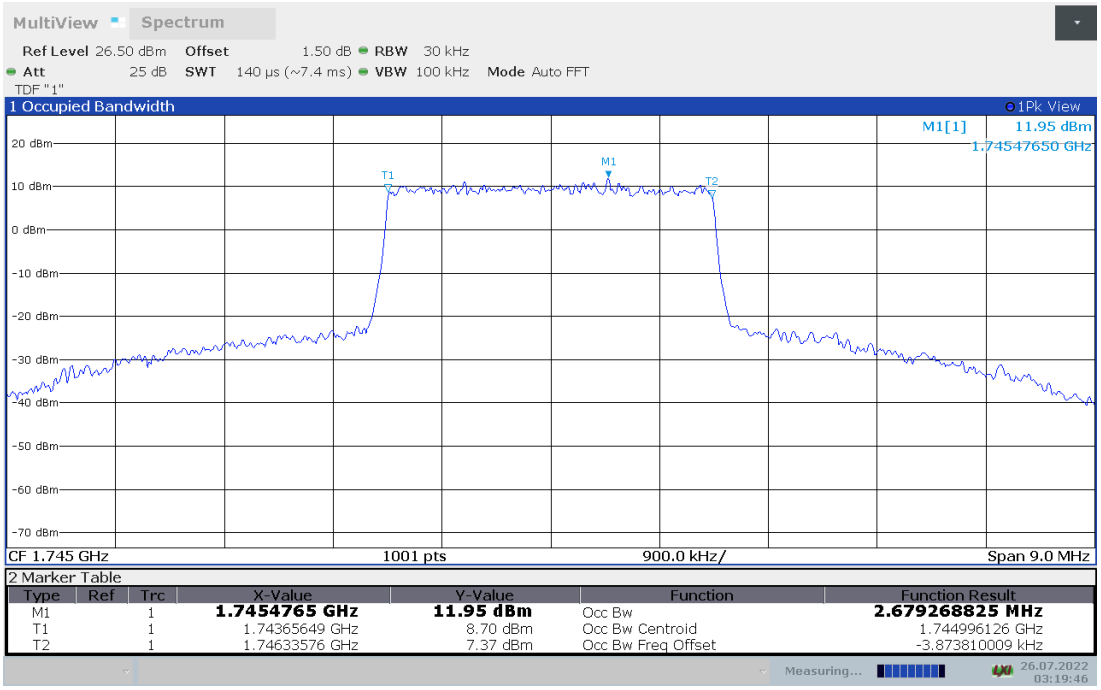
LTE band 66, 3MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
1745.0	2.684	2.679

LTE band 66, 3MHz Bandwidth, QPSK (99% BW)



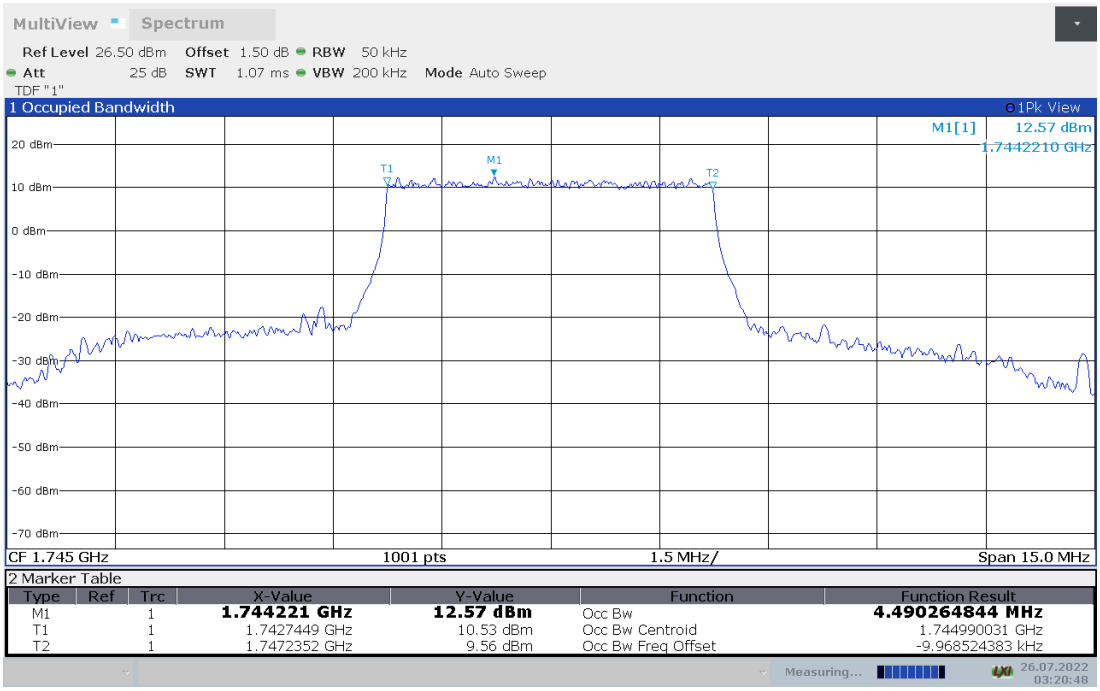
LTE band 66, 3MHz Bandwidth, 16QAM (99% BW)



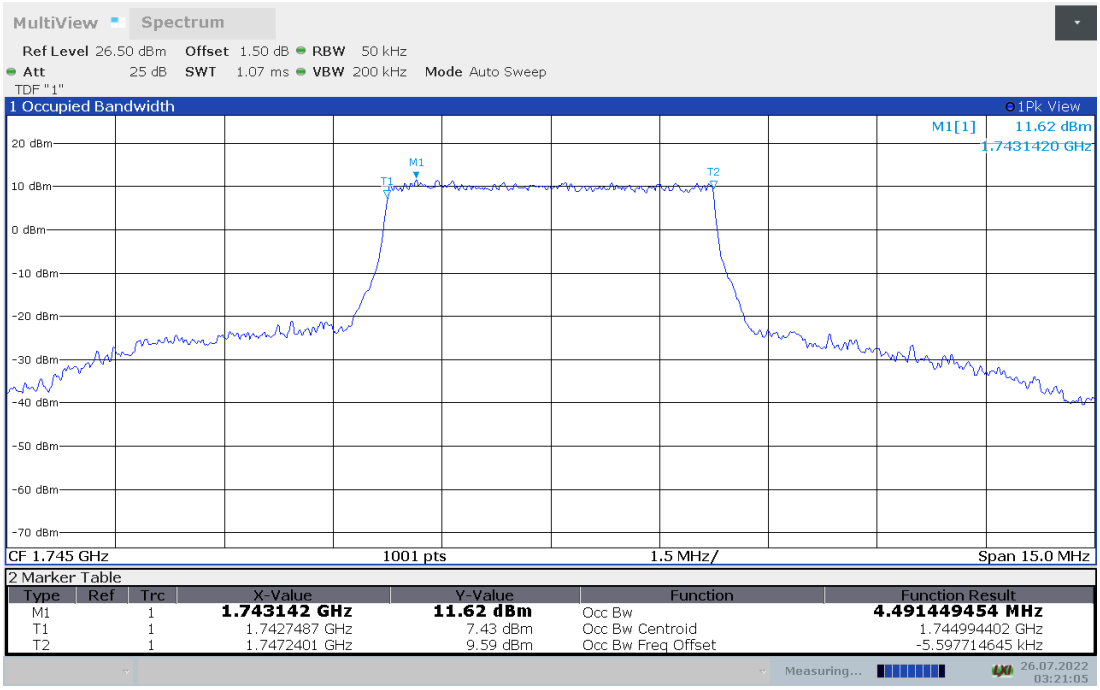
LTE band 66, 5MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
1745.0	4.490	4.491

LTE band 66, 5MHz Bandwidth, QPSK (99% BW)



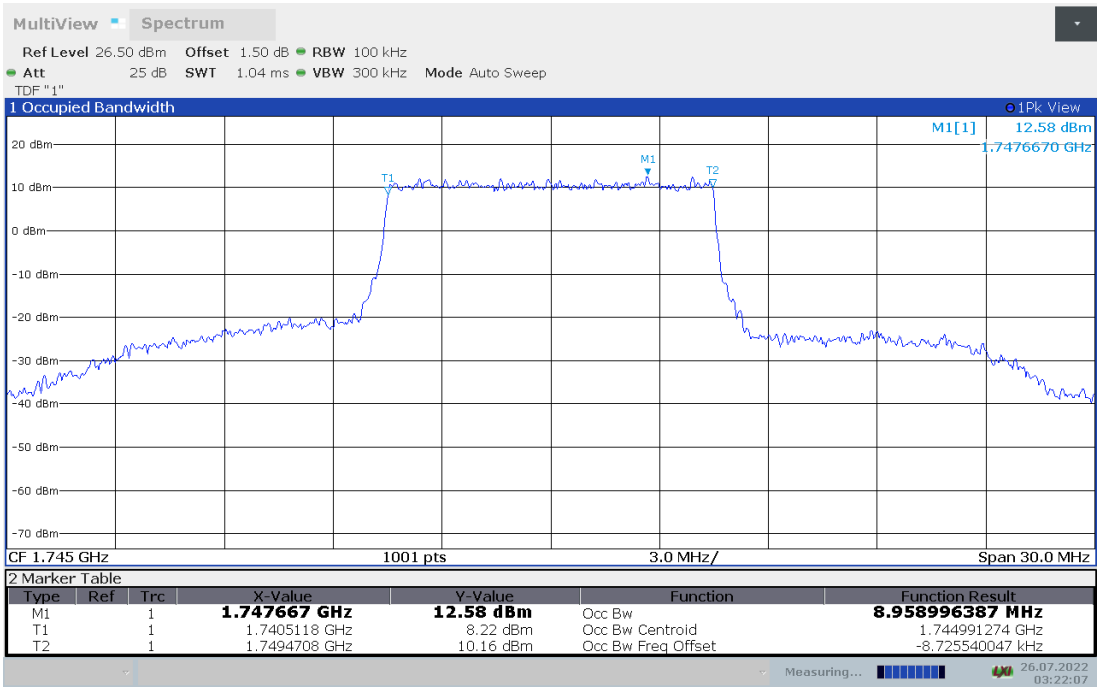
LTE band 66, 5MHz Bandwidth,16QAM (99% BW)



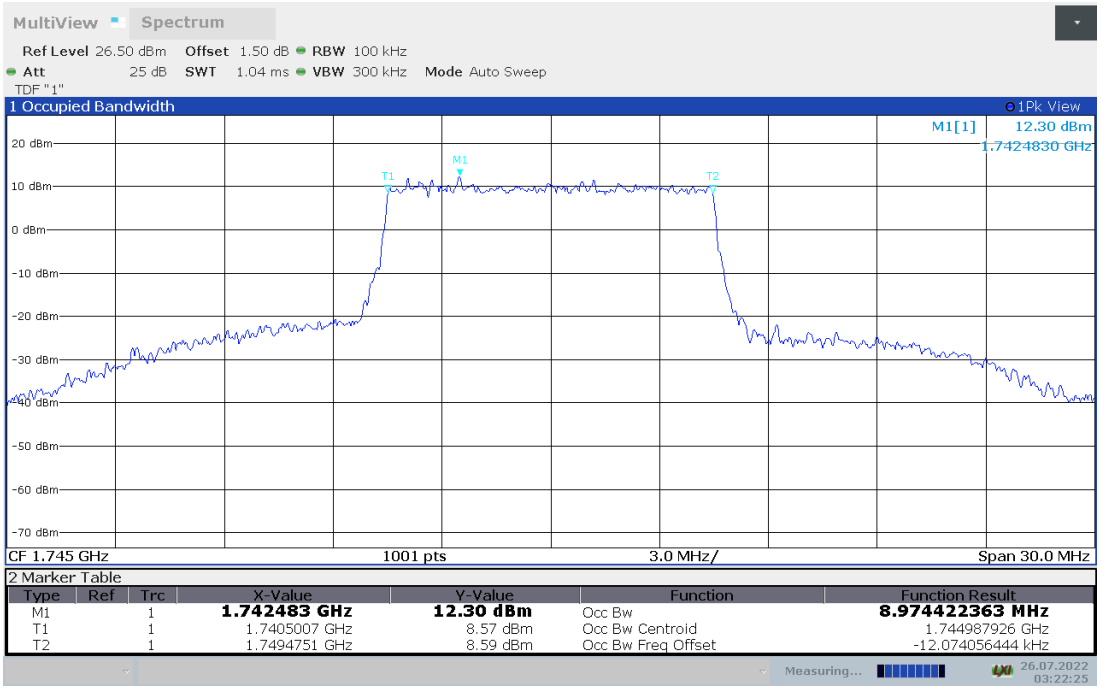
LTE band 66, 10MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
1745.0	8.959	8.974

LTE band 66, 10MHz Bandwidth, QPSK (99% BW)



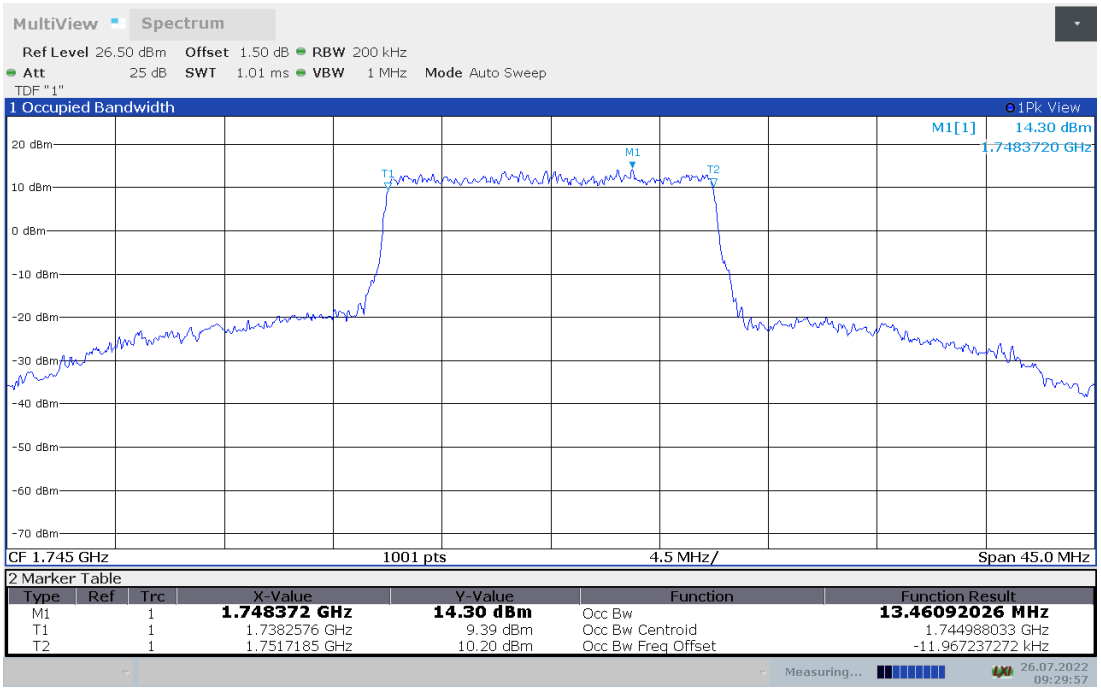
LTE band 66, 10MHz Bandwidth, 16QAM (99% BW)



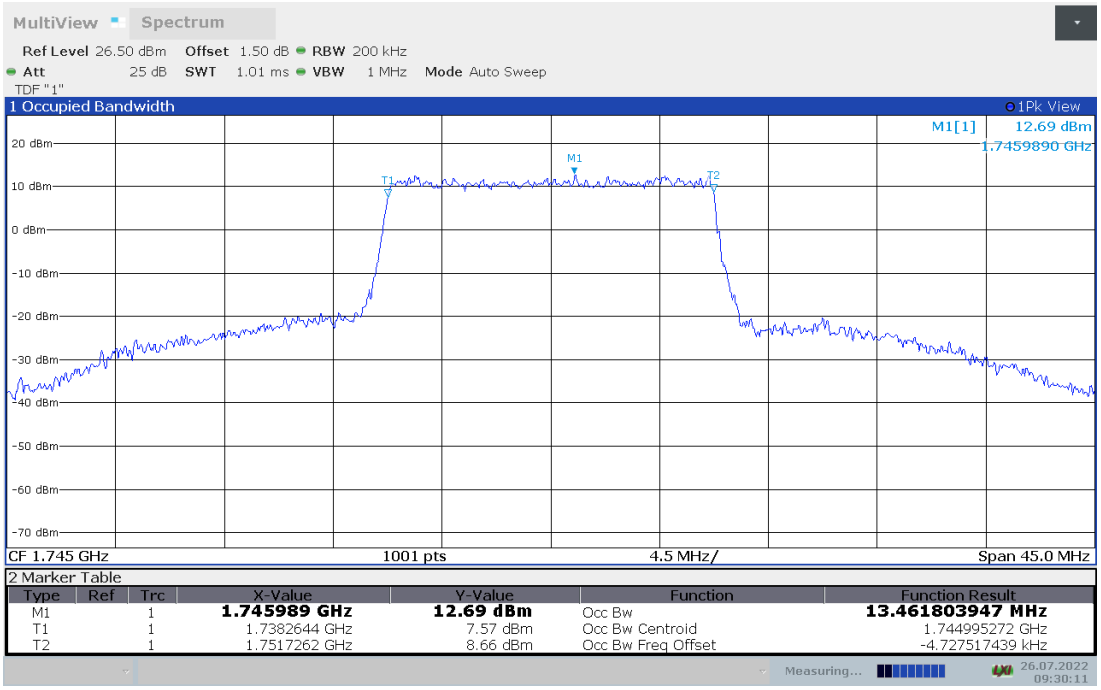
LTE band 66, 15MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
1745.0	13.461	13.462

LTE band 66, 15MHz Bandwidth, QPSK (99% BW)



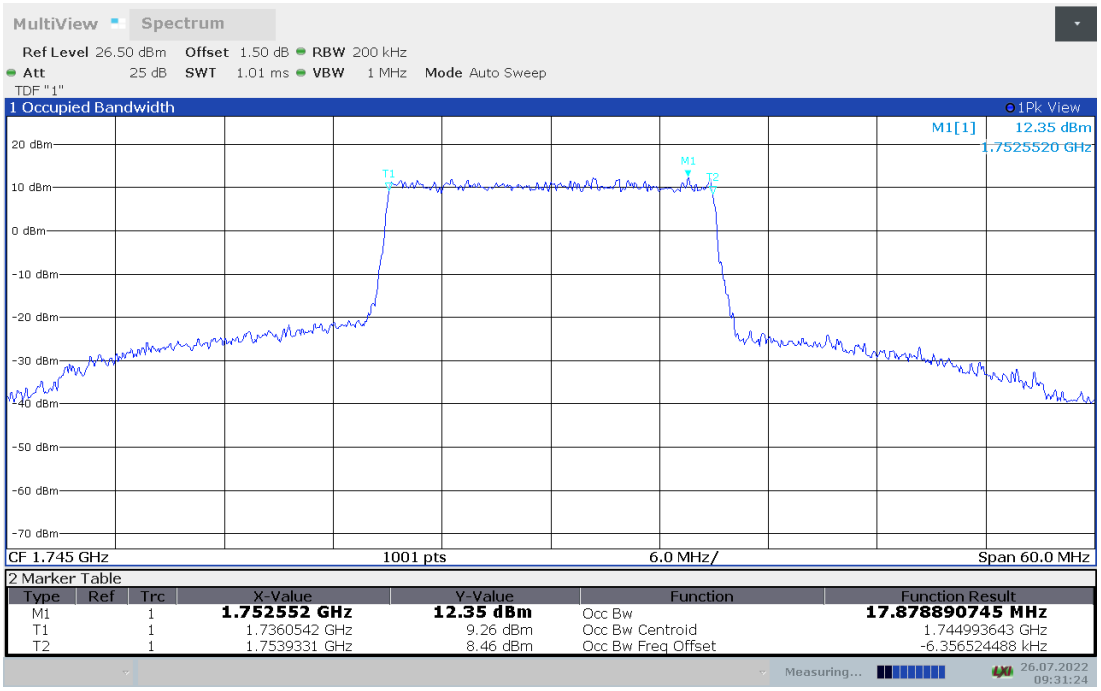
LTE band 66, 15MHz Bandwidth, 16QAM (99% BW)



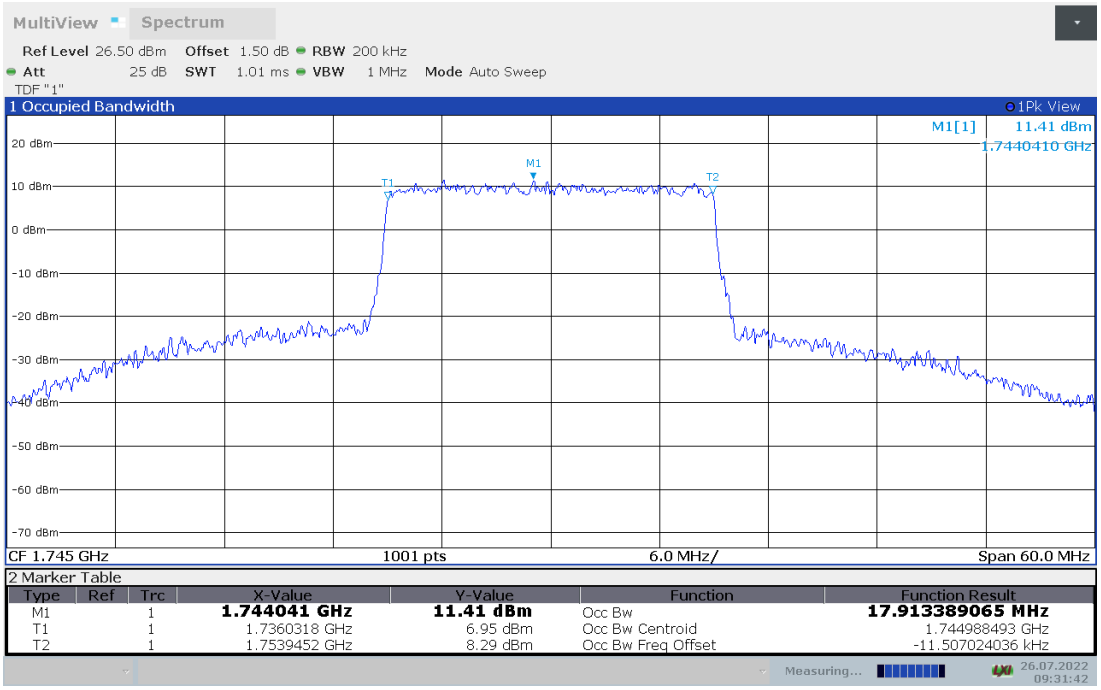
LTE band 66, 20MHz (99% BW)

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)	
	QPSK	16QAM
1745.0	17.879	17.913

LTE band 66, 20MHz Bandwidth, QPSK (99% BW)



LTE band 66, 20MHz Bandwidth, 16QAM (99% BW)



A.5 EMISSION BANDWIDTH

Reference

FCC: CFR Part 2.1049, 22.917, 24.238, 27.53, 90.1215.

A.5.1 Measurement Procedure

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.

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 (i.e., two to five times the OBW).

b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.

c) Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least 10log (OBW / RBW) below the reference level.

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

e) Use the 26dB bandwidth function of the spectrum analyzer and report the measured bandwidth.

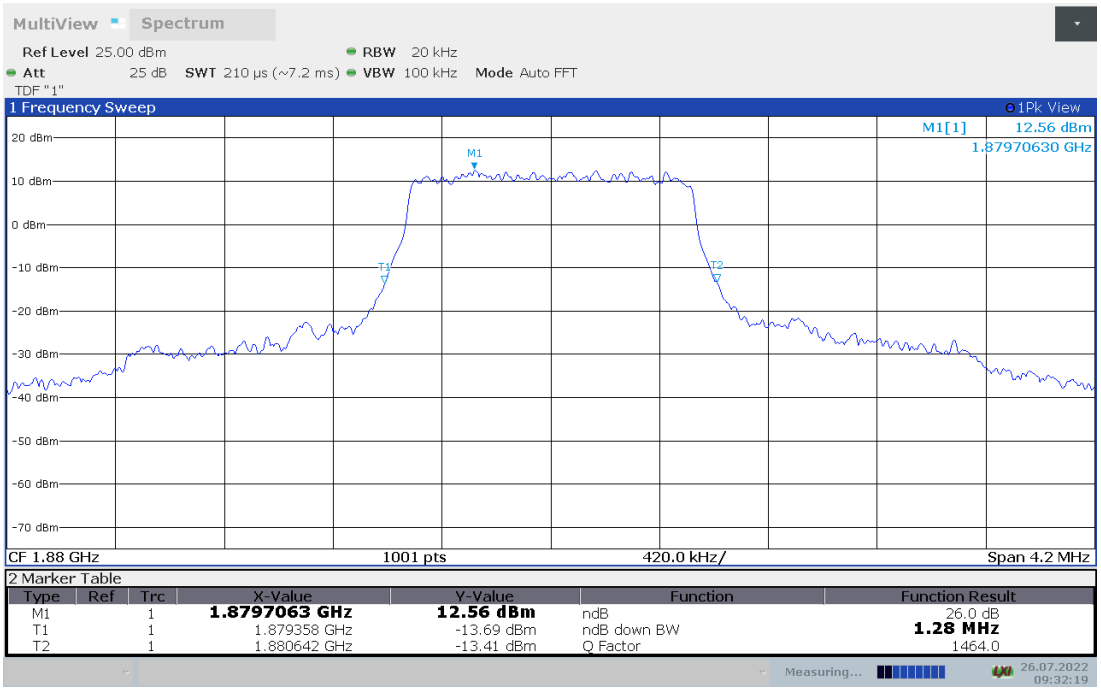
A.5.2Emission Bandwidth Results

Similar to conducted emissions; Emission 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 frequencies. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the following pages.

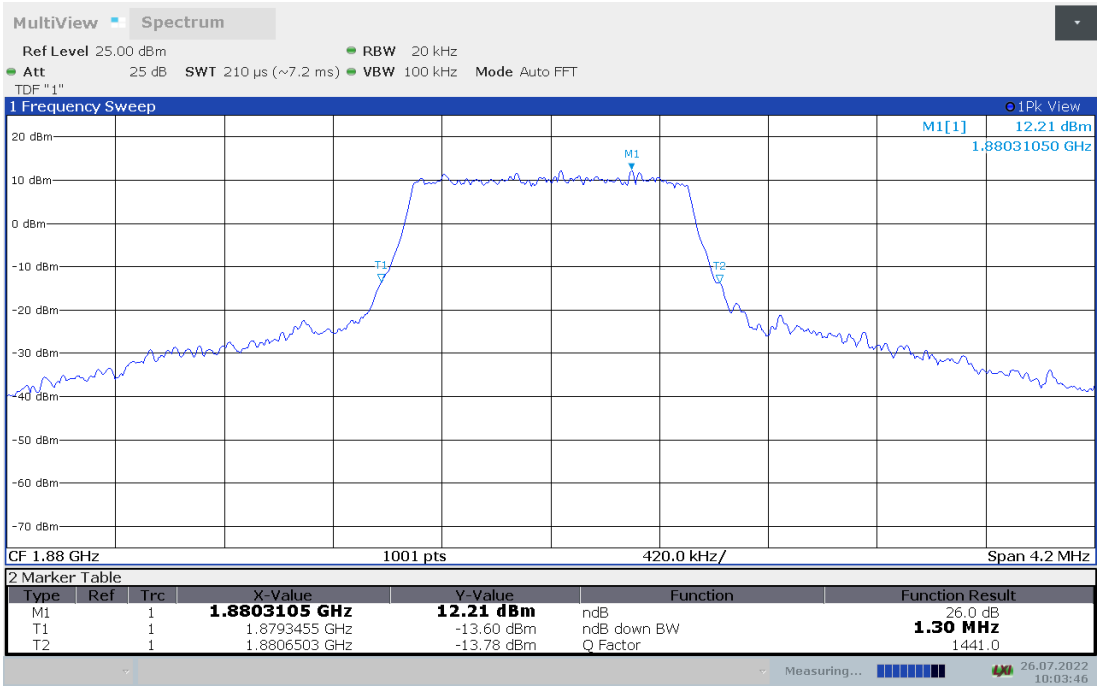
LTE band 2, 1.4MHz (-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)	
	QPSK	16QAM
1880.0	1.28	1.30

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



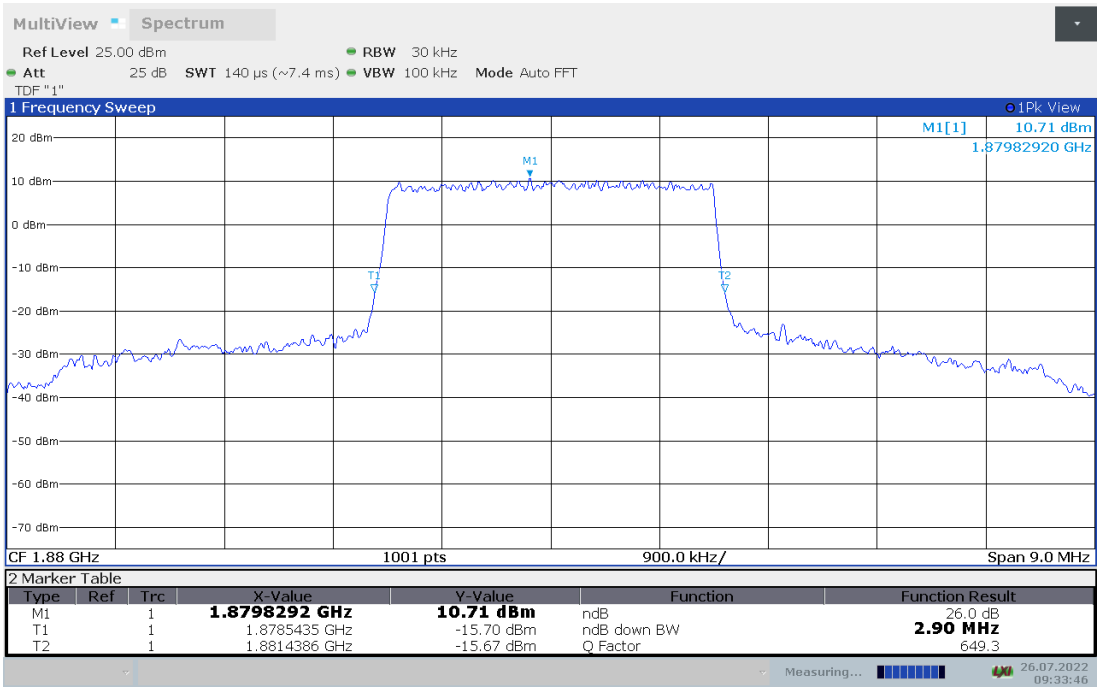
LTE band 2, 1.4MHz Bandwidth, 16QAM (-26dBc BW)



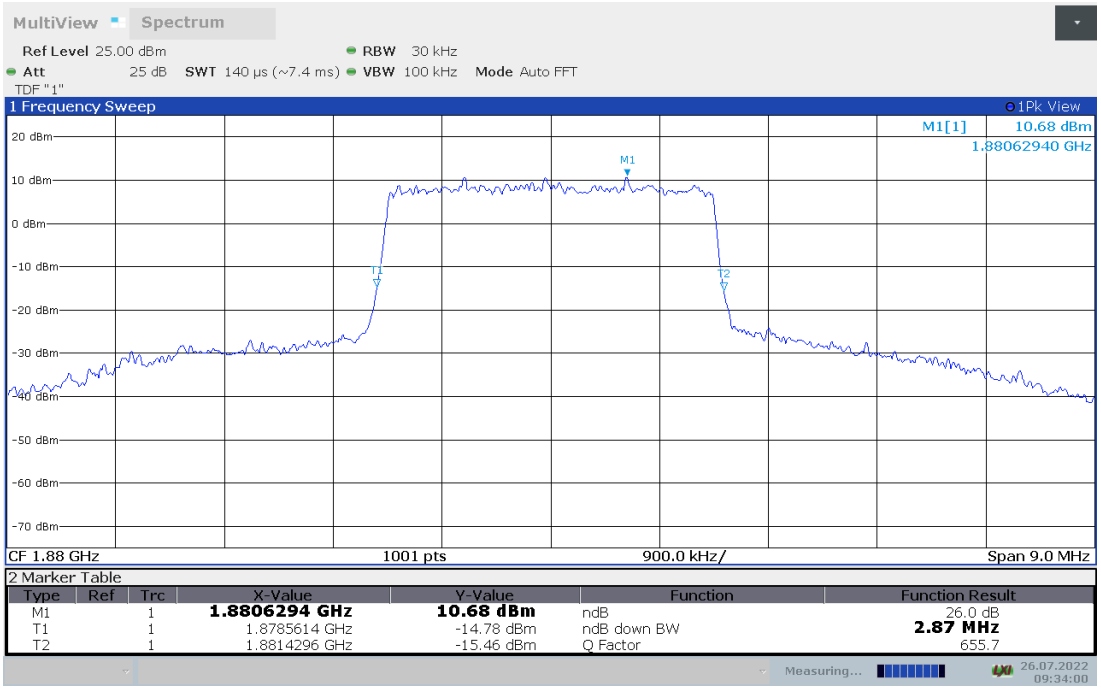
LTE band 2, 3MHz (-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)	
	QPSK	16QAM
1880.0	2.90	2.87

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



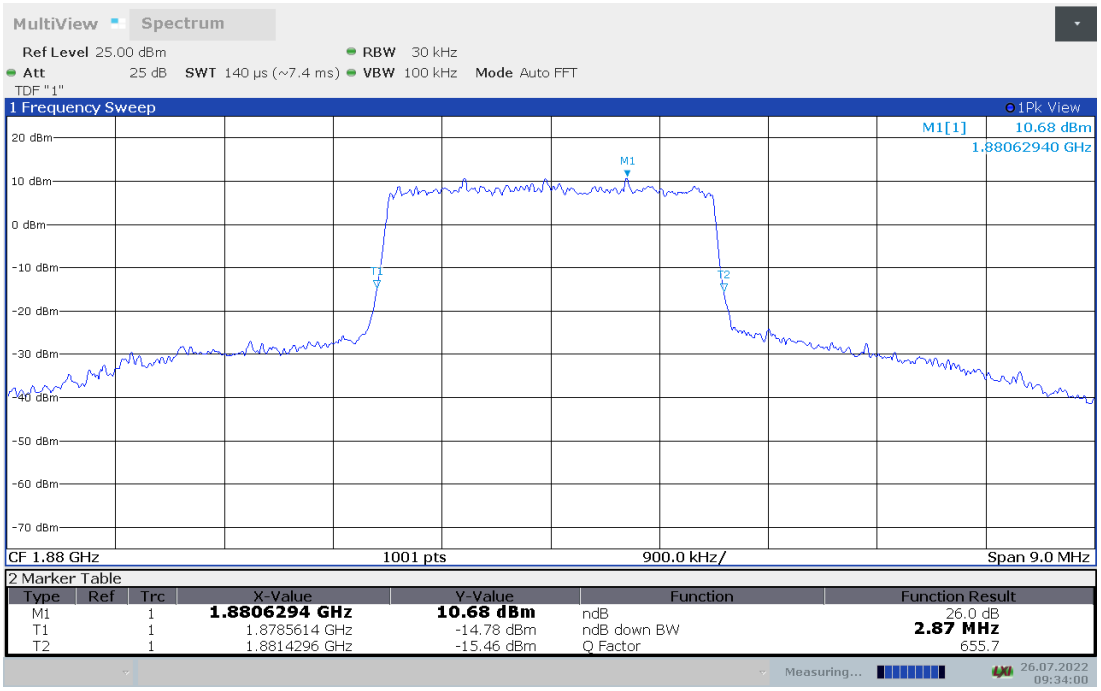
LTE band 2, 3MHz Bandwidth, 16QAM (-26dBc BW)



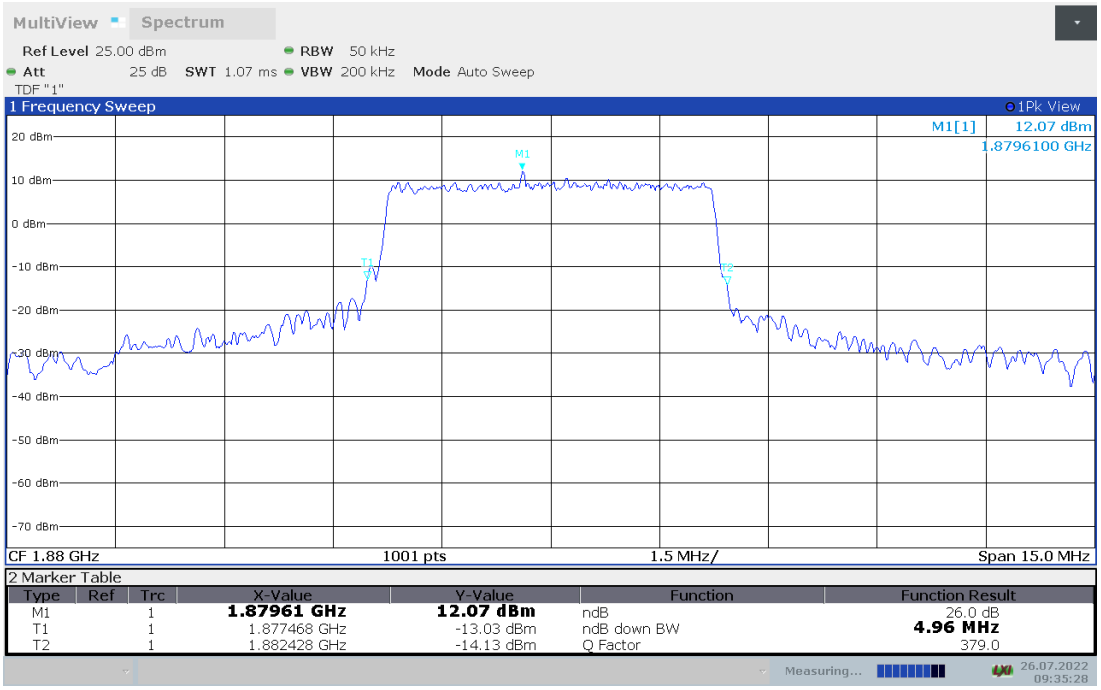
LTE band 2, 5MHz (-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)	
	QPSK	16QAM
1880.0	4.87	4.96

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



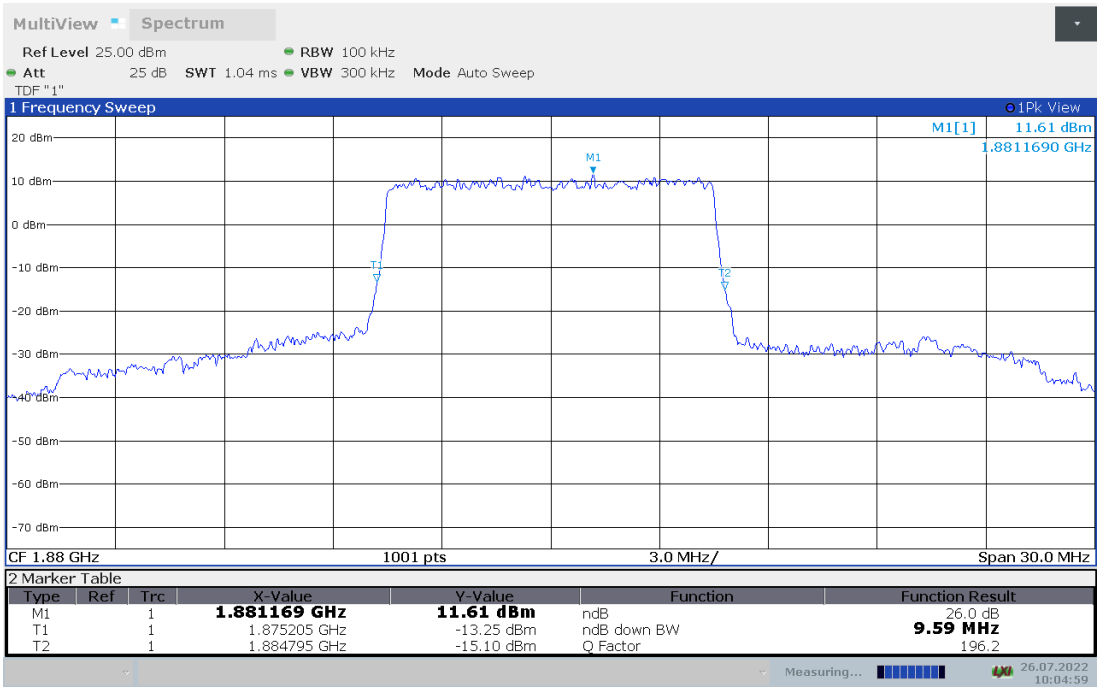
LTE band 2, 5MHz Bandwidth,16QAM (-26dBc BW)



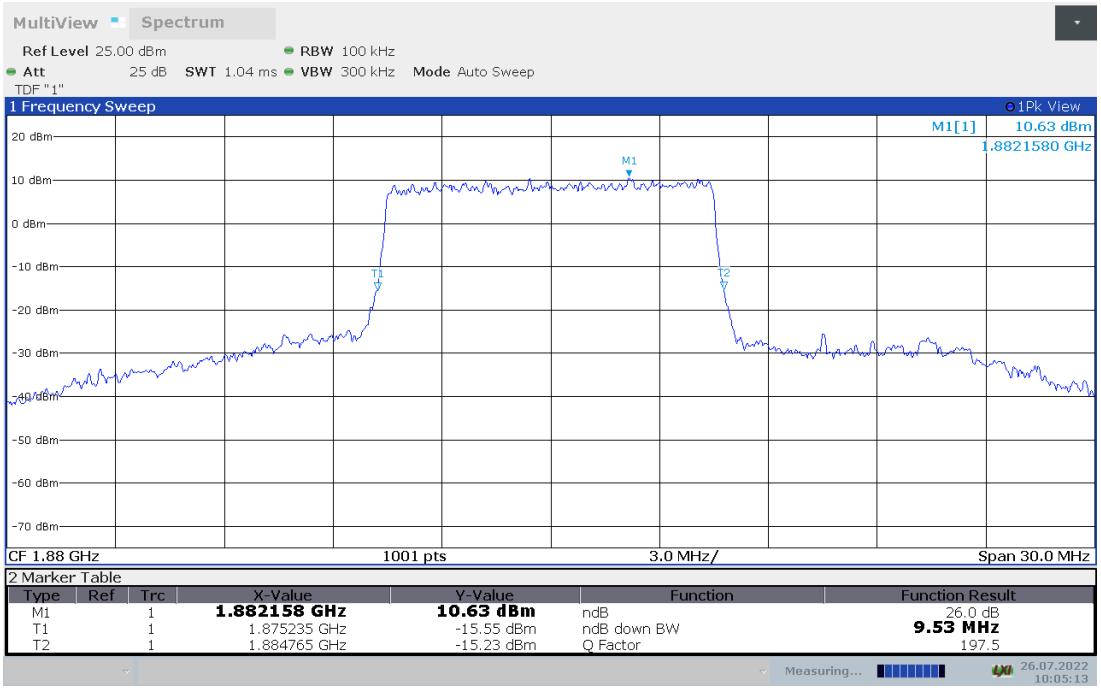
LTE band 2, 10MHz (-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)	
	QPSK	16QAM
1880.0	9.59	9.53

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



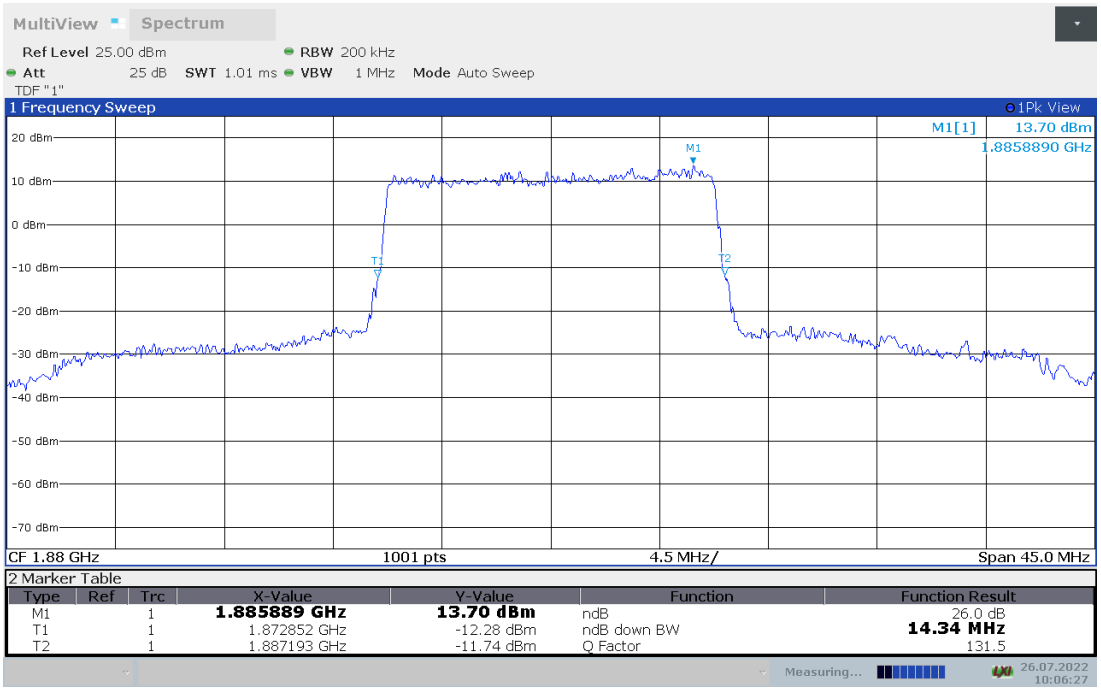
LTE band 2, 10MHz Bandwidth, 16QAM (-26dBc BW)



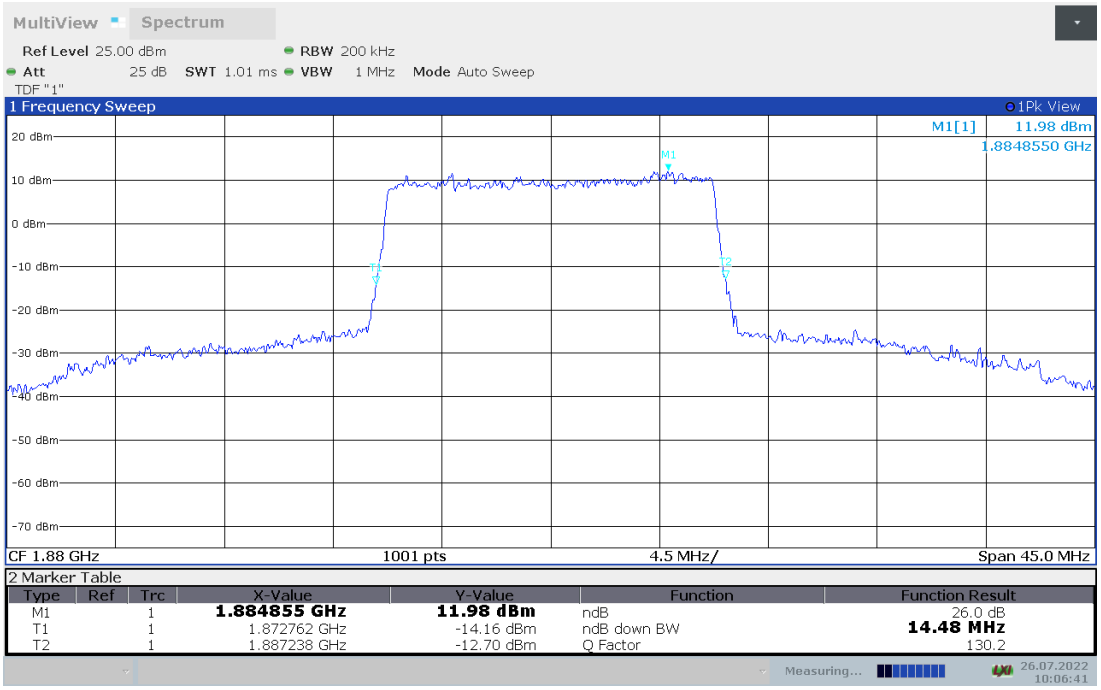
LTE band 2, 15MHz (-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)	
1880.0	QPSK	16QAM
	14.34	14.48

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



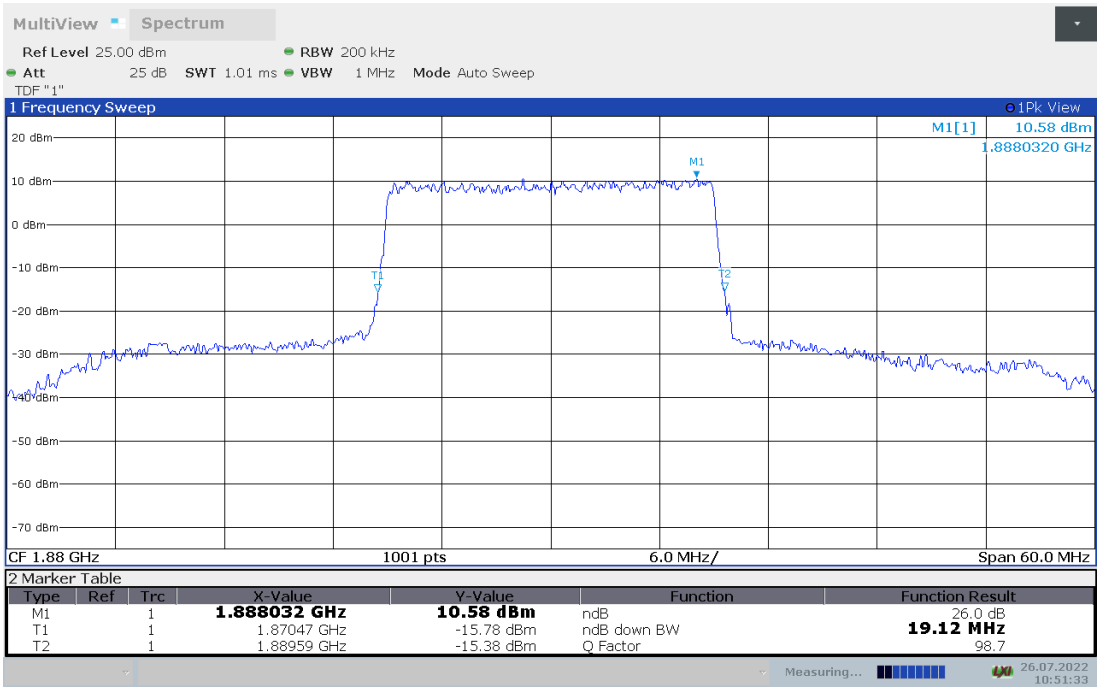
LTE band 2, 15MHz Bandwidth, 16QAM (-26dBc BW)



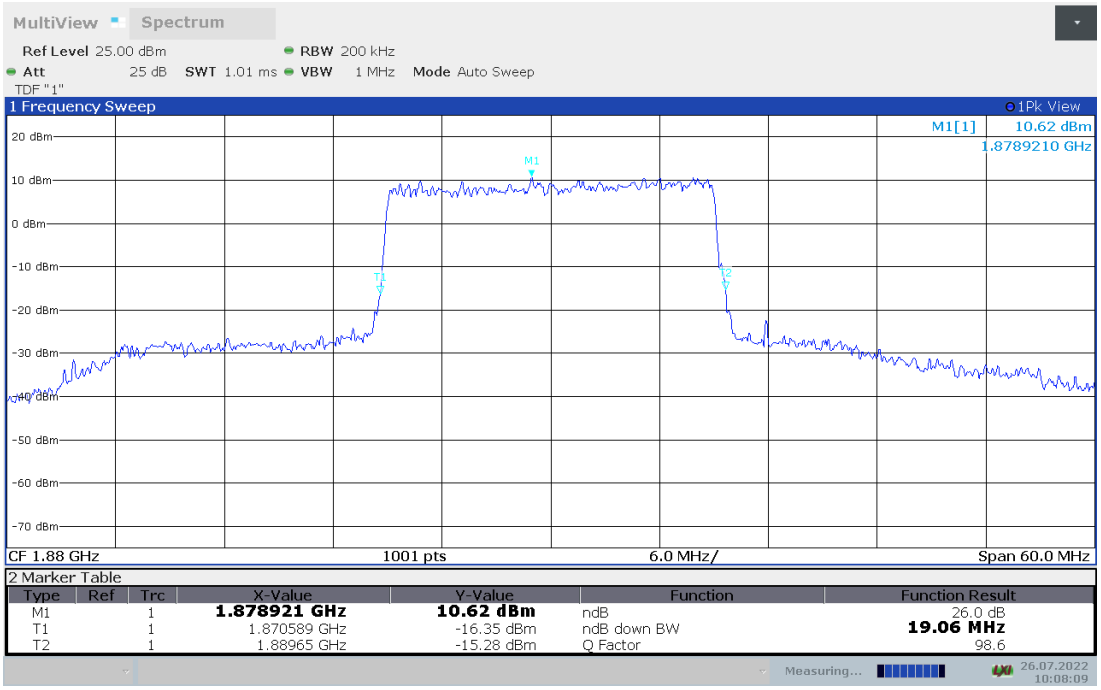
LTE band 2, 20MHz (-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)	
1880.0	QPSK	16QAM
	19.12	19.06

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



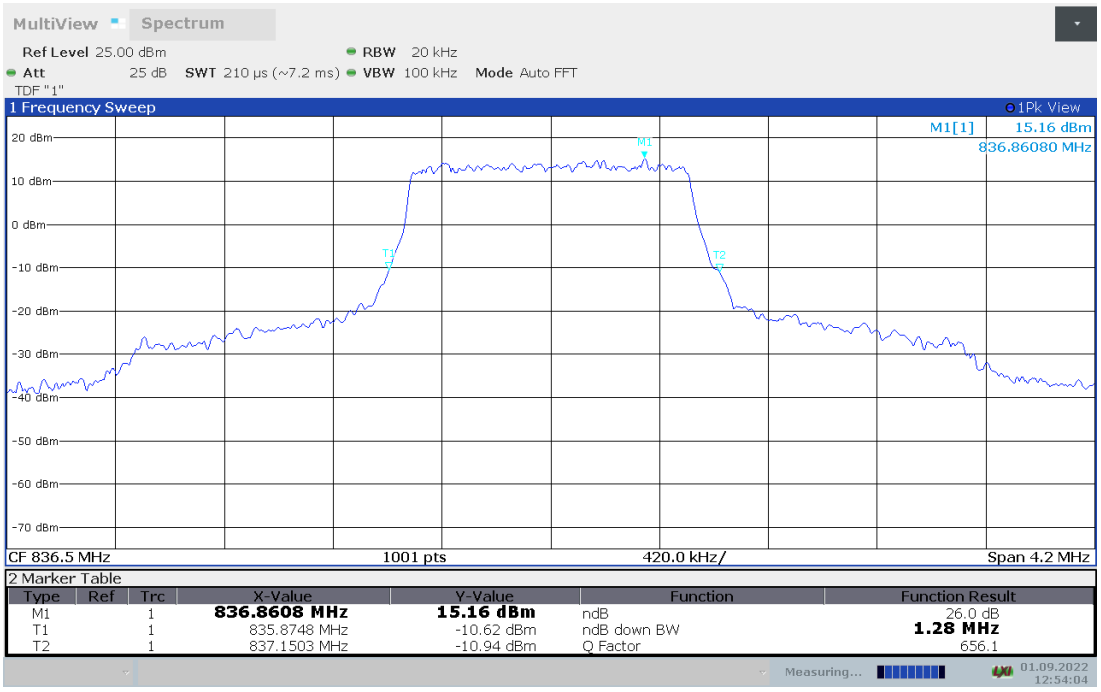
LTE band 2, 20MHz Bandwidth, 16QAM (-26dBc BW)



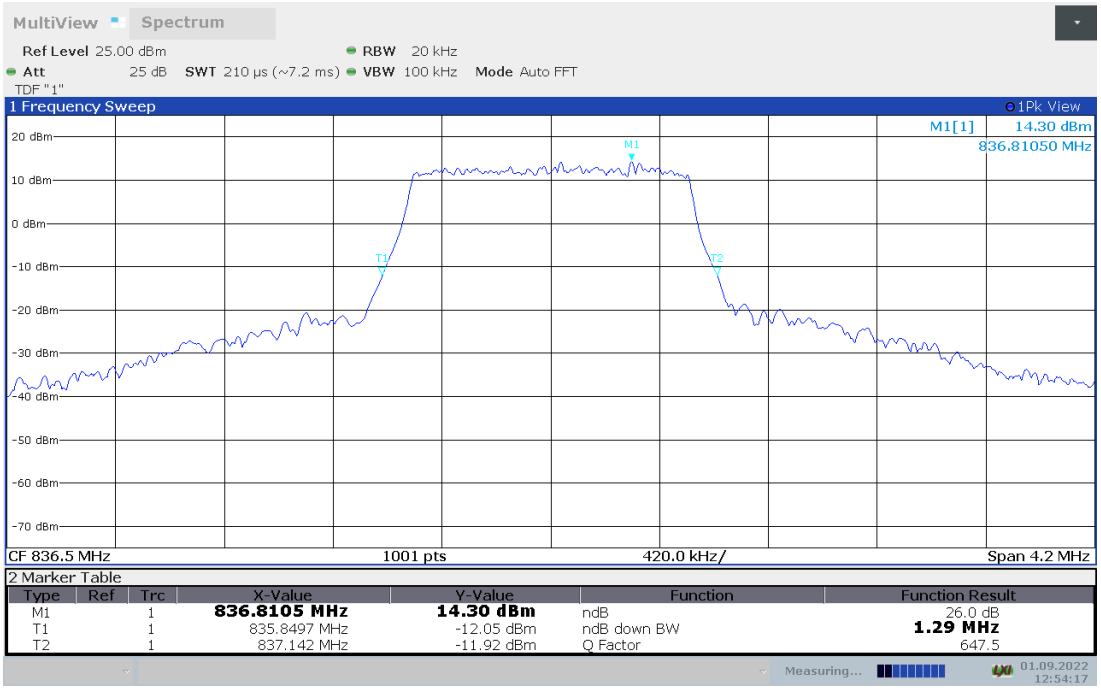
LTE Band 5, 1.4MHz (-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)	
836.5	QPSK	16QAM
	1.28	1.29

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



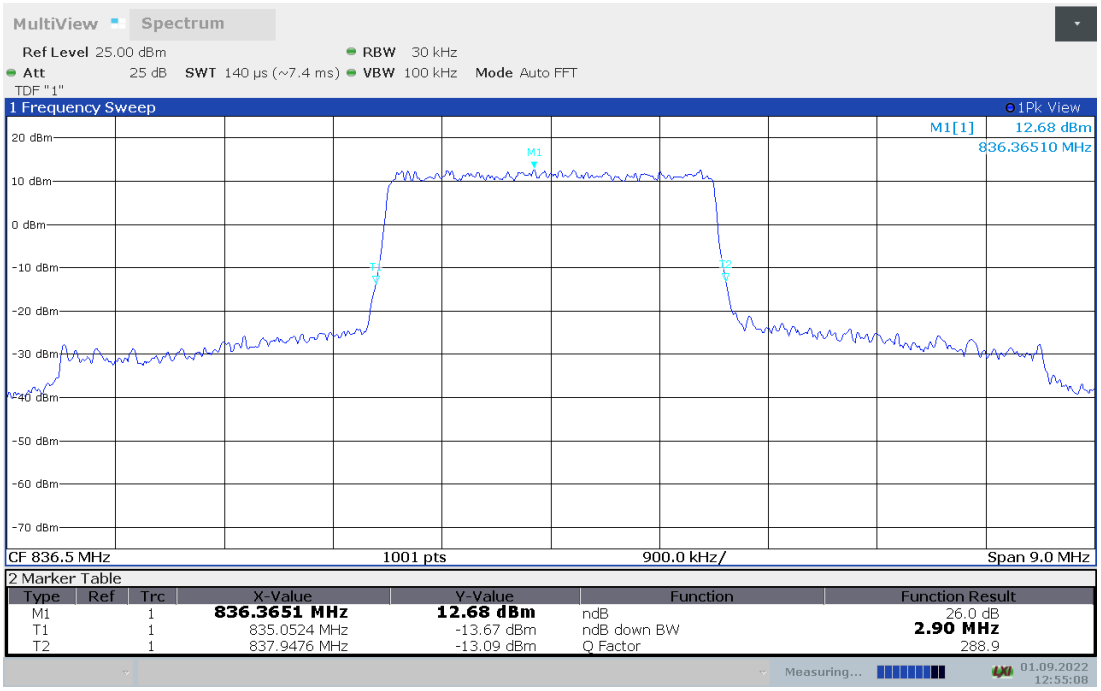
LTE Band 5, 1.4MHz Bandwidth, 16QAM (-26dBc BW)



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

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)	
836.5	QPSK	16QAM
	2.90	2.88

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



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