TEST REPORT

No.B22N02633-RF UMTS

for

TCL Communication Ltd.

UMTS/LTE/NR Mobile phone

Model Name: T609J

FCC ID: 2ACCJH174

with

Hardware Version: 03

Software Version: LUS7

Issued Date: 2023-01-28

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.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
B22N02633-RF UMTS	Rev.0	1st edition	2023-01-28

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1. SUMMARY OF TEST REPORT

1.1. Test Items

Description	UMTS/LTE/NR Mobile phone
Model Name	T609J
Brand Name	TCL
Applicant's name	TCL Communication Ltd.
Manufacturer's Name	TCL Communication Ltd.

1.2. Test Standards

FCC Part 2/22/24/27	10-1-20 Edition
ANSI C63.26	2015
KDB971168 D01	v03r01

1.3. Test Result

All test items are pass. 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: 2022-12-29 Testing End Date: 2022-01-20

1.6. Signature

Wang Ping
(Prepared this test report)

Huang Qiuqin
(Reviewed this test report)

Zhang Hao
(Approved this test report)

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2. CLIENT INFORMATION

2.1. Applicant Information

Company Name:	TCL Communication Ltd.
Address /Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact Person:	Annie Jiang
Contact Email	nianxiang.jiang@tcl.com
Telephone:	+86 755 3661 1621
Fax:	+86 755 3661 2000-81722

2.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
Address /Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact Person:	Annie Jiang
Contact Email	nianxiang.jiang@tcl.com
Telephone:	+86 755 3661 1621
Fax:	+86 755 3661 2000-81722

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

3.1. About EUT

Description	UMTS/LTE/NR Mobile phone
Model Name	T609J
FCC ID	2ACCJH174
Frequency Bands	WCDMA Band 2,4,5
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; it is also included in the original test record of SAICT.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
UT04aa	016388000200239	03	LUS7	2022-12-14

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

3.3. Internal Identification of AE used during the test

AE ID*	Description
AE1	Battery
AE2	RF cable

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

3.4. General Description

The Equipment Under Test (EUT) is a model of UMTS/LTE/NR 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.

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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 2	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS	10-1-20 Edition
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	10-1-20 Edition
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	10-1-20 Edition
ANSI C63.26	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services	2015
KDB971168 D01	MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS	v03r01

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5. LABORATORY ENVIRONMENT

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

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
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

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6. SUMMARY OF TEST RESULTS

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

WCDMA Band II

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

WCDMA Band V

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

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WCDMA Band IV

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

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7. STATEMENT

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

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

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8. TEST EQUIPMENTS UTILIZED

NO.	Description	TYPE	Manufacture	series number	Cal Due Date	Cal.Interval
1	UXM 5G Wireless Test Platform	E7515B	Keysight	MY59322022	2023-04-14	1 year
2	Universal Radio Communication Tester	MT8000A	Anritsu	6261987936	2023-03-29	1 year
3	Universal Radio Communication Tester	CMW500	R&S	129146	2023-04-24	1 year
4	Spectrum Analyzer	FSW26	R&S	102197	2023-11-24	1 year
5	Temperature Chamber	SH-241	ESPEC	92007516	2023-10-15	1 year
6	DC Power Supply	U3606A	Agilent Technologies	MY50450012	2023-11-13	1 year

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ANNEX A: MEASUREMENT RESULTS

A.1 OUTPUT POWER

A.1.1 Summary

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

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

A.1.2 Conducted

A.1.2.1 Method of Measurements

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

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

A.1.2.2 Measurement result

WCDMA Band II

QPSK

	CH	Frequency(MHz)	output power(dBm)
WCDMA (Band II)	9262	1852.4	23.60
	9400	1880.0	23.87
	9538	1907.6	23.95

16QAM

	CH	Frequency(MHz)	output power(dBm)
WCDMA (Band II)	9262	1852.4	22.59
	9400	1880.0	22.81
	9538	1907.6	22.91

WCDMA Band V

Measurement result

QPSK

	CH	Frequency(MHz)	output power(dBm)
WCDMA (Band V)	4132	826.4	23.60
	4183	836.6	23.20
	4233	846.6	23.55

16QAM

	CH	Frequency(MHz)	output power(dBm)
WCDMA (Band V)	4132	826.4	22.57
	4183	836.6	22.18
	4233	846.6	22.61

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WCDMA Band IV

Measurement result

QPSK

	CH	Frequency(MHz)	output power(dBm)
WCDMA (Band IV)	1312	1712.4	23.21
	1412	1732.4	23.20
	1513	1752.6	23.14

16QAM

	CH	Frequency(MHz)	output power(dBm)
WCDMA (Band IV)	1312	1712.4	22.17
	1412	1732.4	22.18
	1513	1752.6	22.13

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

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A.2 FREQUENCY STABILITY

A.2.1 Method of Measurement

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

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

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

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

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A.2.2 Measurement results

WCDMA Band II

Frequency Error vs Voltage

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1850.060	1909.940		
50				-2.02	0.0022
40				0.12	0.0001
30				0.73	0.0008
10				1.24	0.0013
0				-2.71	0.0029
-10				-2.60	0.0028
-20				-1.27	0.0013
-30				-2.25	0.0024

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	1850.060	1909.940	2.06	0.0022
4.40				-1.88	0.0020

WCDMA Band IV

Frequency Error vs Voltage-QPSK

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1710.060	1754.920		
50				-2.15	0.0025
40				-2.22	0.0026
30				0.97	0.0011
10				-1.74	0.0020
0				0.57	0.0007
-10				-0.97	0.0011
-20				-2.38	0.0027
-30				-0.37	0.0004

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	1710.060	1754.920	-2.40	0.0028
4.40				-8.41	0.0097

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WCDMA Band V

Frequency Error vs Voltage-QPSK

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	824.060	848.930		
50				0.68	0.0016
40				0.26	0.0006
30				0.09	0.0002
10				1.04	0.0025
0				0.99	0.0024
-10				0.34	0.0008
-20				0.84	0.0020
-30				0.78	0.0019

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.60	20	824.060	848.930	0.52	0.0012
4.40				-0.27	0.0007

Expanded measurement uncertainty is 10Hz, k = 2

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A.3 OCCUPIED BANDWIDTH

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

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

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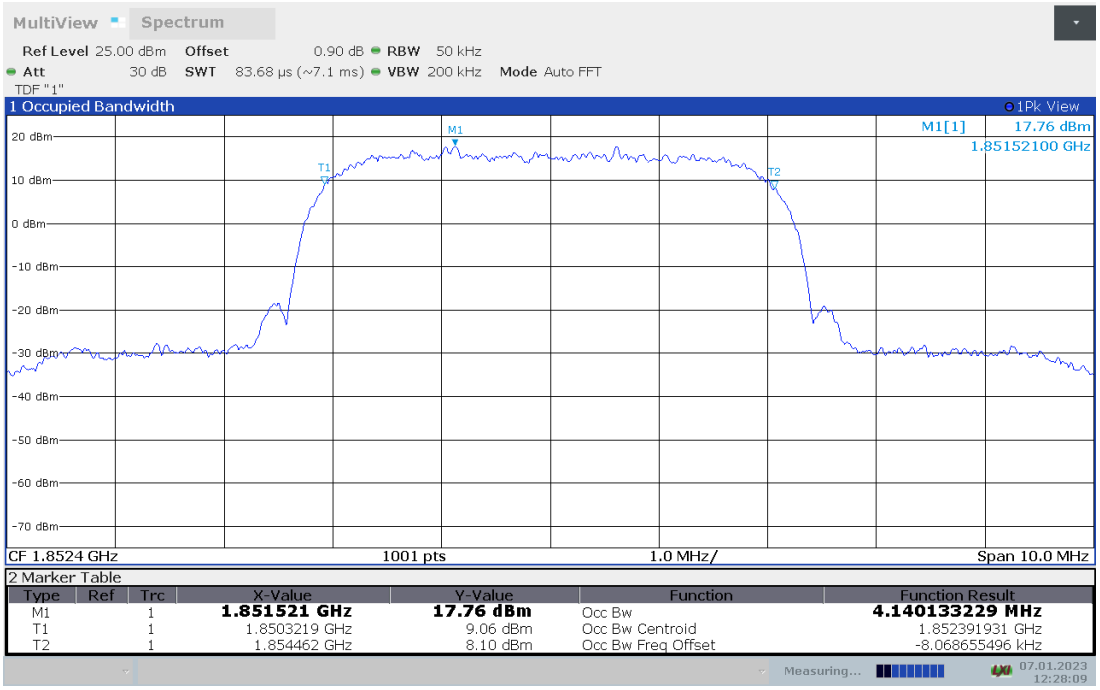
WCDMA Band 2 (99% BW)-QPSK

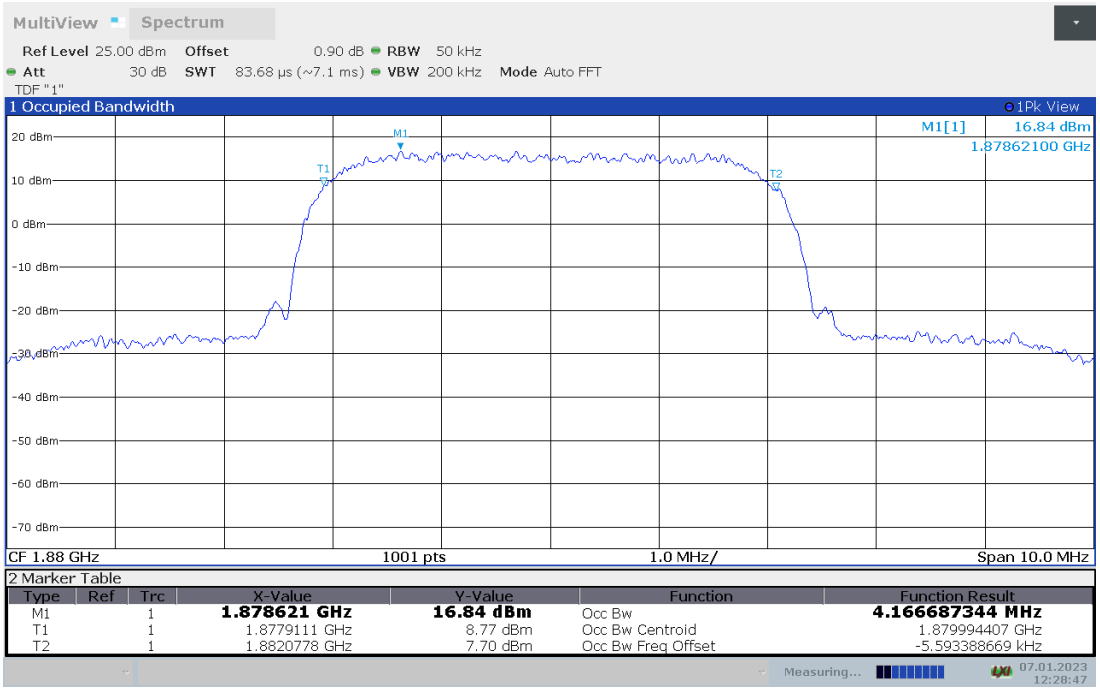
Frequency (MHz)	Occupied Bandwidth (99% BW) (MHz)
1852.4	4.140
1880	4.167
1907.6	4.132

WCDMA Band 2 (99% BW)

Channel 9262-Occupied Bandwidth (99% BW)



Channel 9400-Occupied Bandwidth (99% BW)



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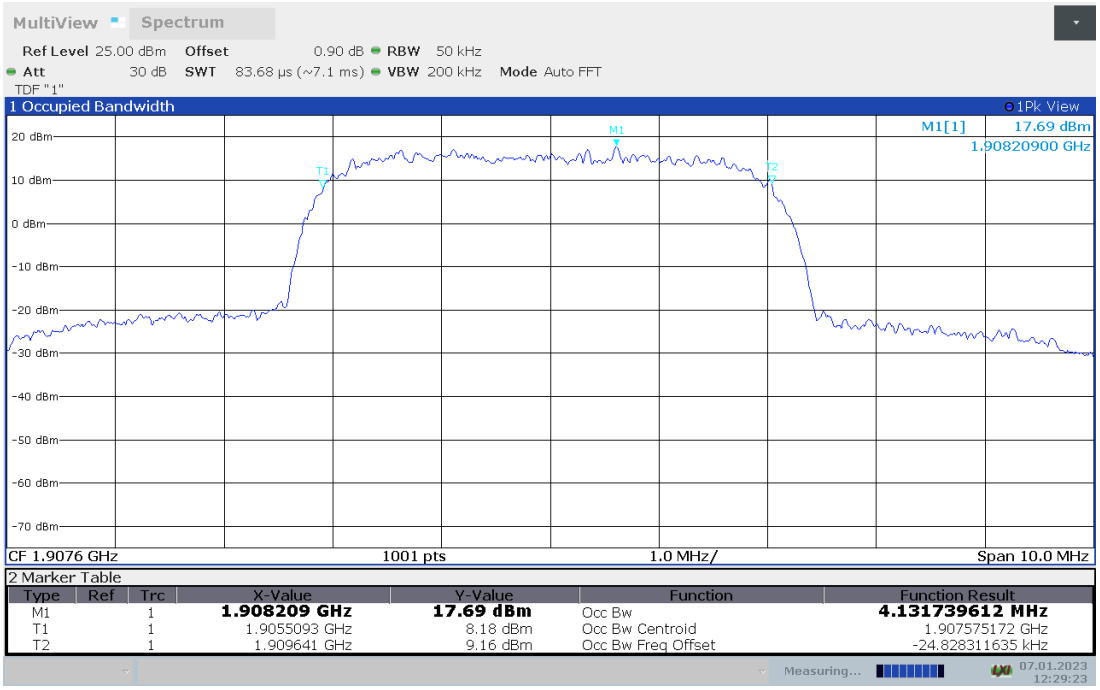
Channel 9538-Occupied Bandwidth (99% BW)



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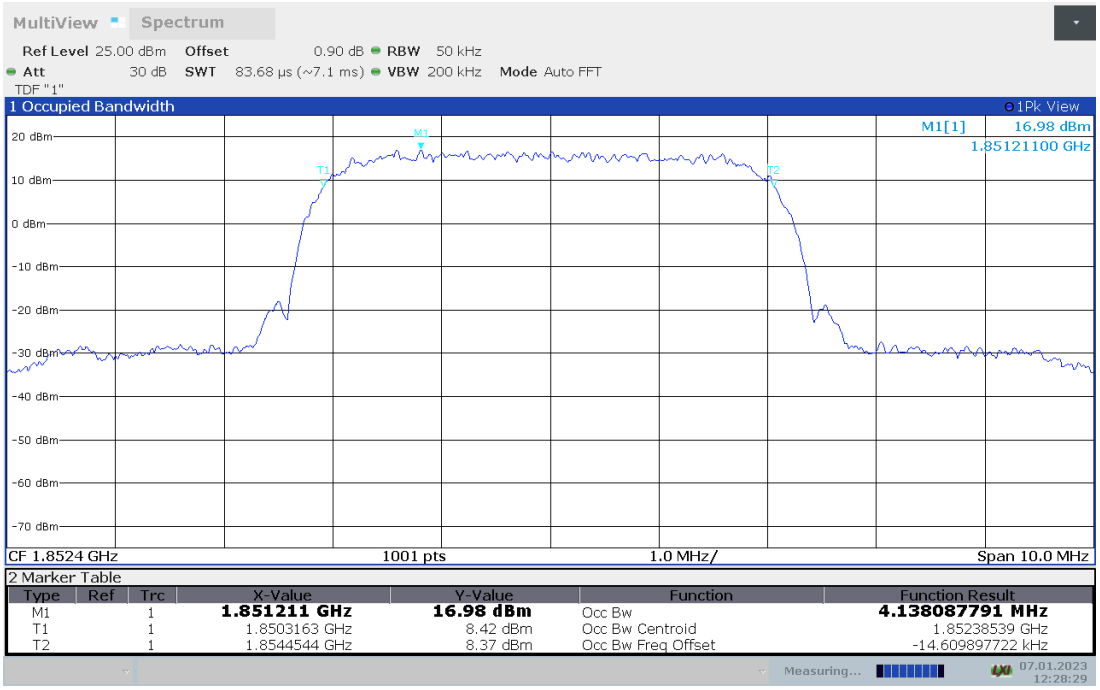
WCDMA Band 2 (99% BW)-16QAM

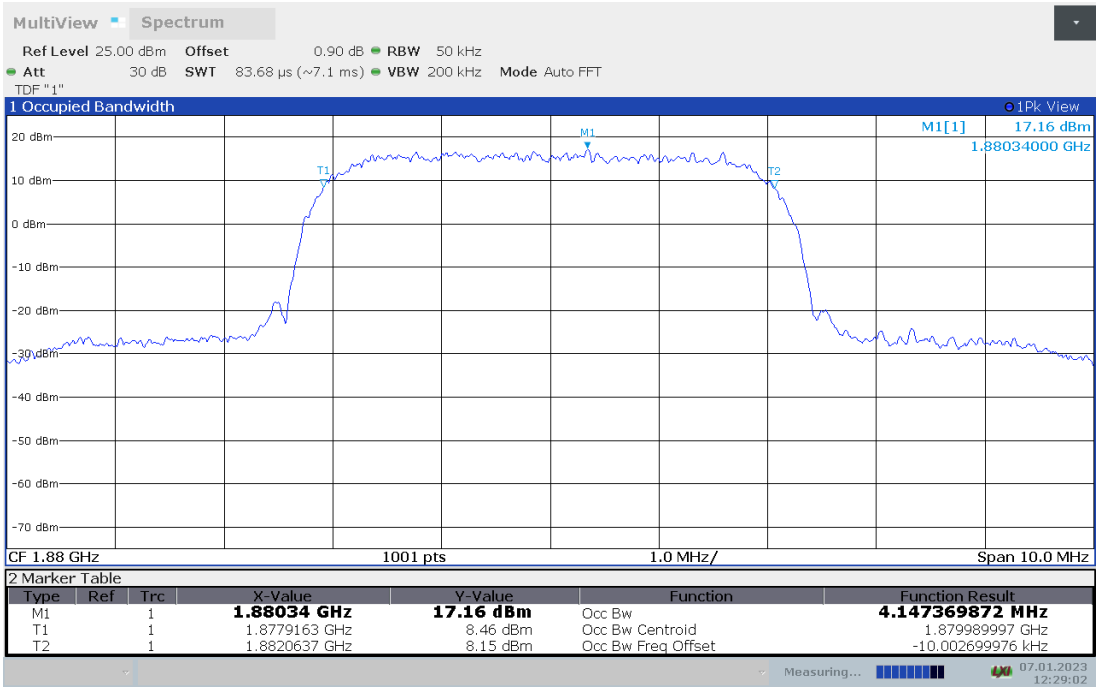
Frequency (MHz)	Occupied Bandwidth (99% BW) (MHz)
1852.4	4.138
1880	4.147
1907.6	4.149

WCDMA Band 2 (99% BW)

Channel 9262-Occupied Bandwidth (99% BW)



Channel 9400-Occupied Bandwidth (99% BW)



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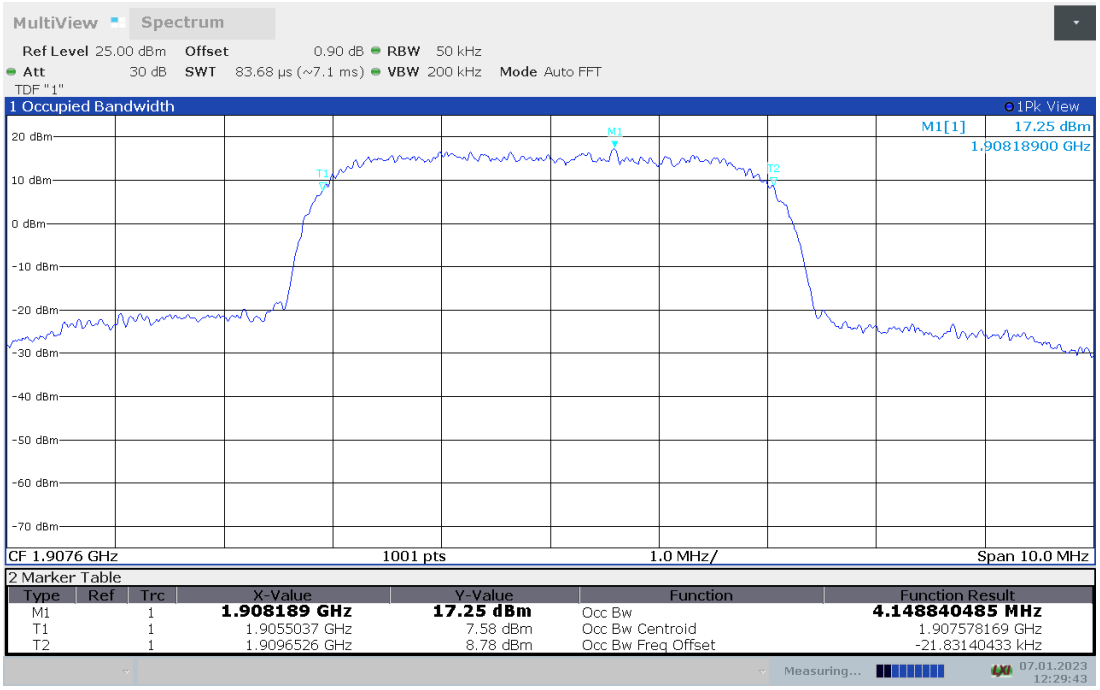
Channel 9538-Occupied Bandwidth (99% BW)



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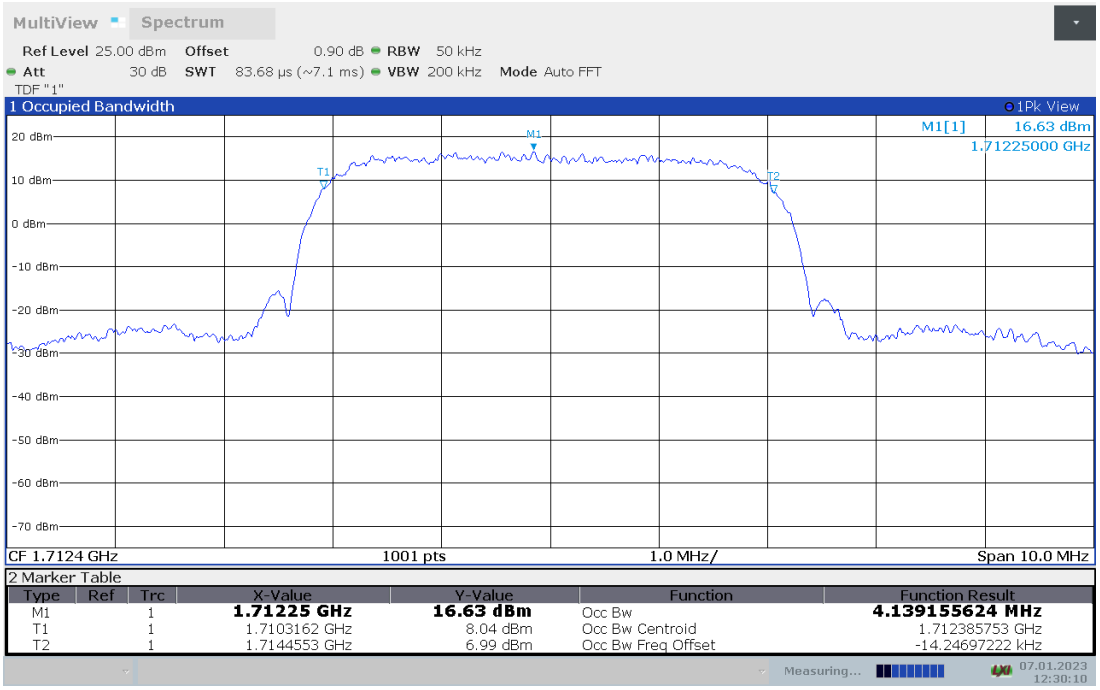
WCDMA Band 4 (99% BW)-QPSK

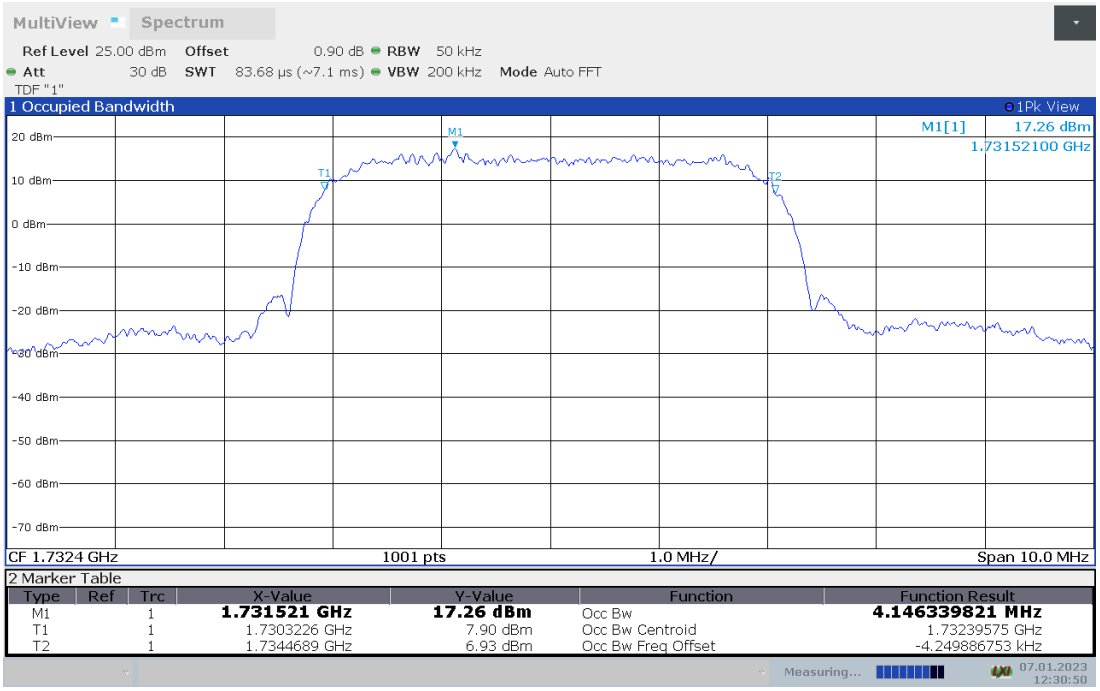
Frequency (MHz)	Occupied Bandwidth (99% BW) (MHz)
1712.4	4.139
1732.4	4.146
1752.6	4.152

WCDMA Band 4 (99% BW)

Channel 1312-Occupied Bandwidth (99% BW)



Channel 1412-Occupied Bandwidth (99% BW)



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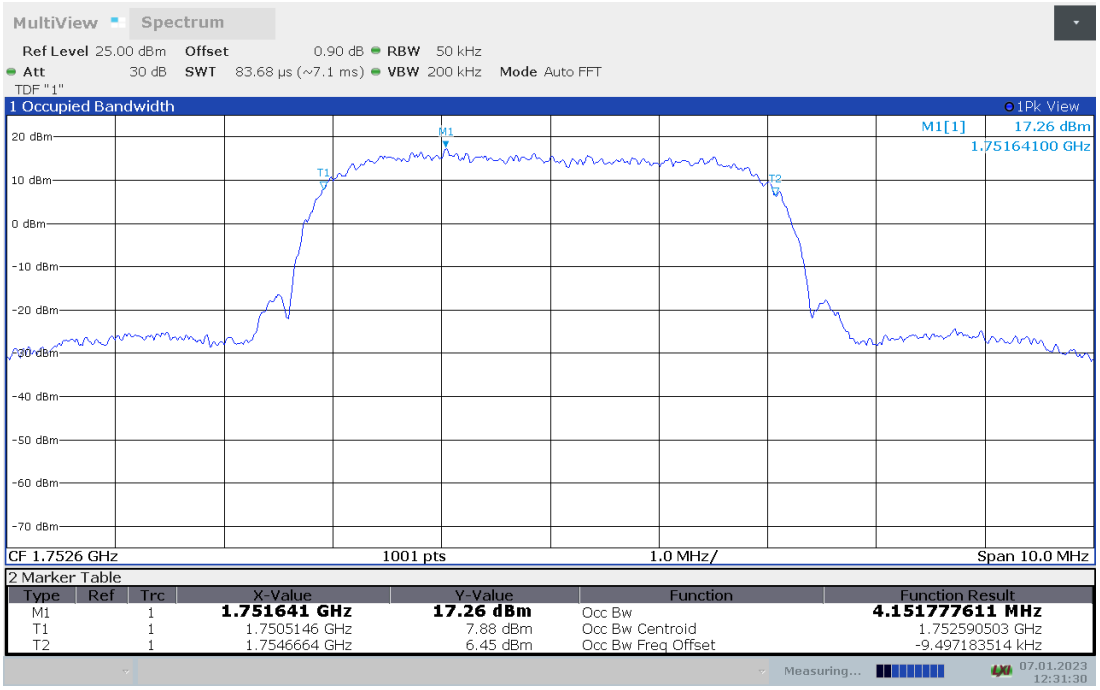
Channel 1513-Occupied Bandwidth (99% BW)



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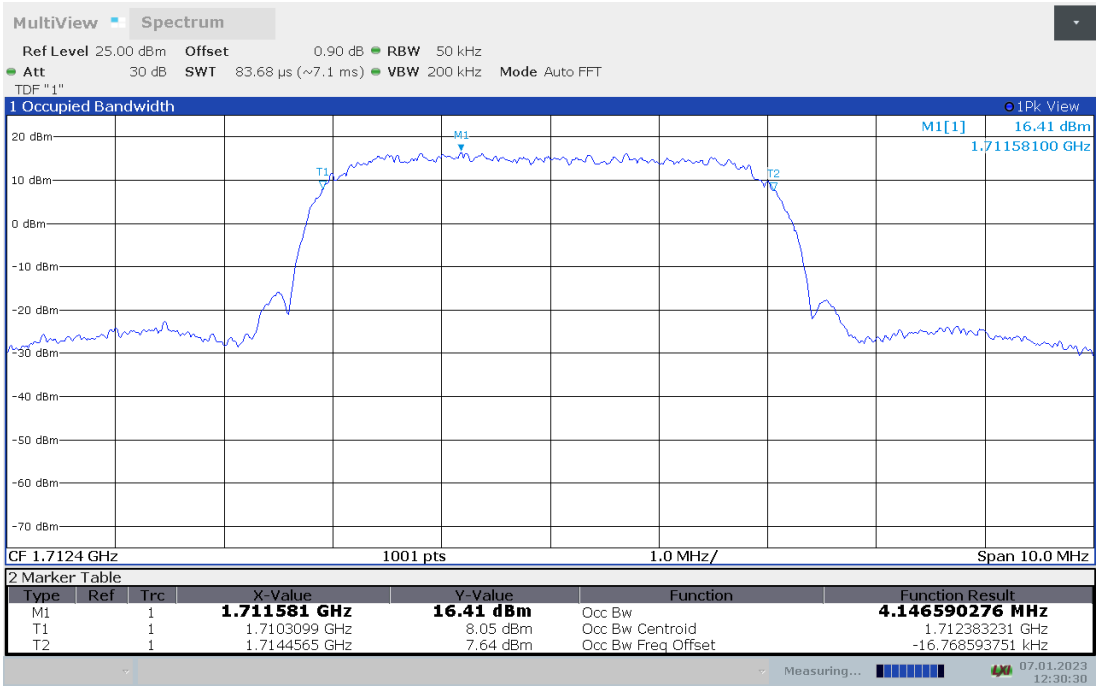
WCDMA Band 4 (99% BW)-16QAM

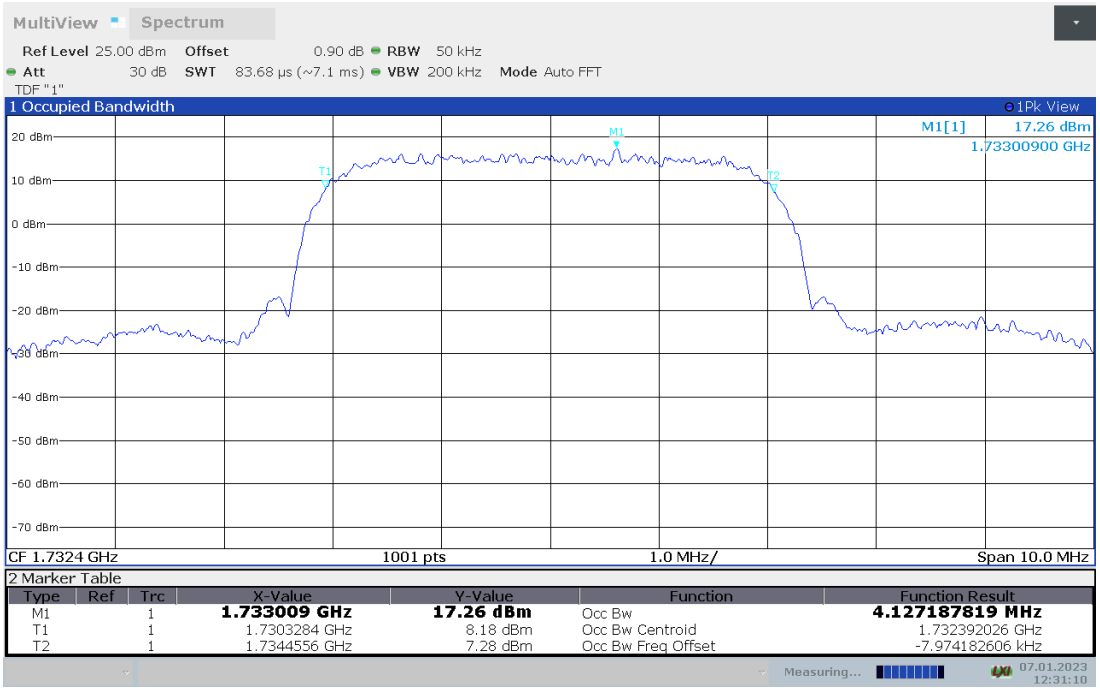
Frequency (MHz)	Occupied Bandwidth (99% BW) (MHz)
1712.4	4.147
1732.4	4.127
1752.6	4.138

WCDMA Band 4 (99% BW)

Channel 1312-Occupied Bandwidth (99% BW)



Channel 1412-Occupied Bandwidth (99% BW)



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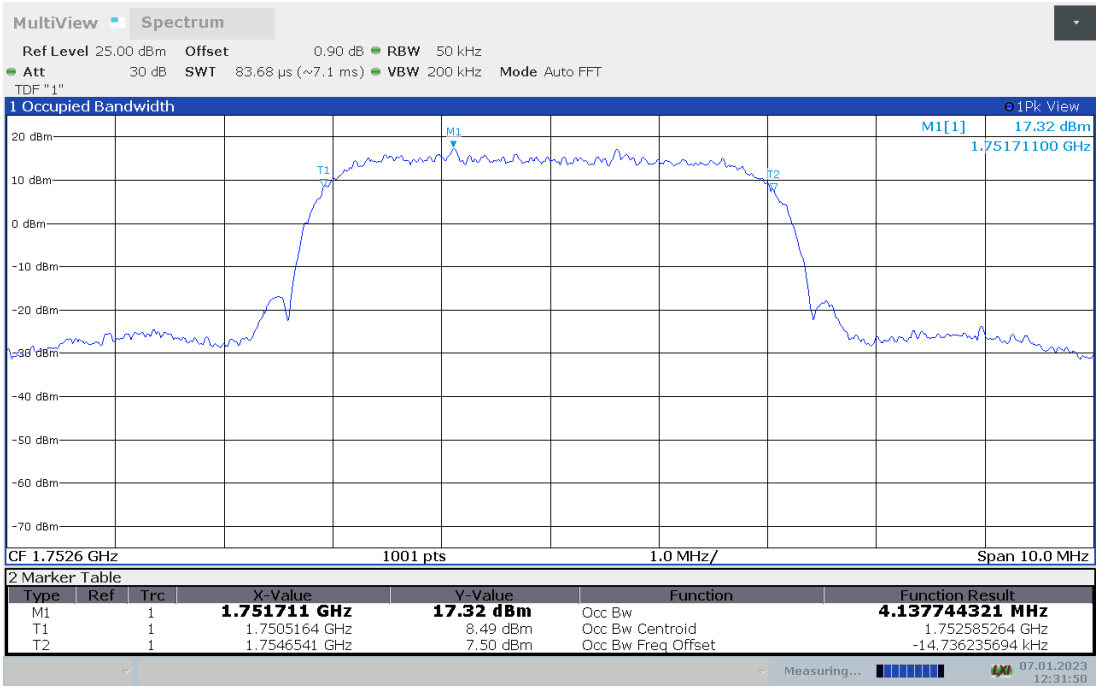
Channel 1513-Occupied Bandwidth (99% BW)



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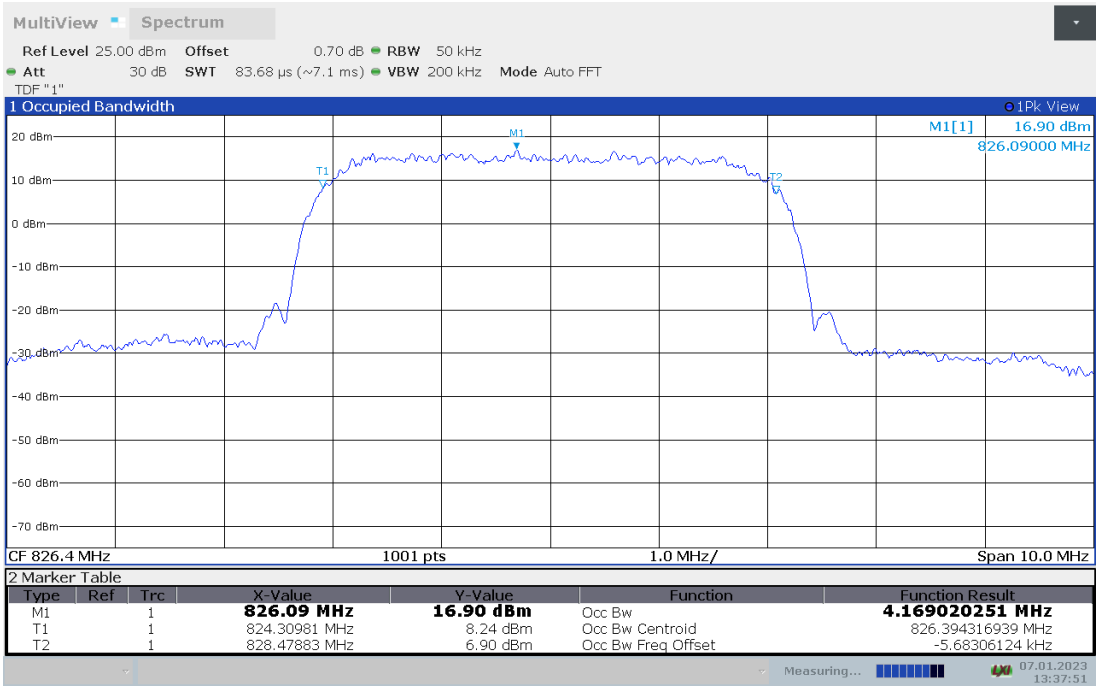
WCDMA Band 5 (99% BW)-QPSK

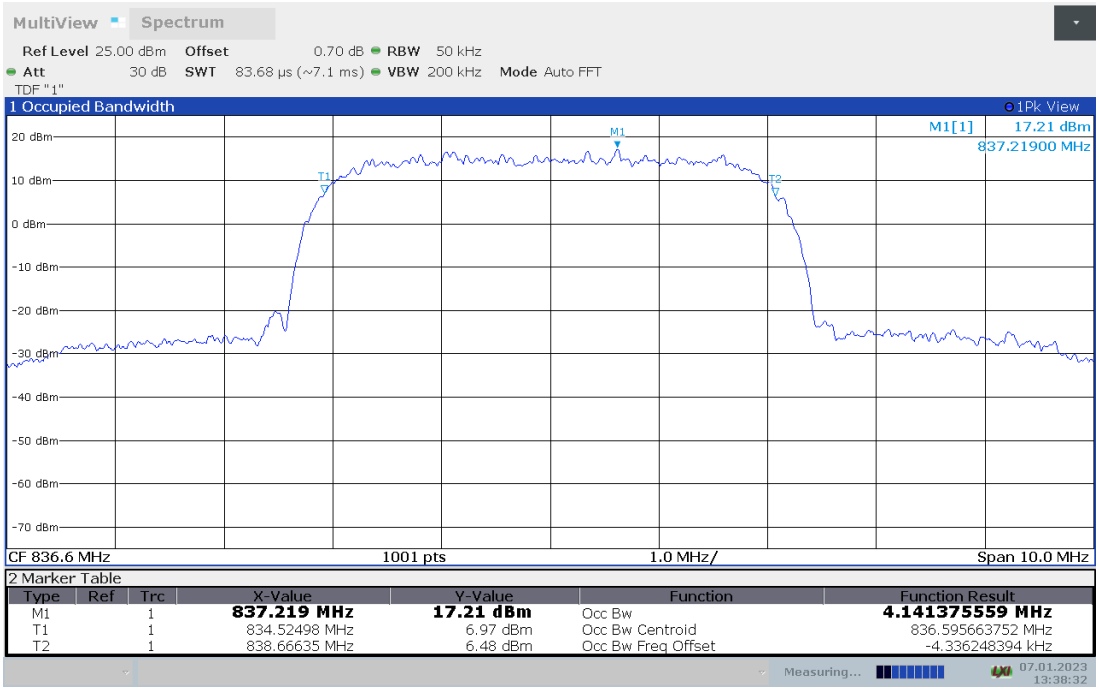
Frequency (MHz)	Occupied Bandwidth (99% BW) (MHz)
826.4	4.169
836.6	4.141
846.6	4.160

WCDMA Band 5 (99% BW)

Channel 4132-Occupied Bandwidth (99% BW)



Channel 4183-Occupied Bandwidth (99% BW)



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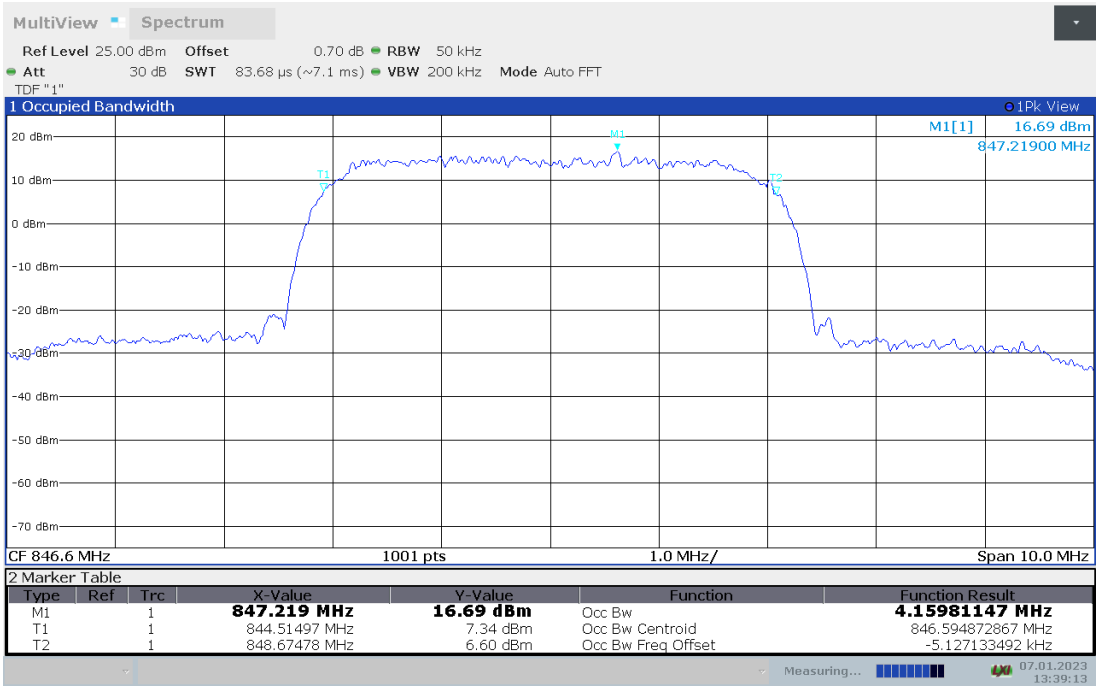
Channel 4233-Occupied Bandwidth (99% BW)



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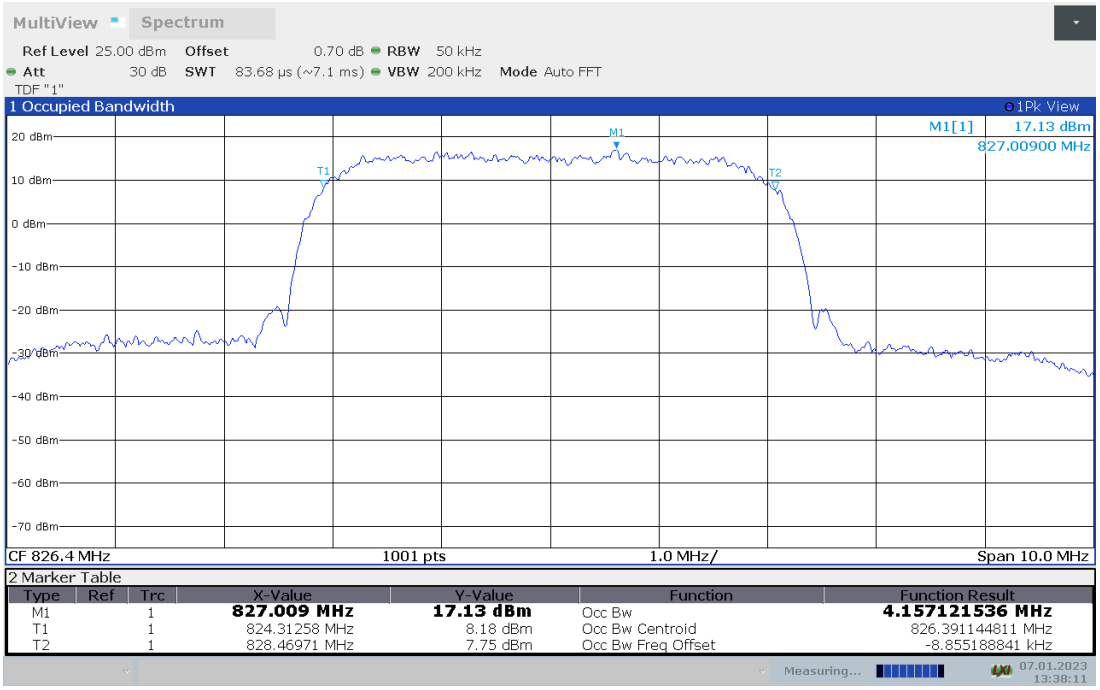
WCDMA Band 5 (99% BW)-16QAM

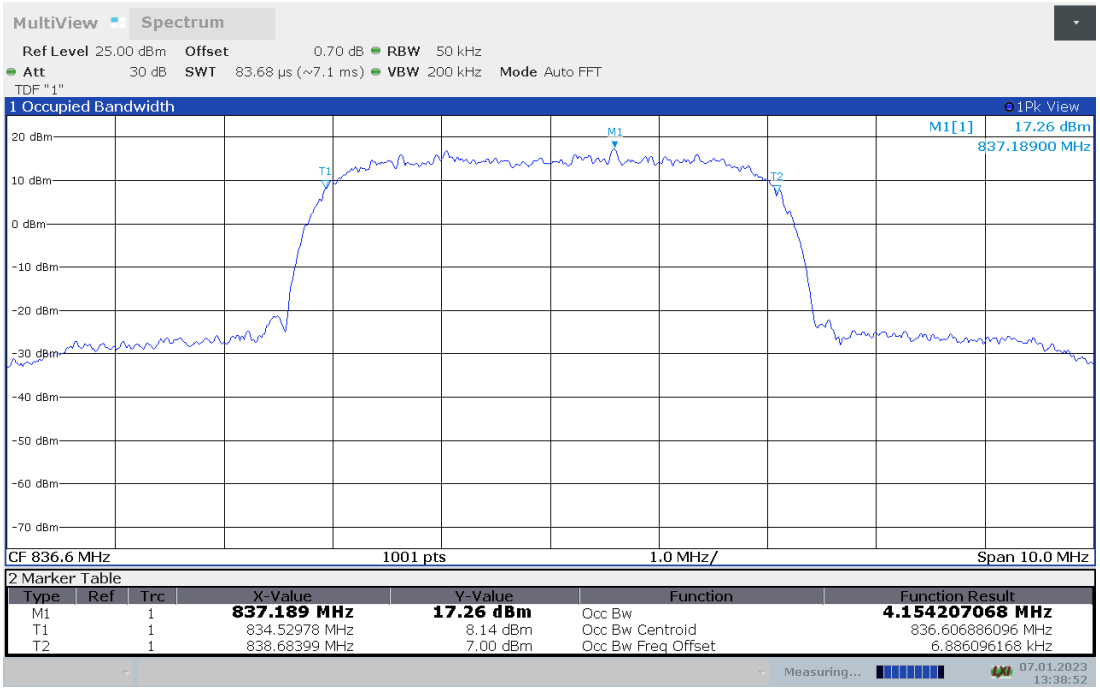
Frequency (MHz)	Occupied Bandwidth (99% BW) (MHz)
826.4	4.157
836.6	4.154
846.6	4.136

WCDMA Band 5 (99% BW)

Channel 4132-Occupied Bandwidth (99% BW)



Channel 4183-Occupied Bandwidth (99% BW)



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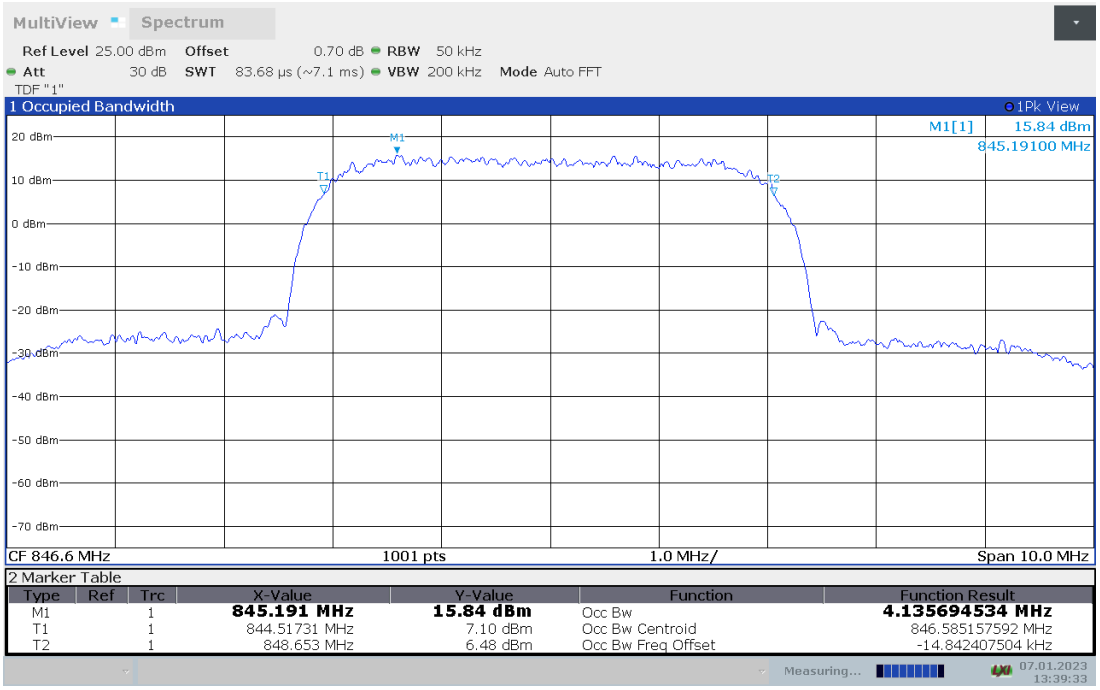
Channel 4233-Occupied Bandwidth (99% BW)



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

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A.4 EMISSION BANDWIDTH

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the following pages.

The measurement method is from ANSI C63.26:

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.

b) The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ⩾ 3 × RBW.

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

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

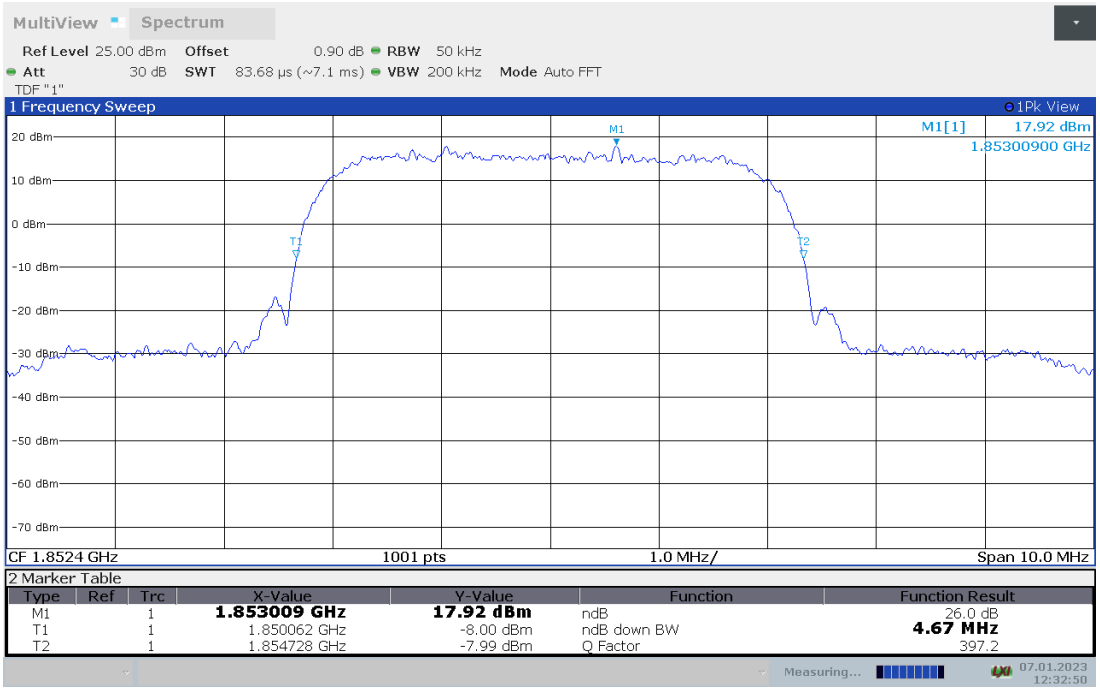
e) Set spectrum analyzer detection mode to peak, and the trace mode to max hold.

WCDMA Band 2 (-26dBc BW)-QPSK

Frequency (MHz)	Emission Bandwidth (-26dBc BW)(MHz)
1852.4	4.665
1880	4.705
1907.6	4.695

WCDMA Band 2 (-26dBc BW)

Channel 9262-Emission Bandwidth (-26dBc BW)



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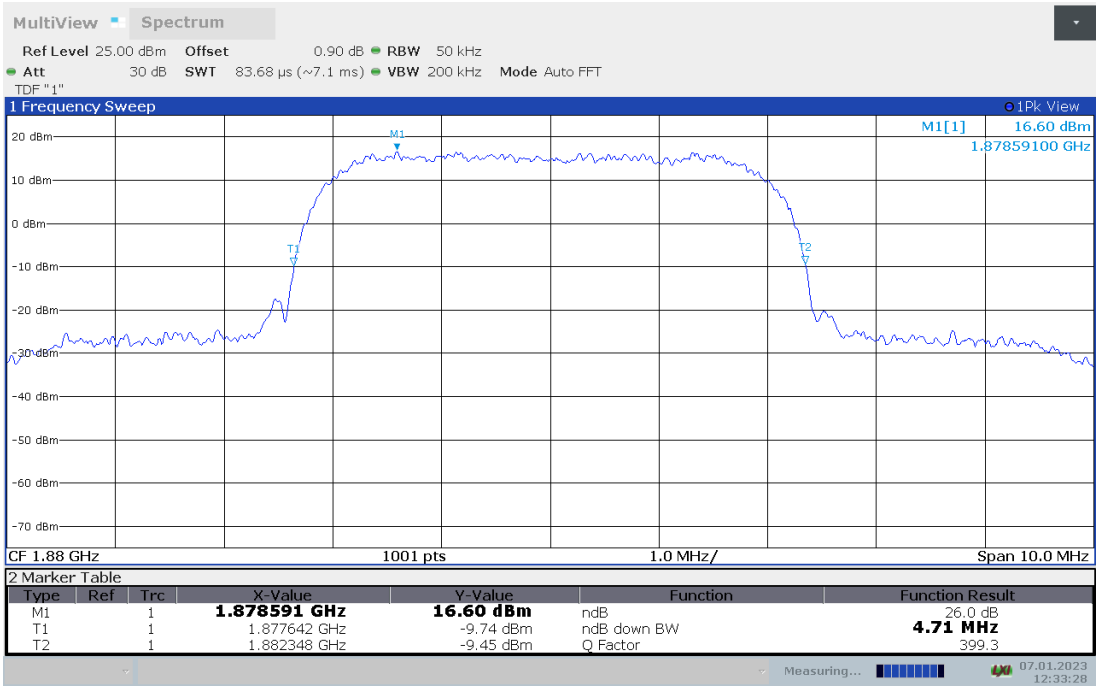
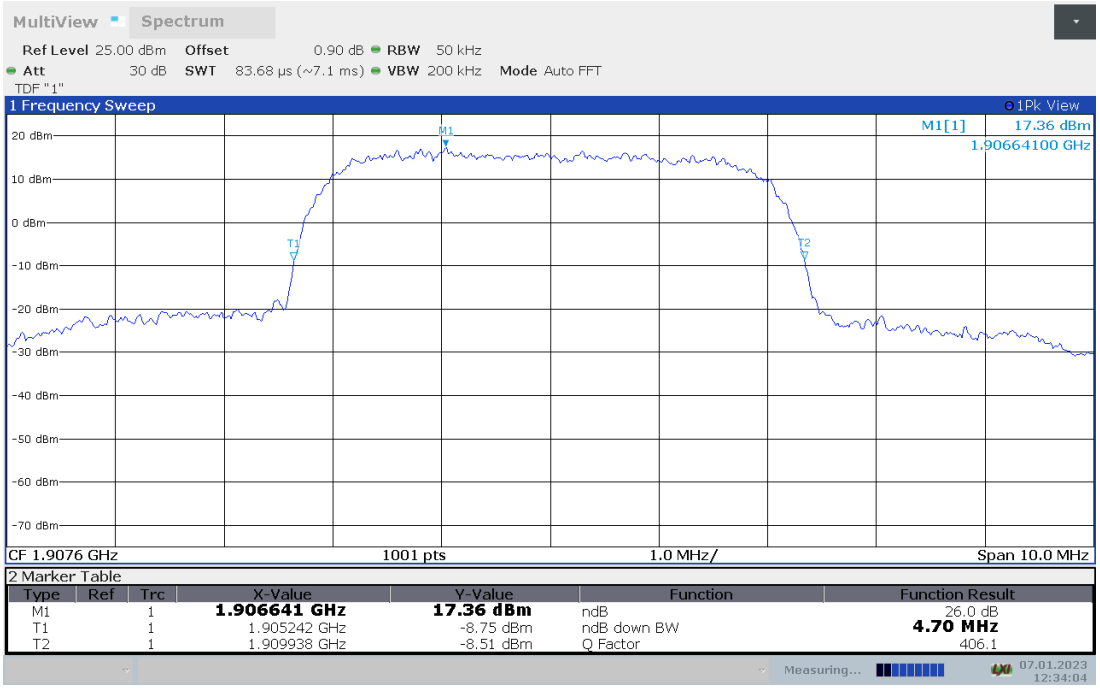
Channel 9400-Emission Bandwidth (-26dBc BW)



Channel 9538-Emission Bandwidth (-26dBc BW)



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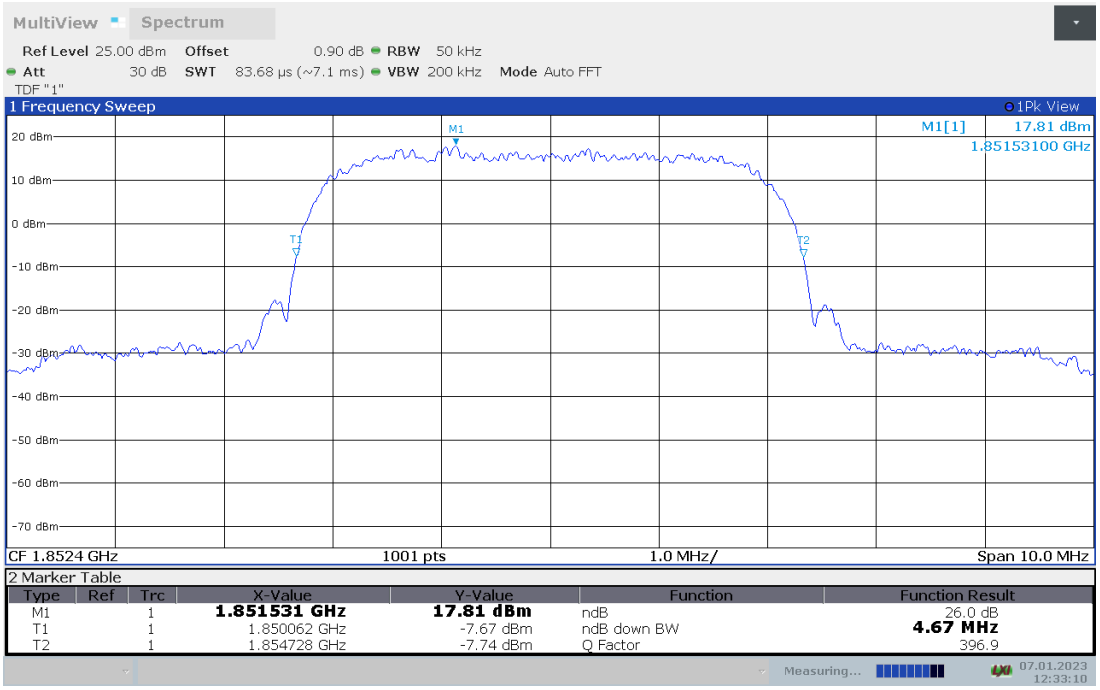
WCDMA Band 2 (-26dBc BW)-16QAM

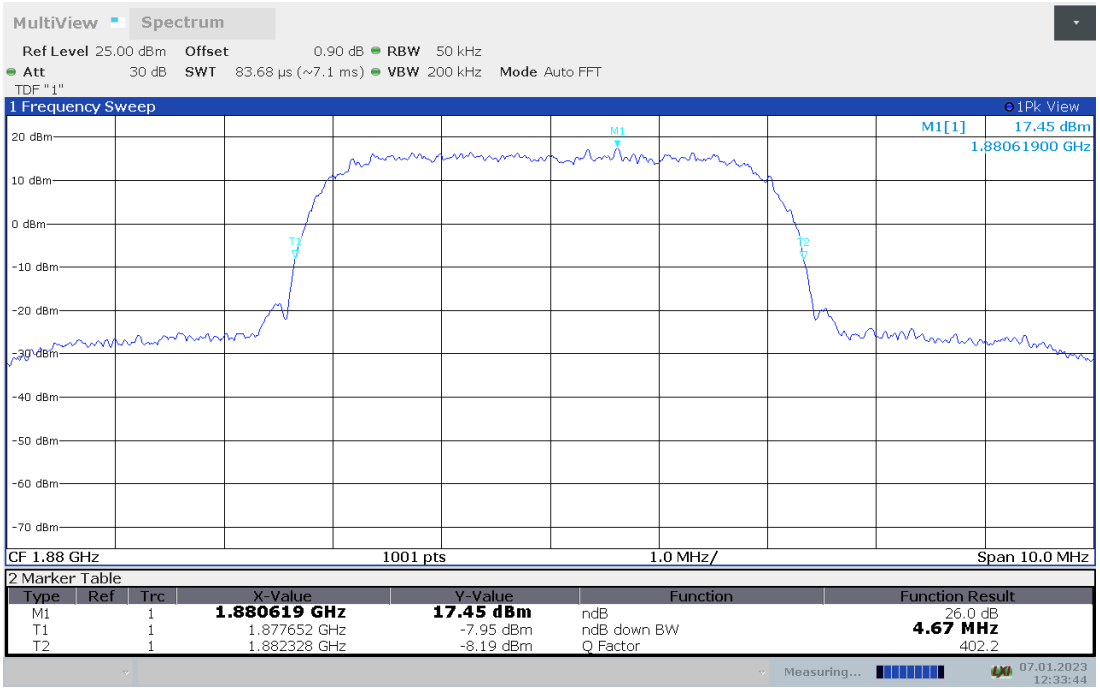
Frequency (MHz)	Emission Bandwidth (-26dBc BW)(MHz)
1852.4	4.665
1880	4.675
1907.6	4.705

WCDMA Band 2 (-26dBc BW)

Channel 9262-Emission Bandwidth (-26dBc BW)



Channel 9400-Emission Bandwidth (-26dBc BW)



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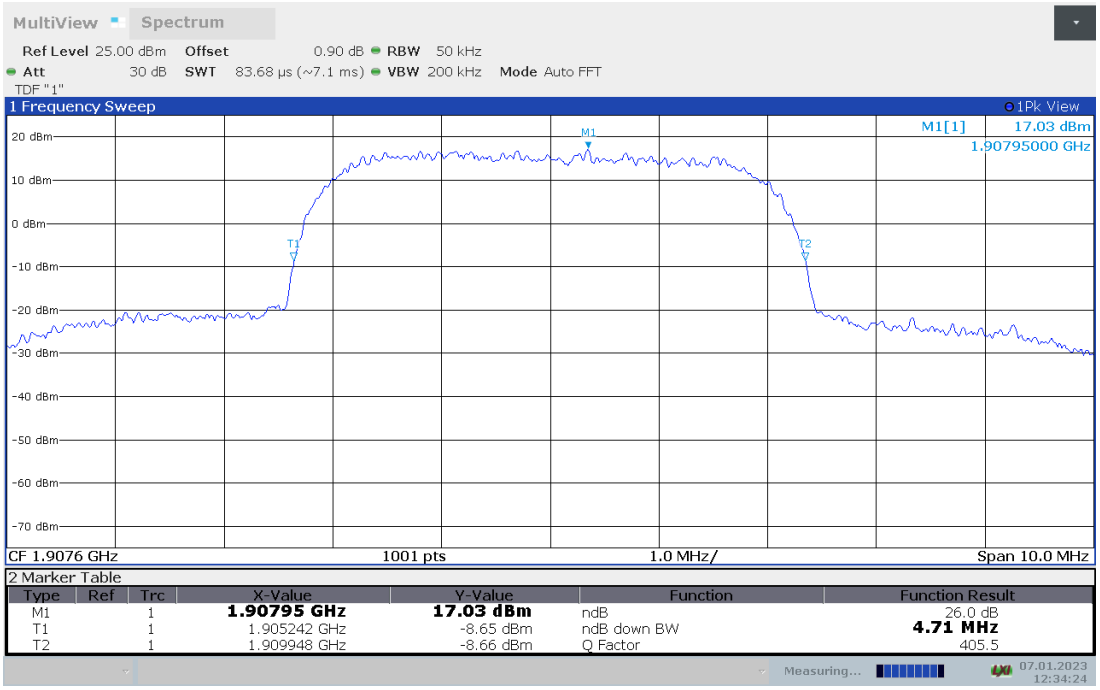
Channel 9538-Emission Bandwidth (-26dBc BW)



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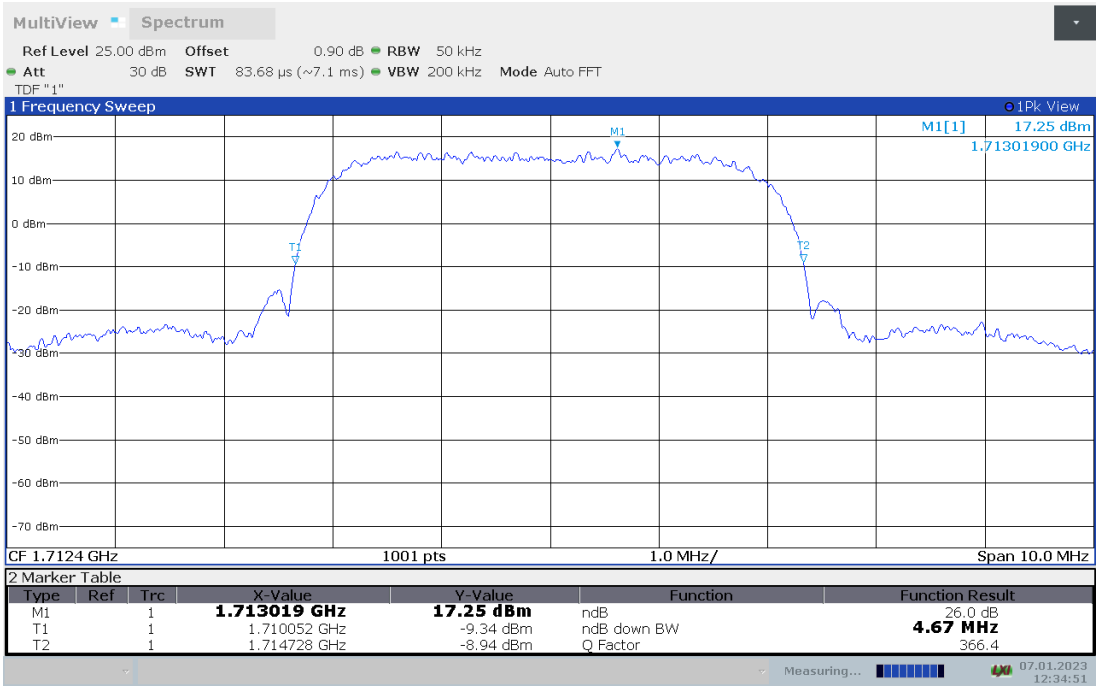
WCDMA Band 4 (-26dBc BW)-QPSK

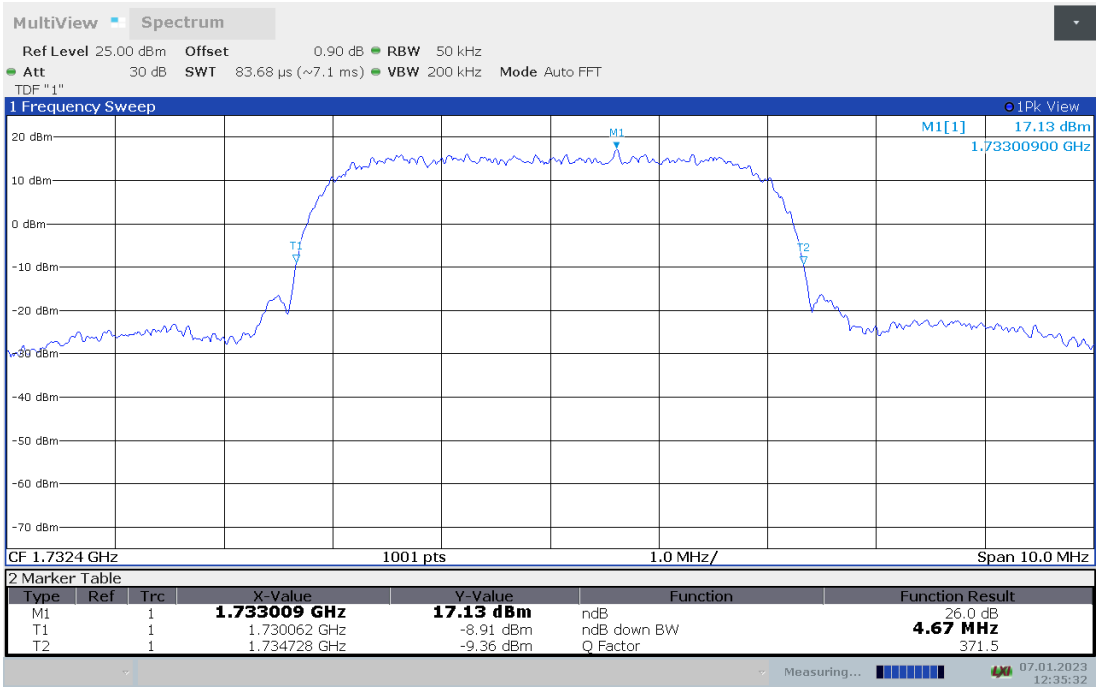
Frequency (MHz)	Emission Bandwidth (-26dBc BW)(MHz)
1712.4	4.675
1732.4	4.665
1752.6	4.665

WCDMA Band 4 (-26dBc BW)

Channel 1312-Emission Bandwidth (-26dBc BW)



Channel 1412-Emission Bandwidth (-26dBc BW)



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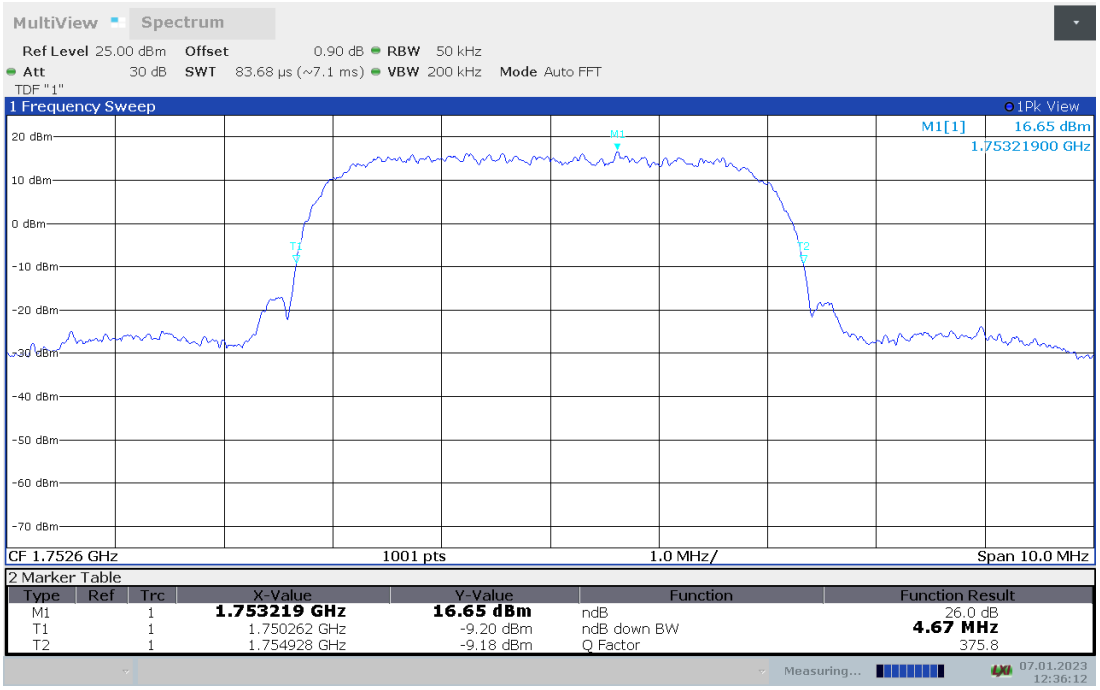
Channel 1513-Emission Bandwidth (-26dBc BW)



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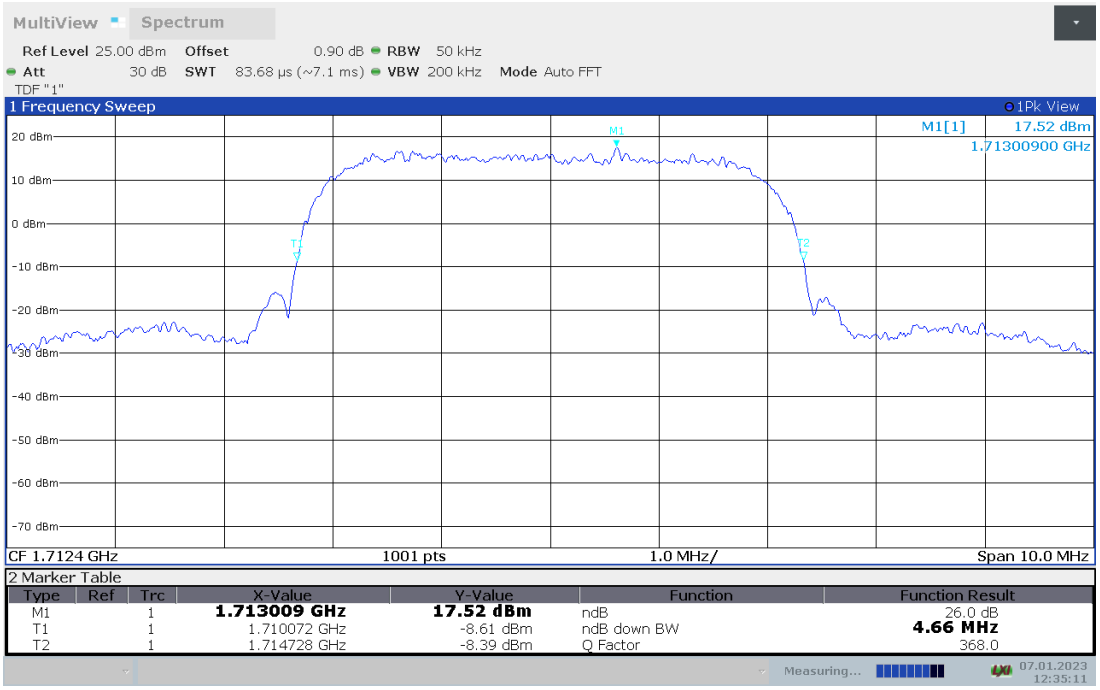
WCDMA Band 4 (-26dBc BW)-16QAM

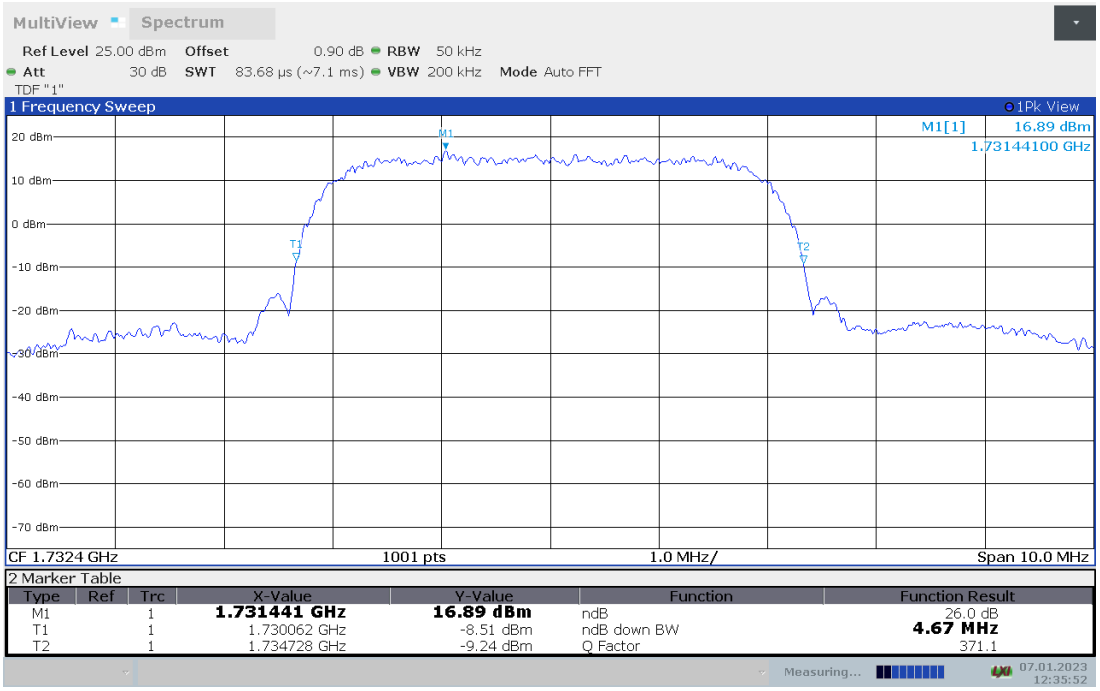
Frequency (MHz)	Emission Bandwidth (-26dBc BW)(MHz)
1712.4	4.655
1732.4	4.665
1752.6	4.665

WCDMA Band 4 (-26dBc BW)

Channel 1312-Emission Bandwidth (-26dBc BW)



Channel 1412-Emission Bandwidth (-26dBc BW)



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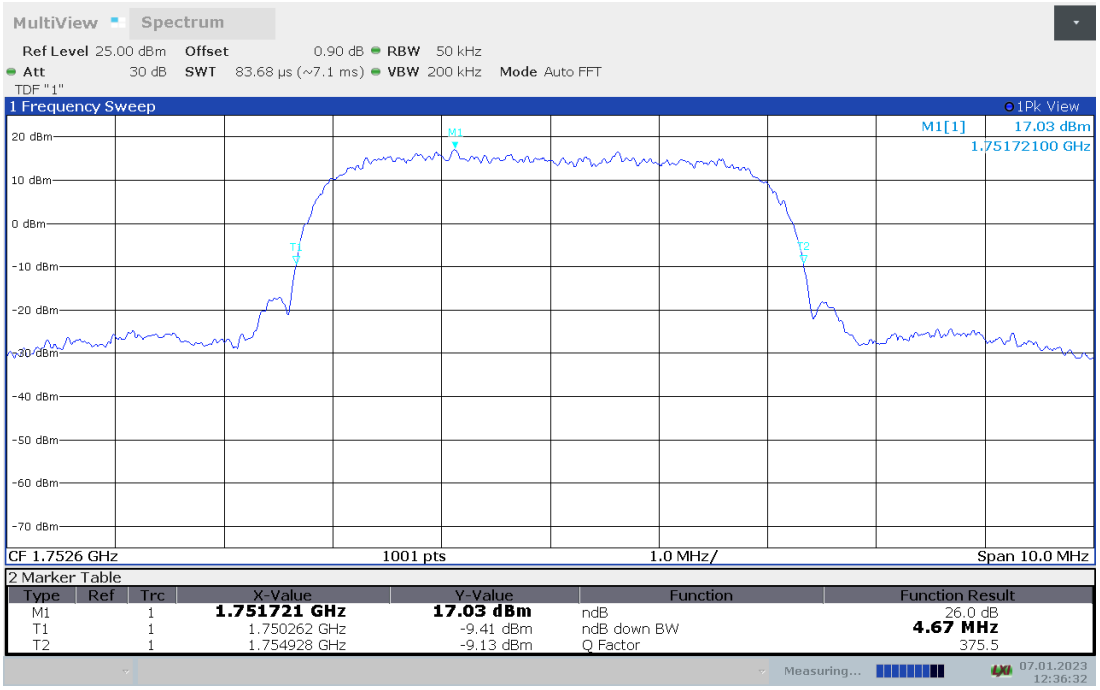
Channel 1513-Emission Bandwidth (-26dBc BW)



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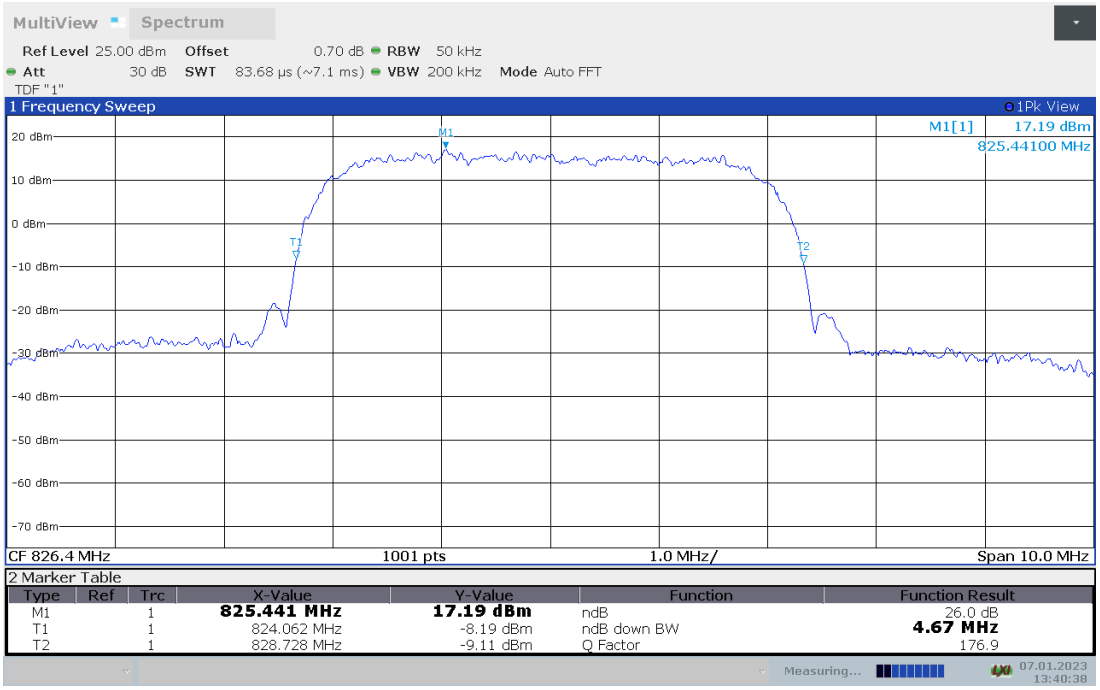
WCDMA Band 5 (-26dBc BW)-QPSK

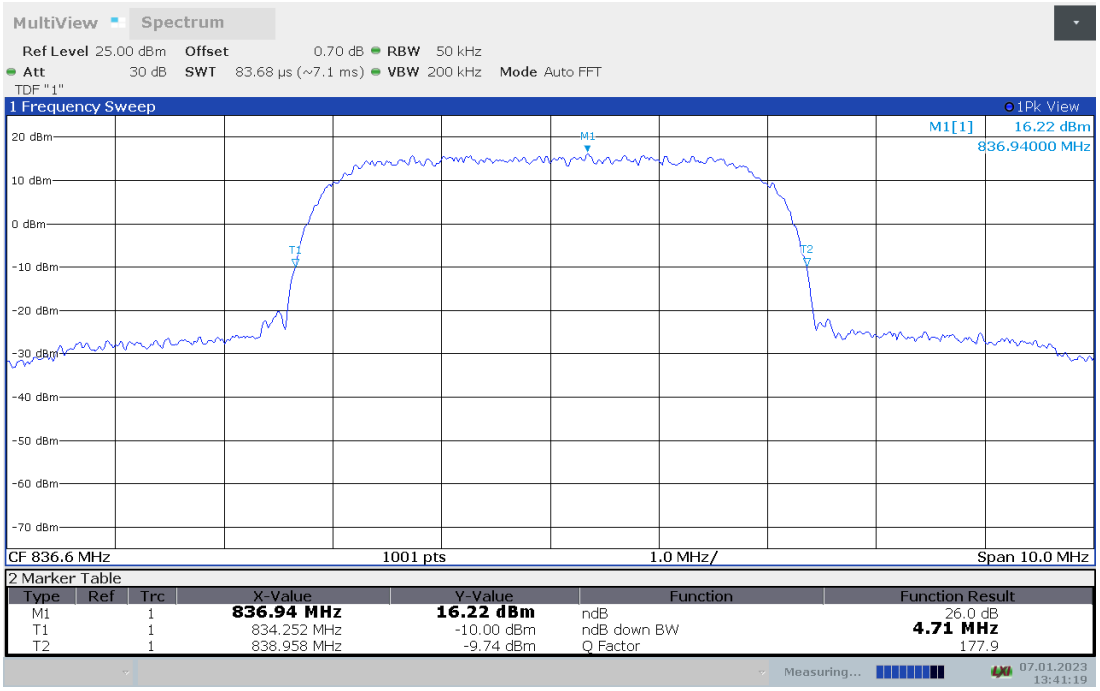
Frequency (MHz)	Emission Bandwidth (-26dBc BW)(MHz)
826.4	4.665
836.6	4.705
846.6	4.685

WCDMA Band 5 (-26dBc BW)

Channel 4132-Emission Bandwidth (-26dBc BW)



Channel 4183-Emission Bandwidth (-26dBc BW)



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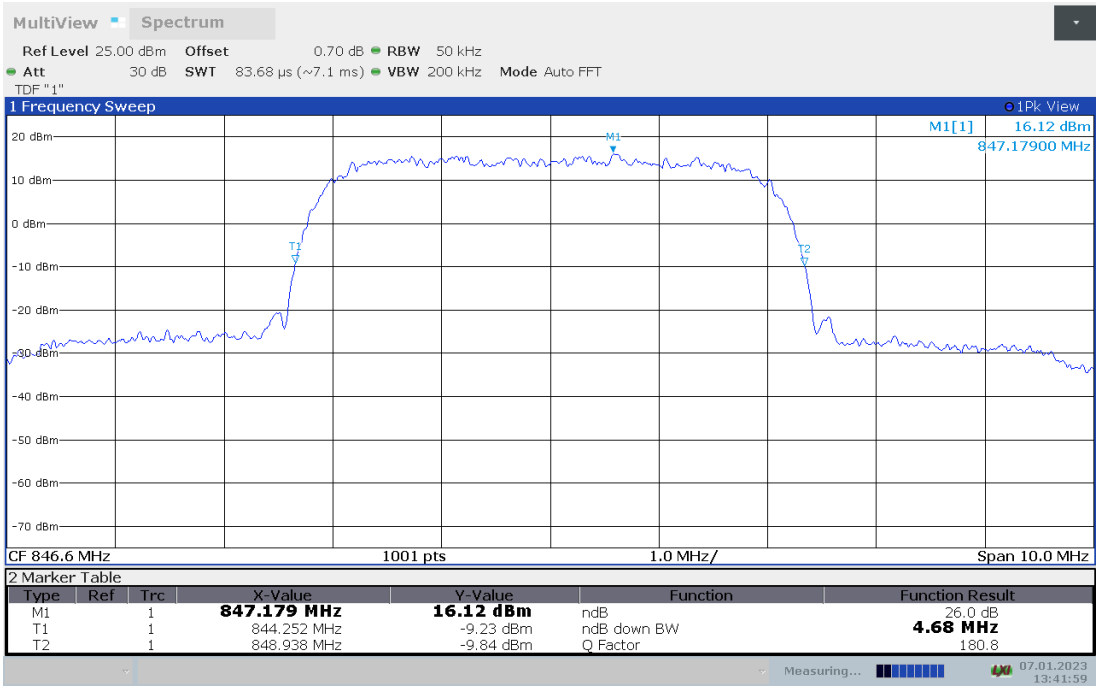
Channel 4233-Emission Bandwidth (-26dBc BW)



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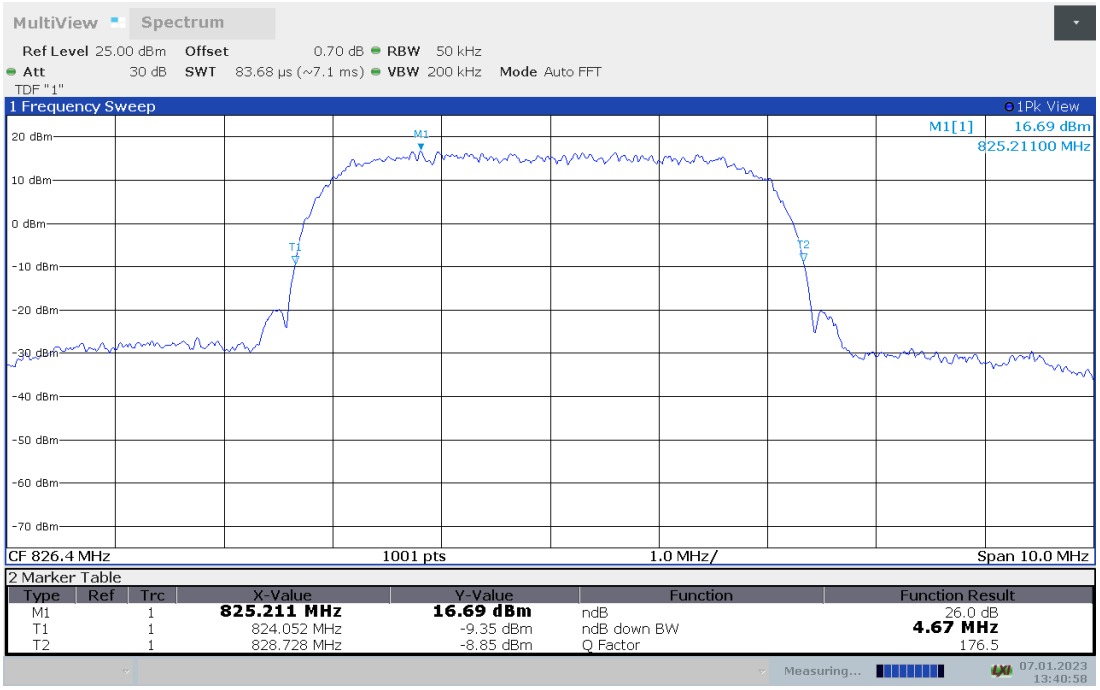
WCDMA Band 5 (-26dBc BW)-16QAM

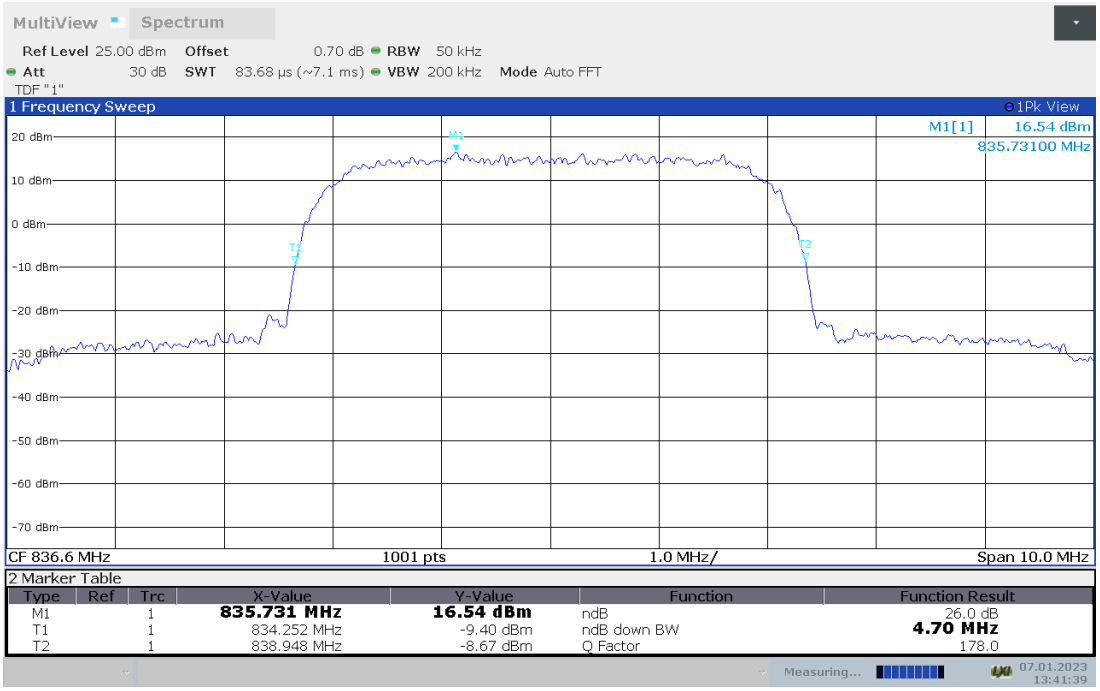
Frequency (MHz)	Emission Bandwidth (-26dBc BW)(MHz)
826.4	4.675
836.6	4.695
846.6	4.675

WCDMA Band 5 (-26dBc BW)

Channel 4132-Emission Bandwidth (-26dBc BW)



Channel 4183-Emission Bandwidth (-26dBc BW)



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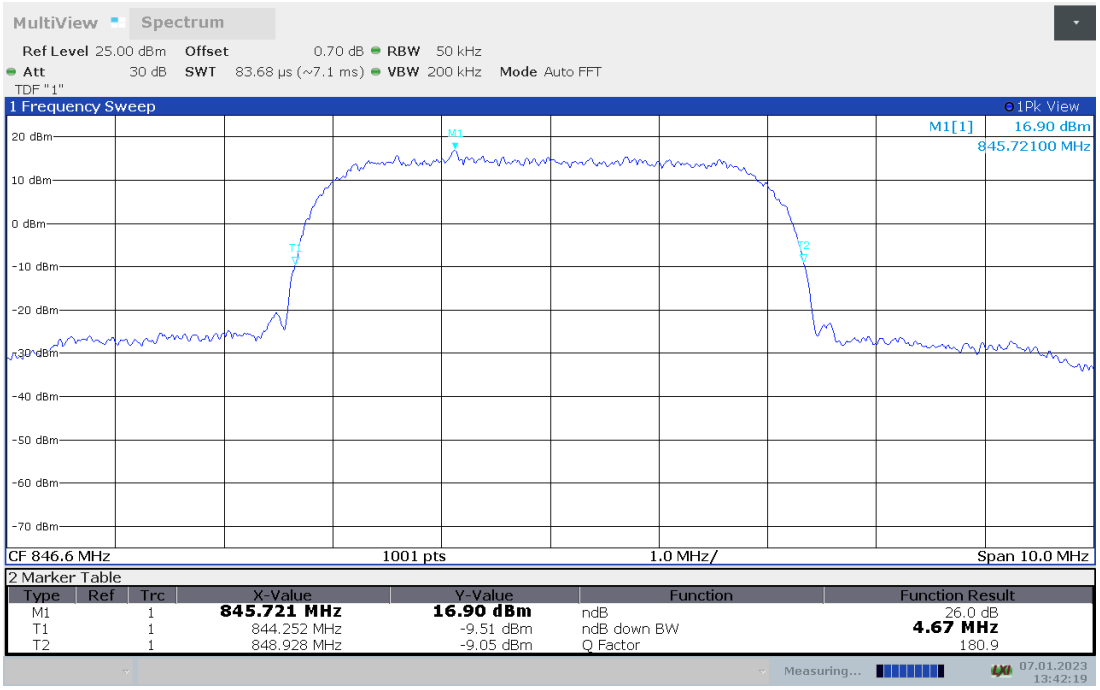
Channel 4233-Emission Bandwidth (-26dBc BW)



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

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A.5 BAND EDGE COMPLIANCE

A.5.1 Measurement limit

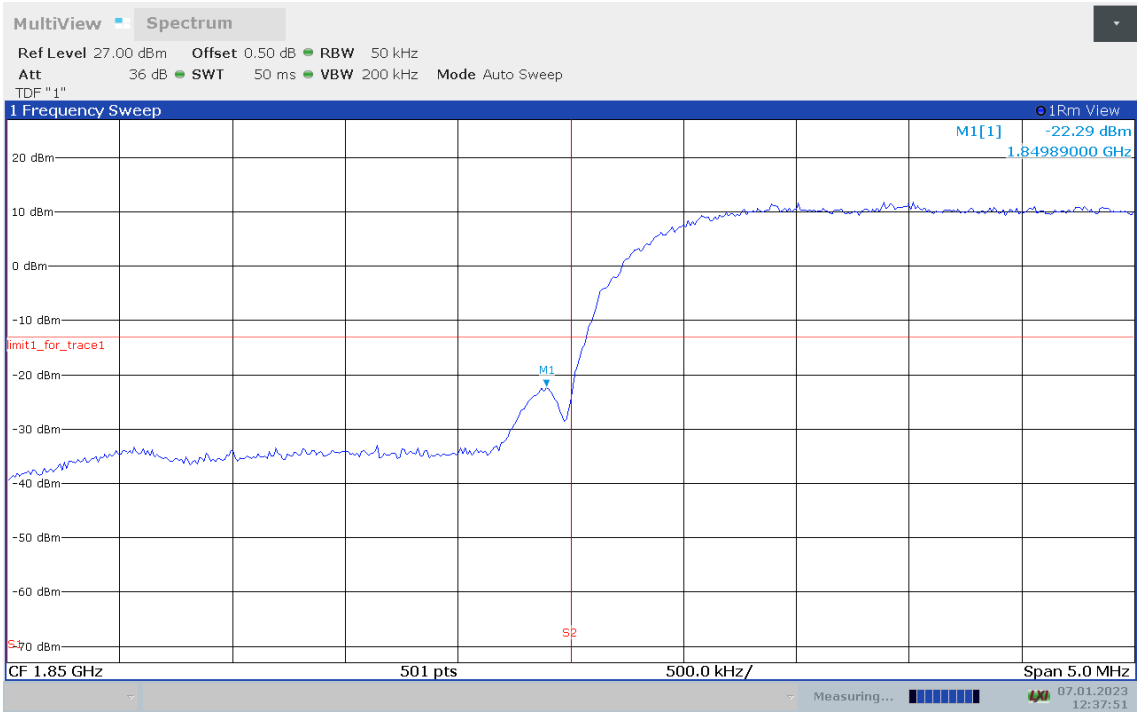
Part 22.917 , Part 24.238 and Part 27.53(h) specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to KDB 971168, a relaxation of the reference bandwidth is often provided for measurements within a specified frequency range at the edge of the authorized frequency block/band. This is often implemented by permitting the use of a narrower RBW (typically limited to a minimum RBW of 1% of the OBW) for measuring the out-of-band emissions without a requirement to integrate the result over the full reference bandwidth.

A.5.2Measurement result

WCDMA Band Ⅱ

LOW BAND EDGE BLOCK-A-Channel 9262



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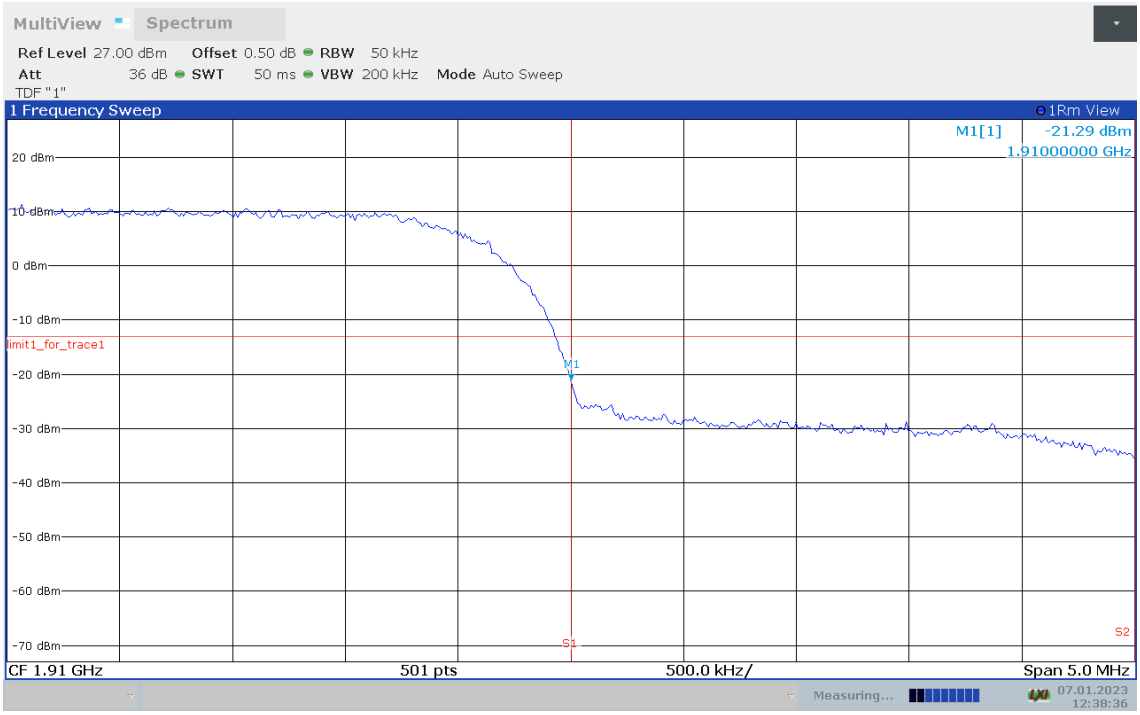
HIGH BAND EDGE BLOCK-C–Channel 9538



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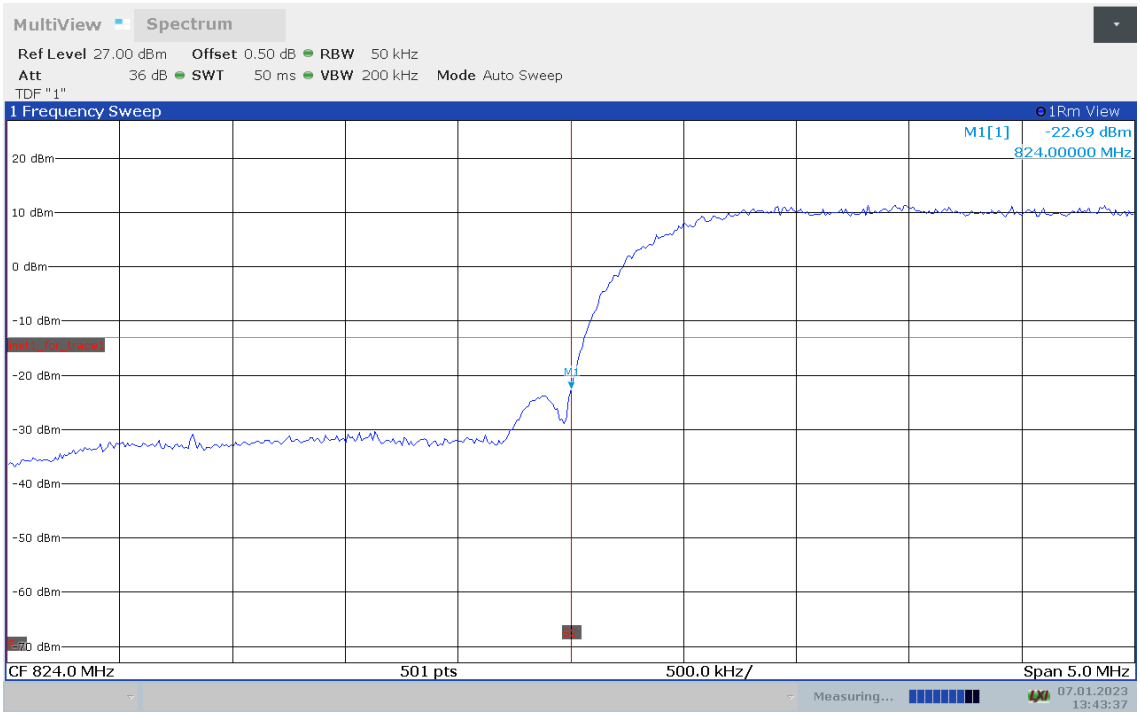
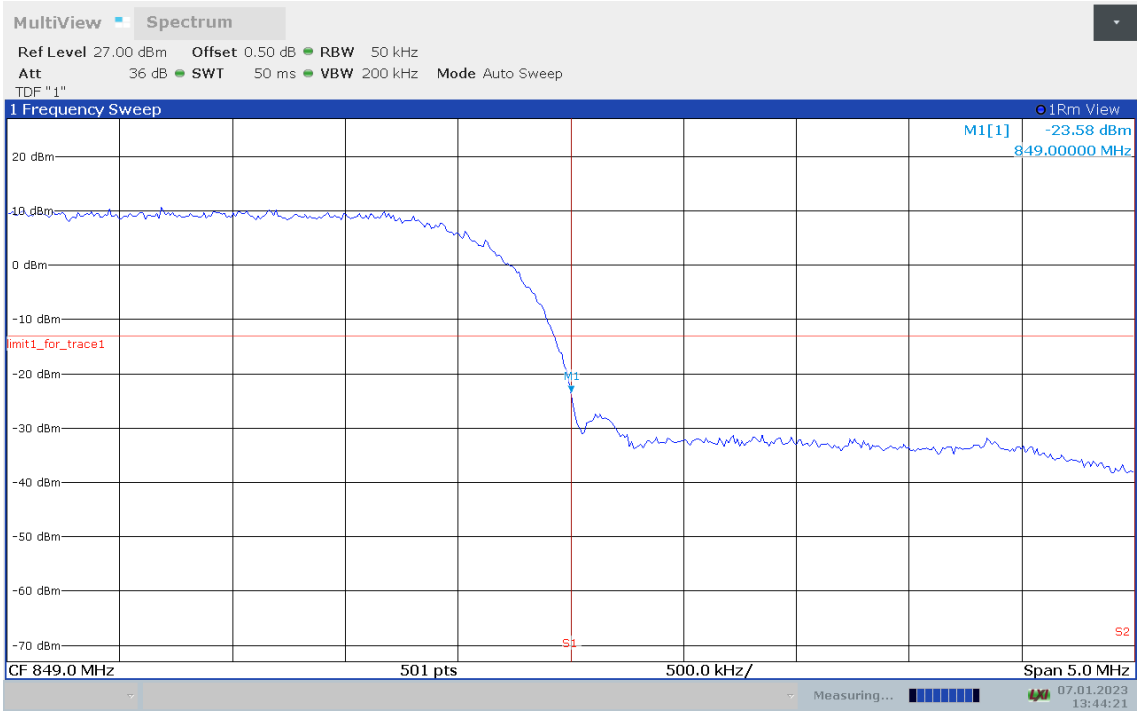
WCDMA Band Ⅴ

LOW BAND EDGE BLOCK-A-Channel 4132



HIGH BAND EDGE BLOCK-C–Channel 4233



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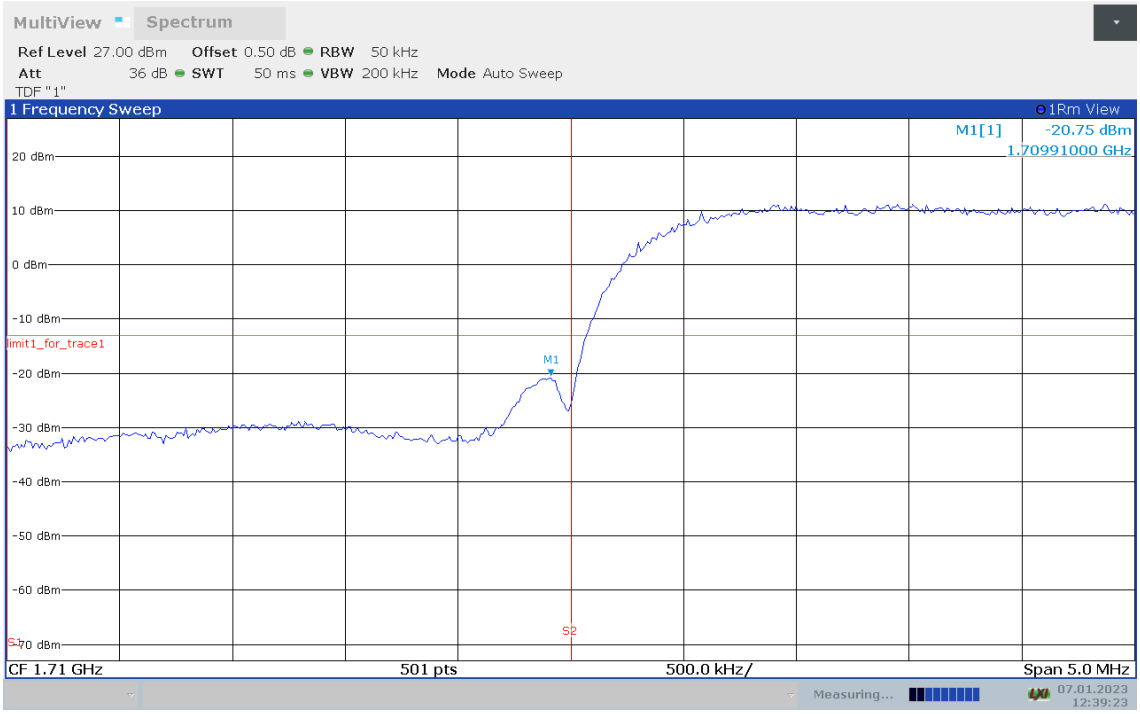
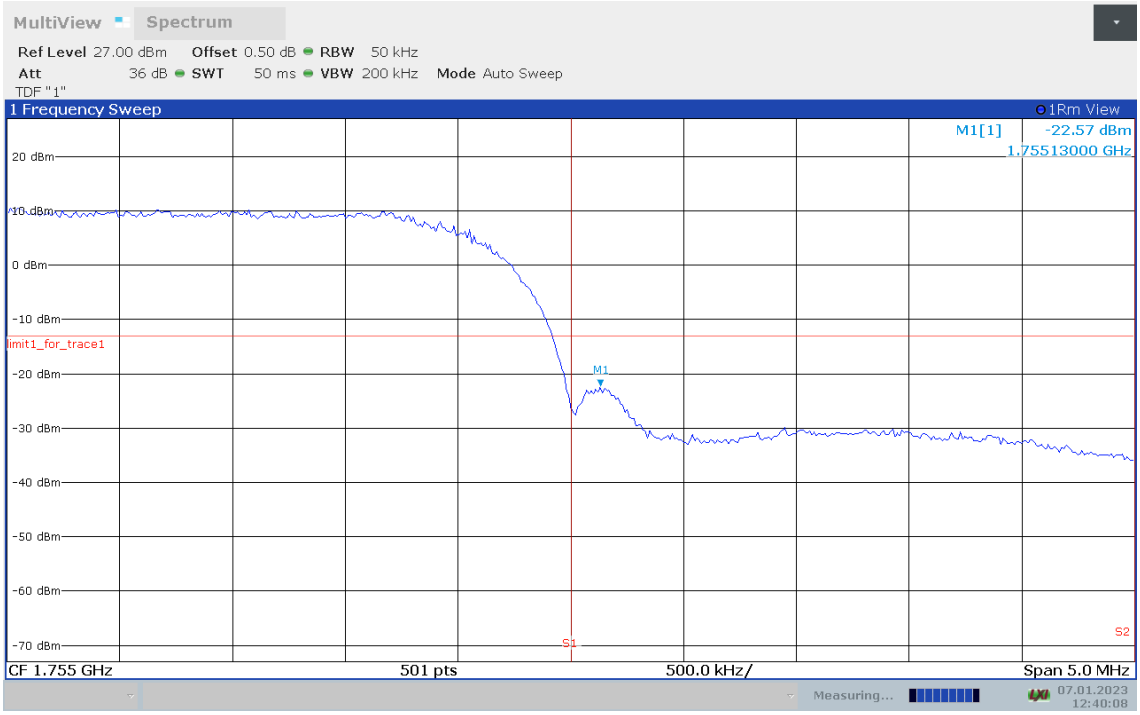
WCDMA Band IV

LOW BAND EDGE BLOCK-A -Channel 1312



HIGH BAND EDGE BLOCK-C–Channel 1513



Note: Expanded measurement uncertainty is U = 0.49 dB(100KHz-2GHz)/1.21 dB (2GHz-26.5GHz), k = 1.96

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A.6 CONDUCTED SPURIOUS EMISSION

A.6.1 Measurement Method

The following steps outline the procedure used to measure the conducted emissions from the EUT.

1. In measuring unwanted emissions, the spectrum shall be investigated from 30 MHz or the lowest radio frequency signal generated in the equipment, whichever is lower, without going below 9 kHz, up to at least the frequency given below:
   a) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
   b) If the equipment operates at or above 10 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
2. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.
3. The number of sweep points of spectrum analyzer is greater than 2×span/RBW

A.6.2 Measurement Limit

Part 22.917, Part 24.238 and Part 27.53(h) specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

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A.6.3 Measurement result

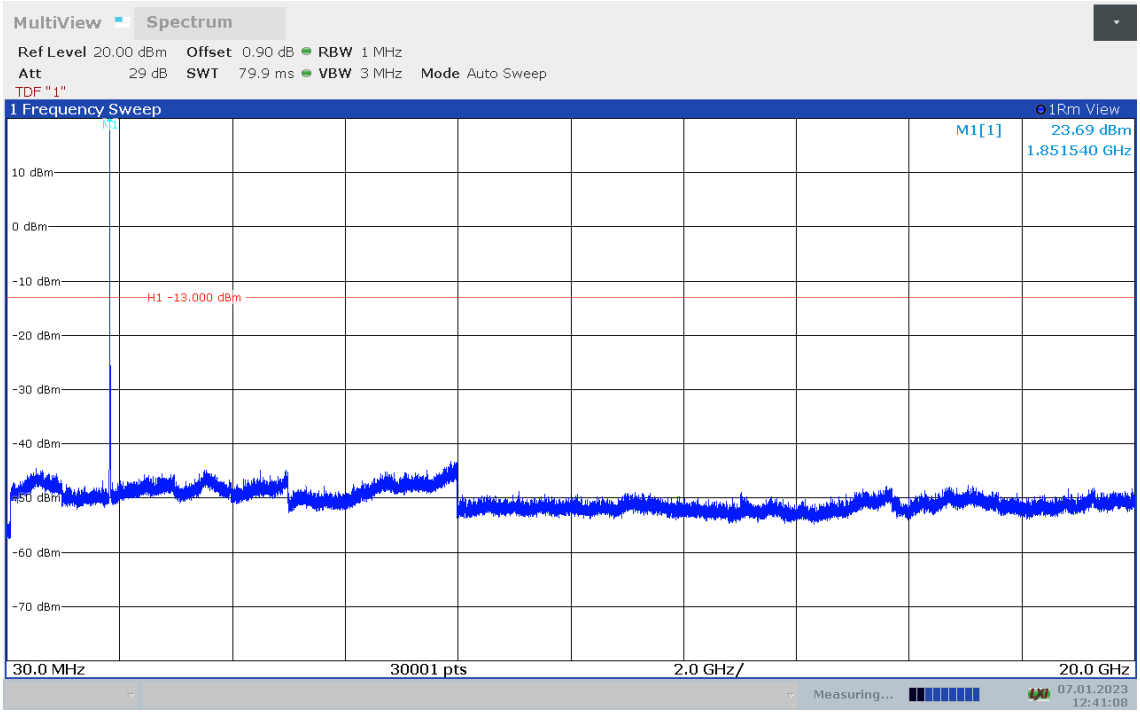
Only worst case result is given below

WCDMA Band Ⅱ

Channel 9262: 30MHz –19.1GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



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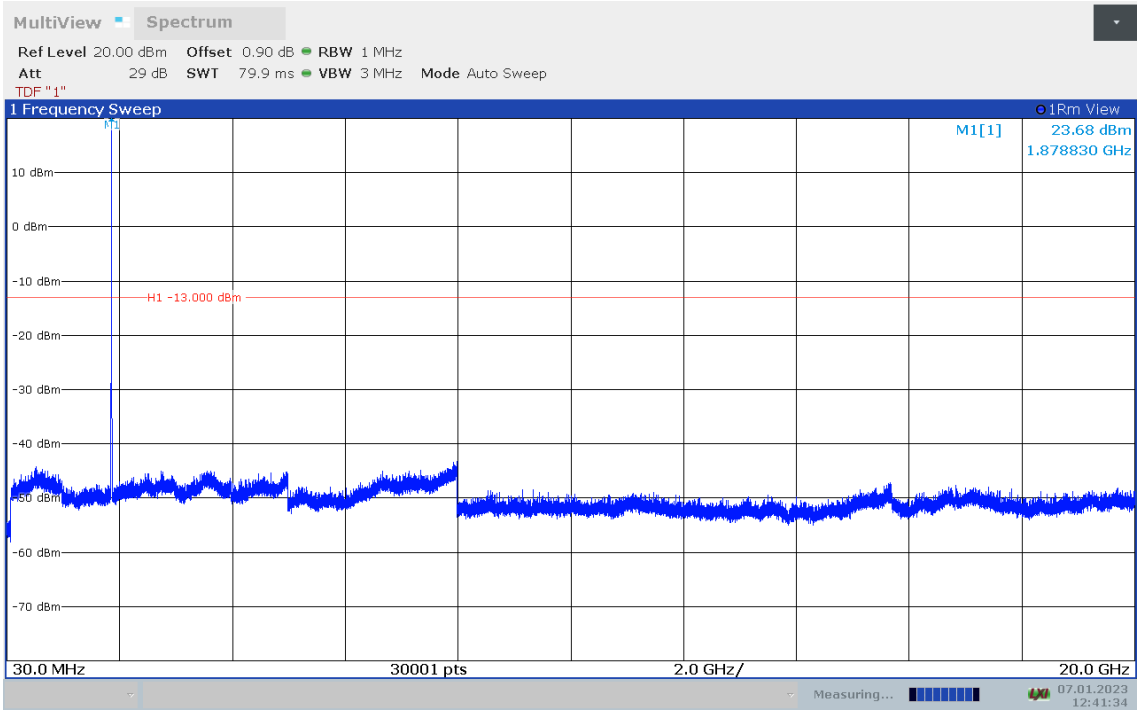
Channel 9400: 30MHz –19.1GHz

Spurious emission limit –13dBm.

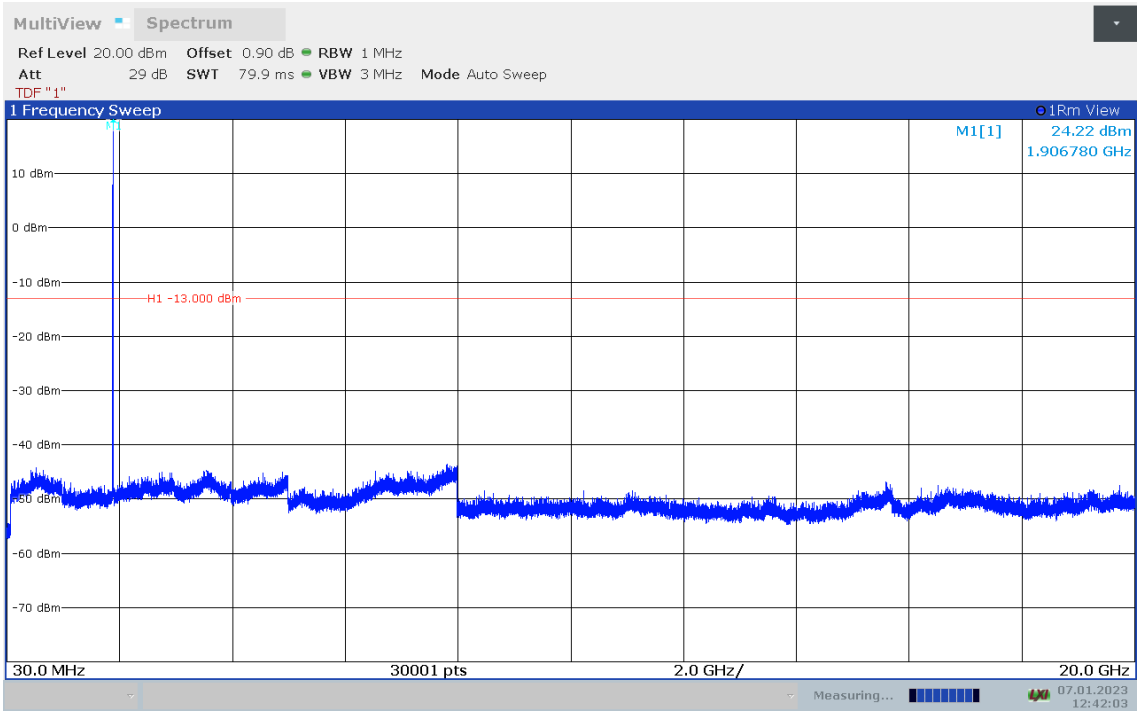
NOTE: peak above the limit line is the carrier frequency.



Channel 9538: 30MHz –19.1GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



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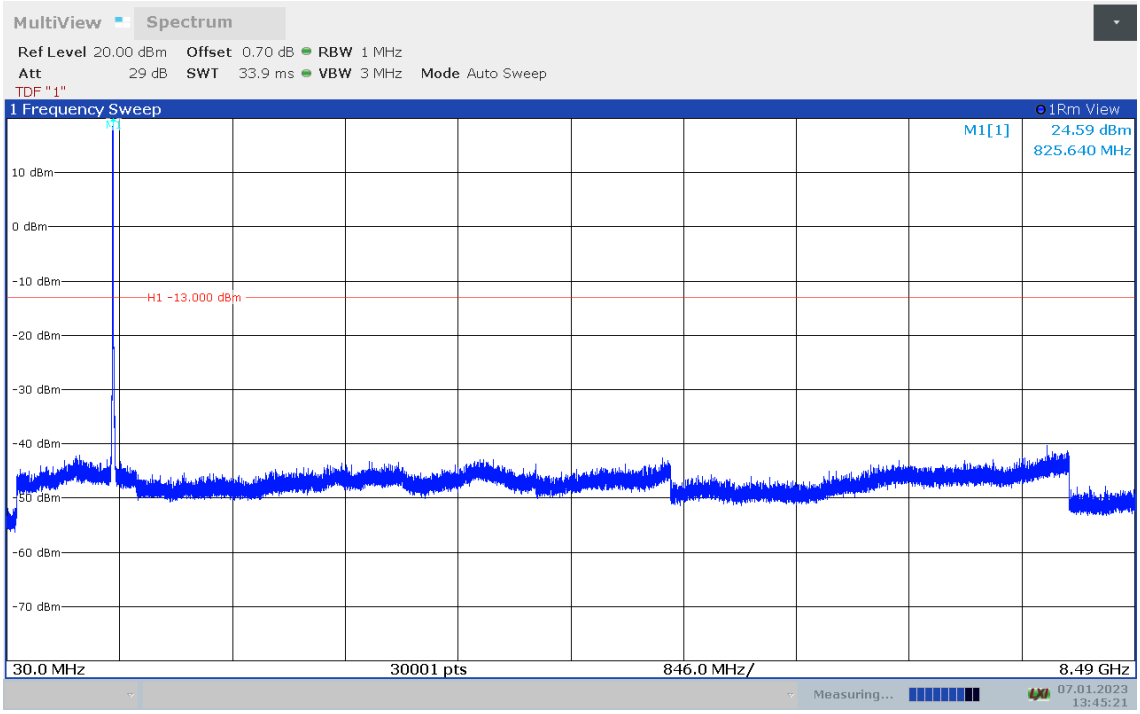
WCDMA Band Ⅴ

Channel 4132: 30MHz –8.49GHz

Spurious emission limit –13dBm.

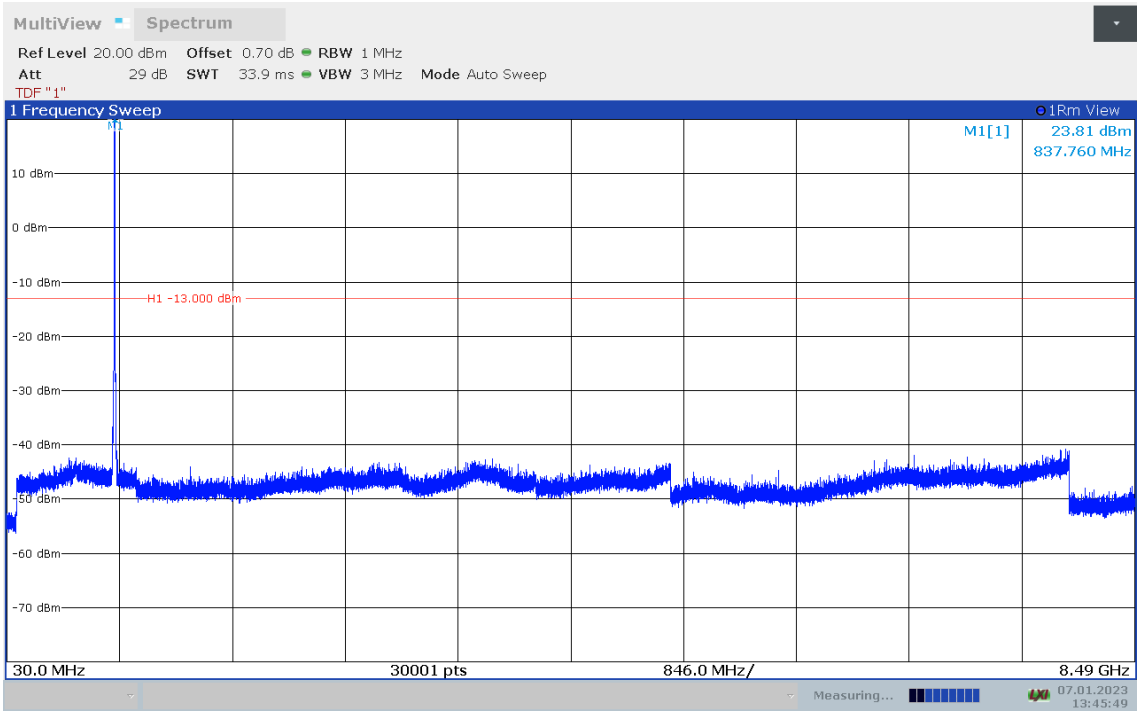
NOTE: peak above the limit line is the carrier frequency.



Channel 4183: 30MHz –8.49GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



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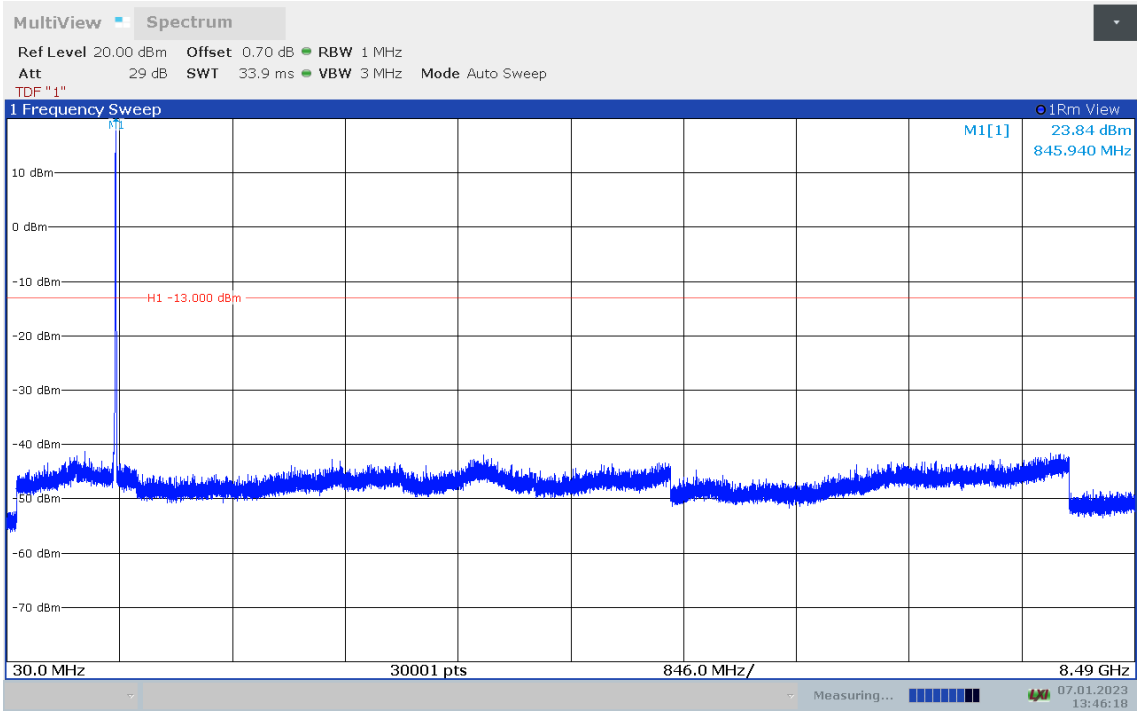
Channel 4233: 30MHz –8.49GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



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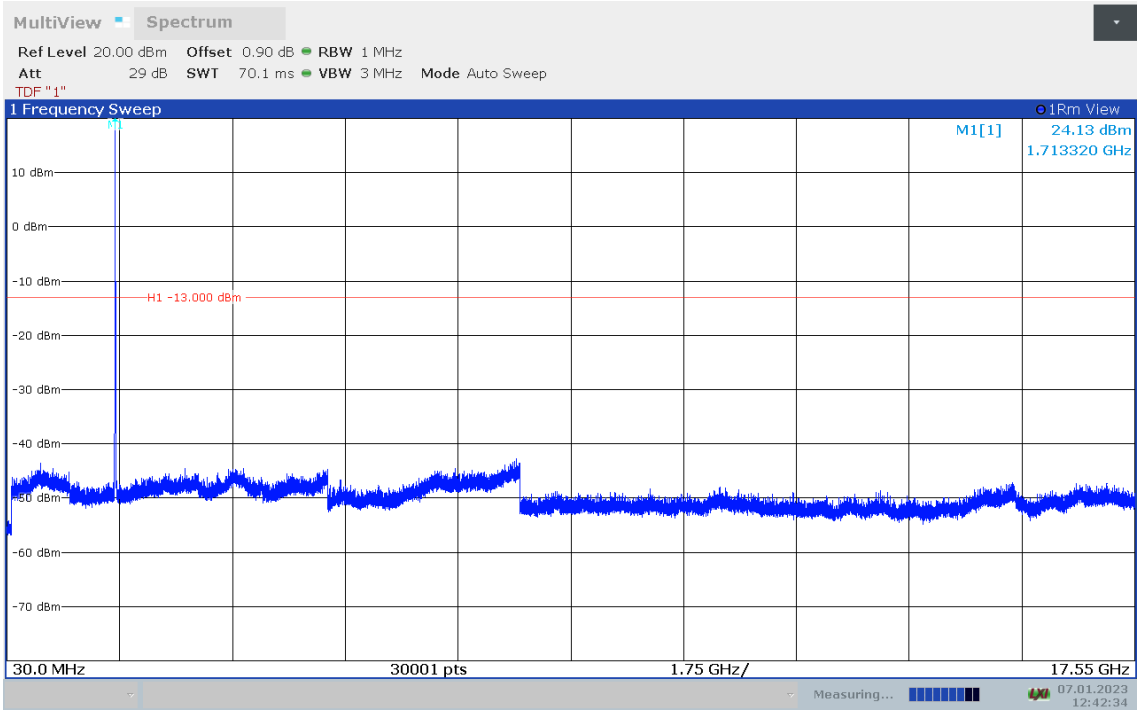
WCDMA Band IV

Channel 1312: 30MHz –17.55GHz

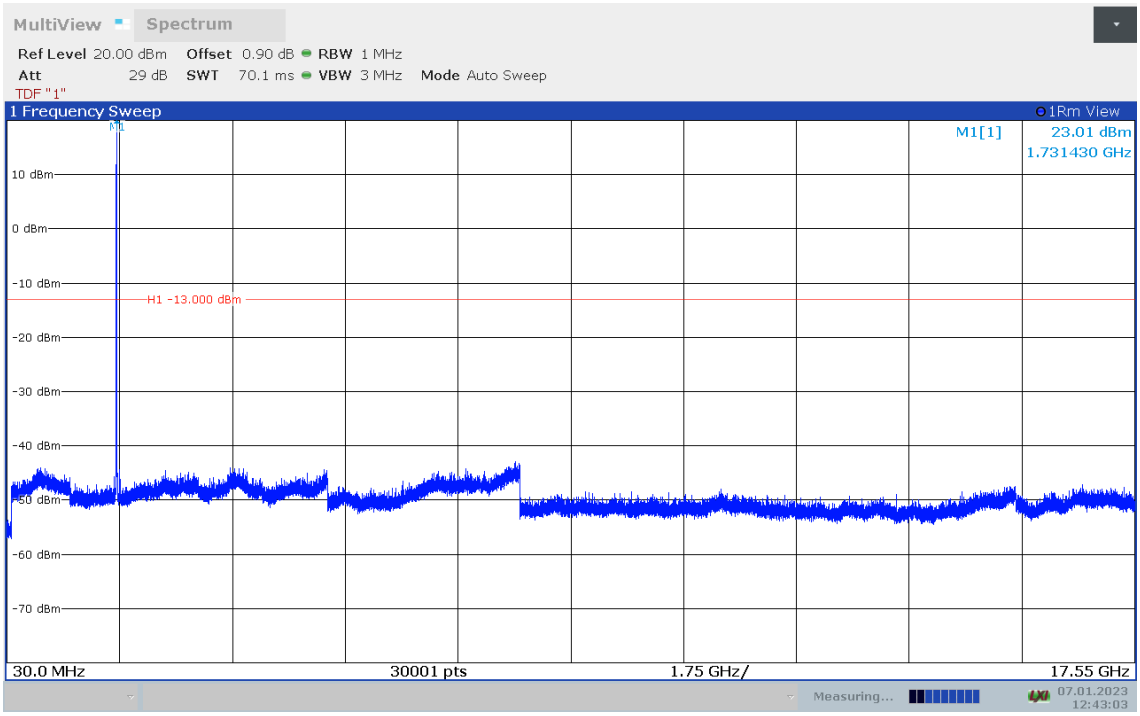
Spurious emission limit –13dBm.



Channel 1412: 30MHz –17.55GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



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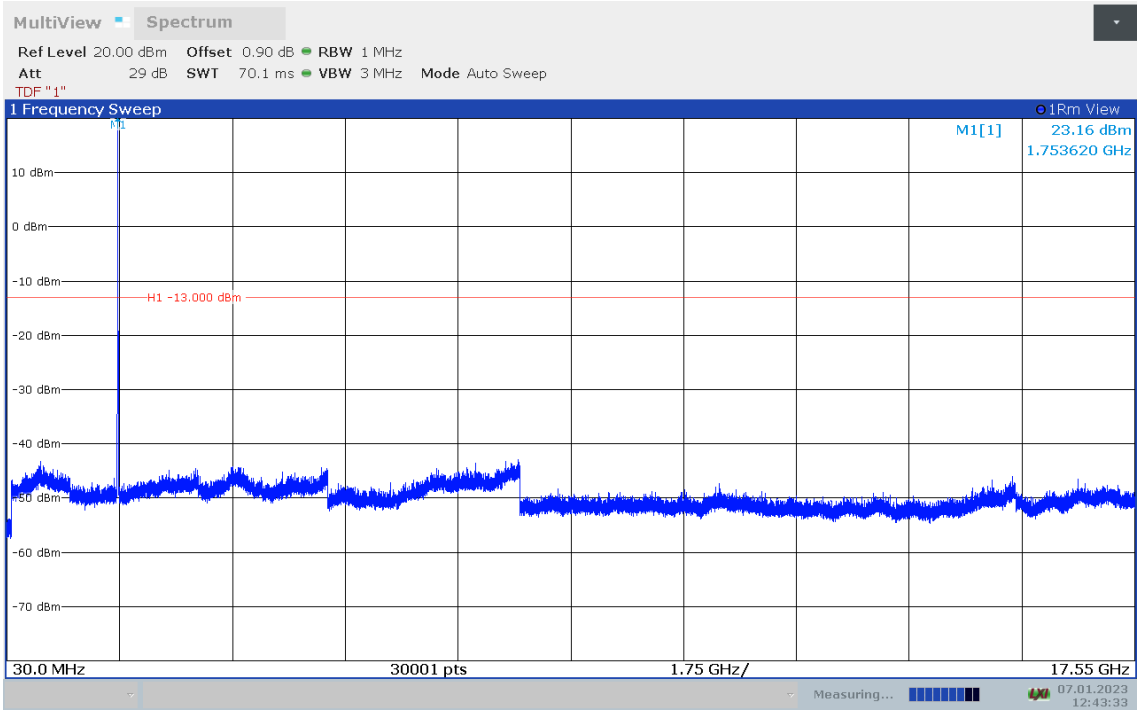
Channel 1513: 30MHz –17.55GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



Note: Expanded measurement uncertainty is *U* = 0.49 dB(100KHz-2GHz)/1.21 dB (2GHz-26.5GHz), *k* = 1.96

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A.7 PEAK-TO-AVERAGE POWER RATIO

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB

a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;

b) Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;

c) Set the number of counts to a value that stabilizes the measured CCDF curve;

d) Record the maximum PAPR level associated with a probability of 0.1%.

Measurement results

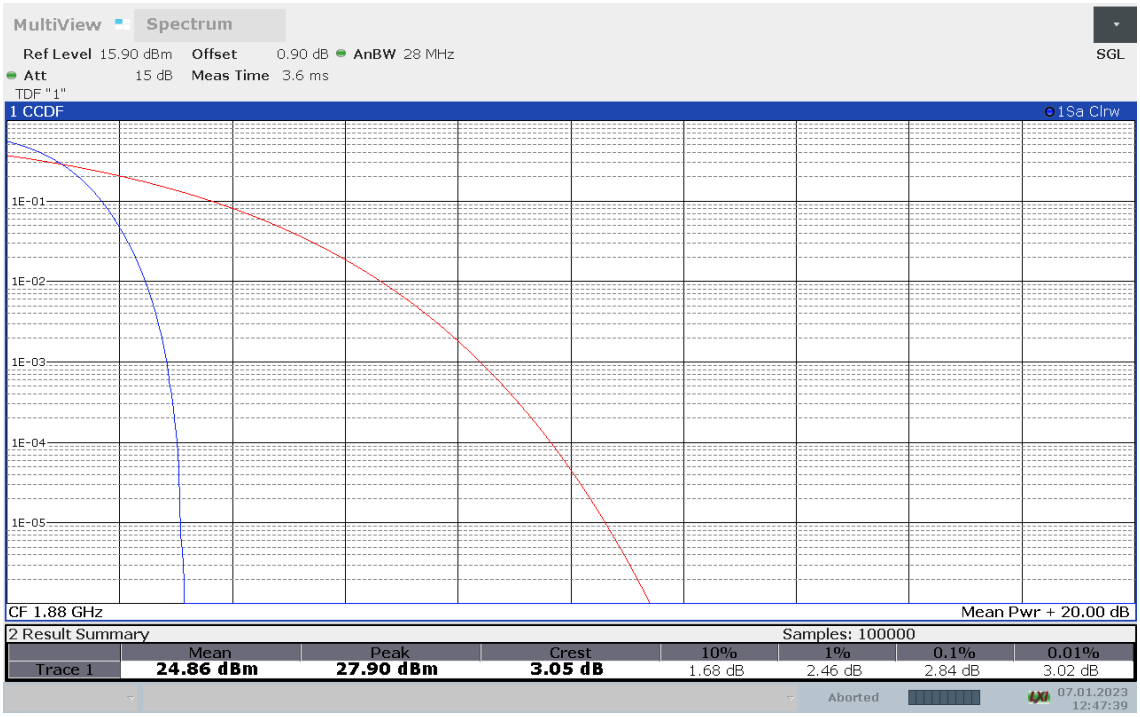
Only worst case result is given below

WCDMA Band II (PAPR)-QPSK

Frequency(MHz)	Peak-To-Average Power Ratio(PAPR)(dB)
1880.0	2.84

WCDMA Band II

Channel 9400- Peak-To-Average Power Ratio(PAPR)-QPSK



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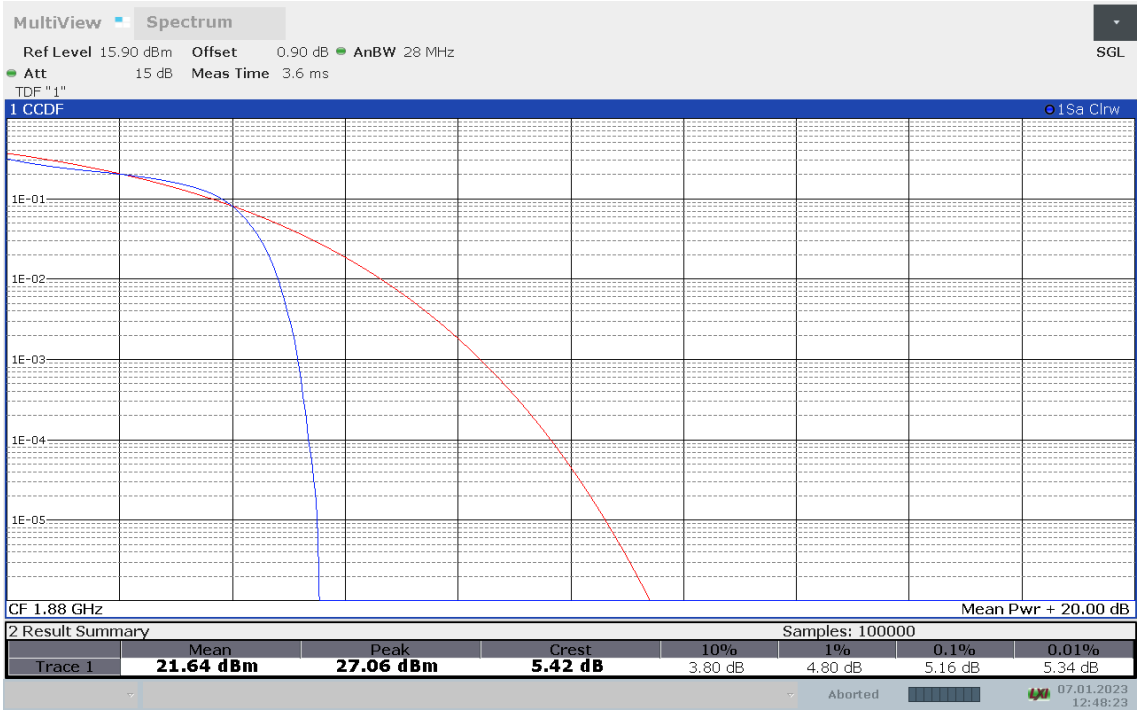
WCDMA Band II (PAPR)-16QAM

Frequency(MHz)	Peak-To-Average Power Ratio(PAPR)(dB)
1880.0	5.16

WCDMA Band II

Channel 9400- Peak-To-Average Power Ratio(PAPR)-16QAM



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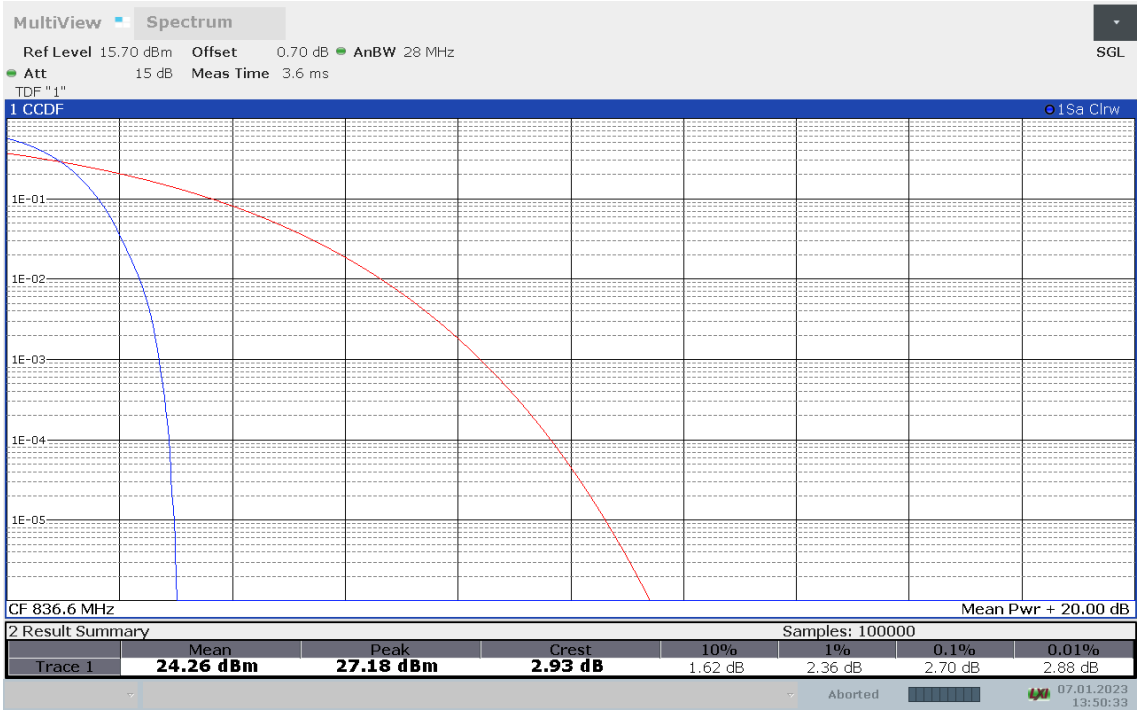
WCDMA Band V (PAPR)-QPSK

Frequency(MHz)	Peak-To-Average Power Ratio(PAPR)(dB)
836.6	2.70

WCDMA Band V

Channel 4183- Peak-To-Average Power Ratio(PAPR)-QPSK



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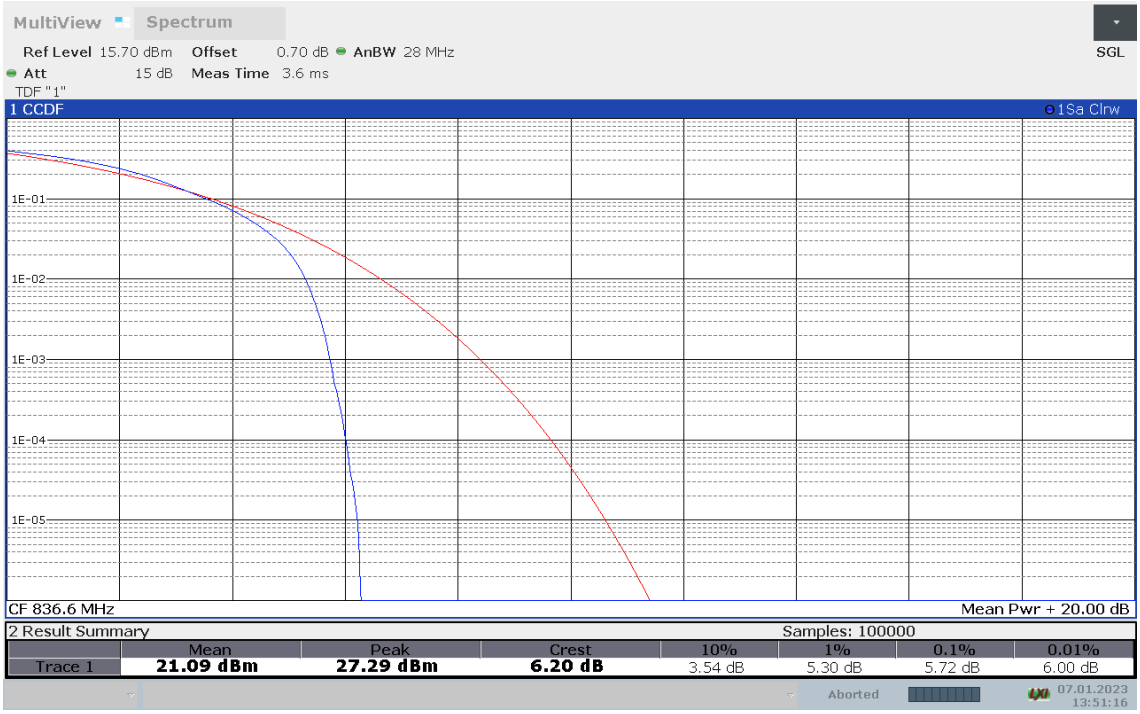
WCDMA Band V (PAPR)-16QAM

Frequency(MHz)	Peak-To-Average Power Ratio(PAPR)(dB)
836.6	5.72

WCDMA Band V

Channel 4183- Peak-To-Average Power Ratio(PAPR)-16QAM



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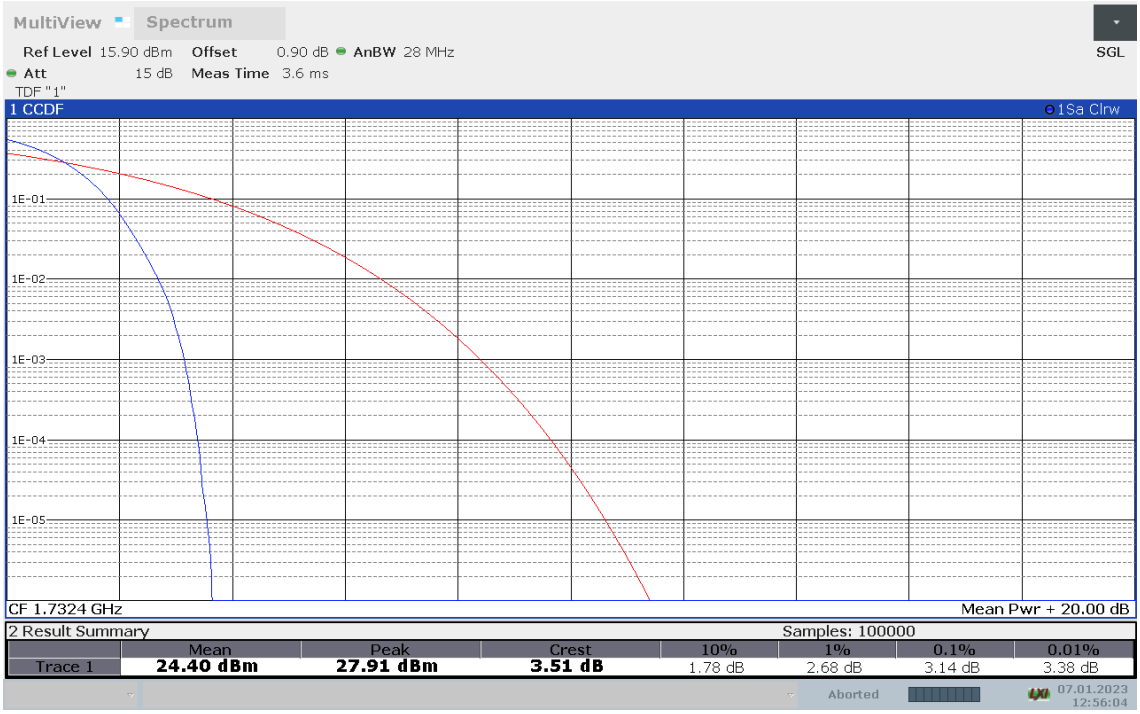
WCDMA Band IV (PAPR)-QPSK

Frequency(MHz)	Peak-To-Average Power Ratio(PAPR)(dB)
1732.4	3.14

WCDMA Band IV

Channel 1412- Peak-To-Average Power Ratio(PAPR)-QPSK



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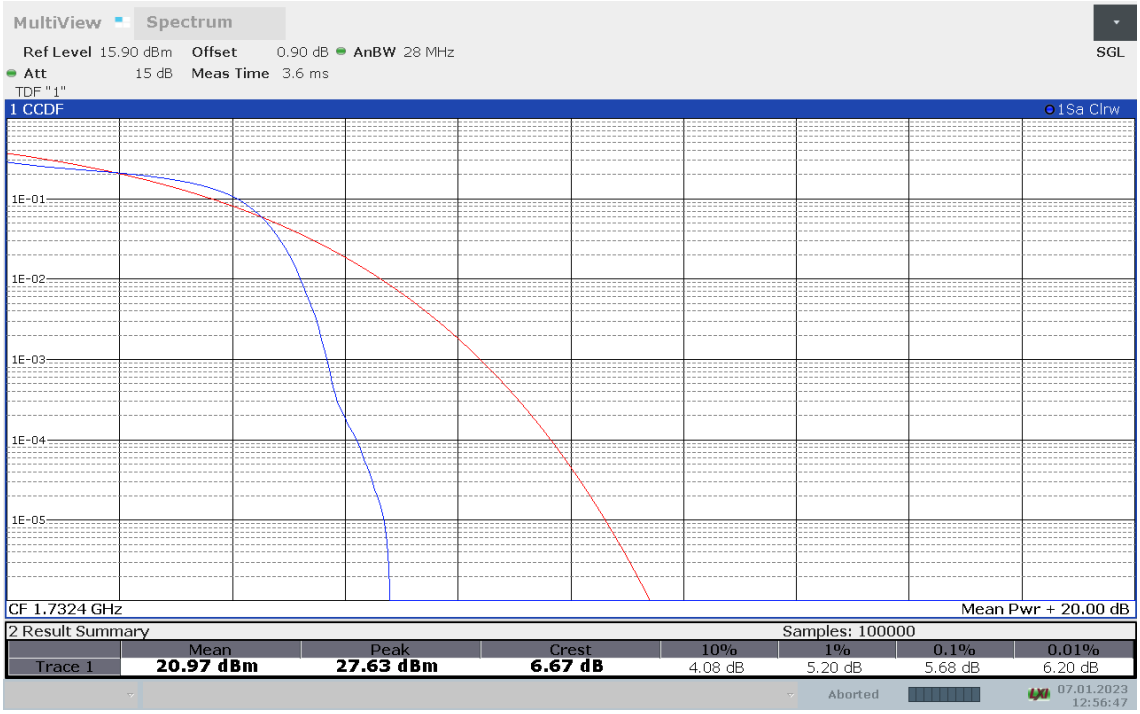
WCDMA Band IV (PAPR)-16QAM

Frequency(MHz)	Peak-To-Average Power Ratio(PAPR)(dB)
1732.4	5.68

WCDMA Band IV

Channel 1412- Peak-To-Average Power Ratio(PAPR)-16QAM



Note: Expanded measurement uncertainty is U = 0.48 dB, k = 2

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ANNEX B ccreditation Certificate

Accredited Laboratory

A2LA has accredited

SHENZHEN ACADEMY OF INFORMATION AND COMMUNICATIONS TECHNOLOGY

Shenzhen, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 23rd day of November 2021.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 4353.01
Valid to November 30, 2023

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

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ANNEX C Certificate of Brand Authorization

编号 No.：CTTL-001

TTL泰爾實驗室

品牌授权书

Certificate of Brand Authorization

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China Academy of Information and Communication Technology（CAICT）

授权日期：2019 年 10 月 30 日

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