



TEST REPORT

No. I22Z62512-WMD03

for

HONOR Device Co., Ltd.

Smart Phone

Model Name: RBN-NX3

FCC ID: 2AYGCRBN-NX3

with

Hardware Version: HN1RBNM

Software Version: 6.1.0.100 (C900E100R1P1)

Issued Date: 2023-02-14

Note:

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The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z62512-WMD03	Rev.0	1 st edition	2023-02-14

Note: the latest revision of the test report supersedes all previous version.

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1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0 and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (CN0066). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Location 1: CTTL (huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
P. R. China 100191

1.3. Testing Environment

Normal Temperature: 15-35℃
Relative Humidity: 20-75%

1.4. Project Data

Testing Start Date: 2022-12-29
Testing End Date: 2023-02-06

1.5. Signature



Dong Yuan
(Prepared this test report)



Zhou Yu
(Reviewed this test report)



Zhao Hui Lin
Deputy Director of the laboratory
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: HONOR Device Co., Ltd.
Suite 3401, Unit A, Building 6, Shum Yip Sky Park, No.8089, Hongli
Address /Post: West Road, Xiangmihu Street, Futian District, Shenzhen, Guangdong
518040, People's Republic of China

2.2. Manufacturer Information

Company Name: HONOR Device Co., Ltd.
Suite 3401, Unit A, Building 6, Shum Yip Sky Park, No.8089, Hongli
Address /Post: West Road, Xiangmihu Street, Futian District, Shenzhen, Guangdong
518040, People's Republic of China

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description Smart Phone

Model Name RBN-NX3

FCC ID 2AYGCRBN-NX3

Antenna Internal

Extreme vol. Limits 3.6VDC to 4.45VDC (nominal: 3.87VDC)

Extreme temp. Tolerance 0°C to +35°C

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

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version	Date of receipt
UT03a	861571060012125/ 861571060030127	HN1RBNM	6.1.0.100 (C900E100R1P1)	2022-12-29

*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 Battery

AE3 Battery

AE4 Battery

AE1

Model HB496590EFW

Manufacturer SCUD

Capacitance 4900mAh

AE2

Model HB496590EFW-F

Manufacturer SCUD

Capacitance 4900mAh

AE3

Model HB496590EFW

Manufacturer NVT

Capacitance 4900mAh

AE4

Model HB496590EFW-F

Manufacturer NVT

Capacitance 4900mAh

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



4. Reference Documents

4.1. Documents supplied by applicant

EUT parameters are supplied by the customer, which are the bases of testing. CAICT is not responsible for the accuracy of customer supplied technical information that may affect the test results (for example, antenna gain and loss of customer supplied cable).

4.2. Reference Documents for testing

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

Reference	Title	Version
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	10-1-21 Edition
FCC Part 22	PUBLIC MOBILE SERVICES	10-1-21 Edition
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	10-1-21 Edition
FCC Part 90	PRIVATE LAND MOBILE RADIO SERVICES	10-1-21 Edition
ANSI/TIA-603-E	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	2016
ANSI C63.26	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services	2015
KDB 971168 D01	MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS	v03r01

5. Summary Of Test Result

LTE Band 2

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	24.232	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	24.238	P
5	Band Edge Compliance	24.238	P
6	Conducted Spurious Emission	24.238	P
7	Peak-to-Average Power Ratio	24.232	P

LTE Band 4

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	27.53	P
5	Band Edge Compliance	27.53	P
6	Conducted Spurious Emission	27.53	P
7	Peak-to-Average Power Ratio	27.50	P

LTE Band 5

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	22.913	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	22.917	P
5	Band Edge Compliance	22.917	P
6	Conducted Spurious Emission	22.917	P

LTE Band 7

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	27.53	P
5	Band Edge Compliance	27.53	P
6	Conducted Spurious Emission	27.53	P
7	Peak-to-Average Power Ratio	27.50	P

LTE Band 12

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	27.53	P
5	Band Edge Compliance	27.53	P
6	Conducted Spurious Emission	27.53	P
7	Peak-to-Average Power Ratio	27.50	P

LTE Band 13

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	27.53	P
5	Band Edge Compliance	27.53	P
6	Conducted Spurious Emission	27.53	P
7	Peak-to-Average Power Ratio	27.50	P

LTE Band 17

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	27.53	P
5	Band Edge Compliance	27.53	P
6	Conducted Spurious Emission	27.53	P
7	Peak-to-Average Power Ratio	27.50	P

LTE Band 26(814MHz~824MHz)

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	90.635	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	2.1049	P
5	Band Edge Compliance	90.691	P
6	Conducted Spurious Emission	90.691	P

LTE Band 26(824MHz~849MHz)

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	22.913	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	22.917	P
5	Band Edge Compliance	22.917	P
6	Conducted Spurious Emission	22.917	P

LTE Band 38

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	27.53	P
5	Band Edge Compliance	27.53	P
6	Conducted Spurious Emission	27.53	P
7	Peak-to-Average Power Ratio	27.50	P

LTE Band 41

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	27.53	P
5	Band Edge Compliance	27.53	P
6	Conducted Spurious Emission	27.53	P
7	Peak-to-Average Power Ratio	27.50	P

LTE Band 66

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Frequency Stability	2.1055	P
3	Occupied Bandwidth	2.1049	P
4	Emission Bandwidth	27.53	P
5	Band Edge Compliance	27.53	P
6	Conducted Spurious Emission	27.53	P
7	Peak-to-Average Power Ratio	27.50	P

Terms used in Verdict column

P	Pass. The EUT complies with the essential requirements in the standard.
NP	Not Performed. The test was not performed by CTTL.
NA	Not Applicable. The test was not applicable.
BR	Re-use test data from basic model report.
F	Fail. The EUT does not comply with the essential requirements in the standard.

All the test results are based on normal power.

LTE Band 41 is tested by power class 2.

Explanation of worst-case configuration

The worst-case scenario for all measurements is based on the conducted output power measurement investigation results. Output power was measured on QPSK, 16QAM and 64QAM modulations. It was found that QPSK was the worst case. All testing was performed using QPSK modulations to represent the worst case unless otherwise stated. The test results shown in the following sections represent the worst case emission.

6. Test Equipment Utilized

Description	Type	Series Number	Manufacture	Cal Due Date	Calibration Interval
Wideband Radio Communication Tester	CMW500	159082	R&S	2023-01-17	25 months
Wideband Radio Communication Tester	CMW500	159082	R&S	2024-01-09	1 year
Spectrum Analyzer	FSU	200030	R&S	2023-05-25	1 year
Climate Chamber	SH-242	93008556	ESPEC	2023-12-23	3 years

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 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.

The results below include a correction factor for cable loss that is provided by the customer.

A.1.3 Measurement Result

LTE band 2

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1909.3	23.15	22.30	21.23
		1880.0	23.20	22.43	21.45
		1850.7	23.01	22.07	21.55
	1 RB low	1909.3	23.13	22.30	21.18
		1880.0	23.18	22.41	21.44
		1850.7	23.06	22.09	21.52
	50% RB mid	1909.3	23.14	22.43	21.31
		1880.0	23.18	22.37	21.58
		1850.7	23.17	22.34	21.50
	100% RB	1909.3	22.19	21.14	20.53
		1880.0	22.29	21.50	20.30
		1850.7	22.23	21.33	20.19
3MHz	1 RB high	1908.5	23.26	22.35	21.19
		1880.0	23.32	22.38	21.33
		1851.5	23.16	22.22	21.19
	1 RB low	1908.5	23.28	22.36	21.30
		1880.0	23.31	22.36	21.25
		1851.5	23.18	22.26	21.19
	50% RB mid	1908.5	22.32	21.41	20.28
		1880.0	22.37	21.44	20.33
		1851.5	22.27	21.34	20.19
	100% RB	1908.5	22.33	21.33	20.40
		1880.0	22.26	21.32	20.35

		1851.5	22.27	21.20	20.30
5MHz	1 RB high	1907.5	23.24	22.34	21.43
		1880.0	23.28	22.37	21.47
		1852.5	23.19	22.34	21.36
	1 RB low	1907.5	23.26	22.36	21.43
		1880.0	23.28	22.38	21.44
		1852.5	23.20	22.31	21.37
	50% RB mid	1907.5	22.33	21.37	20.40
		1880.0	22.40	21.34	20.44
		1852.5	22.23	21.31	20.32
	100% RB	1907.5	22.31	21.26	20.36
		1880.0	22.30	21.27	20.34
		1852.5	22.25	21.20	20.24
10MHz	1 RB high	1905.0	23.23	22.40	21.24
		1880.0	23.30	22.40	21.21
		1855.0	23.20	22.31	21.21
	1 RB low	1905.0	23.29	22.40	21.28
		1880.0	23.32	22.43	21.28
		1855.0	23.24	22.30	21.24
	50% RB mid	1905.0	22.35	21.45	20.46
		1880.0	22.32	21.40	20.41
		1855.0	22.25	21.36	20.35
	100% RB	1905.0	22.37	21.39	20.38
		1880.0	22.33	21.36	20.34
		1855.0	22.25	21.27	20.28
15MHz	1 RB high	1902.5	23.13	22.58	21.61
		1880.0	23.15	22.60	21.55
		1857.5	23.12	22.54	21.65
	1 RB low	1902.5	23.13	22.60	21.58
		1880.0	23.17	22.62	21.64
		1857.5	23.13	22.58	21.59
	50% RB mid	1902.5	22.31	21.26	20.33
		1880.0	22.27	21.19	20.29
		1857.5	22.23	21.17	20.26
	100% RB	1902.5	22.28	21.26	20.36
		1880.0	22.21	21.23	20.28
		1857.5	22.15	21.20	20.25
20MHz	1 RB high	1900.0	23.17	22.55	21.40
		1880.0	23.15	22.75	21.10
		1860.0	23.11	22.78	21.14
	1 RB low	1900.0	23.23	22.58	21.47
		1880.0	23.15	22.78	21.07
		1860.0	23.00	22.65	20.99

	50% RB mid	1900.0	22.28	21.29	20.34
		1880.0	22.26	21.22	20.31
		1860.0	22.27	21.20	20.24
	100% RB	1900.0	22.28	21.31	20.36
		1880.0	22.24	21.23	20.29
		1860.0	22.22	21.22	20.27

LTE band 4

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1754.3	23.30	22.39	21.38
		1732.5	23.14	22.31	21.20
		1710.7	23.25	22.35	21.79
	1 RB low	1754.3	23.25	22.41	21.36
		1732.5	23.12	22.25	21.20
		1710.7	23.23	22.30	21.74
	50% RB mid	1754.3	23.18	22.51	21.23
		1732.5	23.11	22.43	21.34
		1710.7	23.25	22.51	21.44
	100% RB	1754.3	22.29	21.44	20.42
		1732.5	22.21	21.14	20.50
		1710.7	22.32	21.24	20.61
3MHz	1 RB high	1753.5	23.22	22.83	21.60
		1732.5	23.21	22.30	21.22
		1711.5	23.31	22.40	21.33
	1 RB low	1753.5	23.31	22.92	21.65
		1732.5	23.26	22.36	21.25
		1711.5	23.37	22.38	21.42
	50% RB mid	1753.5	22.37	21.45	20.35
		1732.5	22.29	21.37	20.25
		1711.5	22.42	21.48	20.39
	100% RB	1753.5	22.35	21.33	20.43
		1732.5	22.28	21.26	20.37
		1711.5	22.41	21.43	20.48
5MHz	1 RB high	1752.5	23.20	22.18	21.27
		1732.5	23.17	22.32	21.36
		1712.5	23.31	22.44	21.50
	1 RB low	1752.5	23.26	22.25	21.32
		1732.5	23.19	22.33	21.38
		1712.5	23.34	22.48	21.51
	50% RB mid	1752.5	22.31	21.46	20.39
		1732.5	22.28	21.33	20.36
		1712.5	22.36	21.45	20.46
	100% RB	1752.5	22.35	21.36	20.38
		1732.5	22.27	21.22	20.26
		1712.5	22.37	21.39	20.38
10MHz	1 RB high	1750.0	23.21	22.51	21.50
		1732.5	23.19	22.31	21.18
		1715.0	23.29	22.36	21.25
	1 RB low	1750.0	23.28	22.50	21.40

		1732.5	23.22	22.39	21.26
		1715.0	23.39	22.47	21.37
	50% RB mid	1750.0	22.37	21.40	20.43
		1732.5	22.29	21.40	20.36
		1715.0	22.36	21.53	20.39
	100% RB	1750.0	22.30	21.32	20.38
		1732.5	22.28	21.30	20.32
		1715.0	22.33	21.35	20.34
15MHz	1 RB high	1747.5	23.15	22.39	21.27
		1732.5	23.11	22.57	21.63
		1717.5	23.15	22.64	21.62
	1 RB low	1747.5	23.21	22.51	21.32
		1732.5	23.19	22.66	21.69
		1717.5	23.30	22.77	21.83
	50% RB mid	1747.5	22.33	21.30	20.45
		1732.5	22.25	21.20	20.28
		1717.5	22.23	21.28	20.29
	100% RB	1747.5	22.23	21.25	20.26
		1732.5	22.19	21.23	20.27
		1717.5	22.27	21.28	20.38
20MHz	1 RB high	1745.0	23.16	22.81	21.23
		1732.5	23.17	22.81	21.22
		1720.0	23.13	22.79	21.12
	1 RB low	1745.0	23.06	22.69	21.10
		1732.5	23.10	22.74	21.14
		1720.0	23.22	22.87	21.22
	50% RB mid	1745.0	22.36	21.33	20.34
		1732.5	22.23	21.22	20.27
		1720.0	22.20	21.17	20.23
	100% RB	1745.0	22.21	21.24	20.23
		1732.5	22.26	21.26	20.30
		1720.0	22.22	21.25	20.26

LTE band 5

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	848.3	23.80	22.95	21.85
		836.5	23.89	23.01	22.42
		824.7	24.00	23.12	22.03
	1 RB low	848.3	23.78	22.97	21.83
		836.5	23.89	23.01	22.44
		824.7	24.01	23.12	22.08
	50% RB mid	848.3	23.79	23.07	21.98
		836.5	23.94	23.17	22.12
		824.7	23.99	23.25	22.24
	100% RB	848.3	22.89	21.75	21.21
		836.5	23.02	21.92	21.36
		824.7	23.13	21.98	21.42
3MHz	1 RB high	847.5	23.86	22.95	21.82
		836.5	24.01	23.06	22.00
		825.5	24.12	23.21	22.09
	1 RB low	847.5	23.94	23.03	21.91
		836.5	24.05	23.09	22.01
		825.5	24.15	23.21	22.20
	50% RB mid	847.5	22.96	22.02	20.92
		836.5	23.09	22.07	21.05
		825.5	23.15	22.25	21.14
	100% RB	847.5	22.97	21.92	20.97
		836.5	23.02	21.99	21.10
		825.5	23.16	22.16	21.21
5MHz	1 RB high	846.5	23.88	22.99	22.09
		836.5	24.07	23.19	22.26
		826.5	24.15	23.25	22.33
	1 RB low	846.5	23.93	23.04	22.18
		836.5	24.08	23.20	22.24
		826.5	24.21	23.34	22.39
	50% RB mid	846.5	23.03	22.08	21.13
		836.5	23.13	22.08	21.20
		826.5	23.16	22.27	21.26
	100% RB	846.5	23.03	21.92	21.02
		836.5	23.03	22.00	21.05
		826.5	23.21	22.15	21.25
10MHz	1 RB high	844.0	23.87	23.03	21.88
		836.5	23.97	23.06	21.97
		829.0	24.03	23.14	22.02
	1 RB low	844.0	24.01	23.01	21.98

		836.5	24.03	23.08	22.03
		829.0	24.14	23.21	22.18
	50% RB mid	844.0	23.03	22.12	21.21
		836.5	23.13	22.20	21.26
		829.0	23.13	22.30	21.30
	100% RB	844.0	23.02	22.09	21.01
		836.5	23.09	22.13	21.08
		829.0	23.23	22.26	21.23

LTE band 7

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2567.5	22.80	21.85	21.02
		2535.0	22.88	21.99	21.11
		2502.5	22.67	21.60	20.74
	1 RB low	2567.5	22.74	21.82	20.95
		2535.0	22.79	21.92	20.96
		2502.5	22.55	21.47	20.75
	50% RB mid	2567.5	21.83	20.92	19.93
		2535.0	21.97	20.91	20.05
		2502.5	21.71	20.76	19.84
	100% RB	2567.5	21.83	20.86	19.80
		2535.0	21.83	20.81	19.88
		2502.5	21.69	20.68	19.73
10MHz	1 RB high	2565.0	22.78	21.88	20.73
		2535.0	22.86	21.97	20.82
		2505.0	22.65	21.71	20.56
	1 RB low	2565.0	22.74	21.89	20.76
		2535.0	22.76	21.83	20.69
		2505.0	22.52	21.78	20.51
	50% RB mid	2565.0	21.82	20.98	19.92
		2535.0	21.89	20.94	20.03
		2505.0	21.71	20.83	19.80
	100% RB	2565.0	21.83	20.89	19.89
		2535.0	21.81	20.91	19.87
		2505.0	21.72	20.78	19.77
15MHz	1 RB high	2562.5	22.57	22.02	21.07
		2535.0	22.67	22.12	21.16
		2507.5	22.45	21.90	20.94
	1 RB low	2562.5	22.57	22.05	21.02
		2535.0	22.54	22.02	20.99
		2507.5	22.38	21.85	20.72
	50% RB mid	2562.5	21.70	20.68	19.74
		2535.0	21.78	20.69	19.79
		2507.5	21.58	20.55	19.62
	100% RB	2562.5	21.68	20.72	19.75
		2535.0	21.68	20.68	19.79
		2507.5	21.57	20.60	19.65
20MHz	1 RB high	2560.0	22.54	22.14	20.56
		2535.0	22.63	22.24	20.57
		2510.0	22.44	22.04	20.46
	1 RB low	2560.0	22.53	22.12	20.54

		2535.0	22.47	22.09	20.47
		2510.0	22.25	21.83	20.24
	50% RB mid	2560.0	21.69	20.74	19.71
		2535.0	21.66	20.68	19.75
		2510.0	21.59	20.60	19.67
	100% RB	2560.0	21.75	20.73	19.77
		2535.0	21.71	20.72	19.76
		2510.0	21.62	20.62	19.65

LTE band 12

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	715.3	23.71	22.78	21.79
		707.5	23.74	22.87	21.84
		699.7	23.61	22.78	21.73
	1 RB low	715.3	23.67	22.79	21.78
		707.5	23.69	22.79	21.70
		699.7	23.60	22.75	21.66
	50% RB mid	715.3	23.66	22.97	21.79
		707.5	23.71	22.91	21.92
		699.7	23.62	22.95	21.69
	100% RB	715.3	22.82	21.93	20.85
		707.5	22.73	21.58	21.01
		699.7	22.73	21.90	20.82
3MHz	1 RB high	714.5	23.84	22.86	21.85
		707.5	23.78	22.89	21.81
		700.5	23.70	22.76	21.75
	1 RB low	714.5	23.83	22.90	21.84
		707.5	23.84	22.86	21.80
		700.5	23.79	22.85	21.84
	50% RB mid	714.5	22.89	21.95	20.84
		707.5	22.90	21.90	20.84
		700.5	22.82	21.88	20.77
	100% RB	714.5	22.81	21.80	20.84
		707.5	22.83	21.76	20.87
		700.5	22.81	21.79	20.89
5MHz	1 RB high	713.5	23.83	22.93	22.00
		707.5	23.89	23.05	22.09
		701.5	23.81	22.94	21.97
	1 RB low	713.5	23.79	22.96	21.95
		707.5	23.90	22.98	22.00
		701.5	23.84	22.98	22.03
	50% RB mid	713.5	22.94	21.85	20.99
		707.5	22.92	21.88	21.00
		701.5	22.80	21.89	20.94
	100% RB	713.5	22.83	21.76	20.85
		707.5	22.86	21.87	20.88
		701.5	22.83	21.79	20.87
10MHz	1 RB high	711.0	23.81	22.89	21.81
		707.5	23.84	22.85	21.79
		704.0	23.76	22.86	21.77
	1 RB low	711.0	23.85	22.84	21.83

		707.5	23.71	22.82	21.73
		704.0	23.78	22.85	21.73
	50% RB mid	711.0	22.93	21.98	21.08
		707.5	22.96	21.96	21.05
		704.0	22.87	22.00	21.01
	100% RB	711.0	22.88	21.92	20.89
		707.5	22.89	21.93	20.93
		704.0	22.91	21.96	20.94

LTE band 13

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	784.5	23.45	22.50	21.62
		782.0	23.37	22.36	21.39
		779.5	23.38	22.37	21.41
	1 RB low	784.5	23.43	22.52	21.55
		782.0	23.39	22.37	21.36
		779.5	23.41	22.35	21.40
	50% RB mid	784.5	22.52	21.52	20.62
		782.0	22.50	21.55	20.55
		779.5	22.51	21.56	20.64
	100% RB	784.5	22.45	21.44	20.53
		782.0	22.43	21.51	20.45
		779.5	22.57	21.47	20.55
10MHz	1 RB high	782.0	23.44	22.39	21.42
	1 RB low	782.0	23.46	22.55	21.45
	50% RB mid	782.0	22.53	21.59	20.63
	100% RB	782.0	22.50	21.57	20.53

LTE band 17

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	713.5	23.81	22.93	21.97
		710.0	23.87	23.00	22.02
		706.5	23.81	22.84	21.89
	1 RB low	713.5	23.91	23.06	22.10
		710.0	23.93	23.05	22.08
		706.5	23.86	22.80	21.82
	50% RB mid	713.5	22.92	21.96	21.02
		710.0	22.91	21.96	20.97
		706.5	22.91	21.99	21.05
	100% RB	713.5	22.90	21.86	20.88
		710.0	22.89	21.86	20.93
		706.5	22.95	21.89	20.97
10MHz	1 RB high	711.0	23.77	22.90	21.76
		710.0	23.79	22.86	21.77
		709.0	23.78	22.80	21.75
	1 RB low	711.0	23.79	22.85	21.81
		710.0	23.81	22.81	21.79
		709.0	23.73	22.77	21.73
	50% RB mid	711.0	22.89	22.09	21.00
		710.0	22.87	22.00	21.00
		709.0	22.95	22.10	21.08
	100% RB	711.0	22.89	21.97	20.95
		710.0	22.94	21.96	20.93
		709.0	22.91	21.93	20.94

LTE band 26(814MHz~824MHz)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	823.3	24.04	23.11	22.06
		819.0	23.97	23.17	22.07
		814.7	24.10	23.20	22.12
	1 RB low	823.3	23.99	23.09	22.06
		819.0	24.03	23.26	21.99
		814.7	24.06	23.23	22.10
	50% RB mid	823.3	24.02	23.28	22.20
		819.0	24.00	23.35	22.10
		814.7	24.06	23.42	22.30
	100% RB	823.3	23.08	21.93	21.40
		819.0	23.05	22.26	21.23
		814.7	23.16	22.02	21.46
3MHz	1 RB high	822.5	24.04	23.10	22.08
		819.0	24.07	23.11	22.06
		815.5	24.14	23.22	22.19
	1 RB low	822.5	24.07	23.11	22.06
		819.0	24.12	23.18	22.12
		815.5	24.26	23.30	22.26
	50% RB mid	822.5	23.13	22.20	21.09
		819.0	23.14	22.17	21.11
		815.5	23.22	22.30	21.16
	100% RB	822.5	23.15	22.09	21.19
		819.0	23.15	22.11	21.23
		815.5	23.19	22.18	21.26
5MHz	1 RB high	821.5	24.09	23.21	22.31
		819.0	24.12	23.28	22.31
		816.5	24.20	23.31	22.39
	1 RB low	821.5	24.12	23.22	22.31
		819.0	24.16	23.29	22.43
		816.5	24.25	23.37	22.45
	50% RB mid	821.5	23.21	22.26	21.29
		819.0	23.24	22.27	21.28
		816.5	23.23	22.28	21.32
	100% RB	821.5	23.20	22.16	21.18
		819.0	23.20	22.14	21.27
		816.5	23.22	22.16	21.23
10MHz	1 RB high	819.0	24.10	23.11	22.13
	1 RB low	819.0	24.17	23.35	22.18
	50% RB mid	819.0	23.23	22.35	21.35
	100% RB	819.0	23.25	22.29	21.25

LTE band 26(824MHz~849MHz)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	848.3	23.77	22.85	22.29
		836.5	23.96	23.10	22.04
		824.7	24.01	23.15	22.03
	1 RB low	848.3	23.79	22.86	22.31
		836.5	23.95	23.07	21.95
		824.7	24.03	23.16	22.05
	50% RB mid	848.3	23.82	23.03	21.99
		836.5	23.93	23.17	22.14
		824.7	24.01	23.33	22.06
	100% RB	848.3	22.86	21.77	21.23
		836.5	23.02	21.88	21.36
		824.7	23.06	22.26	21.16
3MHz	1 RB high	847.5	23.85	22.94	21.83
		836.5	23.99	23.07	22.03
		825.5	24.07	23.14	22.10
	1 RB low	847.5	23.92	23.02	21.90
		836.5	23.98	23.08	21.99
		825.5	24.13	23.13	22.06
	50% RB mid	847.5	22.92	21.98	20.93
		836.5	23.08	22.15	21.04
		825.5	23.11	22.21	21.11
	100% RB	847.5	22.94	21.91	20.98
		836.5	23.07	22.06	21.14
		825.5	23.12	22.11	21.21
5MHz	1 RB high	846.5	23.89	22.98	22.13
		836.5	24.04	23.12	22.23
		826.5	24.09	23.23	22.27
	1 RB low	846.5	23.97	23.07	22.23
		836.5	24.00	23.16	22.19
		826.5	24.10	23.24	22.24
	50% RB mid	846.5	23.00	22.05	21.06
		836.5	23.12	22.07	21.21
		826.5	23.14	22.21	21.26
	100% RB	846.5	23.02	21.95	21.02
		836.5	23.13	22.05	21.18
		826.5	23.16	22.16	21.18
10MHz	1 RB high	844.0	23.91	23.07	21.93
		836.5	23.99	23.07	21.98
		829.0	23.99	23.13	22.01
	1 RB low	844.0	23.98	23.08	21.98

		836.5	24.05	23.06	22.07
		829.0	24.08	23.20	22.07
		844.0	23.07	22.10	21.22
	50% RB mid	836.5	23.11	22.15	21.19
		829.0	23.18	22.30	21.28
		844.0	23.02	22.07	21.11
	100% RB	836.5	23.16	22.19	21.16
		829.0	23.20	22.24	21.20
		844.0	23.02	22.07	21.11
15MHz	1 RB high	841.5	23.85	23.30	22.37
		836.5	23.91	23.39	22.43
		831.5	23.94	23.41	22.49
	1 RB low	841.5	24.02	23.51	22.48
		836.5	24.04	23.51	22.48
		831.5	24.08	23.56	22.53
	50% RB mid	841.5	23.00	21.93	21.00
		836.5	23.02	21.97	21.07
		831.5	23.07	21.99	21.11
	100% RB	841.5	22.93	21.96	21.03
		836.5	22.98	21.98	21.05
		831.5	23.00	22.09	21.08

LTE band 38

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2617.5	23.45	22.50	21.46
		2595.0	23.67	22.68	21.66
		2572.5	23.64	22.72	21.65
	1 RB low	2617.5	23.45	22.49	21.45
		2595.0	23.68	22.80	21.77
		2572.5	23.68	22.78	21.75
	50% RB mid	2617.5	22.48	21.64	20.45
		2595.0	22.60	21.75	20.60
		2572.5	22.65	21.82	20.63
	100% RB	2617.5	22.47	21.48	20.36
		2595.0	22.59	21.63	20.54
		2572.5	22.63	21.69	20.59
10MHz	1 RB high	2615.0	23.41	22.65	21.48
		2595.0	23.61	22.80	21.55
		2575.0	23.61	22.80	21.62
	1 RB low	2615.0	23.48	22.68	21.49
		2595.0	23.59	22.83	21.59
		2575.0	23.62	22.85	21.63
	50% RB mid	2615.0	22.52	21.50	20.47
		2595.0	22.65	21.65	20.63
		2575.0	22.71	21.76	20.64
	100% RB	2615.0	22.51	21.57	20.51
		2595.0	22.62	21.69	20.62
		2575.0	22.66	21.73	20.67
15MHz	1 RB high	2612.5	23.32	22.65	21.60
		2595.0	23.52	22.78	21.74
		2577.5	23.53	22.87	21.84
	1 RB low	2612.5	23.41	22.73	21.72
		2595.0	23.54	22.87	21.81
		2577.5	23.52	22.89	21.85
	50% RB mid	2612.5	22.21	21.44	20.31
		2595.0	22.44	21.57	20.48
		2577.5	22.55	21.65	20.53
	100% RB	2612.5	22.36	21.40	20.40
		2595.0	22.47	21.46	20.54
		2577.5	22.54	21.56	20.59
20MHz	1 RB high	2610.0	23.40	22.70	21.68
		2595.0	23.56	22.86	21.85
		2580.0	23.61	22.93	22.00
	1 RB low	2610.0	23.44	22.70	21.79

		2595.0	23.57	22.85	21.83
		2580.0	23.60	22.84	21.85
	50% RB mid	2610.0	22.32	21.50	20.37
		2595.0	22.50	21.59	20.54
		2580.0	22.60	21.68	20.64
	100% RB	2610.0	22.40	21.40	20.46
		2595.0	22.53	21.51	20.58
		2580.0	22.57	21.58	20.65

LTE band 41

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2687.5	25.39	24.73	23.93
		2593.0	25.72	24.90	24.18
		2498.5	25.58	24.61	23.71
	1 RB low	2687.5	25.34	24.53	23.84
		2593.0	25.63	24.94	24.12
		2498.5	25.56	24.60	23.64
	50% RB mid	2687.5	24.41	23.59	22.40
		2593.0	24.63	23.85	22.64
		2498.5	24.60	23.80	22.60
	100% RB	2687.5	24.39	23.44	22.31
		2593.0	24.68	23.68	22.59
		2498.5	24.63	23.63	22.57
10MHz	1 RB high	2685.0	25.34	24.57	23.38
		2593.0	25.61	24.86	23.63
		2501.0	25.52	24.81	23.58
	1 RB low	2685.0	25.43	24.64	23.39
		2593.0	25.70	24.90	23.67
		2501.0	25.62	24.83	23.58
	50% RB mid	2685.0	24.48	23.53	22.46
		2593.0	24.72	23.71	22.69
		2501.0	24.57	23.68	22.64
	100% RB	2685.0	24.45	23.57	22.46
		2593.0	24.67	23.71	22.64
		2501.0	24.66	23.70	22.58
15MHz	1 RB high	2682.5	25.26	24.58	23.47
		2593.0	25.52	24.87	23.77
		2503.5	25.31	24.67	23.28
	1 RB low	2682.5	25.36	24.67	23.66
		2593.0	25.59	24.92	23.76
		2503.5	25.34	24.77	23.30
	50% RB mid	2682.5	24.24	23.38	22.30
		2593.0	24.55	23.61	22.52
		2503.5	24.40	23.55	22.44
	100% RB	2682.5	24.35	23.39	22.39
		2593.0	24.58	23.59	22.58
		2503.5	24.48	23.50	22.52
20MHz	1 RB high	2680.0	25.33	24.65	23.58
		2593.0	25.60	24.87	23.87
		2506.0	25.43	24.69	23.73
	1 RB low	2680.0	25.44	24.72	23.78

		2593.0	25.59	24.89	23.88
		2506.0	25.43	24.68	23.70
	50% RB mid	2680.0	24.28	23.45	22.32
		2593.0	24.55	23.61	22.62
		2506.0	24.48	23.55	22.52
	100% RB	2680.0	24.44	23.37	22.44
		2593.0	24.57	23.61	22.63
		2506.0	24.50	23.51	22.53

LTE band 66

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1779.3	23.26	22.40	21.63
		1745.0	23.34	22.49	21.55
		1710.7	23.26	22.32	21.57
	1 RB low	1779.3	23.26	22.38	21.59
		1745.0	23.29	22.44	21.50
		1710.7	23.21	22.34	21.49
	50% RB mid	1779.3	23.15	22.39	21.61
		1745.0	23.31	22.56	21.72
		1710.7	23.27	22.43	21.71
	100% RB	1779.3	22.26	21.14	20.31
		1745.0	22.42	21.31	20.72
		1710.7	22.38	21.26	20.43
3MHz	1 RB high	1778.5	23.33	22.38	21.63
		1745.0	23.31	22.40	21.63
		1711.5	23.39	22.44	21.60
	1 RB low	1778.5	23.36	22.42	21.58
		1745.0	23.32	22.36	21.60
		1711.5	23.33	22.44	21.59
	50% RB mid	1778.5	22.32	21.39	20.59
		1745.0	22.45	21.50	20.71
		1711.5	22.43	21.47	20.66
	100% RB	1778.5	22.32	21.30	20.60
		1745.0	22.36	21.35	20.60
		1711.5	22.40	21.40	20.64
5MHz	1 RB high	1777.5	23.22	22.37	21.66
		1745.0	23.32	22.45	21.67
		1712.5	23.33	22.47	21.71
	1 RB low	1777.5	23.24	22.32	21.64
		1745.0	23.32	22.49	21.72
		1712.5	23.35	22.46	21.71
	50% RB mid	1777.5	22.34	21.37	20.67
		1745.0	22.45	21.39	20.71
		1712.5	22.35	21.43	20.68
	100% RB	1777.5	22.33	21.26	20.57
		1745.0	22.34	21.27	20.54
		1712.5	22.40	21.38	20.59
10MHz	1 RB high	1775.0	23.22	22.37	21.60
		1745.0	23.31	22.43	21.72
		1715.0	23.32	22.42	21.67
	1 RB low	1775.0	23.26	22.36	21.66

		1745.0	23.37	22.41	21.68
		1715.0	23.35	22.51	21.73
	50% RB mid	1775.0	22.35	21.39	20.79
		1745.0	22.42	21.47	20.76
		1715.0	22.40	21.48	20.73
	100% RB	1775.0	22.27	21.34	20.62
		1745.0	22.36	21.38	20.65
		1715.0	22.42	21.42	20.71
15MHz	1 RB high	1772.5	23.13	22.61	22.10
		1745.0	23.19	22.67	21.79
		1717.5	23.20	22.65	21.94
	1 RB low	1772.5	23.14	22.63	22.10
		1745.0	23.30	22.72	21.84
		1717.5	23.29	22.75	22.03
	50% RB mid	1772.5	22.31	21.27	20.48
		1745.0	22.34	21.23	20.54
		1717.5	22.31	21.27	20.51
	100% RB	1772.5	22.27	21.24	20.47
		1745.0	22.23	21.24	20.41
		1717.5	22.27	21.27	20.51
20MHz	1 RB high	1770.0	23.13	22.77	22.08
		1745.0	23.23	22.88	22.08
		1720.0	23.23	22.84	22.08
	1 RB low	1770.0	23.07	22.75	22.01
		1745.0	23.19	22.85	22.02
		1720.0	23.19	22.82	22.07
	50% RB mid	1770.0	22.23	21.19	20.45
		1745.0	22.34	21.29	20.53
		1720.0	22.32	21.28	20.47
	100% RB	1770.0	22.19	21.18	20.35
		1745.0	22.26	21.27	20.45
		1720.0	22.31	21.31	20.51

Note: Expanded measurement uncertainty is $U = 0.578$ dB, $k = 2$.

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°C.
3. With the EUT, powered via nominal voltage, connected to the CMW500, and in a simulated call on middle channel for each LTE 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°C increments from -30°C to +50°C. 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 re-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°C.
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 °C decrements from +50°C to -30°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5°C 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.2.2 Measurement results

LTE Band 2, 20MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	1850.321	1909.487		
50				0.10	0.0001
40				0.13	0.0001
30				0.33	0.0002
10				0.07	0.0000
0				1.03	0.0005
-10				-0.84	0.0004
-20				0.62	0.0003
-30				1.66	0.0009

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1850.321	1909.487	-0.94	0.0005
4.45				10.30	0.0055

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

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	1710.481	1754.487		
50				-0.30	0.0002
40				-0.34	0.0002
30				0.29	0.0002
10				1.26	0.0007
0				0.69	0.0004
-10				-1.49	0.0009
-20				-1.02	0.0006
-30				0.70	0.0004

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1710.481	1754.487	1.26	0.0007
4.45				-0.84	0.0005

LTE Band 5, 10MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	824.128	848.856		
50				-0.64	0.0008
40				-1.42	0.0017
30				-1.72	0.0021
10				-0.90	0.0011
0				-6.57	0.0079
-10				-7.27	0.0087
-20				-1.60	0.0019
-30				0.30	0.0004

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	824.128	848.856	-0.29	0.0003
4.45				-0.72	0.0009

LTE Band 7, 20MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	2500.353	2569.679		
50				-10.99	0.0043
40				0.27	0.0001
30				-0.70	0.0003
10				0.03	0.0000
0				0.16	0.0001
-10				0.37	0.0001
-20				-0.92	0.0004
-30				-13.02	0.0051

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2500.353	2569.679	0.24	0.0001
4.45				-0.49	0.0002

LTE Band 12, 10MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	699.385	715.567		
50				-0.89	0.0013
40				-5.58	0.0079
30				-5.64	0.0080
10				-5.79	0.0082
0				-4.95	0.0070
-10				-0.62	0.0009
-20				-6.18	0.0087
-30				-6.19	0.0087

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	699.385	715.567	0.43	0.0006
4.45				-5.76	0.0081

LTE Band 13, 10MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	777.465	786.519		
50				0.72	0.0009
40				0.96	0.0012
30				-5.04	0.0064
10				-4.94	0.0063
0				0.66	0.0008
-10				0.62	0.0008
-20				-6.02	0.0077
-30				-4.85	0.0062

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	777.465	786.519	-0.23	0.0003
4.45				1.72	0.0022

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

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	704.401	715.567		
50				0.20	0.0003
40				0.57	0.0008
30				-0.92	0.0013
10				-0.21	0.0003
0				-0.03	0.0000
-10				-0.80	0.0011
-20				5.01	0.0071
-30				0.76	0.0011

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	704.401	715.567	0.24	0.0003
4.45				6.82	0.0096

LTE Band 26(814MHz~824MHz), 10MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	814.216	823.726		
50				-6.91	0.0084
40				-0.53	0.0006
30				-6.41	0.0078
10				-6.64	0.0081
0				-5.89	0.0072
-10				-6.51	0.0079
-20				-0.69	0.0008
-30				-6.67	0.0081

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	814.216	823.726	-5.98	0.0073
4.45				-6.27	0.0077

LTE Band 26(824MHz~849MHz), 15MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	824.264	848.880		
50				0.40	0.0005
40				-5.55	0.0066
30				-0.30	0.0004
10				-4.62	0.0055
0				-4.65	0.0056
-10				-6.74	0.0081
-20				-6.14	0.0073
-30				-5.89	0.0070

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	824.264	848.880	-0.19	0.0002
4.45				0.53	0.0006

LTE Band 38, 20MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	2570.545	2619.455		
50				-3.98	0.0015
40				-2.75	0.0011
30				-3.86	0.0015
10				-5.54	0.0021
0				-3.99	0.0015
-10				-3.83	0.0015
-20				-3.89	0.0015
-30				-1.75	0.0007

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2570.545	2619.455	-2.85	0.0011
4.45				-7.02	0.0027

LTE Band 41, 20MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	2496.353	2689.551		
50				-0.24	0.0001
40				0.97	0.0004
30				-1.10	0.0004
10				-2.36	0.0009
0				0.16	0.0001
-10				-1.17	0.0005
-20				0.31	0.0001
-30				-0.37	0.0001

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2496.353	2689.551	-1.77	0.0007
4.45				-1.50	0.0006

LTE Band 66, 20MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	1710.449	1779.615		
50				0.87	0.0005
40				0.59	0.0003
30				-0.82	0.0005
10				0.13	0.0001
0				0.54	0.0003
-10				8.35	0.0048
-20				0.62	0.0004
-30				-0.67	0.0004

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1710.449	1779.615	7.27	0.0042
4.45				7.34	0.0042

Note: Expanded measurement uncertainty is U = 0.01 PPM, k = 2.

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 mid frequencies frequency. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.

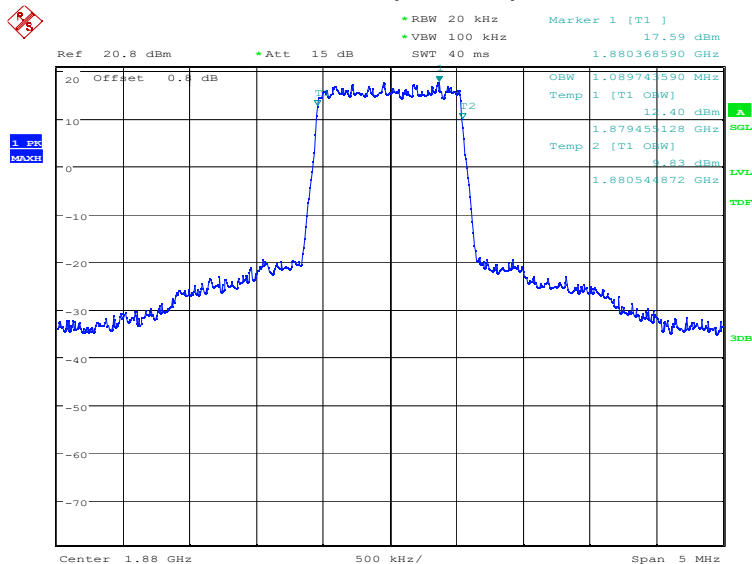
The measurement method is from ANSI C63.26:

- 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 $\geq 3 \times \text{RBW}$.
- 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.

LTE band 2, 1.4MHz (99%)

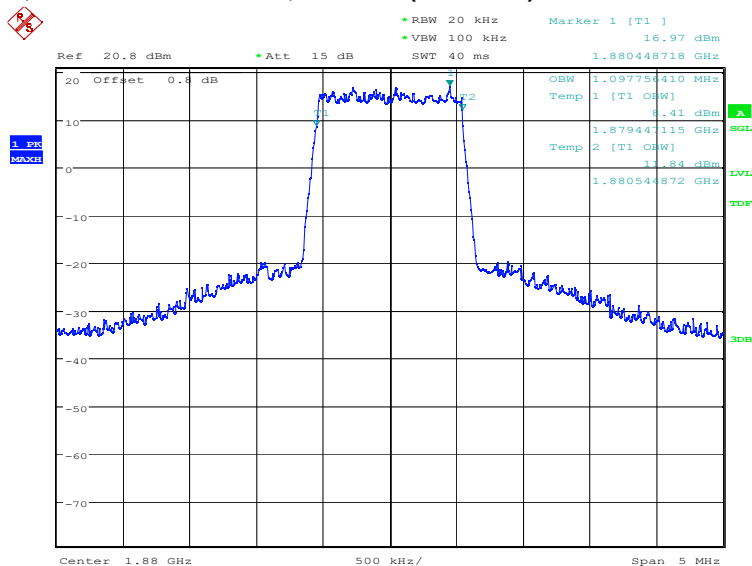
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	1089.74	1097.76

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



Date: 3.JAN.2023 16:10:40

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

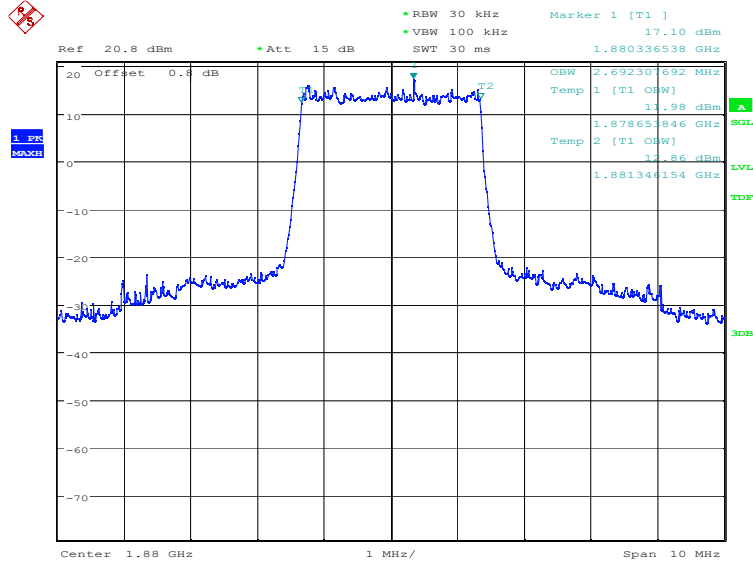


Date: 3.JAN.2023 16:11:20

LTE band 2, 3MHz (99%)

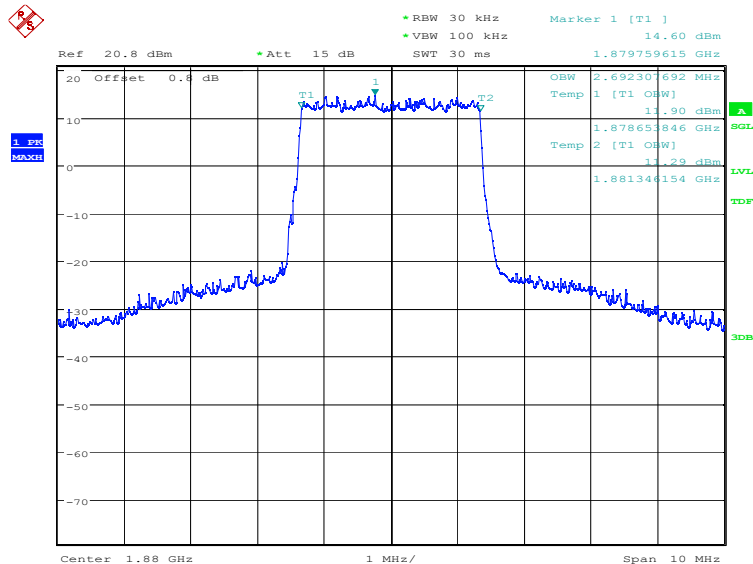
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	2692.31	2692.31

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



Date: 3.JAN.2023 16:12:02

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

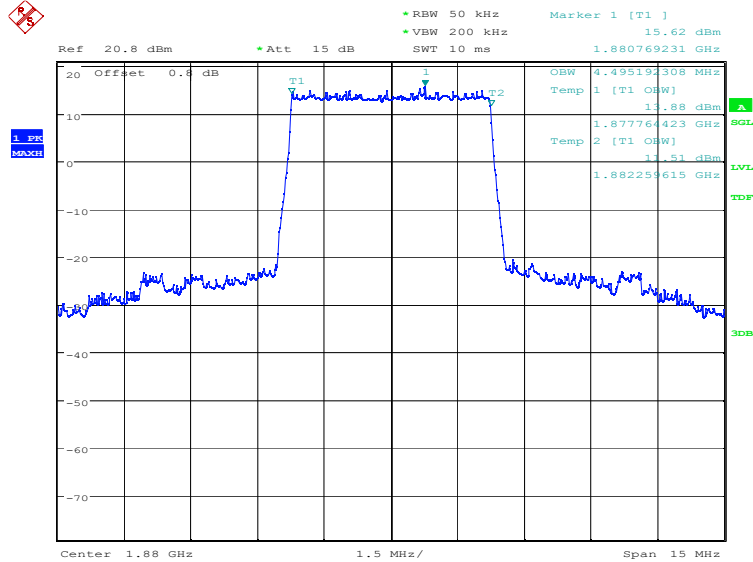


Date: 3.JAN.2023 16:12:42

LTE band 2, 5MHz (99%)

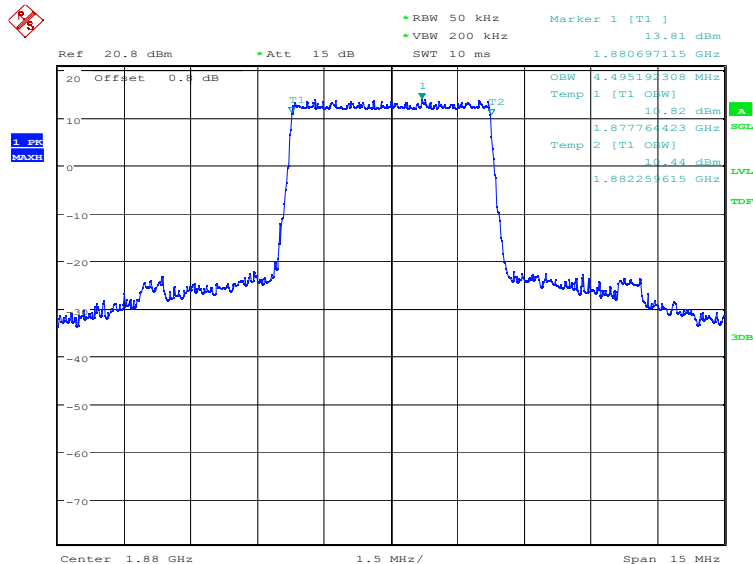
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	4495.19	4495.19

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



Date: 3.JAN.2023 16:13:25

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

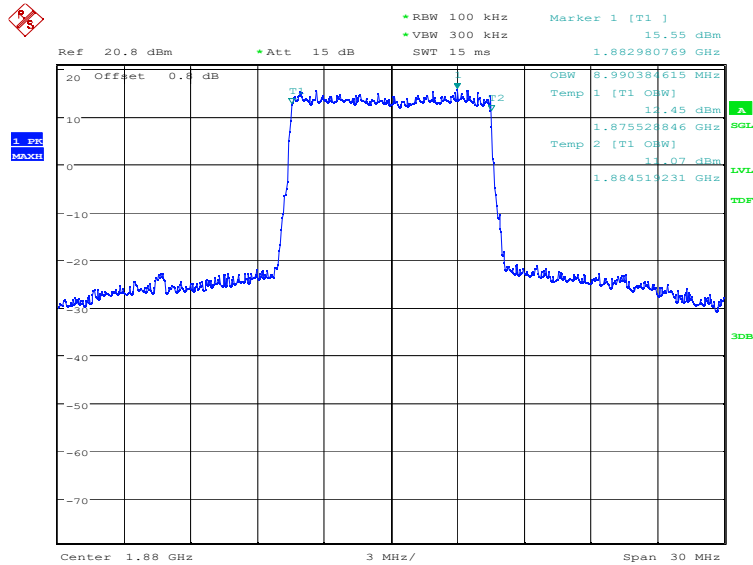


Date: 3.JAN.2023 16:14:05

LTE band 2, 10MHz (99%)

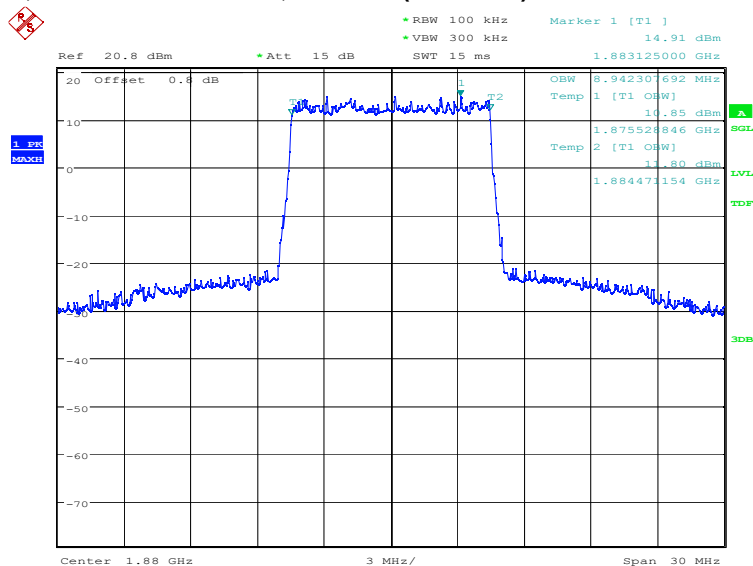
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	8990.38	8942.31

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



Date: 3.JAN.2023 16:14:47

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

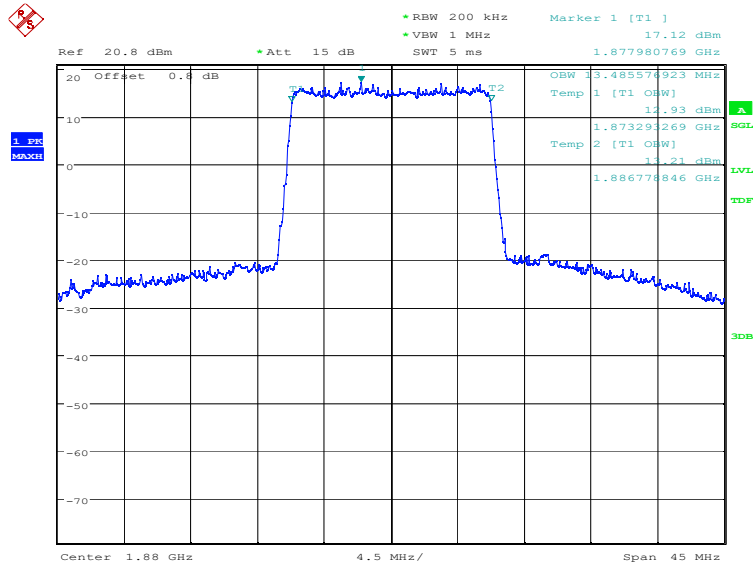


Date: 3.JAN.2023 16:15:27

LTE band 2, 15MHz (99%)

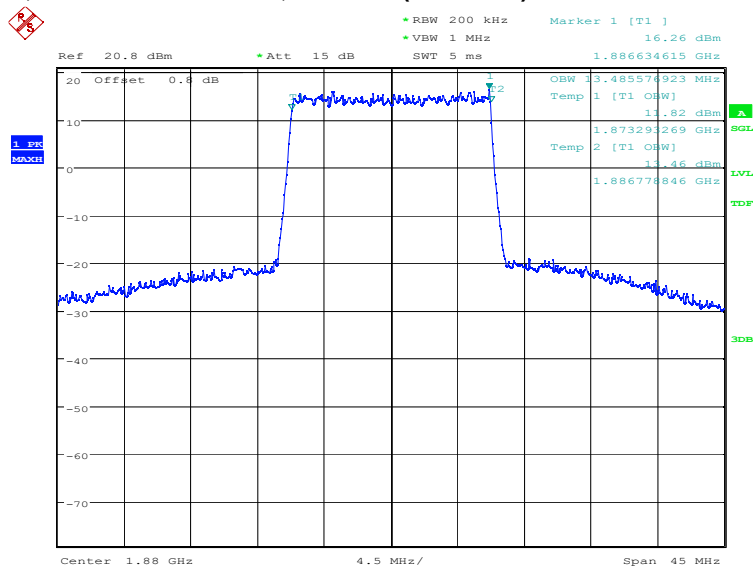
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	13485.58	13485.58

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



Date: 3.JAN.2023 16:16:10

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

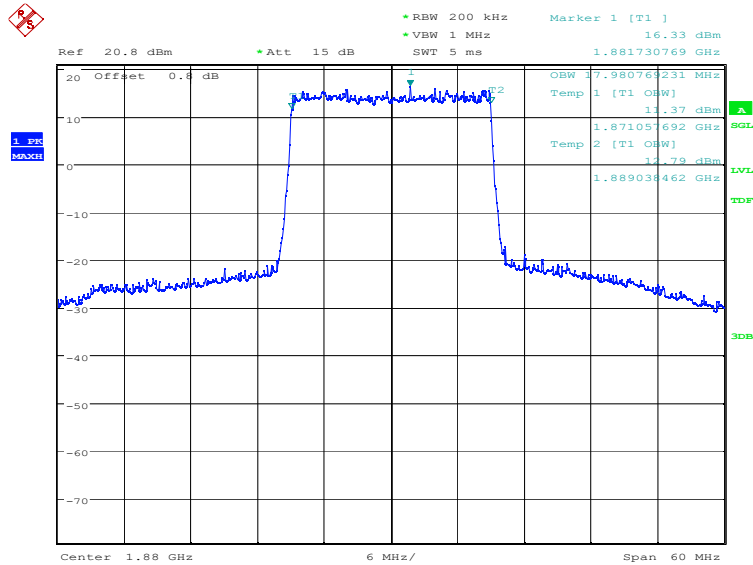


Date: 3.JAN.2023 16:16:50

LTE band 2, 20MHz (99%)

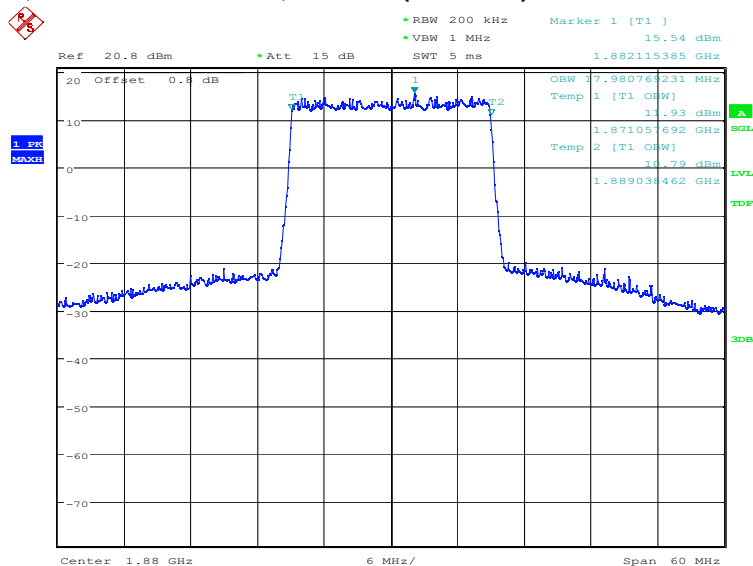
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	17980.77	17980.77

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



Date: 3.JAN.2023 16:17:32

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

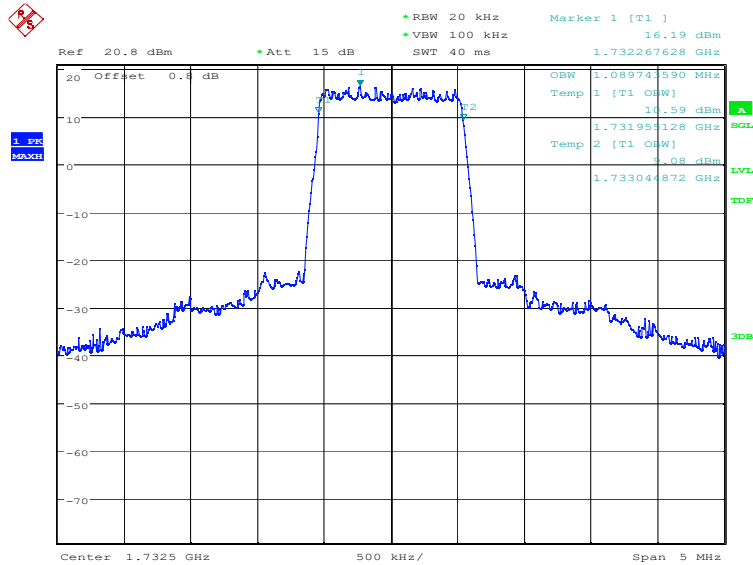


Date: 3.JAN.2023 16:18:12

LTE band 4, 1.4MHz (99%)

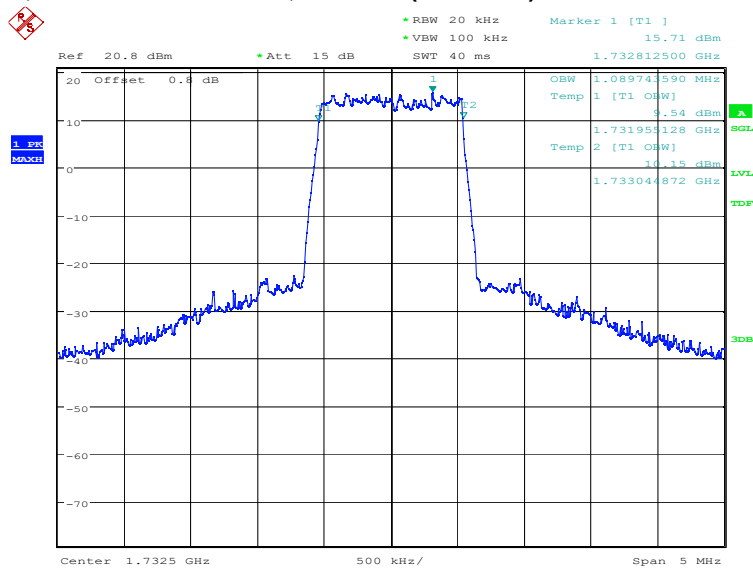
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1732.5	QPSK	16QAM
	1089.74	1089.74

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



Date: 3.JAN.2023 16:18:56

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

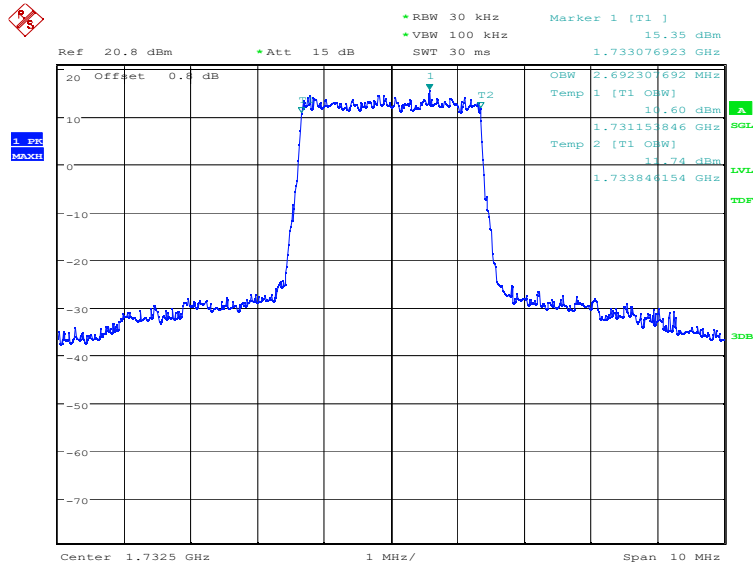


Date: 3.JAN.2023 16:19:36

LTE band 4, 3MHz (99%)

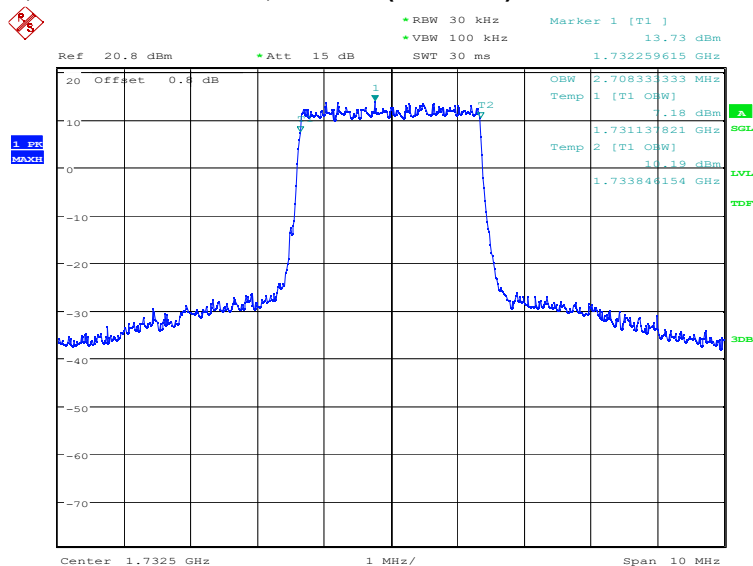
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1732.5	QPSK	16QAM
	2692.31	2708.33

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



Date: 3.JAN.2023 16:20:19

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

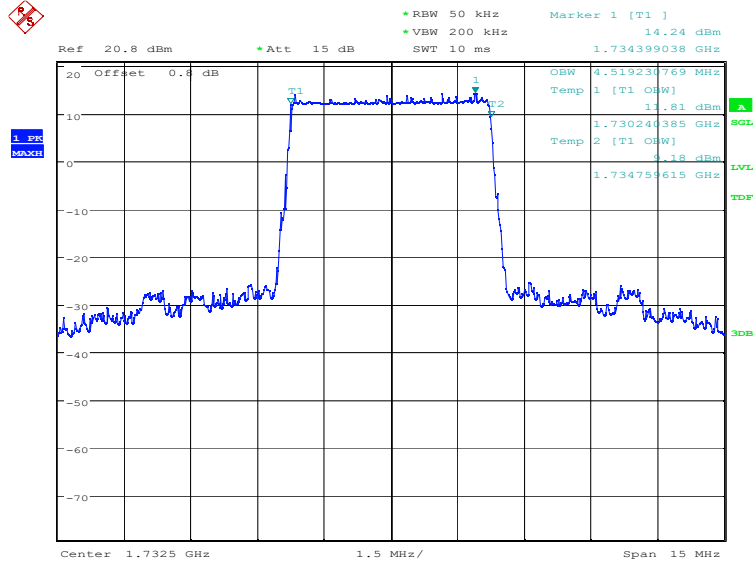


Date: 3.JAN.2023 16:20:59

LTE band 4, 5MHz (99%)

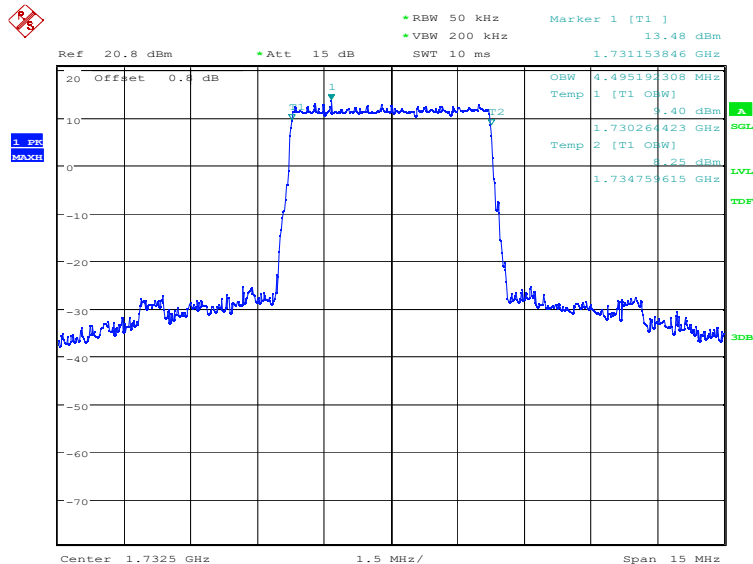
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1732.5	QPSK	16QAM
	4519.23	4495.19

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



Date: 3.JAN.2023 16:21:41

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

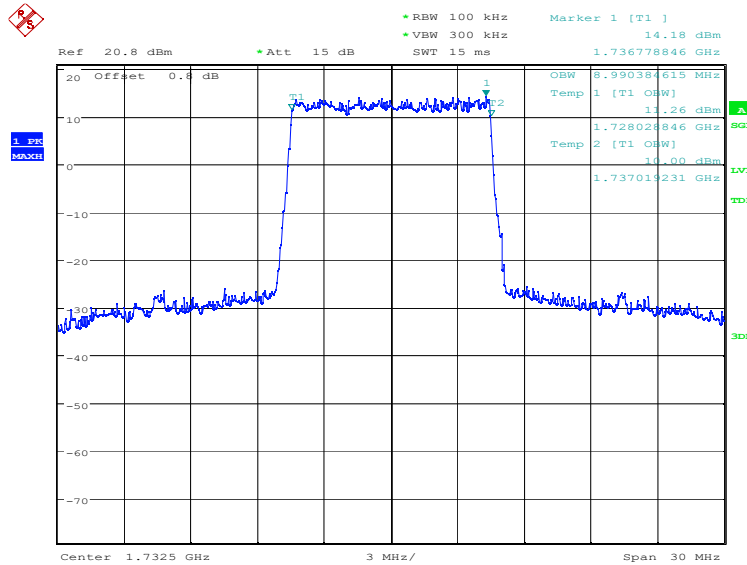


Date: 3.JAN.2023 16:22:21

LTE band 4, 10MHz (99%)

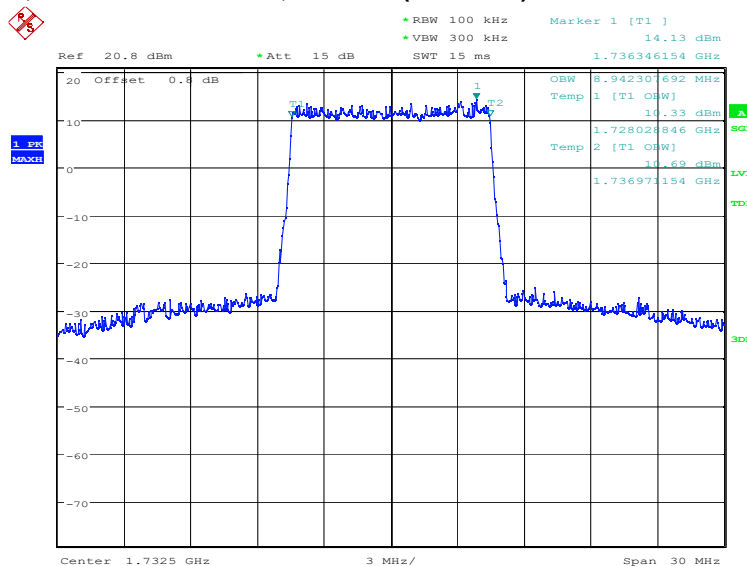
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1732.5	QPSK	16QAM
	8990.38	8942.31

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



Date: 3.JAN.2023 16:23:03

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

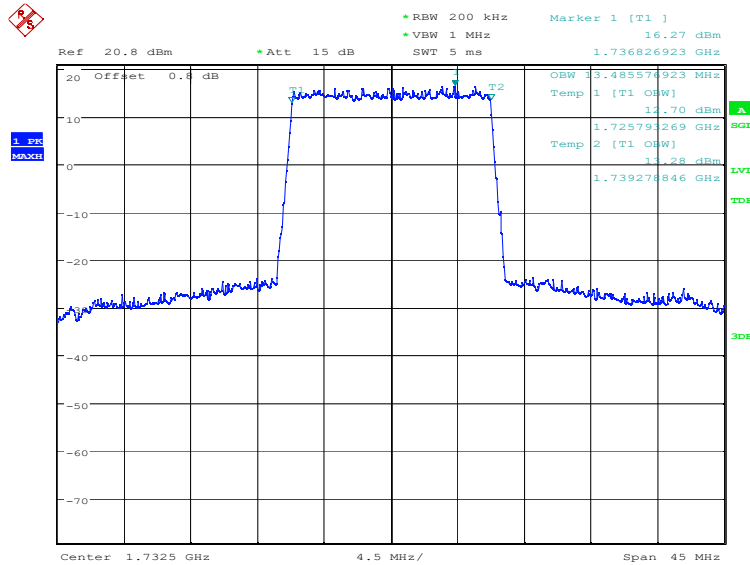


Date: 3.JAN.2023 16:23:44

LTE band 4, 15MHz (99%)

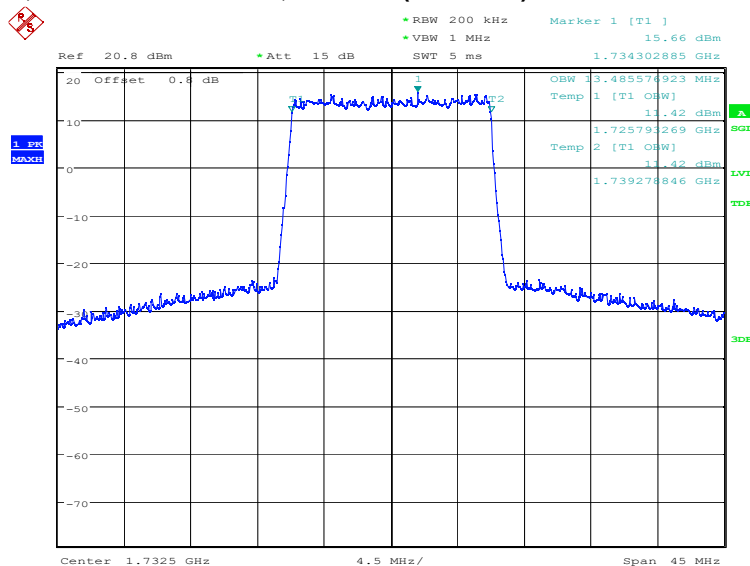
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1732.5	QPSK	16QAM
	13485.58	13485.58

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



Date: 3.JAN.2023 16:24:26

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

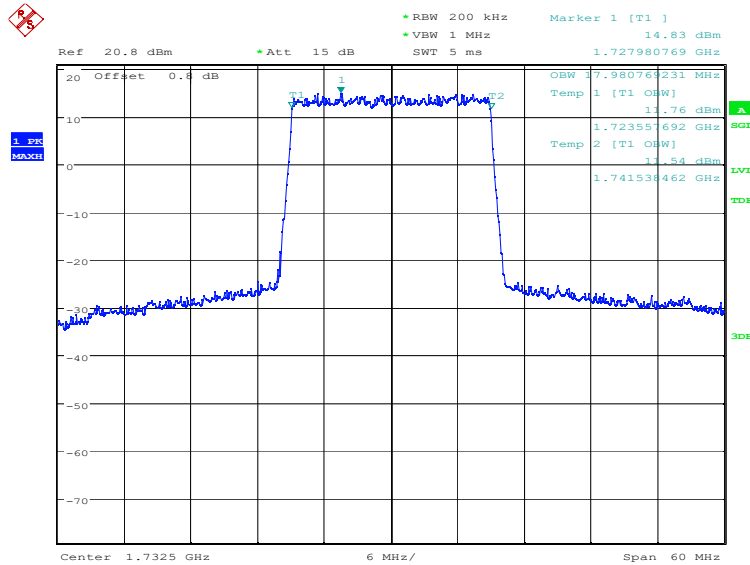


Date: 3.JAN.2023 16:25:06

LTE band 4, 20MHz (99%)

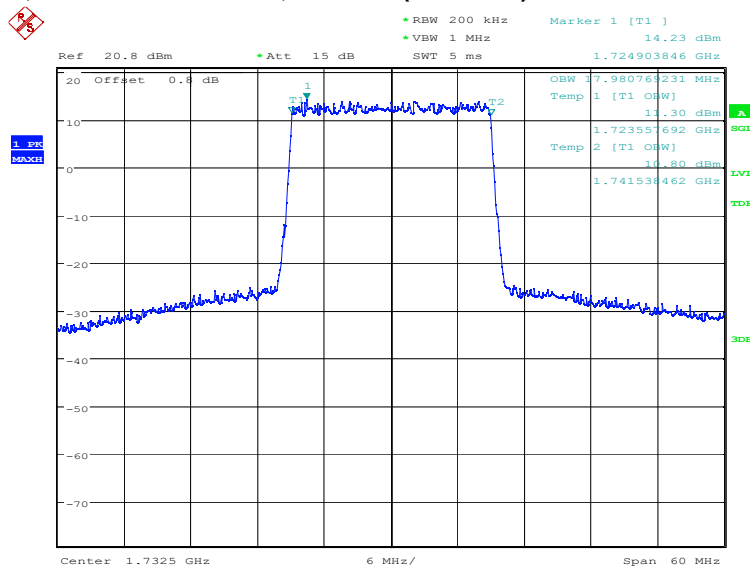
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1732.5	QPSK	16QAM
	17980.77	17980.77

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



Date: 3.JAN.2023 16:25:49

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

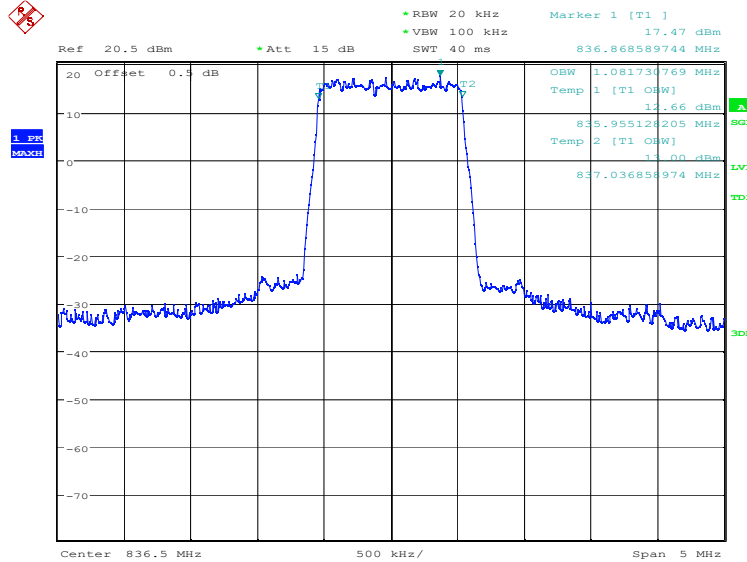


Date: 3.JAN.2023 16:26:29

LTE band 5, 1.4MHz (99%)

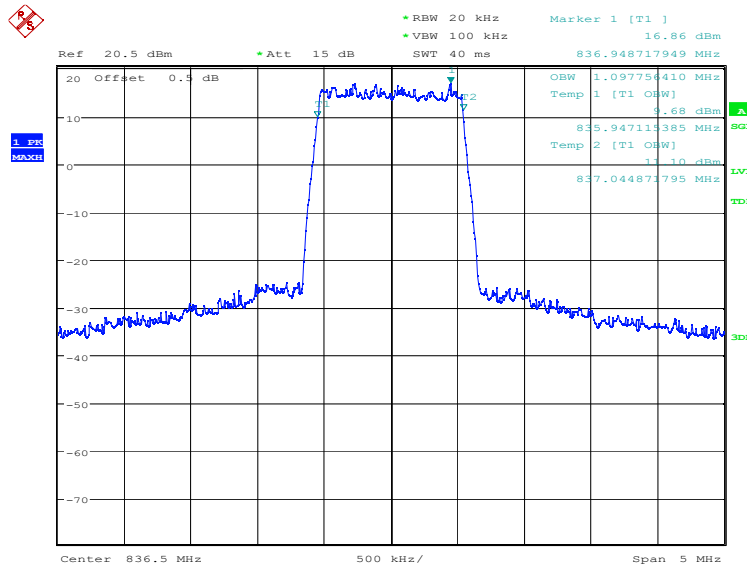
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	1081.73	1097.76

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



Date: 4.JAN.2023 15:52:42

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

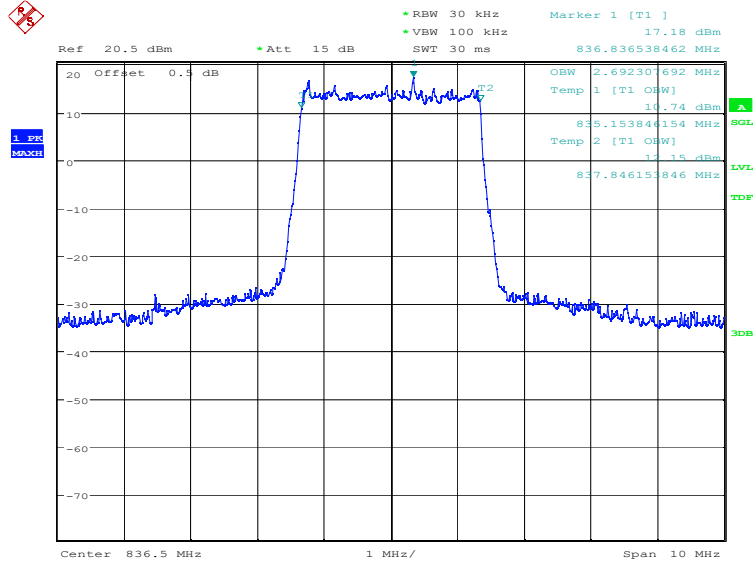


Date: 4.JAN.2023 15:53:22

LTE band 5, 3MHz (99%)

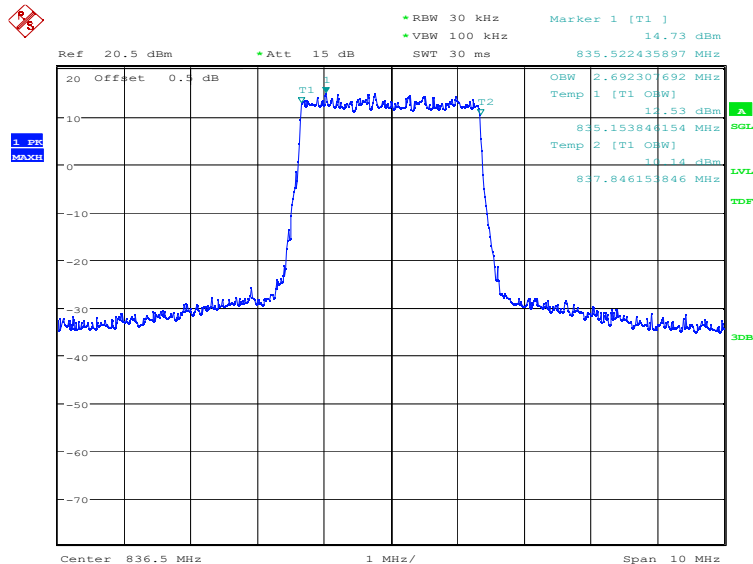
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	2692.31	2692.31

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



Date: 4.JAN.2023 15:54:04

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

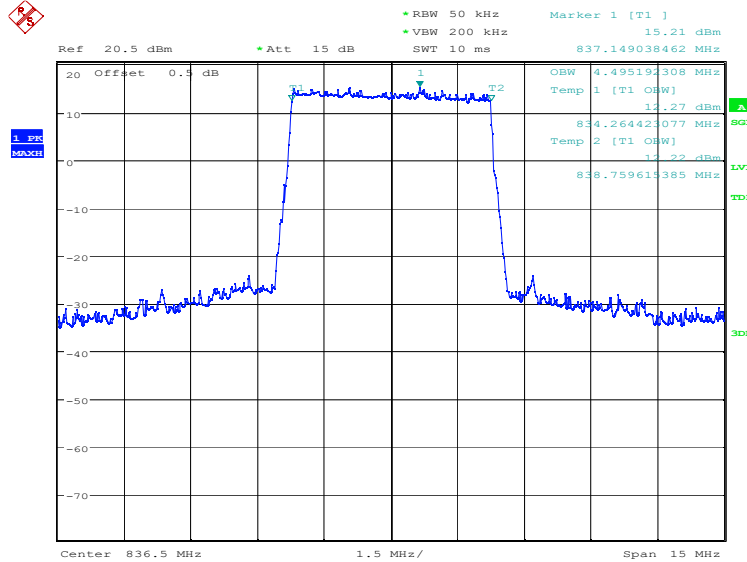


Date: 4.JAN.2023 15:54:44

LTE band 5, 5MHz (99%)

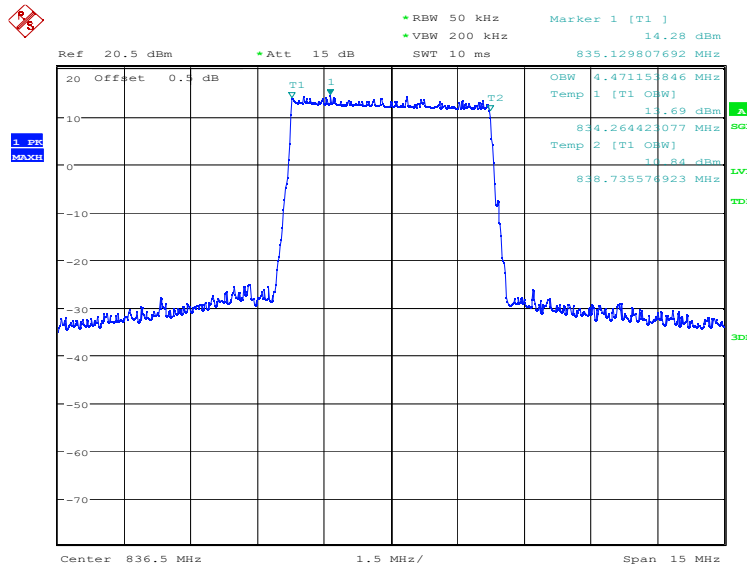
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	4495.19	4471.15

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



Date: 4.JAN.2023 15:55:27

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

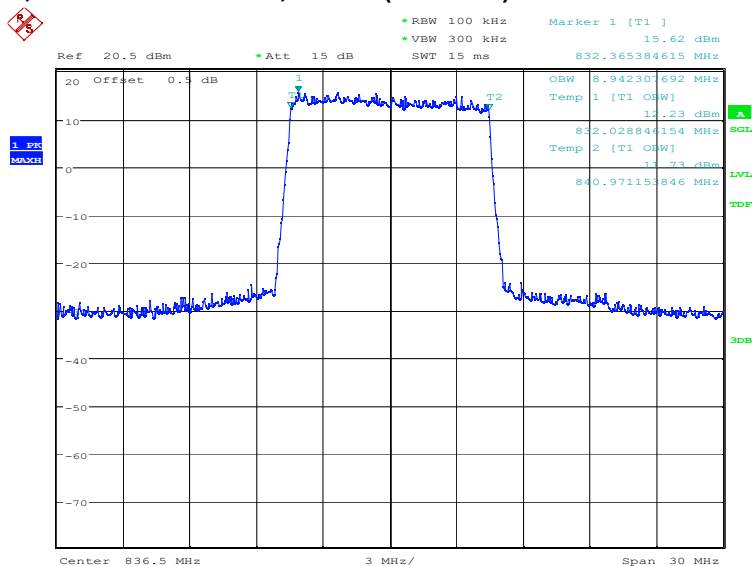


Date: 4.JAN.2023 15:56:07

LTE band 5, 10MHz (99%)

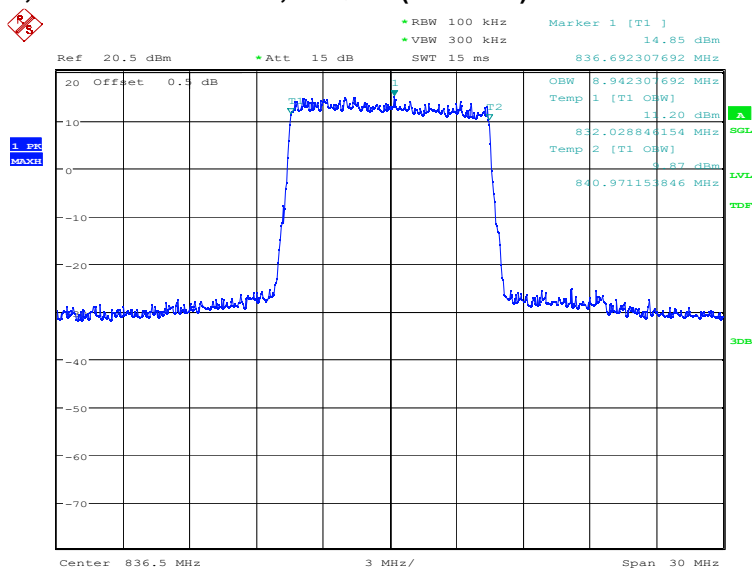
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	8942.31	8942.31

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



Date: 4.JAN.2023 15:56:49

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

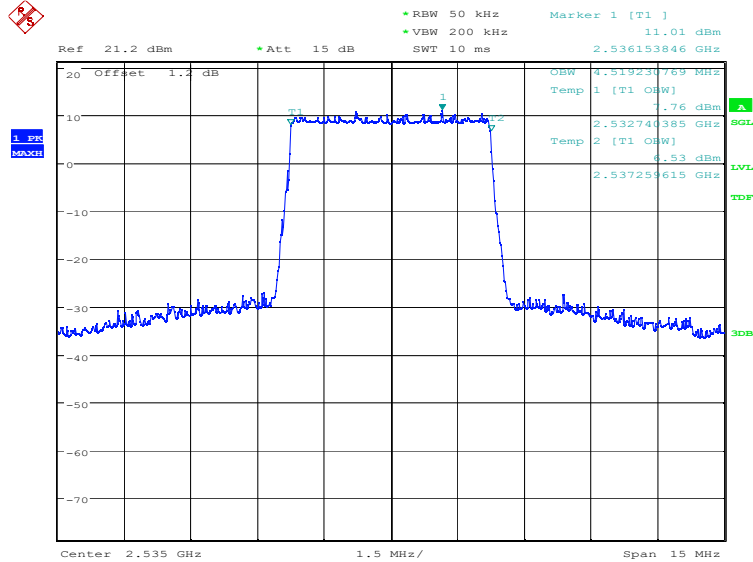


Date: 4.JAN.2023 15:57:29

LTE band 7, 5MHz (99%)

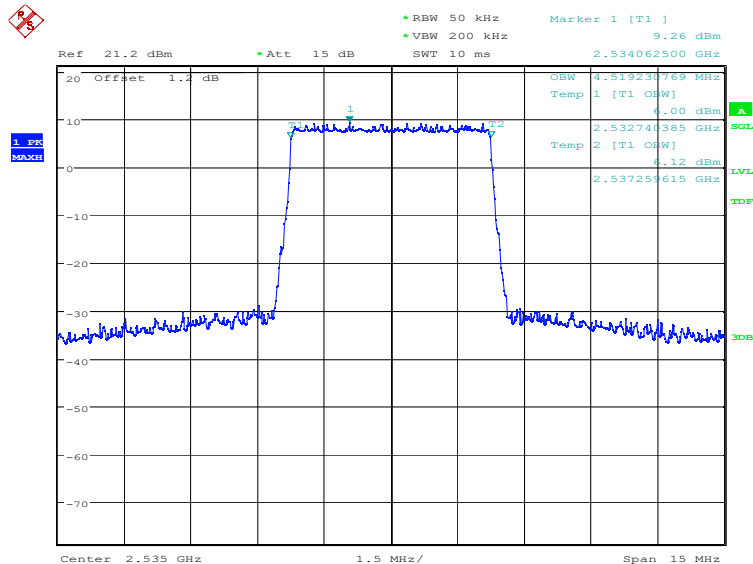
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2535.0	QPSK	16QAM
	4519.23	4519.23

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



Date: 3.JAN.2023 16:27:13

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

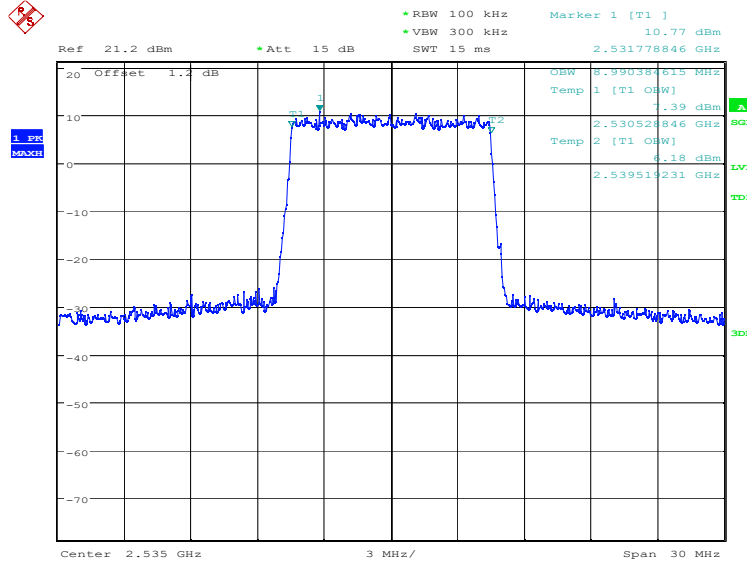


Date: 3.JAN.2023 16:27:53

LTE band 7, 10MHz (99%)

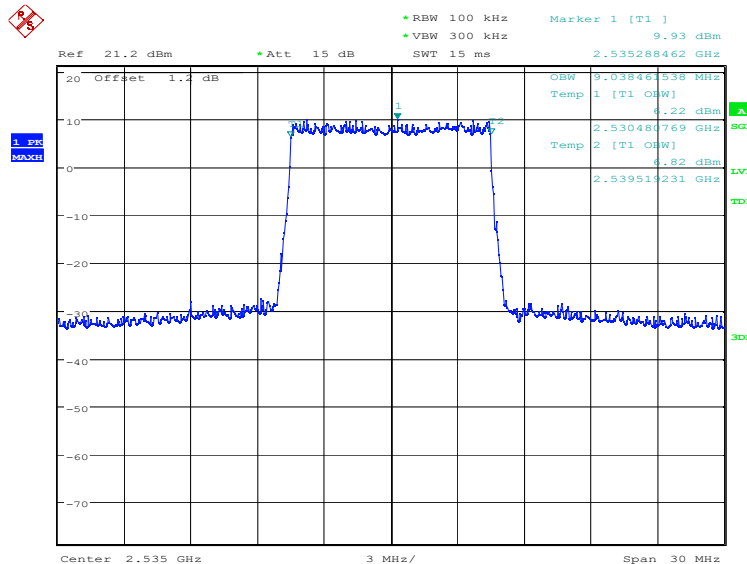
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2535.0	QPSK	16QAM
	8990.38	9038.46

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



Date: 3.JAN.2023 16:28:35

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

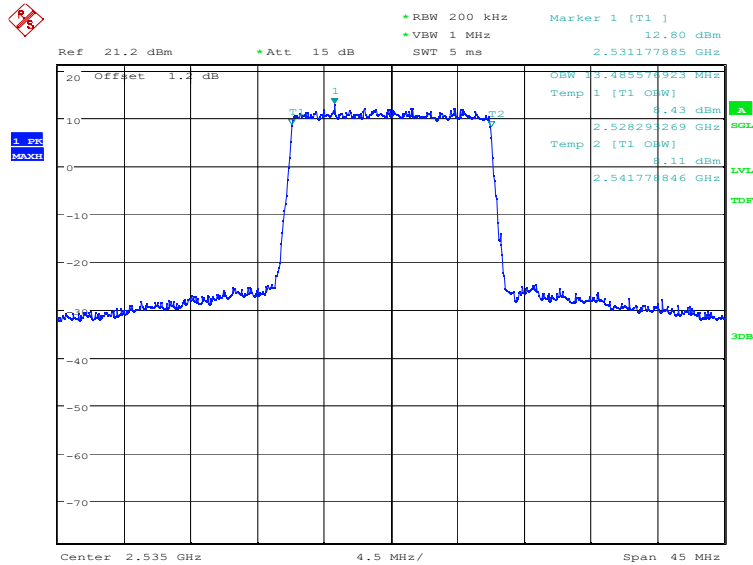


Date: 3.JAN.2023 16:29:15

LTE band 7, 15MHz (99%)

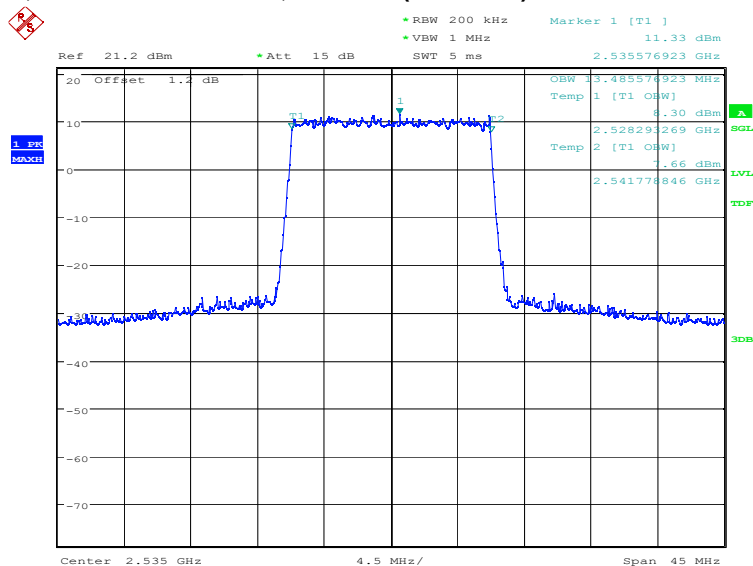
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2535.0	QPSK	16QAM
	13485.58	13485.58

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



Date: 3.JAN.2023 16:29:58

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

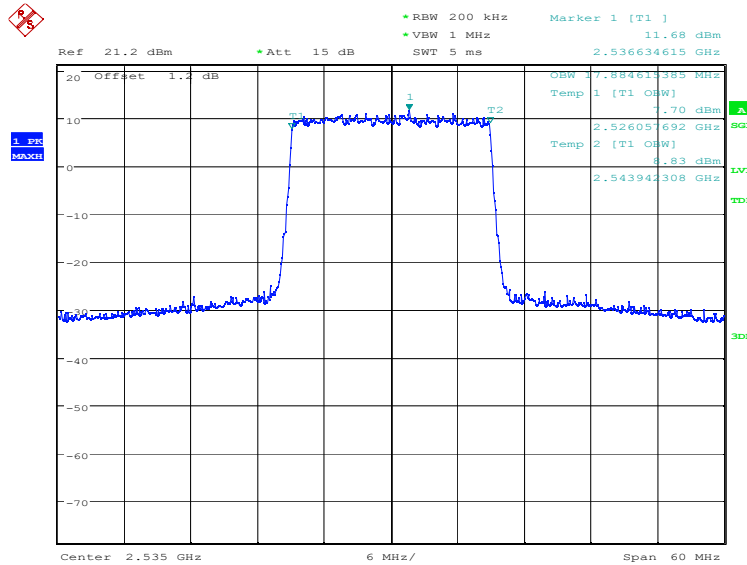


Date: 3.JAN.2023 16:30:38

LTE band 7, 20MHz (99%)

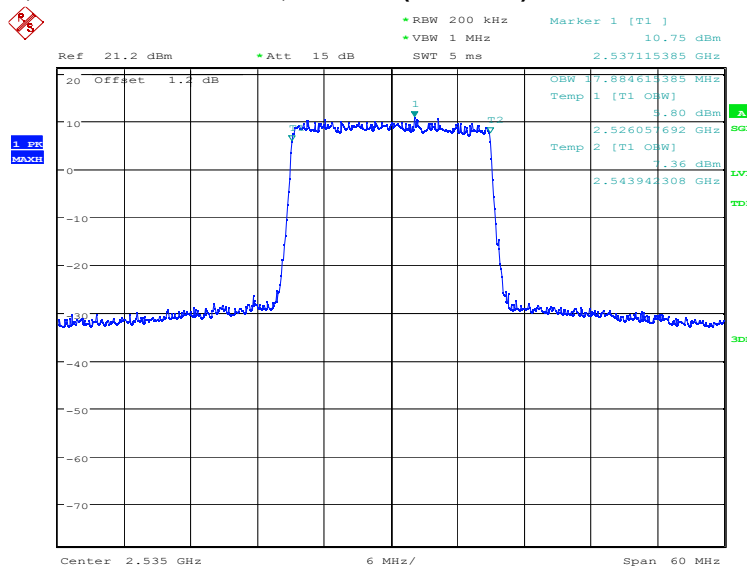
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2535.0	QPSK	16QAM
	17884.62	17884.62

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



Date: 3.JAN.2023 16:31:20

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

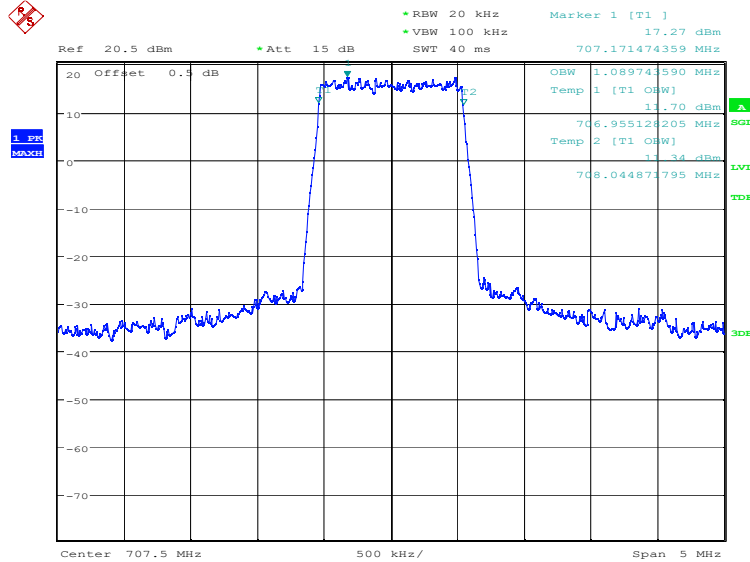


Date: 3.JAN.2023 16:32:01

LTE band 12, 1.4MHz (99%)

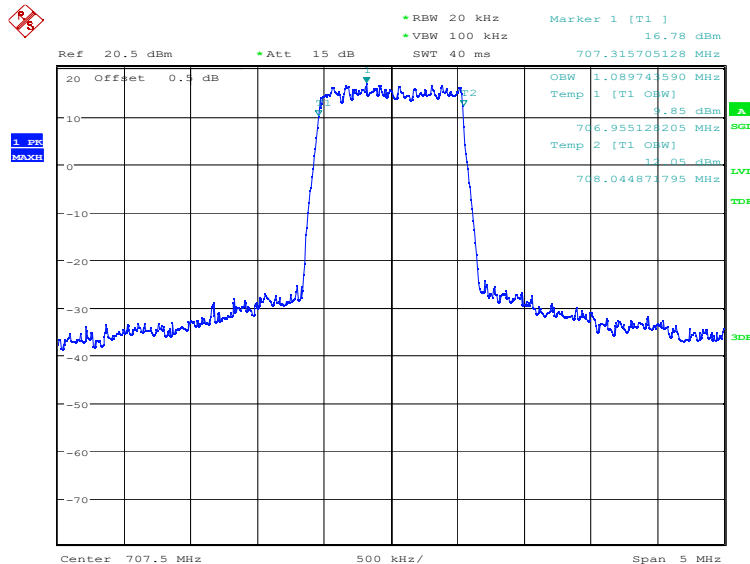
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	1089.74	1089.74

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



Date: 4.JAN.2023 15:58:13

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

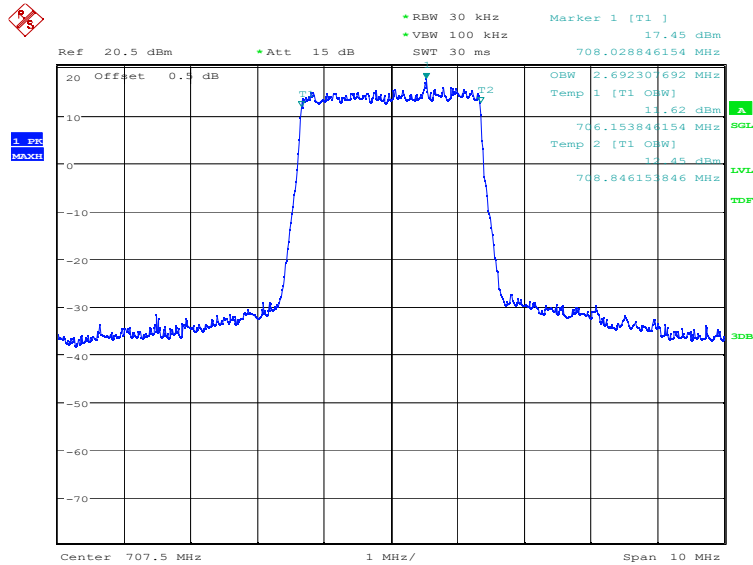


Date: 4.JAN.2023 15:58:54

LTE band 12, 3MHz (99%)

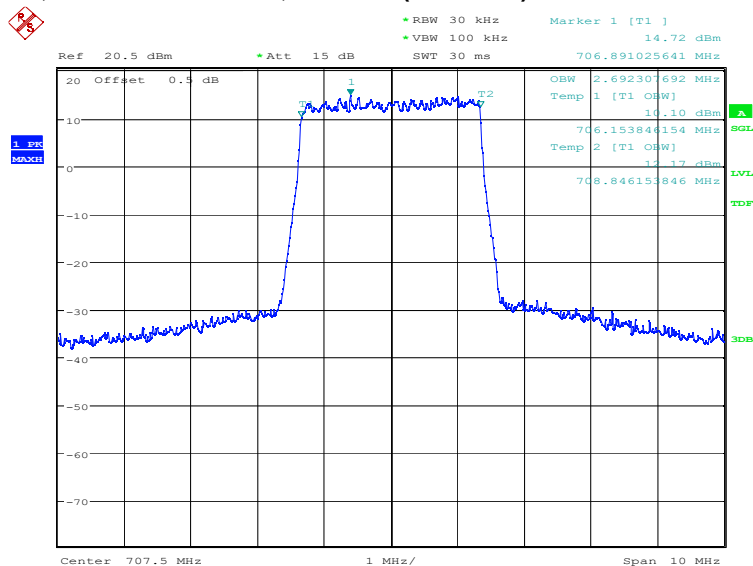
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	2692.31	2692.31

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



Date: 4.JAN.2023 15:59:46

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

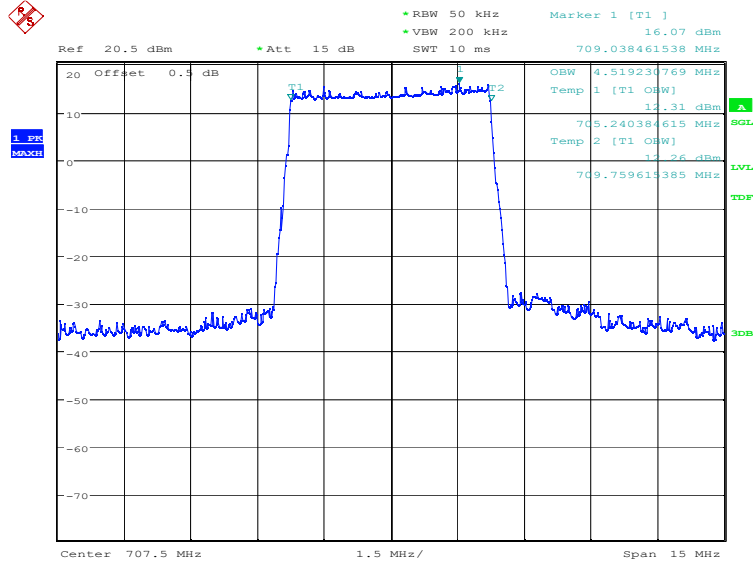


Date: 4.JAN.2023 16:00:26

LTE band 12, 5MHz (99%)

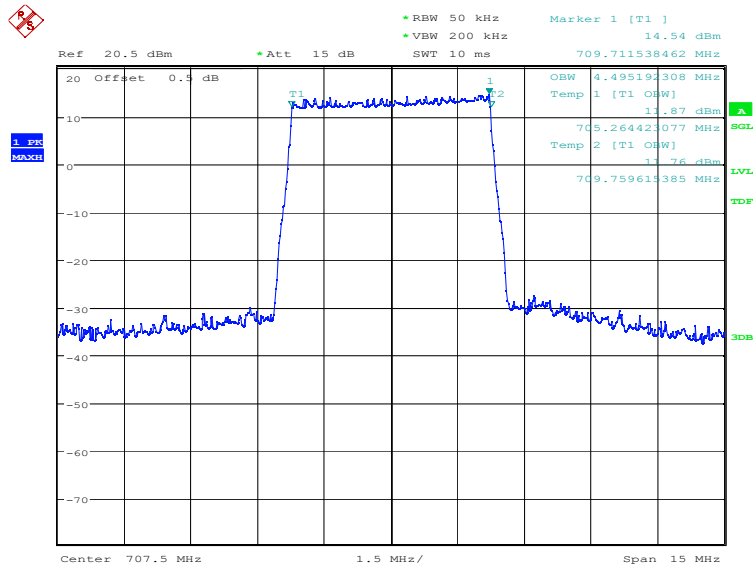
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	4519.23	4495.19

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



Date: 4.JAN.2023 16:01:09

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

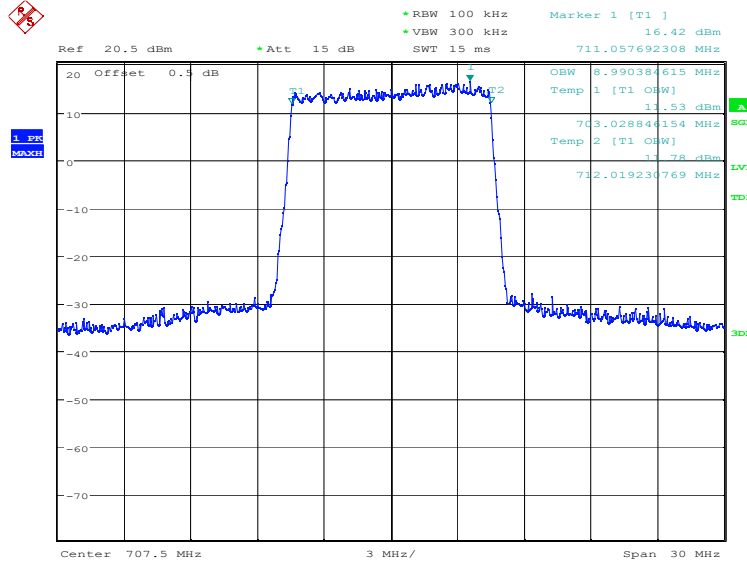


Date: 4.JAN.2023 16:01:49

LTE band 12, 10MHz (99%)

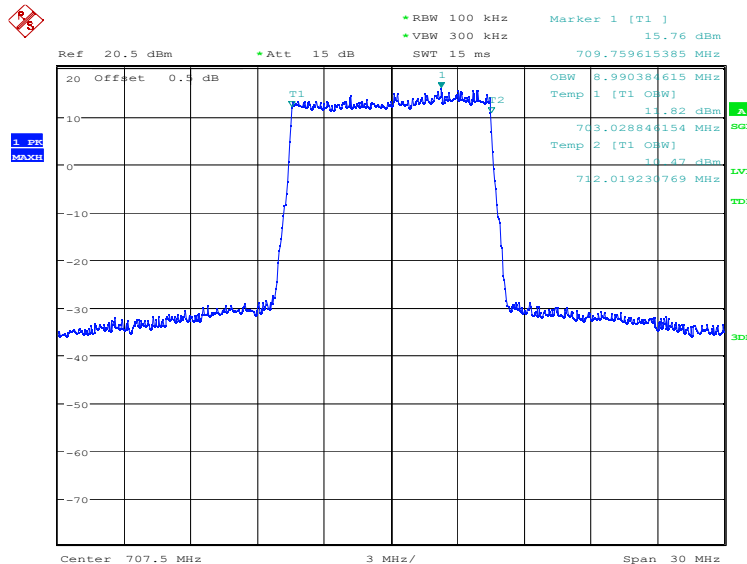
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	8990.38	8990.38

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



Date: 4.JAN.2023 16:02:31

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

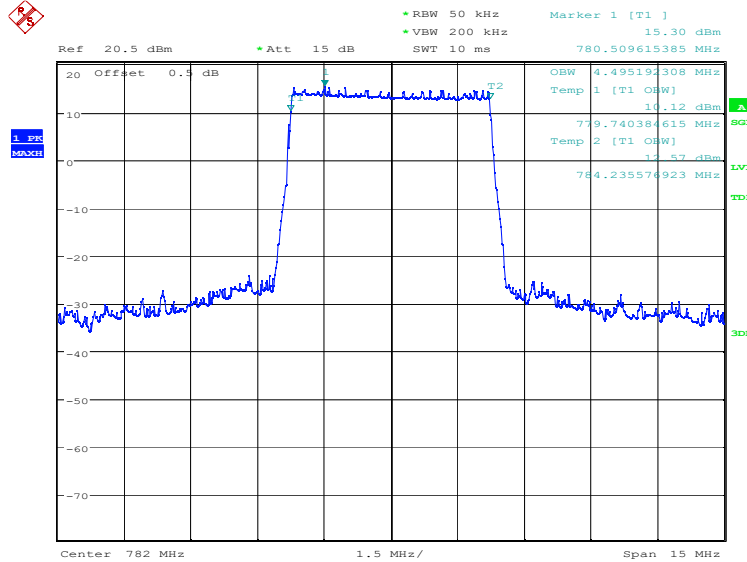


Date: 4.JAN.2023 16:03:12

LTE band 13, 5MHz (99%)

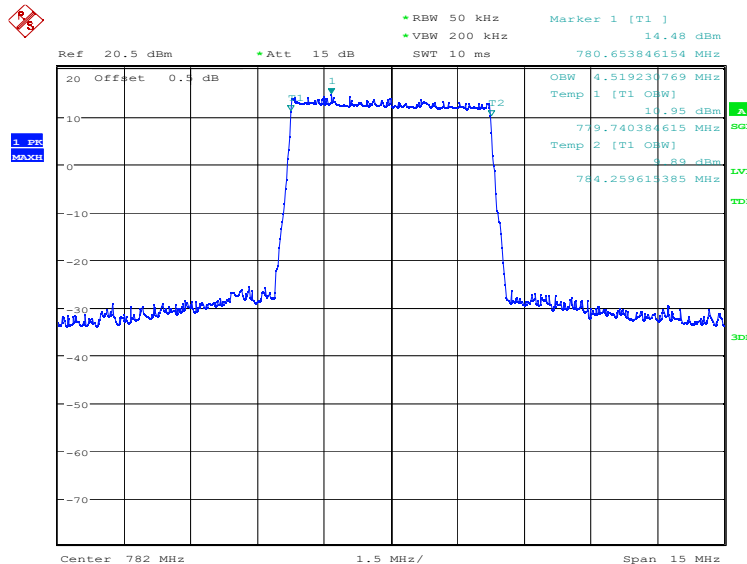
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
782.0	QPSK	16QAM
	4495.19	4519.23

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



Date: 4.JAN.2023 16:03:55

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

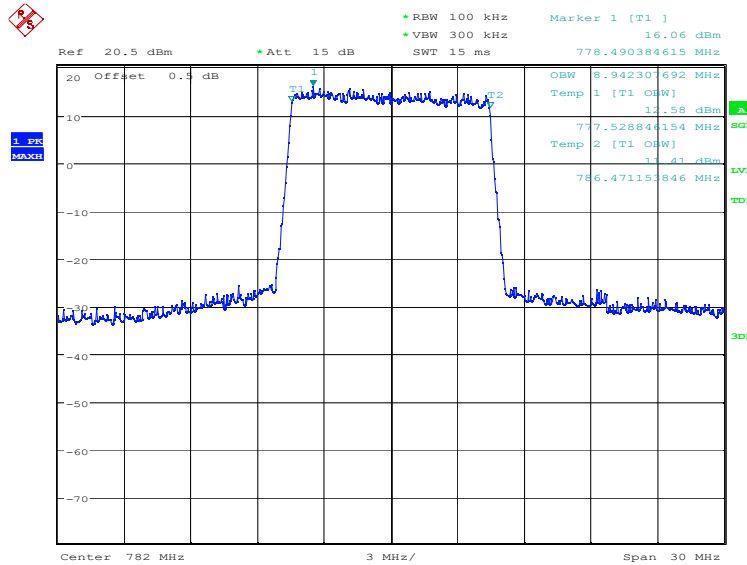


Date: 4.JAN.2023 16:04:36

LTE band 13, 10MHz (99%)

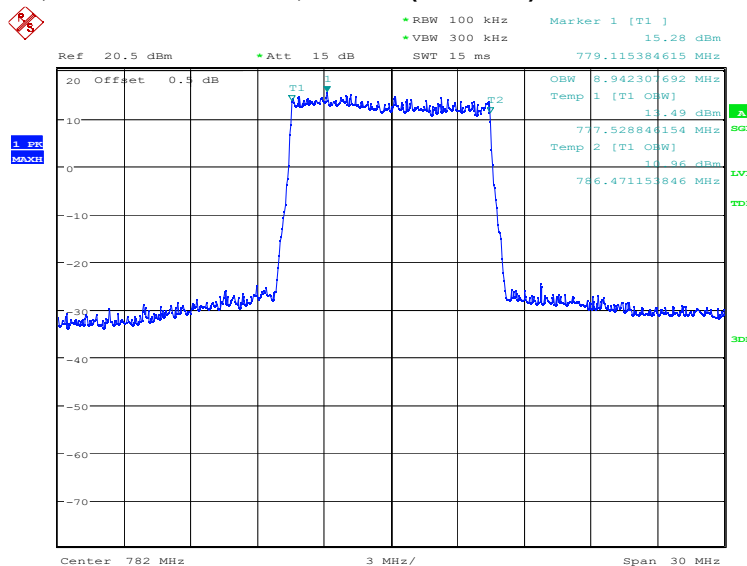
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
782.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 4.JAN.2023 16:05:18

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

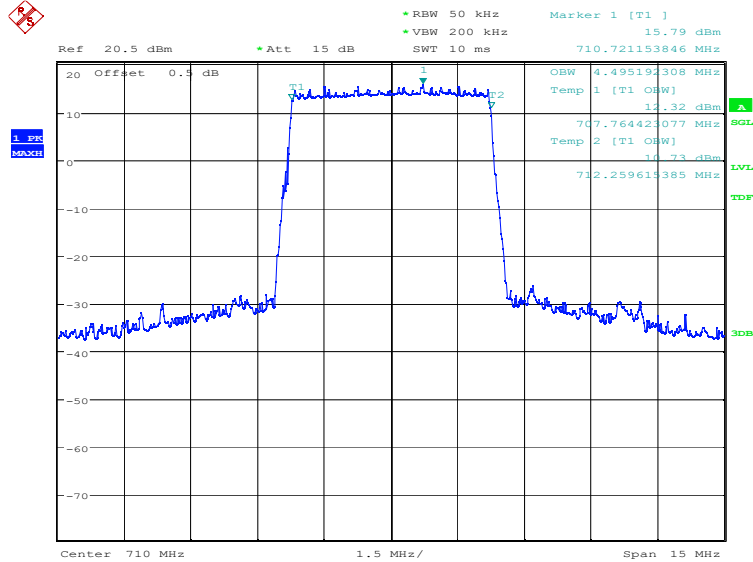


Date: 4.JAN.2023 16:05:58

LTE band 17, 5MHz(99% BW)

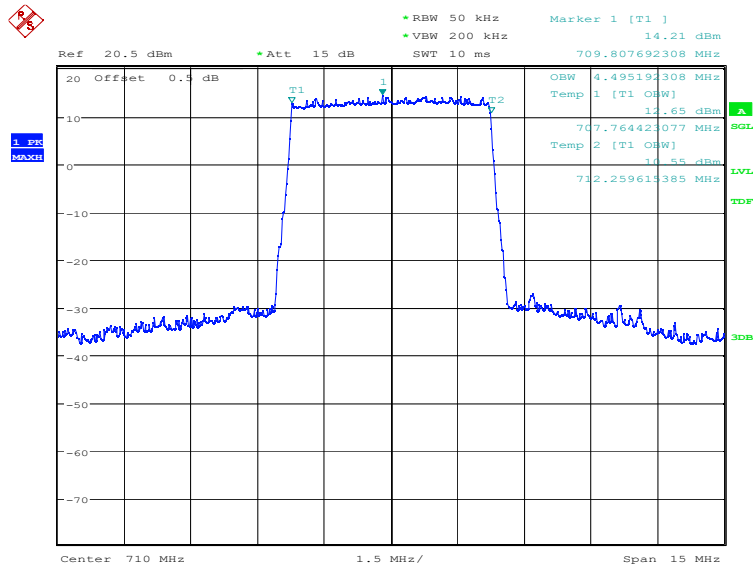
Frequency(MHz)	Occupied Bandwidth (99% BW) (kHz)	
710.0	QPSK	16QAM
	4495.19	4495.19

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



Date: 4.JAN.2023 16:06:42

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

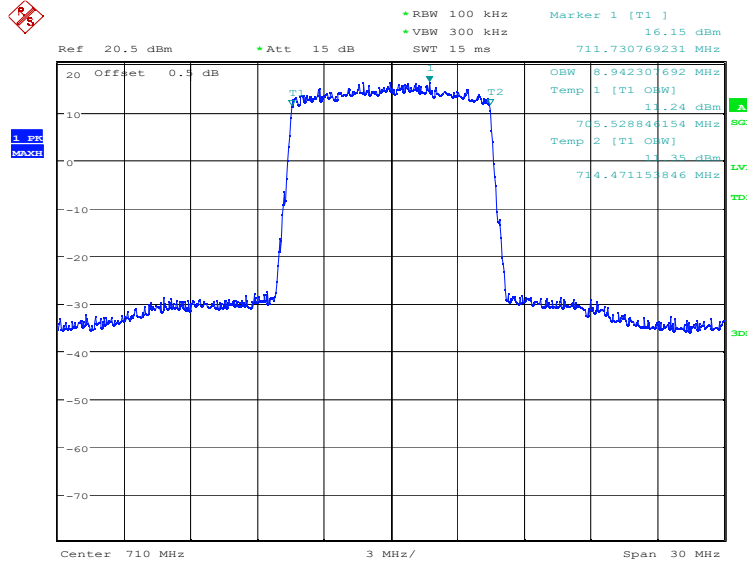


Date: 4.JAN.2023 16:07:22

LTE band 17, 10MHz(99% BW)

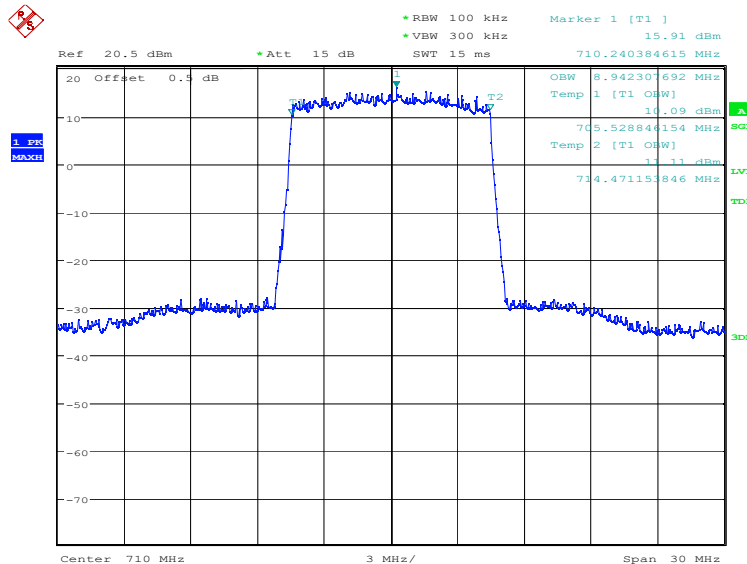
Frequency(MHz)	Occupied Bandwidth (99% BW) (kHz)	
710.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 4.JAN.2023 16:08:05

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

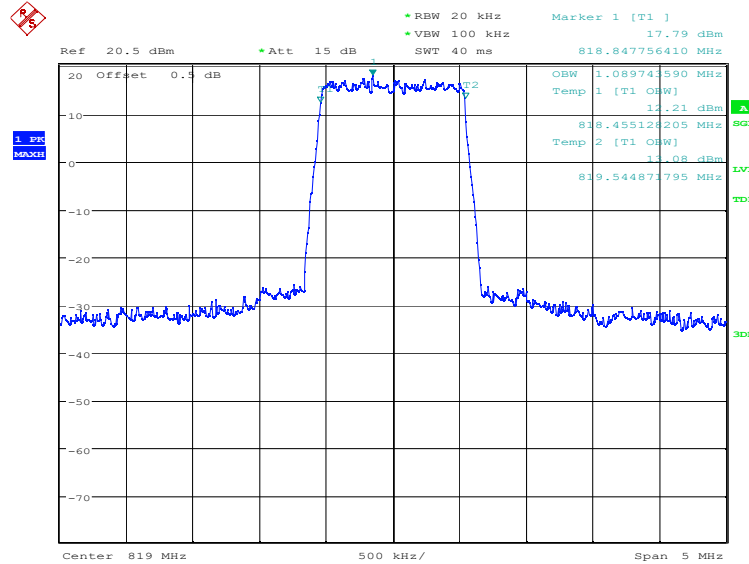


Date: 4.JAN.2023 16:08:45

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

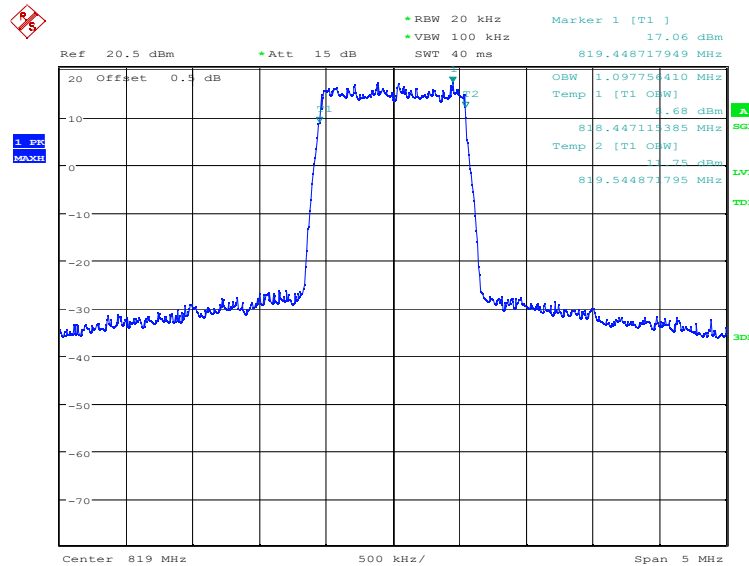
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
819.0	QPSK	16QAM
	1089.74	1097.76

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



Date: 4.JAN.2023 16:17:17

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

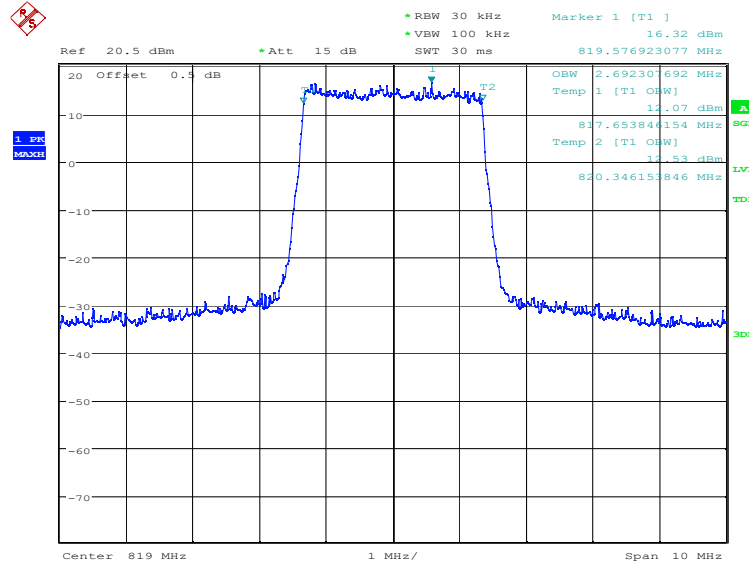


Date: 4.JAN.2023 16:17:57

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

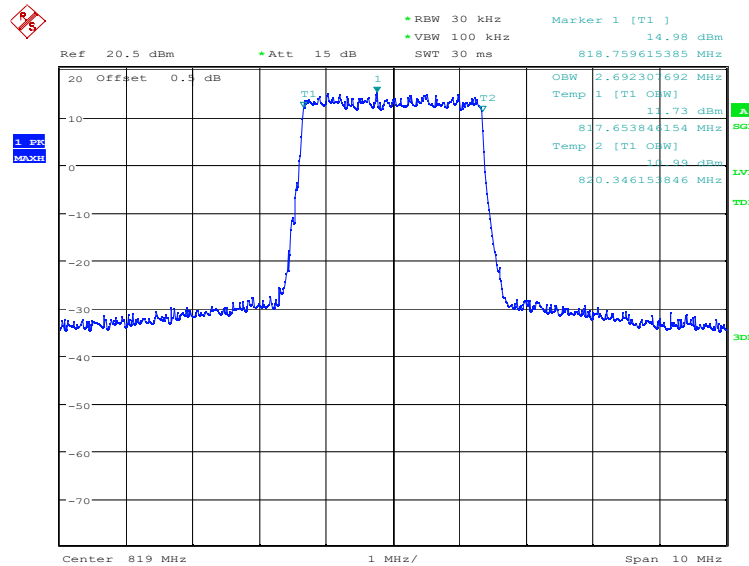
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
819.0	QPSK	16QAM
	2692.31	2692.31

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



Date: 4.JAN.2023 16:18:40

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

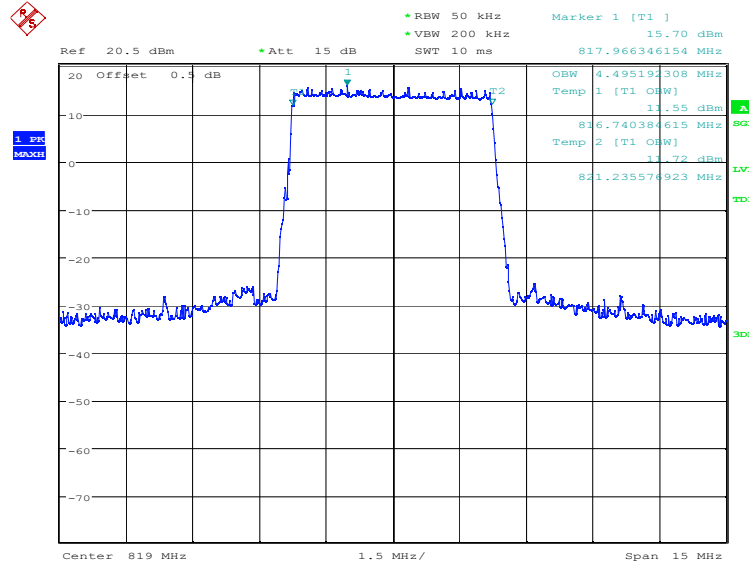


Date: 4.JAN.2023 16:19:20

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

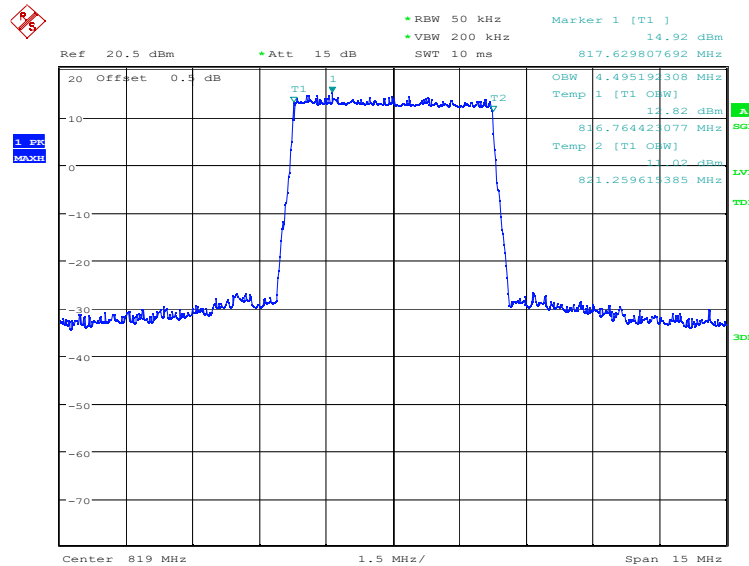
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
819.0	QPSK	16QAM
	4495.19	4495.19

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



Date: 4.JAN.2023 16:20:02

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

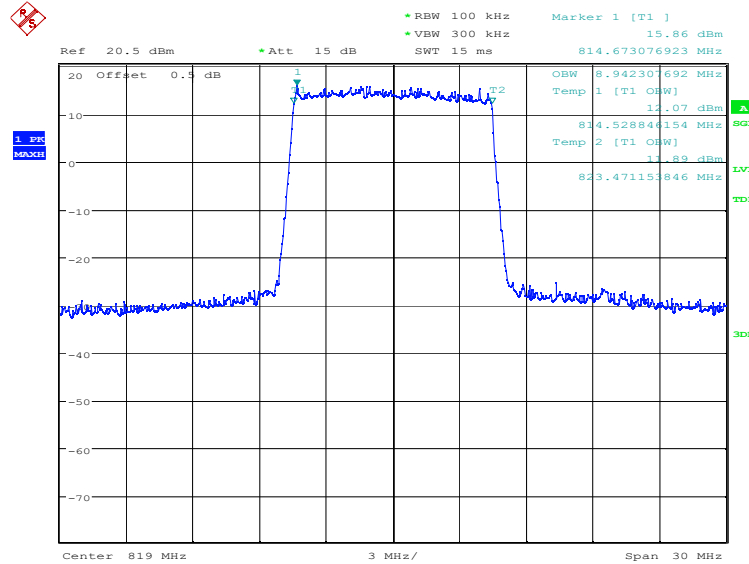


Date: 4.JAN.2023 16:20:43

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

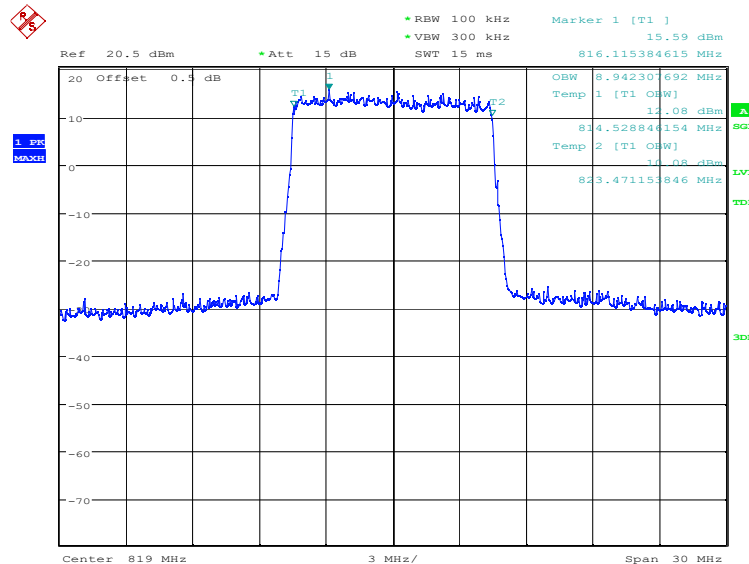
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
819.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 4.JAN.2023 16:21:25

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

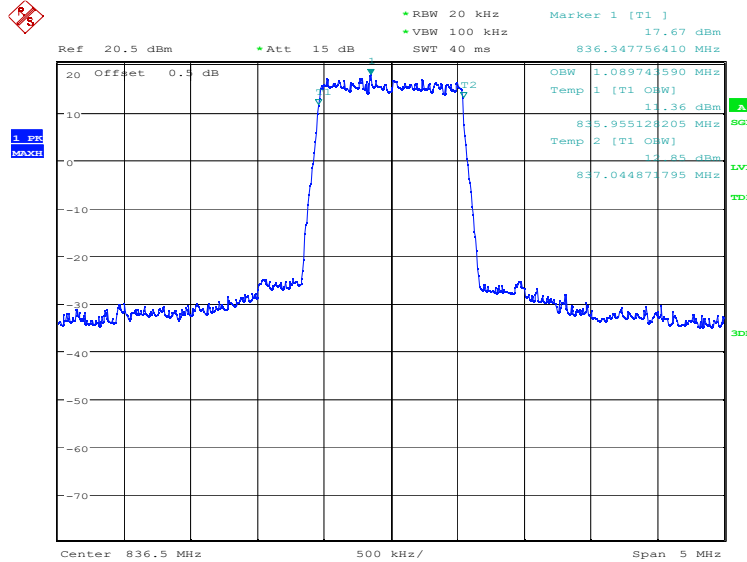


Date: 4.JAN.2023 16:22:05

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

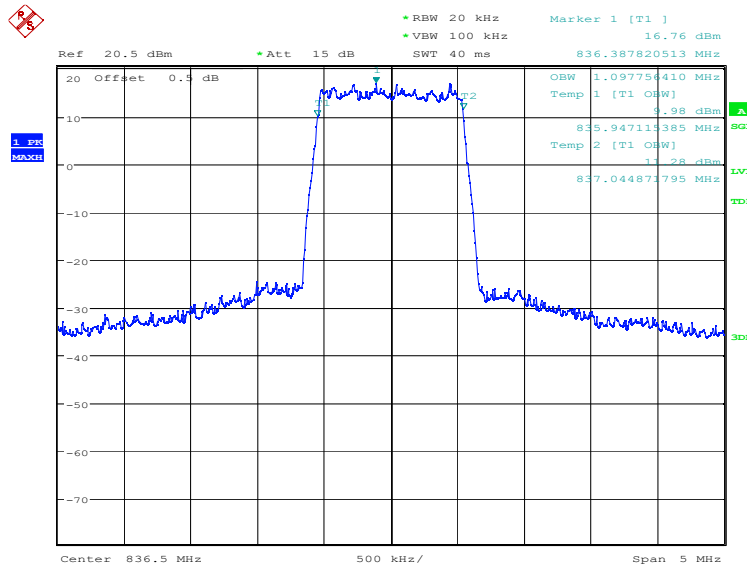
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	1089.74	1097.76

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



Date: 4.JAN.2023 16:09:30

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

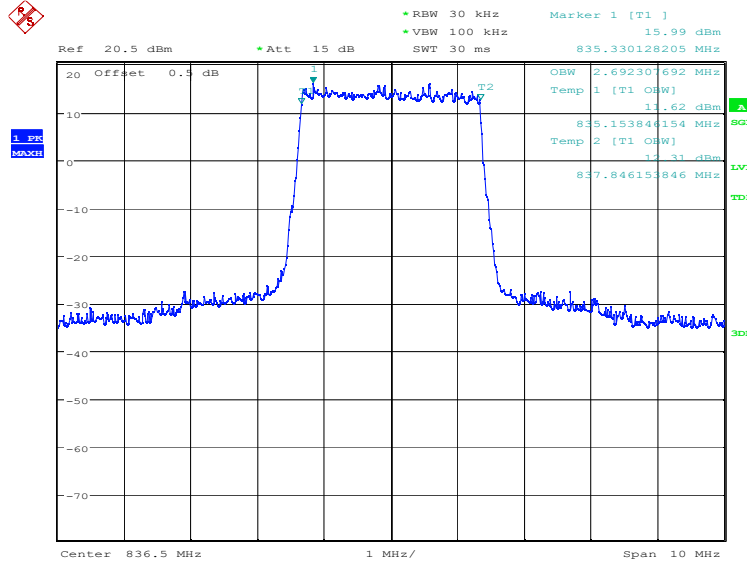


Date: 4.JAN.2023 16:10:10

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

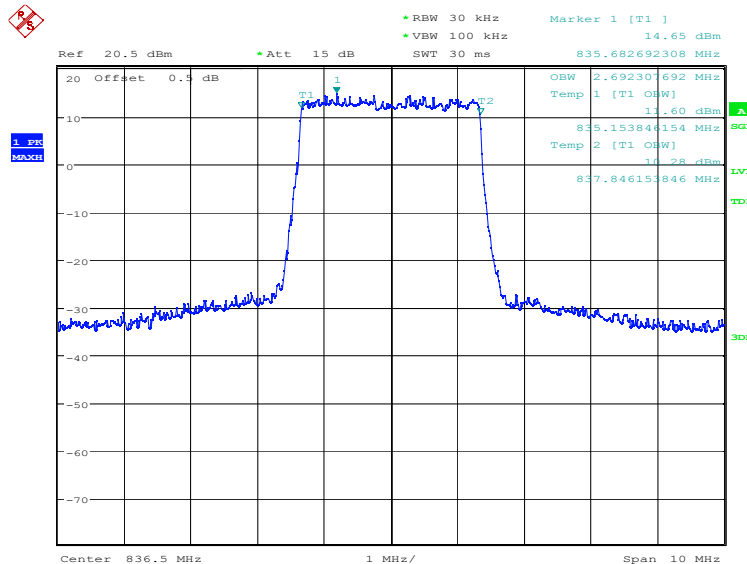
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	2692.31	2692.31

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



Date: 4.JAN.2023 16:10:52

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

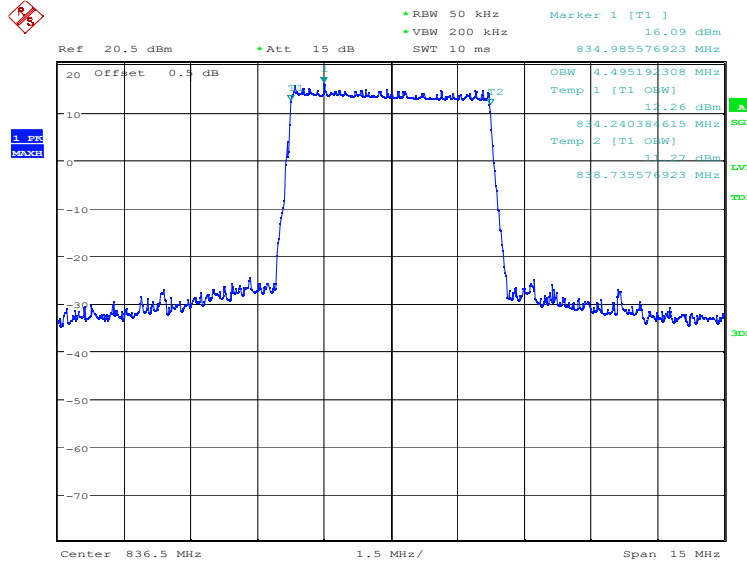


Date: 4.JAN.2023 16:11:32

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

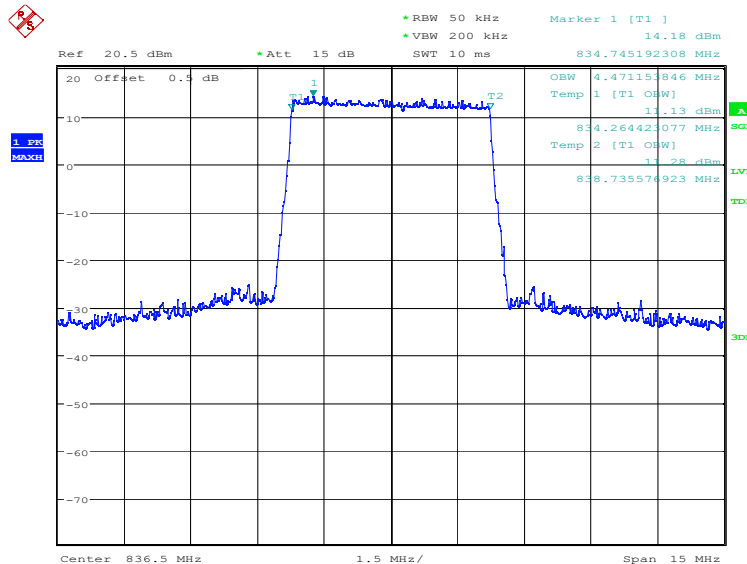
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	4495.19	4471.15

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



Date: 4.JAN.2023 16:12:15

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

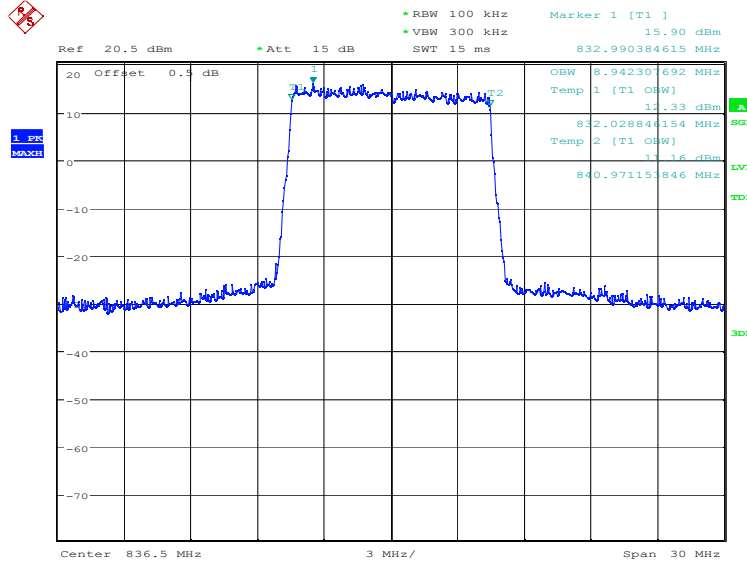


Date: 4.JAN.2023 16:12:55

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

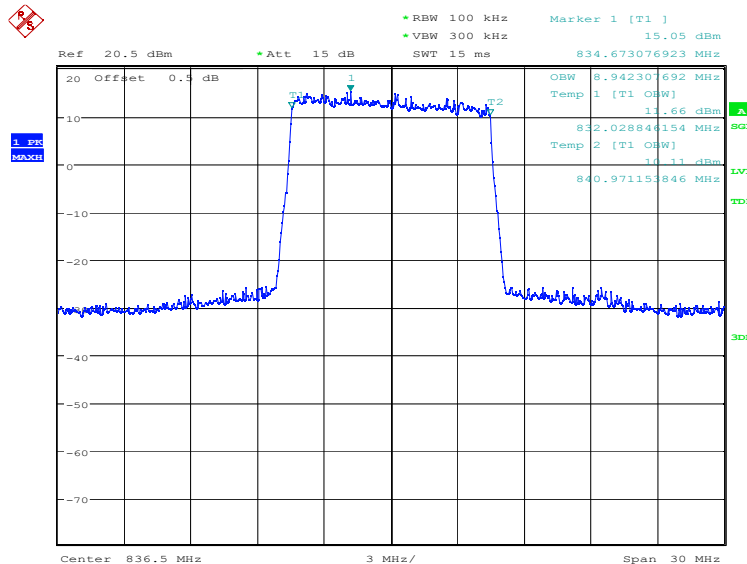
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	8942.31	8942.31

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



Date: 4.JAN.2023 16:13:37

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

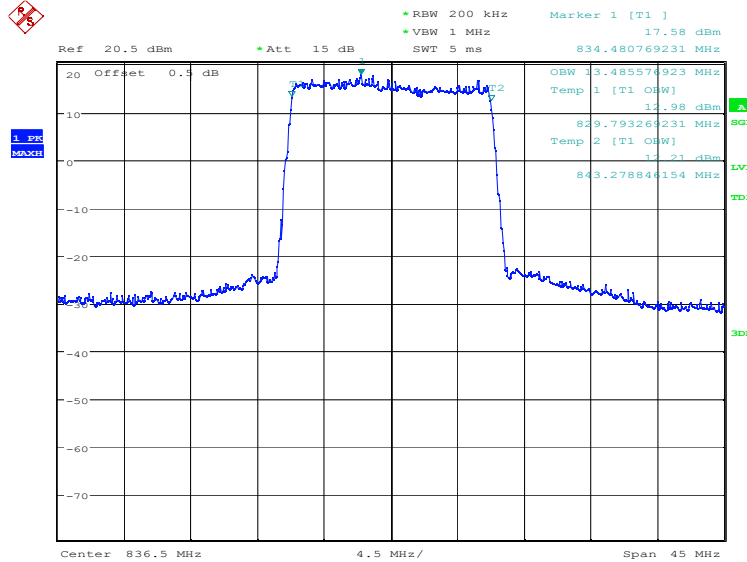


Date: 4.JAN.2023 16:14:17

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

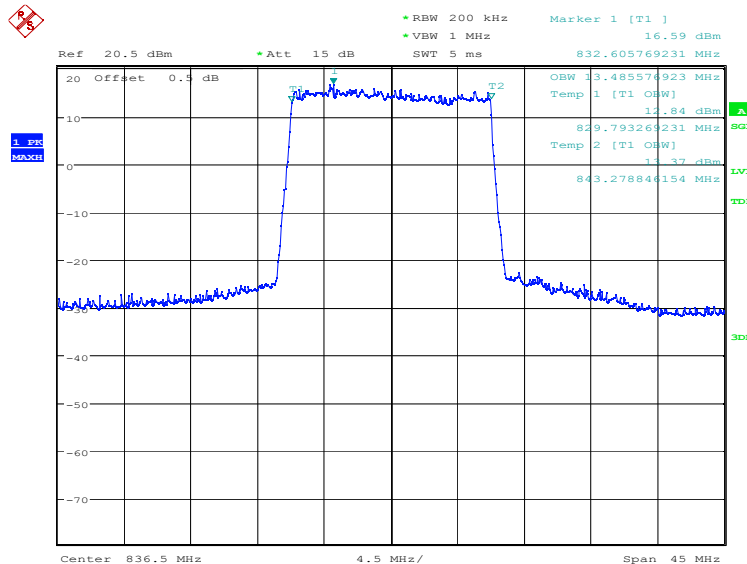
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	13485.58	13485.58

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



Date: 4.JAN.2023 16:15:00

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

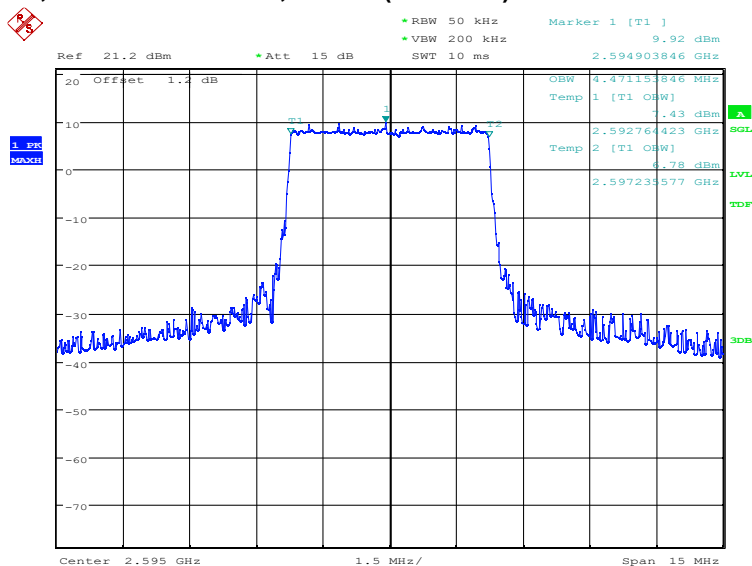


Date: 4.JAN.2023 16:15:40

LTE band 38, 5MHz (99%)

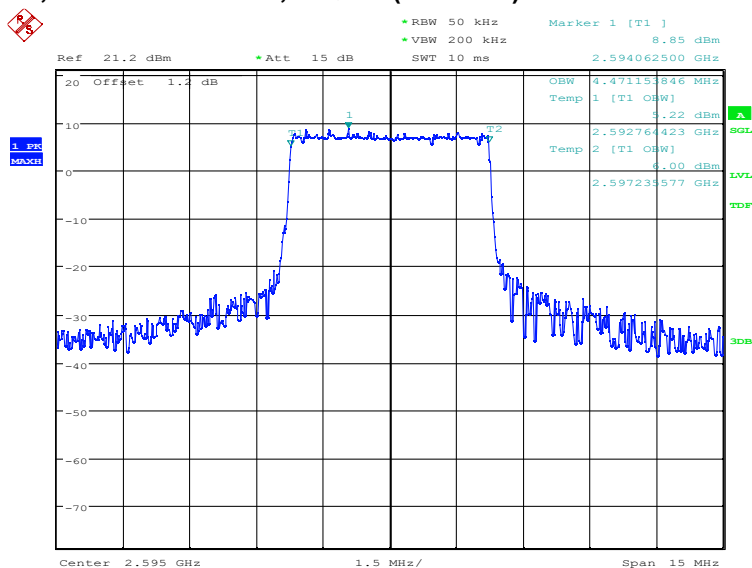
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2595.0	QPSK	16QAM
	4471.15	4471.15

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



Date: 5.JAN.2023 10:43:26

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

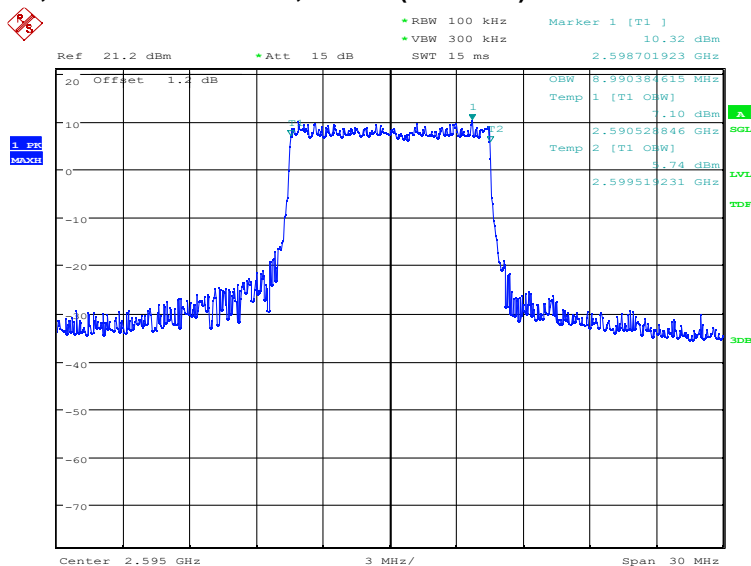


Date: 5.JAN.2023 10:44:06

LTE band 38, 10MHz (99%)

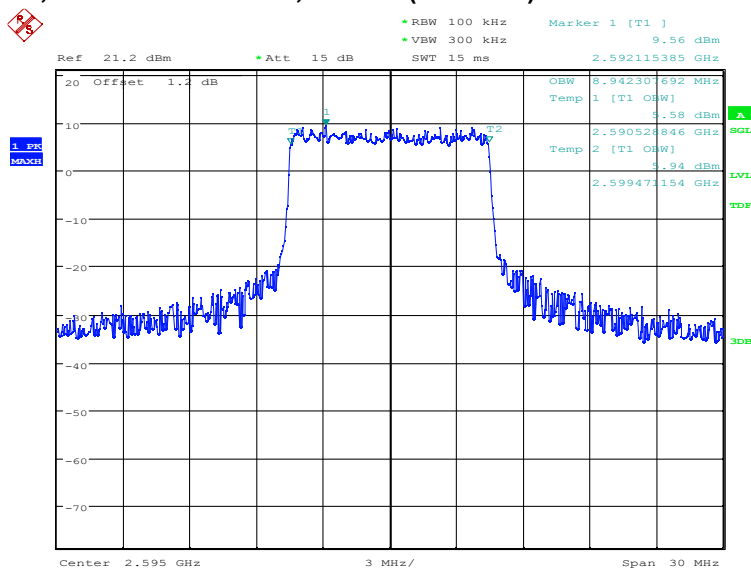
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2595.0	QPSK	16QAM
	8990.38	8942.31

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



Date: 5.JAN.2023 10:44:49

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

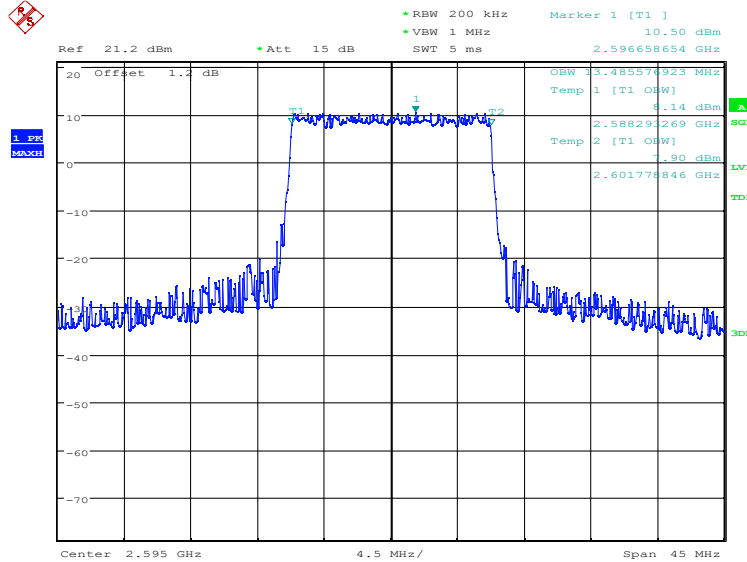


Date: 5.JAN.2023 10:45:29

LTE band 38,15MHz (99%)

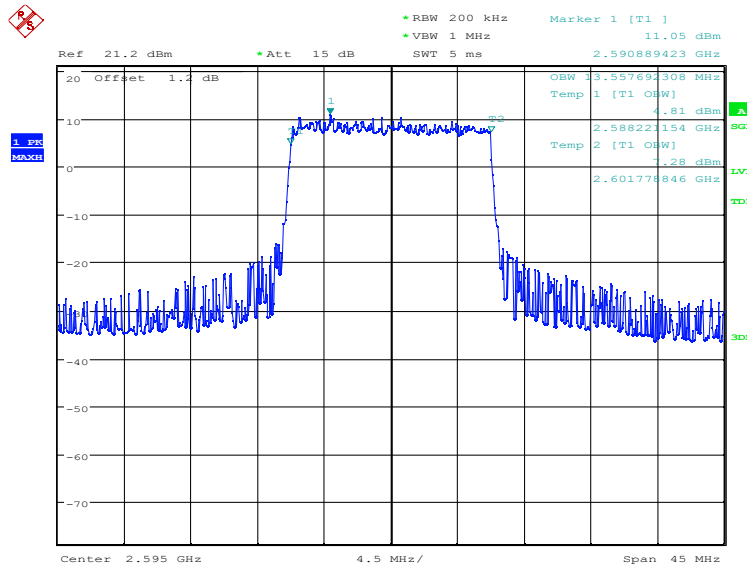
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2595.0	QPSK	16QAM
	13485.58	13557.69

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



Date: 5.JAN.2023 10:46:11

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

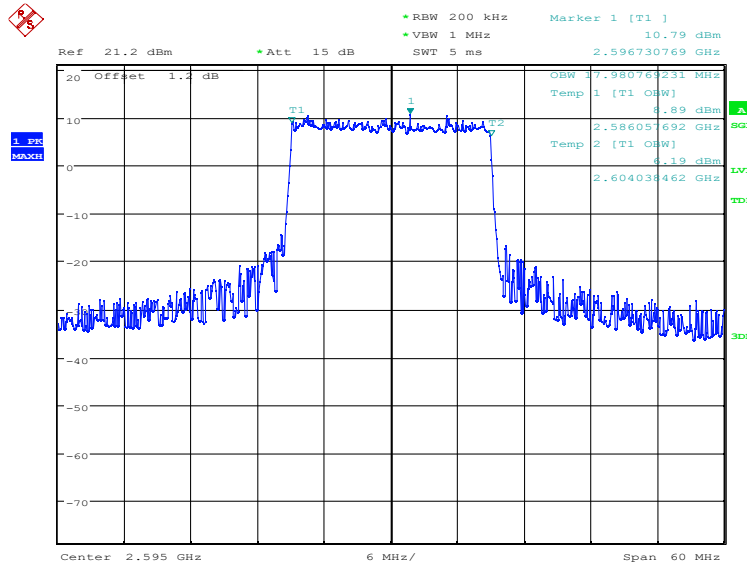


Date: 5.JAN.2023 10:46:52

LTE band 38, 20MHz (99%)

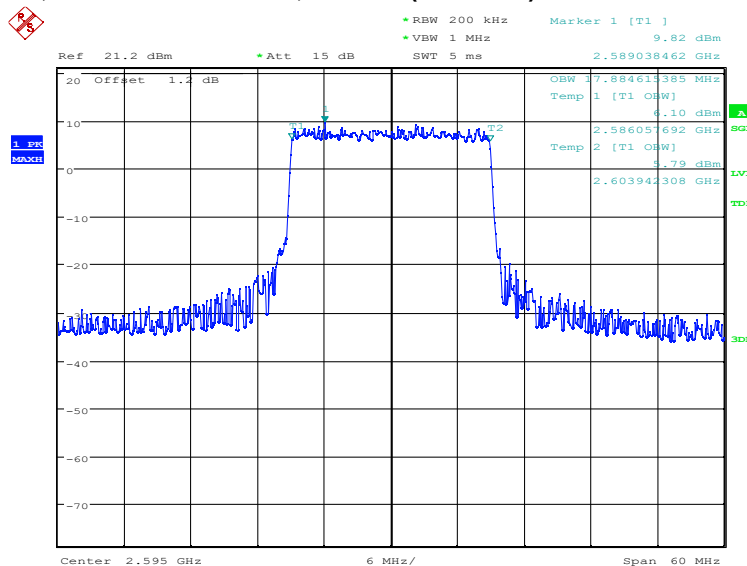
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2595.0	QPSK	16QAM
	17980.77	17884.62

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



Date: 5.JAN.2023 10:47:34

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

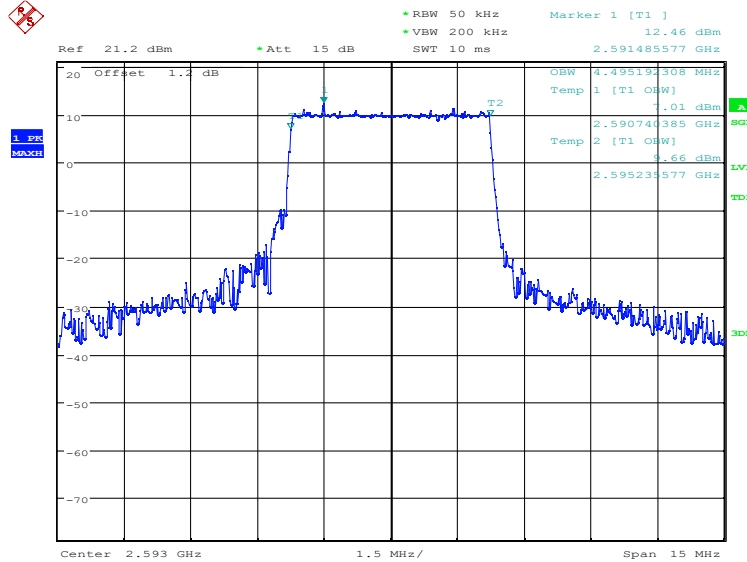


Date: 5.JAN.2023 10:48:14

LTE band 41, 5MHz (99%)

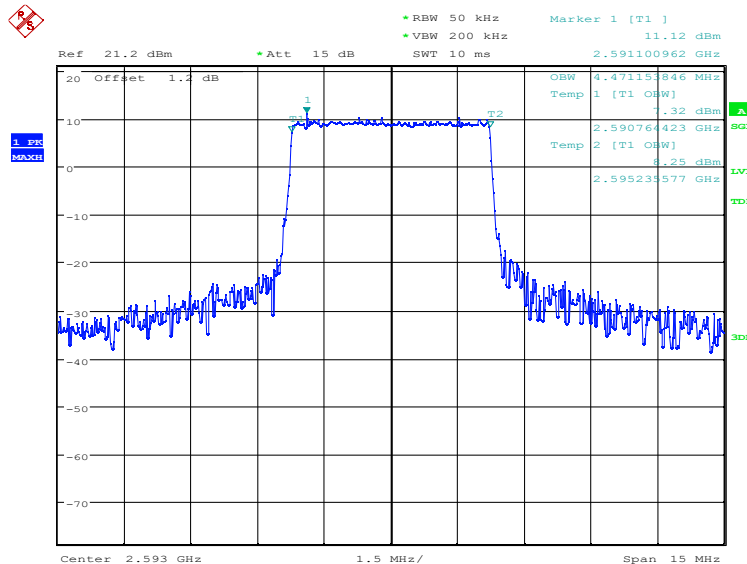
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	4495.19	4471.15

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



Date: 5.JAN.2023 10:48:59

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

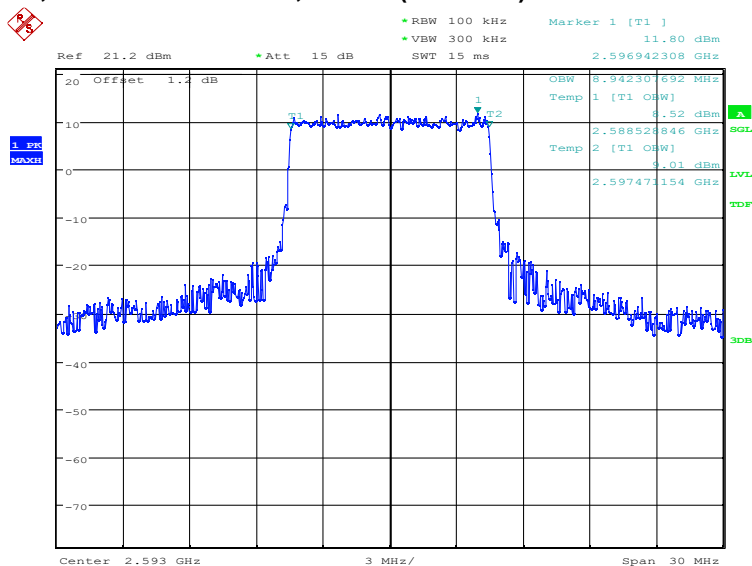


Date: 5.JAN.2023 10:49:39

LTE band 41, 10MHz (99%)

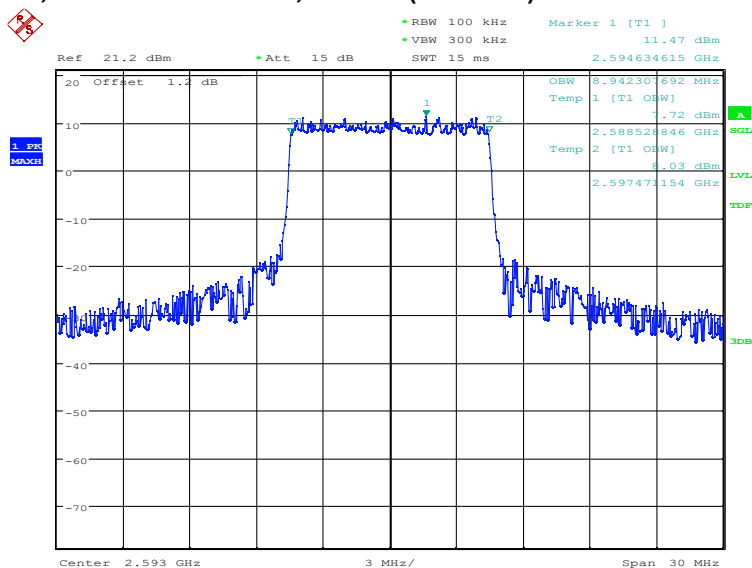
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 5.JAN.2023 10:50:21

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

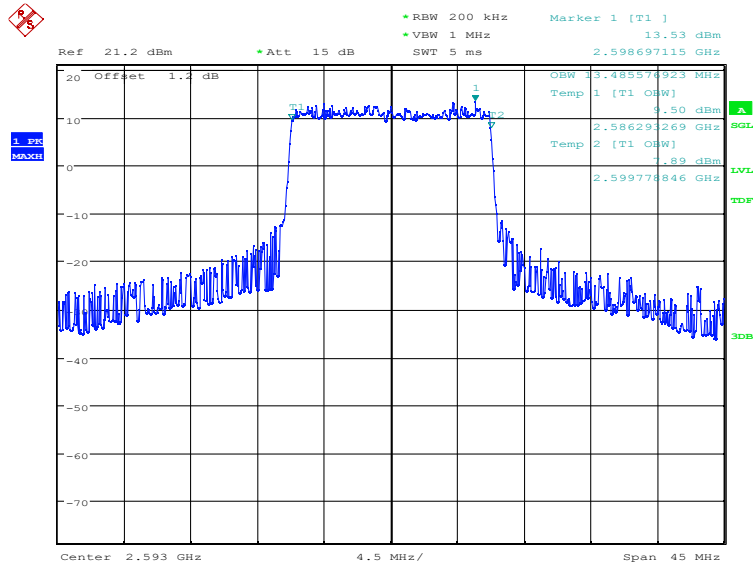


Date: 5.JAN.2023 10:51:01

LTE band 41, 15MHz (99%)

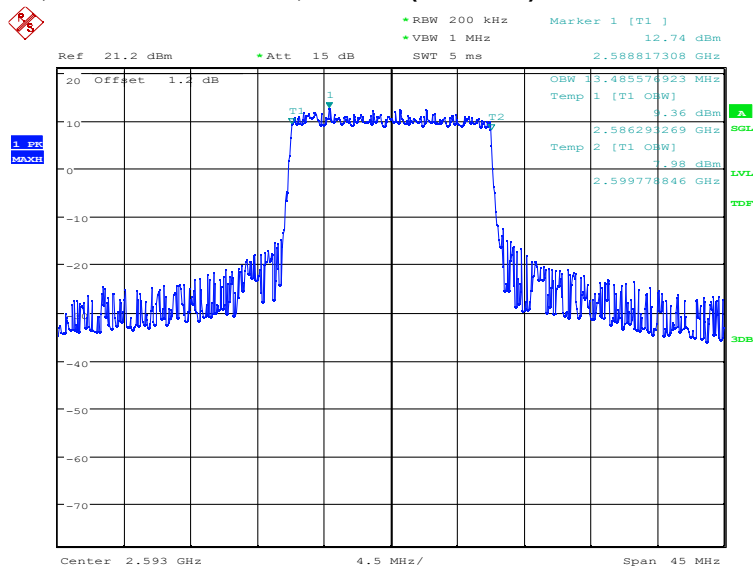
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	13485.58	13485.58

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



Date: 5.JAN.2023 10:51:44

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

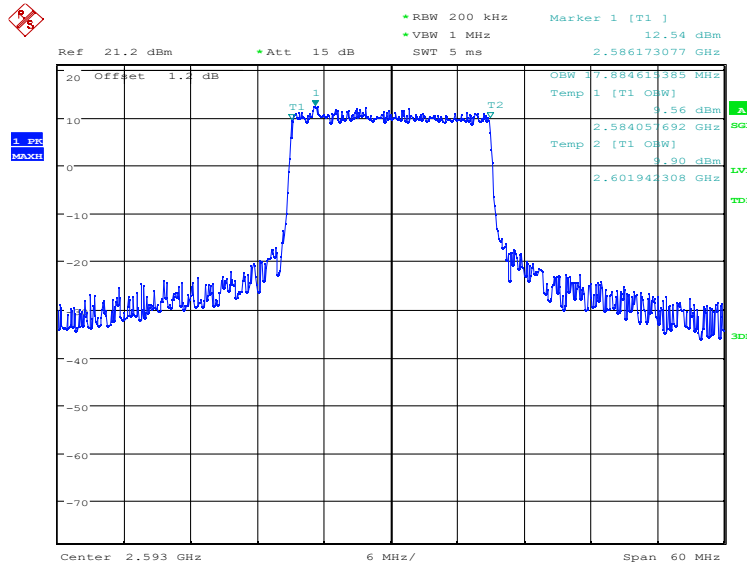


Date: 5.JAN.2023 10:52:24

LTE band 41, 20MHz (99%)

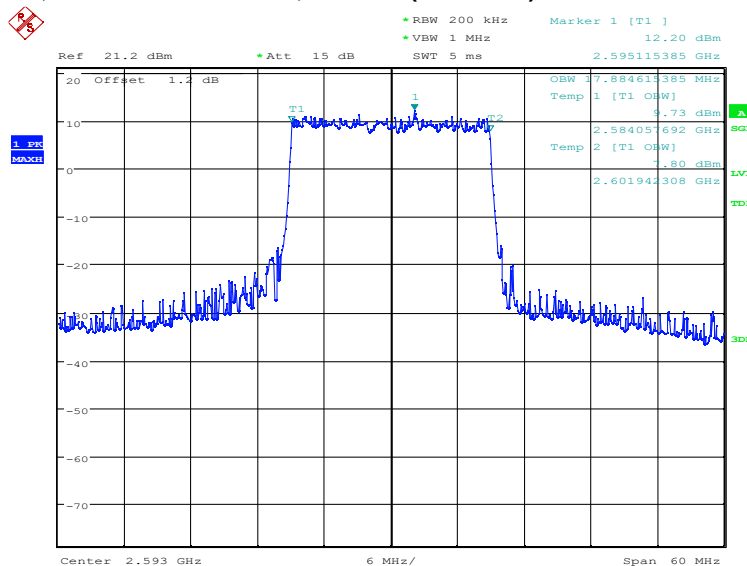
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	17884.62	17884.62

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



Date: 5.JAN.2023 10:53:07

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

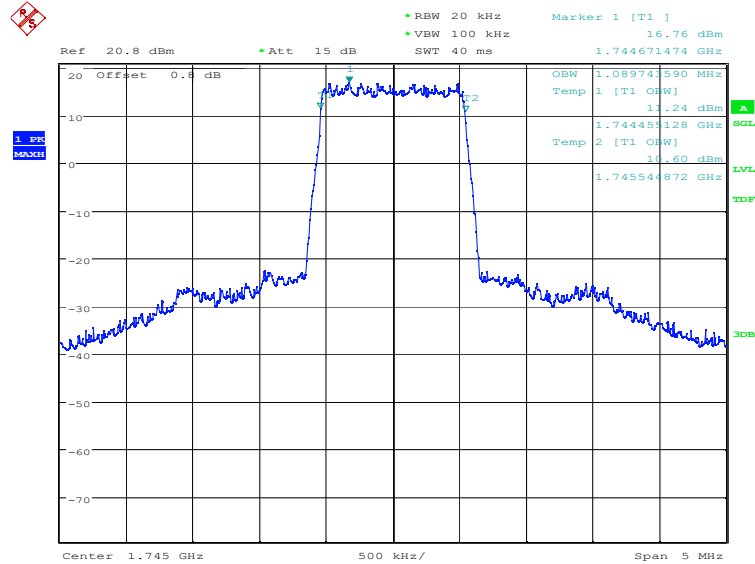


Date: 5.JAN.2023 10:53:47

LTE band 66, 1.4MHz (99%)

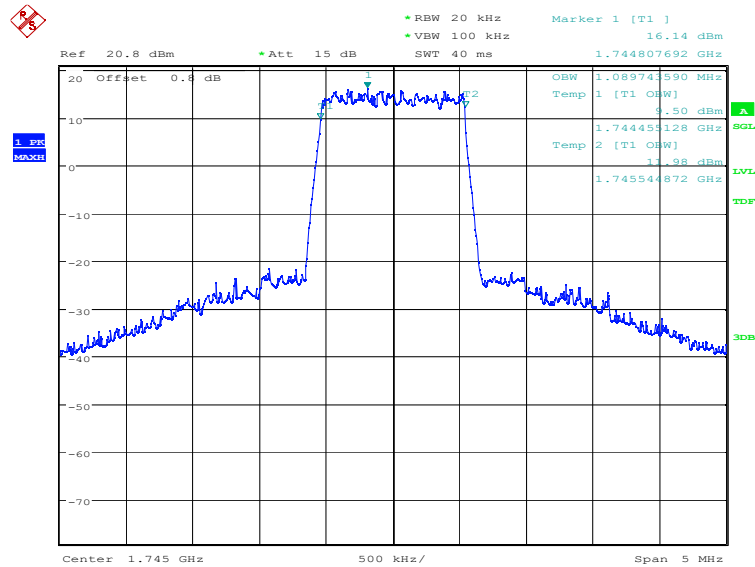
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	1089.74	1089.74

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



Date: 3.JAN.2023 16:32:45

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

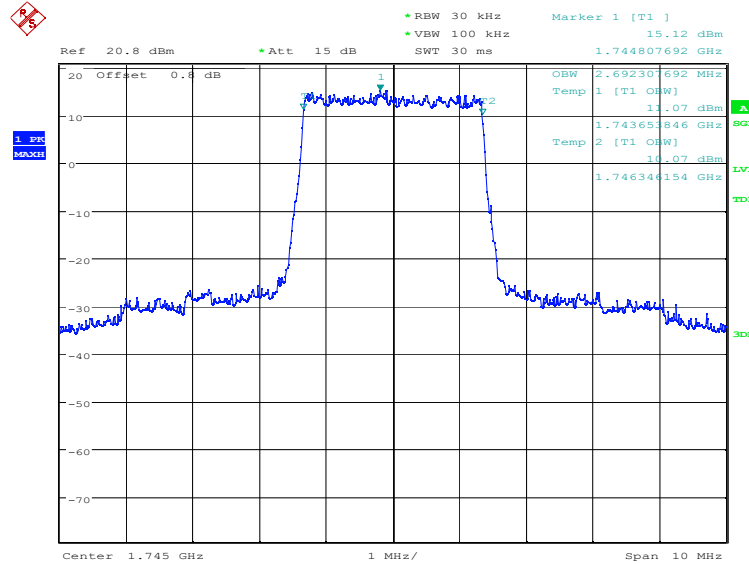


Date: 3.JAN.2023 16:33:25

LTE band 66, 3MHz (99%)

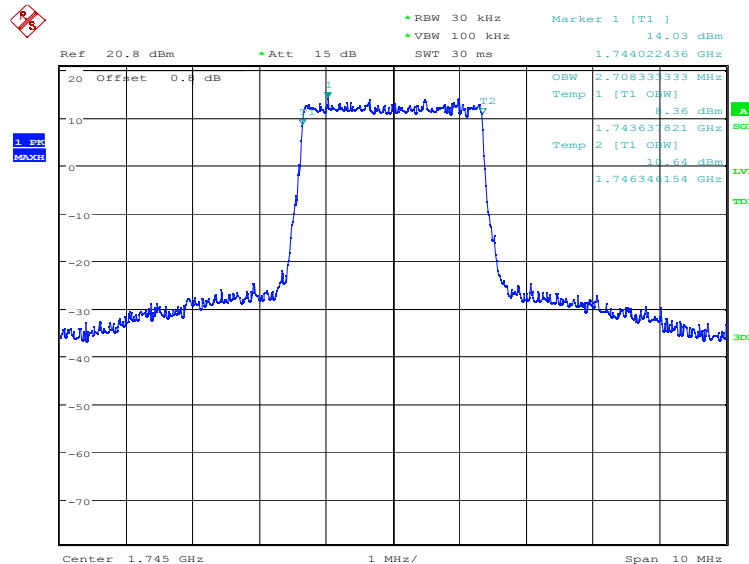
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	2692.31	2708.33

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



Date: 3.JAN.2023 16:34:07

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

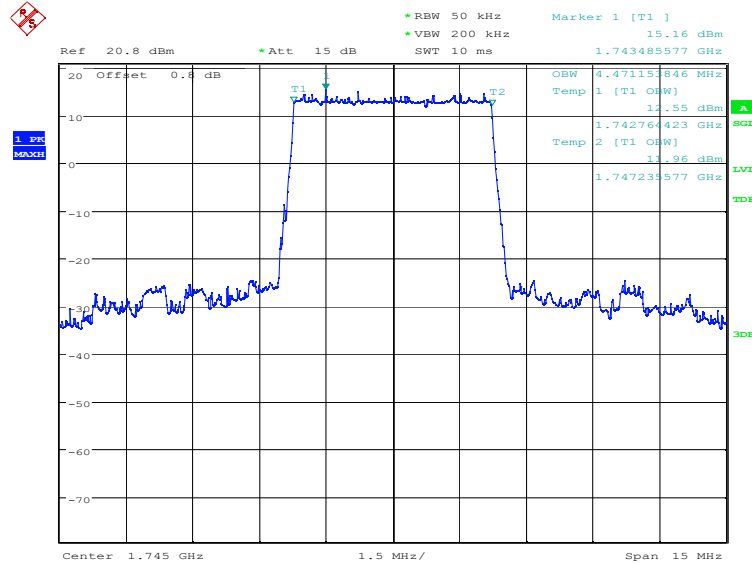


Date: 3.JAN.2023 16:34:48

LTE band 66, 5MHz (99%)

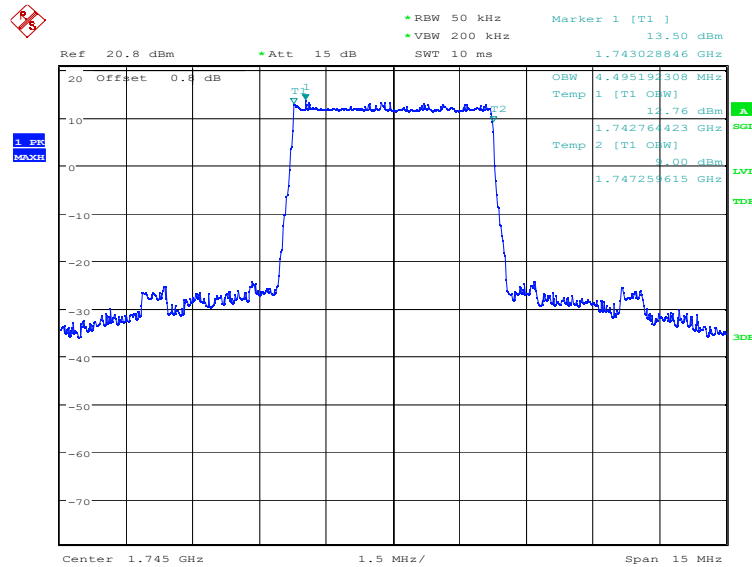
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	4471.15	4495.19

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



Date: 3.JAN.2023 16:35:30

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

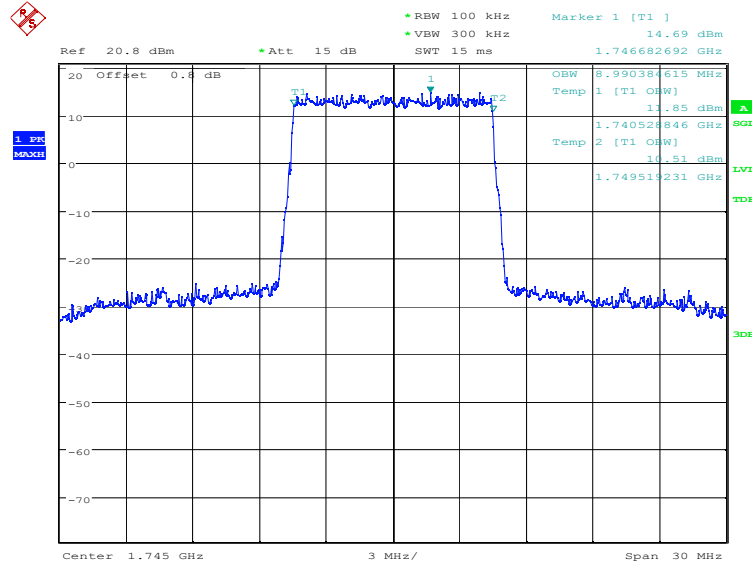


Date: 3.JAN.2023 16:36:10

LTE band 66, 10MHz (99%)

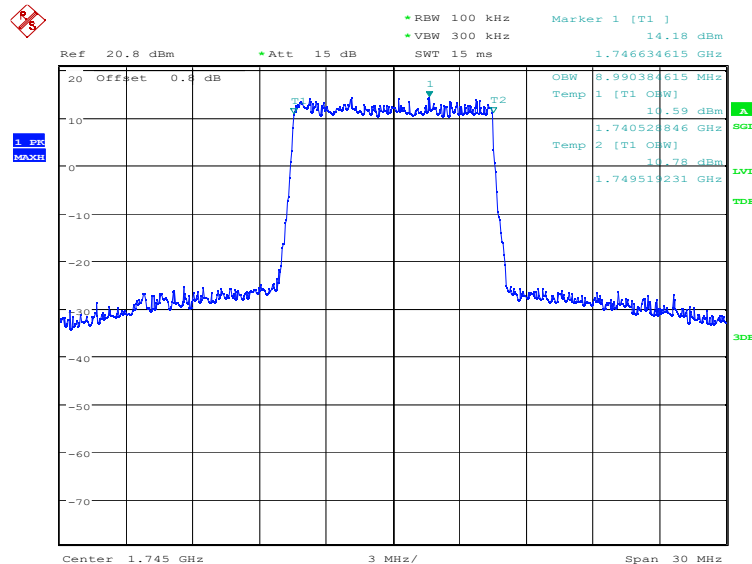
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	8990.38	8990.38

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



Date: 3.JAN.2023 16:36:53

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

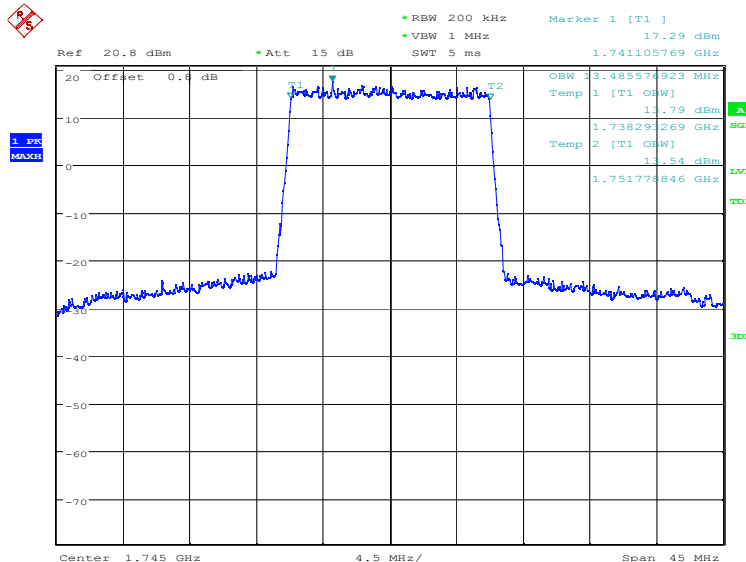


Date: 3.JAN.2023 16:37:33

LTE band 66, 15MHz (99%)

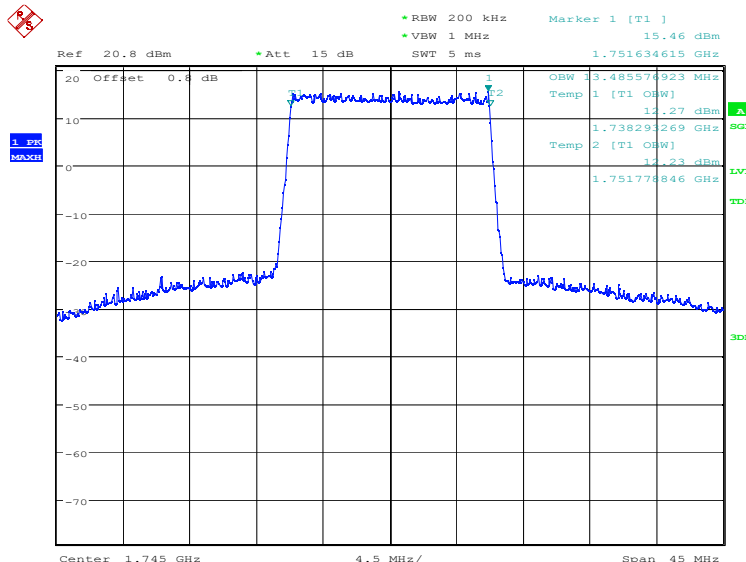
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	13485.58	13485.58

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



Date: 3.JAN.2023 16:38:16

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

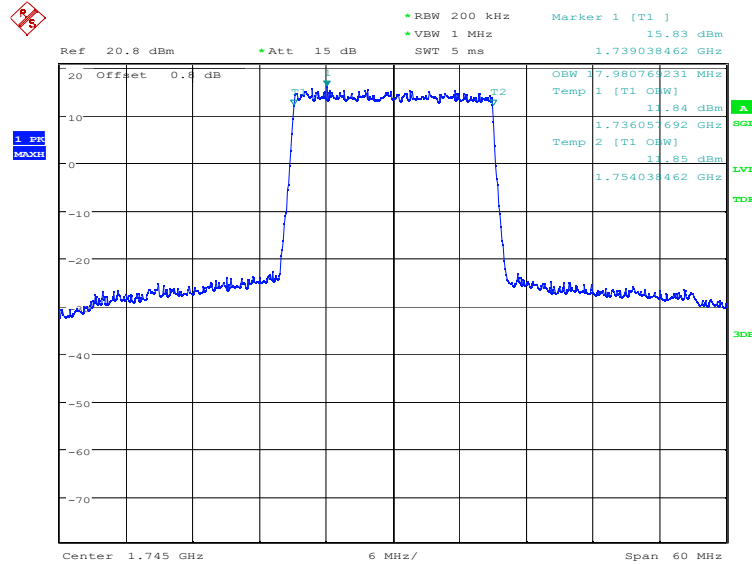


Date: 3.JAN.2023 16:38:56

LTE band 66, 20MHz (99%)

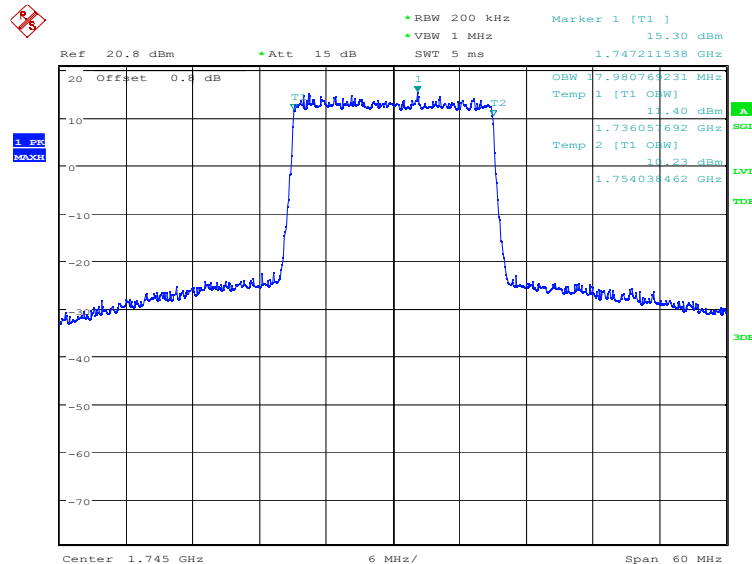
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	17980.77	17980.77

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



Date: 3.JAN.2023 16:39:38

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



Date: 3.JAN.2023 16:40:18

Note: Expanded measurement uncertainty is $U = 3428 \text{ Hz}$, $k = 2$.

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.

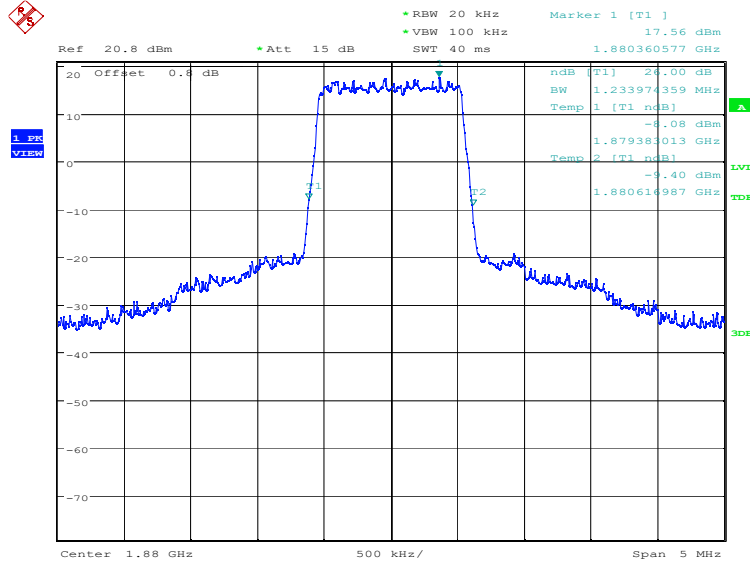
The measurement method is from ANSI C63.26:

- 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 $\geq 3 \times \text{RBW}$.
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
- d) The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- e) Set spectrum analyzer detection mode to peak, and the trace mode to max hold.

LTE band 2, 1.4MHz (-26dBc)

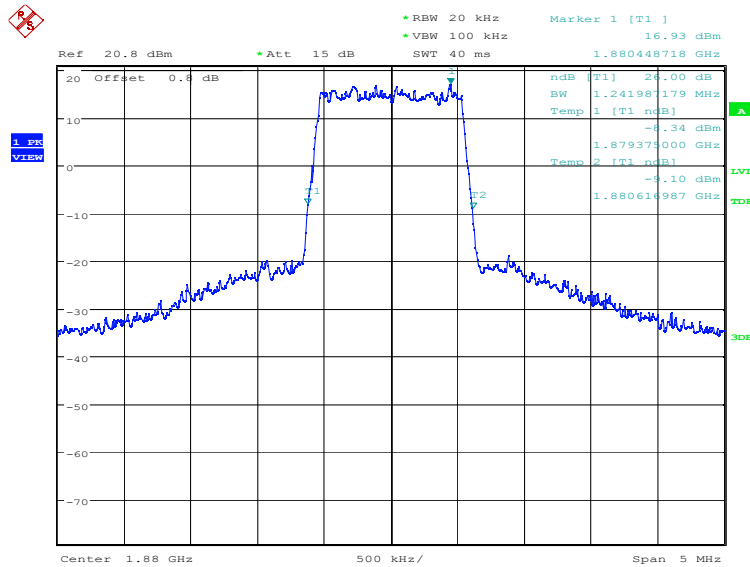
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	1233.97	1241.99

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



Date: 3.JAN.2023 16:41:38

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

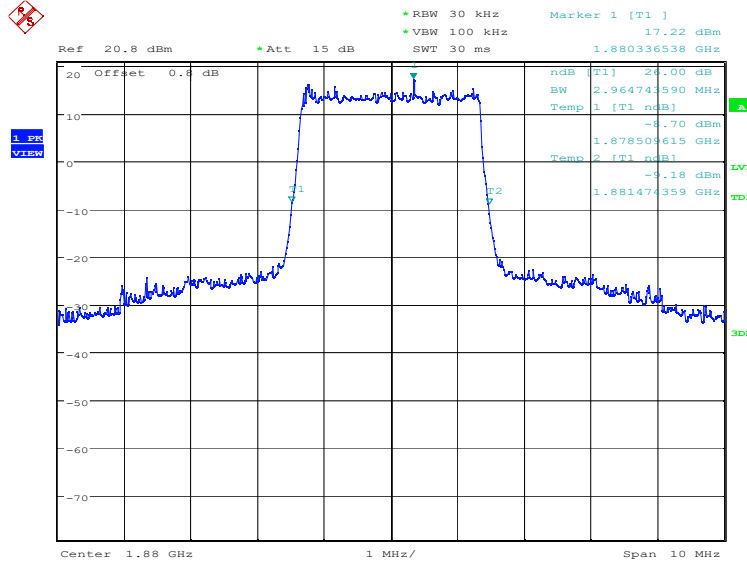


Date: 3.JAN.2023 16:42:18

LTE band 2, 3MHz (-26dBc)

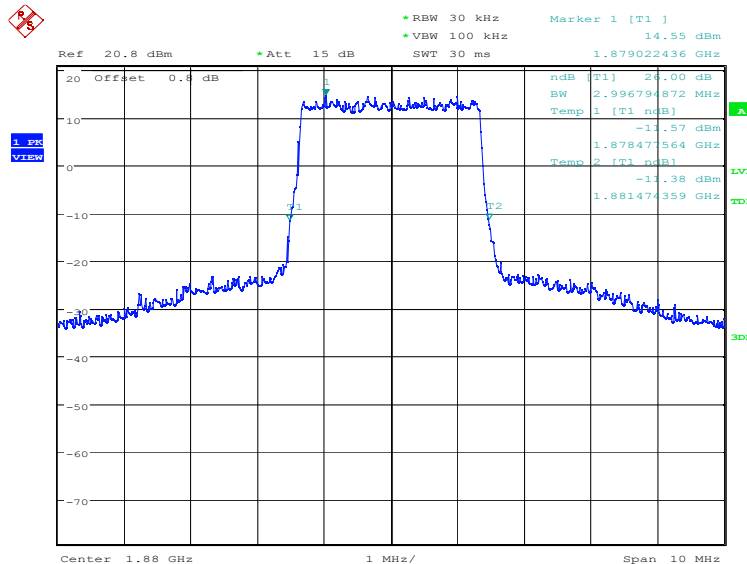
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	2964.74	2996.79

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



Date: 3.JAN.2023 16:43:01

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

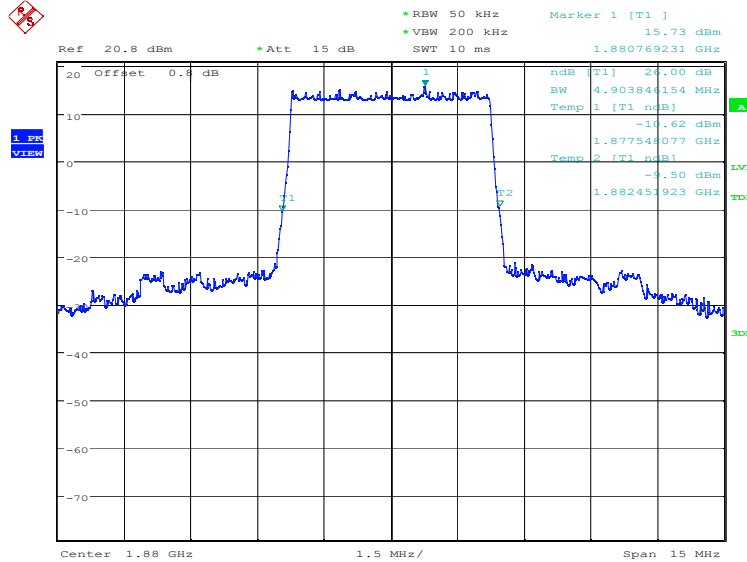


Date: 3.JAN.2023 16:43:41

LTE band 2, 5MHz (-26dBc)

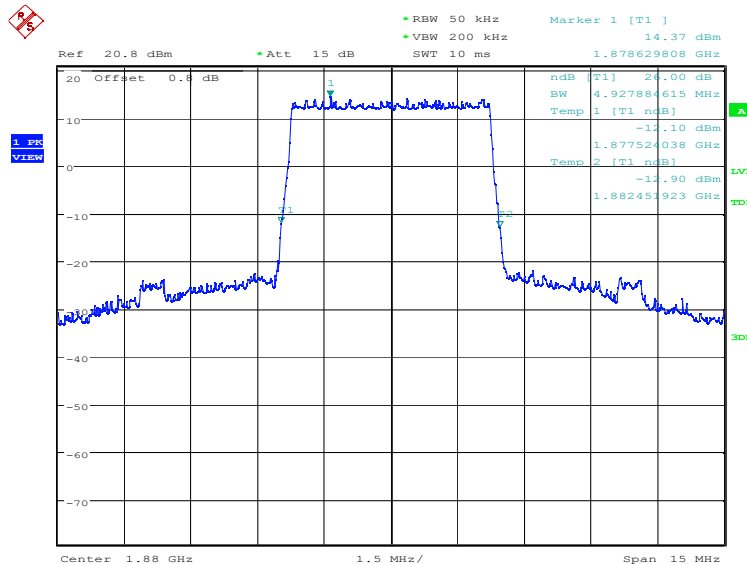
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	4903.85	4927.88

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



Date: 3.JAN.2023 16:44:24

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

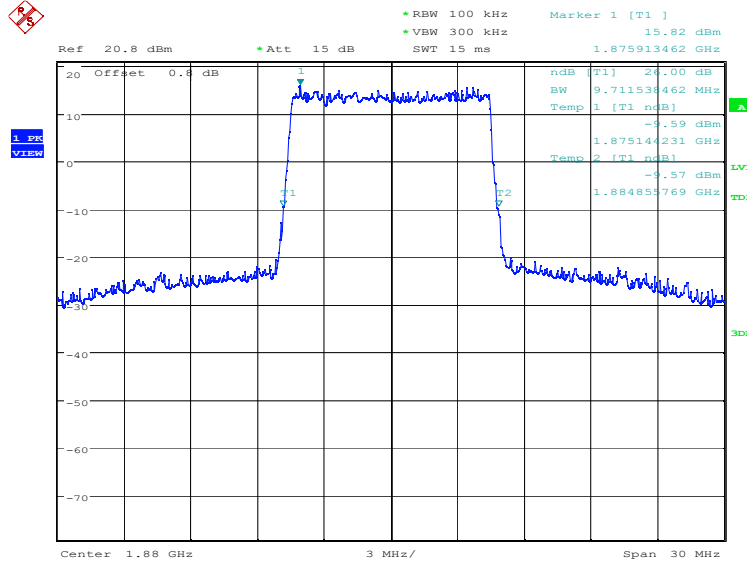


Date: 3.JAN.2023 16:45:05

LTE band 2, 10MHz (-26dBc)

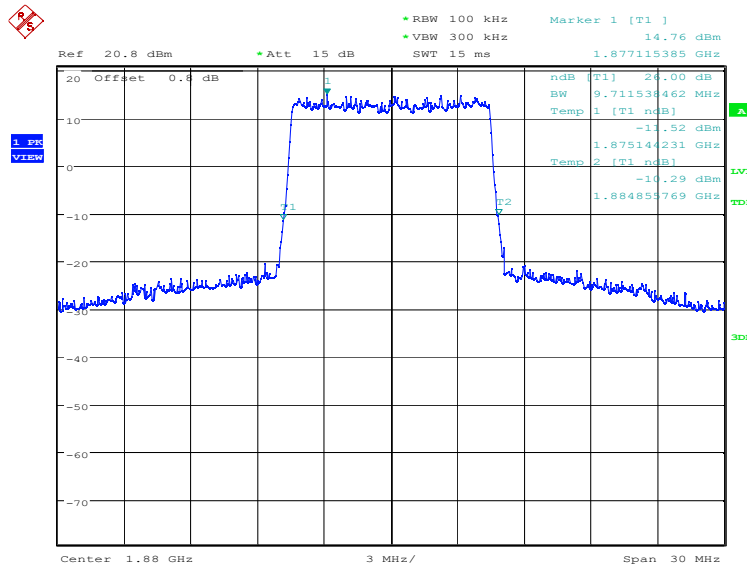
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	9711.54	9711.54

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



Date: 3.JAN.2023 16:45:47

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

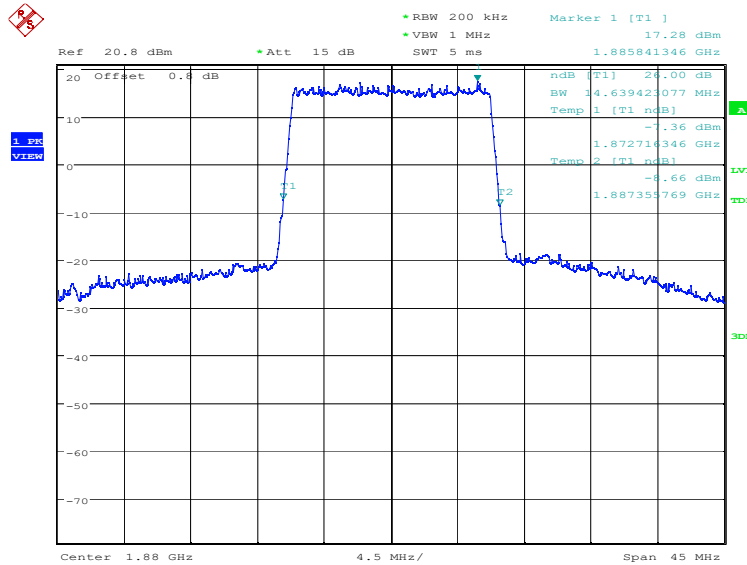


Date: 3.JAN.2023 16:46:28

LTE band 2, 15MHz (-26dBc)

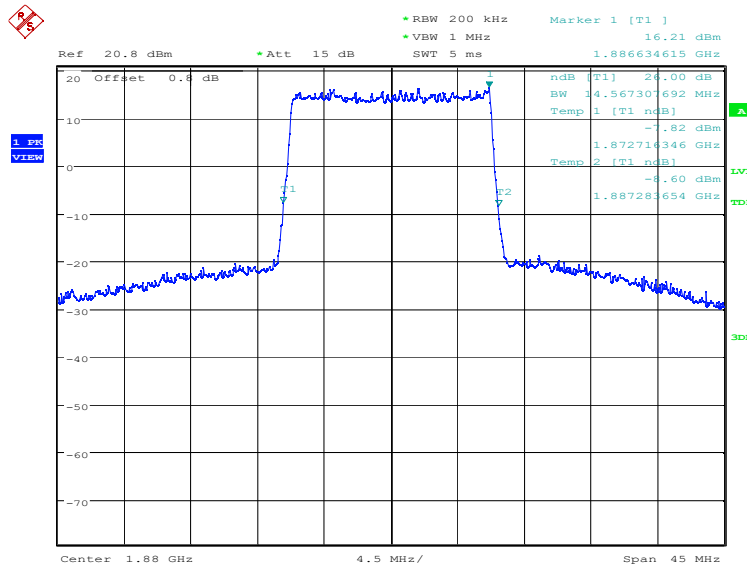
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	14639.42	14567.31

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



Date: 3.JAN.2023 16:47:10

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

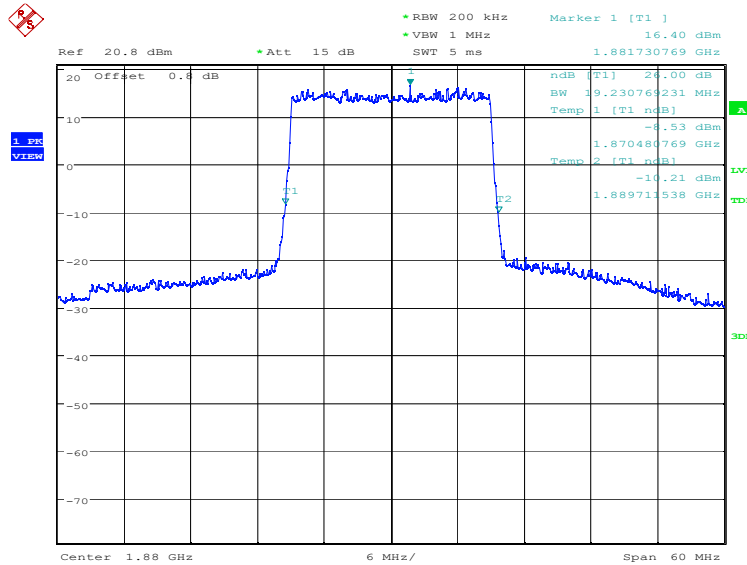


Date: 3.JAN.2023 16:47:51

LTE band 2, 20MHz (-26dBc)

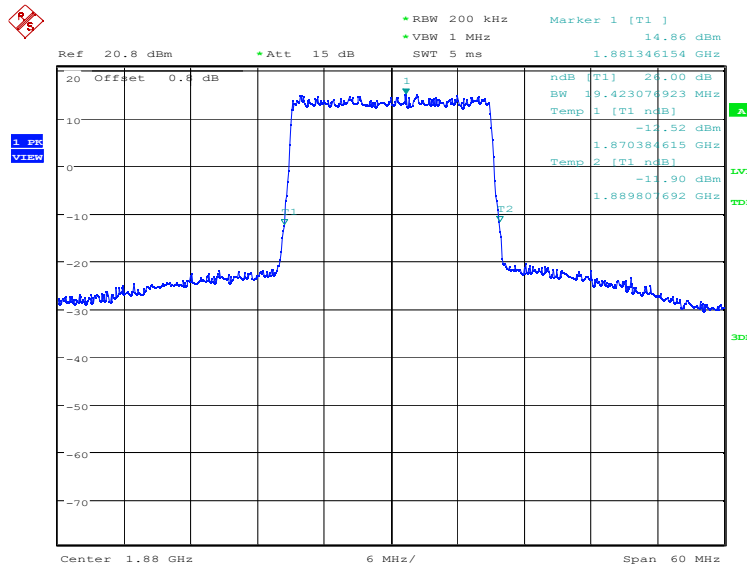
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	19230.77	19423.08

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



Date: 3.JAN.2023 16:48:34

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

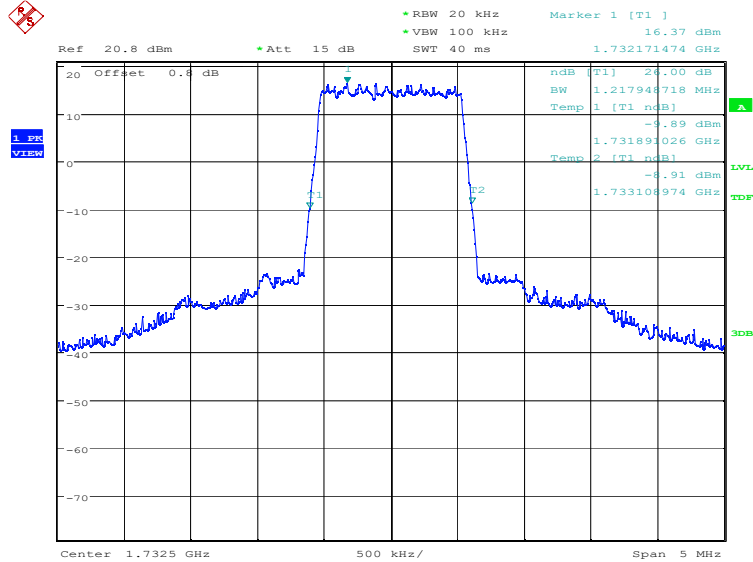


Date: 3.JAN.2023 16:49:14

LTE band 4, 1.4MHz (-26dBc)

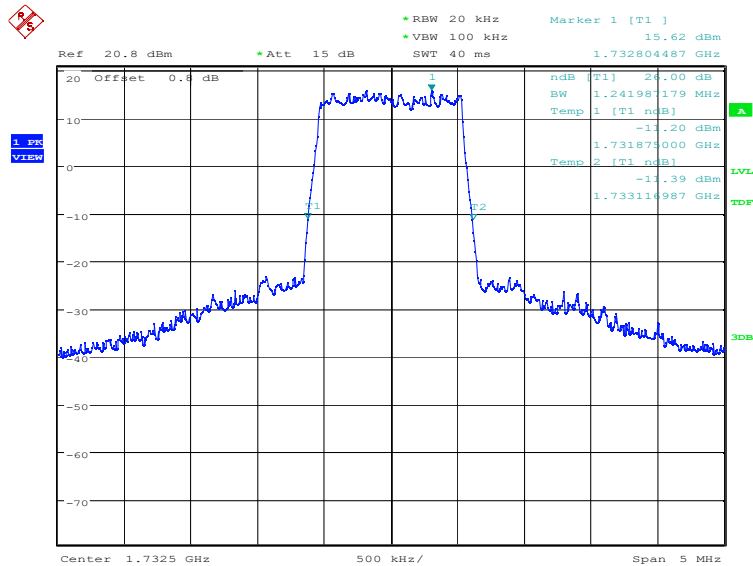
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1732.5	QPSK	16QAM
	1217.95	1241.99

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



Date: 3.JAN.2023 16:49:59

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

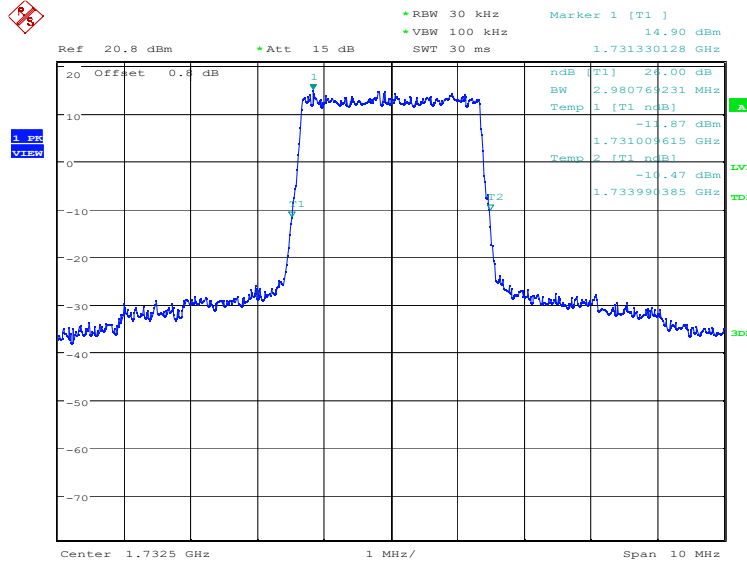


Date: 3.JAN.2023 16:50:39

LTE band 4, 3MHz (-26dBc)

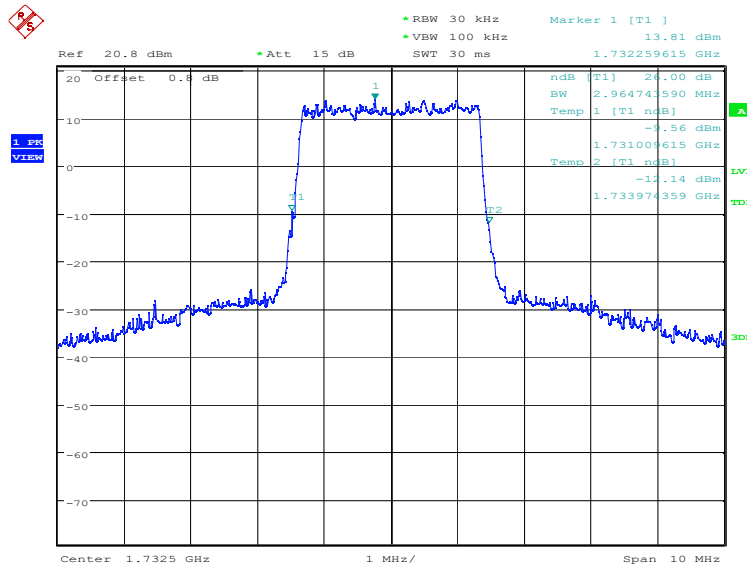
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1732.5	QPSK	16QAM
	2980.77	2964.74

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



Date: 3.JAN.2023 16:51:22

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

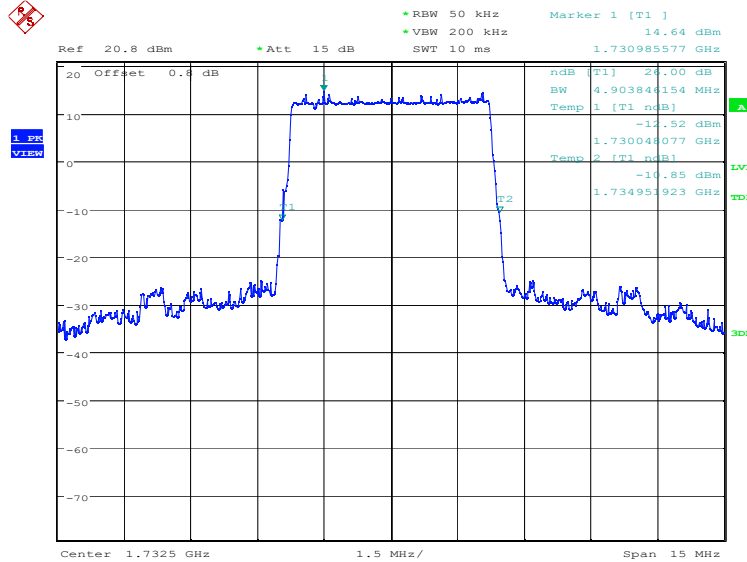


Date: 3.JAN.2023 16:52:02

LTE band 4, 5MHz (-26dBc)

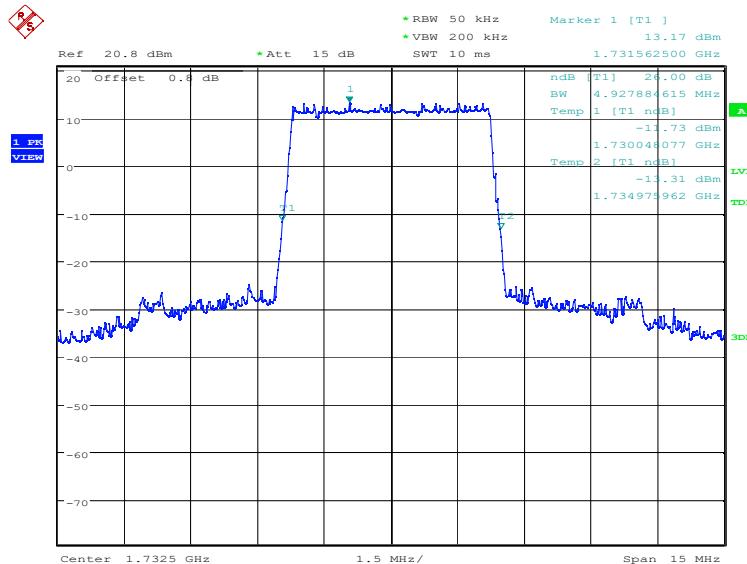
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1732.5	QPSK	16QAM
	4903.85	4927.88

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



Date: 3.JAN.2023 16:52:45

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

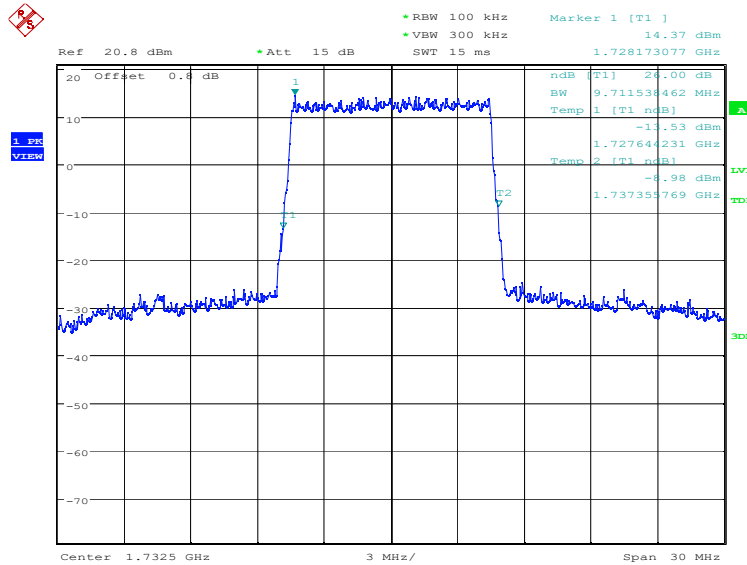


Date: 3.JAN.2023 16:53:26

LTE band 4, 10MHz (-26dBc)

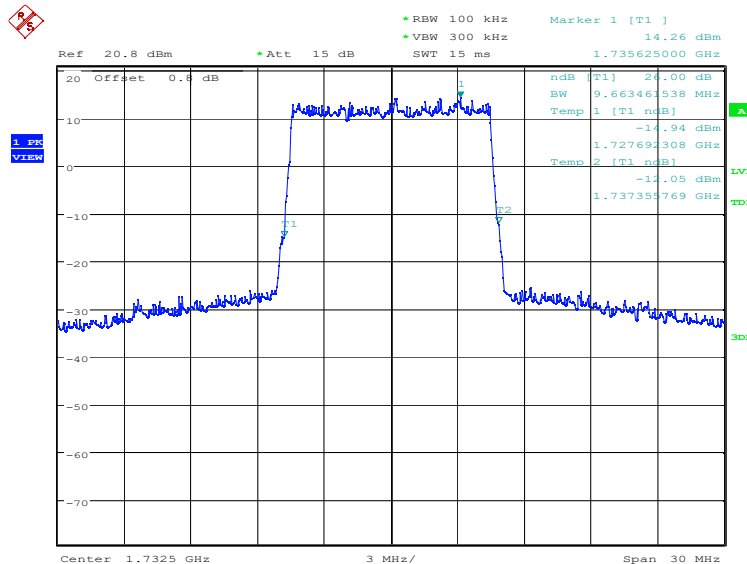
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1732.5	QPSK	16QAM
	9711.54	9663.46

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



Date: 3.JAN.2023 16:54:09

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

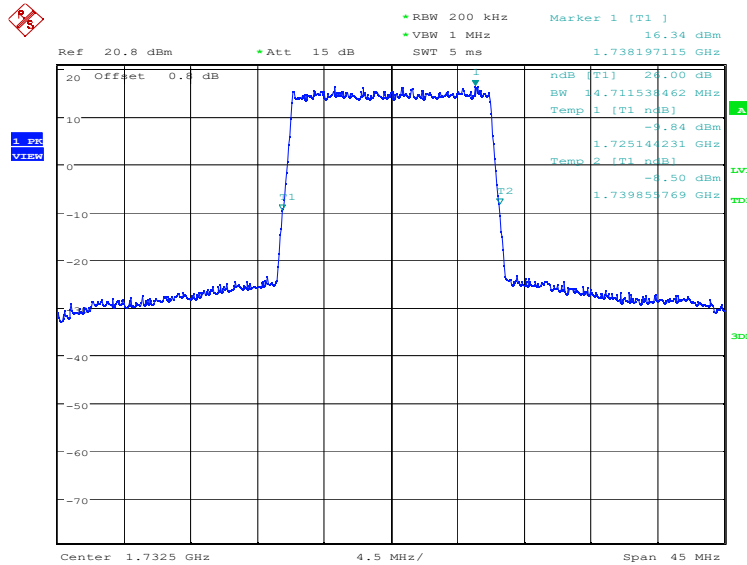


Date: 3.JAN.2023 16:54:49

LTE band 4, 15MHz (-26dBc)

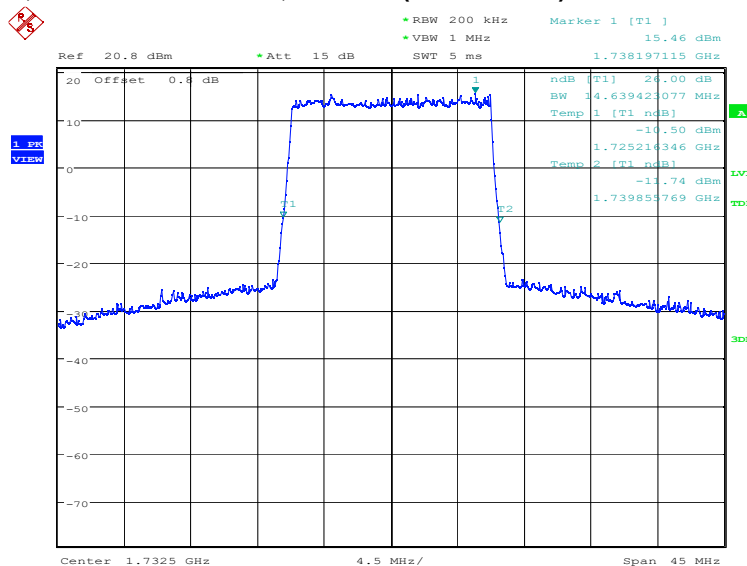
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1732.5	QPSK	16QAM
	14711.54	14639.42

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



Date: 3.JAN.2023 16:55:32

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

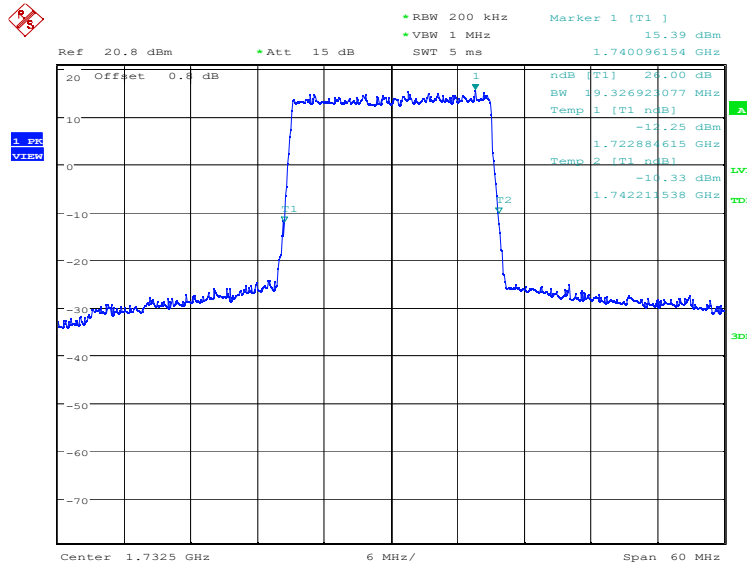


Date: 3.JAN.2023 16:56:13

LTE band 4, 20MHz (-26dBc)

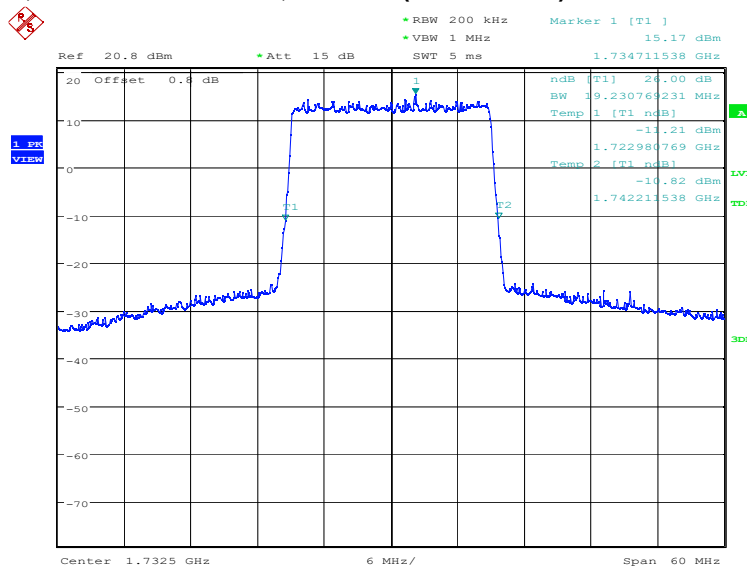
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1732.5	QPSK	16QAM
	19326.92	19230.77

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



Date: 3.JAN.2023 16:56:55

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

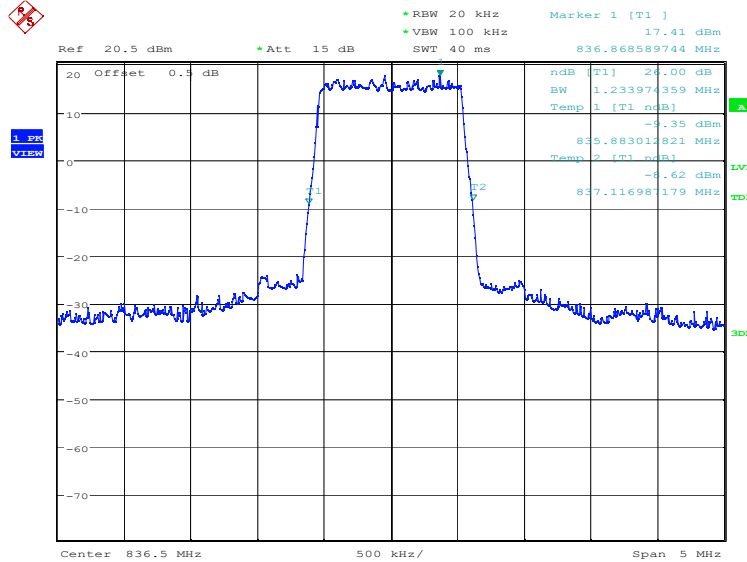


Date: 3.JAN.2023 16:57:36

LTE band 5, 1.4MHz (-26dBc)

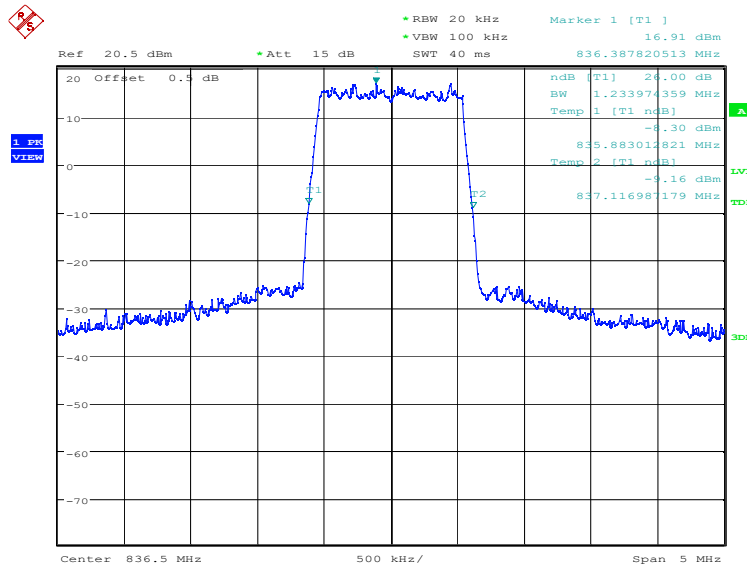
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	1233.97	1233.97

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



Date: 4.JAN.2023 16:23:25

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

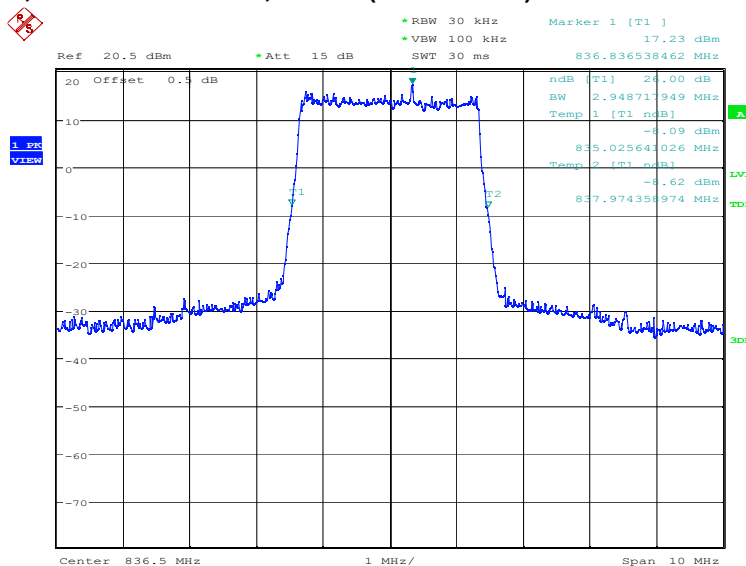


Date: 4.JAN.2023 16:24:05

LTE band 5, 3MHz (-26dBc)

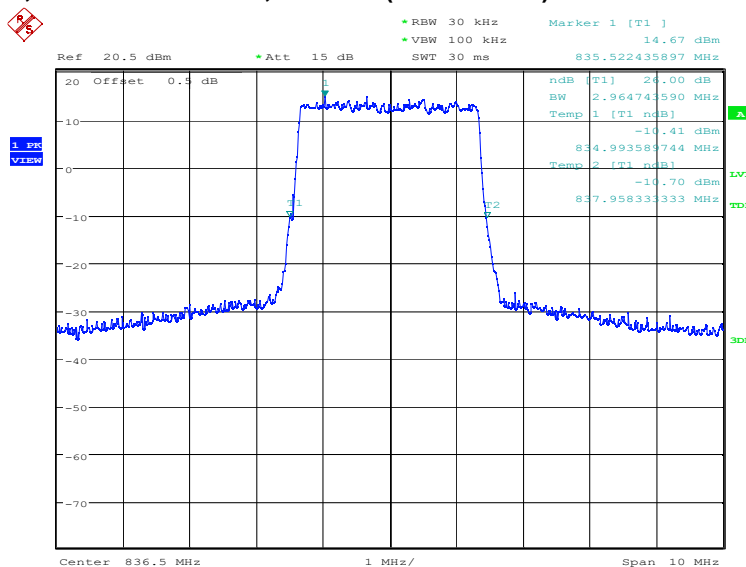
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	2948.72	2964.74

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



Date: 4.JAN.2023 16:24:48

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

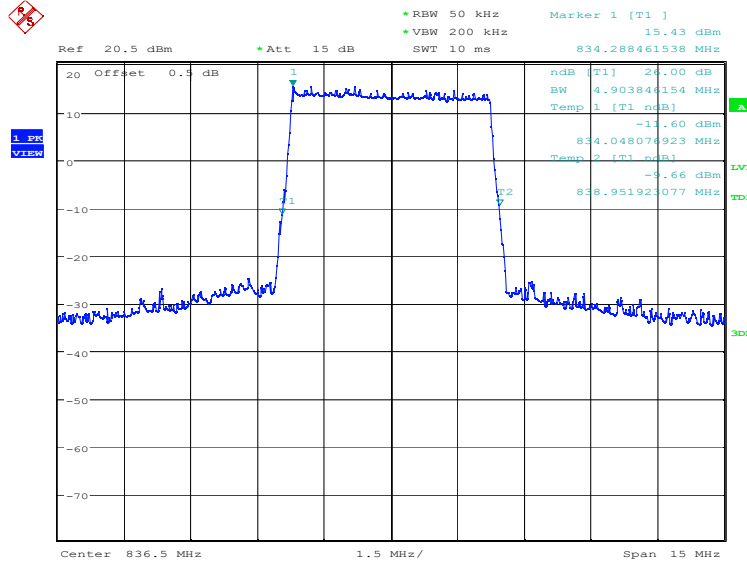


Date: 4.JAN.2023 16:25:28

LTE band 5, 5MHz (-26dBc)

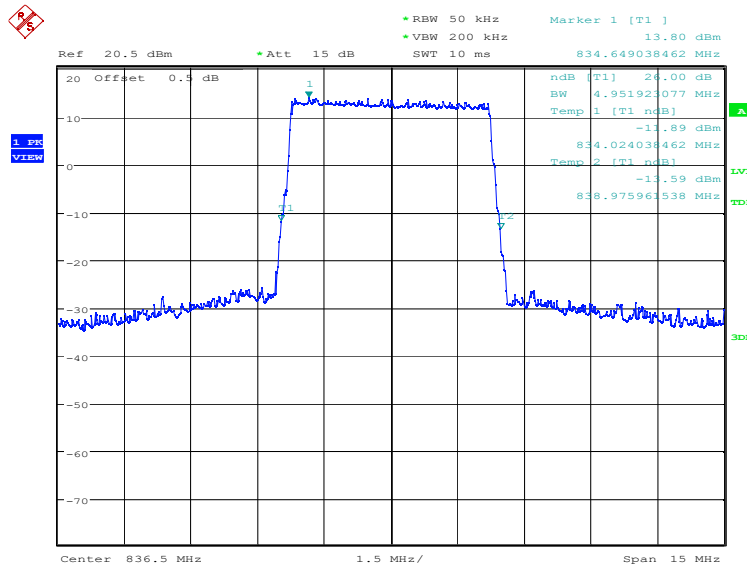
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	4903.85	4951.92

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



Date: 4.JAN.2023 16:26:11

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

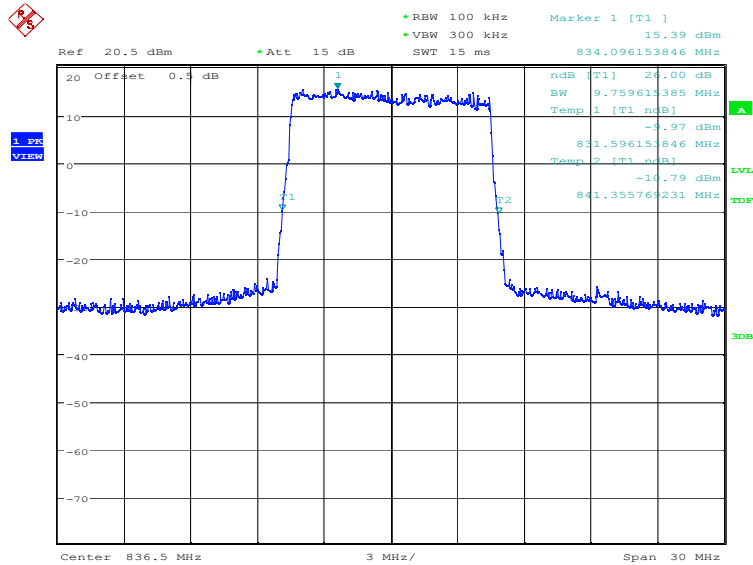


Date: 4.JAN.2023 16:26:51

LTE band 5, 10MHz (-26dBc)

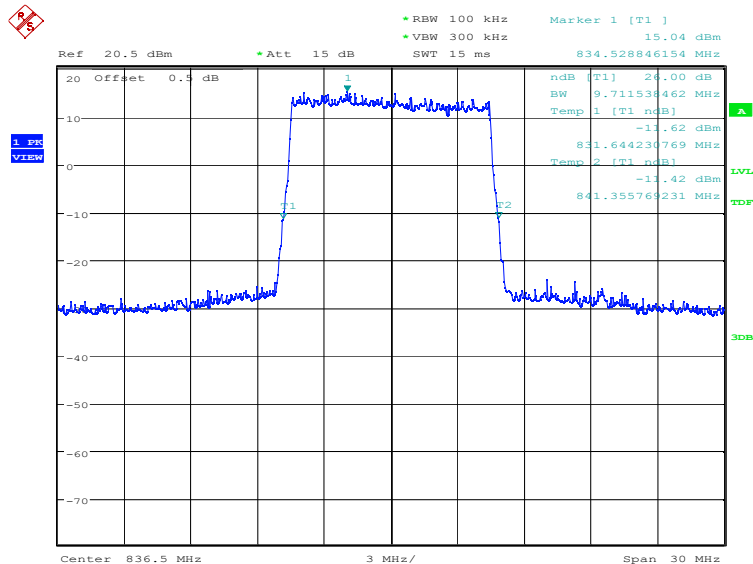
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	9759.62	9711.54

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



Date: 4.JAN.2023 16:27:34

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

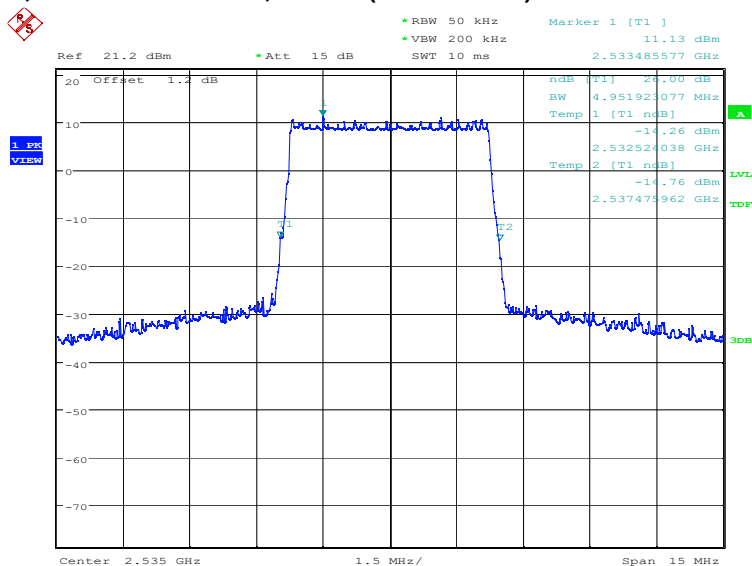


Date: 4.JAN.2023 16:28:15

LTE band 7, 5MHz (-26dBc)

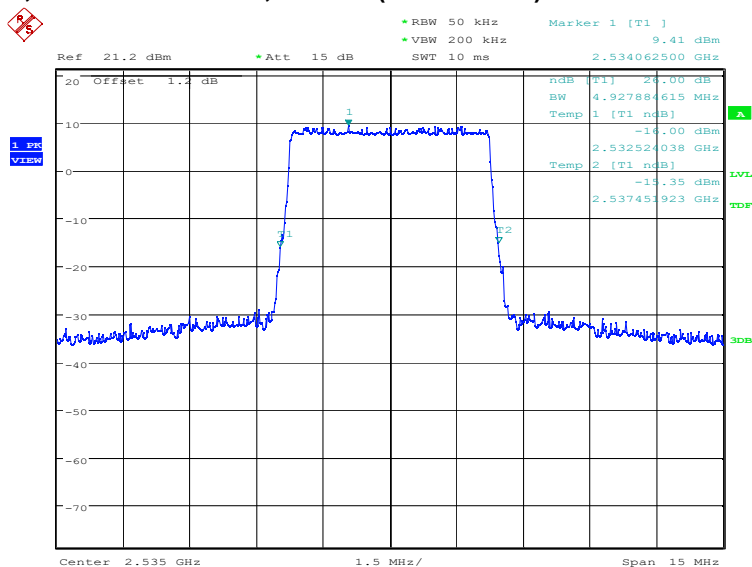
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	4951.92	4927.88

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



Date: 3.JAN.2023 16:58:20

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

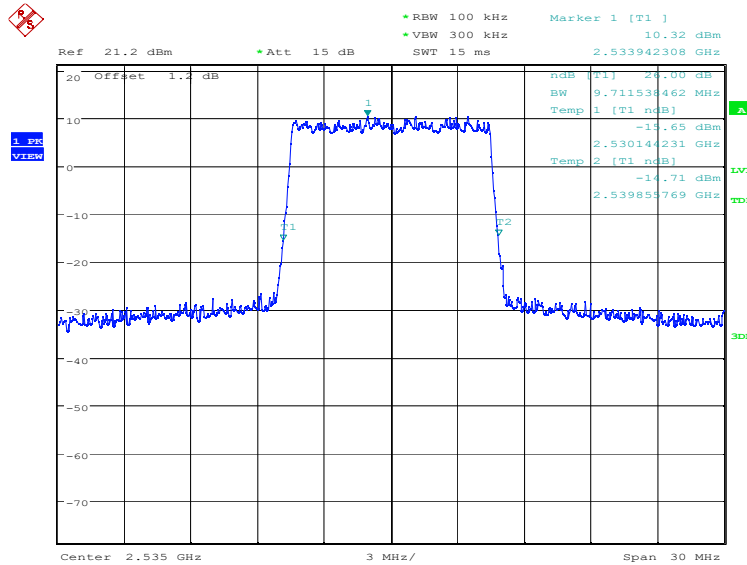


Date: 3.JAN.2023 16:59:01

LTE band 7, 10MHz (-26dBc)

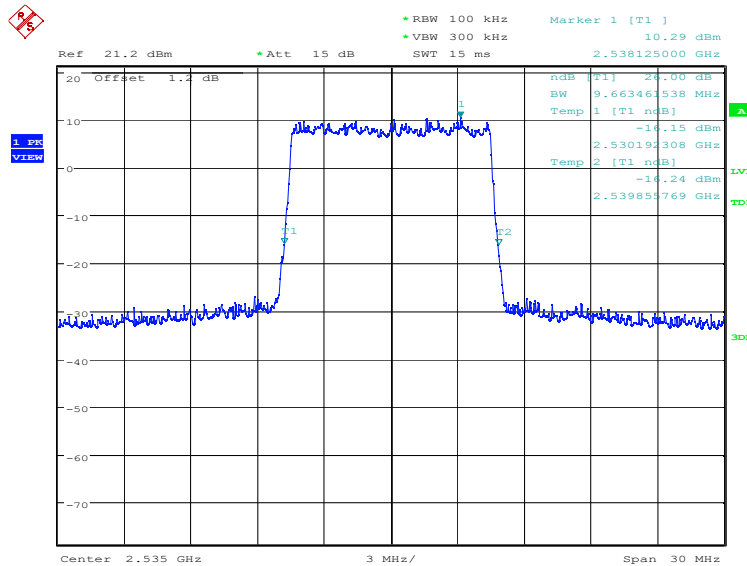
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	9711.54	9663.46

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



Date: 3.JAN.2023 16:59:44

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

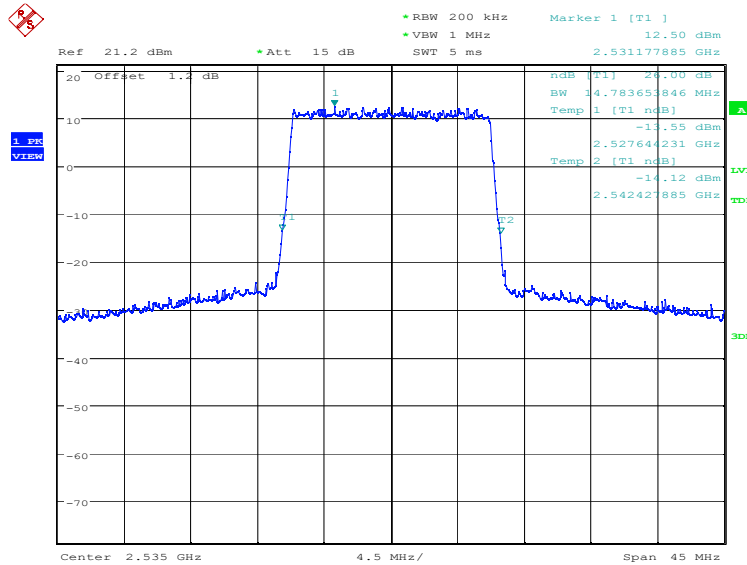


Date: 3.JAN.2023 17:00:25

LTE band 7, 15MHz (-26dBc)

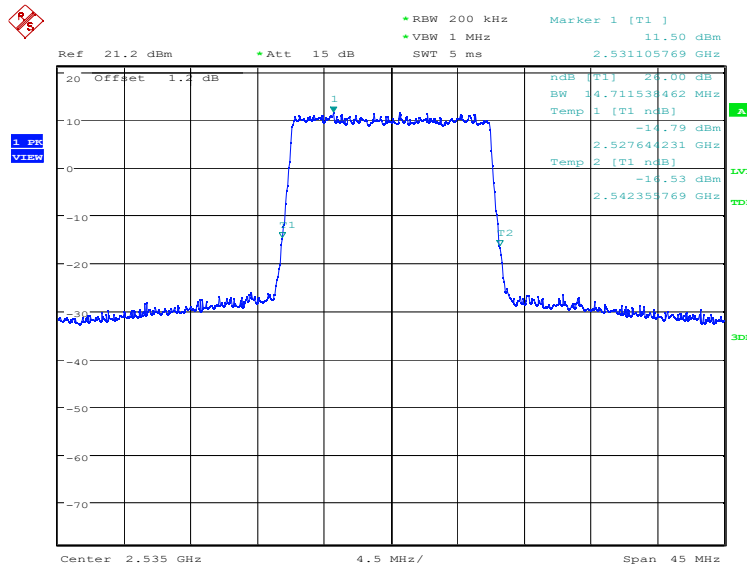
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	14783.65	14711.54

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



Date: 3.JAN.2023 17:01:08

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

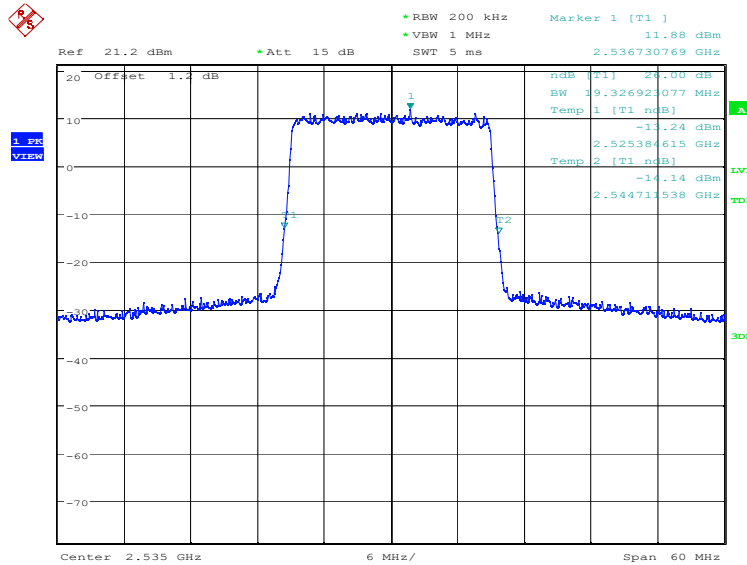


Date: 3.JAN.2023 17:01:48

LTE band 7, 20MHz (-26dBc)

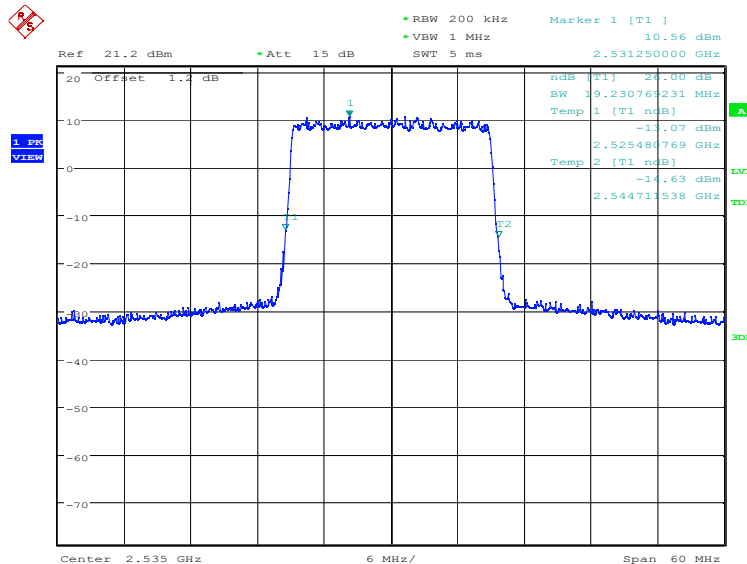
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	19326.92	19230.77

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



Date: 3.JAN.2023 17:02:31

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

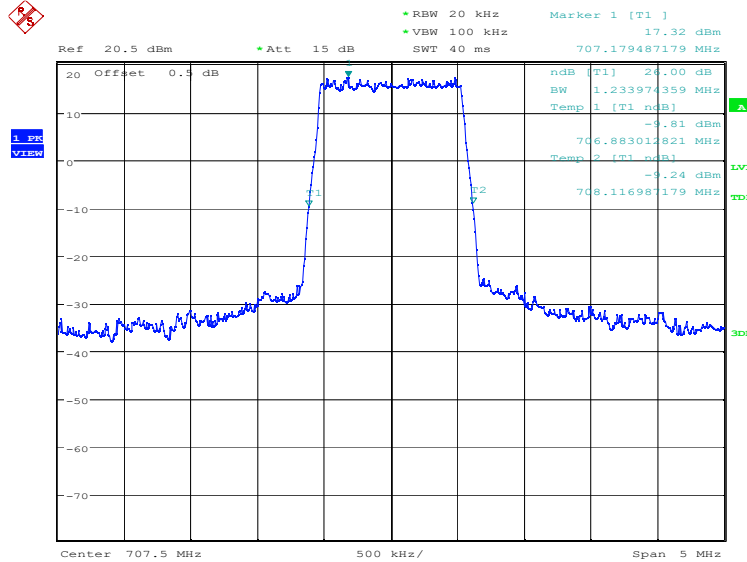


Date: 3.JAN.2023 17:03:12

LTE band 12, 1.4MHz (-26dBc)

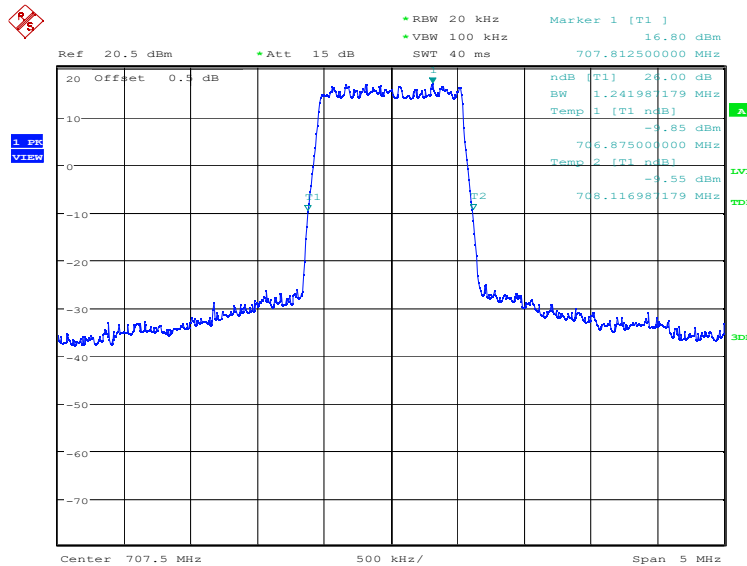
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	1233.97	1241.99

LTE band 12, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:28:59

LTE band 12, 1.4MHz Bandwidth, 16QAM (-26dBc BW)

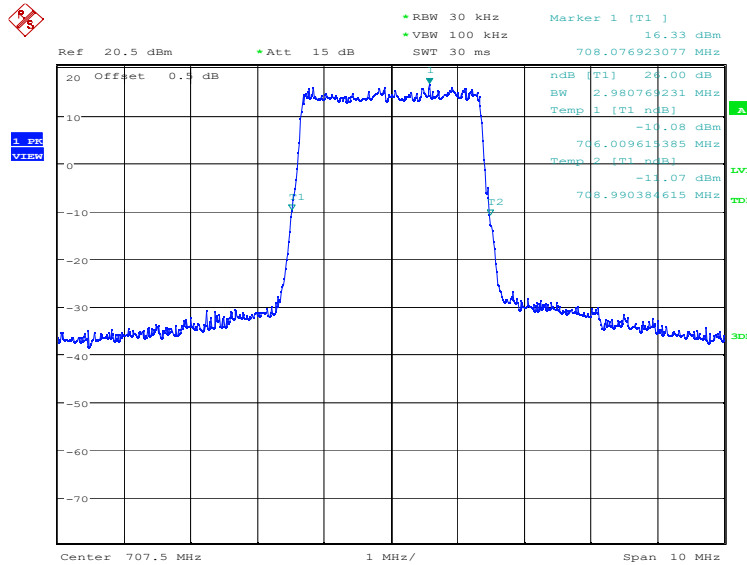


Date: 4.JAN.2023 16:29:40

LTE band 12, 3MHz (-26dBc)

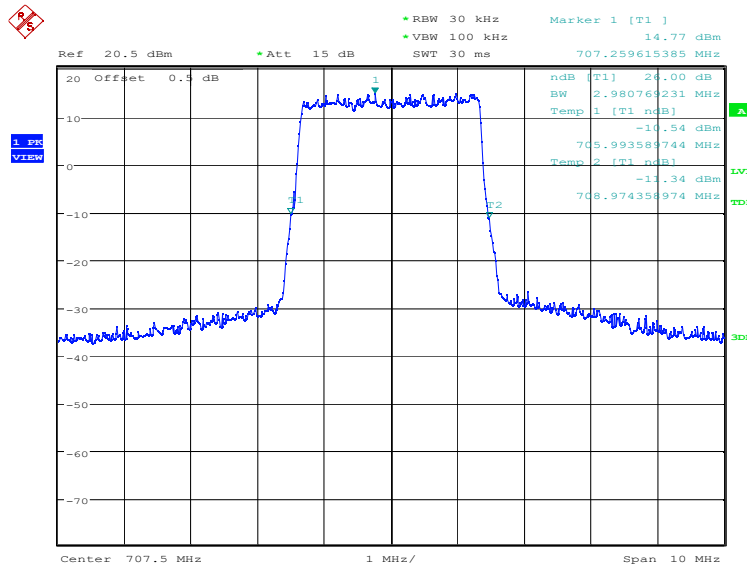
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	2980.77	2980.77

LTE band 12, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:30:22

LTE band 12, 3MHz Bandwidth, 16QAM (-26dBc BW)

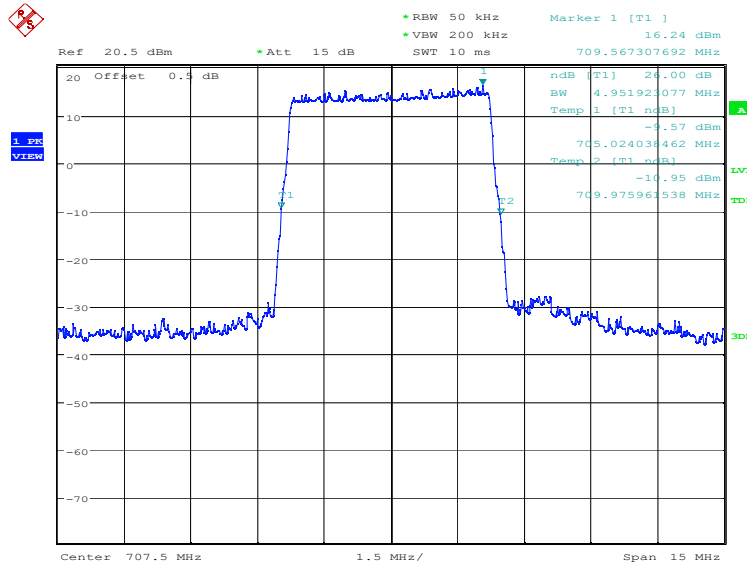


Date: 4.JAN.2023 16:31:03

LTE band 12, 5MHz (-26dBc)

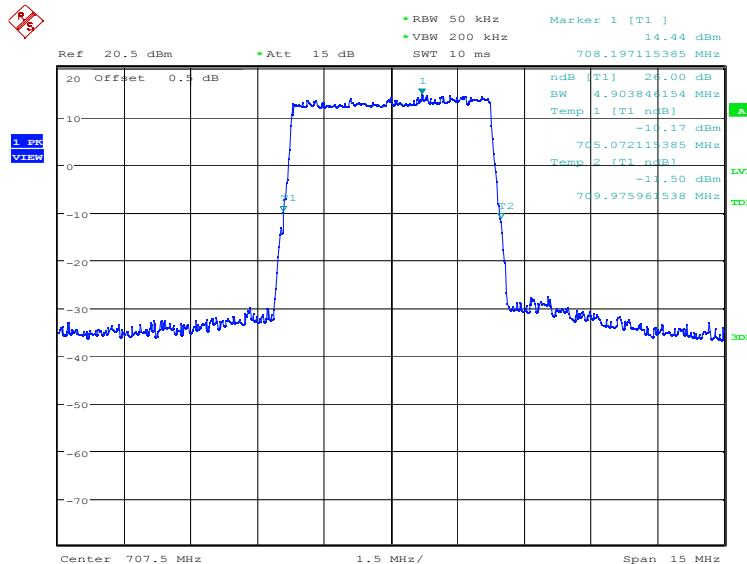
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	4951.92	4903.85

LTE band 12, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:31:46

LTE band 12, 5MHz Bandwidth, 16QAM (-26dBc BW)

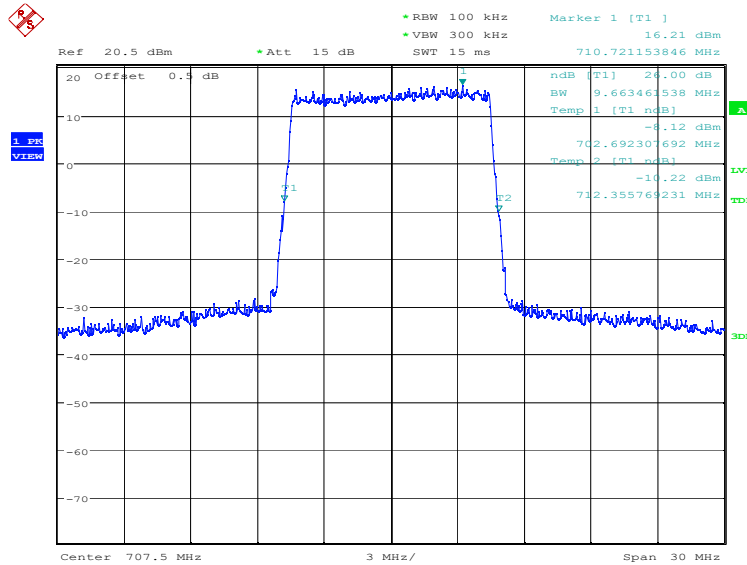


Date: 4.JAN.2023 16:32:26

LTE band 12, 10MHz (-26dBc)

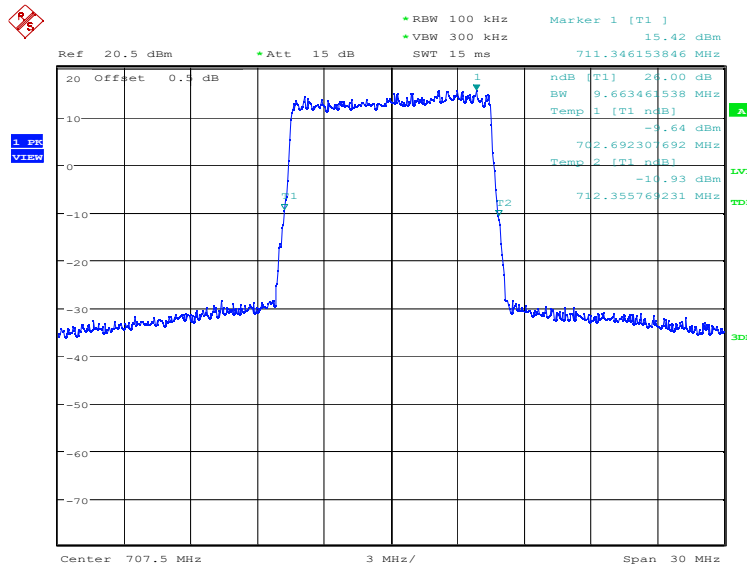
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	9663.46	9663.46

LTE band 12, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:33:09

LTE band 12, 10MHz Bandwidth, 16QAM (-26dBc BW)

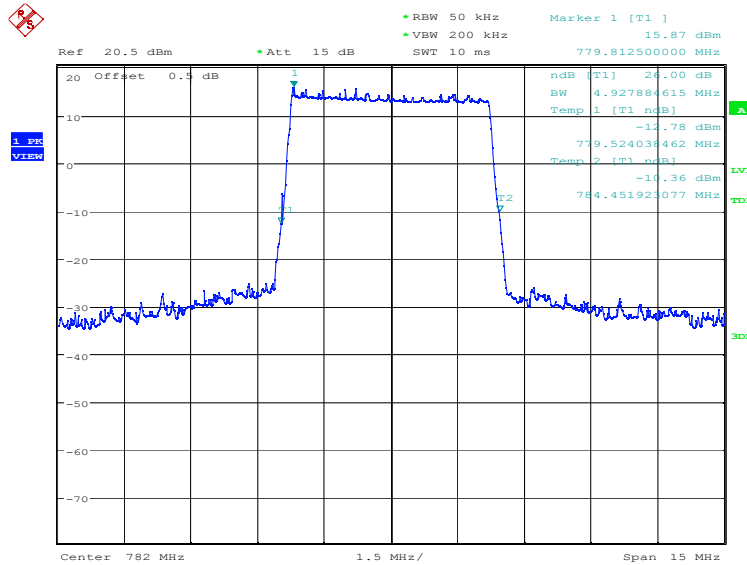


Date: 4.JAN.2023 16:33:50

LTE band 13, 5MHz (-26dBc)

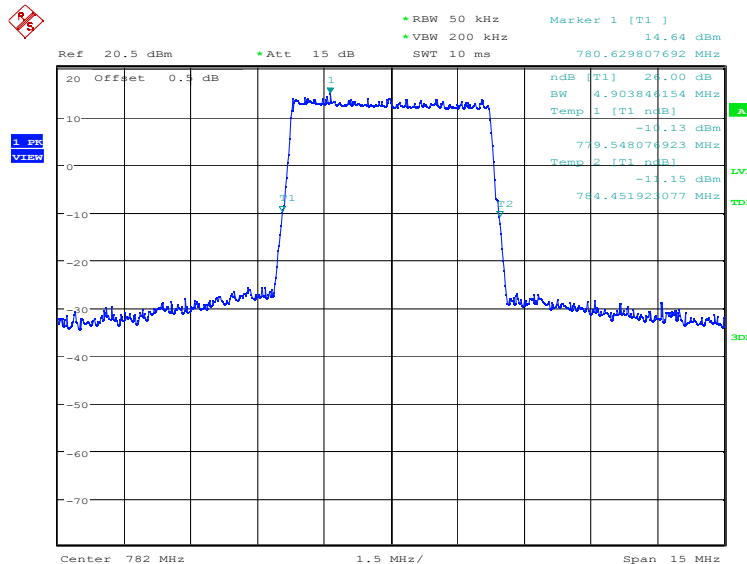
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
782.0	QPSK	16QAM
	4927.88	4903.85

LTE band 13, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:34:34

LTE band 13, 5MHz Bandwidth, 16QAM (-26dBc BW)

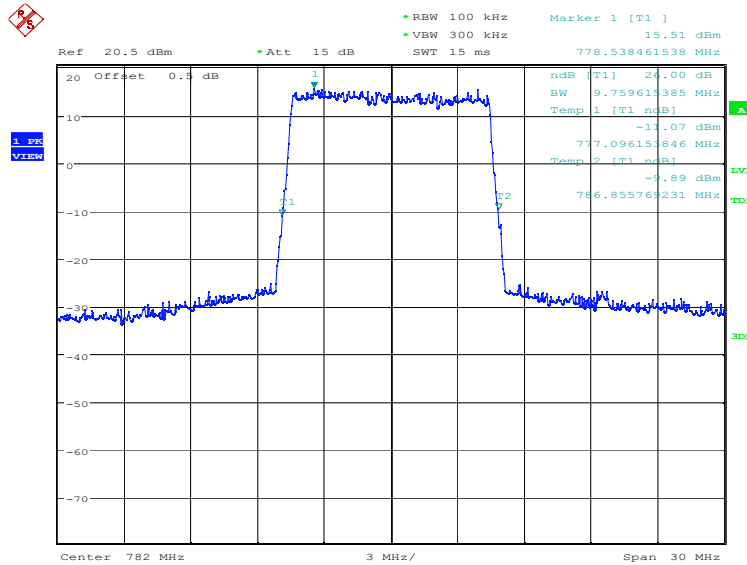


Date: 4.JAN.2023 16:35:15

LTE band 13, 10MHz (-26dBc)

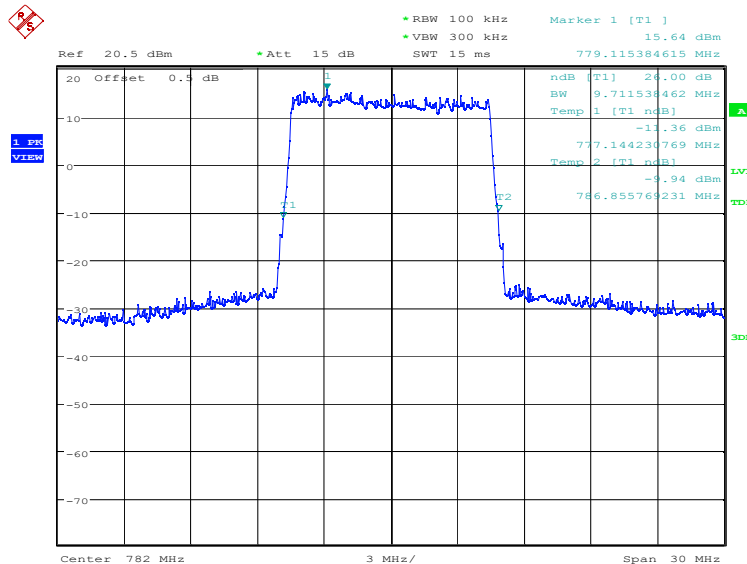
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
782.0	QPSK	16QAM
	9759.62	9711.54

LTE band 13, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:35:57

LTE band 13, 10MHz Bandwidth,16QAM (-26dBc BW)

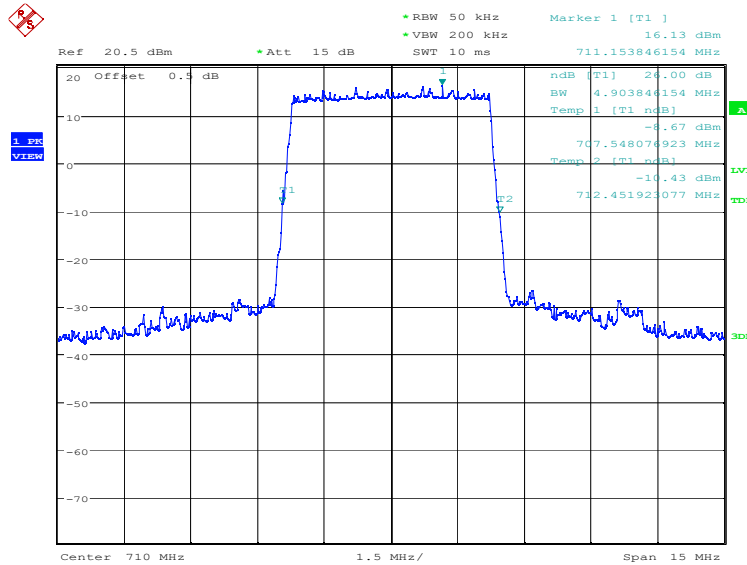


Date: 4.JAN.2023 16:36:38

LTE band 17, 5MHz (-26dBc)

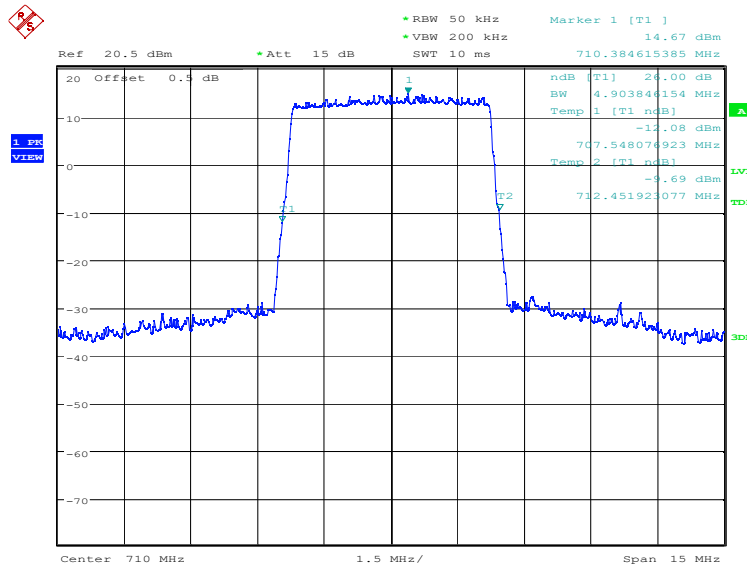
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
710.0	QPSK	16QAM
	4903.85	4903.85

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



Date: 4.JAN.2023 16:37:22

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

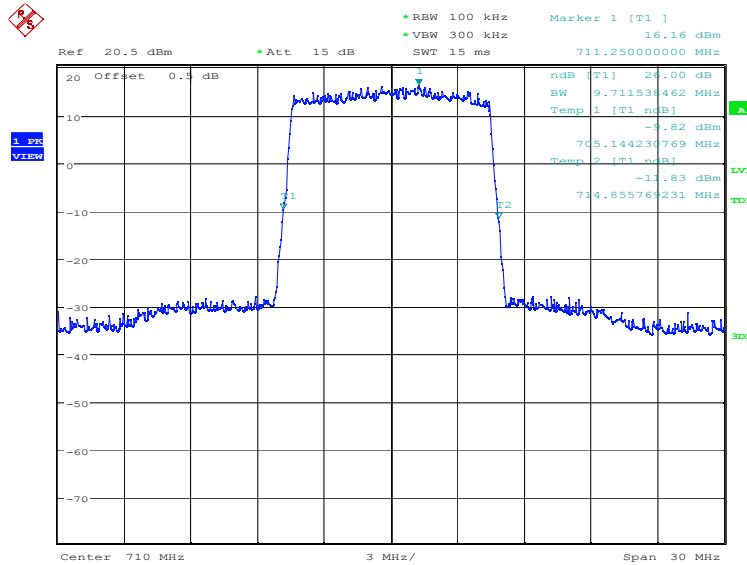


Date: 4.JAN.2023 16:38:03

LTE band 17, 10MHz (-26dBc)

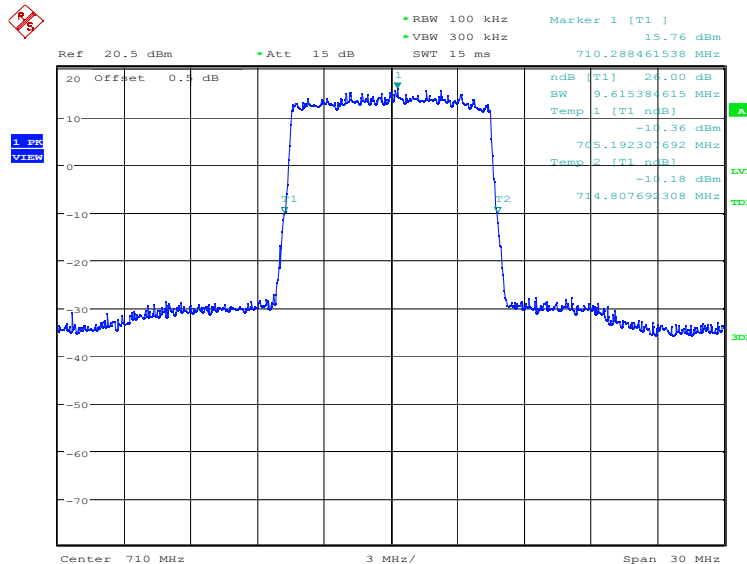
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
710.0	QPSK	16QAM
	9711.54	9615.38

LTE band 17, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:38:45

LTE band 17, 10MHz Bandwidth,16QAM (-26dBc BW)

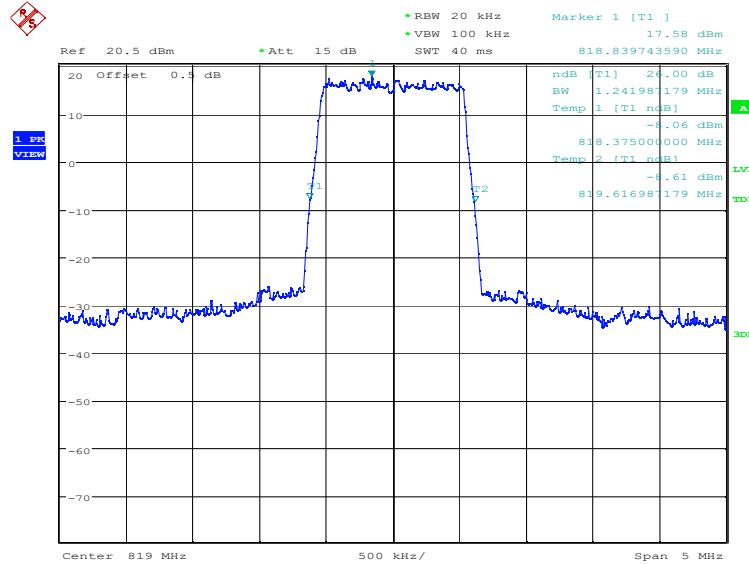


Date: 4.JAN.2023 16:39:26

LTE band 26(814MHz~824MHz), 1.4MHz (-26dBc)

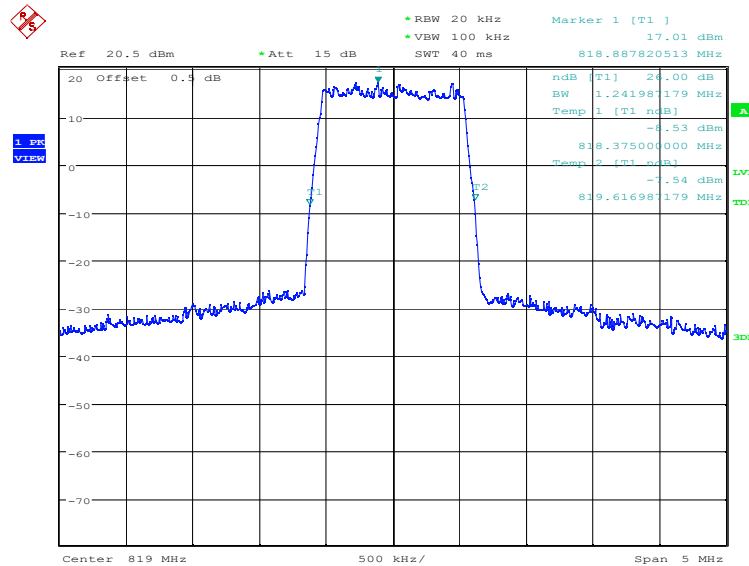
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
819.0	QPSK	16QAM
	1241.99	1241.99

LTE band 26(814MHz~824MHz), 1.4MHz Bandwidth, QPSK (-26dB BW)



Date: 4.JAN.2023 16:47:49

LTE band 26(814MHz~824MHz), 1.4MHz Bandwidth, 16QAM (-26dB BW)

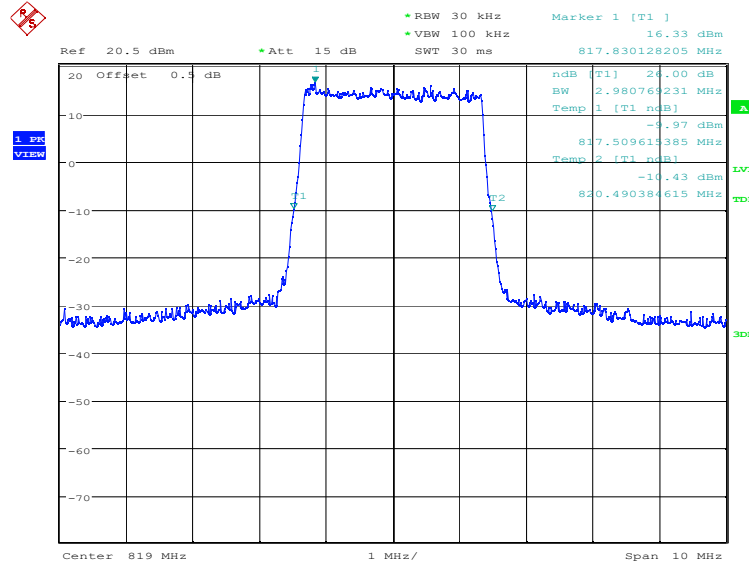


Date: 4.JAN.2023 16:48:29

LTE band 26(814MHz~824MHz), 3MHz (-26dBc)

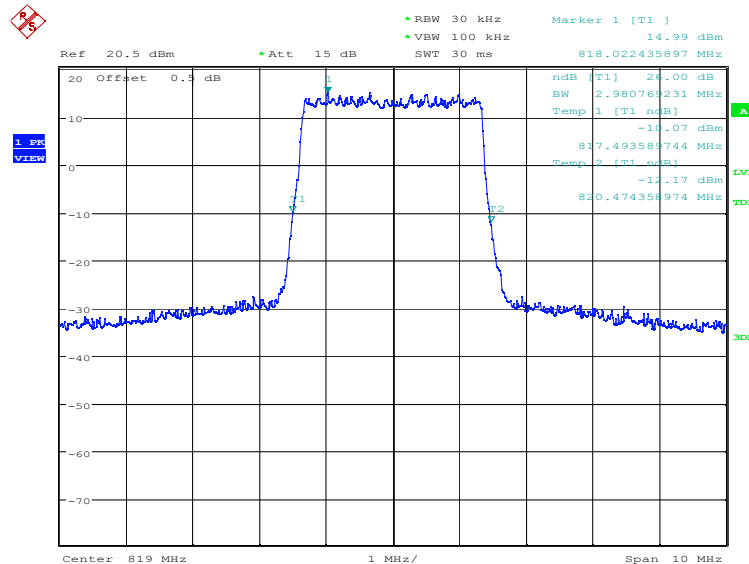
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
819.0	QPSK	16QAM
	2980.77	2980.77

LTE band 26(814MHz~824MHz), 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:49:12

LTE band 26(814MHz~824MHz), 3MHz Bandwidth, 16QAM (-26dBc BW)

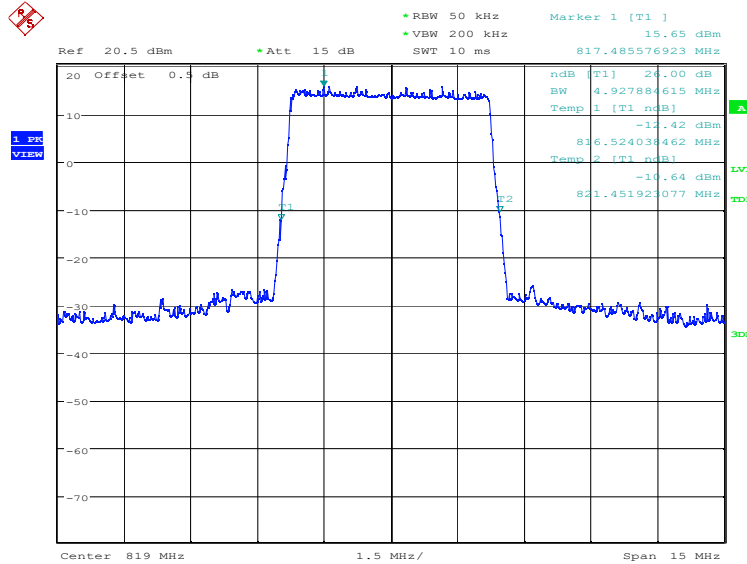


Date: 4.JAN.2023 16:49:53

LTE band 26(814MHz~824MHz), 5MHz (-26dBc)

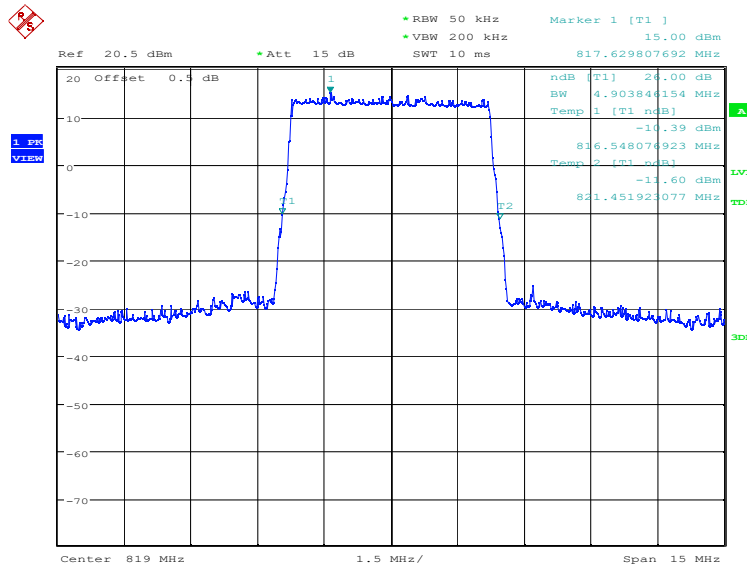
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
819.0	QPSK	16QAM
	4927.88	4903.85

LTE band 26(814MHz~824MHz), 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:50:36

LTE band 26(814MHz~824MHz), 5MHz Bandwidth, 16QAM (-26dBc BW)

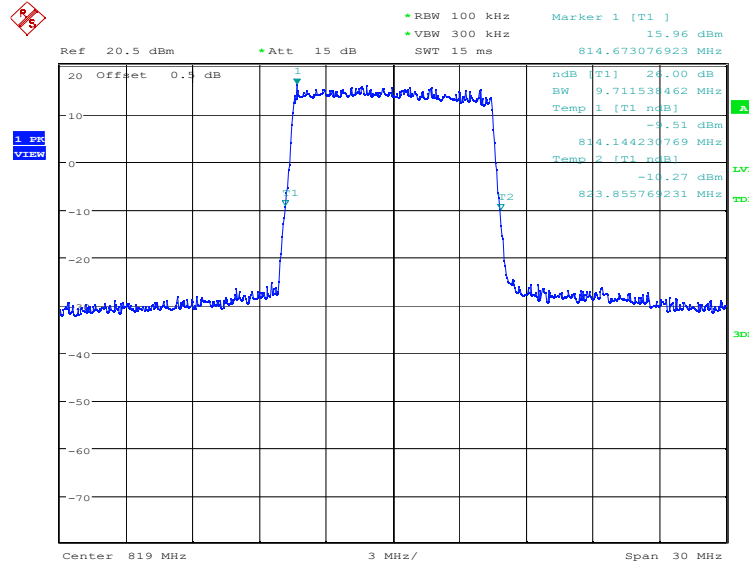


Date: 4.JAN.2023 16:51:16

LTE band 26(814MHz~824MHz), 10MHz (-26dBc)

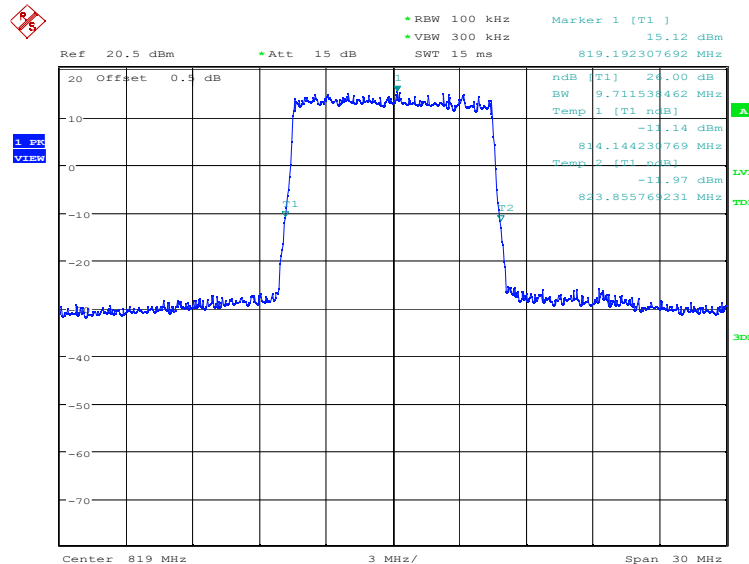
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
819.0	QPSK	16QAM
	9711.54	9711.54

LTE band 26(814MHz~824MHz), 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:51:59

LTE band 26(814MHz~824MHz), 10MHz Bandwidth, 16QAM (-26dBc BW)

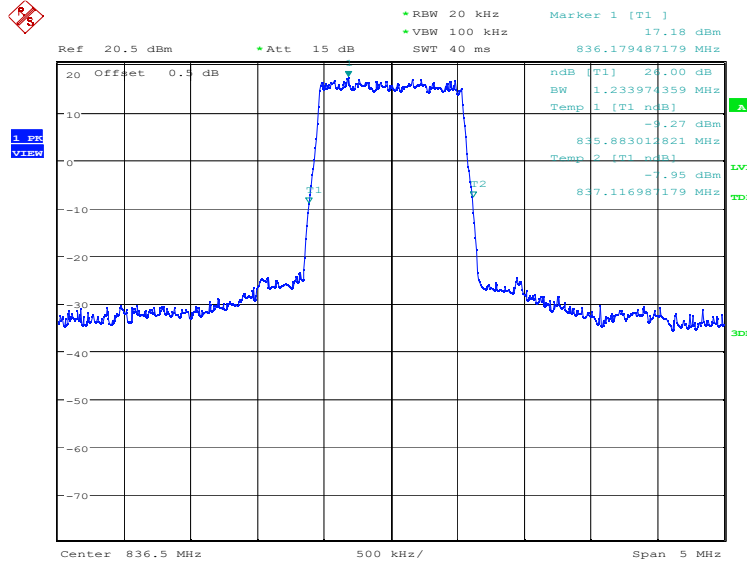


Date: 4.JAN.2023 16:52:40

LTE band 26(824MHz~849MHz), 1.4MHz (-26dBc)

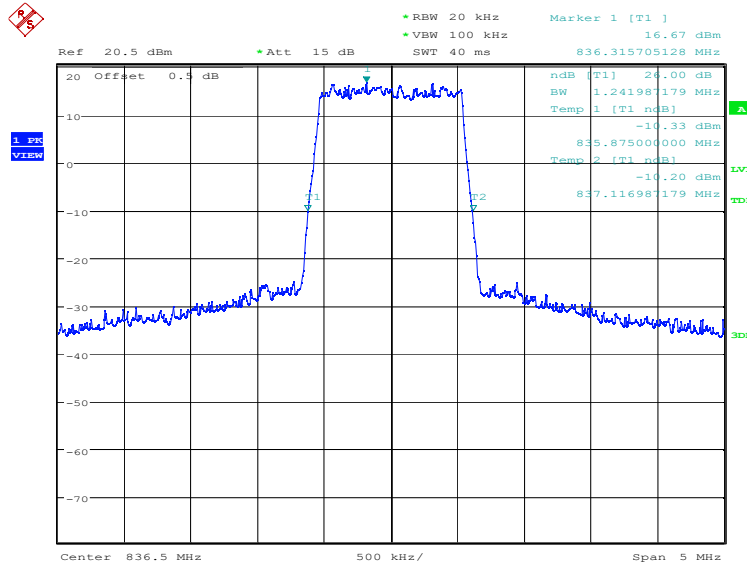
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	1233.97	1241.99

LTE band 26(824MHz~849MHz), 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:40:11

LTE band 26(824MHz~849MHz), 1.4MHz Bandwidth, 16QAM (-26dBc BW)

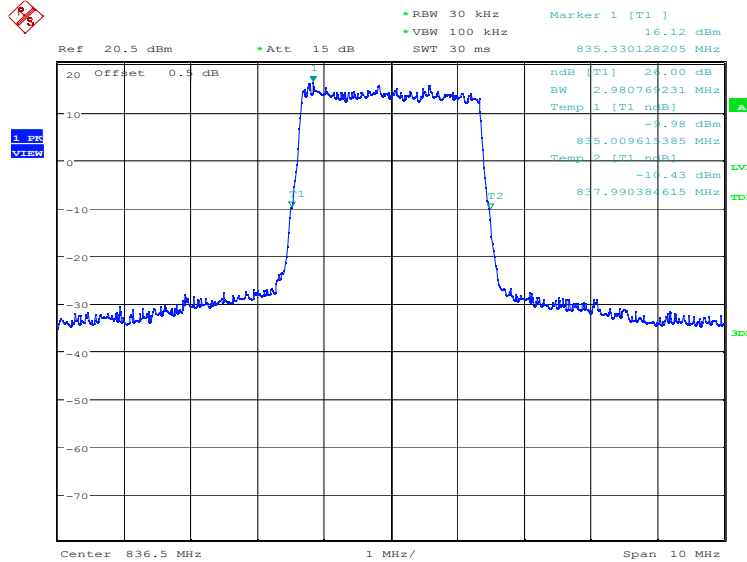


Date: 4.JAN.2023 16:40:51

LTE band 26(824MHz~849MHz), 3MHz (-26dBc)

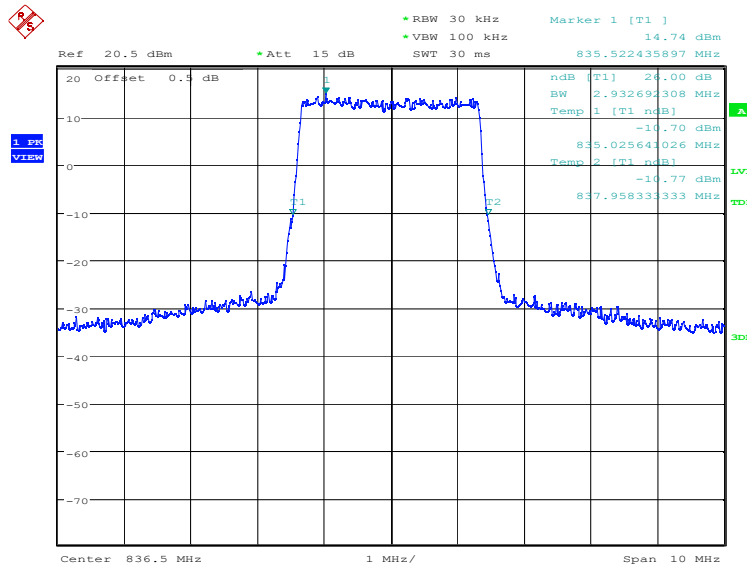
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	2980.77	2932.69

LTE band 26(824MHz~849MHz), 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:41:34

LTE band 26(824MHz~849MHz), 3MHz Bandwidth, 16QAM (-26dBc BW)

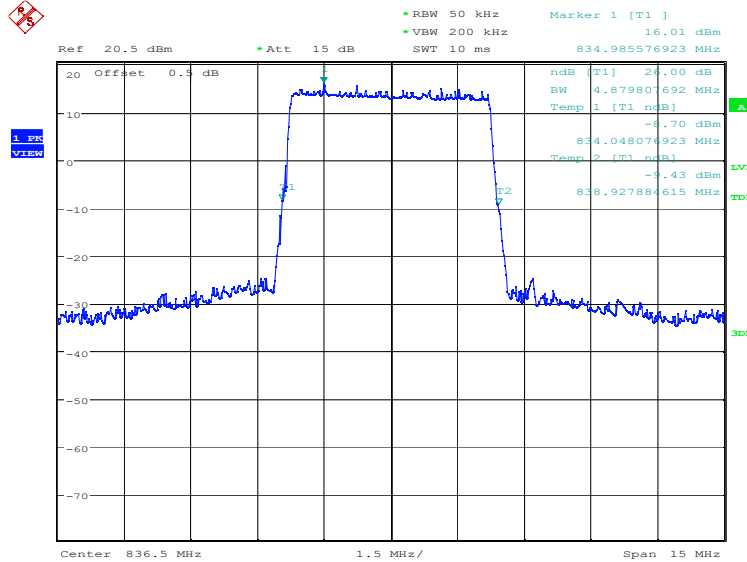


Date: 4.JAN.2023 16:42:15

LTE band 26(824MHz~849MHz), 5MHz (-26dBc)

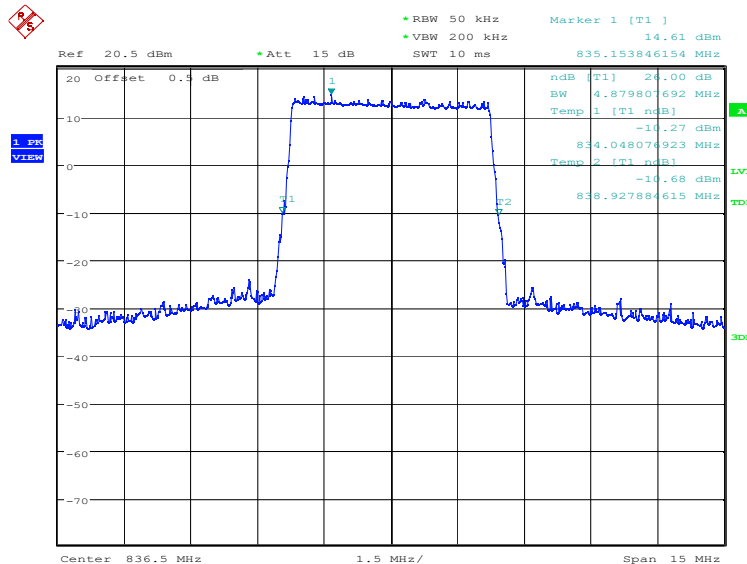
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	4879.81	4879.81

LTE band 26(824MHz~849MHz), 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:42:57

LTE band 26(824MHz~849MHz), 5MHz Bandwidth, 16QAM (-26dBc BW)

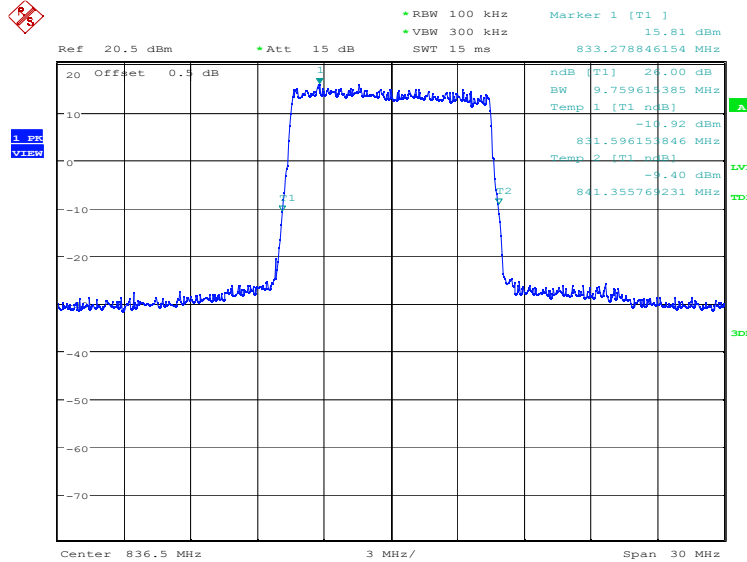


Date: 4.JAN.2023 16:43:38

LTE band 26(824MHz~849MHz), 10MHz (-26dBc)

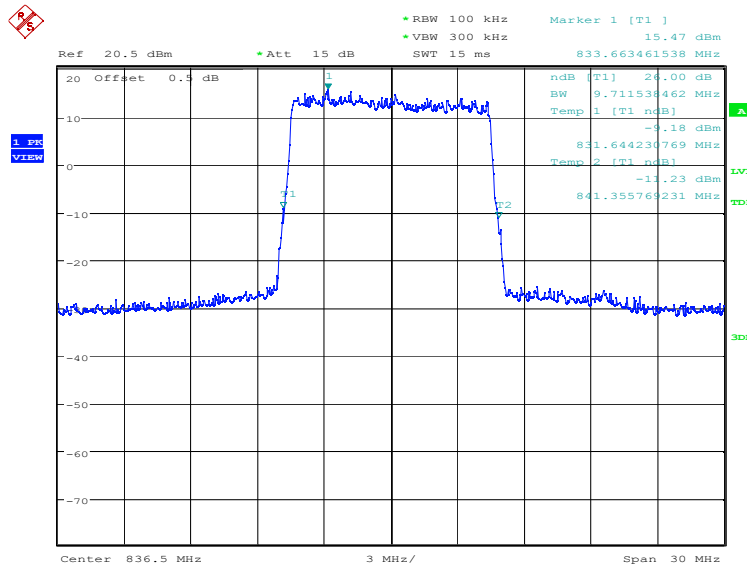
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	9759.62	9711.54

LTE band 26(824MHz~849MHz), 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:44:21

LTE band 26(824MHz~849MHz), 10MHz Bandwidth, 16QAM (-26dBc BW)

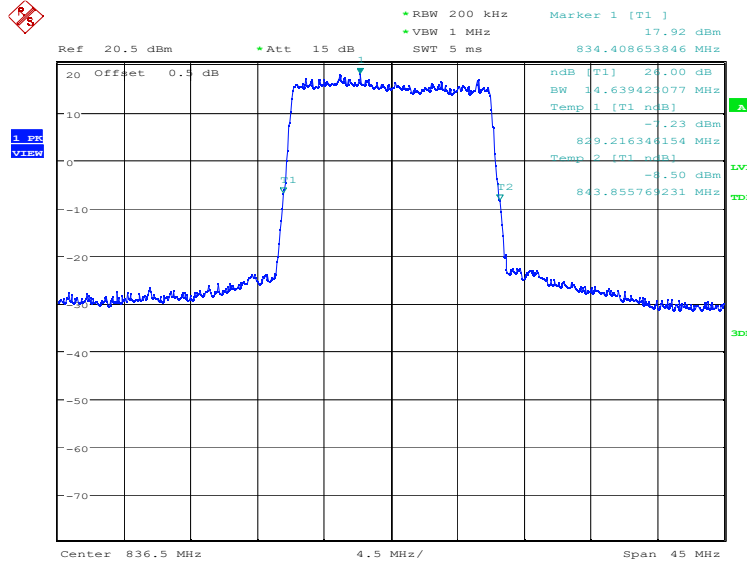


Date: 4.JAN.2023 16:45:01

LTE band 26(824MHz~849MHz), 15MHz (-26dBc)

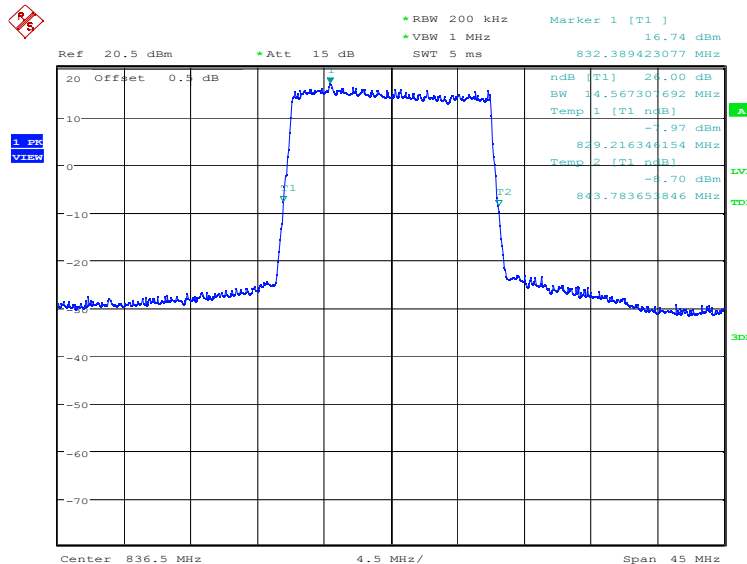
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	14639.42	14567.31

LTE band 26(824MHz~849MHz), 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.JAN.2023 16:45:44

LTE band 26(824MHz~849MHz), 15MHz Bandwidth, 16QAM (-26dBc BW)

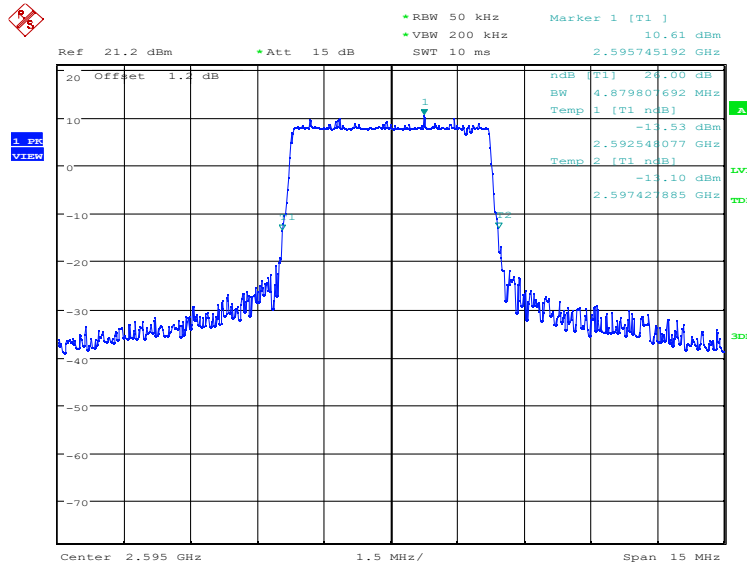


Date: 4.JAN.2023 16:46:25

LTE band 38, 5MHz (-26dBc)

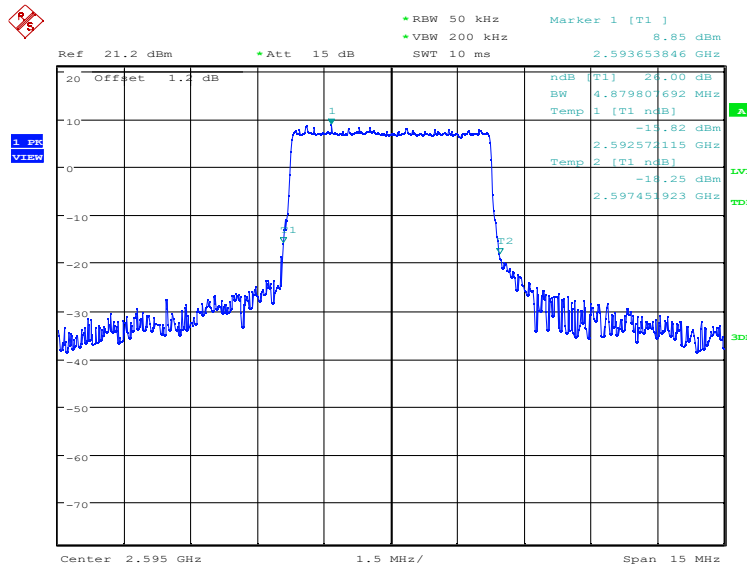
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2595.0	QPSK	16QAM
	4879.81	4879.81

LTE band 38, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 5.JAN.2023 10:55:27

LTE band 38, 5MHz Bandwidth,16QAM (-26dBc BW)

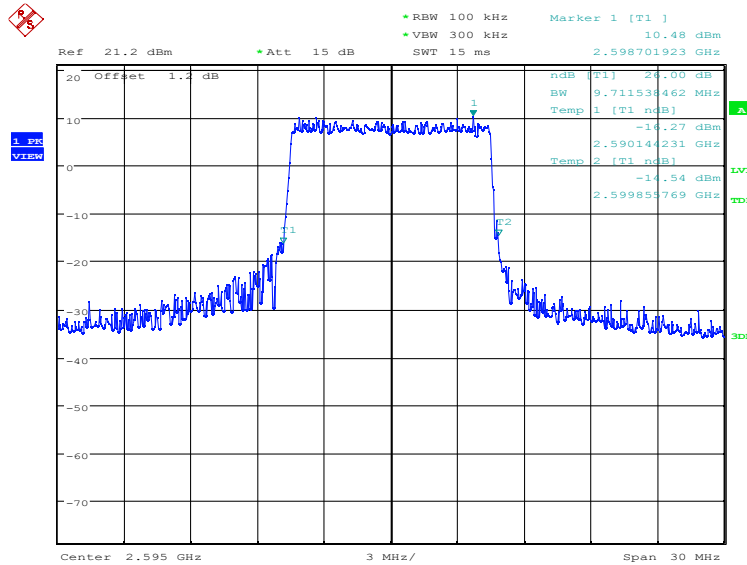


Date: 5.JAN.2023 10:56:07

LTE band 38, 10MHz (-26dBc)

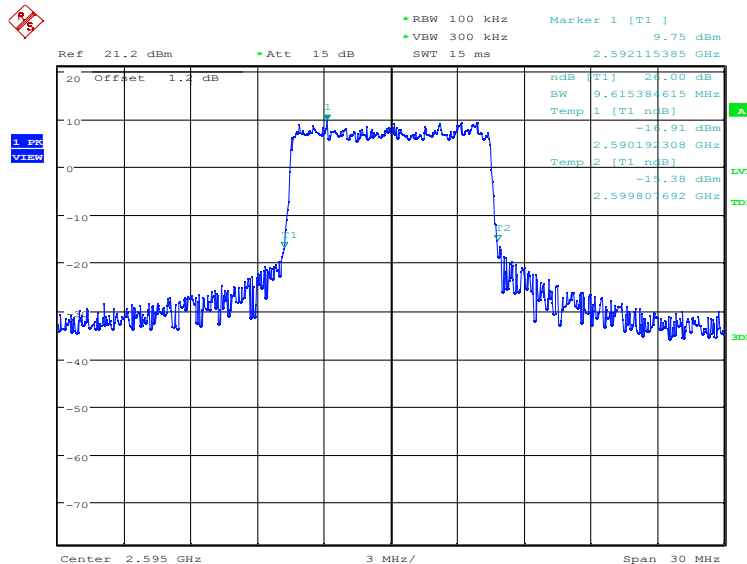
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2595.0	QPSK	16QAM
	9711.54	9615.38

LTE band 38, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 5.JAN.2023 10:56:50

LTE band 38, 10MHz Bandwidth,16QAM (-26dBc BW)

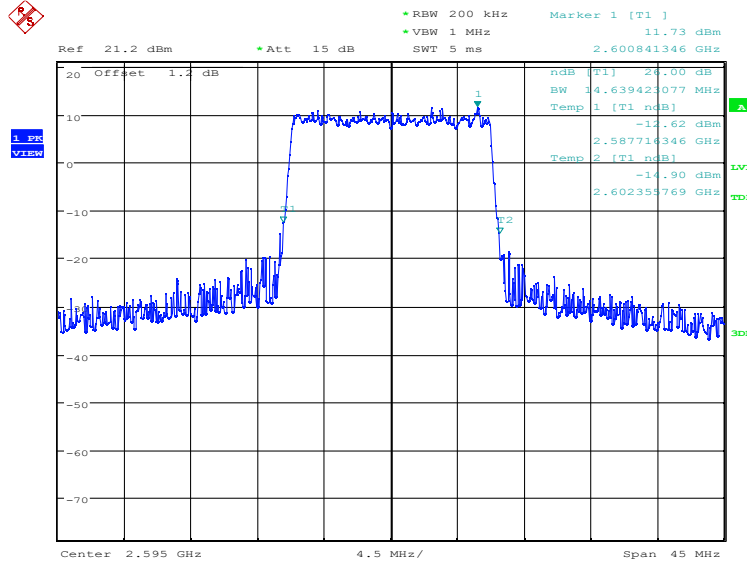


Date: 5.JAN.2023 10:57:30

LTE band 38, 15MHz (-26dBc)

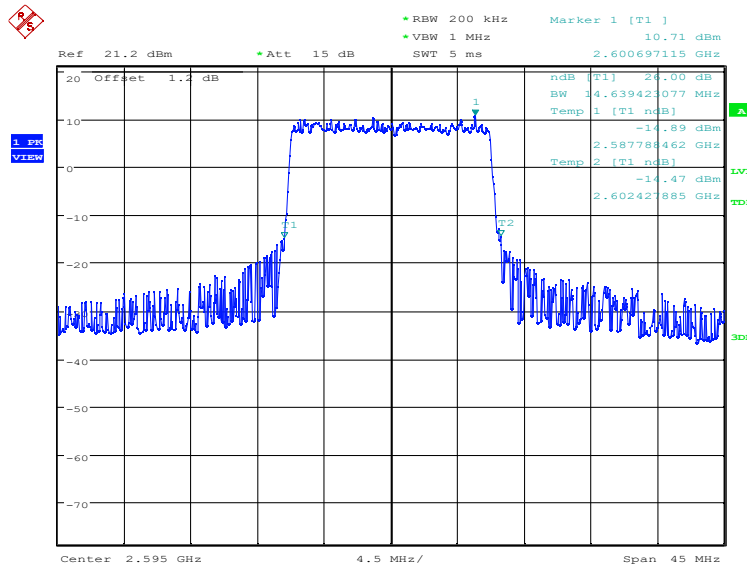
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2595.0	QPSK	16QAM
	14639.42	14639.42

LTE band 38, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 5.JAN.2023 10:58:13

LTE band 38, 15MHz Bandwidth,16QAM (-26dBc BW)

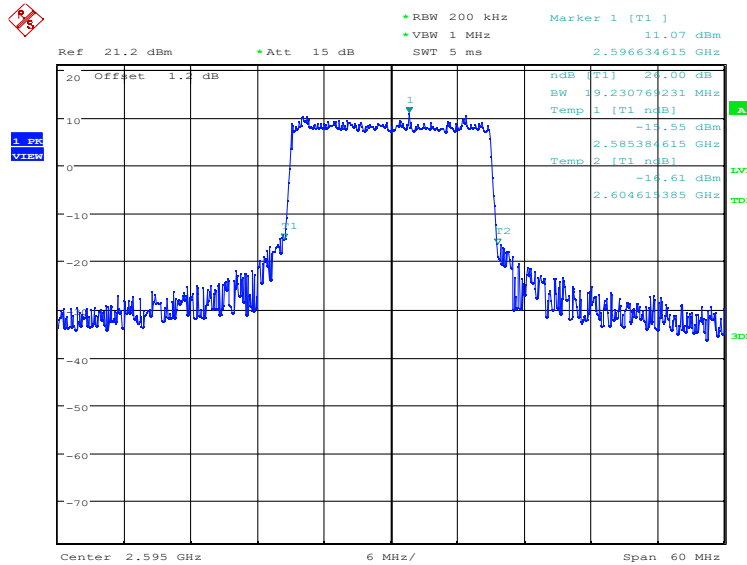


Date: 5.JAN.2023 10:58:54

LTE band 38, 20MHz (-26dBc)

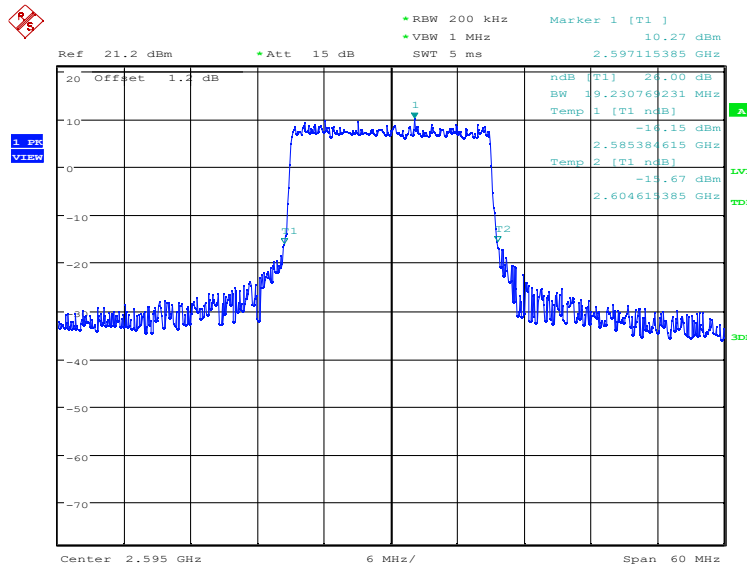
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2595.0	QPSK	16QAM
	19230.77	19230.77

LTE band 38, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 5.JAN.2023 10:59:36

LTE band 38, 20MHz Bandwidth,16QAM (-26dBc BW)

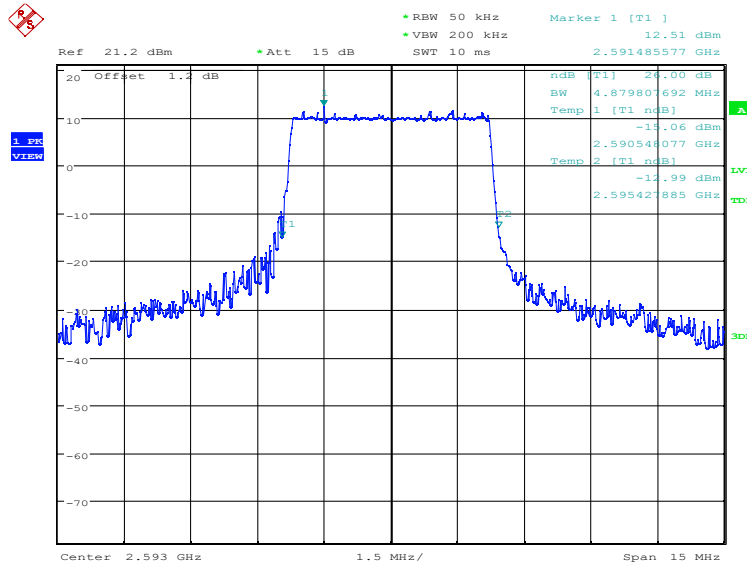


Date: 5.JAN.2023 11:00:17

LTE band 41, 5MHz (-26dBc)

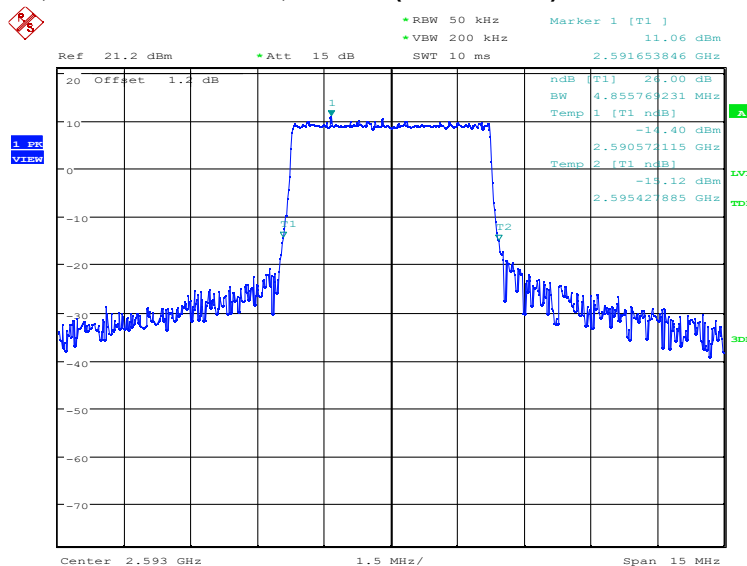
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2593.0	QPSK	16QAM
	4879.81	4855.77

LTE band 41, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 5.JAN.2023 11:01:01

LTE band 41, 5MHz Bandwidth,16QAM (-26dBc BW)

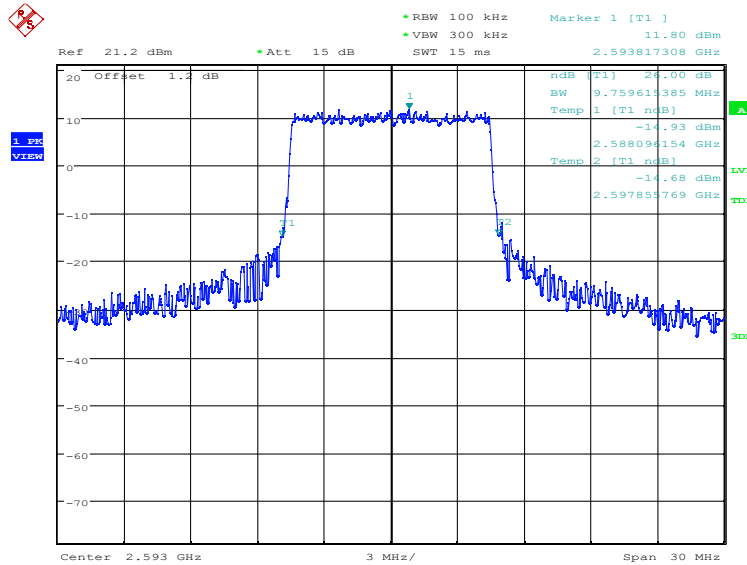


Date: 5.JAN.2023 11:01:41

LTE band 41, 10MHz (-26dBc)

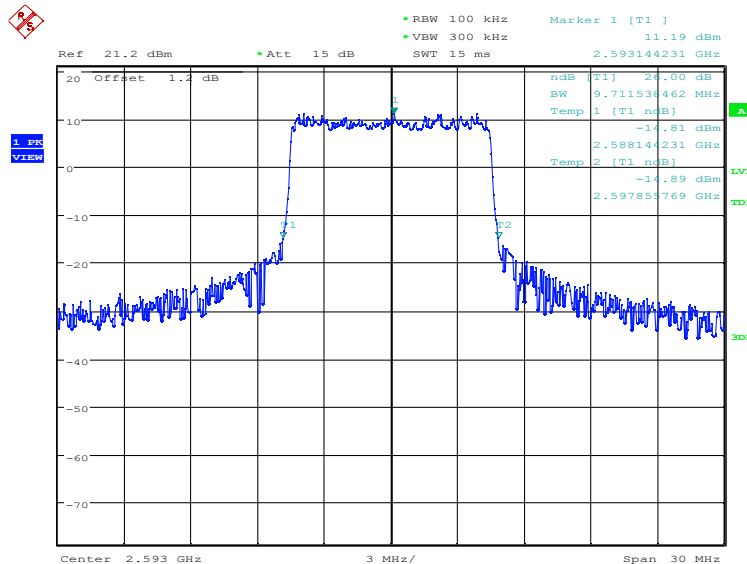
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2593.0	QPSK	16QAM
	9759.62	9711.54

LTE band 41, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 5.JAN.2023 11:02:24

LTE band 41, 10MHz Bandwidth,16QAM (-26dBc BW)

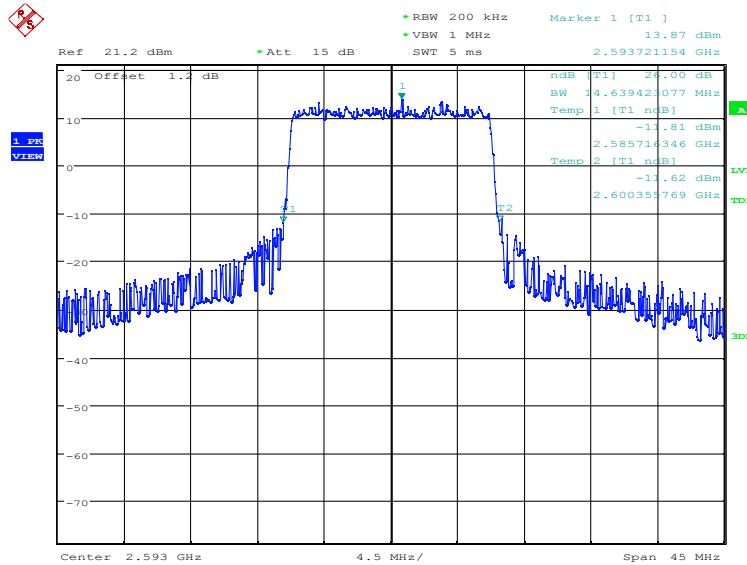


Date: 5.JAN.2023 11:03:05

LTE band 41, 15MHz (-26dBc)

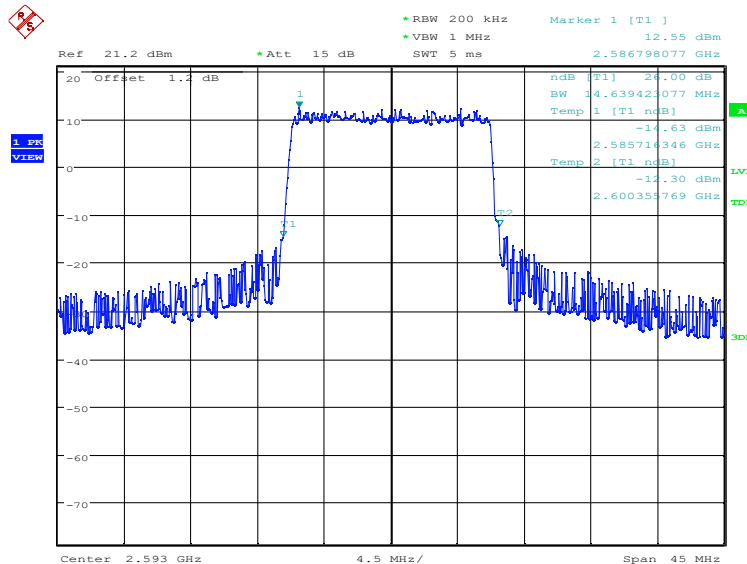
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2593.0	QPSK	16QAM
	14639.42	14639.42

LTE band 41, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 5.JAN.2023 11:03:47

LTE band 41, 15MHz Bandwidth,16QAM (-26dBc BW)

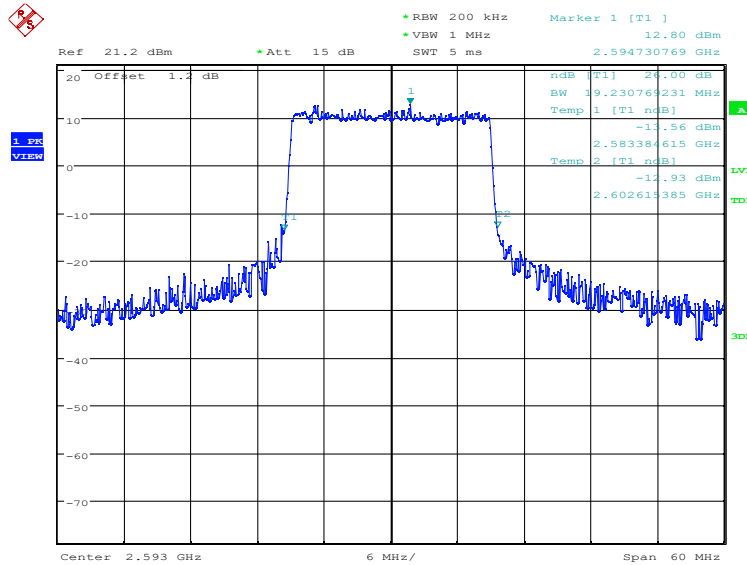


Date: 5.JAN.2023 11:04:28

LTE band 41, 20MHz (-26dBc)

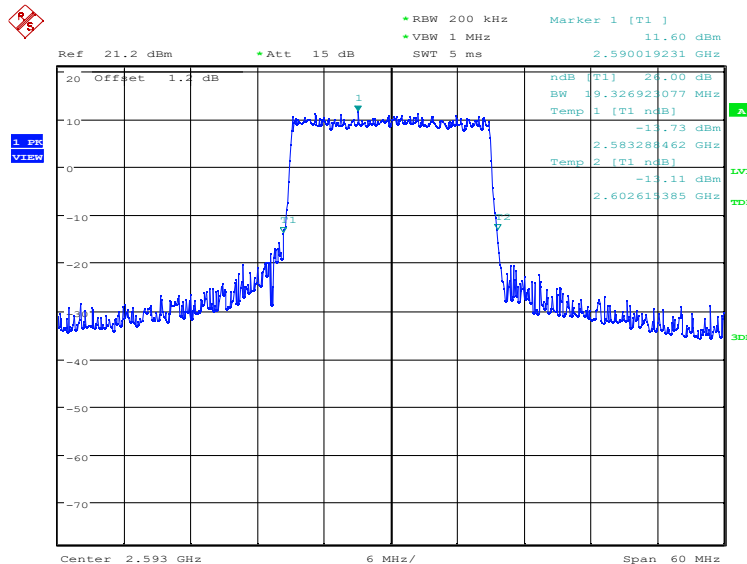
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2593.0	QPSK	16QAM
	19230.77	19326.92

LTE band 41, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 5.JAN.2023 11:05:11

LTE band 41, 20MHz Bandwidth, 16QAM (-26dBc BW)

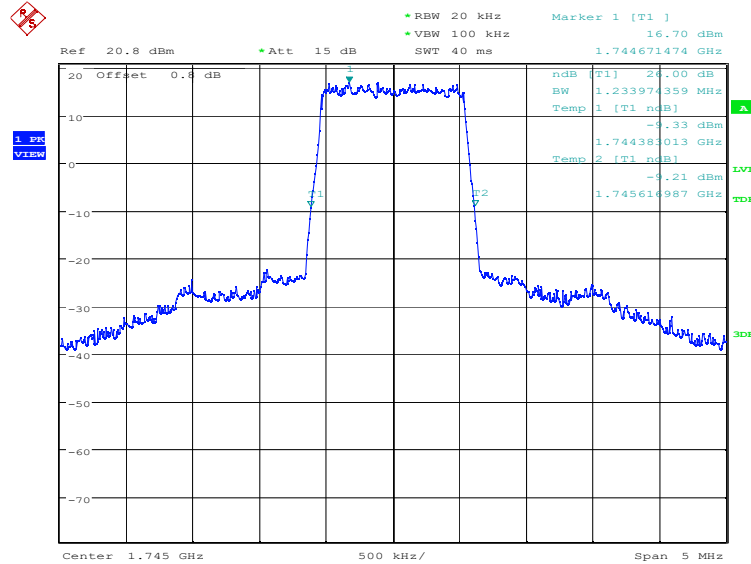


Date: 5.JAN.2023 11:05:51

LTE band 66, 1.4MHz (-26dBc)

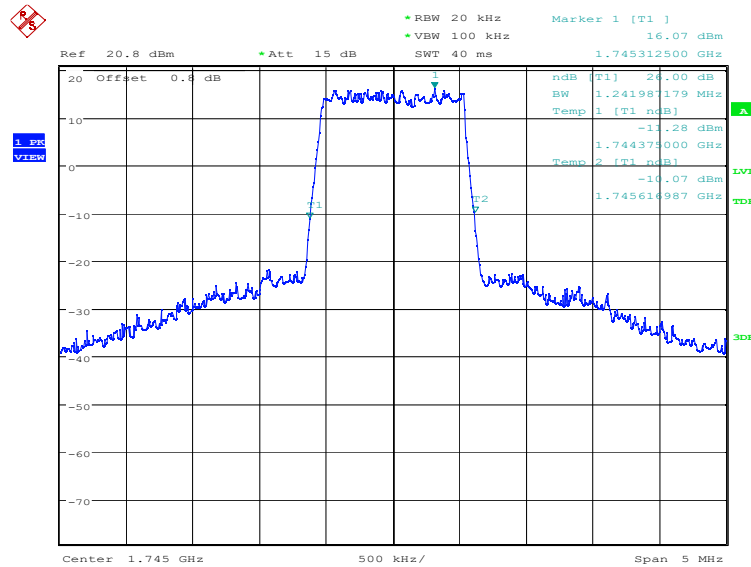
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	1233.97	1241.99

LTE band 66, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 3.JAN.2023 17:03:56

LTE band 66, 1.4MHz Bandwidth, 16QAM (-26dBc BW)

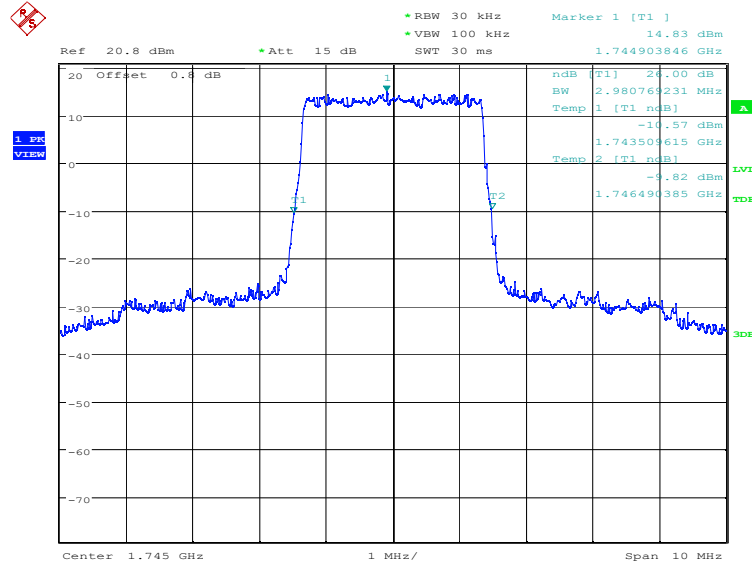


Date: 3.JAN.2023 17:04:37

LTE band 66, 3MHz (-26dBc)

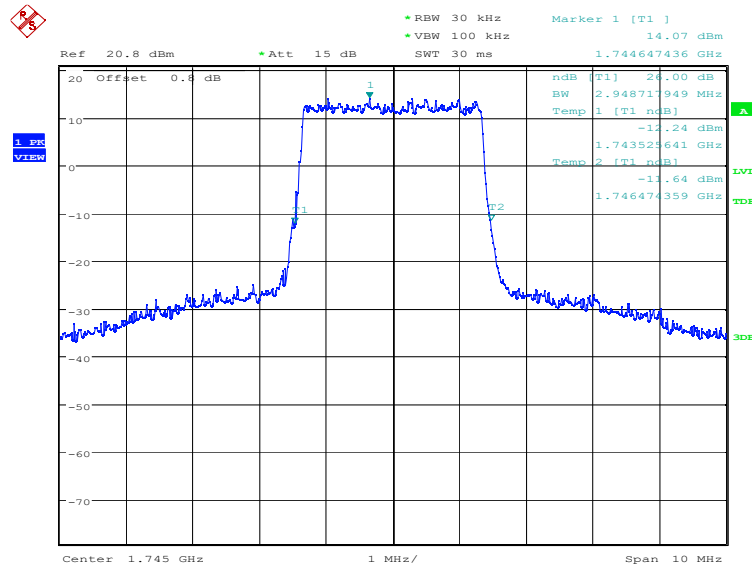
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	2980.77	2948.72

LTE band 66, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 3.JAN.2023 17:05:19

LTE band 66, 3MHz Bandwidth, 16QAM (-26dBc BW)

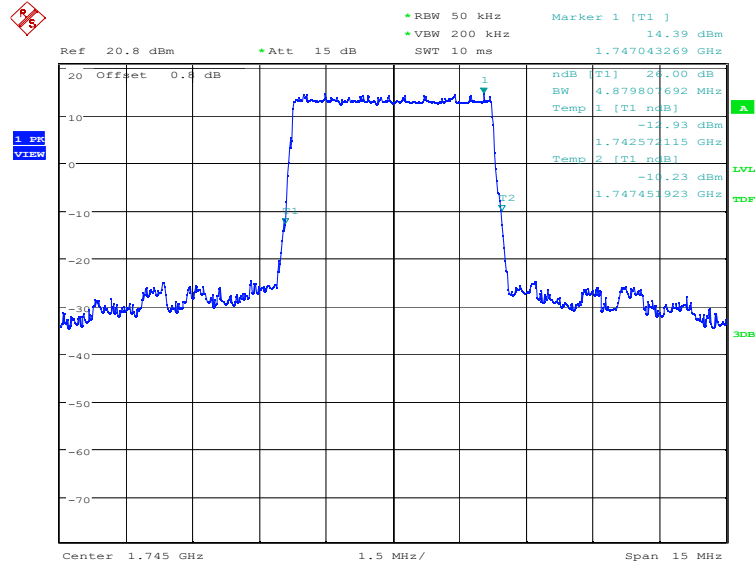


Date: 3.JAN.2023 17:06:00

LTE band 66, 5MHz (-26dBc)

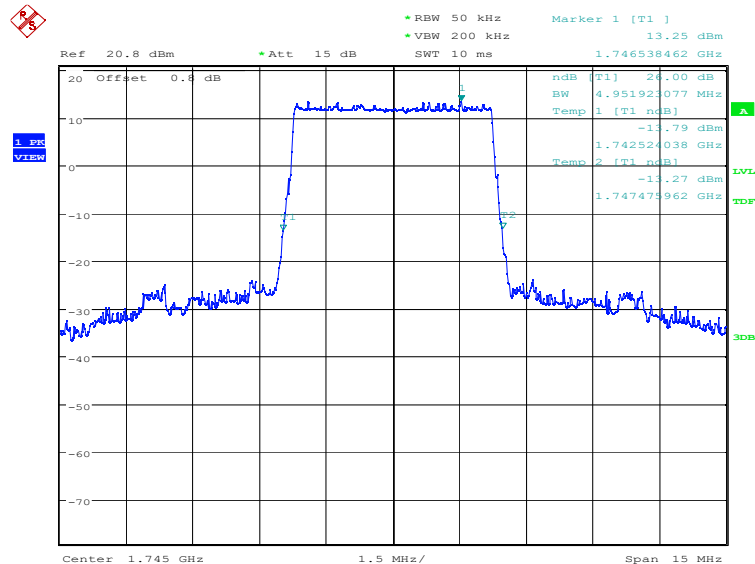
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	4879.81	4951.92

LTE band 66, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 3.JAN.2023 17:06:42

LTE band 66, 5MHz Bandwidth, 16QAM (-26dBc BW)

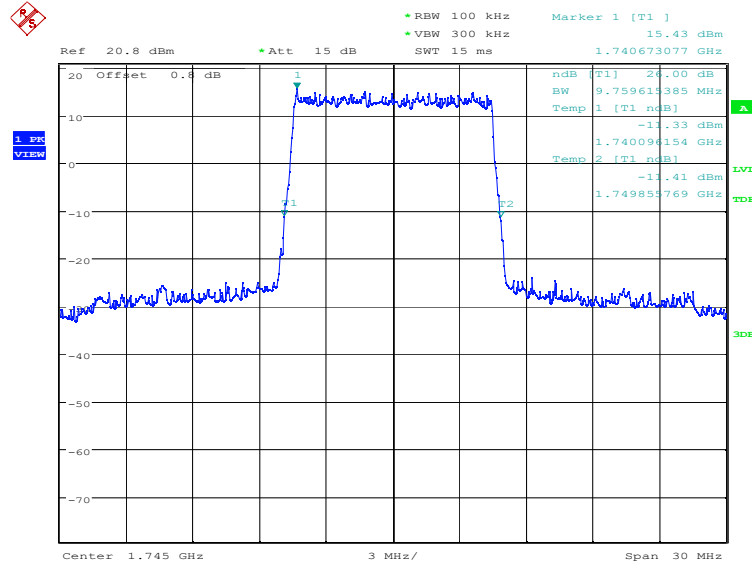


Date: 3.JAN.2023 17:07:23

LTE band 66, 10MHz (-26dBc)

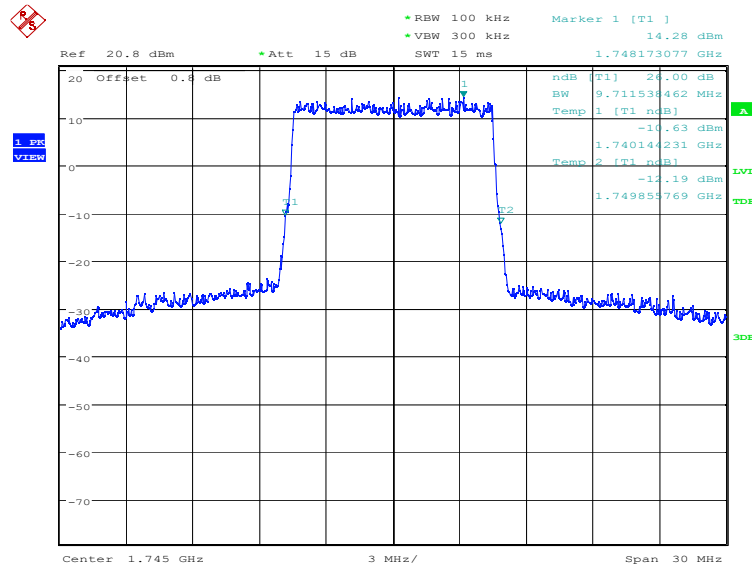
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	9759.62	9711.54

LTE band 66, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 3.JAN.2023 17:08:06

LTE band 66, 10MHz Bandwidth, 16QAM (-26dBc BW)

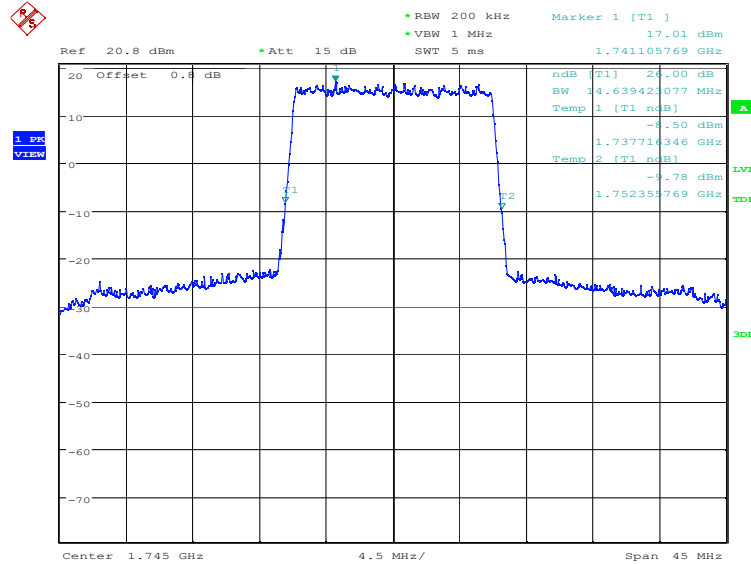


Date: 3.JAN.2023 17:08:47

LTE band 66, 15MHz (-26dBc)

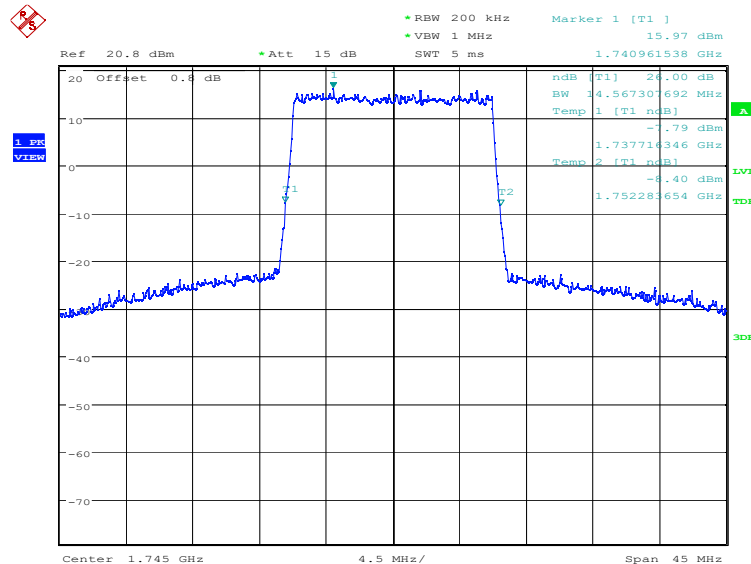
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
	QPSK	16QAM
1745.0	14639.42	14567.31

LTE band 66, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 3.JAN.2023 17:09:30

LTE band 66, 15MHz Bandwidth, 16QAM (-26dBc BW)

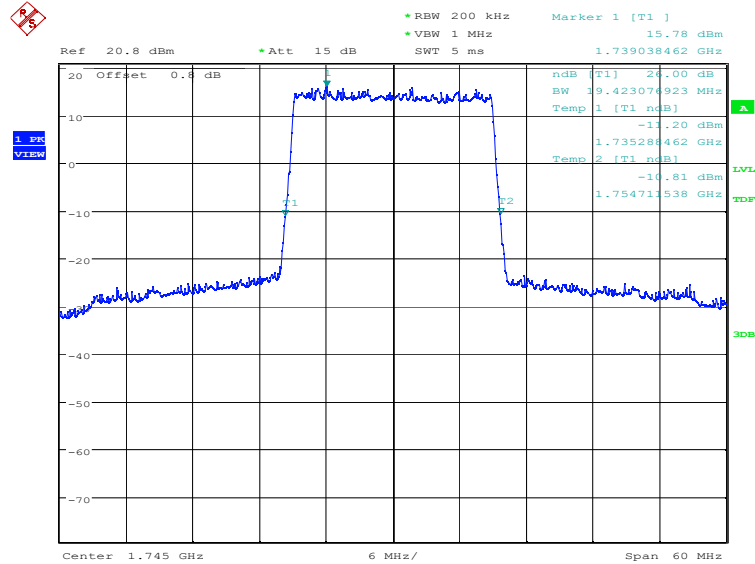


Date: 3.JAN.2023 17:10:10

LTE band 66, 20MHz (-26dBc)

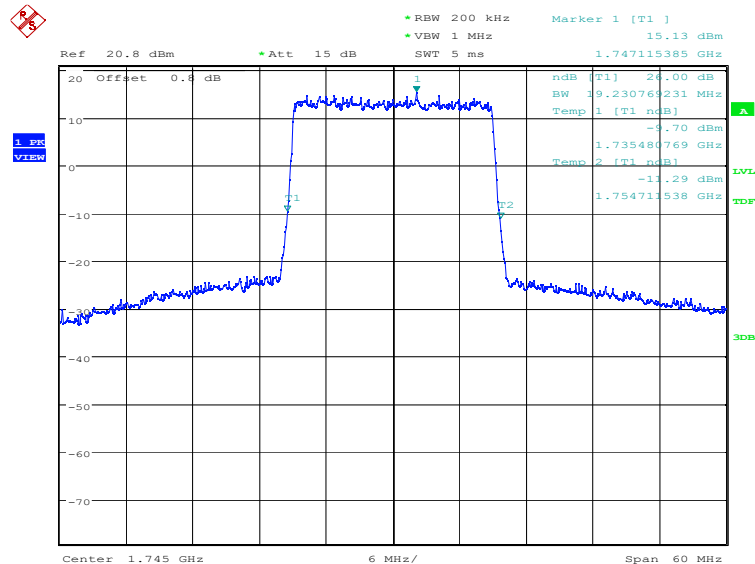
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	19423.08	19230.77

LTE band 66, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 3.JAN.2023 17:10:53

LTE band 66, 20MHz Bandwidth, 16QAM (-26dBc BW)



Date: 3.JAN.2023 17:11:34

Note: Expanded measurement uncertainty is $U = 3428 \text{ Hz}$, $k = 2$.

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.

Part 27.53(m) specifies for mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Part 27.53(c) states for operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following: (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB; (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB; (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.

Part 27.53(g) states for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Part 90.691 states that out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows: For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz. For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency

removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

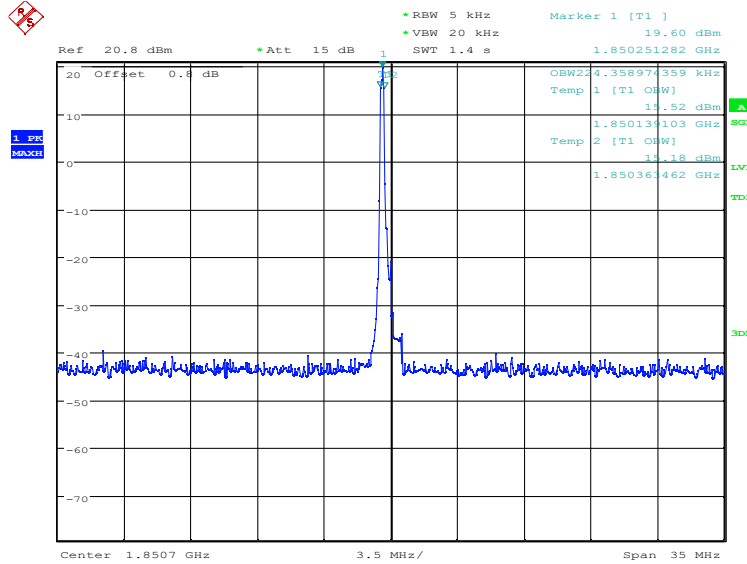
The spectrum analyzer readings are corrected by $[10 \log (1/\text{duty cycle})]$ for the non-continuous transmitting scenario.

A.5.2 Measurement result

Only the worst case result is given below

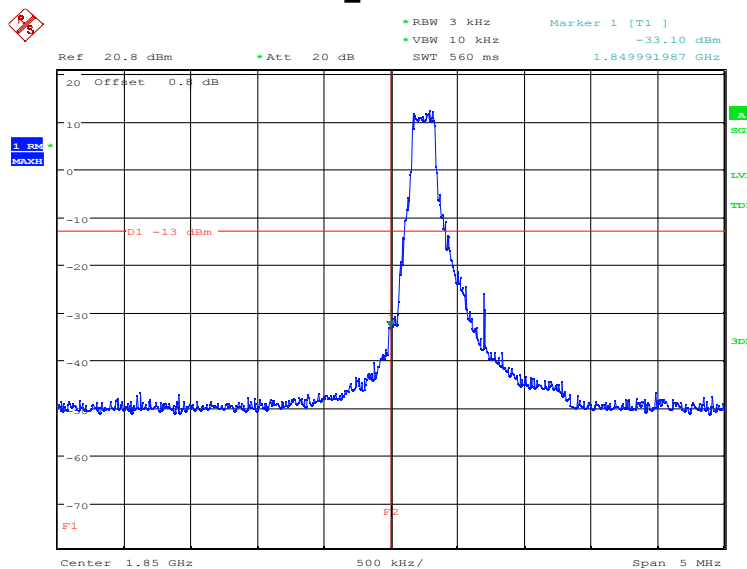
LTE band 2

OBW: 1RB-low_offset



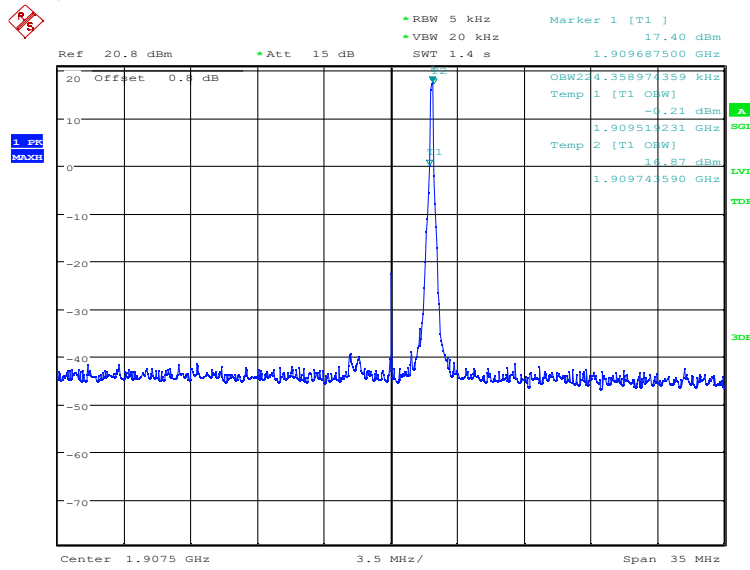
Date: 16.JAN.2023 14:25:50

LOW BAND EDGE BLOCK-1RB-low_offset



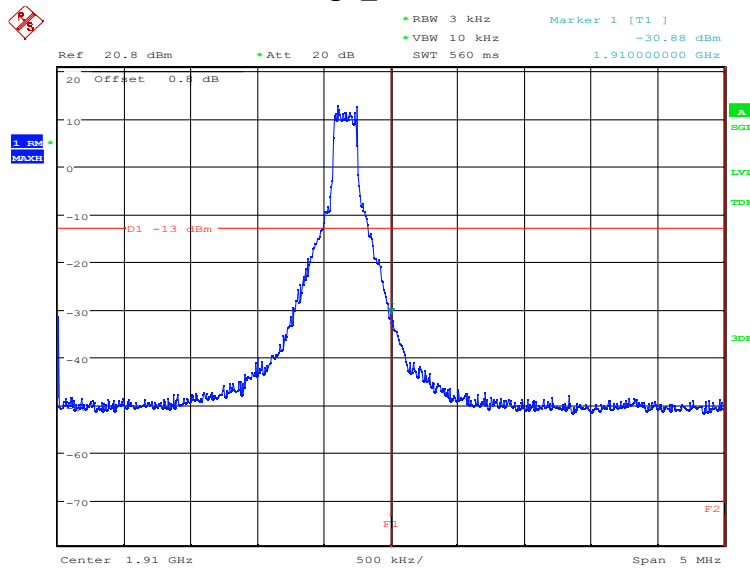
Date: 16.JAN.2023 14:27:05

OBW: 1RB-high_offset



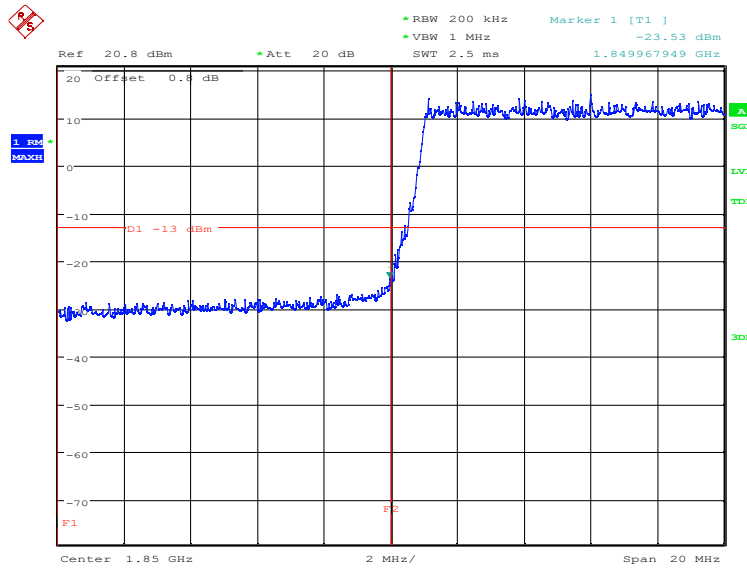
Date: 16.JAN.2023 13:51:16

HIGH BAND EDGE BLOCK-1RB-high_offset



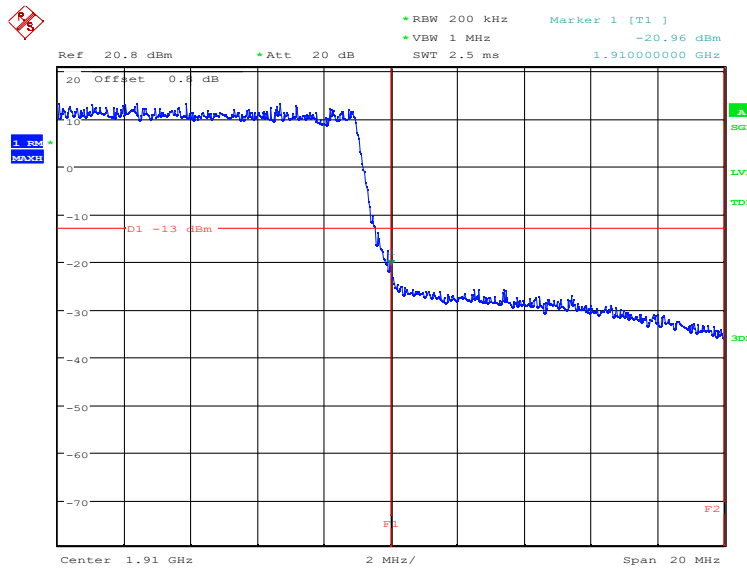
Date: 16.JAN.2023 13:52:31

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 5.JAN.2023 14:34:34

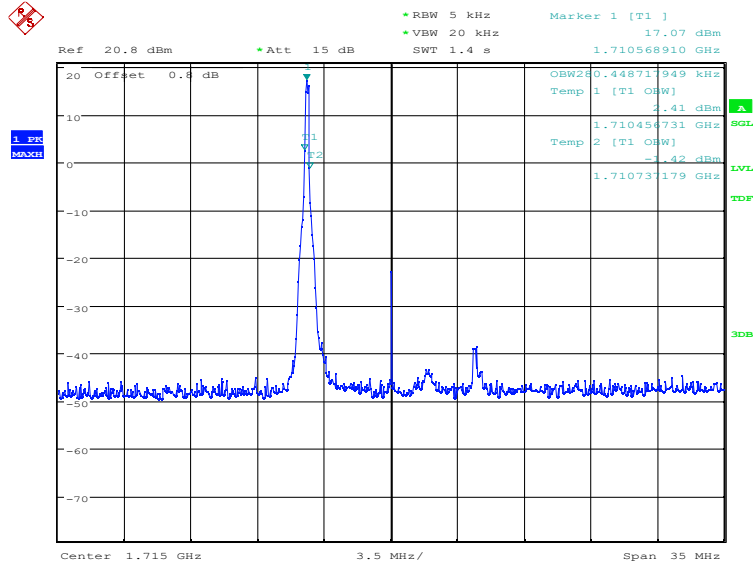
HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 5.JAN.2023 14:37:03

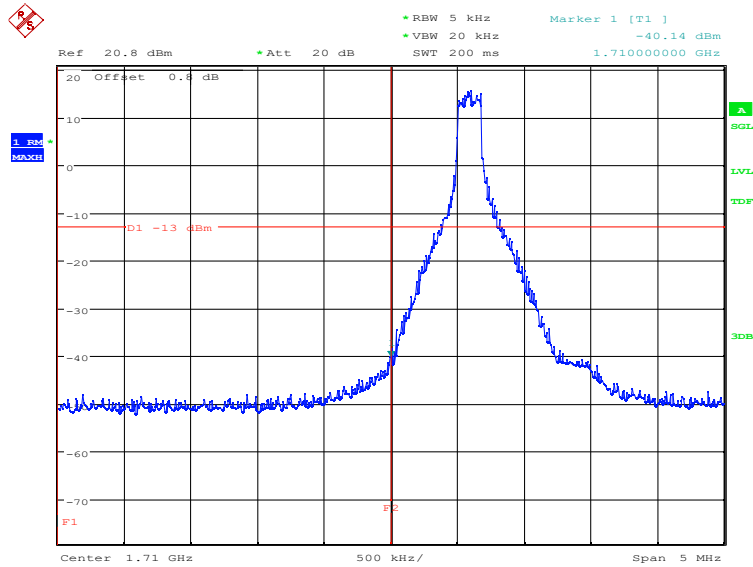
LTE band 4

OBW: 1RB-low_offset



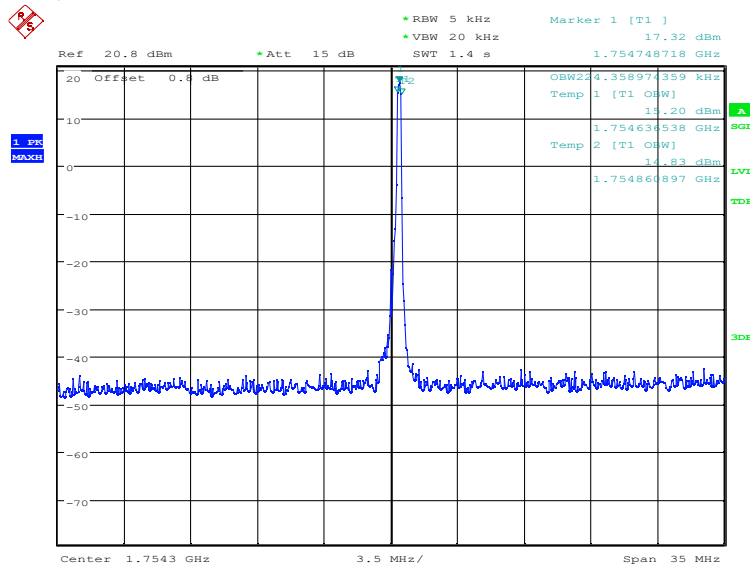
Date: 16.JAN.2023 13:53:11

LOW BAND EDGE BLOCK-1RB-low_offset



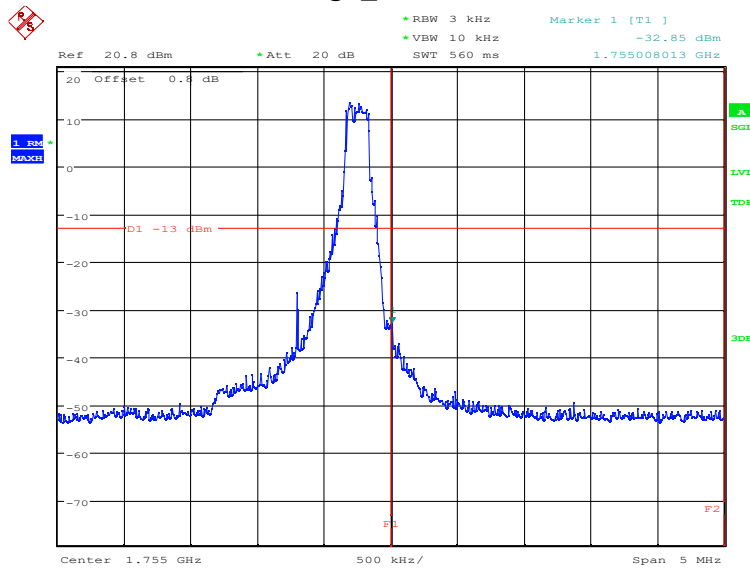
Date: 16.JAN.2023 13:54:26

OBW: 1RB-high_offset



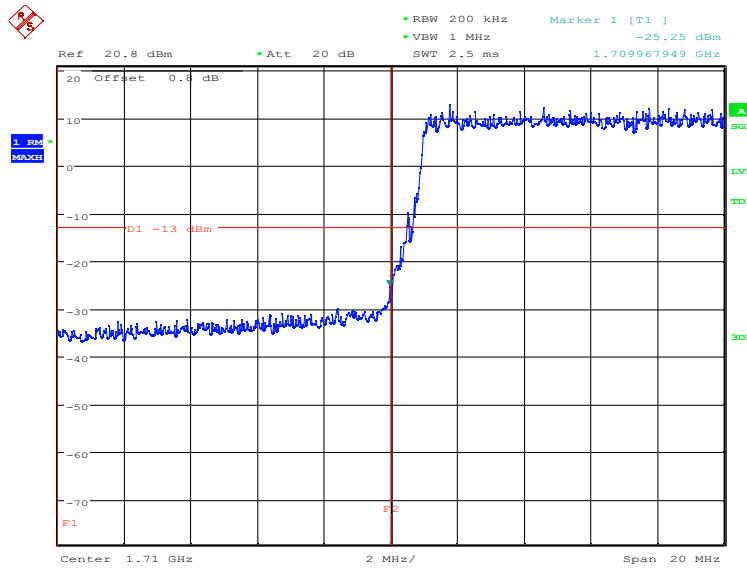
Date: 16.JAN.2023 13:55:52

HIGH BAND EDGE BLOCK-1RB-high_offset



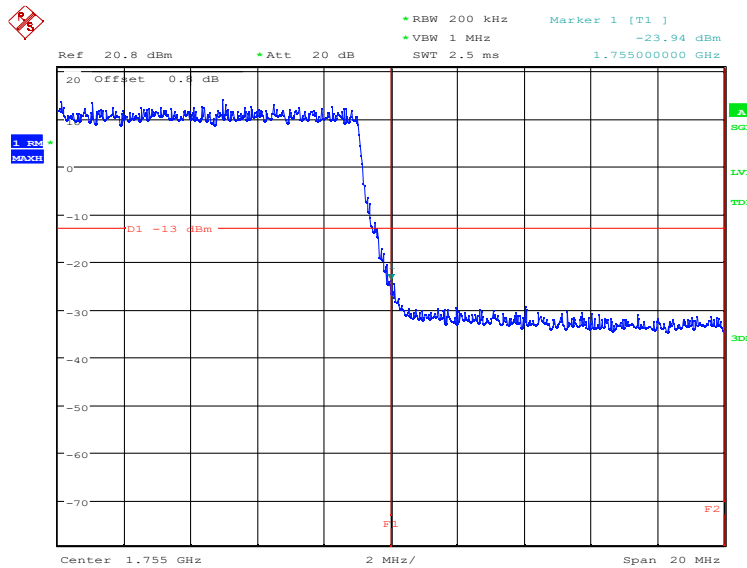
Date: 16.JAN.2023 13:57:06

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 5.JAN.2023 14:39:24

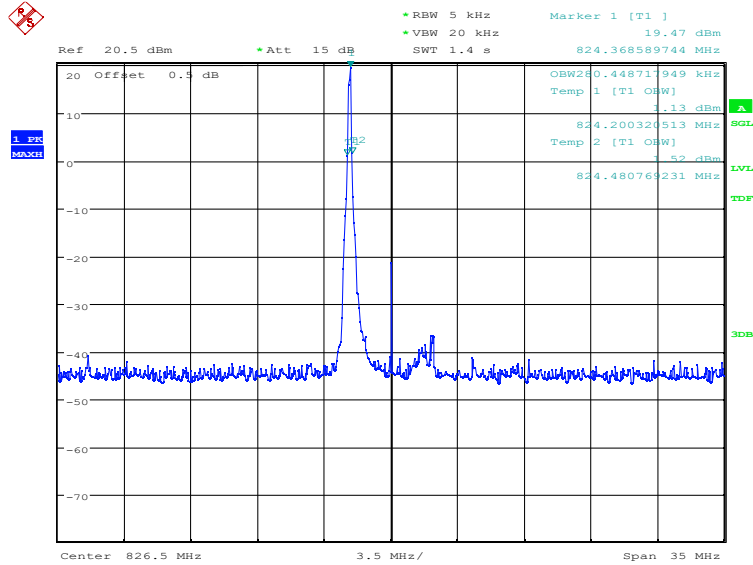
HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 5.JAN.2023 14:41:05

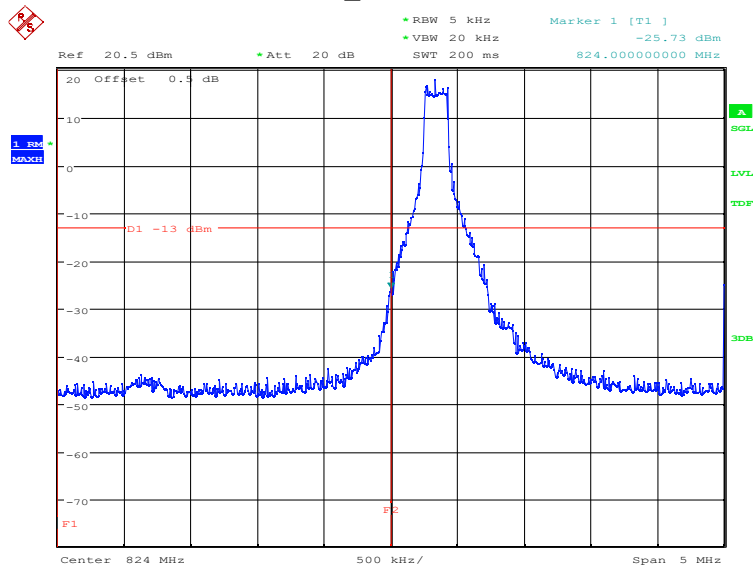
LTE band 5

OBW: 1RB-low_offset



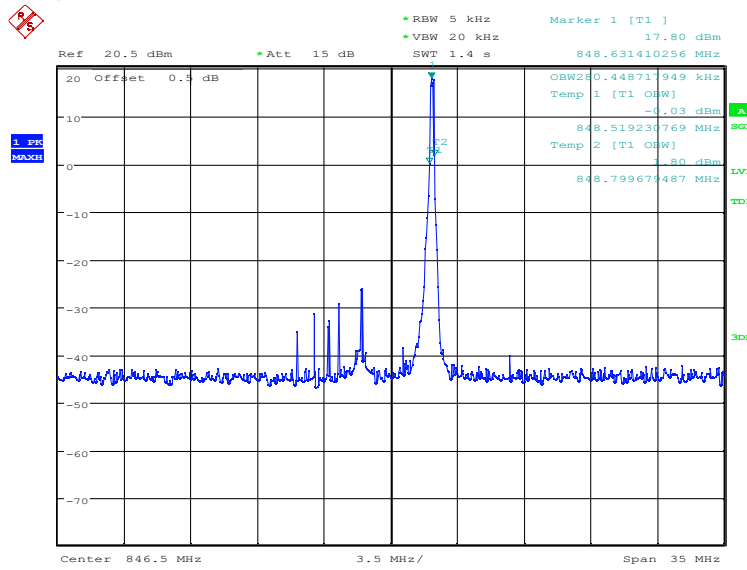
Date: 16.JAN.2023 10:04:11

LOW BAND EDGE BLOCK-1RB-low_offset



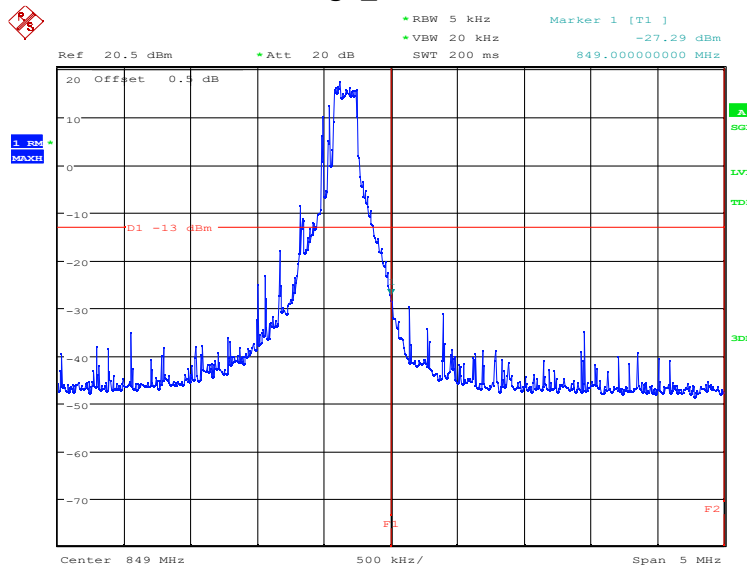
Date: 16.JAN.2023 10:05:26

OBW: 1RB-high_offset



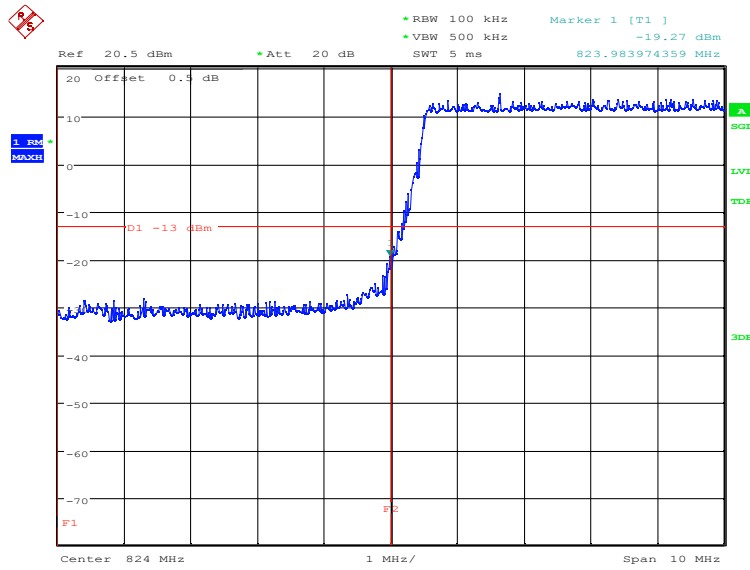
Date: 16.JAN.2023 10:06:02

HIGH BAND EDGE BLOCK-1RB-high_offset



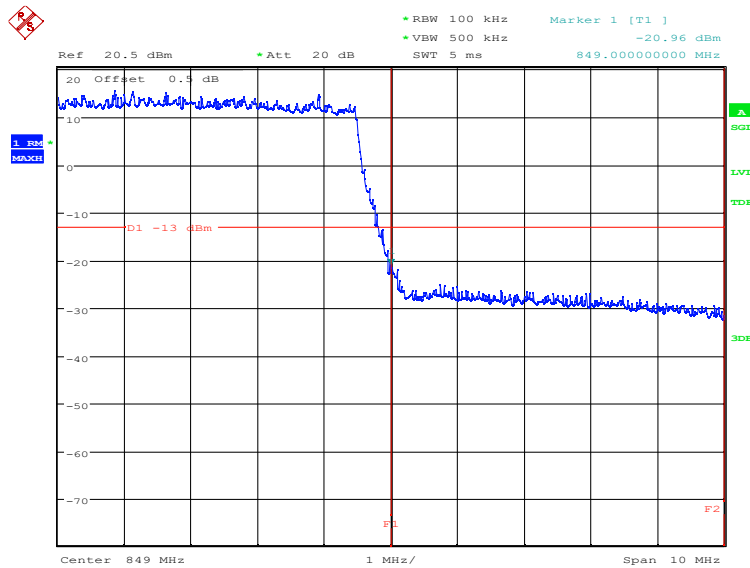
Date: 16.JAN.2023 10:07:17

LOW BAND EDGE BLOCK-10MHz-100%RB



Date: 5.JAN.2023 09:28:33

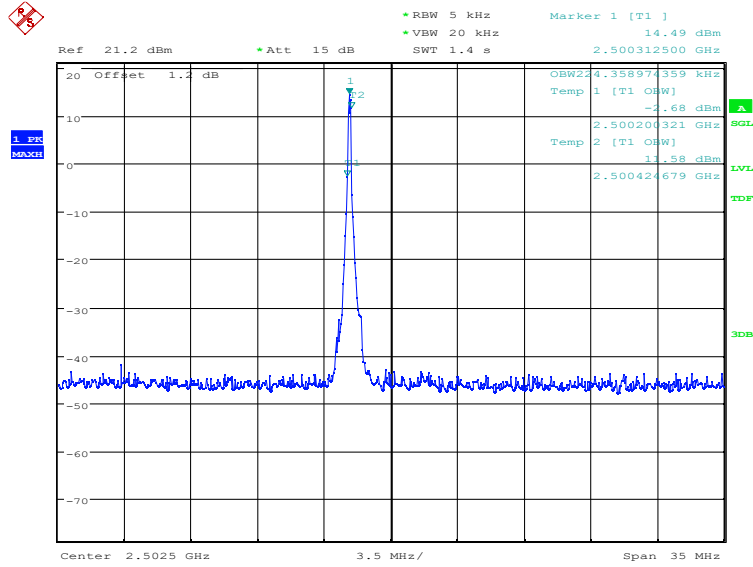
HIGH BAND EDGE BLOCK-10MHz-100%RB



Date: 5.JAN.2023 09:31:11

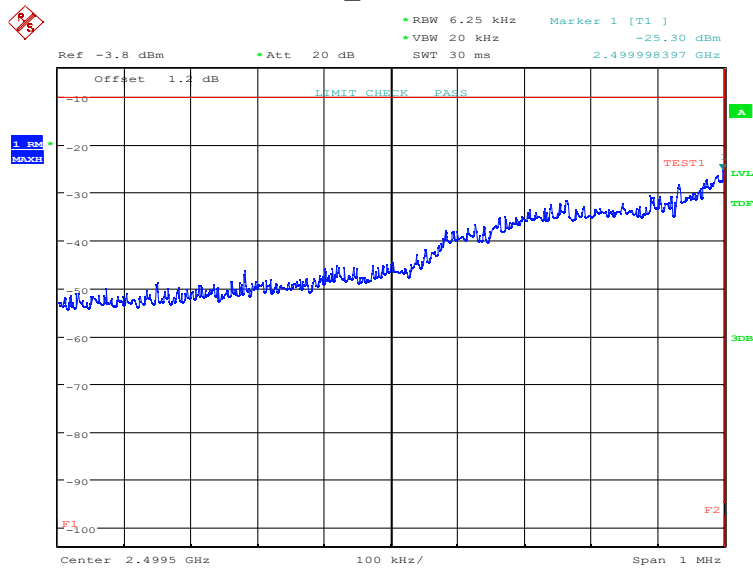
LTE band 7

OBW: 1RB-low_offset

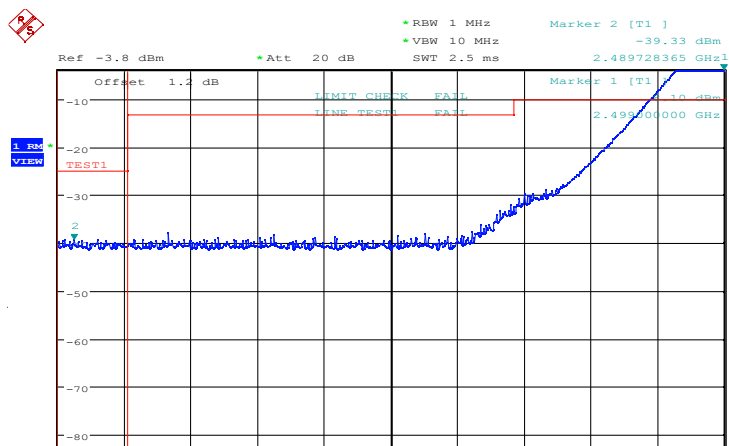


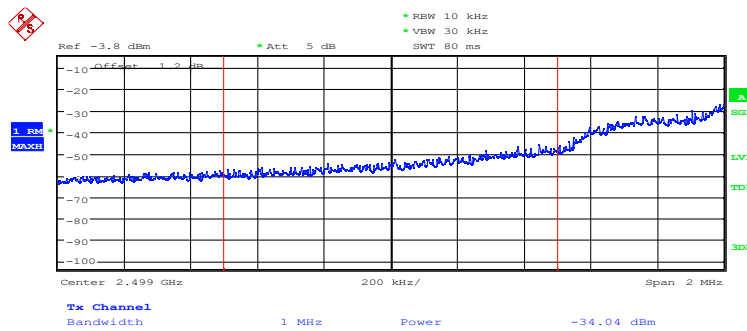
Date: 16.JAN.2023 14:05:41

LOW BAND EDGE BLOCK-1RB-low_offset



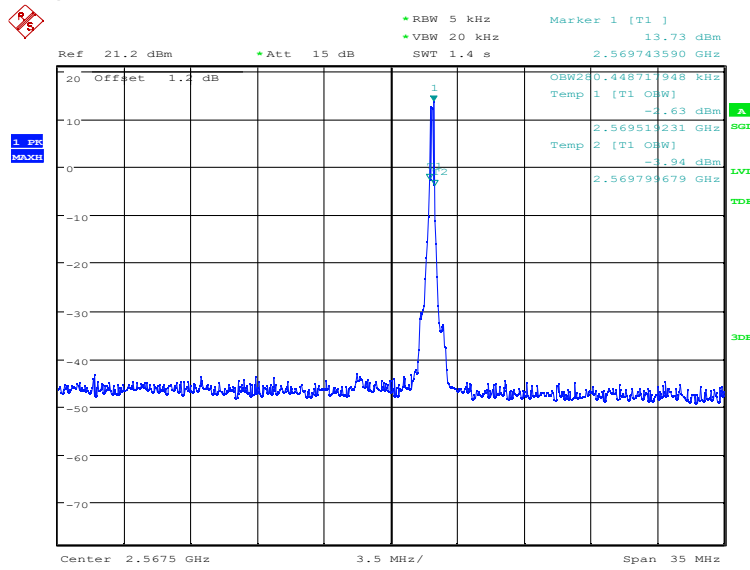
Date: 16.JAN.2023 14:07:39





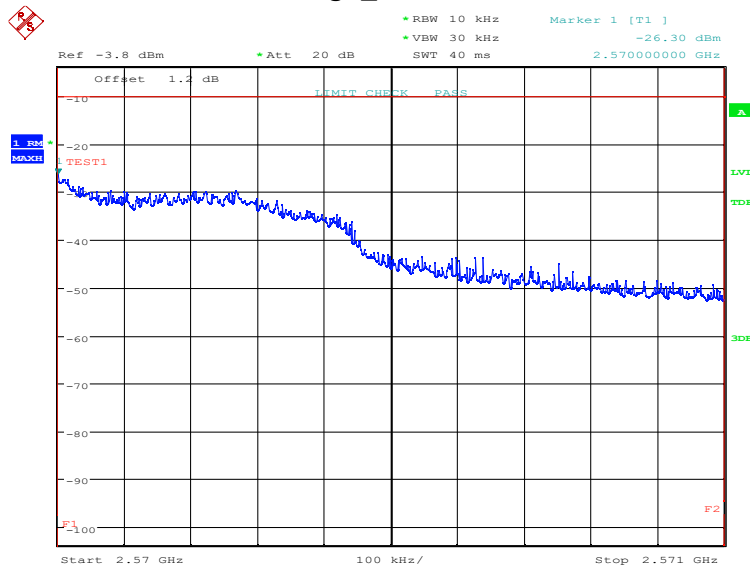
Date: 16.JAN.2023 14:10:36

OBW: 1RB-high_offset

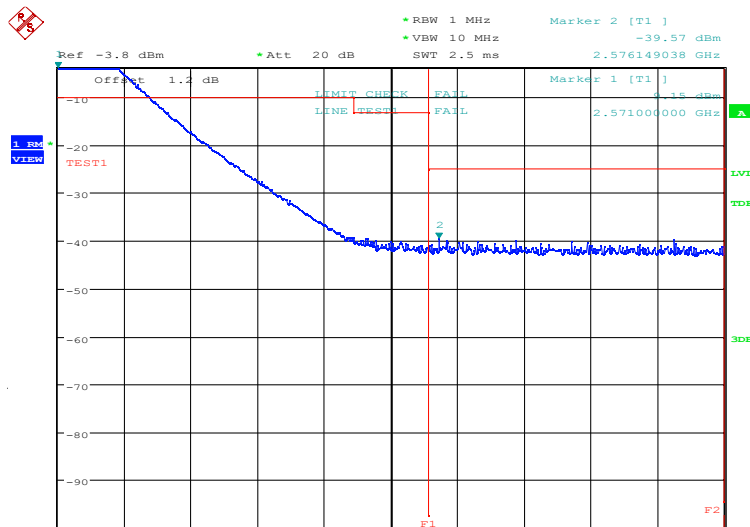


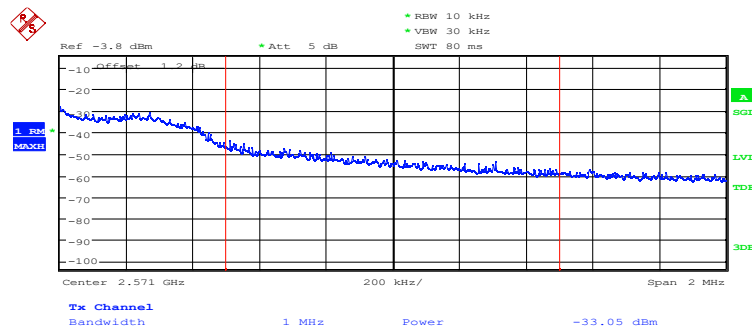
Date: 16.JAN.2023 14:33:06

HIGH BAND EDGE BLOCK-1RB-high_offset



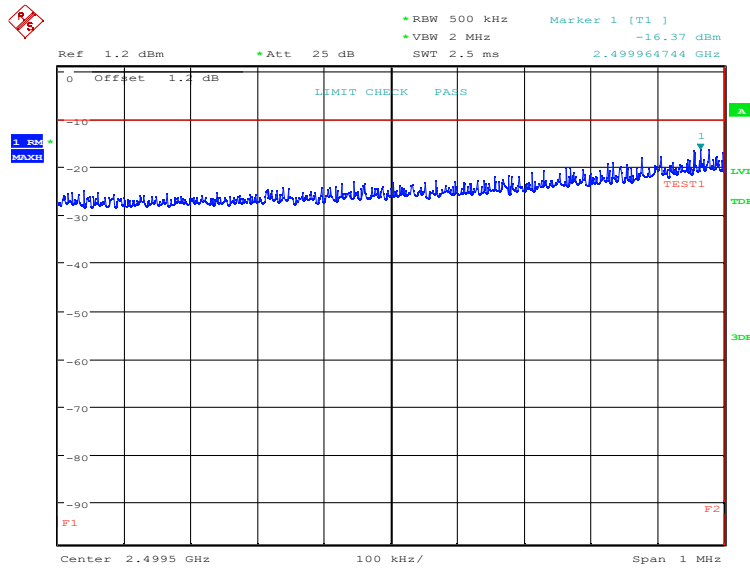
Date: 16.JAN.2023 14:34:57



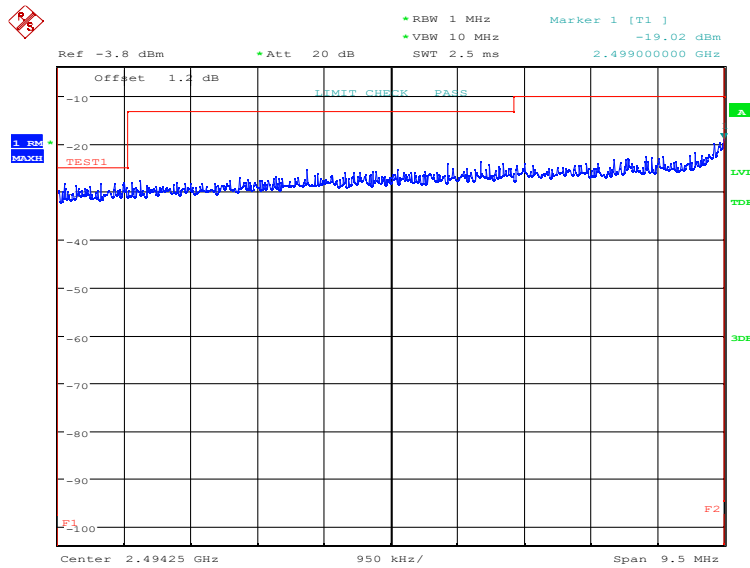


Date: 16.JAN.2023 14:37:39

LOW BAND EDGE BLOCK-20MHz-100%RB

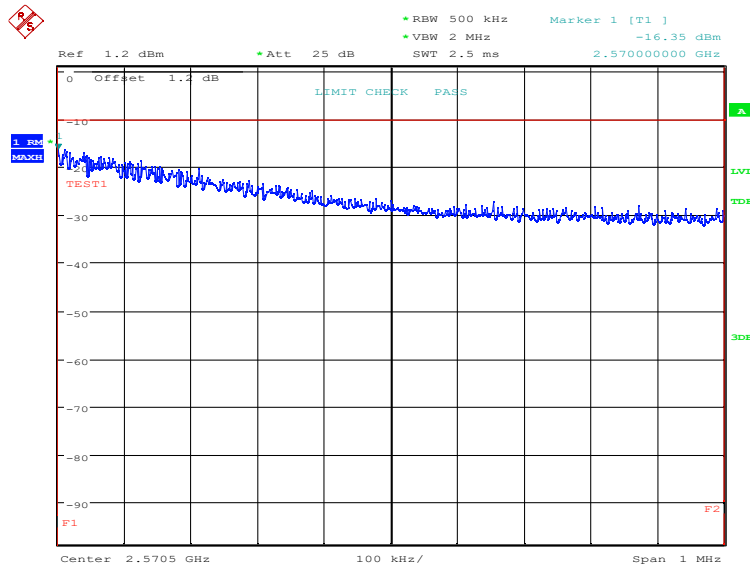


Date: 5.JAN.2023 14:54:28

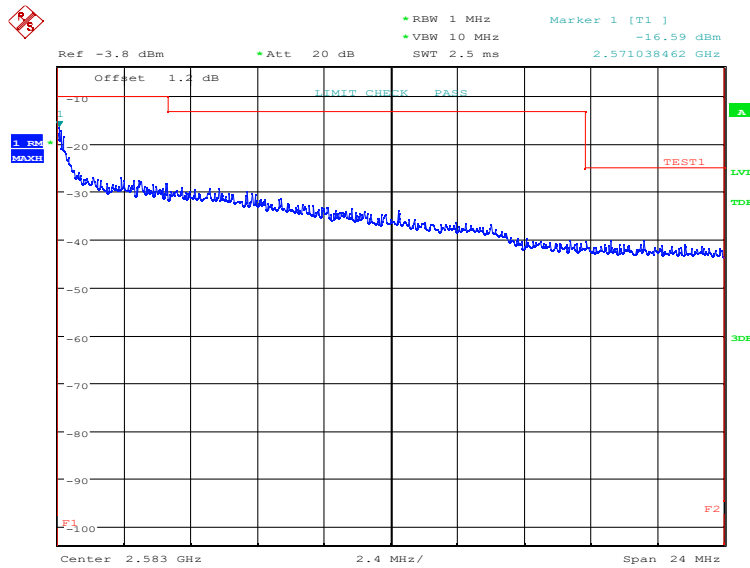


Date: 5.JAN.2023 14:56:26

HIGH BAND EDGE BLOCK-20MHz-100%RB



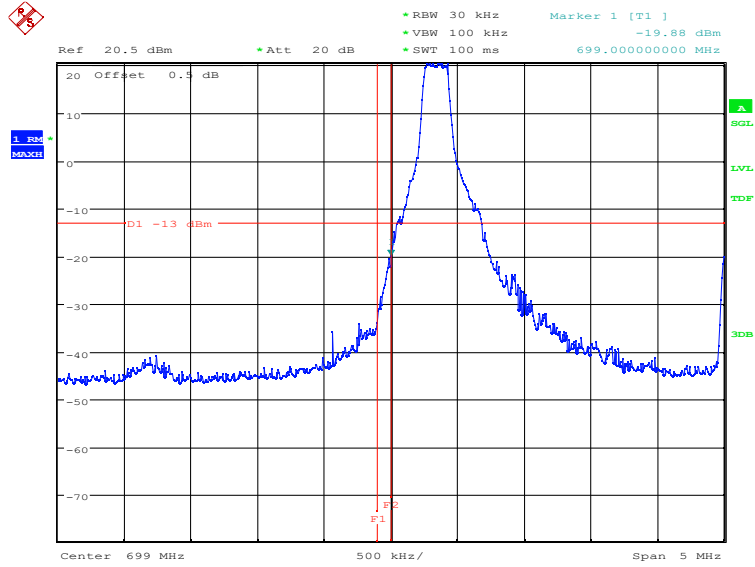
Date: 5.JAN.2023 14:59:37



Date: 5.JAN.2023 15:02:53

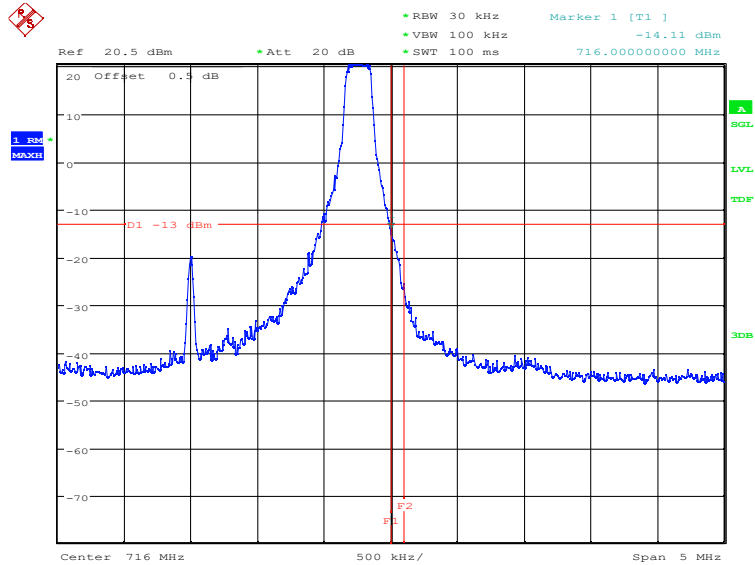
LTE band 12

LOW BAND EDGE BLOCK-1RB-low_offset



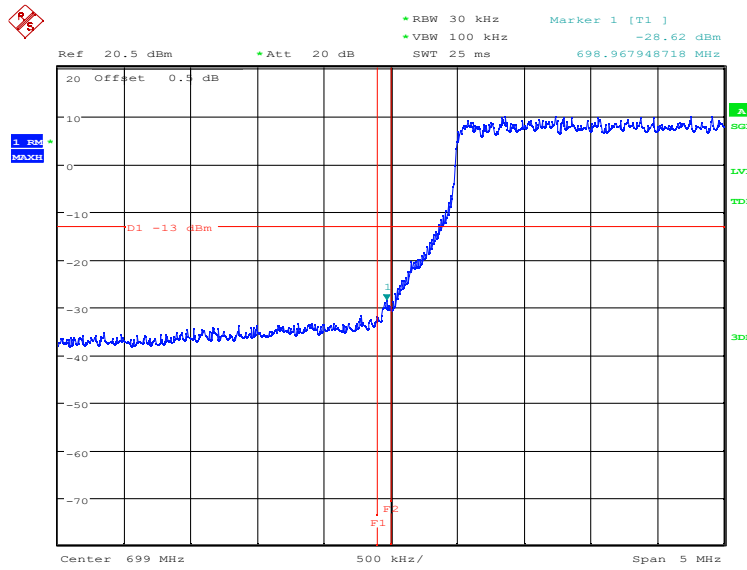
Date: 16.JAN.2023 10:10:03

HIGH BAND EDGE BLOCK-1RB-high_offset



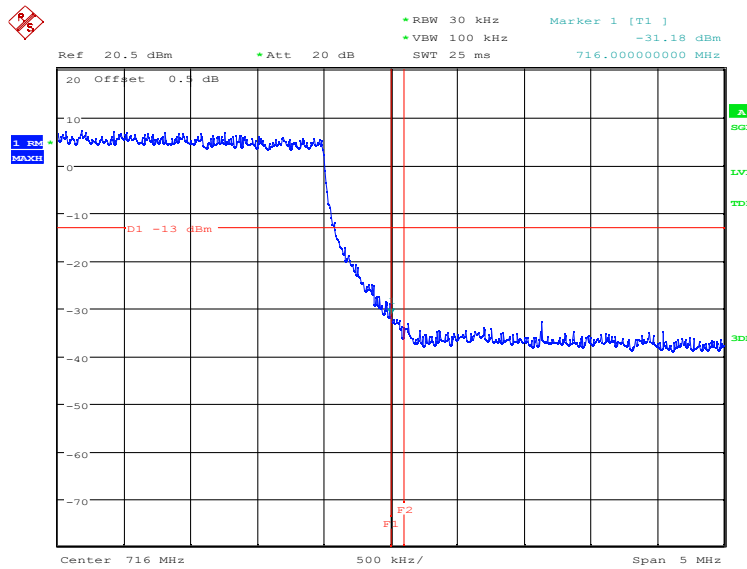
Date: 16.JAN.2023 10:11:54

LOW BAND EDGE BLOCK-10MHz-100%RB



Date: 5.JAN.2023 09:34:46

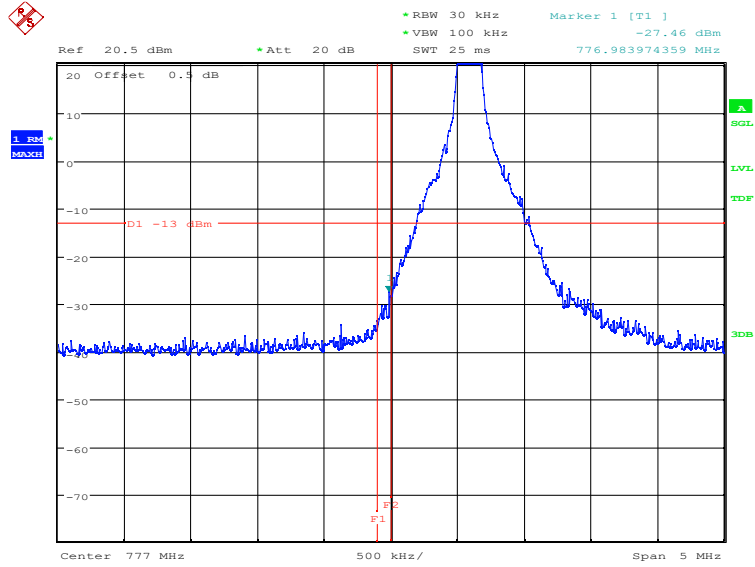
HIGH BAND EDGE BLOCK-10MHz-100%RB



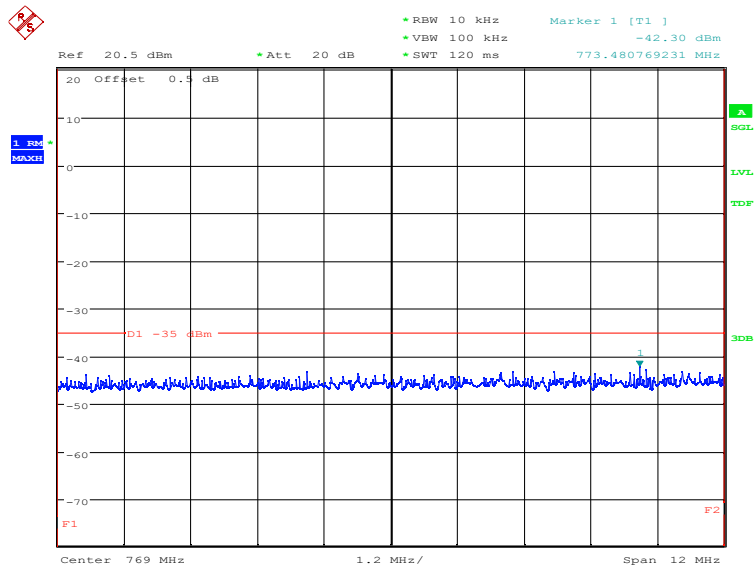
Date: 5.JAN.2023 09:37:12

LTE band 13

LOW BAND EDGE BLOCK-1RB-low_offset

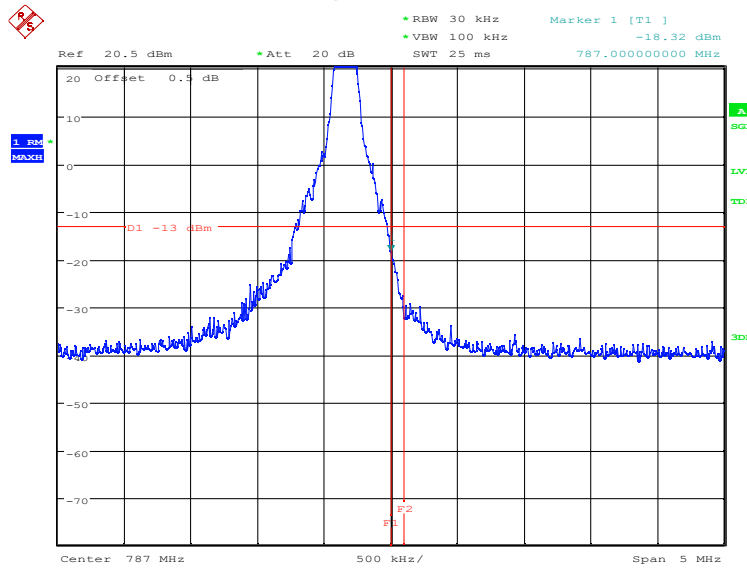


Date: 16.JAN.2023 10:14:08

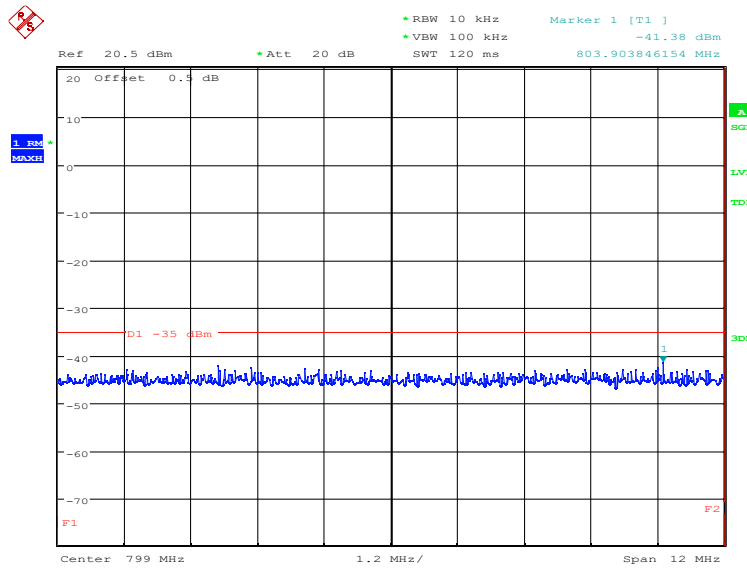


Date: 16.JAN.2023 10:15:06

HIGH BAND EDGE BLOCK-1RB-high_offset

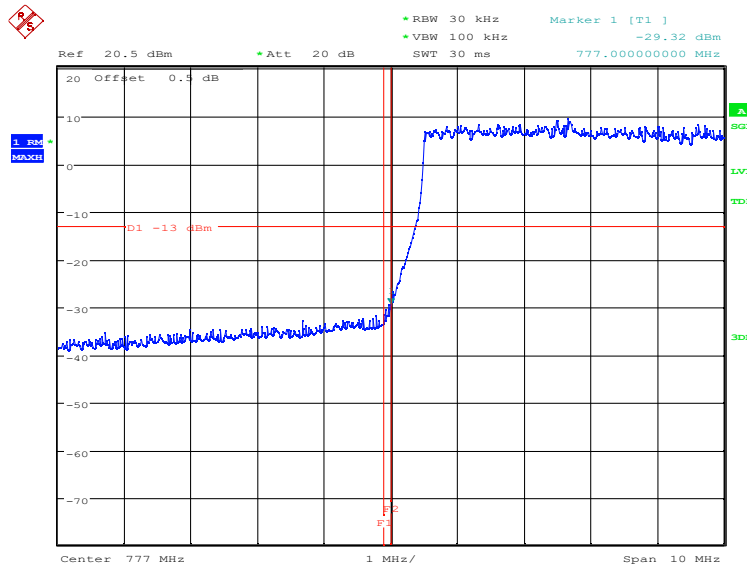


Date: 16.JAN.2023 10:16:59

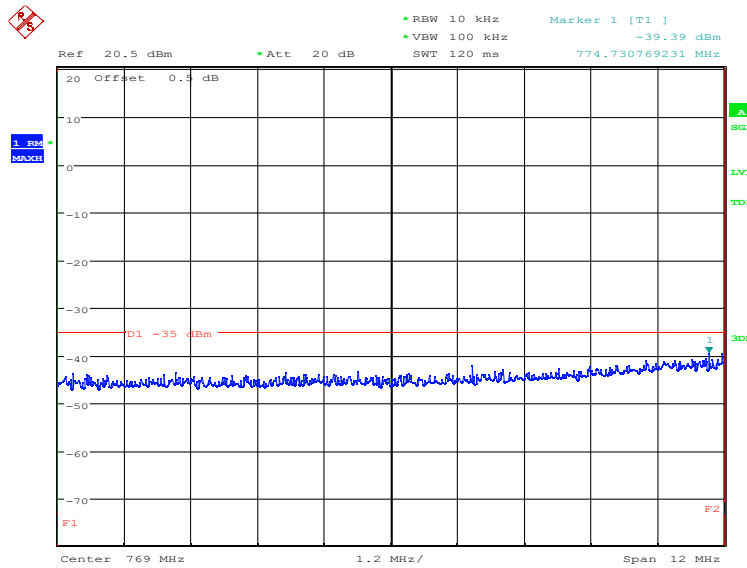


Date: 16.JAN.2023 10:17:40

LOW BAND EDGE BLOCK-10MHz-100%RB

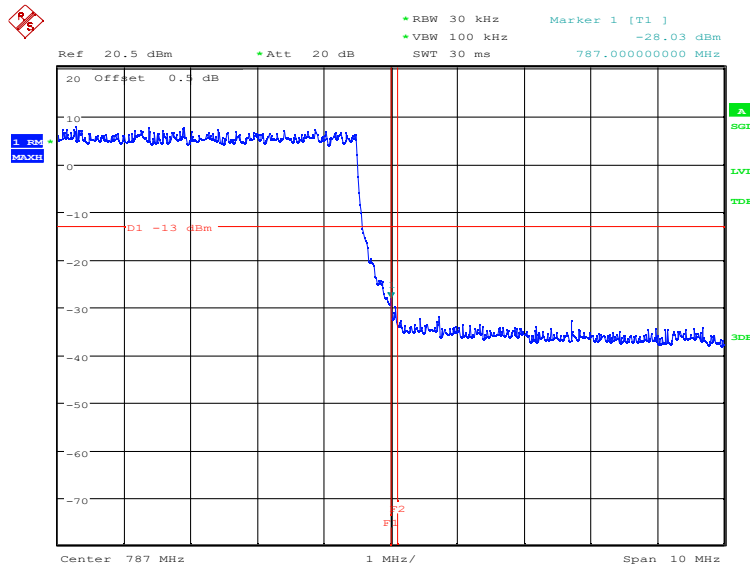


Date: 5.JAN.2023 09:39:53

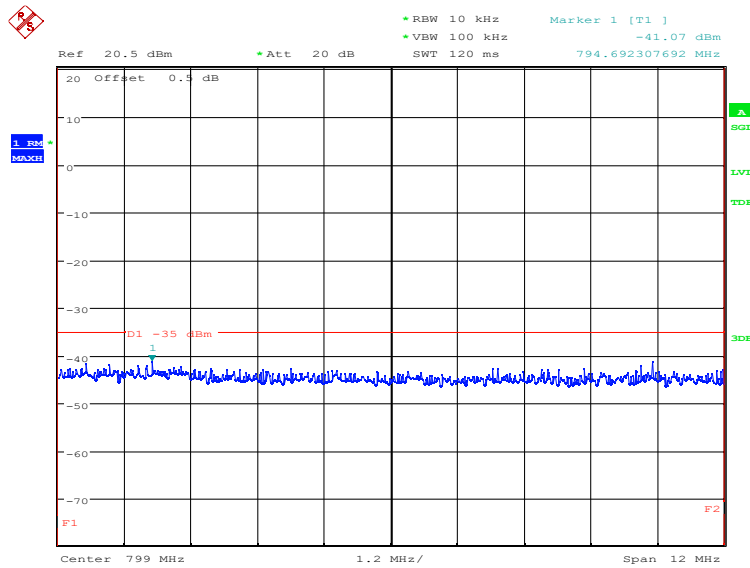


Date: 5.JAN.2023 09:41:16

HIGH BAND EDGE BLOCK-10MHz-100%RB



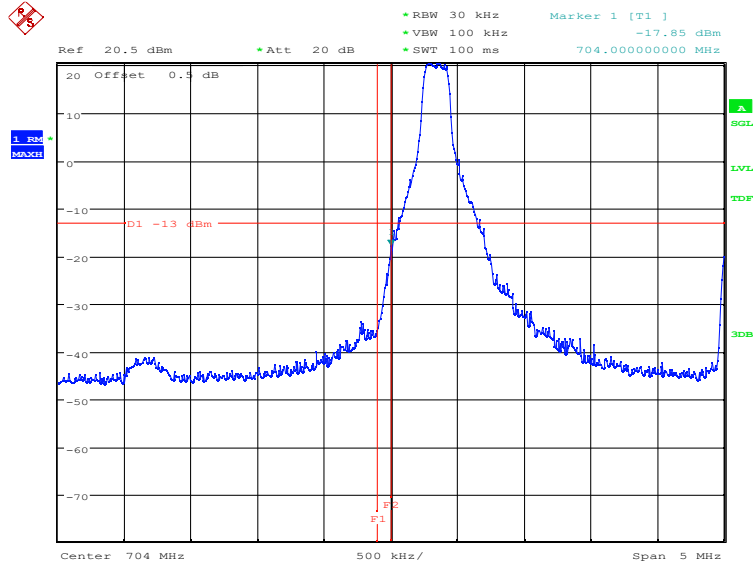
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Date: 5.JAN.2023 09:44:09

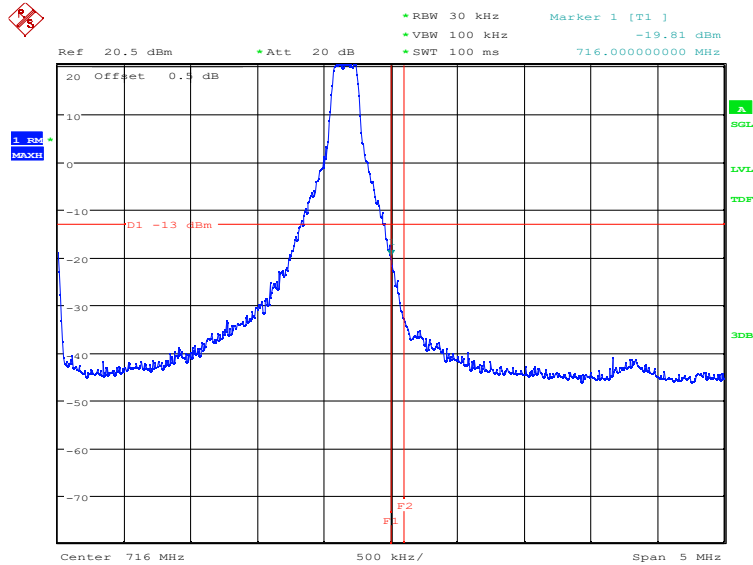
LTE band 17

LOW BAND EDGE BLOCK-1RB-low_offset



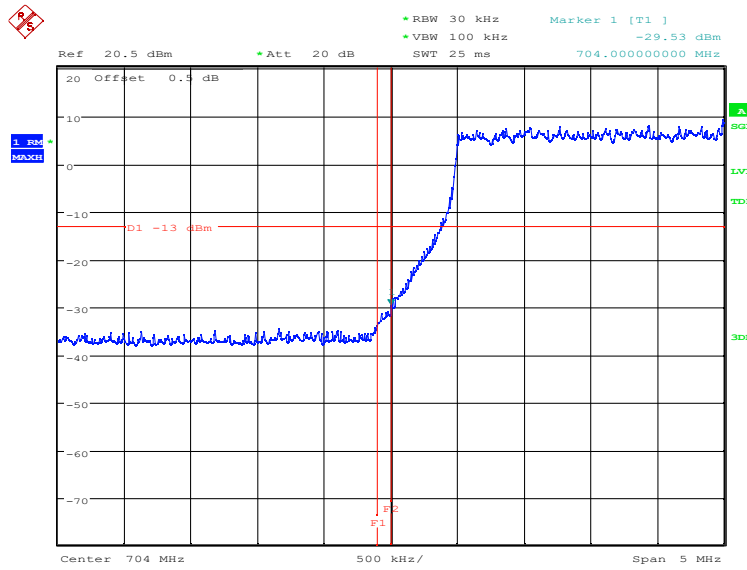
Date: 16.JAN.2023 10:19:02

HIGH BAND EDGE BLOCK-1RB-high_offset



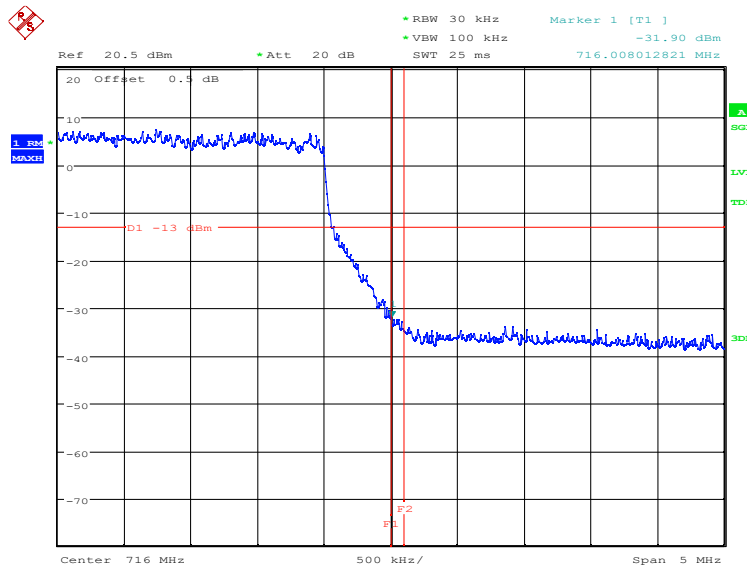
Date: 16.JAN.2023 10:20:14

LOW BAND EDGE BLOCK-10MHz-100%RB



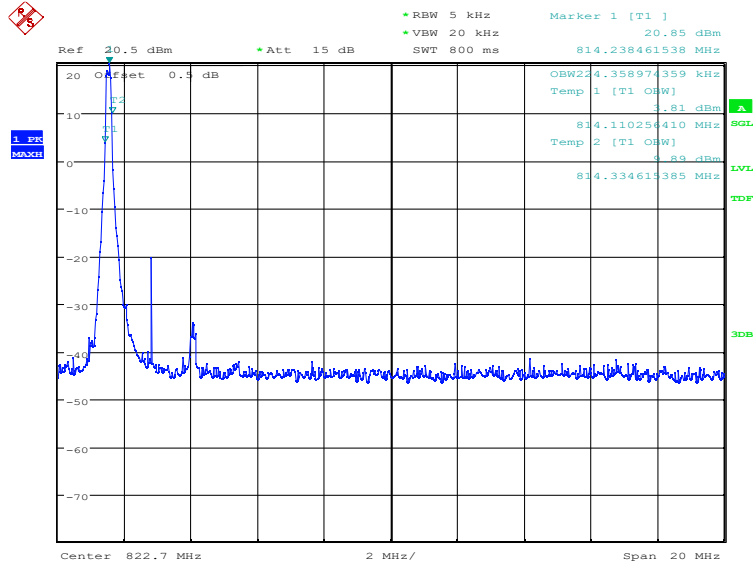
Date: 5.JAN.2023 09:47:03

HIGH BAND EDGE BLOCK-10MHz-100%RB



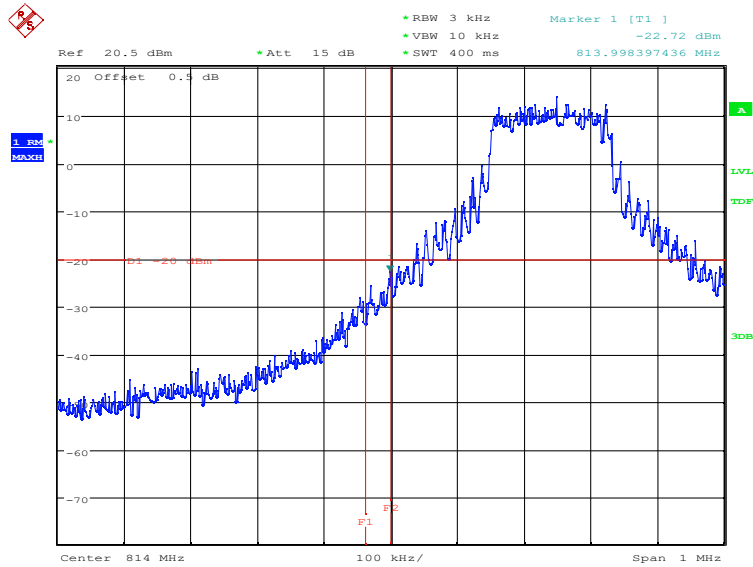
Date: 5.JAN.2023 09:49:37

LTE band 26(814MHz~824MHz) OBW: 1RB-low_offset



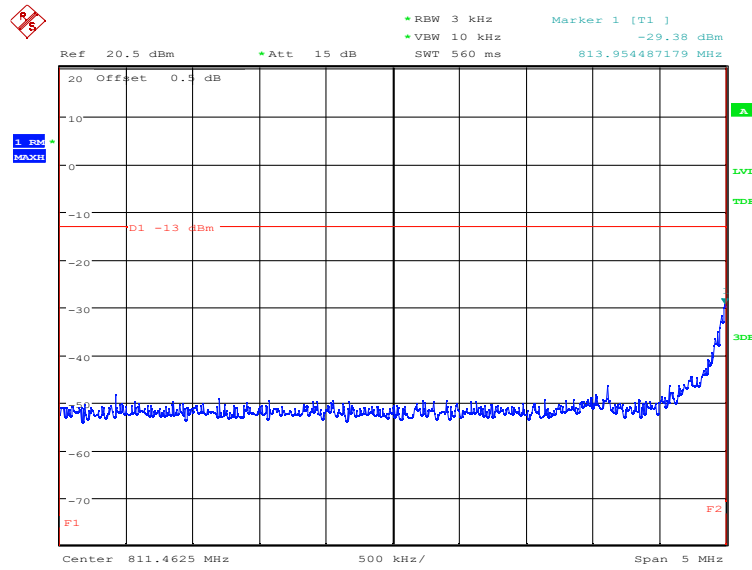
Date: 16.JAN.2023 10:32:39

LOW BAND EDGE BLOCK-1RB-low_offset



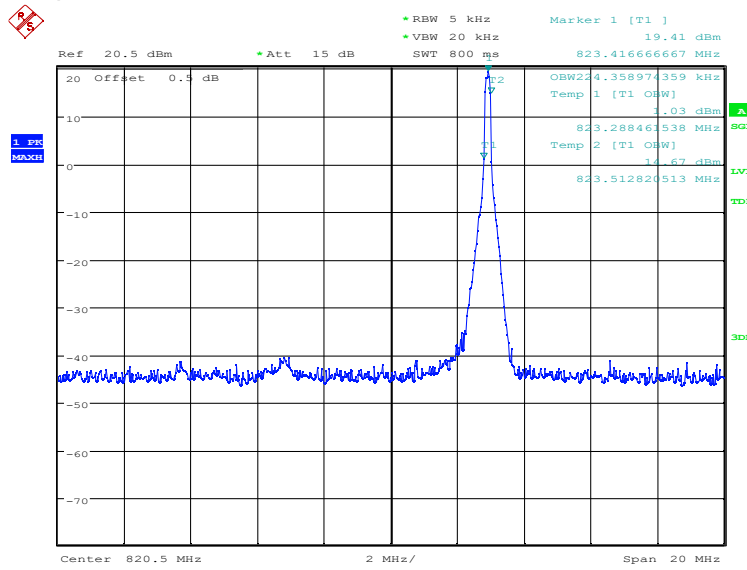
Date: 16.JAN.2023 10:36:09

LOW Emission Mask -1RB-low_offset



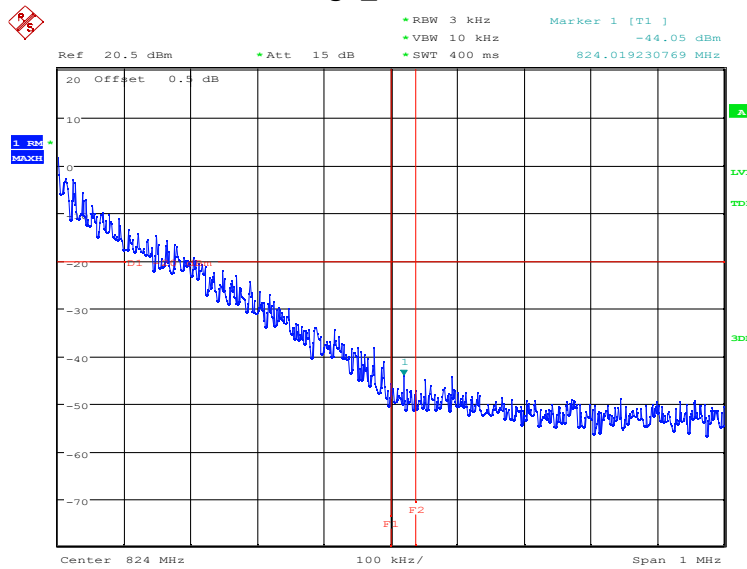
Date: 16.JAN.2023 10:37:52

OBW: 1RB-high_offset



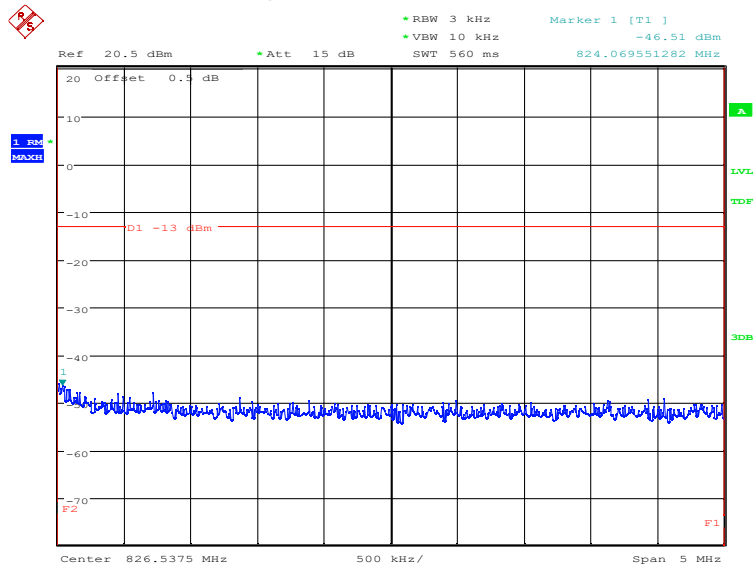
Date: 16.JAN.2023 11:00:18

HIGH BAND EDGE BLOCK-1RB-high_offset



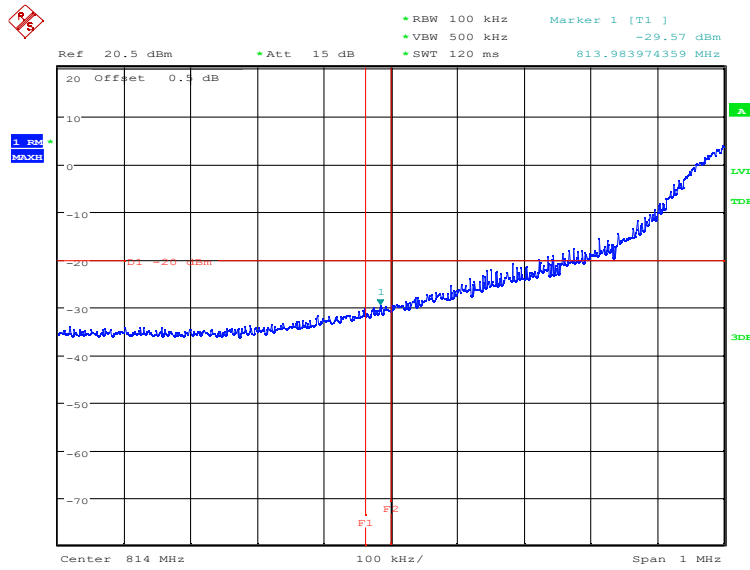
Date: 16.JAN.2023 11:02:27

HIGH Emission Mask -1RB-high_offset



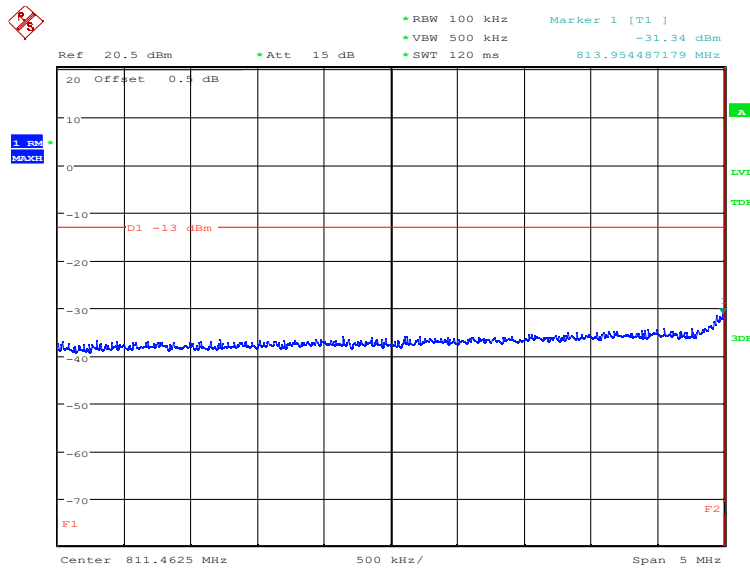
Date: 16.JAN.2023 11:04:03

LOW BAND EDGE BLOCK-10MHz-100%RB



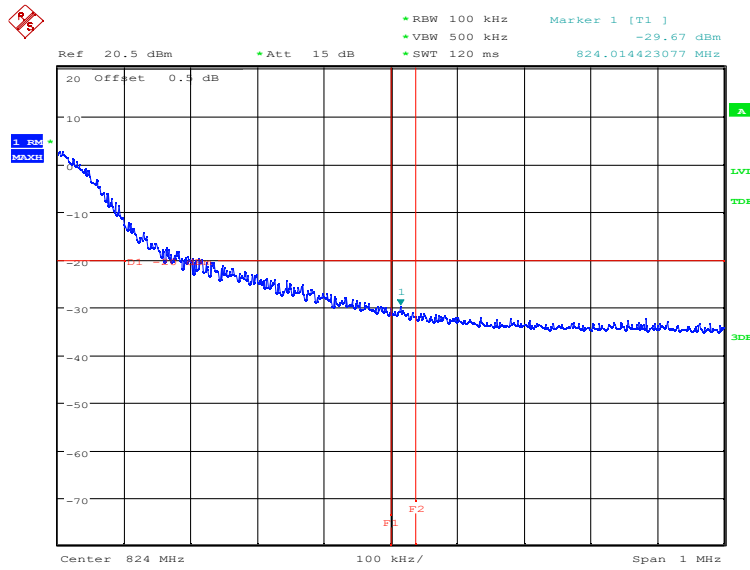
Date: 5.JAN.2023 10:28:13

LOW Emission Mask -10MHz-100%RB



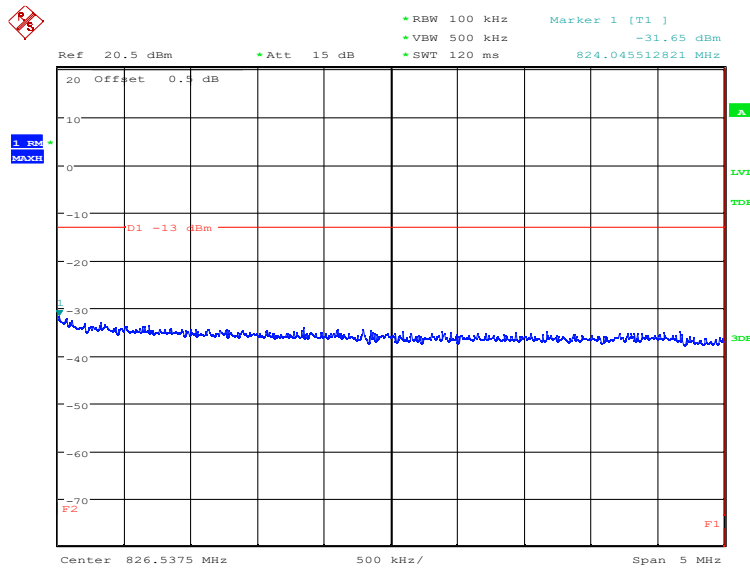
Date: 5.JAN.2023 10:28:57

HIGH BAND EDGE BLOCK-10MHz-100%RB



Date: 5.JAN.2023 10:31:09

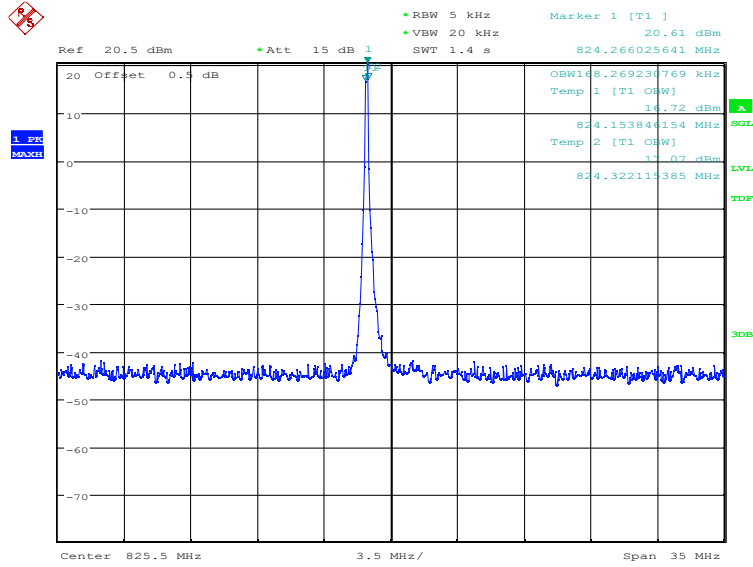
HIGH Emission Mask -10MHz-100%RB



Date: 5.JAN.2023 10:31:48

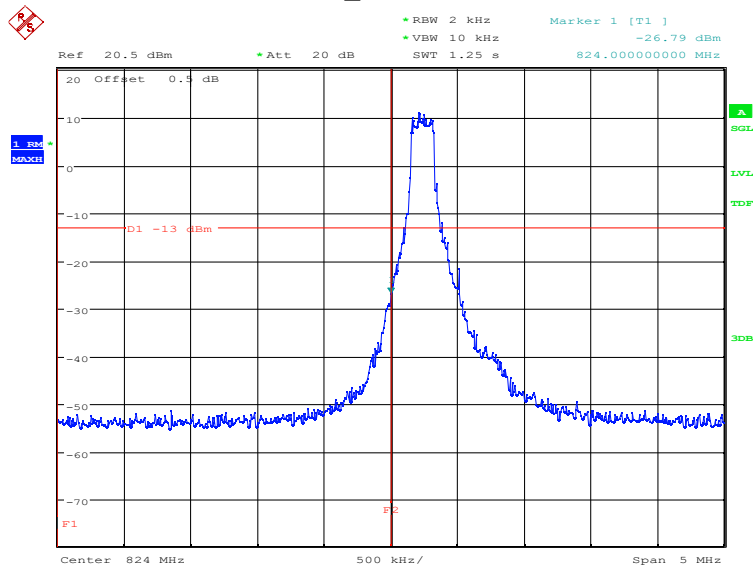
LTE band 26(824MHz~849MHz)

OBW: 1RB-low_offset



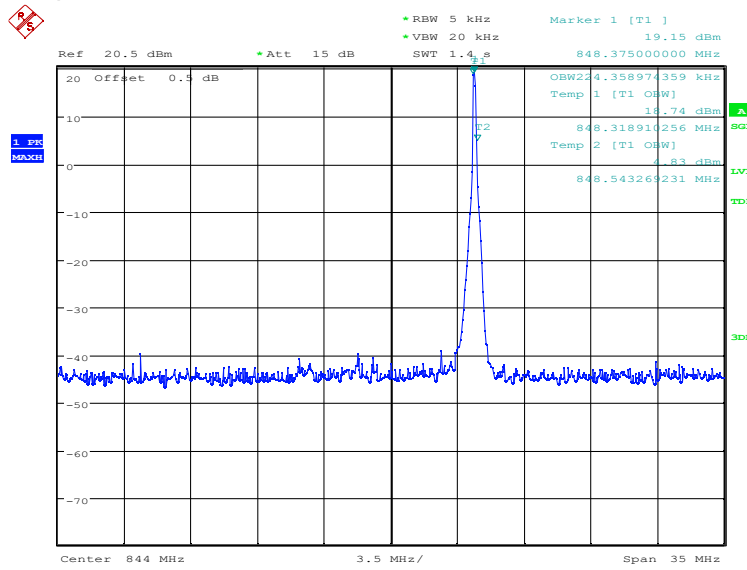
Date: 16.JAN.2023 10:21:49

LOW BAND EDGE BLOCK-1RB-low_offset



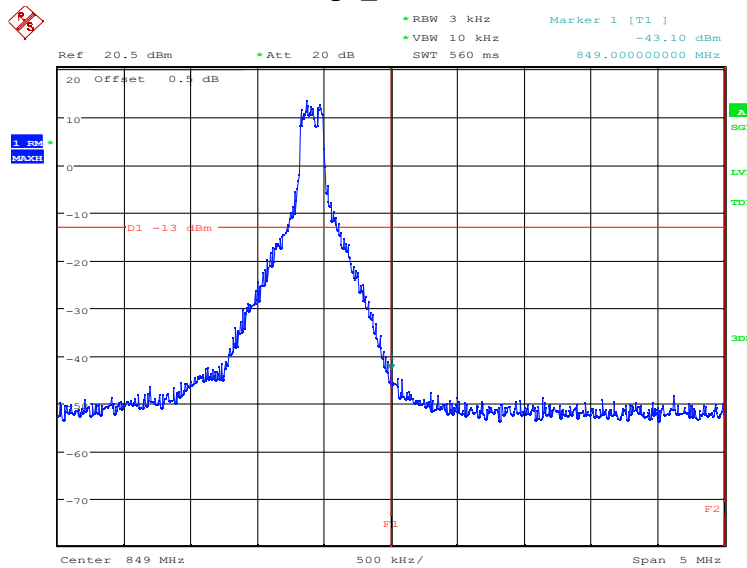
Date: 16.JAN.2023 10:23:04

OBW: 1RB-high_offset



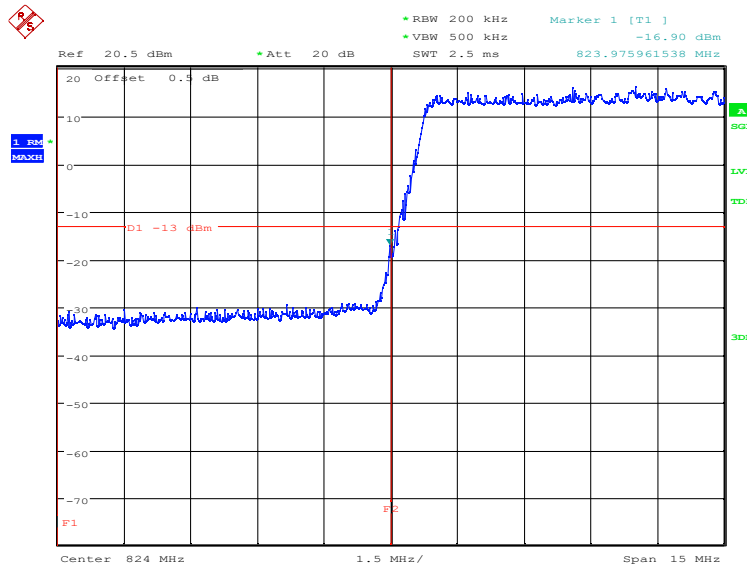
Date: 16.JAN.2023 10:23:42

HIGH BAND EDGE BLOCK-1RB-high_offset



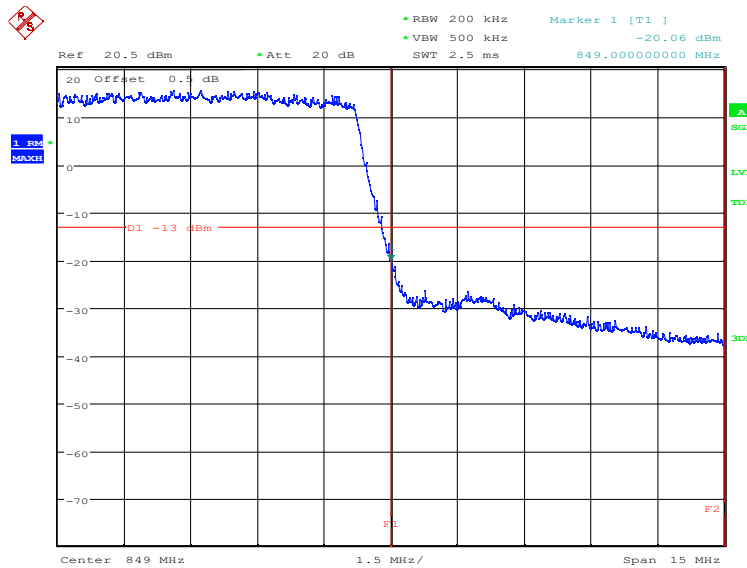
Date: 16.JAN.2023 10:24:57

LOW BAND EDGE BLOCK-15MHz-100%RB



Date: 5.JAN.2023 10:06:33

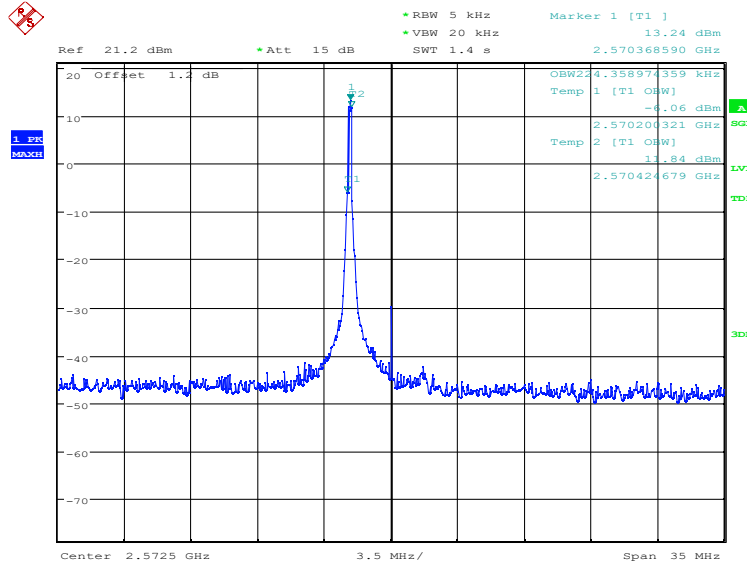
HIGH BAND EDGE BLOCK-15MHz-100%RB



Date: 5.JAN.2023 10:10:02

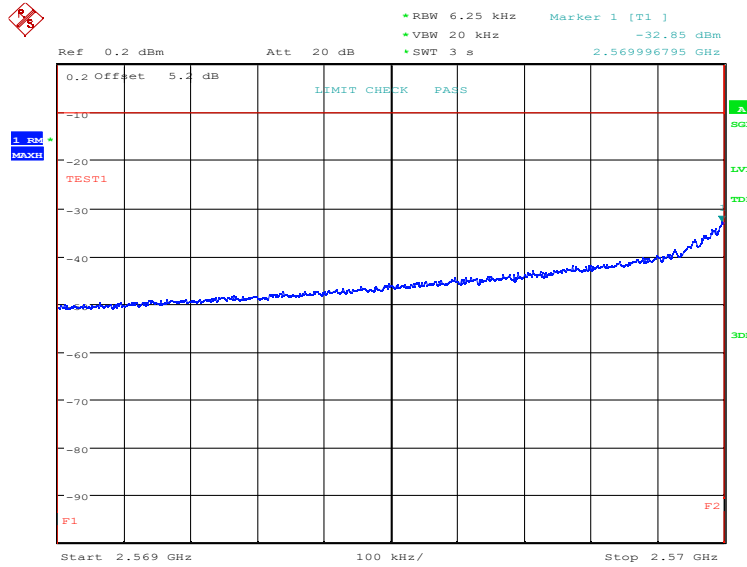
LTE band 38

OBW: 1RB-low_offset

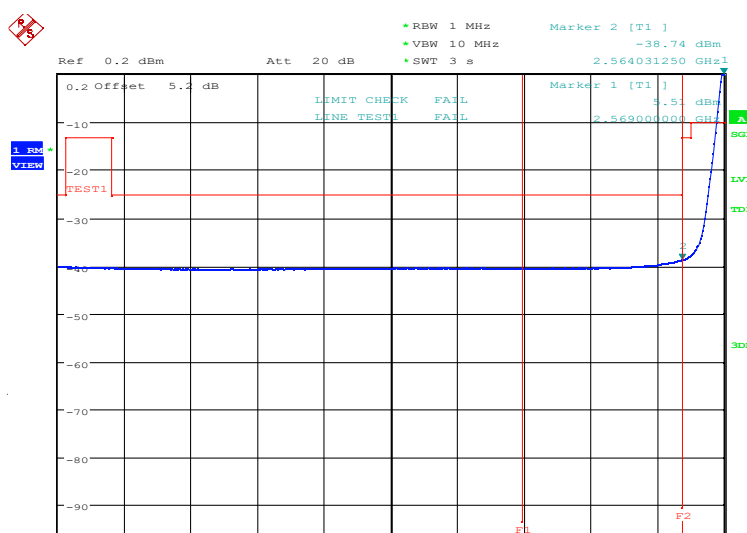


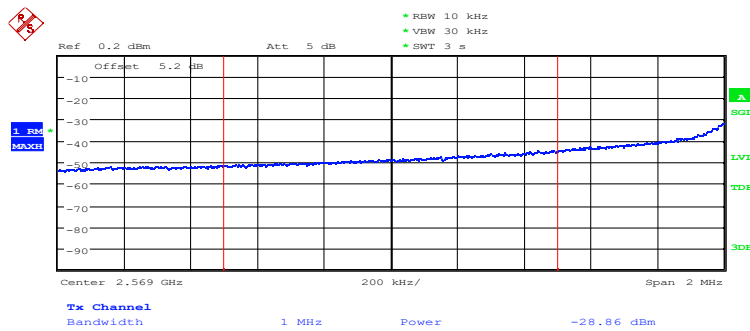
Date: 16.JAN.2023 11:08:34

LOW BAND EDGE BLOCK-1RB-low_offset



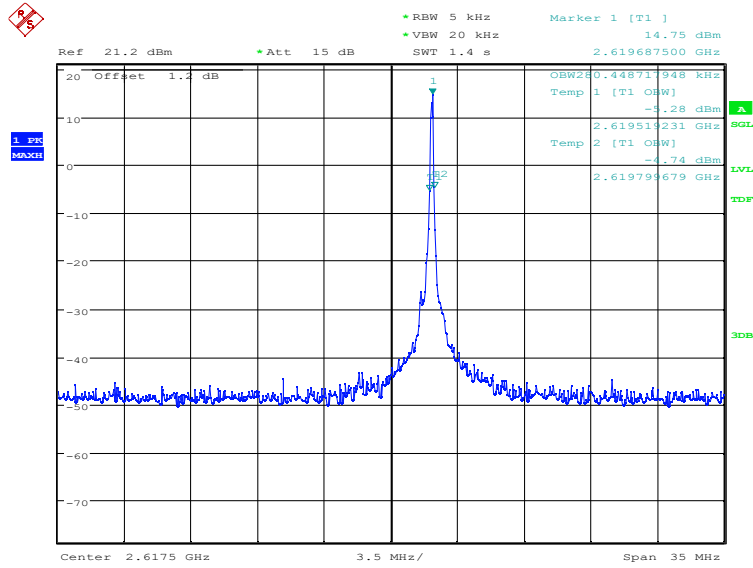
Date: 16.JAN.2023 11:09:15





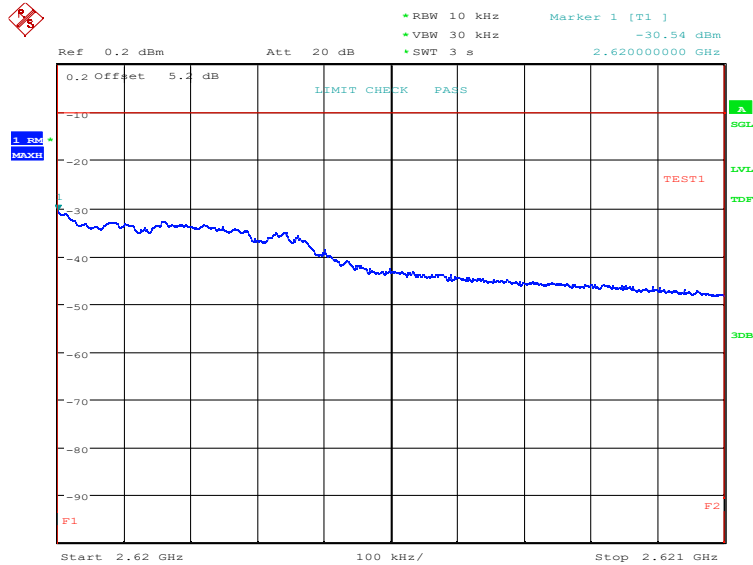
Date: 16.JAN.2023 11:10:20

OBW: 1RB-high_offset

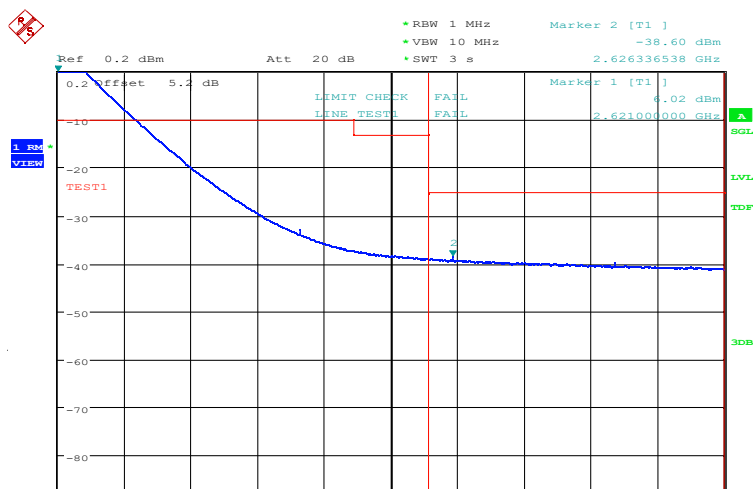


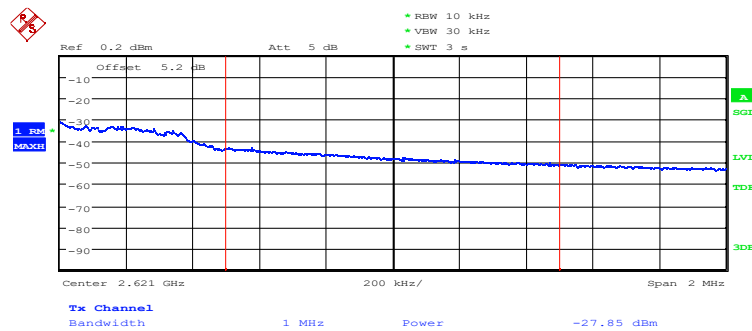
Date: 16.JAN.2023 11:10:56

HIGH BAND EDGE BLOCK-1RB-high_offset



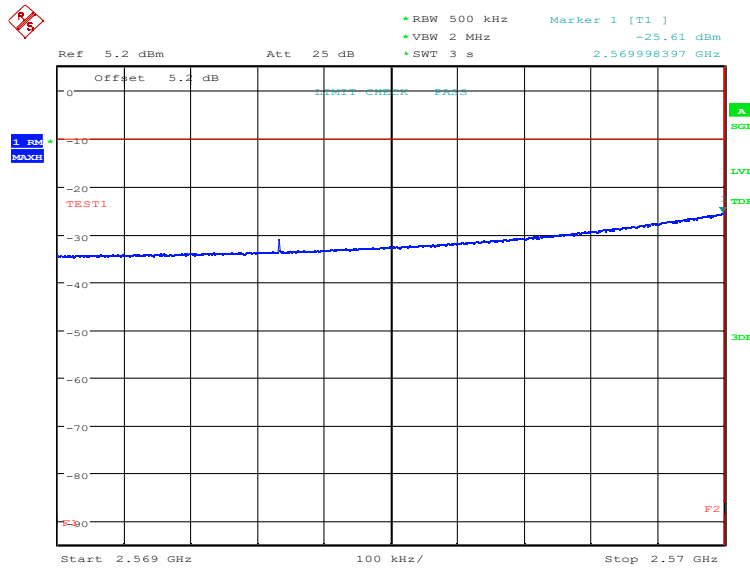
Date: 16.JAN.2023 11:11:37



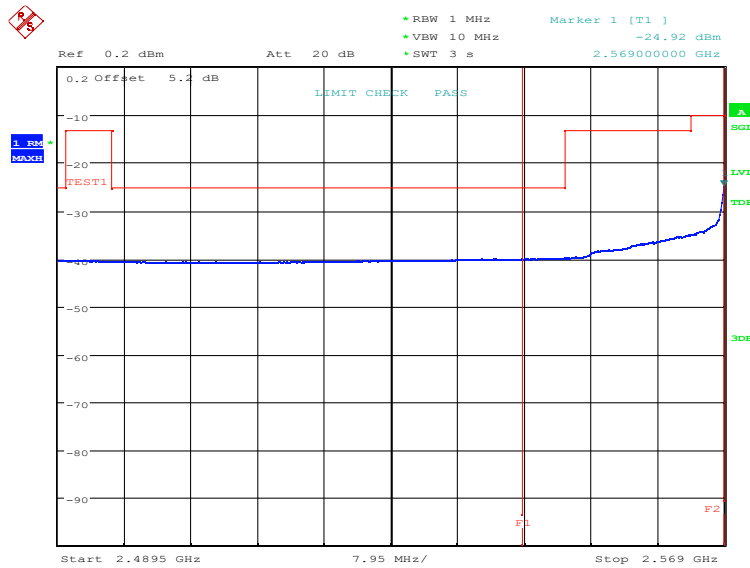


Date: 16.JAN.2023 11:12:42

LOW BAND EDGE BLOCK-20MHz-100%RB

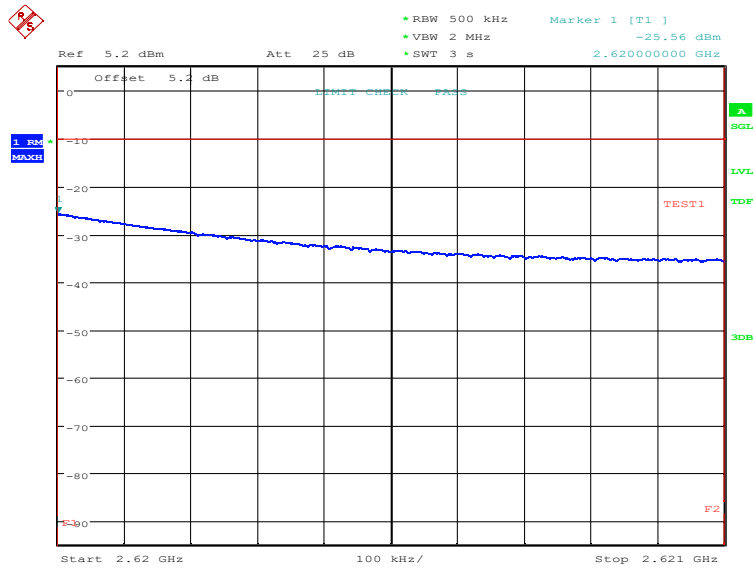


Date: 5.JAN.2023 11:07:41

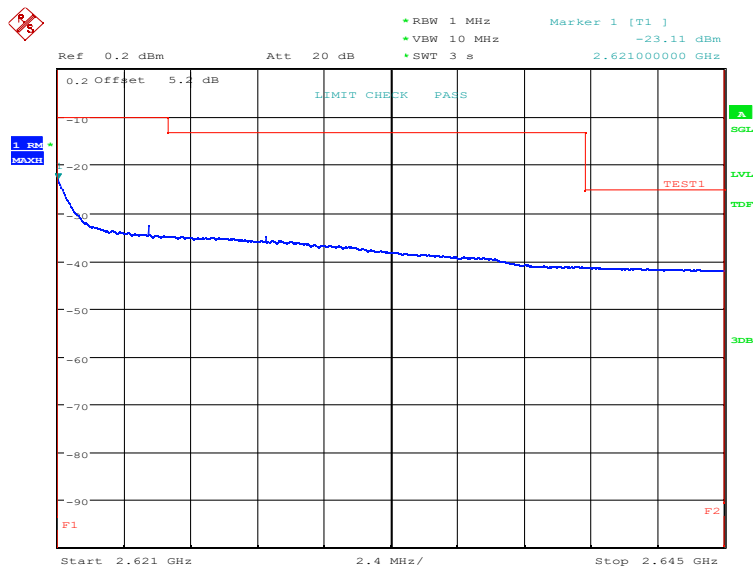


Date: 5.JAN.2023 11:08:20

HIGH BAND EDGE BLOCK-20MHz-100%RB



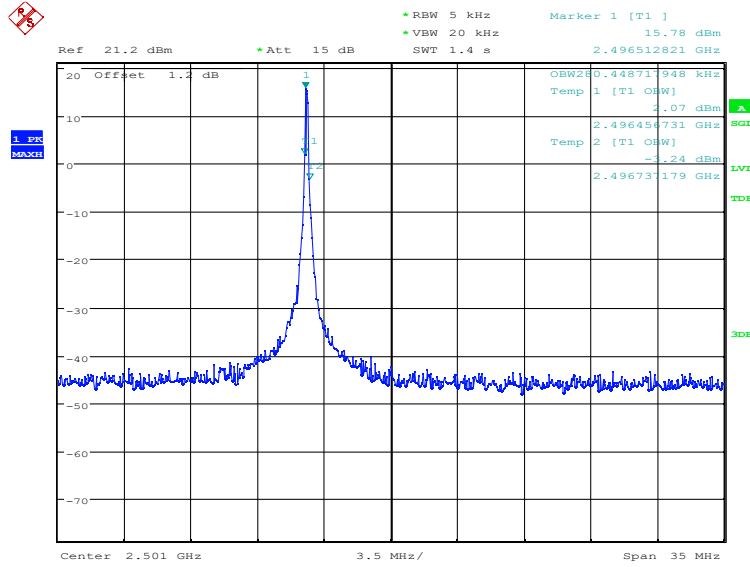
Date: 5.JAN.2023 11:10:16



Date: 5.JAN.2023 11:10:54

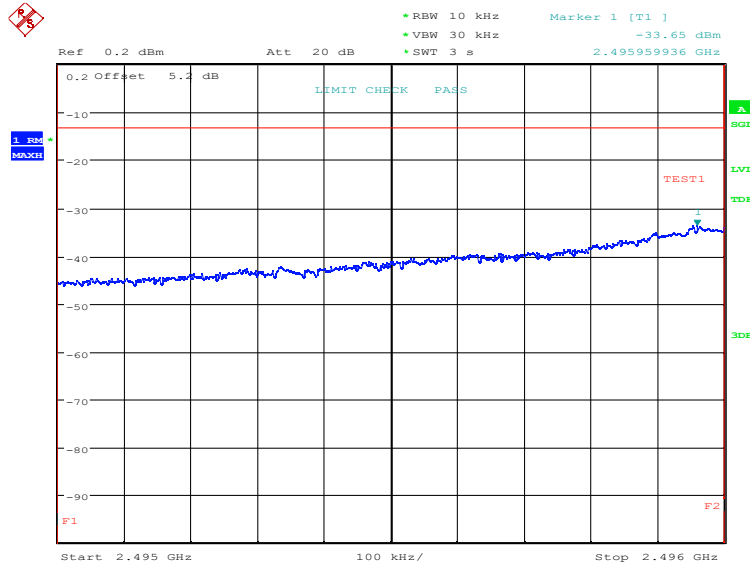
LTE band 41

OBW: 1RB-low_offset

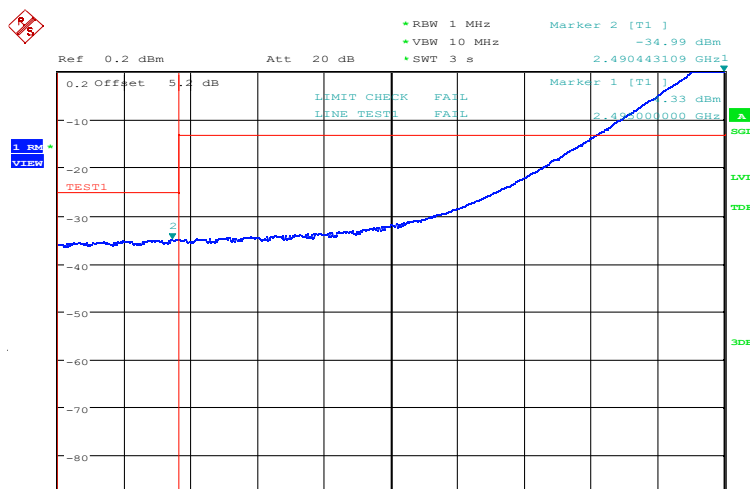


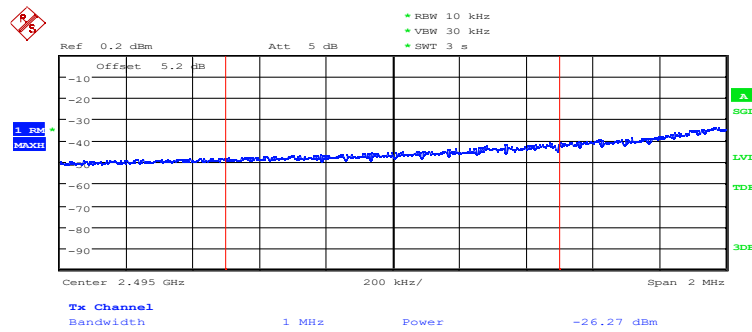
Date: 16.JAN.2023 11:13:21

LOW BAND EDGE BLOCK-1RB-low_offset



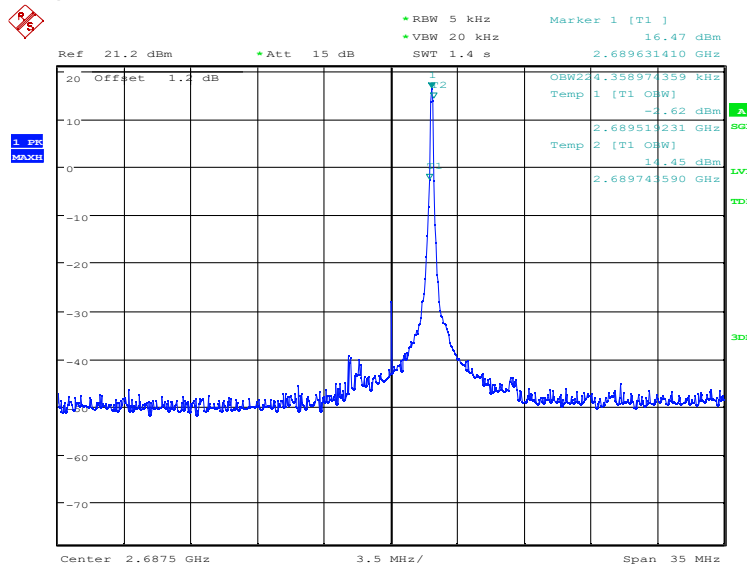
Date: 16.JAN.2023 11:14:03





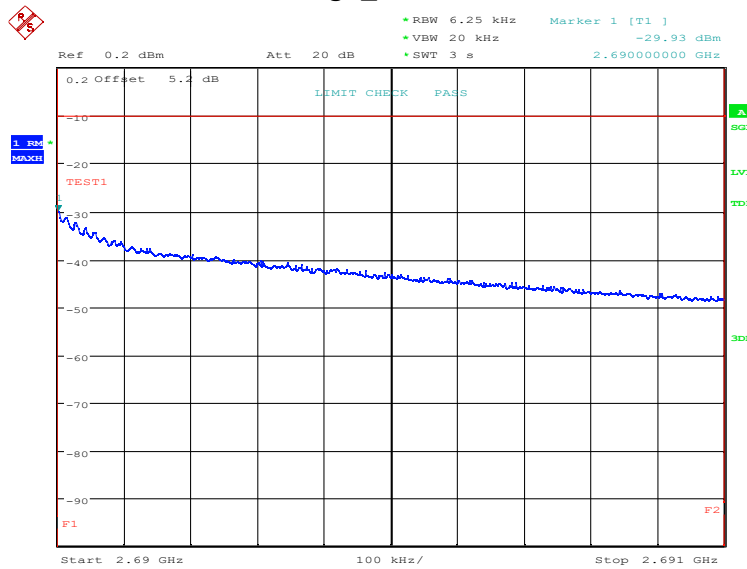
Date: 16.JAN.2023 11:15:05

OBW: 1RB-high_offset

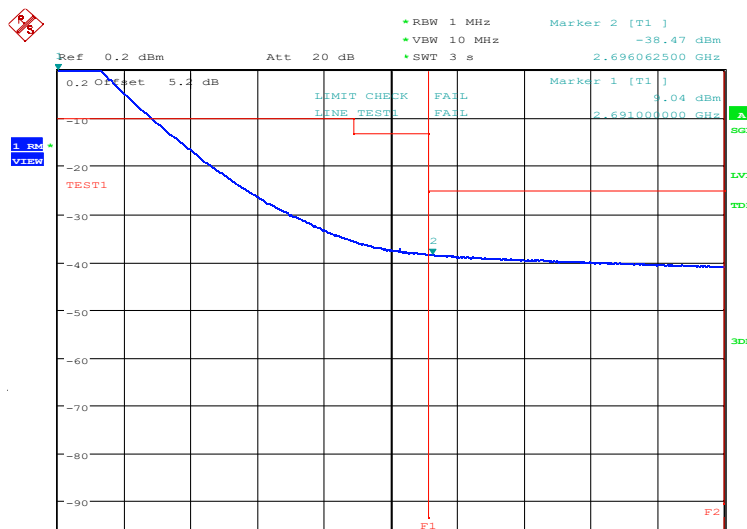


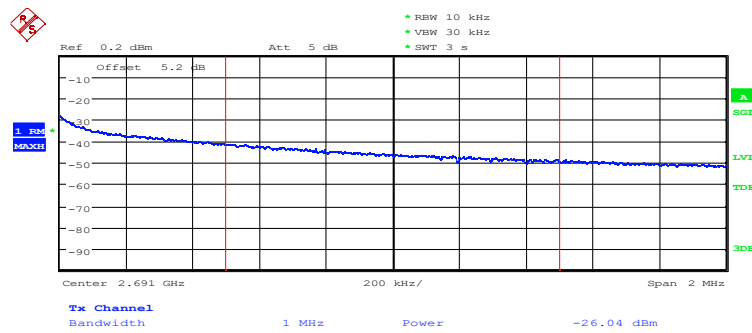
Date: 16.JAN.2023 11:16:23

HIGH BAND EDGE BLOCK-1RB-high_offset



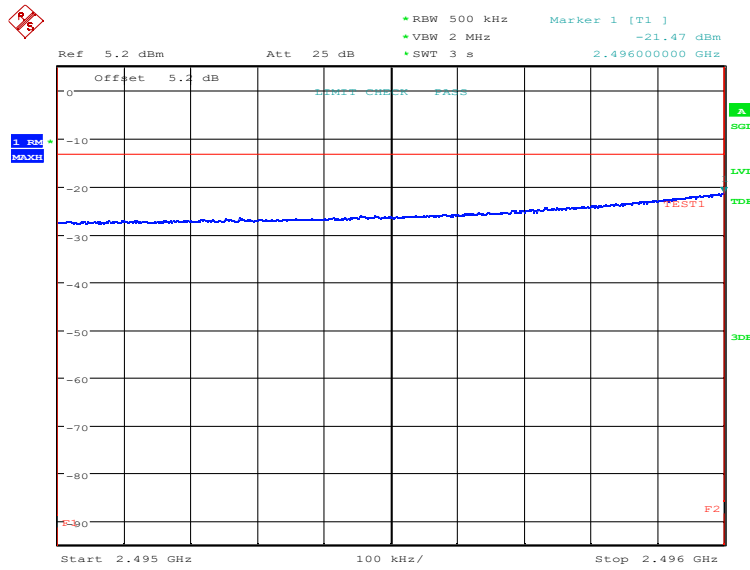
Date: 16.JAN.2023 11:17:04



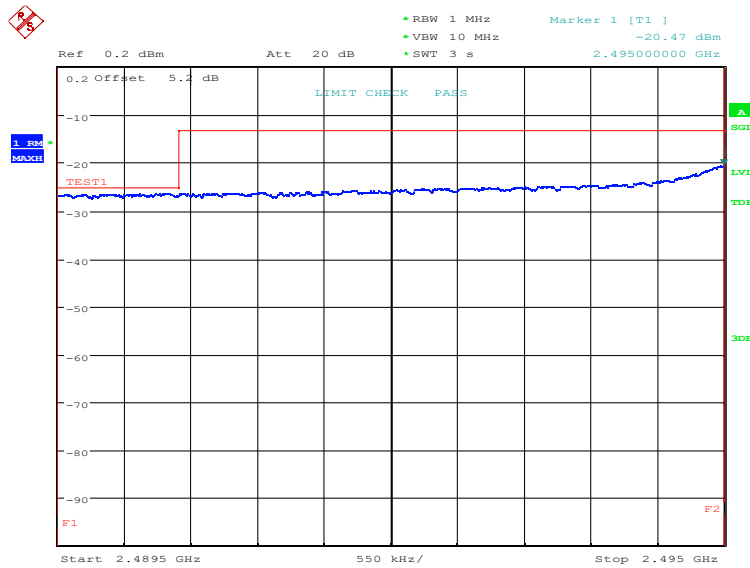


Date: 16.JAN.2023 11:18:09

LOW BAND EDGE BLOCK-20MHz-100%RB

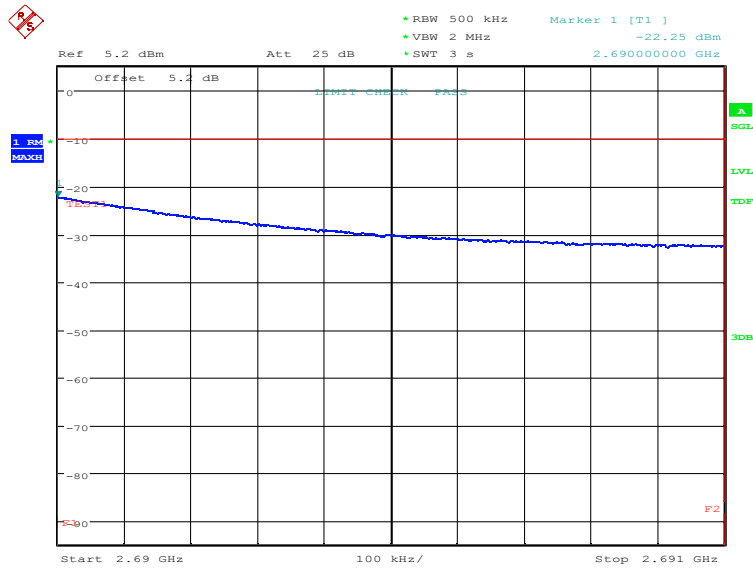


Date: 5.JAN.2023 11:13:41

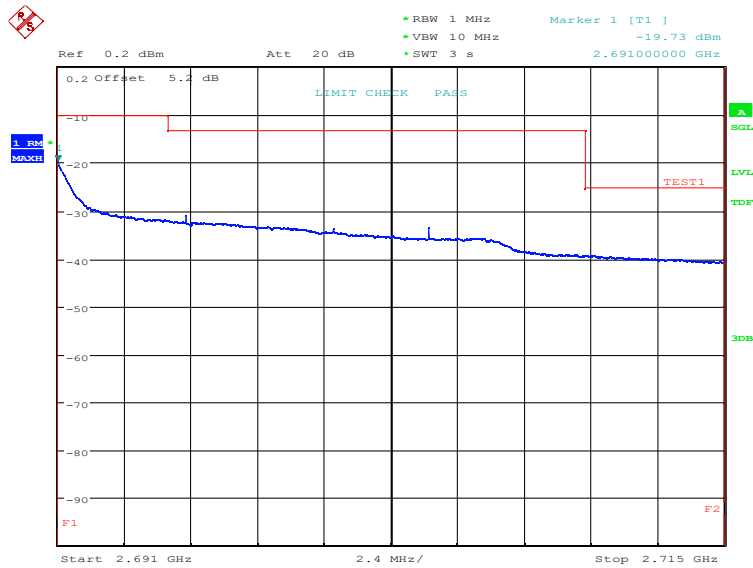


Date: 5.JAN.2023 11:14:19

HIGH BAND EDGE BLOCK-20MHz-100%RB



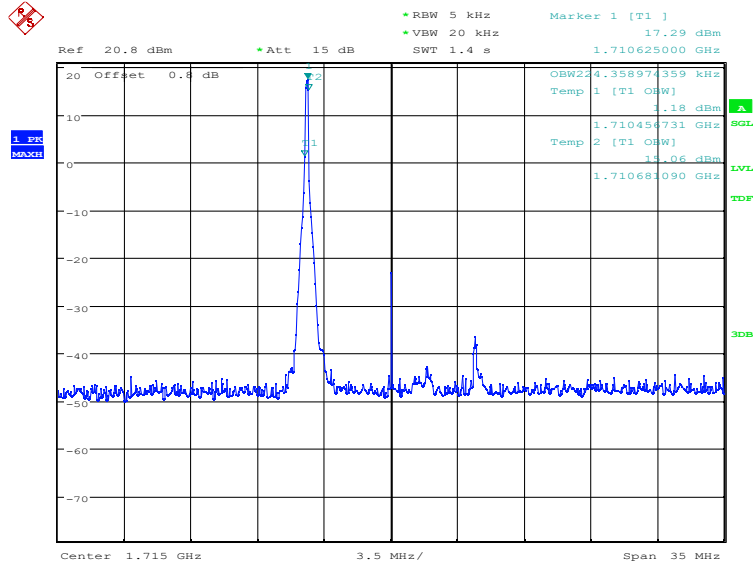
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Date: 5.JAN.2023 11:16:54

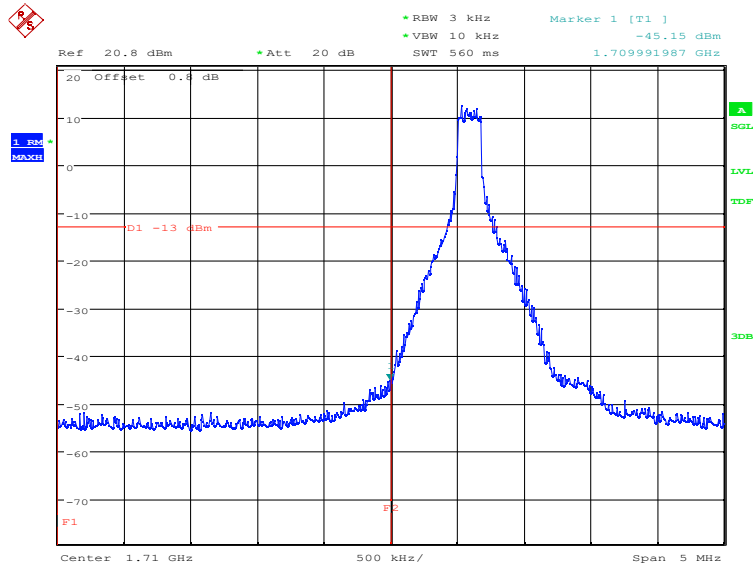
LTE band 66

OBW: 1RB-low_offset



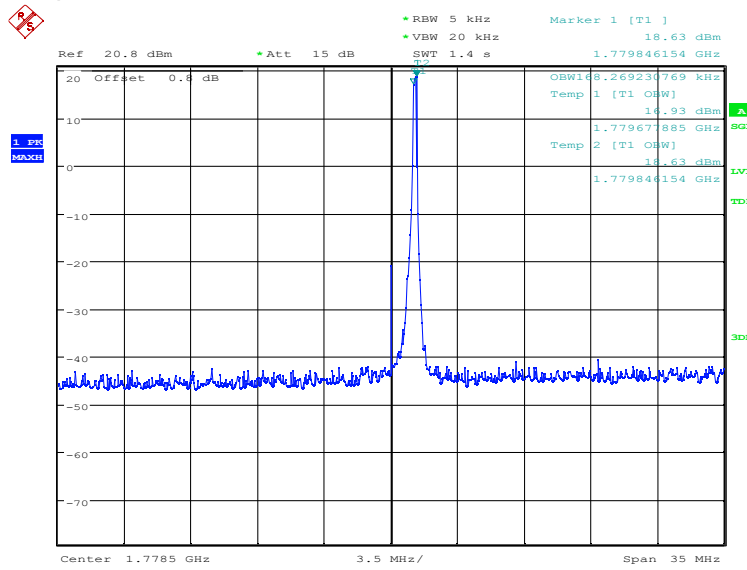
Date: 16.JAN.2023 14:29:49

LOW BAND EDGE BLOCK-1RB-low_offset



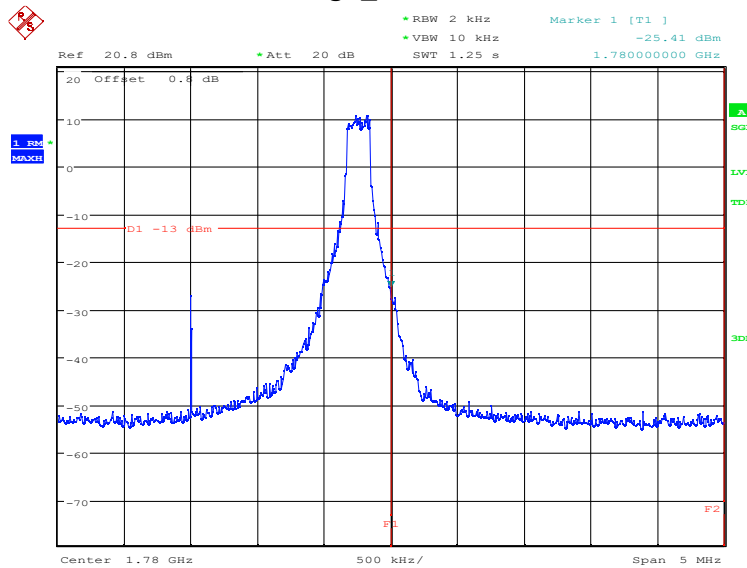
Date: 16.JAN.2023 14:31:04

OBW: 1RB-high_offset



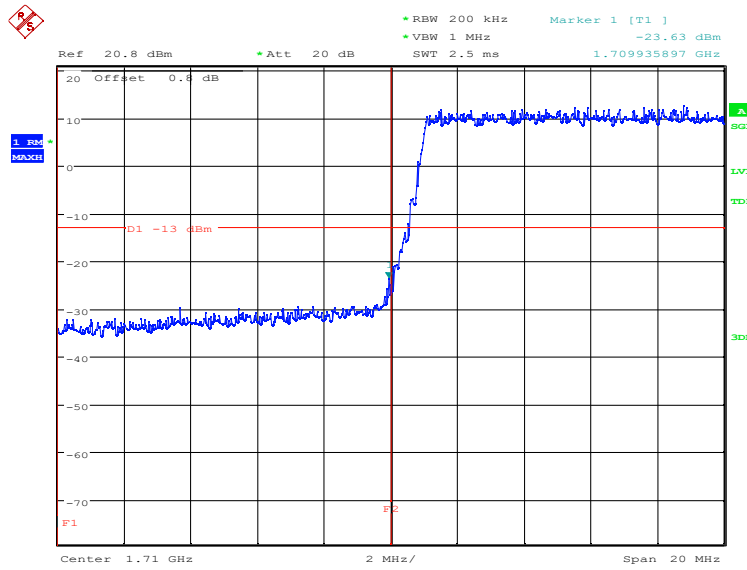
Date: 16.JAN.2023 14:20:12

HIGH BAND EDGE BLOCK-1RB-high_offset



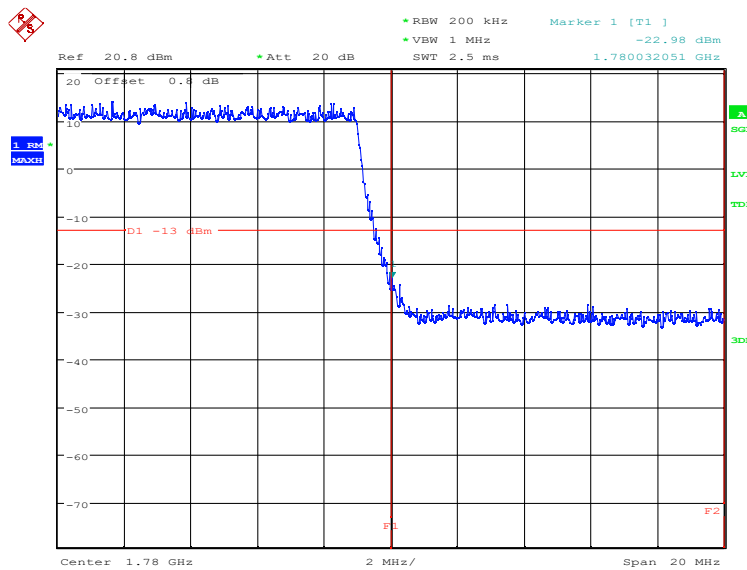
Date: 16.JAN.2023 14:21:27

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 5.JAN.2023 15:04:40

HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 5.JAN.2023 15:06:50

Note: Expanded measurement uncertainty is $U = 0.622$ dB, $k = 2$.

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 $2 \times \text{span/RBW}$.

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.

Part 27.53(m) specifies for mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Part 27.53(c) states for operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following: (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB; (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB; (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.

Part 27.53(f) states for operations in the 746–758 MHz, 775–788 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to -70dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals.

Part 27.53(g) states for operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the

transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

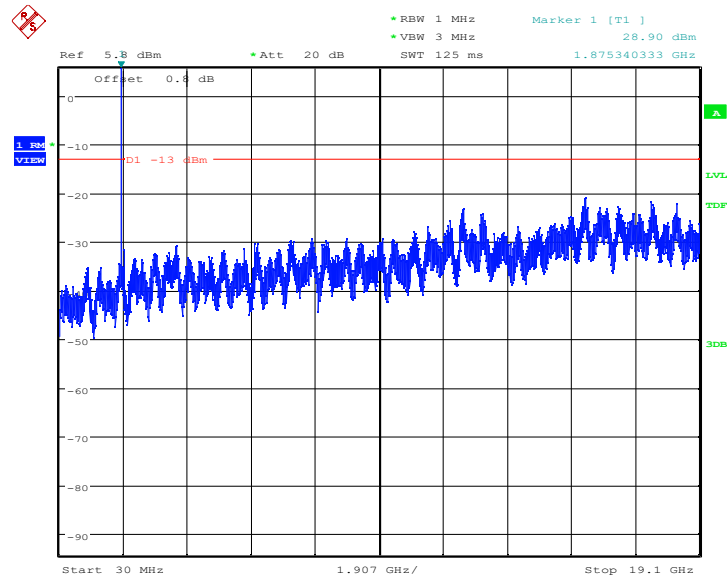
Part 90.691 states that out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows: For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz. For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

A.6.3 Measurement result

Only the worst case result is given below

LTE band 2: 30MHz – 19.1GHz

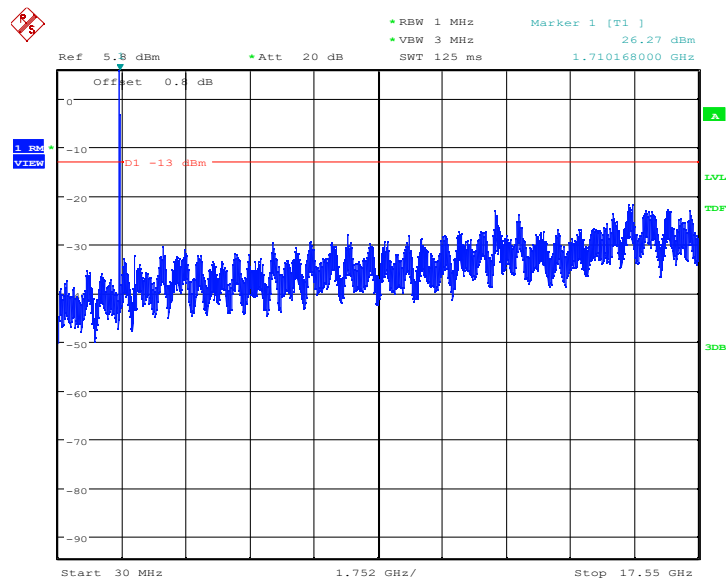
NOTE: peak above the limit line is the carrier frequency.



Date: 17.JAN.2023 08:31:58

LTE band 4: 30MHz – 17.55GHz

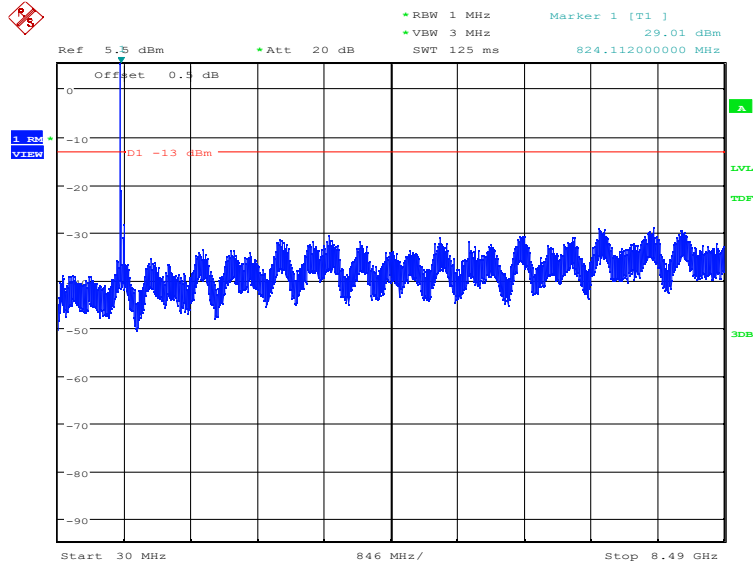
NOTE: peak above the limit line is the carrier frequency.



Date: 17.JAN.2023 08:32:40

LTE band 5: 30MHz – 8.49GHz

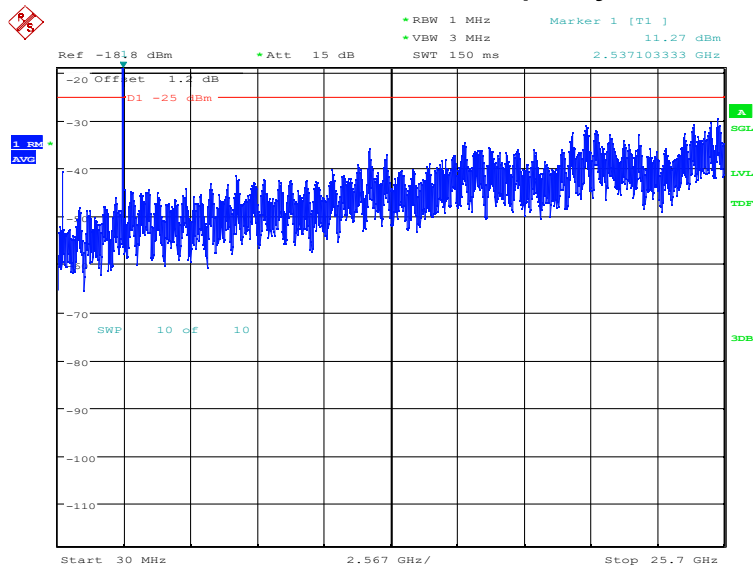
NOTE: peak above the limit line is the carrier frequency.



Date: 16.JAN.2023 10:26:17

LTE band 7: 30MHz – 25.7GHz

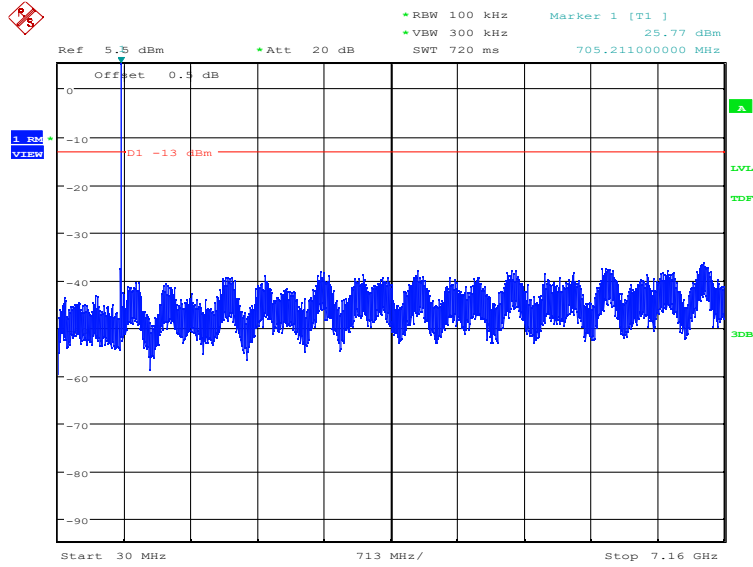
NOTE: peak above the limit line is the carrier frequency.



Date: 16.JAN.2023 14:22:34

LTE band 12: 30MHz – 7.16GHz

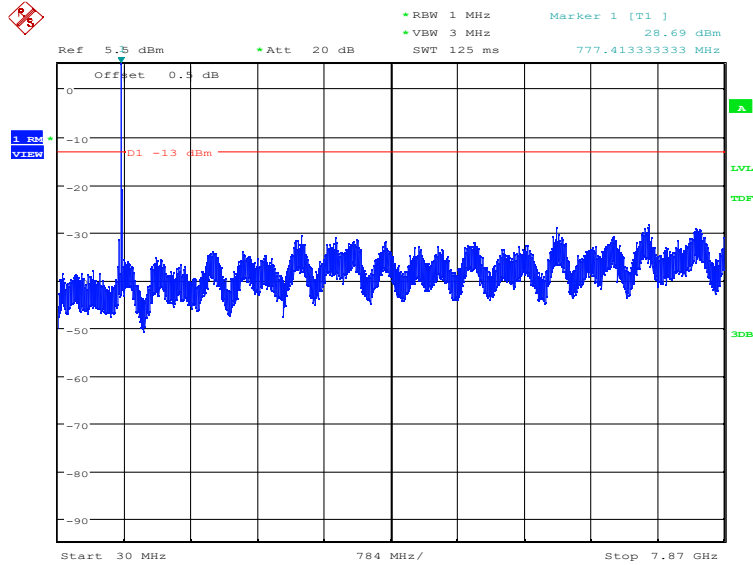
NOTE: peak above the limit line is the carrier frequency.



Date: 16.JAN.2023 10:26:59

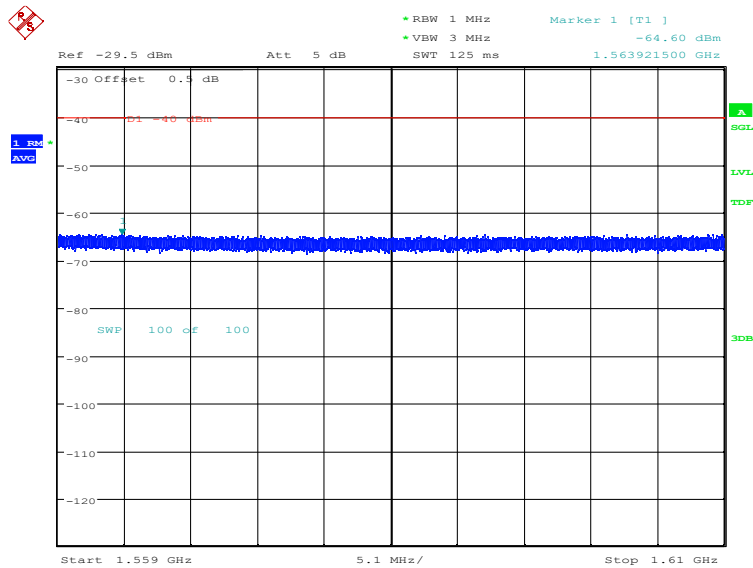
LTE band 13: 30MHz – 7.87GHz

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



Date: 16.JAN.2023 10:27:44

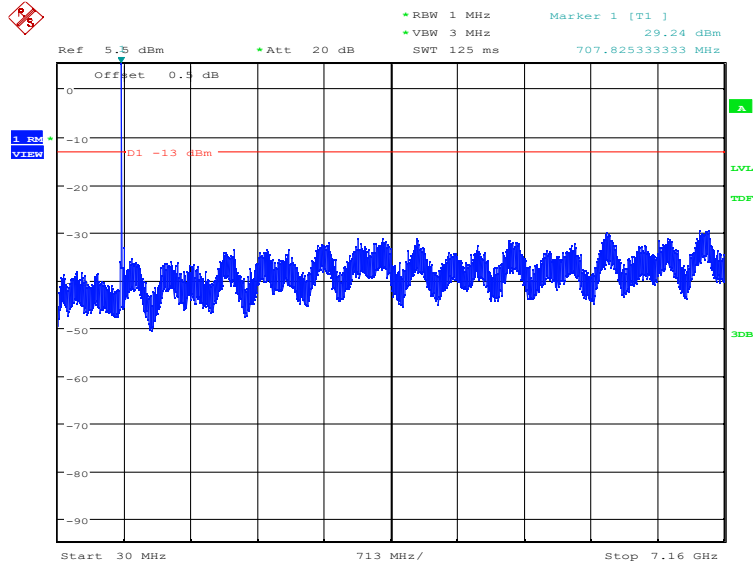
LTE band 13: 1559MHz – 1610MHz



Date: 16.JAN.2023 10:28:19

LTE band 17: 30MHz – 7.16GHz

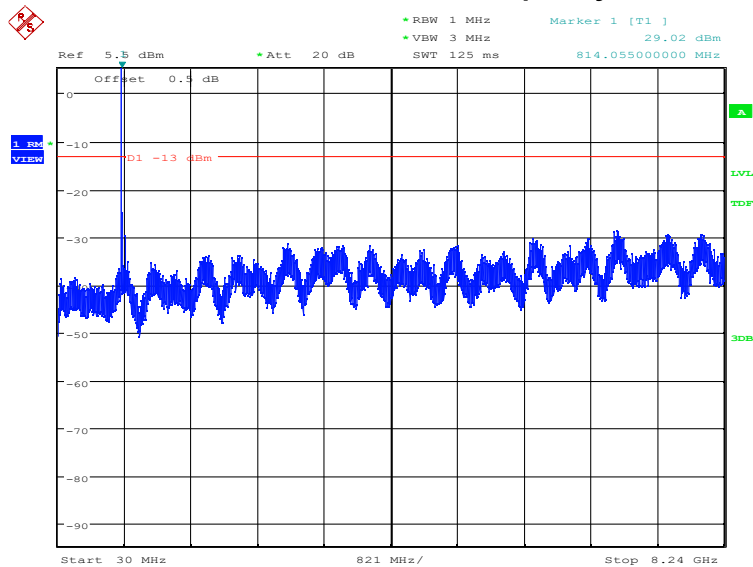
NOTE: peak above the limit line is the carrier frequency.



Date: 16.JAN.2023 10:29:04

LTE band 26(814MHz~824MHz): 30MHz – 8.24GHz

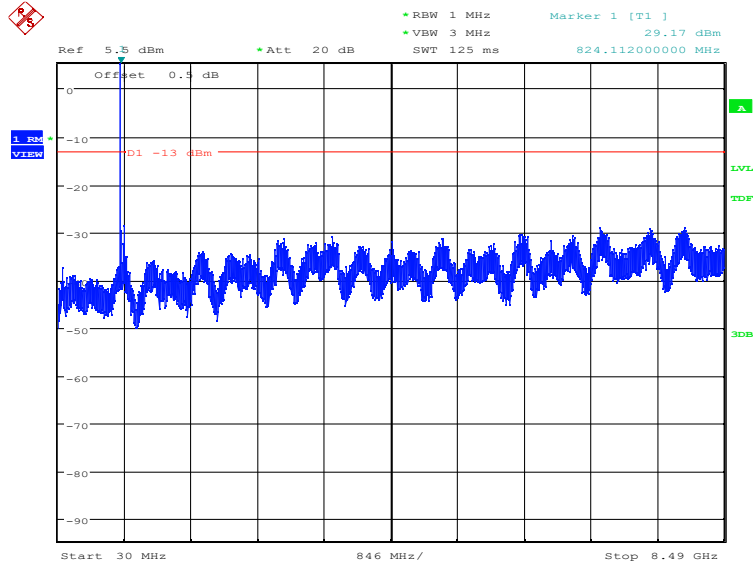
NOTE: peak above the limit line is the carrier frequency.



Date: 16.JAN.2023 10:30:29

LTE band 26(824MHz~849MHz): 30MHz – 8.49GHz

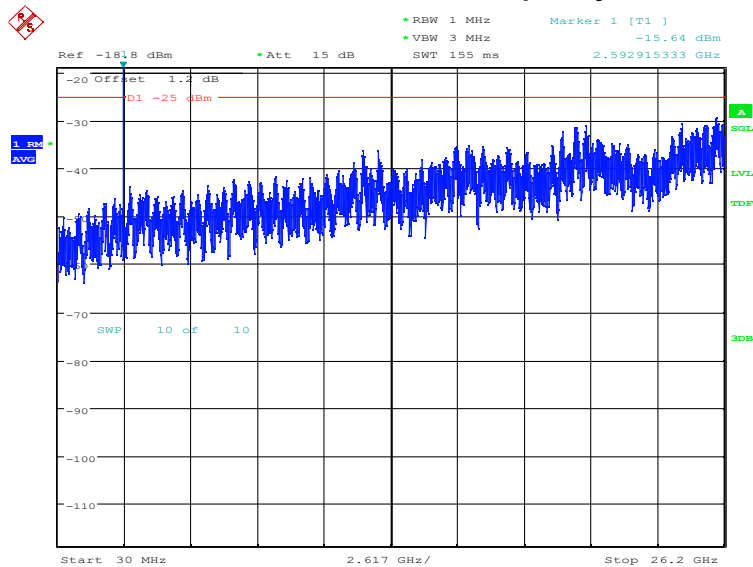
NOTE: peak above the limit line is the carrier frequency.



Date: 16.JAN.2023 10:29:48

LTE band 38: 30MHz – 26.2GHz

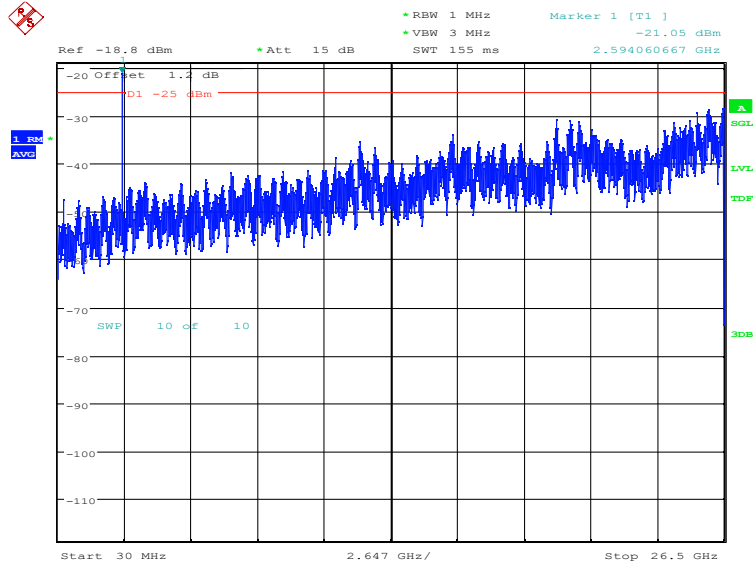
NOTE: peak above the limit line is the carrier frequency.



Date: 16.JAN.2023 11:19:28

LTE band 41: 30MHz – 26.5GHz

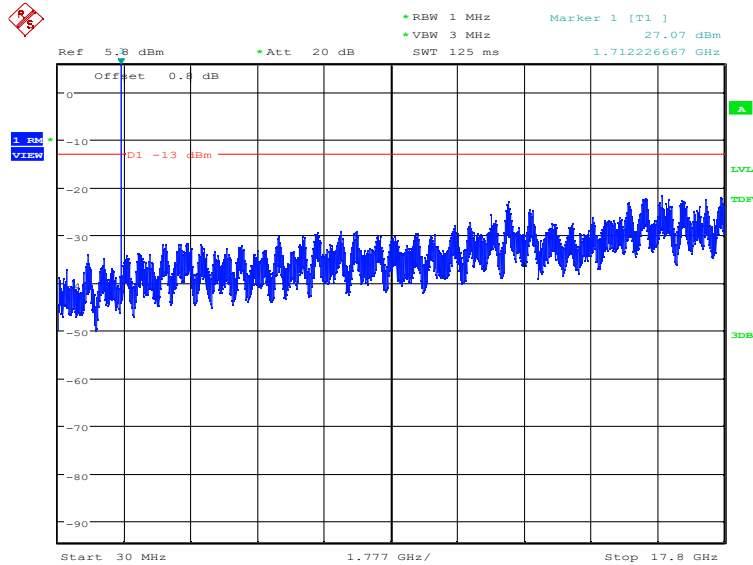
NOTE: peak above the limit line is the carrier frequency.



Date: 16.JAN.2023 12:58:11

LTE band 66: 30MHz – 17.8GHz

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



Date: 16.JAN.2023 14:23:59

Note: Expanded measurement uncertainty is $U = 0.622$ dB, $k = 2$.

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 $\geq$ 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%.

LTE band 2, 20MHz

Frequency(MHz)	PAPR(dB)		
1880.0	QPSK	16QAM	64QAM
	6.73	7.47	7.44

LTE band 4, 20MHz

Frequency(MHz)	PAPR(dB)		
1732.5	QPSK	16QAM	64QAM
	6.57	7.28	7.40

LTE band 7, 20MHz

Frequency(MHz)	PAPR(dB)		
2535.0	QPSK	16QAM	64QAM
	6.89	7.40	7.60

LTE band 12, 10MHz

Frequency(MHz)	PAPR(dB)		
707.5	QPSK	16QAM	64QAM
	5.64	6.51	6.83

LTE band 13, 10MHz

Frequency(MHz)	PAPR(dB)		
782.0	QPSK	16QAM	64QAM
	5.61	6.51	6.86

LTE band 17, 10MHz

Frequency(MHz)	PAPR(dB)		
710.0	QPSK	16QAM	64QAM
	5.45	6.31	6.73

LTE band 38, 20MHz

Frequency(MHz)	PAPR(dB)		
2595.0	QPSK	16QAM	64QAM
	8.27	8.81	9.01

LTE band 41, 20MHz

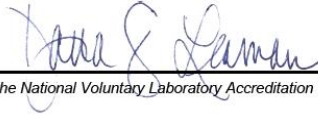
Frequency (MHz)	PAPR (dB)		
2593.0	QPSK	16QAM	64QAM
	8.24	8.94	8.91

LTE band 66, 20MHz

Frequency(MHz)	PAPR(dB)		
1745.0	QPSK	16QAM	64QAM
	6.47	7.37	7.44

Note: Expanded measurement uncertainty is $U = 0.578 \text{ dB}$, $k = 2$.

Annex B: Accreditation Certificate

United States Department of Commerce National Institute of Standards and Technology NVLAP[®]  ilac-MRA Certificate of Accreditation to ISO/IEC 17025:2017	
NVLAP LAB CODE: 600118-0	
Telecommunication Technology Labs, CAICT Beijing China	
<i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i>	
Electromagnetic Compatibility & Telecommunications	
<i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. 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 January 2009).</i>	
2022-10-01 through 2023-09-30 <i>Effective Dates</i>	 DEPARTMENT OF COMMERCE UNITED STATES OF AMERICA  _____ <i>For the National Voluntary Laboratory Accreditation Program</i>

END OF REPORT