TEST REPORT

No. I21Z62451-WMD03

for

HMD Global Oy

Smart Phone

Model Name: N151DL

FCC ID: 2AJOTTA-1510

with

Hardware Version: V1.0

Software Version: 02US_0_060

Issued Date: 2022-02-18

Note:

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

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.

Test Laboratory:

CTTL, Telecommunication Technology Labs, CAICT

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

Tel: +86(0)10-62304633-2512, Fax: +86(0)10-62304633-2504

Email: cttl_terminals@caict.ac.cn, website: www.caict.ac.cn

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I21Z62451-WMD03	Rev.0	1st edition	2022-02-18

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

CONTENTS

1. TEST LABORATORY 4
1.1. INTRODUCTION & ACCREDITATION 4
1.2. TESTING LOCATION 4
1.3. TESTING ENVIRONMENT 5
1.4. PROJECT DATA 5
1.5. SIGNATURE 5
2. CLIENT INFORMATION 6
2.1. APPLICANT INFORMATION 6
2.2. MANUFACTURER INFORMATION 6
3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) 7
3.1. ABOUT EUT 7
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST 7
3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST 7
4. REFERENCE DOCUMENTS 8
4.1. DOCUMENTS SUPPLIED BY APPLICANT 8
4.2. REFERENCE DOCUMENTS FOR TESTING 8
5. LABORATORY ENVIRONMENT 9
6. SUMMARY OF TEST RESULT 10
7. TEST EQUIPMENT UTILIZED 13
ANNEX A: MEASUREMENT RESULTS 14
A.1 OUTPUT POWER 14
A.2 EMISSION LIMIT 50
A.3 FREQUENCY STABILITY 63
A.4 OCCUPIED BANDWIDTH 69
A.5 EMISSION BANDWIDTH 121
A.6 BAND EDGE COMPLIANCE 173
A.7 CONDUCTED SPURIOUS EMISSION 213
A.8 PEAK-TO-AVERAGE POWER RATIO 221
ANNEX B: ACCREDITATION CERTIFICATE 223

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

Location 2: CTTL (BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology Development Area, Beijing 100176, P. R. China

1.3. Testing Environment

Normal Temperature: 15-35℃

Relative Humidity: 20-75%

1.4. Project Data

Testing Start Date: 2021-12-03

Testing End Date: 2022-01-29

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:	HMD Global Oy
Address /Post:	Bertel Jungin aukio 9, 02600 Espoo, Finland
Contact:	Reza Serafat
Email:	reza.serafat@hmdglobal.com
Telephone:	+491735287964

2.2. Manufacturer Information

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

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

3.1. About EUT

Description	Smart Phone
Model Name	N151DL
FCC ID	2AJOTTA-1510
Antenna	Embedded
Output power	25.9dBm maximum EIRP measured for LTE Band 41
Extreme vol. Limits	3.6VDC to 4.4VDC (nominal: 3.85VDC)
Extreme temp. Tolerance	-10°C to +55°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
UT08a	350819780011507	V1.0	02US_0_060	2021-11-29
UT25a	350819780017892	V1.0	02US_0_060	2022-01-14

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

3.3. Internal Identification of AE used during the test

AE ID*	Description
AE1	Battery
AE2	Battery

AE1

Model	TN-BP4000N1
Manufacturer	Guangdong Fenghua New Energy Co., Ltd.
Capacitance	4000mAh

AE2

Model	TN-BP4000N1
Manufacturer	Ningbo Veken Battery Company Limited
Capacitance	4000mAh

*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 client or manufacturer, which are the bases of testing.

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	10-1-20 Edition
FCC Part 22	PUBLIC MOBILE SERVICES	10-1-20 Edition
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	10-1-20 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. Laboratory Environment

Control room / conducted chamber did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. =20 %, Max. = 80 %
Shielding effectiveness	> 110 dB
Electrical insulation	>2 MΩ
Ground system resistance	< 0.5 Ω

Fully-anechoic chamber 2 (8.6 meters×6.1 meters×3.85 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ˚C, Max. = 30 ˚C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	>2 MΩ
Ground system resistance	< 1 Ω
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

Semi-anechoic chamber 2 / Fully-anechoic chamber 3 (10 meters×6.7 meters×6.15 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ˚C, Max. = 30 ˚C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 100 dB
Electrical insulation	>2 MΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	<±3.5 dB, 3 m distance
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

6. Summary Of Test Result

LTE Band 2

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	24.232	P
2	Emission Limit	2.1051/24.238	P
3	Frequency Stability	2.1055	P
4	Occupied Bandwidth	2.1049	P
5	Emission Bandwidth	24.238	P
6	Band Edge Compliance	24.238	P
7	Conducted Spurious Emission	24.238	P
8	Peak-to-Average Power Ratio	24.232	P

LTE Band 5

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	22.913	P
2	Emission Limit	2.1051/22.917	P
3	Frequency Stability	2.1055	P
4	Occupied Bandwidth	2.1049	P
5	Emission Bandwidth	22.917	P
6	Band Edge Compliance	22.917	P
7	Conducted Spurious Emission	22.917	P

LTE Band 12

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Emission Limit	2.1051/27.53	P
3	Frequency Stability	2.1055	P
4	Occupied Bandwidth	2.1049	P
5	Emission Bandwidth	27.53	P
6	Band Edge Compliance	27.53	P
7	Conducted Spurious Emission	27.53	P
8	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	Emission Limit	2.1051/27.53	P
3	Frequency Stability	2.1055	P
4	Occupied Bandwidth	2.1049	P
5	Emission Bandwidth	27.53	P
6	Band Edge Compliance	27.53	P
7	Conducted Spurious Emission	27.53	P
8	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	Emission Limit	2.1051/27.53	P
3	Frequency Stability	2.1055	P
4	Occupied Bandwidth	2.1049	P
5	Emission Bandwidth	27.53	P
6	Band Edge Compliance	27.53	P
7	Conducted Spurious Emission	27.53	P
8	Peak-to-Average Power Ratio	27.50	P

LTE Band 66 (4)

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Emission Limit	2.1051/27.53	P
3	Frequency Stability	2.1055	P
4	Occupied Bandwidth	2.1049	P
5	Emission Bandwidth	27.53	P
6	Band Edge Compliance	27.53	P
7	Conducted Spurious Emission	27.53	P
8	Peak-to-Average Power Ratio	27.50	P

LTE Band 71

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Emission Limit	2.1051/27.53	P
3	Frequency Stability	2.1055	P
4	Occupied Bandwidth	2.1049	P
5	Emission Bandwidth	27.53	P
6	Band Edge Compliance	27.53	P
7	Conducted Spurious Emission	27.53	P
8	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 66 overlaps the entire frequency range of LTE Band 4. Therefore, test data provided in this report covers Band 4 as well as Band 66.
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.

7. 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
Spectrum Analyzer	FSU	200030	R&S	2022-06-02	1 year
Radio Communication Analyzer	MT8821C	6201763159	Anritsu	2022-08-09	1 year
Climate Chamber	SH-242	93008556	ESPEC	2023-12-23	3 years
EMI Antenna	LB-7180-NF	2030013000041	Yinglian	2022-02-28	1 year
EMI Antenna	3117	00058889	ETS-Lindgren	2022-11-07	1 year
Signal Generator	N5183A	MY49060052	Agilent	2022-07-11	1 year
Test Receiver	E4440A	MY48250642	Agilent	2022-03-04	1 year
Universal Radio Communication Tester	CMW500	143008	R&S	2022-12-01	1 year
EMI Antenna	VULB9163	9163-235	Schwarzbeck	2022-04-07	1 year

Annex A: Measurement Results

A.1 Output Power

A.1.1 Summary

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

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

A.1.2 Conducted

A.1.2.1 Method of Measurements

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

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

A.1.2.2 Measurement Result

LTE band 2

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1909.3	23.57	22.79	21.79
		1880.0	23.61	22.81	21.86
		1850.7	23.60	22.86	21.82
	1 RB low	1909.3	23.55	22.76	21.82
		1880.0	23.63	22.85	21.87
		1850.7	23.61	22.87	21.83
	50% RB mid	1909.3	23.75	22.76	21.81
		1880.0	23.75	22.75	21.88
		1850.7	23.75	22.76	21.89
	100% RB	1909.3	22.70	21.76	20.67
		1880.0	22.70	21.73	20.68
		1850.7	22.73	21.77	20.69
3MHz	1 RB high	1908.5	23.61	22.88	21.80
		1880.0	23.62	22.94	21.83
		1851.5	23.63	22.91	21.89
	1 RB low	1908.5	23.61	22.92	21.78
		1880.0	23.63	22.97	21.80
		1851.5	23.65	22.91	21.86
	50% RB mid	1908.5	22.66	21.70	20.65
		1880.0	22.66	21.69	20.65
		1851.5	22.69	21.71	20.69
	100% RB	1908.5	22.62	21.62	20.62
		1880.0	22.62	21.66	20.61

		1851.5	22.63	21.64	20.62
5MHz	1 RB high	1907.5	23.56	22.82	21.79
		1880.0	23.57	22.83	21.79
		1852.5	23.58	22.88	21.72
	1 RB low	1907.5	23.54	22.84	21.76
		1880.0	23.58	22.85	21.80
		1852.5	23.60	22.90	21.81
	50% RB mid	1907.5	22.70	21.64	20.67
		1880.0	22.67	21.67	20.66
		1852.5	22.70	21.69	20.67
	100% RB	1907.5	22.65	21.63	20.62
		1880.0	22.67	21.64	20.62
		1852.5	22.66	21.63	20.63
10MHz	1 RB high	1905.0	23.57	22.80	21.73
		1880.0	23.56	22.87	21.73
		1855.0	23.52	22.87	21.75
	1 RB low	1905.0	23.52	22.79	21.74
		1880.0	23.58	22.90	21.78
		1855.0	23.63	22.94	21.89
	50% RB mid	1905.0	22.67	21.60	20.63
		1880.0	22.67	21.65	20.66
		1855.0	22.65	21.65	20.62
	100% RB	1905.0	22.65	21.61	20.60
		1880.0	22.67	21.66	20.63
		1855.0	22.66	21.65	20.64
15MHz	1 RB high	1902.5	23.55	22.83	21.76
		1880.0	23.56	22.86	21.82
		1857.5	23.51	22.86	21.84
	1 RB low	1902.5	23.54	22.86	21.80
		1880.0	23.60	22.91	21.88
		1857.5	23.64	22.95	21.92
	50% RB mid	1902.5	22.66	21.63	20.65
		1880.0	22.66	21.66	20.66
		1857.5	22.67	21.65	20.63
	100% RB	1902.5	22.65	21.64	20.63
		1880.0	22.70	21.63	20.65
		1857.5	22.63	21.66	20.64
20MHz	1 RB high	1900.0	23.64	22.84	21.85
		1880.0	23.49	22.82	21.76
		1860.0	23.53	22.77	21.78
	1 RB low	1900.0	23.55	22.83	21.77
		1880.0	23.55	22.91	21.78

		1860.0	23.67	22.95	21.89
	50% RB mid	1900.0	22.64	21.66	20.64
		1880.0	22.62	21.63	20.62
		1860.0	22.66	21.65	20.67
	100% RB	1900.0	22.66	21.66	20.65
		1880.0	22.65	21.63	20.63
		1860.0	22.60	21.61	20.63

LTE band 5

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	848.3	24.09	23.32	22.23
		836.5	24.08	23.30	22.27
		824.7	24.10	23.36	22.33
	1 RB low	848.3	24.05	23.32	22.23
		836.5	24.08	23.32	22.29
		824.7	24.11	23.38	22.33
	50% RB mid	848.3	24.24	23.26	22.33
		836.5	24.18	23.21	22.33
		824.7	24.19	23.18	22.30
	100% RB	848.3	23.25	22.30	21.15
		836.5	23.19	22.29	21.17
		824.7	23.22	22.26	21.18
3MHz	1 RB high	847.5	24.15	23.45	22.25
		836.5	24.13	23.39	22.34
		825.5	24.16	23.37	22.31
	1 RB low	847.5	24.11	23.36	22.27
		836.5	24.13	23.38	22.29
		825.5	24.12	23.36	22.33
	50% RB mid	847.5	23.18	22.23	21.19
		836.5	23.18	22.24	21.16
		825.5	23.21	22.23	21.19
	100% RB	847.5	23.17	22.21	21.15
		836.5	23.18	22.18	21.11
		825.5	23.16	22.16	21.10
5MHz	1 RB high	846.5	24.14	23.42	22.32
		836.5	24.11	23.40	22.34
		826.5	24.14	23.43	22.33
	1 RB low	846.5	24.09	23.34	22.27
		836.5	24.13	23.40	22.31
		826.5	24.11	23.42	22.31
	50% RB mid	846.5	23.22	22.20	21.16
		836.5	23.23	22.19	21.19
		826.5	23.24	22.19	21.20
	100% RB	846.5	23.17	22.15	21.12
		836.5	23.22	22.19	21.17
		826.5	23.16	22.18	21.14
10MHz	1 RB high	844.0	24.10	23.30	22.29
		836.5	24.14	23.40	22.37
		829.0	24.14	23.41	22.41

	1 RB low	844.0	24.17	23.43	22.25
		836.5	24.22	23.55	22.44
		829.0	24.28	23.59	22.48
	50% RB mid	844.0	23.29	22.23	21.20
		836.5	23.29	22.27	21.28
		829.0	23.28	22.28	21.26
	100% RB	844.0	23.22	22.23	21.19
		836.5	23.29	22.29	21.26
		829.0	23.27	22.29	21.27

LTE band 12

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	715.3	24.18	23.36	22.32
		707.5	24.17	23.47	22.37
		699.7	24.24	23.48	22.43
	1 RB low	715.3	24.15	23.36	22.33
		707.5	24.17	23.43	22.39
		699.7	24.18	23.46	22.41
	50% RB mid	715.3	24.29	23.26	22.37
		707.5	24.27	23.29	22.36
		699.7	24.29	23.29	22.41
	100% RB	715.3	23.24	22.33	21.32
		707.5	23.27	22.36	21.32
		699.7	23.31	22.35	21.34
3MHz	1 RB high	714.5	24.27	23.51	22.34
		707.5	24.29	23.55	22.46
		700.5	24.27	23.59	22.50
	1 RB low	714.5	24.25	23.48	22.43
		707.5	24.26	23.62	22.42
		700.5	24.27	23.54	22.47
	50% RB mid	714.5	23.29	22.29	21.38
		707.5	23.27	22.31	21.38
		700.5	23.30	22.32	21.38
	100% RB	714.5	23.28	22.27	21.28
		707.5	23.26	22.25	21.30
		700.5	23.30	22.28	21.31
5MHz	1 RB high	713.5	24.25	23.47	22.39
		707.5	24.25	23.56	22.44
		701.5	24.32	23.66	22.49
	1 RB low	713.5	24.19	23.52	22.38
		707.5	24.27	23.54	22.40
		701.5	24.26	23.48	22.44
	50% RB mid	713.5	23.32	22.32	21.38
		707.5	23.32	22.33	21.40
		701.5	23.32	22.34	21.40
	100% RB	713.5	23.30	22.30	21.36
		707.5	23.30	22.34	21.35
		701.5	23.30	22.31	21.35
10MHz	1 RB high	711.0	24.27	23.39	22.36
		707.5	24.28	23.57	22.40
		704.0	24.27	23.49	22.45

	1 RB low	711.0	24.37	23.67	22.44
		707.5	24.32	23.48	22.51
		704.0	24.31	23.61	22.50
	50% RB mid	711.0	23.37	22.37	21.37
		707.5	23.38	22.34	21.40
		704.0	23.37	22.36	21.41
	100% RB	711.0	23.36	22.35	21.37
		707.5	23.37	22.33	21.40
		704.0	23.39	22.39	21.41

LTE band 13

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	784.5	23.97	23.34	22.08
		782.0	23.97	23.33	22.18
		779.5	23.89	23.14	22.12
	1 RB low	784.5	24.00	23.24	22.22
		782.0	23.97	23.28	22.15
		779.5	23.91	23.21	22.10
	50% RB mid	784.5	23.10	22.02	21.07
		782.0	23.04	22.05	21.06
		779.5	23.04	22.02	21.05
	100% RB	784.5	23.02	22.04	20.99
		782.0	23.03	22.01	21.02
		779.5	22.94	21.96	20.94
10MHz	1 RB high	782.0	23.93	23.26	22.08
	1 RB low	782.0	23.99	23.28	22.22
	50% RB mid	782.0	23.04	22.05	21.03
	100% RB	782.0	23.00	22.01	21.01

LTE band 41

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2687.5	25.96	25.19	24.13
		2593.0	25.77	25.10	23.97
		2498.5	25.84	25.08	24.02
	1 RB low	2687.5	25.92	25.16	24.10
		2593.0	25.86	25.11	24.01
		2498.5	25.81	25.12	24.02
	50% RB mid	2687.5	25.09	24.09	23.10
		2593.0	25.02	23.99	22.99
		2498.5	24.99	24.02	23.03
	100% RB	2687.5	25.05	24.10	23.10
		2593.0	24.96	23.97	22.99
		2498.5	24.93	24.02	23.02
10MHz	1 RB high	2685.0	25.94	25.22	24.13
		2593.0	25.86	25.16	24.00
		2501.0	25.86	25.18	24.01
	1 RB low	2685.0	25.96	25.24	24.06
		2593.0	25.90	25.14	24.01
		2501.0	25.92	25.20	24.06
	50% RB mid	2685.0	25.09	24.16	23.16
		2593.0	25.03	24.04	23.06
		2501.0	25.04	24.05	23.10
	100% RB	2685.0	25.10	24.11	23.10
		2593.0	25.03	24.06	23.02
		2501.0	25.03	24.00	23.04
15MHz	1 RB high	2682.5	25.91	25.19	24.08
		2593.0	25.84	25.11	24.00
		2503.5	25.85	25.15	24.04
	1 RB low	2682.5	25.91	25.16	24.08
		2593.0	25.86	25.15	24.05
		2503.5	25.89	25.30	24.05
	50% RB mid	2682.5	25.04	23.96	23.00
		2593.0	24.98	23.91	22.96
		2503.5	25.01	23.95	22.97
	100% RB	2682.5	25.04	24.04	22.98
		2593.0	24.95	23.94	22.93
		2503.5	24.98	23.96	22.99
20MHz	1 RB high	2680.0	25.97	25.14	24.03
		2593.0	25.88	25.16	23.94
		2506.0	25.95	25.27	24.03

	1 RB low	2680.0	25.92	25.17	23.91
		2593.0	25.91	25.20	23.98
		2506.0	25.82	25.10	23.88
	50% RB mid	2680.0	24.96	24.04	23.05
		2593.0	24.98	24.01	22.97
		2506.0	25.01	24.04	22.99
	100% RB	2680.0	24.98	24.04	23.03
		2593.0	25.02	24.05	23.02
		2506.0	24.99	24.00	23.00

LTE band 66

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1779.3	23.86	23.02	22.01
		1745.0	24.01	23.21	22.17
		1710.7	23.80	23.06	21.90
	1 RB low	1779.3	23.88	23.07	22.05
		1745.0	24.02	23.20	22.12
		1710.7	23.83	23.05	21.91
	50% RB mid	1779.3	23.99	22.98	22.07
		1745.0	24.16	23.10	22.19
		1710.7	23.98	22.87	22.05
	100% RB	1779.3	22.98	22.05	20.94
		1745.0	23.08	22.15	21.11
		1710.7	22.91	21.97	20.93
3MHz	1 RB high	1778.5	23.92	23.12	22.04
		1745.0	24.07	23.27	22.23
		1711.5	23.96	23.08	22.07
	1 RB low	1778.5	23.98	23.13	22.06
		1745.0	24.09	23.31	22.22
		1711.5	23.92	23.11	22.05
	50% RB mid	1778.5	22.96	22.00	20.98
		1745.0	23.10	22.13	21.14
		1711.5	22.93	21.98	20.97
	100% RB	1778.5	22.97	21.97	20.97
		1745.0	23.12	22.11	21.06
		1711.5	22.94	21.93	20.92
5MHz	1 RB high	1777.5	23.88	23.05	22.01
		1745.0	24.02	23.23	22.17
		1712.5	23.92	23.05	21.95
	1 RB low	1777.5	23.91	23.17	22.12
		1745.0	24.06	23.28	22.23
		1712.5	23.88	23.07	22.00
	50% RB mid	1777.5	23.01	22.02	21.04
		1745.0	23.13	22.11	21.12
		1712.5	22.95	21.91	20.95
	100% RB	1777.5	22.99	22.00	20.99
		1745.0	23.13	22.09	21.09
		1712.5	22.94	21.87	20.91
10MHz	1 RB high	1775.0	23.89	23.11	21.97
		1745.0	24.01	23.21	22.12
		1715.0	23.93	23.13	22.01

	1 RB low	1775.0	24.03	23.33	22.21
		1745.0	24.12	23.40	22.26
		1715.0	23.91	23.14	22.03
	50% RB mid	1775.0	23.01	21.99	21.01
		1745.0	23.15	22.13	21.11
		1715.0	23.00	21.98	21.02
	100% RB	1775.0	23.05	22.05	21.01
		1745.0	23.13	22.11	21.10
		1715.0	22.98	21.94	20.98
15MHz	1 RB high	1772.5	23.85	23.02	21.98
		1745.0	23.96	23.13	22.04
		1717.5	23.96	23.19	22.13
	1 RB low	1772.5	24.02	23.35	22.24
		1745.0	24.14	23.33	22.27
		1717.5	23.92	23.09	22.00
	50% RB mid	1772.5	23.07	22.06	21.05
		1745.0	23.15	22.09	21.14
		1717.5	22.99	21.95	20.98
	100% RB	1772.5	23.08	22.09	21.10
		1745.0	23.11	22.10	21.08
		1717.5	22.95	21.94	20.96
20MHz	1 RB high	1770.0	23.79	22.98	21.98
		1745.0	23.75	23.06	21.92
		1720.0	23.89	23.23	22.09
	1 RB low	1770.0	23.84	23.18	22.00
		1745.0	23.93	23.25	22.15
		1720.0	24.01	23.13	22.06
	50% RB mid	1770.0	23.01	22.01	20.99
		1745.0	22.98	21.94	20.93
		1720.0	23.09	22.03	21.03
	100% RB	1770.0	23.06	22.01	21.00
		1745.0	22.96	21.89	20.91
		1720.0	22.97	21.96	20.95

LTE band 71

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	695.5	24.24	23.46	22.43
		680.5	24.20	23.42	22.35
		665.5	24.17	23.39	22.36
	1 RB low	695.5	24.17	23.46	22.36
		680.5	24.18	23.44	22.36
		665.5	24.11	23.29	22.31
	50% RB mid	695.5	23.25	22.30	21.35
		680.5	23.30	22.31	21.36
		665.5	23.29	22.29	21.30
	100% RB	695.5	23.31	22.27	21.33
		680.5	23.27	22.26	21.31
		665.5	23.20	22.24	21.23
10MHz	1 RB high	693.0	24.30	23.51	22.44
		680.5	24.27	23.52	22.46
		668.0	24.18	23.45	22.39
	1 RB low	693.0	24.26	23.52	22.38
		680.5	24.25	23.45	22.33
		668.0	24.14	23.31	22.36
	50% RB mid	693.0	23.28	22.28	21.32
		680.5	23.29	22.26	21.29
		668.0	23.22	22.30	21.29
	100% RB	693.0	23.34	22.35	21.40
		680.5	23.31	22.32	21.35
		668.0	23.28	22.32	21.32
15MHz	1 RB high	690.5	24.29	23.55	22.47
		680.5	24.31	23.61	22.49
		670.5	24.33	23.57	22.48
	1 RB low	690.5	24.24	23.55	22.40
		680.5	24.24	23.50	22.38
		670.5	24.18	23.37	22.31
	50% RB mid	690.5	23.28	22.26	21.32
		680.5	23.32	22.28	21.31
		670.5	23.23	22.24	21.30
	100% RB	690.5	23.31	22.32	21.34
		680.5	23.28	22.28	21.30
		670.5	23.26	22.24	21.29
20MHz	1 RB high	688.0	24.25	23.49	22.44
		680.5	24.23	23.41	22.36
		673.0	24.12	23.36	22.26

	1 RB low	688.0	24.22	23.40	22.41
		680.5	24.18	23.35	22.37
		673.0	24.10	23.26	22.28
	50% RB mid	688.0	23.34	22.37	21.39
		680.5	23.31	22.31	21.36
		673.0	23.19	22.17	21.23
	100% RB	688.0	23.32	22.31	21.35
		680.5	23.25	22.23	21.30
		673.0	23.19	22.16	21.22

LTE CA Band 5B

Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB		SCC RB		Conducted Power(dBm)
				Size	Offset	Size	Offset	
3MHz/ 5MHz	834.1	838	QPSK	1	14	1	0	24.54
				15	0	25	0	24.50
			16QAM	1	14	1	0	24.23
				15	0	25	0	24.43
			64QAM	1	14	1	0	24.52
				15	0	25	0	24.42
5MHz/ 3MHz	835	838.9	QPSK	1	24	1	0	24.63
				25	0	15	0	24.50
			16QAM	1	24	1	0	24.59
				25	0	15	0	24.51
			64QAM	1	24	1	0	24.58
				25	0	15	0	24.44
5MHz/ 10MHz	831.8	839	QPSK	1	24	1	0	24.41
				25	0	50	0	22.53
			16QAM	1	24	1	0	23.54
				25	0	50	0	21.49
			64QAM	1	24	1	0	21.34
				25	0	50	0	21.49
10MHz/ 5MHz	834	841.2	QPSK	1	49	1	0	24.64
				50	0	25	0	24.57
			16QAM	1	49	1	0	24.61
				50	0	25	0	24.48
			64QAM	1	49	1	0	24.40
				50	0	25	0	24.46
10MHz/ 10MHz	831.6	841.5	QPSK	1	49	1	0	24.53
				50	0	50	0	22.47
			16QAM	1	49	1	0	23.63
				50	0	50	0	21.39
			64QAM	1	49	1	0	21.34
				50	0	50	0	21.48

LTE CA Band 66B

Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB		SCC RB		Conducted Power(dBm)
				Size	Offset	Size	Offset	
5MHz/ 5MHz	1752.6	1757.4	QPSK	1	24	1	0	24.24
				25	0	25	0	24.22
			16QAM	1	24	1	0	24.21
				25	0	25	0	24.17
			64QAM	1	24	1	0	24.10
				25	0	25	0	24.18
5MHz/ 10MHz	1750.3	1757.5	QPSK	1	24	1	0	24.18
				25	0	50	0	22.31
			16QAM	1	24	1	0	23.26
				25	0	50	0	21.28
			64QAM	1	24	1	0	21.12
				25	0	50	0	21.25
5MHz/ 15MHz	1748.1	1757.4	QPSK	1	24	1	0	24.05
				25	0	75	0	24.17
			16QAM	1	24	1	0	24.02
				25	0	75	0	24.11
			64QAM	1	24	1	0	23.90
				25	0	75	0	24.08
10MHz/ 5MHz	1752.5	1759.7	QPSK	1	49	1	0	24.37
				50	0	25	0	24.30
			16QAM	1	49	1	0	24.35
				50	0	25	0	24.27
			64QAM	1	49	1	0	24.12
				50	0	25	0	24.28
10MHz/ 10MHz	1750.1	1760	QPSK	1	49	1	0	24.30
				50	0	50	0	22.31
			16QAM	1	49	1	0	23.32
				50	0	50	0	21.25
			64QAM	1	49	1	0	21.11
				50	0	50	0	21.26
15MHz/ 5MHz	1752.6	1761.9	QPSK	1	74	1	0	24.46
				75	0	25	0	24.39
			16QAM	1	74	1	0	24.20
				75	0	25	0	24.32
			64QAM	1	74	1	0	24.38
				75	0	25	0	24.35

LTE CA Band 66C

Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB		SCC RB		Conducted Power(dBm)
				Size	Offset	Size	Offset	
5MHz/ 20MHz	1745.8	1757.5	QPSK	1	24	1	0	23.05
				25	0	100	0	21.20
			16QAM	1	24	1	0	22.08
				25	0	100	0	20.16
			64QAM	1	24	1	0	19.98
				25	0	100	0	20.14
10MHz/ 15MHz	1747.9	1757.9	QPSK	1	49	1	0	23.24
				50	0	75	0	23.24
			16QAM	1	49	1	0	23.22
				50	0	75	0	23.13
			64QAM	1	49	1	0	23.00
				50	0	75	0	23.17
10MHz/ 20MHz	1745.6	1760.0	QPSK	1	49	1	0	23.16
				50	0	100	0	21.21
			16QAM	1	49	1	0	22.22
				50	0	100	0	20.20
			64QAM	1	49	1	0	20.00
				50	0	100	0	20.22
15MHz/ 10MHz	1750.1	1762.1	QPSK	1	74	1	0	23.38
				75	0	50	0	23.32
			16QAM	1	74	1	0	23.16
				75	0	50	0	23.29
			64QAM	1	74	1	0	23.40
				75	0	50	0	23.31
15MHz/ 15MHz	1747.5	1762.5	QPSK	1	74	1	0	23.30
				75	0	75	0	21.30
			16QAM	1	74	1	0	22.19
				75	0	75	0	20.21
			64QAM	1	74	1	0	20.13
				75	0	75	0	20.30
15MHz/ 20MHz	1745.3	1762.4	QPSK	1	74	1	0	23.22
				75	0	100	0	21.26
			16QAM	1	74	1	0	22.42
				75	0	100	0	20.24
			64QAM	1	74	1	0	20.12
				75	0	100	0	20.21
20MHz/ 5MHz	1752.5	1764.2	QPSK	1	99	1	0	23.58
				100	0	25	0	21.32
			16QAM	1	99	1	0	22.50

				100	0	25	0	20.34
			64QAM	1	99	1	0	20.70
				100	0	25	0	20.40
20MHz/ 10MHz	1750.1	1764.5	QPSK	1	99	1	0	23.47
				100	0	50	0	21.30
			16QAM	1	99	1	0	22.48
				100	0	50	0	20.28
			64QAM	1	99	1	0	20.68
				100	0	50	0	20.36
20MHz/ 15MHz	1747.6	1764.7	QPSK	1	99	1	0	23.47
				100	0	75	0	21.26
			16QAM	1	99	1	0	22.42
				100	0	75	0	20.24
			64QAM	1	99	1	0	20.65
				100	0	75	0	20.30
20MHz/ 20MHz	1745.1	1764.9	QPSK	1	99	1	0	23.36
				100	0	100	0	21.24
			16QAM	1	99	1	0	22.43
				100	0	100	0	20.21
			64QAM	1	99	1	0	20.58
				100	0	100	0	20.28

A.1.3 Radiated

A.1.3.1 Description

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

TDD Band 41: Part 27.50(h)(2) specifies "Mobile stations are limited to 2.0 watts EIRP".

FDD Band 12/71: Part 27.50(c)(10) specifies "Portable stations(hand-held devices) in the 600 MHz uplink band and the 698–746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP".

FDD Band 13: Part 27.50(b) specifies "Portable stations(hand-held devices) transmitting in the 746–757 MHz, 776–788 MHz, and 805–806 MHz bands are limited to 3 watts ERP".

FDD Band 2: Part 24.232(c) specifies "Mobile and portable stations are limited to 2 watts EIRP".

FDD Band 5: Part 22.913(a) specifies "The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts".

FDD Band 4/66: Part 27.50(d)(4) specifies "Fixed, mobile, and portable(handheld) stations operating in the 1710–1755 MHz band and mobile and portable stations operating in the 1695–1710 MHz and 1755–1780 MHz bands are limited to 1 watt EIRP".

A.1.3.2 Method of Measurement

According to KDB 412172 D01 and ANSI C63.26 the relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

ERP or EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively
(expressed in the same units as P_{Mea} , e.g., dBm or dBW)

P_T = transmitter output power in dBm;

G_T = gain of the transimitting antenna, in dBd(ERP) or dBi(EIRP);

L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

A.1.3.3 Measurement result

LTE Band 2-EIRP

Limits: ⩽33dBm(2W)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			EIRP(dBm) (GT – LC = 1.07)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1.4MHz	1 RB high	1909.3	23.57	22.79	21.79	24.64	23.86	22.86
		1880	23.61	22.81	21.86	24.68	23.88	22.93
		1850.7	23.6	22.86	21.82	24.67	23.93	22.89
	1 RB low	1909.3	23.55	22.76	21.82	24.62	23.83	22.89
		1880	23.63	22.85	21.87	24.70	23.92	22.94
		1850.7	23.61	22.87	21.83	24.68	23.94	22.90
	50% RB mid	1909.3	23.75	22.76	21.81	24.82	23.83	22.88
		1880	23.75	22.75	21.88	24.82	23.82	22.95
		1850.7	23.75	22.76	21.89	24.82	23.83	22.96
	100% RB	1909.3	22.7	21.76	20.67	23.77	22.83	21.74
		1880	22.7	21.73	20.68	23.77	22.80	21.75
		1850.7	22.73	21.77	20.69	23.80	22.84	21.76
3MHz	1 RB high	1908.5	23.61	22.88	21.8	24.68	23.95	22.87
		1880	23.62	22.94	21.83	24.69	24.01	22.90
		1851.5	23.63	22.91	21.89	24.70	23.98	22.96
	1 RB low	1908.5	23.61	22.92	21.78	24.68	23.99	22.85
		1880	23.63	22.97	21.8	24.70	24.04	22.87
		1851.5	23.65	22.91	21.86	24.72	23.98	22.93
	50% RB mid	1908.5	22.66	21.7	20.65	23.73	22.77	21.72
		1880	22.66	21.69	20.65	23.73	22.76	21.72
		1851.5	22.69	21.71	20.69	23.76	22.78	21.76
	100% RB	1908.5	22.62	21.62	20.62	23.69	22.69	21.69
		1880	22.62	21.66	20.61	23.69	22.73	21.68
		1851.5	22.63	21.64	20.62	23.70	22.71	21.69
5MHz	1 RB high	1907.5	23.56	22.82	21.79	24.63	23.89	22.86
		1880	23.57	22.83	21.79	24.64	23.90	22.86
		1852.5	23.58	22.88	21.72	24.65	23.95	22.79
	1 RB low	1907.5	23.54	22.84	21.76	24.61	23.91	22.83
		1880	23.58	22.85	21.8	24.65	23.92	22.87
		1852.5	23.6	22.9	21.81	24.67	23.97	22.88
	50% RB mid	1907.5	22.7	21.64	20.67	23.77	22.71	21.74
		1880	22.67	21.67	20.66	23.74	22.74	21.73
		1852.5	22.7	21.69	20.67	23.77	22.76	21.74
	100% RB	1907.5	22.65	21.63	20.62	23.72	22.70	21.69
		1880	22.67	21.64	20.62	23.74	22.71	21.69
		1852.5	22.66	21.63	20.63	23.73	22.70	21.70

10MHz	1 RB high	1905	23.57	22.8	21.73	24.64	23.87	22.80
		1880	23.56	22.87	21.73	24.63	23.94	22.80
		1855	23.52	22.87	21.75	24.59	23.94	22.82
	1 RB low	1905	23.52	22.79	21.74	24.59	23.86	22.81
		1880	23.58	22.9	21.78	24.65	23.97	22.85
		1855	23.63	22.94	21.89	24.70	24.01	22.96
	50% RB mid	1905	22.67	21.6	20.63	23.74	22.67	21.70
		1880	22.67	21.65	20.66	23.74	22.72	21.73
		1855	22.65	21.65	20.62	23.72	22.72	21.69
	100% RB	1905	22.65	21.61	20.6	23.72	22.68	21.67
		1880	22.67	21.66	20.63	23.74	22.73	21.70
		1855	22.66	21.65	20.64	23.73	22.72	21.71
15MHz	1 RB high	1902.5	23.55	22.83	21.76	24.62	23.90	22.83
		1880	23.56	22.86	21.82	24.63	23.93	22.89
		1857.5	23.51	22.86	21.84	24.58	23.93	22.91
	1 RB low	1902.5	23.54	22.86	21.8	24.61	23.93	22.87
		1880	23.6	22.91	21.88	24.67	23.98	22.95
		1857.5	23.64	22.95	21.92	24.71	24.02	22.99
	50% RB mid	1902.5	22.66	21.63	20.65	23.73	22.70	21.72
		1880	22.66	21.66	20.66	23.73	22.73	21.73
		1857.5	22.67	21.65	20.63	23.74	22.72	21.70
	100% RB	1902.5	22.65	21.64	20.63	23.72	22.71	21.70
		1880	22.7	21.63	20.65	23.77	22.70	21.72
		1857.5	22.63	21.66	20.64	23.70	22.73	21.71
20MHz	1 RB high	1900	23.64	22.84	21.85	24.71	23.91	22.92
		1880	23.49	22.82	21.76	24.56	23.89	22.83
		1860	23.53	22.77	21.78	24.60	23.84	22.85
	1 RB low	1900	23.55	22.83	21.77	24.62	23.90	22.84
		1880	23.55	22.91	21.78	24.62	23.98	22.85
		1860	23.67	22.95	21.89	24.74	24.02	22.96
	50% RB mid	1900	22.64	21.66	20.64	23.71	22.73	21.71
		1880	22.62	21.63	20.62	23.69	22.70	21.69
		1860	22.66	21.65	20.67	23.73	22.72	21.74
	100% RB	1900	22.66	21.66	20.65	23.73	22.73	21.72
		1880	22.65	21.63	20.63	23.72	22.70	21.70
		1860	22.6	21.61	20.63	23.67	22.68	21.70

LTE Band 5 - ERP

Limits: ≤38.45dBm(7W)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			ERP(dBm) (GT – LC = -2.74)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1.4MHz	1 RB high	848.3	24.09	23.32	22.23	19.2	18.4	17.3
		836.5	24.08	23.3	22.27	19.2	18.4	17.4
		824.7	24.1	23.36	22.33	19.2	18.5	17.4
	1 RB low	848.3	24.05	23.32	22.23	19.2	18.4	17.3
		836.5	24.08	23.32	22.29	19.2	18.4	17.4
		824.7	24.11	23.38	22.33	19.2	18.5	17.4
	50% RB mid	848.3	24.24	23.26	22.33	19.4	18.4	17.4
		836.5	24.18	23.21	22.33	19.3	18.3	17.4
		824.7	24.19	23.18	22.3	19.3	18.3	17.4
	100% RB	848.3	23.25	22.3	21.15	18.4	17.4	16.3
		836.5	23.19	22.29	21.17	18.3	17.4	16.3
		824.7	23.22	22.26	21.18	18.3	17.4	16.3
3MHz	1 RB high	847.5	24.15	23.45	22.25	19.3	18.6	17.4
		836.5	24.13	23.39	22.34	19.2	18.5	17.5
		825.5	24.16	23.37	22.31	19.3	18.5	17.4
	1 RB low	847.5	24.11	23.36	22.27	19.2	18.5	17.4
		836.5	24.13	23.38	22.29	19.2	18.5	17.4
		825.5	24.12	23.36	22.33	19.2	18.5	17.4
	50% RB mid	847.5	23.18	22.23	21.19	18.3	17.3	16.3
		836.5	23.18	22.24	21.16	18.3	17.4	16.3
		825.5	23.21	22.23	21.19	18.3	17.3	16.3
	100% RB	847.5	23.17	22.21	21.15	18.3	17.3	16.3
		836.5	23.18	22.18	21.11	18.3	17.3	16.2
		825.5	23.16	22.16	21.1	18.3	17.3	16.2
5MHz	1 RB high	846.5	24.14	23.42	22.32	19.3	18.5	17.4
		836.5	24.11	23.4	22.34	19.2	18.5	17.5
		826.5	24.14	23.43	22.33	19.3	18.5	17.4
	1 RB low	846.5	24.09	23.34	22.27	19.2	18.5	17.4
		836.5	24.13	23.4	22.31	19.2	18.5	17.4
		826.5	24.11	23.42	22.31	19.2	18.5	17.4
	50% RB mid	846.5	23.22	22.2	21.16	18.3	17.3	16.3
		836.5	23.23	22.19	21.19	18.3	17.3	16.3
		826.5	23.24	22.19	21.2	18.4	17.3	16.3
	100% RB	846.5	23.17	22.15	21.12	18.3	17.3	16.2
		836.5	23.22	22.19	21.17	18.3	17.3	16.3
		826.5	23.16	22.18	21.14	18.3	17.3	16.3
10MHz	1 RB high	844	24.1	23.3	22.29	19.2	18.4	17.4

		836.5	24.14	23.4	22.37	19.3	18.5	17.5
		829	24.14	23.41	22.41	19.3	18.5	17.5
	1 RB low	844	24.17	23.43	22.25	19.3	18.5	17.4
		836.5	24.22	23.55	22.44	19.3	18.7	17.6
		829	24.28	23.59	22.48	19.4	18.7	17.6
	50% RB mid	844	23.29	22.23	21.2	18.4	17.3	16.3
		836.5	23.29	22.27	21.28	18.4	17.4	16.4
		829	23.28	22.28	21.26	18.4	17.4	16.4
	100% RB	844	23.22	22.23	21.19	18.3	17.3	16.3
		836.5	23.29	22.29	21.26	18.4	17.4	16.4
		829	23.27	22.29	21.27	18.4	17.4	16.4

LTE Band 12-ERP

Limits: ≤34.77dBm(3W)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			ERP(dBm) (GT – LC = -1.91)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1.4MHz	1 RB high	715.3	24.18	23.36	22.32	20.1	19.3	18.3
		707.5	24.17	23.47	22.37	20.1	19.4	18.3
		699.7	24.24	23.48	22.43	20.2	19.4	18.4
	1 RB low	715.3	24.15	23.36	22.33	20.1	19.3	18.3
		707.5	24.17	23.43	22.39	20.1	19.4	18.3
		699.7	24.18	23.46	22.41	20.1	19.4	18.4
	50% RB mid	715.3	24.29	23.26	22.37	20.2	19.2	18.3
		707.5	24.27	23.29	22.36	20.2	19.2	18.3
		699.7	24.29	23.29	22.41	20.2	19.2	18.4
	100% RB	715.3	23.24	22.33	21.32	19.2	18.3	17.3
		707.5	23.27	22.36	21.32	19.2	18.3	17.3
		699.7	23.31	22.35	21.34	19.3	18.3	17.3
3MHz	1 RB high	714.5	24.27	23.51	22.34	20.2	19.5	18.3
		707.5	24.29	23.55	22.46	20.2	19.5	18.4
		700.5	24.27	23.59	22.5	20.2	19.5	18.4
	1 RB low	714.5	24.25	23.48	22.43	20.2	19.4	18.4
		707.5	24.26	23.62	22.42	20.2	19.6	18.4
		700.5	24.27	23.54	22.47	20.2	19.5	18.4
	50% RB mid	714.5	23.29	22.29	21.38	19.2	18.2	17.3
		707.5	23.27	22.31	21.38	19.2	18.3	17.3
		700.5	23.3	22.32	21.38	19.2	18.3	17.3
	100% RB	714.5	23.28	22.27	21.28	19.2	18.2	17.2
		707.5	23.26	22.25	21.3	19.2	18.2	17.2
		700.5	23.3	22.28	21.31	19.2	18.2	17.3
5MHz	1 RB high	713.5	24.25	23.47	22.39	20.2	19.4	18.3
		707.5	24.25	23.56	22.44	20.2	19.5	18.4
		701.5	24.32	23.66	22.49	20.3	19.6	18.4
	1 RB low	713.5	24.19	23.52	22.38	20.1	19.5	18.3
		707.5	24.27	23.54	22.4	20.2	19.5	18.3
		701.5	24.26	23.48	22.44	20.2	19.4	18.4
	50% RB mid	713.5	23.32	22.32	21.38	19.3	18.3	17.3
		707.5	23.32	22.33	21.4	19.3	18.3	17.3
		701.5	23.32	22.34	21.4	19.3	18.3	17.3
	100% RB	713.5	23.3	22.3	21.36	19.2	18.2	17.3
		707.5	23.3	22.34	21.35	19.2	18.3	17.3
		701.5	23.3	22.31	21.35	19.2	18.3	17.3
10MHz	1 RB high	711	24.27	23.39	22.36	20.2	19.3	18.3

		707.5	24.28	23.57	22.4	20.2	19.5	18.3
		704	24.27	23.49	22.45	20.2	19.4	18.4
	1 RB low	711	24.37	23.67	22.44	20.3	19.6	18.4
		707.5	24.32	23.48	22.51	20.3	19.4	18.5
		704	24.31	23.61	22.5	20.3	19.6	18.4
	50% RB mid	711	23.37	22.37	21.37	19.3	18.3	17.3
		707.5	23.38	22.34	21.4	19.3	18.3	17.3
		704	23.37	22.36	21.41	19.3	18.3	17.4
	100% RB	711	23.36	22.35	21.37	19.3	18.3	17.3
		707.5	23.37	22.33	21.4	19.3	18.3	17.3
		704	23.39	22.39	21.41	19.3	18.3	17.4

LTE Band 13-ERP

Limits: ≤34.77dBm(3W)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			ERP(dBm) (GT – LC = -2.01)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5MHz	1 RB high	784.5	23.97	23.34	22.08	19.8	19.2	17.9
		782	23.97	23.33	22.18	19.8	19.2	18.0
		779.5	23.89	23.14	22.12	19.7	19.0	18.0
	1 RB low	784.5	24	23.24	22.22	19.8	19.1	18.1
		782	23.97	23.28	22.15	19.8	19.1	18.0
		779.5	23.91	23.21	22.1	19.8	19.1	17.9
	50% RB mid	784.5	23.1	22.02	21.07	18.9	17.9	16.9
		782	23.04	22.05	21.06	18.9	17.9	16.9
		779.5	23.04	22.02	21.05	18.9	17.9	16.9
	100% RB	784.5	23.02	22.04	20.99	18.9	17.9	16.8
		782	23.03	22.01	21.02	18.9	17.9	16.9
		779.5	22.94	21.96	20.94	18.8	17.8	16.8
10MHz	1 RB high	782	23.93	23.26	22.08	19.8	19.1	17.9
	1 RB low	782	23.99	23.28	22.22	19.8	19.1	18.1
	50% RB mid	782	23.04	22.05	21.03	18.9	17.9	16.9
	100% RB	782	23	22.01	21.01	18.8	17.9	16.9

LTE Band 41-EIRP

Limits: ≤33dBm(2W)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			EIRP(dBm) (GT – LC = -0.06)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5MHz	1 RB high	2687.5	25.96	25.19	24.13	25.9	25.1	24.1
		2593	25.77	25.10	23.97	25.7	25.0	23.9
		2498.5	25.84	25.08	24.02	25.8	25.0	24.0
	1 RB low	2687.5	25.92	25.16	24.10	25.9	25.1	24.0
		2593	25.86	25.11	24.01	25.8	25.1	24.0
		2498.5	25.81	25.12	24.02	25.8	25.1	24.0
	50% RB mid	2687.5	25.09	24.09	23.10	25.0	24.0	23.0
		2593	25.02	23.99	22.99	25.0	23.9	22.9
		2498.5	24.99	24.02	23.03	24.9	24.0	23.0
	100% RB	2687.5	25.05	24.10	23.10	25.0	24.0	23.0
		2593	24.96	23.97	22.99	24.9	23.9	22.9
		2498.5	24.93	24.02	23.02	24.9	24.0	23.0
10MHz	1 RB high	2685	25.94	25.22	24.13	25.9	25.2	24.1
		2593	25.86	25.16	24.00	25.8	25.1	23.9
		2501	25.86	25.18	24.01	25.8	25.1	24.0
	1 RB low	2685	25.96	25.24	24.06	25.9	25.2	24.0
		2593	25.90	25.14	24.01	25.8	25.1	24.0
		2501	25.92	25.20	24.06	25.9	25.1	24.0
	50% RB mid	2685	25.09	24.16	23.16	25.0	24.1	23.1
		2593	25.03	24.04	23.06	25.0	24.0	23.0
		2501	25.04	24.05	23.10	25.0	24.0	23.0
	100% RB	2685	25.10	24.11	23.10	25.0	24.1	23.0
		2593	25.03	24.06	23.02	25.0	24.0	23.0
		2501	25.03	24.00	23.04	25.0	23.9	23.0
15MHz	1 RB high	2682.5	25.91	25.19	24.08	25.9	25.1	24.0
		2593	25.84	25.11	24.00	25.8	25.1	23.9
		2503.5	25.85	25.15	24.04	25.8	25.1	24.0
	1 RB low	2682.5	25.91	25.16	24.08	25.9	25.1	24.0
		2593	25.86	25.15	24.05	25.8	25.1	24.0
		2503.5	25.89	25.30	24.05	25.8	25.2	24.0
	50% RB mid	2682.5	25.04	23.96	23.00	25.0	23.9	22.9
		2593	24.98	23.91	22.96	24.9	23.9	22.9
		2503.5	25.01	23.95	22.97	25.0	23.9	22.9
	100% RB	2682.5	25.04	24.04	22.98	25.0	24.0	22.9
		2593	24.95	23.94	22.93	24.9	23.9	22.9
		2503.5	24.98	23.96	22.99	24.9	23.9	22.9
20MHz	1 RB high	2680	25.97	25.14	24.03	25.9	25.1	24.0

		2593	25.88	25.16	23.94	25.8	25.1	23.9
		2506	25.95	25.27	24.03	25.9	25.2	24.0
	1 RB low	2680	25.92	25.17	23.91	25.9	25.1	23.9
		2593	25.91	25.20	23.98	25.9	25.1	23.9
		2506	25.82	25.10	23.88	25.8	25.0	23.8
	50% RB mid	2680	24.96	24.04	23.05	24.9	24.0	23.0
		2593	24.98	24.01	22.97	24.9	24.0	22.9
		2506	25.01	24.04	22.99	25.0	24.0	22.9
	100% RB	2680	24.98	24.04	23.03	24.9	24.0	23.0
		2593	25.02	24.05	23.02	25.0	24.0	23.0
		2506	24.99	24.00	23.00	24.9	23.9	22.9

LTE Band 66-EIRP

Limits: ⩽30dBm(1W)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			EIRP(dBm) (GT – LC = -0.39)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1.4MHz	1 RB high	1779.3	23.86	23.02	22.01	23.5	22.6	21.6
		1745	24.01	23.21	22.17	23.6	22.8	21.8
		1710.7	23.80	23.06	21.90	23.4	22.7	21.5
	1 RB low	1779.3	23.88	23.07	22.05	23.5	22.7	21.7
		1745	24.02	23.20	22.12	23.6	22.8	21.7
		1710.7	23.83	23.05	21.91	23.4	22.7	21.5
	50% RB mid	1779.3	23.99	22.98	22.07	23.6	22.6	21.7
		1745	24.16	23.10	22.19	23.8	22.7	21.8
		1710.7	23.98	22.87	22.05	23.6	22.5	21.7
	100% RB	1779.3	22.98	22.05	20.94	22.6	21.7	20.6
		1745	23.08	22.15	21.11	22.7	21.8	20.7
		1710.7	22.91	21.97	20.93	22.5	21.6	20.5
3MHz	1 RB high	1778.5	23.92	23.12	22.04	23.5	22.7	21.7
		1745	24.07	23.27	22.23	23.7	22.9	21.8
		1711.5	23.96	23.08	22.07	23.6	22.7	21.7
	1 RB low	1778.5	23.98	23.13	22.06	23.6	22.7	21.7
		1745	24.09	23.31	22.22	23.7	22.9	21.8
		1711.5	23.92	23.11	22.05	23.5	22.7	21.7
	50% RB mid	1778.5	22.96	22.00	20.98	22.6	21.6	20.6
		1745	23.10	22.13	21.14	22.7	21.7	20.8
		1711.5	22.93	21.98	20.97	22.5	21.6	20.6
	100% RB	1778.5	22.97	21.97	20.97	22.6	21.6	20.6
		1745	23.12	22.11	21.06	22.7	21.7	20.7
		1711.5	22.94	21.93	20.92	22.6	21.5	20.5
5MHz	1 RB high	1777.5	23.88	23.05	22.01	23.5	22.7	21.6
		1745	24.02	23.23	22.17	23.6	22.8	21.8
		1712.5	23.92	23.05	21.95	23.5	22.7	21.6
	1 RB low	1777.5	23.91	23.17	22.12	23.5	22.8	21.7
		1745	24.06	23.28	22.23	23.7	22.9	21.8
		1712.5	23.88	23.07	22.00	23.5	22.7	21.6
	50% RB mid	1777.5	23.01	22.02	21.04	22.6	21.6	20.7
		1745	23.13	22.11	21.12	22.7	21.7	20.7
		1712.5	22.95	21.91	20.95	22.6	21.5	20.6
	100% RB	1777.5	22.99	22.00	20.99	22.6	21.6	20.6
		1745	23.13	22.09	21.09	22.7	21.7	20.7
		1712.5	22.94	21.87	20.91	22.6	21.5	20.5
10MHz	1 RB high	1775	23.89	23.11	21.97	23.5	22.7	21.6

		1745	24.01	23.21	22.12	23.6	22.8	21.7
		1715	23.93	23.13	22.01	23.5	22.7	21.6
	1 RB low	1775	24.03	23.33	22.21	23.6	22.9	21.8
		1745	24.12	23.40	22.26	23.7	23.0	21.9
		1715	23.91	23.14	22.03	23.5	22.8	21.6
	50% RB mid	1775	23.01	21.99	21.01	22.6	21.6	20.6
		1745	23.15	22.13	21.11	22.8	21.7	20.7
		1715	23.00	21.98	21.02	22.6	21.6	20.6
	100% RB	1775	23.05	22.05	21.01	22.7	21.7	20.6
		1745	23.13	22.11	21.10	22.7	21.7	20.7
		1715	22.98	21.94	20.98	22.6	21.6	20.6
15MHz	1 RB high	1772.5	23.85	23.02	21.98	23.5	22.6	21.6
		1745	23.96	23.13	22.04	23.6	22.7	21.7
		1717.5	23.96	23.19	22.13	23.6	22.8	21.7
	1 RB low	1772.5	24.02	23.35	22.24	23.6	23.0	21.9
		1745	24.14	23.33	22.27	23.8	22.9	21.9
		1717.5	23.92	23.09	22.00	23.5	22.7	21.6
	50% RB mid	1772.5	23.07	22.06	21.05	22.7	21.7	20.7
		1745	23.15	22.09	21.14	22.8	21.7	20.8
		1717.5	22.99	21.95	20.98	22.6	21.6	20.6
	100% RB	1772.5	23.08	22.09	21.10	22.7	21.7	20.7
		1745	23.11	22.10	21.08	22.7	21.7	20.7
		1717.5	22.95	21.94	20.96	22.6	21.6	20.6
20MHz	1 RB high	1770	23.79	22.98	21.98	23.4	22.6	21.6
		1745	23.75	23.06	21.92	23.4	22.7	21.5
		1720	23.89	23.23	22.09	23.5	22.8	21.7
	1 RB low	1770	23.84	23.18	22.00	23.5	22.8	21.6
		1745	23.93	23.25	22.15	23.5	22.9	21.8
		1720	24.01	23.13	22.06	23.6	22.7	21.7
	50% RB mid	1770	23.01	22.01	20.99	22.6	21.6	20.6
		1745	22.98	21.94	20.93	22.6	21.6	20.5
		1720	23.09	22.03	21.03	22.7	21.6	20.6
	100% RB	1770	23.06	22.01	21.00	22.7	21.6	20.6
		1745	22.96	21.89	20.91	22.6	21.5	20.5
		1720	22.97	21.96	20.95	22.6	21.6	20.6

LTE Band 71-ERP

Limits: ≤34.77dBm(3W)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			ERP(dBm) (GT – LC = -1.64)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5MHz	1 RB high	695.5	24.24	23.46	22.43	20.5	19.7	18.6
		680.5	24.20	23.42	22.35	20.4	19.6	18.6
		665.5	24.17	23.39	22.36	20.4	19.6	18.6
	1 RB low	695.5	24.17	23.46	22.36	20.4	19.7	18.6
		680.5	24.18	23.44	22.36	20.4	19.7	18.6
		665.5	24.11	23.29	22.31	20.3	19.5	18.5
	50% RB mid	695.5	23.25	22.30	21.35	19.5	18.5	17.6
		680.5	23.30	22.31	21.36	19.5	18.5	17.6
		665.5	23.29	22.29	21.30	19.5	18.5	17.5
	100% RB	695.5	23.31	22.27	21.33	19.5	18.5	17.5
		680.5	23.27	22.26	21.31	19.5	18.5	17.5
		665.5	23.20	22.24	21.23	19.4	18.5	17.4
10MHz	1 RB high	693	24.30	23.51	22.44	20.5	19.7	18.7
		680.5	24.27	23.52	22.46	20.5	19.7	18.7
		668	24.18	23.45	22.39	20.4	19.7	18.6
	1 RB low	693	24.26	23.52	22.38	20.5	19.7	18.6
		680.5	24.25	23.45	22.33	20.5	19.7	18.5
		668	24.14	23.31	22.36	20.4	19.5	18.6
	50% RB mid	693	23.28	22.28	21.32	19.5	18.5	17.5
		680.5	23.29	22.26	21.29	19.5	18.5	17.5
		668	23.22	22.30	21.29	19.4	18.5	17.5
	100% RB	693	23.34	22.35	21.40	19.6	18.6	17.6
		680.5	23.31	22.32	21.35	19.5	18.5	17.6
		668	23.28	22.32	21.32	19.5	18.5	17.5
15MHz	1 RB high	690.5	24.29	23.55	22.47	20.5	19.8	18.7
		680.5	24.31	23.61	22.49	20.5	19.8	18.7
		670.5	24.33	23.57	22.48	20.5	19.8	18.7
	1 RB low	690.5	24.24	23.55	22.40	20.5	19.8	18.6
		680.5	24.24	23.50	22.38	20.5	19.7	18.6
		670.5	24.18	23.37	22.31	20.4	19.6	18.5
	50% RB mid	690.5	23.28	22.26	21.32	19.5	18.5	17.5
		680.5	23.32	22.28	21.31	19.5	18.5	17.5
		670.5	23.23	22.24	21.30	19.4	18.5	17.5
	100% RB	690.5	23.31	22.32	21.34	19.5	18.5	17.6
		680.5	23.28	22.28	21.30	19.5	18.5	17.5
		670.5	23.26	22.24	21.29	19.5	18.5	17.5
20MHz	1 RB high	688	24.25	23.49	22.44	20.5	19.7	18.7

		680.5	24.23	23.41	22.36	20.4	19.6	18.6
		673	24.12	23.36	22.26	20.3	19.6	18.5
	1 RB low	688	24.22	23.40	22.41	20.4	19.6	18.6
		680.5	24.18	23.35	22.37	20.4	19.6	18.6
		673	24.10	23.26	22.28	20.3	19.5	18.5
	50% RB mid	688	23.34	22.37	21.39	19.6	18.6	17.6
		680.5	23.31	22.31	21.36	19.5	18.5	17.6
		673	23.19	22.17	21.23	19.4	18.4	17.4
	100% RB	688	23.32	22.31	21.35	19.5	18.5	17.6
		680.5	23.25	22.23	21.30	19.5	18.4	17.5
		673	23.19	22.16	21.22	19.4	18.4	17.4

LTE CA Band 5B-ERP

Limits: ≤38.45dBm(7W)

Bandwidth	Frequency	Frequency	Modulation	PCC RB		SCC RB		Conducted Power(dBm)	ERP(dBm) (GT－LC = -2.74)
	(MHz)	(MHz)		Size	Offset	Size	Offset		
3MHz/ 5MHz	834.1	838	QPSK	1	14	1	0	24.54	19.7
				15	0	25	0	24.50	19.6
			16QAM	1	14	1	0	24.23	19.3
				15	0	25	0	24.43	19.5
			64QAM	1	14	1	0	24.52	19.6
				15	0	25	0	24.42	19.5
5MHz/ 3MHz	835	838.9	QPSK	1	24	1	0	24.63	19.7
				25	0	15	0	24.50	19.6
			16QAM	1	24	1	0	24.59	19.7
				25	0	15	0	24.51	19.6
			64QAM	1	24	1	0	24.58	19.7
				25	0	15	0	24.44	19.6
5MHz/ 10MHz	831.8	839	QPSK	1	24	1	0	24.41	19.5
				25	0	50	0	22.53	17.6
			16QAM	1	24	1	0	23.54	18.7
				25	0	50	0	21.49	16.6
			64QAM	1	24	1	0	21.34	16.5
				25	0	50	0	21.49	16.6
10MHz/ 5MHz	834	841.2	QPSK	1	49	1	0	24.64	19.8
				50	0	25	0	24.57	19.7
			16QAM	1	49	1	0	24.61	19.7
				50	0	25	0	24.48	19.6
			64QAM	1	49	1	0	24.40	19.5
				50	0	25	0	24.46	19.6
10MHz/ 10MHz	831.6	841.5	QPSK	1	49	1	0	24.53	19.6
				50	0	50	0	22.47	17.6
			16QAM	1	49	1	0	23.63	18.7
				50	0	50	0	21.39	16.5
			64QAM	1	49	1	0	21.34	16.5
				50	0	50	0	21.48	16.6

LTE CA Band 66B-EIRP

Limits: ⩽30dBm(1W)

Bandwidth	Frequency	Frequency	Modulation	PCC RB		SCC RB		Conducted Power(dBm)	EIRP(dBm) (GT – LC = -0.39)
	(MHz)	(MHz)		Size	Offset	Size	Offset		
5MHz/ 5MHz	1752.6	1757.4	QPSK	1	24	1	0	24.24	23.9
				25	0	25	0	24.22	23.8
			16QAM	1	24	1	0	24.21	23.8
				25	0	25	0	24.17	23.8
			64QAM	1	24	1	0	24.10	23.7
				25	0	25	0	24.18	23.8
5MHz/ 10MHz	1750.3	1757.5	QPSK	1	24	1	0	24.18	23.8
				25	0	50	0	22.31	21.9
			16QAM	1	24	1	0	23.26	22.9
				25	0	50	0	21.28	20.9
			64QAM	1	24	1	0	21.12	20.7
				25	0	50	0	21.25	20.9
5MHz/ 15MHz	1748.1	1757.4	QPSK	1	24	1	0	24.05	23.7
				25	0	75	0	24.17	23.8
			16QAM	1	24	1	0	24.02	23.6
				25	0	75	0	24.11	23.7
			64QAM	1	24	1	0	23.90	23.5
				25	0	75	0	24.08	23.7
10MHz/ 5MHz	1752.5	1759.7	QPSK	1	49	1	0	24.37	24.0
				50	0	25	0	24.30	23.9
			16QAM	1	49	1	0	24.35	24.0
				50	0	25	0	24.27	23.9
			64QAM	1	49	1	0	24.12	23.7
				50	0	25	0	24.28	23.9
10MHz/ 10MHz	1750.1	1760	QPSK	1	49	1	0	24.30	23.9
				50	0	50	0	22.31	21.9
			16QAM	1	49	1	0	23.32	22.9
				50	0	50	0	21.25	20.9
			64QAM	1	49	1	0	21.11	20.7
				50	0	50	0	21.26	20.9
15MHz/ 5MHz	1752.6	1761.9	QPSK	1	74	1	0	24.46	24.1
				75	0	25	0	24.39	24.0
			16QAM	1	74	1	0	24.20	23.8
				75	0	25	0	24.32	23.9
			64QAM	1	74	1	0	24.38	24.0
				75	0	25	0	24.35	24.0

LTE CA Band 66C-EIRP

Limits: ⩽30dBm(1W)

Bandwidth	Frequency	Frequency	Modulation	PCC RB		SCC RB		Conducted Power(dBm)	EIRP(dBm) (GT – LC = -0.39)
	(MHz)	(MHz)		Size	Offset	Size	Offset		
5MHz/ 20MHz	1745.8	1757.5	QPSK	1	24	1	0	23.05	22.7
				25	0	100	0	21.20	20.8
			16QAM	1	24	1	0	22.08	21.7
				25	0	100	0	20.16	19.8
			64QAM	1	24	1	0	19.98	19.6
				25	0	100	0	20.14	19.8
10MHz/ 15MHz	1747.9	1757.9	QPSK	1	49	1	0	23.24	22.9
				50	0	75	0	23.24	22.9
			16QAM	1	49	1	0	23.22	22.8
				50	0	75	0	23.13	22.7
			64QAM	1	49	1	0	23.00	22.6
				50	0	75	0	23.17	22.8
10MHz/ 20MHz	1745.6	1760	QPSK	1	49	1	0	23.16	22.8
				50	0	100	0	21.21	20.8
			16QAM	1	49	1	0	22.22	21.8
				50	0	100	0	20.20	19.8
			64QAM	1	49	1	0	20.00	19.6
				50	0	100	0	20.22	19.8
15MHz/ 10MHz	1750.1	1762.1	QPSK	1	74	1	0	23.38	23.0
				75	0	50	0	23.32	22.9
			16QAM	1	74	1	0	23.16	22.8
				75	0	50	0	23.29	22.9
			64QAM	1	74	1	0	23.40	23.0
				75	0	50	0	23.31	22.9
15MHz/ 15MHz	1747.5	1762.5	QPSK	1	74	1	0	23.30	22.9
				75	0	75	0	21.30	20.9
			16QAM	1	74	1	0	22.19	21.8
				75	0	75	0	20.21	19.8
			64QAM	1	74	1	0	20.13	19.7
				75	0	75	0	20.30	19.9
15MHz/ 20MHz	1745.3	1762.4	QPSK	1	74	1	0	23.22	22.8
				75	0	100	0	21.26	20.9
			16QAM	1	74	1	0	22.42	22.0
				75	0	100	0	20.24	19.9
			64QAM	1	74	1	0	20.12	19.7
				75	0	100	0	20.21	19.8
20MHz/	1752.5	1764.2	QPSK	1	99	1	0	23.58	23.2

5MHz				100	0	25	0	21.32	20.9
			16QAM	1	99	1	0	22.50	22.1
				100	0	25	0	20.34	20.0
			64QAM	1	99	1	0	20.70	20.3
				100	0	25	0	20.40	20.0
20MHz/ 10MHz	1750.1	1764.5	QPSK	1	99	1	0	23.47	23.1
				100	0	50	0	21.30	20.9
			16QAM	1	99	1	0	22.48	22.1
				100	0	50	0	20.28	19.9
			64QAM	1	99	1	0	20.68	20.3
				100	0	50	0	20.36	20.0
20MHz/ 15MHz	1747.6	1764.7	QPSK	1	99	1	0	23.47	23.1
				100	0	75	0	21.26	20.9
			16QAM	1	99	1	0	22.42	22.0
				100	0	75	0	20.24	19.9
			64QAM	1	99	1	0	20.65	20.3
				100	0	75	0	20.30	19.9
20MHz/ 20MHz	1745.1	1764.9	QPSK	1	99	1	0	23.36	23.0
				100	0	100	0	21.24	20.9
			16QAM	1	99	1	0	22.43	22.0
				100	0	100	0	20.21	19.8
			64QAM	1	99	1	0	20.58	20.2
				100	0	100	0	20.28	19.9

A.2 Emission Limit

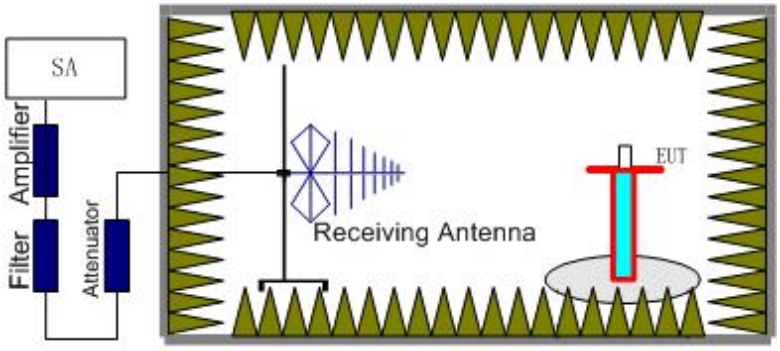
A.2.1 Measurement Method

The measurements procedures in TIA-603E-2016 are used. This measurement is carried out in fully anechoic chamber FAC-3.

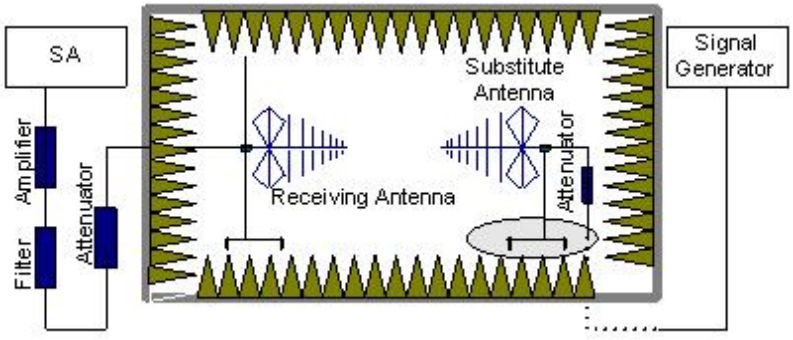
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of each LTE Band.

The procedure of radiated spurious emissions is as follows:

1. EUT was placed on a 1.5-meter-high non-conductive stand at a 3-meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360 and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.



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



In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the

substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

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

A.2.2 Measurement Limit

TDD Band 41: 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 that 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.

FDD Band 12/71: 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.

FDD Band 13: 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.

FDD Band 2: Part 24.238 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.
FDD Band 5: Part 22.917 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.
FDD Band 4/66: 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.

A.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of each LTE Band. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of each LTE Band into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this. The range of evaluated frequency is from 30MHz to 26GHz.

LTE Band 2, 1.4MHz, QPSK, Channel 18607

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polorization
3702.02	-53.72	6.42	8.48	-51.66	-13.00	38.66	H
5554.02	-55.24	7.19	10.59	-51.84	-13.00	38.84	H
7403.01	-53.47	8.13	12.08	-49.52	-13.00	36.52	H
9254.01	-51.28	9.05	13.25	-47.08	-13.00	34.08	H
11150.01	-50.94	9.62	13.17	-47.39	-13.00	34.39	H
13000.01	-47.53	10.47	13.50	-44.50	-13.00	31.50	H

LTE Band 2, 1.4MHz, QPSK, Channel 18900

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polorization
3760.02	-54.94	6.26	8.56	-52.64	-13.00	39.64	H
5604.02	-58.40	7.24	10.58	-55.06	-13.00	42.06	H
7491.01	-54.07	8.37	12.19	-50.25	-13.00	37.25	H
9403.01	-50.86	9.05	13.34	-46.57	-13.00	33.57	H
11244.01	-50.28	9.66	13.15	-46.79	-13.00	33.79	V
13122.01	-45.17	10.84	13.67	-42.34	-13.00	29.34	V

LTE Band 2, 1.4MHz, QPSK, Channel 19193

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polorization
3819.02	-49.81	6.08	8.65	-47.24	-13.00	34.24	H
5729.02	-51.87	7.29	10.55	-48.61	-13.00	35.61	H
7624.01	-54.87	8.08	12.30	-50.65	-13.00	37.65	H
9546.01	-49.31	9.38	13.35	-45.34	-13.00	32.34	V
11496.01	-50.50	9.82	13.10	-47.22	-13.00	34.22	V
13412.01	-44.36	10.58	14.08	-40.86	-13.00	27.86	V

LTE Band 5, 1.4MHz, QPSK, Channel 20407

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Correction	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polorization
1650.01	-53.71	3.57	5.23	2.15	-54.20	-13.00	41.20	H
2479.00	-45.97	4.60	6.04	2.15	-46.68	-13.00	33.68	V
3288.02	-60.42	5.28	7.69	2.15	-60.16	-13.00	47.16	H
4129.02	-57.73	6.05	9.03	2.15	-56.90	-13.00	43.90	H
4954.01	-57.16	6.68	9.85	2.15	-56.14	-13.00	43.14	V
5759.01	-56.27	7.25	10.55	2.15	-55.12	-13.00	42.12	H

LTE Band 5, 1.4MHz, QPSK, Channel 20525

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Correction	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polorization
1672.01	-50.94	3.58	5.19	2.15	-51.48	-13.00	38.48	V
2524.00	-46.10	4.65	6.14	2.15	-46.76	-13.00	33.76	H
3348.02	-60.48	5.32	7.84	2.15	-60.11	-13.00	47.11	H
4188.02	-57.93	6.18	9.09	2.15	-57.17	-13.00	44.17	H
5027.01	-57.61	6.57	9.94	2.15	-56.39	-13.00	43.39	H
5844.01	-56.93	7.22	10.53	2.15	-55.77	-13.00	42.77	V

LTE Band 5, 1.4MHz, QPSK, Channel 20643

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Correction	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polorization
1697.01	-51.28	3.60	5.15	2.15	-51.88	-13.00	38.88	V
2544.00	-46.10	4.66	6.18	2.15	-46.73	-13.00	33.73	H
3405.02	-60.12	5.37	7.97	2.15	-59.67	-13.00	46.67	H
4239.02	-57.53	6.25	9.14	2.15	-56.79	-13.00	43.79	H
5076.01	-56.76	6.70	10.01	2.15	-55.60	-13.00	42.60	H
5937.01	-56.95	7.47	10.51	2.15	-56.06	-13.00	43.06	V

LTE Band 12, 1.4MHz, QPSK, Channel 23017

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Correction	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polorization
1343.01	-56.42	3.17	4.68	2.15	-57.06	-13.00	44.06	H
1998.01	-50.11	4.05	4.60	2.15	-51.71	-13.00	38.71	H
2676.00	-44.94	4.76	6.42	2.15	-45.43	-13.00	32.43	H
3345.02	-60.42	5.31	7.83	2.15	-60.05	-13.00	47.05	V
4015.02	-58.26	6.06	8.92	2.15	-57.55	-13.00	44.55	H
4673.02	-57.62	6.48	9.57	2.15	-56.68	-13.00	43.68	H

LTE Band 12, 1.4MHz, QPSK, Channel 23095

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Correction	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polorization
1415.01	-55.23	3.25	5.06	2.15	-55.57	-13.00	42.57	V
2120.00	-49.95	4.21	4.96	2.15	-51.35	-13.00	38.35	H
2819.00	-44.43	4.94	6.67	2.15	-44.85	-13.00	31.85	H
3538.02	-58.11	5.70	8.25	2.15	-57.71	-13.00	44.71	H
4231.02	-58.19	6.26	9.13	2.15	-57.47	-13.00	44.47	V
4965.01	-56.92	6.66	9.87	2.15	-55.86	-13.00	42.86	V

LTE Band 12, 1.4MHz, QPSK, Channel 23173

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Correction	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polorization
1431.01	-52.43	3.28	5.14	2.15	-52.72	-13.00	39.72	H
2153.00	-49.08	4.25	5.06	2.15	-50.42	-13.00	37.42	H
2872.00	-44.94	4.97	6.77	2.15	-45.29	-13.00	32.29	H
3578.02	-57.04	6.11	8.31	2.15	-56.99	-13.00	43.99	H
4290.02	-59.12	6.20	9.19	2.15	-58.28	-13.00	45.28	H
5003.01	-57.47	6.60	9.90	2.15	-56.32	-13.00	43.32	V

LTE Band 13, 5MHz, QPSK, Channel 23205

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak Power (dBm)	Limit (dBm)	Margin (dB)	Polarization
1559.88	-67.52	3.47	5.39	0.00	-67.75	-40.00	27.75	H
2335.53	-49.28	4.44	5.61	2.15	-50.26	-13.00	37.26	H
3117.52	-58.36	5.38	7.28	2.15	-58.61	-13.00	45.61	V
3897.52	-59.02	6.11	8.76	2.15	-58.52	-13.00	45.52	H
4673.02	-58.45	6.48	9.57	2.15	-57.51	-13.00	44.51	H
5452.01	-57.92	6.88	10.53	2.15	-56.42	-13.00	43.42	H

LTE Band 13, 5MHz, QPSK, Channel 23230

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak Power (dBm)	Limit (dBm)	Margin (dB)	Polarization
1564.46	-67.04	3.48	5.38	0.00	-67.29	-40.00	27.29	H
2344.62	-48.78	4.45	5.63	2.15	-49.75	-13.00	36.75	H
3123.52	-59.25	5.40	7.30	2.15	-59.50	-13.00	46.50	H
3914.02	-58.55	6.12	8.78	2.15	-58.04	-13.00	45.04	H
4693.02	-58.00	6.50	9.59	2.15	-57.06	-13.00	44.06	V
5473.01	-57.79	6.96	10.56	2.15	-56.34	-13.00	43.34	H

LTE Band 13, 5MHz, QPSK, Channel 23255

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak Power (dBm)	Limit (dBm)	Margin (dB)	Polarization
1569.33	-66.25	3.48	5.38	0.00	-66.50	-40.00	26.50	H
2358.30	-48.61	4.47	5.67	2.15	-49.56	-13.00	36.56	H
3139.52	-58.76	5.38	7.33	2.15	-58.96	-13.00	45.96	H
3914.52	-58.47	6.12	8.78	2.15	-57.96	-13.00	44.96	H
4708.02	-57.94	6.51	9.61	2.15	-56.99	-13.00	43.99	H
5500.01	-56.69	7.06	10.60	2.15	-55.30	-13.00	42.30	H

Note: For LTE Band 13, the Peak Power of the frequency points with 0dB correction are EIRP, the others are ERP.

LTE Band 41, 5MHz, QPSK, Channel 39675

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4997.02	-56.94	6.61	9.90	-53.65	-25.00	28.65	H
7500.01	-55.06	8.39	12.20	-51.25	-25.00	26.25	H
9995.01	-51.23	9.18	12.90	-47.51	-25.00	22.51	H
12490.01	-50.61	10.20	13.20	-47.61	-25.00	22.61	H
14992.00	-44.14	11.21	14.01	-41.34	-25.00	16.34	H
17487.00	-38.30	12.69	14.87	-36.12	-25.00	11.12	V

LTE Band 41, 5MHz, QPSK, Channel 40620

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5188.02	-56.08	6.94	10.16	-52.86	-25.00	27.86	H
7797.01	-53.96	8.29	12.44	-49.81	-25.00	24.81	H
10346.01	-52.31	9.72	13.04	-48.99	-25.00	23.99	V
12961.01	-48.35	10.48	13.48	-45.35	-25.00	20.35	V
15532.00	-42.24	11.52	13.70	-40.06	-25.00	15.06	V
16852.00	-40.03	12.05	13.74	-38.34	-25.00	13.34	V

LTE Band 41, 5MHz, QPSK, Channel 41565

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5375.02	-56.55	6.88	10.43	-53.00	-25.00	28.00	H
8067.01	-55.10	8.32	12.65	-50.77	-25.00	25.77	H
10761.01	-51.57	9.45	13.15	-47.87	-25.00	22.87	H
13439.01	-44.86	10.60	14.11	-41.35	-25.00	16.35	V
16133.00	-42.60	11.81	13.67	-40.74	-25.00	15.74	V
17458.00	-37.05	12.63	14.81	-34.87	-25.00	9.87	V

LTE Band 66, 1.4MHz QPSK, Channel 131979

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3422.02	-70.05	5.38	8.01	-67.42	-13.00	54.42	H
5132.02	-66.81	6.85	10.08	-63.58	-13.00	50.58	V
6843.01	-65.34	7.83	11.41	-61.76	-13.00	48.76	H
8554.01	-63.82	8.58	13.01	-59.39	-13.00	46.39	H
10266.01	-62.54	9.53	13.01	-59.06	-13.00	46.06	V
12001.01	-60.25	10.05	13.00	-57.30	-13.00	44.30	H

LTE Band 66, 1.4MHz, QPSK, Channel 132322

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.02	-68.80	5.50	8.18	-66.12	-13.00	53.12	V
5235.02	-64.05	7.00	10.23	-60.82	-13.00	47.82	V
6981.01	-64.05	8.15	11.58	-60.62	-13.00	47.62	H
8726.01	-64.68	8.44	13.05	-60.07	-13.00	47.07	H
10475.01	-62.84	9.69	13.09	-59.44	-13.00	46.44	V
12216.01	-60.26	10.05	13.09	-57.22	-13.00	44.22	H

LTE Band 66, 1.4MHz, QPSK, Channel 132665

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3559.02	-66.13	5.92	8.28	-63.77	-13.00	50.77	H
5339.02	-68.15	6.96	10.37	-64.74	-13.00	51.74	H
7118.01	-62.28	8.16	11.74	-58.70	-13.00	45.70	H
8899.01	-63.86	8.84	13.08	-59.62	-13.00	46.62	V
10653.01	-61.86	9.29	13.13	-58.02	-13.00	45.02	H
12456.01	-59.98	10.29	13.18	-57.09	-13.00	44.09	H

LTE Band 71, 5MHz, QPSK, Channel 133147

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1306.01	-54.06	3.12	4.49	2.15	-54.84	-13.00	41.84	H
2007.00	-50.18	4.07	4.62	2.15	-51.78	-13.00	38.78	H
2671.00	-45.13	4.76	6.41	2.15	-45.63	-13.00	32.63	H
3357.02	-60.40	5.32	7.86	2.15	-60.01	-13.00	47.01	H
4015.02	-58.46	6.06	8.92	2.15	-57.75	-13.00	44.75	H
4651.02	-57.73	6.47	9.55	2.15	-56.80	-13.00	43.80	H

LTE Band 71, 5MHz, QPSK, Channel 133297

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1375.01	-55.45	3.21	4.85	2.15	-55.96	-13.00	42.96	H
2039.00	-50.77	4.14	4.72	2.15	-52.34	-13.00	39.34	H
2714.00	-44.61	4.80	6.49	2.15	-45.07	-13.00	32.07	H
3395.02	-60.36	5.36	7.95	2.15	-59.92	-13.00	46.92	H
4093.02	-56.58	6.04	8.99	2.15	-55.78	-13.00	42.78	H
4752.01	-58.29	6.58	9.65	2.15	-57.37	-13.00	44.37	H

LTE Band 71, 5MHz, QPSK, Channel 133447

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1391.01	-55.16	3.22	4.93	2.15	-55.60	-13.00	42.60	H
2097.00	-50.05	4.19	4.89	2.15	-51.50	-13.00	38.50	V
2804.00	-45.86	4.92	6.65	2.15	-46.28	-13.00	33.28	V
3496.02	-58.31	5.51	8.19	2.15	-57.78	-13.00	44.78	H
4196.02	-57.16	6.20	9.10	2.15	-56.41	-13.00	43.41	H
4866.01	-57.61	6.72	9.77	2.15	-56.71	-13.00	43.71	H

LTE CA Band 5B, QPSK, Channel 20450+20549

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Correction	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polorization
1658.01	-53.87	3.57	5.22	2.15	-54.37	-13.00	41.37	H
2521.00	-47.13	4.65	6.14	2.15	-47.79	-13.00	34.79	H
3346.02	-60.60	5.31	7.83	2.15	-60.23	-13.00	47.23	H
4188.02	-57.97	6.18	9.09	2.15	-57.21	-13.00	44.21	H
5031.01	-57.02	6.58	9.94	2.15	-55.81	-13.00	42.81	H
5854.01	-57.36	7.25	10.53	2.15	-56.23	-13.00	43.23	V

LTE CA Band 5B, QPSK, Channel 20476+20575

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Correction	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polorization
1650.01	-54.99	3.57	5.23	2.15	-55.48	-13.00	42.48	H
2501.00	-47.08	4.63	6.10	2.15	-47.76	-13.00	34.76	H
3327.02	-60.64	5.30	7.78	2.15	-60.31	-13.00	47.31	V
4135.02	-58.19	6.06	9.04	2.15	-57.36	-13.00	44.36	H
4984.01	-57.82	6.63	9.88	2.15	-56.72	-13.00	43.72	H
5806.01	-57.46	7.18	10.54	2.15	-56.25	-13.00	43.25	H

LTE CA Band 5B, QPSK, Channel 20501+20600

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Correction	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polorization
1669.01	-51.04	3.58	5.20	2.15	-51.57	-13.00	38.57	H
2519.00	-46.19	4.64	6.13	2.15	-46.85	-13.00	33.85	H
3357.02	-60.27	5.32	7.86	2.15	-59.88	-13.00	46.88	H
4175.02	-58.15	6.15	9.08	2.15	-57.37	-13.00	44.37	H
5006.01	-57.35	6.59	9.91	2.15	-56.18	-13.00	43.18	V
5852.01	-56.99	7.24	10.53	2.15	-55.85	-13.00	42.85	H

LTE CA Band 66B, QPSK, Channel 132022+132021

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3430.02	-68.65	5.39	8.03	-66.01	-13.00	53.01	H
5148.02	-66.98	6.88	10.11	-63.75	-13.00	50.75	V
6861.01	-65.22	7.81	11.43	-61.60	-13.00	48.60	H
8576.01	-63.77	8.54	13.02	-59.29	-13.00	46.29	H
10312.01	-63.17	9.66	13.02	-59.81	-13.00	46.81	V
12002.01	-60.25	10.06	13.00	-57.31	-13.00	44.31	H

LTE CA Band 66B, QPSK, Channel 132373+132472

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3501.02	-68.05	5.52	8.20	-65.37	-13.00	52.37	H
5250.02	-65.61	7.00	10.25	-62.36	-13.00	49.36	V
7001.01	-64.31	8.30	11.60	-61.01	-13.00	48.01	H
8751.01	-64.50	8.51	13.05	-59.96	-13.00	46.96	V
10502.01	-62.76	9.64	13.10	-59.30	-13.00	46.30	V
12267.01	-60.06	10.02	13.11	-56.97	-13.00	43.97	H

LTE CA Band 66B, QPSK, Channel 132523+132622

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3531.02	-65.81	5.63	8.24	-63.20	-13.00	50.20	H
5297.02	-65.01	6.99	10.32	-61.68	-13.00	48.68	V
7061.01	-63.77	8.21	11.67	-60.31	-13.00	47.31	H
8828.01	-62.97	8.71	13.07	-58.61	-13.00	45.61	V
10636.01	-62.05	9.29	13.13	-58.21	-13.00	45.21	H
12364.01	-59.54	10.28	13.15	-56.67	-13.00	43.67	H

LTE CA Band 66C, QPSK, Channel 132072+132189

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polorization
3458.02	-67.67	5.44	8.10	-65.01	-13.00	52.01	V
5187.02	-67.40	6.94	10.16	-64.18	-13.00	51.18	V
6987.01	-65.14	8.20	11.58	-61.76	-13.00	48.76	H
8757.01	-65.19	8.53	13.05	-60.67	-13.00	47.67	H
10519.01	-63.35	9.58	13.10	-59.83	-13.00	46.83	H
12254.01	-60.55	10.02	13.10	-57.47	-13.00	44.47	H

LTE CA Band 66C, QPSK, Channel 132297+132514

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polorization
3523.02	-65.64	5.56	8.23	-62.97	-13.00	49.97	V
5286.02	-66.28	6.99	10.30	-62.97	-13.00	49.97	V
7005.01	-65.16	8.29	11.61	-61.84	-13.00	48.84	H
8716.01	-65.14	8.41	13.04	-60.51	-13.00	47.51	H
10521.01	-63.33	9.57	13.10	-59.80	-13.00	46.80	H
12269.01	-60.47	10.01	13.11	-57.37	-13.00	44.37	H

LTE CA Band 66C, QPSK, Channel 132522+132639

Frequency (MHz)	SG (dBm)	CableLoss (dB)	AntennaGain (dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polorization
3548.02	-65.87	5.80	8.27	-63.40	-13.00	50.40	H
5324.02	-66.22	6.99	10.35	-62.86	-13.00	49.86	V
7096.01	-64.54	8.16	11.72	-60.98	-13.00	47.98	H
8872.01	-61.94	8.79	13.07	-57.66	-13.00	44.66	V
10650.01	-61.75	9.29	13.13	-57.91	-13.00	44.91	H
12422.01	-59.38	10.38	13.17	-56.59	-13.00	43.59	H

Note: The maximum value of expanded measurement uncertainty for this test item is U = 5.16 dB, k = 2.

A.3 Frequency Stability

A.3.1 Method of Measurement

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

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

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

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

A.3.2 Measurement results

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1850.833	1909.199		
50				-1.27	0.0007
40				0.46	0.0002
30				2.95	0.0016
10				-1.53	0.0008
0				-2.39	0.0013
-10				-3.72	0.0020
-20				-1.13	0.0006
-30				0.43	0.0002

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1850.833	1909.199	0.36	0.0002
4.4				-1.85	0.0010

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	824.417	848.583		
50				-0.67	0.0008
40				3.63	0.0043
30				-0.27	0.0003
10				3.40	0.0041
0				-1.24	0.0015
-10				0.47	0.0006
-20				1.32	0.0016
-30				-3.03	0.0036

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	824.417	848.583	3.60	0.0043
4.4				-1.34	0.0016

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	699.465	715.519		
50				-4.35	0.0061
40				-0.80	0.0011
30				1.95	0.0028
10				-3.52	0.0050
0				-0.87	0.0012
-10				-4.36	0.0062
-20				-1.32	0.0019
-30				-4.22	0.0060

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	699.465	715.519	-2.42	0.0034
4.4				-2.29	0.0032

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	777.465	786.535		
50				0.26	0.0003
40				2.27	0.0029
30				3.22	0.0041
10				-4.62	0.0059
0				-3.23	0.0041
-10				-2.50	0.0032
-20				3.33	0.0043
-30				-0.69	0.0009

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	777.465	786.535	0.21	0.0003
4.4				-0.14	0.0002

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	2496.417	2689.583		
50				2.26	0.0009
40				0.10	0.0000
30				2.79	0.0011
10				2.20	0.0008
0				1.07	0.0004
-10				3.32	0.0013
-20				0.04	0.0000
-30				0.99	0.0004

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2496.417	2689.583	2.39	0.0009
4.4				1.44	0.0006

LTE Band 66, 20MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1710.833	1779.231		
50				-4.08	0.0023
40				2.20	0.0013
30				1.12	0.0006
10				-0.99	0.0006
0				0.93	0.0005
-10				1.79	0.0010
-20				1.14	0.0007
-30				2.07	0.0012

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1710.833	1779.231	-1.59	0.0009
4.4				-0.72	0.0004

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	663.994	697.006		
50				-0.46	0.0007
40				1.09	0.0016
30				-1.02	0.0015
10				0.72	0.0011
0				-2.39	0.0035
-10				0.54	0.0008
-20				1.59	0.0023
-30				-1.23	0.0018

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	663.994	697.006	1.59	0.0023
4.4				2.13	0.0031

LTE CA Band 5B, 10MHz+10MHz bandwidth QPSK(worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	824.314	848.707		
50				-7.11	0.0085
40				-5.51	0.0066
30				-6.80	0.0081
10				-7.54	0.0090
0				-7.21	0.0086
-10				-9.04	0.0108
-20				-8.40	0.0100
-30				-8.54	0.0102

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	824.314	848.707	-9.47	0.0113
4.45				-7.97	0.0095

LTE CA Band 66B, 10MHz+10MHz bandwidth QPSK(worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	1710.307	1779.714		
50				-6.67	0.0038
40				-6.71	0.0038
30				-6.78	0.0039
10				-6.31	0.0036
0				-6.17	0.0035
-10				-6.92	0.0040
-20				-5.65	0.0032
-30				-6.24	0.0036

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	1710.307	1779.714	-6.82	0.0039
4.45				-7.11	0.0041

LTE CA Band 66C, 20MHz+20MHz bandwidth QPSK(worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	1710.507	1779.493		
50				-3.35	0.0019
40				-1.20	0.0007
30				-2.22	0.0013
10				-2.53	0.0015
0				-3.18	0.0018
-10				-3.12	0.0018
-20				-4.61	0.0026
-30				-5.25	0.0030

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	1710.507	1779.493	-5.01	0.0029
4.45				-4.18	0.0024

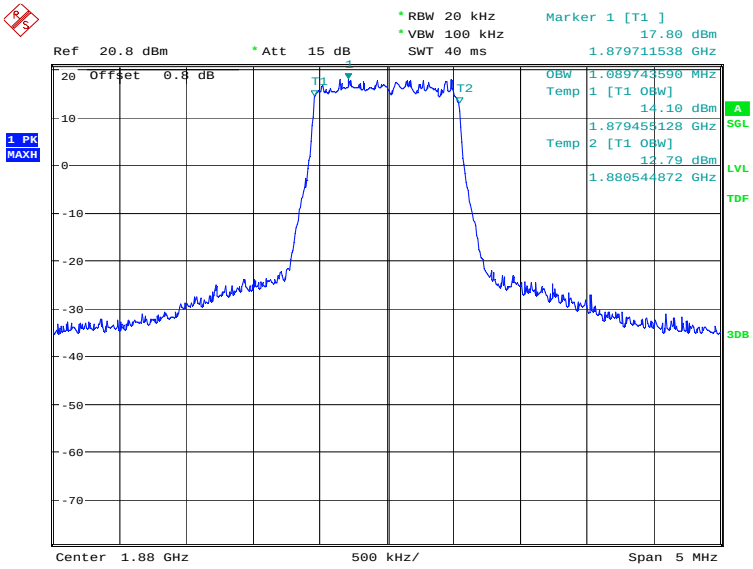
A.4 Occupied Bandwidth

Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the 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 ≥ 3 × RBW.
c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
d) Set the detection mode to peak, and the trace mode to max-hold.

LTE band 2, 1.4MHz (99%)

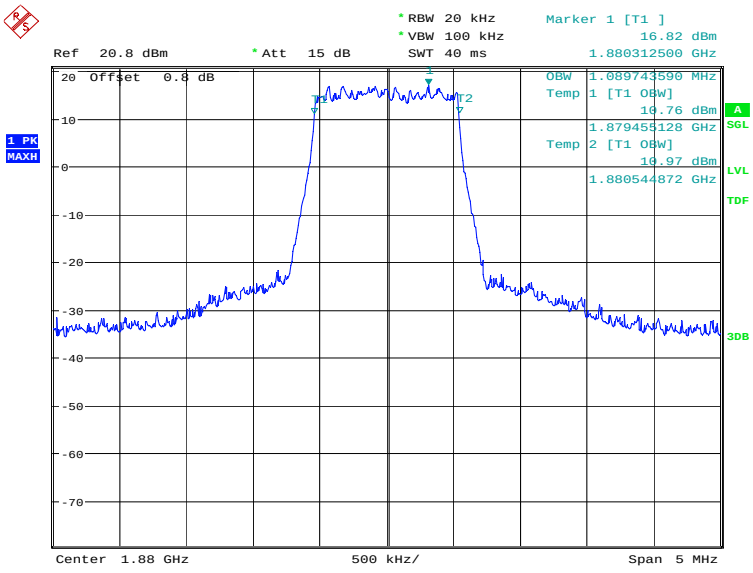
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	1089.74	1089.74

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



Date: 6.DEC.2021 08:17:36

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

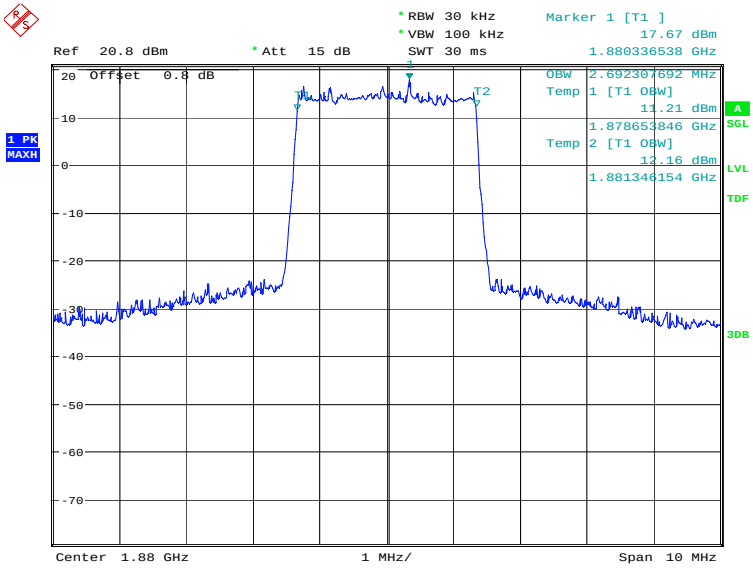


Date: 6.DEC.2021 08:18:15

LTE band 2, 3MHz (99%)

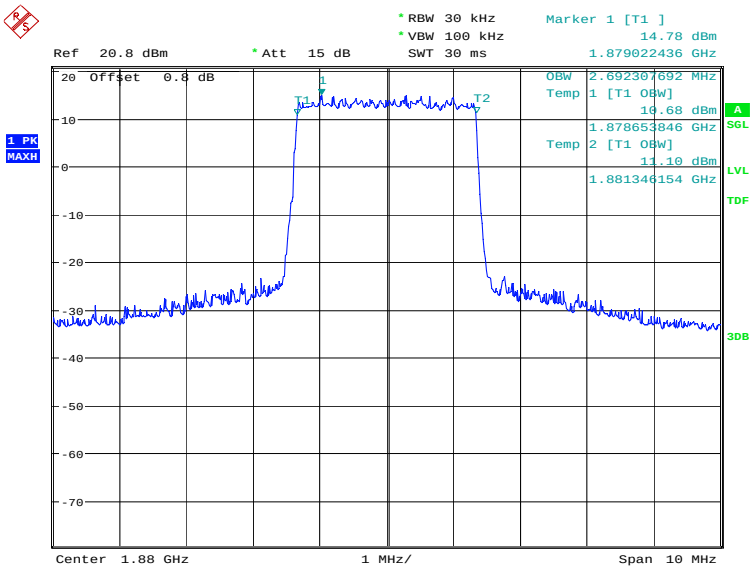
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	2692.31	2692.31

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



Date: 6.DEC.2021 08:18:55

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

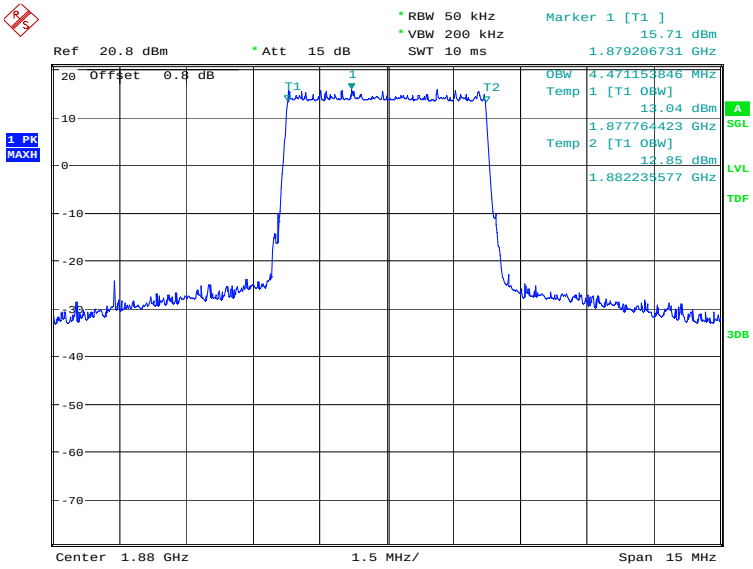


Date: 6.DEC.2021 08:19:34

LTE band 2, 5MHz (99%)

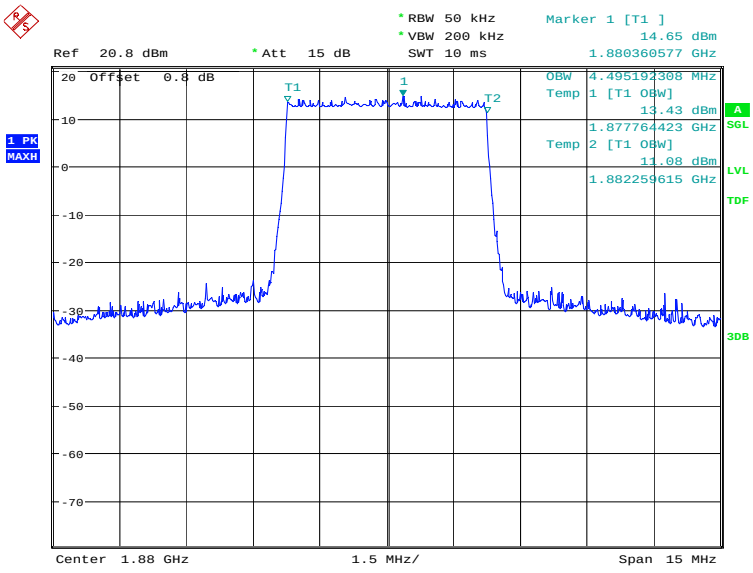
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	4471.15	4495.19

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



Date: 6.DEC.2021 08:20:14

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

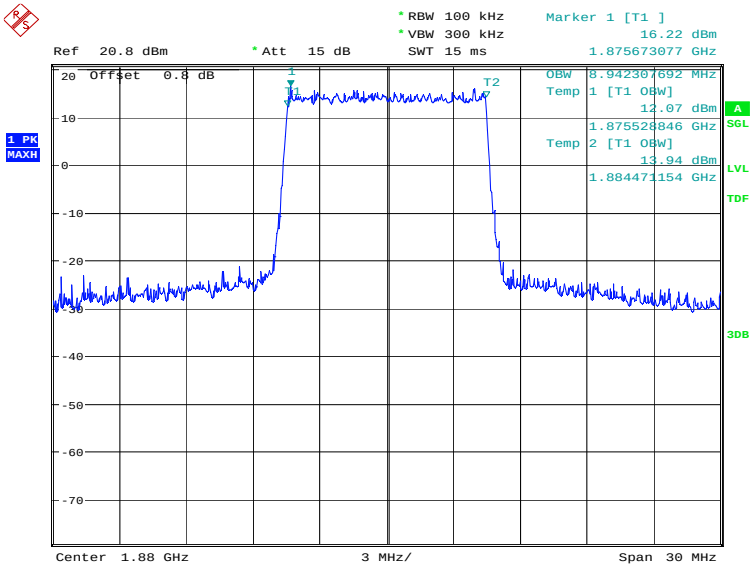


Date: 6.DEC.2021 08:20:52

LTE band 2, 10MHz (99%)

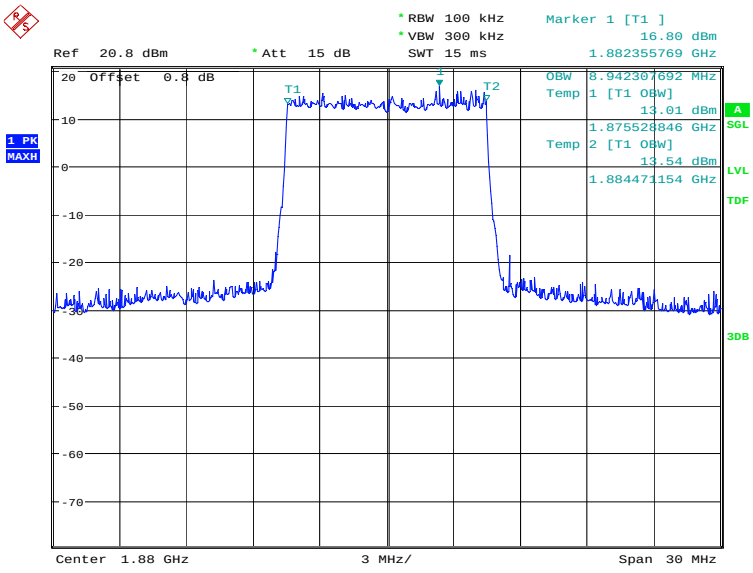
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 6.DEC.2021 08:21:32

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

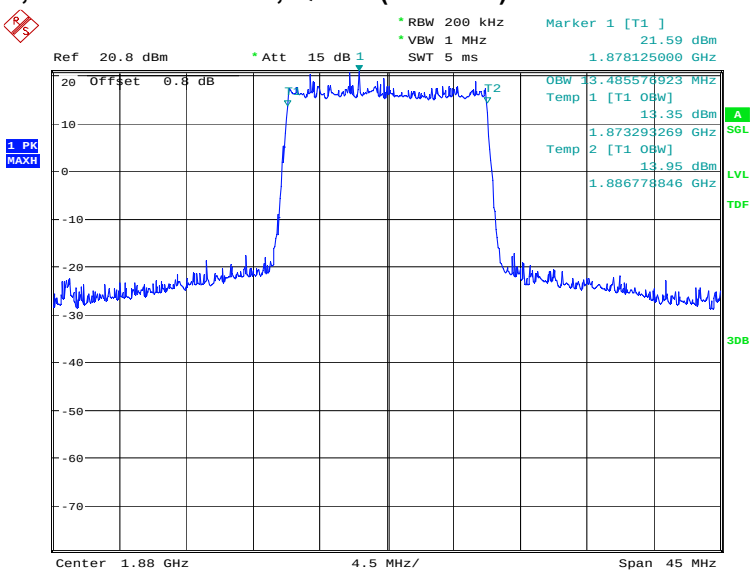


Date: 6.DEC.2021 08:22:11

LTE band 2, 15MHz (99%)

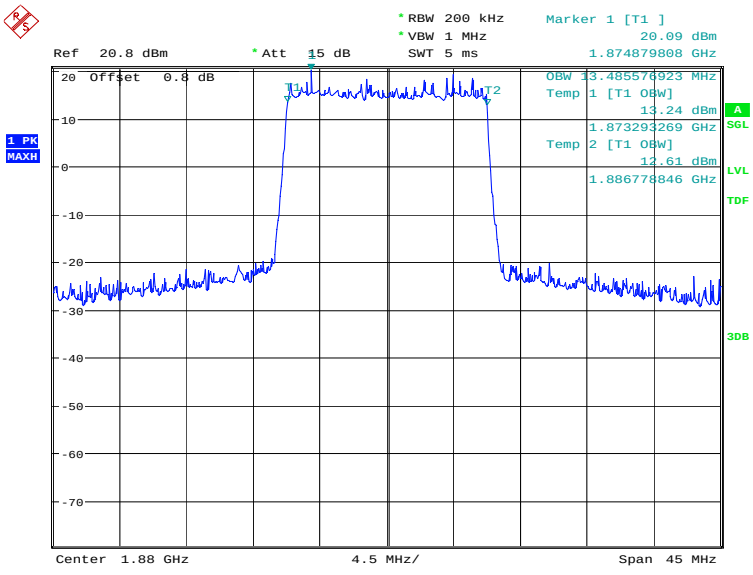
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	13485.58	13485.58

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



Date: 6.DEC.2021 08:22:51

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

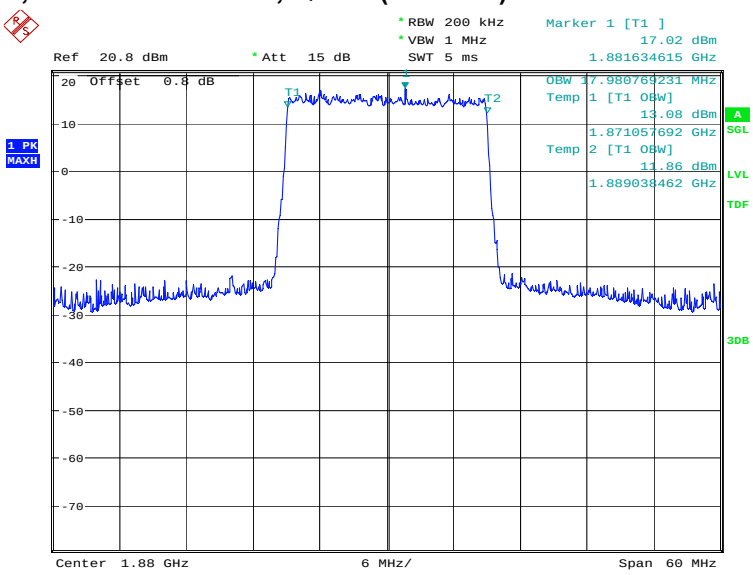


Date: 6.DEC.2021 08:23:30

LTE band 2, 20MHz (99%)

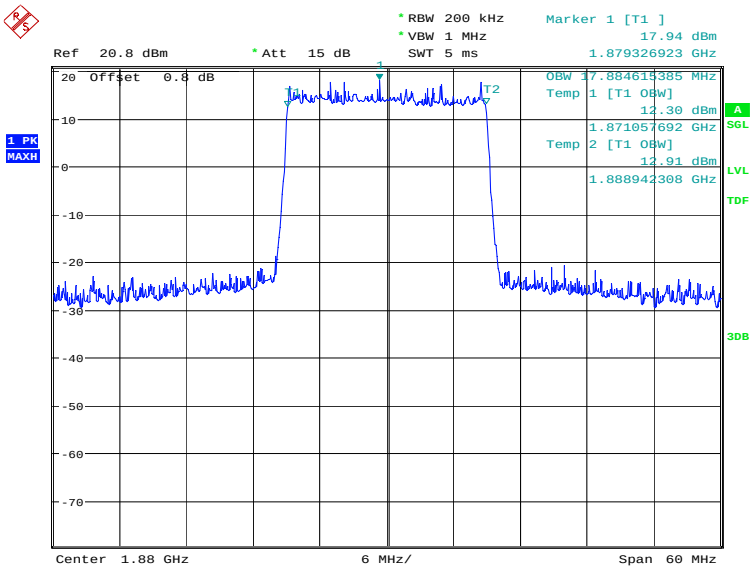
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	17980.77	17884.62

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



Date: 6.DEC.2021 08:24:10

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

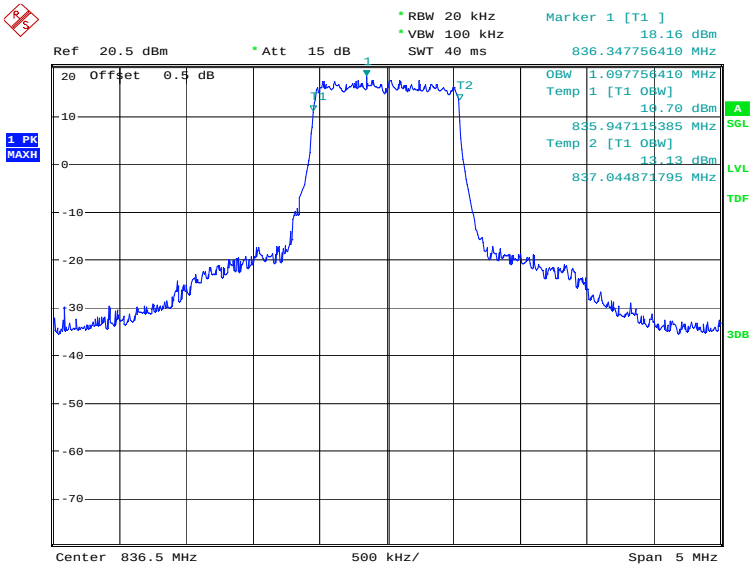


Date: 6.DEC.2021 08:24:48

LTE band 5, 1.4MHz (99%)

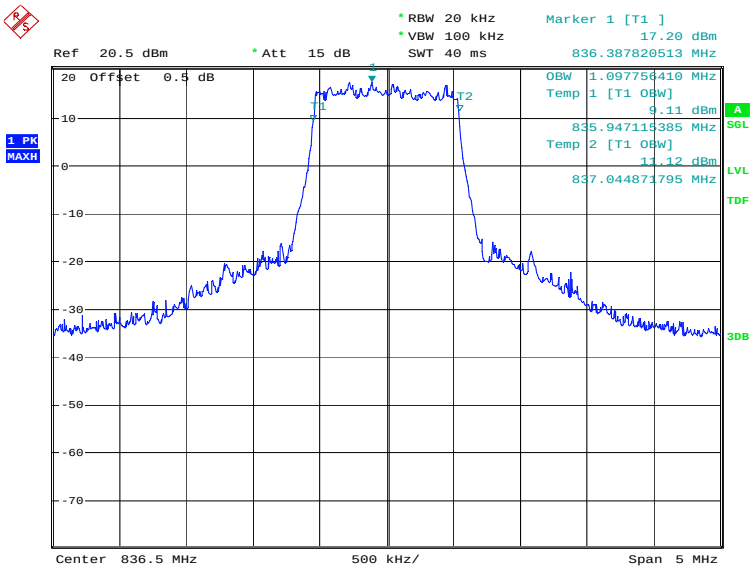
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	1097.76	1097.76

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



Date: 6.DEC.2021 08:25:30

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

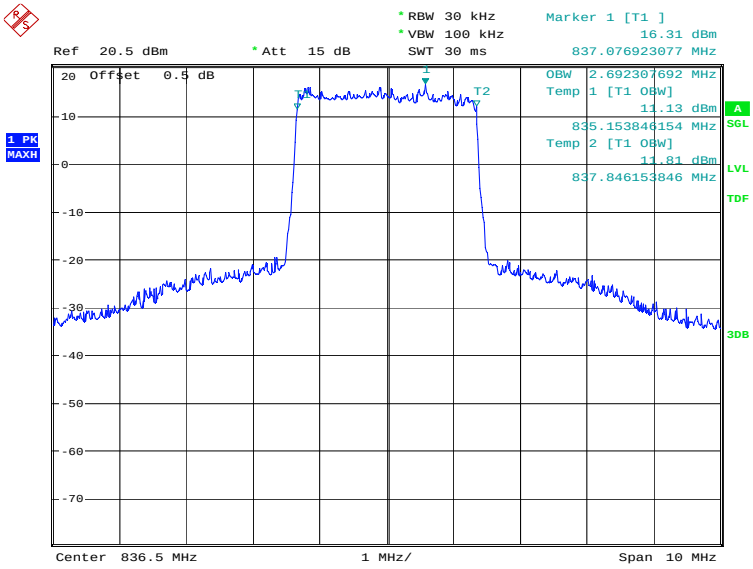


Date: 6.DEC.2021 08:26:09

LTE band 5, 3MHz (99%)

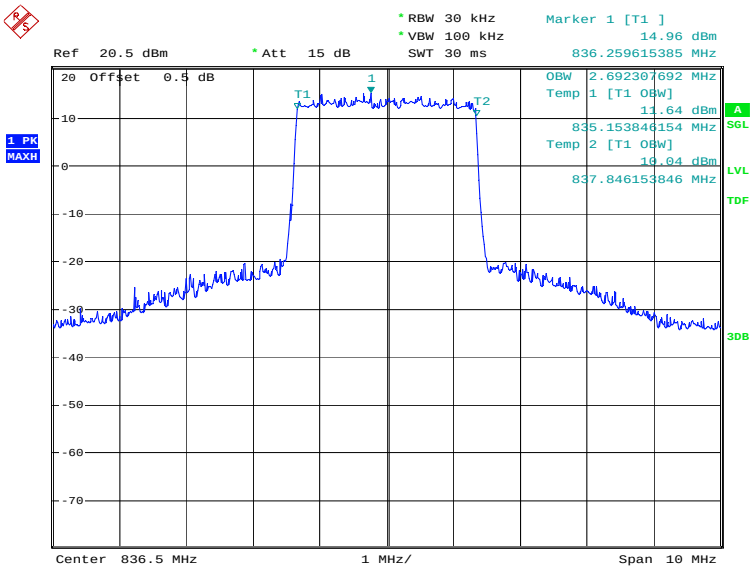
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	2692.31	2692.31

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



Date: 6.DEC.2021 08:26:49

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

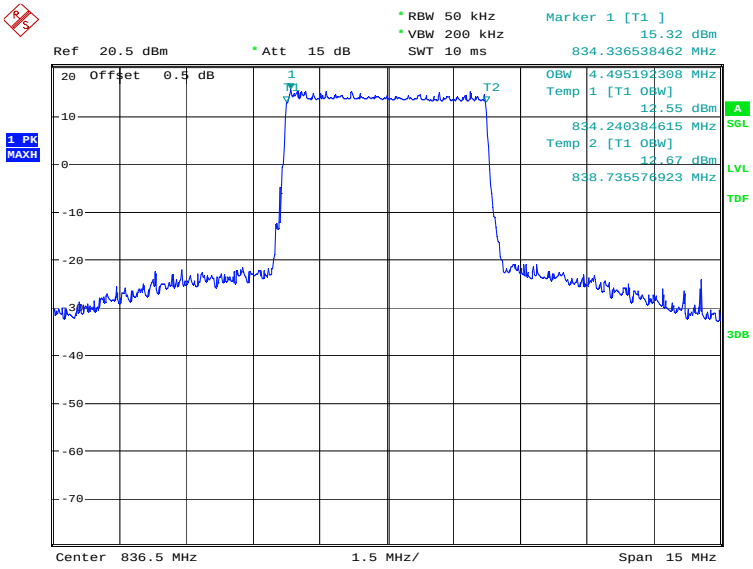


Date: 6.DEC.2021 08:27:28

LTE band 5, 5MHz (99%)

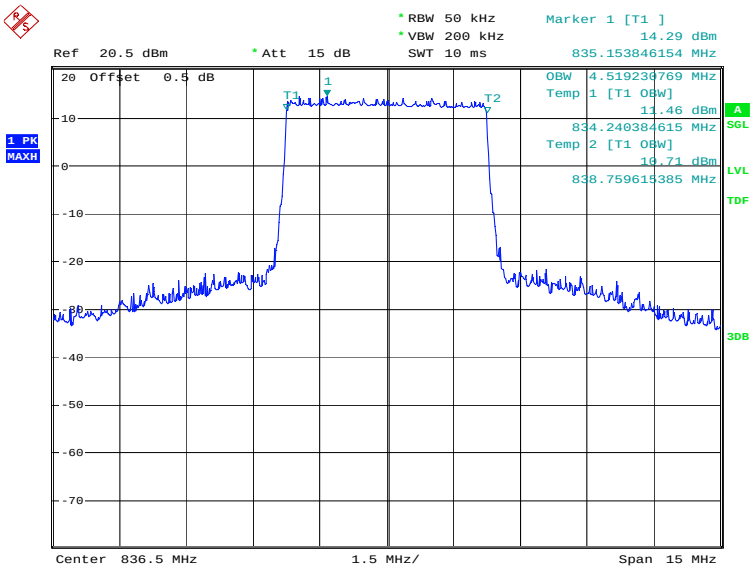
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	4495.19	4519.23

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



Date: 6.DEC.2021 08:28:08

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

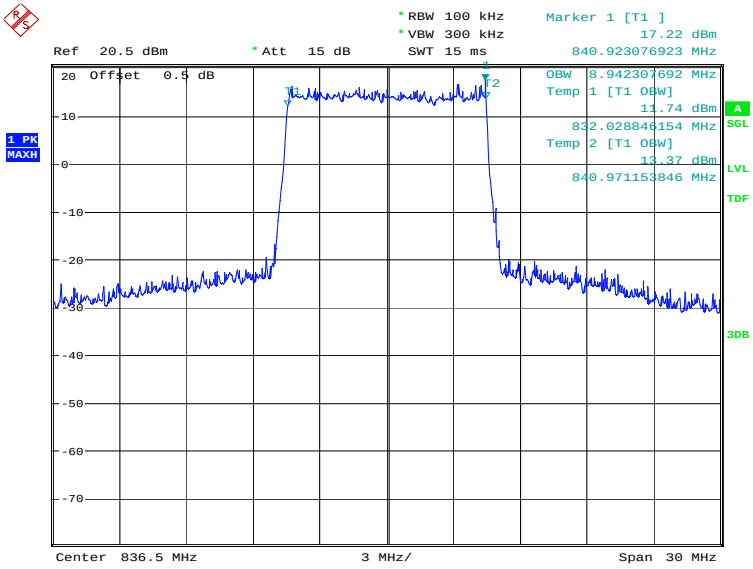


Date: 6.DEC.2021 08:28:47

LTE band 5, 10MHz (99%)

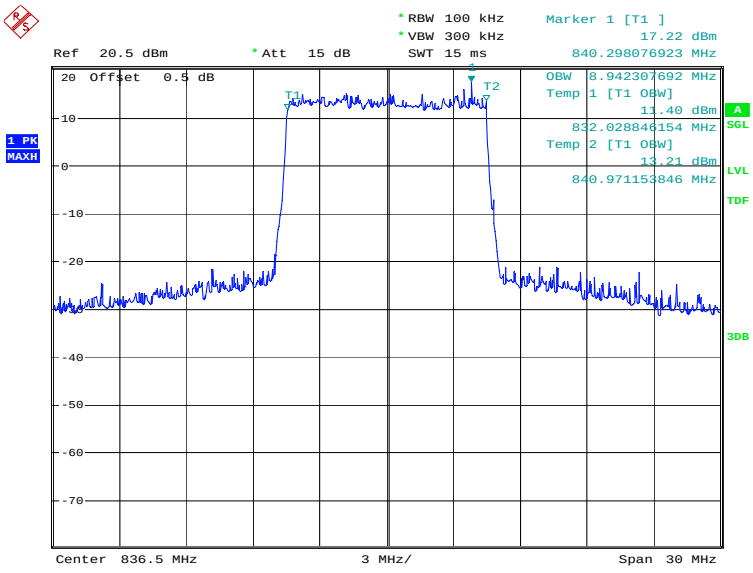
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	8942.31	8942.31

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



Date: 6.DEC.2021 08:29:27

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

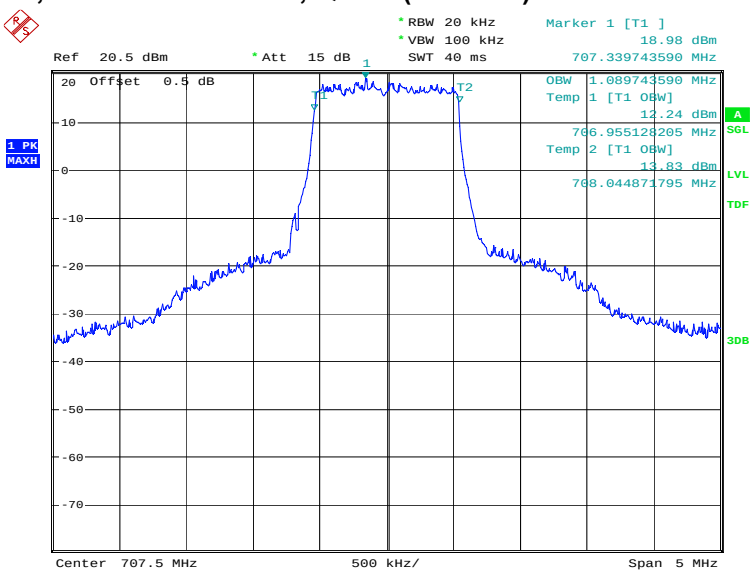


Date: 6.DEC.2021 08:30:06

LTE band 12, 1.4MHz (99%)

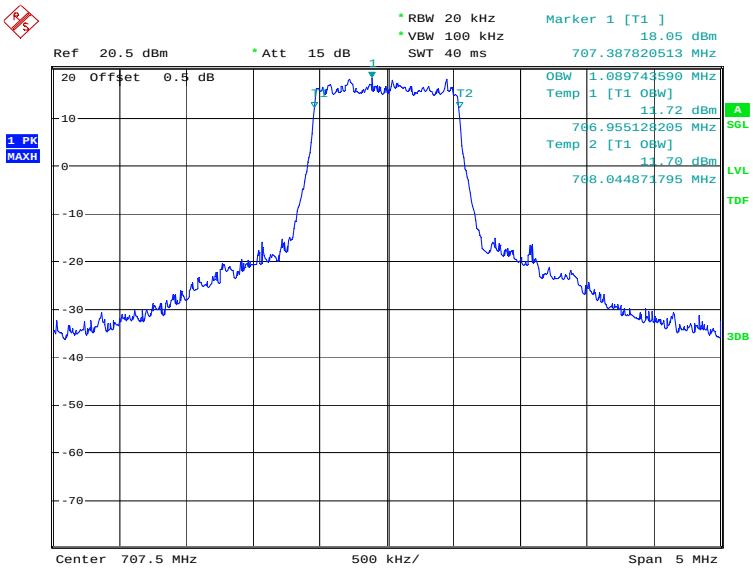
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	1089.74	1089.74

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



Date: 6.DEC.2021 08:30:47

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

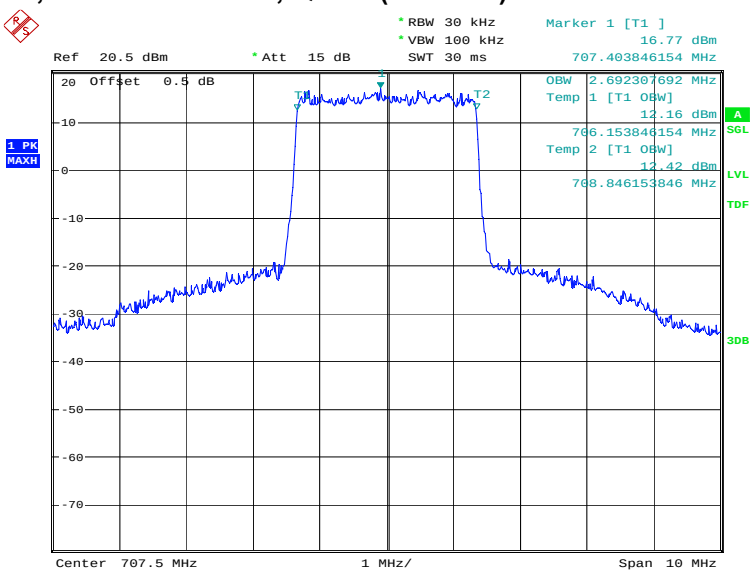


Date: 6.DEC.2021 08:31:26

LTE band 12, 3MHz (99%)

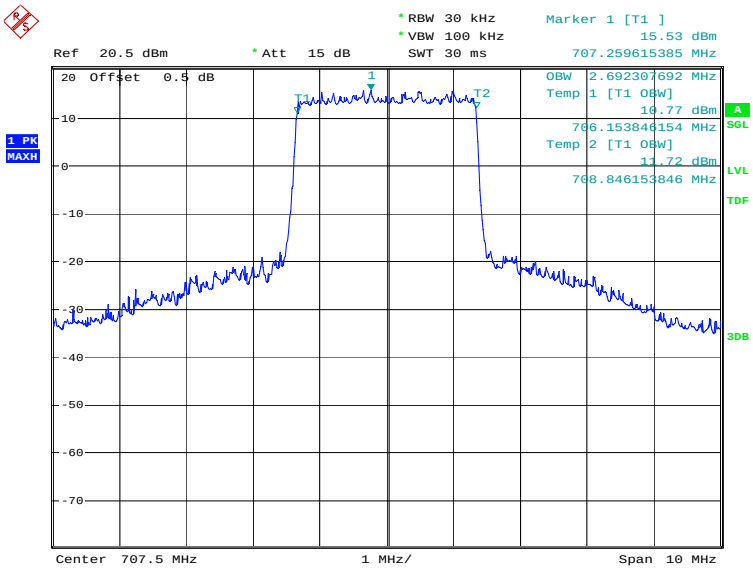
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	2692.31	2692.31

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



Date: 6.DEC.2021 08:32:06

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

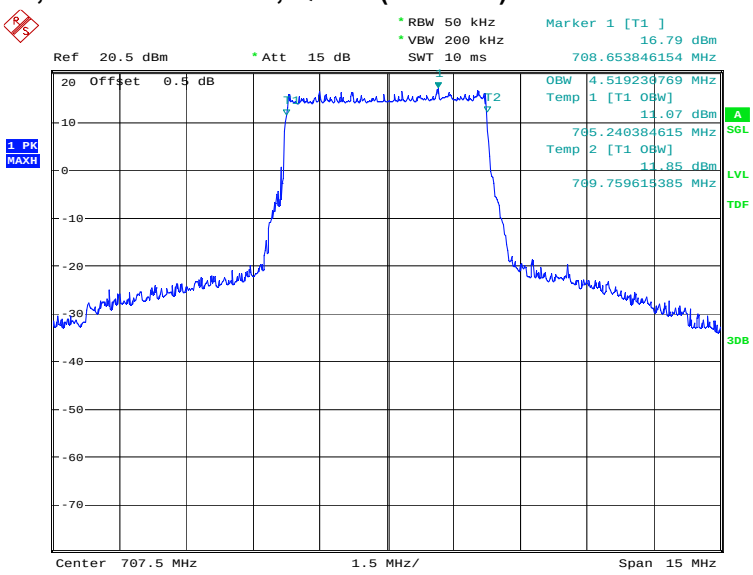


Date: 6.DEC.2021 08:32:45

LTE band 12, 5MHz (99%)

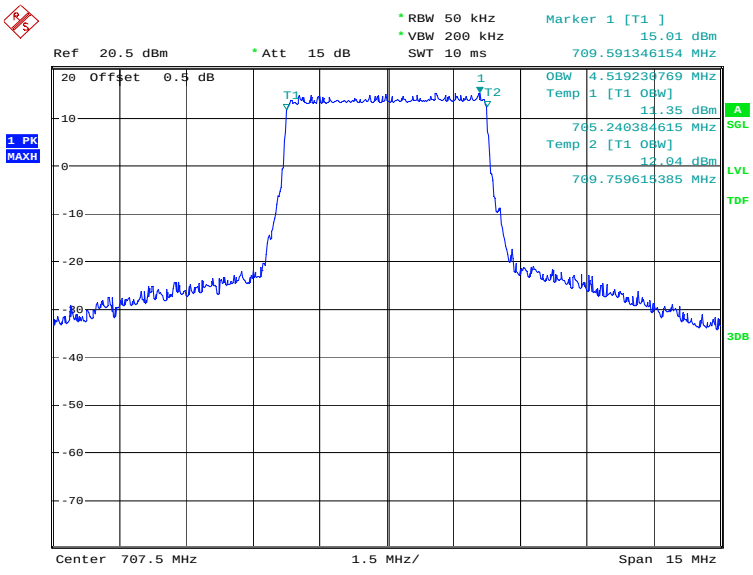
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	4519.23	4519.23

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



Date: 6.DEC.2021 08:33:25

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

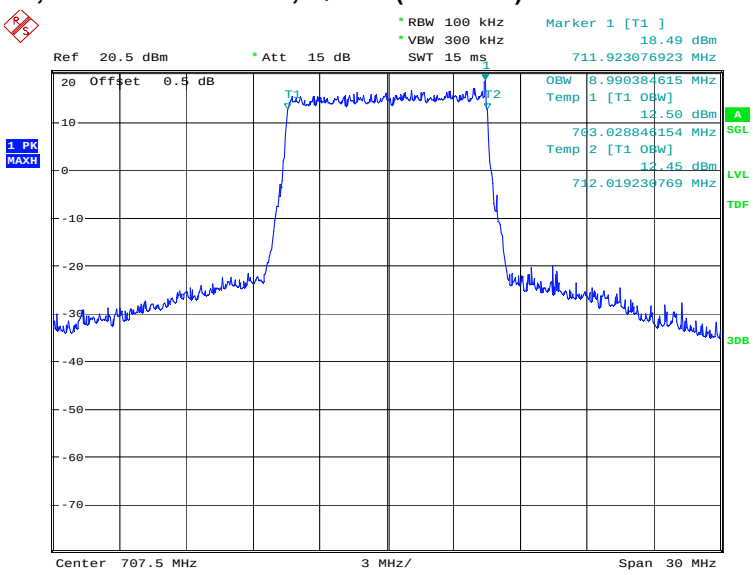


Date: 6.DEC.2021 08:34:04

LTE band 12, 10MHz (99%)

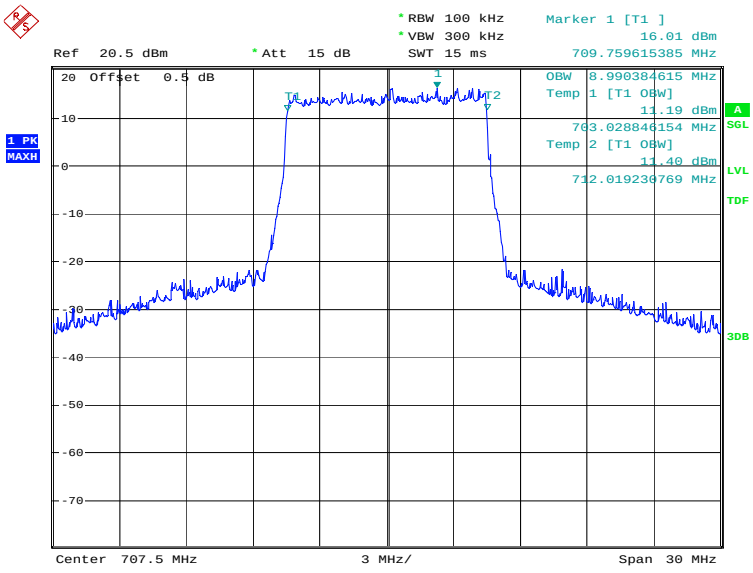
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	8990.38	8990.38

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



Date: 6.DEC.2021 08:34:44

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

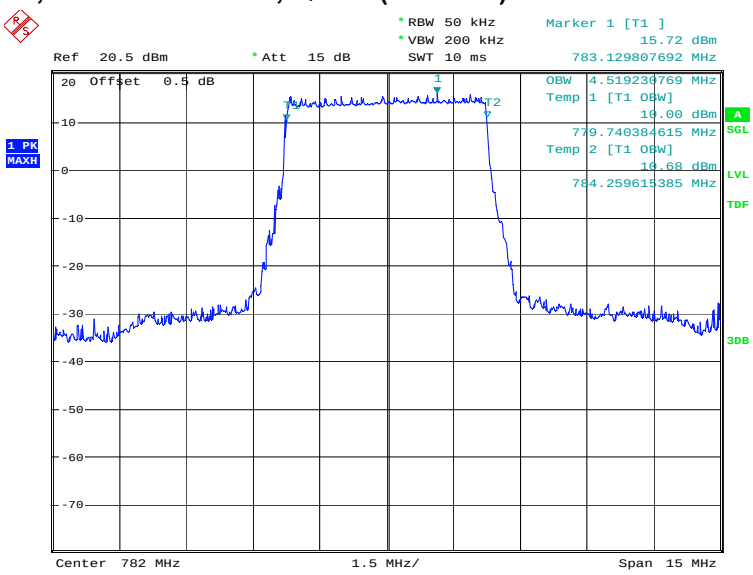


Date: 6.DEC.2021 08:35:22

LTE band 13, 5MHz (99%)

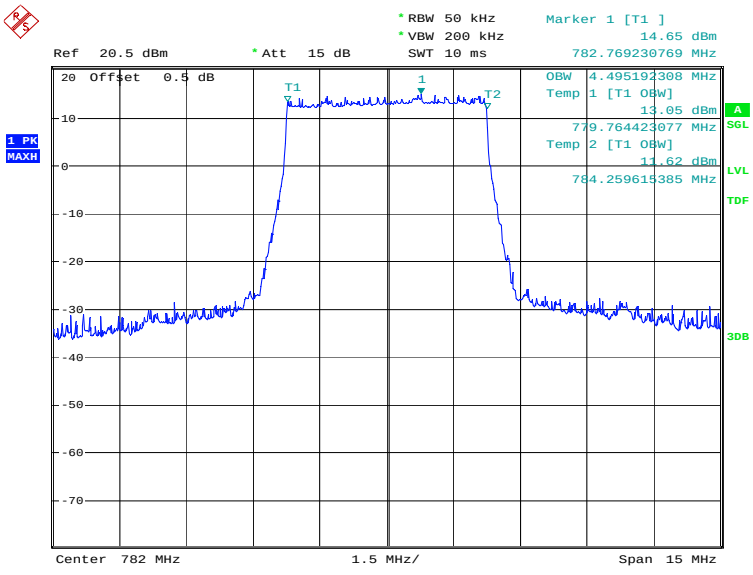
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
782.0	QPSK	16QAM
	4519.23	4495.19

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



Date: 6.DEC.2021 08:36:04

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

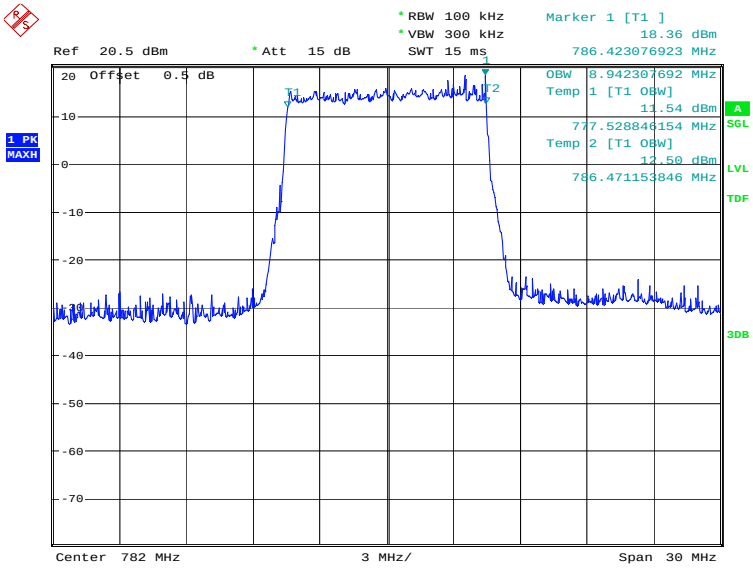


Date: 6.DEC.2021 08:36:42

LTE band 13, 10MHz (99%)

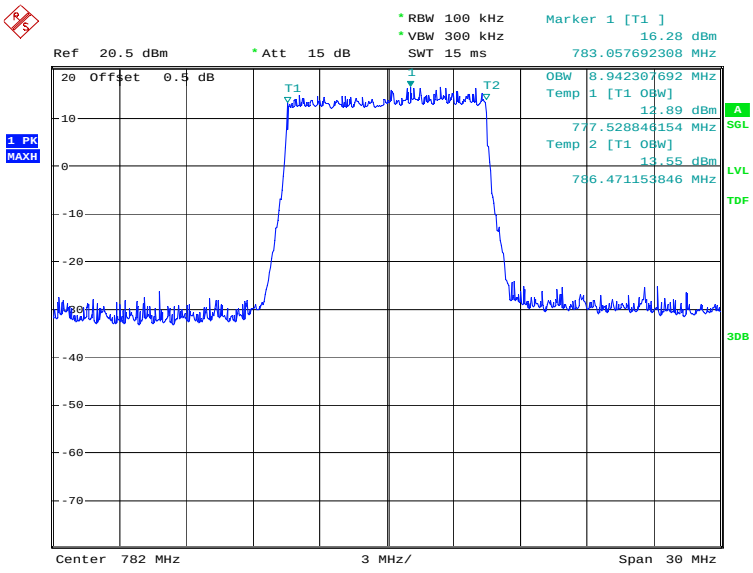
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
782.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 6.DEC.2021 08:37:22

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

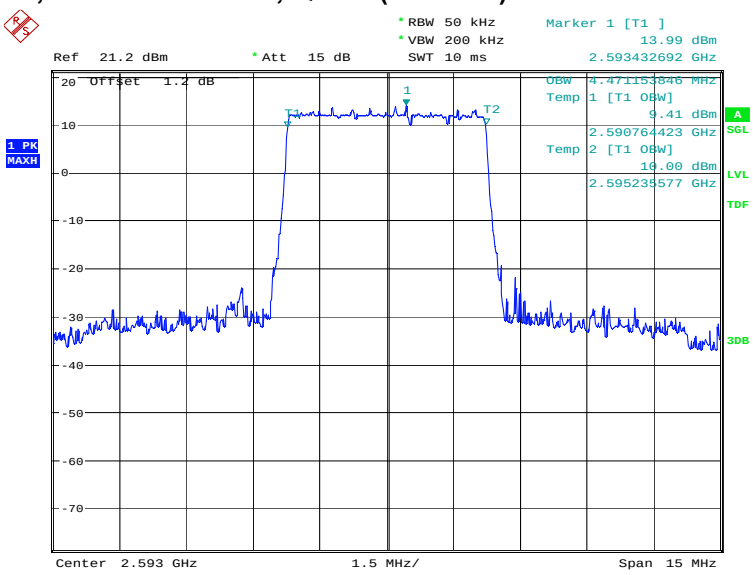


Date: 6.DEC.2021 08:38:01

LTE band 41, 5MHz (99%)

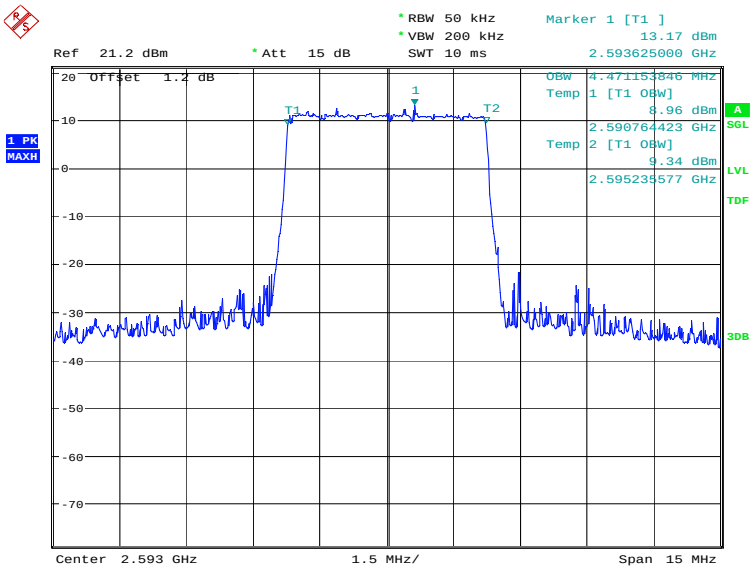
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	4471.15	4471.15

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



Date: 6.DEC.2021 08:47:22

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

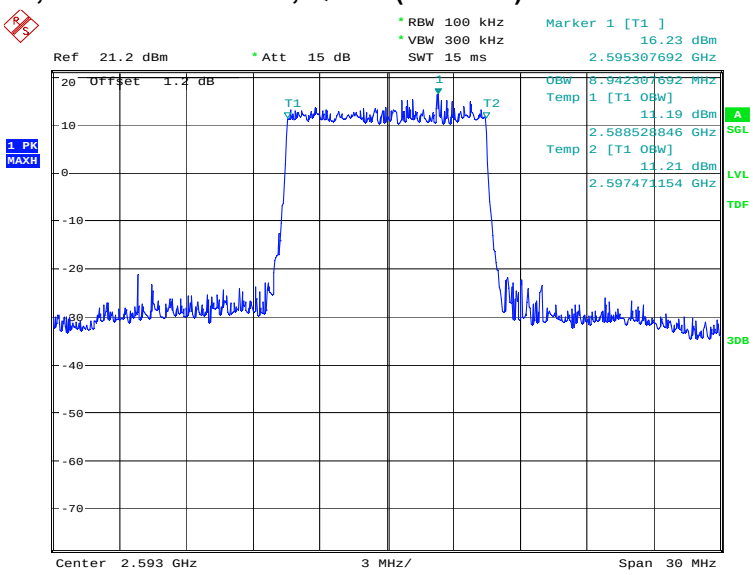


Date: 6.DEC.2021 08:48:01

LTE band 41, 10MHz (99%)

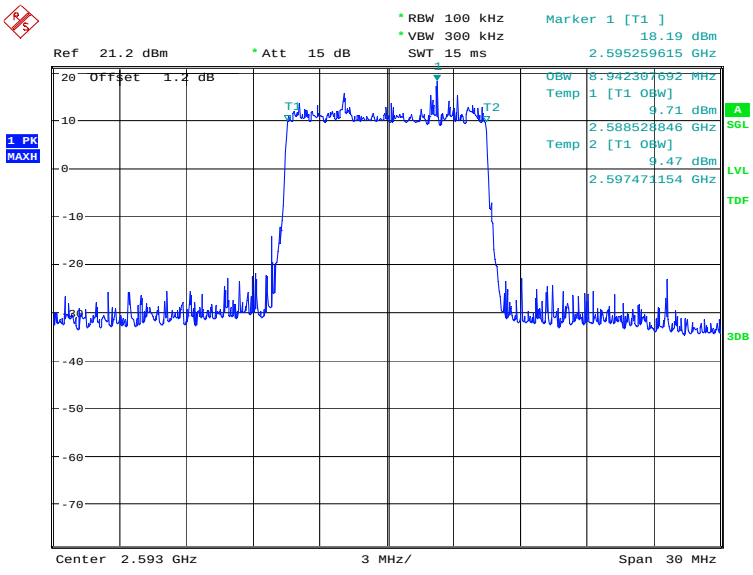
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 6.DEC.2021 08:48:41

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

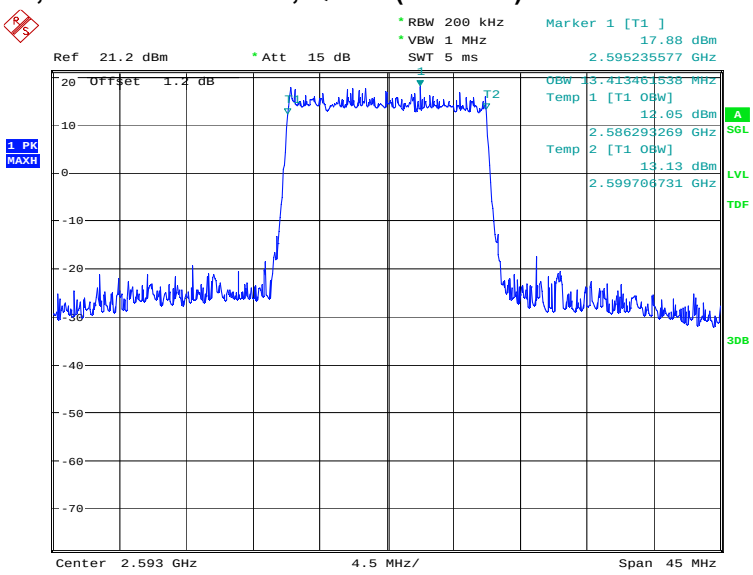


Date: 6.DEC.2021 08:49:20

LTE band 41, 15MHz (99%)

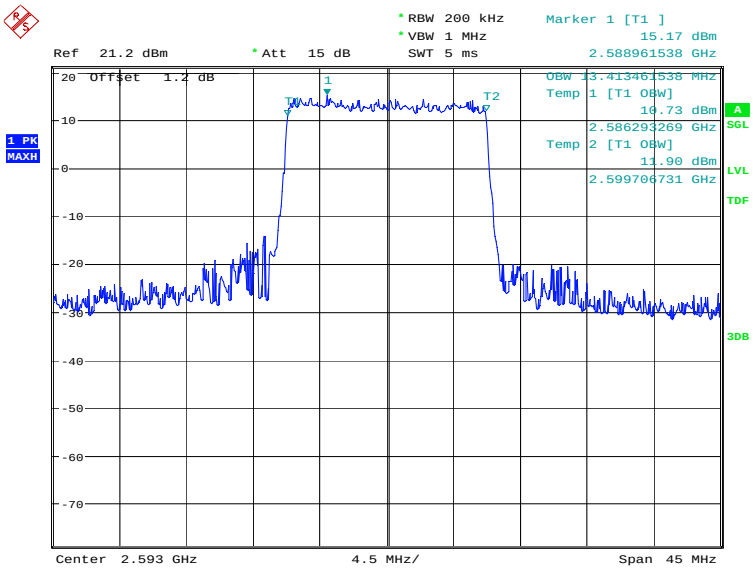
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	13413.46	13413.46

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



Date: 6.DEC.2021 08:50:01

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

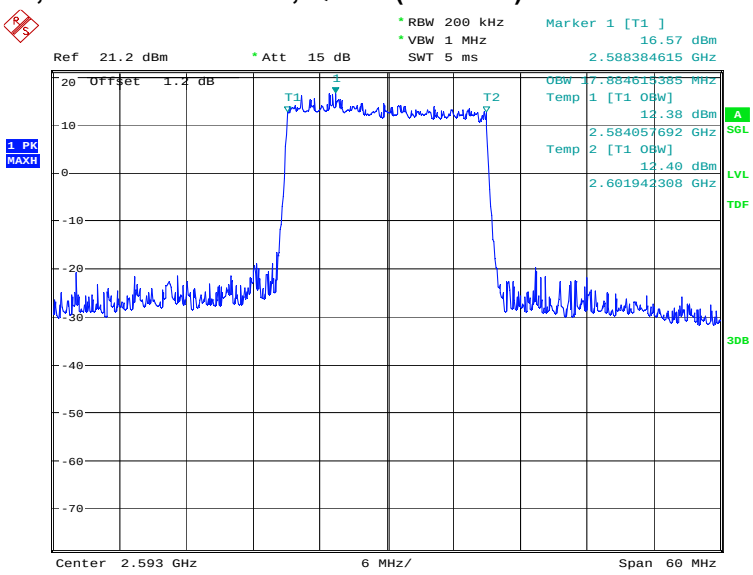


Date: 6.DEC.2021 08:50:39

LTE band 41, 20MHz (99%)

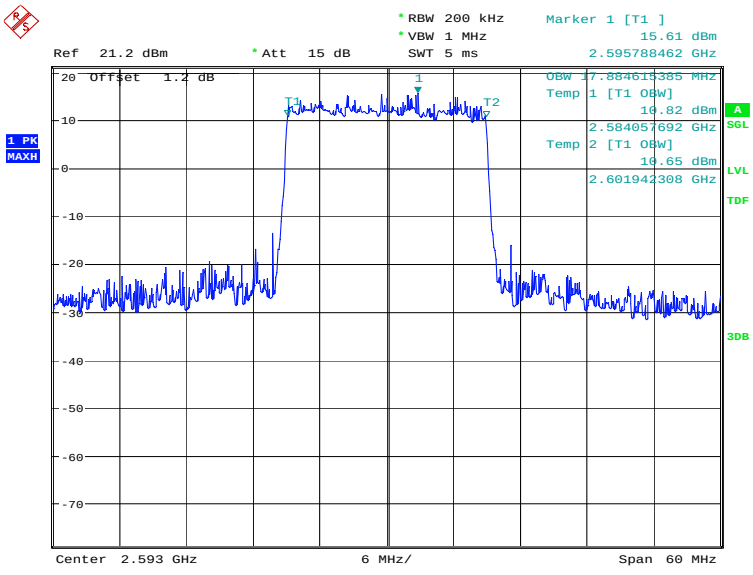
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	17884.62	17884.62

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



Date: 6.DEC.2021 08:51:20

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

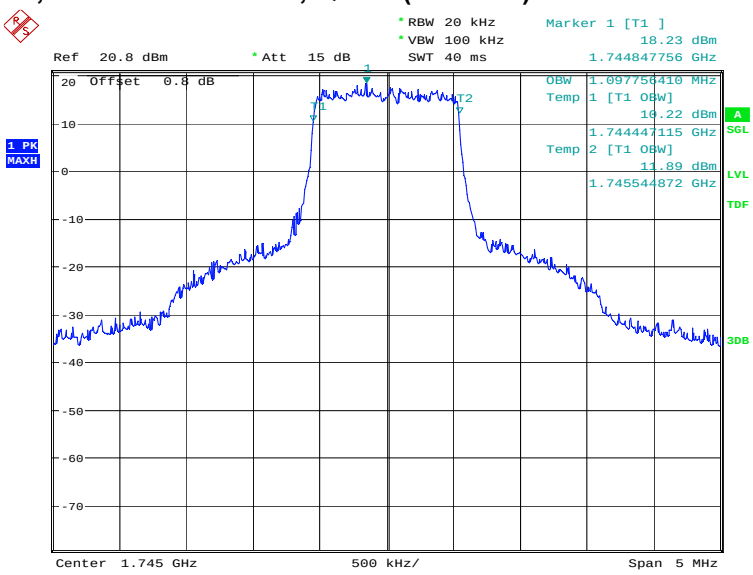


Date: 6.DEC.2021 08:51:59

LTE band 66, 1.4MHz (99%)

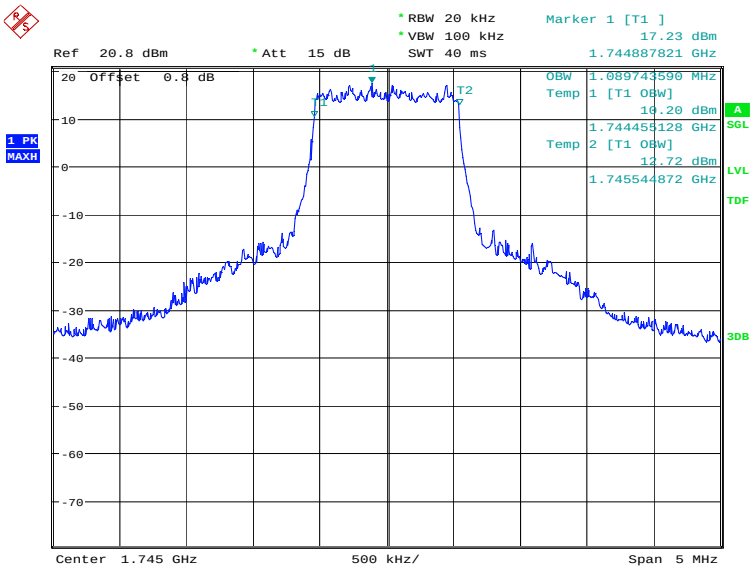
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	1097.76	1089.74

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



Date: 6.DEC.2021 08:38:42

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

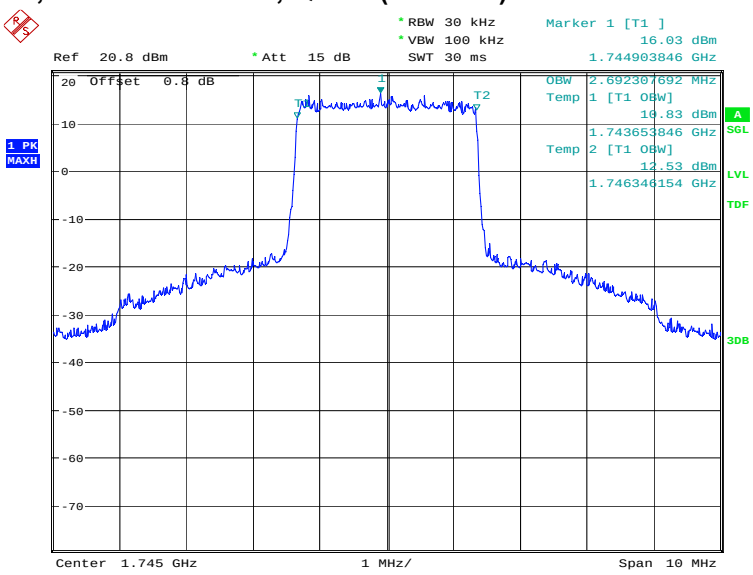


Date: 6.DEC.2021 08:39:21

LTE band 66, 3MHz (99%)

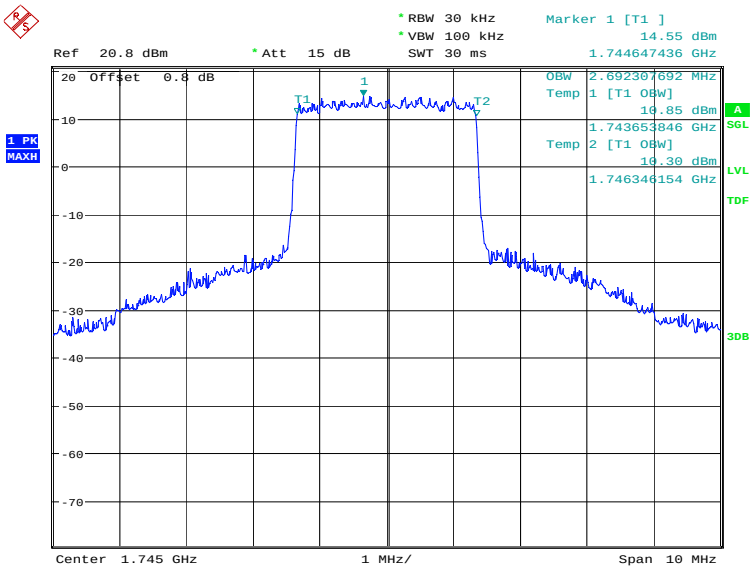
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	2692.31	2692.31

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



Date: 6.DEC.2021 08:40:01

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

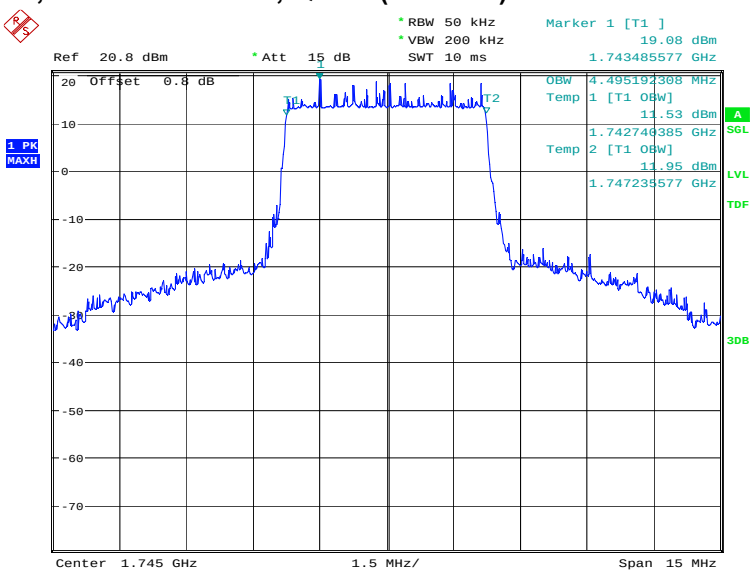


Date: 6.DEC.2021 08:40:40

LTE band 66, 5MHz (99%)

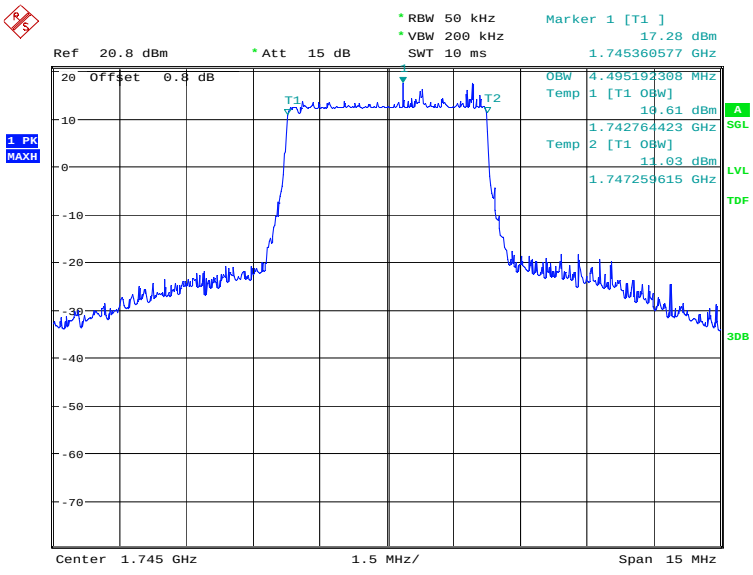
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	4495.19	4495.19

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



Date: 6.DEC.2021 08:41:20

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

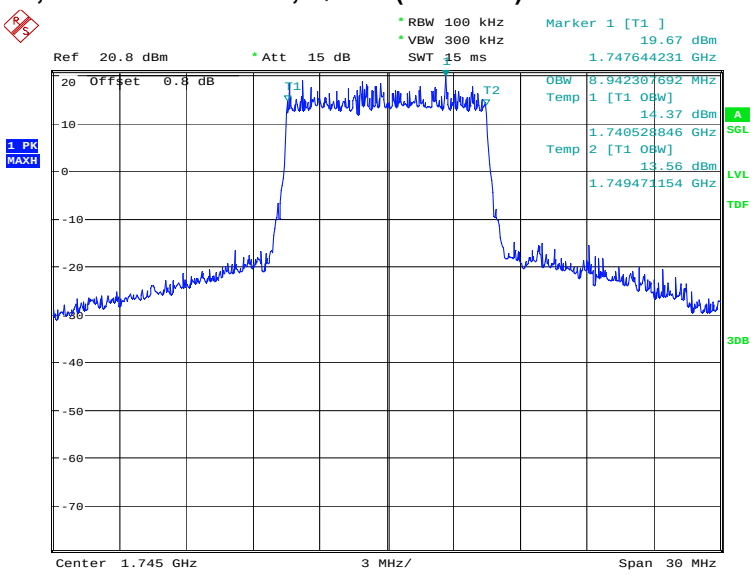


Date: 6.DEC.2021 08:41:58

LTE band 66, 10MHz (99%)

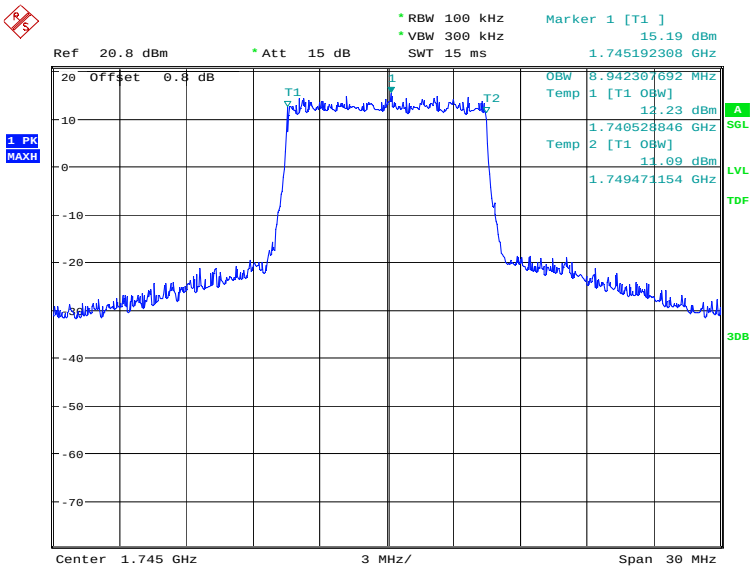
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 6.DEC.2021 08:42:39

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

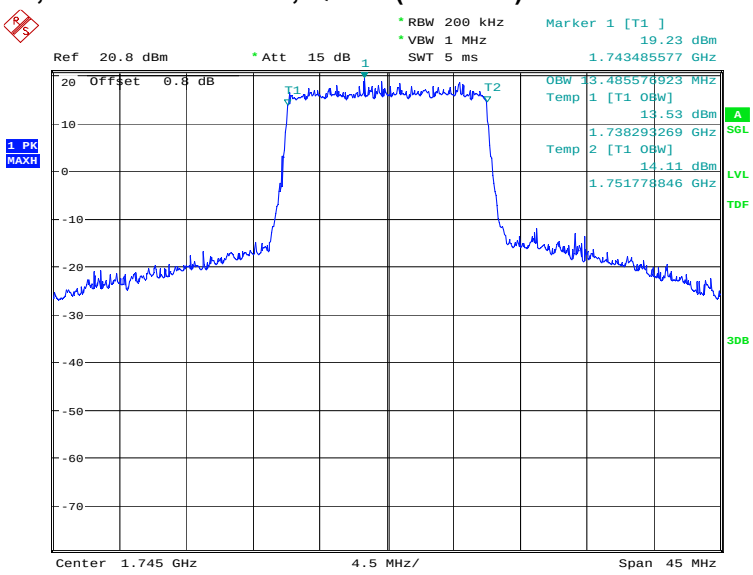


Date: 6.DEC.2021 08:43:18

LTE band 66, 15MHz (99%)

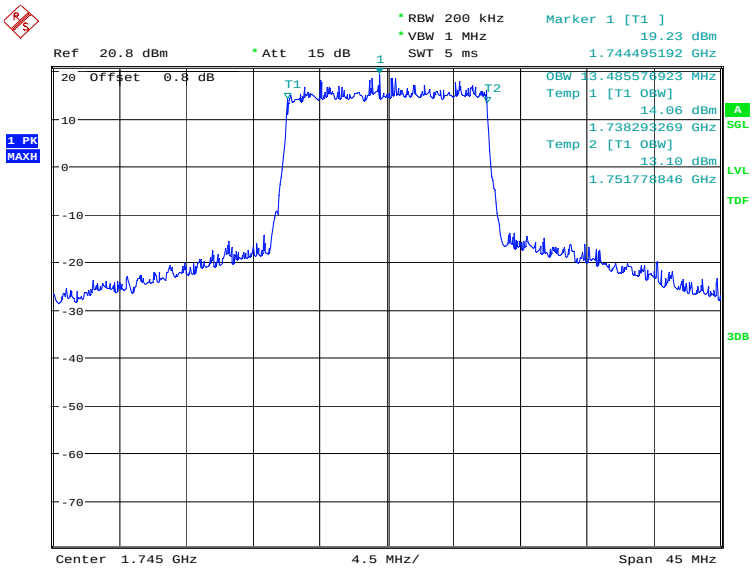
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	13485.58	13485.58

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



Date: 6.DEC.2021 08:43:58

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

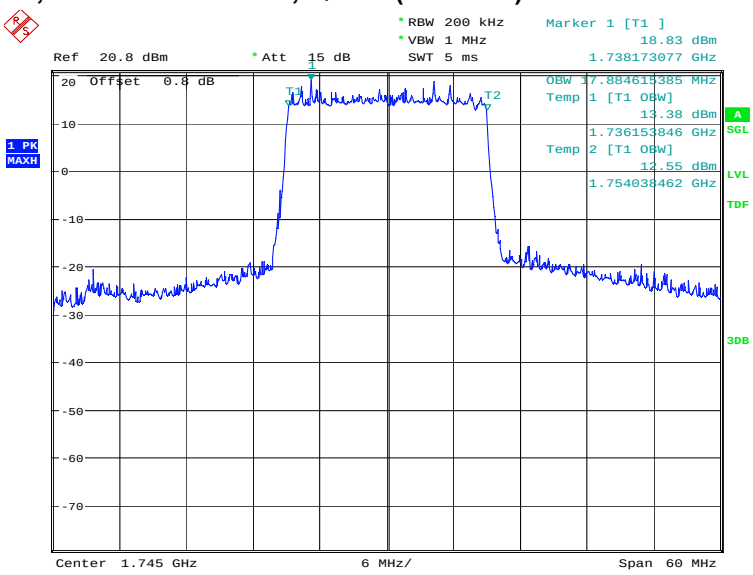


Date: 6.DEC.2021 08:44:37

LTE band 66, 20MHz (99%)

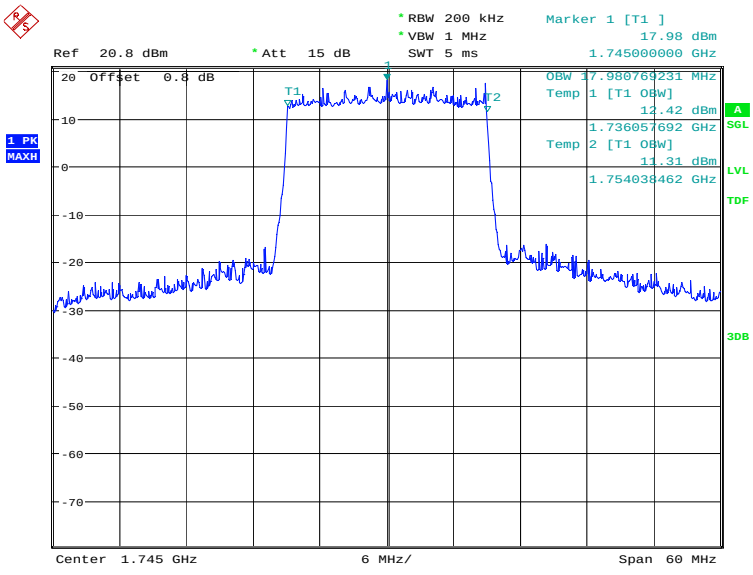
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	17884.62	17980.77

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



Date: 6.DEC.2021 08:45:17

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

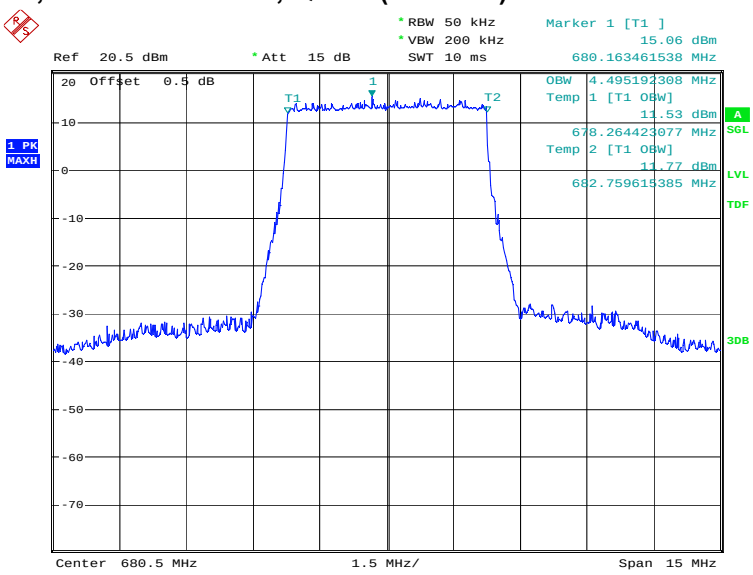


Date: 6.DEC.2021 08:45:56

LTE band 71, 5MHz (99%)

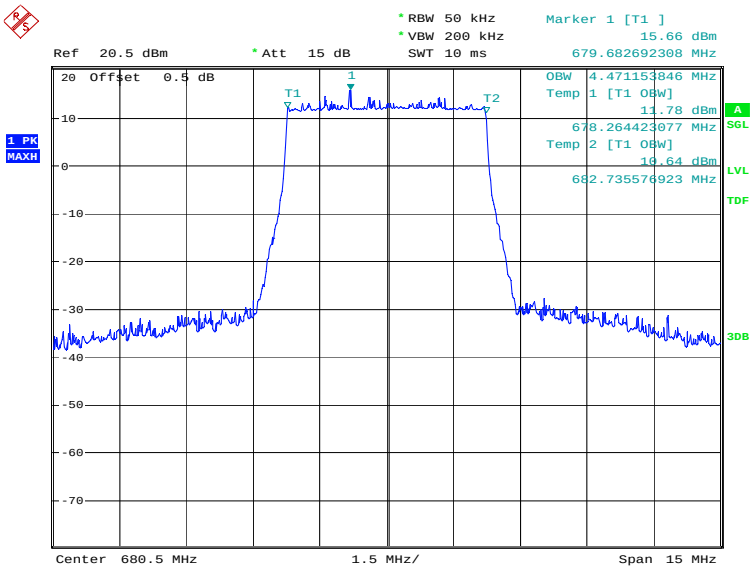
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	4495.19	4471.15

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



Date: 6.DEC.2021 08:11:30

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

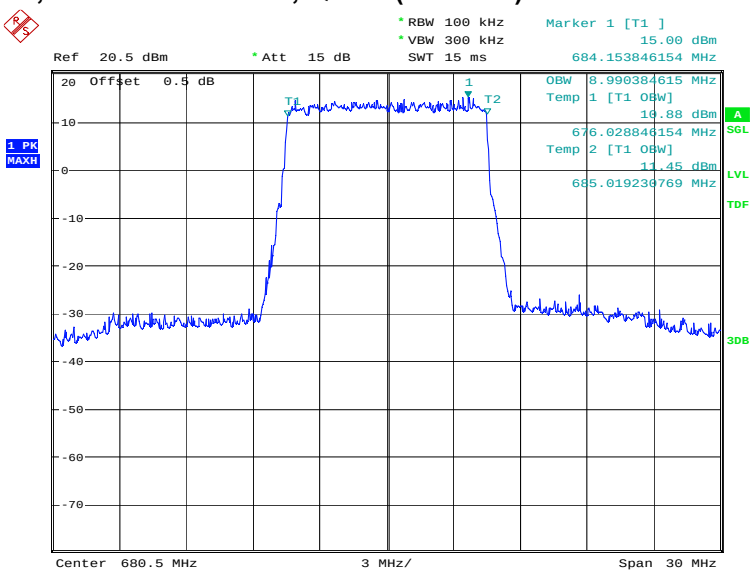


Date: 6.DEC.2021 08:12:09

LTE band 71, 10MHz (99%)

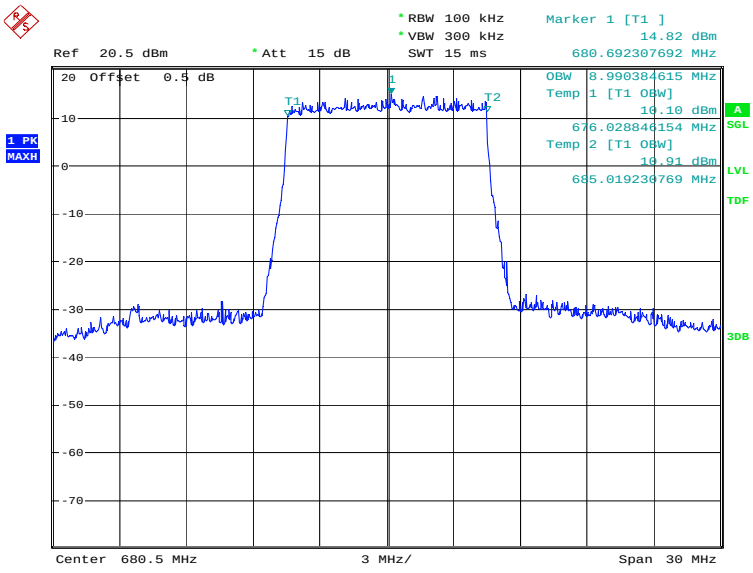
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	8990.38	8990.38

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



Date: 6.DEC.2021 08:12:50

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

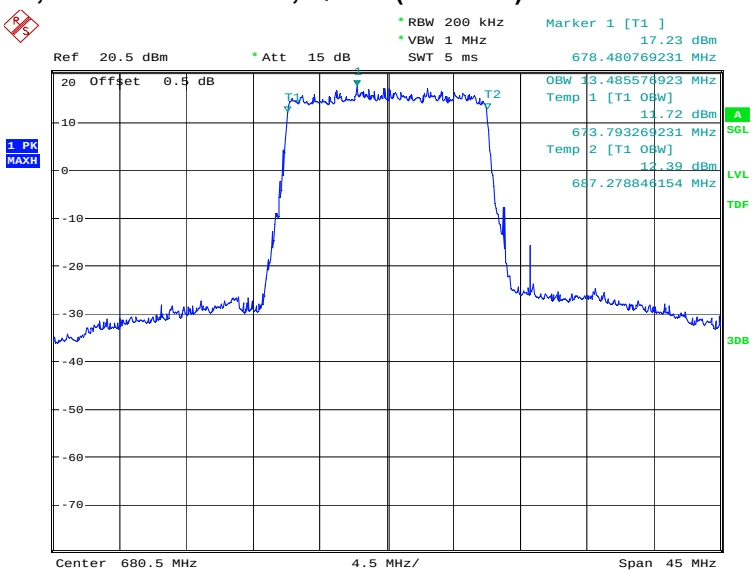


Date: 6.DEC.2021 08:13:29

LTE band 71, 15MHz (99%)

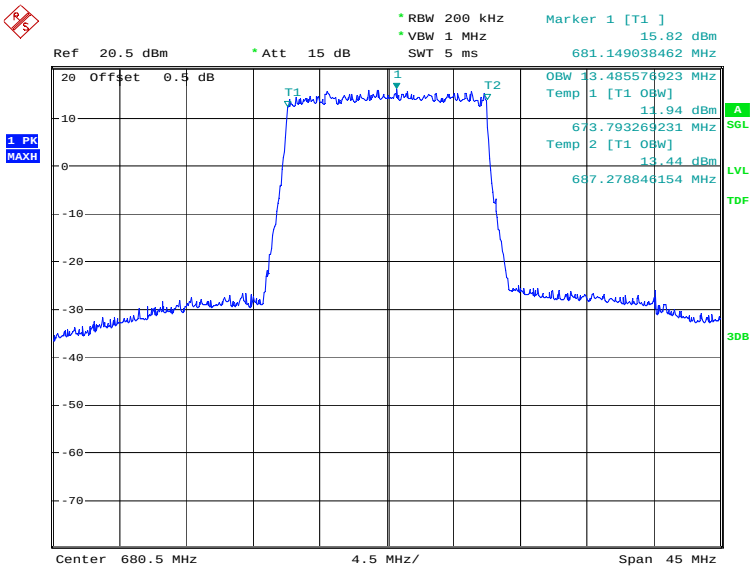
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	13485.58	13485.58

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



Date: 6.DEC.2021 08:14:10

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

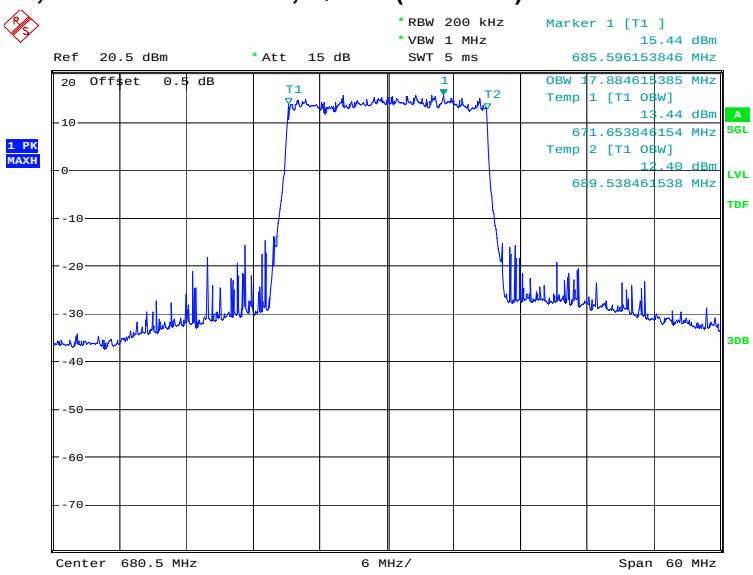


Date: 6.DEC.2021 08:14:49

LTE band 71, 20MHz (99%)

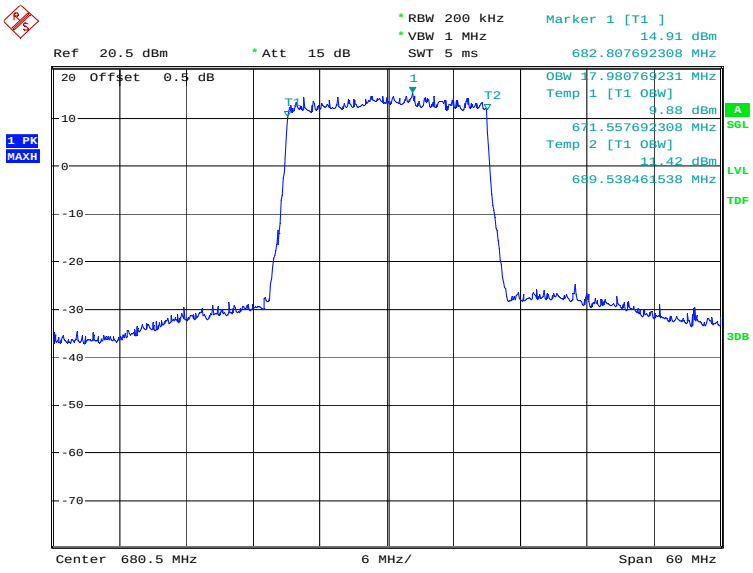
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	17884.62	17980.77

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



Date: 6.DEC.2021 08:15:30

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

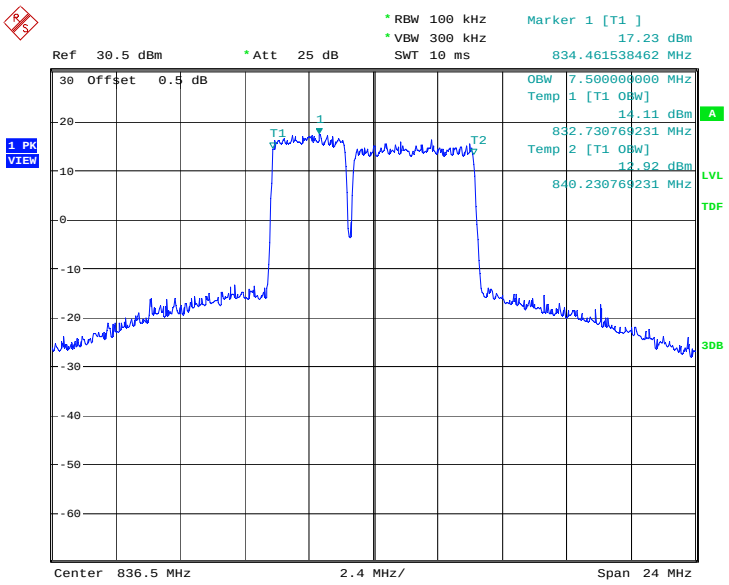


Date: 6.DEC.2021 08:16:09

LTE CA Band 5B , 3MHz+5MHz (99%)

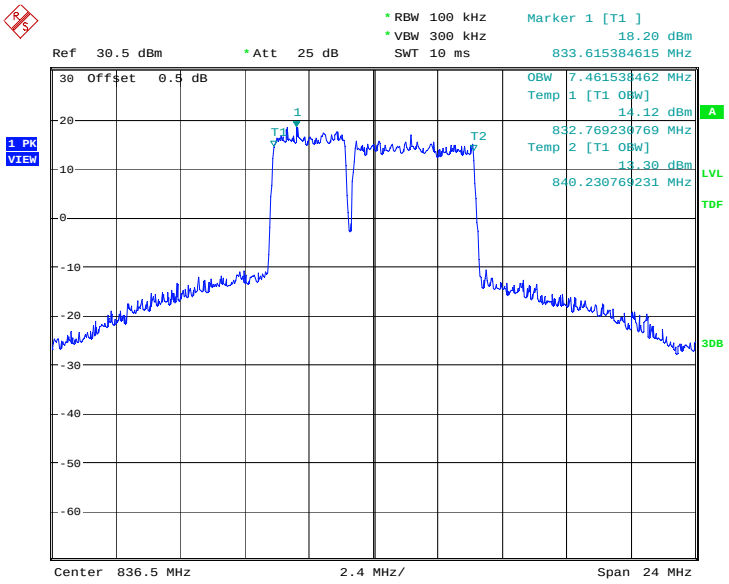
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
834.1	7.500	7.462

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



Date: 7.DEC.2021 16:15:31

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

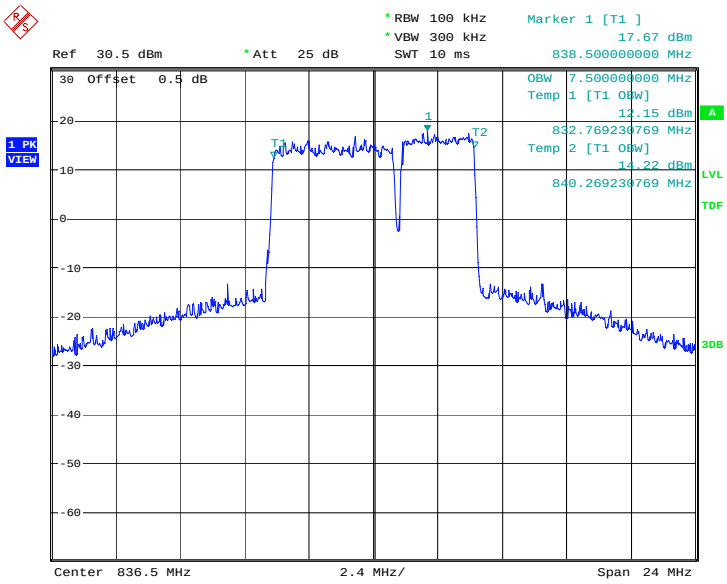


Date: 7.DEC.2021 16:15:53

LTE CA Band 5B , 5MHz+3MHz (99%)

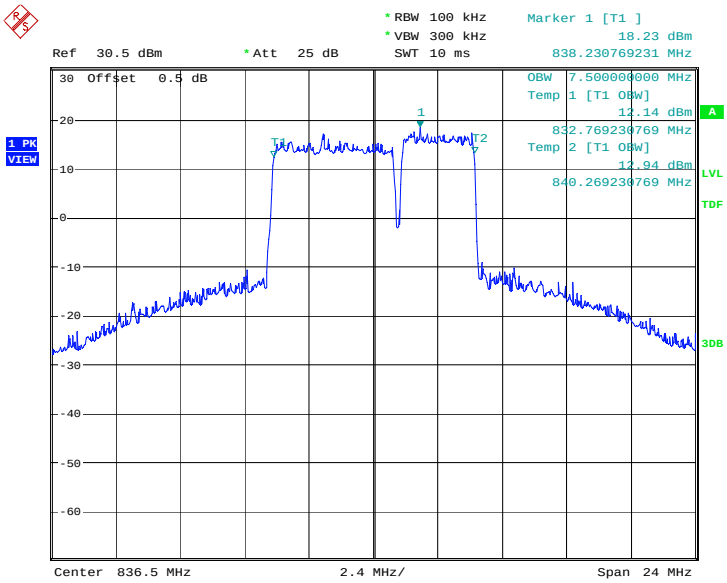
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
835	7.500	7.500

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



Date: 7.DEC.2021 16:17:16

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

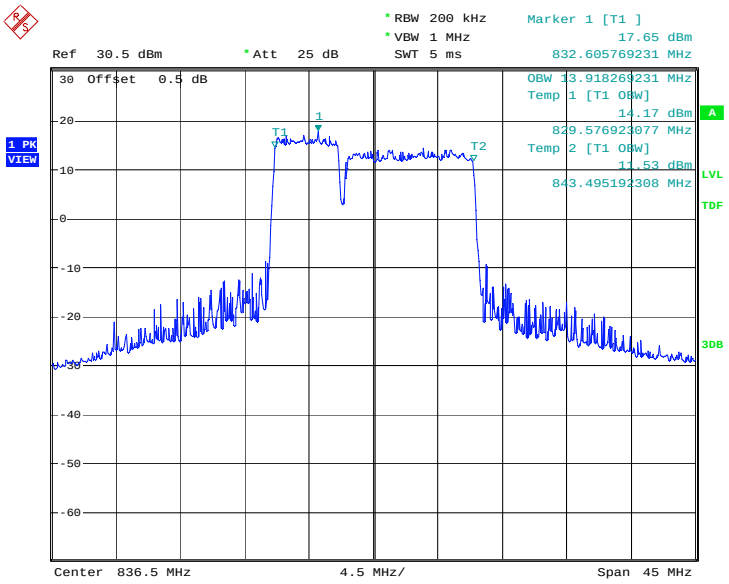


Date: 7.DEC.2021 16:17:39

LTE CA Band 5B , 5MHz+10MHz (99%)

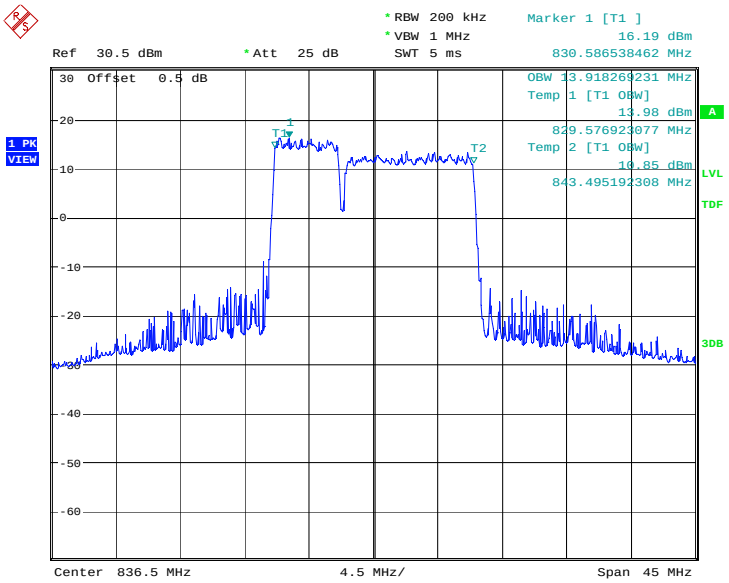
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
831.8	13.918	13.918

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



Date: 7.DEC.2021 16:18:58

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

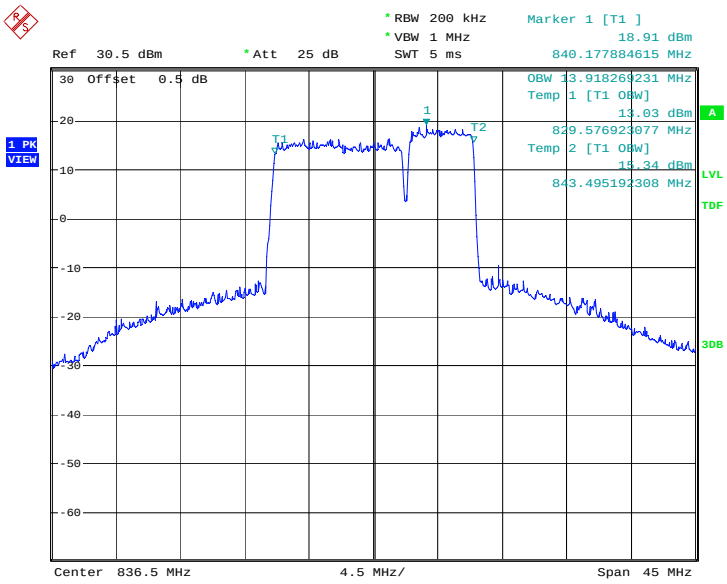


Date: 7.DEC.2021 16:19:21

LTE CA Band 5B , 10MHz+5MHz (99%)

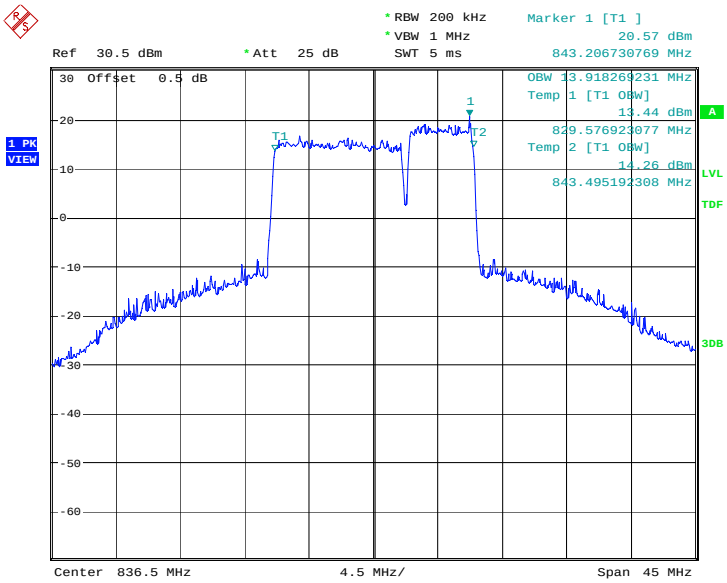
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
834	13.918	13.918

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



Date: 7.DEC.2021 16:20:44

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

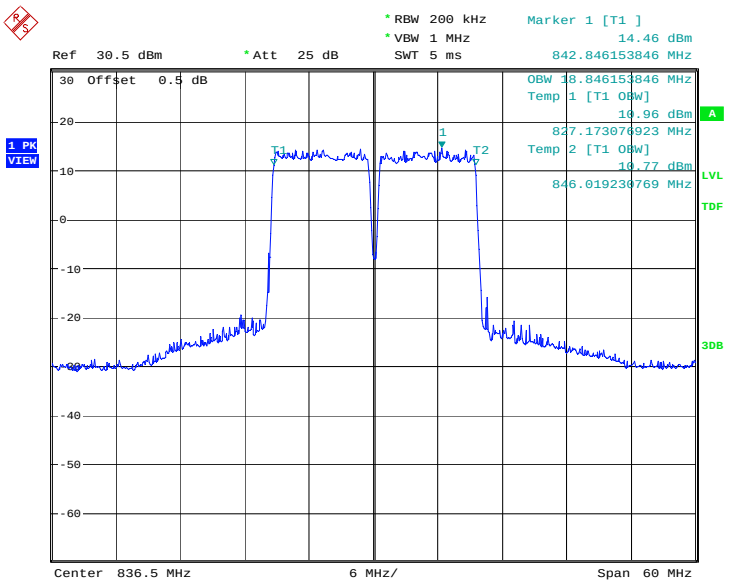


Date: 7.DEC.2021 16:21:06

LTE CA Band 5B , 10MHz+10MHz (99%)

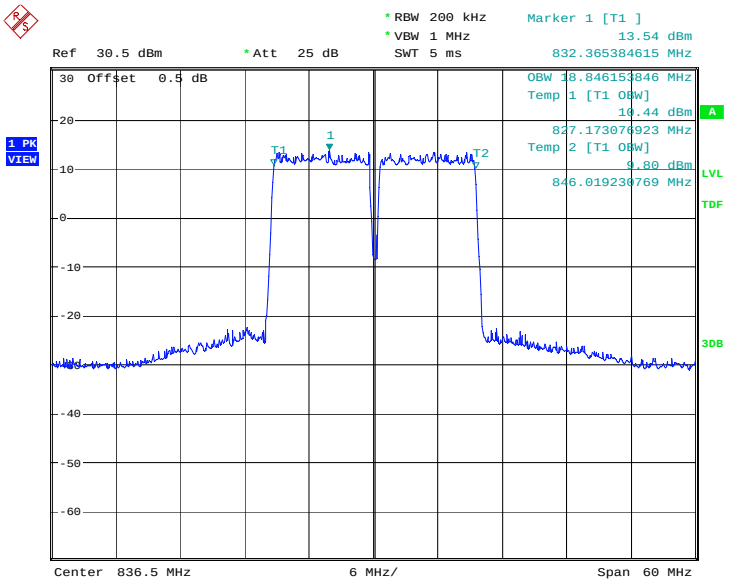
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
831.6	18.846	18.846

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



Date: 7.DEC.2021 16:22:25

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

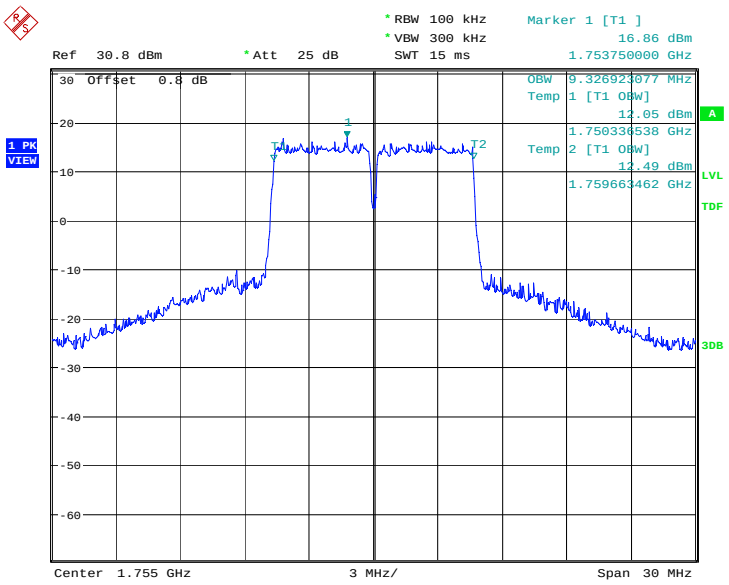


Date: 7.DEC.2021 16:22:47

LTE CA Band 66B , 5MHz+5MHz (99%)

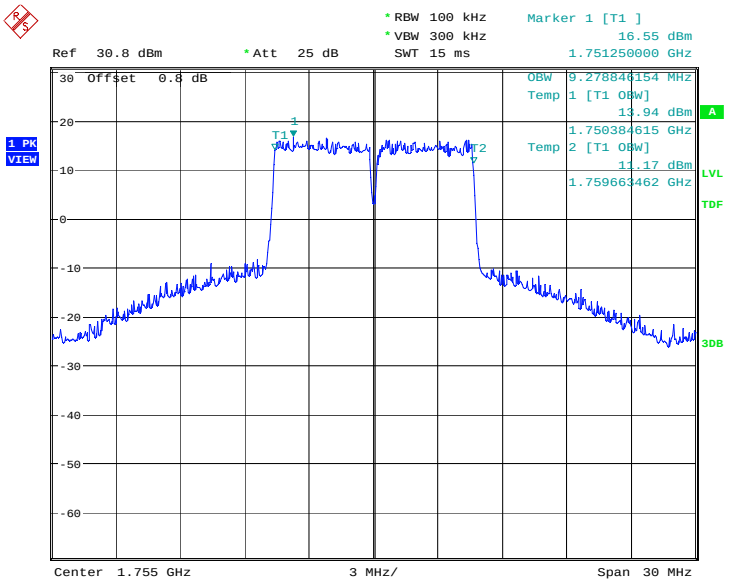
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1752.6	9.327	9.279

LTE CA Band 66B , 5MHz+5MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:24:13

LTE CA Band 66B , 5MHz+5MHz Bandwidth, 16QAM (99% BW)

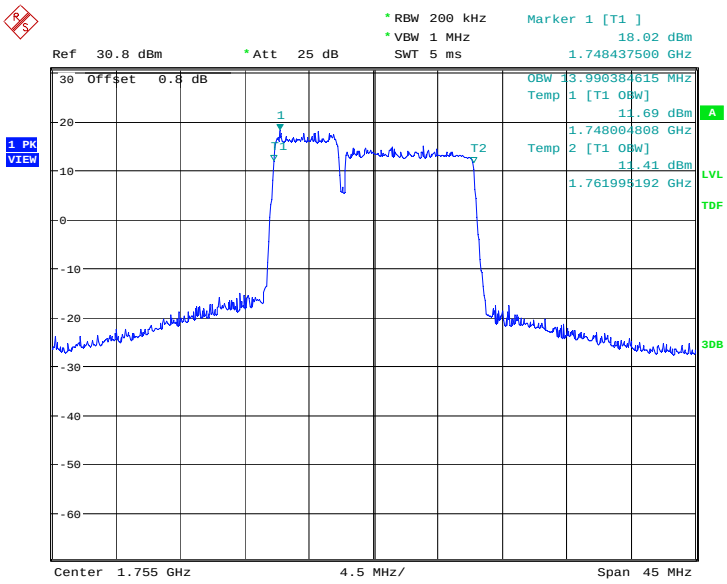


Date: 7.DEC.2021 16:24:35

LTE CA Band 66B , 5MHz+10MHz (99%)

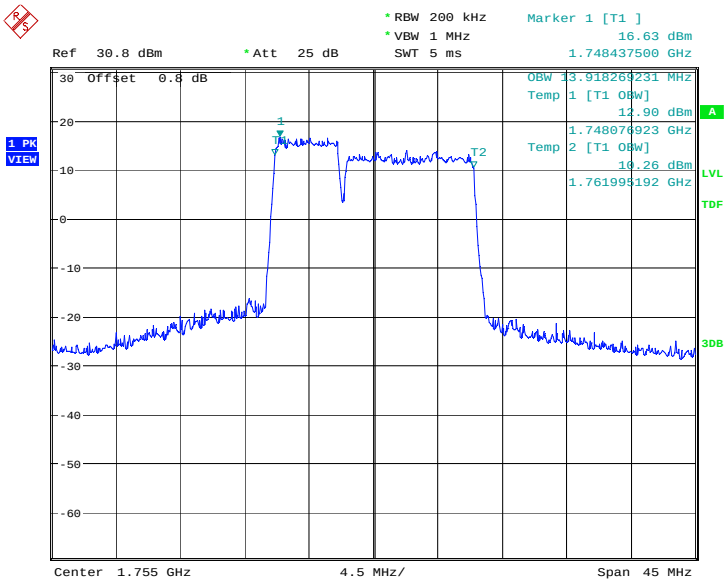
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1750.3	13.990	13.918

LTE CA Band 66B , 5MHz+10MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:25:55

LTE CA Band 66B , 5MHz+10MHz Bandwidth, 16QAM (99% BW)

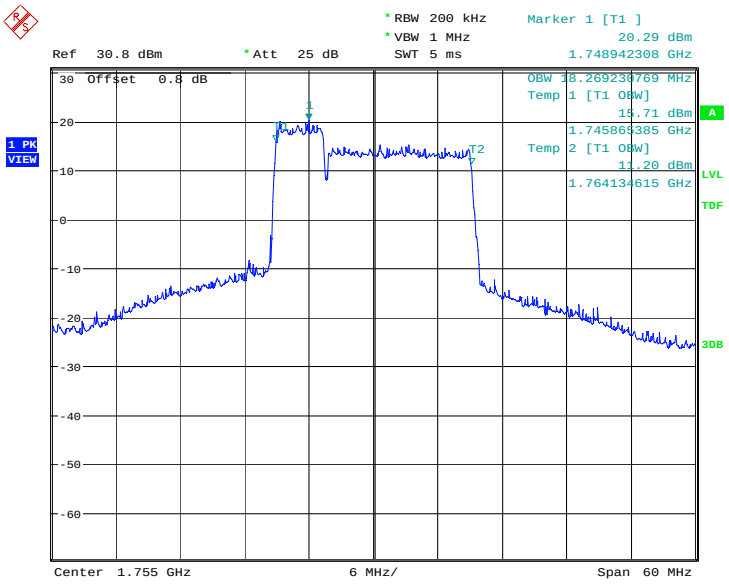


Date: 7.DEC.2021 16:26:17

LTE CA Band 66B , 5MHz+15MHz (99%)

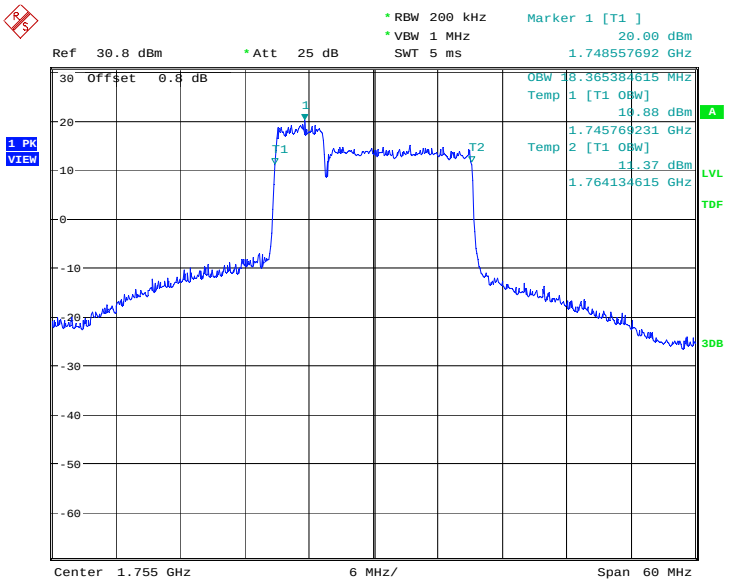
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1748.1	18.269	18.365

LTE CA Band 66B , 5MHz+15MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:27:04

LTE CA Band 66B , 5MHz+15MHz Bandwidth, 16QAM (99% BW)

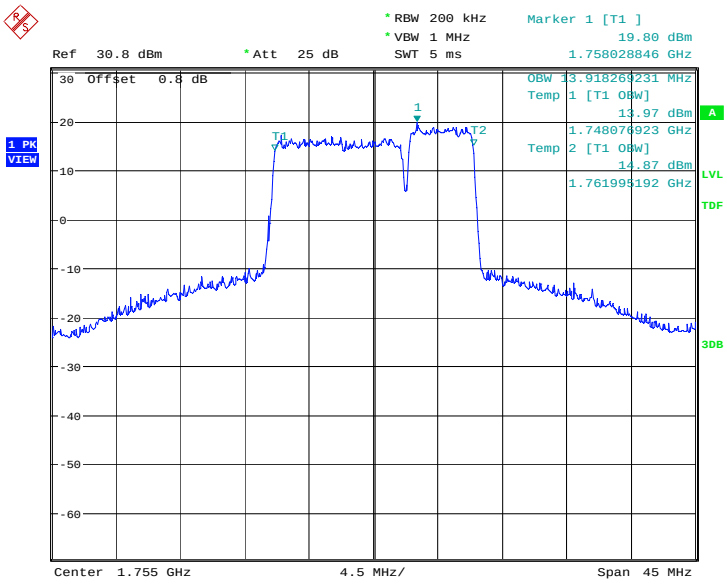


Date: 7.DEC.2021 16:27:26

LTE CA Band 66B , 10MHz+5MHz (99%)

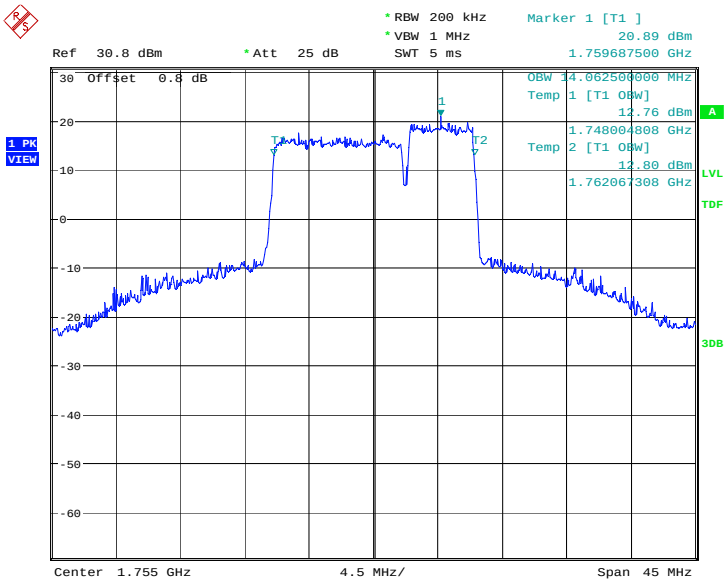
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1752.5	13.918	14.062

LTE CA Band 66B , 10MHz+5MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:31:23

LTE CA Band 66B , 10MHz+5MHz Bandwidth, 16QAM (99% BW)

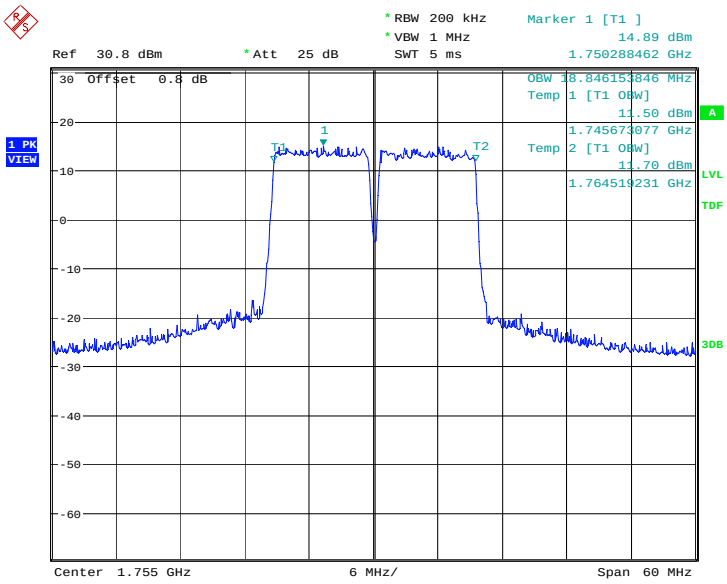


Date: 7.DEC.2021 16:31:45

LTE CA Band 66B , 10MHz+10MHz (99%)

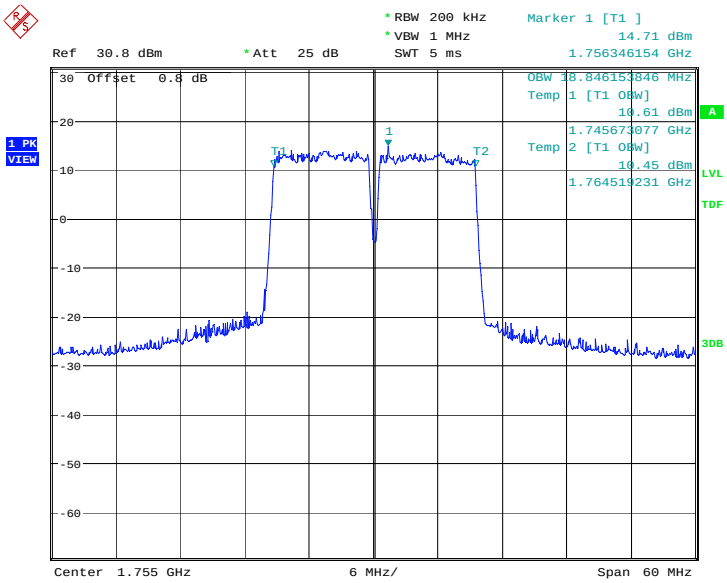
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1750.1	18.846	18.846

LTE CA Band 66B , 10MHz+10MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:33:05

LTE CA Band 66B , 10MHz+10MHz Bandwidth, 16QAM (99% BW)

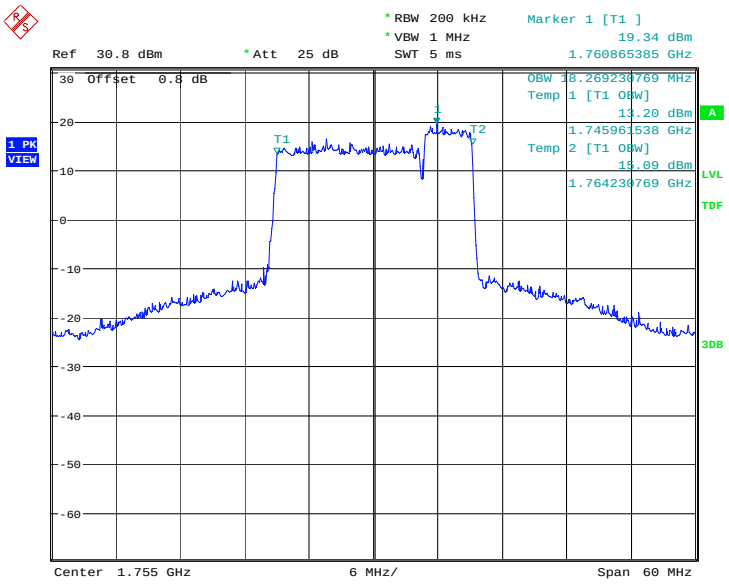


Date: 7.DEC.2021 16:33:27

LTE CA Band 66B , 15MHz+5MHz (99%)

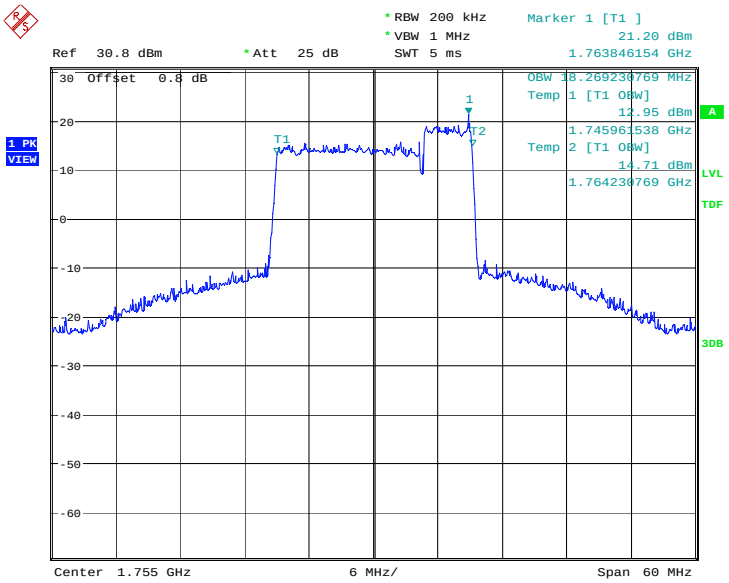
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1752.6	18.269	18.269

LTE CA Band 66B , 15MHz+5MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:37:41

LTE CA Band 66B , 15MHz+5MHz Bandwidth, 16QAM (99% BW)

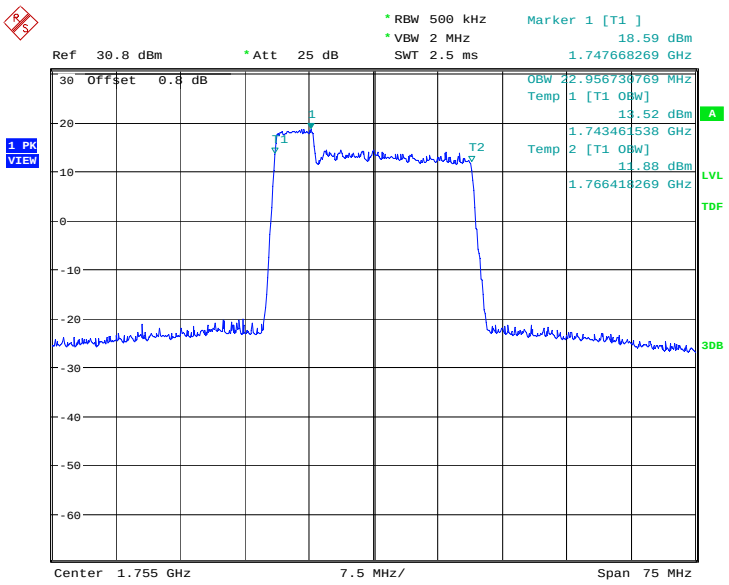


Date: 7.DEC.2021 16:38:03

LTE CA Band 66C , 5MHz+20MHz (99%)

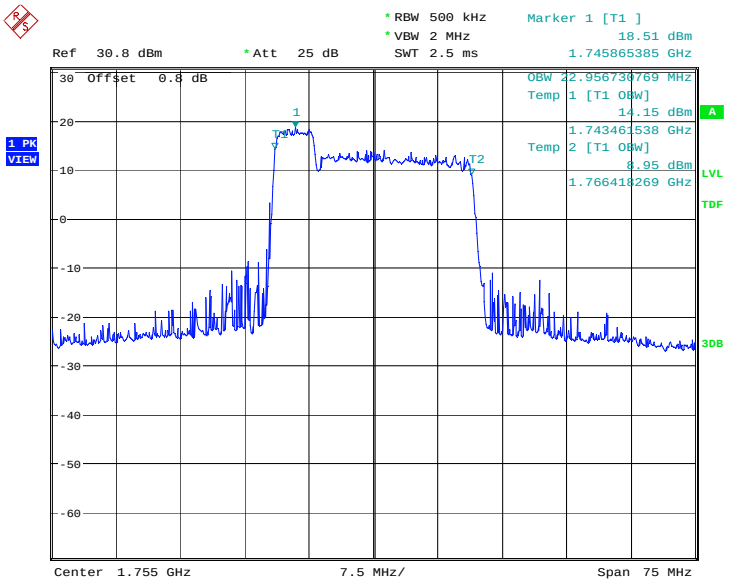
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1745.8	22.957	22.957

LTE CA Band 66C , 5MHz+20MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:28:46

LTE CA Band 66C , 5MHz+20MHz Bandwidth, 16QAM (99% BW)

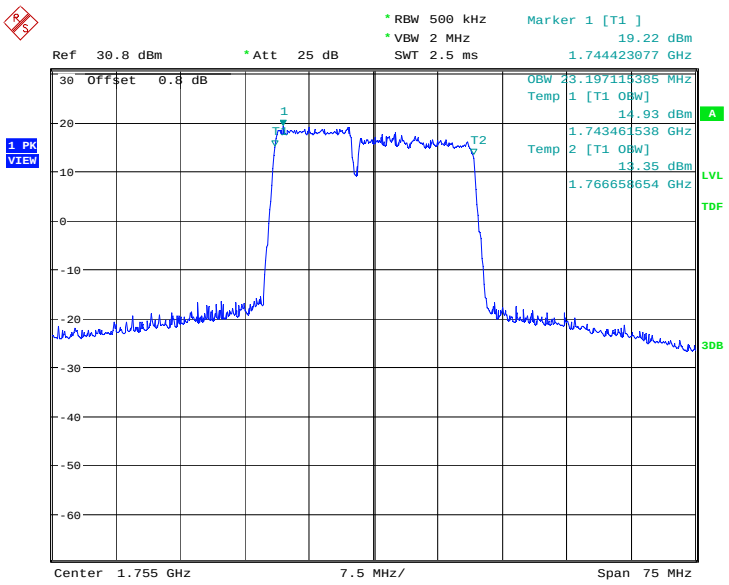


Date: 7.DEC.2021 16:30:00

LTE CA Band 66C , 10MHz+15MHz (99%)

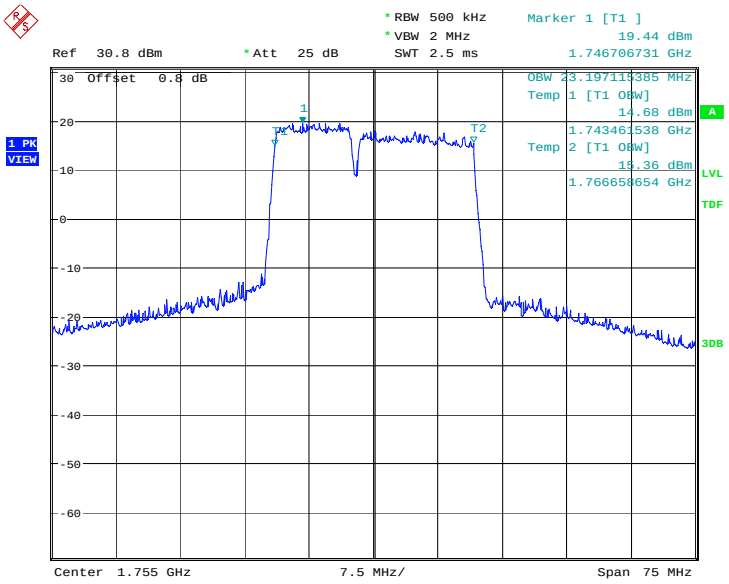
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1747.9	23.197	23.197

LTE CA Band 66C , 10MHz+15MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:34:47

LTE CA Band 66C , 10MHz+15MHz Bandwidth, 16QAM (99% BW)

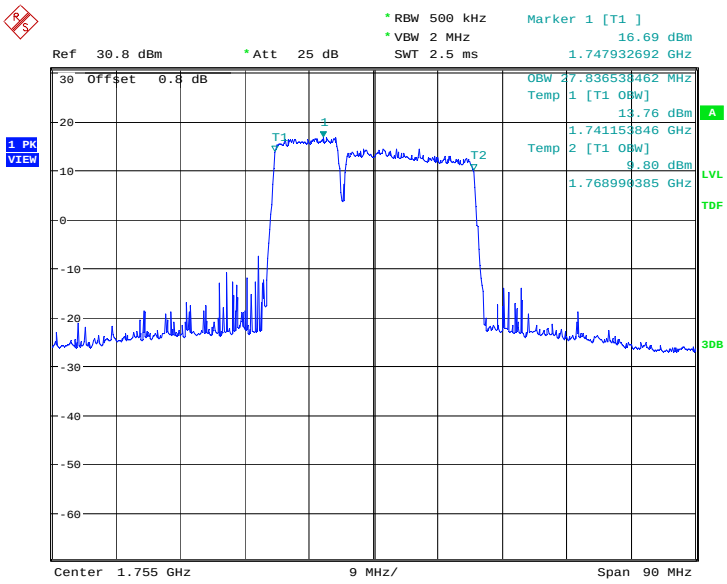


Date: 7.DEC.2021 16:35:09

LTE CA Band 66C , 10MHz+20MHz (99%)

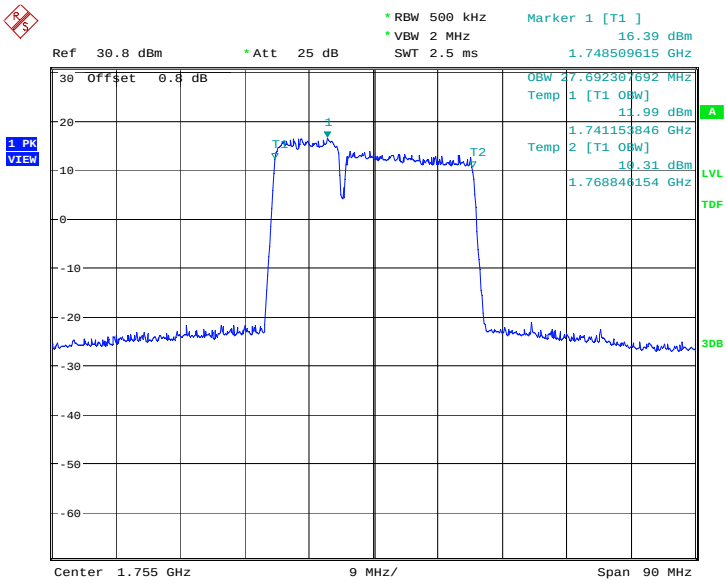
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1745.6	27.837	27.692

LTE CA Band 66C , 10MHz+20MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:35:56

LTE CA Band 66C , 10MHz+20MHz Bandwidth, 16QAM (99% BW)

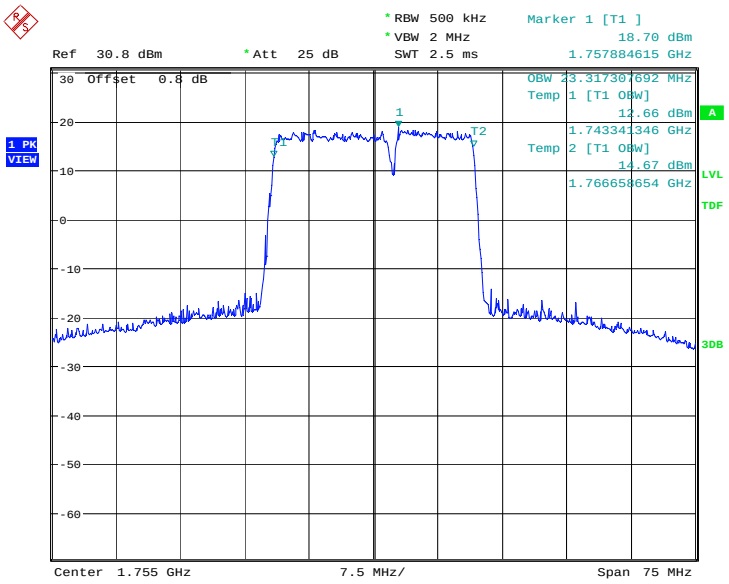


Date: 7.DEC.2021 16:36:18

LTE CA Band 66C , 15MHz+10MHz (99%)

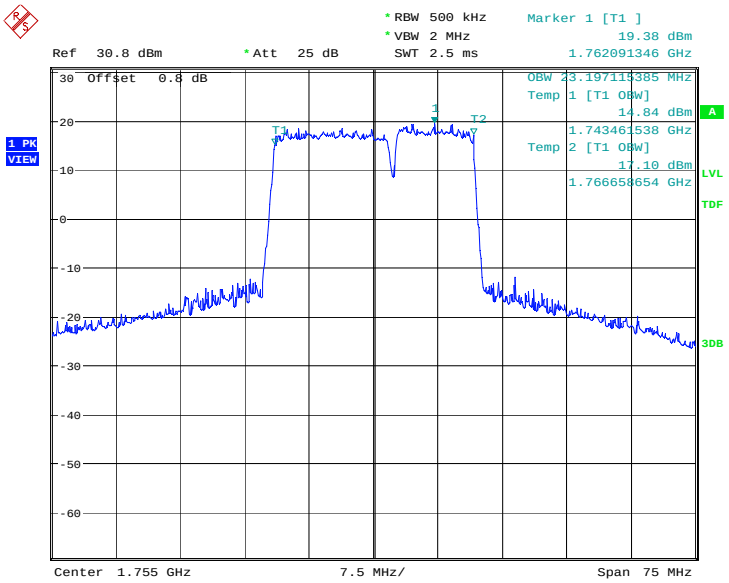
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1750.1	23.317	23.197

LTE CA Band 66C , 15MHz+10MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:38:50

LTE CA Band 66C , 15MHz+10MHz Bandwidth, 16QAM (99% BW)

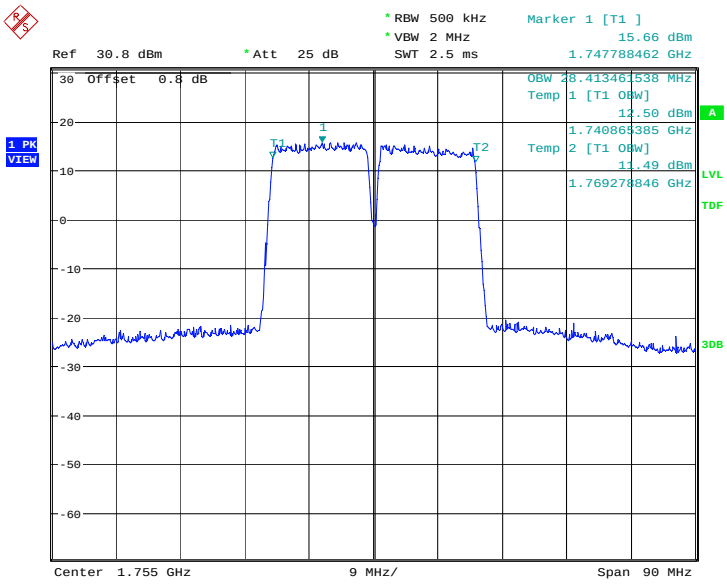


Date: 7.DEC.2021 16:39:13

LTE CA Band 66C , 15MHz+15MHz (99%)

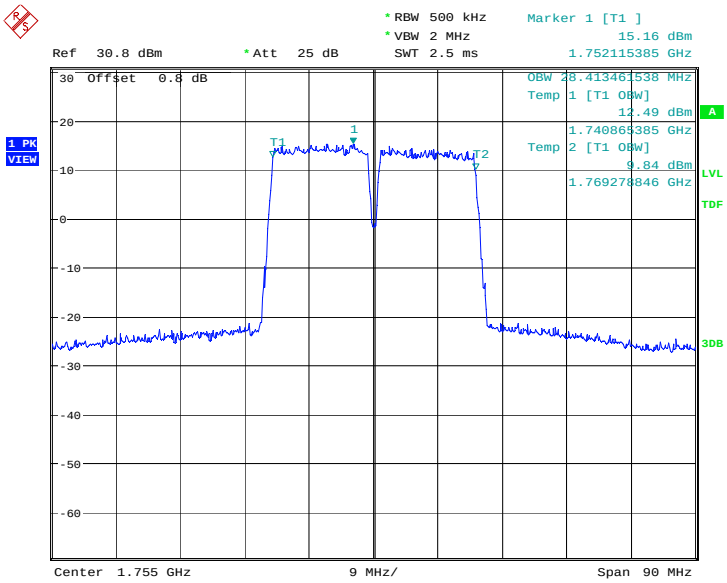
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1747.5	28.413	28.413

LTE CA Band 66C , 15MHz+15MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:40:33

LTE CA Band 66C , 15MHz+15MHz Bandwidth, 16QAM (99% BW)

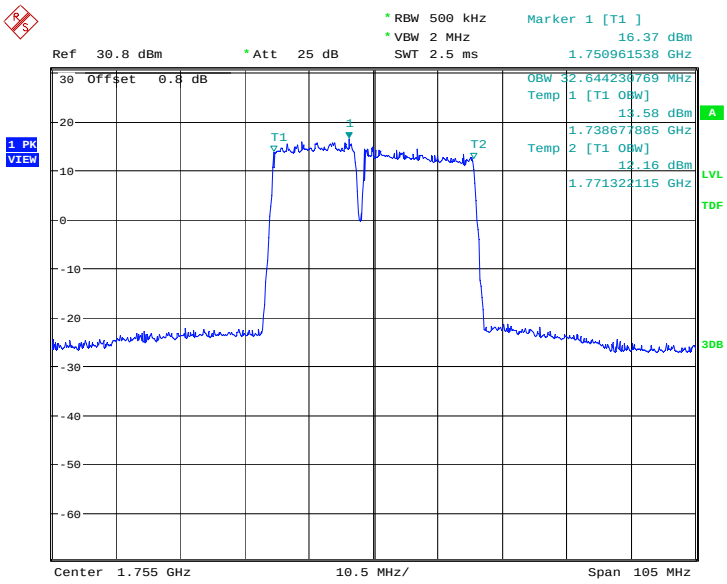


Date: 7.DEC.2021 16:40:55

LTE CA Band 66C , 15MHz+20MHz (99%)

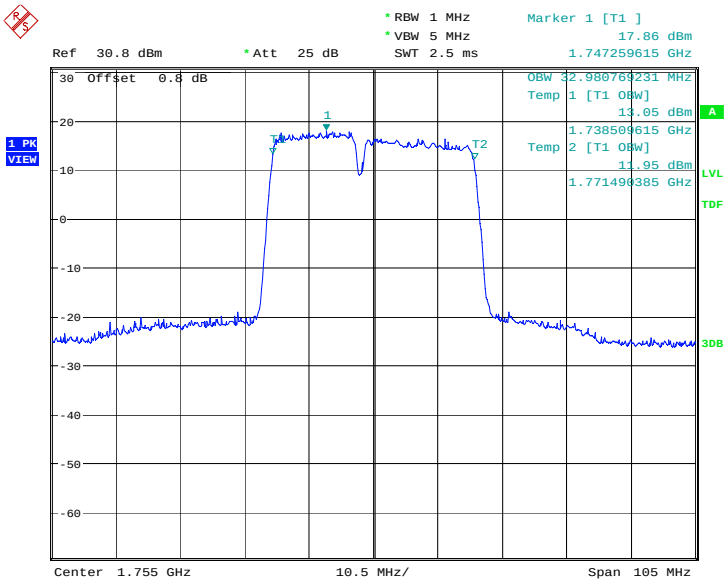
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1745.3	32.644	32.981

LTE CA Band 66C , 15MHz+20MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:41:42

LTE CA Band 66C , 15MHz+20MHz Bandwidth, 16QAM (99% BW)

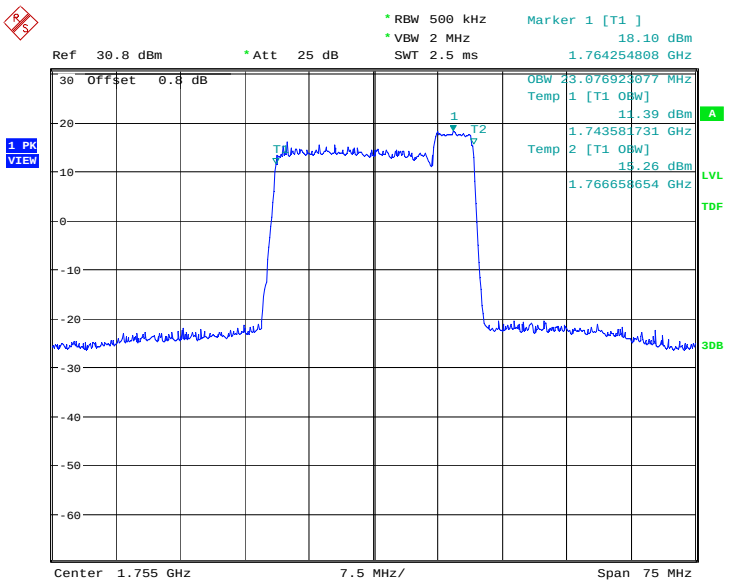


Date: 7.DEC.2021 14:10:19

LTE CA Band 66C , 20MHz+5MHz (99%)

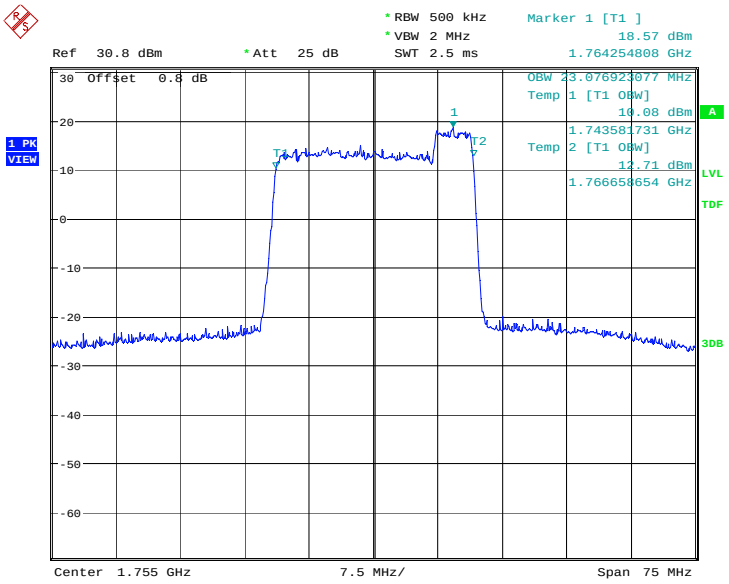
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1752.5	23.077	23.077

LTE CA Band 66C , 20MHz+5MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:43:05

LTE CA Band 66C , 20MHz+5MHz Bandwidth, 16QAM (99% BW)

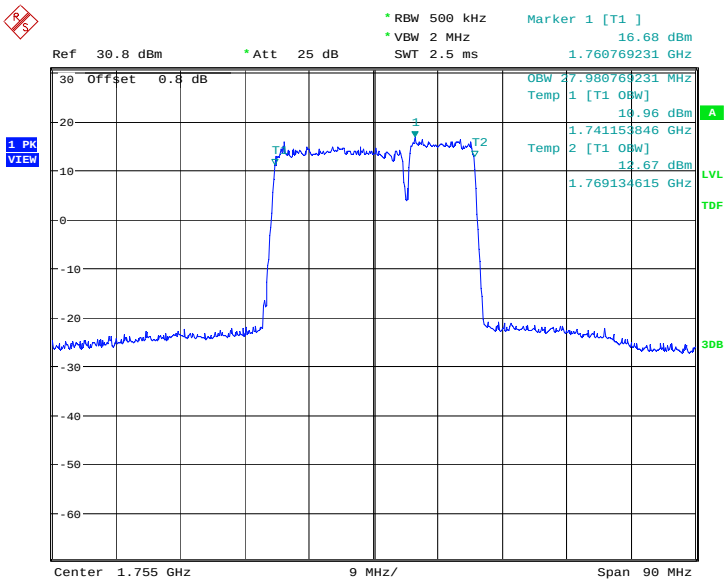


Date: 7.DEC.2021 16:43:27

LTE CA Band 66C , 20MHz+10MHz (99%)

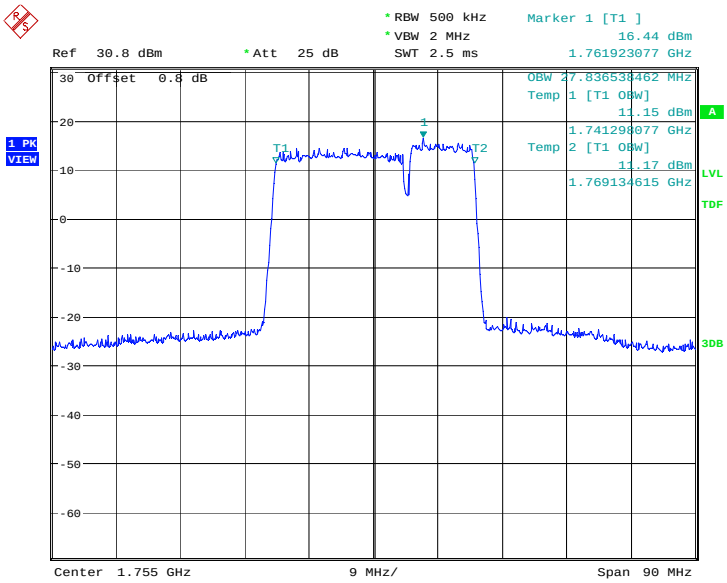
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1750.1	27.981	27.837

LTE CA Band 66C , 20MHz+10MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:44:47

LTE CA Band 66C , 20MHz+10MHz Bandwidth, 16QAM (99% BW)

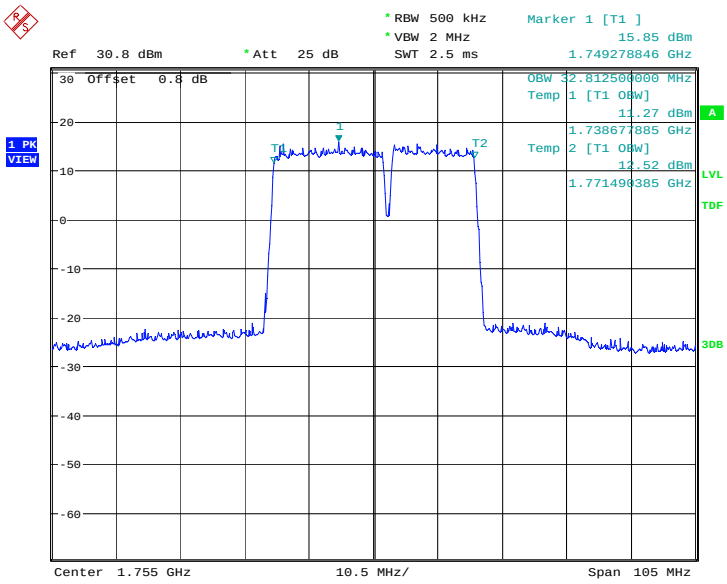


Date: 7.DEC.2021 16:45:09

LTE CA Band 66C , 20MHz+15MHz (99%)

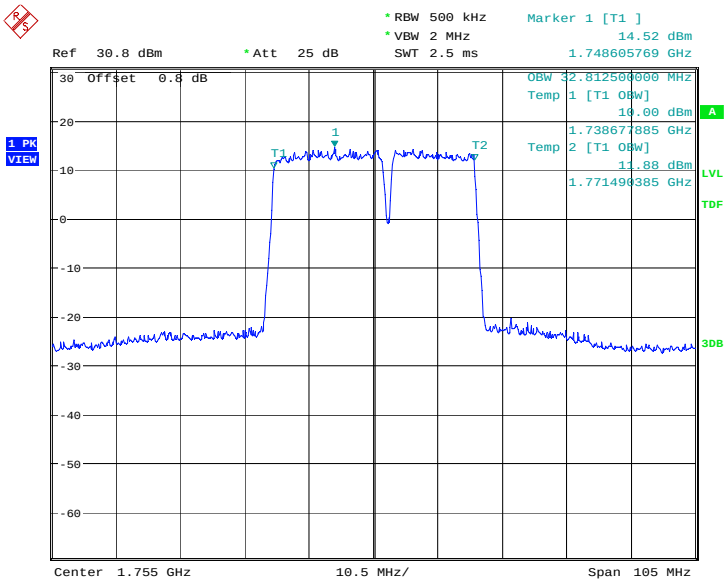
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1747.6	32.812	32.812

LTE CA Band 66C , 20MHz+15MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:46:29

LTE CA Band 66C , 20MHz+15MHz Bandwidth, 16QAM (99% BW)

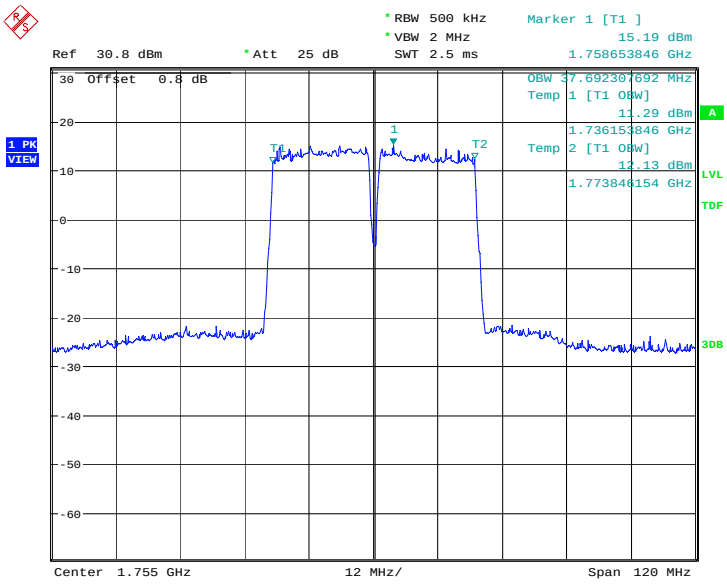


Date: 7.DEC.2021 16:46:51

LTE CA Band 66C , 20MHz+20MHz (99%)

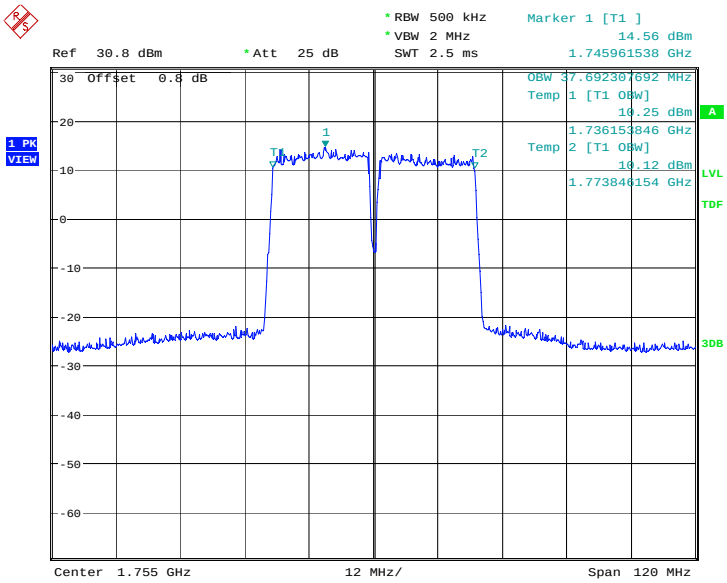
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1745.1	37.692	37.692

LTE CA Band 66C , 20MHz+20MHz Bandwidth, QPSK (99% BW)



Date: 7.DEC.2021 16:48:11

LTE CA Band 66C , 20MHz+20MHz Bandwidth, 16QAM (99% BW)



Date: 7.DEC.2021 16:48:33

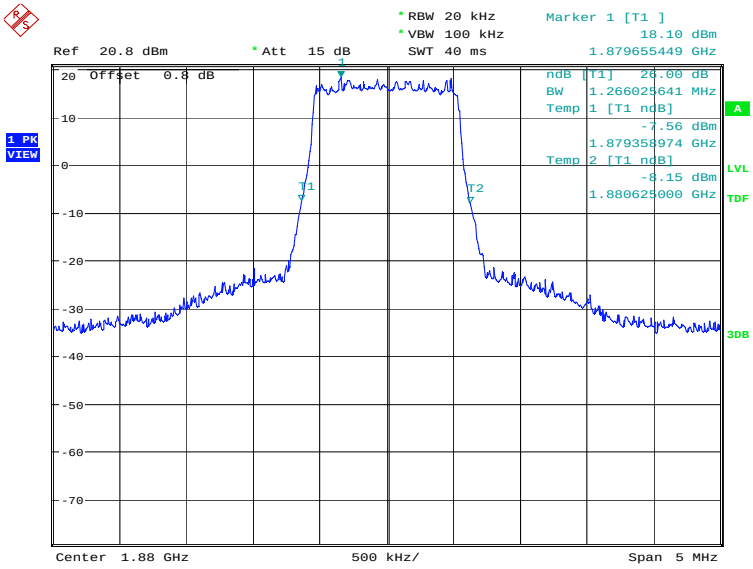
A.5 Emission Bandwidth

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the following pages.
The measurement method is from ANSI C63.26:
a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
b) The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.
c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
d) The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “−X dB” requirement, i.e., if the requirement calls for measuring the −26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
e) Set spectrum analyzer detection mode to peak, and the trace mode to max hold.

LTE band 2, 1.4MHz (-26dBc)

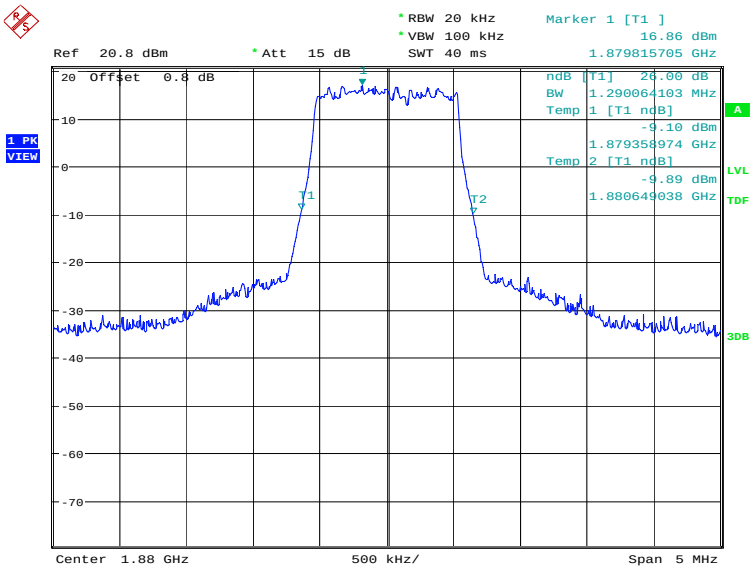
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	1266.03	1290.06

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



Date: 6.DEC.2021 08:59:41

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

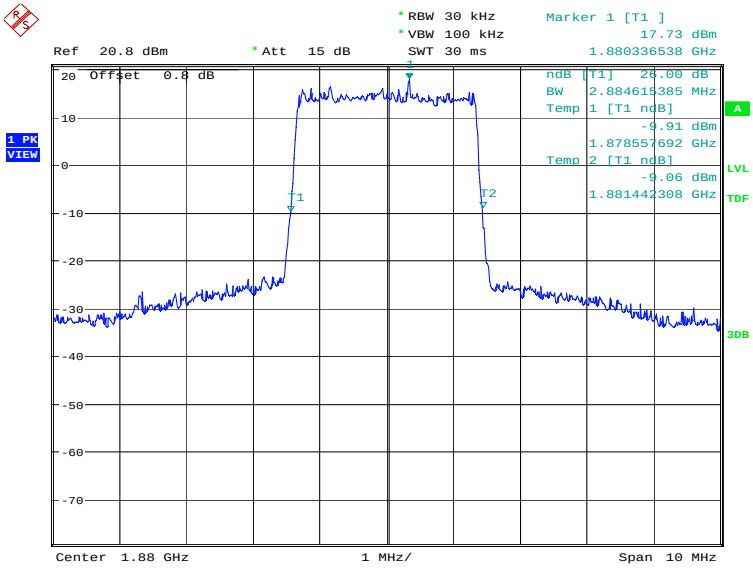


Date: 6.DEC.2021 09:00:21

LTE band 2, 3MHz (-26dBc)

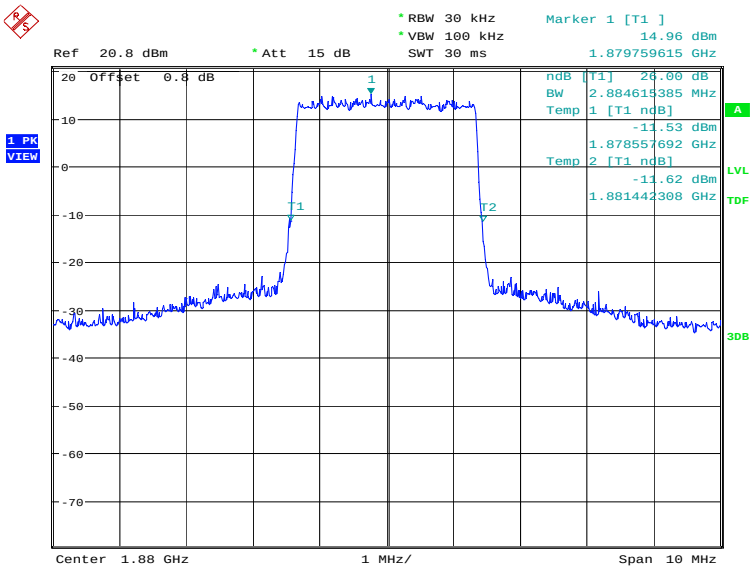
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	2884.62	2884.62

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



Date: 6.DEC.2021 09:01:02

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

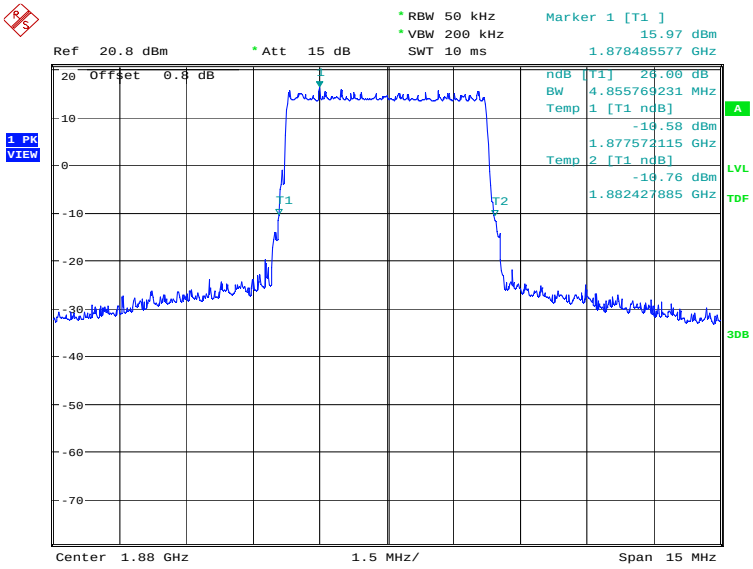


Date: 6.DEC.2021 09:01:41

LTE band 2, 5MHz (-26dBc)

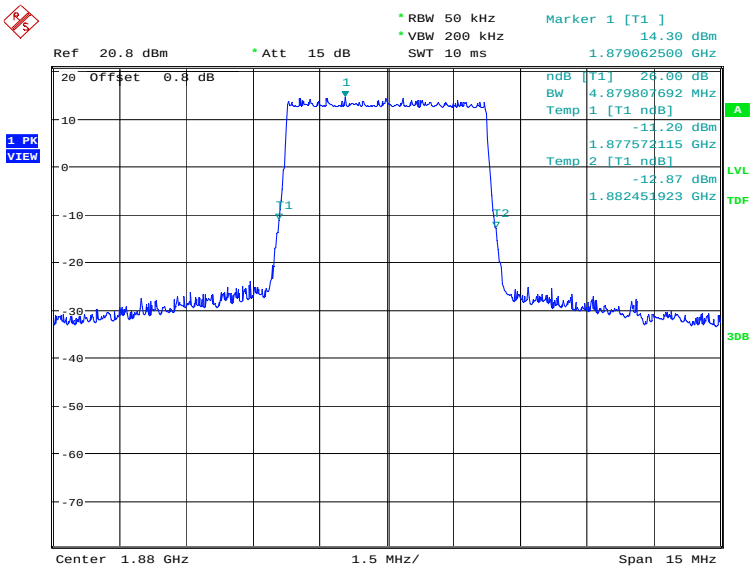
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	4855.77	4879.81

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



Date: 6.DEC.2021 09:02:22

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

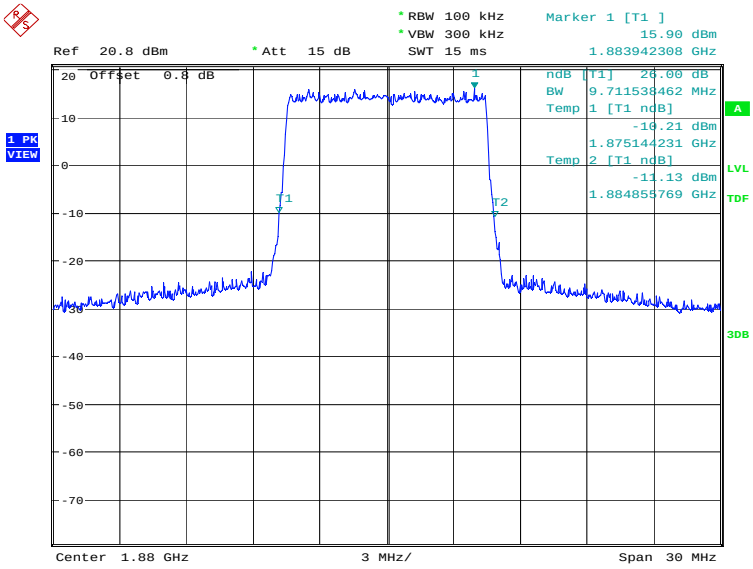


Date: 6.DEC.2021 09:03:01

LTE band 2, 10MHz (-26dBc)

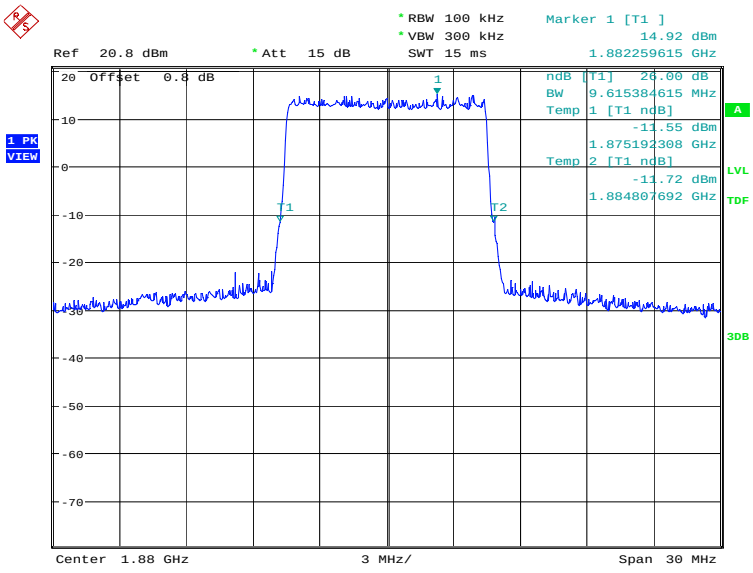
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	9711.54	9615.38

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



Date: 6.DEC.2021 09:03:42

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

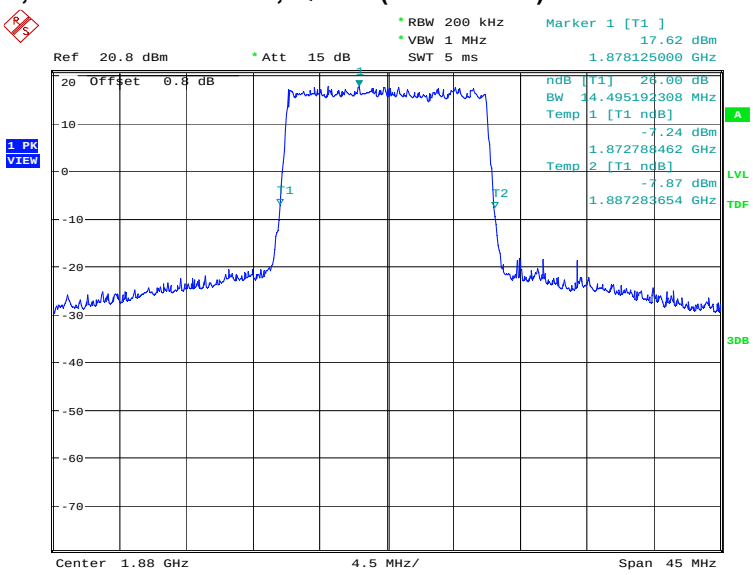


Date: 6.DEC.2021 09:04:21

LTE band 2, 15MHz (-26dBc)

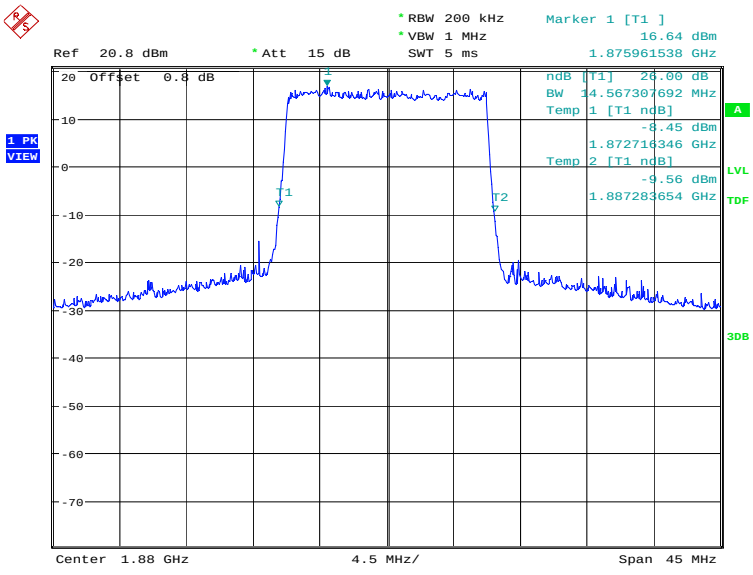
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	14495.19	14567.31

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



Date: 6.DEC.2021 09:05:02

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

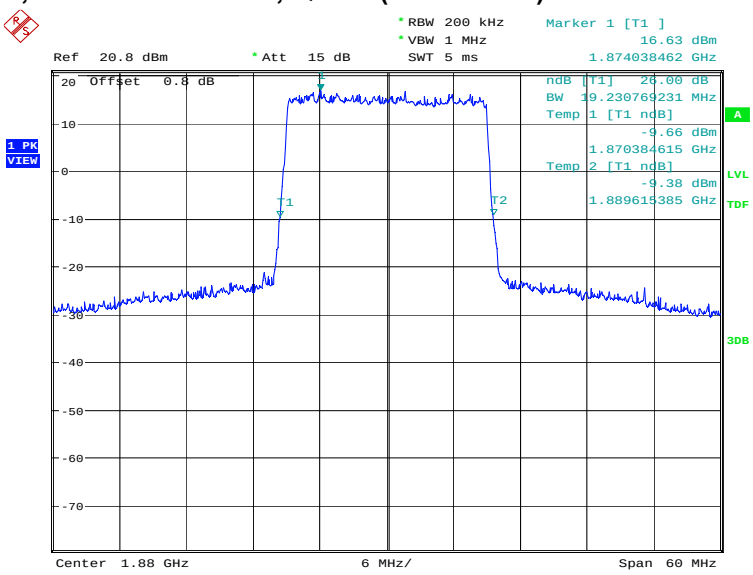


Date: 6.DEC.2021 09:05:42

LTE band 2, 20MHz (-26dBc)

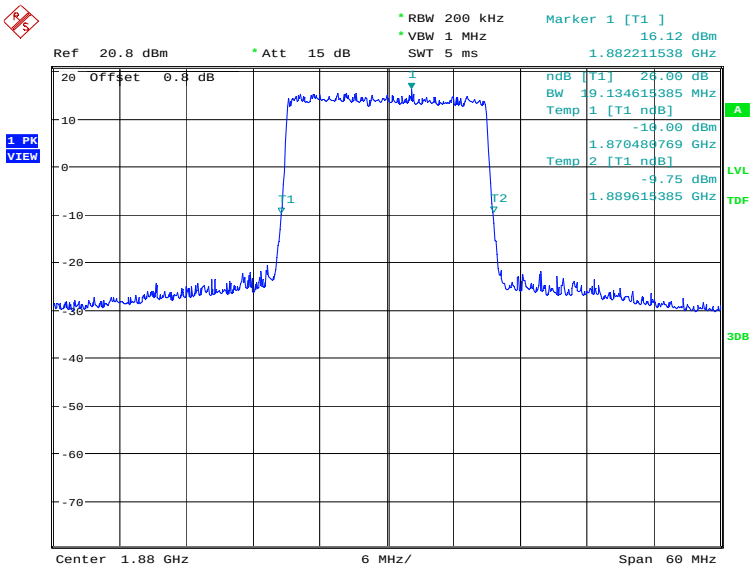
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	19230.77	19134.62

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



Date: 6.DEC.2021 09:06:23

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

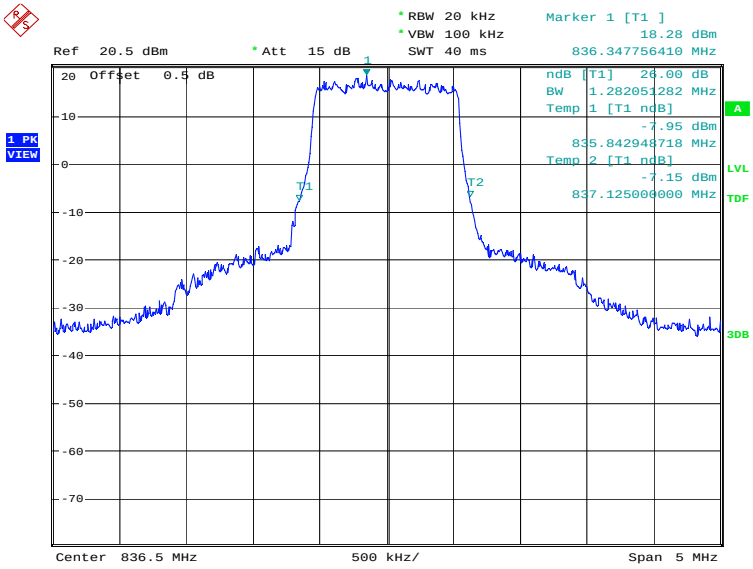


Date: 6.DEC.2021 09:07:02

LTE band 5, 1.4MHz (-26dBc)

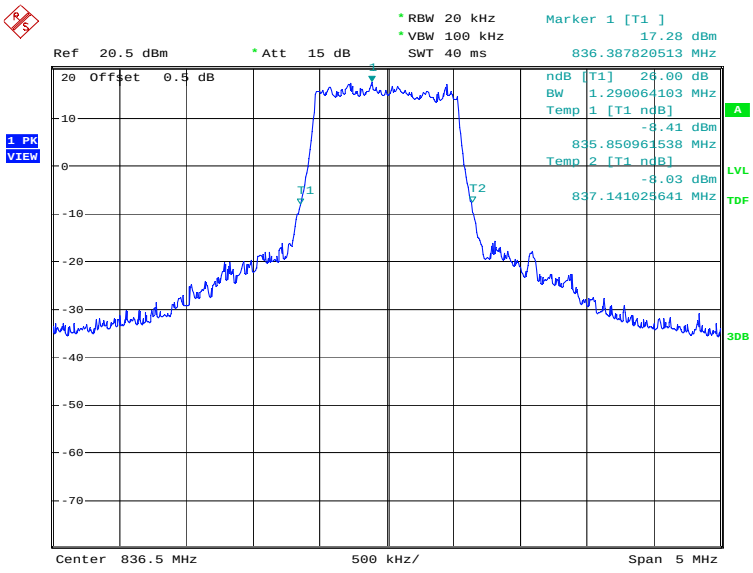
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	1282.05	1290.06

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



Date: 6.DEC.2021 09:07:44

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

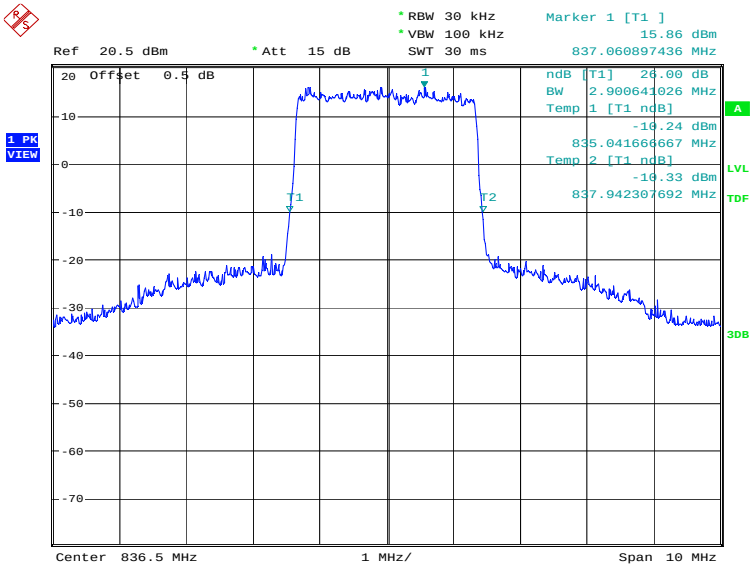


Date: 6.DEC.2021 09:08:25

LTE band 5, 3MHz (-26dBc)

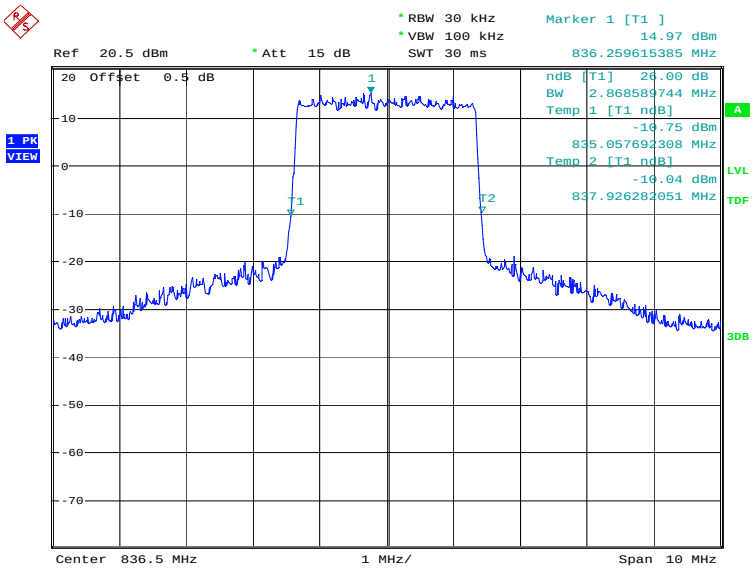
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	2900.64	2868.59

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



Date: 6.DEC.2021 09:09:06

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

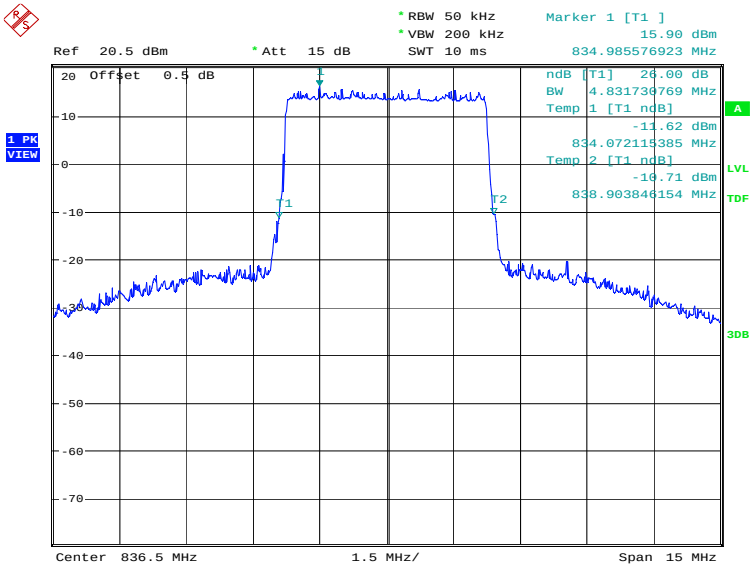


Date: 6.DEC.2021 09:09:45

LTE band 5, 5MHz (-26dBc)

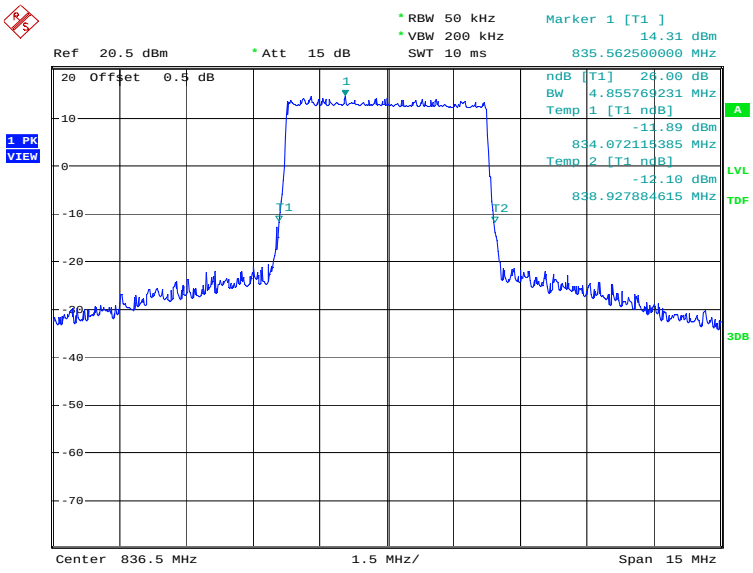
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	4831.73	4855.77

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



Date: 6.DEC.2021 09:10:26

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

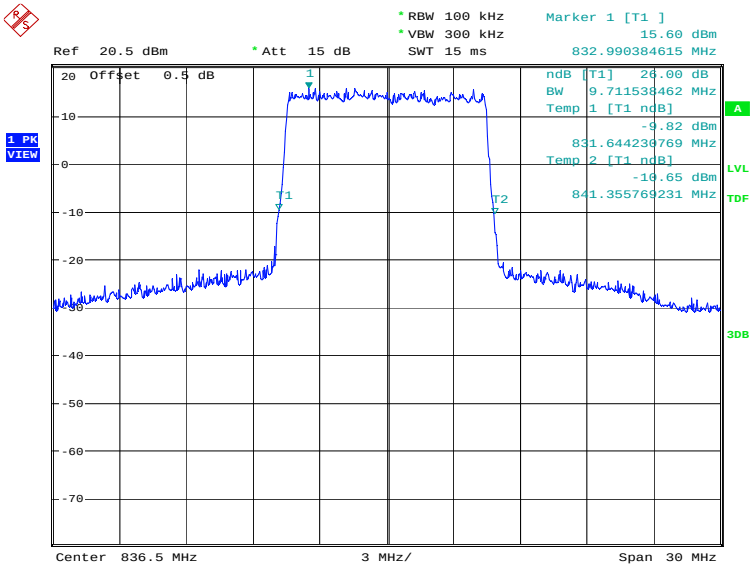


Date: 6.DEC.2021 09:11:06

LTE band 5, 10MHz (-26dBc)

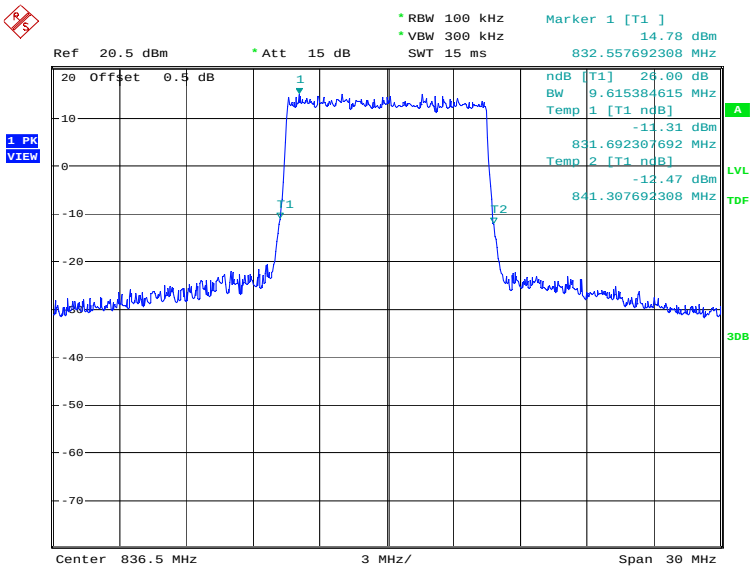
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	9711.54	9615.38

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



Date: 6.DEC.2021 09:11:47

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

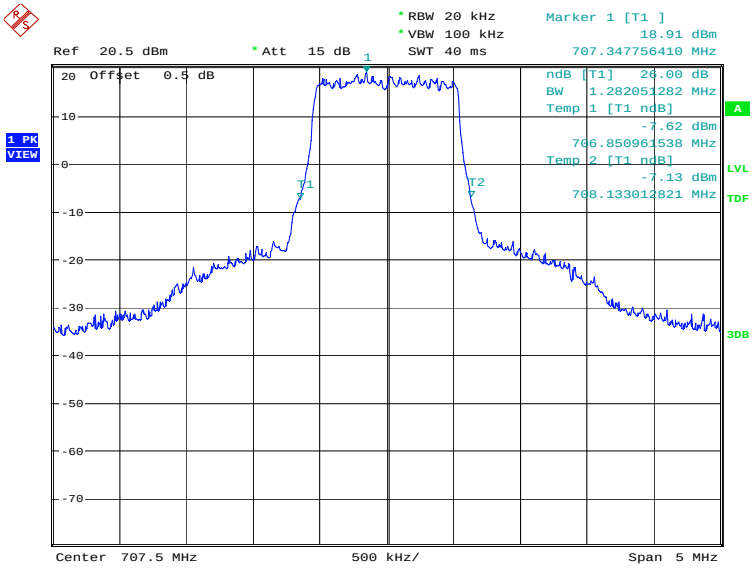


Date: 6.DEC.2021 09:12:26

LTE band 12, 1.4MHz (-26dBc)

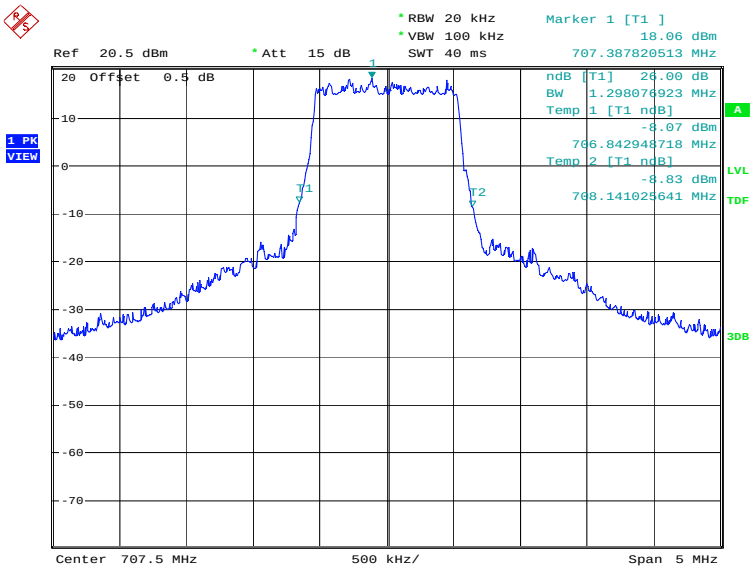
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	1282.05	1298.08

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



Date: 6.DEC.2021 09:13:08

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

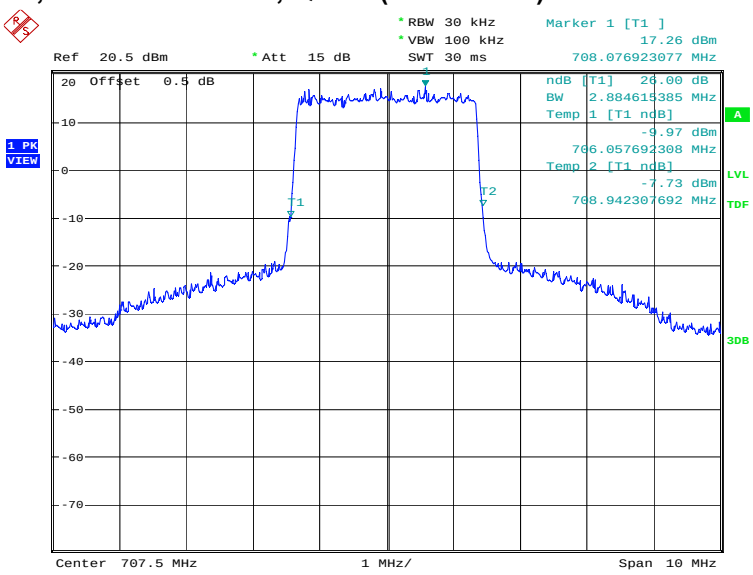


Date: 6.DEC.2021 09:13:48

LTE band 12, 3MHz (-26dBc)

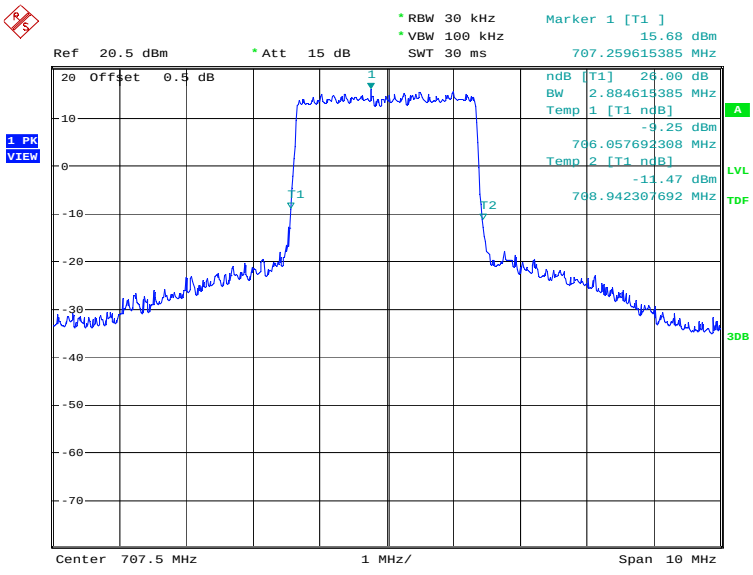
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	2884.62	2884.62

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



Date: 6.DEC.2021 09:14:29

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

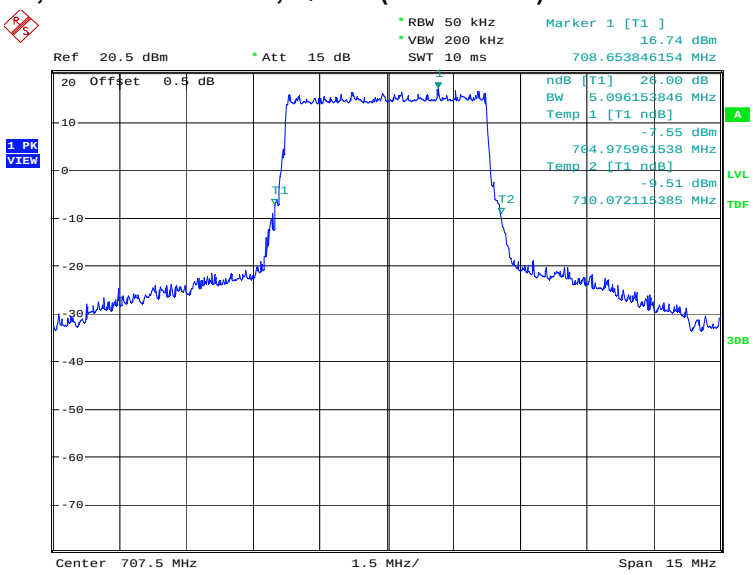


Date: 6.DEC.2021 09:15:08

LTE band 12, 5MHz (-26dBc)

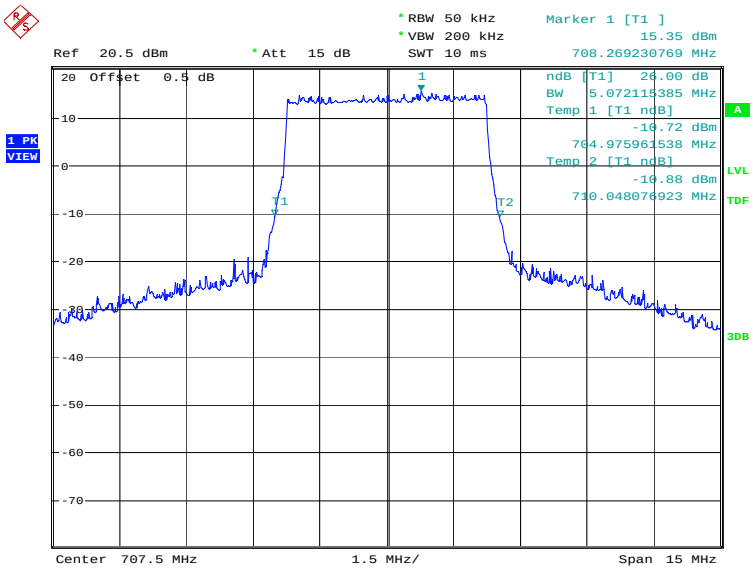
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	5096.15	5072.12

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



Date: 6.DEC.2021 09:15:49

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

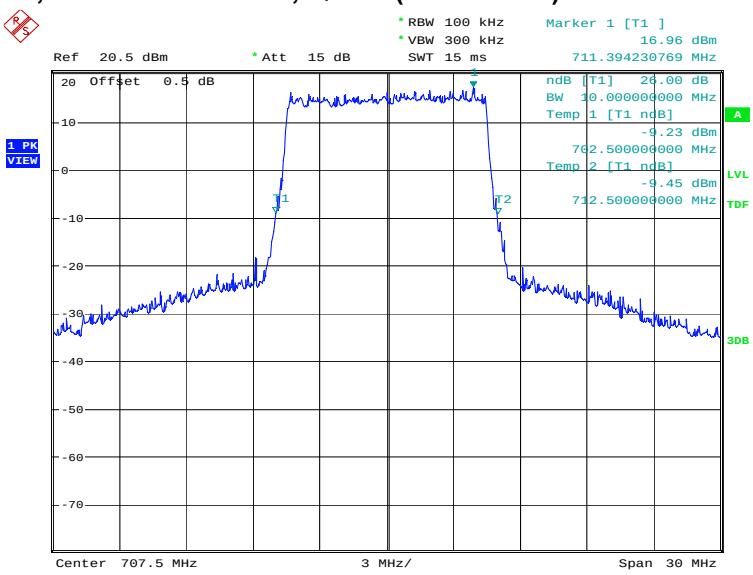


Date: 6.DEC.2021 09:16:28

LTE band 12, 10MHz (-26dBc)

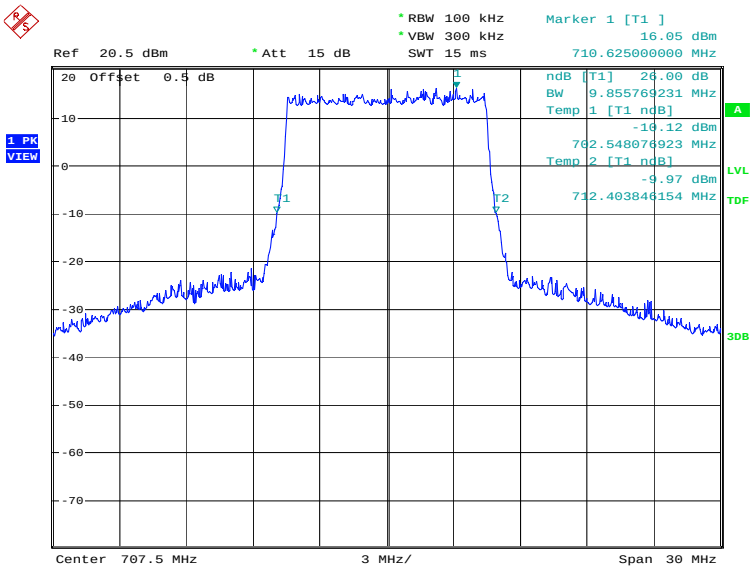
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	10000.00	9855.77

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



Date: 6.DEC.2021 09:17:09

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

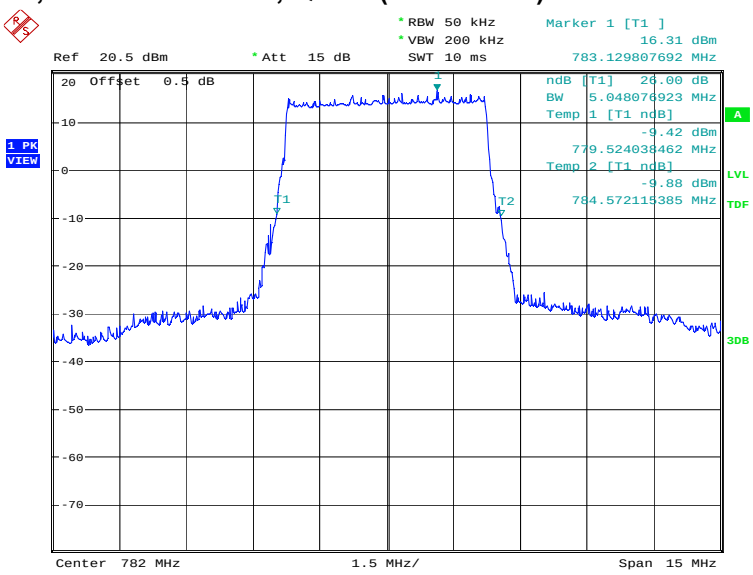


Date: 6.DEC.2021 09:17:49

LTE band 13, 5MHz (-26dBc)

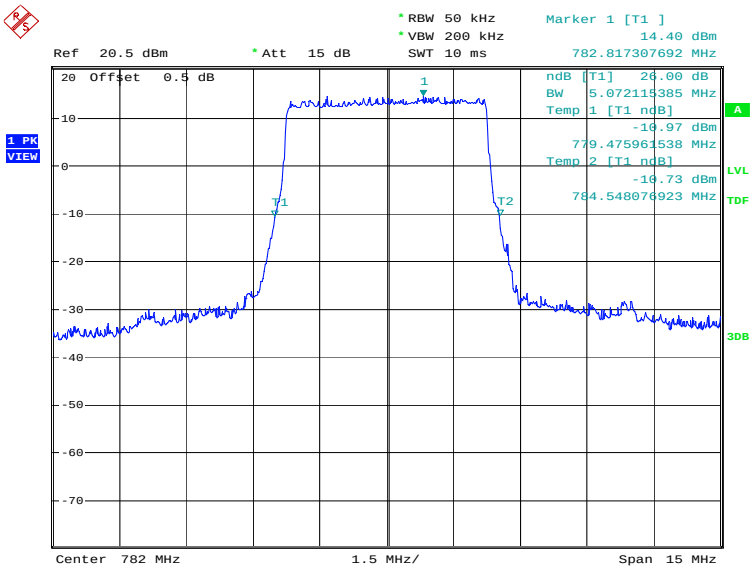
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
782.0	QPSK	16QAM
	5048.08	5072.12

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



Date: 6.DEC.2021 09:18:31

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

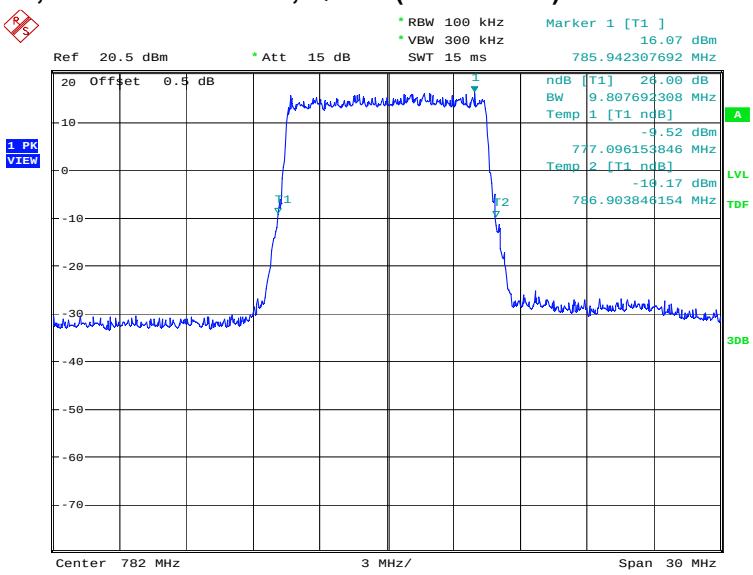


Date: 6.DEC.2021 09:19:10

LTE band 13, 10MHz (-26dBc)

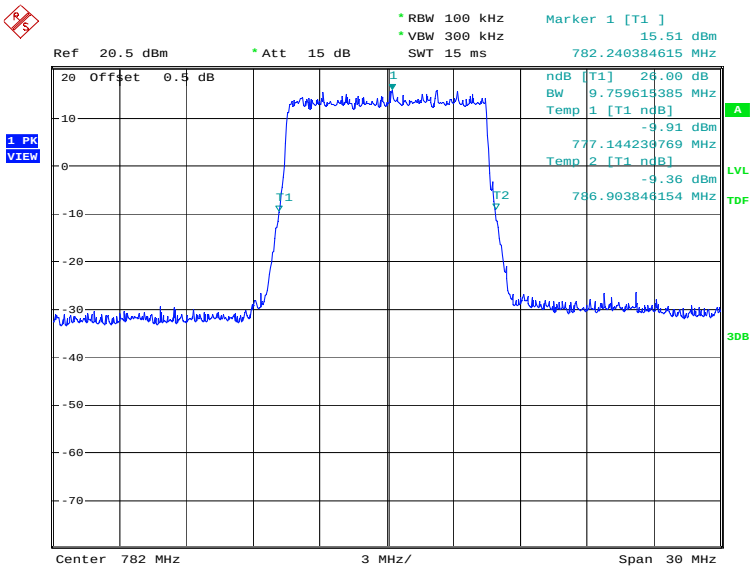
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
782.0	QPSK	16QAM
	9807.69	9759.62

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



Date: 6.DEC.2021 09:19:52

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

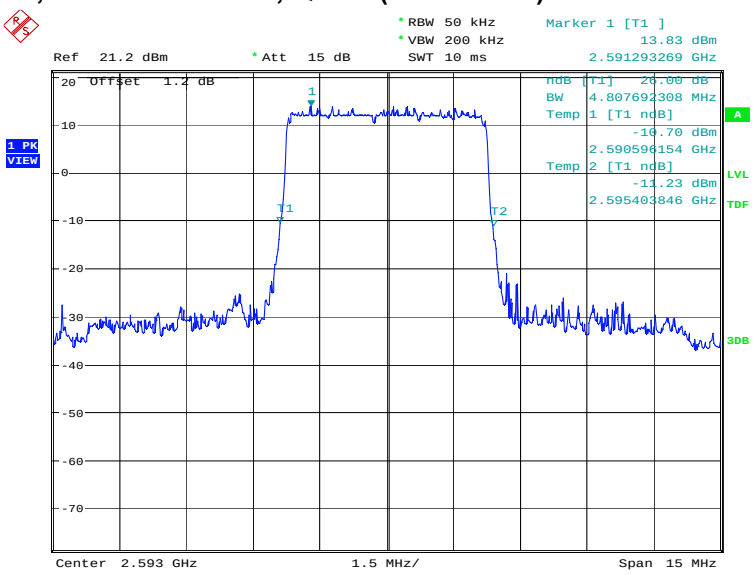


Date: 6.DEC.2021 09:20:31

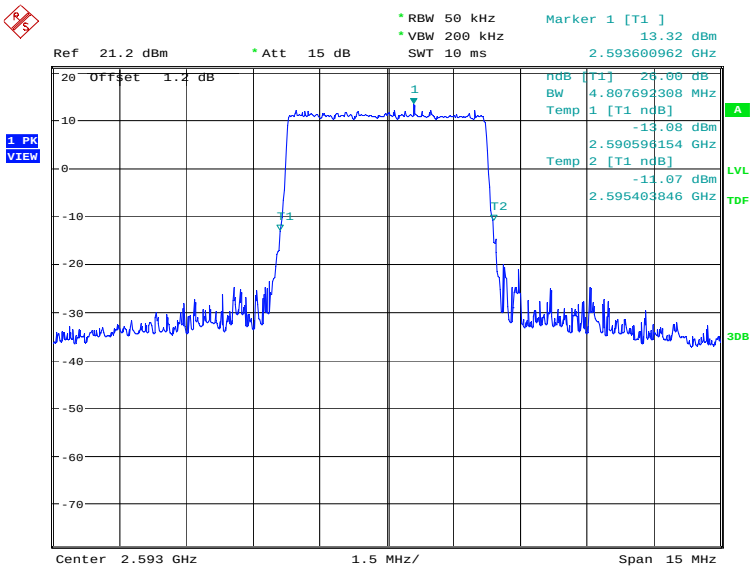
LTE band 41, 5MHz (-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2593.0	QPSK	16QAM
	4807.69	4807.69

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



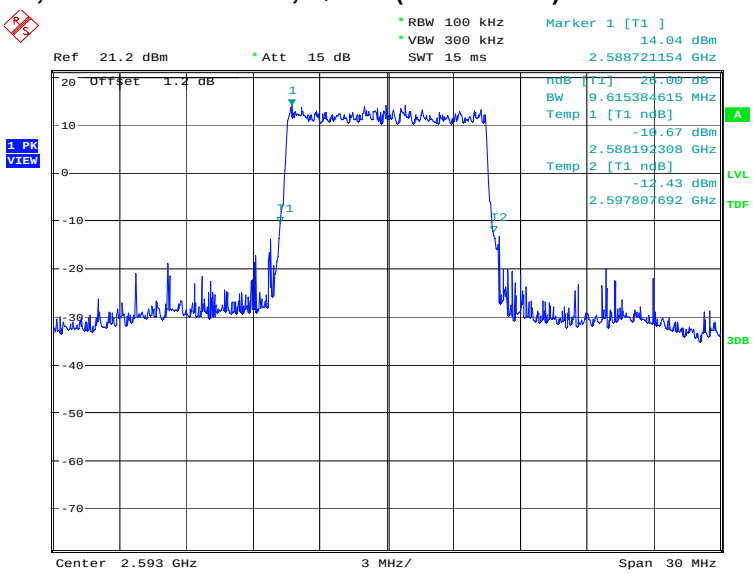
LTE band 41, 5MHz Bandwidth,16QAM (-26dBc BW)



LTE band 41, 10MHz (-26dBc)

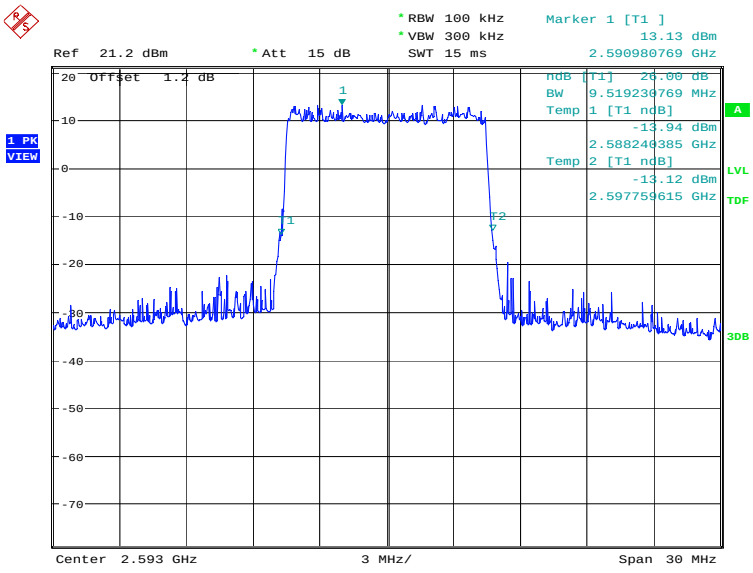
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2593.0	QPSK	16QAM
	9615.38	9519.23

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



Date: 6.DEC.2021 09:31:22

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

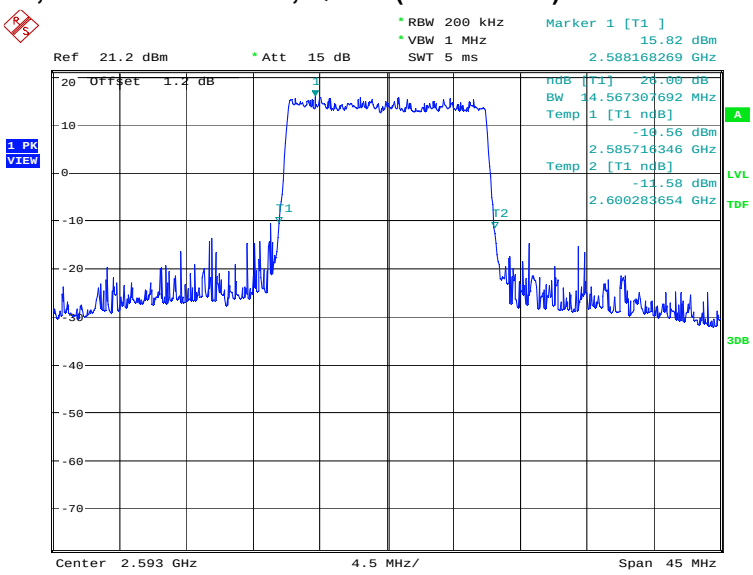


Date: 6.DEC.2021 09:32:02

LTE band 41, 15MHz (-26dBc)

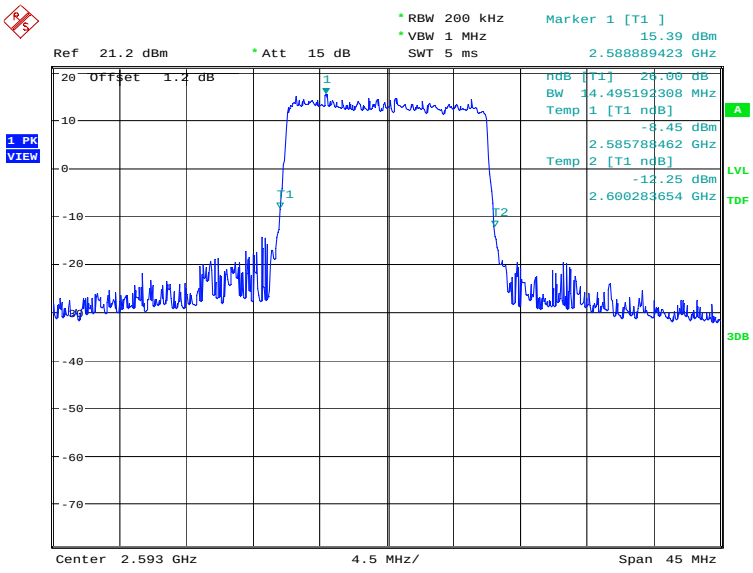
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2593.0	QPSK	16QAM
	14567.31	14495.19

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



Date: 6.DEC.2021 09:32:43

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

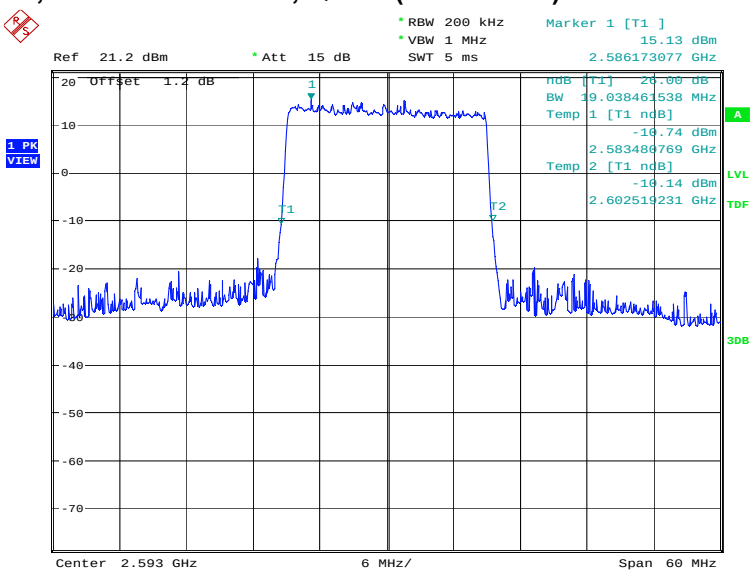


Date: 6.DEC.2021 09:33:23

LTE band 41, 20MHz (-26dBc)

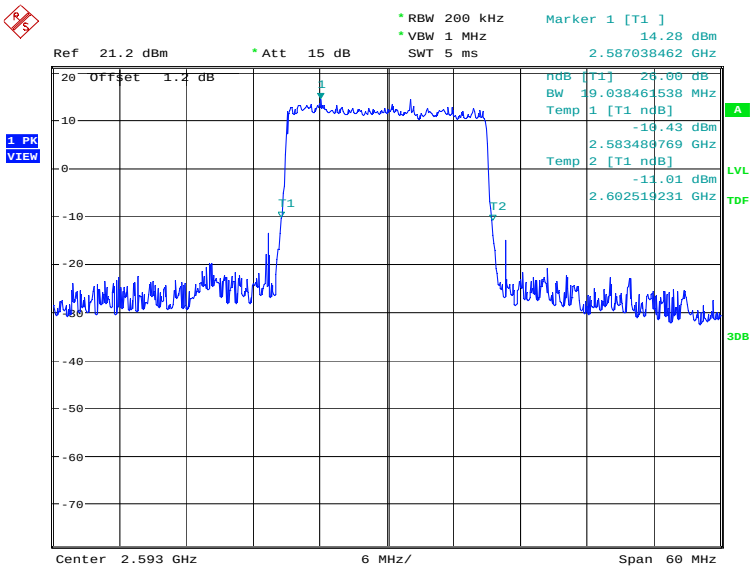
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2593.0	QPSK	16QAM
	19038.46	19038.46

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



Date: 6.DEC.2021 09:34:04

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

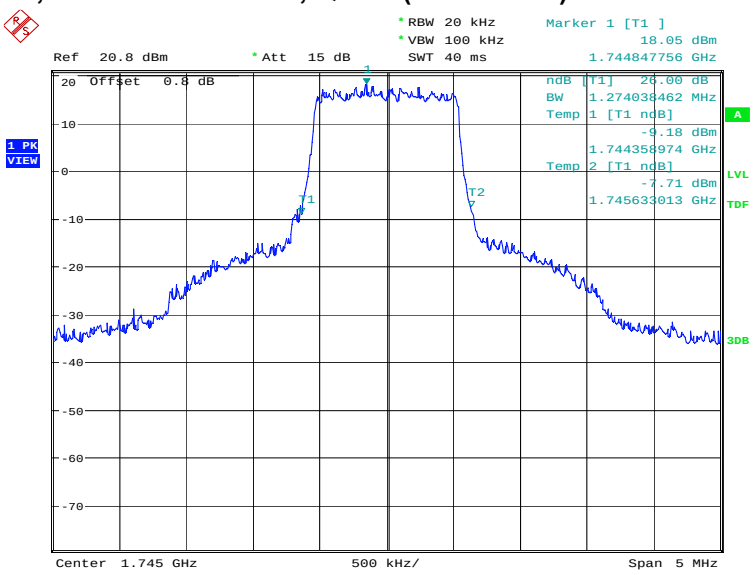


Date: 6.DEC.2021 09:34:43

LTE band 66, 1.4MHz (-26dBc)

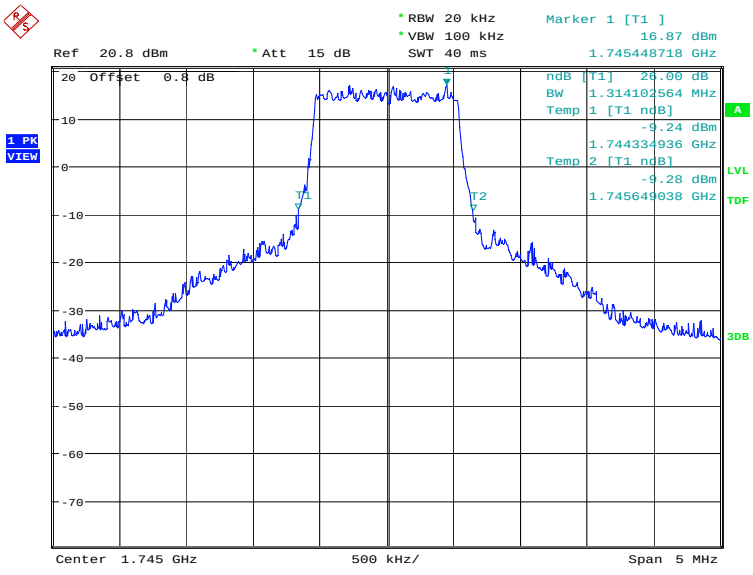
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	1274.04	1314.10

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



Date: 6.DEC.2021 09:21:14

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

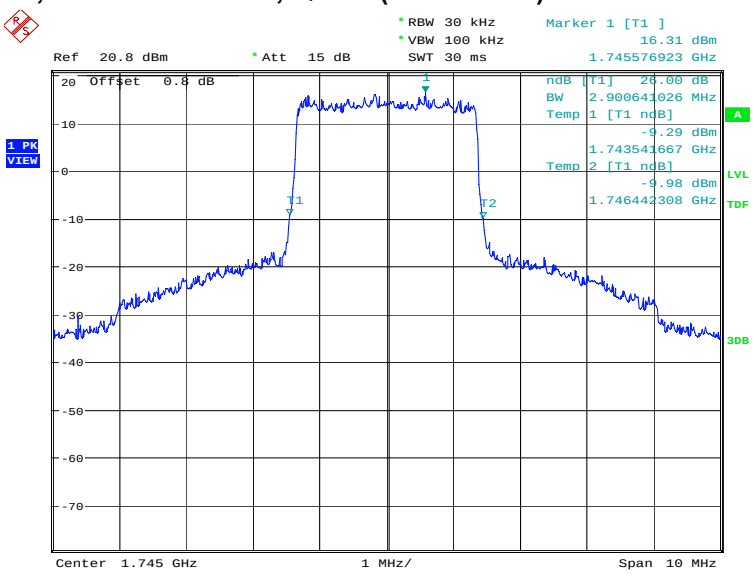


Date: 6.DEC.2021 09:21:53

LTE band 66, 3MHz (-26dBc)

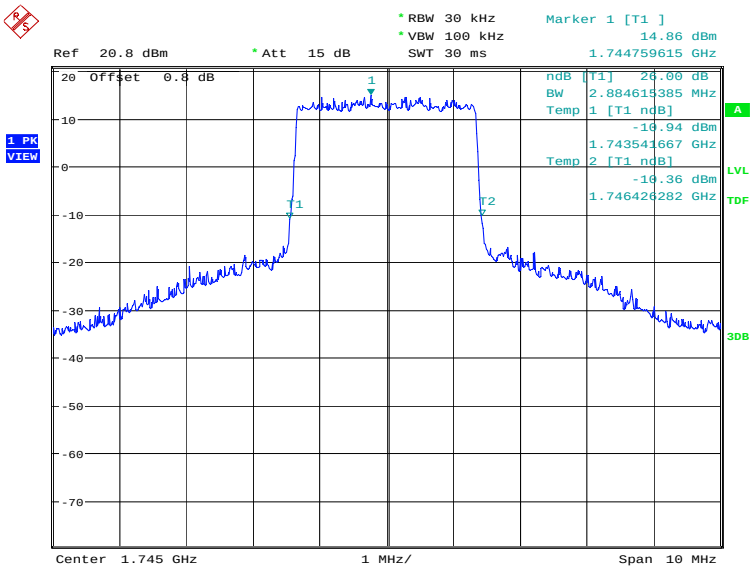
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	2900.64	2884.62

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



Date: 6.DEC.2021 09:22:34

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

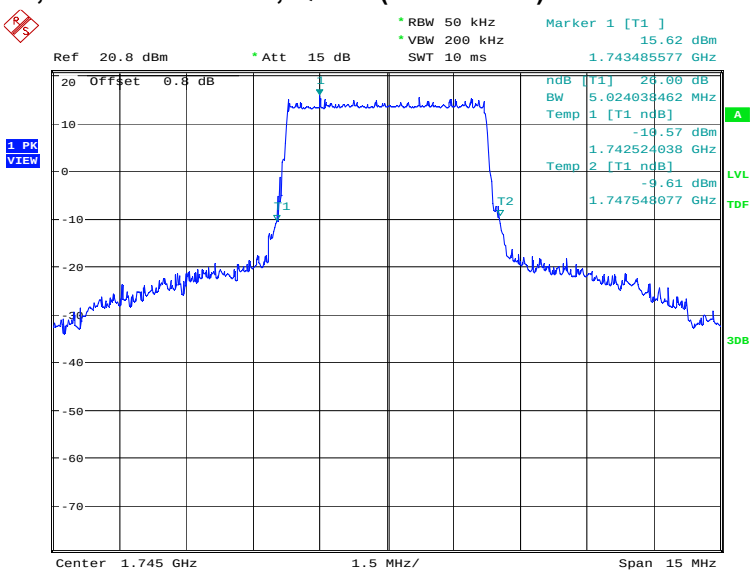


Date: 6.DEC.2021 09:23:14

LTE band 66, 5MHz (-26dBc)

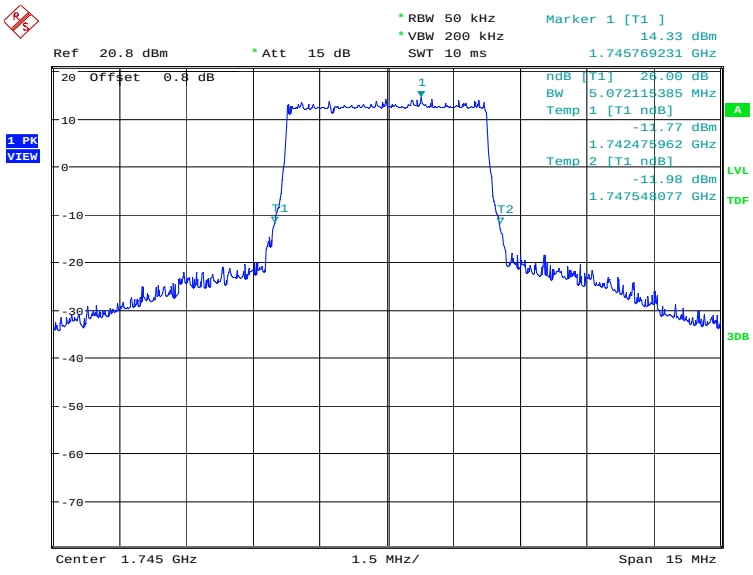
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	5024.04	5072.12

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



Date: 6.DEC.2021 09:23:55

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

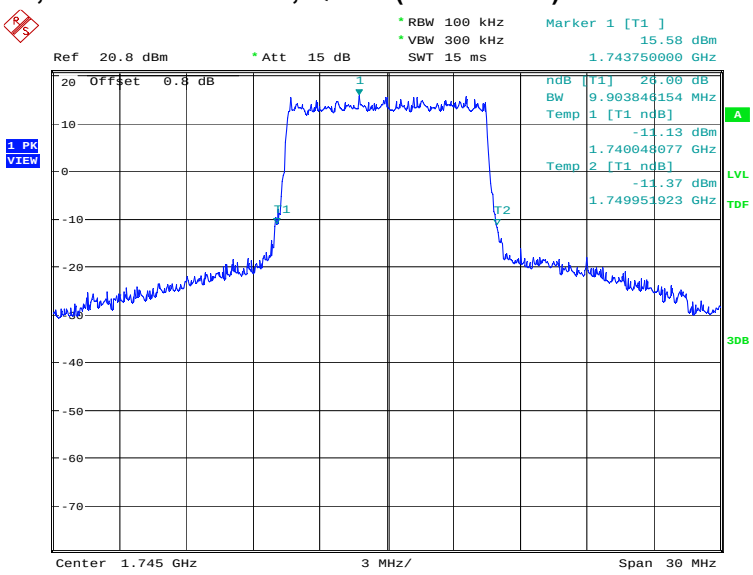


Date: 6.DEC.2021 09:24:34

LTE band 66, 10MHz (-26dBc)

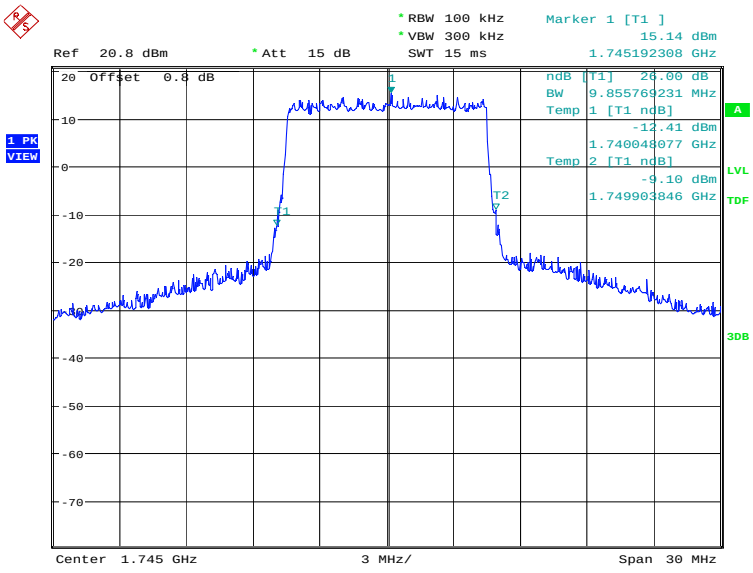
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	9903.85	9855.77

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



Date: 6.DEC.2021 09:25:15

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

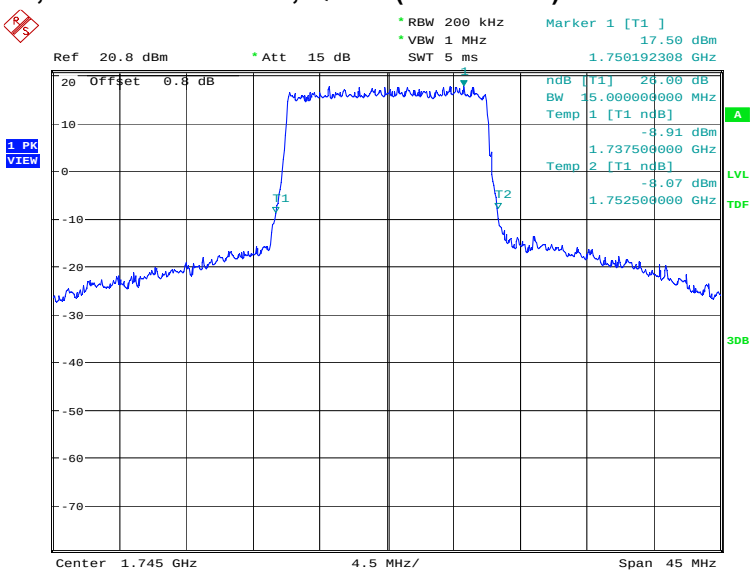


Date: 6.DEC.2021 09:25:54

LTE band 66, 15MHz (-26dBc)

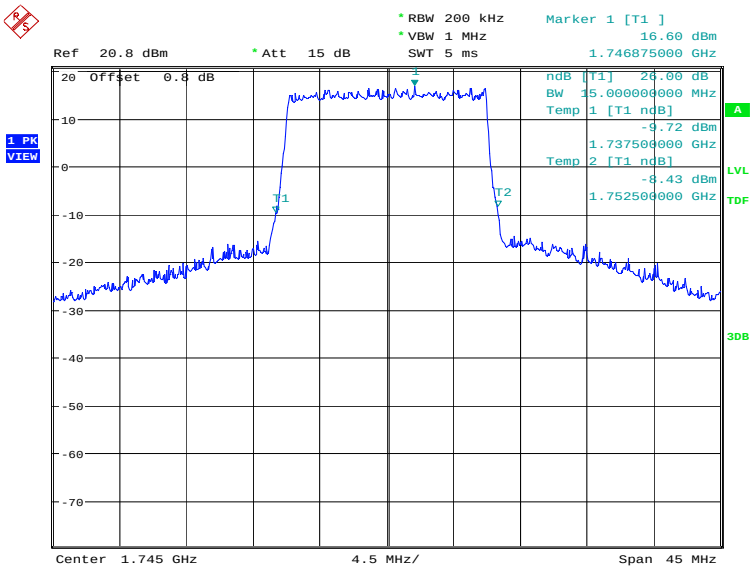
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	15000.00	15000.00

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



Date: 6.DEC.2021 09:26:35

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

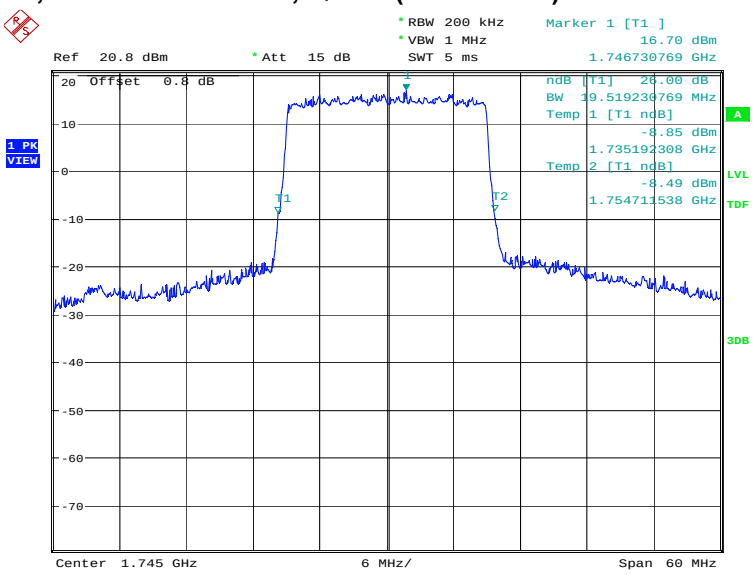


Date: 6.DEC.2021 09:27:15

LTE band 66, 20MHz (-26dBc)

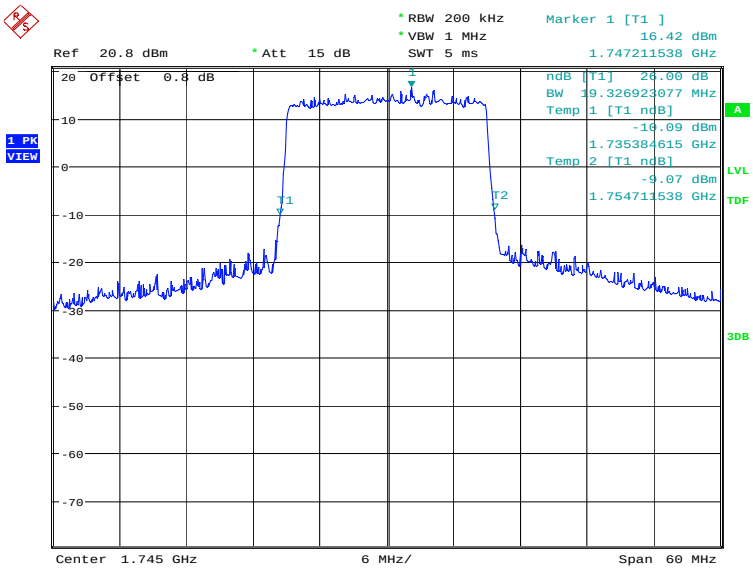
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	19519.23	19326.92

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



Date: 6.DEC.2021 09:27:55

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

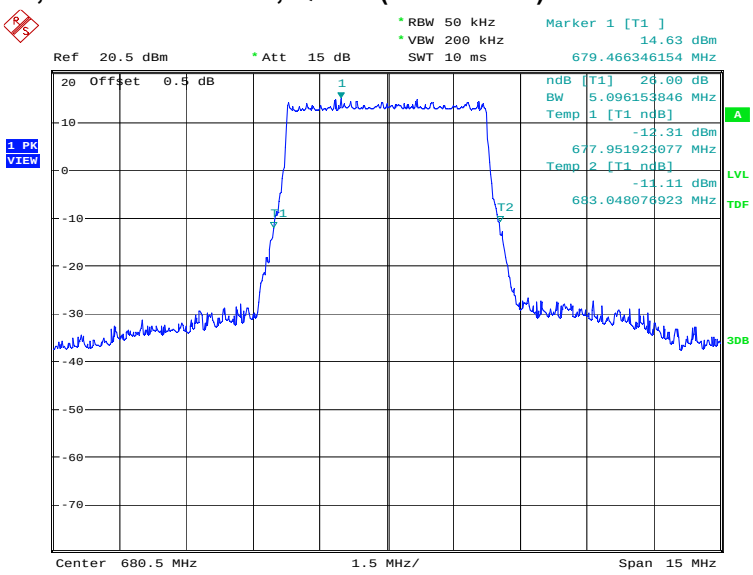


Date: 6.DEC.2021 09:28:35

LTE band 71, 5MHz (-26dBc)

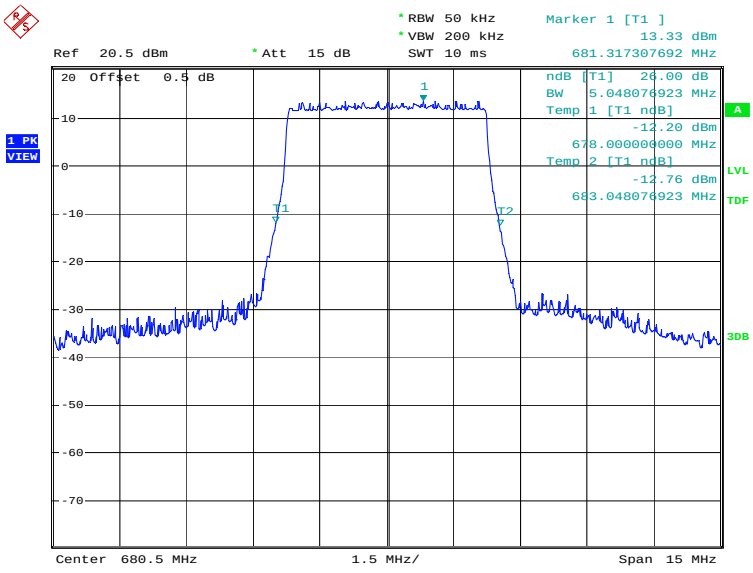
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
680.5	QPSK	16QAM
	5096.15	5048.08

LTE band 71, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 6.DEC.2021 08:53:33

LTE band 71, 5MHz Bandwidth, 16QAM (-26dBc BW)

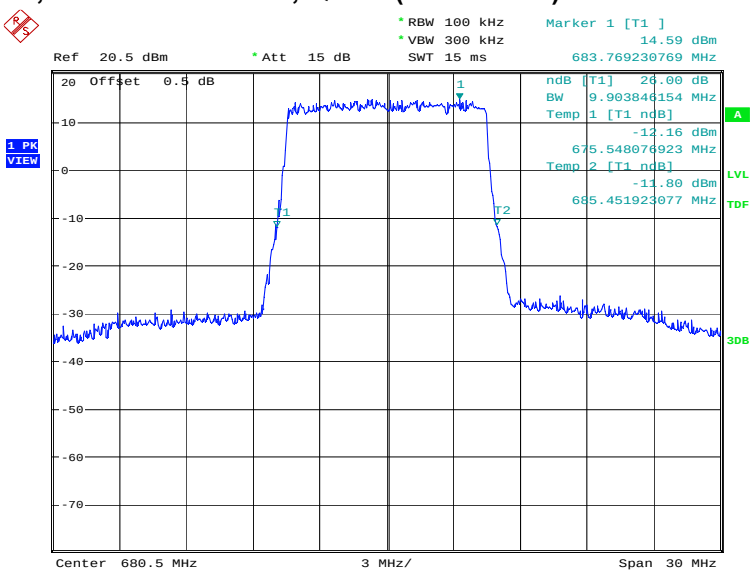


Date: 6.DEC.2021 08:54:13

LTE band 71, 10MHz (-26dBc)

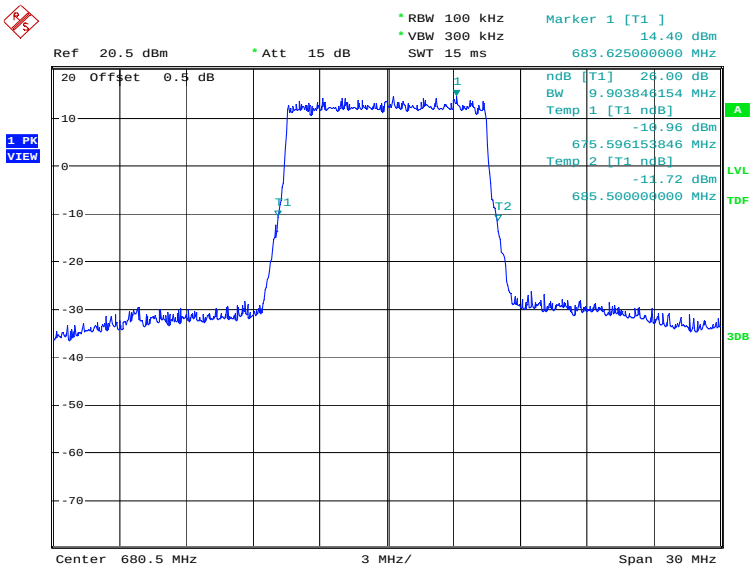
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
680.5	QPSK	16QAM
	9903.85	9903.85

LTE band 71, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 6.DEC.2021 08:54:54

LTE band 71, 10MHz Bandwidth, 16QAM (-26dBc BW)

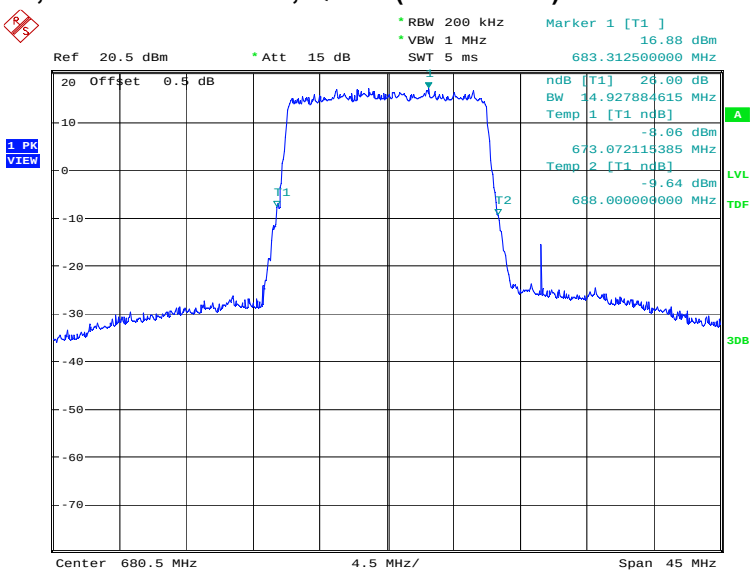


Date: 6.DEC.2021 08:55:34

LTE band 71, 15MHz (-26dBc)

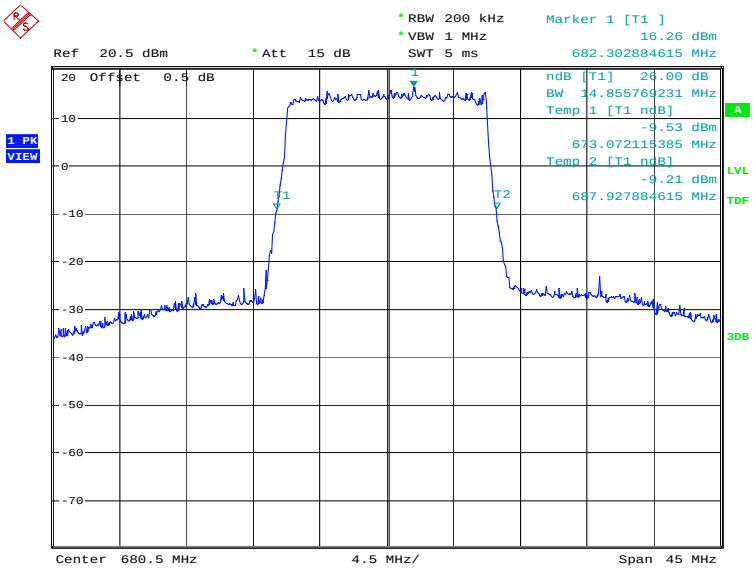
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
680.5	QPSK	16QAM
	14927.88	14855.77

LTE band 71, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 6.DEC.2021 08:56:14

LTE band 71, 15MHz Bandwidth, 16QAM (-26dBc BW)

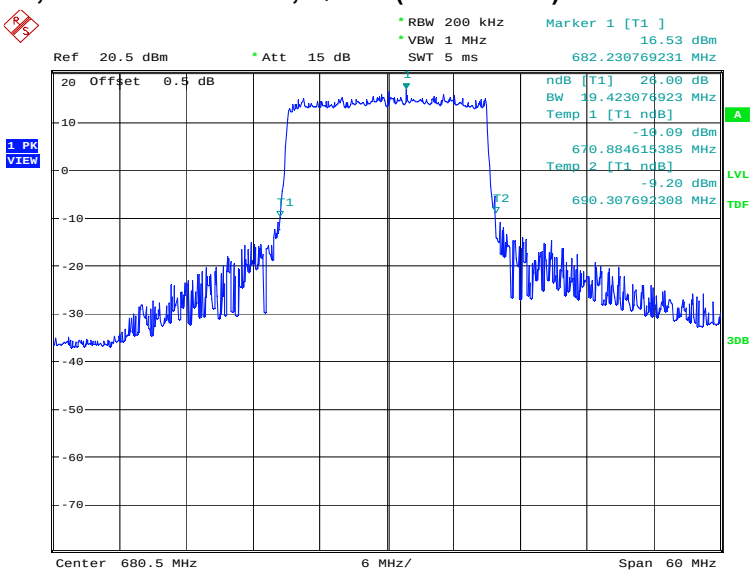


Date: 6.DEC.2021 08:56:54

LTE band 71, 20MHz (-26dBc)

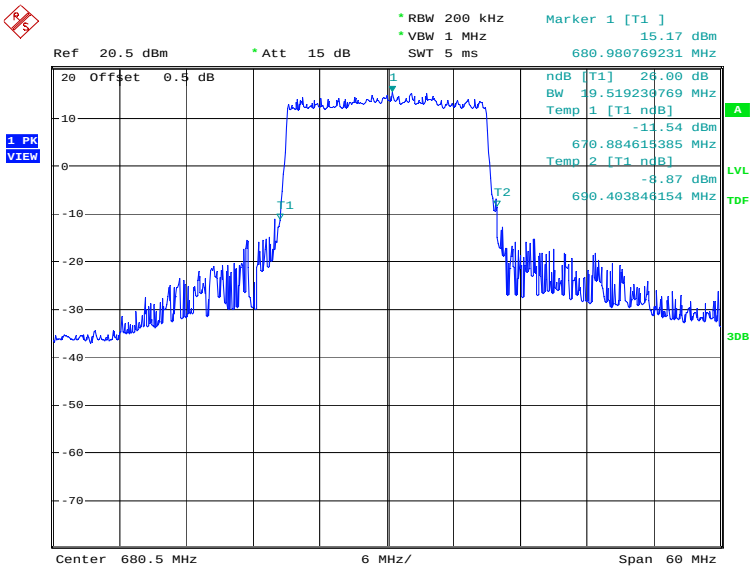
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
680.5	QPSK	16QAM
	19423.08	19519.23

LTE band 71, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 6.DEC.2021 08:57:35

LTE band 71, 20MHz Bandwidth, 16QAM (-26dBc BW)

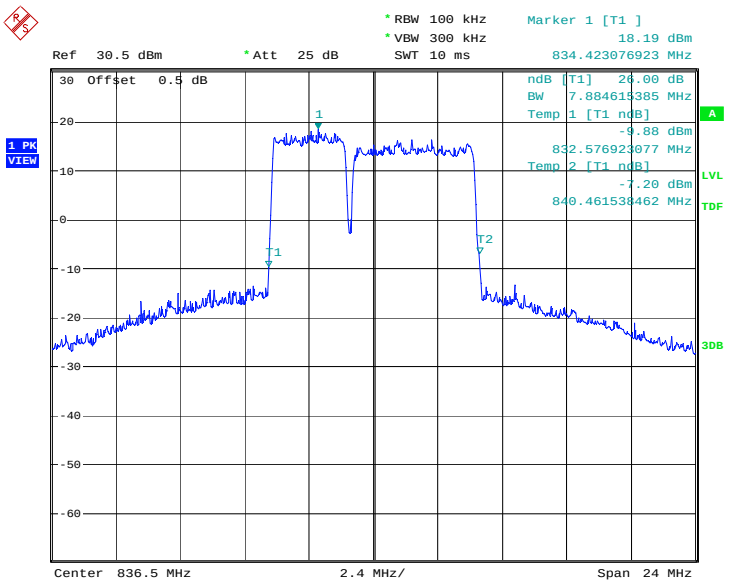


Date: 6.DEC.2021 08:58:14

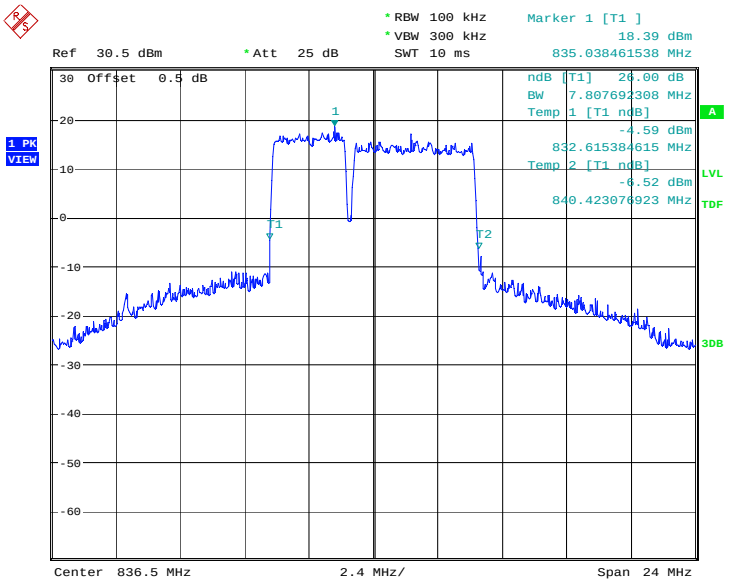
LTE CA Band 5B , 3MHz+5MHz (-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
834.1	7.885	7.808

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



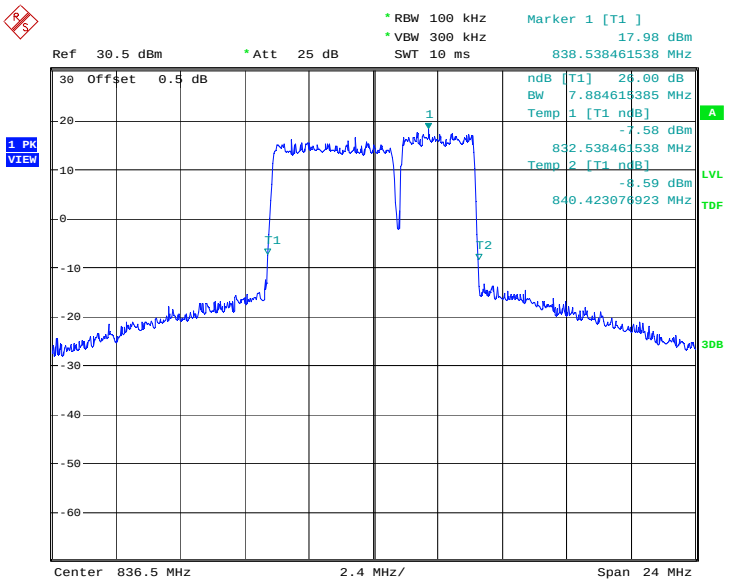
LTE CA Band 5B , 3MHz+5MHz Bandwidth, 16QAM (-26dBc BW)



LTE CA Band 5B , 5MHz+3MHz (-26dBc)

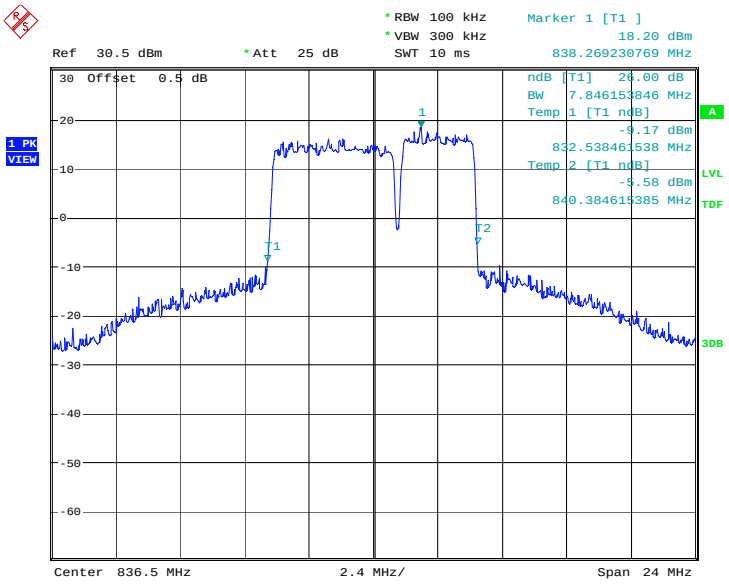
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
835	7.885	7.846

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



Date: 8.DEC.2021 08:33:50

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

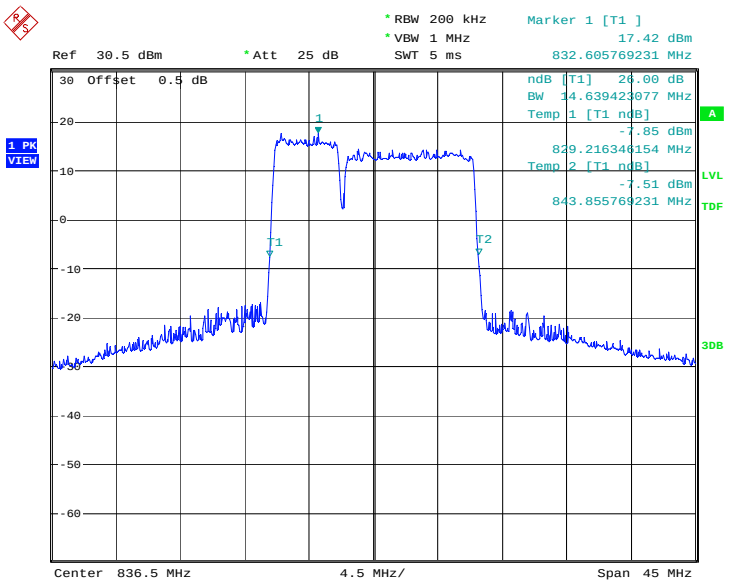


Date: 8.DEC.2021 08:34:11

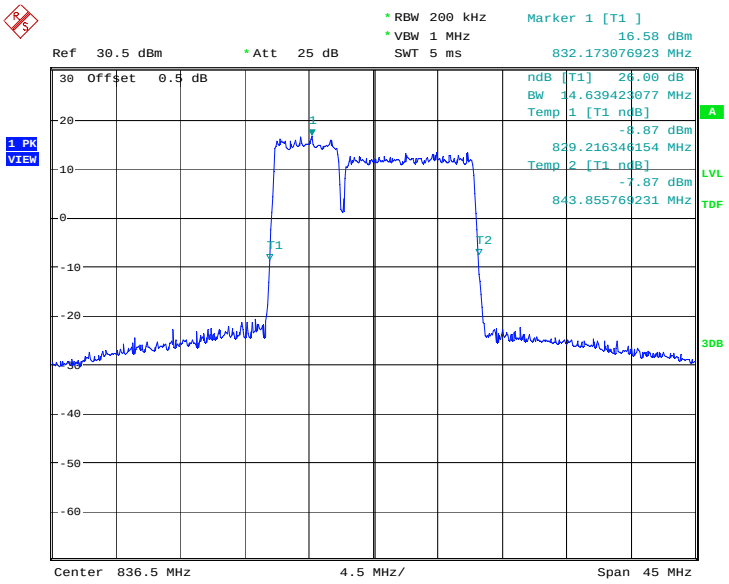
LTE CA Band 5B , 5MHz+10MHz (-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
831.8	14.639	14.639

LTE CA Band 5B , 5MHz+10MHz Bandwidth, QPSK (-26dBc BW)



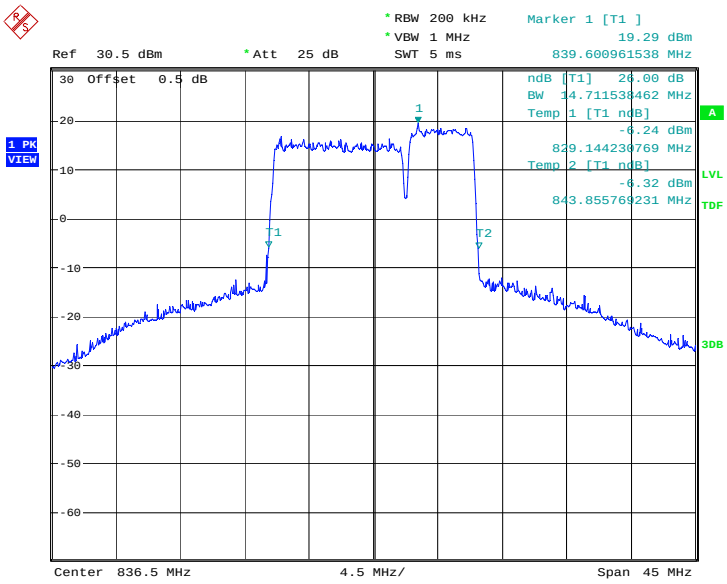
LTE CA Band 5B , 5MHz+10MHz Bandwidth, 16QAM (-26dBc BW)



LTE CA Band 5B , 10MHz+5MHz (-26dBc)

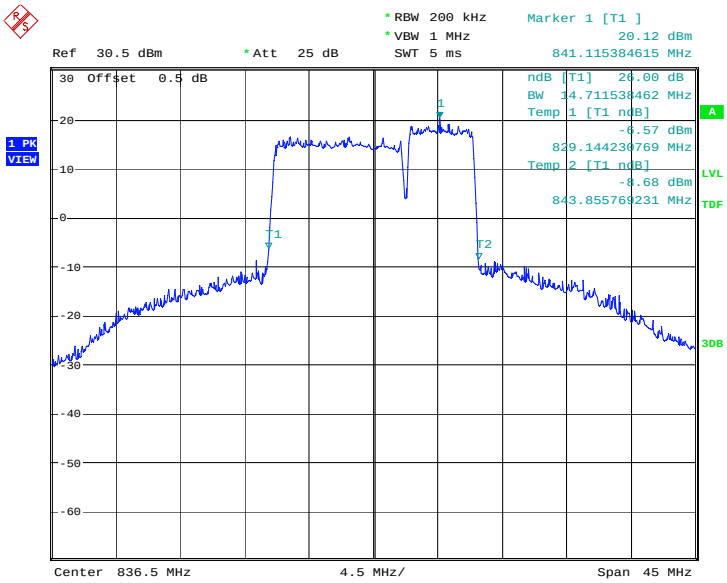
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
834	14.712	14.712

LTE CA Band 5B , 10MHz+5MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 08:37:13

LTE CA Band 5B , 10MHz+5MHz Bandwidth, 16QAM (-26dBc BW)

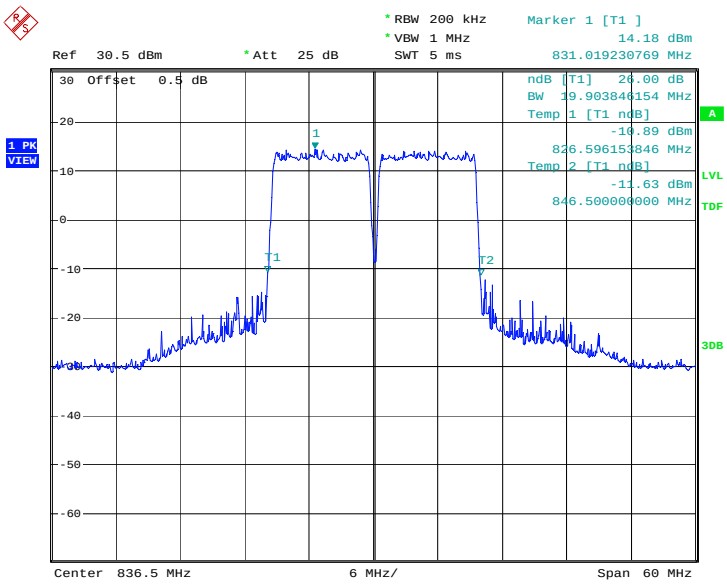


Date: 8.DEC.2021 08:37:34

LTE CA Band 5B , 10MHz+10MHz (-26dBc)

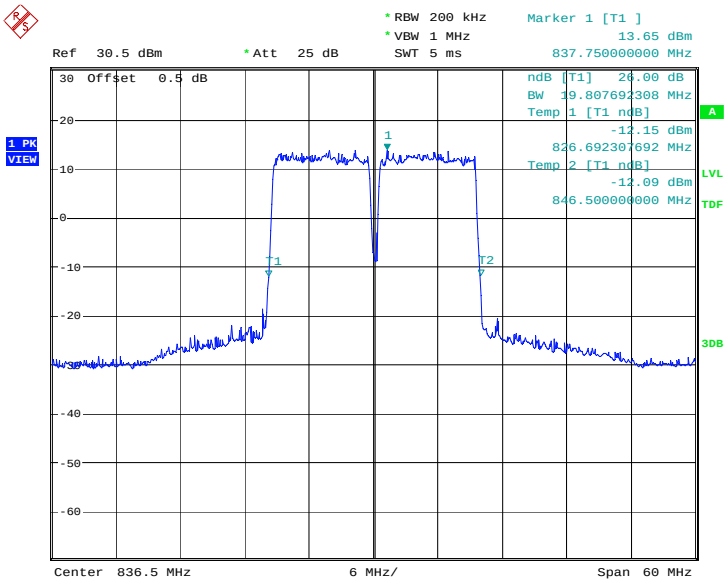
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
831.6	19.904	19.808

LTE CA Band 5B , 10MHz+10MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 08:38:53

LTE CA Band 5B , 10MHz+10MHz Bandwidth, 16QAM (-26dBc BW)

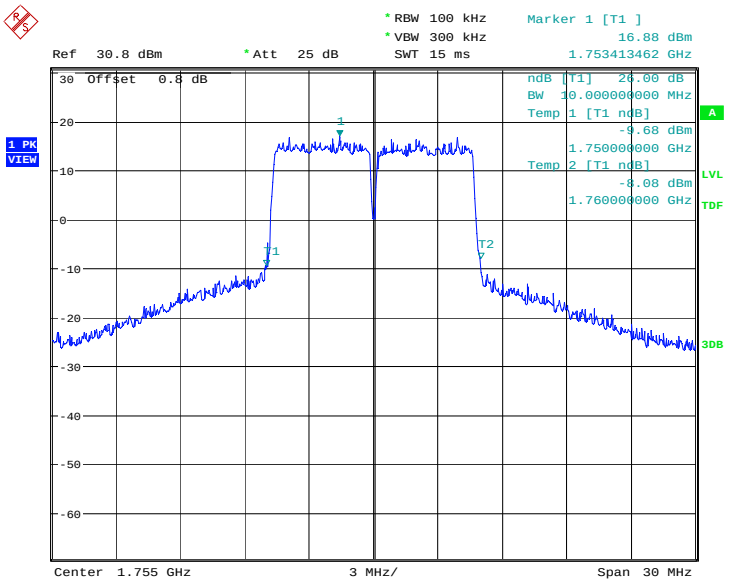


Date: 8.DEC.2021 08:39:14

LTE CA Band 66B , 5MHz+5MHz (-26dBc)

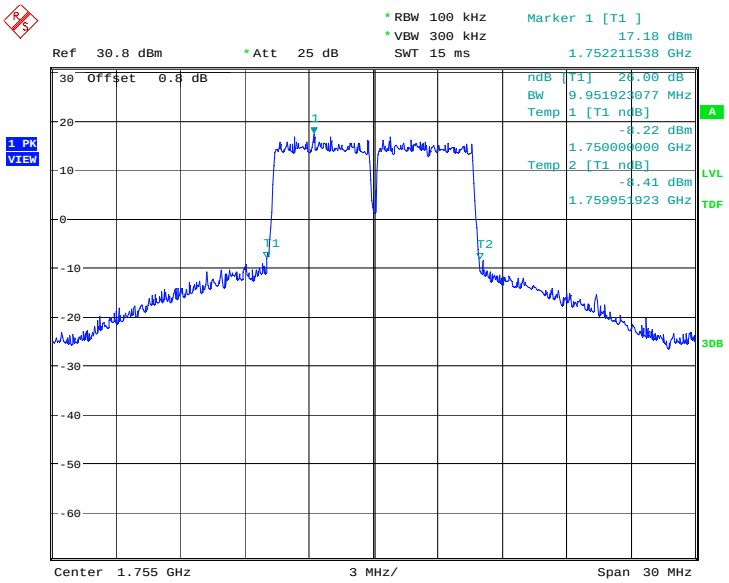
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1752.6	10.000	9.952

LTE CA Band 66B , 5MHz+5MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 08:40:39

LTE CA Band 66B , 5MHz+5MHz Bandwidth, 16QAM (-26dBc BW)

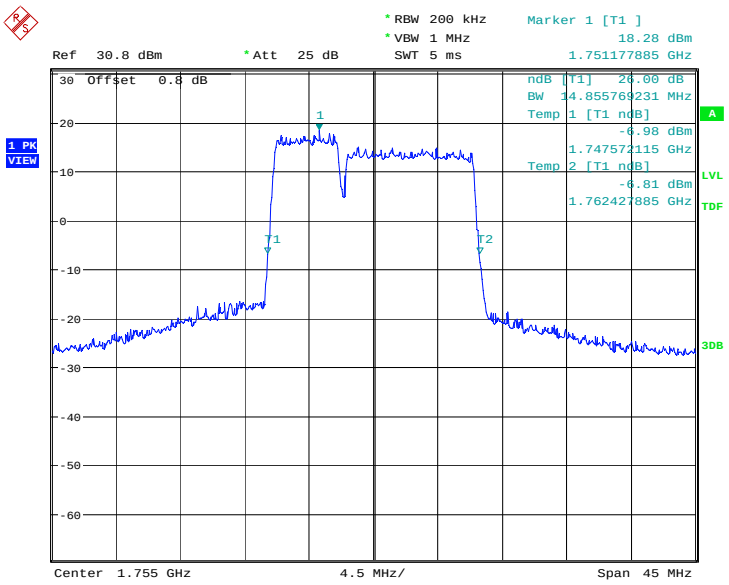


Date: 8.DEC.2021 08:41:00

LTE CA Band 66B , 5MHz+10MHz (-26dBc)

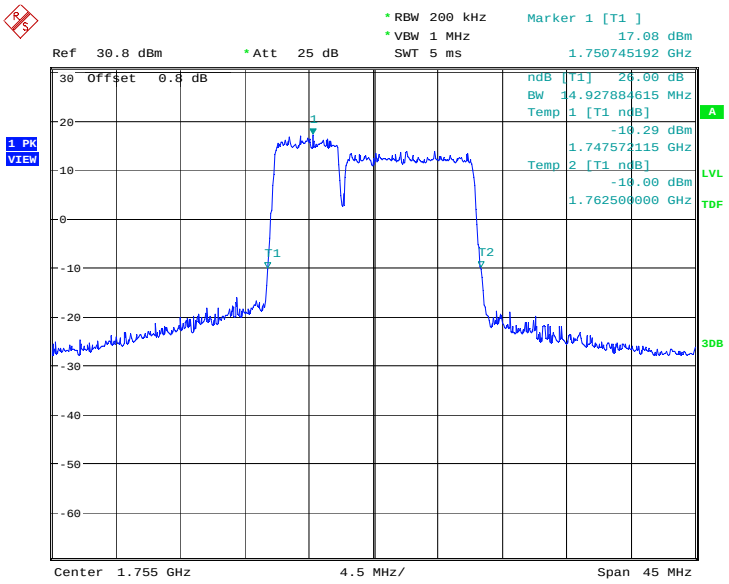
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1750.3	14.856	14.928

LTE CA Band 66B , 5MHz+10MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 08:42:19

LTE CA Band 66B , 5MHz+10MHz Bandwidth, 16QAM (-26dBc BW)

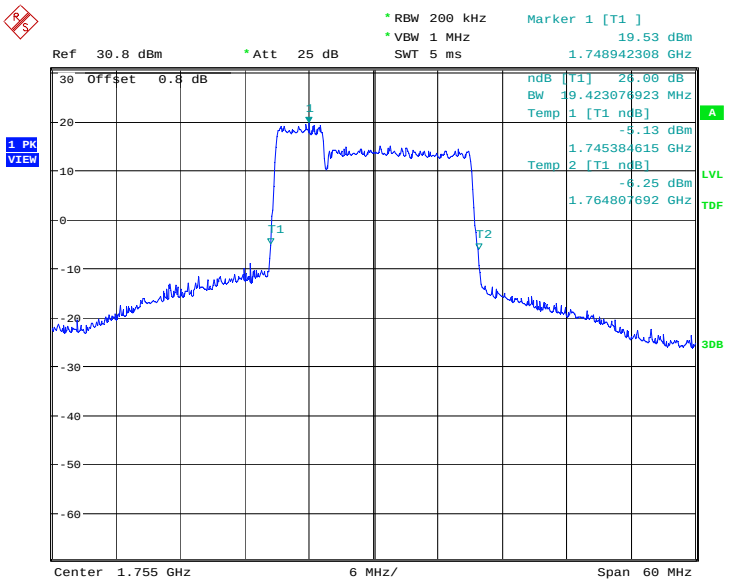


Date: 8.DEC.2021 08:42:40

LTE CA Band 66B , 5MHz+15MHz (-26dBc)

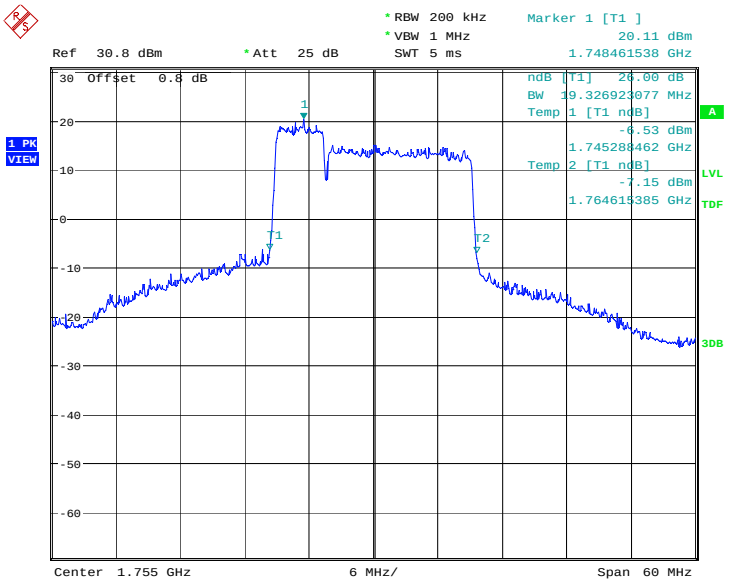
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1748.1	19.423	19.327

LTE CA Band 66B , 5MHz+15MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 08:43:59

LTE CA Band 66B , 5MHz+15MHz Bandwidth, 16QAM (-26dBc BW)

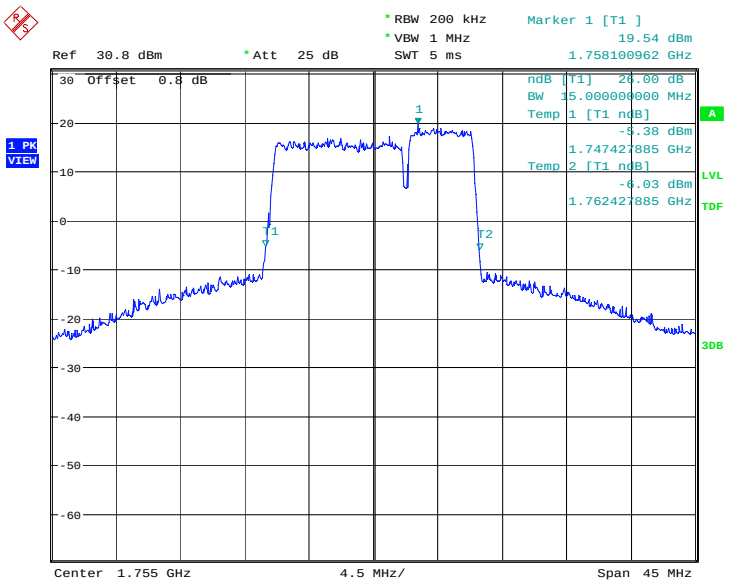


Date: 8.DEC.2021 08:44:20

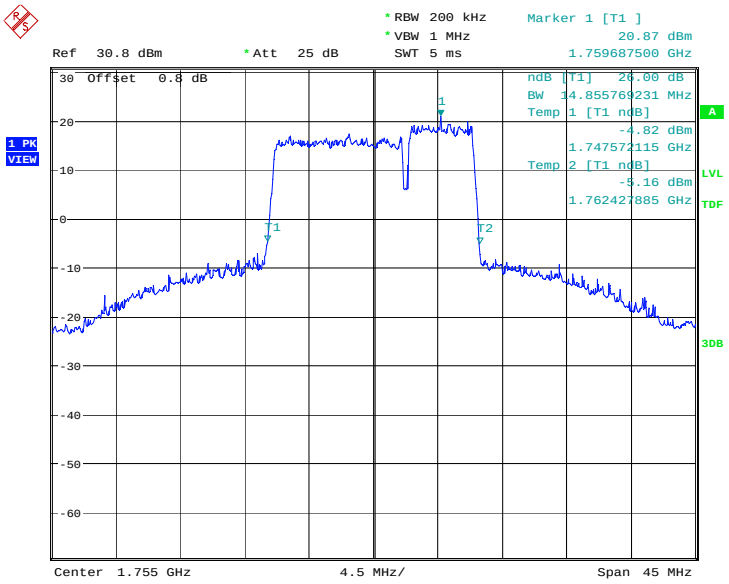
LTE CA Band 66B , 10MHz+5MHz (-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1752.5	15.000	14.856

LTE CA Band 66B , 10MHz+5MHz Bandwidth, QPSK (-26dBc BW)



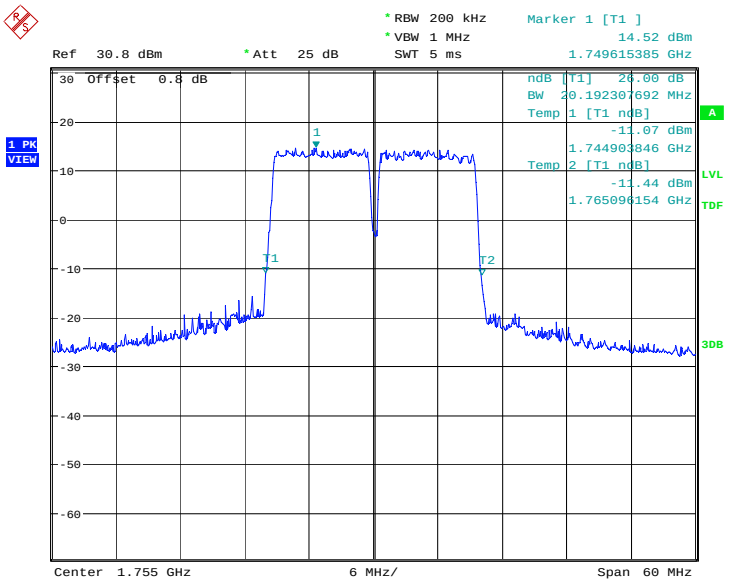
LTE CA Band 66B , 10MHz+5MHz Bandwidth, 16QAM (-26dBc BW)



LTE CA Band 66B , 10MHz+10MHz (-26dBc)

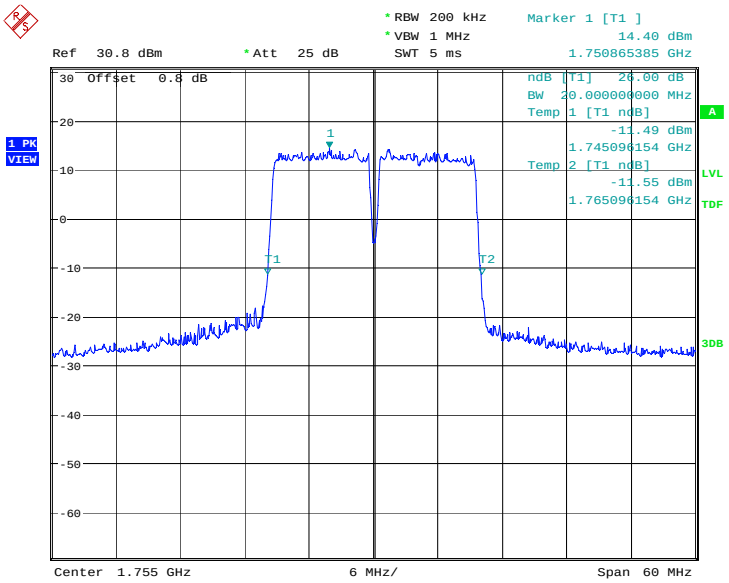
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1750.1	20.192	20.000

LTE CA Band 66B , 10MHz+10MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 08:49:53

LTE CA Band 66B , 10MHz+10MHz Bandwidth, 16QAM (-26dBc BW)

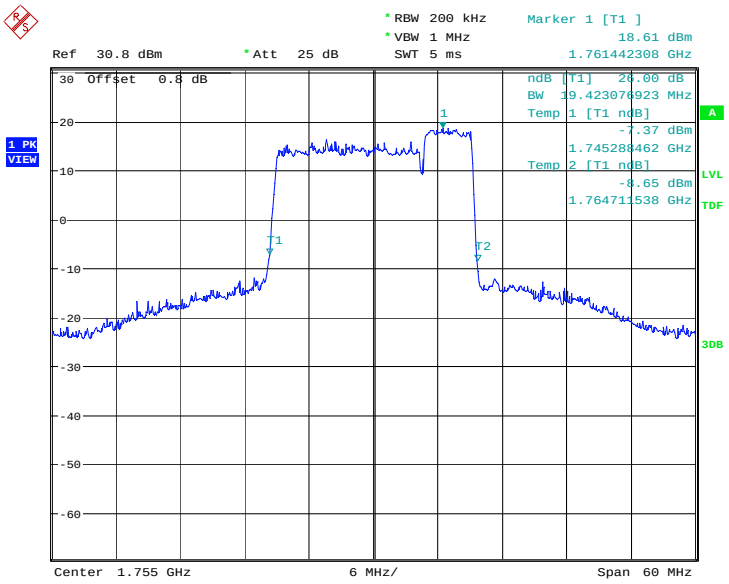


Date: 8.DEC.2021 08:50:14

LTE CA Band 66B , 15MHz+5MHz (-26dBc)

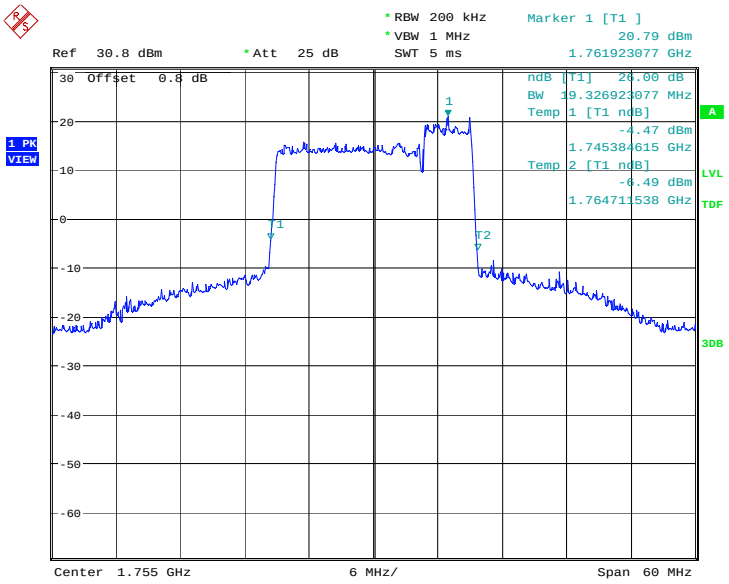
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1752.6	19.423	19.327

LTE CA Band 66B , 15MHz+5MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 08:54:56

LTE CA Band 66B , 15MHz+5MHz Bandwidth, 16QAM (-26dBc BW)

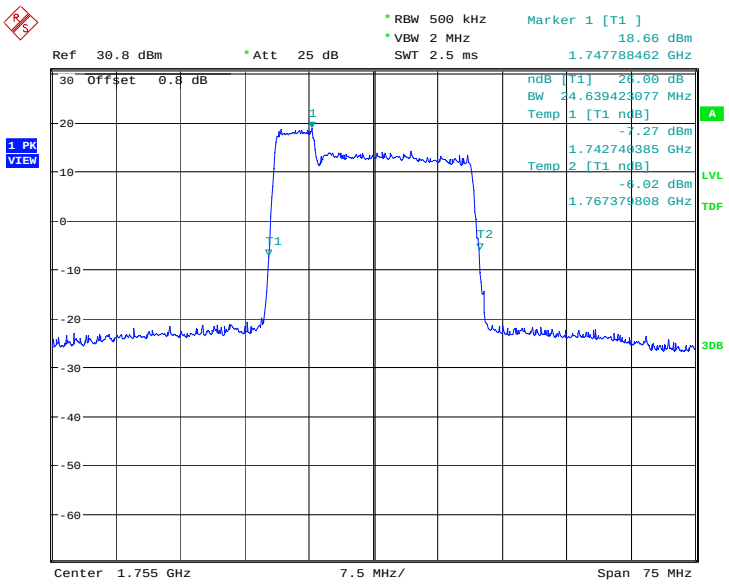


Date: 8.DEC.2021 08:55:17

LTE CA Band 66C , 5MHz+20MHz (-26dBc)

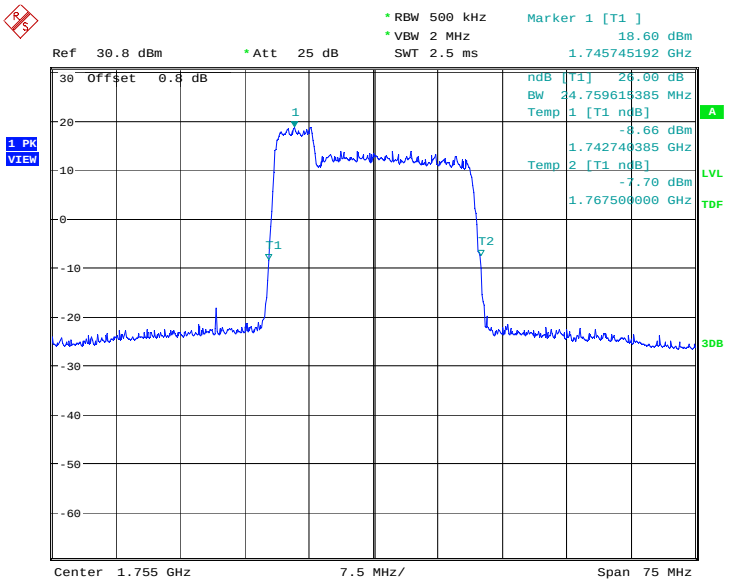
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1745.8	24.639	24.760

LTE CA Band 66C , 5MHz+20MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 08:45:38

LTE CA Band 66C , 5MHz+20MHz Bandwidth, 16QAM (-26dBc BW)

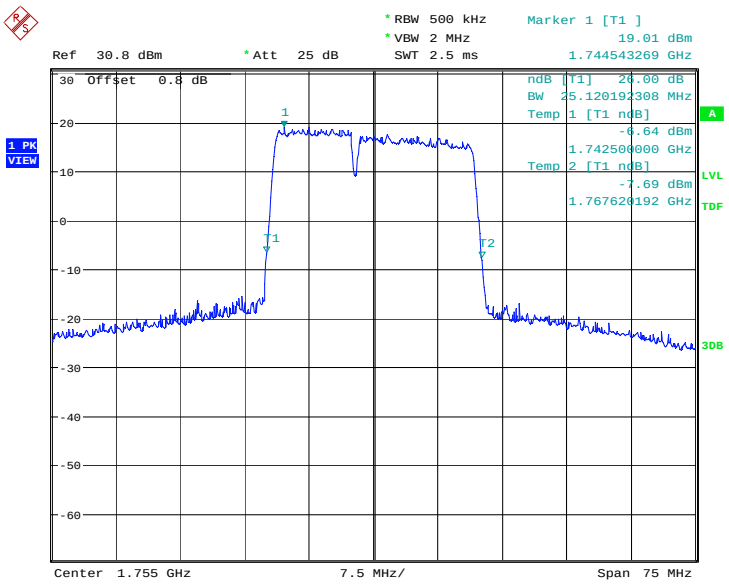


Date: 8.DEC.2021 08:46:51

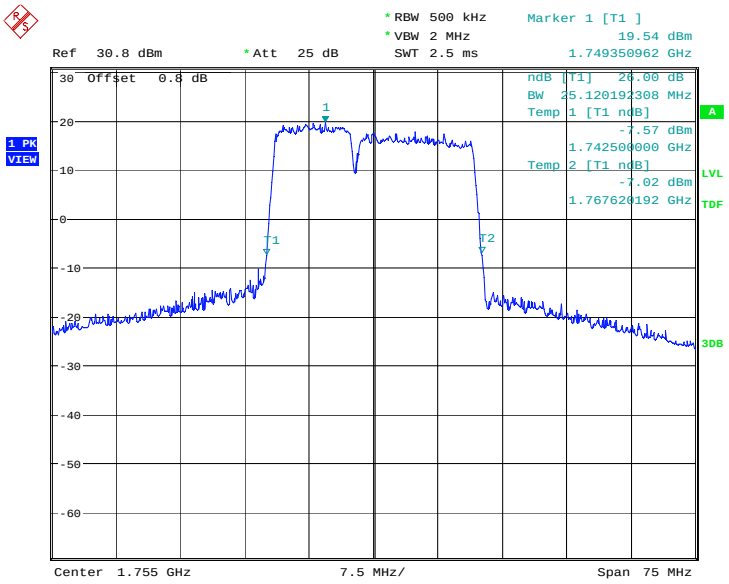
LTE CA Band 66C , 10MHz+15MHz (-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1747.9	25.120	25.120

LTE CA Band 66C , 10MHz+15MHz Bandwidth, QPSK (-26dBc BW)



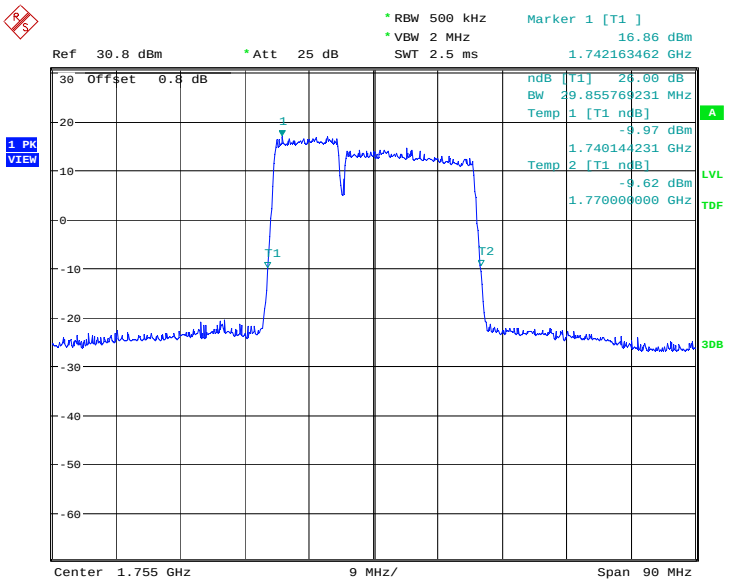
LTE CA Band 66C , 10MHz+15MHz Bandwidth, 16QAM (-26dBc BW)



LTE CA Band 66C , 10MHz+20MHz (-26dBc)

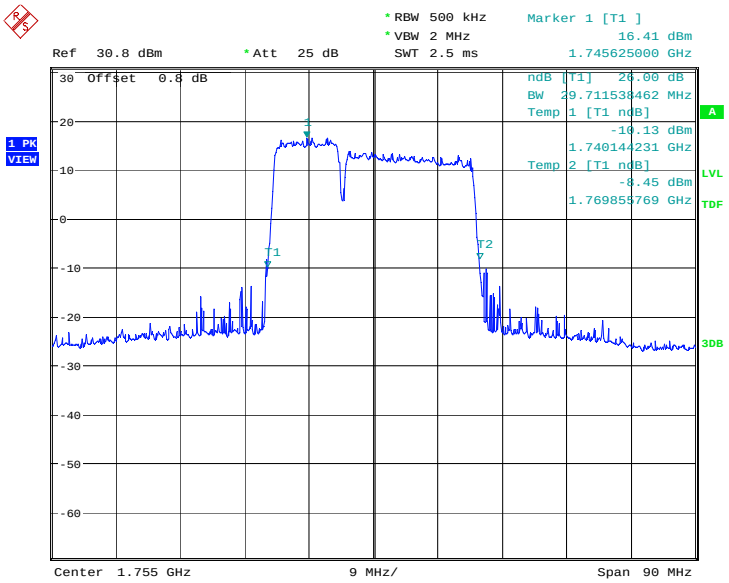
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1745.6	29.856	29.712

LTE CA Band 66C , 10MHz+20MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 08:53:13

LTE CA Band 66C , 10MHz+20MHz Bandwidth, 16QAM (-26dBc BW)

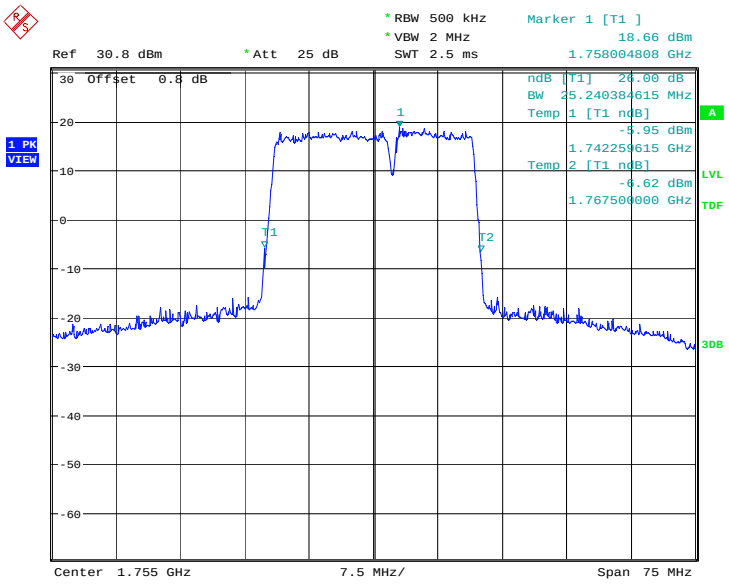


Date: 8.DEC.2021 08:53:34

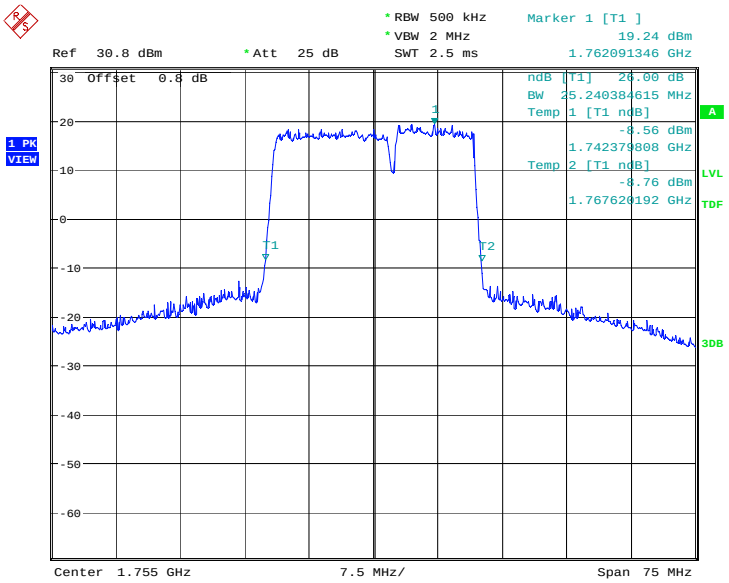
LTE CA Band 66C , 15MHz+10MHz (-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1750.1	25.240	25.240

LTE CA Band 66C , 15MHz+10MHz Bandwidth, QPSK (-26dBc BW)



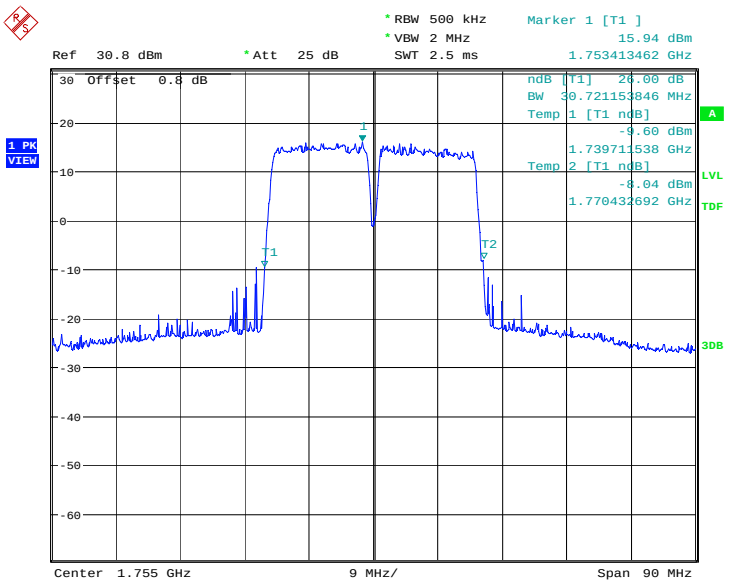
LTE CA Band 66C , 15MHz+10MHz Bandwidth, 16QAM (-26dBc BW)



LTE CA Band 66C , 15MHz+15MHz (-26dBc)

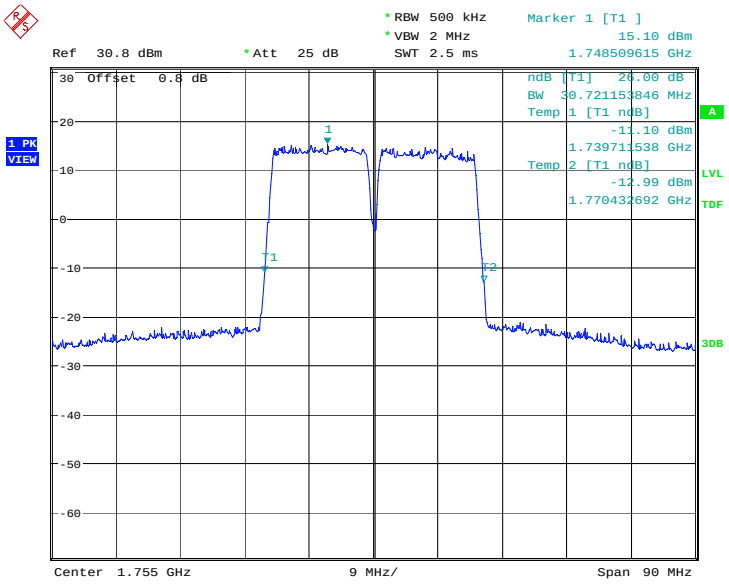
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1747.5	30.721	30.721

LTE CA Band 66C , 15MHz+15MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 08:58:16

LTE CA Band 66C , 15MHz+15MHz Bandwidth, 16QAM (-26dBc BW)

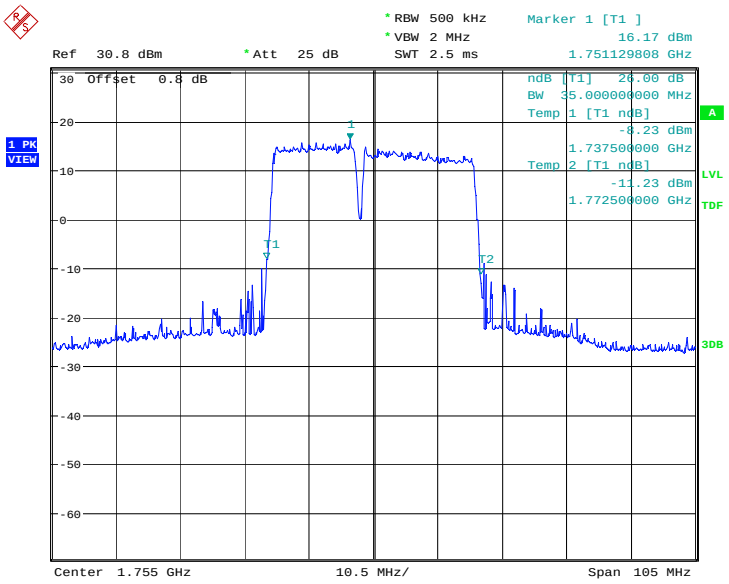


Date: 8.DEC.2021 08:58:37

LTE CA Band 66C , 15MHz+20MHz (-26dBc)

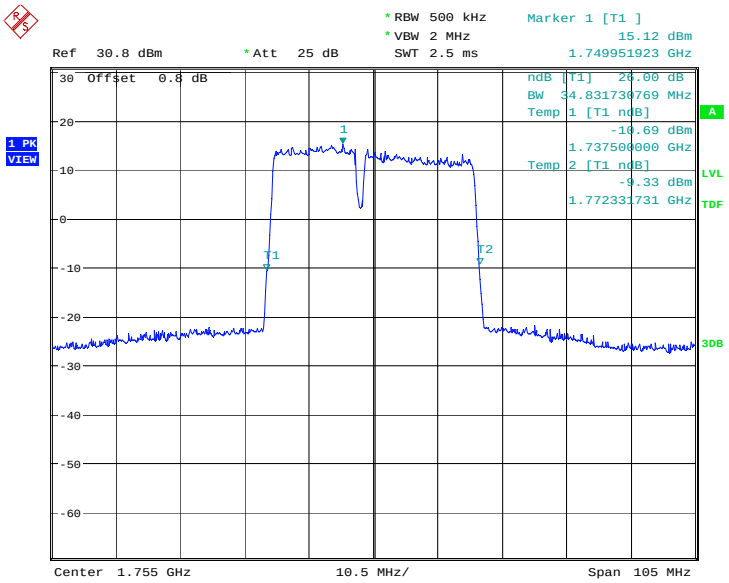
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1745.3	35.000	34.832

LTE CA Band 66C , 15MHz+20MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 08:59:24

LTE CA Band 66C , 15MHz+20MHz Bandwidth, 16QAM (-26dBc BW)

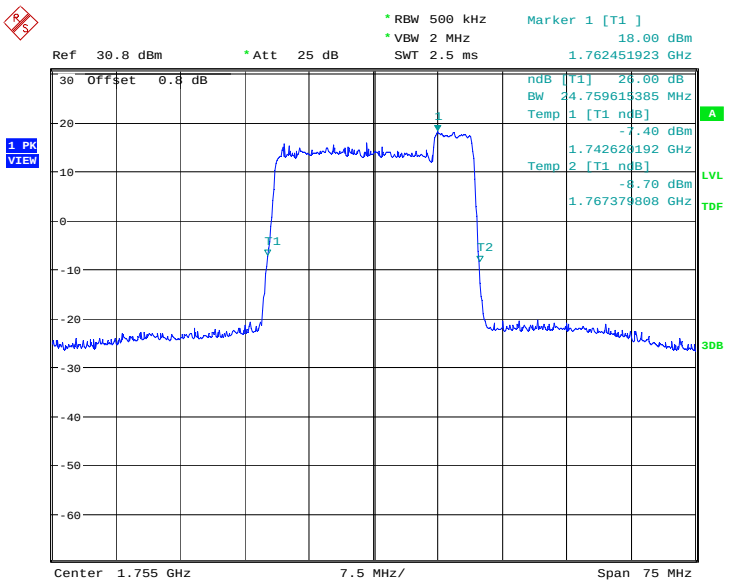


Date: 8.DEC.2021 09:00:36

LTE CA Band 66C , 20MHz+5MHz (-26dBc)

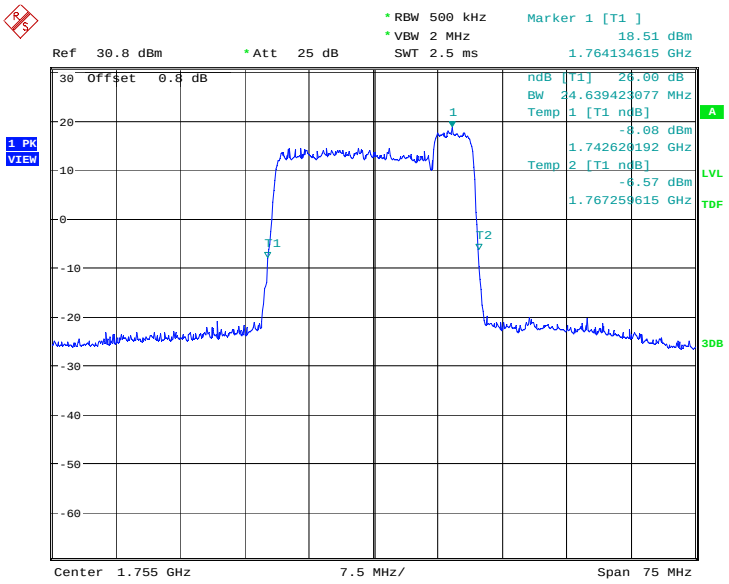
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1752.5	24.760	24.639

LTE CA Band 66C , 20MHz+5MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 09:01:58

LTE CA Band 66C , 20MHz+5MHz Bandwidth, 16QAM (-26dBc BW)

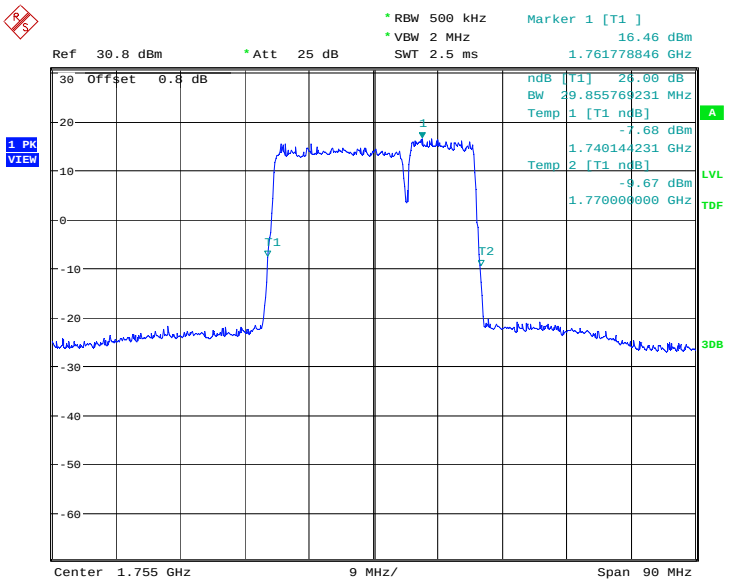


Date: 8.DEC.2021 09:02:19

LTE CA Band 66C , 20MHz+10MHz (-26dBc)

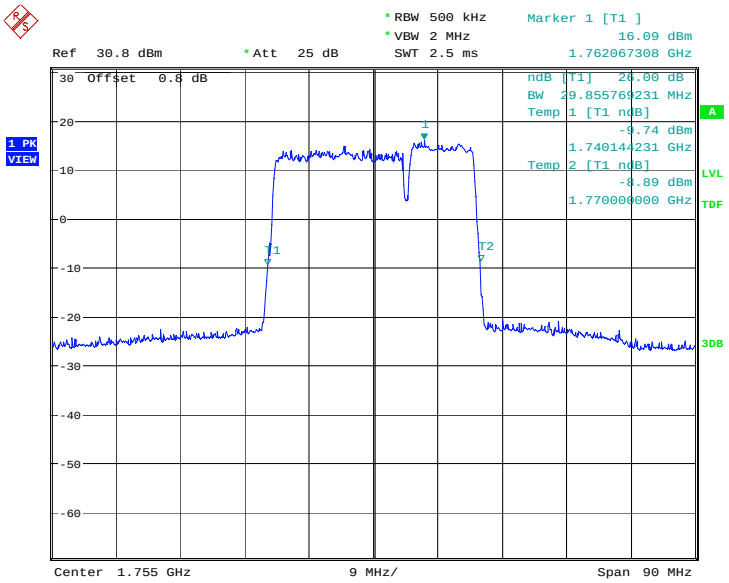
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1750.1	29.856	29.856

LTE CA Band 66C , 20MHz+10MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 09:03:38

LTE CA Band 66C , 20MHz+10MHz Bandwidth, 16QAM (-26dBc BW)

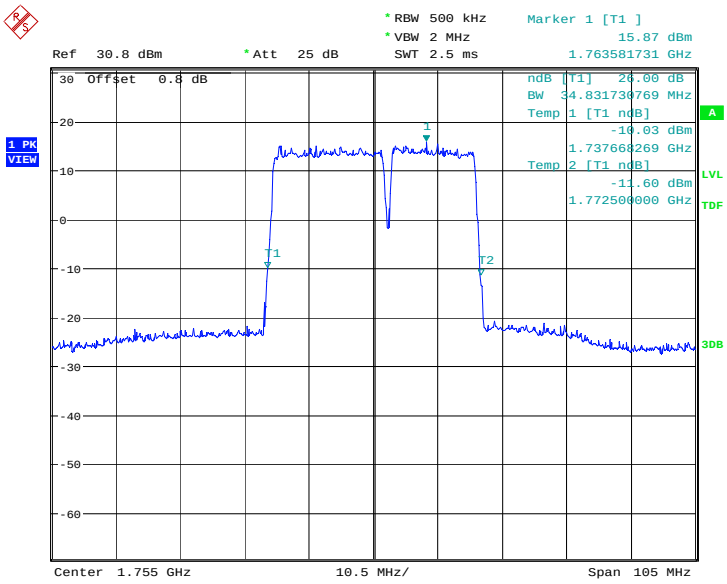


Date: 8.DEC.2021 09:04:00

LTE CA Band 66C , 20MHz+15MHz (-26dBc)

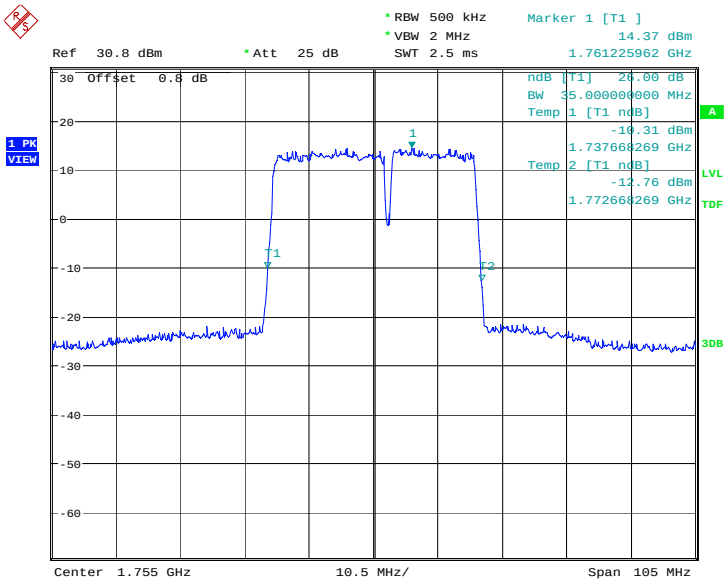
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1747.6	34.832	35.000

LTE CA Band 66C , 20MHz+15MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 09:04:46

LTE CA Band 66C , 20MHz+15MHz Bandwidth, 16QAM (-26dBc BW)

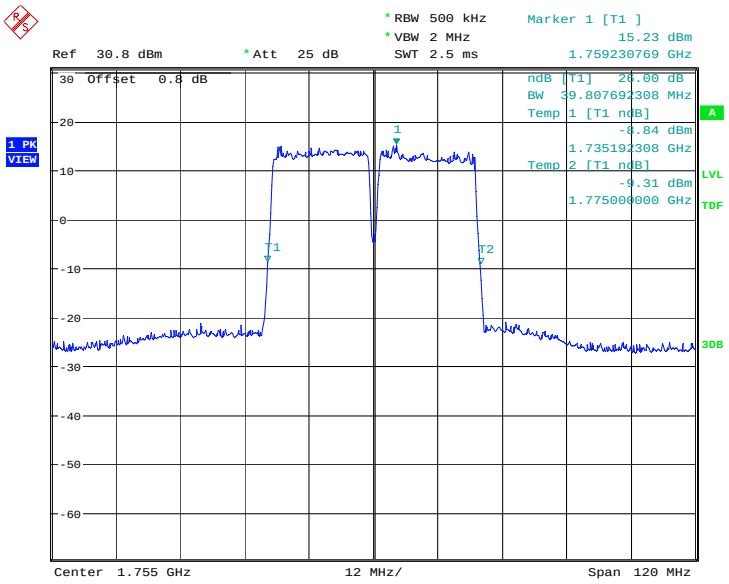


Date: 8.DEC.2021 09:05:07

LTE CA Band 66C , 20MHz+20MHz (-26dBc)

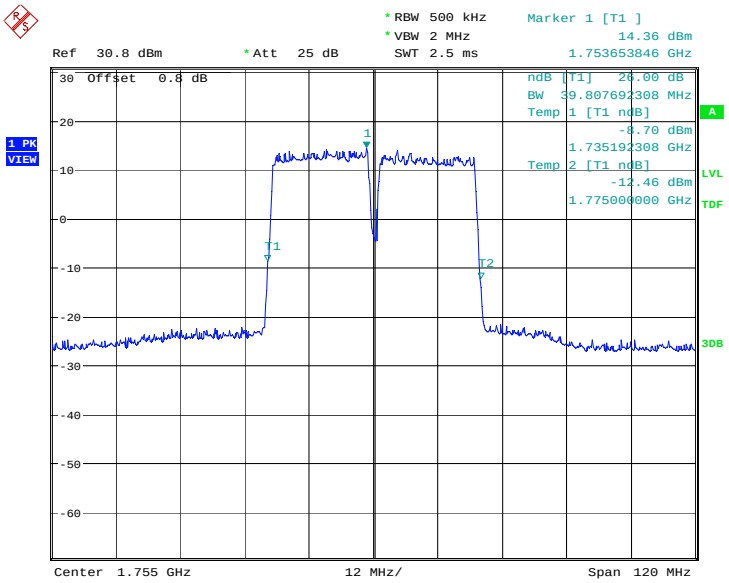
Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1745.1	39.808	39.808

LTE CA Band 66C , 20MHz+20MHz Bandwidth, QPSK (-26dBc BW)



Date: 8.DEC.2021 09:06:26

LTE CA Band 66C , 20MHz+20MHz Bandwidth, 16QAM (-26dBc BW)



Date: 8.DEC.2021 09:06:47

A.6 Band Edge Compliance

A.6.1 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 that 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.

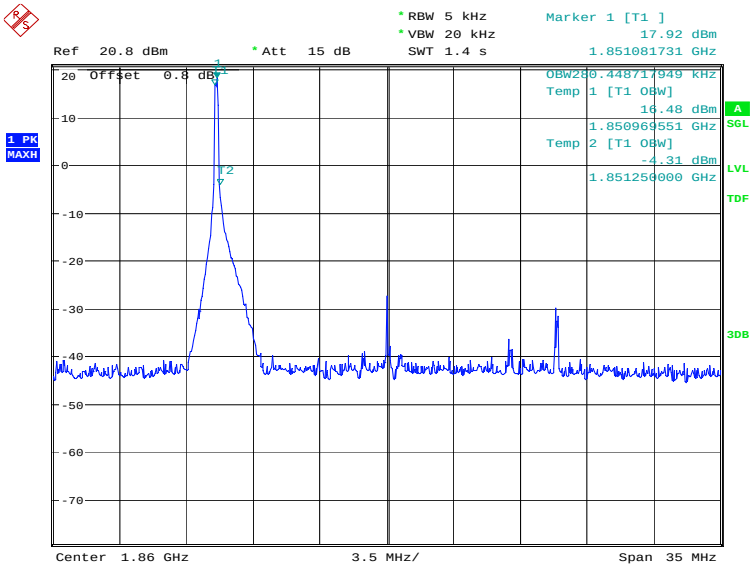
The spectrum analyzer readings are corrected by [10 log (1/duty cycle)] for the non-continuous transmitting scenario.

A.6.2 Measurement result

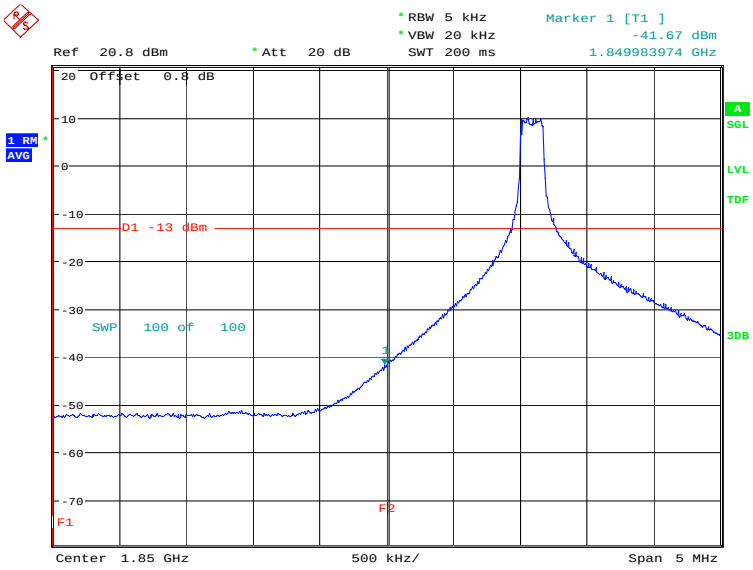
Only the worst case result is given below

LTE band 2

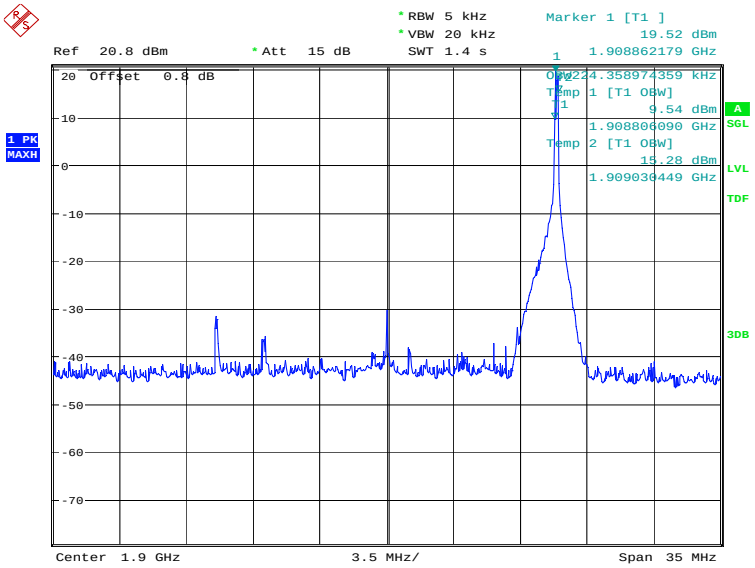
OBW: 1RB-low_offset



LOW BAND EDGE BLOCK-1RB-low_offset

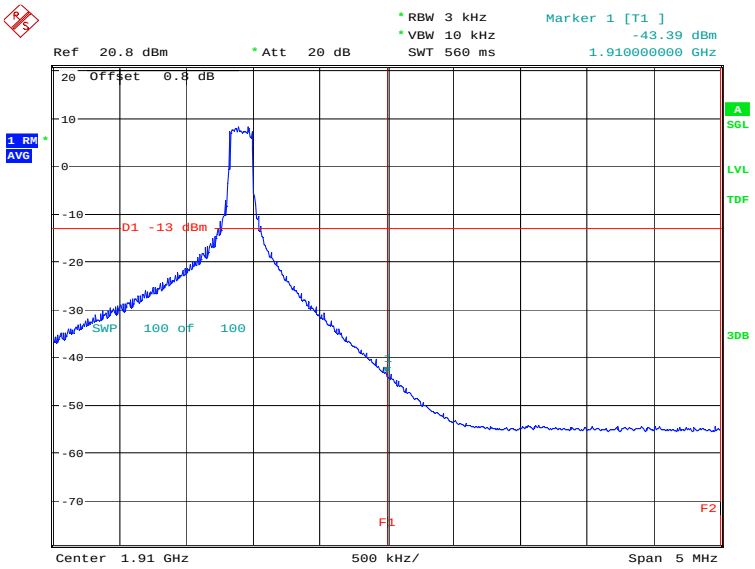


OBW: 1RB-high_offset



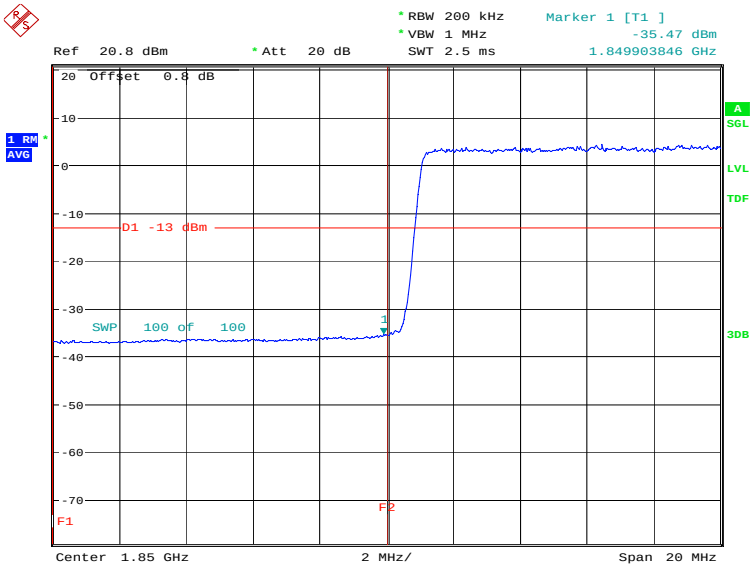
Date: 18.JAN.2022 14:45:09

HIGH BAND EDGE BLOCK-1RB-high_offset



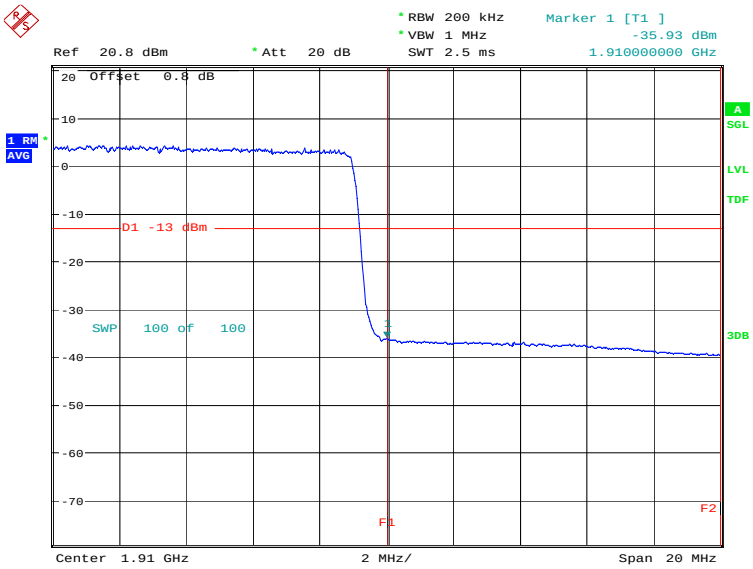
Date: 18.JAN.2022 14:46:24

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 6.DEC.2021 09:39:55

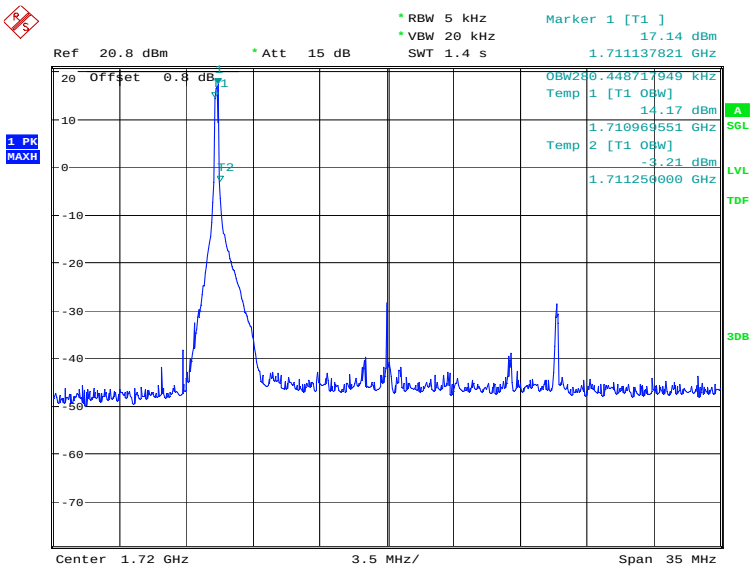
HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 6.DEC.2021 09:41:25

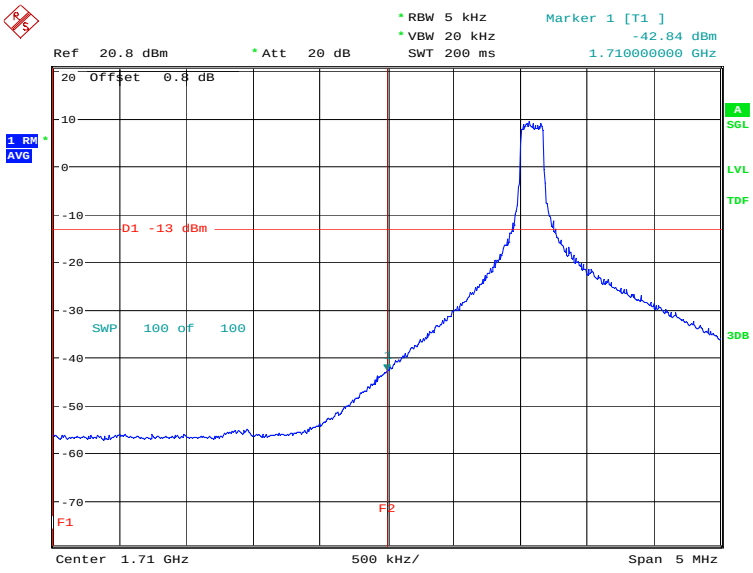
LTE band 4

OBW: 1RB-low_offset



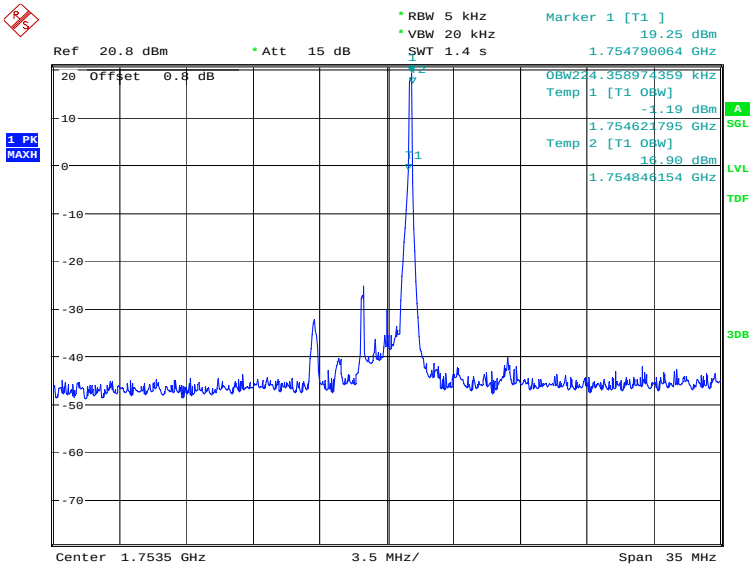
Date: 18.JAN.2022 14:47:01

LOW BAND EDGE BLOCK-1RB-low_offset



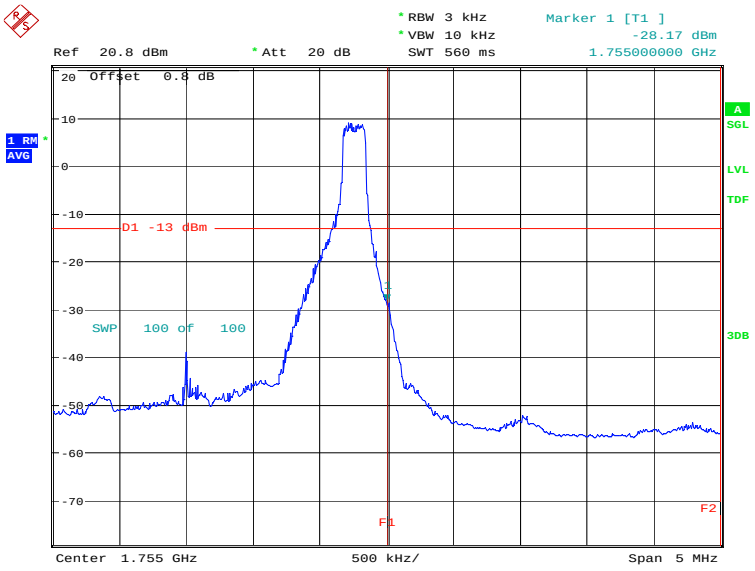
Date: 18.JAN.2022 14:48:14

OBW: 1RB-high_offset



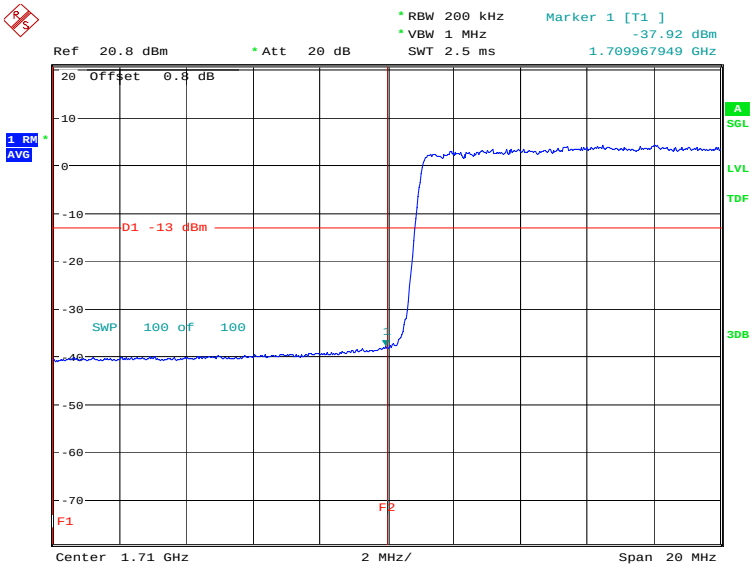
Date: 18.JAN.2022 14:51:02

HIGH BAND EDGE BLOCK-1RB-high_offset



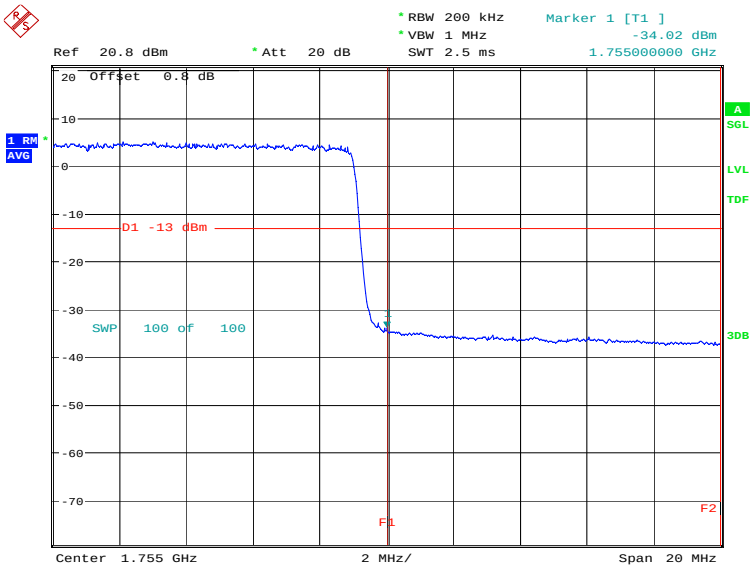
Date: 18.JAN.2022 14:52:15

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 18.JAN.2022 14:48:47

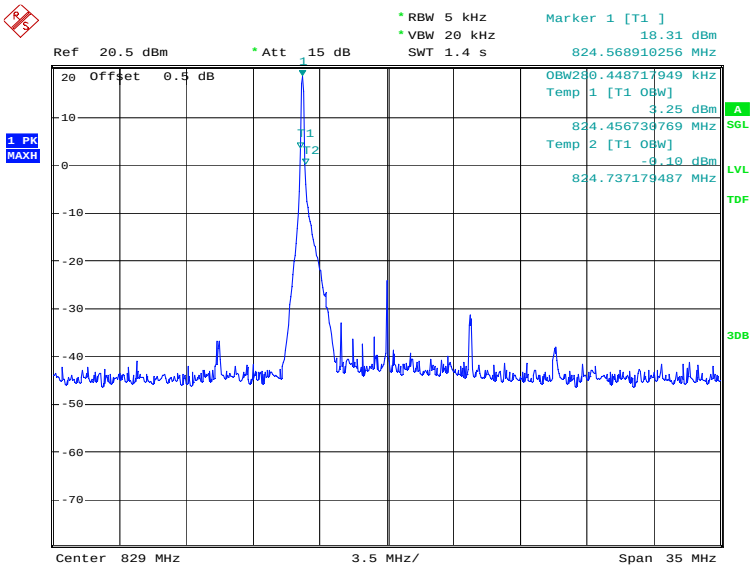
HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 18.JAN.2022 14:52:51

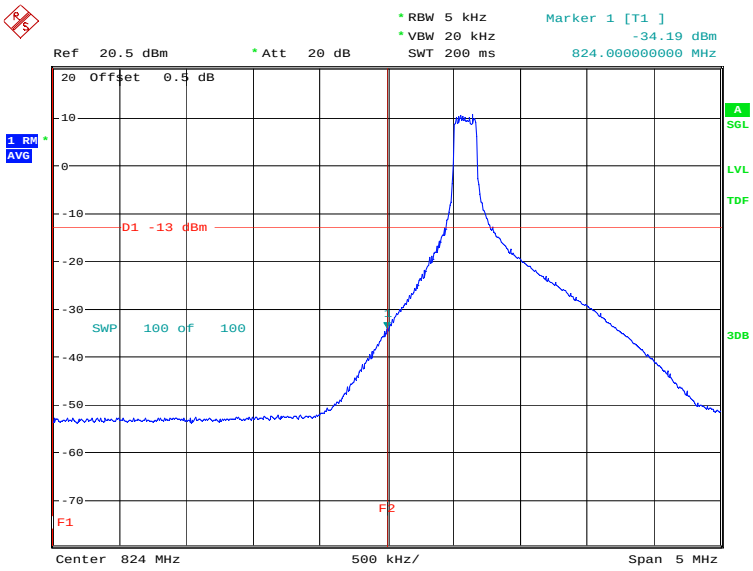
LTE band 5

OBW: 1RB-low_offset



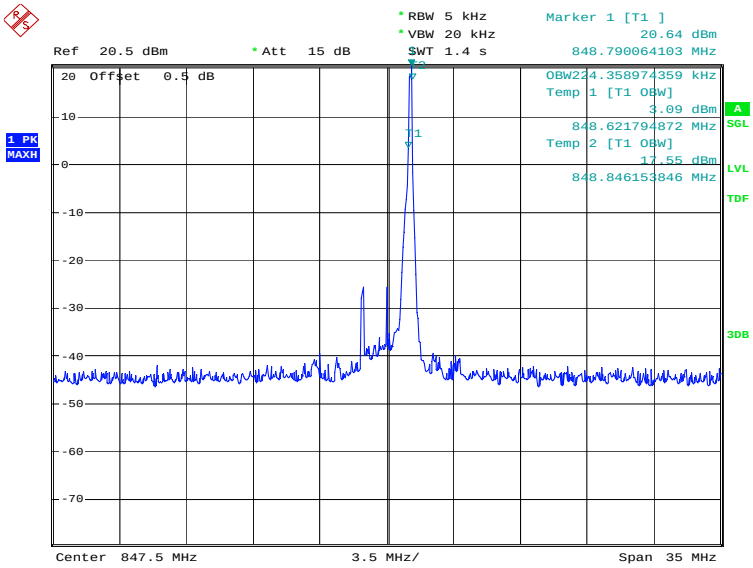
Date: 18.JAN.2022 14:55:26

LOW BAND EDGE BLOCK-1RB-low_offset



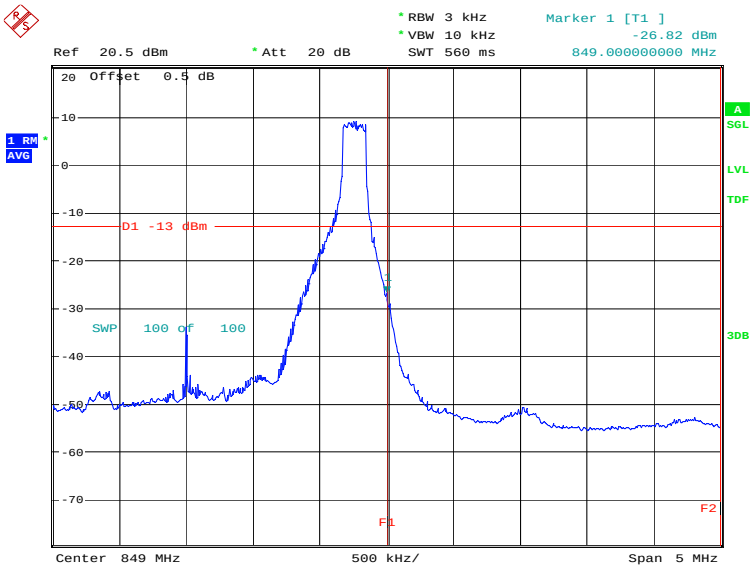
Date: 18.JAN.2022 14:56:39

OBW: 1RB-high_offset



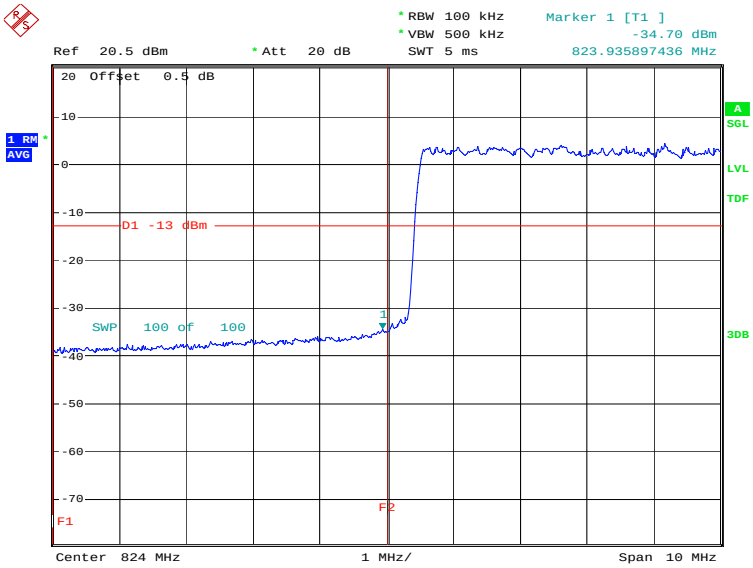
Date: 18.JAN.2022 14:57:57

HIGH BAND EDGE BLOCK-1RB-high_offset



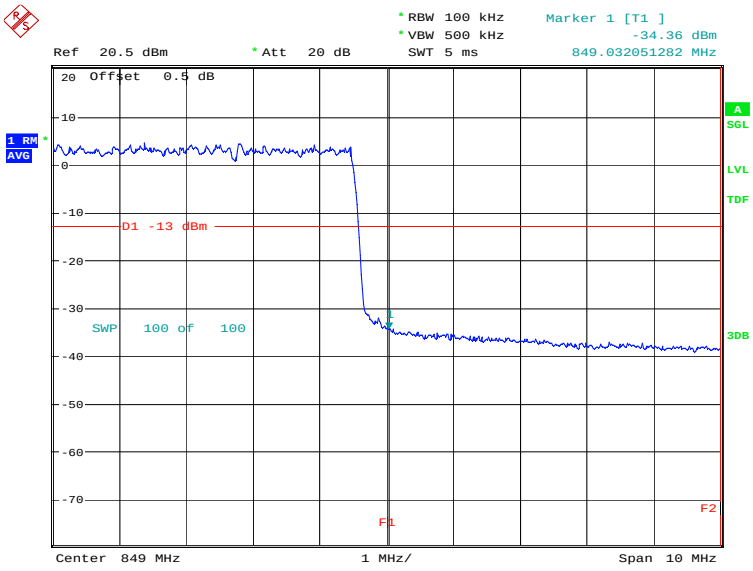
Date: 18.JAN.2022 14:59:10

LOW BAND EDGE BLOCK-10MHz-100%RB



Date: 6.DEC.2021 09:43:39

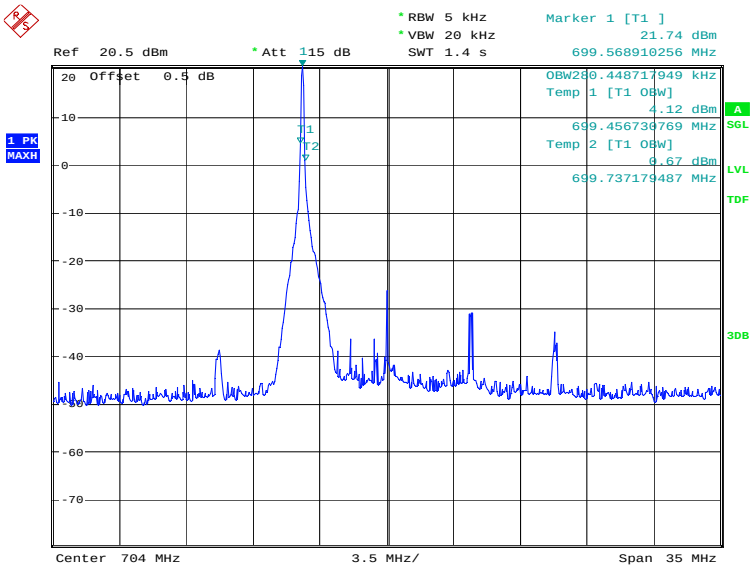
HIGH BAND EDGE BLOCK-10MHz-100%RB



Date: 6.DEC.2021 09:45:09

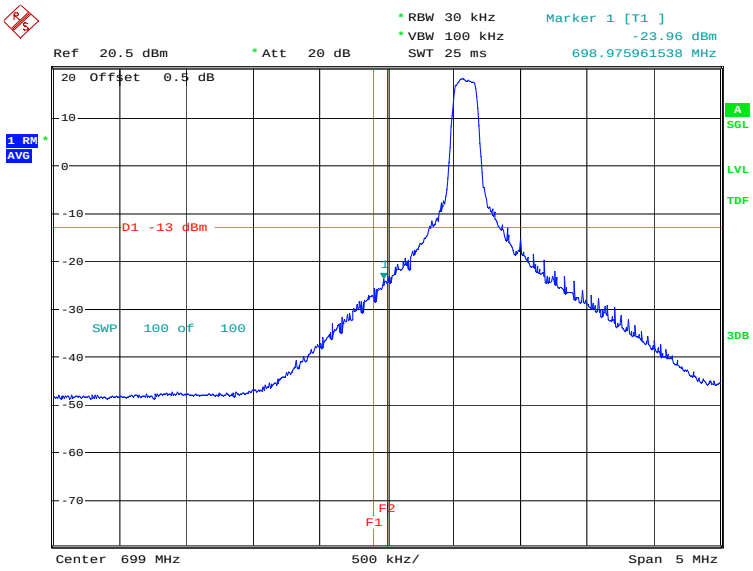
LTE band 12

OBW: 1RB-low_offset



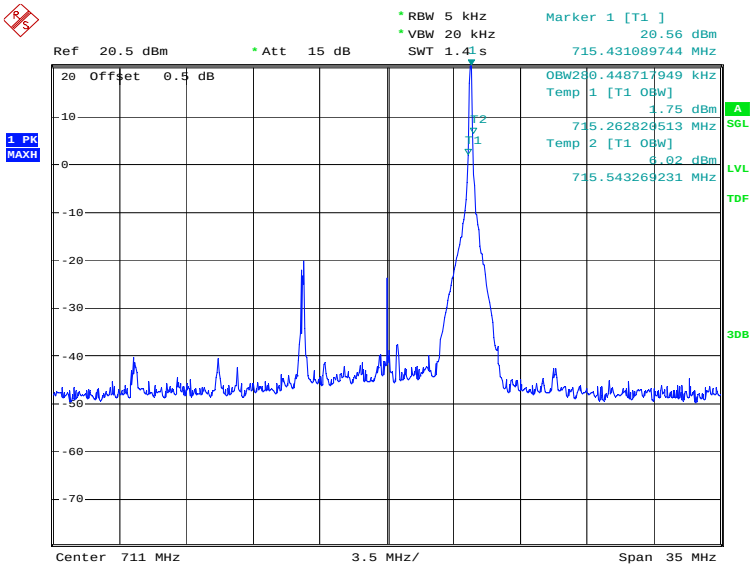
Date: 18.JAN.2022 14:59:49

LOW BAND EDGE BLOCK-1RB-low_offset



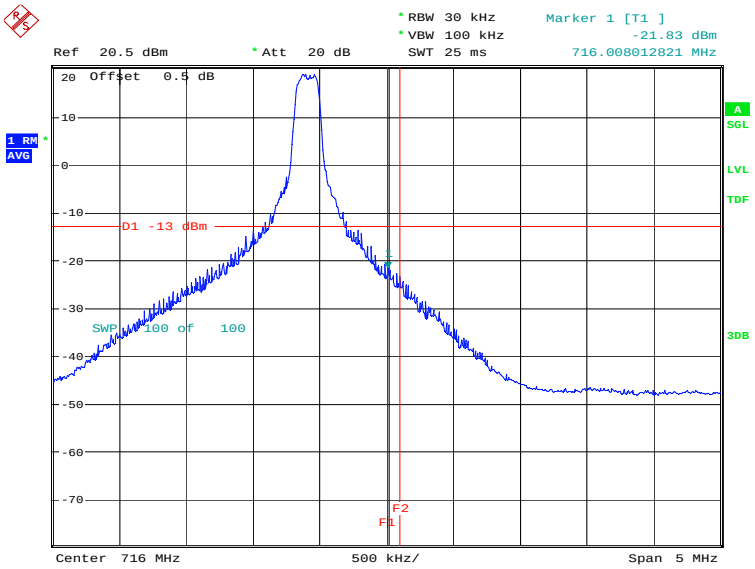
Date: 18.JAN.2022 15:00:08

OBW: 1RB-high_offset



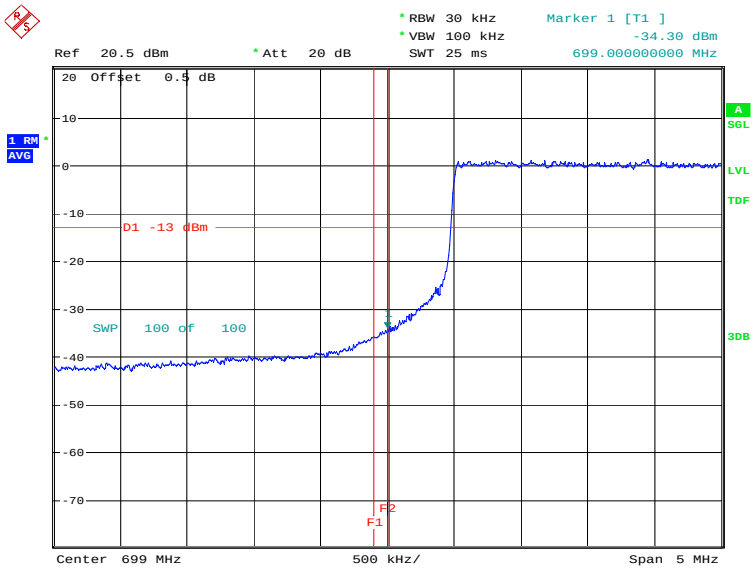
Date: 18.JAN.2022 15:00:43

HIGH BAND EDGE BLOCK-1RB-high_offset



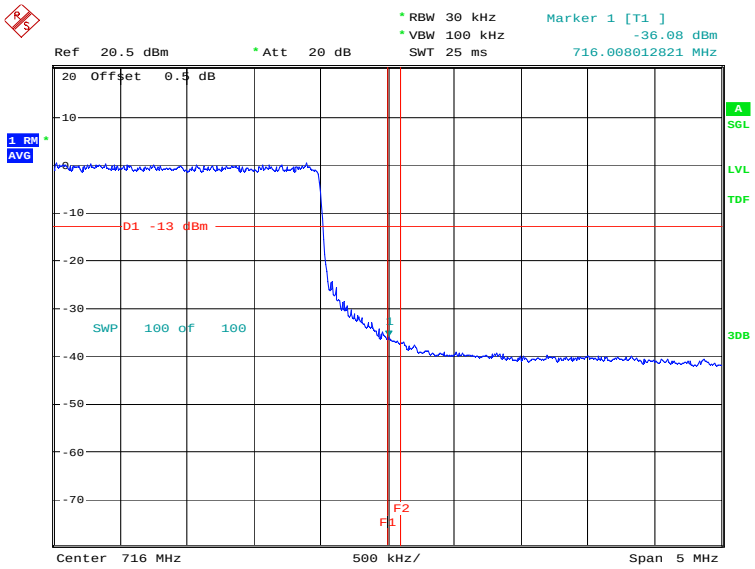
Date: 18.JAN.2022 15:01:02

LOW BAND EDGE BLOCK-10MHz-100%RB



Date: 19.JAN.2022 09:53:47

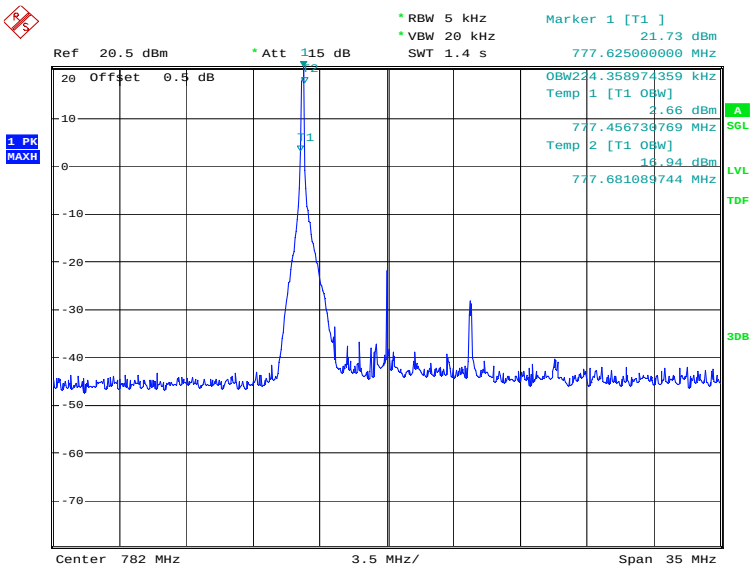
HIGH BAND EDGE BLOCK-10MHz-100%RB



Date: 19.JAN.2022 09:55:17

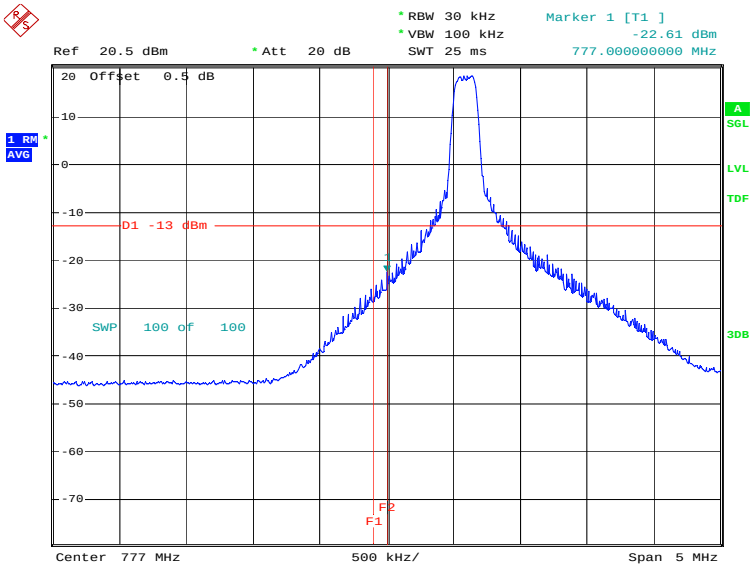
LTE band 13

OBW: 1RB-low_offset

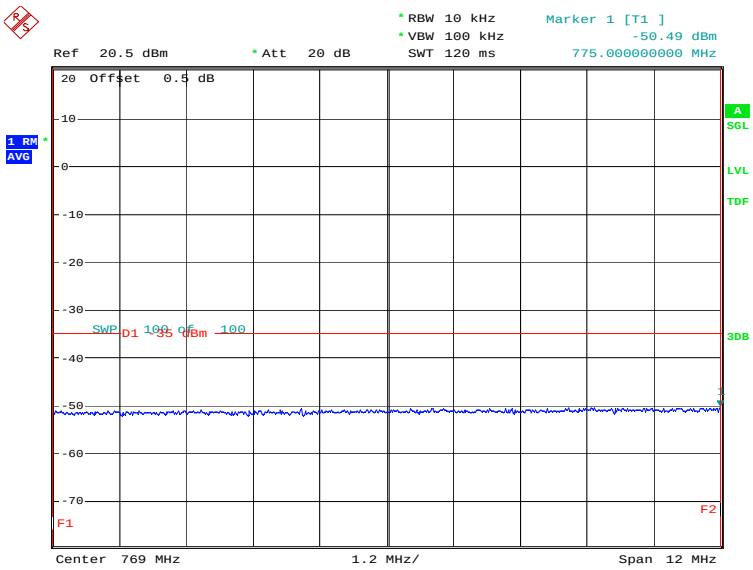


Date: 18.JAN.2022 15:24:50

LOW BAND EDGE BLOCK-1RB-low_offset

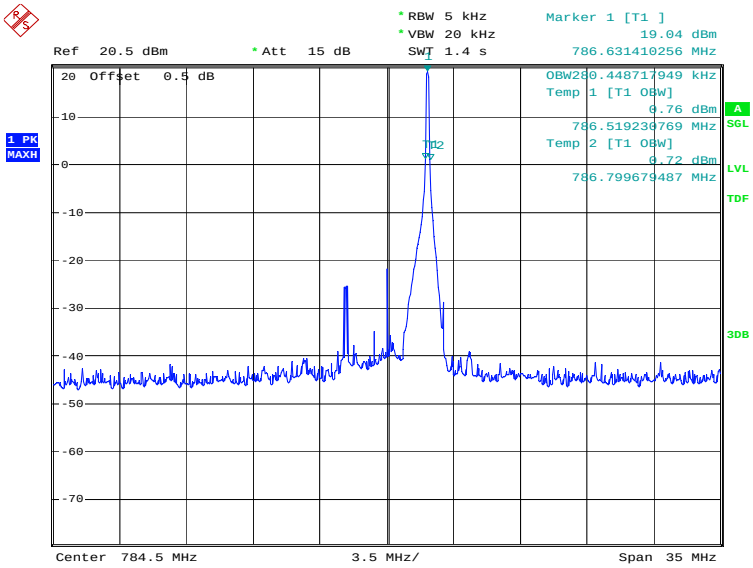


Date: 18.JAN.2022 15:25:09



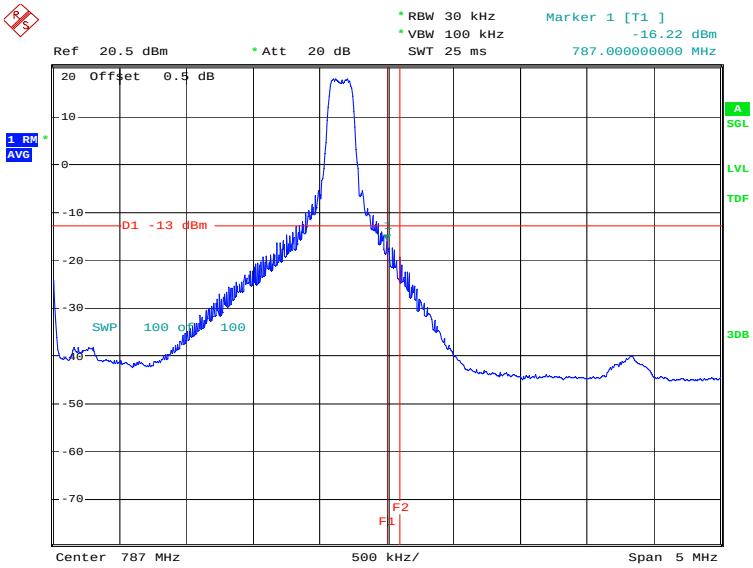
Date: 18.JAN.2022 15:25:38

OBW: 1RB-high_offset

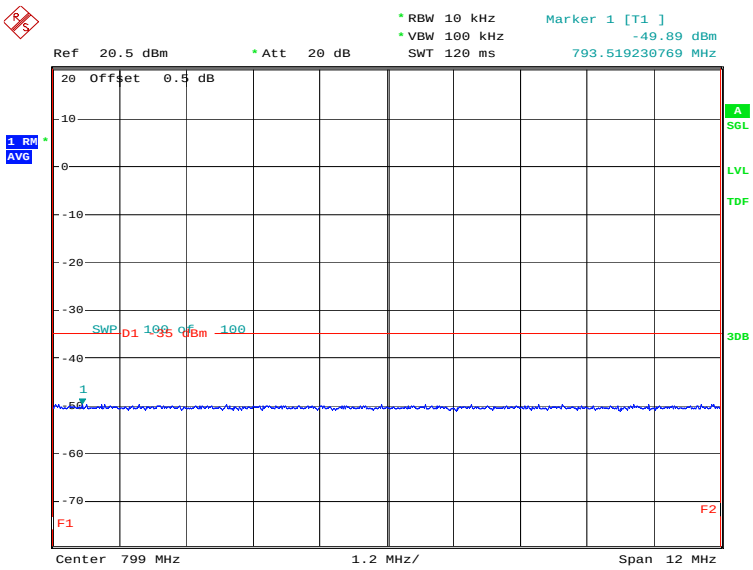


Date: 18.JAN.2022 15:26:56

HIGH BAND EDGE BLOCK-1RB-high_offset

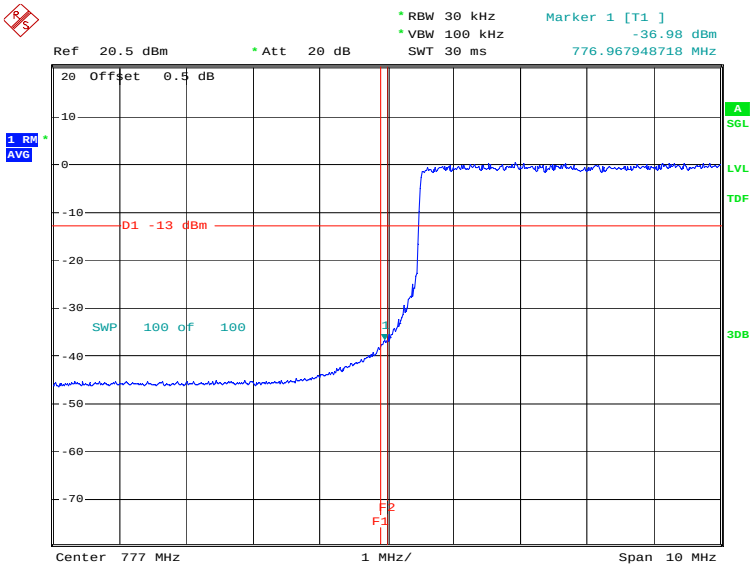


Date: 18.JAN.2022 15:27:14

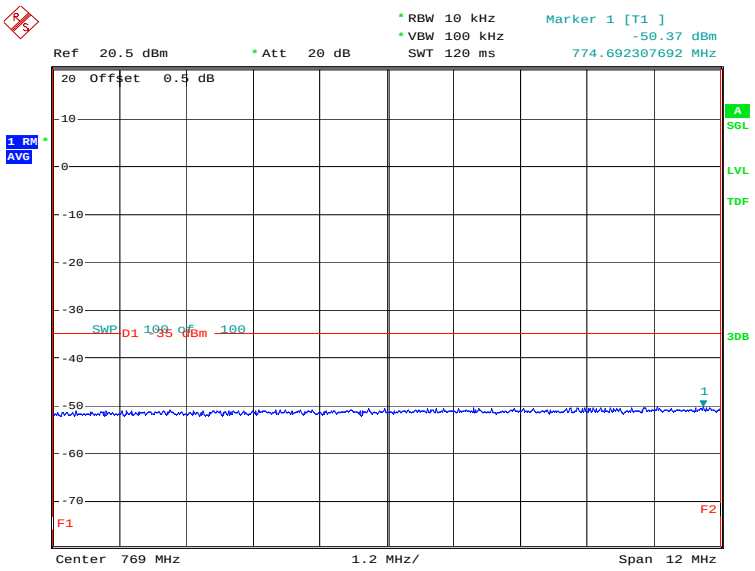


Date: 18.JAN.2022 15:27:45

LOW BAND EDGE BLOCK-10MHz-100%RB

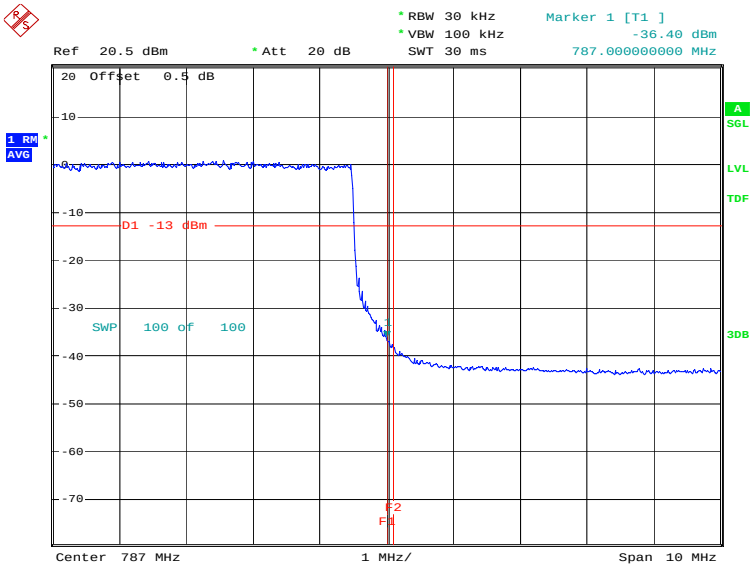


Date: 6.DEC.2021 14:39:45

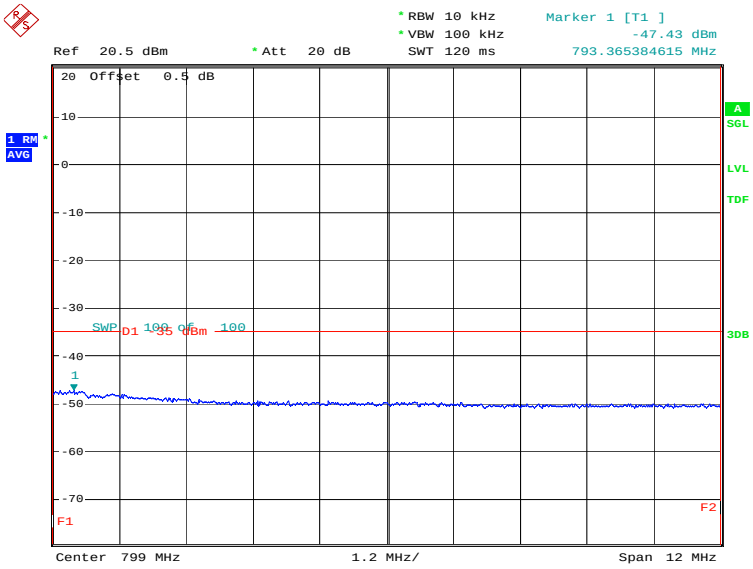


Date: 6.DEC.2021 14:40:09

HIGH BAND EDGE BLOCK-10MHz-100%RB



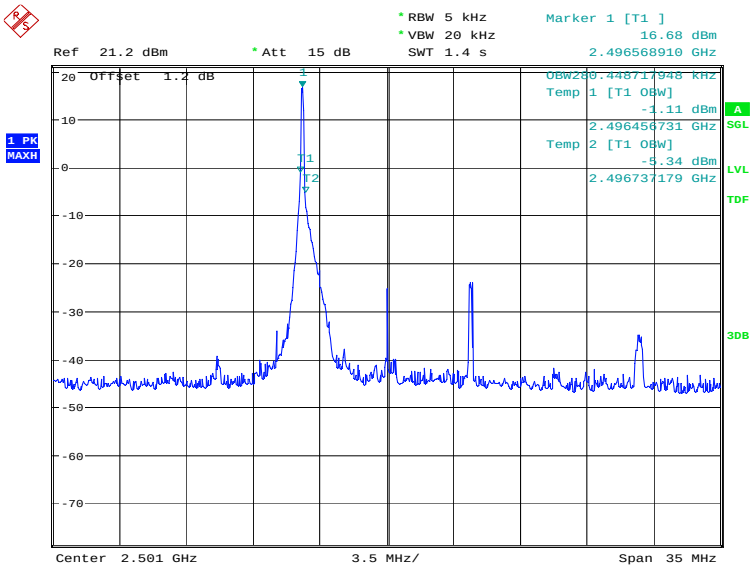
Date: 6.DEC.2021 14:41:39



Date: 6.DEC.2021 14:43:18

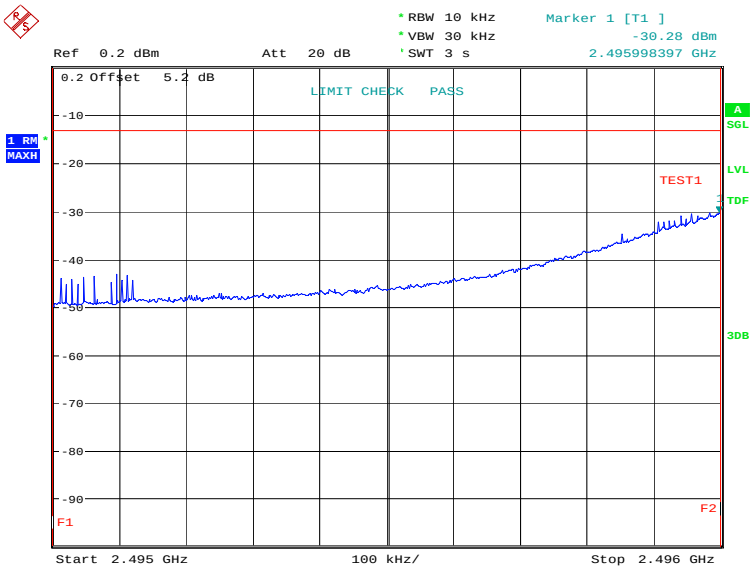
LTE band 41

OBW: 1RB-low_offset

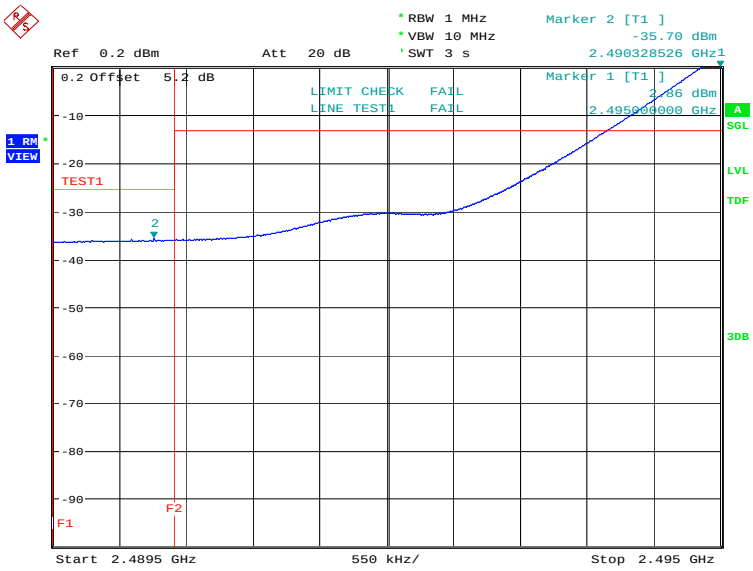


Date: 18.JAN.2022 15:09:55

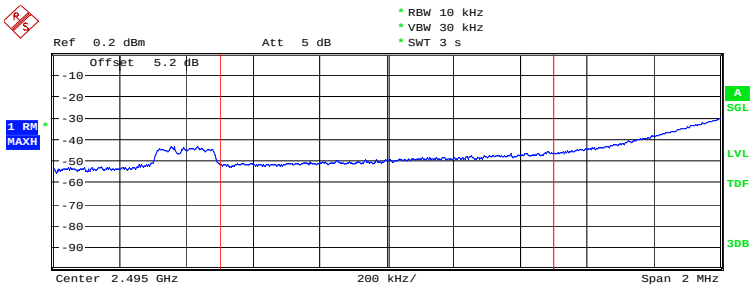
LOW BAND EDGE BLOCK-1RB-low_offset



Date: 18.JAN.2022 15:10:36

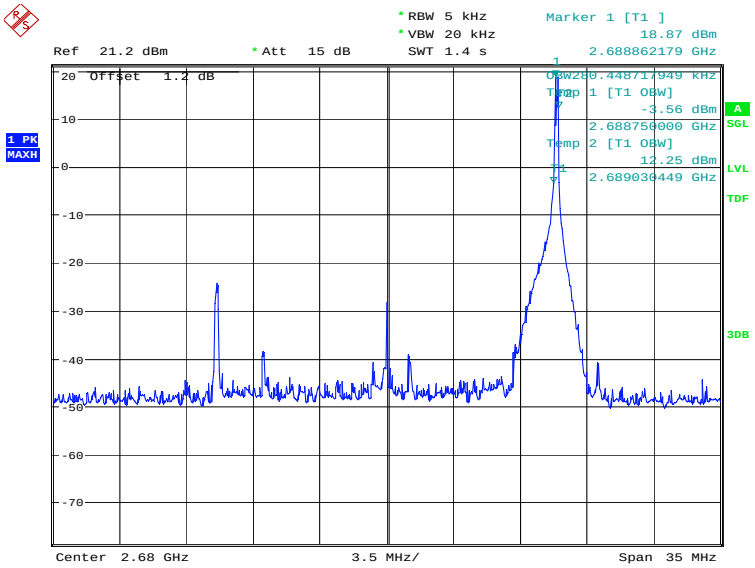


Date: 18.JAN.2022 15:11:19



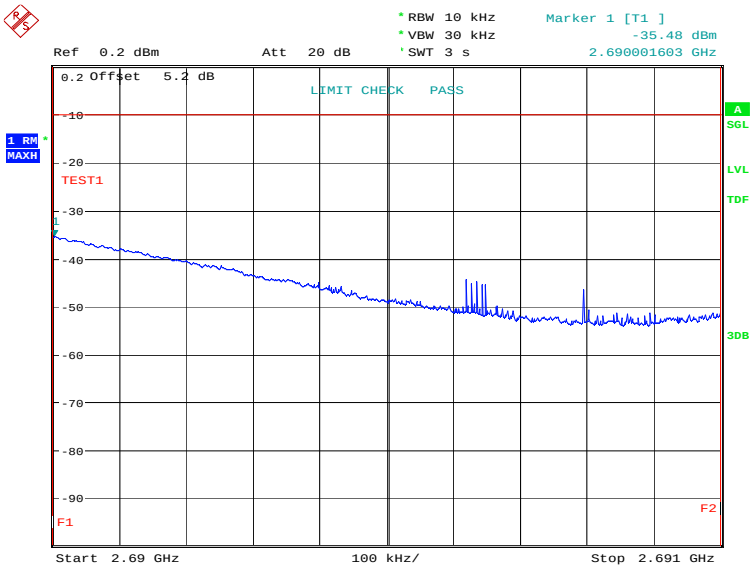
Date: 18.JAN.2022 15:11:36

OBW: 1RB-high_offset

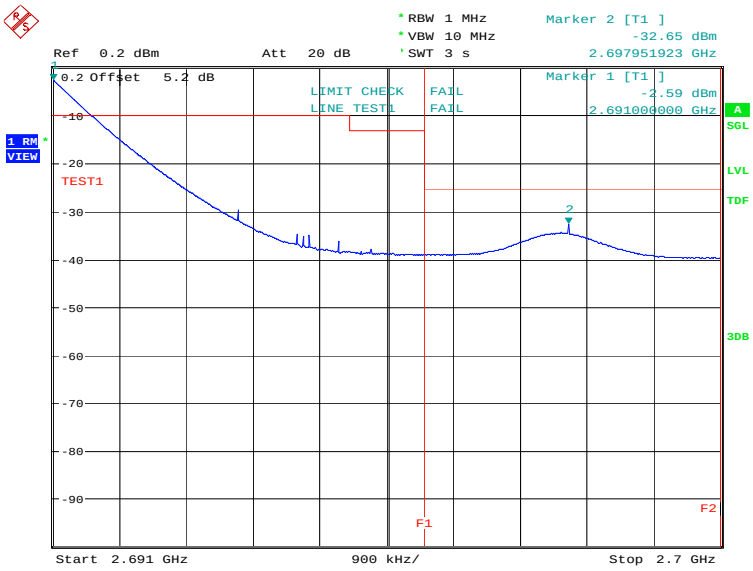


Date: 18.JAN.2022 15:12:13

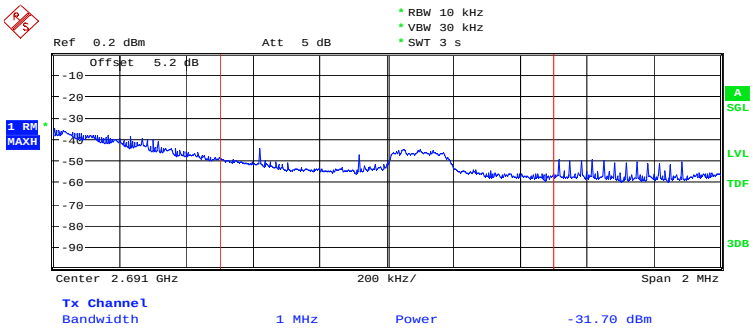
HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 18.JAN.2022 15:12:54

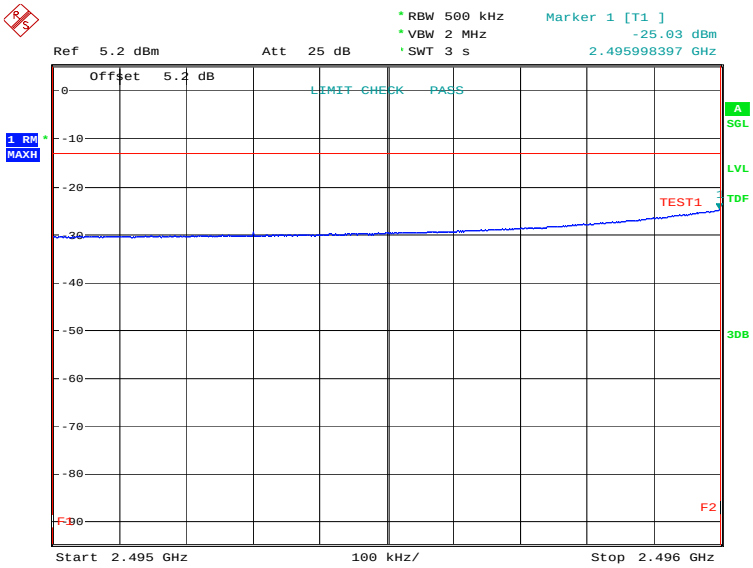


Date: 18.JAN.2022 15:13:40

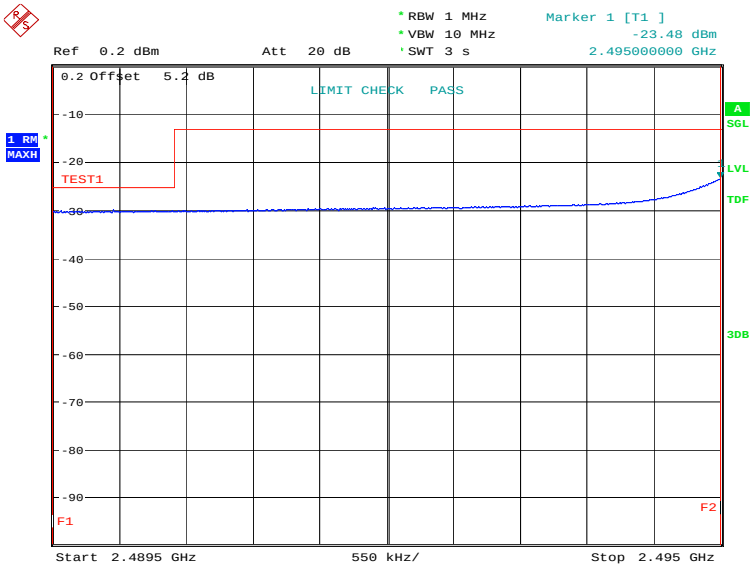


Date: 18.JAN.2022 15:13:57

LOW BAND EDGE BLOCK-20MHz-100%RB

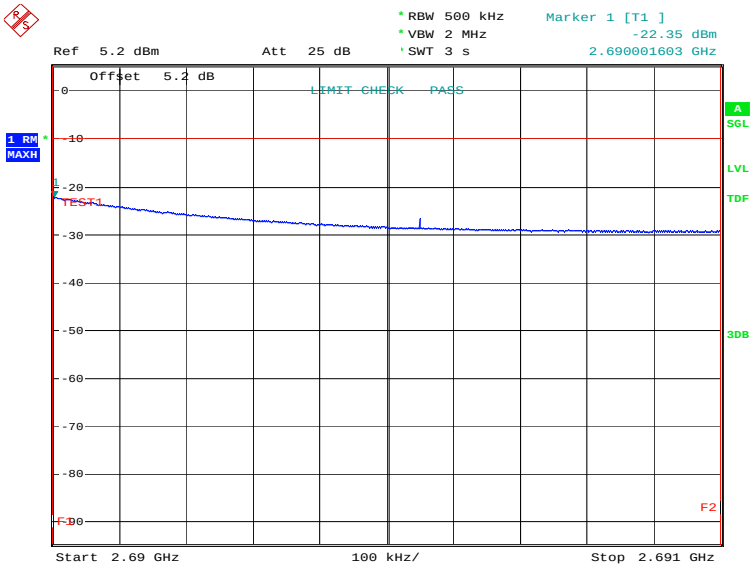


Date: 6.DEC.2021 09:58:17

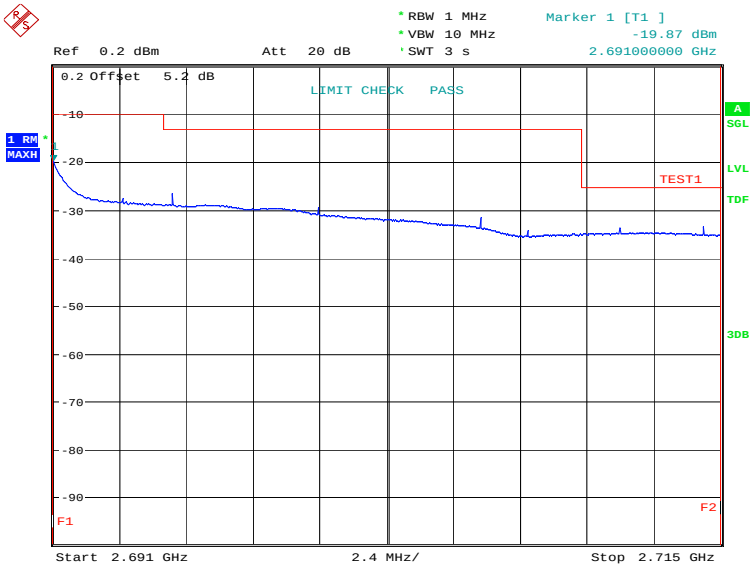


Date: 6.DEC.2021 09:58:56

HIGH BAND EDGE BLOCK-20MHz-100%RB



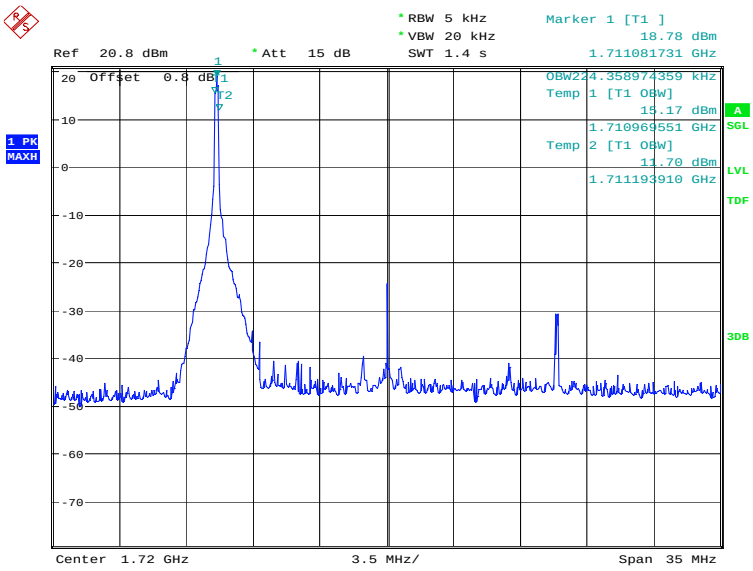
Date: 6.DEC.2021 10:00:50



Date: 6.DEC.2021 10:01:29

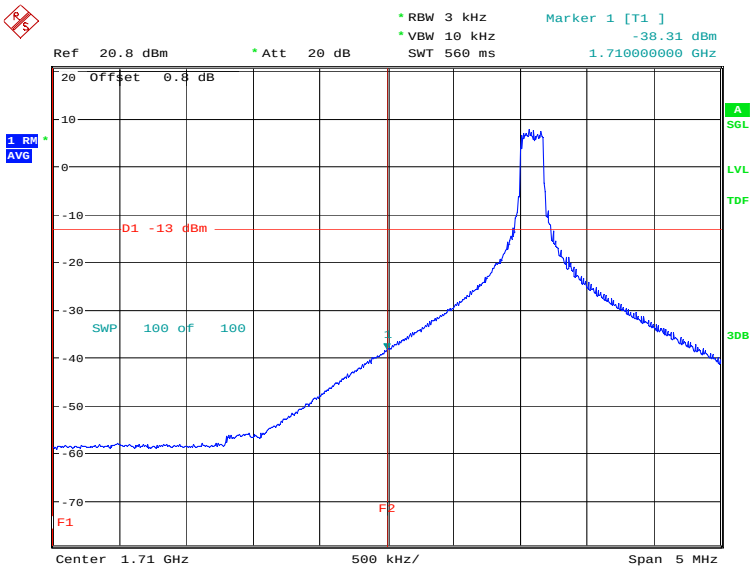
LTE band 66

OBW: 1RB-low_offset



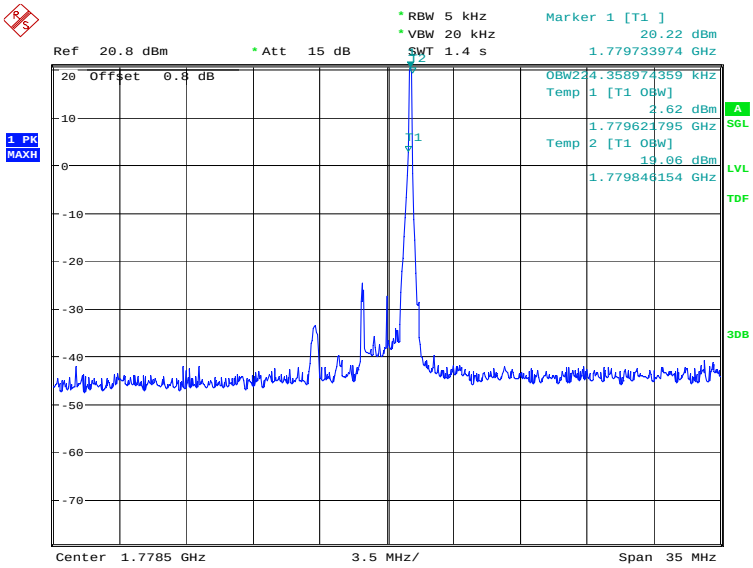
Date: 18.JAN.2022 15:05:28

LOW BAND EDGE BLOCK-1RB-low_offset



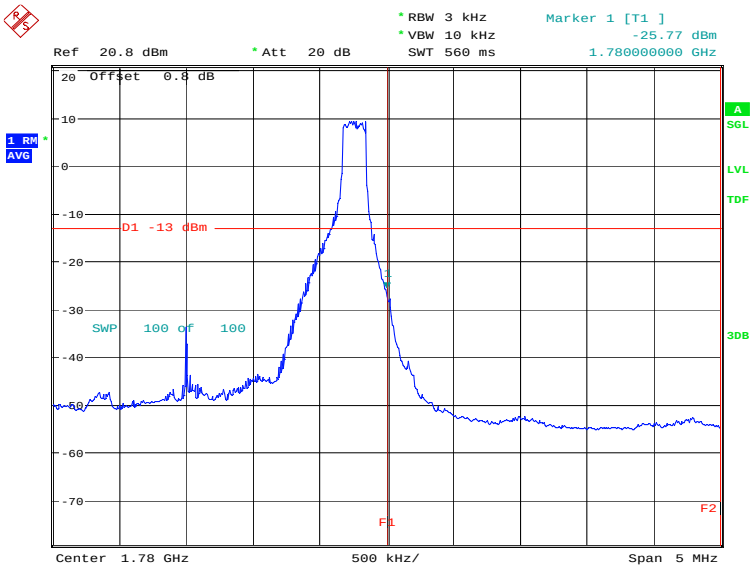
Date: 18.JAN.2022 15:06:42

OBW: 1RB-high_offset



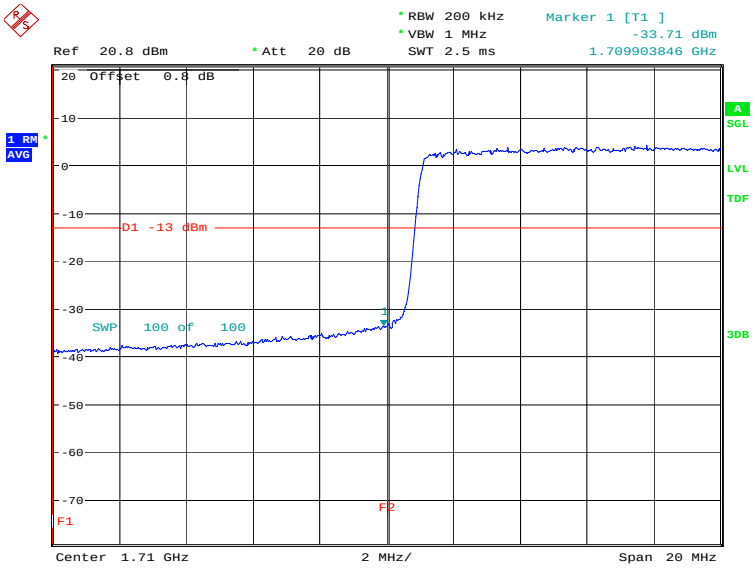
Date: 18.JAN.2022 15:07:19

HIGH BAND EDGE BLOCK-1RB-high_offset



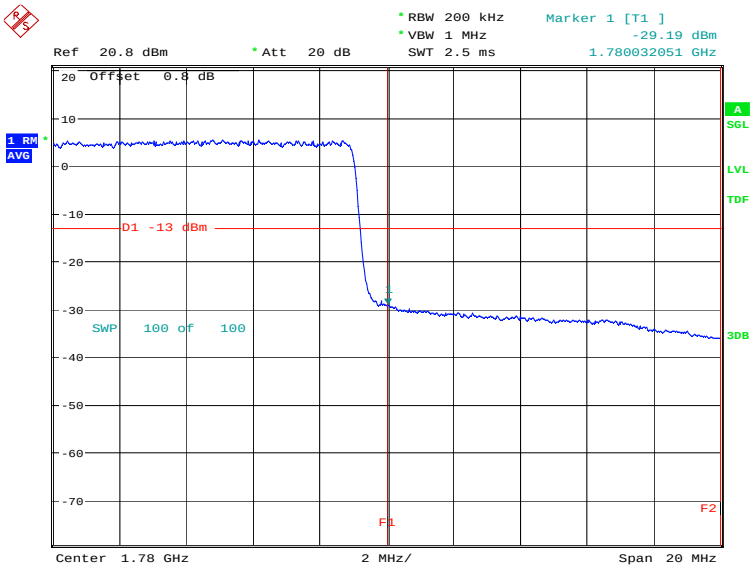
Date: 18.JAN.2022 15:08:33

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 6.DEC.2021 09:54:09

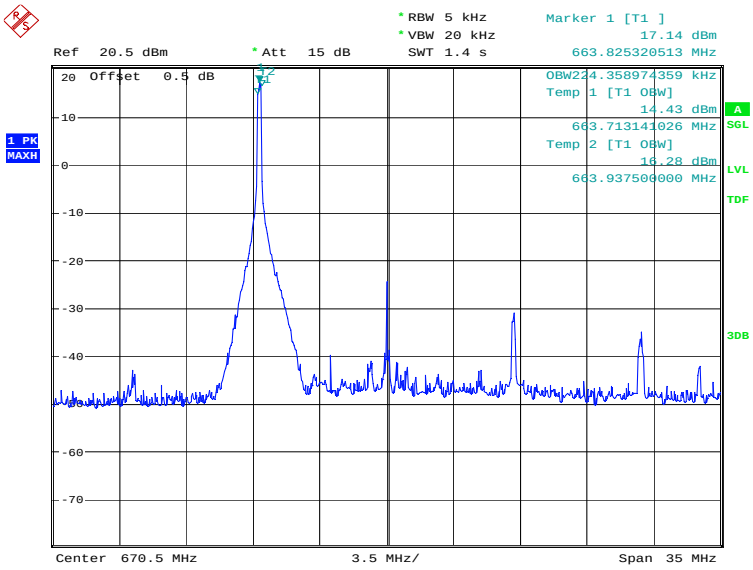
HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 6.DEC.2021 09:55:39

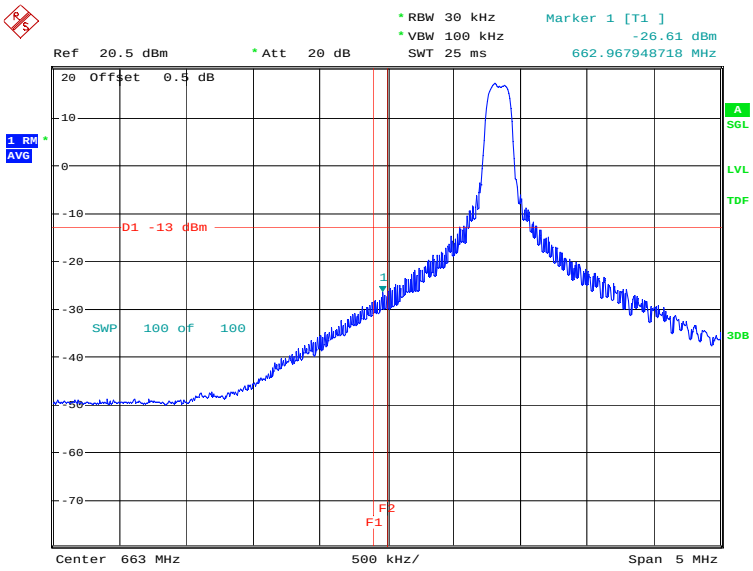
LTE band 71

OBW: 1RB-low_offset



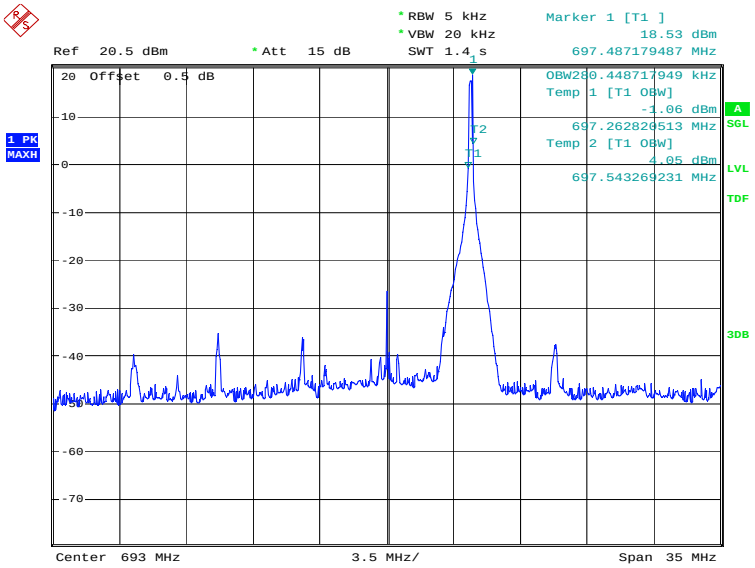
Date: 18.JAN.2022 14:40:02

LOW BAND EDGE BLOCK-1RB-low_offset



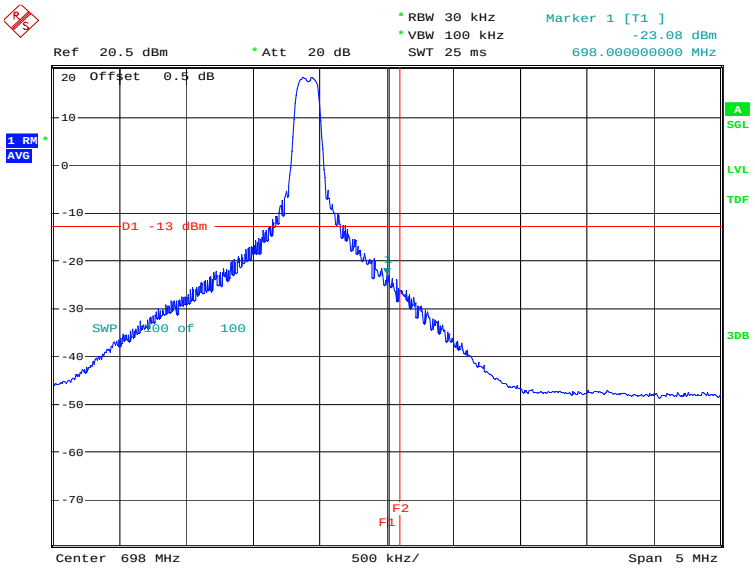
Date: 18.JAN.2022 14:40:21

OBW: 1RB-high_offset



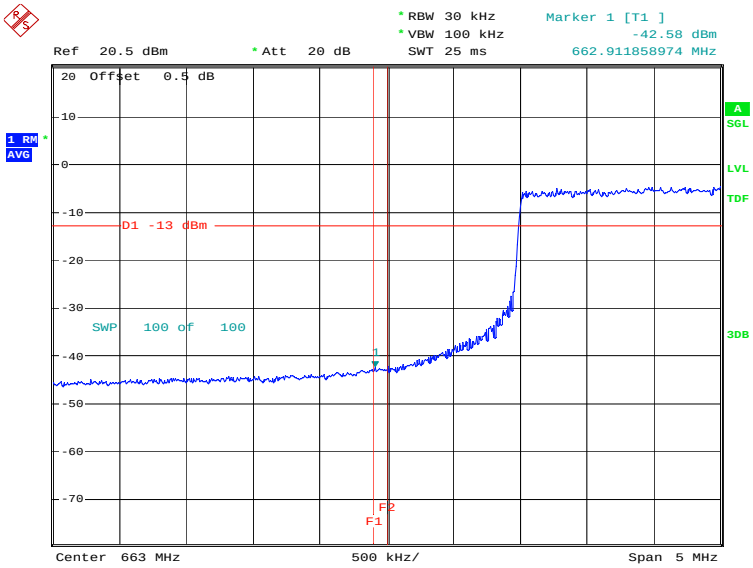
Date: 18.JAN.2022 14:41:39

HIGH BAND EDGE BLOCK-1RB-high_offset



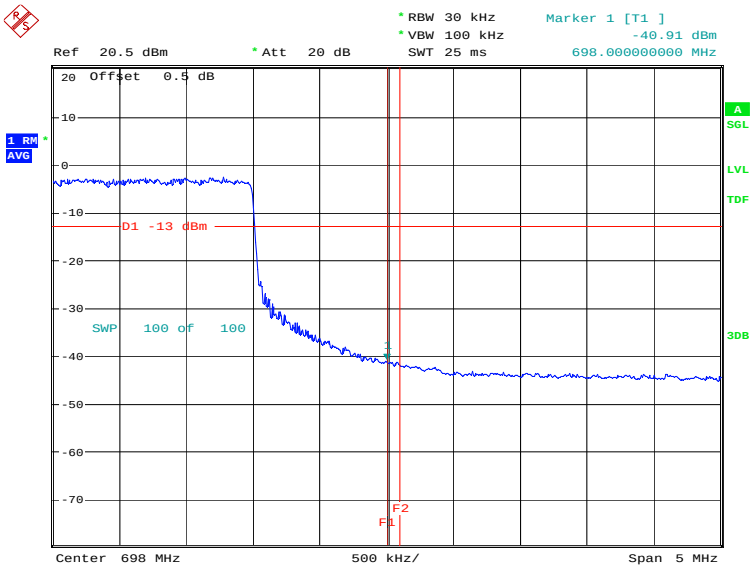
Date: 18.JAN.2022 14:41:57

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 6.DEC.2021 09:36:10

HIGH BAND EDGE BLOCK-20MHz-100%RB

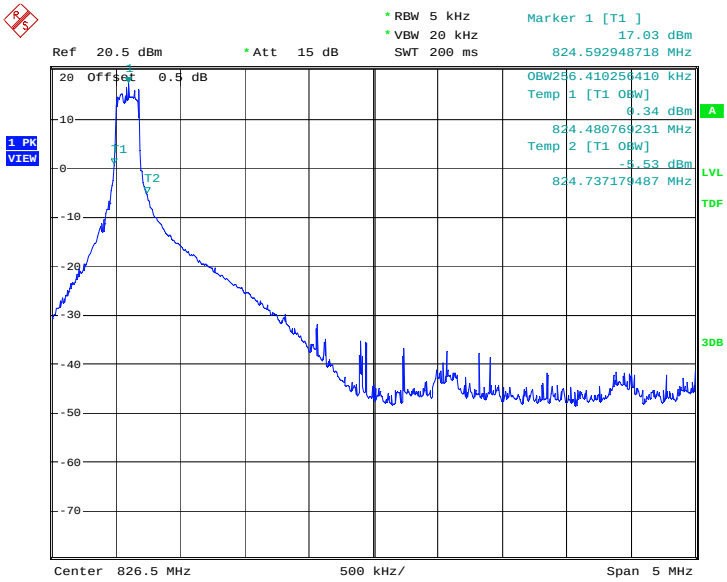


Date: 6.DEC.2021 09:37:40

LTE CA Band 5B

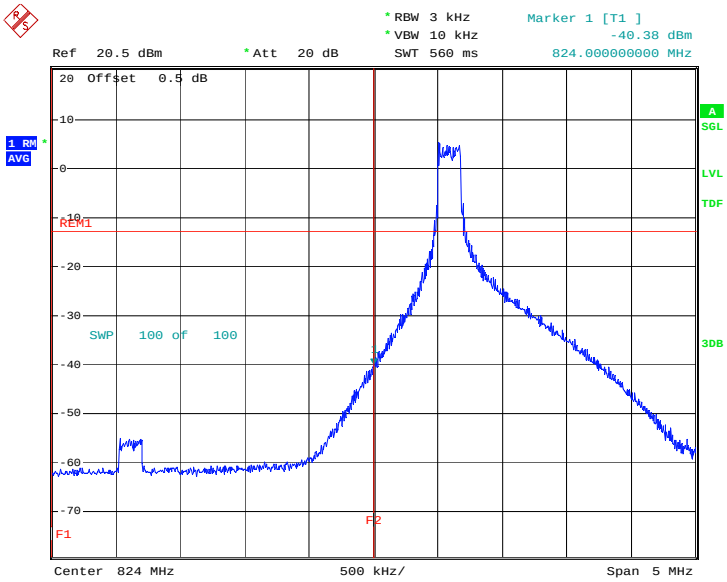
Only the worst case result is given below

OBW: 1RB-low_offset



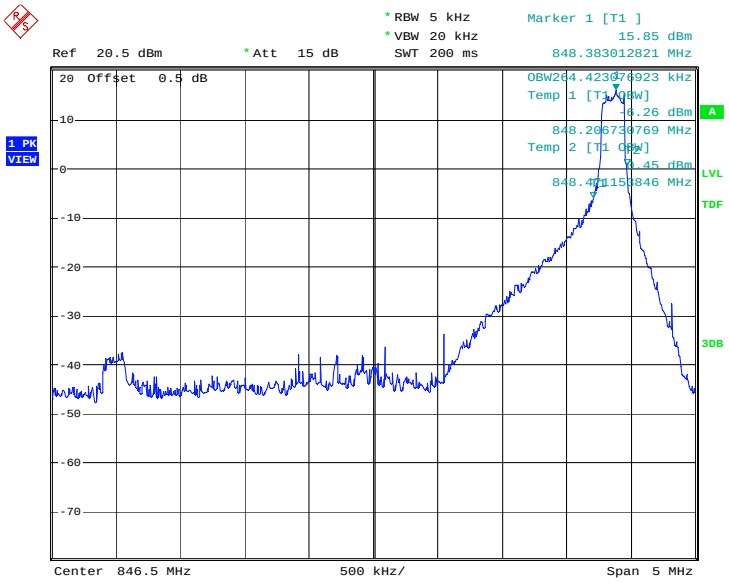
Date: 13.DEC.2021 09:00:33

LOW BAND EDGE BLOCK-10MHz+5MHz-1RB



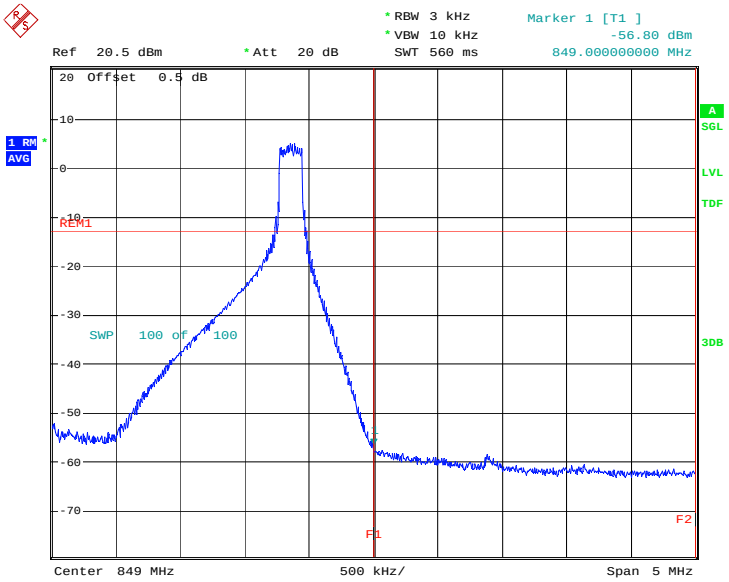
Date: 13.DEC.2021 09:01:33

OBW: 1RB-high_offset



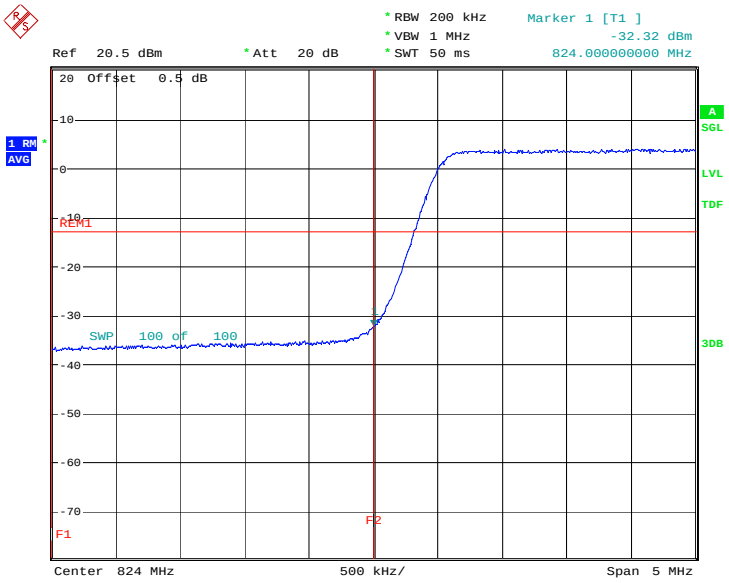
Date: 13.DEC.2021 09:02:23

HIGH BAND EDGE BLOCK-10MHz+5MHz-1RB



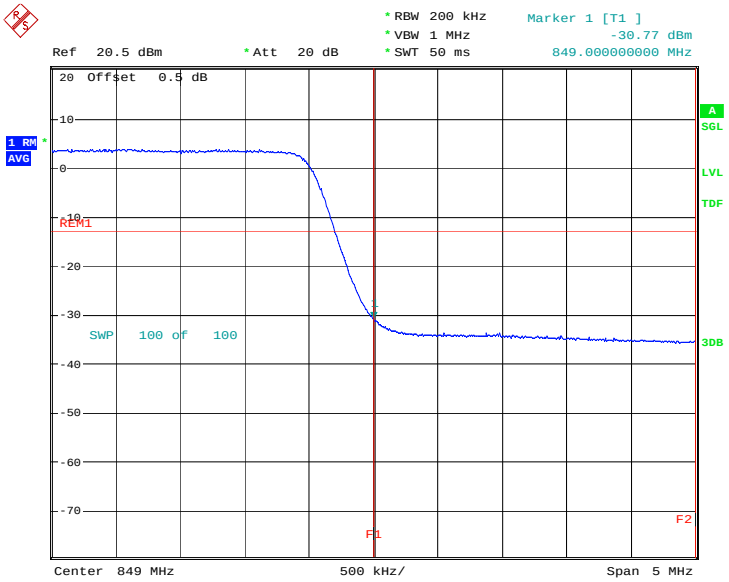
Date: 13.DEC.2021 09:03:25

LOW BAND EDGE BLOCK-10MHz+10MHz-100%RB



Date: 13.DEC.2021 09:04:37

HIGH BAND EDGE BLOCK-10MHz+10MHz-100%RB

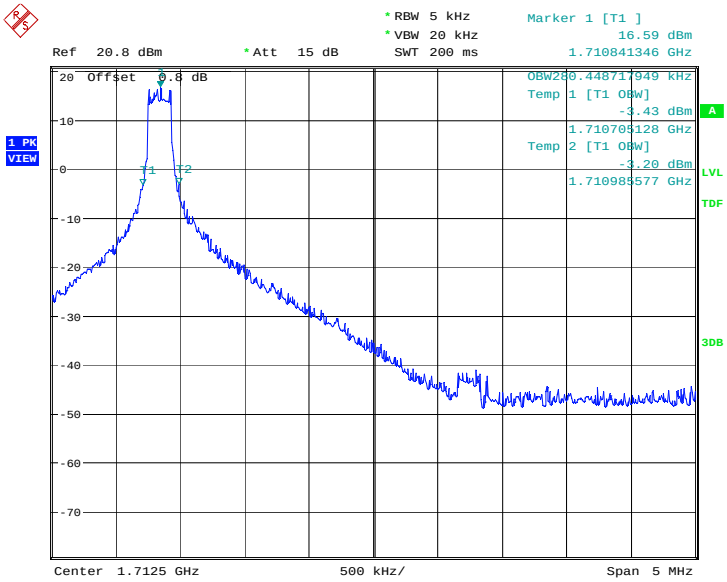


Date: 13.DEC.2021 09:05:46

LTE CA Band 66B

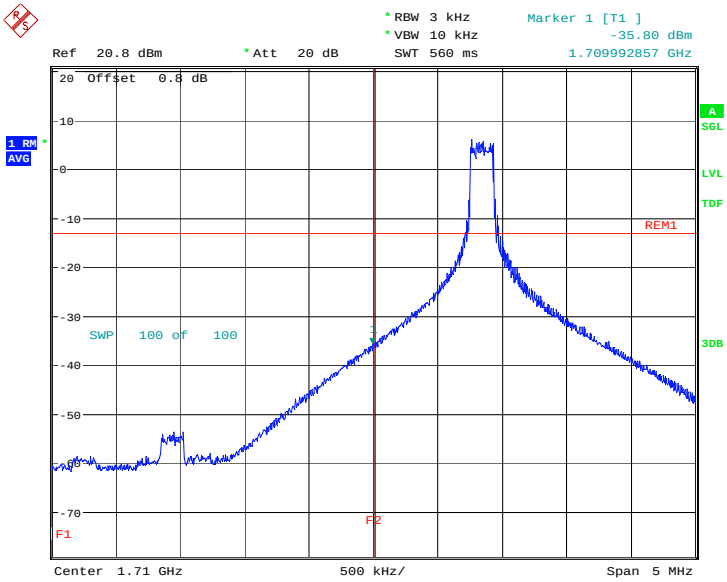
Only the worst case result is given below

OBW: 1RB-low_offset



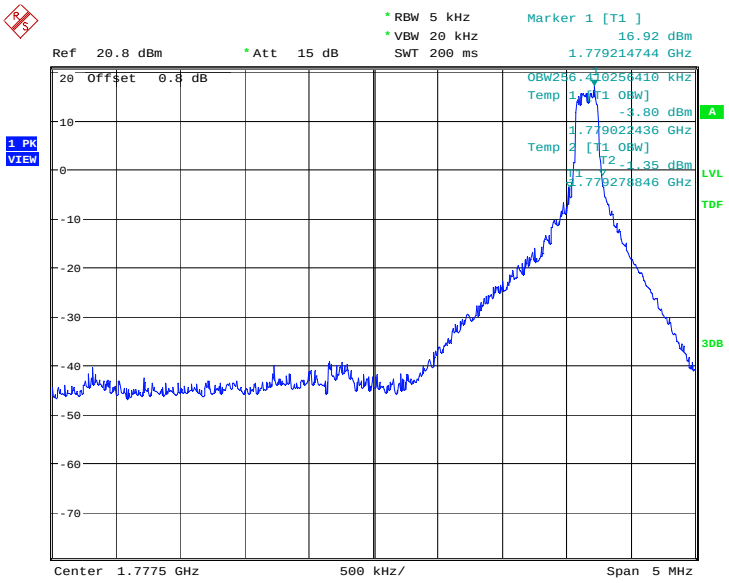
Date: 13.DEC.2021 09:06:55

LOW BAND EDGE BLOCK-15MHz+5MHz-1RB



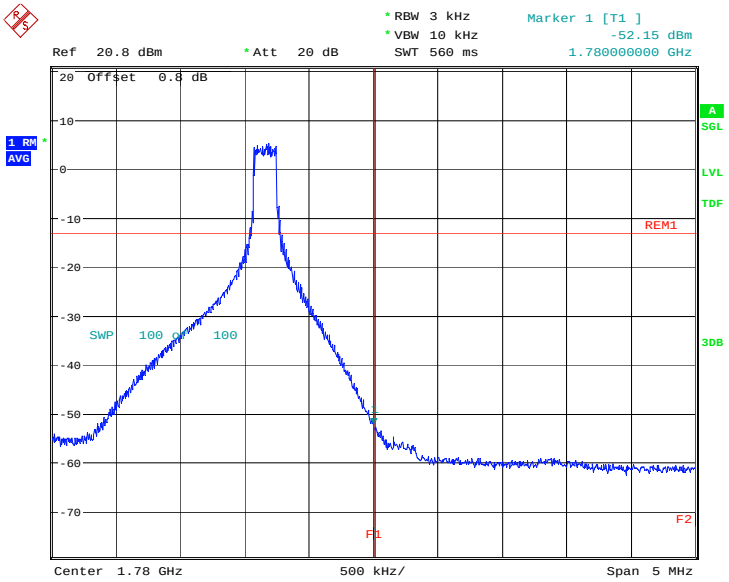
Date: 13.DEC.2021 09:07:59

OBW: 1RB-high_offset



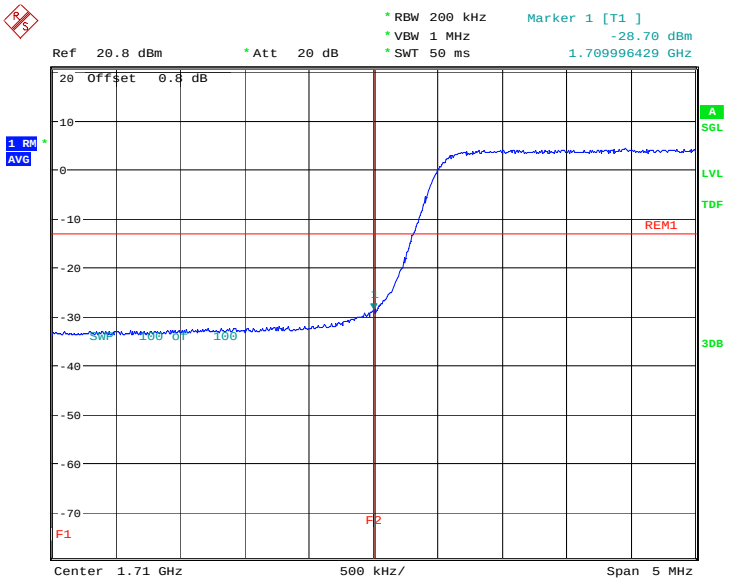
Date: 13.DEC.2021 09:09:22

HIGH BAND EDGE BLOCK-15MHz+5MHz-1RB



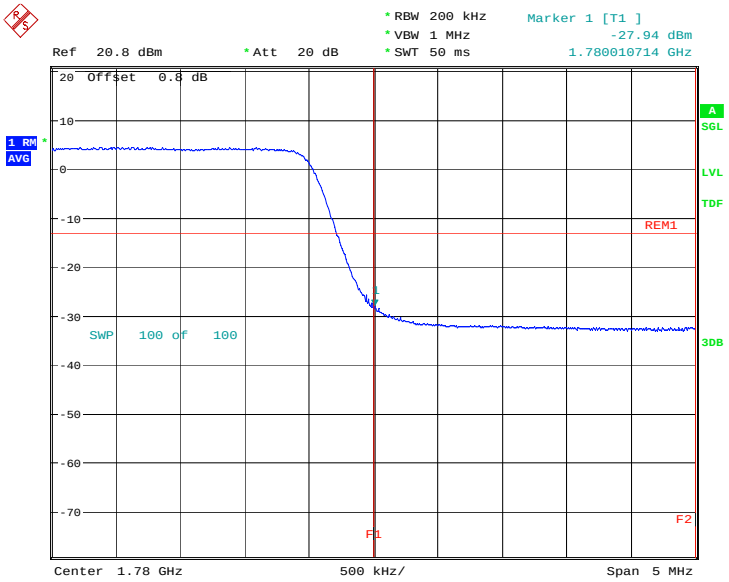
Date: 13.DEC.2021 09:10:24

LOW BAND EDGE BLOCK-10MHz+10MHz-100%RB



Date: 13.DEC.2021 09:23:39

HIGH BAND EDGE BLOCK-10MHz+10MHz-100%RB

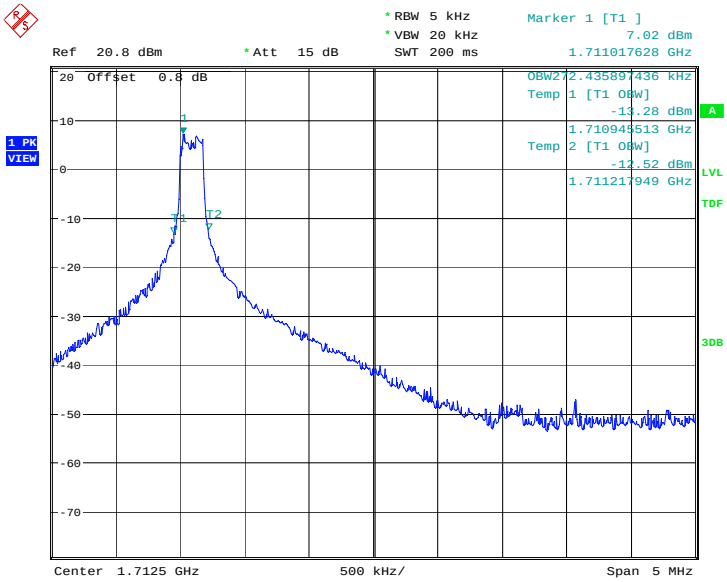


Date: 13.DEC.2021 09:24:48

LTE CA Band 66C

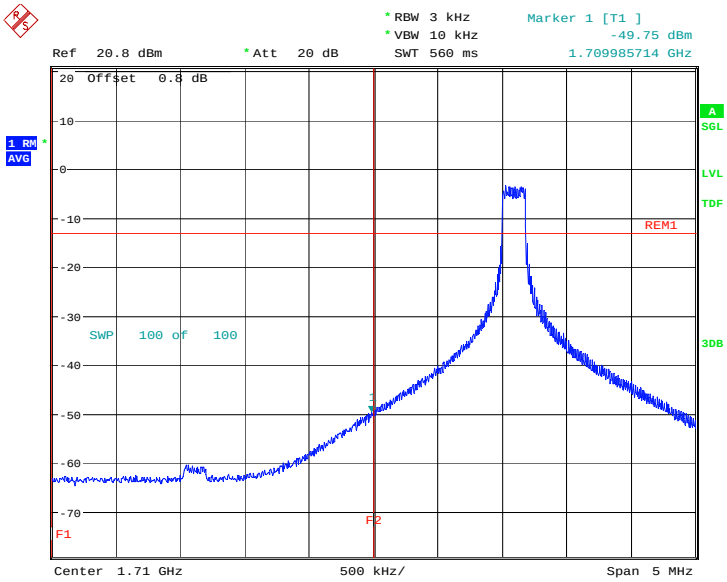
Only the worst case result is given below

OBW: 1RB-low_offset



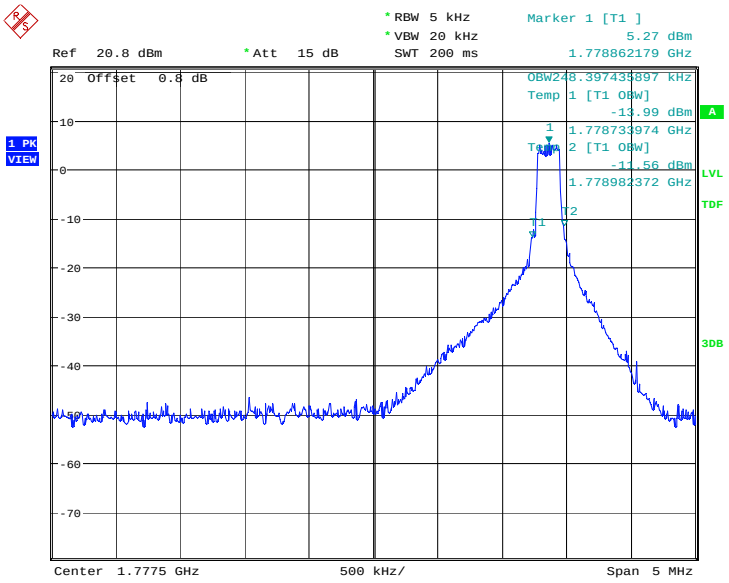
Date: 13.DEC.2021 09:42:32

LOW BAND EDGE BLOCK-20MHz+5MHz-1RB



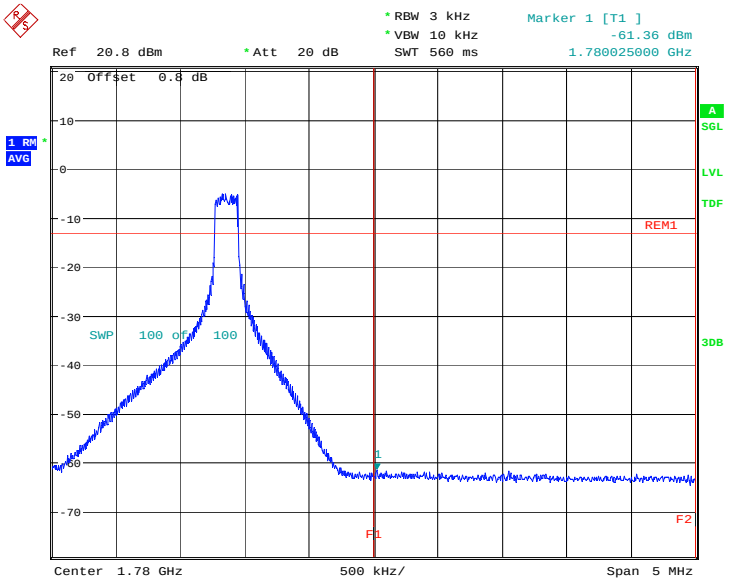
Date: 13.DEC.2021 09:43:36

OBW: 1RB-high_offset



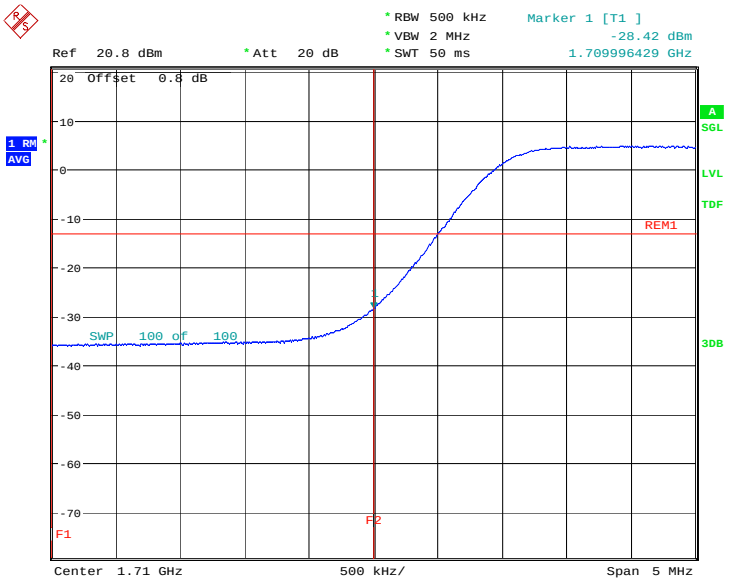
Date: 13.DEC.2021 09:44:26

HIGH BAND EDGE BLOCK-20MHz+5MHz-1RB



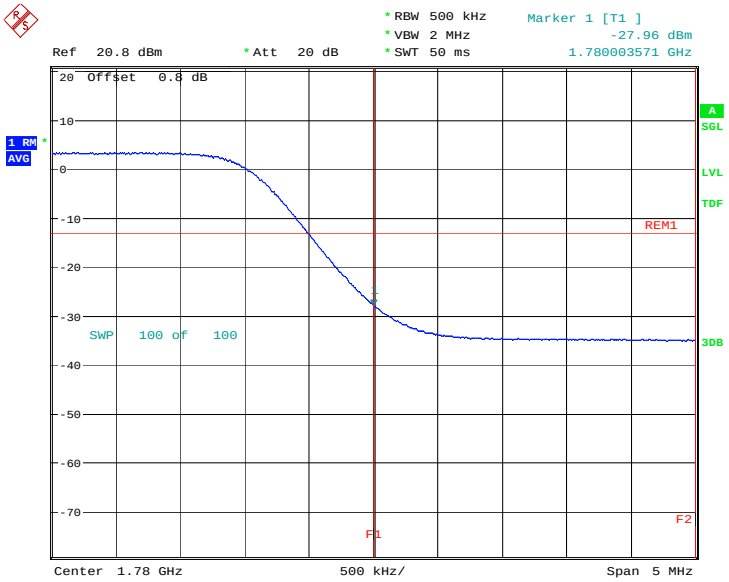
Date: 13.DEC.2021 09:45:28

LOW BAND EDGE BLOCK-20MHz+20MHz-100%RB



Date: 13.DEC.2021 09:11:39

HIGH BAND EDGE BLOCK-20MHz+20MHz-100%RB



Date: 13.DEC.2021 09:12:48

A.7 Conducted Spurious Emission

A.7.1 Measurement Method

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

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

A. 7.2 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 that 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.

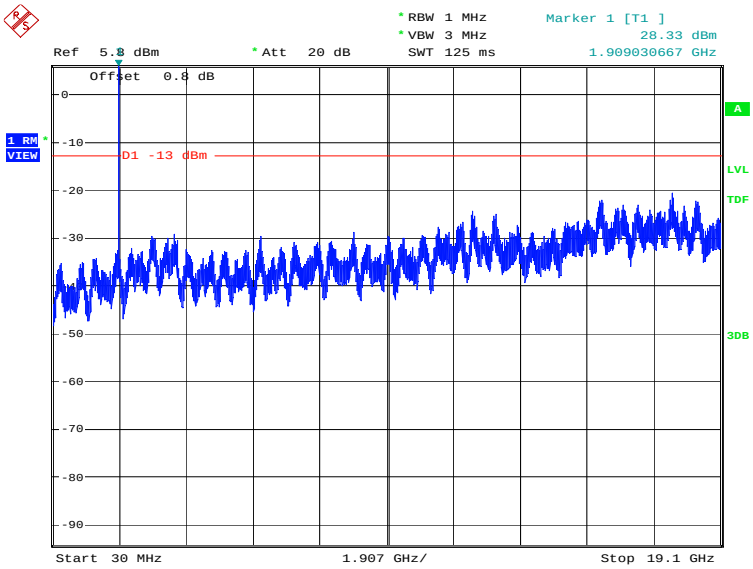
Part 27.53(g) states for operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee’s frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) 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.

A. 7.3 Measurement result

Only the worst case result is given below

LTE band 2: 30MHz – 19.1GHz

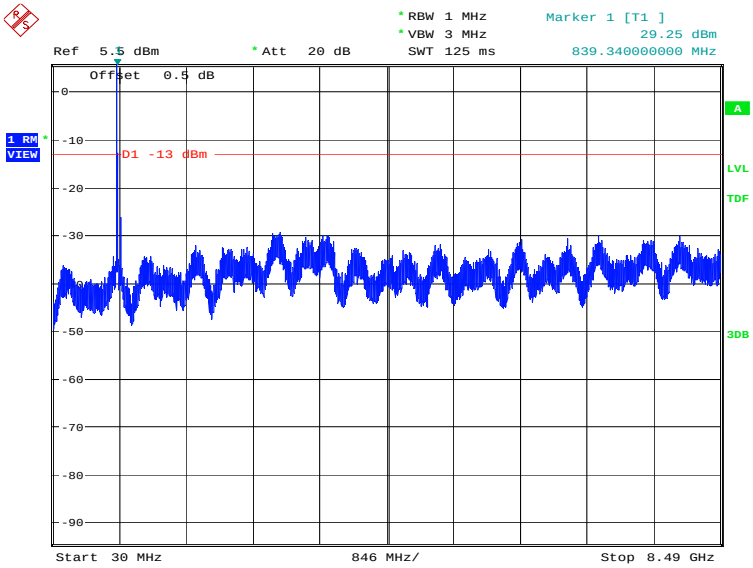
NOTE: peak above the limit line is the carrier frequency.



Date: 18.JAN.2022 15:17:08

LTE band 5: 30MHz – 8.49GHz

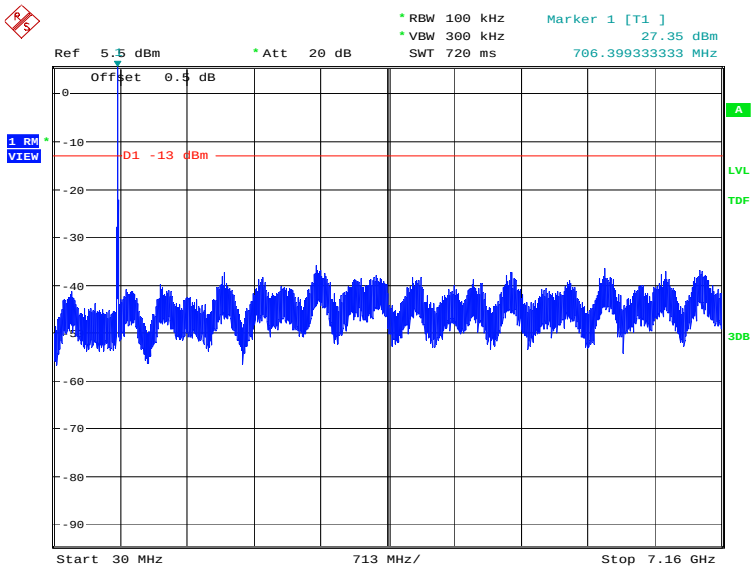
NOTE: peak above the limit line is the carrier frequency.



Date: 18.JAN.2022 15:18:33

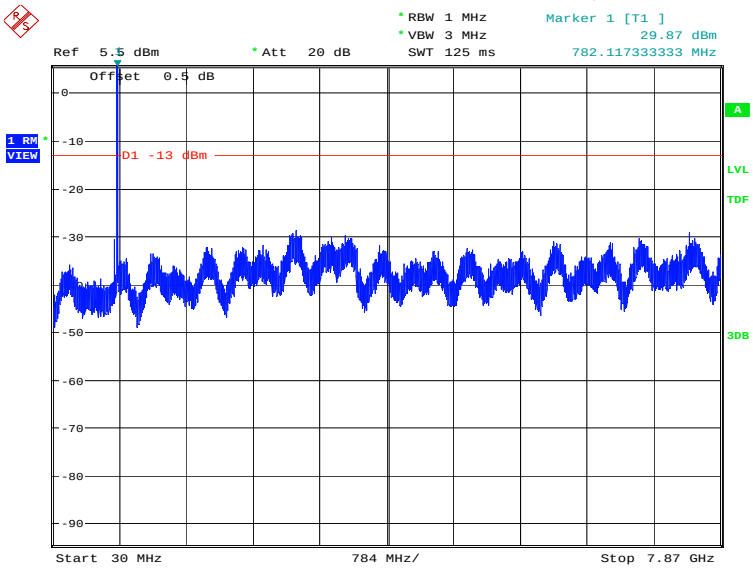
LTE band 12: 30MHz – 7.16GHz

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

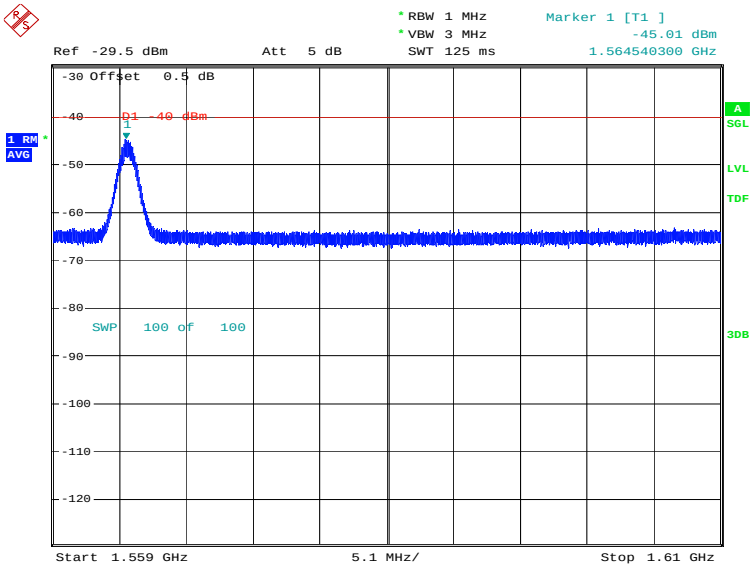


LTE band 13: 30MHz – 7.87GHz

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



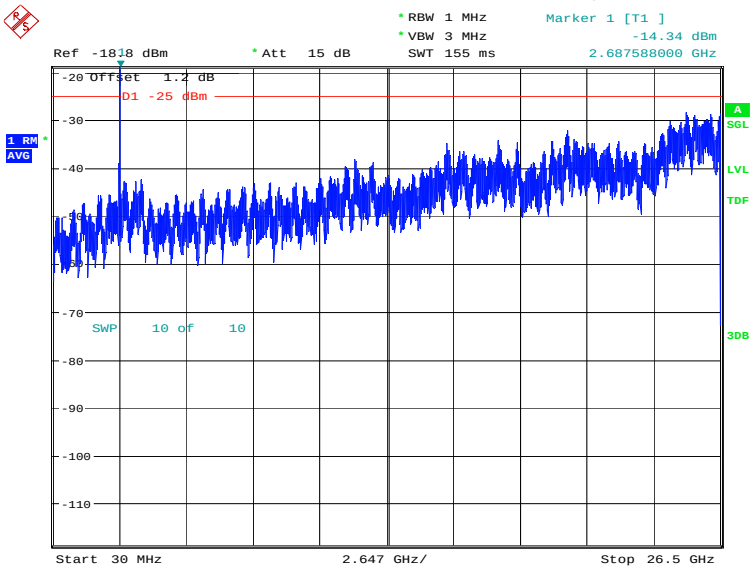
LTE band 13: 1559MHz – 1610MHz



Date: 18.JAN.2022 15:20:30

LTE band 41: 30MHz – 26.5GHz

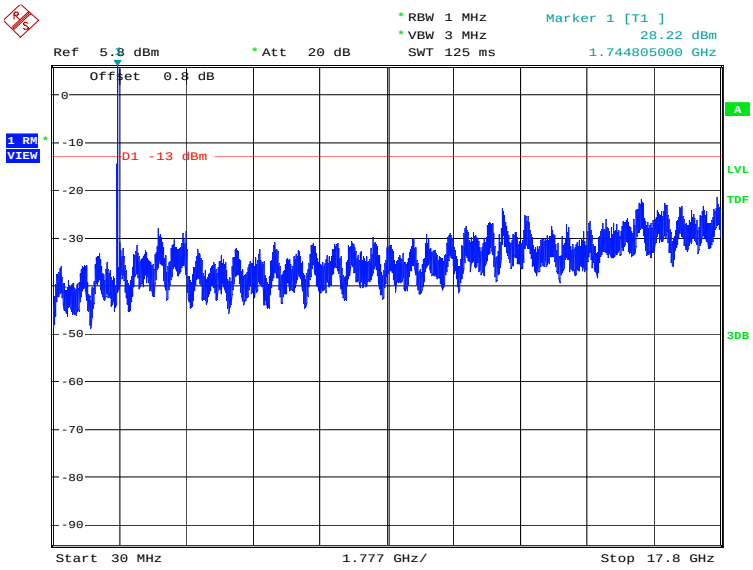
NOTE: peak above the limit line is the carrier frequency.



Date: 18.JAN.2022 15:29:10

LTE band 66: 30MHz – 17.8GHz

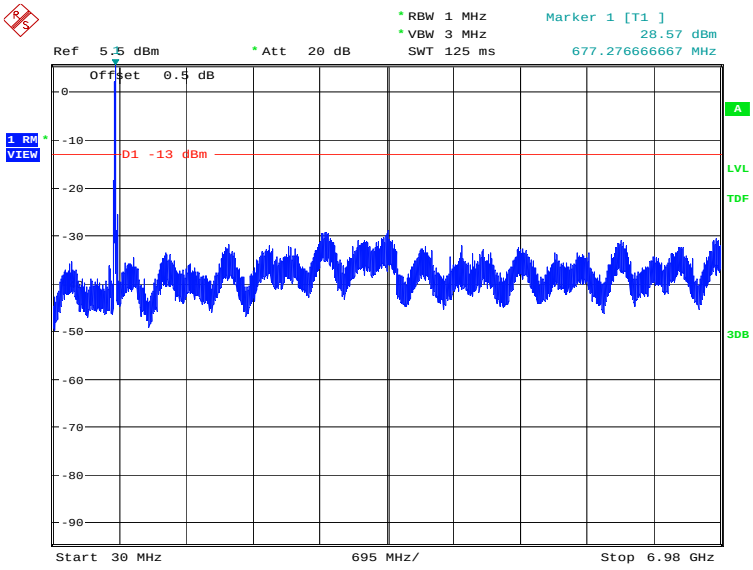
NOTE: peak above the limit line is the carrier frequency.



Date: 18.JAN.2022 15:21:13

LTE band 71: 30MHz – 6.98GHz

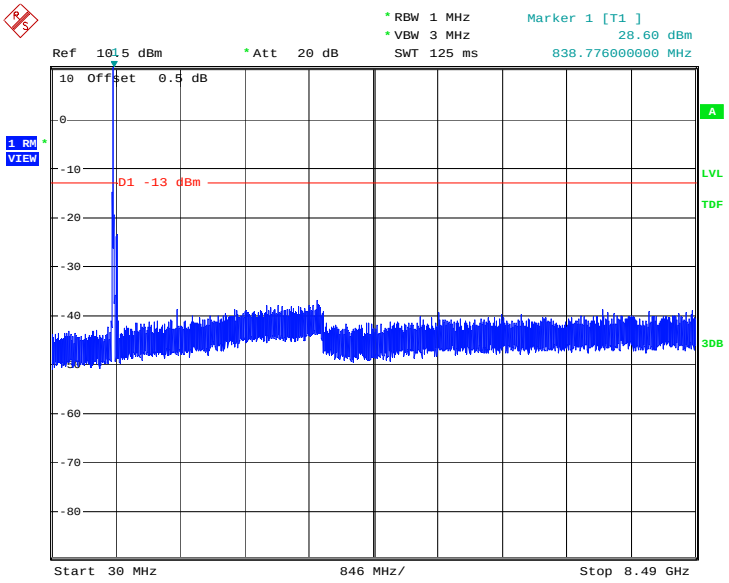
NOTE: peak above the limit line is the carrier frequency.



Date: 18.JAN.2022 15:15:34

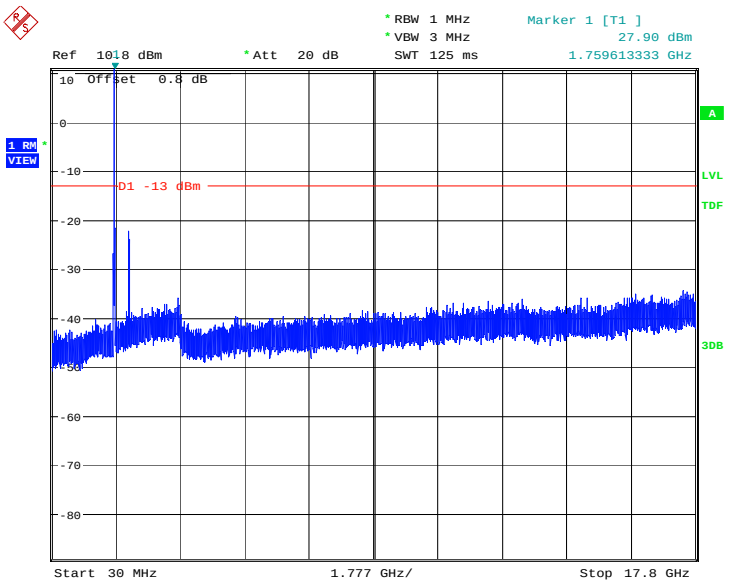
LTE CA Band 5B: 30MHz –8.49GHz

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



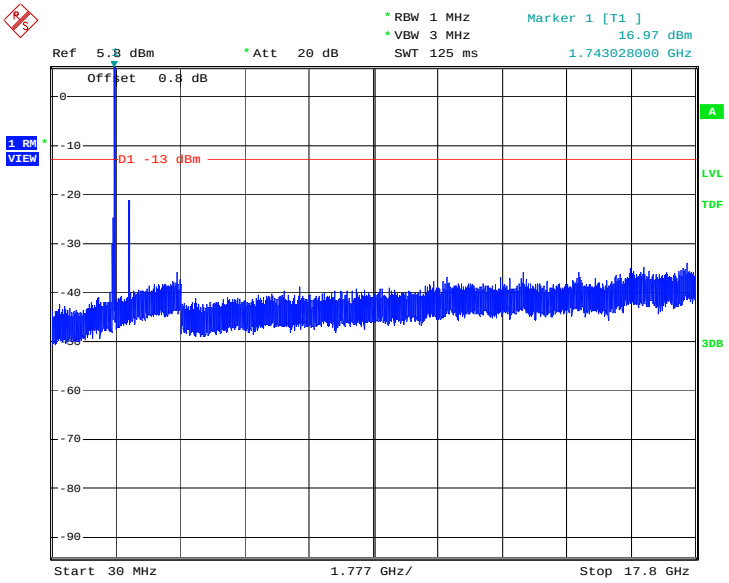
LTE CA Band 66B: 30MHz –17.8GHz

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



LTE CA Band 66C: 30MHz – 17.8GHz

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



Date: 13.DEC.2021 09:47:17

A.8 Peak-to-Average Power Ratio

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

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

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

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

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

LTE band 2, 20MHz

Frequency(MHz)	PAPR(dB)		
1880.0	QPSK	16QAM	64QAM
	6.63	7.31	7.40

LTE band 12, 10MHz

Frequency(MHz)	PAPR(dB)		
707.5	QPSK	16QAM	64QAM
	5.61	6.31	6.57

LTE band 13, 10MHz

Frequency(MHz)	PAPR(dB)		
782.0	QPSK	16QAM	64QAM
	5.61	6.47	6.60

LTE band 41, 20MHz

Frequency (MHz)	PAPR (dB)		
2593.0	QPSK	16QAM	64QAM
	8.17	8.91	8.97

LTE band 66, 20MHz

Frequency(MHz)	PAPR(dB)		
1745.0	QPSK	16QAM	64QAM
	6.54	7.24	7.28

LTE band 71, 20MHz

Frequency(MHz)	PAPR(dB)		
680.5	QPSK	16QAM	64QAM
	6.41	7.12	7.21

LTE band 5_CA,10MHz+10MHz

Frequency (MHz)	PAPR (dB)		
	QPSK	16QAM	64QAM
831.6	7.21	7.63	7.76

LTE band 66_CA,10MHz+10MHz

Frequency (MHz)	PAPR (dB)		
	QPSK	16QAM	64QAM
1750.1	7.28	7.66	7.69

LTE band 66_CA,20MHz+20MHz

Frequency (MHz)	PAPR (dB)		
	QPSK	16QAM	64QAM
1745.1	8.04	8.21	8.17

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

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

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 Communique dated January 2009).

2021-09-29 through 2022-09-30
Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

*****END OF REPORT*****