TEST REPORT

No. I22Z61849-WMD03

for

HMD Global Oy

Smart Phone

Model Name: TA-1515

FCC ID: 2AJOTTA-1515

with

Hardware Version: V1.0

Software Version: 00US_0_060

Issued Date: 2022-12-20

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

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z61849-WMD03	Rev.0	1st edition	2022-12-13
I22Z61849-WMD03	Rev.1	2nd edition Updated the results of LTE Band 30 on page 38.	2022-12-20

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

CONTENTS

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, P. R. China 100176

1.3. Testing Environment

Normal Temperature: 15-35℃

Relative Humidity: 20-75%

1.4. Project Data

Testing Start Date: 2022-09-25

Testing End Date: 2022-12-07

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

3.1. About EUT

Description	Smart Phone
Model Name	TA-1515
FCC ID	2AJOTTA-1515
Antenna	Embedded
Output power	25.67dBm maximum EIRP measured for LTE Band 41
Extreme vol. Limits	3.6VDC to 4.4VDC (nominal: 3.85VDC)
Extreme temp. Tolerance	0°C to +45°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
UT07a	357433970004299	V1.0	00US_0_060	2022-09-22
UT25a	357433970006013	V1.0	00US_0_060	2022-11-15
UT23a	357433970006641	V1.0	00US_0_060	2022-11-15

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

UT25a is first source, and UT23a is second source.

3.3. Internal Identification of AE used during the test

AE ID*	Description
AE1	Battery
AE2	Battery

AE1

Model	TN-BP4000N2
Manufacturer	Guangdong Fenghua new energy co.,ltd.
Capacitance	3900mAh

AE2

Model	TN-BP4000N2
Manufacturer	Dongguan Ganfeng Electronics Co., Ltd
Capacitance	3900mAh

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

4. Reference Documents

4.1. Documents supplied by applicant

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

4.2. Reference Documents for testing

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

Reference	Title	Version
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	10-1-21 Edition
FCC Part 22	PUBLIC MOBILE SERVICES	10-1-21 Edition
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	10-1-21 Edition
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

Fully-anechoic chamber did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4Ω
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

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

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4Ω

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

First source

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

Second source

Items	Test Name	Clause in FCC rules	Verdict
2	Emission Limit	2.1051/22.917	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 30

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

First source

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

Second source

Items	Test Name	Clause in FCC rules	Verdict
2	Emission Limit	2.1051/27.53	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.

Band 66 overlaps the entire frequency range of 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	2023-05-25	1 year
Climate Chamber	SH-242	93008556	ESPEC	2023-12-23	3 years
EMI Antenna	VULB9163	9163-235	Schwarzbeck	2023-04-19	1 year
EMI Antenna	3115	00146404	ETS-Lindgren	2023-02-23	1 year
EMI Antenna	LB-7180-NF	J203001300005	A-INFO	2023-02-23	1 year
Signal Generator	SMF100A	101295	R&S	2022-12-23	1 year
Test Receiver	E4440A	MY48250642	Agilent	2023-03-10	1 year
Universal Radio Communication Tester	CMW500	143008	R&S	2023-04-01	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.
The results below include a correction factor for cable loss that is provided by the customer.

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	24.15	23.52	22.45
		1880.0	24.28	23.57	22.51
		1850.7	24.24	23.42	22.17
	1 RB low	1909.3	24.38	23.81	22.62
		1880.0	24.34	23.68	22.49
		1850.7	24.30	23.55	22.56
	50% RB mid	1909.3	24.28	23.32	22.53
		1880.0	24.43	23.42	22.39
		1850.7	24.03	23.07	22.48
	100% RB	1909.3	23.21	22.44	21.30
		1880.0	23.42	22.43	21.26
		1850.7	23.09	22.29	21.18
3MHz	1 RB high	1908.5	24.64	23.56	22.53
		1880.0	24.25	23.47	22.51
		1851.5	24.18	23.62	22.36
	1 RB low	1908.5	24.36	23.54	22.60
		1880.0	24.28	23.75	22.55
		1851.5	24.20	23.62	22.36
	50% RB mid	1908.5	23.37	22.56	21.43
		1880.0	23.36	22.46	21.36
		1851.5	23.20	22.31	21.31
	100% RB	1908.5	23.47	22.51	21.33

		1880.0	23.44	22.41	21.34
		1851.5	23.29	22.26	21.27
5MHz	1 RB high	1907.5	24.09	23.63	22.71
		1880.0	24.35	23.55	22.77
		1852.5	24.11	23.43	22.35
	1 RB low	1907.5	24.38	23.73	22.53
		1880.0	24.49	23.78	22.65
		1852.5	24.23	23.54	22.51
	50% RB mid	1907.5	23.47	22.43	21.47
		1880.0	23.40	22.41	21.43
		1852.5	23.22	22.27	21.34
	100% RB	1907.5	23.44	22.39	21.25
		1880.0	23.27	22.18	21.27
		1852.5	23.25	22.29	21.27
10MHz	1 RB high	1905.0	24.38	23.65	22.49
		1880.0	24.36	23.71	22.51
		1855.0	24.05	23.32	22.23
	1 RB low	1905.0	24.44	23.65	22.80
		1880.0	24.56	23.64	22.62
		1855.0	24.41	23.53	22.52
	50% RB mid	1905.0	23.33	22.39	21.38
		1880.0	23.21	22.31	21.20
		1855.0	23.24	22.28	21.20
	100% RB	1905.0	23.39	22.36	21.30
		1880.0	23.24	22.33	21.24
		1855.0	23.27	22.20	21.23
15MHz	1 RB high	1902.5	24.13	23.41	22.69
		1880.0	24.40	23.47	22.18
		1857.5	24.30	23.67	22.40
	1 RB low	1902.5	24.18	23.57	22.56
		1880.0	24.24	23.65	22.64
		1857.5	24.18	23.74	22.67
	50% RB mid	1902.5	23.27	22.41	21.48
		1880.0	23.28	22.40	21.26
		1857.5	23.16	22.21	21.16
	100% RB	1902.5	23.24	22.31	21.36
		1880.0	23.15	22.27	21.14
		1857.5	23.19	22.15	21.05
20MHz	1 RB high	1900.0	23.86	22.97	22.45
		1880.0	23.91	23.38	22.06
		1860.0	23.83	23.29	21.84
	1 RB low	1900.0	24.20	23.37	22.27
		1880.0	24.13	23.41	22.45

		1860.0	24.04	23.37	22.24
	50% RB mid	1900.0	23.32	22.48	21.21
		1880.0	23.32	22.35	21.27
		1860.0	23.31	22.26	21.20
	100% RB	1900.0	23.28	22.23	21.18
		1880.0	23.24	22.24	21.18
		1860.0	23.22	22.16	21.20

LTE band 5

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	848.3	24.16	23.57	22.26
		836.5	24.59	23.89	22.45
		824.7	24.37	23.55	22.18
	1 RB low	848.3	24.18	23.34	22.67
		836.5	24.10	23.97	22.58
		824.7	24.22	23.35	22.21
	50% RB mid	848.3	24.34	23.27	22.41
		836.5	24.60	23.19	22.47
		824.7	24.32	23.29	22.56
	100% RB	848.3	23.45	22.58	21.40
		836.5	23.29	22.29	21.21
		824.7	23.32	22.40	21.28
3MHz	1 RB high	847.5	24.66	23.53	22.84
		836.5	24.70	24.00	22.54
		825.5	23.94	23.63	22.20
	1 RB low	847.5	23.99	23.75	22.51
		836.5	24.22	23.98	22.43
		825.5	24.40	23.27	22.40
	50% RB mid	847.5	23.49	22.54	21.44
		836.5	23.35	22.42	21.40
		825.5	23.35	22.44	21.39
	100% RB	847.5	23.39	22.45	21.41
		836.5	23.35	22.36	21.32
		825.5	23.33	22.30	21.36
5MHz	1 RB high	846.5	23.92	23.48	22.51
		836.5	24.74	23.59	22.42
		826.5	24.03	23.73	22.73
	1 RB low	846.5	24.33	23.89	22.57
		836.5	24.31	23.46	22.43
		826.5	24.47	23.78	22.68
	50% RB mid	846.5	23.40	22.36	21.40
		836.5	23.43	22.43	21.45
		826.5	23.41	22.36	21.46
	100% RB	846.5	23.50	22.47	21.51
		836.5	23.40	22.39	21.38
		826.5	23.39	22.42	21.32
10MHz	1 RB high	844.0	24.25	23.38	22.41
		836.5	24.34	23.41	22.50
		829.0	24.27	23.48	22.44
	1 RB low	844.0	24.43	23.41	22.39

		836.5	24.21	23.49	22.42
		829.0	24.15	23.39	22.49
	50% RB mid	844.0	23.27	22.24	21.21
		836.5	23.07	22.09	21.13
		829.0	23.13	22.16	21.11
	100% RB	844.0	23.20	22.19	21.16
		836.5	23.17	22.25	21.21
		829.0	23.21	22.24	21.21

LTE band 12

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	715.3	23.86	22.93	22.10
		707.5	23.92	23.20	22.39
		699.7	24.14	23.41	22.19
	1 RB low	715.3	23.99	23.28	22.25
		707.5	23.95	23.28	22.37
		699.7	24.10	23.41	22.23
	50% RB mid	715.3	23.85	22.83	22.22
		707.5	24.16	23.07	22.31
		699.7	24.09	23.16	22.25
	100% RB	715.3	22.97	22.19	20.95
		707.5	22.97	22.12	21.00
		699.7	23.08	22.33	21.15
3MHz	1 RB high	714.5	23.87	23.15	22.88
		707.5	23.73	23.08	22.24
		700.5	24.21	23.30	22.39
	1 RB low	714.5	24.02	23.06	22.78
		707.5	23.84	23.39	22.36
		700.5	24.11	23.36	22.35
	50% RB mid	714.5	22.98	22.21	21.07
		707.5	22.98	22.12	21.08
		700.5	23.06	22.21	21.17
	100% RB	714.5	23.05	22.14	21.17
		707.5	22.98	22.07	21.08
		700.5	23.15	22.14	21.15
5MHz	1 RB high	713.5	24.10	23.00	22.35
		707.5	23.81	23.31	22.31
		701.5	24.26	23.32	22.14
	1 RB low	713.5	23.83	23.35	22.25
		707.5	24.18	23.10	22.37
		701.5	24.57	23.54	22.32
	50% RB mid	713.5	23.09	22.13	21.29
		707.5	23.08	22.03	21.09
		701.5	23.14	22.12	21.17
	100% RB	713.5	23.01	22.10	21.08
		707.5	23.08	22.11	21.08
		701.5	23.14	22.12	21.15
10MHz	1 RB high	711.0	23.99	23.24	22.24
		707.5	24.48	23.14	22.40
		704.0	24.17	23.20	22.22
	1 RB low	711.0	24.17	23.45	22.35

		707.5	24.33	23.44	22.45
		704.0	24.21	23.49	22.42
	50% RB mid	711.0	22.95	22.00	21.04
		707.5	22.91	22.10	21.21
		704.0	22.86	22.17	20.98
	100% RB	711.0	22.79	22.15	20.83
		707.5	22.85	21.90	20.93
		704.0	23.10	22.08	21.13

LTE band 13

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	784.5	23.57	23.01	22.46
		782.0	23.51	22.78	22.48
		779.5	23.82	22.89	21.83
	1 RB low	784.5	23.68	22.99	22.49
		782.0	23.54	23.02	22.45
		779.5	23.61	22.77	21.78
	50% RB mid	784.5	22.70	21.60	21.46
		782.0	22.66	21.61	21.48
		779.5	22.70	21.76	20.71
	100% RB	784.5	22.62	21.62	21.42
		782.0	22.66	21.70	21.49
		779.5	22.78	21.82	20.75
10MHz	1 RB high	782.0	23.89	23.10	21.83
	1 RB low	782.0	23.71	22.97	21.95
	50% RB mid	782.0	22.68	21.73	20.62
	100% RB	782.0	22.73	21.76	20.79

LTE band 30

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2312.5	23.58	22.89	21.87
		2310.0	23.51	22.58	21.76
		2307.5	23.49	22.70	21.52
	1 RB low	2312.5	23.60	22.82	21.84
		2310.0	23.42	22.71	21.77
		2307.5	23.81	22.98	21.74
	50% RB mid	2312.5	22.53	21.38	20.77
		2310.0	22.52	21.42	20.41
		2307.5	22.47	21.52	20.49
	100% RB	2312.5	22.59	21.33	20.82
		2310.0	22.54	21.58	20.37
		2307.5	22.52	21.48	20.50
10MHz	1 RB high	2310.0	23.93	22.79	22.77
	1 RB low	2310.0	23.66	23.00	22.87
	50% RB mid	2310.0	22.60	21.77	21.44
	100% RB	2310.0	22.61	21.51	21.52

LTE band 41

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2687.5	24.78	24.03	22.94
		2593.0	24.63	23.88	22.79
		2498.5	24.48	23.80	22.60
	1 RB low	2687.5	24.75	24.12	23.41
		2593.0	24.89	24.25	22.96
		2498.5	24.49	24.09	22.66
	50% RB mid	2687.5	23.59	22.72	21.79
		2593.0	23.73	22.62	21.88
		2498.5	23.33	22.40	21.65
	100% RB	2687.5	23.71	22.69	22.39
		2593.0	23.81	22.82	21.91
		2498.5	23.54	22.54	21.57
10MHz	1 RB high	2685.0	24.80	24.11	23.89
		2593.0	24.72	24.07	23.87
		2501.0	24.55	23.80	23.92
	1 RB low	2685.0	24.84	23.90	23.81
		2593.0	24.94	24.16	23.71
		2501.0	24.57	23.95	23.49
	50% RB mid	2685.0	23.62	22.73	22.70
		2593.0	23.84	22.82	22.76
		2501.0	23.48	22.55	22.53
	100% RB	2685.0	23.68	22.71	22.61
		2593.0	23.80	22.87	22.84
		2501.0	23.56	22.53	22.48
15MHz	1 RB high	2682.5	24.89	24.10	23.96
		2593.0	24.94	24.02	22.99
		2503.5	24.74	24.06	22.53
	1 RB low	2682.5	24.74	24.05	23.78
		2593.0	25.07	24.26	23.04
		2503.5	24.61	23.91	22.71
	50% RB mid	2682.5	23.97	22.85	22.84
		2593.0	23.87	22.92	21.93
		2503.5	23.67	22.65	21.65
	100% RB	2682.5	23.65	22.82	22.64
		2593.0	23.99	22.99	21.91
		2503.5	23.62	22.70	21.66
20MHz	1 RB high	2680.0	24.79	24.05	23.46
		2593.0	24.77	23.97	22.63
		2506.0	24.70	23.92	22.91
	1 RB low	2680.0	24.64	24.02	23.80

		2593.0	24.96	24.35	22.94
		2506.0	24.54	23.87	22.56
	50% RB mid	2680.0	23.92	22.88	22.81
		2593.0	23.92	22.92	21.73
		2506.0	23.41	22.56	21.52
	100% RB	2680.0	23.78	22.83	22.89
		2593.0	23.87	22.91	21.93
		2506.0	23.60	22.66	21.67

LTE band 41 CA

Bandwidth	Frequency(MHz)	Frequency(MHz)	Modulation	PCC RB		SCC RB		Conducted Power(dBm)
				Size	Offset	Size	Offset	
5MHz/20MHz	2583.8	2595.5	QPSK	25	0	100	0	20.82
5MHz/20MHz	2583.8	2595.5	QPSK	1	24	1	0	22.61
5MHz/20MHz	2583.8	2595.5	16QAM	25	0	100	0	19.88
5MHz/20MHz	2583.8	2595.5	16QAM	1	24	1	0	21.77
5MHz/20MHz	2583.8	2595.5	64QAM	25	0	100	0	19.92
5MHz/20MHz	2583.8	2595.5	64QAM	1	24	1	0	19.83
10MHz/15MHz	2585.9	2597.9	QPSK	50	0	75	0	22.85
10MHz/15MHz	2585.9	2597.9	QPSK	1	49	1	0	22.46
10MHz/15MHz	2585.9	2597.9	16QAM	50	0	75	0	22.80
10MHz/15MHz	2585.9	2597.9	16QAM	1	49	1	0	22.87
10MHz/15MHz	2585.9	2597.9	64QAM	50	0	75	0	22.88
10MHz/15MHz	2585.9	2597.9	64QAM	1	49	1	0	22.37
10MHz/20MHz	2583.6	2598	QPSK	50	0	100	0	20.99
10MHz/20MHz	2583.6	2598	QPSK	1	49	1	0	22.77
10MHz/20MHz	2583.6	2598	16QAM	50	0	100	0	20.00
10MHz/20MHz	2583.6	2598	16QAM	1	49	1	0	21.86
10MHz/20MHz	2583.6	2598	64QAM	50	0	100	0	19.97
10MHz/20MHz	2583.6	2598	64QAM	1	49	1	0	19.62
15MHz/10MHz	2588.1	2600.1	QPSK	75	0	50	0	22.74
15MHz/10MHz	2588.1	2600.1	QPSK	1	74	1	0	22.27
15MHz/10MHz	2588.1	2600.1	16QAM	75	0	50	0	22.80
15MHz/10MHz	2588.1	2600.1	16QAM	1	74	1	0	22.48
15MHz/10MHz	2588.1	2600.1	64QAM	75	0	50	0	22.99
15MHz/10MHz	2588.1	2600.1	64QAM	1	74	1	0	22.46
15MHz/15MHz	2585.5	2600.5	QPSK	75	0	75	0	20.88
15MHz/15MHz	2585.5	2600.5	QPSK	1	74	1	0	22.55
15MHz/15MHz	2585.5	2600.5	16QAM	75	0	75	0	19.79
15MHz/15MHz	2585.5	2600.5	16QAM	1	74	1	0	21.66
15MHz/15MHz	2585.5	2600.5	64QAM	75	0	75	0	19.86
15MHz/15MHz	2585.5	2600.5	64QAM	1	74	1	0	19.64
15MHz/20MHz	2583.3	2600.4	QPSK	75	0	100	0	21.01
15MHz/20MHz	2583.3	2600.4	QPSK	1	74	1	0	22.62
15MHz/20MHz	2583.3	2600.4	16QAM	75	0	100	0	19.98
15MHz/20MHz	2583.3	2600.4	16QAM	1	74	1	0	21.56
15MHz/20MHz	2583.3	2600.4	64QAM	75	0	100	0	20.08
15MHz/20MHz	2583.3	2600.4	64QAM	1	74	1	0	19.68
20MHz/5MHz	2590.5	2602.2	QPSK	100	0	25	0	20.68
20MHz/5MHz	2590.5	2602.2	QPSK	1	99	1	0	22.56
20MHz/5MHz	2590.5	2602.2	16QAM	100	0	25	0	19.68
20MHz/5MHz	2590.5	2602.2	16QAM	1	99	1	0	21.63

20MHz/5MHz	2590.5	2602.2	64QAM	100	0	25	0	19.60
20MHz/5MHz	2590.5	2602.2	64QAM	1	99	1	0	19.71
20MHz/10MHz	2588.1	2602.5	QPSK	100	0	50	0	20.79
20MHz/10MHz	2588.1	2602.5	QPSK	1	99	1	0	22.46
20MHz/10MHz	2588.1	2602.5	16QAM	100	0	50	0	19.89
20MHz/10MHz	2588.1	2602.5	16QAM	1	99	1	0	21.09
20MHz/10MHz	2588.1	2602.5	64QAM	100	0	50	0	19.87
20MHz/10MHz	2588.1	2602.5	64QAM	1	99	1	0	19.70
20MHz/15MHz	2585.6	2602.7	QPSK	100	0	75	0	21.01
20MHz/15MHz	2585.6	2602.7	QPSK	1	99	1	0	22.48
20MHz/15MHz	2585.6	2602.7	16QAM	100	0	75	0	20.02
20MHz/15MHz	2585.6	2602.7	16QAM	1	99	1	0	21.60
20MHz/15MHz	2585.6	2602.7	64QAM	100	0	75	0	19.99
20MHz/15MHz	2585.6	2602.7	64QAM	1	99	1	0	19.74
20MHz/20MHz	2583.1	2602.9	QPSK	100	0	100	0	21.10
20MHz/20MHz	2583.1	2602.9	QPSK	1	99	1	0	22.59
20MHz/20MHz	2583.1	2602.9	16QAM	100	0	100	0	20.15
20MHz/20MHz	2583.1	2602.9	16QAM	1	99	1	0	21.49
20MHz/20MHz	2583.1	2602.9	64QAM	100	0	100	0	20.24
20MHz/20MHz	2583.1	2602.9	64QAM	1	99	1	0	19.57

LTE band 66

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1779.3	23.86	22.94	22.00
		1745.0	23.59	22.95	21.90
		1710.7	23.39	22.96	22.01
	1 RB low	1779.3	23.67	23.40	22.03
		1745.0	23.71	23.21	22.04
		1710.7	23.48	22.68	21.62
	50% RB mid	1779.3	23.82	23.34	21.98
		1745.0	23.73	22.85	21.89
		1710.7	23.53	22.87	21.62
	100% RB	1779.3	22.87	21.95	20.83
		1745.0	22.77	21.86	20.74
		1710.7	22.68	21.80	20.73
3MHz	1 RB high	1778.5	24.16	23.31	21.65
		1745.0	23.94	23.25	22.01
		1711.5	23.96	23.30	21.96
	1 RB low	1778.5	24.07	23.17	22.08
		1745.0	23.80	23.02	21.99
		1711.5	23.87	22.81	21.73
	50% RB mid	1778.5	22.92	22.01	21.03
		1745.0	22.82	21.93	20.89
		1711.5	22.79	21.90	20.84
	100% RB	1778.5	22.89	22.03	20.88
		1745.0	22.88	21.89	20.83
		1711.5	22.76	21.81	20.82
5MHz	1 RB high	1777.5	24.03	22.75	22.35
		1745.0	23.88	23.15	22.16
		1712.5	23.67	22.92	21.89
	1 RB low	1777.5	23.99	23.23	22.15
		1745.0	23.88	23.42	22.18
		1712.5	23.79	23.21	22.06
	50% RB mid	1777.5	23.09	21.98	20.96
		1745.0	22.93	21.87	20.91
		1712.5	22.78	21.80	20.84
	100% RB	1777.5	22.91	22.03	20.95
		1745.0	22.86	21.89	20.98
		1712.5	22.80	21.84	20.83
10MHz	1 RB high	1775.0	24.19	23.13	22.45
		1745.0	24.33	23.32	22.04
		1715.0	24.41	23.12	22.44
	1 RB low	1775.0	23.60	22.62	21.43

		1745.0	23.19	22.51	21.38
		1715.0	23.12	22.46	21.22
	50% RB mid	1775.0	22.97	21.94	20.97
		1745.0	22.83	21.84	20.93
		1715.0	22.81	21.71	20.80
	100% RB	1775.0	22.92	21.91	20.83
		1745.0	22.87	21.87	20.88
		1715.0	22.86	21.76	20.76
15MHz	1 RB high	1772.5	24.12	23.22	22.39
		1745.0	24.03	23.31	22.31
		1717.5	24.32	23.32	22.12
	1 RB low	1772.5	24.23	23.34	22.36
		1745.0	24.46	23.37	22.35
		1717.5	24.16	23.46	22.34
	50% RB mid	1772.5	23.24	22.23	21.12
		1745.0	23.04	21.95	21.05
		1717.5	23.06	21.96	21.00
	100% RB	1772.5	23.08	22.13	21.07
		1745.0	22.93	21.92	21.02
		1717.5	22.98	22.00	20.91
20MHz	1 RB high	1770.0	24.25	23.48	22.48
		1745.0	24.21	23.42	22.48
		1720.0	24.40	23.45	22.34
	1 RB low	1770.0	24.06	23.02	22.31
		1745.0	23.69	23.12	21.92
		1720.0	23.76	23.07	22.13
	50% RB mid	1770.0	23.12	22.25	21.08
		1745.0	23.04	22.16	21.07
		1720.0	23.19	22.16	21.07
	100% RB	1770.0	23.00	22.13	21.04
		1745.0	23.01	21.95	20.95
		1720.0	23.07	22.08	21.10

LTE band 71

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	695.5	24.13	23.32	22.36
		680.5	24.30	23.46	22.51
		665.5	24.34	23.26	22.42
	1 RB low	695.5	24.14	23.51	22.18
		680.5	24.59	23.31	22.54
		665.5	24.28	23.27	22.49
	50% RB mid	695.5	23.02	22.13	21.06
		680.5	23.26	22.24	21.34
		665.5	23.24	22.35	21.36
	100% RB	695.5	23.05	22.02	21.07
		680.5	23.27	22.20	21.23
		665.5	23.23	22.25	21.30
10MHz	1 RB high	693.0	24.20	23.01	21.97
		680.5	24.35	23.01	22.66
		668.0	24.51	23.84	22.65
	1 RB low	693.0	23.04	22.27	21.18
		680.5	23.29	22.63	21.46
		668.0	23.35	22.54	21.59
	50% RB mid	693.0	22.64	21.78	20.68
		680.5	23.32	22.24	21.30
		668.0	23.23	22.32	21.29
	100% RB	693.0	22.69	21.63	20.65
		680.5	23.22	22.15	21.20
		668.0	23.21	22.31	21.19
15MHz	1 RB high	690.5	23.77	23.28	21.99
		680.5	24.31	23.42	22.45
		670.5	24.39	23.51	22.74
	1 RB low	690.5	24.26	23.08	22.24
		680.5	24.04	23.28	22.33
		670.5	24.18	23.48	22.56
	50% RB mid	690.5	23.47	22.43	21.49
		680.5	23.49	22.38	21.45
		670.5	23.48	22.50	21.38
	100% RB	690.5	23.25	22.30	21.26
		680.5	23.34	22.32	21.35
		670.5	23.48	22.46	21.35
20MHz	1 RB high	688.0	24.27	23.28	22.20
		680.5	24.25	23.38	22.24
		673.0	24.49	23.33	22.32
	1 RB low	688.0	23.30	22.56	21.47

		680.5	23.31	22.51	21.52
		673.0	23.48	22.84	21.79
	50% RB mid	688.0	23.33	22.27	21.28
		680.5	23.32	22.33	21.37
		673.0	23.40	22.42	21.47
	100% RB	688.0	23.15	22.00	21.12
		680.5	23.20	22.20	21.14
		673.0	23.22	22.23	21.29

A.1.3 Radiated

A.1.3.1 Description

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

LTE Band 2: 24.232(c) specifies "Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications."

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

LTE Band 12: 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."

LTE Band 13: 27.50(b)(10) 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."

LTE Band 30: Rule Part 27.50(a)(3) specifies, " For mobile and portable stations transmitting in the 2305–2315 MHz band or the 2350–2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth ."

FDD Band 41: 27.50(h)(2) specifies " Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power".

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

LTE Band 71: Rule 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 ".

A.1.3.2 Method of Measurement

NASI C63.26 chapter 5.2.5.5: when working in decibels (i.e., logarithmic scale), the ERP and EIRP represent the sum of the transmit antenna gain (in dBd or dBi, respectively) and the conducted RF output power (expressed in dB relative to watts or milliwatts).

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

$$\text{ERP or EIRP} = P_{Mea} + G_T$$

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_{Mea}	measured transmitter output power or PSD, in dBm or dBW
G_T	gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

The antenna gain provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

LTE band 2-EIRP

Limits: ≤33dBm (2W)

Max EIRP: 25.04dBm

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power(dBm)			EIRP(dBm)(Gt-Lc =0.4)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1.4MHz	1 RB high	1909.3	24.15	23.52	22.45	24.55	23.92	22.85
		1880.0	24.28	23.57	22.51	24.68	23.97	22.91
		1850.7	24.24	23.42	22.17	24.64	23.82	22.57
	1 RB low	1909.3	24.38	23.81	22.62	24.78	24.21	23.02
		1880.0	24.34	23.68	22.49	24.74	24.08	22.89
		1850.7	24.30	23.55	22.56	24.70	23.95	22.96
	50% RB mid	1909.3	24.28	23.32	22.53	24.68	23.72	22.93
		1880.0	24.43	23.42	22.39	24.83	23.82	22.79
		1850.7	24.03	23.07	22.48	24.43	23.47	22.88
	100% RB	1909.3	23.21	22.44	21.30	23.61	22.84	21.70
		1880.0	23.42	22.43	21.26	23.82	22.83	21.66
		1850.7	23.09	22.29	21.18	23.49	22.69	21.58
3MHz	1 RB high	1908.5	24.64	23.56	22.53	25.04	23.96	22.93
		1880.0	24.25	23.47	22.51	24.65	23.87	22.91
		1851.5	24.18	23.62	22.36	24.58	24.02	22.76
	1 RB low	1908.5	24.36	23.54	22.60	24.76	23.94	23.00
		1880.0	24.28	23.75	22.55	24.68	24.15	22.95
		1851.5	24.20	23.62	22.36	24.60	24.02	22.76
	50% RB mid	1908.5	23.37	22.56	21.43	23.77	22.96	21.83
		1880.0	23.36	22.46	21.36	23.76	22.86	21.76
		1851.5	23.20	22.31	21.31	23.60	22.71	21.71
	100% RB	1908.5	23.47	22.51	21.33	23.87	22.91	21.73
		1880.0	23.44	22.41	21.34	23.84	22.81	21.74
		1851.5	23.29	22.26	21.27	23.69	22.66	21.67
5MHz	1 RB high	1907.5	24.09	23.63	22.71	24.49	24.03	23.11
		1880.0	24.35	23.55	22.77	24.75	23.95	23.17
		1852.5	24.11	23.43	22.35	24.51	23.83	22.75
	1 RB low	1907.5	24.38	23.73	22.53	24.78	24.13	22.93
		1880.0	24.49	23.78	22.65	24.89	24.18	23.05
		1852.5	24.23	23.54	22.51	24.63	23.94	22.91
	50% RB mid	1907.5	23.47	22.43	21.47	23.87	22.83	21.87
		1880.0	23.40	22.41	21.43	23.80	22.81	21.83
		1852.5	23.22	22.27	21.34	23.62	22.67	21.74
	100% RB	1907.5	23.44	22.39	21.25	23.84	22.79	21.65
		1880.0	23.27	22.18	21.27	23.67	22.58	21.67
		1852.5	23.25	22.29	21.27	23.65	22.69	21.67
10MHz	1 RB high	1905.0	24.38	23.65	22.49	24.78	24.05	22.89
		1880.0	24.36	23.71	22.51	24.76	24.11	22.91

		1855.0	24.05	23.32	22.23	24.45	23.72	22.63
	1 RB low	1905.0	24.44	23.65	22.80	24.84	24.05	23.20
		1880.0	24.56	23.64	22.62	24.96	24.04	23.02
		1855.0	24.41	23.53	22.52	24.81	23.93	22.92
	50% RB mid	1905.0	23.33	22.39	21.38	23.73	22.79	21.78
		1880.0	23.21	22.31	21.20	23.61	22.71	21.60
		1855.0	23.24	22.28	21.20	23.64	22.68	21.60
	100% RB	1905.0	23.39	22.36	21.30	23.79	22.76	21.70
		1880.0	23.24	22.33	21.24	23.64	22.73	21.64
		1855.0	23.27	22.20	21.23	23.67	22.60	21.63
15MHz	1 RB high	1902.5	24.13	23.41	22.69	24.53	23.81	23.09
		1880.0	24.40	23.47	22.18	24.80	23.87	22.58
		1857.5	24.30	23.67	22.40	24.70	24.07	22.80
	1 RB low	1902.5	24.18	23.57	22.56	24.58	23.97	22.96
		1880.0	24.24	23.65	22.64	24.64	24.05	23.04
		1857.5	24.18	23.74	22.67	24.58	24.14	23.07
	50% RB mid	1902.5	23.27	22.41	21.48	23.67	22.81	21.88
		1880.0	23.28	22.40	21.26	23.68	22.80	21.66
		1857.5	23.16	22.21	21.16	23.56	22.61	21.56
	100% RB	1902.5	23.24	22.31	21.36	23.64	22.71	21.76
		1880.0	23.15	22.27	21.14	23.55	22.67	21.54
		1857.5	23.19	22.15	21.05	23.59	22.55	21.45
20MHz	1 RB high	1900.0	23.86	22.97	22.45	24.26	23.37	22.85
		1880.0	23.91	23.38	22.06	24.31	23.78	22.46
		1860.0	23.83	23.29	21.84	24.23	23.69	22.24
	1 RB low	1900.0	24.20	23.37	22.27	24.60	23.77	22.67
		1880.0	24.13	23.41	22.45	24.53	23.81	22.85
		1860.0	24.04	23.37	22.24	24.44	23.77	22.64
	50% RB mid	1900.0	23.32	22.48	21.21	23.72	22.88	21.61
		1880.0	23.32	22.35	21.27	23.72	22.75	21.67
		1860.0	23.31	22.26	21.20	23.71	22.66	21.60
	100% RB	1900.0	23.28	22.23	21.18	23.68	22.63	21.58
		1880.0	23.24	22.24	21.18	23.64	22.64	21.58
		1860.0	23.22	22.16	21.20	23.62	22.56	21.60

LTE band 5-ERP

Limits: ≤38.4dBm (7W)

Max ERP: 20.06dBm

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power(dBm)			ERP(dBm)(Gt-Lc =-2.53)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1.4MHz	1 RB high	848.3	24.16	23.57	22.26	19.48	18.89	17.58
		836.5	24.59	23.89	22.45	19.91	19.21	17.77
		824.7	24.37	23.55	22.18	19.69	18.87	17.50
	1 RB low	848.3	24.18	23.34	22.67	19.50	18.66	17.99
		836.5	24.10	23.97	22.58	19.42	19.29	17.90
		824.7	24.22	23.35	22.21	19.54	18.67	17.53
	50% RB mid	848.3	24.34	23.27	22.41	19.66	18.59	17.73
		836.5	24.60	23.19	22.47	19.92	18.51	17.79
		824.7	24.32	23.29	22.56	19.64	18.61	17.88
	100% RB	848.3	23.45	22.58	21.40	18.77	17.90	16.72
		836.5	23.29	22.29	21.21	18.61	17.61	16.53
		824.7	23.32	22.40	21.28	18.64	17.72	16.60
3MHz	1 RB high	847.5	24.66	23.53	22.84	19.98	18.85	18.16
		836.5	24.70	24.00	22.54	20.02	19.32	17.86
		825.5	23.94	23.63	22.20	19.26	18.95	17.52
	1 RB low	847.5	23.99	23.75	22.51	19.31	19.07	17.83
		836.5	24.22	23.98	22.43	19.54	19.30	17.75
		825.5	24.40	23.27	22.40	19.72	18.59	17.72
	50% RB mid	847.5	23.49	22.54	21.44	18.81	17.86	16.76
		836.5	23.35	22.42	21.40	18.67	17.74	16.72
		825.5	23.35	22.44	21.39	18.67	17.76	16.71
	100% RB	847.5	23.39	22.45	21.41	18.71	17.77	16.73
		836.5	23.35	22.36	21.32	18.67	17.68	16.64
		825.5	23.33	22.30	21.36	18.65	17.62	16.68
5MHz	1 RB high	846.5	23.92	23.48	22.51	19.24	18.80	17.83
		836.5	24.74	23.59	22.42	20.06	18.91	17.74
		826.5	24.03	23.73	22.73	19.35	19.05	18.05
	1 RB low	846.5	24.33	23.89	22.57	19.65	19.21	17.89
		836.5	24.31	23.46	22.43	19.63	18.78	17.75
		826.5	24.47	23.78	22.68	19.79	19.10	18.00
	50% RB mid	846.5	23.40	22.36	21.40	18.72	17.68	16.72
		836.5	23.43	22.43	21.45	18.75	17.75	16.77
		826.5	23.41	22.36	21.46	18.73	17.68	16.78
	100% RB	846.5	23.50	22.47	21.51	18.82	17.79	16.83
		836.5	23.40	22.39	21.38	18.72	17.71	16.70
		826.5	23.39	22.42	21.32	18.71	17.74	16.64
10MHz	1 RB high	844.0	24.25	23.38	22.41	19.57	18.70	17.73

		836.5	24.34	23.41	22.50	19.66	18.73	17.82
		829.0	24.27	23.48	22.44	19.59	18.80	17.76
	1 RB low	844.0	24.43	23.41	22.39	19.75	18.73	17.71
		836.5	24.21	23.49	22.42	19.53	18.81	17.74
		829.0	24.15	23.39	22.49	19.47	18.71	17.81
	50% RB mid	844.0	23.27	22.24	21.21	18.59	17.56	16.53
		836.5	23.07	22.09	21.13	18.39	17.41	16.45
		829.0	23.13	22.16	21.11	18.45	17.48	16.43
	100% RB	844.0	23.20	22.19	21.16	18.52	17.51	16.48
		836.5	23.17	22.25	21.21	18.49	17.57	16.53
		829.0	23.21	22.24	21.21	18.53	17.56	16.53

LTE band 12-ERP

Limits: ≤34.77dBm (3W)

Max ERP: 18.51dBm

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power(dBm)			ERP(dBm)(Gt-Lc =-2.44)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1.4MHz	1 RB high	715.3	23.86	22.93	22.10	19.27	18.34	17.51
		707.5	23.92	23.20	22.39	19.33	18.61	17.80
		699.7	24.14	23.41	22.19	19.55	18.82	17.60
	1 RB low	715.3	23.99	23.28	22.25	19.40	18.69	17.66
		707.5	23.95	23.28	22.37	19.36	18.69	17.78
		699.7	24.10	23.41	22.23	19.51	18.82	17.64
	50% RB mid	715.3	23.85	22.83	22.22	19.26	18.24	17.63
		707.5	24.16	23.07	22.31	19.57	18.48	17.72
		699.7	24.09	23.16	22.25	19.50	18.57	17.66
	100% RB	715.3	22.97	22.19	20.95	18.38	17.60	16.36
		707.5	22.97	22.12	21.00	18.38	17.53	16.41
		699.7	23.08	22.33	21.15	18.49	17.74	16.56
3MHz	1 RB high	714.5	23.87	23.15	22.88	19.28	18.56	18.29
		707.5	23.73	23.08	22.24	19.14	18.49	17.65
		700.5	24.21	23.30	22.39	19.62	18.71	17.80
	1 RB low	714.5	24.02	23.06	22.78	19.43	18.47	18.19
		707.5	23.84	23.39	22.36	19.25	18.80	17.77
		700.5	24.11	23.36	22.35	19.52	18.77	17.76
	50% RB mid	714.5	22.98	22.21	21.07	18.39	17.62	16.48
		707.5	22.98	22.12	21.08	18.39	17.53	16.49
		700.5	23.06	22.21	21.17	18.47	17.62	16.58
	100% RB	714.5	23.05	22.14	21.17	18.46	17.55	16.58
		707.5	22.98	22.07	21.08	18.39	17.48	16.49
		700.5	23.15	22.14	21.15	18.56	17.55	16.56
5MHz	1 RB high	713.5	24.10	23.00	22.35	19.51	18.41	17.76
		707.5	23.81	23.31	22.31	19.22	18.72	17.72
		701.5	24.26	23.32	22.14	19.67	18.73	17.55
	1 RB low	713.5	23.83	23.35	22.25	19.24	18.76	17.66
		707.5	24.18	23.10	22.37	19.59	18.51	17.78
		701.5	24.57	23.54	22.32	19.98	18.95	17.73
	50% RB mid	713.5	23.09	22.13	21.29	18.50	17.54	16.70
		707.5	23.08	22.03	21.09	18.49	17.44	16.50
		701.5	23.14	22.12	21.17	18.55	17.53	16.58
	100% RB	713.5	23.01	22.10	21.08	18.42	17.51	16.49
		707.5	23.08	22.11	21.08	18.49	17.52	16.49
		701.5	23.14	22.12	21.15	18.55	17.53	16.56
10MHz	1 RB high	711.0	23.99	23.24	22.24	19.40	18.65	17.65

		707.5	24.48	23.14	22.40	19.89	18.55	17.81
		704.0	24.17	23.20	22.22	19.58	18.61	17.63
	1 RB low	711.0	24.17	23.45	22.35	19.58	18.86	17.76
		707.5	24.33	23.44	22.45	19.74	18.85	17.86
		704.0	24.21	23.49	22.42	19.62	18.90	17.83
	50% RB mid	711.0	22.95	22.00	21.04	18.36	17.41	16.45
		707.5	22.91	22.10	21.21	18.32	17.51	16.62
		704.0	22.86	22.17	20.98	18.27	17.58	16.39
	100% RB	711.0	22.79	22.15	20.83	18.20	17.56	16.24
		707.5	22.85	21.90	20.93	18.26	17.31	16.34
		704.0	23.10	22.08	21.13	18.51	17.49	16.54

LTE band 13- ERP

Limits: ≤34.77 dBm (3W)

Max ERP: 19.15dBm

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power(dBm)			ERP(dBm)(Gt-Lc =-2.59)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5MHz	1 RB high	784.5	23.57	23.01	22.46	18.83	18.27	17.72
		782.0	23.51	22.78	22.48	18.77	18.04	17.74
		779.5	23.82	22.89	21.83	19.08	18.15	17.09
	1 RB low	784.5	23.68	22.99	22.49	18.94	18.25	17.75
		782.0	23.54	23.02	22.45	18.80	18.28	17.71
		779.5	23.61	22.77	21.78	18.87	18.03	17.04
	50% RB mid	784.5	22.70	21.60	21.46	17.96	16.86	16.72
		782.0	22.66	21.61	21.48	17.92	16.87	16.74
		779.5	22.70	21.76	20.71	17.96	17.02	15.97
	100% RB	784.5	22.62	21.62	21.42	17.88	16.88	16.68
		782.0	22.66	21.70	21.49	17.92	16.96	16.75
		779.5	22.78	21.82	20.75	18.04	17.08	16.01
10MHz	1 RB high	782.0	23.89	23.10	21.83	19.15	18.36	17.09
	1 RB low	782.0	23.71	22.97	21.95	18.97	18.23	17.21
	50% RB mid	782.0	22.68	21.73	20.62	17.94	16.99	15.88
	100% RB	782.0	22.73	21.76	20.79	17.99	17.02	16.05

LTE band 30- EIRP

Limits: ≤24 dBm/5MHz

Max EIRP: 22.07dBm/5MHz

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power(dBm)			EIRP(dBm)(Gt-Lc =-1.39)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5MHz	1 RB high	2312.5	23.05	22.35	21.04	21.66	20.96	19.65
		2310	23.06	22.47	21.07	21.67	21.08	19.68
		2307.5	22.89	22.46	20.96	21.50	21.07	19.57
	1 RB low	2312.5	23.27	22.17	21.06	21.88	20.78	19.67
		2310	23.13	22.48	21.18	21.74	21.09	19.79
		2307.5	23.42	22.23	21.23	22.03	20.84	19.84
	100% RB	2312.5	21.30	20.11	19.07	19.91	18.72	17.68
		2310	21.54	20.24	19.08	20.15	18.85	17.69
		2307.5	21.38	20.30	19.17	19.99	18.91	17.78
10MHz	1 RB high	2310	23.46	22.52	21.37	22.07	21.13	19.98
	1 RB low	2310	23.35	22.60	21.20	21.96	21.21	19.81
	100% RB	2310	19.74	18.57	17.34	18.35	17.18	15.95

LTE band 41

Limits: ≤33dBm (2W)

Max ERP: 25.67dBm

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power(dBm)			EIRP(dBm)(Gt-Lc =0.6)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5MHz	1 RB high	2687.5	24.78	24.03	22.94	25.38	24.63	23.54
		2593.0	24.63	23.88	22.79	25.23	24.48	23.39
		2498.5	24.48	23.80	22.60	25.08	24.40	23.20
	1 RB low	2687.5	24.75	24.12	23.41	25.35	24.72	24.01
		2593.0	24.89	24.25	22.96	25.49	24.85	23.56
		2498.5	24.49	24.09	22.66	25.09	24.69	23.26
	50% RB mid	2687.5	23.59	22.72	21.79	24.19	23.32	22.39
		2593.0	23.73	22.62	21.88	24.33	23.22	22.48
		2498.5	23.33	22.40	21.65	23.93	23.00	22.25
	100% RB	2687.5	23.71	22.69	22.39	24.31	23.29	22.99
		2593.0	23.81	22.82	21.91	24.41	23.42	22.51
		2498.5	23.54	22.54	21.57	24.14	23.14	22.17
10MHz	1 RB high	2685.0	24.80	24.11	23.89	25.40	24.71	24.49
		2593.0	24.72	24.07	23.87	25.32	24.67	24.47
		2501.0	24.55	23.80	23.92	25.15	24.40	24.52
	1 RB low	2685.0	24.84	23.90	23.81	25.44	24.50	24.41
		2593.0	24.94	24.16	23.71	25.54	24.76	24.31
		2501.0	24.57	23.95	23.49	25.17	24.55	24.09
	50% RB mid	2685.0	23.62	22.73	22.70	24.22	23.33	23.30
		2593.0	23.84	22.82	22.76	24.44	23.42	23.36
		2501.0	23.48	22.55	22.53	24.08	23.15	23.13
	100% RB	2685.0	23.68	22.71	22.61	24.28	23.31	23.21
		2593.0	23.80	22.87	22.84	24.40	23.47	23.44
		2501.0	23.56	22.53	22.48	24.16	23.13	23.08
15MHz	1 RB high	2682.5	24.89	24.10	23.96	25.49	24.70	24.56
		2593.0	24.94	24.02	22.99	25.54	24.62	23.59
		2503.5	24.74	24.06	22.53	25.34	24.66	23.13
	1 RB low	2682.5	24.74	24.05	23.78	25.34	24.65	24.38
		2593.0	25.07	24.26	23.04	25.67	24.86	23.64
		2503.5	24.61	23.91	22.71	25.21	24.51	23.31
	50% RB mid	2682.5	23.97	22.85	22.84	24.57	23.45	23.44
		2593.0	23.87	22.92	21.93	24.47	23.52	22.53
		2503.5	23.67	22.65	21.65	24.27	23.25	22.25
	100% RB	2682.5	23.65	22.82	22.64	24.25	23.42	23.24
		2593.0	23.99	22.99	21.91	24.59	23.59	22.51
		2503.5	23.62	22.70	21.66	24.22	23.30	22.26
20MHz	1 RB high	2680.0	24.79	24.05	23.46	25.39	24.65	24.06

		2593.0	24.77	23.97	22.63	25.37	24.57	23.23
		2506.0	24.70	23.92	22.91	25.30	24.52	23.51
	1 RB low	2680.0	24.64	24.02	23.80	25.24	24.62	24.40
		2593.0	24.96	24.35	22.94	25.56	24.95	23.54
		2506.0	24.54	23.87	22.56	25.14	24.47	23.16
	50% RB mid	2680.0	23.92	22.88	22.81	24.52	23.48	23.41
		2593.0	23.92	22.92	21.73	24.52	23.52	22.33
		2506.0	23.41	22.56	21.52	24.01	23.16	22.12
	100% RB	2680.0	23.78	22.83	22.89	24.38	23.43	23.49
		2593.0	23.87	22.91	21.93	24.47	23.51	22.53
		2506.0	23.60	22.66	21.67	24.20	23.26	22.27

LTE band 41C

Limits: ≤33dBm (2W)

Max ERP: 23.56dBm

Bandwidth	Frequency(MHz)	Frequency(MHz)	Modulation	PCC RB		SCC RB		Conducted Power(dBm)	EIRP(dBm)(Gt-Lc =0.6)
				Size	Offset	Size	Offset		
5MHz/20MHz	2583.8	2595.5	QPSK	25	0	100	0	20.82	21.42
5MHz/20MHz	2583.8	2595.5	QPSK	1	24	1	0	22.61	23.21
5MHz/20MHz	2583.8	2595.5	16QAM	25	0	100	0	19.88	20.48
5MHz/20MHz	2583.8	2595.5	16QAM	1	24	1	0	21.77	22.37
5MHz/20MHz	2583.8	2595.5	64QAM	25	0	100	0	19.92	20.52
5MHz/20MHz	2583.8	2595.5	64QAM	1	24	1	0	19.83	20.43
10MHz/15MHz	2585.9	2597.9	QPSK	50	0	75	0	22.85	23.45
10MHz/15MHz	2585.9	2597.9	QPSK	1	49	1	0	22.46	23.06
10MHz/15MHz	2585.9	2597.9	16QAM	50	0	75	0	22.80	23.40
10MHz/15MHz	2585.9	2597.9	16QAM	1	49	1	0	22.87	23.47
10MHz/15MHz	2585.9	2597.9	64QAM	50	0	75	0	22.88	23.48
10MHz/15MHz	2585.9	2597.9	64QAM	1	49	1	0	22.37	22.97
10MHz/20MHz	2583.6	2598	QPSK	50	0	100	0	20.99	21.59
10MHz/20MHz	2583.6	2598	QPSK	1	49	1	0	22.77	23.37
10MHz/20MHz	2583.6	2598	16QAM	50	0	100	0	20.00	20.60
10MHz/20MHz	2583.6	2598	16QAM	1	49	1	0	21.86	22.46
10MHz/20MHz	2583.6	2598	64QAM	50	0	100	0	19.97	20.57
10MHz/20MHz	2583.6	2598	64QAM	1	49	1	0	19.62	20.22
15MHz/10MHz	2588.1	2600.1	QPSK	75	0	50	0	22.74	23.34
15MHz/10MHz	2588.1	2600.1	QPSK	1	74	1	0	22.27	22.87
15MHz/10MHz	2588.1	2600.1	16QAM	75	0	50	0	22.80	23.40
15MHz/10MHz	2588.1	2600.1	16QAM	1	74	1	0	22.48	23.08
15MHz/10MHz	2588.1	2600.1	64QAM	75	0	50	0	22.99	23.59
15MHz/10MHz	2588.1	2600.1	64QAM	1	74	1	0	22.46	23.06
15MHz/15MHz	2585.5	2600.5	QPSK	75	0	75	0	20.88	21.48
15MHz/15MHz	2585.5	2600.5	QPSK	1	74	1	0	22.55	23.15
15MHz/15MHz	2585.5	2600.5	16QAM	75	0	75	0	19.79	20.39
15MHz/15MHz	2585.5	2600.5	16QAM	1	74	1	0	21.66	22.26

15MHz/15MHz	2585.5	2600.5	64QAM	75	0	75	0	19.86	20.46
15MHz/15MHz	2585.5	2600.5	64QAM	1	74	1	0	19.64	20.24
15MHz/20MHz	2583.3	2600.4	QPSK	75	0	100	0	21.01	21.61
15MHz/20MHz	2583.3	2600.4	QPSK	1	74	1	0	22.62	23.22
15MHz/20MHz	2583.3	2600.4	16QAM	75	0	100	0	19.98	20.58
15MHz/20MHz	2583.3	2600.4	16QAM	1	74	1	0	21.56	22.16
15MHz/20MHz	2583.3	2600.4	64QAM	75	0	100	0	20.08	20.68
15MHz/20MHz	2583.3	2600.4	64QAM	1	74	1	0	19.68	20.28
20MHz/5MHz	2590.5	2602.2	QPSK	100	0	25	0	20.68	21.28
20MHz/5MHz	2590.5	2602.2	QPSK	1	99	1	0	22.56	23.16
20MHz/5MHz	2590.5	2602.2	16QAM	100	0	25	0	19.68	20.28
20MHz/5MHz	2590.5	2602.2	16QAM	1	99	1	0	21.63	22.23
20MHz/5MHz	2590.5	2602.2	64QAM	100	0	25	0	19.60	20.20
20MHz/5MHz	2590.5	2602.2	64QAM	1	99	1	0	19.71	20.31
20MHz/10MHz	2588.1	2602.5	QPSK	100	0	50	0	20.79	21.39
20MHz/10MHz	2588.1	2602.5	QPSK	1	99	1	0	22.46	23.06
20MHz/10MHz	2588.1	2602.5	16QAM	100	0	50	0	19.89	20.49
20MHz/10MHz	2588.1	2602.5	16QAM	1	99	1	0	21.09	21.69
20MHz/10MHz	2588.1	2602.5	64QAM	100	0	50	0	19.87	20.47
20MHz/10MHz	2588.1	2602.5	64QAM	1	99	1	0	19.70	20.30
20MHz/15MHz	2585.6	2602.7	QPSK	100	0	75	0	21.01	21.61
20MHz/15MHz	2585.6	2602.7	QPSK	1	99	1	0	22.48	23.08
20MHz/15MHz	2585.6	2602.7	16QAM	100	0	75	0	20.02	20.62
20MHz/15MHz	2585.6	2602.7	16QAM	1	99	1	0	21.60	22.20
20MHz/15MHz	2585.6	2602.7	64QAM	100	0	75	0	19.99	20.59
20MHz/15MHz	2585.6	2602.7	64QAM	1	99	1	0	19.74	20.34
20MHz/20MHz	2583.1	2602.9	QPSK	100	0	100	0	21.10	21.70
20MHz/20MHz	2583.1	2602.9	QPSK	1	99	1	0	22.59	23.19
20MHz/20MHz	2583.1	2602.9	16QAM	100	0	100	0	20.15	20.75
20MHz/20MHz	2583.1	2602.9	16QAM	1	99	1	0	21.49	22.09
20MHz/20MHz	2583.1	2602.9	64QAM	100	0	100	0	20.24	20.84
20MHz/20MHz	2583.1	2602.9	64QAM	1	99	1	0	19.57	20.17

LTE band 66- EIRP

Limits: ≤30dBm (1W)

Max EIRP: 24.92dBm

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power(dBm)			EIRP(dBm)(Gt-Lc =0.46)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1.4MHz	1 RB high	1779.3	23.86	22.94	22.00	24.32	23.40	22.46
		1745.0	23.59	22.95	21.90	24.05	23.41	22.36
		1710.7	23.39	22.96	22.01	23.85	23.42	22.47
	1 RB low	1779.3	23.67	23.40	22.03	24.13	23.86	22.49
		1745.0	23.71	23.21	22.04	24.17	23.67	22.50
		1710.7	23.48	22.68	21.62	23.94	23.14	22.08
	50% RB mid	1779.3	23.82	23.34	21.98	24.28	23.80	22.44
		1745.0	23.73	22.85	21.89	24.19	23.31	22.35
		1710.7	23.53	22.87	21.62	23.99	23.33	22.08
	100% RB	1779.3	22.87	21.95	20.83	23.33	22.41	21.29
		1745.0	22.77	21.86	20.74	23.23	22.32	21.20
		1710.7	22.68	21.80	20.73	23.14	22.26	21.19
3MHz	1 RB high	1778.5	24.16	23.31	21.65	24.62	23.77	22.11
		1745.0	23.94	23.25	22.01	24.40	23.71	22.47
		1711.5	23.96	23.30	21.96	24.42	23.76	22.42
	1 RB low	1778.5	24.07	23.17	22.08	24.53	23.63	22.54
		1745.0	23.80	23.02	21.99	24.26	23.48	22.45
		1711.5	23.87	22.81	21.73	24.33	23.27	22.19
	50% RB mid	1778.5	22.92	22.01	21.03	23.38	22.47	21.49
		1745.0	22.82	21.93	20.89	23.28	22.39	21.35
		1711.5	22.79	21.90	20.84	23.25	22.36	21.30
	100% RB	1778.5	22.89	22.03	20.88	23.35	22.49	21.34
		1745.0	22.88	21.89	20.83	23.34	22.35	21.29
		1711.5	22.76	21.81	20.82	23.22	22.27	21.28
5MHz	1 RB high	1777.5	24.03	22.75	22.35	24.49	23.21	22.81
		1745.0	23.88	23.15	22.16	24.34	23.61	22.62
		1712.5	23.67	22.92	21.89	24.13	23.38	22.35
	1 RB low	1777.5	23.99	23.23	22.15	24.45	23.69	22.61
		1745.0	23.88	23.42	22.18	24.34	23.88	22.64
		1712.5	23.79	23.21	22.06	24.25	23.67	22.52
	50% RB mid	1777.5	23.09	21.98	20.96	23.55	22.44	21.42
		1745.0	22.93	21.87	20.91	23.39	22.33	21.37
		1712.5	22.78	21.80	20.84	23.24	22.26	21.30
	100% RB	1777.5	22.91	22.03	20.95	23.37	22.49	21.41
		1745.0	22.86	21.89	20.98	23.32	22.35	21.44
		1712.5	22.80	21.84	20.83	23.26	22.30	21.29
10MHz	1 RB high	1775.0	24.19	23.13	22.45	24.65	23.59	22.91

		1745.0	24.33	23.32	22.04	24.79	23.78	22.50
		1715.0	24.41	23.12	22.44	24.87	23.58	22.90
	1 RB low	1775.0	23.60	22.62	21.43	24.06	23.08	21.89
		1745.0	23.19	22.51	21.38	23.65	22.97	21.84
		1715.0	23.12	22.46	21.22	23.58	22.92	21.68
	50% RB mid	1775.0	22.97	21.94	20.97	23.43	22.40	21.43
		1745.0	22.83	21.84	20.93	23.29	22.30	21.39
		1715.0	22.81	21.71	20.80	23.27	22.17	21.26
	100% RB	1775.0	22.92	21.91	20.83	23.38	22.37	21.29
		1745.0	22.87	21.87	20.88	23.33	22.33	21.34
		1715.0	22.86	21.76	20.76	23.32	22.22	21.22
15MHz	1 RB high	1772.5	24.12	23.22	22.39	24.58	23.68	22.85
		1745.0	24.03	23.31	22.31	24.49	23.77	22.77
		1717.5	24.32	23.32	22.12	24.78	23.78	22.58
	1 RB low	1772.5	24.23	23.34	22.36	24.69	23.80	22.82
		1745.0	24.46	23.37	22.35	24.92	23.83	22.81
		1717.5	24.16	23.46	22.34	24.62	23.92	22.80
	50% RB mid	1772.5	23.24	22.23	21.12	23.70	22.69	21.58
		1745.0	23.04	21.95	21.05	23.50	22.41	21.51
		1717.5	23.06	21.96	21.00	23.52	22.42	21.46
	100% RB	1772.5	23.08	22.13	21.07	23.54	22.59	21.53
		1745.0	22.93	21.92	21.02	23.39	22.38	21.48
		1717.5	22.98	22.00	20.91	23.44	22.46	21.37
20MHz	1 RB high	1770.0	24.25	23.48	22.48	24.71	23.94	22.94
		1745.0	24.21	23.42	22.48	24.67	23.88	22.94
		1720.0	24.40	23.45	22.34	24.86	23.91	22.80
	1 RB low	1770.0	24.06	23.02	22.31	24.52	23.48	22.77
		1745.0	23.69	23.12	21.92	24.15	23.58	22.38
		1720.0	23.76	23.07	22.13	24.22	23.53	22.59
	50% RB mid	1770.0	23.12	22.25	21.08	23.58	22.71	21.54
		1745.0	23.04	22.16	21.07	23.50	22.62	21.53
		1720.0	23.19	22.16	21.07	23.65	22.62	21.53
	100% RB	1770.0	23.00	22.13	21.04	23.46	22.59	21.50
		1745.0	23.01	21.95	20.95	23.47	22.41	21.41
		1720.0	23.07	22.08	21.10	23.53	22.54	21.56

LTE band 71- EIRP

Limits: ≤34.77dBm (3W)

Max EIRP: 19.79dBm

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power(dBm)			EIRP(dBm)(Gt-Lc = -2.65)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5MHz	1 RB high	695.5	24.13	23.32	22.36	19.33	18.52	17.56
		680.5	24.30	23.46	22.51	19.50	18.66	17.71
		665.5	24.34	23.26	22.42	19.54	18.46	17.62
	1 RB low	695.5	24.14	23.51	22.18	19.34	18.71	17.38
		680.5	24.59	23.31	22.54	19.79	18.51	17.74
		665.5	24.28	23.27	22.49	19.48	18.47	17.69
	50% RB mid	695.5	23.02	22.13	21.06	18.22	17.33	16.26
		680.5	23.26	22.24	21.34	18.46	17.44	16.54
		665.5	23.24	22.35	21.36	18.44	17.55	16.56
	100% RB	695.5	23.05	22.02	21.07	18.25	17.22	16.27
		680.5	23.27	22.20	21.23	18.47	17.40	16.43
		665.5	23.23	22.25	21.30	18.43	17.45	16.50
10MHz	1 RB high	693.0	24.20	23.01	21.97	19.40	18.21	17.17
		680.5	24.35	23.01	22.66	19.55	18.21	17.86
		668.0	24.51	23.84	22.65	19.71	19.04	17.85
	1 RB low	693.0	23.04	22.27	21.18	18.24	17.47	16.38
		680.5	23.29	22.63	21.46	18.49	17.83	16.66
		668.0	23.35	22.54	21.59	18.55	17.74	16.79
	50% RB mid	693.0	22.64	21.78	20.68	17.84	16.98	15.88
		680.5	23.32	22.24	21.30	18.52	17.44	16.50
		668.0	23.23	22.32	21.29	18.43	17.52	16.49
	100% RB	693.0	22.69	21.63	20.65	17.89	16.83	15.85
		680.5	23.22	22.15	21.20	18.42	17.35	16.40
		668.0	23.21	22.31	21.19	18.41	17.51	16.39
15MHz	1 RB high	690.5	23.77	23.28	21.99	18.97	18.48	17.19
		680.5	24.31	23.42	22.45	19.51	18.62	17.65
		670.5	24.39	23.51	22.74	19.59	18.71	17.94
	1 RB low	690.5	24.26	23.08	22.24	19.46	18.28	17.44
		680.5	24.04	23.28	22.33	19.24	18.48	17.53
		670.5	24.18	23.48	22.56	19.38	18.68	17.76
	50% RB mid	690.5	23.47	22.43	21.49	18.67	17.63	16.69
		680.5	23.49	22.38	21.45	18.69	17.58	16.65
		670.5	23.48	22.50	21.38	18.68	17.70	16.58
	100% RB	690.5	23.25	22.30	21.26	18.45	17.50	16.46
		680.5	23.34	22.32	21.35	18.54	17.52	16.55
		670.5	23.48	22.46	21.35	18.68	17.66	16.55
20MHz	1 RB high	688.0	24.27	23.28	22.20	19.47	18.48	17.40
		680.5	24.25	23.38	22.24	19.45	18.58	17.44

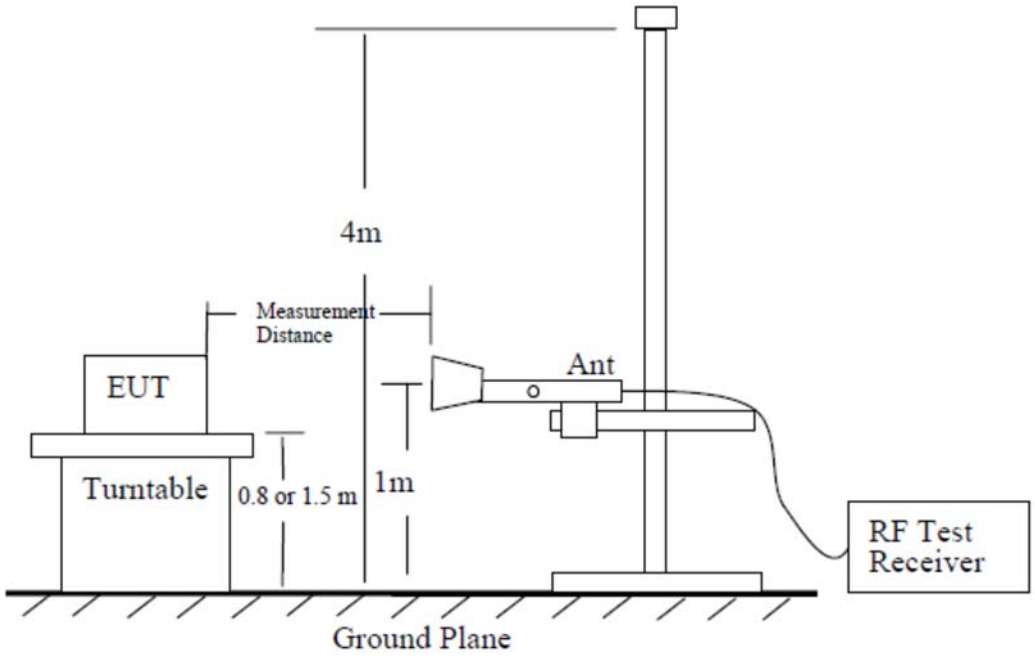
		673.0	24.49	23.33	22.32	19.69	18.53	17.52
	1 RB low	688.0	23.30	22.56	21.47	18.50	17.76	16.67
		680.5	23.31	22.51	21.52	18.51	17.71	16.72
		673.0	23.48	22.84	21.79	18.68	18.04	16.99
	50% RB mid	688.0	23.33	22.27	21.28	18.53	17.47	16.48
		680.5	23.32	22.33	21.37	18.52	17.53	16.57
		673.0	23.40	22.42	21.47	18.60	17.62	16.67
	100% RB	688.0	23.15	22.00	21.12	18.35	17.20	16.32
		680.5	23.20	22.20	21.14	18.40	17.40	16.34
		673.0	23.22	22.23	21.29	18.42	17.43	16.49

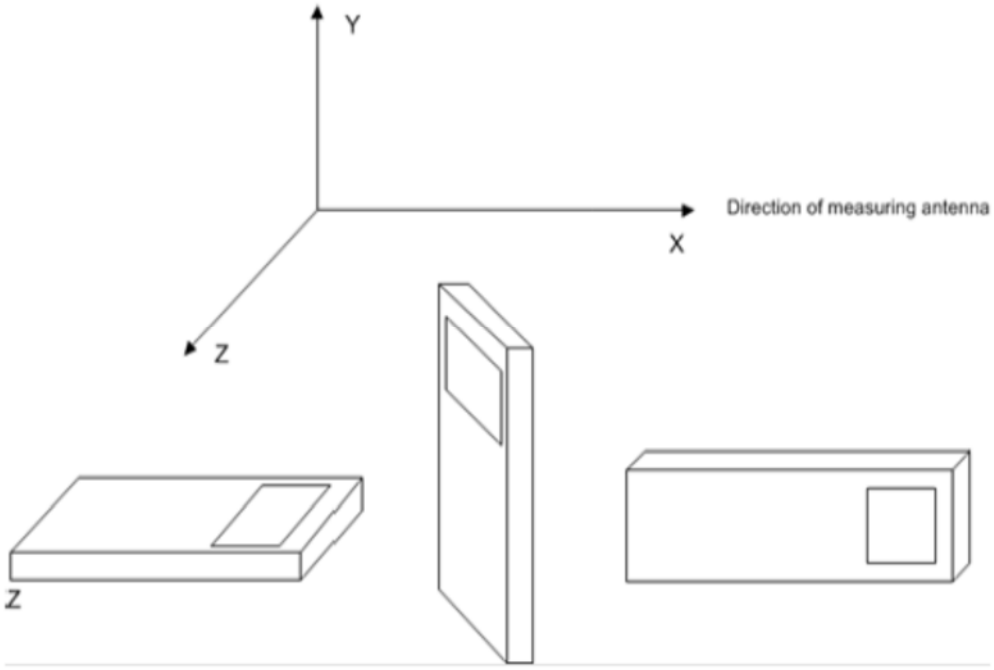
Note: Expanded measurement uncertainty is U = 0.578 dB, k = 2.

A.2 Emission Limit

The measurements procedures in C63.26 are used.
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 the LTE Bands 2/5/12/13/30/41/66/71.

The procedure of radiated spurious emissions is as follows:
Using the test configuration as follow, measure the radiated emissions directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits.





The emission characteristics of the EUT can be identified from the pre-scan measurement information.

Exploratory radiated measurements (pre-scans) may be performed to determine the general EUT radiated emissions characteristics and, when necessary, the EUT-to-measurement antenna orientation that produces the maximum emission amplitude. Pre-scans shall only be used to determine the emission frequencies (i.e., not amplitude levels). The information garnered from a pre-scan can then be used to perform final compliance measurements using either the substitution or direct field strength method.

For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table or support at a nominal height of 80 cm above the reference ground plane. Radiated measurements shall be made with the measurement antenna positioned in both horizontal and vertical polarization. The measurement antenna shall be varied from 1 m to 4 m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level (i.e., field strength or received power). When orienting the measurement antenna in vertical polarization, the minimum height of the lowest element of the antenna shall clear the site reference ground plane by at least 25 cm.

The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.

For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table or support at a nominal height of 1.5 m above the ground plane. When maximizing the emissions from the EUT for measurement, the EUT and its transmitting antenna(s) shall be rotated through 360°. For each mode of operation to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.
Final measurements shall be performed for the worst case combination(s) of variable technical parameters that result in the maximum measured emission amplitude, record the frequency and amplitude of the highest fundamental emission (if applicable), and the frequency and amplitude data for the six highest-amplitude spurious emissions.

A.2.2 Measurement Limit

FDD Band 2: 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 specifies " Out of band emissions. 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 12: 27.53(g) specifies " 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: 27.53(f) specifies " 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 −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation. ".

FDD Band 30: 27.53(a)(4)(ii) specify "By a factor of not less than 70 + 10 log(P) dB below 2288 MHz" and 27.53(a)(4)(iii) specify "By a factor of not less than 70+ 10 log (P) dB above 2365 MHz."

FDD Band 41: 27.53(m) specifies " For BRS and EBS stations, the power of any emissions outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) measured in watts in accordance with the standards below. If a licensee has multiple contiguous channels, out-of-band emissions shall be measured from the upper and lower edges of the contiguous channels.

(4) 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 66: 27.53(h) specifies "AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB"

FDD Band 71: 27.53(g) specifies" 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 band-width of 100 kilohertz or greater. How-ever, 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.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Bands. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the LTE Bands 2/5/12/13/30/41/66/71 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.

Measurement Results:

LTE Band 2, 1.4MHz, QPSK, Channel 18607

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3734.02	-59.19	6.34	8.53	-57.00	-13.00	44.00	V
5558.02	-48.73	7.19	10.59	-45.33	-13.00	32.33	H
7430.01	-52.99	8.20	12.12	-49.07	-13.00	36.07	V
9261.01	-53.08	9.06	13.26	-48.88	-13.00	35.88	V
11080.01	-49.98	9.87	13.18	-46.67	-13.00	33.67	V
12905.01	-46.86	10.50	13.44	-43.92	-13.00	30.92	H

LTE Band 2, 1.4MHz, QPSK, Channel 18900

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760.02	-56.91	6.26	8.56	-54.61	-13.00	41.61	H
5642.02	-50.63	7.27	10.57	-47.33	-13.00	34.33	H
7563.01	-53.77	8.13	12.25	-49.65	-13.00	36.65	V
9415.01	-53.76	9.11	13.35	-49.52	-13.00	36.52	V
11271.01	-49.79	9.82	13.15	-46.46	-13.00	33.46	V
13116.01	-44.48	10.87	13.66	-41.69	-13.00	28.69	V

LTE Band 2, 1.4MHz, QPSK, Channel 19193

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3819.02	-59.62	6.08	8.65	-57.05	-13.00	44.05	H
5729.02	-53.44	7.29	10.55	-50.18	-13.00	37.18	H
7605.01	-54.69	8.00	12.28	-50.41	-13.00	37.41	V
9513.01	-54.18	9.50	13.39	-50.29	-13.00	37.29	V
11419.01	-49.30	10.02	13.12	-46.20	-13.00	33.20	V
13388.01	-43.73	10.57	14.04	-40.26	-13.00	27.26	V

First source

LTE Band 5, 1.4MHz, QPSK, Channel 20407

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1635.01	-54.13	3.55	5.26	2.15	-54.57	-13.00	41.57	H
2473.00	-47.31	4.60	6.02	2.15	-48.04	-13.00	35.04	V
3293.02	-62.07	5.29	7.70	2.15	-61.81	-13.00	48.81	H
4136.02	-56.73	6.06	9.04	2.15	-55.90	-13.00	42.90	V
4963.01	-57.04	6.67	9.86	2.15	-56.00	-13.00	43.00	H
5776.01	-56.36	7.23	10.54	2.15	-55.20	-13.00	42.20	V

LTE Band 5, 1.4MHz, QPSK, Channel 20525

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1673.01	-55.03	3.58	5.19	2.15	-55.57	-13.00	42.57	H
2518.00	-47.18	4.64	6.13	2.15	-47.84	-13.00	34.84	H
3352.02	-60.28	5.32	7.84	2.15	-59.91	-13.00	46.91	V
4174.02	-57.92	6.15	9.07	2.15	-57.15	-13.00	44.15	V
5023.01	-57.80	6.56	9.93	2.15	-56.58	-13.00	43.58	V
5852.01	-57.44	7.24	10.53	2.15	-56.30	-13.00	43.30	V

LTE Band 5, 1.4MHz, QPSK, Channel 20643

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1703.01	-55.02	3.60	5.13	2.15	-55.64	-13.00	42.64	V
2551.00	-46.62	4.67	6.19	2.15	-47.25	-13.00	34.25	H
3389.02	-61.06	5.35	7.93	2.15	-60.63	-13.00	47.63	V
4256.02	-57.84	6.23	9.16	2.15	-57.06	-13.00	44.06	V
5092.01	-55.89	6.75	10.03	2.15	-54.76	-13.00	41.76	V
5942.01	-56.41	7.47	10.51	2.15	-55.52	-13.00	42.52	V

Second source

LTE Band 5, 1.4MHz, QPSK, Channel 20525

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1666.01	-54.42	3.58	5.20	2.15	-54.95	-13.00	41.95	V
2521.00	-46.00	4.65	6.14	2.15	-46.66	-13.00	33.66	H
3360.02	-60.30	5.33	7.86	2.15	-59.92	-13.00	46.92	V
4175.02	-56.22	6.15	9.08	2.15	-55.44	-13.00	42.44	H
5030.01	-57.45	6.57	9.94	2.15	-56.23	-13.00	43.23	V
5854.01	-56.68	7.25	10.53	2.15	-55.55	-13.00	42.55	V

LTE Band 12, 1.4MHz, QPSK, Channel 23017

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1340.01	-55.88	3.16	4.67	2.15	-56.52	-13.00	43.52	H
2001.00	-49.99	4.06	4.60	2.15	-51.60	-13.00	38.60	H
2689.00	-44.93	4.78	6.44	2.15	-45.42	-13.00	32.42	H
3353.02	-60.38	5.32	7.85	2.15	-60.00	-13.00	47.00	V
4029.02	-58.01	6.05	8.93	2.15	-57.28	-13.00	44.28	H
4694.02	-58.64	6.50	9.59	2.15	-57.70	-13.00	44.70	V

LTE Band 12, 1.4MHz, QPSK, Channel 23095

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1418.01	-55.45	3.26	5.07	2.15	-55.79	-13.00	42.79	H
2136.00	-49.58	4.23	5.01	2.15	-50.95	-13.00	37.95	H
2841.00	-45.73	4.95	6.71	2.15	-46.12	-13.00	33.12	H
3548.02	-57.94	5.80	8.27	2.15	-57.62	-13.00	44.62	V
4243.02	-57.66	6.25	9.14	2.15	-56.92	-13.00	43.92	H
4941.01	-57.50	6.71	9.84	2.15	-56.52	-13.00	43.52	V

LTE Band 12, 1.4MHz, QPSK, Channel 23173

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1426.01	-55.29	3.27	5.12	2.15	-55.59	-13.00	42.59	H
2155.00	-48.75	4.25	5.07	2.15	-50.08	-13.00	37.08	H
2874.00	-44.58	4.97	6.77	2.15	-44.93	-13.00	31.93	H
3568.02	-57.92	6.01	8.30	2.15	-57.78	-13.00	44.78	H
4281.02	-57.39	6.21	9.18	2.15	-56.57	-13.00	43.57	V
5020.01	-56.66	6.57	9.93	2.15	-55.45	-13.00	42.45	H

LTE Band 13, 5MHz, QPSK, Channel 23205

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1562.75	-67.34	3.48	5.39	0.00	-67.58	-40.00	27.58	H
2334.84	-47.57	4.44	5.60	2.15	-48.56	-13.00	35.56	H
3119.52	-59.57	5.38	7.29	2.15	-59.81	-13.00	46.81	V
3896.52	-58.87	6.11	8.76	2.15	-58.37	-13.00	45.37	H
4680.52	-58.84	6.49	9.58	2.15	-57.90	-13.00	44.90	V
5460.01	-57.77	6.91	10.54	2.15	-56.29	-13.00	43.29	V

LTE Band 13, 5MHz, QPSK, Channel 23230

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1559.61	-67.23	3.47	5.39	0.00	-67.46	-40.00	27.46	H
2346.70	-49.04	4.45	5.64	2.15	-50.00	-13.00	37.00	V
3128.52	-59.19	5.40	7.31	2.15	-59.43	-13.00	46.43	H
3909.02	-59.82	6.11	8.77	2.15	-59.31	-13.00	46.31	V
4690.52	-58.86	6.50	9.59	2.15	-57.92	-13.00	44.92	V
5469.51	-57.92	6.94	10.56	2.15	-56.45	-13.00	43.45	V

LTE Band 13, 5MHz, QPSK, Channel 23255

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1582.98	-66.91	3.50	5.35	0.00	-67.21	-40.00	27.21	H
2347.26	-48.05	4.45	5.64	2.15	-49.01	-13.00	36.01	H
3124.02	-59.04	5.40	7.30	2.15	-59.29	-13.00	46.29	V
3932.02	-57.71	6.12	8.80	2.15	-57.18	-13.00	44.18	V
4710.02	-58.44	6.51	9.61	2.15	-57.49	-13.00	44.49	H
5491.51	-57.09	7.03	10.59	2.15	-55.68	-13.00	42.68	V

LTE Band 30, 5MHz, QPSK, Channel 27658

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4628.02	-71.55	6.45	9.53	-68.47	-40.00	28.47	V
6925.01	-63.78	7.72	11.51	-59.99	-40.00	19.99	V
9248.01	-63.31	9.04	13.25	-59.10	-40.00	19.10	V
11526.01	-60.10	9.81	13.09	-56.82	-40.00	16.82	V
13828.01	-55.33	10.66	14.40	-51.59	-40.00	11.59	H
16151.00	-53.05	11.79	13.67	-51.17	-40.00	11.17	H

LTE Band 30, 5MHz, QPSK, Channel 27710

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4621.02	-71.47	6.45	9.52	-68.40	-40.00	28.40	V
6933.01	-64.58	7.78	11.52	-60.84	-40.00	20.84	V
9252.01	-63.13	9.04	13.25	-58.92	-40.00	18.92	V
11552.01	-60.02	9.81	13.09	-56.74	-40.00	16.74	V
13867.01	-55.17	10.74	14.42	-51.49	-40.00	11.49	H
16165.00	-53.15	11.77	13.67	-51.25	-40.00	11.25	H

LTE Band 30, 5MHz, QPSK, Channel 27735

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4639.02	-71.47	6.46	9.54	-68.39	-40.00	28.39	V
6938.01	-65.49	7.82	11.53	-61.78	-40.00	21.78	V
9251.01	-63.22	9.04	13.25	-59.01	-40.00	19.01	V
11548.01	-60.23	9.81	13.09	-56.95	-40.00	16.95	V
13883.01	-55.05	10.77	14.43	-51.39	-40.00	11.39	H
16182.00	-53.16	11.75	13.66	-51.25	-40.00	11.25	H

First source

LTE Band 41, 5MHz, QPSK, Channel 37775

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4992.02	-59.69	6.62	9.89	-56.42	-25.00	31.42	H
7496.01	-54.35	8.38	12.20	-50.53	-25.00	25.53	V
9996.01	-53.70	9.18	12.90	-49.98	-25.00	24.98	V
12495.01	-48.74	10.19	13.20	-45.73	-25.00	20.73	H
14987.00	-44.18	11.21	14.01	-41.38	-25.00	16.38	H
17493.00	-40.53	12.71	14.88	-38.36	-25.00	13.36	V

LTE Band 41, 5MHz, QPSK, Channel 38000

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5188.02	-59.73	6.94	10.16	-56.51	-25.00	31.51	H
7752.01	-55.39	8.35	12.40	-51.34	-25.00	26.34	H
10342.01	-50.91	9.71	13.04	-47.58	-25.00	22.58	V
12989.01	-47.46	10.47	13.49	-44.44	-25.00	19.44	V
15538.00	-44.46	11.52	13.70	-42.28	-25.00	17.28	H
16884.00	-40.38	12.02	13.75	-38.65	-25.00	13.65	H

LTE Band 41, 5MHz, QPSK, Channel 38225

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5363.02	-60.70	6.91	10.41	-57.20	-25.00	32.20	H
8065.01	-54.77	8.32	12.65	-50.44	-25.00	25.44	V
10734.01	-50.28	9.39	13.15	-46.52	-25.00	21.52	V
14773.00	-44.47	11.15	14.18	-41.44	-25.00	16.44	V
16126.00	-42.85	11.82	13.67	-41.00	-25.00	16.00	H
17446.00	-39.15	12.60	14.78	-36.97	-25.00	11.97	H

Second source

LTE Band 41, 5MHz, QPSK, Channel 38000

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5163.02	-59.14	6.90	10.13	-55.91	-25.00	30.91	H
7783.01	-54.90	8.31	12.43	-50.78	-25.00	25.78	H
10376.01	-50.02	9.76	13.05	-46.73	-25.00	21.73	V
12980.01	-47.01	10.47	13.49	-43.99	-25.00	18.99	H
15530.00	-43.68	11.52	13.70	-41.50	-25.00	16.50	H
16877.00	-39.09	12.02	13.75	-37.36	-25.00	12.36	H

LTE Band 66, 10MHz, QPSK, Channel 132072

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3464.02	-72.31	5.45	8.11	-69.65	-13.00	56.65	H
5134.02	-64.88	6.86	10.09	-61.65	-13.00	48.65	V
6858.01	-64.65	7.81	11.43	-61.03	-13.00	48.03	V
8603.01	-63.84	8.49	13.02	-59.31	-13.00	46.31	V
10311.01	-61.51	9.66	13.02	-58.15	-13.00	45.15	V
12002.01	-58.57	10.06	13.00	-55.63	-13.00	42.63	V

LTE Band 66, 10MHz, QPSK, Channel 132322

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.02	-69.43	5.50	8.18	-66.75	-13.00	53.75	H
5237.02	-63.85	7.00	10.23	-60.62	-13.00	47.62	V
7001.01	-64.53	8.30	11.60	-61.23	-13.00	48.23	V
8754.01	-63.44	8.52	13.05	-58.91	-13.00	45.91	V
10448.01	-60.84	9.73	13.08	-57.49	-13.00	44.49	V
12252.01	-58.61	10.03	13.10	-55.54	-13.00	42.54	V

LTE Band 66, 10MHz, QPSK, Channel 132572

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3559.02	-69.36	5.92	8.28	-67.00	-13.00	54.00	V
5338.02	-63.75	6.96	10.37	-60.34	-13.00	47.34	V
7161.01	-65.34	8.18	11.79	-61.73	-13.00	48.73	V
8950.01	-63.25	9.02	13.09	-59.18	-13.00	46.18	V
10640.01	-61.45	9.29	13.13	-57.61	-13.00	44.61	V
12402.01	-58.49	10.43	13.16	-55.76	-13.00	42.76	V

LTE Band 71, 5MHz, QPSK, Channel 133147

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1304.01	-54.68	3.12	4.48	2.15	-55.47	-13.00	42.47
2015.00	-49.72	4.10	4.65	2.15	-51.32	-13.00	38.32
2681.00	-44.53	4.77	6.43	2.15	-45.02	-13.00	32.02
3356.02	-60.97	5.32	7.85	2.15	-60.59	-13.00	47.59
4000.02	-58.60	6.07	8.90	2.15	-57.92	-13.00	44.92
4677.02	-58.72	6.49	9.58	2.15	-57.78	-13.00	44.78

LTE Band 71, 5MHz, QPSK, Channel 133297

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1352.01	-57.59	3.18	4.73	2.15	-58.19	-13.00	45.19
2042.00	-50.13	4.14	4.73	2.15	-51.69	-13.00	38.69
2720.00	-45.79	4.80	6.50	2.15	-46.24	-13.00	33.24
3398.02	-61.55	5.36	7.96	2.15	-61.10	-13.00	48.10
4088.02	-58.15	6.04	8.99	2.15	-57.35	-13.00	44.35
4750.02	-58.50	6.57	9.65	2.15	-57.57	-13.00	44.57

LTE Band 71, 5MHz, QPSK, Channel 133447

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1413.01	-56.15	3.25	5.05	2.15	-56.50	-13.00	43.50
2115.00	-48.94	4.21	4.95	2.15	-50.35	-13.00	37.35
2810.00	-45.60	4.93	6.66	2.15	-46.02	-13.00	33.02
3506.02	-59.93	5.53	8.21	2.15	-59.40	-13.00	46.40
4145.02	-57.52	6.08	9.05	2.15	-56.70	-13.00	43.70
4844.01	-57.63	6.72	9.74	2.15	-56.76	-13.00	43.76

LTE Band 41C, 10+15MHz, QPSK, Channel 39703+39823

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4997.02	-59.76	6.61	9.90	-56.47	-25.00	31.47	H
7488.01	-54.34	8.36	12.19	-50.51	-25.00	25.51	V
10000.01	-53.95	9.18	12.90	-50.23	-25.00	25.23	V
11238.01	-49.81	9.63	13.15	-46.29	-25.00	21.29	V
13773.01	-44.40	10.60	14.36	-40.64	-25.00	15.64	H
16252.00	-42.07	11.78	13.65	-40.20	-25.00	15.20	H

LTE Band 41C, 10+15MHz, QPSK, Channel 40549+40669

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5145.02	-60.02	6.87	10.10	-56.79	-25.00	31.79	H
7747.01	-55.92	8.36	12.40	-51.88	-25.00	26.88	V
10337.01	-51.61	9.70	13.03	-48.28	-25.00	23.28	V
12935.01	-48.44	10.49	13.46	-45.47	-25.00	20.47	H
15514.00	-43.47	11.53	13.70	-41.30	-25.00	16.30	H
16820.00	-40.68	12.09	13.73	-39.04	-25.00	14.04	H

LTE Band 41C, 10+15MHz, QPSK, Channel 41395+41515

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5320.02	-60.37	6.99	10.35	-57.01	-25.00	32.01	V
8008.01	-54.13	8.32	12.61	-49.84	-25.00	24.84	V
10667.01	-51.70	9.30	13.13	-47.87	-25.00	22.87	V
13361.01	-44.06	10.57	14.01	-40.62	-25.00	15.62	H
16054.00	-43.26	11.84	13.69	-41.41	-25.00	16.41	H
17347.00	-38.66	12.43	14.56	-36.53	-25.00	11.53	V

Sample：5320.02MHz

Power (EIRP) = P_{Mea} - P_{pl} + G_a

Power (-57.01dBm) = P_{Mea} (-60.37dBm) - P_{pl} (6.99dB)+ Ga(10.35dBi)

Note: Expanded measurement uncertainty

Frequency range	Expanded measurement uncertainty
30MHz-1GHz	5.76dB, k=2
1GHz-18GHz	4.69dB, k=2
18GHz-40GHz	3.37dB, k=2

Note: The measurement results showed here are worst cases

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 ℃ decrements 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				2.35	0.0013
40				2.45	0.0013
30				4.41	0.0023
10				-8.65	0.0046
0				1.92	0.0010
-10				-0.50	0.0003
-20				-9.44	0.0050
-30				0.19	0.0001

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	0.76	0.0004
4.4				-7.62	0.0041

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	824.426	848.583		
50				5.51	0.0066
40				5.94	0.0071
30				1.24	0.0015
10				5.71	0.0068
0				6.91	0.0083
-10				0.20	0.0002
-20				-0.50	0.0006
-30				6.17	0.0074

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	824.426	848.583	0.07	0.0001
4.4				6.65	0.0079

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	699.481	715.519		
50				-7.91	0.0112
40				-0.49	0.0007
30				-6.85	0.0097
10				-7.42	0.0105
0				-1.79	0.0025
-10				-7.88	0.0111
-20				-1.26	0.0018
-30				-7.00	0.0099

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	699.481	715.519	-1.34	0.0019
4.4				-7.84	0.0111

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				-6.47	0.0083
40				-5.95	0.0076
30				-5.66	0.0072
10				-5.08	0.0065
0				1.32	0.0017
-10				0.93	0.0012
-20				1.33	0.0017
-30				-8.17	0.0104

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	1.36	0.0017
4.4				0.76	0.0010

LTE Band 30, 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	2305.417	2314.583	-2.75	0.0012
50				1.77	0.0008
40				-0.13	0.0001
30				-0.49	0.0002
10				0.63	0.0003
0				-1.32	0.0006
-10				-0.97	0.0004
-20				-0.27	0.0001
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2305.417	2314.583	-2.68	0.0012
4.4				0.74	0.0003

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	2496.449	2689.455	-2.43	0.0009
50				-0.76	0.0003
40				-1.29	0.0005
30				-1.37	0.0005
10				-3.39	0.0013
0				-1.04	0.0004
-10				1.50	0.0006
-20				-3.89	0.0015
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2496.449	2689.455	-2.73	0.0011
4.4				-1.54	0.0006

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

Frequency Error vs Voltage

Temperature(℃)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	2496.960	2689.060		
50				1.29	0.0005
40				-0.12	0.0000
30				0.44	0.0002
10				-1.23	0.0005
0				-0.06	0.0000
-10				-0.60	0.0002
-20				-1.45	0.0006
-30				-0.04	0.0000

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	2496.960	2689.060	-0.56	0.0002
4.45				-1.29	0.0005

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	1710.801	1779.199		
50				-0.29	0.0002
40				0.13	0.0001
30				-0.14	0.0001
10				-1.57	0.0009
0				-0.27	0.0002
-10				-0.50	0.0003
-20				0.44	0.0003
-30				1.62	0.0009

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1710.801	1779.199	0.66	0.0004
4.4				0.14	0.0001

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	-0.33	0.0005
50				0.16	0.0002
40				-1.00	0.0015
30				-0.33	0.0005
10				-0.74	0.0011
0				0.62	0.0009
-10				-0.29	0.0004
-20				-0.10	0.0001
-30					

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	-0.83	0.0012
4.4				-0.84	0.0012

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

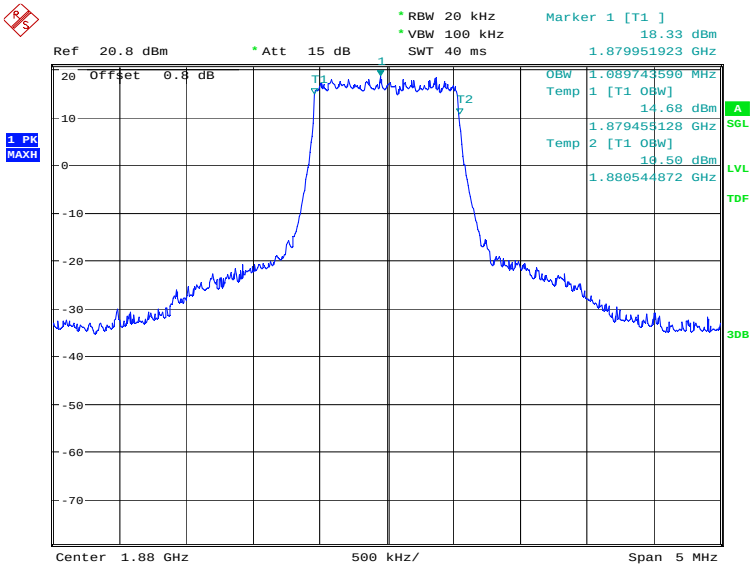
A.4 Occupied Bandwidth

Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the 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	1097.76

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



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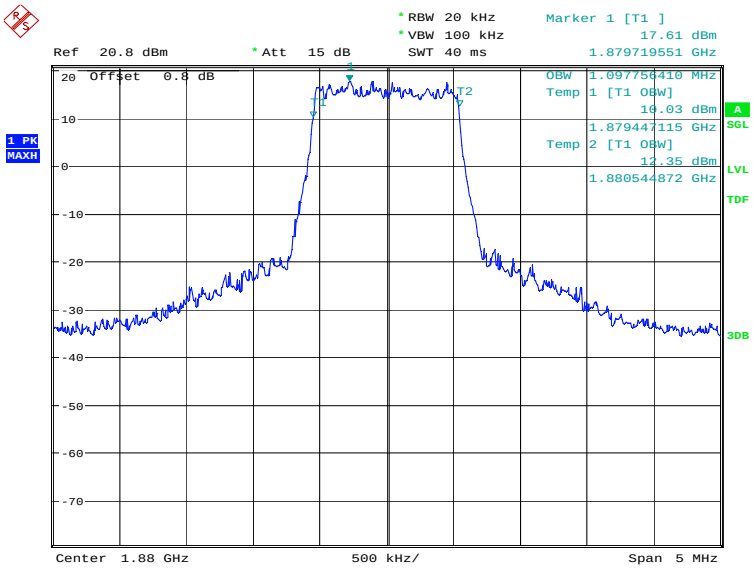
LTE band 2, 1.4MHz Bandwidth, 16QAM (99% BW)

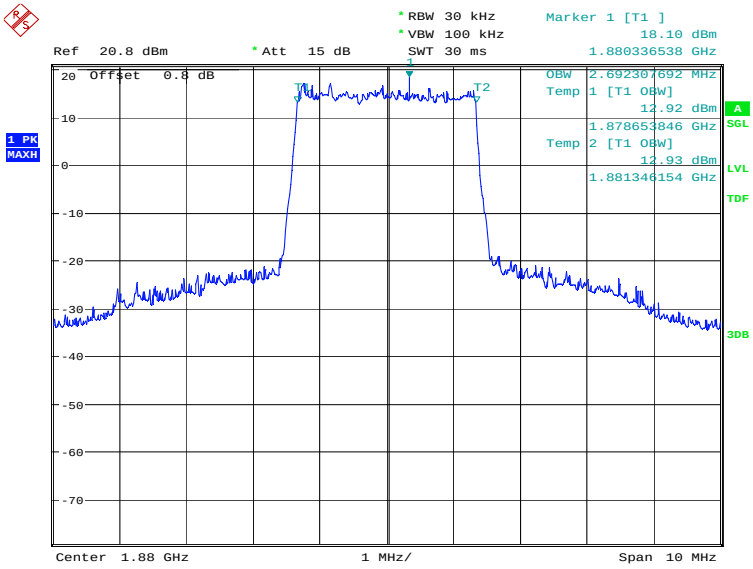


Date: 27.SEP.2022 17:27:47

LTE band 2, 3MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	2692.31	2708.33

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



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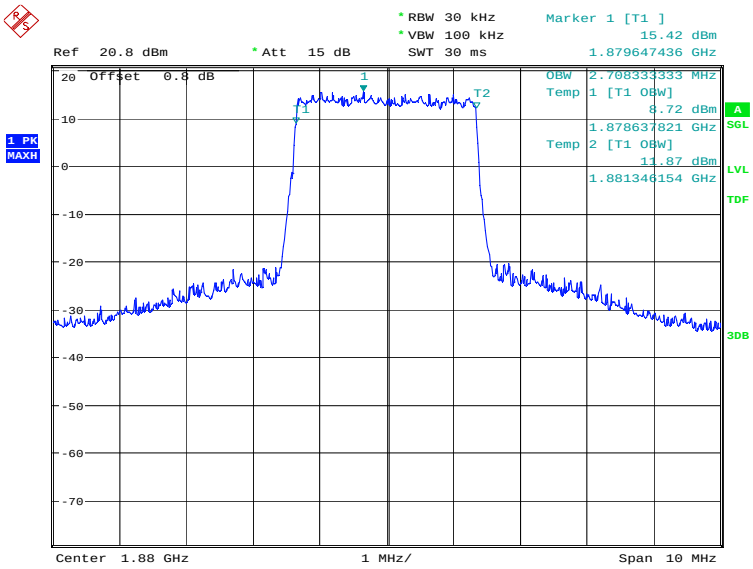
LTE band 2, 3MHz Bandwidth, 16QAM (99% BW)



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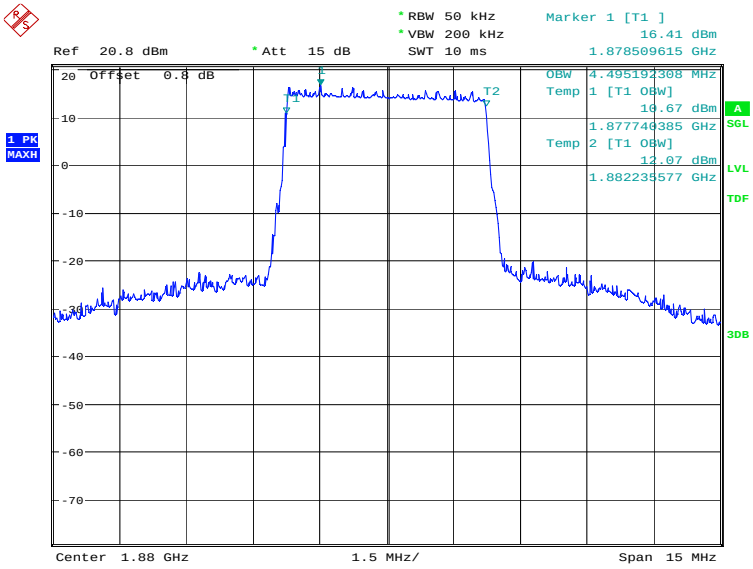
LTE band 2, 5MHz (99%)

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

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



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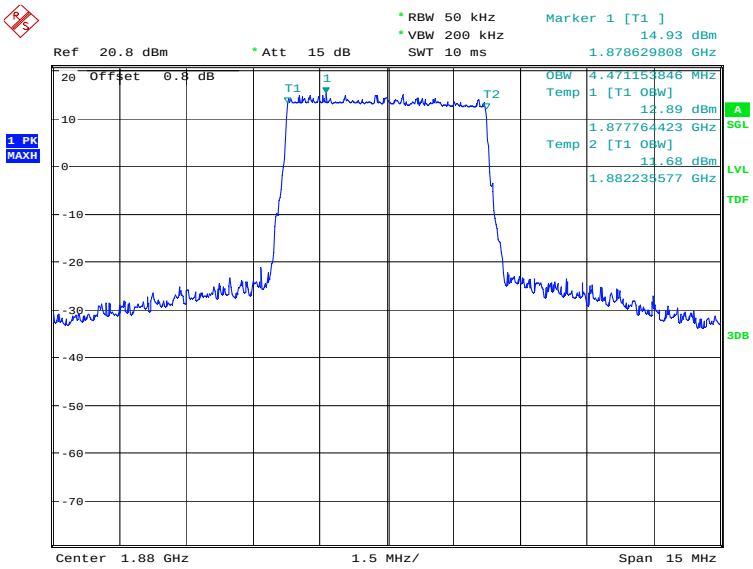
LTE band 2, 5MHz Bandwidth, 16QAM (99% BW)

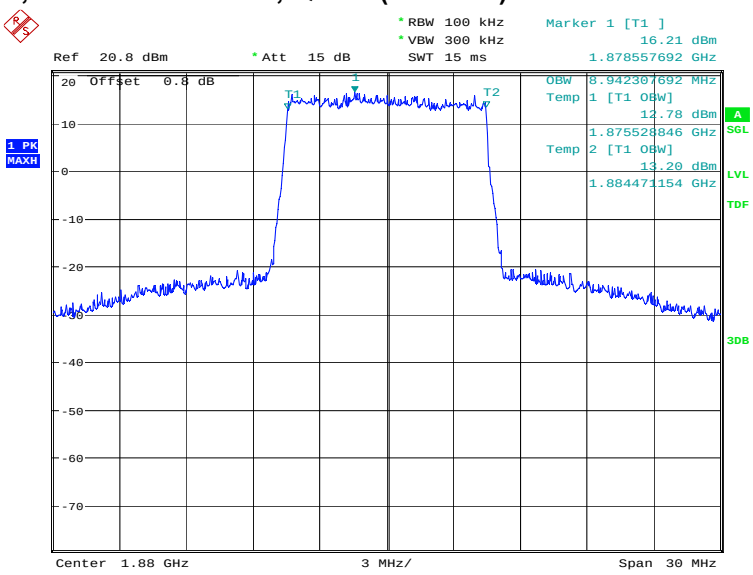


Date: 27.SEP.2022 17:30:30

LTE band 2, 10MHz (99%)

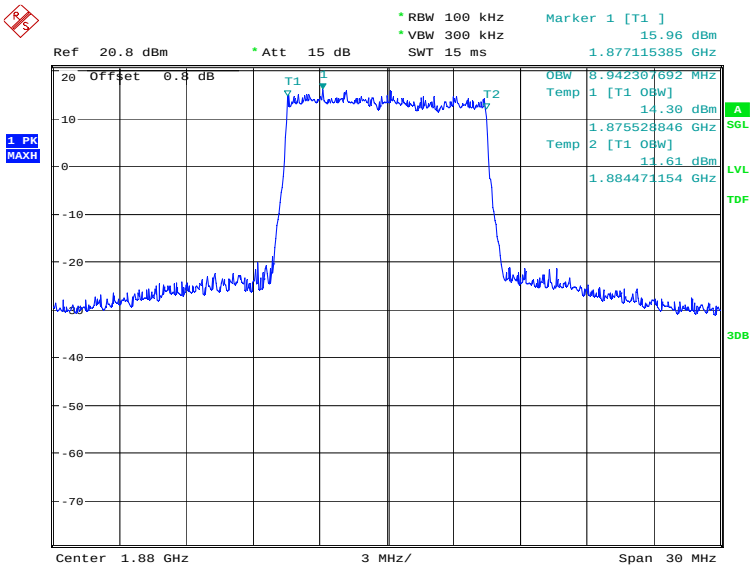
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 27.SEP.2022 17:31:12

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

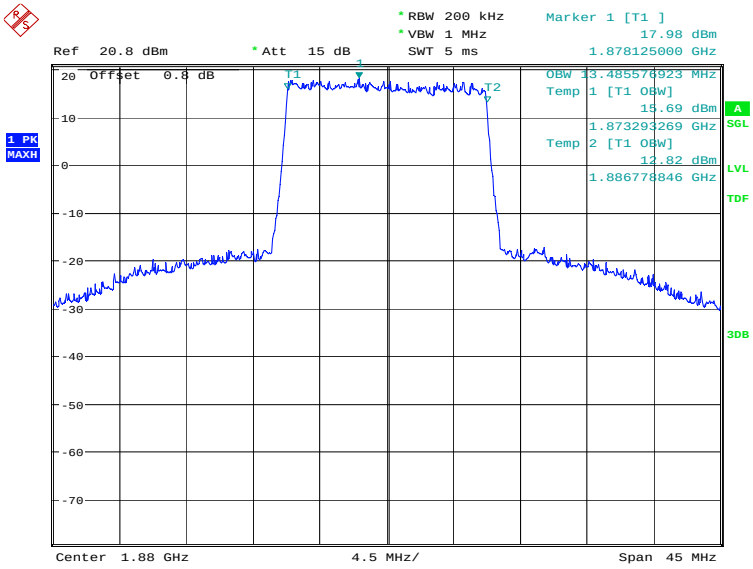


Date: 27.SEP.2022 17:31:52

LTE band 2, 15MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	13485.58	13557.69

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



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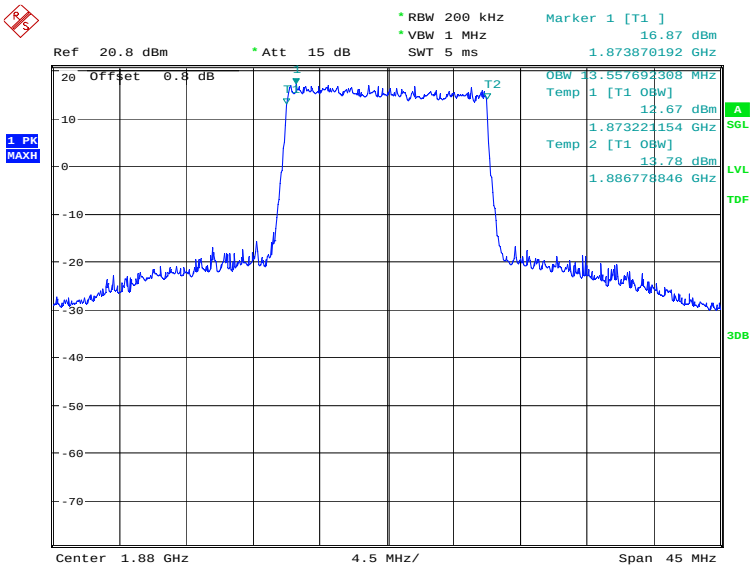
LTE band 2, 15MHz Bandwidth, 16QAM (99% BW)

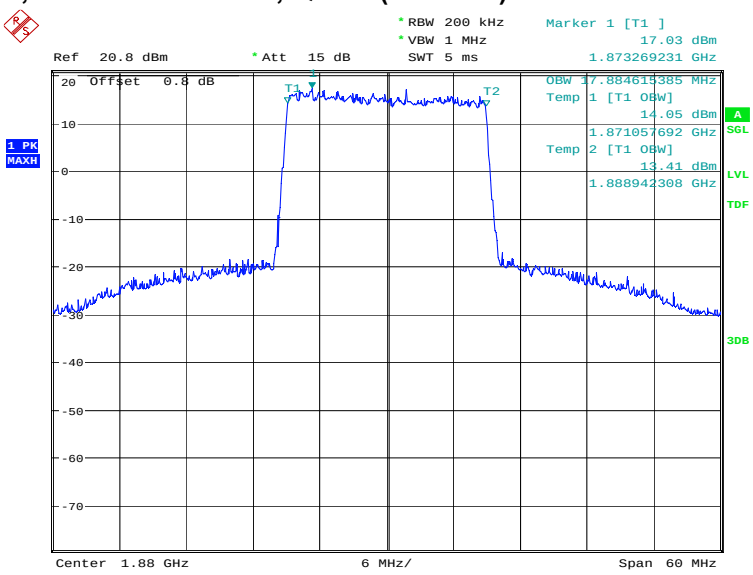


Date: 27.SEP.2022 17:33:14

LTE band 2, 20MHz (99%)

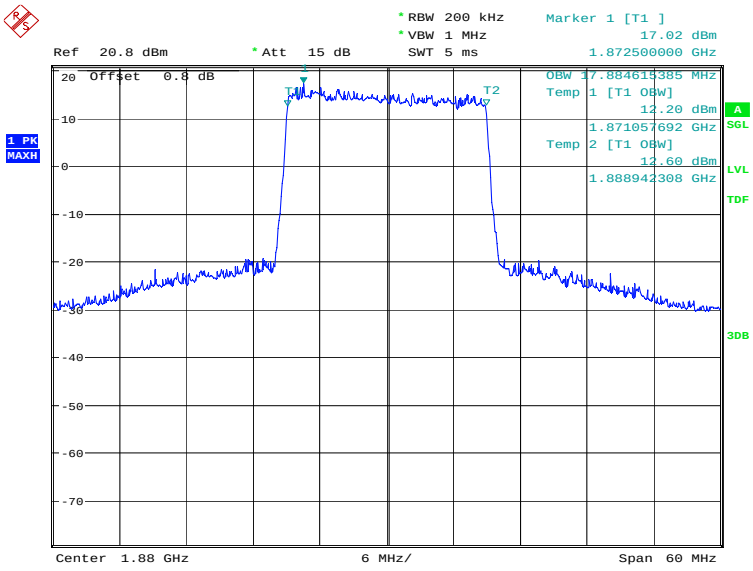
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	17884.62	17884.62

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



Date: 27.SEP.2022 17:33:56

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

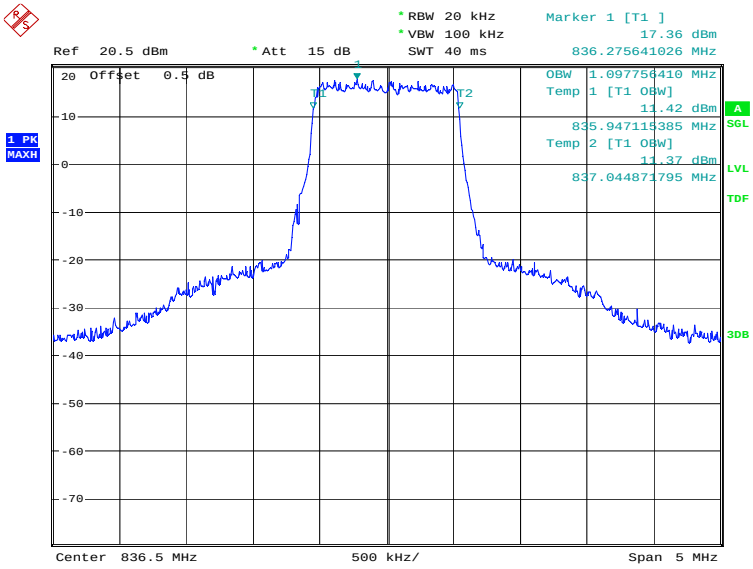


Date: 27.SEP.2022 17:34:36

LTE band 5, 1.4MHz (99%)

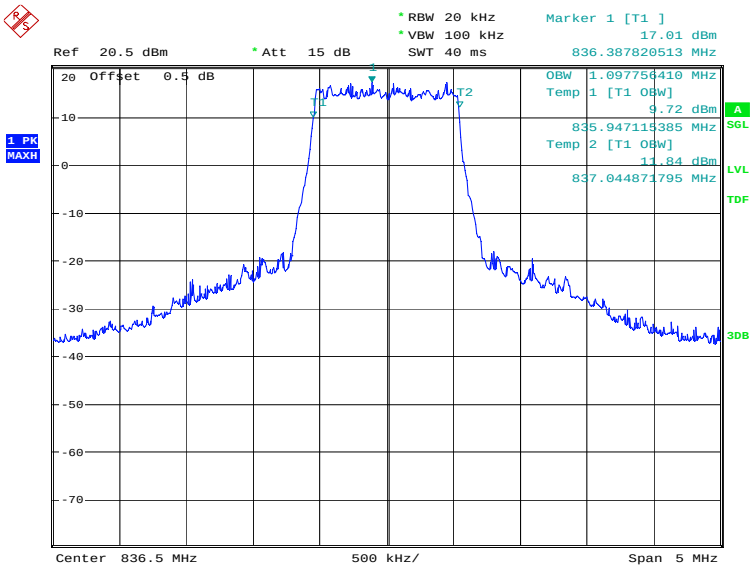
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	1097.76	1097.76

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



Date: 27.SEP.2022 17:36:14

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

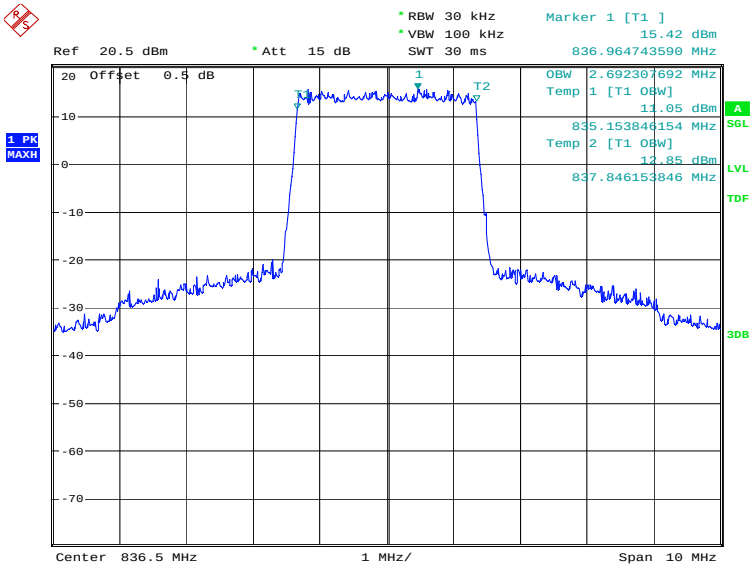


Date: 27.SEP.2022 17:36:54

LTE band 5, 3MHz (99%)

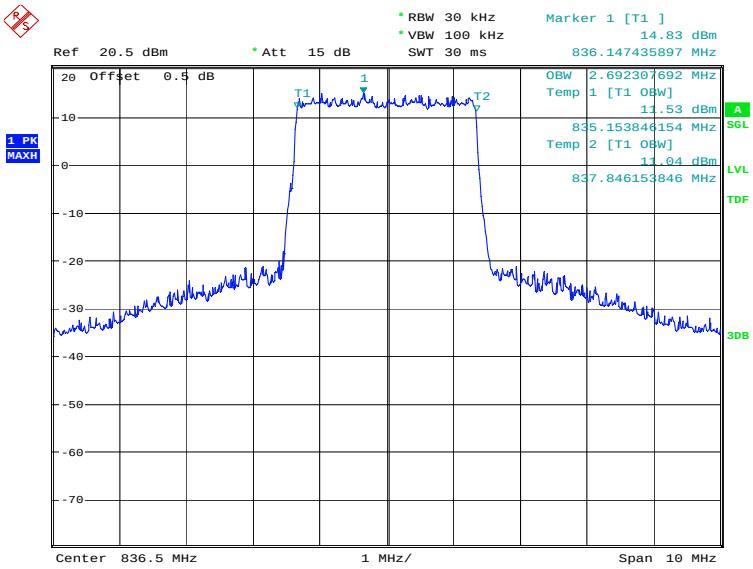
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	2692.31	2692.31

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



Date: 27.SEP.2022 17:37:36

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

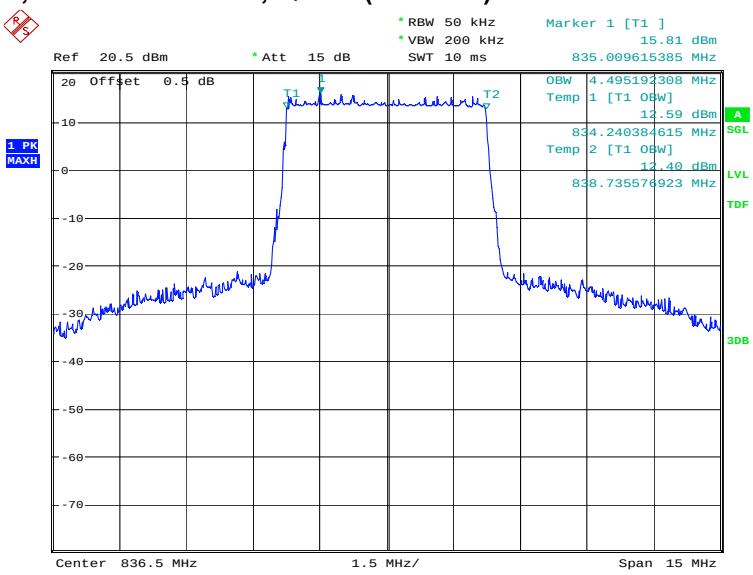


Date: 27.SEP.2022 17:38:16

LTE band 5, 5MHz (99%)

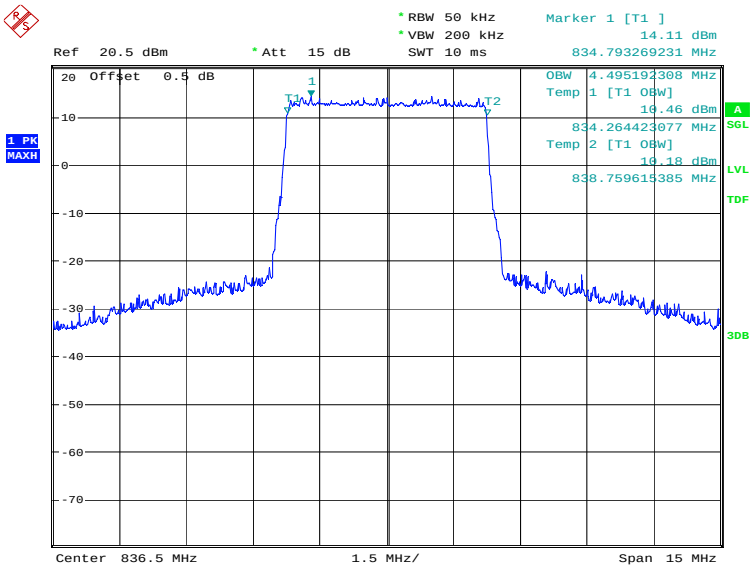
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	4495.19	4495.19

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



Date: 27.SEP.2022 17:38:58

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

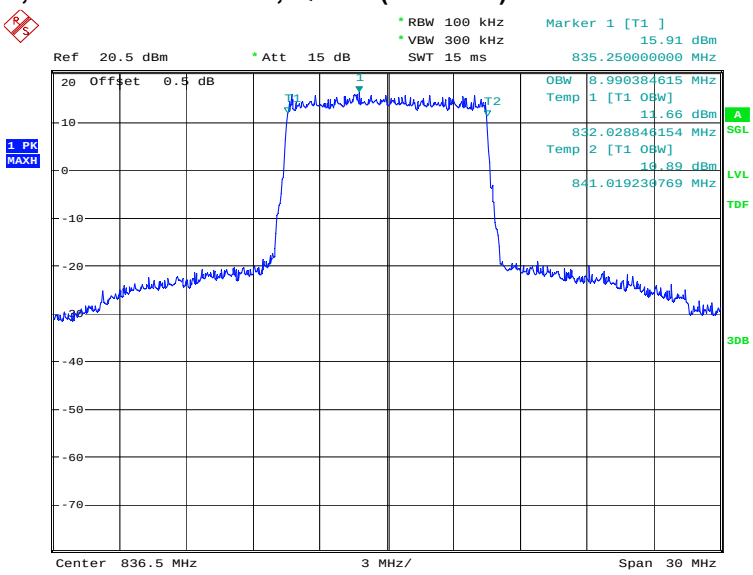


Date: 27.SEP.2022 17:39:38

LTE band 5, 10MHz (99%)

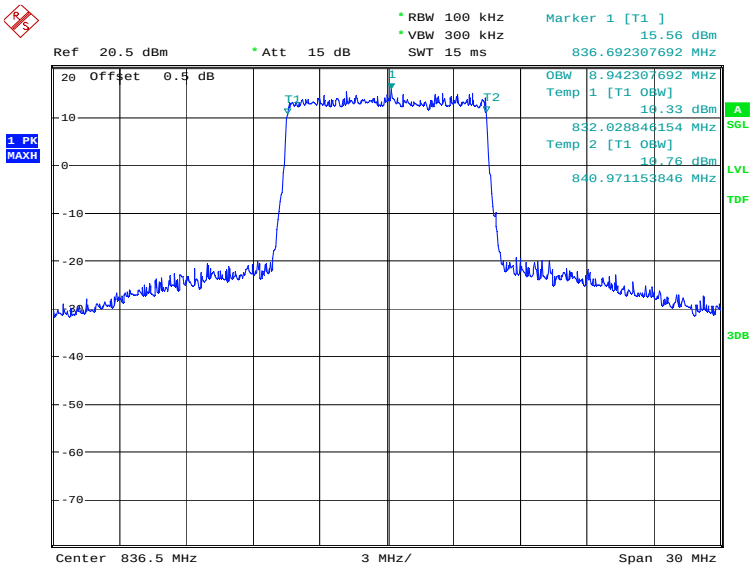
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	8990.38	8942.31

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



Date: 27.SEP.2022 17:40:20

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

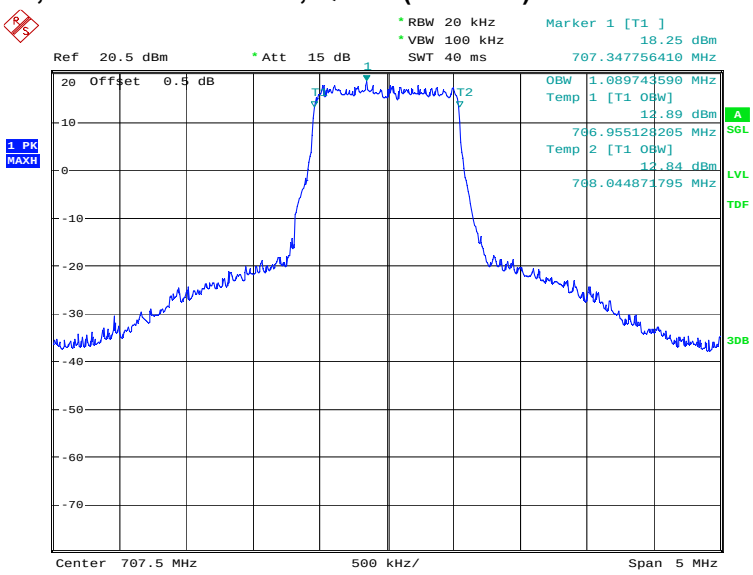


Date: 27.SEP.2022 17:41:00

LTE band 12, 1.4MHz (99%)

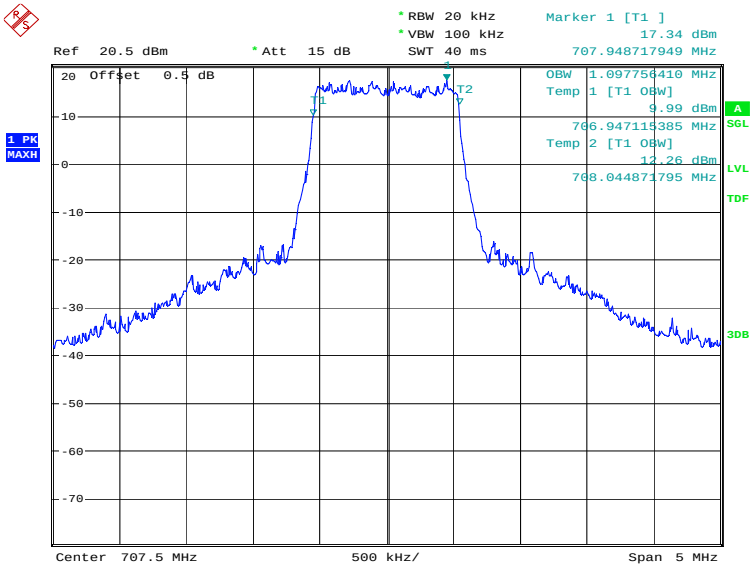
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	1089.74	1097.76

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



Date: 27.SEP.2022 17:41:43

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

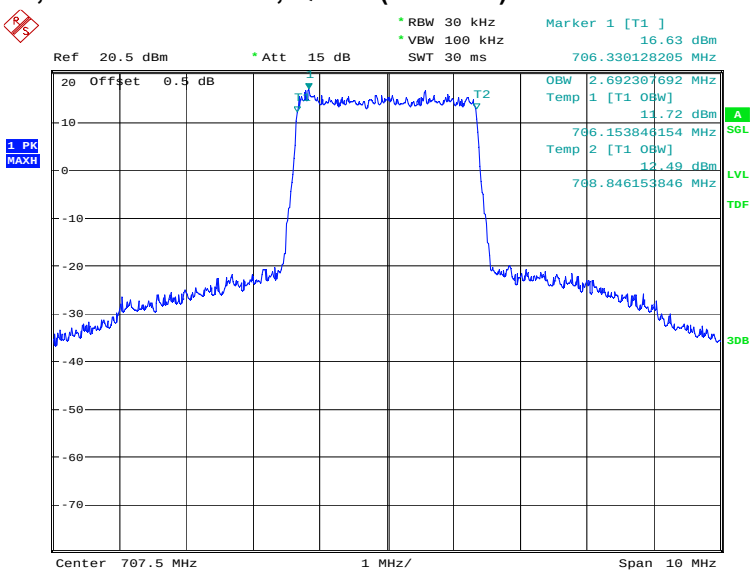


Date: 27.SEP.2022 17:42:23

LTE band 12, 3MHz (99%)

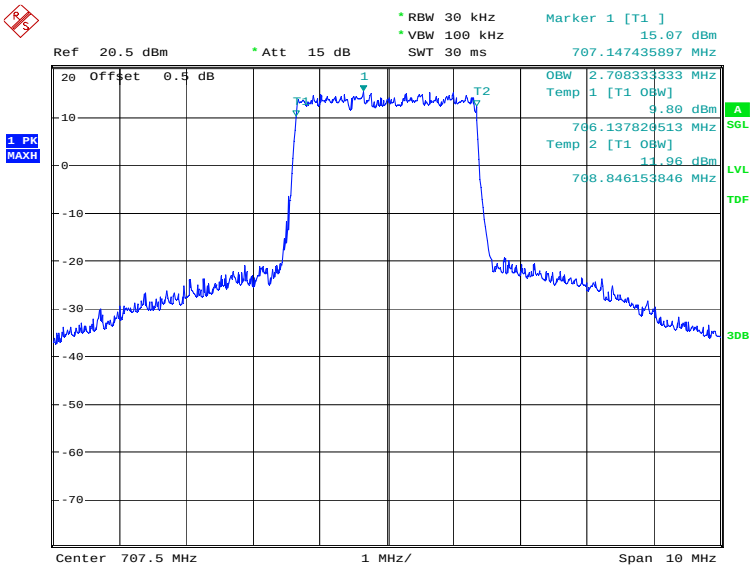
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	2692.31	2708.33

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



Date: 27.SEP.2022 17:43:05

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

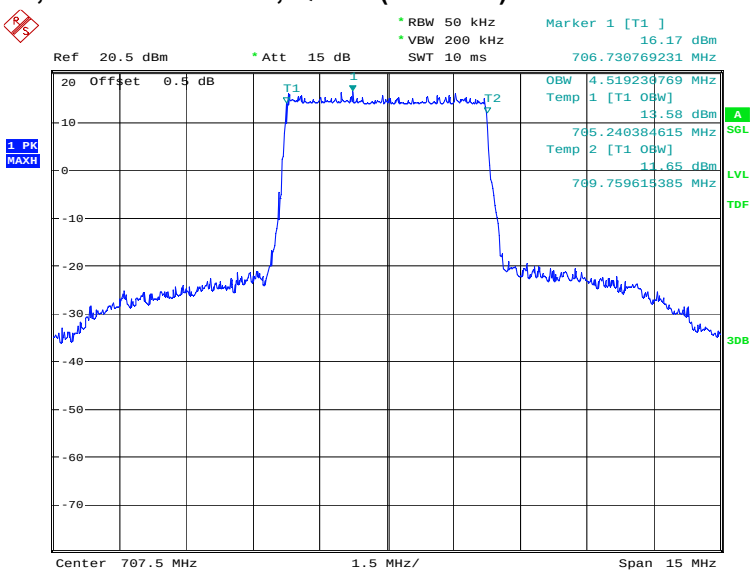


Date: 27.SEP.2022 17:43:45

LTE band 12, 5MHz (99%)

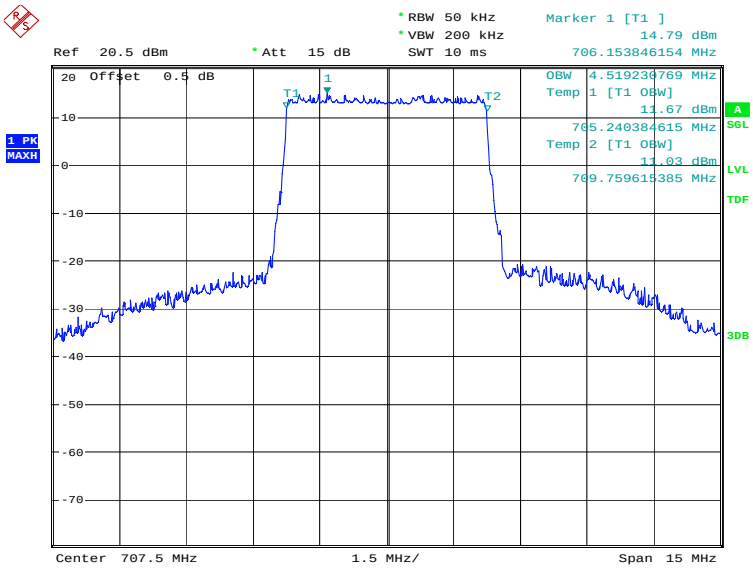
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	4519.23	4519.23

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



Date: 27.SEP.2022 17:44:27

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

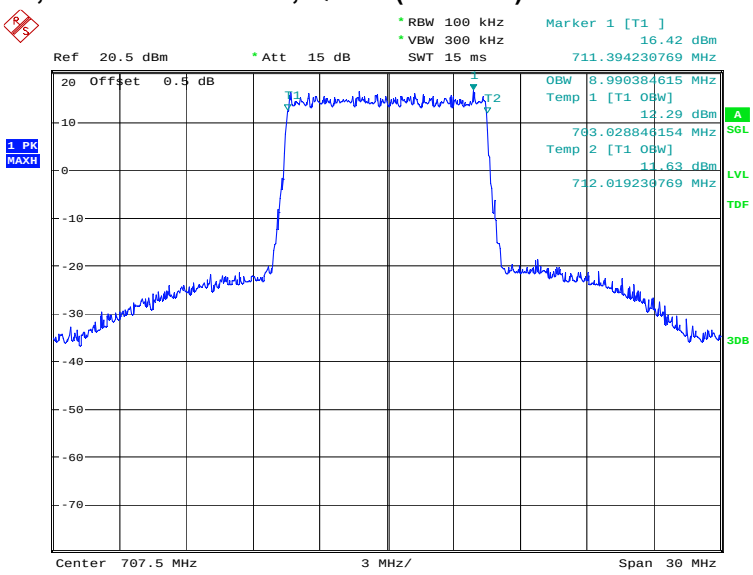


Date: 27.SEP.2022 17:45:07

LTE band 12, 10MHz (99%)

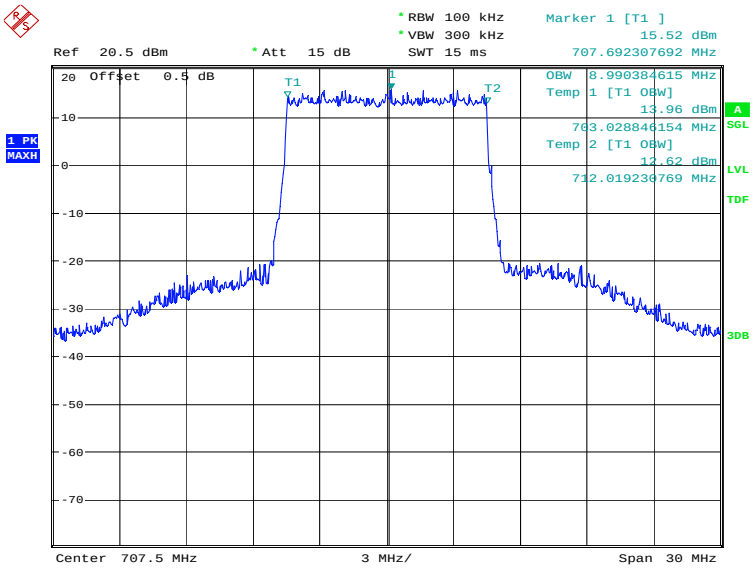
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	8990.38	8990.38

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



Date: 27.SEP.2022 17:45:49

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

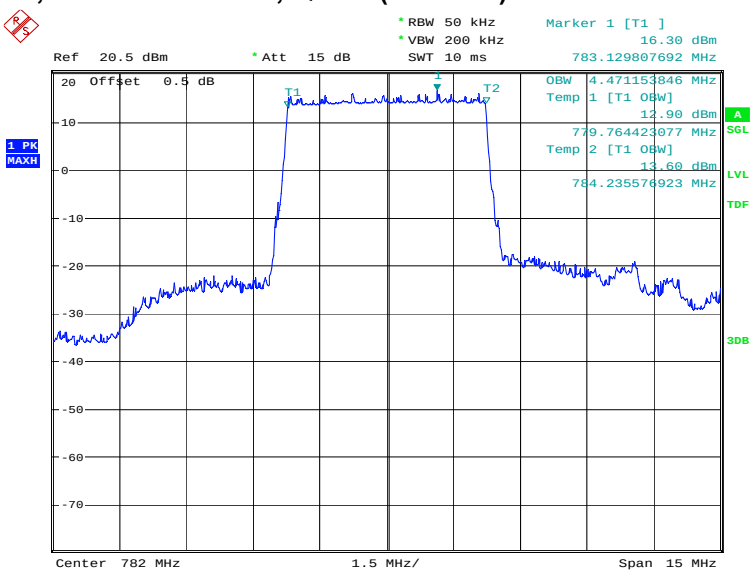


Date: 27.SEP.2022 17:46:29

LTE band 13, 5MHz (99%)

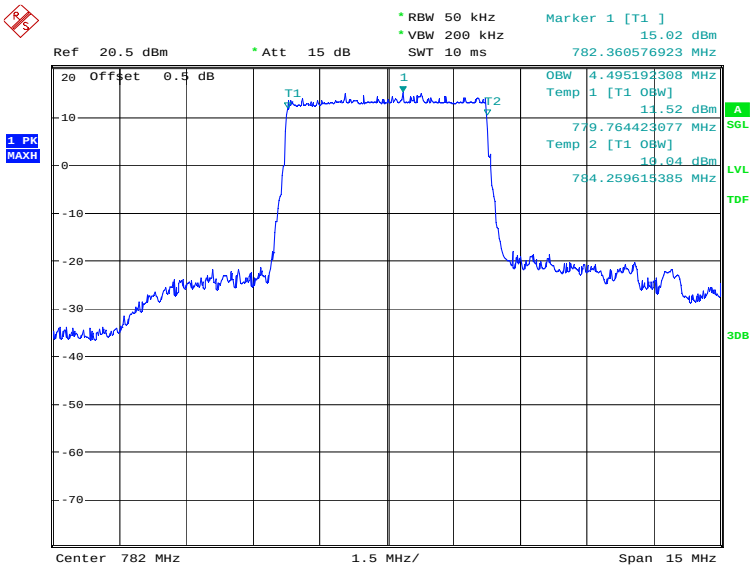
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
782.0	QPSK	16QAM
	4471.15	4495.19

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



Date: 27.SEP.2022 17:47:12

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

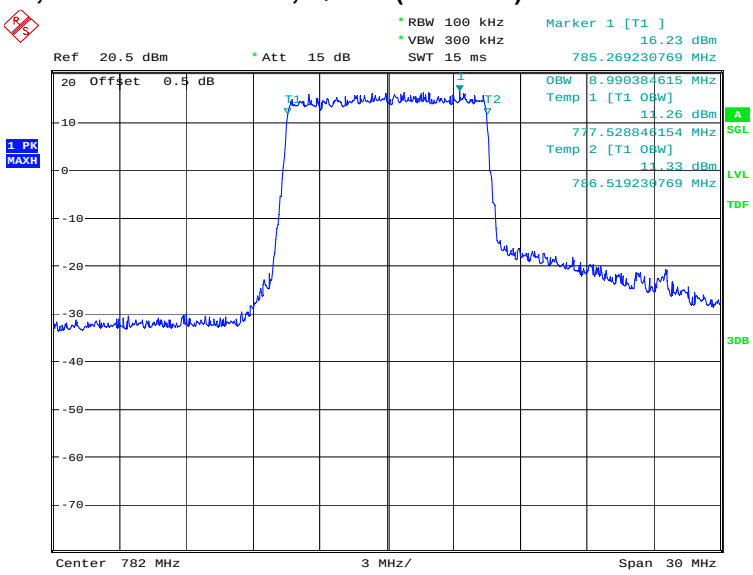


Date: 27.SEP.2022 17:47:52

LTE band 13, 10MHz (99%)

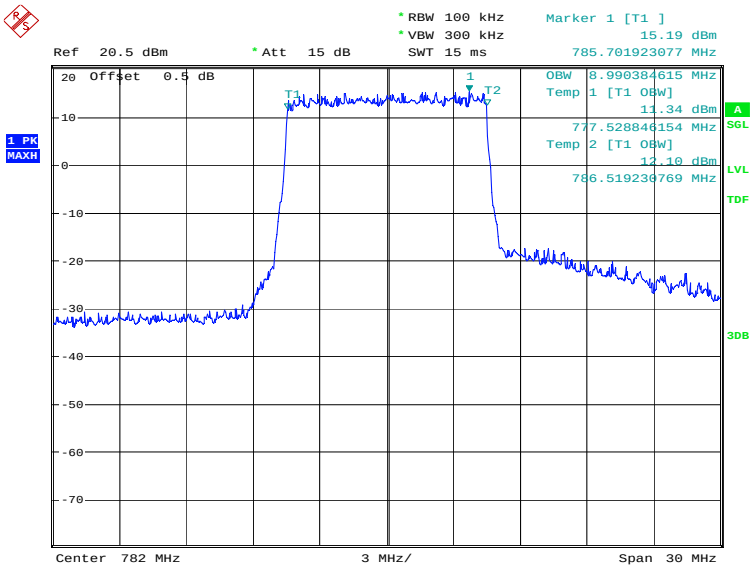
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
782.0	QPSK	16QAM
	8990.38	8990.38

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



Date: 27.SEP.2022 17:48:34

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

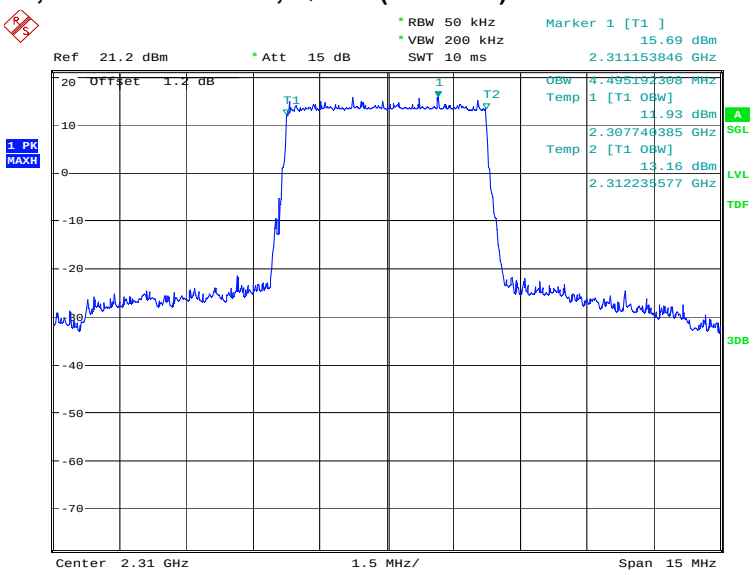


Date: 27.SEP.2022 17:49:14

LTE band 30, 5MHz (99%)

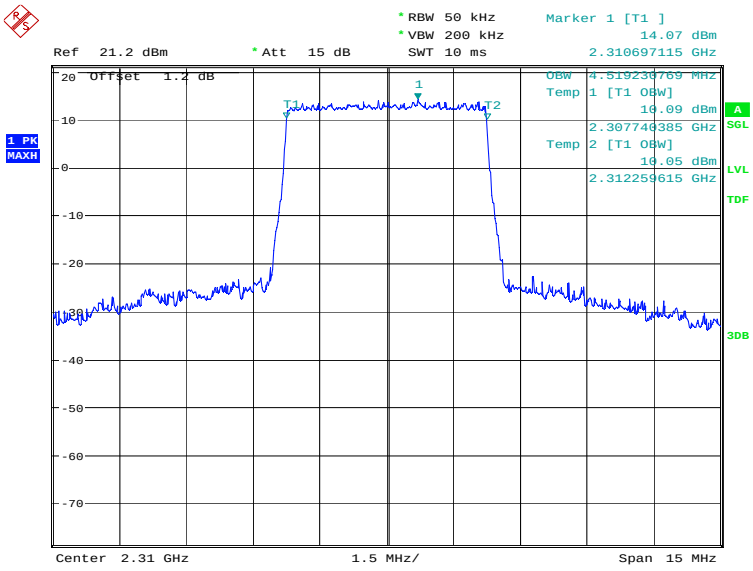
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2310.0	QPSK	16QAM
	4495.19	4519.23

LTE band 30, 5MHz Bandwidth, QPSK (99% BW)



Date: 27.SEP.2022 17:49:58

LTE band 30, 5MHz Bandwidth, 16QAM (99% BW)

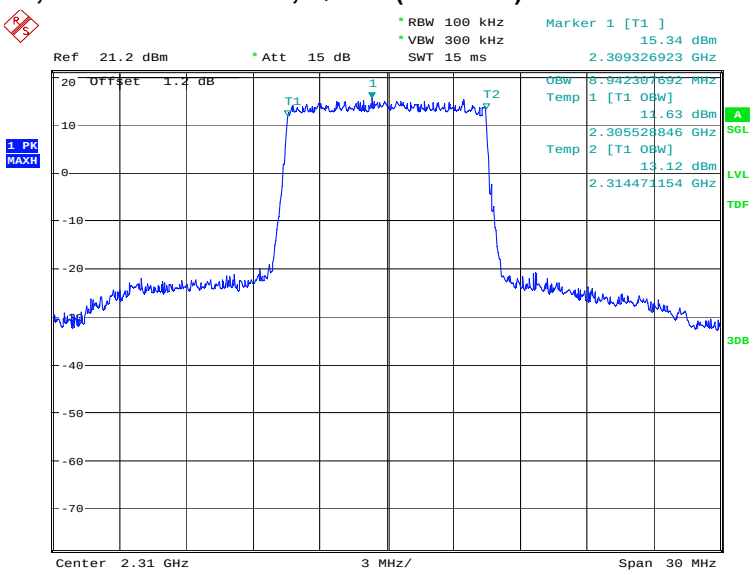


Date: 27.SEP.2022 17:50:38

LTE band 30, 10MHz (99%)

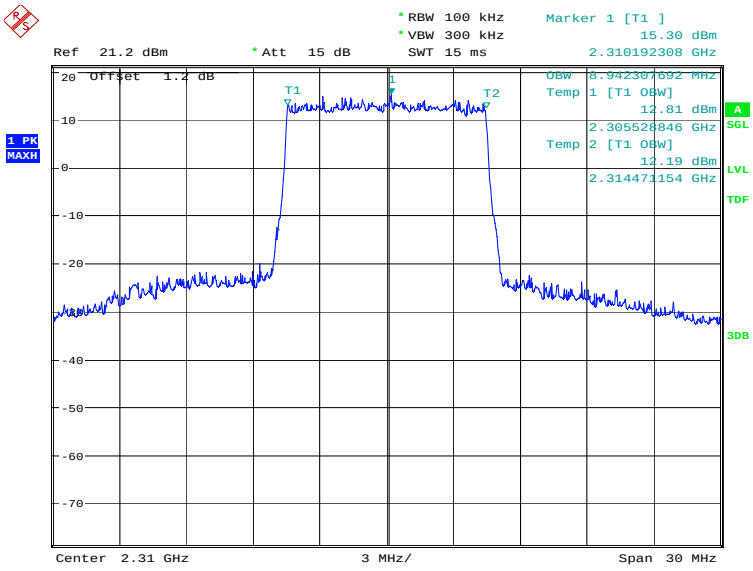
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2310.0	QPSK	16QAM
	8942.31	8942.31

LTE band 30, 10MHz Bandwidth, QPSK (99% BW)



Date: 27.SEP.2022 17:51:20

LTE band 30, 10MHz Bandwidth, 16QAM (99% BW)

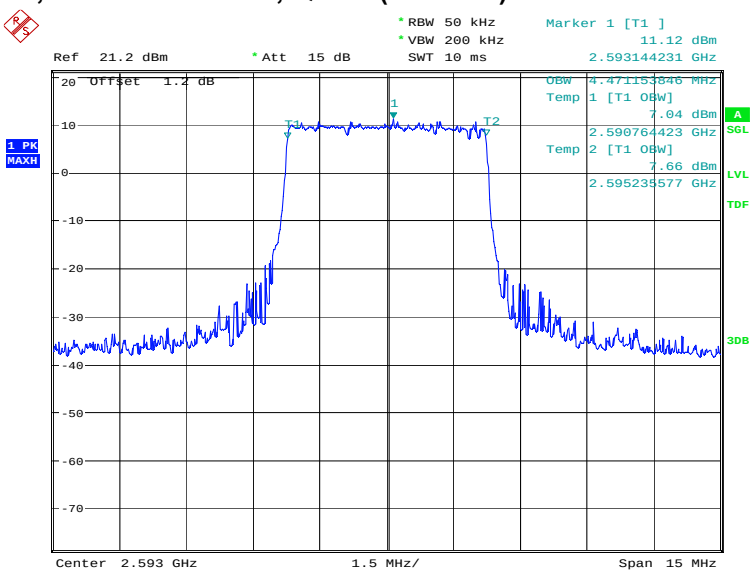


Date: 27.SEP.2022 17:52:00

LTE band 41, 5MHz (99%)

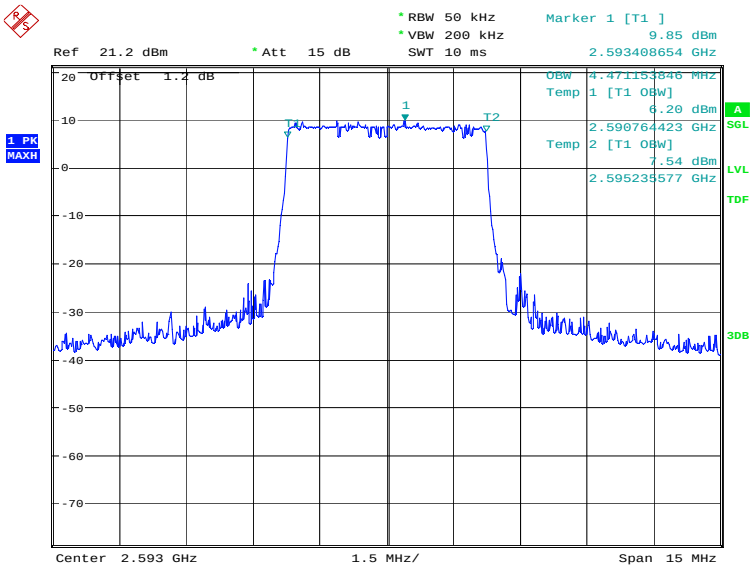
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	4471.15	4471.15

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



Date: 27.SEP.2022 18:01:40

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

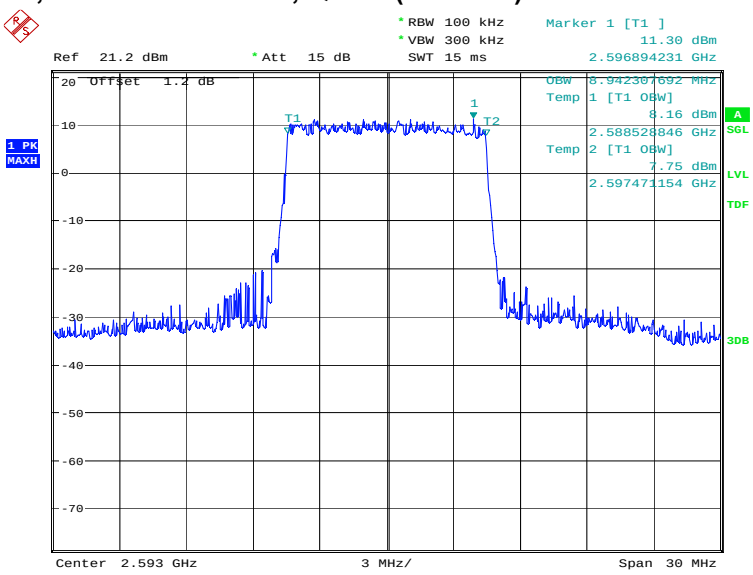


Date: 27.SEP.2022 18:02:21

LTE band 41, 10MHz (99%)

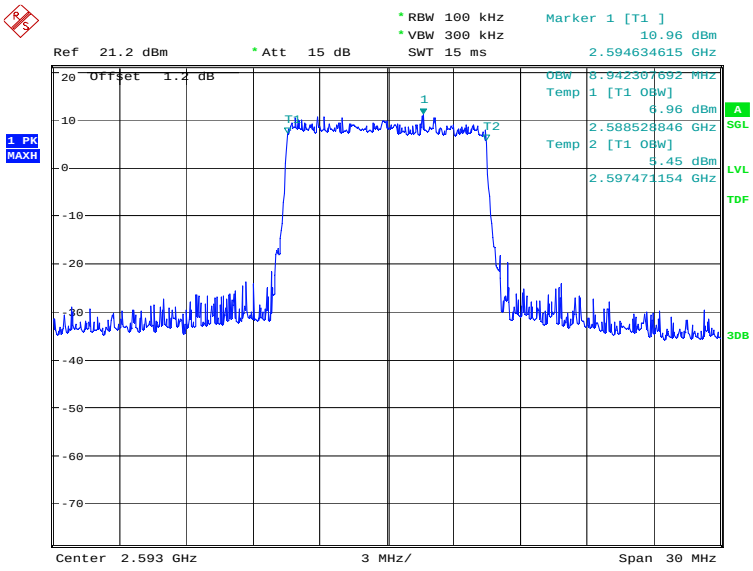
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 27.SEP.2022 18:03:02

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

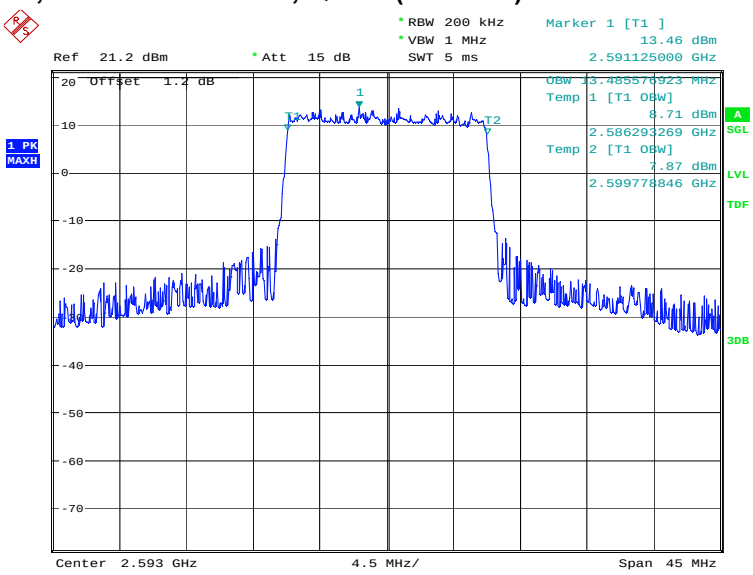


Date: 27.SEP.2022 18:03:43

LTE band 41, 15MHz (99%)

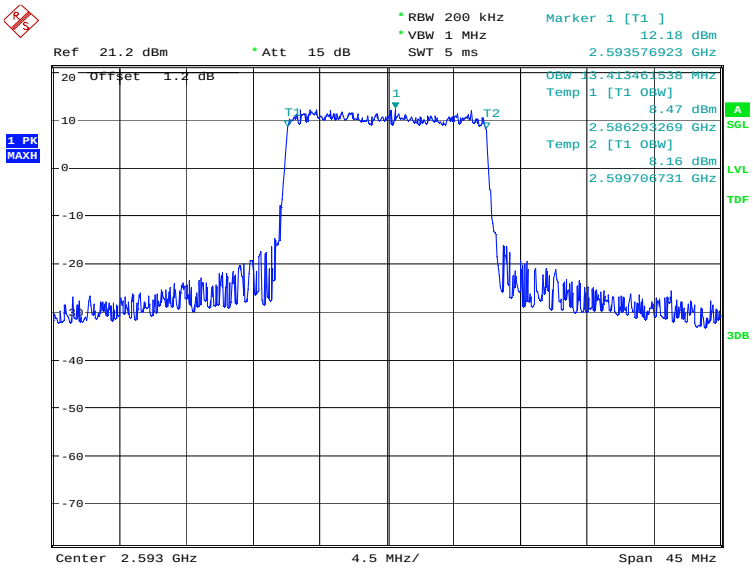
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	13485.58	13413.46

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



Date: 27.SEP.2022 18:04:25

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

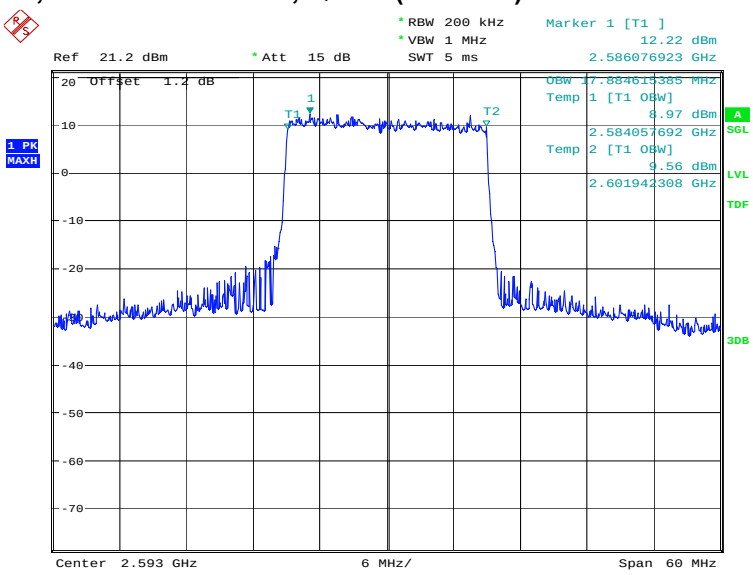


Date: 27.SEP.2022 18:05:05

LTE band 41, 20MHz (99%)

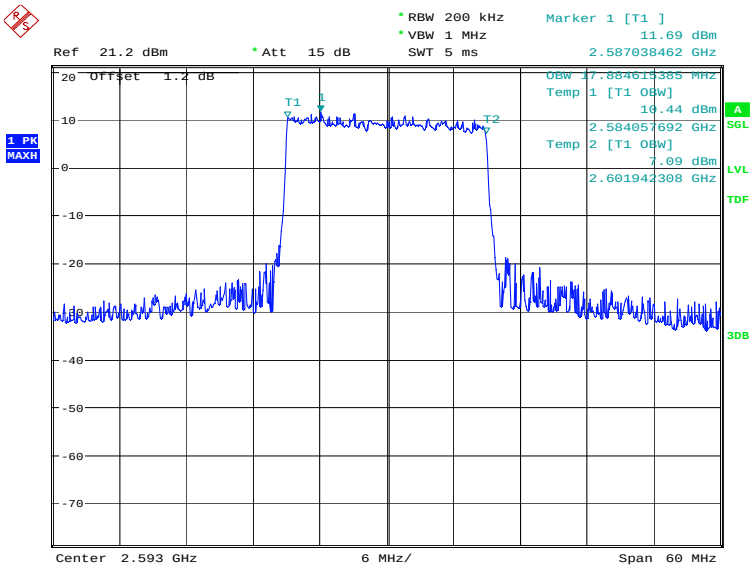
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2593.0	QPSK	16QAM
	17884.62	17884.62

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



Date: 27.SEP.2022 18:05:47

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

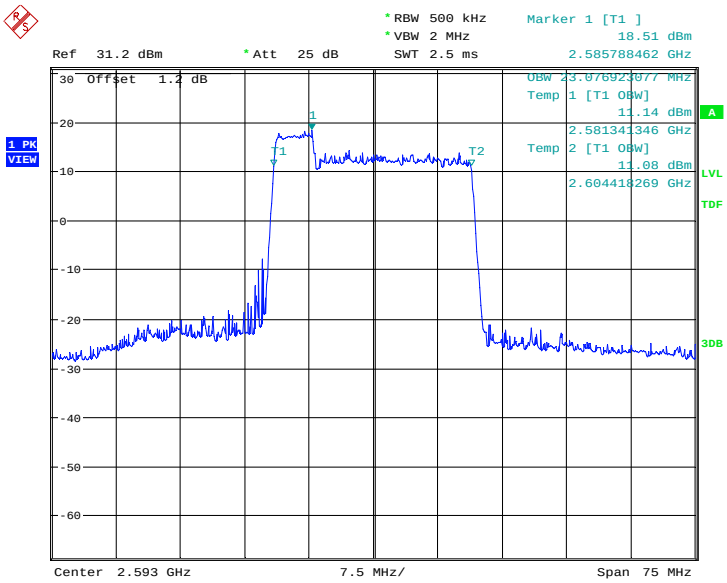


Date: 27.SEP.2022 18:06:27

LTE band 41 CA,5MHz+20MHz(99%)

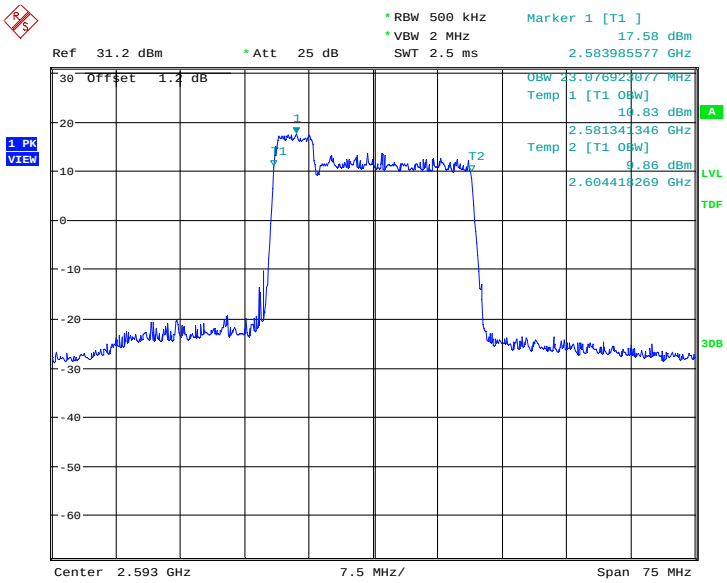
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
2593	23.077	23.077

LTE band 41 CA , 5MHz+20MHz Bandwidth, QPSK (99% BW)



Date: 27.SEP.2022 14:45:36

LTE band 41 CA , 5MHz+20MHz Bandwidth, 16QAM (99% BW)

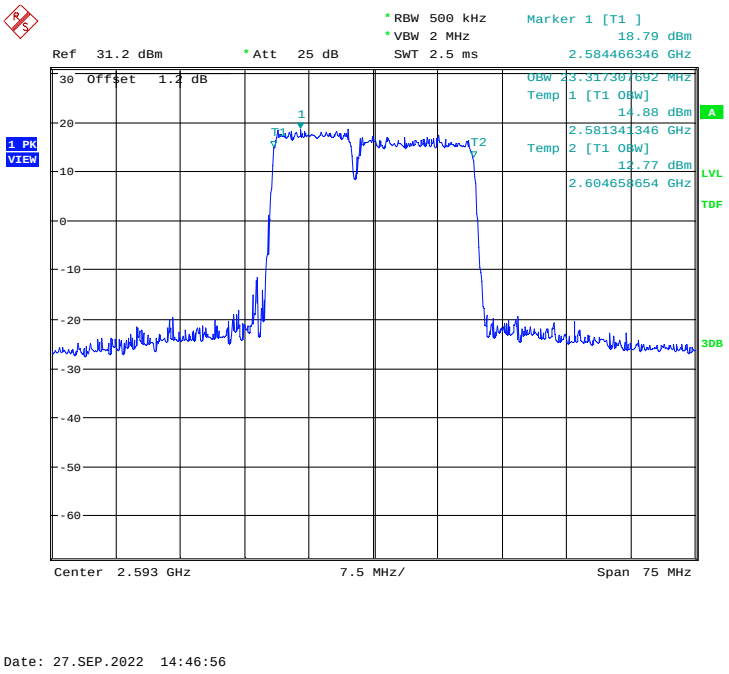


Date: 27.SEP.2022 14:45:59

LTE band 41 CA,10MHz+15MHz(99%)

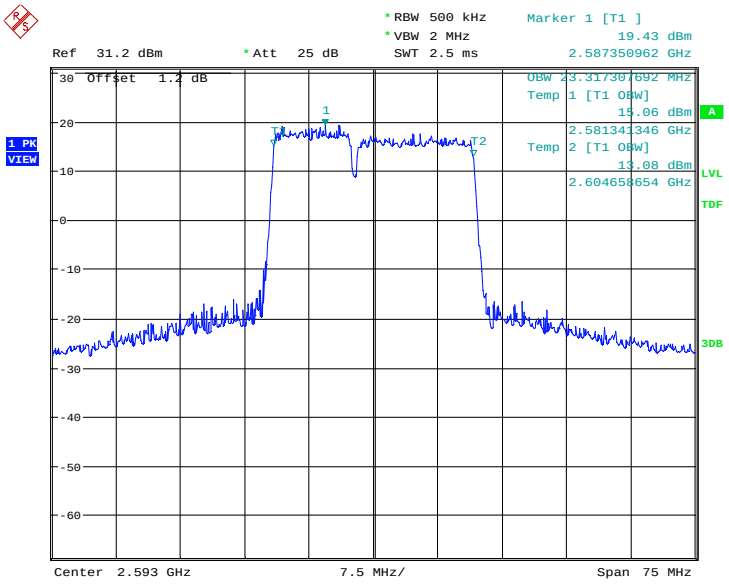
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
2593	23.317	23.317

LTE band 41 CA , 10MHz+15MHz Bandwidth, QPSK (99% BW)



Date: 27.SEP.2022 14:46:56

LTE band 41 CA , 10MHz+15MHz Bandwidth, 16QAM (99% BW)

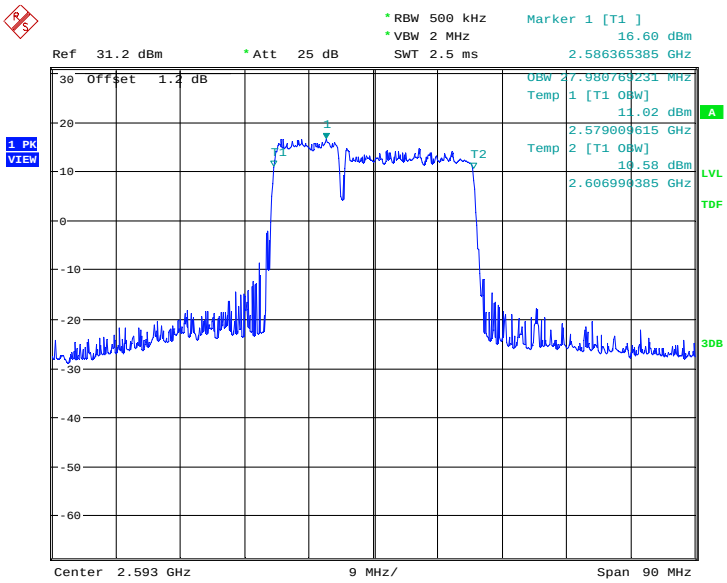


Date: 27.SEP.2022 14:47:19

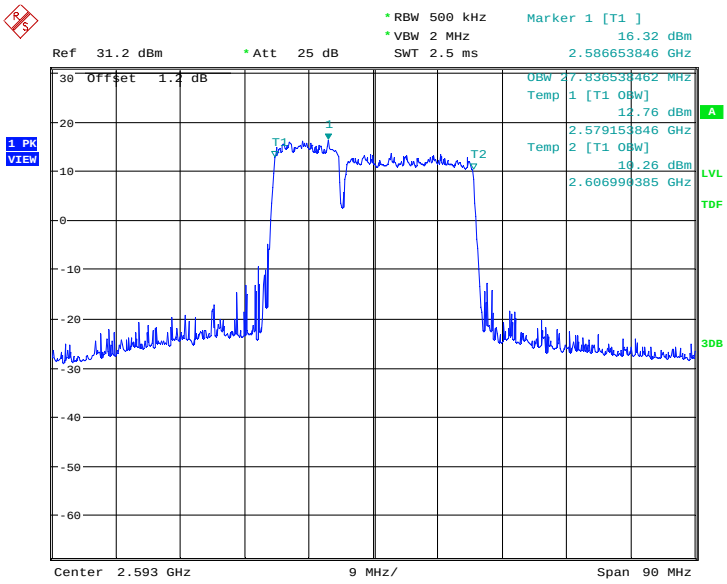
LTE band 41 CA,10MHz+20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
2593	27.981	27.837

LTE band 41 CA , 10MHz+20MHz Bandwidth, QPSK (99% BW)



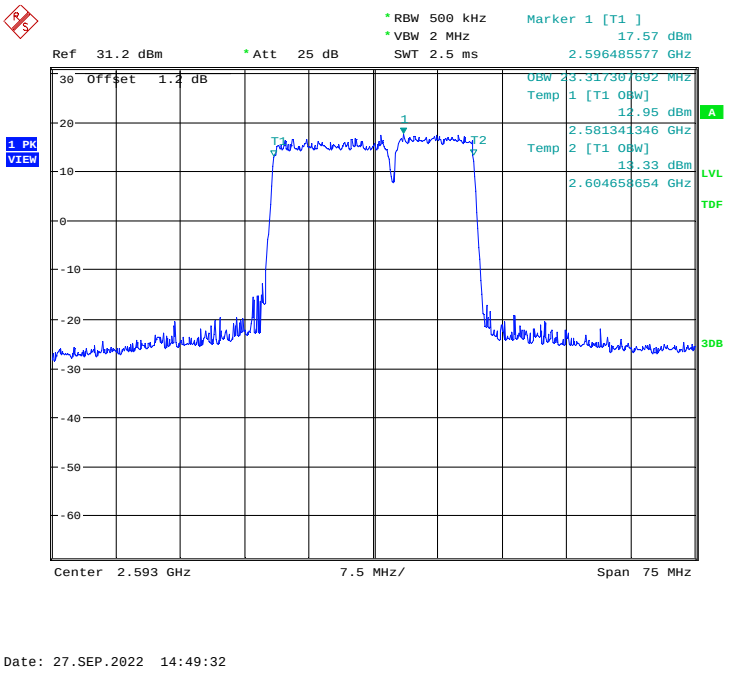
LTE band 41 CA , 10MHz+20MHz Bandwidth, 16QAM (99% BW)



LTE band 41 CA,15MHz+10MHz(99%)

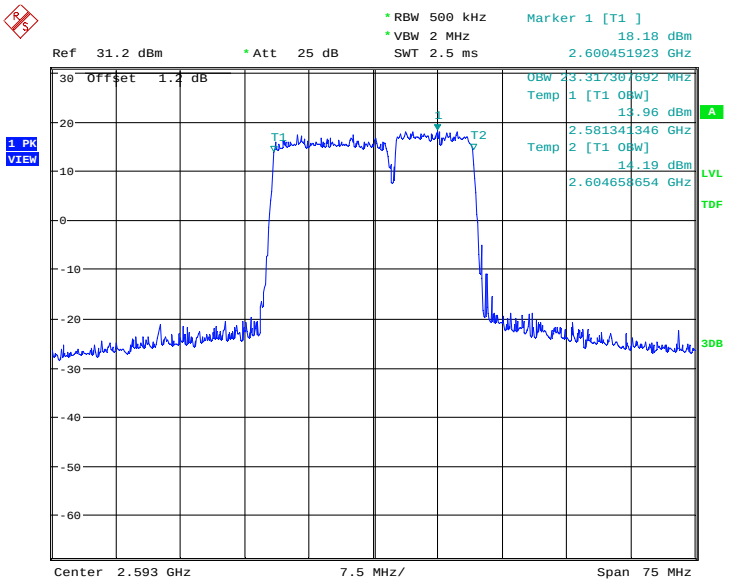
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
2593	23.317	23.317

LTE band 41 CA , 15MHz+10MHz Bandwidth, QPSK (99% BW)



Date: 27.SEP.2022 14:49:32

LTE band 41 CA , 15MHz+10MHz Bandwidth, 16QAM (99% BW)

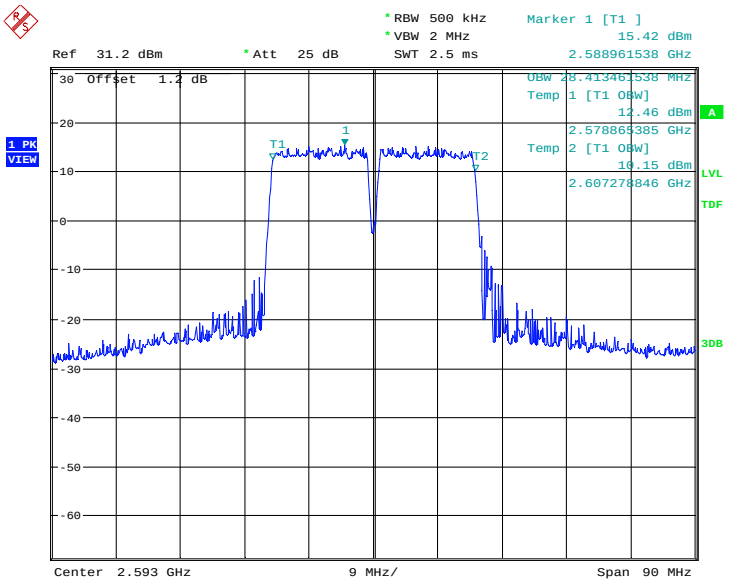


Date: 27.SEP.2022 14:49:54

LTE band 41 CA,15MHz+15MHz(99%)

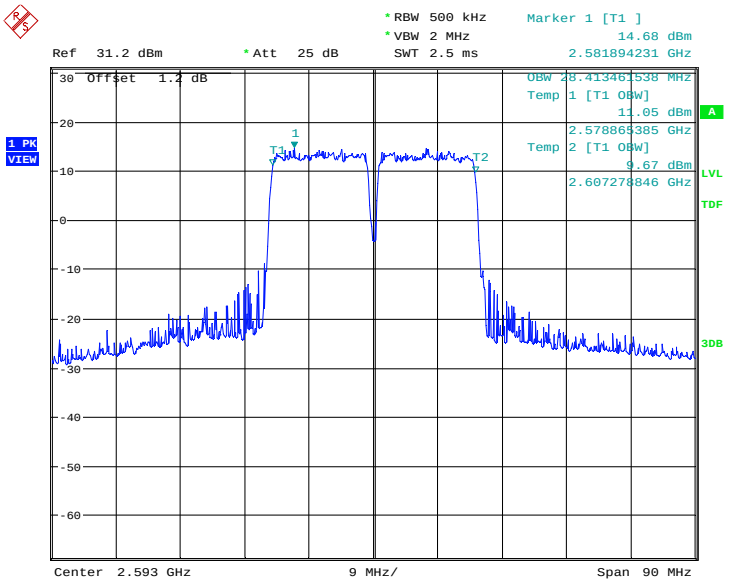
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
2593	28.413	28.413

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



Date: 27.SEP.2022 14:50:48

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

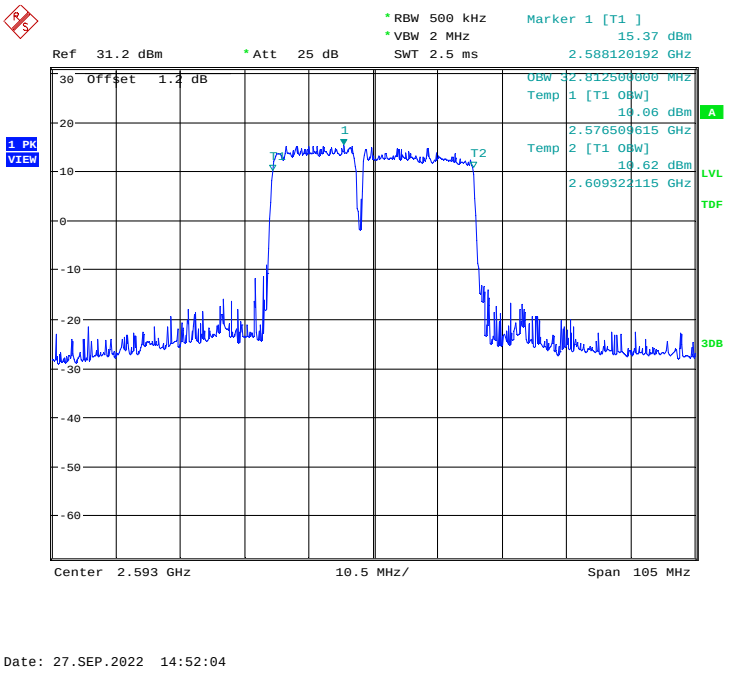


Date: 27.SEP.2022 14:51:11

LTE band 41 CA,15MHz+20MHz(99%)

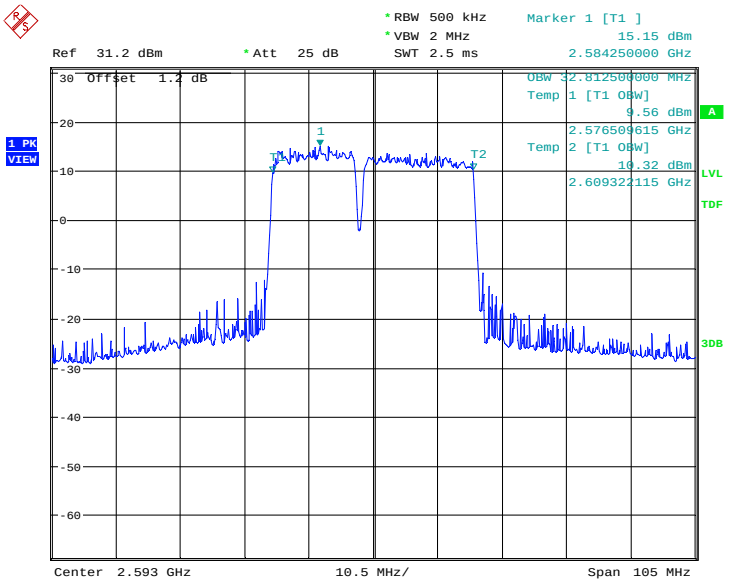
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
2593	32.812	32.812

LTE band 41 CA , 15MHz+20MHz Bandwidth, QPSK (99% BW)



Date: 27.SEP.2022 14:52:04

LTE band 41 CA , 15MHz+20MHz Bandwidth, 16QAM (99% BW)

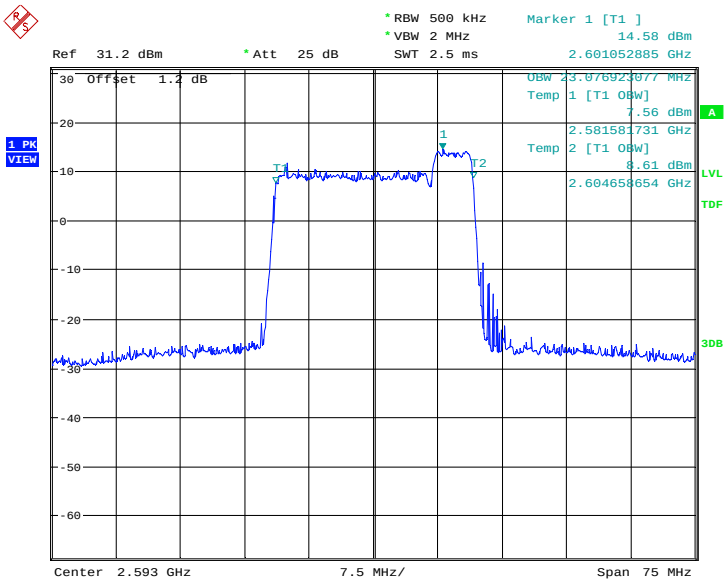


Date: 27.SEP.2022 14:52:27

LTE band 41 CA,20MHz+5MHz(99%)

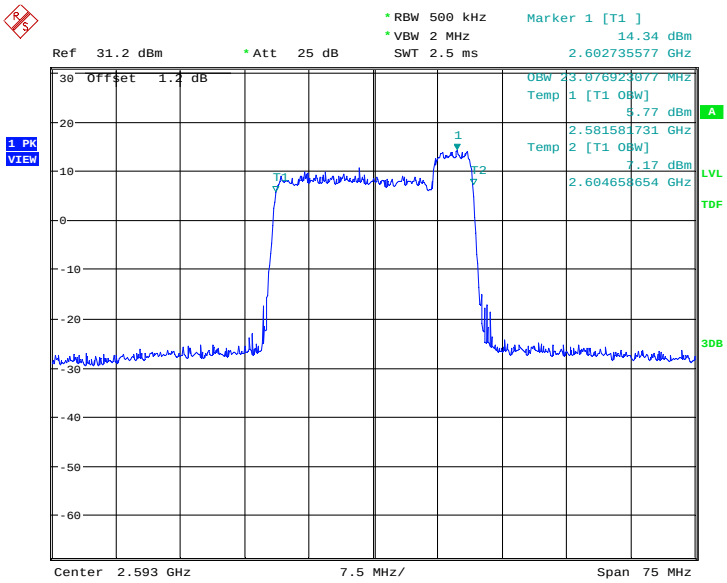
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
2593	23.077	23.077

LTE band 41 CA , 20MHz+5MHz Bandwidth, QPSK (99% BW)



Date: 27.SEP.2022 14:53:31

LTE band 41 CA , 20MHz+5MHz Bandwidth, 16QAM (99% BW)

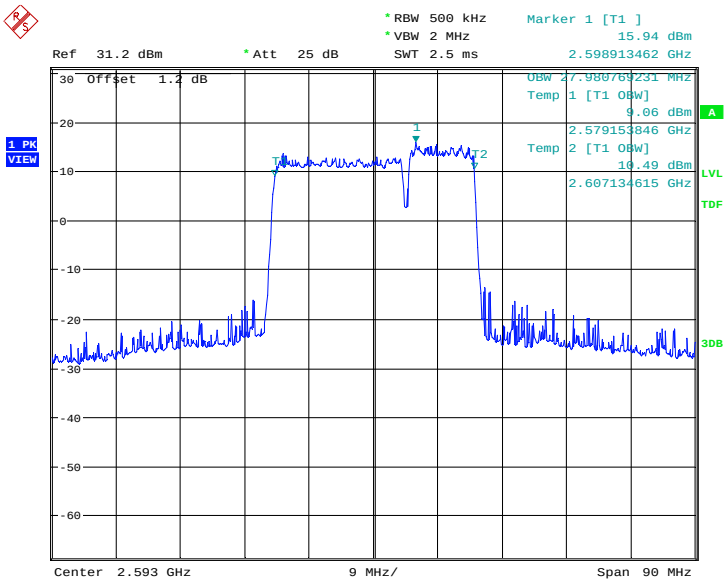


Date: 27.SEP.2022 14:53:54

LTE band 41 CA,20MHz+10MHz(99%)

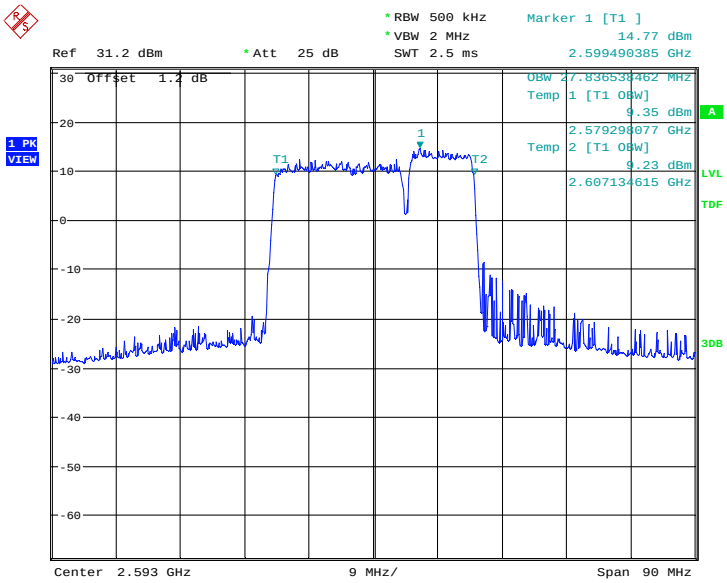
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
2593	27.981	27.837

LTE band 41 CA , 20MHz+10MHz Bandwidth, QPSK (99% BW)



Date: 27.SEP.2022 14:54:48

LTE band 41 CA , 20MHz+10MHz Bandwidth, 16QAM (99% BW)

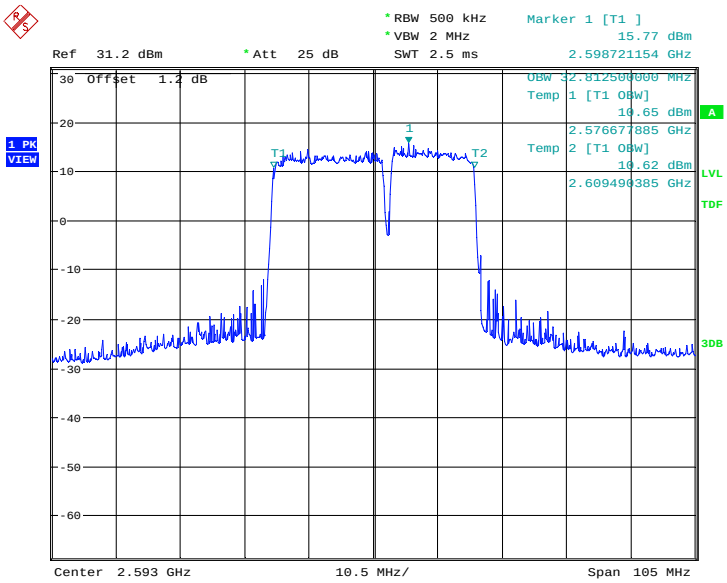


Date: 27.SEP.2022 14:55:10

LTE band 41 CA,20MHz+15MHz(99%)

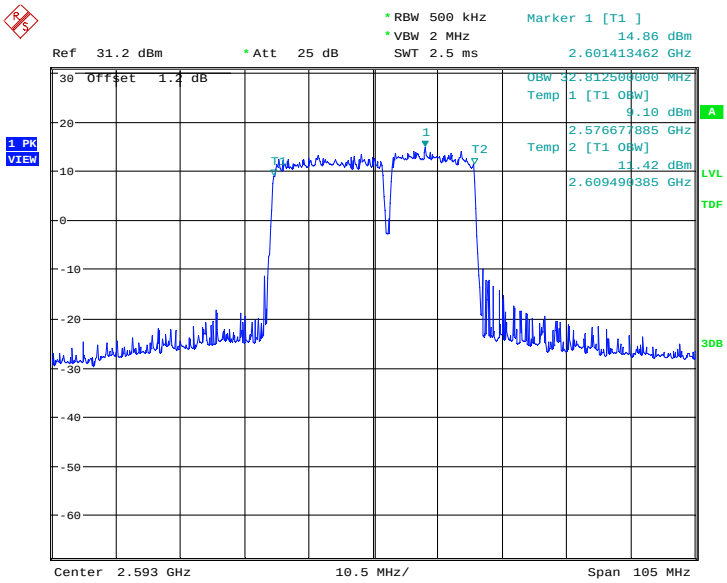
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
2593	32.812	32.812

LTE band 41 CA , 20MHz+15MHz Bandwidth, QPSK (99% BW)



Date: 27.SEP.2022 14:56:03

LTE band 41 CA , 20MHz+15MHz Bandwidth, 16QAM (99% BW)

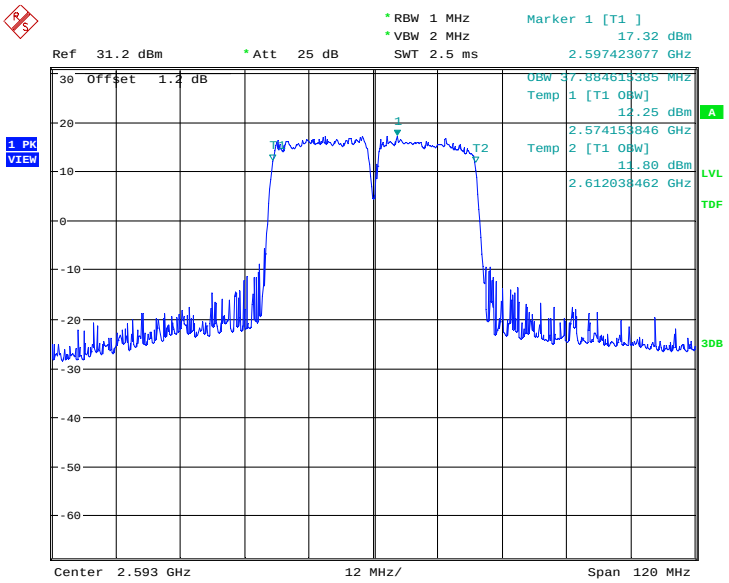


Date: 27.SEP.2022 14:56:26

LTE band 41 CA,20MHz+20MHz(99%)

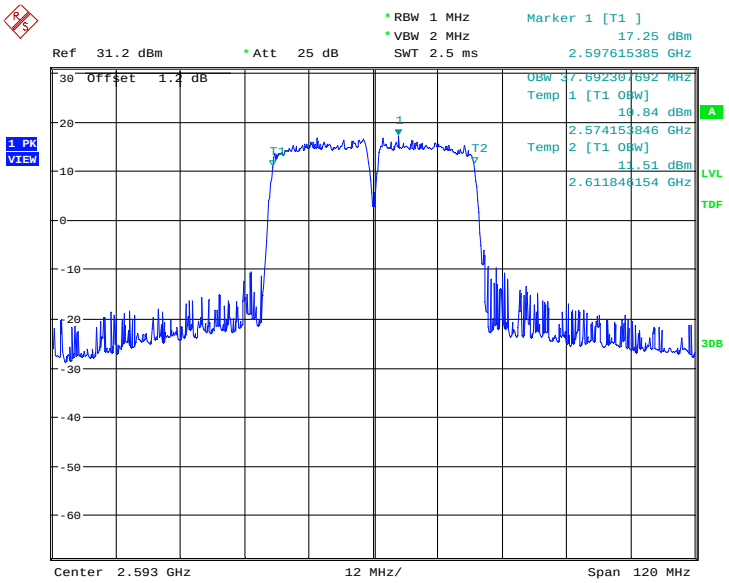
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
2593	37.885	37.692

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



Date: 27.SEP.2022 14:57:18

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

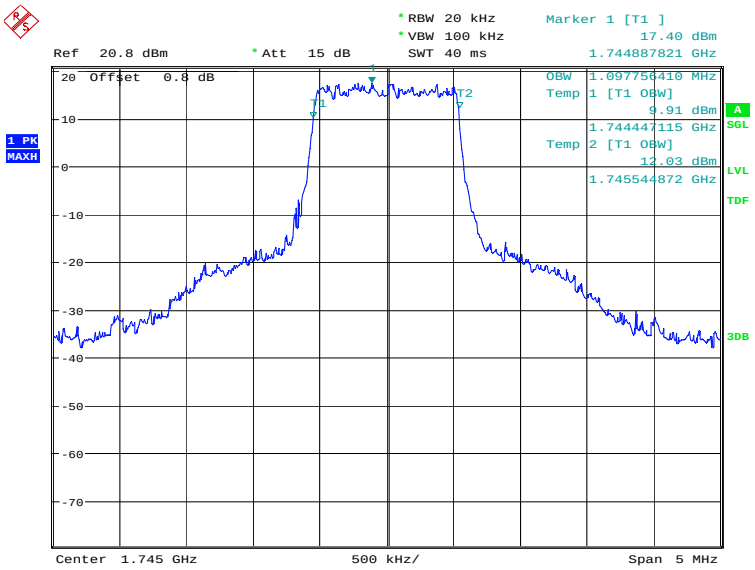


Date: 27.SEP.2022 14:57:41

LTE band 66, 1.4MHz (99%)

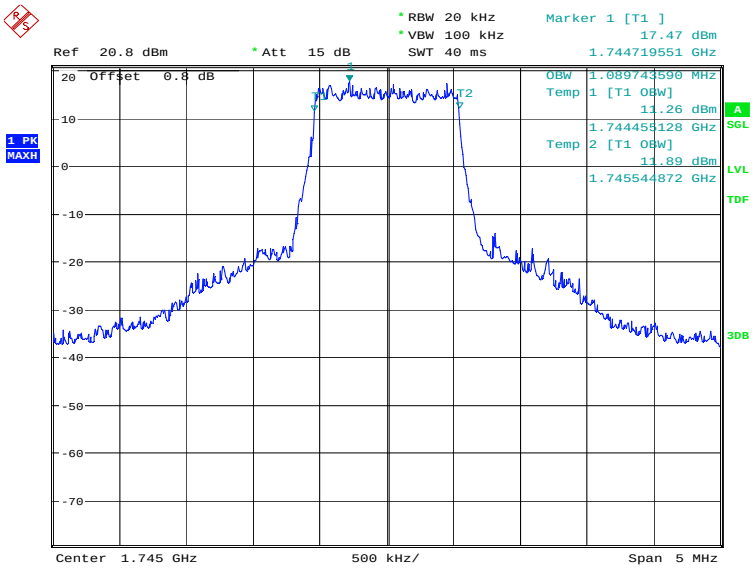
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	1097.76	1089.74

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



Date: 27.SEP.2022 17:52:43

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

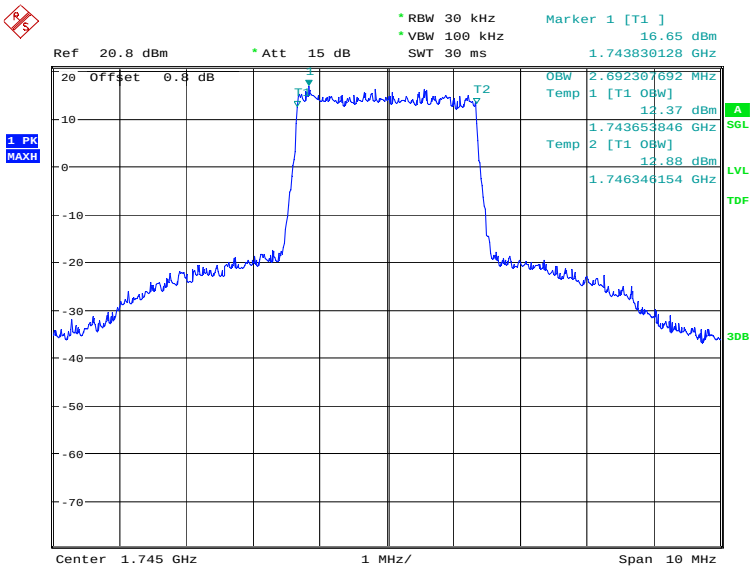


Date: 27.SEP.2022 17:53:23

LTE band 66, 3MHz (99%)

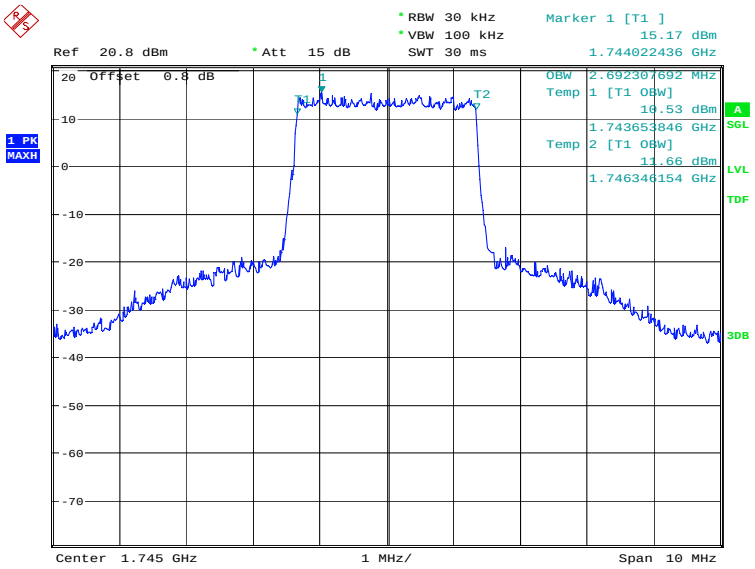
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	2692.31	2692.31

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



Date: 27.SEP.2022 17:54:05

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

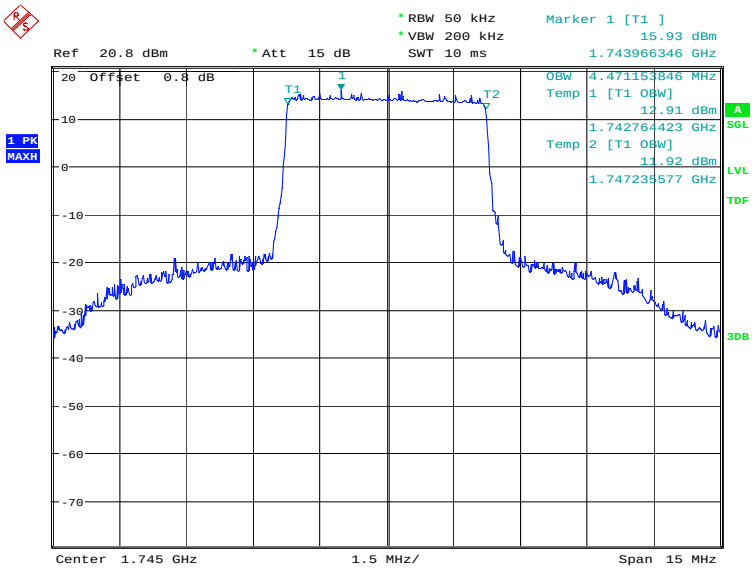


Date: 27.SEP.2022 17:54:45

LTE band 66, 5MHz (99%)

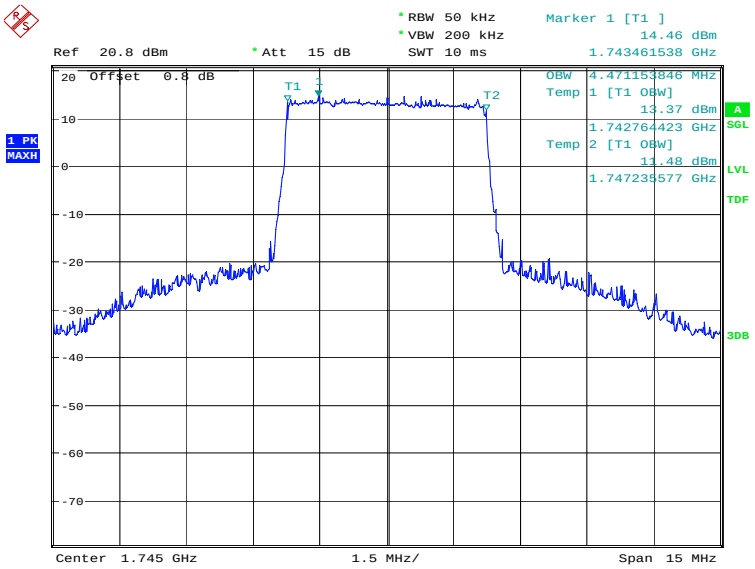
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	4471.15	4471.15

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



Date: 27.SEP.2022 17:55:27

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

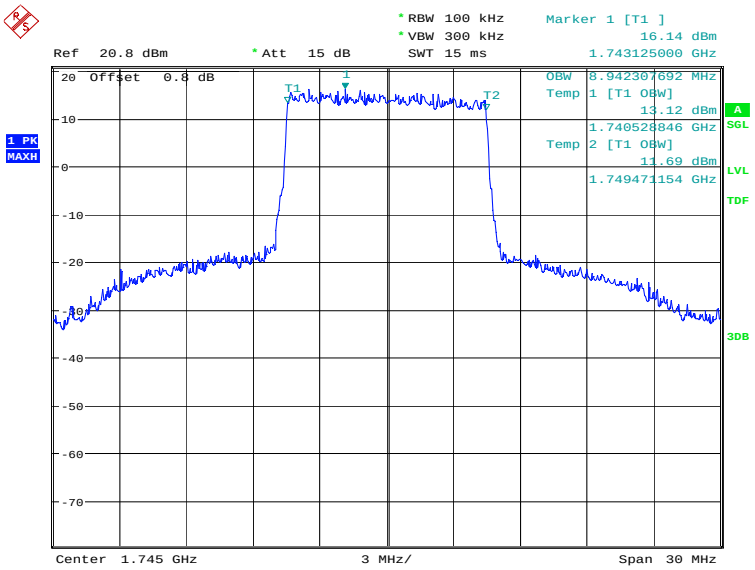


Date: 27.SEP.2022 17:56:07

LTE band 66, 10MHz (99%)

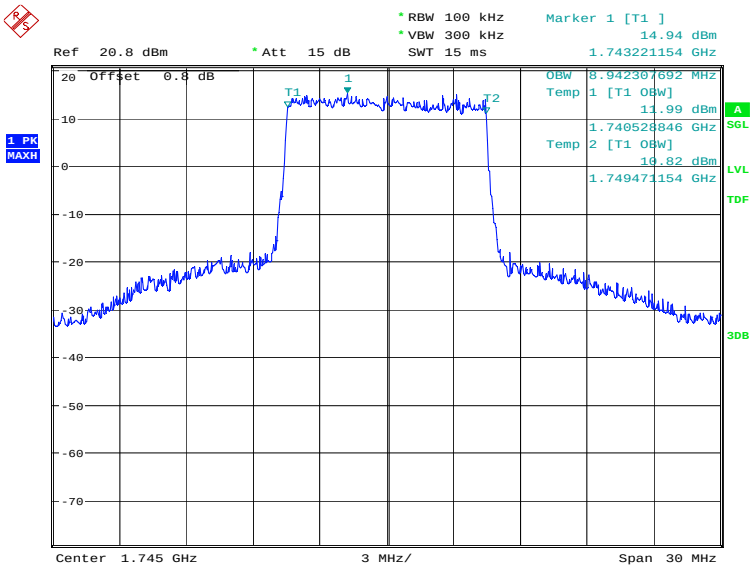
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 27.SEP.2022 17:56:49

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

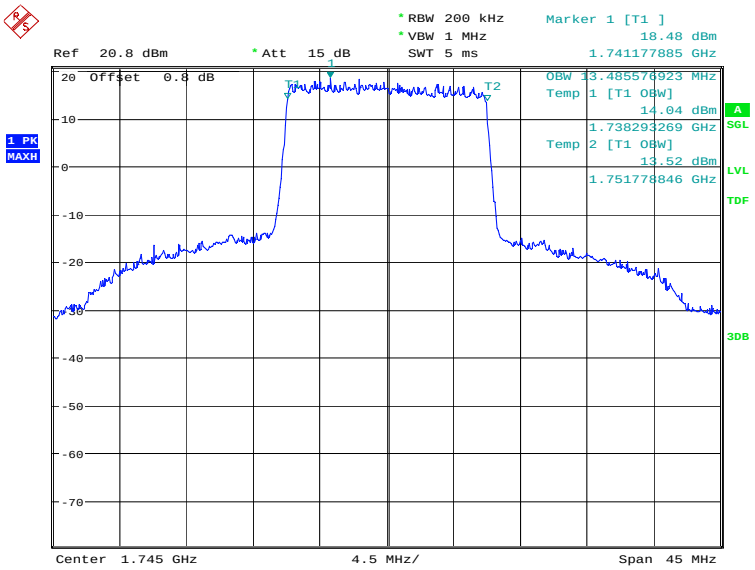


Date: 27.SEP.2022 17:57:29

LTE band 66, 15MHz (99%)

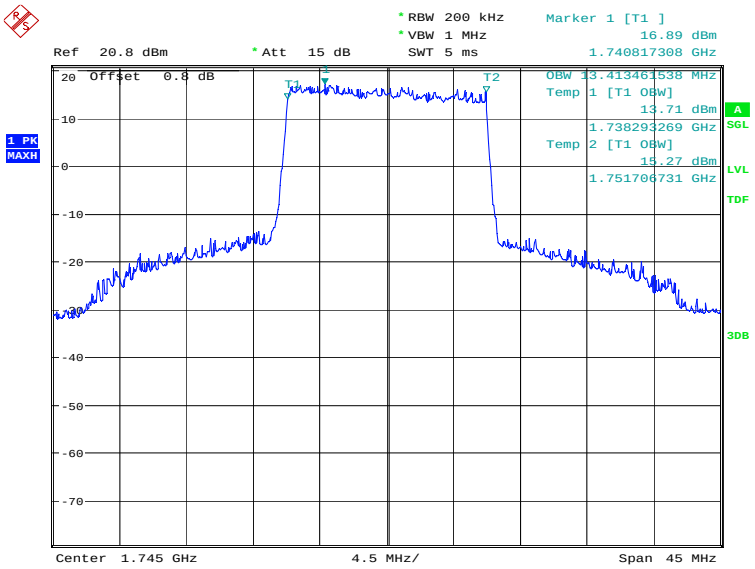
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	13485.58	13413.46

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



Date: 27.SEP.2022 17:58:11

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

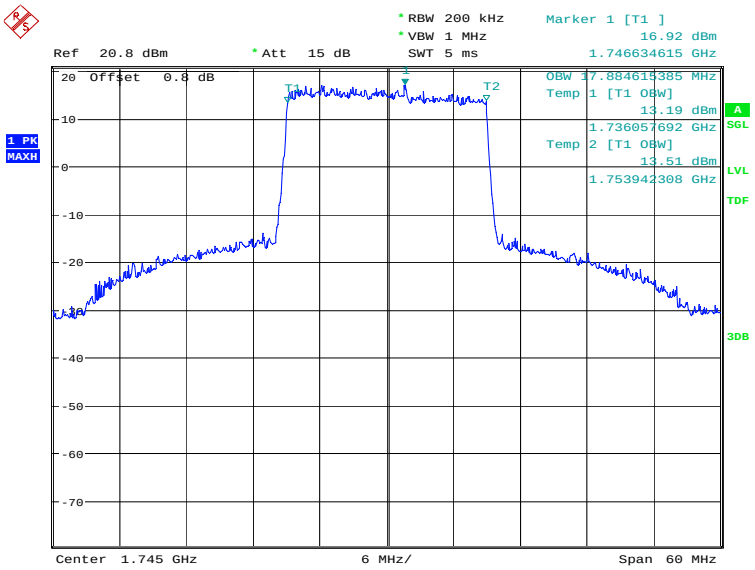


Date: 27.SEP.2022 17:58:51

LTE band 66, 20MHz (99%)

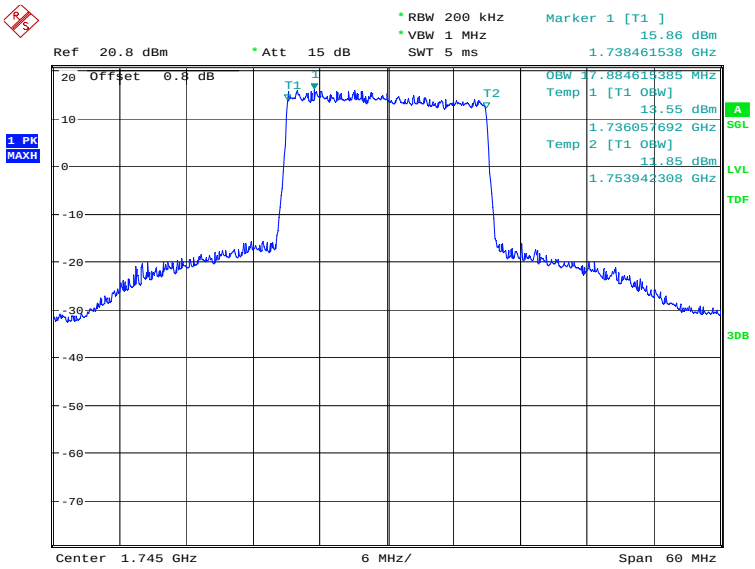
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	17884.62	17884.62

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



Date: 27.SEP.2022 17:59:33

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

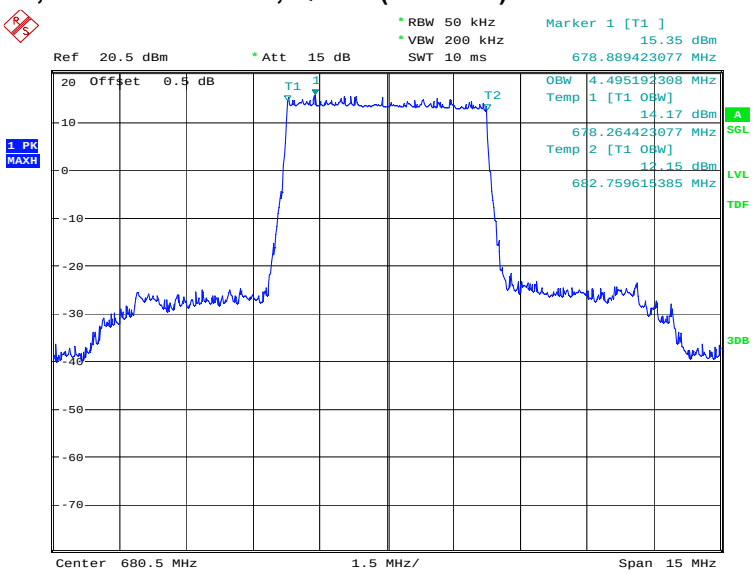


Date: 27.SEP.2022 18:00:13

LTE band 71, 5MHz (99%)

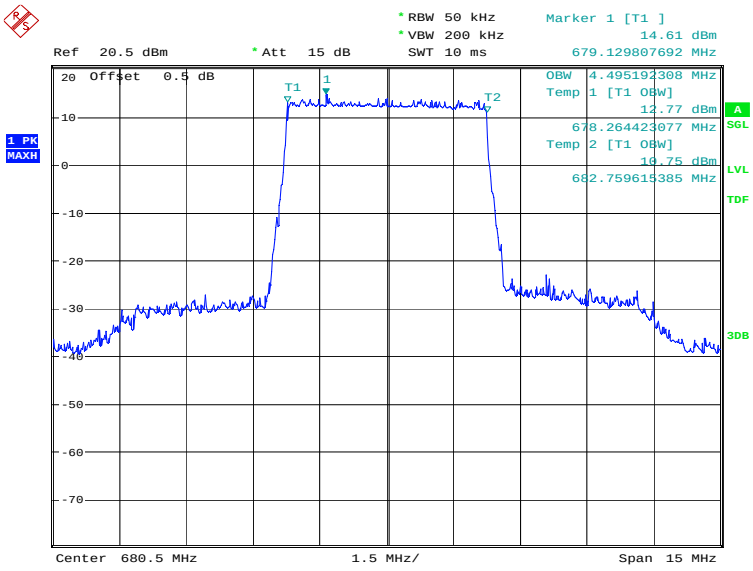
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	4495.19	4495.19

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



Date: 27.SEP.2022 17:20:53

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

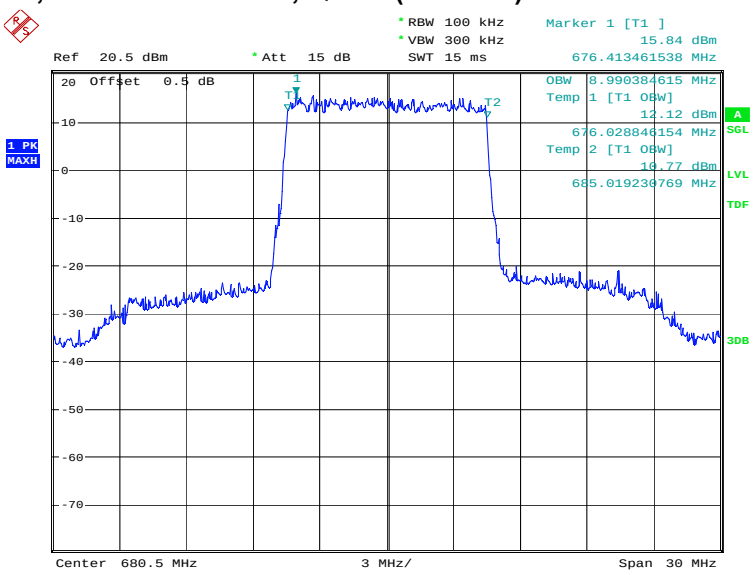


Date: 27.SEP.2022 17:21:33

LTE band 71, 10MHz (99%)

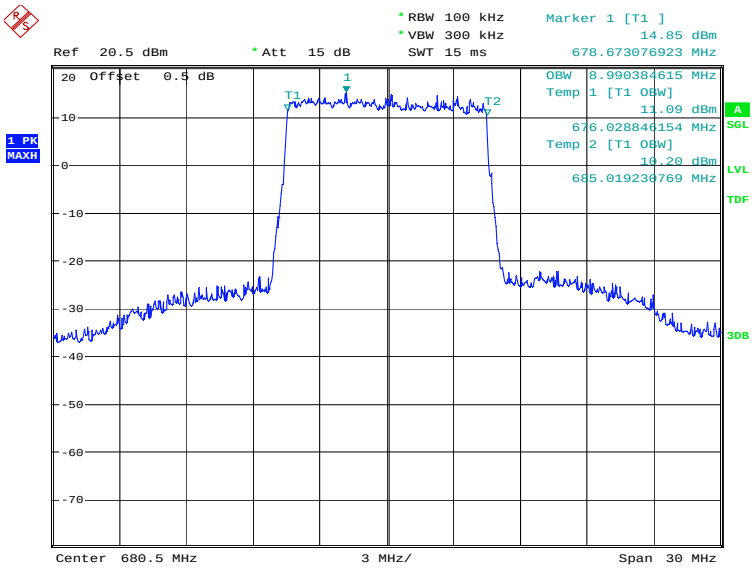
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	8990.38	8990.38

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



Date: 27.SEP.2022 17:22:15

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

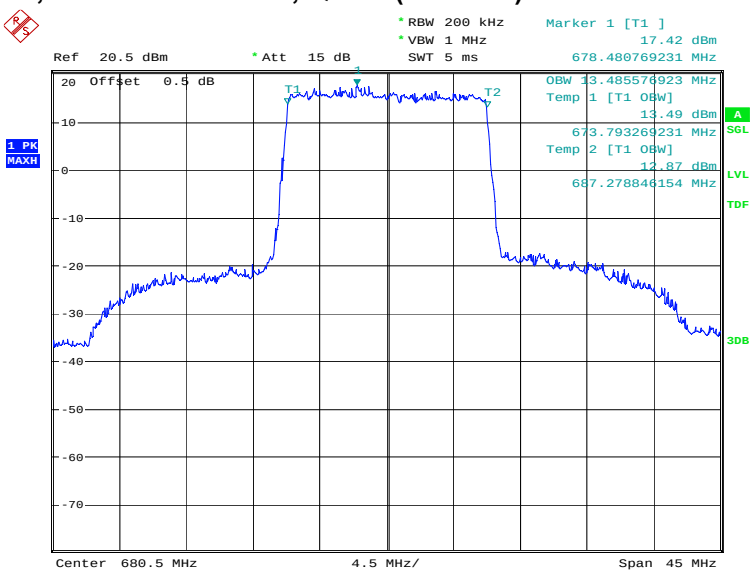


Date: 27.SEP.2022 17:22:55

LTE band 71, 15MHz (99%)

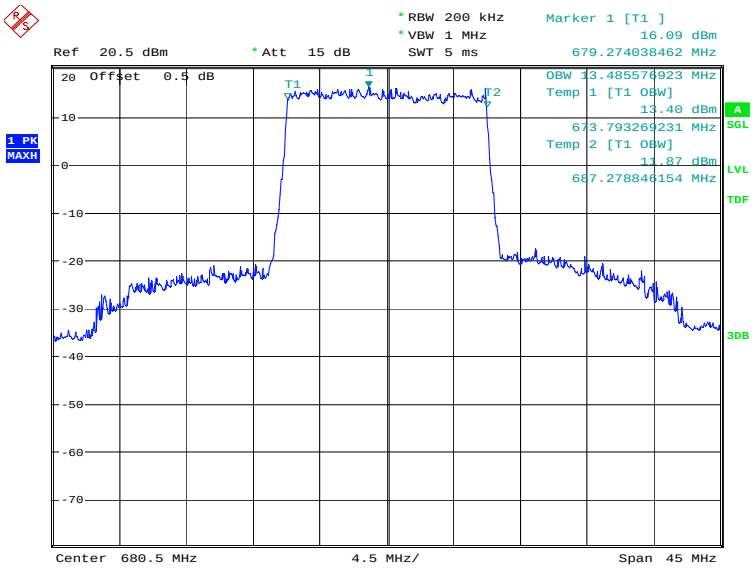
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	13485.58	13485.58

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



Date: 27.SEP.2022 17:23:37

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

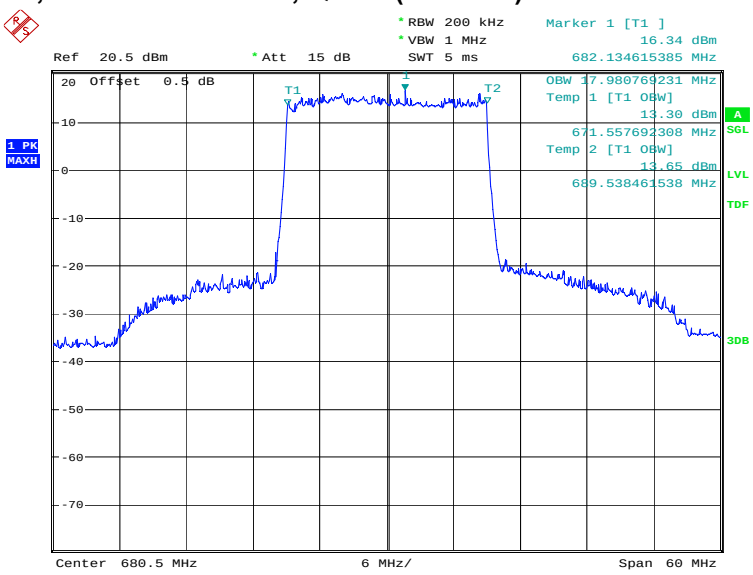


Date: 27.SEP.2022 17:24:17

LTE band 71, 20MHz (99%)

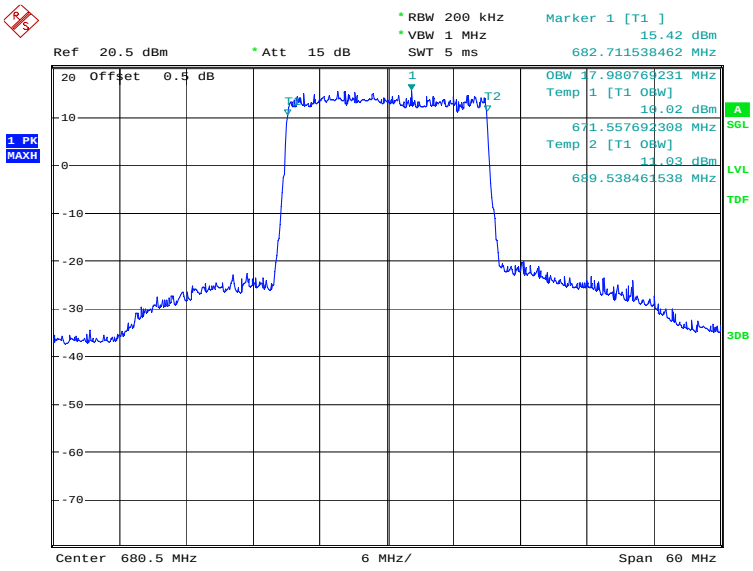
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	17980.77	17980.77

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



Date: 27.SEP.2022 17:24:58

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



Date: 27.SEP.2022 17:25:38

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

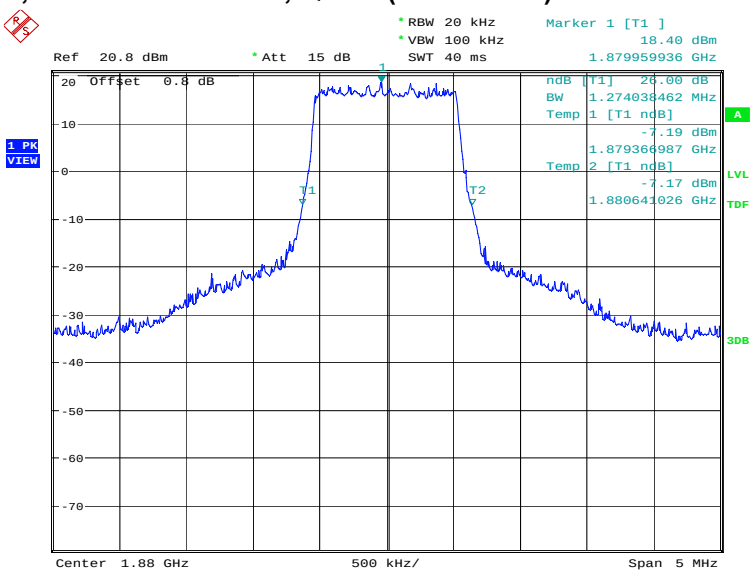
A.5 Emission Bandwidth

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

LTE band 2, 1.4MHz (-26dBc)

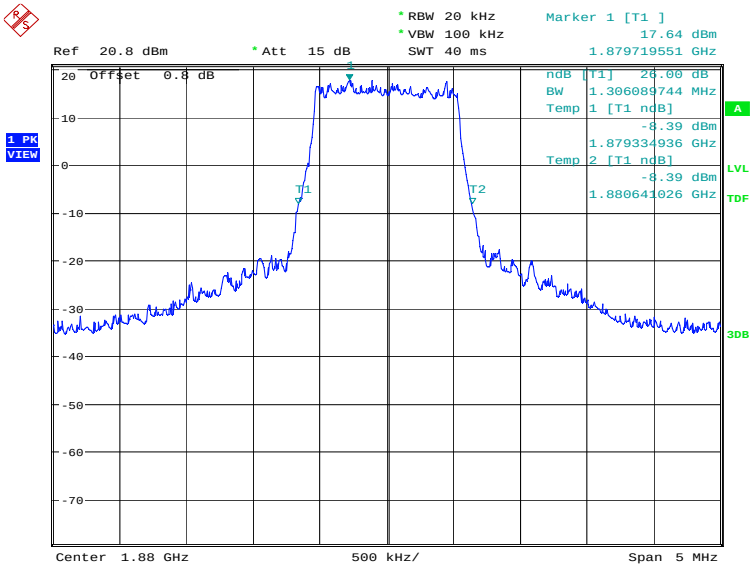
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	1274.04	1306.09

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



Date: 27.SEP.2022 18:14:17

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

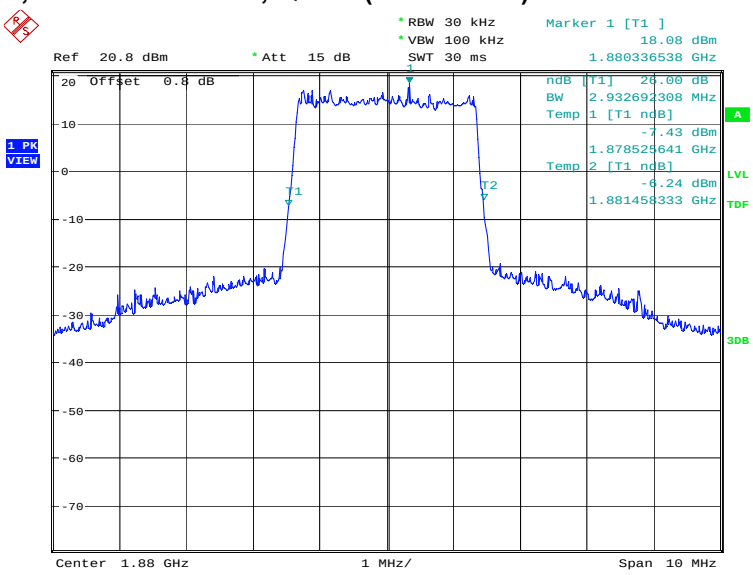


Date: 27.SEP.2022 18:14:57

LTE band 2, 3MHz (-26dBc)

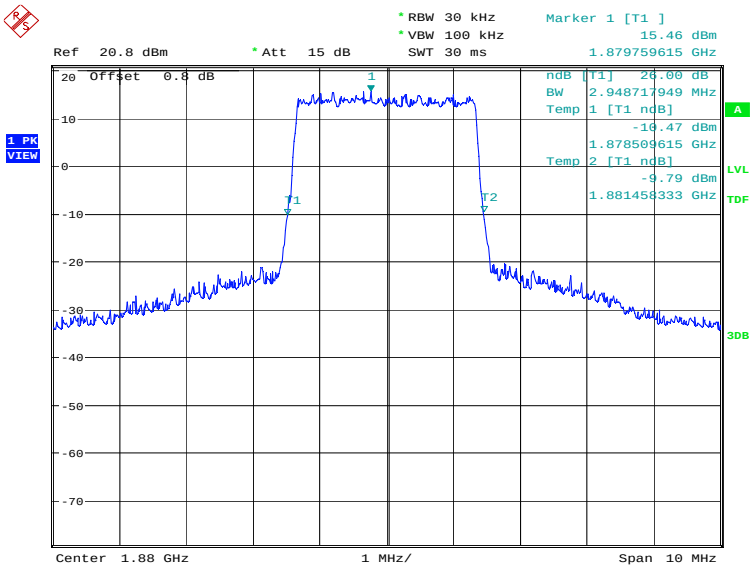
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	2932.69	2948.72

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



Date: 27.SEP.2022 18:15:40

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

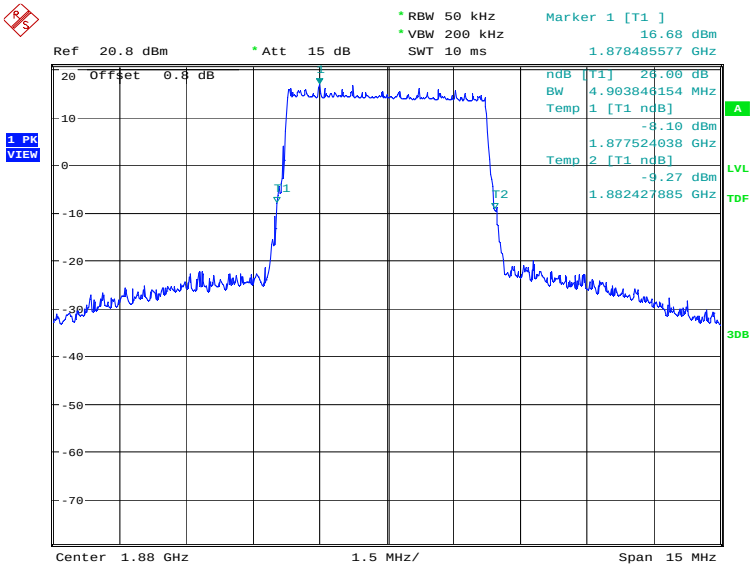


Date: 27.SEP.2022 18:16:20

LTE band 2, 5MHz (-26dBc)

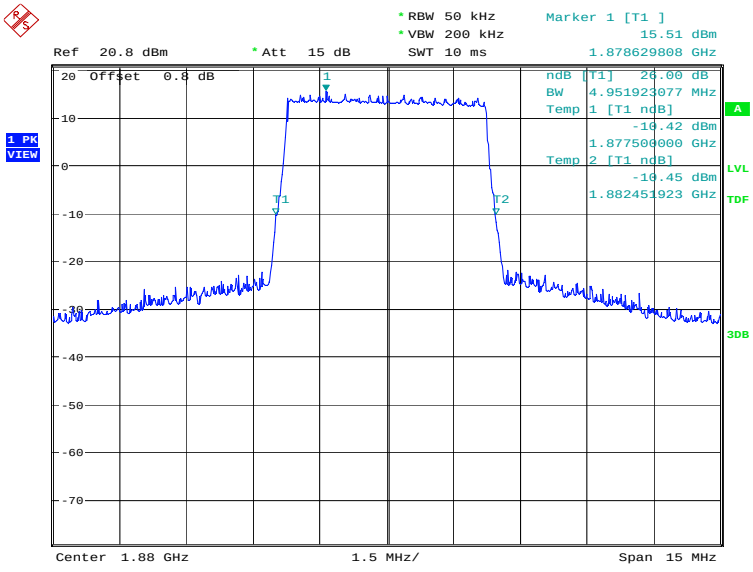
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	4903.85	4951.92

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



Date: 27.SEP.2022 18:17:02

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

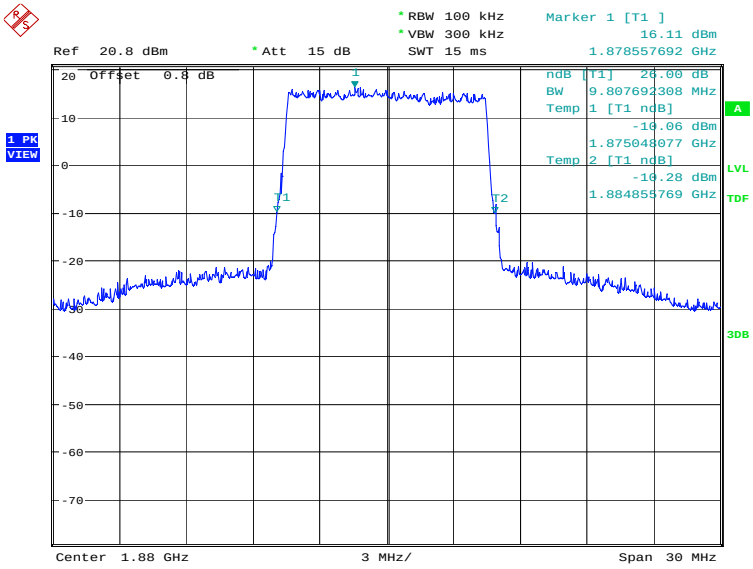


Date: 27.SEP.2022 18:17:43

LTE band 2, 10MHz (-26dBc)

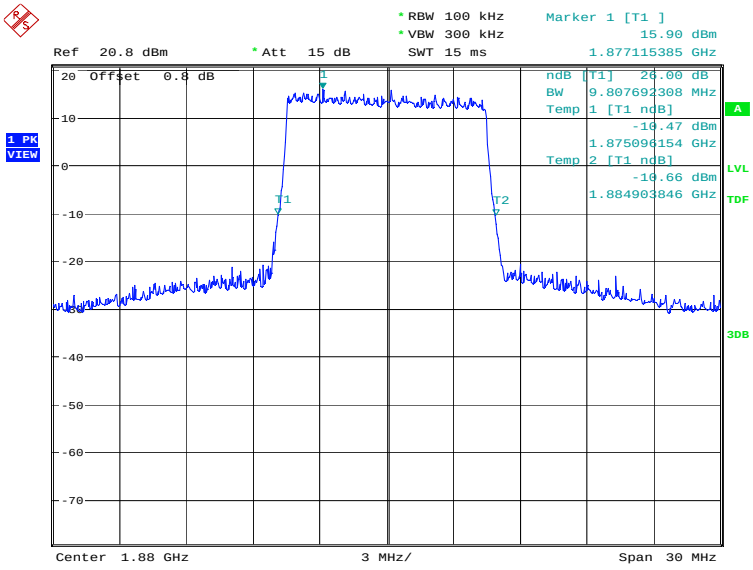
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	9807.69	9807.69

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



Date: 27.SEP.2022 18:18:25

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

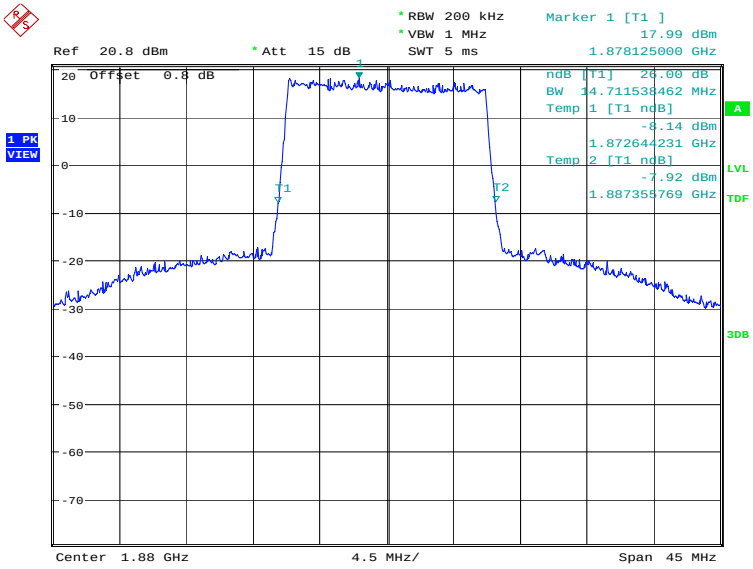


Date: 27.SEP.2022 18:19:06

LTE band 2, 15MHz (-26dBc)

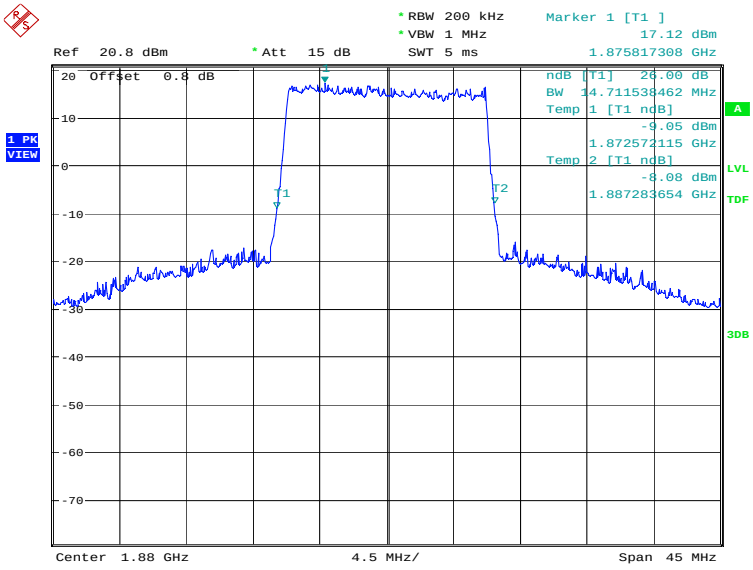
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	14711.54	14711.54

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



Date: 27.SEP.2022 18:19:48

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

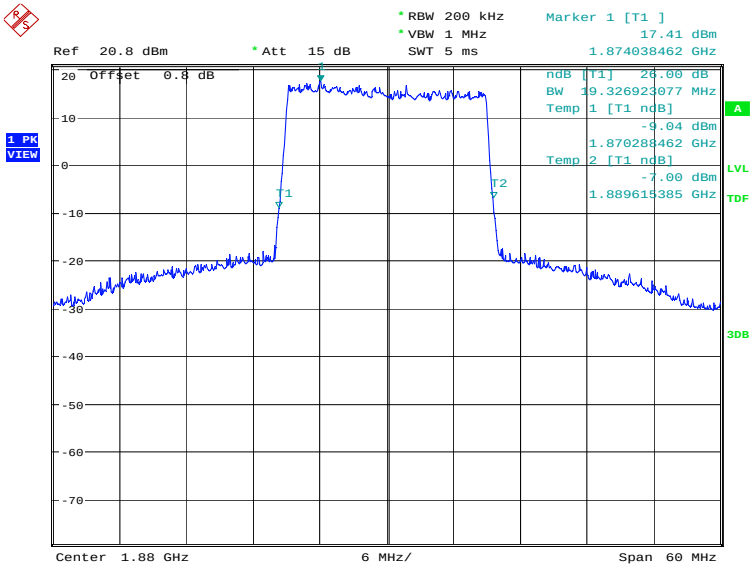


Date: 27.SEP.2022 18:20:29

LTE band 2, 20MHz (-26dBc)

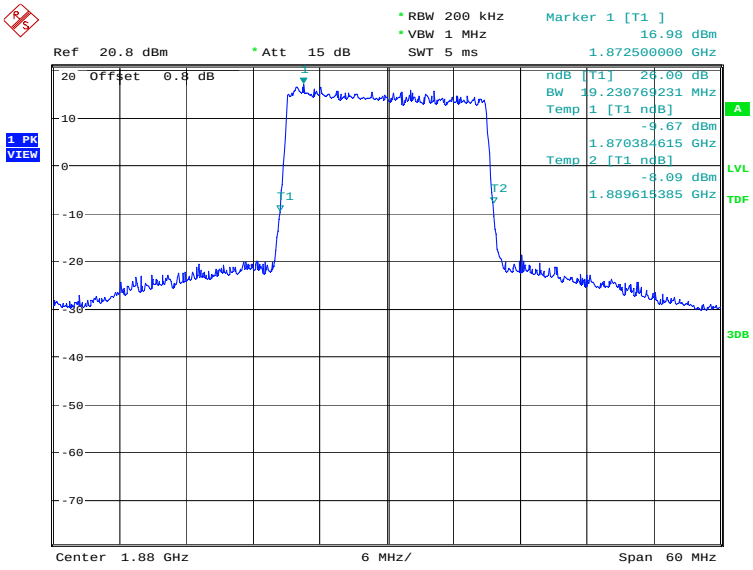
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	19326.92	19230.77

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



Date: 27.SEP.2022 18:21:11

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

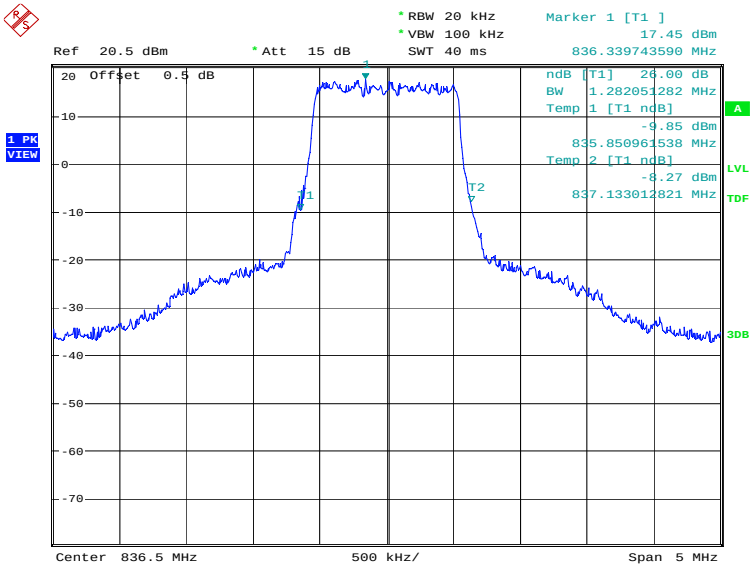


Date: 27.SEP.2022 18:21:52

LTE band 5, 1.4MHz (-26dBc)

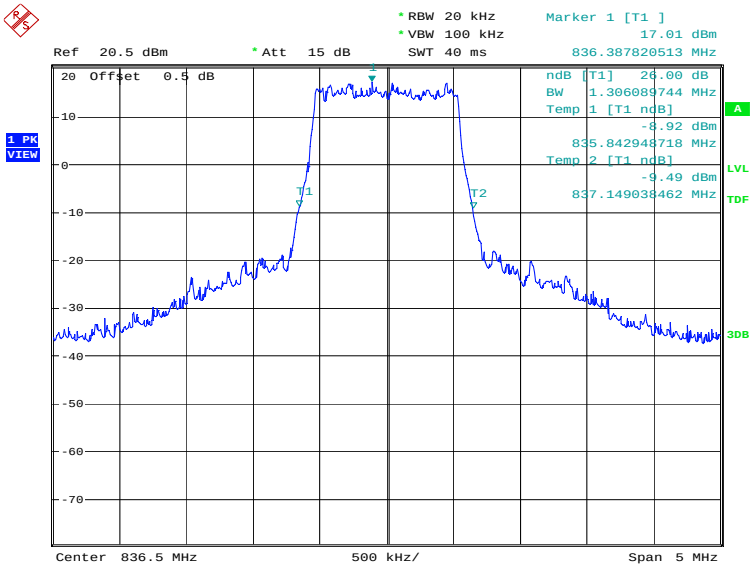
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	1282.05	1306.09

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



Date: 27.SEP.2022 18:23:30

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

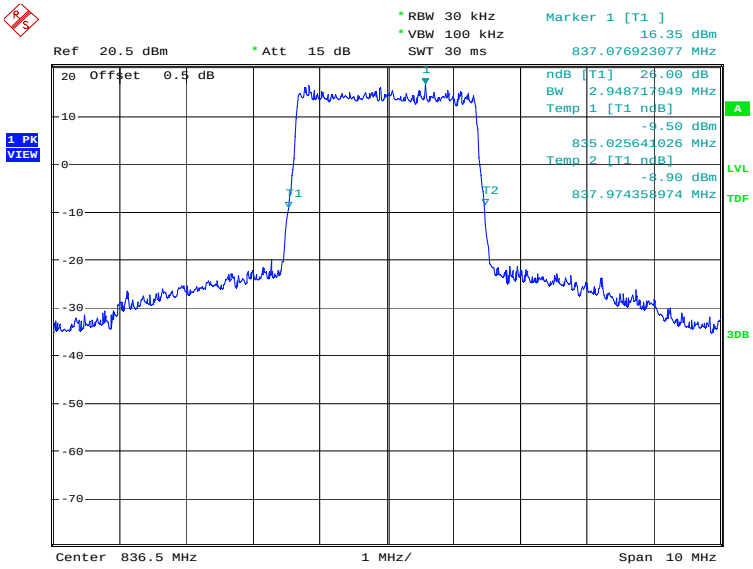


Date: 27.SEP.2022 18:24:11

LTE band 5, 3MHz (-26dBc)

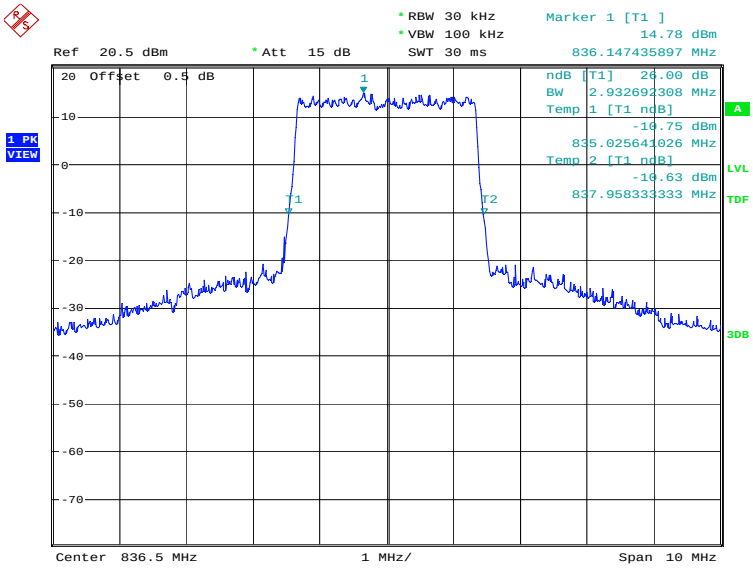
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	2948.72	2932.69

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



Date: 27.SEP.2022 18:24:53

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

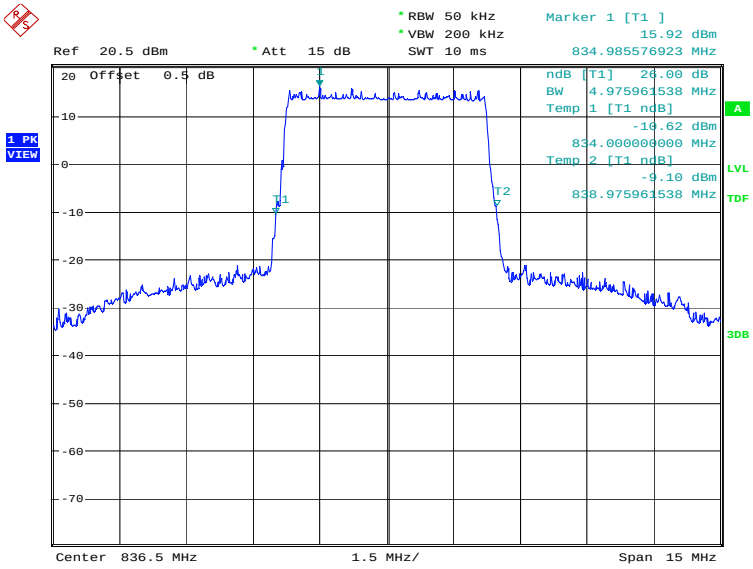


Date: 27.SEP.2022 18:25:34

LTE band 5, 5MHz (-26dBc)

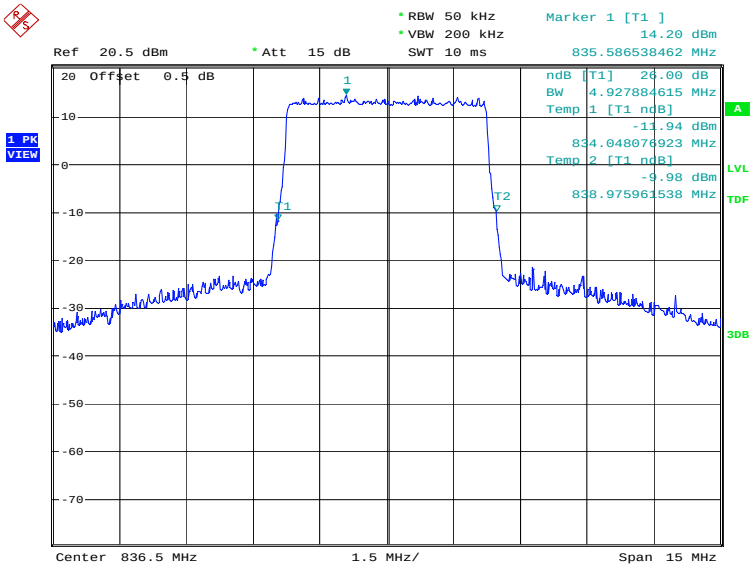
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	4975.96	4927.88

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



Date: 27.SEP.2022 18:26:16

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



Date: 27.SEP.2022 18:26:56