TEST REPORT

No.23T04Z80940-03

for

TCL Communication Ltd.

Tablet PC

Model Name: 9199S

FCC ID: 2ACCJB217

with

Hardware Version: 05

Software Version: 4DS9

Issued Date: 2024-03-04

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.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

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

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
23T04Z80940-03	Rev.0	1st edition	2024-02-29
23T04Z80940-03	Rev.1	Modified the product name	2024-03-04

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 American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA 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: 2024-01-03

Testing End Date: 2024-02-26

1.5. Signature

Wang Xing

(Prepared this test report)

Zhou Yu

(Reviewed this test report)

Zhao Hui Lin

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	TCL Communication Ltd.
Address /Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Annie Jiang
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Telephone:	+86 755 3661 1621
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2.2. Manufacturer Information

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

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

3.1. About EUT

Description	Tablet PC
Model Name	9199S
FCC ID	2ACCJB217
Antenna	Embedded
Output power	22.99dBm maximum EIRP measured for LTE CA Band 66C
Extreme Voltage	3.6VDC to 4.4VDC (nominal: 3.85VDC)
Extreme Temperature	0°C to +60°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
UT12a	354709280000942	05	4DS9	2023-12-25
UT69a	354709280002021	05	4DS9	2023-12-25

UT69a was used for emission limit test and UT12a was used for other testing cases.

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

3.3. Internal Identification of AE used during the test

AE ID*	Description
AE1	Battery

AE1

Model	TLp058DA
Manufacturer	TMB
Capacitance	6000mAh

*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	10-1-22 Edition
FCC Part 22	PUBLIC MOBILE SERVICES	10-1-22 Edition
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	10-1-22 Edition
FCC Part 96	CITIZENS BROADBAND RADIO SERVICE	10-1-22 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
KDB 940660 D01	CERTIFICATION AND TEST PROCEDURES FOR CITIZENS BROADBAND RADIO SERVICE DEVICES AUTHORIZED UNDER PART 96	v03

5. Summary of Test Result

LTE Band 2

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

LTE Band 5

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

LTE Band 7

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 12 (17)

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 48

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	96.41	P
2	Emission Limit	NA	NA
3	Frequency Stability	2.1055	P
4	Occupied Bandwidth	2.1049	P
5	Emission Bandwidth	96.41	P
6	Band Edge Compliance	96.41	P
7	Conducted Spurious Emission	96.41	P
8	Peak-to-Average Power Ratio	96.41	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

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.

Measurement uncertainty is not taken into account when stating conformity with a specified requirement.

LTE Band 66 and Band 12 overlaps the entire frequency range of LTE Band 4 and Band 17. Therefore, test data provided in this report covers Band 4, Band 17 as well as Band 66, Band 12.

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, 64QAM and 256QAM modulations. It was found that QPSK was the worst case. All testing was performed using QPSK modulations to represent the worst case unless otherwise stated. The test results shown in the following sections represent the worst case emission.

6. Test Equipment Utilized

Description	Type	Series Number	Manufacture	Cal Due Date	Calibration Interval
Wideband Radio Communication Tester	CMW500	159082	R&S	2024-12-28	1 year
Spectrum Analyzer	FSU	200030	R&S	2024-05-25	1 year
Signal&Spectrum Analyzer	FSW	104038	R&S	2024-06-25	1 year
Climate chamber	SH-241	92004642	ESPEC	2024-10-15	1 year
Spectrum Analyzer	FSV30	101525	R&S	2025-01-18	1 year
Antenna	VULB9163	9163-235	Schwarzbeck	2024-05-10	1 year
Antenna	9117	167	Schwarzbeck	2024-10-15	1 year
Antenna	LB-7180-NF	J203001300005	A-INFO	2024-04-25	1 year
Antenna	3115	00167252	ETS-Lindgren	2025-01-28	2 years
Universal Radio Communication Tester	CMW500	143008	R&S	2025-01-18	1 year

Note1: The FSV30 with series number of 101525 are used for emission test only, the emission test was from 2024-01-30 to 2024-02-05.

Note2: The CMW500 with series number of 143008 are used for emission test only, the emission test was from 2024-01-30 to 2024-02-05.

Test Item	Test Software	Software Vendor
Emission Limit	ELEKTRA 5.00.2	R&S

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	256QAM
1.4MHz	1 RB high	1909.3	22.73	22.03	20.91	18.03
		1880.0	22.70	21.91	20.87	17.80
		1850.7	22.70	22.01	20.82	17.88
	1 RB low	1909.3	22.71	22.01	20.93	17.98
		1880.0	22.75	22.00	20.91	17.95
		1850.7	22.84	22.11	20.88	17.84
	50% RB mid	1909.3	22.76	21.77	20.77	17.96
		1880.0	22.74	21.74	20.81	17.90
		1850.7	22.77	21.76	20.82	17.84
	100% RB	1909.3	21.76	20.83	19.72	17.97
		1880.0	21.73	20.83	19.63	17.90
		1850.7	21.66	20.80	19.70	18.01
3MHz	1 RB high	1908.5	22.72	22.10	20.98	18.00
		1880.0	22.70	22.03	20.98	17.98
		1851.5	22.67	22.05	20.86	17.96
	1 RB low	1908.5	22.68	21.93	20.92	18.02
		1880.0	22.70	21.88	21.01	17.92
		1851.5	22.73	22.06	20.98	17.98
	50% RB mid	1908.5	21.73	20.85	19.79	17.96
		1880.0	21.69	20.74	19.79	17.84
		1851.5	21.72	20.76	19.70	17.89
	100% RB	1908.5	21.77	20.79	19.75	17.84
		1880.0	21.75	20.78	19.74	17.85

		1851.5	21.69	20.76	19.70	17.83
5MHz	1 RB high	1907.5	22.85	22.09	20.97	17.94
		1880.0	22.78	22.14	21.02	17.90
		1852.5	22.70	22.03	20.91	17.84
	1 RB low	1907.5	22.76	22.13	21.00	17.87
		1880.0	22.83	22.08	20.92	17.93
		1852.5	22.82	22.19	20.96	17.80
	50% RB mid	1907.5	21.79	20.82	19.80	17.89
		1880.0	21.79	20.74	19.72	17.95
		1852.5	21.71	20.73	19.73	17.85
	100% RB	1907.5	21.84	20.83	19.80	17.79
		1880.0	21.81	20.80	19.76	17.79
		1852.5	21.78	20.84	19.75	18.00
10MHz	1 RB high	1905.0	22.93	22.13	21.04	17.97
		1880.0	22.83	22.09	21.04	17.83
		1855.0	22.85	22.15	20.92	17.80
	1 RB low	1905.0	22.80	22.16	20.98	17.91
		1880.0	22.96	22.07	21.06	17.79
		1855.0	22.85	22.24	21.11	17.87
	50% RB mid	1905.0	21.78	20.74	19.73	17.90
		1880.0	21.79	20.77	19.77	17.79
		1855.0	21.77	20.72	19.73	18.03
	100% RB	1905.0	21.80	20.79	19.80	17.88
		1880.0	21.81	20.82	19.78	17.91
		1855.0	21.77	20.77	19.74	17.96
15MHz	1 RB high	1902.5	22.84	22.16	21.03	17.86
		1880.0	22.85	22.14	21.00	17.79
		1857.5	22.77	22.08	20.97	18.00
	1 RB low	1902.5	22.89	22.11	21.02	18.05
		1880.0	22.92	22.16	21.06	17.79
		1857.5	22.81	22.11	21.06	17.90
	50% RB mid	1902.5	21.77	20.74	19.78	17.84
		1880.0	21.79	20.76	19.81	18.03
		1857.5	21.76	20.74	19.75	18.01
	100% RB	1902.5	21.81	20.81	19.79	18.02
		1880.0	21.81	20.85	19.78	17.92
		1857.5	21.79	20.80	19.77	17.82
20MHz	1 RB high	1900.0	22.85	22.24	21.07	17.89
		1880.0	22.91	22.20	21.06	17.84
		1860.0	22.82	22.13	21.04	17.98
	1 RB low	1900.0	22.85	22.25	21.11	17.87
		1880.0	22.85	22.14	21.04	18.00
		1860.0	22.82	22.11	21.06	18.01

	50% RB mid	1900.0	21.79	20.86	19.84	18.03
		1880.0	21.81	20.82	19.85	17.96
		1860.0	21.80	20.79	19.77	17.90
	100% RB	1900.0	21.82	20.83	19.82	17.91
		1880.0	21.85	20.86	19.87	17.83
		1860.0	21.79	20.80	19.78	17.94

LTE band 5

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			
			QPSK	16QAM	64QAM	256QAM
1.4MHz	1 RB high	848.3	22.82	21.94	20.95	18.14
		836.5	22.83	22.22	21.06	17.90
		824.7	22.83	22.14	21.10	17.97
	1 RB low	848.3	22.82	22.12	21.09	18.07
		836.5	22.87	22.22	21.11	17.89
		824.7	22.83	22.14	21.07	18.03
	50% RB mid	848.3	22.77	21.83	20.91	17.94
		836.5	22.82	21.97	21.11	18.01
		824.7	22.81	22.06	21.04	18.15
	100% RB	848.3	21.83	20.91	19.83	18.03
		836.5	21.98	21.05	19.92	18.01
		824.7	21.99	21.08	19.95	18.16
3MHz	1 RB high	847.5	22.70	22.02	21.01	18.18
		836.5	22.78	22.20	21.14	18.17
		825.5	22.86	22.19	21.16	18.10
	1 RB low	847.5	22.78	22.06	21.05	18.00
		836.5	22.89	22.30	21.18	17.89
		825.5	22.93	22.25	21.13	18.02
	50% RB mid	847.5	21.86	20.95	19.87	17.96
		836.5	21.96	21.02	20.02	18.11
		825.5	21.98	21.02	19.95	18.01
	100% RB	847.5	21.85	20.87	19.85	17.93
		836.5	21.96	20.99	19.96	18.01
		825.5	21.98	21.02	19.93	18.16
5MHz	1 RB high	846.5	22.76	22.12	21.03	17.94
		836.5	22.87	22.21	21.17	17.99
		826.5	22.98	22.20	21.10	17.90
	1 RB low	846.5	22.93	22.16	21.06	18.06
		836.5	22.96	22.31	21.17	17.92
		826.5	22.88	22.27	21.21	17.91
	50% RB mid	846.5	21.95	20.91	19.95	18.07
		836.5	22.00	21.00	20.05	18.15
		826.5	22.02	20.97	19.96	18.19
	100% RB	846.5	21.93	20.96	19.91	18.07
		836.5	22.04	21.03	20.00	18.18
		826.5	22.06	21.00	20.00	18.04
10MHz	1 RB high	844.0	22.84	22.16	21.08	18.17
		836.5	22.94	22.24	21.21	18.04
		829.0	23.01	22.18	21.13	18.04
	1 RB low	844.0	22.94	22.27	21.19	17.98

		836.5	22.93	22.36	21.16	18.01
		829.0	22.92	22.25	21.22	18.02
	50% RB mid	844.0	21.93	20.95	19.92	17.98
		836.5	22.00	21.01	19.98	17.99
		829.0	21.94	20.93	19.94	17.94
	100% RB	844.0	21.95	20.94	19.91	17.95
		836.5	22.03	21.01	19.97	18.02
		829.0	21.99	20.98	19.97	17.97

LTE band 7

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			
			QPSK	16QAM	64QAM	256QAM
5MHz	1 RB high	2567.5	22.93	22.09	20.94	18.35
		2535.0	22.95	22.28	21.14	18.07
		2502.5	22.91	22.15	21.02	18.29
	1 RB low	2567.5	22.72	22.07	20.96	18.07
		2535.0	23.05	22.36	21.36	18.32
		2502.5	22.65	21.85	20.85	18.22
	50% RB mid	2567.5	21.82	20.81	19.86	18.33
		2535.0	22.02	21.11	20.10	18.24
		2502.5	21.78	20.73	19.76	18.08
	100% RB	2567.5	21.82	20.83	19.82	18.29
		2535.0	22.06	21.04	20.05	18.34
		2502.5	21.78	20.77	19.76	18.33
10MHz	1 RB high	2565.0	22.83	22.18	21.07	18.12
		2535.0	23.02	22.30	21.24	18.12
		2505.0	22.97	22.19	21.24	18.03
	1 RB low	2565.0	22.83	22.05	20.97	18.03
		2535.0	23.14	22.48	21.30	18.08
		2505.0	22.78	21.90	20.79	18.09
	50% RB mid	2565.0	21.80	20.80	19.79	18.08
		2535.0	22.05	21.07	20.04	18.13
		2505.0	21.82	20.81	19.81	18.00
	100% RB	2565.0	21.82	20.82	19.79	18.03
		2535.0	22.04	21.04	20.02	18.09
		2505.0	21.86	20.82	19.85	18.19
15MHz	1 RB high	2562.5	22.85	22.15	20.97	18.12
		2535.0	22.95	22.18	21.22	18.35
		2507.5	23.04	22.31	21.19	18.09
	1 RB low	2562.5	22.79	22.17	20.96	18.19
		2535.0	23.08	22.25	21.24	18.05
		2507.5	22.71	21.96	20.82	18.19
	50% RB mid	2562.5	21.83	20.83	19.81	18.25
		2535.0	22.09	21.05	20.06	18.18
		2507.5	21.94	20.90	19.94	18.06
	100% RB	2562.5	21.82	20.82	19.81	18.03
		2535.0	22.05	21.06	20.08	18.01
		2507.5	21.91	20.92	19.92	18.27
20MHz	1 RB high	2560.0	22.89	22.19	21.06	18.26
		2535.0	22.96	22.15	21.06	18.15
		2510.0	23.13	22.24	21.27	18.22
	1 RB low	2560.0	22.87	22.25	21.08	18.04

		2535.0	23.14	22.41	21.21	18.35
		2510.0	22.73	22.04	20.83	18.09
	50% RB mid	2560.0	21.87	20.85	19.85	18.21
		2535.0	22.10	21.11	20.11	18.13
		2510.0	22.00	20.96	19.98	18.03
	100% RB	2560.0	21.87	20.86	19.84	18.11
		2535.0	22.08	21.09	20.10	18.30
		2510.0	21.98	20.97	19.97	18.23

LTE band 12

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			
			QPSK	16QAM	64QAM	256QAM
1.4MHz	1 RB high	715.3	23.14	22.40	21.15	18.14
		707.5	23.11	22.47	21.31	18.16
		699.7	23.14	22.49	21.34	18.34
	1 RB low	715.3	23.11	22.20	21.10	18.29
		707.5	23.14	22.37	21.28	18.21
		699.7	23.16	22.32	21.35	18.20
	50% RB mid	715.3	22.97	22.05	21.02	18.30
		707.5	23.15	22.16	21.22	18.14
		699.7	23.17	22.23	21.24	18.30
	100% RB	715.3	21.96	21.10	20.01	18.30
		707.5	22.11	21.24	20.14	18.37
		699.7	22.17	21.21	20.12	18.25
3MHz	1 RB high	714.5	22.90	22.21	21.19	18.33
		707.5	23.05	22.28	21.30	18.33
		700.5	23.14	22.32	21.39	18.35
	1 RB low	714.5	22.98	22.27	21.24	18.27
		707.5	23.25	22.44	21.26	18.32
		700.5	23.05	22.38	21.26	18.37
	50% RB mid	714.5	21.91	20.99	19.98	18.18
		707.5	22.12	21.20	20.20	18.12
		700.5	22.13	21.28	20.17	18.16
	100% RB	714.5	21.95	21.03	20.00	18.22
		707.5	22.09	21.14	20.14	18.36
		700.5	22.17	21.25	20.20	18.37
5MHz	1 RB high	713.5	22.99	22.37	21.18	18.22
		707.5	23.09	22.23	21.28	18.34
		701.5	23.19	22.52	21.38	18.16
	1 RB low	713.5	23.11	22.45	21.20	18.38
		707.5	23.18	22.54	21.28	18.34
		701.5	23.11	22.37	21.36	18.29
	50% RB mid	713.5	22.03	21.02	20.05	18.18
		707.5	22.11	21.14	20.17	18.13
		701.5	22.17	21.20	20.23	18.14
	100% RB	713.5	22.03	21.02	20.01	18.27
		707.5	22.15	21.11	20.14	18.14
		701.5	22.23	21.21	20.20	18.31
10MHz	1 RB high	711.0	22.98	22.21	21.08	18.21
		707.5	23.05	22.40	21.18	18.28
		704.0	23.14	22.38	21.24	18.26
	1 RB low	711.0	23.19	22.50	21.42	18.37

		707.5	23.27	22.57	21.44	18.33
		704.0	23.19	22.51	21.27	18.23
	50% RB mid	711.0	22.05	21.05	20.04	18.26
		707.5	22.13	21.08	20.14	18.23
		704.0	22.18	21.15	20.16	18.30
	100% RB	711.0	22.06	21.07	20.05	18.13
		707.5	22.12	21.10	20.14	18.16
		704.0	22.16	21.16	20.16	18.18

LTE band 13

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			
			QPSK	16QAM	64QAM	256QAM
5MHz	1 RB high	784.5	22.97	22.14	21.18	17.89
		782.0	22.96	22.20	21.10	18.01
		779.5	22.96	22.24	21.18	17.95
	1 RB low	784.5	23.04	22.28	21.23	17.98
		782.0	23.03	22.30	21.29	17.99
		779.5	23.08	22.36	21.15	17.98
	50% RB mid	784.5	21.98	20.97	19.98	18.10
		782.0	21.98	20.95	19.98	18.01
		779.5	22.01	20.98	19.97	17.99
	100% RB	784.5	22.02	20.97	19.95	17.93
		782.0	21.99	20.98	19.95	17.91
		779.5	21.96	20.97	19.91	18.03
10MHz	1 RB high	782.0	23.00	22.17	21.19	17.95
	1 RB low	782.0	23.18	22.52	21.35	18.07
	50% RB mid	782.0	22.02	20.99	20.00	17.91
	100% RB	782.0	22.05	21.02	19.99	18.00

LTE band 48

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			
			QPSK	16QAM	64QAM	256QAM
5MHz	1 RB high	3697.5	22.67	21.84	20.62	17.73
		3625.0	22.88	22.12	20.80	17.74
		3552.5	22.79	22.12	20.81	17.76
	1 RB low	3697.5	22.67	21.85	20.64	17.91
		3625.0	22.84	22.14	20.87	17.86
		3552.5	22.79	22.03	20.82	17.78
	50% RB mid	3697.5	21.65	20.65	19.76	17.82
		3625.0	21.87	20.87	20.00	17.93
		3552.5	21.85	20.85	19.96	17.97
	100% RB	3697.5	21.68	20.71	19.77	17.91
		3625.0	21.89	20.92	19.98	17.82
		3552.5	21.87	20.90	19.97	17.96
10MHz	1 RB high	3695.0	22.65	21.89	20.69	17.77
		3625.0	22.97	22.24	20.93	17.98
		3555.0	22.83	22.93	20.86	17.73
	1 RB low	3695.0	22.66	21.99	20.68	17.91
		3625.0	22.86	22.17	20.89	17.78
		3555.0	22.93	22.85	20.90	17.92
	50% RB mid	3695.0	21.59	20.66	19.74	17.77
		3625.0	21.82	20.84	19.97	17.72
		3555.0	21.84	20.89	19.96	17.75
	100% RB	3695.0	21.64	20.69	19.72	17.71
		3625.0	21.87	20.92	19.93	17.92
		3555.0	21.87	20.92	19.92	17.89
15MHz	1 RB high	3692.5	22.68	21.97	20.68	17.99
		3625.0	22.89	22.15	20.89	17.72
		3557.5	22.93	22.21	20.88	17.84
	1 RB low	3692.5	22.73	21.93	20.69	17.86
		3625.0	22.90	22.18	20.87	17.78
		3557.5	22.93	22.08	20.85	17.78
	50% RB mid	3692.5	21.67	20.65	19.71	17.97
		3625.0	21.86	20.82	19.90	17.88
		3557.5	21.90	20.83	19.86	17.81
	100% RB	3692.5	21.71	20.73	19.73	17.77
		3625.0	21.92	20.94	19.95	17.80
		3557.5	21.90	20.92	19.95	17.83
20MHz	1 RB high	3690.0	22.68	22.69	22.70	17.89
		3625.0	22.94	22.95	20.88	17.87

		3560.0	22.97	22.90	20.92	17.94
	1 RB low	3690.0	22.73	22.73	22.74	17.79
		3625.0	22.94	22.95	20.87	17.96
		3560.0	22.89	22.92	20.85	17.77
	50% RB mid	3690.0	21.72	20.75	19.76	17.72
		3625.0	21.94	20.96	19.97	17.74
		3560.0	21.94	20.98	19.96	17.84
	100% RB	3690.0	21.70	20.77	19.76	17.74
		3625.0	21.90	20.96	19.96	17.91
		3560.0	21.90	20.99	19.97	17.76

LTE band 66

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			
			QPSK	16QAM	64QAM	256QAM
1.4MHz	1 RB high	1779.3	22.61	21.76	20.82	17.76
		1745.0	22.65	21.87	20.84	17.76
		1710.7	22.74	21.87	20.88	17.85
	1 RB low	1779.3	22.58	21.76	20.84	17.92
		1745.0	22.74	22.03	20.86	17.78
		1710.7	22.67	22.07	20.88	17.85
	50% RB mid	1779.3	22.58	21.60	20.65	17.74
		1745.0	22.65	21.60	20.76	17.79
		1710.7	22.75	21.74	20.81	17.90
	100% RB	1779.3	21.64	20.70	19.59	17.80
		1745.0	21.63	20.75	19.63	17.90
		1710.7	21.69	20.76	19.70	17.98
3MHz	1 RB high	1778.5	22.58	21.80	20.81	17.72
		1745.0	22.70	21.84	20.90	17.99
		1711.5	22.70	21.94	20.83	17.77
	1 RB low	1778.5	22.69	21.85	20.79	17.90
		1745.0	22.66	22.03	20.86	17.83
		1711.5	22.70	21.94	20.86	17.89
	50% RB mid	1778.5	21.62	20.69	19.64	17.85
		1745.0	21.62	20.68	19.75	17.75
		1711.5	21.70	20.75	19.80	17.99
	100% RB	1778.5	21.62	20.65	19.63	17.74
		1745.0	21.64	20.70	19.66	17.84
		1711.5	21.73	20.76	19.68	17.91
5MHz	1 RB high	1777.5	22.62	21.99	20.78	17.98
		1745.0	22.75	22.03	20.92	17.95
		1712.5	22.70	22.02	20.88	17.71
	1 RB low	1777.5	22.67	21.91	20.91	17.91
		1745.0	22.68	21.93	20.88	17.83
		1712.5	22.87	22.15	20.99	17.90
	50% RB mid	1777.5	21.68	20.67	19.65	17.98
		1745.0	21.75	20.74	19.71	17.89
		1712.5	21.70	20.72	19.79	17.97
	100% RB	1777.5	21.69	20.65	19.67	17.77
		1745.0	21.74	20.73	19.66	17.95
		1712.5	21.75	20.76	19.73	17.82
10MHz	1 RB high	1775.0	22.69	22.02	20.94	17.72
		1745.0	22.81	22.08	20.96	17.79
		1715.0	22.79	22.02	20.97	17.92
	1 RB low	1775.0	22.86	22.17	20.98	17.71

		1745.0	22.80	22.03	20.95	17.81
		1715.0	22.84	22.01	21.02	17.72
	50% RB mid	1775.0	21.65	20.67	19.65	17.82
		1745.0	21.72	20.73	19.70	17.72
		1715.0	21.74	20.73	19.69	17.99
	100% RB	1775.0	21.71	20.73	19.69	17.76
		1745.0	21.74	20.73	19.73	17.79
		1715.0	21.77	20.75	19.73	17.86
15MHz	1 RB high	1772.5	22.67	21.91	20.90	17.77
		1745.0	22.78	22.15	21.01	17.88
		1717.5	22.77	22.09	20.92	17.78
	1 RB low	1772.5	22.85	22.03	21.00	17.84
		1745.0	22.75	22.02	21.00	17.94
		1717.5	22.82	22.13	21.02	17.72
	50% RB mid	1772.5	21.71	20.67	19.69	17.85
		1745.0	21.72	20.69	19.72	17.83
		1717.5	21.73	20.72	19.72	17.73
	100% RB	1772.5	21.70	20.74	19.72	17.87
		1745.0	21.75	20.76	19.74	17.78
		1717.5	21.74	20.76	19.73	17.77
20MHz	1 RB high	1770.0	22.70	21.87	20.89	17.91
		1745.0	22.81	22.16	20.97	17.76
		1720.0	22.81	22.00	20.99	17.88
	1 RB low	1770.0	22.79	22.08	20.96	17.93
		1745.0	22.77	21.96	21.00	17.95
		1720.0	22.83	22.06	21.03	17.98
	50% RB mid	1770.0	21.75	20.74	19.76	17.75
		1745.0	21.76	20.75	19.78	17.91
		1720.0	21.74	20.75	19.73	17.91
	100% RB	1770.0	21.73	20.73	19.73	17.94
		1745.0	21.77	20.75	19.78	17.91
		1720.0	21.75	20.75	19.74	17.92

LTE CA band 66C

Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB		SCC RB		Conducted Power(dBm)
				Size	Offset	Size	Offset	
5MHz/ 20MHz	1745.8	1757.5	QPSK	1	24	1	0	22.87
				25	0	100	0	20.84
			16QAM	1	24	1	0	21.93
				25	0	100	0	19.85
			64QAM	1	24	1	0	19.83
				25	0	100	0	19.85
			256QAM	1	24	1	0	17.96
				25	0	100	0	17.89
10MHz/ 15MHz	1747.9	1757.9	QPSK	1	49	1	0	22.89
				50	0	75	0	20.87
			16QAM	1	49	1	0	21.95
				50	0	75	0	19.90
			64QAM	1	49	1	0	19.70
				50	0	75	0	19.90
			256QAM	1	49	1	0	17.88
				50	0	75	0	17.94
10MHz/ 20MHz	1745.6	1760.0	QPSK	1	49	1	0	22.96
				50	0	100	0	20.91
			16QAM	1	49	1	0	22.01
				50	0	100	0	19.90
			64QAM	1	49	1	0	19.77
				50	0	100	0	19.89
			256QAM	1	49	1	0	17.98
				50	0	100	0	17.98
15MHz/ 10MHz	1750.1	1762.1	QPSK	1	74	1	0	22.86
				75	0	50	0	20.91
			16QAM	1	74	1	0	21.65
				75	0	50	0	19.91
			64QAM	1	74	1	0	19.86
				75	0	50	0	19.91
			256QAM	1	74	1	0	17.86
				75	0	50	0	17.92
15MHz/ 15MHz	1747.5	1762.5	QPSK	1	74	1	0	22.90
				75	0	75	0	20.93
			16QAM	1	74	1	0	22.02
				75	0	75	0	19.93
			64QAM	1	74	1	0	19.70
				75	0	75	0	19.94
			256QAM	1	74	1	0	17.96
				75	0	75	0	17.98

15MHz/ 20MHz	1745.3	1762.4	QPSK	1	74	1	0	22.97
				75	0	100	0	20.91
			16QAM	1	74	1	0	21.75
				75	0	100	0	19.90
			64QAM	1	74	1	0	19.74
				75	0	100	0	19.95
			256QAM	1	74	1	0	17.96
				75	0	100	0	17.97
20MHz/ 5MHz	1752.5	1764.2	QPSK	1	99	1	0	22.82
				100	0	25	0	20.93
			16QAM	1	99	1	0	21.82
				100	0	25	0	19.95
			64QAM	1	99	1	0	19.95
				100	0	25	0	19.93
			256QAM	1	99	1	0	17.72
				100	0	25	0	17.95
20MHz/ 10MHz	1750.1	1764.5	QPSK	1	99	1	0	22.92
				100	0	50	0	20.94
			16QAM	1	99	1	0	21.90
				100	0	50	0	19.96
			64QAM	1	99	1	0	20.02
				100	0	50	0	19.97
			256QAM	1	99	1	0	17.84
				100	0	50	0	17.99
20MHz/ 15MHz	1747.6	1764.7	QPSK	1	99	1	0	22.98
				100	0	75	0	20.92
			16QAM	1	99	1	0	21.92
				100	0	75	0	19.94
			64QAM	1	99	1	0	20.06
				100	0	75	0	19.96
			256QAM	1	99	1	0	17.86
				100	0	75	0	18.01
20MHz/ 20MHz	1745.1	1764.9	QPSK	1	99	1	0	22.99
				100	0	100	0	20.94
			16QAM	1	99	1	0	21.95
				100	0	100	0	19.97
			64QAM	1	99	1	0	20.10
				100	0	100	0	19.96
			256QAM	1	99	1	0	17.89
				100	0	100	0	18.02

A.1.3 Radiated

A.1.3.1 Description

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

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

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

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

FDD Band 7: 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".

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

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

FDD Band 7/TDD Band 38/41: Part 27.50(h)(2) specifies "Mobile stations are limited to 2.0 watts EIRP".

A.1.3.2 Method of Measurement

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

$$\mathbf{ERP\ or\ EIRP} = \mathbf{P_T} + \mathbf{G_T} - \mathbf{L_C}$$

where;

- $\mathbf{ERP\ or\ EIRP}$ = effective radiated power or equivalent isotropically radiated power(expressed in the same units as P_T.
- $\mathbf{P_T}$ = transmitter output power, in this report the unit express as dBm;
- $\mathbf{G_T}$ = gain of the transmitting antenna, in dBd(ERP) or dBi(EIRP);
- $\mathbf{L_C}$ = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

Alternatively, the EIRP can be determined from Equation above and then converted to ERP based on the maximum antenna gain relationship by applying the following equation:

$$\mathbf{ERP} = \mathbf{EIRP} - \mathbf{2.15dB}$$

Note: The antenna gain information was provided by the client. The laboratory is not responsible for identifying its authenticity during the test.

LTE band 2- EIRP

Limits: ≤33dBm (2W)

Max EIRP: 21.86dBm

Band width	RB size/ offset	Frequency (MHz)	Conducted Power (dBm)				Radiated Power (dBm) GT = -1.1dBi			
			QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
1.4MHz	1 RB high	1909.3	22.73	22.03	20.91	18.03	21.63	20.93	19.81	16.93
		1880	22.70	21.91	20.87	17.80	21.60	20.81	19.77	16.70
		1850.7	22.70	22.01	20.82	17.88	21.60	20.91	19.72	16.78
	1 RB low	1909.3	22.71	22.01	20.93	17.98	21.61	20.91	19.83	16.88
		1880	22.75	22.00	20.91	17.95	21.65	20.90	19.81	16.85
		1850.7	22.84	22.11	20.88	17.84	21.74	21.01	19.78	16.74
	50% RB mid	1909.3	22.76	21.77	20.77	17.96	21.66	20.67	19.67	16.86
		1880	22.74	21.74	20.81	17.90	21.64	20.64	19.71	16.80
		1850.7	22.77	21.76	20.82	17.84	21.67	20.66	19.72	16.74
	100% RB	1909.3	21.76	20.83	19.72	17.97	20.66	19.73	18.62	16.87
		1880	21.73	20.83	19.63	17.90	20.63	19.73	18.53	16.80
		1850.7	21.66	20.80	19.70	18.01	20.56	19.70	18.60	16.91
3MHz	1 RB high	1908.5	22.72	22.10	20.98	18.00	21.62	21.00	19.88	16.90
		1880	22.70	22.03	20.98	17.98	21.60	20.93	19.88	16.88
		1851.5	22.67	22.05	20.86	17.96	21.57	20.95	19.76	16.86
	1 RB low	1908.5	22.68	21.93	20.92	18.02	21.58	20.83	19.82	16.92
		1880	22.70	21.88	21.01	17.92	21.60	20.78	19.91	16.82
		1851.5	22.73	22.06	20.98	17.98	21.63	20.96	19.88	16.88
	50% RB mid	1908.5	21.73	20.85	19.79	17.96	20.63	19.75	18.69	16.86
		1880	21.69	20.74	19.79	17.84	20.59	19.64	18.69	16.74
		1851.5	21.72	20.76	19.70	17.89	20.62	19.66	18.60	16.79
	100% RB	1908.5	21.77	20.79	19.75	17.84	20.67	19.69	18.65	16.74
		1880	21.75	20.78	19.74	17.85	20.65	19.68	18.64	16.75
		1851.5	21.69	20.76	19.70	17.83	20.59	19.66	18.60	16.73
5MHz	1 RB high	1907.5	22.85	22.09	20.97	17.94	21.75	20.99	19.87	16.84
		1880	22.78	22.14	21.02	17.90	21.68	21.04	19.92	16.80
		1852.5	22.70	22.03	20.91	17.84	21.60	20.93	19.81	16.74
	1 RB low	1907.5	22.76	22.13	21.00	17.87	21.66	21.03	19.90	16.77
		1880	22.83	22.08	20.92	17.93	21.73	20.98	19.82	16.83
		1852.5	22.82	22.19	20.96	17.80	21.72	21.09	19.86	16.70
	50% RB mid	1907.5	21.79	20.82	19.80	17.89	20.69	19.72	18.70	16.79
		1880	21.79	20.74	19.72	17.95	20.69	19.64	18.62	16.85
		1852.5	21.71	20.73	19.73	17.85	20.61	19.63	18.63	16.75
	100% RB	1907.5	21.84	20.83	19.80	17.79	20.74	19.73	18.70	16.69
		1880	21.81	20.80	19.76	17.79	20.71	19.70	18.66	16.69
		1852.5	21.78	20.84	19.75	18.00	20.68	19.74	18.65	16.90

10M Hz	1 RB high	1905	22.93	22.13	21.04	17.97	21.83	21.03	19.94	16.87
		1880	22.83	22.09	21.04	17.83	21.73	20.99	19.94	16.73
		1855	22.85	22.15	20.92	17.80	21.75	21.05	19.82	16.70
	1 RB low	1905	22.80	22.16	20.98	17.91	21.70	21.06	19.88	16.81
		1880	22.96	22.07	21.06	17.79	21.86	20.97	19.96	16.69
		1855	22.85	22.24	21.11	17.87	21.75	21.14	20.01	16.77
	50% RB mid	1905	21.78	20.74	19.73	17.90	20.68	19.64	18.63	16.80
		1880	21.79	20.77	19.77	17.79	20.69	19.67	18.67	16.69
		1855	21.77	20.72	19.73	18.03	20.67	19.62	18.63	16.93
	100% RB	1905	21.80	20.79	19.80	17.88	20.70	19.69	18.70	16.78
		1880	21.81	20.82	19.78	17.91	20.71	19.72	18.68	16.81
		1855	21.77	20.77	19.74	17.96	20.67	19.67	18.64	16.86
15M Hz	1 RB high	1902.5	22.84	22.16	21.03	17.86	21.74	21.06	19.93	16.76
		1880	22.85	22.14	21.00	17.79	21.75	21.04	19.90	16.69
		1857.5	22.77	22.08	20.97	18.00	21.67	20.98	19.87	16.90
	1 RB low	1902.5	22.89	22.11	21.02	18.05	21.79	21.01	19.92	16.95
		1880	22.92	22.16	21.06	17.79	21.82	21.06	19.96	16.69
		1857.5	22.81	22.11	21.06	17.90	21.71	21.01	19.96	16.80
	50% RB mid	1902.5	21.77	20.74	19.78	17.84	20.67	19.64	18.68	16.74
		1880	21.79	20.76	19.81	18.03	20.69	19.66	18.71	16.93
		1857.5	21.76	20.74	19.75	18.01	20.66	19.64	18.65	16.91
	100% RB	1902.5	21.81	20.81	19.79	18.02	20.71	19.71	18.69	16.92
		1880	21.81	20.85	19.78	17.92	20.71	19.75	18.68	16.82
		1857.5	21.79	20.80	19.77	17.82	20.69	19.70	18.67	16.72
20M Hz	1 RB high	1900	22.85	22.24	21.07	17.89	21.75	21.14	19.97	16.79
		1880	22.91	22.20	21.06	17.84	21.81	21.10	19.96	16.74
		1860	22.82	22.13	21.04	17.98	21.72	21.03	19.94	16.88
	1 RB low	1900	22.85	22.25	21.11	17.87	21.75	21.15	20.01	16.77
		1880	22.85	22.14	21.04	18.00	21.75	21.04	19.94	16.90
		1860	22.82	22.11	21.06	18.01	21.72	21.01	19.96	16.91
	50% RB mid	1900	21.79	20.86	19.84	18.03	20.69	19.76	18.74	16.93
		1880	21.81	20.82	19.85	17.96	20.71	19.72	18.75	16.86
		1860	21.80	20.79	19.77	17.90	20.70	19.69	18.67	16.80
	100% RB	1900	21.82	20.83	19.82	17.91	20.72	19.73	18.72	16.81
		1880	21.85	20.86	19.87	17.83	20.75	19.76	18.77	16.73
		1860	21.79	20.80	19.78	17.94	20.69	19.70	18.68	16.84

LTE band 5- ERP

Limits: ≤38.45dBm (7W)

Max ERP: 19.66dBm

Band width	RB size/ offset	Frequency (MHz)	Conducted Power (dBm)				Radiated Power (dBm) GT = -1.2dBi			
			QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
1.4MHz	1 RB high	848.3	22.82	21.94	20.95	18.14	19.47	18.59	17.60	14.79
		836.5	22.83	22.22	21.06	17.90	19.48	18.87	17.71	14.55
		824.7	22.83	22.14	21.10	17.97	19.48	18.79	17.75	14.62
	1 RB low	848.3	22.82	22.12	21.09	18.07	19.47	18.77	17.74	14.72
		836.5	22.87	22.22	21.11	17.89	19.52	18.87	17.76	14.54
		824.7	22.83	22.14	21.07	18.03	19.48	18.79	17.72	14.68
	50% RB mid	848.3	22.77	21.83	20.91	17.94	19.42	18.48	17.56	14.59
		836.5	22.82	21.97	21.11	18.01	19.47	18.62	17.76	14.66
		824.7	22.81	22.06	21.04	18.15	19.46	18.71	17.69	14.80
	100% RB	848.3	21.83	20.91	19.83	18.03	18.48	17.56	16.48	14.68
		836.5	21.98	21.05	19.92	18.01	18.63	17.70	16.57	14.66
		824.7	21.99	21.08	19.95	18.16	18.64	17.73	16.60	14.81
3MHz	1 RB high	847.5	22.70	22.02	21.01	18.18	19.35	18.67	17.66	14.83
		836.5	22.78	22.20	21.14	18.17	19.43	18.85	17.79	14.82
		825.5	22.86	22.19	21.16	18.10	19.51	18.84	17.81	14.75
	1 RB low	847.5	22.78	22.06	21.05	18.00	19.43	18.71	17.70	14.65
		836.5	22.89	22.30	21.18	17.89	19.54	18.95	17.83	14.54
		825.5	22.93	22.25	21.13	18.02	19.58	18.90	17.78	14.67
	50% RB mid	847.5	21.86	20.95	19.87	17.96	18.51	17.60	16.52	14.61
		836.5	21.96	21.02	20.02	18.11	18.61	17.67	16.67	14.76
		825.5	21.98	21.02	19.95	18.01	18.63	17.67	16.60	14.66
	100% RB	847.5	21.85	20.87	19.85	17.93	18.50	17.52	16.50	14.58
		836.5	21.96	20.99	19.96	18.01	18.61	17.64	16.61	14.66
		825.5	21.98	21.02	19.93	18.16	18.63	17.67	16.58	14.81
5MHz	1 RB high	846.5	22.76	22.12	21.03	17.94	19.41	18.77	17.68	14.59
		836.5	22.87	22.21	21.17	17.99	19.52	18.86	17.82	14.64
		826.5	22.98	22.20	21.10	17.90	19.63	18.85	17.75	14.55
	1 RB low	846.5	22.93	22.16	21.06	18.06	19.58	18.81	17.71	14.71
		836.5	22.96	22.31	21.17	17.92	19.61	18.96	17.82	14.57
		826.5	22.88	22.27	21.21	17.91	19.53	18.92	17.86	14.56
	50% RB mid	846.5	21.95	20.91	19.95	18.07	18.60	17.56	16.60	14.72
		836.5	22.00	21.00	20.05	18.15	18.65	17.65	16.70	14.80
		826.5	22.02	20.97	19.96	18.19	18.67	17.62	16.61	14.84
	100% RB	846.5	21.93	20.96	19.91	18.07	18.58	17.61	16.56	14.72
		836.5	22.04	21.03	20.00	18.18	18.69	17.68	16.65	14.83
		826.5	22.06	21.00	20.00	18.04	18.71	17.65	16.65	14.69

10MHz	1 RB high	844	22.84	22.16	21.08	18.17	19.49	18.81	17.73	14.82
		836.5	22.94	22.24	21.21	18.04	19.59	18.89	17.86	14.69
		829	23.01	22.18	21.13	18.04	19.66	18.83	17.78	14.69
	1 RB low	844	22.94	22.27	21.19	17.98	19.59	18.92	17.84	14.63
		836.5	22.93	22.36	21.16	18.01	19.58	19.01	17.81	14.66
		829	22.92	22.25	21.22	18.02	19.57	18.90	17.87	14.67
	50% RB mid	844	21.93	20.95	19.92	17.98	18.58	17.60	16.57	14.63
		836.5	22.00	21.01	19.98	17.99	18.65	17.66	16.63	14.64
		829	21.94	20.93	19.94	17.94	18.59	17.58	16.59	14.59
	100% RB	844	21.95	20.94	19.91	17.95	18.60	17.59	16.56	14.60
		836.5	22.03	21.01	19.97	18.02	18.68	17.66	16.62	14.67
		829	21.99	20.98	19.97	17.97	18.64	17.63	16.62	14.62

LTE band 7- EIRP

Limits: ≤33 dBm (2W)

Max EIRP: 22.24dBm

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power (dBm)				Radiated Power (dBm) GT = -0.9dBi			
			QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5MHz	1 RB high	2567.5	22.93	22.09	20.94	18.35	22.03	21.19	20.04	17.45
		2535	22.95	22.28	21.14	18.07	22.05	21.38	20.24	17.17
		2502.5	22.91	22.15	21.02	18.29	22.01	21.25	20.12	17.39
	1 RB low	2567.5	22.72	22.07	20.96	18.07	21.82	21.17	20.06	17.17
		2535	23.05	22.36	21.36	18.32	22.15	21.46	20.46	17.42
		2502.5	22.65	21.85	20.85	18.22	21.75	20.95	19.95	17.32
	50% RB mid	2567.5	21.82	20.81	19.86	18.33	20.92	19.91	18.96	17.43
		2535	22.02	21.11	20.10	18.24	21.12	20.21	19.20	17.34
		2502.5	21.78	20.73	19.76	18.08	20.88	19.83	18.86	17.18
	100% RB	2567.5	21.82	20.83	19.82	18.29	20.92	19.93	18.92	17.39
		2535	22.06	21.04	20.05	18.34	21.16	20.14	19.15	17.44
		2502.5	21.78	20.77	19.76	18.33	20.88	19.87	18.86	17.43
10MHz	1 RB high	2565	22.83	22.18	21.07	18.12	21.93	21.28	20.17	17.22
		2535	23.02	22.30	21.24	18.12	22.12	21.40	20.34	17.22
		2505	22.97	22.19	21.24	18.03	22.07	21.29	20.34	17.13
	1 RB low	2565	22.83	22.05	20.97	18.03	21.93	21.15	20.07	17.13
		2535	23.14	22.48	21.30	18.08	22.24	21.58	20.40	17.18
		2505	22.78	21.90	20.79	18.09	21.88	21.00	19.89	17.19
	50% RB mid	2565	21.80	20.80	19.79	18.08	20.90	19.90	18.89	17.18
		2535	22.05	21.07	20.04	18.13	21.15	20.17	19.14	17.23
		2505	21.82	20.81	19.81	18.00	20.92	19.91	18.91	17.10
	100% RB	2565	21.82	20.82	19.79	18.03	20.92	19.92	18.89	17.13
		2535	22.04	21.04	20.02	18.09	21.14	20.14	19.12	17.19
		2505	21.86	20.82	19.85	18.19	20.96	19.92	18.95	17.29
15MHz	1 RB high	2562.5	22.85	22.15	20.97	18.12	21.95	21.25	20.07	17.22
		2535	22.95	22.18	21.22	18.35	22.05	21.28	20.32	17.45
		2507.5	23.04	22.31	21.19	18.09	22.14	21.41	20.29	17.19
	1 RB low	2562.5	22.79	22.17	20.96	18.19	21.89	21.27	20.06	17.29
		2535	23.08	22.25	21.24	18.05	22.18	21.35	20.34	17.15
		2507.5	22.71	21.96	20.82	18.19	21.81	21.06	19.92	17.29
	50% RB mid	2562.5	21.83	20.83	19.81	18.25	20.93	19.93	18.91	17.35
		2535	22.09	21.05	20.06	18.18	21.19	20.15	19.16	17.28
		2507.5	21.94	20.90	19.94	18.06	21.04	20.00	19.04	17.16
	100% RB	2562.5	21.82	20.82	19.81	18.03	20.92	19.92	18.91	17.13
		2535	22.05	21.06	20.08	18.01	21.15	20.16	19.18	17.11
		2507.5	21.91	20.92	19.92	18.27	21.01	20.02	19.02	17.37

20MHz	1 RB high	2560	22.89	22.19	21.06	18.26	21.99	21.29	20.16	17.36
		2535	22.96	22.15	21.06	18.15	22.06	21.25	20.16	17.25
		2510	23.13	22.24	21.27	18.22	22.23	21.34	20.37	17.32
	1 RB low	2560	22.87	22.25	21.08	18.04	21.97	21.35	20.18	17.14
		2535	23.14	22.41	21.21	18.35	22.24	21.51	20.31	17.45
		2510	22.73	22.04	20.83	18.09	21.83	21.14	19.93	17.19
	50% RB mid	2560	21.87	20.85	19.85	18.21	20.97	19.95	18.95	17.31
		2535	22.10	21.11	20.11	18.13	21.20	20.21	19.21	17.23
		2510	22.00	20.96	19.98	18.03	21.10	20.06	19.08	17.13
	100% RB	2560	21.87	20.86	19.84	18.11	20.97	19.96	18.94	17.21
		2535	22.08	21.09	20.10	18.30	21.18	20.19	19.20	17.40
		2510	21.98	20.97	19.97	18.23	21.08	20.07	19.07	17.33

LTE band 12-ERP

Limits: ≤34.77dBm (3W)

Max ERP: 16.02dBm

Band width	RB size/ offset	Frequency (MHz)	Conducted Power (dBm)				Radiated Power (dBm) GT = -5.1dBi			
			QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
1.4MHz	1 RB high	715.3	23.14	22.40	21.15	18.14	15.89	15.15	13.90	10.89
		707.5	23.11	22.47	21.31	18.16	15.86	15.22	14.06	10.91
		699.7	23.14	22.49	21.34	18.34	15.89	15.24	14.09	11.09
	1 RB low	715.3	23.11	22.20	21.10	18.29	15.86	14.95	13.85	11.04
		707.5	23.14	22.37	21.28	18.21	15.89	15.12	14.03	10.96
		699.7	23.16	22.32	21.35	18.20	15.91	15.07	14.10	10.95
	50% RB mid	715.3	22.97	22.05	21.02	18.30	15.72	14.80	13.77	11.05
		707.5	23.15	22.16	21.22	18.14	15.90	14.91	13.97	10.89
		699.7	23.17	22.23	21.24	18.30	15.92	14.98	13.99	11.05
	100% RB	715.3	21.96	21.10	20.01	18.30	14.71	13.85	12.76	11.05
		707.5	22.11	21.24	20.14	18.37	14.86	13.99	12.89	11.12
		699.7	22.17	21.21	20.12	18.25	14.92	13.96	12.87	11.00
3MHz	1 RB high	714.5	22.90	22.21	21.19	18.33	15.65	14.96	13.94	11.08
		707.5	23.05	22.28	21.30	18.33	15.80	15.03	14.05	11.08
		700.5	23.14	22.32	21.39	18.35	15.89	15.07	14.14	11.10
	1 RB low	714.5	22.98	22.27	21.24	18.27	15.73	15.02	13.99	11.02
		707.5	23.25	22.44	21.26	18.32	16.00	15.19	14.01	11.07
		700.5	23.05	22.38	21.26	18.37	15.80	15.13	14.01	11.12
	50% RB mid	714.5	21.91	20.99	19.98	18.18	14.66	13.74	12.73	10.93
		707.5	22.12	21.20	20.20	18.12	14.87	13.95	12.95	10.87
		700.5	22.13	21.28	20.17	18.16	14.88	14.03	12.92	10.91
	100% RB	714.5	21.95	21.03	20.00	18.22	14.70	13.78	12.75	10.97
		707.5	22.09	21.14	20.14	18.36	14.84	13.89	12.89	11.11
		700.5	22.17	21.25	20.20	18.37	14.92	14.00	12.95	11.12
5MHz	1 RB high	713.5	22.99	22.37	21.18	18.22	15.74	15.12	13.93	10.97
		707.5	23.09	22.23	21.28	18.34	15.84	14.98	14.03	11.09
		701.5	23.19	22.52	21.38	18.16	15.94	15.27	14.13	10.91
	1 RB low	713.5	23.11	22.45	21.20	18.38	15.86	15.20	13.95	11.13
		707.5	23.18	22.54	21.28	18.34	15.93	15.29	14.03	11.09
		701.5	23.11	22.37	21.36	18.29	15.86	15.12	14.11	11.04
	50% RB mid	713.5	22.03	21.02	20.05	18.18	14.78	13.77	12.80	10.93
		707.5	22.11	21.14	20.17	18.13	14.86	13.89	12.92	10.88
		701.5	22.17	21.20	20.23	18.14	14.92	13.95	12.98	10.89
	100% RB	713.5	22.03	21.02	20.01	18.27	14.78	13.77	12.76	11.02
		707.5	22.15	21.11	20.14	18.14	14.90	13.86	12.89	10.89
		701.5	22.23	21.21	20.20	18.31	14.98	13.96	12.95	11.06

10MHz	1 RB high	711	22.98	22.21	21.08	18.21	15.73	14.96	13.83	10.96
		707.5	23.05	22.40	21.18	18.28	15.80	15.15	13.93	11.03
		704	23.14	22.38	21.24	18.26	15.89	15.13	13.99	11.01
	1 RB low	711	23.19	22.50	21.42	18.37	15.94	15.25	14.17	11.12
		707.5	23.27	22.57	21.44	18.33	16.02	15.32	14.19	11.08
		704	23.19	22.51	21.27	18.23	15.94	15.26	14.02	10.98
	50% RB mid	711	22.05	21.05	20.04	18.26	14.80	13.80	12.79	11.01
		707.5	22.13	21.08	20.14	18.23	14.88	13.83	12.89	10.98
		704	22.18	21.15	20.16	18.30	14.93	13.90	12.91	11.05
	100% RB	711	22.06	21.07	20.05	18.13	14.81	13.82	12.80	10.88
		707.5	22.12	21.10	20.14	18.16	14.87	13.85	12.89	10.91
		704	22.16	21.16	20.16	18.18	14.91	13.91	12.91	10.93

LTE band 13-ERP

Limits: ≤34.77dBm (3W)

Max ERP: 18.03dBm

Band width	RB size/ offset	Frequency (MHz)	Conducted Power (dBm)				Radiated Power (dBm) GT = -0.3dBi			
			QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5MHz	1 RB high	784.5	22.97	22.14	21.18	17.89	17.82	16.99	16.03	12.74
		782	22.96	22.20	21.10	18.01	17.81	17.05	15.95	12.86
		779.5	22.96	22.24	21.18	17.95	17.81	17.09	16.03	12.80
	1 RB low	784.5	23.04	22.28	21.23	17.98	17.89	17.13	16.08	12.83
		782	23.03	22.30	21.29	17.99	17.88	17.15	16.14	12.84
		779.5	23.08	22.36	21.15	17.98	17.93	17.21	16.00	12.83
	50% RB mid	784.5	21.98	20.97	19.98	18.10	16.83	15.82	14.83	12.95
		782	21.98	20.95	19.98	18.01	16.83	15.80	14.83	12.86
		779.5	22.01	20.98	19.97	17.99	16.86	15.83	14.82	12.84
	100% RB	784.5	22.02	20.97	19.95	17.93	16.87	15.82	14.80	12.78
		782	21.99	20.98	19.95	17.91	16.84	15.83	14.80	12.76
		779.5	21.96	20.97	19.91	18.03	16.81	15.82	14.76	12.88
10MHz	1 RB high	782	23.00	22.17	21.19	17.95	17.85	17.02	16.04	12.80
	1 RB low	782	23.18	22.52	21.35	18.07	18.03	17.37	16.20	12.92
	50% RB mid	782	22.02	20.99	20.00	17.91	16.87	15.84	14.85	12.76
	100% RB	782	22.05	21.02	19.99	18.00	16.90	15.87	14.84	12.85

LTE band 48-EIRP

Limits: ≤23dBm/10MHz

Max ERP: 22.05dBm/10MHz

Band width	RB size/ offset	Frequency (MHz)	Modulation	Conducted Power (dBm/10MHz)	Antenna Gain	EIRP (dBm/10MHz)	LIMIT (dBm/10MHz)	Margin (dB)
5MHz	1 RB low	3552.50	QPSK	22.46	-0.70	21.76	23.00	1.24
	1 RB high	3552.50	QPSK	22.43	-0.70	21.73	23.00	1.27
	100% RB	3552.50	QPSK	21.11	-0.70	20.41	23.00	2.59
	1 RB low	3552.50	16QAM	21.74	-0.70	21.04	23.00	1.96
	1 RB high	3552.50	16QAM	21.56	-0.70	20.86	23.00	2.14
	100% RB	3552.50	16QAM	20.12	-0.70	19.42	23.00	3.58
	1 RB low	3552.50	64QAM	21.05	-0.70	20.35	23.00	2.65
	1 RB high	3552.50	64QAM	20.59	-0.70	19.89	23.00	3.11
	100% RB	3552.50	64QAM	19.09	-0.70	18.39	23.00	4.61
	1 RB low	3552.50	256QAM	17.54	-0.70	16.84	23.00	6.16
	1 RB high	3552.50	256QAM	17.50	-0.70	16.80	23.00	6.20
	100% RB	3552.50	256QAM	17.12	-0.70	16.42	23.00	6.58
	1 RB low	3625.00	QPSK	22.35	-0.70	21.65	23.00	1.35
	1 RB high	3625.00	QPSK	22.23	-0.70	21.53	23.00	1.47
	100% RB	3625.00	QPSK	22.01	-0.70	21.31	23.00	1.69
	1 RB low	3625.00	16QAM	22.19	-0.70	21.49	23.00	1.51
	1 RB high	3625.00	16QAM	22.51	-0.70	21.81	23.00	1.19
	100% RB	3625.00	16QAM	21.04	-0.70	20.34	23.00	2.66
	1 RB low	3625.00	64QAM	20.47	-0.70	19.77	23.00	3.23
	1 RB high	3625.00	64QAM	20.45	-0.70	19.75	23.00	3.25
	100% RB	3625.00	64QAM	19.18	-0.70	18.48	23.00	4.52
	1 RB low	3625.00	256QAM	17.40	-0.70	16.70	23.00	6.30
	1 RB high	3625.00	256QAM	18.06	-0.70	17.36	23.00	5.64
	100% RB	3625.00	256QAM	16.96	-0.70	16.26	23.00	6.74
	1 RB low	3697.50	QPSK	22.22	-0.70	21.52	23.00	1.48
	1 RB high	3697.50	QPSK	22.75	-0.70	22.05	23.00	0.95
	100% RB	3697.50	QPSK	21.04	-0.70	20.34	23.00	2.66
	1 RB low	3697.50	16QAM	21.41	-0.70	20.71	23.00	2.29
	1 RB high	3697.50	16QAM	21.66	-0.70	20.96	23.00	2.04
	100% RB	3697.50	16QAM	19.98	-0.70	19.28	23.00	3.72
	1 RB low	3697.50	64QAM	20.40	-0.70	19.70	23.00	3.30
	1 RB high	3697.50	64QAM	20.47	-0.70	19.77	23.00	3.23
	100% RB	3697.50	64QAM	18.99	-0.70	18.29	23.00	4.71
	1 RB low	3697.50	256QAM	17.28	-0.70	16.58	23.00	6.42
	1 RB high	3697.50	256QAM	17.58	-0.70	16.88	23.00	6.12

	100% RB	3697.50	256QAM	17.07	-0.70	16.37	23.00	6.63
10M Hz	1 RB low	3555.00	QPSK	22.47	-0.7	21.77	23.00	1.23
	1 RB high	3555.00	QPSK	22.50	-0.7	21.80	23.00	1.20
	100% RB	3555.00	QPSK	20.44	-0.7	19.74	23.00	3.26
	1 RB low	3555.00	16QAM	22.14	-0.7	21.44	23.00	1.56
	1 RB high	3555.00	16QAM	21.63	-0.7	20.93	23.00	2.07
	100% RB	3555.00	16QAM	19.32	-0.7	18.62	23.00	4.38
	1 RB low	3555.00	64QAM	20.49	-0.7	19.79	23.00	3.21
	1 RB high	3555.00	64QAM	20.44	-0.7	19.74	23.00	3.26
	100% RB	3555.00	64QAM	18.32	-0.7	17.62	23.00	5.38
	1 RB low	3555.00	256QAM	17.48	-0.7	16.78	23.00	6.22
	1 RB high	3555.00	256QAM	17.42	-0.7	16.72	23.00	6.28
	100% RB	3555.00	256QAM	16.28	-0.7	15.58	23.00	7.42
	1 RB low	3625.00	QPSK	22.24	-0.7	21.54	23.00	1.46
	1 RB high	3625.00	QPSK	22.33	-0.7	21.63	23.00	1.37
	100% RB	3625.00	QPSK	20.26	-0.7	19.56	23.00	3.44
	1 RB low	3625.00	16QAM	21.37	-0.7	20.67	23.00	2.33
	1 RB high	3625.00	16QAM	21.44	-0.7	20.74	23.00	2.26
	100% RB	3625.00	16QAM	20.22	-0.7	19.52	23.00	3.48
	1 RB low	3625.00	64QAM	20.53	-0.7	19.83	23.00	3.17
	1 RB high	3625.00	64QAM	20.31	-0.7	19.61	23.00	3.39
	100% RB	3625.00	64QAM	18.42	-0.7	17.72	23.00	5.28
	1 RB low	3625.00	256QAM	17.29	-0.7	16.59	23.00	6.41
	1 RB high	3625.00	256QAM	17.37	-0.7	16.67	23.00	6.33
	100% RB	3625.00	256QAM	17.00	-0.7	16.30	23.00	6.70
	1 RB low	3695.00	QPSK	22.51	-0.7	21.81	23.00	1.19
	1 RB high	3695.00	QPSK	22.35	-0.7	21.65	23.00	1.35
	100% RB	3695.00	QPSK	20.32	-0.7	19.62	23.00	3.38
	1 RB low	3695.00	16QAM	22.09	-0.7	21.39	23.00	1.61
	1 RB high	3695.00	16QAM	21.50	-0.7	20.80	23.00	2.20
	100% RB	3695.00	16QAM	19.23	-0.7	18.53	23.00	4.47
	1 RB low	3695.00	64QAM	20.39	-0.7	19.69	23.00	3.31
	1 RB high	3695.00	64QAM	20.43	-0.7	19.73	23.00	3.27
	100% RB	3695.00	64QAM	18.17	-0.7	17.47	23.00	5.53
	1 RB low	3695.00	256QAM	17.30	-0.7	16.60	23.00	6.40
	1 RB high	3695.00	256QAM	17.34	-0.7	16.64	23.00	6.36
	100% RB	3695.00	256QAM	16.18	-0.7	15.48	23.00	7.52
15M Hz	1 RB low	3557.50	QPSK	22.39	-0.7	21.69	23.00	1.31
	1 RB high	3557.50	QPSK	22.42	-0.7	21.72	23.00	1.28
	100% RB	3557.50	QPSK	19.12	-0.7	18.42	23.00	4.58
	1 RB low	3557.50	16QAM	21.67	-0.7	20.97	23.00	2.03
	1 RB high	3557.50	16QAM	21.65	-0.7	20.95	23.00	2.05
	100% RB	3557.50	16QAM	17.94	-0.7	17.24	23.00	5.76

	1 RB low	3557.50	64QAM	20.67	-0.7	19.97	23.00	3.03
	1 RB high	3557.50	64QAM	20.61	-0.7	19.91	23.00	3.09
	100% RB	3557.50	64QAM	16.98	-0.7	16.28	23.00	6.72
	1 RB low	3557.50	256QAM	17.46	-0.7	16.76	23.00	6.24
	1 RB high	3557.50	256QAM	17.38	-0.7	16.68	23.00	6.32
	100% RB	3557.50	256QAM	14.92	-0.7	14.22	23.00	8.78
	1 RB low	3625.00	QPSK	22.22	-0.7	21.52	23.00	1.48
	1 RB high	3625.00	QPSK	22.30	-0.7	21.60	23.00	1.40
	100% RB	3625.00	QPSK	18.90	-0.7	18.20	23.00	4.80
	1 RB low	3625.00	16QAM	21.37	-0.7	20.67	23.00	2.33
	1 RB high	3625.00	16QAM	21.44	-0.7	20.74	23.00	2.26
	100% RB	3625.00	16QAM	17.85	-0.7	17.15	23.00	5.85
	1 RB low	3625.00	64QAM	20.31	-0.7	19.61	23.00	3.39
	1 RB high	3625.00	64QAM	20.33	-0.7	19.63	23.00	3.37
	100% RB	3625.00	64QAM	16.81	-0.7	16.11	23.00	6.89
	1 RB low	3625.00	256QAM	17.31	-0.7	16.61	23.00	6.39
	1 RB high	3625.00	256QAM	17.27	-0.7	16.57	23.00	6.43
	100% RB	3625.00	256QAM	14.76	-0.7	14.06	23.00	8.94
	1 RB low	3692.50	QPSK	22.10	-0.7	21.40	23.00	1.60
	1 RB high	3692.50	QPSK	22.38	-0.7	21.68	23.00	1.32
	100% RB	3692.50	QPSK	18.96	-0.7	18.26	23.00	4.74
	1 RB low	3692.50	16QAM	21.28	-0.7	20.58	23.00	2.42
	1 RB high	3692.50	16QAM	21.48	-0.7	20.78	23.00	2.22
	100% RB	3692.50	16QAM	17.85	-0.7	17.15	23.00	5.85
	1 RB low	3692.50	64QAM	20.20	-0.7	19.50	23.00	3.50
	1 RB high	3692.50	64QAM	20.37	-0.7	19.67	23.00	3.33
	100% RB	3692.50	64QAM	16.77	-0.7	16.07	23.00	6.93
	1 RB low	3692.50	256QAM	17.18	-0.7	16.48	23.00	6.52
	1 RB high	3692.50	256QAM	17.33	-0.7	16.63	23.00	6.37
	100% RB	3692.50	256QAM	14.80	-0.7	14.10	23.00	8.90
20M Hz	1 RB low	3560.00	QPSK	22.45	-0.7	21.75	23.00	1.25
	1 RB high	3560.00	QPSK	22.40	-0.7	21.70	23.00	1.30
	100% RB	3560.00	QPSK	17.97	-0.7	17.27	23.00	5.73
	1 RB low	3560.00	16QAM	21.70	-0.7	21.00	23.00	2.00
	1 RB high	3560.00	16QAM	21.71	-0.7	21.01	23.00	1.99
	100% RB	3560.00	16QAM	16.90	-0.7	16.20	23.00	6.80
	1 RB low	3560.00	64QAM	20.59	-0.7	19.89	23.00	3.11
	1 RB high	3560.00	64QAM	20.51	-0.7	19.81	23.00	3.19
	100% RB	3560.00	64QAM	15.86	-0.7	15.16	23.00	7.84
	1 RB low	3560.00	256QAM	17.59	-0.7	16.89	23.00	6.11
	1 RB high	3560.00	256QAM	17.45	-0.7	16.75	23.00	6.25
	100% RB	3560.00	256QAM	13.85	-0.7	13.15	23.00	9.85
	1 RB low	3625.00	QPSK	22.30	-0.7	21.60	23.00	1.40

	1 RB high	3625.00	QPSK	22.29	-0.7	21.59	23.00	1.41
	100% RB	3625.00	QPSK	17.84	-0.7	17.14	23.00	5.86
	1 RB low	3625.00	16QAM	21.54	-0.7	20.84	23.00	2.16
	1 RB high	3625.00	16QAM	21.53	-0.7	20.83	23.00	2.17
	100% RB	3625.00	16QAM	16.82	-0.7	16.12	23.00	6.88
	1 RB low	3625.00	64QAM	20.43	-0.7	19.73	23.00	3.27
	1 RB high	3625.00	64QAM	20.45	-0.7	19.75	23.00	3.25
	100% RB	3625.00	64QAM	15.72	-0.7	15.02	23.00	7.98
	1 RB low	3625.00	256QAM	17.41	-0.7	16.71	23.00	6.29
	1 RB high	3625.00	256QAM	17.46	-0.7	16.76	23.00	6.24
	100% RB	3625.00	256QAM	13.73	-0.7	13.03	23.00	9.97
	1 RB low	3690.00	QPSK	22.10	-0.7	21.40	23.00	1.60
	1 RB high	3690.00	QPSK	22.35	-0.7	21.65	23.00	1.35
	100% RB	3690.00	QPSK	17.81	-0.7	17.11	23.00	5.89
	1 RB low	3690.00	16QAM	21.30	-0.7	20.60	23.00	2.40
	1 RB high	3690.00	16QAM	21.63	-0.7	20.93	23.00	2.07
	100% RB	3690.00	16QAM	16.80	-0.7	16.10	23.00	6.90
	1 RB low	3690.00	64QAM	20.29	-0.7	19.59	23.00	3.41
	1 RB high	3690.00	64QAM	20.45	-0.7	19.75	23.00	3.25
	100% RB	3690.00	64QAM	15.72	-0.7	15.02	23.00	7.98
	1 RB low	3690.00	256QAM	17.33	-0.7	16.63	23.00	6.37
	1 RB high	3690.00	256QAM	17.49	-0.7	16.79	23.00	6.21
	100% RB	3690.00	256QAM	13.68	-0.7	12.98	23.00	10.02

LTE band 66- EIRP

Limits: ≤30dBm (1W)

Max EIRP: 21.57dBm

Band width	RB size/ offset	Frequency (MHz)	Conducted Power (dBm)				Radiated Power (dBm) GT = -1.3dBi			
			QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
1.4MHz	1 RB high	1779.3	22.61	21.76	20.82	17.76	21.31	20.46	19.52	16.46
		1745	22.65	21.87	20.84	17.76	21.35	20.57	19.54	16.46
		1710.7	22.74	21.87	20.88	17.85	21.44	20.57	19.58	16.55
	1 RB low	1779.3	22.58	21.76	20.84	17.92	21.28	20.46	19.54	16.62
		1745	22.74	22.03	20.86	17.78	21.44	20.73	19.56	16.48
		1710.7	22.67	22.07	20.88	17.85	21.37	20.77	19.58	16.55
	50% RB mid	1779.3	22.58	21.60	20.65	17.74	21.28	20.30	19.35	16.44
		1745	22.65	21.60	20.76	17.79	21.35	20.30	19.46	16.49
		1710.7	22.75	21.74	20.81	17.90	21.45	20.44	19.51	16.60
	100% RB	1779.3	21.64	20.70	19.59	17.80	20.34	19.40	18.29	16.50
		1745	21.63	20.75	19.63	17.90	20.33	19.45	18.33	16.60
		1710.7	21.69	20.76	19.70	17.98	20.39	19.46	18.40	16.68
3MHz	1 RB high	1778.5	22.58	21.80	20.81	17.72	21.28	20.50	19.51	16.42
		1745	22.70	21.84	20.90	17.99	21.40	20.54	19.60	16.69
		1711.5	22.70	21.94	20.83	17.77	21.40	20.64	19.53	16.47
	1 RB low	1778.5	22.69	21.85	20.79	17.90	21.39	20.55	19.49	16.60
		1745	22.66	22.03	20.86	17.83	21.36	20.73	19.56	16.53
		1711.5	22.70	21.94	20.86	17.89	21.40	20.64	19.56	16.59
	50% RB mid	1778.5	21.62	20.69	19.64	17.85	20.32	19.39	18.34	16.55
		1745	21.62	20.68	19.75	17.75	20.32	19.38	18.45	16.45
		1711.5	21.70	20.75	19.80	17.99	20.40	19.45	18.50	16.69
	100% RB	1778.5	21.62	20.65	19.63	17.74	20.32	19.35	18.33	16.44
		1745	21.64	20.70	19.66	17.84	20.34	19.40	18.36	16.54
		1711.5	21.73	20.76	19.68	17.91	20.43	19.46	18.38	16.61
5MHz	1 RB high	1777.5	22.62	21.99	20.78	17.98	21.32	20.69	19.48	16.68
		1745	22.75	22.03	20.92	17.95	21.45	20.73	19.62	16.65
		1712.5	22.70	22.02	20.88	17.71	21.40	20.72	19.58	16.41
	1 RB low	1777.5	22.67	21.91	20.91	17.91	21.37	20.61	19.61	16.61
		1745	22.68	21.93	20.88	17.83	21.38	20.63	19.58	16.53
		1712.5	22.87	22.15	20.99	17.90	21.57	20.85	19.69	16.60
	50% RB mid	1777.5	21.68	20.67	19.65	17.98	20.38	19.37	18.35	16.68
		1745	21.75	20.74	19.71	17.89	20.45	19.44	18.41	16.59
		1712.5	21.70	20.72	19.79	17.97	20.40	19.42	18.49	16.67
	100% RB	1777.5	21.69	20.65	19.67	17.77	20.39	19.35	18.37	16.47
		1745	21.74	20.73	19.66	17.95	20.44	19.43	18.36	16.65
		1712.5	21.75	20.76	19.73	17.82	20.45	19.46	18.43	16.52

10MHz	1 RB high	1775	22.69	22.02	20.94	17.72	21.39	20.72	19.64	16.42
		1745	22.81	22.08	20.96	17.79	21.51	20.78	19.66	16.49
		1715	22.79	22.02	20.97	17.92	21.49	20.72	19.67	16.62
	1 RB low	1775	22.86	22.17	20.98	17.71	21.56	20.87	19.68	16.41
		1745	22.80	22.03	20.95	17.81	21.50	20.73	19.65	16.51
		1715	22.84	22.01	21.02	17.72	21.54	20.71	19.72	16.42
	50% RB mid	1775	21.65	20.67	19.65	17.82	20.35	19.37	18.35	16.52
		1745	21.72	20.73	19.70	17.72	20.42	19.43	18.40	16.42
		1715	21.74	20.73	19.69	17.99	20.44	19.43	18.39	16.69
	100% RB	1775	21.71	20.73	19.69	17.76	20.41	19.43	18.39	16.46
		1745	21.74	20.73	19.73	17.79	20.44	19.43	18.43	16.49
		1715	21.77	20.75	19.73	17.86	20.47	19.45	18.43	16.56
15MHz	1 RB high	1772.5	22.67	21.91	20.90	17.77	21.37	20.61	19.60	16.47
		1745	22.78	22.15	21.01	17.88	21.48	20.85	19.71	16.58
		1717.5	22.77	22.09	20.92	17.78	21.47	20.79	19.62	16.48
	1 RB low	1772.5	22.85	22.03	21.00	17.84	21.55	20.73	19.70	16.54
		1745	22.75	22.02	21.00	17.94	21.45	20.72	19.70	16.64
		1717.5	22.82	22.13	21.02	17.72	21.52	20.83	19.72	16.42
	50% RB mid	1772.5	21.71	20.67	19.69	17.85	20.41	19.37	18.39	16.55
		1745	21.72	20.69	19.72	17.83	20.42	19.39	18.42	16.53
		1717.5	21.73	20.72	19.72	17.73	20.43	19.42	18.42	16.43
	100% RB	1772.5	21.70	20.74	19.72	17.87	20.40	19.44	18.42	16.57
		1745	21.75	20.76	19.74	17.78	20.45	19.46	18.44	16.48
		1717.5	21.74	20.76	19.73	17.77	20.44	19.46	18.43	16.47
20MHz	1 RB high	1770	22.70	21.87	20.89	17.91	21.40	20.57	19.59	16.61
		1745	22.81	22.16	20.97	17.76	21.51	20.86	19.67	16.46
		1720	22.81	22.00	20.99	17.88	21.51	20.70	19.69	16.58
	1 RB low	1770	22.79	22.08	20.96	17.93	21.49	20.78	19.66	16.63
		1745	22.77	21.96	21.00	17.95	21.47	20.66	19.70	16.65
		1720	22.83	22.06	21.03	17.98	21.53	20.76	19.73	16.68
	50% RB mid	1770	21.75	20.74	19.76	17.75	20.45	19.44	18.46	16.45
		1745	21.76	20.75	19.78	17.91	20.46	19.45	18.48	16.61
		1720	21.74	20.75	19.73	17.91	20.44	19.45	18.43	16.61
	100% RB	1770	21.73	20.73	19.73	17.94	20.43	19.43	18.43	16.64
		1745	21.77	20.75	19.78	17.91	20.47	19.45	18.48	16.61
		1720	21.75	20.75	19.74	17.92	20.45	19.45	18.44	16.62

LTE band 66C- EIRP

Limits: ≤30dBm (1W)

Max EIRP: 22.99dBm

Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB		SCC RB		Conducted Power(dBm)	Radiated Power(dBm) GT = -3.5dBi
				Size	Offset	Size	Offset		
5MHz/ 20MHz	1745.8	1757.5	QPSK	1	24	1	0	22.87	19.37
				25	0	100	0	20.84	17.34
			16QAM	1	24	1	0	21.93	18.43
				25	0	100	0	19.85	16.35
			64QAM	1	24	1	0	19.83	16.33
				25	0	100	0	19.85	16.35
10MHz/ 15MHz	1747.9	1757.9	QPSK	1	49	1	0	17.96	14.46
				50	0	75	0	17.89	14.39
			16QAM	1	49	1	0	22.89	19.39
				50	0	75	0	20.87	17.37
			64QAM	1	49	1	0	21.95	18.45
				50	0	75	0	19.90	16.40
10MHz/ 20MHz	1745.6	1760	QPSK	1	49	1	0	19.70	16.20
				50	0	100	0	19.90	16.40
			16QAM	1	49	1	0	17.88	14.38
				50	0	100	0	17.94	14.44
			64QAM	1	49	1	0	22.96	19.46
				50	0	100	0	20.91	17.41
15MHz/ 10MHz	1750.1	1762.1	QPSK	1	74	1	0	22.01	18.51
				75	0	50	0	19.90	16.40
			16QAM	1	74	1	0	19.77	16.27
				75	0	50	0	19.89	16.39
			64QAM	1	74	1	0	17.98	14.48
				75	0	50	0	17.98	14.48
15MHz/ 15MHz	1747.5	1762.5	QPSK	1	74	1	0	22.86	19.36
				75	0	75	0	20.91	17.41
			16QAM	1	74	1	0	21.65	18.15
				75	0	75	0	19.91	16.41
			64QAM	1	74	1	0	19.86	16.36
				75	0	75	0	19.91	16.41
15MHz/ 20MHz	1745.3	1762.4	QPSK	1	74	1	0	17.86	14.36
				75	0	100	0	17.92	14.42
			16QAM	1	74	1	0	22.90	19.40
				75	0	100	0	20.93	17.43
			64QAM	1	74	1	0	22.02	18.52

				75	0	100	0	19.93	16.43
20MHz/ 5MHz	1752.5	1764.2	QPSK	1	99	1	0	19.70	16.20
				100	0	25	0	19.94	16.44
			16QAM	1	99	1	0	17.96	14.46
				100	0	25	0	17.98	14.48
			64QAM	1	99	1	0	22.97	19.47
				100	0	25	0	20.91	17.41
20MHz/ 10MHz	1750.1	1764.5	QPSK	1	99	1	0	21.75	18.25
				100	0	50	0	19.90	16.40
			16QAM	1	99	1	0	19.74	16.24
				100	0	50	0	19.95	16.45
			64QAM	1	99	1	0	17.96	14.46
				100	0	50	0	17.97	14.47
20MHz/ 15MHz	1747.6	1764.7	QPSK	1	99	1	0	22.82	19.32
				100	0	75	0	20.93	17.43
			16QAM	1	99	1	0	21.82	18.32
				100	0	75	0	19.95	16.45
			64QAM	1	99	1	0	19.95	16.45
				100	0	75	0	19.93	16.43
20MHz/ 20MHz	1745.1	1764.9	QPSK	1	99	1	0	17.72	14.22
				100	0	100	0	17.95	14.45
			16QAM	1	99	1	0	22.92	19.42
				100	0	100	0	20.94	17.44
			64QAM	1	99	1	0	21.90	18.40
				100	0	100	0	19.96	16.46

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

A.2 Emission Limit

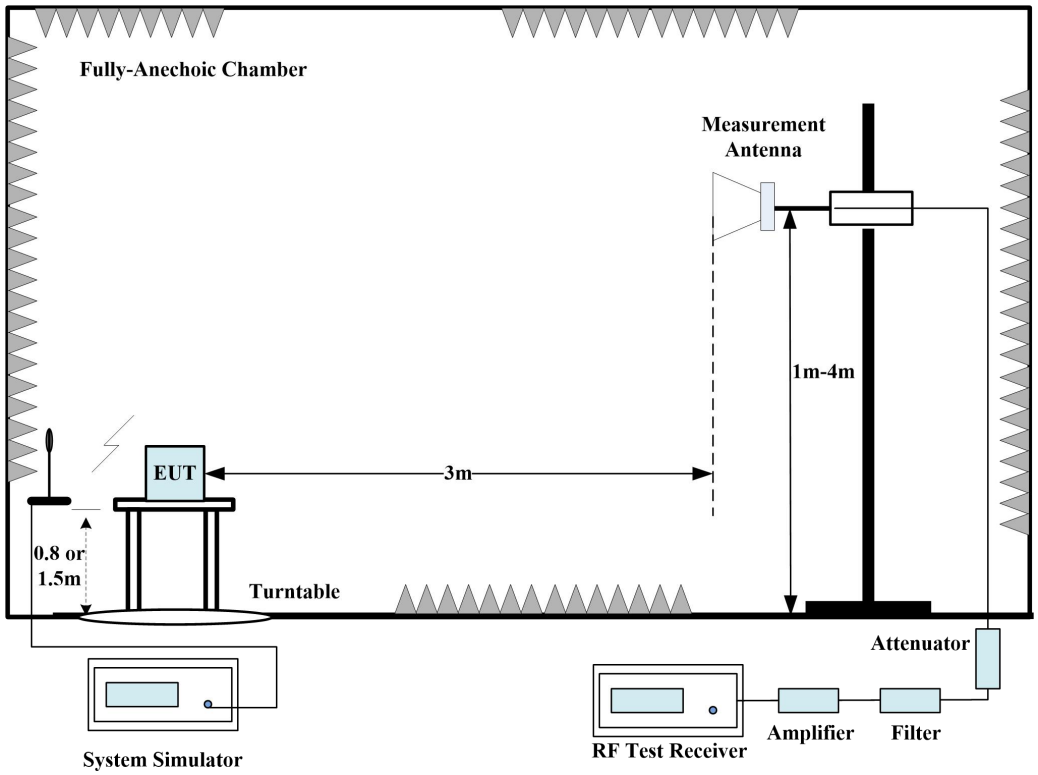
A.2.1 Measurement Method

The measurement procedures in C63.26 are used.

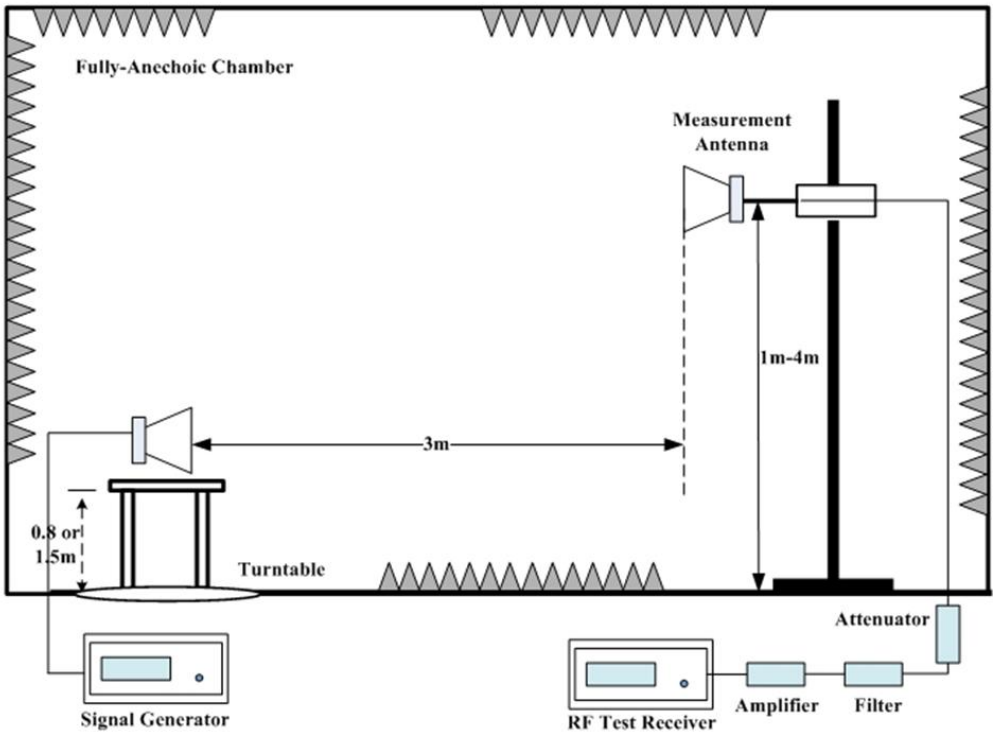
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and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

The procedure of radiated spurious emissions is as follows:

For measurements performed at frequencies less than or equal to 1 GHz, the EUT was placed on a 80cm-high non-conductive support; For measurements performed at frequencies above 1GHz,EUT was placed on a 1.5-meter-high non-conductive support. A measurement antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. In the initial test, the height of the measurement antenna was varied from 1 m to 4 m for the relative positioning that produces the maximum radiated signal level. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.



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



In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. The height of measurement antenna varied between 1 m to 4 m to maximize the received signal amplitude for each emission that was detected and measured in the initial test. A power (P_{Mea}) is applied to the input of the substitution antenna and adjusts the level of the signal generator output until the value of the receiver reach the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test was performed with the measurement antenna in both vertical and horizontal polarization.

3. The Path loss (Ppl) between the Signal Source and the Substitution Antenna and the Substitution Antenna Gain (Ga) were recorded after test.A amplifier was connected in for the test. The Path loss (Ppl) is the summation of the cable loss and the gain of the amplifier.
4. The measurement results are obtained as described below:

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

This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.

A.2.2 Measurement Limit

FDD Band 2: Part 24.238 specifies 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 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 7: 27.53(m)(4) specifies that 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 12/13: Part 27.53(g) states for operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee’s frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee’s frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FDD Band 66: Part 27.53(h) specifies that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

A.2.3 Measurement Results

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

Note 1: All CA UL combination bands have been tested, only the worst cases are reported.

Note 2: Both of Vertical and Horizontal polarizations are evaluated, but only the worst case is recorded in this report.

A.2.4 Measurement Results Table

Frequency	Channel	Frequency Range	Result
LTE Bands	Low	9kHz-26GHz	Pass
	Middle	9kHz-26GHz	Pass
	High	9kHz-26GHz	Pass

A.2.5 Sweep Table

Subrange	RBW	VBW
9~150 kHz	0.2kHz	0.6kHz
150kHz~30MHz	9kHz	27kHz
30MHz~1 GHz	100KHz	300KHz
1~20 GHz	1 MHz	3 MHz

Test note

Investigation has been done on all modes and modulations/data rates. In total, three EUT elevation positions are measured. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

A.2.6 Measurement Result

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
3691.50	-60.71	3.69	8.23	-56.17	-13.00	43.17	V
5554.00	-60.81	5.33	11.00	-55.14	-13.00	42.14	H
7402.50	-54.58	8.08	12.15	-50.51	-13.00	37.51	V
9257.50	-53.43	8.85	13.70	-48.58	-13.00	35.58	V
11100.50	-51.59	9.72	13.50	-47.81	-13.00	34.81	V
12955.00	-49.16	12.50	13.66	-48.00	-13.00	35.00	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
3764.00	-61.72	3.79	8.63	-56.88	-13.00	43.88	H
5632.00	-60.05	5.62	11.00	-54.67	-13.00	41.67	H
7520.00	-54.16	7.71	12.37	-49.50	-13.00	36.50	V
9408.50	-52.08	9.07	13.60	-47.55	-13.00	34.55	H
11266.50	-50.67	10.65	13.57	-47.75	-13.00	34.75	V
13166.00	-46.85	13.19	14.20	-45.84	-13.00	32.84	H

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
3806.50	-62.06	3.95	8.64	-57.37	-13.00	44.37	H
5713.00	-59.16	5.93	10.97	-54.12	-13.00	41.12	H
7651.00	-56.90	6.86	12.35	-51.41	-13.00	38.41	V
9547.00	-48.28	9.11	13.31	-44.08	-13.00	31.08	V
11451.00	-48.80	12.39	13.55	-47.64	-13.00	34.64	H
13356.50	-45.90	13.11	14.37	-44.64	-13.00	31.64	V

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
1664.00	-55.99	2.91	6.34	2.15	-54.71	-13.00	41.71	V
2477.00	-47.97	4.33	5.82	2.15	-48.63	-13.00	35.63	V
5759.00	-56.53	5.82	10.90	2.15	-53.60	-13.00	40.60	V
6594.50	-54.32	7.14	11.40	2.15	-52.21	-13.00	39.21	V
7436.50	-50.98	7.89	12.19	2.15	-48.83	-13.00	35.83	V
8251.00	-52.70	7.59	12.85	2.15	-49.59	-13.00	36.59	H

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
2503.00	-48.81	4.44	5.80	2.15	-49.60	-13.00	36.60	H
5021.50	-57.84	5.50	10.54	2.15	-54.95	-13.00	41.95	H
5845.00	-56.60	5.59	10.90	2.15	-53.44	-13.00	40.44	H
6691.50	-55.36	6.20	11.49	2.15	-52.22	-13.00	39.22	V
7532.00	-51.96	7.72	12.38	2.15	-49.45	-13.00	36.45	H
8372.50	-52.47	8.17	13.00	2.15	-49.79	-13.00	36.79	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
2555.50	-47.83	4.55	5.91	2.15	-48.62	-13.00	35.62	H
3393.50	-55.63	3.53	8.18	2.15	-53.13	-13.00	40.13	V
5951.00	-57.23	5.48	10.90	2.15	-53.96	-13.00	40.96	V
6784.00	-55.39	6.39	11.57	2.15	-52.36	-13.00	39.36	H
7631.50	-54.00	6.73	12.30	2.15	-50.58	-13.00	37.58	V
8470.50	-52.89	8.02	13.17	2.15	-49.89	-13.00	36.89	V

LTE Band 7, 5 MHz, QPSK, Channel 20775

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5005.50	-57.62	5.15	10.51	-52.26	-25.00	27.26	H
7508.00	-53.29	7.70	12.36	-48.63	-25.00	23.63	H
10011.00	-38.90	9.35	13.38	-34.87	-25.00	9.87	H
12513.50	-47.20	12.37	13.60	-45.97	-25.00	20.97	H
15023.50	-45.56	14.73	14.10	-46.19	-25.00	21.19	H
17527.00	-36.47	19.69	14.43	-41.73	-25.00	16.73	H

LTE Band 7, 5 MHz, QPSK, Channel 21100

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5070.00	-60.01	5.30	10.53	-54.78	-25.00	29.78	H
7605.00	-55.79	7.58	12.30	-51.07	-25.00	26.07	V
10140.50	-44.67	9.74	13.24	-41.17	-25.00	16.17	H
12676.00	-48.16	11.70	13.52	-46.34	-25.00	21.34	H
15221.50	-45.72	15.68	13.98	-47.42	-25.00	22.42	H
17739.00	-38.19	19.56	14.64	-43.11	-25.00	18.11	H

LTE Band 7, 5 MHz, QPSK, Channel 21425

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5134.50	-60.09	5.55	10.58	-55.06	-25.00	30.06	H
7703.00	-55.93	6.72	12.40	-50.25	-25.00	25.25	V
10270.50	-43.73	10.76	13.30	-41.19	-25.00	16.19	H
12838.50	-44.07	13.04	13.50	-43.61	-25.00	18.61	V
15394.50	-45.79	14.88	13.81	-46.86	-25.00	21.86	V
17985.00	-36.85	19.97	14.80	-42.02	-25.00	17.02	H

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
2101.50	-51.66	3.74	5.11	2.15	-52.44	-13.00	39.44	V
2804.50	-46.78	5.24	7.25	2.15	-46.92	-13.00	33.92	H
4910.00	-57.27	4.93	10.22	2.15	-54.13	-13.00	41.13	V
5588.00	-57.58	5.48	11.00	2.15	-54.21	-13.00	41.21	H
6283.50	-56.23	6.09	11.18	2.15	-53.29	-13.00	40.29	H
7006.50	-52.99	7.70	11.66	2.15	-51.18	-13.00	38.18	H

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
2133.50	-51.67	3.70	5.23	2.15	-52.29	-13.00	39.29	V
2819.00	-46.59	5.15	7.27	2.15	-46.62	-13.00	33.62	V
4939.50	-58.94	4.90	10.28	2.15	-55.71	-13.00	42.71	V
5649.00	-58.09	5.60	11.00	2.15	-54.84	-13.00	41.84	H
6368.00	-57.00	5.76	11.30	2.15	-53.61	-13.00	40.61	V
7065.00	-53.85	6.84	11.70	2.15	-51.14	-13.00	38.14	H

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
2158.00	-50.50	3.70	5.65	2.15	-50.70	-13.00	37.70	V
2864.00	-46.24	5.50	7.11	2.15	-46.78	-13.00	33.78	H
5018.50	-57.98	5.10	10.54	2.15	-54.69	-13.00	41.69	V
5727.50	-56.74	5.89	10.94	2.15	-53.84	-13.00	40.84	H
6433.00	-56.03	6.91	11.30	2.15	-53.79	-13.00	40.79	V
7144.50	-55.08	6.67	11.70	2.15	-52.20	-13.00	39.20	V

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
1559.00	-56.29	3.47	5.39	0.00	-56.52	-40.00	16.52	H
2338.76	-49.44	4.44	5.62	2.15	-50.41	-13.00	37.41	H
3117.50	-54.80	5.38	7.28	2.15	-55.05	-13.00	42.05	V
3902.50	-58.00	6.11	8.76	2.15	-57.50	-13.00	44.50	H
4677.50	-57.77	6.49	9.58	2.15	-56.83	-13.00	43.83	V
5455.00	-55.57	6.89	10.54	2.15	-54.07	-13.00	41.07	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
1559.00	-57.13	3.47	5.39	0.00	-57.36	-40.00	17.36	V
2349.18	-48.46	4.46	5.65	2.15	-49.42	-13.00	36.42	H
3127.50	-56.67	5.40	7.31	2.15	-56.91	-13.00	43.91	V
3905.00	-58.51	6.11	8.77	2.15	-58.00	-13.00	45.00	V
4692.50	-56.62	6.50	9.59	2.15	-55.68	-13.00	42.68	H
5477.50	-56.37	6.97	10.57	2.15	-54.92	-13.00	41.92	H

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
1558.07	-55.63	3.47	5.40	2.15	-55.85	-13.00	42.85	V
2347.20	-48.20	4.45	5.64	2.15	-49.16	-13.00	36.16	H
3130.00	-56.65	5.40	7.31	2.15	-56.89	-13.00	43.89	H
3927.50	-57.87	6.12	8.80	2.15	-57.34	-13.00	44.34	H
4712.50	-57.17	6.51	9.61	2.15	-56.22	-13.00	43.22	H
5485.00	-56.01	7.00	10.58	2.15	-54.58	-13.00	41.58	V

LTE Band 66, 1.4MHz, QPSK, Channel 131979

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
8554.00	-59.00	8.52	13.20	-54.32	-13.00	41.32	H
10265.00	-60.18	10.80	13.30	-57.68	-13.00	44.68	H
11964.50	-57.92	12.34	13.00	-57.26	-13.00	44.26	V
13686.50	-56.14	13.01	14.70	-54.45	-13.00	41.45	H
15385.50	-55.57	14.86	13.81	-56.62	-13.00	43.62	H
17112.50	-49.28	18.45	14.01	-53.72	-13.00	40.72	H

LTE Band 66, 1.4MHz, QPSK, Channel 132322

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
8725.00	-59.95	8.45	13.32	-55.08	-13.00	42.08	H
10471.00	-59.79	10.36	13.23	-56.92	-13.00	43.92	H
12227.50	-58.26	12.16	13.26	-57.16	-13.00	44.16	V
13960.50	-55.18	14.62	14.64	-55.16	-13.00	42.16	H
15706.00	-53.62	16.64	13.39	-56.87	-13.00	43.87	H
17461.00	-47.41	19.26	14.36	-52.31	-13.00	39.31	H

LTE Band 66, 1.4MHz, QPSK, Channel 132665

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
8896.50	-61.85	8.04	13.40	-56.49	-13.00	43.49	H
10681.00	-62.32	10.02	13.22	-59.12	-13.00	46.12	H
12448.50	-58.05	12.95	13.55	-57.45	-13.00	44.45	H
14239.00	-57.56	13.16	14.46	-56.26	-13.00	43.26	H
16023.00	-53.99	17.43	13.40	-58.02	-13.00	45.02	H
17780.50	-48.26	19.55	14.68	-53.13	-13.00	40.13	H

LTE CA_2A-13A, 10MHz+10M, QPSK, CH18650+23230

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1535.50	-41.95	3.45	5.44	2.15	-42.11	-13.00	29.11	H
2361.50	-34.51	4.47	5.68	2.15	-35.45	-13.00	22.45	V
3106.41	-57.24	5.34	7.26	2.15	-57.47	-13.00	44.47	V
3891.56	-57.02	6.10	8.75	2.15	-56.52	-13.00	43.52	V
4680.94	-55.82	6.49	9.58	2.15	-54.88	-13.00	41.88	H
5476.88	-55.05	6.97	10.57	2.15	-53.60	-13.00	40.60	H
3713.91	-57.96	6.40	8.50	0.00	-55.86	-13.00	42.86	H
5587.03	-57.04	7.22	10.58	0.00	-53.68	-13.00	40.68	V
7436.25	-52.98	8.22	12.12	0.00	-49.08	-13.00	36.08	V
9275.16	-50.30	9.10	13.27	0.00	-46.13	-13.00	33.13	H
11114.53	-50.13	9.77	13.18	0.00	-46.72	-13.00	33.72	V
12984.84	-49.25	10.47	13.49	0.00	-46.23	-13.00	33.23	H

LTE CA_2A-13A, 10MHz+10M, QPSK, CH18900+23230

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1592.50	-42.02	3.51	5.33	2.15	-42.35	-13.00	29.35	H
2368.50	-35.19	4.48	5.71	2.15	-36.11	-13.00	23.11	V
3102.66	-57.06	5.33	7.25	2.15	-57.29	-13.00	44.29	V
3888.75	-56.42	6.10	8.74	2.15	-55.93	-13.00	42.93	V
4705.31	-55.70	6.51	9.61	2.15	-54.75	-13.00	41.75	H
5490.47	-54.74	7.02	10.59	2.15	-53.32	-13.00	40.32	H
3754.22	-58.90	6.28	8.56	0.00	-56.62	-13.00	43.62	H
5626.88	-56.89	7.26	10.57	0.00	-53.58	-13.00	40.58	V
7495.78	-53.42	8.38	12.19	0.00	-49.61	-13.00	36.61	H
9374.06	-51.55	9.07	13.32	0.00	-47.30	-13.00	34.30	V
11295.00	-49.20	9.97	13.14	0.00	-46.03	-13.00	33.03	H
13153.13	-47.78	10.70	13.71	0.00	-44.77	-13.00	31.77	V

LTE CA_2A-13A, 10MHz+10M, QPSK, CH19150+23230

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1568.00	-41.67	3.48	5.38	2.15	-41.92	-13.00	28.92	V
2335.00	-35.13	4.44	5.61	2.15	-36.11	-13.00	23.11	H
3100.31	-56.68	5.32	7.24	2.15	-56.91	-13.00	43.91	H
3920.16	-56.96	6.12	8.79	2.15	-56.44	-13.00	43.44	V
4699.69	-56.06	6.50	9.60	2.15	-55.11	-13.00	42.11	H
5475.47	-55.08	6.97	10.57	2.15	-53.63	-13.00	40.63	V
3825.00	-58.66	6.06	8.65	0.00	-56.07	-13.00	43.07	H
5715.00	-56.19	7.30	10.56	0.00	-52.93	-13.00	39.93	V
7623.75	-53.51	8.08	12.30	0.00	-49.29	-13.00	36.29	V
9525.47	-50.56	9.45	13.37	0.00	-46.64	-13.00	33.64	H
11407.03	-46.44	10.05	13.12	0.00	-43.37	-13.00	30.37	V
13345.31	-47.22	10.57	13.98	0.00	-43.81	-13.00	30.81	V

LTE CA_2A-5A, 5MHz+5MHz, QPSK, CH18625+20425

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3706.88	-60.74	3.49	8.37	0.00	-55.86	-13.00	42.86	V
5572.03	-60.02	5.41	11.00	0.00	-54.43	-13.00	41.43	H
7403.91	-53.38	8.07	12.15	0.00	-49.30	-13.00	36.30	H
9265.78	-52.04	8.85	13.70	0.00	-47.19	-13.00	34.19	H
11112.19	-49.73	9.81	13.50	0.00	-46.04	-13.00	33.04	H
12960.47	-47.40	12.52	13.68	0.00	-46.24	-13.00	33.24	H
1645.50	-43.80	2.63	6.37	2.15	-42.21	-13.00	29.21	H
2493.00	-34.36	4.47	5.81	2.15	-35.17	-13.00	22.17	H
5797.03	-56.54	5.70	10.90	2.15	-53.49	-13.00	40.49	H
6607.97	-53.59	7.02	11.40	2.15	-51.36	-13.00	38.36	V
7451.25	-51.94	7.80	12.25	2.15	-49.64	-13.00	36.64	V
8255.62	-53.42	7.60	12.86	2.15	-50.31	-13.00	37.31	V

LTE CA_2A-5A, 5MHz+5MHz, QPSK, CH132477+132597

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3773.91	-61.92	3.91	8.65	0.00	-57.18	-13.00	44.18	H
5640.47	-59.16	5.61	11.00	0.00	-53.77	-13.00	40.77	H
7513.59	-55.26	7.71	12.36	0.00	-50.61	-13.00	37.61	V
9409.69	-52.75	9.07	13.60	0.00	-48.22	-13.00	35.22	H
11286.56	-49.10	10.62	13.59	0.00	-46.13	-13.00	33.13	H
13173.75	-47.00	13.16	14.22	0.00	-45.94	-13.00	32.94	V
1659.00	-43.14	2.99	6.34	2.15	-41.94	-13.00	28.94	H
2497.50	-34.96	4.45	5.80	2.15	-35.76	-13.00	22.76	H
5855.62	-57.08	5.60	10.84	2.15	-53.99	-13.00	40.99	H
6679.69	-54.57	6.37	11.48	2.15	-51.61	-13.00	38.61	H
7513.59	-53.11	7.71	12.36	2.15	-50.61	-13.00	37.61	V
8356.41	-52.40	8.25	13.00	2.15	-49.80	-13.00	36.80	V

LTE CA_2A-5A, 5MHz+5MHz, QPSK, CH132323+132521

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3815.62	-61.57	3.94	8.63	0.00	-56.88	-13.00	43.88	V
5717.34	-59.06	5.92	10.97	0.00	-54.01	-13.00	41.01	H
7635.00	-55.14	6.75	12.30	0.00	-49.59	-13.00	36.59	H
9538.59	-47.42	9.12	13.32	0.00	-43.22	-13.00	30.22	H
11442.19	-47.17	12.41	13.57	0.00	-46.01	-13.00	33.01	V
13351.88	-45.21	13.11	14.36	0.00	-43.96	-13.00	30.96	H
1698.50	-43.03	2.90	6.30	2.15	-41.78	-13.00	28.78	V
2543.50	-34.92	4.62	5.80	2.15	-35.89	-13.00	22.89	H
5919.38	-56.49	6.11	10.94	2.15	-53.81	-13.00	40.81	H
6763.59	-54.61	6.41	11.53	2.15	-51.64	-13.00	38.64	H
7630.78	-53.36	6.72	12.30	2.15	-49.93	-13.00	36.93	H
8467.03	-52.82	8.02	13.17	2.15	-49.82	-13.00	36.82	H

LTE Band 66C, 20MHz+20MHz, QPSK, CH132072+132070

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3448.13	-69.25	5.43	8.08	-66.60	-13.00	53.60	H
5163.28	-67.51	6.90	10.13	-64.28	-13.00	51.28	V
6859.22	-63.39	7.81	11.43	-59.77	-13.00	46.77	H
8557.50	-63.64	8.57	13.01	-59.20	-13.00	46.20	V
10367.34	-60.00	9.75	13.05	-56.70	-13.00	43.70	H
12007.50	-58.74	10.07	13.00	-55.81	-13.00	42.81	H

LTE Band 66C, 20MHz+20MHz, QPSK, CH132323+132521

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3450.47	-69.05	5.43	8.08	-66.40	-13.00	53.40	H
5218.13	-67.51	6.99	10.21	-64.29	-13.00	51.29	V
6937.03	-64.60	7.81	11.52	-60.89	-13.00	47.89	H
8707.50	-63.75	8.38	13.04	-59.09	-13.00	46.09	H
10439.06	-60.16	9.74	13.08	-56.82	-13.00	43.82	H
12234.84	-57.64	10.04	13.09	-54.59	-13.00	41.59	H

LTE Band 66C, 20MHz+20MHz, QPSK, CH132374+132572

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3518.44	-69.50	5.55	8.23	-66.82	-13.00	53.82	H
5234.53	-67.55	7.00	10.23	-64.32	-13.00	51.32	H
7055.63	-64.11	8.22	11.67	-60.66	-13.00	47.66	V
8771.25	-62.50	8.57	13.05	-58.02	-13.00	45.02	H
10450.31	-59.84	9.73	13.08	-56.49	-13.00	43.49	V
12222.19	-58.30	10.04	13.09	-55.25	-13.00	42.25	V

Note: Peak EIRP (dBm) = PMea(dBm) - Path Loss(dB) + Antenna Gain(dBi)

Semi-anechoic chamber 6 with absorbers

FAC 3-6

Test item	Frequency ranges	Measurement uncertainty
Radiated Emission	30MHz-1GHz	2.12dB(*k*=2)
	>1GHz	3.10dB(*k*=2)

A.3 Frequency Stability

A.3.1 Method of Measurement

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

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

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30℃.
3. With the EUT, powered via nominal voltage, connected to the CMW500, and in a simulated call on middle channel for each LTE band, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10℃ increments from -30℃ to +50℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50℃.
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the center channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 ℃ 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				17.78	0.0095
40				14.33	0.0076
30				1.62	0.0009
10				-2.57	0.0014
0				-0.93	0.0005
-10				-0.86	0.0005
-20				1.50	0.0008
-30				2.30	0.0012

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	0.56	0.0003
4.4				0.76	0.0004

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	824.417	848.583		
50				-26.22	0.0313
40				-2.56	0.0031
30				-1.85	0.0022
10				-2.49	0.0030
0				-2.30	0.0027
-10				-1.53	0.0018
-20				-4.51	0.0054
-30				-2.85	0.0034

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	824.417	848.583	-0.50	0.0006
4.4				-2.06	0.0025

LTE Band 7, 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	2500.641	2569.391	16.64	0.0066
50				1.40	0.0006
40				-4.45	0.0018
30				-1.12	0.0004
10				-3.59	0.0014
0				-5.99	0.0024
-10				-5.97	0.0024
-20				-1.30	0.0005
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2500.641	2569.391	-2.63	0.0010
4.4				16.48	0.0065

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	-1.27	0.0018
50				-0.89	0.0013
40				-0.56	0.0008
30				-2.10	0.0030
10				0.09	0.0001
0				-0.24	0.0003
-10				-0.56	0.0008
-20				-2.79	0.0039
-30					

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	-0.76	0.0011
4.4				-2.09	0.0030

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	777.481	786.519	7.75	0.0099
50				-1.23	0.0016
40				0.69	0.0009
30				0.37	0.0005
10				0.63	0.0008
0				0.43	0.0005
-10				6.71	0.0086
-20				2.07	0.0026
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	777.481	786.519	2.63	0.0034
4.4				7.22	0.0092

LTE Band 48, 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	3550.833	3699.199	0.43	0.0001
50				0.39	0.0001
40				-0.59	0.0002
30				0.63	0.0002
10				-1.82	0.0005
0				1.03	0.0003
-10				2.26	0.0006
-20				0.21	0.0001
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	3550.833	3699.199	4.85	0.0013
4.4				4.15	0.0011

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1710.833	1779.199	12.73	0.0073
50				11.37	0.0065
40				14.49	0.0083
30				15.12	0.0087
10				13.80	0.0079
0				13.30	0.0076
-10				1.46	0.0008
-20				2.03	0.0012
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1710.833	1779.199	1.46	0.0008
4.4				2.06	0.0012

LTE CA band 66C, 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	3.85	1710.560	1779.460	-2.76	0.0016
50				-2.33	0.0013
40				-4.64	0.0026
30				-1.85	0.0011
10				0.30	0.0002
0				-1.07	0.0006
-10				-0.04	0.0000
-20				-0.47	0.0003
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1710.560	1779.460	-1.19	0.0007
4.4				1.29	0.0007

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

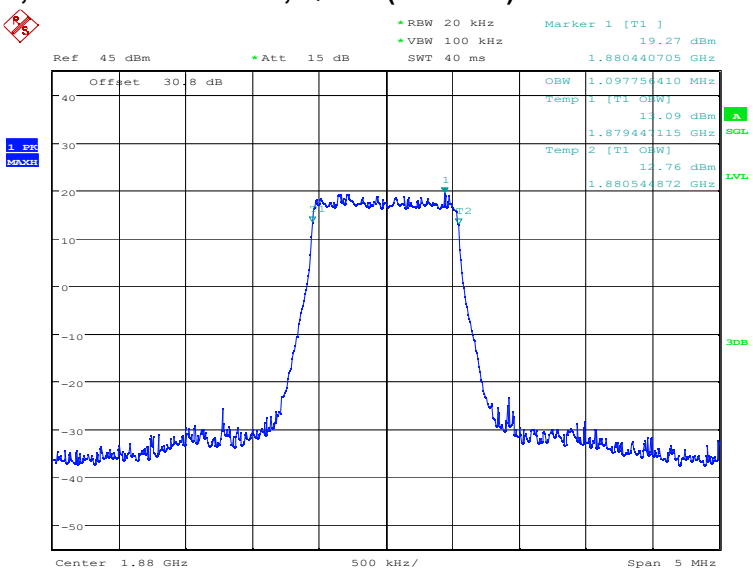
A.4 Occupied Bandwidth

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%)

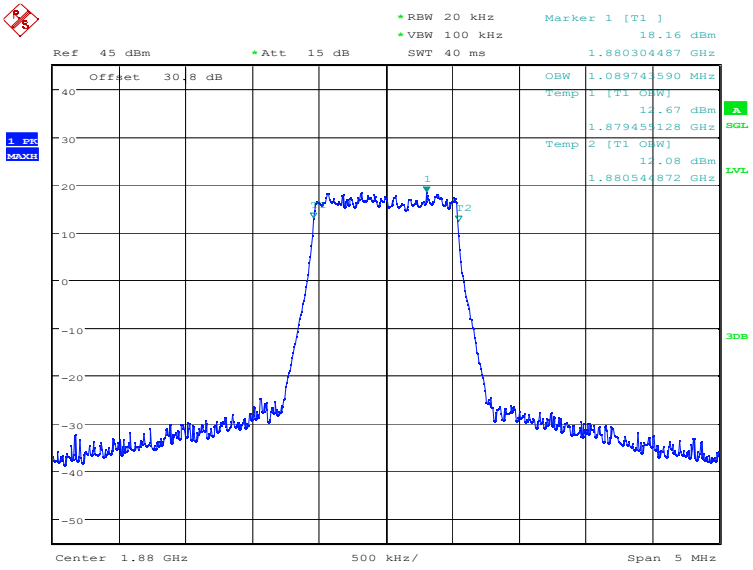
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	1097.76	1089.74

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



Date: 10.JAN.2024 16:32:51

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

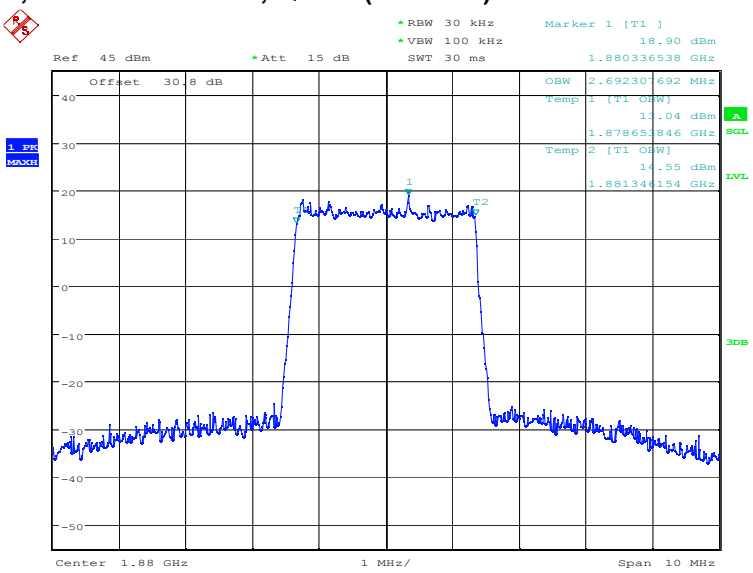


Date: 10.JAN.2024 16:33:31

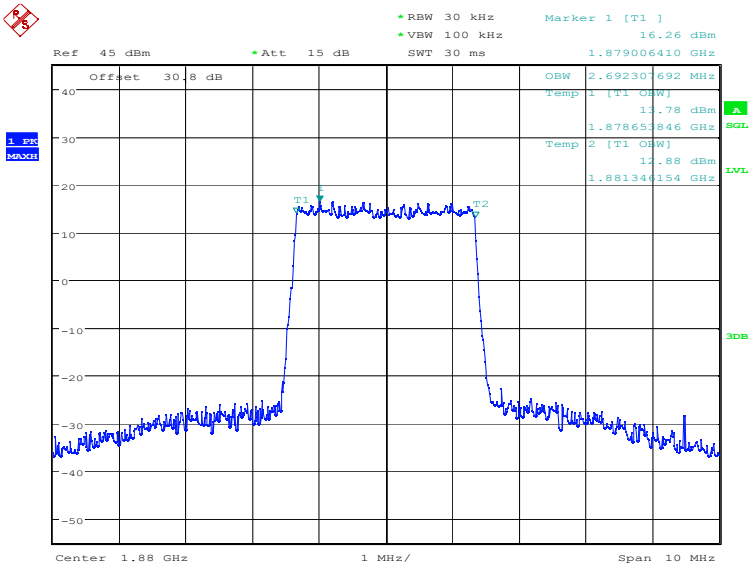
LTE band 2, 3MHz (99%)

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

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



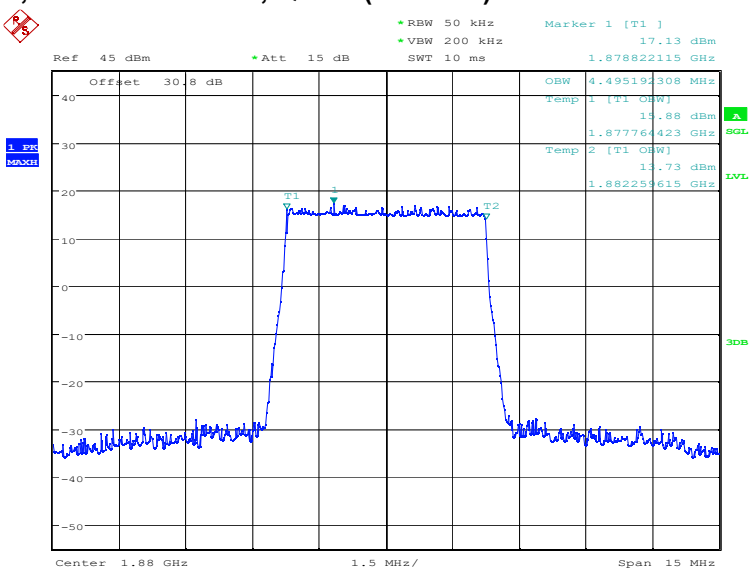
LTE band 2, 3MHz Bandwidth, 16QAM (99% BW)



LTE band 2, 5MHz (99%)

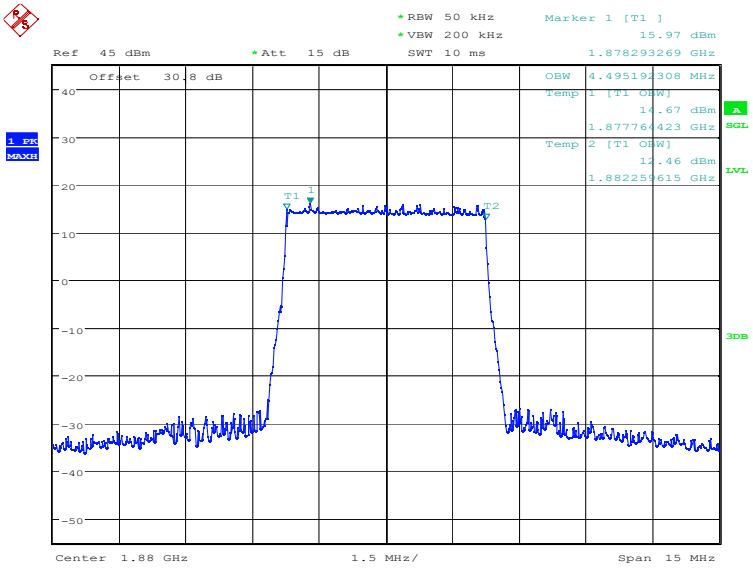
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	4495.19	4495.19

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



Date: 10.JAN.2024 16:35:35

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

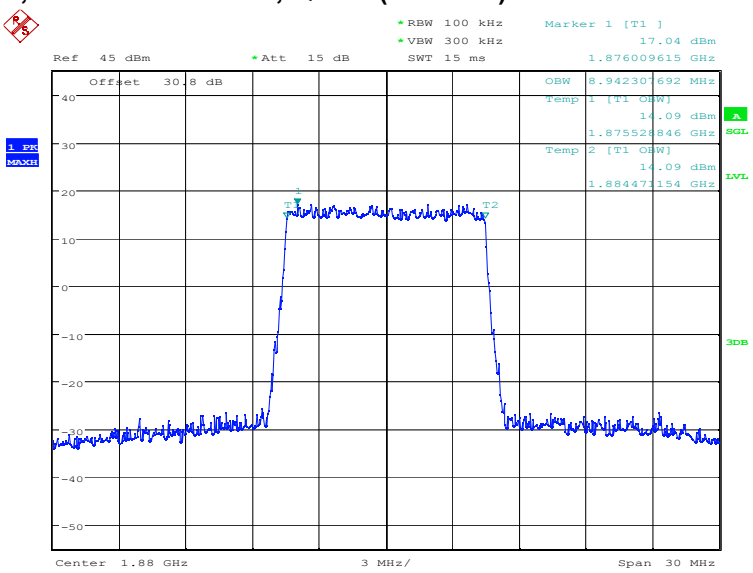


Date: 10.JAN.2024 16:36:15

LTE band 2, 10MHz (99%)

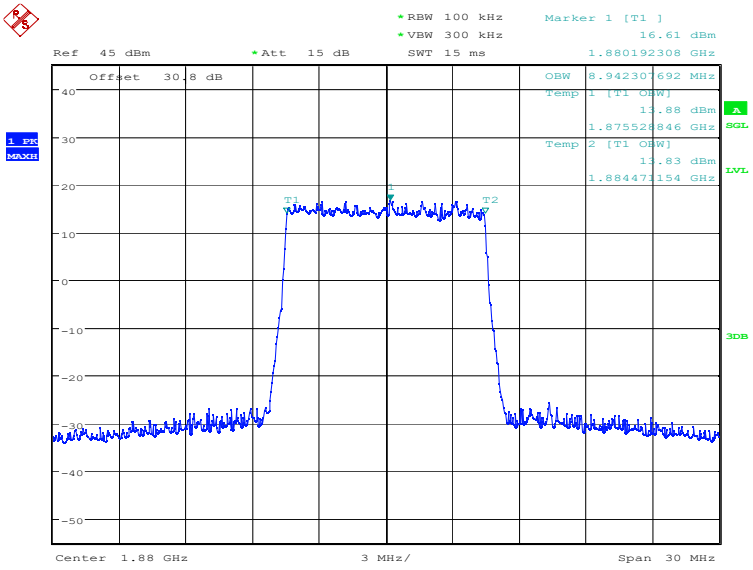
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 10.JAN.2024 16:36:56

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

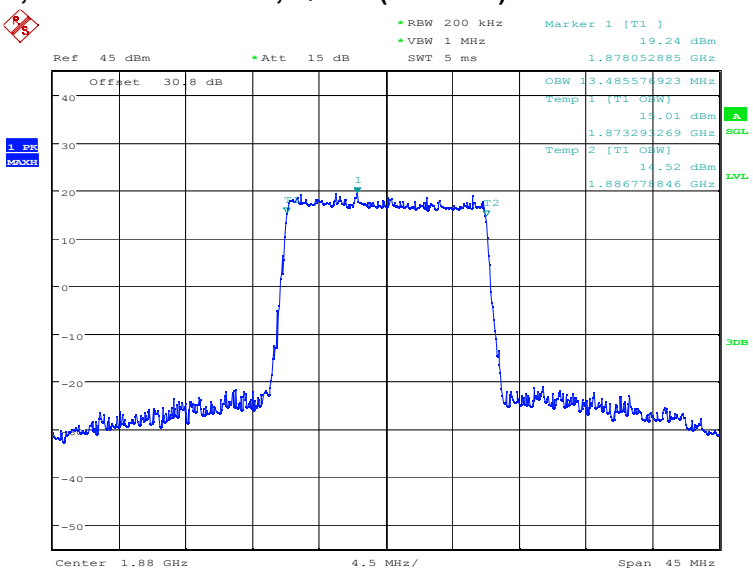


Date: 10.JAN.2024 16:37:36

LTE band 2, 15MHz (99%)

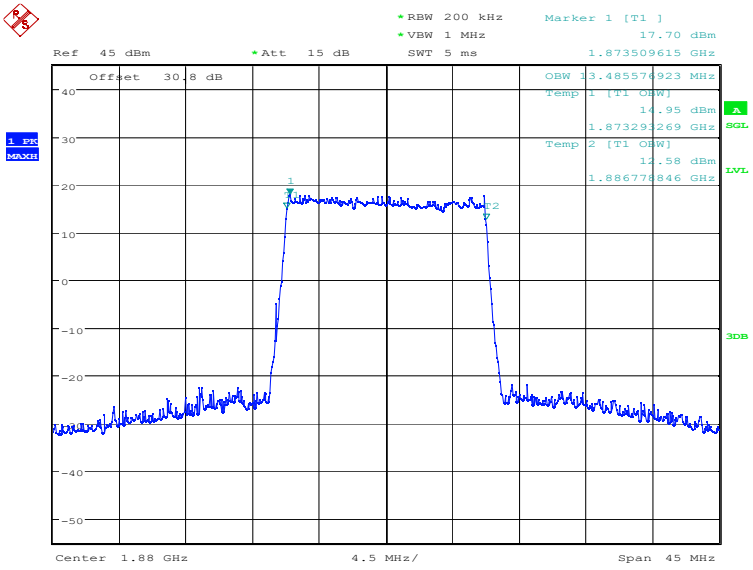
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	13485.58	13485.58

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



Date: 10.JAN.2024 16:38:18

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

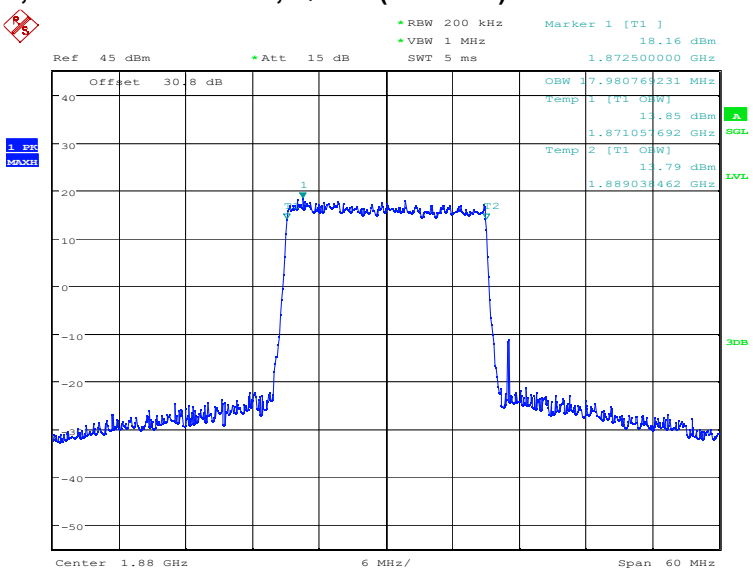


Date: 10.JAN.2024 16:38:58

LTE band 2, 20MHz (99%)

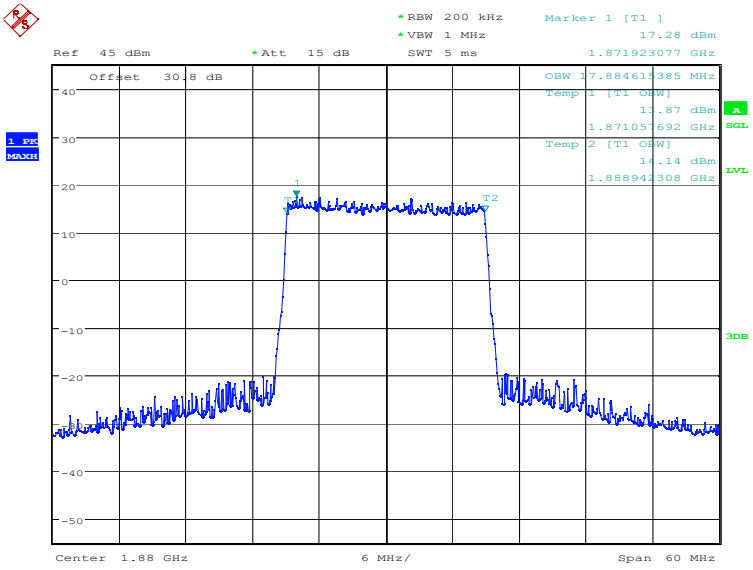
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1880.0	QPSK	16QAM
	17980.77	17884.62

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



Date: 10.JAN.2024 16:39:39

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

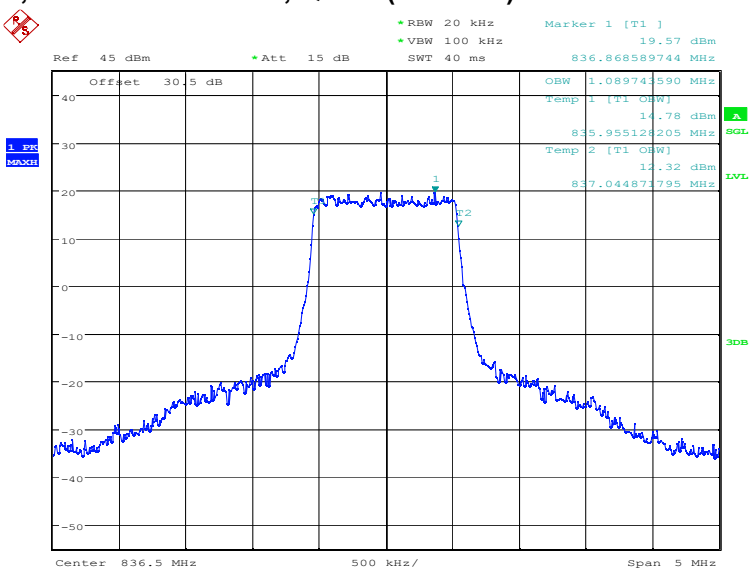


Date: 10.JAN.2024 16:40:19

LTE band 5, 1.4MHz (99%)

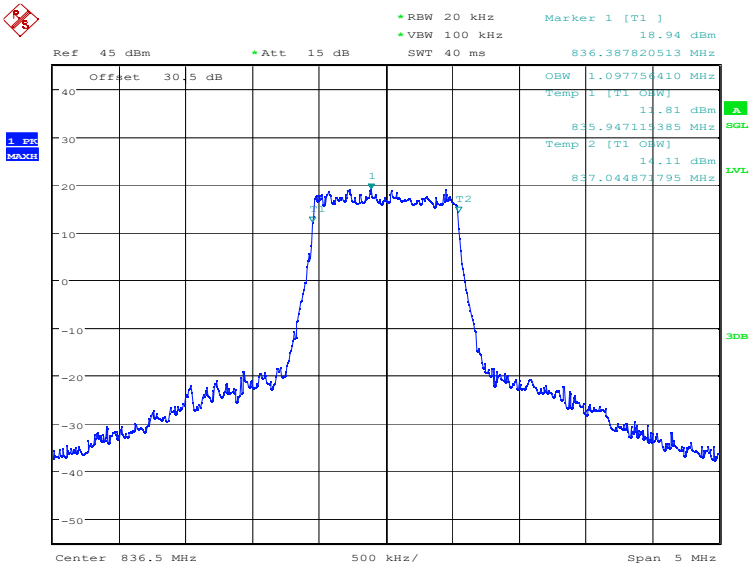
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	1089.74	1097.76

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



Date: 10.JAN.2024 10:20:33

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

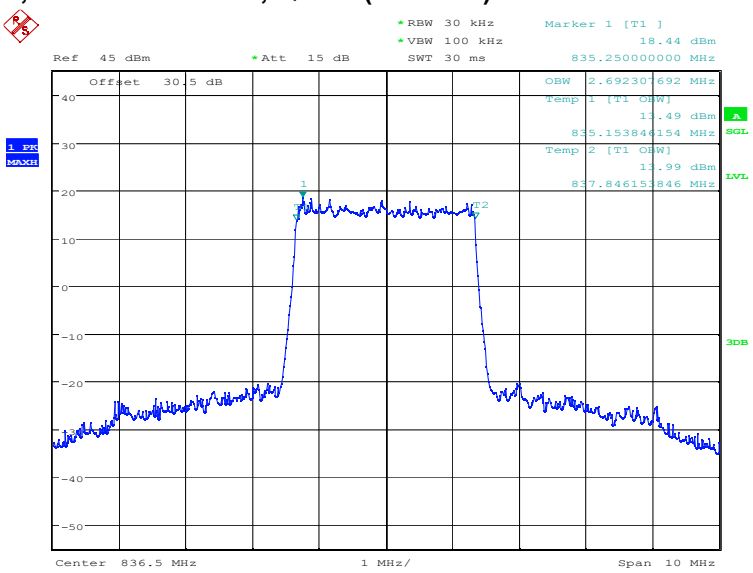


Date: 10.JAN.2024 10:21:13

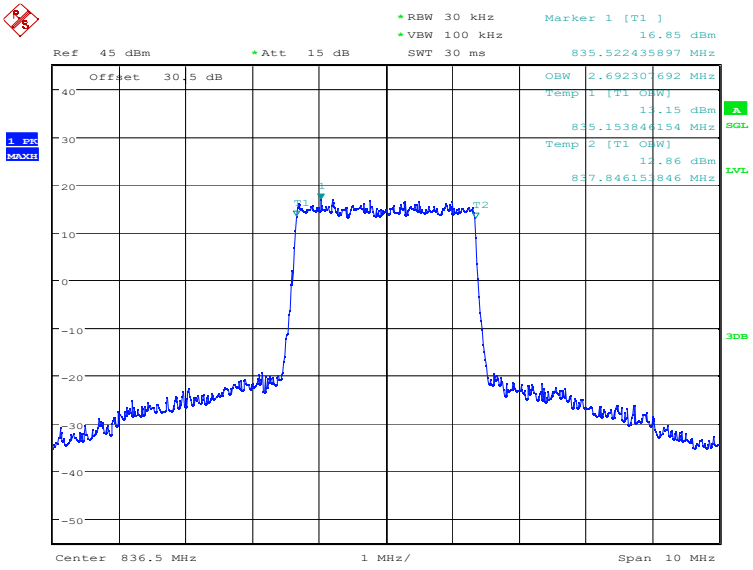
LTE band 5, 3MHz (99%)

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

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



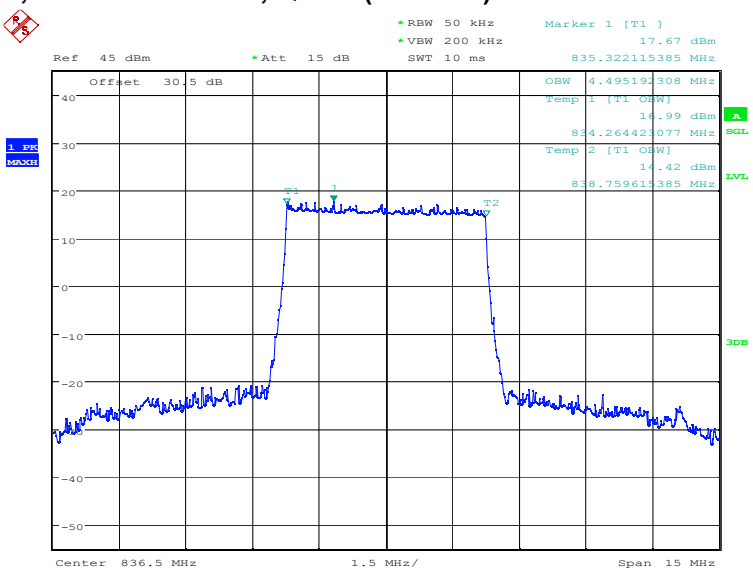
LTE band 5, 3MHz Bandwidth, 16QAM (99% BW)



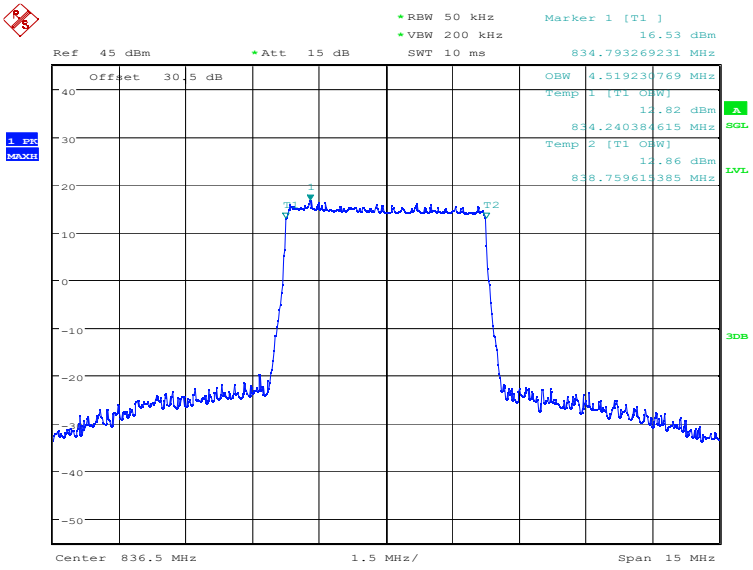
LTE band 5, 5MHz (99%)

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

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



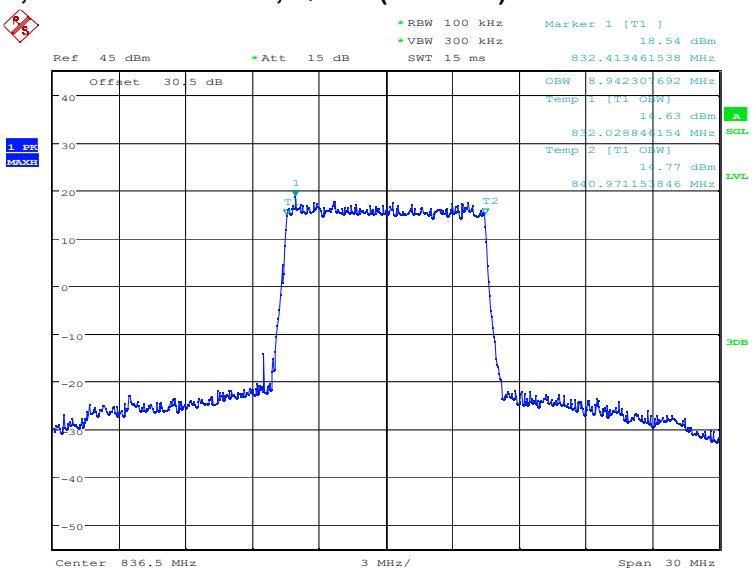
LTE band 5, 5MHz Bandwidth, 16QAM (99% BW)



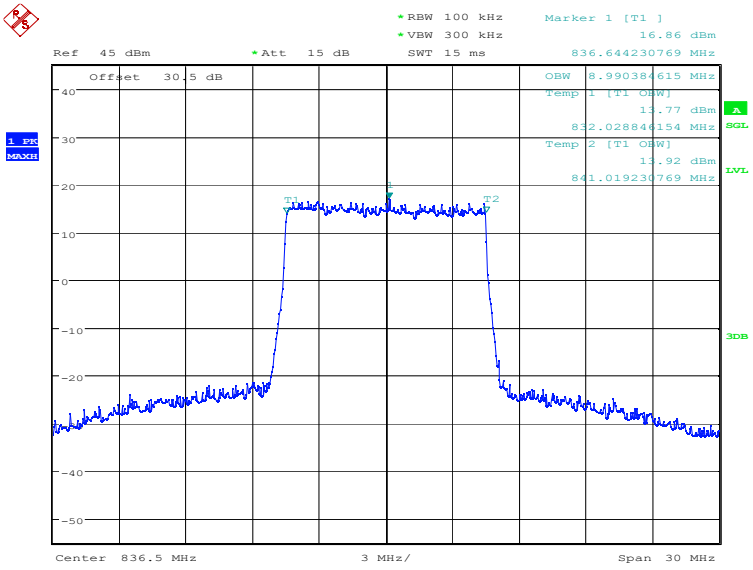
LTE band 5, 10MHz (99%)

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

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



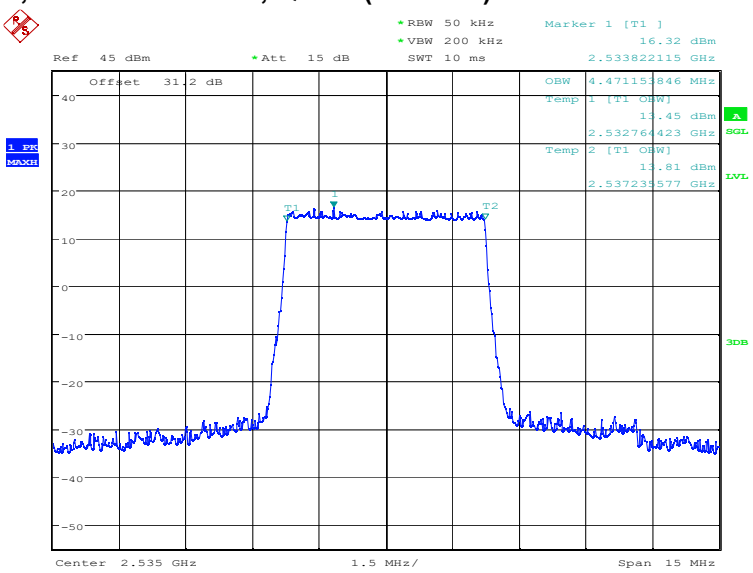
LTE band 5, 10MHz Bandwidth, 16QAM (99% BW)



LTE band 7, 5MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2535.0	QPSK	16QAM
	4471.15	4495.19

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



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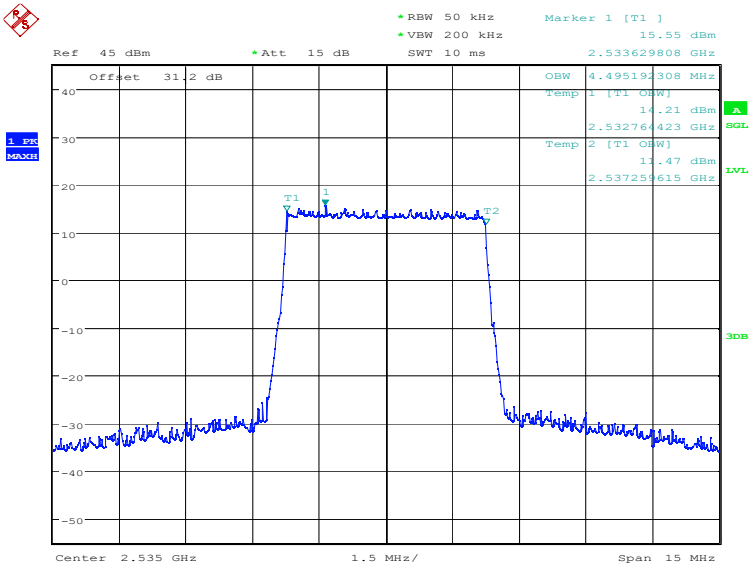
LTE band 7, 5MHz Bandwidth, 16QAM (99% BW)

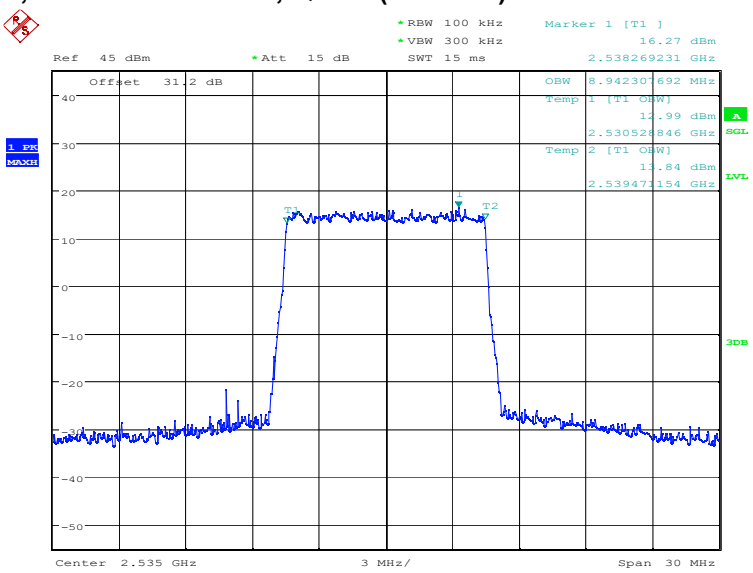


Date: 10.JAN.2024 11:55:30

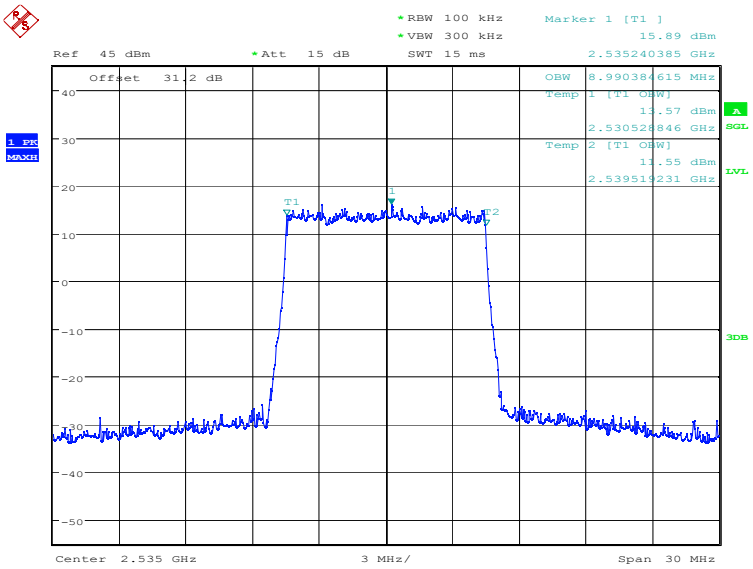
LTE band 7, 10MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2535.0	QPSK	16QAM
	8942.31	8990.38

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



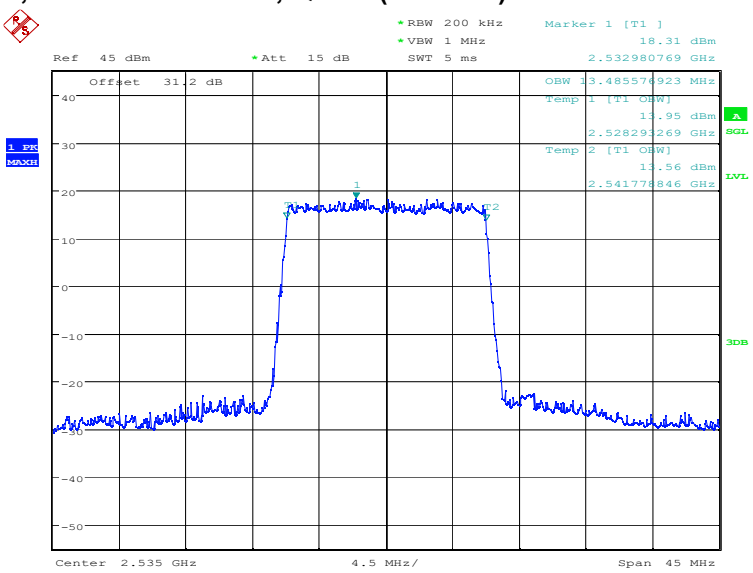
LTE band 7, 10MHz Bandwidth, 16QAM (99% BW)



LTE band 7, 15MHz (99%)

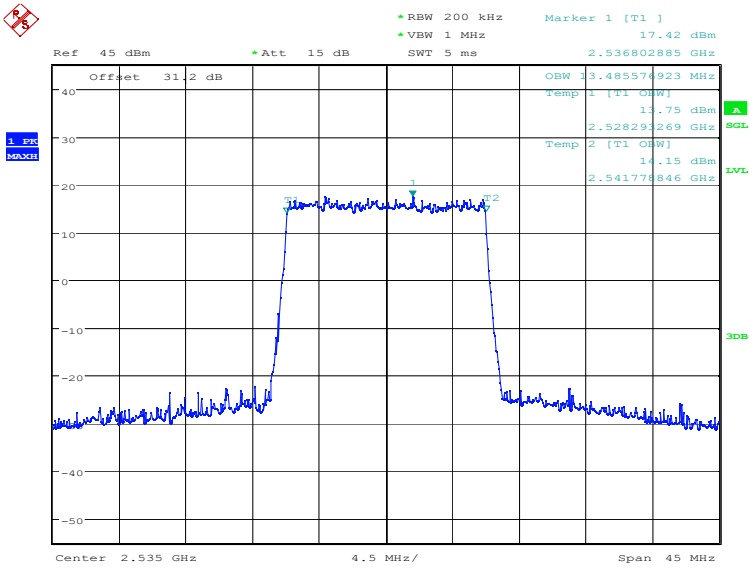
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2535.0	QPSK	16QAM
	13485.58	13485.58

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



Date: 10.JAN.2024 11:57:33

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

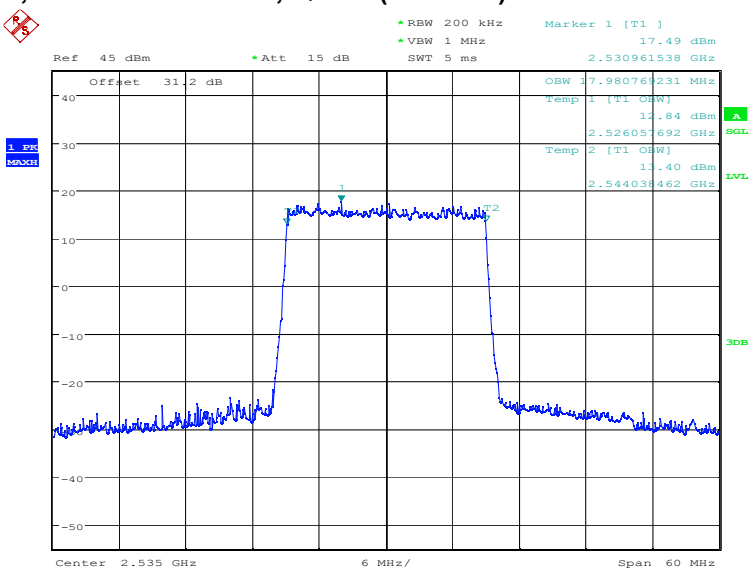


Date: 10.JAN.2024 11:58:13

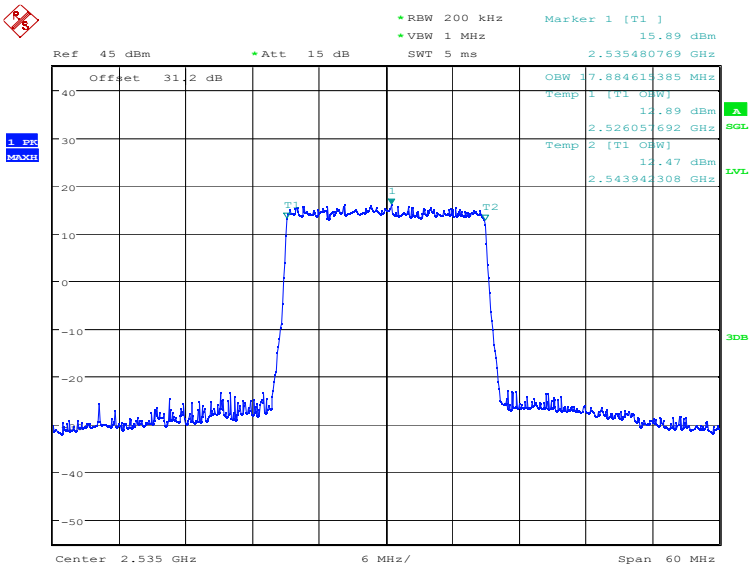
LTE band 7, 20MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
2535.0	QPSK	16QAM
	17980.77	17884.62

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



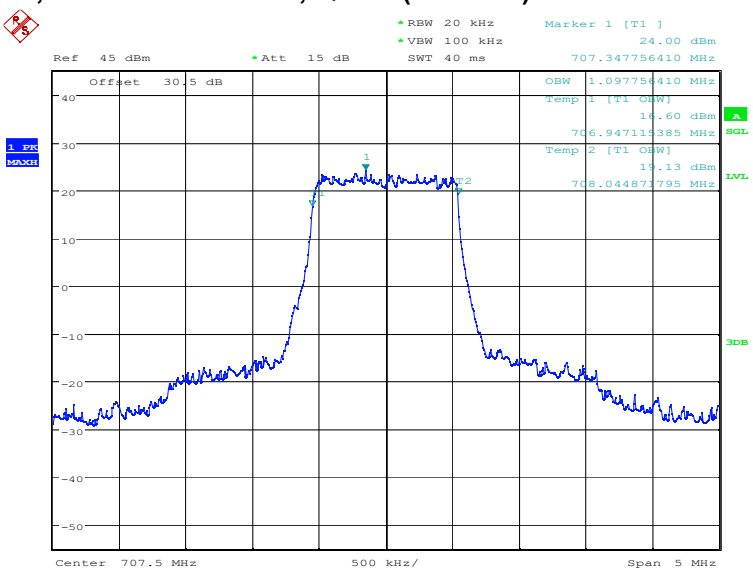
LTE band 7, 20MHz Bandwidth, 16QAM (99% BW)



LTE band 12, 1.4MHz (99%)

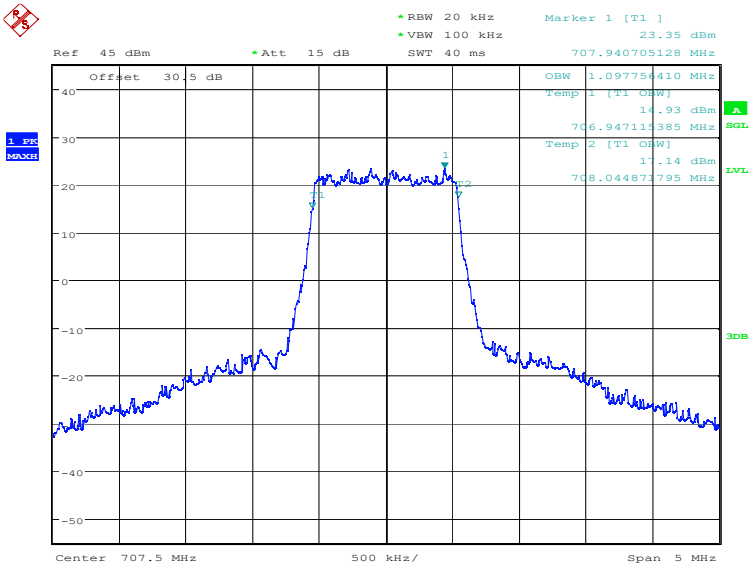
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	1097.76	1097.76

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



Date: 10.JAN.2024 10:26:00

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

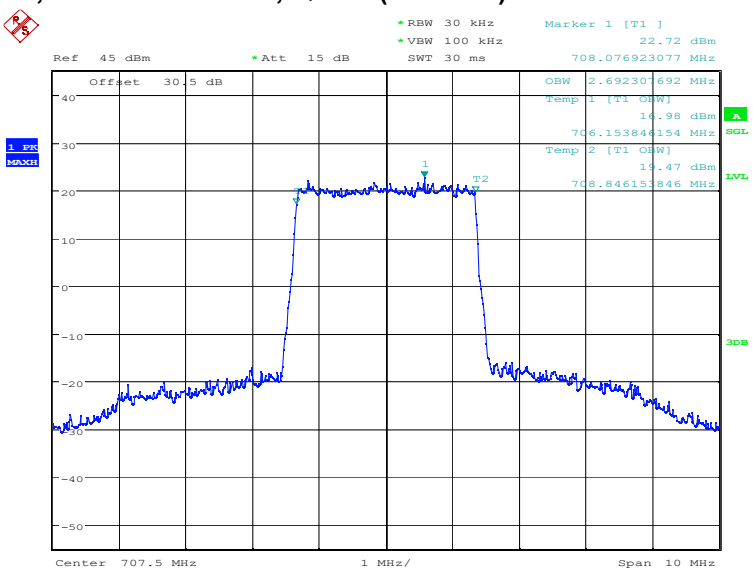


Date: 10.JAN.2024 10:26:40

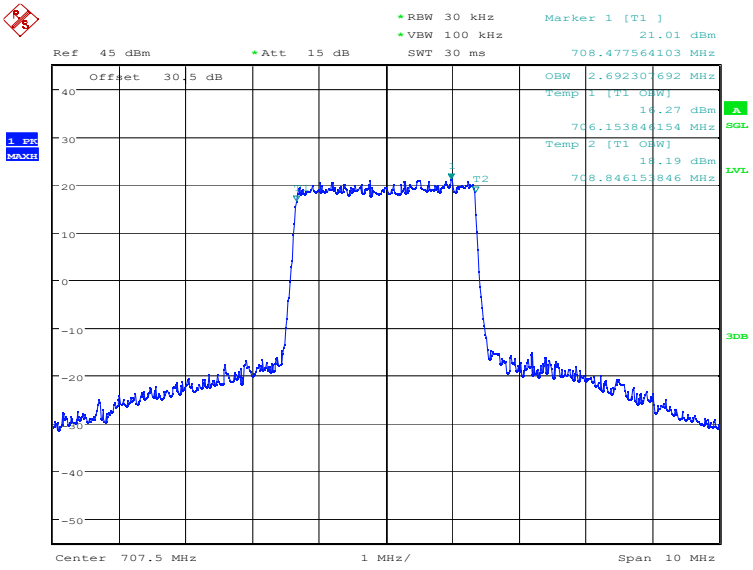
LTE band 12, 3MHz (99%)

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

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



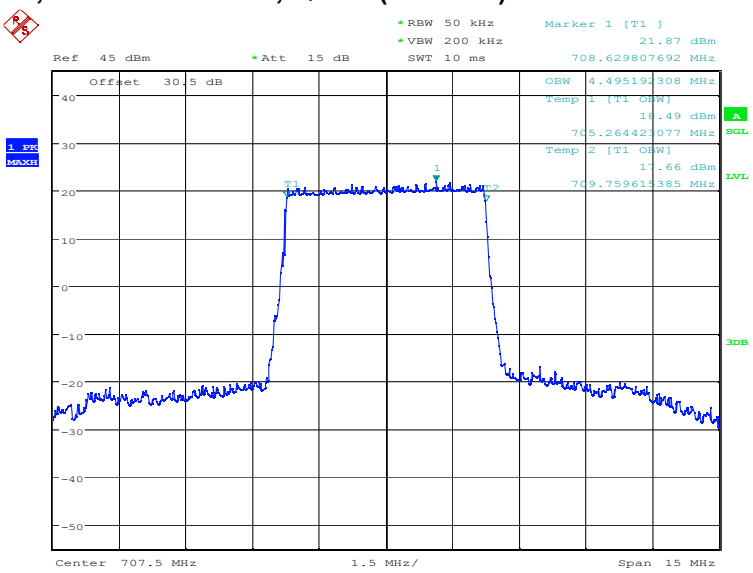
LTE band 12, 3MHz Bandwidth, 16QAM (99% BW)



LTE band 12, 5MHz (99%)

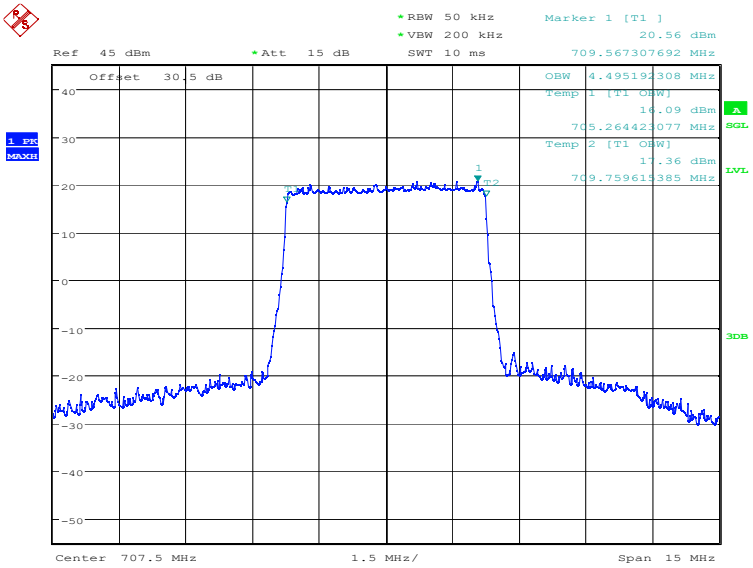
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	4495.19	4495.19

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



Date: 10.JAN.2024 10:28:44

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

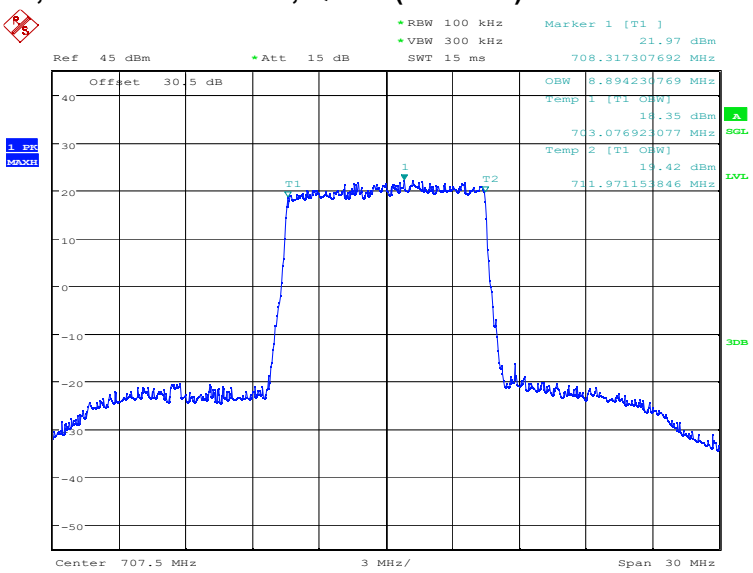


Date: 10.JAN.2024 10:29:24

LTE band 12, 10MHz (99%)

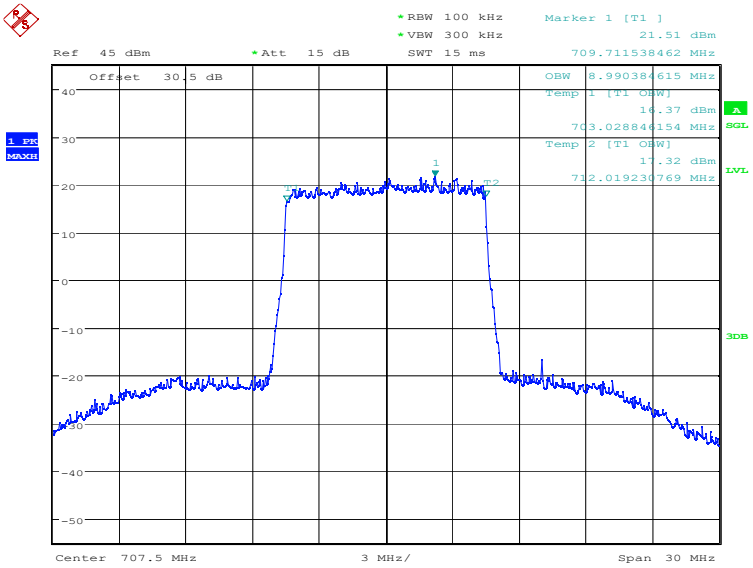
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
707.5	QPSK	16QAM
	8894.23	8990.38

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



Date: 10.JAN.2024 10:30:05

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

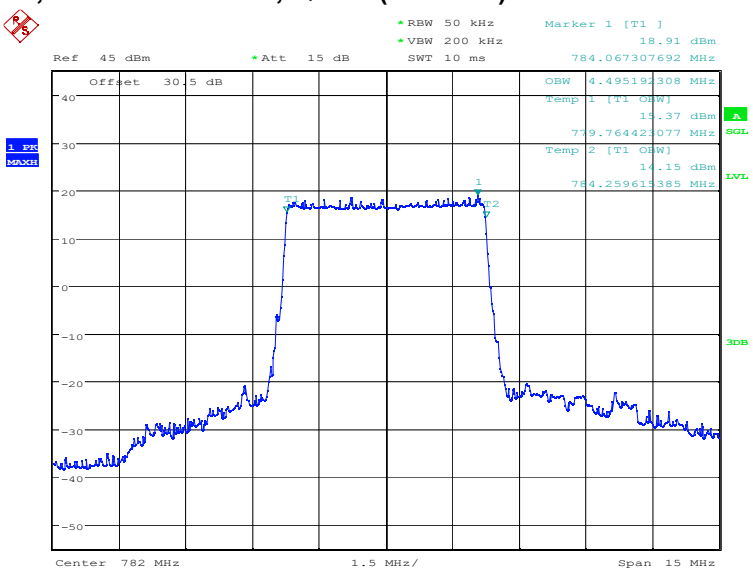


Date: 10.JAN.2024 10:30:45

LTE band 13, 5MHz (99%)

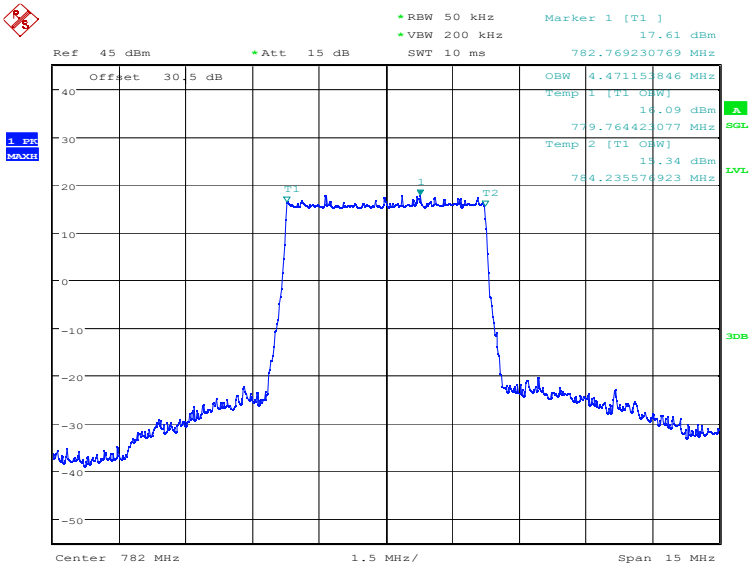
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
782.0	QPSK	16QAM
	4495.19	4471.15

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



Date: 10.JAN.2024 10:31:28

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

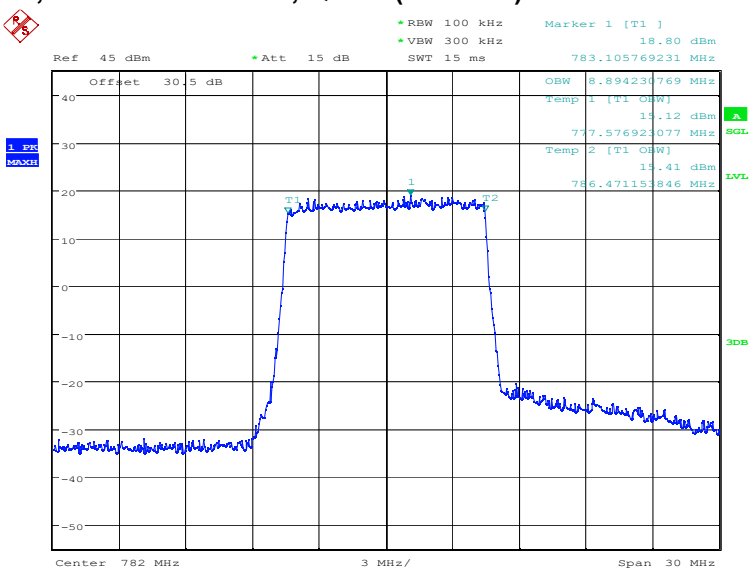


Date: 10.JAN.2024 10:32:08

LTE band 13, 10MHz (99%)

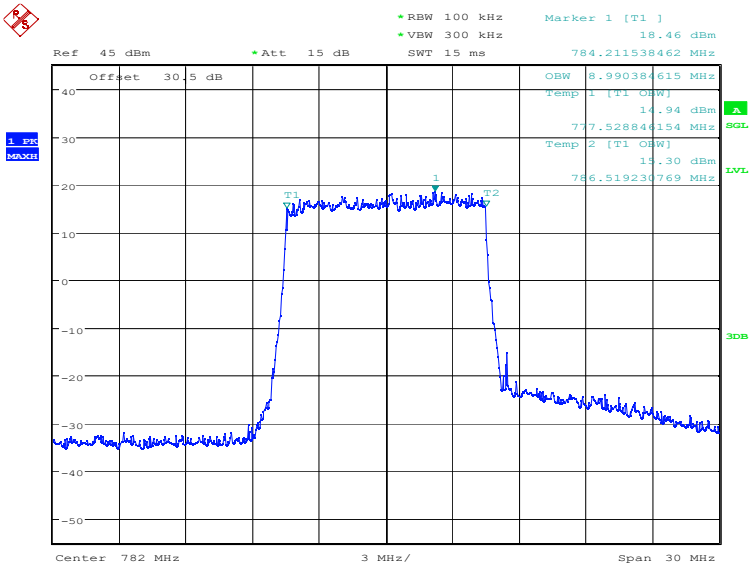
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
782.0	QPSK	16QAM
	8894.23	8990.38

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



Date: 10.JAN.2024 10:32:50

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

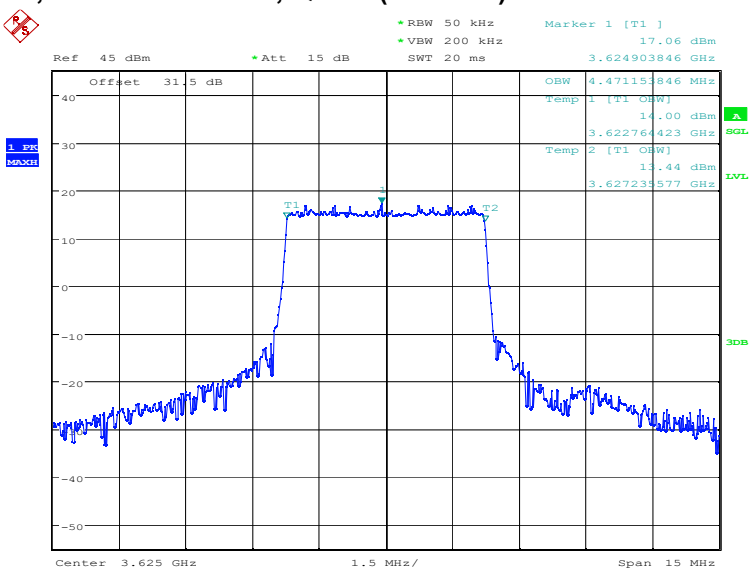


Date: 10.JAN.2024 10:33:30

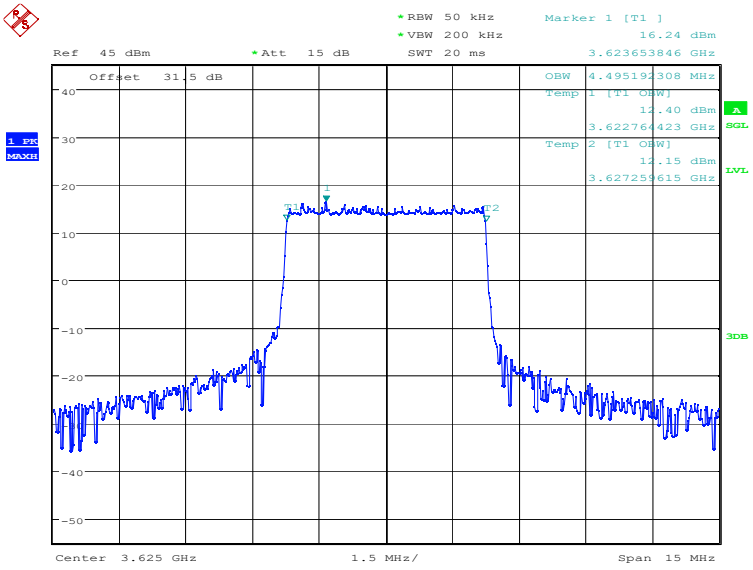
LTE band 48, 5MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
3625.0	QPSK	16QAM
	4471.15	4495.19

LTE band 48, 5MHz Bandwidth, QPSK (99% BW)



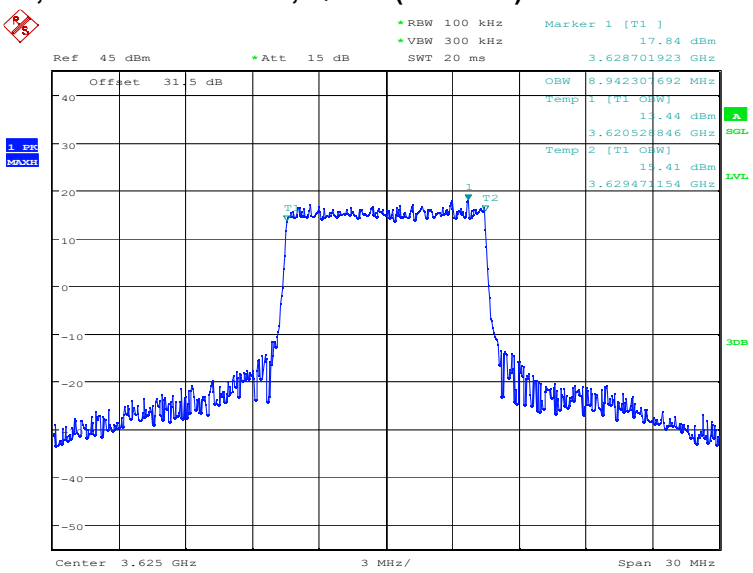
LTE band 48, 5MHz Bandwidth, 16QAM (99% BW)



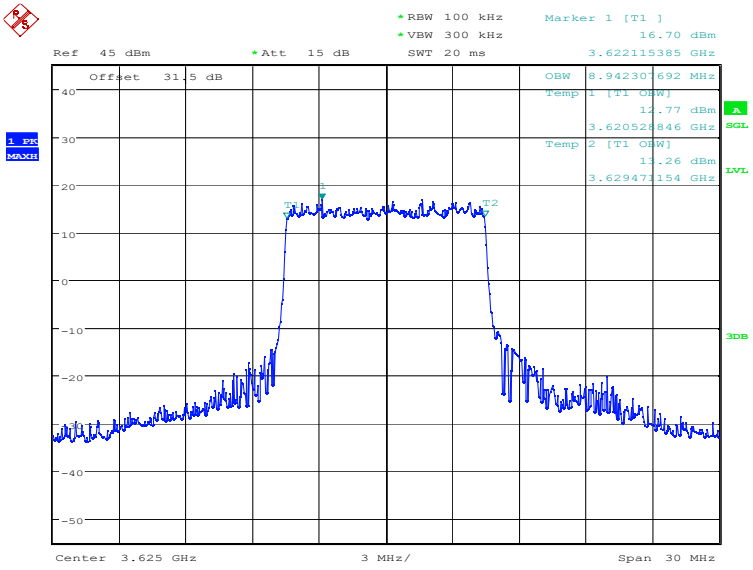
LTE band 48, 10MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
3625.0	QPSK	16QAM
	8942.31	8942.31

LTE band 48, 10MHz Bandwidth, QPSK (99% BW)



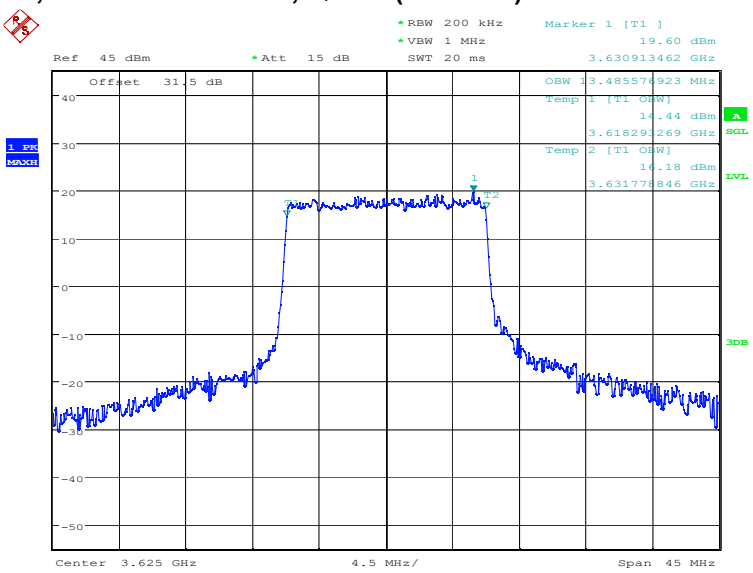
LTE band 48, 10MHz Bandwidth, 16QAM (99% BW)



LTE band 48, 15MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
3625.0	QPSK	16QAM
	13485.58	13485.58

LTE band 48, 15MHz Bandwidth, QPSK (99% BW)



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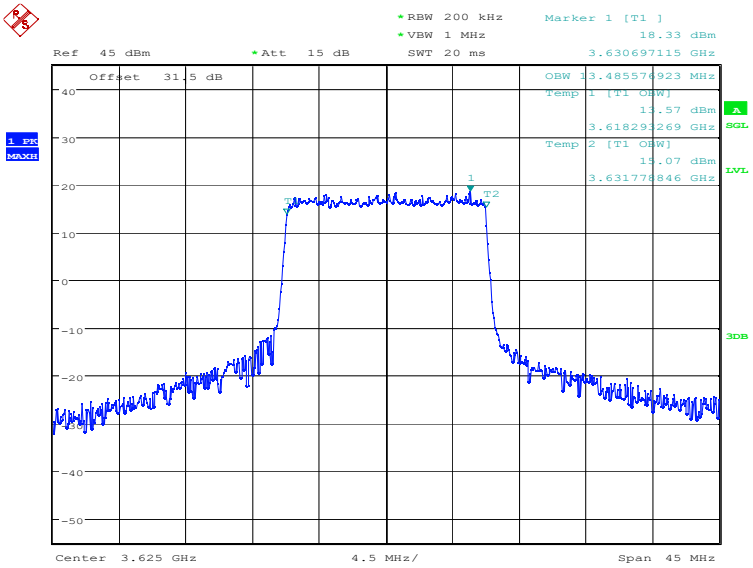
LTE band 48, 15MHz Bandwidth, 16QAM (99% BW)

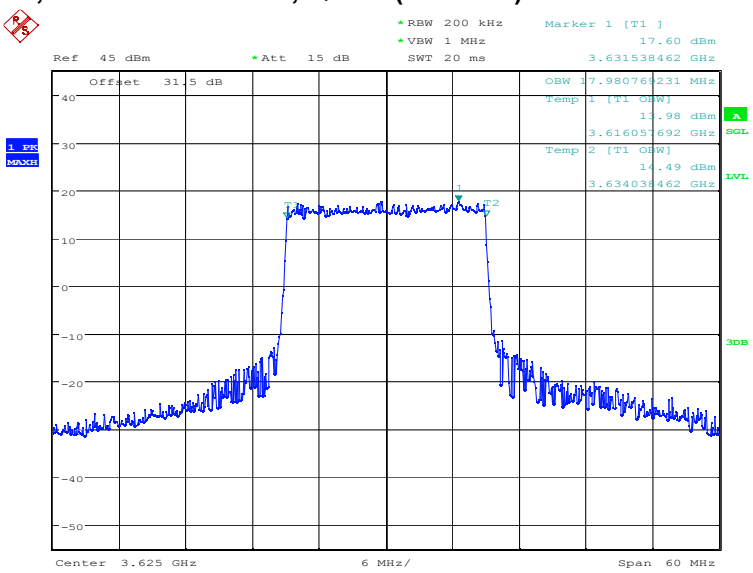


Date: 10.JAN.2024 13:13:03

LTE band 48, 20MHz (99%)

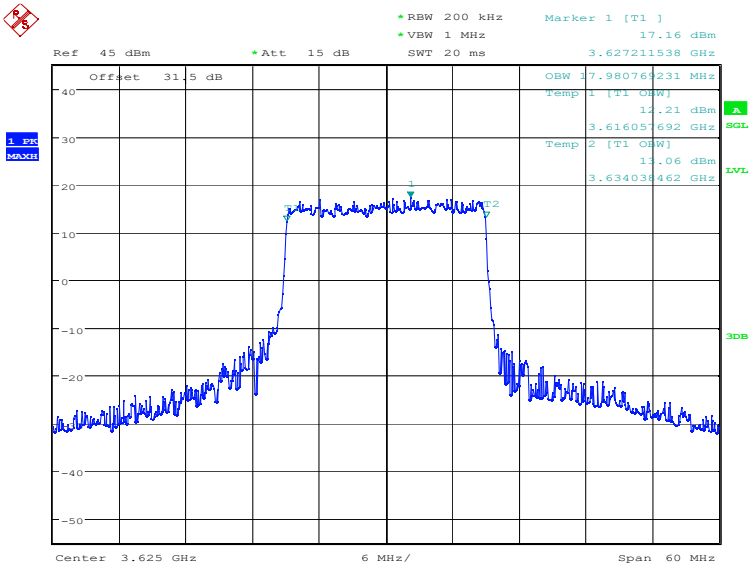
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
3625.0	QPSK	16QAM
	17980.77	17980.77

LTE band 48, 20MHz Bandwidth, QPSK (99% BW)



Date: 10.JAN.2024 13:13:45

LTE band 48, 20MHz Bandwidth, 16QAM (99% BW)

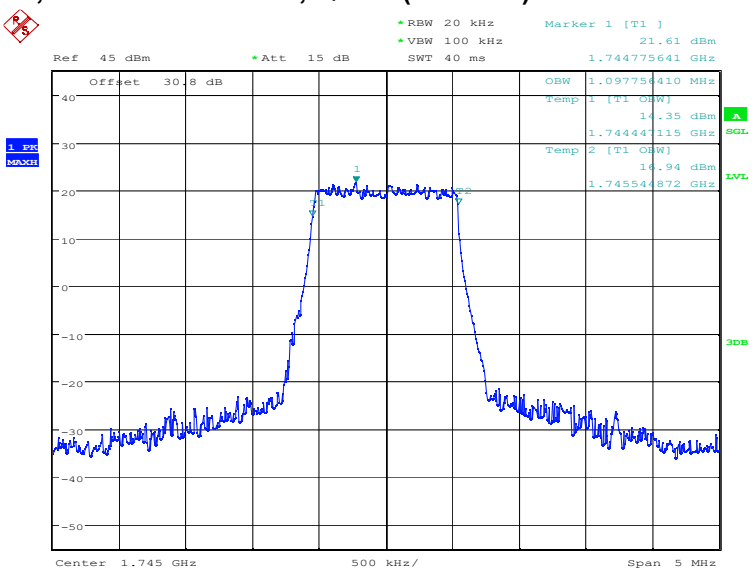


Date: 10.JAN.2024 13:14:24

LTE band 66, 1.4MHz (99%)

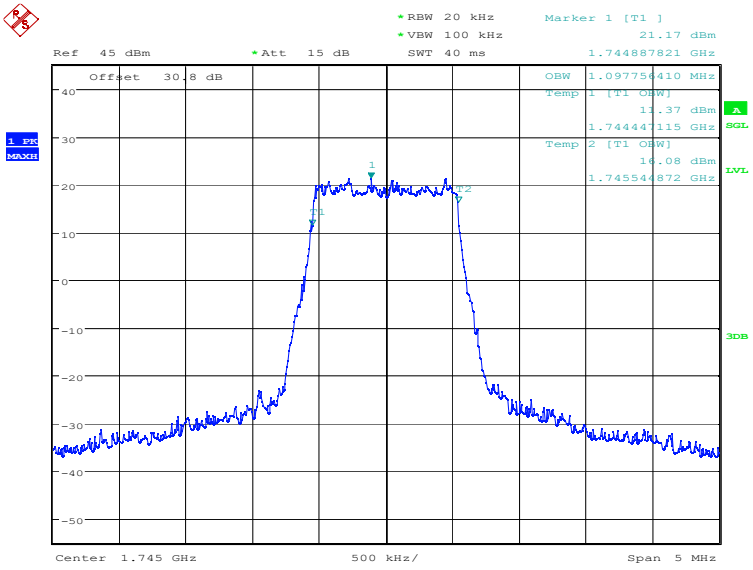
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	1097.76	1097.76

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



Date: 10.JAN.2024 16:41:03

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

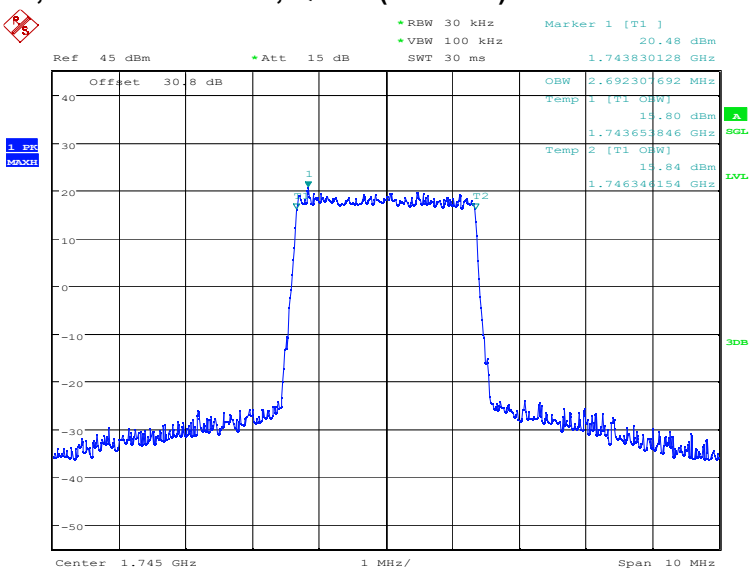


Date: 10.JAN.2024 16:41:42

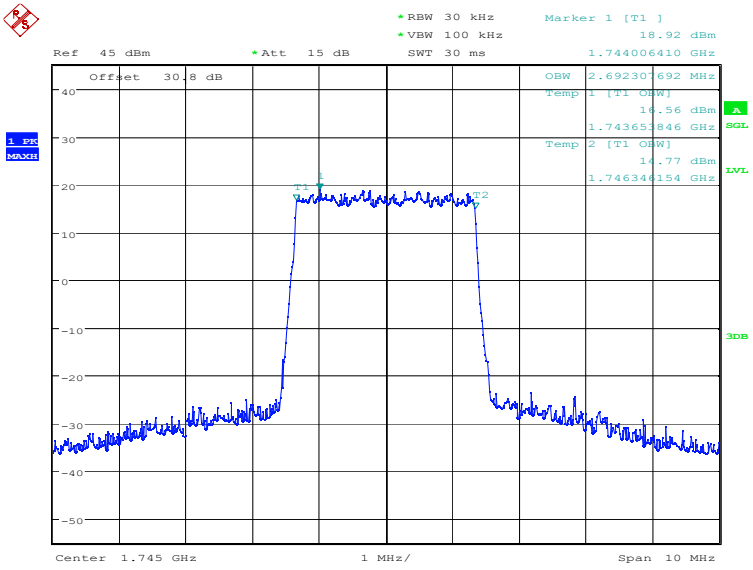
LTE band 66, 3MHz (99%)

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

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



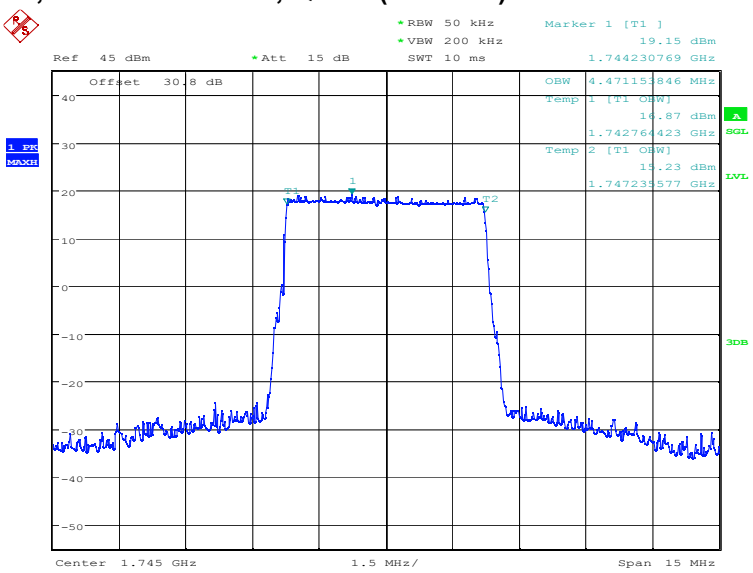
LTE band 66, 3MHz Bandwidth, 16QAM (99% BW)



LTE band 66, 5MHz (99%)

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

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



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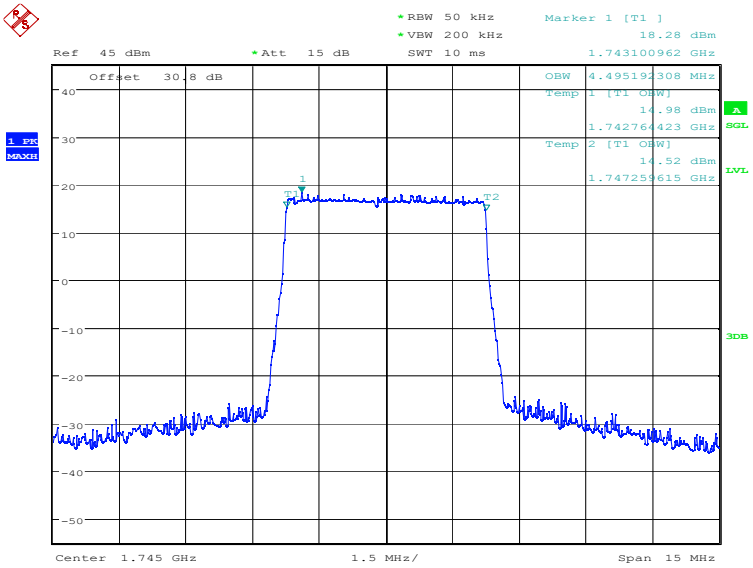
LTE band 66, 5MHz Bandwidth, 16QAM (99% BW)

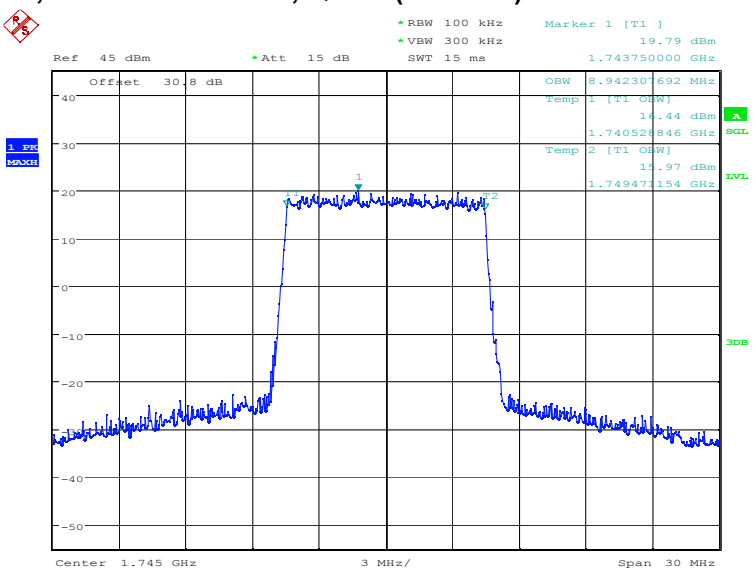


Date: 10.JAN.2024 16:44:27

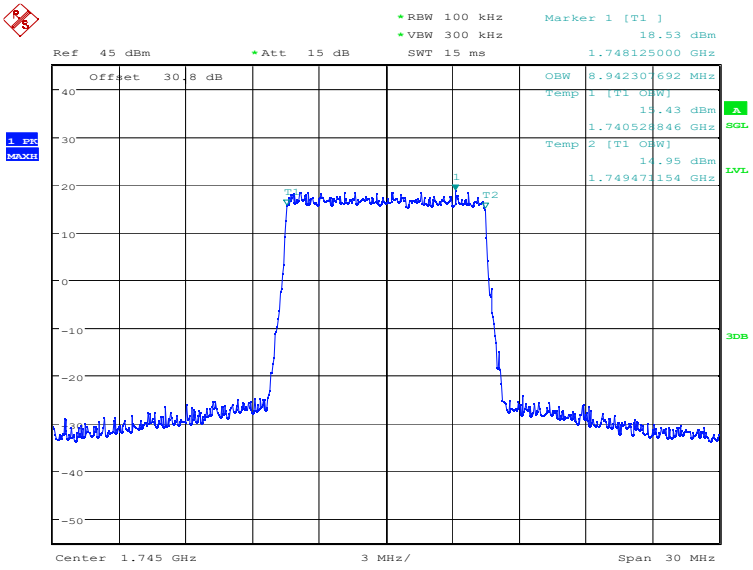
LTE band 66, 10MHz (99%)

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

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



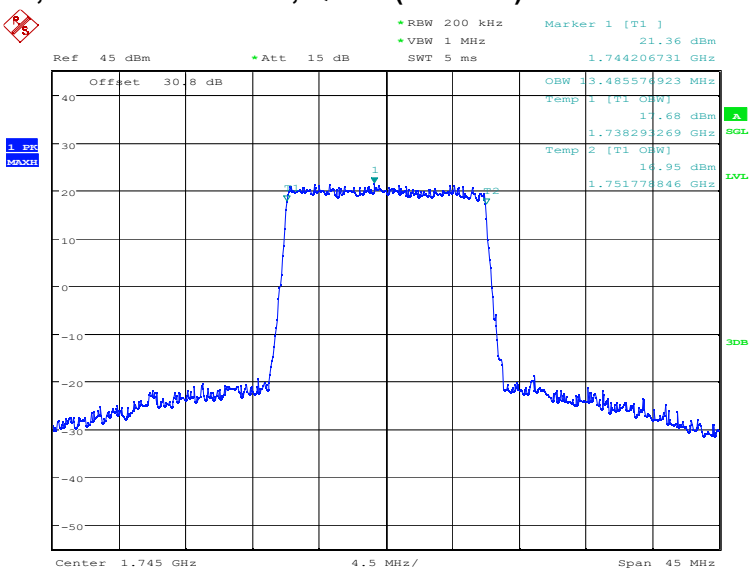
LTE band 66, 10MHz Bandwidth, 16QAM (99% BW)



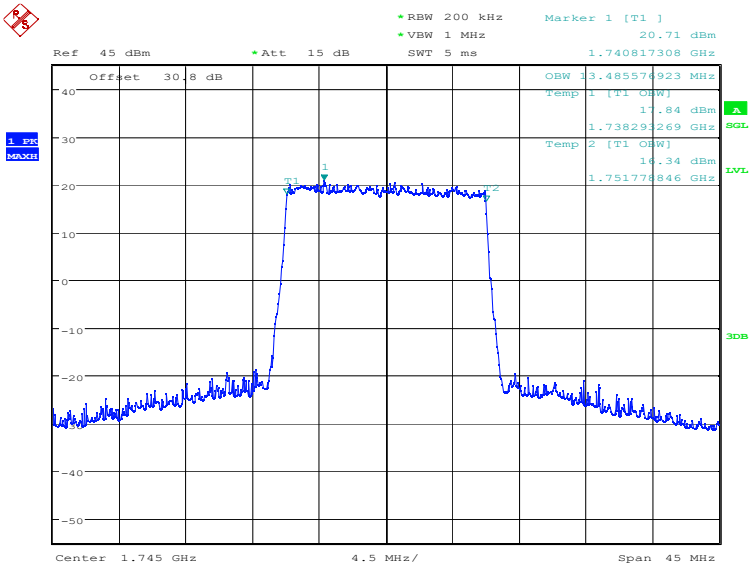
LTE band 66, 15MHz (99%)

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

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



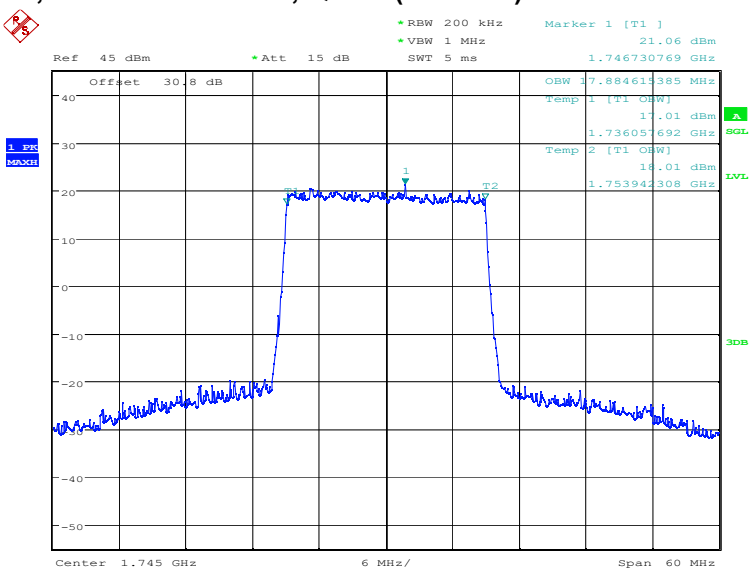
LTE band 66, 15MHz Bandwidth, 16QAM (99% BW)



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)



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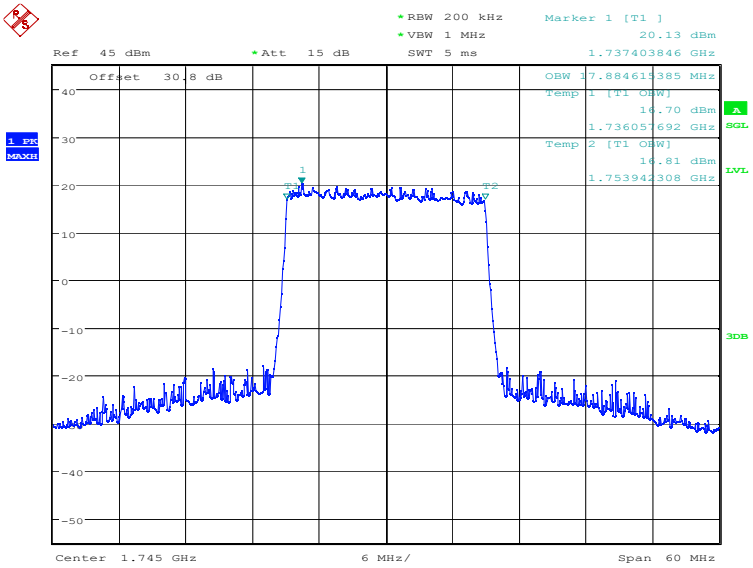
LTE band 66, 20MHz Bandwidth, 16QAM (99% BW)



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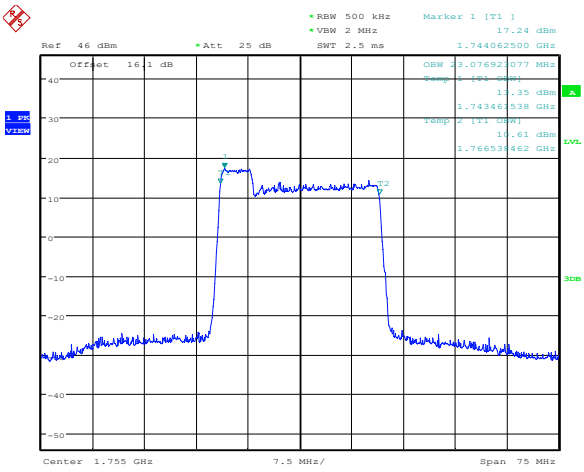
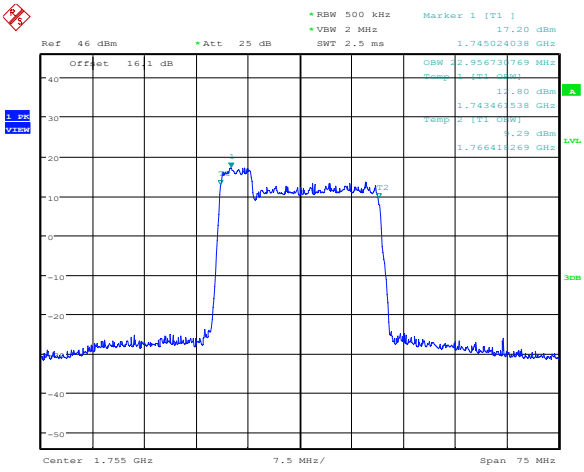
LTE CA band 66C, 5MHz+20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1755.0	23.077	22.957

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



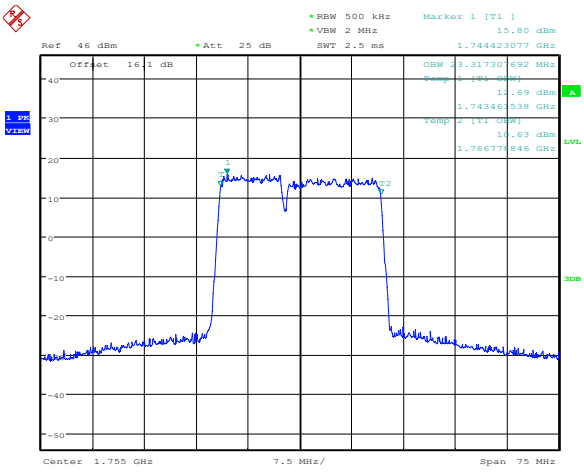
LTE CA band 66C , 5MHz+20MHz Bandwidth, 16QAM (99% BW)



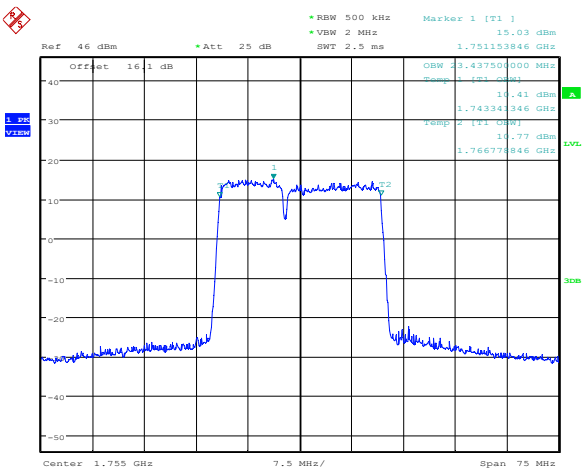
LTE CA band 66C, 10MHz+15MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1755.0	23.317	23.438

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



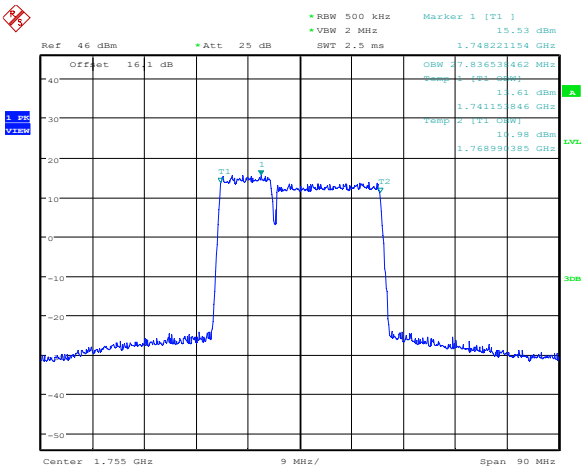
LTE CA band 66C , 10MHz+15MHz Bandwidth, 16QAM (99% BW)



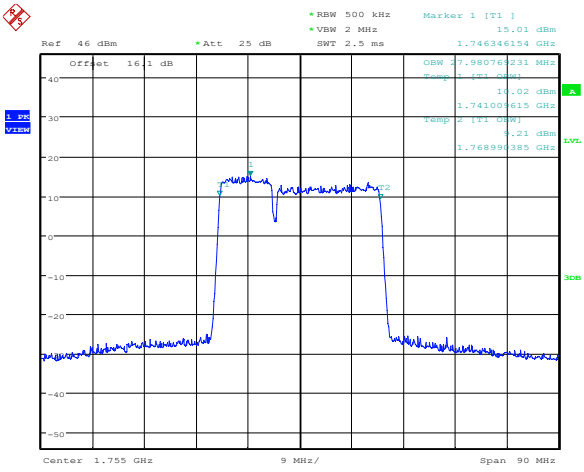
LTE CA band 66C, 10MHz+20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1755.0	27.837	27.981

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



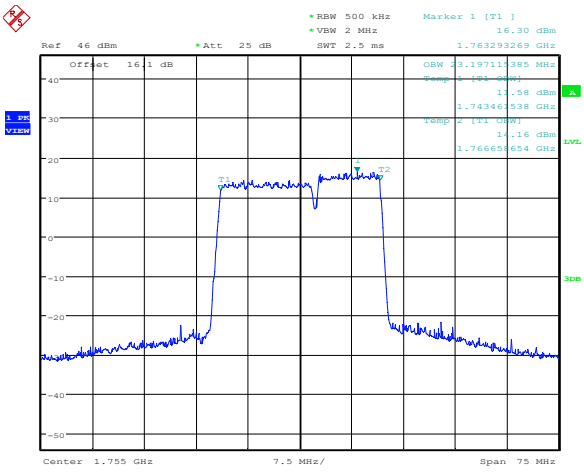
LTE CA band 66C , 10MHz+20MHz Bandwidth, 16QAM (99% BW)



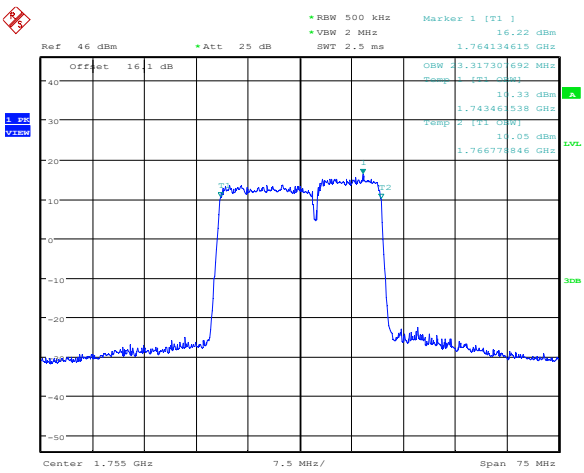
LTE CA band 66C, 15MHz+10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1755.0	23.197	23.317

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



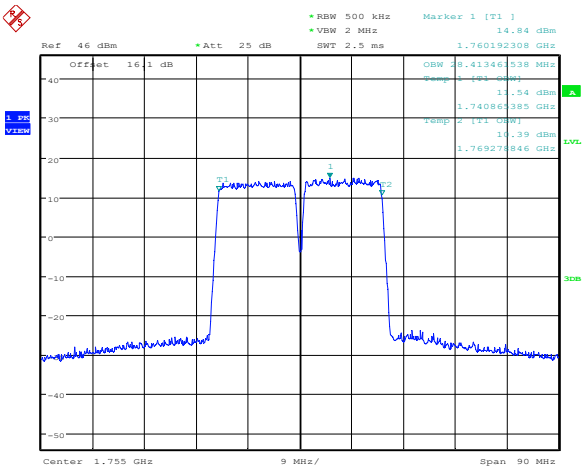
LTE CA band 66C , 15MHz+10MHz Bandwidth, 16QAM (99% BW)



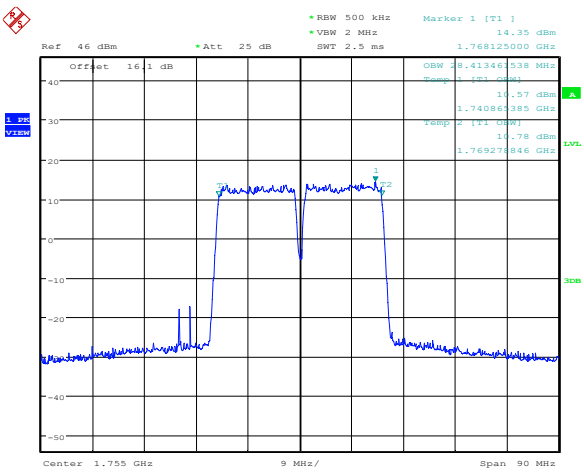
LTE CA band 66C, 15MHz+15MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1755.0	28.413	28.413

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



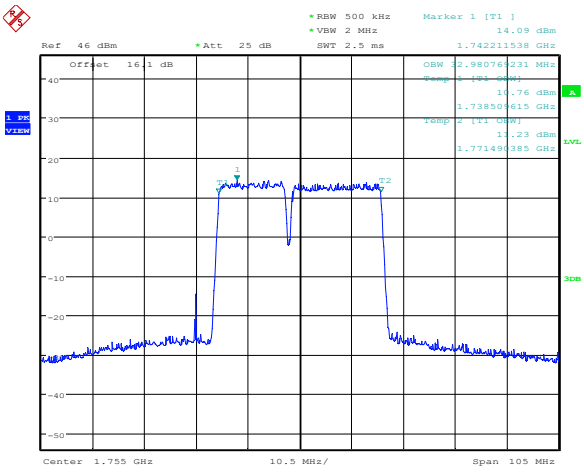
LTE CA band 66C , 15MHz+15MHz Bandwidth, 16QAM (99% BW)



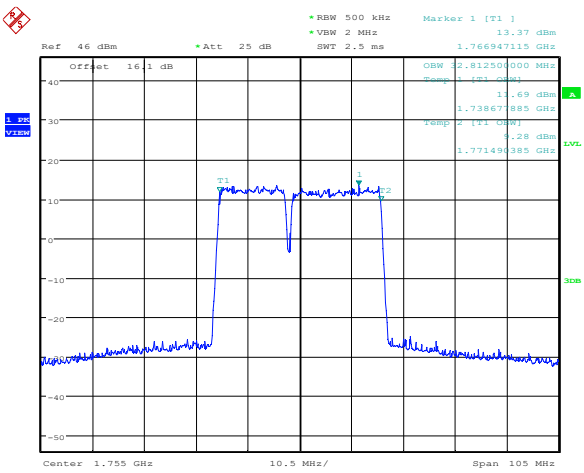
LTE CA band 66C, 15MHz+20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1755.0	32.981	32.812

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



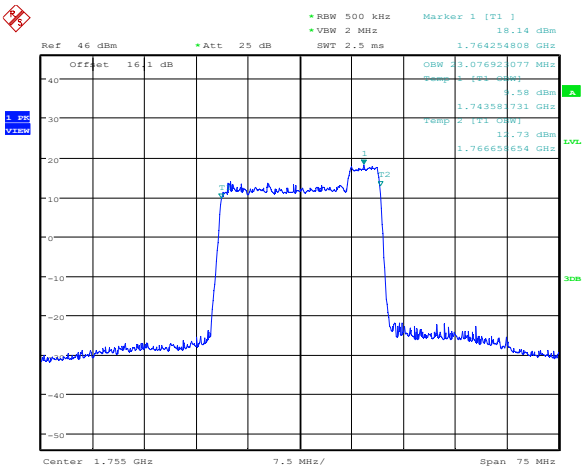
LTE CA band 66C , 15MHz+20MHz Bandwidth, 16QAM (99% BW)



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

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1755.0	23.077	22.957

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



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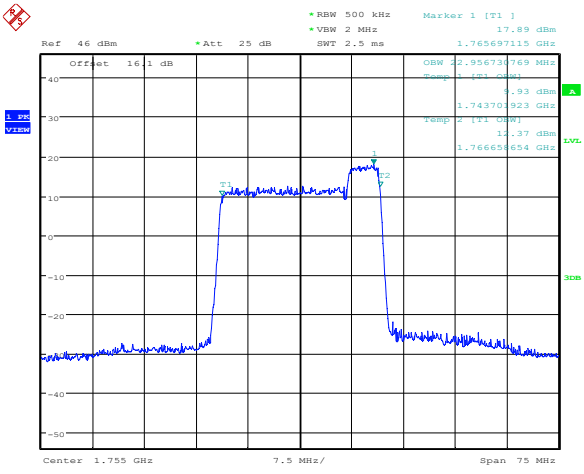
LTE CA band 66C , 20MHz+5MHz Bandwidth, 16QAM (99% BW)



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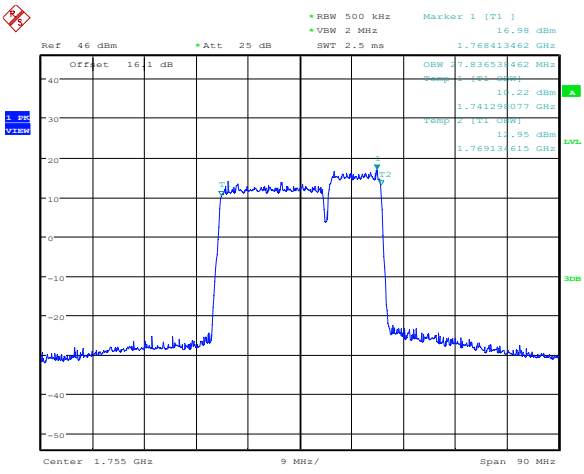
LTE CA band 66C, 20MHz+10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1755.0	27.837	27.837

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



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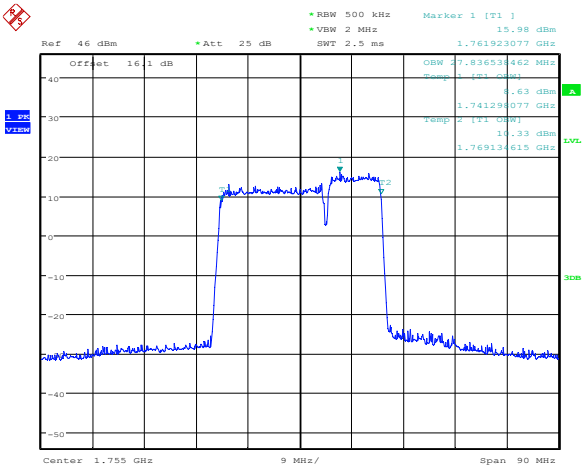
LTE CA band 66C , 20MHz+10MHz Bandwidth, 16QAM (99% BW)

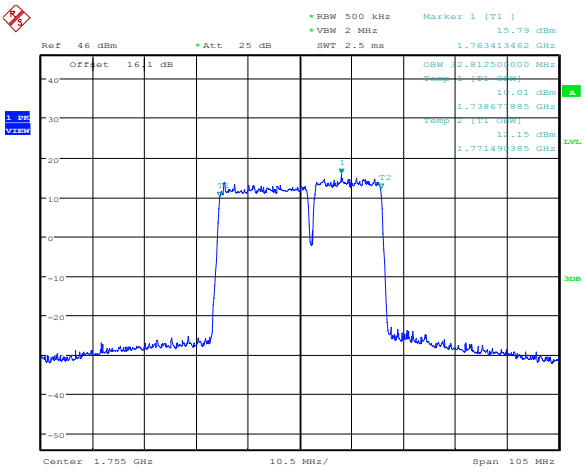


Date: 17.JAN.2024 08:40:22

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

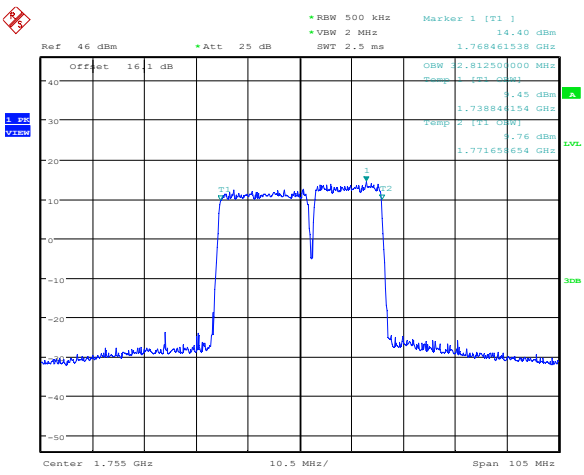
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1755.0	32.812	32.812

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



Date: 17.JAN.2024 08:41:17

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

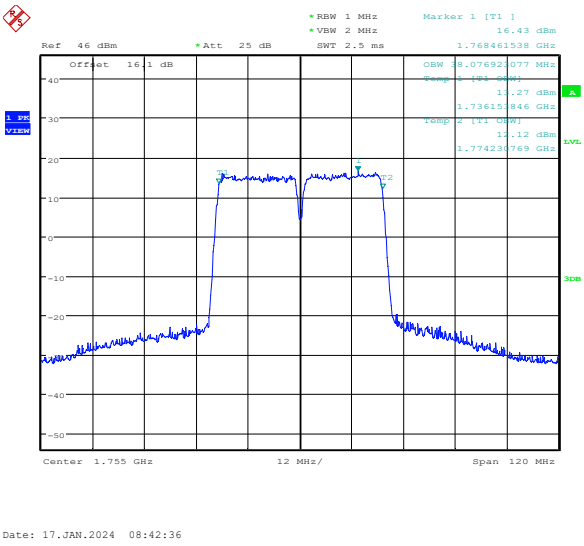


Date: 17.JAN.2024 08:41:41

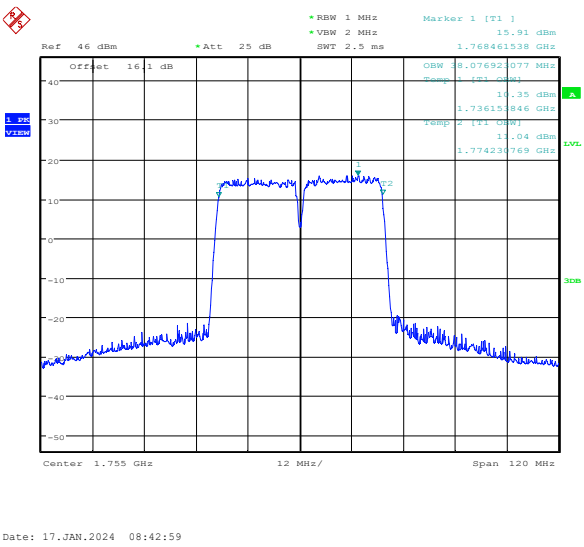
LTE CA band 66C, 20MHz+20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	QPSK	16QAM
1755.0	38.077	38.077

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



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



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

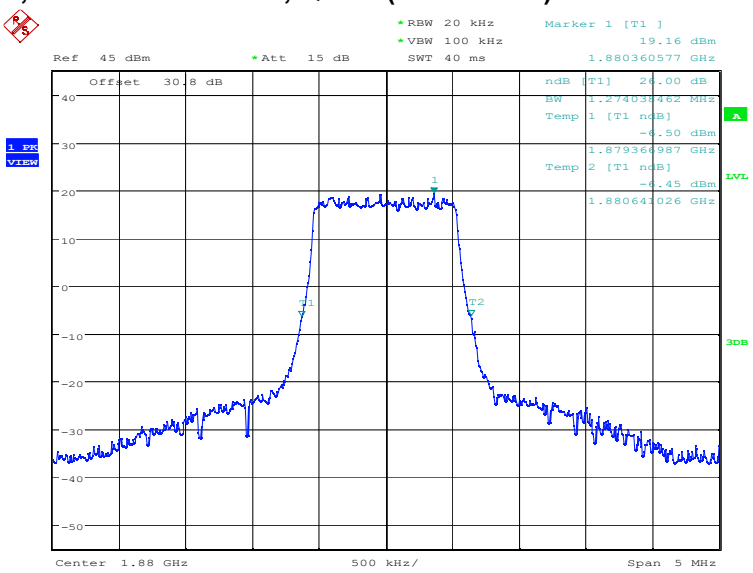
A.5 Emission Bandwidth

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)

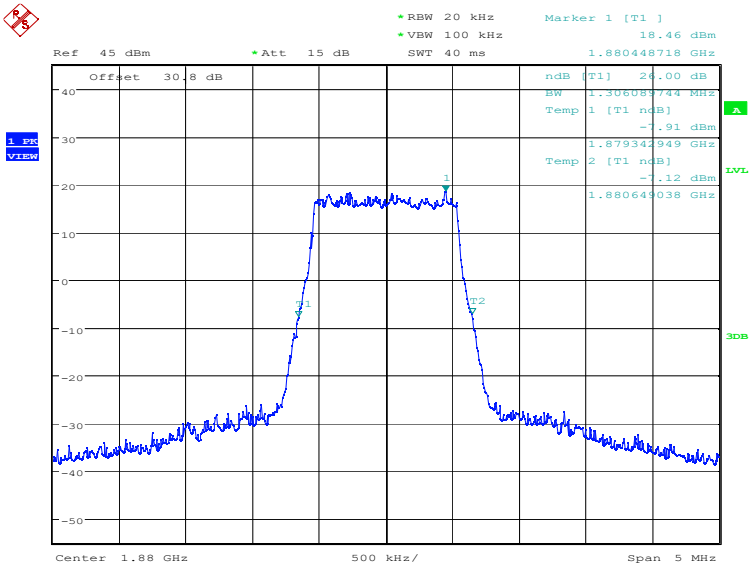
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	1274.04	1306.09

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



Date: 10.JAN.2024 16:49:51

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

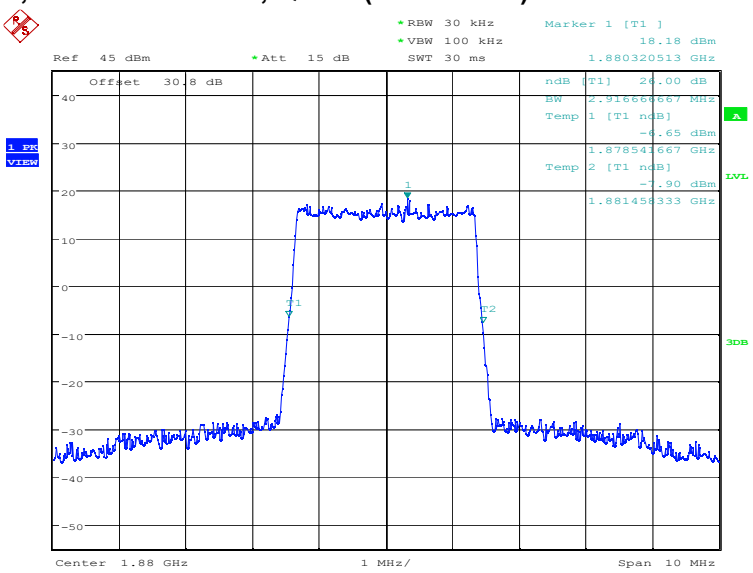


Date: 10.JAN.2024 16:50:31

LTE band 2, 3MHz (-26dBc)

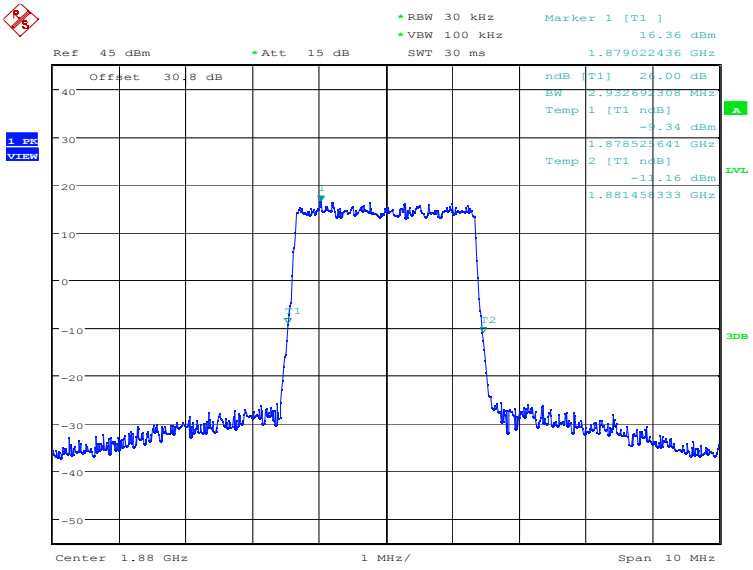
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	2916.67	2932.69

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



Date: 10.JAN.2024 16:51:13

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

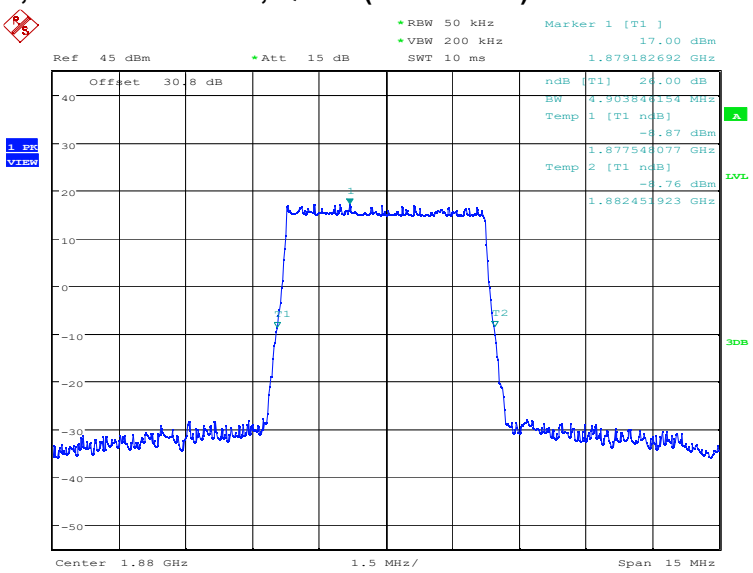


Date: 10.JAN.2024 16:51:54

LTE band 2, 5MHz (-26dBc)

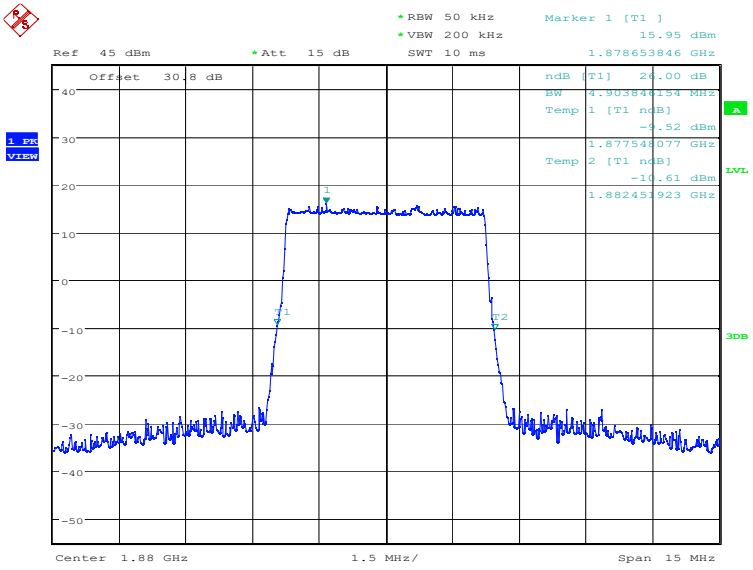
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	4903.85	4903.85

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



Date: 10.JAN.2024 16:52:36

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

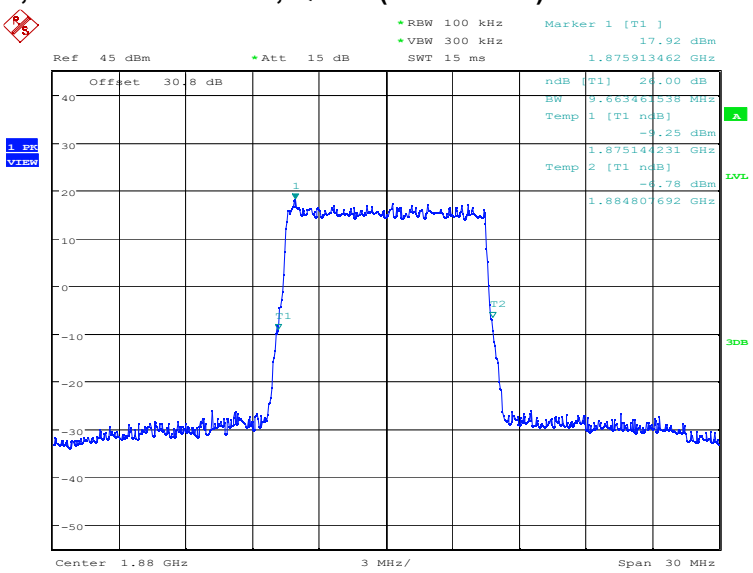


Date: 10.JAN.2024 16:53:16

LTE band 2, 10MHz (-26dBc)

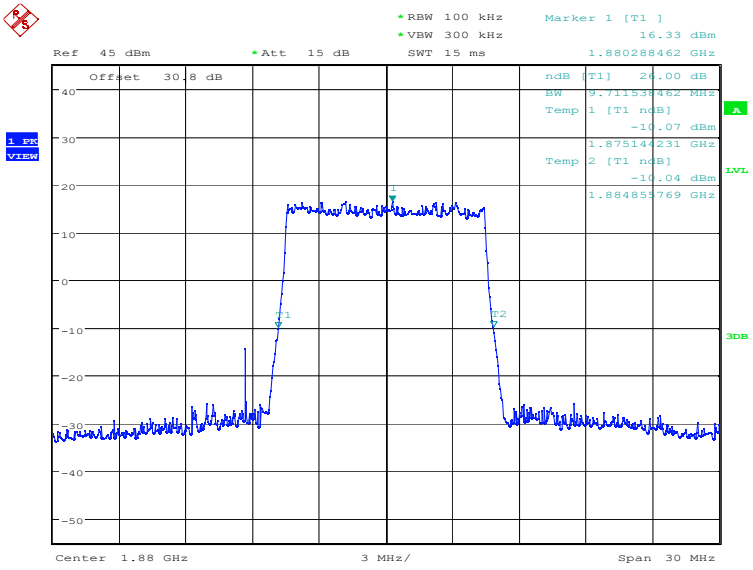
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	9663.46	9711.54

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



Date: 10.JAN.2024 16:53:58

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

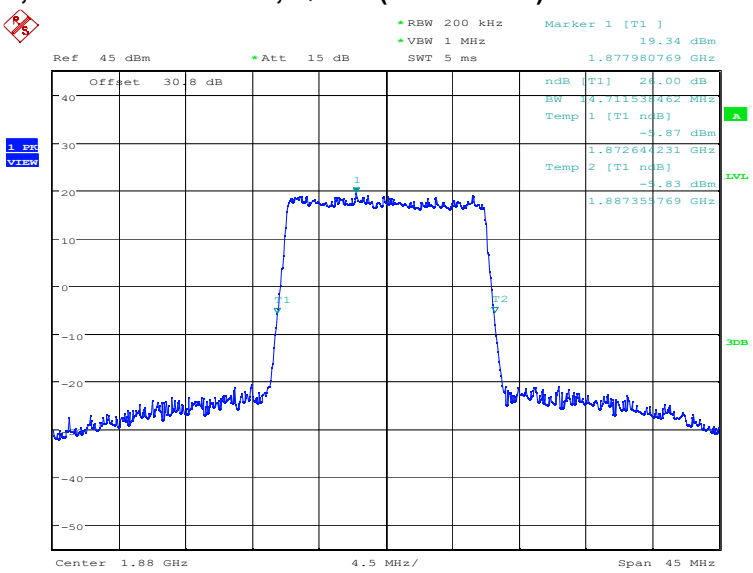


Date: 10.JAN.2024 16:54:38

LTE band 2, 15MHz (-26dBc)

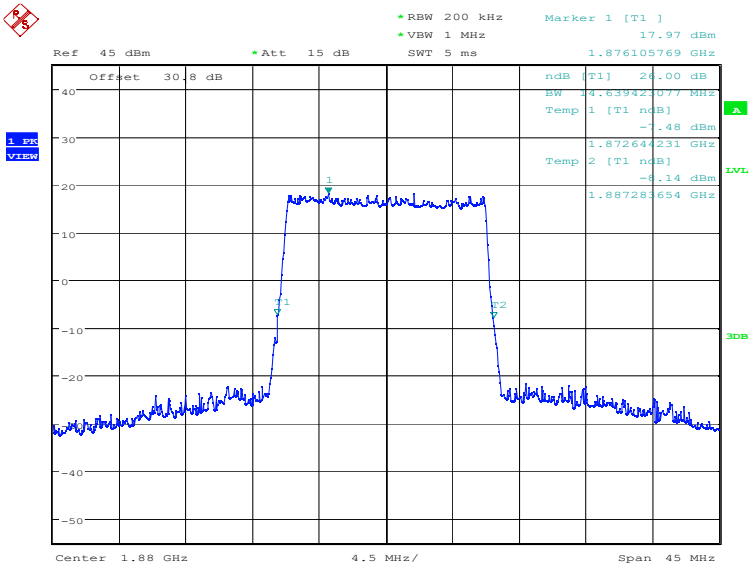
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	14711.54	14639.42

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



Date: 10.JAN.2024 16:55:20

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

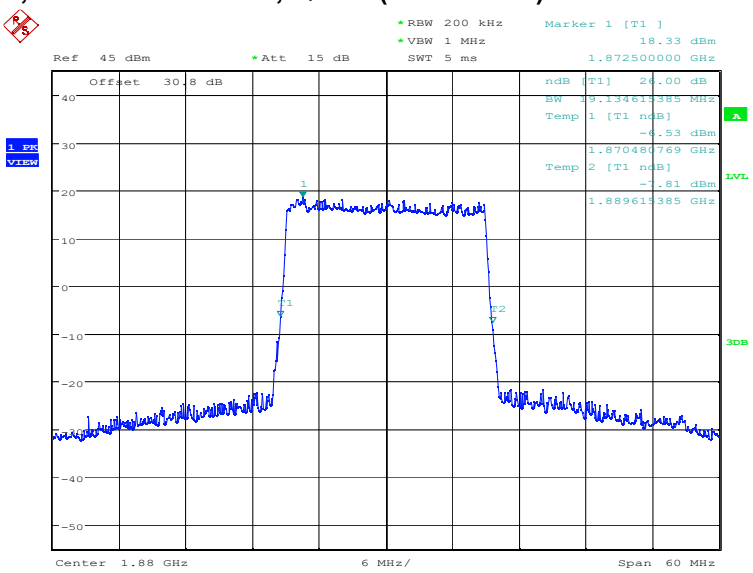


Date: 10.JAN.2024 16:56:00

LTE band 2, 20MHz (-26dBc)

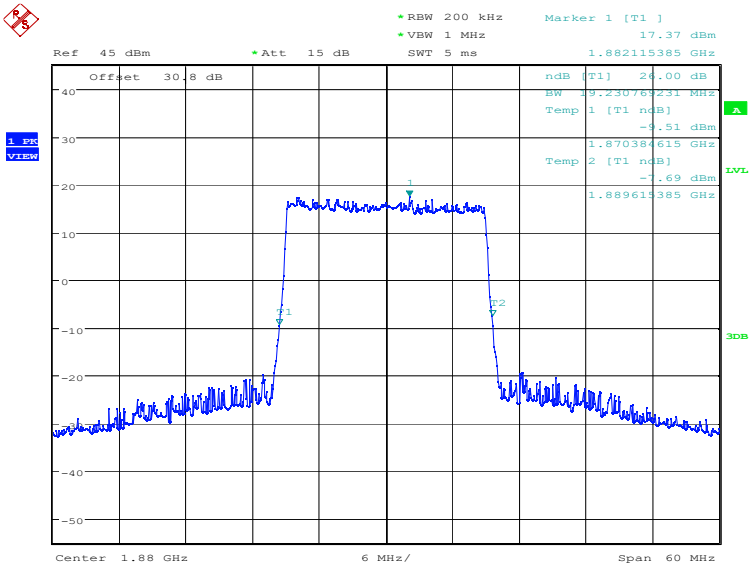
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	19134.62	19230.77

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



Date: 10.JAN.2024 16:56:42

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

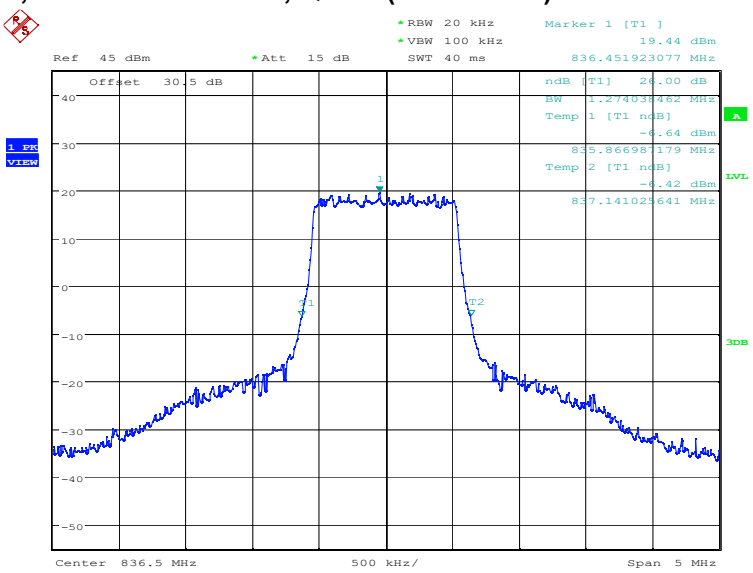


Date: 10.JAN.2024 16:57:23

LTE band 5, 1.4MHz (-26dBc)

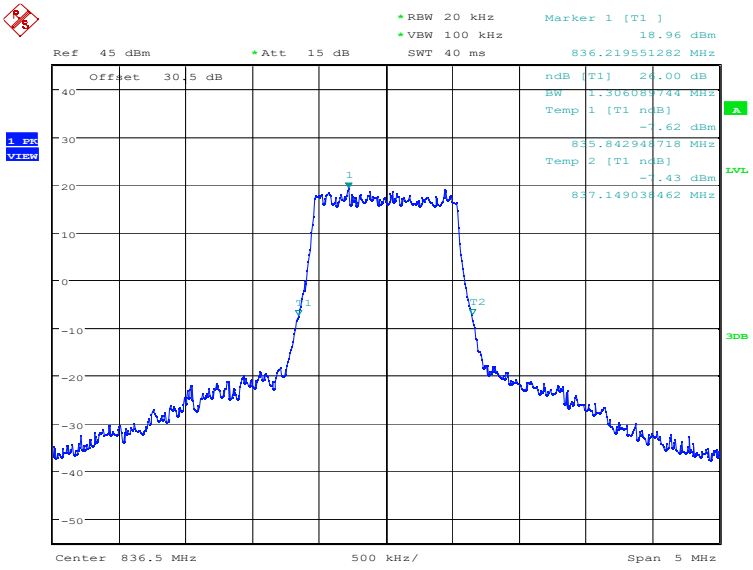
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	1274.04	1306.09

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



Date: 10.JAN.2024 10:34:49

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

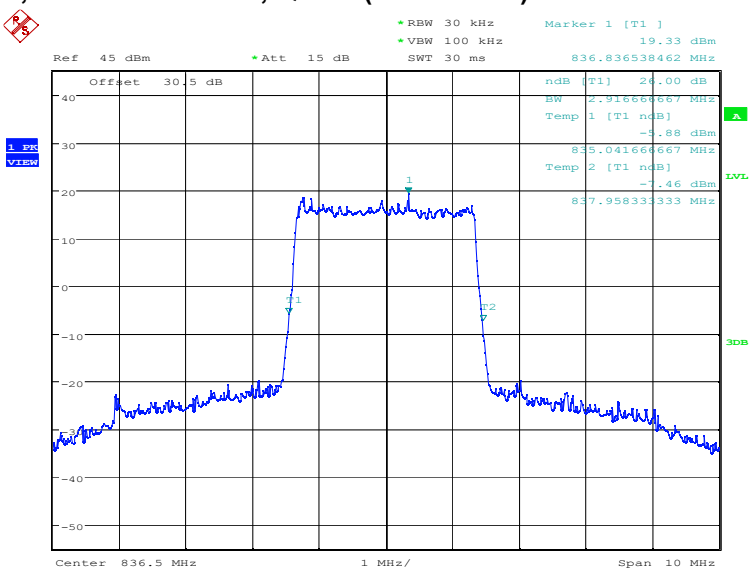


Date: 10.JAN.2024 10:35:29

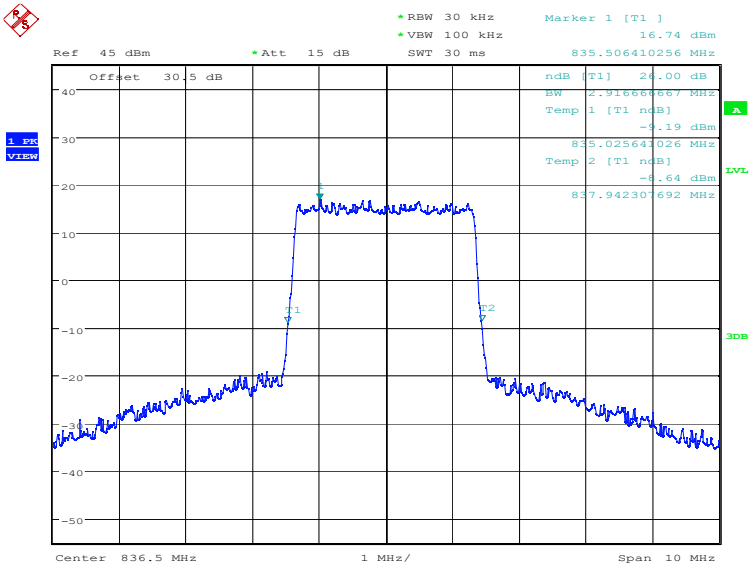
LTE band 5, 3MHz (-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	2916.67	2916.67

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



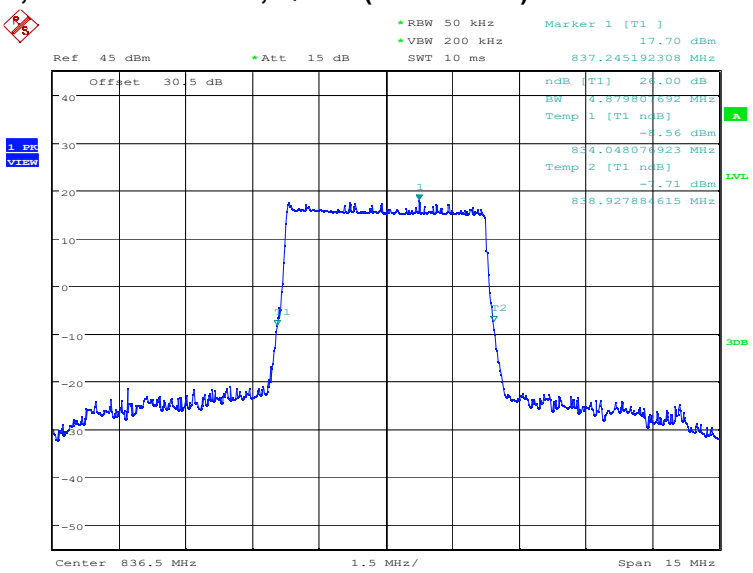
LTE band 5, 3MHz Bandwidth, 16QAM (-26dBc BW)



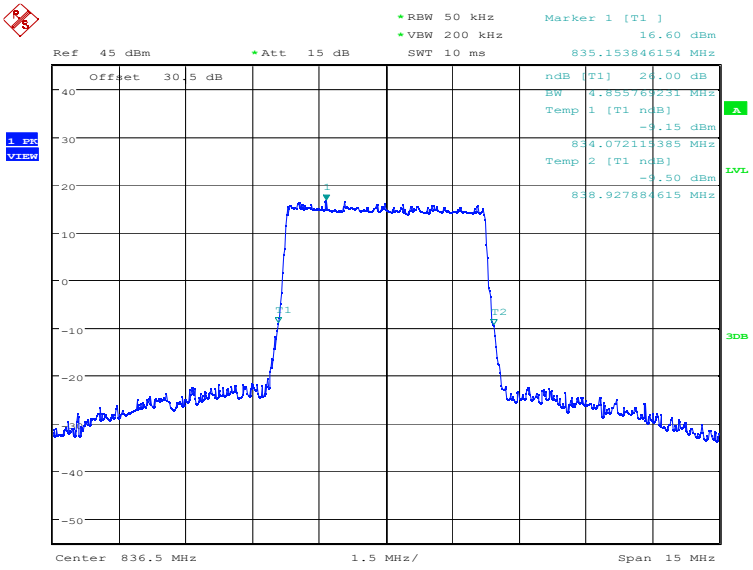
LTE band 5, 5MHz (-26dBc)

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

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



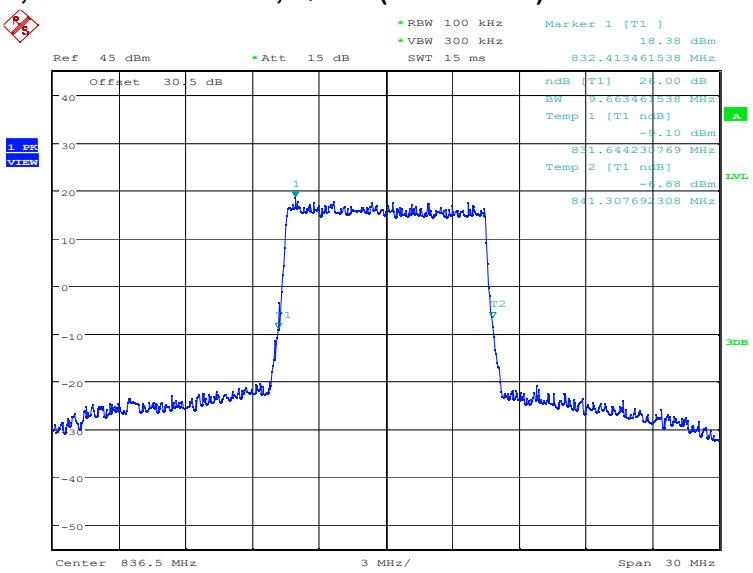
LTE band 5, 5MHz Bandwidth, 16QAM (-26dBc BW)



LTE band 5, 10MHz (-26dBc)

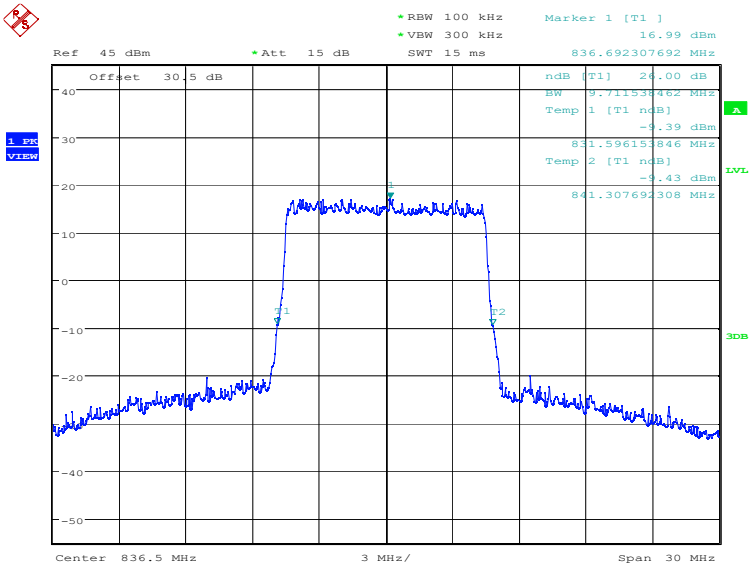
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	9663.46	9711.54

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



Date: 10.JAN.2024 10:38:56

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

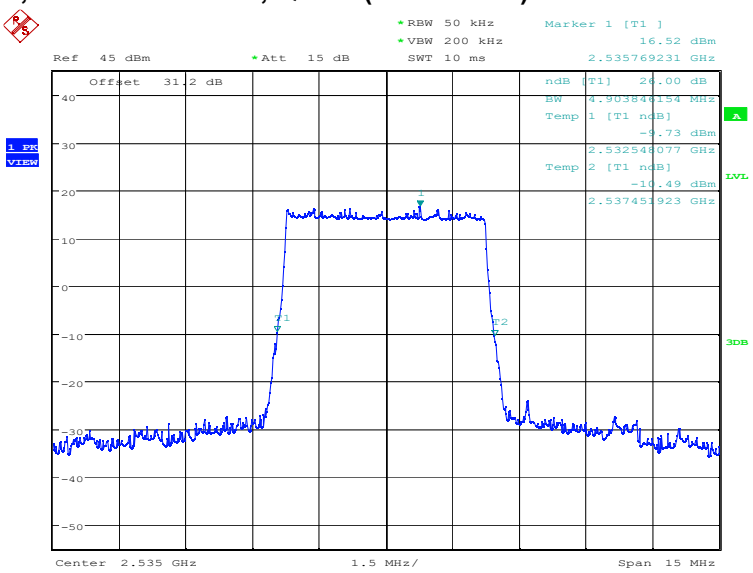


Date: 10.JAN.2024 10:39:36

LTE band 7, 5MHz (-26dBc)

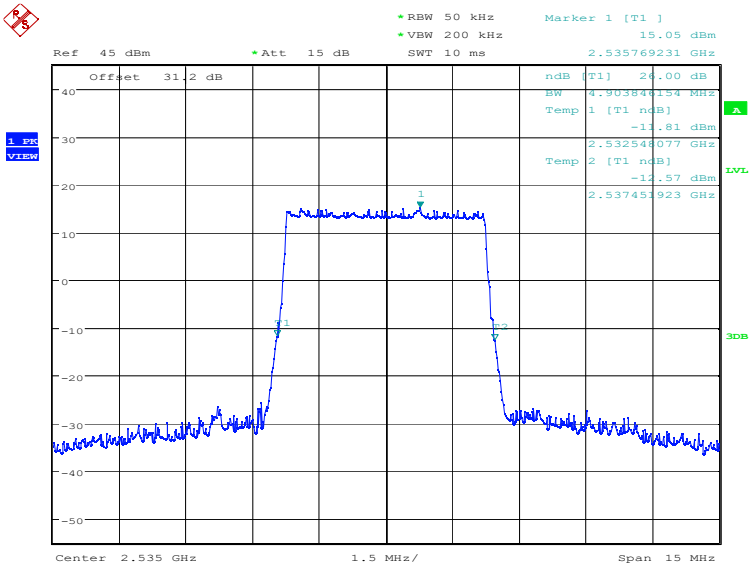
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	4903.85	4903.85

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



Date: 10.JAN.2024 12:00:54

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

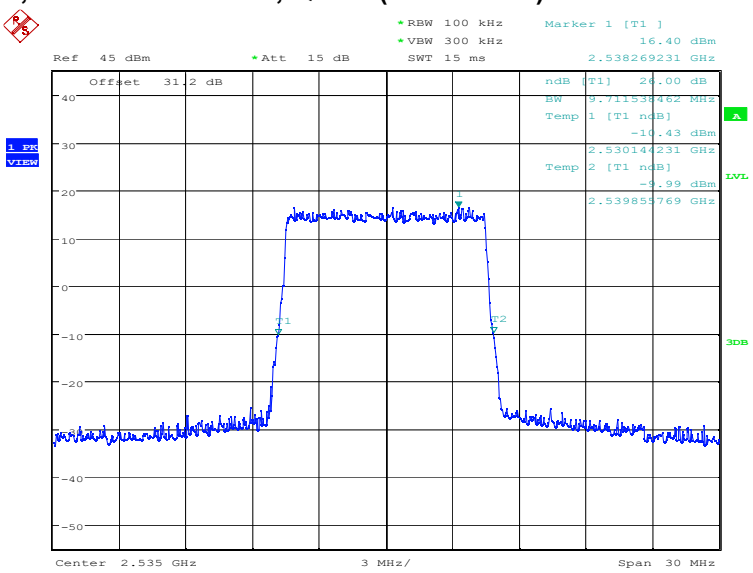


Date: 10.JAN.2024 12:01:34

LTE band 7, 10MHz (-26dBc)

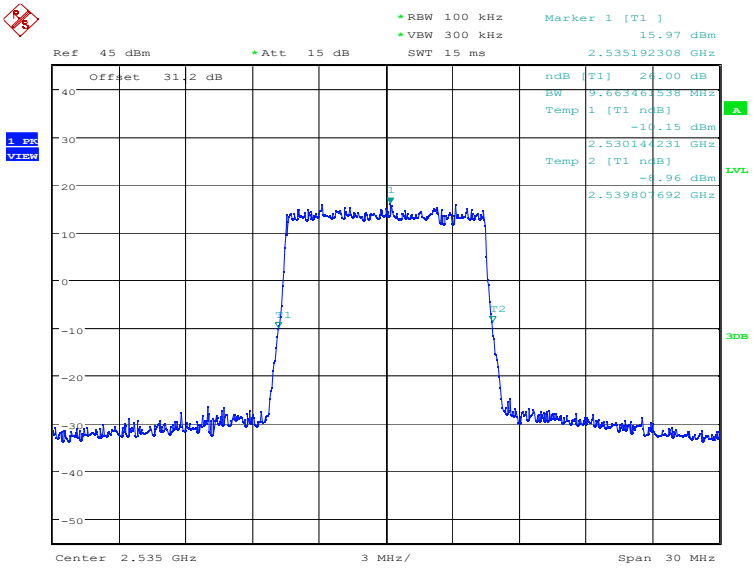
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	9711.54	9663.46

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



Date: 10.JAN.2024 12:02:16

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

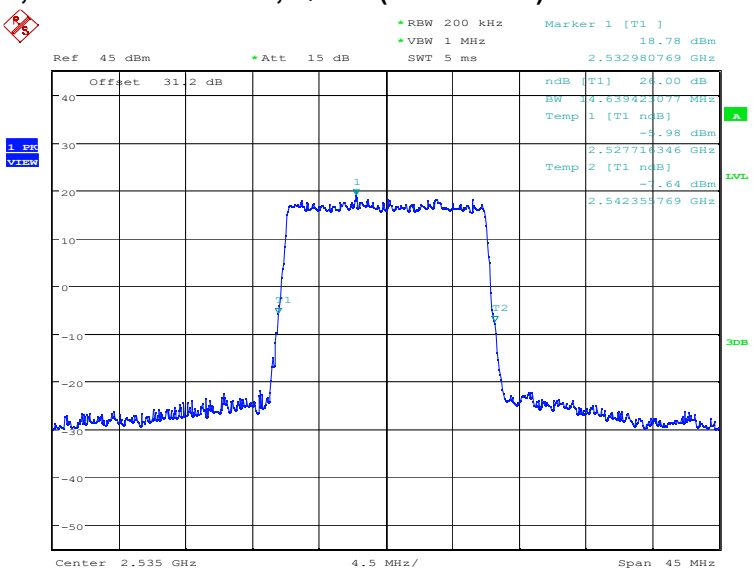


Date: 10.JAN.2024 12:02:56

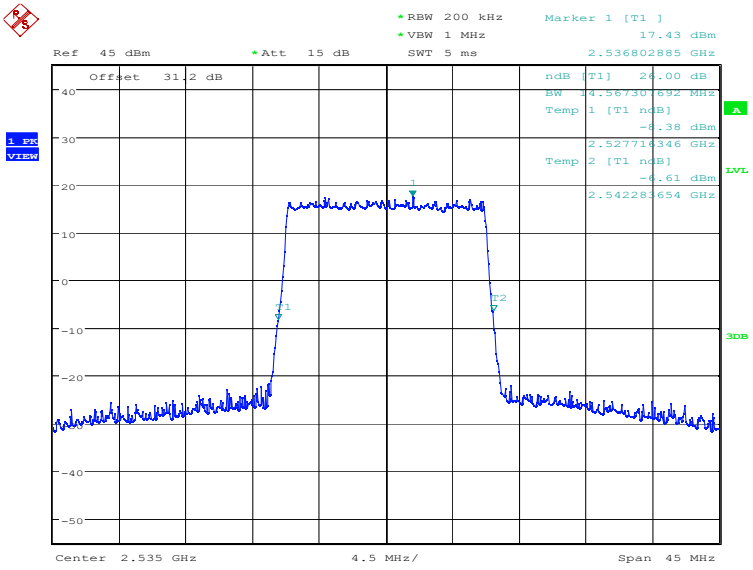
LTE band 7, 15MHz (-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	14639.42	14567.31

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



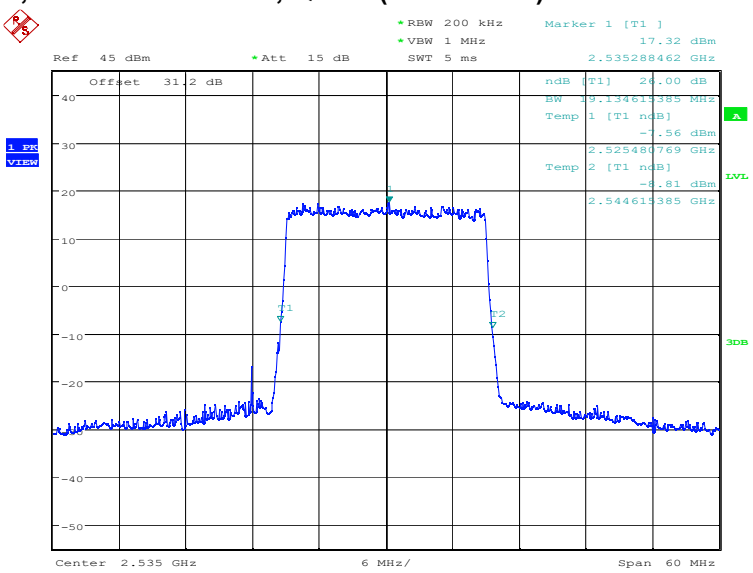
LTE band 7, 15MHz Bandwidth, 16QAM (-26dBc BW)



LTE band 7, 20MHz (-26dBc)

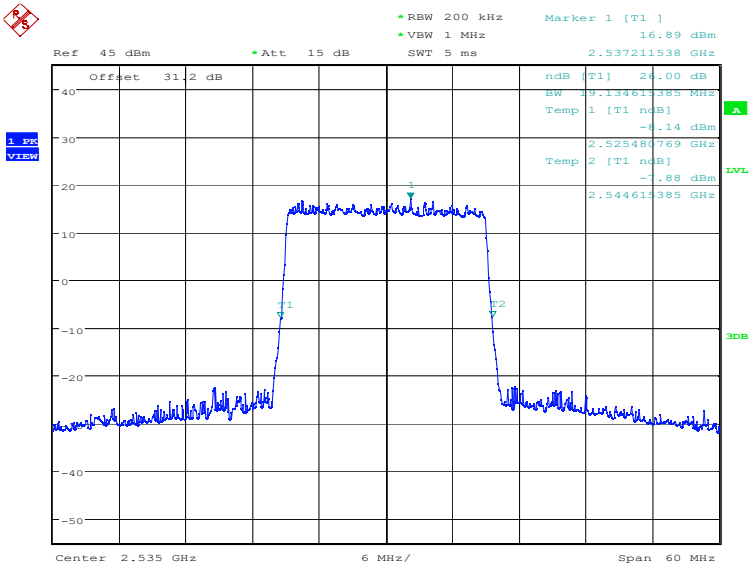
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	19134.62	19134.62

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



Date: 10.JAN.2024 12:05:00

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

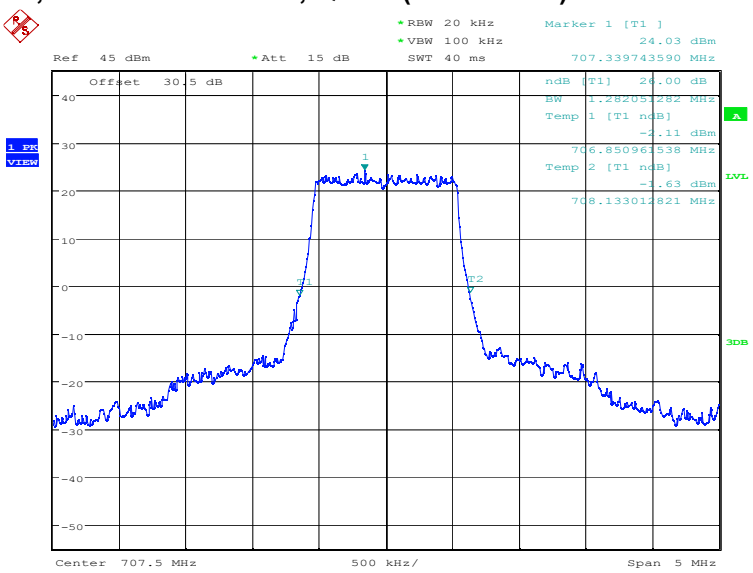


Date: 10.JAN.2024 12:05:40

LTE band 12, 1.4MHz (-26dBc)

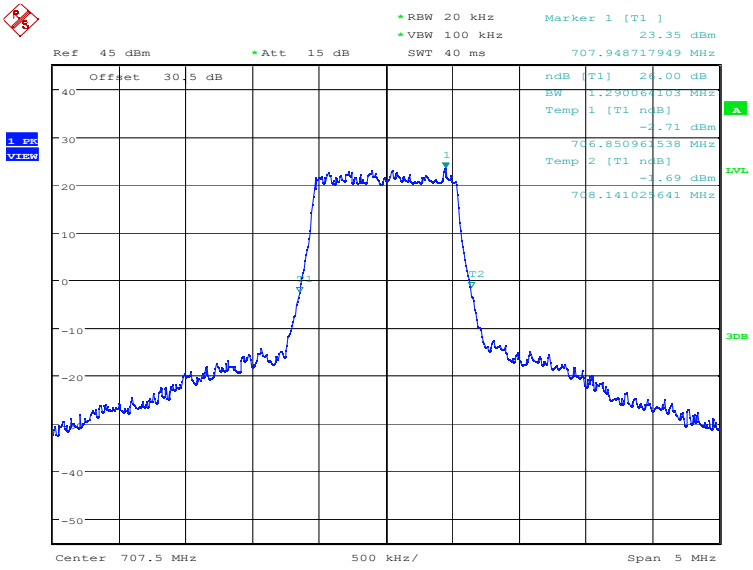
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	1282.05	1290.06

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



Date: 10.JAN.2024 10:40:19

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

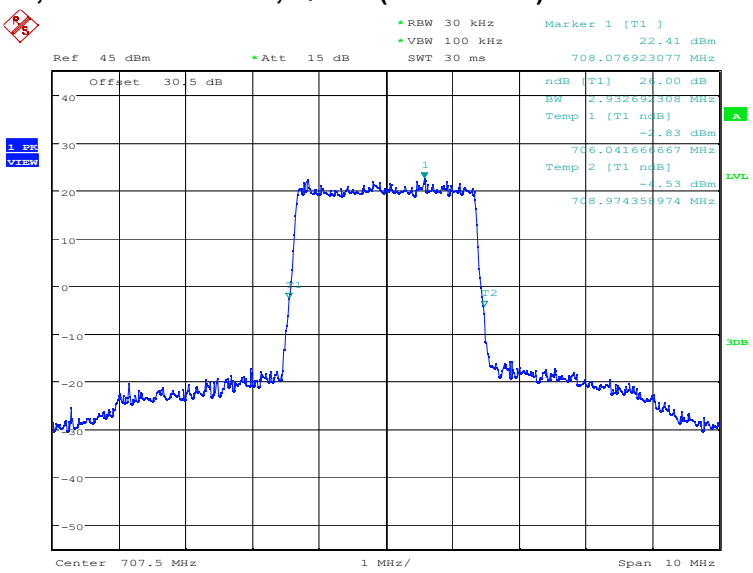


Date: 10.JAN.2024 10:40:59

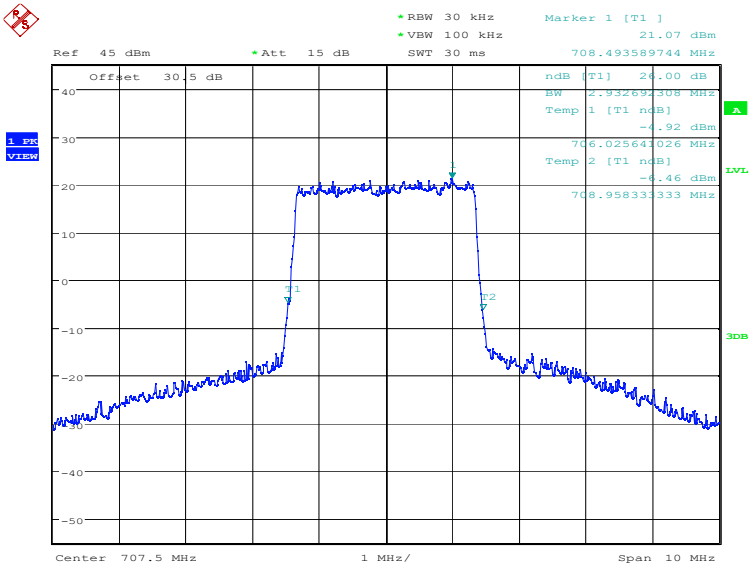
LTE band 12, 3MHz (-26dBc)

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

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



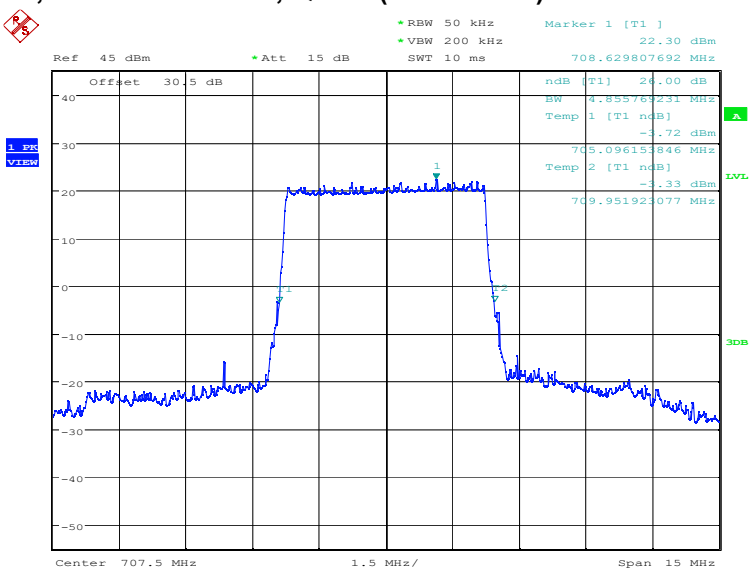
LTE band 12, 3MHz Bandwidth, 16QAM (-26dBc BW)



LTE band 12, 5MHz (-26dBc)

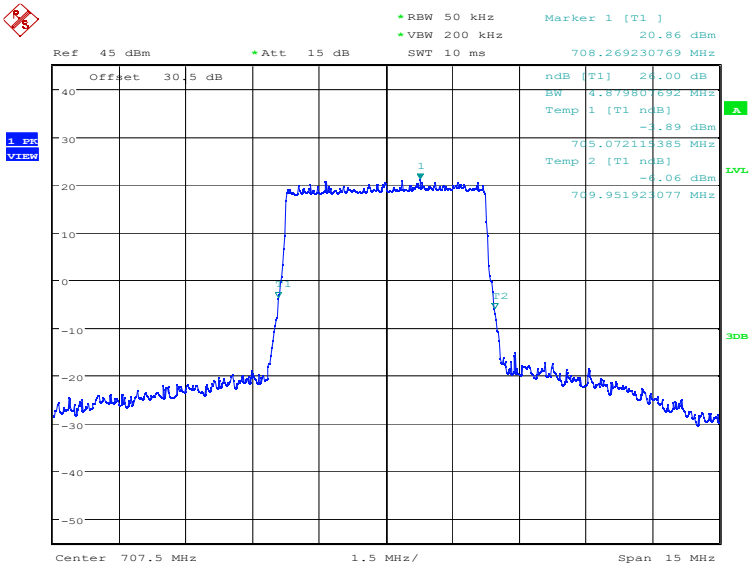
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	4855.77	4879.81

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



Date: 10.JAN.2024 10:43:03

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

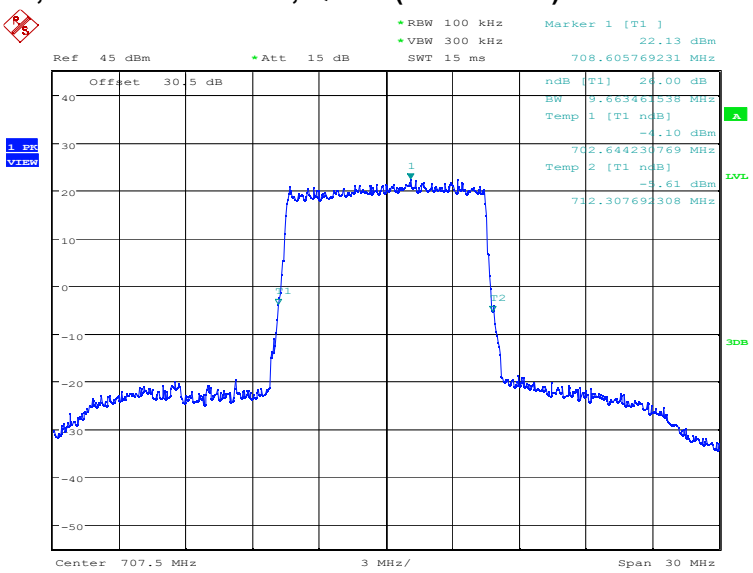


Date: 10.JAN.2024 10:43:43

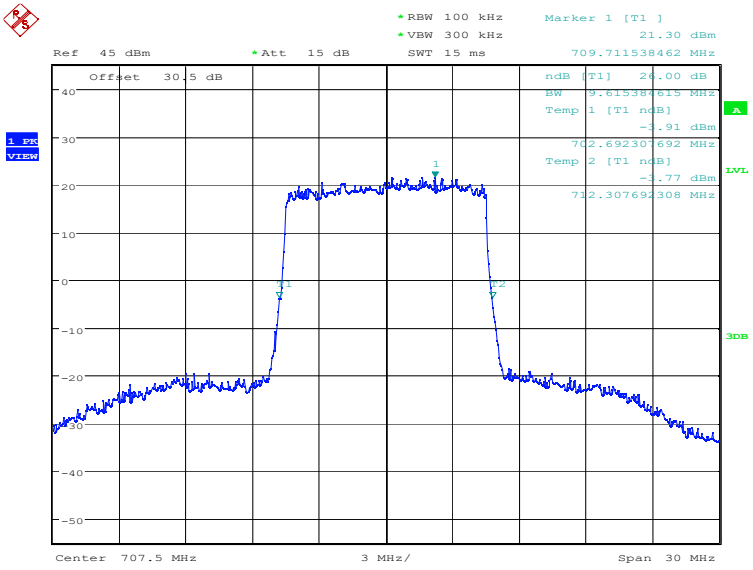
LTE band 12, 10MHz (-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	9663.46	9615.38

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



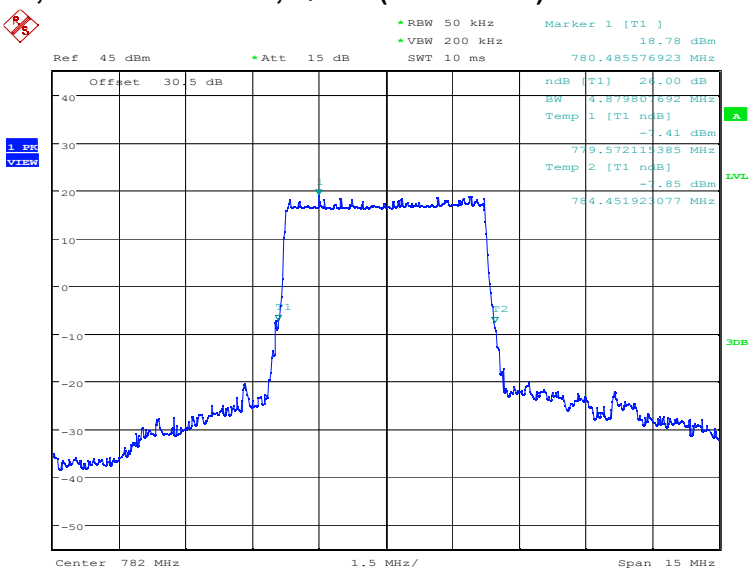
LTE band 12, 10MHz Bandwidth, 16QAM (-26dBc BW)



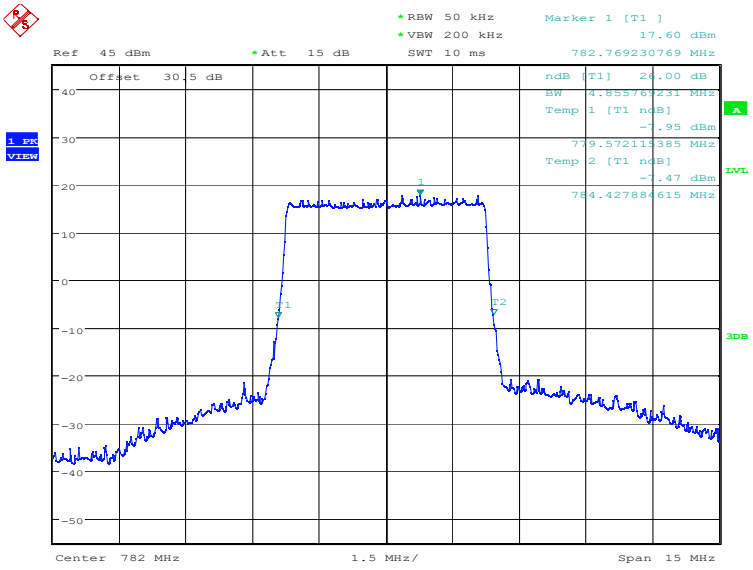
LTE band 13, 5MHz (-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
	QPSK	16QAM
782.0	4879.81	4855.77

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



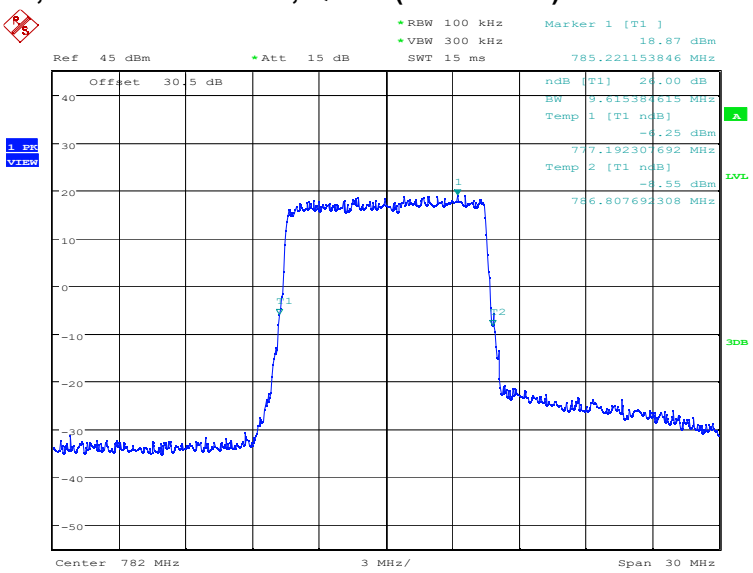
LTE band 13, 5MHz Bandwidth, 16QAM (-26dBc BW)



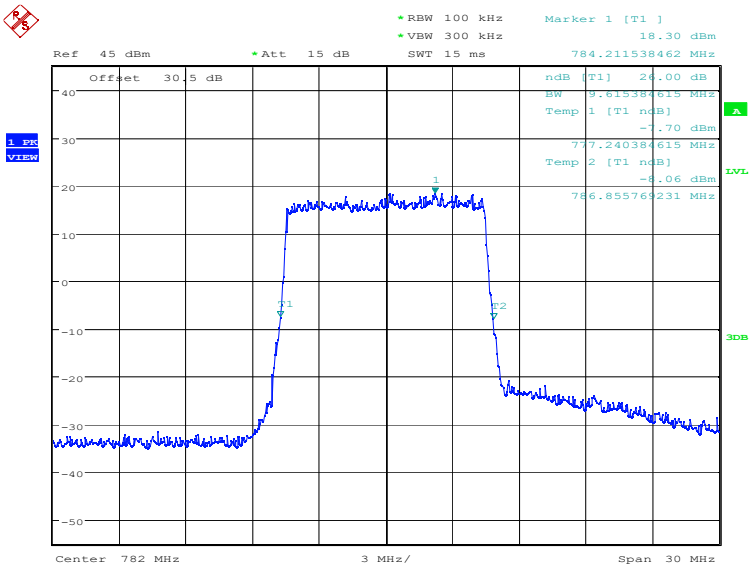
LTE band 13, 10MHz (-26dBc)

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

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



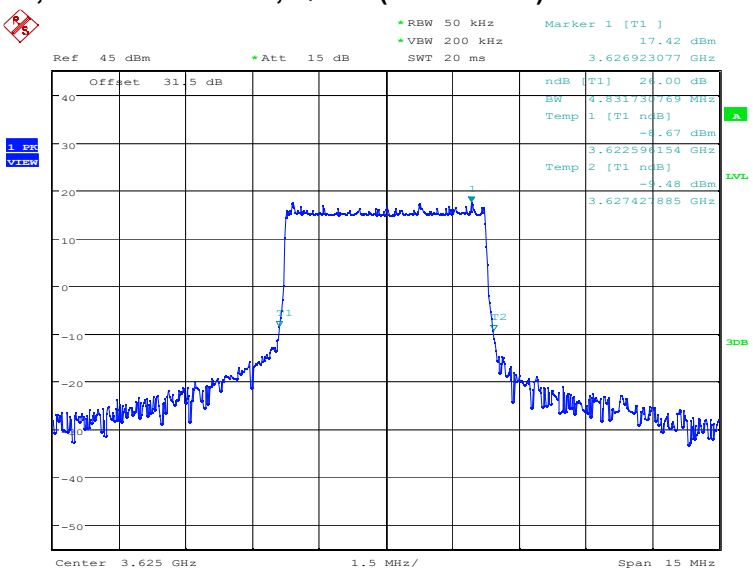
LTE band 13, 10MHz Bandwidth, 16QAM (-26dBc BW)



LTE band 48, 5MHz (-26dBc)

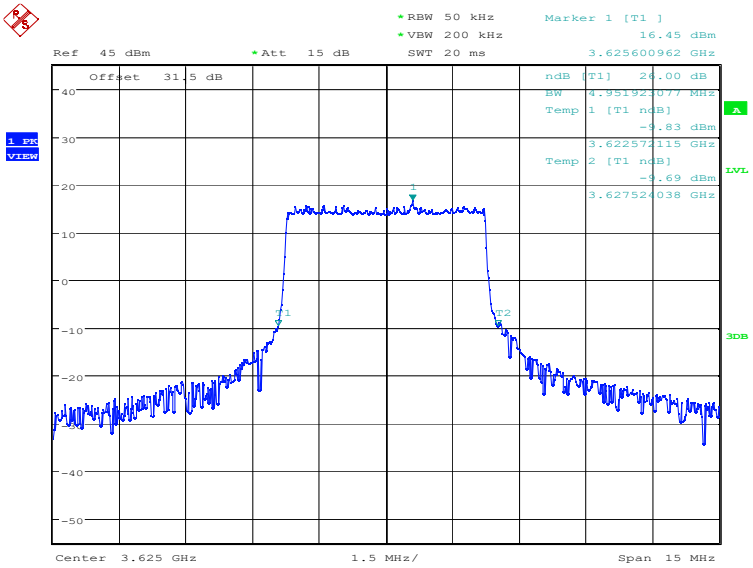
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
3625.0	QPSK	16QAM
	4831.73	4951.92

LTE band 48, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.JAN.2024 13:16:02

LTE band 48, 5MHz Bandwidth, 16QAM (-26dBc BW)

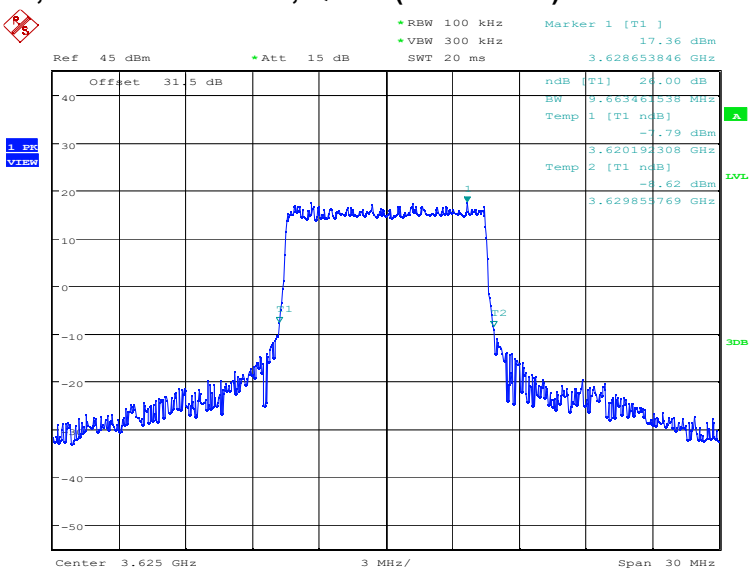


Date: 10.JAN.2024 13:16:42

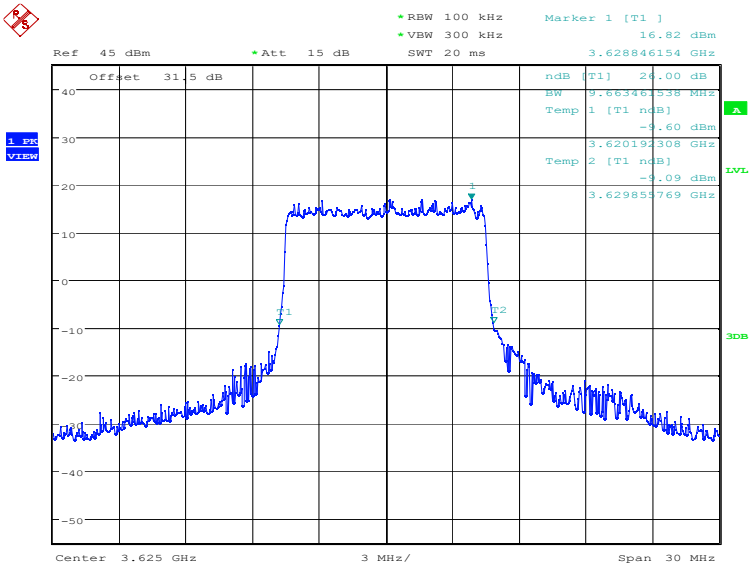
LTE band 48, 10MHz (-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
3625.0	QPSK	16QAM
	9663.46	9663.46

LTE band 48, 10MHz Bandwidth, QPSK (-26dBc BW)



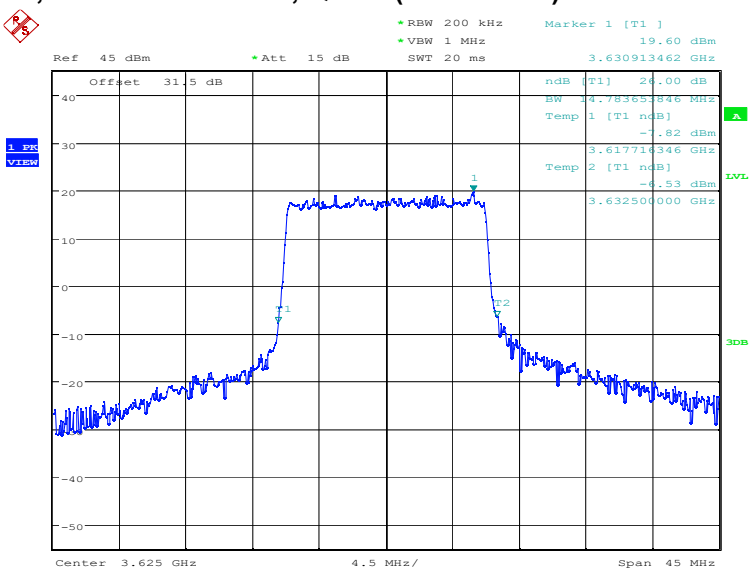
LTE band 48, 10MHz Bandwidth, 16QAM (-26dBc BW)



LTE band 48, 15MHz (-26dBc)

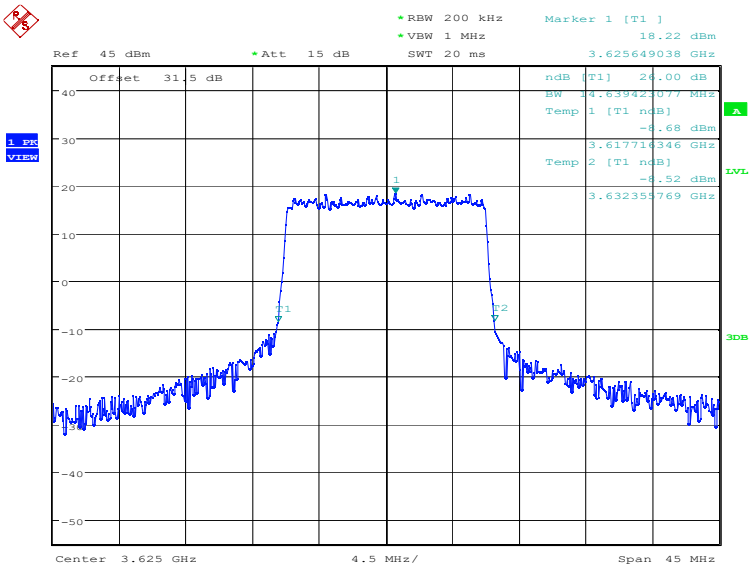
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
	QPSK	16QAM
3625.0	14783.65	14639.42

LTE band 48, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.JAN.2024 13:18:46

LTE band 48, 15MHz Bandwidth, 16QAM (-26dBc BW)

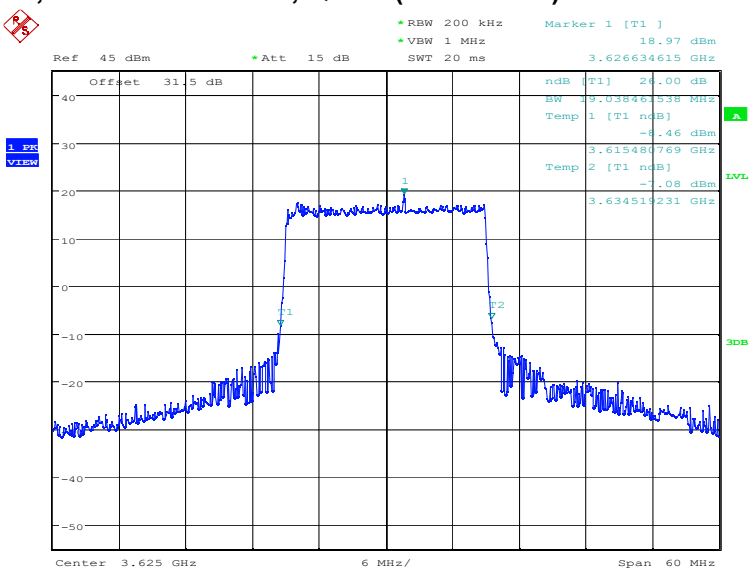


Date: 10.JAN.2024 13:19:26

LTE band 48, 20MHz (-26dBc)

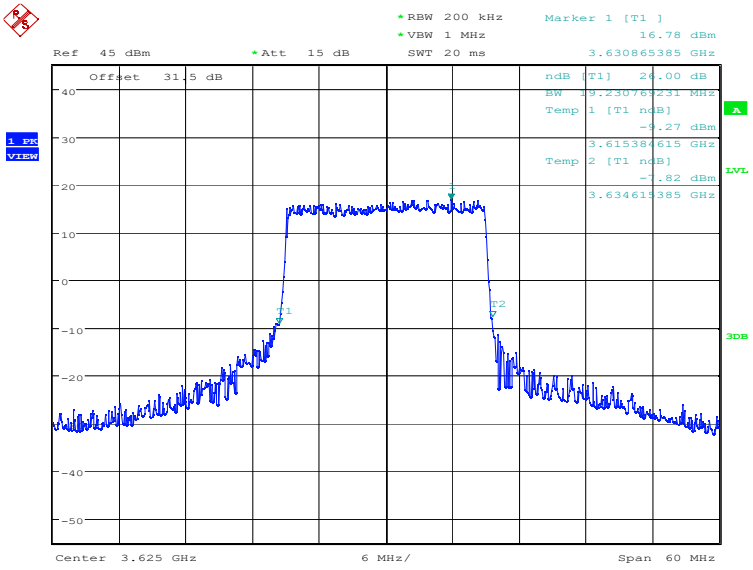
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
3625.0	QPSK	16QAM
	19038.46	19230.77

LTE band 48, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.JAN.2024 13:20:08

LTE band 48, 20MHz Bandwidth, 16QAM (-26dBc BW)

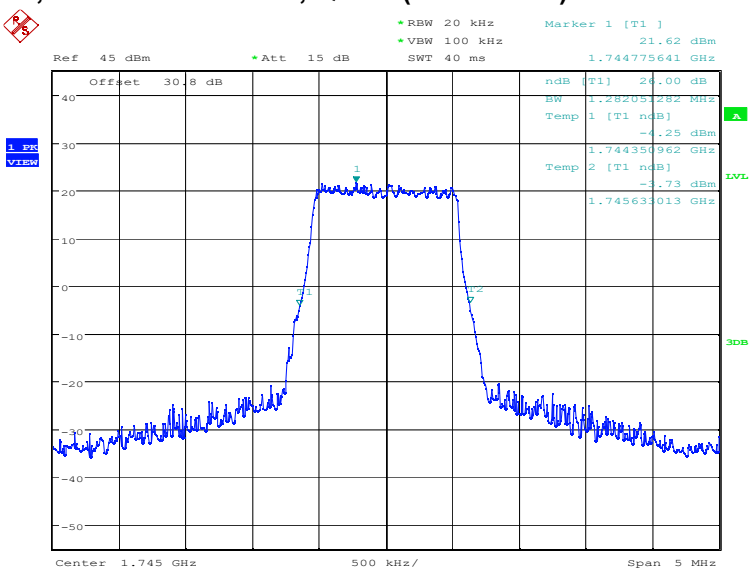


Date: 10.JAN.2024 13:20:48

LTE band 66, 1.4MHz (-26dBc)

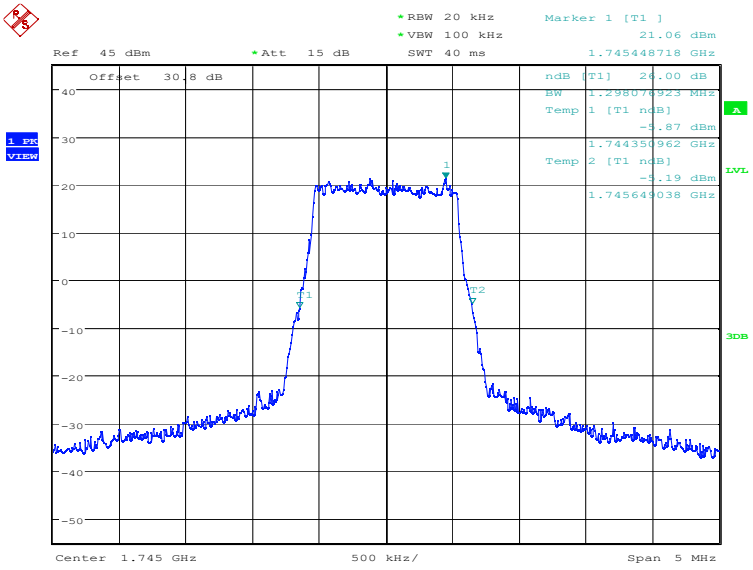
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	1282.05	1298.08

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



Date: 10.JAN.2024 16:58:06

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

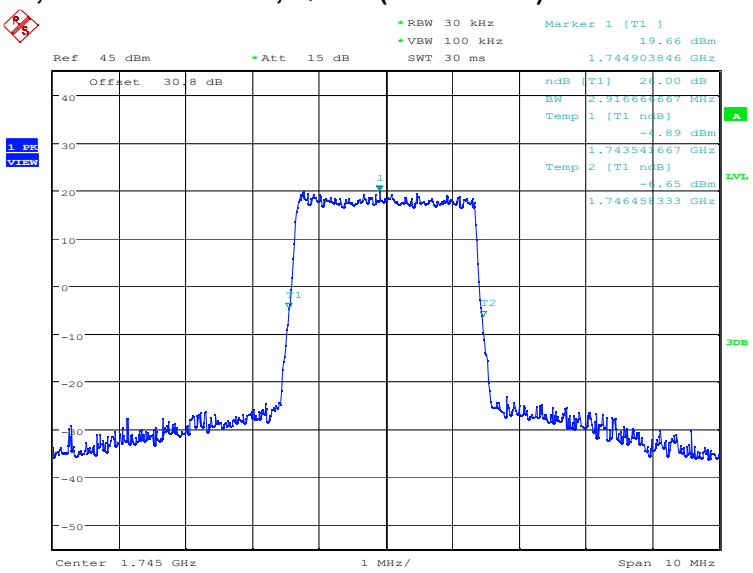


Date: 10.JAN.2024 16:58:47

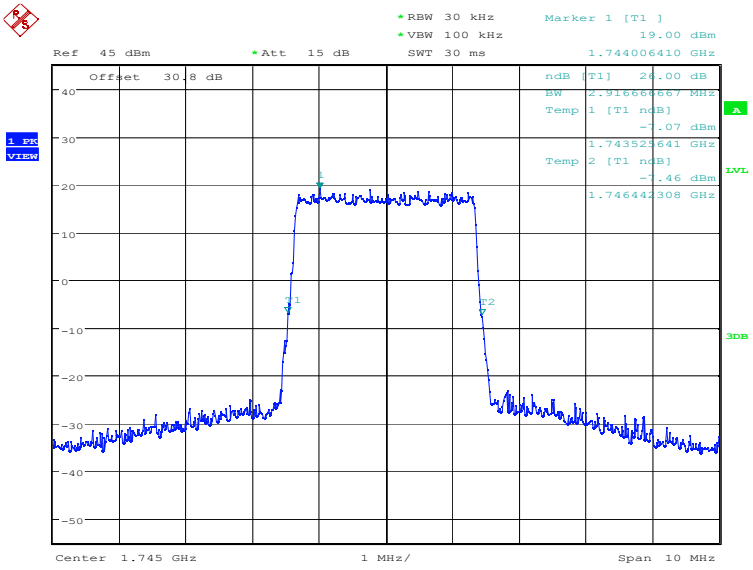
LTE band 66, 3MHz (-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	2916.67	2916.67

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



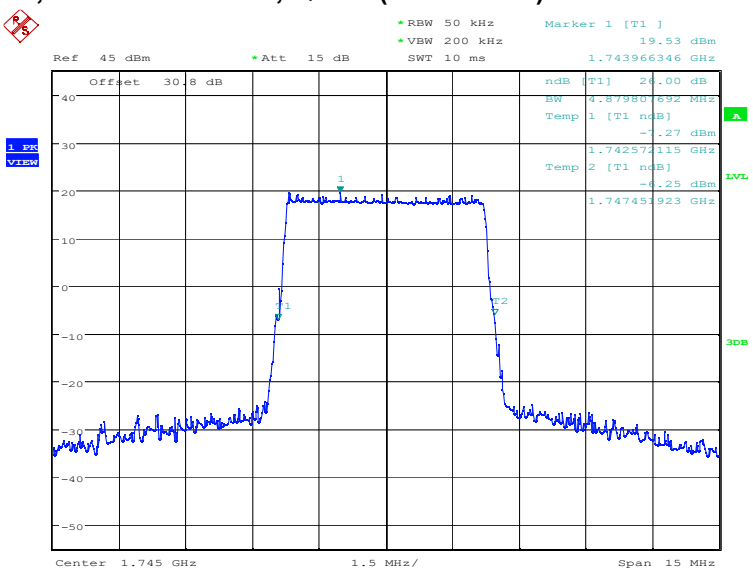
LTE band 66, 3MHz Bandwidth, 16QAM (-26dBc BW)



LTE band 66, 5MHz (-26dBc)

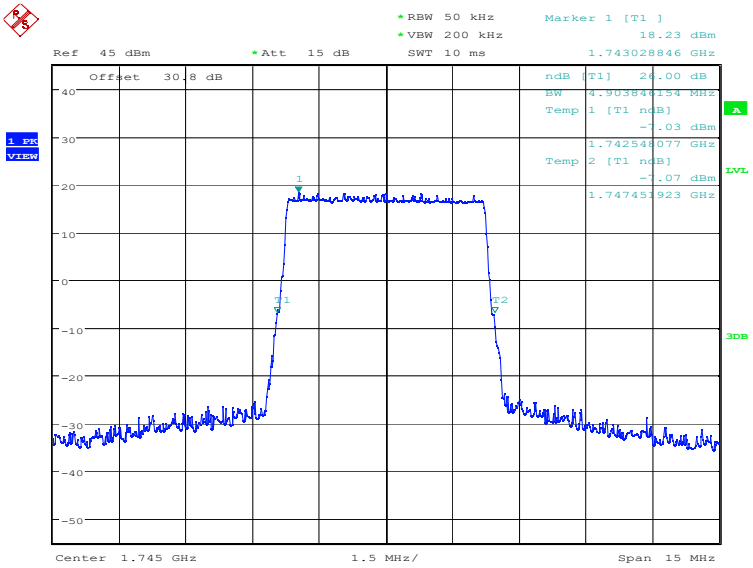
Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	4879.81	4903.85

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



Date: 10.JAN.2024 17:00:51

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

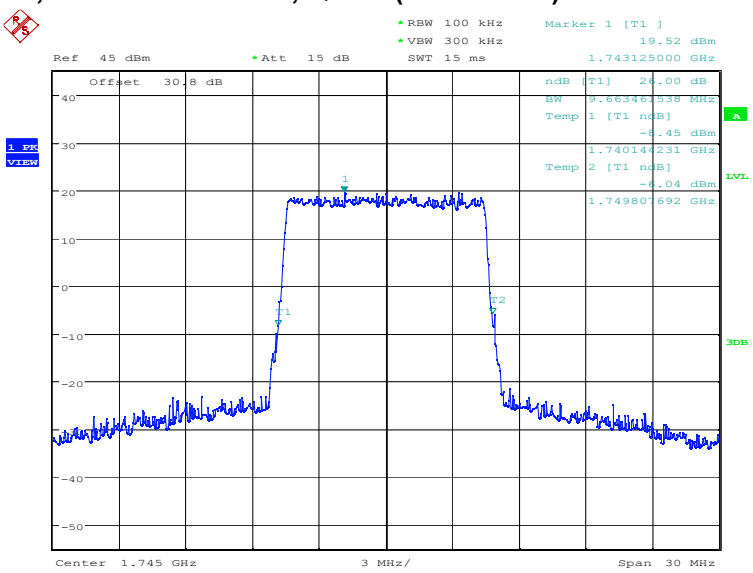


Date: 10.JAN.2024 17:01:32

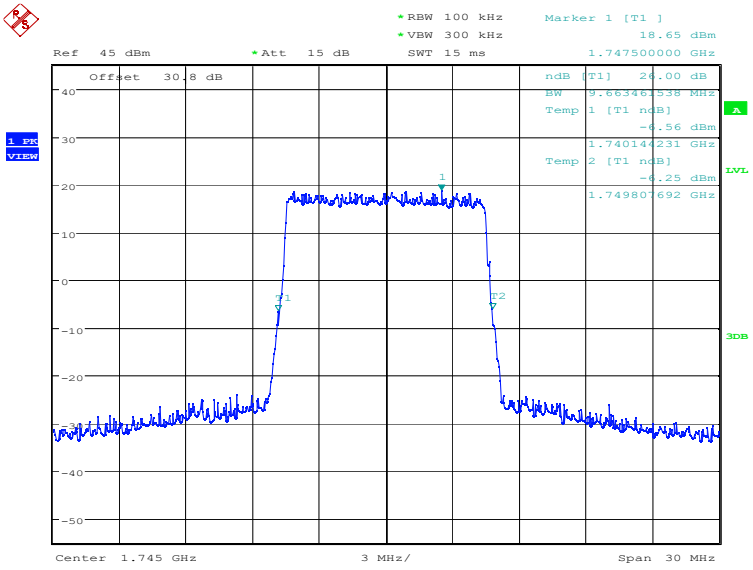
LTE band 66, 10MHz (-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	9663.46	9663.46

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



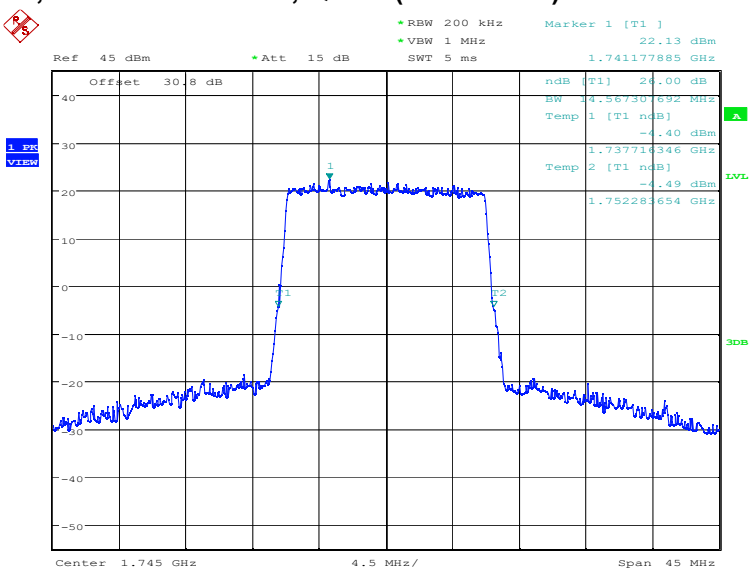
LTE band 66, 10MHz Bandwidth, 16QAM (-26dBc BW)



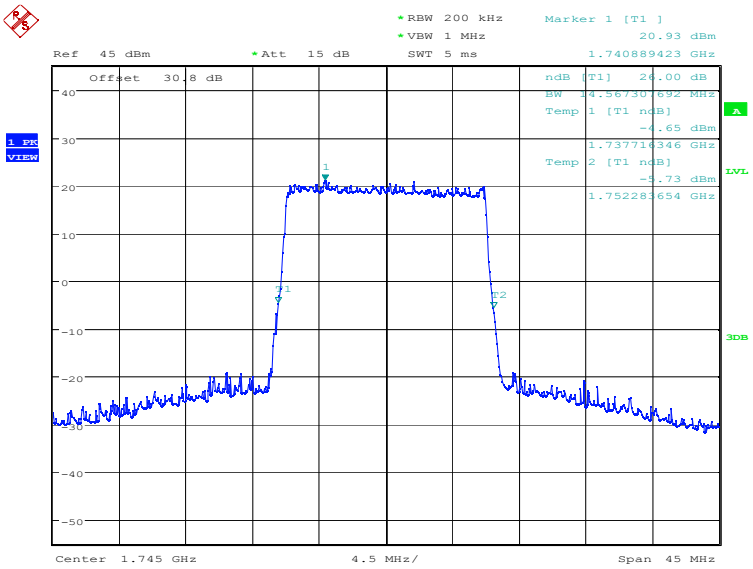
LTE band 66, 15MHz (-26dBc)

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

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



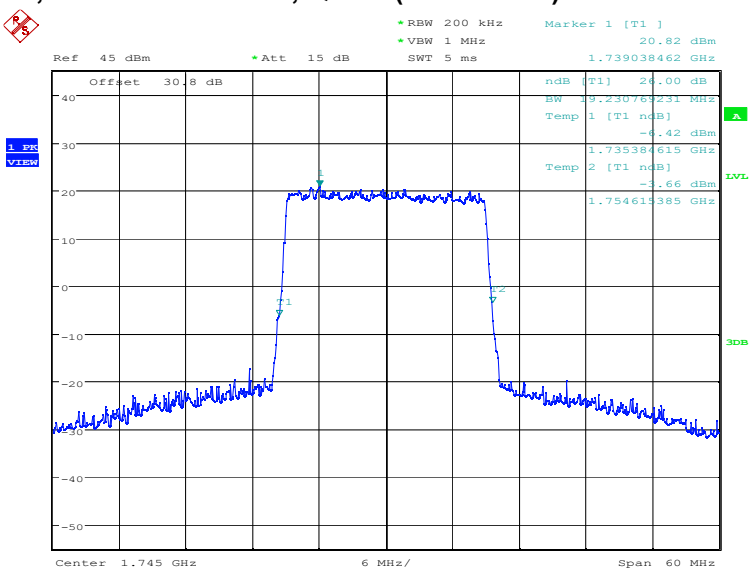
LTE band 66, 15MHz Bandwidth, 16QAM (-26dBc BW)



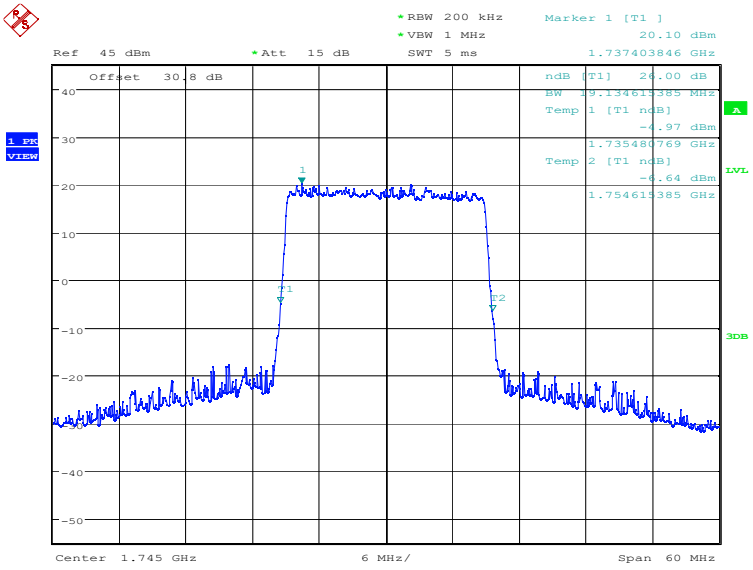
LTE band 66, 20MHz (-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	19230.77	19134.62

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



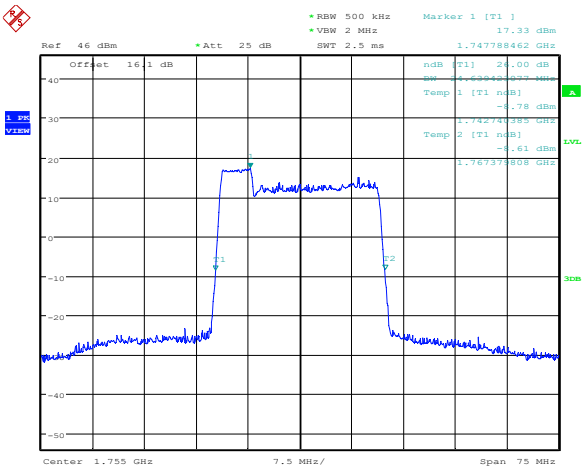
LTE band 66, 20MHz Bandwidth, 16QAM (-26dBc BW)



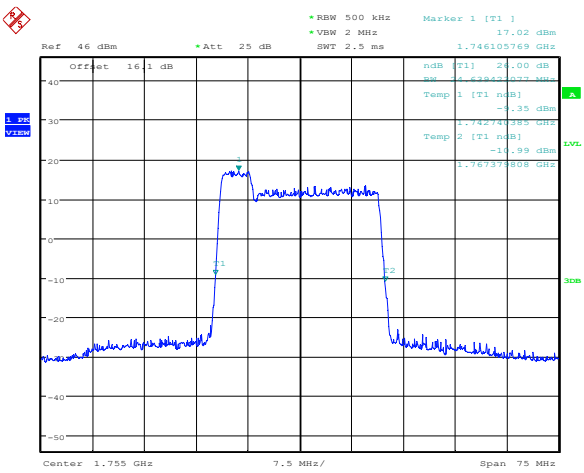
LTE CA band 66C, 5MHz+20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1755.0	24.639	24.639

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



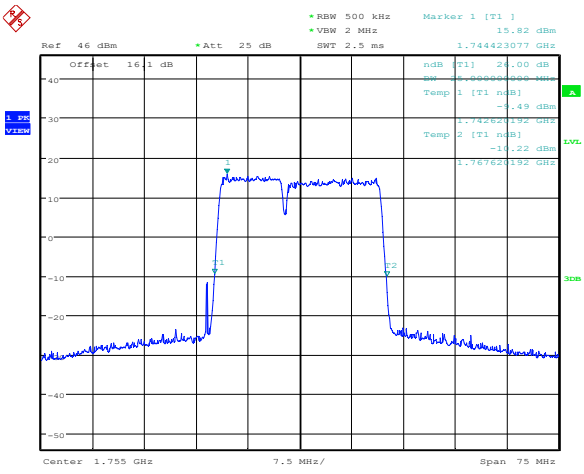
LTE CA band 66C , 5MHz+20MHz Bandwidth, 16QAM (-26dBc BW)



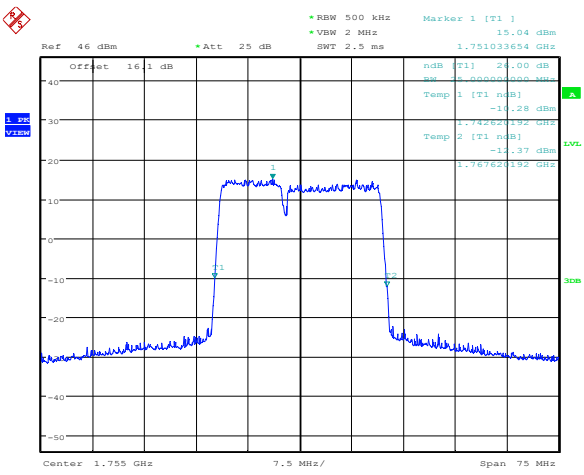
LTE CA band 66C, 10MHz+15MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1755.0	25.000	25.000

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



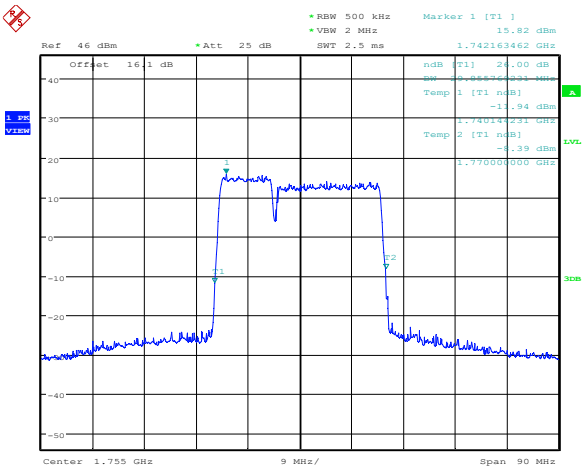
LTE CA band 66C , 10MHz+15MHz Bandwidth, 16QAM (-26dBc BW)



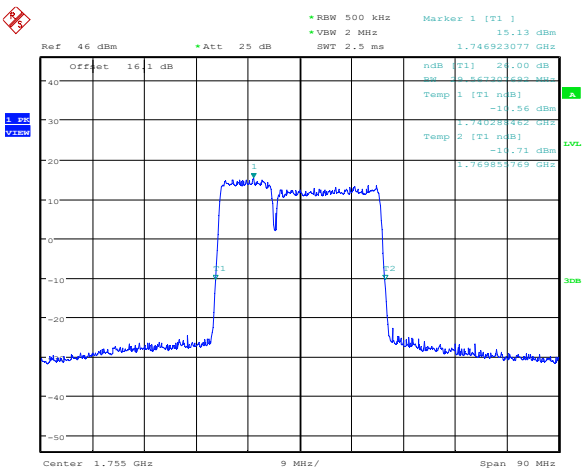
LTE CA band 66C, 10MHz+20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1755.0	29.856	29.567

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



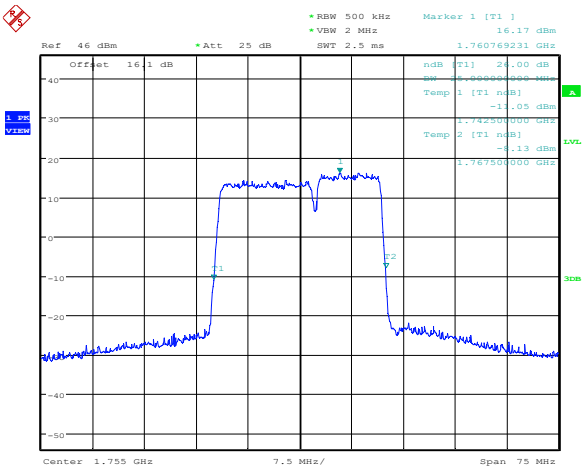
LTE CA band 66C , 10MHz+20MHz Bandwidth, 16QAM (-26dBc BW)



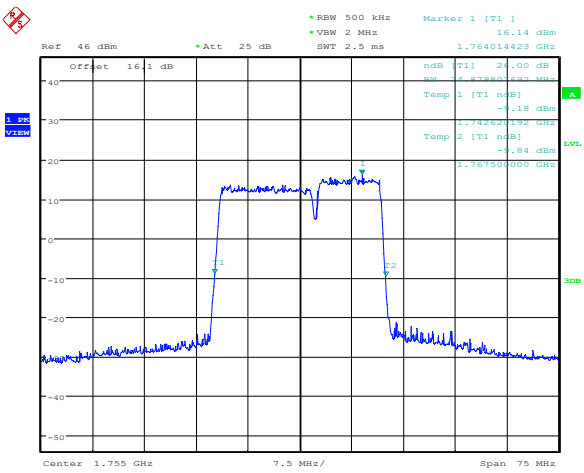
LTE CA band 66C, 15MHz+10MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1755.0	25.000	24.880

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



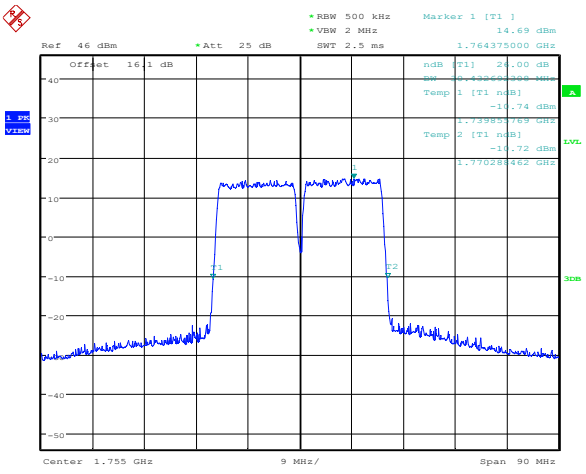
LTE CA band 66C , 15MHz+10MHz Bandwidth, 16QAM (-26dBc BW)



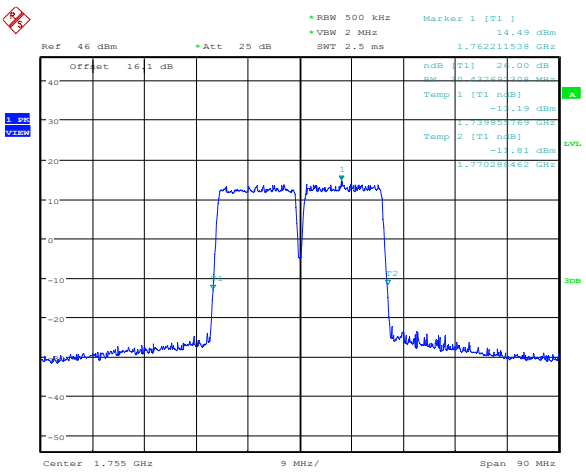
LTE CA band 66C, 15MHz+15MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1755.0	30.433	30.433

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



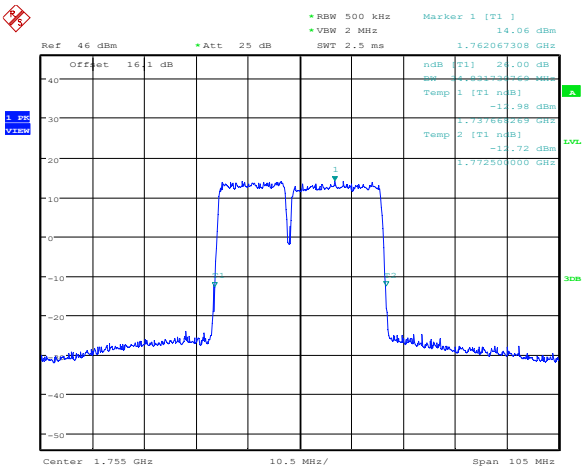
LTE CA band 66C , 15MHz+15MHz Bandwidth, 16QAM (-26dBc BW)



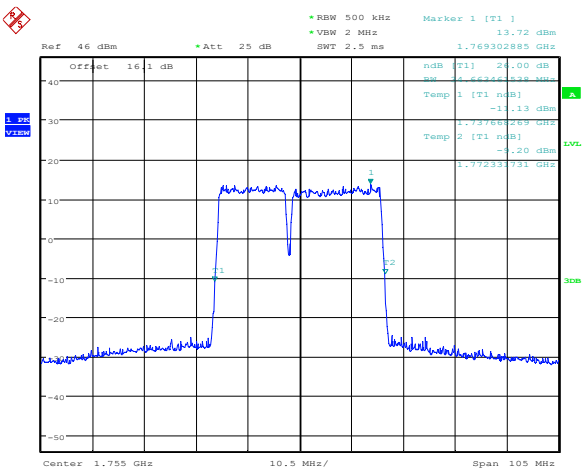
LTE CA band 66C, 15MHz+20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1755.0	34.832	34.663

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



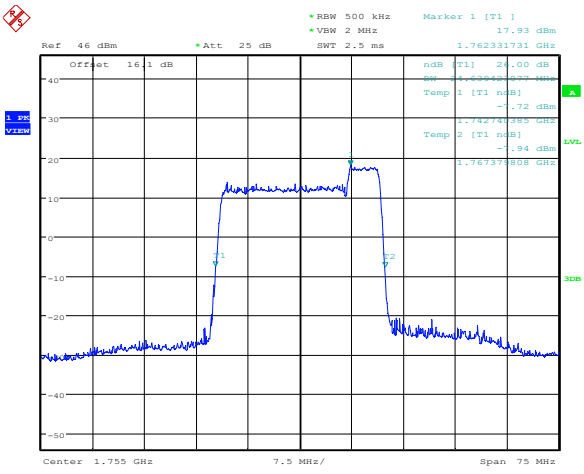
LTE CA band 66C , 15MHz+20MHz Bandwidth, 16QAM (-26dBc BW)



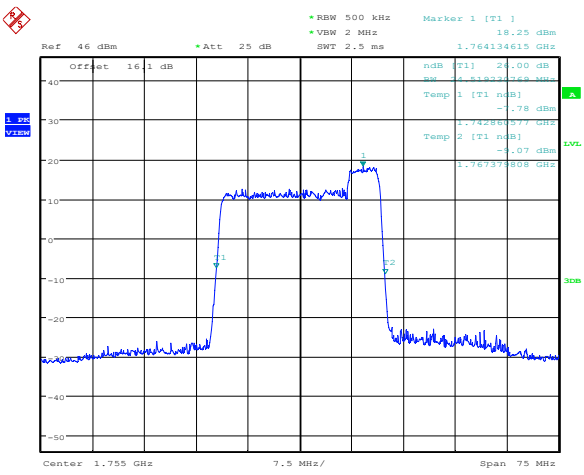
LTE CA band 66C, 20MHz+5MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1755.0	24.639	24.519

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



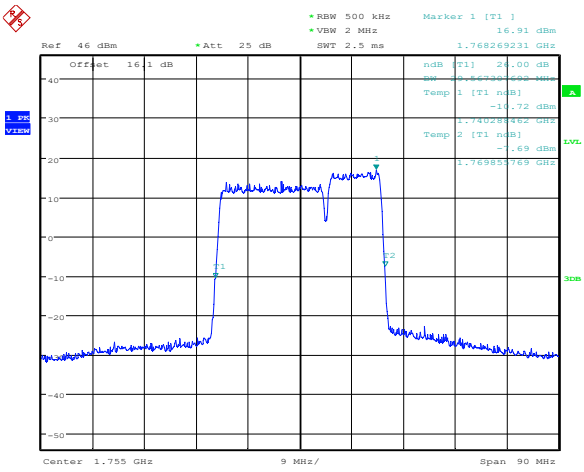
LTE CA band 66C , 20MHz+5MHz Bandwidth, 16QAM (-26dBc BW)



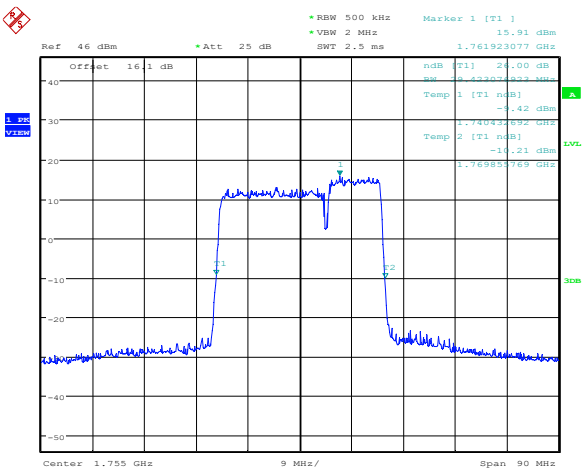
LTE CA band 66C, 20MHz+10MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1755.0	29.567	29.423

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



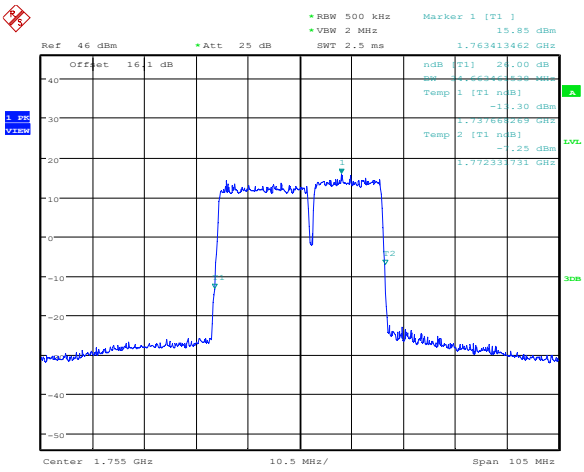
LTE CA band 66C , 20MHz+10MHz Bandwidth, 16QAM (-26dBc BW)



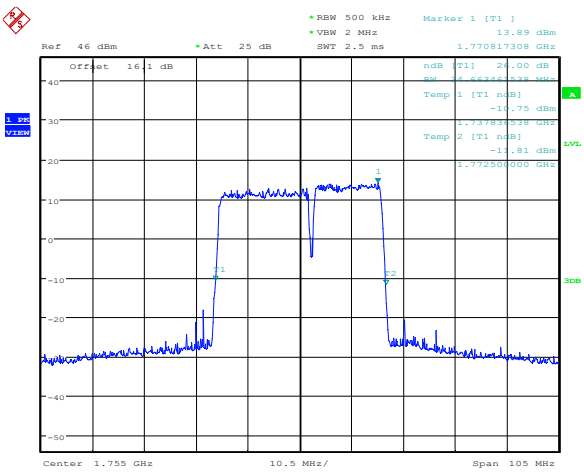
LTE CA band 66C, 20MHz+15MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1755.0	34.663	34.663

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



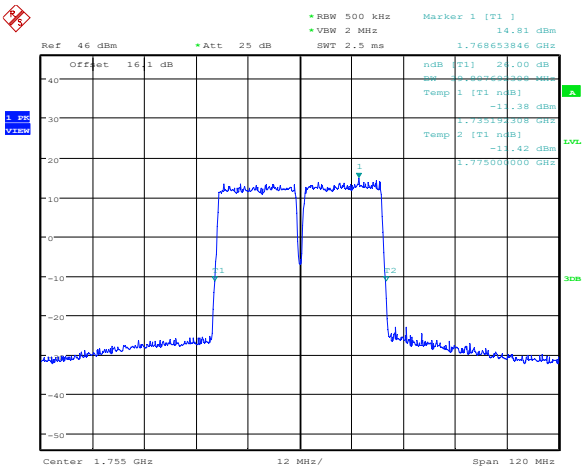
LTE CA band 66C , 20MHz+15MHz Bandwidth, 16QAM (-26dBc BW)



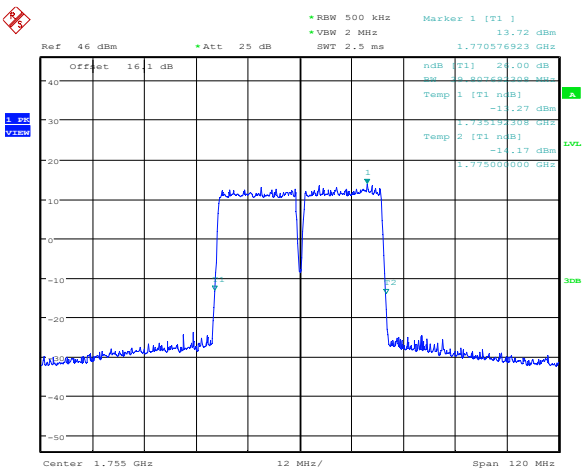
LTE CA band 66C, 20MHz+20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	QPSK	16QAM
1755.0	39.808	39.808

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



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



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

A.6 Band Edge Compliance

A.6.1 Measurement limit

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

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

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

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

Part 96.41(e) states for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed −13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed −25 dBm/MHz. Notwithstanding the emission limits in this paragraph, the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB. The conducted

power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

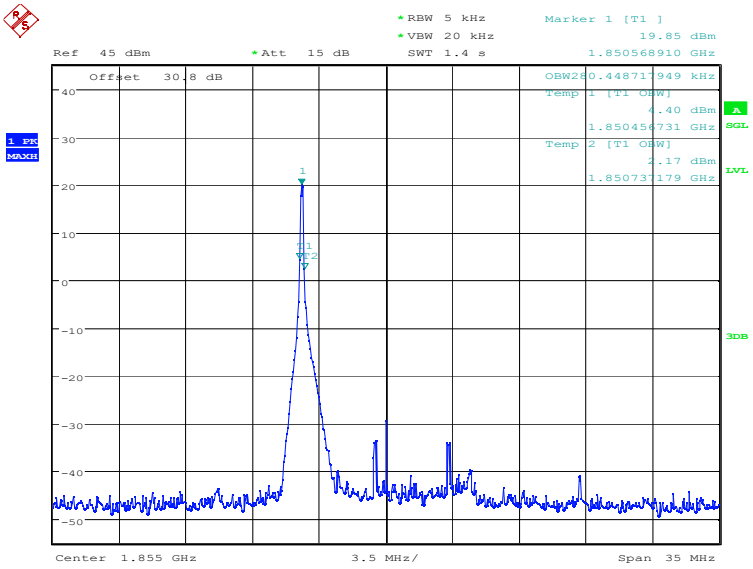
The spectrum analyzer readings are corrected by [10 log (1/duty cycle)] for the non-continuous transmitting scenario.

A.6.2 Measurement result

Only the worst case result is given below

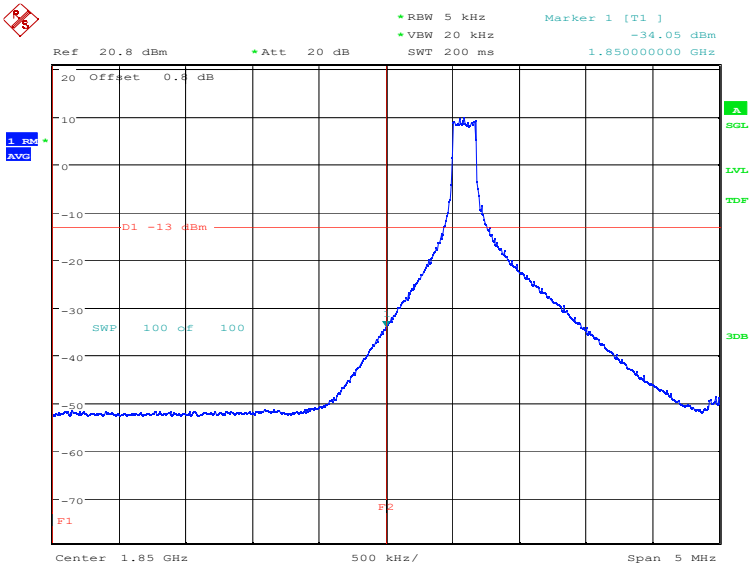
LTE band 2

OBW: 1RB-low_offset



Date: 22.FEB.2024 13:15:07

LOW BAND EDGE BLOCK-1RB-low_offset



Date: 22.FEB.2024 13:16:21