TEST REPORT

No. I19Z62156-WMD03

for

TCL Communication Ltd.

HSUPA/HSDPA/UMTS 5 Bands/GSM Quad Bands/LTE 17 bands mobile phone

Model Name: T799B

FCC ID: 2ACCJN034

with

Hardware Version: 04

Software Version: 4D2Y

Issued Date: 2020-01-21

Note:

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

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

Test Laboratory:

CTTL, Telecommunication Technology Labs, CAICT

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I19Z62156-WMD03	Rev.0	1st edition	2020-01-17
I19Z62156-WMD03	Rev.1	2nd edition Updated the results of output power for LTE Band 13	2020-01-21

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 17025:2005 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0 and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (CN0066). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Location 1: CTTL (huayuan North Road)

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

Location 2: CTTL (Shouxiang)

Address: No. 51 Shouxiang Science Building, Xueyuan Road, Haidian District, Beijing, P. R. China 100191

1.3. Testing Environment

Normal Temperature: 15-35℃

Relative Humidity: 20-75%

1.4. Project data

Testing Start Date: 2019-12-11

Testing End Date: 2020-01-21

1.5. Signature

Dong Yuan

(Prepared this test report)

Zhou Yu

(Reviewed this test report)

Zhao Hui Lin

Deputy Director of the laboratory

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	TCL Communication Ltd.
Address /Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Gong Zhizhou
Email:	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722
Fax:	0086-755-36612000-81722

2.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
Address /Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Gong Zhizhou
Email:	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722
Fax:	0086-755-36612000-81722

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

3.1. About EUT

Description	HSUPA/HSDPA/UMTS 5 Bands/GSM Quad Bands/LTE 17 bands mobile phone
Model Name	T799B
FCC ID	2ACCJN034
Antenna	Embedded
Output power	25.54dBm maximum EIRP measured for LTE Band 66
Extreme vol. Limits	3.5VDC to 4.4VDC (nominal: 3.85VDC)
Extreme temp. Tolerance	-10°C to +55°C

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

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version	Date of receipt
UT09a	015626000009097	04	4D2Y	2019-12-02
UT07a	015626000009295	04	4D2Y	2019-12-02

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

3.3. Internal Identification of AE used during the test

AE ID*	Description
AE1	Battery
AE2	Battery

AE1

Model	Tlp043D7
Manufacturer	VEKEN
Capacitance	4360mAh

AE2

Model	Tlp043D1
Manufacturer	BYD
Capacitance	4360mAh

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

4. Reference Documents

4.1. Reference Documents for testing

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

Reference	Title	Version
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	10-1-18 Edition
FCC Part 22	PUBLIC MOBILE SERVICES	10-1-18 Edition
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	10-1-18 Edition
FCC Part 90	PRIVATE LAND MOBILE RADIO SERVICES	10-1-18 Edition
ANSI/TIA-603-E	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	2016
ANSI C63.26	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services	2015
KDB 971168 D01	MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS	v03r01

5. LABORATORY ENVIRONMENT

Fully-anechoic chamber FAC-3 (9 meters×6.5 meters×4 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 4000 MHz

6. SUMMARY OF TEST RESULT

6.1. Summary of test results

LTE Band 7

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Emission Limit	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

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Emission Limit	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	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 25

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	24.232	P
2	Emission Limit	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 26(814MHz~824MHz)

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

LTE Band 26(824MHz~849MHz)

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	22.913	P
2	Emission Limit	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 41

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

LTE Band 66

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	27.50	P
2	Emission Limit	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.

Explanation of worst-case configuration

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

7. Test Equipment Utilized

NO.	Description	Type	Series Number	Manufacture	Cal Due Date	Calibration Interval
1	Universal Radio Communication Tester	CMW500	159082	R&S	2020-12-24	1 year
2	Spectrum Analyzer	FSU26	200030	R&S	2020-06-03	1 year
3	Climate chamber	SH-242	93008556	ESPEC	2020-12-21	3 year
4	EMI Antenna	VULB9163	9163-235	Schwarzbeck	2020-11-20	1 year
5	EMI Antenna	3117	00058889	ETS-Lindgren	2020-02-02	1 year
6	EMI Antenna	3117	00119024	ETS-Lindgren	2020-02-25	1 year
7	EMI Antenna	9117	167	Schwarzbeck	2020-05-27	1 year
8	Signal Generator	N5183A	MY49060052	R&S	2020-06-24	1 year
9	Test Receiver	E4440A	MY48250642	Agilent	2020-03-18	1 year
10	Universal Radio Communication Tester	CMW500	143008	R&S	2020-11-26	1 year
11	Radio Communication Analyzer	MT8821C	6201763159	Anritsu	2020-07-23	1 year

ANNEX A: MEASUREMENT RESULTS

A.1 OUTPUT POWER

A.1.1 Summary

During the process of testing, the EUT was controlled via Rhode & Schwarz Universal Radio Communication Tester (CMW500) or Anritsu Radio Communication Analyzer (MT8821C) to ensure max power transmission and proper modulation.

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

A.1.2 Conducted

A.1.2.1 Method of Measurements

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

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

A.1.2.2 Measurement result

LTE band 7

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2567.5	23.70	21.77	20.67
		2535	23.60	22.18	21.06
		2502.5	23.51	21.69	20.59
	1 RB low	2567.5	23.68	21.75	20.65
		2535	23.62	22.13	21.01
		2502.5	23.50	21.64	20.54
	50% RB mid	2567.5	22.18	21.76	20.66
		2535	22.16	21.87	20.77
		2502.5	22.07	21.68	20.58
	100% RB	2567.5	22.12	21.68	20.59
		2535	22.12	21.79	20.68
		2502.5	22.03	21.56	20.47
10MHz	1 RB high	2565	23.79	21.60	20.51
		2535	23.62	21.60	20.50
		2505	23.55	21.95	20.84
	1 RB low	2565	23.70	21.61	20.51
		2535	23.57	21.50	20.41
		2505	23.53	21.90	20.79
	50% RB mid	2565	22.21	21.74	20.64
		2535	22.15	21.70	20.61
		2505	22.05	21.65	20.55
	100% RB	2565	22.18	21.69	20.59
		2535	22.18	21.71	20.61
		2505	22.09	21.66	20.56
15MHz	1 RB high	2562.5	23.77	21.57	20.48
		2535	23.72	22.20	21.08
		2507.5	23.69	22.10	20.98
	1 RB low	2562.5	23.68	21.62	20.53
		2535	23.74	22.11	20.99
		2507.5	23.67	22.03	20.91
	50% RB mid	2562.5	22.31	21.83	20.72
		2535	22.29	21.86	20.76
		2507.5	22.14	21.71	20.61
	100% RB	2562.5	22.26	21.83	20.73
		2535	22.25	21.86	20.76
		2507.5	22.15	21.71	20.62

20MHz	1 RB high	2560	23.95	22.19	21.06
		2535	23.86	22.27	21.14
		2510	23.78	22.33	21.20
	1 RB low	2560	23.84	22.27	21.14
		2535	23.83	22.15	21.03
		2510	23.68	22.22	21.09
	50% RB mid	2560	22.44	21.91	20.81
		2535	22.42	21.92	20.81
		2510	22.28	21.88	20.77
	100% RB	2560	22.40	21.88	20.78
		2535	22.39	21.88	20.78
		2510	22.32	21.94	20.83

LTE band 12

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	715.3	22.78	21.95	21.46
		707.5	23.09	22.23	21.73
		699.7	22.97	22.38	21.88
	1 RB low	715.3	22.76	21.94	21.44
		707.5	23.10	22.26	21.76
		699.7	22.97	22.38	21.88
	50% RB mid	715.3	22.92	22.19	21.69
		707.5	23.11	22.33	21.83
		699.7	23.05	22.33	21.82
	100% RB	715.3	21.81	21.12	20.64
		707.5	22.00	21.28	20.80
		699.7	21.95	20.97	20.49
3MHz	1 RB high	714.5	22.90	22.38	21.80
		707.5	23.06	22.21	21.63
		700.5	23.11	22.03	21.46
	1 RB low	714.5	22.94	22.39	21.81
		707.5	23.12	22.31	21.73
		700.5	22.99	21.97	21.40
	50% RB mid	714.5	21.96	21.13	20.58
		707.5	22.17	21.28	20.73
		700.5	22.06	21.26	20.71
	100% RB	714.5	21.97	21.09	20.54
		707.5	22.14	21.19	20.64
		700.5	22.16	21.28	20.73
5MHz	1 RB high	713.5	22.97	22.12	21.55
		707.5	23.04	22.67	22.09
		701.5	23.11	22.29	21.71
	1 RB low	713.5	23.04	22.19	21.61
		707.5	23.02	22.65	21.93
		701.5	23.06	22.21	21.64
	50% RB mid	713.5	22.00	21.17	20.62
		707.5	22.18	21.43	20.87
		701.5	22.21	21.33	20.78
	100% RB	713.5	22.03	21.11	20.57
		707.5	22.17	21.33	20.78
		701.5	22.17	21.21	20.67
10MHz	1 RB high	711.0	22.99	22.40	21.82
		707.5	22.98	22.10	21.53

		704.0	22.98	22.06	21.49
	1 RB low	711.0	23.24	22.59	21.94
		707.5	22.99	22.18	21.60
		704.0	23.00	21.95	21.38
	50% RB mid	711.0	22.15	21.25	20.70
		707.5	22.14	21.37	20.82
		704.0	22.22	21.37	20.81
	100% RB	711.0	22.12	21.21	20.67
		707.5	22.15	21.26	20.71
		704.0	22.18	21.31	20.75

LTE band 13

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	784.5	22.97	21.66	20.62
		782	23.00	22.14	21.14
		779.5	23.09	21.76	21.16
	1 RB low	784.5	23.01	21.71	21.12
		782	23.06	22.19	21.14
		779.5	23.01	21.68	21.09
	50% RB mid	784.5	21.98	20.70	20.13
		782	22.15	20.91	20.14
		779.5	22.19	20.82	20.15
	100% RB	784.5	22.01	20.65	20.08
		782	22.11	20.76	20.19
		779.5	22.15	20.69	20.12
10MHz	1 RB high	782.0	23.00	22.02	21.16
	1 RB low	782.0	22.97	22.00	21.15
	50% RB mid	782.0	22.19	21.30	20.76
	100% RB	782.0	22.15	21.26	20.72

LTE band 25

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1914.3	22.95	22.19	21.69
		1882.5	23.09	22.16	21.66
		1850.7	23.23	22.18	21.68
	1 RB low	1914.3	22.96	22.25	21.74
		1882.5	23.12	22.11	21.61
		1850.7	23.21	22.21	21.71
	50% RB mid	1914.3	22.99	22.13	21.62
		1882.5	23.18	22.40	21.89
		1850.7	23.11	22.28	21.78
	100% RB	1914.3	21.88	20.81	20.33
		1882.5	22.17	21.37	20.88
		1850.7	22.16	21.30	20.80
3MHz	1 RB high	1913.5	22.99	22.29	21.78
		1882.5	23.22	22.25	21.74
		1851.5	23.21	21.97	21.47
	1 RB low	1913.5	23.06	22.27	21.77
		1882.5	23.24	22.29	21.79
		1851.5	23.17	22.04	21.54
	50% RB mid	1913.5	22.07	21.10	20.61
		1882.5	22.29	21.38	20.89
		1851.5	22.22	21.37	20.88
	100% RB	1913.5	22.03	21.07	20.58
		1882.5	22.26	21.28	20.78
		1851.5	22.18	21.26	20.77
5MHz	1 RB high	1912.5	23.05	22.09	21.58
		1882.5	23.28	22.78	22.26
		1852.5	23.25	22.25	21.75
	1 RB low	1912.5	23.10	22.15	21.64
		1882.5	23.29	22.78	22.27
		1852.5	23.22	22.30	21.79
	50% RB mid	1912.5	22.01	21.20	20.71
		1882.5	22.31	21.49	21.00
		1852.5	22.23	21.31	20.82
	100% RB	1912.5	22.02	21.09	20.60
		1882.5	22.26	21.41	20.92
		1852.5	22.21	21.20	20.71
10MHz	1 RB high	1910.0	23.01	21.82	21.32
		1882.5	23.34	22.68	22.17

		1855.0	23.31	22.16	21.65
	1 RB low	1910.0	23.02	21.95	21.45
		1882.5	23.42	22.72	22.21
		1855.0	23.31	22.29	21.79
	50% RB mid	1910.0	22.04	21.12	20.63
		1882.5	22.32	21.41	20.91
		1855.0	22.22	21.33	20.84
	100% RB	1910.0	22.02	21.10	20.61
		1882.5	22.28	21.35	20.86
		1855.0	22.19	21.25	20.75
15MHz	1 RB high	1907.5	22.94	21.79	21.29
		1882.5	23.20	22.53	22.02
		1857.5	23.44	22.51	22.00
	1 RB low	1907.5	23.03	21.96	21.45
		1882.5	23.28	22.61	22.10
		1857.5	23.33	22.53	22.03
	50% RB mid	1907.5	22.01	21.13	20.63
		1882.5	22.28	21.43	20.94
		1857.5	22.32	21.35	20.86
	100% RB	1907.5	22.05	21.12	20.63
		1882.5	22.29	21.39	20.90
		1857.5	22.41	21.47	20.98
20MHz	1 RB high	1905.0	22.96	22.28	21.77
		1882.5	23.28	22.59	22.08
		1860.0	23.42	22.75	22.24
	1 RB low	1905.0	22.98	22.36	21.85
		1882.5	23.34	22.58	22.07
		1860.0	23.24	22.72	22.21
	50% RB mid	1905.0	22.09	21.12	20.63
		1882.5	22.27	21.34	20.84
		1860.0	22.33	21.42	20.92
	100% RB	1905.0	22.00	21.09	20.60
		1882.5	22.25	21.34	20.84
		1860.0	22.30	21.41	20.92

LTE band 26(814MHz~824MHz)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	823.3	23.30	22.39	21.56
		819.0	23.33	22.46	21.52
		814.7	23.29	22.37	21.51
	1 RB low	823.3	23.19	22.26	21.48
		819.0	23.33	22.46	21.49
		814.7	23.33	22.46	21.58
	50% RB mid	823.3	23.26	22.54	21.48
		819.0	23.40	22.72	21.55
		814.7	23.44	22.73	21.62
	100% RB	823.3	22.27	21.24	20.43
		819.0	22.34	21.57	20.36
		814.7	22.39	21.63	20.41
3MHz	1 RB high	822.5	23.33	22.45	21.63
		819.0	23.36	22.58	21.53
		815.5	23.48	22.51	21.58
	1 RB low	822.5	23.28	22.37	21.56
		819.0	23.43	22.58	21.63
		815.5	23.53	22.58	21.62
	50% RB mid	822.5	22.29	21.45	20.46
		819.0	22.44	21.53	20.51
		815.5	22.47	21.61	20.55
	100% RB	822.5	22.35	21.52	20.52
		819.0	22.38	21.45	20.46
		815.5	22.40	21.57	20.49
5MHz	1 RB high	821.5	23.24	22.41	21.58
		819.0	23.37	22.53	21.62
		816.5	23.43	22.56	21.61
	1 RB low	821.5	23.29	22.46	21.62
		819.0	23.41	22.57	21.67
		816.5	23.47	22.59	21.65
	50% RB mid	821.5	22.31	21.48	20.48
		819.0	22.48	21.65	20.51
		816.5	22.47	21.74	20.53
	100% RB	821.5	22.28	21.34	20.44
		819.0	22.46	21.59	20.48
		816.5	22.50	21.60	20.46
10MHz	1 RB high	819.0	23.34	22.44	21.52
	1 RB low	819.0	23.34	22.55	21.51

	50% RB mid	819.0	23.35	22.55	21.58
	100% RB	819.0	23.50	22.52	21.71

LTE band 26(824MHz~849MHz)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	848.3	23.08	22.14	21.31
		836.5	23.11	22.23	21.41
		824.7	23.24	22.34	21.58
	1 RB low	848.3	23.08	22.14	21.34
		836.5	23.13	22.17	21.39
		824.7	23.23	22.33	21.65
	50% RB mid	848.3	23.11	22.35	21.31
		836.5	23.16	22.42	21.40
		824.7	23.35	22.64	21.58
	100% RB	848.3	22.07	21.28	20.16
		836.5	22.13	21.33	20.21
		824.7	22.22	21.52	20.36
3MHz	1 RB high	847.5	23.10	22.13	21.35
		836.5	23.16	22.23	21.38
		825.5	23.31	22.40	21.62
	1 RB low	847.5	23.11	22.26	21.47
		836.5	23.16	22.31	21.45
		825.5	23.38	22.44	21.63
	50% RB mid	847.5	22.15	21.31	20.36
		836.5	22.22	21.30	20.35
		825.5	22.31	21.47	20.52
	100% RB	847.5	22.19	21.18	20.28
		836.5	22.16	21.23	20.30
		825.5	22.32	21.37	20.47
5MHz	1 RB high	846.5	23.11	22.20	21.39
		836.5	23.14	22.27	21.42
		826.5	23.22	22.38	21.56
	1 RB low	846.5	23.18	22.27	21.42
		836.5	23.22	22.31	21.50
		826.5	23.32	22.48	21.67
	50% RB mid	846.5	22.25	21.30	20.35
		836.5	22.25	21.34	20.38
		826.5	22.33	21.51	20.52
	100% RB	846.5	22.18	21.19	20.32
		836.5	22.22	21.22	20.28
		826.5	22.30	21.38	20.48
10MHz	1 RB high	844.0	23.14	22.12	21.31
		836.5	23.23	22.27	21.47

		829.0	23.21	22.28	21.49
	1 RB low	844.0	23.26	22.31	21.56
		836.5	23.28	22.31	21.51
		829.0	23.36	22.40	21.64
	50% RB mid	844.0	22.29	21.38	20.32
		836.5	22.24	21.31	20.31
		829.0	22.34	21.42	20.45
	100% RB	844.0	22.23	21.33	20.36
		836.5	22.19	21.30	20.33
		829.0	22.29	21.43	20.41
15MHz	1 RB high	841.5	22.87	22.34	21.37
		836.5	23.20	22.61	21.40
		831.5	23.17	22.57	21.43
	1 RB low	841.5	23.24	22.72	21.59
		836.5	23.31	22.75	21.61
		831.5	23.38	22.87	21.71
	50% RB mid	841.5	22.17	21.22	20.27
		836.5	22.20	21.37	20.35
		831.5	22.28	21.40	20.28
	100% RB	841.5	22.15	21.19	20.24
		836.5	22.19	21.32	20.28
		831.5	22.28	21.41	20.36

LTE band 41

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2687.5	23.61	21.96	20.86
		2593.0	23.71	21.66	20.57
		2498.5	23.76	21.75	20.65
	1 RB low	2687.5	23.45	21.79	20.69
		2593.0	23.41	21.40	20.31
		2498.5	23.50	21.88	20.78
	50% RB mid	2687.5	23.73	21.66	20.57
		2593.0	23.69	21.77	20.67
		2498.5	23.43	21.75	20.65
	100% RB	2687.5	23.26	21.43	20.34
		2593.0	22.10	21.92	20.82
		2498.5	22.25	21.84	20.74
10MHz	1 RB high	2685.0	22.28	21.93	20.82
		2593.0	22.09	21.88	20.78
		2501.0	21.97	21.62	20.53
	1 RB low	2685.0	22.26	21.94	20.84
		2593.0	22.21	21.83	20.73
		2501.0	22.25	21.90	20.80
	50% RB mid	2685.0	22.10	21.73	20.63
		2593.0	21.97	21.57	20.48
		2501.0	23.91	22.51	21.40
	100% RB	2685.0	23.71	21.71	20.61
		2593.0	23.80	21.88	20.78
		2501.0	23.64	21.96	20.86
15MHz	1 RB high	2682.5	23.51	21.57	20.48
		2593.0	23.93	21.95	20.85
		2503.5	23.62	21.66	20.56
	1 RB low	2682.5	23.74	21.85	20.75
		2593.0	23.60	21.88	20.78
		2503.5	23.46	21.48	20.39
	50% RB mid	2682.5	22.20	21.95	20.85
		2593.0	22.16	21.84	20.74
		2503.5	22.35	21.94	20.84
	100% RB	2682.5	22.18	21.88	20.78
		2593.0	22.04	21.64	20.55
		2503.5	22.36	21.98	20.88

20MHz	1 RB high	2680.0	22.14	21.79	20.69
		2593.0	22.34	21.95	20.85
		2506.0	22.18	21.89	20.79
	1 RB low	2680.0	22.02	21.68	20.58
		2593.0	23.67	21.79	20.69
		2506.0	23.65	21.78	20.69
	50% RB mid	2680.0	23.82	21.88	20.78
		2593.0	23.71	21.74	20.65
		2506.0	23.33	21.54	20.45
	100% RB	2680.0	23.60	21.66	20.56
		2593.0	23.61	21.83	20.73
		2506.0	23.82	21.80	20.70

LTE band 66

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1779.3	23.29	22.46	21.16
		1745.0	23.27	22.61	21.31
		1710.7	23.33	22.36	21.06
	1 RB low	1779.3	23.35	22.43	21.13
		1745.0	23.24	22.59	21.29
		1710.7	23.36	22.34	21.04
	50% RB mid	1779.3	23.39	22.60	21.30
		1745.0	23.31	22.59	21.29
		1710.7	23.38	22.68	21.38
	100% RB	1779.3	22.30	21.53	20.23
		1745.0	22.20	21.18	19.88
		1710.7	22.35	21.58	20.28
3MHz	1 RB high	1778.5	23.30	22.41	21.11
		1745.0	23.27	22.19	20.89
		1711.5	23.43	22.77	21.47
	1 RB low	1778.5	23.31	22.44	21.14
		1745.0	23.29	22.17	20.87
		1711.5	23.46	22.79	21.49
	50% RB mid	1778.5	22.43	21.56	20.26
		1745.0	22.31	21.48	20.18
		1711.5	22.51	21.58	20.28
	100% RB	1778.5	22.42	21.45	20.15
		1745.0	22.29	21.44	20.14
		1711.5	22.41	21.52	20.22
5MHz	1 RB high	1777.5	23.40	22.55	21.03
		1745.0	23.24	22.82	21.29
		1712.5	23.42	22.49	20.98
	1 RB low	1777.5	23.43	22.57	21.06
		1745.0	23.25	22.78	21.25
		1712.5	23.47	22.49	20.98
	50% RB mid	1777.5	22.43	21.62	20.92
		1745.0	22.36	21.59	20.90
		1712.5	22.49	21.59	20.90
	100% RB	1777.5	22.40	21.52	20.83
		1745.0	22.31	21.48	20.79
		1712.5	22.42	21.44	20.76
10MHz	1 RB high	1775.0	23.30	22.27	20.80
		1745.0	23.26	22.68	21.19

		1715.0	23.29	22.43	20.95
	1 RB low	1775.0	23.25	22.20	20.74
		1745.0	23.35	22.66	21.17
		1715.0	23.40	22.42	20.94
	50% RB mid	1775.0	22.42	21.56	21.00
		1745.0	22.29	21.43	20.88
		1715.0	22.44	21.66	21.10
	100% RB	1775.0	22.28	21.42	20.86
		1745.0	22.34	21.39	20.84
		1715.0	22.44	21.52	20.97
15MHz	1 RB high	1772.5	23.26	22.25	20.89
		1745.0	23.23	22.68	21.28
		1717.5	23.33	22.79	21.39
	1 RB low	1772.5	23.33	22.21	20.84
		1745.0	23.30	22.64	21.25
		1717.5	23.45	22.72	21.33
	50% RB mid	1772.5	22.34	21.43	20.12
		1745.0	22.37	21.46	20.14
		1717.5	22.45	21.51	20.19
	100% RB	1772.5	22.33	21.40	20.08
		1745.0	22.32	21.40	20.08
		1717.5	22.42	21.50	20.18
20MHz	1 RB high	1770.0	23.29	22.80	21.43
		1745.0	23.29	22.80	21.44
		1720.0	23.30	22.94	21.56
	1 RB low	1770.0	23.22	22.71	21.34
		1745.0	23.25	22.65	21.29
		1720.0	23.36	22.83	21.46
	50% RB mid	1770.0	22.33	21.45	20.16
		1745.0	22.37	21.39	20.11
		1720.0	22.42	21.62	20.32
	100% RB	1770.0	22.31	21.39	20.10
		1745.0	22.33	21.39	20.10
		1720.0	22.43	21.54	20.25

A.1.3 Radiated

A.1.3.1 Description

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

Rule Part 22.913(a) specifies "Mobile stations are limited to 2.0 watts EIRP".

Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

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

Rule Part 27.50(h)(2) specifies "Mobile stations are limited to 2.0 watts EIRP".

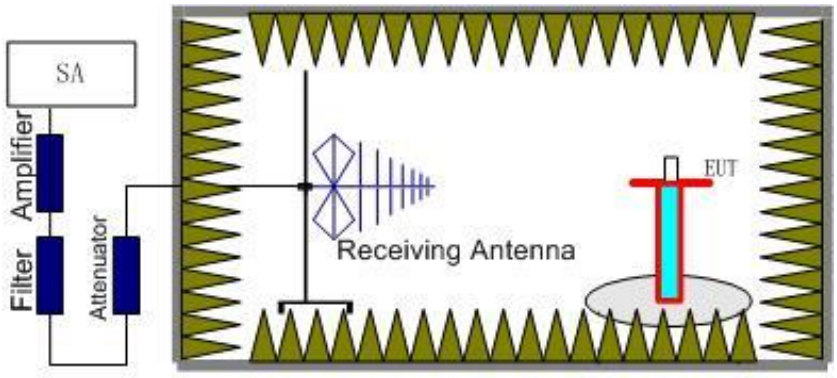
Rule Part 27.50(c) specifies "Portable stations (hand-held de-vices) are limited to 3 watts ERP.".

Rule Part 90.635(b) specifies "The maximum output power of the transmitter for mobile stations is 100 watts(50dBm)".

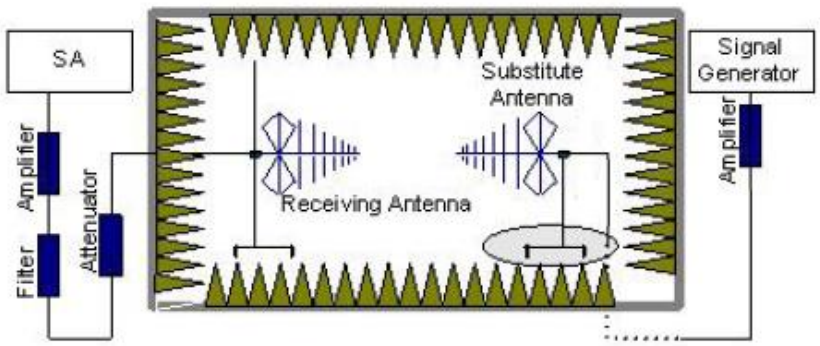
A.1.3.2 Method of Measurement

The measurements procedures in TIA-603-E-2016 are used.

1. EUT was placed on a 1.5-meter-high non-conductive stand at a 3-meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360 and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with RMS detector.



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



In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. An amplifier should be connected to the Signal Source output port. And the cable should be connected between the amplifier and the substitution antenna.
   The cable loss (P_{cl}), the substitution antenna Gain (G_a) and the amplifier Gain (P_{Ag}) should be recorded after test.
   The measurement results are obtained as described below:
   Power (EIRP) = P_{Mea} - P_{Ag} - P_{cl} - G_a
5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP - 2.15.

A.1.3.3 Measurement result

LTE Band 7- EIRP

Limits: ≤33 dBm (2W)

LTE Band 7_5MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2502.50	-23.96	3.58	45.68	6.10	24.24	33.00	8.76	H
2535.00	-22.80	3.63	44.82	6.16	24.55	33.00	8.45	H
2567.50	-23.68	3.65	44.92	6.22	23.81	33.00	9.19	H

LTE Band 7_10MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2505.00	-24.16	3.59	45.64	6.11	24.00	33.00	9.00	H
2535.00	-22.93	3.63	44.82	6.16	24.42	33.00	8.58	H
2565.00	-23.79	3.65	44.97	6.22	23.75	33.00	9.25	H

LTE Band 7_15MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2507.50	-23.58	3.59	44.92	6.11	23.86	33.00	9.14	H
2535.00	-22.88	3.63	44.82	6.16	24.47	33.00	8.53	H
2562.50	-24.15	3.65	45.67	6.21	24.08	33.00	8.92	H

LTE Band 7_20 MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2510.00	-24.04	3.58	45.36	6.12	23.86	33.00	9.14	H
2535.00	-22.91	3.63	44.82	6.16	24.44	33.00	8.56	H
2560.00	-24.42	3.64	45.98	6.21	24.13	33.00	8.87	H

LTE Band 7_5MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2502.50	-24.75	3.58	45.68	6.10	23.45	33.00	9.55	H
2535.00	-23.48	3.63	44.82	6.16	23.87	33.00	9.13	H
2567.50	-24.54	3.65	44.92	6.22	22.95	33.00	10.05	H

LTE Band 7_10MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2505.00	-24.90	3.59	45.64	6.11	23.26	33.00	9.74	H
2535.00	-23.59	3.63	44.82	6.16	23.76	33.00	9.24	H
2565.00	-24.55	3.65	44.97	6.22	22.99	33.00	10.01	H

LTE Band 7_15MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2507.50	-24.30	3.59	44.92	6.11	23.14	33.00	9.86	H
2535.00	-23.57	3.63	44.82	6.16	23.78	33.00	9.22	H
2562.50	-24.83	3.65	45.67	6.21	23.40	33.00	9.60	H

LTE Band 7_20 MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2510.00	-24.78	3.58	45.36	6.12	23.12	33.00	9.88	H
2535.00	-23.58	3.63	44.82	6.16	23.77	33.00	9.23	H
2560.00	-25.06	3.64	45.98	6.21	23.49	33.00	9.51	H

LTE Band 7_5MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2502.50	-25.74	3.58	45.68	6.10	22.46	33.00	10.54	H
2535.00	-24.50	3.63	44.82	6.16	22.85	33.00	10.15	H
2567.50	-25.51	3.65	44.92	6.22	21.98	33.00	11.02	H

LTE Band 7_10MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2505.00	-25.88	3.59	45.64	6.11	22.28	33.00	10.72	H
2535.00	-24.62	3.63	44.82	6.16	22.73	33.00	10.27	H
2565.00	-25.53	3.65	44.97	6.22	22.01	33.00	10.99	H

LTE Band 7_15MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2507.50	-25.32	3.59	44.92	6.11	22.12	33.00	10.88	H
2535.00	-24.59	3.63	44.82	6.16	22.76	33.00	10.24	H
2562.50	-25.86	3.65	45.67	6.21	22.37	33.00	10.63	H

LTE Band 7_20 MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2510.00	-25.75	3.58	45.36	6.12	22.15	33.00	10.85	H
2535.00	-24.63	3.63	44.82	6.16	22.72	33.00	10.28	H
2560.00	-26.05	3.64	45.98	6.21	22.50	33.00	10.50	H

LTE Band 12 - ERP

Limits: ≤34.77dBm (3W)

LTE Band 12_1.4MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
699.70	-21.48	1.90	44.66	0.77	2.15	19.90	34.77	14.87	H
707.50	-21.16	1.91	44.94	0.62	2.15	20.34	34.77	14.43	H
715.30	-20.99	1.92	45.26	0.50	2.15	20.70	34.77	14.07	H

LTE Band 12_3MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
700.50	-21.40	1.90	44.68	0.76	2.15	19.99	34.77	14.78	H
707.50	-21.21	1.91	44.94	0.62	2.15	20.29	34.77	14.48	H
714.50	-20.92	1.92	45.26	0.50	2.15	20.77	34.77	14.00	H

LTE Band 12_5MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
701.50	-21.31	1.90	44.81	0.74	2.15	20.19	34.77	14.58	H
707.50	-21.18	1.91	44.94	0.62	2.15	20.32	34.77	14.45	H
713.50	-20.85	1.92	45.22	0.50	2.15	20.80	34.77	13.97	H

LTE Band 12_10MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
704.00	-21.27	1.91	44.93	0.70	2.15	20.30	34.77	14.47	H
707.50	-21.27	1.91	44.94	0.62	2.15	20.23	34.77	14.54	H
711.00	-21.19	1.92	45.19	0.53	2.15	20.46	34.77	14.31	H

LTE Band 12_1.4MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
699.70	-22.12	1.90	44.66	0.77	2.15	19.26	34.77	15.51	H
707.50	-21.79	1.91	44.94	0.62	2.15	19.71	34.77	15.06	H
715.30	-21.64	1.92	45.26	0.50	2.15	20.05	34.77	14.72	H

LTE Band 12_3MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
700.50	-22.05	1.90	44.68	0.76	2.15	19.34	34.77	15.43	H
707.50	-21.80	1.91	44.94	0.62	2.15	19.70	34.77	15.07	H
714.50	-21.56	1.92	45.26	0.50	2.15	20.13	34.77	14.64	H

LTE Band 12_5MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
701.50	-21.99	1.90	44.81	0.74	2.15	19.51	34.77	15.26	H
707.50	-21.79	1.91	44.94	0.62	2.15	19.71	34.77	15.06	H
713.50	-21.51	1.92	45.22	0.50	2.15	20.14	34.77	14.63	H

LTE Band 12_10MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
704.00	-21.86	1.91	44.93	0.70	2.15	19.71	34.77	15.06	H
707.50	-21.88	1.91	44.94	0.62	2.15	19.62	34.77	15.15	H
711.00	-21.88	1.92	45.19	0.53	2.15	19.77	34.77	15.00	H

LTE Band 12_1.4MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
699.70	-23.15	1.90	44.66	0.77	2.15	18.23	34.77	16.54	H
707.50	-22.83	1.91	44.94	0.62	2.15	18.67	34.77	16.10	H
715.30	-22.70	1.92	45.26	0.50	2.15	18.99	34.77	15.78	H

LTE Band 12_3MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
700.50	-23.10	1.90	44.68	0.76	2.15	18.29	34.77	16.48	H
707.50	-22.87	1.91	44.94	0.62	2.15	18.63	34.77	16.14	H
714.50	-22.60	1.92	45.26	0.50	2.15	19.09	34.77	15.68	H

LTE Band 12_5MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
701.50	-23.06	1.90	44.81	0.74	2.15	18.44	34.77	16.33	H
707.50	-22.85	1.91	44.94	0.62	2.15	18.65	34.77	16.12	H
713.50	-22.55	1.92	45.22	0.50	2.15	19.10	34.77	15.67	H

LTE Band 12_10MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
704.00	-22.94	1.91	44.93	0.70	2.15	18.63	34.77	16.14	H
707.50	-22.95	1.91	44.94	0.62	2.15	18.55	34.77	16.22	H
711.00	-22.92	1.92	45.19	0.53	2.15	18.73	34.77	16.04	H

LTE Band 13- ERP

Limits: ≤34.77 dBm (3W)

LTE Band 13_5MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
779.50	-22.46	2.01	45.64	0.04	2.15	19.06	34.77	15.71	V
782.00	-22.60	2.01	45.65	0.09	2.15	18.98	34.77	15.79	V
784.50	-22.89	2.01	45.67	0.16	2.15	18.78	34.77	15.99	V

LTE Band 13_10MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
782.00	-22.71	2.01	45.65	0.09	2.15	18.87	34.77	15.90	V

LTE Band 13_5MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
779.50	-23.06	2.01	45.64	0.04	2.15	18.46	34.77	16.31	V
782.00	-23.19	2.01	45.65	0.09	2.15	18.39	34.77	16.38	V
784.50	-23.61	2.01	45.67	0.16	2.15	18.06	34.77	16.71	V

LTE Band 13_10MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
782.00	-23.35	2.01	45.65	0.09	2.15	18.23	34.77	16.54	V

LTE Band 13_5MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
779.50	-24.11	2.01	45.64	0.04	2.15	17.41	34.77	17.36	V
782.00	-24.25	2.01	45.65	0.09	2.15	17.33	34.77	17.44	V
784.50	-24.60	2.01	45.67	0.16	2.15	17.07	34.77	17.70	V

LTE Band 13_10MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
782.00	-24.37	2.01	45.65	0.09	2.15	17.21	34.77	17.56	V

LTE Band 25- EIRP

Limits: ≤33dBm (2W)

LTE Band 25_1.4MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1850.70	-24.40	2.92	43.75	4.87	21.30	33.00	11.70	H
1882.50	-23.36	3.13	43.75	4.81	22.07	33.00	10.93	H
1914.30	-23.28	2.89	43.78	4.75	22.36	33.00	10.64	H

LTE Band 25_3MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1851.50	-24.86	2.87	43.75	4.87	20.89	33.00	12.11	H
1882.50	-23.70	3.13	43.75	4.81	21.73	33.00	11.27	H
1913.50	-22.74	2.88	43.78	4.76	22.92	33.00	10.08	H

LTE Band 25_5MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1852.50	-24.59	2.87	43.75	4.87	21.16	33.00	11.84	H
1882.50	-23.61	3.13	43.75	4.81	21.82	33.00	11.18	H
1912.50	-22.34	2.86	43.77	4.76	23.33	33.00	9.67	H

LTE Band 25_10MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1855.00	-24.36	2.88	43.74	4.86	21.36	33.00	11.64	H
1882.50	-23.83	3.13	43.75	4.81	21.60	33.00	11.40	H
1910.00	-22.80	2.88	43.77	4.76	22.85	33.00	10.15	H

LTE Band 25_15MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1857.50	-24.01	2.87	43.75	4.86	21.73	33.00	11.27	H
1882.50	-23.81	3.13	43.75	4.81	21.62	33.00	11.38	H
1907.50	-23.52	2.84	43.77	4.77	22.18	33.00	10.82	H

LTE Band 25_20 MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1860.00	-23.82	2.86	43.75	4.85	21.92	33.00	11.08	H
1882.50	-23.86	3.13	43.75	4.81	21.57	33.00	11.43	H
1905.00	-23.77	2.87	43.77	4.77	21.90	33.00	11.10	H

LTE Band 25_1.4MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1850.70	-24.54	2.92	43.75	4.87	21.16	33.00	11.84	H
1882.50	-23.46	3.13	43.75	4.81	21.97	33.00	11.03	H
1914.30	-23.30	2.89	43.78	4.75	22.34	33.00	10.66	H

LTE Band 25_3MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1851.50	-24.94	2.87	43.75	4.87	20.81	33.00	12.19	H
1882.50	-23.78	3.13	43.75	4.81	21.65	33.00	11.35	H
1913.50	-22.87	2.88	43.78	4.76	22.79	33.00	10.21	H

LTE Band 25_5MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1852.50	-24.67	2.87	43.75	4.87	21.08	33.00	11.92	H
1882.50	-23.71	3.13	43.75	4.81	21.72	33.00	11.28	H
1912.50	-22.49	2.86	43.77	4.76	23.18	33.00	9.82	H

LTE Band 25_10MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1855.00	-24.44	2.88	43.74	4.86	21.28	33.00	11.72	H
1882.50	-23.93	3.13	43.75	4.81	21.50	33.00	11.50	H
1910.00	-22.91	2.88	43.77	4.76	22.74	33.00	10.26	H

LTE Band 25_15MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1857.50	-24.11	2.87	43.75	4.86	21.63	33.00	11.37	H
1882.50	-23.92	3.13	43.75	4.81	21.51	33.00	11.49	H
1907.50	-23.65	2.84	43.77	4.77	22.05	33.00	10.95	H

LTE Band 25_20 MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1860.00	-23.95	2.86	43.75	4.85	21.79	33.00	11.21	H
1882.50	-23.97	3.13	43.75	4.81	21.46	33.00	11.54	H
1905.00	-23.90	2.87	43.77	4.77	21.77	33.00	11.23	H

LTE Band 25_1.4MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1850.70	-25.39	2.92	43.75	4.87	20.31	33.00	12.69	H
1882.50	-24.23	3.13	43.75	4.81	21.20	33.00	11.80	H
1914.30	-24.20	2.89	43.78	4.75	21.44	33.00	11.56	H

LTE Band 25_3MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1851.50	-25.98	2.87	43.75	4.87	19.77	33.00	13.23	H
1882.50	-24.73	3.13	43.75	4.81	20.70	33.00	12.30	H
1913.50	-23.93	2.88	43.78	4.76	21.73	33.00	11.27	H

LTE Band 25_5MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1852.50	-25.74	2.87	43.75	4.87	20.01	33.00	12.99	H
1882.50	-24.66	3.13	43.75	4.81	20.77	33.00	12.23	H
1912.50	-23.47	2.86	43.77	4.76	22.20	33.00	10.80	H

LTE Band 25_10MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1855.00	-25.50	2.88	43.74	4.86	20.22	33.00	12.78	H
1882.50	-25.00	3.13	43.75	4.81	20.43	33.00	12.57	H
1910.00	-23.78	2.88	43.77	4.76	21.87	33.00	11.13	H

LTE Band 25_15MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1857.50	-25.14	2.87	43.75	4.86	20.60	33.00	12.40	H
1882.50	-25.02	3.13	43.75	4.81	20.41	33.00	12.59	H
1907.50	-24.66	2.84	43.77	4.77	21.04	33.00	11.96	H

LTE Band 25_20 MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1860.00	-25.02	2.86	43.75	4.85	20.72	33.00	12.28	H
1882.50	-25.04	3.13	43.75	4.81	20.39	33.00	12.61	H
1905.00	-25.03	2.87	43.77	4.77	20.64	33.00	12.36	H

LTE Band 26(814MHz~824MHz)- ERP

Limits: ≤50dBm (100W)

LTE Band 26_1.4MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
814.70	-22.53	2.13	45.86	0.89	2.15	19.94	50.00	30.06	H
819.00	-21.97	2.19	45.84	1.05	2.15	20.58	50.00	29.42	H
823.30	-20.66	2.24	45.79	0.55	2.15	21.29	50.00	28.71	H

LTE Band 26_3MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
815.50	-22.47	2.14	45.87	0.93	2.15	20.04	50.00	29.96	H
819.00	-21.95	2.19	45.84	1.05	2.15	20.60	50.00	29.40	H
822.50	-20.55	2.23	45.81	0.33	2.15	21.21	50.00	28.79	H

LTE Band 26_5MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
816.50	-22.40	2.16	45.88	0.98	2.15	20.15	50.00	29.85	H
819.00	-21.85	2.19	45.84	1.05	2.15	20.70	50.00	29.30	H
821.50	-20.93	2.22	45.82	0.71	2.15	21.23	50.00	28.77	H

LTE Band 26_10MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
819.00	-22.01	2.19	45.84	1.05	2.15	20.54	50.00	29.46	H

LTE Band 26_1.4MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
814.70	-23.19	2.13	45.86	0.89	2.15	19.28	50.00	30.72	H
819.00	-22.69	2.19	45.84	1.05	2.15	19.86	50.00	30.14	H
823.30	-21.29	2.24	45.79	0.55	2.15	20.66	50.00	29.34	H

LTE Band 26_3MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
815.50	-23.19	2.14	45.87	0.93	2.15	19.32	50.00	30.68	H
819.00	-22.74	2.19	45.84	1.05	2.15	19.81	50.00	30.19	H
822.50	-21.20	2.23	45.81	0.33	2.15	20.56	50.00	29.44	H

LTE Band 26_5MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
816.50	-23.18	2.16	45.88	0.98	2.15	19.37	50.00	30.63	H
819.00	-22.71	2.19	45.84	1.05	2.15	19.84	50.00	30.16	H
821.50	-21.65	2.22	45.82	0.71	2.15	20.51	50.00	29.49	H

LTE Band 26_10MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
819.00	-22.73	2.19	45.84	1.05	2.15	19.82	50.00	30.18	H

LTE Band 26_1.4MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
814.70	-24.23	2.13	45.86	0.89	2.15	18.24	50.00	31.76	H
819.00	-23.76	2.19	45.84	1.05	2.15	18.79	50.00	31.21	H
823.30	-21.74	2.24	45.79	0.55	2.15	20.21	50.00	29.79	H

LTE Band 26_3MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
815.50	-24.15	2.14	45.87	0.93	2.15	18.36	50.00	31.64	H
819.00	-23.73	2.19	45.84	1.05	2.15	18.82	50.00	31.18	H
822.50	-21.69	2.23	45.81	0.33	2.15	20.07	50.00	29.93	H

LTE Band 26_5MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
816.50	-24.03	2.16	45.88	0.98	2.15	18.52	50.00	31.48	H
819.00	-23.58	2.19	45.84	1.05	2.15	18.97	50.00	31.03	H
821.50	-22.18	2.22	45.82	0.71	2.15	19.98	50.00	30.02	H

LTE Band 26_10MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
819.00	-23.78	2.19	45.84	1.05	2.15	18.77	50.00	31.23	H

LTE Band 26(824MHz~849MHz)- ERP

Limits: ≤38.45dBm (7W)

LTE Band 26_1.4MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
824.70	-20.96	2.26	45.79	0.95	2.15	21.37	38.45	17.08	H
836.50	-20.45	2.26	45.66	0.82	2.15	21.62	38.45	16.83	H
848.30	-21.28	2.27	45.55	0.80	2.15	20.65	38.45	17.80	H

LTE Band 26_3MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
825.50	-20.83	2.26	45.79	0.94	2.15	21.49	38.45	16.96	H
836.50	-20.40	2.26	45.66	0.82	2.15	21.67	38.45	16.78	H
847.50	-21.26	2.27	45.56	0.81	2.15	20.69	38.45	17.76	H

LTE Band 26_5MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
826.50	-20.89	2.25	45.77	0.93	2.15	21.41	38.45	17.04	H
836.50	-20.36	2.26	45.66	0.82	2.15	21.71	38.45	16.74	H
846.50	-21.15	2.26	45.56	0.82	2.15	20.82	38.45	17.63	H

LTE Band 26_10MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
829.00	-21.25	2.13	45.74	0.90	2.15	21.11	38.45	17.34	H
836.50	-20.53	2.26	45.66	0.82	2.15	21.54	38.45	16.91	H
844.00	-21.25	2.26	45.59	0.82	2.15	20.75	38.45	17.70	H

LTE Band 26_15MHz_ QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
831.50	-21.10	2.12	45.71	0.87	2.15	21.21	38.45	17.24	H
836.50	-20.48	2.26	45.66	0.82	2.15	21.59	38.45	16.86	H
841.50	-21.11	2.26	45.61	0.82	2.15	20.91	38.45	17.54	H

LTE Band 26_1.4MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
824.70	-21.58	2.26	45.79	0.95	2.15	20.75	38.45	17.70	H
836.50	-21.16	2.26	45.66	0.82	2.15	20.91	38.45	17.54	H
848.30	-22.00	2.27	45.55	0.80	2.15	19.93	38.45	18.52	H

LTE Band 26_3MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
825.50	-21.62	2.26	45.79	0.94	2.15	20.70	38.45	17.75	H
836.50	-21.14	2.26	45.66	0.82	2.15	20.93	38.45	17.52	H
847.50	-22.07	2.27	45.56	0.81	2.15	19.88	38.45	18.57	H

LTE Band 26_5MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
826.50	-21.72	2.25	45.77	0.93	2.15	20.58	38.45	17.87	H
836.50	-21.08	2.26	45.66	0.82	2.15	20.99	38.45	17.46	H
846.50	-21.95	2.26	45.56	0.82	2.15	20.02	38.45	18.43	H

LTE Band 26_10MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
829.00	-21.89	2.13	45.74	0.90	2.15	20.47	38.45	17.98	H
836.50	-21.21	2.26	45.66	0.82	2.15	20.86	38.45	17.59	H
844.00	-22.02	2.26	45.59	0.82	2.15	19.98	38.45	18.47	H

LTE Band 26_15MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
831.50	-21.79	2.12	45.71	0.87	2.15	20.52	38.45	17.93	H
836.50	-21.19	2.26	45.66	0.82	2.15	20.88	38.45	17.57	H
841.50	-22.00	2.26	45.61	0.82	2.15	20.02	38.45	18.43	H

LTE Band 26_1.4MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
824.70	-22.63	2.26	45.79	0.95	2.15	19.70	38.45	18.75	H
836.50	-22.18	2.26	45.66	0.82	2.15	19.89	38.45	18.56	H
848.30	-23.01	2.27	45.55	0.80	2.15	18.92	38.45	19.53	H

LTE Band 26_3MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
825.50	-22.59	2.26	45.79	0.94	2.15	19.73	38.45	18.72	H
836.50	-22.15	2.26	45.66	0.82	2.15	19.92	38.45	18.53	H
847.50	-22.97	2.27	45.56	0.81	2.15	18.98	38.45	19.47	H

LTE Band 26_5MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
826.50	-22.64	2.25	45.77	0.93	2.15	19.66	38.45	18.79	H
836.50	-22.03	2.26	45.66	0.82	2.15	20.04	38.45	18.41	H
846.50	-22.90	2.26	45.56	0.82	2.15	19.07	38.45	19.38	H

LTE Band 26_10MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
829.00	-22.92	2.13	45.74	0.90	2.15	19.44	38.45	19.01	H
836.50	-22.22	2.26	45.66	0.82	2.15	19.85	38.45	18.60	H
844.00	-22.90	2.26	45.59	0.82	2.15	19.10	38.45	19.35	H

LTE Band 26_15MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	Correction (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
831.50	-22.90	2.12	45.71	0.87	2.15	19.41	38.45	19.04	H
836.50	-22.20	2.26	45.66	0.82	2.15	19.87	38.45	18.58	H
841.50	-22.83	2.26	45.61	0.82	2.15	19.19	38.45	19.26	H

LTE Band 41- EIRP

Limits: ≤33dBm (2W)

LTE Band 41_5MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2498.50	-28.48	3.58	45.59	6.10	19.63	33.00	13.37	H
2593.00	-29.75	3.69	44.93	6.27	17.76	33.00	15.24	H
2687.50	-31.05	3.73	44.98	6.44	16.64	33.00	16.36	H

LTE Band 41_10MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2501.00	-28.42	3.58	45.65	6.10	19.75	33.00	13.25	H
2593.00	-29.78	3.69	44.93	6.27	17.73	33.00	15.27	H
2685.00	-31.51	3.73	44.98	6.43	16.17	33.00	16.83	H

LTE Band 41_15MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2503.50	-28.47	3.58	45.65	6.11	19.71	33.00	13.29	H
2593.00	-29.77	3.69	44.93	6.27	17.74	33.00	15.26	H
2682.50	-31.50	3.73	44.98	6.43	16.18	33.00	16.82	H

LTE Band 41_20MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2506.00	-28.15	3.59	45.15	6.11	19.52	33.00	13.48	H
2593.00	-29.80	3.69	44.93	6.27	17.71	33.00	15.29	H
2680.00	-31.41	3.73	44.97	6.42	16.25	33.00	16.75	H

LTE Band 41_5MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2498.50	-29.32	3.58	45.59	6.10	18.79	33.00	14.21	H
2593.00	-30.57	3.69	44.93	6.27	16.94	33.00	16.06	H
2687.50	-31.80	3.73	44.98	6.44	15.89	33.00	17.11	H

LTE Band 41_10MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2501.00	-29.28	3.58	45.65	6.10	18.89	33.00	14.11	H
2593.00	-30.60	3.69	44.93	6.27	16.91	33.00	16.09	H
2685.00	-32.26	3.73	44.98	6.43	15.42	33.00	17.58	H

LTE Band 41_15MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2503.50	-29.35	3.58	45.65	6.11	18.83	33.00	14.17	H
2593.00	-30.65	3.69	44.93	6.27	16.86	33.00	16.14	H
2682.50	-32.29	3.73	44.98	6.43	15.39	33.00	17.61	H

LTE Band 41_20MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2506.00	-28.97	3.59	45.15	6.11	18.70	33.00	14.30	H
2593.00	-30.61	3.69	44.93	6.27	16.90	33.00	16.10	H
2680.00	-32.13	3.73	44.97	6.42	15.53	33.00	17.47	H

LTE Band 41_5MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2498.50	-30.36	3.58	45.59	6.10	17.75	33.00	15.25	H
2593.00	-31.36	3.69	44.93	6.27	16.15	33.00	16.85	H
2687.50	-32.75	3.73	44.98	6.44	14.94	33.00	18.06	H

LTE Band 41_10MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2501.00	-30.30	3.58	45.65	6.10	17.87	33.00	15.13	H
2593.00	-31.54	3.69	44.93	6.27	15.97	33.00	17.03	H
2685.00	-33.19	3.73	44.98	6.43	14.49	33.00	18.51	H

LTE Band 41_15MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2503.50	-30.39	3.58	45.65	6.11	17.79	33.00	15.21	H
2593.00	-31.55	3.69	44.93	6.27	15.96	33.00	17.04	H
2682.50	-33.16	3.73	44.98	6.43	14.52	33.00	18.48	H

LTE Band 41_20MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2506.00	-29.92	3.59	45.15	6.11	17.75	33.00	15.25	H
2593.00	-31.54	3.69	44.93	6.27	15.97	33.00	17.03	H
2680.00	-33.06	3.73	44.97	6.42	14.60	33.00	18.40	H

LTE Band 66- EIRP

Limits: ≤30dBm (1W)

LTE Band 66_1.4MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1710.70	-29.43	3.17	44.10	5.12	22.96	30.00	7.04	H
1745.00	-28.98	3.68	44.16	5.06	23.92	30.00	6.08	H
1779.30	-26.62	3.04	44.03	5.00	25.45	30.00	4.55	H

LTE Band 66_3MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1711.50	-29.73	3.40	44.10	5.12	22.89	30.00	7.11	H
1745.00	-29.00	3.68	44.16	5.06	23.90	30.00	6.10	H
1778.50	-26.67	3.04	44.03	5.00	25.40	30.00	4.60	H

LTE Band 66_5MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1712.50	-22.57	3.66	44.10	5.12	22.99	30.00	7.01	H
1745.00	-21.57	3.68	44.16	5.06	23.97	30.00	6.03	H
1777.50	-20.52	3.04	44.04	5.00	25.48	30.00	4.52	H

LTE Band 66_10MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1715.00	-22.67	3.56	44.10	5.11	22.98	30.00	7.02	H
1745.00	-21.66	3.68	44.16	5.06	23.88	30.00	6.12	H
1775.00	-20.46	3.05	44.05	5.01	25.54	30.00	4.46	H

LTE Band 66_15MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1717.50	-22.67	3.47	44.11	5.11	23.08	30.00	6.92	H
1745.00	-21.63	3.68	44.16	5.06	23.91	30.00	6.09	H
1772.50	-20.79	3.05	44.06	5.01	25.23	30.00	4.77	H

LTE Band 66_20MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1720.00	-22.51	3.37	44.11	5.10	23.33	30.00	6.67	H
1745.00	-21.78	3.68	44.16	5.06	23.76	30.00	6.24	H
1770.00	-20.80	3.05	44.07	5.01	25.24	30.00	4.76	H

LTE Band 66_1.4MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1710.70	-30.18	3.17	44.10	5.12	22.21	30.00	7.79	H
1745.00	-29.80	3.68	44.16	5.06	23.10	30.00	6.90	H
1779.30	-27.27	3.04	44.03	5.00	24.80	30.00	5.20	H

LTE Band 66_3MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1711.50	-30.54	3.40	44.10	5.12	22.08	30.00	7.92	H
1745.00	-29.81	3.68	44.16	5.06	23.09	30.00	6.91	H
1778.50	-27.28	3.04	44.03	5.00	24.79	30.00	5.21	H

LTE Band 66_5MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1712.50	-23.32	3.66	44.10	5.12	22.24	30.00	7.76	H
1745.00	-22.42	3.68	44.16	5.06	23.12	30.00	6.88	H
1777.50	-21.17	3.04	44.04	5.00	24.83	30.00	5.17	H

LTE Band 66_10MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1715.00	-23.39	3.56	44.10	5.11	22.26	30.00	7.74	H
1745.00	-22.49	3.68	44.16	5.06	23.05	30.00	6.95	H
1775.00	-21.22	3.05	44.05	5.01	24.78	30.00	5.22	H

LTE Band 66_15MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1717.50	-23.35	3.47	44.11	5.11	22.40	30.00	7.60	H
1745.00	-22.47	3.68	44.16	5.06	23.07	30.00	6.93	H
1772.50	-21.49	3.05	44.06	5.01	24.53	30.00	5.47	H

LTE Band 66_20MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1720.00	-23.26	3.37	44.11	5.10	22.58	30.00	7.42	H
1745.00	-22.54	3.68	44.16	5.06	23.00	30.00	7.00	H
1770.00	-21.61	3.05	44.07	5.01	24.43	30.00	5.57	H

LTE Band 66_1.4MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1710.70	-31.18	3.17	44.10	5.12	21.21	30.00	8.79	H
1745.00	-30.76	3.68	44.16	5.06	22.14	30.00	7.86	H
1779.30	-28.06	3.04	44.03	5.00	24.01	30.00	5.99	H

LTE Band 66_3MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1711.50	-31.52	3.40	44.10	5.12	21.10	30.00	8.90	H
1745.00	-30.84	3.68	44.16	5.06	22.06	30.00	7.94	H
1778.50	-28.11	3.04	44.03	5.00	23.96	30.00	6.04	H

LTE Band 66_5MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1712.50	-24.33	3.66	44.10	5.12	21.23	30.00	8.77	H
1745.00	-23.37	3.68	44.16	5.06	22.17	30.00	7.83	H
1777.50	-21.95	3.04	44.04	5.00	24.05	30.00	5.95	H

LTE Band 66_10MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1715.00	-24.38	3.56	44.10	5.11	21.27	30.00	8.73	H
1745.00	-23.43	3.68	44.16	5.06	22.11	30.00	7.89	H
1775.00	-22.03	3.05	44.05	5.01	23.97	30.00	6.03	H

LTE Band 66_15MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1717.50	-24.27	3.47	44.11	5.11	21.48	30.00	8.52	H
1745.00	-23.43	3.68	44.16	5.06	22.11	30.00	7.89	H
1772.50	-22.30	3.05	44.06	5.01	23.72	30.00	6.28	H

LTE Band 66_20MHz_64QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	P_{Ag} (dB)	G_a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1720.00	-24.26	3.37	44.11	5.10	21.58	30.00	8.42	H
1745.00	-23.56	3.68	44.16	5.06	21.98	30.00	8.02	H
1770.00	-22.61	3.05	44.07	5.01	23.42	30.00	6.57	H

Frequency: 1775.00MHz

Peak EIRP (dBm) = P_{Mea}(-20.46dBm) - G_a (-5.01dBi) - P_{Ag} (-44.05dB) - P_{cl} (3.05dB) = 25.54dBm

Note: Expanded measurement uncertainty is U = 2.84 dB, k = 2.

A.2 EMISSION LIMIT

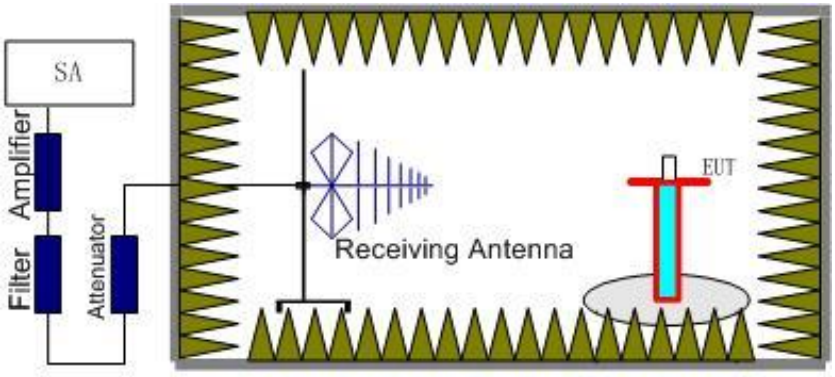
A.2.1 Measurement Method

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

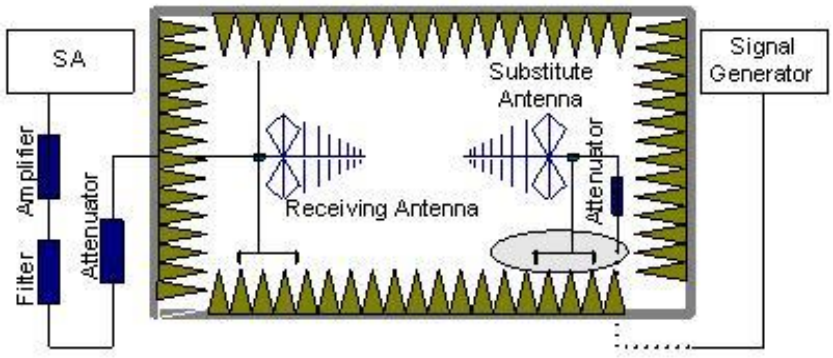
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE Bands 7,12,13, 25,26,41,66.

The procedure of radiated spurious emissions is as follows:

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



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



In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is

connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

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

A.2.2 Measurement Limit

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.

The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Part 27.53(m)(4) 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 90.691 states that out-of-band emission requirement shall apply only to the ‘‘outer’’ channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows: For any frequency removed from the EA licensee’s frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116Log_{10}(f/6.1)$ decibels or 50 + 10 $Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz. For any frequency removed from the EA licensee’s frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + $10Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

A.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Bands 7,12,13, 25,26,41,66. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the LTE Bands 7,12,13, 25,26,41,66 into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this. The range of evaluated frequency is from 30MHz to 26GHz.

LTE Band 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
5011.02	-57.25	6.58	9.92	-53.91	-25.00	28.91	V
7508.01	-55.02	8.36	12.21	-51.17	-25.00	26.17	H
10017.01	-44.94	9.23	12.91	-41.26	-25.00	16.26	V
12504.01	-49.18	10.18	13.20	-46.16	-25.00	21.16	H
15029.00	-45.29	11.25	13.98	-42.56	-25.00	17.56	H
17534.00	-42.61	12.85	14.95	-40.51	-25.00	15.51	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
5083.02	-57.18	6.72	10.02	-53.88	-25.00	28.88	H
7621.01	-54.57	8.07	12.30	-50.34	-25.00	25.34	H
10146.01	-45.05	9.39	12.96	-41.48	-25.00	16.48	V
12676.01	-49.48	10.34	13.31	-46.51	-25.00	21.51	H
15199.00	-45.81	11.40	13.88	-43.33	-25.00	18.33	H
17742.00	-43.94	12.41	15.24	-41.11	-25.00	16.11	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
5146.02	-56.75	6.88	10.10	-53.53	-25.00	28.53	H
7709.01	-54.26	8.41	12.37	-50.30	-25.00	25.30	H
10280.01	-48.63	9.57	13.01	-45.19	-25.00	20.19	V
12821.01	-49.39	10.71	13.39	-46.71	-25.00	21.71	H
15420.00	-45.93	11.42	13.75	-43.60	-25.00	18.60	H
17960.00	-43.21	12.89	15.54	-40.56	-25.00	15.56	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
1388.01	-59.38	3.22	4.92	2.15	-59.83	-13.00	46.83	V
2090.00	-54.98	4.18	4.87	2.15	-56.44	-13.00	43.44	H
2813.00	-51.96	4.93	6.66	2.15	-52.38	-13.00	39.38	V
3499.02	-56.05	5.52	8.20	2.15	-55.52	-13.00	42.52	H
4186.02	-55.52	6.17	9.09	2.15	-54.75	-13.00	41.75	V
4911.01	-55.51	6.73	9.81	2.15	-54.58	-13.00	41.58	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
1427.01	-58.20	3.27	5.12	2.15	-58.50	-13.00	45.50	H
2126.00	-55.03	4.22	4.98	2.15	-56.42	-13.00	43.42	H
2819.00	-52.34	4.94	6.67	2.15	-52.76	-13.00	39.76	H
3541.02	-55.65	5.73	8.26	2.15	-55.27	-13.00	42.27	V
4240.02	-55.34	6.25	9.14	2.15	-54.60	-13.00	41.60	H
4952.01	-54.39	6.69	9.85	2.15	-53.38	-13.00	40.38	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
1444.01	-60.67	3.30	5.21	2.15	-60.91	-13.00	47.91	H
2134.00	-54.95	4.23	5.00	2.15	-56.33	-13.00	43.33	V
2851.00	-51.78	4.96	6.73	2.15	-52.16	-13.00	39.16	H
3579.02	-54.96	6.12	8.31	2.15	-54.92	-13.00	41.92	V
4302.02	-54.52	6.19	9.20	2.15	-53.66	-13.00	40.66	H
5013.01	-51.24	6.58	9.92	2.15	-50.05	-13.00	37.05	H

LTE Band 13, 5MHz, QPSK, Channel 23205

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1559.01	-59.24	3.47	5.39	2.15	-59.47	-13.00	46.47	H
2336.00	-54.73	4.44	5.61	2.15	-55.71	-13.00	42.71	V
3105.02	-54.12	5.34	7.25	2.15	-54.36	-13.00	41.36	V
3893.02	-55.08	6.10	8.75	2.15	-54.58	-13.00	41.58	H
4662.02	-54.57	6.47	9.56	2.15	-53.63	-13.00	40.63	V
5445.01	-54.60	6.85	10.52	2.15	-53.08	-13.00	40.08	H

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
1564.01	-58.75	3.48	5.38	2.15	-59.00	-13.00	46.00	H
2347.00	-53.27	4.45	5.64	2.15	-54.23	-13.00	41.23	V
3132.02	-54.20	5.39	7.32	2.15	-54.42	-13.00	41.42	H
3900.02	-55.56	6.11	8.76	2.15	-55.06	-13.00	42.06	V
4684.02	-54.63	6.49	9.58	2.15	-53.69	-13.00	40.69	H
5484.01	-54.71	7.00	10.58	2.15	-53.28	-13.00	40.28	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
1569.01	-56.79	3.48	5.38	2.15	-57.04	-13.00	44.04	H
2354.00	-52.28	4.46	5.66	2.15	-53.23	-13.00	40.23	V
3140.02	-54.52	5.38	7.34	2.15	-54.71	-13.00	41.71	H
3913.02	-55.69	6.12	8.78	2.15	-55.18	-13.00	42.18	H
4705.02	-54.61	6.51	9.61	2.15	-53.66	-13.00	40.66	H
5494.01	-54.50	7.04	10.59	2.15	-53.10	-13.00	40.10	H

LTE Band 25, 1.4MHz, QPSK, Channel 26047

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
7523.01	-54.08	8.30	12.22	-50.16	-13.00	37.16	H
9109.01	-53.73	8.93	13.17	-49.49	-13.00	36.49	H
11688.01	-50.29	9.63	13.06	-46.86	-13.00	33.86	H
13562.01	-47.53	10.77	14.24	-44.06	-13.00	31.06	H
14880.00	-44.25	11.17	14.10	-41.32	-13.00	28.32	H
16776.00	-41.64	12.02	13.71	-39.95	-13.00	26.95	H

LTE Band 25, 1.4MHz, QPSK, Channel 26365

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
7564.01	-54.43	8.12	12.25	-50.30	-13.00	37.30	H
9498.01	-54.00	9.30	13.36	-49.74	-13.00	36.74	V
11268.01	-50.91	9.80	13.15	-47.56	-13.00	34.56	H
13110.01	-47.60	10.56	13.73	-44.02	-13.00	31.02	V
15121.00	-44.89	11.33	13.96	-41.56	-13.00	28.56	V
16979.00	-40.92	12.29	13.79	-39.42	-13.00	26.42	H

LTE Band 25, 1.4MHz, QPSK, Channel 26683

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
7622.01	-54.98	8.07	12.30	-50.75	-13.00	37.75	H
9572.01	-54.41	9.28	13.33	-50.36	-13.00	37.36	H
11514.01	-50.43	9.81	13.10	-47.14	-13.00	34.14	H
13450.01	-48.30	10.61	14.13	-44.78	-13.00	31.78	H
15362.00	-44.81	11.35	13.78	-42.38	-13.00	29.38	V
17273.00	-43.15	12.37	14.40	-41.12	-13.00	28.12	H

LTE Band 26(814MHz~824MHz), 1.4MHz, QPSK, Channel 26697

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5718.01	-53.53	7.30	10.56	2.15	-52.42	-13.00	39.42	H
6512.01	-53.30	7.51	11.01	2.15	-51.95	-13.00	38.95	H
7343.01	-52.47	8.11	12.01	2.15	-50.72	-13.00	37.72	V
8144.01	-52.21	8.40	12.72	2.15	-50.04	-13.00	37.04	H
8942.00	-51.78	8.99	13.09	2.15	-49.83	-13.00	36.83	H
9768.00	-51.65	8.96	13.13	2.15	-49.63	-13.00	36.63	H

LTE Band 26(814MHz~824MHz), 1.4MHz, QPSK, Channel 26740

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1638.01	-59.00	3.56	5.25	2.15	-59.46	-13.00	46.46	H
2466.00	-52.97	4.59	6.00	2.15	-53.71	-13.00	40.71	H
3286.02	-54.33	5.28	7.69	2.15	-54.07	-13.00	41.07	V
4076.02	-55.22	6.04	8.98	2.15	-54.43	-13.00	41.43	V
4928.01	-55.45	6.73	9.83	2.15	-54.50	-13.00	41.50	H
5748.01	-54.24	7.27	10.55	2.15	-53.11	-13.00	40.11	H

LTE Band 26(814MHz~824MHz), 1.4MHz, QPSK, Channel 26783

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2365.00	-48.12	4.47	5.70	2.15	-49.04	-13.00	36.04	H
5115.01	-45.69	6.81	10.06	2.15	-44.59	-13.00	31.59	H
6738.01	-47.05	7.98	11.29	2.15	-45.89	-13.00	32.89	H
7576.01	-51.78	8.07	12.26	2.15	-49.74	-13.00	36.74	V
9243.00	-51.71	9.02	13.25	2.15	-49.63	-13.00	36.63	H
9925.00	-49.83	9.11	12.97	2.15	-48.12	-13.00	35.12	H

LTE Band 26(824MHz~849MHz), 1.4MHz, QPSK, Channel 26797

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1650.01	-58.68	3.57	5.23	2.15	-59.17	-13.00	46.17	H
2468.00	-52.36	4.59	6.00	2.15	-53.10	-13.00	40.10	V
3318.02	-54.70	5.29	7.76	2.15	-54.38	-13.00	41.38	V
4141.02	-56.13	6.07	9.04	2.15	-55.31	-13.00	42.31	V
4946.01	-54.78	6.70	9.85	2.15	-53.78	-13.00	40.78	H
5753.01	-54.23	7.26	10.55	2.15	-53.09	-13.00	40.09	H

LTE Band 26(824MHz~849MHz), 1.4MHz, QPSK, Channel 26915

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1673.01	-58.05	3.58	5.19	2.15	-58.59	-13.00	45.59	H
2517.00	-52.46	4.64	6.13	2.15	-53.12	-13.00	40.12	H
3346.02	-54.21	5.31	7.83	2.15	-53.84	-13.00	40.84	H
4189.02	-54.22	6.18	9.09	2.15	-53.46	-13.00	40.46	V
5032.01	-55.26	6.58	9.94	2.15	-54.05	-13.00	41.05	H
5848.01	-53.58	7.23	10.53	2.15	-52.43	-13.00	39.43	V

LTE Band 26(824MHz~849MHz), 1.4MHz, QPSK, Channel 27033

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1715.01	-59.35	3.61	5.11	2.15	-60.00	-13.00	47.00	V
2540.00	-52.95	4.66	6.17	2.15	-53.59	-13.00	40.59	H
3405.02	-54.89	5.37	7.97	2.15	-54.44	-13.00	41.44	V
4257.02	-55.91	6.23	9.16	2.15	-55.13	-13.00	42.13	H
5076.01	-55.68	6.70	10.01	2.15	-54.52	-13.00	41.52	H
5930.01	-52.80	7.47	10.51	2.15	-51.91	-13.00	38.91	H

LTE Band 41, 5MHz, QPSK, Channel 39675

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4999.02	-56.61	6.60	9.90	-53.31	-25.00	28.31	V
7499.01	-49.61	8.39	12.20	-45.80	-25.00	20.80	H
9996.01	-53.87	9.18	12.90	-50.15	-25.00	25.15	H
12495.01	-50.36	10.19	13.20	-47.35	-25.00	22.35	V
14994.00	-45.84	11.21	14.00	-43.05	-25.00	18.05	H
17491.00	-43.31	12.70	14.88	-41.13	-25.00	16.13	V

LTE Band 41, 5MHz, QPSK, Channel 40620

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
6467.02	-54.63	7.54	10.97	-51.20	-25.00	26.20	V
7786.01	-43.26	8.31	12.43	-39.14	-25.00	14.14	H
10362.01	-51.30	9.74	13.04	-48.00	-25.00	23.00	V
12963.01	-49.69	10.48	13.48	-46.69	-25.00	21.69	V
15534.00	-44.62	11.52	13.70	-42.44	-25.00	17.44	H
16839.00	-42.04	12.07	13.74	-40.37	-25.00	15.37	H

LTE Band 41, 5MHz, QPSK, Channel 41565

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5382.02	-57.31	6.87	10.43	-53.75	-25.00	28.75	H
6719.02	-54.72	7.99	11.26	-51.45	-25.00	26.45	H
10741.01	-51.54	9.41	13.15	-47.80	-25.00	22.80	H
13443.01	-47.17	10.60	14.12	-43.65	-25.00	18.65	V
16124.00	-45.69	11.82	13.68	-43.83	-25.00	18.83	H
17451.00	-42.74	12.61	14.79	-40.56	-25.00	15.56	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
3418.02	-57.12	5.38	8.00	-54.50	-13.00	41.50	V
5135.02	-55.03	6.86	10.09	-51.80	-13.00	38.80	H
6846.01	-53.88	7.83	11.42	-50.29	-13.00	37.29	V
8558.01	-54.57	8.57	13.01	-50.13	-13.00	37.13	H
10267.01	-52.96	9.53	13.01	-49.48	-13.00	36.48	H
11973.01	-50.72	10.18	13.01	-47.89	-13.00	34.89	V

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
3487.02	-58.39	5.50	8.17	-55.72	-13.00	42.72	H
5233.02	-57.12	7.00	10.23	-53.89	-13.00	40.89	V
6984.01	-53.99	8.17	11.58	-50.58	-13.00	37.58	H
8723.01	-55.37	8.43	13.04	-50.76	-13.00	37.76	H
10469.01	-51.63	9.70	13.09	-48.24	-13.00	35.24	H
12218.01	-49.71	10.05	13.09	-46.67	-13.00	33.67	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
3554.02	-58.01	5.86	8.28	-55.59	-13.00	42.59	V
5339.02	-57.32	6.96	10.37	-53.91	-13.00	40.91	V
7122.01	-52.06	8.16	11.75	-48.47	-13.00	35.47	H
8901.01	-54.44	8.85	13.08	-50.21	-13.00	37.21	H
10680.01	-51.40	9.30	13.14	-47.56	-13.00	34.56	H
12453.01	-49.51	10.30	13.18	-46.63	-13.00	33.63	H

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

A.3 FREQUENCY STABILITY

A.3.1 Method of Measurement

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 R&S CMW500 DIGITAL RADIO COMMUNICATION TESTER and Anritsu MT8821C Radio Communication Analyzer.

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 or MT8821C, and in a simulated call on middle channel for LTE band 7,12,13,25,26,41,66, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10℃ increments from -30℃ to +50℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50℃.
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the center channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 ℃increments from -30℃ to +50℃. 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 between 3.5VDC and 4.4VDC, with a nominal voltage of 3.85VDC. 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 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	2500.529	2569.423	4.82	0.0021
50				-18.69	0.0080
40				2.66	0.0011
30				-16.96	0.0073
10				-18.89	0.0081
0				-18.22	0.0078
-10				4.68	0.0020
-20				-17.38	0.0075
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2500.529	2569.423	5.44	0.0023
4.4				4.29	0.0018

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	715.503	8.03	0.0113
50				0.26	0.0004
40				7.51	0.0106
30				-1.87	0.0026
10				-1.53	0.0022
0				-0.44	0.0006
-10				2.48	0.0035
-20				-0.53	0.0007
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	699.481	715.503	6.47	0.0091
4.4				0.48	0.0007

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	-3.74	0.0048
50				0.34	0.0004
40				-3.27	0.0042
30				-1.61	0.0021
10				-1.88	0.0024
0				8.28	0.0106
-10				0.30	0.0004
-20				-2.08	0.0027
-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	-3.62	0.0046
4.4				-0.72	0.0009

LTE Band 25, 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	1850.849	1914.119	-6.72	0.0036
50				-6.91	0.0037
40				14.85	0.0079
30				14.18	0.0075
10				15.89	0.0084
0				14.28	0.0076
-10				-4.22	0.0022
-20				6.24	0.0033
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1850.849	1914.119	-6.72	0.0036
4.4				-6.91	0.0037

LTE Band 26(814MHz~824MHz), 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	814.433	823.567	2.28	0.0028
50				-0.21	0.0003
40				0.00	0.0000
30				10.35	0.0126
10				-1.14	0.0014
0				-0.24	0.0003
-10				0.20	0.0002
-20				0.46	0.0006
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	814.433	823.567	-0.51	0.0006
4.4				1.00	0.0012

LTE Band 26(824MHz~849MHz), 15MHz 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	824.577	848.407	-11.53	0.0138
50				-4.62	0.0055
40				-5.87	0.0070
30				-6.05	0.0072
10				-8.76	0.0105
0				-11.03	0.0132
-10				-0.04	0.00005
-20				-8.34	0.0100
-30					

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	824.577	848.407	-0.04	0.00005
4.4				-8.34	0.0100

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	2496.240	2689.631		
50				4.69	0.0018
40				25.02	0.0096
30				25.76	0.0099
10				-1.49	0.0006
0				26.72	0.0103
-10				23.06	0.0089
-20				-0.91	0.0004
-30				24.20	0.0093

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2496.240	2689.631	4.69	0.0018
4.4				25.76	0.0099

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	1779.167		
50				-0.08	0.000046
40				19.24	0.0110
30				5.80	0.0033
10				18.10	0.0104
0				4.32	0.0025
-10				-2.92	0.0017
-20				-2.37	0.0014
-30				4.85	0.0028

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1710.833	1779.167	-0.08	0.000046
4.4				5.80	0.0033

A.4 OCCUPIED BANDWIDTH

A.4.1 Occupied Bandwidth Results

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

The measurement method is from ANSI C63.26:

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts.

b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.

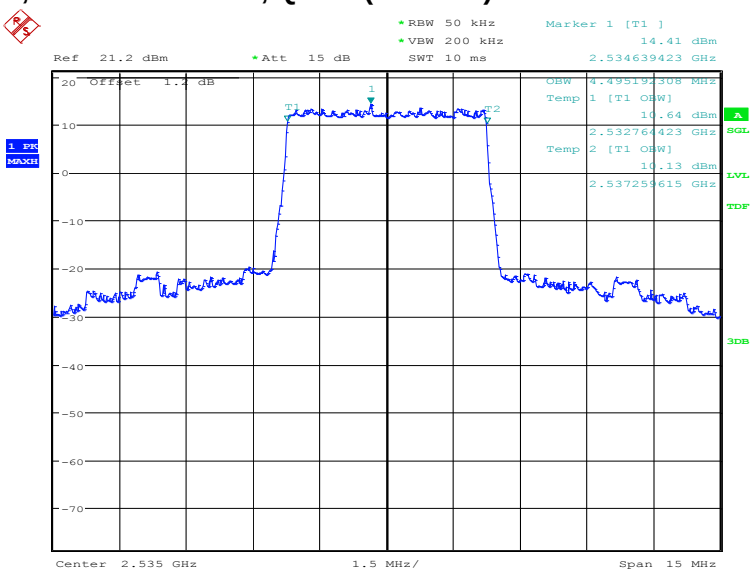
c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.

d) Set the detection mode to peak, and the trace mode to max-hold.

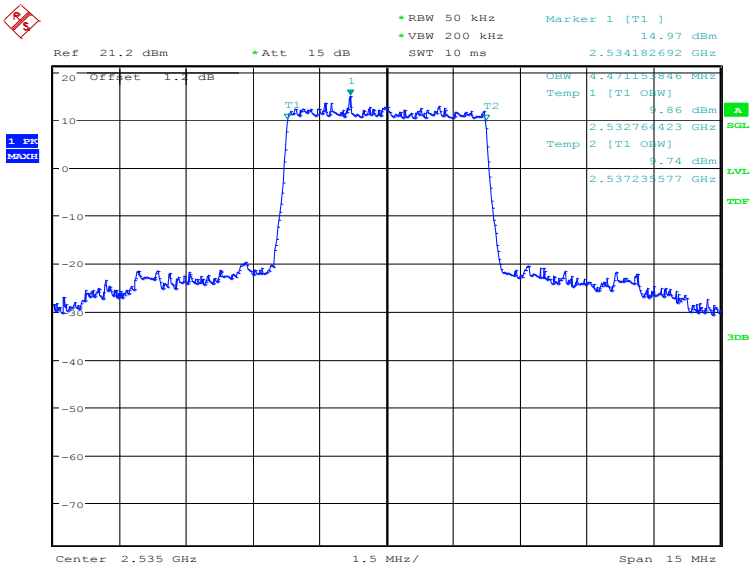
LTE band 7, 5MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
2535.0	QPSK	16QAM	64QAM
	4495.19	4471.15	4495.19

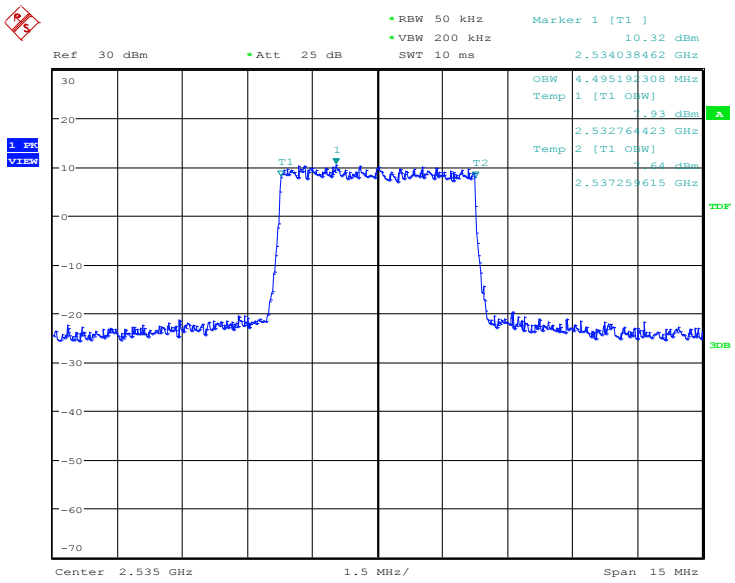
LTE band 7, 5MHz Bandwidth, QPSK (99% BW)



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



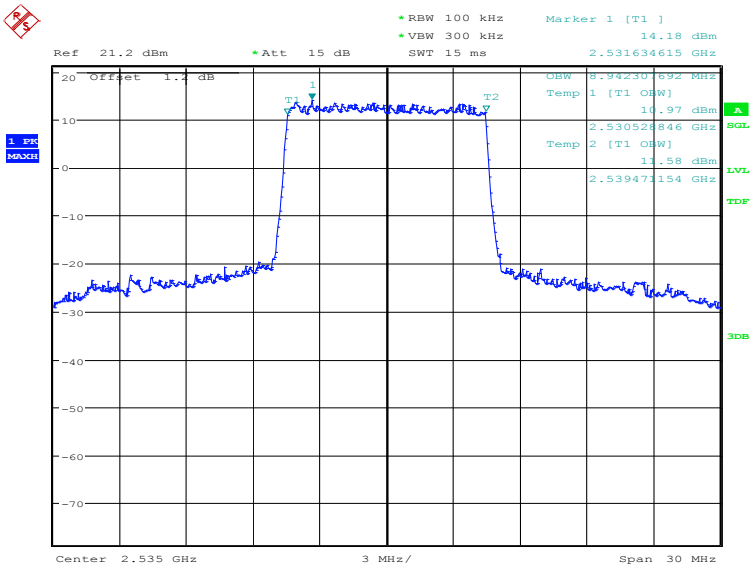
LTE band 7, 5MHz Bandwidth,64QAM (99% BW)



LTE band 7, 10MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
2535.0	QPSK	16QAM	64QAM
	8942.31	8990.38	8990.38

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



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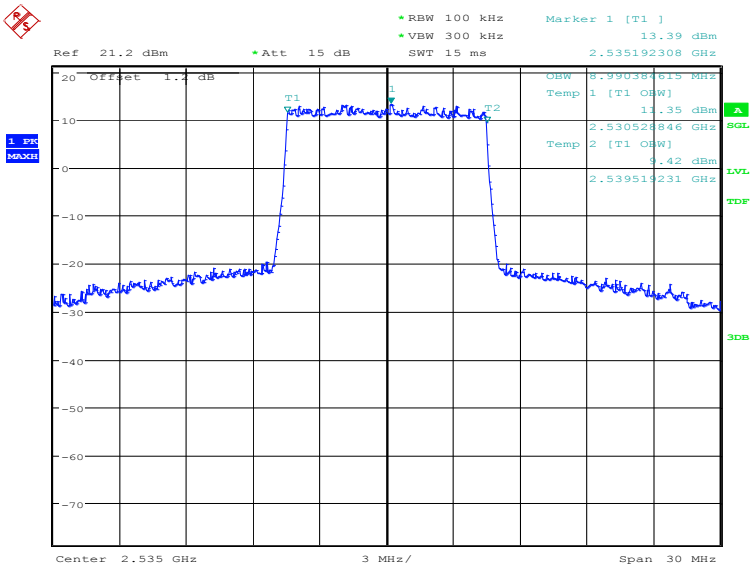
LTE band 7, 10MHz Bandwidth, 16QAM (99% BW)



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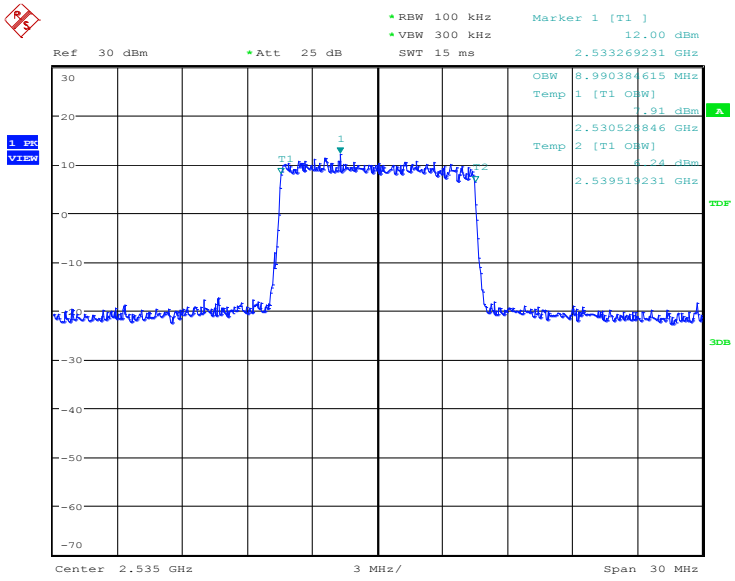
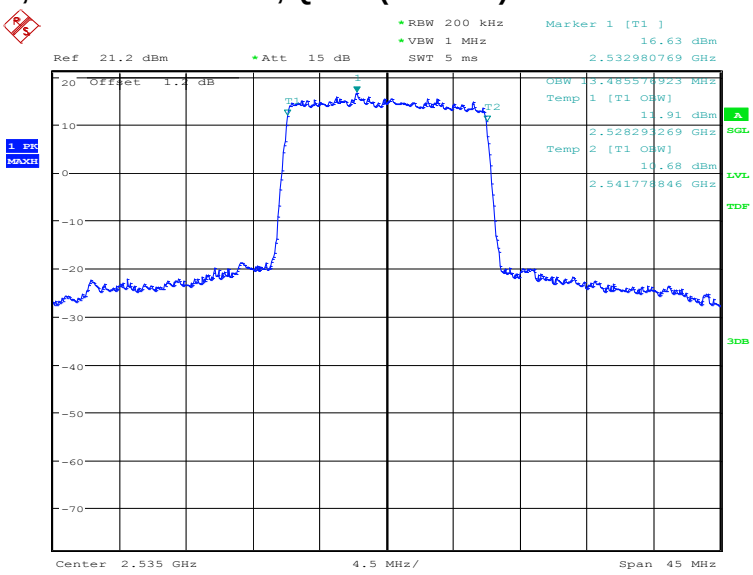
LTE band 7, 10MHz Bandwidth, 64QAM (99% BW)



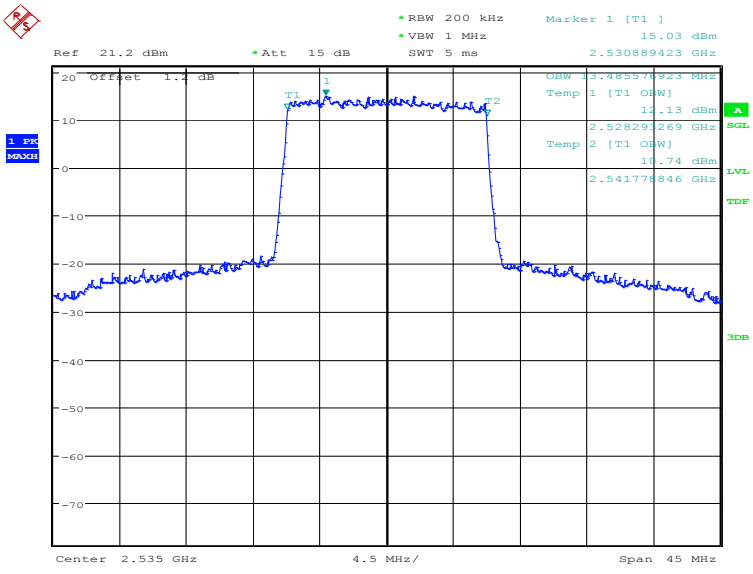
LTE band 7, 15MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
2535.0	QPSK	16QAM	64QAM
	13485.58	13485.58	13485.58

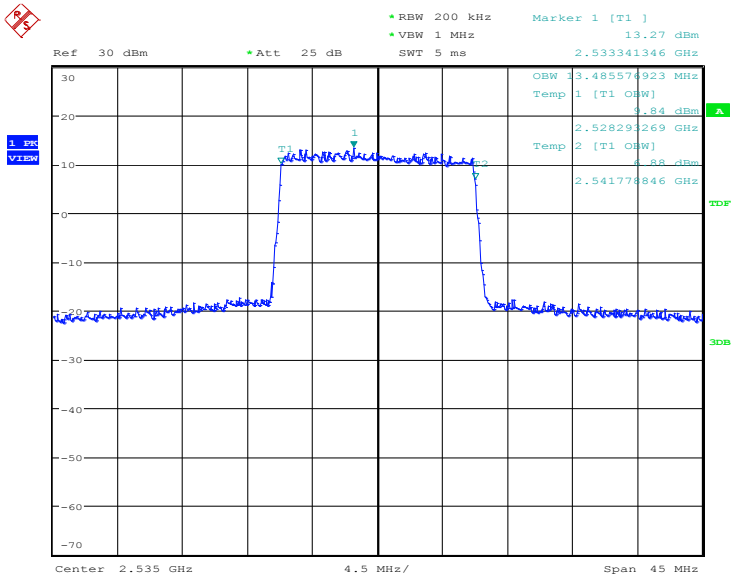
LTE band 7, 15MHz Bandwidth, QPSK (99% BW)



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



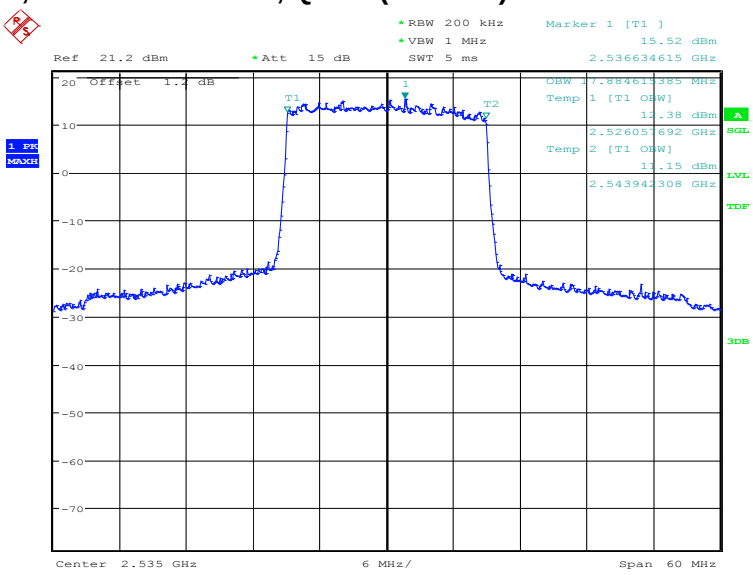
LTE band 7, 15MHz Bandwidth, 64QAM (99% BW)



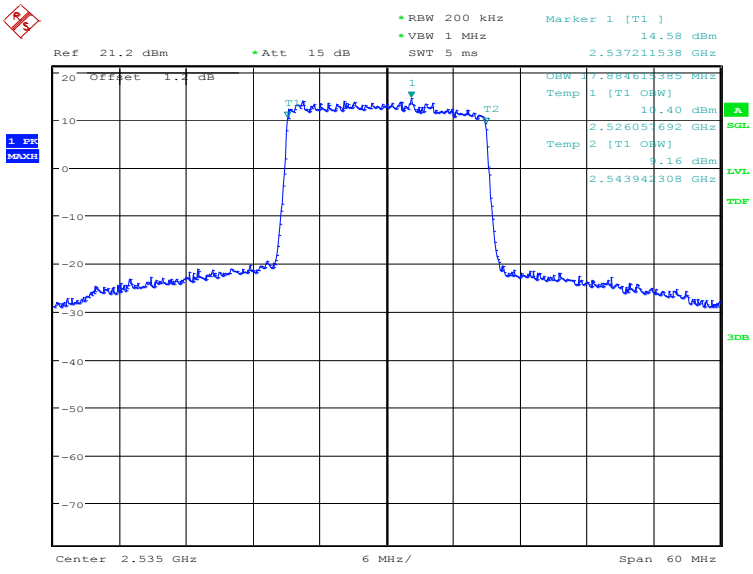
LTE band 7, 20MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
2535.0	QPSK	16QAM	64QAM
	17884.62	17884.62	17980.77

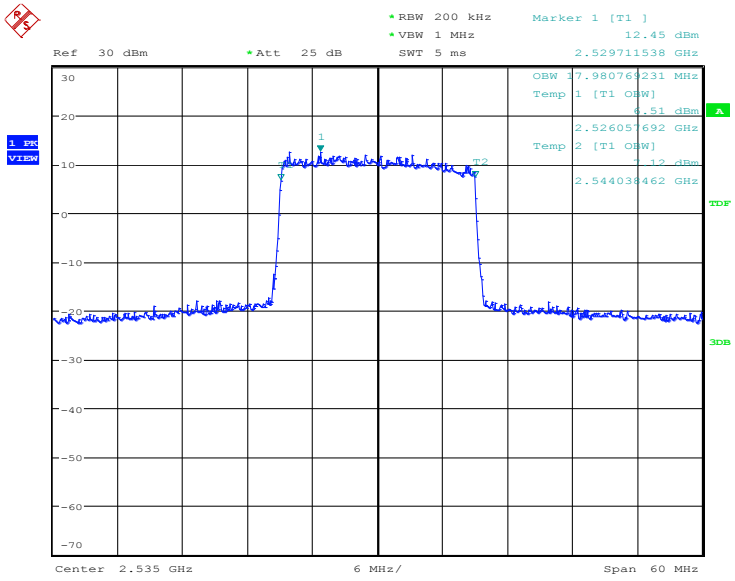
LTE band 7, 20MHz Bandwidth, QPSK (99% BW)



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



LTE band 7, 20MHz Bandwidth, 64QAM (99% BW)



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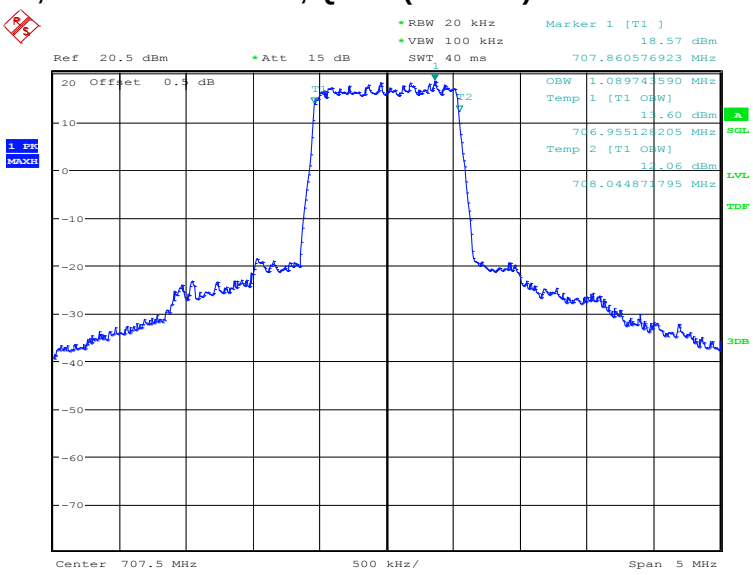
LTE band 12, 1.4MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
707.5	QPSK	16QAM	64QAM
	1089.74	1105.77	1089.74

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



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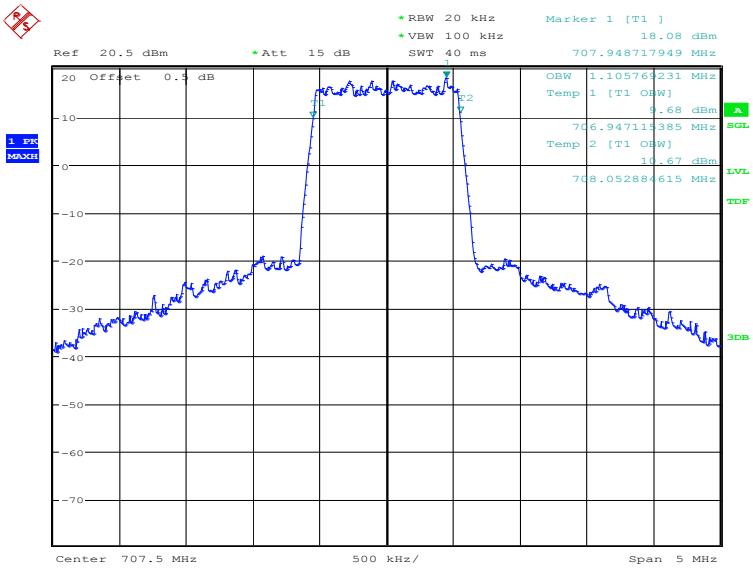
LTE band 12, 1.4MHz Bandwidth, 16QAM (99% BW)



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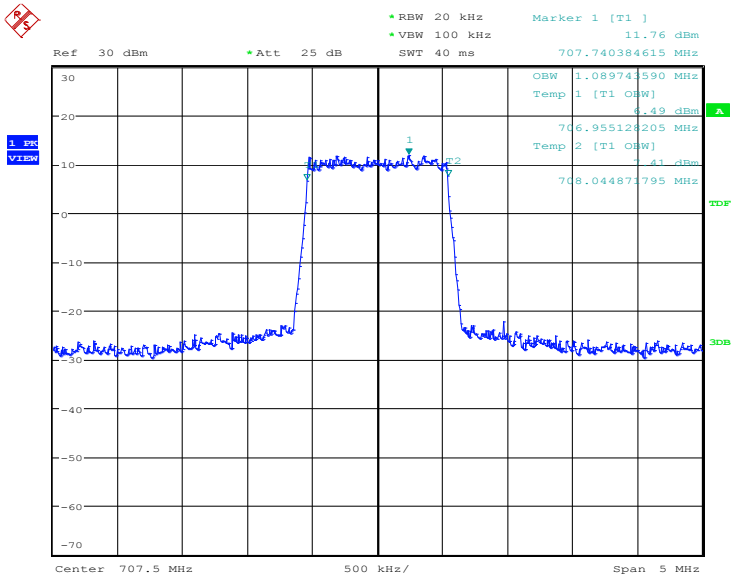
LTE band 12, 1.4MHz Bandwidth, 64QAM (99% BW)

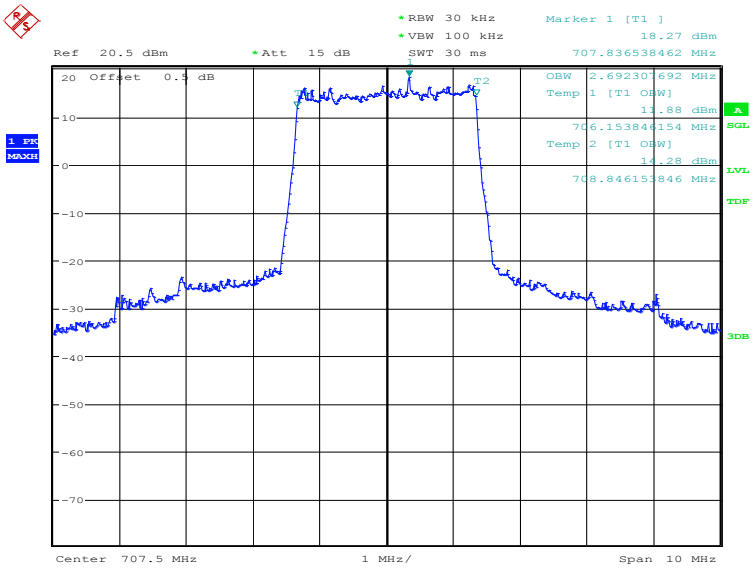


Date: 10.DEC.2019 11:12:05

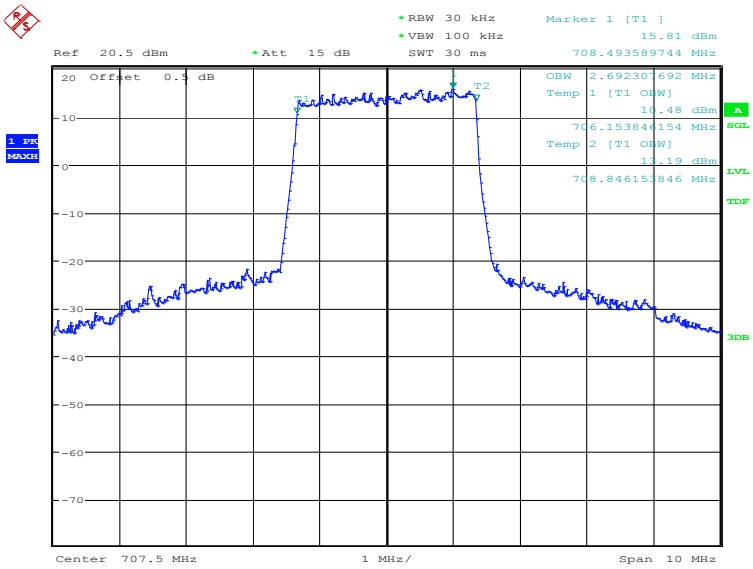
LTE band 12, 3MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
707.5	QPSK	16QAM	64QAM
	2692.31	2692.31	2692.31

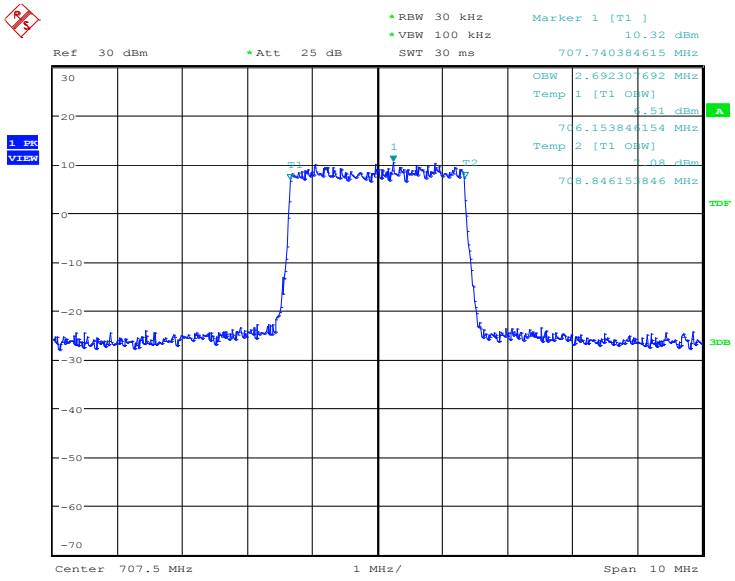
LTE band 12, 3MHz Bandwidth, QPSK (99% BW)



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



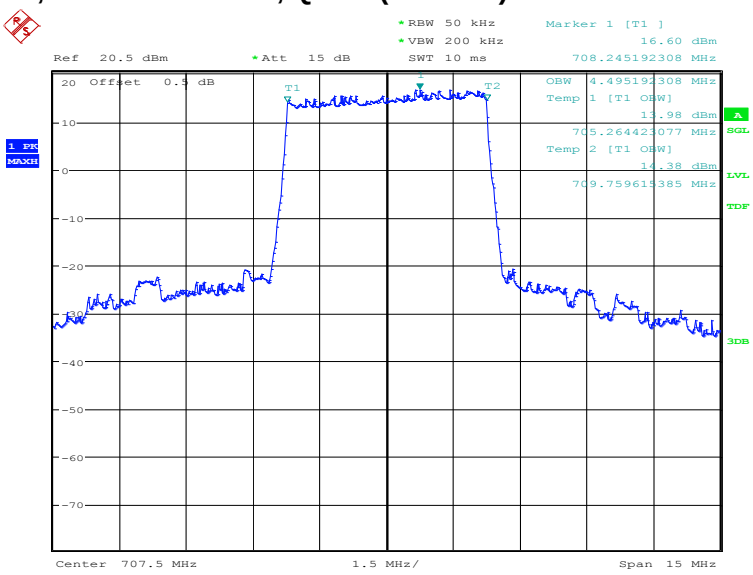
LTE band 12, 3MHz Bandwidth, 64QAM (99% BW)



LTE band 12, 5MHz (99%)

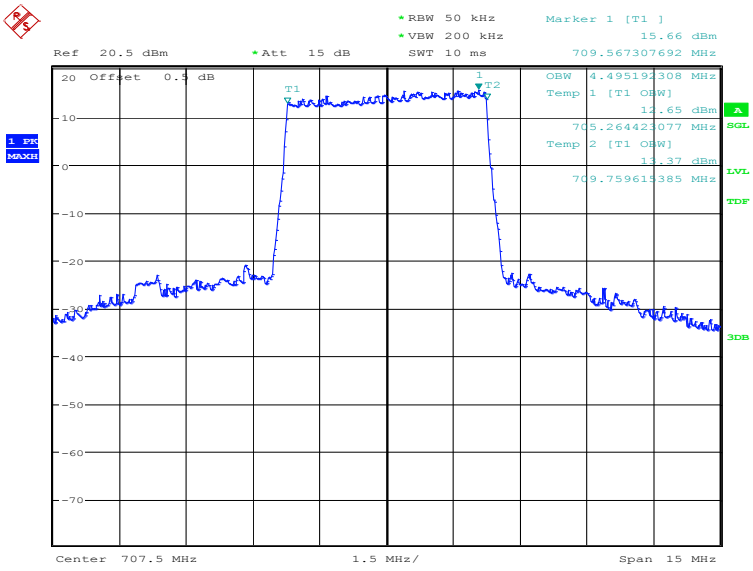
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
707.5	QPSK	16QAM	64QAM
	4495.19	4495.19	4495.19

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



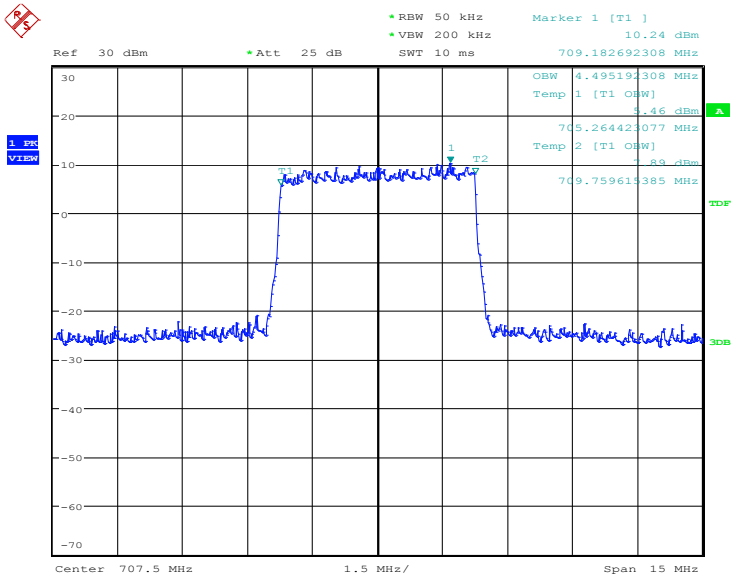
Date: 10.DEC.2019 12:14:31

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



Date: 10.DEC.2019 12:15:55

LTE band 12, 5MHz Bandwidth,64QAM (99% BW)

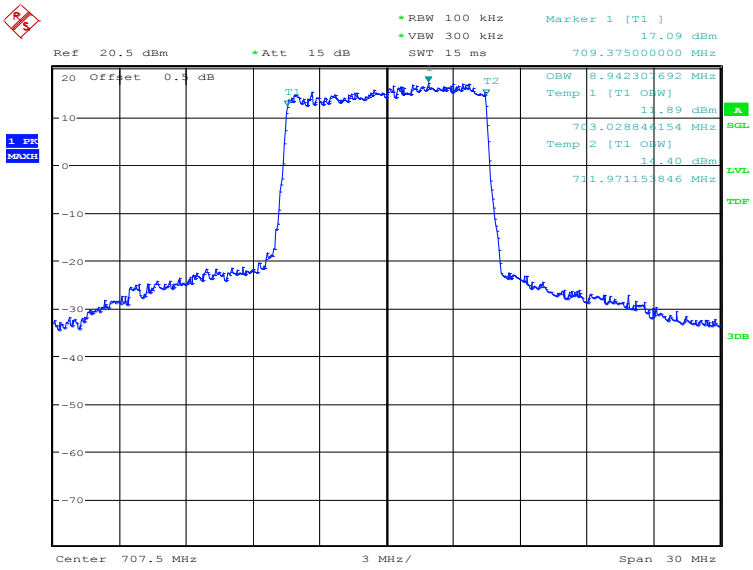


Date: 10.DEC.2019 11:15:11

LTE band 12, 10MHz (99%)

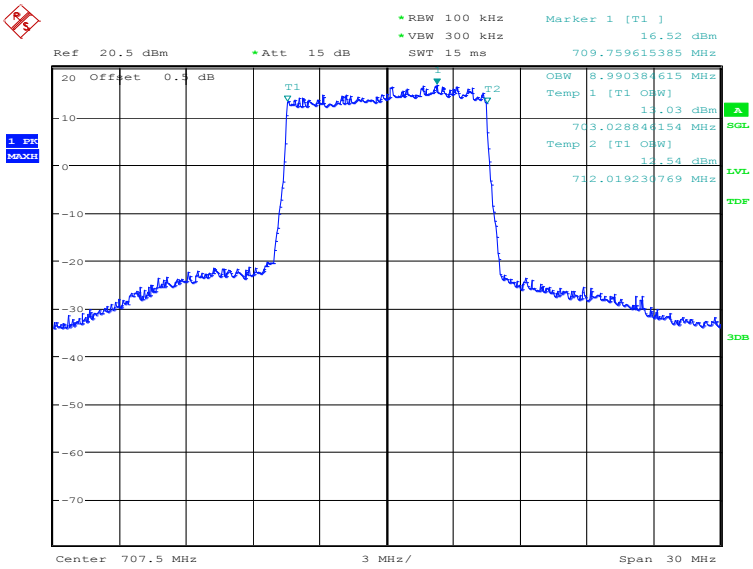
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
707.5	QPSK	16QAM	64QAM
	8942.31	8990.38	8990.38

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



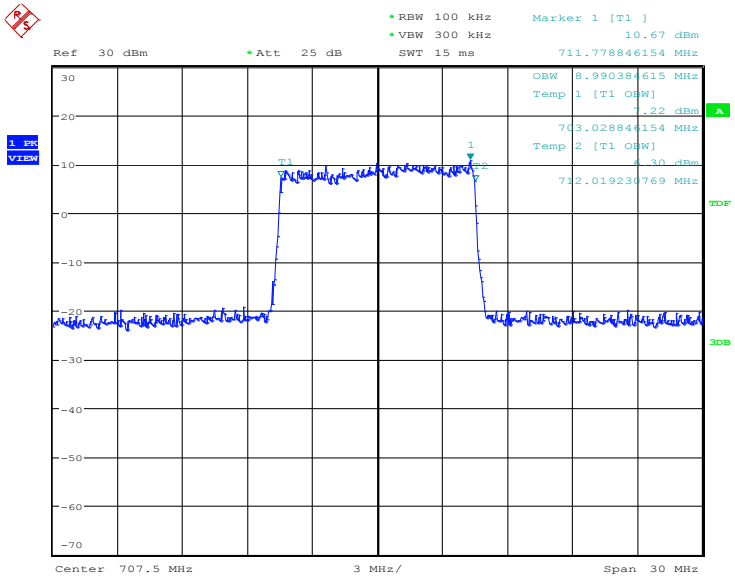
Date: 10.DEC.2019 12:17:20

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



Date: 10.DEC.2019 12:18:44

LTE band 12, 10MHz Bandwidth, 64QAM (99% BW)

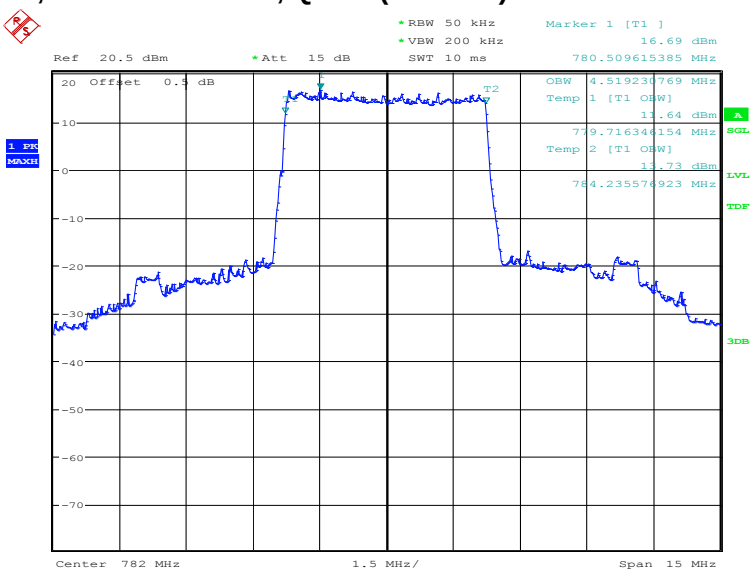


Date: 10.DEC.2019 11:16:27

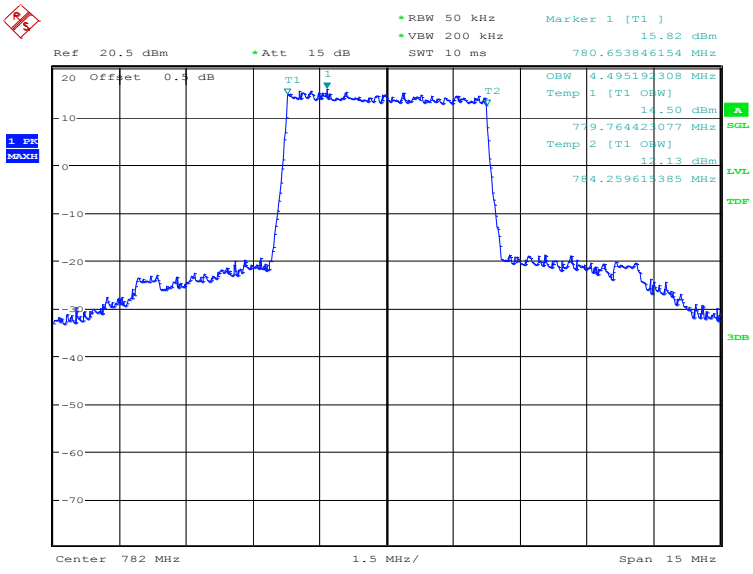
LTE band 13, 5MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
782.0	QPSK	16QAM	64QAM
	4519.23	4495.19	4495.19

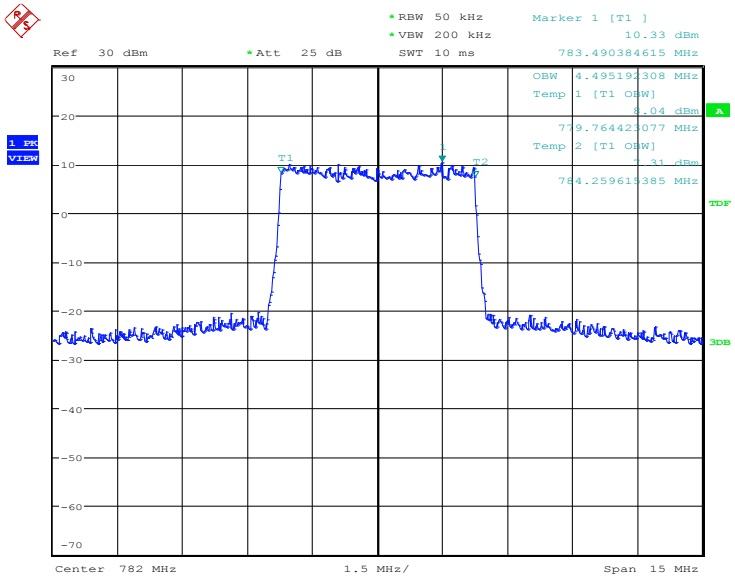
LTE band 13, 5MHz Bandwidth, QPSK (99% BW)



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



LTE band 13, 5MHz Bandwidth,64QAM (99% BW)

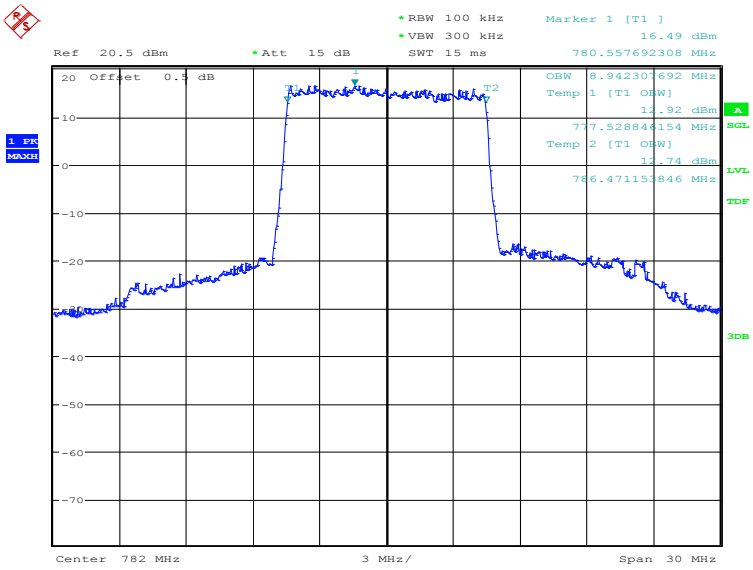


Date: 10.DEC.2019 11:07:51

LTE band 13, 10MHz (99%)

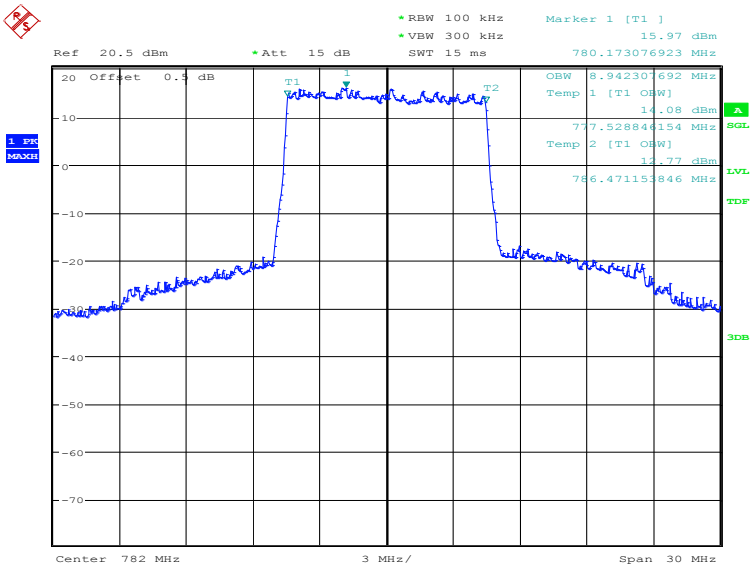
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
782.0	QPSK	16QAM	64QAM
	8942.31	8942.31	8990.38

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



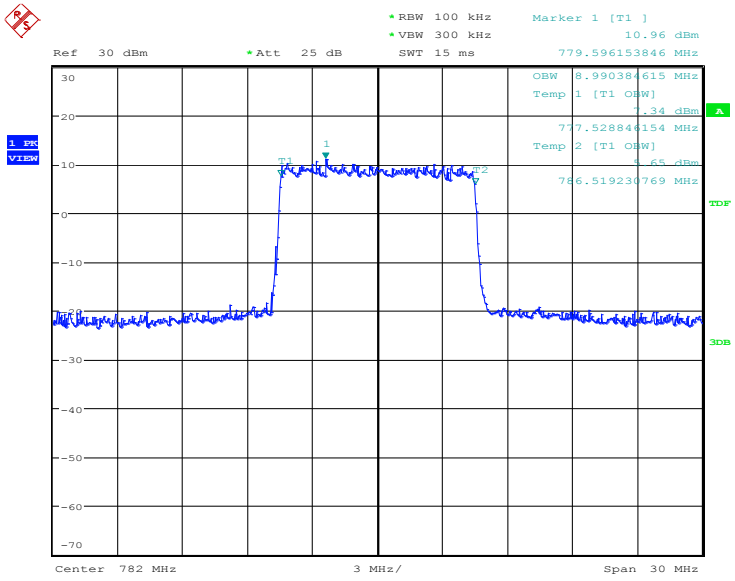
Date: 10.DEC.2019 12:23:01

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



Date: 10.DEC.2019 12:24:25

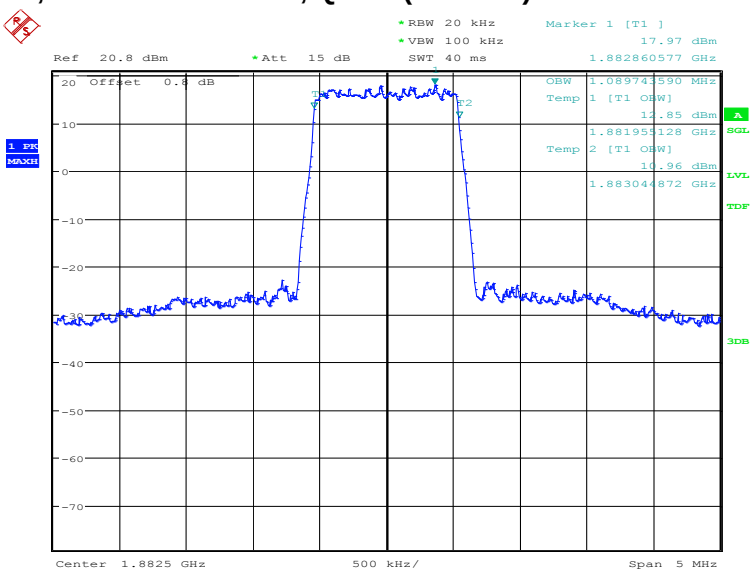
LTE band 13, 10MHz Bandwidth, 64QAM (99% BW)



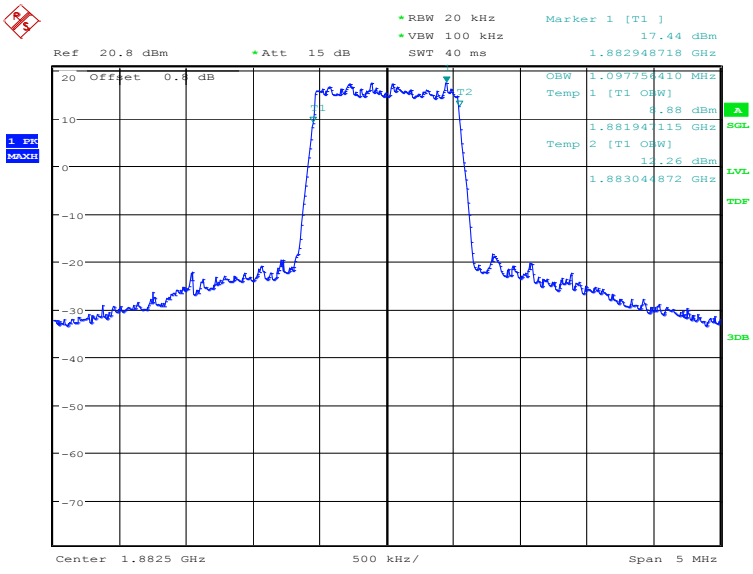
LTE band 25, 1.4MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
1882.5	QPSK	16QAM	64QAM
	1089.74	1097.76	1089.74

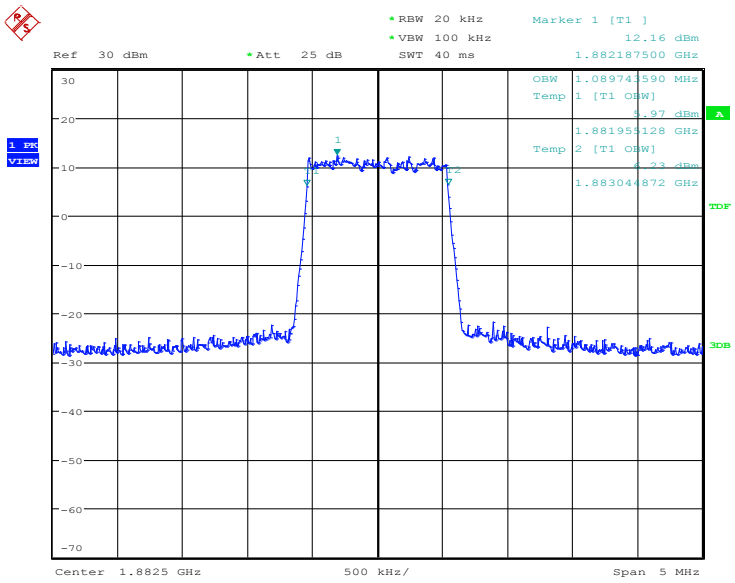
LTE band 25, 1.4MHz Bandwidth, QPSK (99% BW)



LTE band 25, 1.4MHz Bandwidth, 16QAM (99% BW)



LTE band 25, 1.4MHz Bandwidth, 64QAM (99% BW)

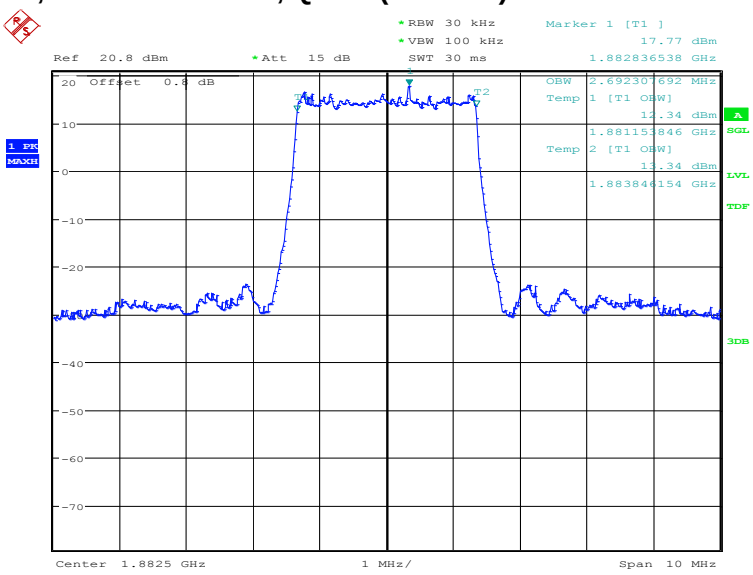


Date: 10.DEC.2019 10:25:47

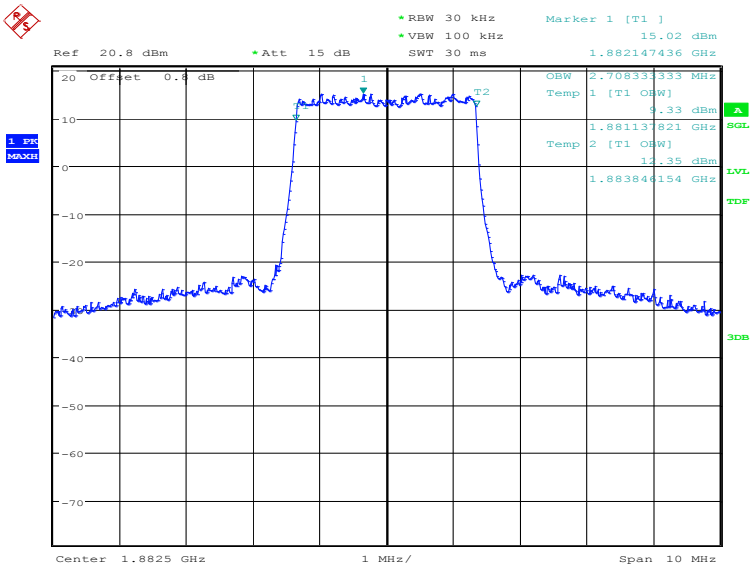
LTE band 25, 3MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
1882.5	QPSK	16QAM	64QAM
	2692.31	2708.33	2692.31

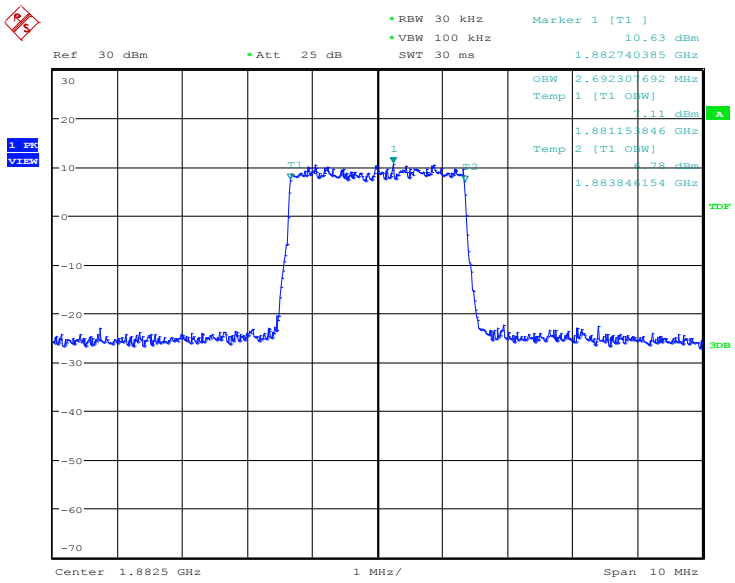
LTE band 25, 3MHz Bandwidth, QPSK (99% BW)



LTE band 25, 3MHz Bandwidth, 16QAM (99% BW)



LTE band 25, 3MHz Bandwidth, 64QAM (99% BW)

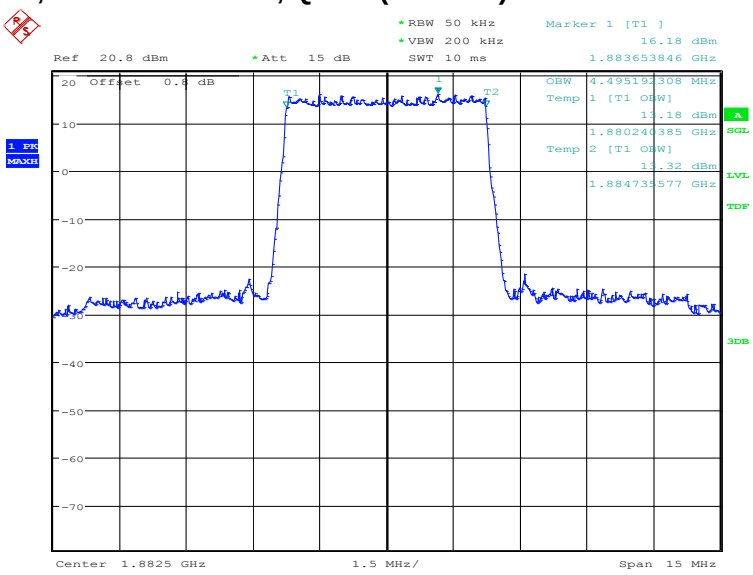


Date: 10.DEC.2019 10:27:50

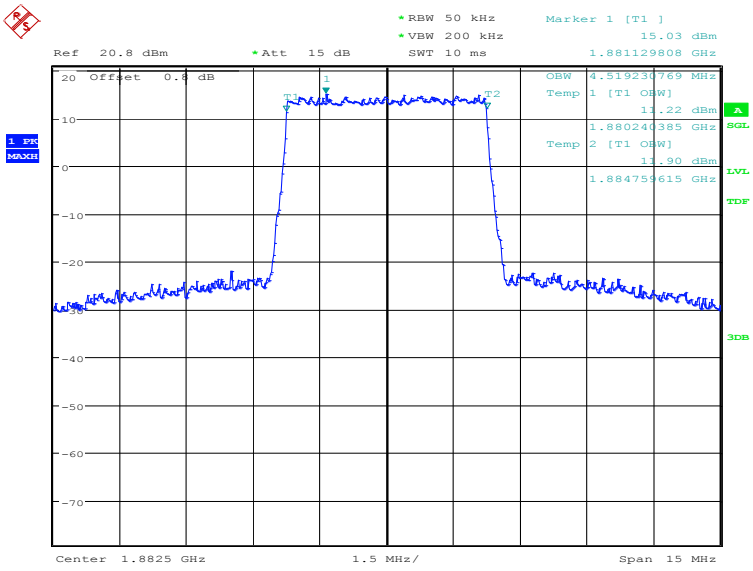
LTE band 25, 5MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
1882.5	QPSK	16QAM	64QAM
	4495.19	4519.23	4495.19

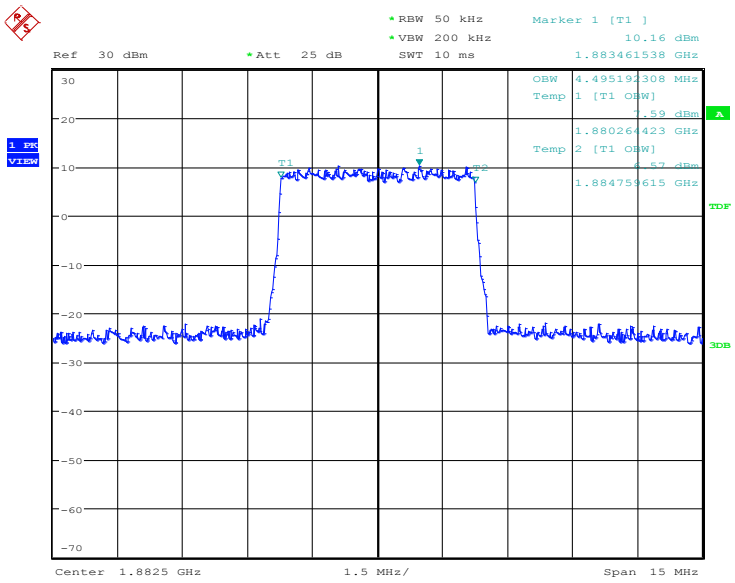
LTE band 25, 5MHz Bandwidth, QPSK (99% BW)



LTE band 25, 5MHz Bandwidth, 16QAM (99% BW)



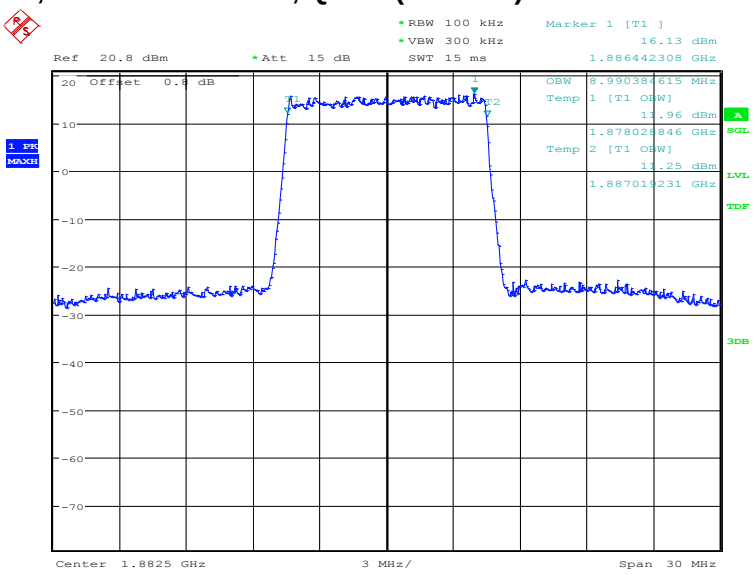
LTE band 25, 5MHz Bandwidth,64QAM (99% BW)



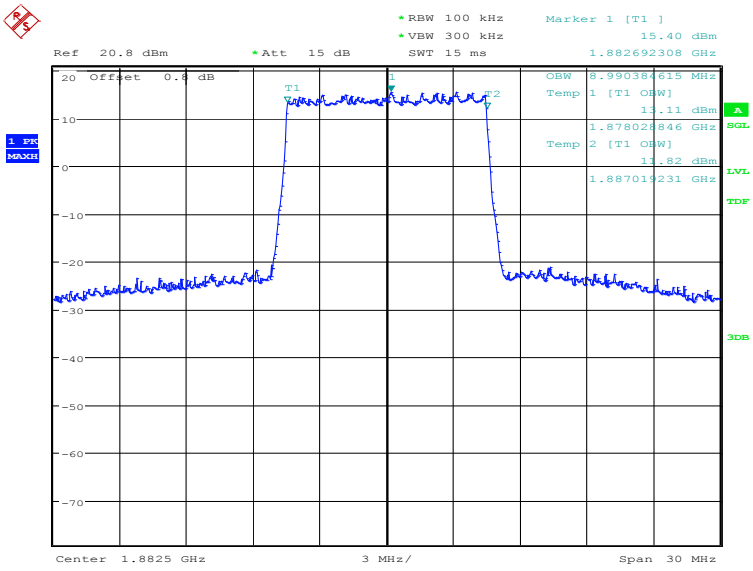
LTE band 25, 10MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
1882.5	QPSK	16QAM	64QAM
	8990.38	8990.38	8990.38

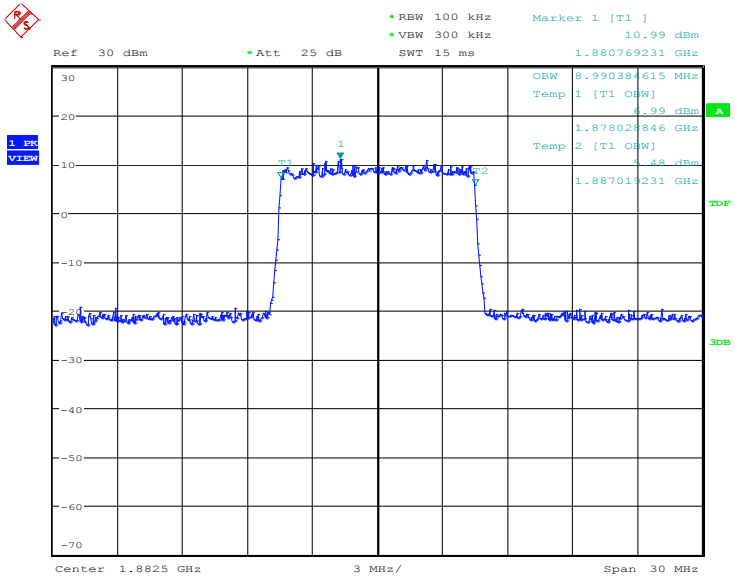
LTE band 25, 10MHz Bandwidth, QPSK (99% BW)



LTE band 25, 10MHz Bandwidth, 16QAM (99% BW)



LTE band 25, 10MHz Bandwidth, 64QAM (99% BW)

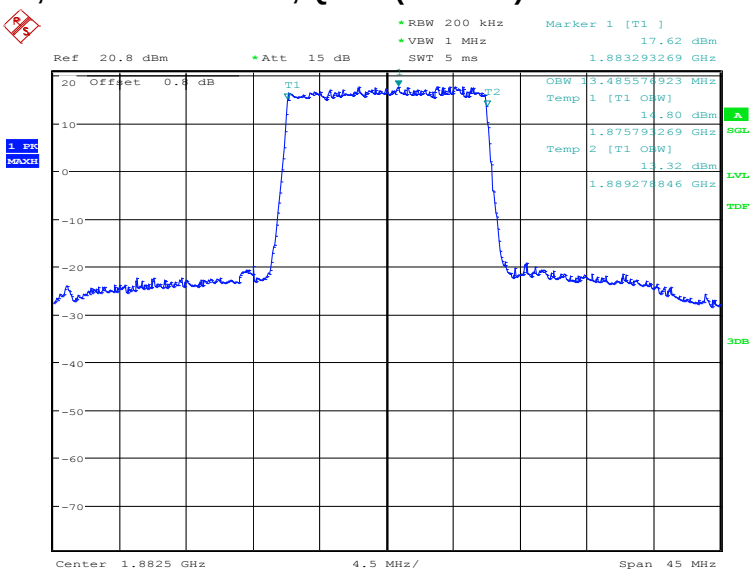


Date: 10.DEC.2019 10:30:39

LTE band 25, 15MHz (99%)

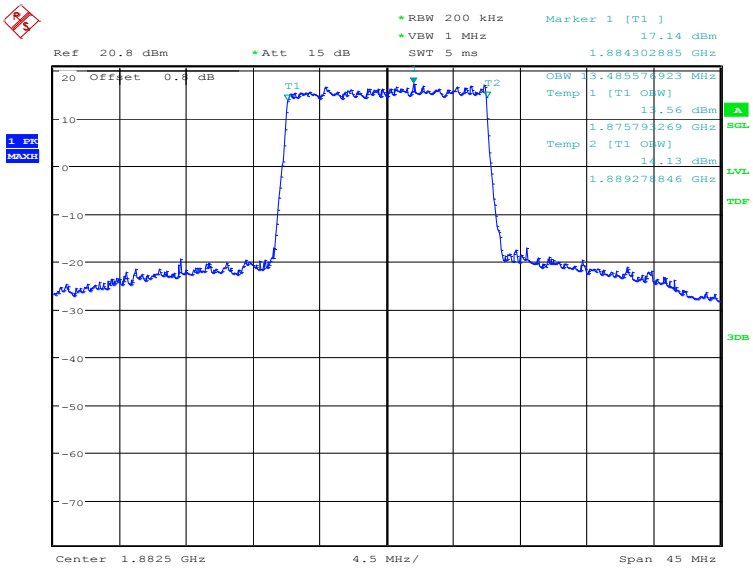
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
1882.5	QPSK	16QAM	64QAM
	13485.58	13485.58	13485.58

LTE band 25, 15MHz Bandwidth, QPSK (99% BW)



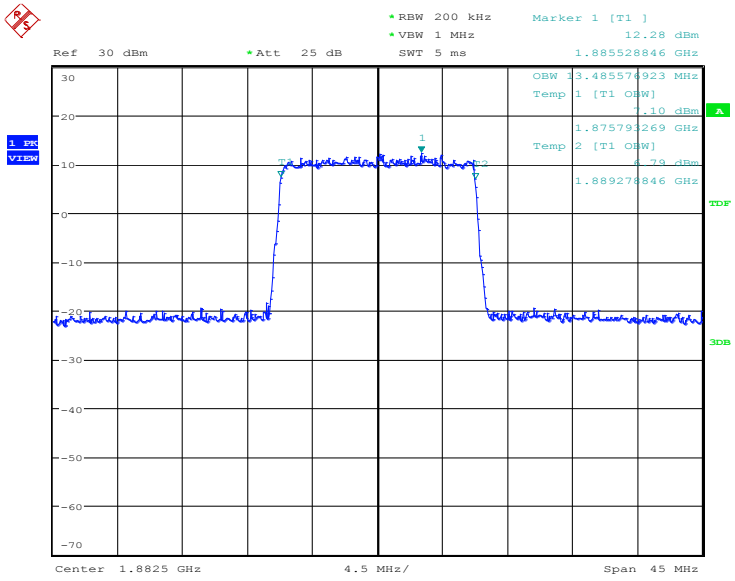
Date: 9.DEC.2019 18:53:43

LTE band 25, 15MHz Bandwidth, 16QAM (99% BW)



Date: 9.DEC.2019 18:55:08

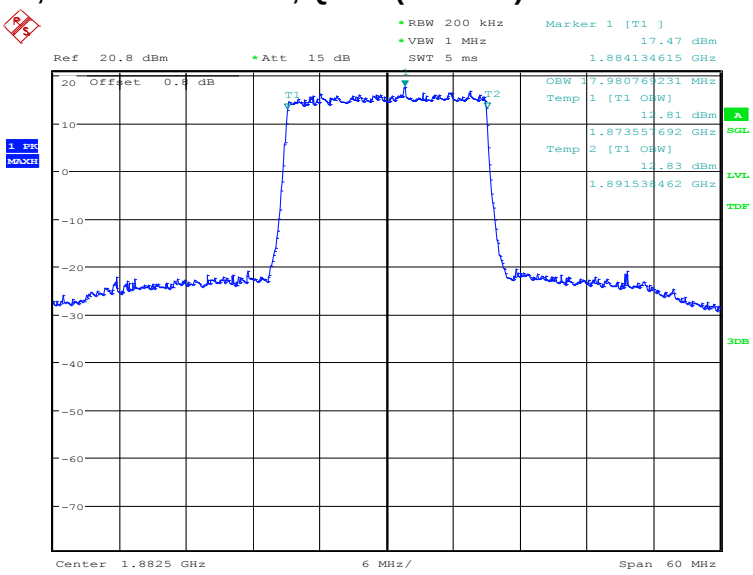
LTE band 25, 15MHz Bandwidth, 64QAM (99% BW)



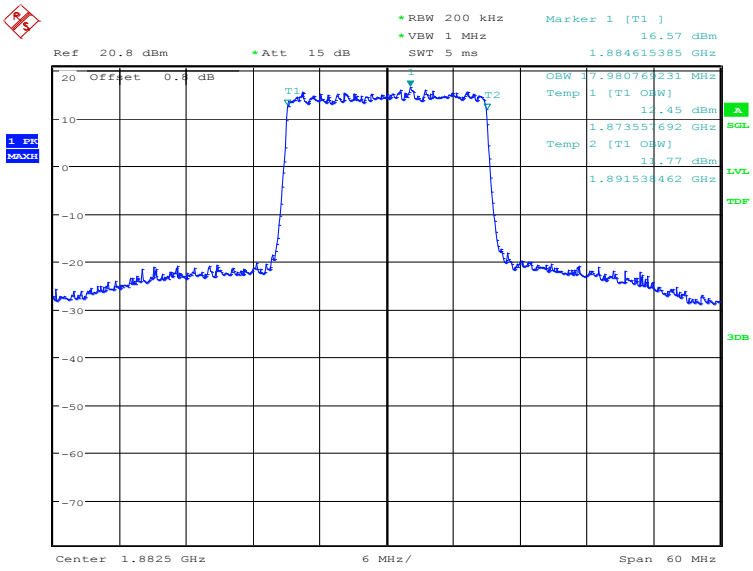
LTE band 25, 20MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
1882.5	QPSK	16QAM	64QAM
	17980.77	17980.77	17980.77

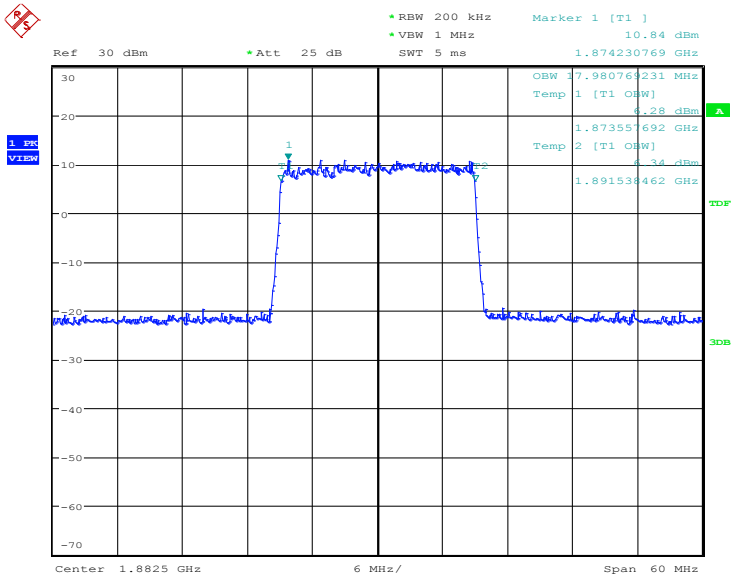
LTE band 25, 20MHz Bandwidth, QPSK (99% BW)



LTE band 25, 20MHz Bandwidth, 16QAM (99% BW)



LTE band 25, 20MHz Bandwidth, 64QAM (99% BW)

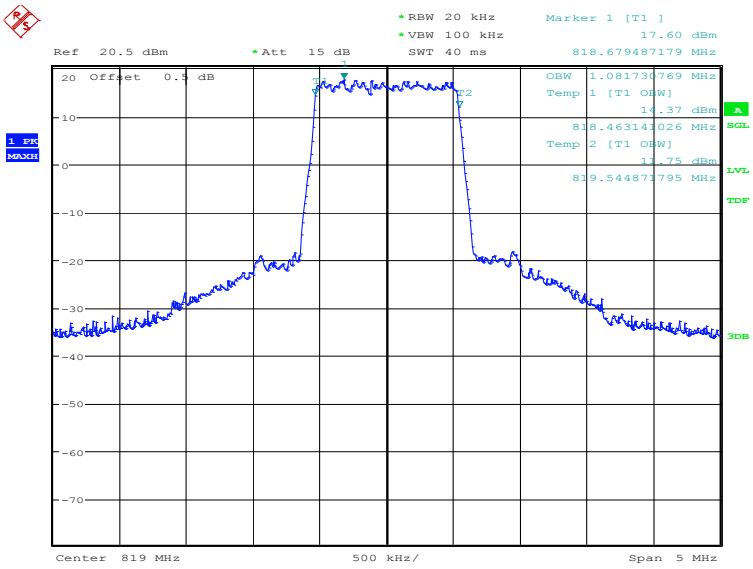


Date: 10.DEC.2019 10:33:13

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

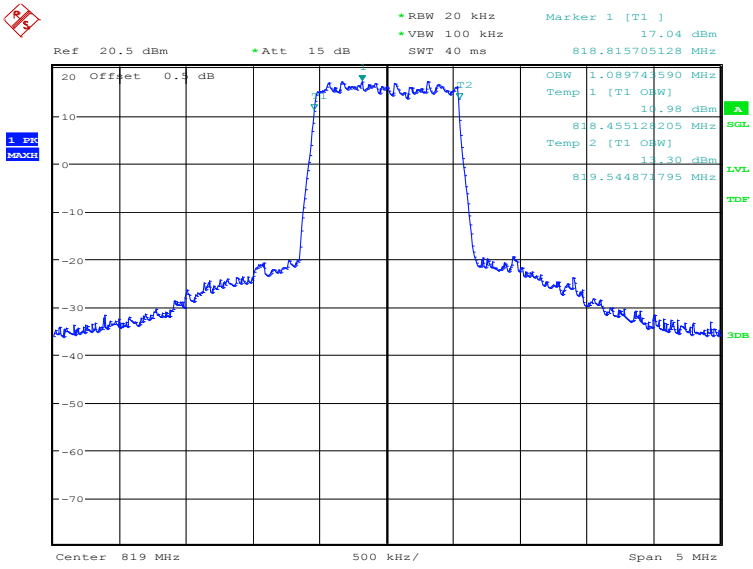
Frequency (MHz)	Occupied Bandwidth (99%)(kHz)		
819.0	QPSK	16QAM	64QAM
	1081.73	1089.74	1089.74

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



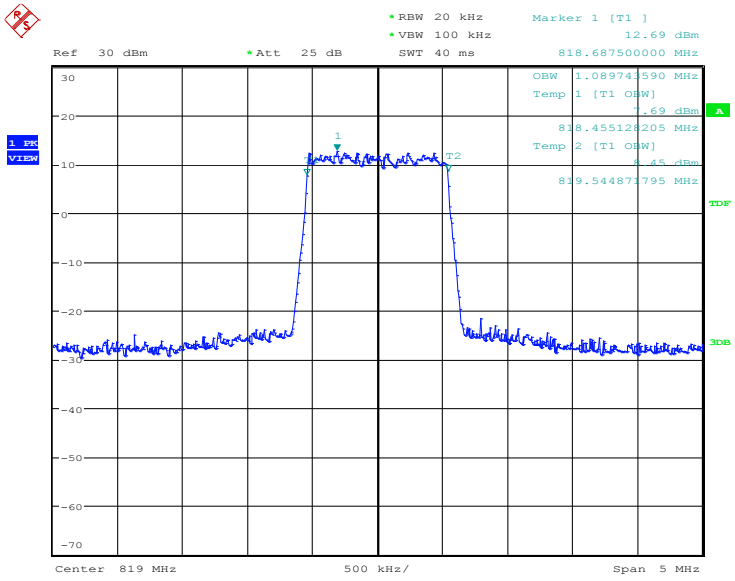
Date: 10.DEC.2019 12:41:23

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



Date: 10.DEC.2019 12:42:46

LTE band 26(814MHz~824MHz), 1.4MHz Bandwidth, 64QAM (99% BW)

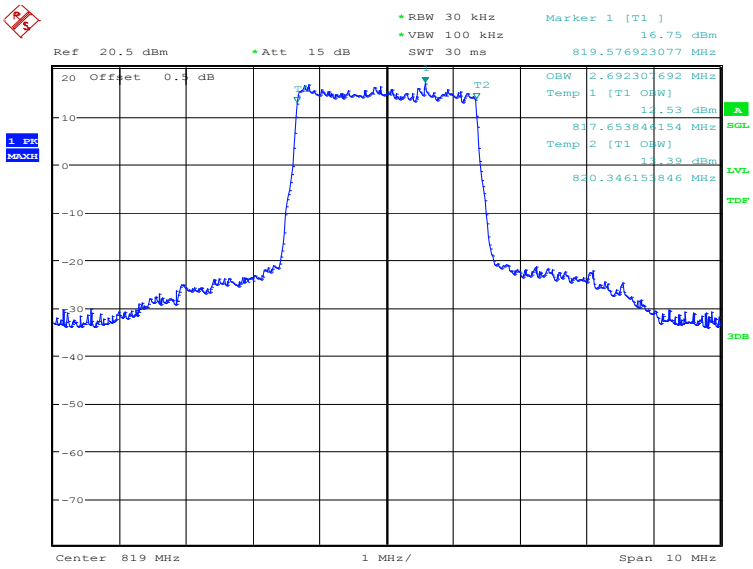


Date: 10.DEC.2019 11:32:57

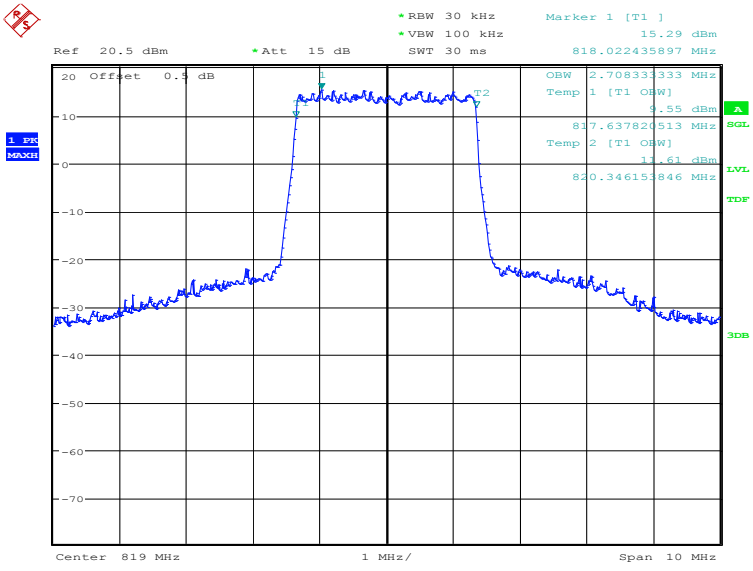
LTE band 26(814MHz~824MHz), 3MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%)(kHz)		
819.0	QPSK	16QAM	64QAM
	2692.31	2708.33	2692.31

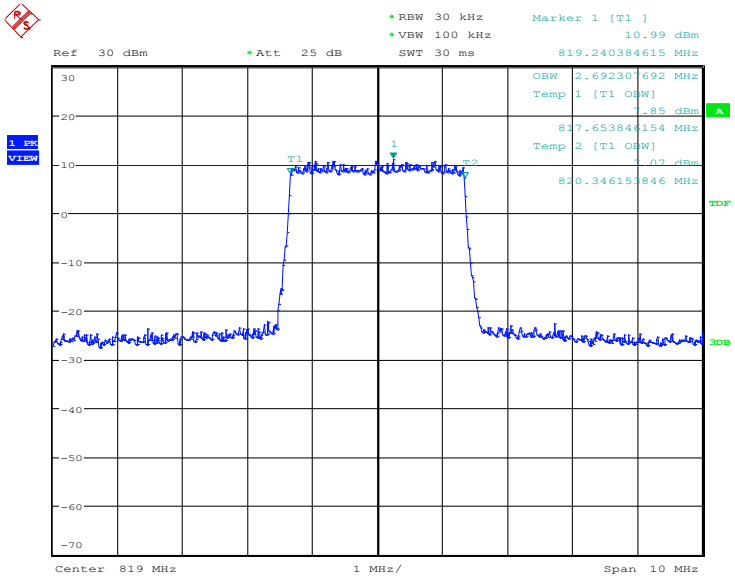
LTE band 26(814MHz~824MHz), 3MHz Bandwidth, QPSK (99% BW)



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



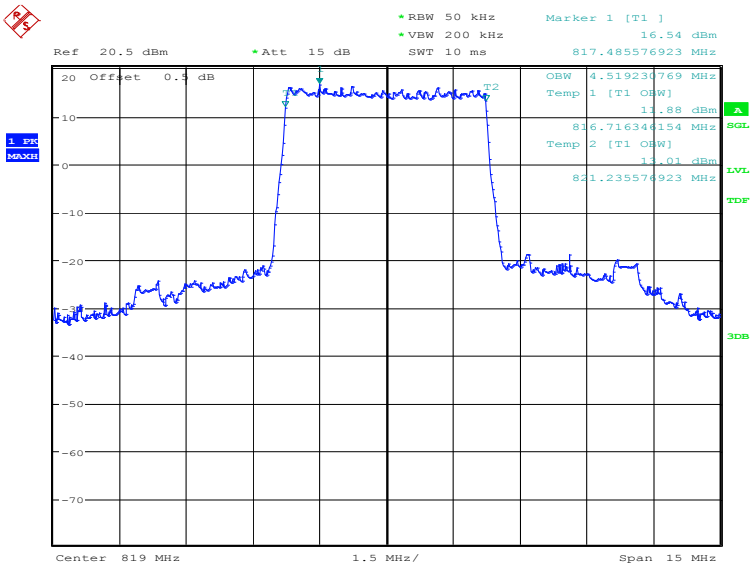
LTE band 26(814MHz~824MHz), 3MHz Bandwidth, 64QAM (99% BW)



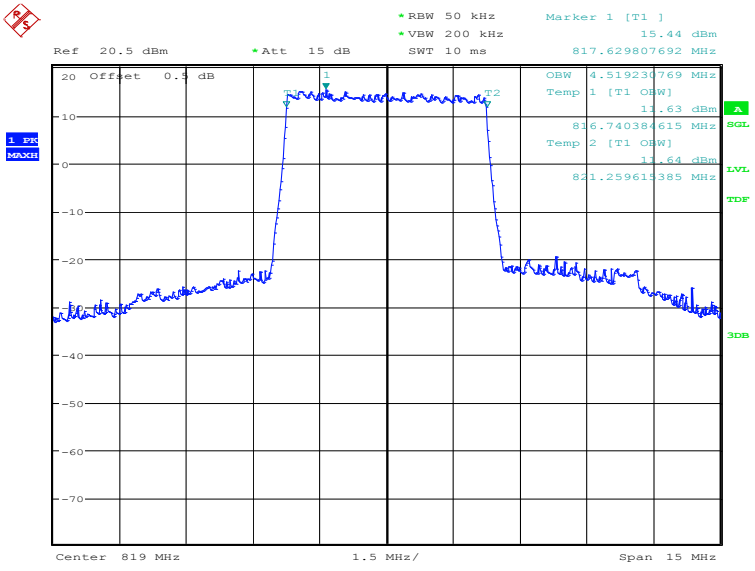
LTE band 26(814MHz~824MHz), 5MHz (99%)

Frequency (MHz)	Occupied Bandwidth (99%)(kHz)		
819.0	QPSK	16QAM	64QAM
	4519.23	4519.23	4495.19

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



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



LTE band 26(814MHz~824MHz), 5MHz Bandwidth, 64QAM (99% BW)