



TEST REPORT

No. I20Z70045-WMD03

for

Samsung Electronics. Co., Ltd.

Mobile phone

Model Name: SM-A115A, SM-A115AZ, SM-A115AP

FCC ID: ZCASMA115A

with

Hardware Version: REV1.0

Software Version: A115A.001

Issued Date: 2020-04-16

Note:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I20Z70045-WMD03	Rev.0	1 st edition	2020-04-14
I20Z70045-WMD03	Rev.1	2 nd edition Changed the model name and software version	2020-04-16

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

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1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2005 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

Location 3: CTTL (BDA)

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

1.3. Testing Environment

Normal Temperature: 15-35 °C
Relative Humidity: 20-75%

1.4. Project data

Testing Start Date: 2020-03-19
Testing End Date: 2020-04-14

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: Samsung Electronics. Co., Ltd.
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2.2. Manufacturer Information

Company Name: Samsung Electronics. Co., Ltd
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Korea
Contact: JP KIM
Email: jp426.kim@samsung.com
Telephone: +82-10-4376-0326

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

3.1. About EUT

Description	Mobile phone
Model Name	SM-A115A, SM-A115AZ, SM-A115AP
FCC ID	ZCASMA115A
Antenna	Embedded
Output power	24.05dBm maximum EIRP measured for LTE Band 2
Extreme vol. Limits	3.6VDC to 4.4VDC (nominal:3.85VDC)
Extreme temp. Tolerance	-10C to +65°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
UT01a	354223110060423	REV1.0	A115A.001	2019-03-11
UT02a	354223110061470	REV1.0	A115A.001	2020-03-17
UT20a	356255110005667	REV1.0	A115A.001	2020-04-07

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

3.3. Internal Identification of AE used during the test

AE ID* Description

AE1 Battery

AE1

Model	Secondary Li-ion Battery
Manufacturer	Ningde Amperex Technology Limited
Capacitance	3900mAh/4000mAh

*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	10-1-19 Edition
FCC Part 22	PUBLIC MOBILE SERVICES	10-1-19 Edition
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	10-1-19 Edition
FCC Part 90	PRIVATE LAND MOBILE RADIO SERVICES	10-1-19 Edition
ANSI/TIA-603-E	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	2016
ANSI C63.26	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services	2015
KDB 971168 D01	MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS	v03r01

5. LABORATORY ENVIRONMENT

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

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

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

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	>2 MΩ
Ground system resistance	< 1 Ω
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 4000 MHz

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

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 100 dB
Electrical insulation	>2 MΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	<±3.5 dB, 3 m distance
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

6. SUMMARY OF TEST RESULT

6.1. Summary of test results

LTE Band 2

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

LTE Band 5

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

LTE Band 7

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

LTE Band 12

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

LTE Band 14

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	90.542	P
2	Emission Limit	2.1051/90.543	P
3	Frequency Stability	2.1055	P
4	Occupied Bandwidth	2.1049	P
5	Emission Bandwidth	2.1049	P
6	Band Edge Compliance	90.543	P
7	Conducted Spurious Emission	90.543	P

LTE Band 30

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

LTE Band 41

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

LTE Band 66

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

Terms used in Verdict column

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

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	EMI Antenna	VULB9163	9163-483	Schwarzbeck	2020-09-16	1 year
2	EMI Antenna	3117	00058889	ETS-Lindgren	2020-11-18	1 year
3	EMI Antenna	3117	00119021	ETS-Lindgren	2021-01-14	1 year
4	Universal Radio Communication Tester	CMW500	159082	R&S	2020-12-24	1 year
5	Spectrum Analyzer	FSU26	200030	R&S	2020-06-03	1 year
6	EMI Antenna	9117	167	Schwarzbeck	2020-05-27	1 year
7	Signal Generator	N5183A	MY49060052	R&S	2020-06-24	1 year
8	Climate chamber	SH-242	93008556	ESPEC	2020-12-21	3 year
9	Test Receiver	E4440A	MY48250642	Agilent	2021-03-13	1 year
10	Universal Radio Communication Tester	CMW500	143008	R&S	2020-11-26	1 year
11	Universal Radio Communication Tester	E5515C	MY48363198	Agilent	2020-06-23	1 year
12	Power Amplifier	5S1G4	0341863	AR	/	
13	Universal Radio Communication Tester	MT8821C	6201623363	Auritsu	2020-07-11	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 2

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1909.3	23.79	22.81	22.55
		1880.0	24.08	23.13	22.44
		1850.7	23.96	23.36	22.21
	1 RB low	1909.3	23.79	22.92	22.60
		1880.0	24.10	23.11	22.71
		1850.7	23.98	23.32	22.45
	50% RB mid	1909.3	23.79	23.07	22.32
		1880.0	23.99	23.06	22.56
		1850.7	23.96	23.17	22.72
	100% RB	1909.3	22.96	22.12	21.27
		1880.0	23.01	22.17	21.34
		1850.7	23.02	22.07	21.32
3MHz	1 RB high	1908.5	23.90	22.71	22.57
		1880.0	23.99	23.35	22.45
		1851.5	24.29	23.13	22.22
	1 RB low	1908.5	23.96	22.90	22.66
		1880.0	24.05	23.39	22.47
		1851.5	24.40	23.28	22.62
	50% RB mid	1908.5	23.14	22.27	21.45
		1880.0	23.15	22.15	21.29

	100% RB	1851.5	23.19	22.22	21.65
		1908.5	23.03	22.10	21.37
		1880.0	23.07	22.17	21.45
		1851.5	23.23	22.15	21.39
5MHz	1 RB high	1907.5	23.84	22.89	22.40
		1880.0	24.18	23.59	22.42
		1852.5	24.10	23.13	22.60
	1 RB low	1907.5	24.16	23.19	22.63
		1880.0	24.49	23.68	22.66
		1852.5	24.13	23.16	22.95
	50% RB mid	1907.5	23.09	22.13	21.46
		1880.0	23.15	22.37	21.56
		1852.5	23.23	22.14	21.69
	100% RB	1907.5	23.13	22.16	21.55
		1880.0	23.09	22.18	21.46
		1852.5	23.18	22.12	21.58
10MHz	1 RB high	1905.0	23.60	22.31	22.86
		1880.0	23.68	23.09	22.74
		1855.0	24.35	23.33	22.84
	1 RB low	1905.0	24.25	23.23	22.30
		1880.0	24.28	23.54	22.78
		1855.0	24.53	23.50	22.89
	50% RB mid	1905.0	23.13	22.19	21.50
		1880.0	23.13	22.20	21.64
		1855.0	23.23	22.32	21.32
	100% RB	1905.0	23.08	22.21	21.42
		1880.0	23.21	22.29	21.54
		1855.0	23.25	22.29	21.48
15MHz	1 RB high	1902.5	23.84	23.02	22.59
		1880.0	23.84	22.78	22.55
		1857.5	24.55	23.98	22.69
	1 RB low	1902.5	24.68	23.79	22.74
		1880.0	24.45	23.42	22.71
		1857.5	24.56	23.64	22.61
	50% RB mid	1902.5	23.34	22.40	21.45
		1880.0	23.33	22.20	21.32
		1857.5	23.10	22.22	21.34
	100% RB	1902.5	23.20	22.24	21.53
		1880.0	23.20	22.28	21.30

		1857.5	23.14	22.33	21.57
20MHz	1 RB high	1900.0	24.25	23.34	22.87
		1880.0	24.11	23.39	22.73
		1860.0	24.51	24.00	22.85
	1 RB low	1900.0	24.28	23.73	22.81
		1880.0	24.26	23.67	22.70
		1860.0	24.95	23.81	22.73
	50% RB mid	1900.0	23.33	22.34	21.53
		1880.0	23.21	22.17	21.32
		1860.0	23.27	22.27	21.39
	100% RB	1900.0	23.37	22.35	21.51
		1880.0	23.23	22.24	21.30
		1860.0	23.32	22.36	21.54

LTE band 5

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	848.3	24.28	23.78	23.36
		836.5	24.31	23.41	23.35
		824.7	24.28	23.35	23.21
	1 RB low	848.3	24.31	23.89	23.50
		836.5	24.37	23.41	23.38
		824.7	24.38	23.42	23.08
	50% RB mid	848.3	24.36	23.6	23.38
		836.5	24.27	23.48	23.25
		824.7	24.34	23.42	22.94
	100% RB	848.3	23.34	22.32	22.12
		836.5	23.30	22.49	22.06
		824.7	23.38	22.54	22.10
3MHz	1 RB high	847.5	24.40	23.88	23.40
		836.5	24.22	23.36	23.29
		825.5	24.29	23.19	22.82
	1 RB low	847.5	24.45	23.88	23.61
		836.5	24.38	23.49	23.47
		825.5	24.37	23.26	22.90
	50% RB mid	847.5	23.44	22.54	22.17
836.5		23.35	22.43	22.23	

	100% RB	825.5	23.39	22.49	22.26
		847.5	23.45	22.49	22.24
		836.5	23.46	22.41	22.18
		825.5	23.43	22.42	22.23
5MHz	1 RB high	846.5	24.36	23.52	23.51
		836.5	24.31	23.44	23.27
		826.5	24.33	23.83	23.09
	1 RB low	846.5	24.33	23.48	23.40
		836.5	24.34	23.48	23.32
		826.5	24.38	23.87	22.87
	50% RB mid	846.5	23.52	22.53	22.25
		836.5	23.37	22.42	22.23
		826.5	23.42	22.66	22.32
	100% RB	846.5	23.42	22.32	22.38
		836.5	23.41	22.47	22.24
		826.5	23.44	22.58	22.32
10MHz	1 RB high	844.0	24.81	24.23	22.97
		836.5	24.63	23.77	23.13
		829.0	24.65	23.58	23.67
	1 RB low	844.0	24.61	23.97	23.33
		836.5	24.34	23.60	23.44

		829.0	24.46	23.6	22.40
	50% RB mid	844.0	23.53	22.52	22.35
		836.5	23.60	22.62	22.16
		829.0	23.46	22.45	22.23
	100% RB	844.0	23.62	22.55	22.08
		836.5	23.60	22.52	22.22
		829.0	23.6	22.45	22.22

LTE band 7

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)			
			QPSK	16QAM	64QAM	
5MHz	1 RB high	2567.5	22.99	22.04	21.48	
		2535	22.85	21.93	21.39	
		2502.5	23.08	22.43	21.17	
	1 RB low	2567.5	23.14	22.16	21.60	
		2535	22.99	22.06	21.50	
		2502.5	23.23	22.58	21.40	
	50% RB mid	2567.5	22.01	21.00	20.34	
		2535	21.91	20.93	20.28	
		2502.5	22.01	21.19	20.26	
	100% RB	2567.5	22.03	20.94	20.34	
		2535	21.89	20.92	20.28	
		2502.5	21.87	20.98	20.11	
	10MHz	1 RB high	2565	23.03	22.03	21.60
			2535	23.11	21.96	21.51
			2505	23.10	22.42	21.39
1 RB low		2565	23.20	22.17	21.70	
		2535	23.19	22.06	21.67	
		2505	23.26	22.42	21.40	
50% RB mid		2565	22.06	21.11	20.41	
		2535	21.87	20.88	20.40	

	100% RB	2505	21.98	20.95	20.14
		2565	22.03	20.99	20.36
		2535	21.97	20.92	20.32
		2505	21.96	20.99	20.21
15MHz	1 RB high	2562.5	22.91	22.21	21.17
		2535	22.80	21.76	21.25
		2507.5	22.98	22.18	21.37
	1 RB low	2562.5	22.92	22.24	21.43
		2535	22.76	21.75	21.28
		2507.5	23.10	22.21	21.41
	50% RB mid	2562.5	21.96	20.91	20.32
		2535	21.92	20.88	20.30
		2507.5	21.92	20.98	20.12
	100% RB	2562.5	21.85	20.83	20.29
		2535	21.87	20.91	20.23
		2507.5	21.94	20.93	20.06
20MHz	1 RB high	2560	22.92	22.30	21.32
		2535	22.96	22.25	21.43
		2510	23.08	22.42	21.27
	1 RB low	2560	22.99	22.32	21.35
		2535	22.91	22.20	21.51

		2510	23.30	22.57	21.22
	50% RB mid	2560	22.01	21.02	20.31
		2535	21.93	20.90	20.23
		2510	22.03	21.02	20.21
	100% RB	2560	22.00	20.94	20.24
		2535	21.89	20.88	20.26
		2510	21.98	21.06	20.15

LTE band 12

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	715.3	24.07	23.23	23.16
		707.5	24.05	23.17	23.47
		699.7	24.06	23.13	23.34
	1 RB low	715.3	23.96	23.05	23.07
		707.5	24.08	23.12	23.37
		699.7	23.97	23.10	23.07
	50% RB mid	715.3	24.36	23.25	23.30
		707.5	24.09	23.04	22.98
		699.7	23.97	23.10	23.07
	100% RB	715.3	23.08	22.13	22.10
		707.5	22.96	22.16	21.88
		699.7	23.08	22.29	21.97
3MHz	1 RB high	714.5	24.17	23.23	23.61
		707.5	24.11	22.95	23.24
		700.5	24.05	23.47	23.08
	1 RB low	714.5	24.20	23.30	23.32
		707.5	24.01	23.01	23.03
		700.5	24.02	23.48	23.11
	50% RB mid	714.5	23.27	22.21	21.95
		707.5	23.12	22.25	22.16
		700.5	23.05	22.23	22.20
	100% RB	714.5	23.24	22.10	22.22
		707.5	23.14	22.19	22.03
		700.5	23.13	22.13	21.91
5MHz	1 RB high	713.5	24.20	23.25	23.28
		707.5	24.22	23.25	23.37
		701.5	24.25	23.63	23.13
	1 RB low	713.5	24.35	23.48	23.38
		707.5	24.15	22.99	23.07
		701.5	24.15	23.52	23.11
	50% RB mid	713.5	23.21	22.24	22.00
		707.5	23.07	22.17	22.11
		701.5	22.94	22.19	22.08
	100% RB	713.5	23.24	22.09	22.07
		707.5	23.08	22.13	22.13
		701.5	23.22	22.13	22.01
10MHz	1 RB high	711.0	24.40	23.16	23.45
		707.5	24.45	23.92	23.24

		704.0	24.38	23.18	23.29
	1 RB low	711.0	24.25	23.26	23.51
		707.5	24.39	23.72	23.46
		704.0	24.48	23.51	23.15
	50% RB mid	711.0	23.23	22.22	22.08
		707.5	23.06	22.16	22.11
		704.0	23.06	22.24	21.96
	100% RB	711.0	23.23	22.22	22.15
		707.5	23.16	22.23	22.03
		704.0	23.20	22.16	22.12

LTE band 14

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	795.5	24.33	23.01	22.95
		793.0	24.22	23.31	23.20
		790.5	24.22	23.6	23.29
	1 RB low	795.5	24.36	23.28	23.27
		793.0	24.14	23.18	23.29
		790.5	24.16	23.52	23.25
	50% RB mid	795.5	23.19	22.23	22.17
		793.0	23.14	22.18	22.11
		790.5	23.02	22.15	22.15
	100% RB	795.5	23.17	22.16	22.19
		793.0	23.14	22.20	21.99
		790.5	23.07	22.18	22.14
10MHz	1 RB high	793.0	24.21	23.26	23.35
	1 RB low	793.0	24.29	23.38	23.58
	50% RB mid	793.0	23.14	22.27	22.09
	100% RB	793.0	23.17	22.26	22.12

LTE band 30

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2312.5	24.06	22.98	22.81
		2310.0	24.05	23.16	22.39
		2307.5	24.03	23.59	22.46
	1 RB low	2312.5	24.13	23.17	22.61
		2310.0	24.23	23.29	22.56
		2307.5	24.05	23.63	22.42
	50% RB mid	2312.5	23.07	21.97	21.32
		2310.0	23.11	22.10	21.44
		2307.5	22.95	22.17	21.36
	100% RB	2312.5	23.10	21.95	21.37
		2310.0	23.10	22.03	21.41
		2307.5	23.05	22.10	21.29
10MHz	1 RB high	2310.0	24.23	23.23	22.55
	1 RB low	2310.0	24.21	23.35	22.75
	50% RB mid	2310.0	23.45	22.16	21.45
	100% RB	2310.0	23.17	22.17	21.45

LTE band 41

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2687.5	23.61	22.63	21.88
		2593.0	23.66	22.49	21.71
		2498.5	23.84	22.83	21.56
	1 RB low	2687.5	23.72	22.69	21.94
		2593.0	23.79	22.63	21.94
		2498.5	23.87	22.81	21.84
	50% RB mid	2687.5	22.61	21.70	20.92
		2593.0	22.67	21.68	20.89
		2498.5	22.71	21.73	20.75
	100% RB	2687.5	22.64	21.73	20.86
		2593.0	22.66	21.70	20.96
		2498.5	22.85	21.84	20.92
10MHz	1 RB high	2685.0	23.82	22.69	21.91
		2593.0	23.75	22.70	21.80
		2501.0	23.83	22.93	21.71
	1 RB low	2685.0	23.71	22.62	21.88
		2593.0	23.71	22.61	21.82
		2501.0	23.60	22.84	21.64
	50% RB mid	2685.0	22.80	21.80	21.10
		2593.0	22.72	21.74	20.87
		2501.0	22.81	21.92	21.00
	100% RB	2685.0	22.79	21.82	20.94
		2593.0	22.73	21.71	20.86
		2501.0	22.77	21.79	20.73
15MHz	1 RB high	2682.5	23.78	22.93	22.13
		2593.0	24.11	23.02	22.22
		2503.5	23.87	22.97	21.96
	1 RB low	2682.5	23.83	22.99	22.29
		2593.0	23.76	22.70	21.94
		2503.5	23.97	22.98	21.96
	50% RB mid	2682.5	22.83	21.93	21.08
		2593.0	22.92	21.88	20.98
		2503.5	23.06	22.13	21.08
	100% RB	2682.5	22.72	21.89	21.13
		2593.0	22.84	21.82	20.97
		2503.5	23.02	22.04	21.10

20MHz	1 RB high	2680.0	24.12	22.97	22.15
		2593.0	24.09	23.27	22.12
		2506.0	23.99	22.71	21.98
	1 RB low	2680.0	24.13	22.90	22.17
		2593.0	23.78	22.96	21.95
		2506.0	24.07	22.67	21.82
	50% RB mid	2680.0	22.90	21.92	21.15
		2593.0	22.95	21.97	20.99
		2506.0	22.96	21.93	20.93
	100% RB	2680.0	22.91	21.98	21.10
		2593.0	22.96	22.01	21.05
		2506.0	23.05	22.05	21.07

LTE band 66

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1779.3	23.72	23.10	22.29
		1745.0	24.07	23.05	22.28
		1710.7	24.08	23.39	22.71
	1 RB low	1779.3	23.86	23.05	22.40
		1745.0	24.23	23.14	22.45
		1710.7	23.98	23.50	22.69
	50% RB mid	1779.3	24.50	22.93	22.53
		1745.0	24.12	22.88	22.71
		1710.7	24.04	23.33	22.68
	100% RB	1779.3	22.89	22.09	21.24
		1745.0	22.89	22.18	21.28
		1710.7	23.12	22.29	21.51
3MHz	1 RB high	1778.5	23.79	23.06	22.40
		1745.0	23.74	22.70	22.60
		1711.5	24.07	23.36	22.58
	1 RB low	1778.5	24.04	23.14	22.42
		1745.0	23.78	22.81	22.48
		1711.5	24.29	23.50	22.77
	50% RB mid	1778.5	23.03	22.10	21.29
		1745.0	23.13	22.38	21.75
		1711.5	23.41	22.29	21.73
	100% RB	1778.5	22.96	21.98	21.19
		1745.0	23.03	22.09	21.29
		1711.5	23.29	22.37	21.67
5MHz	1 RB high	1777.5	23.96	22.94	22.34
		1745.0	23.91	23.02	22.20
		1712.5	23.87	23.64	22.61
	1 RB low	1777.5	24.34	23.25	22.56
		1745.0	23.98	23.09	22.62
		1712.5	24.52	23.71	22.76
	50% RB mid	1777.5	22.96	22.15	21.36
		1745.0	23.16	22.16	21.37
		1712.5	23.28	22.53	21.66
	100% RB	1777.5	23.13	21.98	21.35
		1745.0	23.13	22.18	21.15
		1712.5	23.34	22.55	21.44
10MHz	1 RB high	1775.0	24.34	23.66	22.79
		1745.0	24.73	23.43	22.71

	1 RB low	1715.0	24.62	23.64	22.74
		1775.0	23.59	22.57	22.26
		1745.0	23.57	22.55	21.55
	50% RB mid	1715.0	23.58	22.89	22.22
		1775.0	23.08	22.26	21.47
		1745.0	23.14	22.22	21.14
	100% RB	1715.0	23.31	22.35	21.61
		1775.0	23.12	22.10	21.33
		1745.0	23.18	22.19	21.03
15MHz	1 RB high	1715.0	23.25	22.44	21.26
		1775.0	23.12	22.10	21.33
		1745.0	23.18	22.19	21.03
	1 RB low	1772.5	24.03	23.26	22.03
		1745.0	24.06	23.00	22.72
		1717.5	24.03	23.66	22.40
	50% RB mid	1772.5	24.06	23.34	22.79
		1745.0	24.21	23.06	22.67
		1717.5	24.76	23.61	22.69
	100% RB	1772.5	23.07	21.97	21.07
		1745.0	23.09	21.90	21.26
		1717.5	23.22	22.49	21.53
20MHz	1 RB high	1772.5	22.82	21.98	21.18
		1745.0	23.01	22.08	21.24
		1717.5	23.26	22.37	21.50
	1 RB low	1770.0	24.45	23.77	22.74
		1745.0	24.47	23.79	22.80
		1720.0	24.51	23.69	22.74
	50% RB mid	1770.0	24.18	23.39	22.69
		1745.0	23.94	23.13	22.60
		1720.0	24.12	23.19	22.67
	100% RB	1770.0	22.95	21.73	21.08
		1745.0	23.14	22.18	21.25
		1720.0	23.03	22.26	21.49
	1 RB high	1770.0	22.83	22.04	21.08
		1745.0	23.12	22.15	21.19
		1720.0	23.30	22.41	21.33

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".

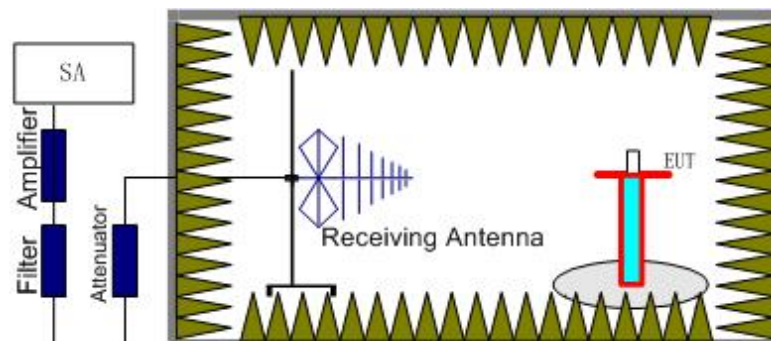
Rule Part 27.50(a)(3) specifies "For mobile and portable stations transmitting in the 2305–2315 MHz band or the 2350–2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth."

Rule Part 90.542(a)(7) Portable stations (hand-held devices) transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 3 watts ERP.

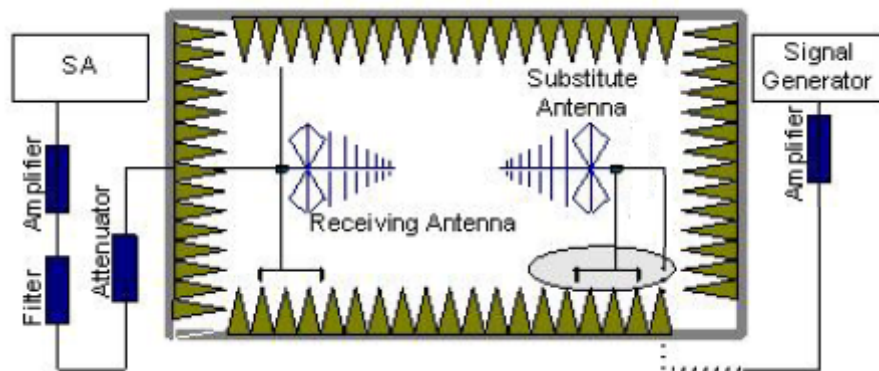
A.1.3.2 Method of Measurement

The measurements procedures in TIA-603E-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:

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

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 2- EIRP

Limits: ≤33dBm (2W)

LTE Band 2_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	-22.74	2.92	43.75	4.87	22.96	33.00	10.04	H
1880.00	-22.61	2.85	43.75	4.82	23.11	33.00	9.89	H
1909.30	-21.61	2.87	43.77	4.76	24.05	33.00	8.95	H

LTE Band 2_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	-22.92	2.87	43.75	4.87	22.83	33.00	10.17	H
1880.00	-22.66	2.85	43.75	4.82	23.06	33.00	9.94	H
1908.50	-21.64	2.89	43.78	4.76	24.01	33.00	8.99	H

LTE Band 2_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	-22.93	2.87	43.75	4.87	22.82	33.00	10.18	H
1880.00	-22.67	2.85	43.75	4.82	23.05	33.00	9.95	H
1907.50	-21.89	2.84	43.77	4.77	23.81	33.00	9.19	H

LTE Band 2_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	-22.60	2.88	43.74	4.86	23.12	33.00	9.88	H
1880.00	-22.58	2.85	43.75	4.82	23.14	33.00	9.86	H
1905.00	-22.13	2.87	43.77	4.77	23.54	33.00	9.46	H

LTE Band 2_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	-22.68	2.87	43.75	4.86	23.06	33.00	9.94	H
1880.00	-22.66	2.85	43.75	4.82	23.06	33.00	9.94	V
1902.50	-21.90	2.86	43.77	4.78	23.79	33.00	9.21	H

LTE Band 2_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	-22.21	2.86	43.75	4.85	23.53	33.00	9.47	H
1880.00	-22.53	2.85	43.75	4.82	23.19	33.00	9.81	H
1900.00	-22.17	2.87	43.77	4.78	23.51	33.00	9.49	H

LTE Band 2_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	-23.81	2.92	43.75	4.87	21.89	33.00	11.11	H
1880.00	-23.60	2.85	43.75	4.82	22.12	33.00	10.88	H
1909.30	-22.63	2.87	43.77	4.76	23.03	33.00	9.97	H

LTE Band 2_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	-23.72	2.87	43.75	4.87	22.03	33.00	10.97	H
1880.00	-23.52	2.85	43.75	4.82	22.20	33.00	10.80	V
1908.50	-22.73	2.89	43.78	4.76	22.92	33.00	10.08	H

LTE Band 2_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	-23.57	2.87	43.75	4.87	22.18	33.00	10.82	H
1880.00	-23.48	2.85	43.75	4.82	22.24	33.00	10.76	H
1907.50	-22.69	2.84	43.77	4.77	23.01	33.00	9.99	H

LTE Band 2_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	-23.63	2.88	43.74	4.86	22.09	33.00	10.91	H
1880.00	-23.49	2.85	43.75	4.82	22.23	33.00	10.77	V
1905.00	-23.06	2.87	43.77	4.77	22.61	33.00	10.39	H

LTE Band 2_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	-23.58	2.87	43.75	4.86	22.16	33.00	10.84	H
1880.00	-23.46	2.85	43.75	4.82	22.26	33.00	10.74	H
1902.50	-22.39	2.86	43.77	4.78	23.30	33.00	9.70	H

LTE Band 2_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	-23.55	2.86	43.75	4.85	22.19	33.00	10.81	H
1880.00	-23.33	2.85	43.75	4.82	22.39	33.00	10.61	V
1900.00	-22.84	2.87	43.77	4.78	22.84	33.00	10.16	H

LTE Band 2_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	-24.08	2.92	43.75	4.87	21.62	33.00	11.38	H
1880.00	-23.89	2.85	43.75	4.82	21.83	33.00	11.17	H
1909.30	-22.85	2.87	43.77	4.76	22.81	33.00	10.19	H

LTE Band 2_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	-23.94	2.87	43.75	4.87	21.81	33.00	11.19	H
1880.00	-23.75	2.85	43.75	4.82	21.97	33.00	11.03	H
1908.50	-22.99	2.89	43.78	4.76	22.66	33.00	10.34	H

LTE Band 2_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	-23.85	2.87	43.75	4.87	21.90	33.00	11.10	H
1880.00	-23.69	2.85	43.75	4.82	22.03	33.00	10.97	H
1907.50	-22.92	2.84	43.77	4.77	22.78	33.00	10.22	H

LTE Band 2_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	-23.88	2.88	43.74	4.86	21.84	33.00	11.16	H
1880.00	-23.74	2.85	43.75	4.82	21.98	33.00	11.02	V
1905.00	-23.29	2.87	43.77	4.77	22.38	33.00	10.62	H

LTE Band 2_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	-23.81	2.87	43.75	4.86	21.93	33.00	11.07	H
1880.00	-23.68	2.85	43.75	4.82	22.04	33.00	10.96	H
1902.50	-22.74	2.86	43.77	4.78	22.95	33.00	10.05	H

LTE Band 2_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	-23.83	2.86	43.75	4.85	21.91	33.00	11.09	H
1880.00	-23.59	2.85	43.75	4.82	22.13	33.00	10.87	V
1900.00	-23.13	2.87	43.77	4.78	22.55	33.00	10.45	H

LTE Band 5- ERP

Limits: ≤38.45dBm (7W)

LTE Band 5_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	-21.37	2.26	45.79	0.95	2.15	20.96	38.45	17.49	H
836.50	-20.64	2.26	45.66	0.82	2.15	21.43	38.45	17.02	H
848.30	-21.48	2.27	45.55	0.80	2.15	20.45	38.45	18.00	H

LTE Band 5_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	-21.26	2.26	45.79	0.94	2.15	21.06	38.45	17.39	H
836.50	-20.58	2.26	45.66	0.82	2.15	21.49	38.45	16.96	H
847.50	-21.36	2.27	45.56	0.81	2.15	20.59	38.45	17.86	H

LTE Band 5_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	-21.19	2.25	45.77	0.93	2.15	21.11	38.45	17.34	H
836.50	-20.56	2.26	45.66	0.82	2.15	21.51	38.45	16.94	H
846.50	-21.29	2.26	45.56	0.82	2.15	20.68	38.45	17.77	H

LTE Band 5_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	-21.20	2.13	45.74	0.90	2.15	21.16	38.45	17.29	H
836.50	-20.62	2.26	45.66	0.82	2.15	21.45	38.45	17.00	H
844.00	-21.14	2.26	45.59	0.82	2.15	20.86	38.45	17.59	H

LTE Band 5_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	-21.78	2.26	45.79	0.95	2.15	20.55	38.45	17.90	H
836.50	-20.40	2.26	45.66	0.82	2.15	21.67	38.45	16.78	H
848.30	-21.34	2.27	45.55	0.80	2.15	20.59	38.45	17.86	H

LTE Band 5_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	-21.09	2.26	45.79	0.94	2.15	21.23	38.45	17.22	H
836.50	-20.53	2.26	45.66	0.82	2.15	21.54	38.45	16.91	H
847.50	-21.19	2.27	45.56	0.81	2.15	20.76	38.45	17.69	H

LTE Band 5_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	-20.81	2.25	45.77	0.93	2.15	21.49	38.45	16.96	H
836.50	-20.48	2.26	45.66	0.82	2.15	21.59	38.45	16.86	H
846.50	-21.02	2.26	45.56	0.82	2.15	20.95	38.45	17.50	H

LTE Band 5_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	-21.07	2.13	45.74	0.90	2.15	21.29	38.45	17.16	H
836.50	-20.22	2.26	45.66	0.82	2.15	21.85	38.45	16.60	H
844.00	-21.08	2.26	45.59	0.82	2.15	20.92	38.45	17.53	H

LTE Band 5_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	-22.89	2.26	45.79	0.95	2.15	19.44	38.45	19.01	H
836.50	-22.55	2.26	45.66	0.82	2.15	19.52	38.45	18.93	V
848.30	-22.47	2.27	45.55	0.80	2.15	19.46	38.45	18.99	H

LTE Band 5_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	-22.21	2.26	45.79	0.94	2.15	20.11	38.45	18.34	H
836.50	-21.66	2.26	45.66	0.82	2.15	20.41	38.45	18.04	H
847.50	-22.25	2.27	45.56	0.81	2.15	19.70	38.45	18.75	H

LTE Band 5_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	-22.06	2.25	45.77	0.93	2.15	20.24	38.45	18.21	H
836.50	-21.77	2.26	45.66	0.82	2.15	20.30	38.45	18.15	H
846.50	-22.34	2.26	45.56	0.82	2.15	19.63	38.45	18.82	H

LTE Band 5_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	-22.28	2.13	45.74	0.90	2.15	20.08	38.45	18.37	H
836.50	-21.85	2.26	45.66	0.82	2.15	20.22	38.45	18.23	H
844.00	-22.22	2.26	45.59	0.82	2.15	19.78	38.45	18.67	H

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	-26.86	3.58	45.68	6.10	21.34	33.00	11.66	H
2535.00	-26.23	3.63	44.82	6.16	21.12	33.00	11.88	H
2567.50	-27.82	3.65	44.92	6.22	19.67	33.00	13.33	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	-26.87	3.59	45.64	6.11	21.29	33.00	11.71	H
2535.00	-26.26	3.63	44.82	6.16	21.09	33.00	11.91	H
2565.00	-28.08	3.65	44.97	6.22	19.46	33.00	13.54	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	-27.08	3.59	44.92	6.11	20.36	33.00	12.64	H
2535.00	-27.00	3.63	44.82	6.16	20.35	33.00	12.65	H
2562.50	-29.11	3.65	45.67	6.21	19.12	33.00	13.88	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	-27.49	3.58	45.36	6.12	20.41	33.00	12.59	H
2535.00	-26.92	3.63	44.82	6.16	20.43	33.00	12.57	H
2560.00	-29.43	3.64	45.98	6.21	19.12	33.00	13.88	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	-27.82	3.58	45.68	6.10	20.38	33.00	12.62	H
2535.00	-27.02	3.63	44.82	6.16	20.33	33.00	12.67	H
2567.50	-28.65	3.65	44.92	6.22	18.84	33.00	14.16	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	-27.98	3.59	45.64	6.11	20.18	33.00	12.82	H
2535.00	-27.24	3.63	44.82	6.16	20.11	33.00	12.89	H
2565.00	-28.97	3.65	44.97	6.22	18.57	33.00	14.43	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	-28.05	3.59	44.92	6.11	19.39	33.00	13.61	H
2535.00	-27.89	3.63	44.82	6.16	19.46	33.00	13.54	H
2562.50	-30.04	3.65	45.67	6.21	18.19	33.00	14.81	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	-28.52	3.58	45.36	6.12	19.38	33.00	13.62	H
2535.00	-27.71	3.63	44.82	6.16	19.64	33.00	13.36	H
2560.00	-30.53	3.64	45.98	6.21	18.02	33.00	14.98	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	-28.94	3.58	45.68	6.10	19.26	33.00	13.74	H
2535.00	-28.10	3.63	44.82	6.16	19.25	33.00	13.75	H
2567.50	-29.86	3.65	44.92	6.22	17.63	33.00	15.37	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	-29.15	3.59	45.64	6.11	19.01	33.00	13.99	H
2535.00	-28.44	3.63	44.82	6.16	18.91	33.00	14.09	H
2565.00	-30.19	3.65	44.97	6.22	17.35	33.00	15.65	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	-29.31	3.59	44.92	6.11	18.13	33.00	14.87	H
2535.00	-29.05	3.63	44.82	6.16	18.30	33.00	14.70	H
2562.50	-31.25	3.65	45.67	6.21	16.98	33.00	16.02	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	-29.65	3.58	45.36	6.12	18.25	33.00	14.75	H
2535.00	-28.92	3.63	44.82	6.16	18.43	33.00	14.57	H
2560.00	-31.81	3.64	45.98	6.21	16.74	33.00	16.26	H

LTE Band 12 - ERP

Limits: ≤ 34.77 dBm (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	-28.16	1.90	44.66	0.77	2.15	13.22	34.77	21.55	H
707.50	-27.71	1.91	44.94	0.62	2.15	13.79	34.77	20.98	V
715.30	-27.86	1.92	45.26	0.50	2.15	13.83	34.77	20.94	V

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	-25.72	1.90	44.68	0.76	2.15	15.67	34.77	19.10	V
707.50	-26.13	1.91	44.94	0.62	2.15	15.37	34.77	19.40	V
714.50	-26.68	1.92	45.26	0.50	2.15	15.01	34.77	19.76	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	-25.17	1.90	44.81	0.74	2.15	16.33	34.77	18.44	V
707.50	-25.43	1.91	44.94	0.62	2.15	16.07	34.77	18.70	H
713.50	-25.79	1.92	45.22	0.50	2.15	15.86	34.77	18.91	V

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	-25.61	1.91	44.93	0.70	2.15	15.96	34.77	18.81	V
707.50	-25.16	1.91	44.94	0.62	2.15	16.34	34.77	18.43	H
711.00	-25.59	1.92	45.19	0.53	2.15	16.06	34.77	18.71	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	-28.10	1.90	44.66	0.77	2.15	13.28	34.77	21.49	V
707.50	-28.59	1.91	44.94	0.62	2.15	12.91	34.77	21.86	H
715.30	-28.96	1.92	45.26	0.50	2.15	12.73	34.77	22.04	V

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	-27.00	1.90	44.68	0.76	2.15	14.39	34.77	20.38	H
707.50	-26.87	1.91	44.94	0.62	2.15	14.63	34.77	20.14	H
714.50	-25.65	1.92	45.26	0.50	2.15	16.04	34.77	18.73	V

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	-25.43	1.90	44.81	0.74	2.15	16.07	34.77	18.70	V
707.50	-25.30	1.91	44.94	0.62	2.15	16.20	34.77	18.57	V
713.50	-25.01	1.92	45.22	0.50	2.15	16.64	34.77	18.13	V

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	-25.31	1.91	44.93	0.70	2.15	16.26	34.77	18.51	H
707.50	-24.53	1.91	44.94	0.62	2.15	16.97	34.77	17.80	H
711.00	-25.15	1.92	45.19	0.53	2.15	16.50	34.77	18.27	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	-28.36	1.90	44.66	0.77	2.15	13.02	34.77	21.75	V
707.50	-28.81	1.91	44.94	0.62	2.15	12.69	34.77	22.08	H
715.30	-29.18	1.92	45.26	0.50	2.15	12.51	34.77	22.26	V

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	-27.38	1.90	44.68	0.76	2.15	14.01	34.77	20.76	H
707.50	-27.26	1.91	44.94	0.62	2.15	14.24	34.77	20.53	H
714.50	-26.92	1.92	45.26	0.50	2.15	14.77	34.77	20.00	V

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	-25.96	1.90	44.81	0.74	2.15	15.54	34.77	19.23	V
707.50	-25.71	1.91	44.94	0.62	2.15	15.79	34.77	18.98	V
713.50	-25.39	1.92	45.22	0.50	2.15	16.26	34.77	18.51	V

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	-25.92	1.91	44.93	0.70	2.15	15.65	34.77	19.12	V
707.50	-25.31	1.91	44.94	0.62	2.15	16.19	34.77	18.58	H
711.00	-25.93	1.92	45.19	0.53	2.15	15.72	34.77	19.05	H

LTE Band 14- ERP

Limits: ≤34.77 dBm (3W)

LTE Band 14_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
790.50	-20.87	2.02	45.71	0.18	2.15	20.85	34.77	13.92	V
793.00	-21.07	2.03	45.72	0.19	2.15	20.66	34.77	14.11	V
795.50	-21.43	2.03	45.74	0.20	2.15	20.33	34.77	14.44	V

LTE Band 14_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
793.00	-21.14	2.03	45.72	0.19	2.15	20.59	34.77	14.18	V

LTE Band 14_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
790.50	-20.79	2.02	45.71	0.18	2.15	20.93	34.77	13.84	V
793.00	-21.06	2.03	45.72	0.19	2.15	20.67	34.77	14.10	V
795.50	-21.09	2.03	45.74	0.20	2.15	20.67	34.77	14.10	V

LTE Band 14_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
793.00	-20.93	2.03	45.72	0.19	2.15	20.80	34.77	13.97	V

LTE Band 14_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
790.50	-22.05	2.02	45.71	0.18	2.15	19.67	34.77	15.10	V
793.00	-22.13	2.03	45.72	0.19	2.15	19.60	34.77	15.17	V
795.50	-22.48	2.03	45.74	0.20	2.15	19.28	34.77	15.49	V

LTE Band 14_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
793.00	-22.20	2.03	45.72	0.19	2.15	19.53	34.77	15.24	V

LTE Band 30- EIRP
Limits: ≤24 dBm (250mW)

LTE Band 30_5MHz_QPSK

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	P _{Ag} (dB)	G _a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2307.50	-25.27	3.48	44.55	5.52	21.31	24.00	2.69	V
2310.00	-25.02	3.48	44.55	5.53	21.58	24.00	2.42	V
2312.50	-26.36	3.48	44.56	5.54	20.25	24.00	3.75	H

LTE Band 30_10MHz_QPSK

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	P _{Ag} (dB)	G _a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2310.00	-26.55	3.48	44.55	5.53	20.06	24.00	3.94	H

LTE Band 30_5MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	P _{Ag} (dB)	G _a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2307.50	-25.55	3.48	44.55	5.52	21.03	24.00	2.97	V
2310.00	-25.46	3.48	44.55	5.53	21.14	24.00	2.86	V
2312.50	-26.58	3.48	44.56	5.54	20.03	24.00	3.97	H

LTE Band 30_10MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	P _{Ag} (dB)	G _a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2310.00	-26.84	3.48	44.55	5.53	19.77	24.00	4.23	H

LTE Band 30_5MHz_64QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	P _{Ag} (dB)	G _a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2307.50	-26.43	3.48	44.55	5.52	20.15	24.00	3.85	V
2310.00	-26.11	3.48	44.55	5.53	20.49	24.00	3.51	V
2312.50	-27.47	3.48	44.56	5.54	19.14	24.00	4.86	H

LTE Band 30_10MHz_64QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	P _{Ag} (dB)	G _a (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2310.00	-27.64	3.48	44.55	5.53	18.97	24.00	5.03	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	-27.24	3.58	45.59	6.10	20.87	33.00	12.13	H
2593.00	-29.09	3.69	44.93	6.27	18.42	33.00	14.58	H
2687.50	-30.02	3.73	44.98	6.44	17.67	33.00	15.33	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	-26.95	3.58	45.65	6.10	21.22	33.00	11.78	H
2593.00	-29.10	3.69	44.93	6.27	18.41	33.00	14.59	H
2685.00	-28.72	3.73	44.98	6.43	18.96	33.00	14.04	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	-25.91	3.58	45.65	6.11	22.27	33.00	10.73	H
2593.00	-28.78	3.69	44.93	6.27	18.73	33.00	14.27	H
2682.50	-28.68	3.73	44.98	6.43	19.00	33.00	14.00	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	-25.90	3.59	45.15	6.11	21.77	33.00	11.23	H
2593.00	-28.52	3.69	44.93	6.27	18.99	33.00	14.01	H
2680.00	-28.74	3.73	44.97	6.42	18.92	33.00	14.08	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	-27.41	3.58	45.59	6.10	20.70	33.00	12.30	H
2593.00	-30.01	3.69	44.93	6.27	17.50	33.00	15.50	H
2687.50	-30.28	3.73	44.98	6.44	17.41	33.00	15.59	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	-27.04	3.58	45.65	6.10	21.13	33.00	11.87	H
2593.00	-29.43	3.69	44.93	6.27	18.08	33.00	14.92	H
2685.00	-29.58	3.73	44.98	6.43	18.10	33.00	14.90	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	-26.70	3.58	45.65	6.11	21.48	33.00	11.52	H
2593.00	-29.16	3.69	44.93	6.27	18.35	33.00	14.65	H
2682.50	-29.17	3.73	44.98	6.43	18.51	33.00	14.49	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	-26.00	3.59	45.15	6.11	21.67	33.00	11.33	H
2593.00	-28.56	3.69	44.93	6.27	18.95	33.00	14.05	H
2680.00	-29.04	3.73	44.97	6.42	18.62	33.00	14.38	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	-28.33	3.58	45.59	6.10	19.78	33.00	13.22	H
2593.00	-30.32	3.69	44.93	6.27	17.19	33.00	15.81	H
2687.50	-31.33	3.73	44.98	6.44	16.36	33.00	16.64	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	-28.13	3.58	45.65	6.10	20.04	33.00	12.96	H
2593.00	-30.37	3.69	44.93	6.27	17.14	33.00	15.86	H
2685.00	-29.91	3.73	44.98	6.43	17.77	33.00	15.23	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	-27.23	3.58	45.65	6.11	20.95	33.00	12.05	H
2593.00	-29.96	3.69	44.93	6.27	17.55	33.00	15.45	H
2682.50	-29.65	3.73	44.98	6.43	18.03	33.00	14.97	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	-27.07	3.59	45.15	6.11	20.60	33.00	12.40	H
2593.00	-29.67	3.69	44.93	6.27	17.84	33.00	15.16	H
2680.00	-29.36	3.73	44.97	6.42	18.30	33.00	14.70	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	-31.97	3.17	44.10	5.12	20.42	30.00	9.58	H
1745.00	-31.20	3.68	44.16	5.06	21.70	30.00	8.30	H
1779.30	-29.40	3.04	44.03	5.00	22.67	30.00	7.33	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	-31.85	3.40	44.10	5.12	20.77	30.00	9.23	H
1745.00	-31.29	3.68	44.16	5.06	21.61	30.00	8.39	H
1778.50	-29.14	3.04	44.03	5.00	22.93	30.00	7.07	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	-25.29	3.66	44.10	5.12	20.27	30.00	9.73	H
1745.00	-24.18	3.68	44.16	5.06	21.36	30.00	8.64	H
1777.50	-23.52	3.04	44.04	5.00	22.48	30.00	7.52	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	-24.80	3.56	44.10	5.11	20.85	30.00	9.15	H
1745.00	-23.17	3.68	44.16	5.06	22.37	30.00	7.63	H
1775.00	-23.36	3.05	44.05	5.01	22.64	30.00	7.36	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	-25.06	3.47	44.11	5.11	20.69	30.00	9.31	H
1745.00	-24.10	3.68	44.16	5.06	21.44	30.00	8.56	H
1772.50	-23.82	3.05	44.06	5.01	22.20	30.00	7.80	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	-25.17	3.37	44.11	5.10	20.67	30.00	9.33	H
1745.00	-24.25	3.68	44.16	5.06	21.29	30.00	8.71	H
1770.00	-24.11	3.05	44.07	5.01	21.93	30.00	8.07	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	-33.11	3.17	44.10	5.12	19.28	30.00	10.72	H
1745.00	-32.41	3.68	44.16	5.06	20.49	30.00	9.51	H
1779.30	-29.68	3.04	44.03	5.00	22.39	30.00	7.61	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	-33.08	3.40	44.10	5.12	19.54	30.00	10.46	H
1745.00	-32.24	3.68	44.16	5.06	20.66	30.00	9.34	H
1778.50	-30.19	3.04	44.03	5.00	21.88	30.00	8.12	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	-26.10	3.66	44.10	5.12	19.46	30.00	10.54	H
1745.00	-24.55	3.68	44.16	5.06	20.99	30.00	9.01	V
1777.50	-24.43	3.04	44.04	5.00	21.57	30.00	8.43	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	-26.87	3.56	44.10	5.11	18.78	30.00	11.22	V
1745.00	-24.88	3.68	44.16	5.06	20.66	30.00	9.34	H
1775.00	-24.25	3.05	44.05	5.01	21.75	30.00	8.25	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	-26.28	3.47	44.11	5.11	19.47	30.00	10.53	H
1745.00	-24.79	3.68	44.16	5.06	20.75	30.00	9.25	H
1772.50	-24.68	3.05	44.06	5.01	21.34	30.00	8.66	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	-25.46	3.37	44.11	5.10	20.38	30.00	9.62	H
1745.00	-23.46	3.68	44.16	5.06	22.08	30.00	7.92	H
1770.00	-24.55	3.05	44.07	5.01	21.49	30.00	8.51	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	-34.21	3.17	44.10	5.12	18.18	30.00	11.82	H
1745.00	-33.70	3.68	44.16	5.06	19.20	30.00	10.80	H
1779.30	-30.78	3.04	44.03	5.00	21.29	30.00	8.71	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	-34.14	3.40	44.10	5.12	18.48	30.00	11.52	H
1745.00	-33.32	3.68	44.16	5.06	19.58	30.00	10.42	H
1778.50	-31.27	3.04	44.03	5.00	20.80	30.00	9.20	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	-27.27	3.66	44.10	5.12	18.29	30.00	11.71	H
1745.00	-25.74	3.68	44.16	5.06	19.80	30.00	10.20	V
1777.50	-25.62	3.04	44.04	5.00	20.38	30.00	9.62	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	-27.31	3.56	44.10	5.11	18.34	30.00	11.66	H
1745.00	-26.00	3.68	44.16	5.06	19.54	30.00	10.46	H
1775.00	-25.37	3.05	44.05	5.01	20.63	30.00	9.37	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	-27.42	3.47	44.11	5.11	18.33	30.00	11.67	H
1745.00	-25.93	3.68	44.16	5.06	19.61	30.00	10.39	H
1772.50	-25.90	3.05	44.06	5.01	20.12	30.00	9.88	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	-26.63	3.37	44.11	5.10	19.21	30.00	10.79	H
1745.00	-24.60	3.68	44.16	5.06	20.94	30.00	9.06	H
1770.00	-25.79	3.05	44.07	5.01	20.25	30.00	9.75	H

Peak EIRP (dBm) = P_{Mea}(-21.61dBm) - G_a (-4.76dBi) - P_{Ag} (-43.77dB) - P_{cl} (2.87dB) = 24.05dBm

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

A.2 EMISSION LIMIT

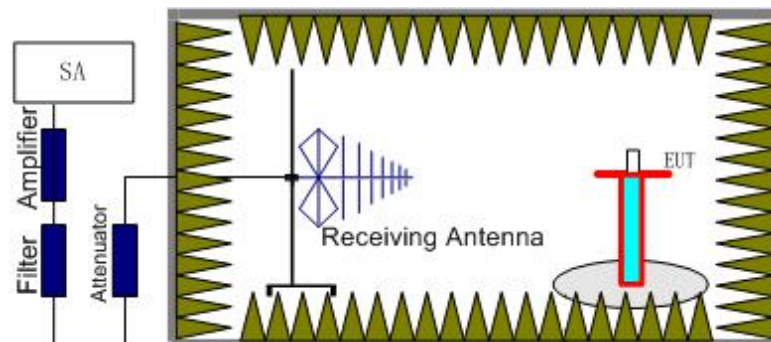
A.2.1 Measurement Method

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

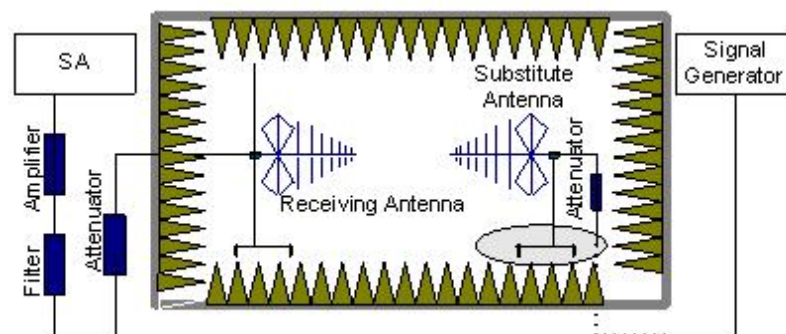
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE Bands 2,5,7,12,14,30,41,66.

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 /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. 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:

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

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, $ERP = EIRP - 2.15\text{dB}$.

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 than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Part 27.53(a) states for mobile and portable stations operating in the 2305–2315 MHz and 2350–2360 MHz bands: By a factor of not less than: $43 + 10 \log(P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log(P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log(P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log(P)$ dB on all frequencies between 2328 and 2337 MHz; By a factor of not less than $43 + 10 \log(P)$ dB on all frequencies between 2300 and 2305 MHz, 55

+ 10 log (P) dB on all frequencies between 2296 and 2300MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz; By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

Part 90.543 states that For operations in the 758–768 MHz and the 788–798 MHz bands, 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 all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations. (2) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations. (3) On any frequency between 775–788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB. (4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment. (5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

A.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Bands 2,5,7,12,14,30,41,66. 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 2,5,7,12,14,30,41,66 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 2, 1.4MHz, QPSK, Channel 18607

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3701.02	-51.84	6.42	8.48	-49.78	-13.00	36.78	H
5555.02	-51.19	7.19	10.59	-47.79	-13.00	34.79	H
7407.01	-36.71	8.14	12.09	-32.76	-13.00	19.76	H
9259.01	-44.90	9.06	13.26	-40.70	-13.00	27.70	V
11126.01	-51.76	9.72	13.17	-48.31	-13.00	35.31	H
12971.01	-48.45	10.48	13.48	-45.45	-13.00	32.45	H

LTE Band 2, 1.4MHz, QPSK, Channel 18900

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760.02	-53.10	6.26	8.56	-50.80	-13.00	37.80	H
5643.02	-48.17	7.27	10.57	-44.87	-13.00	31.87	V
7525.01	-39.92	8.29	12.22	-35.99	-13.00	22.99	H
9406.01	-50.09	9.07	13.34	-45.82	-13.00	32.82	V
11242.01	-51.36	9.65	13.15	-47.86	-13.00	34.86	H
13208.01	-47.64	10.50	13.79	-44.35	-13.00	31.35	H

LTE Band 2, 1.4MHz, QPSK, Channel 19193

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3819.02	-52.14	6.08	8.65	-49.57	-13.00	36.57	H
5731.02	-44.54	7.29	10.55	-41.28	-13.00	28.28	H
7641.01	-38.08	8.16	12.31	-33.93	-13.00	20.93	H
9553.01	-49.25	9.35	13.35	-45.25	-13.00	32.25	V
11446.01	-49.72	9.95	13.11	-46.56	-13.00	33.56	H
13386.01	-42.87	10.57	14.04	-39.40	-13.00	26.40	H

LTE Band 5, 1.4MHz, QPSK, Channel 20407

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1664.01	-59.98	3.57	5.20	2.15	-60.50	-13.00	47.50	H
2477.00	-53.73	4.60	6.03	2.15	-54.45	-13.00	41.45	V
3309.02	-55.67	5.29	7.74	2.15	-55.37	-13.00	42.37	H
4121.02	-56.76	6.04	9.02	2.15	-55.93	-13.00	42.93	H
4953.01	-56.01	6.68	9.85	2.15	-54.99	-13.00	41.99	H
5766.01	-54.94	7.24	10.55	2.15	-53.78	-13.00	40.78	H

LTE Band 5, 1.4MHz, QPSK, Channel 20525

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1660.01	-59.62	3.57	5.21	2.15	-60.13	-13.00	47.13	H
2518.00	-52.38	4.64	6.13	2.15	-53.04	-13.00	40.04	H
3360.02	-54.50	5.33	7.86	2.15	-54.12	-13.00	41.12	V
4169.02	-55.86	6.14	9.07	2.15	-55.08	-13.00	42.08	V
5008.01	-56.20	6.59	9.91	2.15	-55.03	-13.00	42.03	V
5857.01	-53.17	7.26	10.53	2.15	-52.05	-13.00	39.05	V

LTE Band 5, 1.4MHz, QPSK, Channel 20643

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1697.01	-60.36	3.60	5.15	2.15	-60.96	-13.00	47.96	V
2539.00	-52.99	4.66	6.17	2.15	-53.63	-13.00	40.63	V
3388.02	-56.16	5.35	7.93	2.15	-55.73	-13.00	42.73	V
4232.02	-56.43	6.26	9.13	2.15	-55.71	-13.00	42.71	H
5076.01	-55.70	6.70	10.01	2.15	-54.54	-13.00	41.54	H
5950.01	-53.40	7.47	10.51	2.15	-52.51	-13.00	39.51	H

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
5010.02	-54.19	6.59	9.91	-50.87	-25.00	25.87	V
7510.01	-51.03	8.35	12.21	-47.17	-25.00	22.17	V
10023.01	-51.49	9.25	12.91	-47.83	-25.00	22.83	V
12528.01	-48.04	10.26	13.22	-45.08	-25.00	20.08	H
15009.00	-45.84	11.23	13.99	-43.08	-25.00	18.08	V
17501.00	-44.06	12.73	14.90	-41.89	-25.00	16.89	V

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
5075.02	-54.48	6.70	10.01	-51.17	-25.00	26.17	H
7609.01	-52.62	8.01	12.29	-48.34	-25.00	23.34	V
10148.01	-52.26	9.38	12.96	-48.68	-25.00	23.68	V
12693.01	-48.20	10.31	13.32	-45.19	-25.00	20.19	H
15215.00	-45.59	11.38	13.87	-43.10	-25.00	18.10	H
17750.00	-43.35	12.46	15.25	-40.56	-25.00	15.56	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
5147.02	-56.05	6.88	10.11	-52.82	-25.00	27.82	H
7691.01	-54.40	8.39	12.35	-50.44	-25.00	25.44	H
10263.01	-51.44	9.52	13.01	-47.95	-25.00	22.95	V
12823.01	-48.39	10.71	13.39	-45.71	-25.00	20.71	H
15387.00	-44.61	11.38	13.77	-42.22	-25.00	17.22	V
17969.00	-43.75	12.89	15.56	-41.08	-25.00	16.08	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
1390.01	-60.13	3.22	4.93	2.15	-60.57	-13.00	47.57	H
2105.00	-55.56	4.20	4.92	2.15	-56.99	-13.00	43.99	H
2809.00	-52.16	4.93	6.66	2.15	-52.58	-13.00	39.58	H
3512.02	-56.44	5.54	8.22	2.15	-55.91	-13.00	42.91	H
4193.02	-55.14	6.19	9.09	2.15	-54.39	-13.00	41.39	V
4911.01	-55.09	6.73	9.81	2.15	-54.16	-13.00	41.16	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
1407.01	-58.81	3.24	5.02	2.15	-59.18	-13.00	46.18	V
2129.00	-55.50	4.22	4.99	2.15	-56.88	-13.00	43.88	V
2815.00	-52.49	4.93	6.67	2.15	-52.90	-13.00	39.90	H
3544.02	-56.10	5.76	8.26	2.15	-55.75	-13.00	42.75	V
4254.02	-55.70	6.24	9.15	2.15	-54.94	-13.00	41.94	H
4957.01	-55.79	6.68	9.86	2.15	-54.76	-13.00	41.76	V

LTE Band 12, 1.4MHz, QPSK, Channel 23173

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1429.01	-53.29	3.27	5.13	2.15	-53.58	-13.00	40.58	V
2139.00	-55.77	4.23	5.02	2.15	-57.13	-13.00	44.13	V
2876.00	-52.35	4.97	6.78	2.15	-52.69	-13.00	39.69	V
3577.02	-54.95	6.10	8.31	2.15	-54.89	-13.00	41.89	V
4297.02	-55.40	6.20	9.20	2.15	-54.55	-13.00	41.55	H
5008.01	-55.96	6.59	9.91	2.15	-54.79	-13.00	41.79	V

LTE Band 14, 5 MHz, QPSK, Channel 23305

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1581.01	-61.05	3.50	5.35	2.15	-61.35	-13.00	48.35	V
2383.00	-53.35	4.50	5.75	2.15	-54.25	-13.00	41.25	V
3148.02	-54.41	5.37	7.36	2.15	-54.57	-13.00	41.57	H
3954.02	-55.63	6.10	8.84	2.15	-55.04	-13.00	42.04	H
4736.02	-54.67	6.55	9.64	2.15	-53.73	-13.00	40.73	H
5522.01	-55.10	7.14	10.60	2.15	-53.79	-13.00	40.79	H

LTE Band 14, 5 MHz, QPSK, Channel 23330

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1595.01	-61.43	3.51	5.33	2.15	-61.76	-13.00	48.76	V
2374.00	-53.74	4.49	5.72	2.15	-54.66	-13.00	41.66	H
3170.02	-54.76	5.34	7.41	2.15	-54.84	-13.00	41.84	V
3958.02	-55.91	6.10	8.84	2.15	-55.32	-13.00	42.32	H
4770.01	-55.27	6.61	9.67	2.15	-54.36	-13.00	41.36	V
5561.01	-55.43	7.19	10.59	2.15	-54.18	-13.00	41.18	H

LTE Band 14, 5 MHz, QPSK, Channel 23355

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1580.01	-61.11	3.50	5.36	2.15	-61.40	-13.00	48.40	V
2387.00	-53.73	4.50	5.76	2.15	-54.62	-13.00	41.62	V
3184.02	-54.99	5.32	7.44	2.15	-55.02	-13.00	42.02	H
3989.02	-56.16	6.08	8.88	2.15	-55.51	-13.00	42.51	H
4761.01	-55.97	6.59	9.66	2.15	-55.05	-13.00	42.05	H
5554.01	-55.76	7.19	10.59	2.15	-54.51	-13.00	41.51	H

LTE Band 30, 5 MHz, QPSK, Channel 27685

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	RMS EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4617.02	-49.35	6.45	9.52	-46.28	-40.00	6.28	V
6928.01	-62.53	7.74	11.51	-58.76	-40.00	18.76	H
9235.01	-49.31	9.01	13.24	-45.08	-40.00	5.08	V
11547.01	-59.51	9.81	13.09	-56.23	-40.00	16.23	V
13852.01	-50.36	10.71	14.41	-46.66	-40.00	6.66	V
16148.00	-53.71	11.79	13.67	-51.83	-40.00	11.83	H

LTE Band 30, 5 MHz, QPSK, Channel 27710

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	RMS EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4623.02	-50.47	6.45	9.52	-47.40	-40.00	7.40	V
6935.01	-61.91	7.80	11.52	-58.19	-40.00	18.19	V
9246.01	-50.12	9.03	13.25	-45.90	-40.00	5.90	V
11560.01	-59.20	9.80	13.09	-55.91	-40.00	15.91	V
13866.01	-51.02	10.74	14.42	-47.34	-40.00	7.34	V
16157.00	-53.44	11.78	13.67	-51.55	-40.00	11.55	H

LTE Band 30, 5 MHz, QPSK, Channel 27735

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	RMS EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4627.02	-51.05	6.45	9.53	-47.97	-40.00	7.97	V
6944.01	-60.38	7.87	11.53	-56.72	-40.00	16.72	V
9255.01	-49.25	9.05	13.25	-45.05	-40.00	5.05	V
11567.01	-58.84	9.80	13.09	-55.55	-40.00	15.55	V
13879.01	-51.64	10.76	14.43	-47.97	-40.00	7.97	V
16194.00	-53.72	11.74	13.66	-51.80	-40.00	11.80	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
5000.02	-53.09	6.60	9.90	-49.79	-25.00	24.79	V
7499.01	-54.03	8.39	12.20	-50.22	-25.00	25.22	V
9997.01	-49.74	9.18	12.90	-46.02	-25.00	21.02	V
12488.01	-48.73	10.21	13.20	-45.74	-25.00	20.74	V
14987.00	-46.31	11.21	14.01	-43.51	-25.00	18.51	V
17491.00	-44.31	12.70	14.88	-42.13	-25.00	17.13	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
6512.02	-54.63	7.51	11.01	-51.13	-25.00	26.13	H
9099.01	-53.53	8.94	13.16	-49.31	-25.00	24.31	V
11642.01	-50.13	9.72	13.07	-46.78	-25.00	21.78	H
14281.00	-46.22	10.96	14.44	-42.74	-25.00	17.74	V
15544.00	-43.50	11.51	13.70	-41.31	-25.00	16.31	V
16859.00	-42.05	12.04	13.74	-40.35	-25.00	15.35	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
5381.02	-54.72	6.87	10.43	-51.16	-25.00	26.16	H
8066.01	-53.76	8.32	12.65	-49.43	-25.00	24.43	H
10769.01	-51.37	9.47	13.15	-47.69	-25.00	22.69	H
13448.01	-44.59	10.60	14.13	-41.06	-25.00	16.06	V
16148.00	-42.85	11.79	13.67	-40.97	-25.00	15.97	H
17467.00	-44.30	12.65	14.83	-42.12	-25.00	17.12	H

LTE Band 66, 1.4MHz QPSK, Channel 131979

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3422.02	-48.14	5.38	8.01	-45.51	-13.00	32.51	V
5134.02	-51.74	6.86	10.09	-48.51	-13.00	35.51	V
6845.01	-33.26	7.83	11.41	-29.68	-13.00	16.68	V
8557.01	-45.32	8.57	13.01	-40.88	-13.00	27.88	V
10308.01	-52.25	9.66	13.02	-48.89	-13.00	35.89	H
13696.01	-32.40	10.61	14.32	-28.69	-13.00	15.69	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
3490.02	-51.75	5.50	8.18	-49.07	-13.00	36.07	H
5240.02	-56.11	7.00	10.24	-52.87	-13.00	39.87	H
6984.01	-33.38	8.17	11.58	-29.97	-13.00	16.97	H
8729.01	-50.27	8.45	13.05	-45.67	-13.00	32.67	H
10520.01	-51.27	9.58	13.10	-47.75	-13.00	34.75	H
13976.01	-34.43	10.84	14.49	-30.78	-13.00	17.78	H

LTE Band 66, 1.4MHz, QPSK, Channel 132665

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3559.02	-49.33	5.92	8.28	-46.97	-13.00	33.97	H
5343.02	-49.60	6.95	10.38	-46.17	-13.00	33.17	H
7119.01	-31.85	8.16	11.74	-28.27	-13.00	15.27	V
8900.01	-45.62	8.85	13.08	-41.39	-13.00	28.39	V
12415.01	-49.25	10.40	13.17	-46.48	-13.00	33.48	V
14253.00	-33.75	10.93	14.45	-30.23	-13.00	17.23	V

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°C.
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 2,5,7,12,14,30,41,66, 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°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50°C.
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the center channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 °C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure.

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 3.6VDC 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 2, 20MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1850.849	1909.151		
50				-0.35	0.0002
40				9.57	0.0051
30				11.23	0.0060
10				11.04	0.0059
0				-0.09	0.0000
-10				9.27	0.0049
-20				10.22	0.0054
-10				10.00	0.0053

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1850.849	1909.151	10.42	0.0055
4.4				-7.53	0.0040

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

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	824.433	848.583		
50				-1.30	0.0016
40				-0.82	0.0010
30				-1.52	0.0018
10				-2.03	0.0024
0				-0.16	0.0002
-10				-1.42	0.0017
-20				-0.72	0.0009
-10				-0.20	0.0002

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	824.433	848.583	-0.83	0.0010
4.4				-1.12	0.0013

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

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	2500.609	2569.327		
50				0.37	0.0002
40				-3.21	0.0014
30				-0.79	0.0003
10				1.51	0.0006
0				-2.26	0.0010
-10				-0.89	0.0004
-20				0.38	0.0002
-10				0.43	0.0002

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2500.609	2569.327	-1.58	0.0007
4.4				-1.01	0.0004

LTE Band 12, 10MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	699.481	715.519		
50				7.37	0.0104
40				0.89	0.0013
30				1.02	0.0014
10				-0.24	0.0003
0				2.79	0.0039
-10				7.93	0.0112
-20				7.39	0.0104
-10				1.28	0.0018

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	699.481	715.519	7.67	0.0108
4.4				-0.71	0.0010

LTE Band 14, 10MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	788.433	797.583		
50				-0.85	0.0011
40				0.43	0.0005
30				-0.45	0.0006
10				1.24	0.0016
0				5.48	0.0069
-10				0.50	0.0006
-20				6.05	0.0076
-10				1.19	0.0015

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	788.433	797.583	-0.30	0.0004
4.4				-0.97	0.0012

LTE Band 30, 10MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	2305.433	2314.567		
50				0.35	0.0002
40				0.18	0.0001
30				0.75	0.0003
10				2.96	0.0013
0				0.85	0.0004
-10				0.21	0.0001
-20				1.44	0.0006
-10				0.73	0.0003

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2305.433	2314.567	0.78	0.0003
4.4				2.07	0.0009

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

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	2496.256	2689.631		
50				-1.32	0.0005
40				-0.64	0.0002
30				1.79	0.0007
10				-2.02	0.0008
0				-2.09	0.0008
-10				0.93	0.0004
-20				3.32	0.0013
-10				-2.80	0.0011

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2496.256	2689.631	-1.32	0.0005
4.4				1.79	0.0007

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

Temperature(°C)	Voltage(V)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1710.849	1779.151		
50				-0.81	0.0005
40				0.20	0.0001
30				0.50	0.0003
10				-0.44	0.0003
0				-0.83	0.0005
-10				-1.41	0.0008
-20				-0.58	0.0003
-10				-1.59	0.0009

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	F _L (MHz)	F _H (MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1710.849	1779.151	-0.81	0.0005
4.4				0.50	0.0003

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

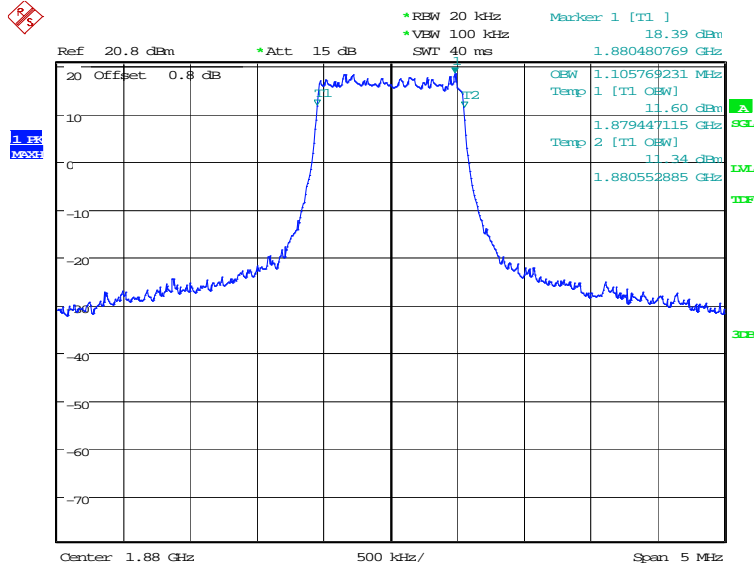
The measurement method is from ANSI C63.26:

- 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 $\geq 3 \times$ RBW.
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
- d) Set the detection mode to peak, and the trace mode to max-hold.

LTE band 2, 1.4MHz (99%)

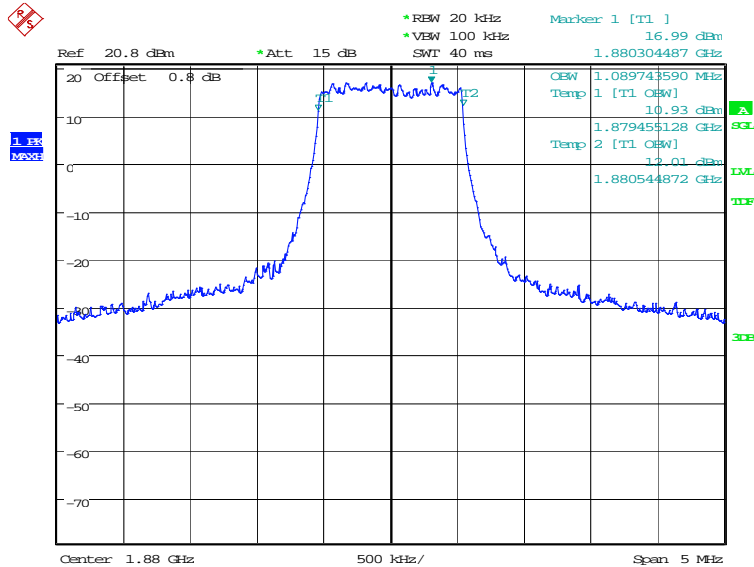
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
1880.0	1105.77	1089.74	1089.74

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



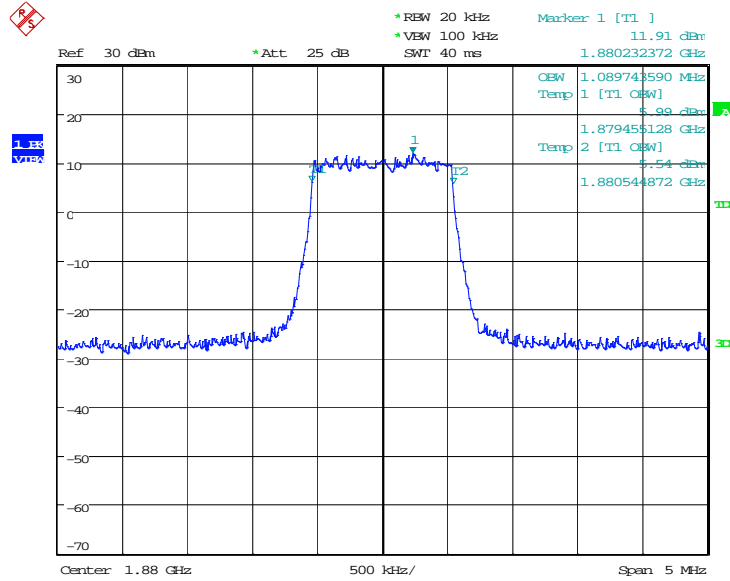
Date: 26.MAR.2020 11:36:35

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



Date: 26.MAR.2020 11:38:00

LTE band 2, 1.4MHz Bandwidth, 64QAM (99% BW)

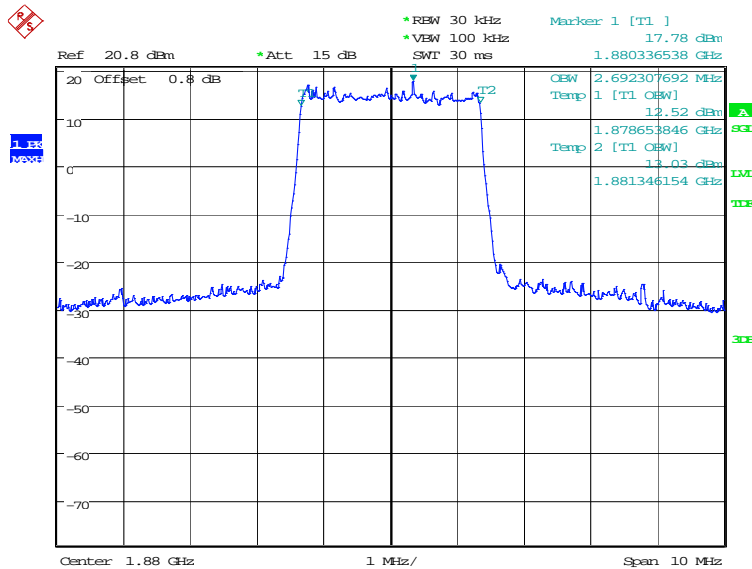


Date: 28.MAR.2020 09:13:17

LTE band 2, 3MHz (99%)

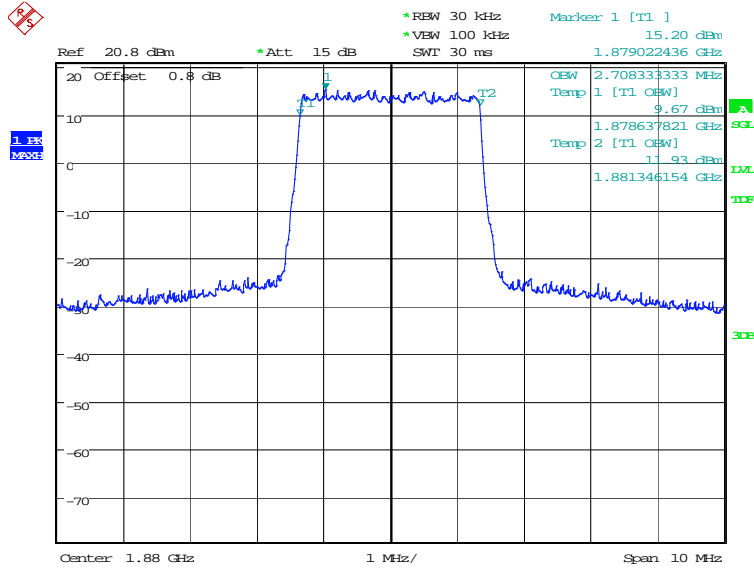
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
1880.0	2692.31	2708.33	2692.31

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



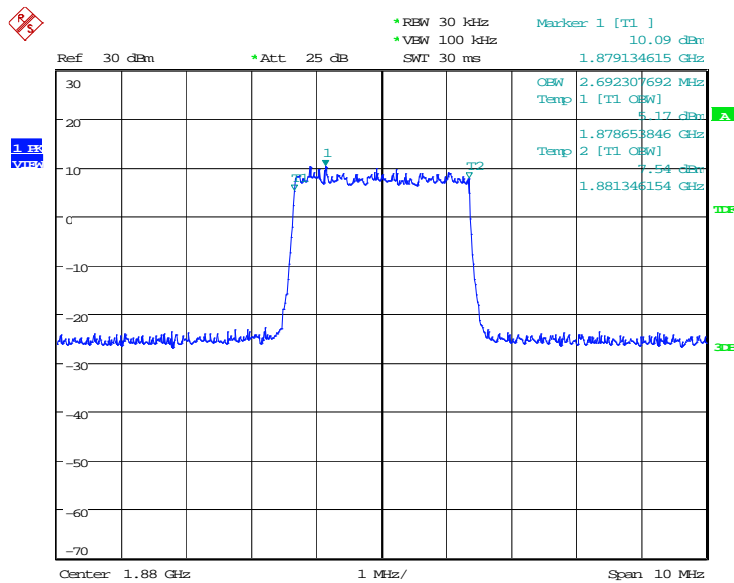
Date: 26.MAR.2020 11:39:26

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



Date: 26.MAR.2020 11:40:50

LTE band 2, 3MHz Bandwidth, 64QAM (99% BW)

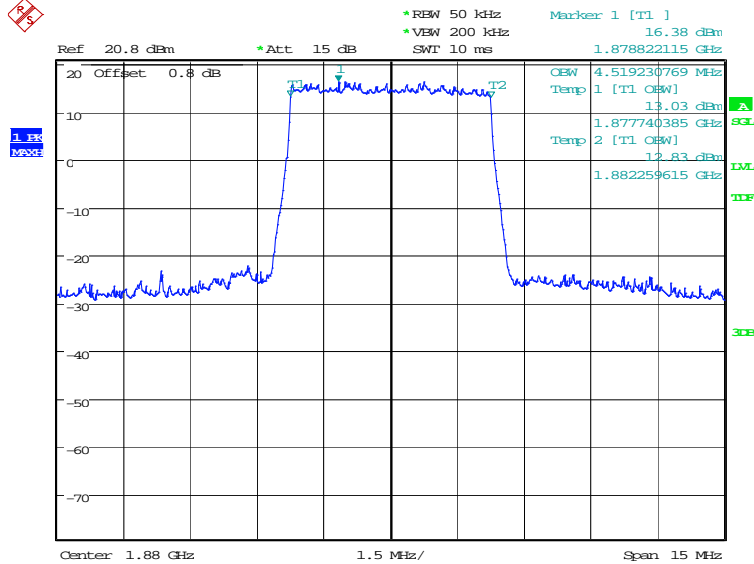


Date: 28.MAR.2020 09:17:44

LTE band 2, 5MHz (99%)

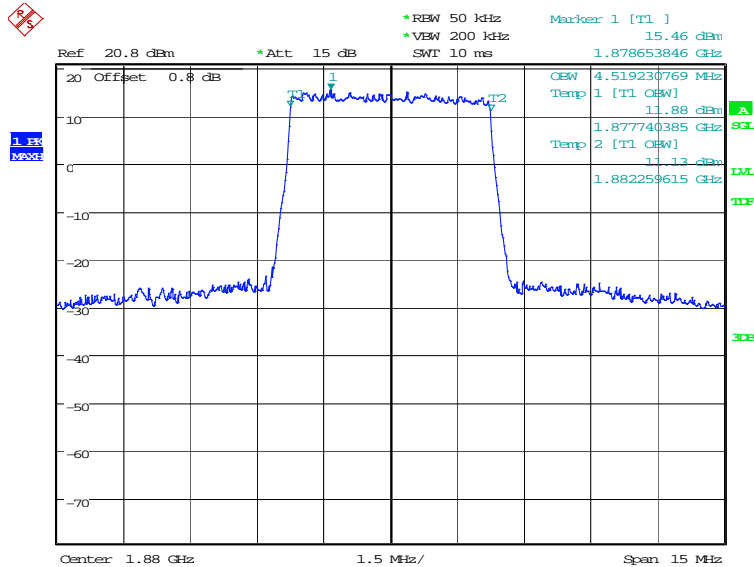
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
1880.0	4519.23	4519.23	4519.23

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



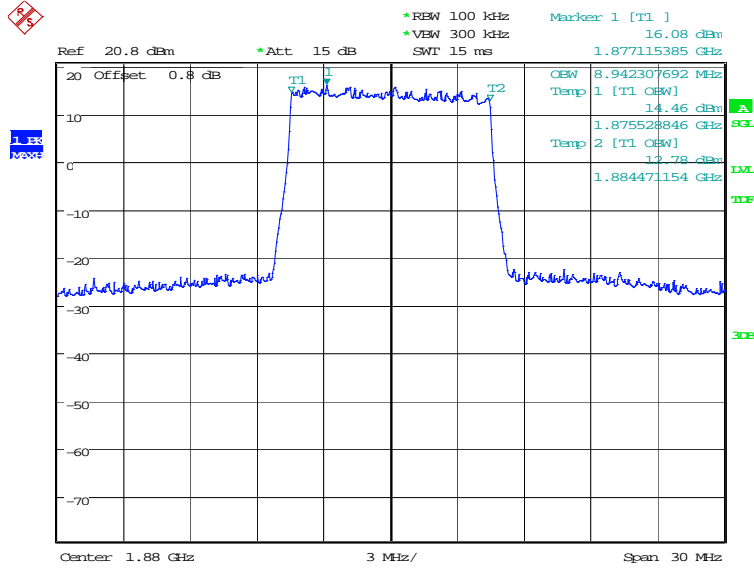
Date: 26.MAR.2020 11:42:16

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



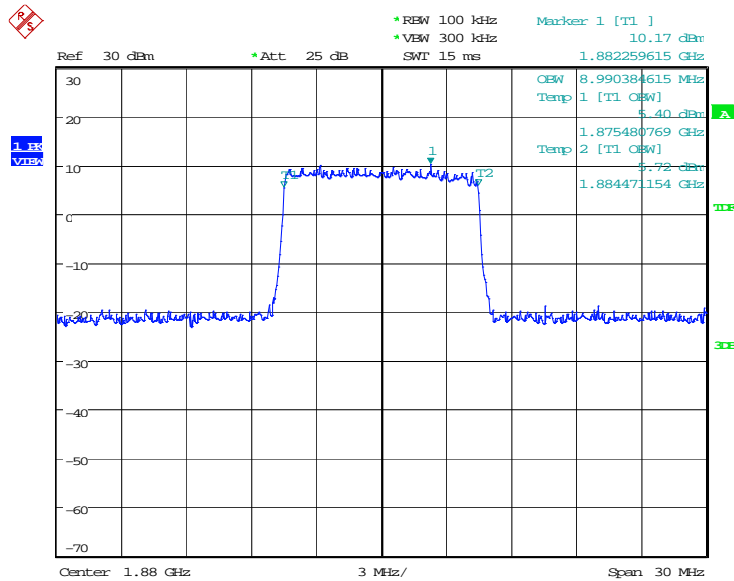
Date: 26.MAR.2020 11:43:40

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



Date: 26.MAR.2020 11:46:30

LTE band 2, 10MHz Bandwidth, 64QAM (99% BW)

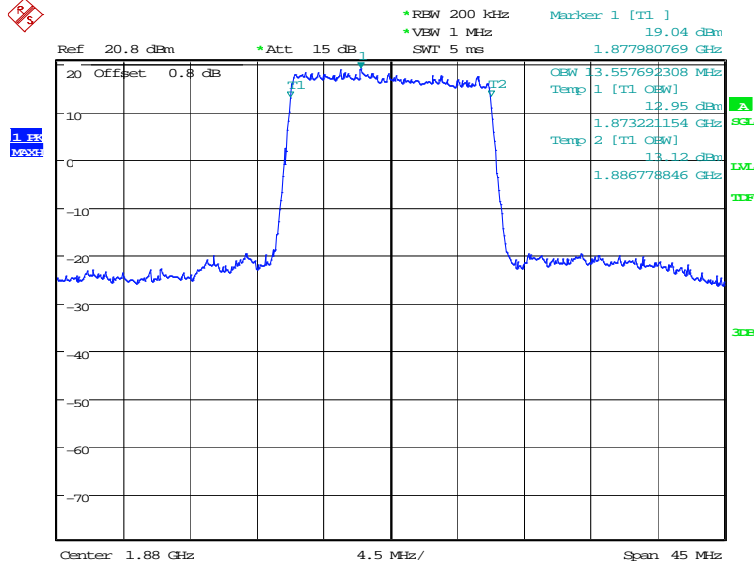


Date: 28.MAR.2020 09:21:39

LTE band 2, 15MHz (99%)

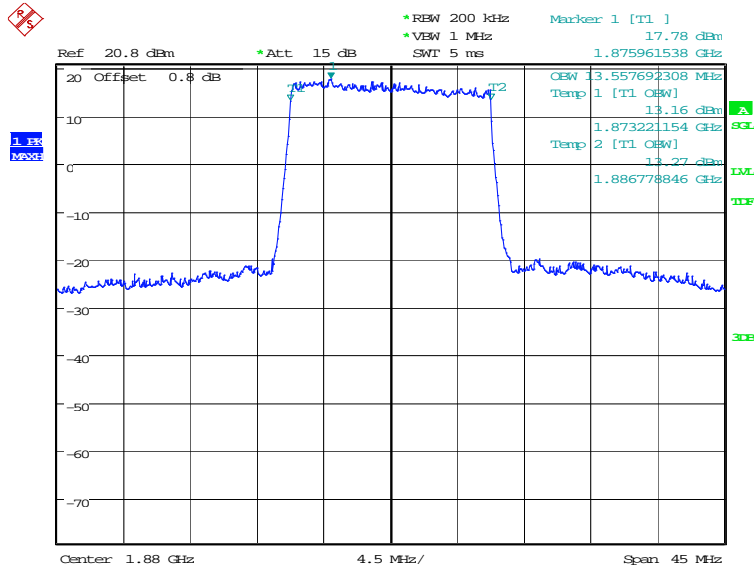
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
1880.0	13557.69	13557.69	13485.58

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



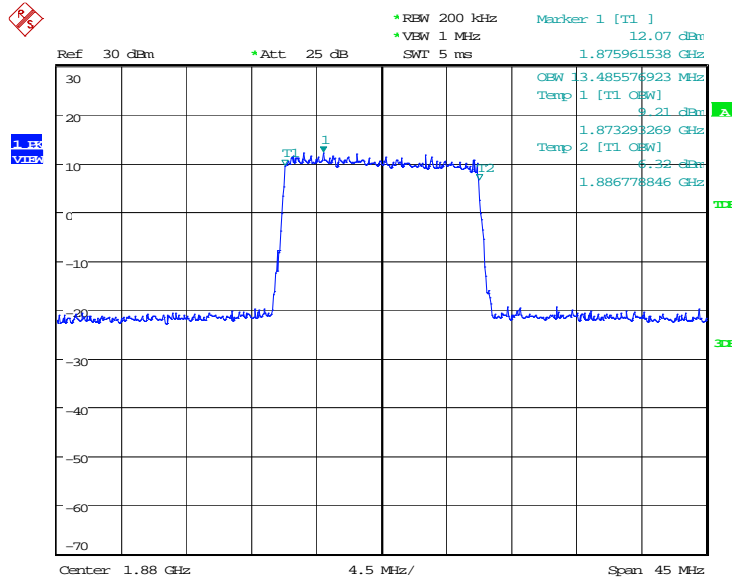
Date: 26.MAR.2020 11:47:56

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



Date: 26.MAR.2020 11:49:21

LTE band 2, 15MHz Bandwidth, 64QAM (99% BW)

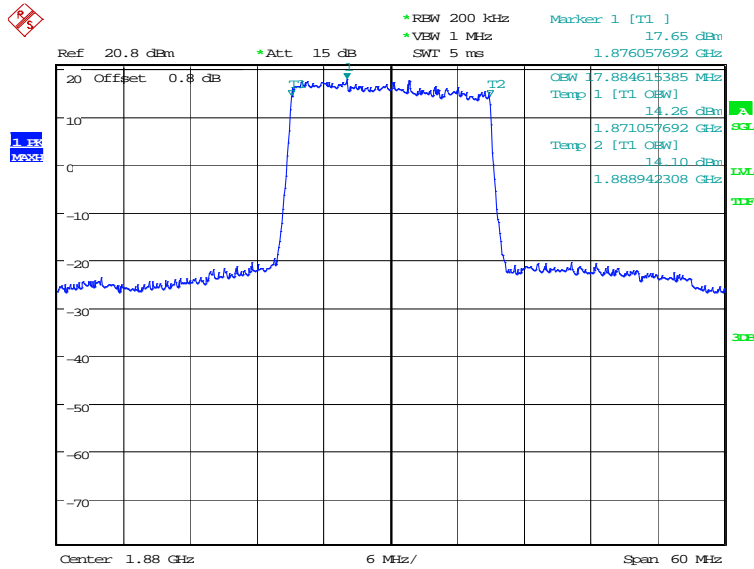


Date: 28.MAR.2020 09:23:14

LTE band 2, 20MHz (99%)

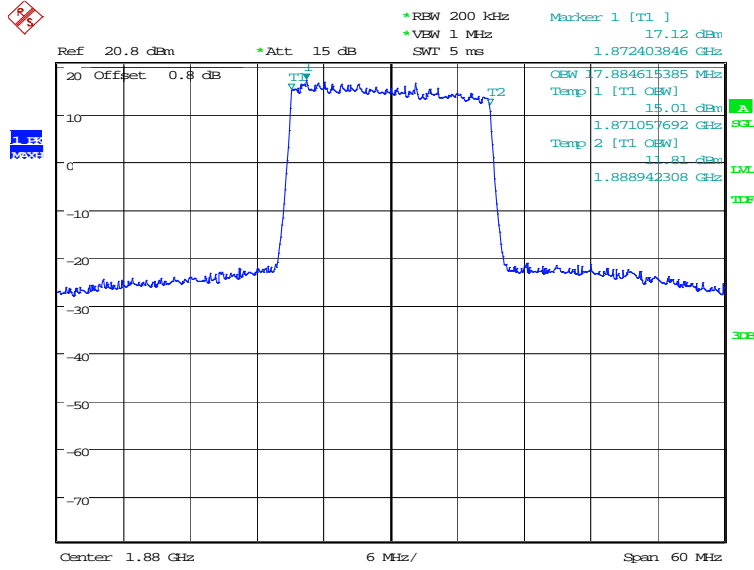
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
1880.0	QPSK	16QAM	64QAM
	17884.62	17884.62	17884.62

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



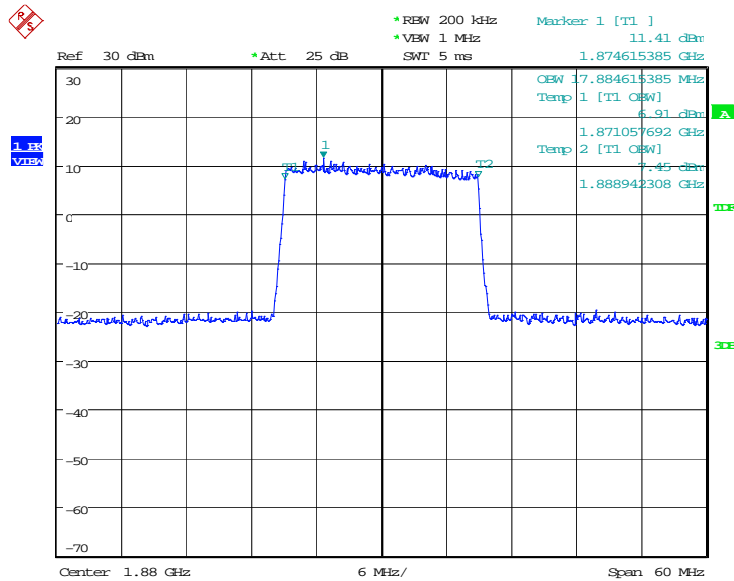
Date: 26.MAR.2020 11:50:46

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



Date: 26.MAR.2020 11:52:11

LTE band 2, 20MHz Bandwidth, 64QAM (99% BW)

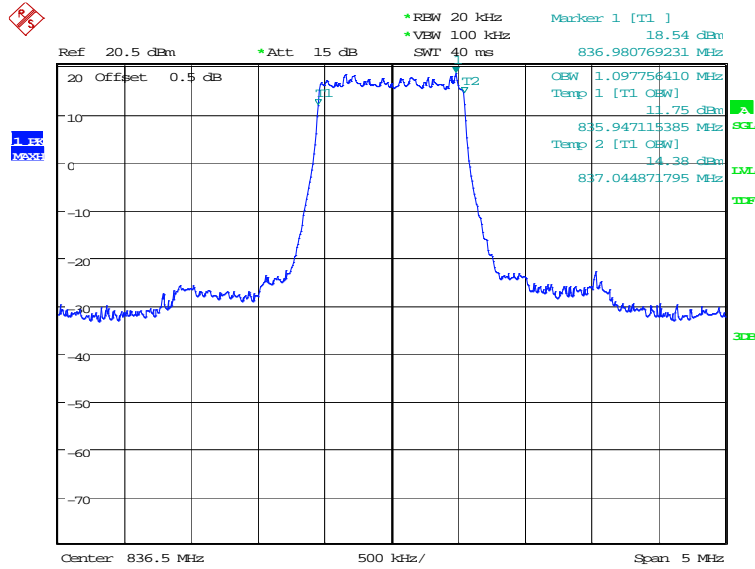


Date: 28.MAR.2020 09:24:51

LTE band 5, 1.4MHz (99%)

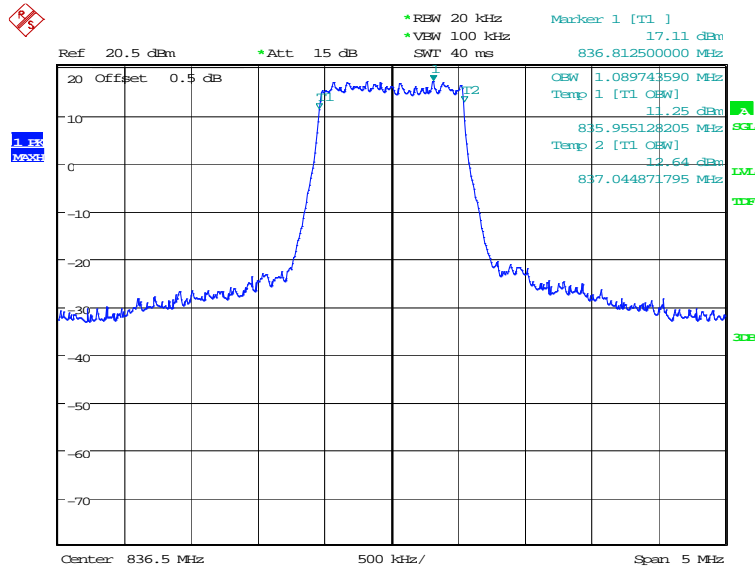
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
836.5	QPSK	16QAM	64QAM
	1097.76	1089.74	1089.74

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



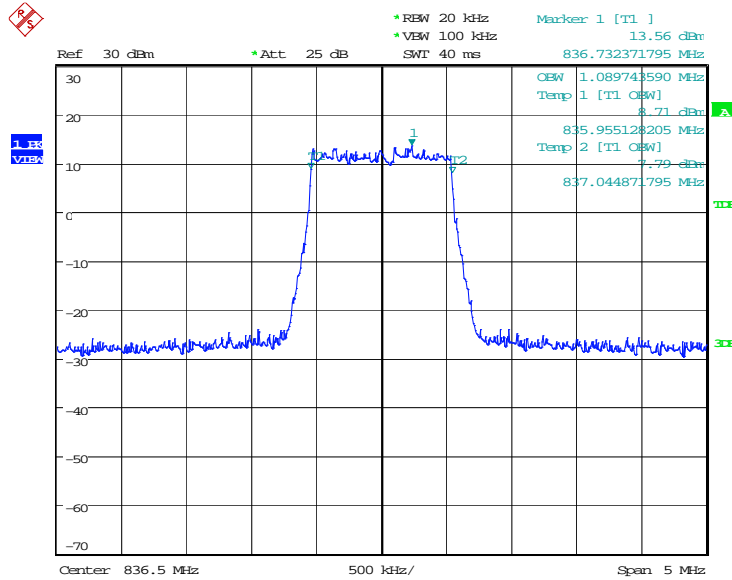
Date: 25.MAR.2020 18:06:10

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



Date: 25.MAR.2020 18:07:34

LTE band 5, 1.4MHz Bandwidth, 64QAM (99% BW)

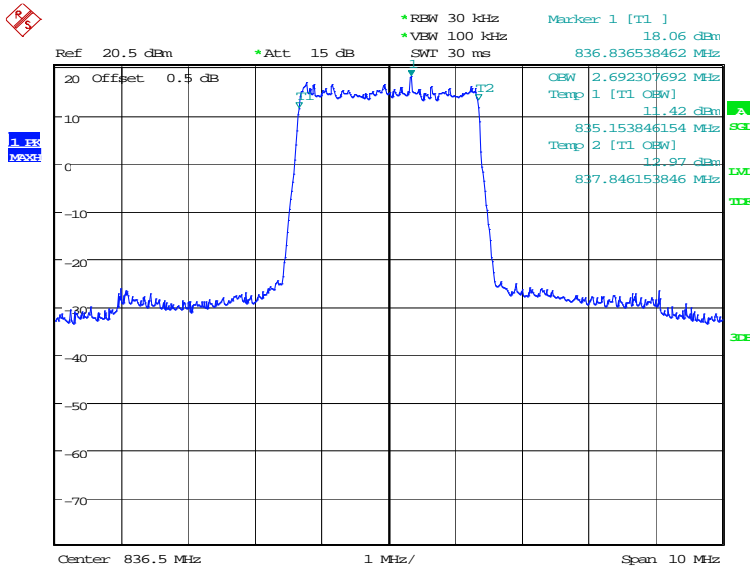


Date: 28.MAR.2020 09:45:10

LTE band 5, 3MHz (99%)

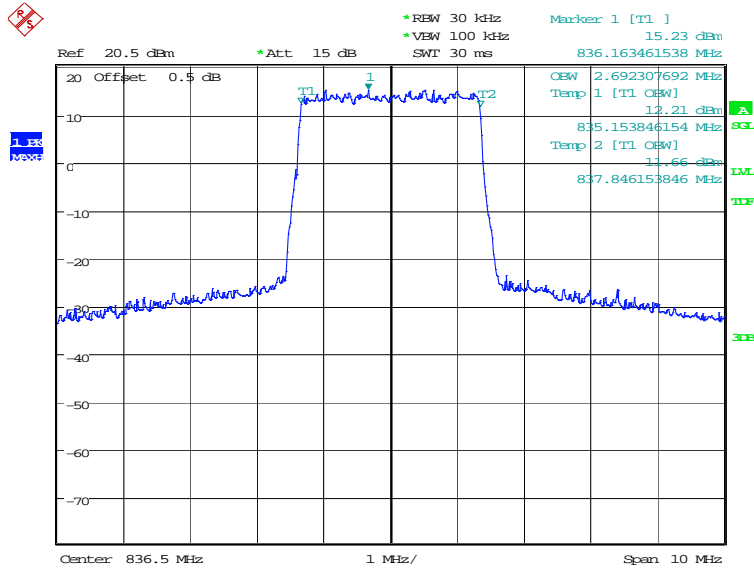
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
836.5	QPSK	16QAM	64QAM
	2692.31	2692.31	2692.31

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



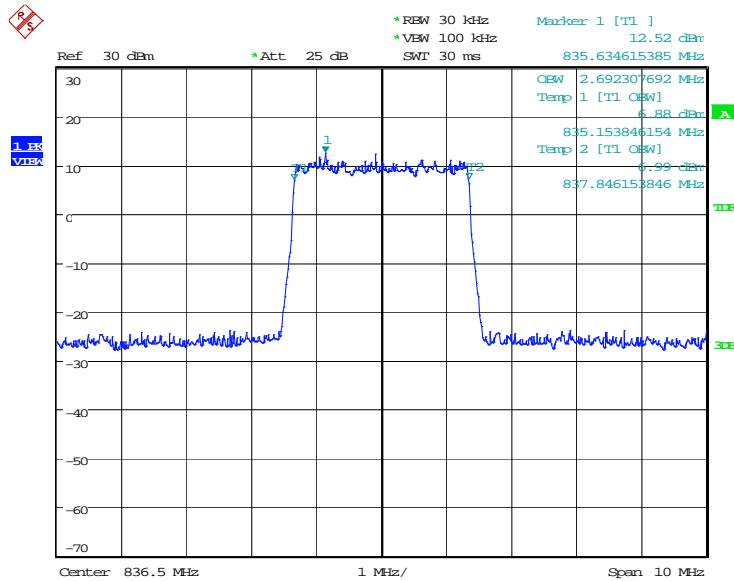
Date: 25.MAR.2020 18:09:00

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



Date: 25.MAR.2020 18:10:25

LTE band 5, 3MHz Bandwidth, 64QAM (99% BW)

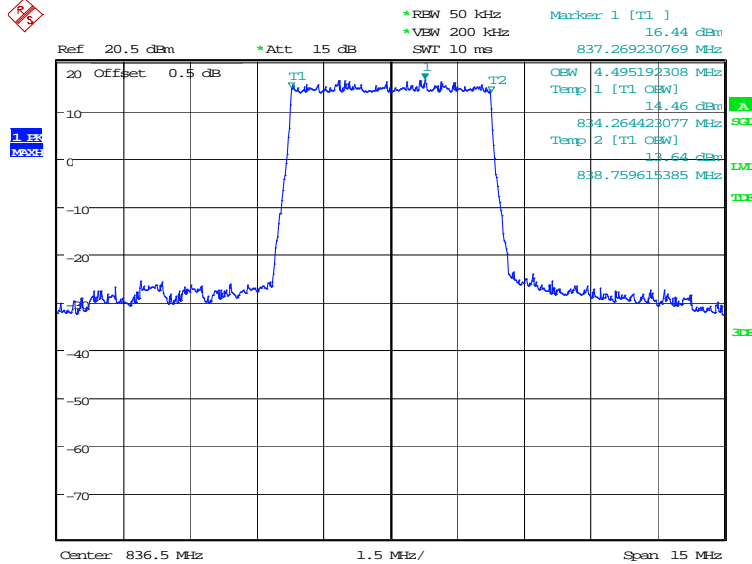


Date: 28.MAR.2020 09:46:38

LTE band 5, 5MHz (99%)

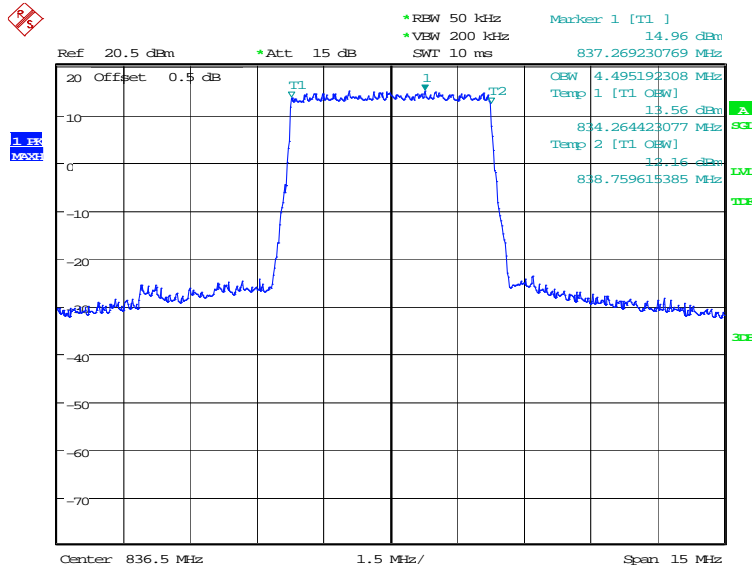
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
836.5	4495.19	4495.19	4495.19

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



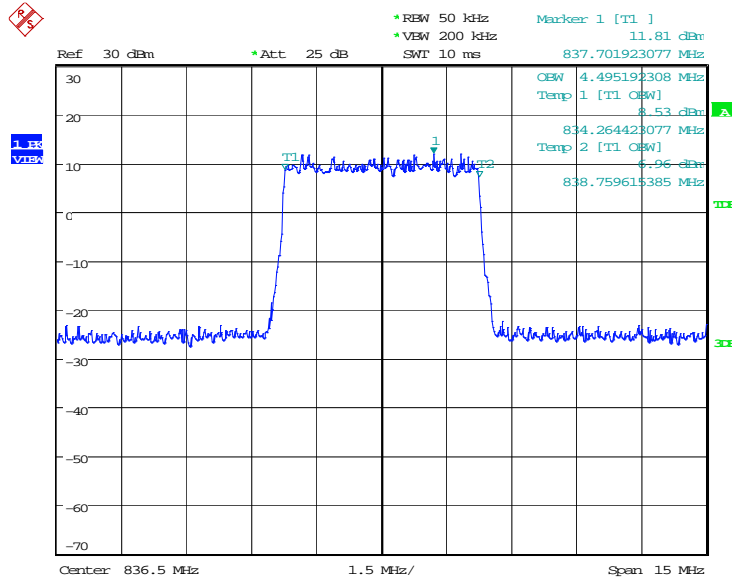
Date: 25.MAR.2020 18:11:51

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



Date: 25.MAR.2020 18:13:15

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

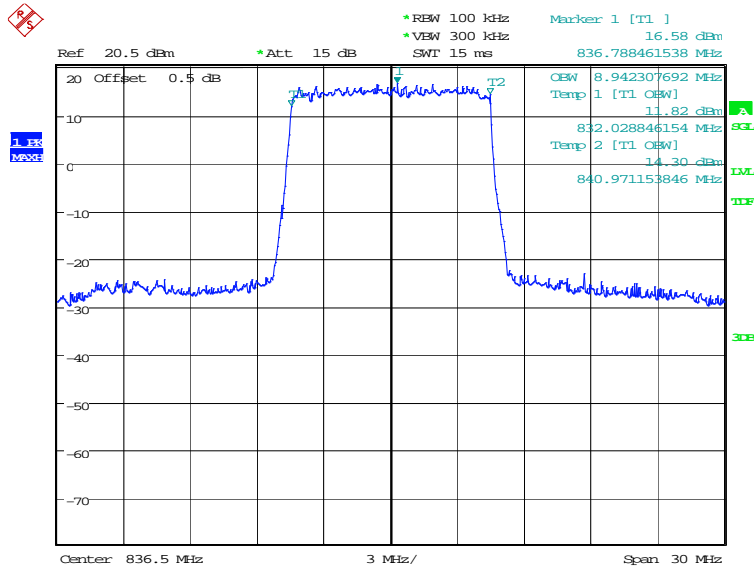


Date: 28.MAR.2020 09:48:26

LTE band 5, 10MHz (99%)

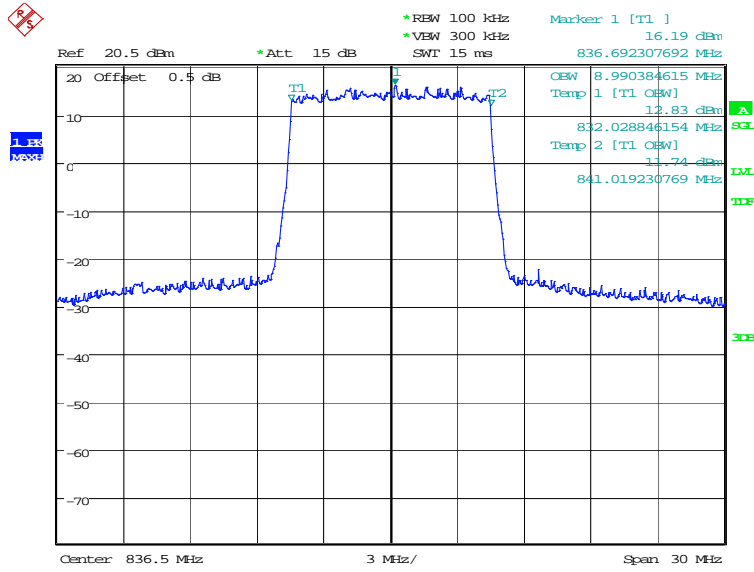
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
836.5	8942.31	8990.38	8990.38

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



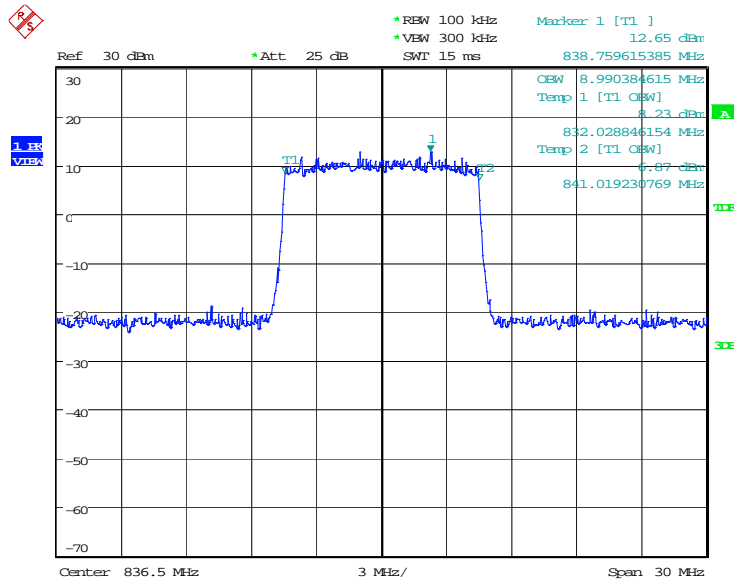
Date: 25.MAR.2020 18:14:41

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



Date: 25.MAR.2020 18:16:06

LTE band 5, 10MHz Bandwidth, 64QAM (99% BW)

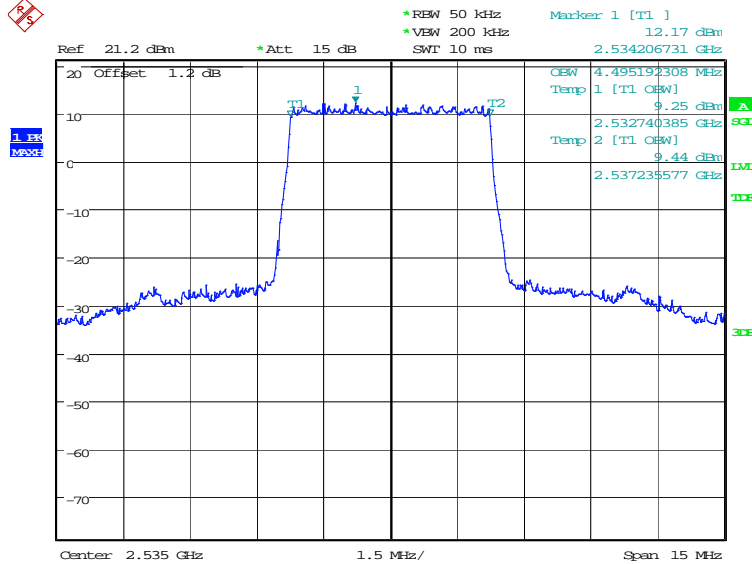


Date: 28.MAR.2020 09:49:47

LTE band 7, 5MHz (99%)

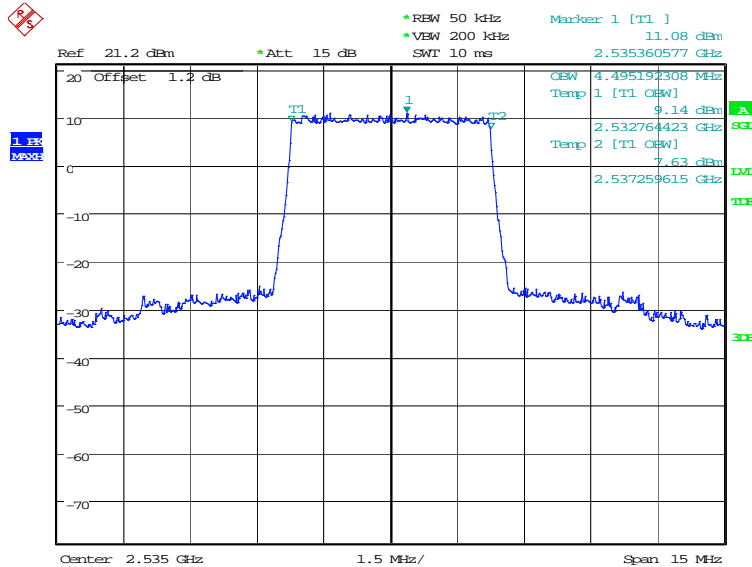
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
2535.0	4495.19	4495.19	4519.23

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



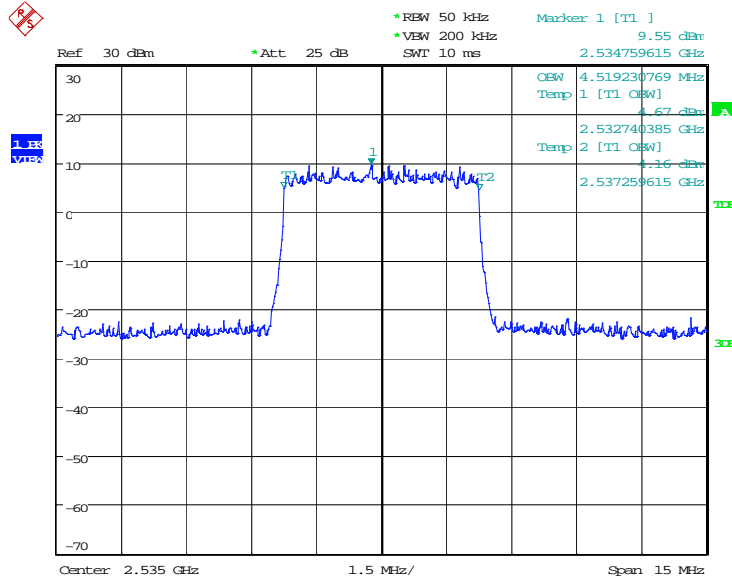
Date: 25.MAR.2020 18:17:33

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



Date: 25.MAR.2020 18:18:58

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

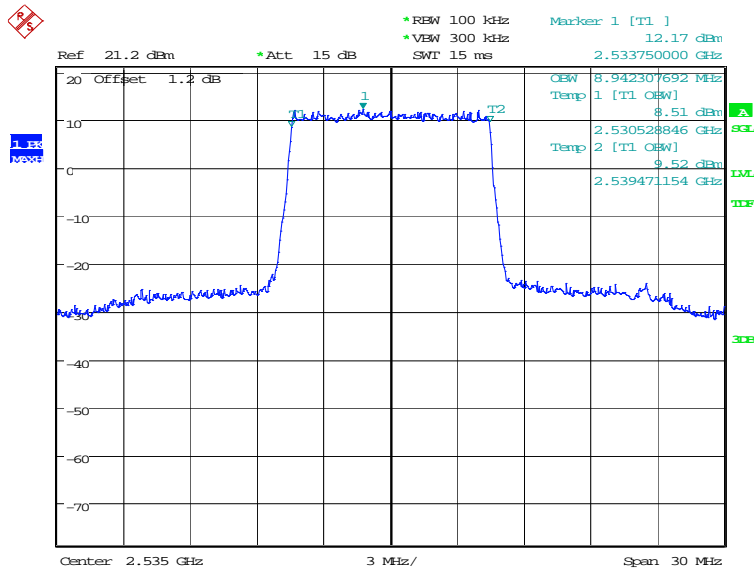


Date: 28.MAR.2020 09:55:27

LTE band 7, 10MHz (99%)

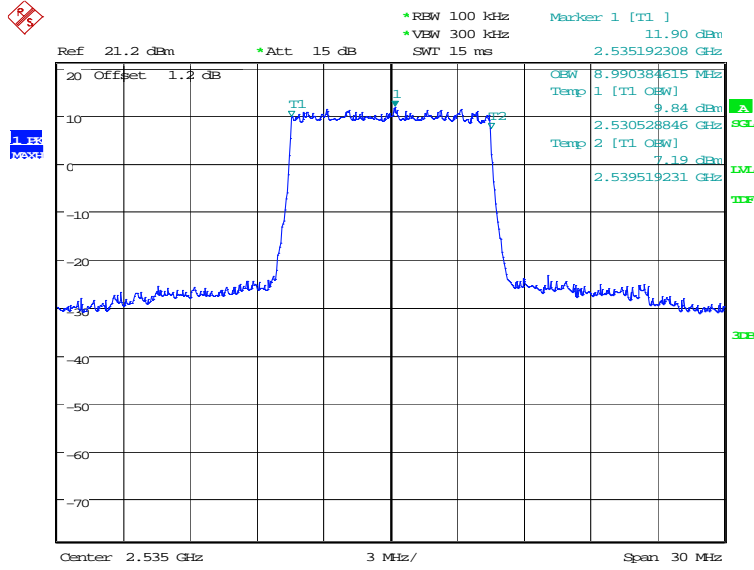
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
2535.0	8942.31	8990.38	8990.38

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



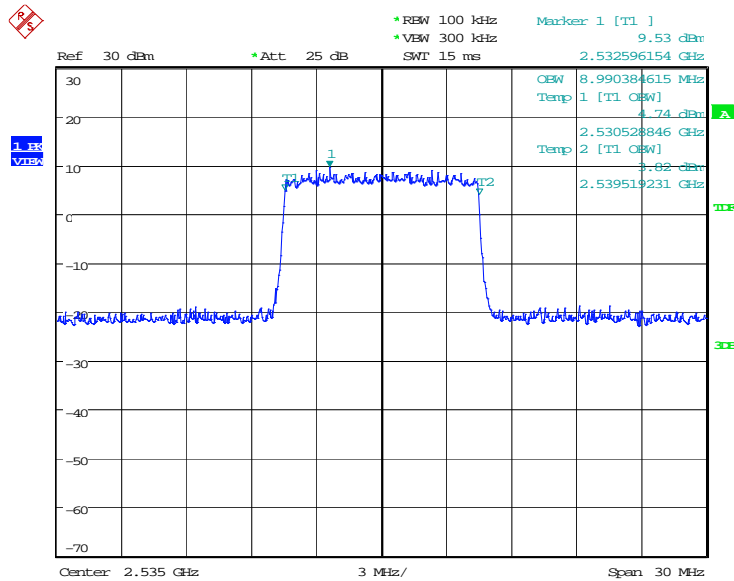
Date: 25.MAR.2020 18:20:24

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



Date: 25.MAR.2020 18:21:48

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

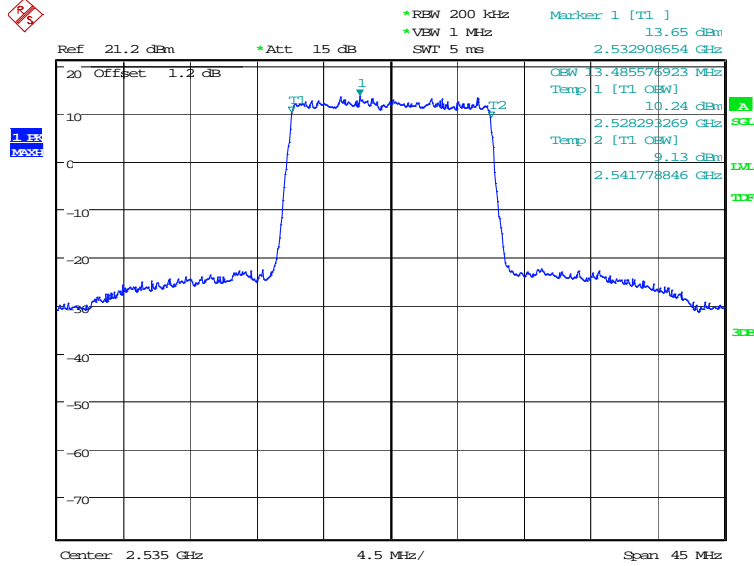


Date: 28.MAR.2020 09:56:42

LTE band 7, 15MHz (99%)

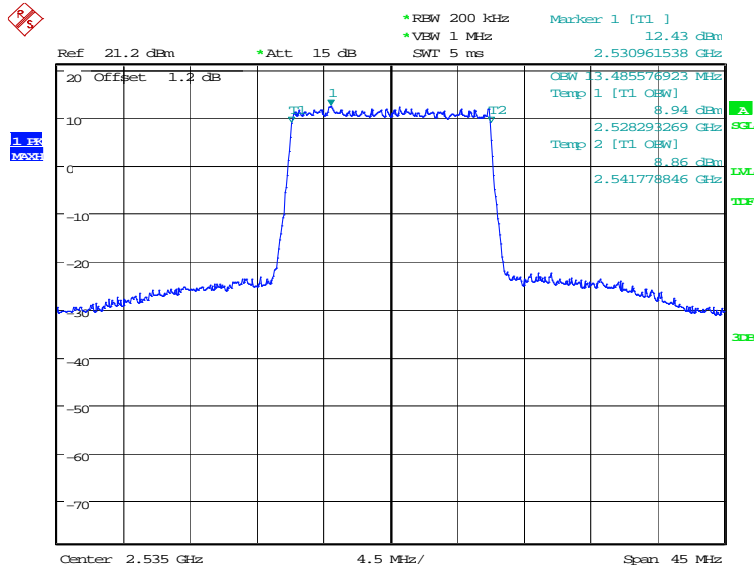
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
2535.0	13485.58	13485.58	13485.58

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



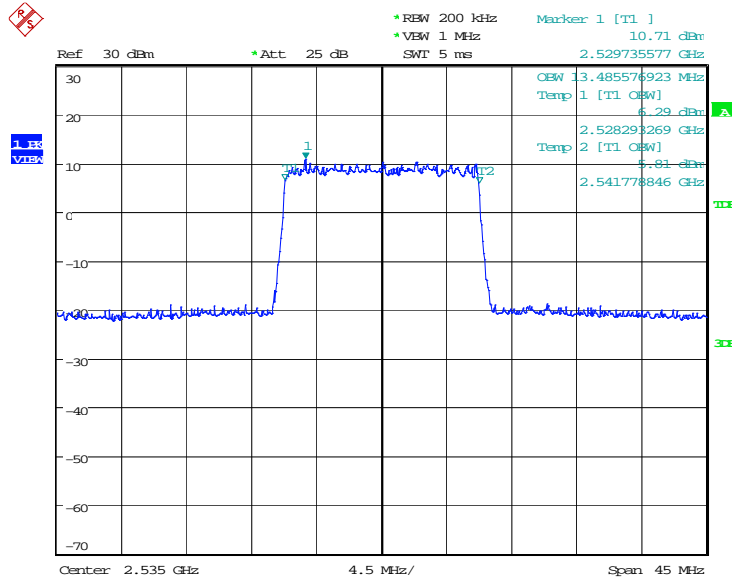
Date: 25.MAR.2020 18:23:14

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



Date: 25.MAR.2020 18:24:39

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

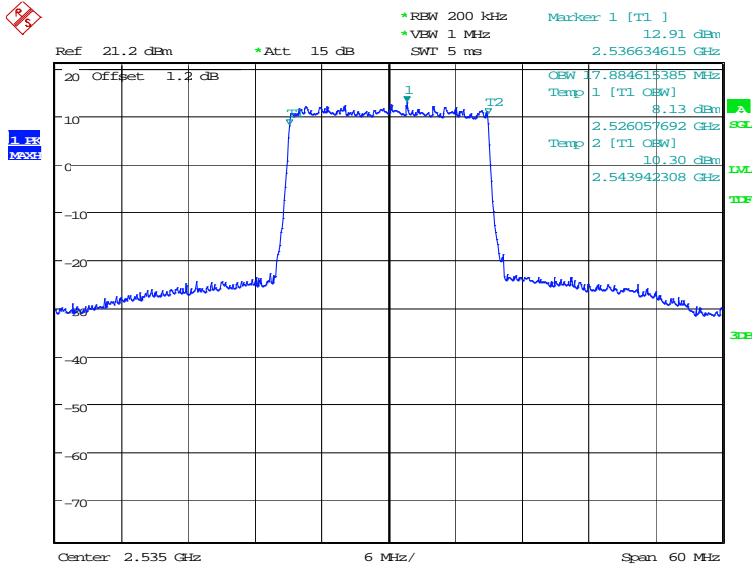


Date: 28.MAR.2020 09:59:16

LTE band 7, 20MHz (99%)

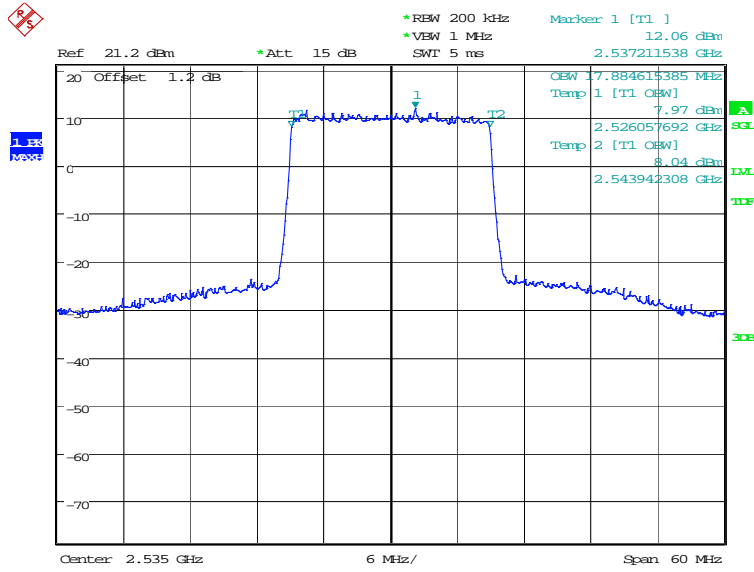
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
2535.0	17884.62	17884.62	17980.77

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



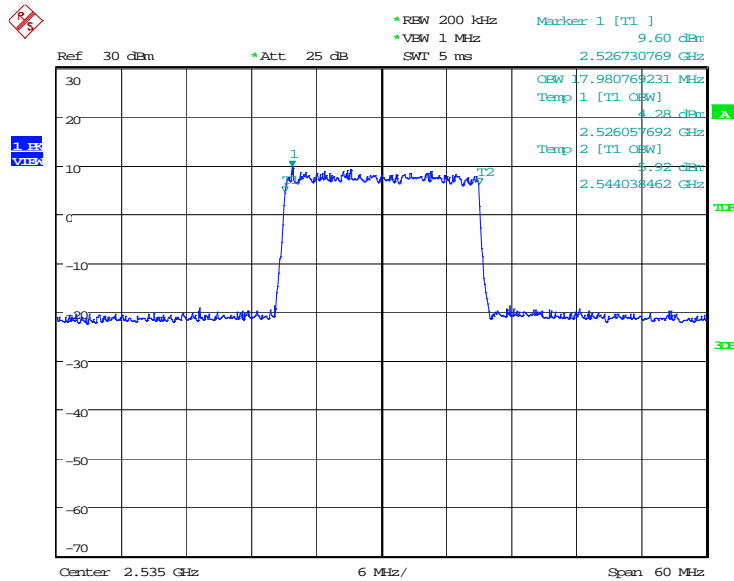
Date: 25.MAR.2020 18:26:05

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



Date: 25.MAR.2020 18:27:30

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

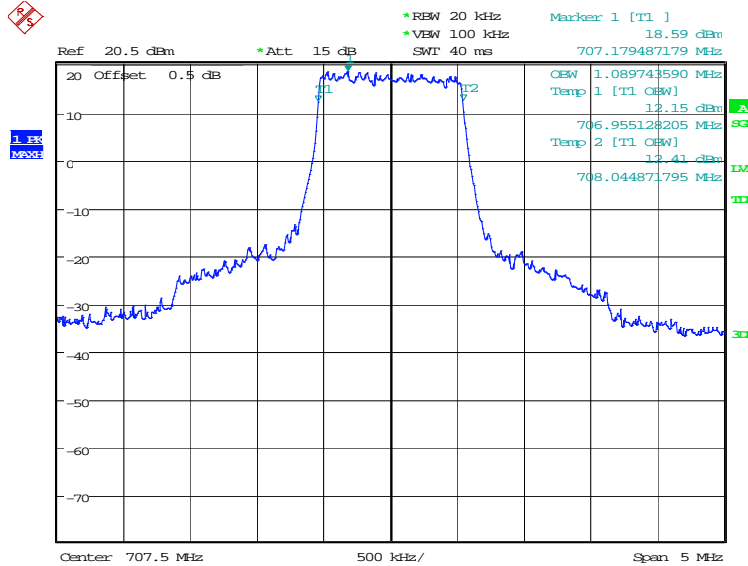


Date: 28.MAR.2020 10:01:59

LTE band 12, 1.4MHz (99%)

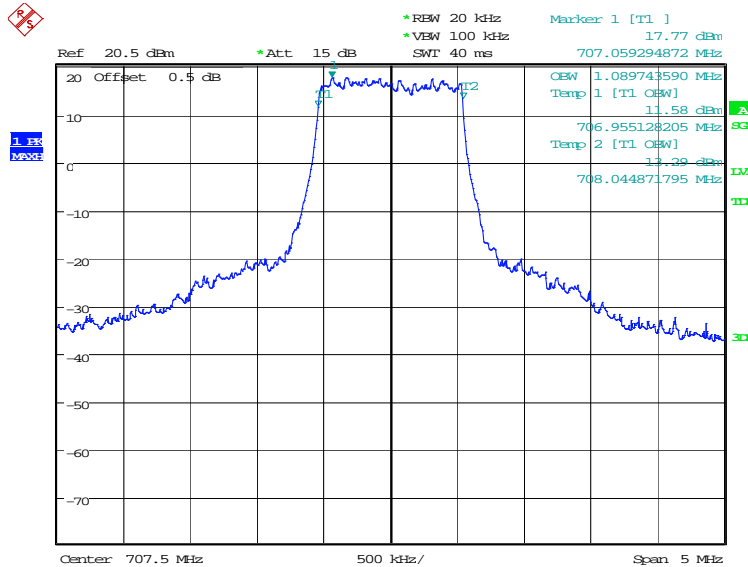
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
707.5	1089.74	1089.74	1089.74

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



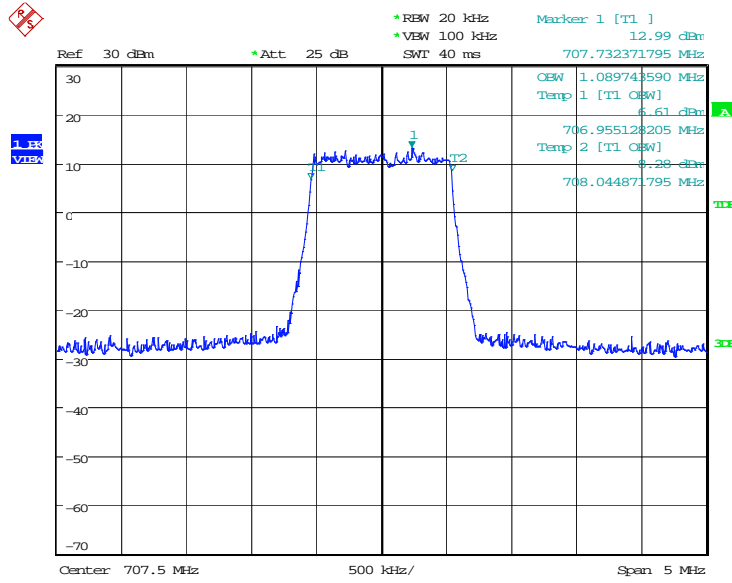
Date: 25.MAR.2020 18:29:49

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



Date: 25.MAR.2020 18:31:13

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

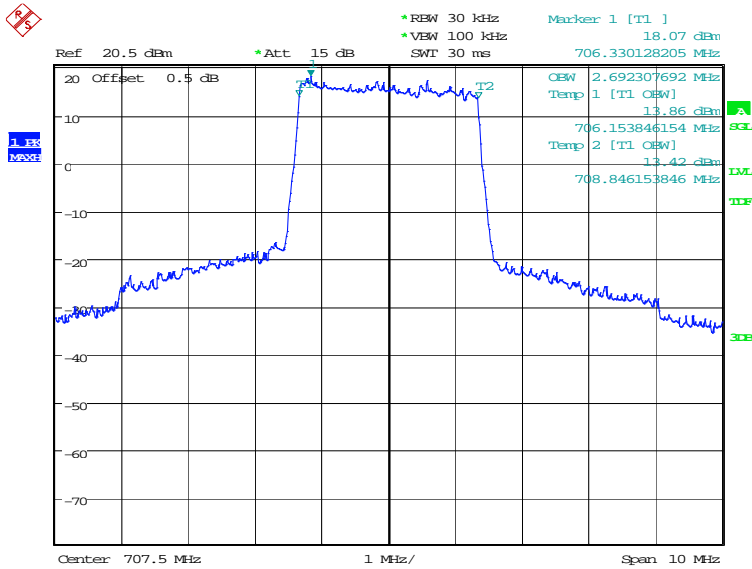


Date: 28.MAR.2020 10:11:13

LTE band 12, 3MHz (99%)

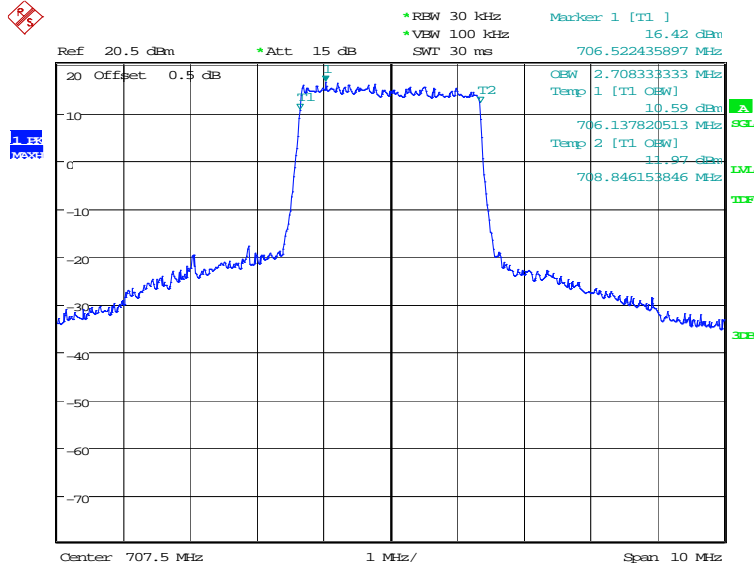
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
707.5	2692.31	2708.33	2692.31

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



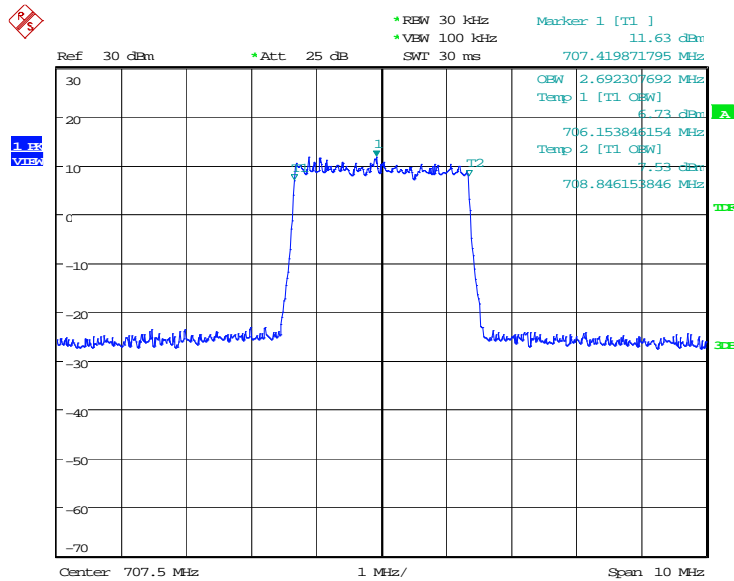
Date: 25.MAR.2020 18:32:39

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



Date: 25.MAR.2020 18:34:04

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

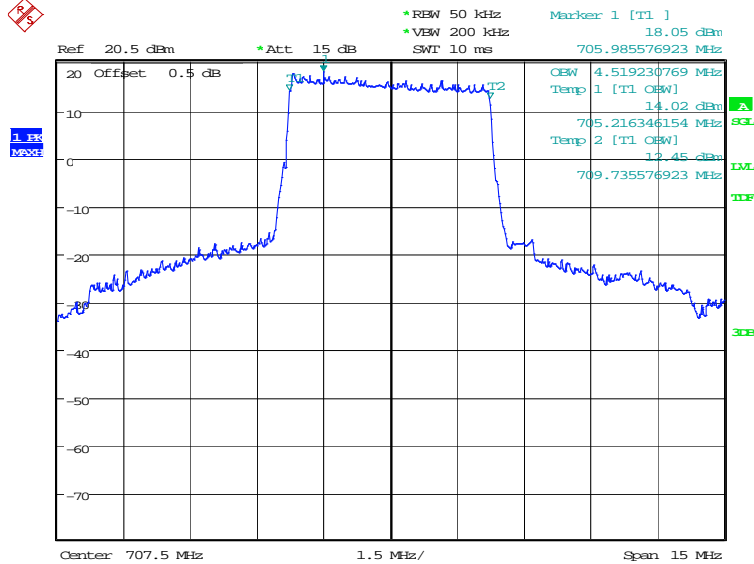


Date: 28.MAR.2020 10:16:27

LTE band 12, 5MHz (99%)

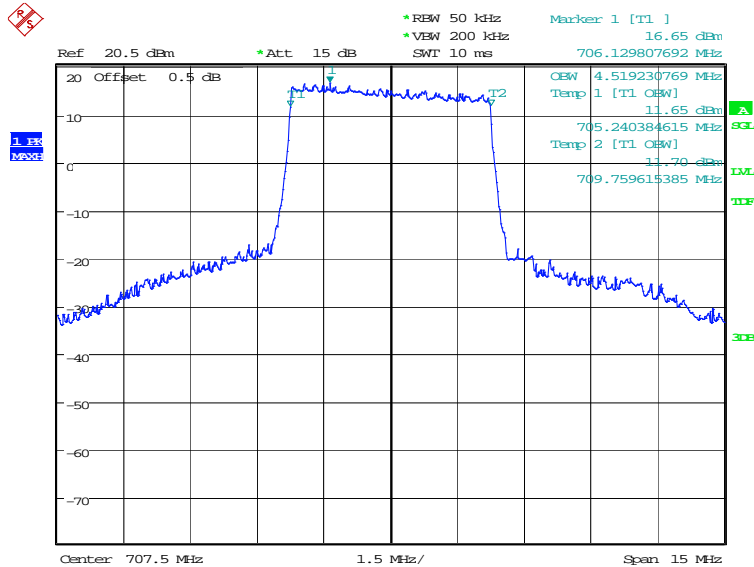
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
707.5	4519.23	4519.23	4495.19

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



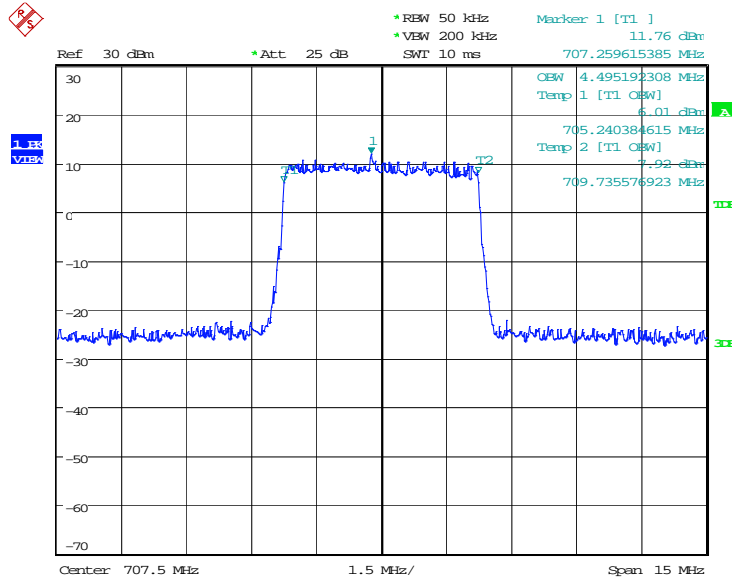
Date: 25.MAR.2020 18:35:30

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



Date: 25.MAR.2020 18:36:54

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

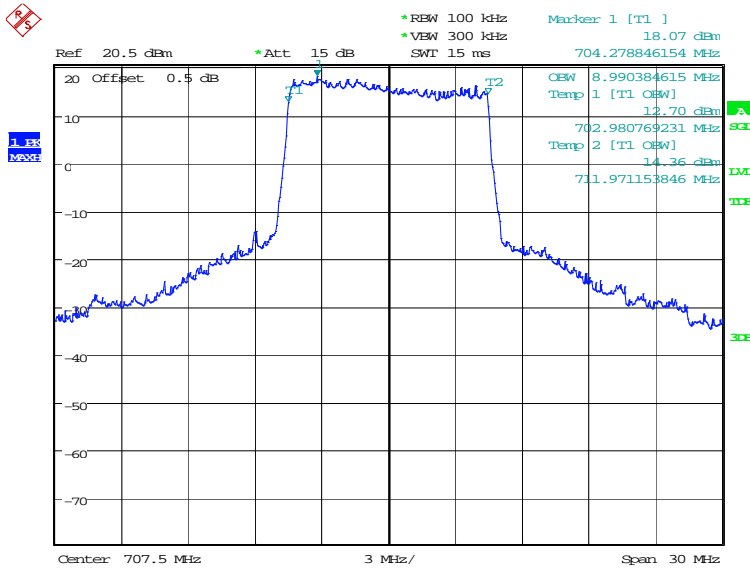


Date: 28.MAR.2020 10:18:17

LTE band 12, 10MHz (99%)

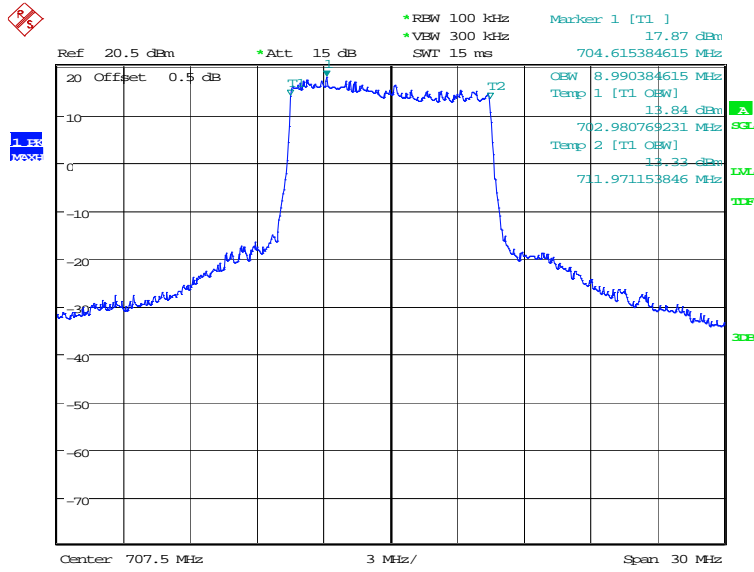
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
707.5	8990.38	8990.38	8942.31

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



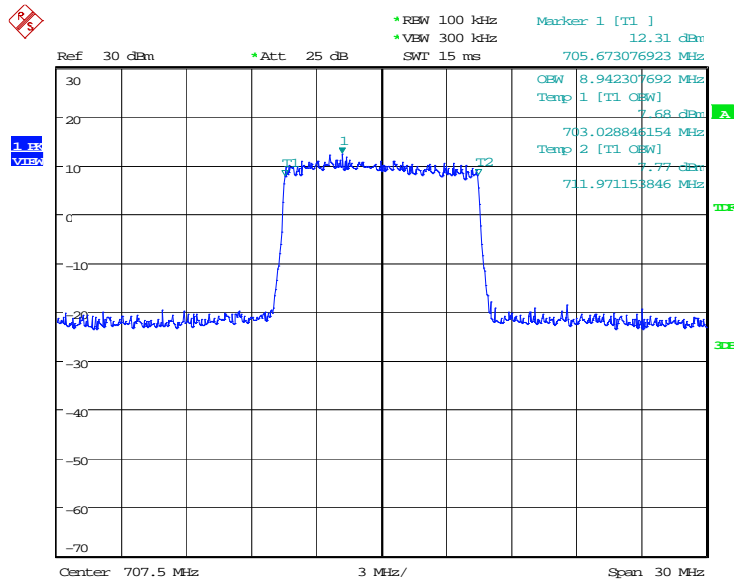
Date: 25.MAR.2020 18:38:20

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



Date: 25.MAR.2020 18:39:45

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

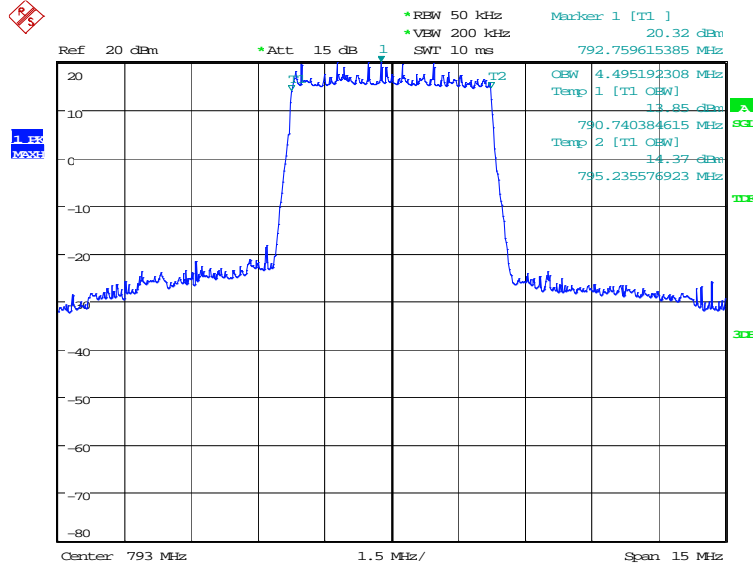


Date: 28.MAR.2020 10:20:21

LTE band 14, 5MHz (99%)

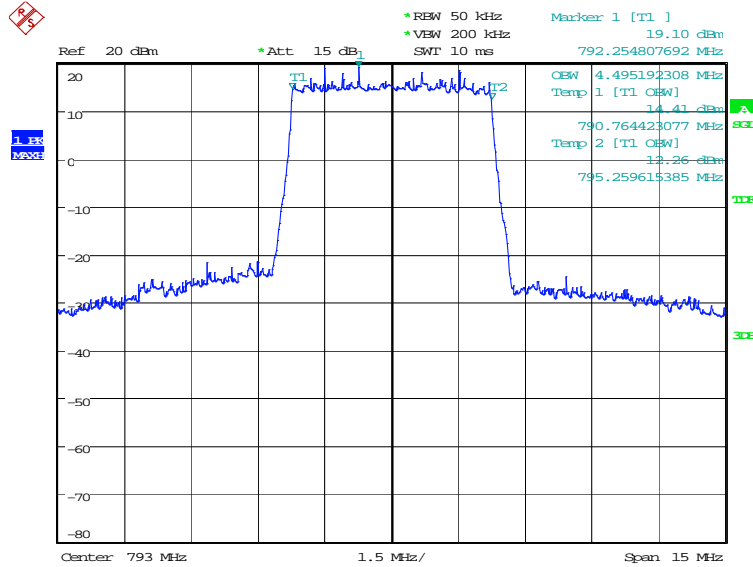
Frequency (MHz)	Occupied Bandwidth (99%)(kHz)		
793.0	QPSK	16QAM	64QAM
	4495.19	4495.19	4495.19

LTE band 14, 5MHz Bandwidth, QPSK (99% BW)



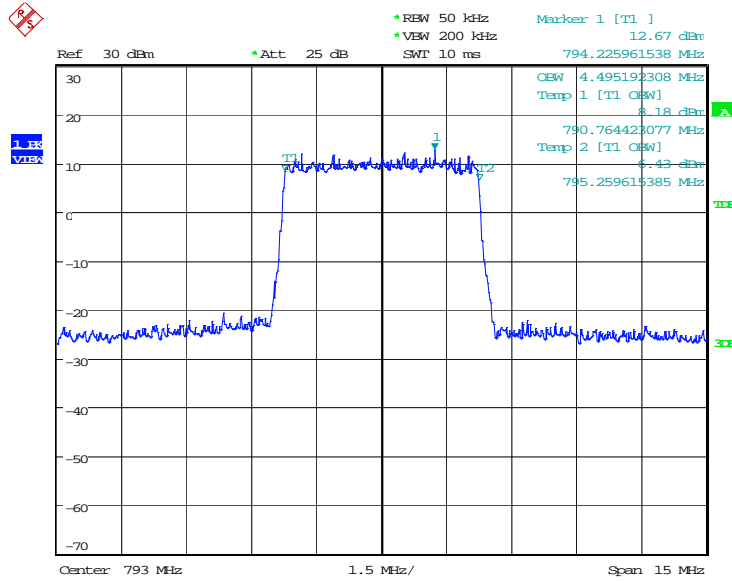
Date: 25.MAR.2020 18:41:12

LTE band 14, 5MHz Bandwidth, 16QAM (99% BW)



Date: 25.MAR.2020 18:42:37

LTE band 14, 5MHz Bandwidth, 64QAM (99% BW)

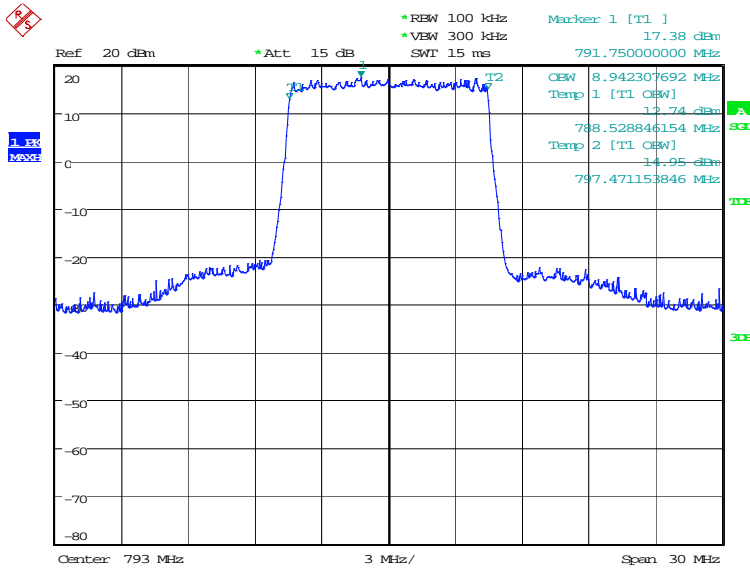


Date: 28.MAR.2020 10:22:45

LTE band 14, 10MHz (99%)

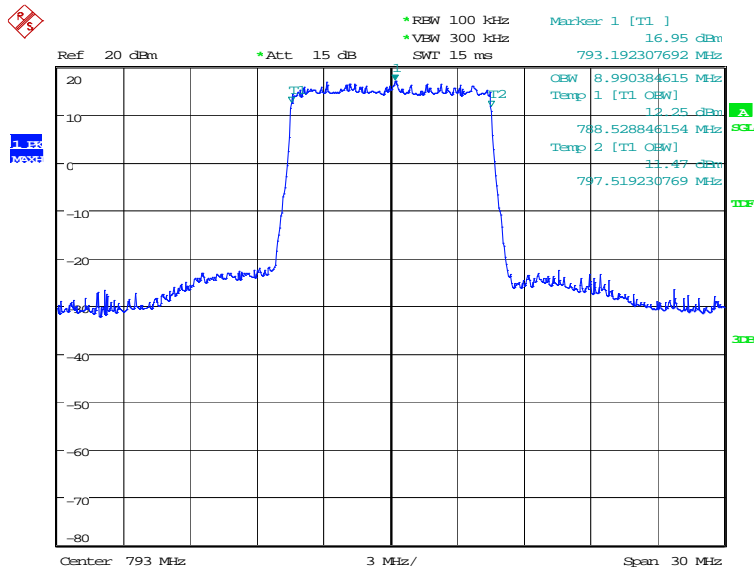
Frequency (MHz)	Occupied Bandwidth (99%)(kHz)		
793.0	QPSK	16QAM	64QAM
	8942.31	8990.38	8990.38

LTE band 14, 10MHz Bandwidth, QPSK (99% BW)



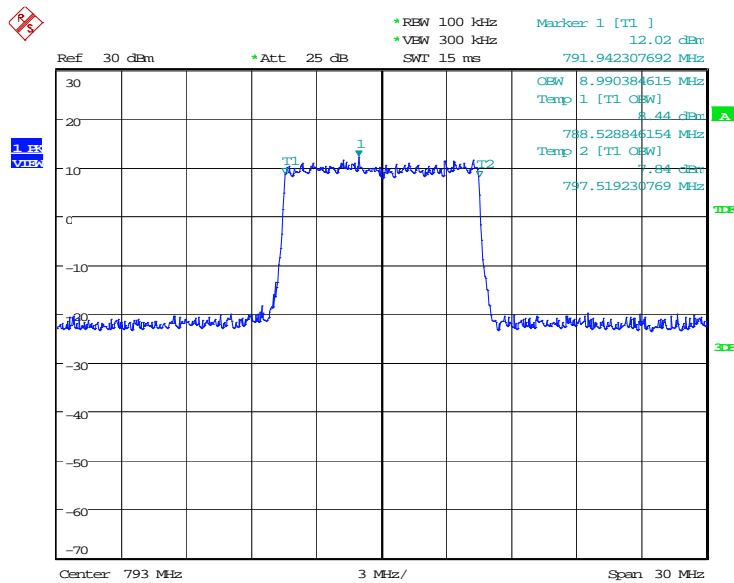
Date: 25.MAR.2020 18:44:03

LTE band 14, 10MHz Bandwidth, 16QAM (99% BW)



Date: 25.MAR.2020 18:45:28

LTE band 14, 10MHz Bandwidth, 64QAM (99% BW)

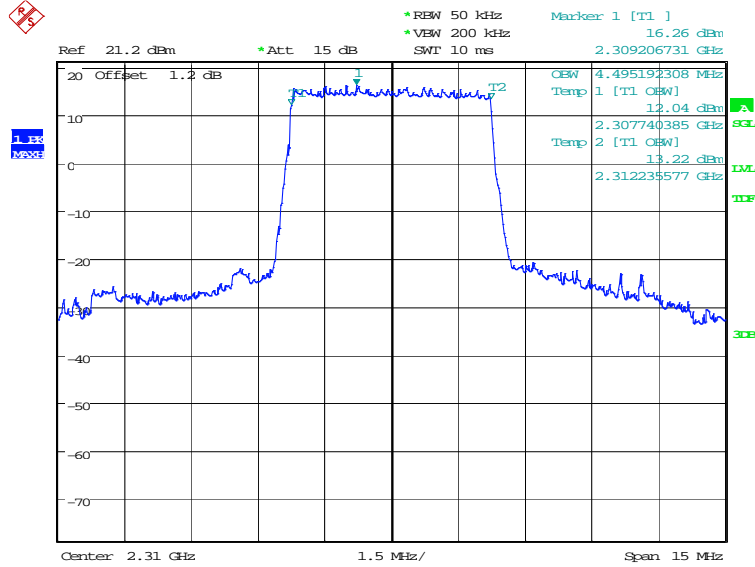


Date: 28.MAR.2020 10:25:18

LTE band 30, 5MHz (99%)

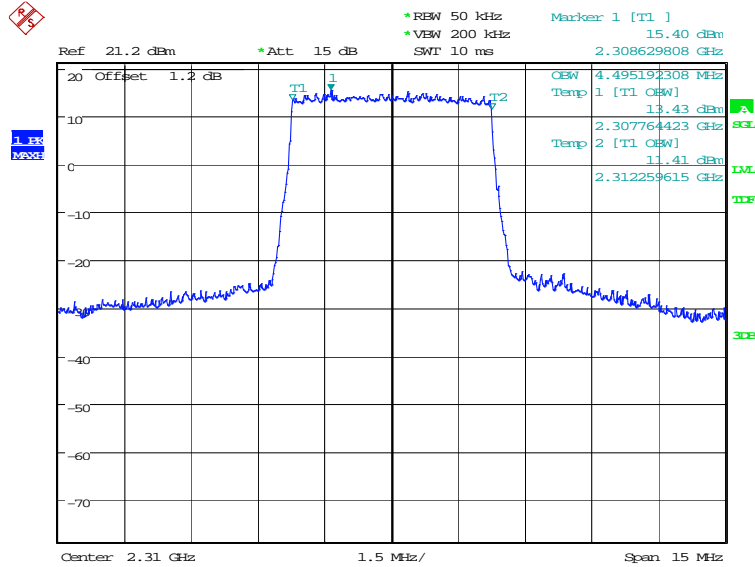
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
2310.0	QPSK	16QAM	64QAM
	4495.19	4495.19	4495.19

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



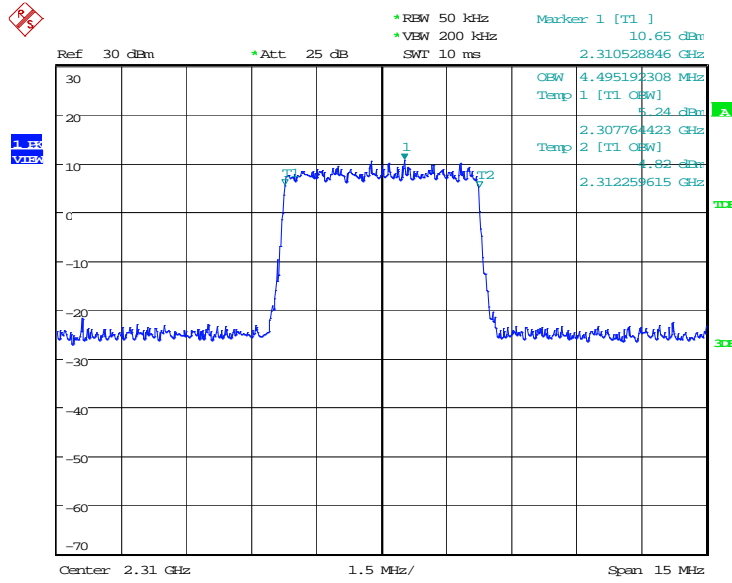
Date: 25.MAR.2020 18:46:55

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



Date: 25.MAR.2020 18:48:20

LTE band 30, 5MHz Bandwidth, 64QAM (99% BW)

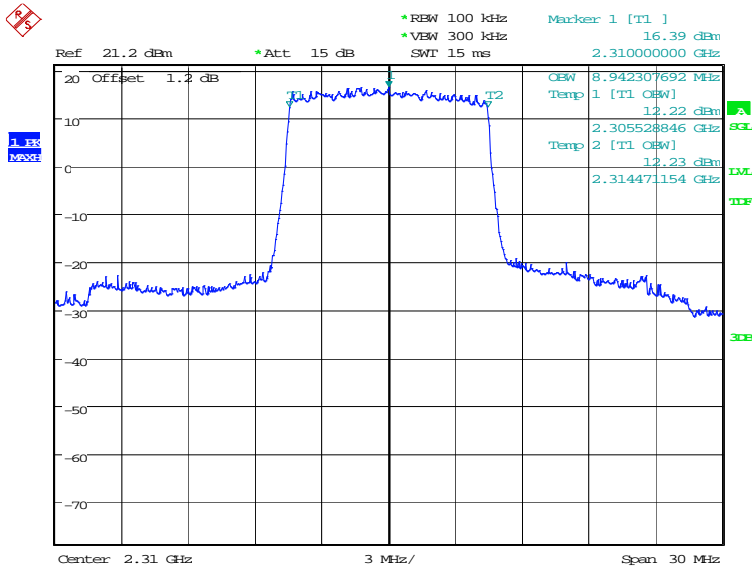


Date: 28.MAR.2020 10:28:09

LTE band 30, 10MHz (99%)

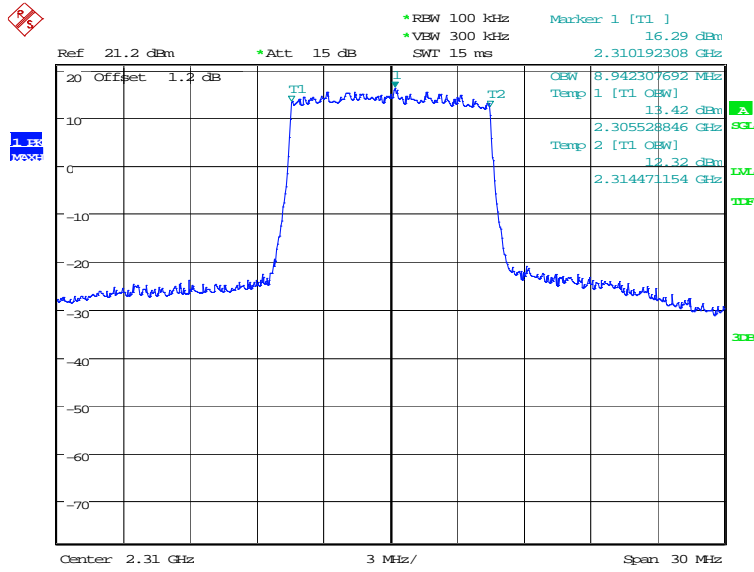
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
2310.0	8942.31	8942.31	8990.38

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



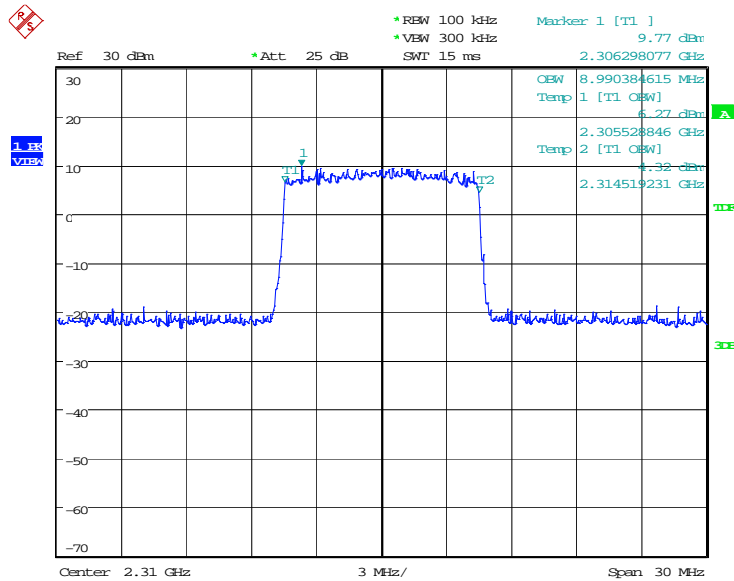
Date: 25.MAR.2020 18:49:46

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



Date: 25.MAR.2020 18:51:11

LTE band 30, 10MHz Bandwidth, 64QAM (99% BW)

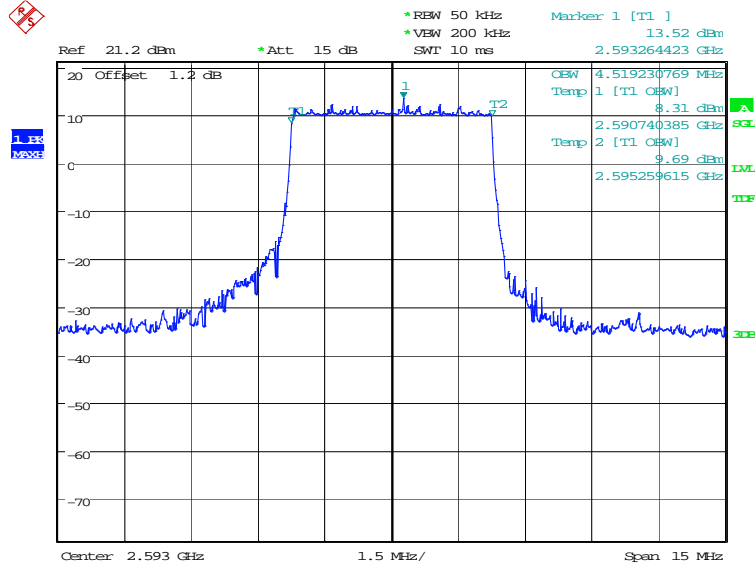


Date: 28.MAR.2020 10:29:29

LTE band 41, 5MHz (99%)

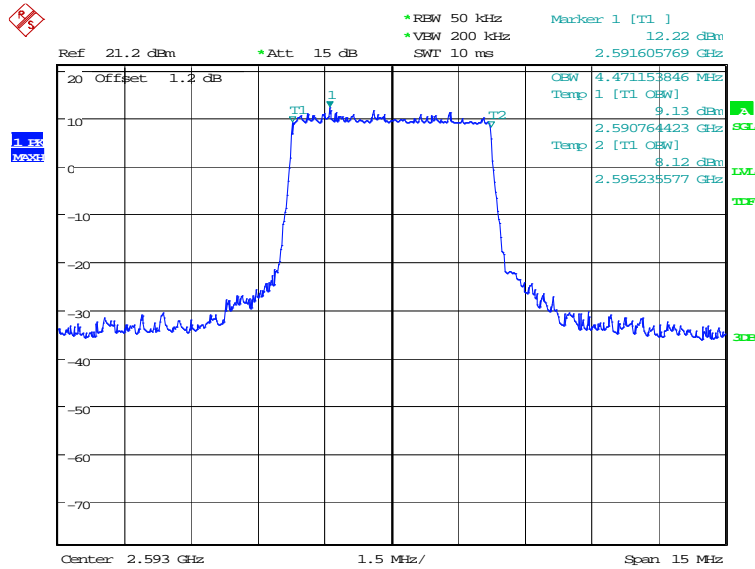
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
2593.0	QPSK	16QAM	64QAM
	4519.23	4471.15	4495.19

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



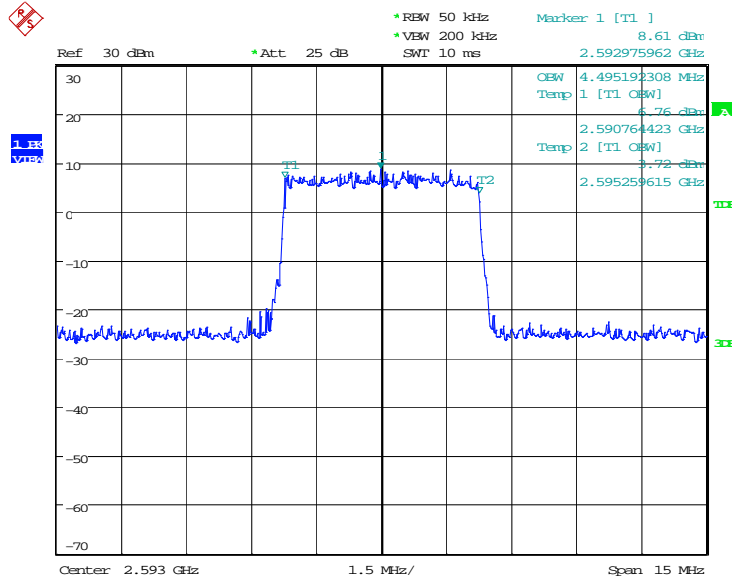
Date: 25.MAR.2020 18:53:16

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



Date: 25.MAR.2020 18:54:40

LTE band 41, 5MHz Bandwidth, 64QAM (99% BW)

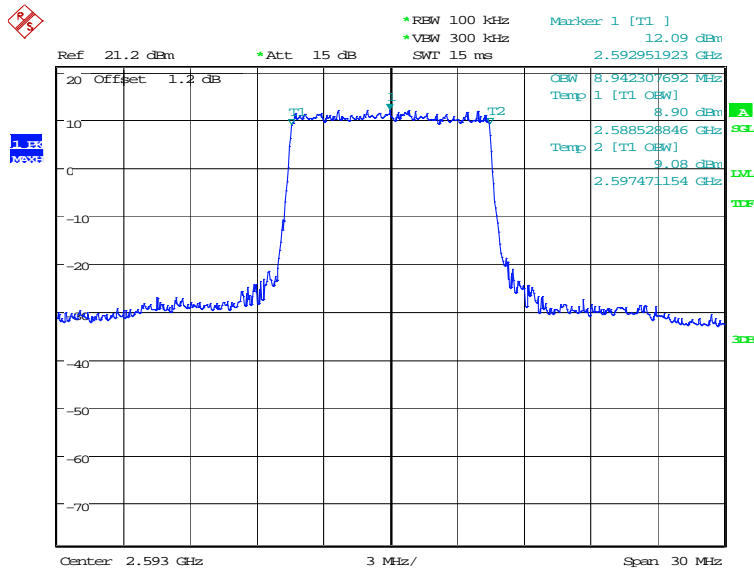


Date: 28.MAR.2020 10:32:51

LTE band 41, 10MHz (99%)

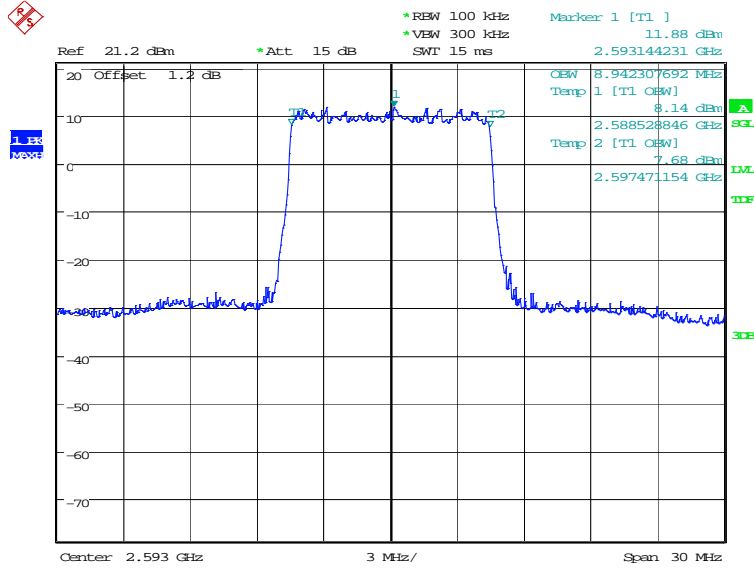
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
2593.0	8942.31	8942.31	8990.38

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



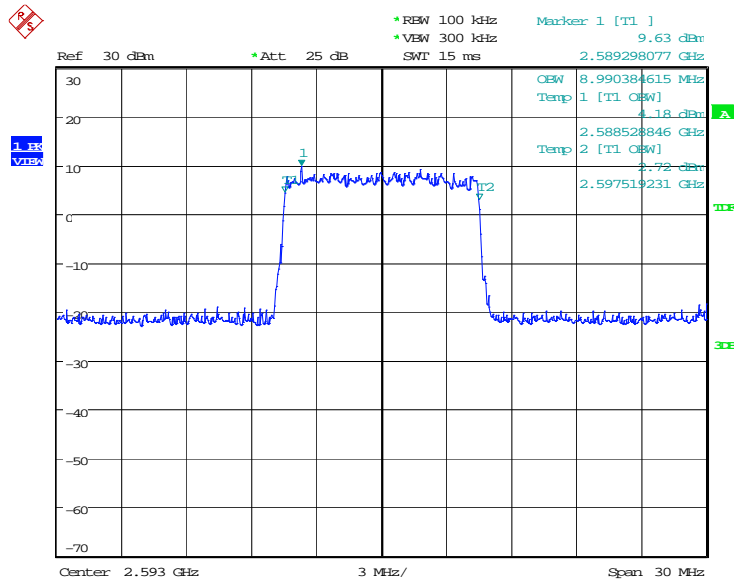
Date: 25.MAR.2020 18:56:07

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



Date: 25.MAR.2020 18:57:31

LTE band 41, 10MHz Bandwidth, 64QAM (99% BW)

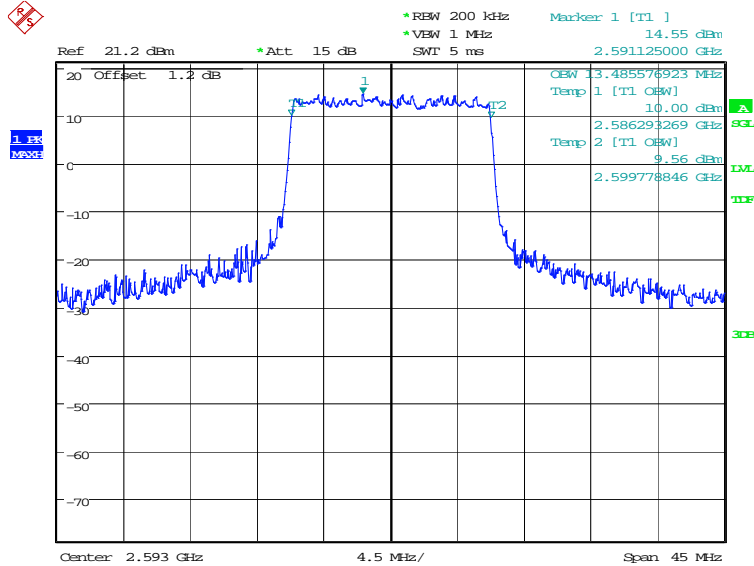


Date: 28.MAR.2020 10:34:27

LTE band 41, 15MHz (99%)

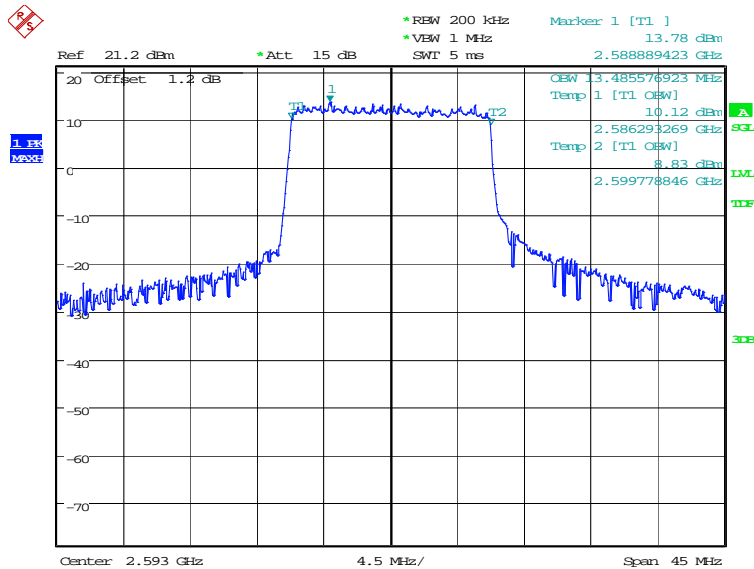
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
2593.0	13485.58	13485.58	13485.58

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



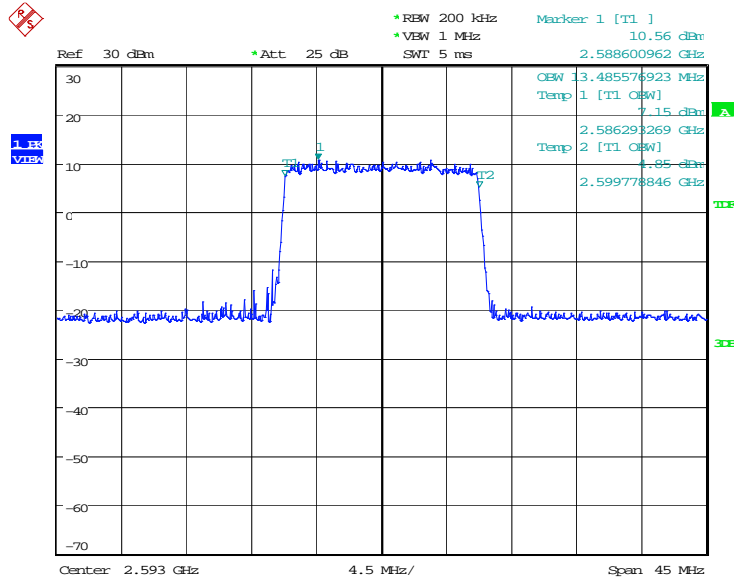
Date: 25.MAR.2020 18:58:58

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



Date: 25.MAR.2020 19:00:23

LTE band 41, 15MHz Bandwidth, 64QAM (99% BW)

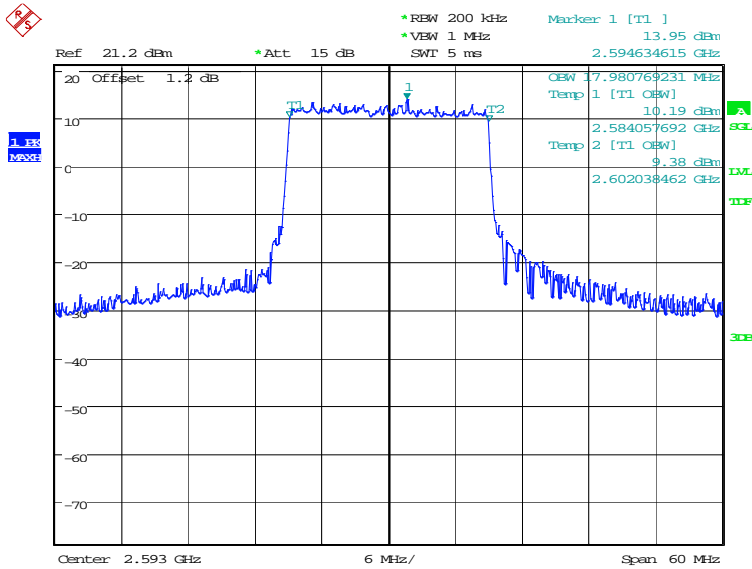


Date: 28.MAR.2020 10:35:44

LTE band 41, 20MHz (99%)

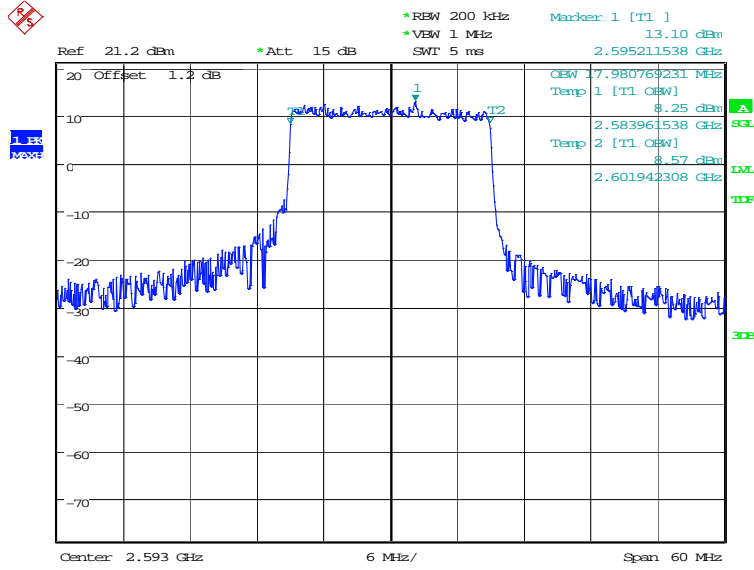
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
2593.0	17980.77	17980.77	18076.92

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



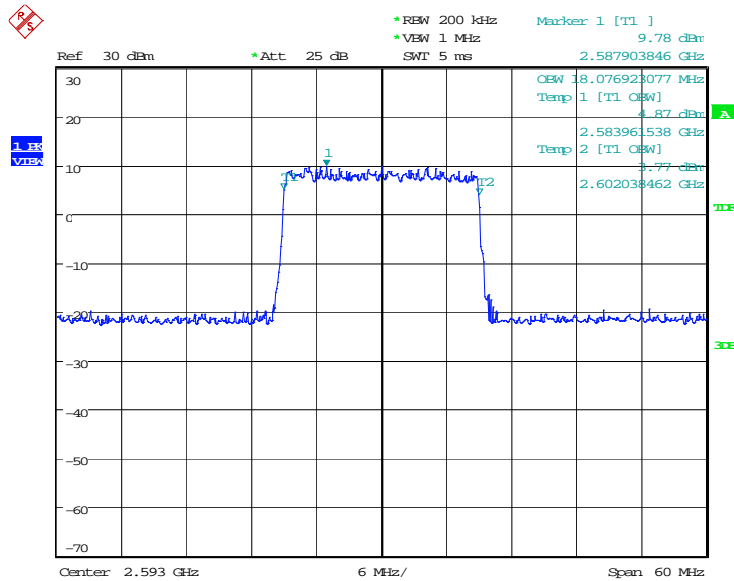
Date: 25.MAR.2020 19:01:50

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



Date: 25.MAR.2020 19:03:14

LTE band 41, 20MHz Bandwidth, 64QAM (99% BW)

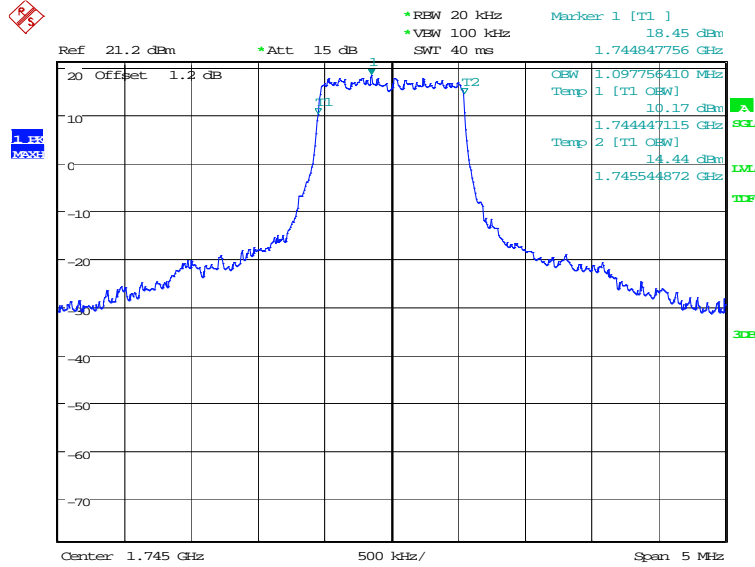


Date: 28.MAR.2020 10:37:05

LTE band 66, 1.4MHz (99%)

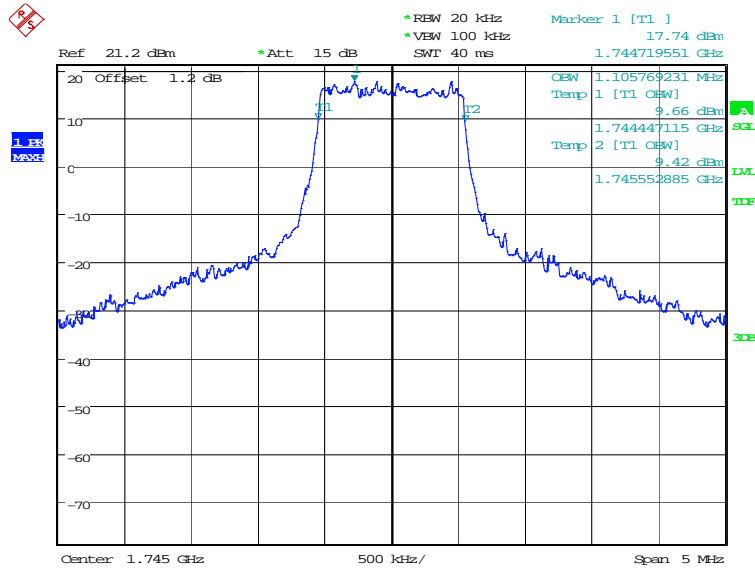
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
1745.0	1097.76	1105.77	1089.74

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



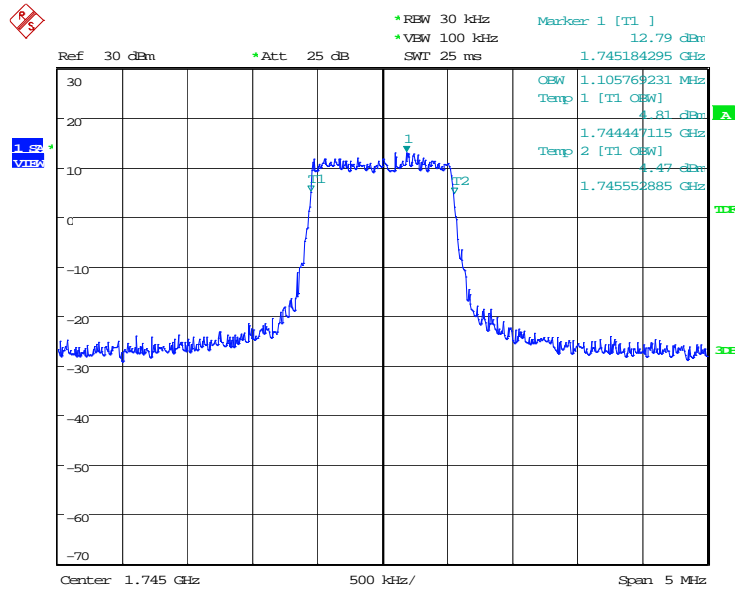
Date: 26.MAR.2020 11:53:40

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



Date: 26.MAR.2020 11:55:05

LTE band 66, 1.4MHz Bandwidth, 64QAM (99% BW)

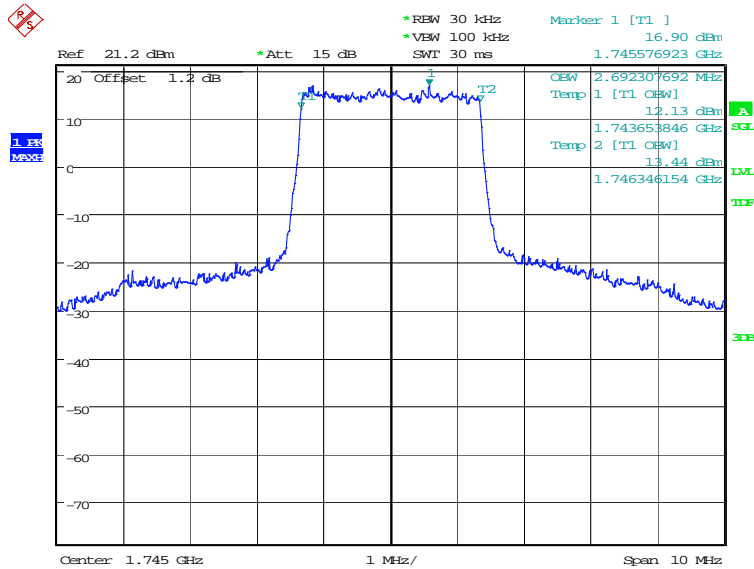


Date: 10.APR.2020 16:22:02

LTE band 66, 3MHz (99%)

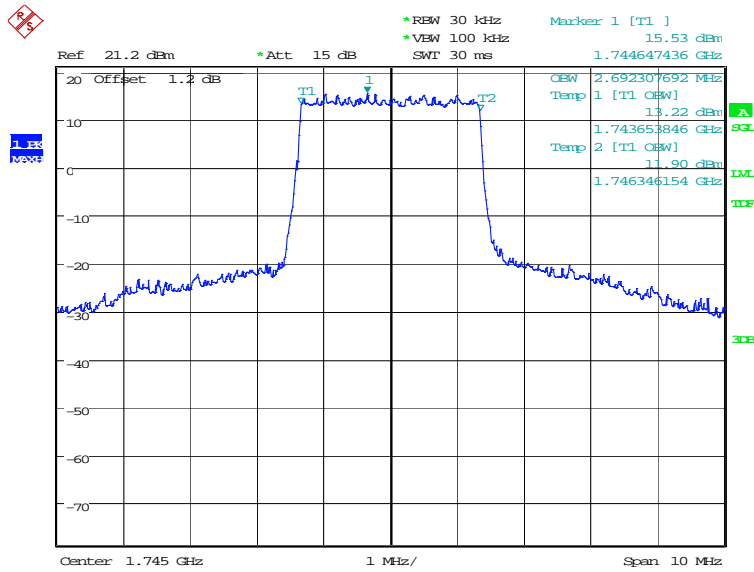
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
1745.0	2692.31	2692.31	2692.31

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



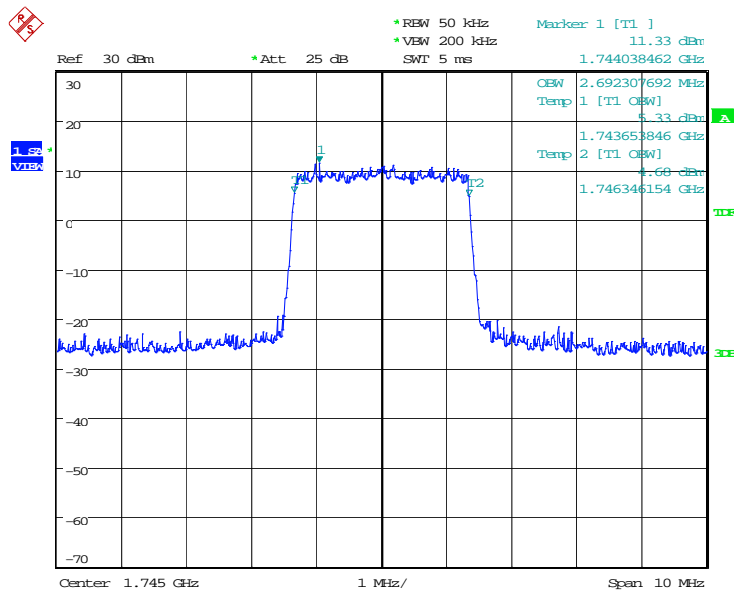
Date: 26.MAR.2020 11:56:30

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



Date: 26.MAR.2020 11:57:55

LTE band 66, 3MHz Bandwidth, 64QAM (99% BW)

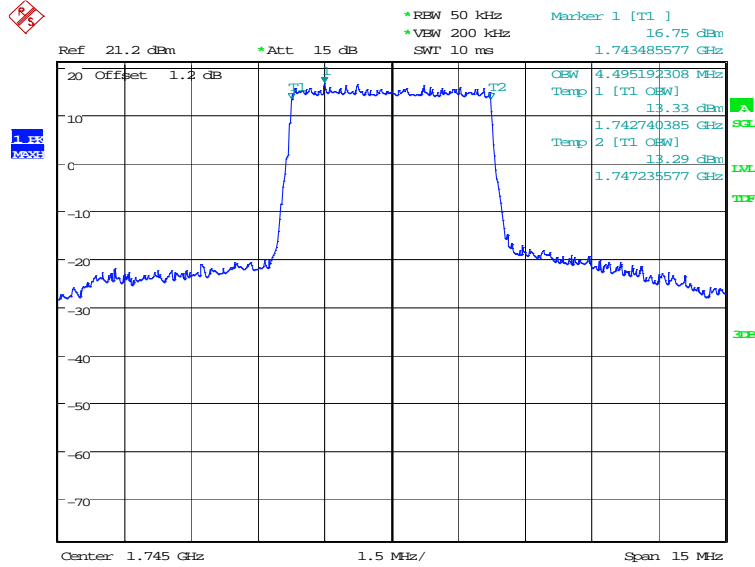


Date: 10.APR.2020 16:23:12

LTE band 66, 5MHz (99%)

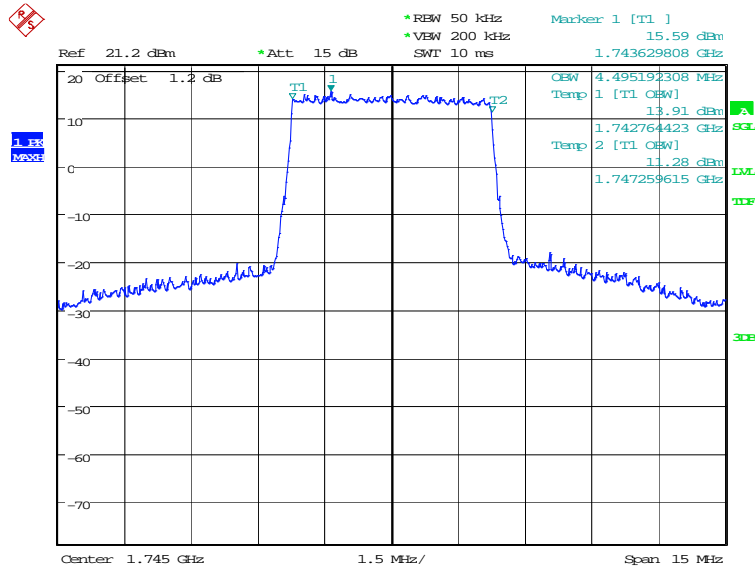
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
1745.0	4495.19	4495.19	4519.23

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



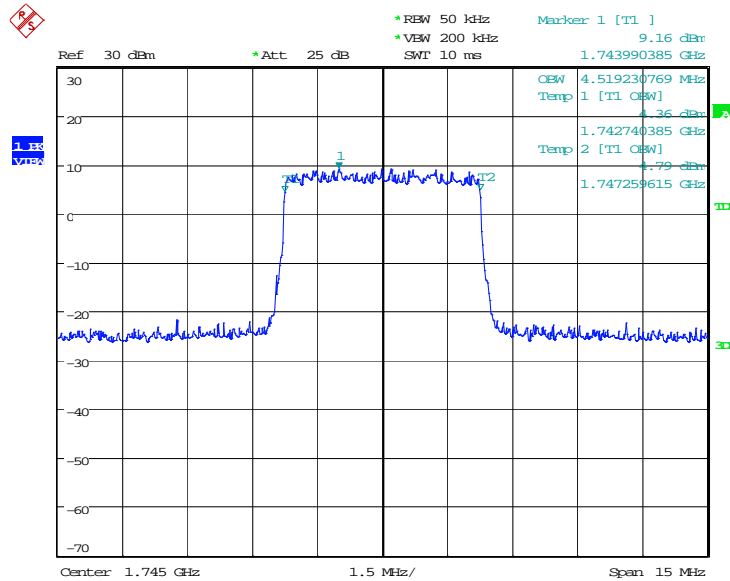
Date: 26.MAR.2020 11:59:21

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



Date: 26.MAR.2020 12:00:45

LTE band 66, 5MHz Bandwidth, 64QAM (99% BW)

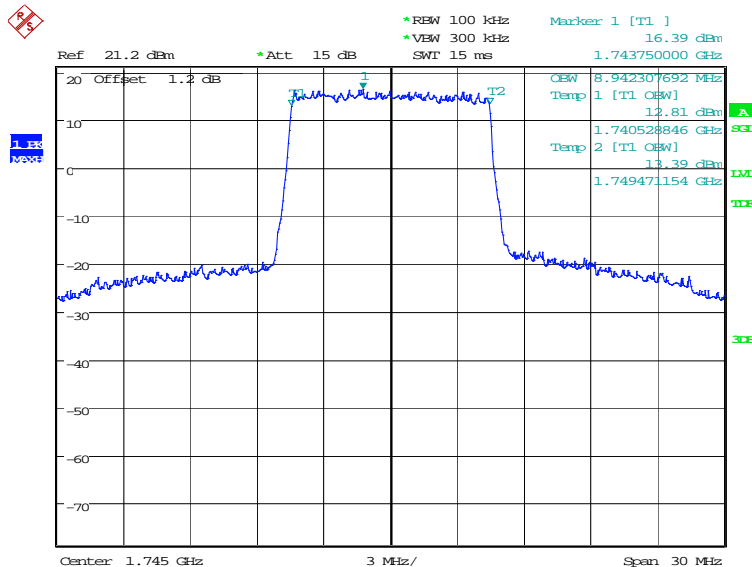


Date: 28.MAR.2020 09:36:38

LTE band 66, 10MHz (99%)

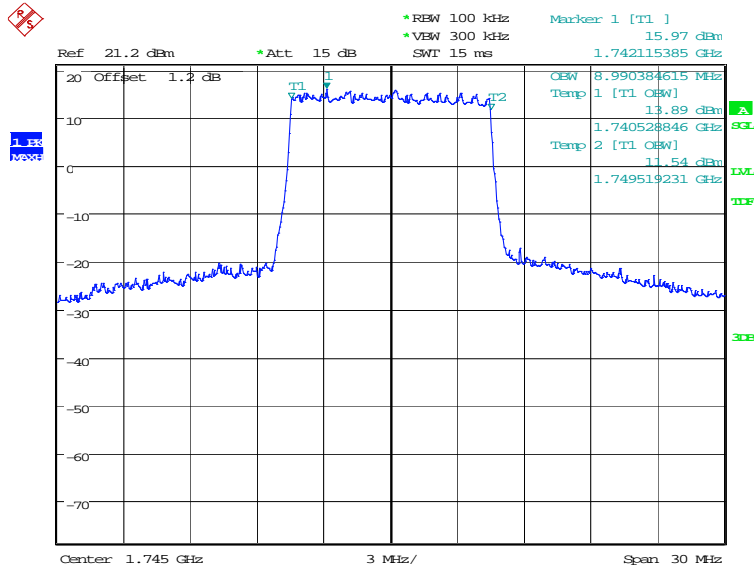
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
1745.0	8942.31	8990.38	8990.38

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



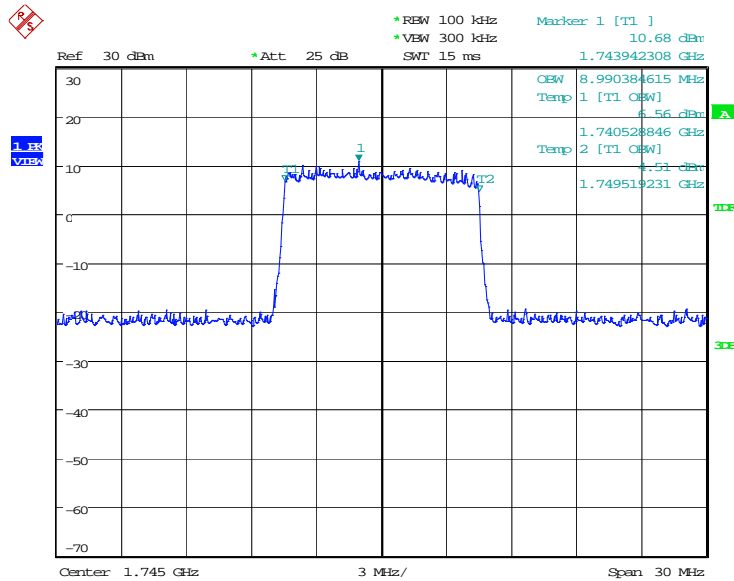
Date: 26.MAR.2020 12:02:11

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



Date: 26.MAR.2020 12:03:35

LTE band 66, 10MHz Bandwidth, 64QAM (99% BW)

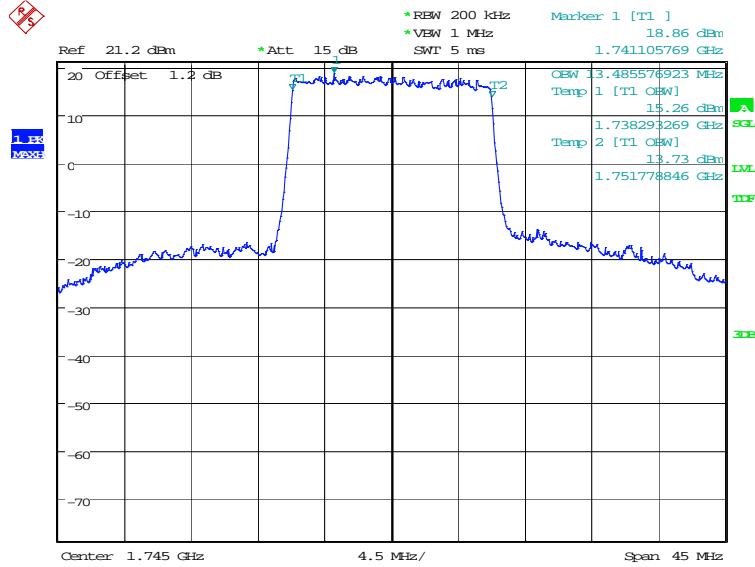


Date: 28.MAR.2020 09:38:31

LTE band 66, 15MHz (99%)

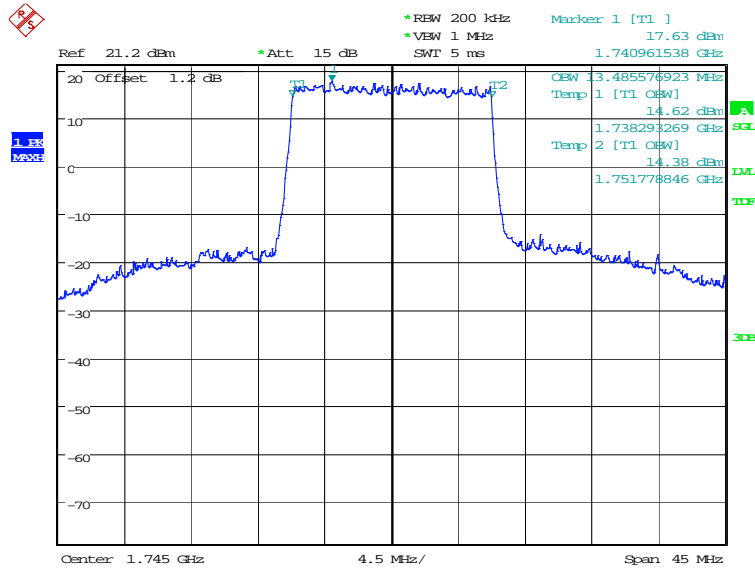
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
	QPSK	16QAM	64QAM
1745.0	13485.58	13485.58	13485.58

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



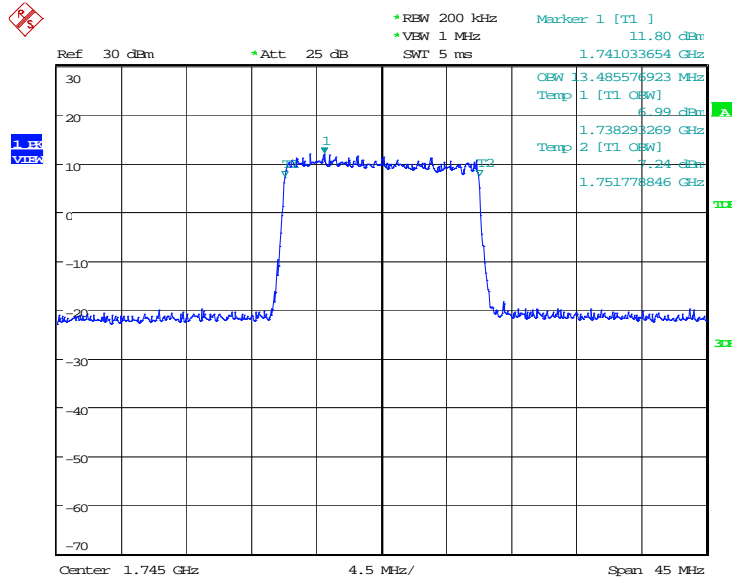
Date: 26.MAR.2020 12:05:01

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



Date: 26.MAR.2020 12:06:26

LTE band 66, 15MHz Bandwidth, 64QAM (99% BW)

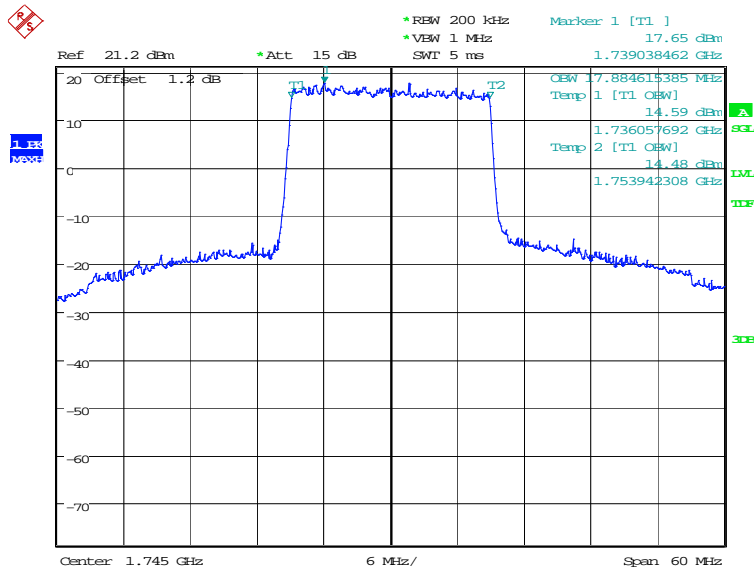


Date: 28.MAR.2020 09:39:44

LTE band 66, 20MHz (99%)

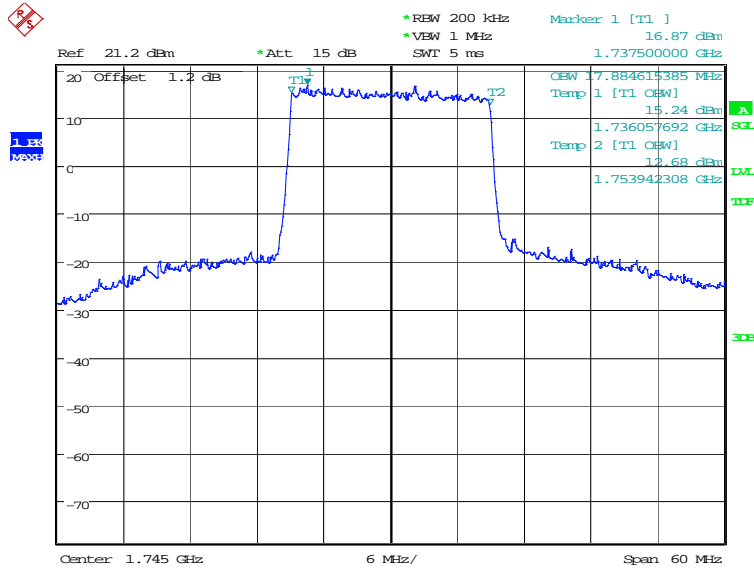
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)		
1745.0	QPSK	16QAM	64QAM
	17884.62	17884.62	17980.77

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



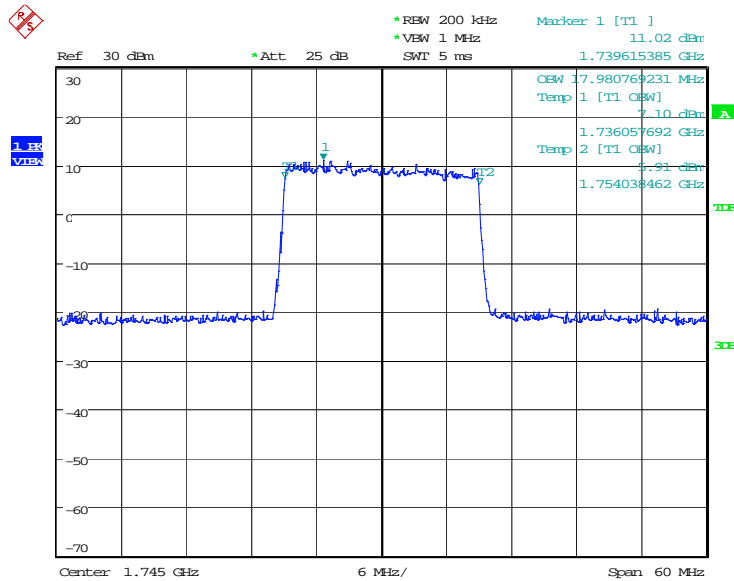
Date: 26.MAR.2020 12:07:52

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



Date: 26.MAR.2020 12:09:16

LTE band 66, 20MHz Bandwidth, 64QAM (99% BW)



Date: 28.MAR.2020 09:41:40

A.5 EMISSION BANDWIDTH

A.5.1 Emission Bandwidth Results

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the following pages.

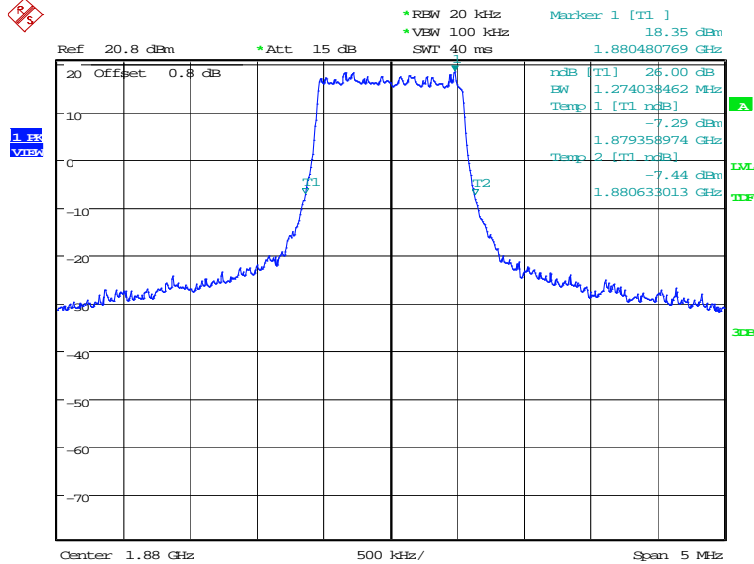
The measurement method is from ANSI C63.26:

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- b) The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
- d) The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- e) Set spectrum analyzer detection mode to peak, and the trace mode to max hold.

LTE band 2, 1.4MHz (-26dBc)

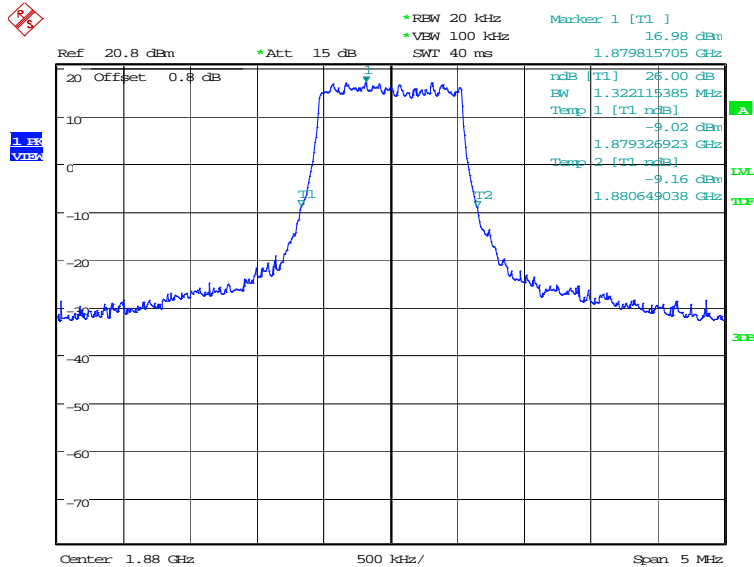
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
1880.0	1274.04	1322.12	1290.06

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



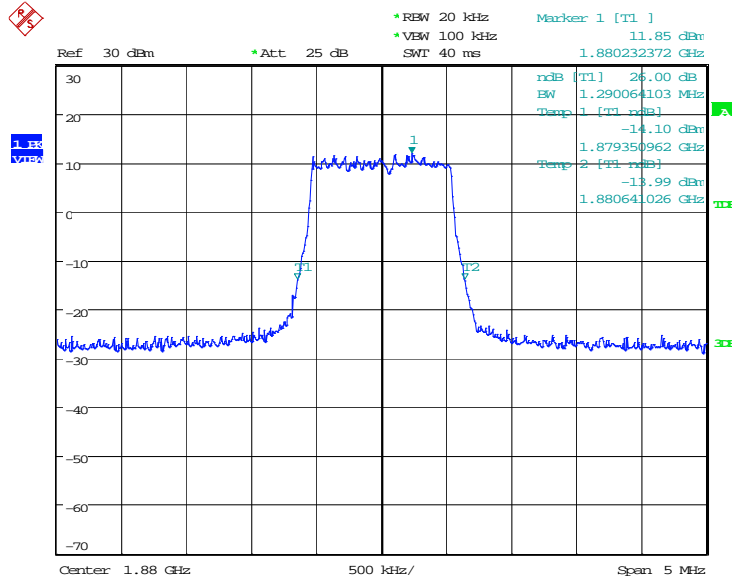
Date: 26.MAR.2020 12:11:23

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



Date: 26.MAR.2020 12:12:48

LTE band 2, 1.4MHz Bandwidth, 64QAM (-26dBc BW)

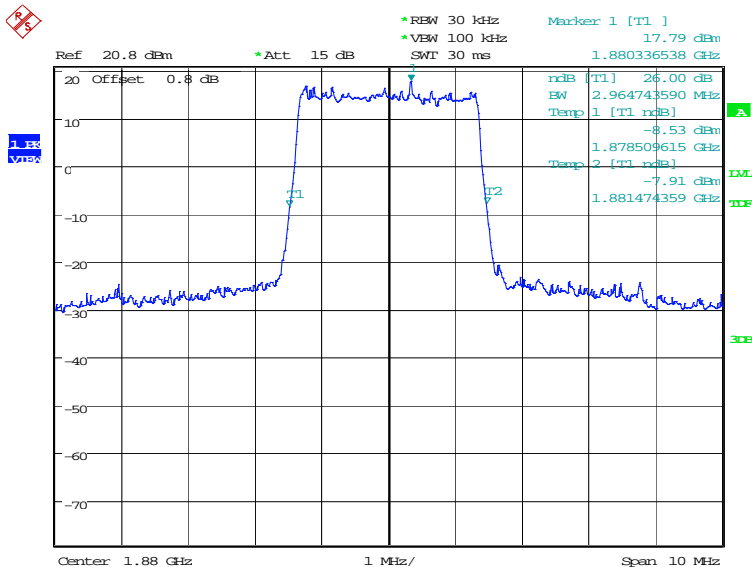


Date: 28.MAR.2020 09:13:38

LTE band 2, 3MHz (-26dBc)

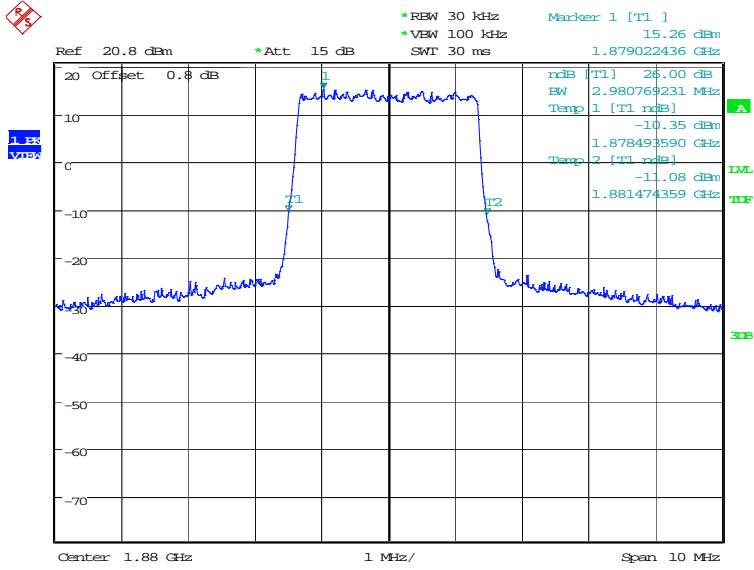
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
1880.0	2964.74	2980.77	2932.69

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



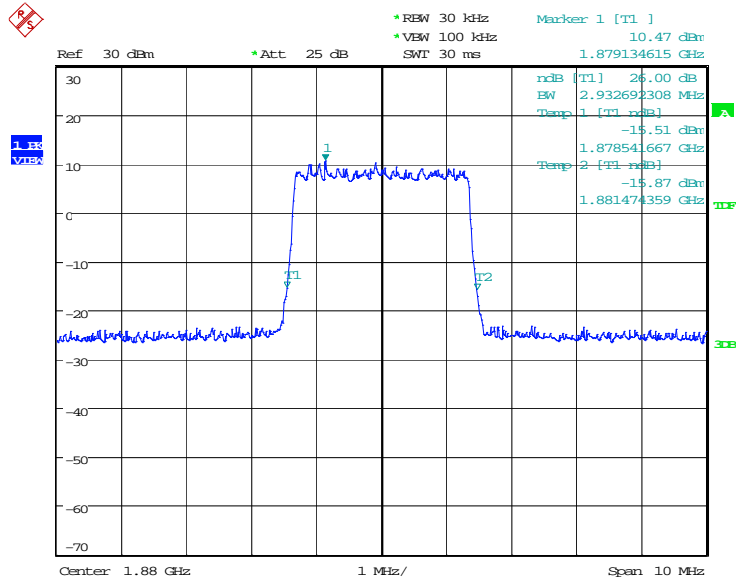
Date: 26.MAR.2020 12:14:14

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



Date: 26.MAR.2020 12:15:38

LTE band 2, 3MHz Bandwidth, 64QAM (-26dBc BW)

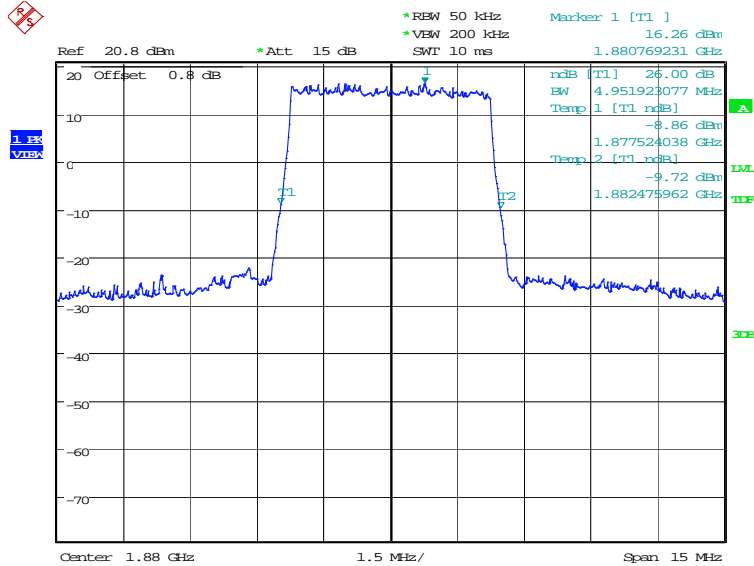


Date: 28.MAR.2020 09:18:24

LTE band 2, 5MHz (-26dBc)

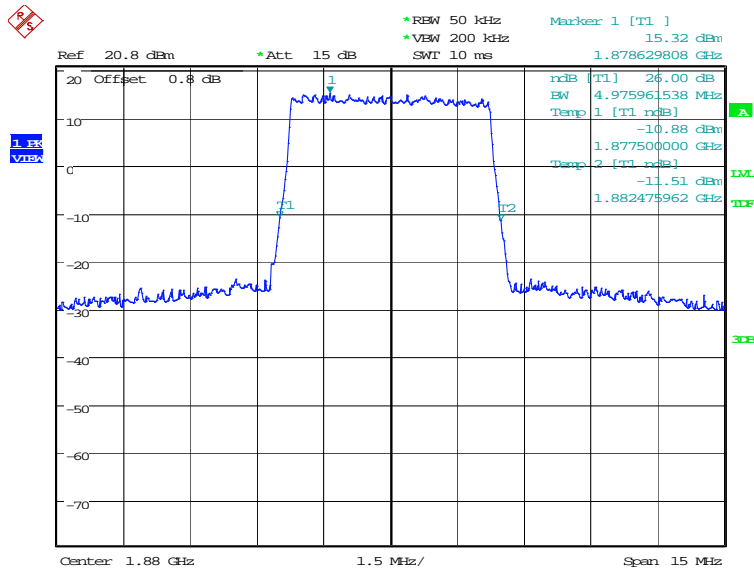
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
1880.0	4951.92	4975.96	4927.88

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



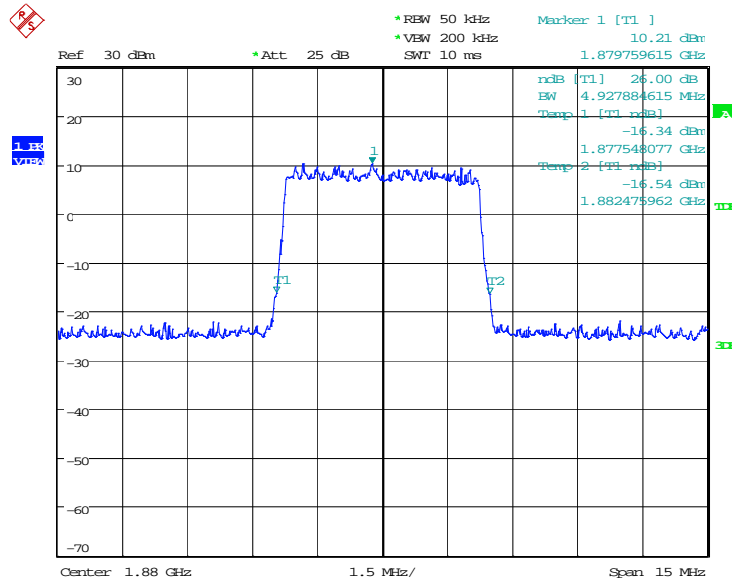
Date: 26.MAR.2020 12:17:05

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



Date: 26.MAR.2020 12:18:29

LTE band 2, 5MHz Bandwidth,64QAM (-26dBc BW)

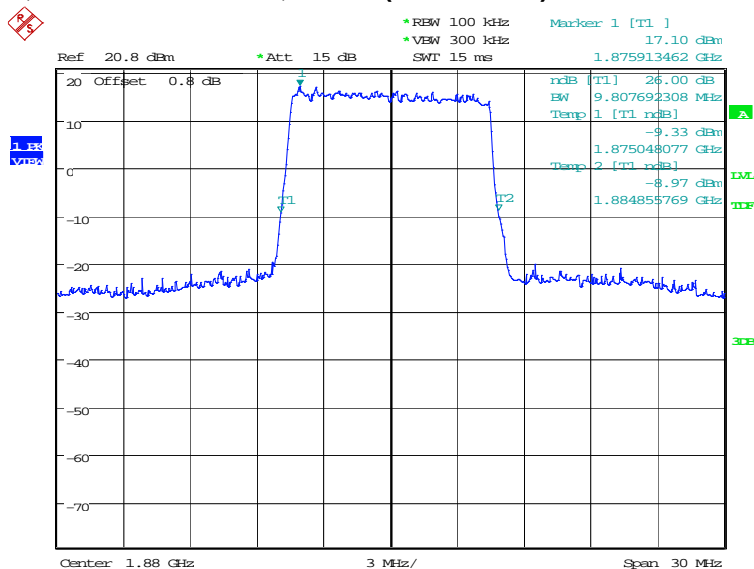


Date: 28.MAR.2020 09:20:42

LTE band 2, 10MHz (-26dBc)

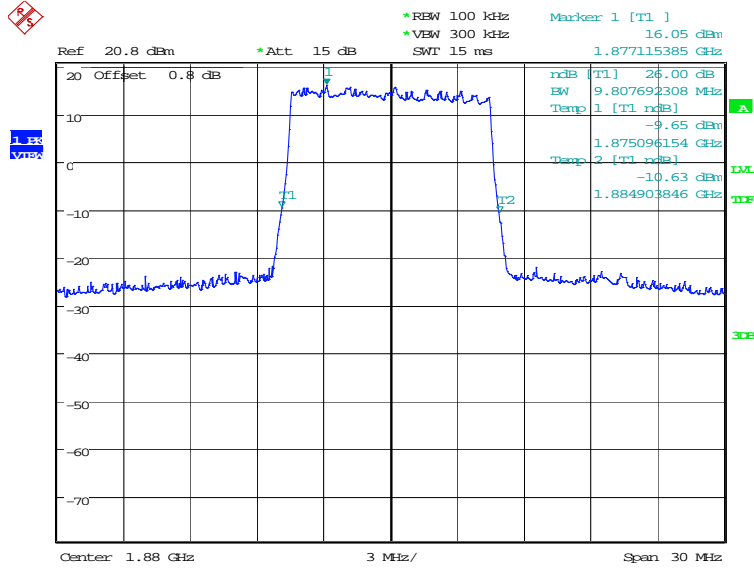
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
1880.0	9807.69	9807.69	9759.62

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



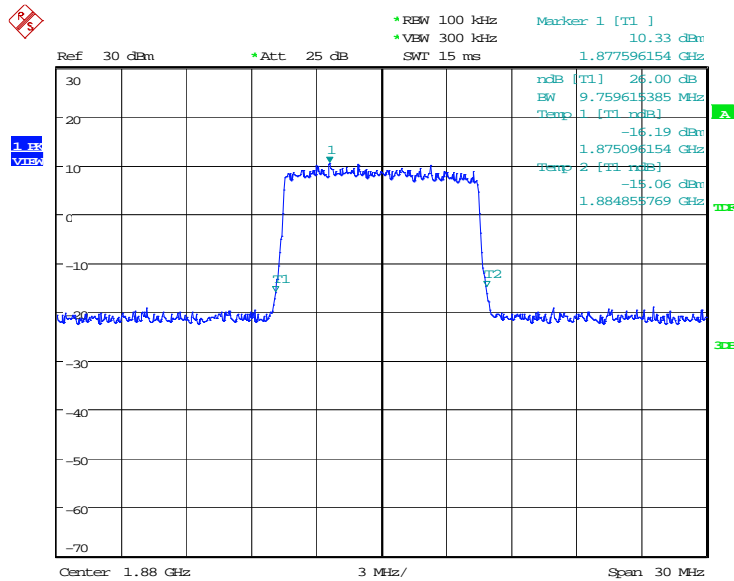
Date: 26.MAR.2020 12:19:56

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



Date: 26.MAR.2020 12:21:20

LTE band 2, 10MHz Bandwidth, 64QAM (-26dBc BW)

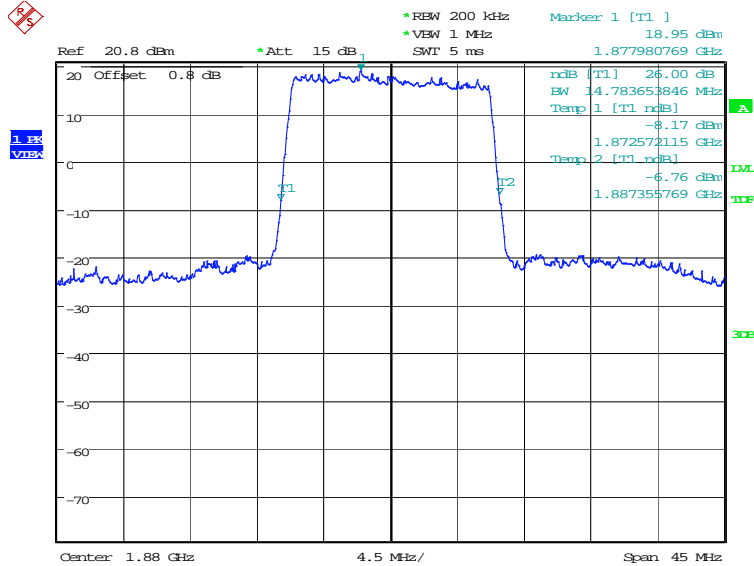


Date: 28.MAR.2020 09:22:04

LTE band 2, 15MHz (-26dBc)

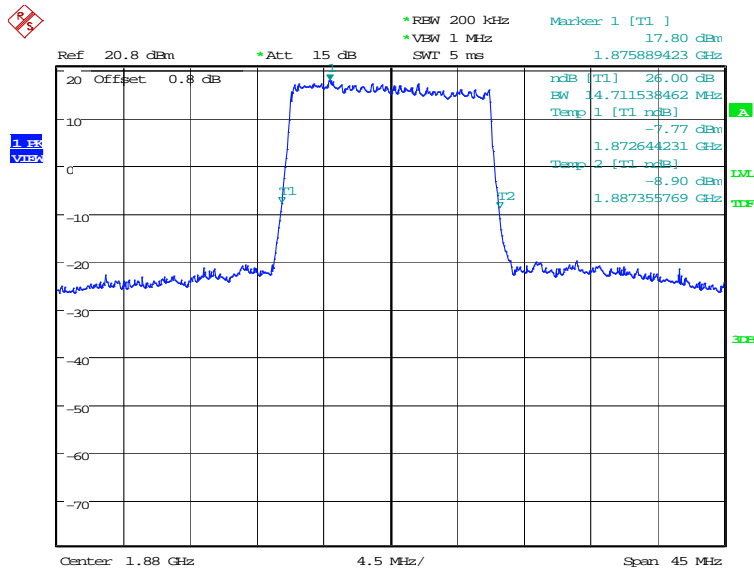
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
1880.0	14783.65	14711.54	14639.42

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



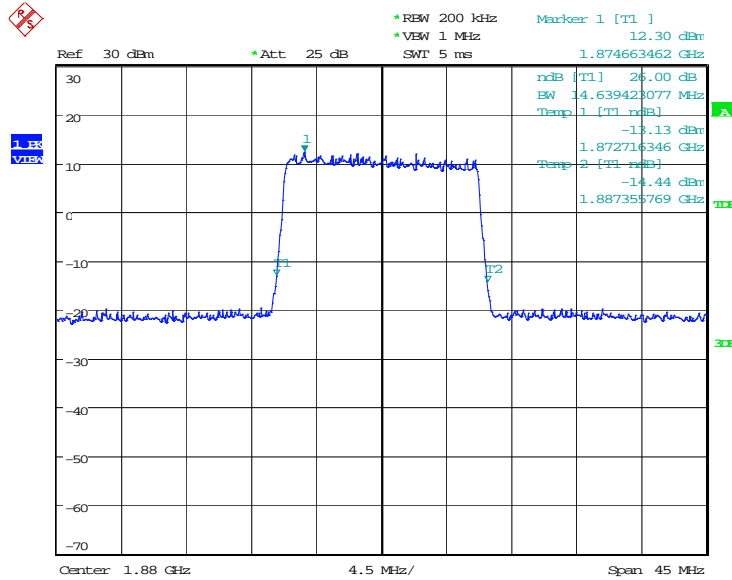
Date: 26.MAR.2020 12:22:47

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



Date: 26.MAR.2020 12:24:11

LTE band 2, 15MHz Bandwidth, 64QAM (-26dBc BW)

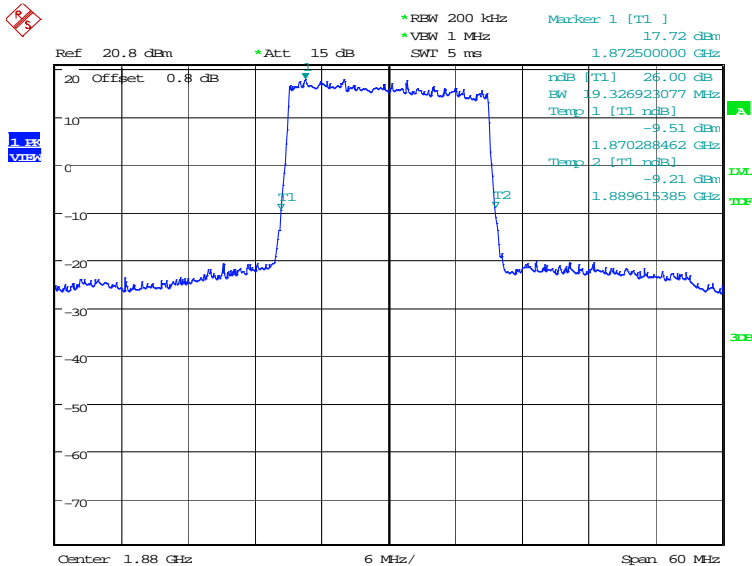


Date: 28.MAR.2020 09:23:35

LTE band 2, 20MHz (-26dBc)

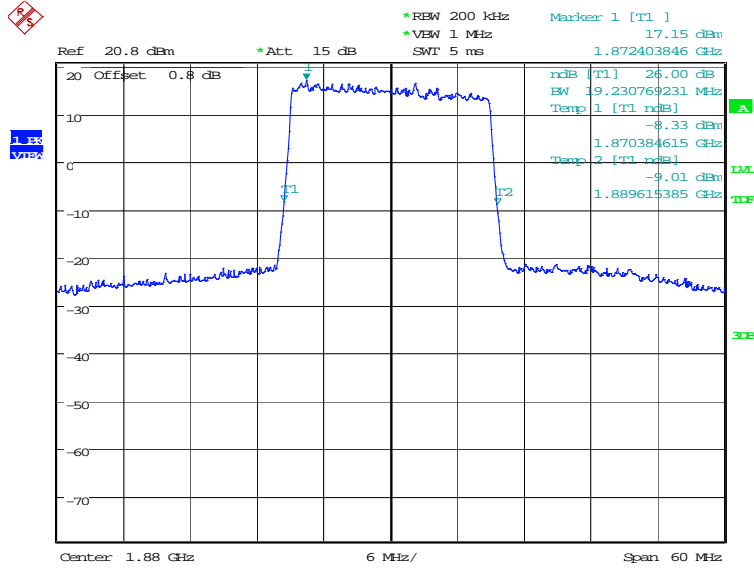
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
1880.0	19326.92	19230.77	19326.92

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



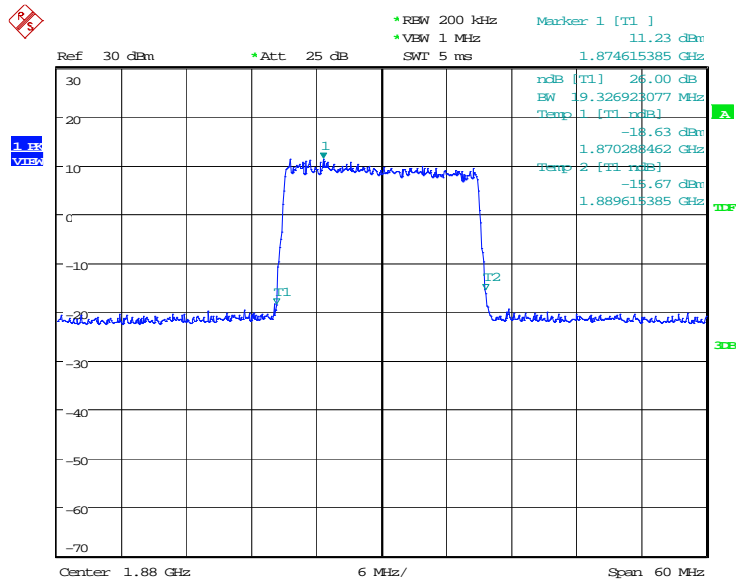
Date: 26.MAR.2020 12:25:38

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



Date: 26.MAR.2020 12:27:02

LTE band 2, 20MHz Bandwidth, 64QAM (-26dBc BW)

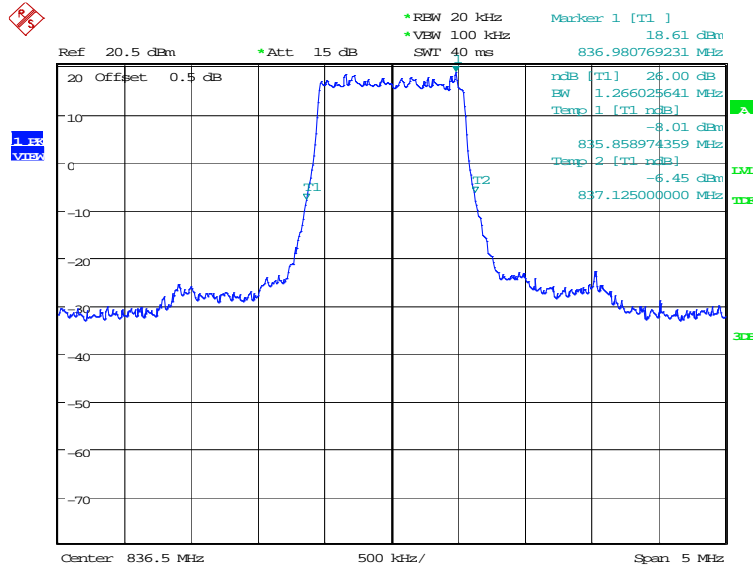


Date: 28.MAR.2020 09:25:24

LTE band 5, 1.4MHz (-26dBc)

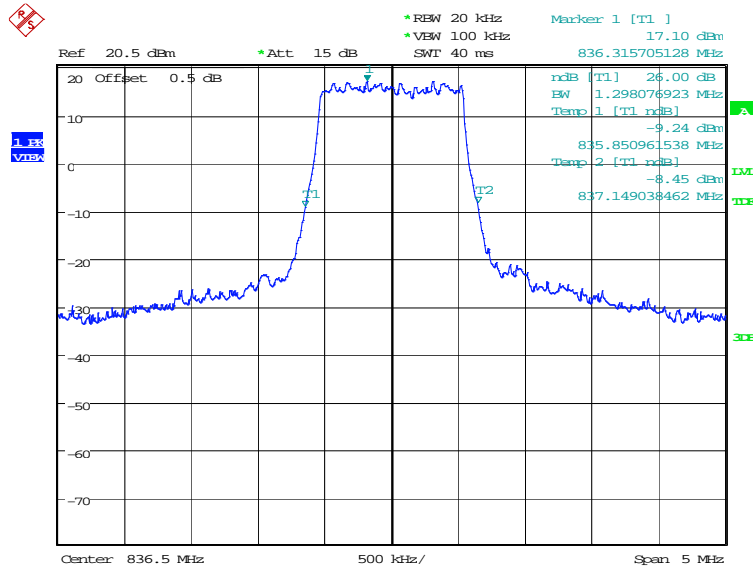
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
836.5	1266.03	1298.08	1274.04

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



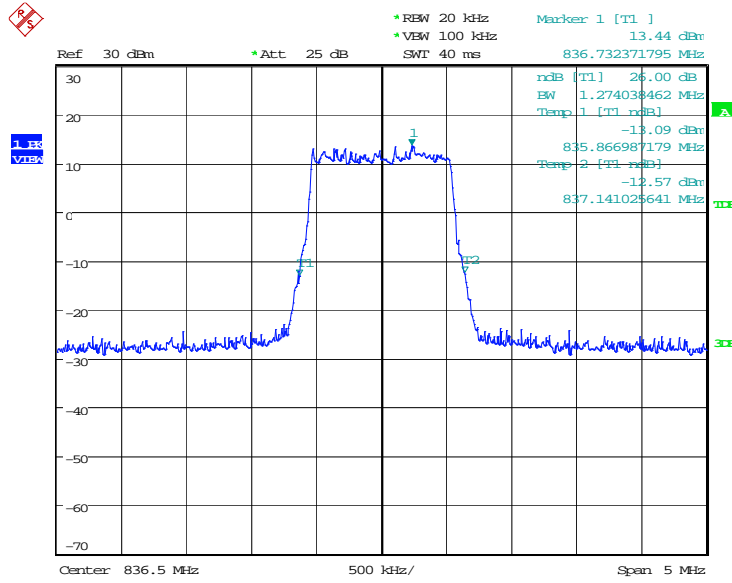
Date: 25.MAR.2020 19:05:17

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



Date: 25.MAR.2020 19:06:42

LTE band 5, 1.4MHz Bandwidth, 64QAM (-26dBc BW)

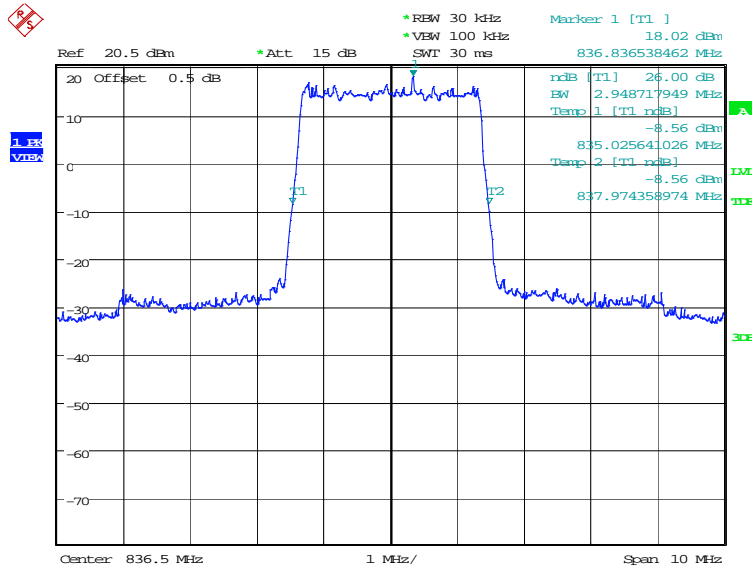


Date: 28.MAR.2020 09:45:36

LTE band 5, 3MHz (-26dBc)

Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
836.5	2948.72	2964.74	2916.67

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

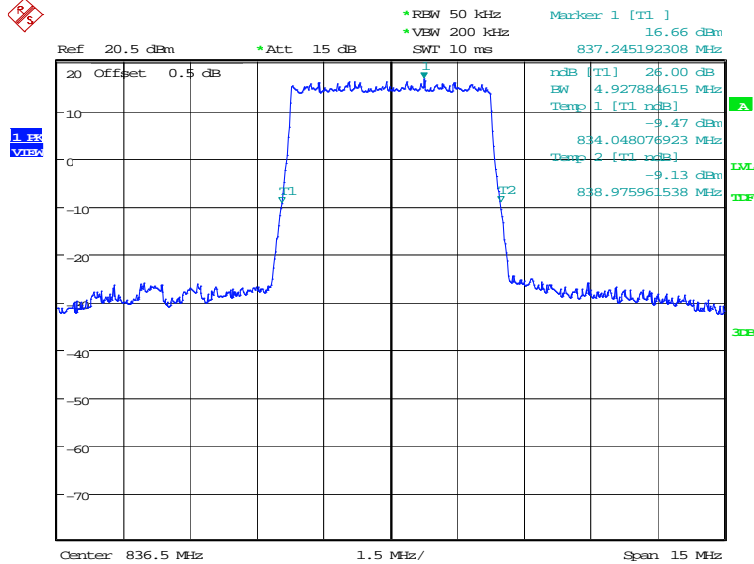


Date: 25.MAR.2020 19:08:09

LTE band 5, 5MHz (-26dBc)

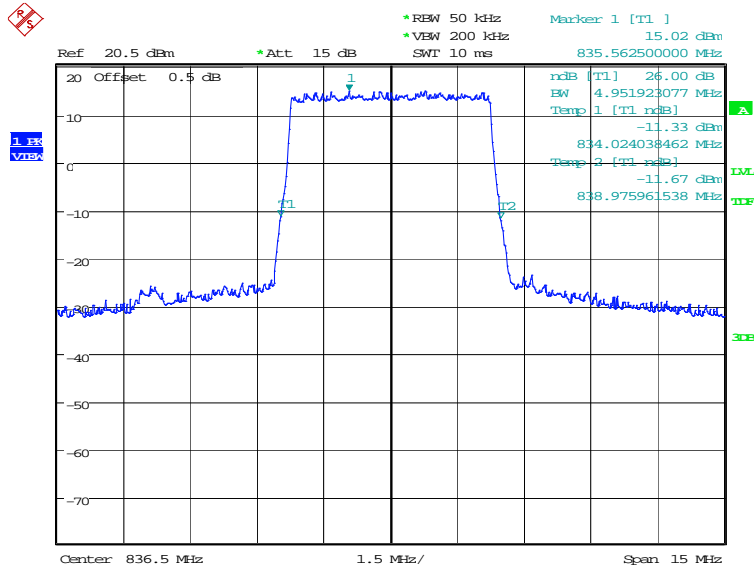
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
836.5	4927.88	4951.92	4879.81

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



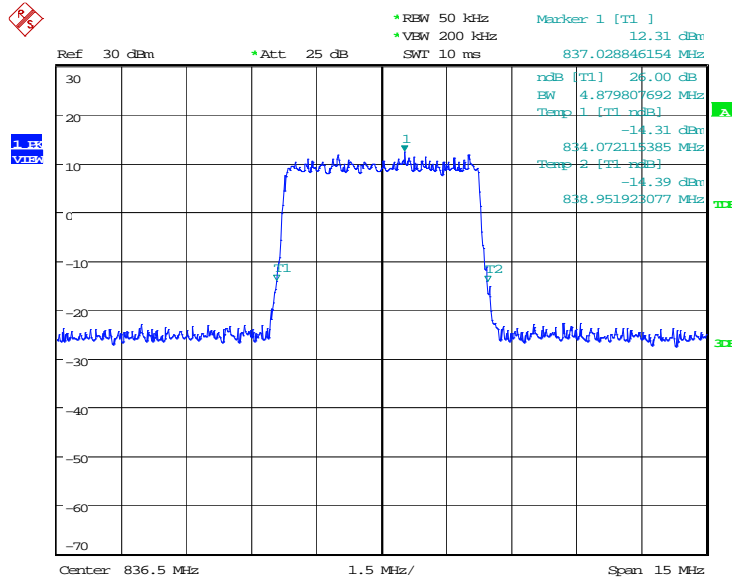
Date: 25.MAR.2020 19:11:00

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



Date: 25.MAR.2020 19:12:25

LTE band 5, 5MHz Bandwidth, 64QAM (-26dBc BW)

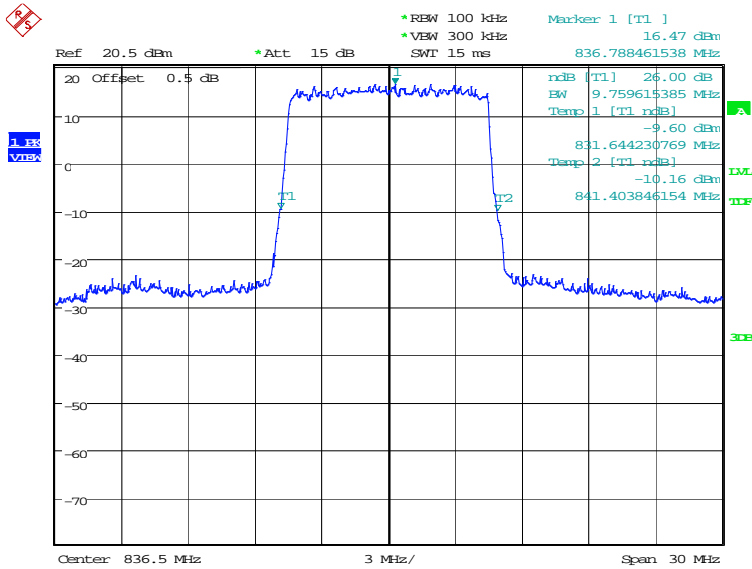


Date: 28.MAR.2020 09:48:52

LTE band 5, 10MHz (-26dBc)

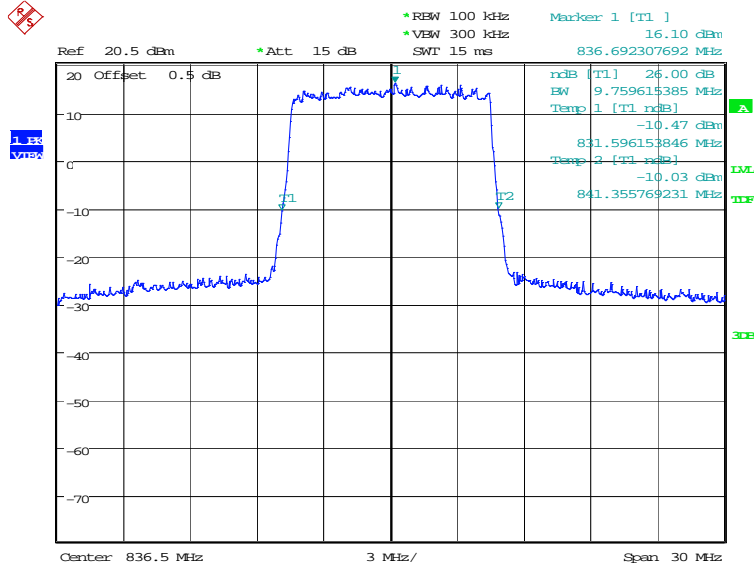
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
836.5	9759.62	9759.62	9711.54

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



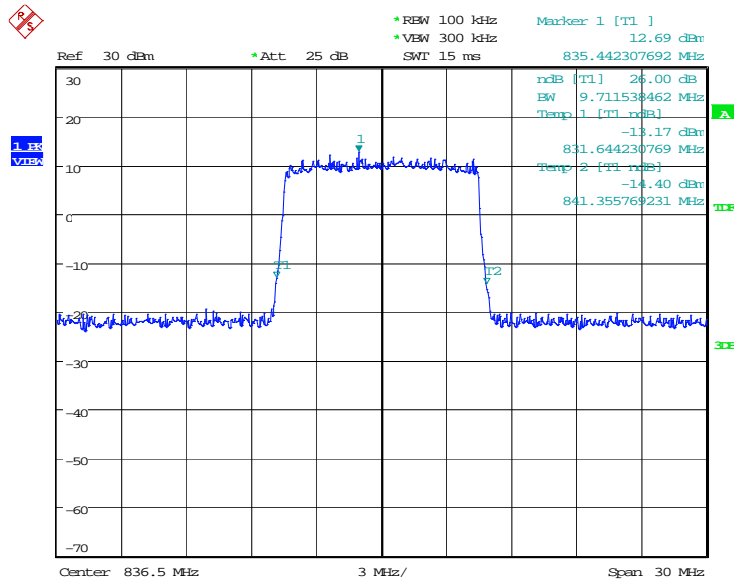
Date: 25.MAR.2020 19:13:52

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



Date: 25.MAR.2020 19:15:16

LTE band 5, 10MHz Bandwidth, 64QAM (-26dBc BW)

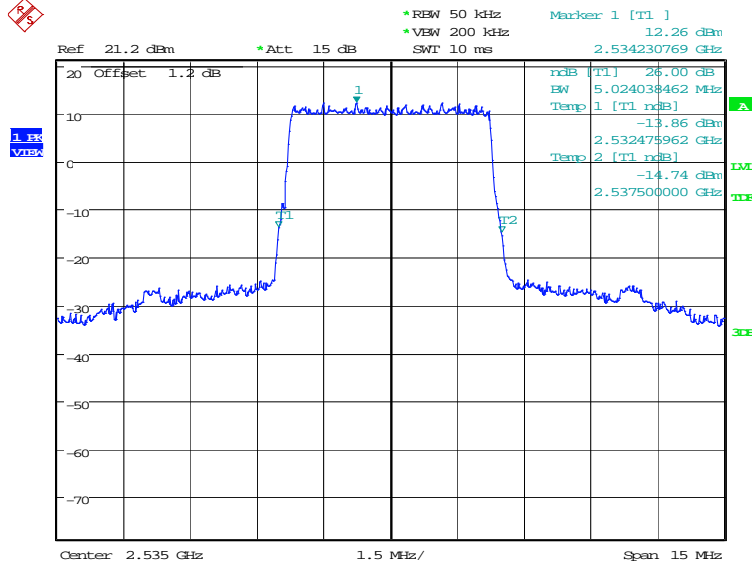


Date: 28.MAR.2020 09:50:04

LTE band 7, 5MHz (-26dBc)

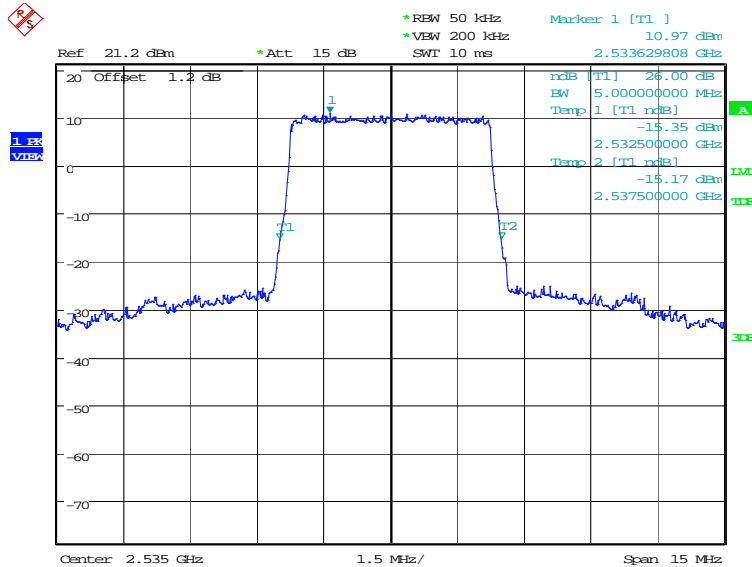
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
2535.0	5024.04	5000.00	4951.92

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



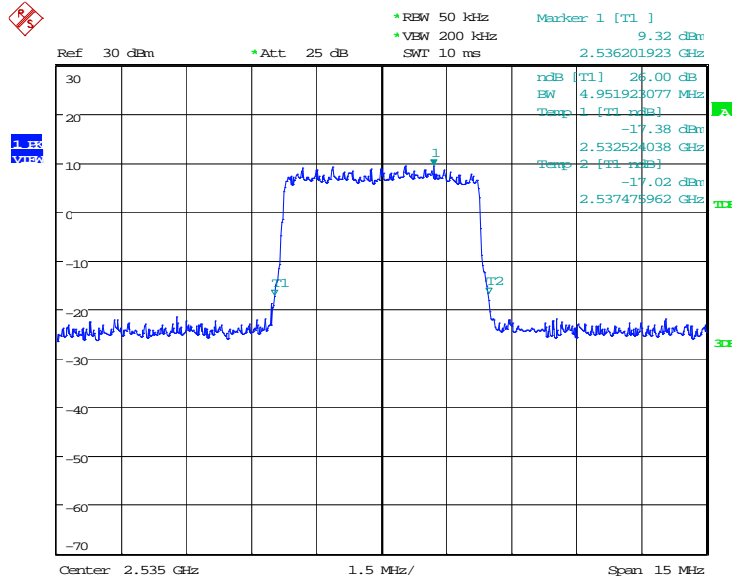
Date: 25.MAR.2020 19:16:44

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



Date: 25.MAR.2020 19:18:09

LTE band 7, 5MHz Bandwidth, 64QAM (-26dBc BW)

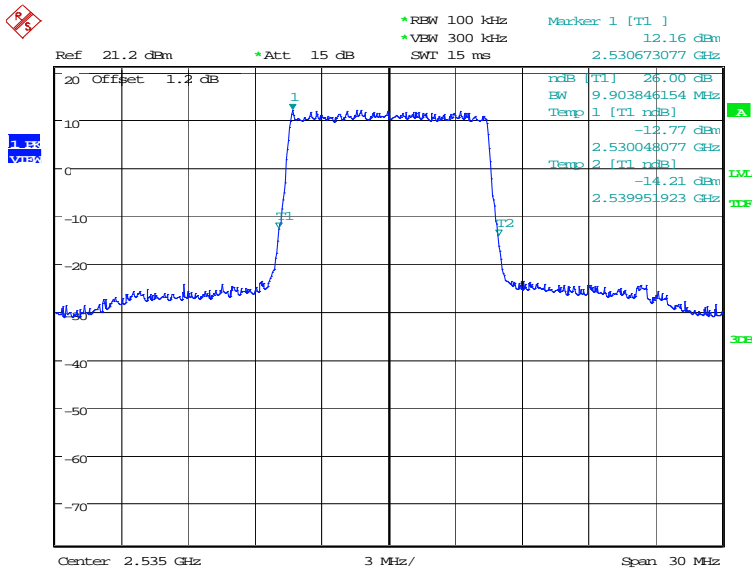


Date: 28.MAR.2020 09:55:50

LTE band 7, 10MHz (-26dBc)

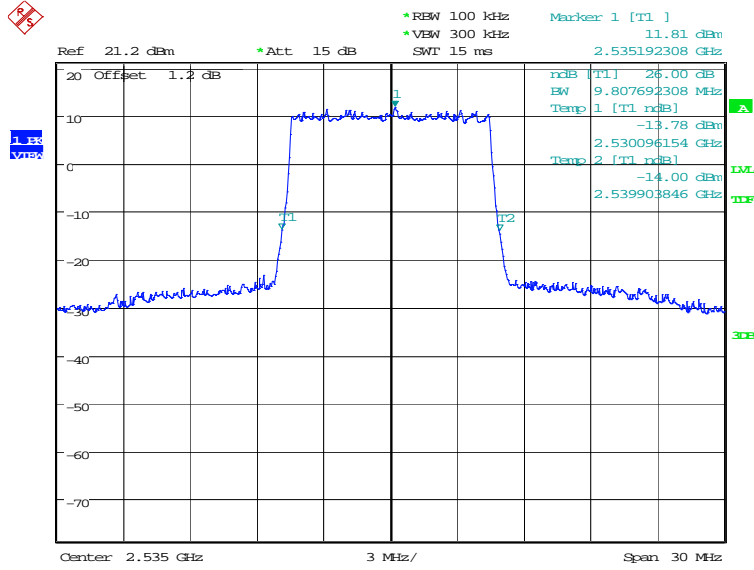
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
2535.0	9903.85	9807.69	9807.69

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



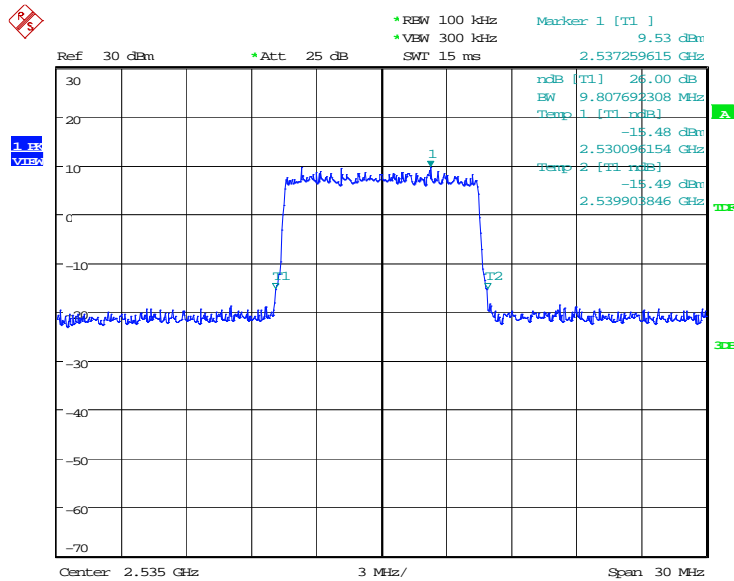
Date: 25.MAR.2020 19:19:36

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



Date: 25.MAR.2020 19:21:01

LTE band 7, 10MHz Bandwidth, 64QAM (-26dBc BW)

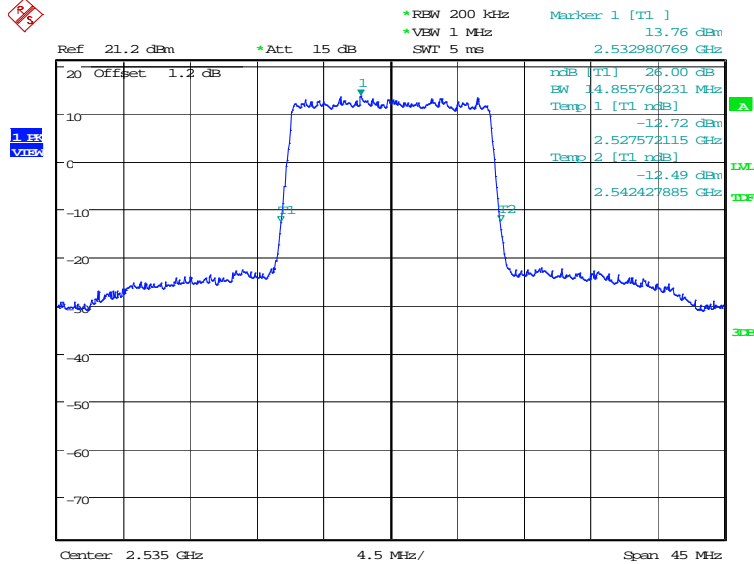


Date: 28.MAR.2020 09:57:29

LTE band 7, 15MHz (-26dBc)

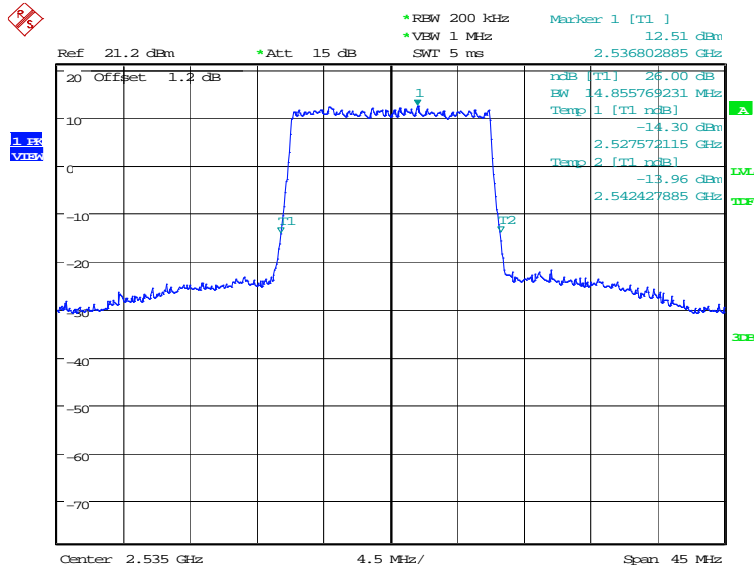
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
2535.0	14855.77	14855.77	14783.65

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



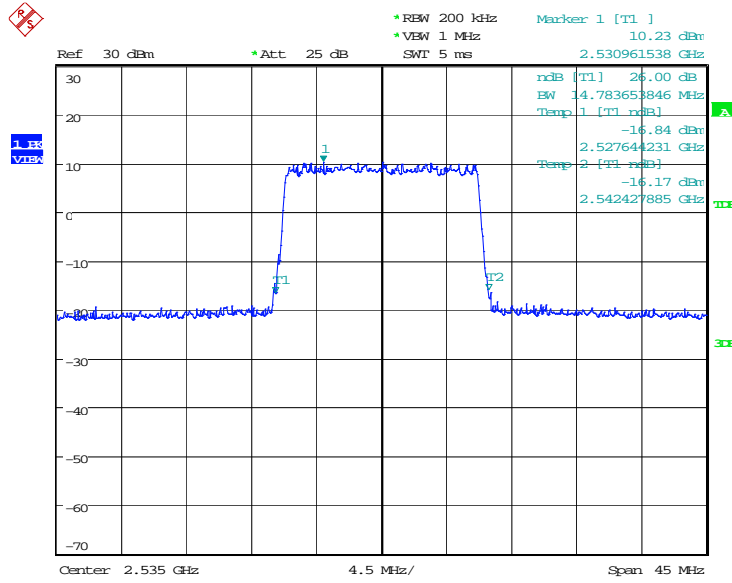
Date: 25.MAR.2020 19:22:27

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



Date: 25.MAR.2020 19:23:52

LTE band 7, 15MHz Bandwidth, 64QAM (-26dBc BW)

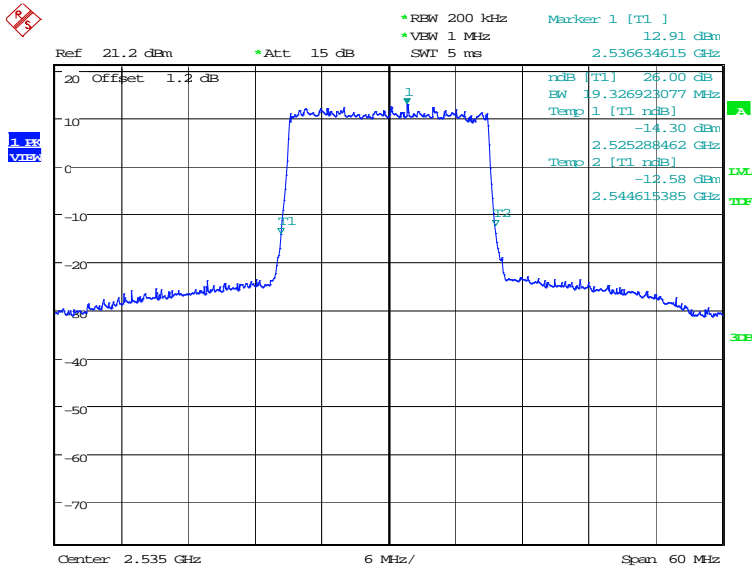


Date: 28.MAR.2020 10:01:11

LTE band 7, 20MHz (-26dBc)

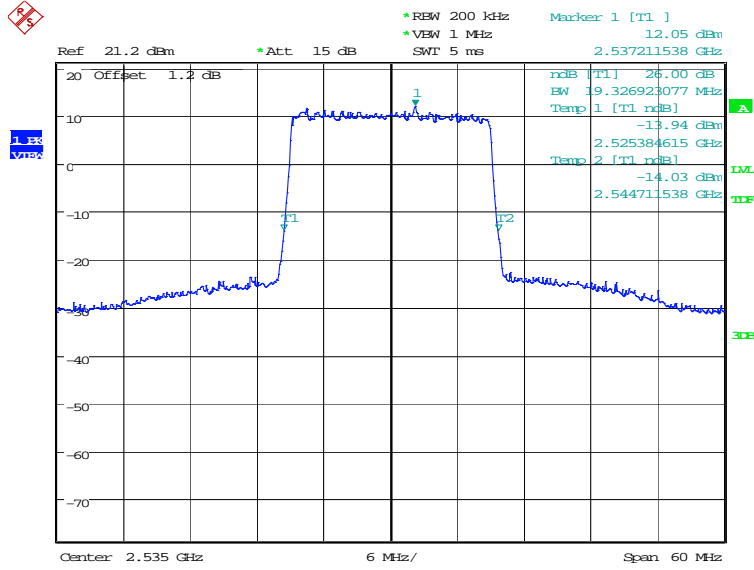
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
2535.0	19326.92	19326.92	19423.08

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



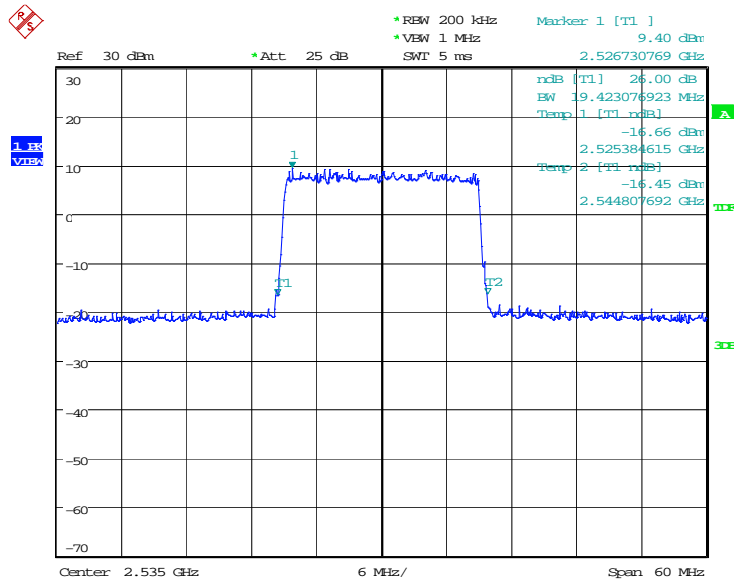
Date: 25.MAR.2020 19:25:19

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



Date: 25.MAR.2020 19:26:44

LTE band 7, 20MHz Bandwidth, 64QAM (-26dBc BW)

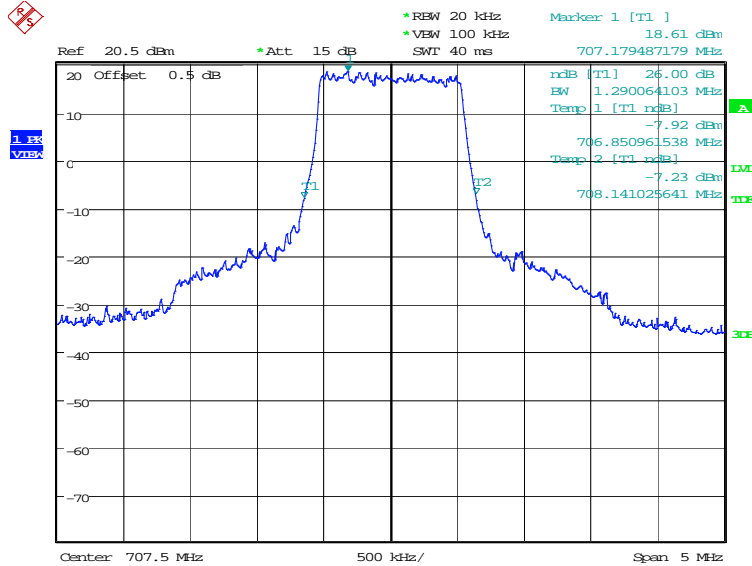


Date: 28.MAR.2020 10:02:33

LTE band 12, 1.4MHz (-26dBc)

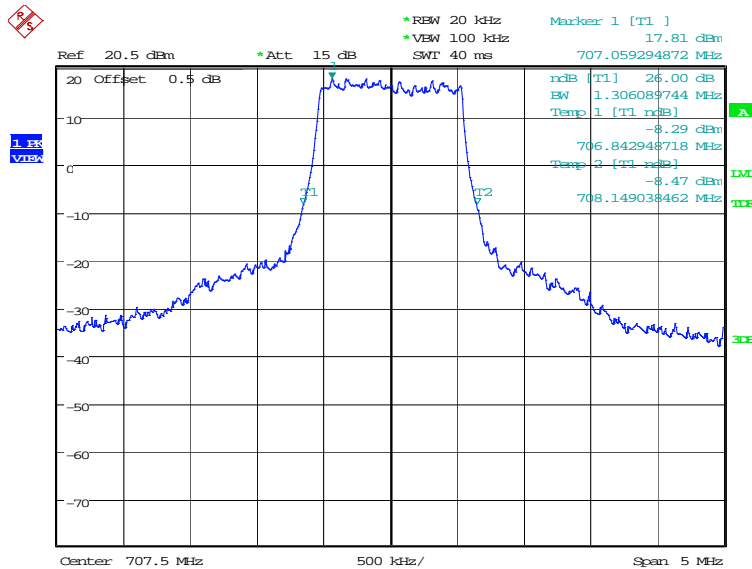
Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
707.5	1290.06	1306.09	1290.06

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



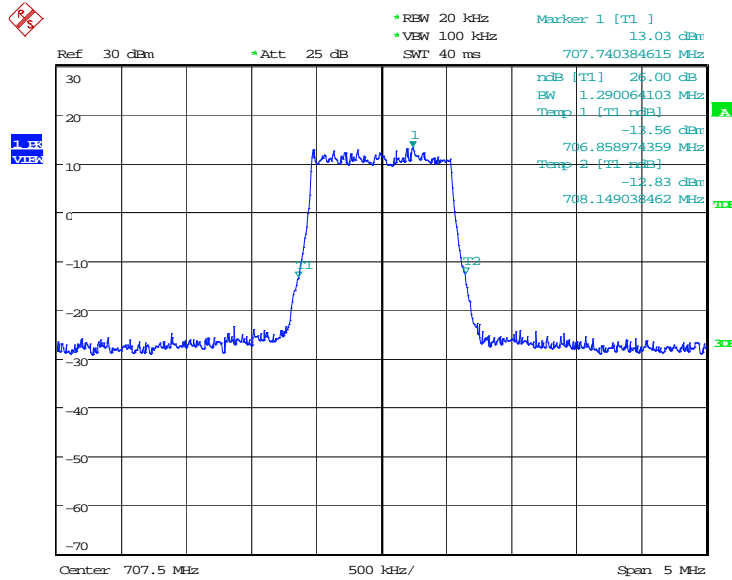
Date: 25.MAR.2020 19:29:01

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



Date: 25.MAR.2020 19:30:26

LTE band 12, 1.4MHz Bandwidth, 64QAM (-26dBc BW)

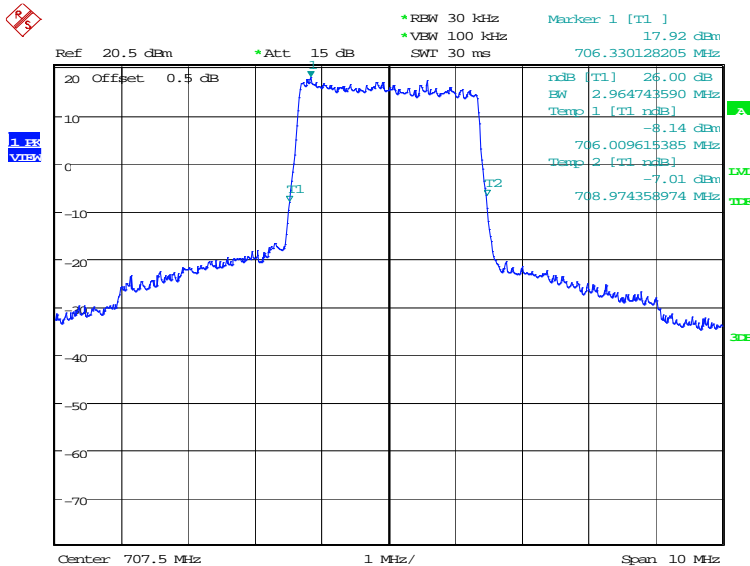


Date: 28.MAR.2020 10:11:57

LTE band 12, 3MHz (-26dBc)

Frequency (MHz)	Occupied Bandwidth (-26dBc) (kHz)		
	QPSK	16QAM	64QAM
707.5	2964.74	2964.74	2948.72

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



Date: 25.MAR.2020 19:31:52