TEST REPORT

No. I20Z60959-WMD03

for

OnePlus Technology (Shenzhen) Co., Ltd.

Smart Phone

Model Name: BE2028, BE2025, BE2026

FCC ID: 2ABZ2-EF170

with

Hardware Version: 16

Software Version: 10.5.5.BE88CB

Issued Date: 2020-12-08

Note:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I20Z60959-WMD03	Rev.0	1st edition	2020-11-12
I20Z60959-WMD03	Rev.1	2nd edition Update calibration due date in chapter 7.	2020-12-08

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 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0 and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (CN0066). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Location 1: CTTL (huayuan North Road)

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

Location 2: CTTL (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

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1.3. Testing Environment

Normal Temperature: 15-35℃

Relative Humidity: 20-75%

1.4. Project Data

Testing Start Date: 2020-07-21

Testing End Date: 2020-10-26

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)

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2. lient Information

2.1. Applicant Information

Company Name:	OnePlus Technology (Shenzhen) Co., Ltd.
Address /Post:	18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen
Contact:	Ariel Cheng
Email:	ariel.cheng@oneplus.com
Telephone:	86 755 61898696-7023

2.2. Manufacturer Information

Company Name:	OnePlus Technology (Shenzhen) Co., Ltd.
Address /Post:	18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen
Contact:	Ariel Cheng
Email:	ariel.cheng@oneplus.com
Telephone:	86 755 61898696-7023

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

3.1. About EUT

Description	Smart Phone
Model Name	BE2028, BE2025, BE2026
FCC ID	2ABZ2-EF170
Antenna	Embedded
Output power	25.86dBm maximum EIRP measured for LTE Band 41
Extreme vol. Limits	3.45VDC to 4.45VDC (nominal: 3.87VDC)
Extreme temp. Tolerance	0°C to +55°C

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

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version	Date of receipt
UT04a	990016800072090	16	10.5.5.BE88CB	2020-07-21
UT16a	990016800073023	16	10.5.5.BE88CB	2020-08-19

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

3.3. Internal Identification of AE used during the test

AE1	Battery

AE1

Model	BLP815
Manufacturer	Dongguan NVT Technology Co.,Ltd.
Capacity	4210mAh

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

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4. Reference Documents

4.1. Documents supplied by applicant

EUT parameters, referring to Annex A for detailed information, is supplied by the client or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

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

Reference	Title	Version
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	10-1-19 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

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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 M
Ground system resistance	< 0.5

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 M
Ground system resistance	< 1
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz

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 M
Ground system resistance	< 0.5
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

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6. Summary Of Test Result

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 13

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

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LTE Band 25

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 26(814MHz~824MHz)

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	90.635	P
2	Emission Limit	2.1051/90.691	P
3	Frequency Stability	2.1055	P
4	Occupied Bandwidth	2.1049	P
5	Emission Bandwidth	2.1049	P
6	Band Edge Compliance	90.691	P
7	Conducted Spurious Emission	90.691	P

LTE Band 26(824MHz~849MHz)

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

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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

LTE Band 71

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

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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.

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7. Test Equipment Utilized

Description	Type	Series Number	Manufacture	Cal Due Date	Calibration Interval
Wideband Radio Communication Tester	CMW500	159082	R&S	2020-12-24	1 year
Spectrum Analyzer	FSU	200030	R&S	2021-06-01	1 year
Radio Communication Analyzer	MT8821C	6201763159	Anritsu	2021-08-12	1 year
Climate Chamber	SH-242	93008556	ESPEC	2020-12-21	3 years
EMI Antenna	VULB9163	9163-235	Schwarzbeck	2021-03-12	1 year
EMI Antenna	3117	00058889	ETS-Lindgren	2020-11-18	1 year
EMI Antenna	3117	00119021	ETS-Lindgren	2021-01-14	1 year
EMI Antenna	9117	177	Schwarzbeck	2021-10-12	1 year
Signal Generator	N5183A	MY49060052	R&S	2021-06-24	1 year
Test Receiver	E4440A	MY48250642	Agilent	2021-03-13	1 year
Universal Radio Communication Tester	CMW500	143008	R&S	2020-11-26	1 year
Power Amplifier	5S1G4	0341863	AR	/	/

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Annex A: Measurement Results

A.1 Output Power

A.1.1 Summary

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

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

A.1.2 Conducted

A.1.2.1 Method of Measurements

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

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

A.1.2.2 Measurement Result

LTE band 7

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2567.5	23.96	23.10	22.21
		2535.0	23.93	23.07	22.39
		2502.5	23.77	23.39	22.16
	1 RB low	2567.5	23.90	23.07	22.27
		2535.0	23.96	23.06	22.44
		2502.5	23.73	23.31	22.31
	50% RB mid	2567.5	22.97	22.03	21.20
		2535.0	22.93	22.01	21.44
		2502.5	22.80	21.94	21.20
	100% RB	2567.5	22.91	21.90	21.08
		2535.0	22.87	21.86	21.29
		2502.5	22.78	21.87	21.17
10MHz	1 RB high	2565.0	23.92	22.91	22.35
		2535.0	23.91	22.79	22.37
		2505.0	23.83	23.17	22.33
	1 RB low	2565.0	23.86	22.87	22.37
		2535.0	23.82	22.77	22.50
		2505.0	23.72	23.18	22.34
	50% RB mid	2565.0	22.90	21.99	21.26
		2535.0	22.87	21.84	21.33
		2505.0	22.74	21.80	21.09

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	100% RB	2565.0	22.85	21.89	21.16
		2535.0	22.77	21.74	21.16
		2505.0	22.67	21.66	20.95
15MHz	1 RB high	2562.5	23.73	23.10	22.03
		2535.0	23.81	23.16	22.39
		2507.5	23.67	22.59	22.19
	1 RB low	2562.5	23.73	23.03	22.12
		2535.0	23.65	23.15	22.24
		2507.5	23.59	22.49	22.15
	50% RB mid	2562.5	22.81	21.86	21.27
		2535.0	22.66	21.68	21.17
		2507.5	22.60	21.60	21.02
	100% RB	2562.5	22.73	21.76	21.18
		2535.0	22.59	21.65	21.03
		2507.5	22.55	21.57	20.86
20MHz	1 RB high	2560.0	23.77	23.30	22.18
		2535.0	23.78	23.21	22.26
		2510.0	23.65	23.07	22.11
	1 RB low	2560.0	23.65	23.16	22.27
		2535.0	23.59	22.97	22.19
		2510.0	23.52	22.89	22.19
	50% RB mid	2560.0	22.77	21.83	21.28
		2535.0	22.69	21.72	21.16
		2510.0	22.68	21.68	21.03
	100% RB	2560.0	22.71	21.73	21.12
		2535.0	22.57	21.70	21.07
		2510.0	22.54	21.52	20.86

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LTE band 12

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	715.3	24.58	23.73	23.21
		707.5	24.74	23.88	23.28
		699.7	24.72	24.17	23.33
	1 RB low	715.3	24.59	23.68	23.32
		707.5	24.69	23.79	23.35
		699.7	24.72	24.17	23.39
	50% RB mid	715.3	24.68	23.93	23.33
		707.5	24.73	23.86	23.34
		699.7	24.78	24.02	23.36
	100% RB	715.3	23.67	22.86	22.08
		707.5	23.69	22.85	22.10
		699.7	23.77	22.71	22.27
3MHz	1 RB high	714.5	24.64	23.78	23.12
		707.5	24.77	23.74	23.48
		700.5	24.79	24.24	23.45
	1 RB low	714.5	24.67	23.84	23.48
		707.5	24.74	23.75	23.44
		700.5	24.86	24.31	23.44
	50% RB mid	714.5	23.80	22.84	22.26
		707.5	23.80	22.91	22.26
		700.5	23.87	22.98	22.34
	100% RB	714.5	23.71	22.69	22.21
		707.5	23.80	22.82	22.28
		700.5	23.88	22.90	22.24
5MHz	1 RB high	713.5	24.70	24.29	23.15
		707.5	24.82	23.93	23.46
		701.5	24.88	24.03	23.42
	1 RB low	713.5	24.72	24.30	23.11
		707.5	24.77	23.93	23.49
		701.5	24.87	24.01	23.45
	50% RB mid	713.5	23.75	22.93	22.43
		707.5	23.82	22.86	22.34
		701.5	23.89	22.97	22.33
	100% RB	713.5	23.75	22.80	22.43
		707.5	23.78	22.76	22.26
		701.5	23.85	22.87	22.37
10MHz	1 RB high	711.0	24.73	23.64	23.31
		707.5	24.77	24.12	23.46
		704.0	24.80	23.78	23.48
	1 RB low	711.0	24.69	23.72	23.40

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		707.5	24.80	24.14	23.45
		704.0	24.87	23.86	23.42
	50% RB mid	711.0	23.79	22.81	22.30
		707.5	23.81	22.85	22.28
		704.0	23.87	22.98	22.36
	100% RB	711.0	23.71	22.69	22.08
		707.5	23.71	22.74	22.25
		704.0	23.84	22.84	22.32

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LTE band 13

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	784.5	24.81	23.95	22.87
		782.0	24.72	23.98	22.88
		779.5	24.82	23.99	22.96
	1 RB low	784.5	24.77	23.92	22.90
		782.0	24.62	23.94	22.96
		779.5	24.68	23.87	22.73
	50% RB mid	784.5	23.77	22.87	21.79
		782.0	23.73	22.93	21.73
		779.5	23.83	22.95	21.86
	100% RB	784.5	23.77	22.73	21.78
		782.0	23.74	22.84	21.63
		779.5	23.74	22.84	21.87
10MHz	1 RB high	782.0	24.70	23.73	22.91
	1 RB low	782.0	24.59	23.74	22.94
	50% RB mid	782.0	23.71	22.79	21.79
	100% RB	782.0	23.73	22.66	21.71

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LTE band 25

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1914.3	24.36	23.40	21.98
		1882.5	24.49	23.68	22.27
		1850.7	24.45	23.89	22.62
	1 RB low	1914.3	24.42	23.47	22.22
		1882.5	24.50	23.64	22.59
		1850.7	24.42	23.87	22.80
	50% RB mid	1914.3	24.45	23.71	22.34
		1882.5	24.45	23.58	22.73
		1850.7	24.50	23.72	22.78
	100% RB	1914.3	23.51	22.69	21.16
		1882.5	23.50	22.69	21.59
		1850.7	23.53	22.43	21.70
3MHz	1 RB high	1913.5	24.43	23.42	22.02
		1882.5	24.57	23.57	22.98
		1851.5	24.59	23.98	22.08
	1 RB low	1913.5	24.48	23.64	22.60
		1882.5	24.45	23.48	22.88
		1851.5	24.51	23.96	22.78
	50% RB mid	1913.5	23.66	22.72	21.48
		1882.5	23.63	22.74	21.84
		1851.5	23.64	22.74	21.76
	100% RB	1913.5	23.61	22.61	21.39
		1882.5	23.63	22.67	21.16
		1851.5	23.62	22.64	21.09
5MHz	1 RB high	1912.5	24.49	23.51	22.87
		1882.5	24.68	23.81	22.87
		1852.5	24.55	23.94	22.74
	1 RB low	1912.5	24.60	23.72	22.82
		1882.5	24.61	23.71	22.91
		1852.5	24.50	23.95	22.88
	50% RB mid	1912.5	23.70	22.68	21.72
		1882.5	23.65	22.72	21.81
		1852.5	23.62	22.82	21.69
	100% RB	1912.5	23.63	22.60	21.58
		1882.5	23.64	22.70	21.75
		1852.5	23.60	22.70	21.59
10MHz	1 RB high	1910.0	24.48	23.49	22.06
		1882.5	24.33	23.31	22.85
		1855.0	24.40	23.76	22.84
	1 RB low	1910.0	24.55	23.59	22.78

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		1882.5	24.21	23.24	22.86
		1855.0	24.35	23.69	22.84
	50% RB mid	1910.0	23.65	22.72	21.95
		1882.5	23.64	22.66	21.85
		1855.0	23.66	22.66	21.60
	100% RB	1910.0	23.54	22.60	21.92
		1882.5	23.46	22.45	21.85
		1855.0	23.54	22.53	21.66
15MHz	1 RB high	1907.5	24.53	23.77	22.27
		1882.5	24.48	23.54	22.69
		1857.5	24.40	23.70	22.96
	1 RB low	1907.5	24.51	23.78	22.86
		1882.5	24.46	23.42	22.87
		1857.5	24.18	23.55	22.81
	50% RB mid	1907.5	23.56	22.53	21.95
		1882.5	23.55	22.54	21.95
		1857.5	23.53	22.56	21.66
	100% RB	1907.5	23.50	22.48	21.85
		1882.5	23.38	22.36	21.87
		1857.5	23.44	22.47	21.65
20MHz	1 RB high	1905.0	24.45	23.98	22.65
		1882.5	24.50	23.94	22.81
		1860.0	24.60	23.94	22.84
	1 RB low	1905.0	24.44	23.95	22.92
		1882.5	24.44	23.92	22.91
		1860.0	24.40	23.94	22.87
	50% RB mid	1905.0	23.58	22.61	21.95
		1882.5	23.55	22.50	21.97
		1860.0	23.60	22.61	21.76
	100% RB	1905.0	23.53	22.46	21.92
		1882.5	23.46	22.44	21.73
		1860.0	23.49	22.52	21.76

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LTE band 26(814MHz~824MHz)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	823.3	24.45	23.54	22.96
		819.0	24.43	23.56	22.99
		814.7	23.93	23.53	22.94
	1 RB low	823.3	24.38	23.45	22.89
		819.0	24.43	23.53	22.94
		814.7	23.91	23.53	22.98
	50% RB mid	823.3	24.46	23.74	22.99
		819.0	24.46	23.71	22.97
		814.7	24.54	23.79	23.01
	100% RB	823.3	23.52	22.72	21.83
		819.0	23.49	22.70	21.77
		814.7	23.56	22.74	21.86
3MHz	1 RB high	822.5	24.56	23.65	23.08
		819.0	24.54	23.63	23.02
		815.5	24.55	23.65	23.05
	1 RB low	822.5	24.50	23.58	22.91
		819.0	24.58	23.64	23.01
		815.5	24.56	23.68	22.98
	50% RB mid	822.5	23.64	22.69	21.92
		819.0	23.61	22.67	21.87
		815.5	23.68	22.74	21.99
	100% RB	822.5	23.60	22.59	21.90
		819.0	23.58	22.56	21.87
		815.5	23.65	22.62	21.92
5MHz	1 RB high	821.5	24.59	23.65	23.06
		819.0	24.54	23.66	23.07
		816.5	24.48	23.60	23.03
	1 RB low	821.5	24.47	23.61	23.02
		819.0	24.57	23.67	23.06
		816.5	24.44	23.53	22.96
	50% RB mid	821.5	23.66	22.70	21.90
		819.0	23.67	22.74	21.93
		816.5	23.67	22.71	21.88
	100% RB	821.5	23.61	22.61	21.84
		819.0	23.61	22.54	21.83
		816.5	23.63	22.59	21.87
10MHz	1 RB high	819.0	24.53	23.60	22.97
	1 RB low	819.0	24.60	23.70	23.02
	50% RB mid	819.0	23.63	22.71	21.88
	100% RB	819.0	23.55	22.58	21.84

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LTE band 26(824MHz~849MHz)

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	848.3	24.27	23.40	22.83
		836.5	24.43	23.52	22.91
		824.7	24.38	23.53	22.96
	1 RB low	848.3	24.27	23.36	22.87
		836.5	24.40	23.49	22.90
		824.7	24.32	23.48	22.89
	50% RB mid	848.3	24.33	23.58	22.86
		836.5	24.43	23.72	22.92
		824.7	24.49	23.73	22.93
	100% RB	848.3	23.37	22.55	21.66
		836.5	23.48	22.66	21.72
		824.7	23.51	22.70	21.71
3MHz	1 RB high	847.5	24.41	23.51	22.92
		836.5	24.55	23.64	23.05
		825.5	24.54	23.62	23.02
	1 RB low	847.5	24.48	23.56	22.98
		836.5	24.51	23.61	23.02
		825.5	24.48	23.59	22.97
	50% RB mid	847.5	23.53	22.57	21.83
		836.5	23.62	22.67	21.87
		825.5	23.63	22.68	21.91
	100% RB	847.5	23.47	22.46	21.76
		836.5	23.58	22.57	21.78
		825.5	23.60	22.58	21.82
5MHz	1 RB high	846.5	24.44	23.55	22.91
		836.5	24.56	23.62	23.02
		826.5	24.56	23.67	23.08
	1 RB low	846.5	24.48	23.57	22.99
		836.5	24.52	23.58	22.98
		826.5	24.50	23.60	23.02
	50% RB mid	846.5	23.59	22.59	21.86
		836.5	23.63	22.69	21.85
		826.5	23.62	22.68	21.91
	100% RB	846.5	23.51	22.46	21.75
		836.5	23.59	22.56	21.80
		826.5	23.64	22.56	21.82
10MHz	1 RB high	844.0	24.44	23.58	22.91
		836.5	24.52	23.60	22.93
		829.0	24.52	23.63	22.96
	1 RB low	844.0	24.51	23.63	22.96

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		836.5	24.56	23.64	23.02
		829.0	24.54	23.66	22.95
	50% RB mid	844.0	23.50	22.60	21.77
		836.5	23.62	22.73	21.83
		829.0	23.64	22.79	21.88
	100% RB	844.0	23.44	22.49	21.69
		836.5	23.55	22.58	21.76
		829.0	23.59	22.62	21.81
15MHz	1 RB high	841.5	24.22	23.70	22.75
		836.5	24.26	23.70	22.81
		831.5	24.27	23.76	22.86
	1 RB low	841.5	24.37	23.81	22.91
		836.5	24.37	23.83	22.86
		831.5	24.34	23.76	22.88
	50% RB mid	841.5	23.40	22.39	21.73
		836.5	23.33	22.32	21.60
		831.5	23.35	22.37	21.66
	100% RB	841.5	23.28	22.27	21.56
		836.5	23.32	22.36	21.54
		831.5	23.30	22.30	21.51

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LTE band 41 HPUE

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	2687.5	25.22	24.18	23.15
		2593.0	26.46	25.71	24.87
		2498.5	25.45	25.14	23.95
	1 RB low	2687.5	25.21	24.29	23.38
		2593.0	26.32	25.66	24.84
		2498.5	25.17	24.81	23.63
	50% RB mid	2687.5	24.42	23.61	22.65
		2593.0	25.61	24.62	23.79
		2498.5	24.72	23.95	23.16
	100% RB	2687.5	24.07	23.46	22.48
		2593.0	25.47	24.54	23.65
		2498.5	24.42	23.68	22.91
10MHz	1 RB high	2685.0	25.10	24.13	23.16
		2593.0	26.25	25.56	24.57
		2501.0	25.51	25.46	24.25
	1 RB low	2685.0	25.11	24.23	23.96
		2593.0	25.99	25.46	24.90
		2501.0	25.15	24.74	23.61
	50% RB mid	2685.0	24.24	23.43	22.55
		2593.0	25.59	24.60	23.76
		2501.0	24.88	24.19	23.38
	100% RB	2685.0	24.24	23.11	22.14
		2593.0	25.09	24.44	23.98
		2501.0	24.47	23.94	23.08
15MHz	1 RB high	2682.5	25.06	24.33	24.63
		2593.0	26.29	25.70	24.55
		2503.5	26.12	25.64	24.91
	1 RB low	2682.5	25.14	24.07	23.98
		2593.0	26.12	25.60	24.97
		2503.5	25.26	24.82	23.84
	50% RB mid	2682.5	24.20	23.38	22.48
		2593.0	25.44	24.46	23.68
		2503.5	25.27	24.41	23.71
	100% RB	2682.5	24.17	23.05	22.15
		2593.0	25.30	24.32	23.76
		2503.5	24.78	24.27	23.41
20MHz	1 RB high	2680.0	25.15	24.02	23.28
		2593.0	26.13	25.63	24.99
		2506.0	26.35	25.65	24.62
	1 RB low	2680.0	25.09	24.24	23.92

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		2593.0	25.99	25.43	24.84
		2506.0	25.15	24.76	23.80
	50% RB mid	2680.0	24.14	23.18	23.29
		2593.0	25.38	24.44	23.67
		2506.0	25.45	24.44	23.98
	100% RB	2680.0	24.33	23.12	23.81
		2593.0	25.24	24.31	23.65
		2506.0	25.06	24.39	23.62

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LTE band 66

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
1.4MHz	1 RB high	1779.3	24.32	23.39	21.96
		1745.0	24.57	23.70	22.83
		1710.7	24.51	23.99	22.53
	1 RB low	1779.3	24.32	23.43	21.99
		1745.0	24.61	23.75	22.78
		1710.7	24.55	23.96	22.60
	50% RB mid	1779.3	24.38	23.53	21.94
		1745.0	24.61	23.70	22.82
		1710.7	24.61	23.87	22.88
	100% RB	1779.3	23.43	22.58	20.70
		1745.0	23.64	22.78	21.65
		1710.7	23.58	22.56	21.75
3MHz	1 RB high	1778.5	24.41	23.43	22.09
		1745.0	24.57	23.57	22.36
		1711.5	24.60	23.98	21.91
	1 RB low	1778.5	24.58	23.70	22.21
		1745.0	24.66	23.66	22.47
		1711.5	24.69	23.95	22.74
	50% RB mid	1778.5	23.59	22.59	20.79
		1745.0	23.69	22.86	21.84
		1711.5	23.66	22.80	21.85
	100% RB	1778.5	23.63	22.58	20.79
		1745.0	23.69	22.75	21.79
		1711.5	23.62	22.73	21.75
5MHz	1 RB high	1777.5	24.47	23.53	22.17
		1745.0	24.64	23.79	22.84
		1712.5	24.53	23.94	22.50
	1 RB low	1777.5	24.64	23.78	22.57
		1745.0	24.71	23.84	22.90
		1712.5	24.58	23.98	22.91
	50% RB mid	1777.5	23.73	22.74	21.00
		1745.0	23.70	22.83	21.97
		1712.5	23.71	22.83	21.71
	100% RB	1777.5	23.67	22.60	20.96
		1745.0	23.67	22.72	21.78
		1712.5	23.66	22.74	21.57
10MHz	1 RB high	1775.0	24.37	23.34	22.27
		1745.0	24.40	23.29	22.62
		1715.0	24.43	23.88	21.94
	1 RB low	1775.0	24.36	23.36	22.59

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		1745.0	24.28	23.30	22.70
		1715.0	24.33	23.75	22.73
	50% RB mid	1775.0	23.68	22.76	21.62
		1745.0	23.72	22.74	21.88
		1715.0	23.68	22.76	21.33
	100% RB	1775.0	23.60	22.65	21.58
		1745.0	23.54	22.48	21.78
		1715.0	23.60	22.63	21.70
15MHz	1 RB high	1772.5	24.42	23.48	22.03
		1745.0	24.36	23.75	22.18
		1717.5	24.44	23.68	21.55
	1 RB low	1772.5	24.53	23.55	22.81
		1745.0	24.39	23.70	22.71
		1717.5	24.38	23.79	22.62
	50% RB mid	1772.5	23.56	22.57	21.64
		1745.0	23.56	22.65	21.69
		1717.5	23.60	22.55	21.07
	100% RB	1772.5	23.51	22.52	20.65
		1745.0	23.45	22.52	21.64
		1717.5	23.55	22.51	21.69
20MHz	1 RB high	1770.0	24.46	23.95	22.14
		1745.0	24.34	23.95	21.95
		1720.0	24.36	23.78	22.13
	1 RB low	1770.0	24.48	23.96	22.16
		1745.0	24.19	23.63	22.48
		1720.0	24.16	23.62	22.51
	50% RB mid	1770.0	23.60	22.63	21.61
		1745.0	23.58	22.61	21.55
		1720.0	23.68	22.64	20.71
	100% RB	1770.0	23.51	22.55	21.36
		1745.0	23.47	22.50	21.50
		1720.0	23.56	22.59	21.48

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LTE band 71

Bandwidth	RB size/offset	Frequency (MHz)	Power (dBm)		
			QPSK	16QAM	64QAM
5MHz	1 RB high	695.5	24.62	24.08	23.30
		680.5	24.66	24.09	22.71
		665.5	24.80	24.07	22.68
	1 RB low	695.5	24.50	23.92	23.23
		680.5	24.49	23.94	22.50
		665.5	24.51	23.73	22.62
	50% RB mid	695.5	23.80	22.88	21.57
		680.5	23.78	22.84	21.61
		665.5	23.86	22.87	21.69
	100% RB	695.5	23.69	22.71	21.56
		680.5	23.73	22.77	21.59
		665.5	23.86	22.85	21.56
10MHz	1 RB high	693.0	24.67	24.08	23.47
		680.5	24.67	24.16	23.34
		668.0	24.68	24.07	23.24
	1 RB low	693.0	24.60	23.85	23.23
		680.5	24.65	24.08	23.20
		668.0	24.56	23.90	22.71
	50% RB mid	693.0	23.79	22.87	22.14
		680.5	23.77	22.76	22.15
		668.0	23.80	22.82	21.92
	100% RB	693.0	23.75	22.78	22.04
		680.5	23.70	22.68	22.12
		668.0	23.80	22.80	21.79
15MHz	1 RB high	690.5	24.52	23.78	23.08
		680.5	24.59	23.95	23.13
		670.5	24.56	23.90	23.07
	1 RB low	690.5	24.55	23.88	23.40
		680.5	24.59	23.87	23.16
		670.5	24.59	23.93	22.70
	50% RB mid	690.5	23.58	22.61	22.08
		680.5	23.60	22.60	22.02
		670.5	23.67	22.68	22.10
	100% RB	690.5	23.53	22.53	21.98
		680.5	23.58	22.55	21.92
		670.5	23.62	22.68	21.99
20MHz	1 RB high	688.0	24.58	24.19	22.99
		680.5	24.59	24.11	23.07
		673.0	24.62	24.05	23.15
	1 RB low	688.0	24.54	24.13	23.16

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		680.5	24.56	24.00	23.22
		673.0	24.63	24.01	22.85
	50% RB mid	688.0	23.68	22.73	22.07
		680.5	23.61	22.68	22.04
		673.0	23.73	22.70	22.10
	100% RB	688.0	23.62	22.67	22.04
		680.5	23.54	22.56	21.99
		673.0	23.61	22.65	21.94

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A.1.3 Radiated

A.1.3.1 Description

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

FDD Band 7/41: 27.50(h)(2) specifies " *Mobile and other user stations.* Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power".

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

FDD Band 25: 24.232(c) specifies " Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications ".

LTE Band 26(814MHz~824MHz): Part 90.635(b) specifies "The maximum output power of the transmitter for mobile stations is 100 watts".

LTE Band 26(824MHz~849MHz): Part 22.913(a) specifies "The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts".

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

A.1.3.2 Method of Measurement

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

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

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

Where

ERP or EIRP	effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Mea} , e.g., dBm or dBW)
P_{Mea}	measured transmitter output power or PSD, in dBm or dBW
G_T	gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

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LTE Band 7-EIRP

Limits: ≤33 dBm (2W)

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power (dBm)			G_T (dBi)	Radiated Power (dBm)		
			QPSK	16QAM	64QAM		QPSK	16QAM	64QAM
5MHz	1 RB high	2567.5	23.96	23.10	22.21	-0.5	23.46	22.60	21.71
		2535.0	23.93	23.07	22.39	-0.5	23.43	22.57	21.89
		2502.5	23.77	23.39	22.16	-0.5	23.27	22.89	21.66
	1 RB low	2567.5	23.90	23.07	22.27	-0.5	23.40	22.57	21.77
		2535.0	23.96	23.06	22.44	-0.5	23.46	22.56	21.94
		2502.5	23.73	23.31	22.31	-0.5	23.23	22.81	21.81
	50% RB mid	2567.5	22.97	22.03	21.20	-0.5	22.47	21.53	20.70
		2535.0	22.93	22.01	21.44	-0.5	22.43	21.51	20.94
		2502.5	22.80	21.94	21.20	-0.5	22.30	21.44	20.70
	100% RB	2567.5	22.91	21.90	21.08	-0.5	22.41	21.40	20.58
		2535.0	22.87	21.86	21.29	-0.5	22.37	21.36	20.79
		2502.5	22.78	21.87	21.17	-0.5	22.28	21.37	20.67
10MHz	1 RB high	2565.0	23.92	22.91	22.35	-0.5	23.42	22.41	21.85
		2535.0	23.91	22.79	22.37	-0.5	23.41	22.29	21.87
		2505.0	23.83	23.17	22.33	-0.5	23.33	22.67	21.83
	1 RB low	2565.0	23.86	22.87	22.37	-0.5	23.36	22.37	21.87
		2535.0	23.82	22.77	22.50	-0.5	23.32	22.27	22.00
		2505.0	23.72	23.18	22.34	-0.5	23.22	22.68	21.84
	50% RB mid	2565.0	22.90	21.99	21.26	-0.5	22.40	21.49	20.76
		2535.0	22.87	21.84	21.33	-0.5	22.37	21.34	20.83
		2505.0	22.74	21.80	21.09	-0.5	22.24	21.30	20.59
	100% RB	2565.0	22.85	21.89	21.16	-0.5	22.35	21.39	20.66
		2535.0	22.77	21.74	21.16	-0.5	22.27	21.24	20.66
		2505.0	22.67	21.66	20.95	-0.5	22.17	21.16	20.45
15MHz	1 RB high	2562.5	23.73	23.10	22.03	-0.5	23.23	22.60	21.53
		2535.0	23.81	23.16	22.39	-0.5	23.31	22.66	21.89
		2507.5	23.67	22.59	22.19	-0.5	23.17	22.09	21.69
	1 RB low	2562.5	23.73	23.03	22.12	-0.5	23.23	22.53	21.62
		2535.0	23.65	23.15	22.24	-0.5	23.15	22.65	21.74
		2507.5	23.59	22.49	22.15	-0.5	23.09	21.99	21.65
	50% RB mid	2562.5	22.81	21.86	21.27	-0.5	22.31	21.36	20.77
		2535.0	22.66	21.68	21.17	-0.5	22.16	21.18	20.67
		2507.5	22.60	21.60	21.02	-0.5	22.10	21.10	20.52
	100% RB	2562.5	22.73	21.76	21.18	-0.5	22.23	21.26	20.68
		2535.0	22.59	21.65	21.03	-0.5	22.09	21.15	20.53
		2507.5	22.55	21.57	20.86	-0.5	22.05	21.07	20.36

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20MHz	1 RB high	2560.0	23.77	23.30	22.18	-0.5	23.27	22.80	21.68
		2535.0	23.78	23.21	22.26	-0.5	23.28	22.71	21.76
		2510.0	23.65	23.07	22.11	-0.5	23.15	22.57	21.61
	1 RB low	2560.0	23.65	23.16	22.27	-0.5	23.15	22.66	21.77
		2535.0	23.59	22.97	22.19	-0.5	23.09	22.47	21.69
		2510.0	23.52	22.89	22.19	-0.5	23.02	22.39	21.69
	50% RB mid	2560.0	22.77	21.83	21.28	-0.5	22.27	21.33	20.78
		2535.0	22.69	21.72	21.16	-0.5	22.19	21.22	20.66
		2510.0	22.68	21.68	21.03	-0.5	22.18	21.18	20.53
	100% RB	2560.0	22.71	21.73	21.12	-0.5	22.21	21.23	20.62
		2535.0	22.57	21.70	21.07	-0.5	22.07	21.20	20.57
		2510.0	22.54	21.52	20.86	-0.5	22.04	21.02	20.36

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LTE band 12-ERP

Limits: ≤34.77dBm (3W)

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power (dBm)			G_T (dBi)	Radiated Power (dBm)		
			QPSK	16QAM	64QAM		QPSK	16QAM	64QAM
1.4 MHz	1 RB high	715.3	24.58	23.73	23.21	-1.0	21.43	20.58	20.06
		707.5	24.74	23.88	23.28	-1.0	21.59	20.73	20.13
		699.7	24.72	24.17	23.33	-1.0	21.57	21.02	20.18
	1 RB low	715.3	24.59	23.68	23.32	-1.0	21.44	20.53	20.17
		707.5	24.69	23.79	23.35	-1.0	21.54	20.64	20.20
		699.7	24.72	24.17	23.39	-1.0	21.57	21.02	20.24
	50% RB mid	715.3	24.68	23.93	23.33	-1.0	21.53	20.78	20.18
		707.5	24.73	23.86	23.34	-1.0	21.58	20.71	20.19
		699.7	24.78	24.02	23.36	-1.0	21.63	20.87	20.21
	100% RB	715.3	23.67	22.86	22.08	-1.0	20.52	19.71	18.93
		707.5	23.69	22.85	22.10	-1.0	20.54	19.70	18.95
		699.7	23.77	22.71	22.27	-1.0	20.62	19.56	19.12
3MHz	1 RB high	714.5	24.64	23.78	23.12	-1.0	21.49	20.63	19.97
		707.5	24.77	23.74	23.48	-1.0	21.62	20.59	20.33
		700.5	24.79	24.24	23.45	-1.0	21.64	21.09	20.30
	1 RB low	714.5	24.67	23.84	23.48	-1.0	21.52	20.69	20.33
		707.5	24.74	23.75	23.44	-1.0	21.59	20.60	20.29
		700.5	24.86	24.31	23.44	-1.0	21.71	21.16	20.29
	50% RB mid	714.5	23.80	22.84	22.26	-1.0	20.65	19.69	19.11
		707.5	23.80	22.91	22.26	-1.0	20.65	19.76	19.11
		700.5	23.87	22.98	22.34	-1.0	20.72	19.83	19.19
	100% RB	714.5	23.71	22.69	22.21	-1.0	20.56	19.54	19.06
		707.5	23.80	22.82	22.28	-1.0	20.65	19.67	19.13
		700.5	23.88	22.90	22.24	-1.0	20.73	19.75	19.09
5MHz	1 RB high	713.5	24.70	24.29	23.15	-1.0	21.55	21.14	20.00
		707.5	24.82	23.93	23.46	-1.0	21.67	20.78	20.31
		701.5	24.88	24.03	23.42	-1.0	21.73	20.88	20.27
	1 RB low	713.5	24.72	24.30	23.11	-1.0	21.57	21.15	19.96
		707.5	24.77	23.93	23.49	-1.0	21.62	20.78	20.34
		701.5	24.87	24.01	23.45	-1.0	21.72	20.86	20.30
	50% RB mid	713.5	23.75	22.93	22.43	-1.0	20.60	19.78	19.28
		707.5	23.82	22.86	22.34	-1.0	20.67	19.71	19.19
		701.5	23.89	22.97	22.33	-1.0	20.74	19.82	19.18
	100% RB	713.5	23.75	22.80	22.43	-1.0	20.60	19.65	19.28
		707.5	23.78	22.76	22.26	-1.0	20.63	19.61	19.11
		701.5	23.85	22.87	22.37	-1.0	20.70	19.72	19.22

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10M Hz	1 RB high	711.0	24.73	23.64	23.31	-1.0	21.58	20.49	20.16
		707.5	24.77	24.12	23.46	-1.0	21.62	20.97	20.31
		704.0	24.80	23.78	23.48	-1.0	21.65	20.63	20.33
	1 RB low	711.0	24.69	23.72	23.40	-1.0	21.54	20.57	20.25
		707.5	24.80	24.14	23.45	-1.0	21.65	20.99	20.30
		704.0	24.87	23.86	23.42	-1.0	21.72	20.71	20.27
	50% RB mid	711.0	23.79	22.81	22.30	-1.0	20.64	19.66	19.15
		707.5	23.81	22.85	22.28	-1.0	20.66	19.70	19.13
		704.0	23.87	22.98	22.36	-1.0	20.72	19.83	19.21
	100% RB	711.0	23.71	22.69	22.08	-1.0	20.56	19.54	18.93
		707.5	23.71	22.74	22.25	-1.0	20.56	19.59	19.10
		704.0	23.84	22.84	22.32	-1.0	20.69	19.69	19.17

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LTE band 13-ERP

Limits: ≤34.77 dBm (3W)

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power (dBm)			G_T (dBi)	Radiated Power (dBm)		
			QPSK	16QAM	64QAM		QPSK	16QAM	64QAM
5MHz	1 RB high	784.5	24.81	23.95	22.87	-1.1	21.56	20.70	19.62
		782.0	24.72	23.98	22.88	-1.1	21.47	20.73	19.63
		779.5	24.82	23.99	22.96	-1.1	21.57	20.74	19.71
	1 RB low	784.5	24.77	23.92	22.90	-1.1	21.52	20.67	19.65
		782.0	24.62	23.94	22.96	-1.1	21.37	20.69	19.71
		779.5	24.68	23.87	22.73	-1.1	21.43	20.62	19.48
	50% RB mid	784.5	23.77	22.87	21.79	-1.1	20.52	19.62	18.54
		782.0	23.73	22.93	21.73	-1.1	20.48	19.68	18.48
		779.5	23.83	22.95	21.86	-1.1	20.58	19.70	18.61
	100% RB	784.5	23.77	22.73	21.78	-1.1	20.52	19.48	18.53
		782.0	23.74	22.84	21.63	-1.1	20.49	19.59	18.38
		779.5	23.74	22.84	21.87	-1.1	20.49	19.59	18.62
10MHz	1 RB high	782.0	24.70	23.73	22.91	-1.1	21.45	20.48	19.66
	1 RB low	782.0	24.59	23.74	22.94	-1.1	21.34	20.49	19.69
	50% RB mid	782.0	23.71	22.79	21.79	-1.1	20.46	19.54	18.54
	100% RB	782.0	23.73	22.66	21.71	-1.1	20.48	19.41	18.46

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LTE band 25-EIRP

Limits: ≤33dBm (2W)

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power (dBm)			G_T (dBi)	Radiated Power (dBm)		
			QPSK	16QAM	64QAM		QPSK	16QAM	64QAM
1.4 MHz	1 RB high	1914.3	24.36	23.40	21.98	-0.7	23.66	22.70	21.28
		1882.5	24.49	23.68	22.27	-0.7	23.79	22.98	21.57
		1850.7	24.45	23.89	22.62	-0.7	23.75	23.19	21.92
	1 RB low	1914.3	24.42	23.47	22.22	-0.7	23.72	22.77	21.52
		1882.5	24.50	23.64	22.59	-0.7	23.80	22.94	21.89
		1850.7	24.42	23.87	22.80	-0.7	23.72	23.17	22.10
	50% RB mid	1914.3	24.45	23.71	22.34	-0.7	23.75	23.01	21.64
		1882.5	24.45	23.58	22.73	-0.7	23.75	22.88	22.03
		1850.7	24.50	23.72	22.78	-0.7	23.80	23.02	22.08
	100% RB	1914.3	23.51	22.69	21.16	-0.7	22.81	21.99	20.46
		1882.5	23.50	22.69	21.59	-0.7	22.80	21.99	20.89
		1850.7	23.53	22.43	21.70	-0.7	22.83	21.73	21.00
3MHz	1 RB high	1913.5	24.43	23.42	22.02	-0.7	23.73	22.72	21.32
		1882.5	24.57	23.57	22.98	-0.7	23.87	22.87	22.28
		1851.5	24.59	23.98	22.08	-0.7	23.89	23.28	21.38
	1 RB low	1913.5	24.48	23.64	22.60	-0.7	23.78	22.94	21.90
		1882.5	24.45	23.48	22.88	-0.7	23.75	22.78	22.18
		1851.5	24.51	23.96	22.78	-0.7	23.81	23.26	22.08
	50% RB mid	1913.5	23.66	22.72	21.48	-0.7	22.96	22.02	20.78
		1882.5	23.63	22.74	21.84	-0.7	22.93	22.04	21.14
		1851.5	23.64	22.74	21.76	-0.7	22.94	22.04	21.06
	100% RB	1913.5	23.61	22.61	21.39	-0.7	22.91	21.91	20.69
		1882.5	23.63	22.67	21.16	-0.7	22.93	21.97	20.46
		1851.5	23.62	22.64	21.09	-0.7	22.92	21.94	20.39
5MHz	1 RB high	1912.5	24.49	23.51	22.87	-0.7	23.79	22.81	22.17
		1882.5	24.68	23.81	22.87	-0.7	23.98	23.11	22.17
		1852.5	24.55	23.94	22.74	-0.7	23.85	23.24	22.04
	1 RB low	1912.5	24.60	23.72	22.82	-0.7	23.90	23.02	22.12
		1882.5	24.61	23.71	22.91	-0.7	23.91	23.01	22.21
		1852.5	24.50	23.95	22.88	-0.7	23.80	23.25	22.18
	50% RB mid	1912.5	23.70	22.68	21.72	-0.7	23.00	21.98	21.02
		1882.5	23.65	22.72	21.81	-0.7	22.95	22.02	21.11
		1852.5	23.62	22.82	21.69	-0.7	22.92	22.12	20.99
	100% RB	1912.5	23.63	22.60	21.58	-0.7	22.93	21.90	20.88
		1882.5	23.64	22.70	21.75	-0.7	22.94	22.00	21.05
		1852.5	23.60	22.70	21.59	-0.7	22.90	22.00	20.89

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10M Hz	1 RB high	1910.0	24.48	23.49	22.06	-0.7	23.78	22.79	21.36
		1882.5	24.33	23.31	22.85	-0.7	23.63	22.61	22.15
		1855.0	24.40	23.76	22.84	-0.7	23.70	23.06	22.14
	1 RB low	1910.0	24.55	23.59	22.78	-0.7	23.85	22.89	22.08
		1882.5	24.21	23.24	22.86	-0.7	23.51	22.54	22.16
		1855.0	24.35	23.69	22.84	-0.7	23.65	22.99	22.14
	50% RB mid	1910.0	23.65	22.72	21.95	-0.7	22.95	22.02	21.25
		1882.5	23.64	22.66	21.85	-0.7	22.94	21.96	21.15
		1855.0	23.66	22.66	21.60	-0.7	22.96	21.96	20.90
	100% RB	1910.0	23.54	22.60	21.92	-0.7	22.84	21.90	21.22
		1882.5	23.46	22.45	21.85	-0.7	22.76	21.75	21.15
		1855.0	23.54	22.53	21.66	-0.7	22.84	21.83	20.96
15M Hz	1 RB high	1907.5	24.53	23.77	22.27	-0.7	23.83	23.07	21.57
		1882.5	24.48	23.54	22.69	-0.7	23.78	22.84	21.99
		1857.5	24.40	23.70	22.96	-0.7	23.70	23.00	22.26
	1 RB low	1907.5	24.51	23.78	22.86	-0.7	23.81	23.08	22.16
		1882.5	24.46	23.42	22.87	-0.7	23.76	22.72	22.17
		1857.5	24.18	23.55	22.81	-0.7	23.48	22.85	22.11
	50% RB mid	1907.5	23.56	22.53	21.95	-0.7	22.86	21.83	21.25
		1882.5	23.55	22.54	21.95	-0.7	22.85	21.84	21.25
		1857.5	23.53	22.56	21.66	-0.7	22.83	21.86	20.96
	100% RB	1907.5	23.50	22.48	21.85	-0.7	22.80	21.78	21.15
		1882.5	23.38	22.36	21.87	-0.7	22.68	21.66	21.17
		1857.5	23.44	22.47	21.65	-0.7	22.74	21.77	20.95
20M Hz	1 RB high	1905.0	24.45	23.98	22.65	-0.7	23.75	23.28	21.95
		1882.5	24.50	23.94	22.81	-0.7	23.80	23.24	22.11
		1860.0	24.60	23.94	22.84	-0.7	23.90	23.24	22.14
	1 RB low	1905.0	24.44	23.95	22.92	-0.7	23.74	23.25	22.22
		1882.5	24.44	23.92	22.91	-0.7	23.74	23.22	22.21
		1860.0	24.40	23.94	22.87	-0.7	23.70	23.24	22.17
	50% RB mid	1905.0	23.58	22.61	21.95	-0.7	22.88	21.91	21.25
		1882.5	23.55	22.50	21.97	-0.7	22.85	21.80	21.27
		1860.0	23.60	22.61	21.76	-0.7	22.90	21.91	21.06
	100% RB	1905.0	23.53	22.46	21.92	-0.7	22.83	21.76	21.22
		1882.5	23.46	22.44	21.73	-0.7	22.76	21.74	21.03
		1860.0	23.49	22.52	21.76	-0.7	22.79	21.82	21.06

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

Limits: ≤50dBm (100W)

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power (dBm)			G_T (dBi)	Radiated Power (dBm)		
			QPSK	16QAM	64QAM		QPSK	16QAM	64QAM
1.4 MHz	1 RB high	823.3	24.45	23.54	22.96	-0.9	21.40	20.49	19.91
		819.0	24.43	23.56	22.99	-0.9	21.38	20.51	19.94
		814.7	23.93	23.53	22.94	-0.9	20.88	20.48	19.89
	1 RB low	823.3	24.38	23.45	22.89	-0.9	21.33	20.40	19.84
		819.0	24.43	23.53	22.94	-0.9	21.38	20.48	19.89
		814.7	23.91	23.53	22.98	-0.9	20.86	20.48	19.93
	50% RB mid	823.3	24.46	23.74	22.99	-0.9	21.41	20.69	19.94
		819.0	24.46	23.71	22.97	-0.9	21.41	20.66	19.92
		814.7	24.54	23.79	23.01	-0.9	21.49	20.74	19.96
	100% RB	823.3	23.52	22.72	21.83	-0.9	20.47	19.67	18.78
		819.0	23.49	22.70	21.77	-0.9	20.44	19.65	18.72
		814.7	23.56	22.74	21.86	-0.9	20.51	19.69	18.81
3MHz	1 RB high	822.5	24.56	23.65	23.08	-0.9	21.51	20.60	20.03
		819.0	24.54	23.63	23.02	-0.9	21.49	20.58	19.97
		815.5	24.55	23.65	23.05	-0.9	21.50	20.60	20.00
	1 RB low	822.5	24.50	23.58	22.91	-0.9	21.45	20.53	19.86
		819.0	24.58	23.64	23.01	-0.9	21.53	20.59	19.96
		815.5	24.56	23.68	22.98	-0.9	21.51	20.63	19.93
	50% RB mid	822.5	23.64	22.69	21.92	-0.9	20.59	19.64	18.87
		819.0	23.61	22.67	21.87	-0.9	20.56	19.62	18.82
		815.5	23.68	22.74	21.99	-0.9	20.63	19.69	18.94
	100% RB	822.5	23.60	22.59	21.90	-0.9	20.55	19.54	18.85
		819.0	23.58	22.56	21.87	-0.9	20.53	19.51	18.82
		815.5	23.65	22.62	21.92	-0.9	20.60	19.57	18.87
5MHz	1 RB high	821.5	24.59	23.65	23.06	-0.9	21.54	20.60	20.01
		819.0	24.54	23.66	23.07	-0.9	21.49	20.61	20.02
		816.5	24.48	23.60	23.03	-0.9	21.43	20.55	19.98
	1 RB low	821.5	24.47	23.61	23.02	-0.9	21.42	20.56	19.97
		819.0	24.57	23.67	23.06	-0.9	21.52	20.62	20.01
		816.5	24.44	23.53	22.96	-0.9	21.39	20.48	19.91
	50% RB mid	821.5	23.66	22.70	21.90	-0.9	20.61	19.65	18.85
		819.0	23.67	22.74	21.93	-0.9	20.62	19.69	18.88
		816.5	23.67	22.71	21.88	-0.9	20.62	19.66	18.83
	100% RB	821.5	23.61	22.61	21.84	-0.9	20.56	19.56	18.79
		819.0	23.61	22.54	21.83	-0.9	20.56	19.49	18.78

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		816.5	23.63	22.59	21.87	-0.9	20.58	19.54	18.82
10MHz	1 RB high	819.0	24.53	23.60	22.97	-0.9	21.48	20.55	19.92
	1 RB low	819.0	24.60	23.70	23.02	-0.9	21.55	20.65	19.97
	50% RB mid	819.0	23.63	22.71	21.88	-0.9	20.58	19.66	18.83
	100% RB	819.0	23.55	22.58	21.84	-0.9	20.50	19.53	18.79

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

Limits: ≤38.45dBm (7W)

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power (dBm)			G_T (dBi)	Radiated Power (dBm)		
			QPSK	16QAM	64QAM		QPSK	16QAM	64QAM
1.4 MHz	1 RB high	848.3	24.27	23.40	22.83	-0.9	21.22	20.35	19.78
		836.5	24.43	23.52	22.91	-0.9	21.38	20.47	19.86
		824.7	24.38	23.53	22.96	-0.9	21.33	20.48	19.91
	1 RB low	848.3	24.27	23.36	22.87	-0.9	21.22	20.31	19.82
		836.5	24.40	23.49	22.90	-0.9	21.35	20.44	19.85
		824.7	24.32	23.48	22.89	-0.9	21.27	20.43	19.84
	50% RB mid	848.3	24.33	23.58	22.86	-0.9	21.28	20.53	19.81
		836.5	24.43	23.72	22.92	-0.9	21.38	20.67	19.87
		824.7	24.49	23.73	22.93	-0.9	21.44	20.68	19.88
	100% RB	848.3	23.37	22.55	21.66	-0.9	20.32	19.50	18.61
		836.5	23.48	22.66	21.72	-0.9	20.43	19.61	18.67
		824.7	23.51	22.70	21.71	-0.9	20.46	19.65	18.66
3MHz	1 RB high	847.5	24.41	23.51	22.92	-0.9	21.36	20.46	19.87
		836.5	24.55	23.64	23.05	-0.9	21.50	20.59	20.00
		825.5	24.54	23.62	23.02	-0.9	21.49	20.57	19.97
	1 RB low	847.5	24.48	23.56	22.98	-0.9	21.43	20.51	19.93
		836.5	24.51	23.61	23.02	-0.9	21.46	20.56	19.97
		825.5	24.48	23.59	22.97	-0.9	21.43	20.54	19.92
	50% RB mid	847.5	23.53	22.57	21.83	-0.9	20.48	19.52	18.78
		836.5	23.62	22.67	21.87	-0.9	20.57	19.62	18.82
		825.5	23.63	22.68	21.91	-0.9	20.58	19.63	18.86
	100% RB	847.5	23.47	22.46	21.76	-0.9	20.42	19.41	18.71
		836.5	23.58	22.57	21.78	-0.9	20.53	19.52	18.73
		825.5	23.60	22.58	21.82	-0.9	20.55	19.53	18.77
5MHz	1 RB high	846.5	24.44	23.55	22.91	-0.9	21.39	20.50	19.86
		836.5	24.56	23.62	23.02	-0.9	21.51	20.57	19.97
		826.5	24.56	23.67	23.08	-0.9	21.51	20.62	20.03
	1 RB low	846.5	24.48	23.57	22.99	-0.9	21.43	20.52	19.94
		836.5	24.52	23.58	22.98	-0.9	21.47	20.53	19.93
		826.5	24.50	23.60	23.02	-0.9	21.45	20.55	19.97
	50% RB mid	846.5	23.59	22.59	21.86	-0.9	20.54	19.54	18.81
		836.5	23.63	22.69	21.85	-0.9	20.58	19.64	18.80
		826.5	23.62	22.68	21.91	-0.9	20.57	19.63	18.86
	100% RB	846.5	23.51	22.46	21.75	-0.9	20.46	19.41	18.70
		836.5	23.59	22.56	21.80	-0.9	20.54	19.51	18.75
		826.5	23.64	22.56	21.82	-0.9	20.59	19.51	18.77

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10M Hz	1 RB high	844.0	24.44	23.58	22.91	-0.9	21.39	20.53	19.86
		836.5	24.52	23.60	22.93	-0.9	21.47	20.55	19.88
		829.0	24.52	23.63	22.96	-0.9	21.47	20.58	19.91
	1 RB low	844.0	24.51	23.63	22.96	-0.9	21.46	20.58	19.91
		836.5	24.56	23.64	23.02	-0.9	21.51	20.59	19.97
		829.0	24.54	23.66	22.95	-0.9	21.49	20.61	19.90
	50% RB mid	844.0	23.50	22.60	21.77	-0.9	20.45	19.55	18.72
		836.5	23.62	22.73	21.83	-0.9	20.57	19.68	18.78
		829.0	23.64	22.79	21.88	-0.9	20.59	19.74	18.83
	100% RB	844.0	23.44	22.49	21.69	-0.9	20.39	19.44	18.64
		836.5	23.55	22.58	21.76	-0.9	20.50	19.53	18.71
		829.0	23.59	22.62	21.81	-0.9	20.54	19.57	18.76
15M Hz	1 RB high	841.5	24.22	23.70	22.75	-0.9	21.17	20.65	19.70
		836.5	24.26	23.70	22.81	-0.9	21.21	20.65	19.76
		831.5	24.27	23.76	22.86	-0.9	21.22	20.71	19.81
	1 RB low	841.5	24.37	23.81	22.91	-0.9	21.32	20.76	19.86
		836.5	24.37	23.83	22.86	-0.9	21.32	20.78	19.81
		831.5	24.34	23.76	22.88	-0.9	21.29	20.71	19.83
	50% RB mid	841.5	23.40	22.39	21.73	-0.9	20.35	19.34	18.68
		836.5	23.33	22.32	21.60	-0.9	20.28	19.27	18.55
		831.5	23.35	22.37	21.66	-0.9	20.30	19.32	18.61
	100% RB	841.5	23.28	22.27	21.56	-0.9	20.23	19.22	18.51
		836.5	23.32	22.36	21.54	-0.9	20.27	19.31	18.49
		831.5	23.30	22.30	21.51	-0.9	20.25	19.25	18.46

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LTE Band 41 HPUE-EIRP

Limits: ≤33 dBm (2W)

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power (dBm)			G_T (dBi)	Radiated Power (dBm)		
			QPSK	16QAM	64QAM		QPSK	16QAM	64QAM
5MHz	1 RB high	2687.5	25.22	24.18	23.15	-0.6	24.62	23.58	22.55
		2593.0	26.46	25.71	24.87	-0.6	25.86	25.11	24.27
		2498.5	25.45	25.14	23.95	-0.6	24.85	24.54	23.35
	1 RB low	2687.5	25.21	24.29	23.38	-0.6	24.61	23.69	22.78
		2593.0	26.32	25.66	24.84	-0.6	25.72	25.06	24.24
		2498.5	25.17	24.81	23.63	-0.6	24.57	24.21	23.03
	50% RB mid	2687.5	24.42	23.61	22.65	-0.6	23.82	23.01	22.05
		2593.0	25.61	24.62	23.79	-0.6	25.01	24.02	23.19
		2498.5	24.72	23.95	23.16	-0.6	24.12	23.35	22.56
	100% RB	2687.5	24.07	23.46	22.48	-0.6	23.47	22.86	21.88
		2593.0	25.47	24.54	23.65	-0.6	24.87	23.94	23.05
		2498.5	24.42	23.68	22.91	-0.6	23.82	23.08	22.31
10MHz	1 RB high	2685.0	25.10	24.13	23.16	-0.6	24.50	23.53	22.56
		2593.0	26.25	25.56	24.57	-0.6	25.65	24.96	23.97
		2501.0	25.51	25.46	24.25	-0.6	24.91	24.86	23.65
	1 RB low	2685.0	25.11	24.23	23.96	-0.6	24.51	23.63	23.36
		2593.0	25.99	25.46	24.90	-0.6	25.39	24.86	24.30
		2501.0	25.15	24.74	23.61	-0.6	24.55	24.14	23.01
	50% RB mid	2685.0	24.24	23.43	22.55	-0.6	23.64	22.83	21.95
		2593.0	25.59	24.60	23.76	-0.6	24.99	24.00	23.16
		2501.0	24.88	24.19	23.38	-0.6	24.28	23.59	22.78
	100% RB	2685.0	24.24	23.11	22.14	-0.6	23.64	22.51	21.54
		2593.0	25.09	24.44	23.98	-0.6	24.49	23.84	23.38
		2501.0	24.47	23.94	23.08	-0.6	23.87	23.34	22.48
15MHz	1 RB high	2682.5	25.06	24.33	24.63	-0.6	24.46	23.73	24.03
		2593.0	26.29	25.70	24.55	-0.6	25.69	25.10	23.95
		2503.5	26.12	25.64	24.91	-0.6	25.52	25.04	24.31
	1 RB low	2682.5	25.14	24.07	23.98	-0.6	24.54	23.47	23.38
		2593.0	26.12	25.60	24.97	-0.6	25.52	25.00	24.37
		2503.5	25.26	24.82	23.84	-0.6	24.66	24.22	23.24
	50% RB mid	2682.5	24.20	23.38	22.48	-0.6	23.60	22.78	21.88
		2593.0	25.44	24.46	23.68	-0.6	24.84	23.86	23.08
		2503.5	25.27	24.41	23.71	-0.6	24.67	23.81	23.11
	100% RB	2682.5	24.17	23.05	22.15	-0.6	23.57	22.45	21.55
		2593.0	25.30	24.32	23.76	-0.6	24.70	23.72	23.16

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		2503.5	24.78	24.27	23.41	-0.6	24.18	23.67	22.81
20MHz	1 RB high	2680.0	25.15	24.02	23.28	-0.6	24.55	23.42	22.68
		2593.0	26.13	25.63	24.99	-0.6	25.53	25.03	24.39
		2506.0	26.35	25.65	24.62	-0.6	25.75	25.05	24.02
	1 RB low	2680.0	25.09	24.24	23.92	-0.6	24.49	23.64	23.32
		2593.0	25.99	25.43	24.84	-0.6	25.39	24.83	24.24
		2506.0	25.15	24.76	23.80	-0.6	24.55	24.16	23.20
	50% RB mid	2680.0	24.14	23.18	23.29	-0.6	23.54	22.58	22.69
		2593.0	25.38	24.44	23.67	-0.6	24.78	23.84	23.07
		2506.0	25.45	24.44	23.98	-0.6	24.85	23.84	23.38
	100% RB	2680.0	24.33	23.12	23.81	-0.6	23.73	22.52	23.21
		2593.0	25.24	24.31	23.65	-0.6	24.64	23.71	23.05
		2506.0	25.06	24.39	23.62	-0.6	24.46	23.79	23.02

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LTE Band 66-EIRP

Limits: ≤30dBm (1W)

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power (dBm)			G_T (dBi)	Radiated Power (dBm)		
			QPSK	16QAM	64QAM		QPSK	16QAM	64QAM
1.4 MHz	1 RB high	1779.3	24.32	23.39	21.96	-0.7	23.62	22.69	21.26
		1745.0	24.57	23.70	22.83	-0.7	23.87	23.00	22.13
		1710.7	24.51	23.99	22.53	-0.7	23.81	23.29	21.83
	1 RB low	1779.3	24.32	23.43	21.99	-0.7	23.62	22.73	21.29
		1745.0	24.61	23.75	22.78	-0.7	23.91	23.05	22.08
		1710.7	24.55	23.96	22.60	-0.7	23.85	23.26	21.90
	50% RB mid	1779.3	24.38	23.53	21.94	-0.7	23.68	22.83	21.24
		1745.0	24.61	23.70	22.82	-0.7	23.91	23.00	22.12
		1710.7	24.61	23.87	22.88	-0.7	23.91	23.17	22.18
	100% RB	1779.3	23.43	22.58	20.70	-0.7	22.73	21.88	20.00
		1745.0	23.64	22.78	21.65	-0.7	22.94	22.08	20.95
		1710.7	23.58	22.56	21.75	-0.7	22.88	21.86	21.05
3MHz	1 RB high	1778.5	24.41	23.43	22.09	-0.7	23.71	22.73	21.39
		1745.0	24.57	23.57	22.36	-0.7	23.87	22.87	21.66
		1711.5	24.60	23.98	21.91	-0.7	23.90	23.28	21.21
	1 RB low	1778.5	24.58	23.70	22.21	-0.7	23.88	23.00	21.51
		1745.0	24.66	23.66	22.47	-0.7	23.96	22.96	21.77
		1711.5	24.69	23.95	22.74	-0.7	23.99	23.25	22.04
	50% RB mid	1778.5	23.59	22.59	20.79	-0.7	22.89	21.89	20.09
		1745.0	23.69	22.86	21.84	-0.7	22.99	22.16	21.14
		1711.5	23.66	22.80	21.85	-0.7	22.96	22.10	21.15
	100% RB	1778.5	23.63	22.58	20.79	-0.7	22.93	21.88	20.09
		1745.0	23.69	22.75	21.79	-0.7	22.99	22.05	21.09
		1711.5	23.62	22.73	21.75	-0.7	22.92	22.03	21.05
5MHz	1 RB high	1777.5	24.47	23.53	22.17	-0.7	23.77	22.83	21.47
		1745.0	24.64	23.79	22.84	-0.7	23.94	23.09	22.14
		1712.5	24.53	23.94	22.50	-0.7	23.83	23.24	21.80
	1 RB low	1777.5	24.64	23.78	22.57	-0.7	23.94	23.08	21.87
		1745.0	24.71	23.84	22.90	-0.7	24.01	23.14	22.20
		1712.5	24.58	23.98	22.91	-0.7	23.88	23.28	22.21
	50% RB mid	1777.5	23.73	22.74	21.00	-0.7	23.03	22.04	20.30
		1745.0	23.70	22.83	21.97	-0.7	23.00	22.13	21.27
		1712.5	23.71	22.83	21.71	-0.7	23.01	22.13	21.01
	100% RB	1777.5	23.67	22.60	20.96	-0.7	22.97	21.90	20.26
		1745.0	23.67	22.72	21.78	-0.7	22.97	22.02	21.08
		1712.5	23.66	22.74	21.57	-0.7	22.96	22.04	20.87

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10M Hz	1 RB high	1775.0	24.37	23.34	22.27	-0.7	23.67	22.64	21.57
		1745.0	24.40	23.29	22.62	-0.7	23.70	22.59	21.92
		1715.0	24.43	23.88	21.94	-0.7	23.73	23.18	21.24
	1 RB low	1775.0	24.36	23.36	22.59	-0.7	23.66	22.66	21.89
		1745.0	24.28	23.30	22.70	-0.7	23.58	22.60	22.00
		1715.0	24.33	23.75	22.73	-0.7	23.63	23.05	22.03
	50% RB mid	1775.0	23.68	22.76	21.62	-0.7	22.98	22.06	20.92
		1745.0	23.72	22.74	21.88	-0.7	23.02	22.04	21.18
		1715.0	23.68	22.76	21.33	-0.7	22.98	22.06	20.63
	100% RB	1775.0	23.60	22.65	21.58	-0.7	22.90	21.95	20.88
		1745.0	23.54	22.48	21.78	-0.7	22.84	21.78	21.08
		1715.0	23.60	22.63	21.70	-0.7	22.90	21.93	21.00
15M Hz	1 RB high	1772.5	24.42	23.48	22.03	-0.7	23.72	22.78	21.33
		1745.0	24.36	23.75	22.18	-0.7	23.66	23.05	21.48
		1717.5	24.44	23.68	21.55	-0.7	23.74	22.98	20.85
	1 RB low	1772.5	24.53	23.55	22.81	-0.7	23.83	22.85	22.11
		1745.0	24.39	23.70	22.71	-0.7	23.69	23.00	22.01
		1717.5	24.38	23.79	22.62	-0.7	23.68	23.09	21.92
	50% RB mid	1772.5	23.56	22.57	21.64	-0.7	22.86	21.87	20.94
		1745.0	23.56	22.65	21.69	-0.7	22.86	21.95	20.99
		1717.5	23.60	22.55	21.07	-0.7	22.90	21.85	20.37
	100% RB	1772.5	23.51	22.52	20.65	-0.7	22.81	21.82	19.95
		1745.0	23.45	22.52	21.64	-0.7	22.75	21.82	20.94
		1717.5	23.55	22.51	21.69	-0.7	22.85	21.81	20.99
20M Hz	1 RB high	1770.0	24.46	23.95	22.14	-0.7	23.76	23.25	21.44
		1745.0	24.34	23.95	21.95	-0.7	23.64	23.25	21.25
		1720.0	24.36	23.78	22.13	-0.7	23.66	23.08	21.43
	1 RB low	1770.0	24.48	23.96	22.16	-0.7	23.78	23.26	21.46
		1745.0	24.19	23.63	22.48	-0.7	23.49	22.93	21.78
		1720.0	24.16	23.62	22.51	-0.7	23.46	22.92	21.81
	50% RB mid	1770.0	23.60	22.63	21.61	-0.7	22.90	21.93	20.91
		1745.0	23.58	22.61	21.55	-0.7	22.88	21.91	20.85
		1720.0	23.68	22.64	20.71	-0.7	22.98	21.94	20.01
	100% RB	1770.0	23.51	22.55	21.36	-0.7	22.81	21.85	20.66
		1745.0	23.47	22.50	21.50	-0.7	22.77	21.80	20.80
		1720.0	23.56	22.59	21.48	-0.7	22.86	21.89	20.78

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LTE Band 71-ERP

Limits: ≤34.77dBm (3W)

Bandwidth	RB size/offset	Frequency (MHz)	Conducted Power (dBm)			G_T (dBi)	Radiated Power (dBm)		
			QPSK	16QAM	64QAM		QPSK	16QAM	64QAM
5MHz	1 RB high	695.5	24.62	24.08	23.30	-1.1	21.37	20.83	20.05
		680.5	24.66	24.09	22.71	-1.1	21.41	20.84	19.46
		665.5	24.80	24.07	22.68	-1.1	21.55	20.82	19.43
	1 RB low	695.5	24.50	23.92	23.23	-1.1	21.25	20.67	19.98
		680.5	24.49	23.94	22.50	-1.1	21.24	20.69	19.25
		665.5	24.51	23.73	22.62	-1.1	21.26	20.48	19.37
	50% RB mid	695.5	23.80	22.88	21.57	-1.1	20.55	19.63	18.32
		680.5	23.78	22.84	21.61	-1.1	20.53	19.59	18.36
		665.5	23.86	22.87	21.69	-1.1	20.61	19.62	18.44
	100% RB	695.5	23.69	22.71	21.56	-1.1	20.44	19.46	18.31
		680.5	23.73	22.77	21.59	-1.1	20.48	19.52	18.34
		665.5	23.86	22.85	21.56	-1.1	20.61	19.60	18.31
10MHz	1 RB high	693.0	24.67	24.08	23.47	-1.1	21.42	20.83	20.22
		680.5	24.67	24.16	23.34	-1.1	21.42	20.91	20.09
		668.0	24.68	24.07	23.24	-1.1	21.43	20.82	19.99
	1 RB low	693.0	24.60	23.85	23.23	-1.1	21.35	20.60	19.98
		680.5	24.65	24.08	23.20	-1.1	21.40	20.83	19.95
		668.0	24.56	23.90	22.71	-1.1	21.31	20.65	19.46
	50% RB mid	693.0	23.79	22.87	22.14	-1.1	20.54	19.62	18.89
		680.5	23.77	22.76	22.15	-1.1	20.52	19.51	18.90
		668.0	23.80	22.82	21.92	-1.1	20.55	19.57	18.67
	100% RB	693.0	23.75	22.78	22.04	-1.1	20.50	19.53	18.79
		680.5	23.70	22.68	22.12	-1.1	20.45	19.43	18.87
		668.0	23.80	22.80	21.79	-1.1	20.55	19.55	18.54
15MHz	1 RB high	690.5	24.52	23.78	23.08	-1.1	21.27	20.53	19.83
		680.5	24.59	23.95	23.13	-1.1	21.34	20.70	19.88
		670.5	24.56	23.90	23.07	-1.1	21.31	20.65	19.82
	1 RB low	690.5	24.55	23.88	23.40	-1.1	21.30	20.63	20.15
		680.5	24.59	23.87	23.16	-1.1	21.34	20.62	19.91
		670.5	24.59	23.93	22.70	-1.1	21.34	20.68	19.45
	50% RB mid	690.5	23.58	22.61	22.08	-1.1	20.33	19.36	18.83
		680.5	23.60	22.60	22.02	-1.1	20.35	19.35	18.77
		670.5	23.67	22.68	22.10	-1.1	20.42	19.43	18.85
	100% RB	690.5	23.53	22.53	21.98	-1.1	20.28	19.28	18.73
		680.5	23.58	22.55	21.92	-1.1	20.33	19.30	18.67

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		670.5	23.62	22.68	21.99	-1.1	20.37	19.43	18.74
20MHz	1 RB high	688.0	24.58	24.19	22.99	-1.1	21.33	20.94	19.74
		680.5	24.59	24.11	23.07	-1.1	21.34	20.86	19.82
		673.0	24.62	24.05	23.15	-1.1	21.37	20.80	19.90
	1 RB low	688.0	24.54	24.13	23.16	-1.1	21.29	20.88	19.91
		680.5	24.56	24.00	23.22	-1.1	21.31	20.75	19.97
		673.0	24.63	24.01	22.85	-1.1	21.38	20.76	19.60
	50% RB mid	688.0	23.68	22.73	22.07	-1.1	20.43	19.48	18.82
		680.5	23.61	22.68	22.04	-1.1	20.36	19.43	18.79
		673.0	23.73	22.70	22.10	-1.1	20.48	19.45	18.85
	100% RB	688.0	23.62	22.67	22.04	-1.1	20.37	19.42	18.79
		680.5	23.54	22.56	21.99	-1.1	20.29	19.31	18.74
		673.0	23.61	22.65	21.94	-1.1	20.36	19.40	18.69

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A.2 Emission Limit

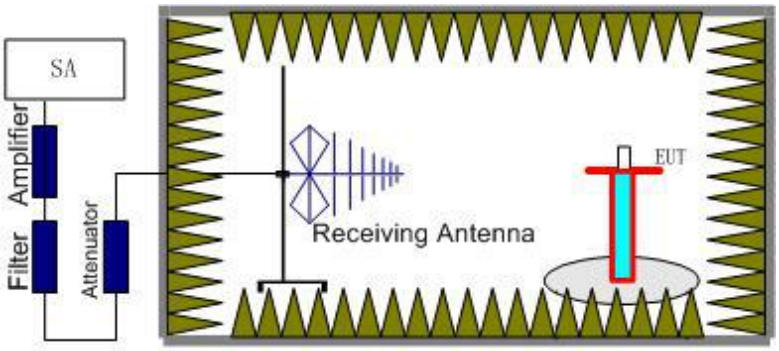
A.2.1 Measurement Method

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

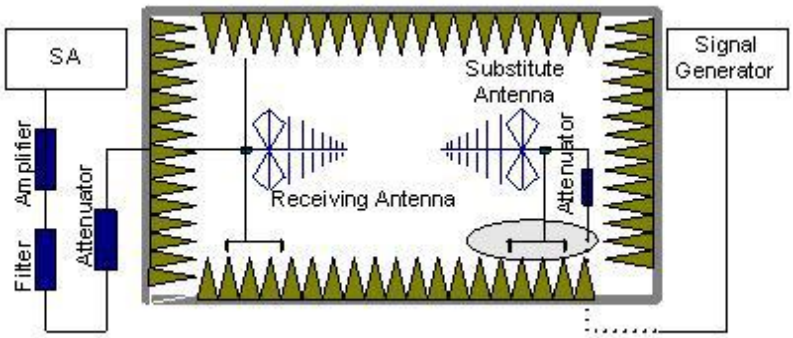
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and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

The procedure of radiated spurious emissions is as follows:

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



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



In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere

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

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

A.2.2 Measurement Limit

FDD Band 7/41: 27.53(m) (4) specifies " For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. ".

FDD Band 12/71: 27.53(g) specifies " For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed ".

FDD Band 13: 27.53(f) specifies " For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete 离散 emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation. ".

FDD Band 25: 24.238 (a) specifies " *Out of band emissions.* The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.".

LTE Band 26(814MHz~824MHz): Part 90.691 states that out-of-band emission requirement shall

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

LTE Band 26(824MHz~849MHz): Part 22.917 (a) specifies " *Out of band emissions.* The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB ".

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

A.2.3 Measurement Results

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

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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
5022.02	-56.71	-6.57	9.93	-53.35	-25.00	28.35	V
7491.01	-53.89	-8.37	12.19	-50.07	-25.00	25.07	V
9999.01	-52.68	-9.18	12.90	-48.96	-25.00	23.96	V
12503.01	-48.85	-10.18	13.20	-45.83	-25.00	20.83	H
15000.00	-45.69	-11.22	14.00	-42.91	-25.00	17.91	H
17532.00	-45.06	-12.85	14.94	-42.97	-25.00	17.97	H

LTE Band 7, 5 MHz, QPSK, Channel 21100

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5079.02	-56.41	-6.71	10.01	-53.11	-25.00	28.11	V
7616.01	-54.20	-8.05	12.29	-49.96	-25.00	24.96	H
10135.01	-51.96	-9.41	12.95	-48.42	-25.00	23.42	V
12667.01	-48.81	-10.35	13.30	-45.86	-25.00	20.86	H
15209.00	-45.14	-11.39	13.87	-42.66	-25.00	17.66	H
17746.00	-44.32	-12.44	15.24	-41.52	-25.00	16.52	V

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
5141.02	-56.41	-6.87	10.10	-53.18	-25.00	28.18	V
7695.01	-54.79	-8.40	12.36	-50.83	-25.00	25.83	H
10266.01	-51.98	-9.53	13.01	-48.50	-25.00	23.50	V
12831.01	-48.81	-10.69	13.40	-46.10	-25.00	21.10	V
15423.00	-44.03	-11.43	13.75	-41.71	-25.00	16.71	V
17973.00	-43.72	-12.89	15.56	-41.05	-25.00	16.05	H

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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
1389.01	-49.03	-3.22	4.92	2.15	-49.48	-13.00	36.48	V
2088.00	-55.92	-4.18	4.86	2.15	-57.39	-13.00	44.39	H
2797.00	-52.62	-4.91	6.63	2.15	-53.05	-13.00	40.05	H
3493.02	-54.05	-5.51	8.18	2.15	-53.53	-13.00	40.53	V
4205.02	-53.83	-6.22	9.11	2.15	-53.09	-13.00	40.09	V
4893.01	-54.63	-6.73	9.79	2.15	-53.72	-13.00	40.72	V

LTE Band 12, 1.4MHz, QPSK, Channel 23095

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1401.01	-59.90	-3.24	4.99	2.15	-60.30	-13.00	47.30	V
2131.00	-56.01	-4.22	4.99	2.15	-57.39	-13.00	44.39	H
2824.00	-52.62	-4.95	6.68	2.15	-53.04	-13.00	40.04	V
3523.02	-55.23	-5.56	8.23	2.15	-54.71	-13.00	41.71	H
4230.02	-54.79	-6.26	9.13	2.15	-54.07	-13.00	41.07	V
4963.01	-54.78	-6.67	9.86	2.15	-53.74	-13.00	40.74	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
1424.01	-59.44	-3.27	5.10	2.15	-59.76	-13.00	46.76	H
2152.00	-55.66	-4.25	5.06	2.15	-57.00	-13.00	44.00	H
2871.00	-51.89	-4.97	6.77	2.15	-52.24	-13.00	39.24	V
3588.02	-54.20	-6.21	8.32	2.15	-54.24	-13.00	41.24	V
4281.02	-54.74	-6.21	9.18	2.15	-53.92	-13.00	40.92	H
5017.01	-54.54	-6.57	9.92	2.15	-53.34	-13.00	40.34	V

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LTE Band 13, 5MHz, QPSK, Channel 23205

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1553.01	-57.52	-3.47	5.40	2.15	-57.74	-13.00	44.74	V
2334.00	-55.11	-4.44	5.60	2.15	-56.10	-13.00	43.10	H
3120.02	-53.36	-5.39	7.29	2.15	-53.61	-13.00	40.61	H
3907.02	-54.36	-6.11	8.77	2.15	-53.85	-13.00	40.85	V
4675.02	-54.03	-6.48	9.58	2.15	-53.08	-13.00	40.08	V
5443.01	-54.97	-6.84	10.52	2.15	-53.44	-13.00	40.44	V

LTE Band 13, 5MHz, QPSK, Channel 23230

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1567.01	-58.09	-3.48	5.38	2.15	-58.34	-13.00	45.34	H
2352.00	-54.61	-4.46	5.66	2.15	-55.56	-13.00	42.56	V
3128.02	-52.87	-5.40	7.31	2.15	-53.11	-13.00	40.11	V
3912.02	-53.89	-6.12	8.78	2.15	-53.38	-13.00	40.38	H
4694.02	-54.80	-6.50	9.59	2.15	-53.86	-13.00	40.86	V
5468.01	-54.90	-6.94	10.56	2.15	-53.43	-13.00	40.43	V

LTE Band 13, 5MHz, QPSK, Channel 23255

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1555.01	-60.23	-3.47	5.40	2.15	-60.45	-13.00	47.45	H
2365.00	-52.57	-4.47	5.70	2.15	-53.49	-13.00	40.49	V
3136.02	-53.39	-5.39	7.33	2.15	-53.60	-13.00	40.60	H
3923.02	-54.17	-6.12	8.79	2.15	-53.65	-13.00	40.65	H
4716.02	-54.44	-6.52	9.62	2.15	-53.49	-13.00	40.49	H
5498.01	-54.65	-7.05	10.60	2.15	-53.25	-13.00	40.25	H

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LTE Band 25, 1.4MHz, QPSK, Channel 26047

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4151.02	-51.21	-6.10	9.05	-48.26	-13.00	35.26	H
9605.01	-52.54	-9.16	13.29	-48.41	-13.00	35.41	H
11737.01	-49.52	-9.80	13.05	-46.27	-13.00	33.27	V
13619.01	-47.43	-10.80	14.27	-43.96	-13.00	30.96	H
15354.00	-44.15	-11.34	13.79	-41.70	-13.00	28.70	H
16843.00	-42.49	-12.06	13.74	-40.81	-13.00	27.81	H

LTE Band 25, 1.4MHz, QPSK, Channel 26365

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
7534.01	-53.34	-8.25	12.23	-49.36	-13.00	36.36	V
9420.01	-53.46	-9.14	13.35	-49.25	-13.00	36.25	V
11245.01	-50.72	-9.67	13.15	-47.24	-13.00	34.24	H
13167.01	-48.04	-10.64	13.73	-44.95	-13.00	31.95	H
15106.00	-45.78	-11.35	13.94	-43.19	-13.00	30.19	V
16932.00	-42.62	-12.12	13.77	-40.97	-13.00	27.97	H

LTE Band 25, 1.4MHz, QPSK, Channel 26683

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
7661.01	-53.32	-8.25	12.33	-49.24	-13.00	36.24	H
9562.01	-53.21	-9.32	13.34	-49.19	-13.00	36.19	V
11491.01	-50.12	-9.83	13.10	-46.85	-13.00	33.85	V
13429.01	-47.56	-10.59	14.10	-44.05	-13.00	31.05	H
15354.00	-45.08	-11.34	13.79	-42.63	-13.00	29.63	H
17199.00	-43.41	-12.35	14.24	-41.52	-13.00	28.52	H

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

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4869.01	-53.50	-6.72	9.77	2.15	-52.60	-13.00	39.60	V
6514.01	-51.99	-7.51	11.02	2.15	-50.63	-13.00	37.63	V
7342.01	-51.95	-8.11	12.01	2.15	-50.20	-13.00	37.20	H
8138.01	-51.76	-8.39	12.71	2.15	-49.59	-13.00	36.59	H
8974.00	-51.24	-9.11	13.09	2.15	-49.41	-13.00	36.41	V
9795.00	-51.59	-9.02	13.10	2.15	-49.66	-13.00	36.66	V

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

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1645.01	-59.87	-3.56	5.24	2.15	-60.34	-13.00	47.34	V
2471.00	-53.08	-4.59	6.01	2.15	-53.81	-13.00	40.81	V
3258.02	-54.37	-5.28	7.62	2.15	-54.18	-13.00	41.18	V
4107.02	-55.13	-6.04	9.01	2.15	-54.31	-13.00	41.31	H
4901.01	-54.79	-6.73	9.80	2.15	-53.87	-13.00	40.87	V
5738.01	-53.98	-7.28	10.55	2.15	-52.86	-13.00	39.86	V

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

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5752.01	-53.19	-7.26	10.55	2.15	-52.05	-13.00	39.05	H
6636.01	-51.93	-7.91	11.16	2.15	-50.83	-13.00	37.83	V
7598.01	-52.28	-7.98	12.28	2.15	-50.13	-13.00	37.13	V
8362.00	-51.23	-8.65	12.89	2.15	-49.14	-13.00	36.14	V
8984.00	-50.75	-9.14	13.10	2.15	-48.94	-13.00	35.94	H
9791.00	-50.44	-9.01	13.11	2.15	-48.49	-13.00	35.49	H

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

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1660.01	-59.68	-3.57	5.21	2.15	-60.19	-13.00	47.19	V
2463.00	-53.31	-4.59	5.99	2.15	-54.06	-13.00	41.06	H
3310.02	-54.22	-5.29	7.74	2.15	-53.92	-13.00	40.92	H
4112.02	-53.98	-6.04	9.01	2.15	-53.16	-13.00	40.16	V
4959.01	-54.50	-6.67	9.86	2.15	-53.46	-13.00	40.46	H
5755.01	-53.12	-7.26	10.55	2.15	-51.98	-13.00	38.98	H

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

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1682.01	-59.31	-3.59	5.17	2.15	-59.88	-13.00	46.88	H
2520.00	-53.43	-4.64	6.14	2.15	-54.08	-13.00	41.08	V
3355.02	-54.43	-5.32	7.85	2.15	-54.05	-13.00	41.05	H
4191.02	-54.81	-6.19	9.09	2.15	-54.06	-13.00	41.06	V
5035.01	-54.21	-6.59	9.95	2.15	-53.00	-13.00	40.00	V
5872.01	-53.61	-7.30	10.53	2.15	-52.53	-13.00	39.53	V

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

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1697.01	-58.55	-3.60	5.15	2.15	-59.15	-13.00	46.15	H
2553.00	-53.06	-4.67	6.20	2.15	-53.68	-13.00	40.68	H
3409.02	-54.81	-5.37	7.98	2.15	-54.35	-13.00	41.35	V
4231.02	-53.80	-6.26	9.13	2.15	-53.08	-13.00	40.08	H
5103.01	-54.38	-6.78	10.04	2.15	-53.27	-13.00	40.27	V
5920.01	-53.09	-7.46	10.52	2.15	-52.18	-13.00	39.18	H

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LTE Band 41 HPUE, 5MHz, QPSK, Channel 39675

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5001.02	-57.14	-6.60	9.90	-53.84	-25.00	28.84	V
7491.01	-55.20	-8.37	12.19	-51.38	-25.00	26.38	H
9995.01	-52.88	-9.18	12.90	-49.16	-25.00	24.16	H
12494.01	-48.66	-10.19	13.20	-45.65	-25.00	20.65	V
14991.00	-46.71	-11.21	14.01	-43.91	-25.00	18.91	H
17490.00	-44.90	-12.70	14.88	-42.72	-25.00	17.72	H

LTE Band 41 HPUE, 5MHz, QPSK, Channel 40620

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
7787.01	-53.61	-8.31	12.43	-49.49	-25.00	24.49	V
10400.01	-51.40	-9.80	13.06	-48.14	-25.00	23.14	V
12951.01	-49.04	-10.49	13.47	-46.06	-25.00	21.06	H
14248.01	-46.29	-10.92	14.45	-42.76	-25.00	17.76	V
15540.00	-44.39	-11.51	13.70	-42.20	-25.00	17.20	H
16865.00	-42.30	-12.04	13.75	-40.59	-25.00	15.59	H

LTE Band 41 HPUE, 5MHz, QPSK, Channel 41565

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5383.02	-55.70	-6.86	10.44	-52.12	-25.00	27.12	V
8085.01	-53.43	-8.32	12.67	-49.08	-25.00	24.08	V
10762.01	-50.99	-9.46	13.15	-47.30	-25.00	22.30	V
13450.01	-48.43	-10.61	14.13	-44.91	-25.00	19.91	H
16114.00	-43.42	-11.84	13.68	-41.58	-25.00	16.58	H
17449.00	-44.51	-12.61	14.79	-42.33	-25.00	17.33	H

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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
3476.02	-67.41	-5.48	8.14	-64.75	-13.00	51.75	H
5148.02	-66.35	-6.88	10.11	-63.12	-13.00	50.12	V
6874.01	-64.96	-7.79	11.45	-61.30	-13.00	48.30	V
8558.01	-64.16	-8.57	13.01	-59.72	-13.00	46.72	V
10311.01	-61.97	-9.66	13.02	-58.61	-13.00	45.61	V
12023.01	-60.11	-10.12	13.01	-57.22	-13.00	44.22	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
3499.02	-67.33	-5.52	8.20	-64.65	-13.00	51.65	H
5273.02	-66.57	-6.99	10.28	-63.28	-13.00	50.28	H
6984.01	-64.53	-8.17	11.58	-61.12	-13.00	48.12	H
8730.01	-64.36	-8.45	13.05	-59.76	-13.00	46.76	V
10482.01	-61.83	-9.68	13.09	-58.42	-13.00	45.42	V
12172.01	-59.75	-10.14	13.07	-56.82	-13.00	43.82	V

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
3602.02	-66.18	-6.36	8.34	-64.20	-13.00	51.20	V
5304.02	-66.69	-6.99	10.33	-63.35	-13.00	50.35	V
7121.01	-63.96	-8.16	11.75	-60.37	-13.00	47.37	H
8947.01	-63.96	-9.01	13.09	-59.88	-13.00	46.88	V
10686.01	-61.65	-9.30	13.14	-57.81	-13.00	44.81	V
12489.01	-59.66	-10.20	13.20	-56.66	-13.00	43.66	V

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LTE Band 71, 5MHz, QPSK, Channel 133147

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1332.01	-57.72	-3.15	4.63	2.15	-58.39	-13.00	45.39	V
1997.01	-51.50	-4.04	4.61	2.15	-53.08	-13.00	40.08	H
2662.00	-51.87	-4.75	6.39	2.15	-52.38	-13.00	39.38	H
3343.02	-54.38	-5.31	7.82	2.15	-54.02	-13.00	41.02	H
3988.02	-55.00	-6.08	8.88	2.15	-54.35	-13.00	41.35	H
4633.02	-53.56	-6.45	9.53	2.15	-52.63	-13.00	39.63	V

LTE Band 71, 5MHz, QPSK, Channel 133297

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1349.01	-48.35	-3.17	4.71	2.15	-48.96	-13.00	35.96	H
2042.00	-50.82	-4.14	4.73	2.15	-52.38	-13.00	39.38	V
2714.00	-52.48	-4.80	6.49	2.15	-52.94	-13.00	39.94	V
3415.02	-55.01	-5.38	8.00	2.15	-54.54	-13.00	41.54	H
4088.02	-54.36	-6.04	8.99	2.15	-53.56	-13.00	40.56	V
4751.01	-54.23	-6.57	9.65	2.15	-53.30	-13.00	40.30	V

LTE Band 71, 5MHz, QPSK, Channel 133447

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1407.01	-57.28	-3.24	5.02	2.15	-57.65	-13.00	44.65	V
2087.00	-52.56	-4.18	4.86	2.15	-54.03	-13.00	41.03	V
2810.00	-53.40	-4.93	6.66	2.15	-53.82	-13.00	40.82	H
3487.02	-55.16	-5.50	8.17	2.15	-54.64	-13.00	41.64	H
4178.02	-54.65	-6.16	9.08	2.15	-53.88	-13.00	40.88	V
4842.01	-54.04	-6.72	9.74	2.15	-53.17	-13.00	40.17	H

Sample：1407.01MHz

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

Power (-57.65 dBm) = P_{Mea} (-57.28dBm)+ P_{pl} (-3.24dB)+ G_a(5.02dBi)

Note: Expanded measurement uncertainty is U = 5.16 dB, k = 2.

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A.3 Frequency Stability

A.3.1 Method of Measurement

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

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

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

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

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A.3.2 Measurement results

LTE Band 7, 20MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	2500.897	2569.103		
50				-0.69	0.0003
40				-2.33	0.0009
30				1.04	0.0004
10				3.18	0.0013
0				-2.06	0.0008
-10				-1.04	0.0004
-20				-1.73	0.0007
-30				-0.06	0.0000

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	2500.897	2569.103	1.07	0.0004
4.45				-1.26	0.0005

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	699.481	715.519		
50				-0.23	0.0003
40				-0.33	0.0005
30				-1.43	0.0020
10				-1.36	0.0019
0				-0.87	0.0012
-10				-0.62	0.0009
-20				-1.22	0.0017
-30				-1.07	0.0015

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	699.481	715.519	0.13	0.0002
4.45				-1.37	0.0019

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	777.385	786.647		
50				-0.66	0.0008
40				0.83	0.0011
30				5.58	0.0071
10				5.24	0.0067
0				0.82	0.0010
-10				5.14	0.0066
-20				5.35	0.0068
-30				5.44	0.0070

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	777.385	786.647	5.26	0.0067
4.45				6.12	0.0078

LTE Band 25, 20MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	1850.801	1914.199		
50				-0.24	0.0001
40				-0.16	0.0001
30				1.24	0.0007
10				-1.43	0.0008
0				-0.59	0.0003
-10				-0.54	0.0003
-20				0.36	0.0002
-30				-0.87	0.0005

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	1850.801	1914.199	0.73	0.0004
4.45				0.37	0.0002

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LTE Band 26(814MHz~824MHz), 10MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	814.375	823.630		
50				0.76	0.0009
40				-6.58	0.0080
30				-8.37	0.0102
10				0.00	0.0000
0				-6.15	0.0075
-10				-0.94	0.0011
-20				0.50	0.0006
-30				-7.21	0.0088

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	814.375	823.630	-5.98	0.0073
4.45				-0.23	0.0003

LTE Band 26(824MHz~849MHz), 15MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	824.505	848.471		
50				-5.02	0.0060
40				-5.36	0.0064
30				-5.31	0.0063
10				-5.02	0.0060
0				-6.25	0.0075
-10				-7.54	0.0090
-20				-6.17	0.0074
-30				-6.64	0.0079

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	824.505	848.471	-5.11	0.0061
4.45				-5.76	0.0069

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	2496.096	2689.808		
50				-13.35	0.0051
40				-11.04	0.0043
30				-0.26	0.0001
10				-15.48	0.0060
0				-0.16	0.0001
-10				-14.45	0.0056
-20				-14.08	0.0054
-30				-1.56	0.0006

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	2496.096	2689.808	-13.42	0.0052
4.45				-15.91	0.0061

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	1710.769	1779.231		
50				8.54	0.0049
40				-0.04	0.0000
30				-0.57	0.0003
10				-0.66	0.0004
0				7.97	0.0046
-10				-2.07	0.0012
-20				-0.79	0.0005
-30				-1.14	0.0007

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	1710.769	1779.231	-0.04	0.0000
4.45				-0.90	0.0005

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

Frequency Error vs Temperature

Temperature(℃)	Voltage(V)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	663.994	697.006		
50				6.08	0.0089
40				5.61	0.0082
30				5.31	0.0078
10				6.09	0.0089
0				0.92	0.0014
-10				6.87	0.0101
-20				6.97	0.0102
-30				6.27	0.0092

Frequency Error vs Voltage

Voltage(V)	Temperature(℃)	F_L(MHz)	F_H(MHz)	Offset(Hz)	Frequency error(ppm)
3.45	20	663.994	697.006	6.67	0.0098
4.45				0.70	0.0010

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A.4 Occupied Bandwidth

Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the mid frequencies frequency. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.
The measurement method is from ANSI C63.26:
a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts.
b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.
c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
d) Set the detection mode to peak, and the trace mode to max-hold.

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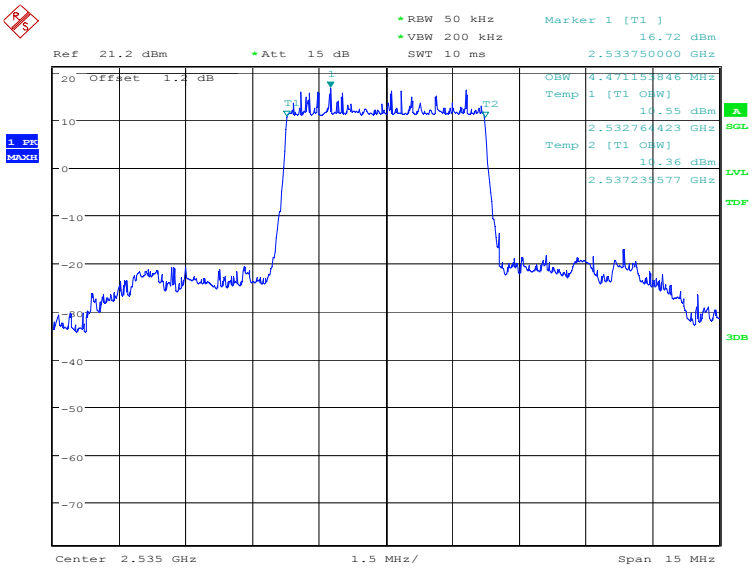
LTE band 7, 5MHz (99%)

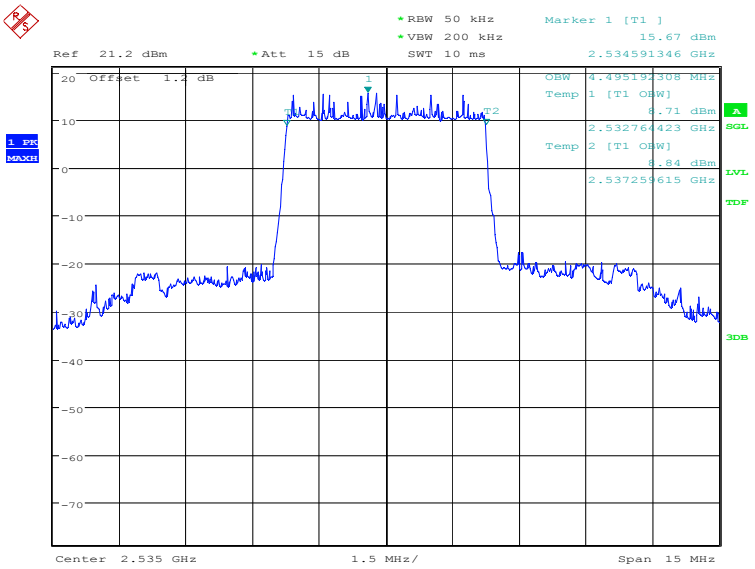
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
2535.0	QPSK	16QAM
	4471.15	4495.19

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



Date: 24.JUL.2020 08:54:54

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



Date: 24.JUL.2020 08:55:32

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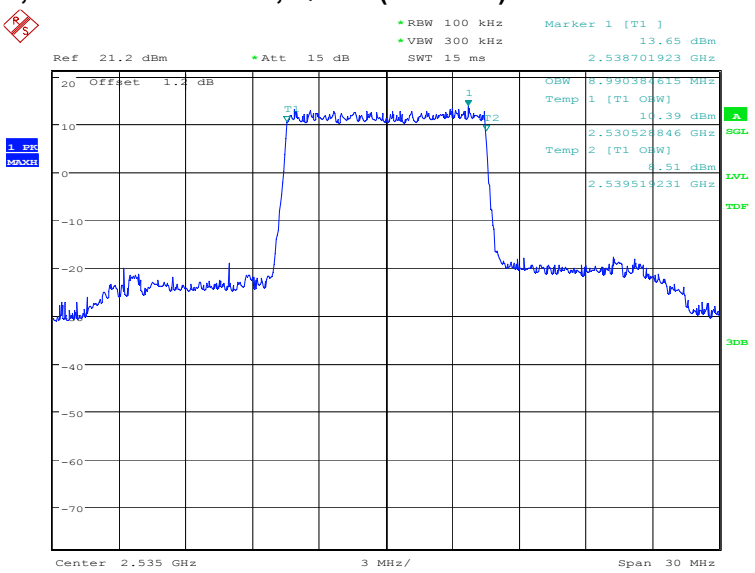
LTE band 7, 10MHz (99%)

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

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



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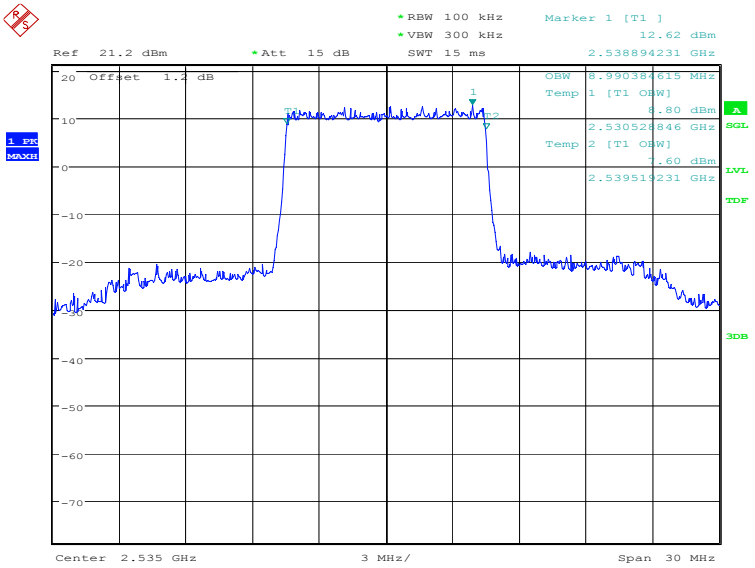
LTE band 7, 10MHz Bandwidth, 16QAM (99% BW)



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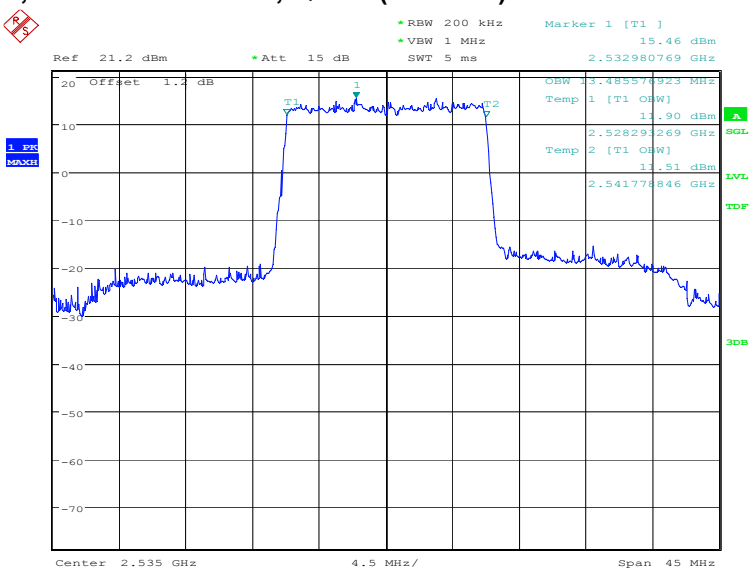
LTE band 7, 15MHz (99%)

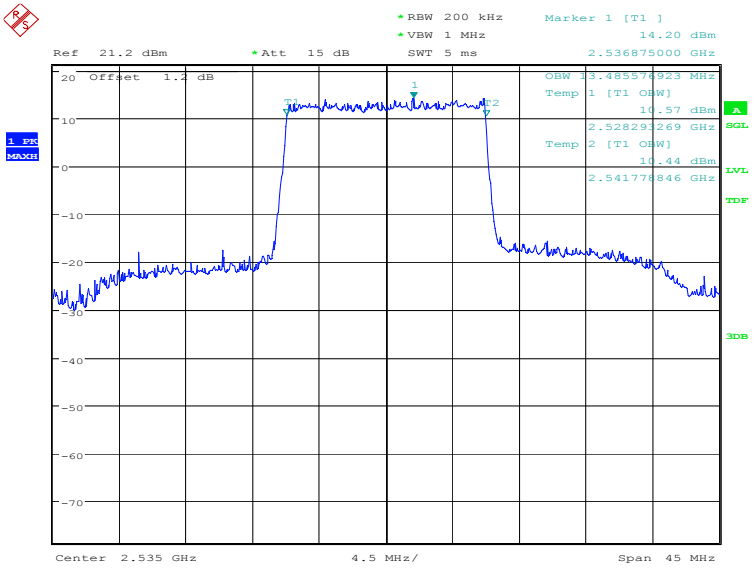
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
2535.0	QPSK	16QAM
	13485.58	13485.58

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



Date: 24.JUL.2020 08:57:32

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



Date: 24.JUL.2020 08:58:10

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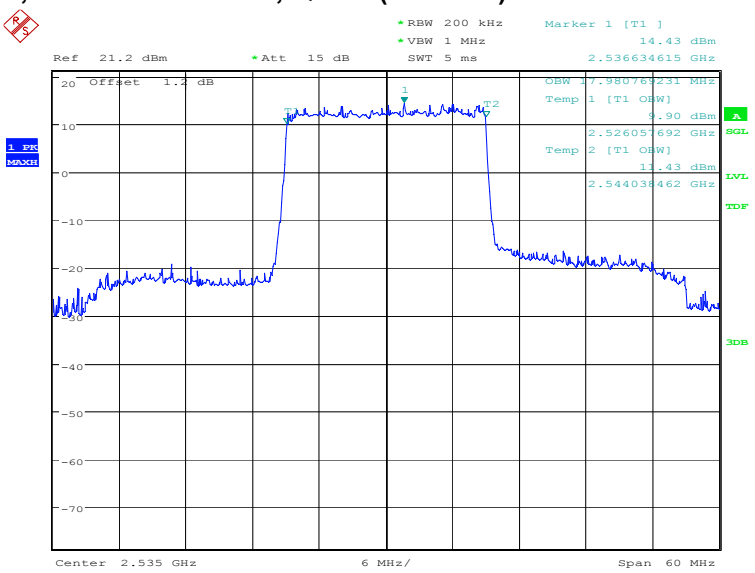
LTE band 7, 20MHz (99%)

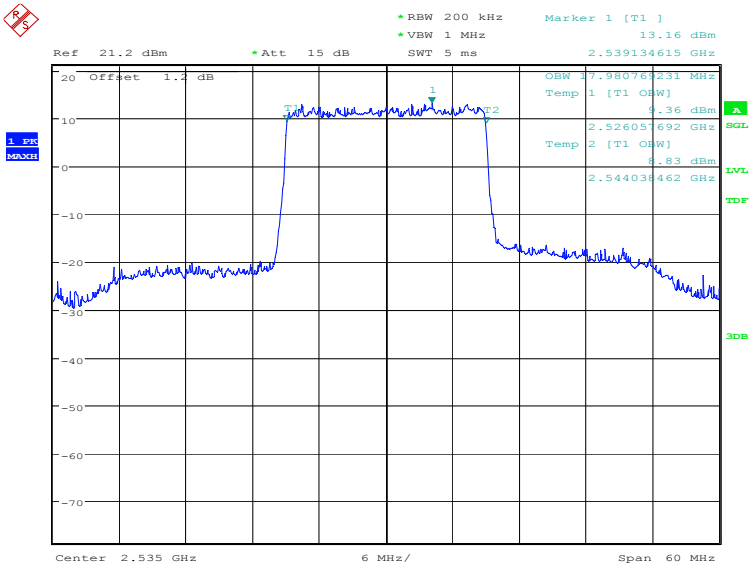
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
2535.0	QPSK	16QAM
	17980.77	17980.77

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



Date: 24.JUL.2020 08:58:51

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



Date: 24.JUL.2020 08:59:29

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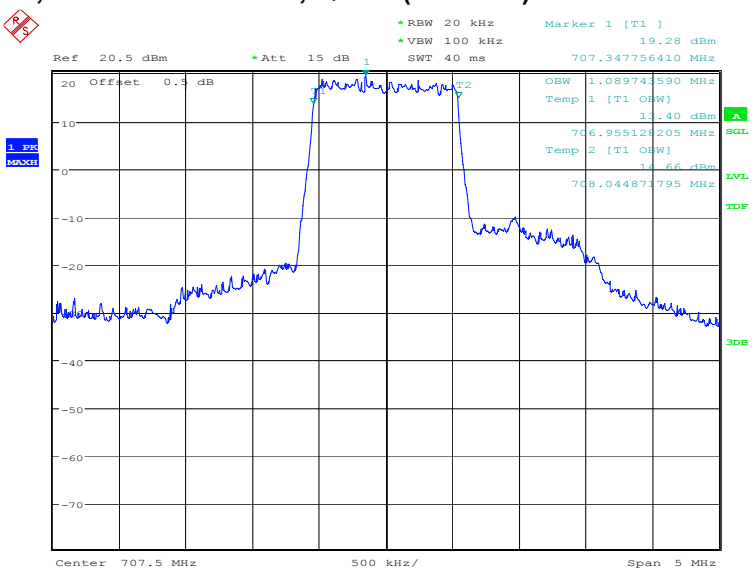
LTE band 12, 1.4MHz (99%)

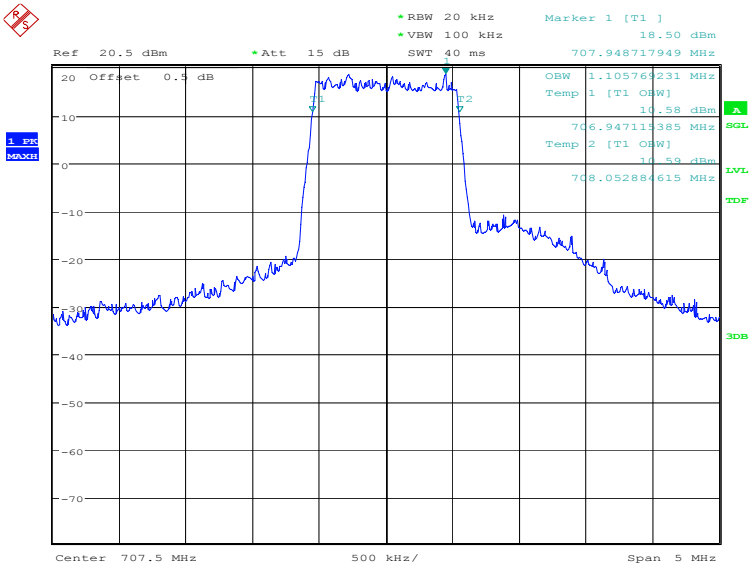
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
707.5	QPSK	16QAM
	1089.74	1105.77

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



Date: 23.JUL.2020 16:19:05

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



Date: 23.JUL.2020 16:19:44

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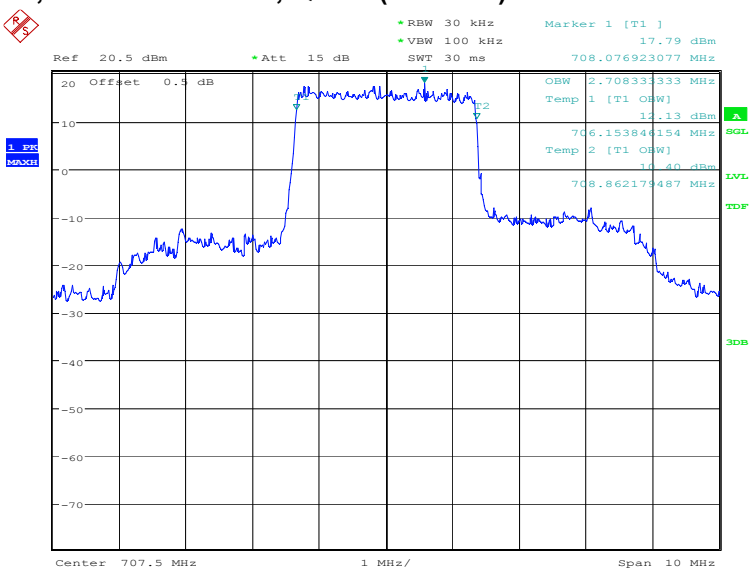
LTE band 12, 3MHz (99%)

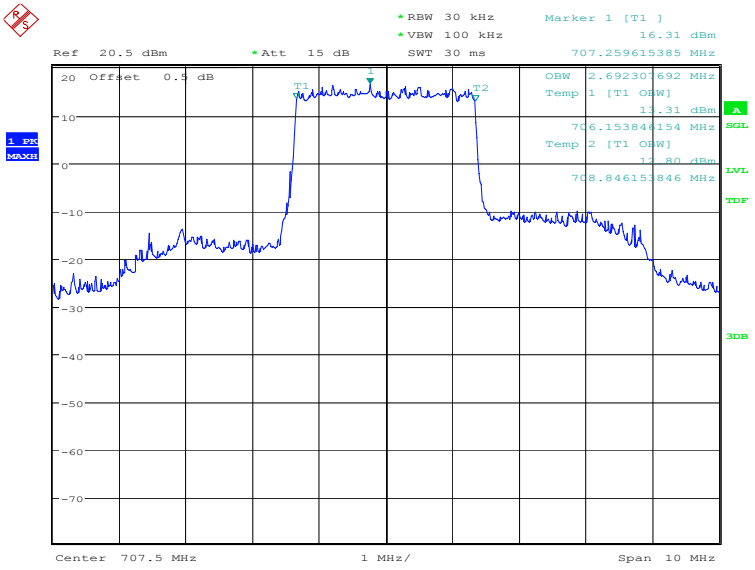
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
707.5	QPSK	16QAM
	2708.33	2692.31

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



Date: 23.JUL.2020 16:20:24

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



Date: 23.JUL.2020 16:21:03

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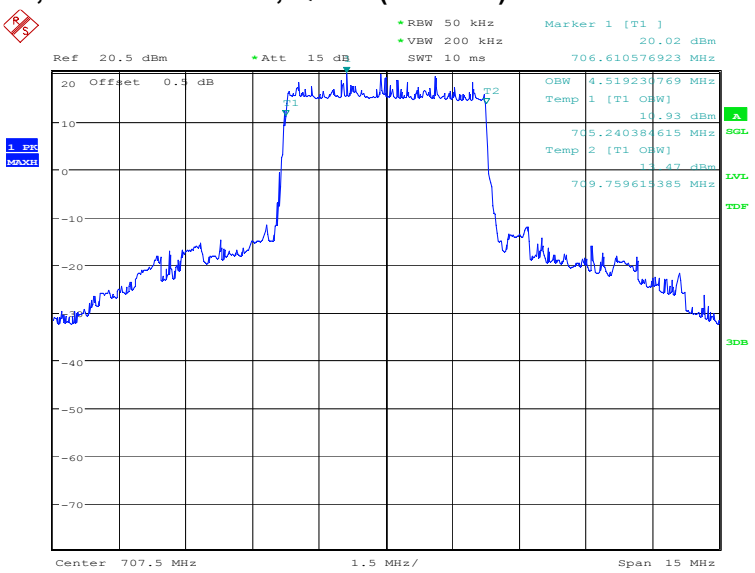
LTE band 12, 5MHz (99%)

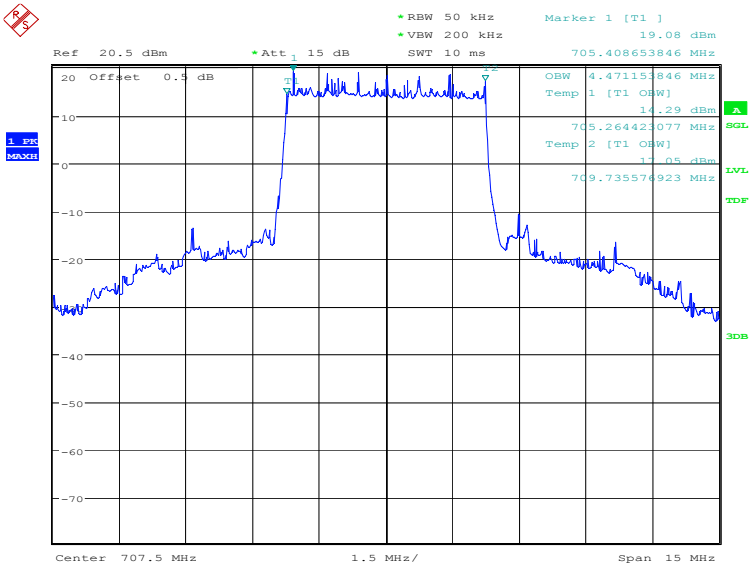
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
707.5	QPSK	16QAM
	4519.23	4471.15

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



Date: 23.JUL.2020 16:21:43

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



Date: 23.JUL.2020 16:22:22

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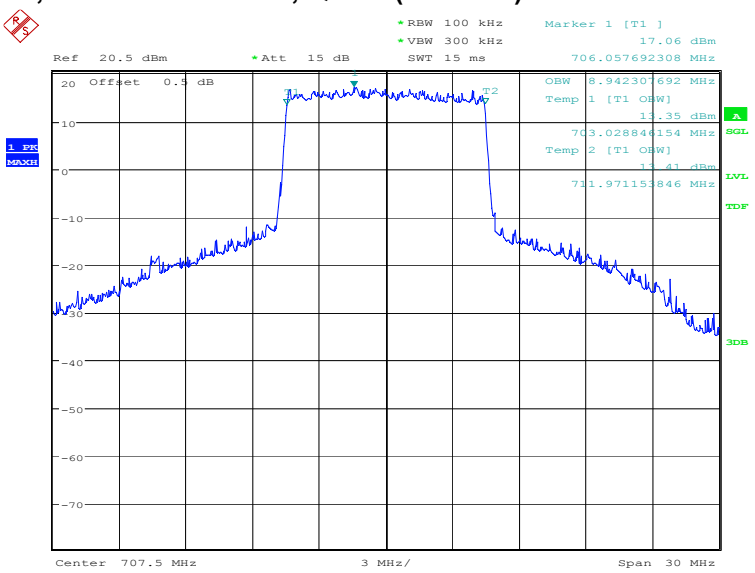
LTE band 12, 10MHz (99%)

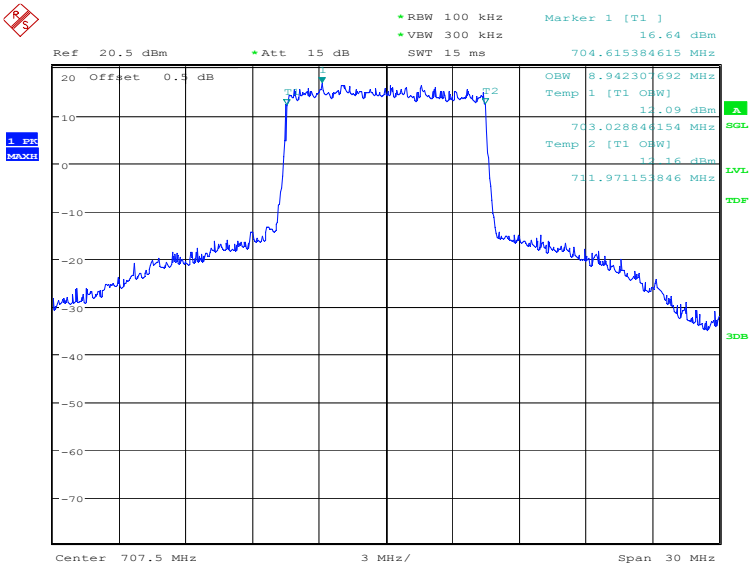
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
707.5	QPSK	16QAM
	8942.31	8942.31

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



Date: 23.JUL.2020 16:23:02

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



Date: 23.JUL.2020 16:23:41

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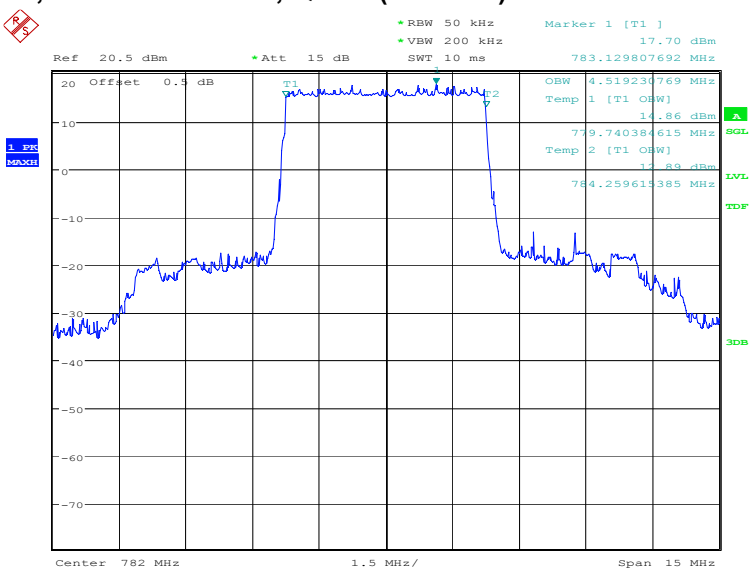
LTE band 13, 5MHz (99%)

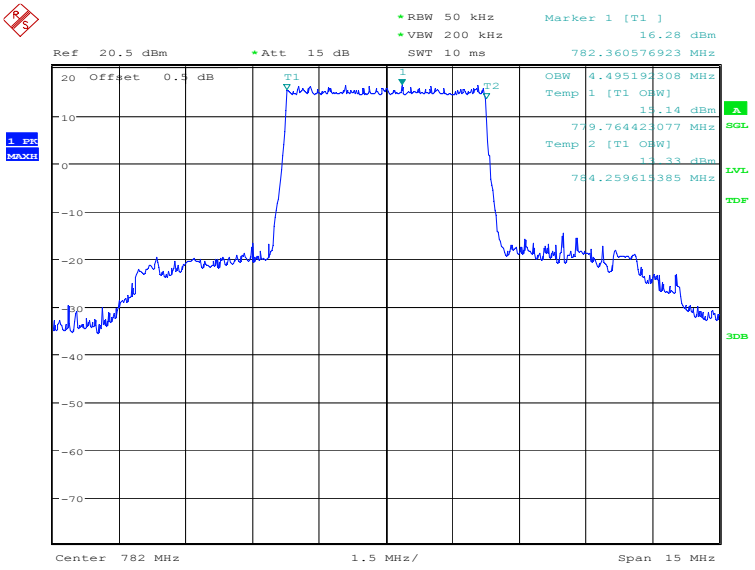
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
782.0	QPSK	16QAM
	4519.23	4495.19

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



Date: 23.JUL.2020 16:24:23

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



Date: 23.JUL.2020 16:25:02

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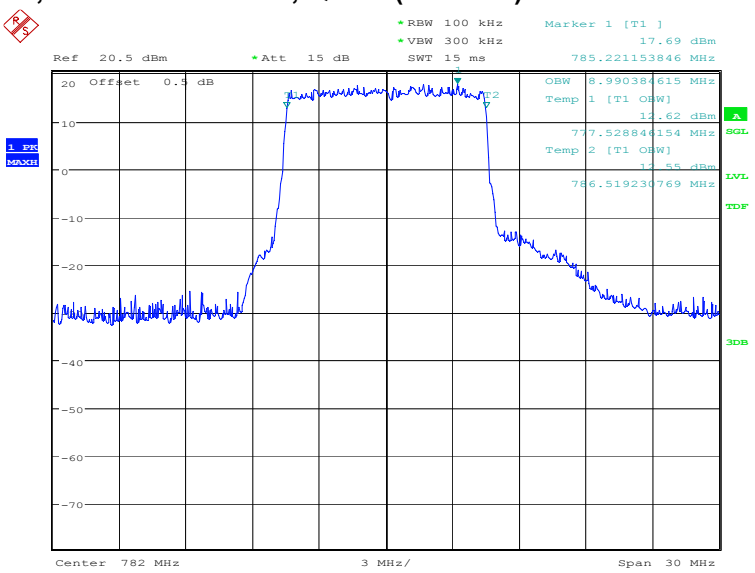
LTE band 13, 10MHz (99%)

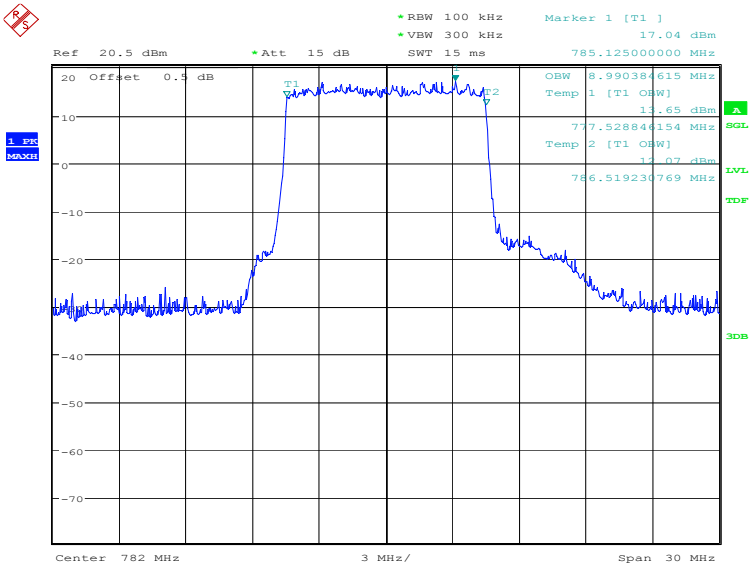
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
782.0	QPSK	16QAM
	8990.38	8990.38

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



Date: 23.JUL.2020 16:25:42

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



Date: 23.JUL.2020 16:26:21

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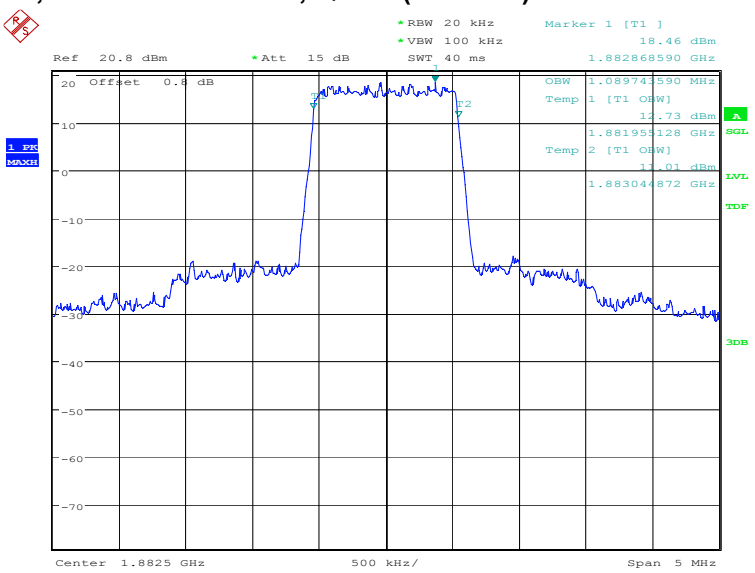
LTE band 25, 1.4MHz (99%)

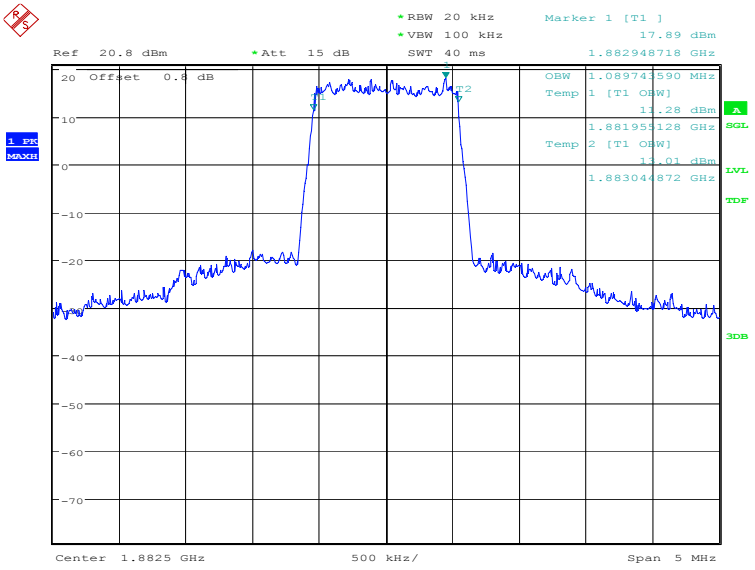
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
1882.5	QPSK	16QAM
	1089.74	1089.74

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



Date: 24.JUL.2020 09:00:16

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



Date: 24.JUL.2020 09:00:54

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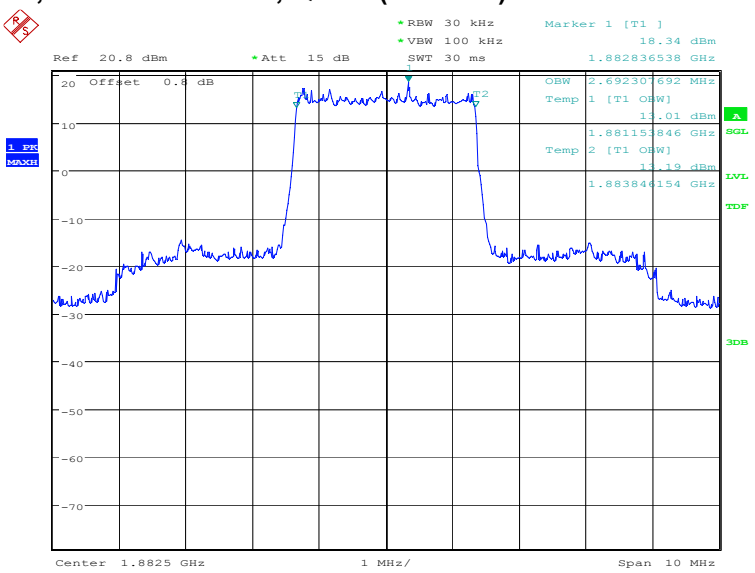
LTE band 25, 3MHz (99%)

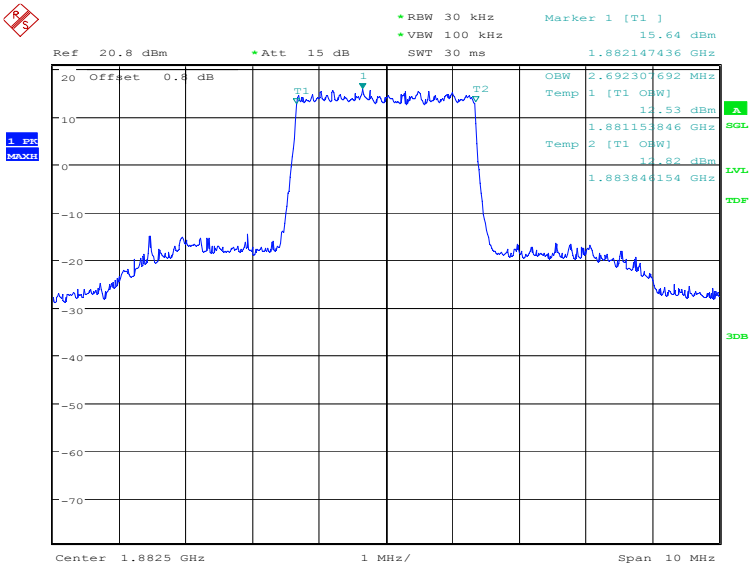
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
1882.5	QPSK	16QAM
	2692.31	2692.31

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



Date: 24.JUL.2020 09:01:35

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



Date: 24.JUL.2020 09:02:14

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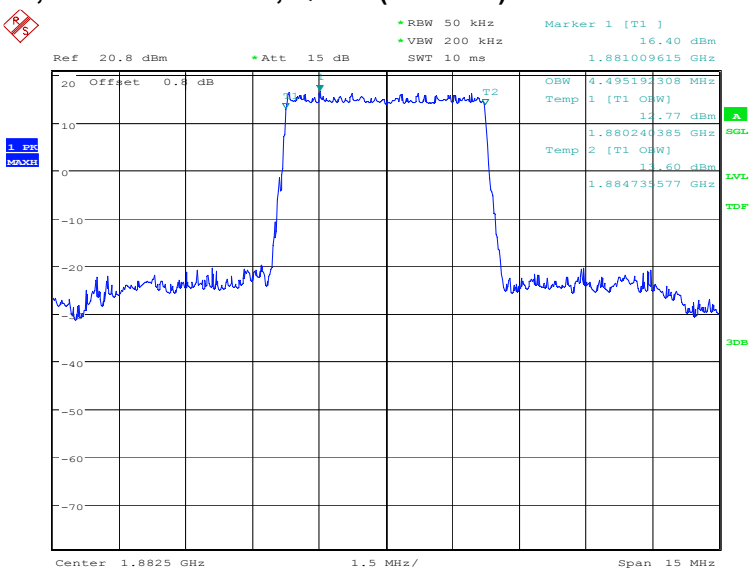
LTE band 25, 5MHz (99%)

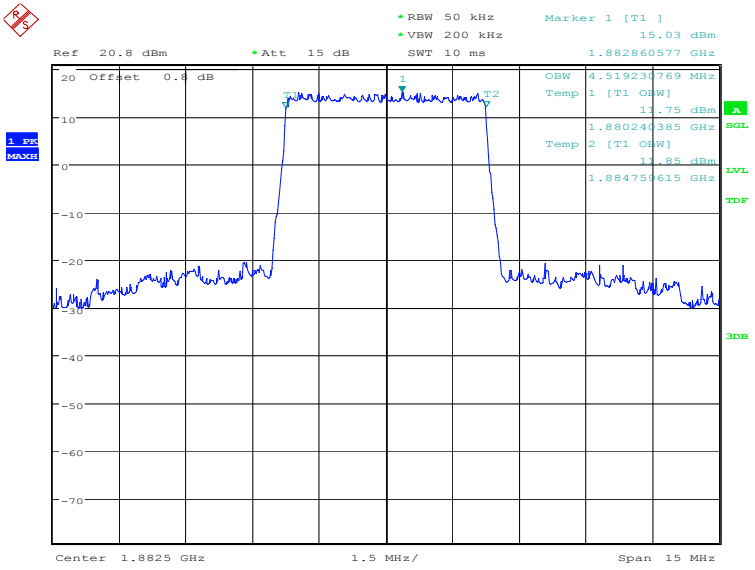
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
1882.5	QPSK	16QAM
	4495.19	4519.23

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



Date: 24.JUL.2020 09:02:54

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



Date: 24.JUL.2020 09:03:33

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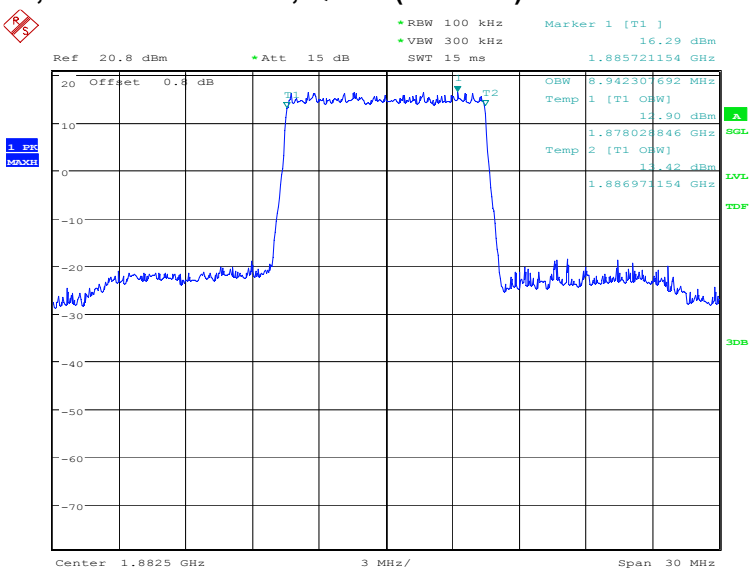
LTE band 25, 10MHz (99%)

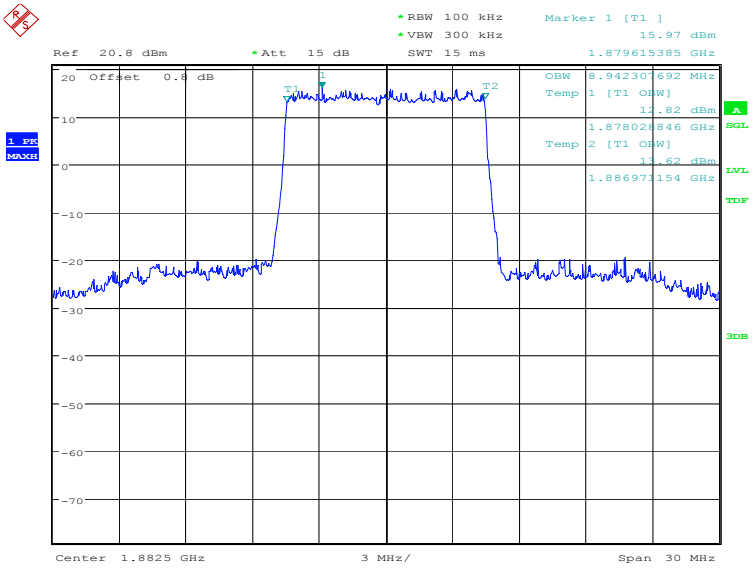
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
1882.5	QPSK	16QAM
	8942.31	8942.31

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



Date: 24.JUL.2020 09:04:13

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



Date: 24.JUL.2020 09:04:52

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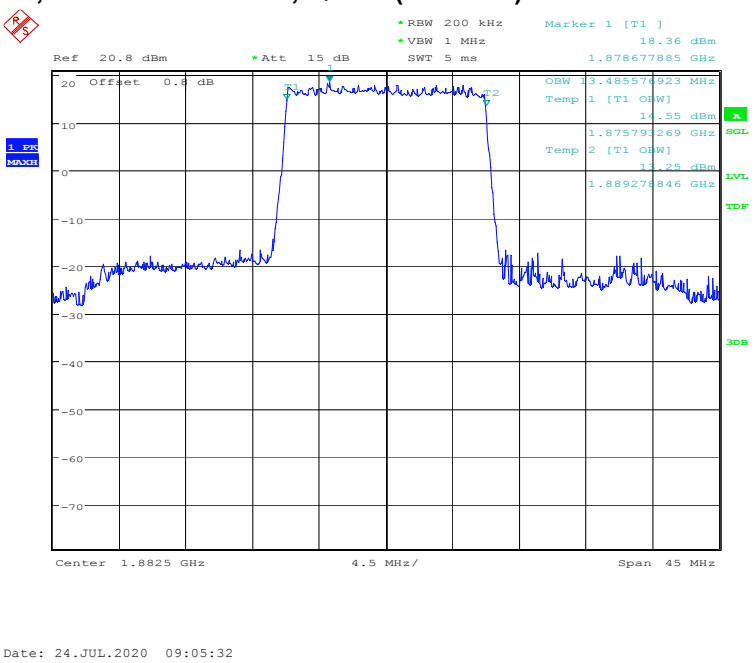
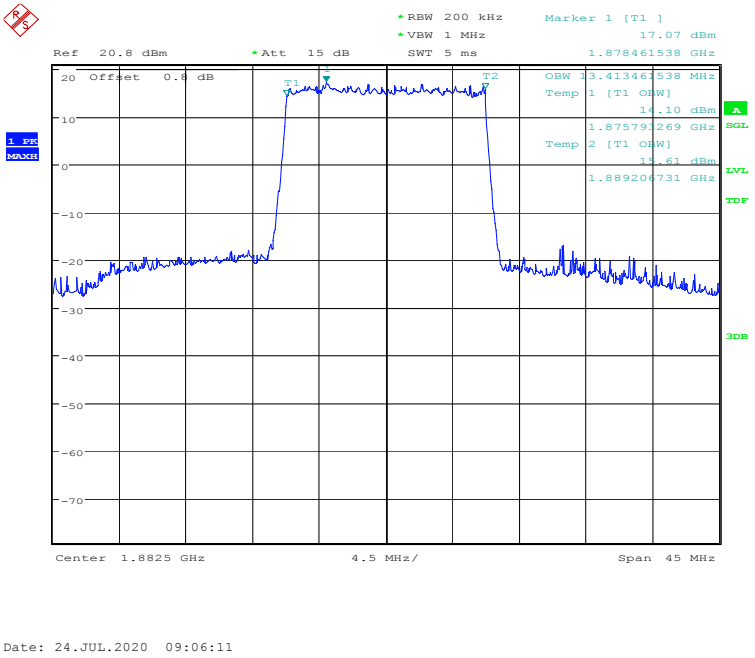
LTE band 25, 15MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
1882.5	QPSK	16QAM
	13485.58	13413.46

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



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



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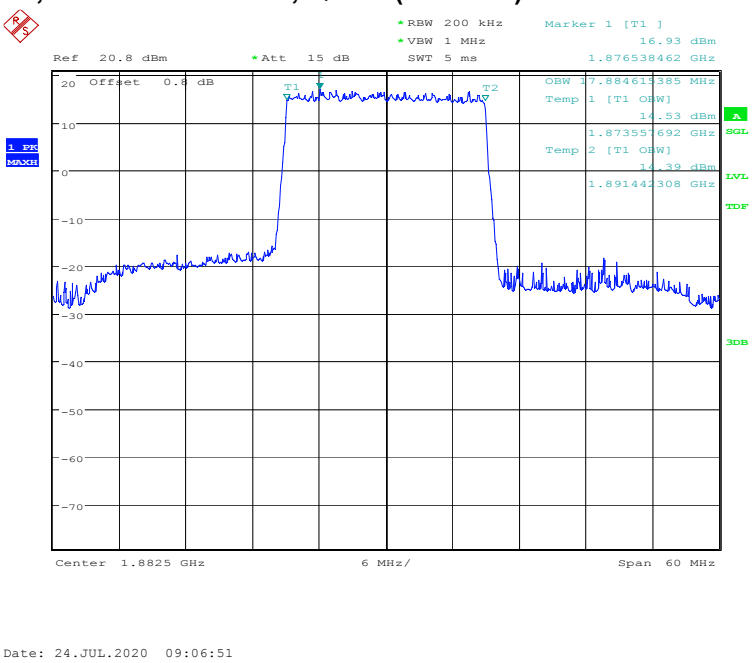
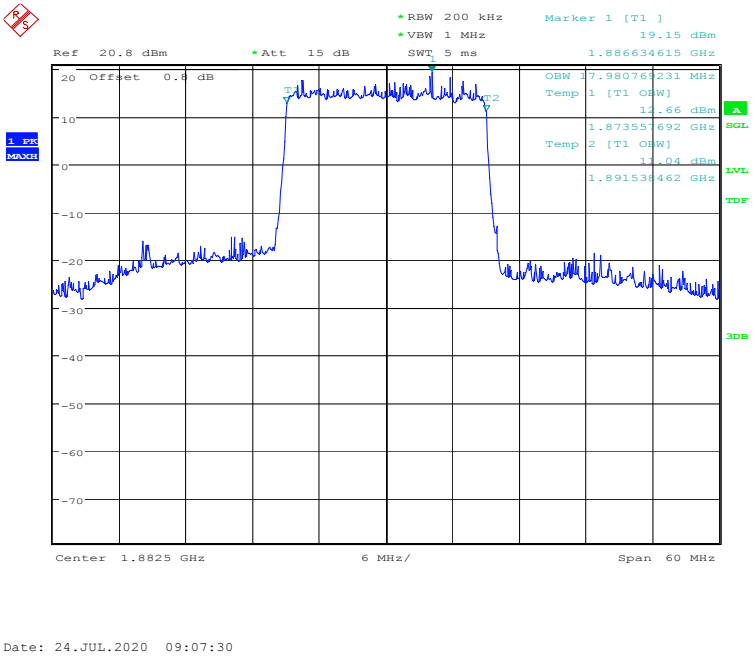
LTE band 25, 20MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
1882.5	QPSK	16QAM
	17884.62	17980.77

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



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



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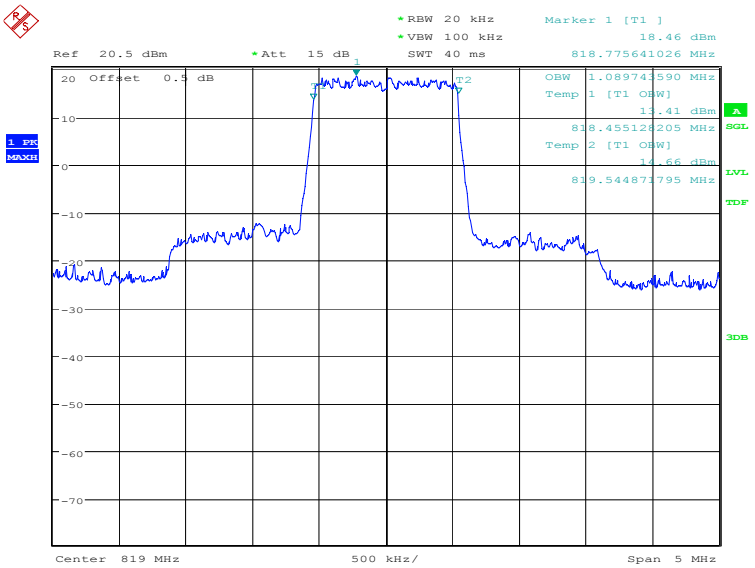
LTE band 26(814MHz~824MHz), 1.4MHz (99%)

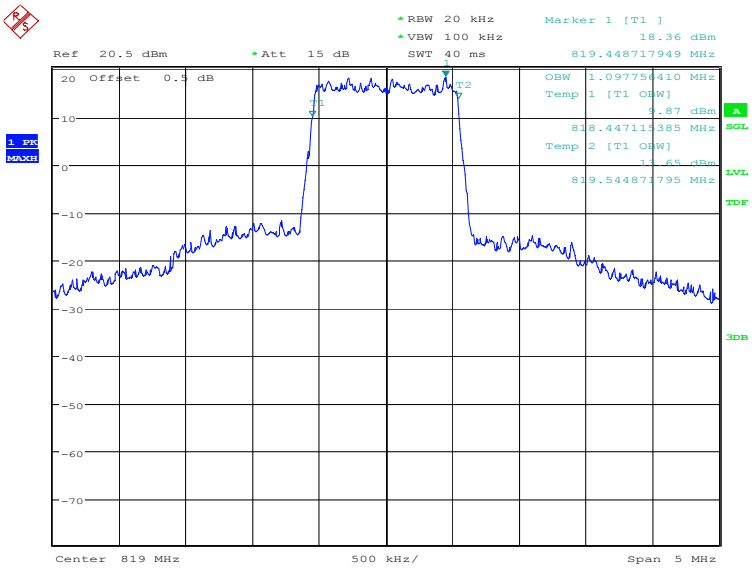
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
819.0	QPSK	16QAM
	1089.74	1097.76

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



Date: 23.JUL.2020 16:34:21

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



Date: 23.JUL.2020 16:34:59

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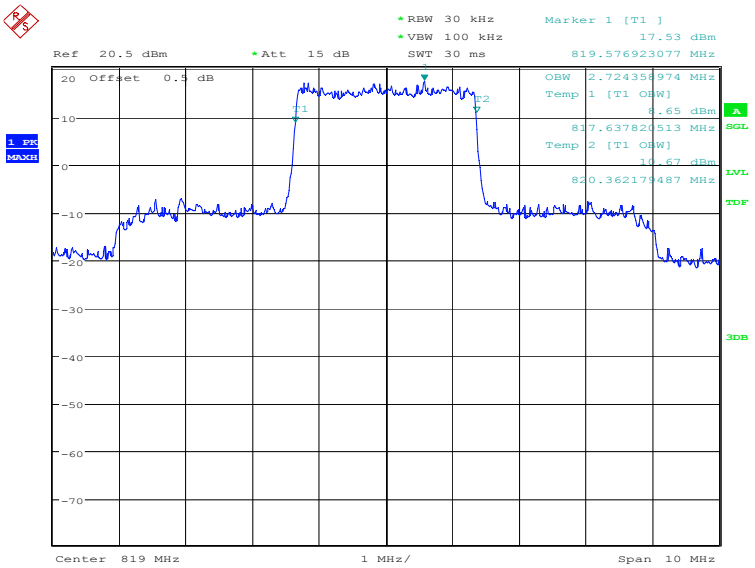
LTE band 26(814MHz~824MHz), 3MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
819.0	QPSK	16QAM
	2724.36	2740.38

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



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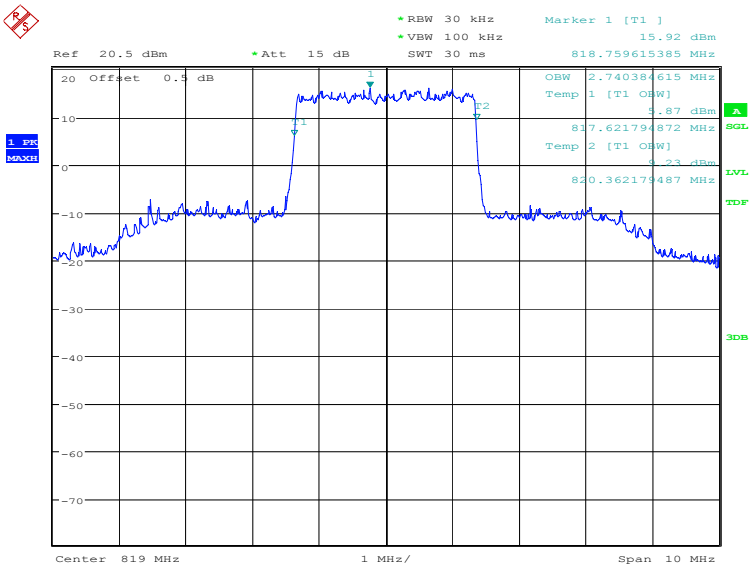
LTE band 26(814MHz~824MHz), 3MHz Bandwidth, 16QAM (99% BW)



Date: 23.JUL.2020 16:36:19

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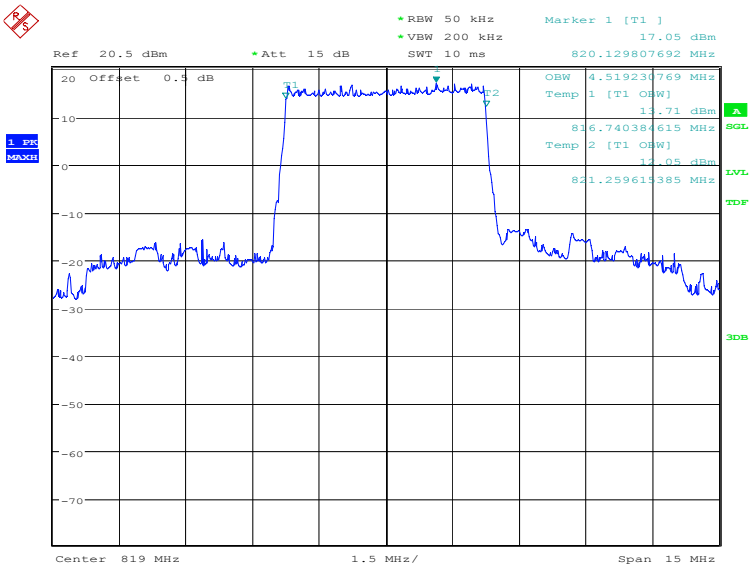
LTE band 26(814MHz~824MHz), 5MHz (99%)

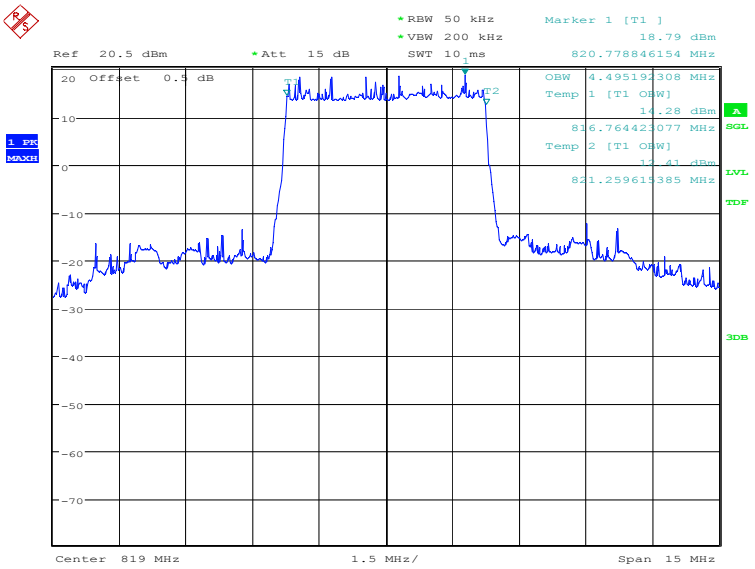
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
819.0	QPSK	16QAM
	4519.23	4495.19

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



Date: 23.JUL.2020 16:37:00

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



Date: 23.JUL.2020 16:37:38

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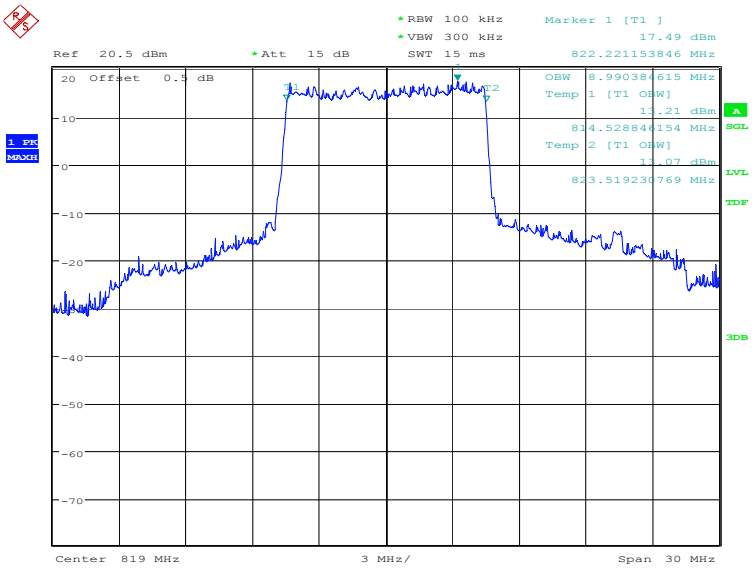
LTE band 26(814MHz~824MHz), 10MHz (99%)

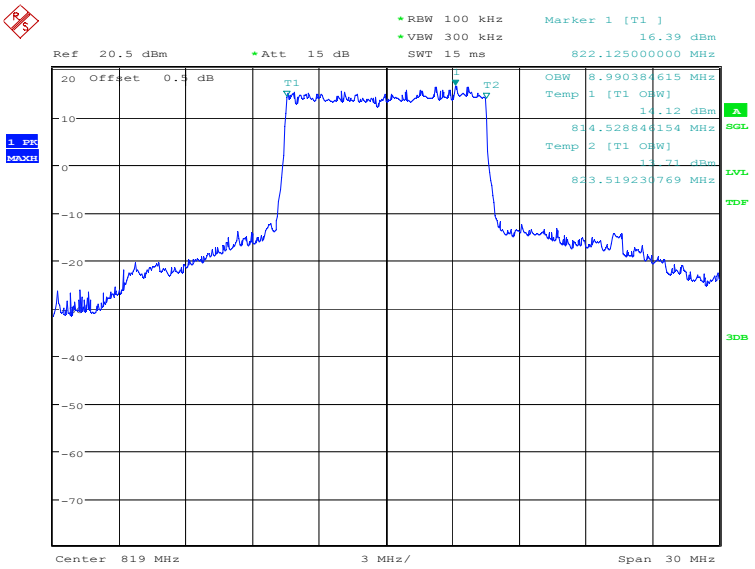
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
819.0	QPSK	16QAM
	8990.38	8990.38

LTE band 26(814MHz~824MHz), 10MHz Bandwidth, QPSK (99% BW)



Date: 23.JUL.2020 16:38:19

LTE band 26(814MHz~824MHz), 10MHz Bandwidth, 16QAM (99% BW)



Date: 23.JUL.2020 16:38:58

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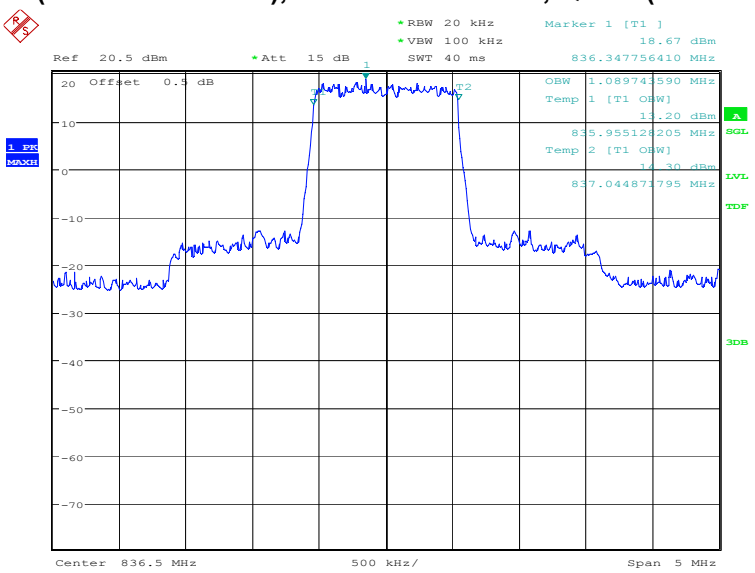
LTE band 26(824MHz~849MHz), 1.4MHz (99%)

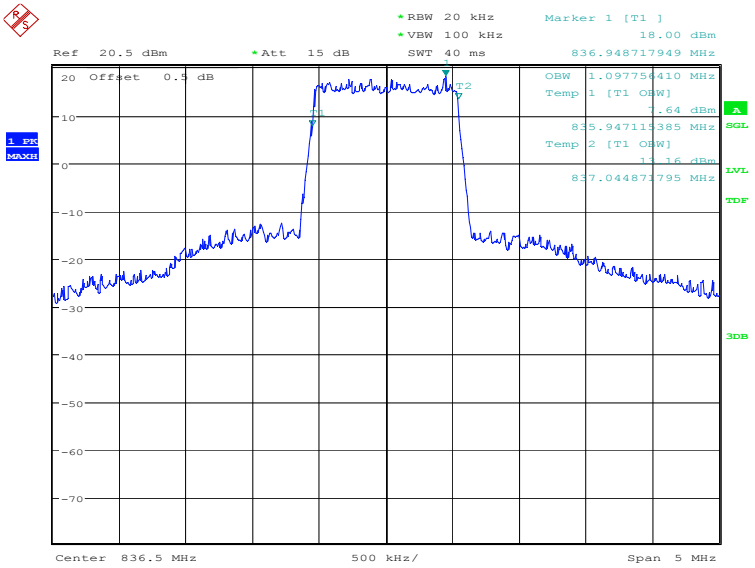
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
836.5	QPSK	16QAM
	1089.74	1097.76

LTE band 26(824MHz~849MHz), 1.4MHz Bandwidth, QPSK (99% BW)



Date: 23.JUL.2020 16:27:06

LTE band 26(824MHz~849MHz), 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 23.JUL.2020 16:27:45

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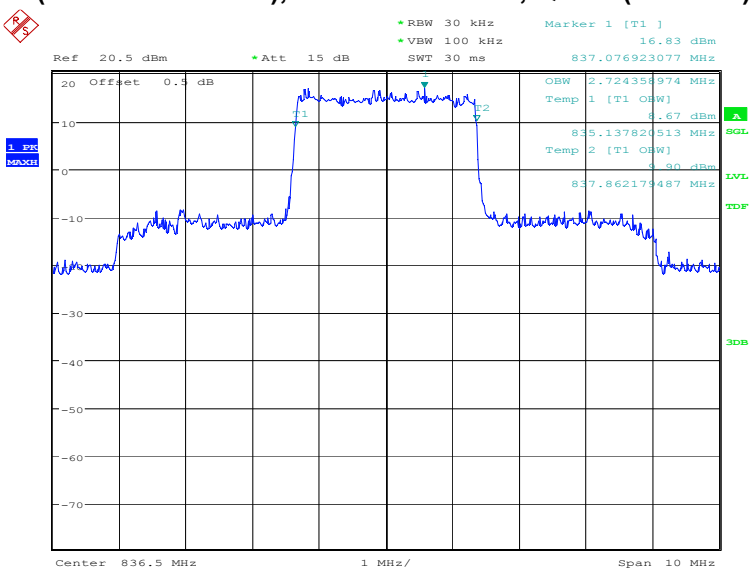
LTE band 26(824MHz~849MHz), 3MHz (99%)

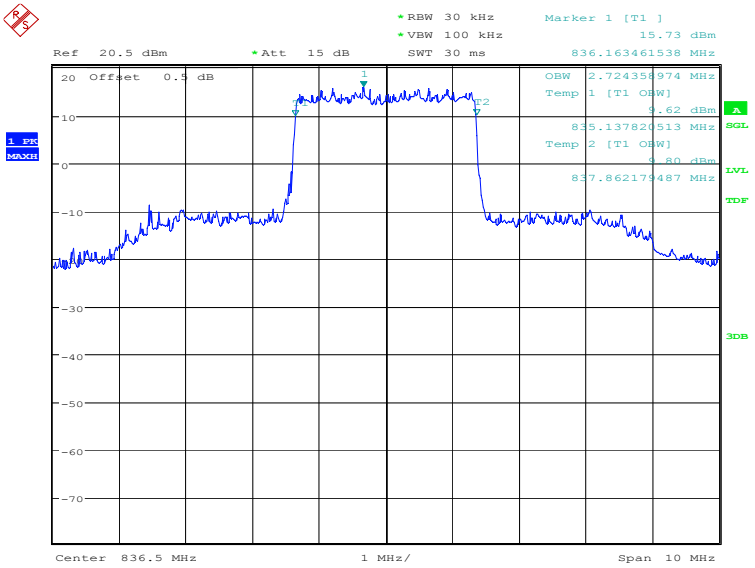
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
836.5	QPSK	16QAM
	2724.36	2724.36

LTE band 26(824MHz~849MHz), 3MHz Bandwidth, QPSK (99% BW)



Date: 23.JUL.2020 16:28:26

LTE band 26(824MHz~849MHz), 3MHz Bandwidth, 16QAM (99% BW)



Date: 23.JUL.2020 16:29:04

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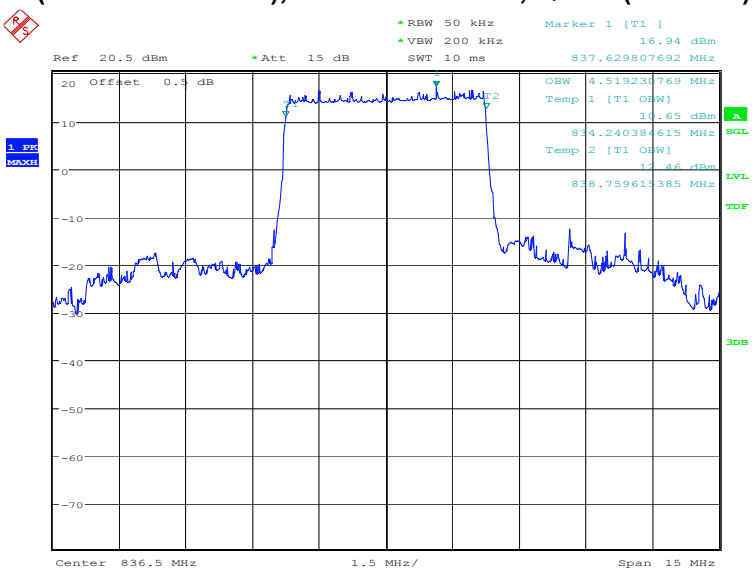
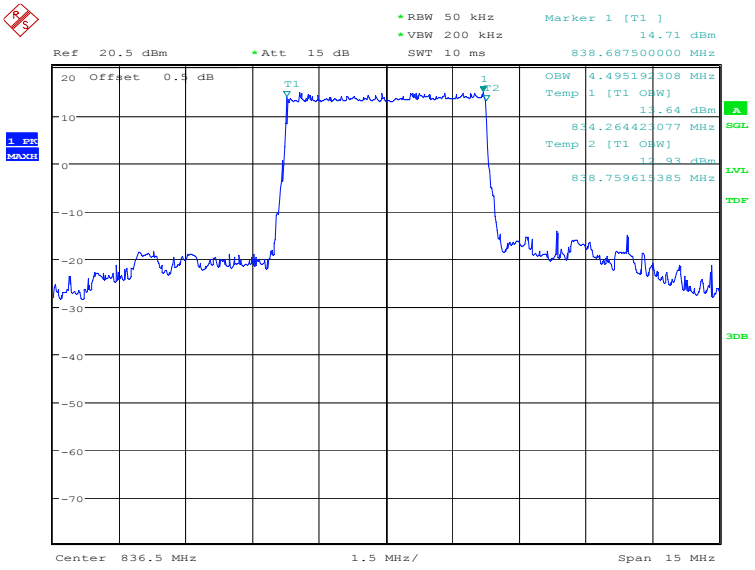
LTE band 26(824MHz~849MHz), 5MHz (99%)

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

LTE band 26(824MHz~849MHz), 5MHz Bandwidth, QPSK (99% BW)



LTE band 26(824MHz~849MHz), 5MHz Bandwidth, 16QAM (99% BW)



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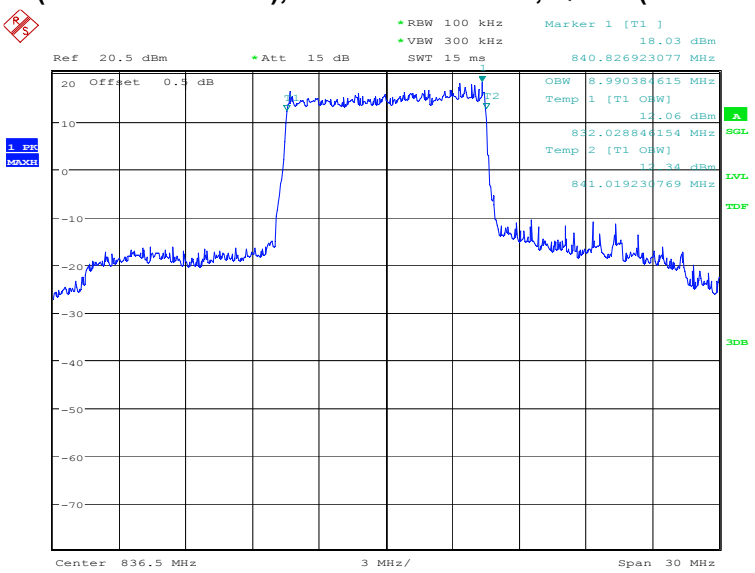
LTE band 26(824MHz~849MHz), 10MHz (99%)

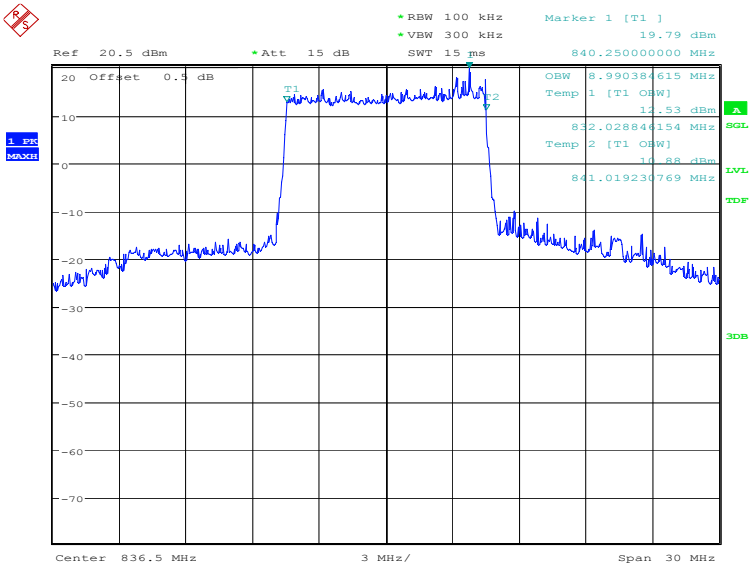
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
836.5	QPSK	16QAM
	8990.38	8990.38

LTE band 26(824MHz~849MHz), 10MHz Bandwidth, QPSK (99% BW)



Date: 23.JUL.2020 16:31:04

LTE band 26(824MHz~849MHz), 10MHz Bandwidth, 16QAM (99% BW)



Date: 23.JUL.2020 16:31:43

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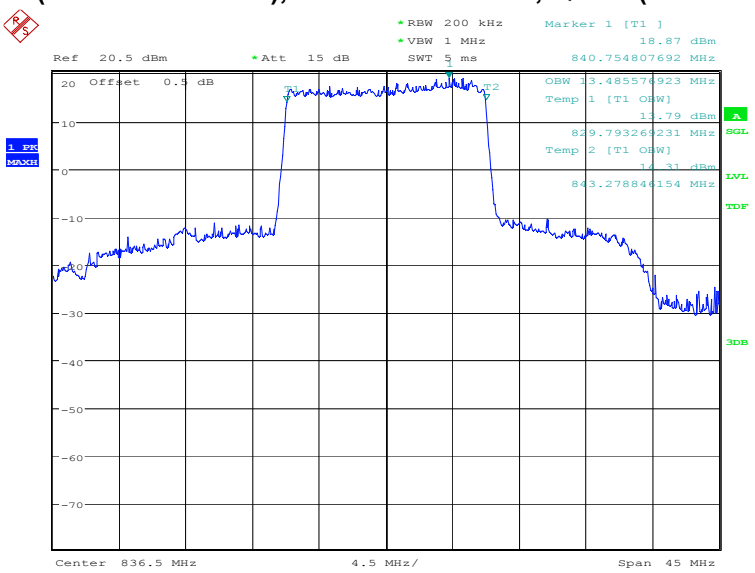
LTE band 26(824MHz~849MHz), 15MHz (99%)

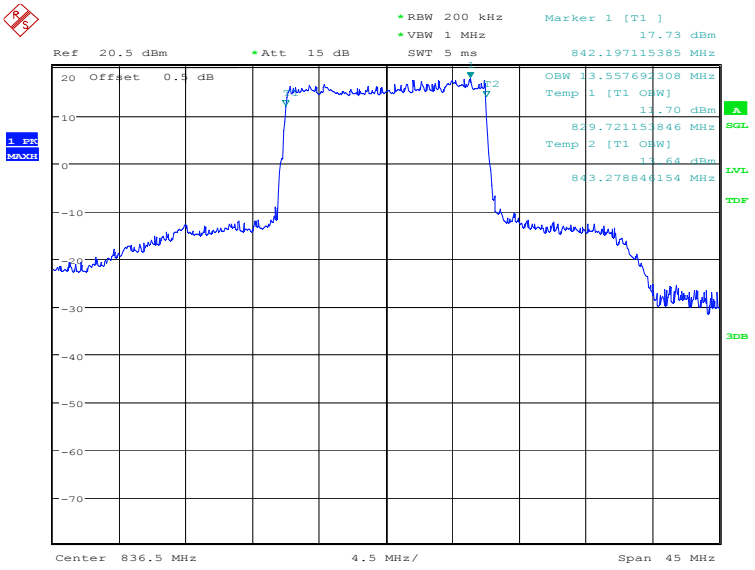
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
836.5	QPSK	16QAM
	13485.58	13557.69

LTE band 26(824MHz~849MHz), 15MHz Bandwidth, QPSK (99% BW)



Date: 23.JUL.2020 16:32:24

LTE band 26(824MHz~849MHz), 15MHz Bandwidth, 16QAM (99% BW)



Date: 23.JUL.2020 16:33:02

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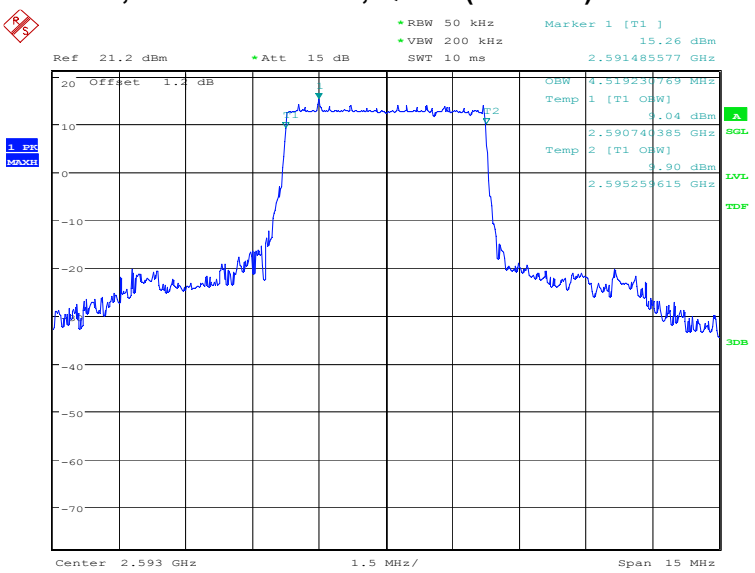
LTE band 41 HPUE, 5MHz (99%)

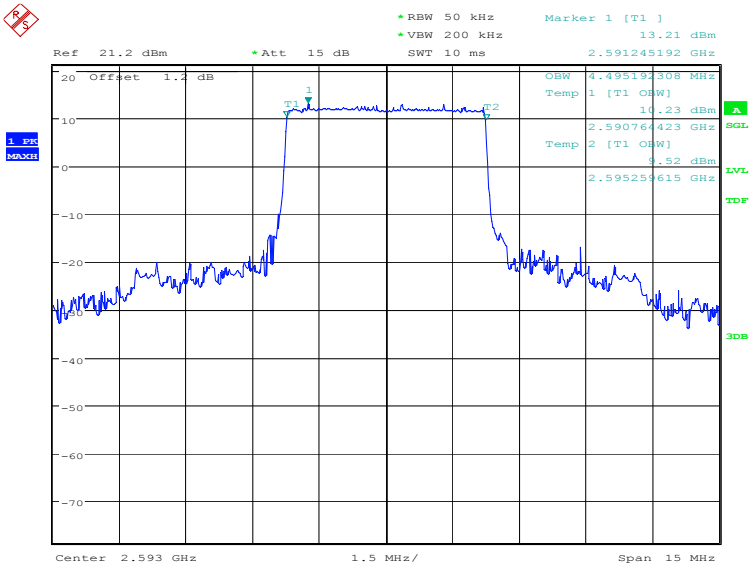
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
2593.0	QPSK	16QAM
	4519.23	4495.19

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



Date: 24.JUL.2020 09:16:53

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



Date: 24.JUL.2020 09:17:32

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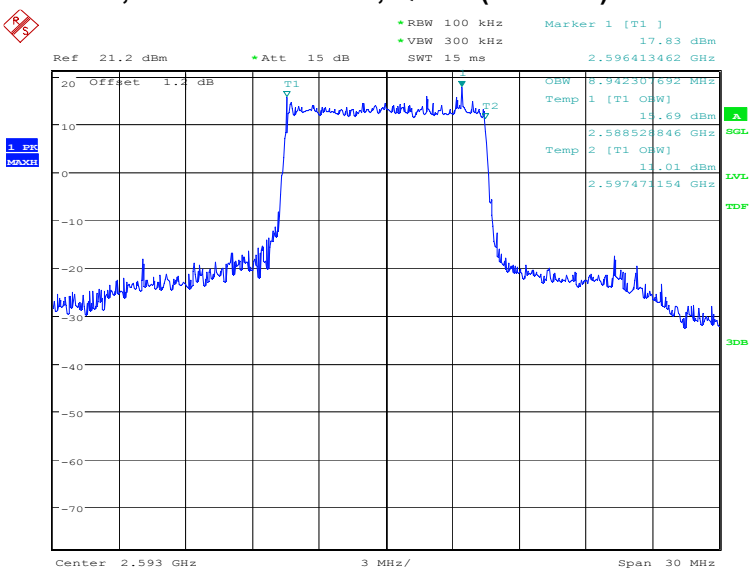
LTE band 41 HPUE, 10MHz (99%)

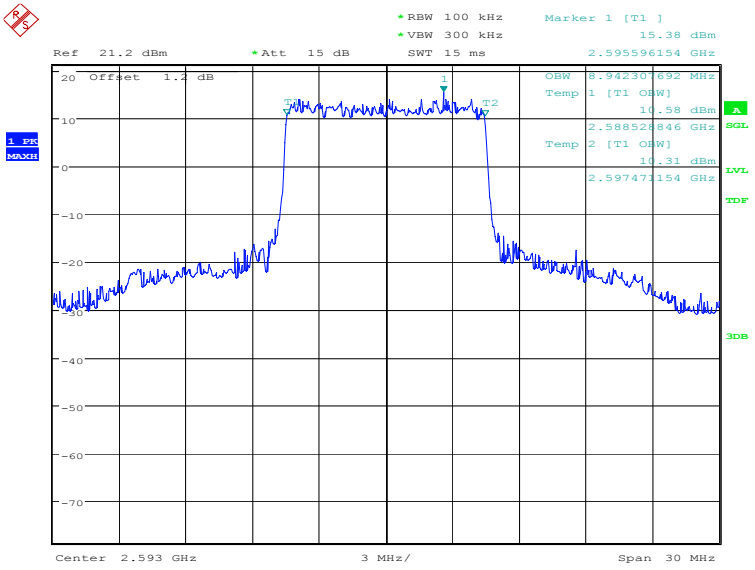
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
2593.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 24.JUL.2020 09:18:13

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



Date: 24.JUL.2020 09:18:52

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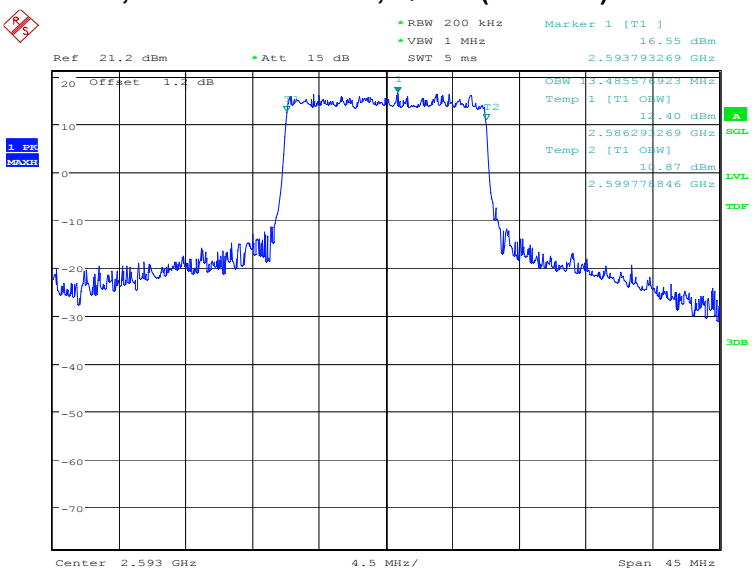
LTE band 41 HPUE, 15MHz (99%)

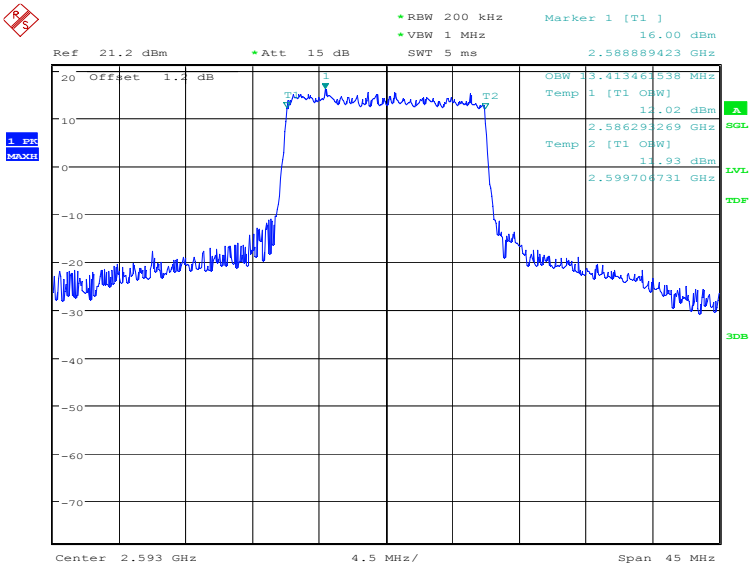
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
2593.0	QPSK	16QAM
	13485.58	13413.46

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



Date: 24.JUL.2020 09:19:32

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



Date: 24.JUL.2020 09:20:11

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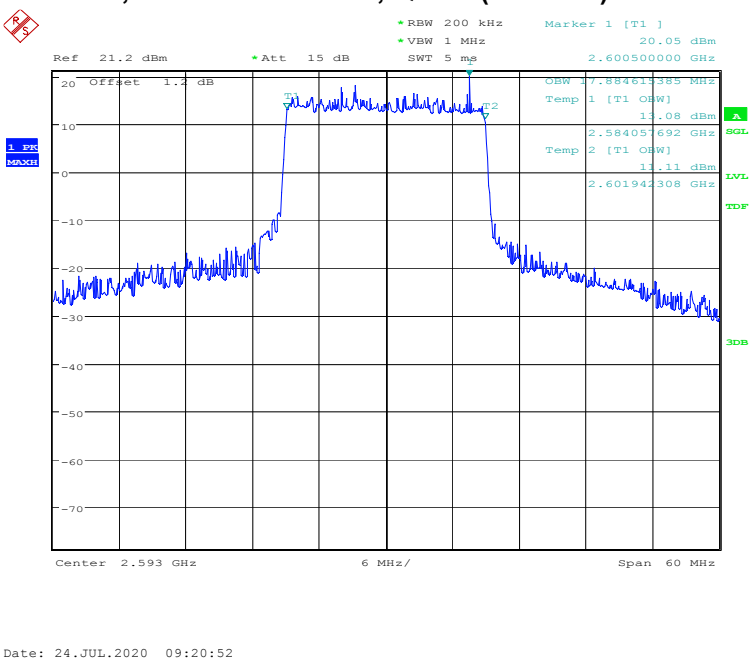
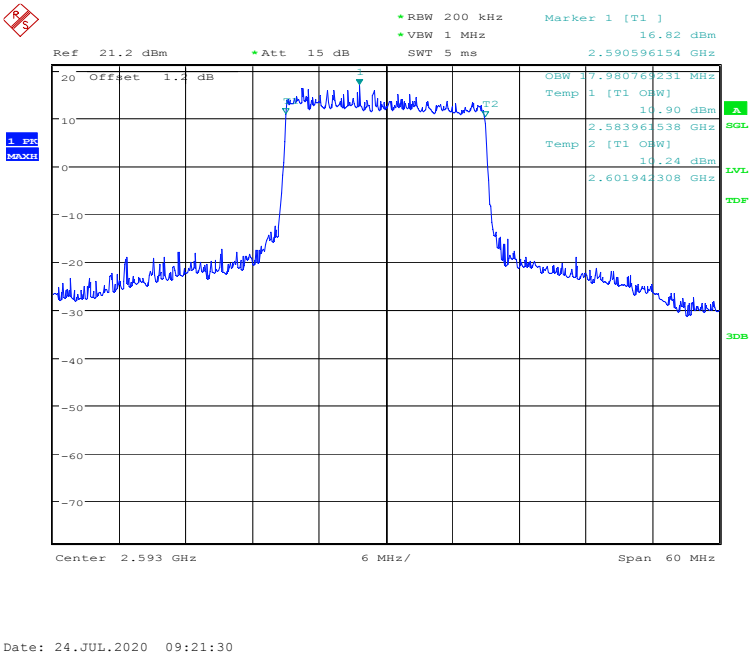
LTE band 41 HPUE, 20MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
2593.0	QPSK	16QAM
	17884.62	17980.77

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



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



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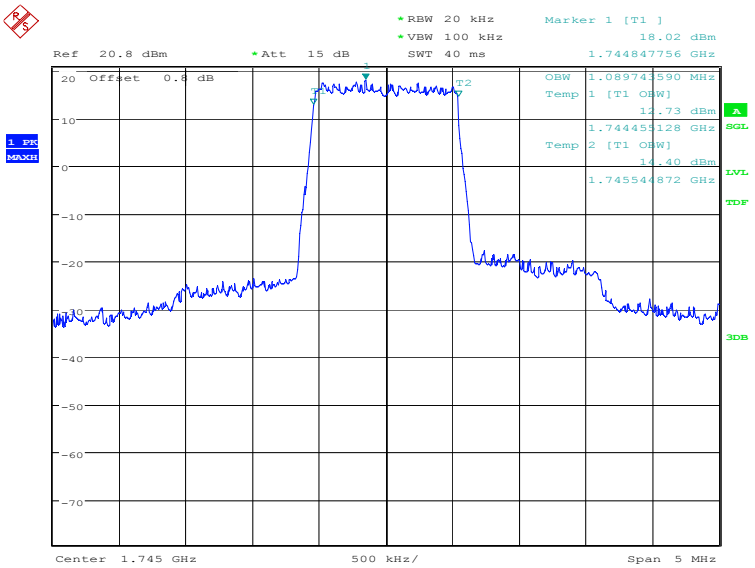
LTE band 66, 1.4MHz (99%)

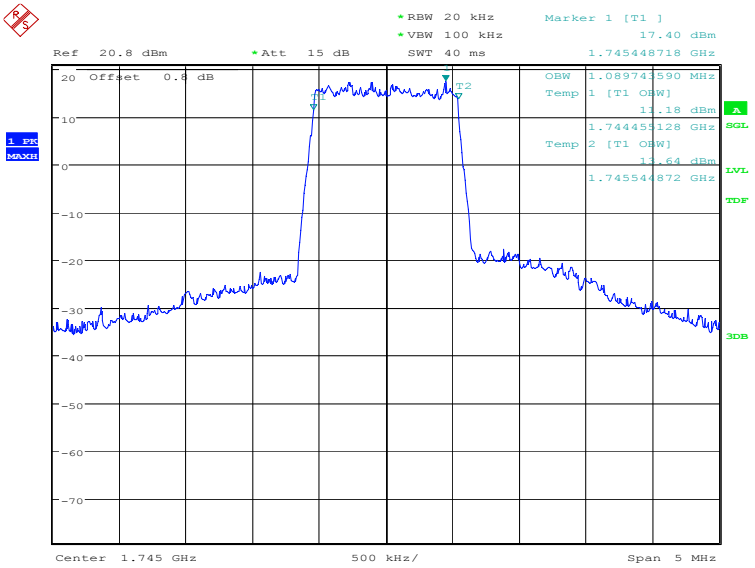
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
1745.0	QPSK	16QAM
	1089.74	1089.74

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



Date: 24.JUL.2020 09:08:17

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



Date: 24.JUL.2020 09:08:56

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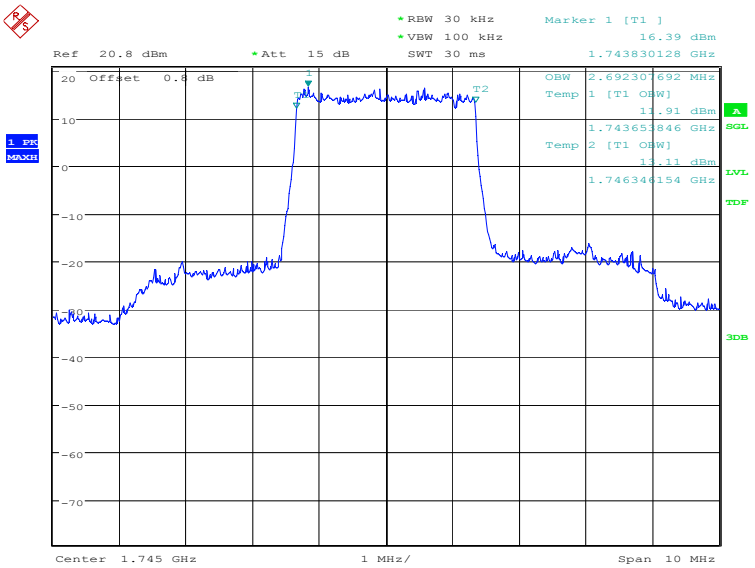
LTE band 66, 3MHz (99%)

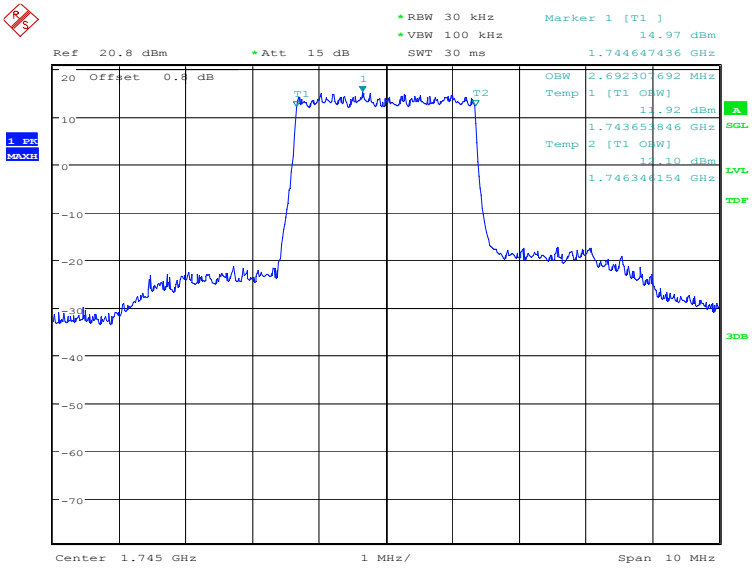
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
1745.0	QPSK	16QAM
	2692.31	2692.31

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



Date: 24.JUL.2020 09:09:36

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



Date: 24.JUL.2020 09:10:15

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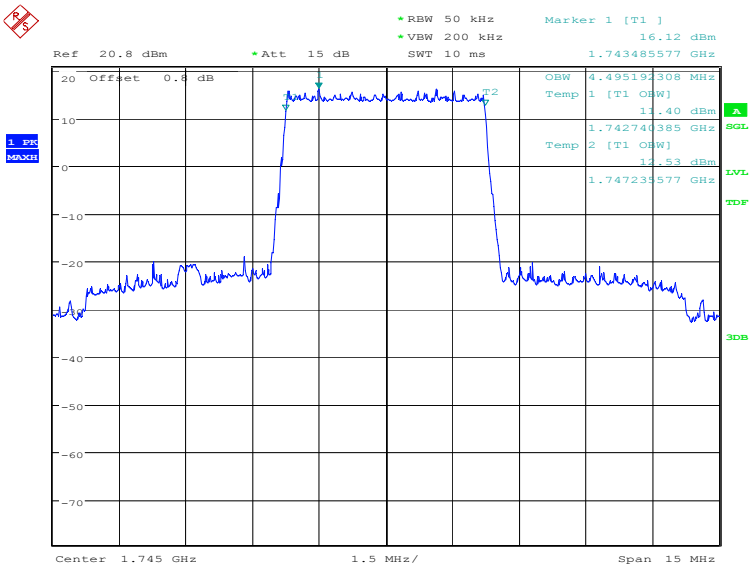
LTE band 66, 5MHz (99%)

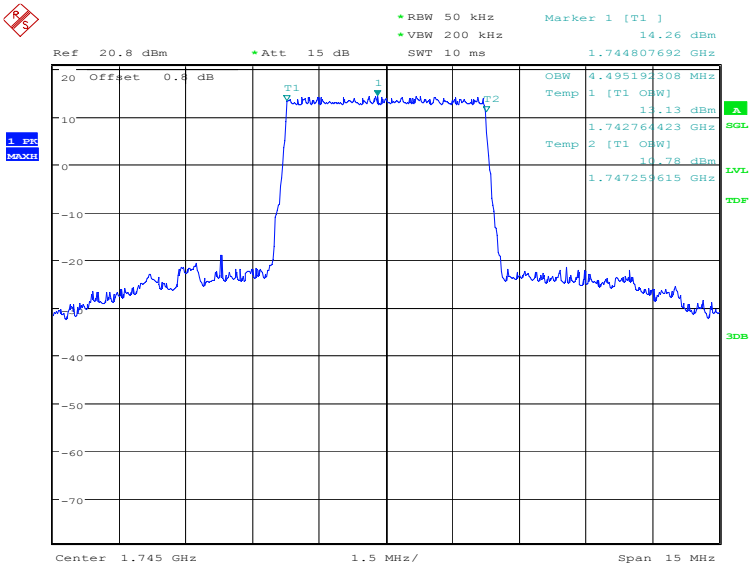
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
1745.0	QPSK	16QAM
	4495.19	4495.19

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



Date: 24.JUL.2020 09:10:55

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



Date: 24.JUL.2020 09:11:34

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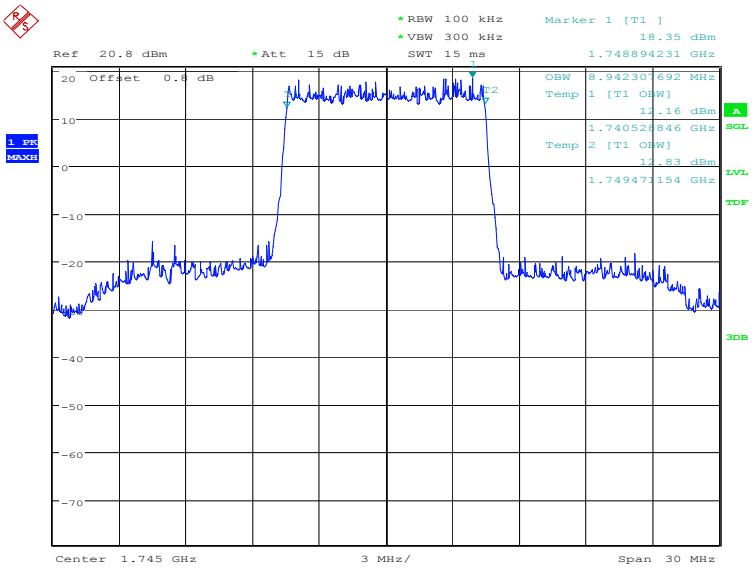
LTE band 66, 10MHz (99%)

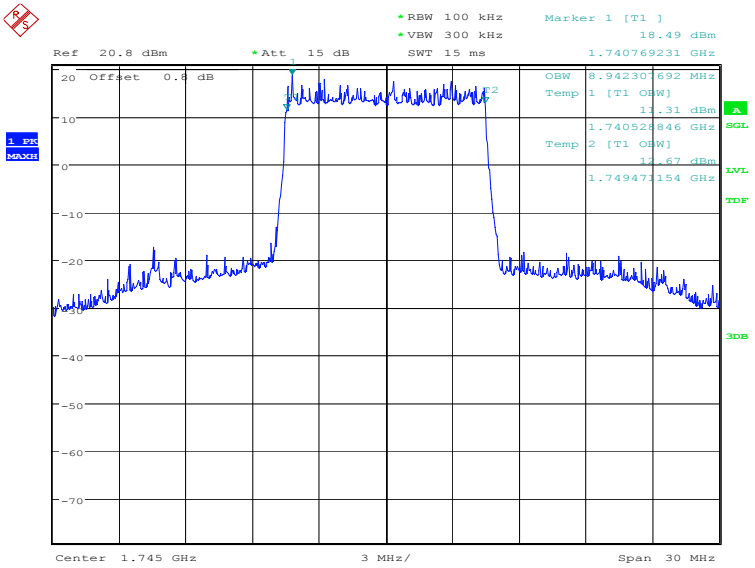
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
1745.0	QPSK	16QAM
	8942.31	8942.31

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



Date: 24.JUL.2020 09:12:15

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



Date: 24.JUL.2020 09:12:53

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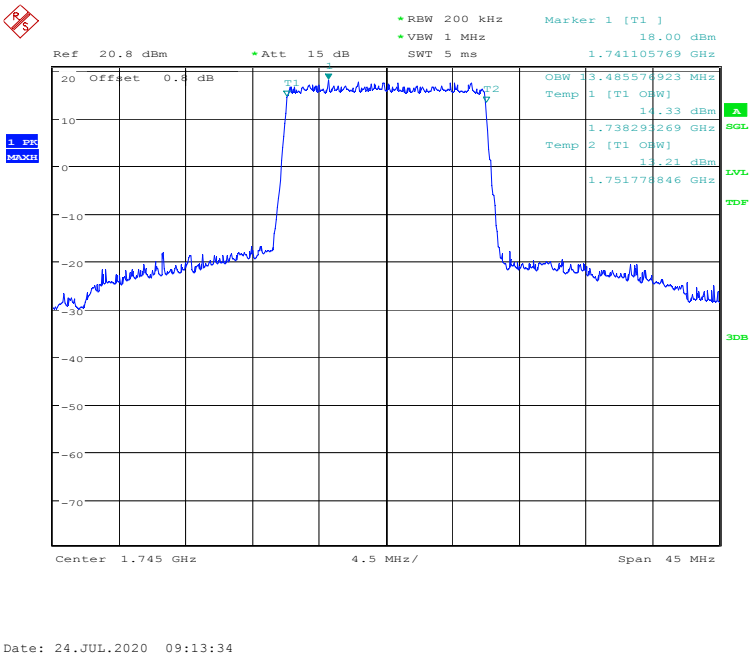
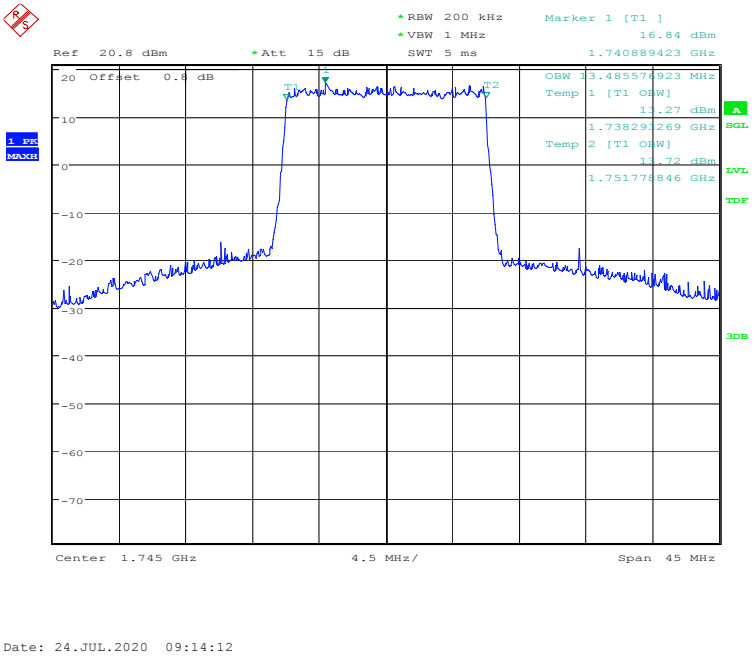
LTE band 66, 15MHz (99%)

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

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



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



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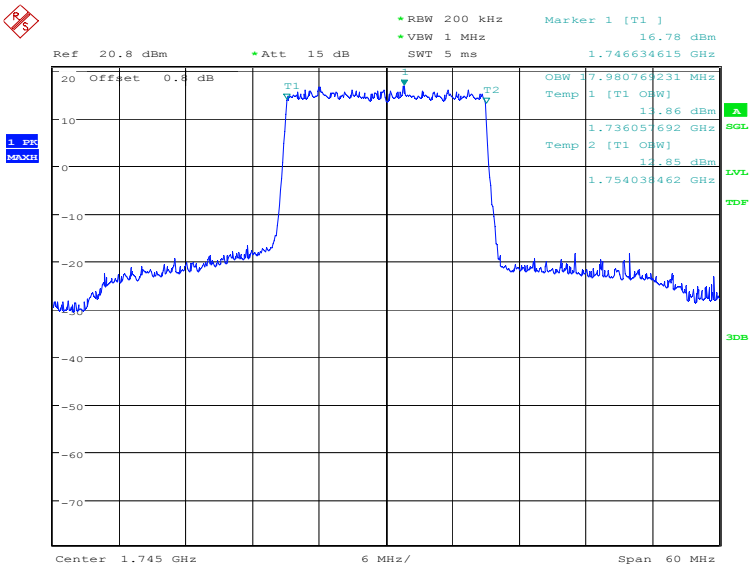
LTE band 66, 20MHz (99%)

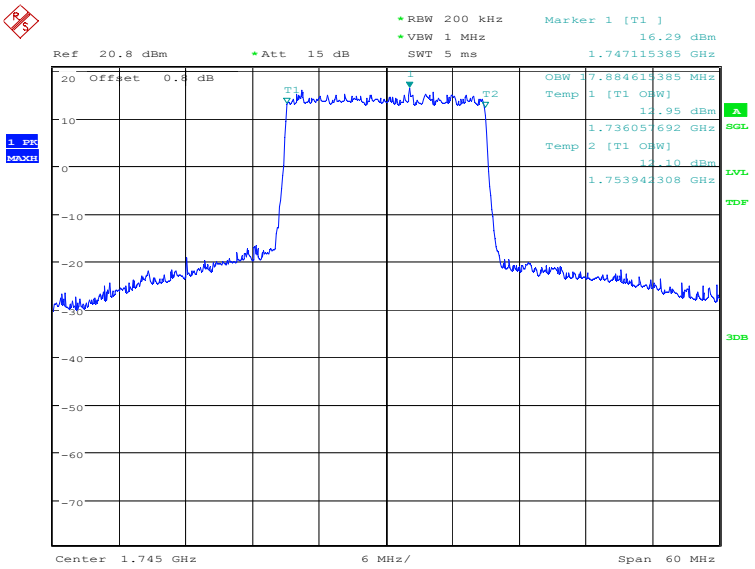
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
1745.0	QPSK	16QAM
	17980.77	17884.62

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



Date: 24.JUL.2020 09:14:53

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



Date: 24.JUL.2020 09:15:31

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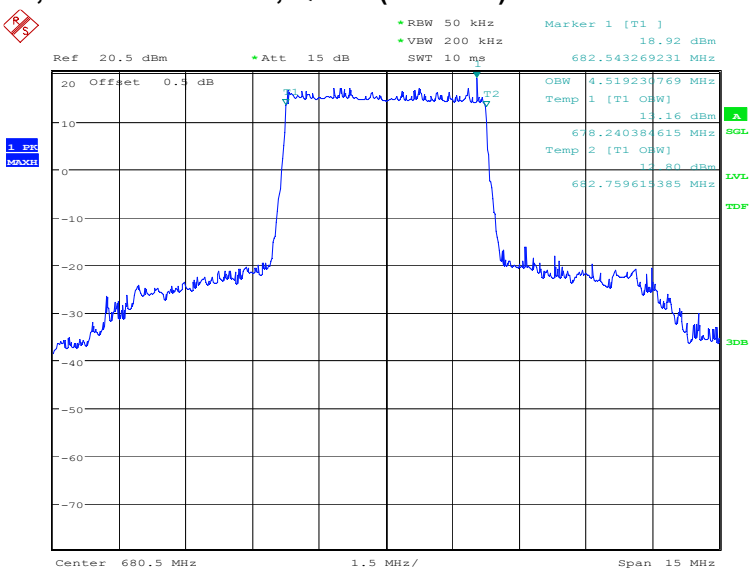
LTE band 71, 5MHz (99%)

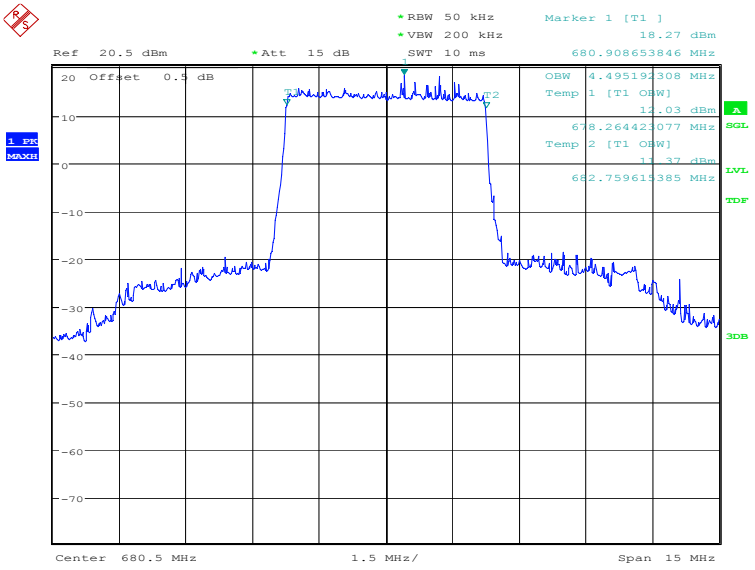
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
680.5	QPSK	16QAM
	4519.23	4495.19

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



Date: 23.JUL.2020 16:07:50

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



Date: 23.JUL.2020 16:08:28

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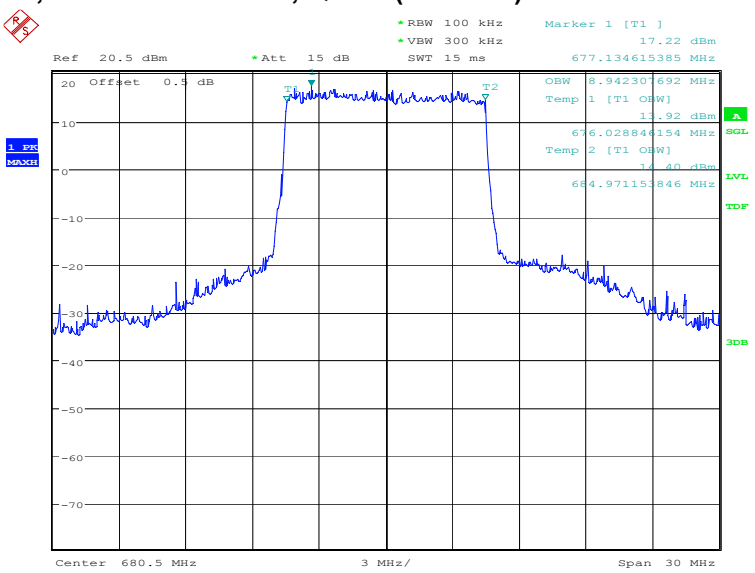
LTE band 71, 10MHz (99%)

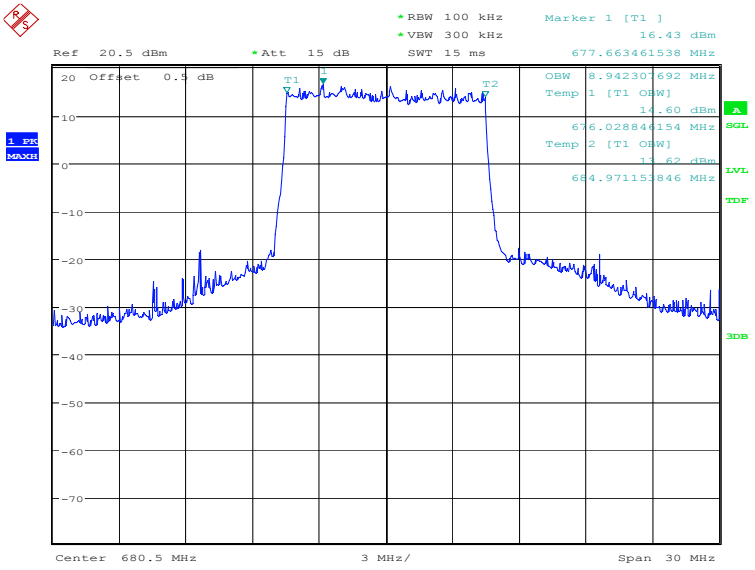
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
680.5	QPSK	16QAM
	8942.31	8942.31

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



Date: 23.JUL.2020 16:09:09

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



Date: 23.JUL.2020 16:09:47

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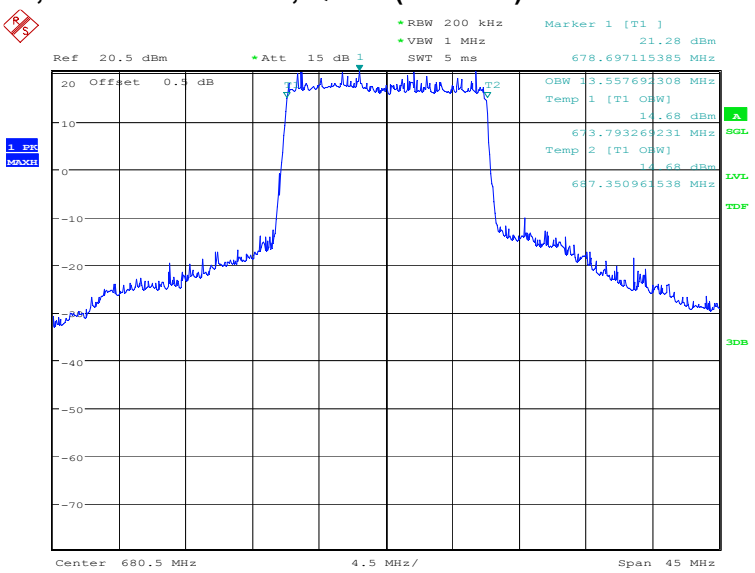
LTE band 71, 15MHz (99%)

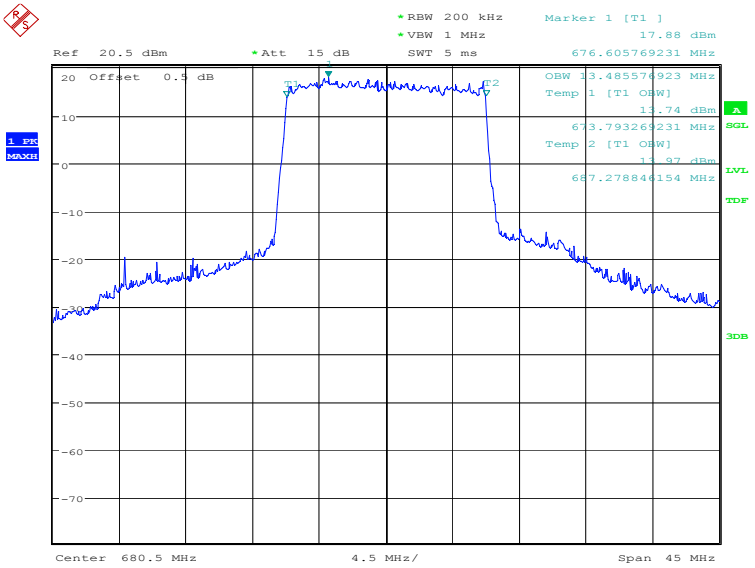
Frequency(MHz)	Occupied Bandwidth (99%) (kHz)	
680.5	QPSK	16QAM
	13557.69	13485.58

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



Date: 23.JUL.2020 16:10:28

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



Date: 23.JUL.2020 16:11:07

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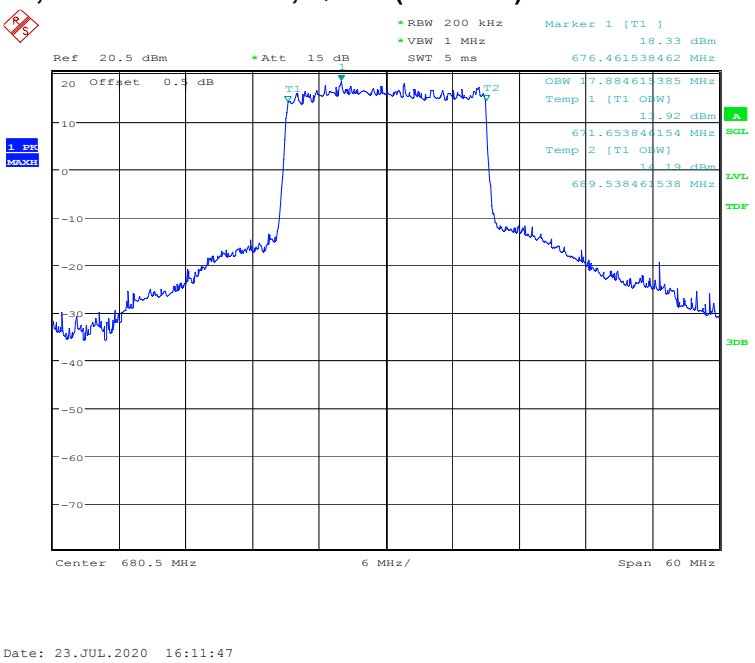
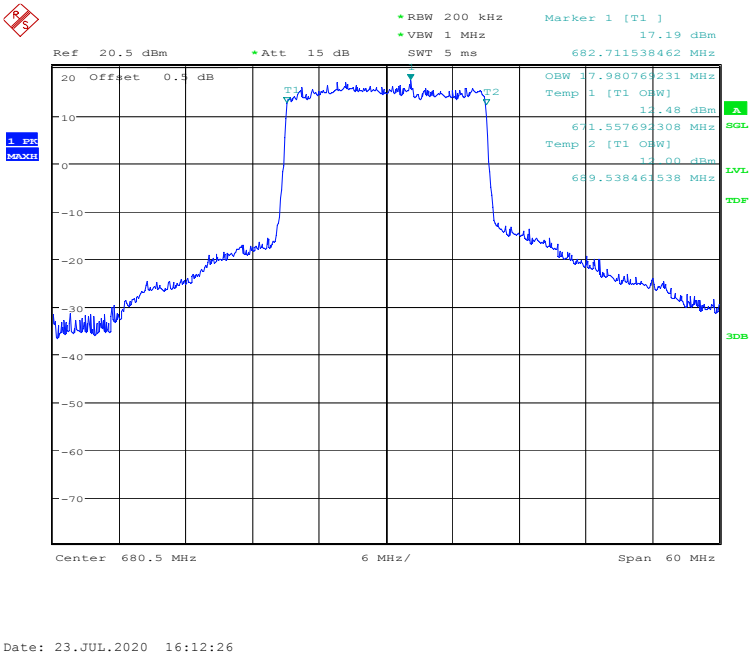
LTE band 71, 20MHz (99%)

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

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



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



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A.5 Emission Bandwidth

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

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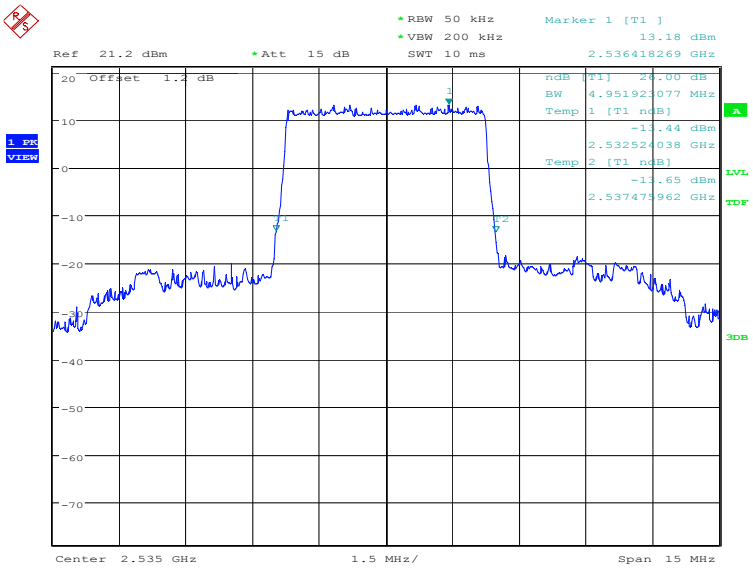
LTE band 7, 5MHz (-26dBc)

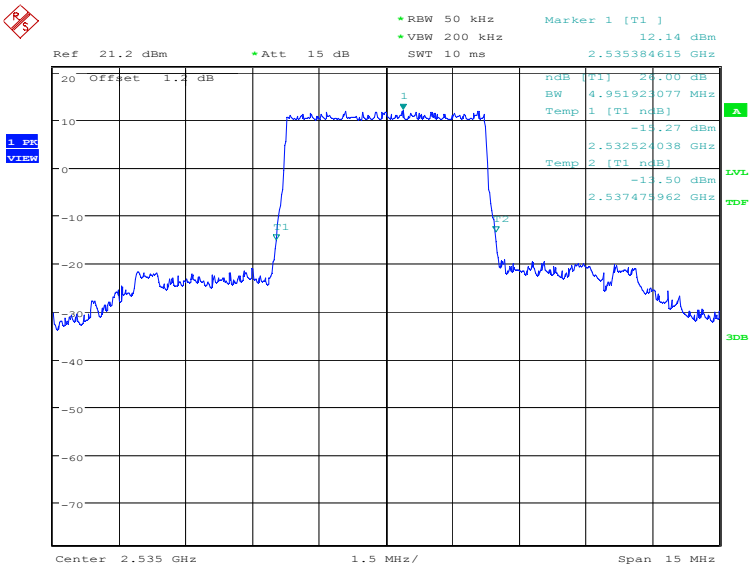
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2535.0	QPSK	16QAM
	4951.92	4951.92

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



Date: 24.JUL.2020 09:28:03

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



Date: 24.JUL.2020 09:28:42

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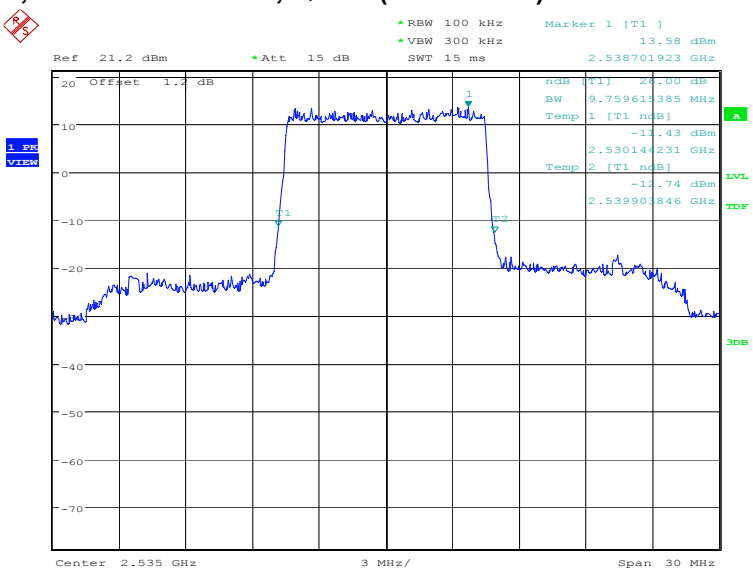
LTE band 7, 10MHz (-26dBc)

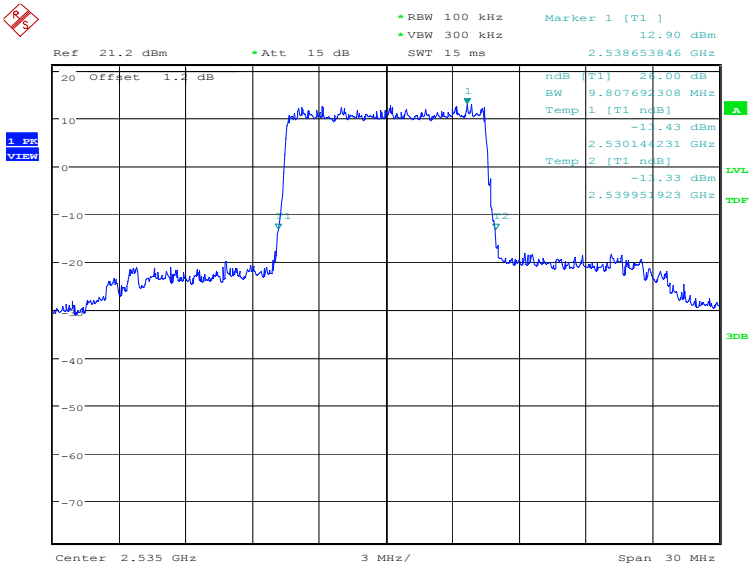
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2535.0	QPSK	16QAM
	9759.62	9807.69

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



Date: 24.JUL.2020 09:29:23

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



Date: 24.JUL.2020 09:30:02

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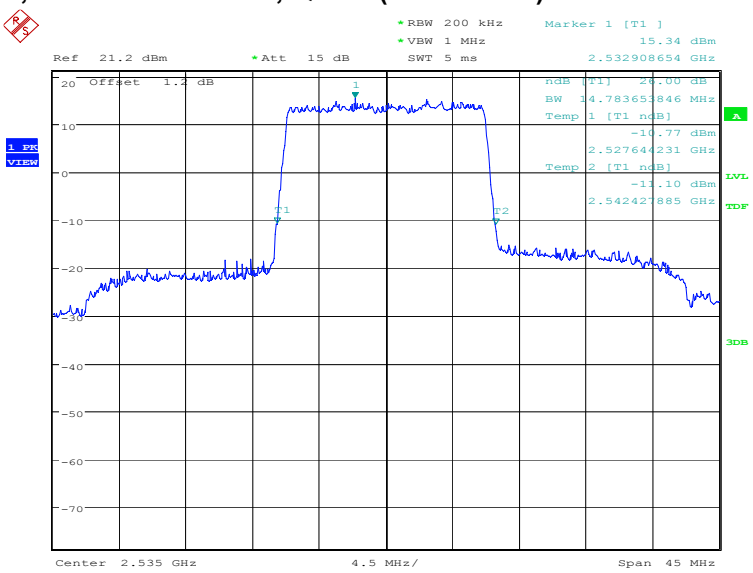
LTE band 7, 15MHz (-26dBc)

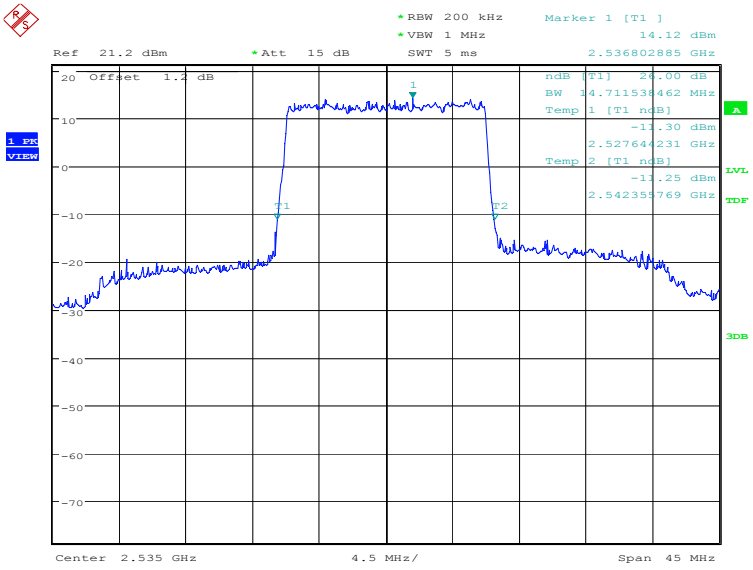
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2535.0	QPSK	16QAM
	14783.65	14711.54

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



Date: 24.JUL.2020 09:30:43

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



Date: 24.JUL.2020 09:31:22

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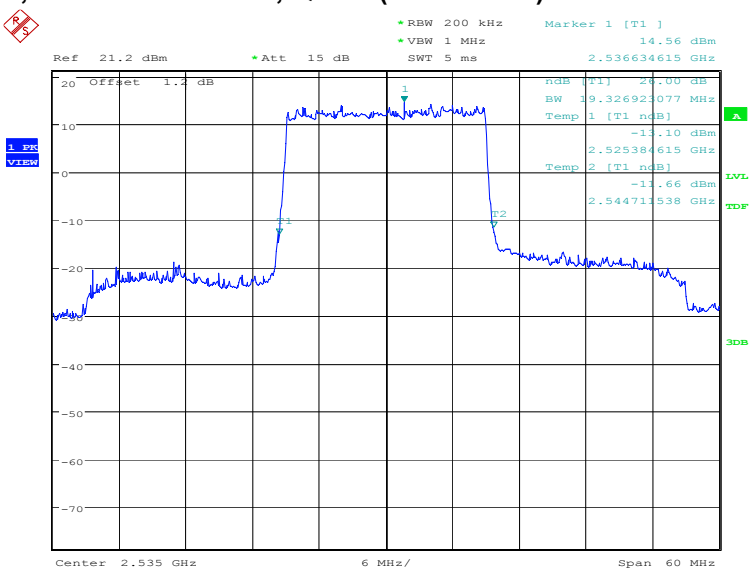
LTE band 7, 20MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2535.0	QPSK	16QAM
	19326.92	19519.23

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



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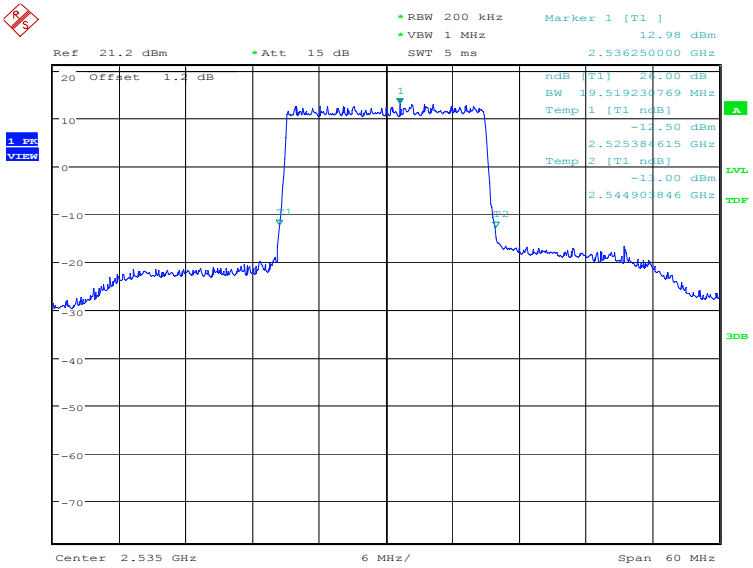
LTE band 7, 20MHz Bandwidth,16QAM (-26dBc BW)



Date: 24.JUL.2020 09:32:43

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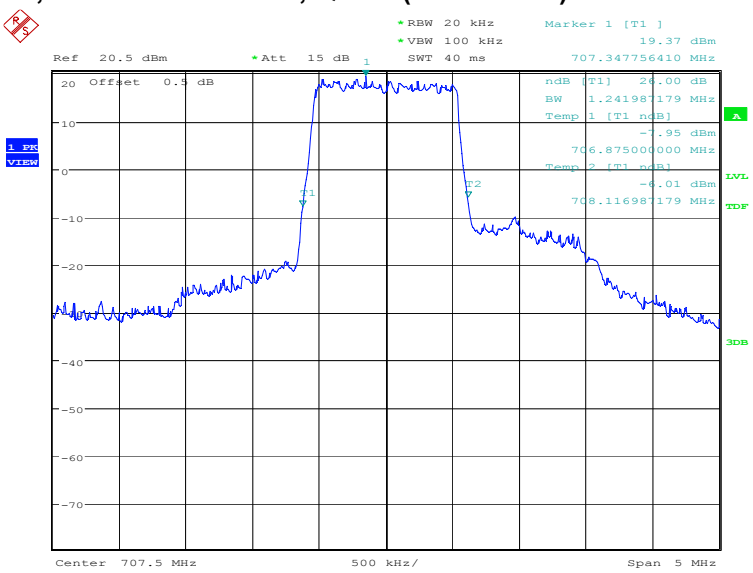
LTE band 12, 1.4MHz (-26dBc)

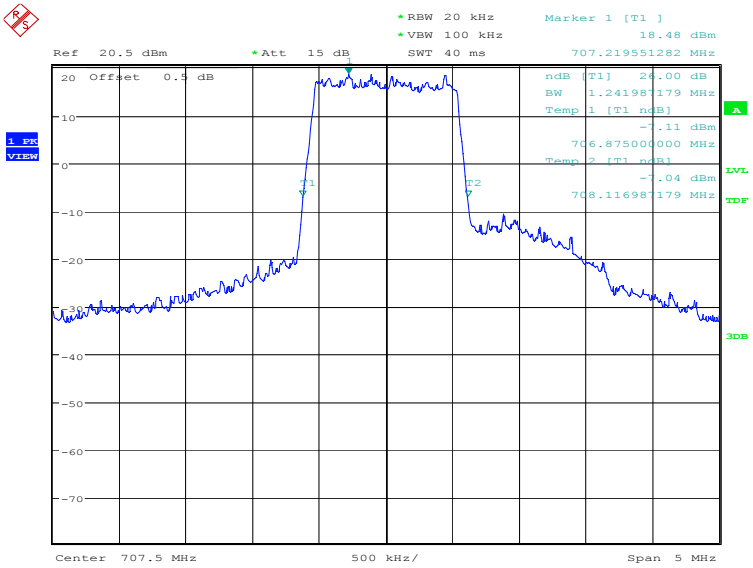
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
707.5	QPSK	16QAM
	1241.99	1241.99

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



Date: 23.JUL.2020 16:51:46

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



Date: 23.JUL.2020 16:52:26

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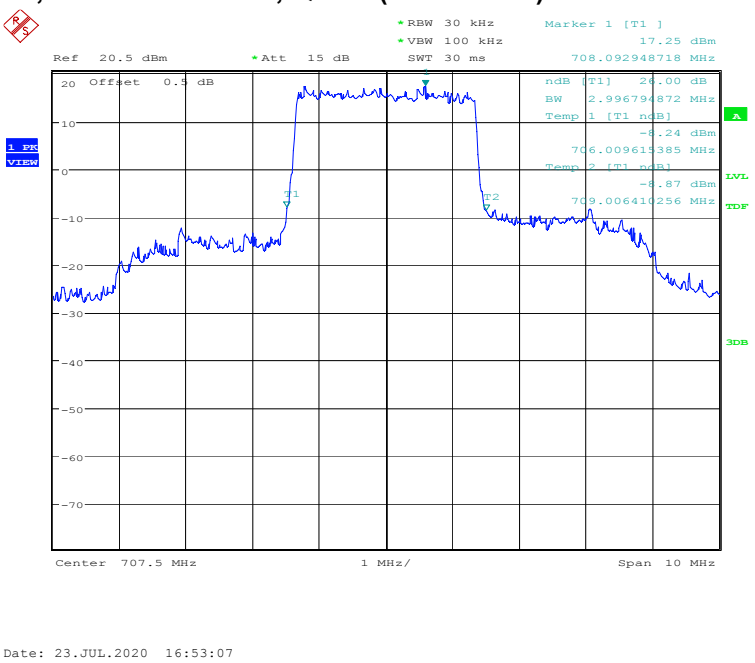
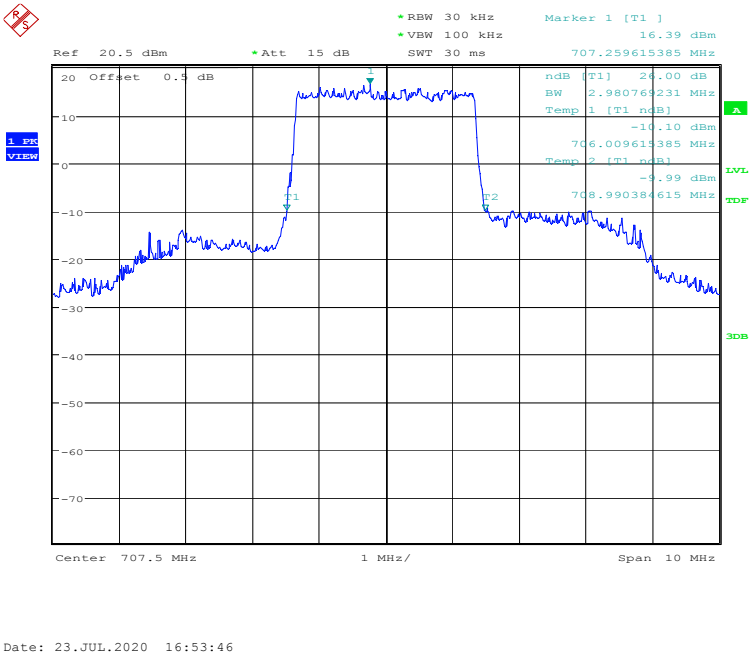
LTE band 12, 3MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
707.5	QPSK	16QAM
	2996.79	2980.77

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



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



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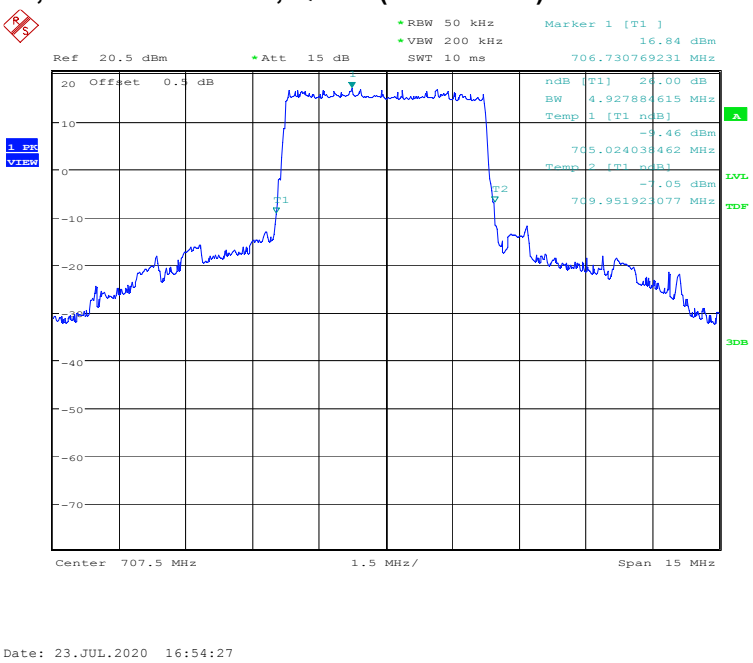
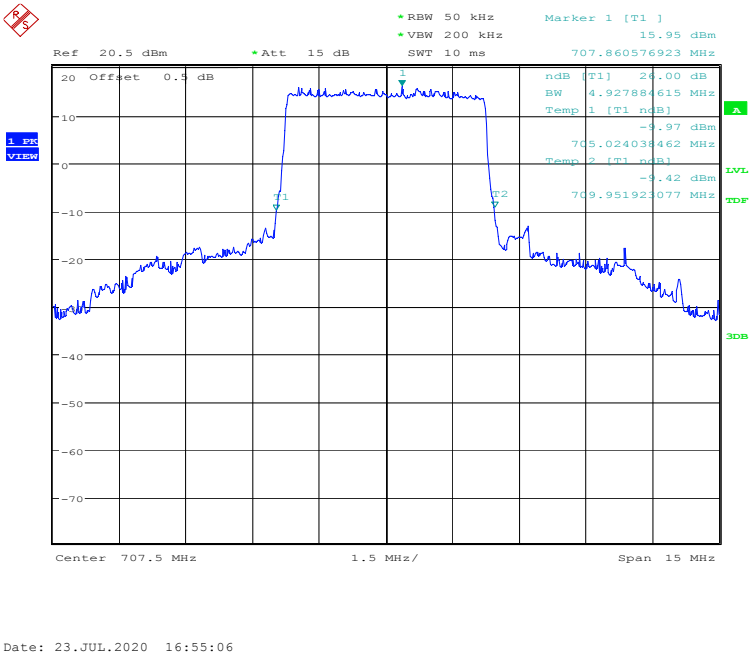
LTE band 12, 5MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
707.5	QPSK	16QAM
	4927.88	4927.88

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



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



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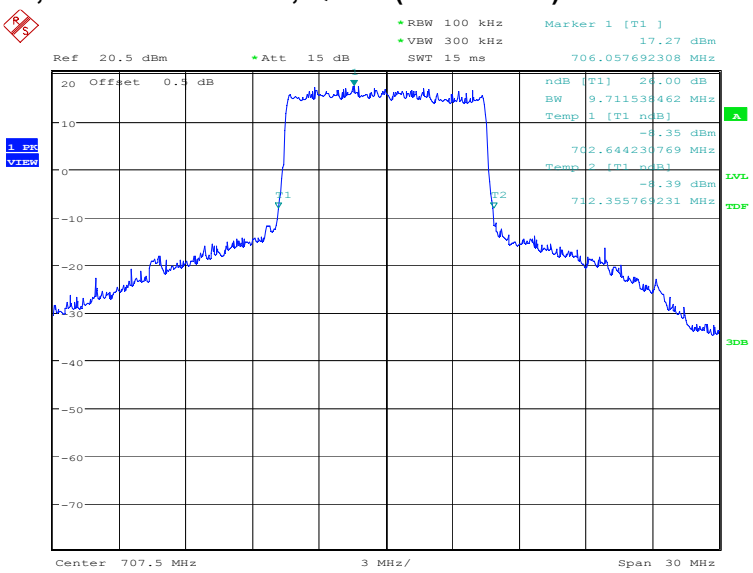
LTE band 12, 10MHz (-26dBc)

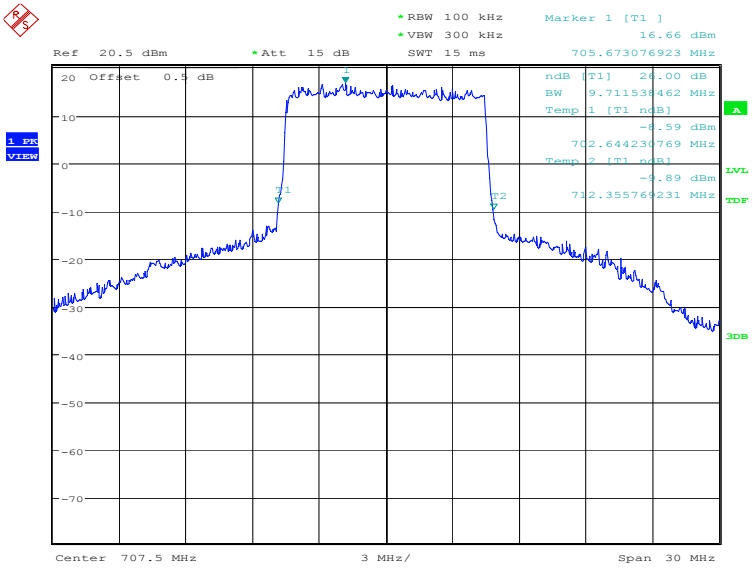
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
707.5	QPSK	16QAM
	9711.54	9711.54

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



Date: 23.JUL.2020 16:55:47

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



Date: 23.JUL.2020 16:56:26

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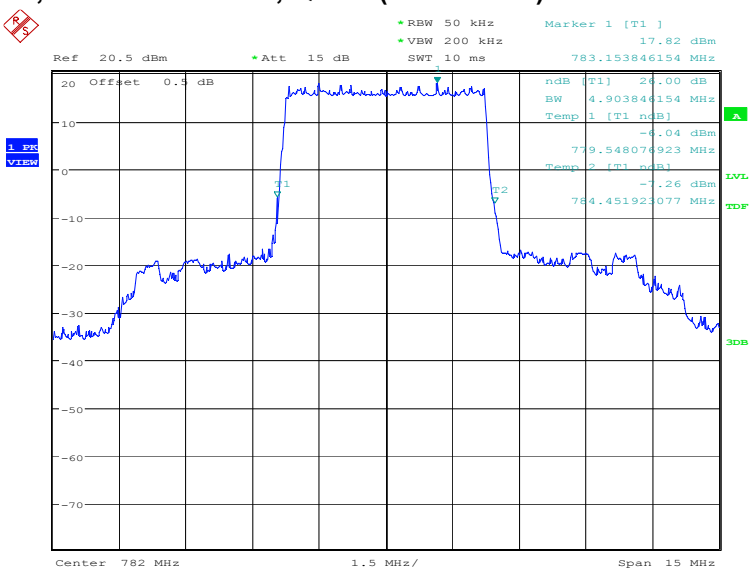
LTE band 13, 5MHz (-26dBc)

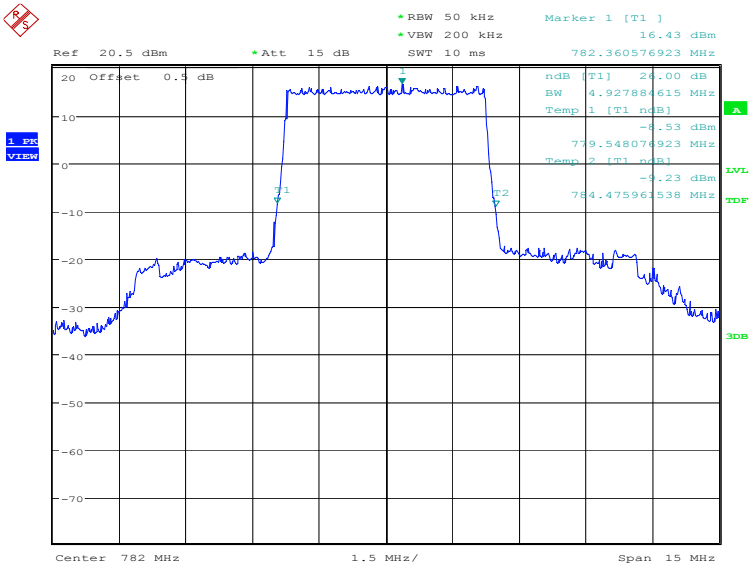
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
782.0	QPSK	16QAM
	4903.85	4927.88

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



Date: 23.JUL.2020 16:57:09

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



Date: 23.JUL.2020 16:57:49

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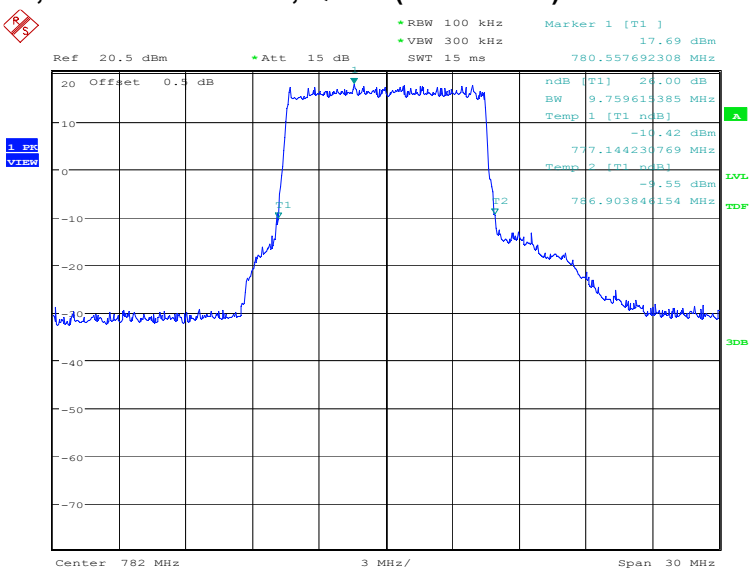
LTE band 13, 10MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
782.0	QPSK	16QAM
	9759.62	9663.46

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



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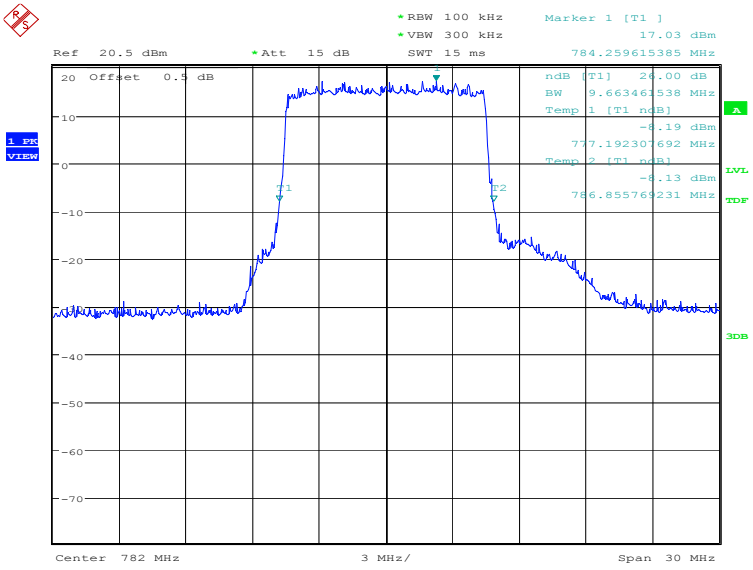
LTE band 13, 10MHz Bandwidth,16QAM (-26dBc BW)



Date: 23.JUL.2020 16:59:09

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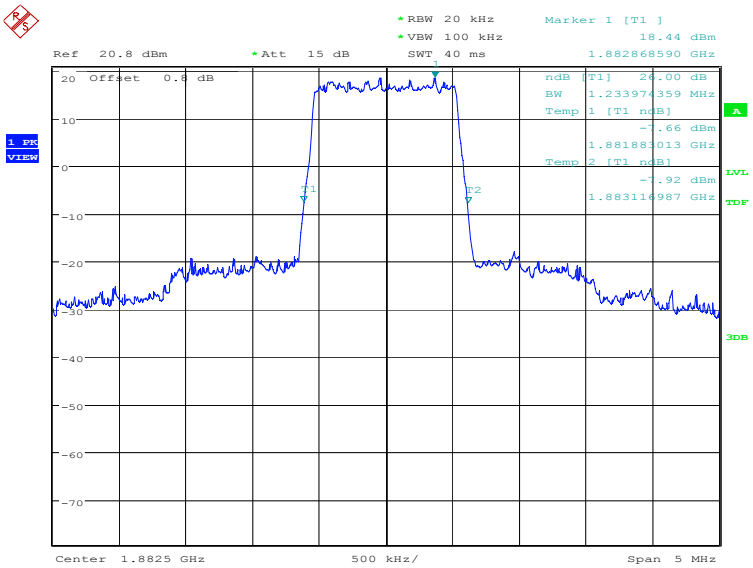
LTE band 25, 1.4MHz (-26dBc)

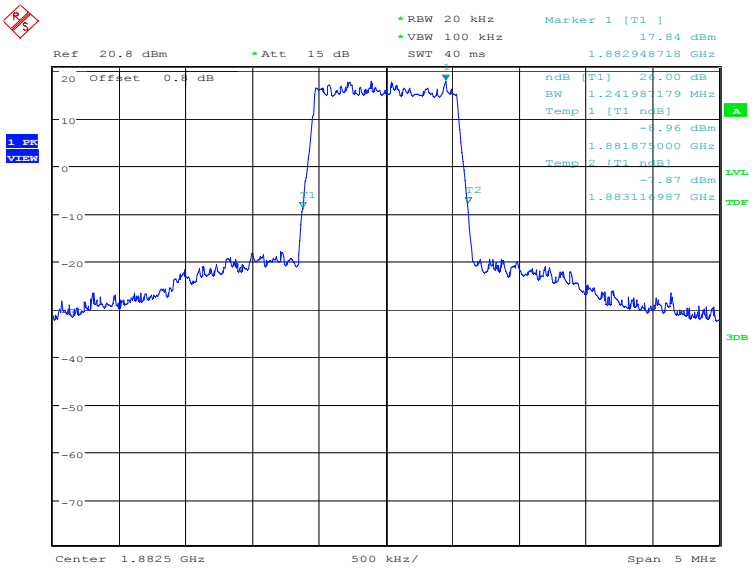
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	1233.97	1241.99

LTE band 25, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 24.JUL.2020 09:33:28

LTE band 25, 1.4MHz Bandwidth, 16QAM (-26dBc BW)



Date: 24.JUL.2020 09:34:07

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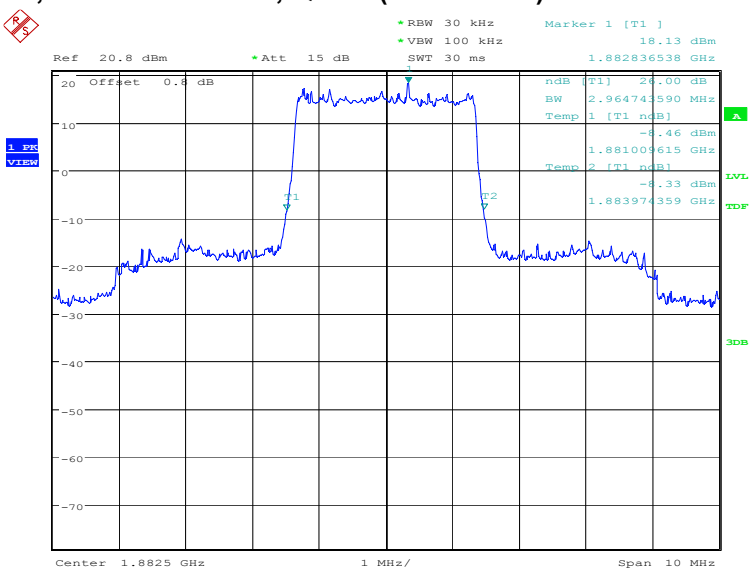
LTE band 25, 3MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	2964.74	2980.77

LTE band 25, 3MHz Bandwidth, QPSK (-26dBc BW)



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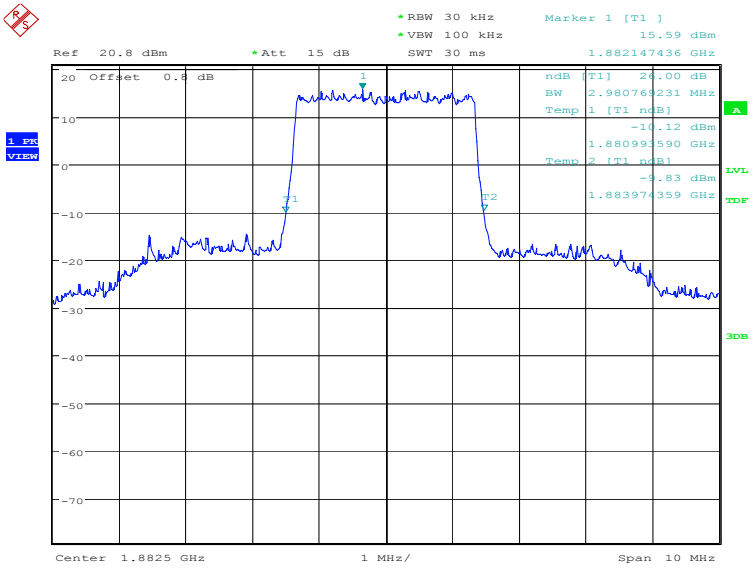
LTE band 25, 3MHz Bandwidth, 16QAM (-26dBc BW)



Date: 24.JUL.2020 09:35:27

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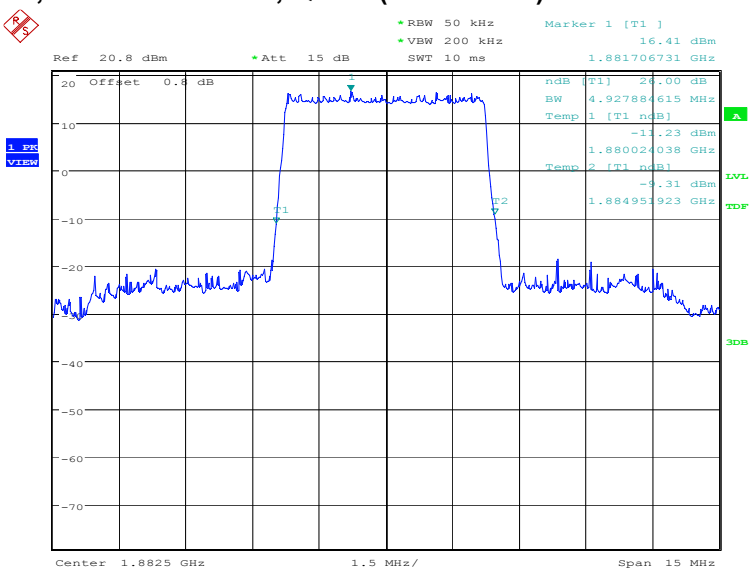
LTE band 25, 5MHz (-26dBc)

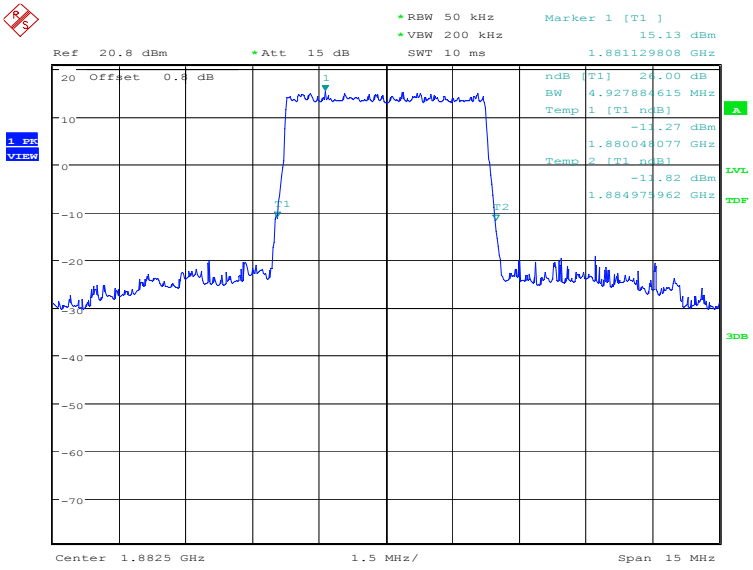
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	4927.88	4927.88

LTE band 25, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 24.JUL.2020 09:36:08

LTE band 25, 5MHz Bandwidth, 16QAM (-26dBc BW)



Date: 24.JUL.2020 09:36:47

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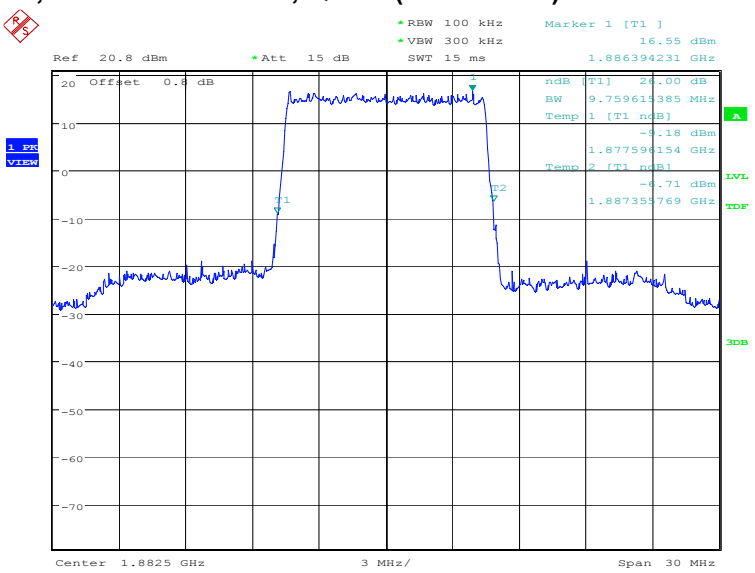
LTE band 25, 10MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	9759.62	9711.54

LTE band 25, 10MHz Bandwidth, QPSK (-26dBc BW)



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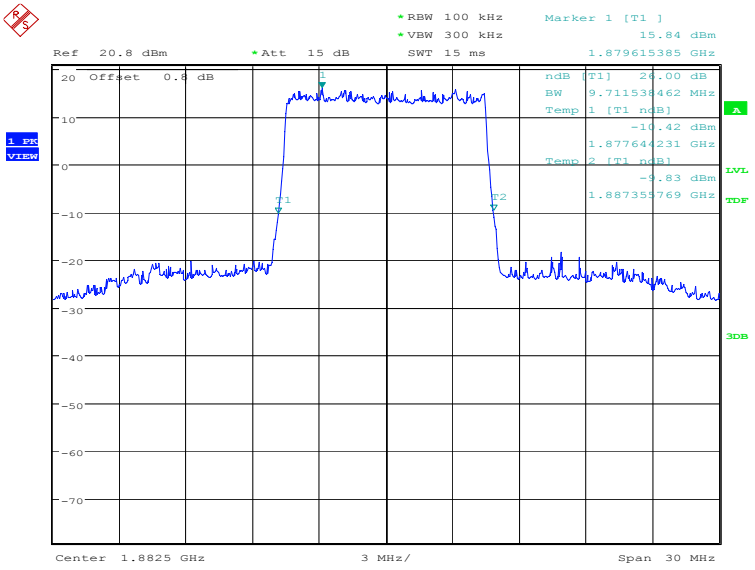
LTE band 25, 10MHz Bandwidth, 16QAM (-26dBc BW)



Date: 24.JUL.2020 09:38:08

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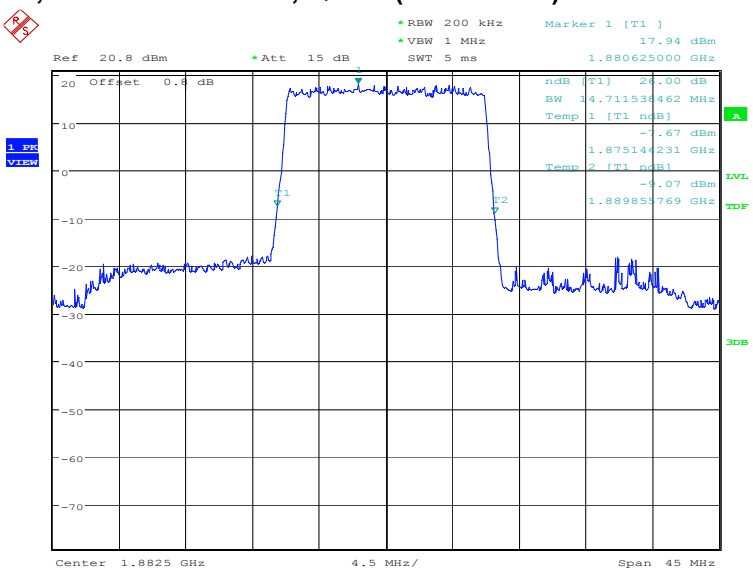
LTE band 25, 15MHz (-26dBc)

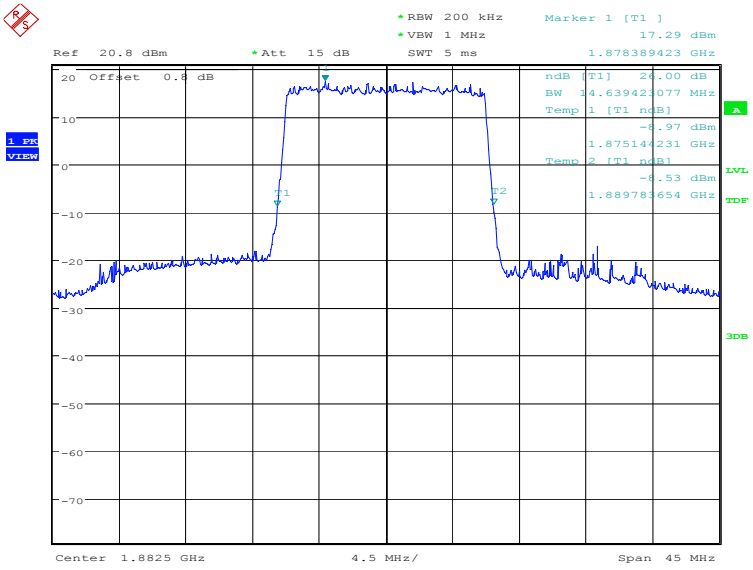
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	14711.54	14639.42

LTE band 25, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 24.JUL.2020 09:38:49

LTE band 25, 15MHz Bandwidth, 16QAM (-26dBc BW)



Date: 24.JUL.2020 09:39:28

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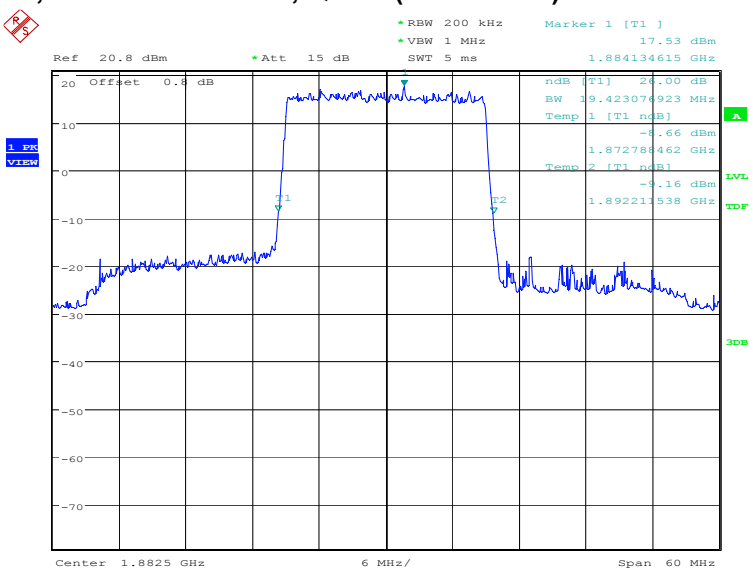
LTE band 25, 20MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	19423.08	19230.77

LTE band 25, 20MHz Bandwidth, QPSK (-26dBc BW)



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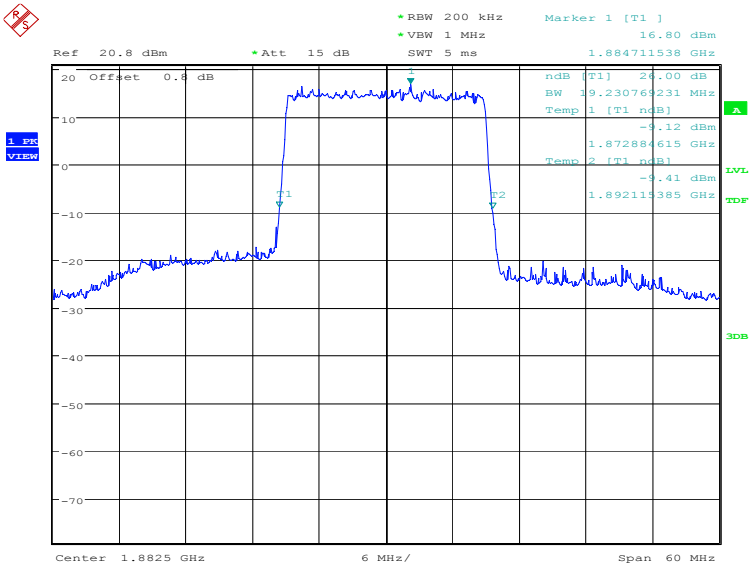
LTE band 25, 20MHz Bandwidth, 16QAM (-26dBc BW)



Date: 24.JUL.2020 09:40:49

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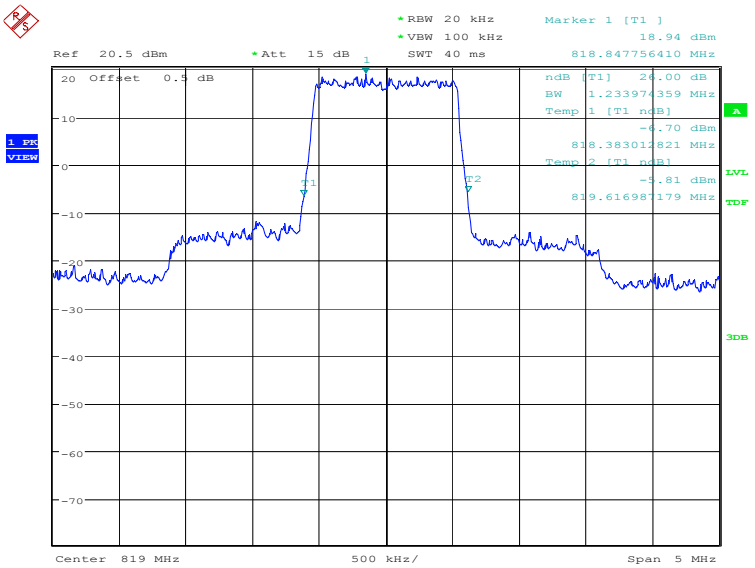
LTE band 26(814MHz~824MHz), 1.4MHz (-26dBc)

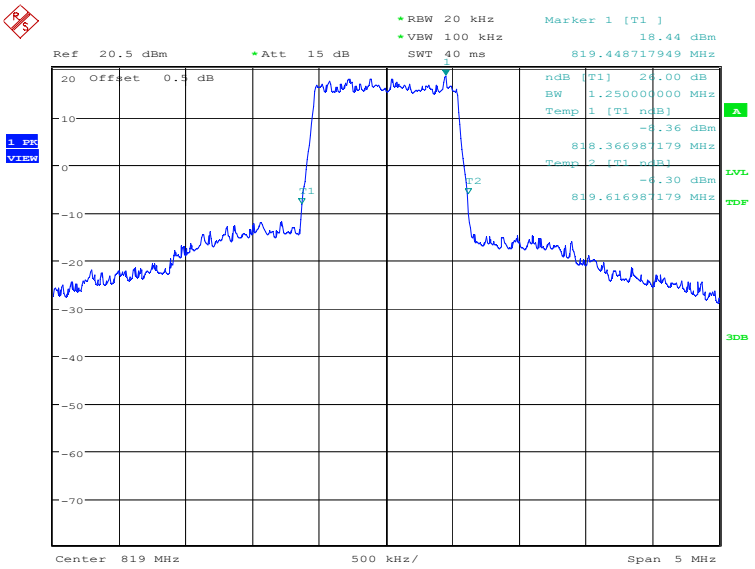
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
819.0	QPSK	16QAM
	1233.97	1250.00

LTE band 26(814MHz~824MHz), 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 23.JUL.2020 17:07:14

LTE band 26(814MHz~824MHz), 1.4MHz Bandwidth, 16QAM (-26dBc BW)



Date: 23.JUL.2020 17:07:53

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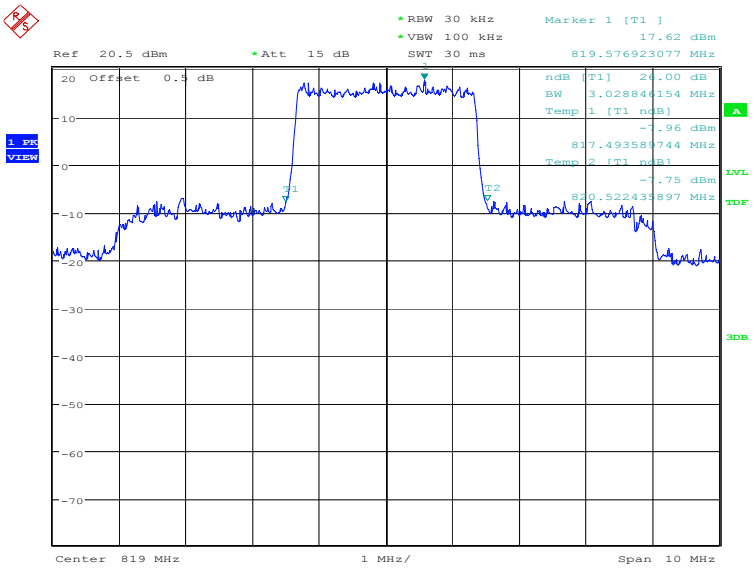
LTE band 26(814MHz~824MHz), 3MHz (-26dBc)

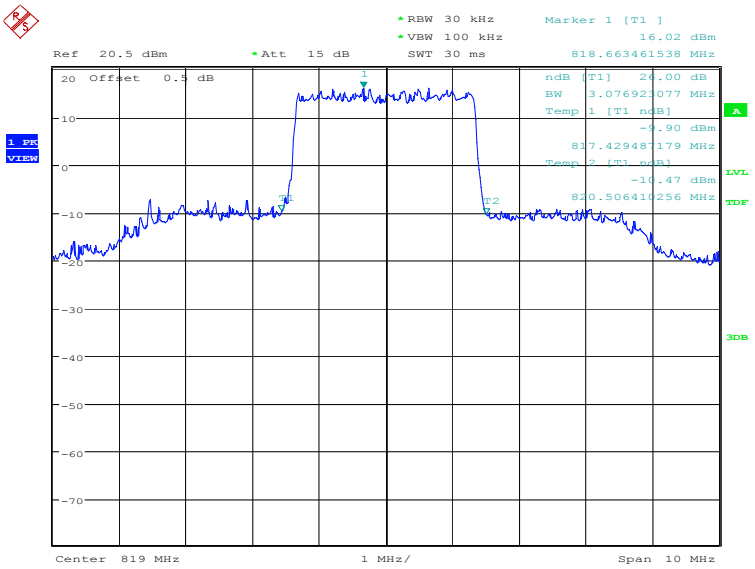
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
819.0	QPSK	16QAM
	3028.85	3076.92

LTE band 26(814MHz~824MHz), 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 23.JUL.2020 17:08:35

LTE band 26(814MHz~824MHz), 3MHz Bandwidth, 16QAM (-26dBc BW)



Date: 23.JUL.2020 17:09:14

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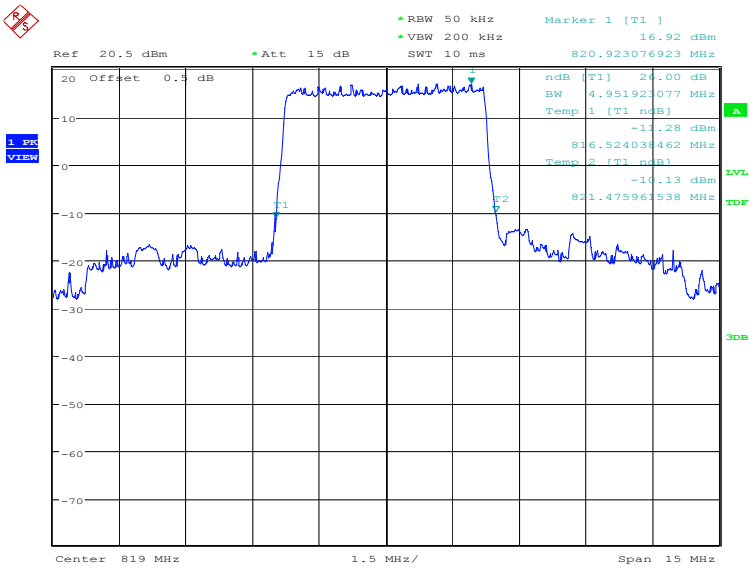
LTE band 26(814MHz~824MHz), 5MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
819.0	QPSK	16QAM
	4951.92	4951.92

LTE band 26(814MHz~824MHz), 5MHz Bandwidth, QPSK (-26dBc BW)



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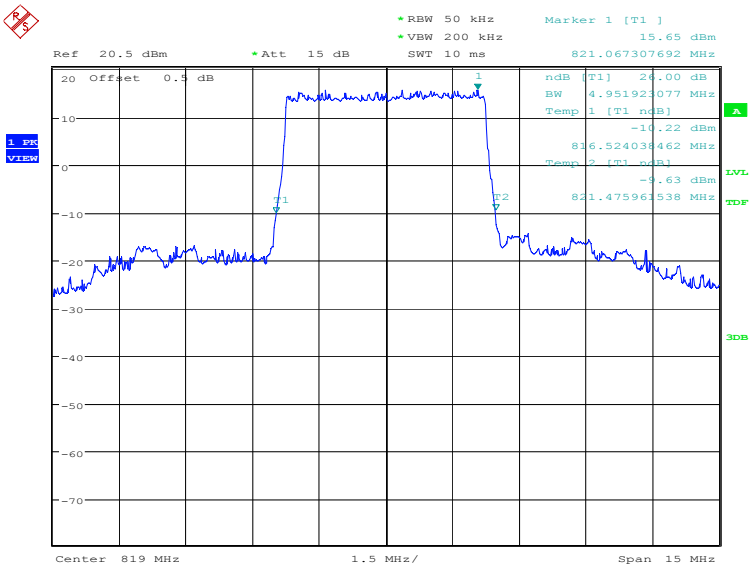
LTE band 26(814MHz~824MHz), 5MHz Bandwidth, 16QAM (-26dBc BW)



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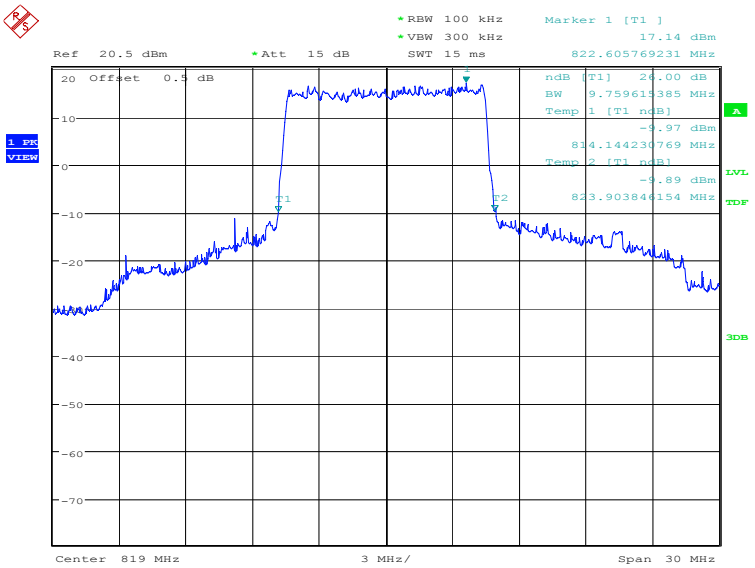
LTE band 26(814MHz~824MHz), 10MHz (-26dBc)

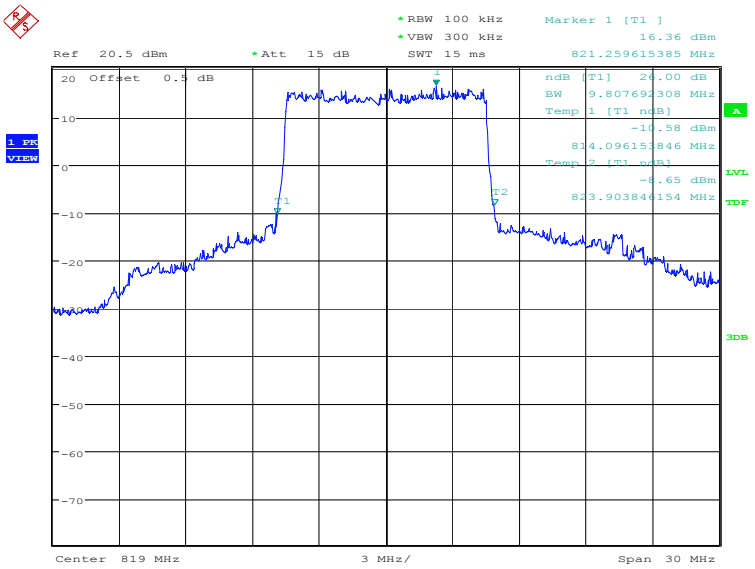
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
819.0	QPSK	16QAM
	9759.62	9807.69

LTE band 26(814MHz~824MHz), 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 23.JUL.2020 17:11:16

LTE band 26(814MHz~824MHz), 10MHz Bandwidth, 16QAM (-26dBc BW)



Date: 23.JUL.2020 17:11:56

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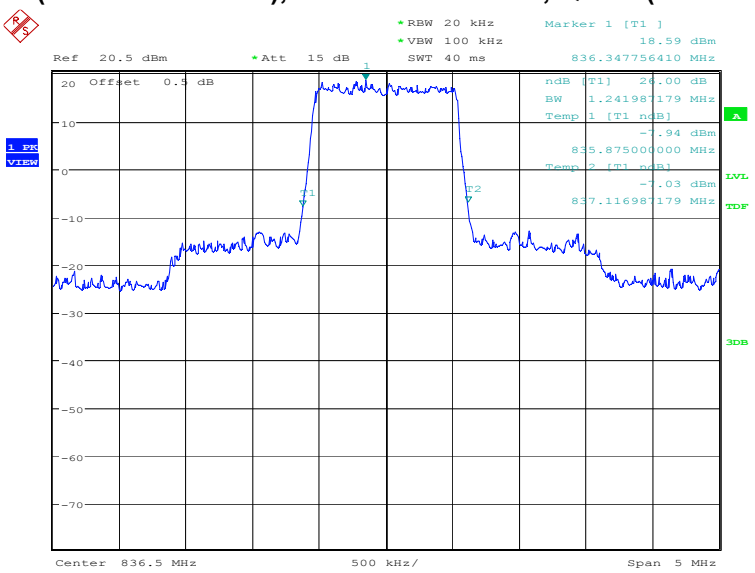
LTE band 26(824MHz~849MHz), 1.4MHz (-26dBc)

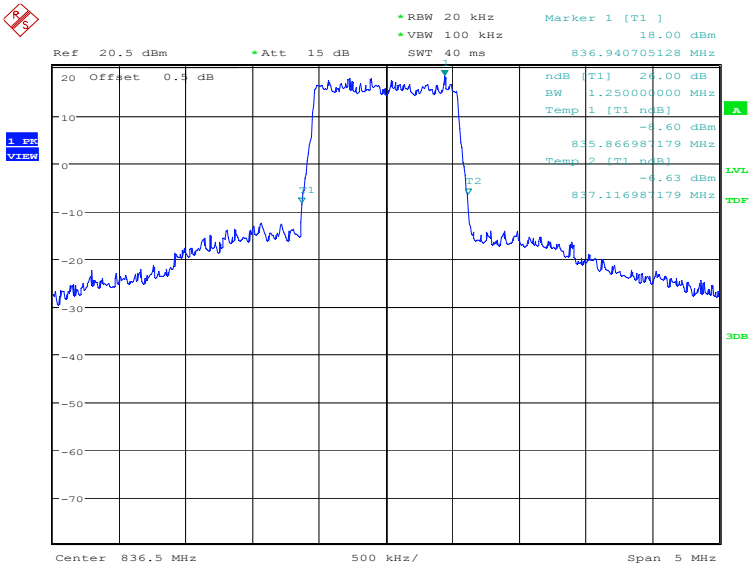
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
836.5	QPSK	16QAM
	1241.99	1250.00

LTE band 26(824MHz~849MHz), 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 23.JUL.2020 16:59:53

LTE band 26(824MHz~849MHz), 1.4MHz Bandwidth, 16QAM (-26dBc BW)



Date: 23.JUL.2020 17:00:32

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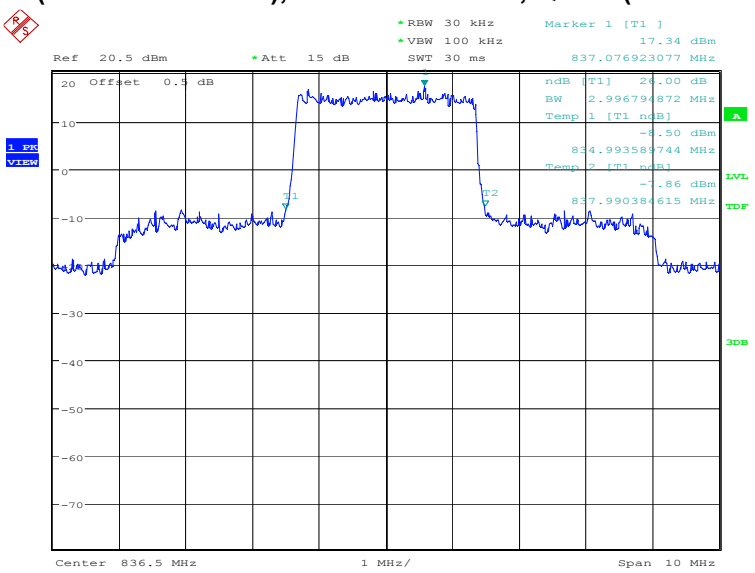
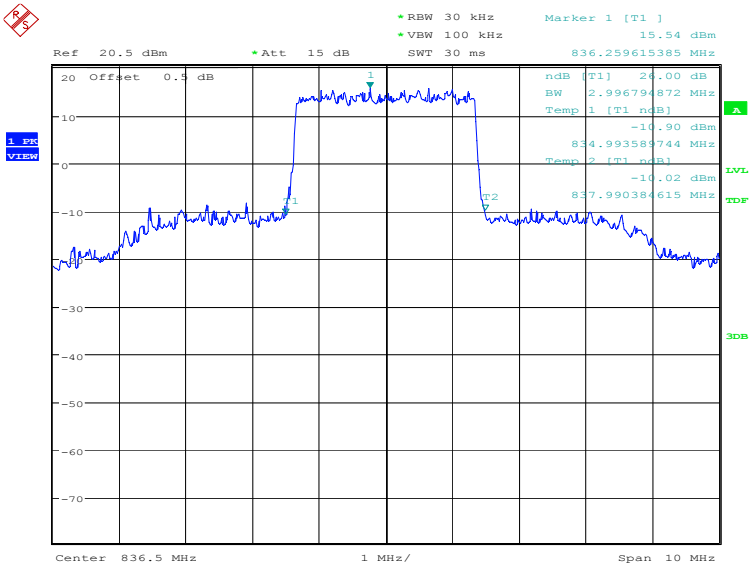
LTE band 26(824MHz~849MHz), 3MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
836.5	QPSK	16QAM
	2996.79	2996.79

LTE band 26(824MHz~849MHz), 3MHz Bandwidth, QPSK (-26dBc BW)



LTE band 26(824MHz~849MHz), 3MHz Bandwidth, 16QAM (-26dBc BW)



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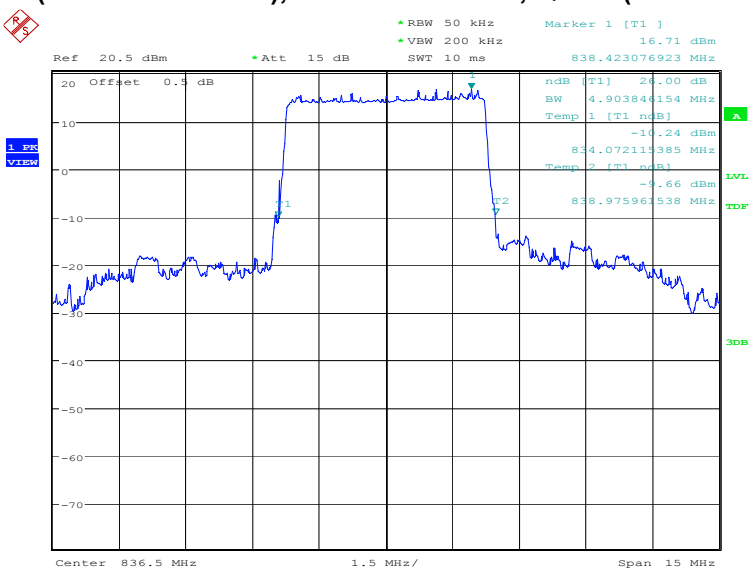
LTE band 26(824MHz~849MHz), 5MHz (-26dBc)

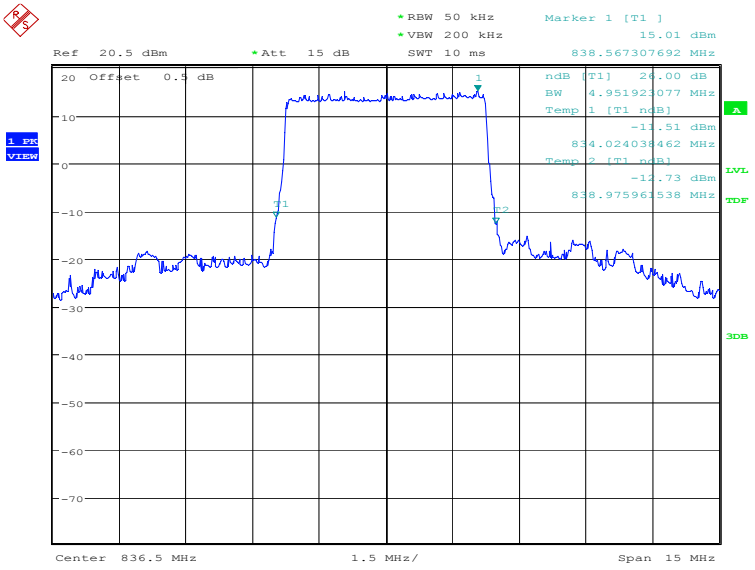
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
836.5	QPSK	16QAM
	4903.85	4951.92

LTE band 26(824MHz~849MHz), 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 23.JUL.2020 17:02:34

LTE band 26(824MHz~849MHz), 5MHz Bandwidth, 16QAM (-26dBc BW)



Date: 23.JUL.2020 17:03:13

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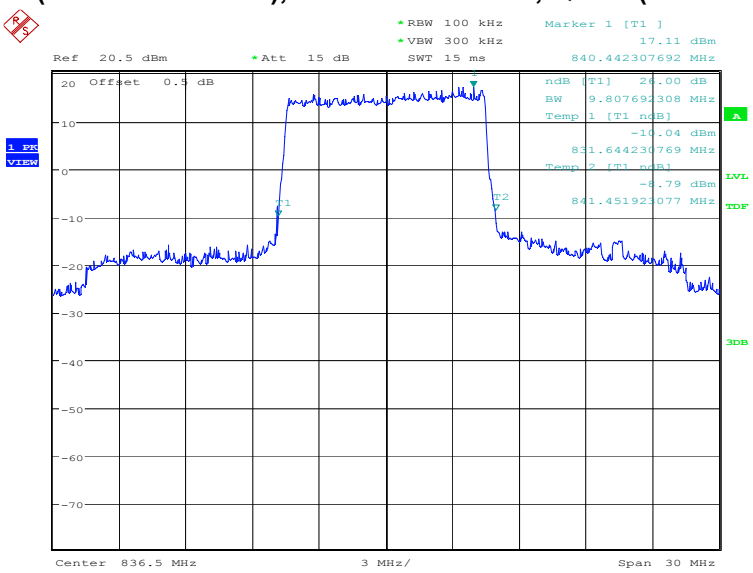
LTE band 26(824MHz~849MHz), 10MHz (-26dBc)

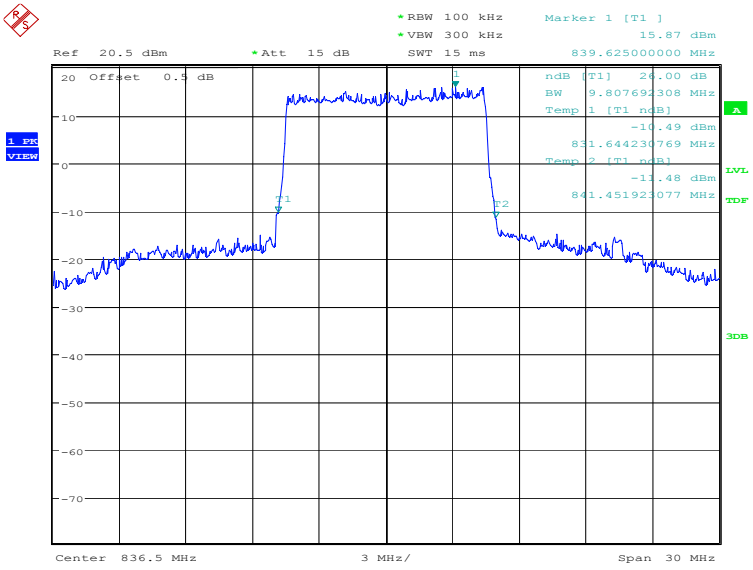
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
836.5	QPSK	16QAM
	9807.69	9807.69

LTE band 26(824MHz~849MHz), 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 23.JUL.2020 17:03:55

LTE band 26(824MHz~849MHz), 10MHz Bandwidth, 16QAM (-26dBc BW)



Date: 23.JUL.2020 17:04:34

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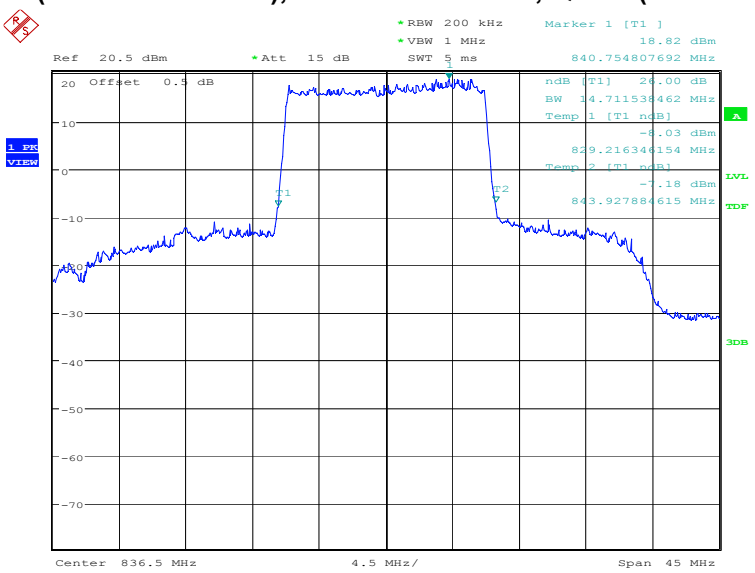
LTE band 26(824MHz~849MHz), 15MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
836.5	QPSK	16QAM
	14711.54	14783.65

LTE band 26(824MHz~849MHz), 15MHz Bandwidth, QPSK (-26dBc BW)



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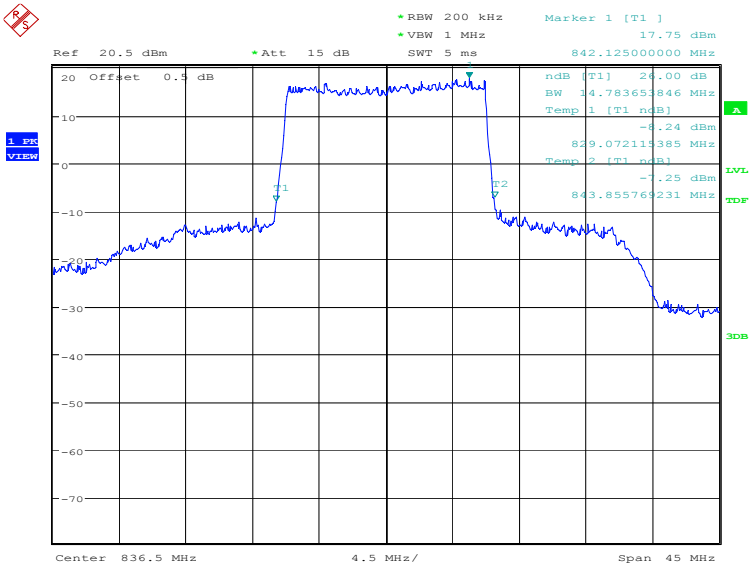
LTE band 26(824MHz~849MHz), 15MHz Bandwidth, 16QAM (-26dBc BW)



Date: 23.JUL.2020 17:05:55

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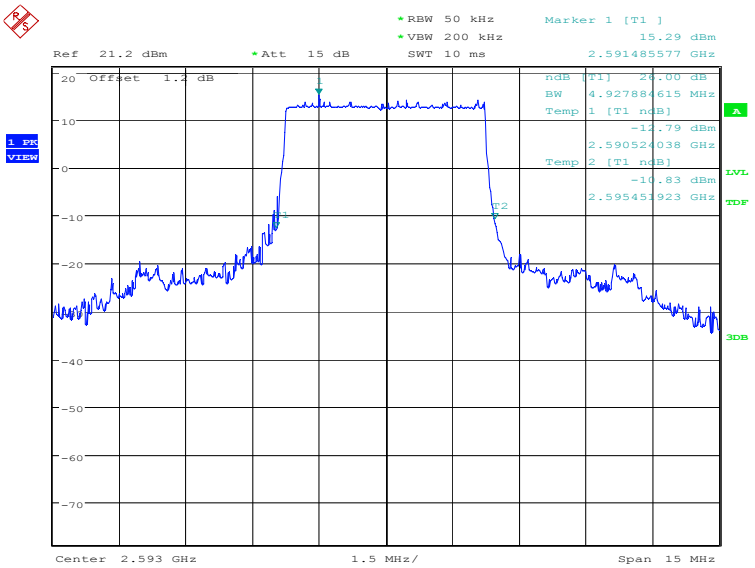
LTE band 41 HPUE, 5MHz (-26dBc)

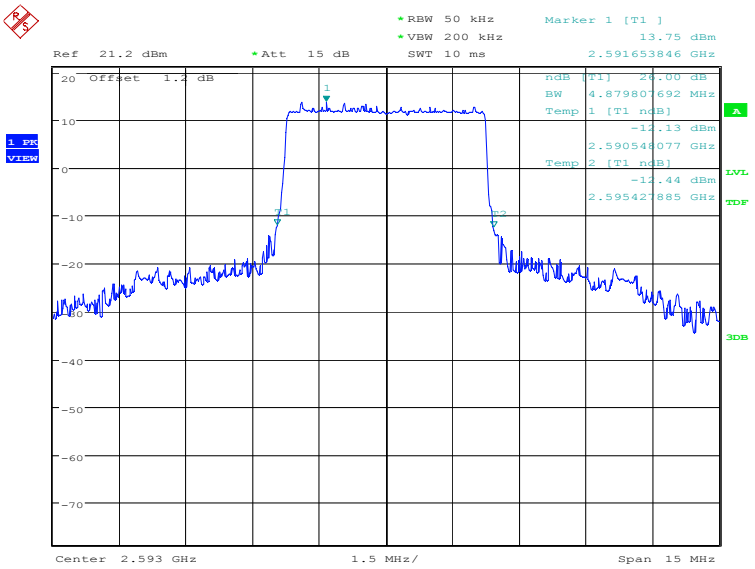
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2593.0	QPSK	16QAM
	4927.88	4879.81

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



Date: 24.JUL.2020 09:50:19

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



Date: 24.JUL.2020 09:50:58

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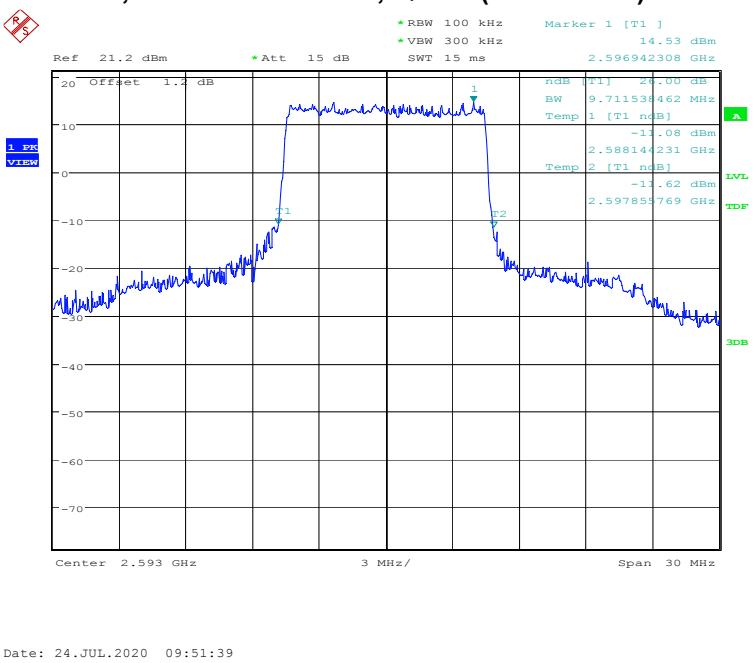
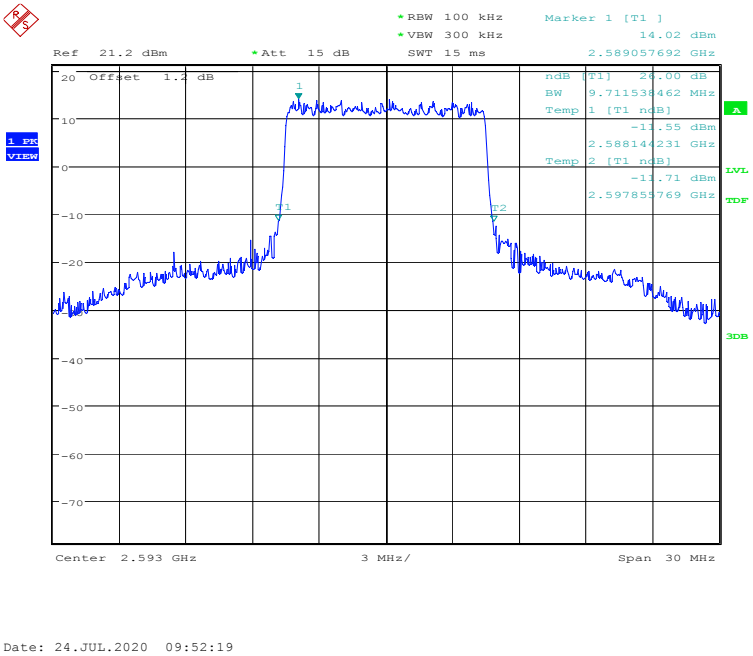
LTE band 41 HPUE, 10MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2593.0	QPSK	16QAM
	9711.54	9711.54

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



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



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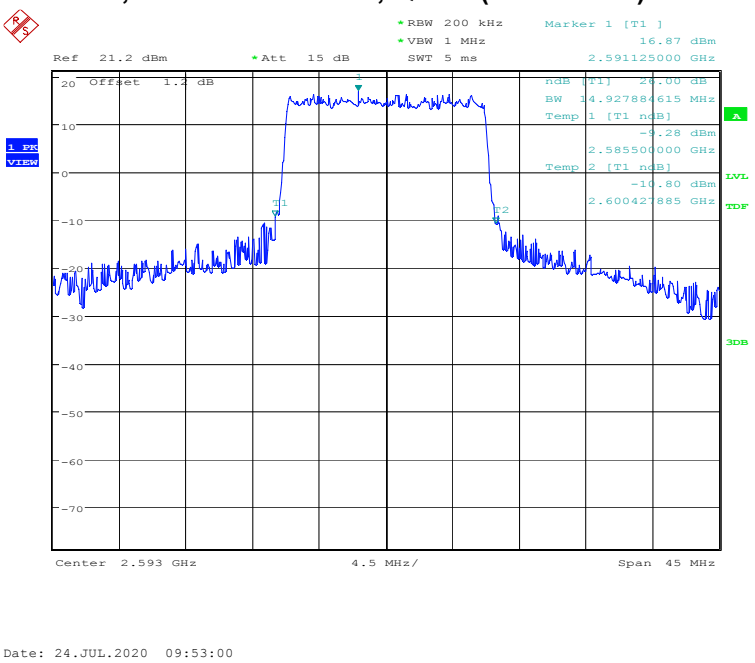
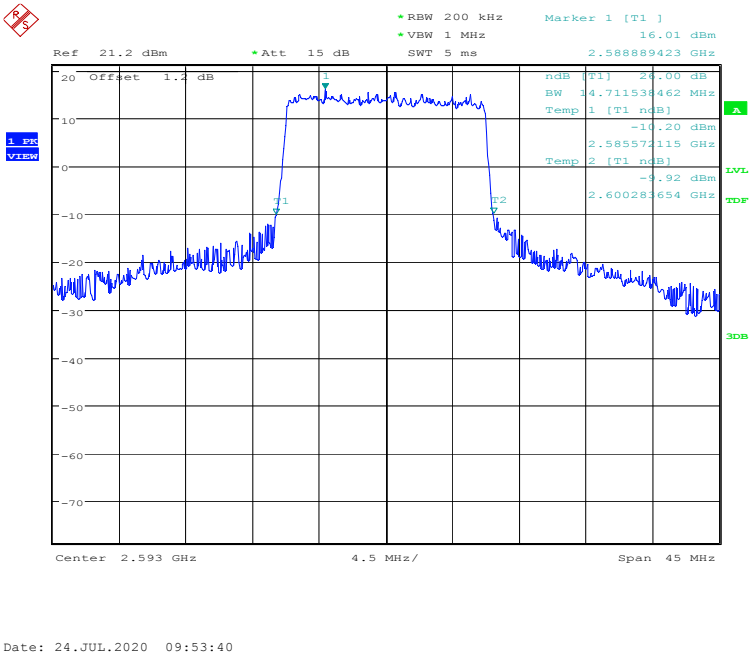
LTE band 41 HPUE, 15MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2593.0	QPSK	16QAM
	14927.88	14711.54

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



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



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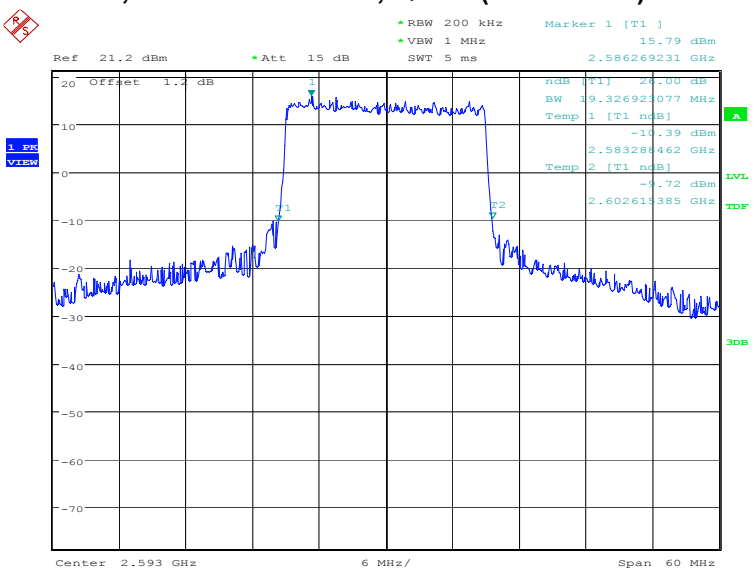
LTE band 41 HPUE, 20MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2593.0	QPSK	16QAM
	19326.92	19519.23

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



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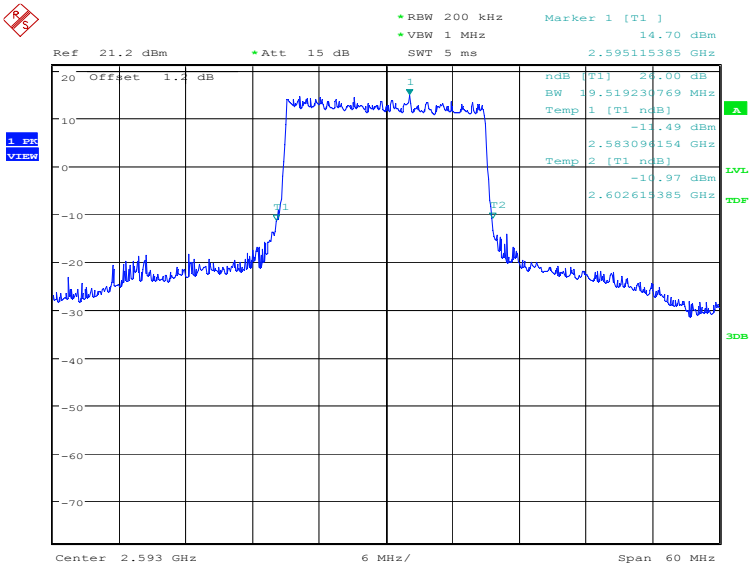
LTE band 41 HPUE, 20MHz Bandwidth,16QAM (-26dBc BW)



Date: 24.JUL.2020 09:55:01

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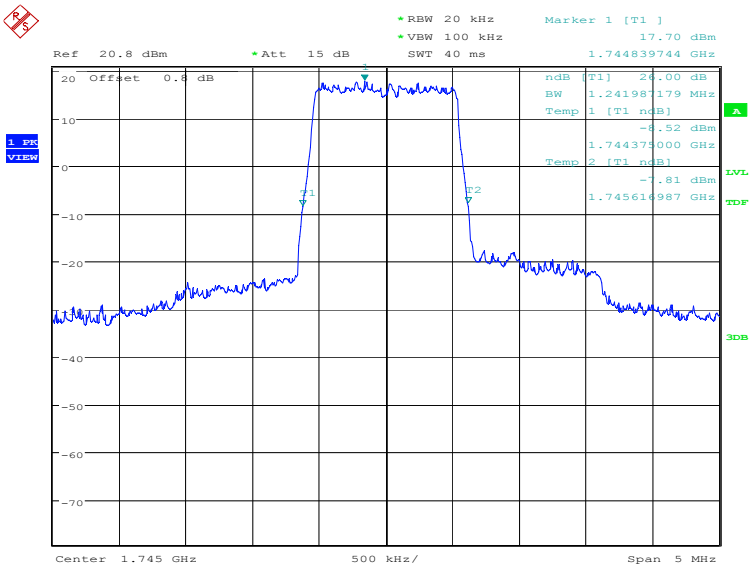
LTE band 66, 1.4MHz (-26dBc)

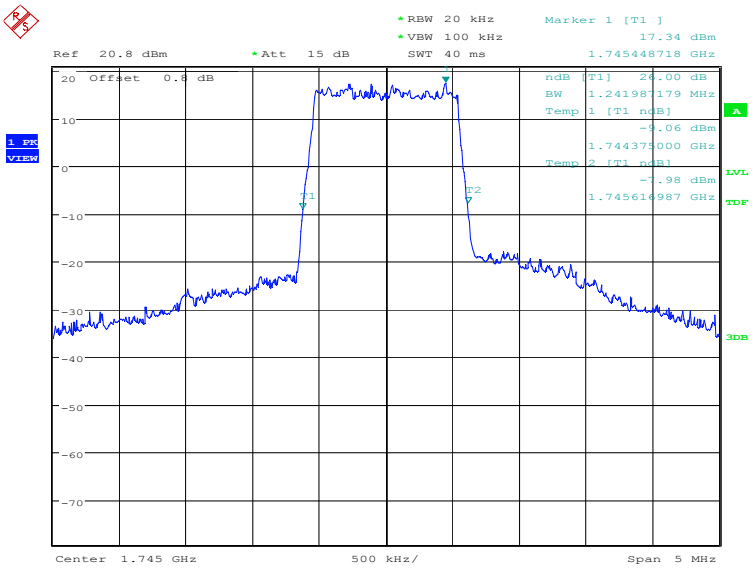
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	1241.99	1241.99

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



Date: 24.JUL.2020 09:41:34

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



Date: 24.JUL.2020 09:42:13

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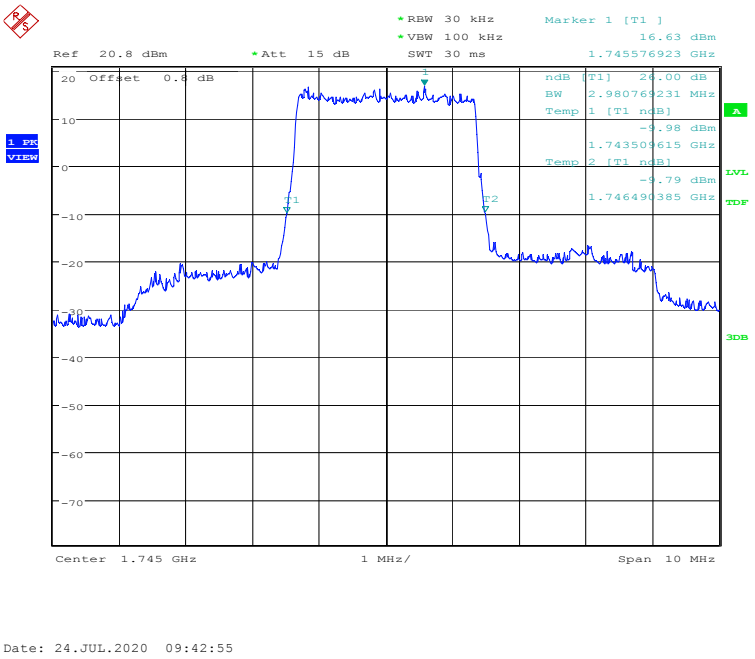
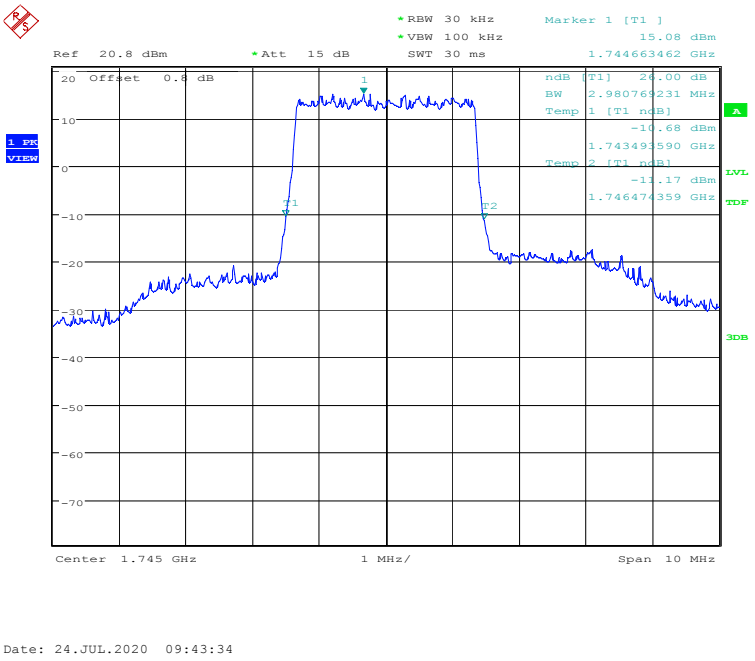
LTE band 66, 3MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	2980.77	2980.77

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



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



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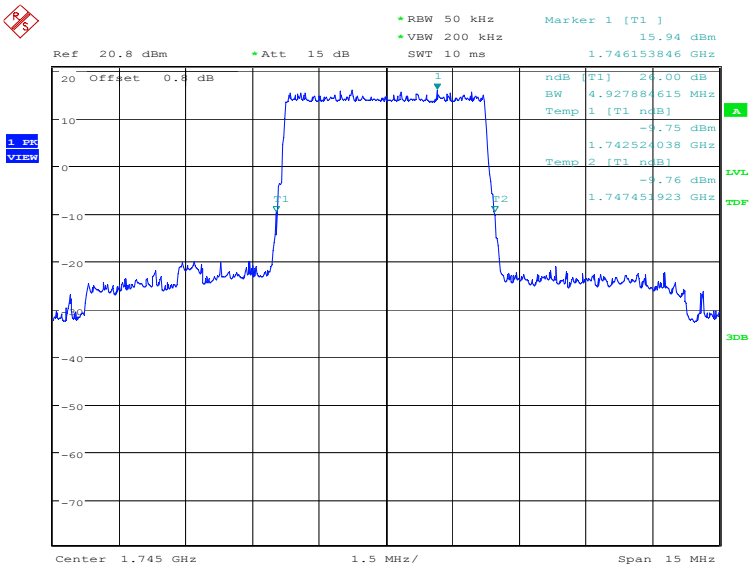
LTE band 66, 5MHz (-26dBc)

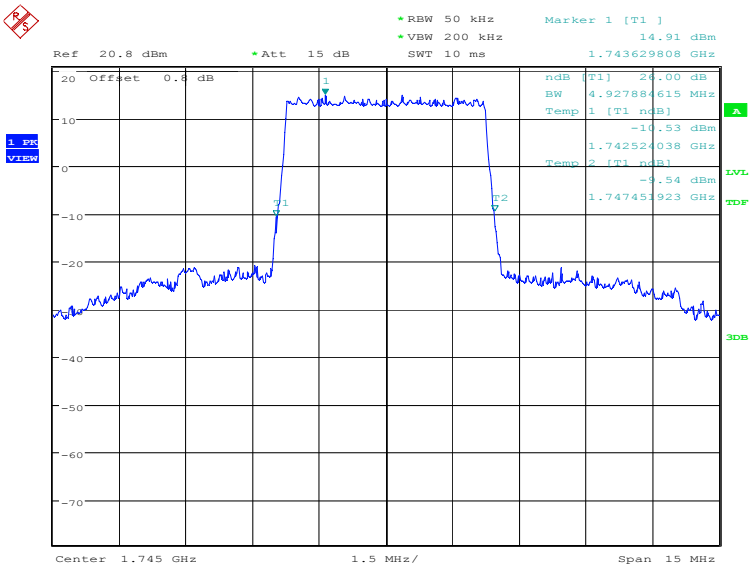
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	4927.88	4927.88

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



Date: 24.JUL.2020 09:44:15

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



Date: 24.JUL.2020 09:44:54

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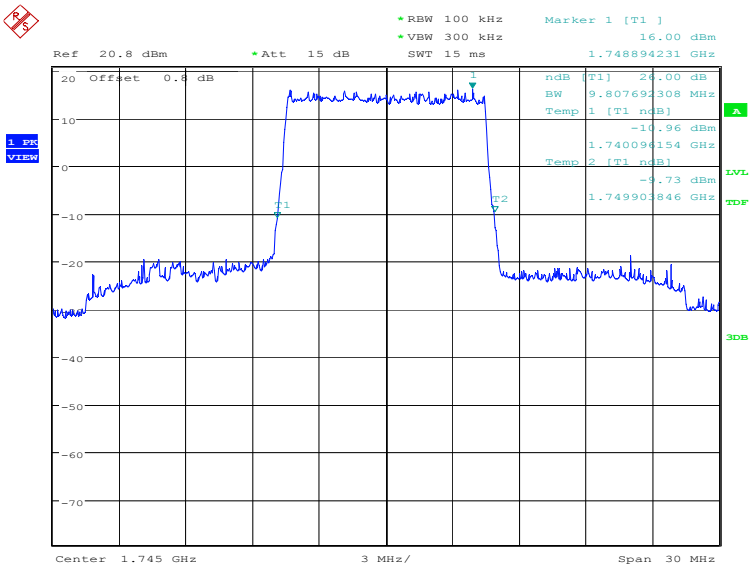
LTE band 66, 10MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	9807.69	9759.62

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



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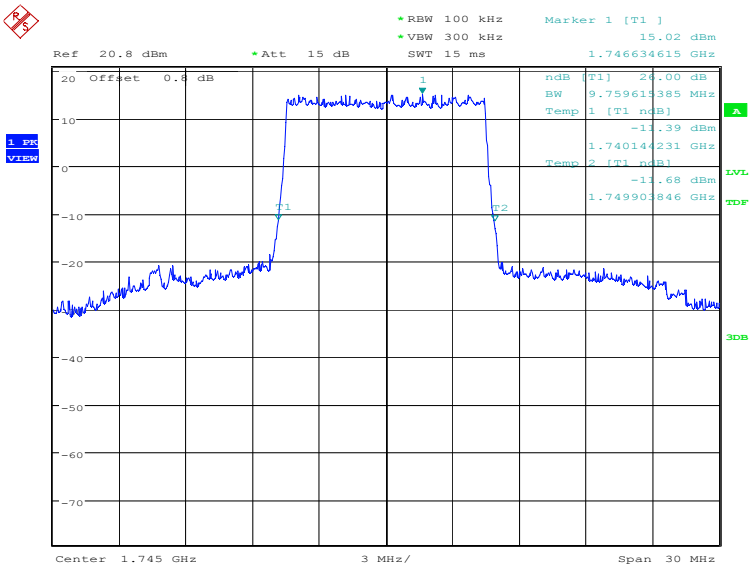
LTE band 66, 10MHz Bandwidth, 16QAM (-26dBc BW)



Date: 24.JUL.2020 09:46:15

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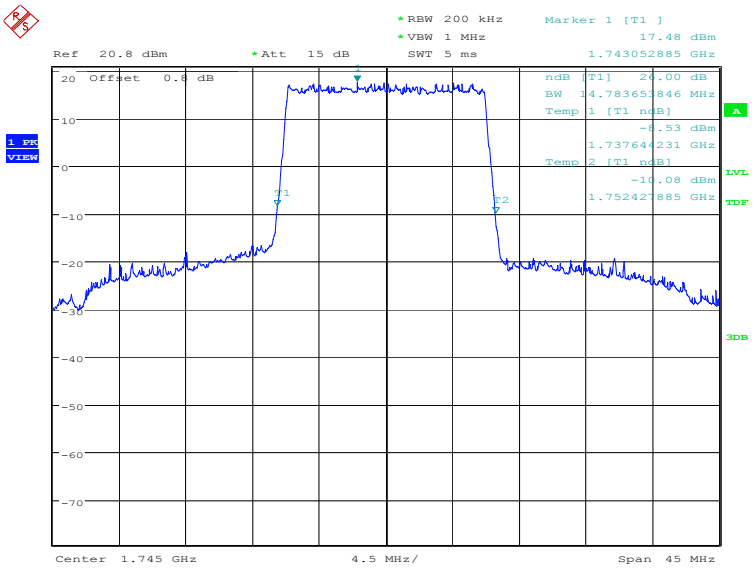
LTE band 66, 15MHz (-26dBc)

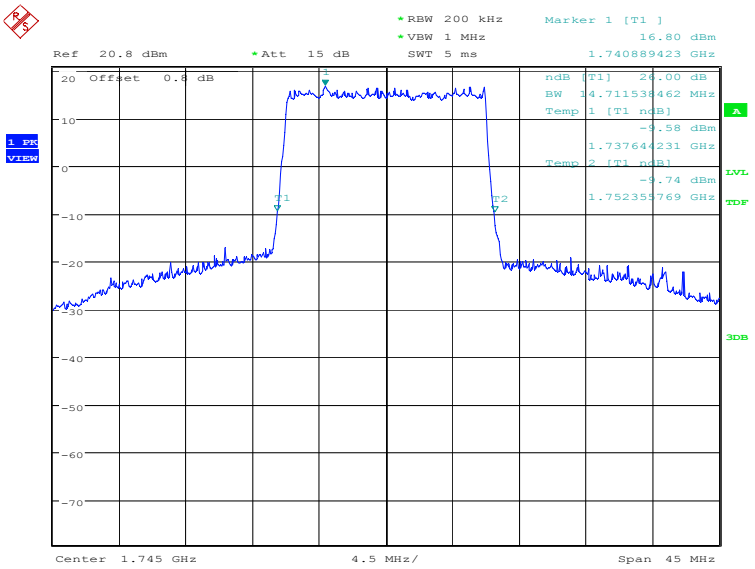
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	14783.65	14711.54

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



Date: 24.JUL.2020 09:46:56

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



Date: 24.JUL.2020 09:47:35

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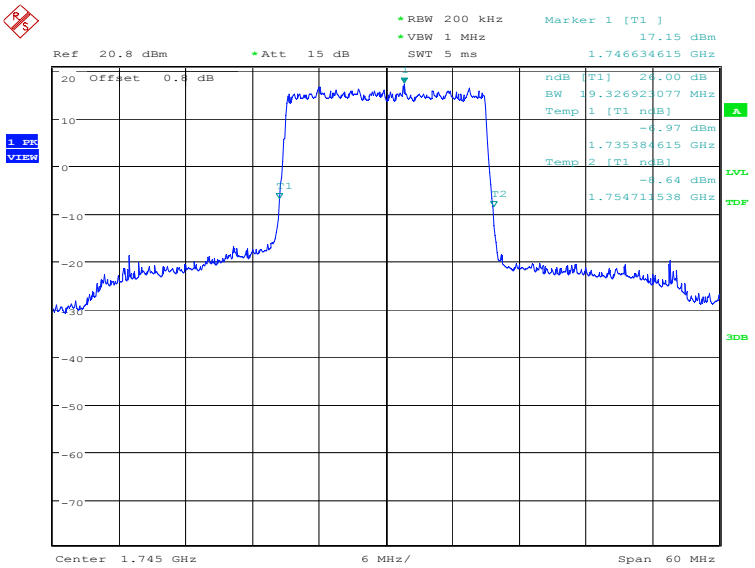
LTE band 66, 20MHz (-26dBc)

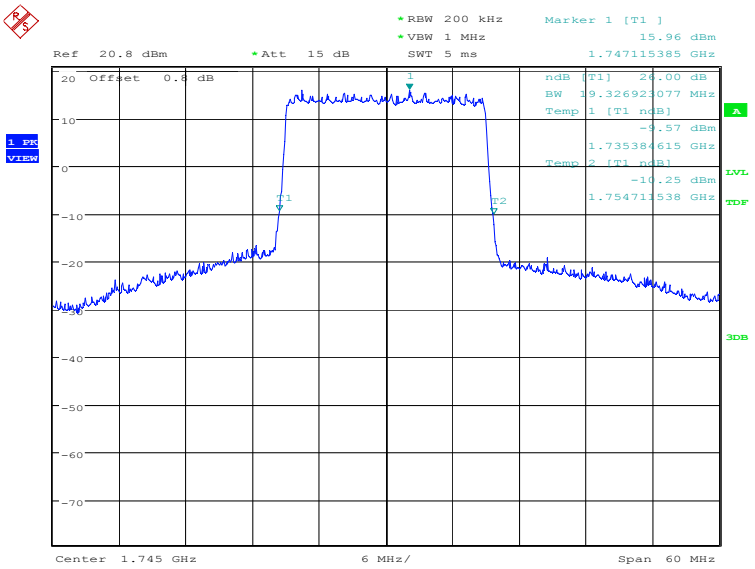
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	19326.92	19326.92

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



Date: 24.JUL.2020 09:48:17

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



Date: 24.JUL.2020 09:48:56

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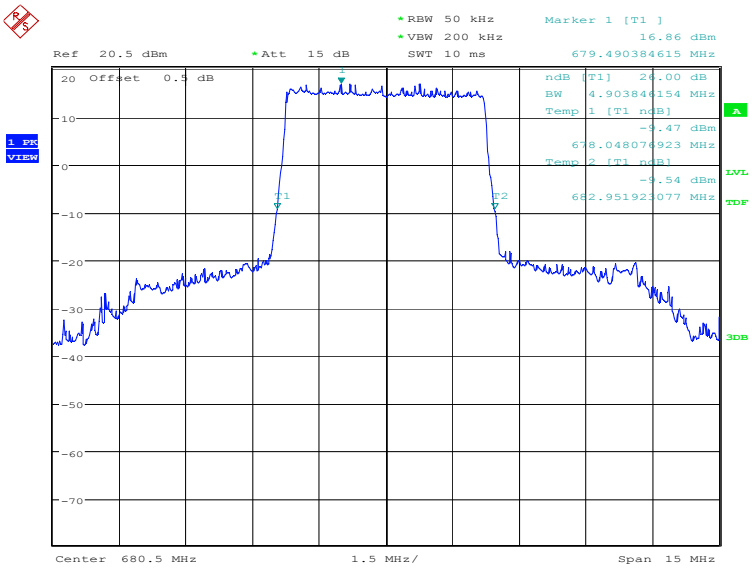
LTE band 71, 5MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
680.5	QPSK	16QAM
	4903.85	4927.88

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



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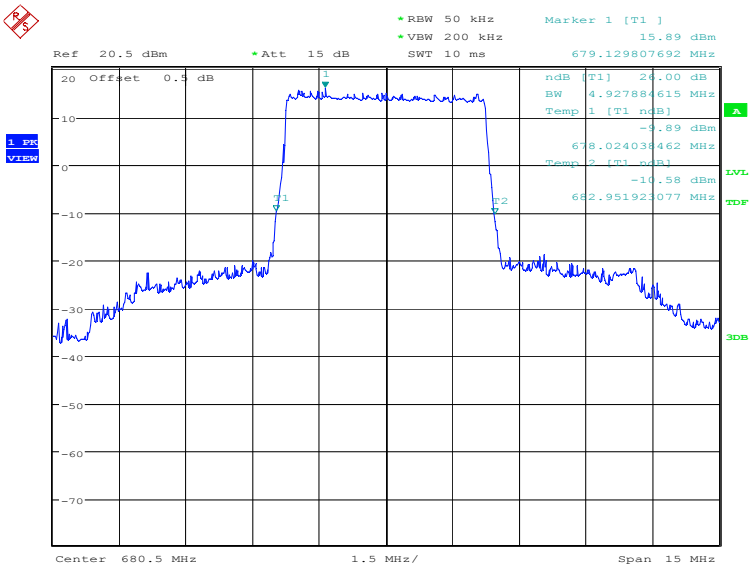
LTE band 71, 5MHz Bandwidth, 16QAM (-26dBc BW)



Date: 23.JUL.2020 16:41:02

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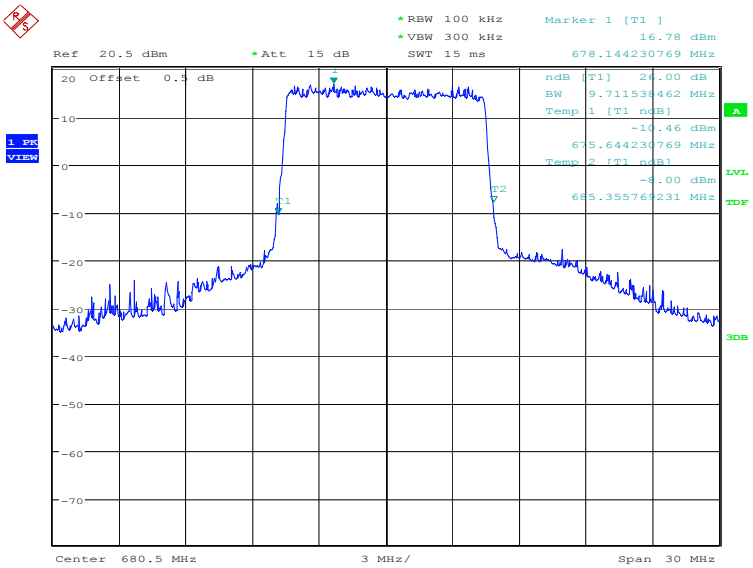
LTE band 71, 10MHz (-26dBc)

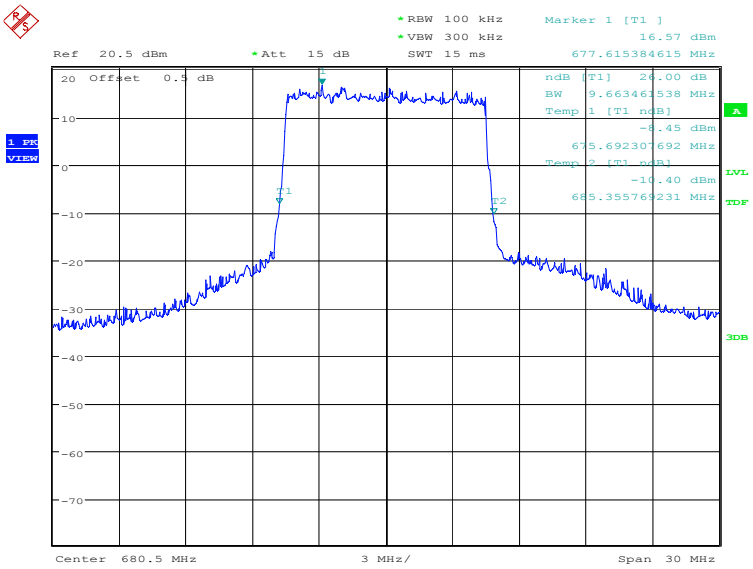
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
680.5	QPSK	16QAM
	9711.54	9663.46

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



Date: 23.JUL.2020 16:41:43

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



Date: 23.JUL.2020 16:42:22

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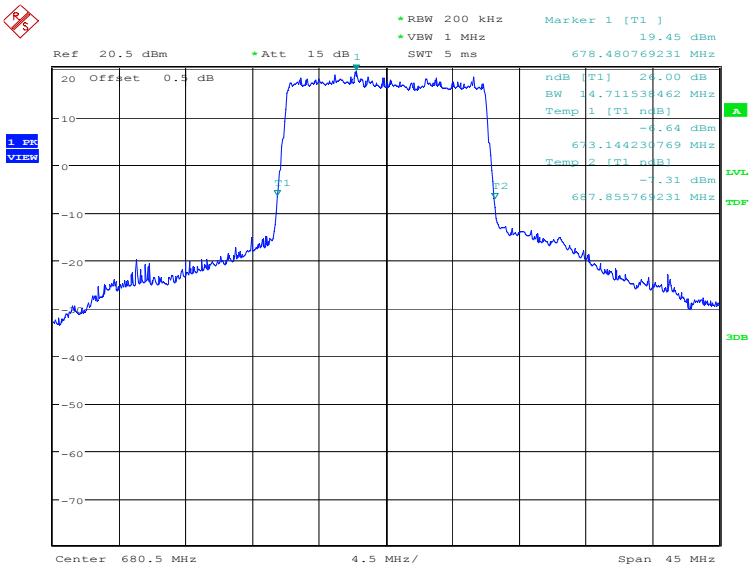
LTE band 71, 15MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
680.5	QPSK	16QAM
	14711.54	14639.42

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



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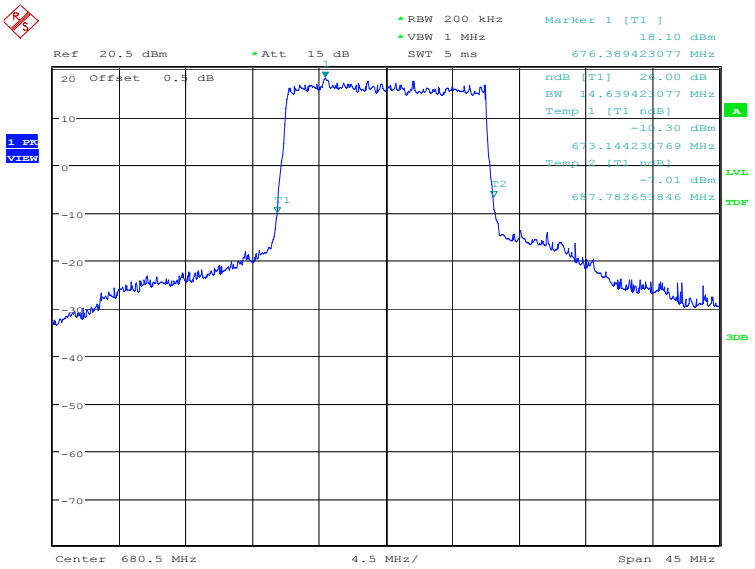
LTE band 71, 15MHz Bandwidth, 16QAM (-26dBc BW)



Date: 23.JUL.2020 16:43:42

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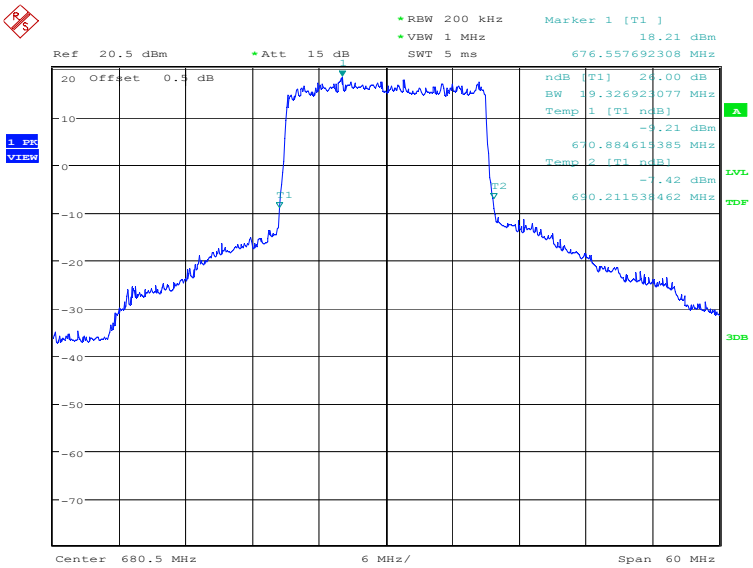
LTE band 71, 20MHz (-26dBc)

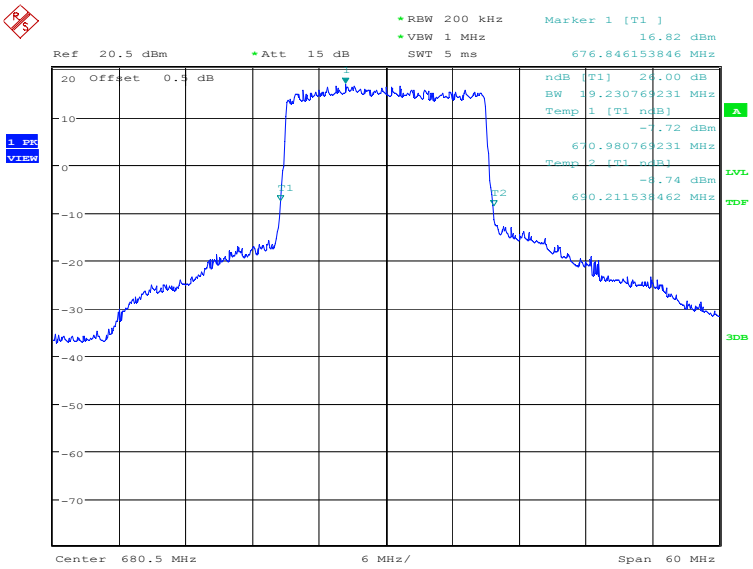
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
680.5	QPSK	16QAM
	19326.92	19230.77

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



Date: 23.JUL.2020 16:44:23

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



Date: 23.JUL.2020 16:45:03

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A.6 Band Edge Compliance

A.6.1 Measurement limit

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

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

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

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

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

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removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

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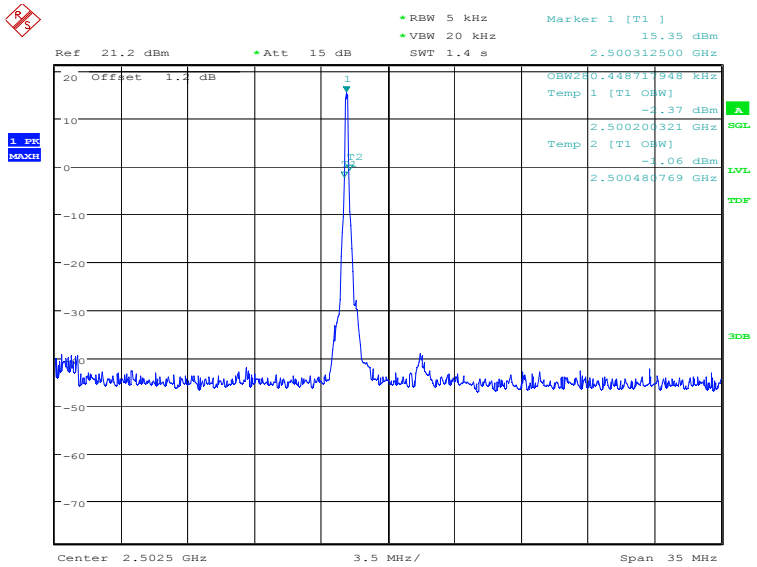
A.6.2 Measurement result

Only the worst case result is given below

LTE band 7

OBW: 1RB-low_offset



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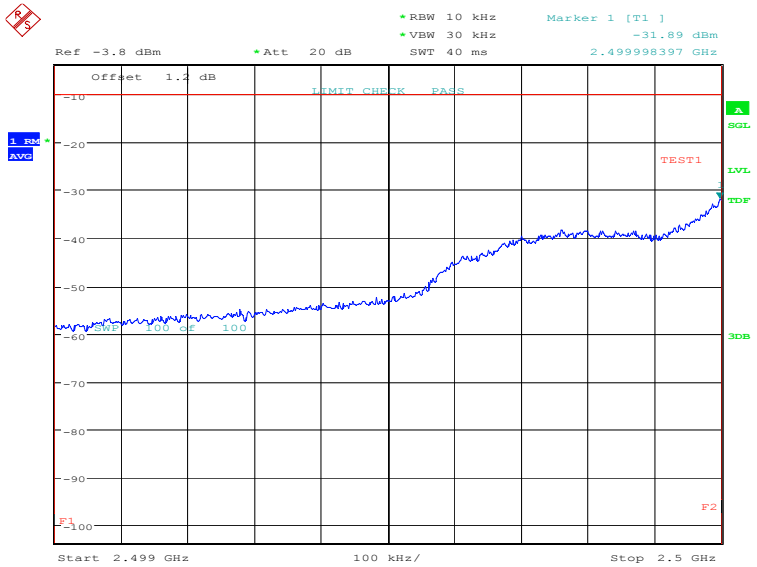
LOW BAND EDGE BLOCK-1RB-low_offset



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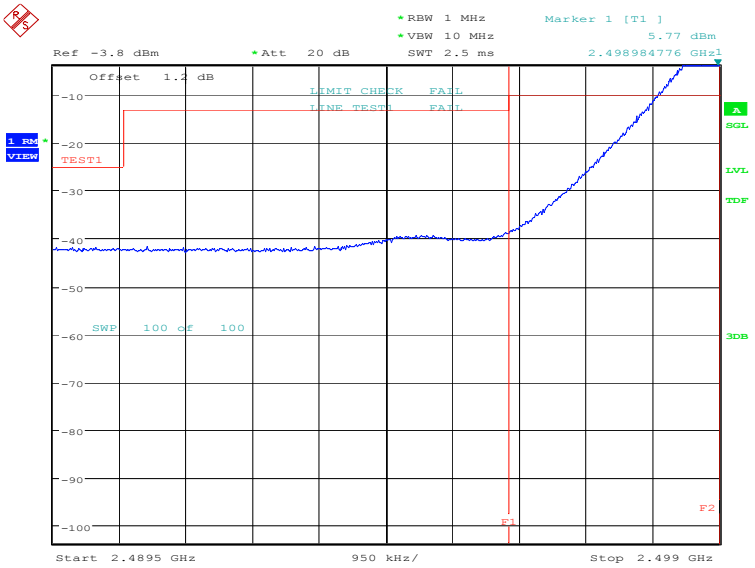

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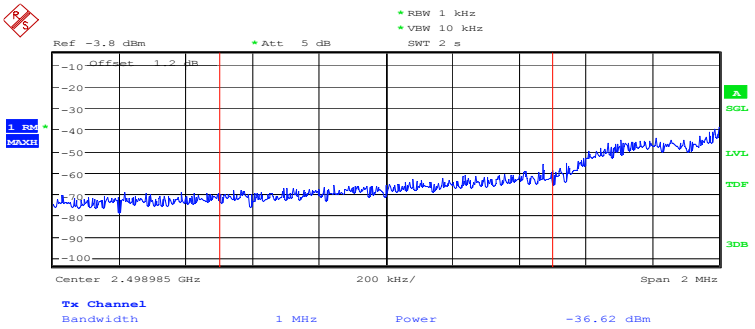

Date: 7.SEP.2020 15:43:08

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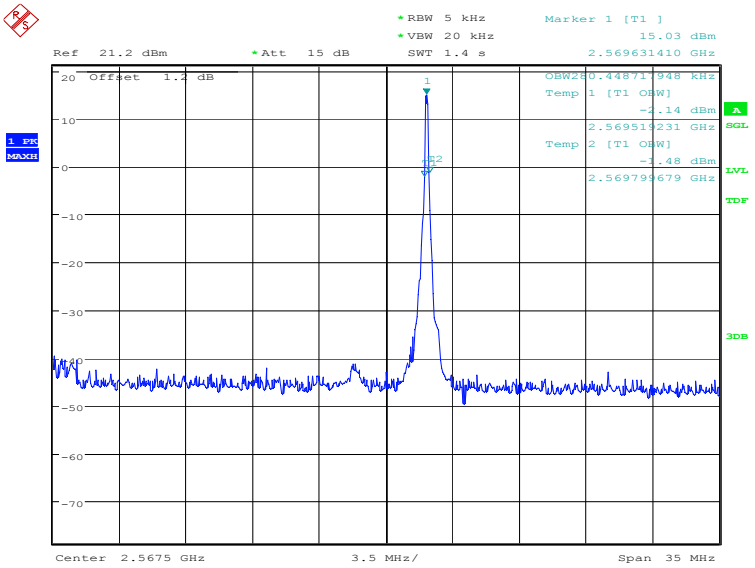
OBW: 1RB-high_offset



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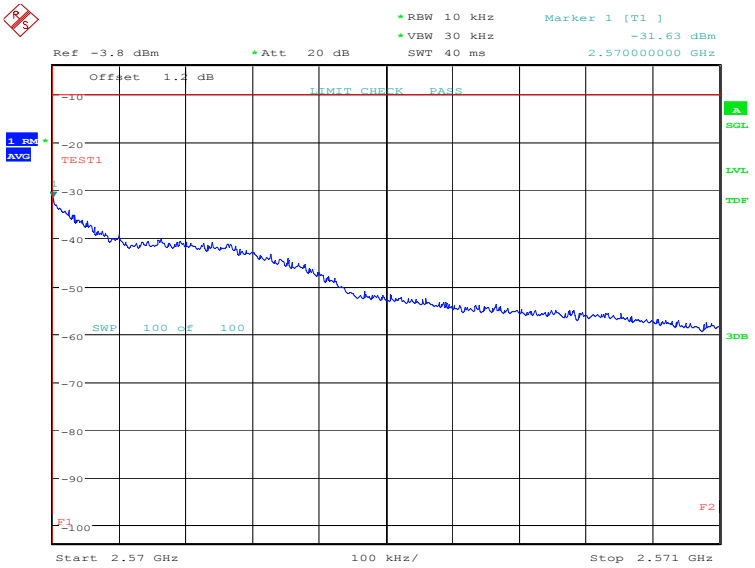
HIGH BAND EDGE BLOCK-1RB-high_offset



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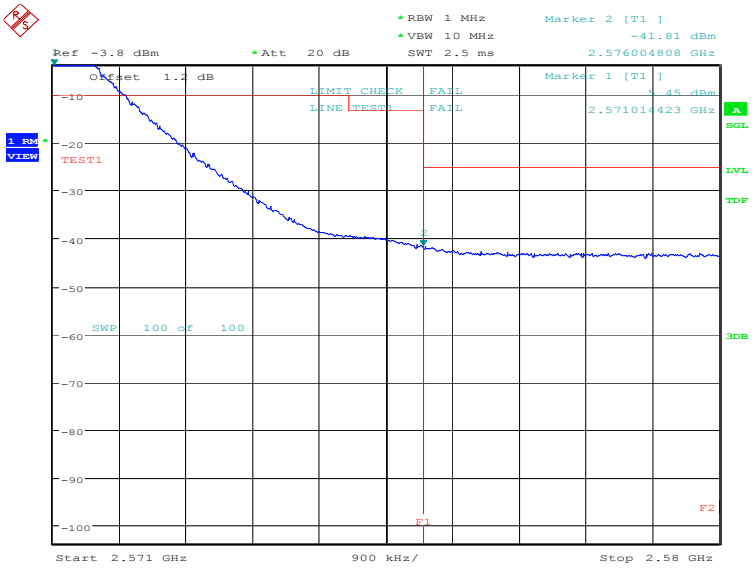

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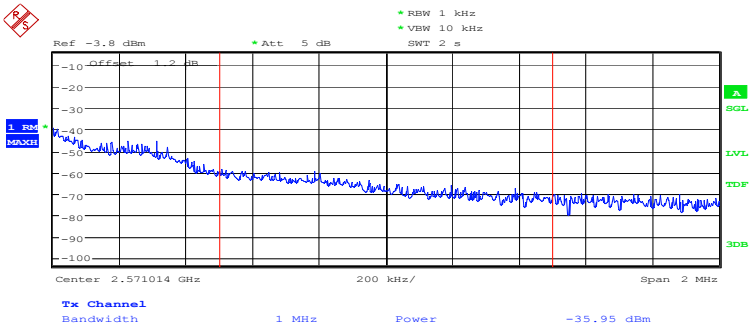

Date: 7.SEP.2020 15:45:35

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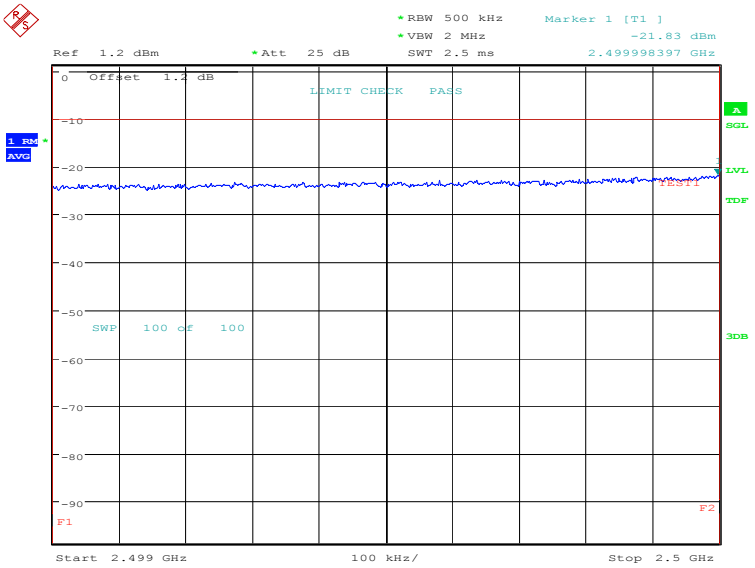
LOW BAND EDGE BLOCK-20MHz-100%RB



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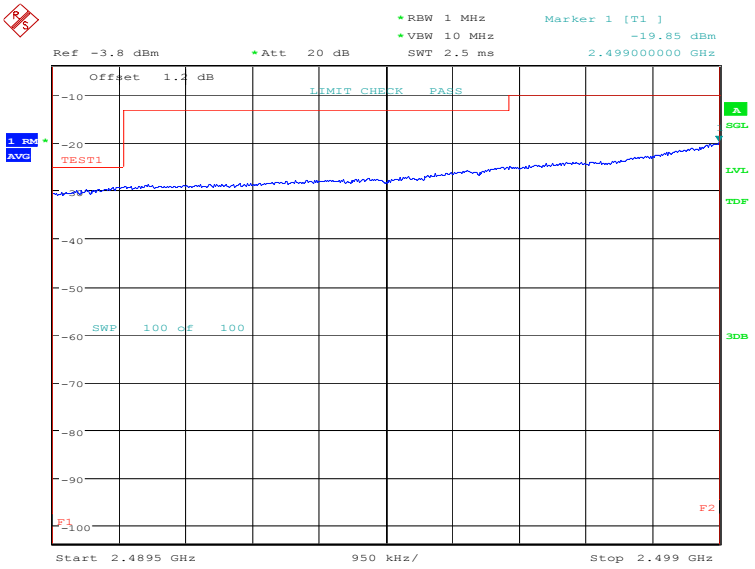

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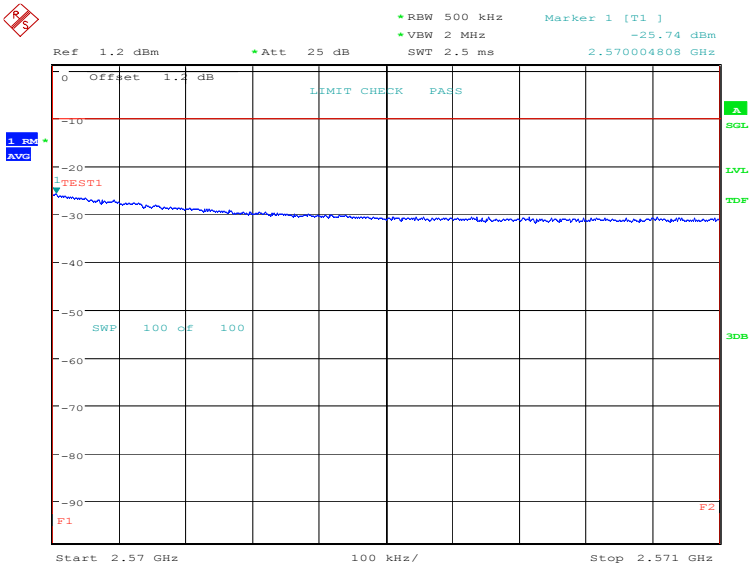
HIGH BAND EDGE BLOCK-20MHz-100%RB



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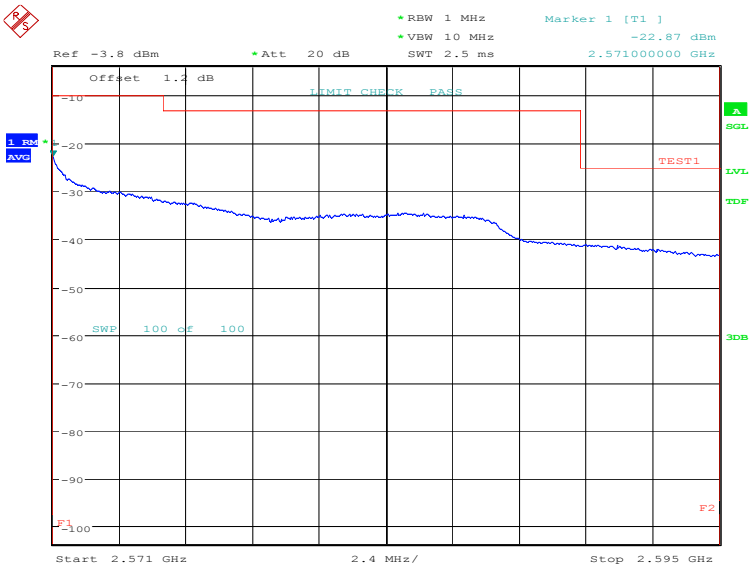

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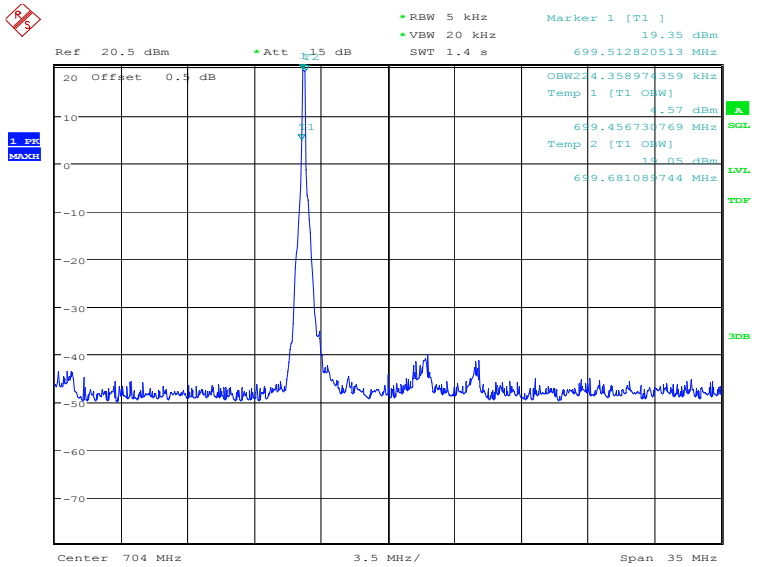
LTE band 12

OBW: 1RB-low_offset



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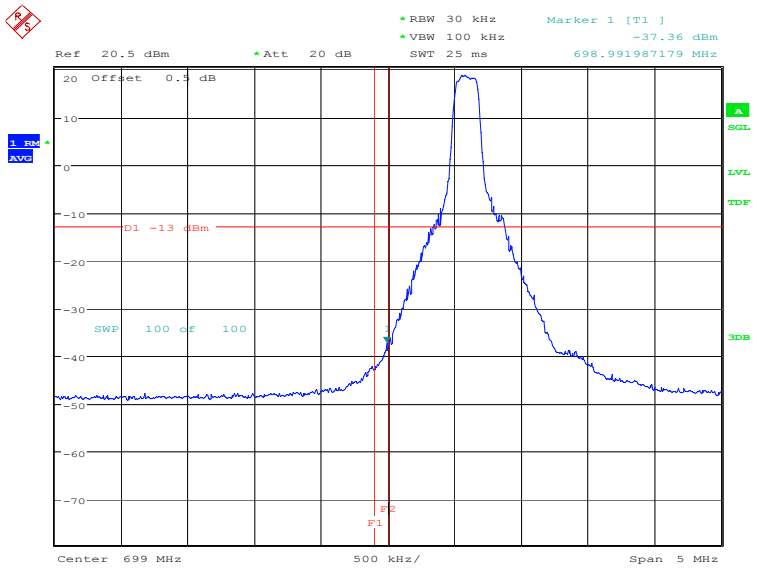

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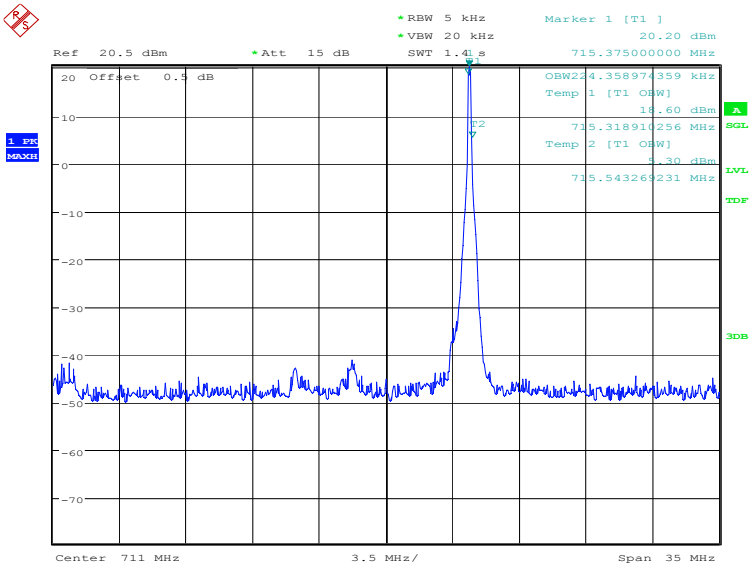
OBW: 1RB-high_offset



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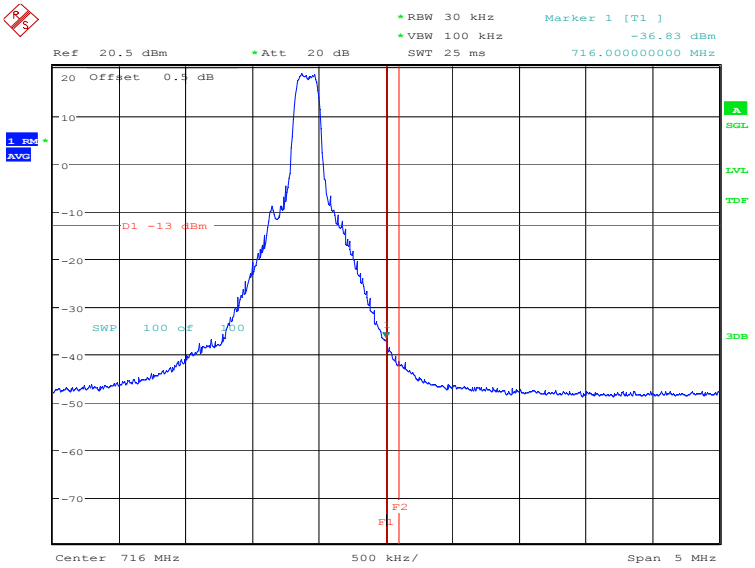

Date: 7.SEP.2020 15:12:19

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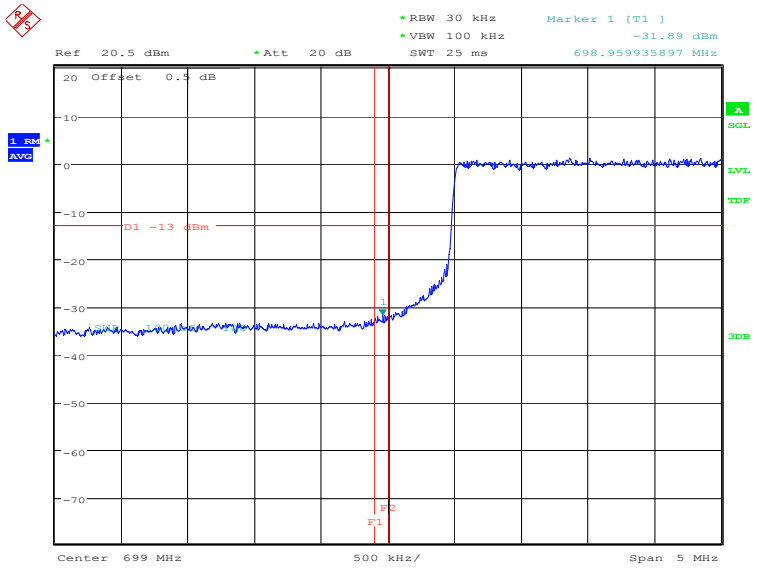
LOW BAND EDGE BLOCK-10MHz-100%RB



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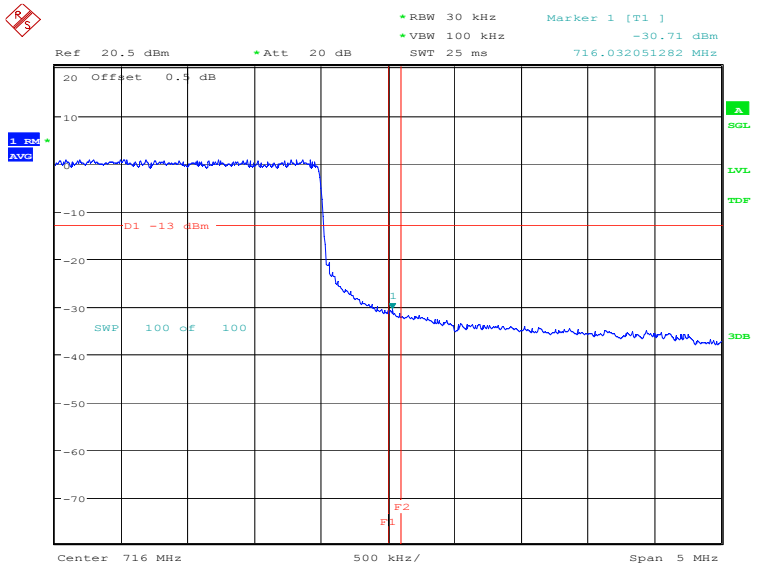
HIGH BAND EDGE BLOCK-10MHz-100%RB



Date: 23.JUL.2020 17:20:45

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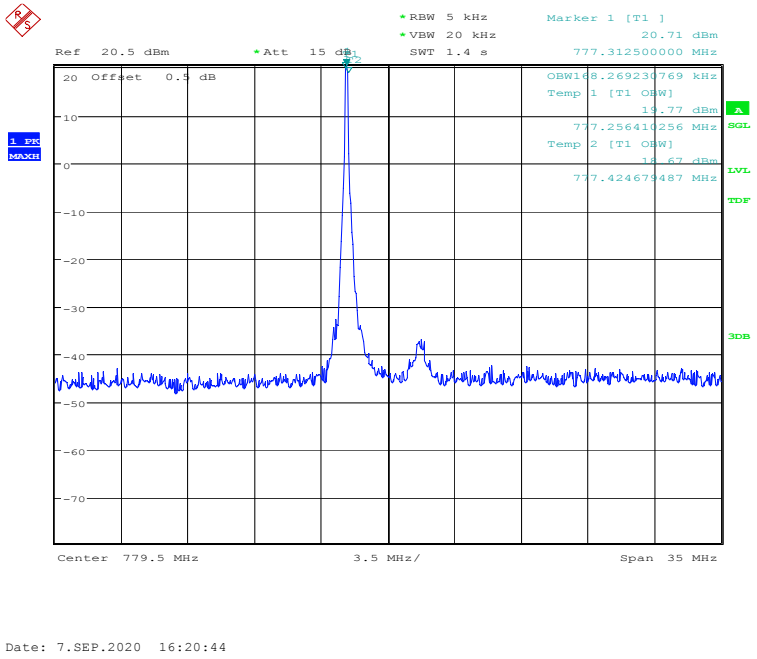
LTE band 13

OBW: 1RB-low_offset



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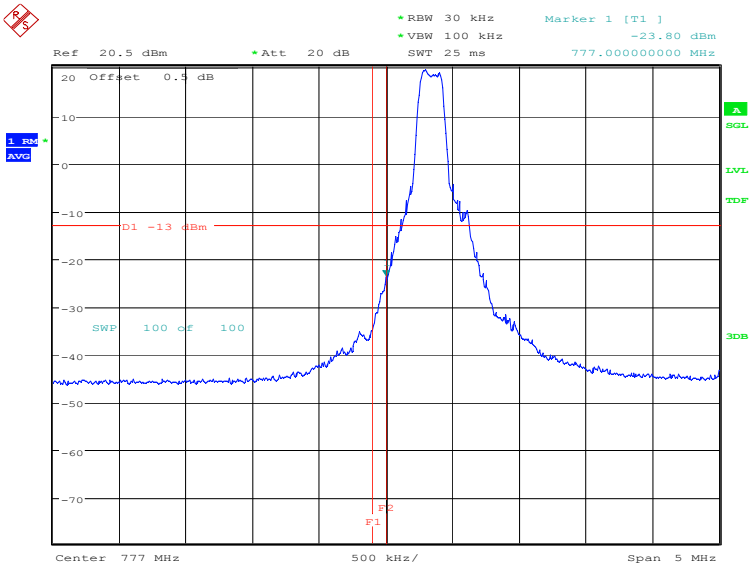
LOW BAND EDGE BLOCK-1RB-low_offset



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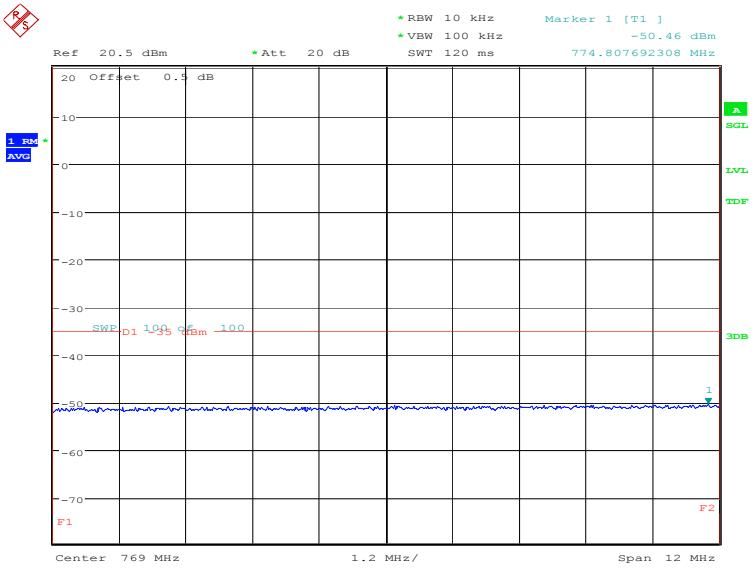

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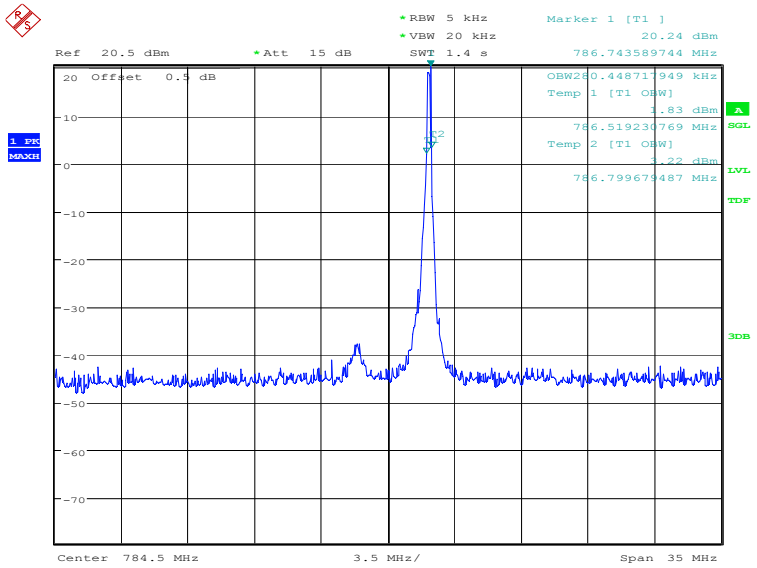

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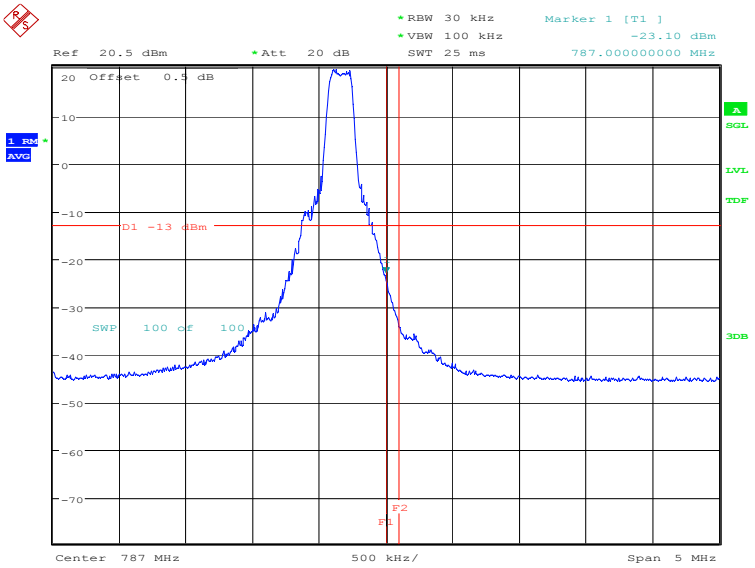
HIGH BAND EDGE BLOCK-1RB-high_offset



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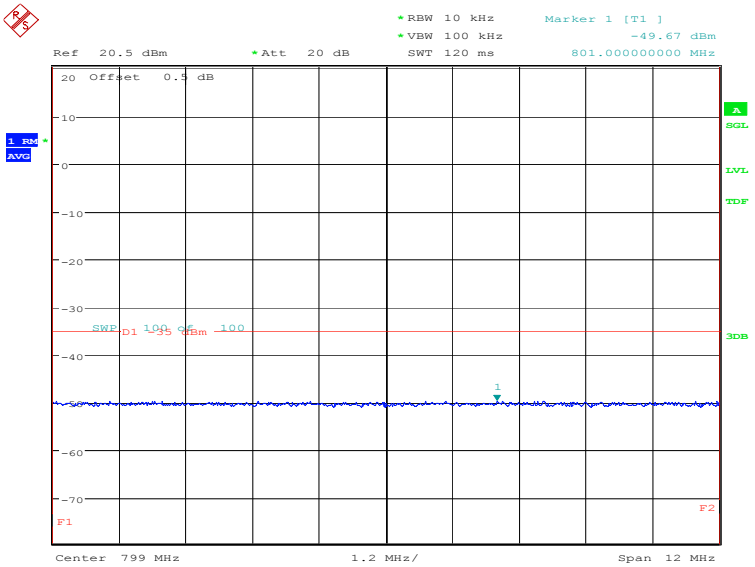

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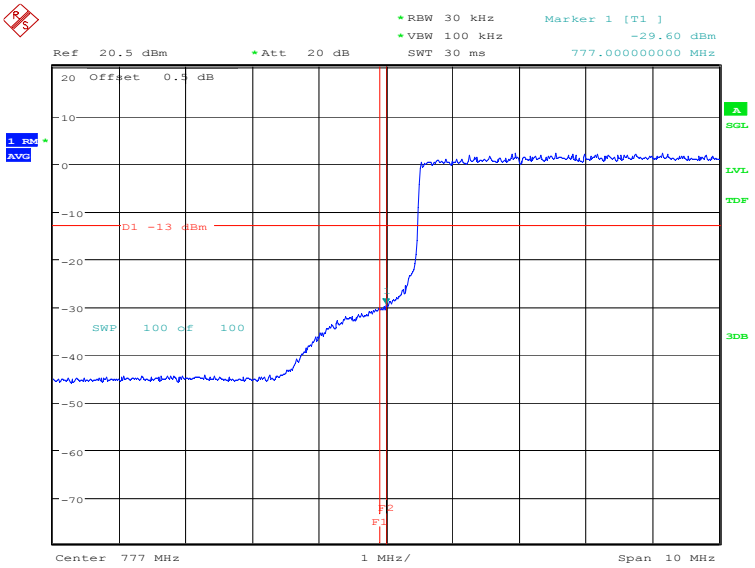
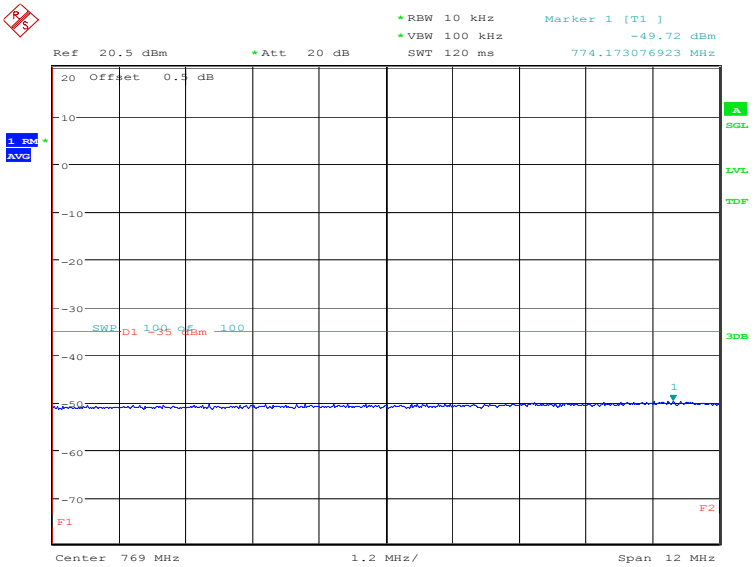
LOW BAND EDGE BLOCK-10MHz-100%RB



Date: 31.JUL.2020 09:37:57



Date: 31.JUL.2020 09:38:49

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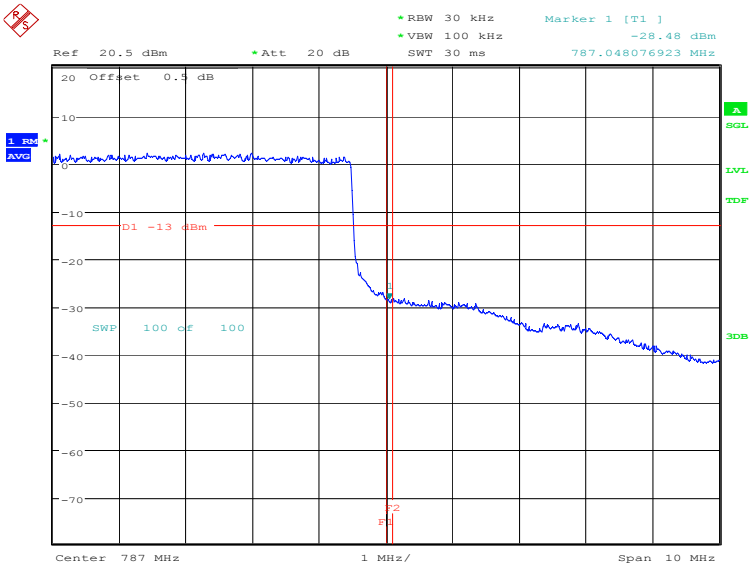
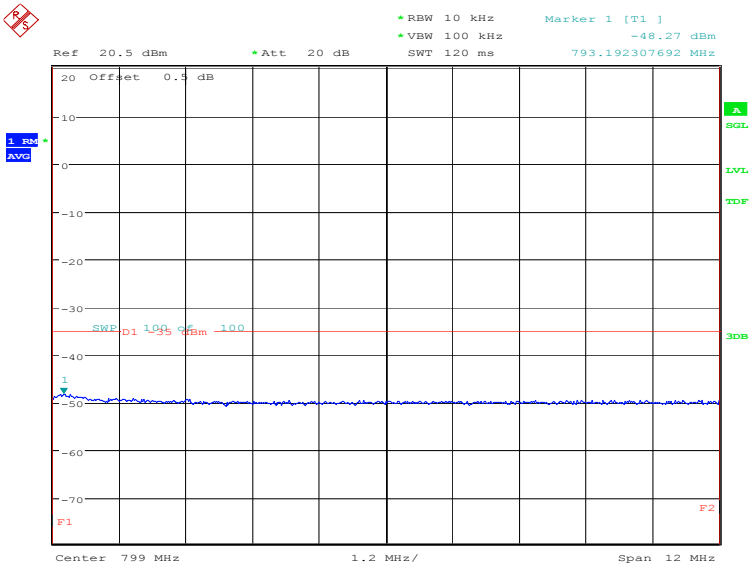
HIGH BAND EDGE BLOCK-10MHz-100%RB



Date: 31.JUL.2020 09:42:26



Date: 31.JUL.2020 09:44:09

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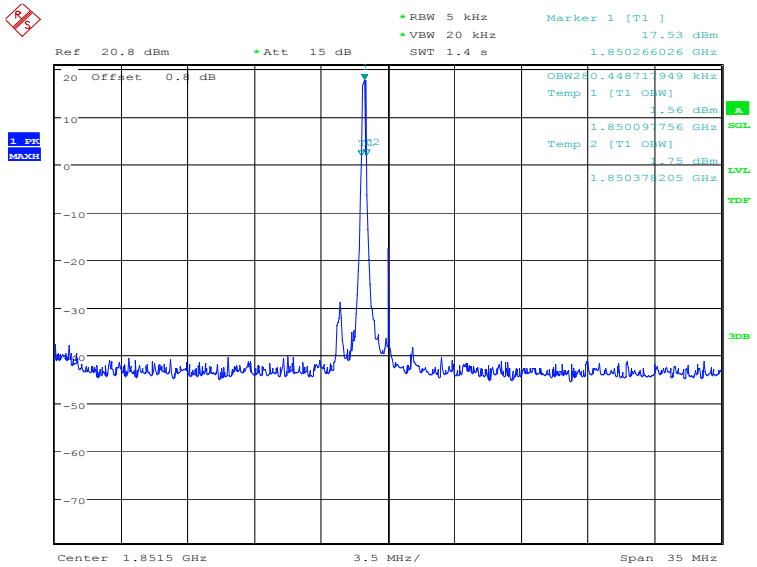
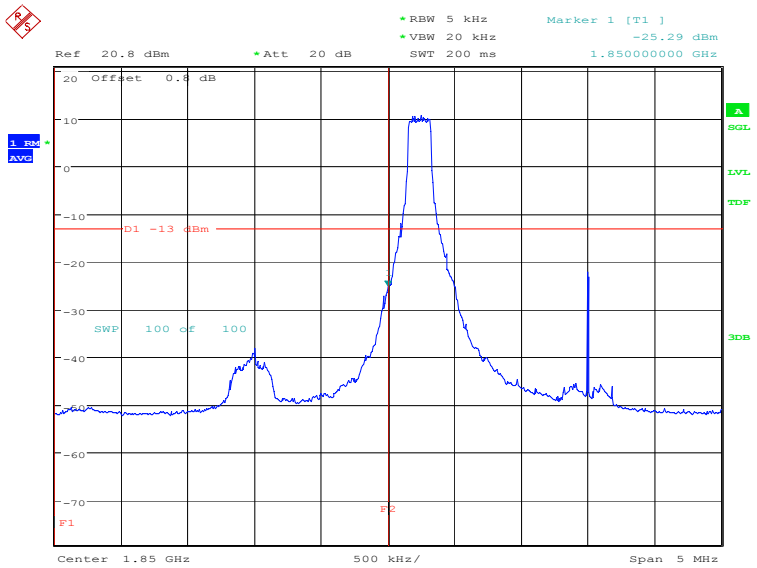
LTE band 25

OBW: 1RB-low_offset



Date: 7.SEP.2020 15:46:51

LOW BAND EDGE BLOCK-1RB-low_offset



Date: 7.SEP.2020 15:48:04

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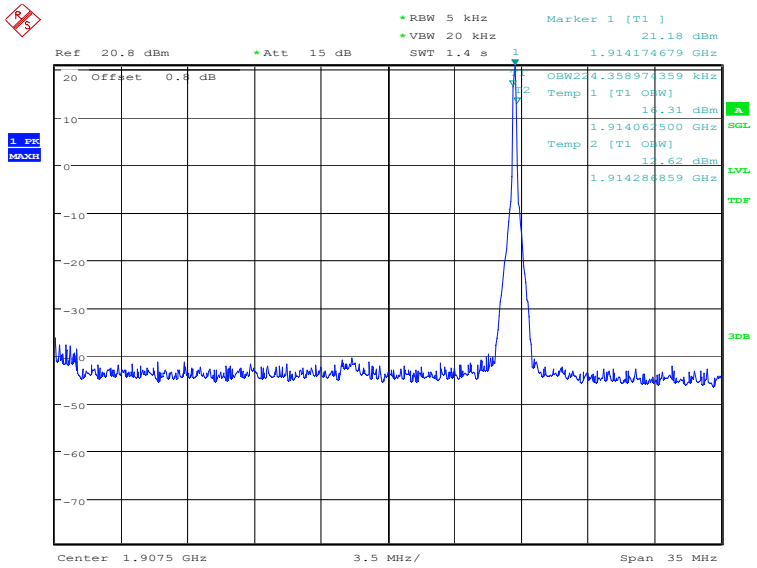
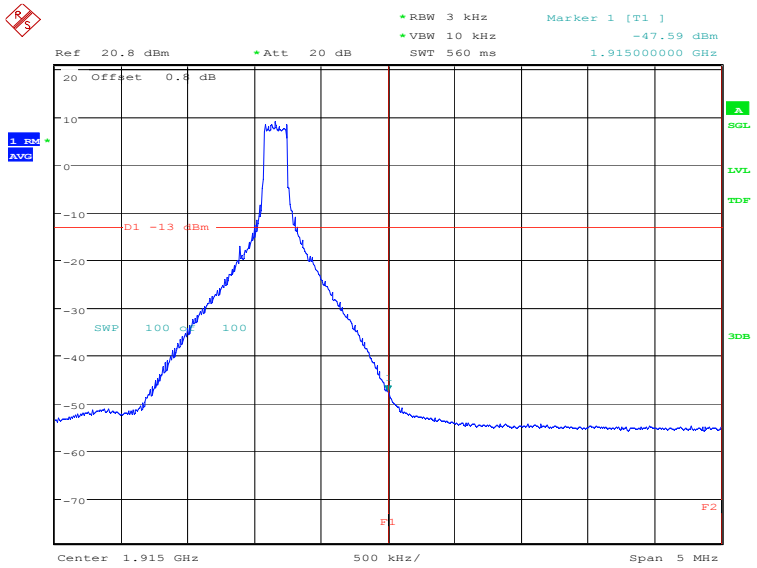
OBW: 1RB-high_offset



Date: 7.SEP.2020 15:48:41

HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 7.SEP.2020 15:49:54

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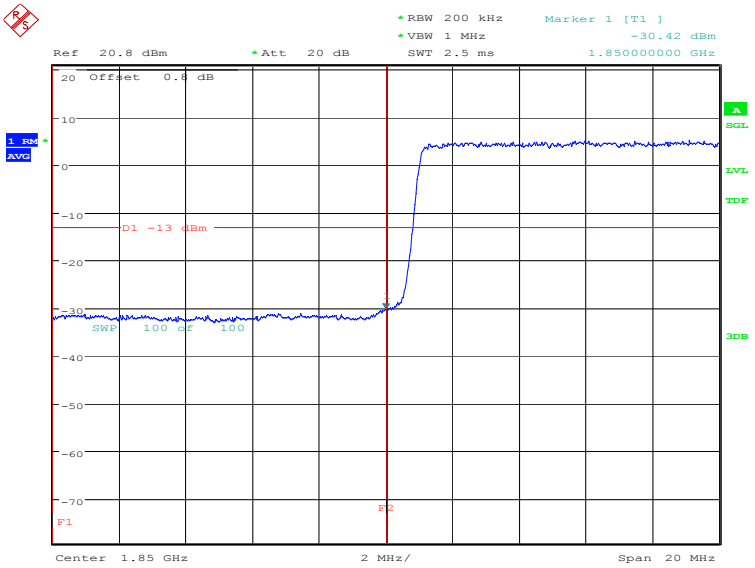
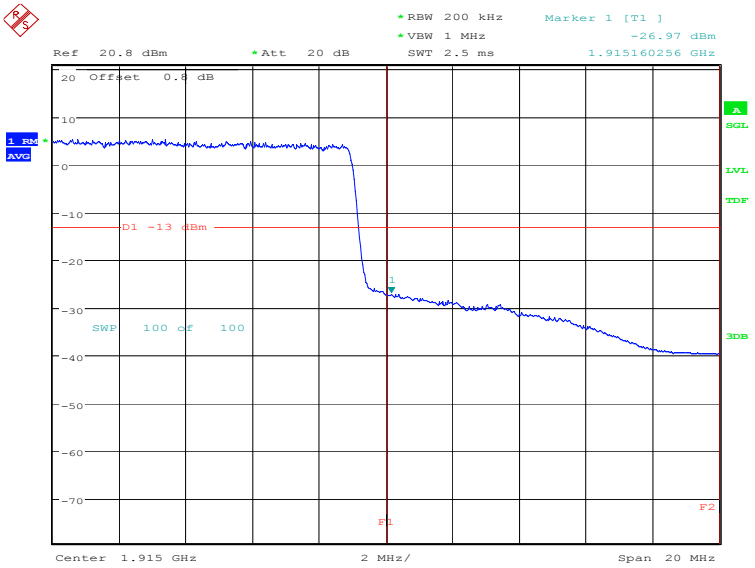
LOW BAND EDGE BLOCK-20MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz-100%RB



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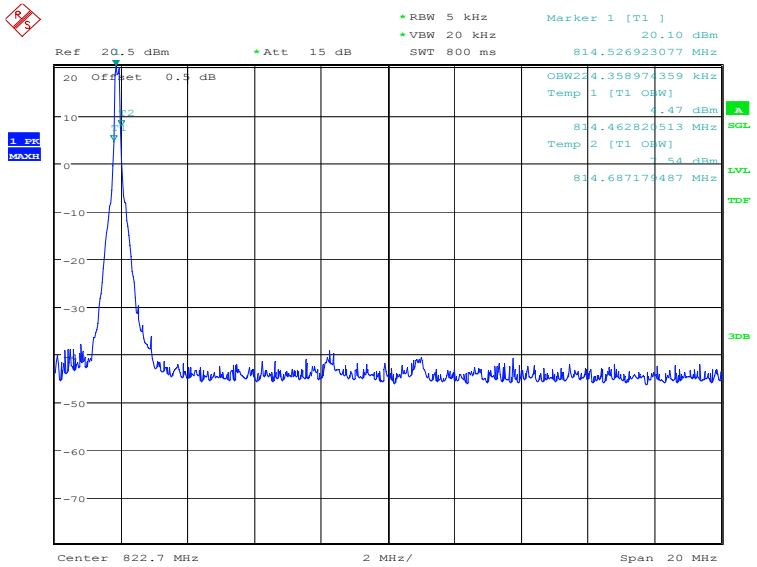
LTE band 26(814MHz~824MHz)

OBW: 1RB-low_offset



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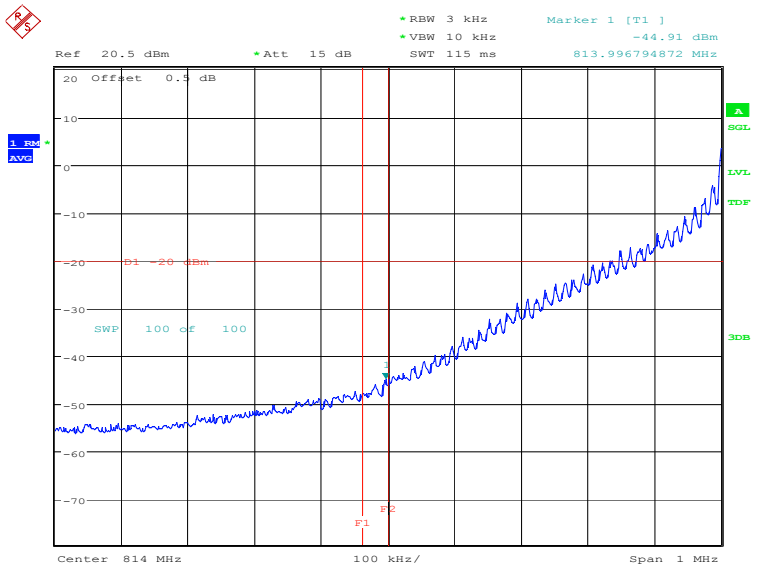
LOW BAND EDGE BLOCK-1RB-low_offset



Date: 7.SEP.2020 15:27:27

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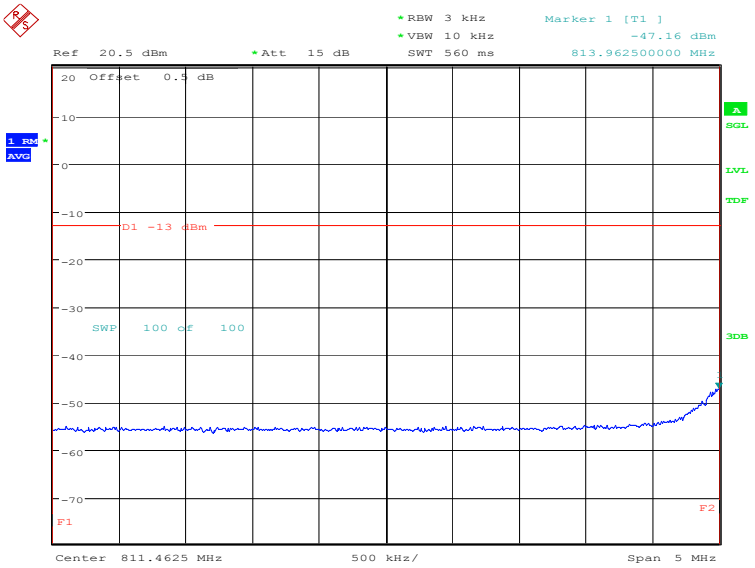
LOW Emission Mask -1RB-low_offset



Date: 7.SEP.2020 15:29:44

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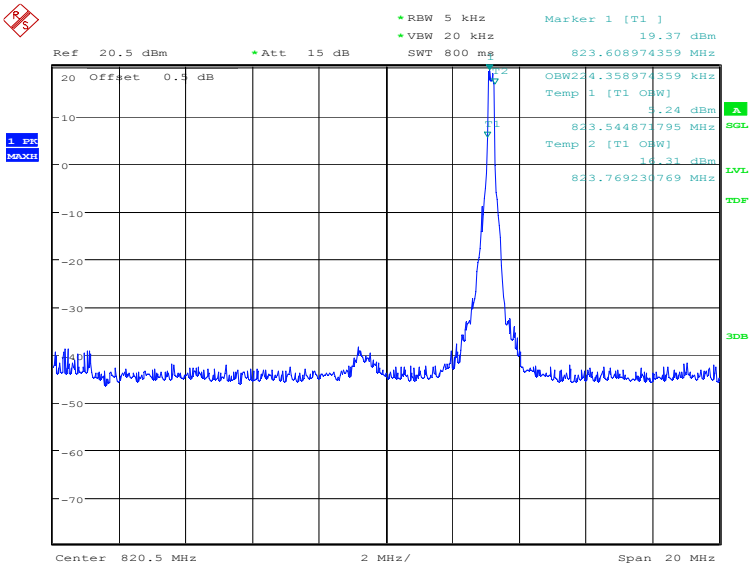
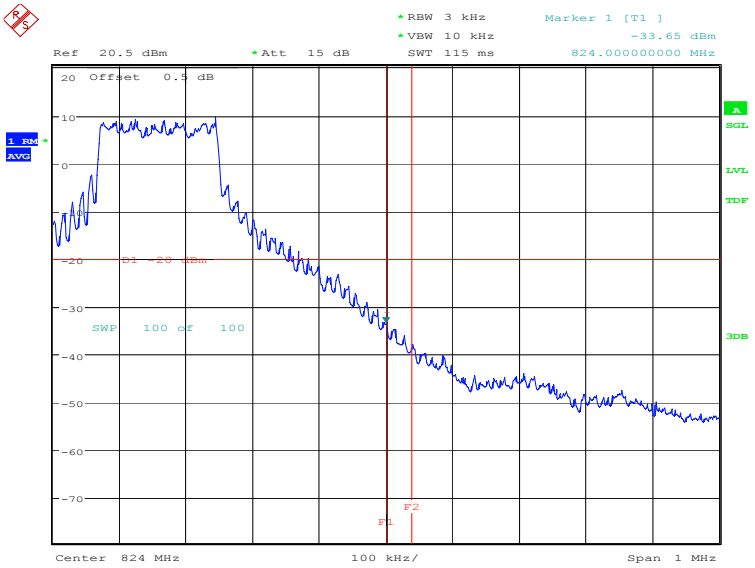
OBW: 1RB-high_offset



Date: 7.SEP.2020 15:30:21

HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 7.SEP.2020 15:31:51

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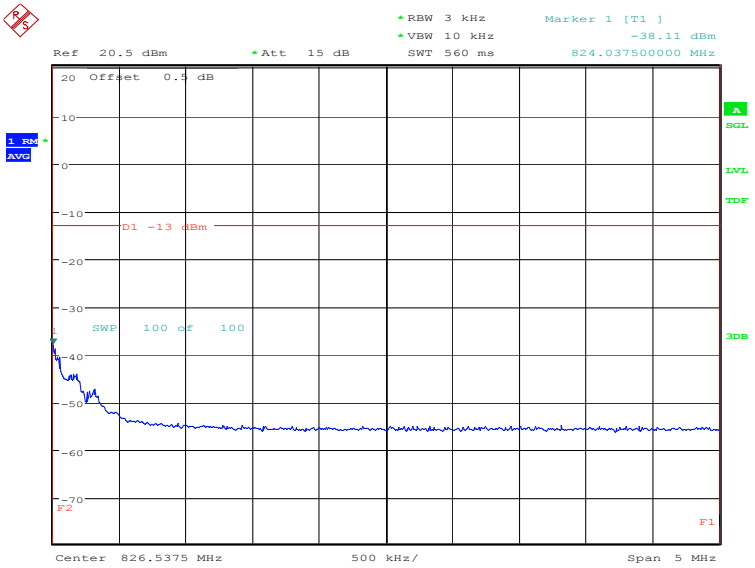
HIGH Emission Mask -1RB-high_offset



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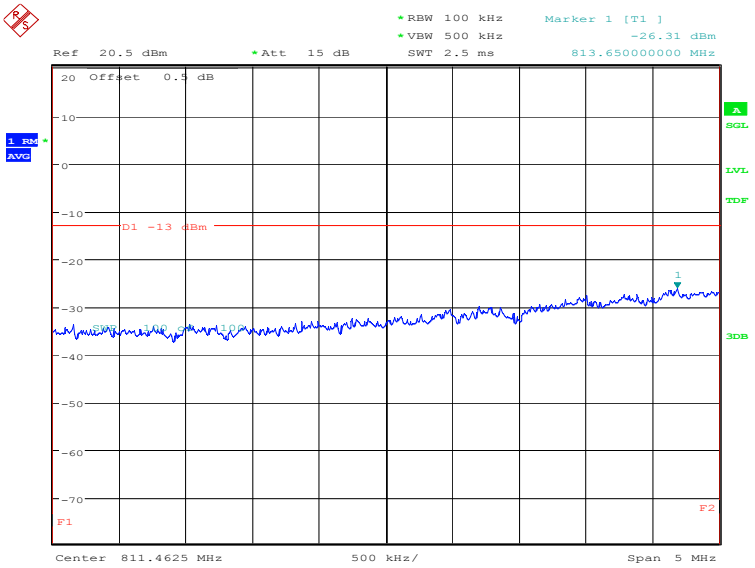
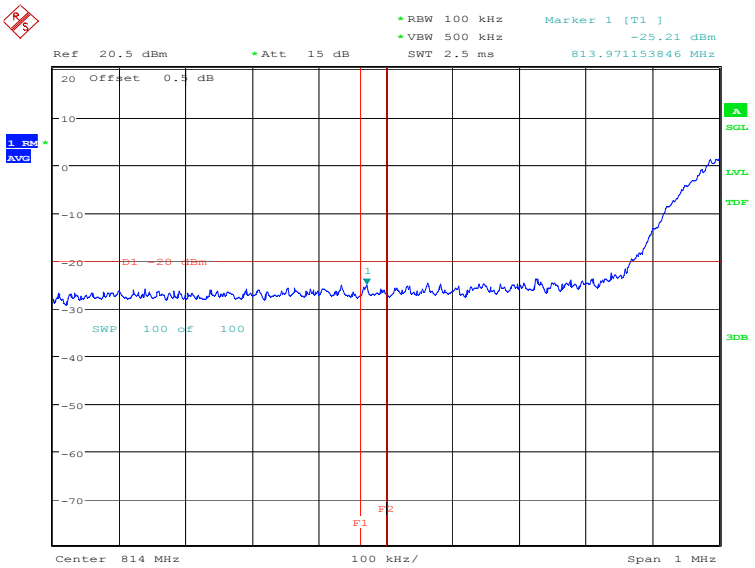
LOW Emission Mask -10MHz-100%RB



Date: 8.SEP.2020 14:12:58

LOW BAND EDGE BLOCK-10MHz-100%RB



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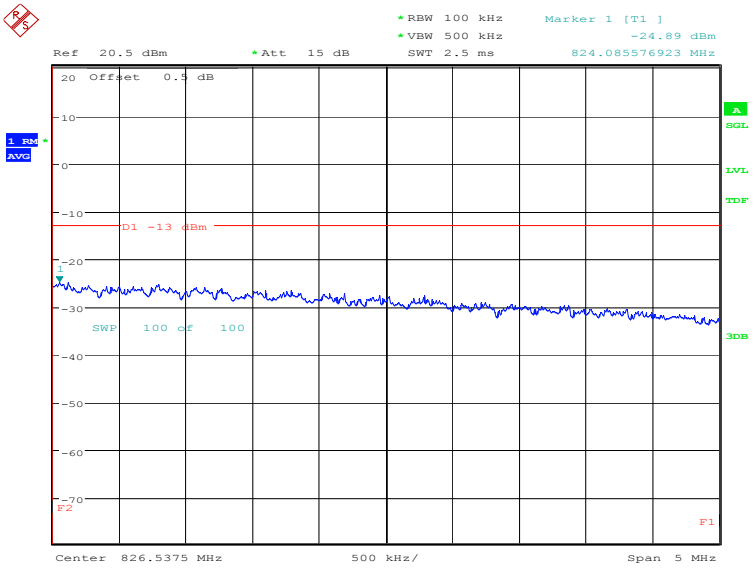
HIGH Emission Mask -10MHz-100%RB



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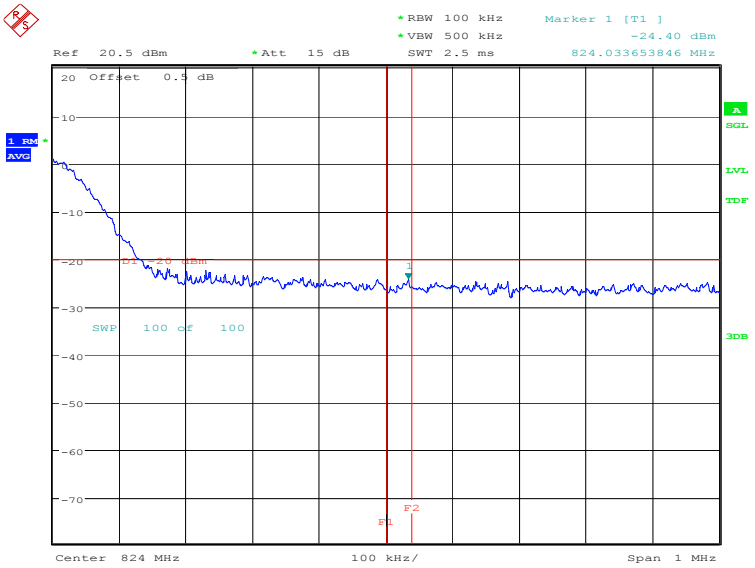
HIGH BAND EDGE BLOCK-10MHz-100%RB



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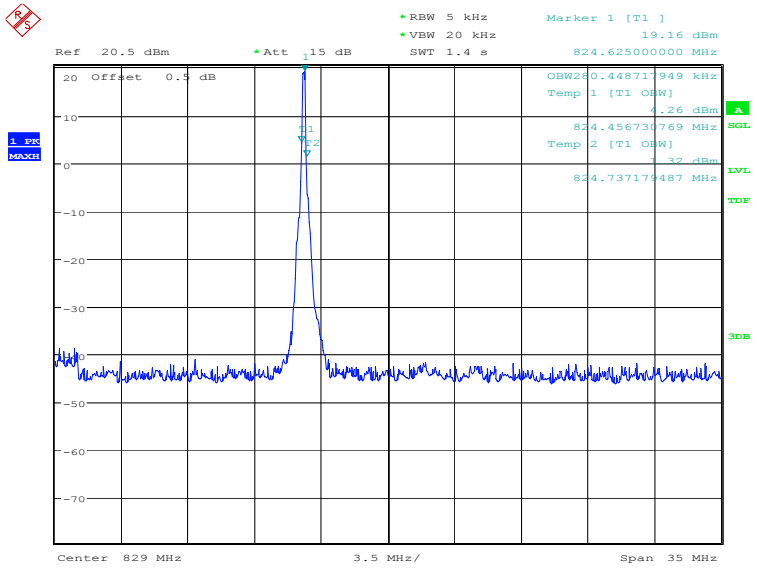
LTE band 26(824MHz~849MHz)

OBW: 1RB-low_offset



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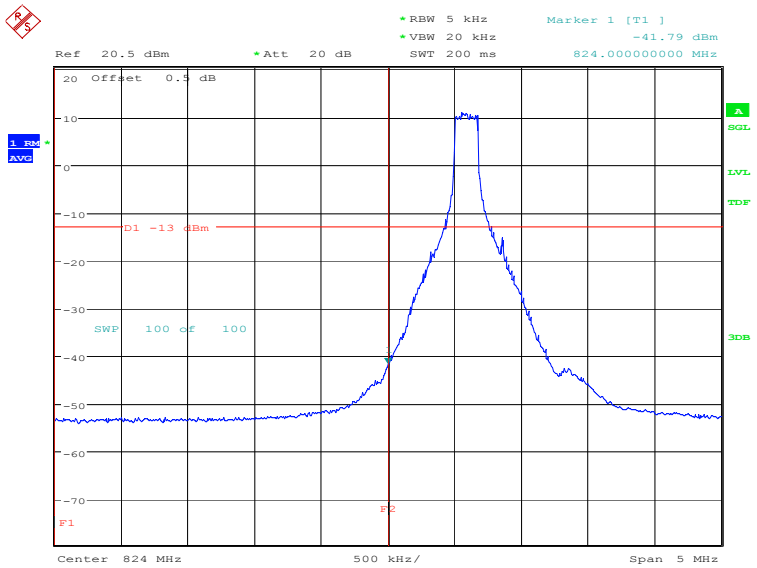
LOW BAND EDGE BLOCK-1RB-low_offset



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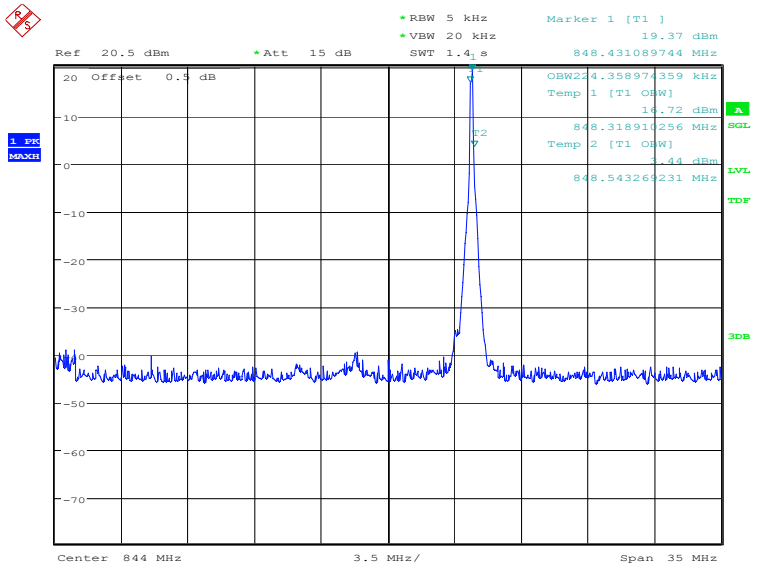
OBW: 1RB-high_offset



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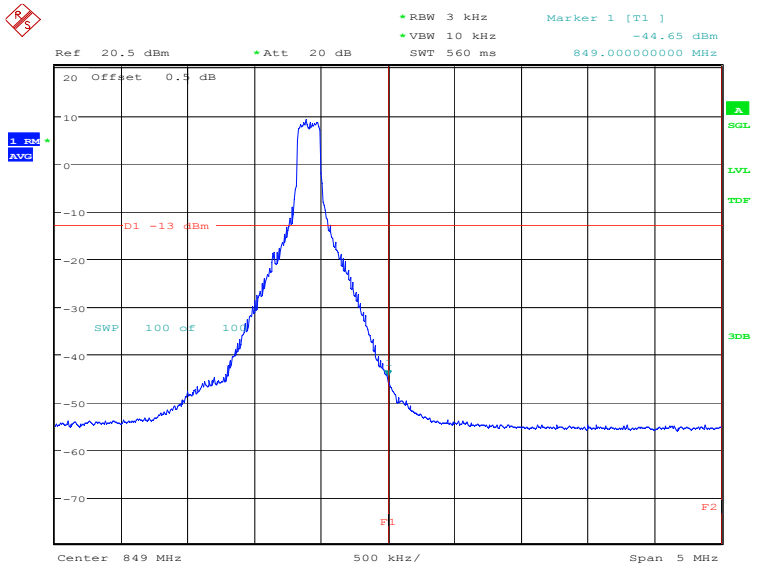
HIGH BAND EDGE BLOCK-1RB-high_offset



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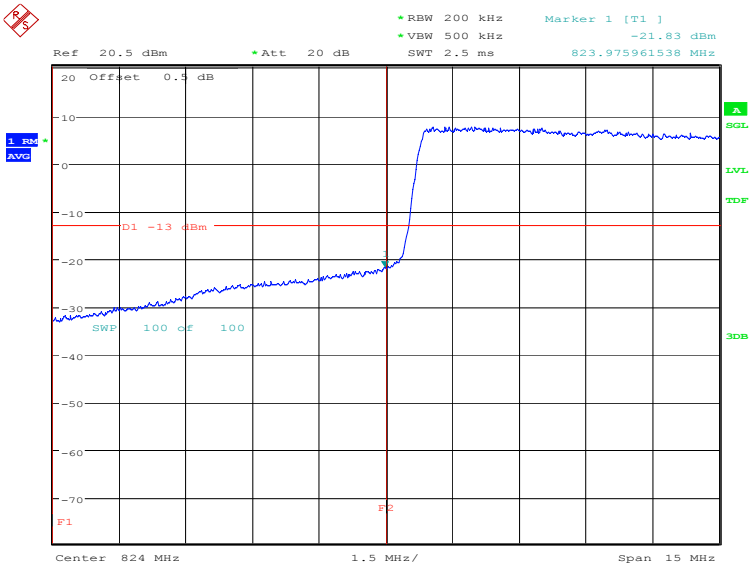
LOW BAND EDGE BLOCK-15MHz-100%RB



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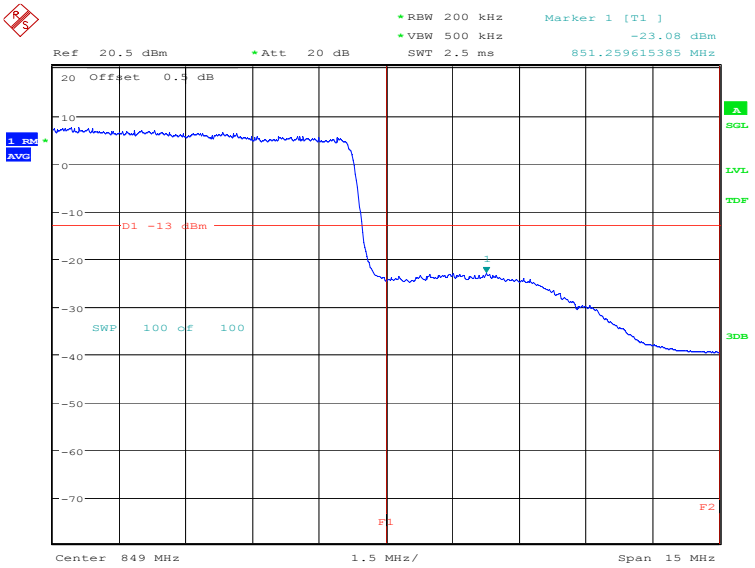
HIGH BAND EDGE BLOCK-15MHz-100%RB



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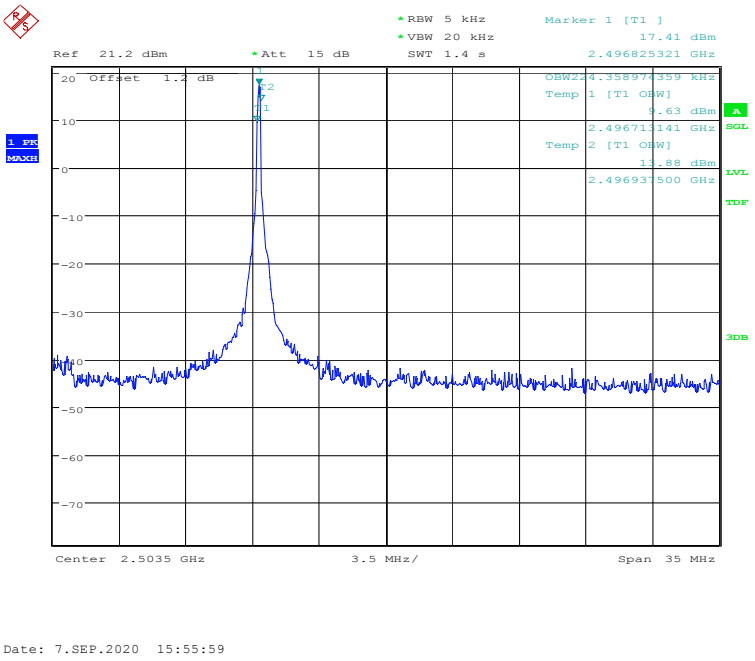
LTE band 41 HPUE

OBW: 1RB-low_offset



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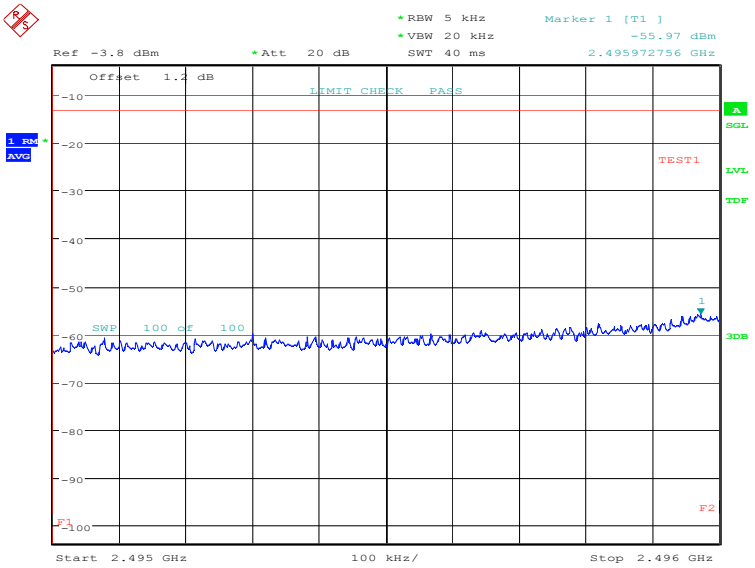
LOW BAND EDGE BLOCK-1RB-low_offset



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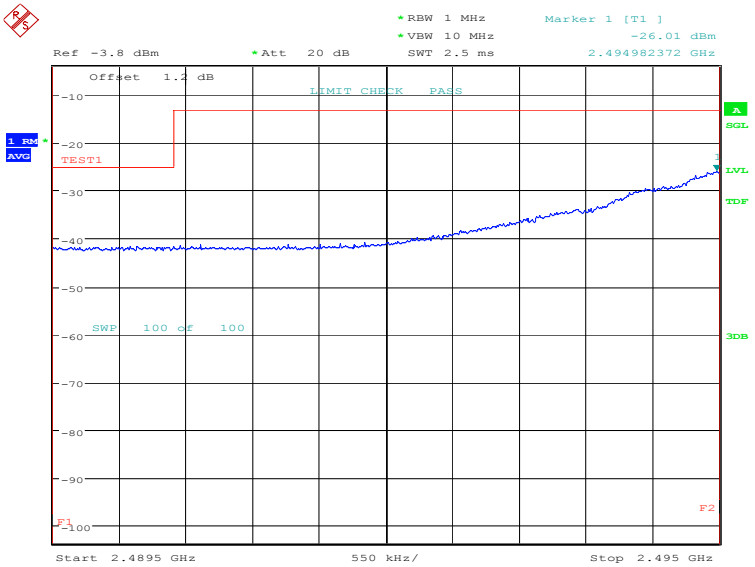

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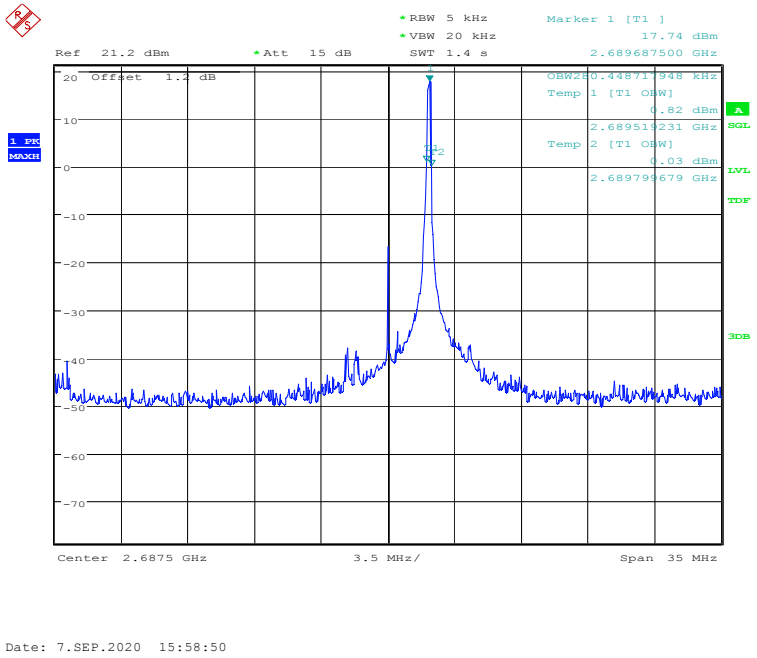
OBW: 1RB-high_offset



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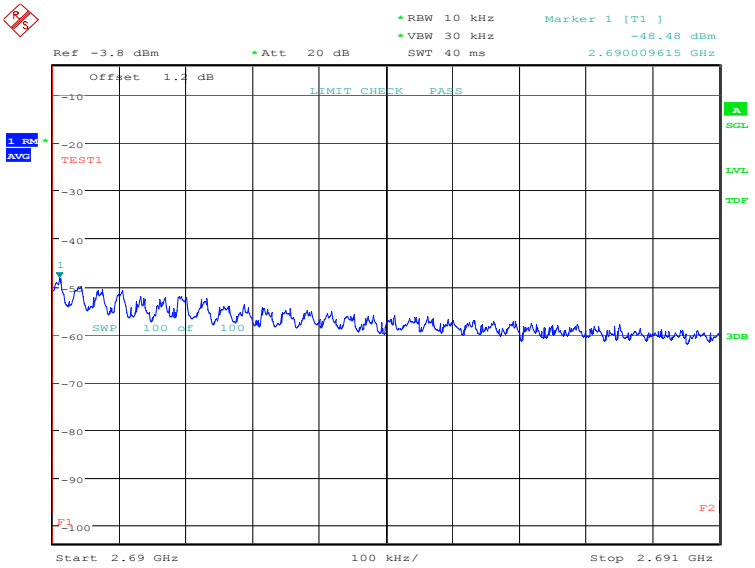
HIGH BAND EDGE BLOCK-1RB-high_offset



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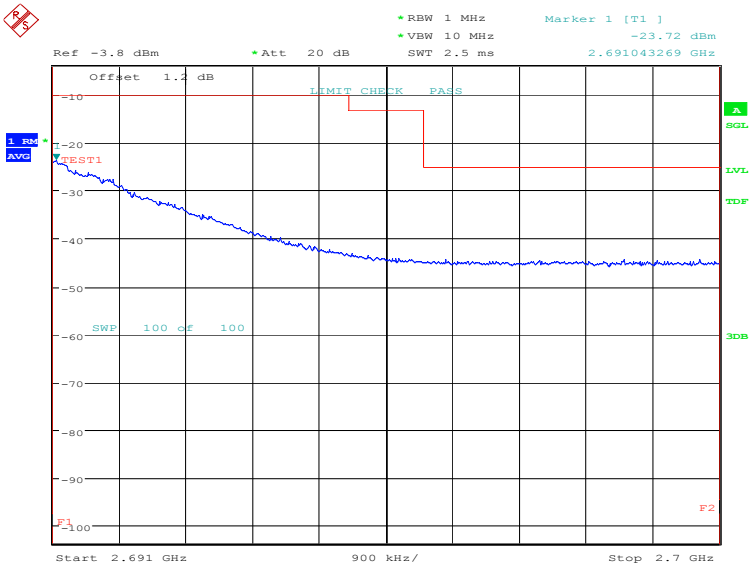

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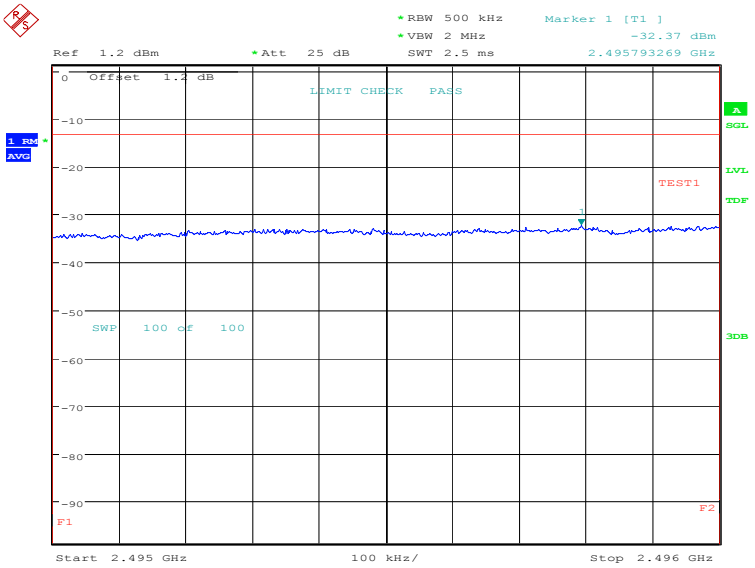
LOW BAND EDGE BLOCK-20MHz-100%RB



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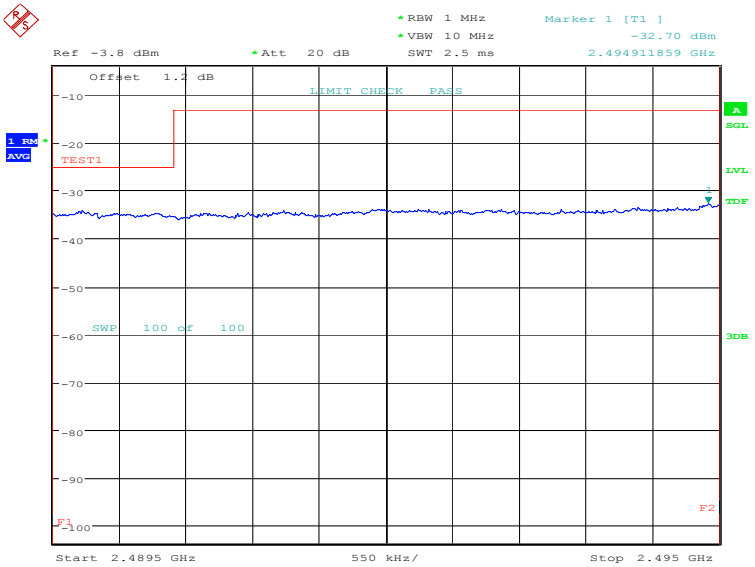

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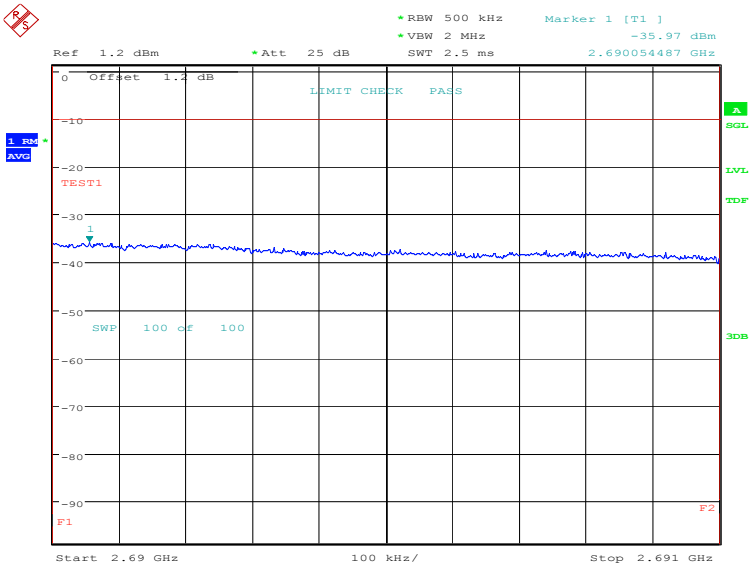
HIGH BAND EDGE BLOCK-20MHz-100%RB



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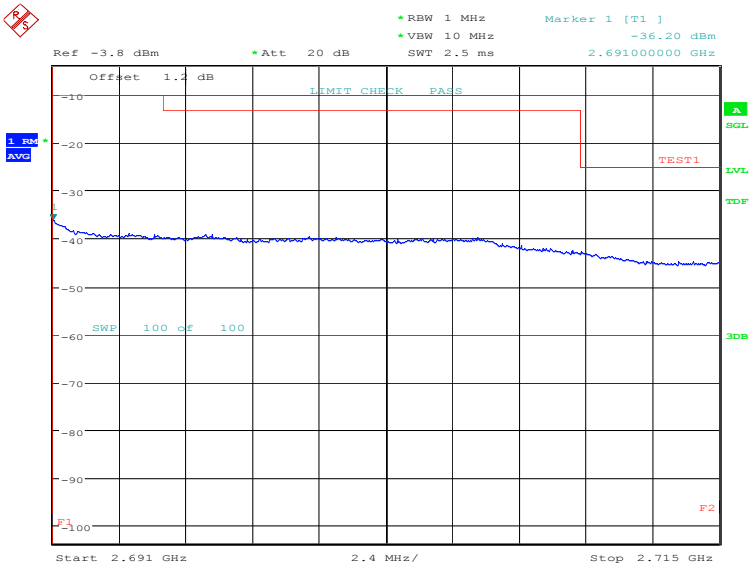

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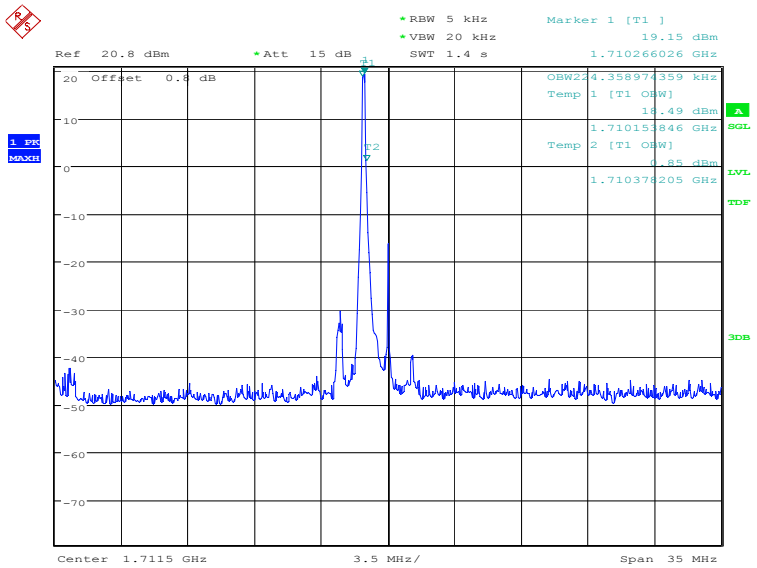
LTE band 66

OBW: 1RB-low_offset



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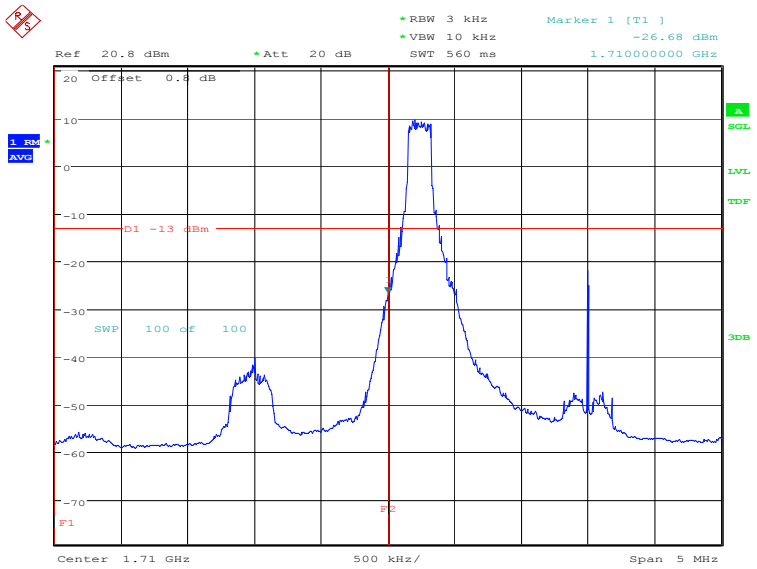
LOW BAND EDGE BLOCK-1RB-low_offset



Date: 7.SEP.2020 15:52:25

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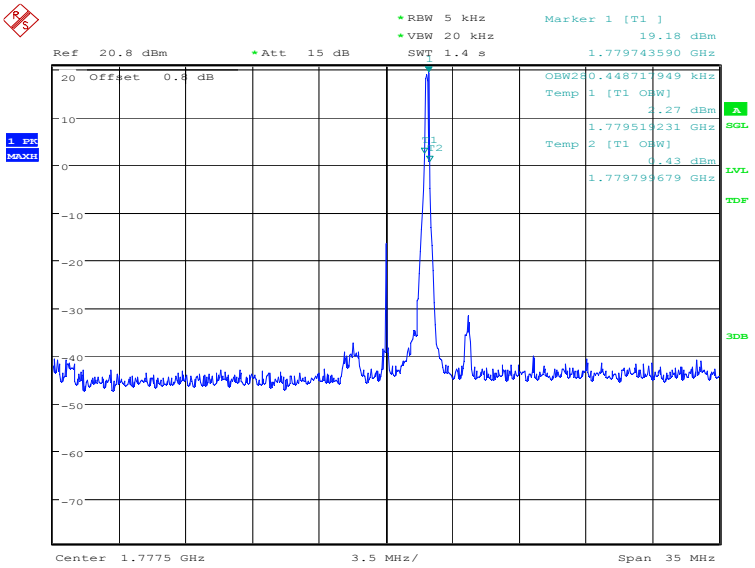
OBW: 1RB-high_offset



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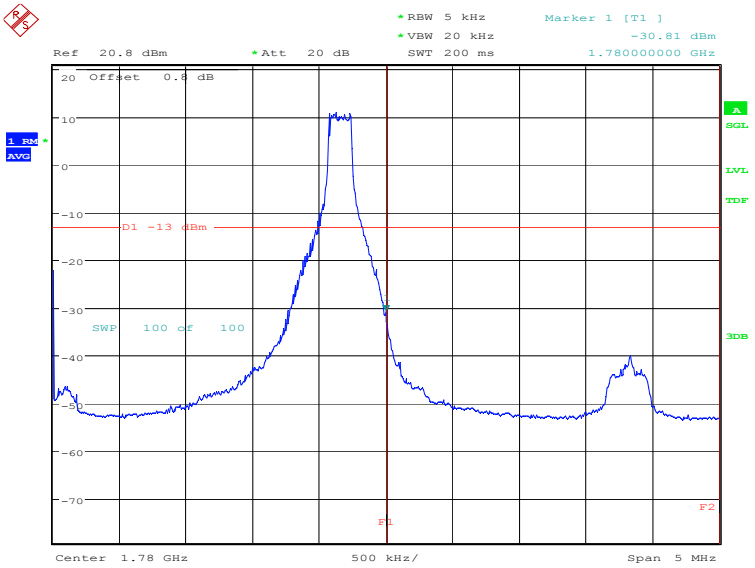
HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 7.SEP.2020 15:54:15

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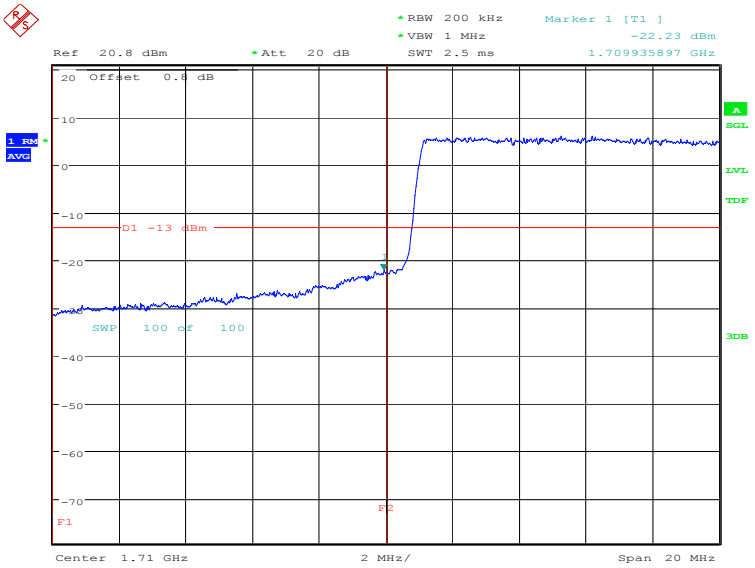
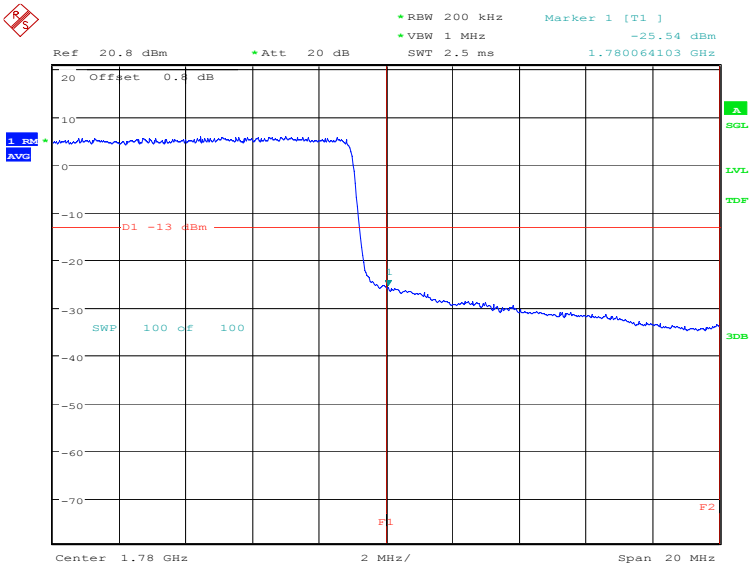
LOW BAND EDGE BLOCK-20MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz-100%RB



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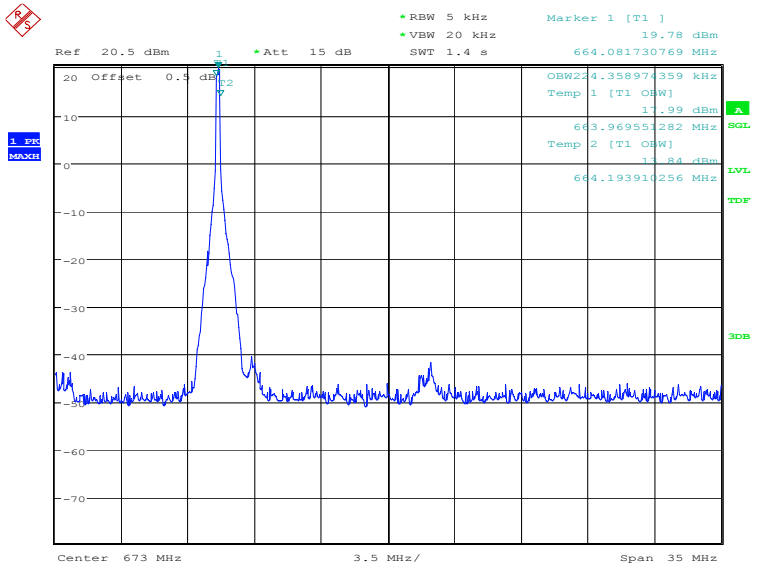
LTE band 71

OBW: 1RB-low_offset



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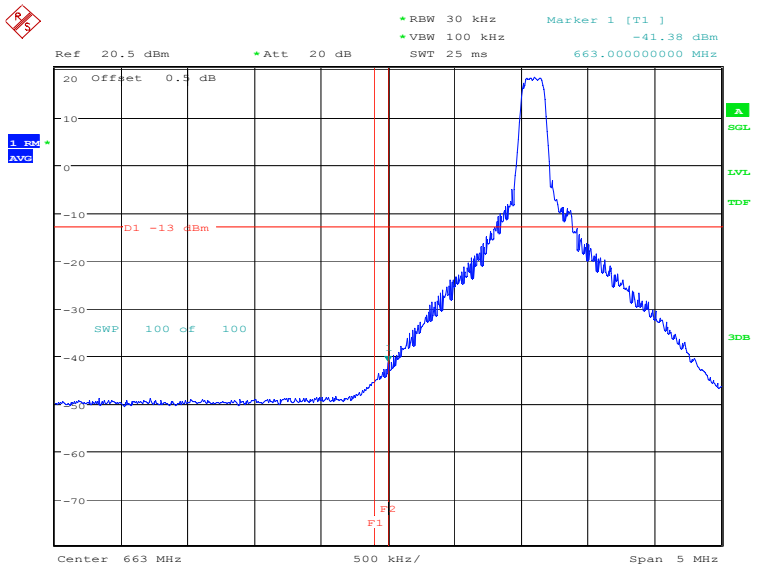
LOW BAND EDGE BLOCK-1RB-low_offset



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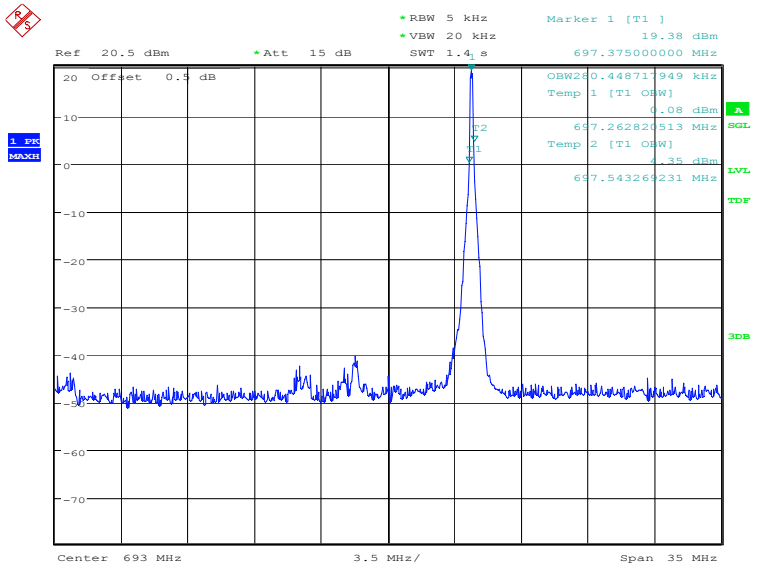
OBW: 1RB-high_offset



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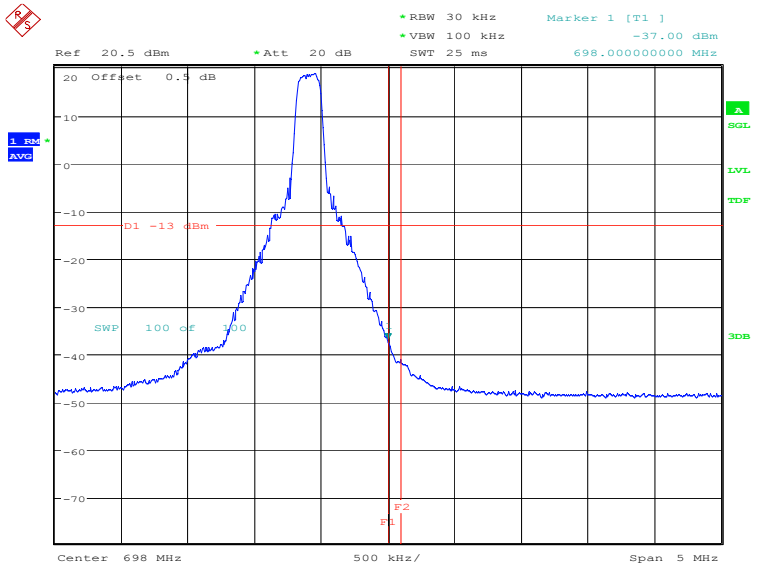
HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 7.SEP.2020 15:05:46

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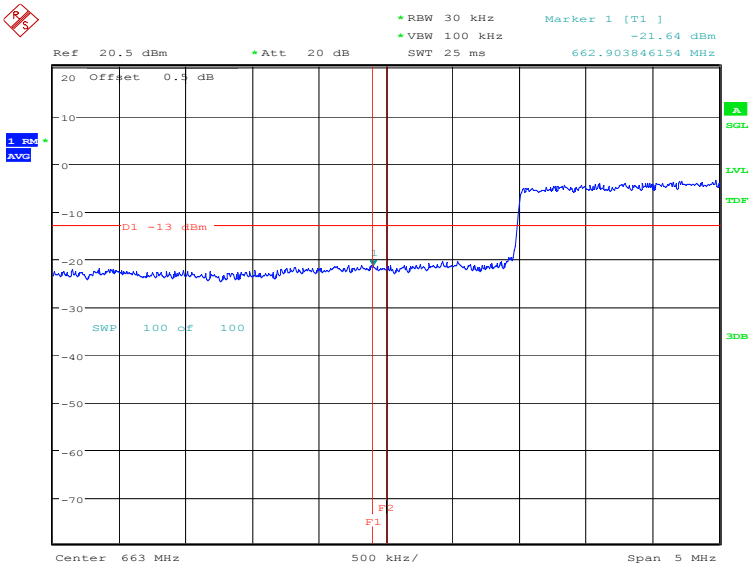
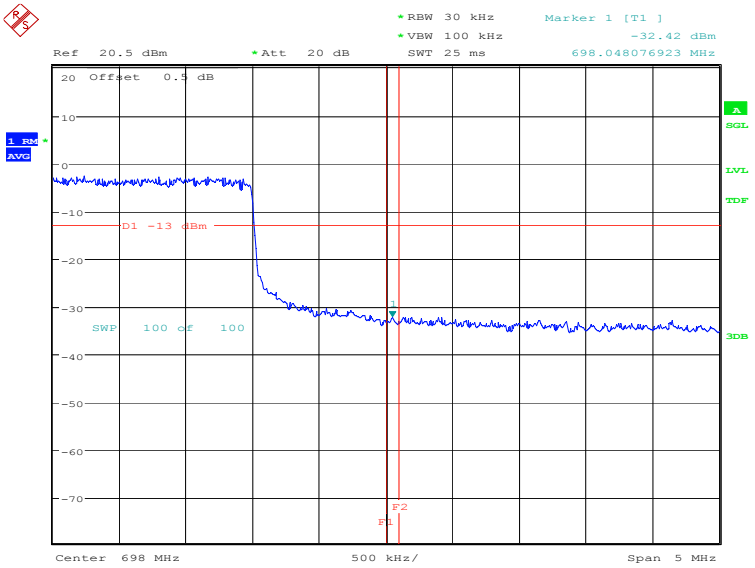
LOW BAND EDGE BLOCK-20MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz-100%RB



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A.7 Conducted Spurious Emission

A.7.1 Measurement Method

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

1. In measuring unwanted emissions, the spectrum shall be investigated from 30 MHz or the lowest radio frequency signal generated in the equipment, whichever is lower, without going below 9 kHz, up to at least the frequency given below:
   (a) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
   (b) If the equipment operates at or above 10 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
2. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.
3. The number of sweep points of spectrum analyzer is set to 30001 which is greater than span/RBW.

A. 7.2 Measurement Limit

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

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

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

Part 27.53(f) states for operations in the 746–758 MHz,775–788 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to -70dBW/MHz equivalent isotropically

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radiated power (EIRP) for wideband signals.

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

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

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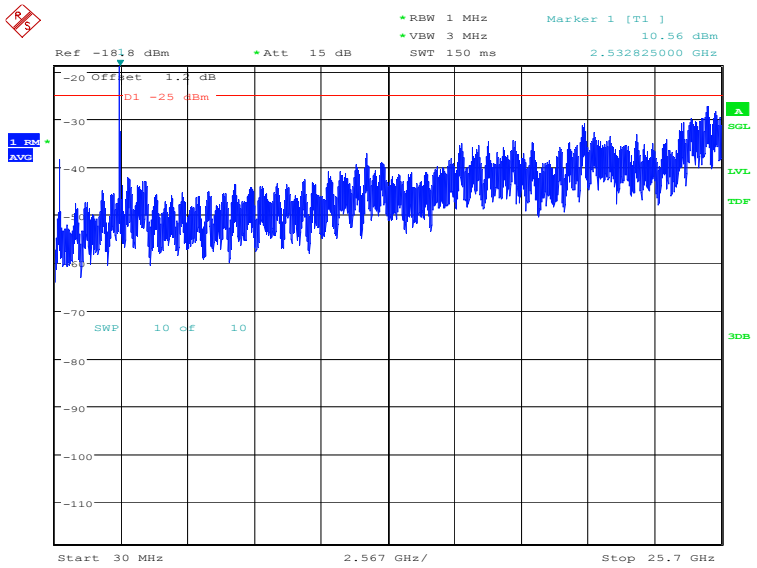
A. 7.3 Measurement result

Only the worst case result is given below

LTE band 7: 30MHz – 25.7GHz

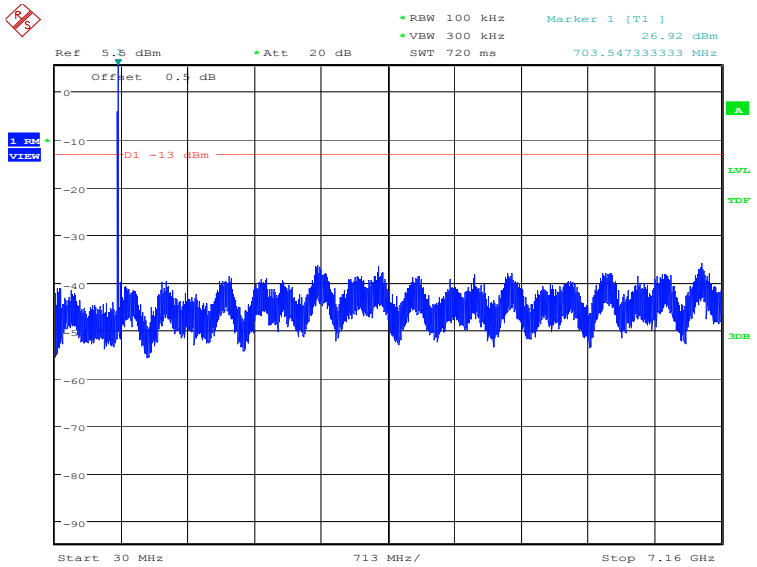
NOTE: peak above the limit line is the carrier frequency.



Date: 7.SEP.2020 16:02:52

LTE band 12: 30MHz – 7.16GHz

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



Date: 7.SEP.2020 15:22:16

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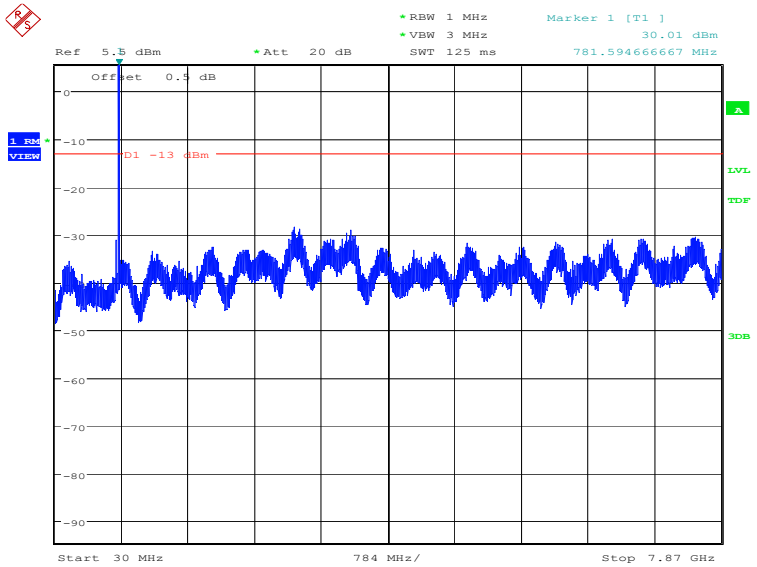
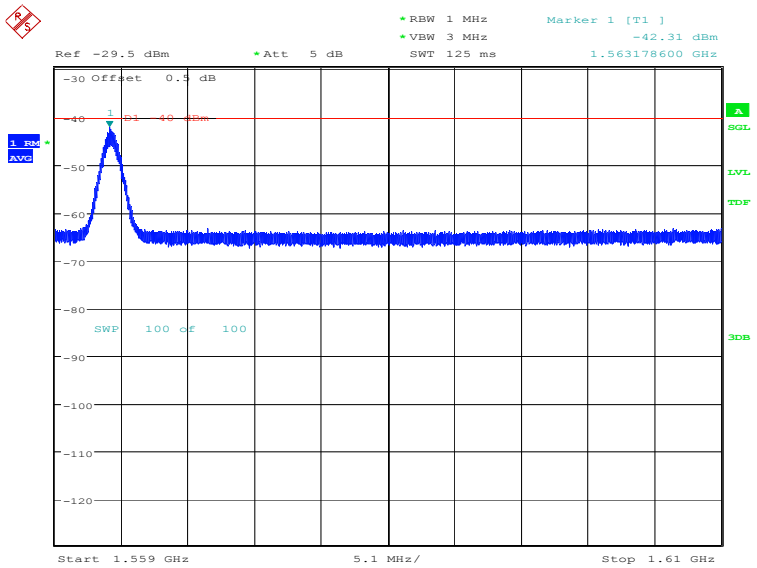
LTE band 13: 30MHz – 7.87GHz

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



Date: 7.SEP.2020 15:22:57

LTE band 13: 1559MHz – 1610MHz



Date: 7.SEP.2020 15:23:25

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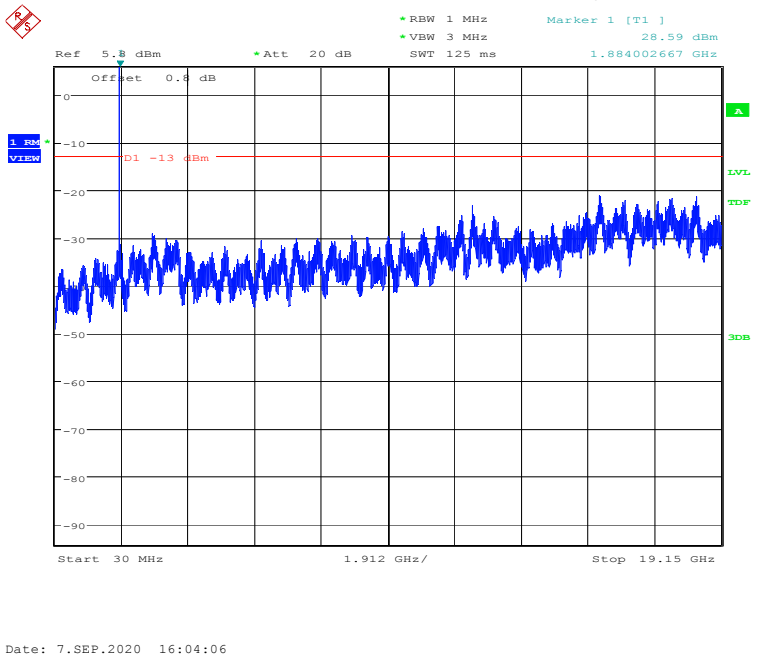
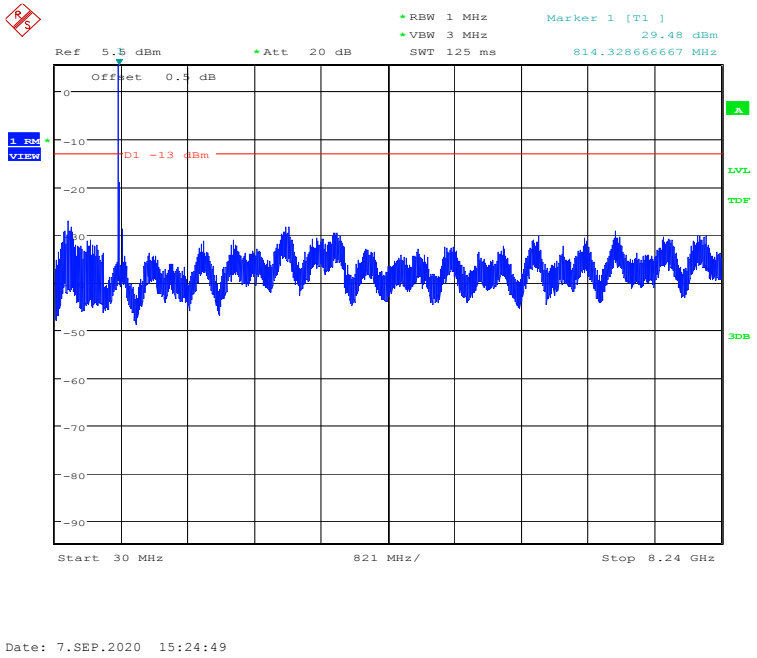
LTE band 25: 30MHz – 19.15GHz

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



LTE band 26(814MHz~824MHz): 30MHz – 8.24GHz

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



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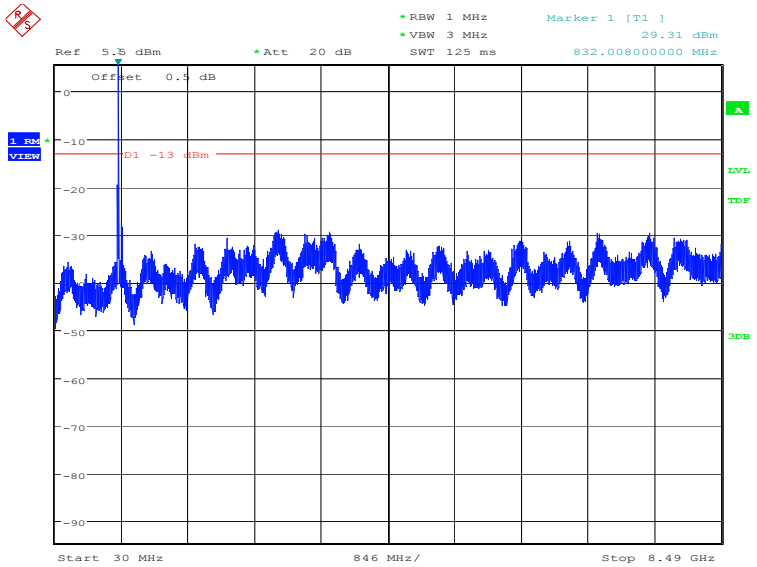
LTE band 26(824MHz~849MHz): 30MHz – 8.49GHz

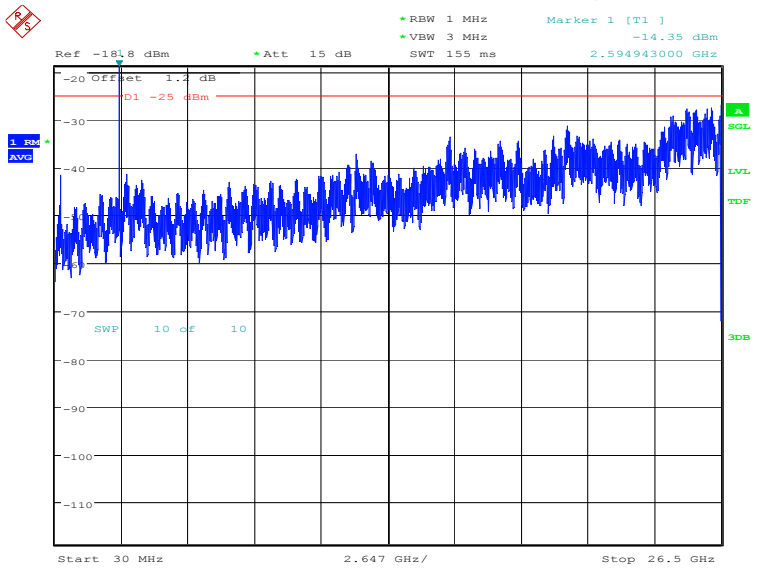
NOTE: peak above the limit line is the carrier frequency.



Date: 7.SEP.2020 15:24:09

LTE band 41 HPUE: 30MHz – 26.5GHz

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



Date: 7.SEP.2020 16:06:22

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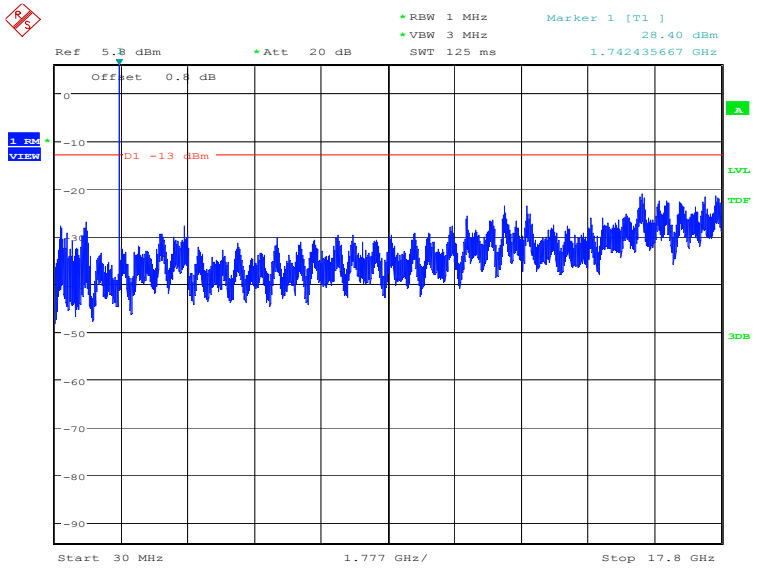
LTE band 66: 30MHz – 17.8GHz

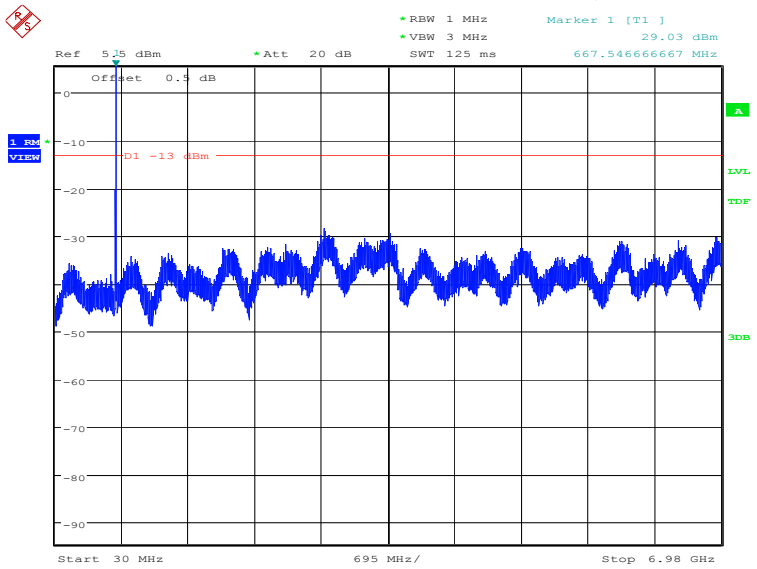
NOTE: peak above the limit line is the carrier frequency.



Date: 7.SEP.2020 16:05:19

LTE band 71: 30MHz – 6.98GHz

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



Date: 7.SEP.2020 15:20:14

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A.8 Peak-to-Average Power Ratio

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB
a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
b) Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
c) Set the number of counts to a value that stabilizes the measured CCDF curve;
d) Record the maximum PAPR level associated with a probability of 0.1%.

LTE band 7, 20MHz

Frequency (MHz)	PAPR (dB)		
2535.0	QPSK	16QAM	64QAM
	6.96	7.47	7.66

LTE band 12, 10MHz

Frequency (MHz)	PAPR (dB)		
707.5	QPSK	16QAM	64QAM
	5.06	6.06	6.73

LTE band 13, 10MHz

Frequency (MHz)	PAPR (dB)		
782.0	QPSK	16QAM	64QAM
	5.03	5.90	6.60

LTE band 25, 20MHz

Frequency (MHz)	PAPR (dB)		
1882.5	QPSK	16QAM	64QAM
	6.63	7.37	7.56

LTE band 41 HPUE, 20MHz

Frequency (MHz)	PAPR (dB)		
2593.0	QPSK	16QAM	64QAM
	8.24	8.88	8.91

LTE band 66, 20MHz

Frequency (MHz)	PAPR (dB)		
1745.0	QPSK	16QAM	64QAM
	6.54	7.21	8.04

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LTE band 71, 20MHz

Frequency (MHz)	PAPR (dB)		
680.5	QPSK	16QAM	64QAM
	6.15	6.89	7.31

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Annex B: Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ilac-MRA

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2020-09-29 through 2021-09-30
Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

*****END OF REPORT*****

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