

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 22
47 CFR FCC Part 24
47 CFR FCC Part 27
47 CFR FCC Part 90
47 CFR FCC Part 2

Report No.: RFBCKS-WTW-P26020124-1

FCC ID: 2AV57GDSBB1

Product: Telematics Device

Brand: Geotab

Model No.: GDSBB1

Received Date: 2026/2/5

Test Date: 2026/3/19 ~ 2026/3/27

Issued Date: 2026/5/15

Applicant: Geotab Inc.

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FCC Registration / 788550 / TW0003

Designation Number:

Approved by:

Jeremy Lin

, Date:

2026/5/15

Jeremy Lin / Project Engineer

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Prepared by : Gina Liu / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P26020124-1	Original release.	2026/5/15

1 Certificate

Product: Telematics Device

Brand: Geotab

Test Model: GDSBB1

Sample Status: Engineering sample

Applicant: Geotab Inc.

Test Date: 2026/3/19 ~ 2026/3/27

Standard: 47 CFR FCC Part 22
47 CFR FCC Part 24
47 CFR FCC Part 27
47 CFR FCC Part 90
47 CFR FCC Part 2

Measurement procedure: ANSI/TIA/EIA-603-E 2016
ANSI C63.26-2015
KDB 971168 D01 Power Meas License Digital Systems v03r01
KDB 971168 D02 Misc Rev Approv License Devices v02r02

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

Standard / Clause	Test Item	Result	Remark
Part 2.1046 Part 22.913 (a) Part 24.232 (c) Part 27.50(d) Part 27.50(c) Part 27.50(b) Part 90.542(a)(7)	Effective Radiated Power and Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
Part 2.1047	Modulation Characteristics	Pass	Meet the requirement of limit.
Part 22.913 (d) Part 24.232 (d) Part 27.50(d)	Peak to Average Ratio	Pass	Meet the requirement of limit.
Part 2.1049	Bandwidth	Pass	Meet the requirement of limit.
Part 2.1051 Part 22.917 Part 24.238 Part 27.53(h) Part 27.53(g) Part 27.53(c)(f) Part 90.543(e)(f)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
Part 2.1053 Part 22.917 Part 24.238 Part 27.53(h) Part 27.53(g) Part 27.53(c)(f) Part 90.543(e)(f)	Radiated Spurious Emissions below 1GHz	Pass	Minimum passing margin is -3.98 dB at 33.88 MHz
Part 2.1053 Part 22.917 Part 24.238 Part 27.53(h) Part 27.53(g) Part 27.53(c)(f) Part 90.543(e)(f)	Radiated Spurious Emissions above 1GHz	Pass	Minimum passing margin is -8.92 dB at 1586.00 MHz
Part 2.1055 Part 22.355 Part 24.235 Part 27.54 Part 90.539(e)	Frequency Stability	Pass	Meet the requirement of limit.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Parameter	Specification	Uncertainty (±)
Effective Radiated Power and Equivalent Isotropically Radiated Power	-	1.371 dB
Peak to Average Ratio	-	0.920 dB
Bandwidth	-	960 Hz
Conducted Spurious Emissions	-	2.12 dB
Radiated Spurious Emissions below 1GHz	9 kHz ~ 30 MHz	3.59 dB
	30 MHz ~ 1 GHz	3.6 dB
Radiated Spurious Emissions above 1GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 dB
Frequency Stability	-	0.176 ppm

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Telematics Device
Brand	Geotab
Test Model	GDSBB1
Status of EUT	Engineering sample
Power Supply Rating	12 Vdc
Modulation Type	QPSK, 16QAM
LTE Cat.1 support SISO bands	B2, B4, B5, B12, B13, B14, B66, B71

Note:

1. This wireless communication category is LTE Cat.1 bis, which only supports QPSK and 16QAM modulation, and the maximum supported 16QAM size is only 27RB.

2. EUT Overview

LTE Cat.1 Band 2

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. EIRP (W)	Max. EIRP (dBm)	Emission Designator
1.4 MHz	1850.7 ~ 1909.3	QPSK	0.5	26.99	1M09G7D
		16QAM	0.452	26.55	1M09D7W
3 MHz	1851.5 ~ 1908.5	QPSK	0.498	26.97	2M70G7D
		16QAM	0.429	26.32	2M70D7W
5 MHz	1852.5 ~ 1907.5	QPSK	0.521	27.17	4M49G7D
		16QAM	0.449	26.52	4M49D7W
10 MHz	1855 ~ 1905	QPSK	0.531	27.25	8M97G7D
		16QAM	0.46	26.63	4M57D7W
15 MHz	1857.5 ~ 1902.5	QPSK	0.525	27.2	13M5G7D
		16QAM	0.46	26.63	4M68D7W
20 MHz	1860 ~ 1900	QPSK	0.547	27.38	17M9G7D
		16QAM	0.524	27.19	4M81D7W

LTE Cat.1 Band 4

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. EIRP (W)	Max. EIRP (dBm)	Emission Designator
1.4 MHz	1710.7 ~ 1754.3	QPSK	0.514	27.11	1M09G7D
		16QAM	0.416	26.19	1M09D7W
3 MHz	1711.5 ~ 1753.5	QPSK	0.54	27.32	2M70G7D
		16QAM	0.463	26.66	2M70D7W
5 MHz	1712.5 ~ 1752.5	QPSK	0.533	27.27	4M49G7D
		16QAM	0.5	26.99	4M49D7W
10 MHz	1715 ~ 1750	QPSK	0.542	27.34	8M97G7D
		16QAM	0.482	26.83	4M57D7W
15 MHz	1717.5 ~ 1747.5	QPSK	0.56	27.48	13M5G7D
		16QAM	0.483	26.84	4M68D7W
20 MHz	1720 ~ 1745	QPSK	0.574	27.59	17M9G7D
		16QAM	0.486	26.87	4M81D7W

LTE Cat.1 Band 5

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. ERP (W)	Max. ERP (dBm)	Emission Designator
1.4 MHz	824.7 ~ 848.3	QPSK	0.284	24.53	1M09G7D
		16QAM	0.243	23.86	1M09D7W
3 MHz	825.5 ~ 847.5	QPSK	0.283	24.52	2M70G7D
		16QAM	0.249	23.97	2M69D7W
5 MHz	826.5 ~ 846.5	QPSK	0.27	24.32	4M49G7D
		16QAM	0.262	24.19	4M49D7W
10 MHz	829 ~ 844	QPSK	0.284	24.54	8M97G7D
		16QAM	0.247	23.92	4M57D7W

LTE Cat.1 Band 12

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. ERP (W)	Max. ERP (dBm)	Emission Designator
1.4 MHz	699.7 ~ 715.3	QPSK	0.262	24.18	1M09G7D
		16QAM	0.221	23.45	1M09D7W
3 MHz	700.5 ~ 714.5	QPSK	0.262	24.19	2M70G7D
		16QAM	0.239	23.78	2M70D7W
5 MHz	701.5 ~ 713.5	QPSK	0.265	24.23	4M49G7D
		16QAM	0.258	24.11	4M49D7W
10 MHz	704 ~ 711	QPSK	0.266	24.25	8M97G7D
		16QAM	0.222	23.47	4M58D7W

LTE Cat.1 Band 13

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. ERP (W)	Max. ERP (dBm)	Emission Designator
5 MHz	779.5 ~ 784.5	QPSK	0.262	24.18	4M49G7D
		16QAM	0.245	23.9	4M49D7W
10 MHz	782	QPSK	0.264	24.22	8M94G7D
		16QAM	0.207	23.15	4M92D7W

LTE Cat.1 Band 14

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. ERP (W)	Max. ERP (dBm)	Emission Designator
5 MHz	790.5 ~ 795.5	QPSK	0.257	24.1	4M50G7D
		16QAM	0.237	23.74	4M49D7W
10 MHz	793	QPSK	0.261	24.16	8M97G7D
		16QAM	0.236	23.72	4M93D7W

LTE Cat.1 Band 66

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. EIRP (W)	Max. EIRP (dBm)	Emission Designator
1.4 MHz	1710.7 ~ 1779.3	QPSK	0.535	27.28	1M09G7D
		16QAM	0.499	26.98	1M09D7W
3 MHz	1711.5 ~ 1778.5	QPSK	0.53	27.24	2M70G7D
		16QAM	0.438	26.41	2M70D7W
5 MHz	1712.5 ~ 1777.5	QPSK	0.518	27.14	4M50G7D
		16QAM	0.437	26.4	4M49D7W
10 MHz	1715 ~ 1775	QPSK	0.506	27.04	8M97G7D
		16QAM	0.459	26.62	4M92D7W
15 MHz	1717.5 ~ 1772.5	QPSK	0.525	27.2	13M5G7D
		16QAM	0.461	26.64	5M03D7W
20 MHz	1720 ~ 1770	QPSK	0.537	27.3	18M0G7D
		16QAM	0.475	26.77	5M16D7W

LTE Cat.1 Band 71

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. ERP (W)	Max. ERP (dBm)	Emission Designator
5 MHz	665.5 ~ 695.5	QPSK	0.255	24.07	4M50G7D
		16QAM	0.216	23.34	4M49D7W
10 MHz	668 ~ 693	QPSK	0.246	23.91	8M98G7D
		16QAM	0.223	23.49	4M93D7W
15 MHz	670.5 ~ 690.5	QPSK	0.256	24.08	13M5G7D
		16QAM	0.226	23.54	5M04D7W
20 MHz	673 ~ 688	QPSK	0.259	24.14	18M0G7D
		16QAM	0.231	23.63	5M16D7W

- For detailed information about each WWAN bands frequency range, bandwidth mode of the product, please refer to section 3.3 of the report.
- The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Antenna Description of EUT

Brand	Model	Antenna Net Gain(dBi)	Frequency range (MHz)	Antenna Type	Connector Type
WNC	UOC-GO9C	2.64	617~960	Monopole	none(like solder)
		3.56	1700~2200		
		3.85	2500~2700		

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	- EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition. - This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation. Therefore, only ERP, modulation characteristics, occupied bandwidth and peak to average ratio items had been tested under QPSK, 16QAM mode, the other items were performed under QPSK mode only.
Worst Case:	1. X-axis/ Y-axis/ Z-axis Worst Condition: Y-axis

Following channel(s) was (were) selected for the final test as listed below:

3.3.1 LTE Cat.1 Band 2

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Equivalent Isotropically Radiated Power	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	18615(1851.50 MHz) 18900(1880.00 MHz) 19185(1908.50 MHz)	3 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	18650(1855.00 MHz) 18900(1880.00 MHz) 19150(1905.00 MHz)	10 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	18675(1857.50 MHz) 18900(1880.00 MHz) 19125(1902.50 MHz)	15 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	18700(1860.00 MHz) 18900(1880.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK / 16QAM	1 RB Half RB Full RB
Modulation Characteristics	18900(1880.00 MHz)	20 MHz	QPSK / 16QAM	Full RB
Peak to Average Ratio	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB
	18615(1851.50 MHz) 18900(1880.00 MHz) 19185(1908.50 MHz)	3 MHz	QPSK / 16QAM	1 RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK / 16QAM	1 RB
	18650(1855.00 MHz) 18900(1880.00 MHz) 19150(1905.00 MHz)	10 MHz	QPSK / 16QAM	1 RB
	18675(1857.50 MHz) 18900(1880.00 MHz) 19125(1902.50 MHz)	15 MHz	QPSK / 16QAM	1 RB
	18700(1860.00 MHz) 18900(1880.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK / 16QAM	1 RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Occupied Bandwidth	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK / 16QAM	Full RB
	18615(1851.50 MHz) 18900(1880.00 MHz) 19185(1908.50 MHz)	3 MHz	QPSK / 16QAM	Full RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK / 16QAM	Full RB
	18650(1855.00 MHz) 18900(1880.00 MHz) 19150(1905.00 MHz)	10 MHz	QPSK / 16QAM	Full RB
	18675(1857.50 MHz) 18900(1880.00 MHz) 19125(1902.50 MHz)	15 MHz	QPSK / 16QAM	Full RB
	18700(1860.00 MHz) 18900(1880.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK / 16QAM	Full RB
Conducted Emission	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK	1 RB Full RB
	18615(1851.50 MHz) 18900(1880.00 MHz) 19185(1908.50 MHz)	3 MHz	QPSK	1 RB Full RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK	1 RB Full RB
	18650(1855.00 MHz) 18900(1880.00 MHz) 19150(1905.00 MHz)	10 MHz	QPSK	1 RB Full RB
	18675(1857.50 MHz) 18900(1880.00 MHz) 19125(1902.50 MHz)	15 MHz	QPSK	1 RB Full RB
	18700(1860.00 MHz) 18900(1880.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	18900(1880.00 MHz)	20 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK	1 RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK	1 RB
	18700(1860.00 MHz) 18900(1880.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK	1 RB
Frequency Stability	18700(1860.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK	Full RB

3.3.2 LTE Cat.1 Band 4

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Equivalent Isotropically Radiated Power	19957(1710.70 MHz) 20175(1732.50 MHz) 20393(1754.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	19965(1711.50 MHz) 20175(1732.50 MHz) 20385(1753.50 MHz)	3 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	19975(1712.50 MHz) 20175(1732.50 MHz) 20375(1752.50 MHz)	5 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	20000(1715.00 MHz) 20175(1732.50 MHz) 20350(1750.00 MHz)	10 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	20025(1717.50 MHz) 20175(1732.50 MHz) 20325(1747.50 MHz)	15 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	20050(1720.00 MHz) 20175(1732.50 MHz) 20300(1745.00 MHz)	20 MHz	QPSK / 16QAM	1 RB Half RB Full RB
Modulation Characteristics	20175(1732.50 MHz)	20 MHz	QPSK / 16QAM	Full RB
Peak to Average Ratio	19957(1710.70 MHz) 20175(1732.50 MHz) 20393(1754.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB
	19965(1711.50 MHz) 20175(1732.50 MHz) 20385(1753.50 MHz)	3 MHz	QPSK / 16QAM	1 RB
	19975(1712.50 MHz) 20175(1732.50 MHz) 20375(1752.50 MHz)	5 MHz	QPSK / 16QAM	1 RB
	20000(1715.00 MHz) 20175(1732.50 MHz) 20350(1750.00 MHz)	10 MHz	QPSK / 16QAM	1 RB
	20025(1717.50 MHz) 20175(1732.50 MHz) 20325(1747.50 MHz)	15 MHz	QPSK / 16QAM	1 RB
	20050(1720.00 MHz) 20175(1732.50 MHz) 20300(1745.00 MHz)	20 MHz	QPSK / 16QAM	1 RB
Occupied Bandwidth	19957(1710.70 MHz) 20175(1732.50 MHz) 20393(1754.30 MHz)	1.4 MHz	QPSK / 16QAM	Full RB
	19965(1711.50 MHz) 20175(1732.50 MHz) 20385(1753.50 MHz)	3 MHz	QPSK / 16QAM	Full RB
	19975(1712.50 MHz) 20175(1732.50 MHz) 20375(1752.50 MHz)	5 MHz	QPSK / 16QAM	Full RB
	20000(1715.00 MHz) 20175(1732.50 MHz) 20350(1750.00 MHz)	10 MHz	QPSK / 16QAM	Full RB
	20025(1717.50 MHz) 20175(1732.50 MHz) 20325(1747.50 MHz)	15 MHz	QPSK / 16QAM	Full RB
	20050(1720.00 MHz) 20175(1732.50 MHz) 20300(1745.00 MHz)	20 MHz	QPSK / 16QAM	Full RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Conducted Emission	19957(1710.70 MHz) 20175(1732.50 MHz) 20393(1754.30 MHz)	1.4 MHz	QPSK	1 RB Full RB
	19965(1711.50 MHz) 20175(1732.50 MHz) 20385(1753.50 MHz)	3 MHz	QPSK	1 RB Full RB
	19975(1712.50 MHz) 20175(1732.50 MHz) 20375(1752.50 MHz)	5 MHz	QPSK	1 RB Full RB
	20000(1715.00 MHz) 20175(1732.50 MHz) 20350(1750.00 MHz)	10 MHz	QPSK	1 RB Full RB
	20025(1717.50 MHz) 20175(1732.50 MHz) 20325(1747.50 MHz)	15 MHz	QPSK	1 RB Full RB
	20050(1720.00 MHz) 20175(1732.50 MHz) 20300(1745.00 MHz)	20 MHz	QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	20300(1745.00 MHz)	20 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	19957(1710.70 MHz) 20175(1732.50 MHz) 20393(1754.30 MHz)	1.4 MHz	QPSK	1 RB
	19975(1712.50 MHz) 20175(1732.50 MHz) 20375(1752.50 MHz)	5 MHz	QPSK	1 RB
	20050(1720.00 MHz) 20175(1732.50 MHz) 20300(1745.00 MHz)	20 MHz	QPSK	1 RB
Frequency Stability	20050(1720.00 MHz) 20300(1745.00 MHz)	20 MHz	QPSK	Full RB

3.3.3 LTE Cat.1 Band 5

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Effective Radiated Power	20407(824.70 MHz) 20525(836.50 MHz) 20643(848.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	20415(825.50 MHz) 20525(836.50 MHz) 20635(847.50 MHz)	3 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	20425(826.50 MHz) 20525(836.50 MHz) 20625(846.50 MHz)	5 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	20450(829.00 MHz) 20525(836.50 MHz) 20600(844.00 MHz)	10 MHz	QPSK / 16QAM	1 RB Half RB Full RB
Modulation Characteristics	20525(836.50 MHz)	10 MHz	QPSK / 16QAM	Full RB
Peak to Average Ratio	20407(824.70 MHz) 20525(836.50 MHz) 20643(848.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB
	20415(825.50 MHz) 20525(836.50 MHz) 20635(847.50 MHz)	3 MHz	QPSK / 16QAM	1 RB
	20425(826.50 MHz) 20525(836.50 MHz) 20625(846.50 MHz)	5 MHz	QPSK / 16QAM	1 RB
	20450(829.00 MHz) 20525(836.50 MHz) 20600(844.00 MHz)	10 MHz	QPSK / 16QAM	1 RB
Occupied Bandwidth	20407(824.70 MHz) 20525(836.50 MHz) 20643(848.30 MHz)	1.4 MHz	QPSK / 16QAM	Full RB
	20415(825.50 MHz) 20525(836.50 MHz) 20635(847.50 MHz)	3 MHz	QPSK / 16QAM	Full RB
	20425(826.50 MHz) 20525(836.50 MHz) 20625(846.50 MHz)	5 MHz	QPSK / 16QAM	Full RB
	20450(829.00 MHz) 20525(836.50 MHz) 20600(844.00 MHz)	10 MHz	QPSK / 16QAM	Full RB
Conducted Emission	20407(824.70 MHz) 20525(836.50 MHz) 20643(848.30 MHz)	1.4 MHz	QPSK	1 RB Full RB
	20415(825.50 MHz) 20525(836.50 MHz) 20635(847.50 MHz)	3 MHz	QPSK	1 RB Full RB
	20425(826.50 MHz) 20525(836.50 MHz) 20625(846.50 MHz)	5 MHz	QPSK	1 RB Full RB
	20450(829.00 MHz) 20525(836.50 MHz) 20600(844.00 MHz)	10 MHz	QPSK	1 RB Full RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Radiated Spurious Emissions below 1GHz	20625(846.50 MHz)	5 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	20407(824.70 MHz) 20525(836.50 MHz) 20643(848.30 MHz)	1.4 MHz	QPSK	1 RB
	20425(826.50 MHz) 20525(836.50 MHz) 20625(846.50 MHz)	5 MHz	QPSK	1 RB
	20450(829.00 MHz) 20525(836.50 MHz) 20600(844.00 MHz)	10 MHz	QPSK	1 RB
Frequency Stability	20450(829.00 MHz) 20600(844.00 MHz)	10 MHz	QPSK	Full RB

3.3.4 LTE Cat.1 Band 12

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Effective Radiated Power	23017(699.70 MHz) 23095(707.50 MHz) 23173(715.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	23025(700.50 MHz) 23095(707.50 MHz) 23165(714.50 MHz)	3 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	23035(701.50 MHz) 23095(707.50 MHz) 23155(713.50 MHz)	5 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	23060(704.00 MHz) 23095(707.50 MHz) 23130(711.00 MHz)	10 MHz	QPSK / 16QAM	1 RB Half RB Full RB
Modulation Characteristics	23095(707.50 MHz)	10 MHz	QPSK / 16QAM	Full RB
Peak to Average Ratio	23017(699.70 MHz) 23095(707.50 MHz) 23173(715.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB
	23025(700.50 MHz) 23095(707.50 MHz) 23165(714.50 MHz)	3 MHz	QPSK / 16QAM	1 RB
	23035(701.50 MHz) 23095(707.50 MHz) 23155(713.50 MHz)	5 MHz	QPSK / 16QAM	1 RB
	23060(704.00 MHz) 23095(707.50 MHz) 23130(711.00 MHz)	10 MHz	QPSK / 16QAM	1 RB
Occupied Bandwidth	23017(699.70 MHz) 23095(707.50 MHz) 23173(715.30 MHz)	1.4 MHz	QPSK / 16QAM	Full RB
	23025(700.50 MHz) 23095(707.50 MHz) 23165(714.50 MHz)	3 MHz	QPSK / 16QAM	Full RB
	23035(701.50 MHz) 23095(707.50 MHz) 23155(713.50 MHz)	5 MHz	QPSK / 16QAM	Full RB
	23060(704.00 MHz) 23095(707.50 MHz) 23130(711.00 MHz)	10 MHz	QPSK / 16QAM	Full RB
Conducted Emission	23017(699.70 MHz) 23095(707.50 MHz) 23173(715.30 MHz)	1.4 MHz	QPSK	1 RB Full RB
	23025(700.50 MHz) 23095(707.50 MHz) 23165(714.50 MHz)	3 MHz	QPSK	1 RB Full RB
	23035(701.50 MHz) 23095(707.50 MHz) 23155(713.50 MHz)	5 MHz	QPSK	1 RB Full RB
	23060(704.00 MHz) 23095(707.50 MHz) 23130(711.00 MHz)	10 MHz	QPSK	1 RB Full RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Radiated Spurious Emissions below 1GHz	23155(713.50 MHz)	5 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	23017(699.70 MHz) 23095(707.50 MHz) 23173(715.30 MHz)	1.4 MHz	QPSK	1 RB
	23035(701.50 MHz) 23095(707.50 MHz) 23155(713.50 MHz)	5 MHz	QPSK	1 RB
	23060(704.00 MHz) 23095(707.50 MHz) 23130(711.00 MHz)	10 MHz	QPSK	1 RB
Frequency Stability	23060(704.00 MHz) 23130(711.00 MHz)	10 MHz	QPSK	Full RB

3.3.5 LTE Cat.1 Band 13

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Effective Radiated Power	23205(779.50 MHz) 23230(782.00 MHz) 23255(784.50 MHz)	5 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	23230(782.00 MHz)	10 MHz	QPSK / 16QAM	1 RB Half RB Full RB
Modulation Characteristics	23230(782.00 MHz)	10 MHz	QPSK / 16QAM	Full RB
Peak to Average Ratio	23205(779.50 MHz) 23230(782.00 MHz) 23255(784.50 MHz)	5 MHz	QPSK / 16QAM	1 RB
	23230(782.00 MHz)	10 MHz	QPSK / 16QAM	1 RB
Occupied Bandwidth	23205(779.50 MHz) 23230(782.00 MHz) 23255(784.50 MHz)	5 MHz	QPSK / 16QAM	Full RB
	23230(782.00 MHz)	10 MHz	QPSK / 16QAM	Full RB
Conducted Emission	23205(779.50 MHz) 23230(782.00 MHz) 23255(784.50 MHz)	5 MHz	QPSK	1 RB Full RB
	23230(782.00 MHz)	10 MHz	QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	23230(782.00 MHz)	10 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	23205(779.50 MHz) 23230(782.00 MHz) 23255(784.50 MHz)	5 MHz	QPSK	1 RB
	23230(782.00 MHz)	10 MHz	QPSK	1 RB
Frequency Stability	23230(782.00 MHz)	10 MHz	QPSK	Full RB

3.3.6 LTE Cat.1 Band 14

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Effective Radiated Power	23305(790.50 MHz) 23330(793.00 MHz) 23355(795.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	23330(793.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
Modulation Characteristics	23330(793.00 MHz)	10 MHz	QPSK / 16QAM	Full RB
Occupied Bandwidth	23305(790.50 MHz) 23330(793.00 MHz) 23355(795.50 MHz)	5 MHz	QPSK / 16QAM	Full RB
	23330(793.00 MHz)	10 MHz	QPSK / 16QAM	Full RB
Conducted Emission	23305(790.50 MHz) 23330(793.00 MHz) 23355(795.50 MHz)	5 MHz	QPSK	1 RB Full RB
	23330(793.00 MHz)	10 MHz	QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	23330(793.00 MHz)	5 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	23305(790.50 MHz) 23330(793.00 MHz) 23355(795.50 MHz)	5 MHz	QPSK	1 RB
	23330(793.00 MHz)	10 MHz	QPSK	1 RB
Frequency Stability	23330(793.00 MHz)	10 MHz	QPSK	Full RB

3.3.7 LTE Cat.1 Band 66

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Equivalent Isotropically Radiated Power	131979(1710.70 MHz) 132322(1745.00 MHz) 132665(1779.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	131987(1711.50 MHz) 132322(1745.00 MHz) 132657(1778.50 MHz)	3 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	131997(1712.50 MHz) 132322(1745.00 MHz) 132647(1777.50 MHz)	5 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	132022(1715.00 MHz) 132322(1745.00 MHz) 132622(1775.00 MHz)	10 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	132047(1717.50 MHz) 132322(1745.00 MHz) 132597(1772.50 MHz)	15 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	132072(1720.00 MHz) 132322(1745.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK / 16QAM	1 RB Half RB Full RB
Modulation Characteristics	132322(1745.00 MHz)	20 MHz	QPSK / 16QAM	Full RB
Peak to Average Ratio	131979(1710.70 MHz) 132322(1745.00 MHz) 132665(1779.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB
	131987(1711.50 MHz) 132322(1745.00 MHz) 132657(1778.50 MHz)	3 MHz	QPSK / 16QAM	1 RB
	131997(1712.50 MHz) 132322(1745.00 MHz) 132647(1777.50 MHz)	5 MHz	QPSK / 16QAM	1 RB
	132022(1715.00 MHz) 132322(1745.00 MHz) 132622(1775.00 MHz)	10 MHz	QPSK / 16QAM	1 RB
	132047(1717.50 MHz) 132322(1745.00 MHz) 132597(1772.50 MHz)	15 MHz	QPSK / 16QAM	1 RB
	132072(1720.00 MHz) 132322(1745.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK / 16QAM	1 RB
Occupied Bandwidth	131979(1710.70 MHz) 132322(1745.00 MHz) 132665(1779.30 MHz)	1.4 MHz	QPSK / 16QAM	Full RB
	131987(1711.50 MHz) 132322(1745.00 MHz) 132657(1778.50 MHz)	3 MHz	QPSK / 16QAM	Full RB
	131997(1712.50 MHz) 132322(1745.00 MHz) 132647(1777.50 MHz)	5 MHz	QPSK / 16QAM	Full RB
	132022(1715.00 MHz) 132322(1745.00 MHz) 132622(1775.00 MHz)	10 MHz	QPSK / 16QAM	Full RB
	132047(1717.50 MHz) 132322(1745.00 MHz) 132597(1772.50 MHz)	15 MHz	QPSK / 16QAM	Full RB
	132072(1720.00 MHz) 132322(1745.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK / 16QAM	Full RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Conducted Emission	131979(1710.70 MHz) 132322(1745.00 MHz) 132665(1779.30 MHz)	1.4 MHz	QPSK	1 RB Full RB
	131987(1711.50 MHz) 132322(1745.00 MHz) 132657(1778.50 MHz)	3 MHz	QPSK	1 RB Full RB
	131997(1712.50 MHz) 132322(1745.00 MHz) 132647(1777.50 MHz)	5 MHz	QPSK	1 RB Full RB
	132022(1715.00 MHz) 132322(1745.00 MHz) 132622(1775.00 MHz)	10 MHz	QPSK	1 RB Full RB
	132047(1717.50 MHz) 132322(1745.00 MHz) 132597(1772.50 MHz)	15 MHz	QPSK	1 RB Full RB
	132072(1720.00 MHz) 132322(1745.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	132647(1777.50 MHz)	5 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	131979(1710.70 MHz) 132322(1745.00 MHz) 132665(1779.30 MHz)	1.4 MHz	QPSK	1 RB
	131997(1712.50 MHz) 132322(1745.00 MHz) 132647(1777.50 MHz)	5 MHz	QPSK	1 RB
	132072(1720.00 MHz) 132322(1745.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK	1 RB
Frequency Stability	132072(1720.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK	Full RB

3.3.8 LTE Cat.1 Band 71

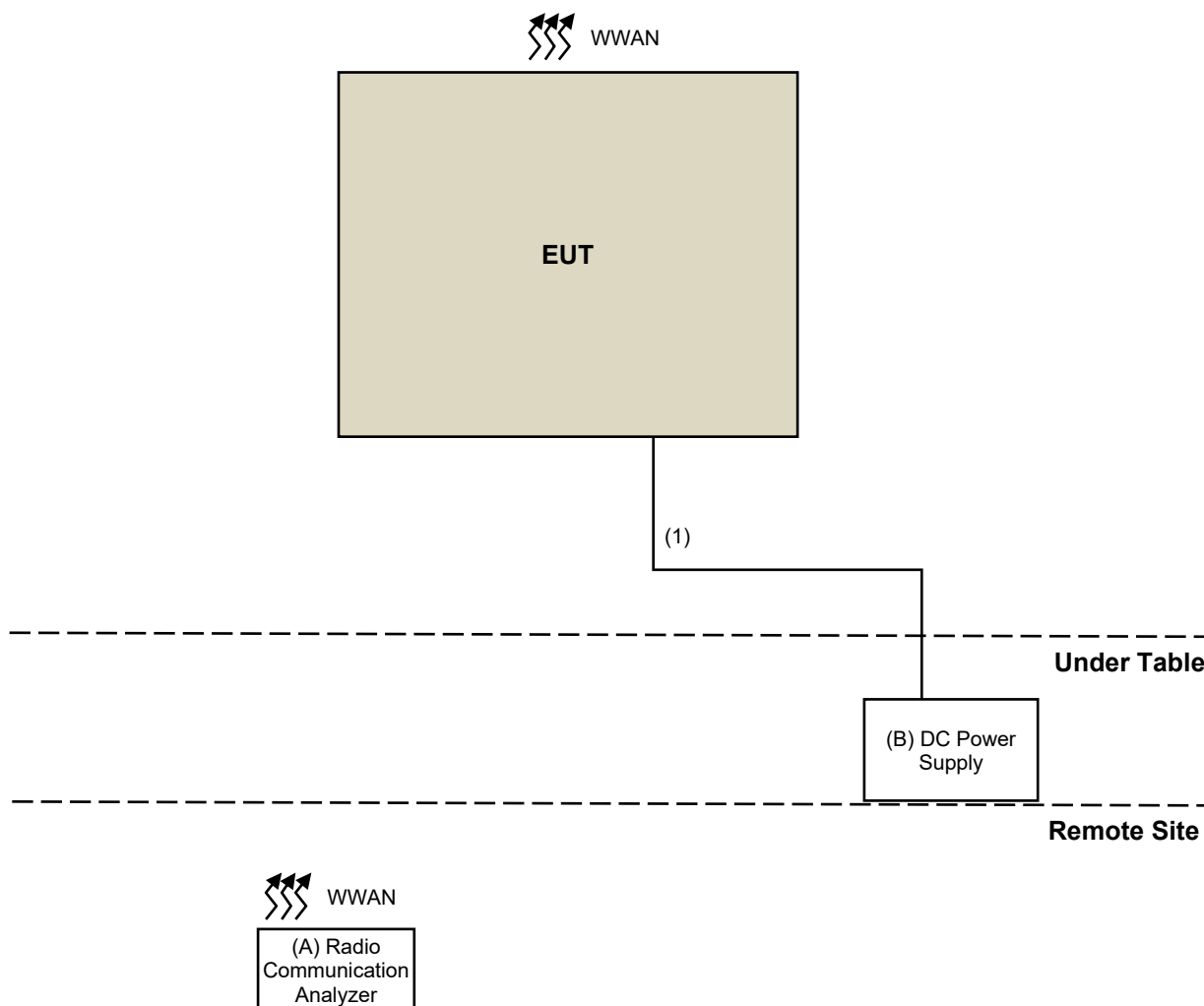
Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Effective Radiated Power	133147(665.50 MHz) 133297(680.50 MHz) 133447(695.50 MHz)	5 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	133172(668.00 MHz) 133297(680.50 MHz) 133422(693.00 MHz)	10 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	133197(670.50 MHz) 133297(680.50 MHz) 133397(690.50 MHz)	15 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	133222(673.00 MHz) 133297(680.50 MHz) 133372(688.00 MHz)	20 MHz	QPSK / 16QAM	1 RB Half RB Full RB
Modulation Characteristics	133297(680.50 MHz)	20 MHz	QPSK / 16QAM	Full RB
Peak to Average Ratio	133147(665.50 MHz) 133297(680.50 MHz) 133447(695.50 MHz)	5 MHz	QPSK / 16QAM	1 RB
	133172(668.00 MHz) 133297(680.50 MHz) 133422(693.00 MHz)	10 MHz	QPSK / 16QAM	1 RB
	133197(670.50 MHz) 133297(680.50 MHz) 133397(690.50 MHz)	15 MHz	QPSK / 16QAM	1 RB
	133222(673.00 MHz) 133297(680.50 MHz) 133372(688.00 MHz)	20 MHz	QPSK / 16QAM	1 RB
Occupied Bandwidth	133147(665.50 MHz) 133297(680.50 MHz) 133447(695.50 MHz)	5 MHz	QPSK / 16QAM	Full RB
	133172(668.00 MHz) 133297(680.50 MHz) 133422(693.00 MHz)	10 MHz	QPSK / 16QAM	Full RB
	133197(670.50 MHz) 133297(680.50 MHz) 133397(690.50 MHz)	15 MHz	QPSK / 16QAM	Full RB
	133222(673.00 MHz) 133297(680.50 MHz) 133372(688.00 MHz)	20 MHz	QPSK / 16QAM	Full RB
Conducted Emission	133147(665.50 MHz) 133297(680.50 MHz) 133447(695.50 MHz)	5 MHz	QPSK	1 RB Full RB
	133172(668.00 MHz) 133297(680.50 MHz) 133422(693.00 MHz)	10 MHz	QPSK	1 RB Full RB
	133197(670.50 MHz) 133297(680.50 MHz) 133397(690.50 MHz)	15 MHz	QPSK	1 RB Full RB
	133222(673.00 MHz) 133297(680.50 MHz) 133372(688.00 MHz)	20 MHz	QPSK	1 RB Full RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Radiated Spurious Emissions below 1GHz	133372(688.00 MHz)	20 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	133147(665.50 MHz) 133297(680.50 MHz) 133447(695.50 MHz)	5 MHz	QPSK	1 RB
	133222(673.00 MHz) 133297(680.50 MHz) 133372(688.00 MHz)	20 MHz	QPSK	1 RB
	133222(673.00 MHz) 133372(688.00 MHz)	20 MHz	QPSK	Full RB

3.4 Test Program Used and Operation Descriptions

There is no need to controlling software during the test, and the EUT can be paired with the Radio Communication Analyzer to test the connection when it is powered on.

3.5 Connection Diagram of EUT and Peripheral Devices



3.6 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Radio Communication Analyzer	Anritsu	MT8821C	6201462755	NA	Provided by Lab
B	DC Power Supply	OWON	ODP3122	ODP31222137036	NA	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DC Cable	1	2	N	0	Provided by Lab

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
PXA Signal Analyzer Keysight	N9030B	MY57140938	2025/3/24	2026/3/23
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2025/4/8	2026/4/7
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in HY - Oven room(Hwaya).
2. Tested Date: 2026/3/19 ~ 2026/3/23

4.2 Modulation Characteristics

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
PXA Signal Analyzer Keysight	N9030B	MY57140938	2023/3/16 2025/3/24	2024/3/15 2026/3/23
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2023/3/3 2025/4/8	2024/3/2 2026/4/7
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2026/3/19 ~ 2026/3/23

4.3 Peak to Average Ratio

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
PXA Signal Analyzer Keysight	N9030B	MY57140938	2025/3/24	2026/3/23
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2025/4/8	2026/4/7
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
UXM 5G Wireless Test Platform Keysight	E7515B	MY60102115	2025/5/26	2026/5/25

Notes:

1. The test was performed in HY - Oven room(Hwaya).
2. Tested Date: 2026/3/19 ~ 2026/3/23

4.4 Bandwidth

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
PXA Signal Analyzer Keysight	N9030B	MY57140938	2025/3/24	2026/3/23
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2025/4/8	2026/4/7
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in HY - Oven room(Hwaya).
2. Tested Date: 2026/3/20 ~ 2026/3/23

4.5 Conducted Spurious Emissions

Refer to section 4.1 to get the tested date and information of the instruments.

4.6 Radiated Spurious Emissions below 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-160	2025/9/16	2026/9/15
Loop Antenna TESEQ	HLA 6121	45745	2025/9/1	2026/8/31
Preamplifier Agilent	8447D	2944A10638	2025/4/27	2026/4/26
Preamplifier EMCI	EMC001340	980201	2025/9/21	2026/9/20
RF Coaxial Cable Woken	8D-FB	Cable-CH9-01	2025/4/27	2026/4/26
Signal & Spectrum Analyzer R&S	FSW43	101866	2025/3/25	2026/3/24
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4(Hwaya).
2. Tested Date: 2026/3/16

4.7 Radiated Spurious Emissions above 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	5	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-1169	2025/11/9	2026/11/8
	BBHA 9170	9170-480	2025/11/9	2026/11/8
		BBHA9170243	2025/11/9	2026/11/8
Preamplifier Agilent	8449B	3008A02367	2026/1/3	2027/1/2
Preamplifier EMCI	EMC 184045	980116	2025/9/21	2026/9/20
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2025/6/30	2026/6/29
	EMC102-KM-KM-3000	150929	2025/6/30	2026/6/29
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	2026/1/3	2027/1/2
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	2026/1/3	2027/1/2
Signal & Spectrum Analyzer R&S	FSW43	101866	2025/3/25	2026/3/24
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4(Hwaya).
2. Tested Date: 2026/3/13

4.8 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
3-channel DC power supply OWON	ODP3033	ODP30332128138	N/A	N/A
Digital Multimeter Fluke	8050A	4660081	2025/6/6	2026/6/5
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
Signal & Spectrum Analyzer R&S	FSV3044	101504	2025/6/18	2026/6/17
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
Temperature & Humidity Chamber Terchy	MHU-225AU	920842	2025/6/25	2026/6/24

Notes:

1. The test was performed in HY - Oven room(Hwaya).
2. Tested Date: 2026/3/27

5 Limits of Test Items

5.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

For LTE Cat.1 Band 5:

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

For LTE Cat.1 Band 2:

Mobile and portable stations are limited to 2 watts EIRP.

For LTE Cat.1 Band 14:

Control stations and mobile stations transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 30 watts ERP.

For LTE Cat.1 Band 12, LTE Cat.1 Band 71:

Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.

For LTE Cat.1 Band 13:

Control stations and mobile stations transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands and fixed stations transmitting in the 787-788 MHz and 805-806 MHz bands are limited to 30 watts ERP.

For LTE Cat.1 Band 4, LTE Cat.1 Band 66:

Fixed, mobile, and portable (hand-held) 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.

5.2 Modulation Characteristics

Systems operating in the Citizens Broadband Radio Service must use digital modulation techniques.

A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

5.3 Peak to Average Ratio

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

5.4 Bandwidth

According to FCC 47 CFR part 2.1049, the occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5% of the total mean power radiated by a given emission.

5.5 Conducted Spurious Emissions

For LTE Cat.1 Band 2, LTE Cat.1 Band 5:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

For LTE Cat.1 Band 14:

According to FCC 47 CFR part 90.543 (e), for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.
- (2) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log(P)$ dB.

According to FCC 47 CFR part 90.543 (f), for operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

For LTE Cat.1 Band 12, LTE Cat.1 Band 71:

According to FCC 47 CFR part 27.53(g), 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.

For LTE Cat.1 Band 13:

According to FCC 47 CFR part 27.53(c)(2), for 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. 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.

According to FCC 47 CFR part 27.53(c)(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.

For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (EIRP). The limit of emissions is equal to -40 dBm.

For LTE Cat.1 Band 4, LTE Cat.1 Band 66:

According to FCC 47 CFR part 27.53(h), 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 MHz 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 $43 + 10 \log(P)$ dB. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

5.6 Radiated Spurious Emissions below 1GHz

For LTE Cat.1 Band 2, LTE Cat.1 Band 5:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

For LTE Cat.1 Band 14:

According to FCC 47 CFR part 90.543 (e), for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB.

For LTE Cat.1 Band 12, LTE Cat.1 Band 71:

According to FCC 47 CFR part 27.53(g), 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. The limit of emissions is equal to -13 dBm.

For LTE Cat.1 Band 13:

According to FCC 47 CFR part 27.53(c)(2), for 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. The limit of emissions is equal to -13 dBm.

For LTE Cat.1 Band 4, LTE Cat.1 Band 66:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz 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 $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

5.7 Radiated Spurious Emissions above 1GHz

For LTE Cat.1 Band 2, LTE Cat.1 Band 5:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

For LTE Cat.1 Band 14:

According to FCC 47 CFR part 90.543 (e), for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB.

According to FCC 47 CFR part 90.543 (f), for operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

For LTE Cat.1 Band 12, LTE Cat.1 Band 71:

According to FCC 47 CFR part 27.53(g), 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. The limit of emissions is equal to -13 dBm.

For LTE Cat.1 Band 13:

According to FCC 47 CFR part 27.53(c)(2), for 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. The limit of emissions is equal to -13 dBm.

For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (EIRP). The limit of emissions is equal to -40 dBm.

For LTE Cat.1 Band 4, LTE Cat.1 Band 66:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz 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 $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

5.8 Frequency Stability

For LTE Cat.1 Band 5:

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

For LTE Cat.1 Band 2, LTE Cat.1 Band 4, LTE Cat.1 Band 12, LTE Cat.1 Band 13, LTE Cat.1 Band 66, LTE Cat.1 Band 71:

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation (authorized frequency block).

For LTE Cat.1 Band 14:

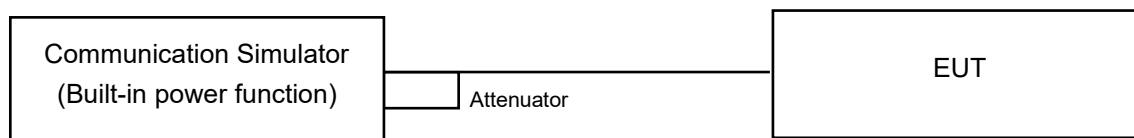
The frequency stability of mobile, portable and control transmitters operating in the wideband segment must be 1.25 parts per million or better when AFC is locked to a base station, and 5 parts per million or better when AFC is not locked.

6 Test Arrangements

6.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

6.1.1 Test Setup

Conducted Power Measurement:



6.1.2 Test Procedure

Conducted Power Measurement:

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology. The average (rms) power measurement was performed on emulator and power value was measured from power function on emulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP / ERP

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

$$\text{EIRP} = P_{\text{Meas}} + G_T$$

$$\text{ERP} = P_{\text{Meas}} + G_T - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively

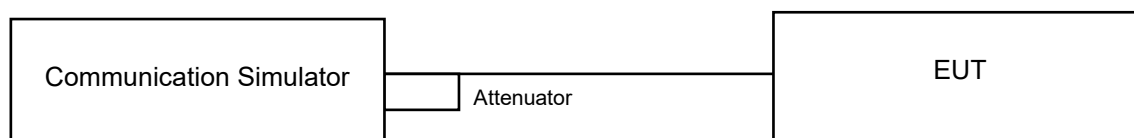
(expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

6.2 Modulation Characteristics

6.2.1 Test Setup

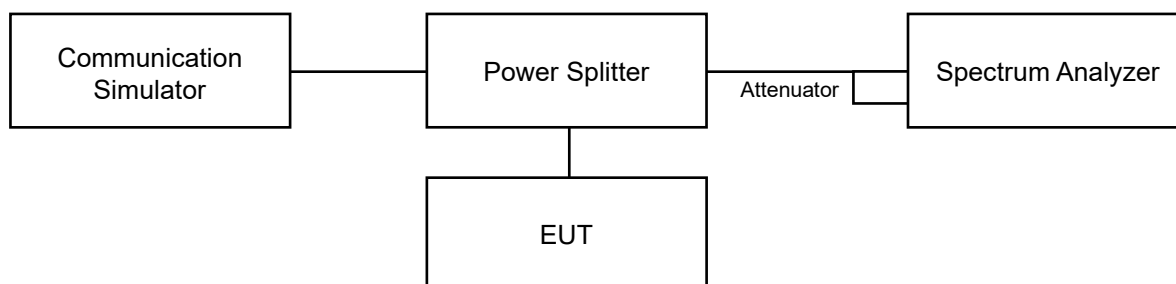


6.2.2 Test Procedure

Connect the EUT to Communication Simulator via the antenna connector, the frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

6.3 Peak to Average Ratio

6.3.1 Test Setup

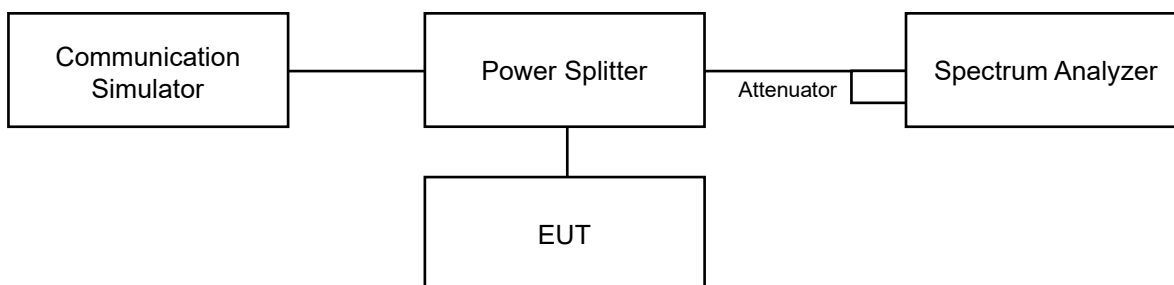


6.3.2 Test Procedure

- Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

6.4 Bandwidth

6.4.1 Test Setup



6.4.2 Test Procedure

For the 26 dBc bandwidth measurement method, please refer to section 5.4.3 of ANSI C63.26.

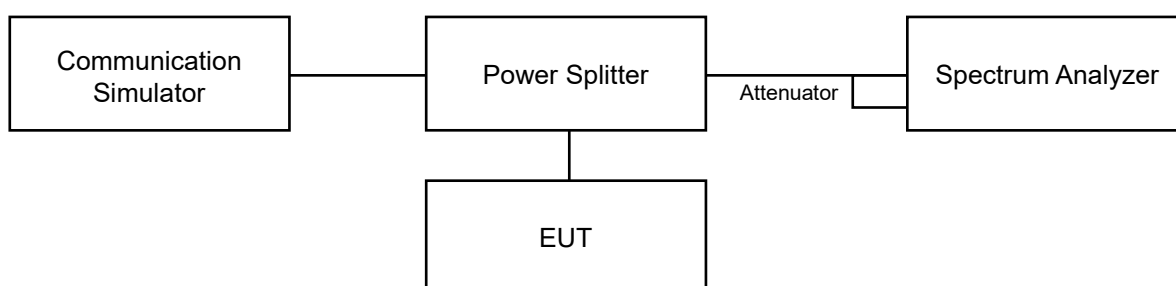
- The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- 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. See guidance provided in 4.2.3.
- 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.
- Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
- Determine the following reference values: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
- Determine the “-X dB amplitude” as equal to (Reference Value - X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.
- Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB amplitude” determined in step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers.
- The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

For the occupied bandwidth measurement method, please refer to section 5.4.4 of ANSI C63.26.

- 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.
- The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- 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. See guidance provided in 4.2.3.
- Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
- If the instrument does not have a 99% OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5% of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5% of the total is reached and record that frequency as the upper OBW frequency. The 99% power OBW can be determined by computing the difference these two frequencies.
- The OBW shall be reported by providing plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s).

6.5 Conducted Spurious Emissions

6.5.1 Test Setup



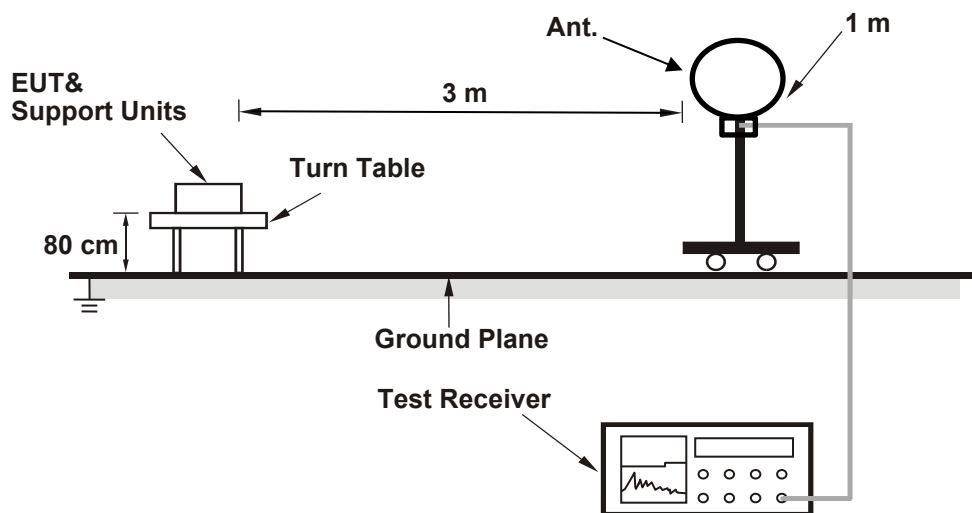
6.5.2 Test Procedure

- Measurement refer to ANSI C63.26 section 5.7.
- All measurements were done at 3 channels: low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. 10 dB attenuation pad is connected with spectrum.
- The fundamental frequency above 1 GHz, the spectrum set RBW = 1 MHz, VBW = 3 MHz, Detector = Average.
- The fundamental frequency below 1 GHz, the spectrum set RBW ≥ 100 kHz, VBW $\geq 3 \times$ RBW, Detector = Average.
- Measuring frequency band edge, narrow RBW (no less than 1% of the OBW) is used for conducted emission measurement.
- For the emissions measurement method, certain channel BW modes demonstrate compliance by integrating with the smaller RBW allowed by the rule.
For example: Where Reference RBW = 1 MHz and a smaller RBW = 100 kHz is used, worst-case integrated BW power = [Max Measured Value (dBm) with RBW = 100 kHz] + $10 \times \log(1000/100)$. To compensate for this integration before comparison to the value, the adjusted reference level offset was increase by 10 dB accordingly.
- Record the maximum power value test plot.

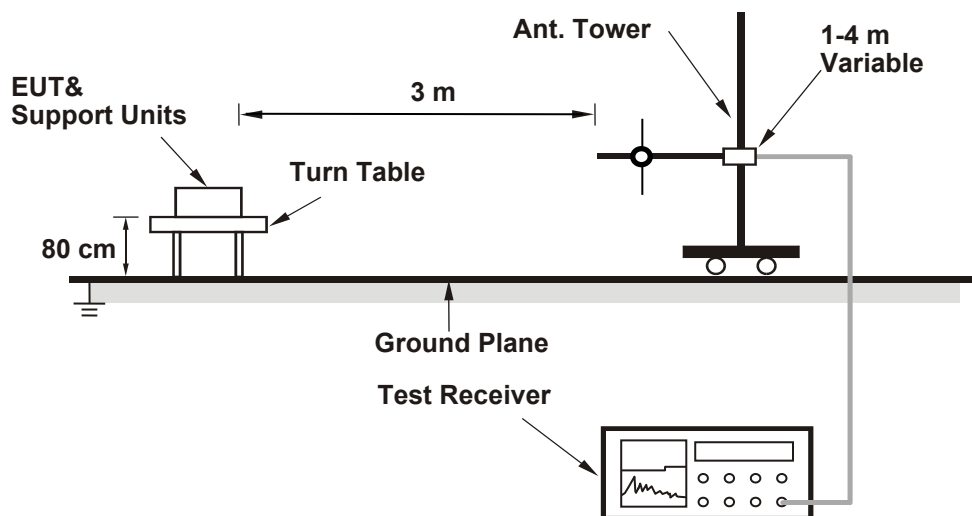
6.6 Radiated Spurious Emissions below 1GHz

6.6.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.6.2 Test Procedure

The EUT is configured to set data modulation and maximum power using WWAN technology.

- In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- Following ANSI C63.26 section 5.5 and 5.2.7
- $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

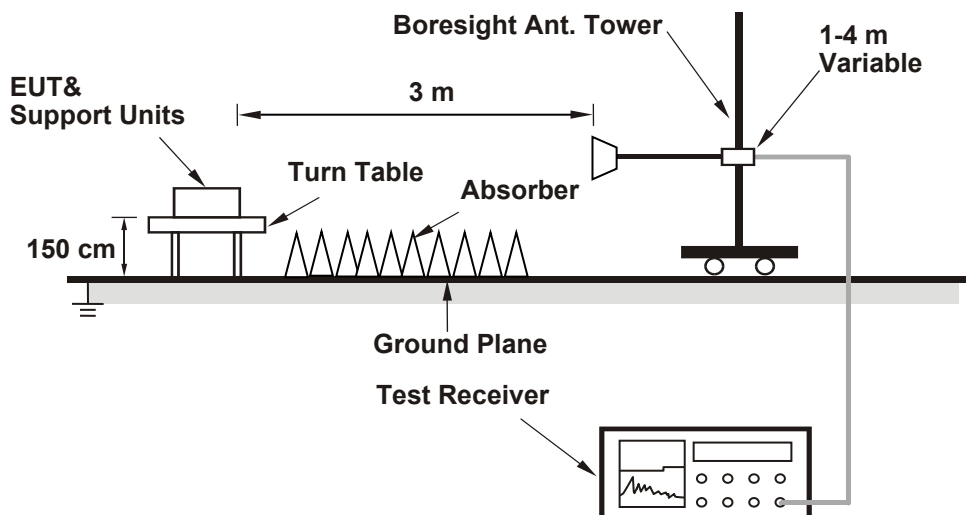
Note:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.
- The amplitude of spurious emissions in the range 9 kHz to 30 MHz which are attenuated more than 20 dB below the permissible value need not be reported.

6.7 Radiated Spurious Emissions above 1GHz

6.7.1 Test Setup

For radiated emission above 1 GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.7.2 Test Procedure

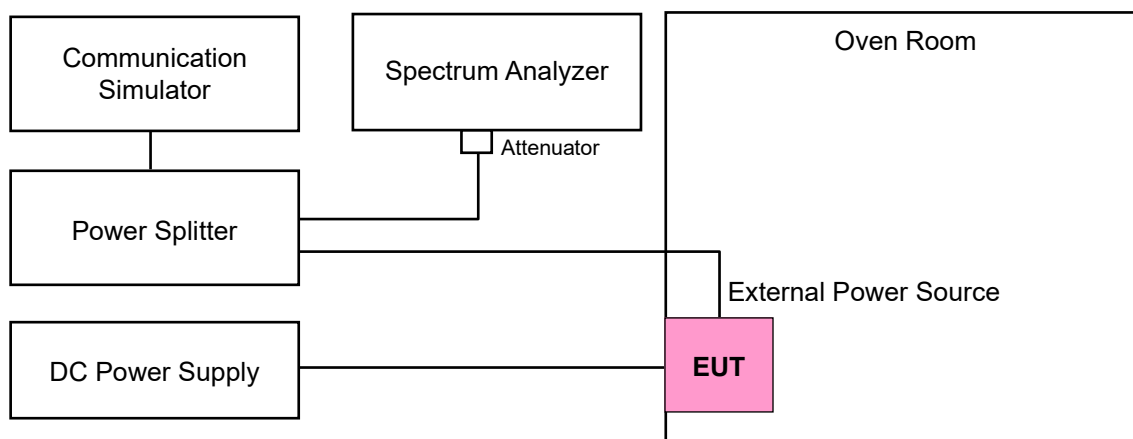
The EUT is configured to set data modulation and maximum power using WWAN technology.

- a. In the semi-anechoic chamber, EUT placed on the 1.5 m height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- d. Following ANSI C63.26 section 5.5 and 5.2.7
- e. $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- f. $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.

6.8 Frequency Stability

6.8.1 Test Setup



6.8.2 Test Procedure

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

7 Test Results of Test Item

7.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Input Power:	12 Vdc	Environmental Conditions:	23°C, 62% RH	Tested By:	Charles Hsiao
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7.1.1 LTE Cat.1 Band 2

LTE Cat.1 Band 2, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18607	CH 18900	CH 19193
			1850.7 MHz	1880 MHz	1909.3 MHz
QPSK	1	0	23.35	23.43	22.89
	1	2	23.22	23.41	22.87
	1	5	23.12	23.40	22.71
	3	0	23.27	23.36	22.84
	3	1	23.26	23.39	22.79
	3	3	23.25	23.38	22.68
	6	0	22.24	22.44	21.77
16QAM	1	0	22.14	22.93	21.97
	1	2	22.13	22.95	22.06
	1	5	22.10	22.99	21.91
	3	0	22.28	22.35	21.89
	3	1	22.06	22.36	21.86
	3	3	22.04	22.46	21.67
	6	0	21.31	21.46	21.03

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	21.77	23.43	25.33	26.99	33.01
16QAM	21.03	22.99	24.59	26.55	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 2, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18615	CH 18900	CH 19185
			1851.5 MHz	1880 MHz	1908.5 MHz
QPSK	1	0	23.13	23.41	23.23
	1	7	23.27	23.28	23.14
	1	14	23.01	23.26	22.72
	8	0	22.18	22.27	22.26
	8	3	22.21	22.31	22.21
	8	7	22.22	22.50	22.14
	15	0	22.23	22.42	22.27
16QAM	1	0	22.20	22.59	22.50
	1	7	22.49	22.76	22.45
	1	14	22.54	22.64	22.03
	8	0	21.37	21.37	21.53
	8	3	21.41	21.53	21.50
	8	7	21.32	21.54	21.23
	15	0	21.35	21.34	21.31

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.14	23.41	25.7	26.97	33.01
16QAM	21.23	22.76	24.79	26.32	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 2, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18625	CH 18900	CH 19175
			1852.5 MHz	1880 MHz	1907.5 MHz
QPSK	1	0	23.38	23.61	23.43
	1	12	23.37	23.55	23.35
	1	24	23.31	23.50	22.96
	12	0	22.32	22.46	22.46
	12	6	22.27	22.47	22.37
	12	13	22.23	22.50	22.15
	25	0	22.25	22.49	22.29
16QAM	1	0	22.85	22.96	22.49
	1	12	22.41	22.93	22.47
	1	24	22.74	22.94	21.95
	12	0	21.40	21.49	21.44
	12	6	21.33	21.49	21.37
	12	13	21.38	21.54	21.20
	25	0	21.36	21.45	21.28

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.15	23.61	25.71	27.17	33.01
16QAM	21.2	22.96	24.76	26.52	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 2, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18650	CH 18900	CH 19150
			1855 MHz	1880 MHz	1905 MHz
QPSK	1	0	23.58	23.40	23.36
	1	24	23.44	23.41	23.69
	1	49	23.22	23.20	23.35
	25	0	22.43	22.46	22.64
	25	12	22.37	22.50	22.81
	25	25	22.27	22.55	22.85
	50	0	22.60	22.45	22.41
16QAM	1	0	22.99	23.01	22.54
	1	24	23.07	23.02	22.88
	1	49	22.88	22.87	22.62
	25	0	21.53	21.53	21.55
	25	12	21.47	21.57	21.74
	25	25	21.40	21.61	21.80
	27	0	21.40	21.42	21.35

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.27	23.69	25.83	27.25	33.01
16QAM	21.35	23.07	24.91	26.63	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 2, Channel Bandwidth: 15 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18675	CH 18900	CH 19125
			1857.5 MHz	1880 MHz	1902.5 MHz
QPSK	1	0	23.64	23.53	23.54
	1	37	23.38	23.54	23.50
	1	74	23.25	23.12	23.39
	36	0	22.46	22.62	22.57
	36	19	22.36	22.61	22.70
	36	39	22.27	22.57	22.88
	75	0	22.31	22.49	22.69
16QAM	1	0	22.62	22.96	23.07
	1	37	22.84	22.76	22.60
	1	74	22.73	22.50	22.52
	27	0	21.55	21.84	21.98

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.27	23.64	25.83	27.2	33.01
16QAM	21.55	23.07	25.11	26.63	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 2, Channel Bandwidth: 20 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18700	CH 18900	CH 19100
			1860 MHz	1880 MHz	1900 MHz
QPSK	1	0	23.75	23.82	23.68
	1	50	23.62	23.59	23.42
	1	99	23.58	23.25	23.48
	50	0	23.11	22.58	22.54
	50	25	22.98	22.52	22.56
	50	50	23.08	22.42	22.76
	100	0	23.00	22.55	22.58
16QAM	1	0	23.63	22.74	23.15
	1	50	23.35	22.75	22.94
	1	99	23.41	22.49	22.70
	27	0	22.22	21.60	21.71

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.42	23.82	25.98	27.38	33.01
16QAM	21.6	23.63	25.16	27.19	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.2 LTE Cat.1 Band 4

LTE Cat.1 Band 4, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 19957	CH 20175	CH 20393
			1710.7 MHz	1732.5 MHz	1754.3 MHz
QPSK	1	0	23.55	23.34	23.40
	1	2	23.51	23.29	23.39
	1	5	23.47	23.35	23.31
	3	0	23.48	23.36	23.38
	3	1	23.50	23.35	23.37
	3	3	23.44	23.38	23.36
	6	0	22.37	22.37	22.33
16QAM	1	0	22.55	22.27	22.50
	1	2	22.63	22.29	22.57
	1	5	22.54	22.37	22.55
	3	0	22.49	22.23	22.37
	3	1	22.51	22.22	22.38
	3	3	22.47	22.22	22.43
	6	0	21.46	21.47	21.54

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.33	23.55	25.89	27.11	30
16QAM	21.46	22.63	25.02	26.19	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 4, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 19965	CH 20175	CH 20385
			1711.5 MHz	1732.5 MHz	1753.5 MHz
QPSK	1	0	23.65	23.76	23.40
	1	7	23.42	23.66	23.55
	1	14	23.52	23.48	23.41
	8	0	22.59	22.57	22.56
	8	3	22.66	22.65	22.58
	8	7	22.61	22.60	22.54
	15	0	22.59	22.54	22.53
16QAM	1	0	22.67	22.94	22.47
	1	7	22.85	23.10	22.55
	1	14	22.97	22.89	22.45
	8	0	21.76	21.63	21.63
	8	3	21.77	21.74	21.69
	8	7	21.75	21.72	21.57
	15	0	21.72	21.57	21.57

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.53	23.76	26.09	27.32	30
16QAM	21.57	23.1	25.13	26.66	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 4, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 19975	CH 20175	CH 20375
			1712.5 MHz	1732.5 MHz	1752.5 MHz
QPSK	1	0	23.66	23.71	23.41
	1	12	23.59	23.68	23.36
	1	24	23.52	23.48	23.37
	12	0	22.73	22.53	22.45
	12	6	22.82	22.56	22.42
	12	13	22.80	22.58	22.44
	25	0	22.68	22.54	22.43
16QAM	1	0	23.43	22.80	22.49
	1	12	23.38	23.02	22.56
	1	24	22.97	22.73	22.58
	12	0	21.89	21.62	21.60
	12	6	21.84	21.66	21.56
	12	13	21.84	21.69	21.59
	25	0	21.86	21.68	21.59

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.42	23.71	25.98	27.27	30
16QAM	21.56	23.43	25.12	26.99	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 4, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20000	CH 20175	CH 20350
			1715 MHz	1732.5 MHz	1750 MHz
QPSK	1	0	23.74	23.78	23.67
	1	24	23.62	23.63	23.59
	1	49	23.53	23.69	23.46
	25	0	22.84	22.57	22.77
	25	12	22.75	22.60	22.70
	25	25	22.71	22.64	22.67
	50	0	22.76	22.61	22.71
16QAM	1	0	23.16	22.97	22.91
	1	24	23.07	23.09	23.21
	1	49	22.91	23.17	23.27
	25	0	21.93	21.66	21.98
	25	12	21.85	21.71	21.94
	25	25	21.80	21.78	21.89
	27	0	22.25	22.00	21.90

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.57	23.78	26.13	27.34	30
16QAM	21.66	23.27	25.22	26.83	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 4, Channel Bandwidth: 15 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20025	CH 20175	CH 20325
			1717.5 MHz	1732.5 MHz	1747.5 MHz
QPSK	1	0	23.83	23.92	23.63
	1	37	23.67	23.55	23.75
	1	74	23.58	23.57	23.68
	36	0	23.07	22.44	22.77
	36	19	22.99	22.53	22.77
	36	39	22.90	22.61	22.72
	75	0	22.97	22.49	22.71
16QAM	1	0	23.28	22.89	22.73
	1	37	23.11	23.03	23.18
	1	74	23.00	23.08	23.14
	75	0	22.35	21.98	21.85

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.44	23.92	26	27.48	30
16QAM	21.85	23.28	25.41	26.84	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 4, Channel Bandwidth: 20 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20050	CH 20175	CH 20300
			1720 MHz	1732.5 MHz	1745 MHz
QPSK	1	0	23.82	24.03	23.68
	1	50	23.77	23.52	23.57
	1	99	23.74	23.61	23.56
	50	0	22.96	22.40	22.59
	50	25	22.81	22.47	22.60
	50	50	22.81	22.55	22.60
	100	0	22.85	22.62	22.56
16QAM	1	0	23.22	23.07	23.10
	1	50	23.24	22.79	23.09
	1	99	23.31	22.93	23.09
	27	0	22.03	21.54	21.98

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.4	24.03	25.96	27.59	30
16QAM	21.54	23.31	25.1	26.87	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.3 LTE Cat.1 Band 5

LTE Cat.1 Band 5, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20407	CH 20525	CH 20643
			824.7 MHz	836.5 MHz	848.3 MHz
QPSK	1	0	23.82	24.04	23.40
	1	2	23.73	23.91	23.34
	1	5	23.70	23.99	23.20
	3	0	23.73	24.00	23.39
	3	1	23.84	24.02	23.35
	3	3	23.81	23.92	23.31
	6	0	22.86	23.12	22.40
16QAM	1	0	23.33	23.03	22.95
	1	2	23.37	23.07	22.98
	1	5	22.99	23.13	22.90
	3	0	23.00	22.99	22.42
	3	1	23.01	23.00	22.40
	3	3	22.95	23.00	22.32
	6	0	21.99	22.26	21.58

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.4	24.04	22.89	24.53	38.45
16QAM	21.58	23.37	22.07	23.86	38.45

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

LTE Cat.1 Band 5, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20415	CH 20525	CH 20635
			825.5 MHz	836.5 MHz	847.5 MHz
QPSK	1	0	23.78	24.03	23.51
	1	7	23.86	23.90	23.57
	1	14	23.65	23.83	23.23
	8	0	22.91	23.07	22.65
	8	3	22.96	23.11	22.61
	8	7	22.89	23.10	22.52
	15	0	22.90	23.06	22.57
16QAM	1	0	23.39	23.27	22.71
	1	7	23.48	23.45	22.79
	1	14	23.28	23.31	22.49
	8	0	22.00	22.10	21.90
	8	3	22.00	22.26	21.91
	8	7	21.95	22.24	21.76
	15	0	21.98	22.06	21.76

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.52	24.03	23.01	24.52	38.45
16QAM	21.76	23.48	22.25	23.97	38.45

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

LTE Cat.1 Band 5, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20425	CH 20525	CH 20625
			826.5 MHz	836.5 MHz	846.5 MHz
QPSK	1	0	23.69	23.83	23.43
	1	12	23.59	23.77	23.31
	1	24	23.62	23.71	23.10
	12	0	23.03	23.15	22.66
	12	6	22.99	23.15	22.65
	12	13	22.99	23.17	22.57
	25	0	23.02	23.18	22.62
16QAM	1	0	23.64	23.70	22.73
	1	12	23.53	23.64	22.63
	1	24	23.59	23.69	22.50
	12	0	22.10	22.26	21.64
	12	6	22.08	22.25	21.64
	12	13	22.03	22.32	21.63
	25	0	22.10	22.24	21.64

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.57	23.83	23.06	24.32	38.45
16QAM	21.63	23.7	22.12	24.19	38.45

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

LTE Cat.1 Band 5, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20450	CH 20525	CH 20600
			829 MHz	836.5 MHz	844 MHz
QPSK	1	0	23.96	24.05	23.93
	1	24	23.80	24.01	23.63
	1	49	23.97	23.89	23.34
	25	0	22.84	23.18	23.02
	25	12	22.82	23.22	22.85
	25	25	22.84	23.20	22.76
	50	0	22.86	23.18	22.91
16QAM	1	0	23.15	23.24	23.43
	1	24	23.13	23.38	23.36
	1	49	23.29	23.34	23.10
	25	0	22.01	22.26	21.92
	25	12	21.93	22.29	21.77
	25	25	21.97	22.27	21.70
	27	0	21.84	22.15	22.01

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.76	24.05	23.25	24.54	38.45
16QAM	21.7	23.43	22.19	23.92	38.45

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

7.1.4 LTE Cat.1 Band 12

LTE Cat.1 Band 12, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23017	CH 23095	CH 23173
			699.7 MHz	707.5 MHz	715.3 MHz
QPSK	1	0	23.41	23.69	23.34
	1	2	23.32	23.64	23.14
	1	5	23.42	23.23	23.00
	3	0	23.63	23.32	23.13
	3	1	23.59	23.27	23.09
	3	3	23.48	23.22	23.02
	6	0	22.66	22.27	22.17
16QAM	1	0	22.92	22.57	22.19
	1	2	22.96	22.54	22.06
	1	5	22.74	22.46	22.06
	3	0	22.77	22.37	22.07
	3	1	22.77	22.38	22.02
	3	3	22.64	22.27	22.13
	6	0	21.88	21.39	21.41

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.17	23.69	22.66	24.18	44.77
16QAM	21.39	22.96	21.88	23.45	44.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

LTE Cat.1 Band 12, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23025	CH 23095	CH 23165
			700.5 MHz	707.5 MHz	714.5 MHz
QPSK	1	0	23.39	23.70	23.54
	1	7	23.56	23.43	23.45
	1	14	22.97	23.01	23.08
	8	0	22.76	22.44	22.42
	8	3	22.59	22.45	22.42
	8	7	22.20	22.33	22.30
	15	0	22.47	22.36	22.36
16QAM	1	0	23.29	22.87	22.37
	1	7	23.05	22.61	22.47
	1	14	22.49	22.23	22.37
	8	0	21.82	21.71	21.70
	8	3	21.65	21.74	21.63
	8	7	21.31	21.58	21.61
	15	0	21.49	21.55	21.59

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.2	23.7	22.69	24.19	44.77
16QAM	21.31	23.29	21.8	23.78	44.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

LTE Cat.1 Band 12, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23035	CH 23095	CH 23155
			701.5 MHz	707.5 MHz	713.5 MHz
QPSK	1	0	23.68	23.74	23.42
	1	12	23.18	23.30	23.51
	1	24	23.47	23.25	23.26
	12	0	22.70	22.44	22.60
	12	6	22.40	22.47	22.62
	12	13	22.45	22.39	22.53
	25	0	22.55	22.48	22.54
16QAM	1	0	23.62	22.78	22.65
	1	12	22.77	22.76	22.75
	1	24	23.15	22.72	22.34
	12	0	21.72	21.61	21.65
	12	6	21.42	21.52	21.68
	12	13	21.48	21.45	21.54
	25	0	21.60	21.60	21.57

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.39	23.74	22.88	24.23	44.77
16QAM	21.42	23.62	21.91	24.11	44.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

LTE Cat.1 Band 12, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23060	CH 23095	CH 23130
			704 MHz	707.5 MHz	711 MHz
QPSK	1	0	23.48	23.76	23.54
	1	24	23.29	23.56	23.38
	1	49	23.22	23.52	23.36
	25	0	22.27	22.53	22.49
	25	12	22.33	22.52	22.55
	25	25	22.46	22.51	22.65
	50	0	22.36	22.51	22.57
16QAM	1	0	22.92	22.63	22.87
	1	24	22.31	22.77	22.98
	1	49	22.26	22.77	22.79
	25	0	21.40	21.67	21.50
	25	12	21.39	21.64	21.57
	25	25	21.60	21.63	21.67
	27	0	21.29	21.55	21.39

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.27	23.76	22.76	24.25	44.77
16QAM	21.29	22.98	21.78	23.47	44.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

7.1.5 LTE Cat.1 Band 13

LTE Cat.1 Band 13, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23205	CH 23230	CH 23255
			779.5 MHz	782 MHz	784.5 MHz
QPSK	1	0	23.29	23.38	23.60
	1	12	23.67	23.43	23.51
	1	24	23.65	23.46	23.69
	12	0	22.67	22.59	22.91
	12	6	22.69	22.60	22.83
	12	13	22.71	22.63	22.79
	25	0	22.68	22.60	22.86
16QAM	1	0	22.32	23.08	23.41
	1	12	22.84	22.81	23.22
	1	24	22.96	22.84	23.29
	12	0	21.79	21.62	21.89
	12	6	21.82	21.61	21.85
	12	13	21.83	21.57	21.77
	25	0	21.78	21.60	21.95

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.59	23.69	23.08	24.18	44.77
16QAM	21.57	23.41	22.06	23.9	44.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

LTE Cat.1 Band 13, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)
			CH 23230
			782 MHz
QPSK	1	0	23.73
	1	24	23.62
	1	49	23.55
	25	0	22.7
	25	12	22.72
	25	25	22.67
	50	0	22.71
16QAM	1	0	22.38
	1	24	22.65
	1	49	22.66
	25	0	21.63
	25	12	21.64
	25	25	21.59
	27	0	21.50

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.67	23.73	23.16	24.22	44.77
16QAM	21.5	22.66	21.99	23.15	44.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

7.1.6 LTE Cat.1 Band 14

LTE Cat.1 Band 14, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23305	CH 23330	CH 23355
			790.5 MHz	793 MHz	795.5 MHz
QPSK	1	0	23.45	23.60	23.59
	1	12	23.52	23.54	23.61
	1	24	23.43	23.56	23.55
	12	0	22.69	22.64	22.54
	12	6	22.68	22.59	22.52
	12	13	22.61	22.54	22.54
	25	0	22.66	22.58	22.56
16QAM	1	0	22.95	23.17	22.76
	1	12	23.25	23.04	22.78
	1	24	23.17	23.06	22.76
	12	0	21.79	21.74	21.64
	12	6	21.83	21.69	21.62
	12	13	21.68	21.64	21.65
	25	0	21.79	21.62	21.67

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.52	23.61	23.01	24.1	44.77
16QAM	21.62	23.25	22.11	23.74	44.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

LTE Cat.1 Band 14, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)
			CH 23330
			793 MHz
QPSK	1	0	23.67
	1	24	23.54
	1	49	23.50
	25	0	22.65
	25	12	22.57
	25	25	22.54
	50	0	22.61
16QAM	1	0	23.23
	1	24	22.83
	1	49	22.84
	25	0	21.73
	25	12	21.64
	25	25	21.60
	27	0	21.56

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.54	23.67	23.03	24.16	44.77
16QAM	21.56	23.23	22.05	23.72	44.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

7.1.7 LTE Cat.1 Band 66

LTE Cat.1 Band 66, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 131979	CH 132322	CH 132665
			1710.7 MHz	1745 MHz	1779.3 MHz
QPSK	1	0	23.62	23.66	23.41
	1	2	23.56	23.54	23.45
	1	5	23.58	23.50	23.36
	3	0	23.72	23.45	23.40
	3	1	23.69	23.59	23.37
	3	3	23.57	23.55	23.34
	6	0	22.77	22.62	22.46
16QAM	1	0	23.29	22.77	22.34
	1	2	23.42	22.83	22.37
	1	5	23.11	22.74	22.41
	3	0	22.92	22.68	22.62
	3	1	22.92	22.69	22.40
	3	3	22.94	22.65	22.55
	6	0	21.97	21.72	21.77

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.46	23.72	26.02	27.28	30
16QAM	21.72	23.42	25.28	26.98	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 66, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 131987	CH 132322	CH 132657
			1711.5 MHz	1745 MHz	1778.5 MHz
QPSK	1	0	23.62	23.68	23.28
	1	7	23.56	23.55	23.42
	1	14	23.54	23.38	23.14
	8	0	22.86	22.53	22.46
	8	3	22.89	22.58	22.48
	8	7	22.85	22.53	22.41
	15	0	22.81	22.51	22.39
16QAM	1	0	22.82	22.68	22.38
	1	7	22.83	22.85	22.49
	1	14	22.66	22.83	22.41
	8	0	21.85	21.59	21.55
	8	3	21.98	21.79	21.53
	8	7	21.94	21.74	21.59
	15	0	21.90	21.54	21.60

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.39	23.68	25.95	27.24	30
16QAM	21.53	22.85	25.09	26.41	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 66, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 131997	CH 132322	CH 132647
			1712.5 MHz	1745 MHz	1777.5 MHz
QPSK	1	0	23.51	23.58	23.11
	1	12	23.49	23.48	23.09
	1	24	23.44	23.26	23.05
	12	0	22.62	22.34	22.14
	12	6	22.64	22.36	22.10
	12	13	22.62	22.36	22.08
	25	0	22.64	22.34	22.10
16QAM	1	0	22.84	22.53	22.69
	1	12	22.84	22.56	22.07
	1	24	22.82	22.56	22.02
	12	0	21.81	21.45	21.21
	12	6	21.83	21.48	21.17
	12	13	21.81	21.49	21.18
	25	0	21.85	21.47	21.13

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.08	23.58	25.64	27.14	30
16QAM	21.13	22.84	24.69	26.4	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 66, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132022	CH 132322	CH 132622
			1715 MHz	1745 MHz	1775 MHz
QPSK	1	0	23.48	23.31	23.43
	1	24	23.40	23.39	23.34
	1	49	23.29	23.29	23.22
	25	0	22.59	22.32	22.50
	25	12	22.53	22.39	22.43
	25	25	22.45	22.37	22.37
	50	0	22.55	22.34	22.45
16QAM	1	0	23.06	22.43	22.96
	1	24	22.99	22.91	22.92
	1	49	22.93	22.92	22.45
	25	0	21.72	21.54	21.56
	25	12	21.60	21.61	21.50
	25	25	21.54	21.59	21.39
	27	0	21.54	21.41	21.44

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.32	23.48	25.88	27.04	30
16QAM	21.39	23.06	24.95	26.62	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 66, Channel Bandwidth: 15 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132047	CH 132322	CH 132597
			1717.5 MHz	1745 MHz	1772.5 MHz
QPSK	1	0	23.56	23.40	23.64
	1	37	23.41	23.50	23.54
	1	74	23.24	23.37	23.35
	36	0	22.62	22.36	22.55
	36	19	22.54	22.56	22.57
	36	39	22.50	22.44	22.49
	75	0	22.56	22.48	22.52
16QAM	1	0	22.72	22.87	22.76
	1	37	22.47	23.08	22.53
	1	74	22.35	22.65	22.43
	27	0	21.93	22.05	21.95

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.36	23.64	25.92	27.2	30
16QAM	21.93	23.08	25.49	26.64	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Cat.1 Band 66, Channel Bandwidth: 20 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132072	CH 132322	CH 132572
			1720 MHz	1745 MHz	1770 MHz
QPSK	1	0	23.45	23.74	23.59
	1	50	23.34	23.45	23.52
	1	99	23.34	23.37	23.37
	50	0	22.55	22.37	22.59
	50	25	22.45	22.41	22.55
	50	50	22.43	22.40	22.54
	100	0	22.50	22.48	22.56
16QAM	1	0	23.21	22.40	22.85
	1	50	22.74	23.01	22.77
	1	99	22.98	22.95	22.63
	27	0	22.11	21.63	22.01
Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.37	23.74	25.93	27.3	30
16QAM	21.63	23.21	25.19	26.77	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.8 LTE Cat.1 Band 71

LTE Cat.1 Band 71, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 133147	CH 133297	CH 133447
			665.5 MHz	680.5 MHz	695.5 MHz
QPSK	1	0	23.52	23.58	23.06
	1	12	23.41	23.45	23.05
	1	24	23.45	23.27	22.97
	12	0	22.63	22.26	22.05
	12	6	22.62	22.30	22.11
	12	13	22.53	22.34	22.04
	25	0	22.64	22.25	22.04
16QAM	1	0	22.85	22.43	22.70
	1	12	22.80	22.53	22.02
	1	24	22.76	22.46	22.02
	12	0	21.75	21.39	21.15
	12	6	21.75	21.48	21.06
	12	13	21.82	21.48	21.10
	25	0	21.79	21.39	21.05

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.04	23.58	22.53	24.07	44.77
16QAM	21.05	22.85	21.54	23.34	44.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

LTE Cat.1 Band 71, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 133172	CH 133297	CH 133422
			668 MHz	680.5 MHz	693 MHz
QPSK	1	0	23.42	23.23	23.39
	1	24	23.33	23.34	23.24
	1	49	23.20	23.26	23.21
	25	0	22.54	22.25	22.44
	25	12	22.46	22.35	22.34
	25	25	22.46	22.38	22.35
	50	0	22.46	22.30	22.38
16QAM	1	0	22.95	22.35	22.93
	1	24	23.00	22.90	22.81
	1	49	22.92	22.89	22.41
	25	0	21.67	21.50	21.55
	25	12	21.58	21.61	21.39
	25	25	21.48	21.50	21.31
	27	0	21.44	21.32	21.33
Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.25	23.42	22.74	23.91	44.77
16QAM	21.31	23	21.8	23.49	44.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

LTE Cat.1 Band 71, Channel Bandwidth: 15 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 133197	CH 133297	CH 133397
			670.5 MHz	680.5 MHz	690.5 MHz
QPSK	1	0	23.56	23.32	23.59
	1	37	23.31	23.48	23.43
	1	74	23.24	23.31	23.27
	36	0	22.58	22.33	22.48
	36	19	22.44	22.56	22.52
	36	39	22.39	22.35	22.48
	75	0	22.48	22.47	22.50
16QAM	1	0	22.68	22.78	22.71
	1	37	22.46	23.05	22.47
	1	74	22.35	22.64	22.33
	27	0	21.90	22.22	21.94
Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.33	23.59	22.82	24.08	44.77
16QAM	21.9	23.05	22.39	23.54	44.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

LTE Cat.1 Band 71, Channel Bandwidth: 20 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 133222	CH 133297	CH 133372
			673 MHz	680.5 MHz	688 MHz
QPSK	1	0	23.44	23.65	23.51
	1	50	23.35	23.46	23.46
	1	99	23.23	23.36	23.37
	50	0	22.53	22.32	22.53
	50	25	22.43	22.34	22.47
	50	50	22.39	22.30	22.51
	100	0	22.42	22.47	22.55
16QAM	1	0	23.14	22.38	22.85
	1	50	22.73	22.94	22.74
	1	99	22.92	22.89	22.53
	27	0	21.95	21.79	21.74

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	22.3	23.65	22.79	24.14	44.77
16QAM	21.74	23.14	22.23	23.63	44.77

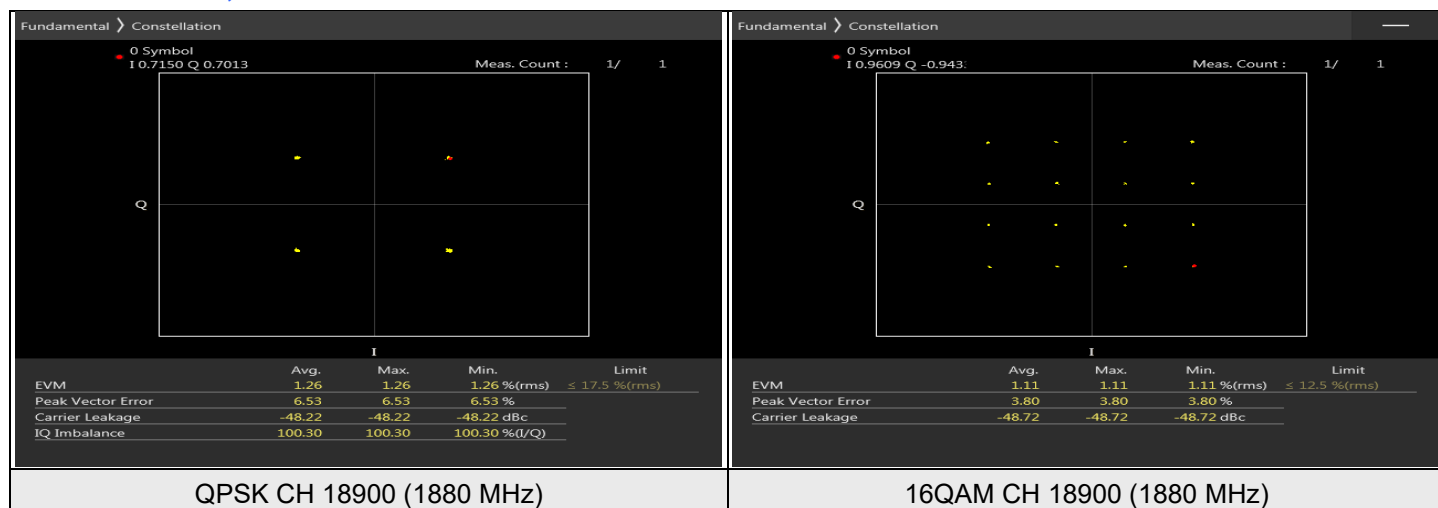
Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

7.2 Modulation Characteristics

Input Power:	12 Vdc	Environmental Conditions:	25°C, 65% RH	Tested By:	Charles Hsiao
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7.2.1 LTE Cat.1 Band 2

LTE Cat.1 Band 2, Channel Bandwidth: 20 MHz



7.2.2 LTE Cat.1 Band 4

LTE Cat.1 Band 4, Channel Bandwidth: 20 MHz



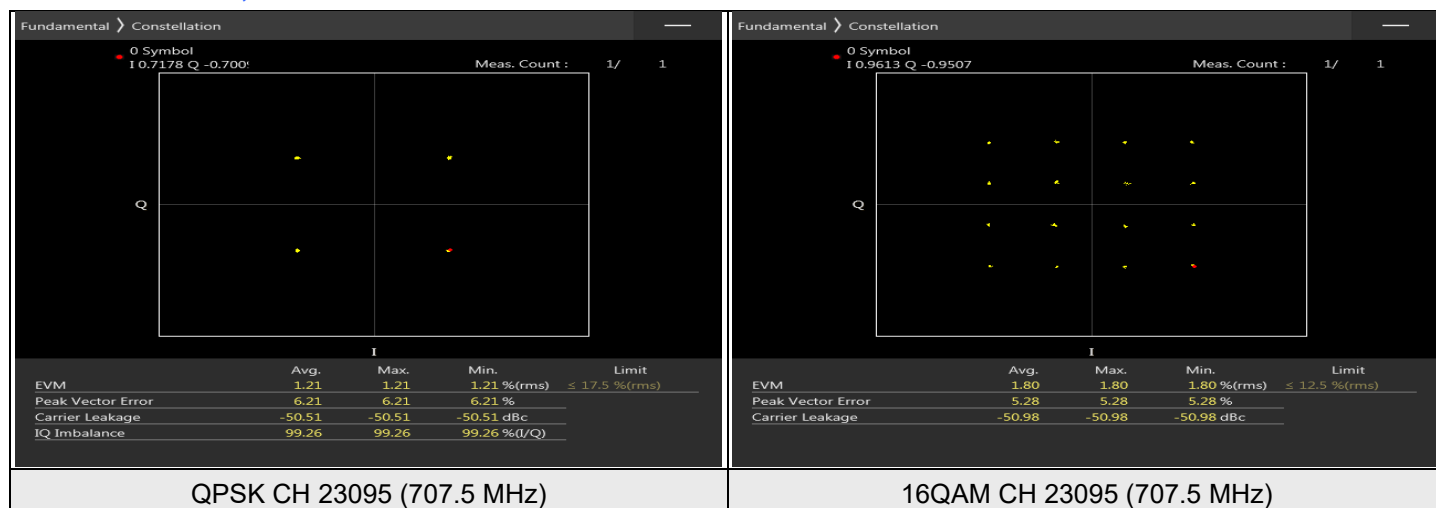
7.2.3 LTE Cat.1 Band 5

LTE Cat.1 Band 5, Channel Bandwidth: 10 MHz



7.2.4 LTE Cat.1 Band 12

LTE Cat.1 Band 12, Channel Bandwidth: 10 MHz



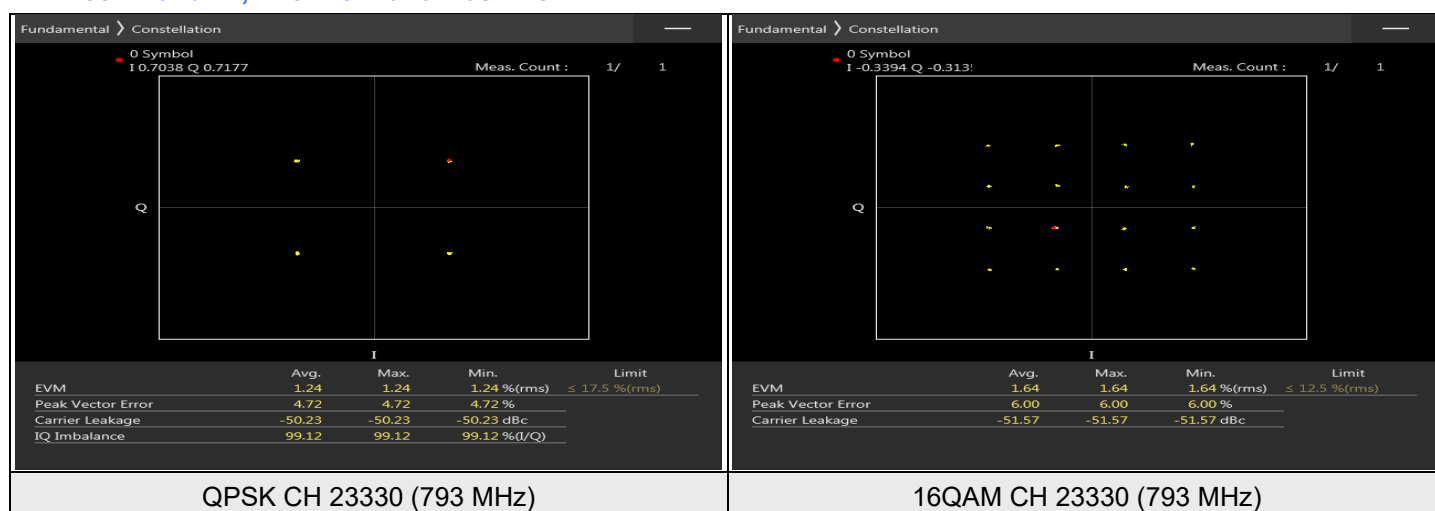
7.2.5 LTE Cat.1 Band 13

LTE Cat.1 Band 13, Channel Bandwidth: 10 MHz



7.2.6 LTE Cat.1 Band 14

LTE Cat.1 Band 14, Channel Bandwidth: 10 MHz



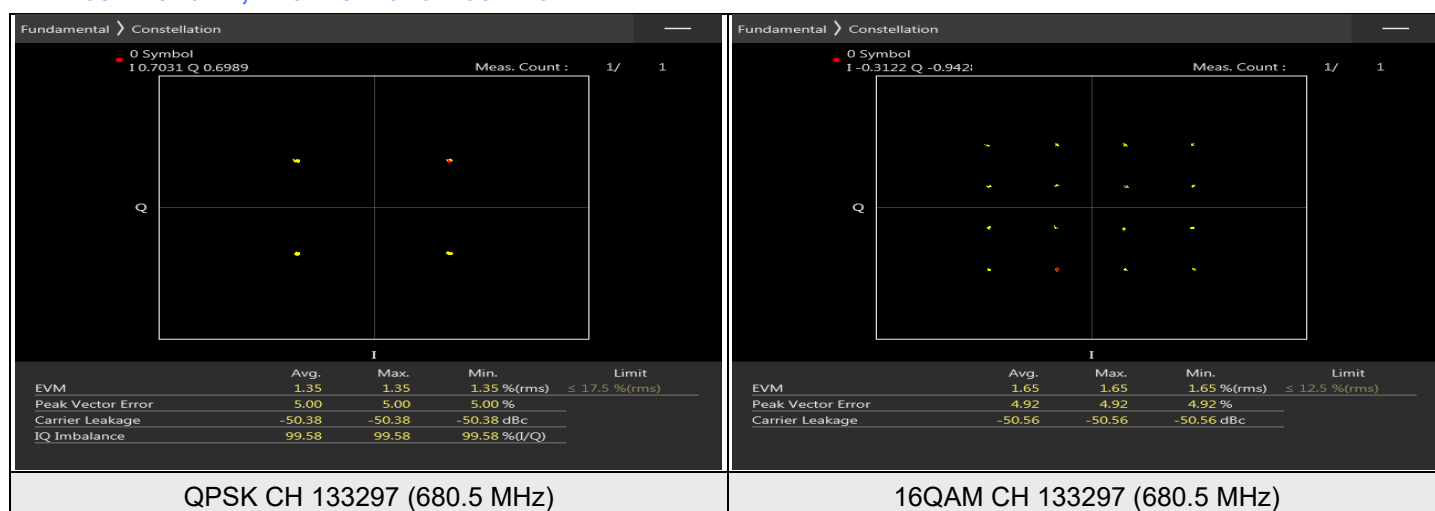
7.2.7 LTE Cat.1 Band 66

LTE Cat.1 Band 66, Channel Bandwidth: 20 MHz



7.2.8 LTE Cat.1 Band 71

LTE Cat.1 Band 71, Channel Bandwidth: 20 MHz



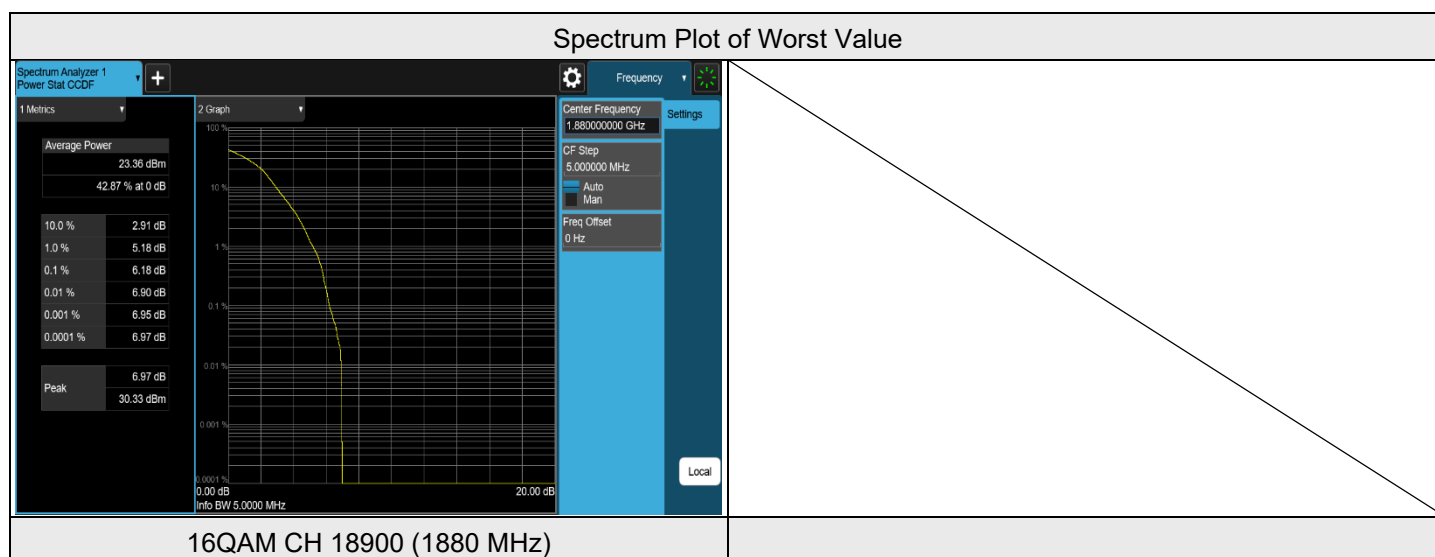
7.3 Peak to Average Ratio

Input Power:	12 Vdc	Environmental Conditions:	25°C, 65% RH	Tested By:	Charles Hsiao
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7.3.1 LTE Cat.1 Band 2

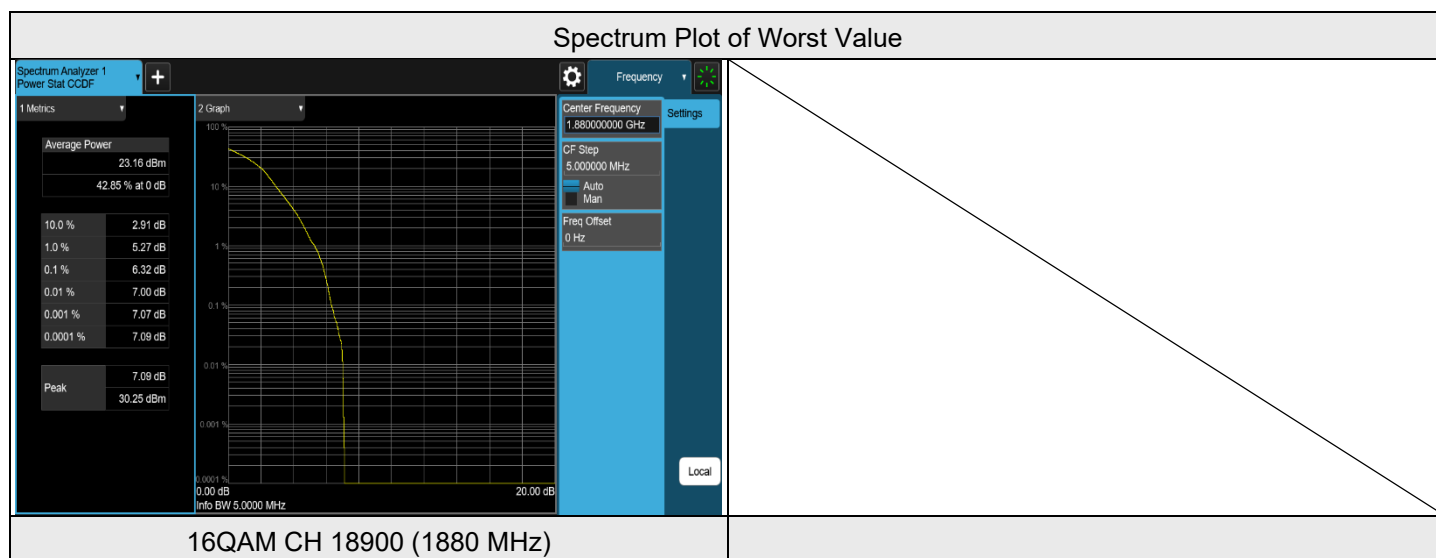
LTE Cat.1 Band 2, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18607	1850.7	5.11	13	PASS
QPSK	18900	1880	5.21	13	PASS
QPSK	19193	1909.3	5.19	13	PASS
16QAM	18607	1850.7	6.01	13	PASS
16QAM	18900	1880	6.18	13	PASS
16QAM	19193	1909.3	6.16	13	PASS



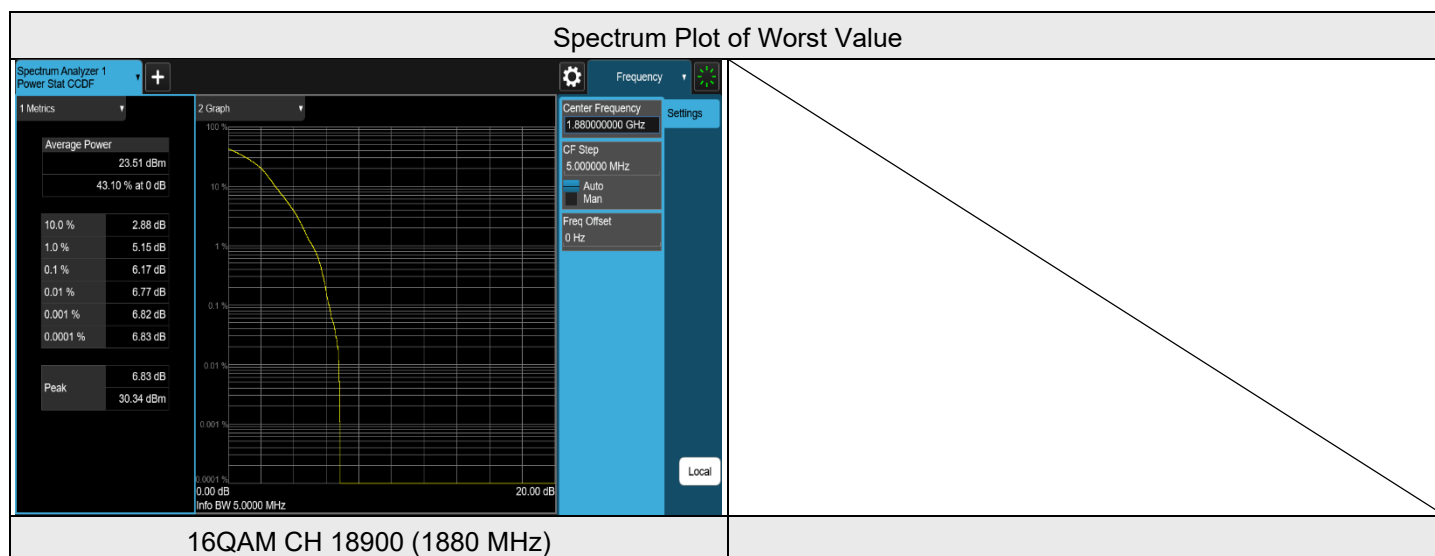
LTE Cat.1 Band 2, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18615	1851.5	5.14	13	PASS
QPSK	18900	1880	5.27	13	PASS
QPSK	19185	1908.5	5.00	13	PASS
16QAM	18615	1851.5	6.12	13	PASS
16QAM	18900	1880	6.32	13	PASS
16QAM	19185	1908.5	5.99	13	PASS



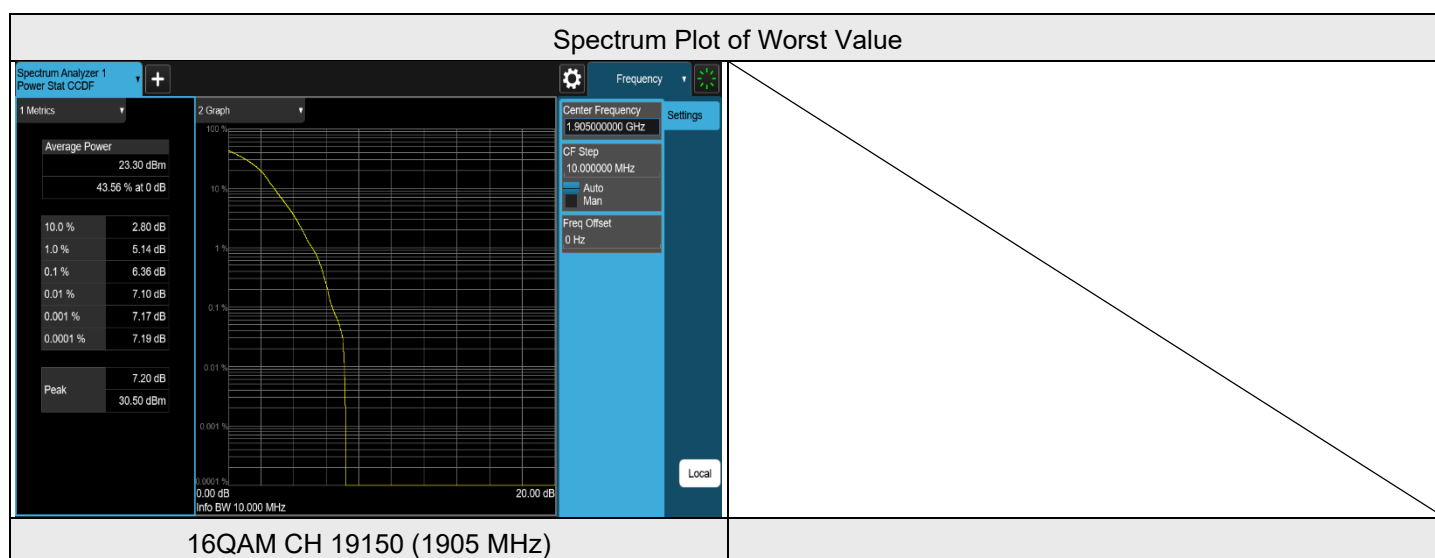
LTE Cat.1 Band 2, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18625	1852.5	5.06	13	PASS
QPSK	18900	1880	5.14	13	PASS
QPSK	19175	1907.5	4.92	13	PASS
16QAM	18625	1852.5	6.04	13	PASS
16QAM	18900	1880	6.17	13	PASS
16QAM	19175	1907.5	5.96	13	PASS



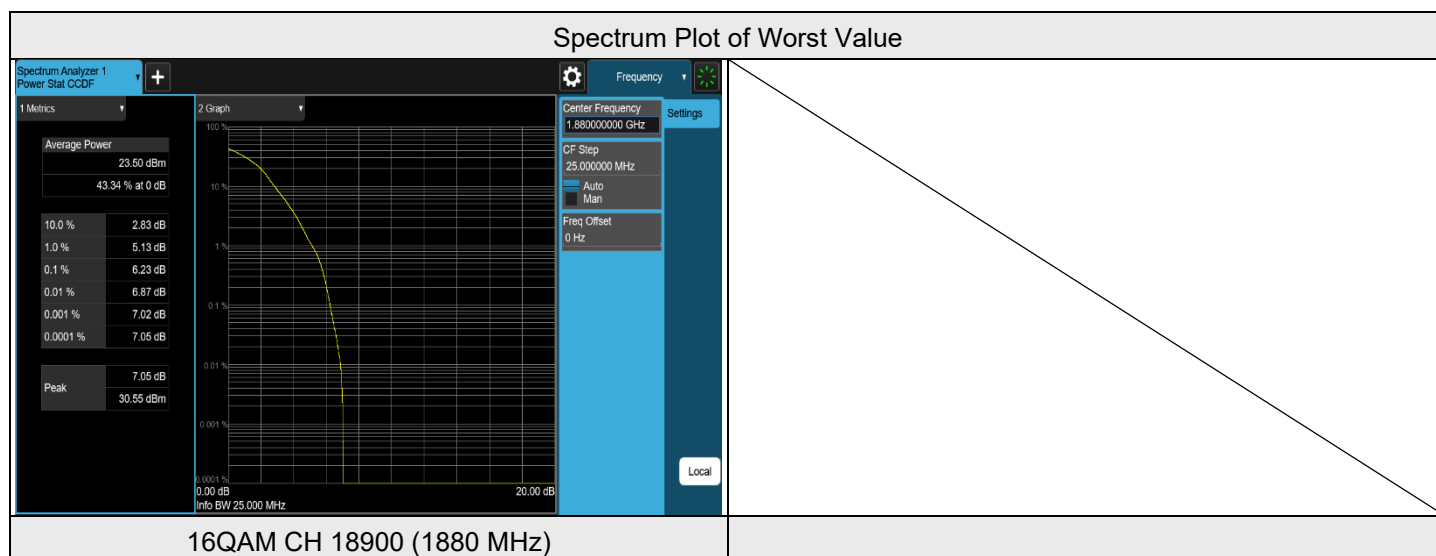
LTE Cat.1 Band 2, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18650	1855	5.03	13	PASS
QPSK	18900	1880	5.14	13	PASS
QPSK	19150	1905	5.22	13	PASS
16QAM	18650	1855	6.08	13	PASS
16QAM	18900	1880	6.18	13	PASS
16QAM	19150	1905	6.36	13	PASS



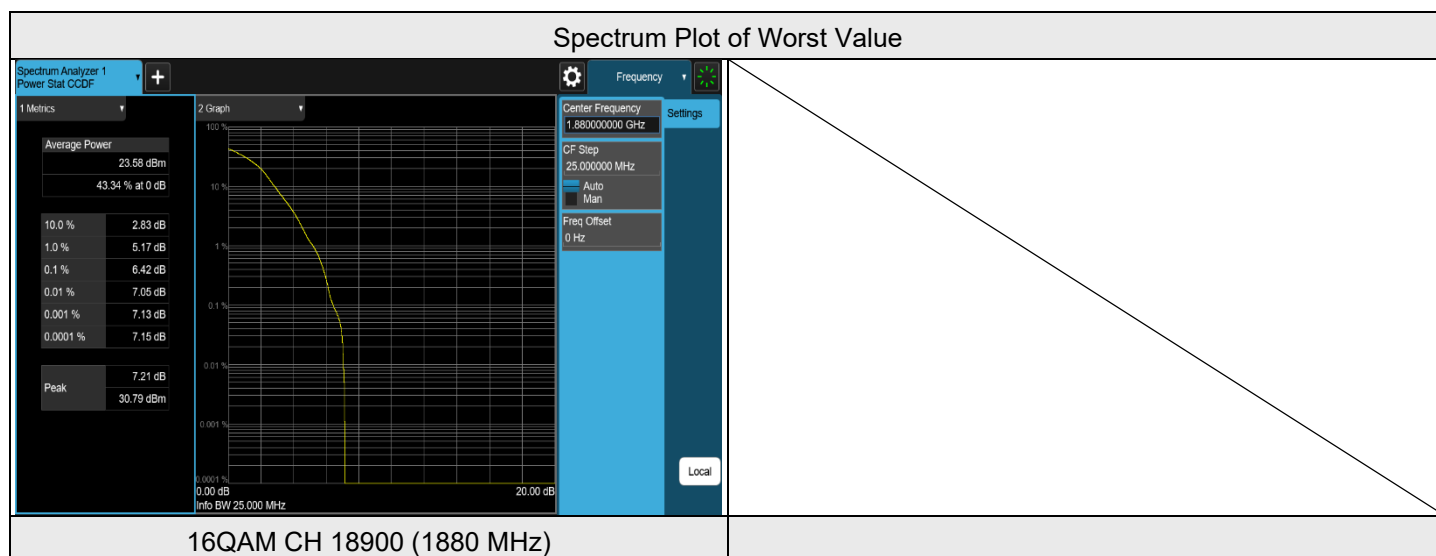
LTE Cat.1 Band 2, Channel Bandwidth: 15 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18675	1857.5	5.05	13	PASS
QPSK	18900	1880	5.25	13	PASS
QPSK	19125	1902.5	5.21	13	PASS
16QAM	18675	1857.5	6.09	13	PASS
16QAM	18900	1880	6.23	13	PASS
16QAM	19125	1902.5	6.20	13	PASS



LTE Cat.1 Band 2, Channel Bandwidth: 20 MHz

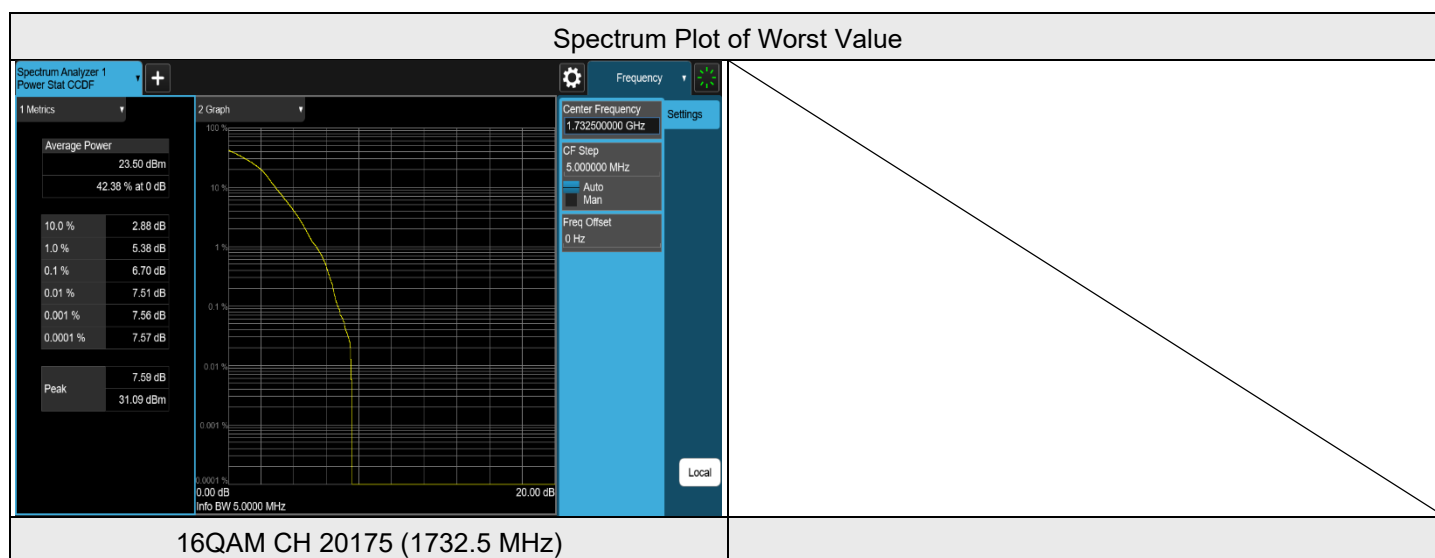
Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18700	1860	4.71	13	PASS
QPSK	18900	1880	5.26	13	PASS
QPSK	19100	1900	5.22	13	PASS
16QAM	18700	1860	5.66	13	PASS
16QAM	18900	1880	6.42	13	PASS
16QAM	19100	1900	6.41	13	PASS



7.3.2 LTE Cat.1 Band 4

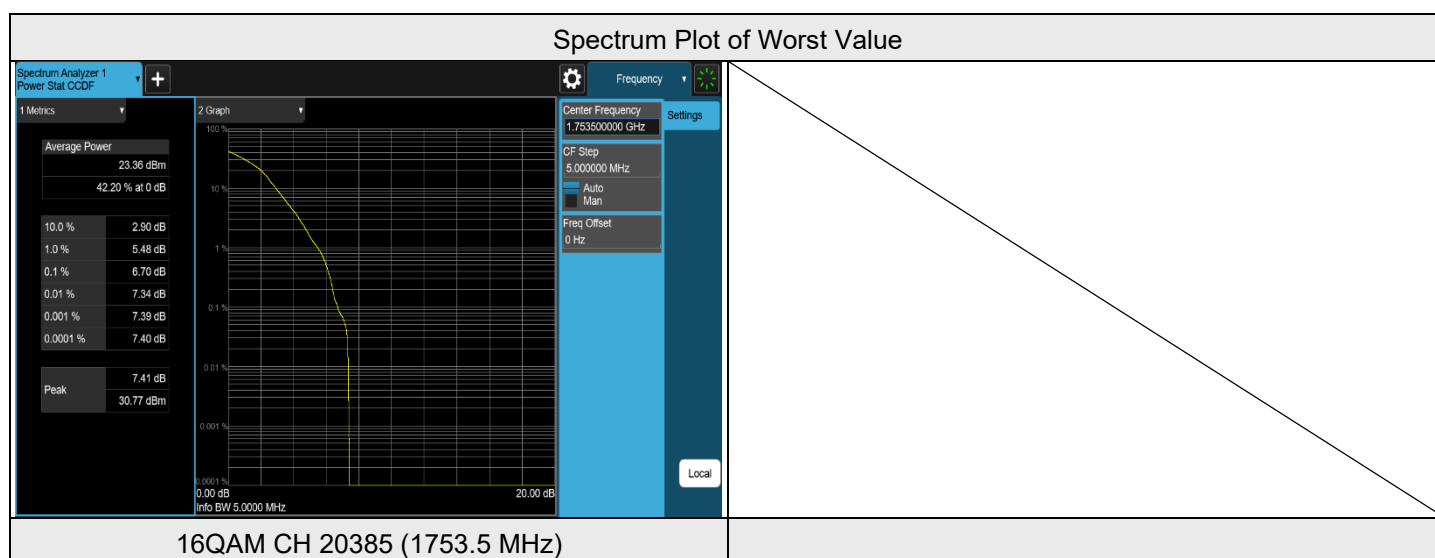
LTE Cat.1 Band 4, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	19957	1710.7	5.11	13	PASS
QPSK	20175	1732.5	5.57	13	PASS
QPSK	20393	1754.3	5.40	13	PASS
16QAM	19957	1710.7	6.30	13	PASS
16QAM	20175	1732.5	6.70	13	PASS
16QAM	20393	1754.3	6.54	13	PASS



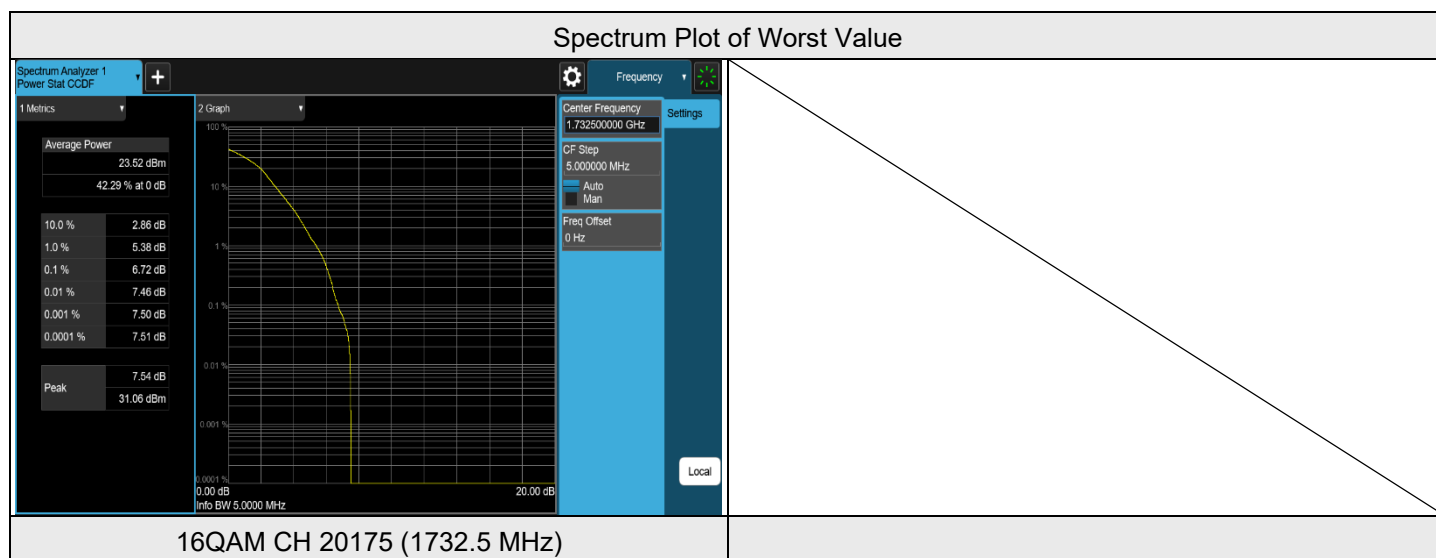
LTE Cat.1 Band 4, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	19965	1711.5	5.30	13	PASS
QPSK	20175	1732.5	5.60	13	PASS
QPSK	20385	1753.5	5.48	13	PASS
16QAM	19965	1711.5	6.34	13	PASS
16QAM	20175	1732.5	6.69	13	PASS
16QAM	20385	1753.5	6.70	13	PASS



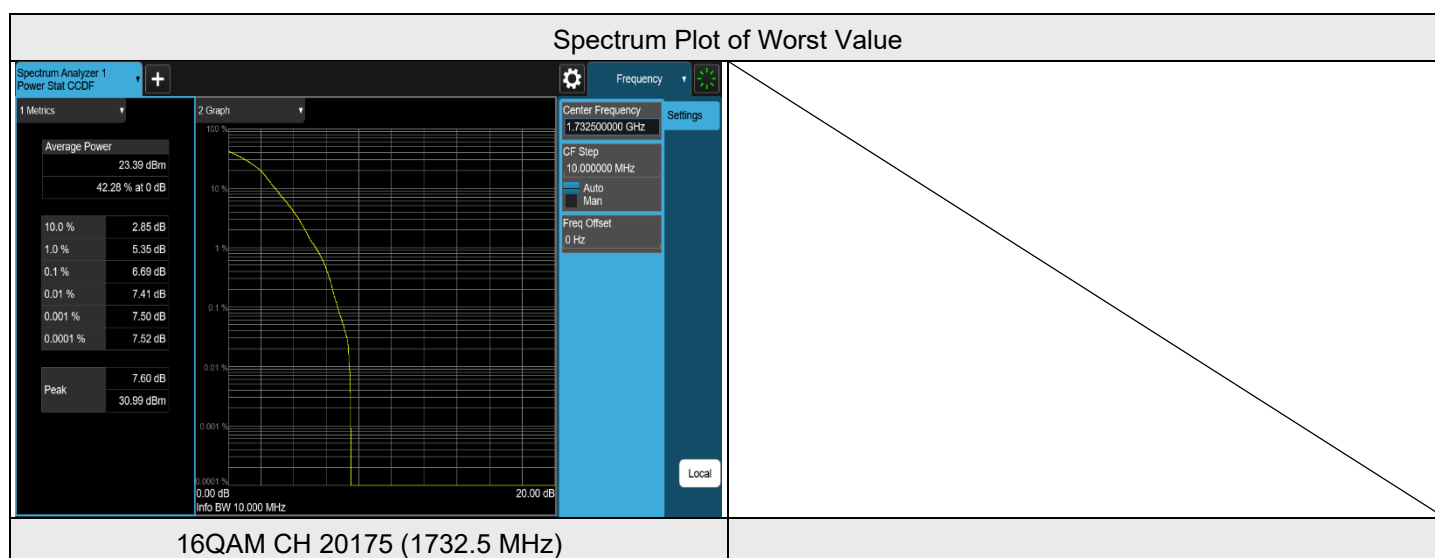
LTE Cat.1 Band 4, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	19975	1712.5	5.18	13	PASS
QPSK	20175	1732.5	5.54	13	PASS
QPSK	20375	1752.5	5.40	13	PASS
16QAM	19975	1712.5	6.20	13	PASS
16QAM	20175	1732.5	6.72	13	PASS
16QAM	20375	1752.5	6.37	13	PASS



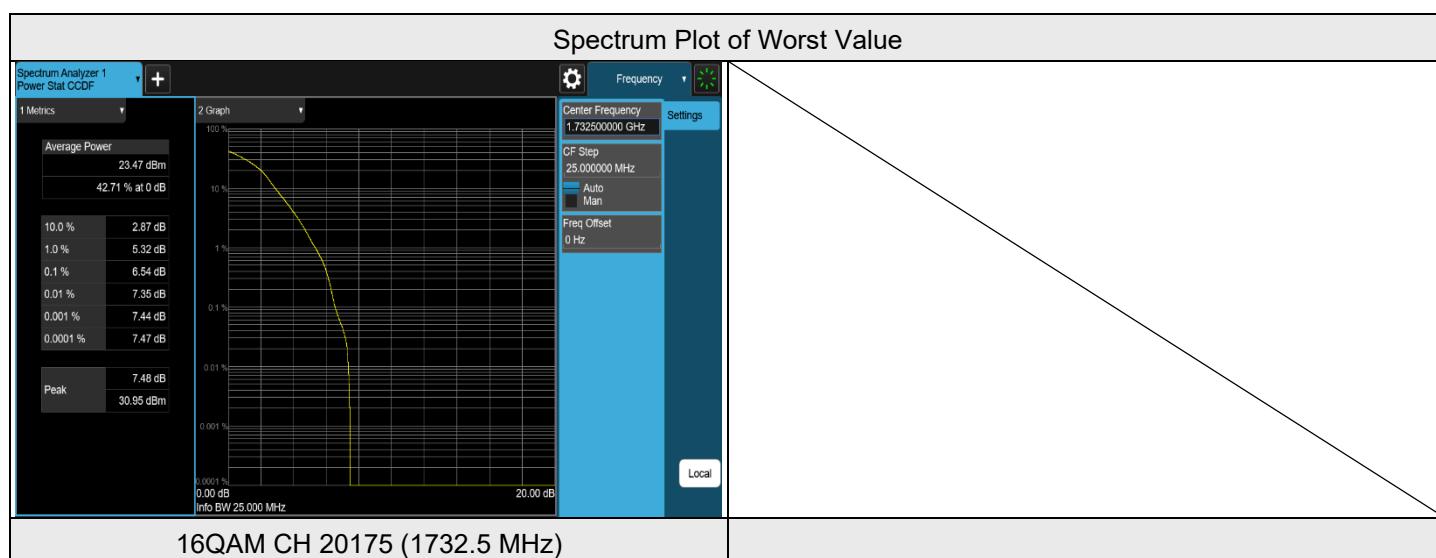
LTE Cat.1 Band 4, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	20000	1715	5.18	13	PASS
QPSK	20175	1732.5	5.51	13	PASS
QPSK	20350	1750	5.35	13	PASS
16QAM	20000	1715	6.14	13	PASS
16QAM	20175	1732.5	6.69	13	PASS
16QAM	20350	1750	6.50	13	PASS



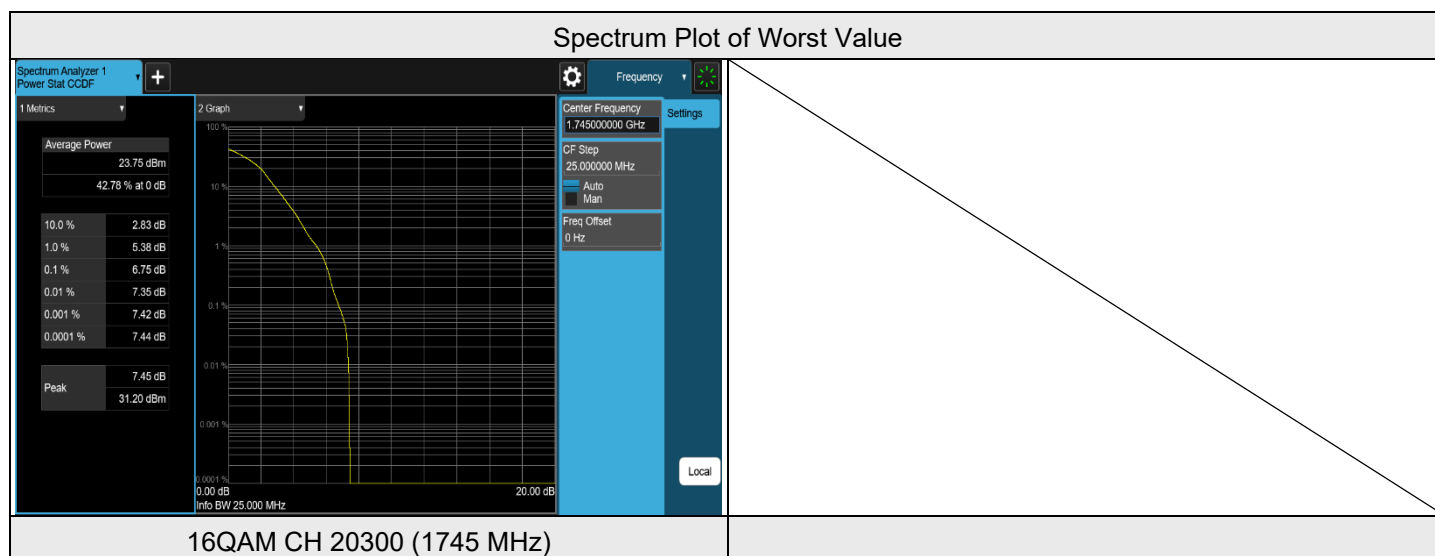
LTE Cat.1 Band 4, Channel Bandwidth: 15 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	20025	1717.5	5.04	13	PASS
QPSK	20175	1732.5	5.50	13	PASS
QPSK	20325	1747.5	5.41	13	PASS
16QAM	20025	1717.5	5.96	13	PASS
16QAM	20175	1732.5	6.54	13	PASS
16QAM	20325	1747.5	6.45	13	PASS



LTE Cat.1 Band 4, Channel Bandwidth: 20 MHz

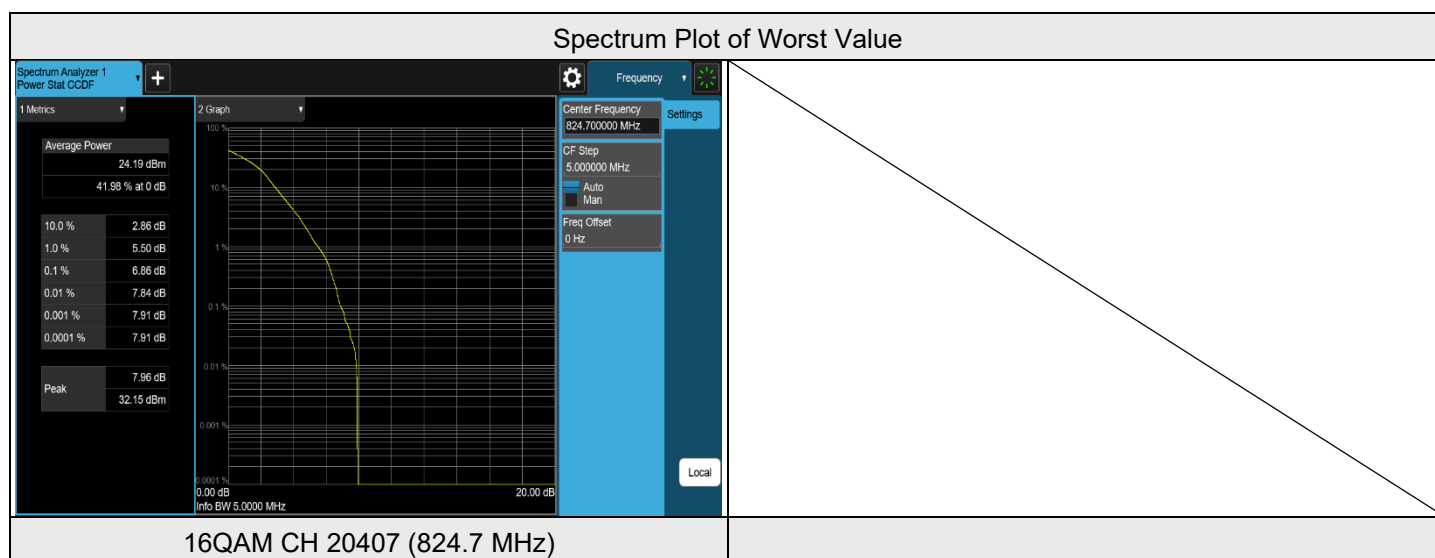
Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	20050	1720	5.04	13	PASS
QPSK	20175	1732.5	5.47	13	PASS
QPSK	20300	1745	5.42	13	PASS
16QAM	20050	1720	5.95	13	PASS
16QAM	20175	1732.5	6.53	13	PASS
16QAM	20300	1745	6.75	13	PASS



7.3.3 LTE Cat.1 Band 5

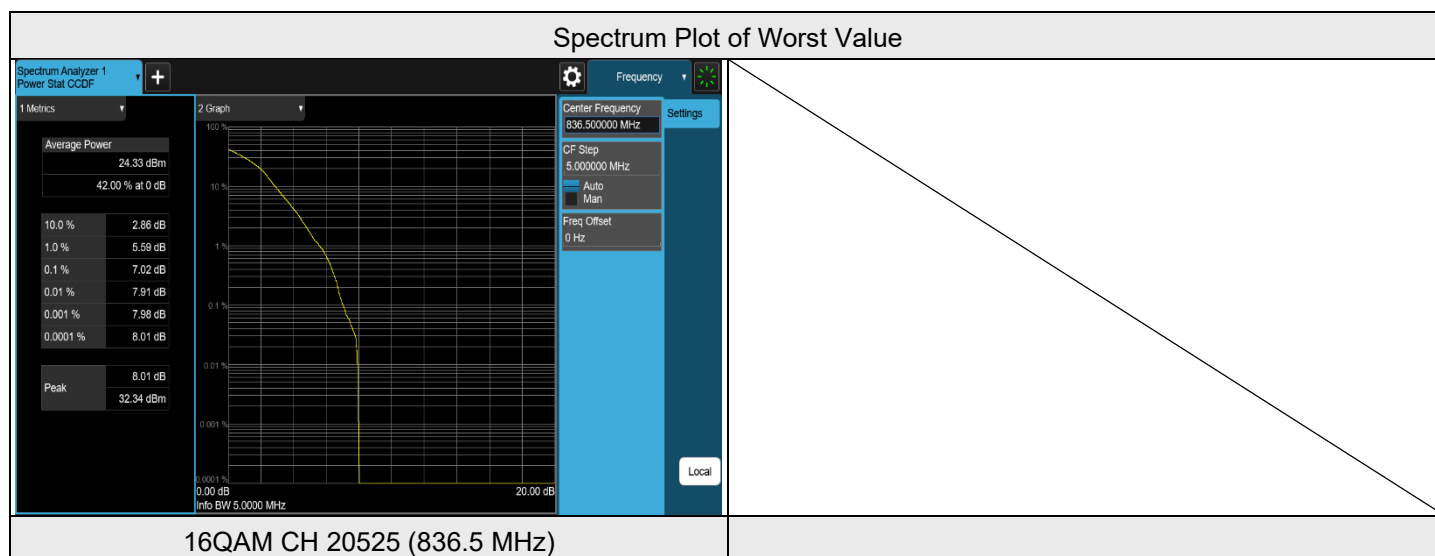
LTE Cat.1 Band 5, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	20407	824.7	5.85	13	PASS
QPSK	20525	836.5	5.81	13	PASS
QPSK	20643	848.3	5.84	13	PASS
16QAM	20407	824.7	6.86	13	PASS
16QAM	20525	836.5	6.79	13	PASS
16QAM	20643	848.3	6.86	13	PASS



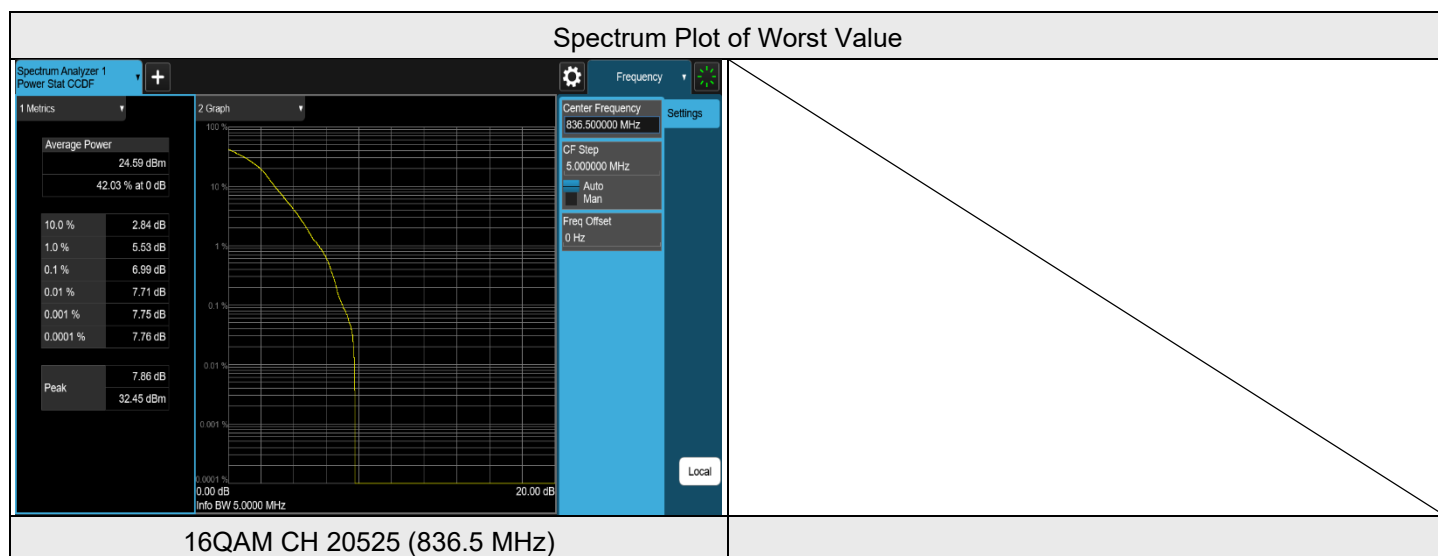
LTE Cat.1 Band 5, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	20415	825.5	5.82	13	PASS
QPSK	20525	836.5	5.81	13	PASS
QPSK	20635	847.5	5.79	13	PASS
16QAM	20415	825.5	6.92	13	PASS
16QAM	20525	836.5	7.02	13	PASS
16QAM	20635	847.5	6.89	13	PASS



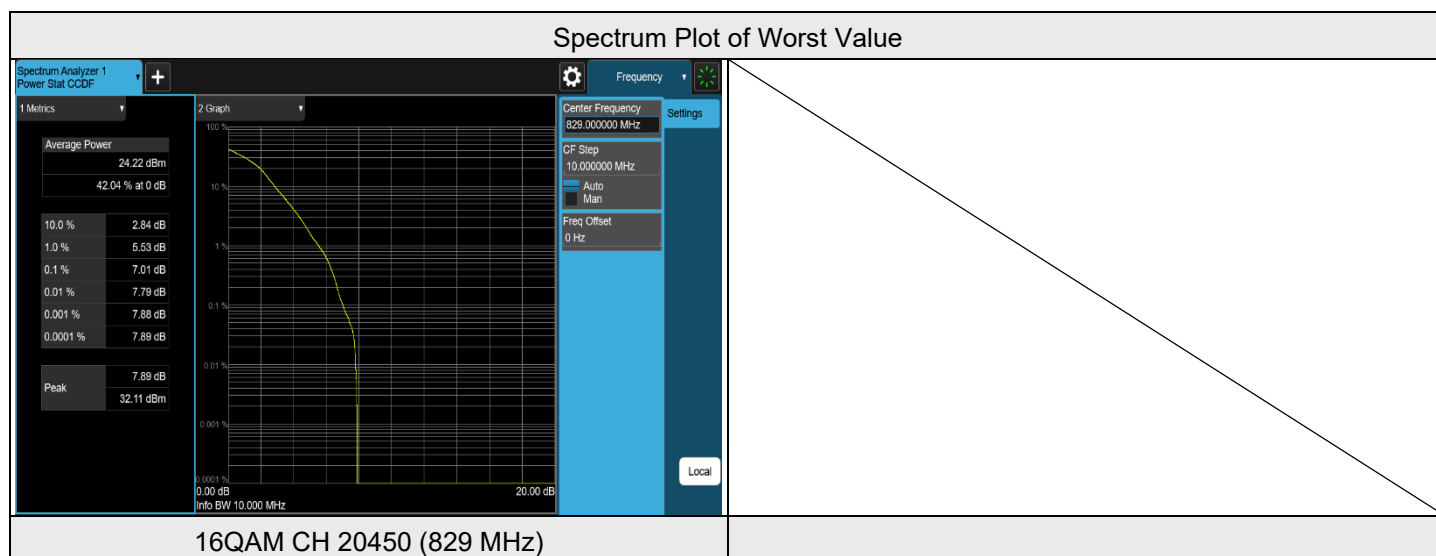
LTE Cat.1 Band 5, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	20425	826.5	5.75	13	PASS
QPSK	20525	836.5	5.73	13	PASS
QPSK	20625	846.5	5.64	13	PASS
16QAM	20425	826.5	6.75	13	PASS
16QAM	20525	836.5	6.99	13	PASS
16QAM	20625	846.5	6.76	13	PASS



LTE Cat.1 Band 5, Channel Bandwidth: 10 MHz

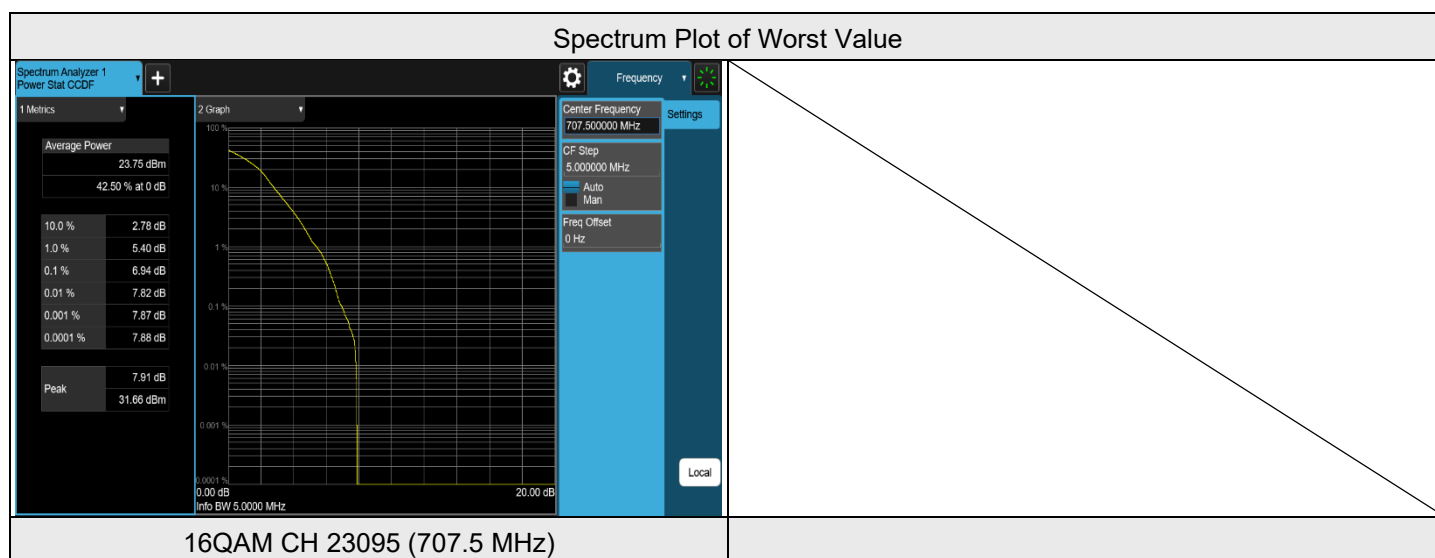
Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	20450	829	5.75	13	PASS
QPSK	20525	836.5	5.73	13	PASS
QPSK	20600	844	5.67	13	PASS
16QAM	20450	829	7.01	13	PASS
16QAM	20525	836.5	6.83	13	PASS
16QAM	20600	844	6.79	13	PASS



7.3.4 LTE Cat.1 Band 12

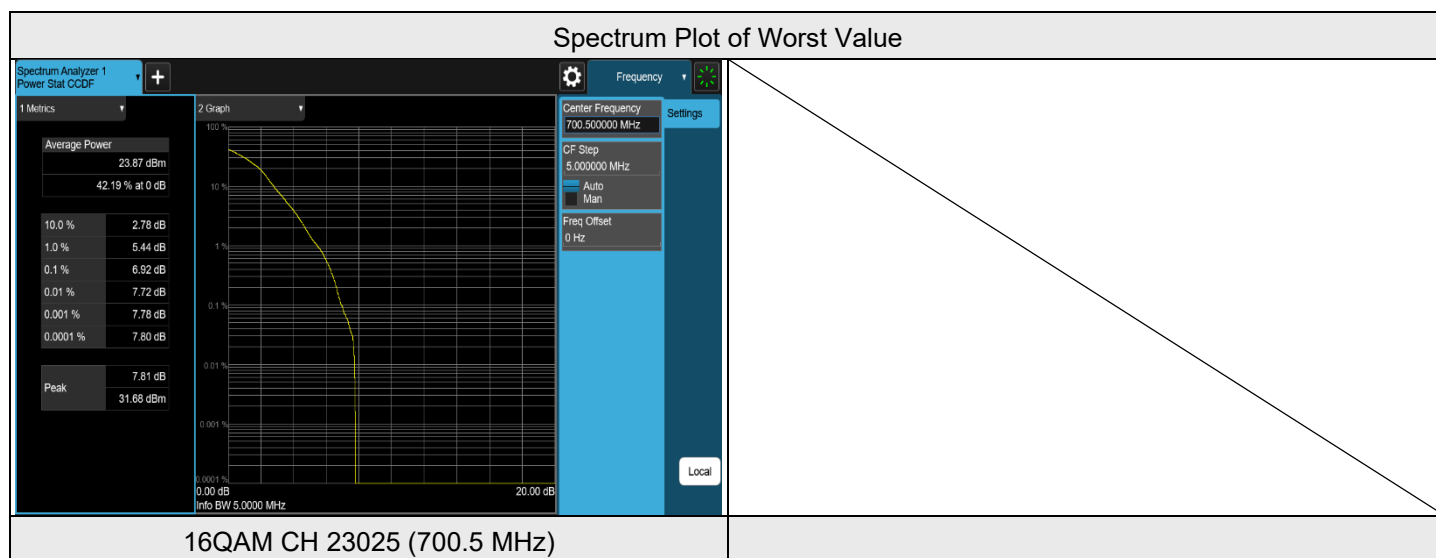
LTE Cat.1 Band 12, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	23017	699.7	5.55	13	PASS
QPSK	23095	707.5	5.75	13	PASS
QPSK	23173	715.3	5.49	13	PASS
16QAM	23017	699.7	6.80	13	PASS
16QAM	23095	707.5	6.94	13	PASS
16QAM	23173	715.3	6.51	13	PASS



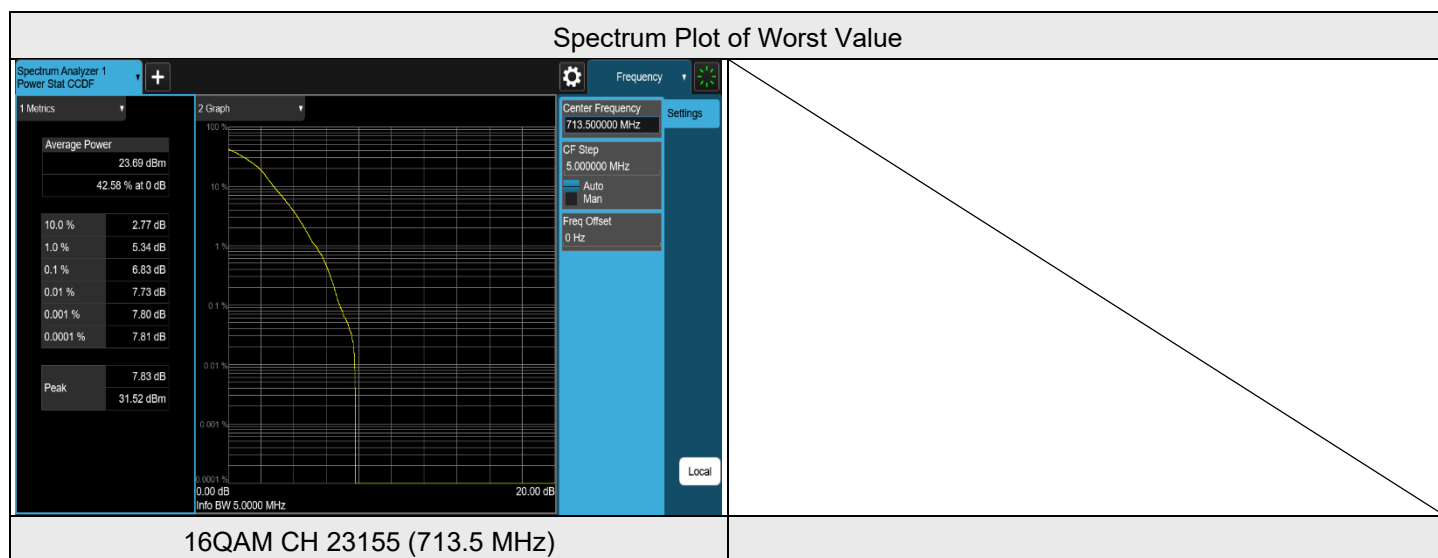
LTE Cat.1 Band 12, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	23025	700.5	5.78	13	PASS
QPSK	23095	707.5	5.73	13	PASS
QPSK	23165	714.5	5.64	13	PASS
16QAM	23025	700.5	6.92	13	PASS
16QAM	23095	707.5	6.82	13	PASS
16QAM	23165	714.5	6.64	13	PASS



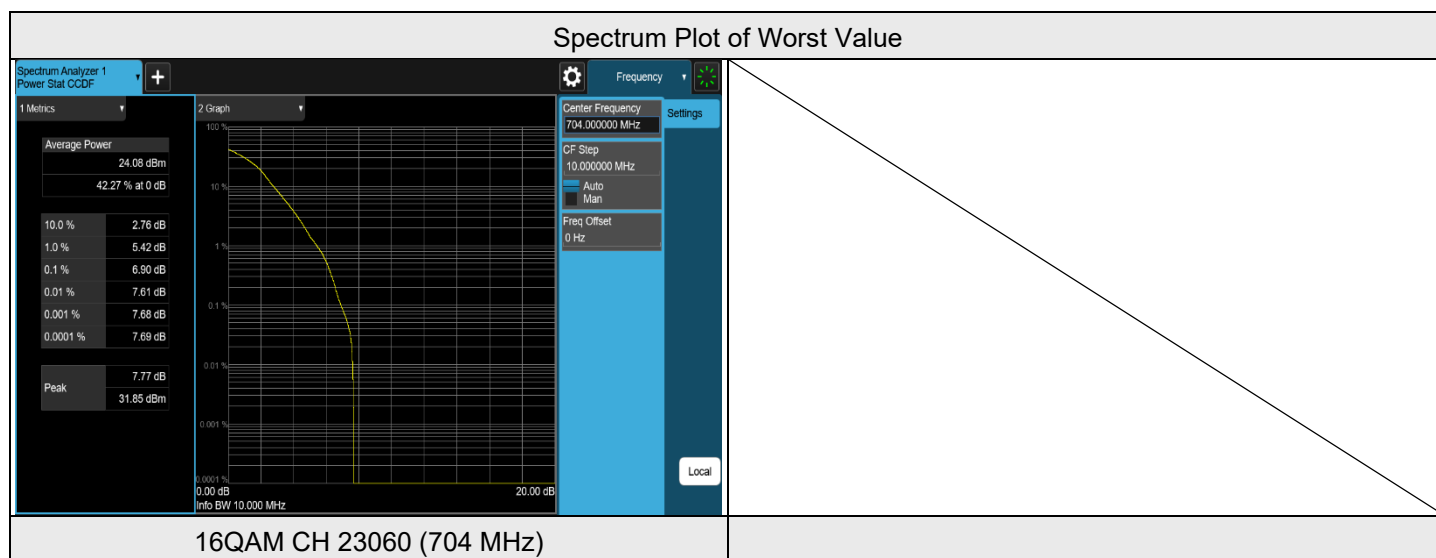
LTE Cat.1 Band 12, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	23035	701.5	5.68	13	PASS
QPSK	23095	707.5	5.68	13	PASS
QPSK	23155	713.5	5.72	13	PASS
16QAM	23035	701.5	6.78	13	PASS
16QAM	23095	707.5	6.81	13	PASS
16QAM	23155	713.5	6.83	13	PASS



LTE Cat.1 Band 12, Channel Bandwidth: 10 MHz

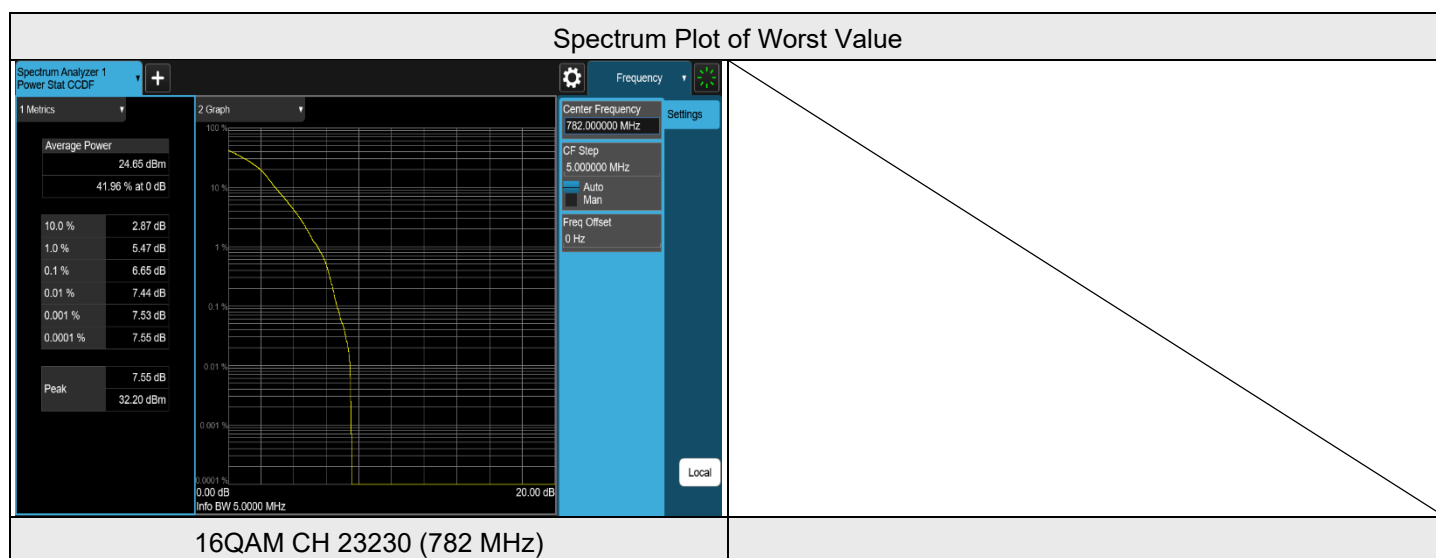
Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	23060	704	5.75	13	PASS
QPSK	23095	707.5	5.72	13	PASS
QPSK	23130	711	5.65	13	PASS
16QAM	23060	704	6.90	13	PASS
16QAM	23095	707.5	6.80	13	PASS
16QAM	23130	711	6.75	13	PASS



7.3.5 LTE Cat.1 Band 13

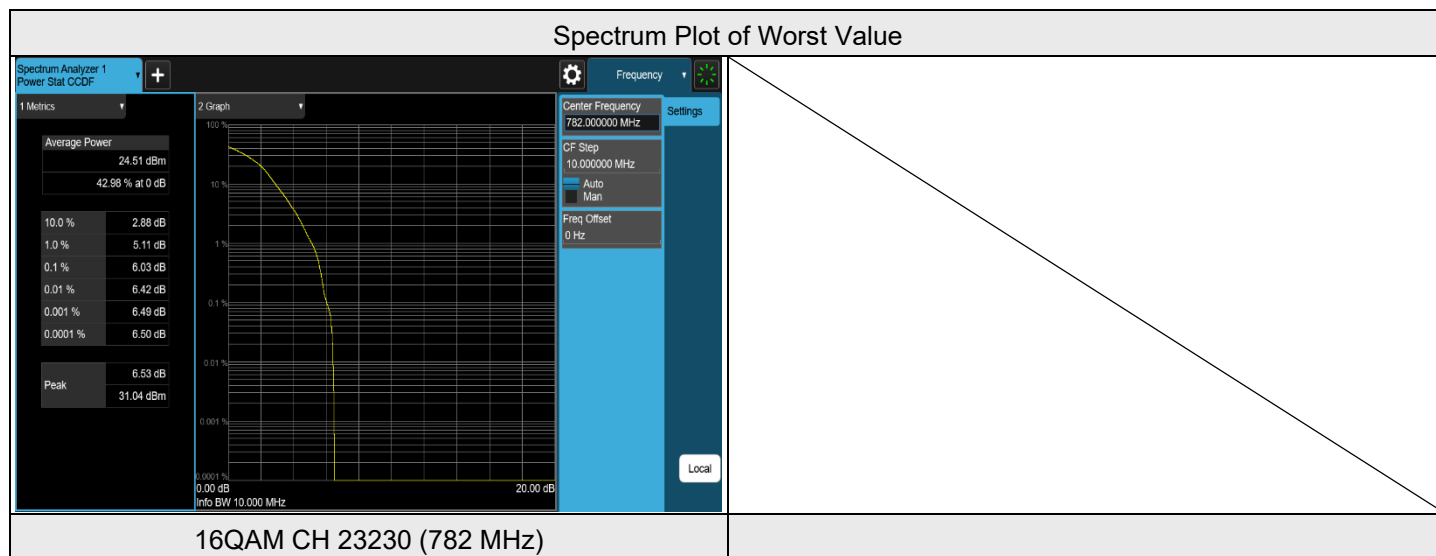
LTE Cat.1 Band 13, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	23205	779.5	4.98	13	PASS
QPSK	23230	782	5.69	13	PASS
QPSK	23255	784.5	5.34	13	PASS
16QAM	23205	779.5	5.86	13	PASS
16QAM	23230	782	6.65	13	PASS
16QAM	23255	784.5	6.32	13	PASS



LTE Cat.1 Band 13, Channel Bandwidth: 10 MHz

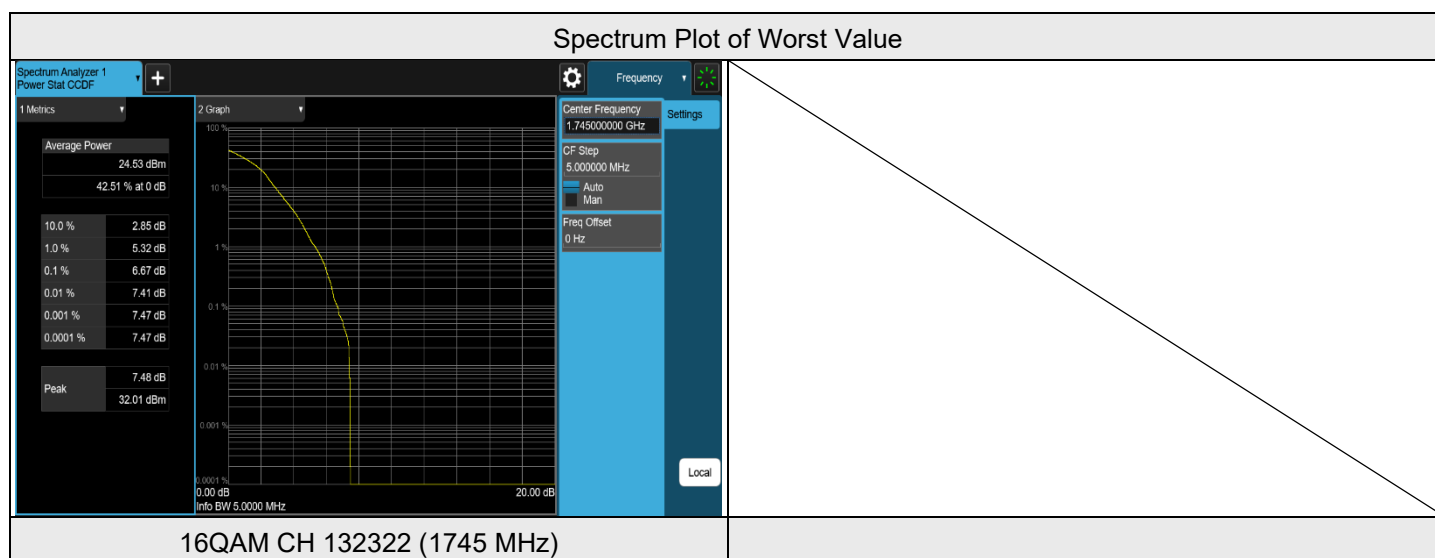
Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	23230	782	4.90	13	PASS
16QAM	23230	782	6.03	13	PASS



7.3.6 LTE Cat.1 Band 66

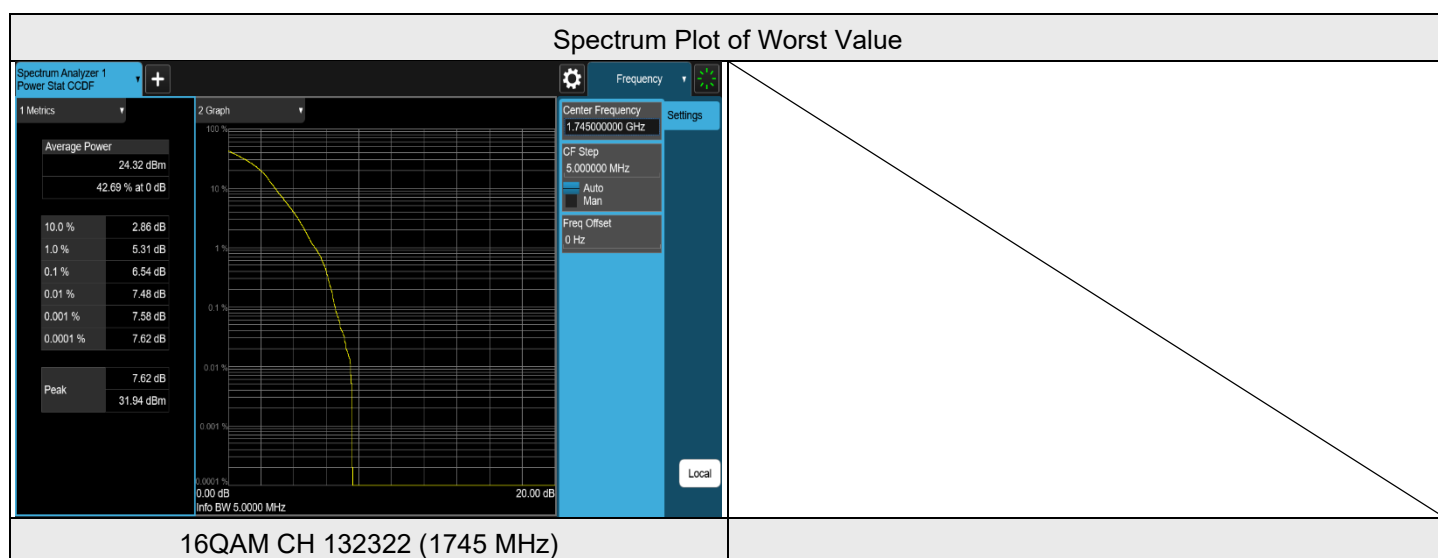
LTE Cat.1 Band 66, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	131979	1710.7	5.07	13	PASS
QPSK	132322	1745	5.50	13	PASS
QPSK	132665	1779.3	5.29	13	PASS
16QAM	131979	1710.7	6.35	13	PASS
16QAM	132322	1745	6.67	13	PASS
16QAM	132665	1779.3	6.53	13	PASS



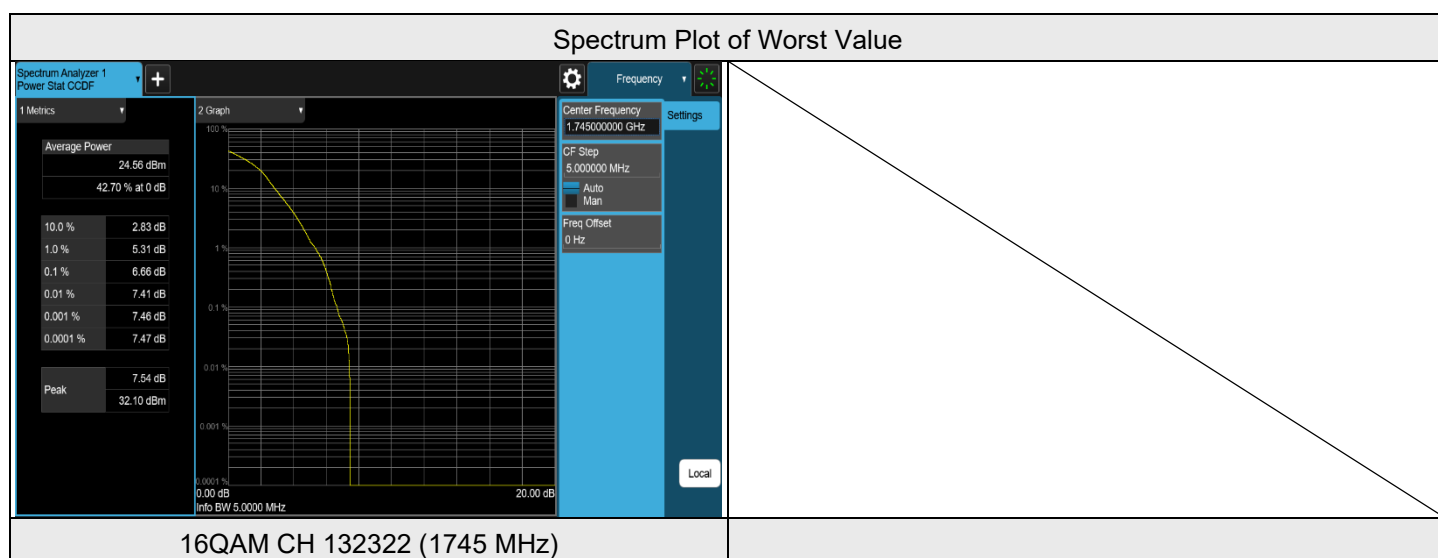
LTE Cat.1 Band 66, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	131987	1711.5	5.30	13	PASS
QPSK	132322	1745	5.54	13	PASS
QPSK	132657	1778.5	5.34	13	PASS
16QAM	131987	1711.5	6.37	13	PASS
16QAM	132322	1745	6.54	13	PASS
16QAM	132657	1778.5	6.37	13	PASS



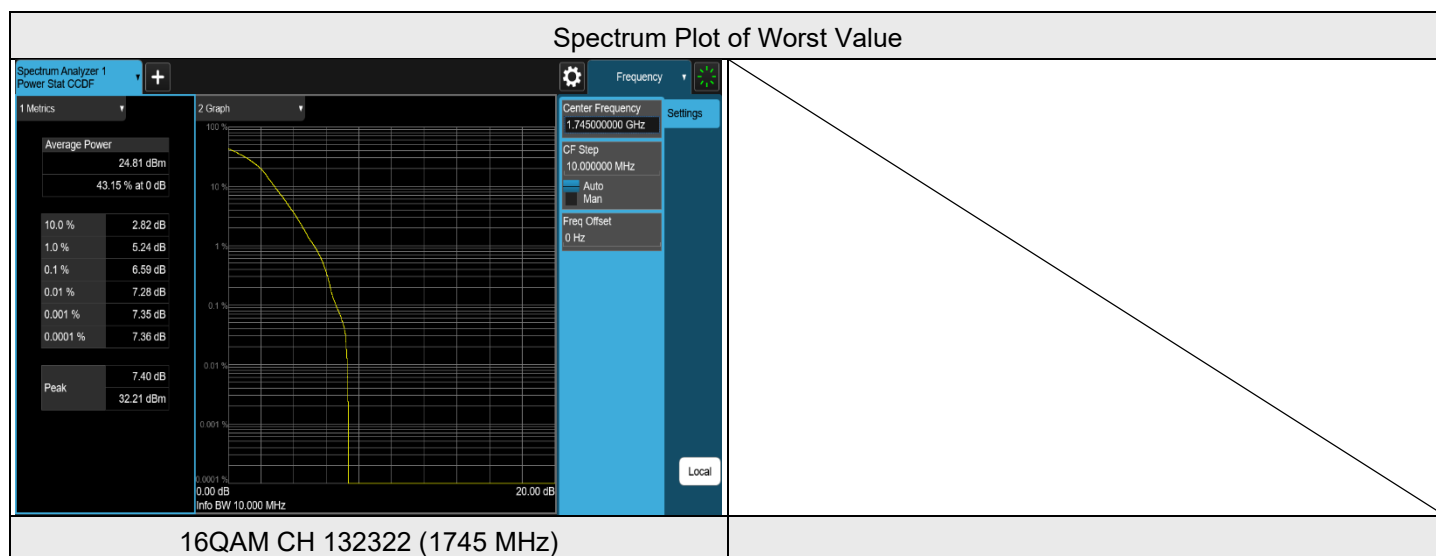
LTE Cat.1 Band 66, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	131997	1712.5	5.15	13	PASS
QPSK	132322	1745	5.48	13	PASS
QPSK	132647	1777.5	5.28	13	PASS
16QAM	131997	1712.5	6.24	13	PASS
16QAM	132322	1745	6.66	13	PASS
16QAM	132647	1777.5	6.42	13	PASS



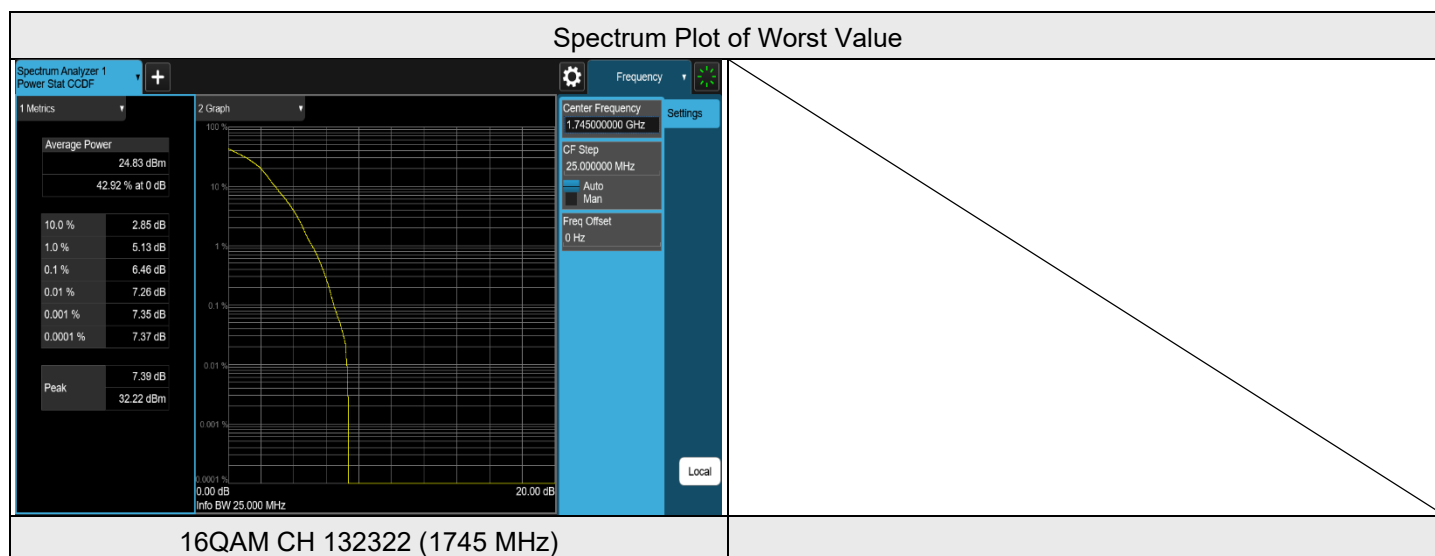
LTE Cat.1 Band 66, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	132022	1715	5.23	13	PASS
QPSK	132322	1745	5.40	13	PASS
QPSK	132622	1775	5.26	13	PASS
16QAM	132022	1715	6.21	13	PASS
16QAM	132322	1745	6.59	13	PASS
16QAM	132622	1775	6.36	13	PASS



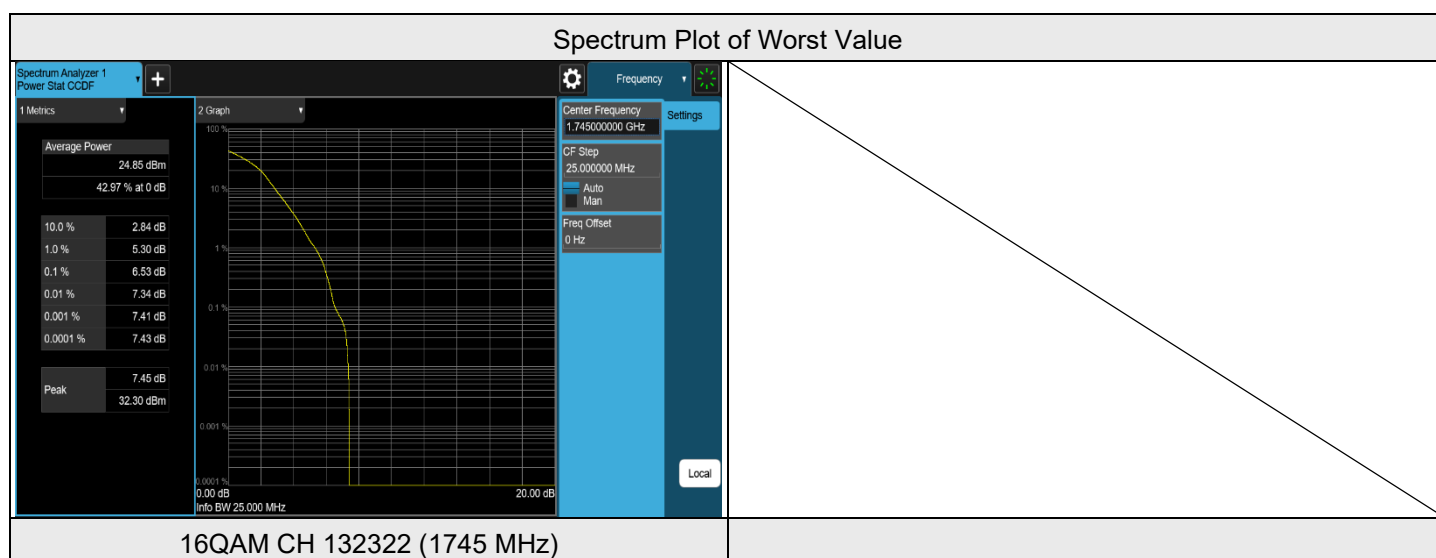
LTE Cat.1 Band 66, Channel Bandwidth: 15 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	132047	1717.5	5.17	13	PASS
QPSK	132322	1745	5.43	13	PASS
QPSK	132597	1772.5	5.20	13	PASS
16QAM	132047	1717.5	6.22	13	PASS
16QAM	132322	1745	6.46	13	PASS
16QAM	132597	1772.5	6.05	13	PASS



LTE Cat.1 Band 66, Channel Bandwidth: 20 MHz

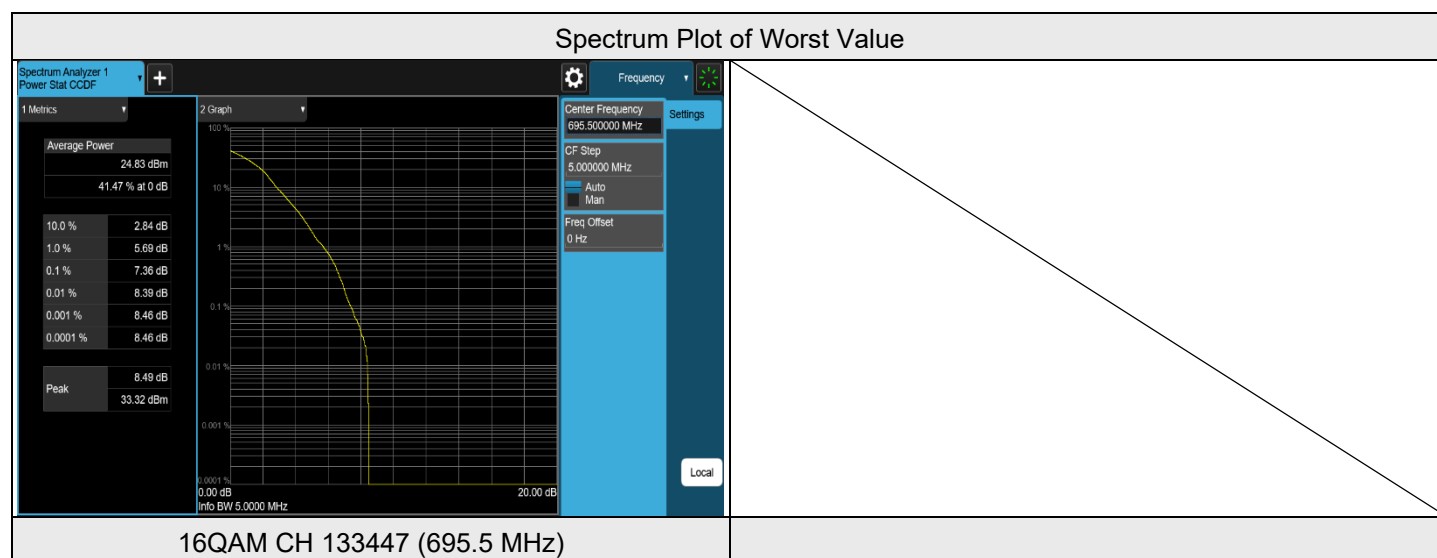
Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	132072	1720	5.15	13	PASS
QPSK	132322	1745	5.42	13	PASS
QPSK	132572	1770	5.21	13	PASS
16QAM	132072	1720	6.25	13	PASS
16QAM	132322	1745	6.53	13	PASS
16QAM	132572	1770	6.17	13	PASS



7.3.7 LTE Cat.1 Band 71

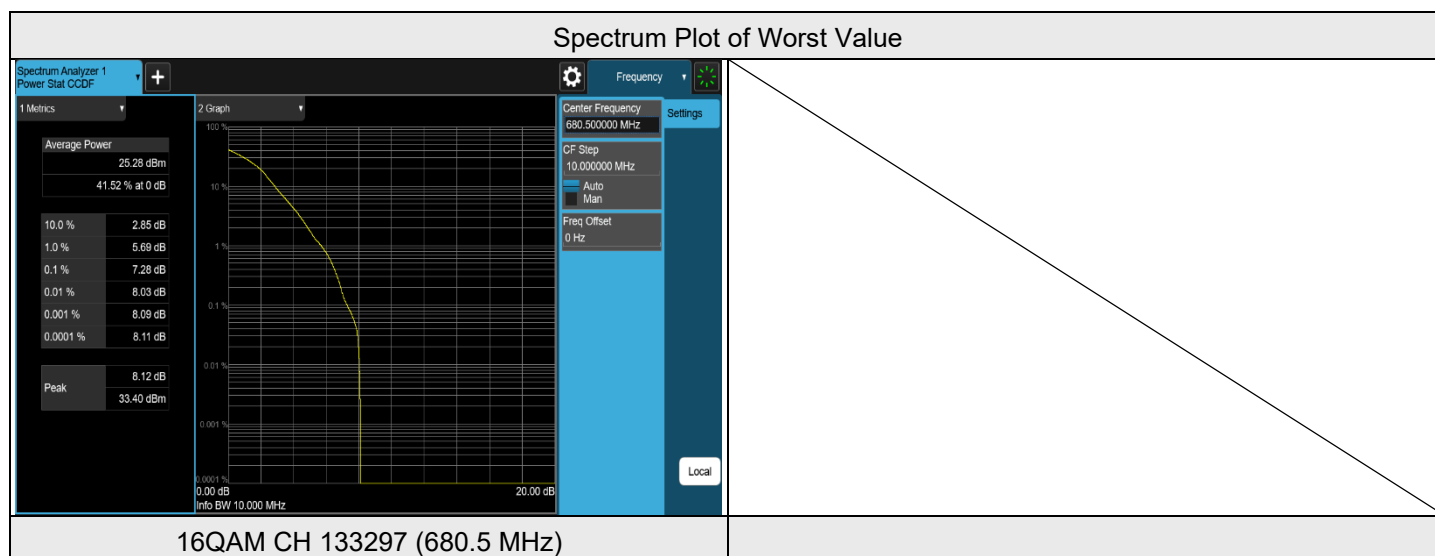
LTE Cat.1 Band 71, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	133147	665.5	5.74	13	PASS
QPSK	133297	680.5	6.01	13	PASS
QPSK	133447	695.5	6.12	13	PASS
16QAM	133147	665.5	6.55	13	PASS
16QAM	133297	680.5	7.18	13	PASS
16QAM	133447	695.5	7.36	13	PASS



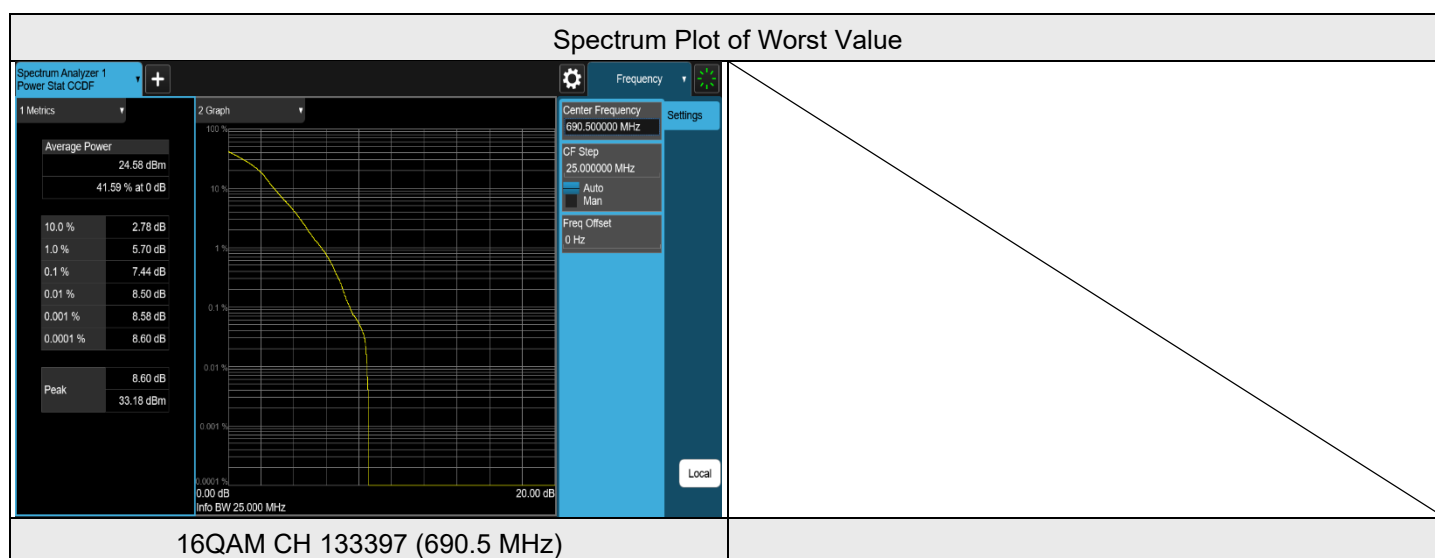
LTE Cat.1 Band 71, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	133172	668	5.63	13	PASS
QPSK	133297	680.5	6.05	13	PASS
QPSK	133422	693	6.10	13	PASS
16QAM	133172	668	6.64	13	PASS
16QAM	133297	680.5	7.28	13	PASS
16QAM	133422	693	7.19	13	PASS



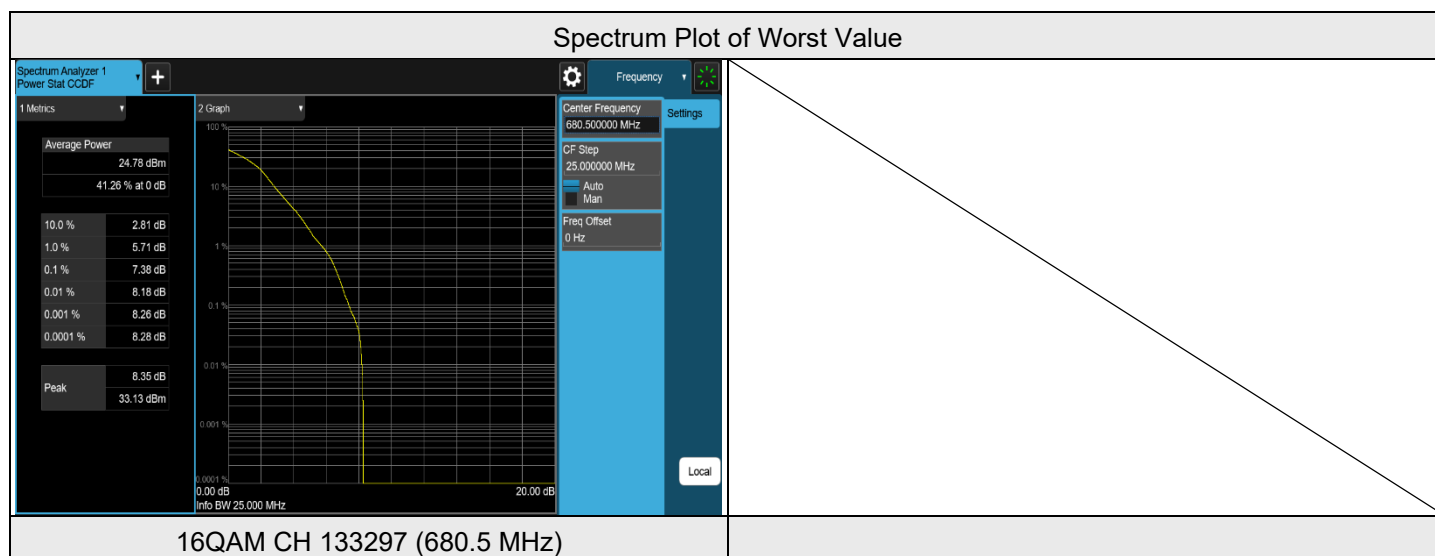
LTE Cat.1 Band 71, Channel Bandwidth: 15 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	133197	670.5	5.69	13	PASS
QPSK	133297	680.5	6.04	13	PASS
QPSK	133397	690.5	6.02	13	PASS
16QAM	133197	670.5	6.60	13	PASS
16QAM	133297	680.5	7.28	13	PASS
16QAM	133397	690.5	7.44	13	PASS



LTE Cat.1 Band 71, Channel Bandwidth: 20 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	133222	673	5.72	13	PASS
QPSK	133297	680.5	6.05	13	PASS
QPSK	133372	688	6.00	13	PASS
16QAM	133222	673	6.80	13	PASS
16QAM	133297	680.5	7.38	13	PASS
16QAM	133372	688	7.36	13	PASS



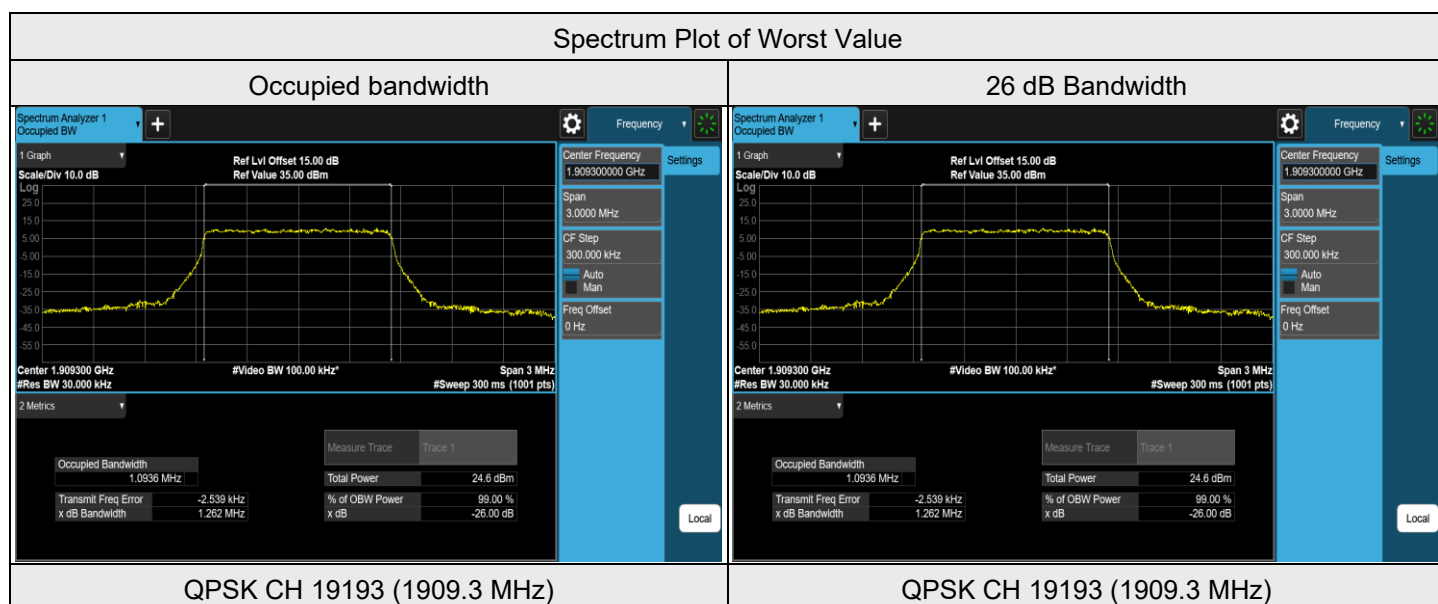
7.4 Bandwidth

Input Power:	12 Vdc	Environmental Conditions:	25°C, 65% RH	Tested By:	Charles Hsiao
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7.4.1 LTE Cat.1 Band 2

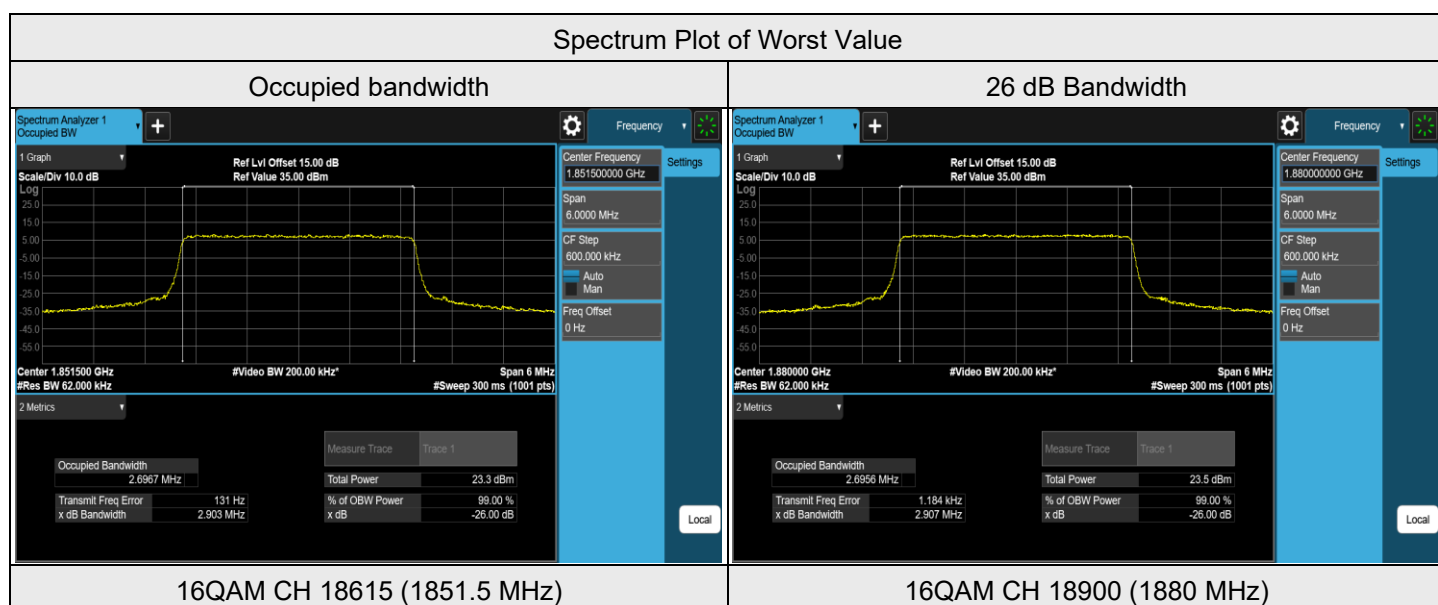
LTE Cat.1 Band 2, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18607	1850.7	1.0834	1.239
QPSK	18900	1880	1.0928	1.255
QPSK	19193	1909.3	1.0936	1.262
16QAM	18607	1850.7	1.0898	1.258
16QAM	18900	1880	1.0892	1.252
16QAM	19193	1909.3	1.0891	1.254



LTE Cat.1 Band 2, Channel Bandwidth: 3 MHz

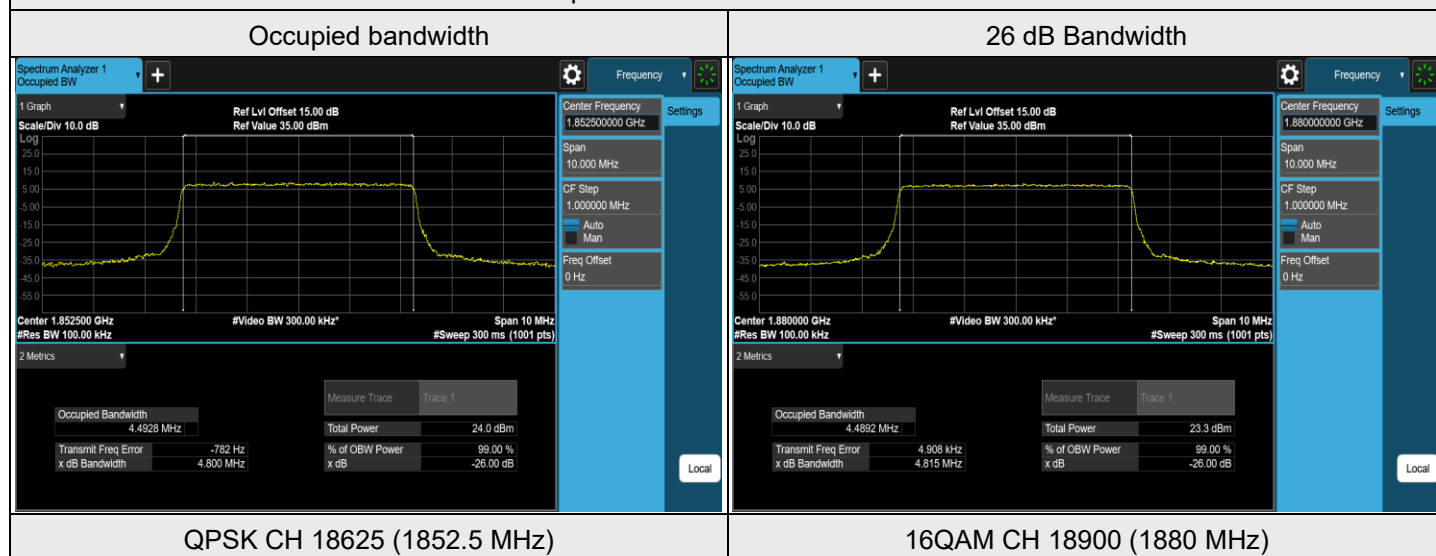
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18615	1851.5	2.6950	2.901
QPSK	18900	1880	2.6965	2.895
QPSK	19185	1908.5	2.6934	2.900
16QAM	18615	1851.5	2.6967	2.903
16QAM	18900	1880	2.6956	2.907
16QAM	19185	1908.5	2.6948	2.898



LTE Cat.1 Band 2, Channel Bandwidth: 5 MHz

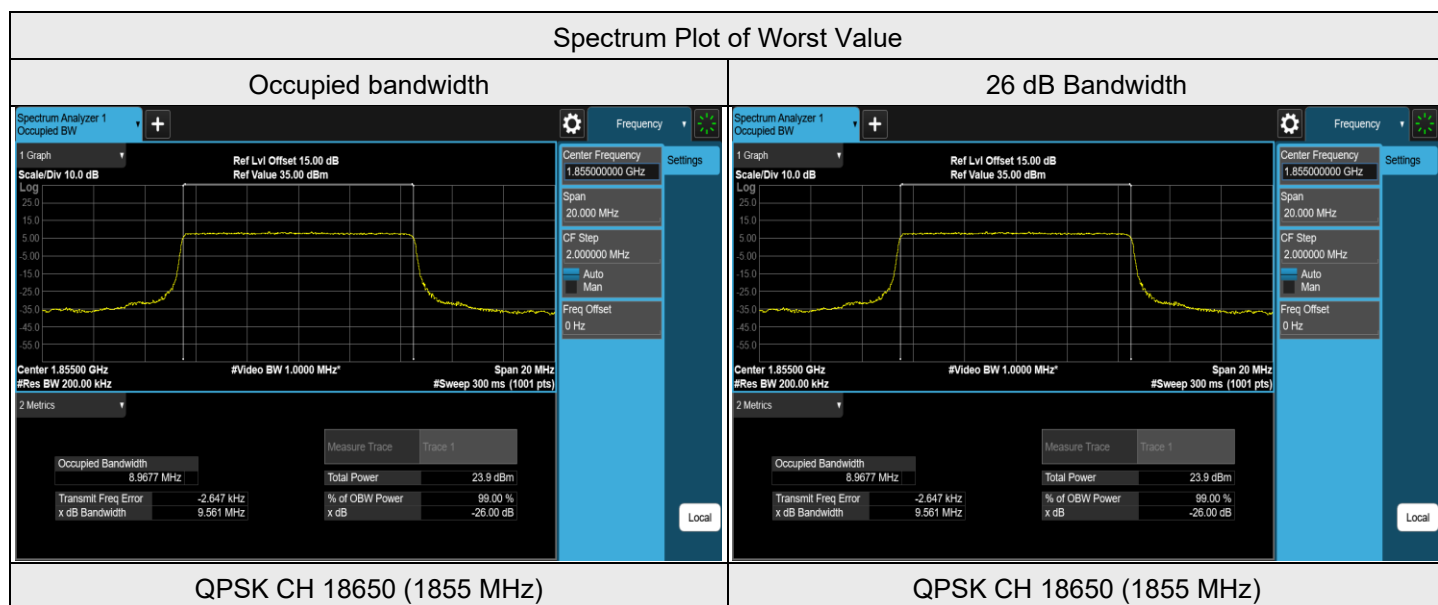
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18625	1852.5	4.4928	4.800
QPSK	18900	1880	4.4880	4.800
QPSK	19175	1907.5	4.4859	4.803
16QAM	18625	1852.5	4.4876	4.808
16QAM	18900	1880	4.4892	4.815
16QAM	19175	1907.5	4.4860	4.812

Spectrum Plot of Worst Value



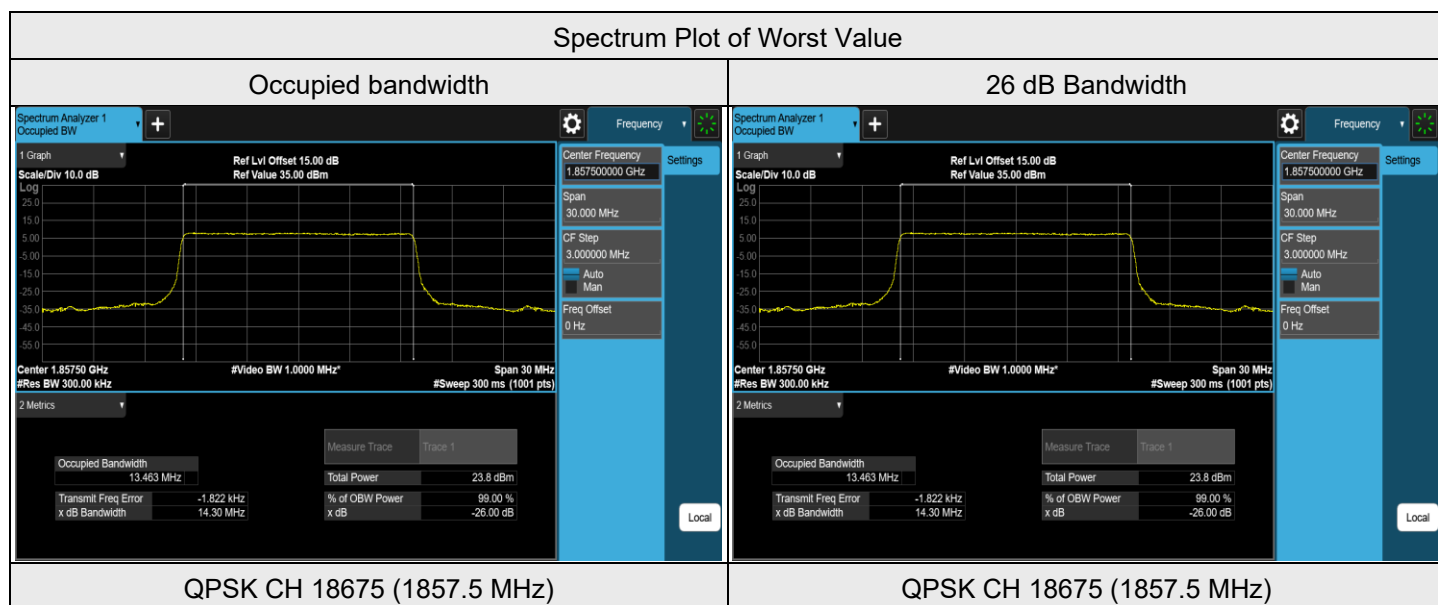
LTE Cat.1 Band 2, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18650	1855	8.9677	9.561
QPSK	18900	1880	8.9580	9.528
QPSK	19150	1905	8.9568	9.523
16QAM	18650	1855	4.5665	5.086
16QAM	18900	1880	4.5674	5.050
16QAM	19150	1905	4.5708	5.072



LTE Cat.1 Band 2, Channel Bandwidth: 15 MHz

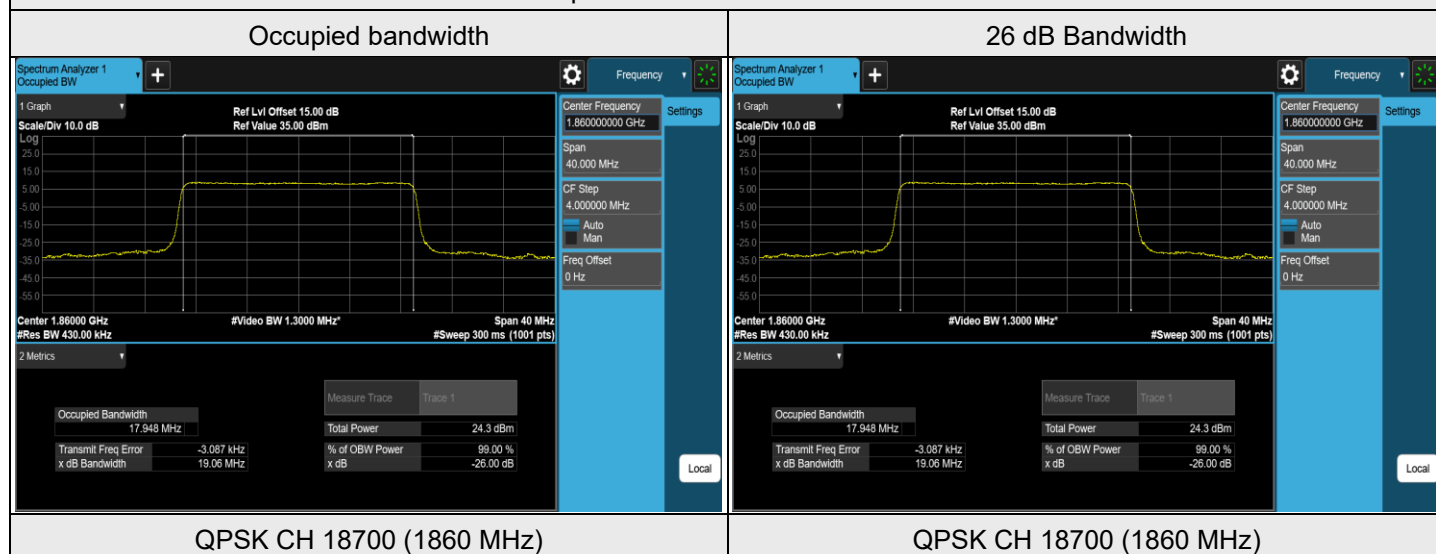
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18675	1857.5	13.4630	14.296
QPSK	18900	1880	13.4586	14.265
QPSK	19125	1902.5	13.4543	14.274
16QAM	18675	1857.5	4.6733	5.283
16QAM	18900	1880	4.6763	5.293
16QAM	19125	1902.5	4.6792	5.311



LTE Cat.1 Band 2, Channel Bandwidth: 20 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18700	1860	17.9481	19.058
QPSK	18900	1880	17.9116	19.033
QPSK	19100	1900	17.9423	19.038
16QAM	18700	1860	4.8030	5.576
16QAM	18900	1880	4.8061	5.565
16QAM	19100	1900	4.8083	5.564

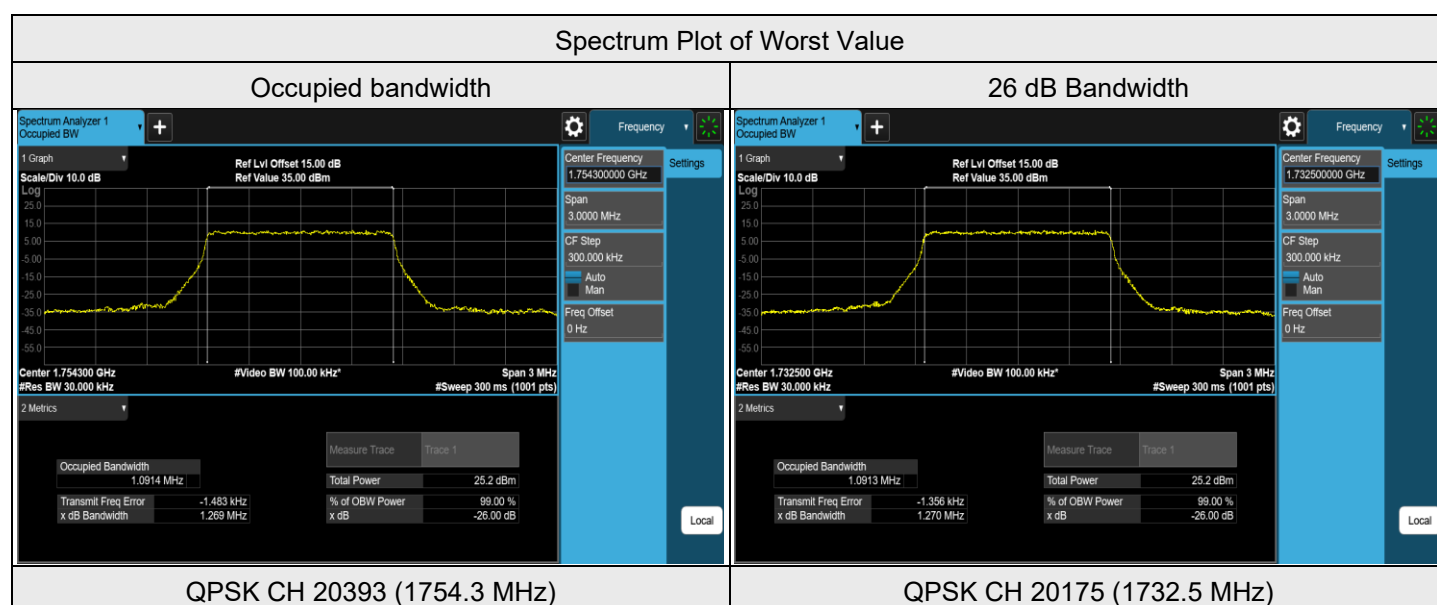
Spectrum Plot of Worst Value



7.4.2 LTE Cat.1 Band 4

LTE Cat.1 Band 4, Channel Bandwidth: 1.4 MHz

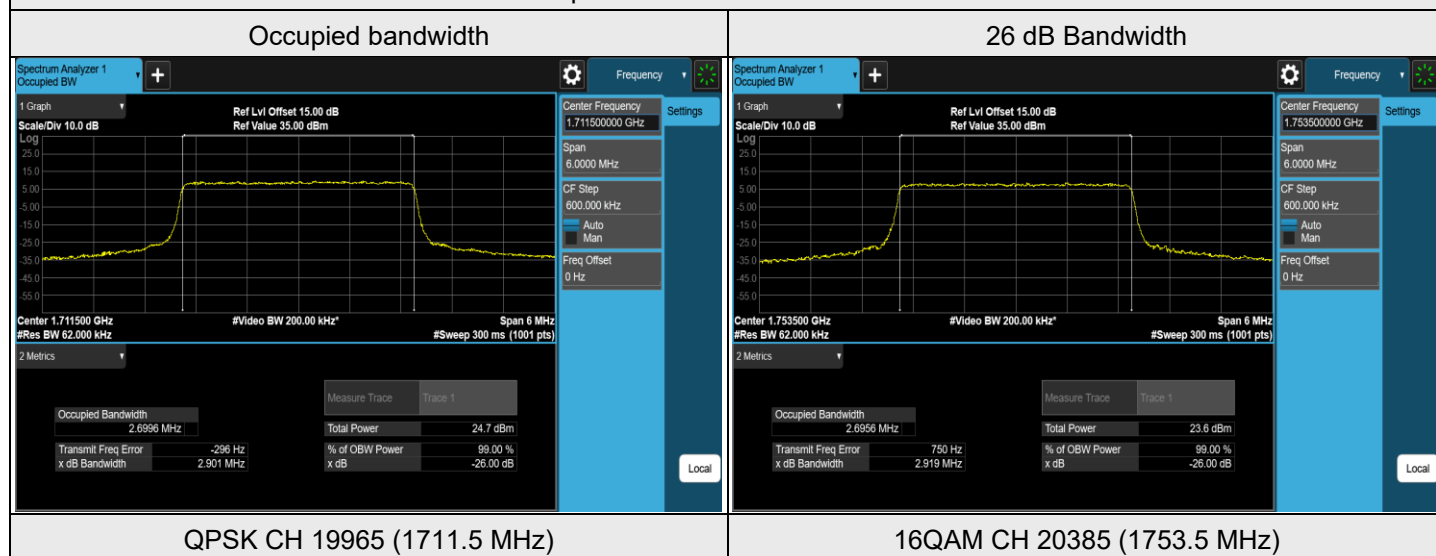
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	19957	1710.7	1.0891	1.254
QPSK	20175	1732.5	1.0913	1.270
QPSK	20393	1754.3	1.0914	1.269
16QAM	19957	1710.7	1.0897	1.244
16QAM	20175	1732.5	1.0892	1.249
16QAM	20393	1754.3	1.0892	1.251



LTE Cat.1 Band 4, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	19965	1711.5	2.6996	2.901
QPSK	20175	1732.5	2.6963	2.895
QPSK	20385	1753.5	2.6965	2.897
16QAM	19965	1711.5	2.6947	2.903
16QAM	20175	1732.5	2.6946	2.901
16QAM	20385	1753.5	2.6956	2.919

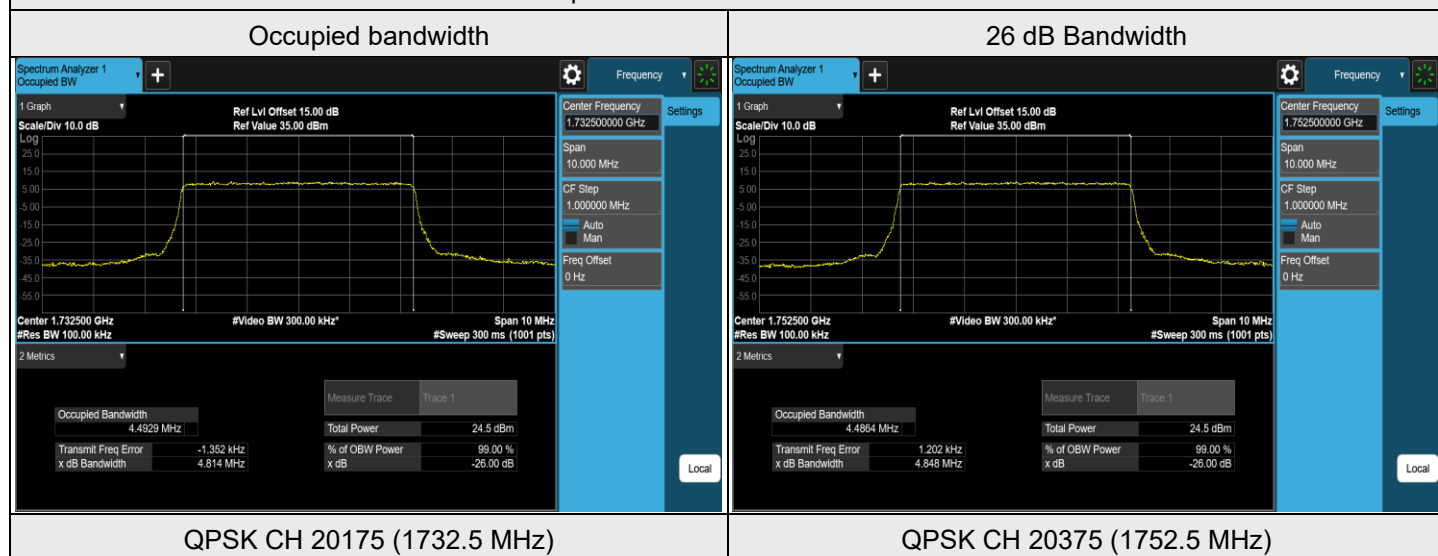
Spectrum Plot of Worst Value



LTE Cat.1 Band 4, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	19975	1712.5	4.4889	4.815
QPSK	20175	1732.5	4.4929	4.814
QPSK	20375	1752.5	4.4864	4.848
16QAM	19975	1712.5	4.4855	4.811
16QAM	20175	1732.5	4.4909	4.826
16QAM	20375	1752.5	4.4867	4.803

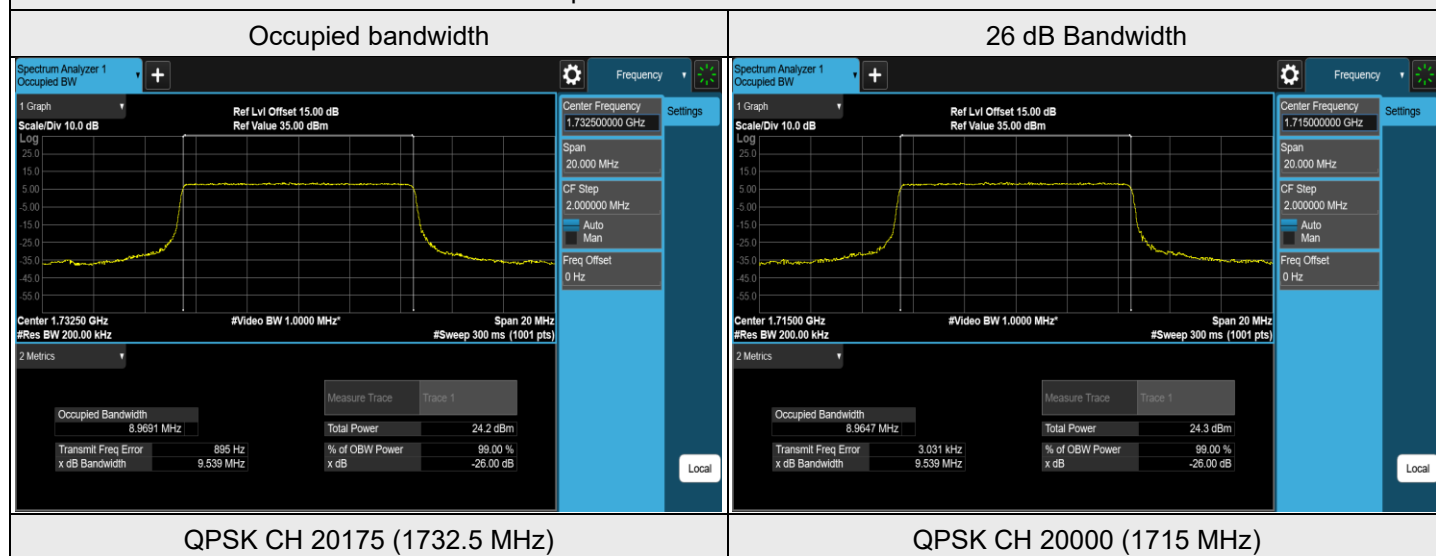
Spectrum Plot of Worst Value



LTE Cat.1 Band 4, Channel Bandwidth: 10 MHz

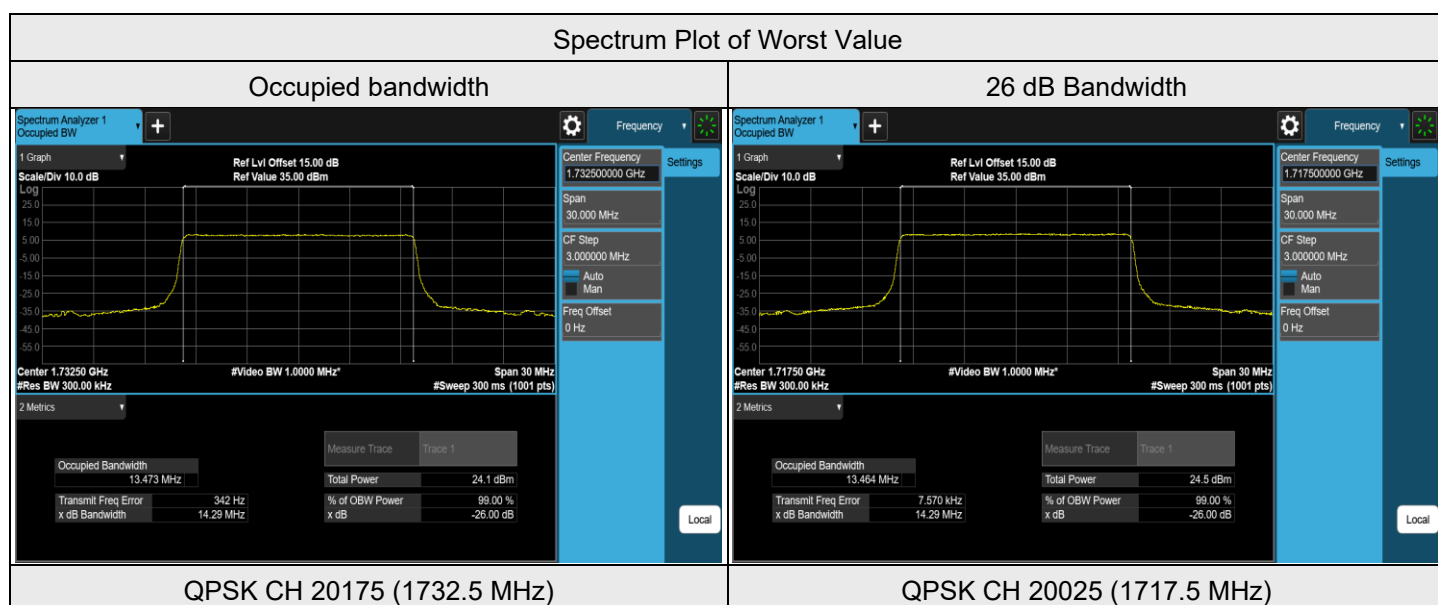
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20000	1715	8.9647	9.539
QPSK	20175	1732.5	8.9691	9.539
QPSK	20350	1750	8.9662	9.517
16QAM	20000	1715	4.5672	5.076
16QAM	20175	1732.5	4.5704	5.059
16QAM	20350	1750	4.5706	5.077

Spectrum Plot of Worst Value



LTE Cat.1 Band 4, Channel Bandwidth: 15 MHz

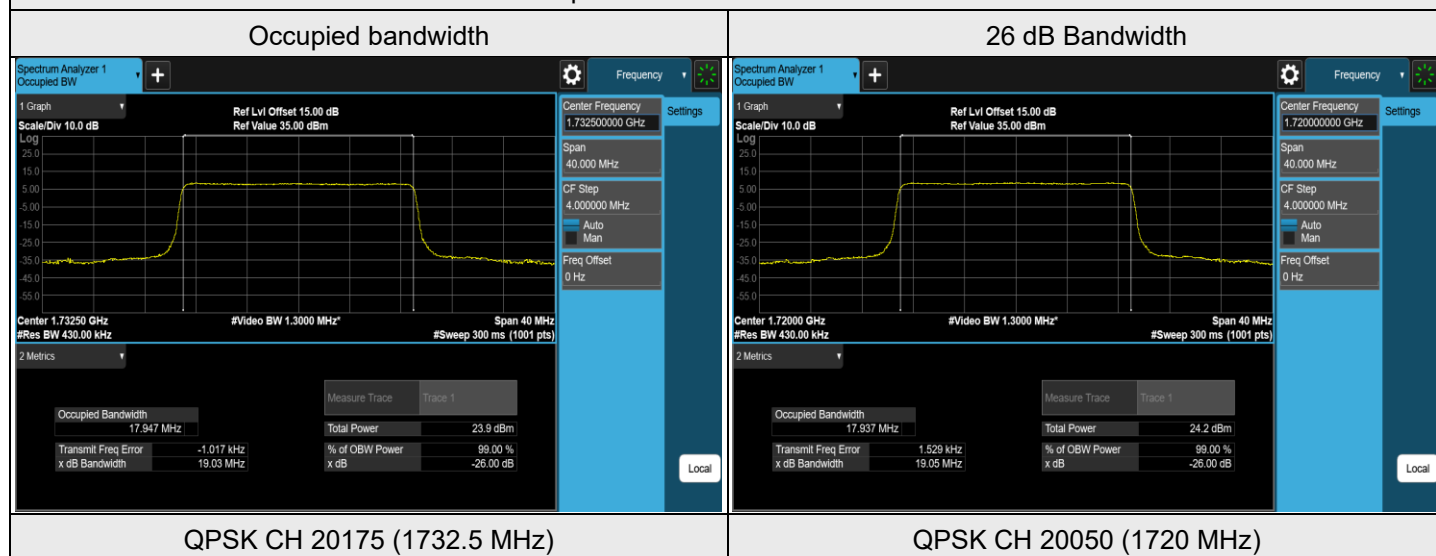
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20025	1717.5	13.4636	14.295
QPSK	20175	1732.5	13.4730	14.291
QPSK	20325	1747.5	13.4604	14.284
16QAM	20025	1717.5	4.6760	5.282
16QAM	20175	1732.5	4.6736	5.296
16QAM	20325	1747.5	4.6765	5.311



LTE Cat.1 Band 4, Channel Bandwidth: 20 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20050	1720	17.9370	19.048
QPSK	20175	1732.5	17.9466	19.028
QPSK	20300	1745	17.9408	19.034
16QAM	20050	1720	4.7992	5.574
16QAM	20175	1732.5	4.8050	5.560
16QAM	20300	1745	4.8102	5.555

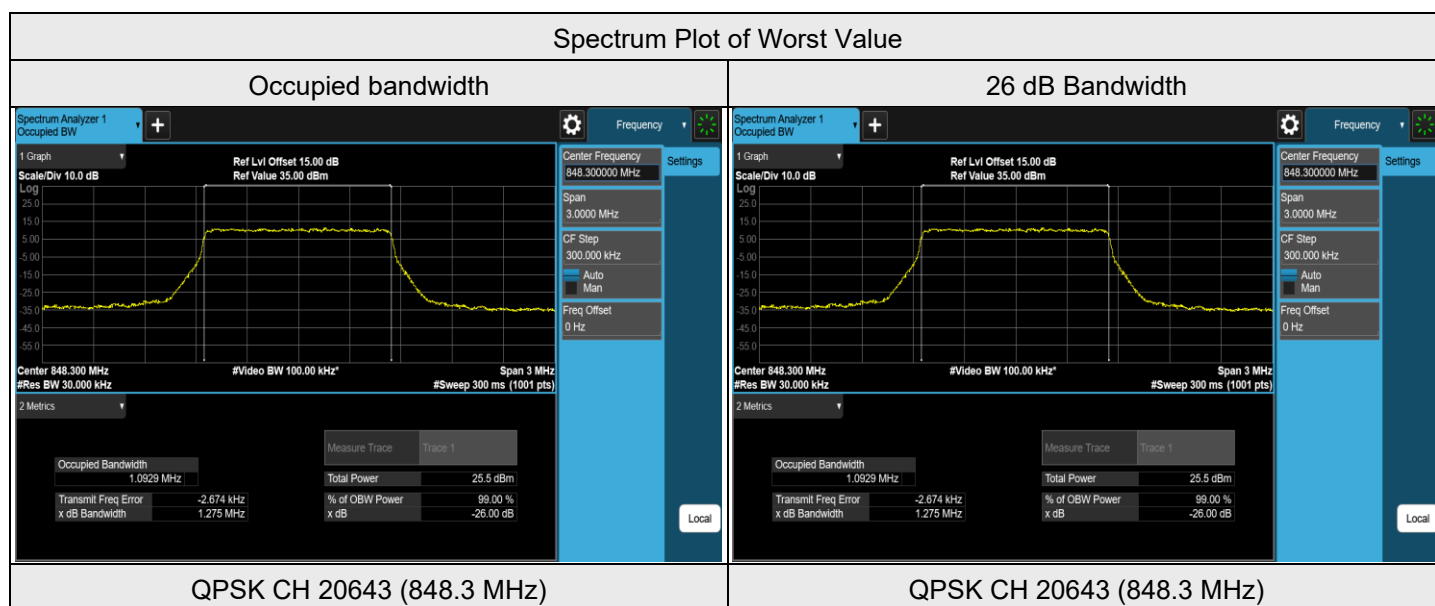
Spectrum Plot of Worst Value



7.4.3 LTE Cat.1 Band 5

LTE Cat.1 Band 5, Channel Bandwidth: 1.4 MHz

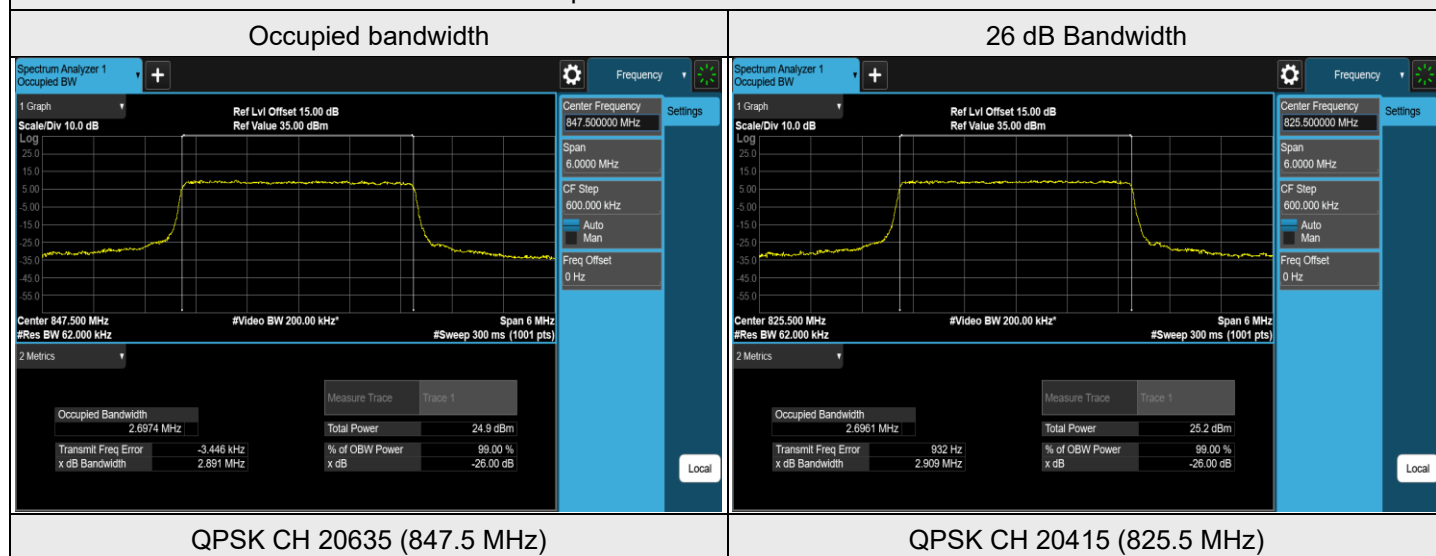
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20407	824.7	1.0849	1.240
QPSK	20525	836.5	1.0918	1.267
QPSK	20643	848.3	1.0929	1.275
16QAM	20407	824.7	1.0914	1.261
16QAM	20525	836.5	1.0895	1.257
16QAM	20643	848.3	1.0899	1.260



LTE Cat.1 Band 5, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20415	825.5	2.6961	2.909
QPSK	20525	836.5	2.6935	2.890
QPSK	20635	847.5	2.6974	2.891
16QAM	20415	825.5	2.6945	2.908
16QAM	20525	836.5	2.6941	2.906
16QAM	20635	847.5	2.6947	2.904

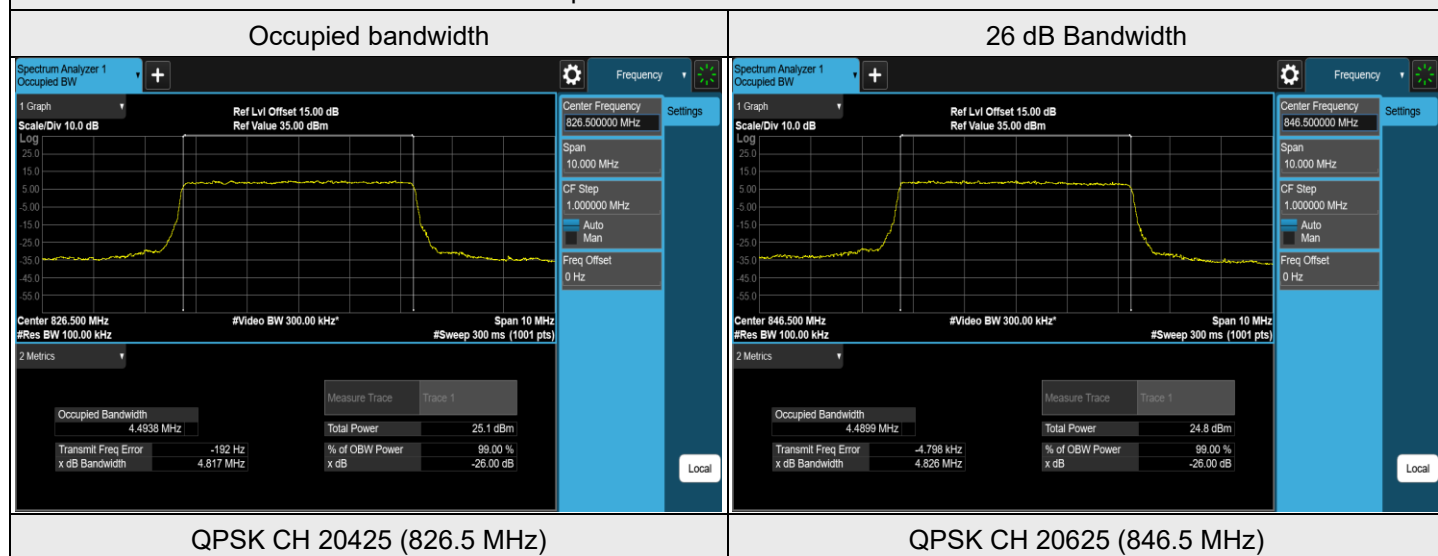
Spectrum Plot of Worst Value



LTE Cat.1 Band 5, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20425	826.5	4.4938	4.817
QPSK	20525	836.5	4.4937	4.823
QPSK	20625	846.5	4.4899	4.826
16QAM	20425	826.5	4.4877	4.799
16QAM	20525	836.5	4.4886	4.808
16QAM	20625	846.5	4.4860	4.817

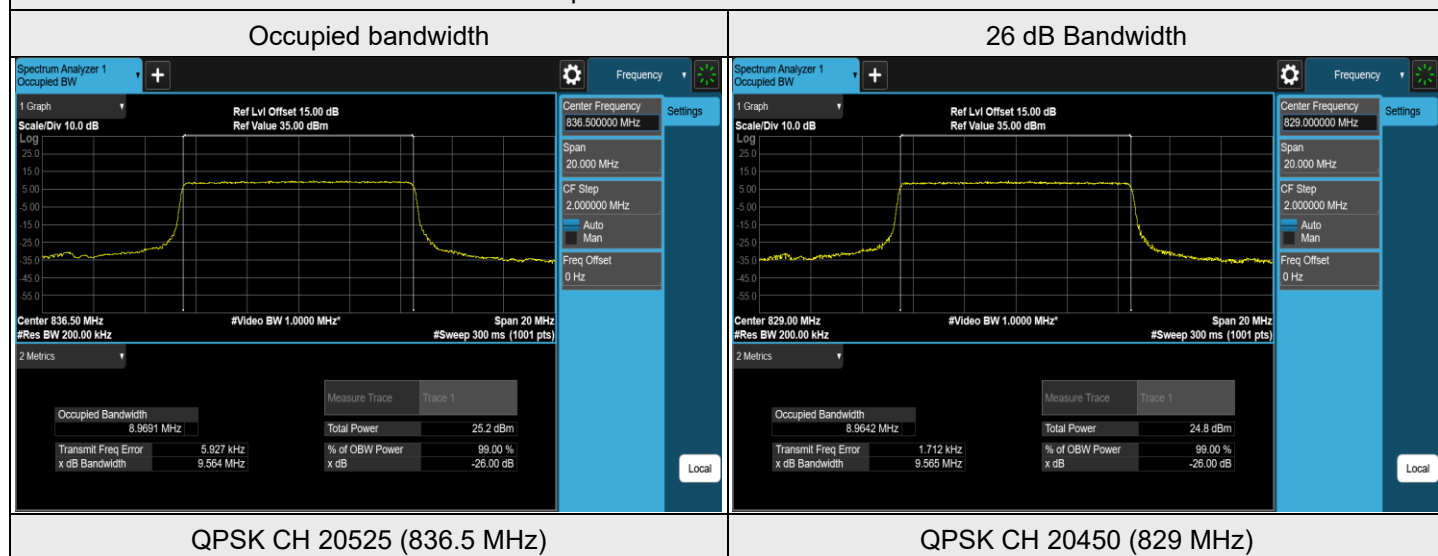
Spectrum Plot of Worst Value



LTE Cat.1 Band 5, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20450	829	8.9642	9.565
QPSK	20525	836.5	8.9691	9.564
QPSK	20600	844	8.9556	9.509
16QAM	20450	829	4.5728	5.085
16QAM	20525	836.5	4.5739	5.084
16QAM	20600	844	4.5706	5.085

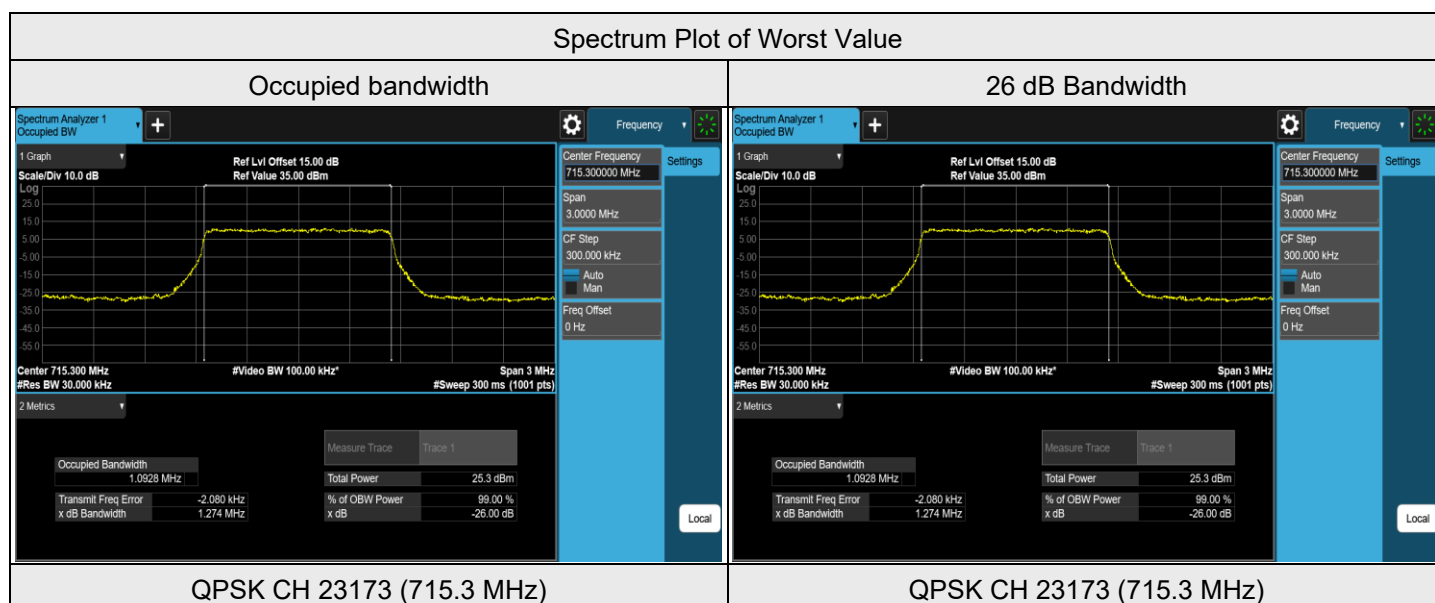
Spectrum Plot of Worst Value



7.4.4 LTE Cat.1 Band 12

LTE Cat.1 Band 12, Channel Bandwidth: 1.4 MHz

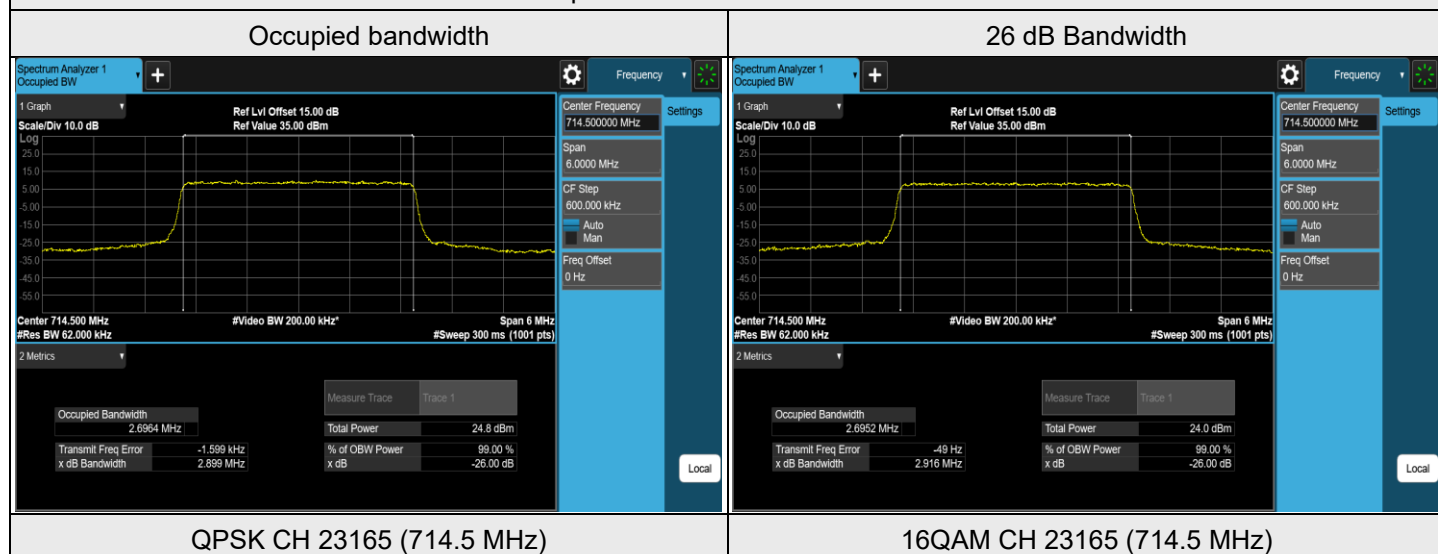
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23017	699.7	1.0877	1.255
QPSK	23095	707.5	1.0927	1.267
QPSK	23173	715.3	1.0928	1.274
16QAM	23017	699.7	1.0887	1.266
16QAM	23095	707.5	1.0902	1.254
16QAM	23173	715.3	1.0895	1.257



LTE Cat.1 Band 12, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23025	700.5	2.6960	2.900
QPSK	23095	707.5	2.6945	2.893
QPSK	23165	714.5	2.6964	2.899
16QAM	23025	700.5	2.6961	2.904
16QAM	23095	707.5	2.6943	2.903
16QAM	23165	714.5	2.6952	2.916

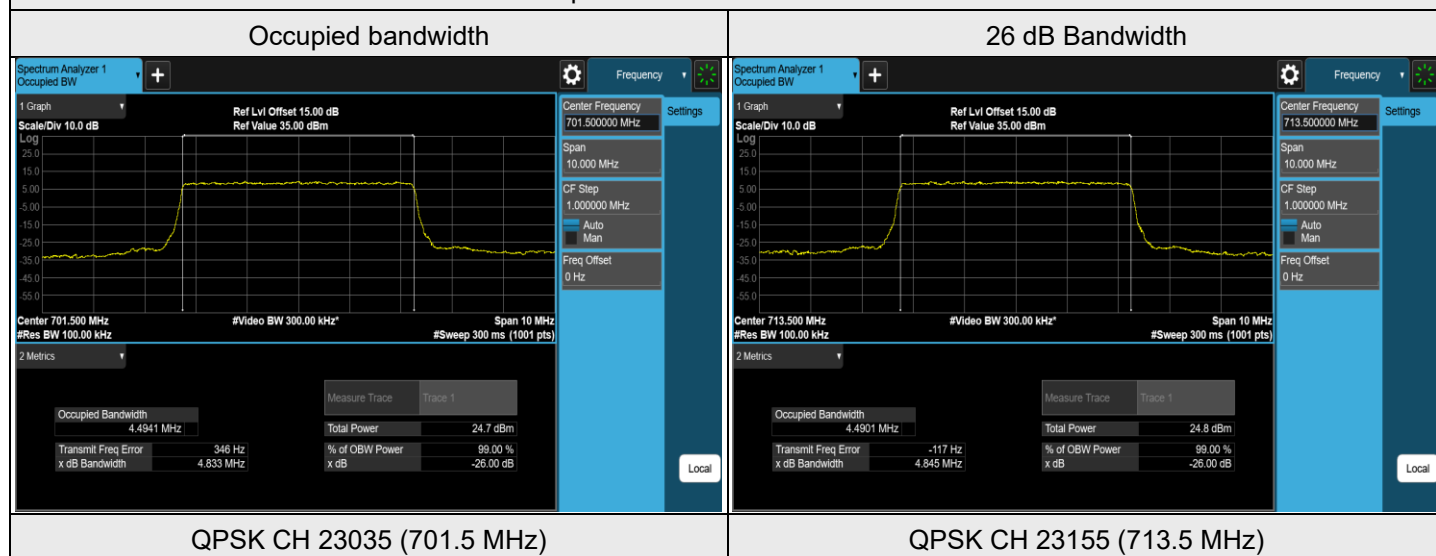
Spectrum Plot of Worst Value



LTE Cat.1 Band 12, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23035	701.5	4.4941	4.833
QPSK	23095	707.5	4.4894	4.825
QPSK	23155	713.5	4.4901	4.845
16QAM	23035	701.5	4.4865	4.818
16QAM	23095	707.5	4.4880	4.808
16QAM	23155	713.5	4.4860	4.813

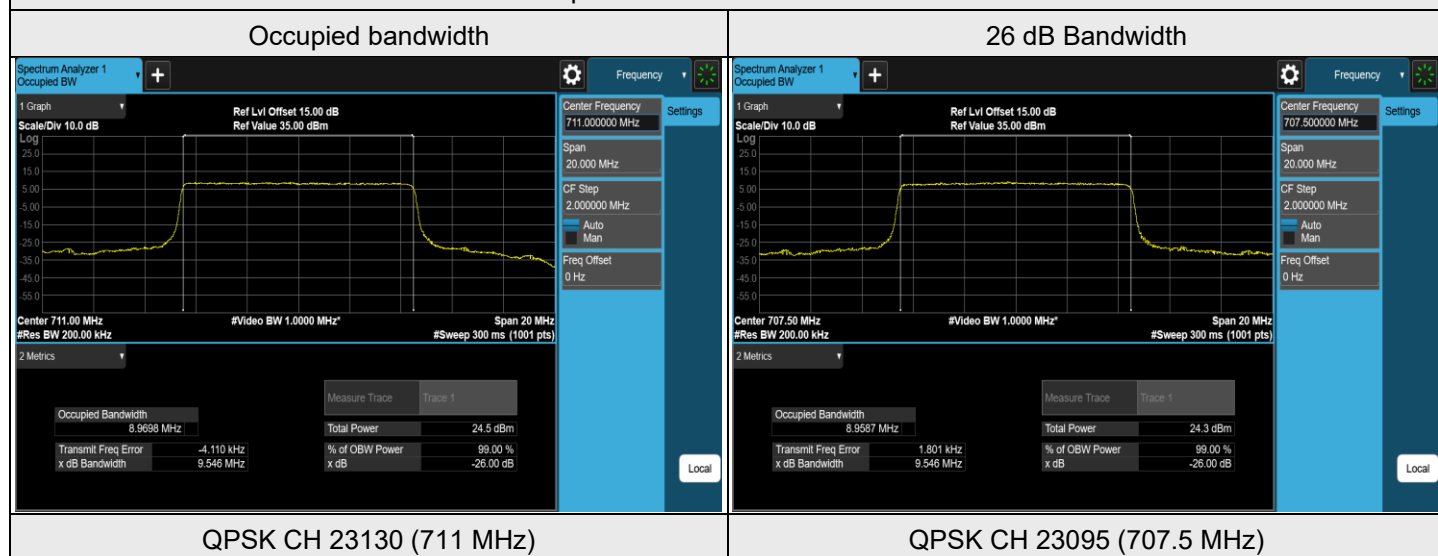
Spectrum Plot of Worst Value



LTE Cat.1 Band 12, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23060	704	8.9649	9.542
QPSK	23095	707.5	8.9587	9.546
QPSK	23130	711	8.9698	9.546
16QAM	23060	704	4.5812	5.074
16QAM	23095	707.5	4.5764	5.058
16QAM	23130	711	4.5771	5.081

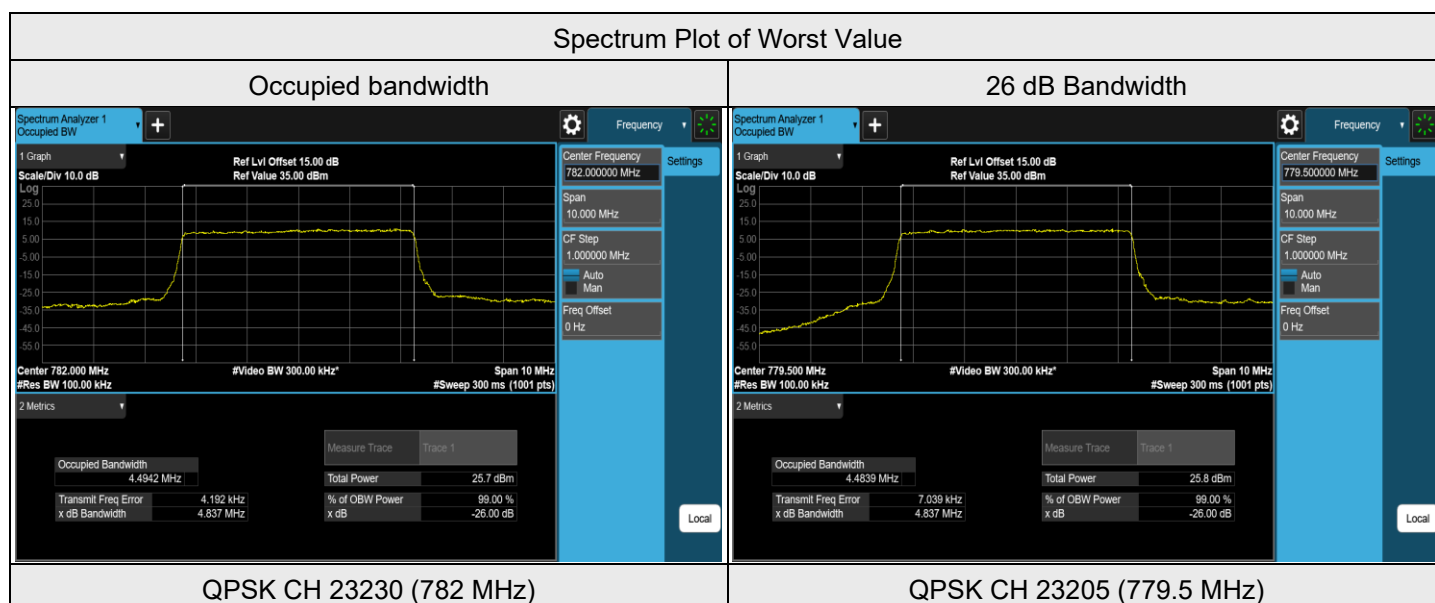
Spectrum Plot of Worst Value



7.4.5 LTE Cat.1 Band 13

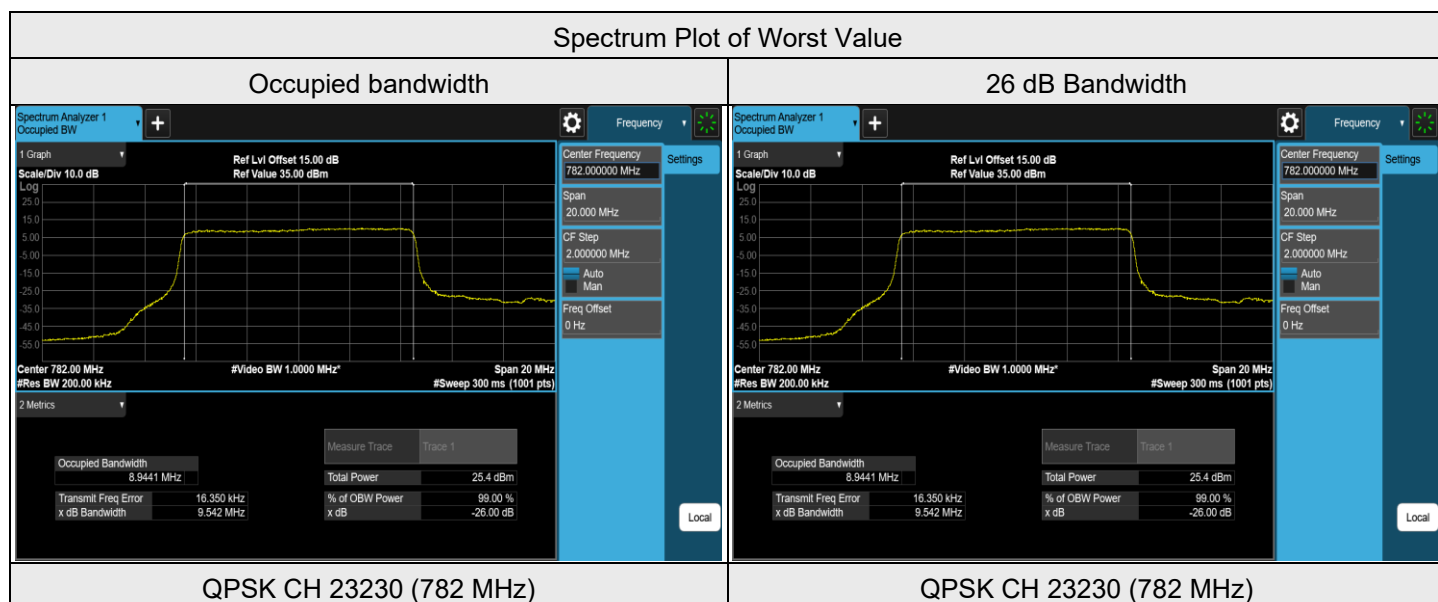
LTE Cat.1 Band 13, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23205	779.5	4.4839	4.837
QPSK	23230	782	4.4942	4.837
QPSK	23255	784.5	4.4835	4.824
16QAM	23205	779.5	4.4835	4.824
16QAM	23230	782	4.4894	4.809
16QAM	23255	784.5	4.4806	4.808



LTE Cat.1 Band 13, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23230	782	8.9441	9.542
16QAM	23230	782	4.9247	5.442

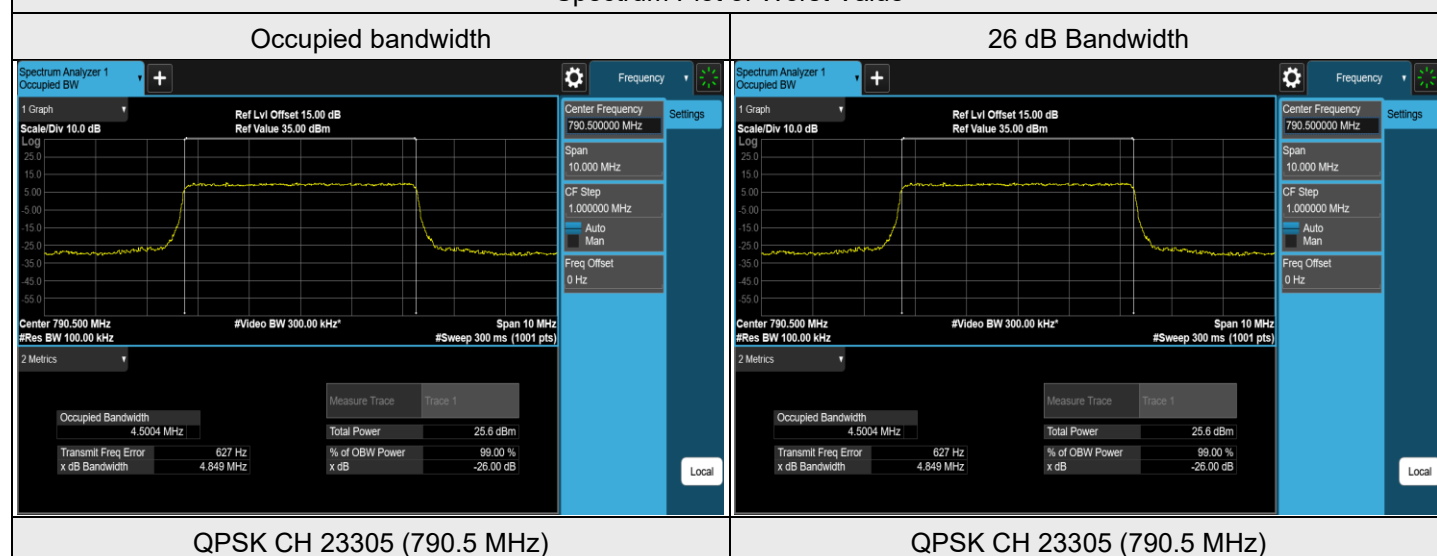


7.4.6 LTE Cat.1 Band 14

LTE Cat.1 Band 14, Channel Bandwidth: 5 MHz

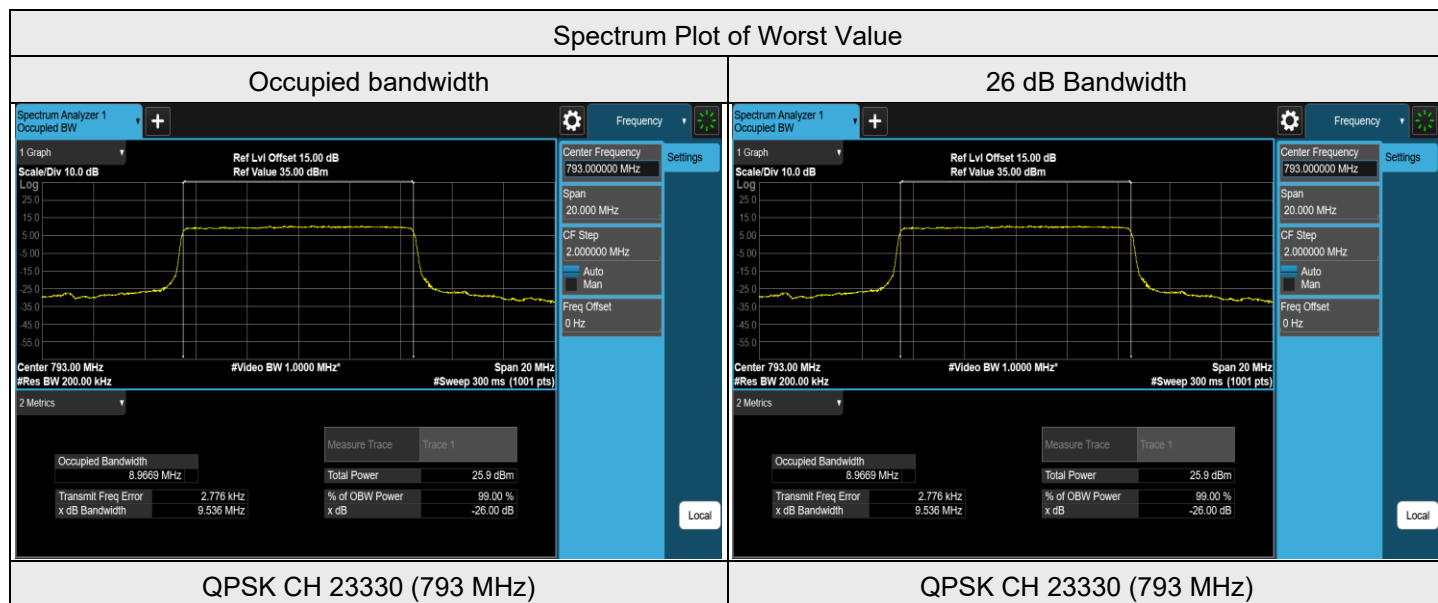
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23305	790.5	4.5004	4.849
QPSK	23330	793	4.4892	4.814
QPSK	23355	795.5	4.4862	4.814
16QAM	23305	790.5	4.4944	4.822
16QAM	23330	793	4.4864	4.816
16QAM	23355	795.5	4.4865	4.807

Spectrum Plot of Worst Value



LTE Cat.1 Band 14, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23330	793	8.9669	9.536
16QAM	23330	793	4.9316	5.493



7.4.7 LTE Cat.1 Band 66

LTE Cat.1 Band 66, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	131979	1710.7	1.0883	1.256
QPSK	132322	1745	1.0935	1.265
QPSK	132665	1779.3	1.0920	1.275
16QAM	131979	1710.7	1.0892	1.262
16QAM	132322	1745	1.0898	1.266
16QAM	132665	1779.3	1.0904	1.259

