

Prüfbericht - Nr.: **CN21DEDK(P24-WWAN) 001**
 Test Report No.

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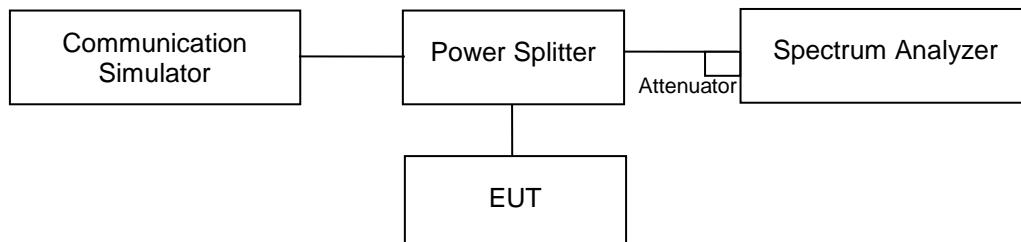
5.1.5 Conducted Band Edge

Limit

In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1% of the emission bandwidth of the fundamental emission of the transmitter limit at least $43 + 10 \log(P)$ dB.

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV40	101513	2020/5/28	2021/5/27	2021/1/12	2021/4/14
Wireless Communication Tester	R&S	CMW500	166923	2020/2/11	2021/2/10	2021/1/12	2021/4/14
Radio Communication Analyzer	Anritsu	MT8821C	6262044753	2021/1/29	2022/1/28	2021/1/12	2021/4/14

Test Procedure

- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency.
- Record the maximum trace plot into the test report.

Test Results

Please refer to Appendix A.

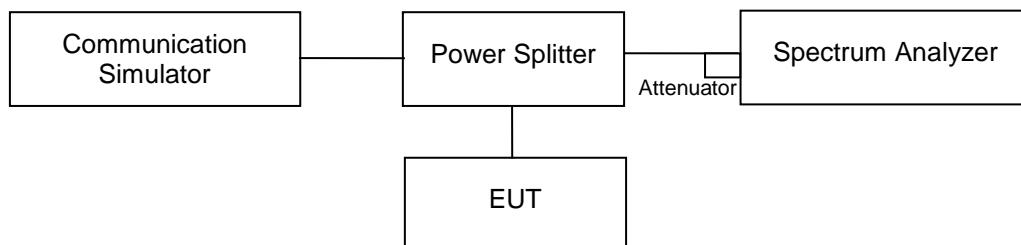
5.1.6 Conducted Spurious Emissions

Limit

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.

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV40	101513	2020/5/28	2021/5/27	2021/1/12	2021/4/14
Wireless Communication Tester	R&S	CMW500	166923	2020/2/11	2021/2/10	2021/1/12	2021/4/14
Radio Communication Analyzer	Anritsu	MT8821C	6262044753	2021/1/29	2022/1/28	2021/1/12	2021/4/14

Test Procedure

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 KHz to the 10th harmonic of fundamental frequency. 10 dB attenuation pad is connected with spectrum.

Test Results

Please refer to Appendix A.

5.1.7 Radiated Spurious Emissions

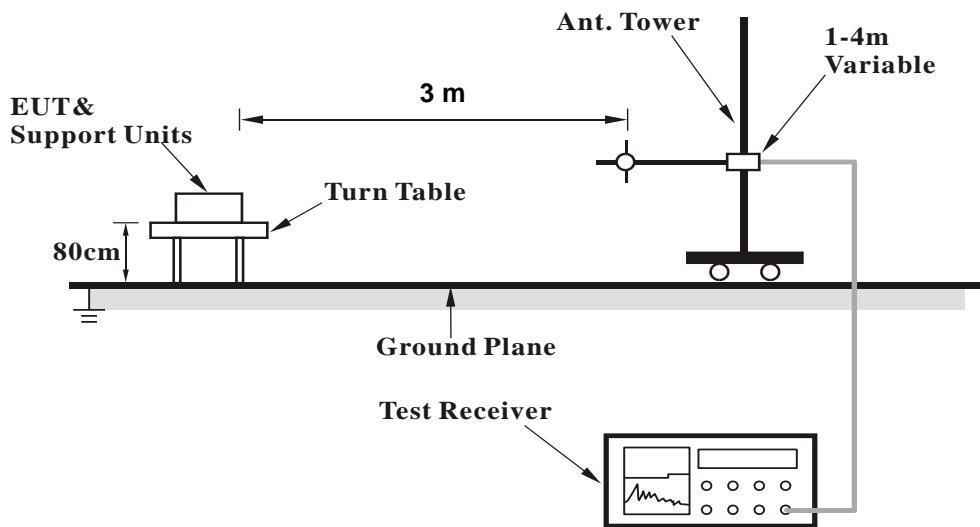
Limit

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.

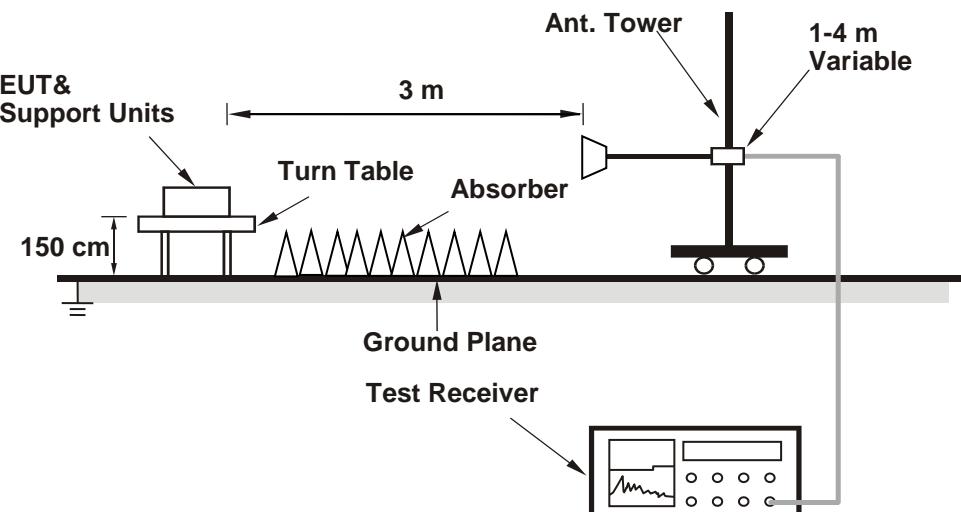
Kind of Test Site 3m Semi-Anechoic Chamber

Test Setup

<Radiated Emissions below or equal to 1 GHz>



<Radiated Emissions above 1 GHz>



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

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Test Instruments

Refer to 5.1.1 Test Instruments

Test Procedures

- a. Substitution method is used for E.I.R.P. measurement. In the semi-anechoic chamber, EUT placed on the 0.8m (below or equal to 1 GHz) and/or 1.5m (above 1 GHz) height of turn table, rotated the table around horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the turn table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
- c. E.I.R.P. = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
- d. E.R.P. can be calculated from E.I.R.P. by subtracting the gain of dipole, E.R.P. = E.I.R.P – 2.15 dB.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. Testing was carried out within frequency range 30 MHz to the tenth harmonic.
3. All modes of operation were investigated and the worst-case emissions are reported.
4. The Radiated Emissions testing was performed in X(E1), Y(H) and Z(E2) axis orientation. The worst-case Axis orientation is recorded in this test report.

Test Results

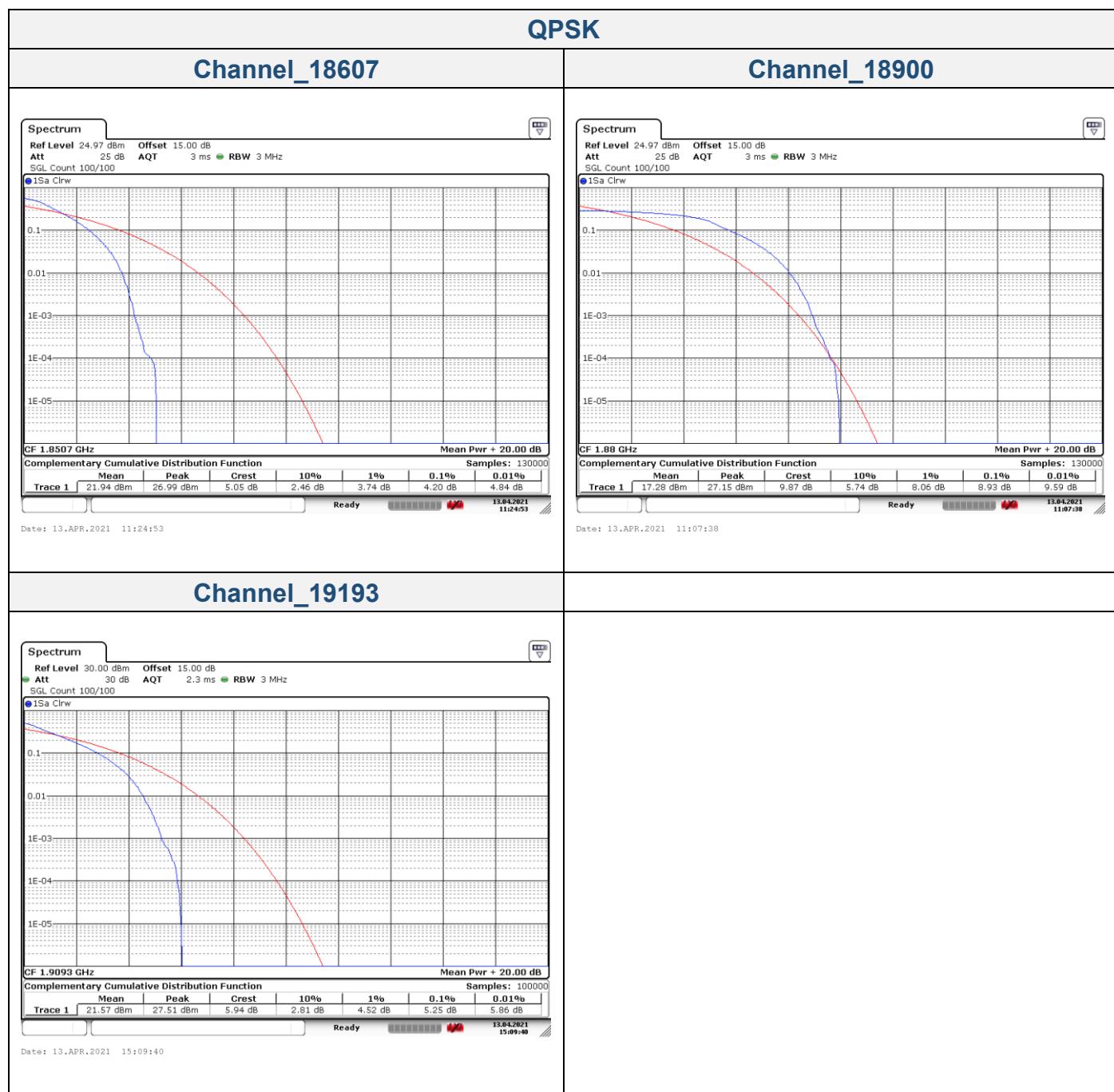
Please refer to Appendix B.

Appendix A: Test Results of Conducted Test

Peak to Average Ratio

LTE Band 2 _ Channel Bandwidth: 1.4 MHz

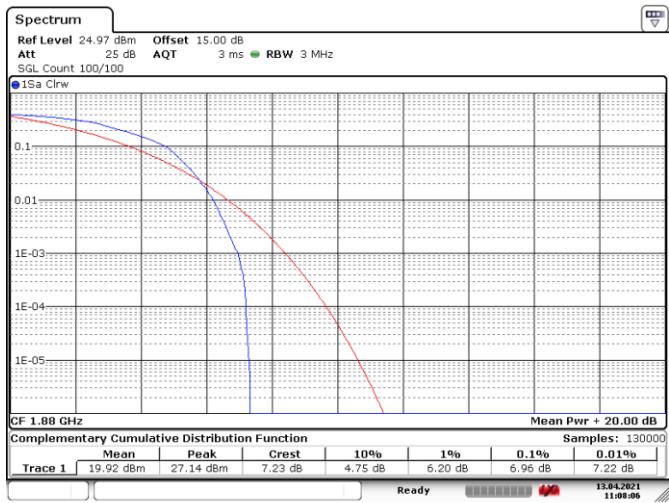
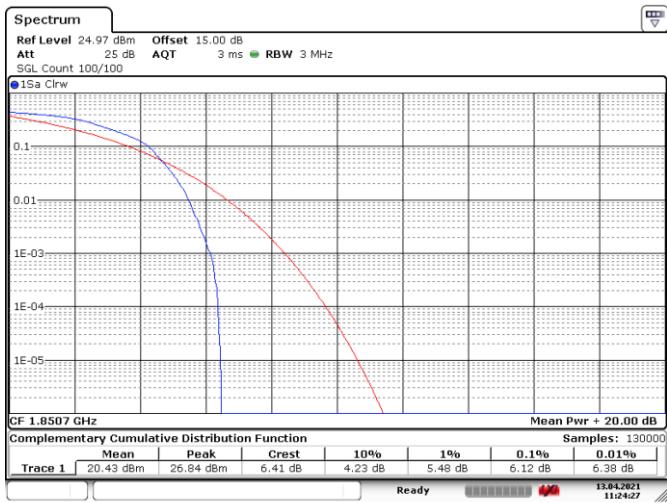
Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM
18607	1850.7	4.20	6.12
18900	1880.0	8.93	6.96
19193	1909.3	5.25	7.16



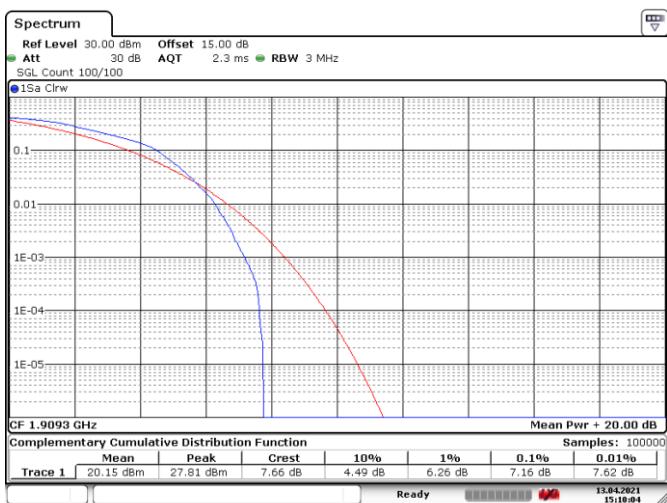
16QAM

Channel_18607

Channel_18900

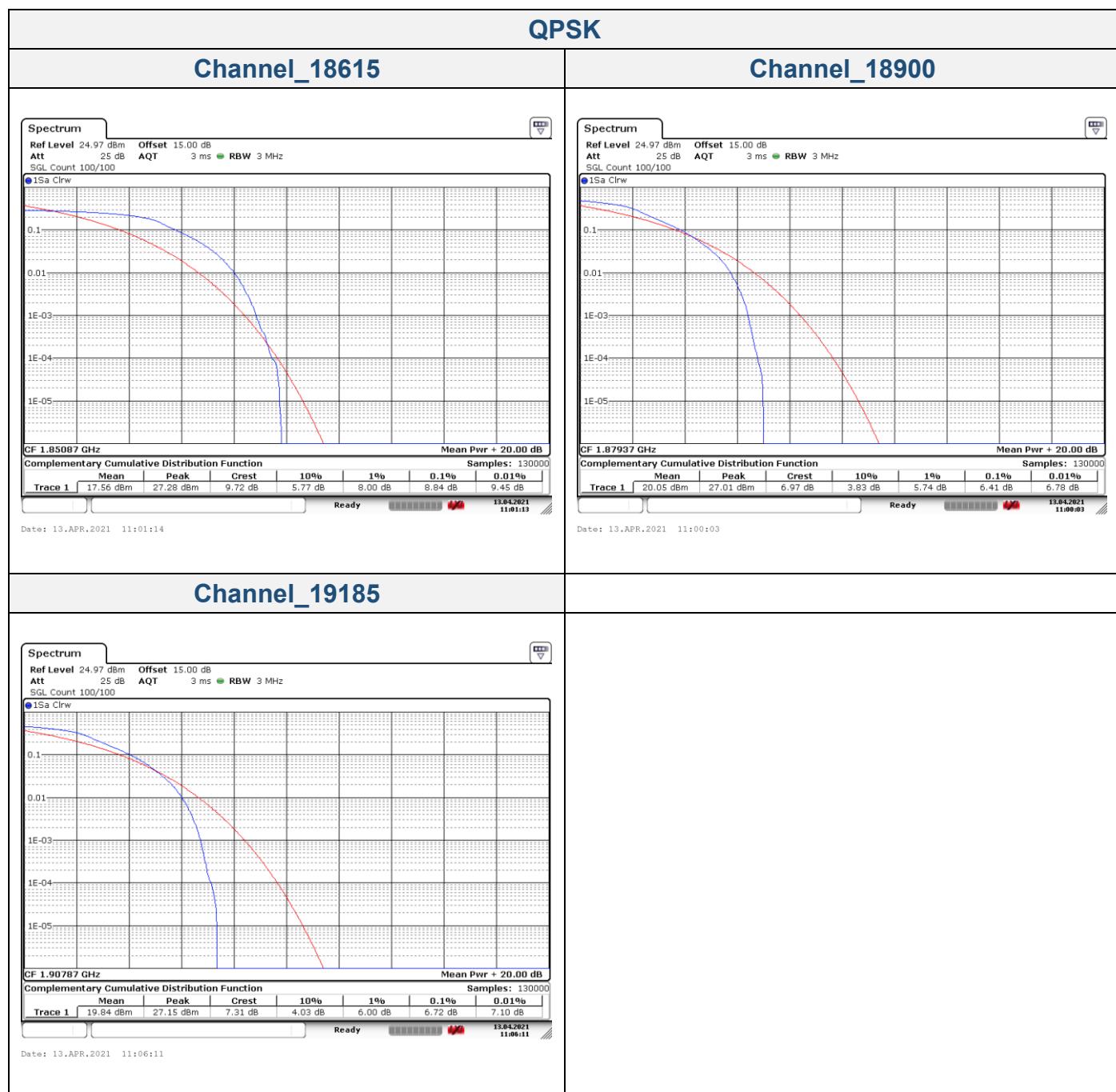


Channel_19193



LTE Band 2 _ Channel Bandwidth: 3 MHz

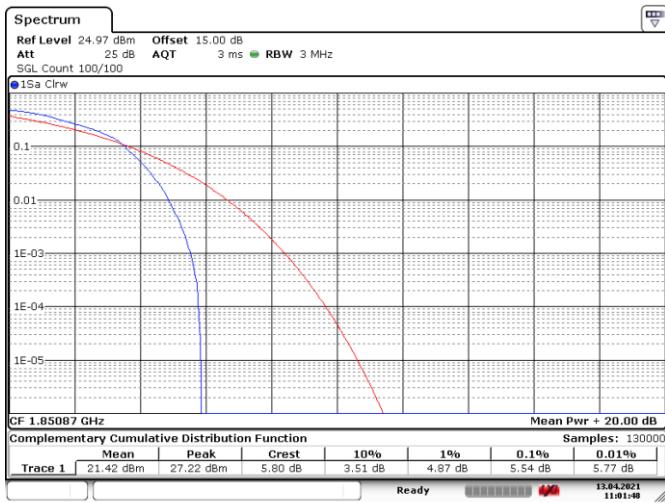
Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM
18615	1851.5	8.84	5.54
18900	1880.0	6.41	7.19
19185	1908.5	6.72	5.28



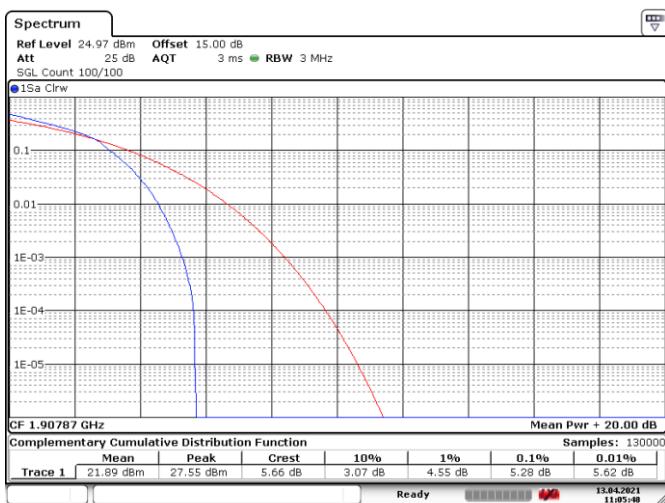
16QAM

Channel_18615

Channel_18900

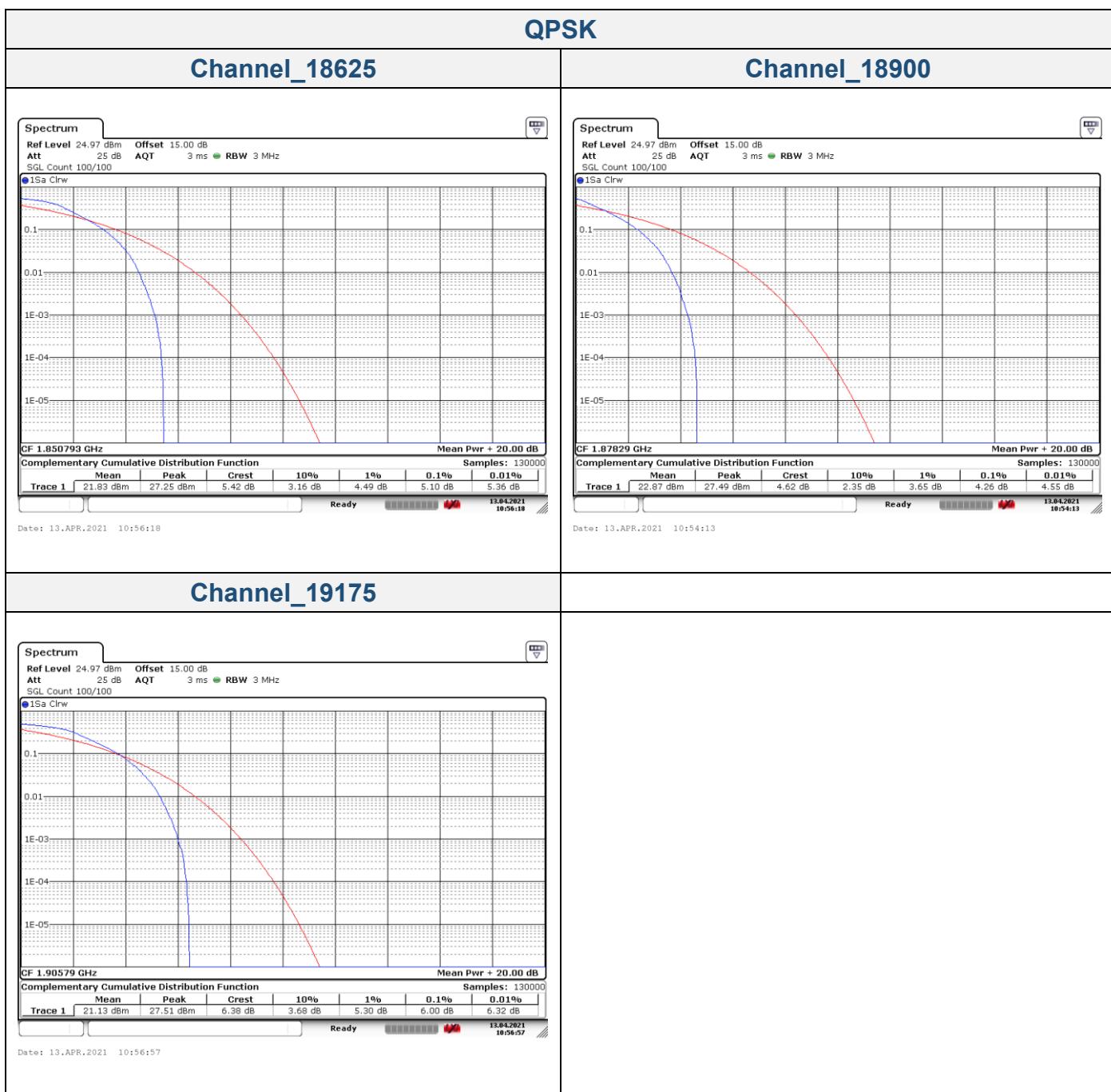


Channel_19185



LTE Band 2 _ Channel Bandwidth: 5 MHz

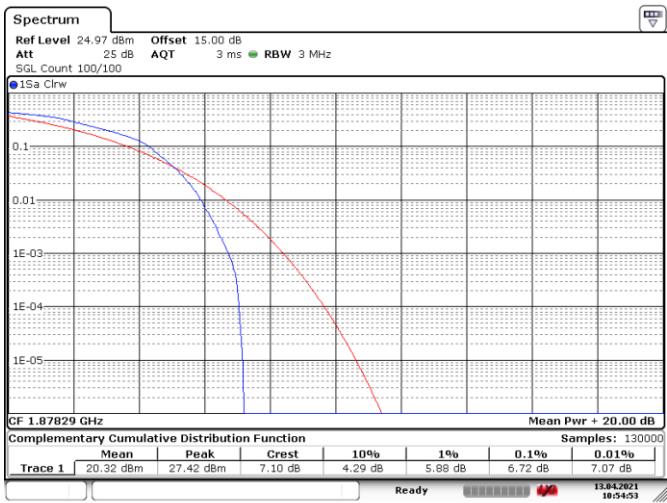
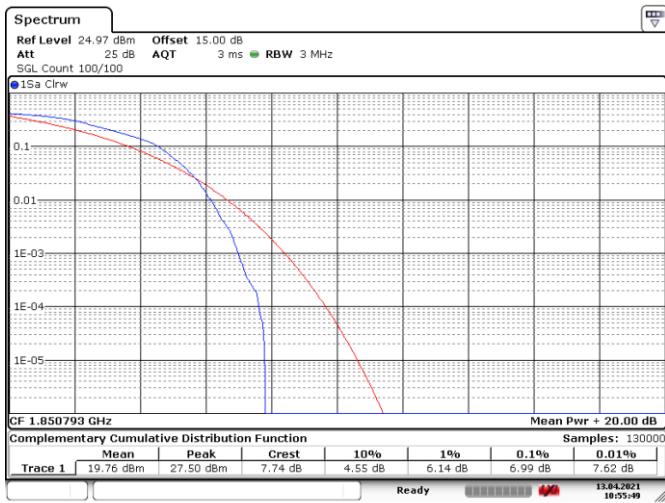
Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM
18625	1852.5	5.10	6.99
18900	1880.0	4.26	6.72
19175	1907.5	6.00	6.87



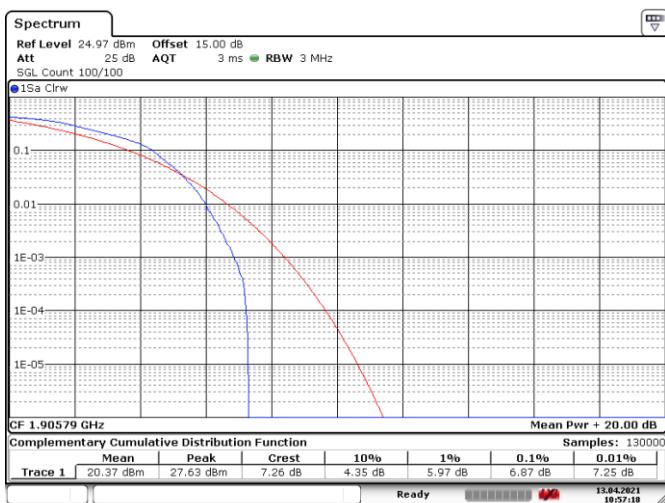
16QAM

Channel_18625

Channel_18900

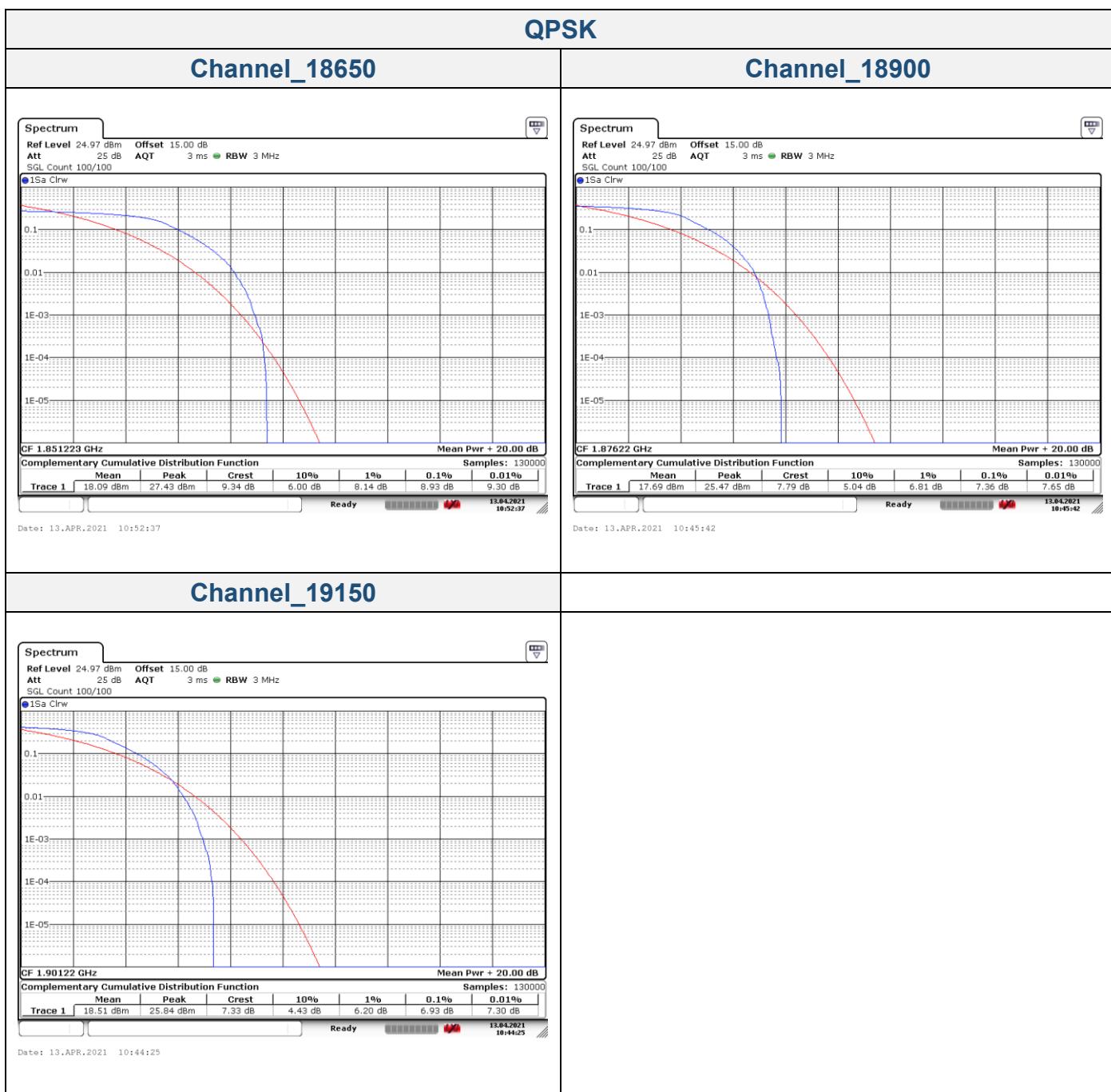


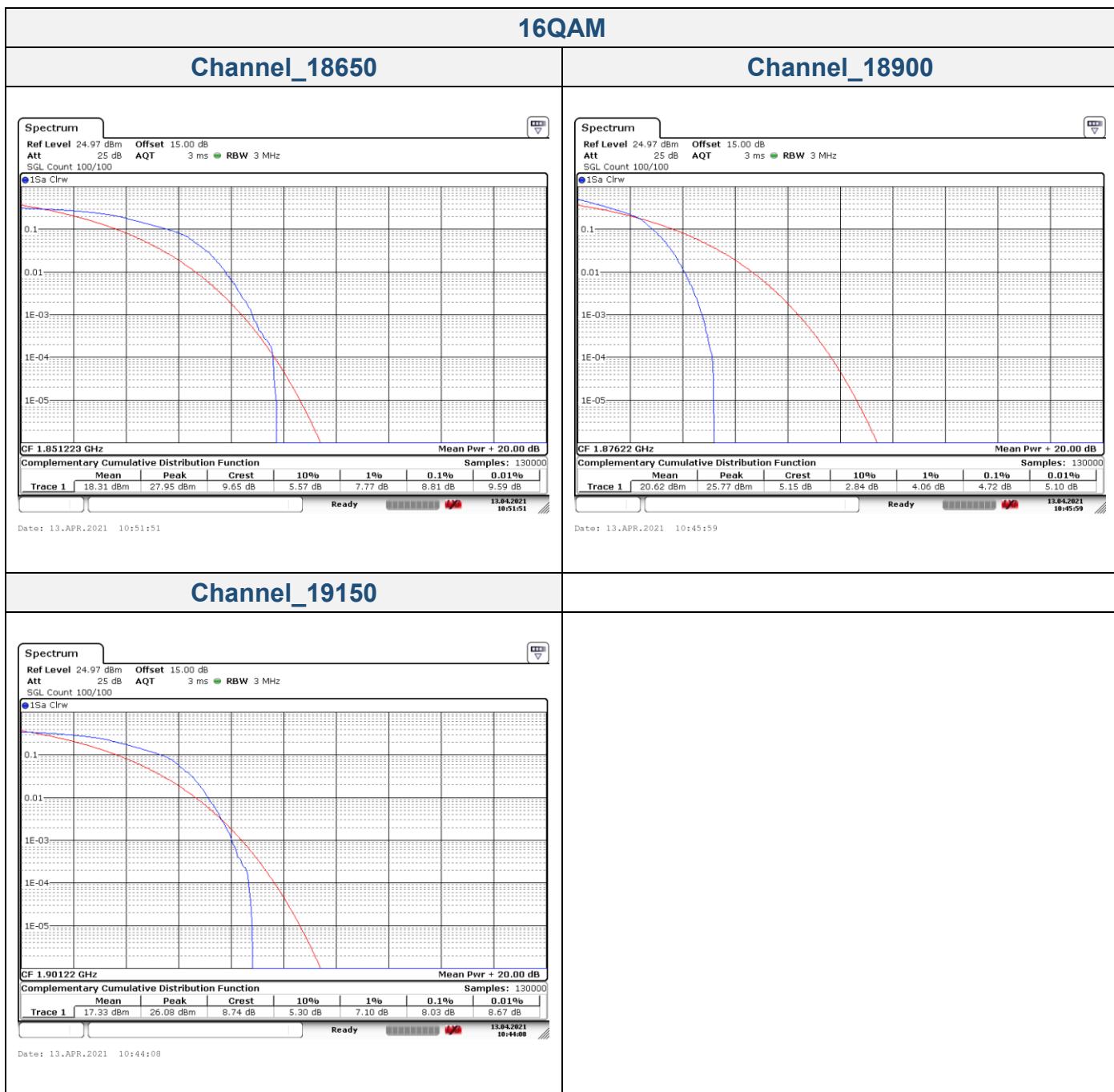
Channel_19175



LTE Band 2 _ Channel Bandwidth: 10 MHz

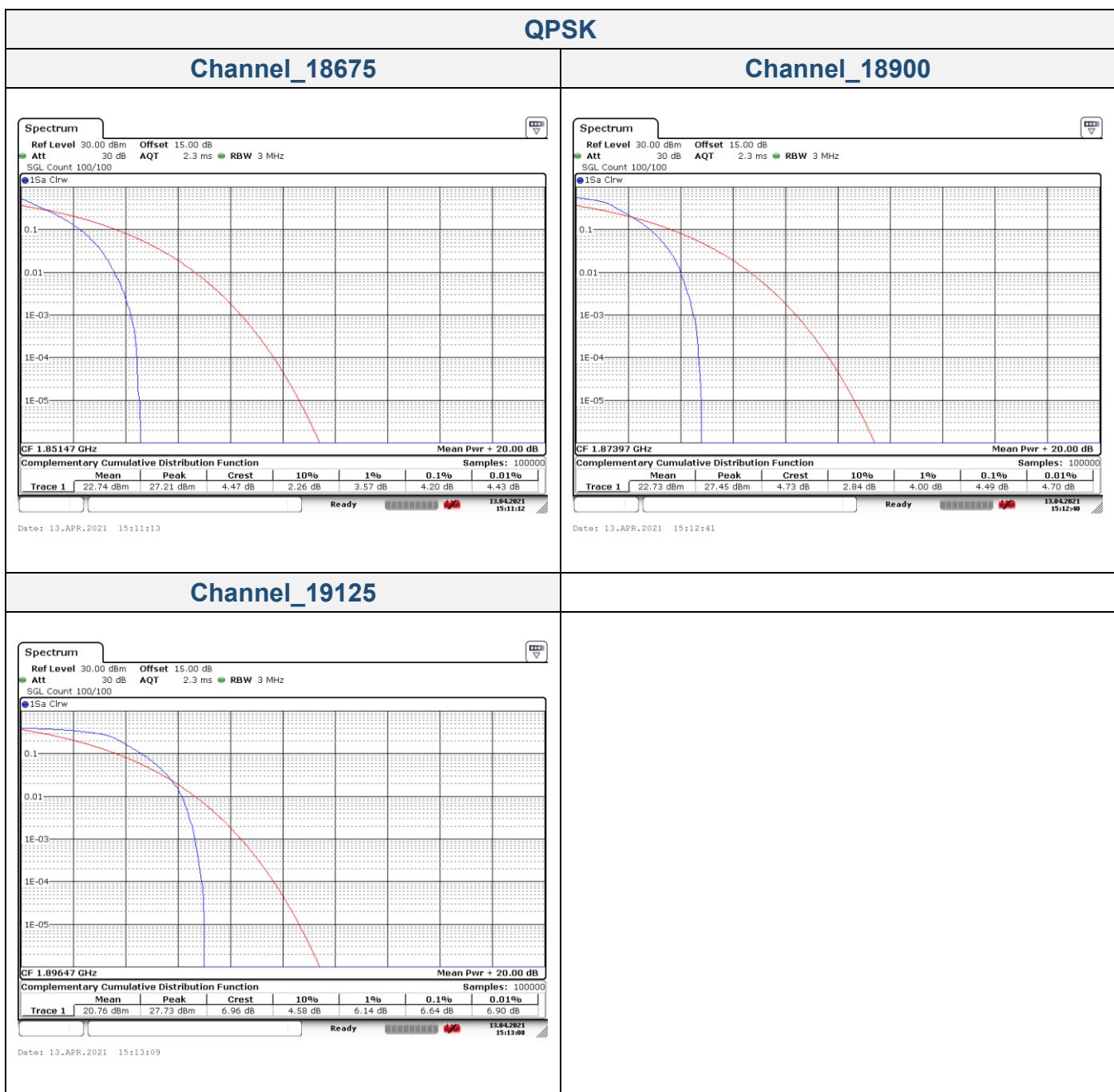
Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM
18650	1855.0	8.93	8.81
18900	1880.0	7.36	4.72
19150	1905.0	6.93	8.03

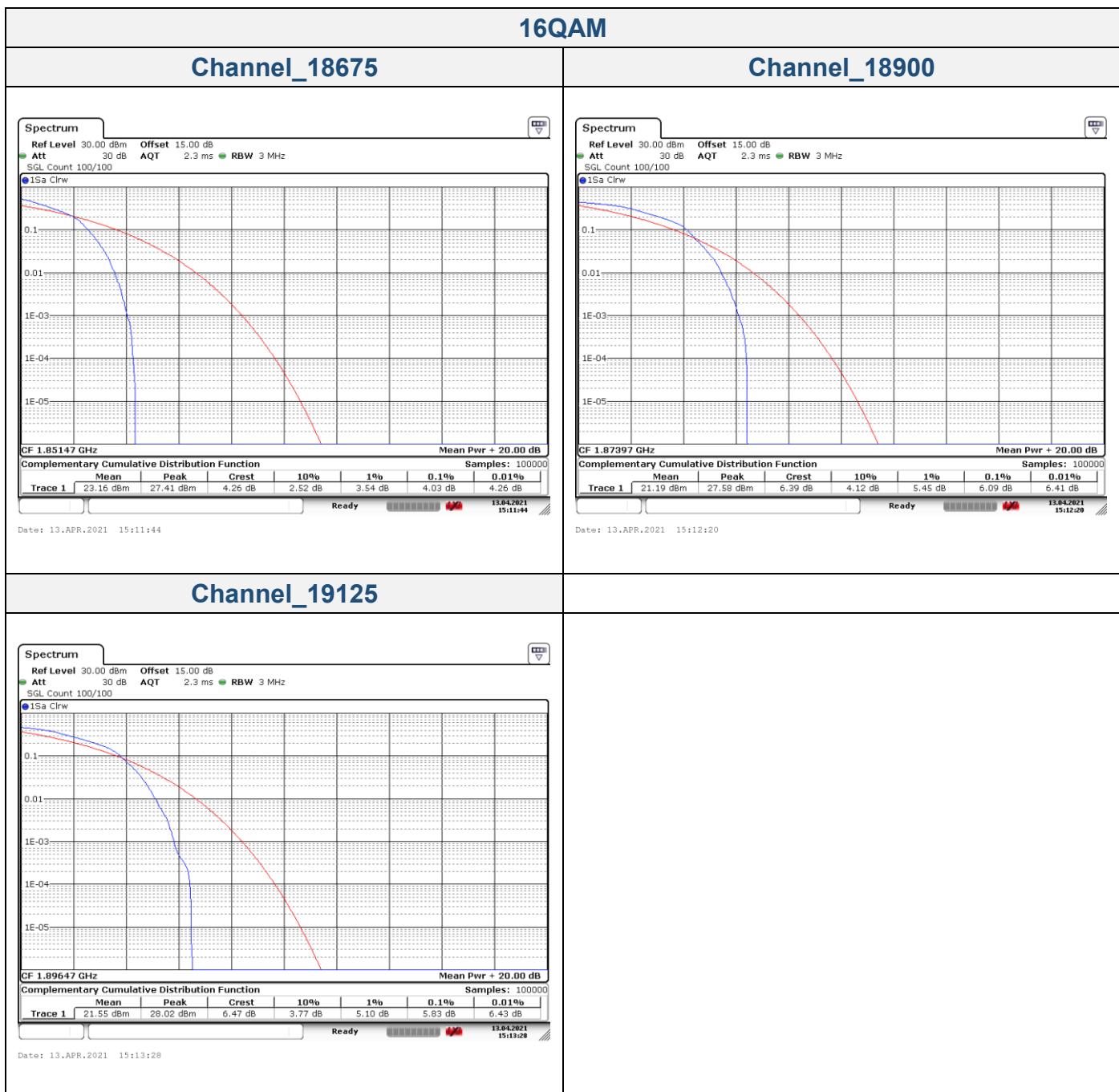




LTE Band 2 _ Channel Bandwidth: 15 MHz

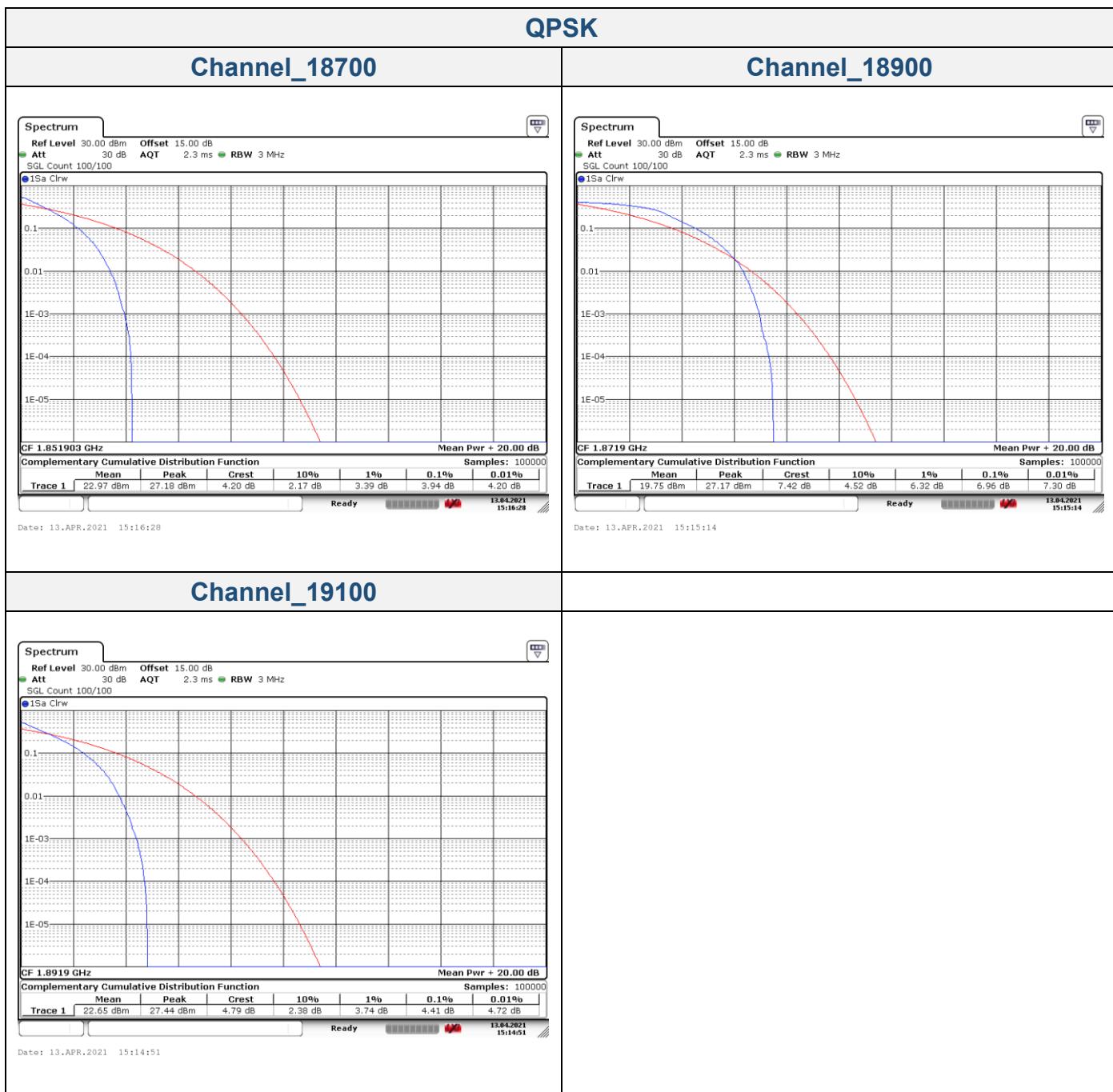
Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM
18675	1857.5	4.20	4.03
18900	1880.0	4.49	6.09
19125	1902.5	6.64	5.83

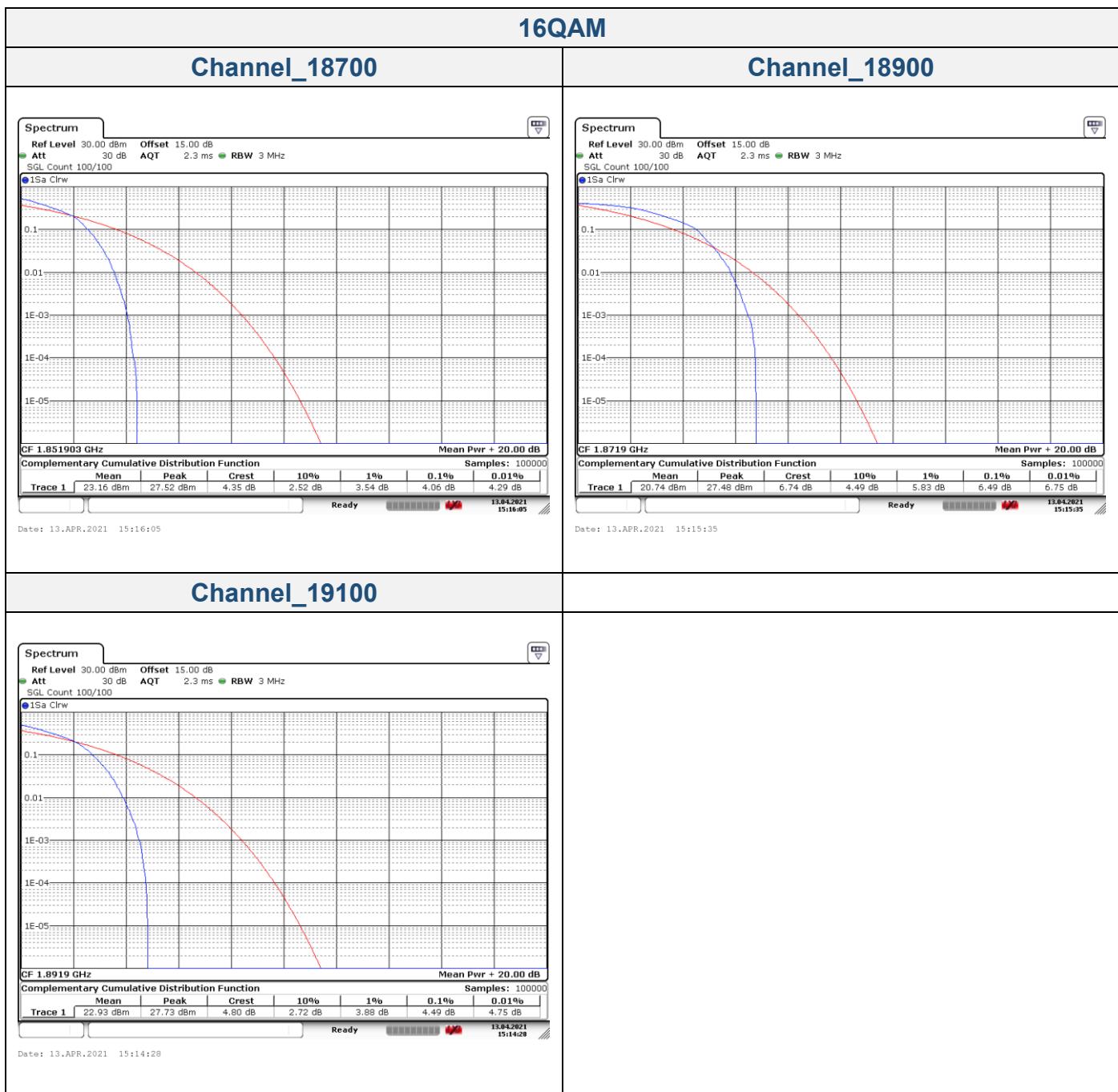




LTE Band 2 _ Channel Bandwidth: 20 MHz

Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM
18700	1860.0	3.94	4.06
18900	1880.0	6.96	6.49
19100	1900.0	4.41	4.49





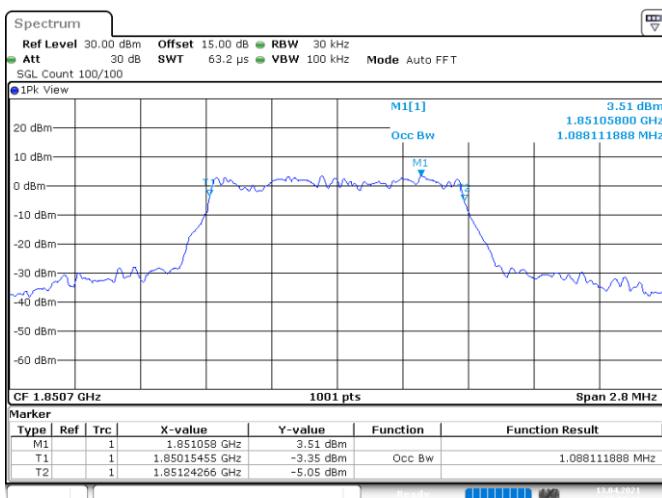
99 % Occupied Bandwidth

LTE Band 2 _ Channel Bandwidth: 1.4 MHz

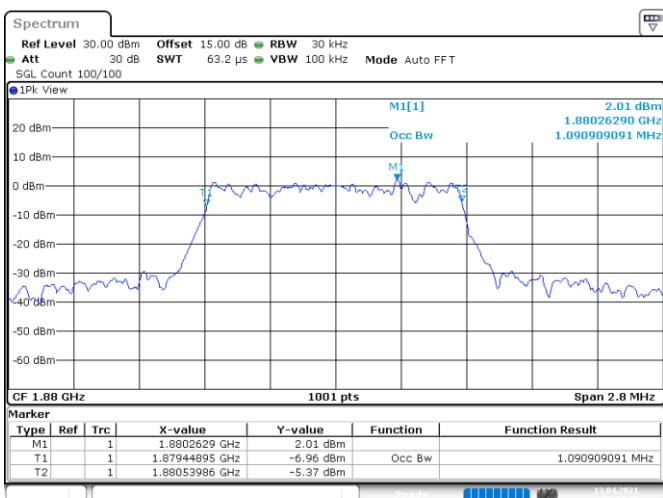
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM
18607	1850.7	1.088	1.113
18900	1880.0	1.091	1.105
19193	1909.3	1.080	1.097

QPSK

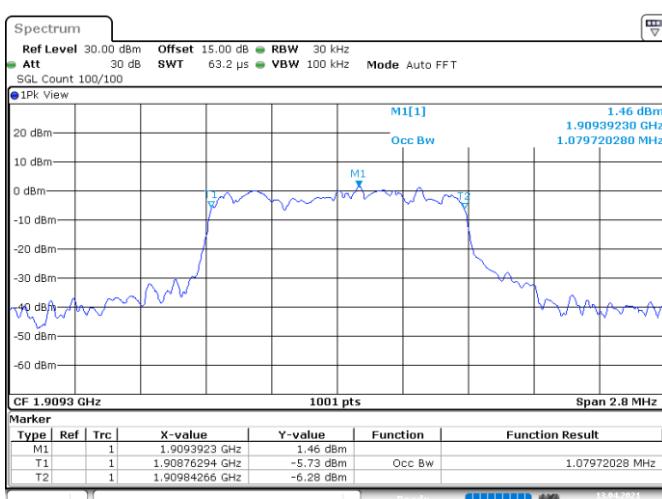
Channel_18607

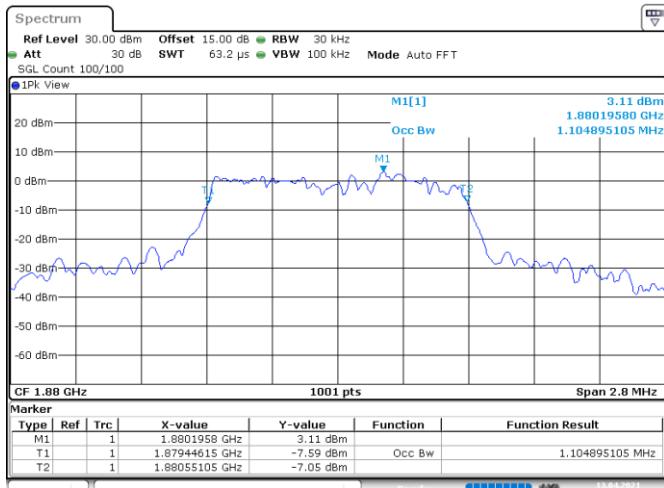
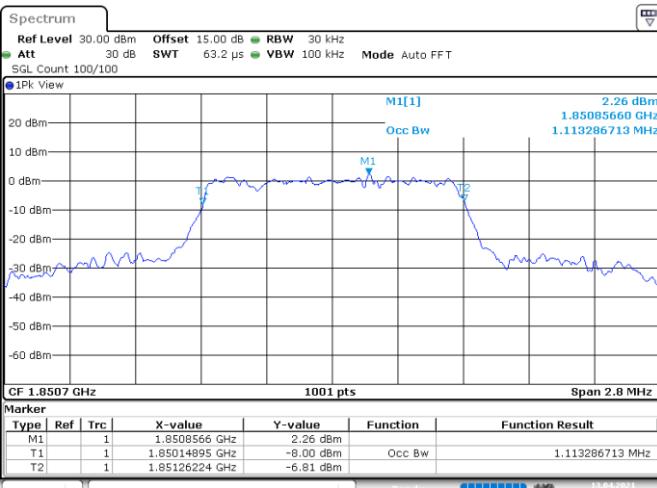
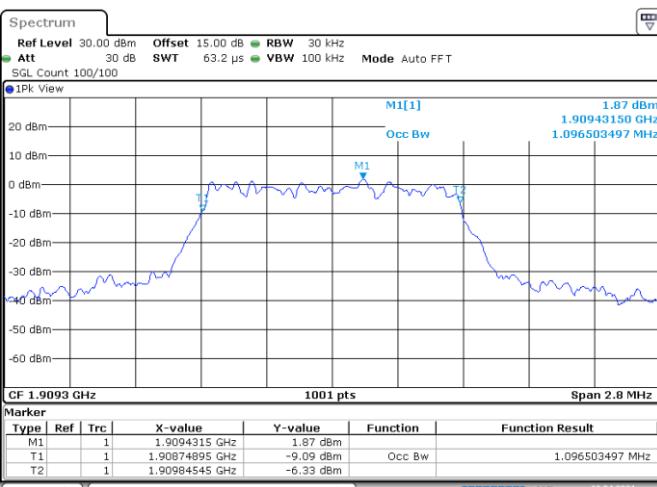


Channel_18900



Channel_19193

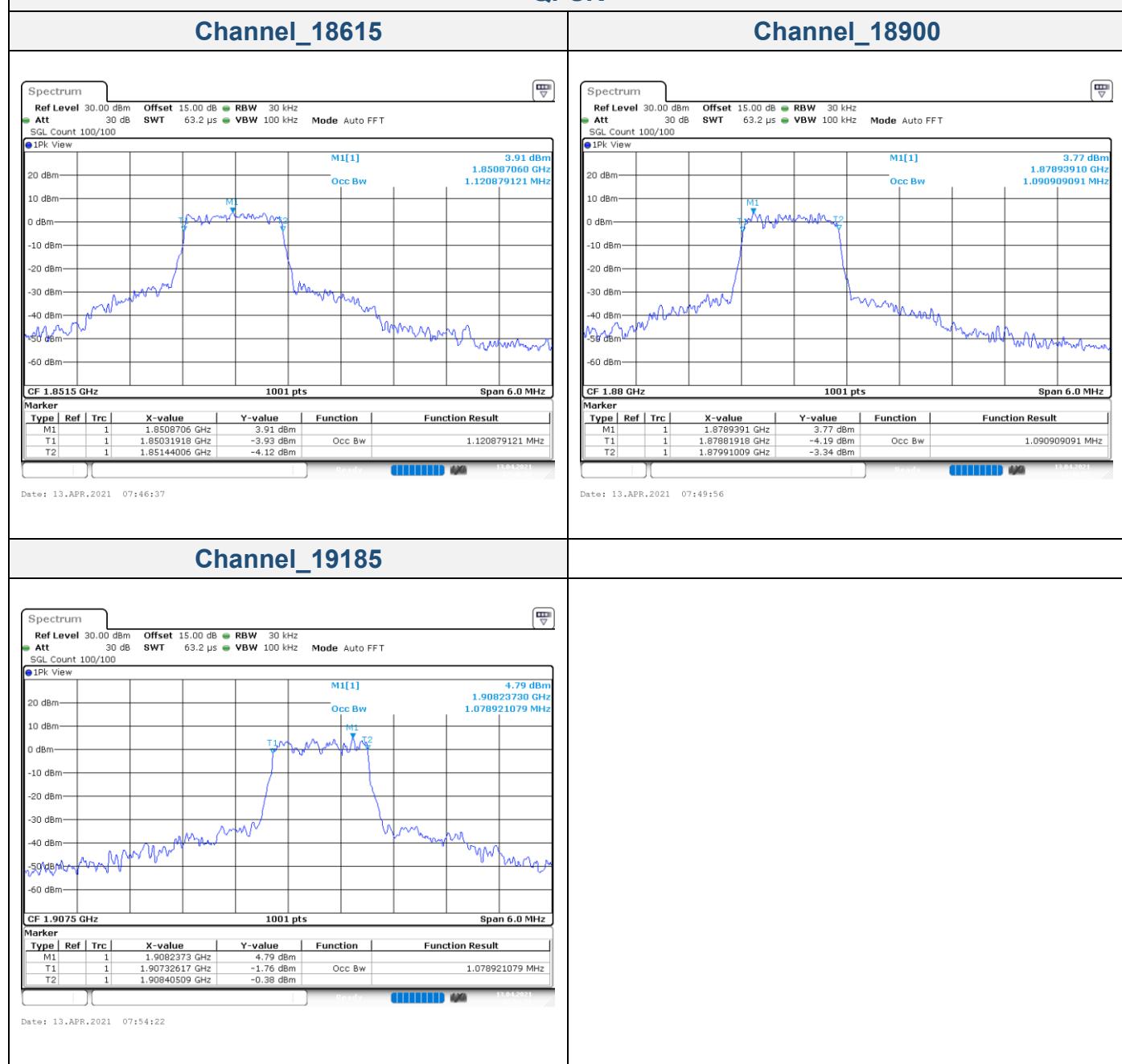


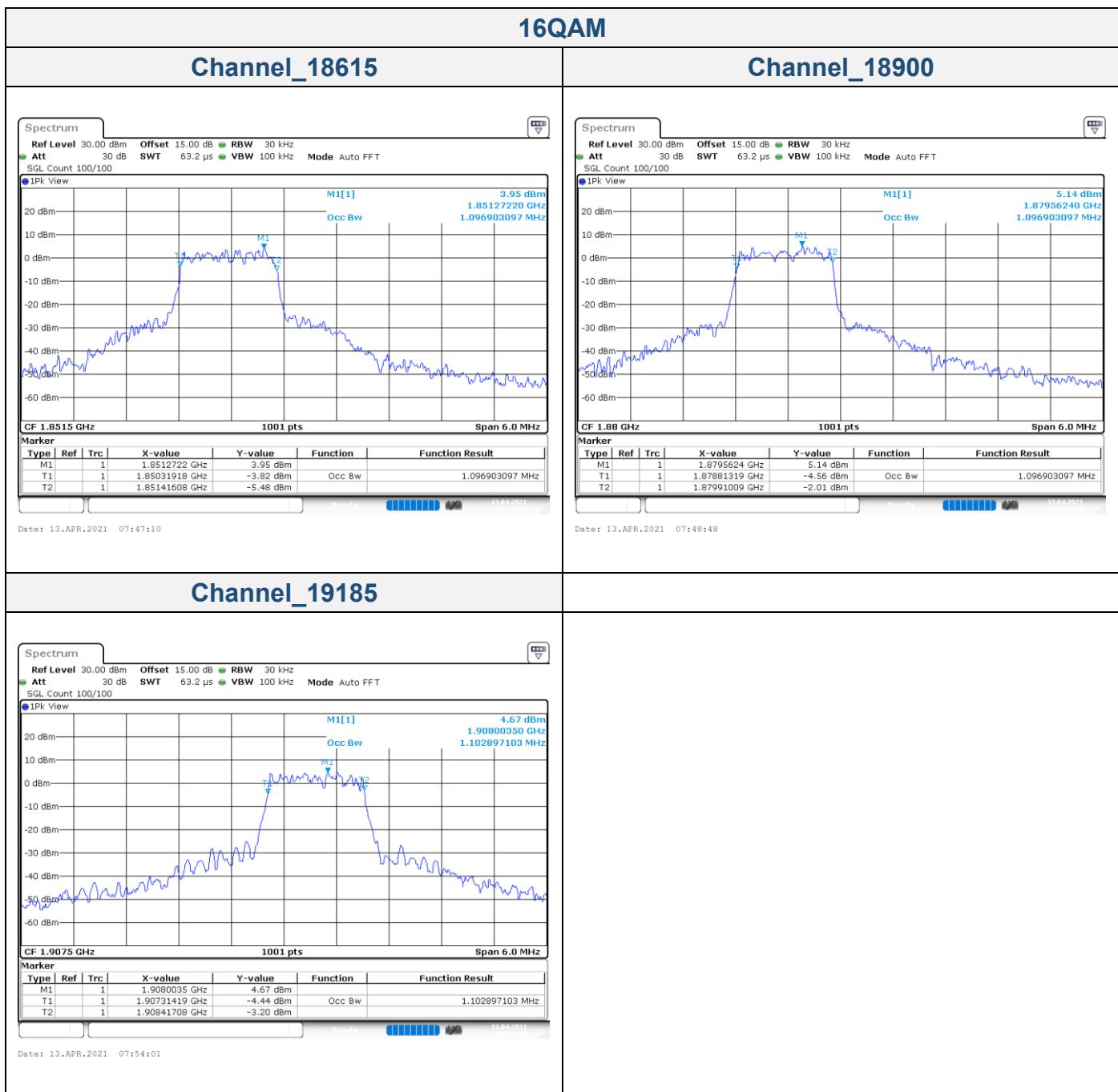
16QAM
Channel_18607
Channel_18900

Channel_19193


LTE Band 2 _ Channel Bandwidth: 3 MHz

Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM
18615	1851.5	1.121	1.097
18900	1880.0	1.091	1.097
19185	1908.5	1.079	1.103

QPSK



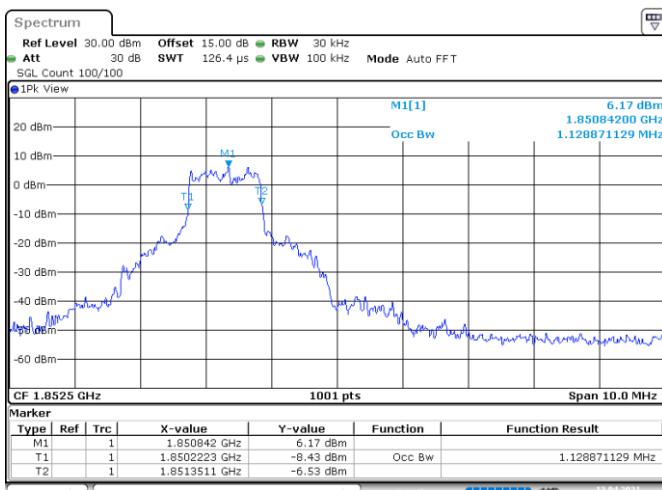


LTE Band 2 _ Channel Bandwidth: 5 MHz

Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM
18625	1852.5	1.129	1.109
18900	1880.0	1.089	1.099
19175	1907.5	1.109	1.109

QPSK

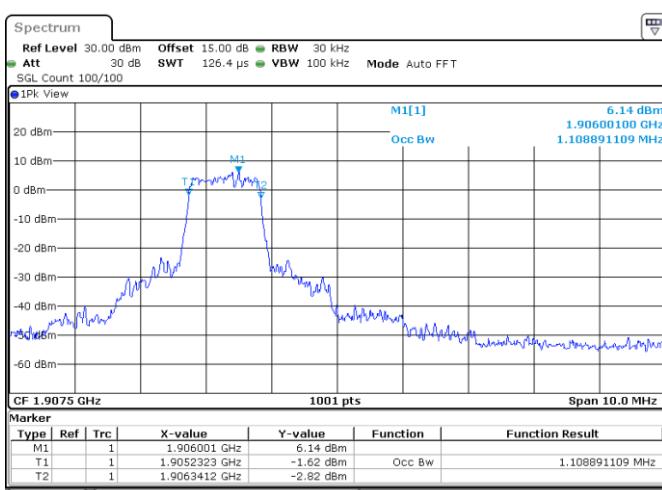
Channel_18625

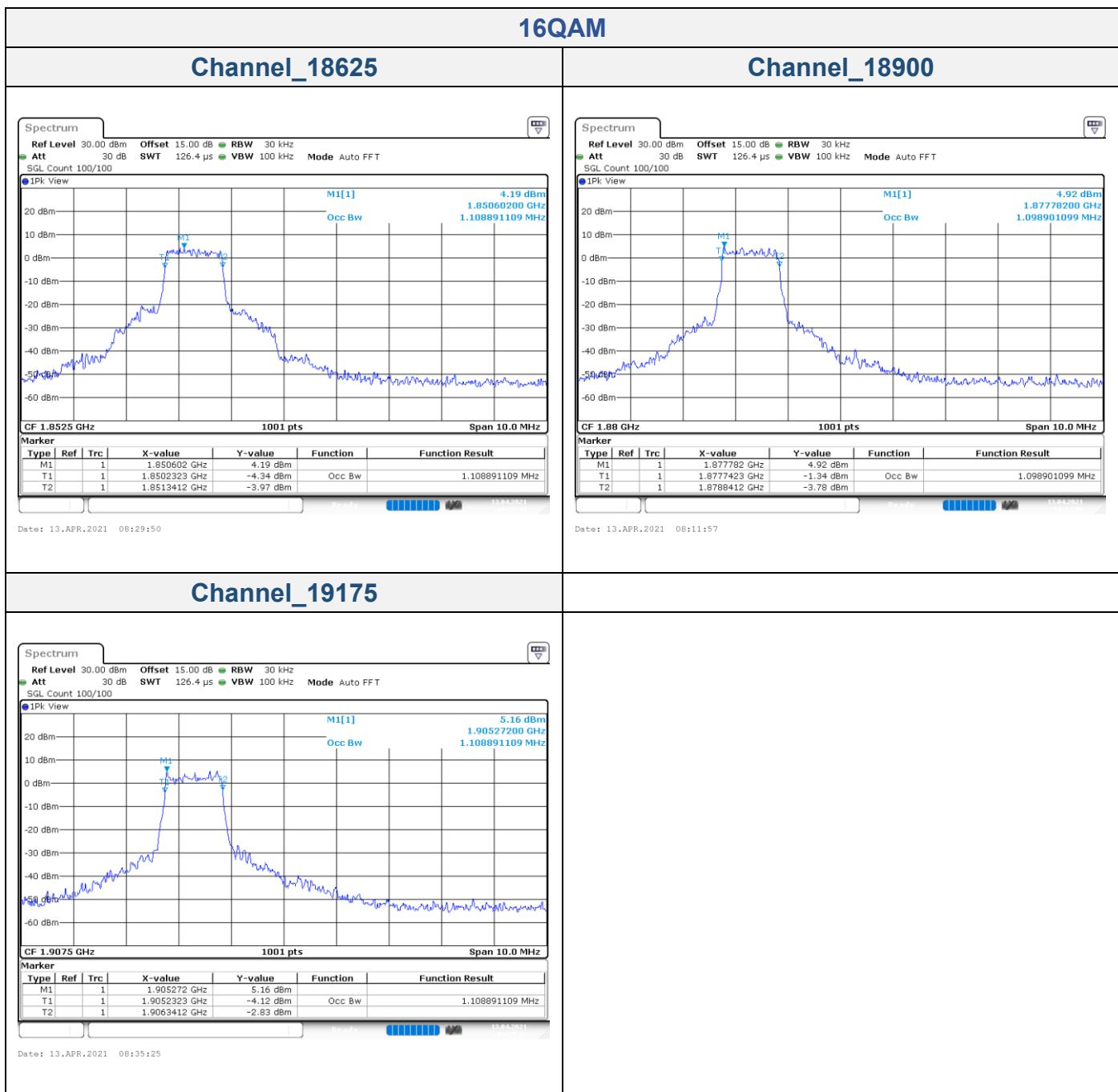


Channel_18900



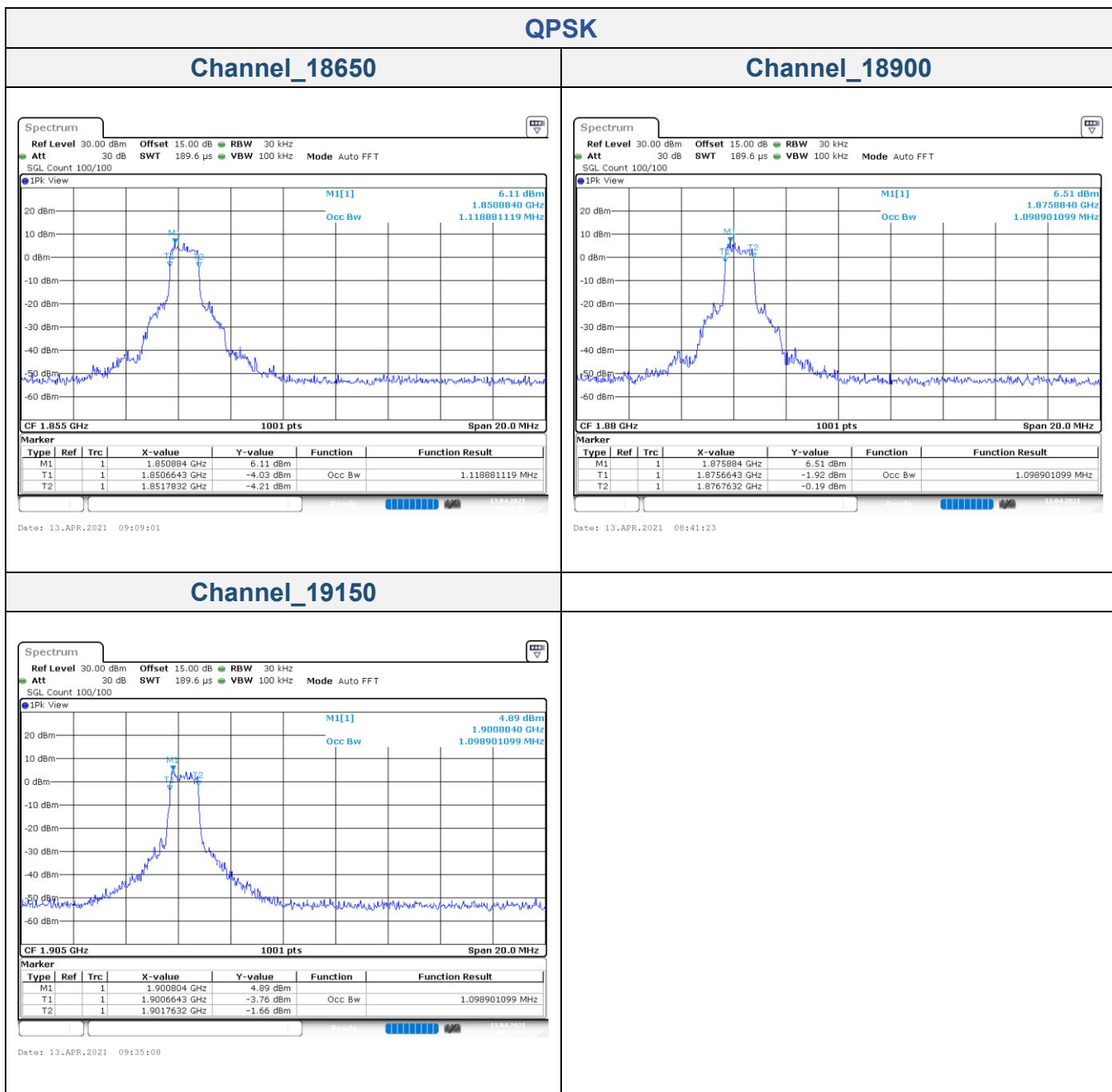
Channel_19175

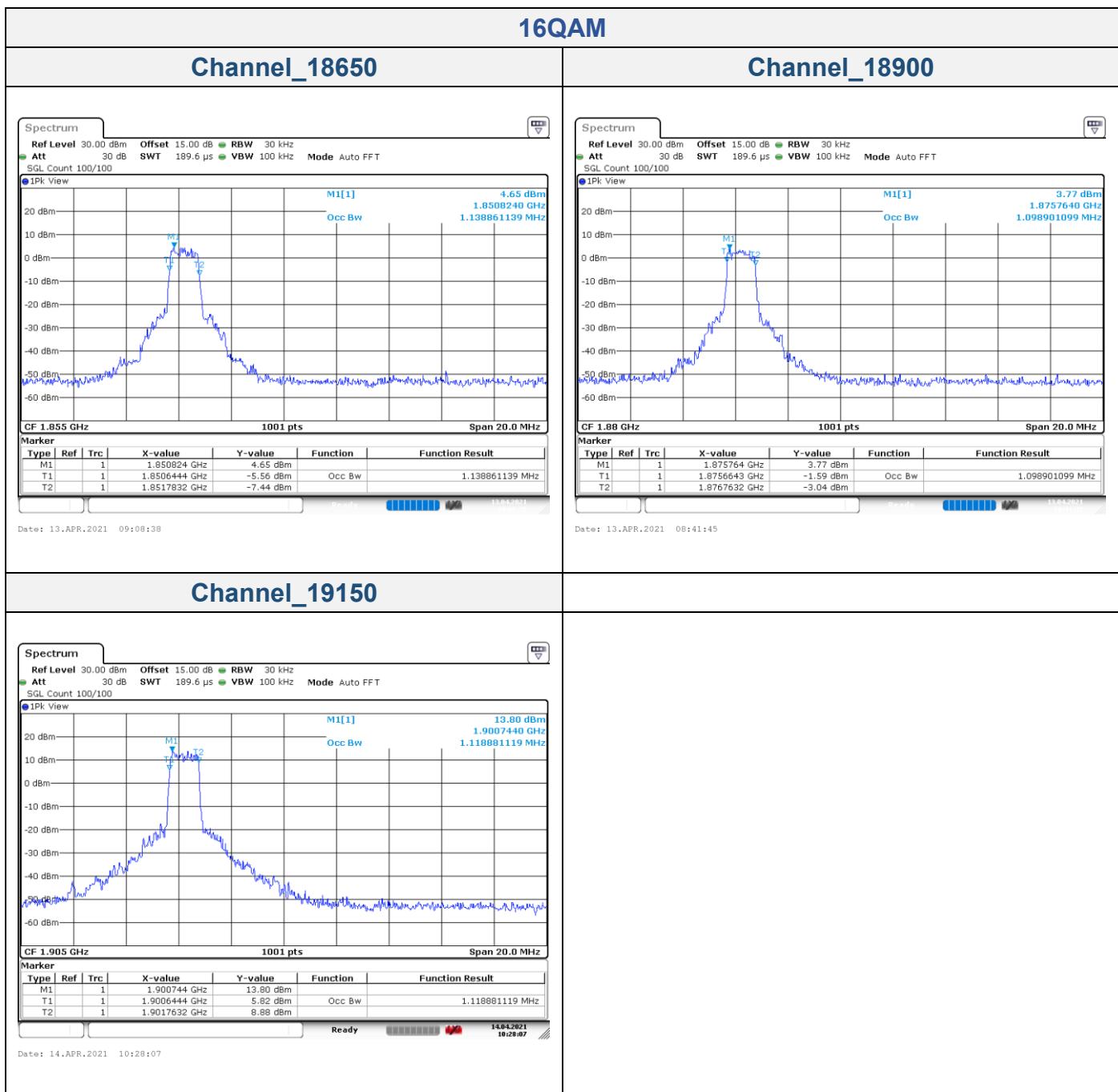




LTE Band 2 _ Channel Bandwidth: 10 MHz

Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM
18650	1855.0	1.119	1.139
18900	1880.0	1.099	1.099
19150	1905.0	1.099	1.119



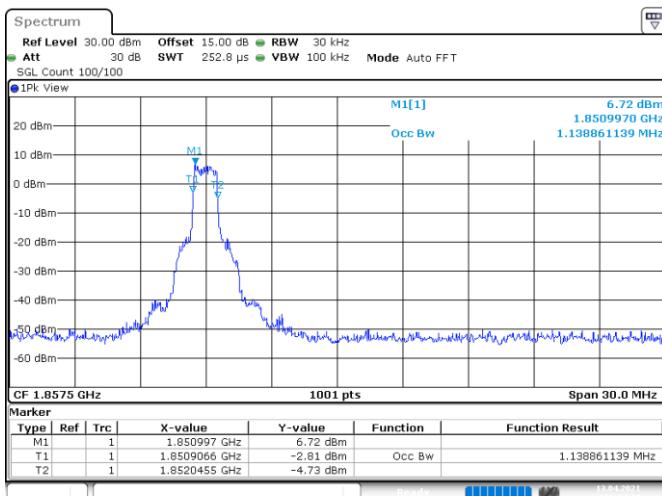


LTE Band 2 _ Channel Bandwidth: 15 MHz

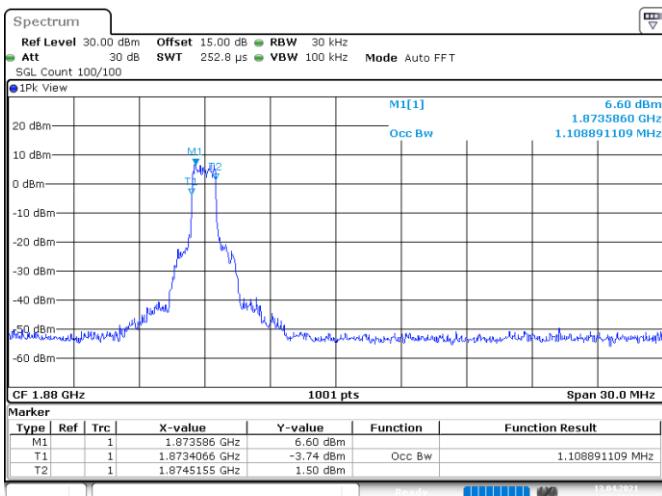
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM
18675	1857.5	1.139	1.199
18900	1880.0	1.109	1.139
19125	1902.5	1.079	1.139

QPSK

Channel_18675



Channel_18900



Channel_19125

