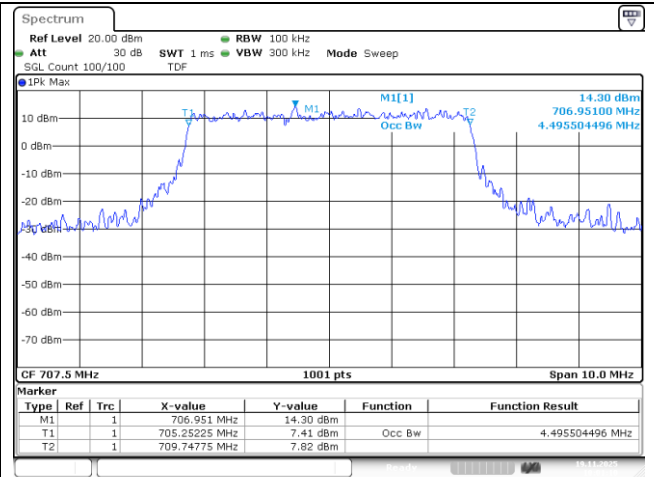
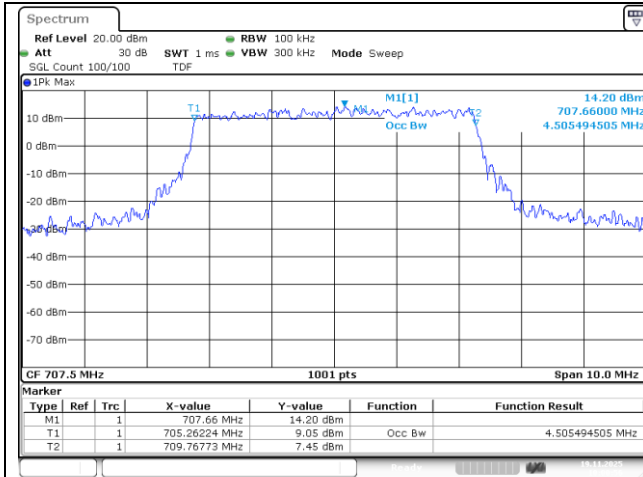
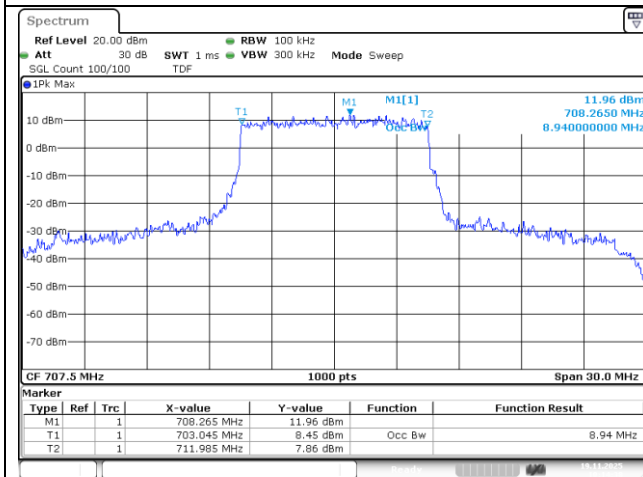


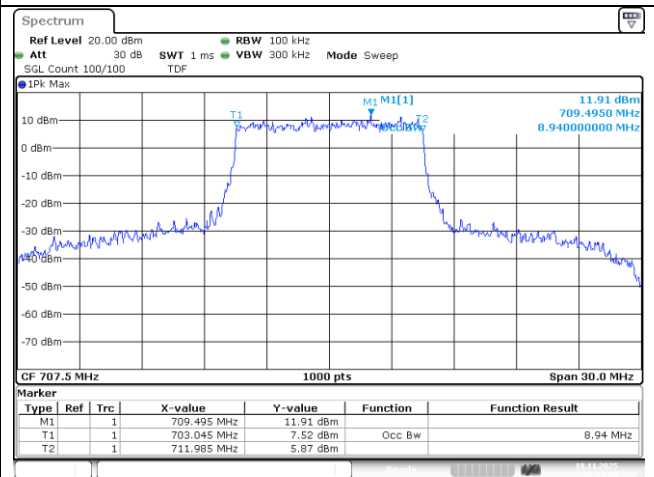
LTE band 12/17



5 MHz QPSK Middle Channel - Full RB



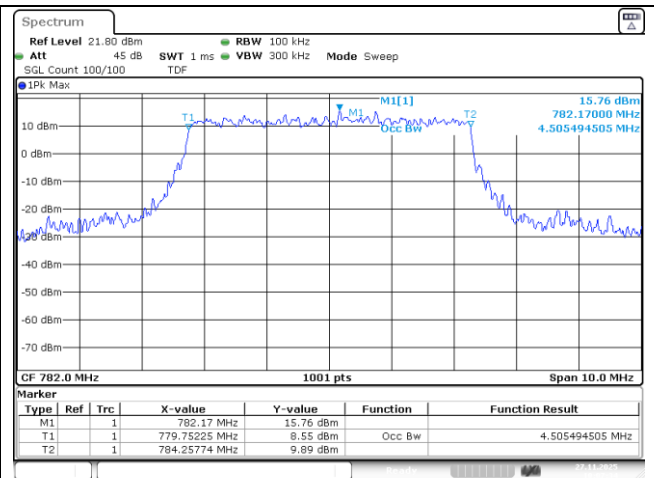
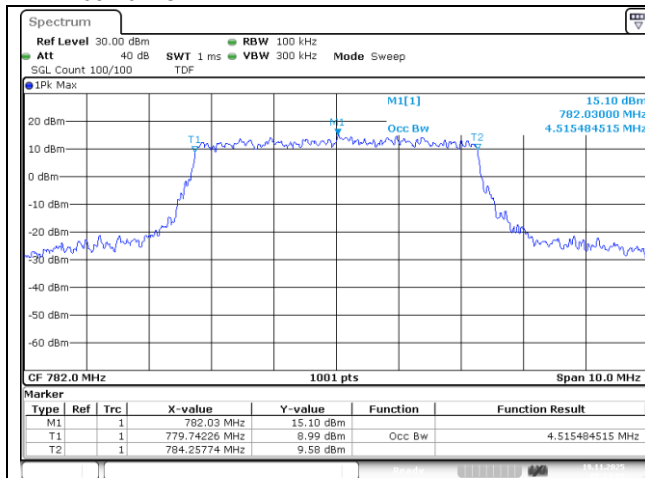
5 MHz 16QAM Middle Channel - Full RB



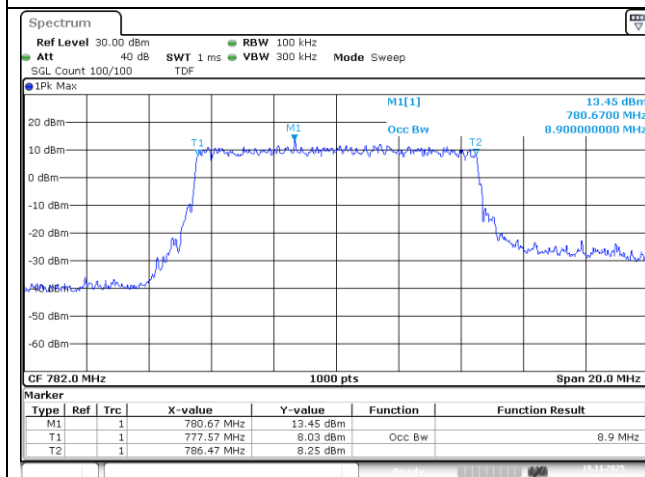
10 MHz QPSK Middle Channel - Full RB

10 MHz 16QAM Middle Channel - Full RB

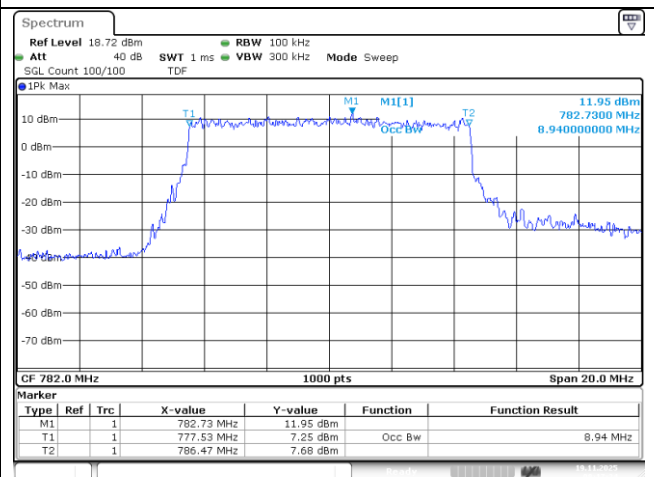
LTE band 13



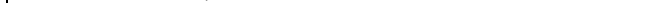
5 MHz QPSK Middle Channel - Full RB



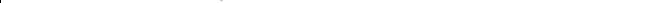
5 MHz 16QAM Middle Channel - Full RB



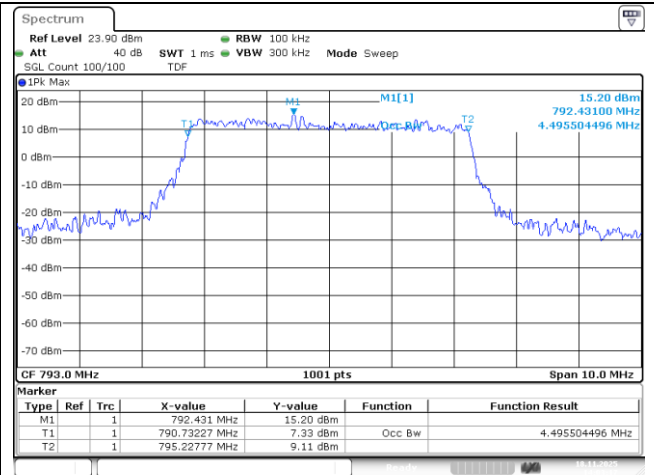
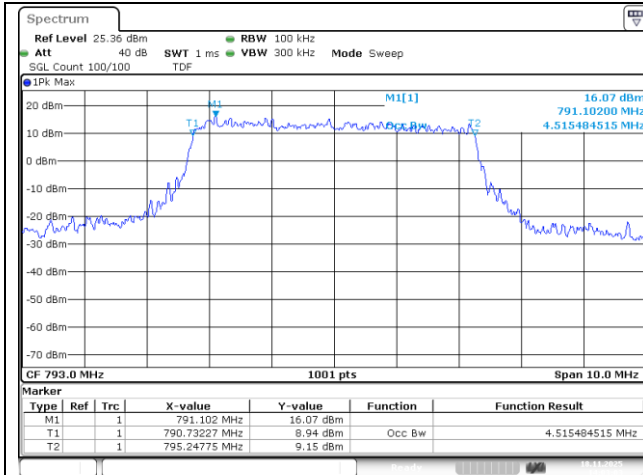
10 MHz QPSK Middle Channel - Full RB



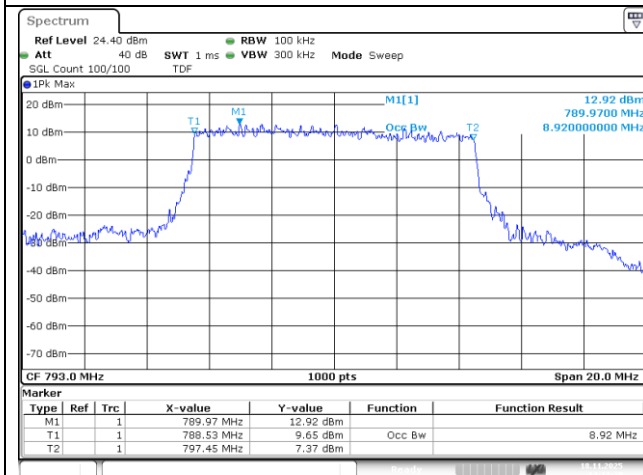
10 MHz 16QAM Middle Channel - Full RB



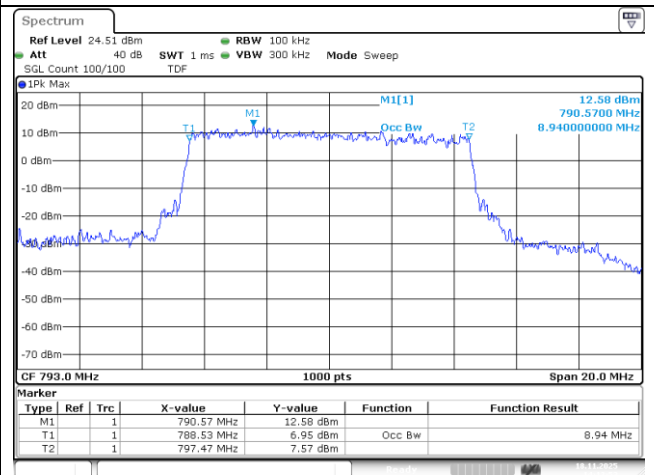
LTE band 14



5 MHz QPSK Middle Channel - Full RB



5 MHz 16QAM Middle Channel - Full RB



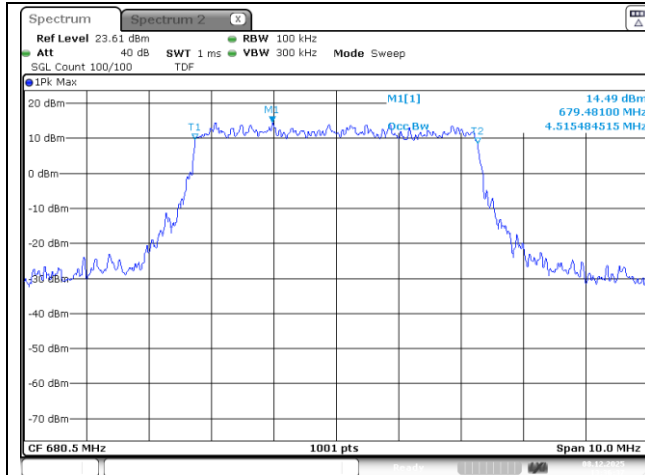
10 MHz QPSK Middle Channel - Full RB



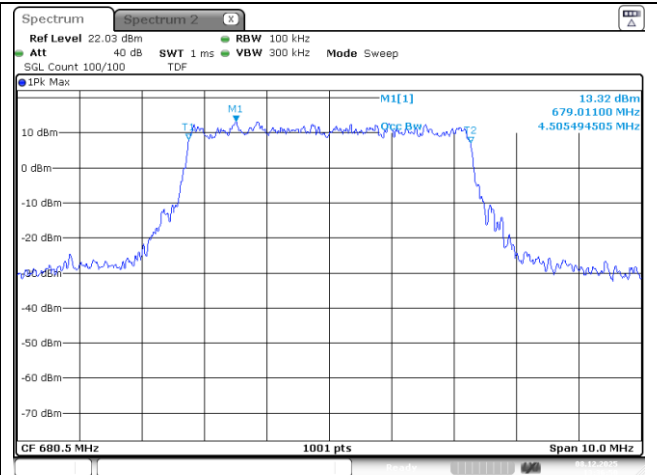
10 MHz 16QAM Middle Channel - Full RB



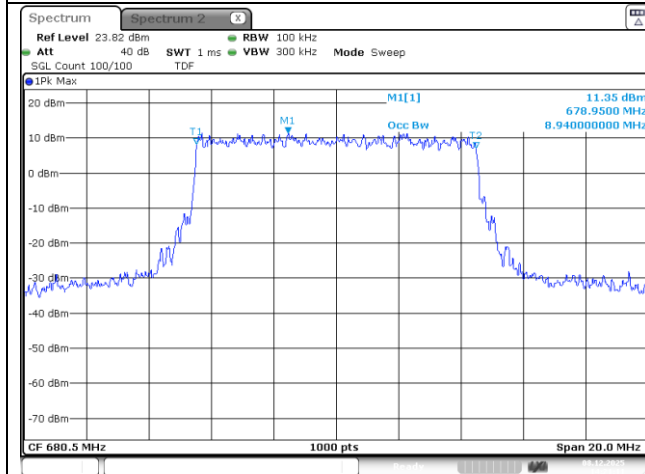
LTE band 71



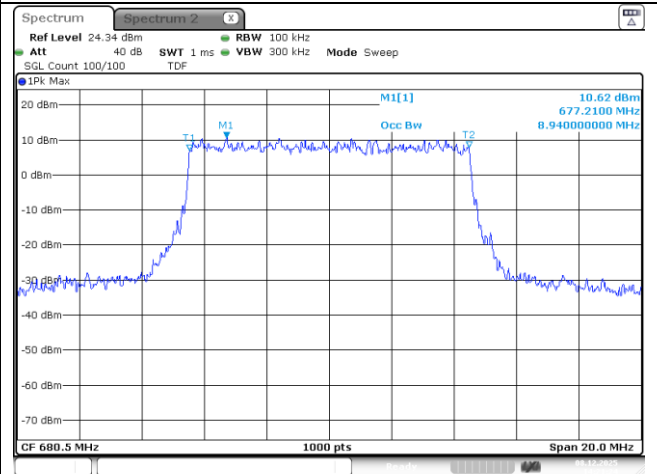
5 MHz QPSK Middle Channel - Full RB



5 MHz 16QAM Middle Channel - Full RB

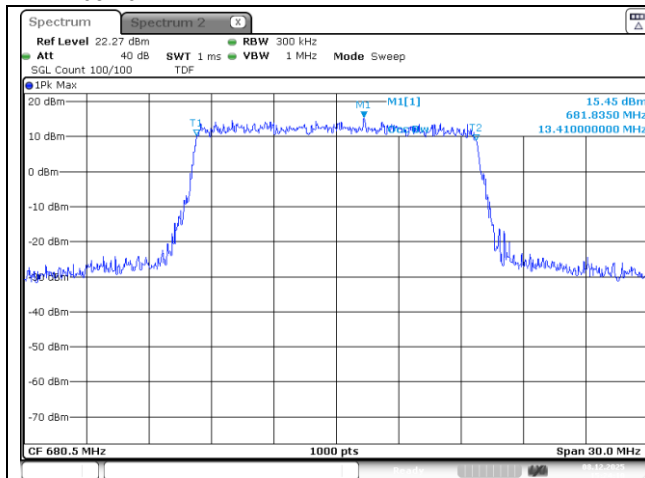


10 MHz QPSK Middle Channel - Full RB

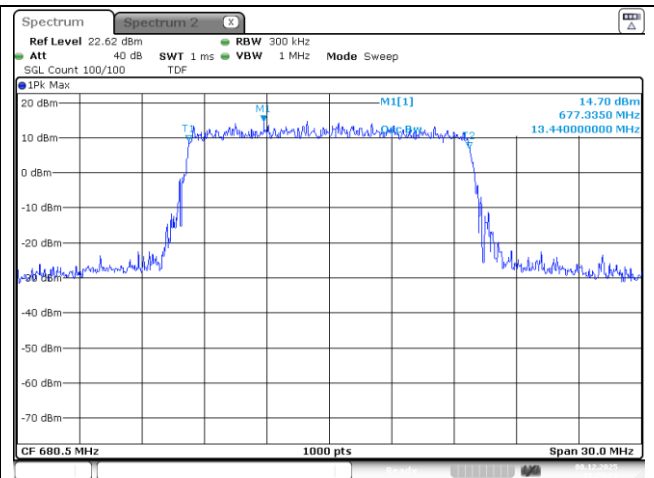


10 MHz 16QAM Middle Channel - Full RB

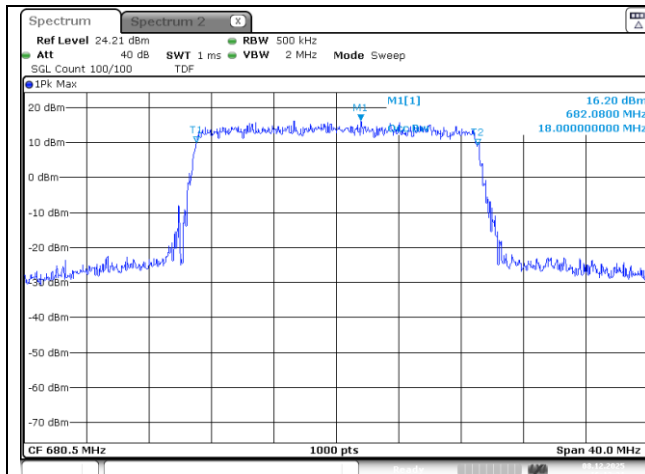
LTE band 71



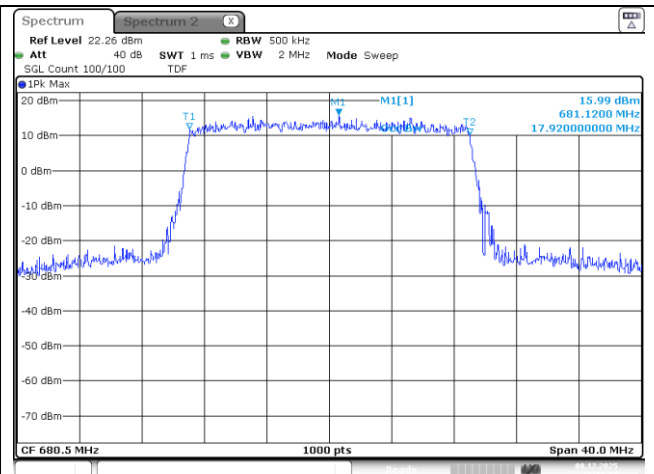
15 MHz QPSK Middle Channel - Full RB



15 MHz 16QAM Middle Channel - Full RB



20 MHz QPSK Middle Channel - Full RB



20 MHz 16QAM Middle Channel - Full RB

5. Peak-Average Ratio

5.1. Limit

FCC

- §22.913(d) Measurement of the ERP of Cellular base transmitters and repeaters must be made using an average power measurement technique. The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

- §24.232(d), power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. 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.

- §27.50(d)(5), power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. 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.

IC

- RSS-130 Issue 2

4.6.1, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1 % of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

- RSS-132 Issue 4

5.4, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1 % of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

- RSS-133 Issue 7

5.5, the peak-to-average power ratio (PAPR) of the equipment shall not exceed 13 dB for more than 0.1% of the time, using a signal corresponding to the highest PAPR during periods of continuous transmission.

- RSS-139 Issue 4

5.5, the peak to average power ratio (PAPR) of the equipment shall not exceed 13 dB for more than 0.1 % of the time, using a signal that corresponds to the highest PAPR during periods of continuous transmission.

- RSS-140 Issue 1

4.3, the peak to average power ratio (PAPR) of the equipment shall not exceed 13 dB for more than 0.1% of the time, using a signal that corresponds to the highest PAPR during periods of continuous transmission.

- RSS-199 Issue 4

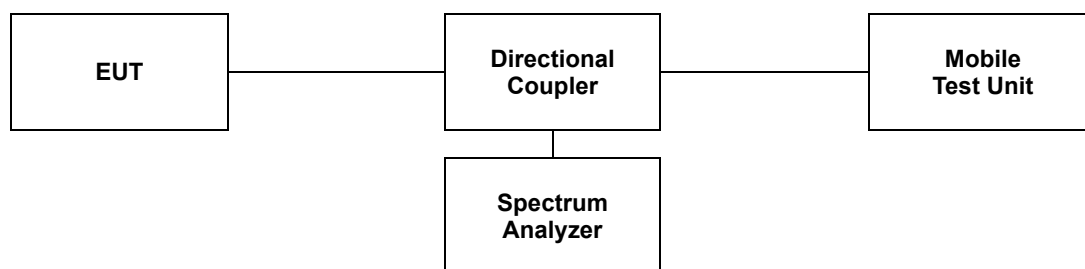
5.5, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

5.2. Test Procedure

The test follows section 5.2.3.4 of ANSI C63.26-2015.

See instrumentation-specific application literature for further guidance regarding use of the CCDF capability. The following guidelines are offered for performing a CCDF measurement.

- a. Set resolution/measurement bandwidth $\geq$ OBW or specified reference bandwidth.
- b. Set the number of counts to a value that stabilizes the measured CCDF curve.
- c. Set the measurement interval as follows:
 - 1) For continuous transmissions, set to greater of $[10 \times (\text{number of points in sweep}) \times (\text{transmission symbol period})]$ or 1 ms.
 - 2) For burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize. Set the measurement interval to a time that is less than or equal to the burst duration.
 - 3) If there are several carriers in a single antenna port, the peak power shall be determined for each individual carrier (by disabling the other carriers while measuring the required carrier) and the total peak power calculated from the sum of the individual carrier peak powers.
- d. Record the maximum PAPR level associated with a probability of 0.1 %.
- e. The peak power level is calculated from the sum of the PAPR value from step d) to the measured average power.



5.3 Test Results

Ambient temperature : (23 ± 1) °C
 Relative humidity : 47 %

WCDMA

Band	Mode	Frequency (MHz)	PAR (dB)
WCDMA II	RMC	1 852.4	3.07
		1 880.0	3.19
		1 907.6	2.84
	HSUPA	1 852.4	4.20
		1 880.0	4.14
		1 907.6	4.06
WCDMA IV	RMC	1 712.4	2.84
		1 732.6	2.67
		1 752.6	2.87
	HSUPA	1 712.4	4.00
		1 732.6	4.06
		1 752.6	4.12
WCDMA V	RMC	826.4	2.93
		836.6	3.01
		846.6	2.99
	HSDPA	826.4	4.09
		836.6	4.09
		846.6	4.29

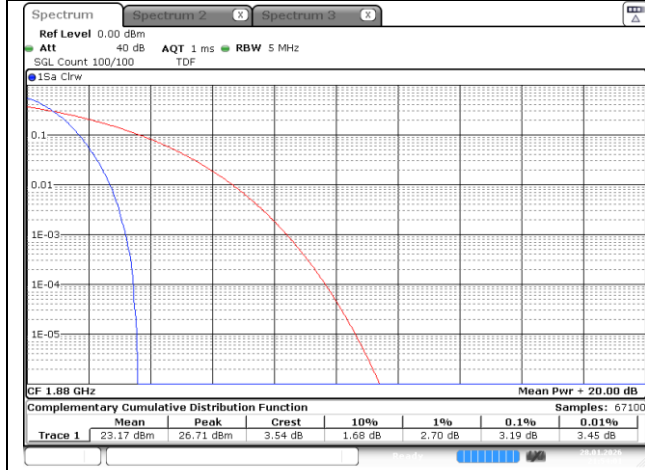
LTE

Band	Bandwidth (MHz)	Frequency (MHz)	PAR (dB)			
			QPSK	16QAM	64QAM	256QAM
25/2	1.4	1 850.7	5.94	6.87	6.81	7.68
		1 882.5	5.83	6.58	6.70	6.61
		1 914.3	5.54	6.38	6.32	7.36
	3	1 851.5	5.77	6.26	6.52	6.58
		1 882.5	5.68	6.38	6.61	6.52
		1 913.5	5.10	6.29	6.52	6.75
	5	1 852.5	5.59	6.43	6.58	6.72
		1 882.5	5.59	6.29	6.58	6.90
		1 912.5	5.13	6.06	6.32	6.78
	10	1 855.0	5.13	6.09	6.43	6.75
		1 882.5	5.57	6.46	6.64	6.58
		1 910.0	5.19	5.97	6.14	6.49
	15	1 857.5	5.30	6.14	6.35	6.52
		1 882.5	5.65	6.38	6.58	6.81
		1 907.5	5.30	6.20	6.41	6.55
	20	1 860.0	5.13	5.94	6.26	6.55
		1 882.5	5.48	6.38	6.58	6.64
		1 905.0	5.25	6.20	6.43	6.67
66/4	1.4	1 710.7	5.39	6.29	6.72	6.84
		1 745.0	5.88	6.70	6.81	7.22
		1 779.3	5.68	6.61	6.90	6.55
	3	1 711.5	5.22	6.23	6.29	6.43
		1 745.0	5.33	6.38	6.43	6.75
		1 778.5	5.65	6.43	6.58	6.61
	5	1 712.5	5.33	6.49	6.55	6.55
		1 745.0	5.62	6.43	6.87	6.58
		1 777.5	5.48	6.29	6.64	6.32
	10	1 715.0	5.33	6.41	6.32	6.72
		1 745.0	5.68	6.32	6.38	6.64
		1 775.0	5.45	6.46	6.58	6.61
	15	1 717.5	5.51	6.23	6.46	6.78
		1 745.0	5.65	6.35	6.58	6.78
		1 772.5	5.54	6.32	6.70	6.70
	20	1 720.0	5.28	6.26	6.58	6.72
		1 745.0	5.59	6.20	6.67	6.70
		1 770.0	5.33	6.26	6.46	6.75
26/5 Part 22	1.4	824.7	4.93	5.74	6.26	7.16
		836.5	5.59	5.91	6.52	6.67
		848.3	5.68	6.20	6.72	7.30
	3	825.5	4.93	6.03	6.20	6.46
		836.5	5.36	6.35	6.32	6.64
		847.5	5.48	6.23	6.46	6.58
	5	826.5	4.87	5.71	6.14	6.52
		836.5	5.30	6.12	6.52	6.81
		846.5	5.19	6.20	6.09	6.64
	10	829.0	4.81	5.97	6.23	6.78
		836.5	5.19	5.97	6.35	6.75
		844.0	5.10	6.06	6.23	6.70
26 Part 22	15	831.5	5.10	5.91	6.35	6.70
		841.5	5.25	6.14	6.41	6.64

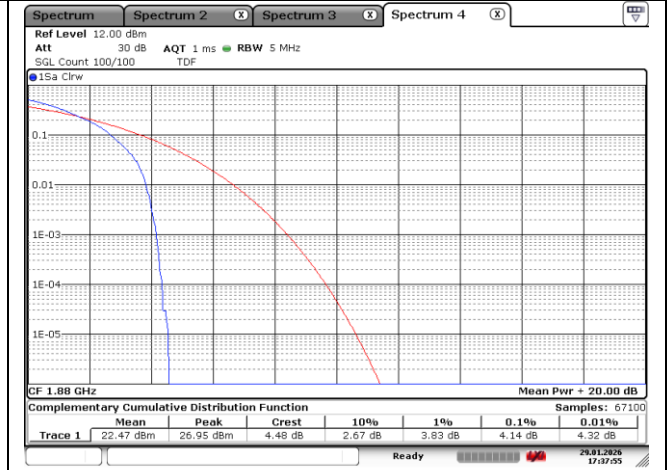
Band	Bandwidth (MHz)	Frequency (MHz)	PAR (dB)			
			QPSK	16QAM	64QAM	256QAM
7	5	2 502.5	5.57	6.43	6.29	8.41
		2 535.0	5.59	6.46	6.32	8.55
		2 567.5	5.48	6.41	6.26	8.46
	10	2 505.0	5.54	6.49	6.55	8.43
		2 535.0	5.36	6.58	6.67	8.46
		2 565.0	5.36	6.29	6.58	8.67
	15	2 507.5	5.62	6.41	6.72	8.52
		2 535.0	5.62	6.41	6.70	8.43
		2 562.5	5.68	6.35	6.61	8.55
	20	2 510.0	5.42	6.35	6.52	8.41
		2 535.0	5.51	6.35	6.64	8.38
		2 560.0	5.33	6.35	6.52	8.58
12	1.4	699.7	4.61	5.51	6.03	6.52
		707.5	5.19	5.86	6.72	7.45
		715.3	5.25	5.97	6.41	6.55
	3	700.5	4.52	5.45	6.03	6.55
		707.5	5.22	6.23	6.49	7.01
		714.5	4.90	5.94	6.29	6.87
12/17	5	701.5	4.58	5.45	6.06	6.72
		707.5	4.90	6.03	6.23	6.58
		713.5	4.81	5.71	6.09	6.70
	10	704.0	4.78	5.74	6.14	6.72
		707.5	4.81	5.88	6.12	6.81
		711.0	4.78	5.74	6.09	6.70
13	5	779.5	4.52	5.45	5.94	6.41
		782.0	4.72	5.45	5.97	6.38
		784.5	4.90	5.77	6.03	6.58
	10	782.0	4.81	5.62	6.09	6.61
14	5	790.5	4.84	5.62	5.97	6.32
		793.0	4.81	5.57	6.06	6.41
		795.5	4.99	5.80	6.26	6.70
	10	793.0	4.90	5.71	6.06	6.46
71	5	665.5	5.10	5.97	6.03	6.81
		680.5	5.19	6.43	6.03	6.75
		695.5	5.16	6.17	6.00	6.84
	10	668.0	5.51	6.06	6.52	6.84
		680.5	5.25	6.09	6.49	6.84
		693.0	4.99	6.12	6.35	6.75
	15	670.5	5.57	6.26	6.26	6.84
		680.5	5.25	6.17	6.03	6.81
		690.5	5.22	6.12	6.03	6.81
	20	673.0	5.36	6.26	6.61	6.78
		680.5	5.19	6.12	6.52	6.72
		688.0	5.13	6.00	6.43	6.84

- Test plots

WCDMA II

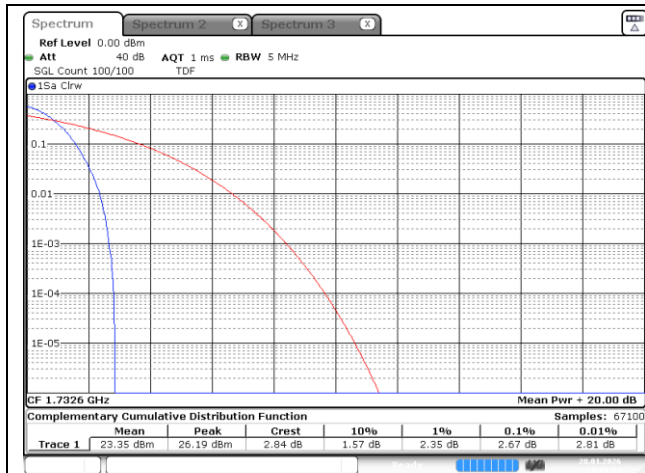


WCDMA II RMC Middle Channel

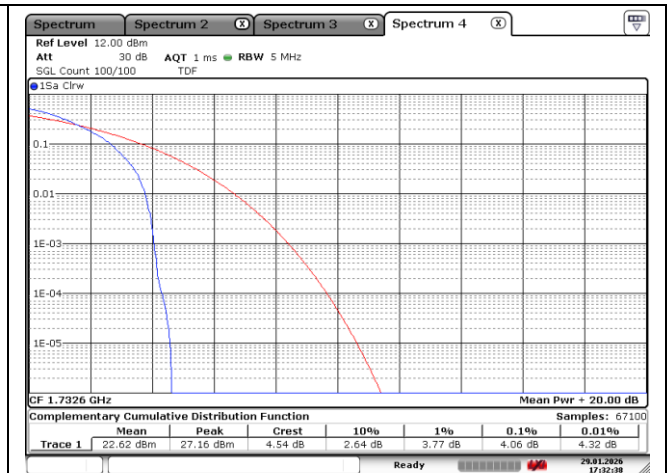


WCDMA II HSUPA Middle Channel

WCDMA IV

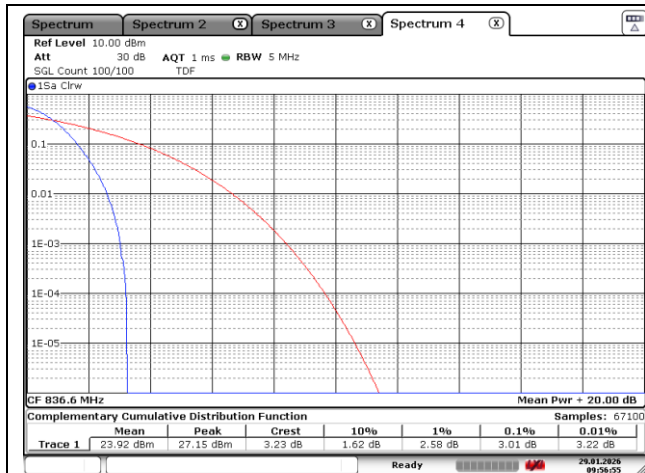


WCDMA IV RMC Middle Channel

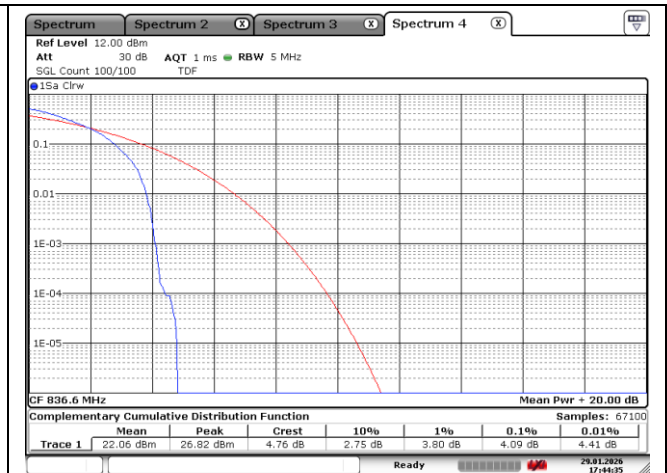


WCDMA IV HSUPA Middle Channel

WCDMA V

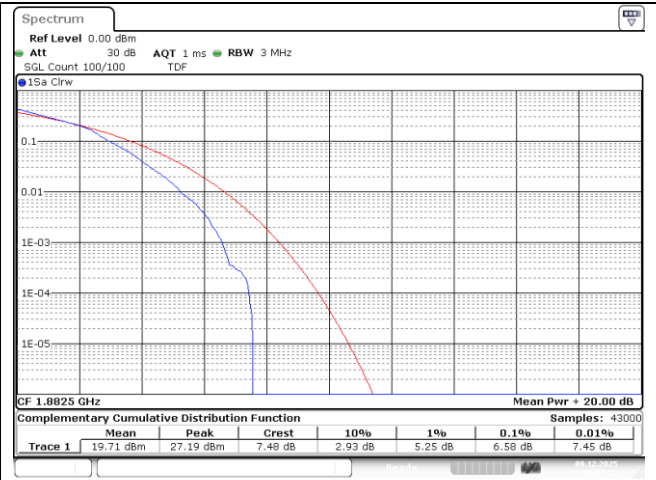
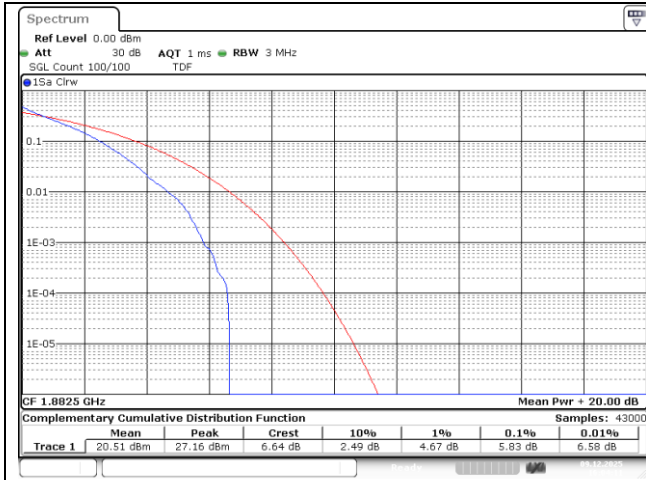


WCDMA V RMC Middle Channel

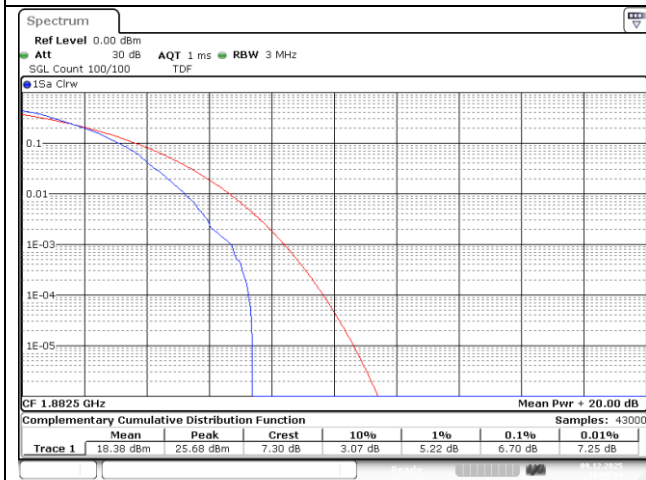


WCDMA V HSDPA Middle Channel

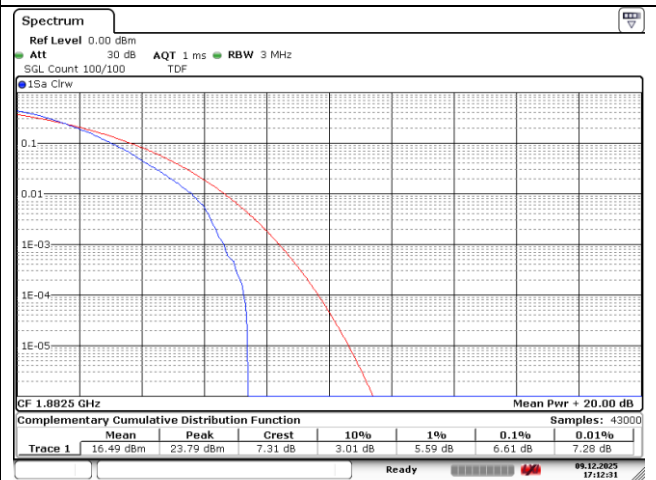
LTE band 25/2



1.4 MHz Middle Channel - QPSK



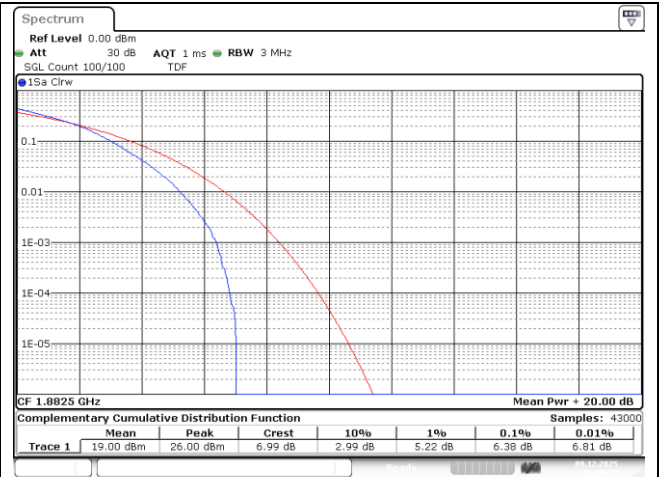
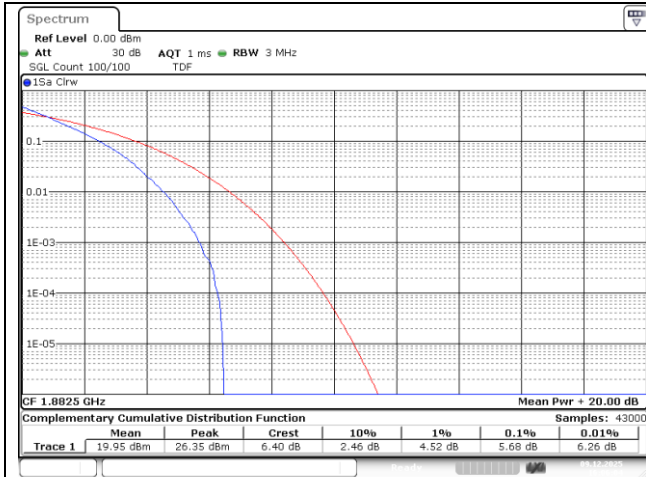
1.4 MHz Middle Channel - 16QAM



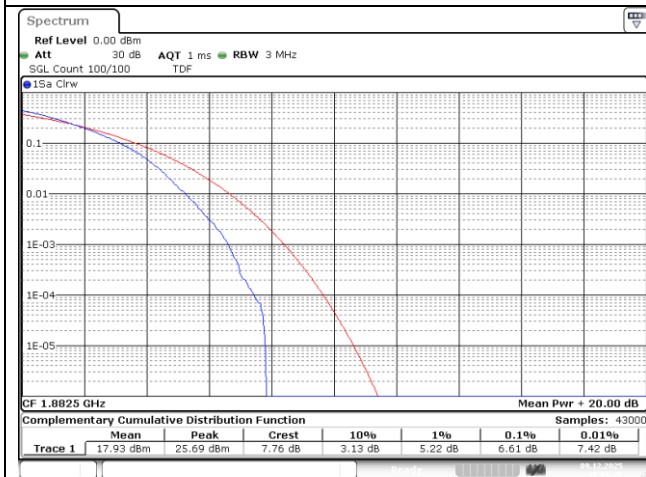
1.4 MHz Middle Channel - 64QAM

1.4 MHz Middle Channel - 256QAM

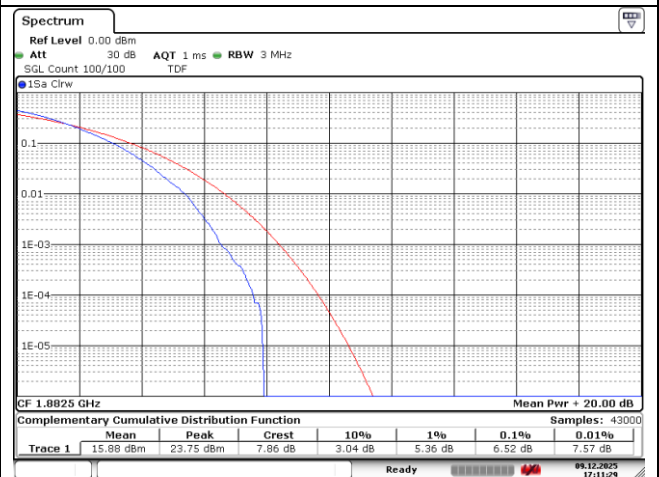
LTE band 25/2



3 MHz Middle Channel - QPSK



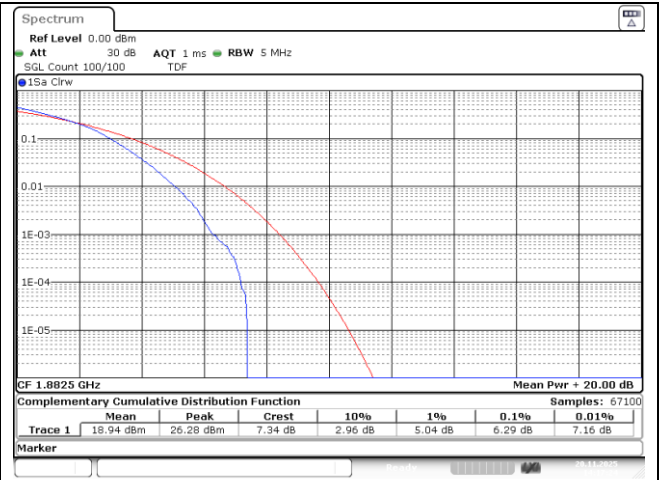
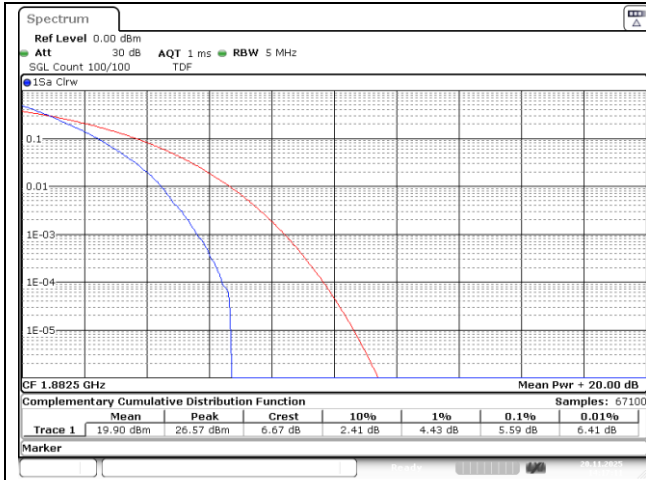
3 MHz Middle Channel - 16QAM



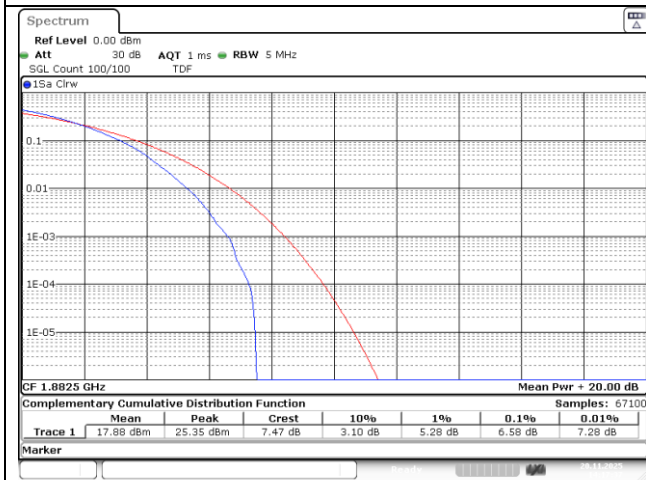
3 MHz Middle Channel - 64QAM

3 MHz Middle Channel - 256QAM

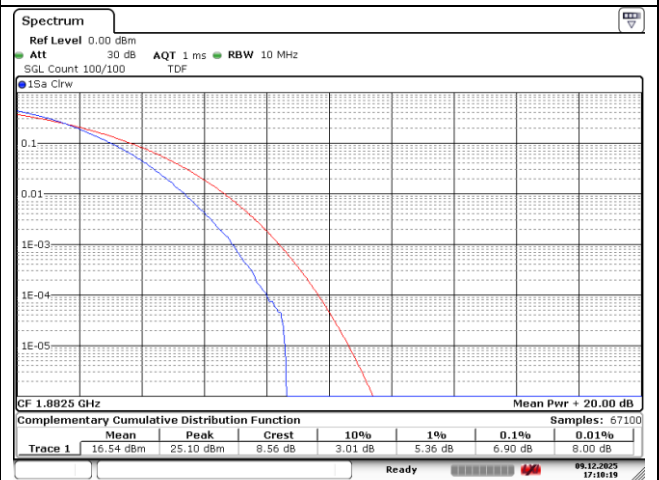
LTE band 25/2



5 MHz Middle Channel - QPSK



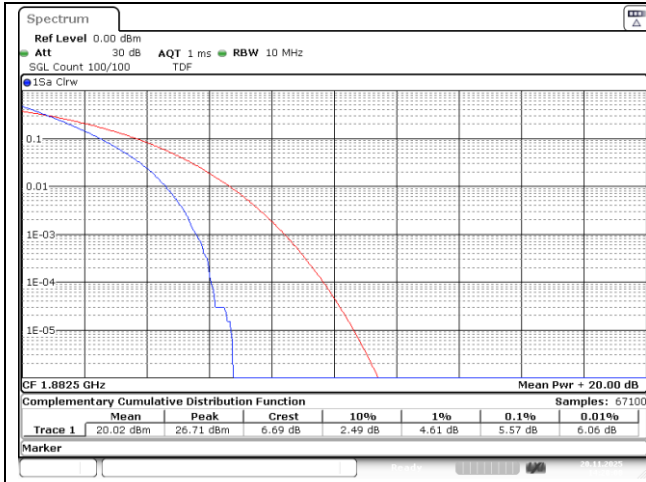
5 MHz Middle Channel - 16QAM



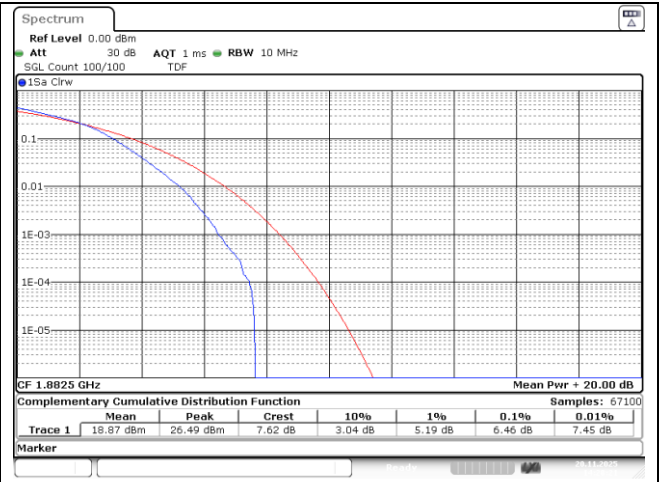
5 MHz Middle Channel - 64QAM

5 MHz Middle Channel - 256QAM

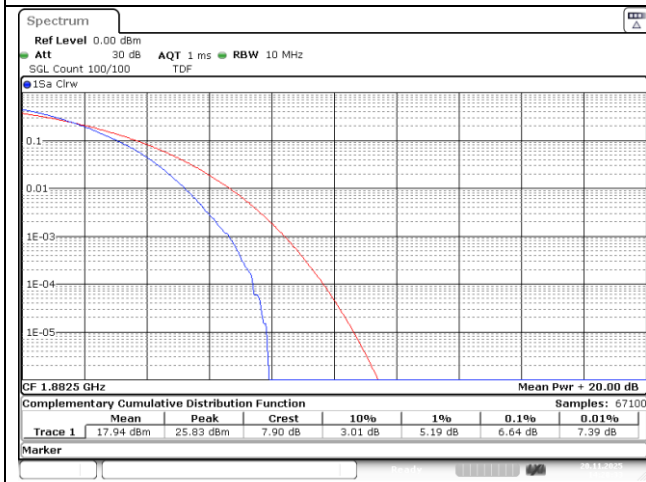
LTE band 25/2



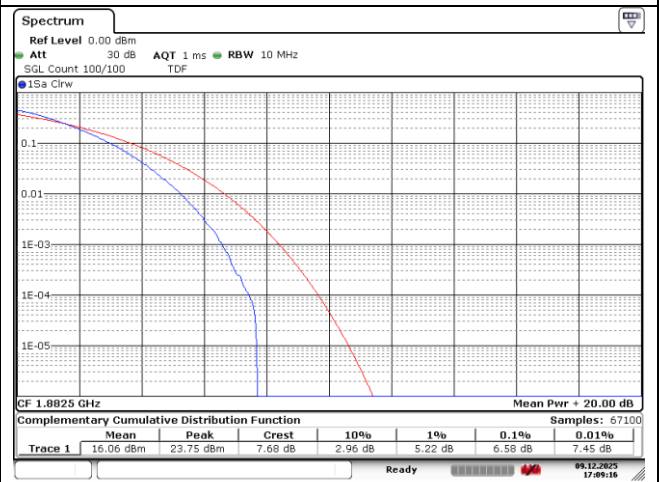
10 MHz Middle Channel - QPSK



10 MHz Middle Channel - 16QAM

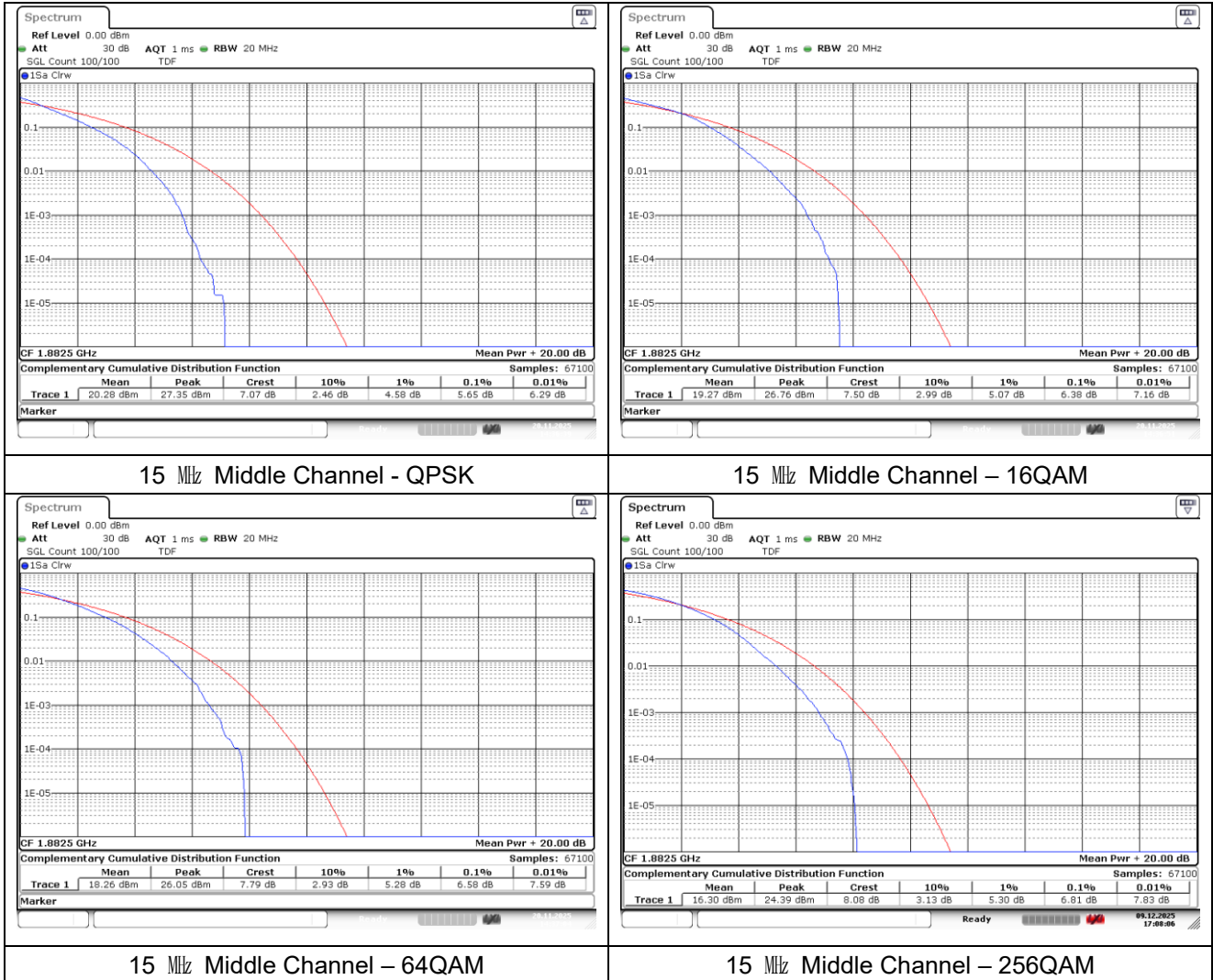


10 MHz Middle Channel - 64QAM

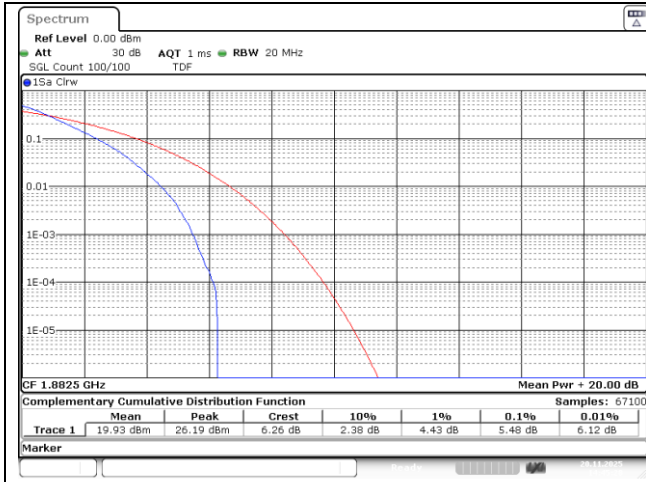


10 MHz Middle Channel - 256QAM

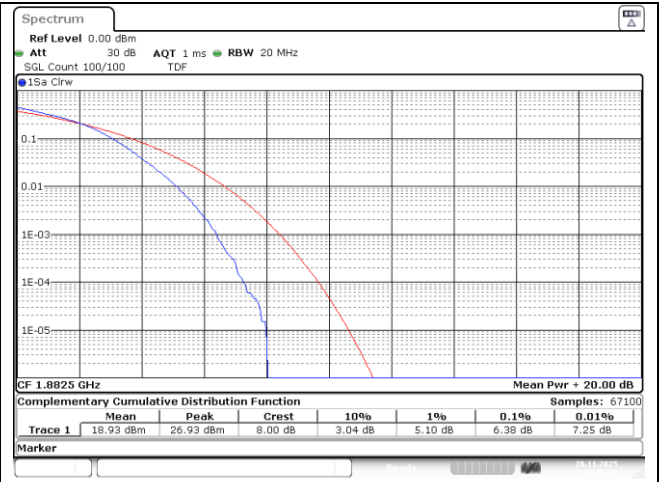
LTE band 25/2



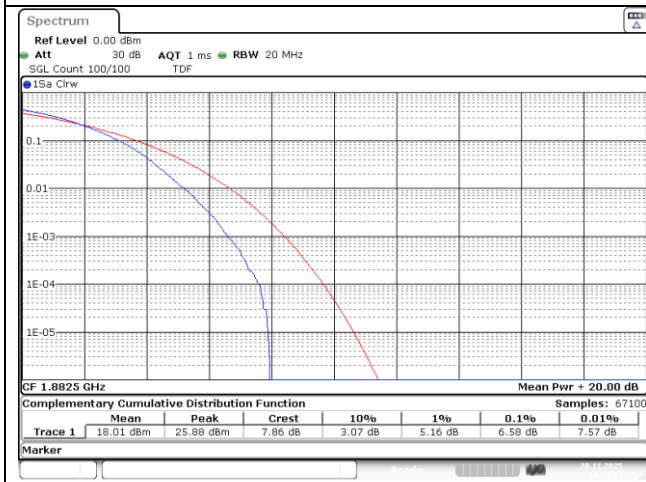
LTE band 25/2



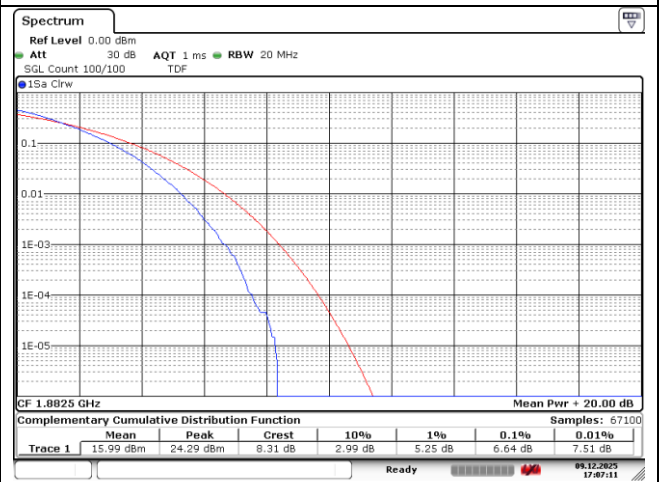
20 MHz Middle Channel - QPSK



20 MHz Middle Channel - 16QAM

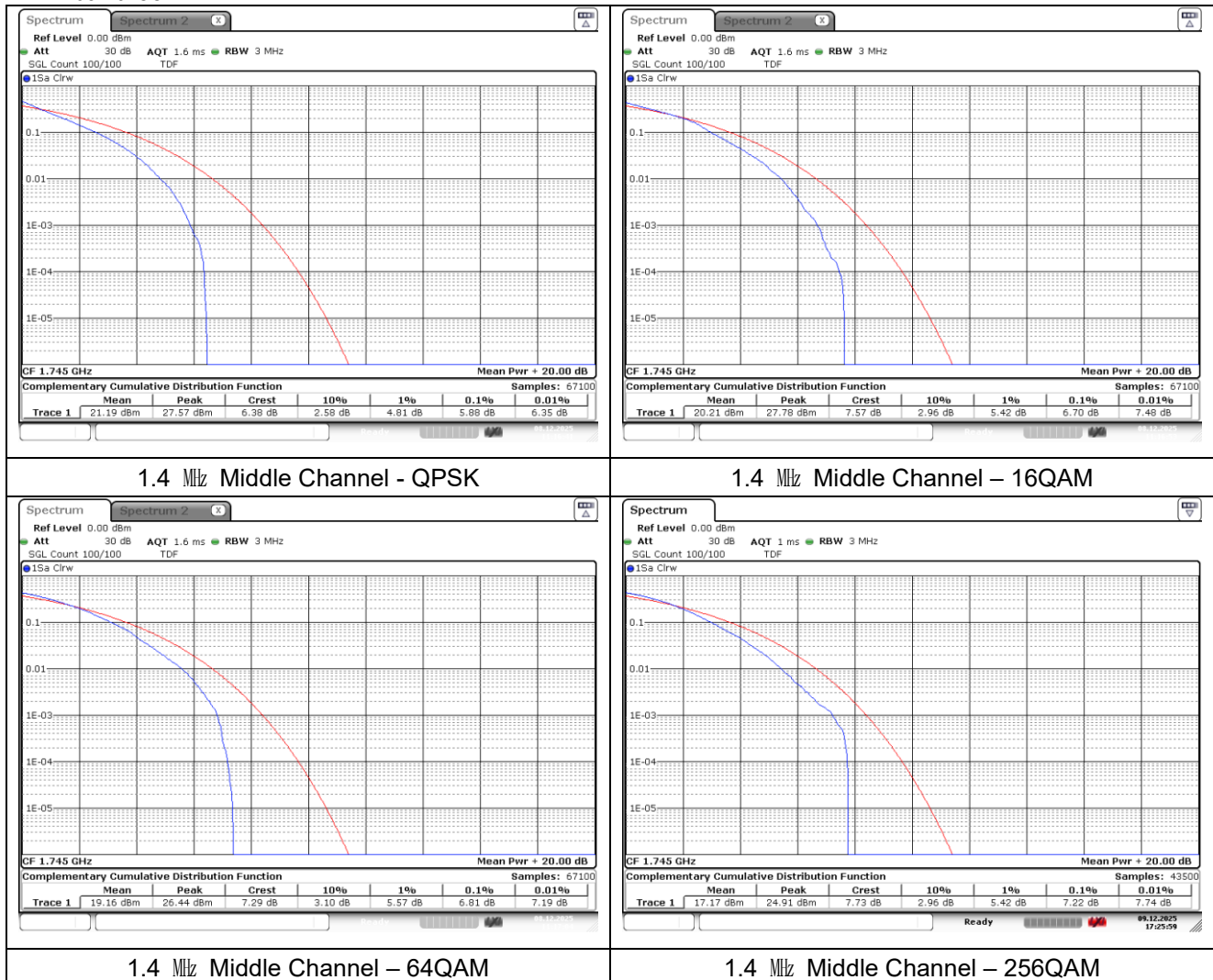


20 MHz Middle Channel - 64QAM

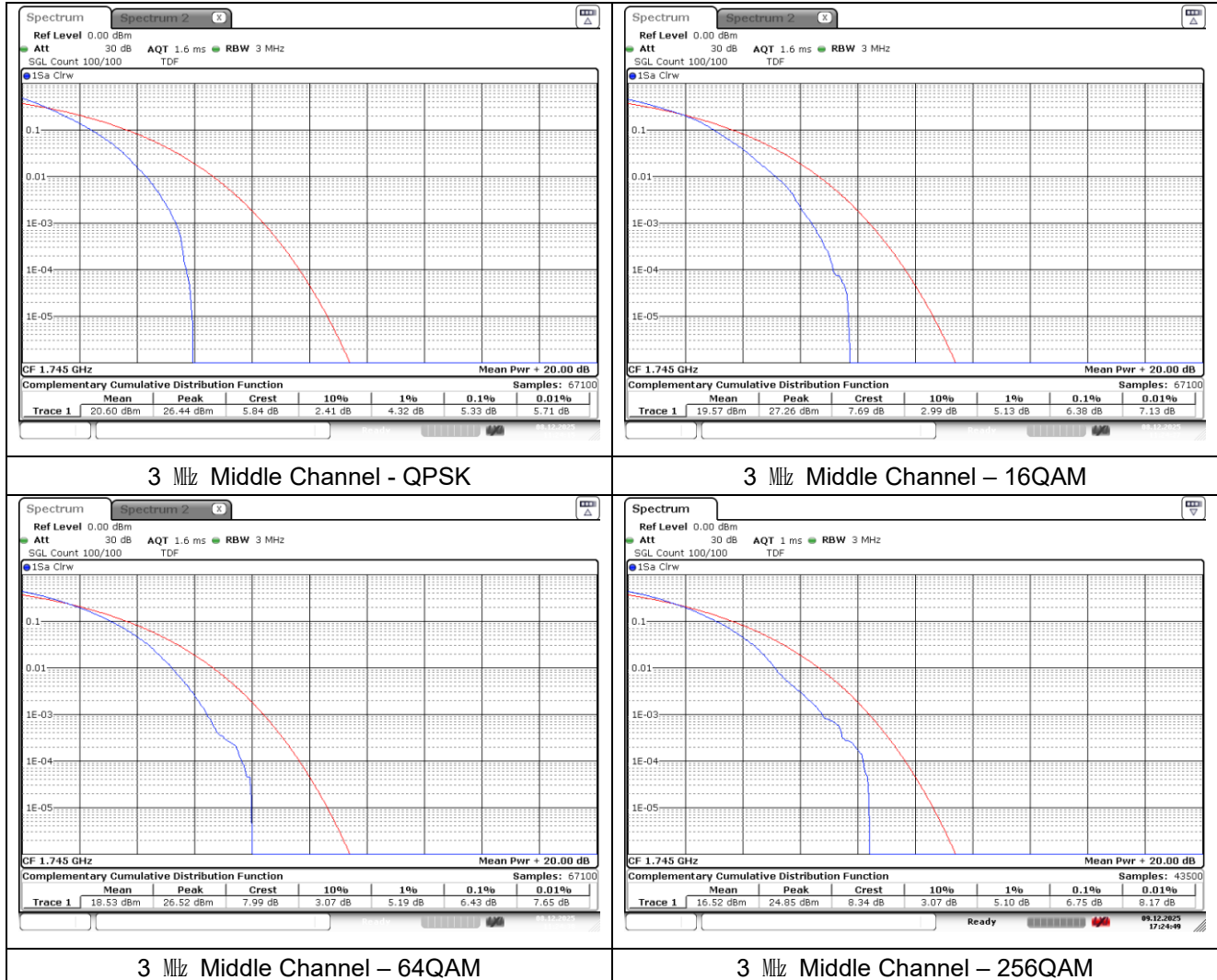


20 MHz Middle Channel - 256QAM

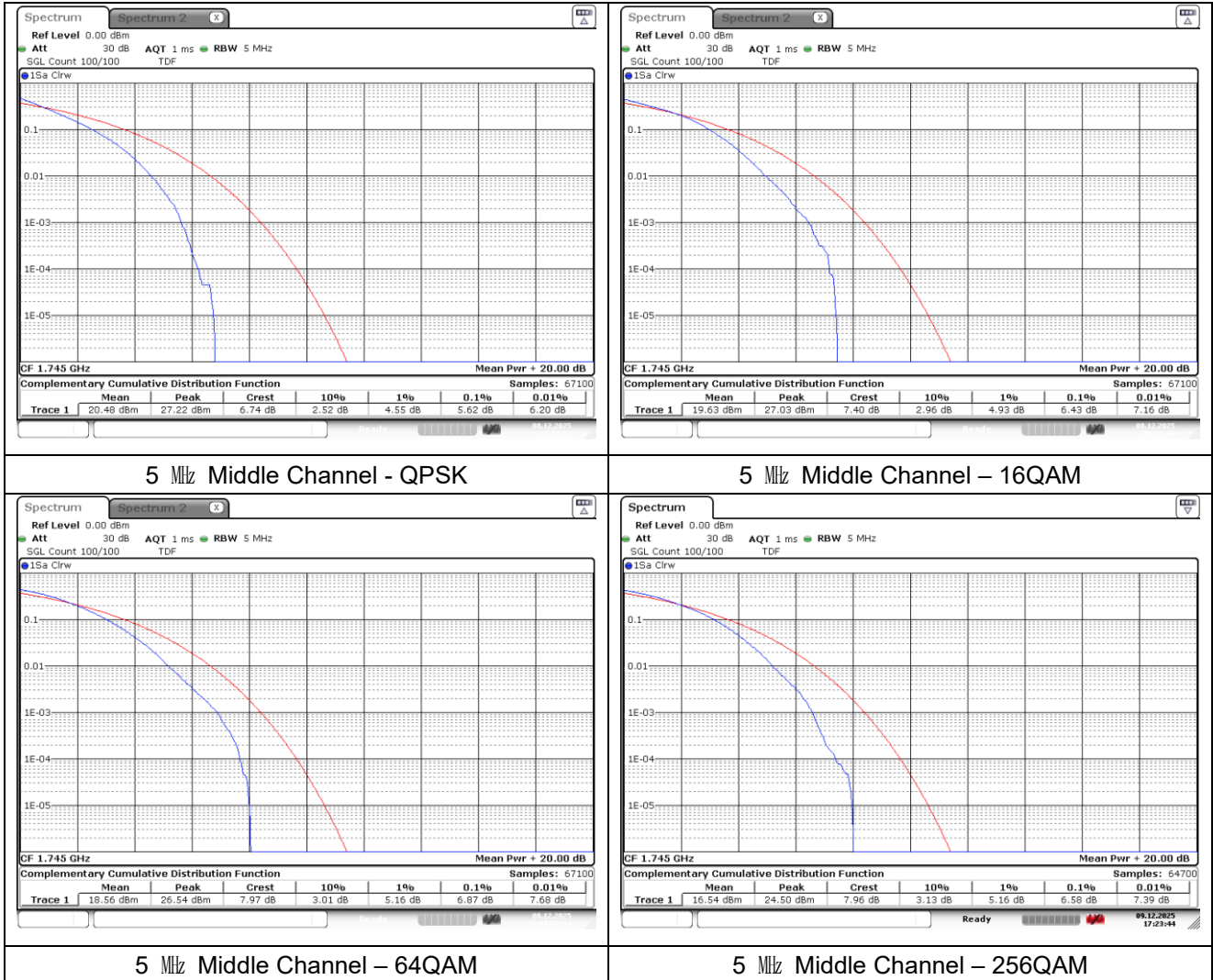
LTE band 66/4



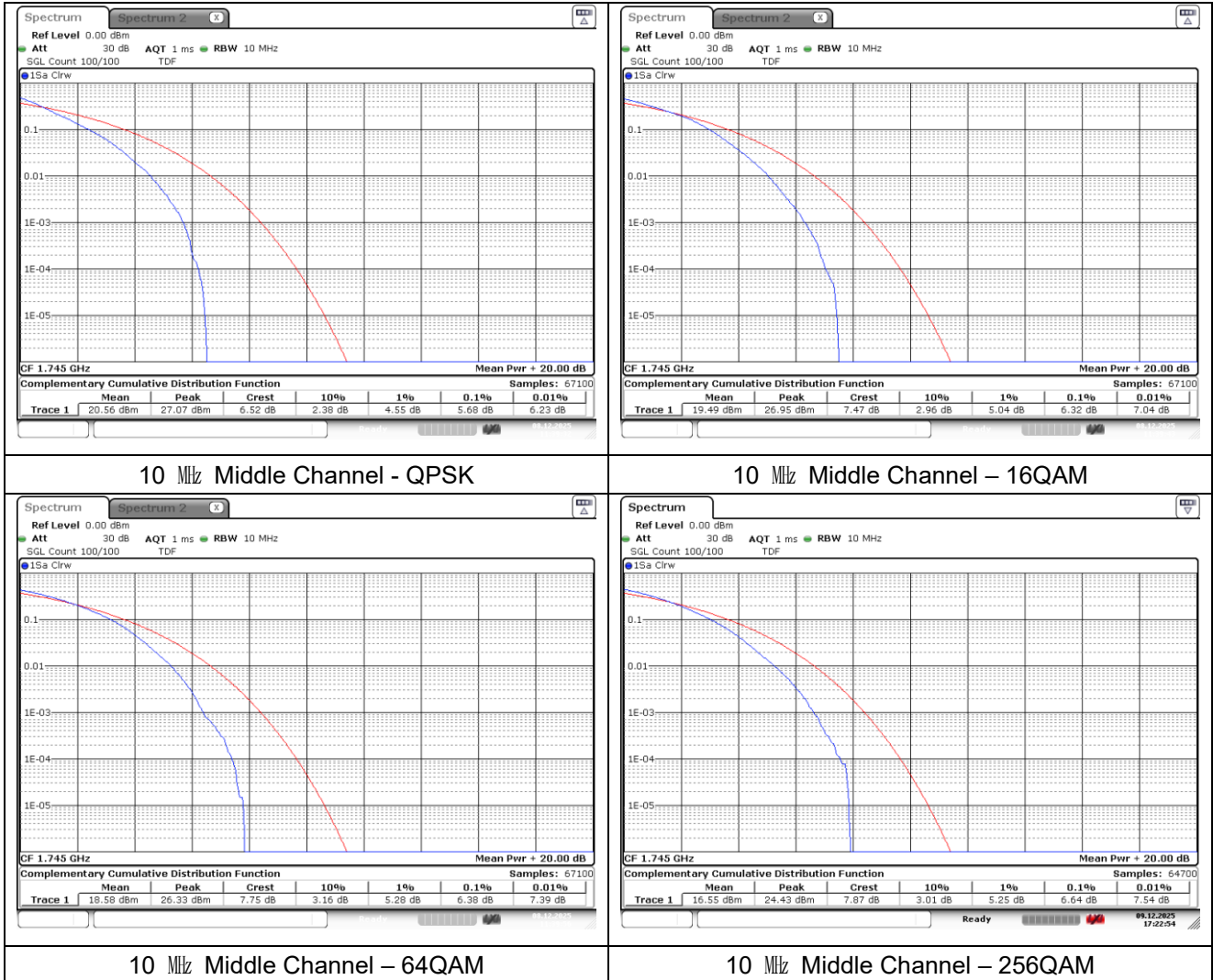
LTE band 66/4



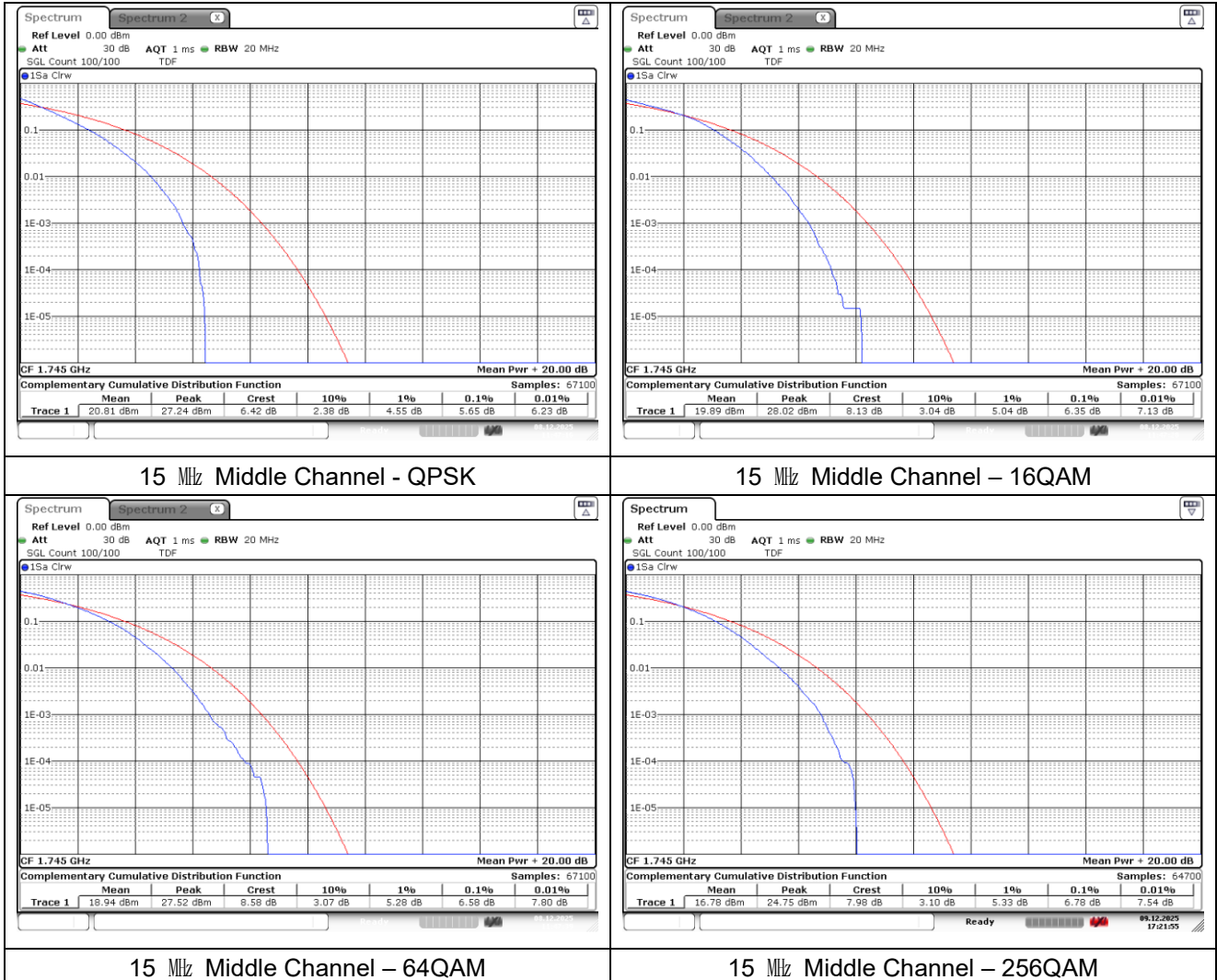
LTE band 66/4



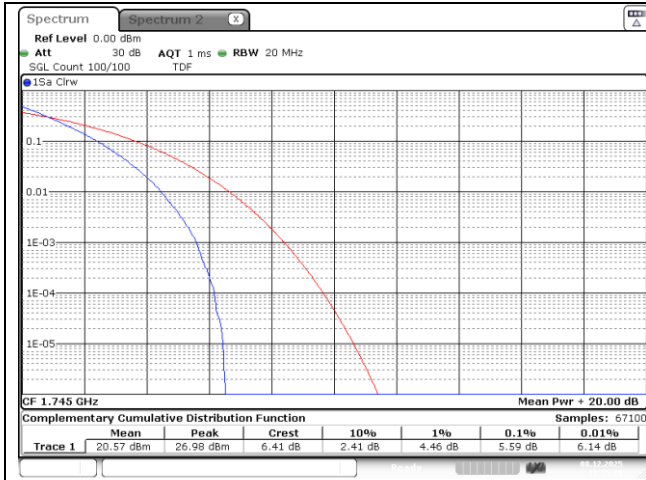
LTE band 66/4



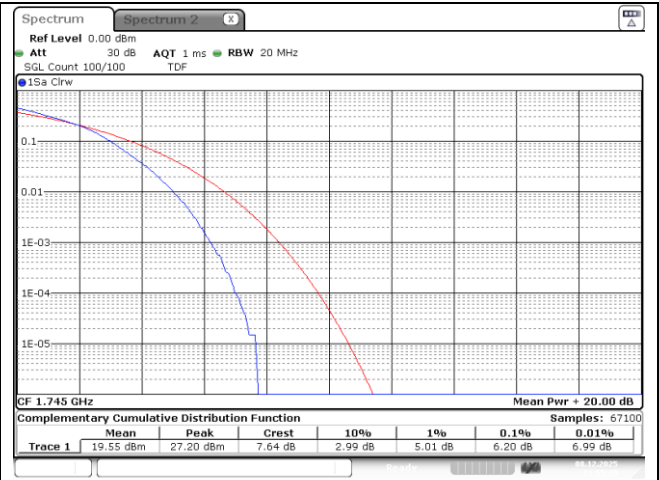
LTE band 66/4



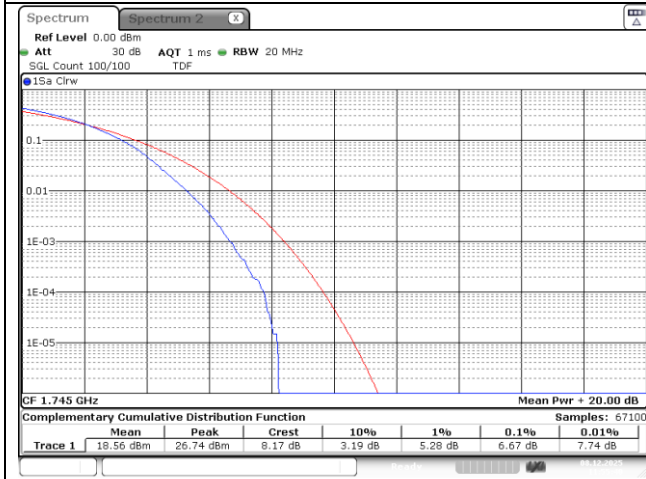
LTE band 66/4



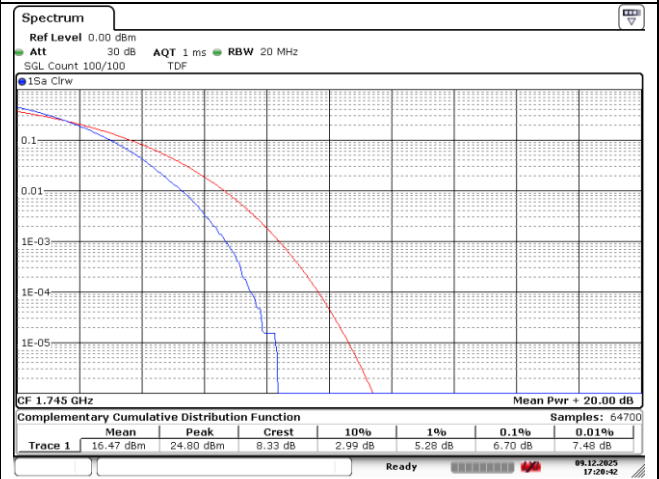
20 MHz Middle Channel - QPSK



20 MHz Middle Channel - 16QAM

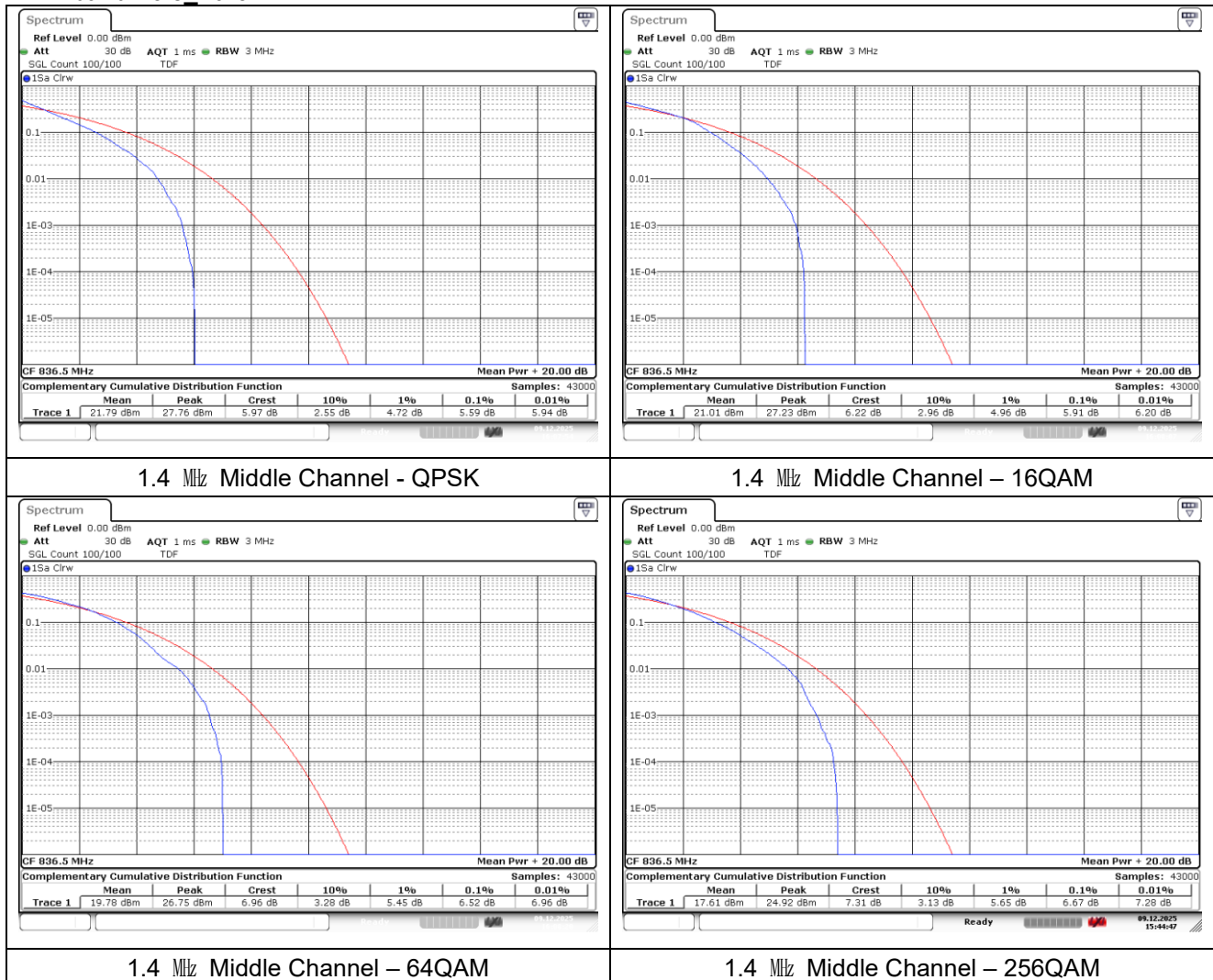


20 MHz Middle Channel - 64QAM

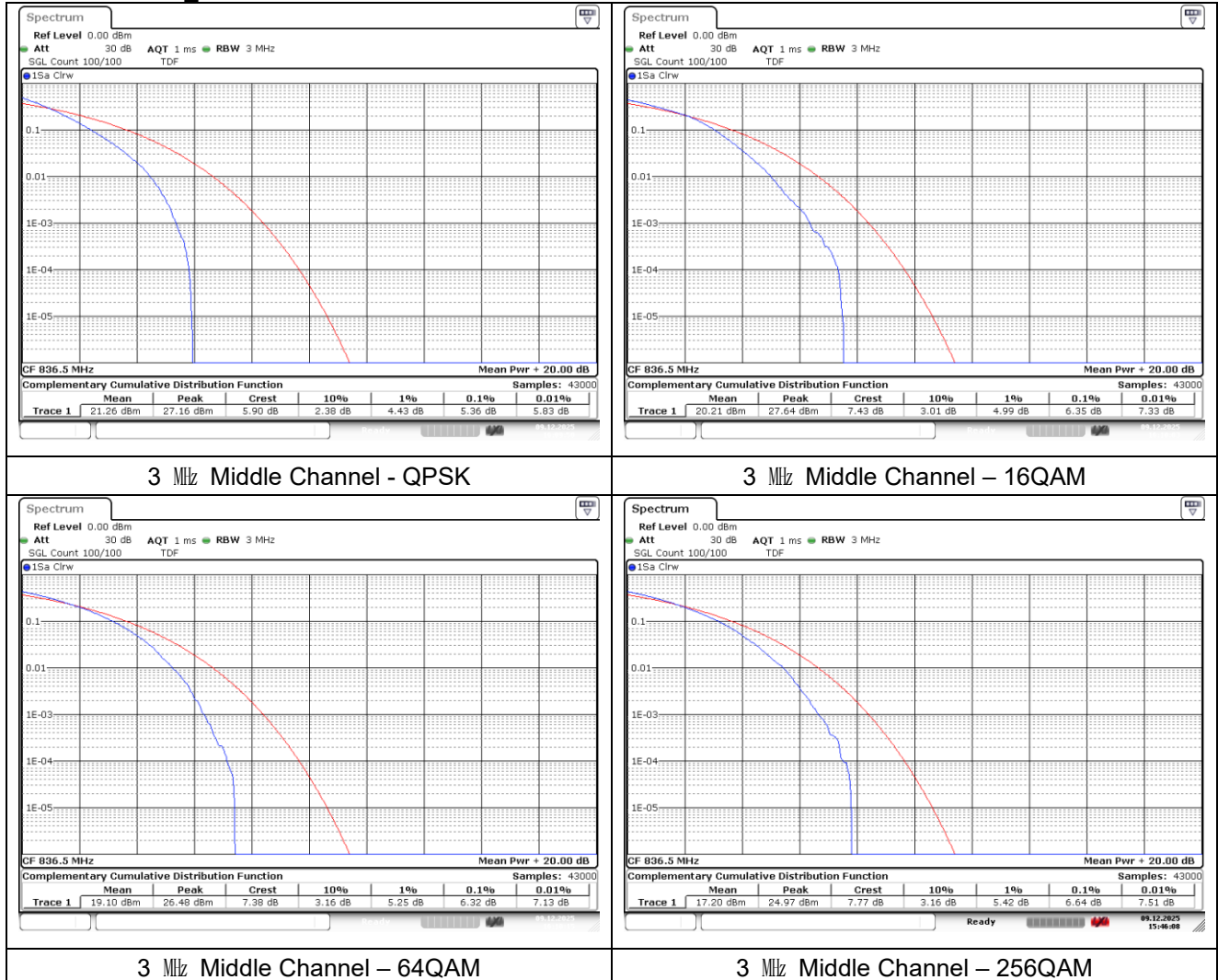


20 MHz Middle Channel - 256QAM

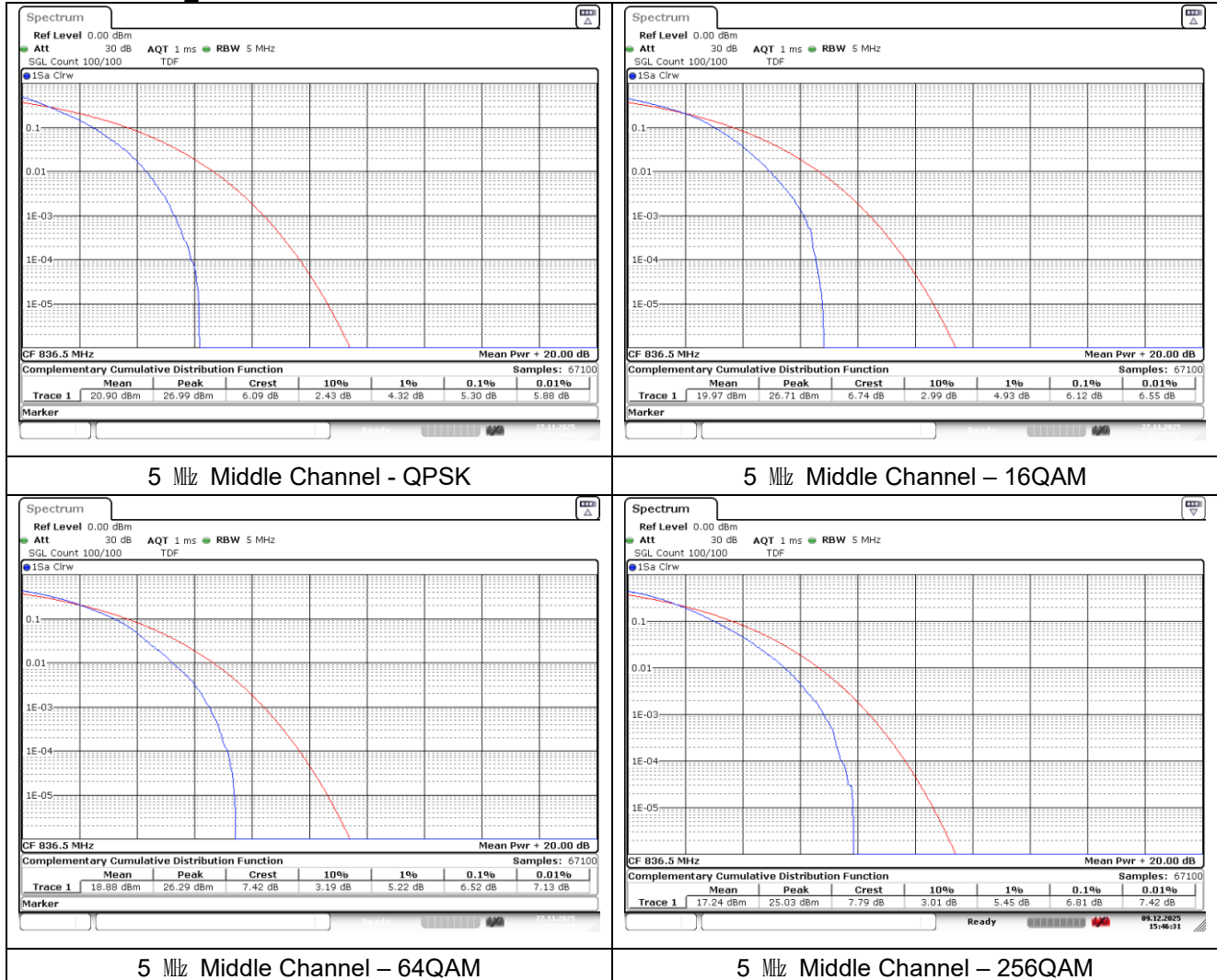
LTE band 26/5 Part 22



LTE band 26/5 Part 22



LTE band 26/5 Part 22



LTE band 26/5 Part 22

