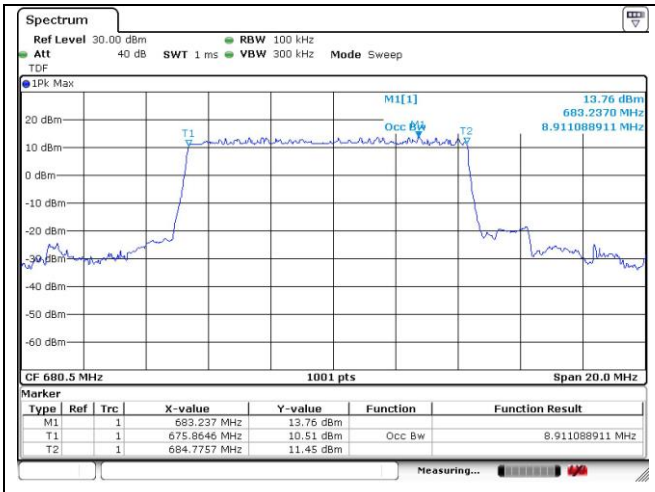
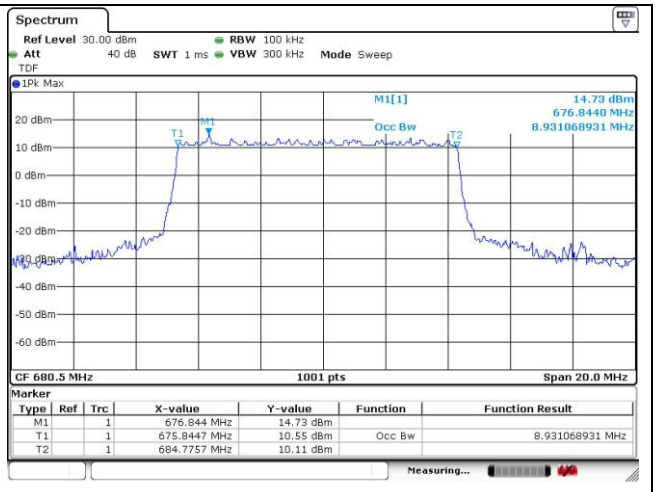
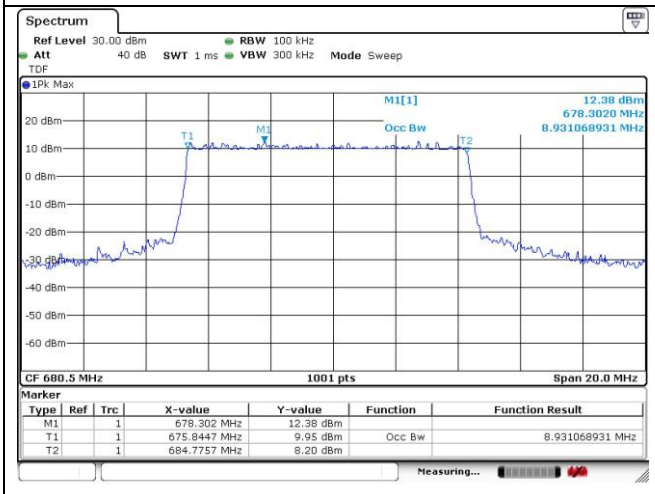
NR band 71



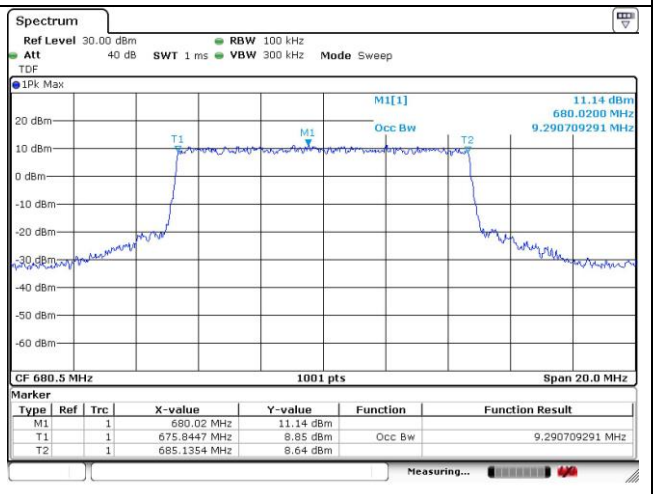
10 ㎒ DFT-S-OFDM BPSK



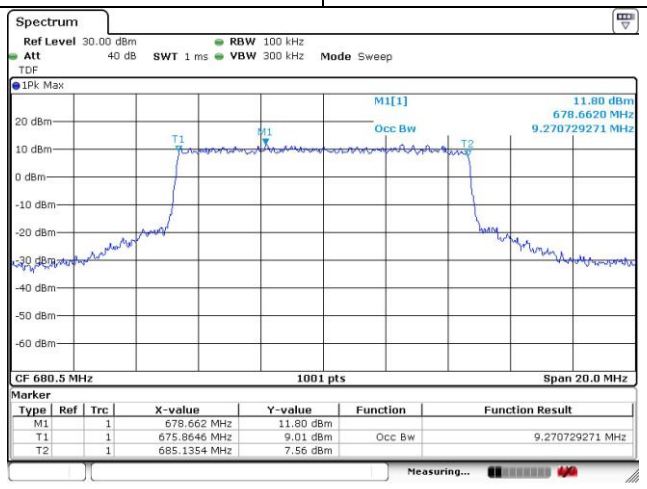
10 ㎒ DFT-S-OFDM QPSK



10 ㎒ DFT-S-OFDM 16QAM

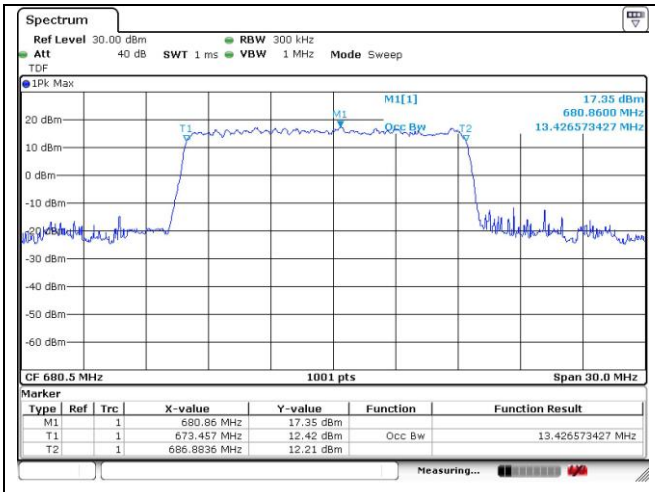


10 ㎒ CP-OFDM QPSK

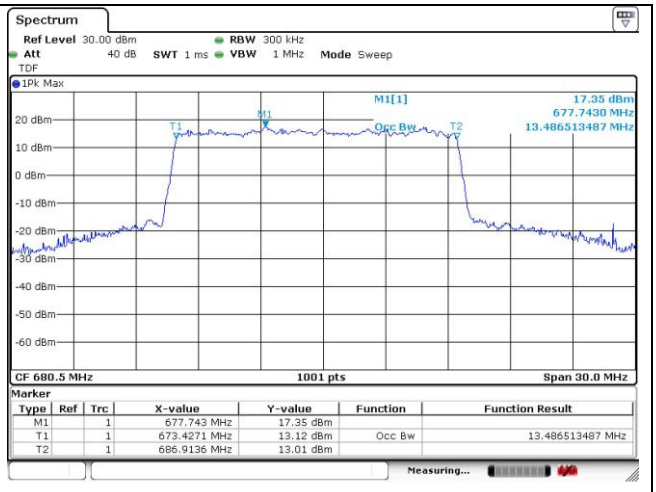


10 ㎒ CP-OFDM 16QAM

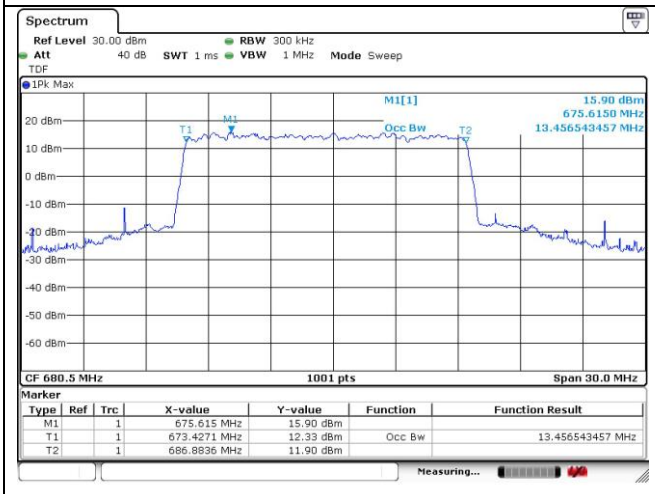
NR band 71



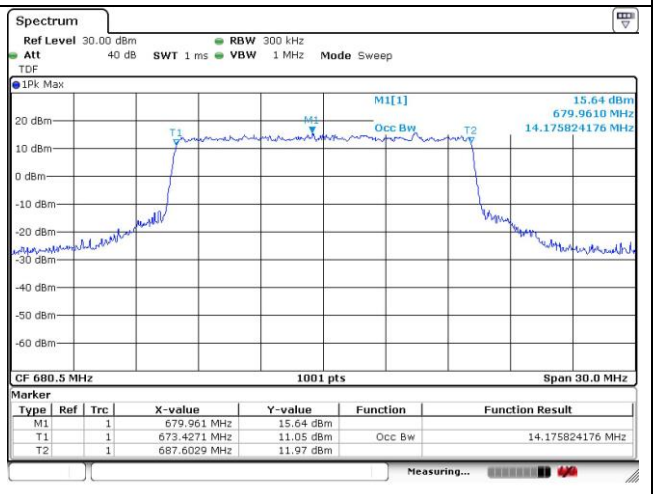
15 ㎒ DFT-S-OFDM BPSK



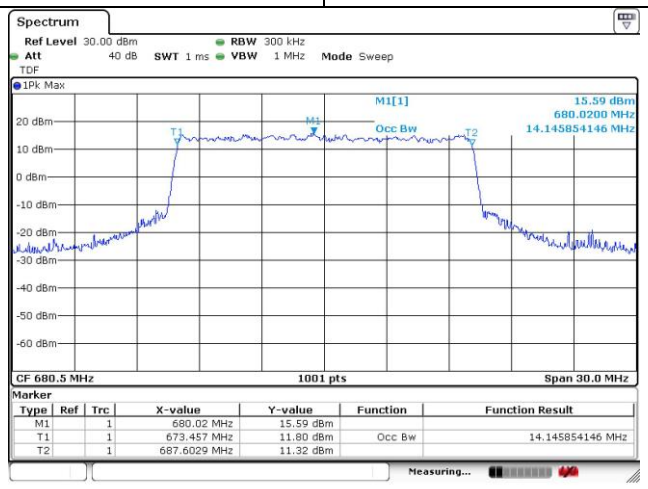
15 ㎒ DFT-S-OFDM QPSK



15 ㎒ DFT-S-OFDM 16QAM

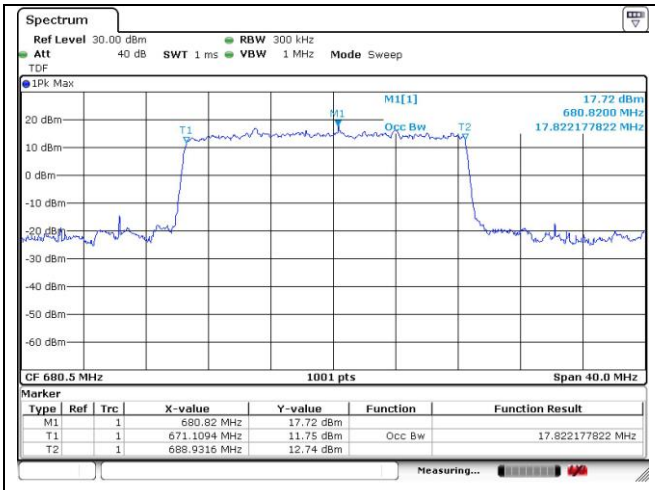


15 ㎒ CP-OFDM QPSK

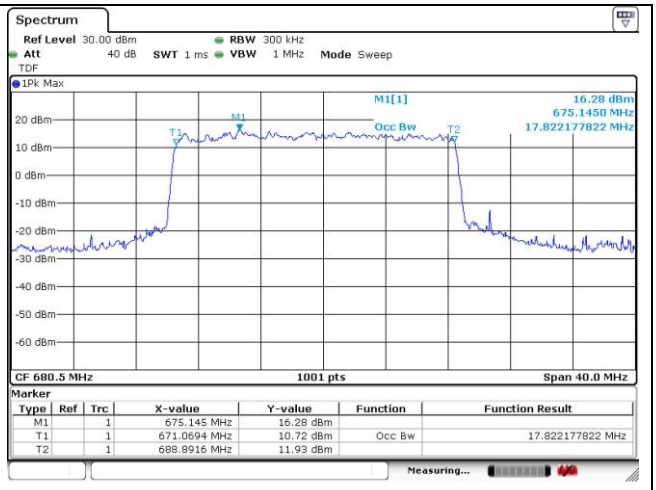


15 ㎒ CP-OFDM 16QAM

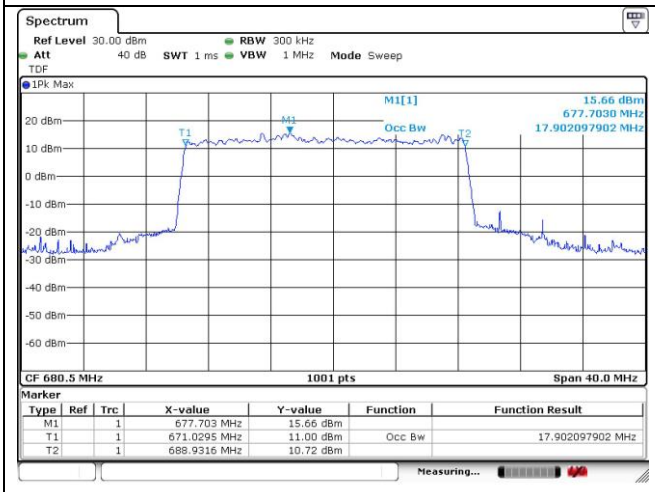
NR band 71



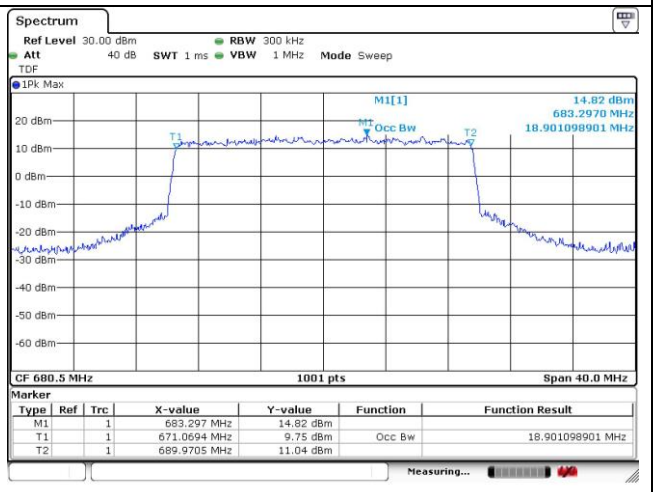
20 ㎒ DFT-S-OFDM BPSK



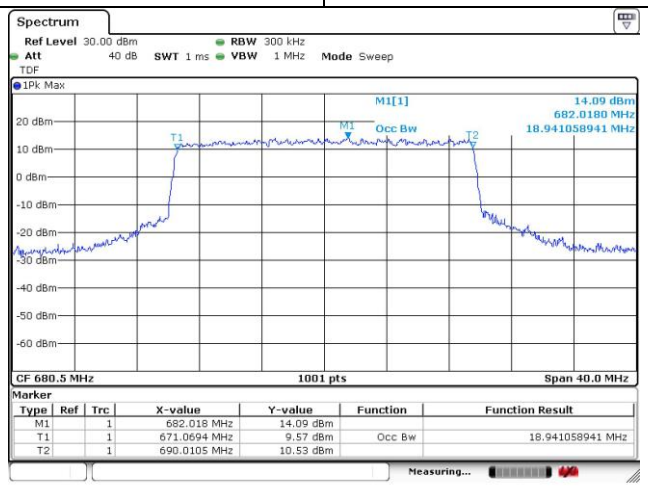
20 ㎒ DFT-S-OFDM QPSK



20 ㎒ DFT-S-OFDM 16QAM



20 ㎒ CP-OFDM QPSK



20 ㎒ CP-OFDM 16QAM

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 ㏈.

- §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 ㏈.

- §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 ㏈.

IC

- RSS-130 Issue 2

4.6.1, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 ㏈ 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 3

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

- RSS-133 Issue 6

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

- RSS-139 Issue 3

6.5, the peak to average power ratio (PAPR) of the equipment shall not exceed 13 ㏈ 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 ㏈ 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 3

4.4, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 ㏈ 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 ≥ 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:

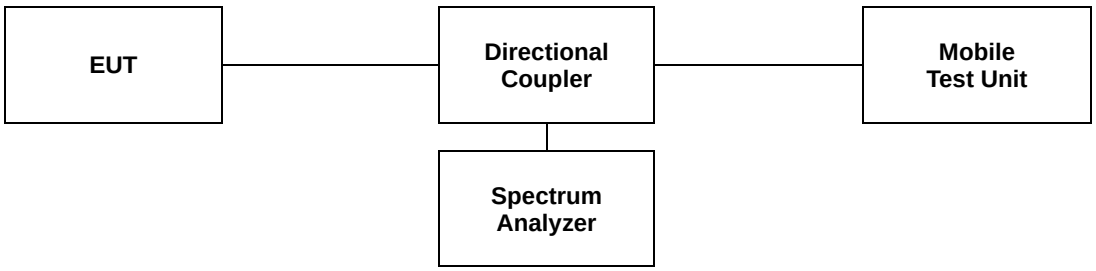
1) For continuous transmissions, set to greater of [10 x (number of points in sweep) x (transmission symbol period)] or 1 ㎳.

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 form the sum of the PAPR value from step d) to the measured average power.



5.3 Test Results

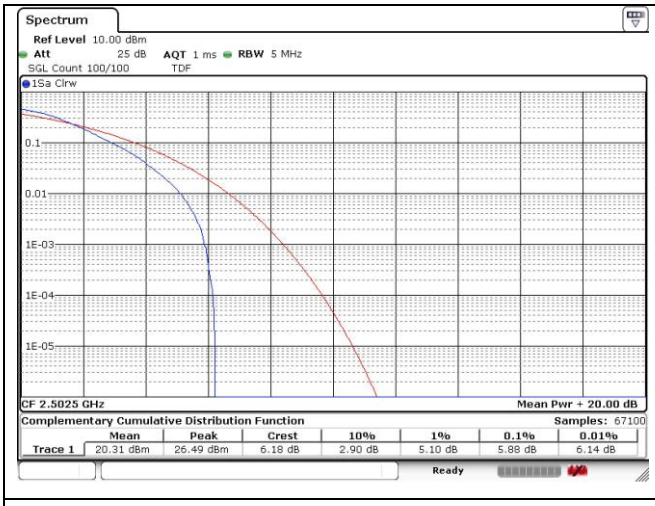
Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

Band	SCS (㎑)	BW (㎒)	Mode	Frequency (㎒)	PAR (㏈)	
					DFT-S-OFDM	CP-OFDM
7	15	5	64QAM	2 502.5	5.88	7.22
				2 535	5.88	7.28
				2 567.5	5.86	7.22
		10	64QAM	2 505	5.97	7.16
				2 535	5.94	7.16
				2 565	5.94	7.19
		15	64QAM	2 507.5	6.09	7.22
				2 535	6.06	7.22
				2 562.5	6.03	7.22
		20	64QAM	2 510	5.97	7.30
				2 535	6.03	7.25
				2 560	5.97	7.30
Band	**SCS (㎑)**	**BW (㎒)**	**Mode**	**Frequency (㎒)**	**PAR (㏈)**	
					DFT-S-OFDM	**CP-OFDM**
12	15	5	64QAM	701.5	5.77	7.16
				707.5	5.74	7.19
				713.5	5.77	7.13
		10	64QAM	704	5.86	7.10
				707.5	5.86	7.07
				711	5.83	7.13
		15	64QAM	706.5	5.97	7.16
				707.5	6.00	7.19
				708.5	5.91	7.22
Band	**SCS (㎑)**	**BW (㎒)**	**Mode**	**Frequency (㎒)**	**PAR (㏈)**	
					DFT-S-OFDM	**CP-OFDM**
13	15	5	64QAM	779.5	5.71	7.19
				782	5.71	7.13
				784.5	5.74	7.01
		10	64QAM	782	5.86	7.25
Band	**SCS (㎑)**	**BW (㎒)**	**Mode**	**Frequency (㎒)**	**PAR (㏈)**	
					DFT-S-OFDM	**CP-OFDM**
25/2	15	5	64QAM	1 852.5	5.83	7.22
				1 882.5	5.83	7.16
				1 912.5	5.86	7.16
		10	64QAM	1 855.0	5.88	7.07
				1 882.5	5.94	7.13
				1 910.0	5.86	7.13
		15	64QAM	1 857.5	6.00	7.16
				1 882.5	6.03	7.13
				1 907.5	6.00	7.19
		20	64QAM	1 860.0	5.88	7.16
				1 882.5	5.91	7.13
				1 905.0	5.88	7.16

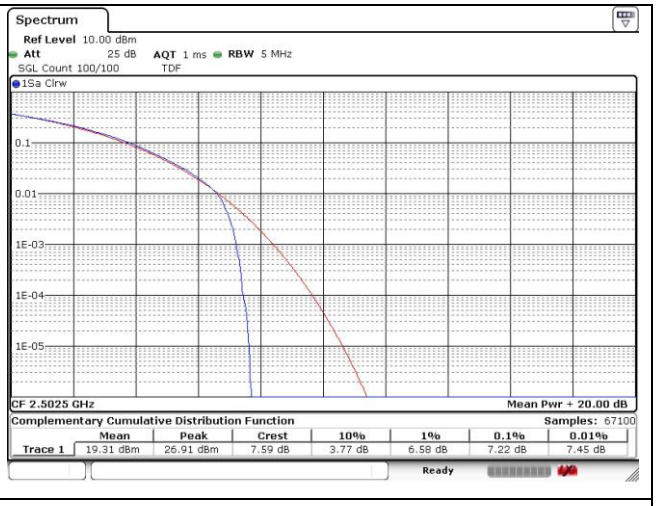
Band	SCS (㎑)	BW (㎒)	Mode	Frequency (㎒)	PAR (㏈)	
					DFT-S-OFDM	CP-OFDM
26/5 Part 22	15	5	64QAM	826.5	6.03	7.19
				836.5	5.97	7.19
				846.5	5.97	7.19
		10	64QAM	829	5.83	7.10
				836.5	5.86	7.04
				844	5.77	7.10
		15	64QAM	831.5	6.03	7.16
				836.5	6.06	7.16
				841.5	6.00	7.33
		20	64QAM	834	5.88	7.16
				836.5	5.91	7.30
				839	5.88	7.33
Band	**SCS (㎑)**	**BW (㎒)**	**Mode**	**Frequency (㎒)**	**PAR (㏈)**	
					DFT-S-OFDM	**CP-OFDM**
66	15	5	64QAM	1 712.5	5.74	7.16
				1 745.0	5.74	7.13
				1 777.5	5.74	7.13
		10	64QAM	1 715.0	5.86	7.07
				1 745.0	5.86	7.07
				1 775.0	5.83	7.07
		15	64QAM	1 717.5	5.97	7.13
				1 745.0	5.94	7.07
				1 772.5	5.91	7.10
		20	64QAM	1 720.0	5.91	7.16
				1 745.0	5.88	7.10
				1 770.0	5.88	7.10
		40	64QAM	1 745.0	5.91	7.39
Band	**SCS (㎑)**	**BW (㎒)**	**Mode**	**Frequency (㎒)**	**PAR (㏈)**	
					DFT-S-OFDM	**CP-OFDM**
71	15	5	64QAM	665.5	5.68	7.04
				680.5	5.68	6.99
				695.5	5.68	7.04
		10	64QAM	668.0	5.77	7.04
				680.5	5.77	7.01
				693.0	5.74	7.01
		15	64QAM	670.5	5.91	7.10
				680.5	5.83	7.04
				690.5	5.83	7.01
		20	64QAM	673.0	5.88	7.19
				680.5	5.83	7.16
				688.0	5.80	7.10

- Test plots

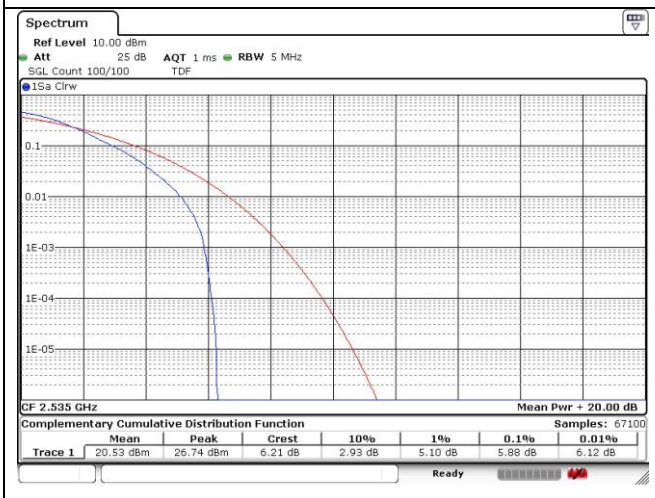
NR band 7



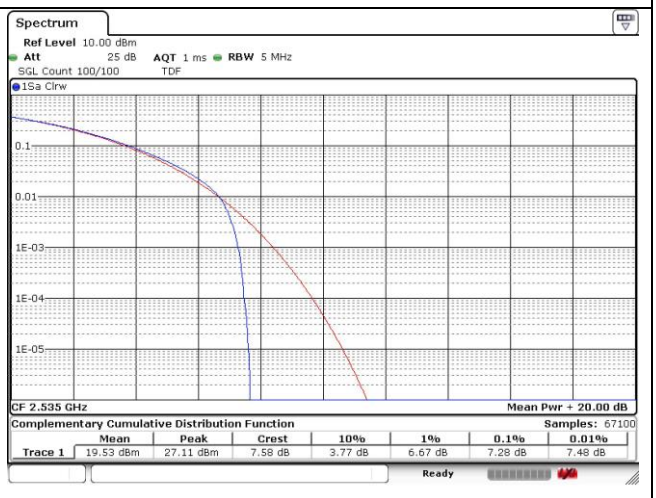
5 ㎒ Low Channel - Full RB - DFT-S-OFDM



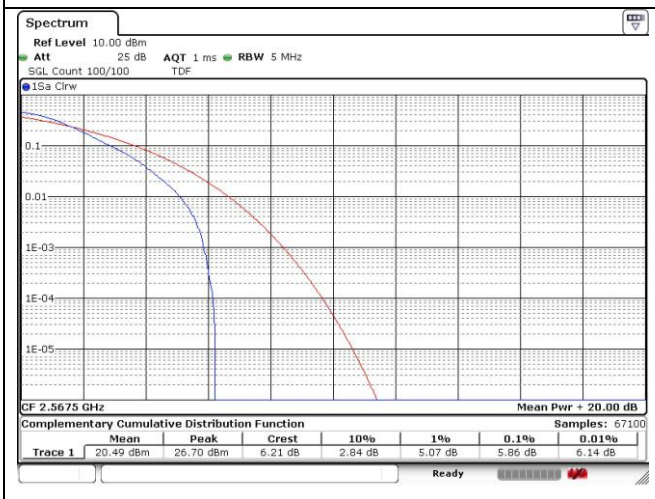
5 ㎒ Low Channel - Full RB - CP-OFDM



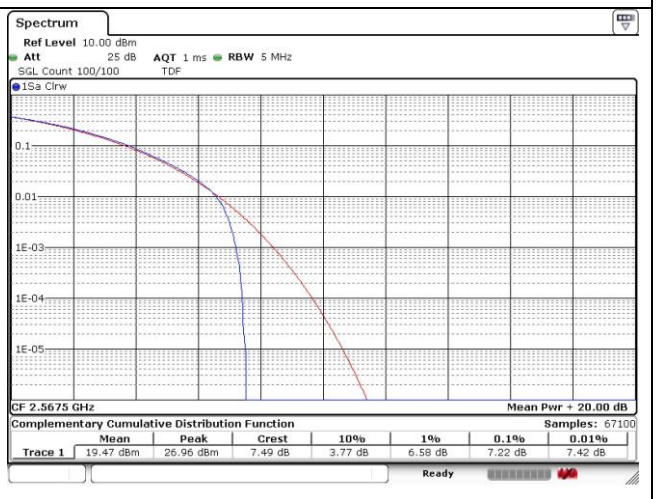
5 ㎒ Middle Channel - Full RB - DFT-S-OFDM



5 ㎒ Middle Channel - Full RB - CP-OFDM



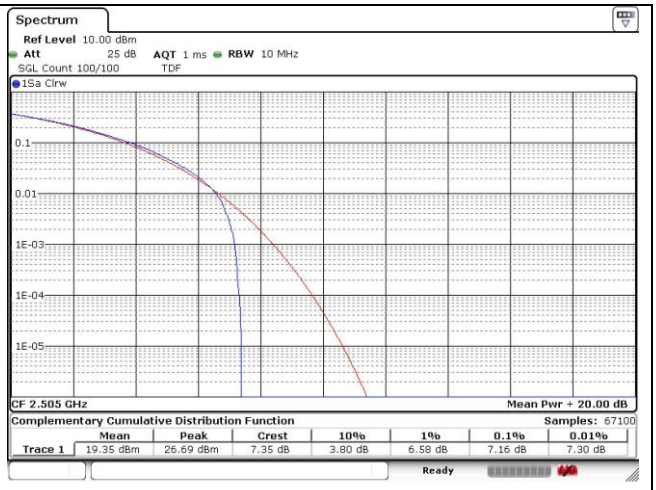
5 ㎒ High Channel - Full RB - DFT-S-OFDM



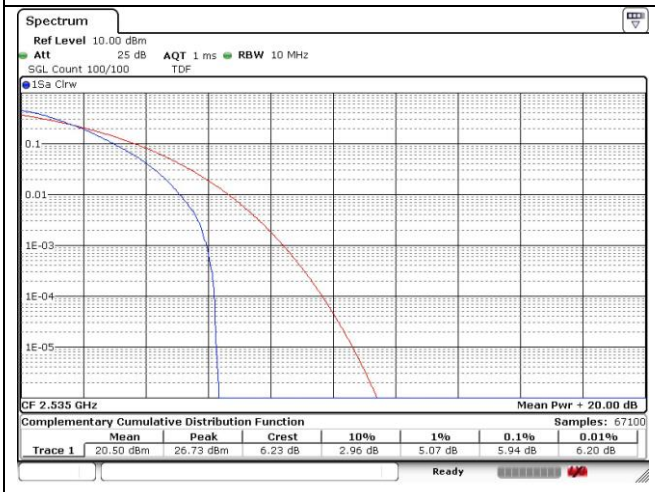
5 ㎒ High Channel - Full RB - CP-OFDM

NR band 7

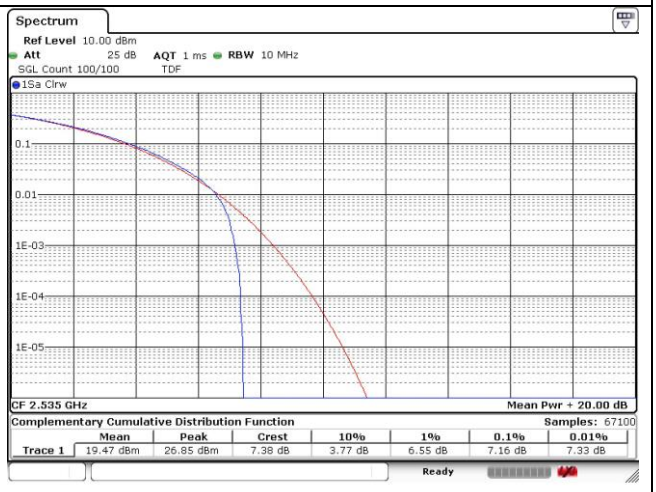
10 ㎒ Low Channel - Full RB - DFT-S-OFDM



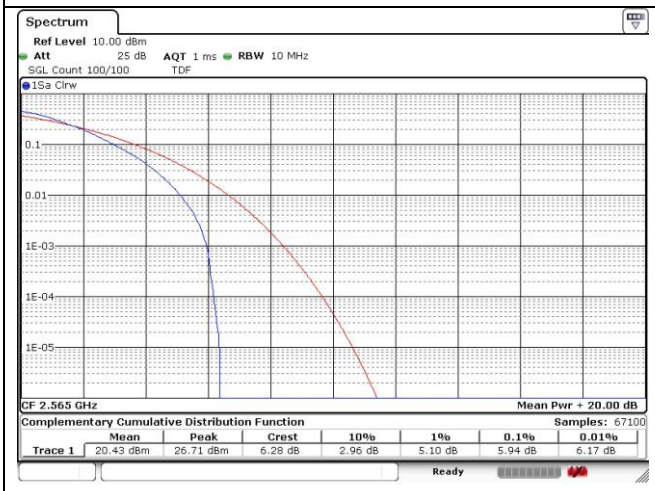
10 ㎒ Low Channel - Full RB - CP-OFDM



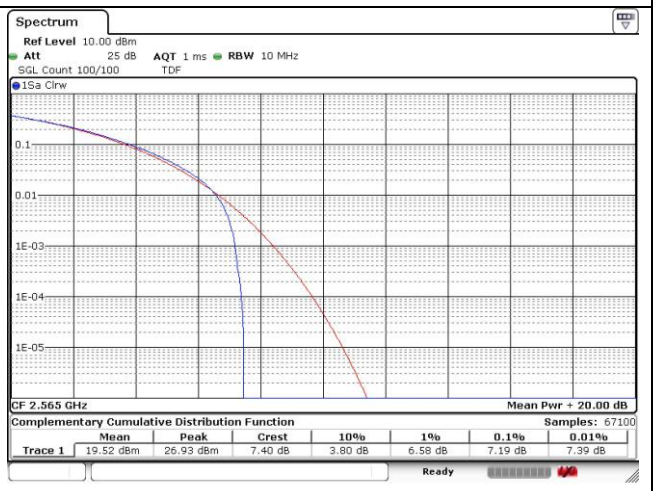
10 ㎒ Middle Channel - Full RB - DFT-S-OFDM



10 ㎒ Middle Channel - Full RB - CP-OFDM



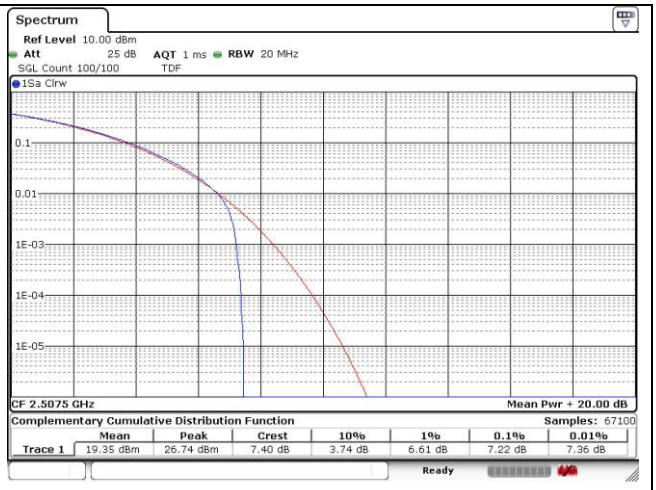
10 ㎒ High Channel - Full RB - DFT-S-OFDM



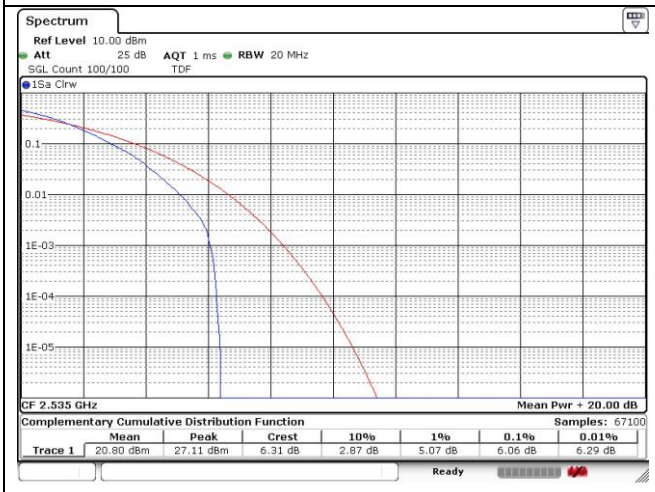
10 ㎒ High Channel - Full RB - CP-OFDM

NR band 7

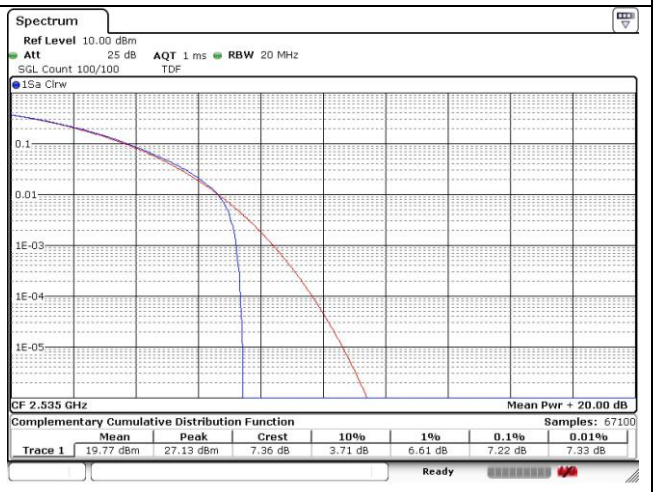
15 ㎒ Low Channel - Full RB - DFT-S-OFDM



15 ㎒ Low Channel - Full RB - CP-OFDM



15 ㎒ Middle Channel - Full RB - DFT-S-OFDM



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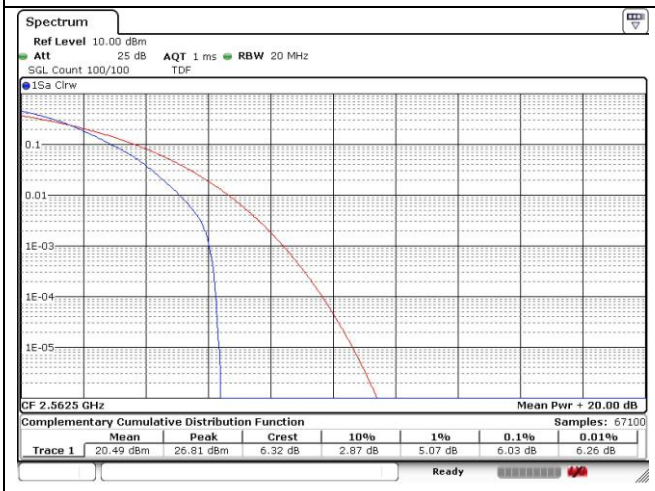
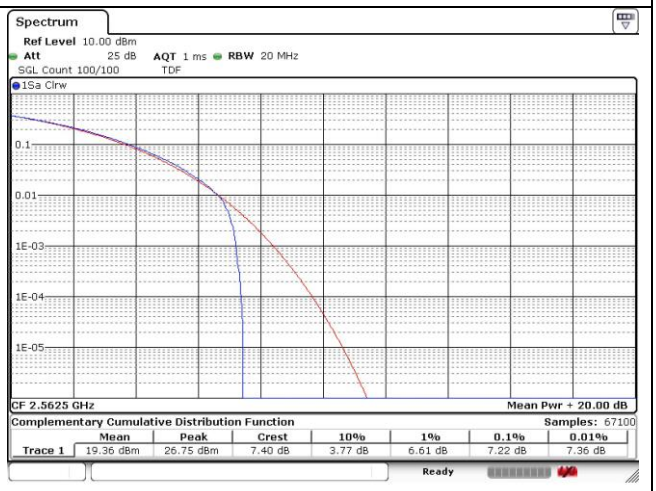


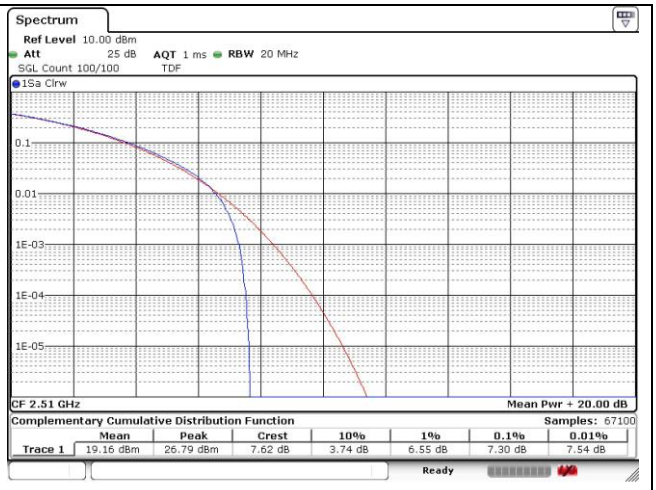
15 ㎒ High Channel - Full RB - DFT-S-OFDM



15 ㎒ High Channel - Full RB - CP-OFDM

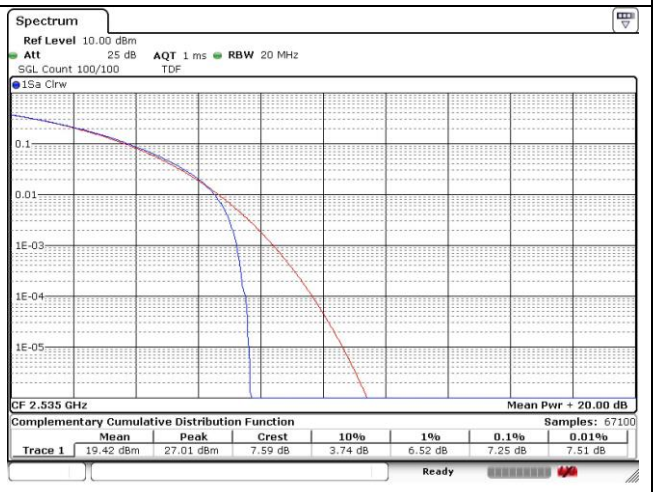
NR band 7

20 ㎒ Low Channel - Full RB - DFT-S-OFDM

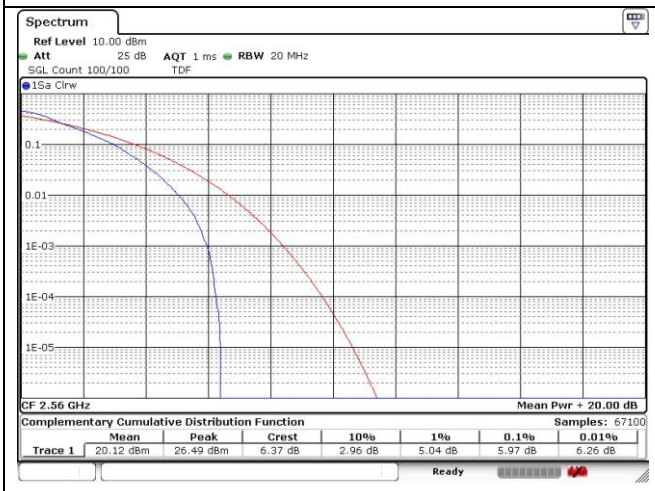


20 ㎒ Low Channel - Full RB - CP-OFDM

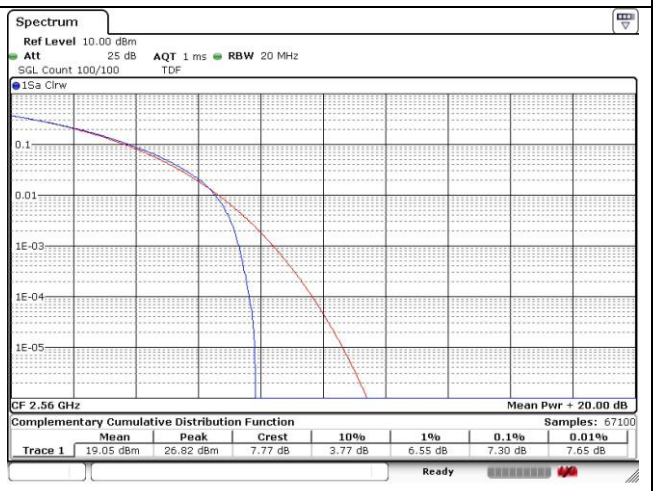
20 ㎒ Middle Channel - Full RB - DFT-S-OFDM



20 ㎒ Middle Channel - Full RB - CP-OFDM

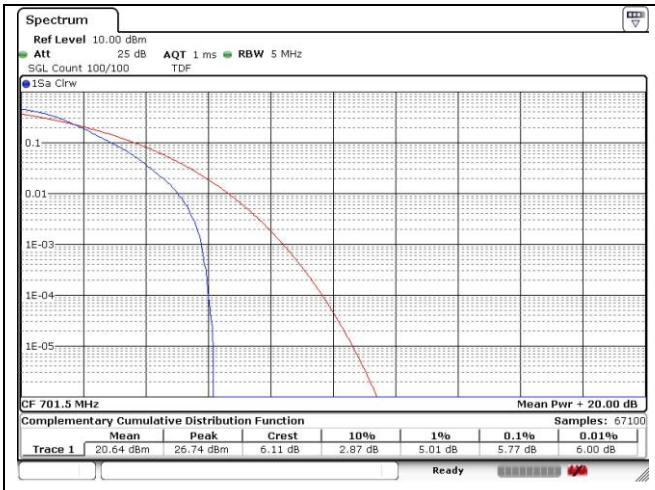


20 ㎒ High Channel - Full RB - DFT-S-OFDM

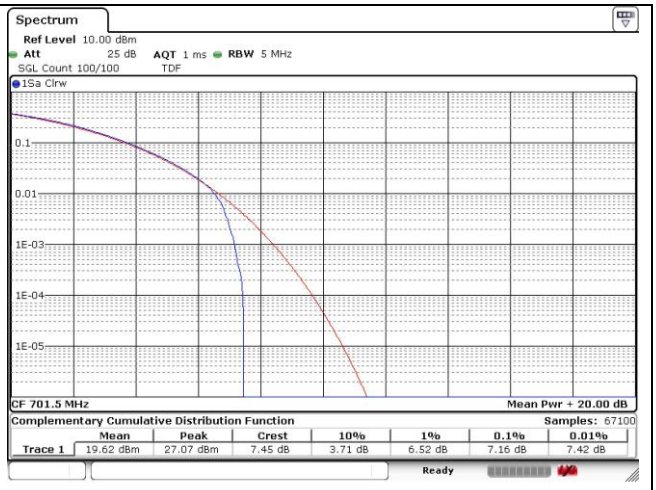


20 ㎒ High Channel - Full RB - CP-OFDM

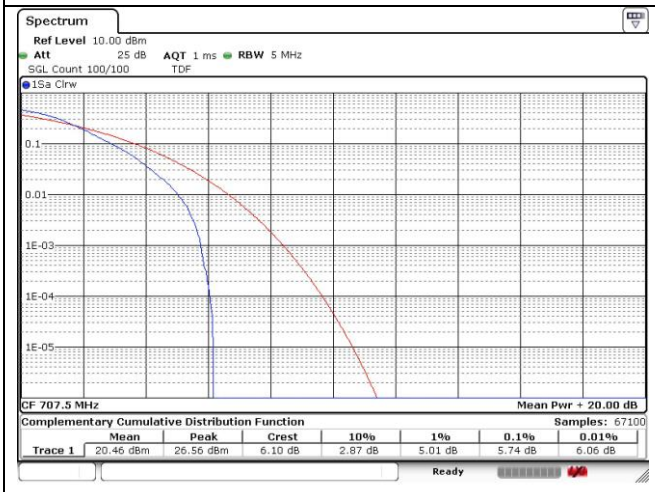
NR band 12



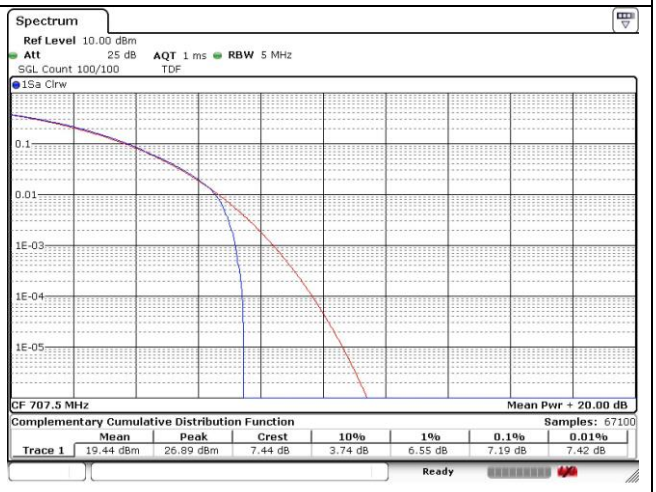
5 ㎒ Low Channel - Full RB - DFT-S-OFDM



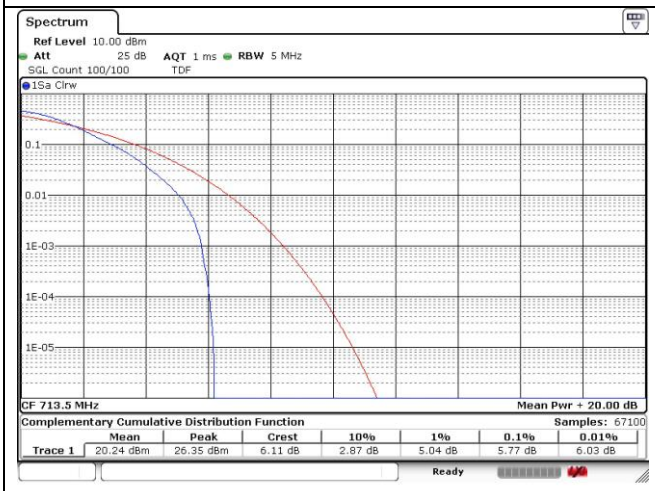
5 ㎒ Low Channel - Full RB - CP-OFDM



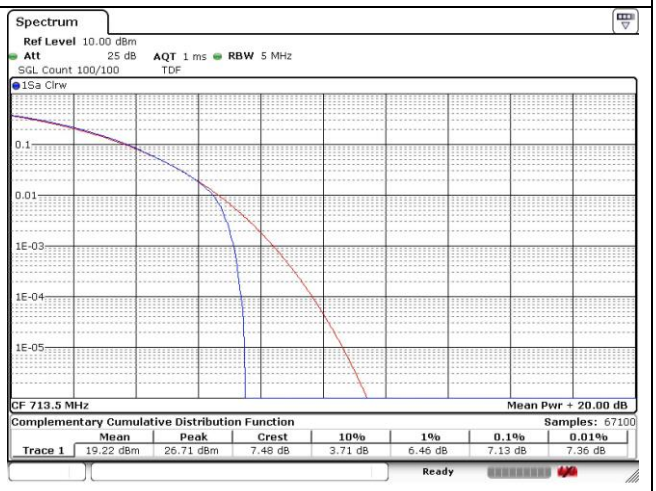
5 ㎒ Middle Channel - Full RB - DFT-S-OFDM



5 ㎒ Middle Channel - Full RB - CP-OFDM

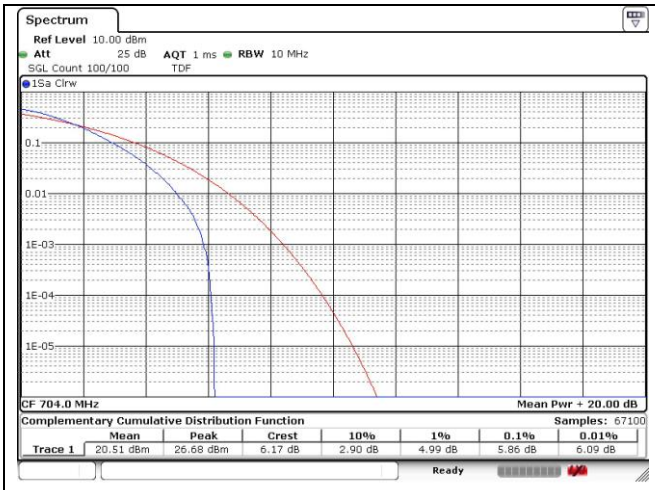


5 ㎒ High Channel - Full RB - DFT-S-OFDM

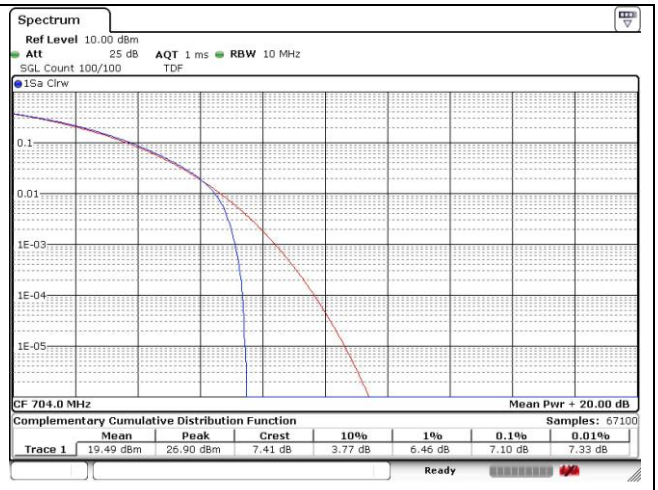


5 ㎒ High Channel - Full RB - CP-OFDM

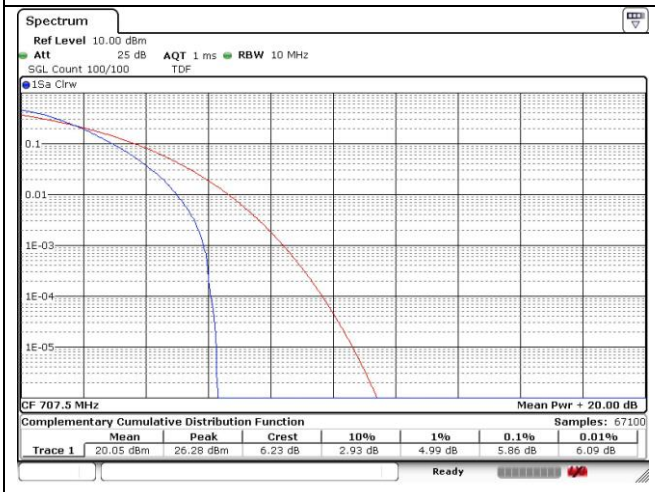
NR band 12



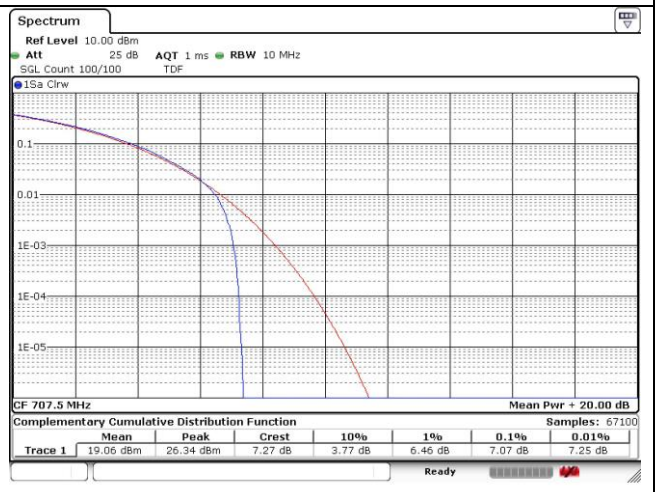
10 ㎒ Low Channel - Full RB - DFT-S-OFDM



10 ㎒ Low Channel - Full RB - CP-OFDM



10 ㎒ Middle Channel - Full RB - DFT-S-OFDM



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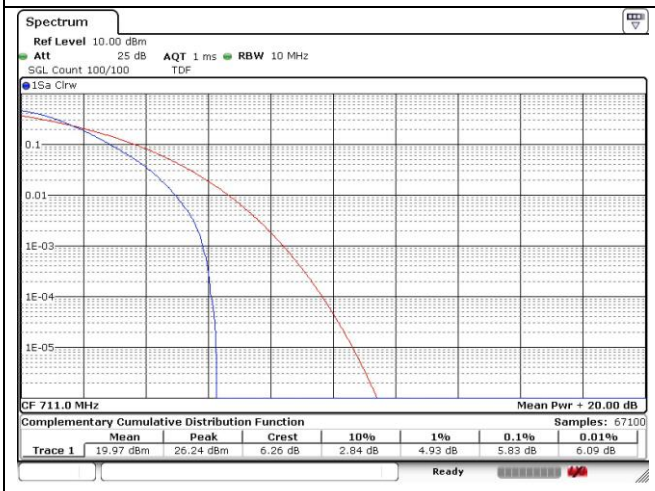
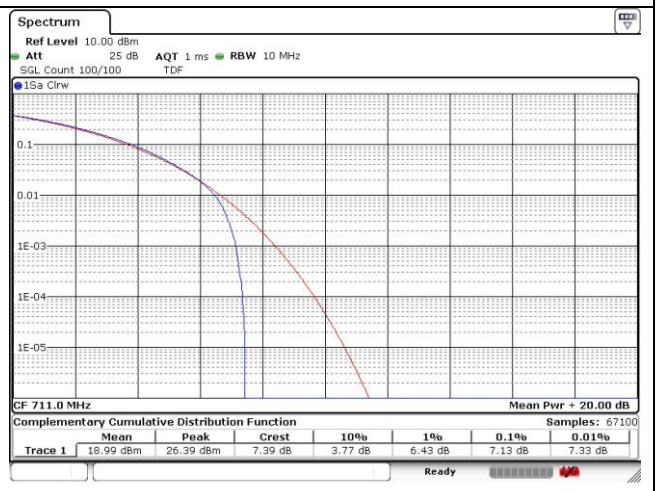


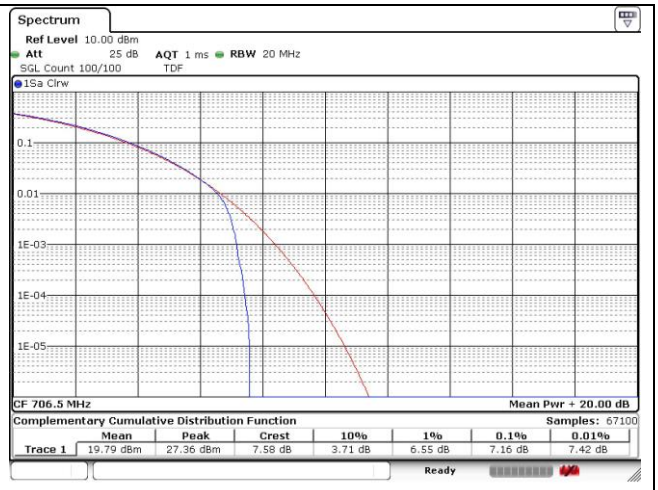
10 ㎒ High Channel - Full RB - DFT-S-OFDM



10 ㎒ High Channel - Full RB - CP-OFDM

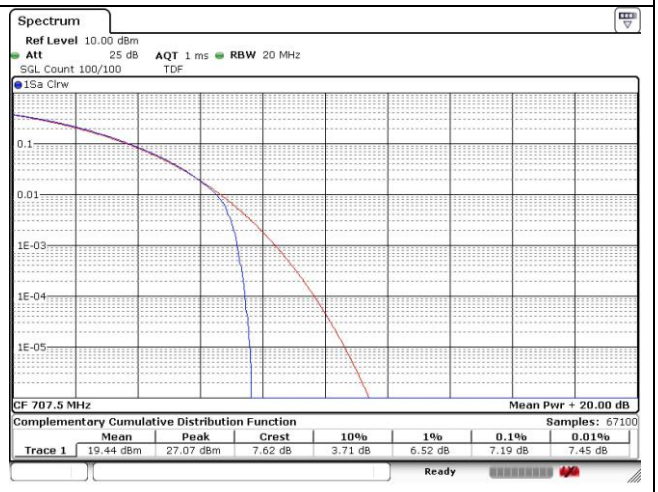
NR band 12

15 ㎒ Low Channel - Full RB - DFT-S-OFDM

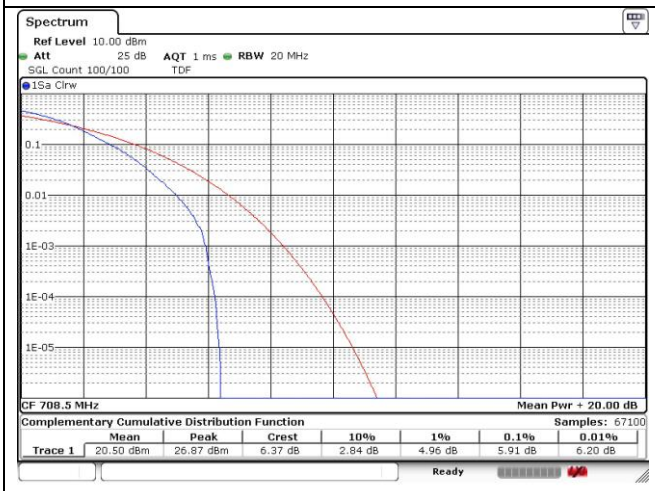


15 ㎒ Low Channel - Full RB - CP-OFDM

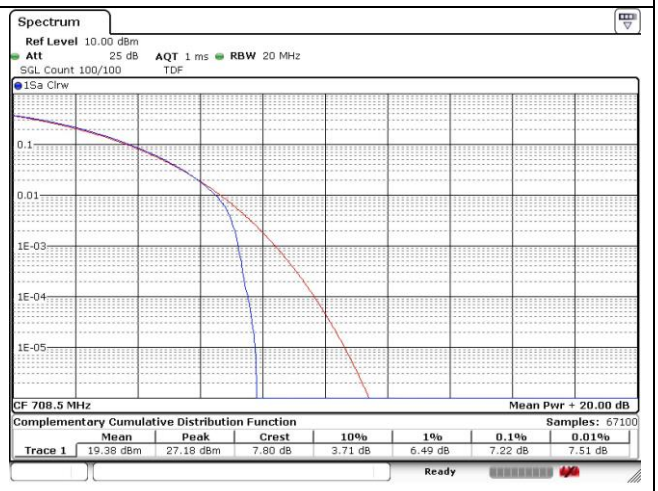
15 ㎒ Middle Channel - Full RB - DFT-S-OFDM



15 ㎒ Middle Channel - Full RB - CP-OFDM

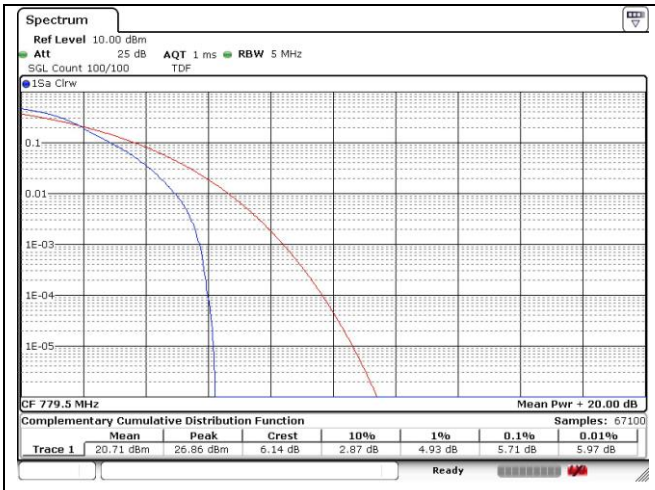


15 ㎒ High Channel - Full RB - DFT-S-OFDM

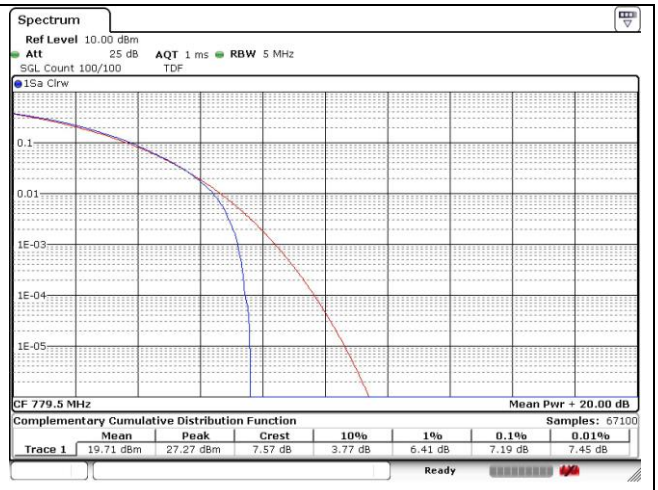


15 ㎒ High Channel - Full RB - CP-OFDM

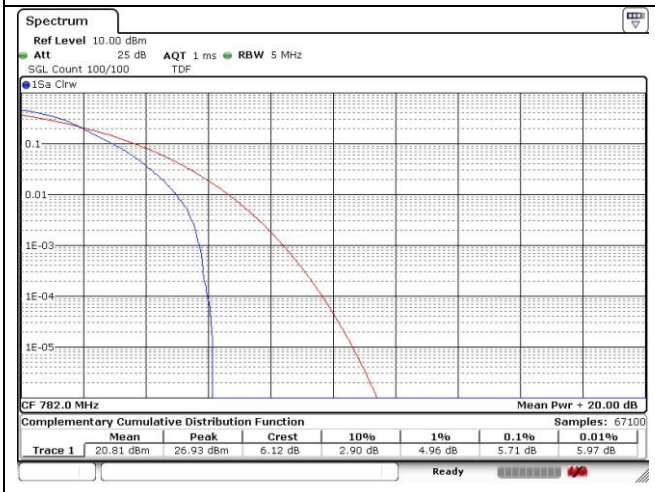
NR band 13



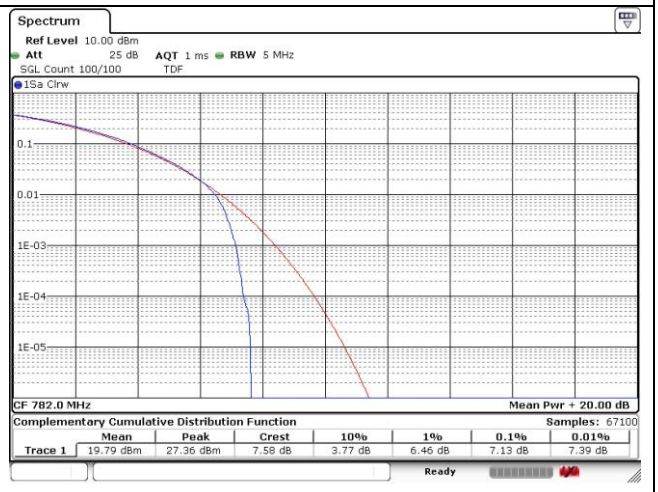
5 ㎒ Low Channel - Full RB - DFT-S-OFDM



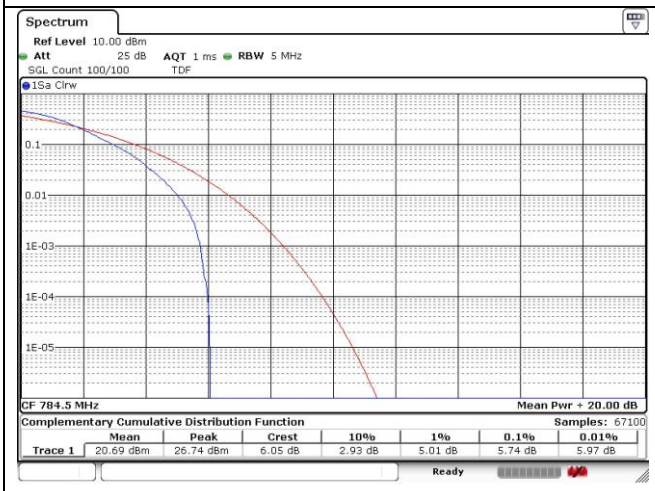
5 ㎒ Low Channel - Full RB - CP-OFDM



5 ㎒ Middle Channel - Full RB - DFT-S-OFDM



5 ㎒ Middle Channel - Full RB - CP-OFDM

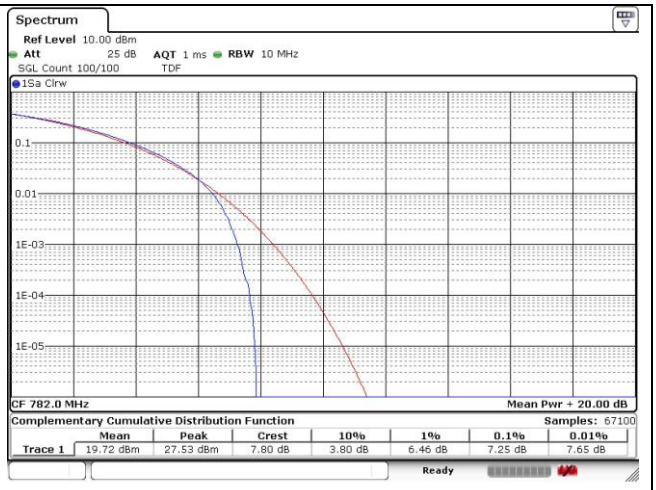


5 ㎒ High Channel - Full RB - DFT-S-OFDM

5 ㎒ High Channel - Full RB - CP-OFDM

NR band 13

10 ㎒ Middle Channel - Full RB - DFT-S-OFDM



10 ㎒ Middle Channel - Full RB - CP-OFDM