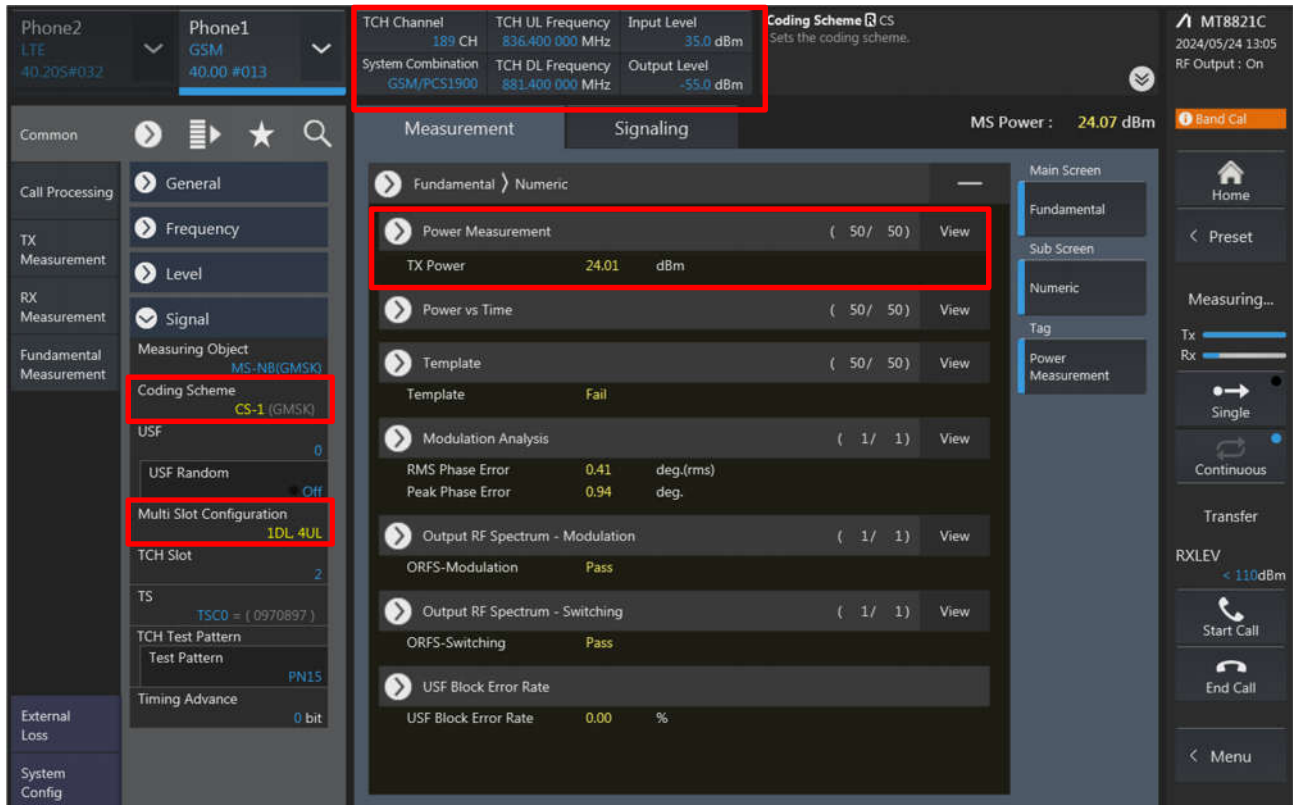


Power measurement connection diagram:

The power measurement for 2G/3G/LTE/5G FR1/UL and DL CA is to establish a connection between device and call box, and via call box to configure Bands, channel, BWs, RB size, carrier aggregation of CA, frequency channels, SCS and maximum output power. Hereunder is screenshot call box connection information for 2G/3G/LTE/5G FR1/UL and DL CA.

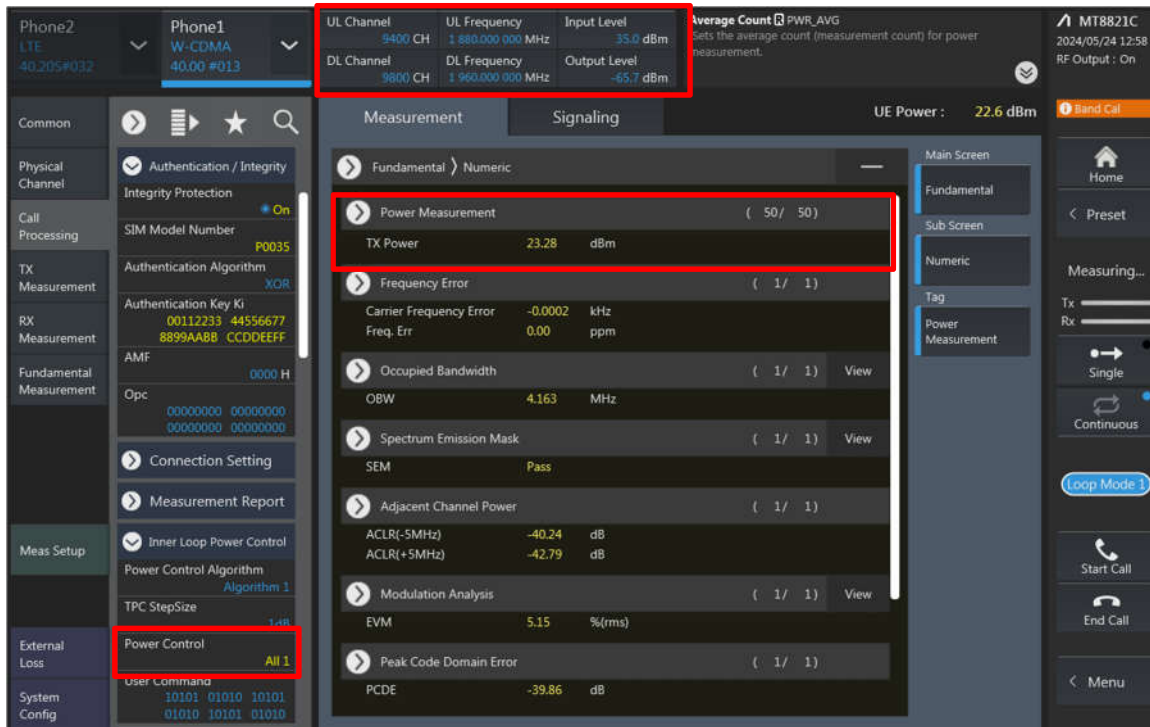
<GSM>



The screenshot displays the SPORTON LAB. software interface for GSM power measurement. The interface is divided into several sections:

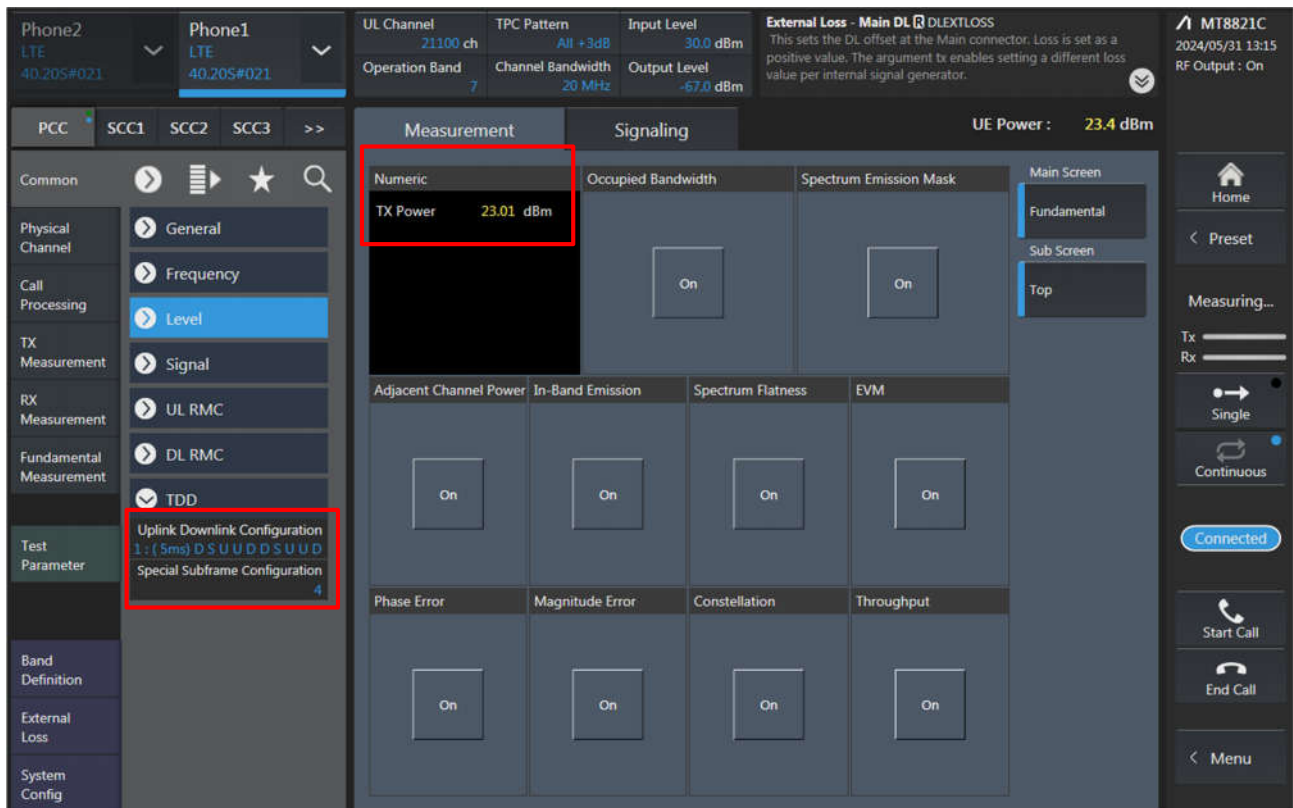
- Top Bar:** Shows Phone2 (LTE, 40.205#032) and Phone1 (GSM, 40.00 #013). The TCH Channel is 189 CH, TCH UL Frequency is 836.400 000 MHz, Input Level is 35.0 dBm, TCH DL Frequency is 881.400 000 MHz, and Output Level is -55.0 dBm. The Coding Scheme is CS.
- Left Sidebar:** Contains navigation options like Call Processing, TX Measurement, RX Measurement, Fundamental Measurement, and External Loss. The 'Fundamental Measurement' section is expanded, showing 'Coding Scheme' as CS-1 (GMSK) and 'Multi Slot Configuration' as 1DL, 4UL.
- Main Area:** Displays the 'Measurement' tab with a 'Fundamental' sub-tab. The 'Power Measurement' section shows 'TX Power' as 24.01 dBm. The 'Modulation Analysis' section shows 'RMS Phase Error' as 0.41 deg.(rms) and 'Peak Phase Error' as 0.94 deg. The 'Output RF Spectrum - Modulation' and 'Output RF Spectrum - Switching' sections show 'ORFS-Modulation' and 'ORFS-Switching' as 'Pass'. The 'USF Block Error Rate' section shows 'USF Block Error Rate' as 0.00 %.
- Right Sidebar:** Contains a 'Main Screen' section with 'Fundamental', 'Sub Screen', 'Numeric', and 'Tag' options. The 'Power Measurement' section shows 'Tx' and 'Rx' levels, with 'Rx' at < 110dBm. The 'Transfer' section shows 'Start Call' and 'End Call' buttons.

<WCDMA>



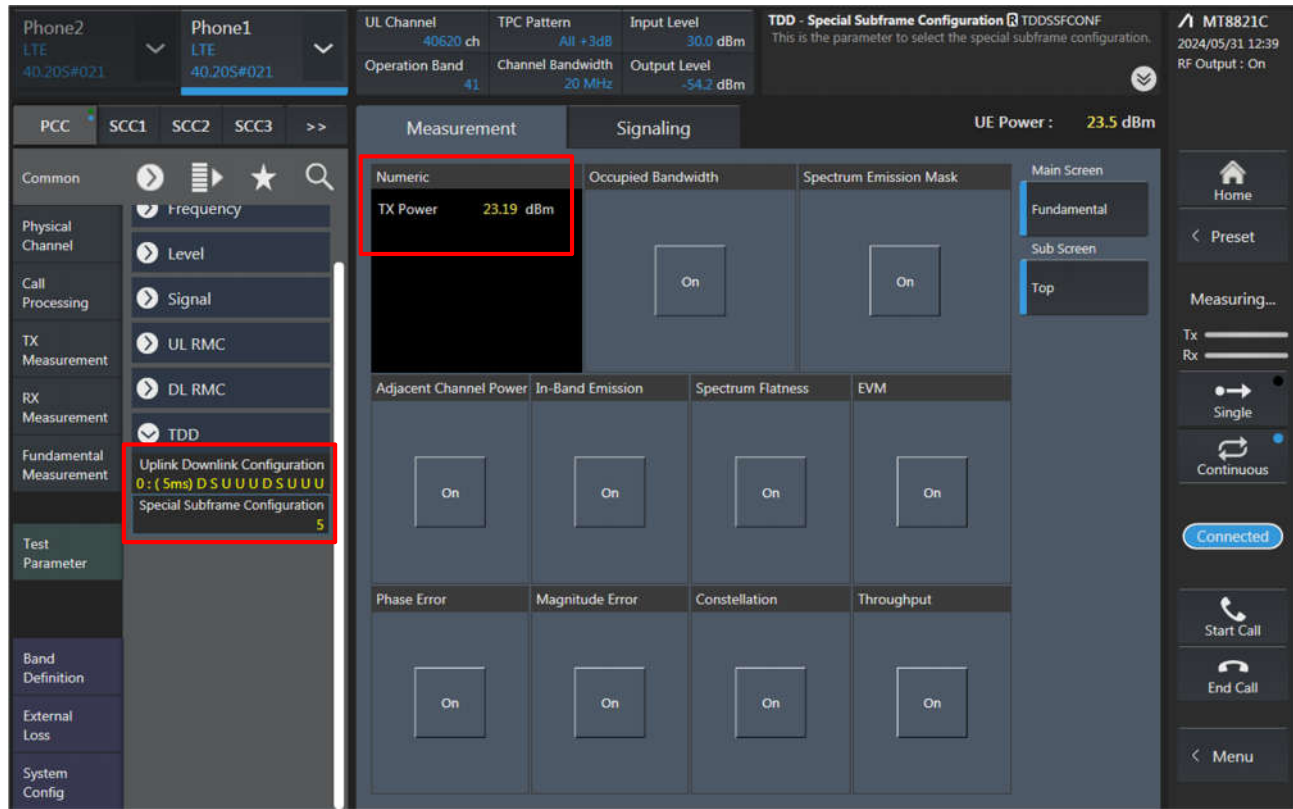
The screenshot shows the WCDMA measurement interface. The top bar displays 'Phone2 LTE 40.205#032' and 'Phone1 W-CDMA 40.00 #013'. The 'Measurement' tab is active, showing a list of metrics. A red box highlights the 'Power Measurement' section, which includes 'TX Power' at 23.28 dBm. Another red box highlights the 'Power Control' section, showing 'Power Control Algorithm' as 'Algorithm 1' and 'Power Control' as 'All 1'. The 'UE Power' is 22.6 dBm. The 'Fundamental' screen is selected on the right side.

<LTE>



The screenshot shows the LTE measurement interface. The top bar displays 'Phone2 LTE 40.205#021' and 'Phone1 LTE 40.205#021'. The 'Measurement' tab is active, showing a list of metrics. A red box highlights the 'Power Measurement' section, which includes 'TX Power' at 23.01 dBm. Another red box highlights the 'Uplink Downlink Configuration' section, showing 'Uplink Downlink Configuration 1: (5ms) D S U U D D S U U D' and 'Special Subframe Configuration 4'. The 'UE Power' is 23.4 dBm. The 'Fundamental' screen is selected on the right side.

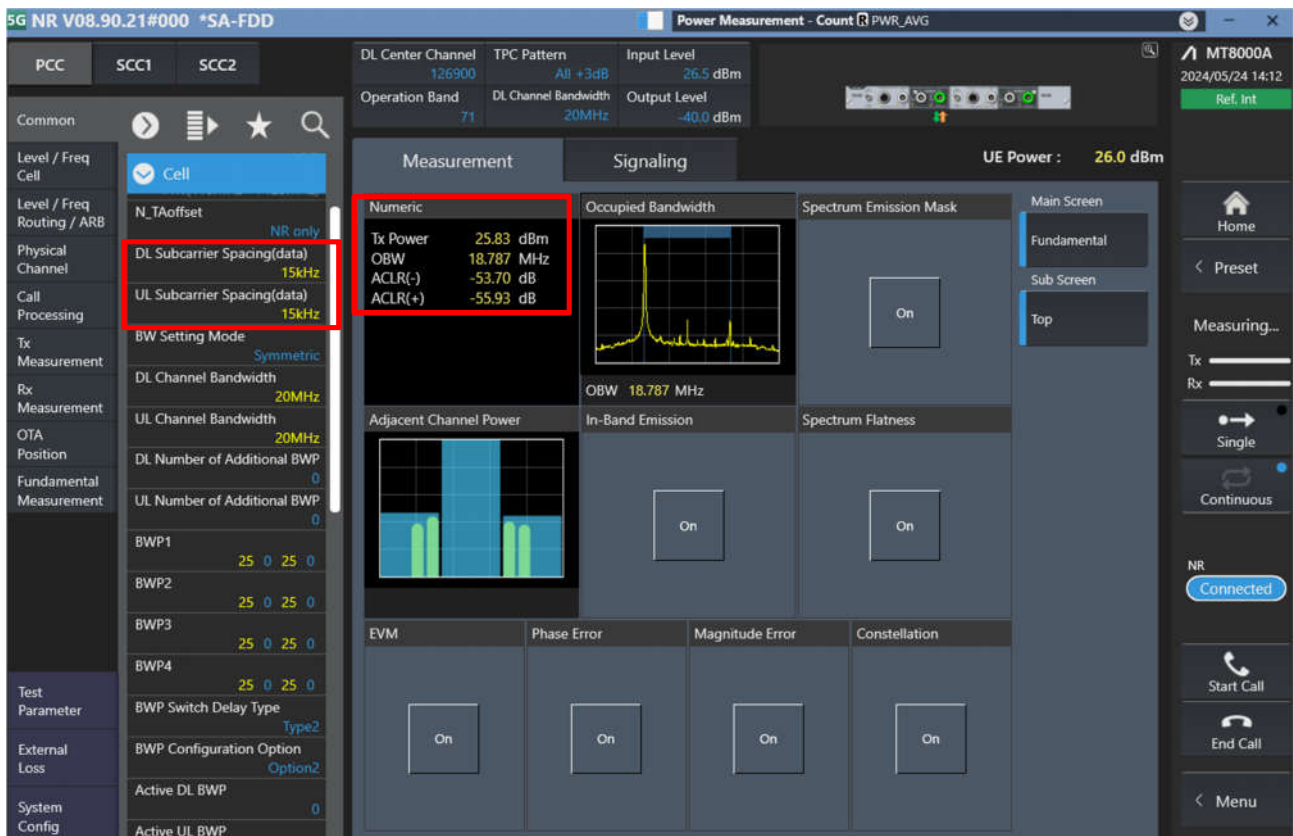
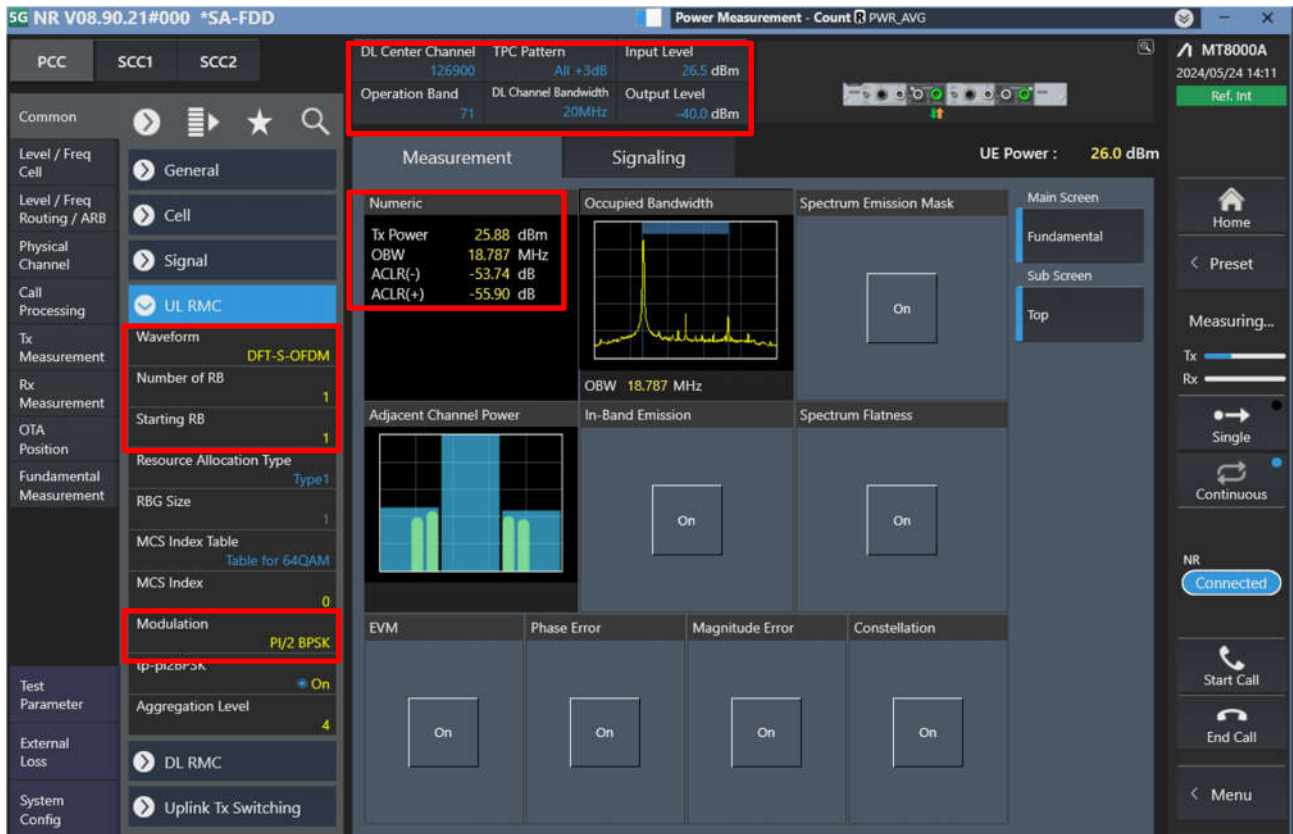
<LTE TDD Power class 3>

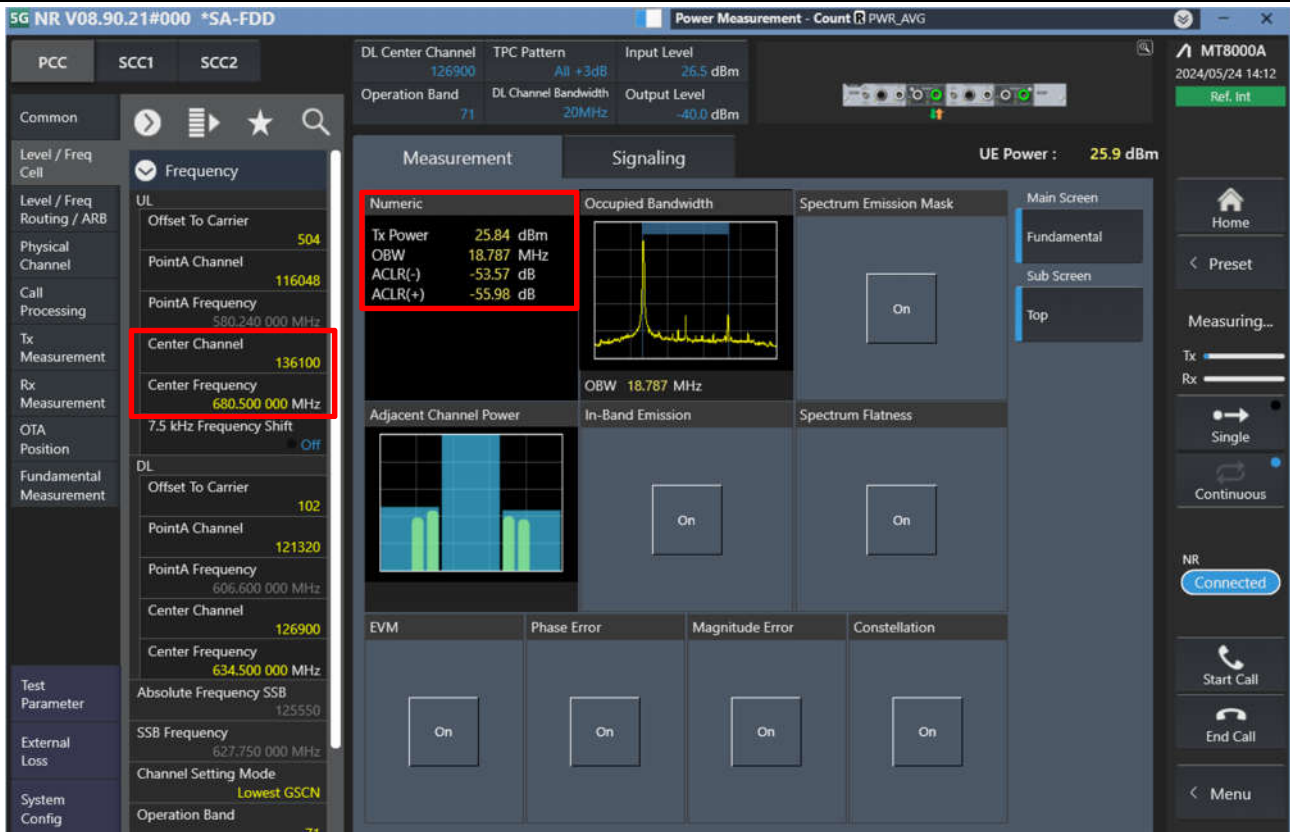


The screenshot displays the SPORTON LAB. LTE TDD Power class 3 configuration interface. The interface is divided into several sections:

- Phone Information:** Phone2 (LTE, 40.20S#021) and Phone1 (LTE, 40.20S#021).
- Configuration Parameters:**
 - UL Channel: 40620 ch
 - TPC Pattern: All +3dB
 - Input Level: 30.0 dBm
 - Operation Band: 41
 - Channel Bandwidth: 20 MHz
 - Output Level: -54.2 dBm
 - TDD - Special Subframe Configuration: TDDSSFCNF (This is the parameter to select the special subframe configuration.)
- Measurement Section:**
 - Numeric:** TX Power: 23.19 dBm (highlighted with a red box).
 - Occupied Bandwidth:** On
 - Spectrum Emission Mask:** On
 - Adjacent Channel Power:** On
 - In-Band Emission:** On
 - Spectrum Flatness:** On
 - EVM:** On
 - Phase Error:** On
 - Magnitude Error:** On
 - Constellation:** On
 - Throughput:** On
- Fundamental Measurement Section:**
 - Uplink Downlink Configuration:** 0: (5ms) D S U U U D S U U U (highlighted with a red box).
 - Special Subframe Configuration:** 5 (highlighted with a red box).
- Test Parameter Section:**
 - Physical Channel
 - Call Processing
 - TX Measurement
 - RX Measurement
 - Fundamental Measurement
 - Test Parameter
 - Band Definition
 - External Loss
 - System Config
- Right Panel:**
 - MT8821C
 - 2024/05/31 12:39
 - RF Output: On
 - Home
 - Preset
 - Measuring...
 - Tx
 - Rx
 - Single
 - Continuous
 - Connected
 - Start Call
 - End Call
 - Menu

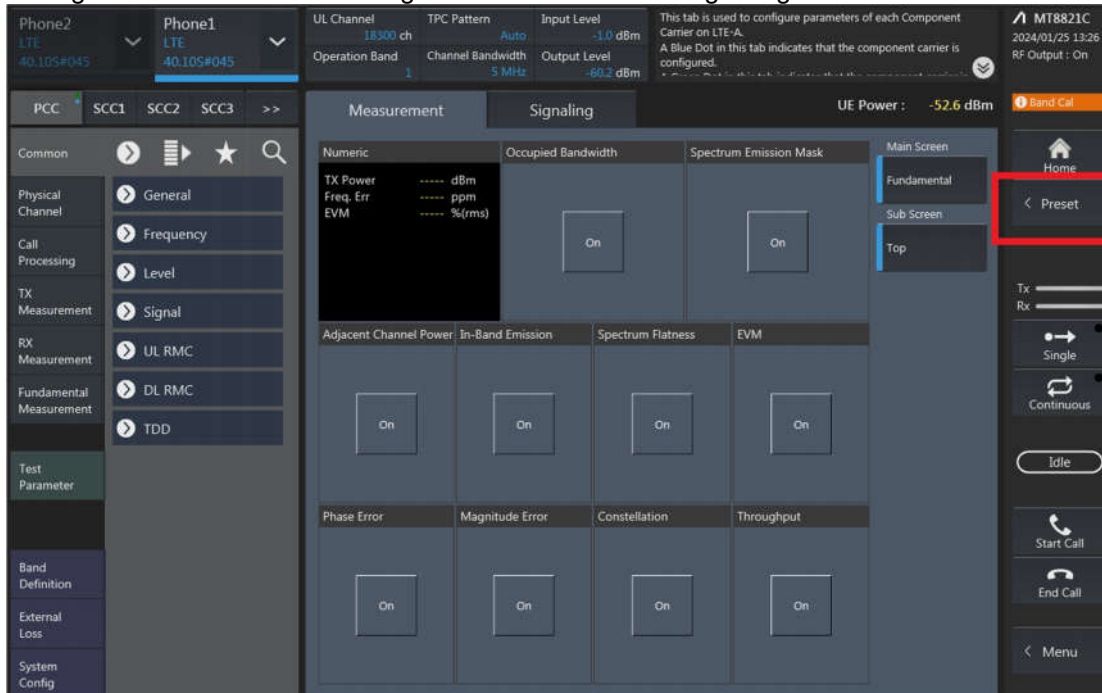
<5G NR FR1>





LTE Uplink and Downlink Carrier Aggregation configurations:

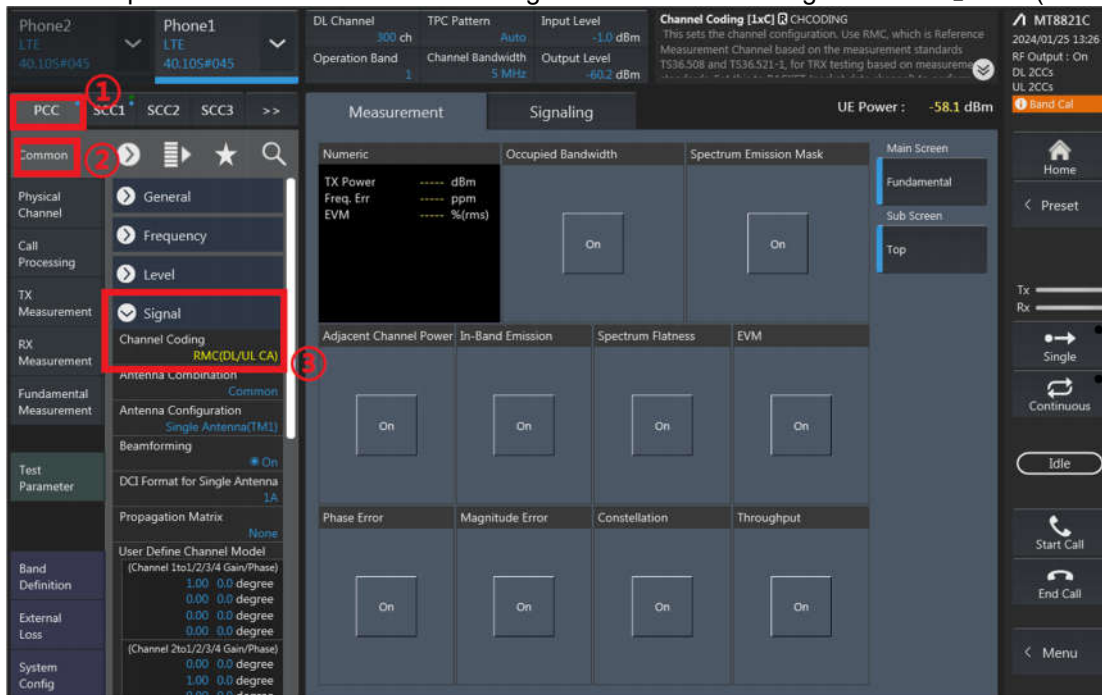
1. Change the Scenario in the Configuration of Phone1 LTE Signaling and Preset.



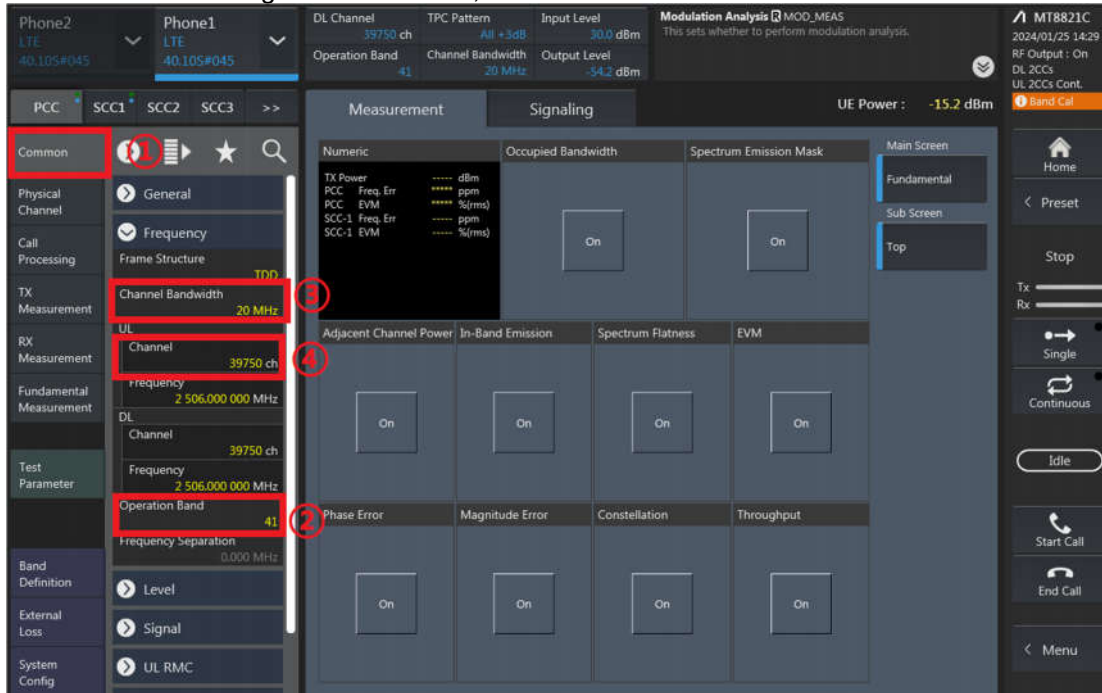
2. If Select "RMC (DL/UL CA)" for Uplink Carrier Aggregation;
If Select "RMC (DL CA)" for Downlink Carrier Aggregation.

For example, Uplink Carrier Aggregation:

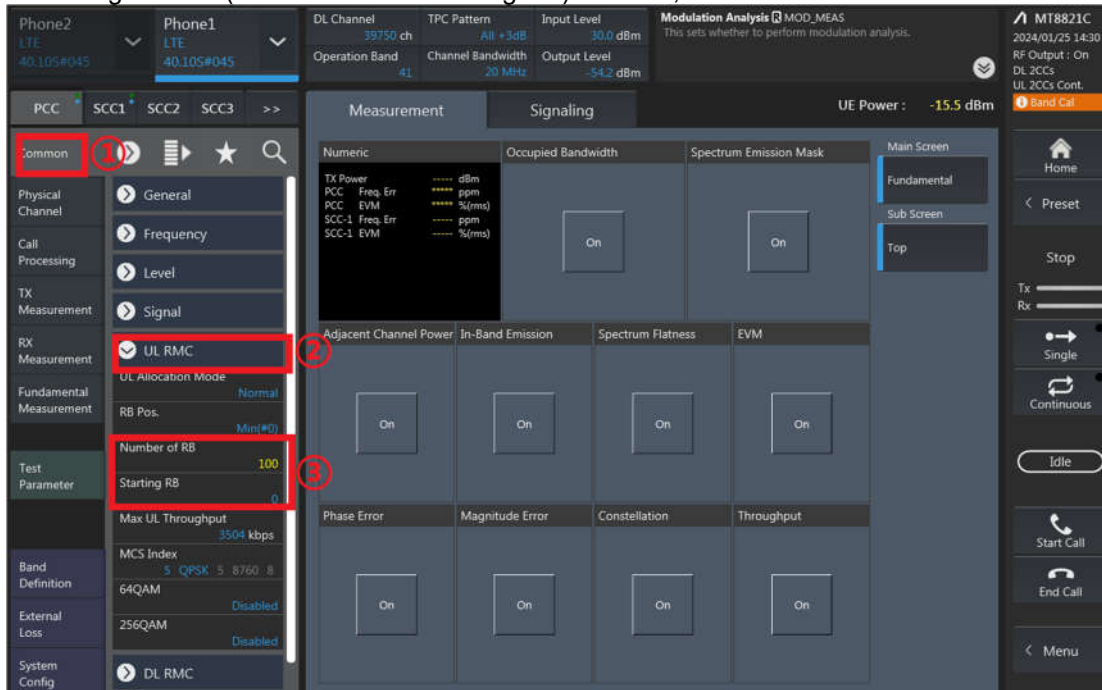
Detailed operation: PCC → Common → Signal → Channel Coding → Select 【RMC (DL/UL CA)】



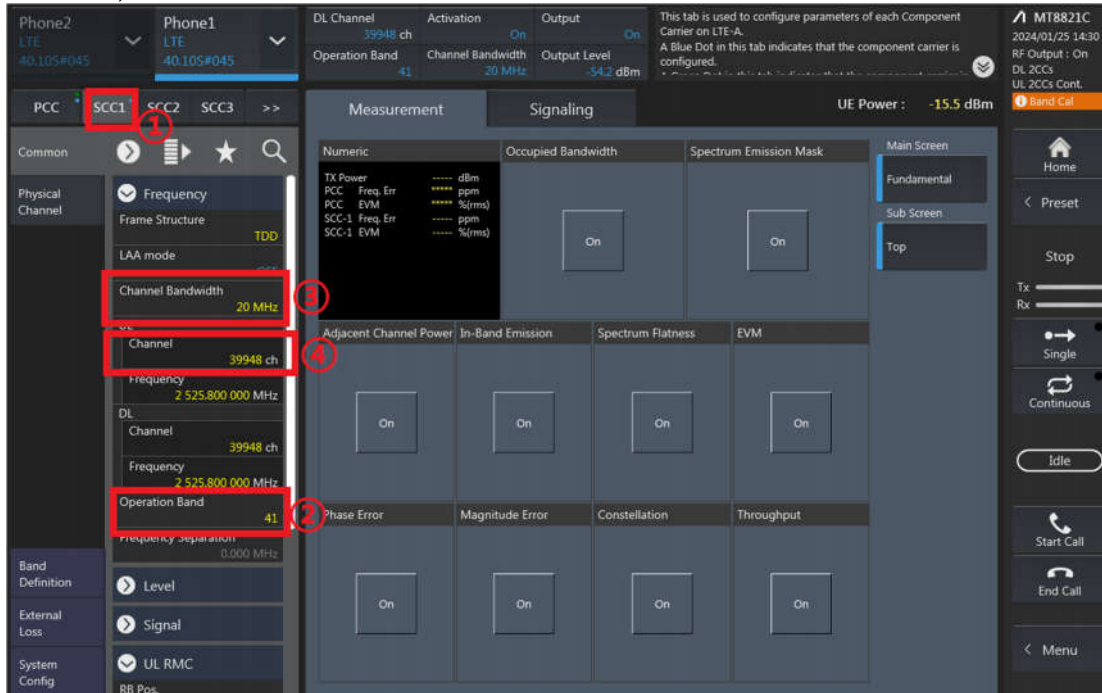
3. PCC parameter Settings: on the screen, and then select the PCC tab and Set operating band, BW, channel and RB configurations for PCC;



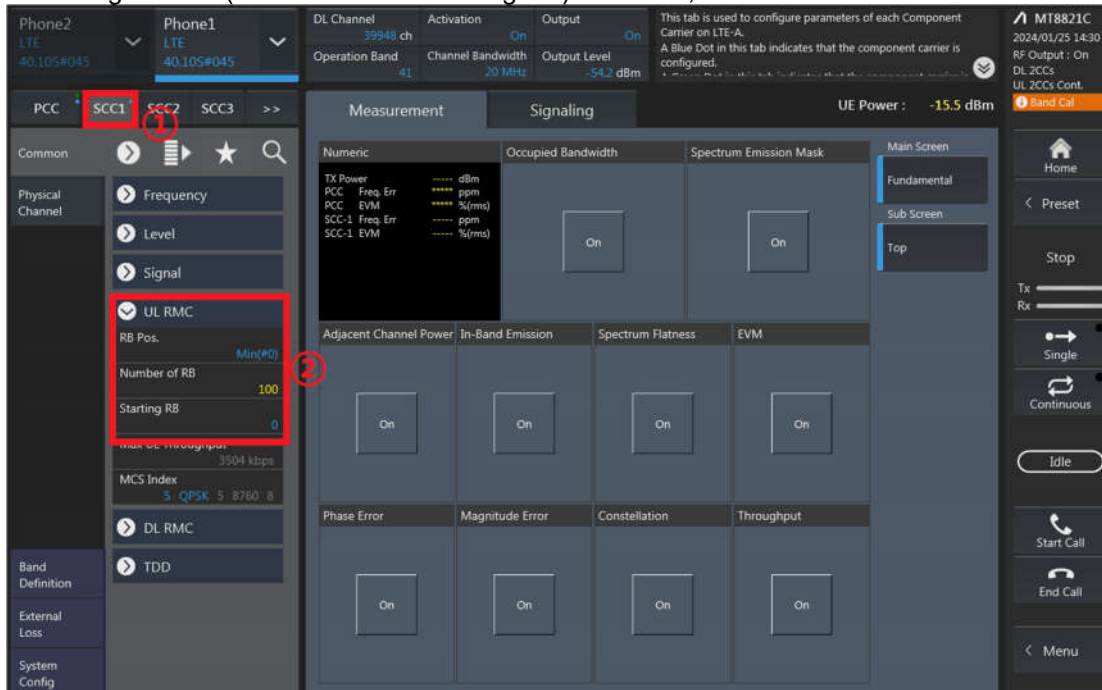
RB configurations (Number of RB / Starting RB) for PCC;



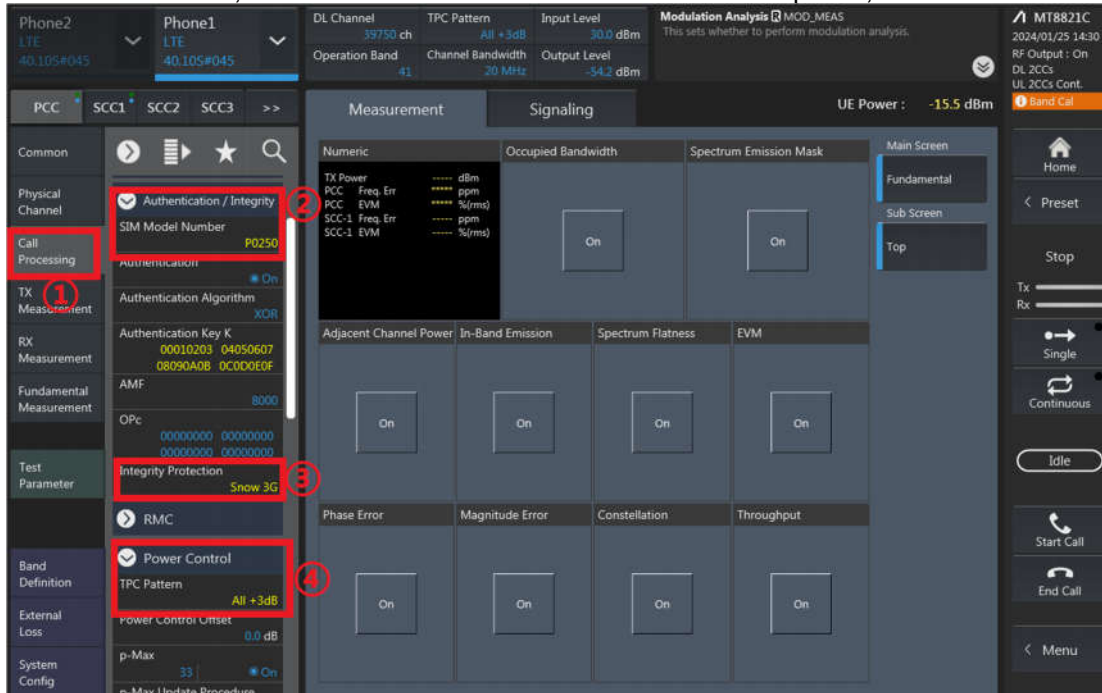
4. SCC parameter Settings: Select the SCC1 tab, Set operating band, BW, channel, and RB configurations for SCC1;



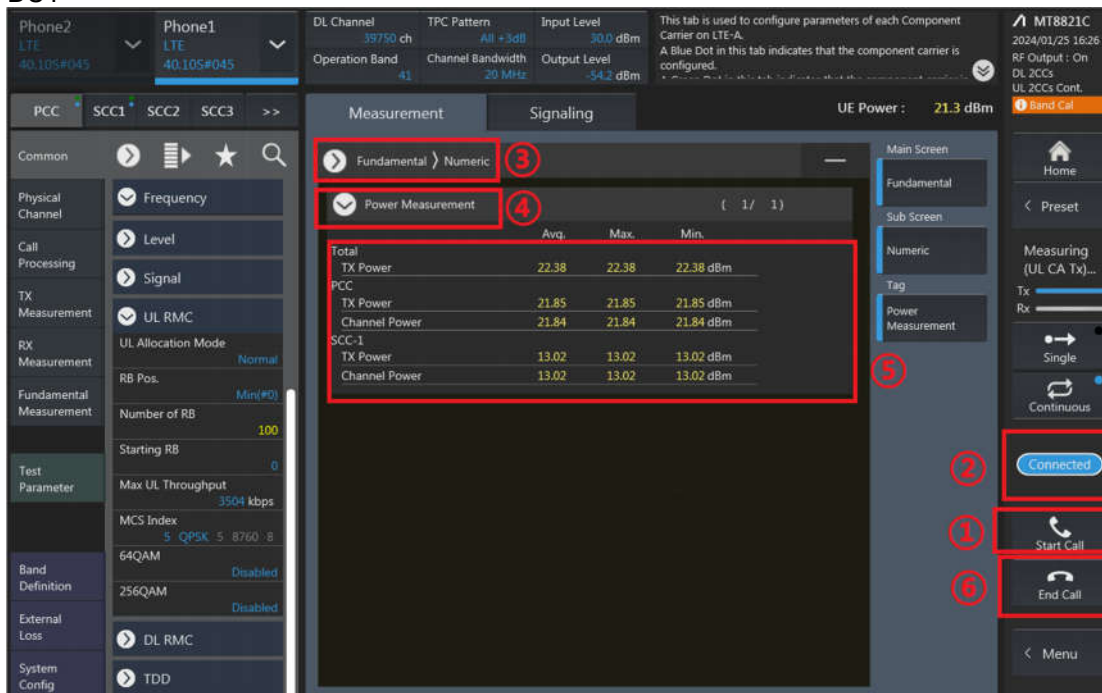
RB configurations (Number of RB / Starting RB) for SCC1;



5. Select the PCC tab, then set “SIM Model Number” and select max power;



6. Click the “Connect” button at the Right of the screen, if necessary, turn the Airplane mode on/off in the DUT



7. The inter-band ULCA test method is similar to intra-band ULCA, and DLCA test method is similar to intra-band ULCA too.

Uplink CA Power

CA 41C_Ant 1											
Combination 20MHz+20MHz (100RB+100RB)											
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Power Reduction	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset					
39750	39948	QPSK	1	0	0	0	1	0	Full	22.60	24.00
40185	39987	QPSK	1	0	0	0	1	0	Full	22.64	24.00
40620	40422	QPSK	1	0	0	0	1	0	Full	22.47	24.00
41055	40857	QPSK	1	0	0	0	1	0	Full	22.52	24.00
41490	41292	QPSK	1	0	0	0	1	0	Full	22.37	24.00
39750	39948	QPSK	1	0	0	0	1	0	Receiver on	22.60	24.00
40185	39987	QPSK	1	0	0	0	1	0	Receiver on	22.64	24.00
40620	40422	QPSK	1	0	0	0	1	0	Receiver on	22.47	24.00
41055	40857	QPSK	1	0	0	0	1	0	Receiver on	22.52	24.00
41490	41292	QPSK	1	0	0	0	1	0	Receiver on	22.37	24.00
39750	39948	QPSK	1	0	0	0	1	0	Sensor on	21.02	22.50
40185	39987	QPSK	1	0	0	0	1	0	Sensor on	21.16	22.50
40620	40422	QPSK	1	0	0	0	1	0	Sensor on	20.94	22.50
41055	40857	QPSK	1	0	0	0	1	0	Sensor on	20.93	22.50
41490	41292	QPSK	1	0	0	0	1	0	Sensor on	20.95	22.50
39750	39948	QPSK	1	0	0	0	1	0	Receiver off	22.60	24.00
40185	39987	QPSK	1	0	0	0	1	0	Receiver off	22.64	24.00
40620	40422	QPSK	1	0	0	0	1	0	Receiver off	22.47	24.00
41055	40857	QPSK	1	0	0	0	1	0	Receiver off	22.52	24.00
41490	41292	QPSK	1	0	0	0	1	0	Receiver off	22.37	24.00
39750	39948	QPSK	1	0	0	0	1	0	Handheld	21.53	23.00
40185	39987	QPSK	1	0	0	0	1	0	Handheld	21.75	23.00
40620	40422	QPSK	1	0	0	0	1	0	Handheld	21.71	23.00
41055	40857	QPSK	1	0	0	0	1	0	Handheld	21.52	23.00
41490	41292	QPSK	1	0	0	0	1	0	Handheld	21.69	23.00
39750	39948	QPSK	1	0	0	0	1	0	Hotspot on	21.02	22.50
40185	39987	QPSK	1	0	0	0	1	0	Hotspot on	21.16	22.50
40620	40422	QPSK	1	0	0	0	1	0	Hotspot on	20.94	22.50
41055	40857	QPSK	1	0	0	0	1	0	Hotspot on	20.93	22.50
41490	41292	QPSK	1	0	0	0	1	0	Hotspot on	20.95	22.50

CA_42C for FCC(3450~3550MHz)_Ant 5											
Combination 20MHz+20MHz (100RB+100RB)											
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Power Reduction	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset					
42190	42388	QPSK	1	0	0	0	1	0	Full	22.42	24.00
42590	42788	QPSK	1	0	0	0	1	0	Full	22.44	24.00
42990	42792	QPSK	1	0	0	0	1	0	Full	22.90	24.00
42190	42388	QPSK	1	0	0	0	1	0	Receiver on	14.34	16.00
42590	42788	QPSK	1	0	0	0	1	0	Receiver on	14.43	16.00
42990	42792	QPSK	1	0	0	0	1	0	Receiver on	14.84	16.00
42190	42388	QPSK	1	0	0	0	1	0	Sensor on	12.88	14.50
42590	42788	QPSK	1	0	0	0	1	0	Sensor on	12.95	14.50
42990	42792	QPSK	1	0	0	0	1	0	Sensor on	13.36	14.50
42190	42388	QPSK	1	0	0	0	1	0	Receiver off	22.42	24.00
42590	42788	QPSK	1	0	0	0	1	0	Receiver off	22.44	24.00
42990	42792	QPSK	1	0	0	0	1	0	Receiver off	22.90	24.00
42190	42388	QPSK	1	0	0	0	1	0	Handheld	19.83	21.50
42590	42788	QPSK	1	0	0	0	1	0	Handheld	19.88	21.50
42990	42792	QPSK	1	0	0	0	1	0	Handheld	20.31	21.50
42190	42388	QPSK	1	0	0	0	1	0	Hotspot on	11.86	13.50
42590	42788	QPSK	1	0	0	0	1	0	Hotspot on	11.82	13.50
42990	42792	QPSK	1	0	0	0	1	0	Hotspot on	12.31	13.50