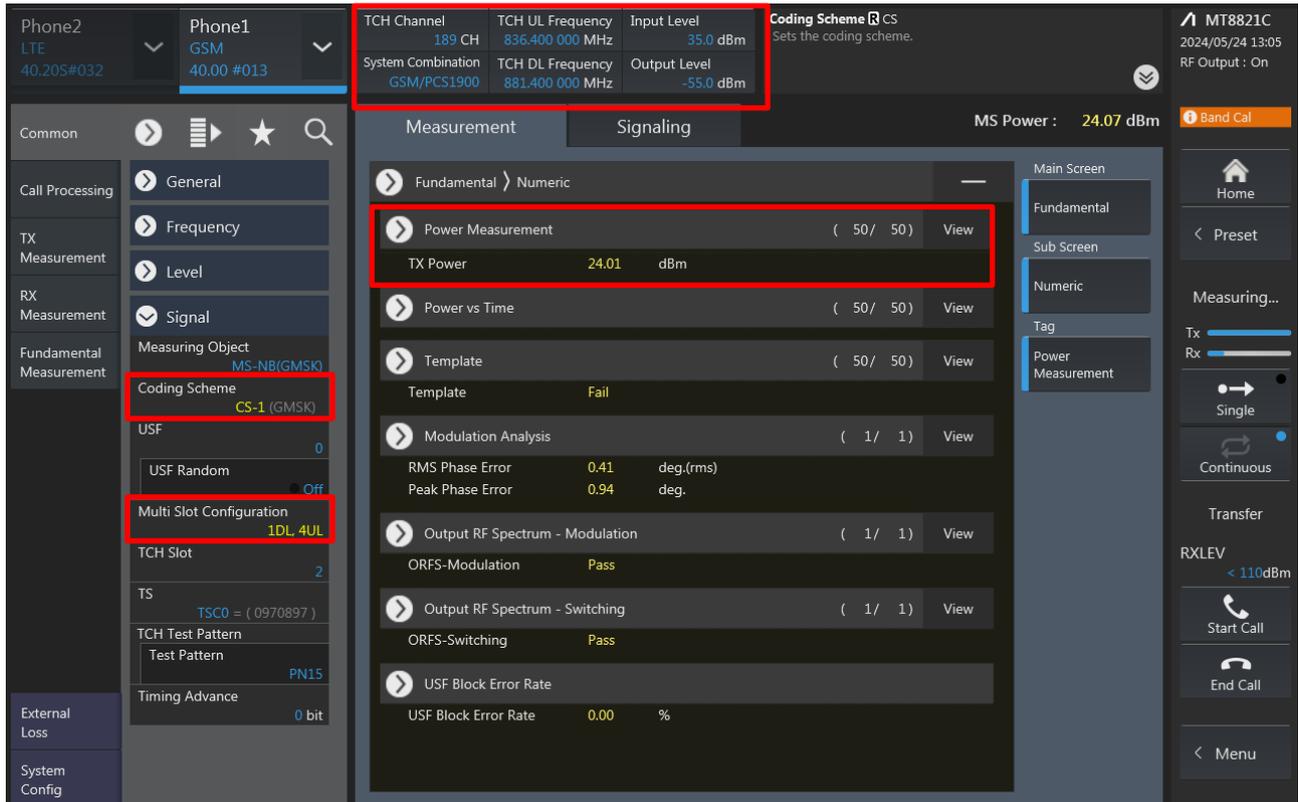


Power measurement connection diagram:

The power measurement for 2G/3G/LTE 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 DL CA.

<GSM>



The screenshot displays the configuration and measurement settings for a GSM call. The interface is divided into several sections:

- Phone Configuration:**
 - Phone2: LTE, 40.205#032
 - Phone1: GSM, 40.00 #013
- Measurement Parameters (highlighted in red):**
 - TCH Channel: 189 CH
 - TCH UL Frequency: 836.400 000 MHz
 - Input Level: 35.0 dBm
 - Coding Scheme: CS
 - System Combination: GSM/PCS1900
 - TCH DL Frequency: 881.400 000 MHz
 - Output Level: -55.0 dBm
- Measurement Settings (left sidebar):**
 - Measuring Object: MS-NB(GMSK)
 - Coding Scheme: CS-1 (GMSK)
 - USF: 0
 - USF Random: Off
 - Multi Slot Configuration: 1DL, 4UL
 - TCH Slot: 2
 - TS: TSC0 = (0970897)
 - TCH Test Pattern: Test Pattern
 - Test Pattern: PN15
 - Timing Advance: 0 bit
- Main Measurement Display (center):**
 - MS Power: 24.07 dBm
 - Power Measurement: 24.01 dBm
 - Power vs Time: (50/ 50)
 - Template: Fail
 - Modulation Analysis: (1/ 1)
 - RMS Phase Error: 0.41 deg.(rms)
 - Peak Phase Error: 0.94 deg.
 - Output RF Spectrum - Modulation: (1/ 1)
 - ORFS-Modulation: Pass
 - Output RF Spectrum - Switching: (1/ 1)
 - ORFS-Switching: Pass
 - USF Block Error Rate: 0.00 %
- Right Panel:**
 - MT8821C
 - 2024/05/24 13:05
 - RF Output : On
 - Band Cal
 - Home
 - Preset
 - Measuring...
 - Tx / Rx sliders
 - Single / Continuous
 - Transfer
 - RXLEV < 110dBm
 - Start Call / End Call
 - Menu

<WCDMA>

The screenshot displays the WCDMA measurement interface. At the top, it shows 'Phone2 LTE 40.20S#032' and 'Phone1 W-CDMA 40.00 #013'. A red box highlights the channel and frequency settings: UL Channel 9400 CH, UL Frequency 1.880.000 000 MHz, Input Level 35.0 dBm, DL Channel 9800 CH, and DL Frequency 1.960.000 000 MHz. The 'Average Count' is set to PWR_AVG. The 'Measurement' section shows 'Fundamental' and 'Power Measurement' (TX Power 23.28 dBm) highlighted with a red box. The 'External Loss' is set to 'All 1'. The 'UE Power' is 22.6 dBm.

<LTE>

The screenshot displays the LTE measurement interface. At the top, it shows 'Phone2 LTE 40.20S#021' and 'Phone1 LTE 40.20S#021'. A red box highlights the 'Uplink Downlink Configuration 1: (5ms) D S U U D D S U U D' and 'Special Subframe Configuration 4'. The 'Measurement' section shows 'Numeric' (TX Power 23.01 dBm) highlighted with a red box. The 'External Loss - Main DL' is set to DLEXTLOSS. The 'UE Power' is 23.4 dBm. The interface includes various measurement options like Occupied Bandwidth, Spectrum Emission Mask, Adjacent Channel Power, In-Band Emission, Spectrum Flatness, EVM, Phase Error, Magnitude Error, Constellation, and Throughput.



<LTE TDD Power class 3>

Phone2 LTE 40.20S#021 | Phone1 LTE 40.20S#021 | UL Channel 40620 ch | TPC Pattern All +3dB | Input Level 30.0 dBm | TDD - Special Subframe Configuration TDDSSFCONF | MT8821C 2024/05/31 12:39 RF Output : On

Operation Band 41 | Channel Bandwidth 20 MHz | Output Level -54.2 dBm

Measurement | Signaling | UE Power : 23.5 dBm

Measurement

Numeric	Occupied Bandwidth	Spectrum Emission Mask
TX Power 23.19 dBm	On	On

Fundamental Measurement

Uplink Downlink Configuration 0 : (5ms) D S U U D S U U U	Special Subframe Configuration 5
---	----------------------------------

Adjacent Channel Power | In-Band Emission | Spectrum Flatness | EVM

On	On	On	On
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Phase Error | Magnitude Error | Constellation | Throughput

On	On	On	On
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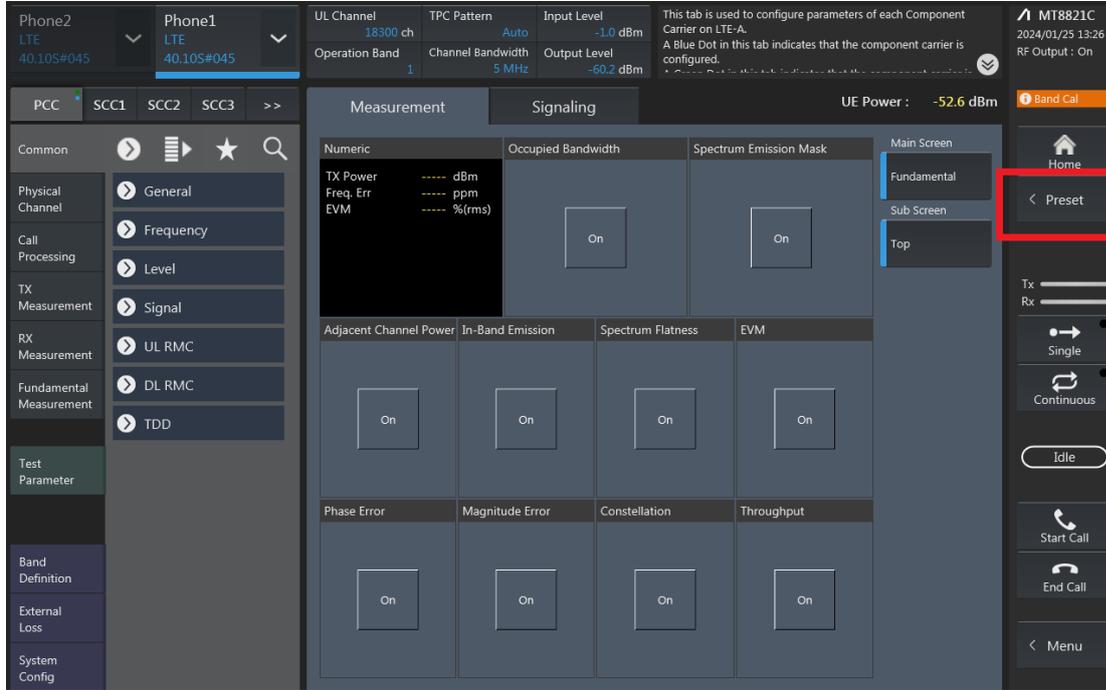
Common | Physical Channel | Call Processing | TX Measurement | RX Measurement | Fundamental Measurement | Test Parameter | Band Definition | External Loss | System Config

Frequency | Level | Signal | UL RMC | DL RMC | TDD | Test Parameter

Home | Preset | Measuring... | Tx | Rx | Single | Continuous | Connected | Start Call | End Call | Menu

LTE Downlink Carrier Aggregation configurations:

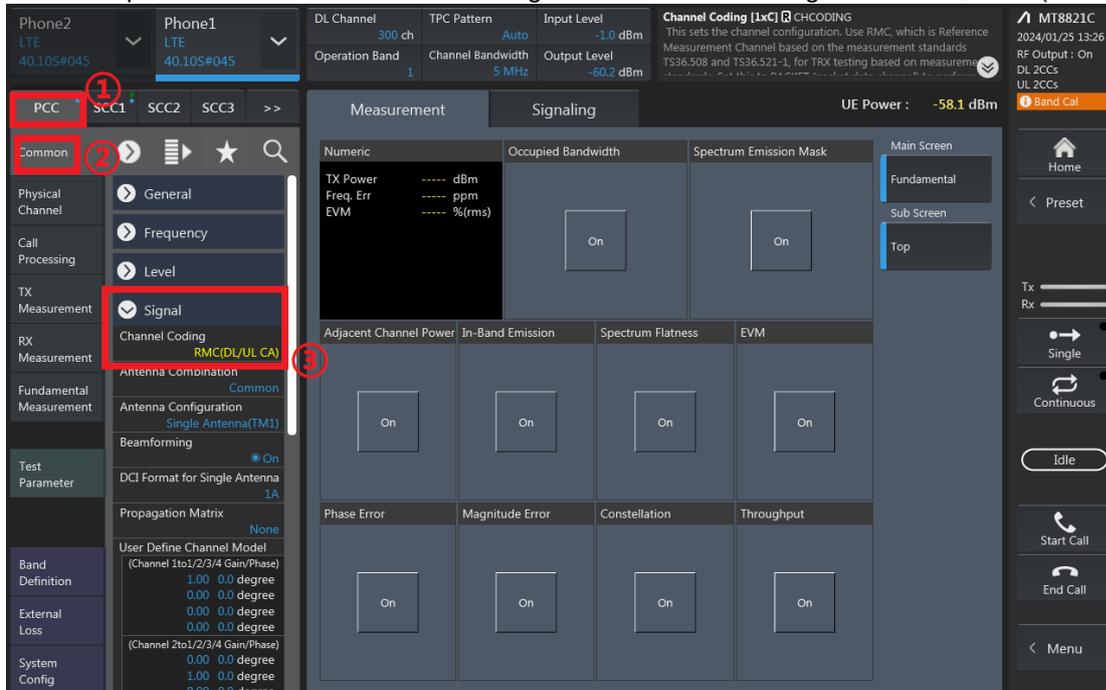
1. Change the Scenario in the Configuration of Phone1 LTE Signaling and Preset.



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:

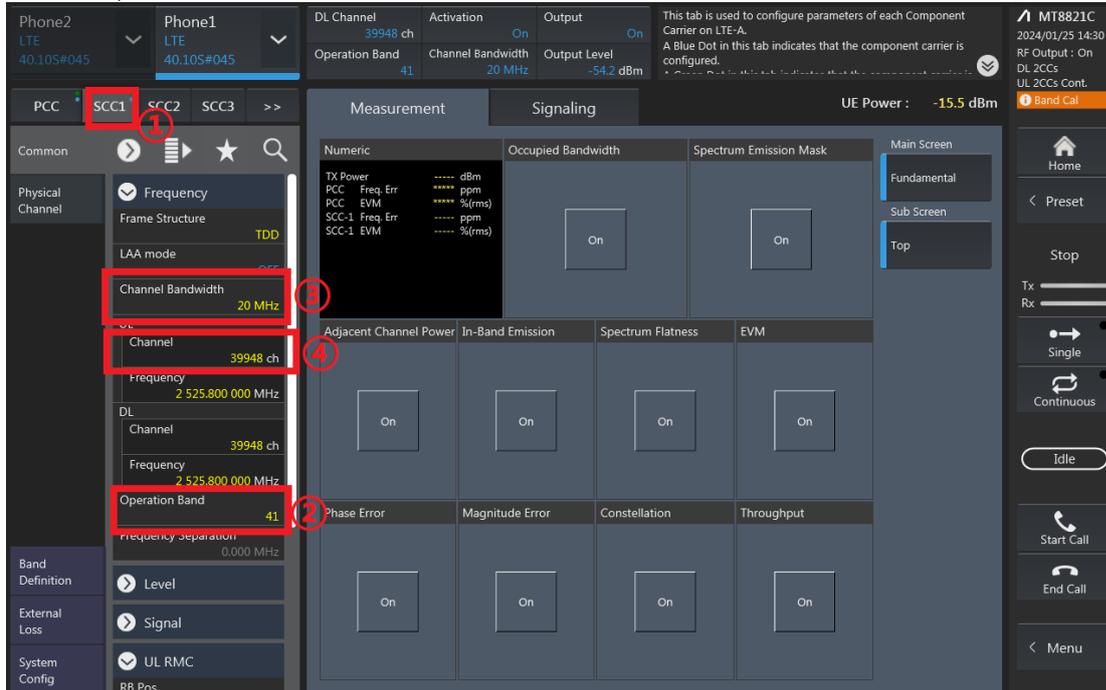
Detailed operation: PCC → Common → Signal → Channel Coding → Select 【RMC (DL/UL CA)】



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

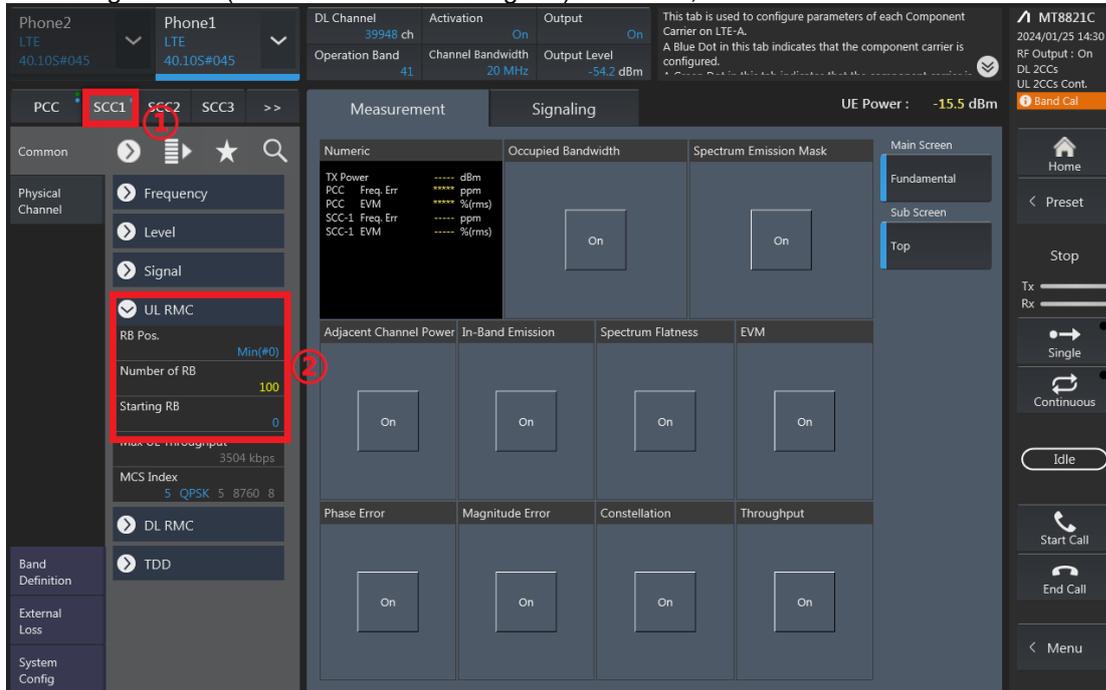
RB configurations (Number of RB / Starting RB) for PCC;

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



The screenshot shows the SCC1 configuration screen. The 'DL Channel' is set to 39948 ch, 'Operation Band' is 41, 'Channel Bandwidth' is 20 MHz, and 'Channel' is 39948 ch. The 'UE Power' is -15.5 dBm. The interface includes tabs for Measurement and Signaling, and various measurement metrics like TX Power, Occupied Bandwidth, and Spectrum Emission Mask.

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



The screenshot shows the UL RMC configuration section. The 'Number of RB' is set to 100 and 'Starting RB' is set to 0. The 'DL RMC' and 'TDD' sections are also visible. The 'UE Power' remains at -15.5 dBm.

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

	Avg.	Max.	Min.
Total TX Power	22.38	22.38	22.38 dBm
PCC TX Power	21.85	21.85	21.85 dBm
Channel Power	21.84	21.84	21.84 dBm
SCC-1 TX Power	13.02	13.02	13.02 dBm
Channel Power	13.02	13.02	13.02 dBm

7. The DLCA test method is similar to intra-band ULCA.

Downlink CA Power

Full Power															
2CC															
Configure		CA Configuration (BCS)	PCC							SCC				Power	
			LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Intra-Band	Non-Contiguous	CA_7A-7A	Band 7	20M	2535	21100	QPSK	1	0	Band 7	5M	2687.5	3425	22.87	23.02
		CA_41A-41A	Band 41	20M	2593	40620	QPSK	1	0	Band 41	5M	2687.5	41565	23.58	23.86
	Contiguous	CA_7C	Band 7	20M	2535	21100	QPSK	1	0	Band 7	20M	2674.80	3298	22.93	23.02
		CA_38C	Band 38	20M	2580	37850	QPSK	1	0	Band 38	20M	2599.80	38048	23.23	23.50
		CA_41C	Band 41	20M	2593	40620	QPSK	1	0	Band 41	20M	2612.80	40818	23.55	23.86