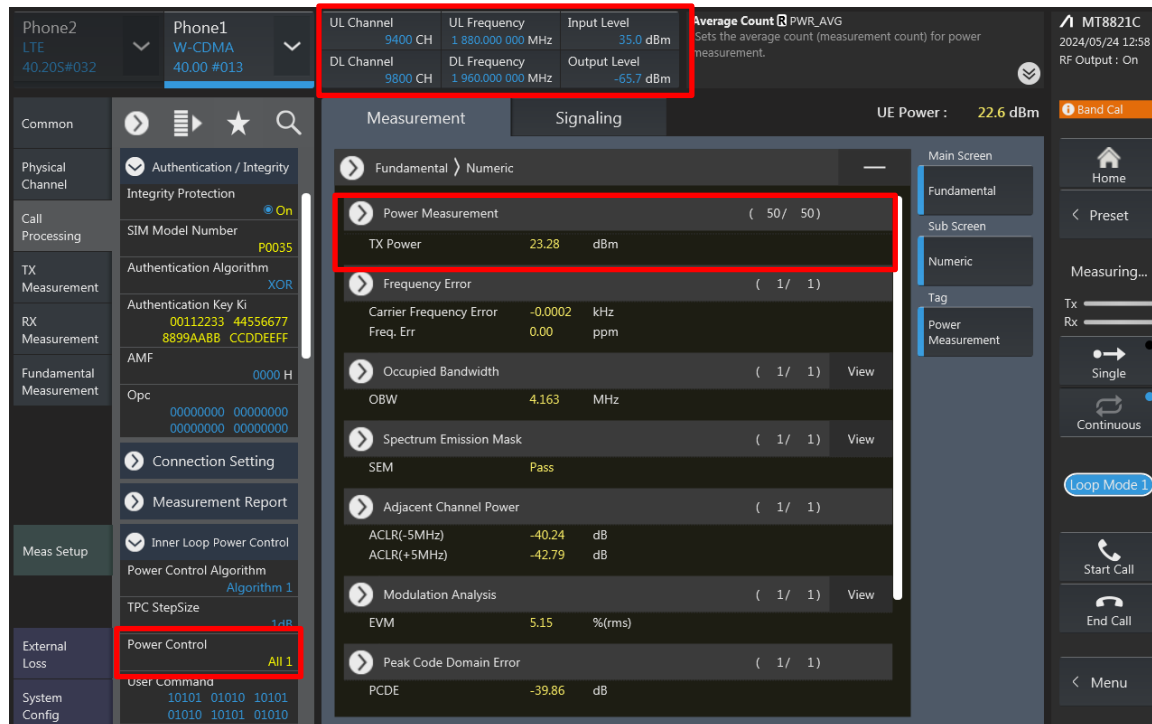


Power measurement connection diagram:

The power measurement for 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.

<WCDMA>



The screenshot displays the MT8821C software interface for WCDMA power measurement. The top status bar shows the device as MT8821C, with a timestamp of 2024/05/24 12:58 and RF Output: On. The main display area is divided into several sections:

- Top Status Bar:** Shows Phone2 (LTE, 40.20S#032) and Phone1 (W-CDMA, 40.00 #013). It also displays UL Channel (9400 CH), UL Frequency (1 880.000 000 MHz), Input Level (35.0 dBm), DL Channel (9800 CH), DL Frequency (1 960.000 000 MHz), and Output Level (-65.7 dBm). The Average Count (PWR_AVG) is set to 50/50.
- Measurement Section:** Displays various measurement parameters and results, including TX Power (23.28 dBm), Frequency Error (Carrier Frequency Error: -0.0002 kHz, Freq. Err: 0.00 ppm), Occupied Bandwidth (OBW: 4.163 MHz), Spectrum Emission Mask (SEM: Pass), Adjacent Channel Power (ACLR(-5MHz): -40.24 dB, ACLR(+5MHz): -42.79 dB), Modulation Analysis (EVM: 5.15 %(rms)), and Peak Code Domain Error (PCDE: -39.86 dB).
- Power Control Section:** Shows the Power Control Algorithm (Algorithm 1) and the TPC StepSize (1.48). The Power Control section is highlighted with a red box.

<LTE>

Phone2
LTE
40.20S#021

Phone1
LTE
40.20S#021

UL Channel
21100 ch

TPC Pattern
All +3dB

Input Level
30.0 dBm

External Loss - Main DL ☒ DLEXTLOSS
This sets the DL offset at the Main connector. Loss is set as a positive value. The argument tx enables setting a different loss value per internal signal generator.

Operation Band
7

Channel Bandwidth
20 MHz

Output Level
-67.0 dBm

MT8821C
2024/05/31 13:15
RF Output : On

PCC SCC1 SCC2 SCC3 >>

Common

Physical Channel

Call Processing

TX Measurement

RX Measurement

Fundamental Measurement

Test Parameter

Band Definition

External Loss

System Config

General

Frequency

Level

Signal

UL RMC

DL RMC

TDD

Uplink Downlink Configuration 1: (5ms) D S U U D D S U U D
Special Subframe Configuration 4

Measurement

Signaling

Numeric

Occupied Bandwidth

Spectrum Emission Mask

Main Screen

Fundamental

Sub Screen

Top

TX Power 23.01 dBm

On

On

Adjacent Channel Power

In-Band Emission

Spectrum Flatness

EVM

On

On

On

On

Phase Error

Magnitude Error

Constellation

Throughput

On

On

On

On

UE Power : 23.4 dBm

Home

Preset

Measuring...

Tx

Rx

Single

Continuous

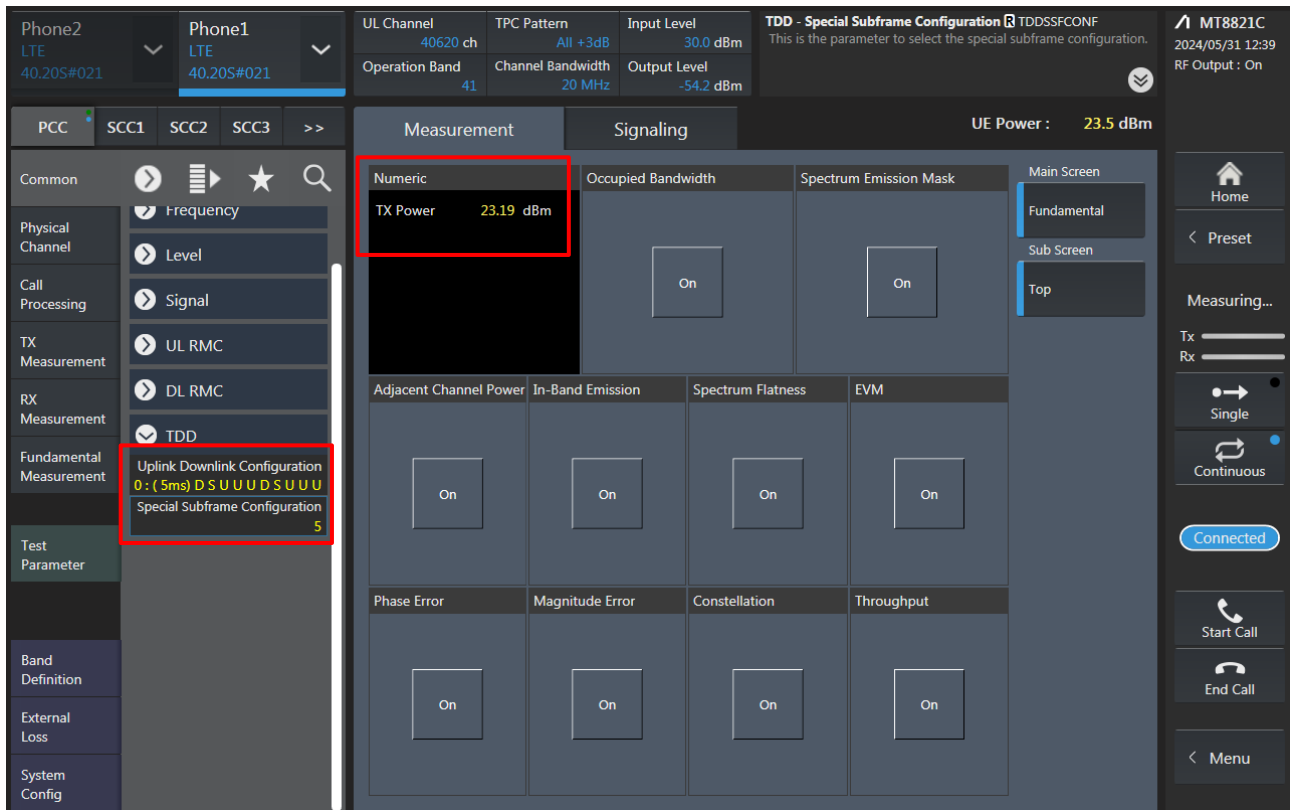
Connected

Start Call

End Call

Menu

<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
TDDSSFCNF
This is the parameter to select the special subframe configuration.

MT8821C
2024/05/31 12:39
RF Output : On

PCC SCC1 SCC2 SCC3 >>

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

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

Special Subframe Configuration
5

Measurement

Signaling

UE Power : 23.5 dBm

Numeric

TX Power 23.19 dBm

Occupied Bandwidth

Spectrum Emission Mask

Main Screen

Fundamental

Sub Screen

Top

Adjacent Channel Power

In-Band Emission

Spectrum Flatness

EVM

Phase Error

Magnitude Error

Constellation

Throughput

On

On

On

On

On

On

On

On

On

Home

Preset

Measuring...

Tx

Rx

Single

Continuous

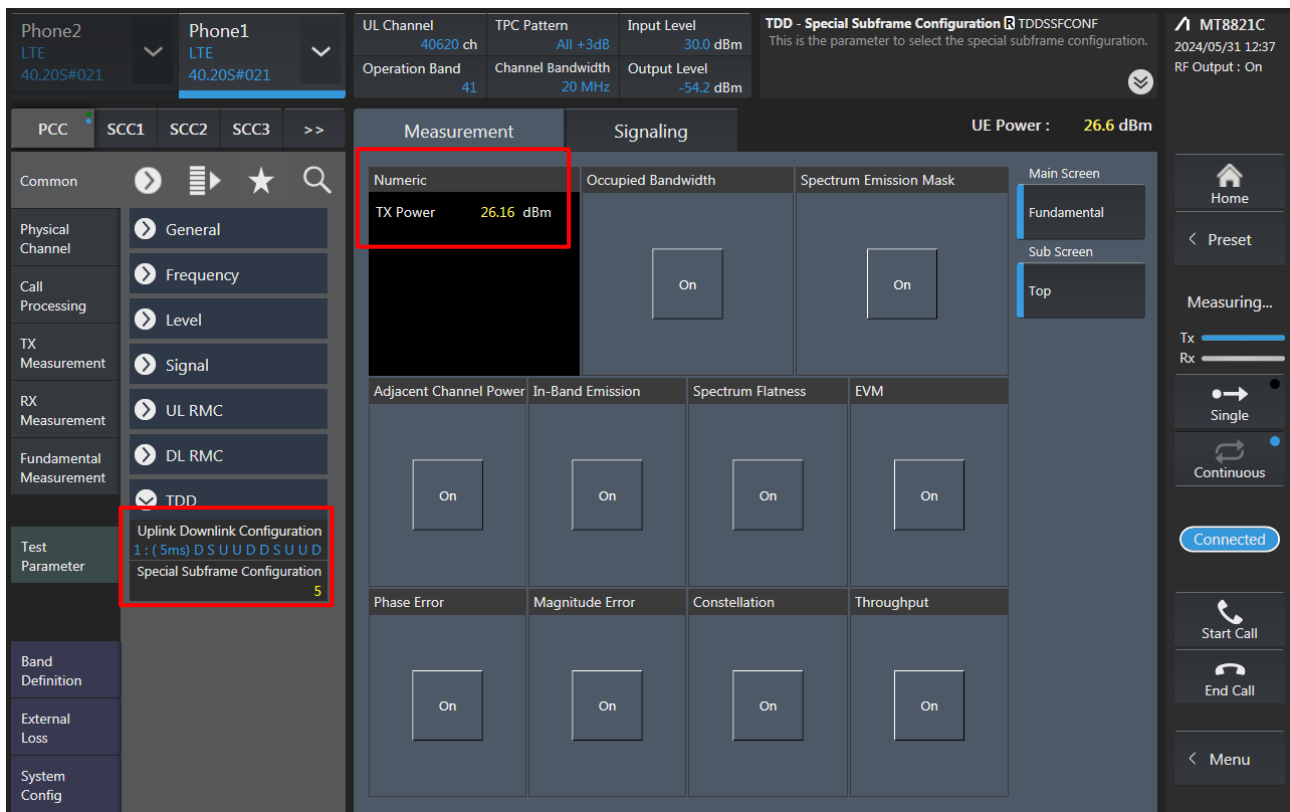
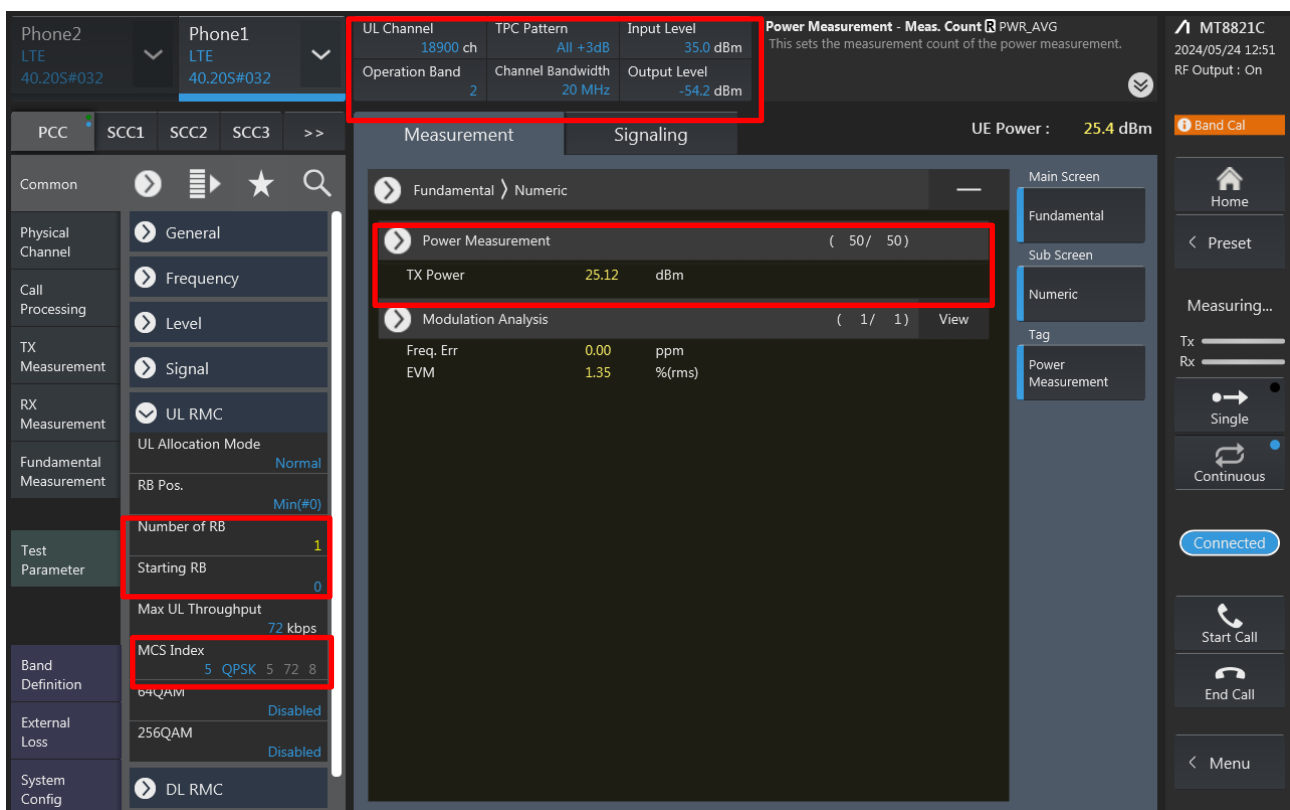
Connected

Start Call

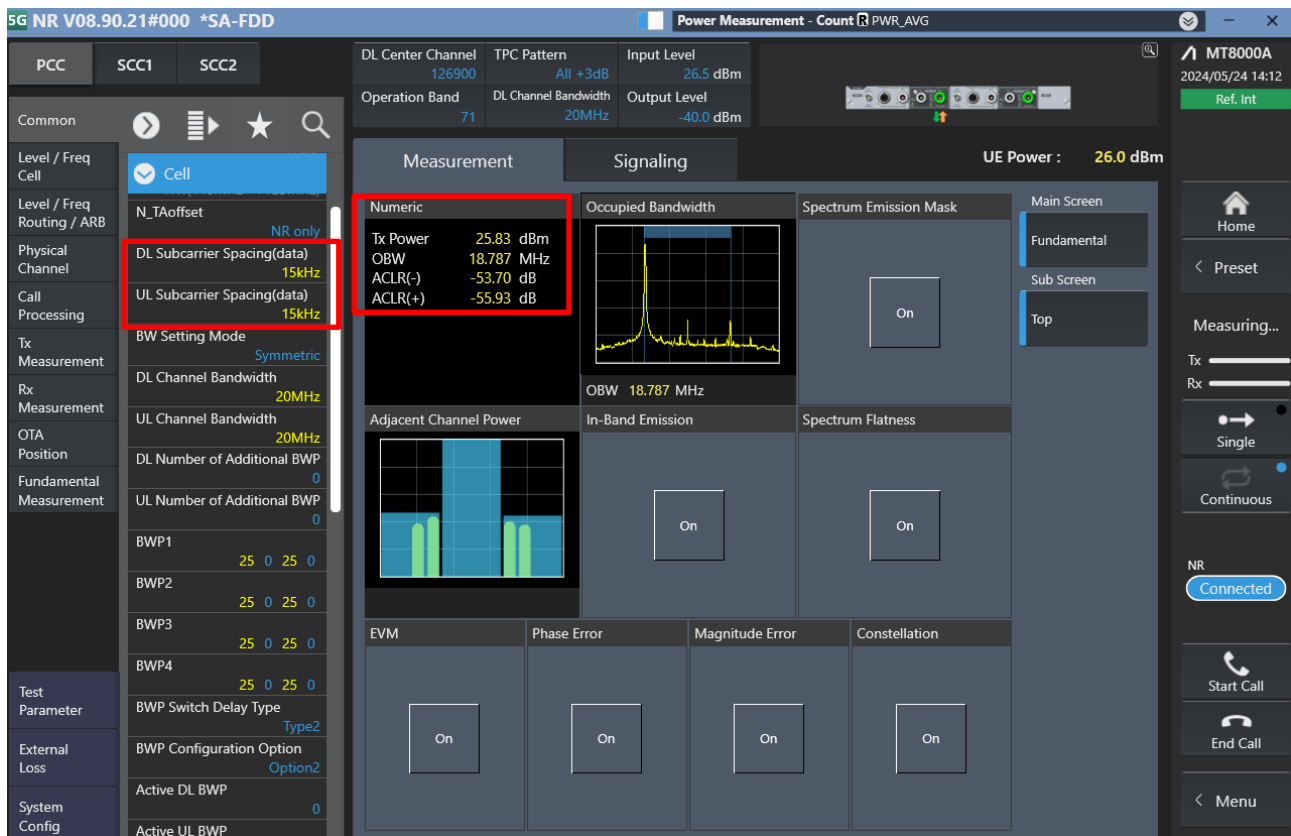
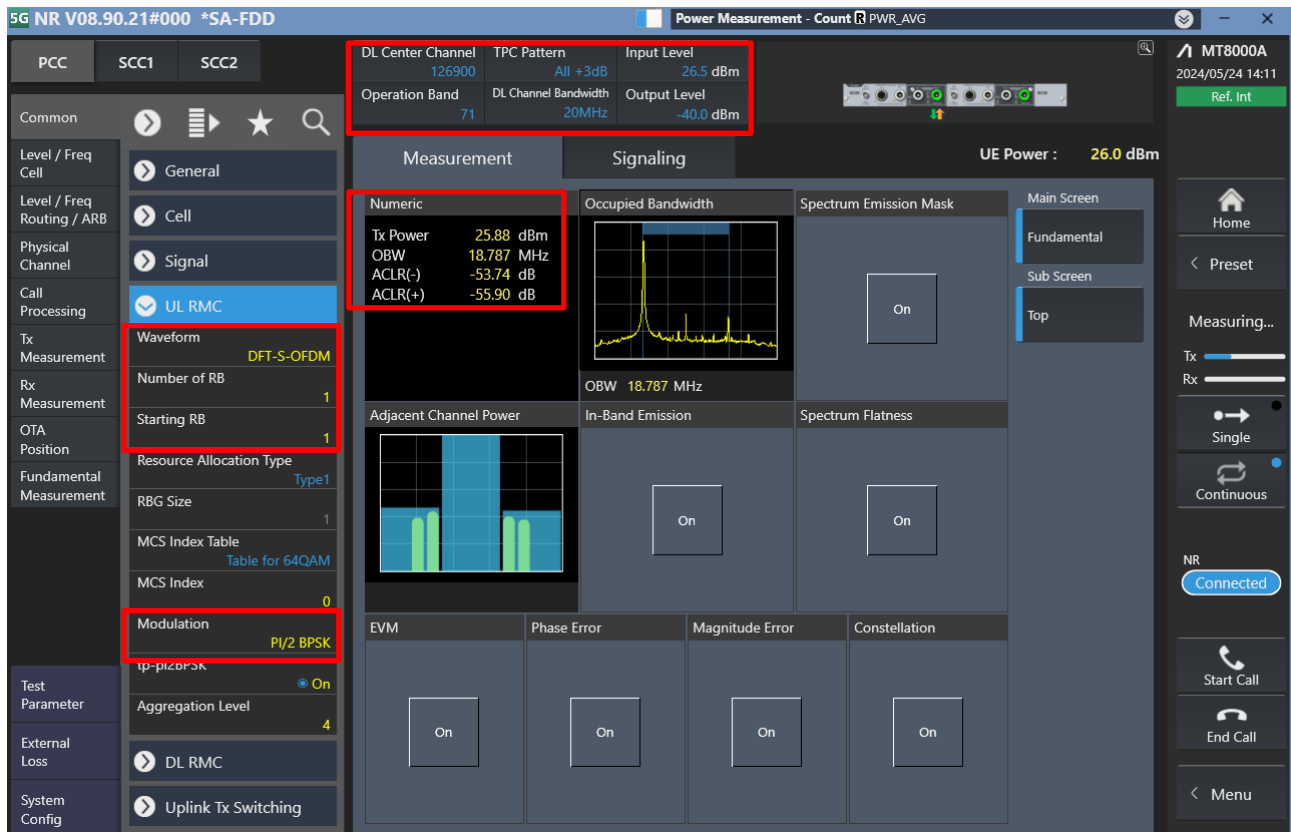
End Call

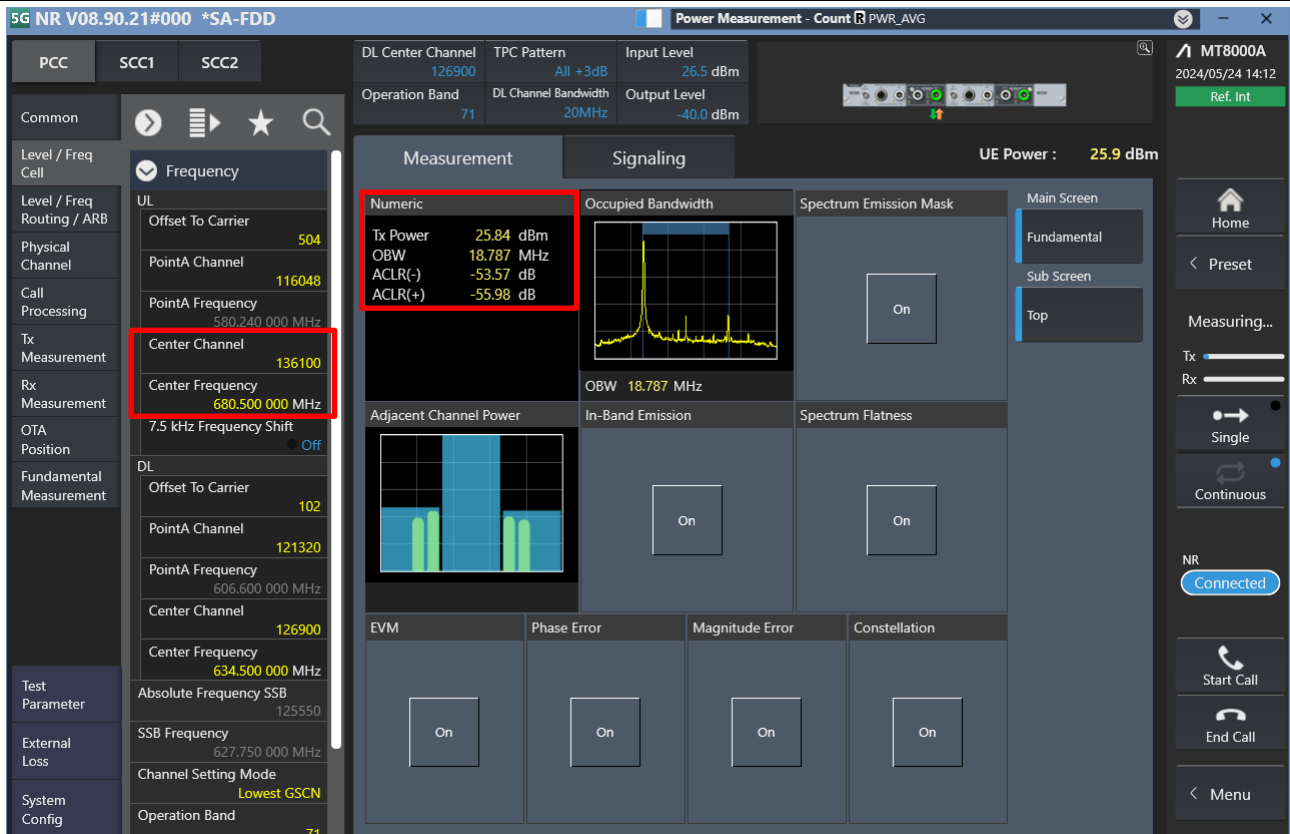
Menu

<LTE TDD Power class 2>

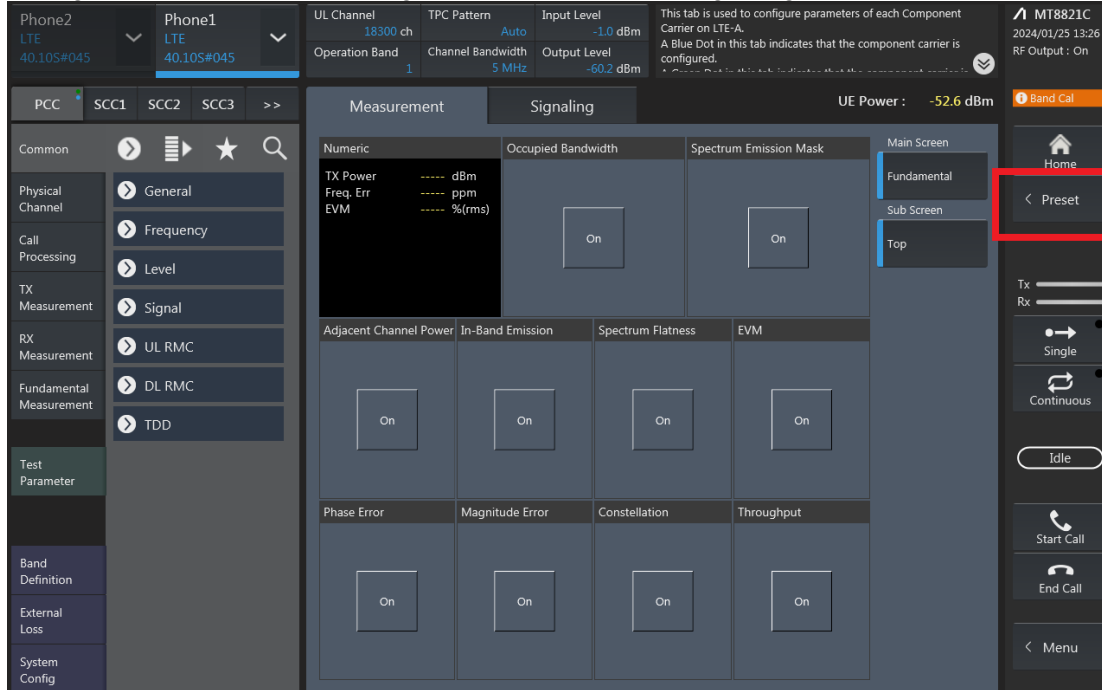
<5G NR FR1>





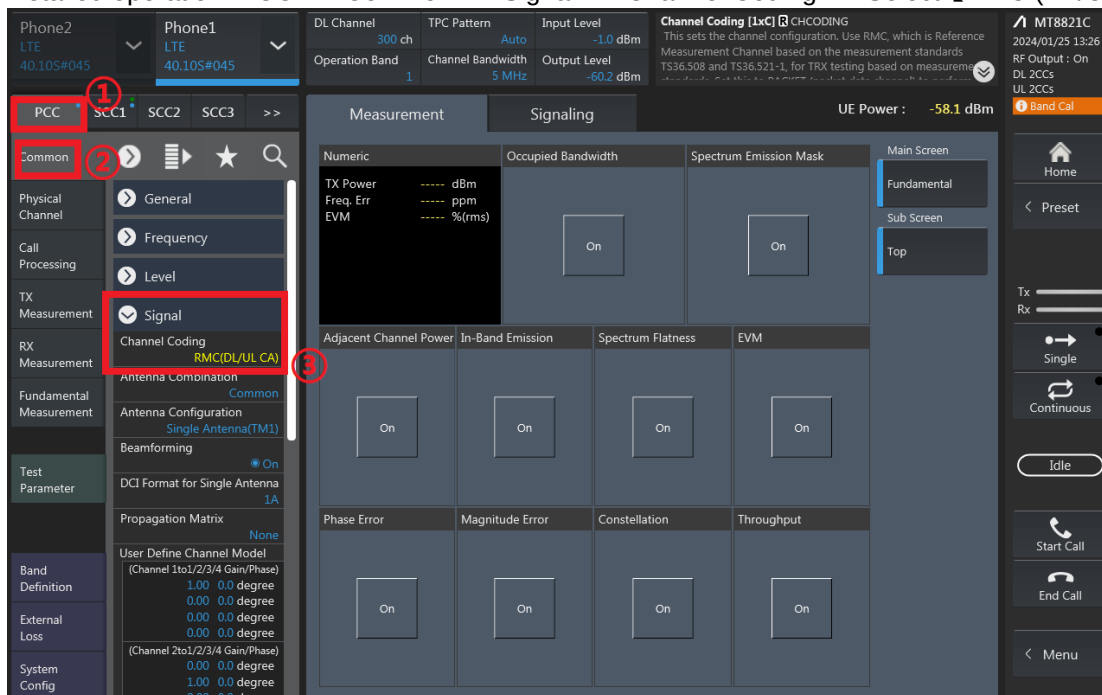
LTE Uplink and Downlink Carrier Aggregation configurations:

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

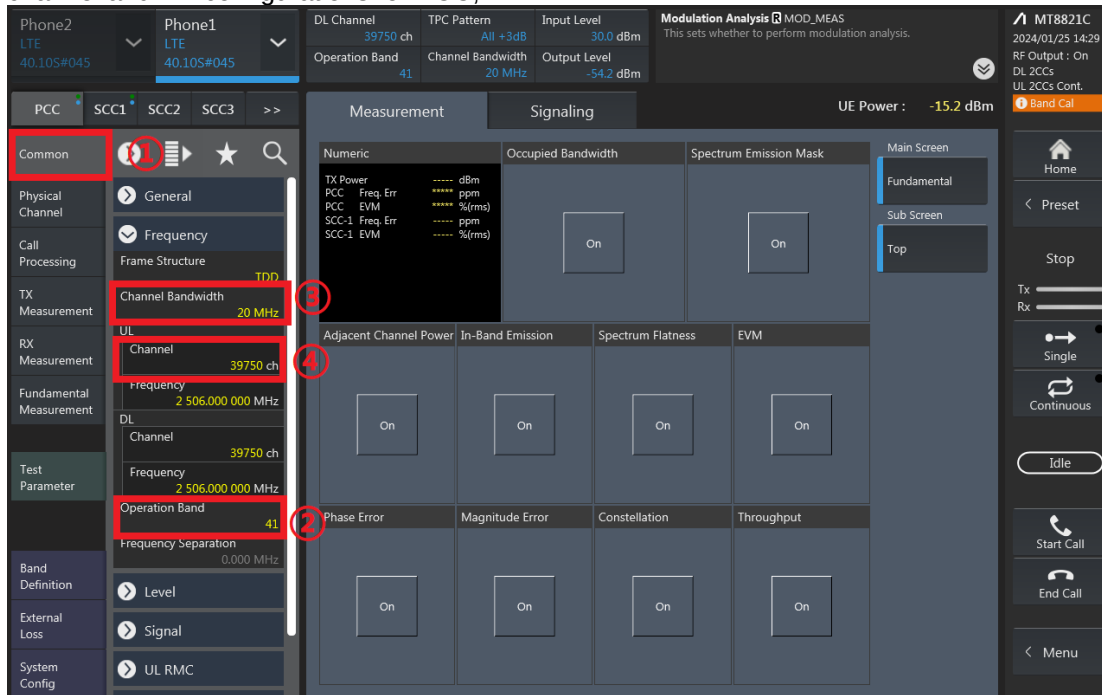


2. If Select "RMC (DL/UL CA)" for Uplink Carrier Aggregation;
If Select "RMC (DL CA)" for Downlink Carrier Aggregation.
For example, Uplink Carrier Aggregation:

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;



Phone2 LTE 40.10S#045 Phone1 LTE 40.10S#045

DL Channel 39750 ch TPC Pattern All +3dB Input Level 30.0 dBm Modulation Analysis MOD_MEAS This sets whether to perform modulation analysis.

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

MT8821C 2024/01/25 14:29 RF Output : On DL 2CCs UL 2CCs Cont.

PCC SCC1 SCC2 SCC3 >>

Measurement Signaling UE Power : -15.2 dBm

Common

Physical Channel General

Call Processing Frequency

TX Measurement Channel Bandwidth 20 MHz

RX Measurement Channel 39750 ch

Fundamental Measurement Frequency 2 506.000 000 MHz

Test Parameter Channel 39750 ch Frequency 2 506.000 000 MHz Operation Band 41 Frequency Separation 0.000 MHz

Band Definition Level

External Loss Signal

System Config UL RMC

Numeric Occupied Bandwidth Spectrum Emission Mask

TX Power PCC Freq. Err. dBm PCC EVM ppm PCC-1 Freq. Err. ppm PCC-1 EVM ppm

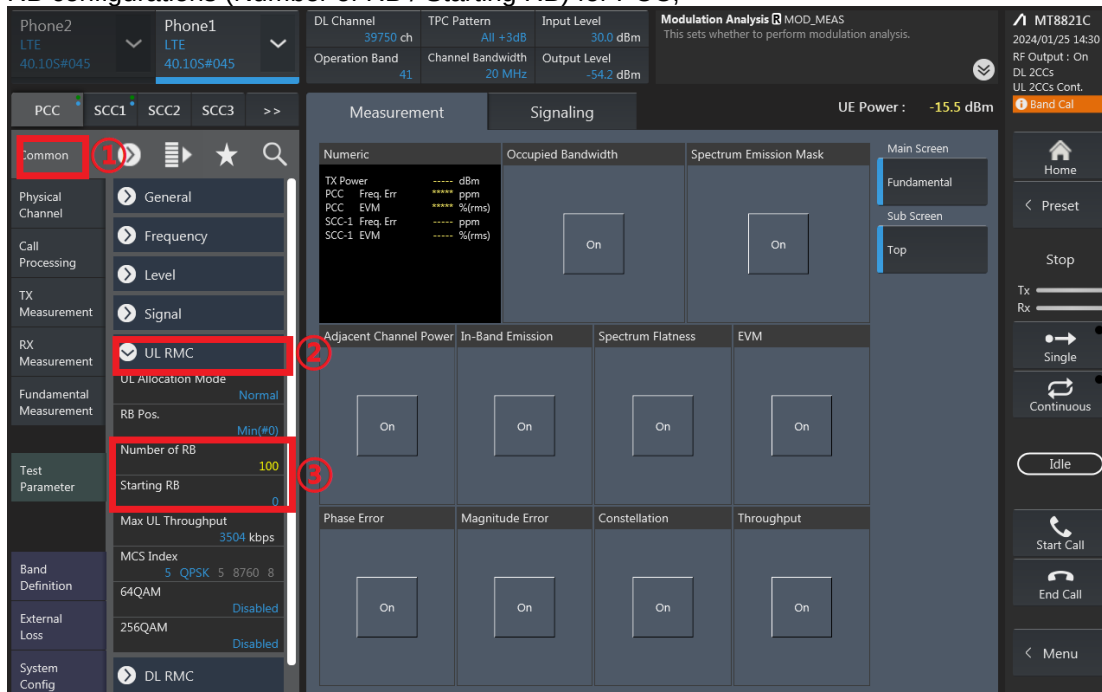
Adjacent Channel Power In-Band Emission Spectrum Flatness EVM

Phase Error Magnitude Error Constellation Throughput

Main Screen Fundamental Sub Screen Top

Home Preset Stop Tx Rx Single Continuous Idle Start Call End Call Menu

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



Phone2 LTE 40.10S#045 Phone1 LTE 40.10S#045

DL Channel 39750 ch TPC Pattern All +3dB Input Level 30.0 dBm Modulation Analysis MOD_MEAS This sets whether to perform modulation analysis.

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

MT8821C 2024/01/25 14:30 RF Output : On DL 2CCs UL 2CCs Cont.

PCC SCC1 SCC2 SCC3 >>

Measurement Signaling UE Power : -15.5 dBm

Common

Physical Channel General

Call Processing Frequency

TX Measurement Level

RX Measurement Signal

Fundamental Measurement UL RMC

Test Parameter UL Allocation Mode Normal RB Pos. Min(#0) Number of RB 100 Starting RB 0 Max UL Throughput 3504 kbps MCS Index 5 QPSK 5 8760 8 64QAM 256QAM Disabled Disabled

Band Definition DL RMC

Numeric Occupied Bandwidth Spectrum Emission Mask

TX Power PCC Freq. Err. dBm PCC EVM ppm PCC-1 Freq. Err. ppm PCC-1 EVM ppm

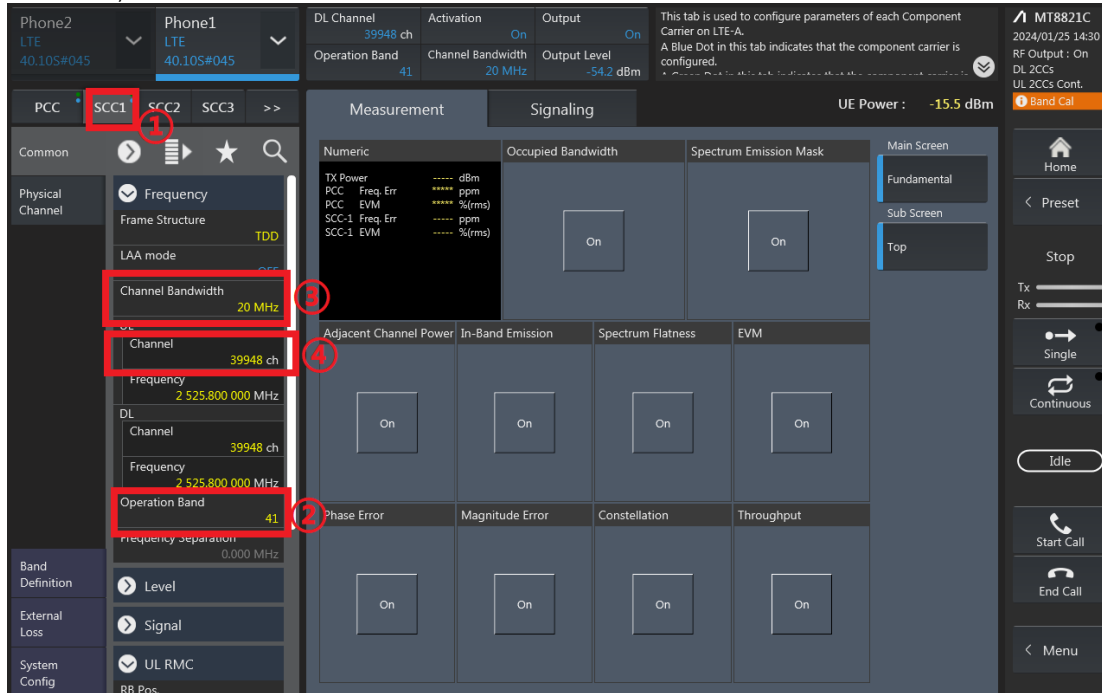
Adjacent Channel Power In-Band Emission Spectrum Flatness EVM

Phase Error Magnitude Error Constellation Throughput

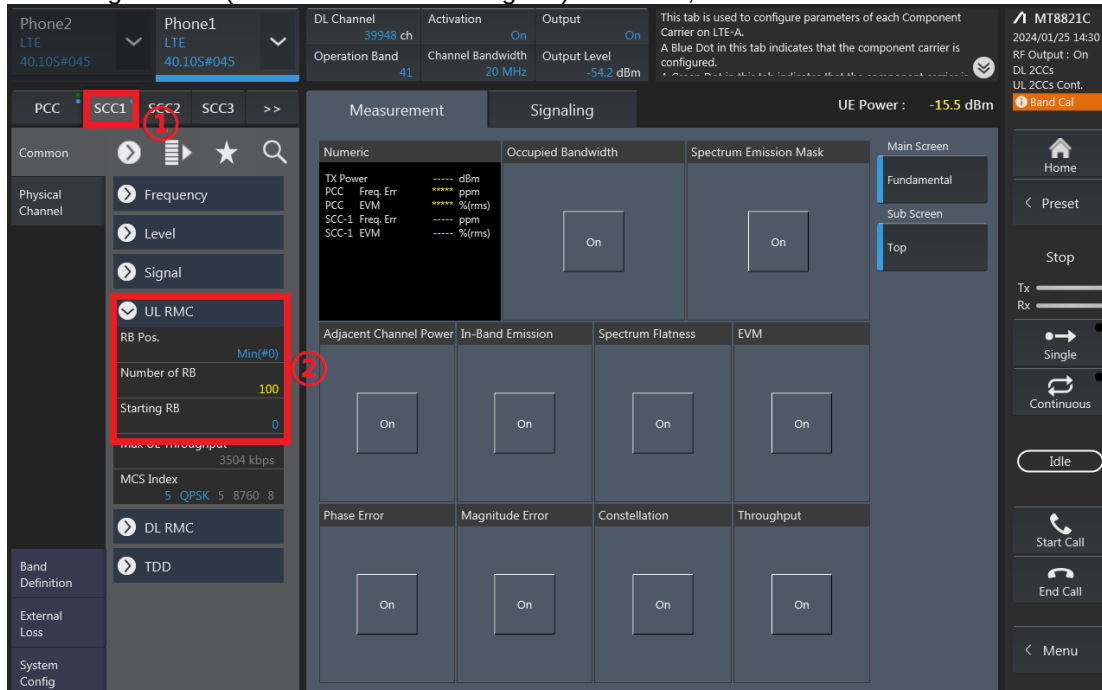
Main Screen Fundamental Sub Screen Top

Home Preset Stop Tx Rx Single Continuous Idle Start Call End Call Menu

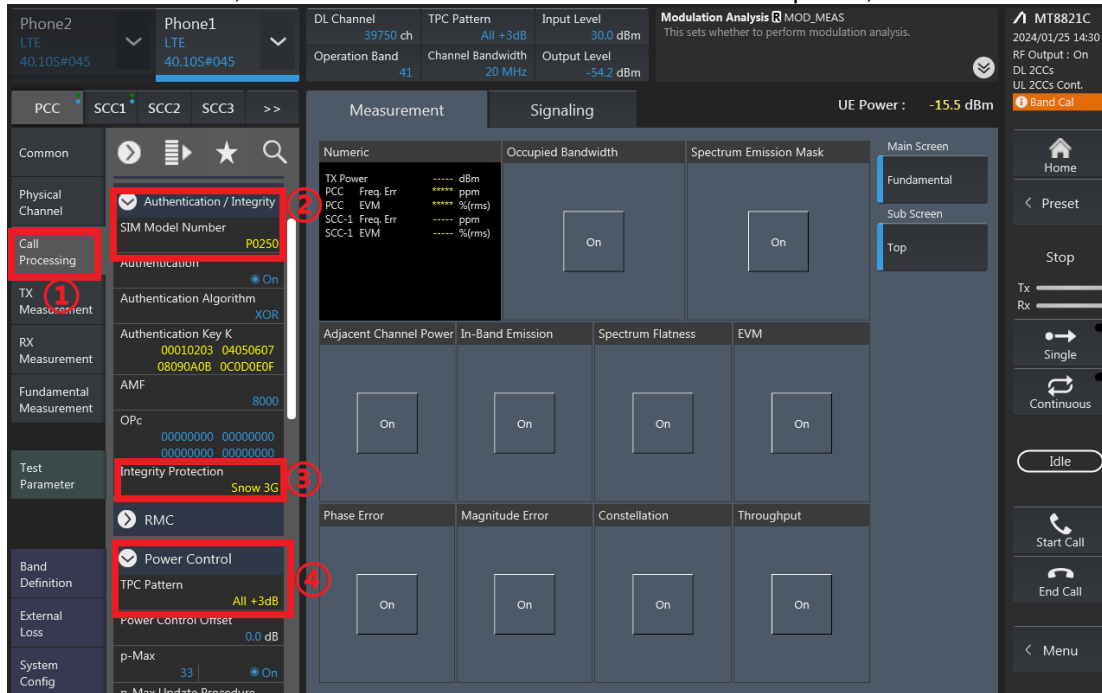
4. SCC parameter Settings: Select the SCC1 tab, Set operating band, BW, channel, and RB configurations for SCC1;



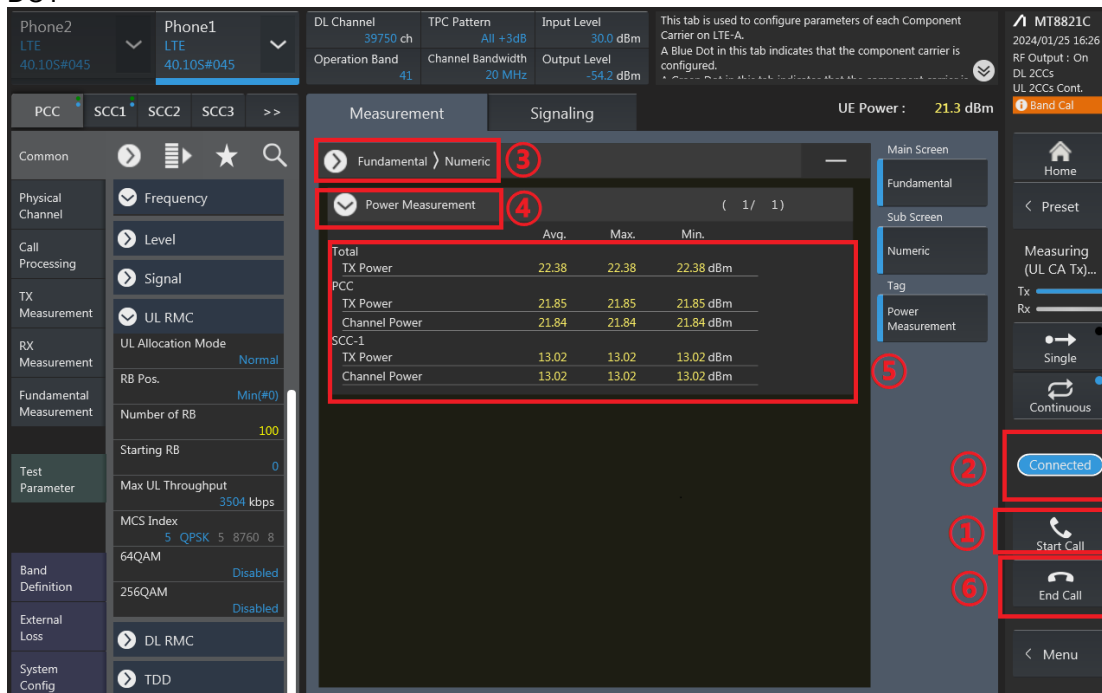
RB configurations (Number of RB / Starting RB) for SCC1;



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.