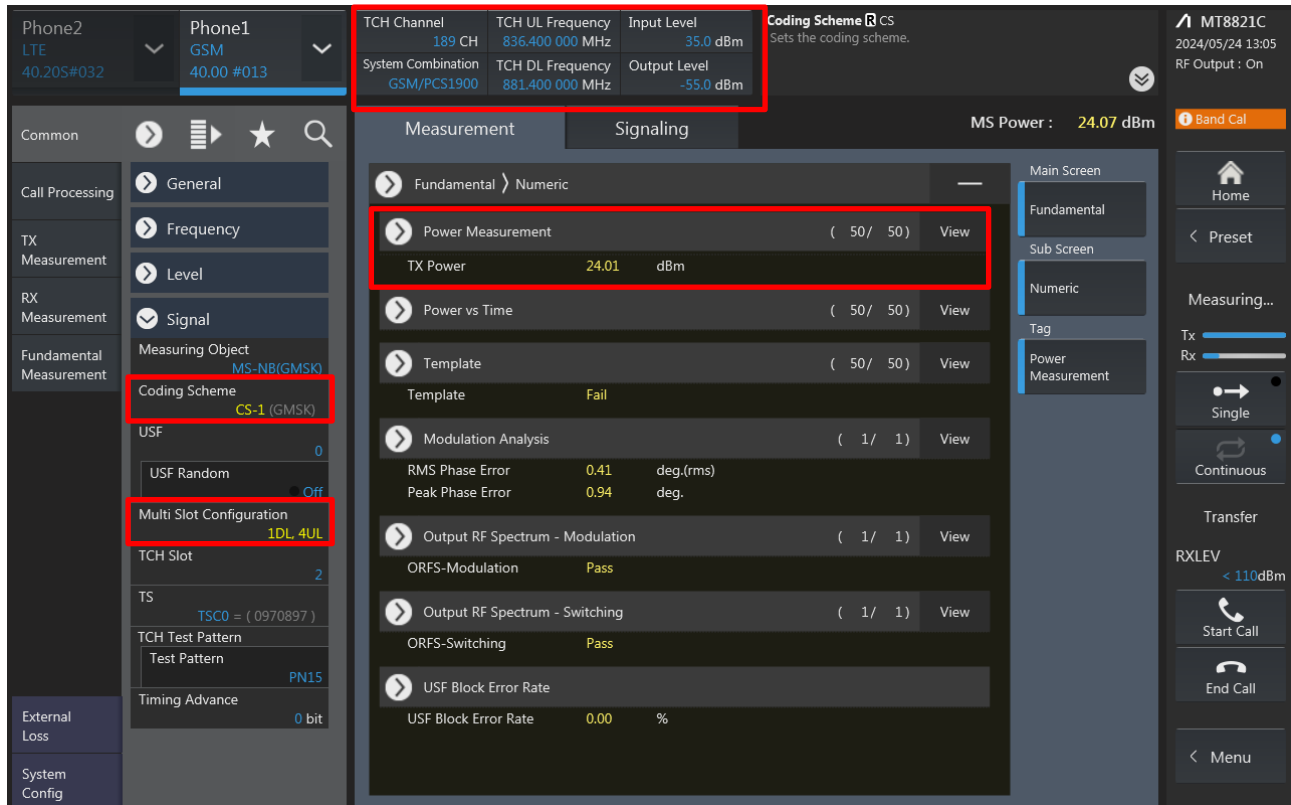


Power measurement connection diagram:

The power measurement for 2G/3G/LTE/5G FR1 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 and DL CA.

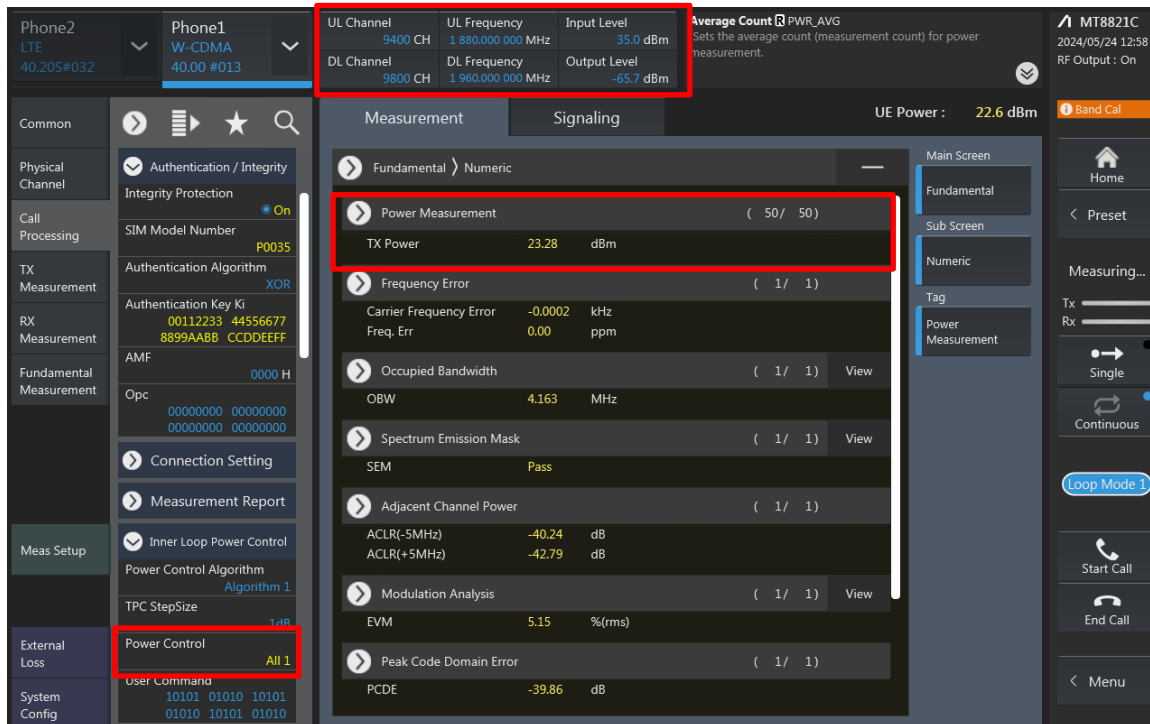
<GSM>



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

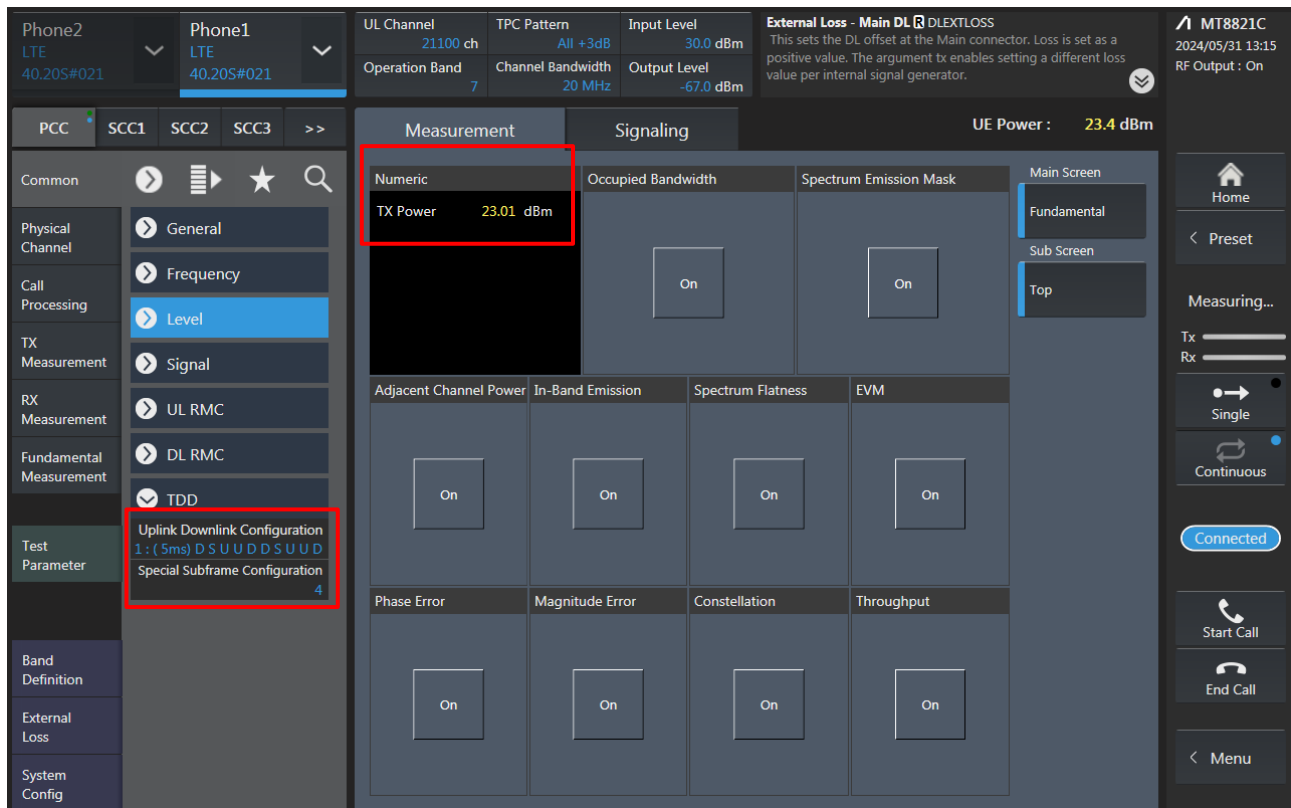
- Top Bar:** Shows Phone2 (LTE, 40.205#032) and Phone1 (GSM, 40.00 #013). It also displays TCH Channel (189 CH), TCH UL Frequency (836.400 000 MHz), Input Level (35.0 dBm), TCH DL Frequency (881.400 000 MHz), and Output Level (-55.0 dBm). The Coding Scheme is set to CS.
- Left Sidebar:** Contains navigation options like Common, Call Processing, TX Measurement, RX Measurement, Fundamental Measurement, and External Loss. The 'Fundamental Measurement' section is expanded, showing 'Coding Scheme' (CS-1 (GMSK)) and 'Multi Slot Configuration' (1DL, 4UL).
- Main Area:** Displays 'Measurement' and 'Signaling' tabs. The 'Measurement' tab is active, showing 'Fundamental' and 'Numeric' views. The 'Power Measurement' section is highlighted, showing 'TX Power' (24.01 dBm). Other measurements include 'Power vs Time', 'Template', 'Modulation Analysis', 'Output RF Spectrum - Modulation', 'Output RF Spectrum - Switching', and 'USF Block Error Rate'.
- Right Sidebar:** Shows 'Main Screen' and 'Sub Screen' options. It also displays 'MS Power' (24.07 dBm) and 'Band Cal' (Band Cal).

<WCDMA>



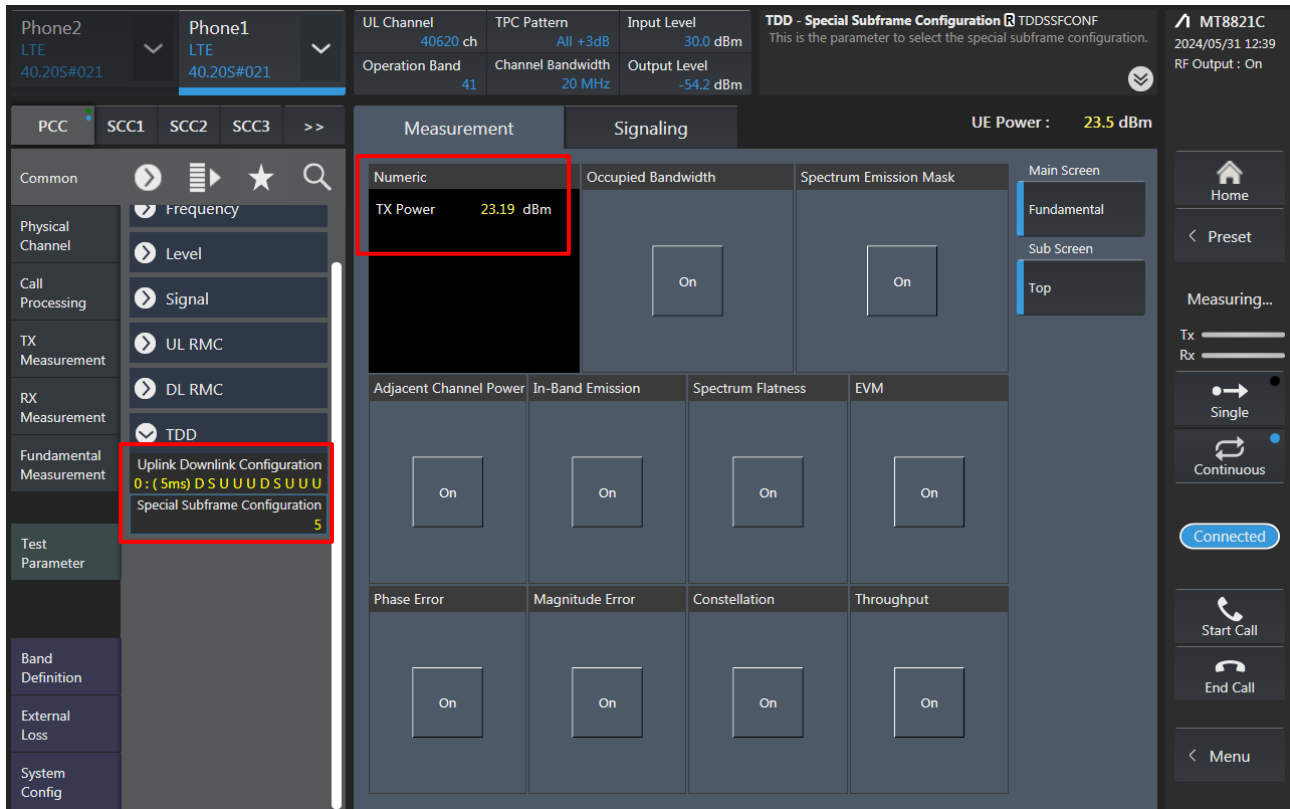
The screenshot shows the WCDMA measurement interface. The top bar displays 'Phone2 LTE 40.20S#032' and 'Phone1 W-CDMA 40.00 #013'. The 'Measurement' tab is active, showing 'Fundamental' and 'Numeric' views. The 'Power Measurement' section is highlighted with a red box, showing 'TX Power' at 23.28 dBm. The 'Occupied Bandwidth' section shows 'OBW' at 4.163 MHz. The 'Adjacent Channel Power' section shows 'ACLR(-5MHz)' at -40.24 dB and 'ACLR(+5MHz)' at -42.79 dB. The 'Modulation Analysis' section shows 'EVM' at 5.15 % (rms). The 'Peak Code Domain Error' section shows 'PCDE' at -39.86 dB. The 'UE Power' is 22.6 dBm. The 'Band Cal' button is visible on the right. The 'Meas Setup' section on the left shows 'Power Control' set to 'All 1'.

<LTE>



The screenshot shows the LTE measurement interface. The top bar displays 'Phone2 LTE 40.20S#021' and 'Phone1 LTE 40.20S#021'. The 'Measurement' tab is active, showing 'Numeric' and 'Occupied Bandwidth' views. The 'Power Measurement' section is highlighted with a red box, showing 'TX Power' at 23.01 dBm. The 'Occupied Bandwidth' section shows 'OBW' at 20 MHz. The 'Adjacent Channel Power' section shows 'ACLR(-5MHz)' at -40.24 dB and 'ACLR(+5MHz)' at -42.79 dB. The 'Modulation Analysis' section shows 'EVM' at 5.15 % (rms). The 'Peak Code Domain Error' section shows 'PCDE' at -39.86 dB. The 'UE Power' is 23.4 dBm. The 'Band Cal' button is visible on the right. The 'Meas Setup' section on the left shows 'Uplink Downlink Configuration' set to '1: (5ms) D S U U D D S U U D' and 'Special Subframe Configuration' set to '4'.

<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

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

UE Power : 23.5 dBm

Measurement Signaling

Numeric TX Power 23.19 dBm

Occupied Bandwidth Spectrum Emission Mask

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

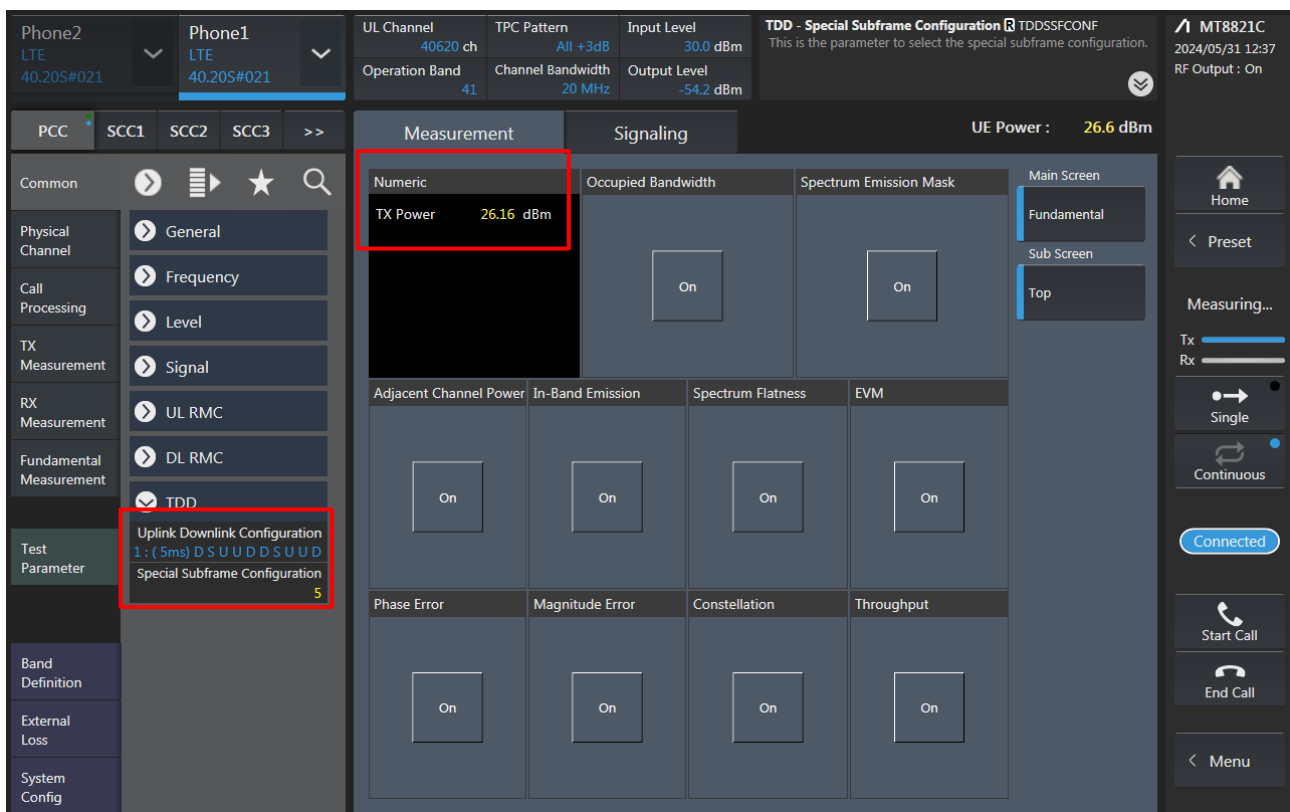
Common Frequency Level Signal UL RMC DL RMC TDD Uplink Downlink Configuration 0 : (5ms) D S U U U D S U U U Special Subframe Configuration 5

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

Main Screen Fundamental Sub Screen Top

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

<LTE TDD Power class 2>



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 12:37 RF Output : On

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

UE Power : 26.6 dBm

Measurement Signaling

Numeric TX Power 26.16 dBm

Occupied Bandwidth Spectrum Emission Mask

On On

Adjacent Channel Power In-Band Emission Spectrum Flatness EVM

On On On On

Phase Error Magnitude Error Constellation Throughput

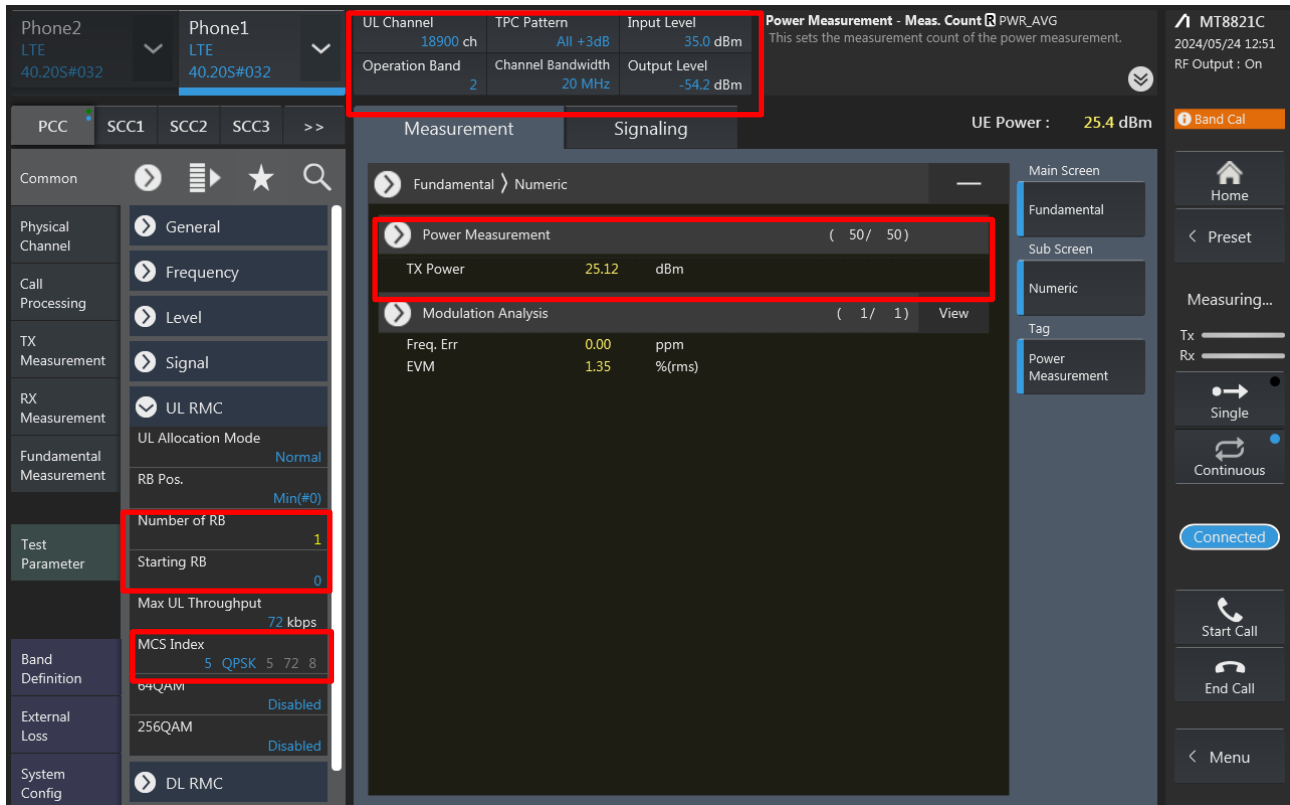
On On On On

Common General Frequency Level Signal UL RMC DL RMC TDD Uplink Downlink Configuration 1 : (5ms) D S U U U D D S U U U Special Subframe Configuration 5

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

Main Screen Fundamental Sub Screen Top

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



Phone2 LTE 40.20S#032 Phone1 LTE 40.20S#032

UL Channel 18900 ch TPC Pattern All +3dB Input Level 35.0 dBm
Operation Band 2 Channel Bandwidth 20 MHz Output Level -54.2 dBm

Power Measurement - Meas. Count PWR_AVG
This sets the measurement count of the power measurement.

MT8821C 2024/05/24 12:51 RF Output : On

PCC SCC1 SCC2 SCC3 >>

Measurement Signaling

UE Power : 25.4 dBm

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

UL Allocation Mode Normal

RB Pos. Min(#0)

Number of RB 1

Starting RB 0

Max UL Throughput 72 kbps

MCS Index 5 QPSK 5 72 8

DL RMC

Fundamental

Numeric

Power Measurement (50 / 50)

TX Power 25.12 dBm

Modulation Analysis (1 / 1) View

Freq. Err 0.00 ppm

EVM 1.35 %rms

Main Screen

Fundamental

Sub Screen

Numeric

Tag

Power Measurement

Home

Preset

Measuring...

Tx

Rx

Single

Continuous

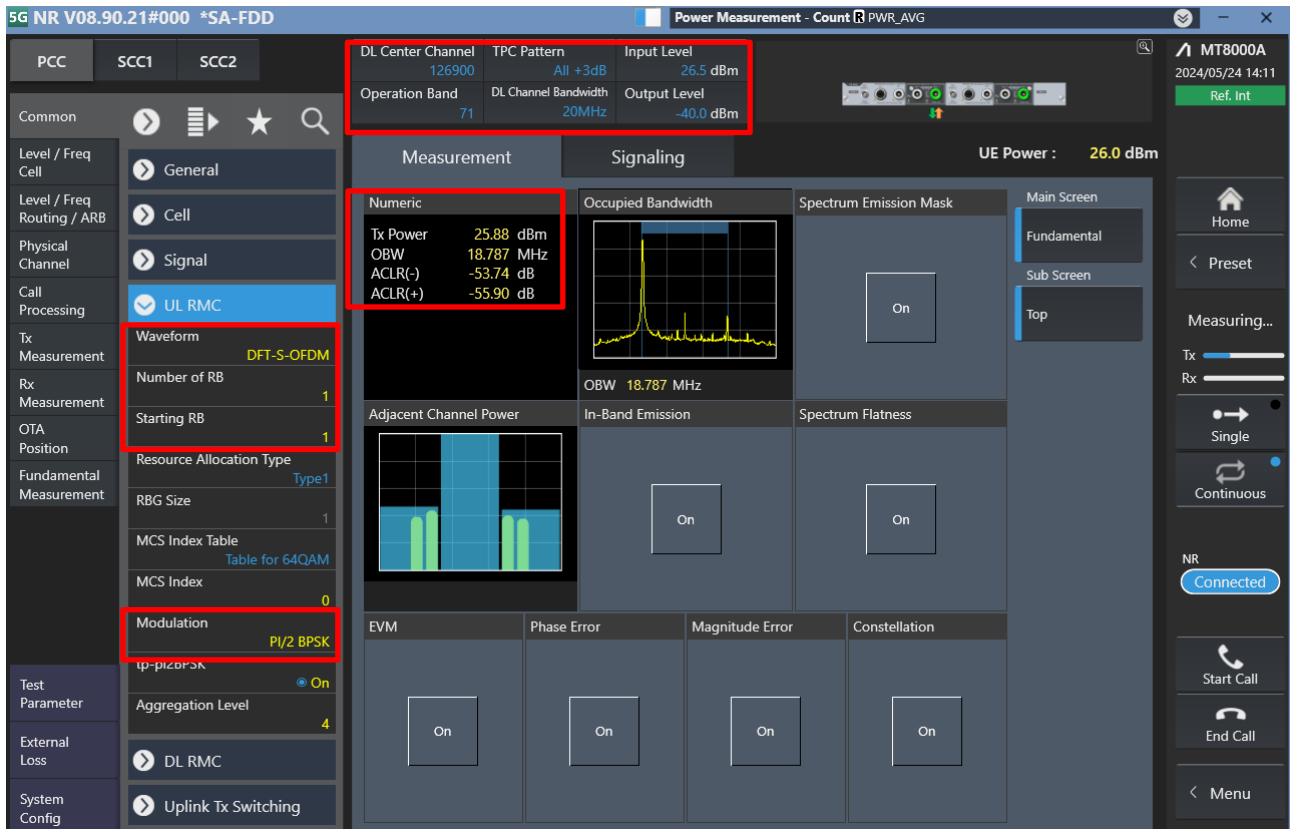
Connected

Start Call

End Call

Menu

<5G NR FR1>



5G NR V08.90.21#000 *SA-FDD

Power Measurement - Count PWR_AVG

MT8000A 2024/05/24 14:11 Ref. Int

PCC SCC1 SCC2

Common

Level / Freq Cell

Level / Freq Routing / ARB

Physical Channel

Call Processing

TX Measurement

RX Measurement

OTA Position

Fundamental Measurement

Test Parameter

External Loss

System Config

General

Cell

Signal

UL RMC

Waveform DFT-S-OFDM

Number of RB 1

Starting RB 1

Resource Allocation Type Type1

RBG Size 1

MCS Index Table Table for 64QAM

MCS Index 0

Modulation Pi/2 BPSK

Aggregation Level 4

DL RMC

Uplink Tx Switching

DL Center Channel 126900 TPC Pattern All +3dB Input Level 26.5 dBm
Operation Band 71 DL Channel Bandwidth 20MHz Output Level -40.0 dBm

Measurement Signaling

UE Power : 26.0 dBm

Numeric

Tx Power 25.88 dBm

OBW 18.787 MHz

ACLR(-) -53.74 dB

ACLR(+) -55.90 dB

Occupied Bandwidth

OBW 18.787 MHz

Adjacent Channel Power

In-Band Emission

Spectrum Flatness

Spectrum Emission Mask

On

EVM

Phase Error

Magnitude Error

Constellation

On

On

On

On

Main Screen

Fundamental

Sub Screen

Top

Home

Preset

Measuring...

Tx

Rx

Single

Continuous

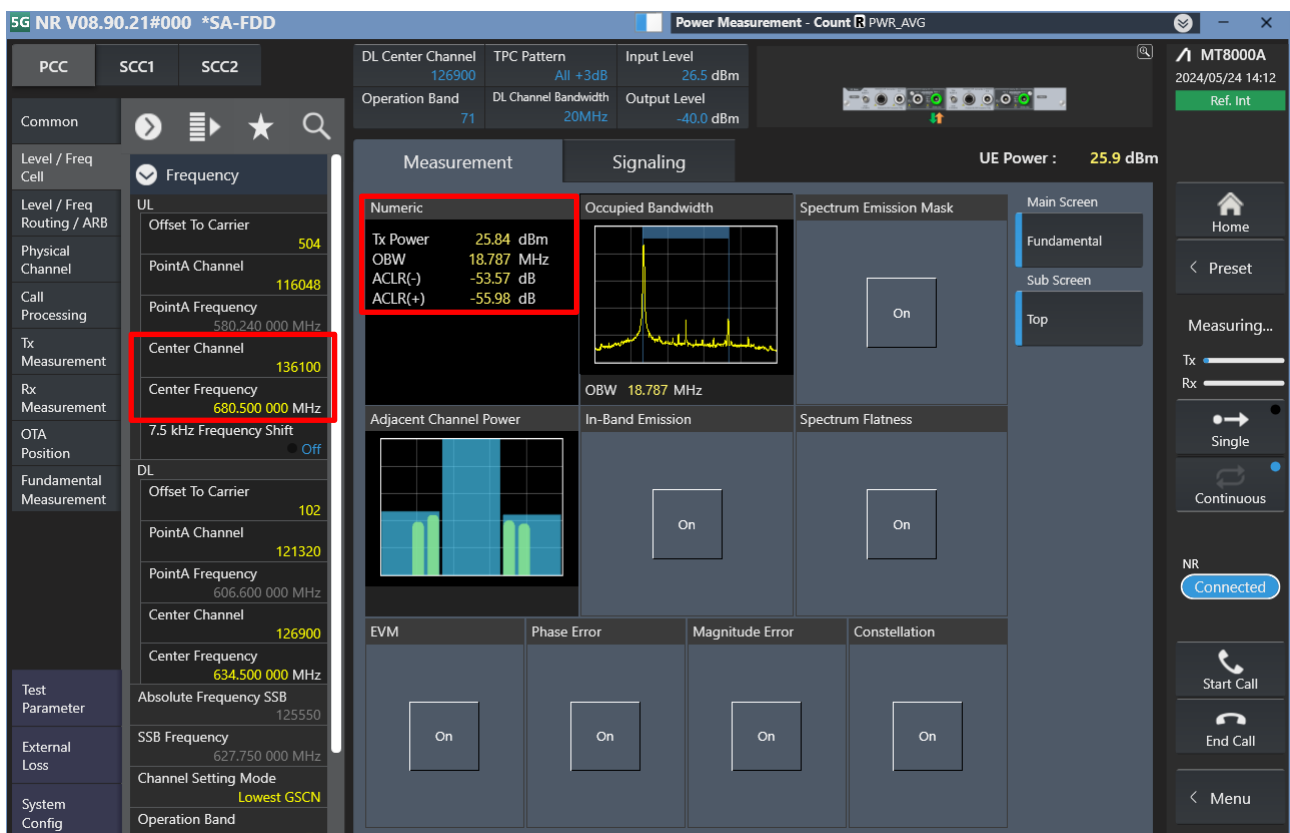
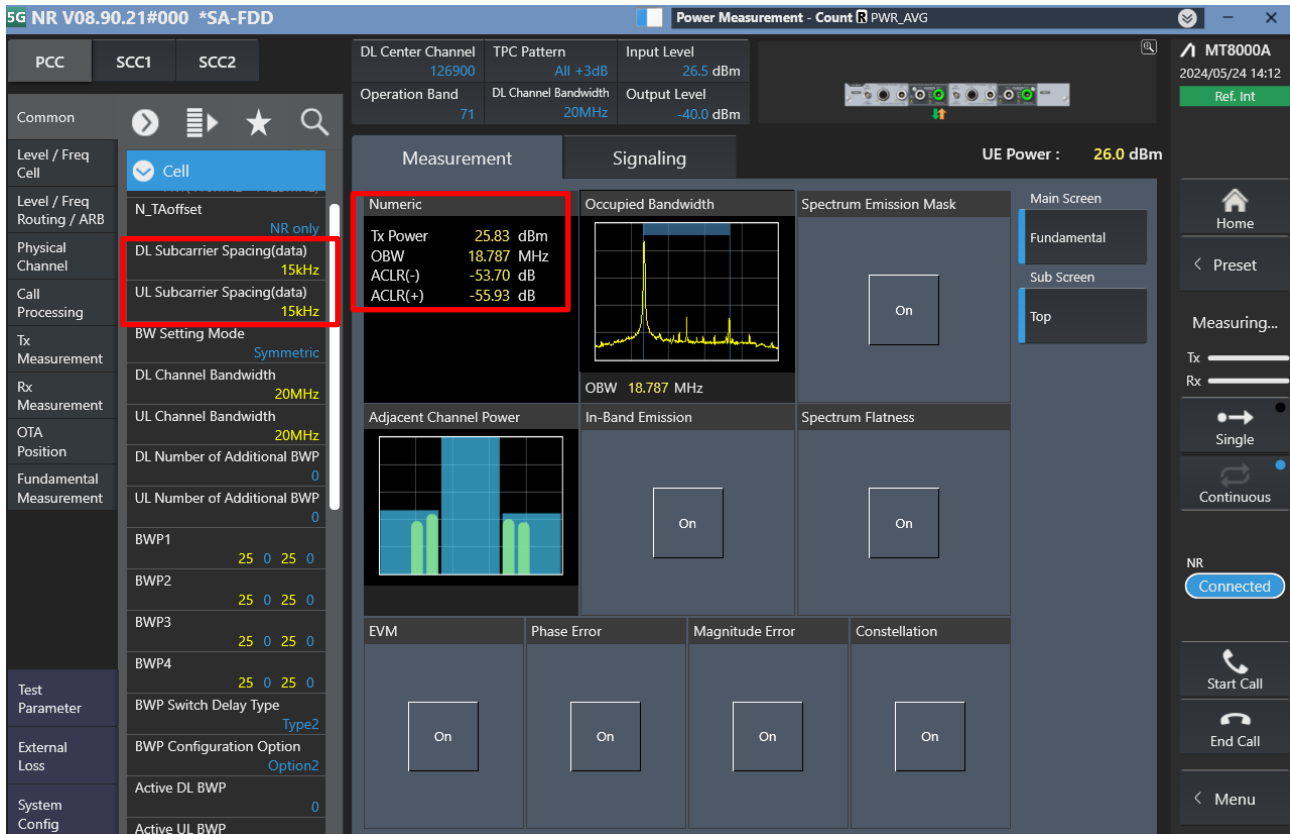
NR

Connected

Start Call

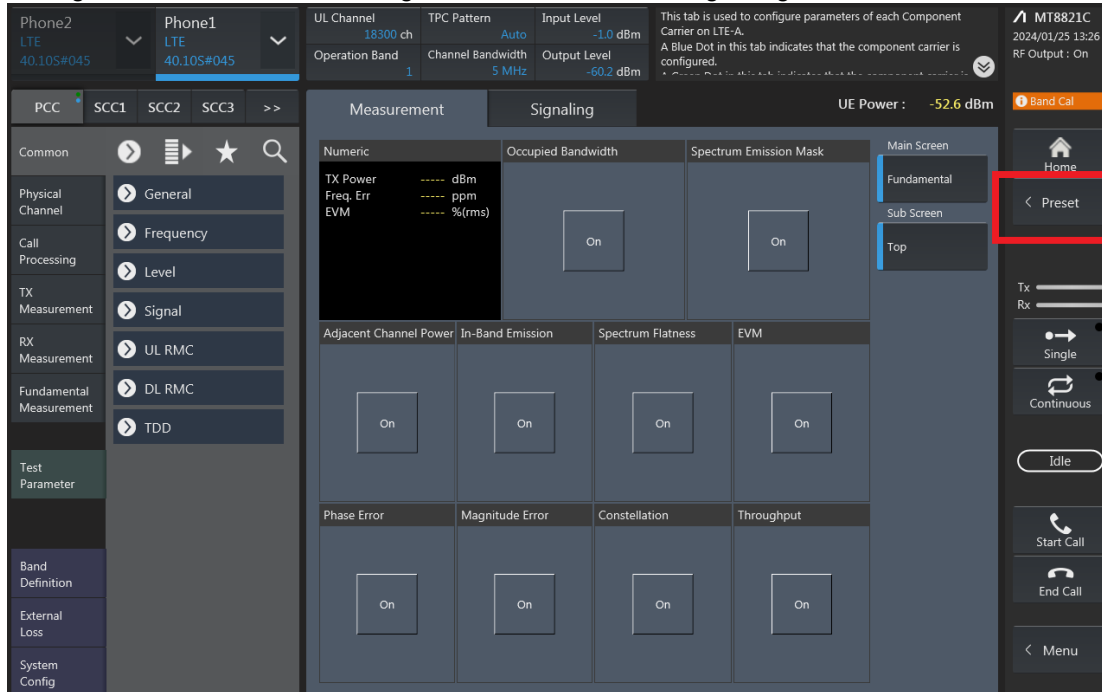
End Call

Menu



LTE Uplink and Downlink Carrier Aggregation configurations:

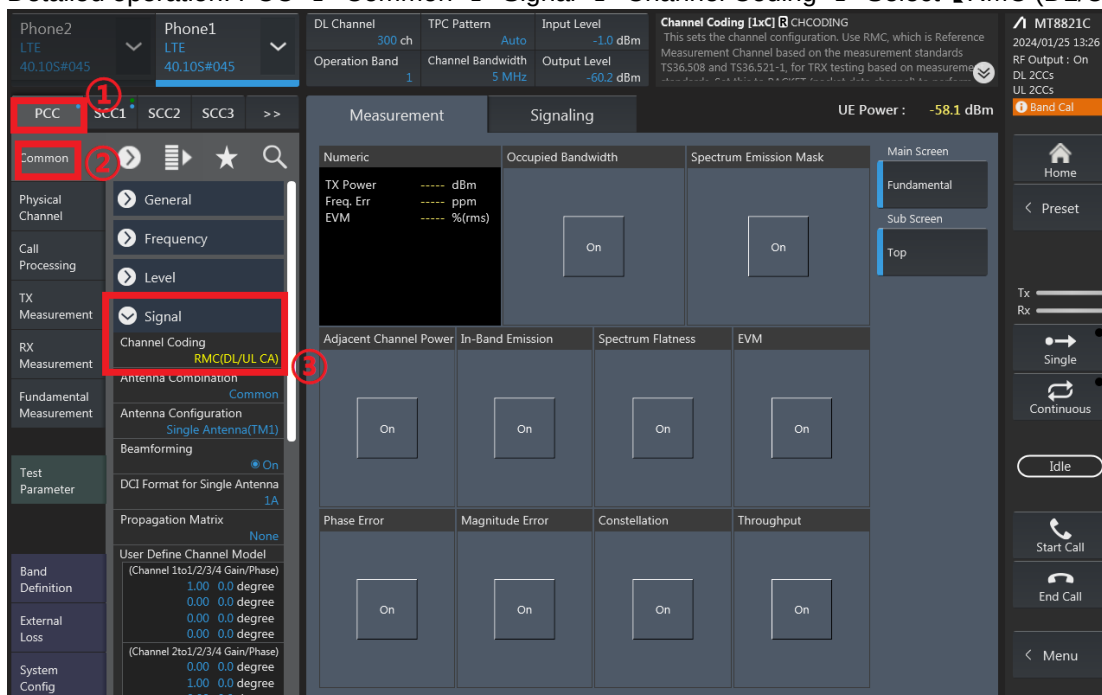
1. Change the Scenario in the Configuration of Phone1 LTE Signaling and Preset.



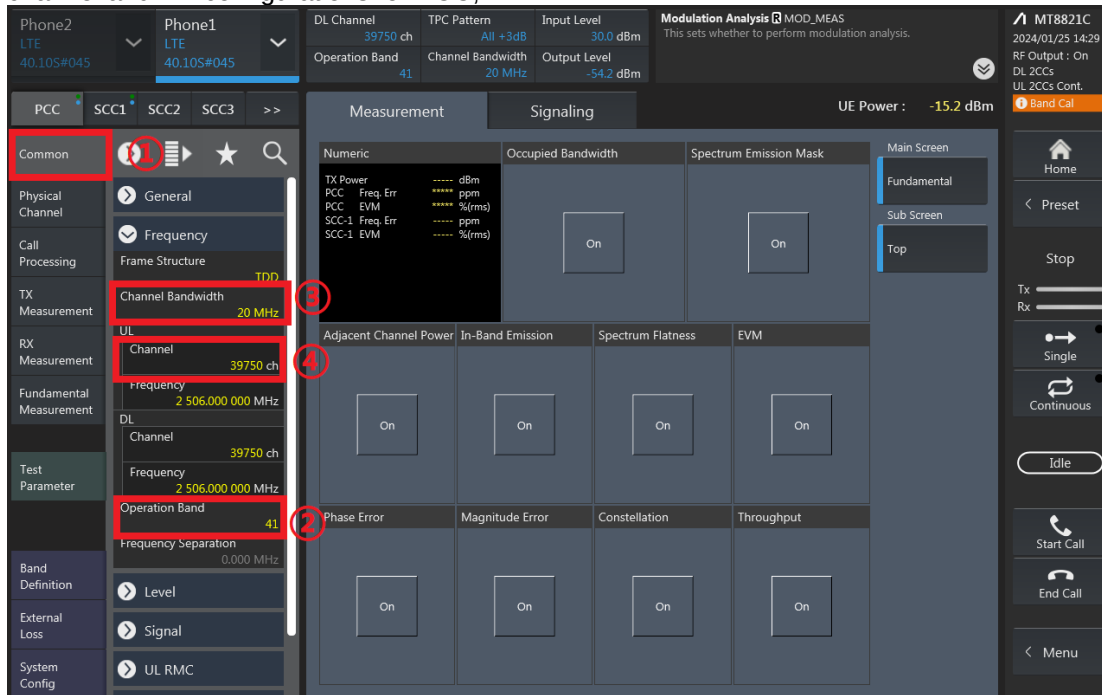
2. If Select "RMC (DL/UL CA)" for Uplink Carrier Aggregation;
If Select "RMC (DL CA)" for Downlink Carrier Aggregation.

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.

UE Power : -15.2 dBm

Measurement Signaling

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

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

Occupied Bandwidth

Spectrum Emission Mask

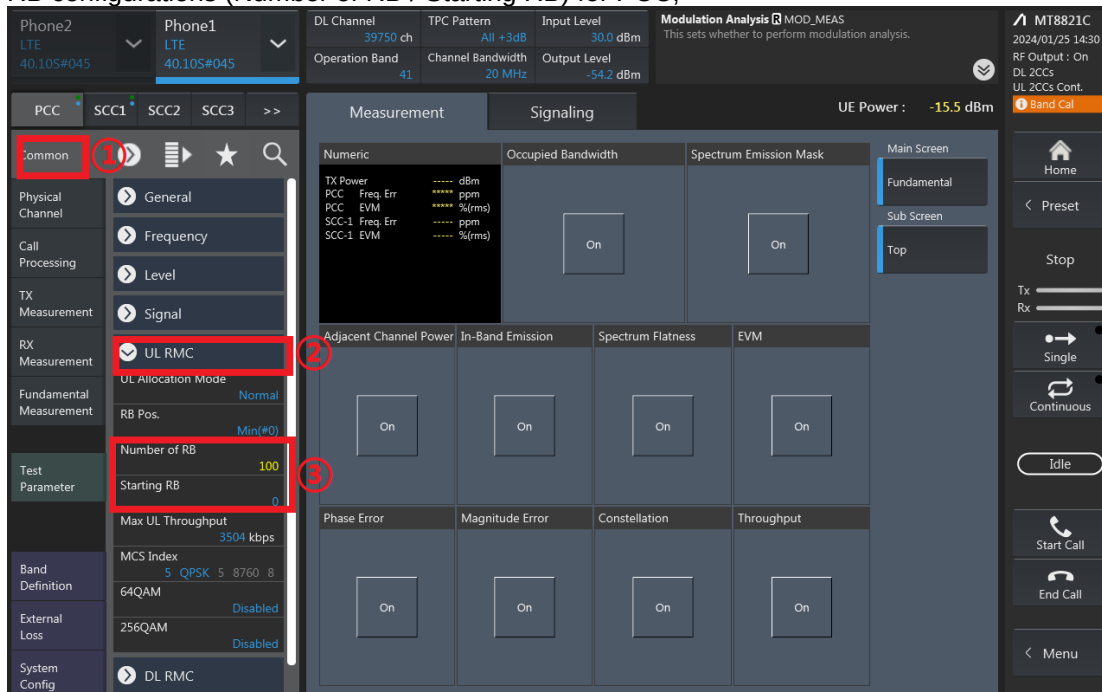
Main Screen Fundamental Sub Screen Top

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

Adjacent Channel Power In-Band Emission Spectrum Flatness EVM

Phase Error Magnitude Error Constellation Throughput

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.

UE Power : -15.5 dBm

Measurement Signaling

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

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

Occupied Bandwidth

Spectrum Emission Mask

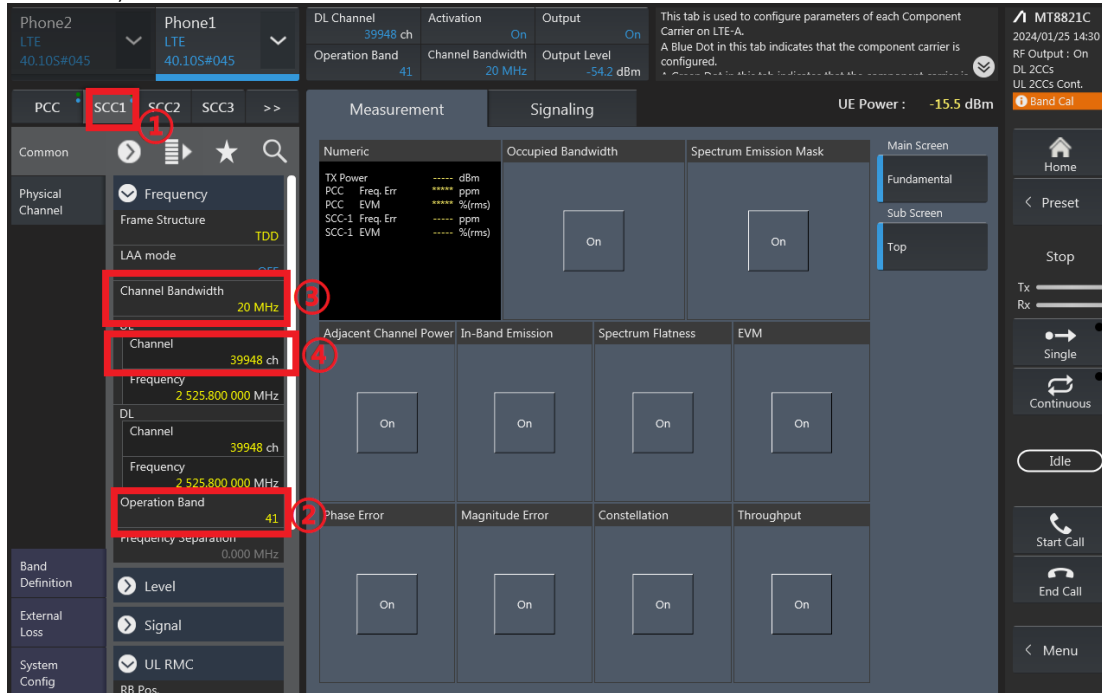
Main Screen Fundamental Sub Screen Top

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

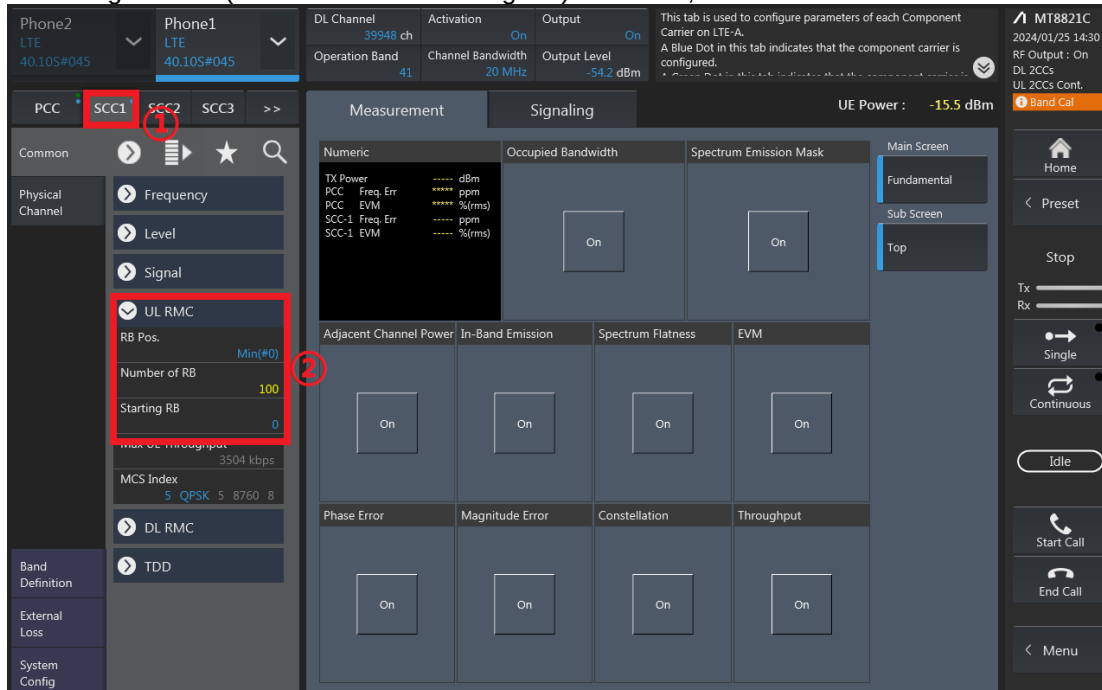
Adjacent Channel Power In-Band Emission Spectrum Flatness EVM

Phase Error Magnitude Error Constellation Throughput

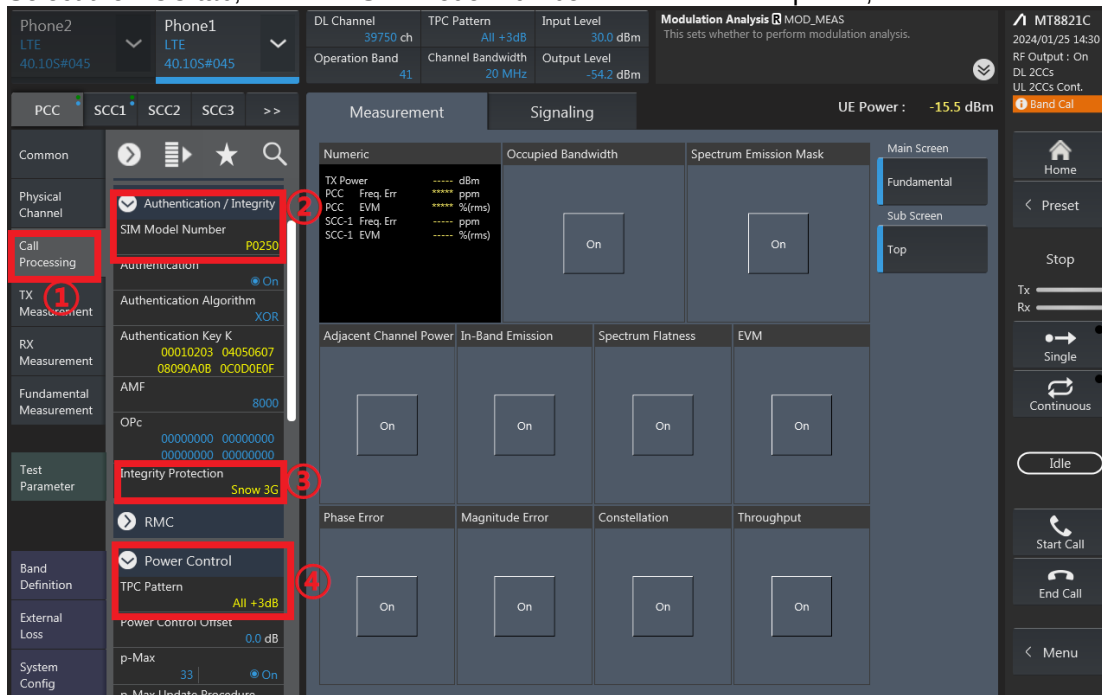
4. SCC parameter Settings: Select the SCC1 tab, Set operating band, BW, channel, and RB configurations for SCC1;



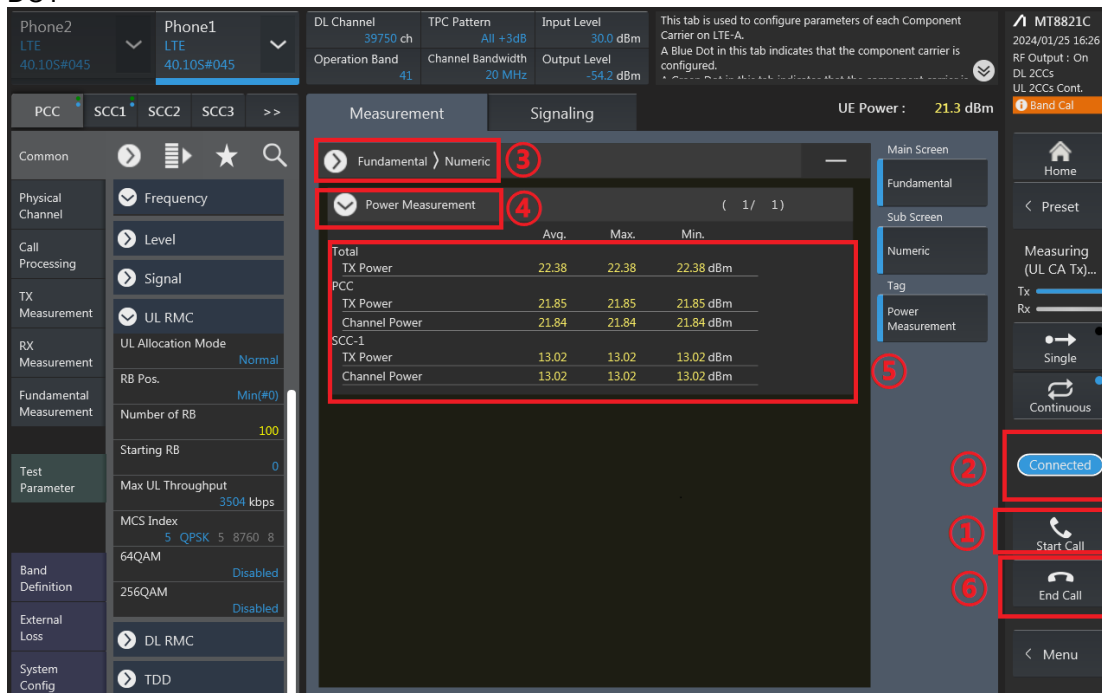
RB configurations (Number of RB / Starting RB) for SCC1;



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 DLCA test method is similar to intra-band ULCA.