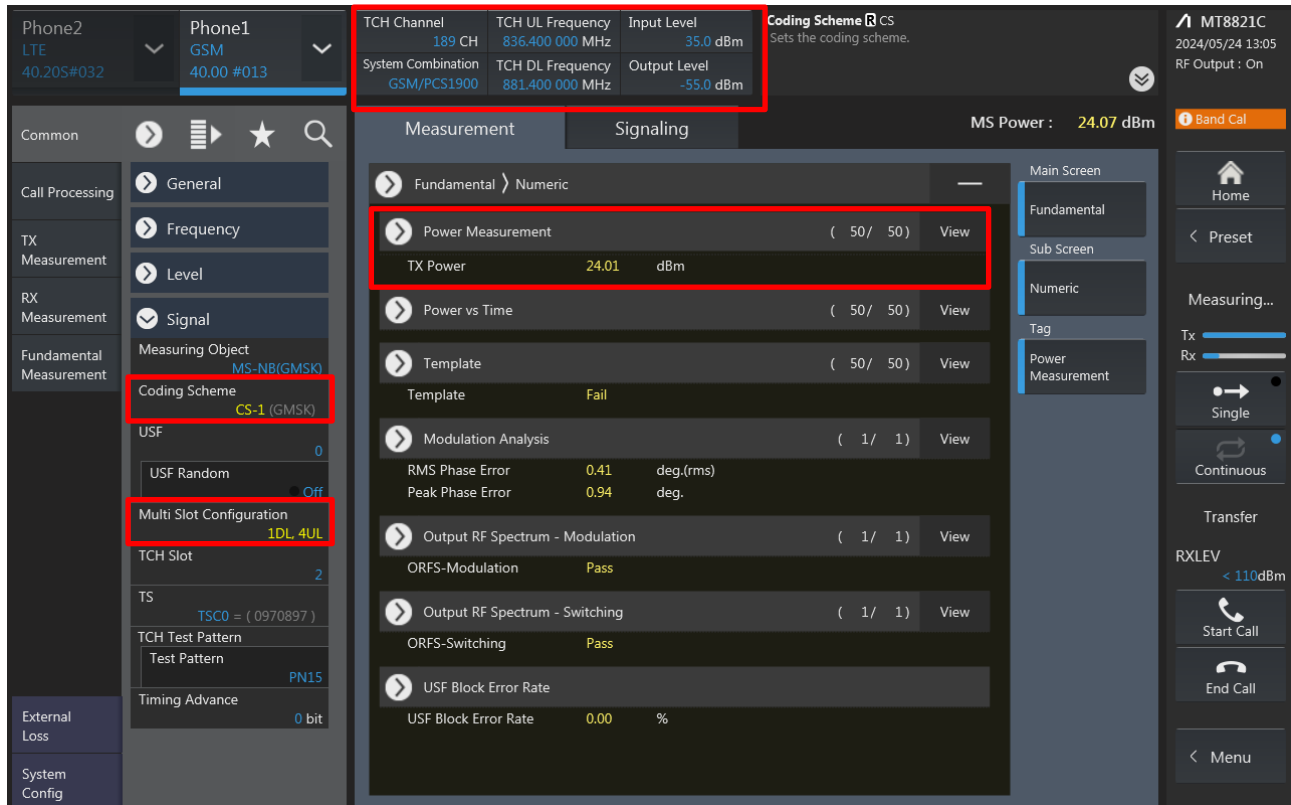


Power measurement connection diagram:

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.

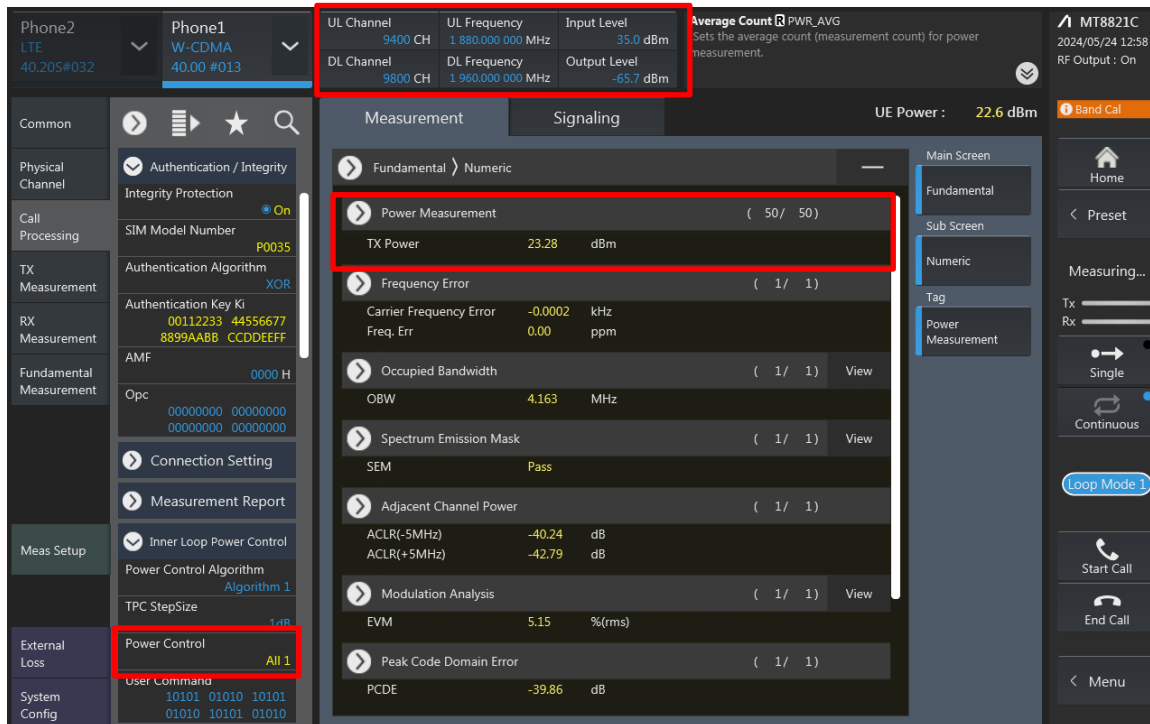
<GSM>



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

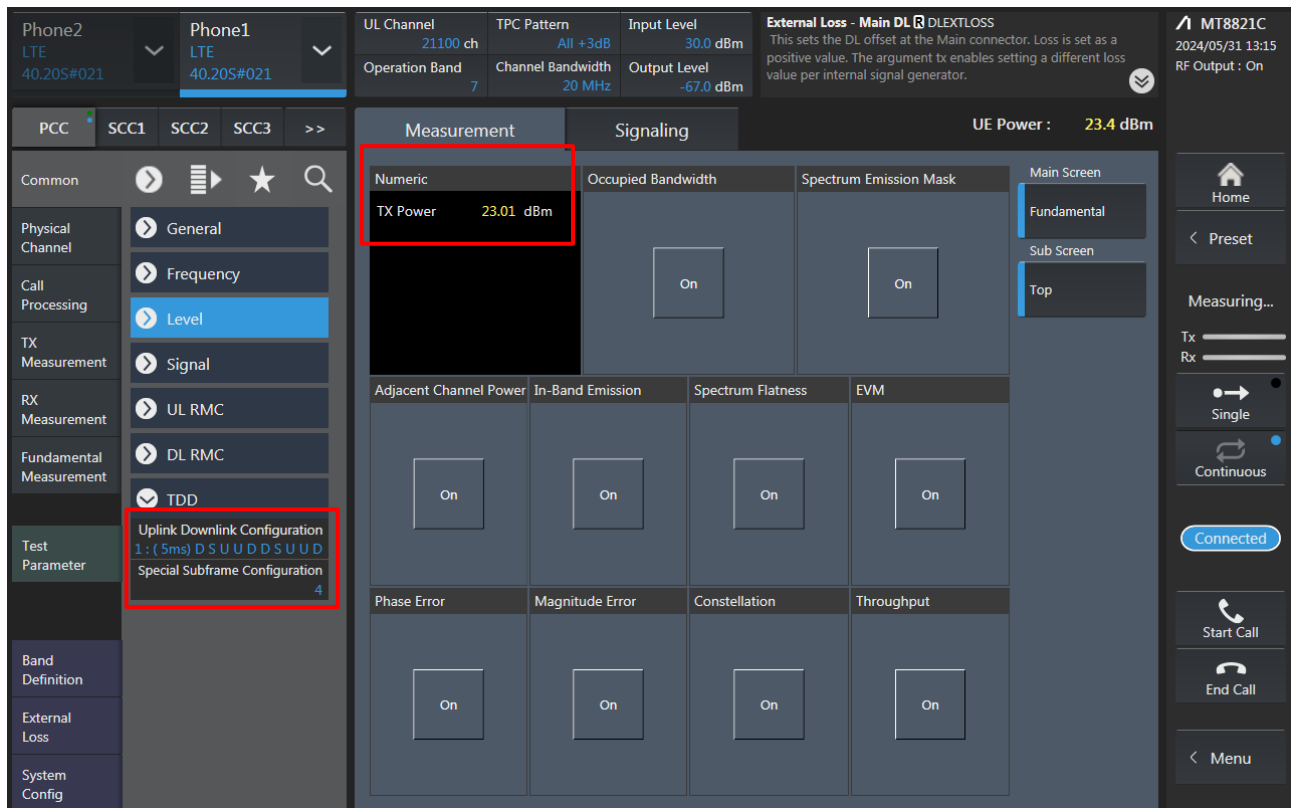
- Top Bar:** Shows Phone2 (LTE, 40.205#032) and Phone1 (GSM, 40.00 #013). The TCH Channel is 189 CH, TCH UL Frequency is 836.400 000 MHz, Input Level is 35.0 dBm, and TCH DL Frequency is 881.400 000 MHz. The Coding Scheme is CS.
- Left Sidebar:** Contains navigation options like Common, Call Processing, TX Measurement, RX Measurement, Fundamental Measurement, and External Loss. The 'Fundamental Measurement' section is expanded, showing 'Coding Scheme' as CS-1 (GMSK) and 'Multi Slot Configuration' as 1DL, 4UL.
- Main Area:** Displays 'Measurement' and 'Signaling' tabs. The 'Measurement' tab is active, showing 'Fundamental' and 'Numeric' views. The 'Power Measurement' section shows 'TX Power' as 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 'MT8821C' with a timestamp of 2024/05/24 13:05 and 'RF Output : On'. It also includes a 'Band Cal' button and a 'Main Screen' section with 'Fundamental', 'Sub Screen', 'Numeric', and 'Tag' options.

<WCDMA>



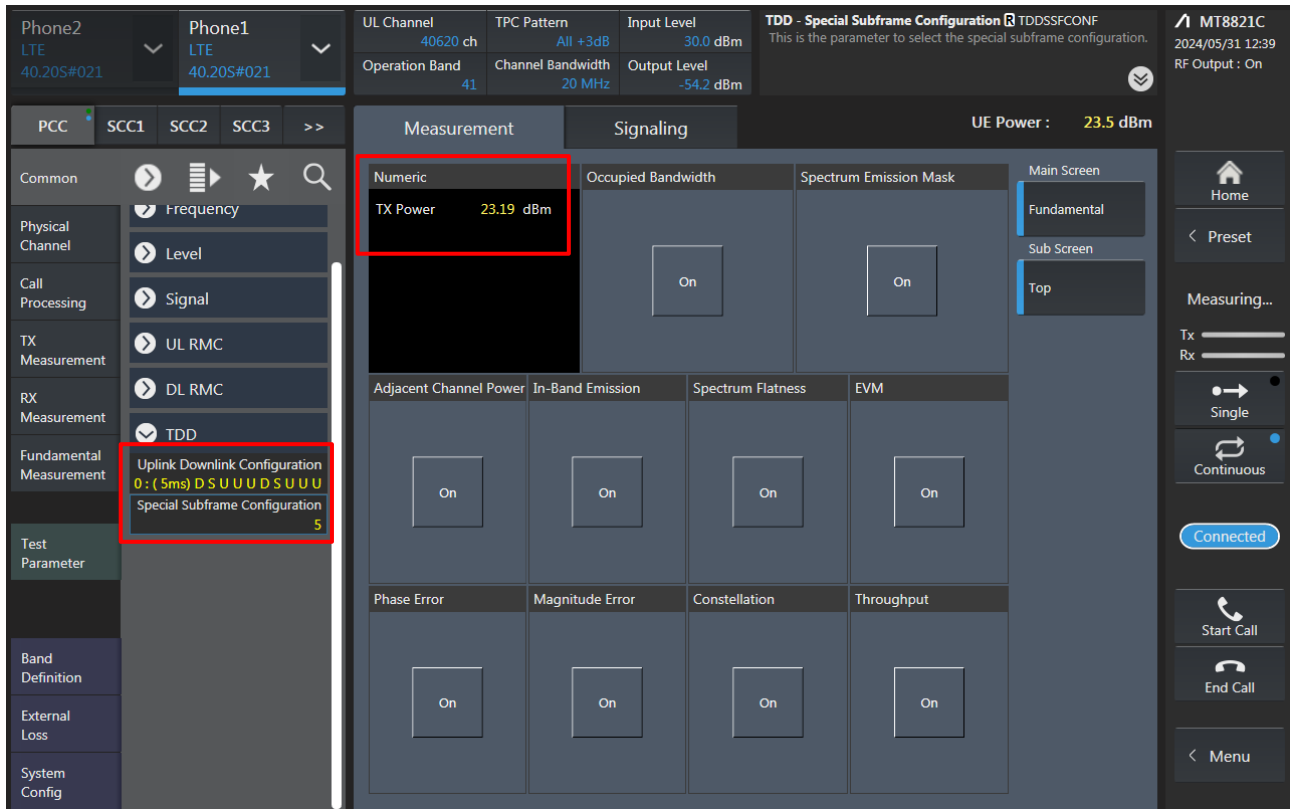
The screenshot shows the WCDMA measurement interface. The top bar displays 'Phone2 LTE 40.20S#032' and 'Phone1 W-CDMA 40.00 #013'. The 'Measurement' tab is active, showing 'Fundamental' and 'Numeric' views. The 'Power Measurement' section is highlighted with a red box, showing 'TX Power' at 23.28 dBm. 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 'Main Screen' shows 'Fundamental' and 'Sub Screen' views. The 'Tag' shows 'Power Measurement'. The 'Loop Mode' is set to 'Loop Mode 1'. The 'Start Call' and 'End Call' buttons are visible on the right side.

<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 'Main Screen' shows 'Fundamental' and 'Sub Screen' views. The 'Tag' shows 'Power Measurement'. The 'Loop Mode' is set to 'Loop Mode 1'. The 'Start Call' and 'End Call' buttons are visible on the right side.

<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

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

Common Frequency Level Signal UL RMC DL RMC TDD

Physical Channel

Call Processing

TX Measurement

RX Measurement

Fundamental Measurement

Test Parameter

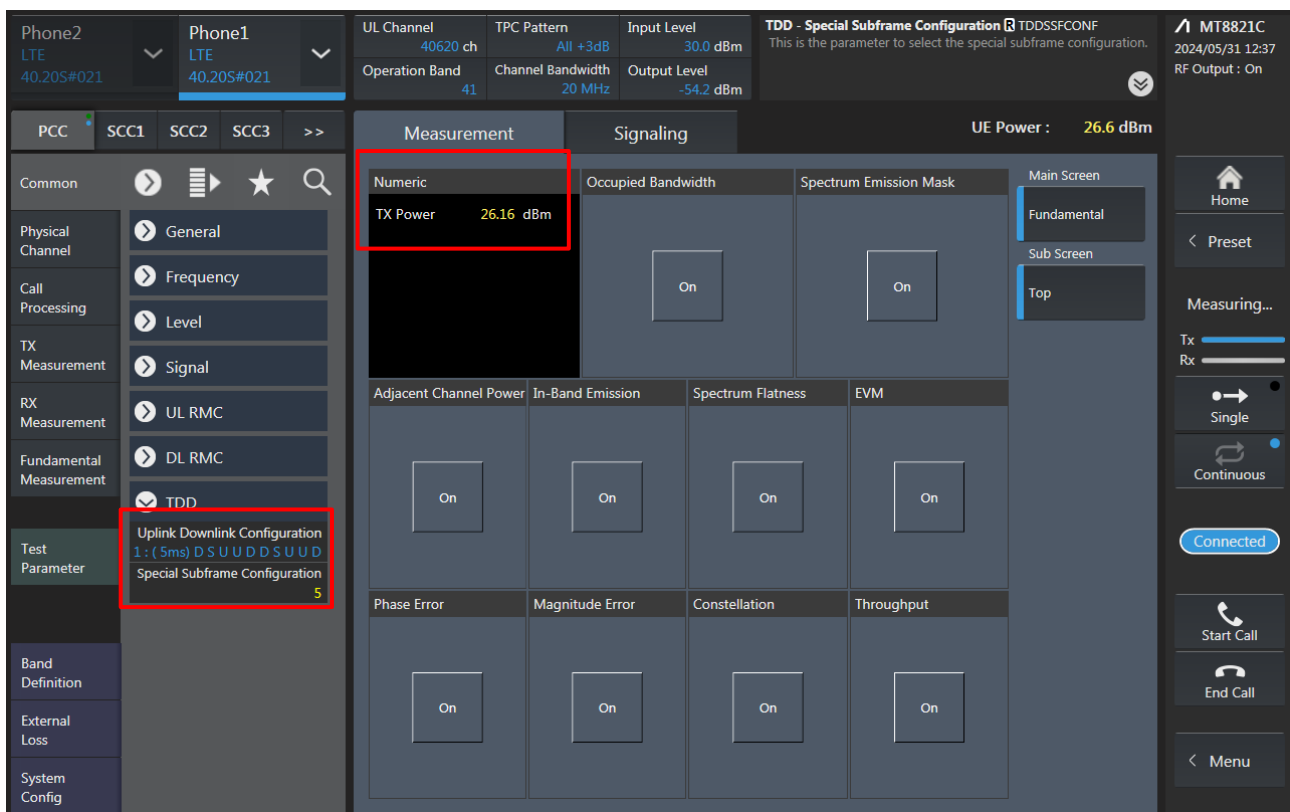
Band Definition

External Loss

System Config

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

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

Common General Frequency Level Signal UL RMC DL RMC TDD

Physical Channel

Call Processing

TX Measurement

RX Measurement

Fundamental Measurement

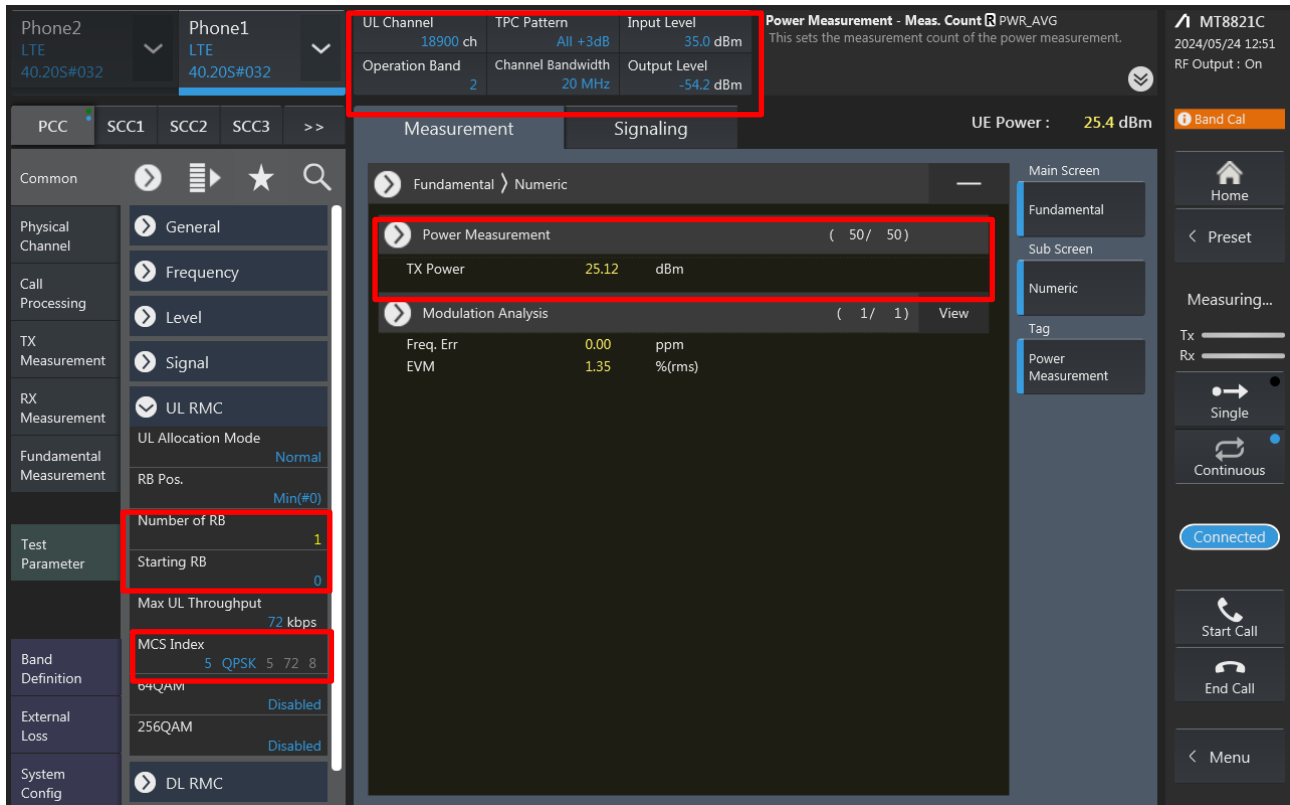
Test Parameter

Band Definition

External Loss

System Config

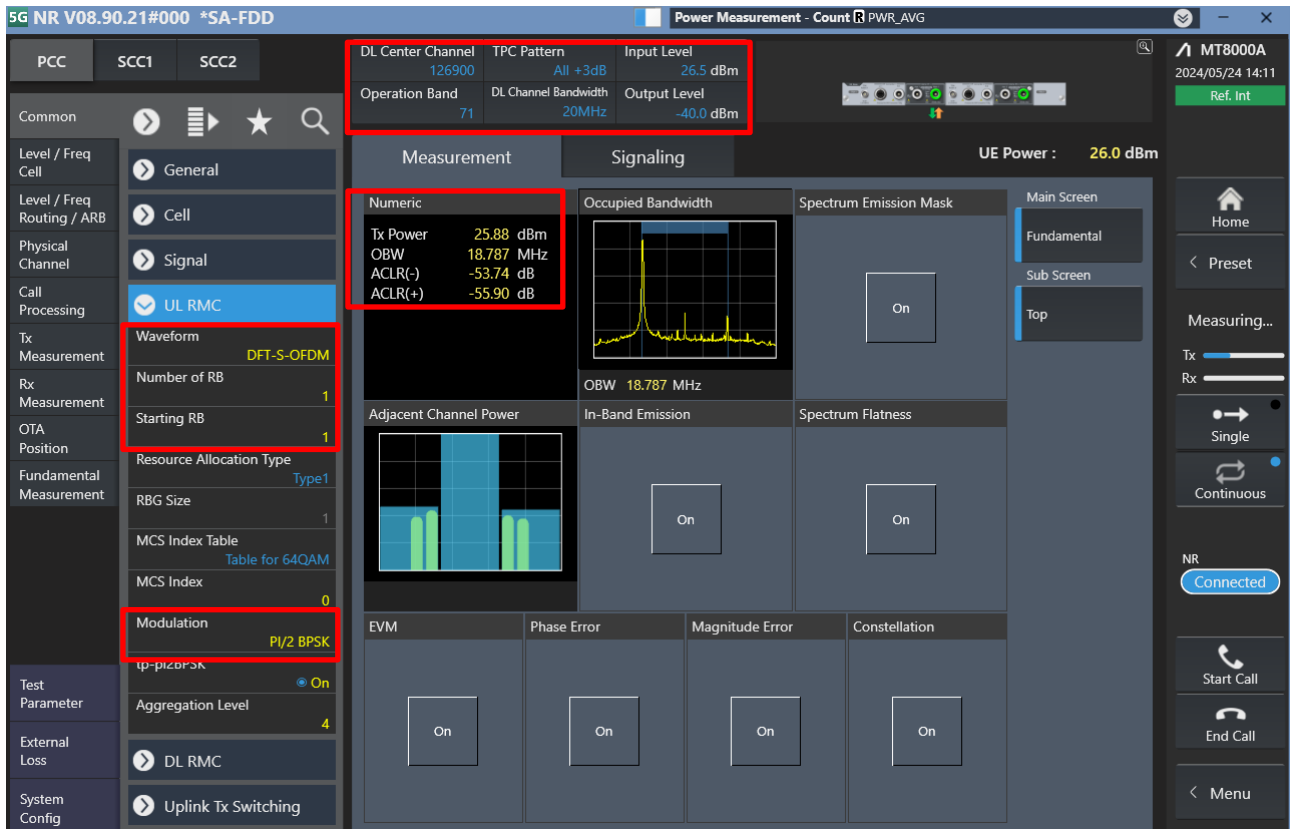
Home Preset Measuring... Tx Rx Single Continuous Connected Start Call End Call Menu



The screenshot displays the LTE test interface with the following configuration and measurement data:

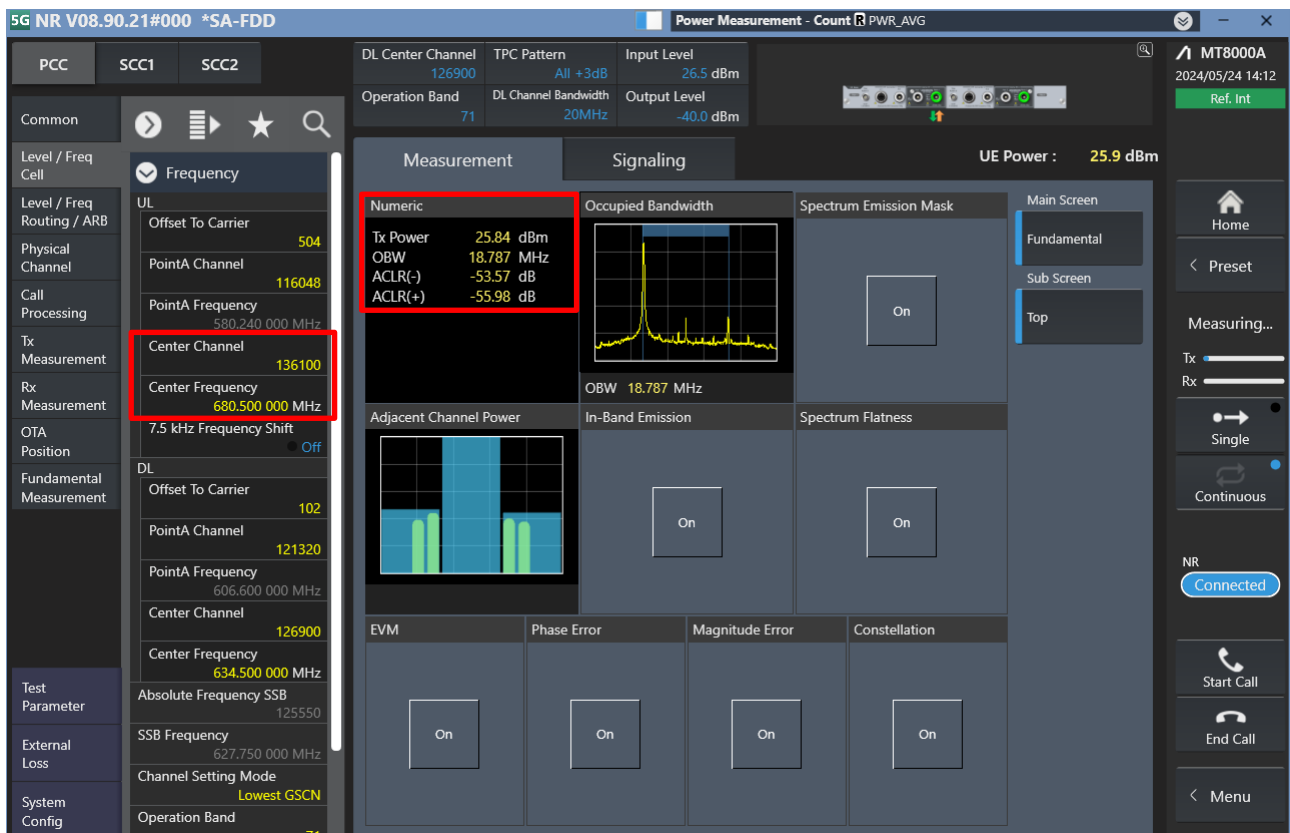
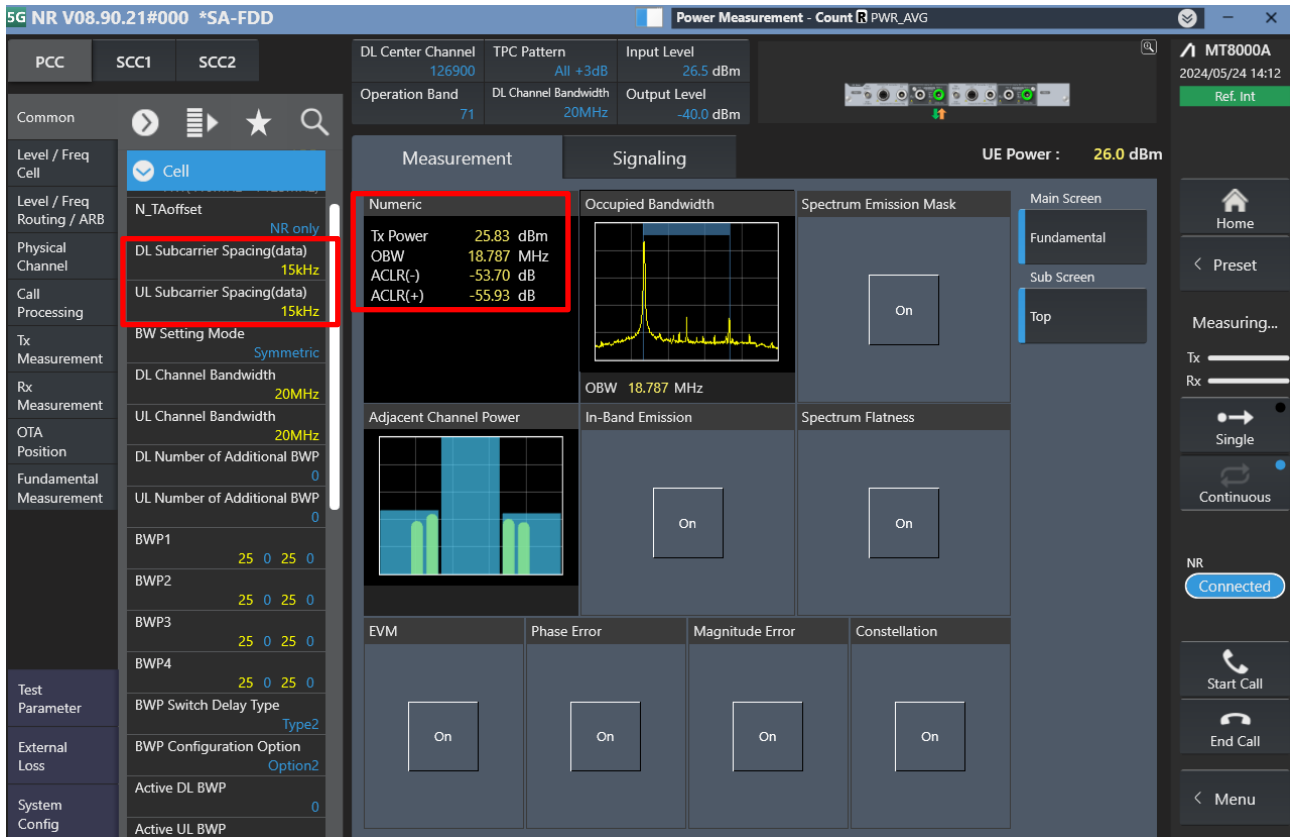
- Phone Configuration:** Phone1 (LTE, 40.20S#032) and Phone2 (LTE, 40.20S#032).
- Measurement Parameters (UL Channel):**
 - UL Channel: 18900 ch
 - TPC Pattern: All +3dB
 - Input Level: 35.0 dBm
 - Operation Band: 2
 - Channel Bandwidth: 20 MHz
 - Output Level: -54.2 dBm
- Measurement Results:**
 - TX Power: 25.12 dBm
 - Modulation Analysis: Freq. Err: 0.00 ppm, EVM: 1.35 % (rms)
- Test Parameters:**
 - Number of RB: 1
 - Starting RB: 0
 - MCS Index: 5 QPSK 5 72 8
- UE Power:** 25.4 dBm
- Band Cal:** Connected

<5G NR FR1>



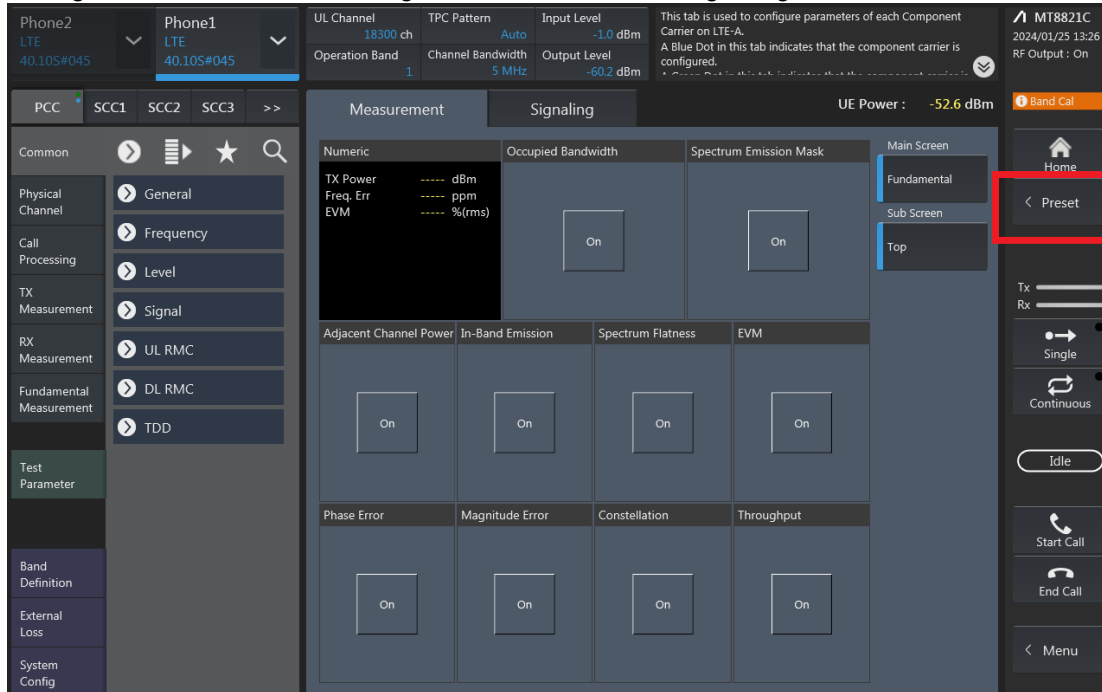
The screenshot displays the 5G NR FR1 test interface with the following configuration and measurement data:

- 5G NR Configuration:** 5G NR V08.90.21#000 *SA-FDD
- Measurement Parameters (DL Center Channel):**
 - 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 Results:**
 - Tx Power: 25.88 dBm
 - OBW: 18.787 MHz
 - ACL(-): -53.74 dB
 - ACL(+): -55.90 dB
- Test Parameters:**
 - Waveform: DFT-S-OFDM
 - Number of RB: 1
 - Starting RB: 1
 - Modulation: PI/2 BPSK
- UE Power:** 26.0 dBm
- Band Cal:** Connected



LTE Uplink and Downlink Carrier Aggregation configurations:

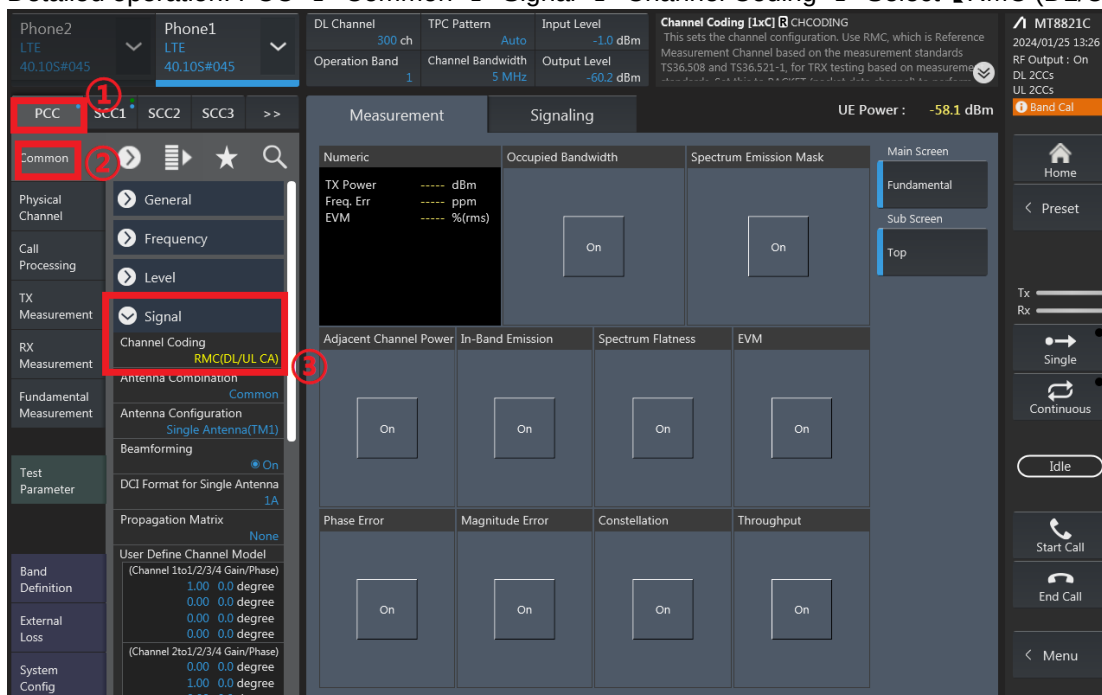
1. Change the Scenario in the Configuration of Phone1 LTE Signaling and Preset.



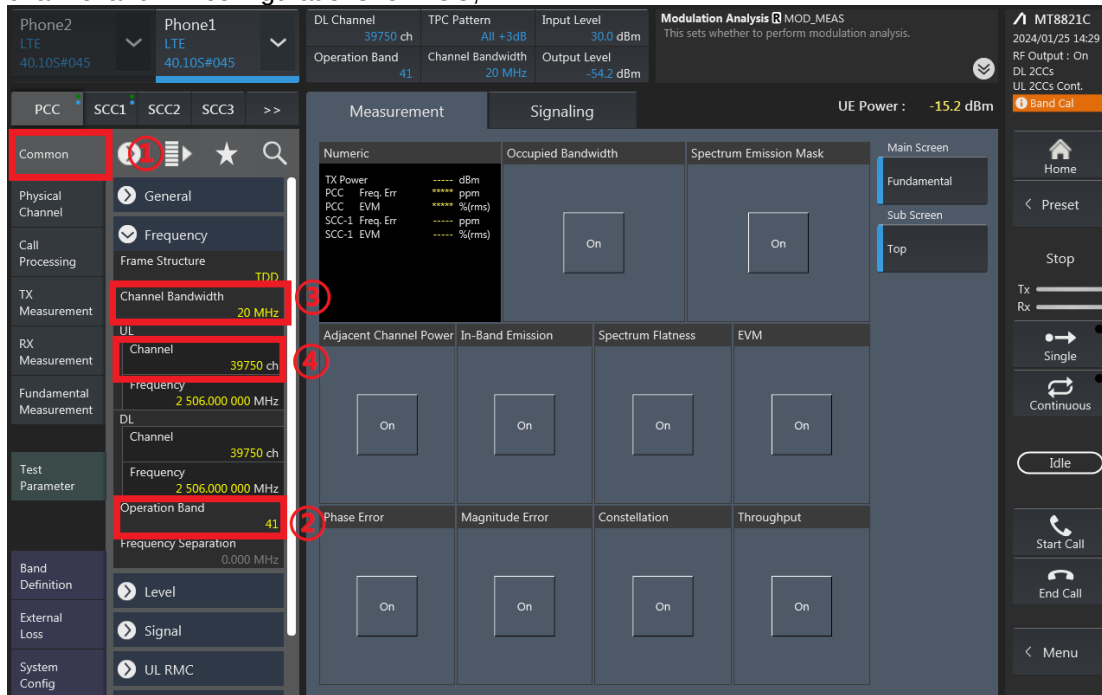
2. If Select "RMC (DL/UL CA)" for Uplink Carrier Aggregation;
If Select "RMC (DL CA)" for Downlink Carrier Aggregation.

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 >>

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

Measurement Signaling

UE Power : -15.2 dBm

Numeric Occupied Bandwidth Spectrum Emission Mask

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

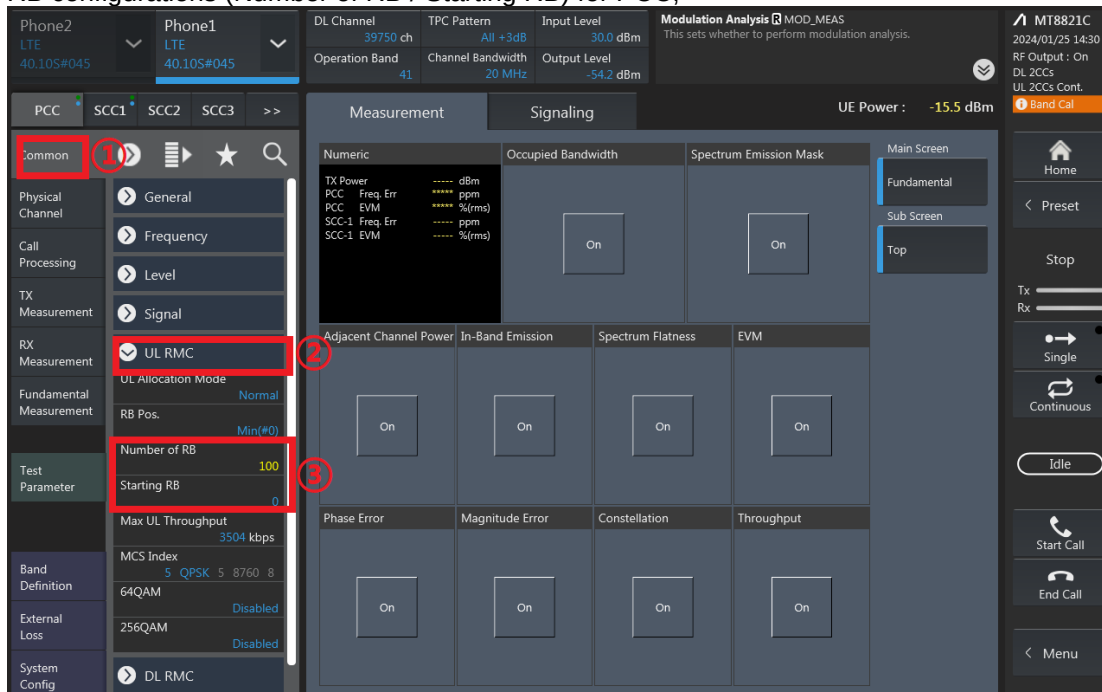
Adjacent Channel Power In-Band Emission Spectrum Flatness EVM

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 >>

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

Measurement Signaling

UE Power : -15.5 dBm

Numeric Occupied Bandwidth Spectrum Emission Mask

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

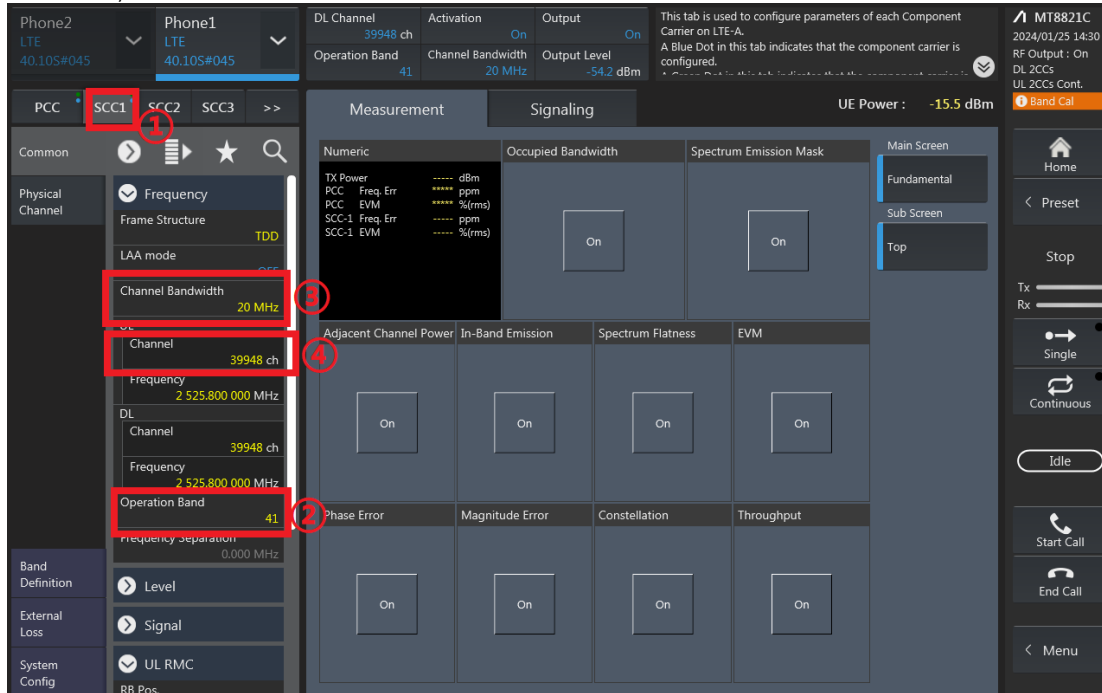
Adjacent Channel Power In-Band Emission Spectrum Flatness EVM

Phase Error Magnitude Error Constellation Throughput

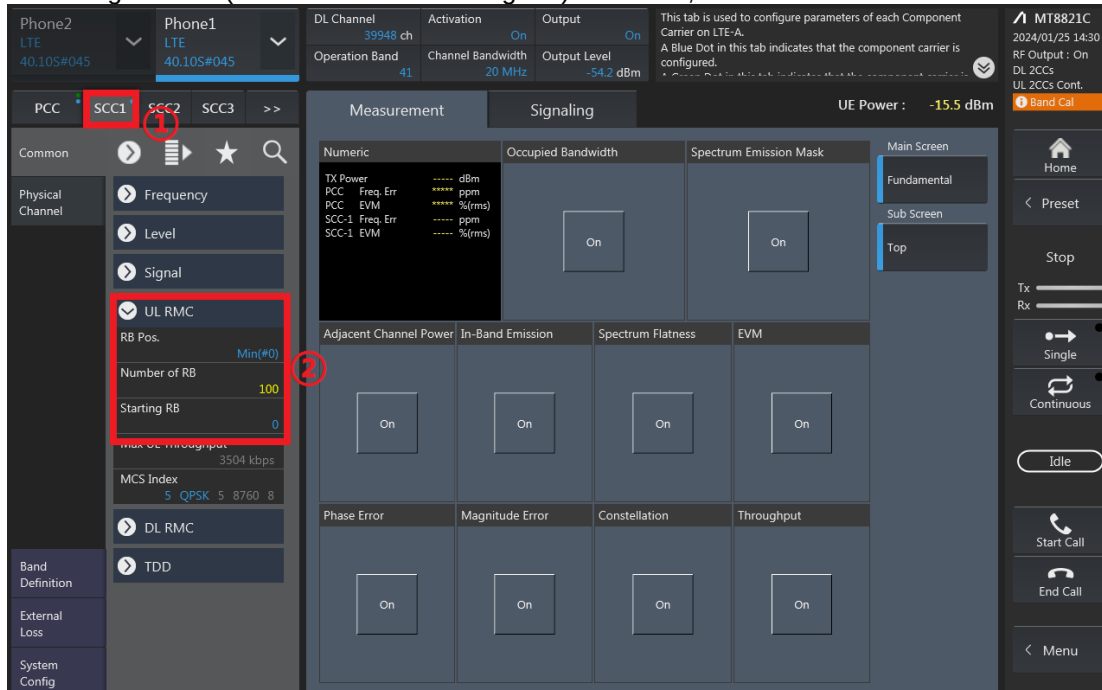
Main Screen Fundamental Sub Screen Top

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

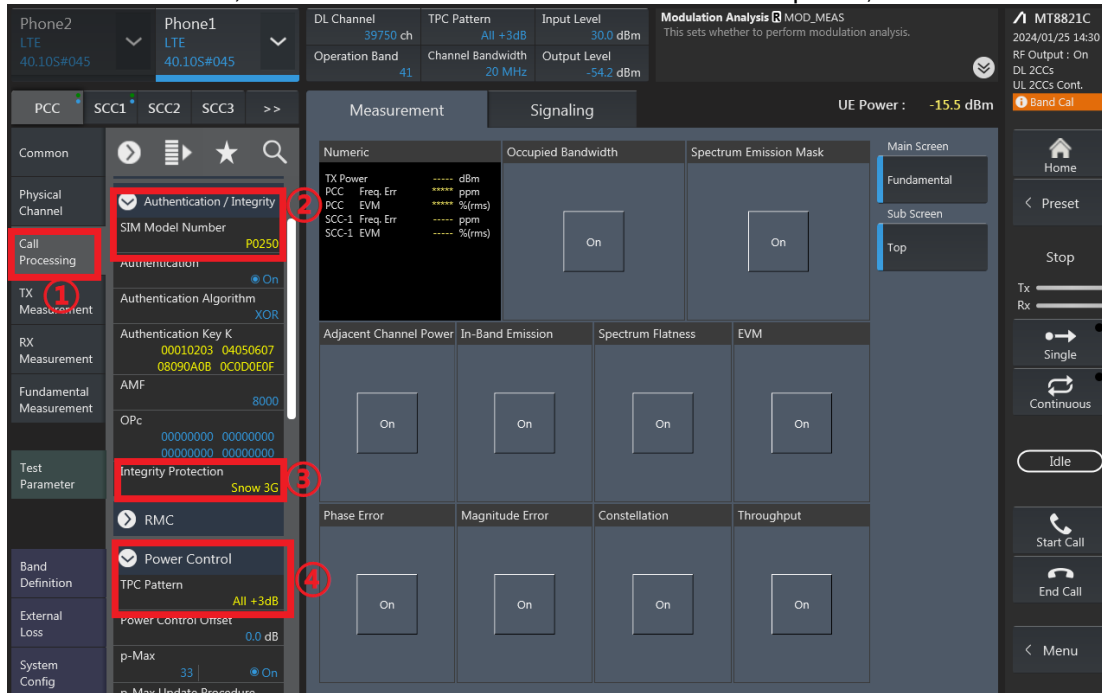
4. SCC parameter Settings: Select the SCC1 tab, Set operating band, BW, channel, and RB configurations for SCC1;



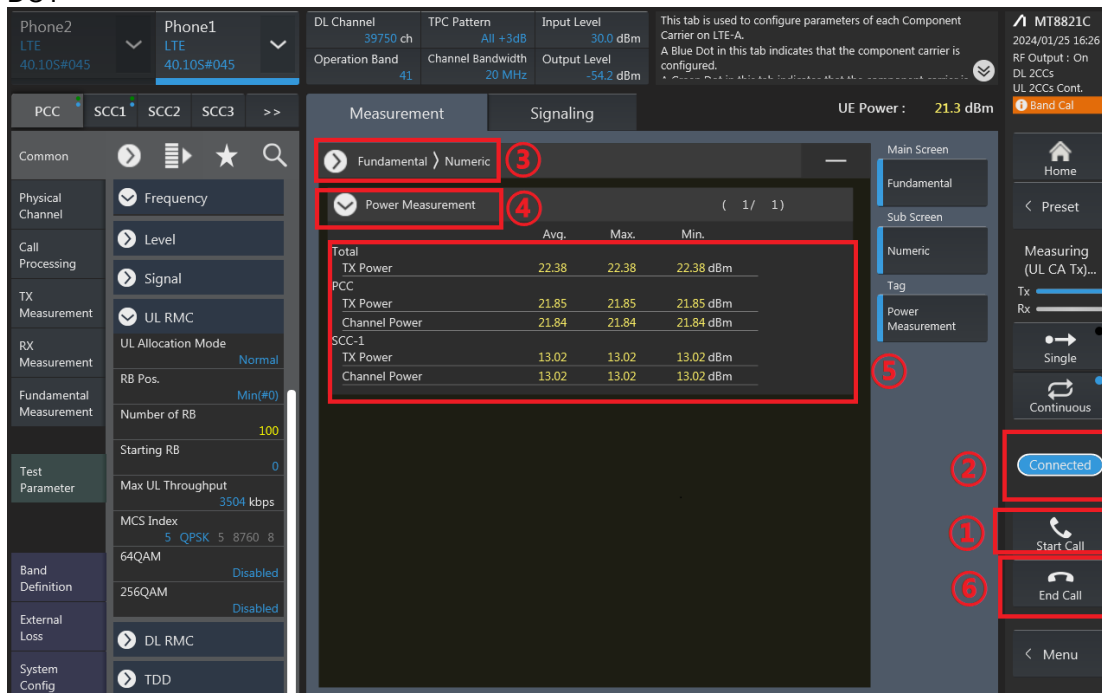
RB configurations (Number of RB / Starting RB) for SCC1;



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



	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.