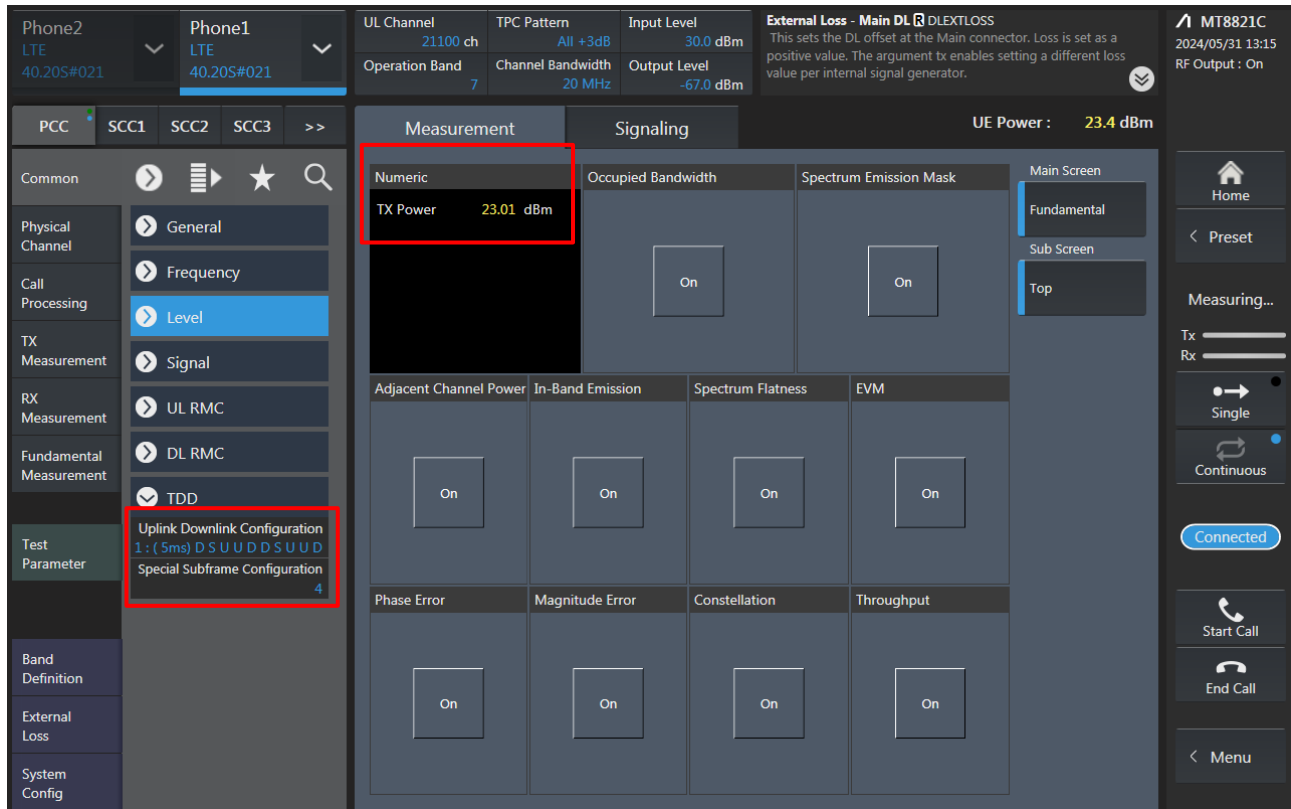


Power measurement connection diagram:

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.

<LTE>



Phone1 LTE 40.20S#021

UL Channel 21100 ch

TPC Pattern All +3dB

Input Level 30.0 dBm

External Loss - Main DL DLEXTLOSS

Operation Band 7

Channel Bandwidth 20 MHz

Output Level -67.0 dBm

MT8821C

2024/05/31 13:15

RF Output : On

UE Power : 23.4 dBm

Measurement

Numeric

TX Power 23.01 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

Test Parameter

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

Special Subframe Configuration 4

Connected

Start Call

End Call

Menu

Phone2
LTE
40.20S#021

Phone1
LTE
40.20S#021

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

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

Main Screen

Fundamental

Sub Screen

Top

Connected

Start Call

End Call

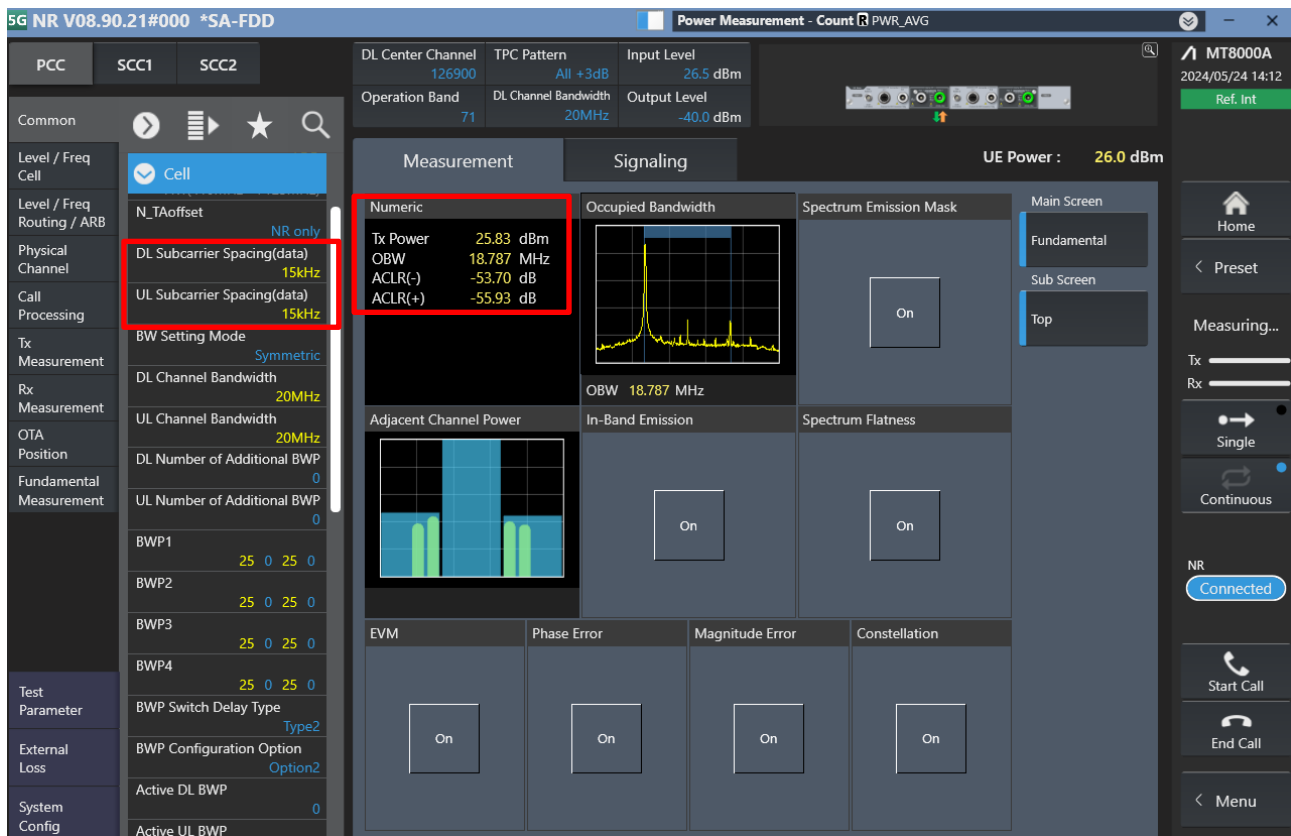
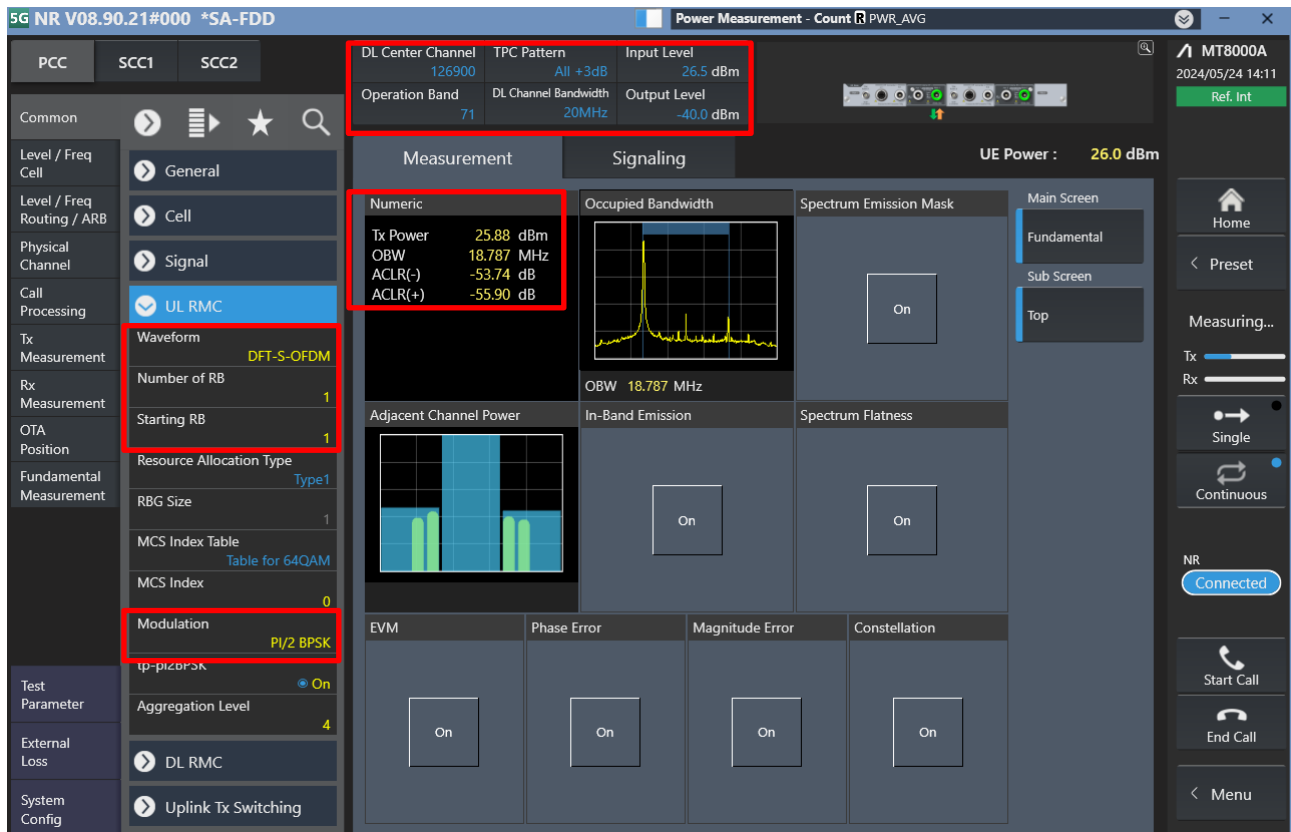
Menu

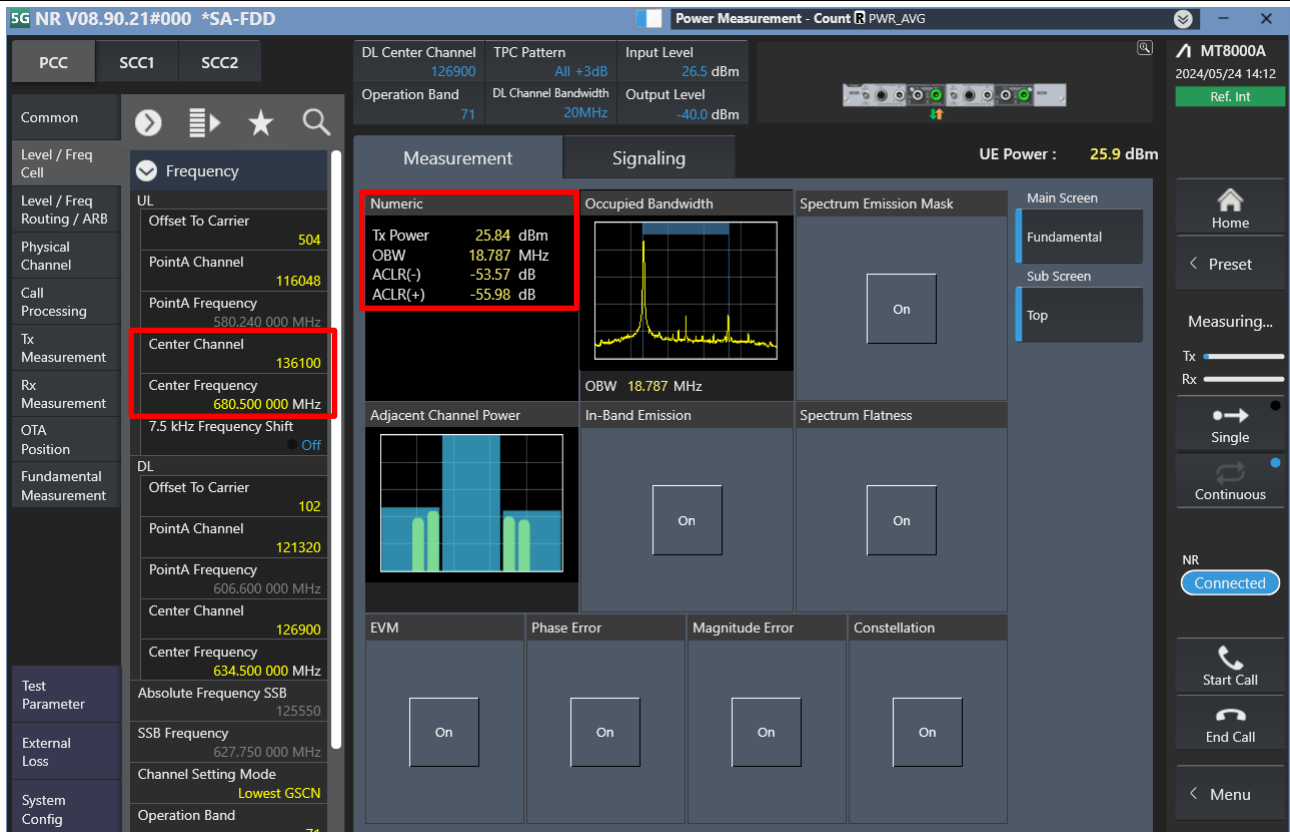
MT8821C

2024/05/31 12:39

RF Output : On

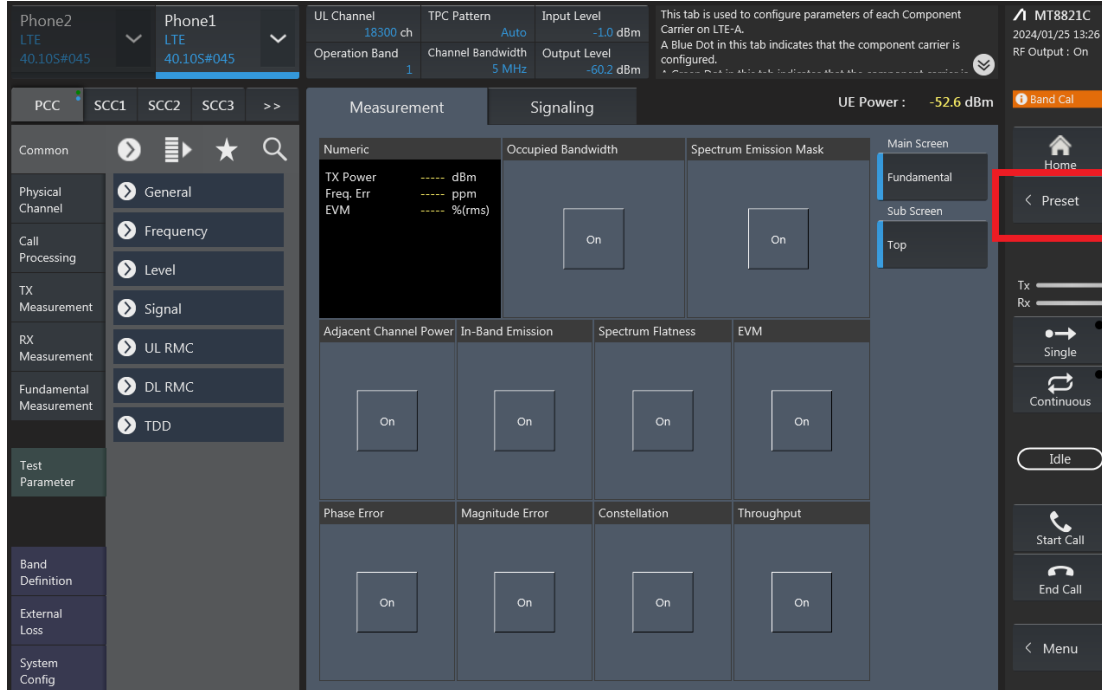
<5G NR FR1>





LTE Uplink and Downlink Carrier Aggregation configurations:

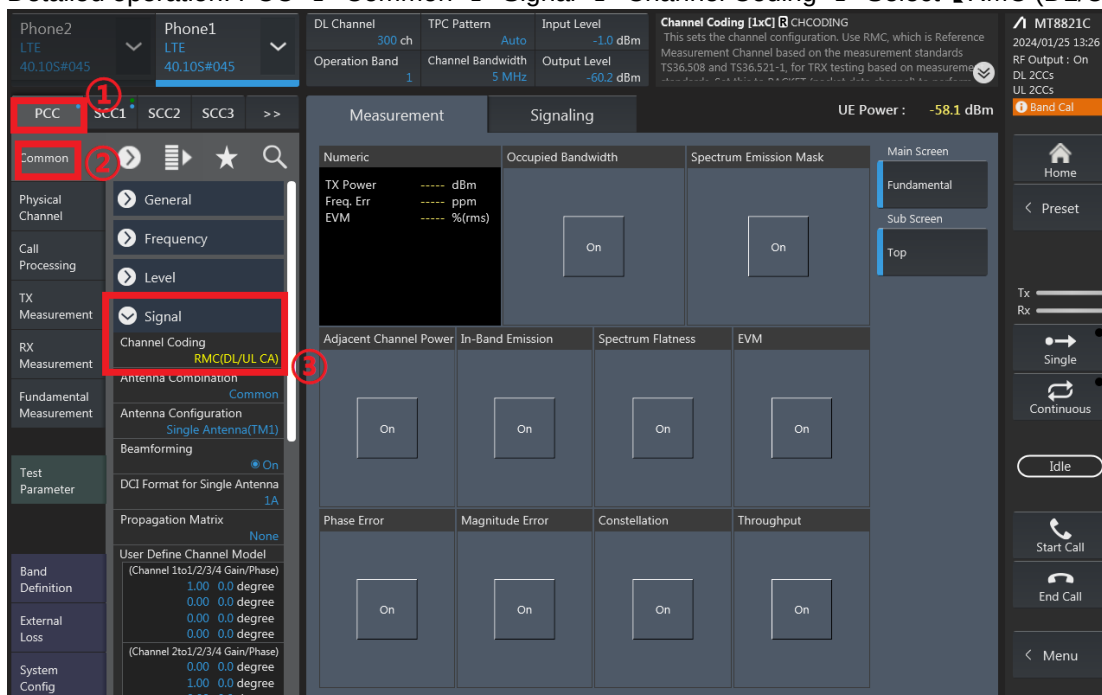
1. Change the Scenario in the Configuration of Phone1 LTE Signaling and Preset.



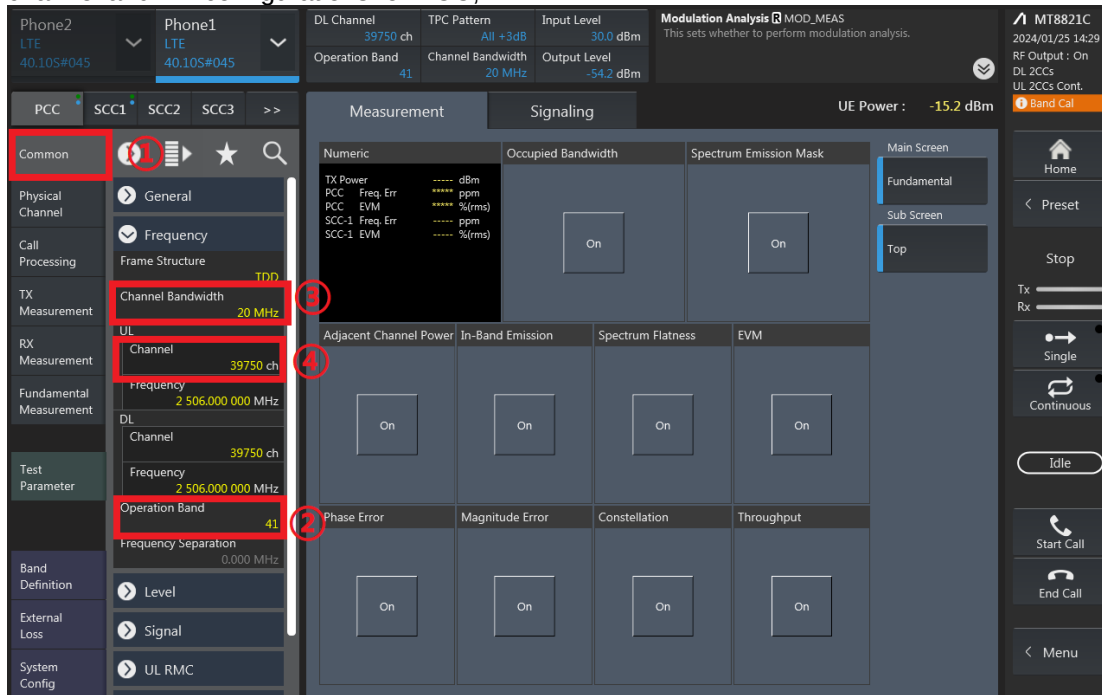
2. If Select "RMC (DL/UL CA)" for Uplink Carrier Aggregation;
If Select "RMC (DL CA)" for Downlink Carrier Aggregation.

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.

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

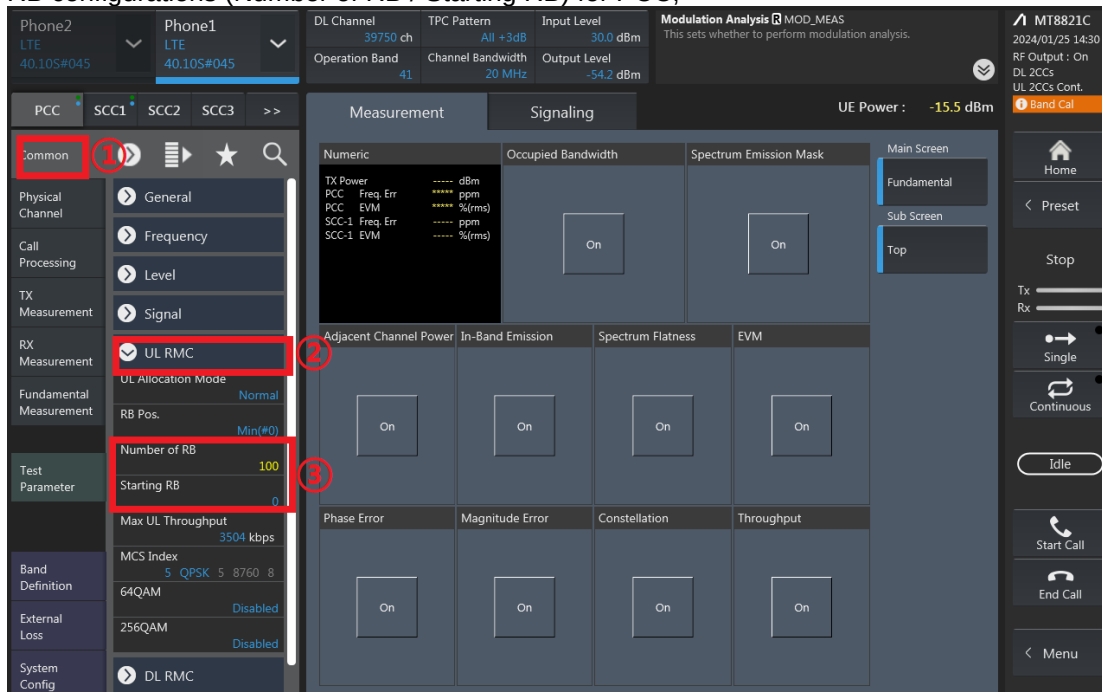
Main Screen Fundamental Sub Screen Top

Adjacent Channel Power In-Band Emission Spectrum Flatness EVM

Phase Error Magnitude Error Constellation Throughput

On On On On On On On On On On

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

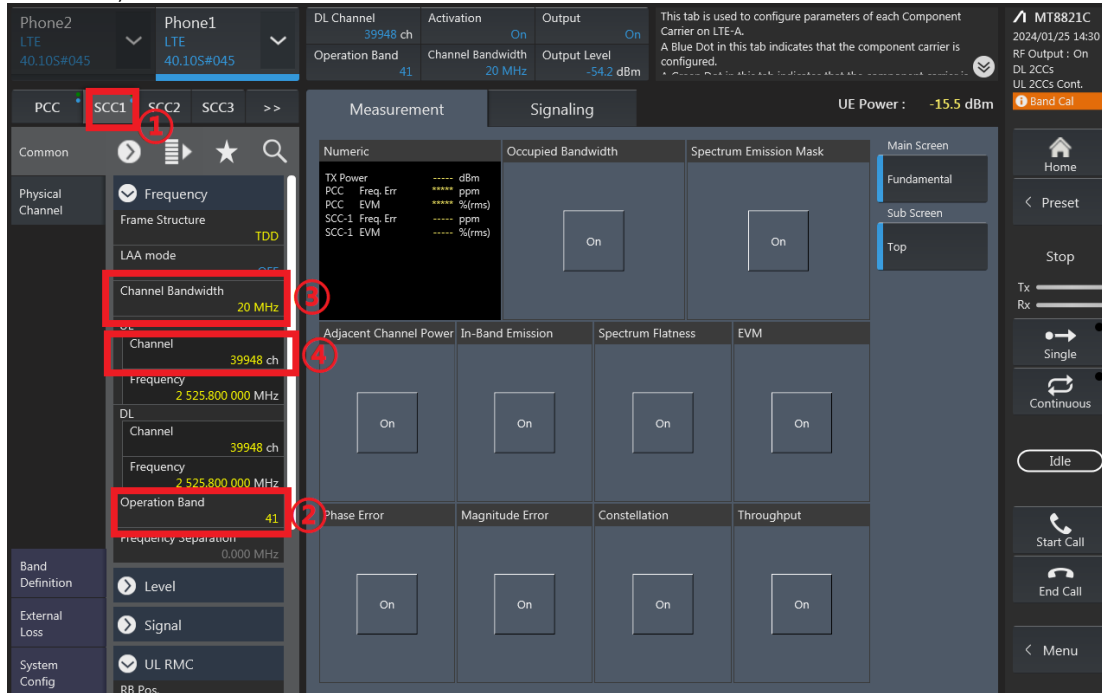
Main Screen Fundamental Sub Screen Top

Adjacent Channel Power In-Band Emission Spectrum Flatness EVM

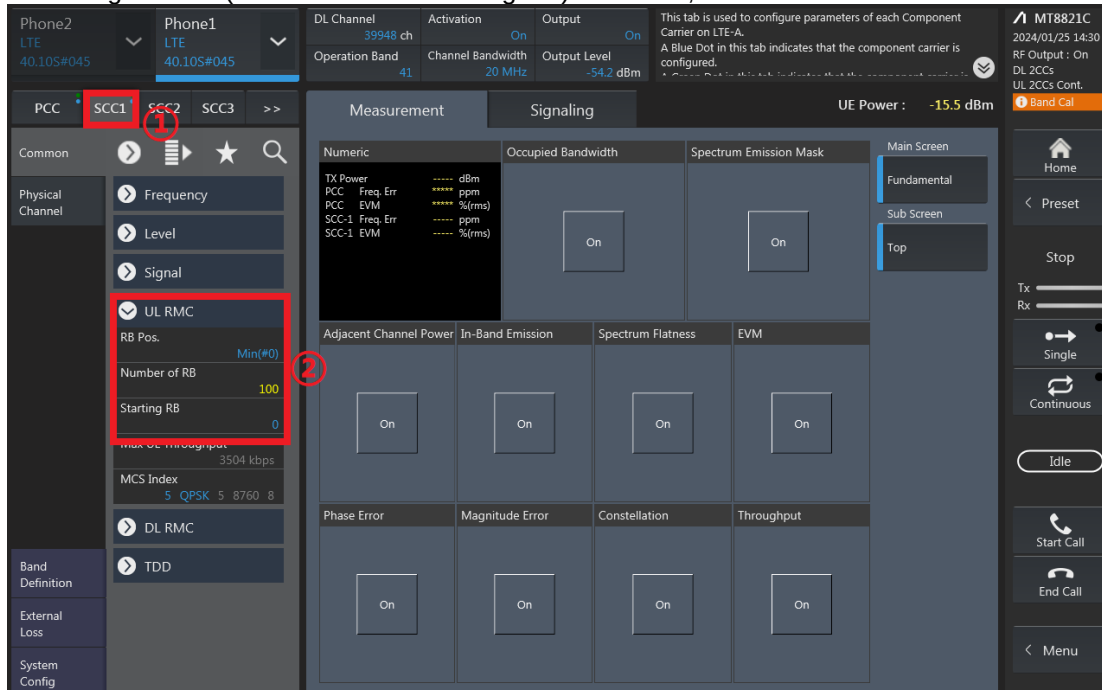
Phase Error Magnitude Error Constellation Throughput

On On On On On On On On On On

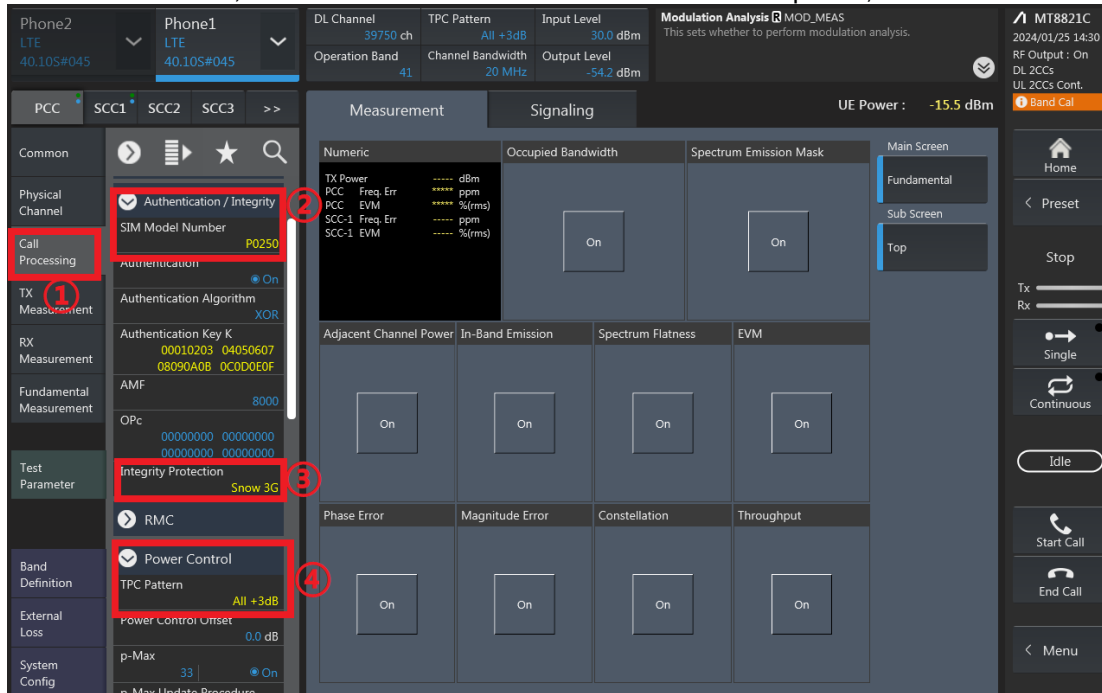
4. SCC parameter Settings: Select the SCC1 tab, Set operating band, BW, channel, and RB configurations for SCC1;



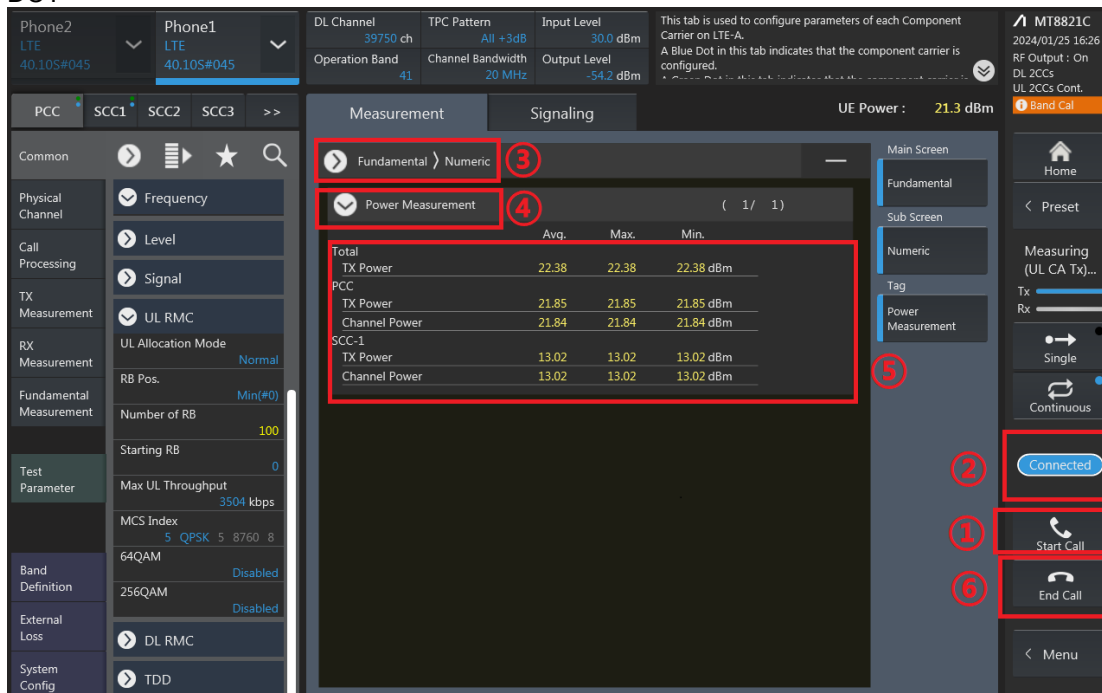
RB configurations (Number of RB / Starting RB) for SCC1;



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 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_5B_Ant 1											
Combination 10MHz+10MHz (50RB+50RB)											
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					
20450	20549	QPSK	1	0	0	0	1	0	Full	22.85	24.00
20575	20476	QPSK	1	0	0	0	1	0	Full	22.91	24.00
20600	20501	QPSK	1	0	0	0	1	0	Full	22.72	24.00
20450	20549	QPSK	1	0	0	0	1	0	Sensor on	20.92	22.00
20575	20476	QPSK	1	0	0	0	1	0	Sensor on	20.88	22.00
20600	20501	QPSK	1	0	0	0	1	0	Sensor on	20.75	22.00

CA_66B_Ant 1											
Combination 15MHz+5MHz (75RB+25RB)											
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					
132047	132140	QPSK	1	0	0	0	1	0	Full	22.87	24.00
132322	132415	QPSK	1	0	0	0	1	0	Full	22.65	24.00
132597	132504	QPSK	1	0	0	0	1	0	Full	22.81	24.00
132047	132140	QPSK	1	0	0	0	1	0	Sensor on	17.78	19.00
132322	132415	QPSK	1	0	0	0	1	0	Sensor on	17.89	19.00
132597	132504	QPSK	1	0	0	0	1	0	Sensor on	17.67	19.00

CA_86C_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						
132072	132270	QPSK	1	0	0	0	1	0		Full	22.82	24.00
132322	132530	QPSK	1	0	0	0	1	0		Full	23.15	24.00
132572	132374	QPSK	1	0	0	0	1	0		Full	22.70	24.00
132072	132270	QPSK	1	0	0	0	1	0		Sensor on	17.88	19.00
132322	132530	QPSK	1	0	0	0	1	0		Sensor on	17.92	19.00
132572	132374	QPSK	1	0	0	0	1	0		Sensor on	17.73	19.00

CA_48C For FCC_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					
55340	55538	QPSK	1	0	0	0	1	0	Full	20.37	21.50
55830	56028	QPSK	1	0	0	0	1	0	Full	20.88	21.50
56150	56348	QPSK	1	0	0	0	1	0	Full	20.92	21.50
56640	56442	QPSK	1	0	0	0	1	0	Full	21.02	21.50
55340	55538	QPSK	1	0	0	0	1	0	Sensor on	17.55	19.00
55830	56028	QPSK	1	0	0	0	1	0	Sensor on	17.98	19.00
56150	56348	QPSK	1	0	0	0	1	0	Sensor on	18.01	19.00
56640	56442	QPSK	1	0	0	0	1	0	Sensor on	18.13	19.00