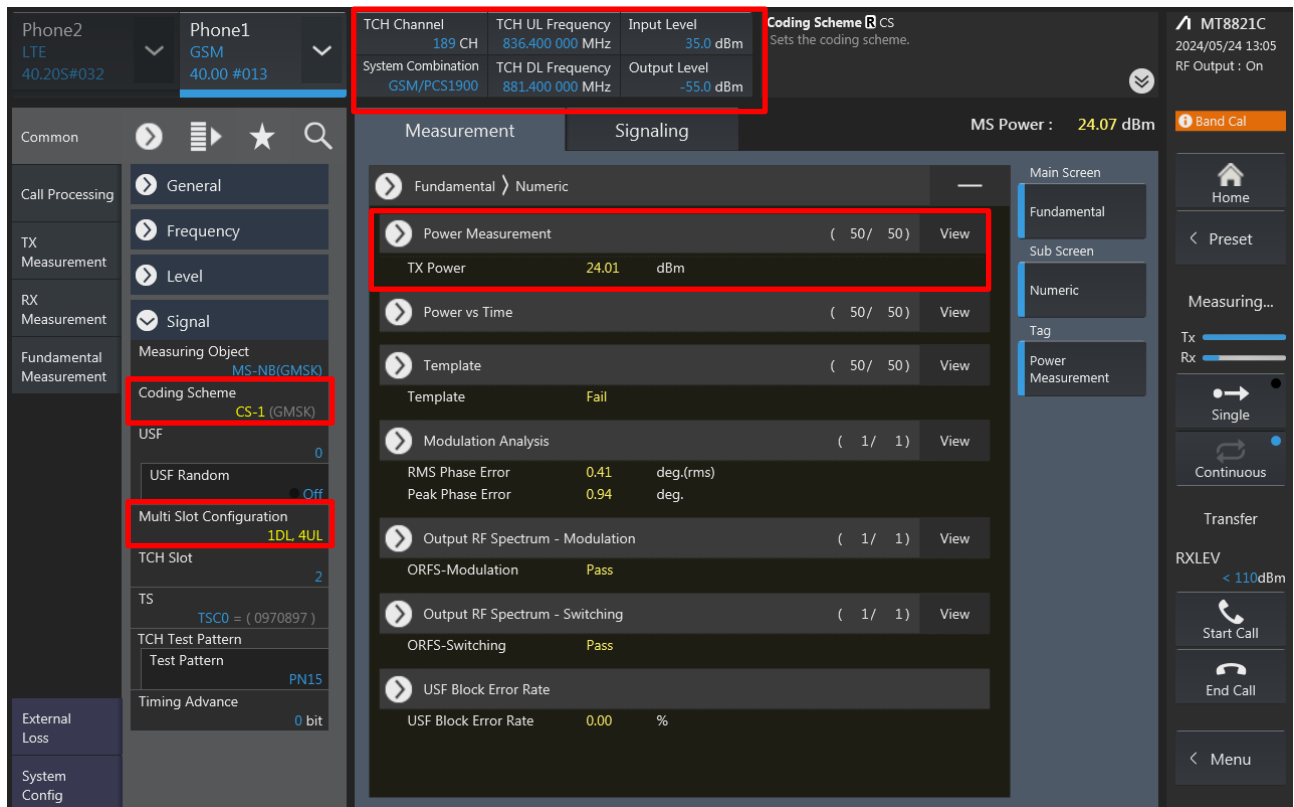


Power measurement connection diagram:

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.

<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). A table 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. The 'Power Measurement' tag is selected. The 'MT8821C' device is connected, with 'RF Output : On' and 'Band Cal' button. The 'TX' and 'RX' levels are shown, with 'RXLEV' at < 110dBm.

<WCDMA>

Phone2
LTE
40.20S#032

Phone1
W-CDMA
40.00 #013

UL Channel
9400 CH

UL Frequency
1 880.000 000 MHz

Input Level
35.0 dBm

Average Count PWR_AVG
Sets the average count (measurement count) for power measurement.

DL Channel
9800 CH

DL Frequency
1 960.000 000 MHz

Output Level
-65.7 dBm

MT8821C
2024/05/24 12:58
RF Output : On

Common

Physical Channel

Call Processing

TX Measurement

RX Measurement

Fundamental Measurement

Authentication / Integrity

Integrity Protection

SIM Model Number

Authentication Algorithm

Authentication Key Ki

AMF

Opc

Connection Setting

Measurement Report

Inner Loop Power Control

Power Control Algorithm

TPC StepSize

Power Control

User Command

System Config

Measurement

Signaling

UE Power : 22.6 dBm

Band Cal

Fundamental > Numeric

Power Measurement (50 / 50)

TX Power 23.28 dBm

Frequency Error (1 / 1)

Carrier Frequency Error -0.0002 kHz

Freq. Err 0.00 ppm

Occupied Bandwidth (1 / 1) View

OBW 4.163 MHz

Spectrum Emission Mask (1 / 1) View

SEM Pass

Adjacent Channel Power (1 / 1)

ACLR(-5MHz) -40.24 dB

ACLR(+5MHz) -42.79 dB

Modulation Analysis (1 / 1) View

EVM 5.15 %(rms)

Peak Code Domain Error (1 / 1)

PCDE -39.86 dB

Main Screen

Fundamental

Sub Screen

Numeric

Tag

Power Measurement

Measuring...

Tx

Rx

Single

Continuous

Loop Mode 1

Start Call

End Call

Menu

<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

>>

Measurement

Signaling

UE Power : 23.4 dBm

Numeric

Occupied Bandwidth

Spectrum Emission Mask

TX Power 23.01 dBm

On

On

On

On

On

On

On

On

On

On

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

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

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

PCC SCC1 SCC2 SCC3 >>

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

Measurement Signaling UE Power : 23.5 dBm

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

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

Band Cal

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

64QAM

256QAM

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

PCC SCC1 SCC2

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

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

PCC SCC1 SCC2

Measurement

Signaling

UE Power : 26.0 dBm

Band Cal

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

Numeric

Occupied Bandwidth

Spectrum Emission Mask

Tx Power 25.88 dBm

OBW 18.787 MHz

ACL(-) -53.74 dB

ACL(+) -55.90 dB

Adjacent Channel Power

In-Band Emission

Spectrum Flatness

EVM

Phase Error

Magnitude Error

Constellation

Main Screen

Fundamental

Sub Screen

Top

Home

Preset

Measuring...

Tx

Rx

Single

Continuous

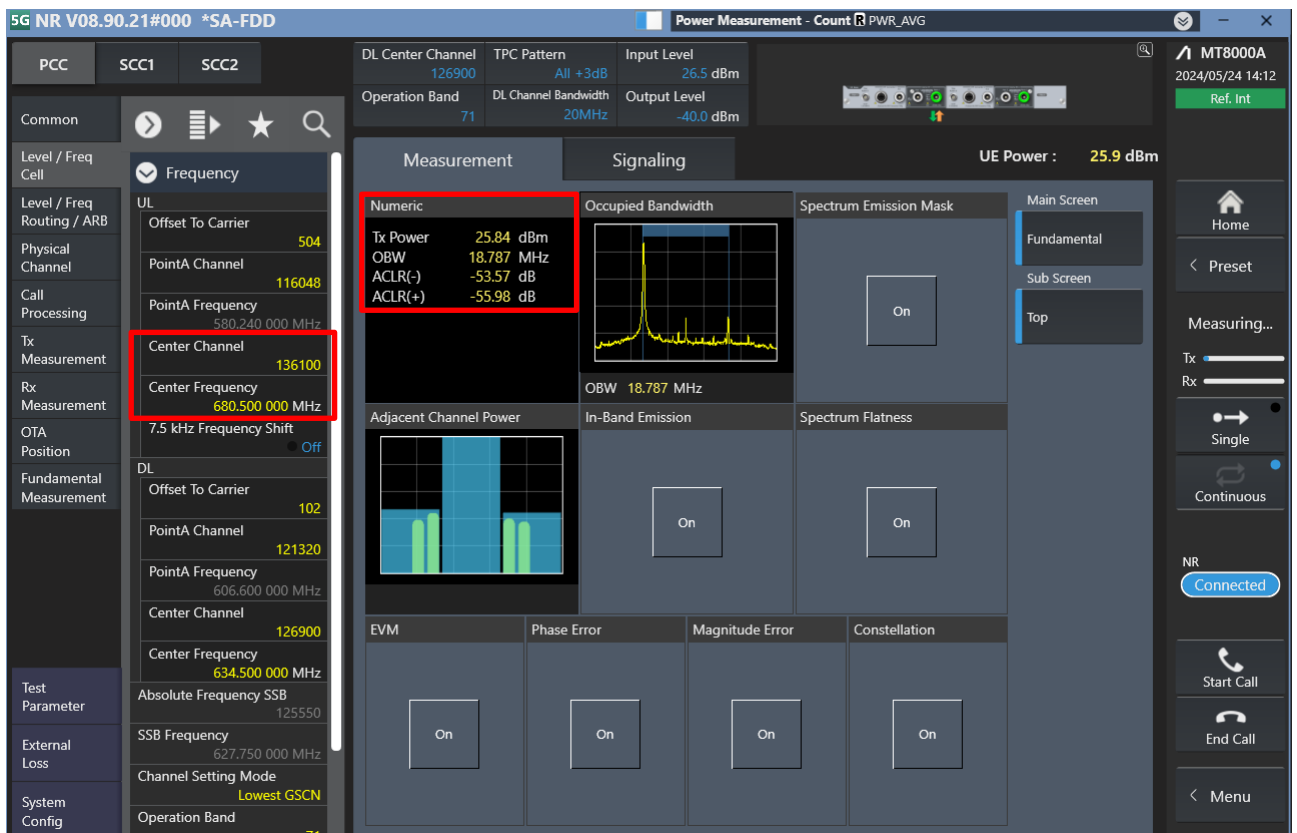
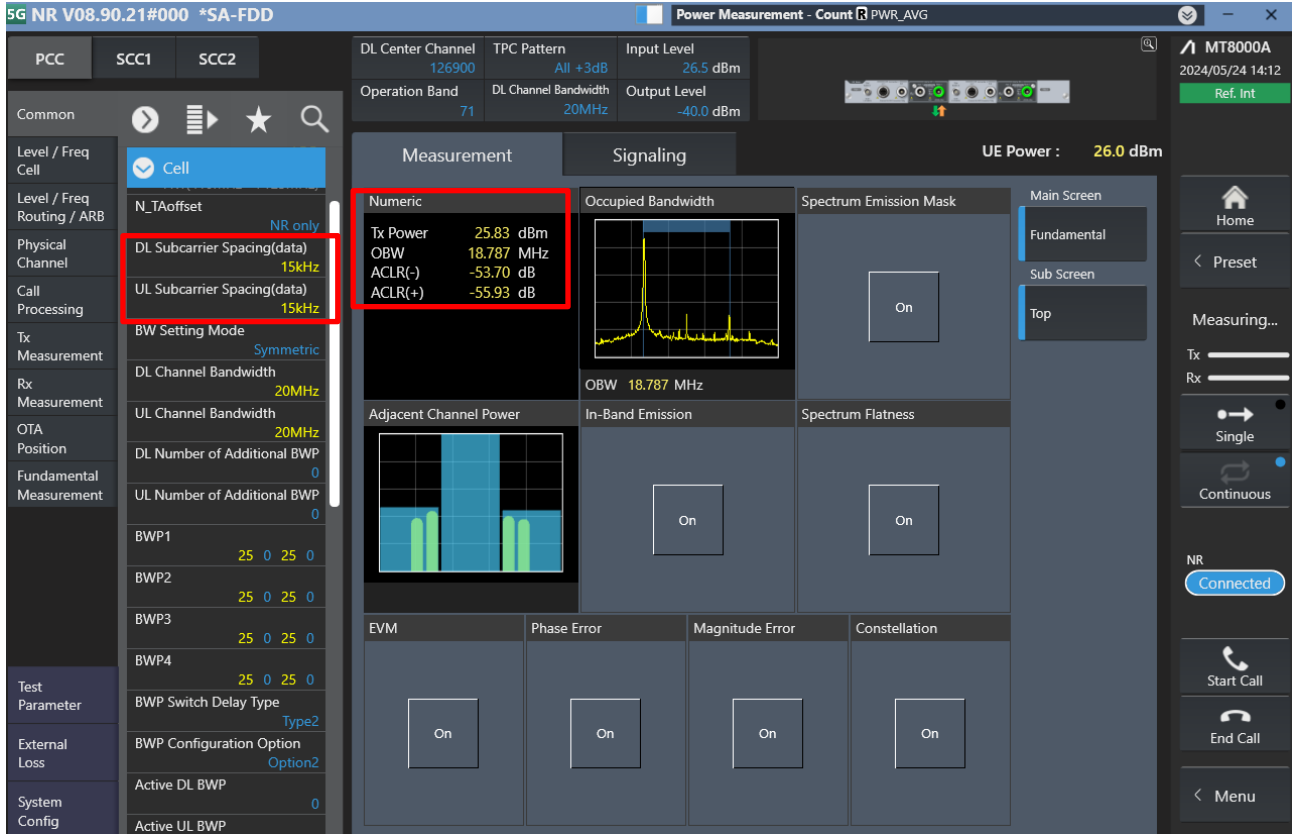
NR

Connected

Start Call

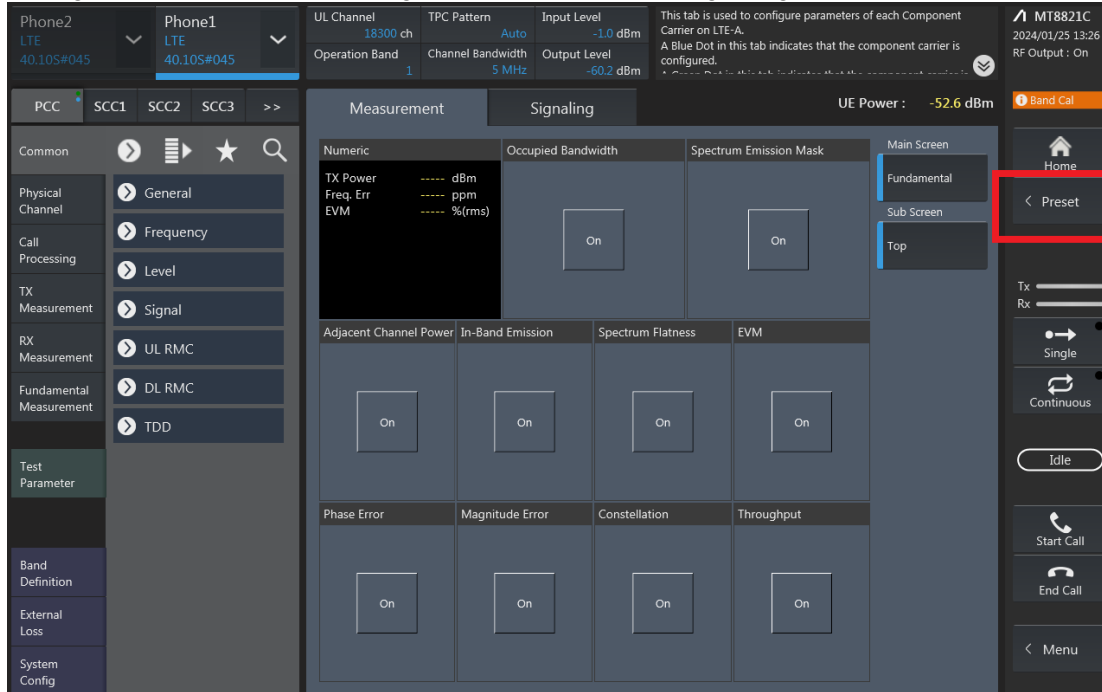
End Call

Menu



LTE Uplink and Downlink Carrier Aggregation configurations:

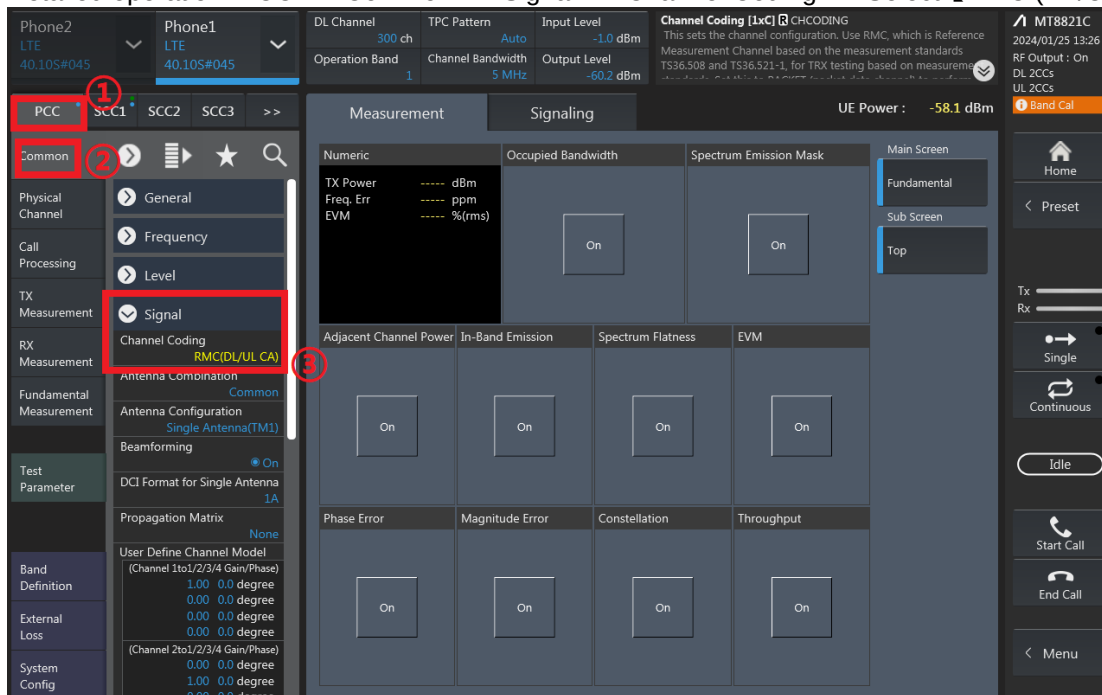
1. Change the Scenario in the Configuration of Phone1 LTE Signaling and Preset.



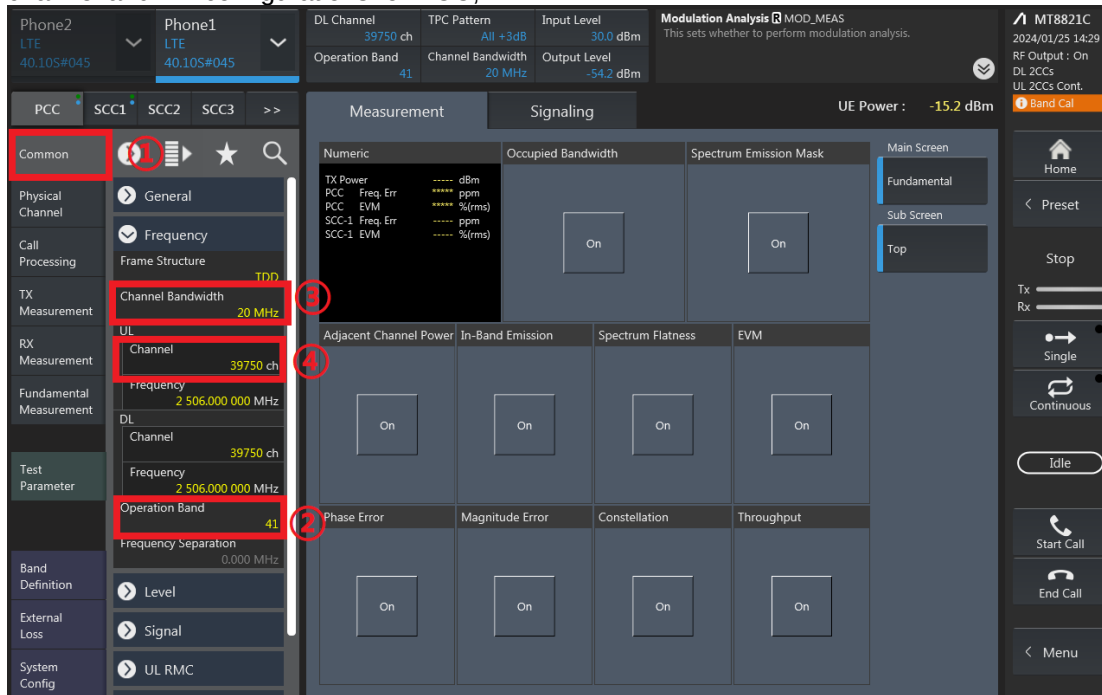
2. If Select "RMC (DL/UL CA)" for Uplink Carrier Aggregation;
If Select "RMC (DL CA)" for Downlink Carrier Aggregation.

For example, Uplink Carrier Aggregation:

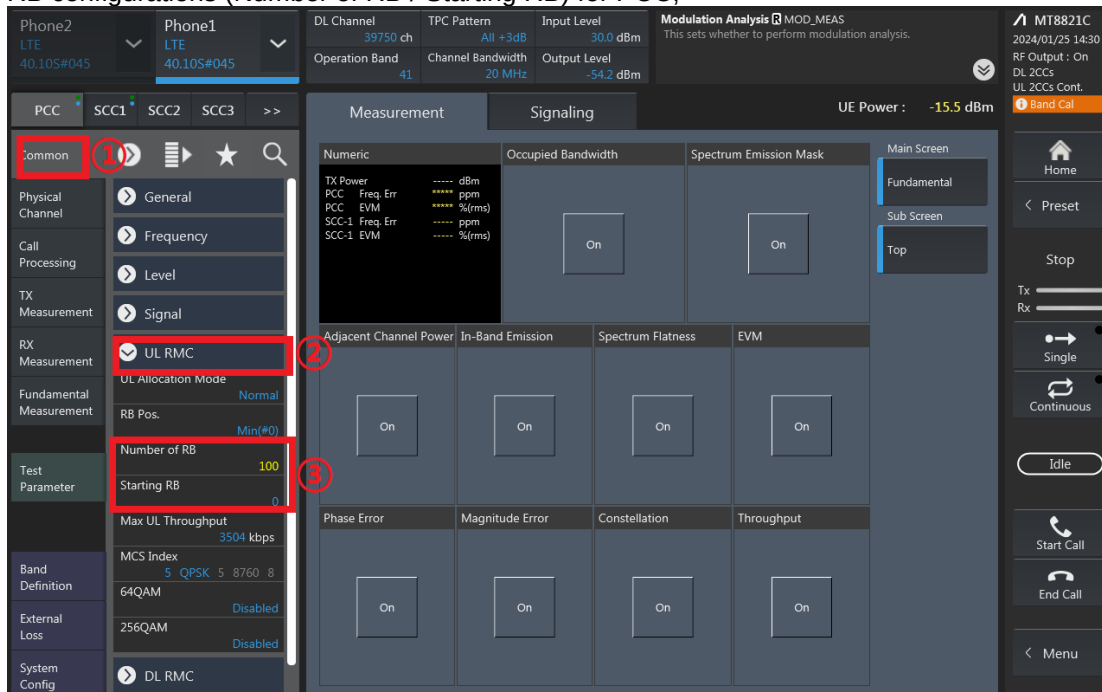
Detailed operation: PCC → Common → Signal → Channel Coding → Select 【RMC (DL/UL CA)】



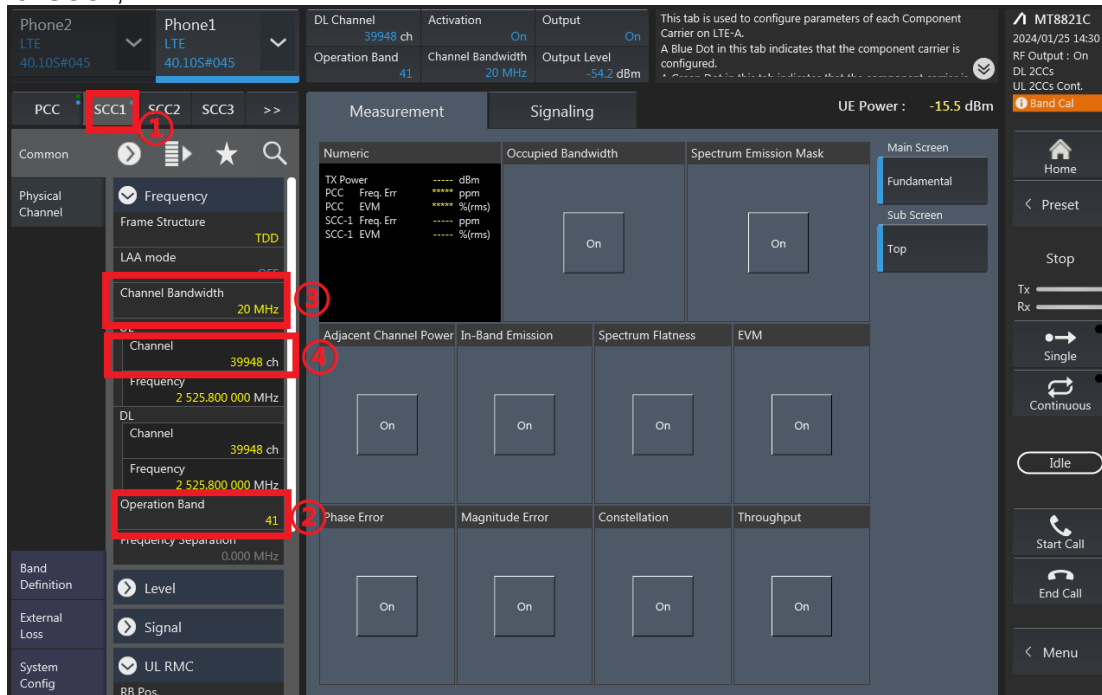
3. PCC parameter Settings: on the screen, and then select the PCC tab and Set operating band, BW, channel and RB configurations for PCC;



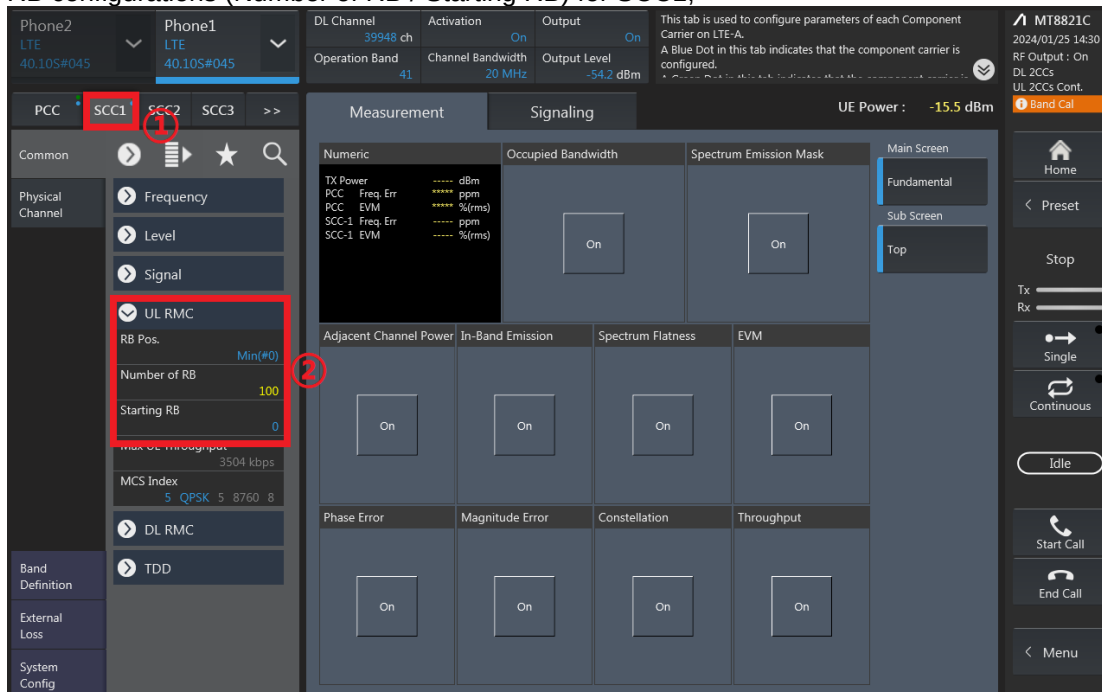
RB configurations (Number of RB / Starting RB) for PCC;



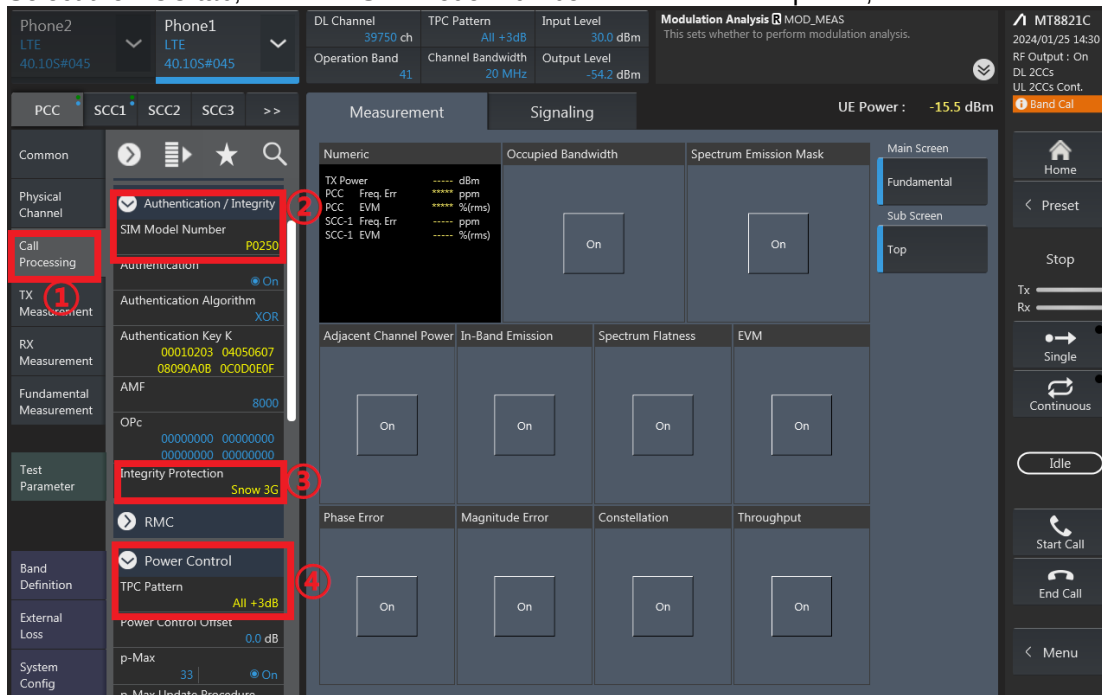
4. SCC parameter Settings: Select the SCC1 tab, Set operating band, BW, channel, and RB configurations for SCC1;



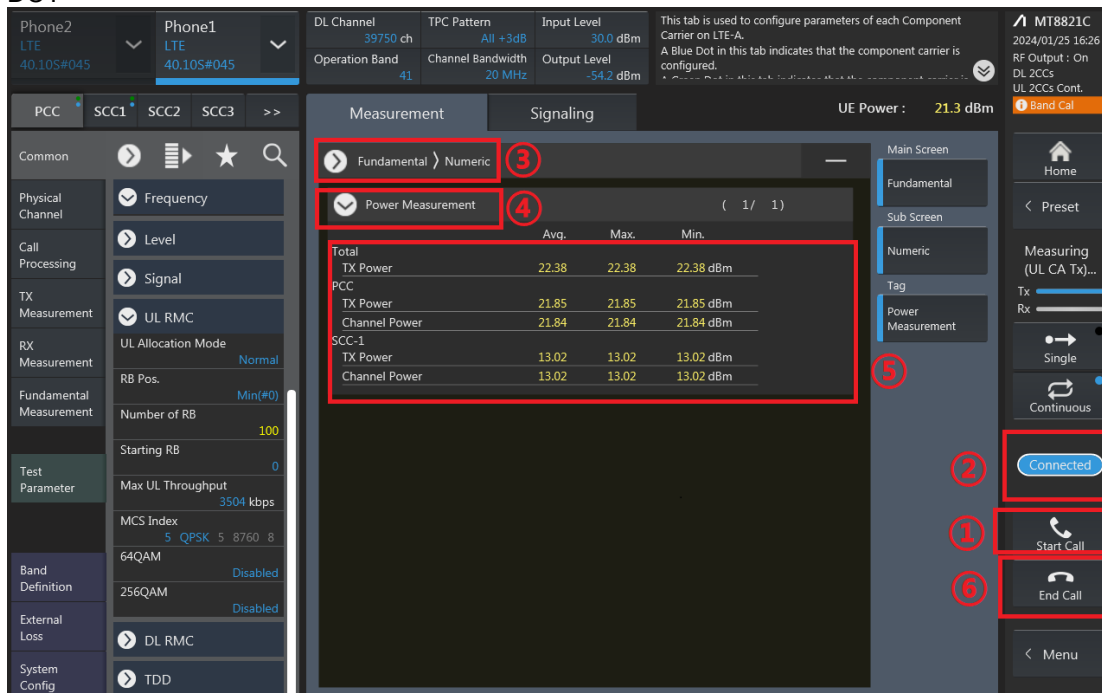
RB configurations (Number of RB / Starting RB) for SCC1;



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.



UL CA
Full&Default Power Mode

CA_7C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
20850	21048	QPSK	1	99	1	0	22.10	24.00
21100	21298	QPSK	1	99	1	0	22.11	24.00
21350	21152	QPSK	1	0	1	99	22.06	24.00

CA_7C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
20850	21048	QPSK	1	99	1	0	21.37	23.00
21100	21298	QPSK	1	99	1	0	21.51	23.00
21350	21152	QPSK	1	0	1	99	21.48	23.00

CA_38C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	99	1	0	22.36	24.00
37901	38099	QPSK	1	99	1	0	22.45	24.00
38150	37952	QPSK	1	0	1	99	22.27	24.00

CA_38C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	99	1	0	21.32	23.00
37901	38099	QPSK	1	99	1	0	21.48	23.00
38150	37952	QPSK	1	0	1	99	21.35	23.00

CA_41C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
39750	39948	QPSK	1	99	1	0	22.4	24.00
40185	40383	QPSK	1	99	1	0	22.34	24.00
40620	40818	QPSK	1	99	1	0	22.45	24.00
41055	41253	QPSK	1	99	1	0	22.38	24.00
41490	41292	QPSK	1	0	1	99	22.39	24.00

CA_41C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
39750	39948	QPSK	1	99	1	0	21.47	23.00
40185	40383	QPSK	1	99	1	0	21.49	23.00
40620	40818	QPSK	1	99	1	0	21.58	23.00
41055	41253	QPSK	1	99	1	0	21.48	23.00
41490	41292	QPSK	1	0	1	99	21.47	23.00



Reduced Power Mode for ECI 2

CA_7C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
20850	21048	QPSK	1	99	1	0	22.10	24.00
21100	21298	QPSK	1	99	1	0	22.11	24.00
21350	21152	QPSK	1	0	1	99	22.06	24.00

CA_38C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	99	1	0	22.36	24.00
37901	38099	QPSK	1	99	1	0	22.45	24.00
38150	37952	QPSK	1	0	1	99	22.27	24.00

CA_41C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
39750	39948	QPSK	1	99	1	0	22.4	24.00
40185	40383	QPSK	1	99	1	0	22.34	24.00
40620	40818	QPSK	1	99	1	0	22.45	24.00
41055	41253	QPSK	1	99	1	0	22.38	24.00
41490	41292	QPSK	1	0	1	99	22.39	24.00

CA_7C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
20850	21048	QPSK	1	99	1	0	17.85	18.90
21100	21298	QPSK	1	99	1	0	17.94	18.90
21350	21152	QPSK	1	0	1	99	17.80	18.90

CA_38C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	99	1	0	18.36	19.70
37901	38099	QPSK	1	99	1	0	18.5	19.70
38150	37952	QPSK	1	0	1	99	18.25	19.70

CA_41C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
39750	39948	QPSK	1	99	1	0	18.49	19.70
40185	40383	QPSK	1	99	1	0	18.41	19.70
40620	40818	QPSK	1	99	1	0	18.53	19.70
41055	41253	QPSK	1	99	1	0	18.45	19.70
41490	41292	QPSK	1	0	1	99	18.36	19.70



Reduced Power Mode for ECI 3

CA_7C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
20850	21048	QPSK	1	99	1	0	20.51	21.60
21100	21298	QPSK	1	99	1	0	20.63	21.60
21350	21152	QPSK	1	0	1	99	20.52	21.60

CA_38C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	99	1	0	21.33	22.80
37901	38099	QPSK	1	99	1	0	21.34	22.80
38150	37952	QPSK	1	0	1	99	21.26	22.80

CA_41C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
39750	39948	QPSK	1	99	1	0	21.34	22.80
40185	40383	QPSK	1	99	1	0	21.33	22.80
40620	40818	QPSK	1	99	1	0	21.44	22.80
41055	41253	QPSK	1	99	1	0	21.44	22.80
41490	41292	QPSK	1	0	1	99	21.34	22.80

CA_7C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
20850	21048	QPSK	1	99	1	0	16.82	18.10
21100	21298	QPSK	1	99	1	0	17.05	18.10
21350	21152	QPSK	1	0	1	99	16.97	18.10

CA_38C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	99	1	0	17.93	19.30
37901	38099	QPSK	1	99	1	0	18.13	19.30
38150	37952	QPSK	1	0	1	99	17.94	19.30

CA_41C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
39750	39948	QPSK	1	99	1	0	18.06	19.30
40185	40383	QPSK	1	99	1	0	18.08	19.30
40620	40818	QPSK	1	99	1	0	18.12	19.30
41055	41253	QPSK	1	99	1	0	18.08	19.30
41490	41292	QPSK	1	0	1	99	18.03	19.30



Reduced Power Mode for ECI 6

CA_7C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
20850	21048	QPSK	1	99	1	0	21.00	22.10
21100	21298	QPSK	1	99	1	0	21.06	22.10
21350	21152	QPSK	1	0	1	99	20.96	22.10

CA_38C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	99	1	0	20.85	22.30
37901	38099	QPSK	1	99	1	0	20.98	22.30
38150	37952	QPSK	1	0	1	99	20.8	22.30

CA_41C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
39750	39948	QPSK	1	99	1	0	20.81	22.30
40185	40383	QPSK	1	99	1	0	20.86	22.30
40620	40818	QPSK	1	99	1	0	20.92	22.30
41055	41253	QPSK	1	99	1	0	20.87	22.30
41490	41292	QPSK	1	0	1	99	20.85	22.30

CA_7C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
20850	21048	QPSK	1	99	1	0	17.62	18.60
21100	21298	QPSK	1	99	1	0	17.8	18.60
21350	21152	QPSK	1	0	1	99	17.70	18.60

CA_38C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	99	1	0	18.57	20.10
37901	38099	QPSK	1	99	1	0	18.71	20.10
38150	37952	QPSK	1	0	1	99	18.73	20.10

CA_41C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
39750	39948	QPSK	1	99	1	0	18.86	20.10
40185	40383	QPSK	1	99	1	0	18.81	20.10
40620	40818	QPSK	1	99	1	0	18.97	20.10
41055	41253	QPSK	1	99	1	0	18.86	20.10
41490	41292	QPSK	1	0	1	99	18.84	20.10



Reduced Power Mode for ECI 7

CA_7C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
20850	21048	QPSK	1	99	1	0	18.50	19.80
21100	21298	QPSK	1	99	1	0	18.52	19.80
21350	21152	QPSK	1	0	1	99	18.49	19.80

CA_38C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	99	1	0	20.28	21.70
37901	38099	QPSK	1	99	1	0	20.47	21.70
38150	37952	QPSK	1	0	1	99	20.4	21.70

CA_41C Ant 1								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
39750	39948	QPSK	1	99	1	0	20.42	21.70
40185	40383	QPSK	1	99	1	0	20.43	21.70
40620	40818	QPSK	1	99	1	0	20.49	21.70
41055	41253	QPSK	1	99	1	0	20.46	21.70
41490	41292	QPSK	1	0	1	99	20.46	21.70

CA_7C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
20850	21048	QPSK	1	99	1	0	15.37	16.50
21100	21298	QPSK	1	99	1	0	15.51	16.50
21350	21152	QPSK	1	0	1	99	15.45	16.50

CA_38C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	99	1	0	16.66	18.00
37901	38099	QPSK	1	99	1	0	16.84	18.00
38150	37952	QPSK	1	0	1	99	16.69	18.00

CA_41C Ant 4								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
39750	39948	QPSK	1	99	1	0	16.76	18.00
40185	40383	QPSK	1	99	1	0	16.76	18.00
40620	40818	QPSK	1	99	1	0	16.88	18.00
41055	41253	QPSK	1	99	1	0	16.82	18.00
41490	41292	QPSK	1	0	1	99	16.83	18.00



DL CA Power

2CA DL																		
CA List	PCC								SCC				Power					
	LTE	BW	BW	UL	UL	Mod.	UL#	UL	DL Antenna Configuratio n	LTE	BW	BW	DL	DL	DL Antenna Configuratio n	With CA		Without CA
	Band	Ant	(MHz)	Freq.(MHz)	Channel		RB	RB Offset		Band	(MHz)	Freq. (MHz)	Channel	Tx Power				
																(dBm)	(dBm)	
CA_2A-38A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MIMO	Band 38	20M	2599.8	38048	4x4MIMO	22.21	22.30		
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MIMO	Band 38	20M	2599.8	38048	4x4MIMO	21.45	21.55		
	Band 38	Ant1	20M	2595	38000	QPSK	1	0	4x4MIMO	Band 2	20M	1960	900	4x4MIMO	22.41	22.47		
CA_38C	Band 38	Ant4	20M	2595	38000	QPSK	1	0	4x4MIMO	Band 2	20M	1960	900	4x4MIMO	21.33	21.55		
	Band 38	Ant1	20M	2580	37850	QPSK	1	0	4x4MIMO	Band 38	20M	2599.8	38048	4x4MIMO	22.41	22.47		
	Band 38	Ant4	20M	2580	37850	QPSK	1	0	4x4MIMO	Band 38	20M	2599.8	38048	4x4MIMO	21.33	21.55		
CA_41A-42A	Band 41	Ant1	20M	2593	40620	QPSK	1	0	4x4MIMO	Band 42	20M	3500	42590	4x4MIMO	22.48	22.49		
	Band 41	Ant4	20M	2593	40620	QPSK	1	0	4x4MIMO	Band 42	20M	3500	42590	4x4MIMO	21.61	21.62		
	Band 42	Ant3	20M	3500	42590	QPSK	1	0	4x4MIMO	Band 41	20M	2593	40620	4x4MIMO	22.22	22.39		
CA_41C	Band 41	Ant1	20M	2593	40620	QPSK	1	0	4x4MIMO	Band 41	20M	2612.8	40818	4x4MIMO	22.48	22.49		
	Band 41	Ant4	20M	2593	40620	QPSK	1	0	4x4MIMO	Band 41	20M	2612.8	40818	4x4MIMO	21.61	21.62		
	Band 66	Ant1	15M	1745	132322	QPSK	1	0	4x4MIMO	Band 66	5M	2154.3	66879	4x4MIMO	22.28	22.42		
CA_66B	Band 66	Ant4	15M	1745	132322	QPSK	1	0	4x4MIMO	Band 66	5M	2154.3	66879	4x4MIMO	21.65	21.81		
	Band 66	Ant1	20M	1745	132322	QPSK	1	0	4x4MIMO	Band 66	20M	2164.8	66984	4x4MIMO	22.28	22.42		
	Band 66	Ant4	20M	1745	132322	QPSK	1	0	4x4MIMO	Band 66	20M	2164.8	66984	4x4MIMO	21.65	21.81		

3CA DL

3CA List	PCC										SCC1					SCC2					Power	
	LTE	BW	BW	UL	UL	Mod.	UL#	UL	DL Antenna Configuration		LTE	BW	DL	DL	DL Antenna Configuration	LTE	BW	DL	DL	DL Antenna Configuration	With CA	Without CA
	Band	Ant	(MHz)	(Freq)	Channel		RB	Offset	Band	(MHz)	Freq (MHz)	Channel	Band	(MHz)		Freq (MHz)	Channel	Tx Power (dBm)	Tx Power (dBm)			
CA_2A-2A-4A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	22.17	22.30	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	21.36	21.50	
	Band 4	Ant1	20M	1732.5	20175	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	22.13	22.37	
	Band 4	Ant4	20M	1732.5	20175	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	21.56	21.72	
CA_2A-2A-5A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	Band 5	10M	881.5	2525		22.17	22.30	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	Band 5	10M	881.5	2525		21.36	21.50	
	Band 5	Ant0	10M	836.5	20525	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	22.24	22.48	
	Band 5	Ant4	10M	836.5	20525	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	22.09	22.15	
CA_2A-2A-66A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	Band 66	20M	2155	66886	4x4MMO	22.17	22.30	
	Band 66	Ant1	20M	1745	132322	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	21.36	21.50	
	Band 66	Ant1	20M	1745	132322	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 5	10M	881.5	2525		22.32	22.42	
	Band 66	Ant4	20M	1745	132322	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 5	10M	881.5	2525		21.60	21.81	
CA_2A-2A-7A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	Band 7	20M	2655	3100	4x4MMO	22.17	22.30	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	Band 7	20M	2655	3100	4x4MMO	21.36	21.50	
	Band 7	Ant1	20M	2535	21100	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	22.13	22.31	
	Band 7	Ant4	20M	2535	21100	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 2	5M	1987.5	1175	4x4MMO	21.61	21.65	
CA_2A-4A-4A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	Band 4	5M	2152.5	2375	4x4MMO	22.17	22.30	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	Band 4	5M	2152.5	2375	4x4MMO	21.36	21.50	
	Band 4	Ant1	20M	1732.5	20175	QPSK	1	0	4x4MMO	Band 4	5M	2152.5	2375	4x4MMO	Band 2	20M	1960	900	4x4MMO	22.13	22.37	
	Band 4	Ant4	20M	1732.5	20175	QPSK	1	0	4x4MMO	Band 4	5M	2152.5	2375	4x4MMO	Band 2	20M	1960	900	4x4MMO	21.56	21.72	
CA_2A-4A-5A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	Band 5	10M	881.5	2525		22.17	22.30	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	Band 5	10M	881.5	2525		21.36	21.50	
	Band 4	Ant1	20M	1732.5	20175	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 5	10M	881.5	2525		22.13	22.37	
	Band 4	Ant4	20M	1732.5	20175	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 5	10M	881.5	2525		21.56	21.72	
CA_2A-4A-7A	Band 5	Ant0	10M	836.5	20525	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	22.24	22.48	
	Band 5	Ant4	10M	836.5	20525	QPSK	1	0	4x4MMO	Band 2	20M	1960	900	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	22.09	22.15	
	Band 7	Ant1	20M	2535	21100	QPSK	1	0	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	Band 7	20M	2655	3100	4x4MMO	22.17	22.30	
	Band 7	Ant4	20M	2535	21100	QPSK	1	0	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	Band 7	20M	2655	3100	4x4MMO	21.36	21.50	
CA_2A-5A-5A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	Band 7	20M	2655	3100	4x4MMO	21.36	21.50	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 4	20M	2132.5	2175	4x4MMO	Band 7	20M	2655	3100	4x4MMO	21.56	21.72	
	Band 7	Ant1	20M	2535	21100	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 2	20M	1960	900	4x4MMO	22.13	22.31	
	Band 7	Ant4	20M	2535	21100	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 2	20M	1960	900	4x4MMO	21.61	21.65	
CA_2A-5A-66A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 5	10M	881.5	2525		Band 4	20M	2132.5	2175	4x4MMO	22.17	22.30	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 5	10M	881.5	2525		Band 66	20M	2155	66886	4x4MMO	21.36	21.50	
	Band 5	Ant0	10M	836.5	20525	QPSK	1	0	4x4MMO	Band 66	20M	2155	66886	4x4MMO	Band 2	20M	1960	900	4x4MMO	22.09	22.15	
	Band 5	Ant4	10M	836.5	20525	QPSK	1	0	4x4MMO	Band 66	20M	2155	66886	4x4MMO	Band 2	20M	1960	900	4x4MMO	22.32	22.42	
CA_2A-5A-7A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 5	10M	881.5	2525		Band 5	10M	881.5	2525		22.17	22.30	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 5	10M	881.5	2525		Band 7	20M	2655	3100	4x4MMO	21.60	21.81	
	Band 5	Ant0	10M	836.5	20525	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 2	20M	1960	900	4x4MMO	22.13	22.31	
	Band 5	Ant4	10M	836.5	20525	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 2	20M	1960	900	4x4MMO	21.56	21.72	
CA_2A-66A-66A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 66	20M	2155	66886	4x4MMO	Band 66	20M	2155	66886	4x4MMO	22.17	22.30	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 66	20M	2155	66886	4x4MMO	Band 66	20M	2155	66886	4x4MMO	21.36	21.50	
	Band 66	Ant1	20M	1745	132322	QPSK	1	0	4x4MMO	Band 66	5M	2197.5	67311	4x4MMO	Band 2	20M	1960	900	4x4MMO	22.32	22.42	
	Band 66	Ant4	20M	1745	132322	QPSK	1	0	4x4MMO	Band 66	5M	2197.5	67311	4x4MMO	Band 2	20M	1960	900	4x4MMO	21.60	21.81	
CA_2A-7A-66A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 66	20M	2155	66886	4x4MMO	22.17	22.30	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 66	20M	2155	66886	4x4MMO	21.36	21.50	
	Band 7	Ant1	20M	2535	21100	QPSK	1	0	4x4MMO	Band 7	5M	2687.5	3425	4x4MMO	Band 2	20M	1960	900	4x4MMO	22.13	22.31	
	Band 7	Ant4	20M	2535	21100	QPSK	1	0	4x4MMO	Band 7	5M	2687.5	3425	4x4MMO	Band 2	20M	1960	900	4x4MMO	21.61	21.65	
CA_2A-7A-7A	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 2	20M	1960	900	4x4MMO	22.17	22.30	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 2	20M	1960	900	4x4MMO	21.36	21.50	
	Band 7	Ant1	20M	2535	21100	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 7	20M	2655	3100	4x4MMO	22.13	22.31	
	Band 7	Ant4	20M	2535	21100	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 7	20M	2655	3100	4x4MMO	21.56	21.72	
CA_2A-7C	Band 2	Ant1	20M	1880	18900	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 2	20M	1960	900	4x4MMO	22.17	22.30	
	Band 2	Ant4	20M	1880	18900	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 2	20M	1960	900	4x4MMO	21.36	21.50	
	Band 7	Ant1	20M	2535	21100	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 2	20M	1960	900	4x4MMO	22.13	22.31	
	Band 7	Ant4	20M	2535	21100	QPSK	1	0	4x4MMO	Band 7	20M	2655	3100	4x4MMO	Band 2	20M	1960	900	4x4MMO	21.61	21.65	
CA_4A-4A-5A	Band 4	Ant1	20M	1732.5	20175	QPSK	1	0	4x4MMO	Band 4	5M	2152.5	2375	4x4MMO	Band 5	10M	881.5	2525		22.13	22.37	
	Band 4	Ant4	20M	1732.5	20175	QPSK	1	0	4x4MMO	Band 4	5M	2152.5	2375	4x4MMO	Band 5	10M	881.5	2525		21.56	21.72	
	Band 5	Ant0	10M	83																		