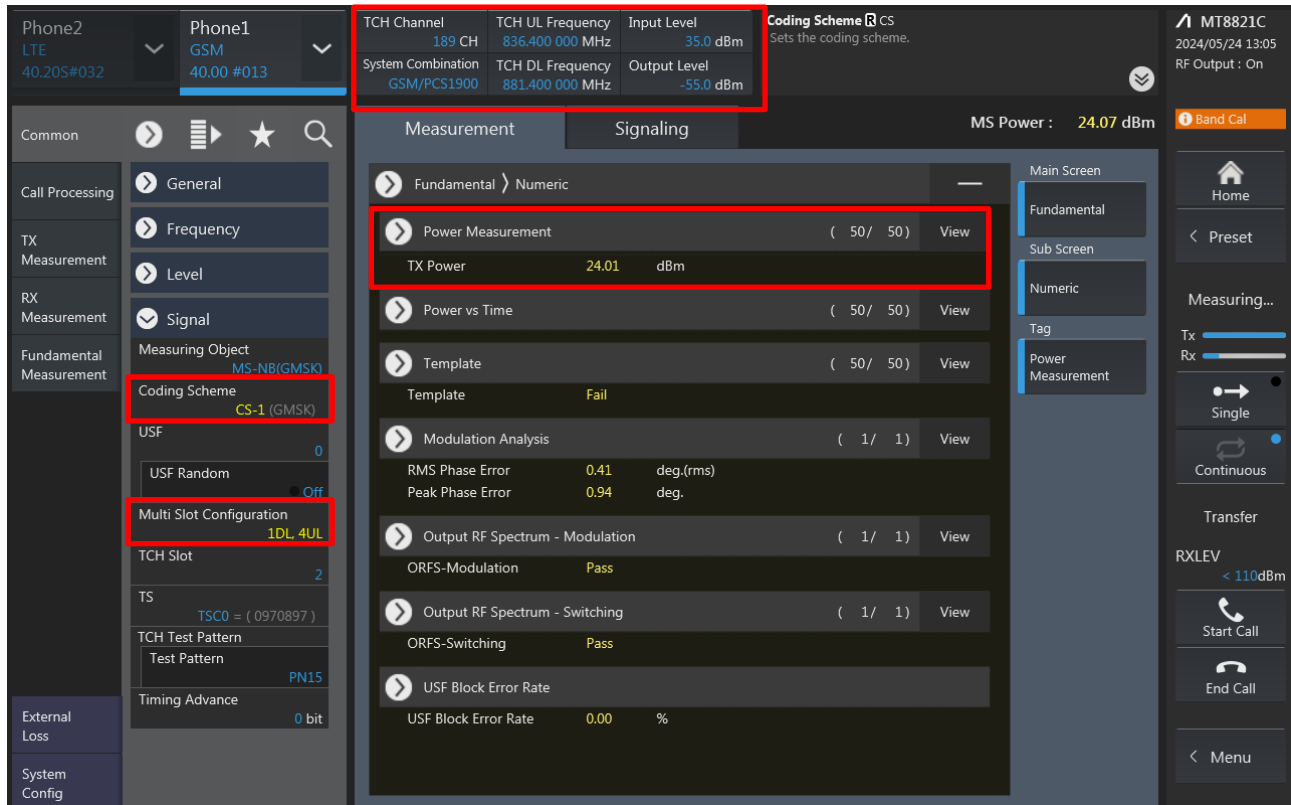


Power measurement connection diagram:

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>

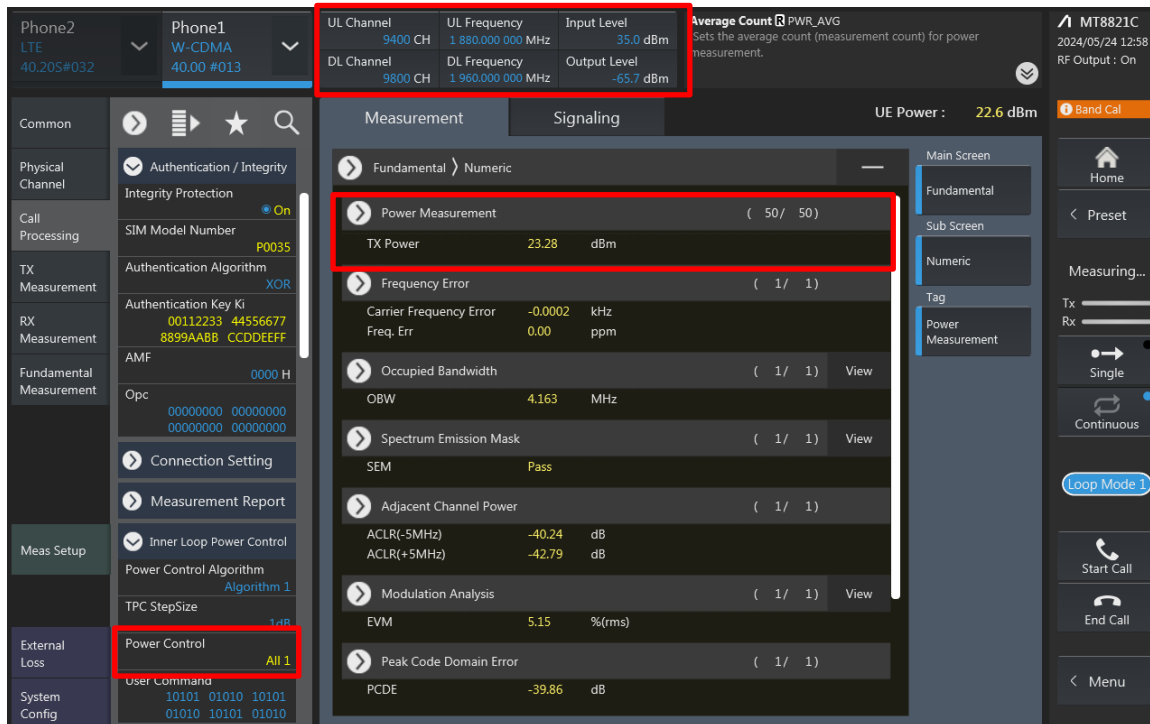


The screenshot displays the SPORTON LAB. software interface for GSM power measurement. The interface is divided into several sections:

- Top Bar:** Shows Phone2 (LTE, 40.205#032) and Phone1 (GSM, 40.00 #013). A table at the top right provides configuration details:

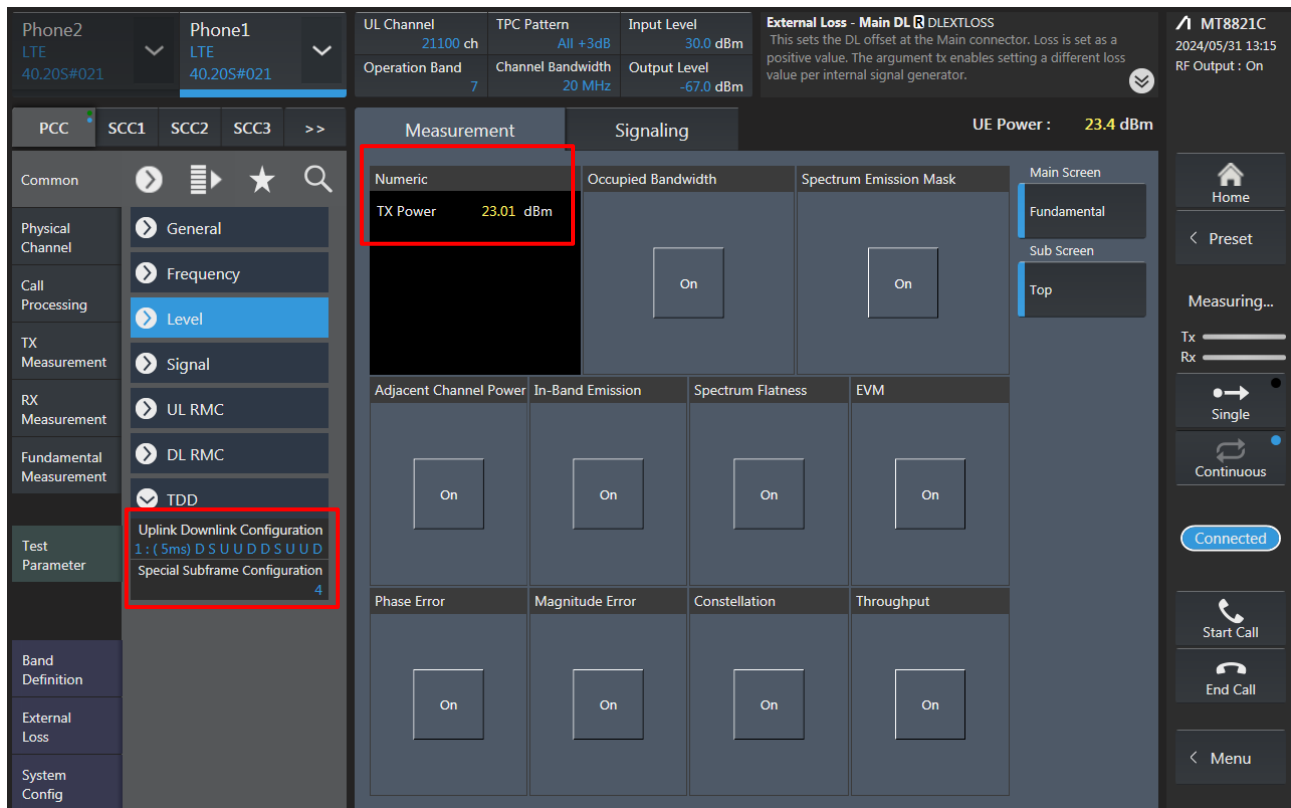
TCH Channel	TCH UL Frequency	Input Level	Coding Scheme
189 CH	836.400 000 MHz	35.0 dBm	CS
System Combination	TCH DL Frequency	Output Level	
GSM/PCS1900	881.400 000 MHz	-55.0 dBm	
- Left Sidebar:** Contains navigation options like Call Processing, TX Measurement, RX Measurement, Fundamental Measurement, 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 a list of measurements:
 - Power Measurement:** TX Power is 24.01 dBm.
 - Power vs Time:** (50/ 50) View
 - Template:** (50/ 50) View
 - Modulation Analysis:** (1/ 1) View
 - Output RF Spectrum - Modulation:** (1/ 1) View
 - Output RF Spectrum - Switching:** (1/ 1) View
 - USF Block Error Rate:** USF Block Error Rate is 0.00 %.
- Right Sidebar:** Shows 'Main Screen' and 'Sub Screen' options. The 'Sub Screen' is set to 'Power Measurement'. It also includes a 'Band Cal' button and a 'Home' button.

<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 a list of metrics. A red box highlights the 'Power Measurement' section, which includes 'TX Power' at 23.28 dBm. Another red box highlights the 'Power Control' section in the 'Meas Setup' tab, showing 'Power Control' set to 'All 1'. The 'UE Power' is 22.6 dBm. The 'Main Screen' on the right shows 'Fundamental' and 'Sub Screen' options.

<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 a list of metrics. A red box highlights the 'Power Measurement' section, which includes 'TX Power' at 23.01 dBm. Another red box highlights the 'Uplink Downlink Configuration' section in the 'Test Parameter' tab, showing 'Uplink Downlink Configuration 1: (5ms) D S U U D D S U U D' and 'Special Subframe Configuration 4'. The 'UE Power' is 23.4 dBm. The 'Main Screen' on the right shows 'Fundamental' and 'Sub Screen' options.

<LTE TDD Power class 3>

The screenshot displays the 5G NR Measurement and Signaling interface. The top bar shows the phone's status (Phone2, LTE, 40.20S#021) and the network's status (UL Channel 40620 ch, TPC Parameter All +3dB, Input Level 30.0 dBm). The 'TDD - Special Subframe Configuration' is set to 'TDDSSFCNF'. The 'UE Power' is 23.5 dBm.

The 'Measurement' section shows the following parameters:

- 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

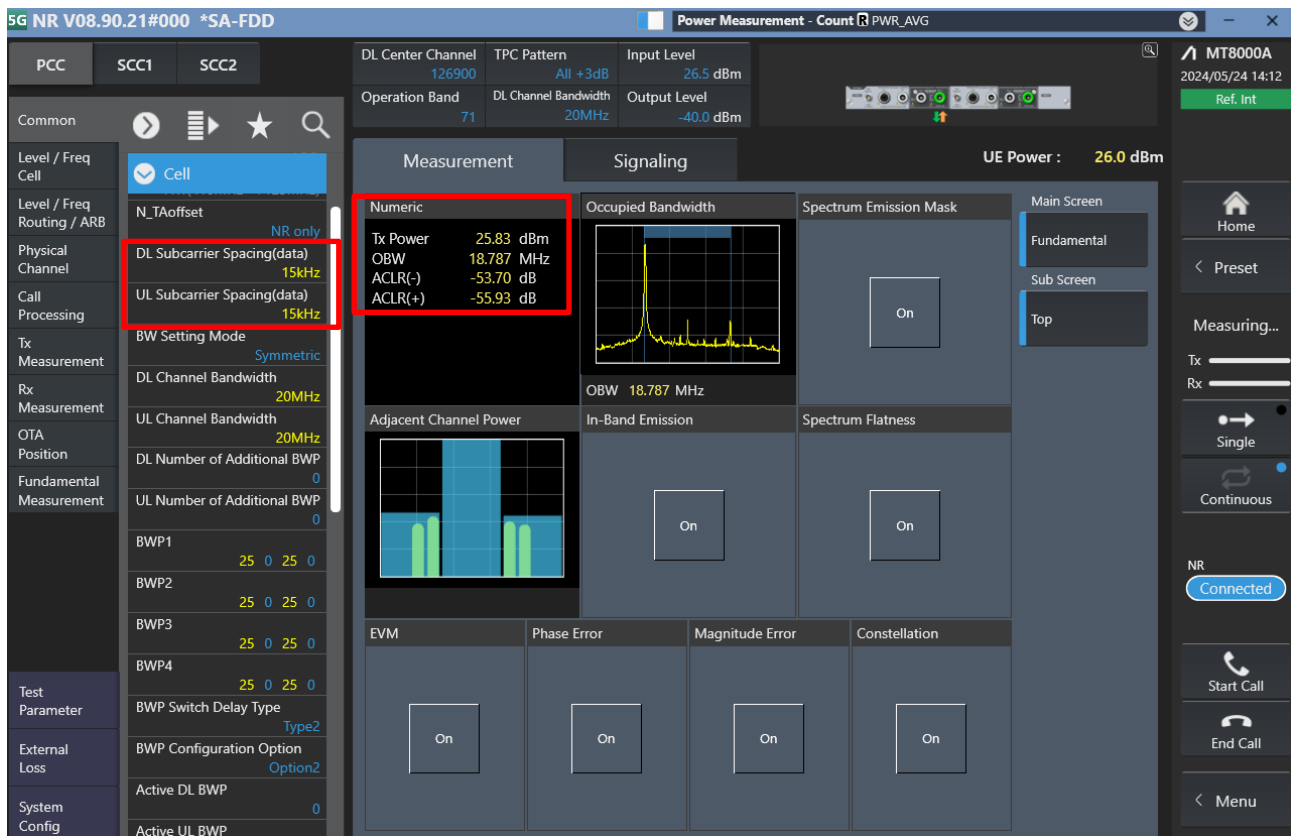
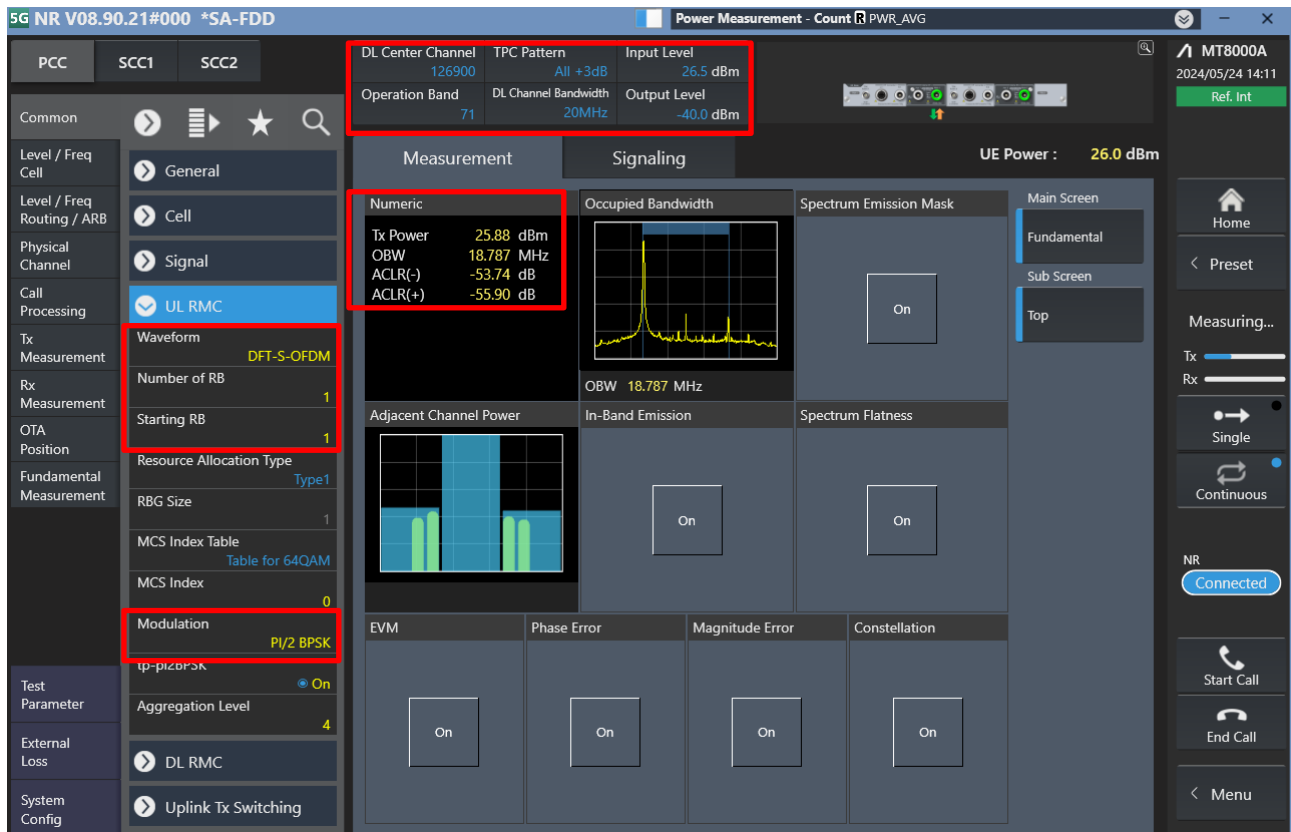
The 'Signaling' section shows the following parameters:

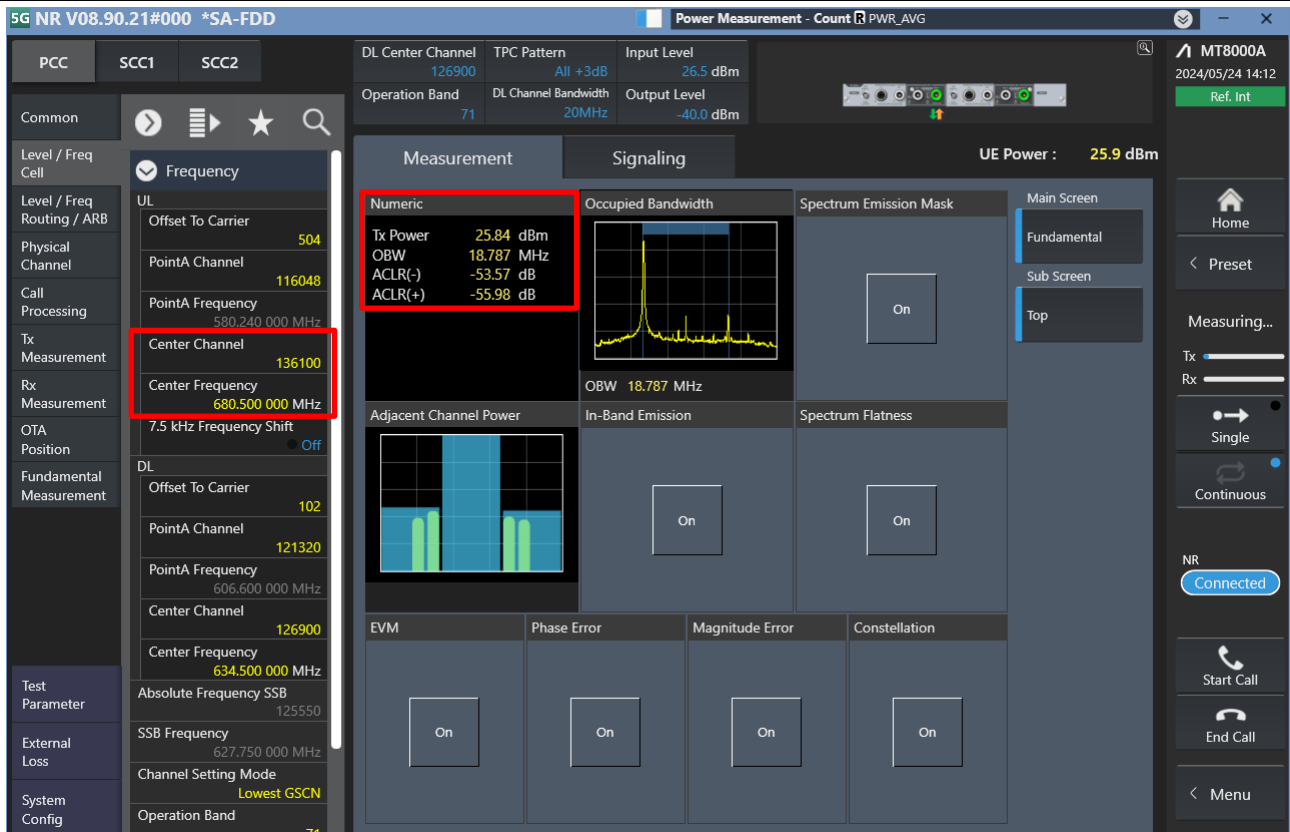
- Occupied Bandwidth**: On
- Spectrum Emission Mask**: On

The 'Fundamental Measurement' section shows the following parameters:

- TDD**: Uplink Downlink Configuration 0 : (5ms) D S U U U D S U U U, Special Subframe Configuration 5

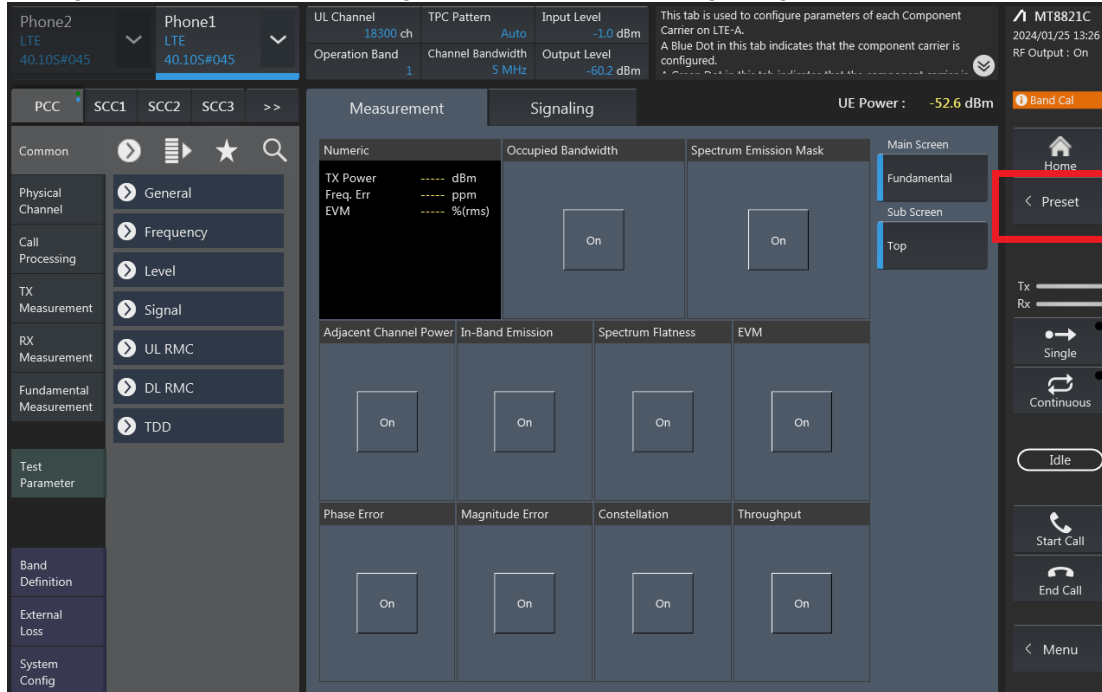
<5G NR FR1>





LTE Uplink and Downlink Carrier Aggregation configurations:

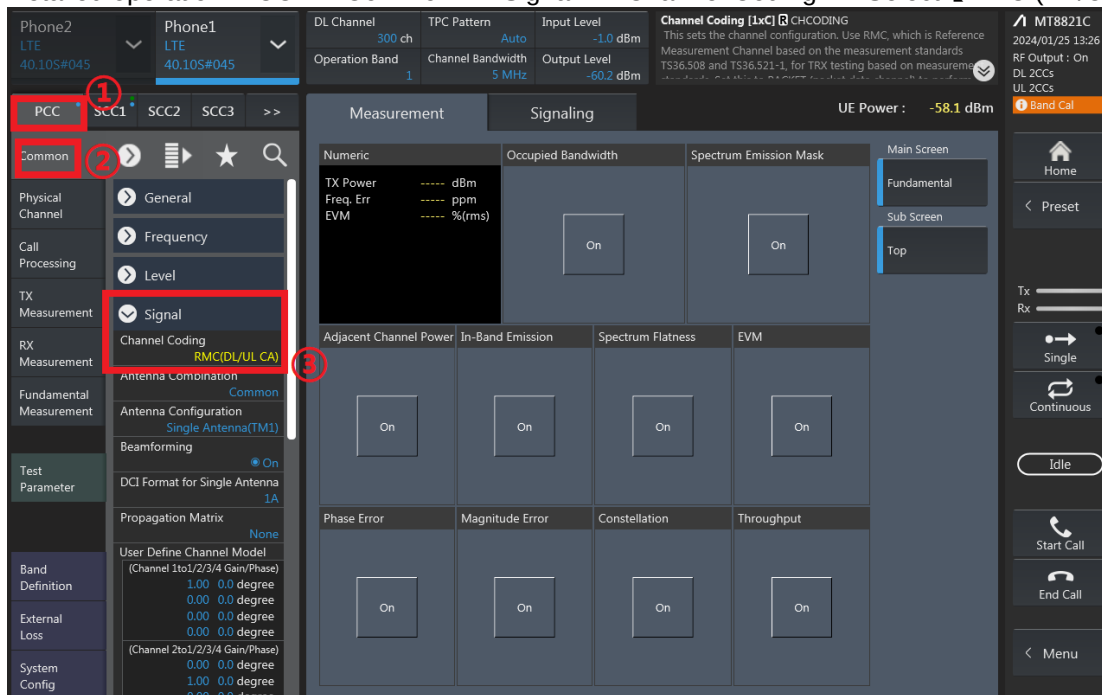
1. Change the Scenario in the Configuration of Phone1 LTE Signaling and Preset.



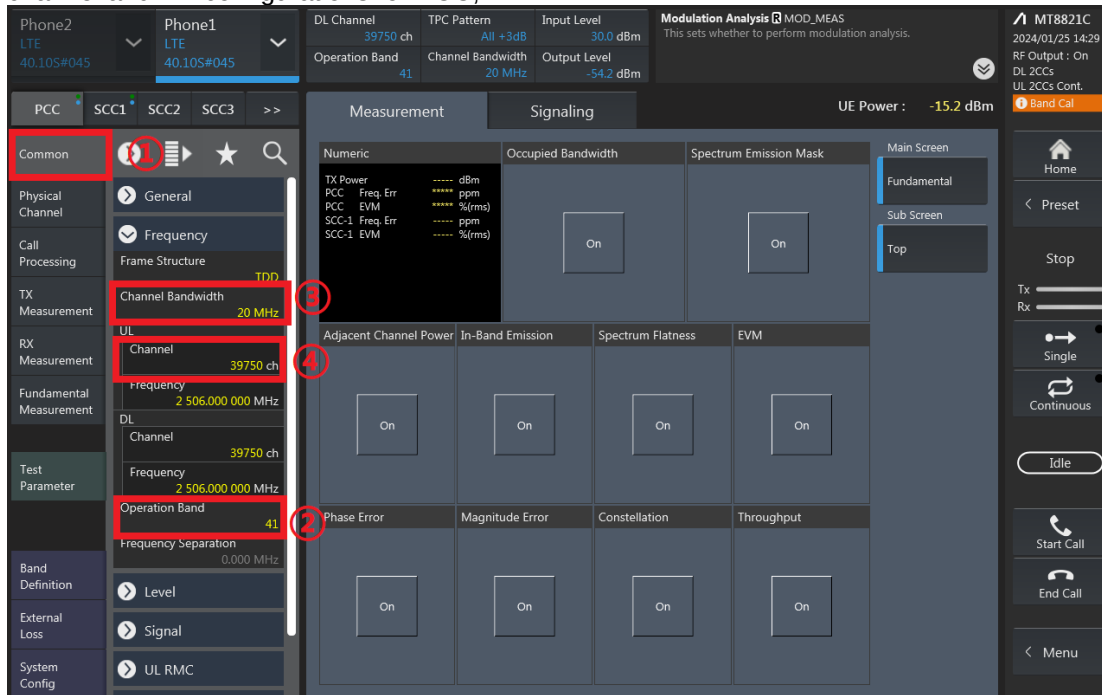
2. If Select "RMC (DL/UL CA)" for Uplink Carrier Aggregation;
If Select "RMC (DL CA)" for Downlink Carrier Aggregation.

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

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

UE Power: -15.2 dBm

Measurement Signaling

Common

Physical Channel

Call Processing

TX Measurement

RX Measurement

Fundamental Measurement

Test Parameter

Band Definition

External Loss

System Config

General

Frequency

Channel Bandwidth 20 MHz

Channel 39750 ch

Frequency 2 506.000 000 MHz

DL Channel 39750 ch

Frequency 2 506.000 000 MHz

Operation Band 41

Frequency Separation 0.000 MHz

Level

Signal

UL RMC

Numeric

Occupied Bandwidth

Spectrum Emission Mask

Main Screen

Fundamental

Sub Screen

Top

Home

Preset

Stop

Tx

Rx

Single

Continuous

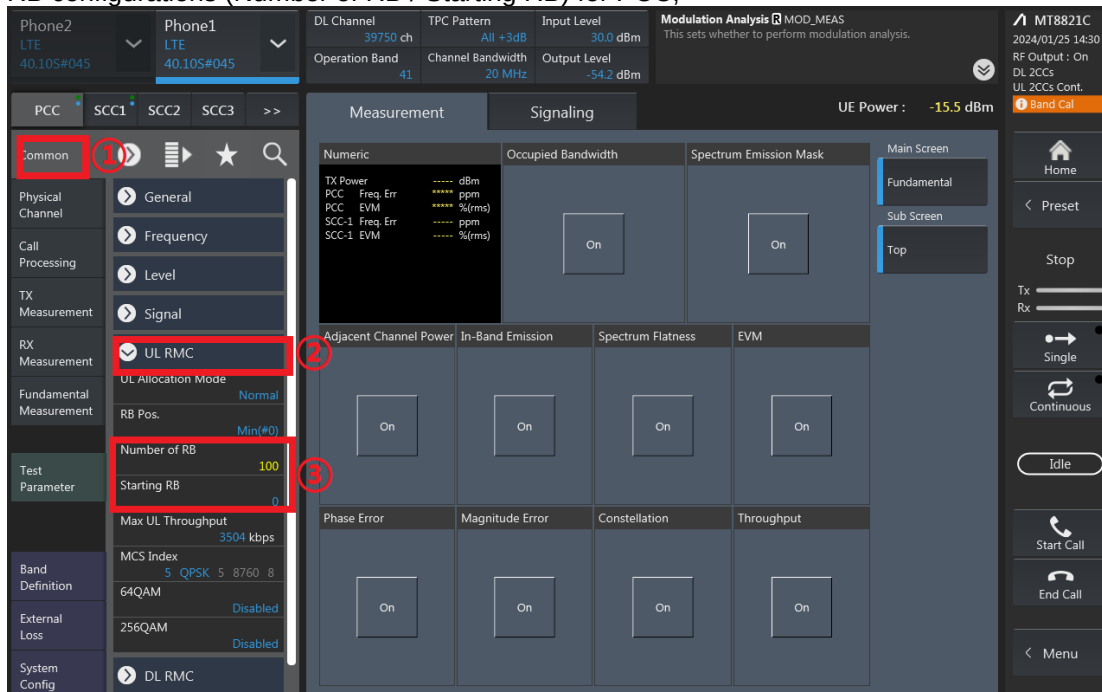
Idle

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

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

UE Power: -15.5 dBm

Measurement Signaling

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 100

Starting RB 0

Max UL Throughput 3504 kbps

MCS Index 5 QPSK 5 8760 8

64QAM

256QAM

DL RMC

Numeric

Occupied Bandwidth

Spectrum Emission Mask

Main Screen

Fundamental

Sub Screen

Top

Home

Preset

Stop

Tx

Rx

Single

Continuous

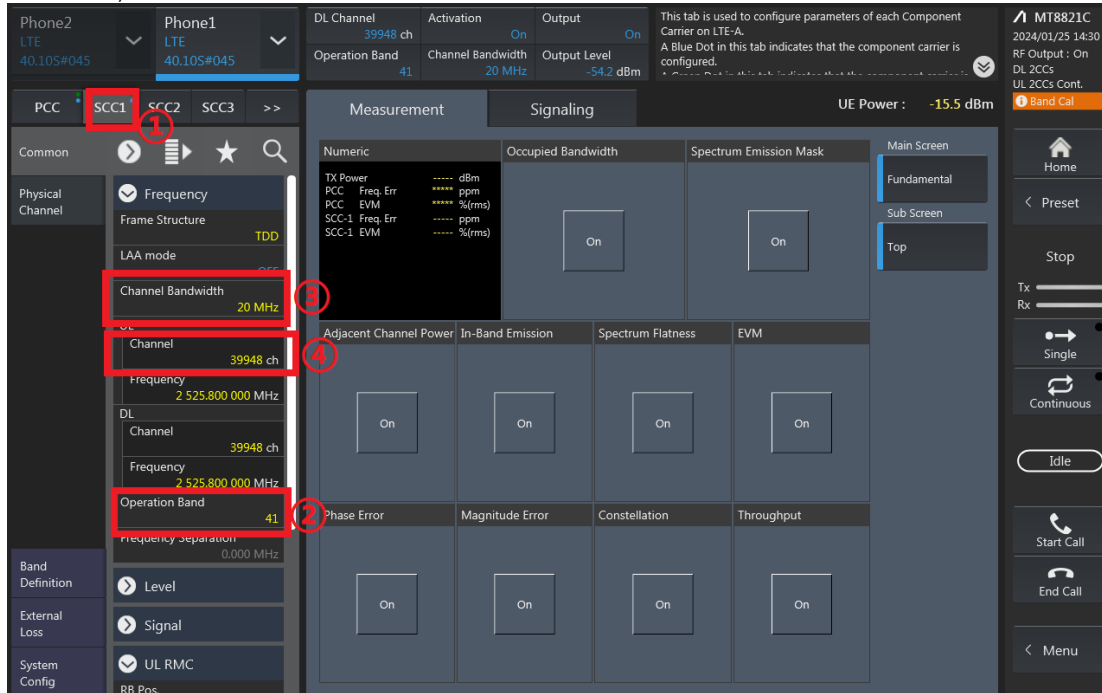
Idle

Start Call

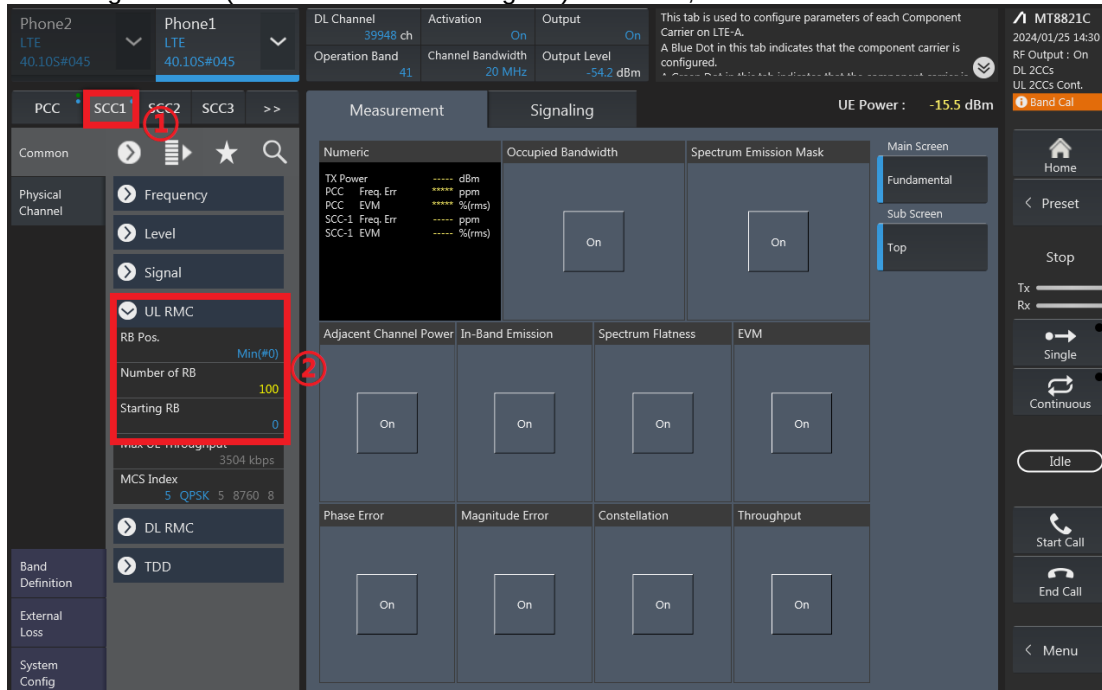
End Call

Menu

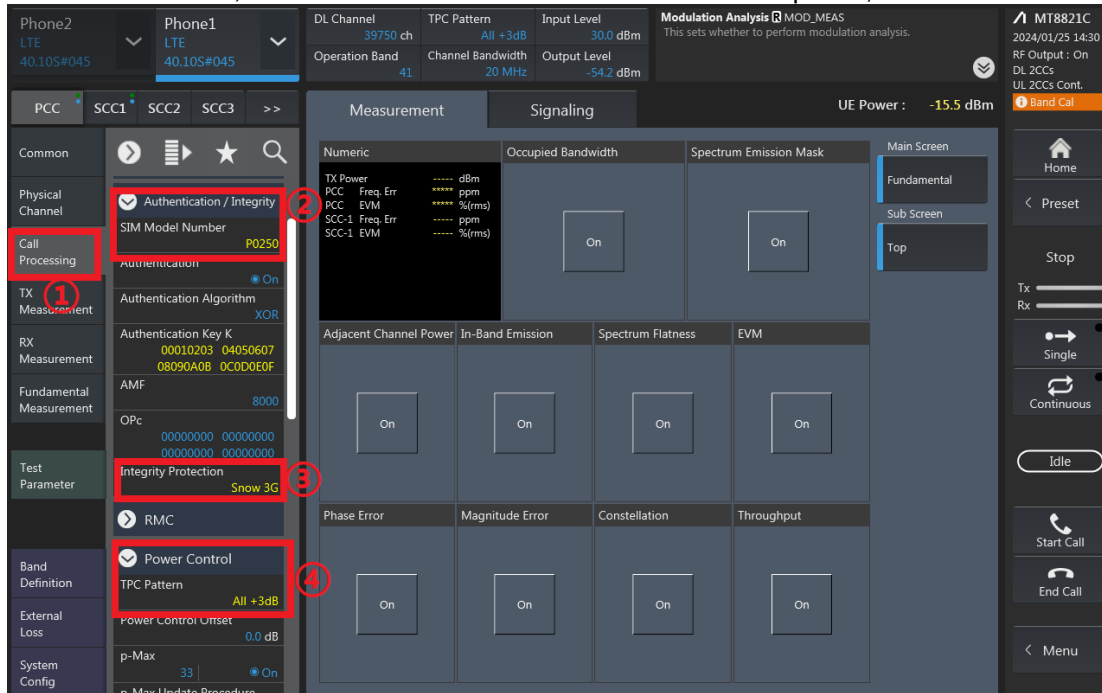
4. SCC parameter Settings: Select the SCC1 tab, Set operating band, BW, channel, and RB configurations for SCC1;



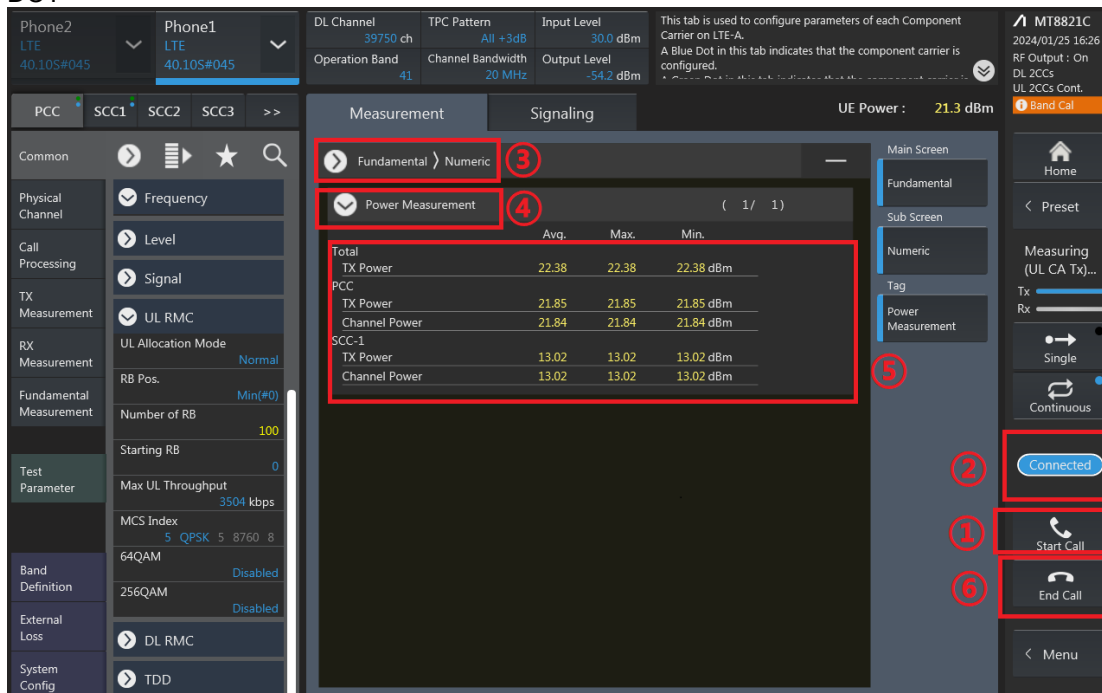
RB configurations (Number of RB / Starting RB) for SCC1;



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.

Downlink CA Power

Full Power															
2CC															
Configure		CA Configuration (BCS)	PCC							SCC				Power	
			LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	CA_2A-5A	2	20	1880	18900	QPSK	1	0	5	10M	881.5	2525	24.05	24.15	
	CA_2A-4A	2	20	1880	18900	QPSK	1	0	4	20M	2132.5	2175	23.77	24.15	
	CA_2A-66A	2	20	1880	18900	QPSK	1	0	66	20M	2155	66886	23.94	24.15	
	CA_2A-12A	2	20	1880	18900	QPSK	1	0	12	10M	737.5	5095	23.81	24.15	
	CA_2A-71A	2	20	1880	18900	QPSK	1	0	71	20M	634.5	68786	23.83	24.15	
	CA_2A-29A	2	20	1880	18900	QPSK	1	0	29	10M	722.5	9715	23.79	24.15	
	CA_2A-30A	2	20	1880	18900	QPSK	1	0	30	10M	2355	9820	23.94	24.15	
	CA_4A-5A	4	20M	1732.5	20175	QPSK	1	0	5	10M	881.5	2525	23.34	23.56	
	CA_4A-12A	4	20M	1732.5	20175	QPSK	1	0	12	10M	737.5	5095	23.45	23.56	
	CA_4A-13A	4	20M	1732.5	20175	QPSK	1	0	13	10M	751	5230	23.30	23.56	
	CA_4A-71A	4	20M	1732.5	20175	QPSK	1	0	71	20M	634.5	68786	23.37	23.56	
	CA_4A-29A	4	20M	1732.5	20175	QPSK	1	0	29	10M	722.5	9715	23.27	23.56	
	CA_4A-30A	4	20M	1732.5	20175	QPSK	1	0	30	10M	2355	9820	23.29	23.56	
	CA_5A-66A	5	10M	836.5	20525	QPSK	1	0	66	20M	2155	66886	23.69	24.03	
	CA_5A-30A	5	10M	836.5	20525	QPSK	1	0	30	10M	2355	9820	23.71	24.03	
	CA_12A-66A	12	10M	707.5	23095	QPSK	1	0	66	20M	2155	66886	23.70	23.83	
	CA_12A-30A	12	10M	707.5	23095	QPSK	1	0	30	10M	2355	9820	23.60	23.83	
	CA_13A-66A	13	10M	782	23230	QPSK	1	0	66	20M	2155	66886	23.90	24.05	
	CA_13A-2A	13	10M	782	23230	QPSK	1	0	2	20M	1880	900	24.06	24.05	
	CA_30A-29A	30	10M	2355	9820	QPSK	1	0	29	10M	722.5	9715	22.60	22.98	
	CA_30A-66A	30	10M	2355	9820	QPSK	1	0	66	20M	2155	66886	22.77	22.98	
Intra-Band	Non-Contiguous	CA_66A-29A	66	20M	1745	132322	QPSK	1	0	29	10M	722.5	9715	23.57	23.62
		CA_66A-71A	66	20M	1745	132322	QPSK	1	0	71	20M	634.5	68786	23.31	23.62
		CA_2A-2A	2	20M	1880	18900	QPSK	1	0	2	5M	1987.5	1175	23.91	24.15
	Contiguous	CA_4A-4A	4	20M	1732.5	20175	QPSK	1	0	4	5M	2152.5	2375	23.43	23.56
		CA_66A-66A	66	20M	1745	132322	QPSK	1	0	66	5M	2197.5	67311	23.43	23.62
		CA_2C	2	20M	1880	18900	QPSK	1	0	2	20M	1979.8	1098	24.02	24.15
CA_66B	66	15	1717.5	132047	QPSK	1	0	66	5M	2126.80	66604	23.60	23.62		
CA_66C	66	20M	1745	132322	QPSK	1	0	66	20M	2174.80	67084	23.46	23.62		