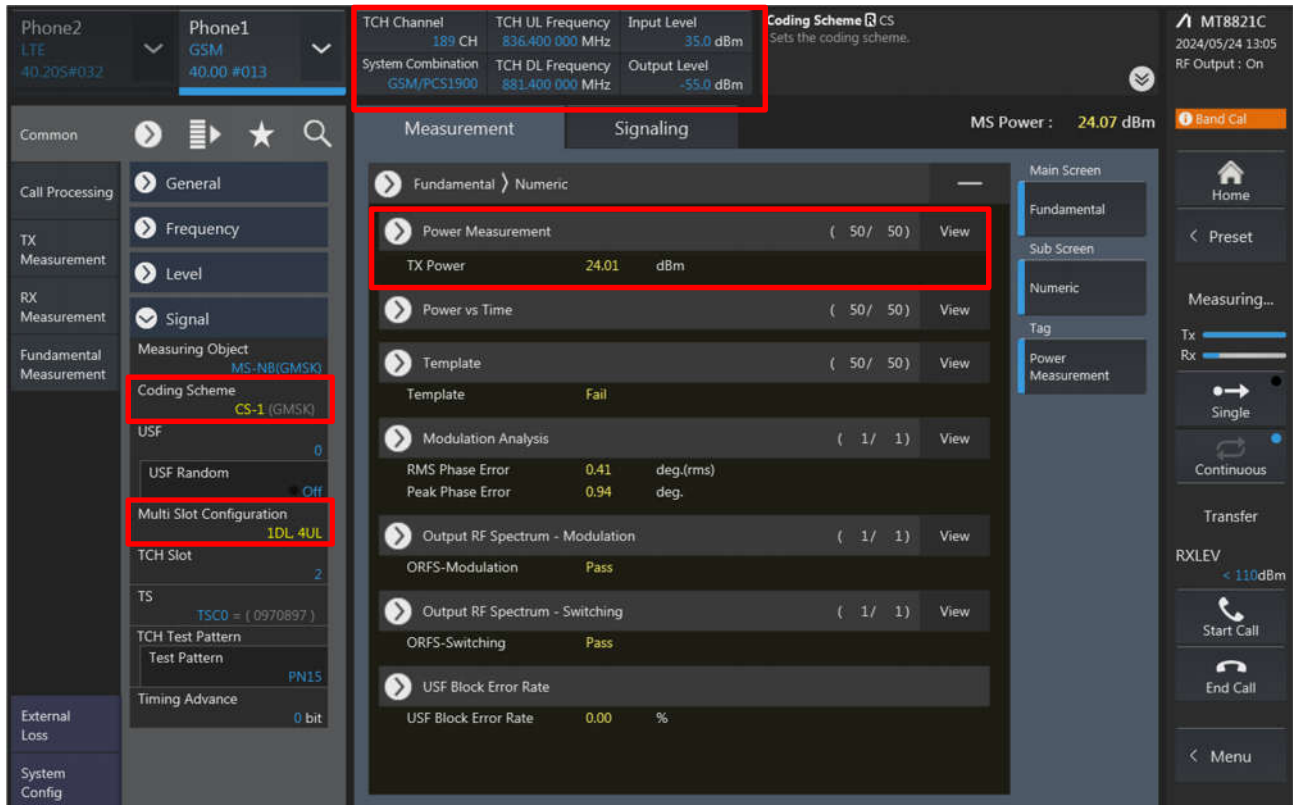


Power measurement connection diagram:

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.

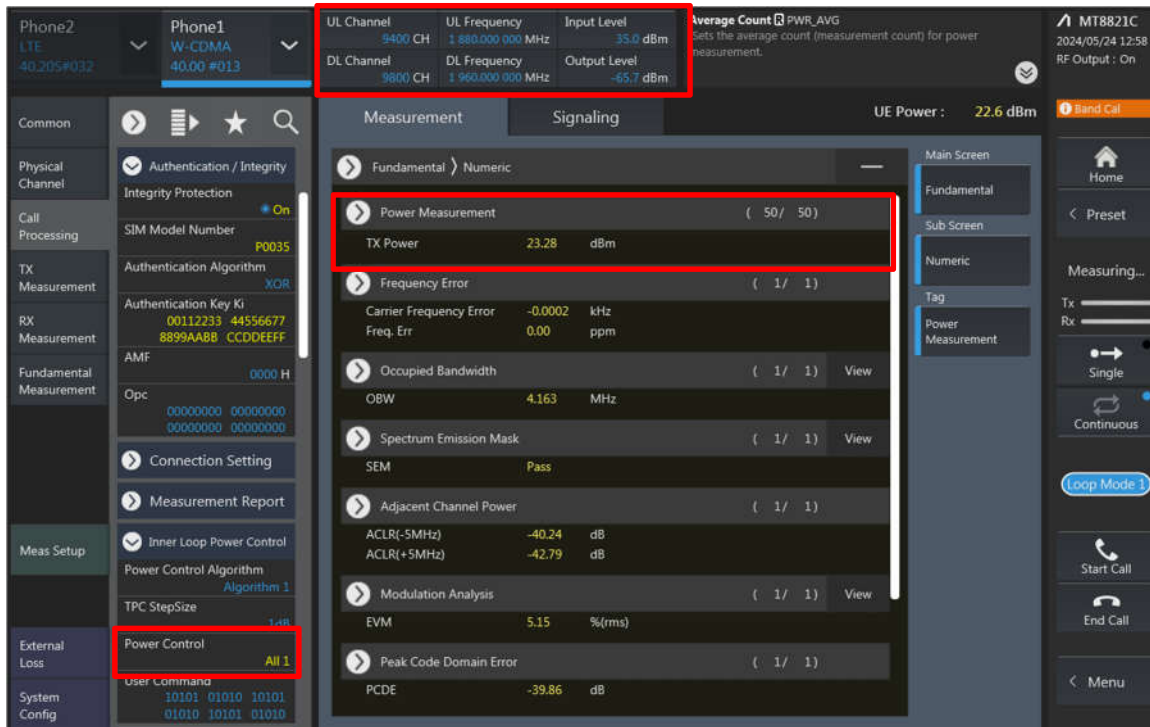
<GSM>



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

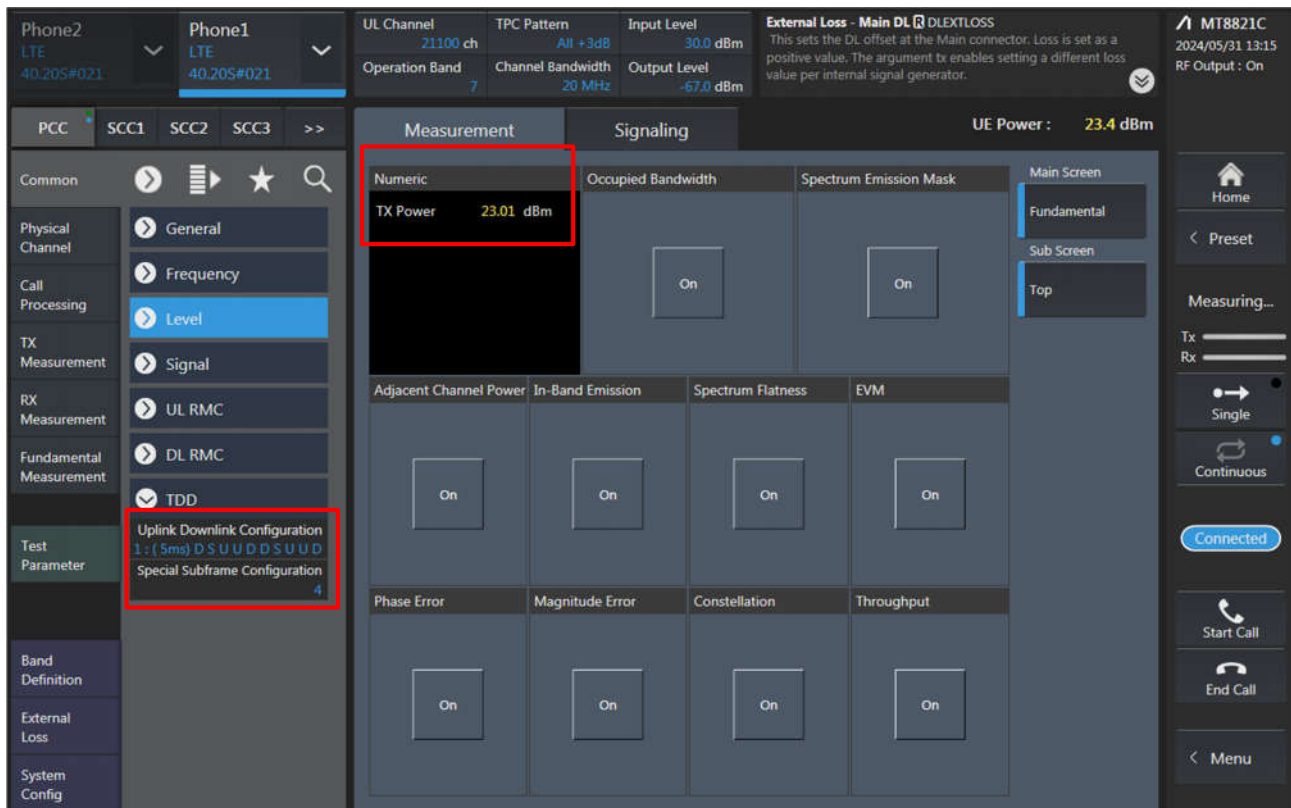
- Top Bar:** Shows Phone2 (LTE 40.205#032) and Phone1 (GSM 40.00 #013). The TCH Channel is 189 CH, TCH UL Frequency is 836.400 000 MHz, Input Level is 35.0 dBm, and TCH DL Frequency is 881.400 000 MHz. The Coding Scheme is CS.
- Left Sidebar:** Contains navigation options like Call Processing, TX Measurement, RX Measurement, Fundamental Measurement, and External Loss.
- Main Panel:** Displays measurement results under the 'Measurement' tab. The 'Power Measurement' section shows TX Power as 24.01 dBm. Other sections include Power vs Time, Template, Modulation Analysis, Output RF Spectrum - Modulation, Output RF Spectrum - Switching, and USF Block Error Rate.
- Right Sidebar:** Includes a 'Main Screen' section with 'Fundamental' and 'Sub Screen' options, and a 'Tag' section with 'Power Measurement'.

<WCDMA>



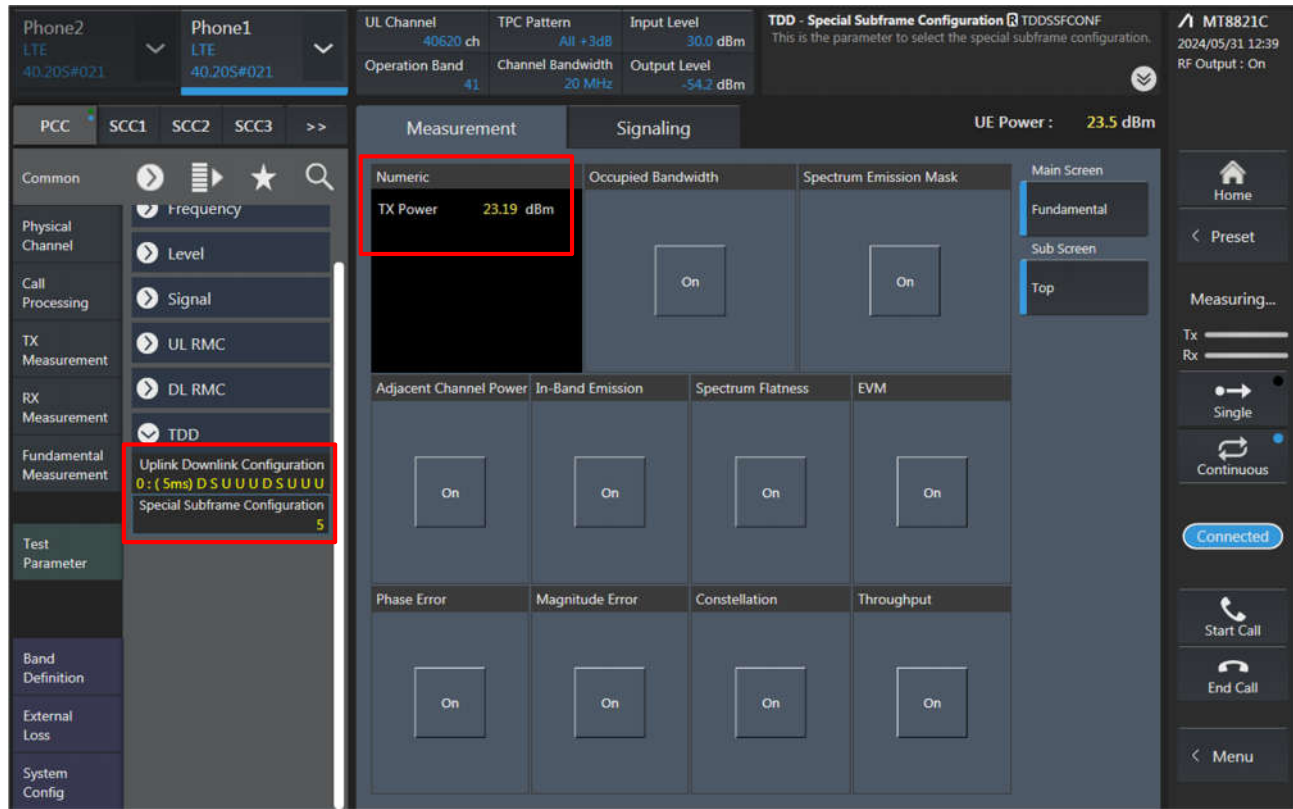
The screenshot shows the WCDMA measurement interface. The top bar displays 'Phone2 LTE 40.205#032' and 'Phone1 W-CDMA 40.00 #013'. The 'Measurement' tab is active, showing various parameters. A red box highlights the 'UL Channel' (9400 CH), 'UL Frequency' (1 880.000 000 MHz), 'Input Level' (35.0 dBm), 'DL Channel' (9800 CH), 'DL Frequency' (1 960.000 000 MHz), and 'Output Level' (-65.7 dBm). Another red box highlights the 'Power Measurement' section, showing 'TX Power' (23.28 dBm). The 'Fundamental' section shows 'Frequency Error' (-0.0002 kHz), 'Carrier Frequency Error' (0.00 ppm), 'Occupied Bandwidth' (4.163 MHz), 'Spectrum Emission Mask' (Pass), 'Adjacent Channel Power' (-40.24 dB, -42.79 dB), 'Modulation Analysis' (5.15 %/rms), and 'Peak Code Domain Error' (-39.86 dB). The 'UE Power' is 22.6 dBm. The 'Meas Setup' section shows 'Power Control' (All 1) and 'User Command' (10101 01010 10101 01010 10101 01010).

<LTE>



The screenshot shows the LTE measurement interface. The top bar displays 'Phone2 LTE 40.205#021' and 'Phone1 LTE 40.205#021'. The 'Measurement' tab is active, showing various parameters. A red box highlights the 'TX Power' (23.01 dBm). The 'Occupied Bandwidth' and 'Spectrum Emission Mask' sections show 'On' buttons. The 'Adjacent Channel Power', 'In-Band Emission', 'Spectrum Flatness', and 'EVM' sections also show 'On' buttons. The 'Phase Error', 'Magnitude Error', 'Constellation', and 'Throughput' sections also show 'On' buttons. The 'UE Power' is 23.4 dBm. The 'Test Parameter' section shows 'Uplink Downlink Configuration 1: (5ms) D S U U D D S U U D' and 'Special Subframe Configuration 4'. The 'External Loss - Main DL' section shows 'DLEXTLOSS' and a description: '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.'

<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

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

Spectrum Emission Mask

Main Screen

Fundamental

Sub Screen

Top

Adjacent Channel Power

In-Band Emission

Spectrum Flatness

EVM

Phase Error

Magnitude Error

Constellation

Throughput

Home

Preset

Measuring...

Tx

Rx

Single

Continuous

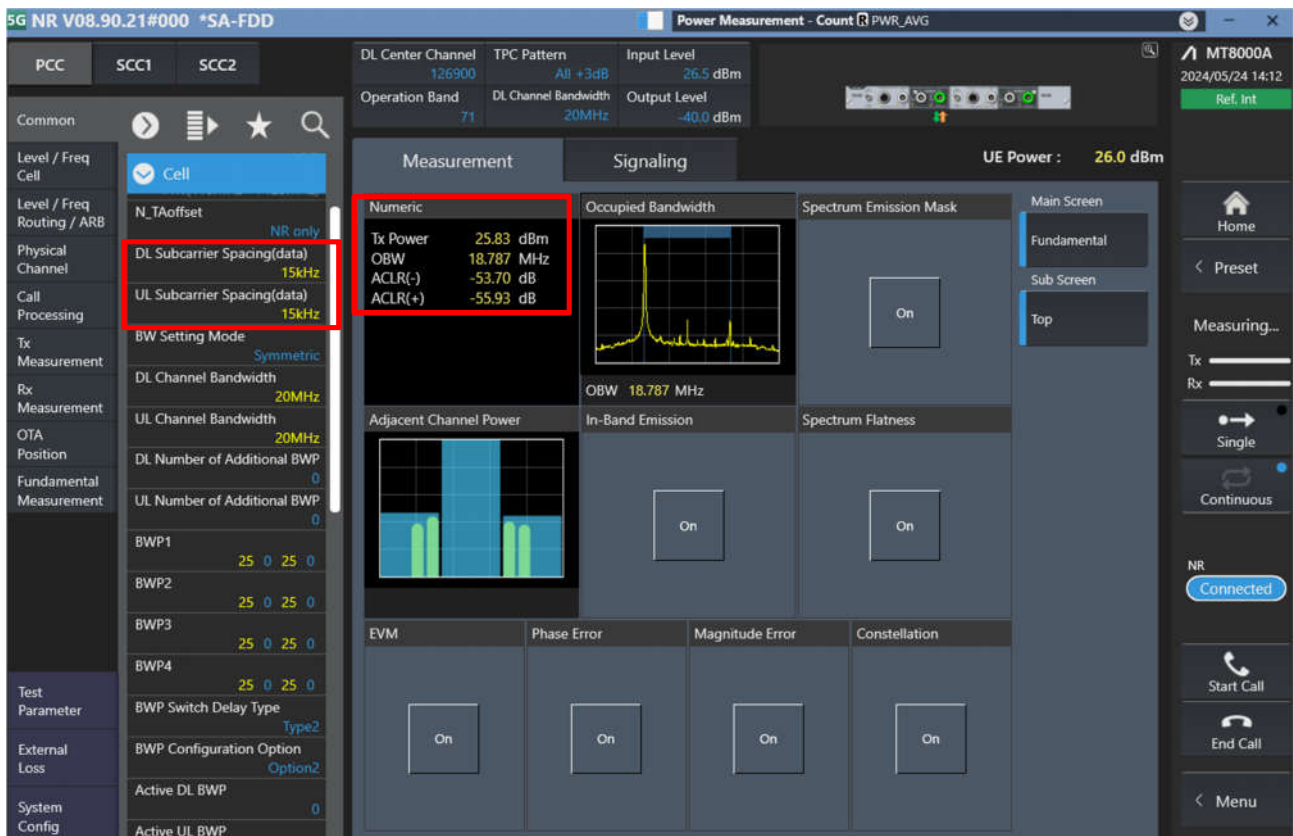
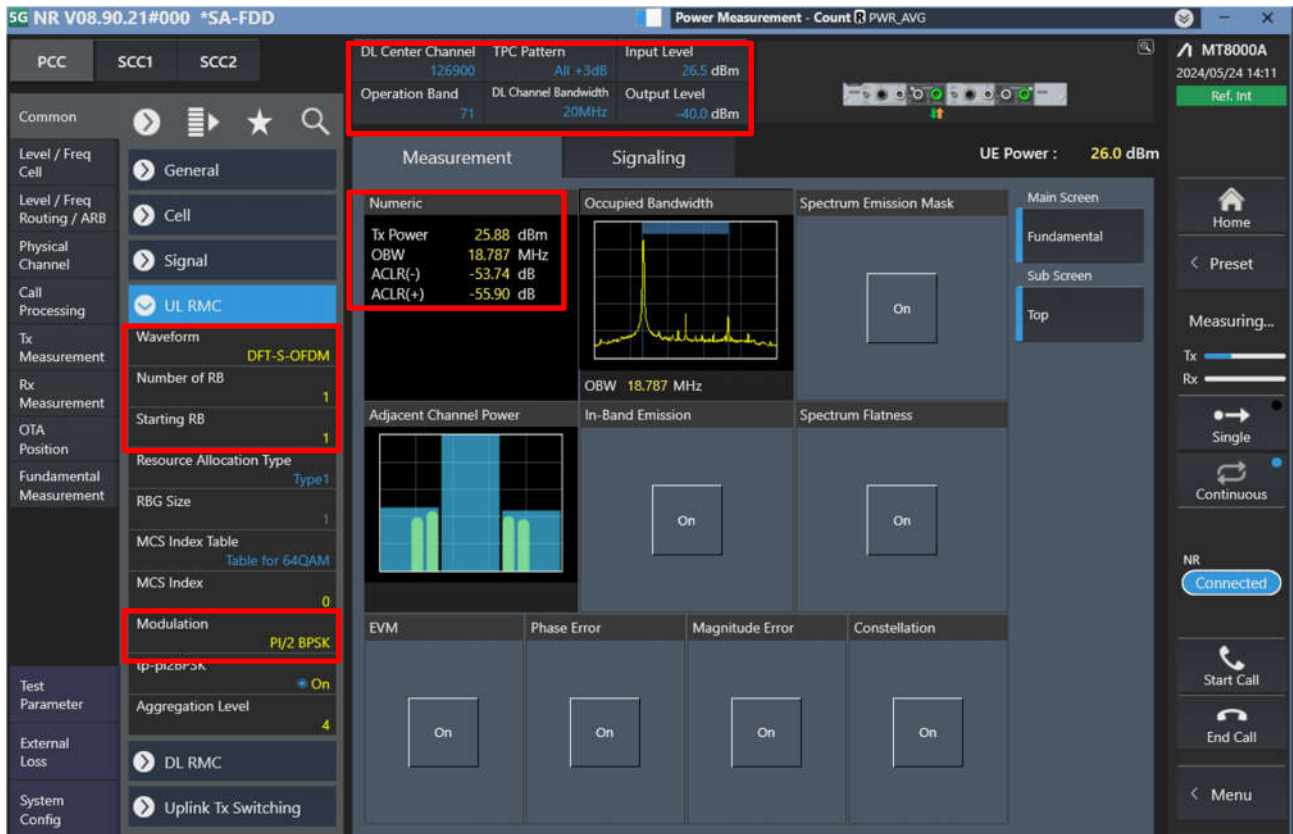
Connected

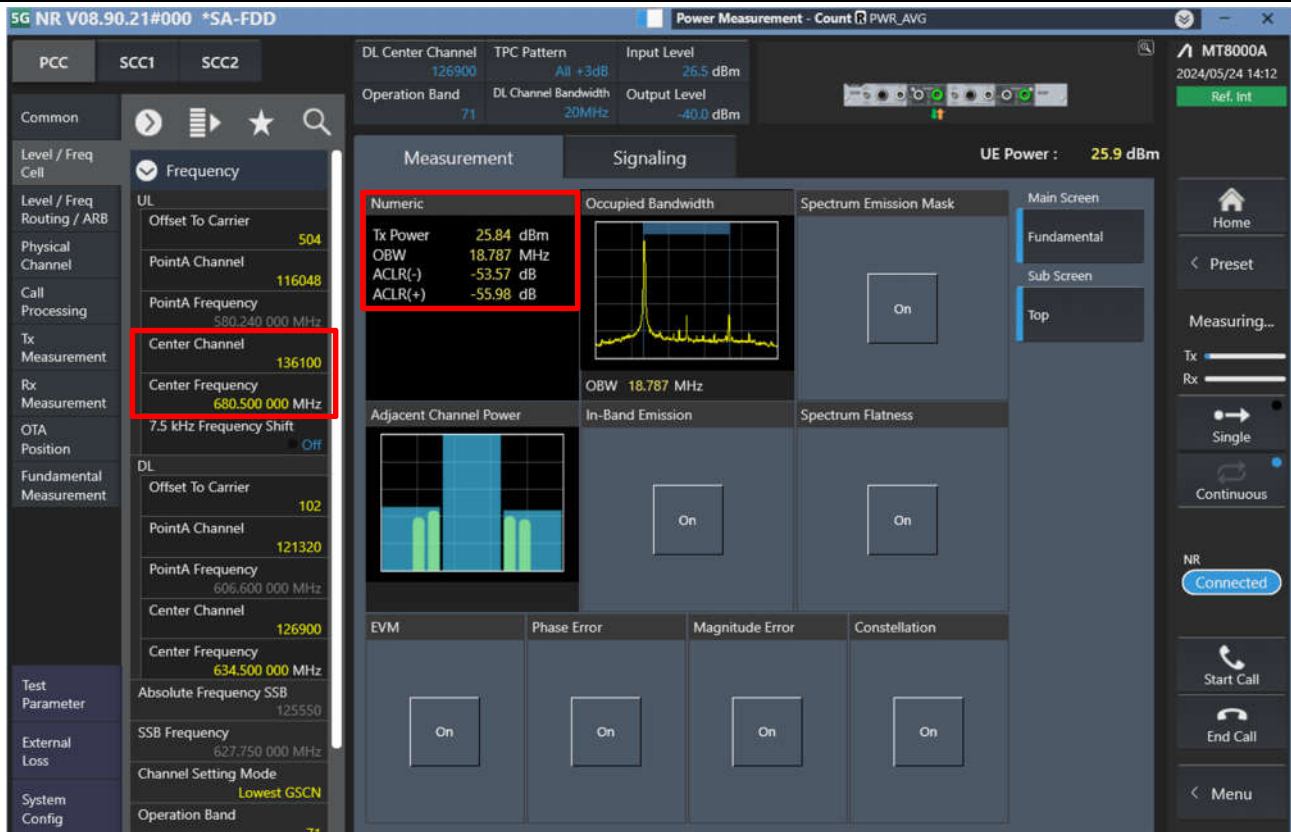
Start Call

End Call

Menu

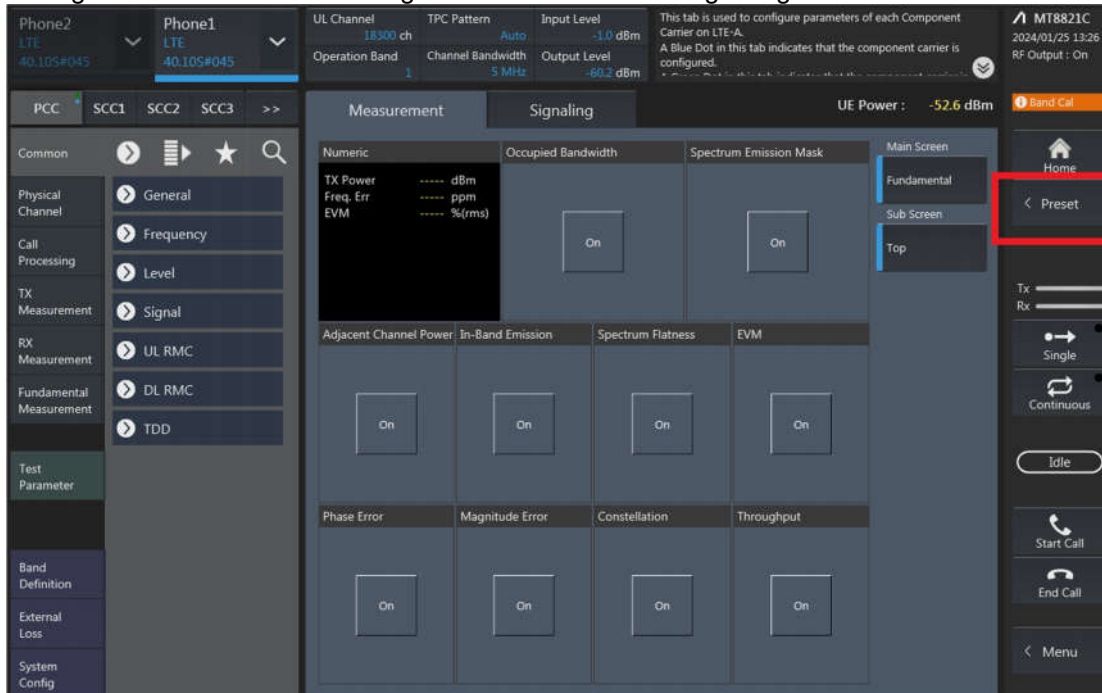
<5G NR FR1>





LTE Uplink and Downlink Carrier Aggregation configurations:

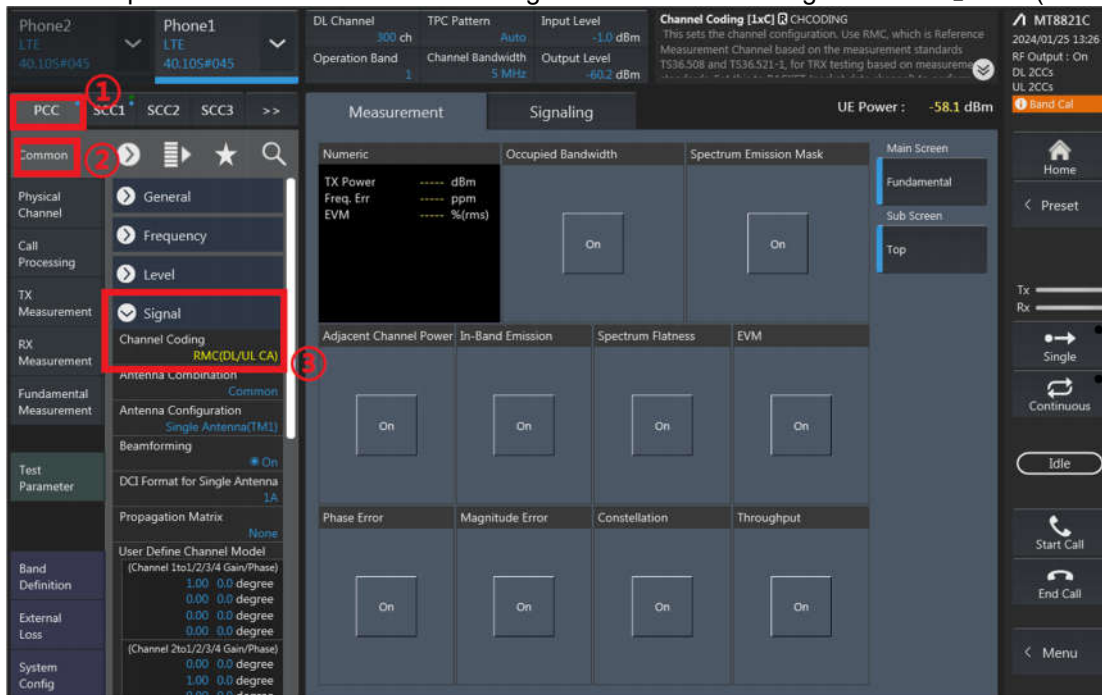
1. Change the Scenario in the Configuration of Phone1 LTE Signaling and Preset.



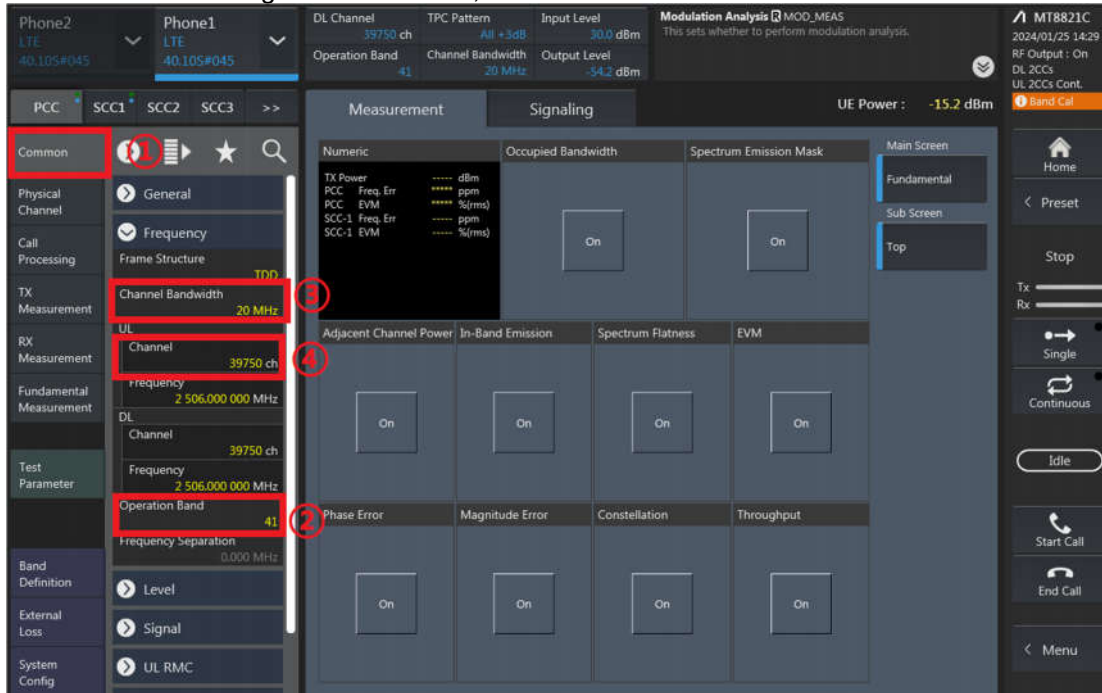
2. If Select "RMC (DL/UL CA)" for Uplink Carrier Aggregation;
If Select "RMC (DL CA)" for Downlink Carrier Aggregation.

For example, Uplink Carrier Aggregation:

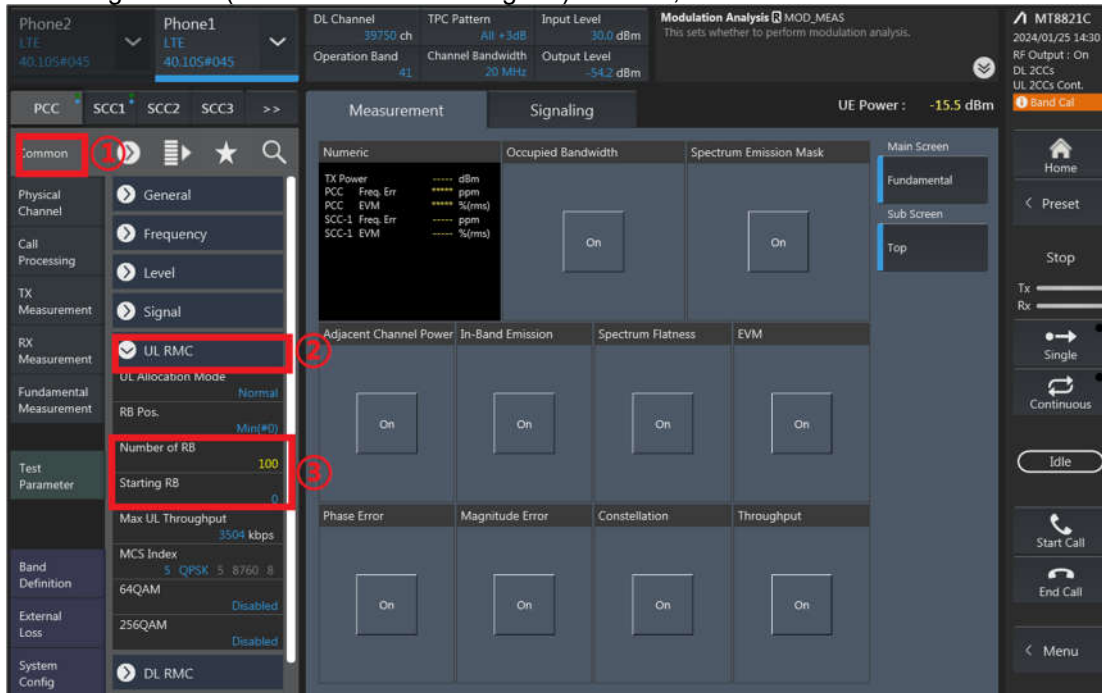
Detailed operation: PCC → Common → Signal → Channel Coding → Select 【RMC (DL/UL CA)】



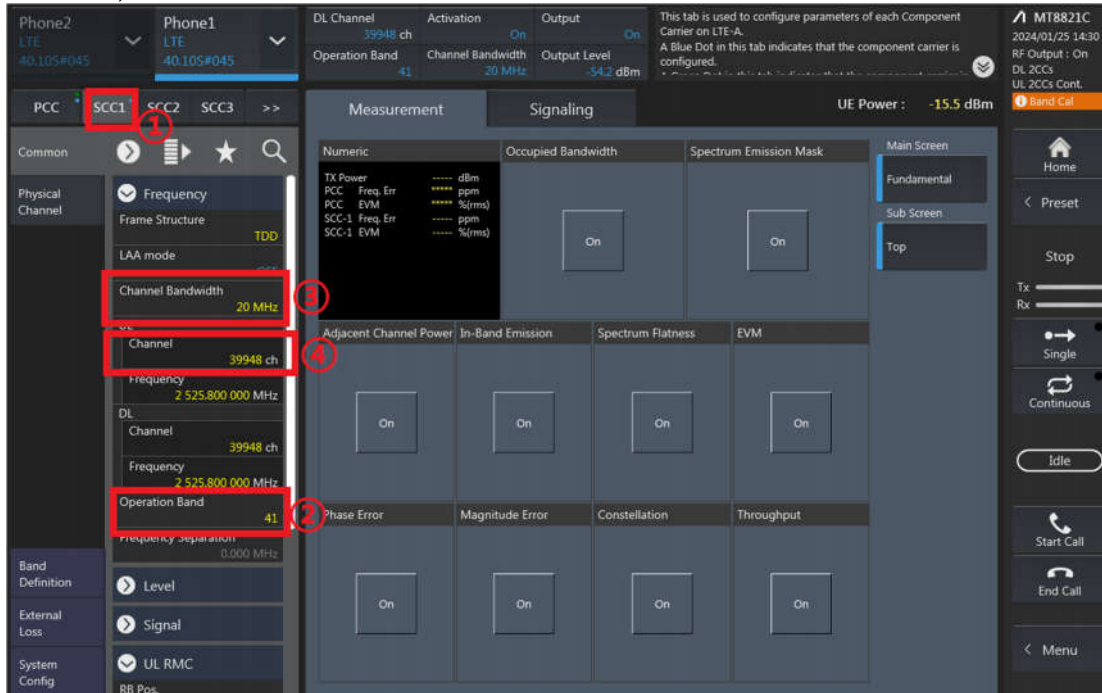
3. PCC parameter Settings: on the screen, and then select the PCC tab and Set operating band, BW, channel and RB configurations for PCC;



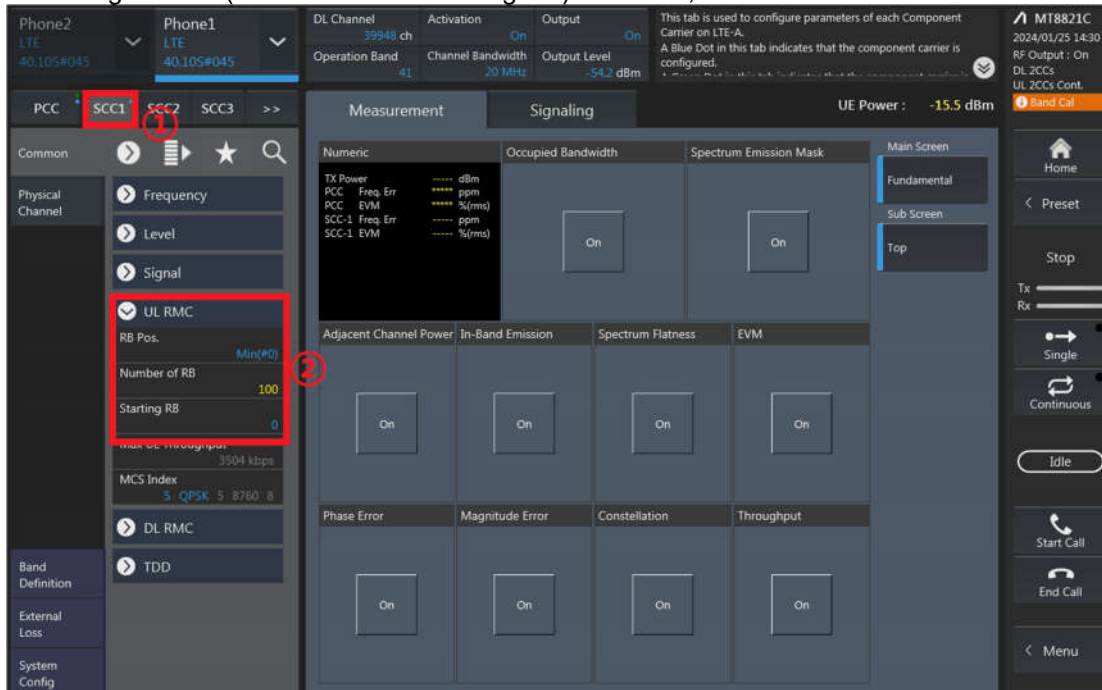
RB configurations (Number of RB / Starting RB) for PCC;



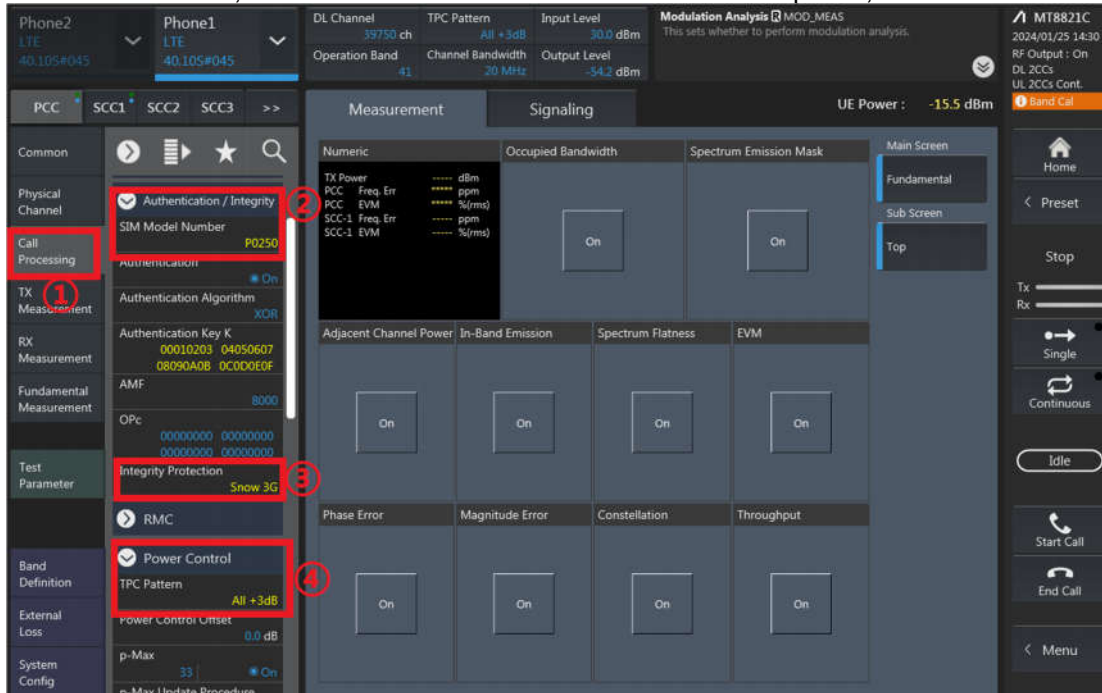
4. SCC parameter Settings: Select the SCC1 tab, Set operating band, BW, channel, and RB configurations for SCC1;



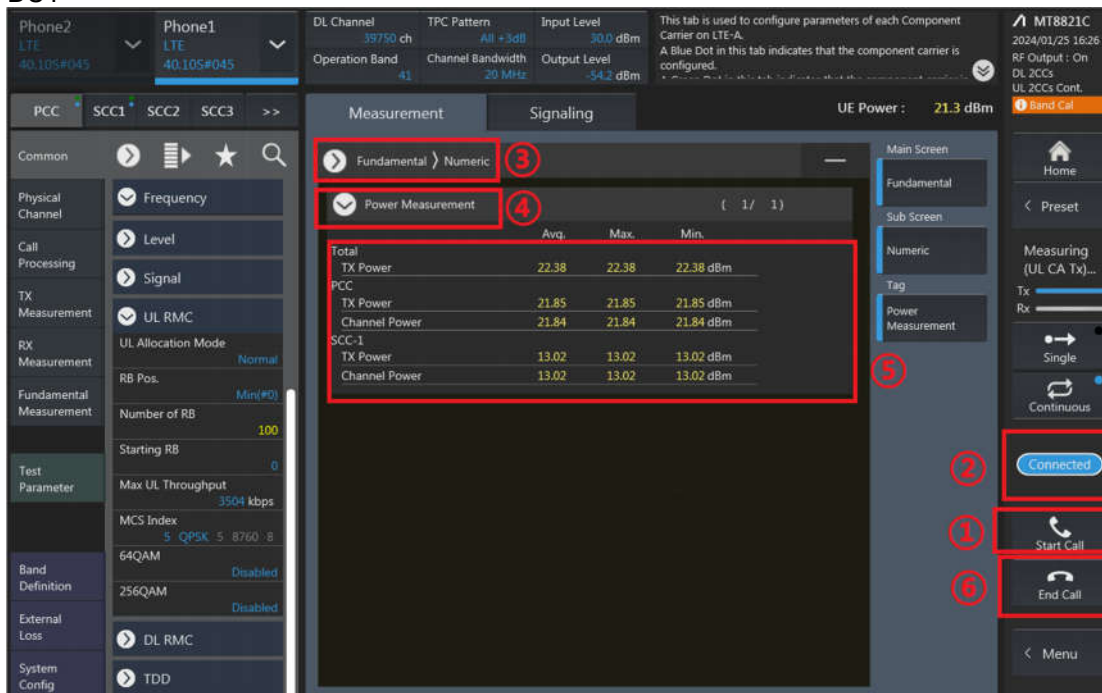
RB configurations (Number of RB / Starting RB) for SCC1;



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



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 7C_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					
20850	21048	QPSK	1	49	0	0	1	0	Full	22.05	24.00
21100	21298	QPSK	1	49	0	0	1	0	Full	22.04	24.00
21350	21152	QPSK	1	49	0	0	1	0	Full	22.03	24.00
20850	21048	QPSK	1	49	0	0	1	0	Rec on	22.05	24.00
21100	21298	QPSK	1	49	0	0	1	0	Rec on	22.04	24.00
21350	21152	QPSK	1	49	0	0	1	0	Rec on	22.03	24.00
20850	21048	QPSK	1	49	0	0	1	0	Sensor on	18.73	20.50
21100	21298	QPSK	1	49	0	0	1	0	Sensor on	18.74	20.50
21350	21152	QPSK	1	49	0	0	1	0	Sensor on	18.72	20.50
20850	21048	QPSK	1	49	0	0	1	0	Handheld	19.64	21.50
21100	21298	QPSK	1	49	0	0	1	0	Handheld	19.73	21.50
21350	21152	QPSK	1	49	0	0	1	0	Handheld	19.60	21.50
20850	21048	QPSK	1	49	0	0	1	0	Hotspot on	18.73	20.50
21100	21298	QPSK	1	49	0	0	1	0	Hotspot on	18.74	20.50
21350	21152	QPSK	1	49	0	0	1	0	Hotspot on	18.72	20.50