

## Appendix H. – Power reduction verification

Per the May 2017 TCBC Workshop notes, demonstration of proper functioning of the power reduction mechanism is required to support the corresponding SAR Configurations.

The verification process was divided into two parts:

- 1). Evaluation of output power levels for individual triggering mechanism
- 2) Evaluation of the triggering distances for proximity-based sensors.

### 1. Power Reduction Verification for Main Ant

The Power verification was performed according to the following procedure:

1. A base station simulator was used to establish a conducted RF connection and output power was monitored. The Power measurements were conformed to be within expected tolerances for all states before and after a power reduction mechanism was triggered.
2. Step 1 was repeated for all relevant modes and frequency bands for the mechanism being investigated.
3. Step 1 and 2 were repeated for all individual power reduction mechanism and combinations thereof. For the combination cases, one mechanism was switched to a “triggered” state at a time; powers were conformed to be within tolerance after each additional mechanism was activated.

### Main Antenna Verification Summary

Mechanism(s)	Mode/Band	Device State Index		
		Un-triggered (Max Power)	Triggered (Reduced Power)	Triggered (Reduced Power)
Grip	GSM/GPRS/EDGE 1900	0	1	
Grip	PCS/EVDO BC1	0	1	
Grip	WCDMA B2	0	1	
Grip	WCDMA B4	0	1	
Grip	LTE Band 2	0	1	
Grip	LTE Band 4	0	1	
Grip	LTE Band 7	0	1	
Grip	LTE Band 25	0	1	
Grip	LTE Band 30	0	1	
Grip	LTE Band 38	0	1	
Grip	LTE Band 41(Class 3)	0	1	
Grip	LTE Band 41(Class 2)	0	1	
Grip	LTE Band 66	0	1	
Grip	Sub 6 Band n2	0	1	
Grip	Sub 6 Band n25	0	1	
Grip	Sub 6 Band n30	0	1	
Grip	Sub 6 Band n41 Lower	0	1	
Grip	Sub 6 Band n66	0	1	
Hotspot On	GSM/GPRS/EDGE 1900	0	3	
Hotspot On	PCS/EVDO BC1	0	3	
Hotspot On	WCDMA B2	0	3	
Hotspot On	WCDMA B4	0	3	
Hotspot On	LTE Band 2	0	3	
Hotspot On	LTE Band 4	0	3	
Hotspot On	LTE Band 7	0	3	
Hotspot On	LTE Band 25	0	3	
Hotspot On	LTE Band 30	0	3	
Hotspot On	LTE Band 38	0	3	
Hotspot On	LTE Band 41(Class 3)	0	3	
Hotspot On	LTE Band 41(Class 2)	0	3	
Hotspot On	LTE Band 66	0	3	
Hotspot On	Sub 6 Band n2	0	3	
Hotspot On	Sub 6 Band n25	0	3	
Hotspot On	Sub 6 Band n30	0	3	
Hotspot On	Sub 6 Band n41 Lower	0	3	
Hotspot On	Sub 6 Band n66	0	3	
Hotspot On, Then Grip	GSM/GPRS/EDGE 1900	0	3	3
Hotspot On, Then Grip	PCS/EVDO BC1	0	3	3
Hotspot On, Then Grip	WCDMA B2	0	3	3
Hotspot On, Then Grip	WCDMA B4	0	3	3
Hotspot On, Then Grip	LTE Band 2	0	3	3
Hotspot On, Then Grip	LTE Band 4	0	3	3
Hotspot On, Then Grip	LTE Band 7	0	3	3
Hotspot On, Then Grip	LTE Band 25	0	3	3
Hotspot On, Then Grip	LTE Band 30	0	3	3

Hotspot On, Then Grip	LTE Band 38	0	3	3
Hotspot On, Then Grip	LTE Band 41(Class 3)	0	3	3
Hotspot On, Then Grip	LTE Band 41(Class 2)	0	3	3
Hotspot On, Then Grip	LTE Band 66	0	3	3
Hotspot On, Then Grip	Sub 6 Band n2	0	3	3
Hotspot On, Then Grip	Sub 6 Band n25	0	3	3
Hotspot On, Then Grip	Sub 6 Band n30	0	3	3
Hotspot On, Then Grip	Sub 6 Band n41 Lower	0	3	3
Hotspot On, Then Grip	Sub 6 Band n66	0	3	3
Grip, then Hotspot On	GSM/GPRS/EDGE 1900	0	1	3
Grip, then Hotspot On	PCS/EVDO BC1	0	1	3
Grip, then Hotspot On	WCDMA B2	0	1	3
Grip, then Hotspot On	WCDMA B4	0	1	3
Grip, then Hotspot On	LTE Band 2	0	1	3
Grip, then Hotspot On	LTE Band 4	0	1	3
Grip, then Hotspot On	LTE Band 7	0	1	3
Grip, then Hotspot On	LTE Band 25	0	1	3
Grip, then Hotspot On	LTE Band 30	0	1	3
Grip, then Hotspot On	LTE Band 38	0	1	3
Grip, then Hotspot On	LTE Band 41(Class 3)	0	1	3
Grip, then Hotspot On	LTE Band 41(Class 2)	0	1	3
Grip, then Hotspot On	LTE Band 66	0	1	3
Grip, then Hotspot On	Sub 6 Band n2	0	1	3
Grip, then Hotspot On	Sub 6 Band n25	0	1	3
Grip, then Hotspot On	Sub 6 Band n30	0	1	3
Grip, then Hotspot On	Sub 6 Band n41 Lower	0	1	3
Grip, then Hotspot On	Sub 6 Band n66	0	1	3

\* LTE Band 40 supports MCC back off as a top priority

\*Note: This device uses different Device State Indices (DSI) to configure different time averaged power levels based on certain exposure scenarios. For this device, DSI = 1 represents the case when the grip sensor is active, DSI = 2 represents the case where the device is held to ear, and DSI = 3 represents the case when hotspot mode is active, DSI = 4 represents the case when ear-jack is inserted and DSI = 0 is configured at max power when the device cannot detect these conditions.

when Hotspot Mode (DSI=3) Grip sensor (DSI=1) and Ear-jack mode (DSI=4) are triggered at the same time, DSI=3 (Hotspot) takes more higher priority. The Priority for power reduction was given in the order of hotspot (DSI=3) and earjack. (DSI=4), , Grip (DSI=3).

**1.1. Distance Verification Procedure**

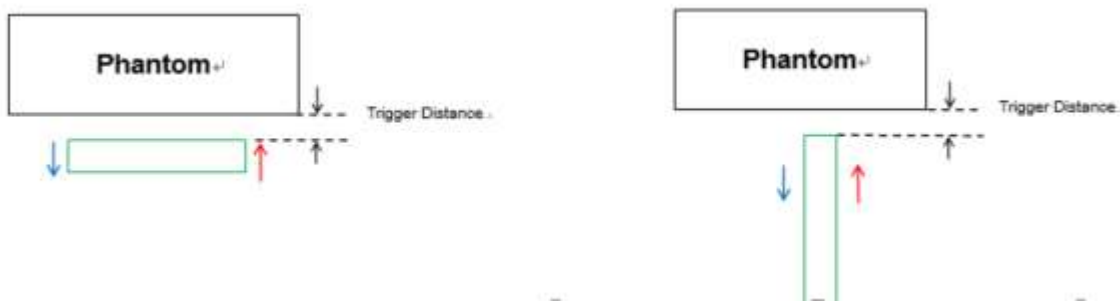
Procedures for determining proximity sensor triggering distances

(KDB 616217D04v01r02§6.2)

The distance verification procedure was performed according to the following procedure:

1. A base station simulator was used to establish an RF connection and to monitor the power levels. The device being tested was placed below the relevant section of the phantom with the relevant side or edge of the device facing toward the phantom.
2. The device was moved toward and away from the phantom to determine the distance at which the mechanism triggers and the output power is reduced, per KDB Publication 616217 D04v01r02. Each applicable test position was evaluated. The distance were conformed to be the same or larger (more conservative) than the minimum distances provided by the manufacturer.
3. Step 1 and 2 were repeated for the relevant modes, as appropriate
4. Steps 1 through 3 were repeated for all distance-based power reduction mechanisms.

For detailed measurement conducted power results, please refer to the Section .11



Proximity Sensor Trigger Distance Assessment KDB 616217 D04§6.2 (Rear / Front / Bottom side)

**LEGEND**

- Direction of DUT travel for determination of power reduction triggering point
- Direction of DUT travel for determination of full power resumption triggering point

Tissue simulating liquid	Trigger distance - Rear		Trigger distance - Front		Trigger distance - Bottom	
	Moving toward phantom [mm]	Moving away from phantom [mm]	Moving toward phantom [mm]	Moving away from phantom [mm]	Moving toward phantom [mm]	Moving away from phantom [mm]
850MHz Tissue	9	10	7	8	12	13
1750MHz Tissue	9	10	7	8	12	13
1900MHz Tissue	9	10	7	8	12	13
2300MHz Tissue	9	10	7	8	12	13
2600 MHz Tissue	9	10	7	8	12	13

Distance Measurement verification for Proximity sensor

Rear side – EUT Moving toward (trigger) to the Phantom

Mode	Distance to DUT Output power (dBm)									
	14[mm]	13[mm]	12[mm]	11[mm]	10[mm]	9[mm]	8[mm]	7[mm]	6[mm]	5[mm]
GSM1900 /Voice	28.61	28.78	28.66	28.66	28.61	27.62	27.67	27.68	27.69	27.61
GSM1900 /GPRS 1Tx	28.58	28.47	28.40	28.49	28.53	27.67	27.62	27.68	27.69	27.69
GSM1900 /GPRS 2Tx	27.54	27.54	27.57	27.42	27.52	24.98	24.93	25.05	24.92	24.97
GSM1900 /GPRS 3Tx	26.01	26.18	26.02	26.07	26.06	22.33	22.40	22.47	22.35	22.37
GSM1900 /GPRS 4Tx	23.88	23.89	23.82	23.97	23.81	21.39	21.42	21.47	21.45	21.58
PCS RC3/SO55	23.92	23.92	23.90	24.08	23.95	19.86	19.72	19.78	19.82	19.90
PCS EVDO Rev.0	23.75	23.61	23.77	23.59	23.65	19.75	19.80	19.86	19.90	19.82
PCS EVDORev.A	23.70	23.71	23.69	23.77	23.62	19.93	19.84	19.79	19.82	19.95
WCDMA B2	24.08	24.08	23.99	24.07	24.00	19.37	19.44	19.41	19.46	19.30
WCDMA B4	24.10	24.09	24.09	24.16	24.11	20.16	20.29	20.22	20.10	20.26
LTE Band 2	23.45	23.49	23.41	23.41	23.44	19.25	19.11	19.18	19.27	19.23
LTE Band 4	23.20	23.22	23.22	23.25	23.20	19.76	19.75	19.79	19.73	19.60
LTE Band 7	23.16	23.15	23.14	23.13	23.12	19.36	19.33	19.38	19.31	19.29
LTE Band 25	23.34	23.51	23.37	23.43	23.41	17.89	17.87	17.82	17.76	17.85
LTE Band 30	23.34	23.32	23.38	23.41	23.40	20.98	21.01	20.95	20.84	20.97
LTE Band 38	22.97	22.94	22.94	22.92	23.07	20.10	20.23	20.18	20.17	20.25
LTE Band 41(Class 3)	23.80	23.66	23.74	23.64	23.80	22.15	22.11	22.10	22.19	22.13
LTE Band 41(Class 2)	25.85	25.84	25.88	25.99	25.88	23.96	23.91	23.95	23.98	23.84
LTE Band 66	23.61	23.66	23.74	23.69	23.70	20.10	20.17	20.16	20.18	20.15
Sub 6 Band n2	23.39	23.59	23.50	23.42	23.56	20.01	20.03	20.00	20.04	20.01
Sub 6 Band n25	23.74	23.68	23.72	23.79	23.73	20.00	19.90	19.91	19.99	20.10
Sub 6 Band n30	23.41	23.43	23.45	23.42	23.52	20.28	20.15	20.29	20.25	20.28
Sub 6 Band n41 Lower	24.32	24.33	24.36	24.32	24.41	20.47	20.35	20.50	20.45	20.47
Sub 6 Band n66	24.15	24.03	24.01	24.16	24.00	19.69	19.67	19.78	19.78	19.77

Rear side – EUT Moving away (Release) from the Phantom

Mode	Distance to DUT Output power (dBm)									
	6[mm]	7[mm]	8[mm]	9[mm]	10[mm]	11[mm]	12[mm]	13[mm]	14[mm]	15[mm]
GSM1900 /Voice	27.61	27.67	27.67	27.68	27.60	28.60	28.77	28.64	28.65	28.60
GSM1900 /GPRS 1Tx	27.65	27.61	27.68	27.67	27.68	28.57	28.45	28.40	28.48	28.52
GSM1900 /GPRS 2Tx	24.97	24.92	25.04	24.92	24.96	27.53	27.53	27.56	27.40	27.51
GSM1900 /GPRS 3Tx	22.32	22.39	22.46	22.34	22.35	25.99	26.17	26.01	26.06	26.06
GSM1900 /GPRS 4Tx	21.39	21.41	21.46	21.43	21.57	23.87	23.88	23.80	23.97	23.80
PCS RC3/SO55	19.85	19.71	19.78	19.81	19.89	23.91	23.91	23.89	24.07	23.94
PCS EVDO Rev.0	19.74	19.78	19.86	19.88	19.81	23.75	23.61	23.77	23.59	23.65
PCS EVDORev.A	19.93	19.82	19.78	19.81	19.94	23.69	23.70	23.68	23.76	23.60
WCDMA B2	19.37	19.44	19.39	19.45	19.30	24.07	24.08	23.98	24.06	23.99
WCDMA B4	20.14	20.29	20.22	20.08	20.25	24.09	24.08	24.09	24.14	24.10
LTE Band 2	19.24	19.10	19.17	19.26	19.21	23.45	23.47	23.41	23.40	23.43
LTE Band 4	19.75	19.75	19.78	19.72	19.60	23.19	23.21	23.21	23.24	23.19
LTE Band 7	19.36	19.31	19.37	19.31	19.29	23.16	23.15	23.12	23.13	23.10
LTE Band 25	17.88	17.86	17.80	17.75	17.83	23.32	23.50	23.37	23.42	23.40
LTE Band 30	20.97	20.99	20.95	20.83	20.95	23.32	23.31	23.37	23.39	23.39
LTE Band 38	20.09	20.22	20.17	20.15	20.24	22.96	22.93	22.93	22.91	23.05
LTE Band 41(Class 3)	22.15	22.09	22.09	22.17	22.13	23.80	23.65	23.72	23.64	23.78
LTE Band 41(Class 2)	23.96	23.89	23.94	23.98	23.84	25.85	25.82	25.88	25.98	25.86
LTE Band 66	20.08	20.16	20.16	20.16	20.15	23.61	23.65	23.73	23.69	23.69
Sub 6 Band n2	20.01	20.02	19.99	20.04	20.00	23.38	23.58	23.49	23.41	23.54
Sub 6 Band n25	19.98	19.89	19.90	19.98	20.08	23.72	23.67	23.70	23.79	23.71
Sub 6 Band n30	20.26	20.15	20.29	20.24	20.27	23.41	23.42	23.44	23.42	23.52
Sub 6 Band n41	20.46	20.35	20.49	20.45	20.47	24.31	24.32	24.35	24.31	24.39
Sub 6 Band n66	19.68	19.66	19.78	19.76	19.75	24.13	24.02	24.00	24.16	23.98

Based on the most conservative measured triggering distance of 9mm, additional Phablet SAR measurements were required at 8mm from rear side for the above modes

Front side – EUT Moving toward (trigger) to the Phantom

Mode	Distance to DUT Output power (dBm)									
	12[mm]	11[mm]	10[mm]	9[mm]	8[mm]	7[mm]	6[mm]	5[mm]	4[mm]	3[mm]
GSM1900 /Voice	28.62	28.78	28.66	28.66	28.61	27.62	27.69	27.69	27.70	27.60
GSM1900 /GPRS 1Tx	28.57	28.45	28.41	28.48	28.53	27.66	27.63	27.68	27.68	27.68
GSM1900 /GPRS 2Tx	27.55	27.53	27.57	27.40	27.51	24.97	24.93	25.04	24.92	24.96
GSM1900 /GPRS 3Tx	26.00	26.19	26.03	26.08	26.06	22.33	22.39	22.47	22.35	22.35
GSM1900 /GPRS 4Tx	23.88	23.90	23.82	23.99	23.82	21.39	21.42	21.48	21.44	21.57
PCS RC3/SO55	23.91	23.92	23.89	24.08	23.95	19.87	19.72	19.79	19.82	19.89
PCS EVDO Rev.0	23.75	23.61	23.78	23.60	23.66	19.75	19.79	19.86	19.89	19.83
PCS EVDORev.A	23.70	23.72	23.68	23.76	23.62	19.94	19.82	19.80	19.81	19.94
WCDMA B2	24.08	24.08	23.99	24.08	23.99	19.37	19.44	19.40	19.46	19.31
WCDMA B4	24.10	24.10	24.11	24.15	24.12	20.16	20.31	20.23	20.09	20.26
LTE Band 2	23.46	23.47	23.42	23.41	23.44	19.24	19.10	19.19	19.27	19.22
LTE Band 4	23.19	23.22	23.22	23.24	23.19	19.75	19.76	19.79	19.73	19.60
LTE Band 7	23.16	23.16	23.13	23.13	23.12	19.38	19.32	19.38	19.32	19.30
LTE Band 25	23.33	23.52	23.39	23.43	23.41	17.89	17.86	17.81	17.76	17.84
LTE Band 30	23.33	23.32	23.37	23.40	23.40	20.98	21.00	20.96	20.83	20.96
LTE Band 38	22.96	22.93	22.93	22.91	23.06	20.09	20.24	20.18	20.15	20.26
LTE Band 41(Class 3)	23.81	23.66	23.73	23.66	23.79	22.17	22.10	22.11	22.18	22.13
LTE Band 41(Class 2)	25.85	25.84	25.88	25.99	25.86	23.97	23.90	23.94	23.99	23.84
LTE Band 66	23.63	23.66	23.74	23.69	23.71	20.10	20.17	20.18	20.17	20.15
Sub 6 Band n2	23.40	23.60	23.50	23.42	23.55	20.01	20.04	20.00	20.05	20.01
Sub 6 Band n25	23.73	23.69	23.71	23.80	23.71	19.99	19.91	19.91	20.00	20.10
Sub 6 Band n41	23.42	23.43	23.46	23.43	23.54	20.27	20.15	20.29	20.24	20.28
Sub 6 Band n66	24.32	24.33	24.35	24.32	24.41	20.46	20.35	20.49	20.47	20.48

Front side – EUT Moving away (Release) from the Phantom

Mode	Distance to DUT Output power (dBm)									
	4[mm]	5[mm]	6[mm]	7[mm]	8[mm]	9[mm]	10[mm]	11[mm]	12[mm]	13[mm]
GSM1900 /Voice	27.62	27.67	27.69	27.68	27.59	28.60	28.78	28.65	28.66	28.60
GSM1900 /GPRS 1Tx	27.66	27.62	27.68	27.67	27.67	28.56	28.45	28.40	28.48	28.51
GSM1900 /GPRS 2Tx	24.96	24.92	25.03	24.91	24.94	27.53	27.53	27.57	27.39	27.51
GSM1900 /GPRS 3Tx	22.32	22.38	22.45	22.33	22.34	25.99	26.17	26.02	26.07	26.05
GSM1900 /GPRS 4Tx	21.38	21.42	21.47	21.44	21.56	23.87	23.89	23.80	23.97	23.81
PCS RC3/SO55	19.86	19.70	19.79	19.81	19.89	23.89	23.91	23.89	24.07	23.94
PCS EVDO Rev.0	19.75	19.78	19.86	19.88	19.82	23.75	23.61	23.77	23.59	23.65
PCS EVDO Rev.A	19.94	19.81	19.80	19.81	19.93	23.69	23.70	23.67	23.75	23.60
WCDMA B2	19.36	19.42	19.39	19.45	19.30	24.07	24.06	23.99	24.07	23.97
WCDMA B4	20.14	20.30	20.23	20.07	20.26	24.08	24.08	24.11	24.14	24.11
LTE Band 2	19.23	19.10	19.18	19.26	19.20	23.44	23.46	23.41	23.40	23.43
LTE Band 4	19.75	19.75	19.78	19.72	19.59	23.19	23.20	23.22	23.24	23.19
LTE Band 7	19.36	19.30	19.37	19.31	19.29	23.16	23.15	23.12	23.13	23.11
LTE Band 25	17.88	17.84	17.79	17.75	17.83	23.31	23.50	23.38	23.42	23.40
LTE Band 30	20.97	20.98	20.95	20.81	20.95	23.31	23.32	23.36	23.40	23.38
LTE Band 38	20.09	20.23	20.17	20.15	20.25	22.95	22.92	22.92	22.90	23.05
LTE Band 41(Class 3)	22.15	22.09	22.10	22.18	22.11	23.80	23.65	23.72	23.66	23.78
LTE Band 41(Class 2)	23.95	23.88	23.93	23.99	23.82	25.85	25.84	25.87	25.99	25.85
LTE Band 66	20.10	20.16	20.16	20.16	20.14	23.61	23.64	23.72	23.68	23.69
Sub 6 Band n2	20.00	20.04	20.00	20.03	20.00	23.38	23.59	23.48	23.41	23.53
Sub 6 Band n25	19.97	19.91	19.90	19.99	20.10	23.73	23.68	23.71	23.79	23.71
Sub 6 Band n30	20.26	20.15	20.27	20.23	20.26	23.41	23.42	23.44	23.42	23.52
Sub 6 Band n41	20.45	20.35	20.47	20.46	20.46	24.31	24.32	24.33	24.32	24.40
Sub 6 Band n66	19.68	19.66	19.77	19.76	19.75	24.13	24.01	23.99	24.16	23.99

Based on the most conservative measured triggering distance of 8mm, additional Phablet SAR measurements were required at 7mm from rear side for the above modes



Bottom side – EUT Moving toward (trigger) to the Phantom

Mode	Distance to DUT Output power (dBm)									
	17[mm]	16[mm]	15[mm]	14[mm]	13[mm]	12[mm]	11[mm]	10[mm]	9[mm]	18[mm]
GSM1900 /Voice	28.57	28.75	28.64	28.65	28.60	27.62	27.64	27.67	27.67	27.57
GSM1900 /GPRS 1Tx	28.53	28.44	28.39	28.47	28.51	27.65	27.59	27.66	27.66	27.65
GSM1900 /GPRS 2Tx	27.52	27.52	27.56	27.36	27.50	24.95	24.92	25.02	24.90	24.93
GSM1900 /GPRS 3Tx	25.98	26.16	25.99	26.05	26.03	22.30	22.36	22.43	22.33	22.32
GSM1900 /GPRS 4Tx	23.86	23.88	23.78	23.97	23.80	21.35	21.39	21.44	21.42	21.54
PCS RC3/SO55	23.87	23.90	23.88	24.04	23.94	19.84	19.70	19.77	19.80	19.87
PCS EVDO Rev.0	23.73	23.59	23.75	23.59	23.65	19.73	19.77	19.85	19.87	19.81
PCS EVDORev.A	23.67	23.69	23.65	23.75	23.60	19.94	19.79	19.77	19.80	19.91
WCDMA B2	24.05	24.04	23.98	24.07	23.96	19.35	19.40	19.38	19.44	19.30
WCDMA B4	24.06	24.07	24.10	24.13	24.11	20.13	20.29	20.22	20.06	20.25
LTE Band 2	23.41	23.44	23.40	23.39	23.43	19.20	19.09	19.18	19.24	19.19
LTE Band 4	23.17	23.18	23.20	23.23	23.17	19.72	19.72	19.76	19.72	19.59
LTE Band 7	23.15	23.14	23.10	23.11	23.10	19.33	19.30	19.35	19.30	19.29
LTE Band 25	23.30	23.48	23.37	23.41	23.38	17.87	17.82	17.78	17.72	17.81
LTE Band 30	23.30	23.30	23.36	23.39	23.37	20.94	20.98	20.94	20.78	20.94
LTE Band 38	22.93	22.89	22.90	22.89	23.03	20.07	20.21	20.16	20.14	20.23
LTE Band 41(Class 3)	23.79	23.65	23.69	23.64	23.77	22.13	22.08	22.10	22.17	22.10
LTE Band 41(Class 2)	25.82	25.81	25.86	25.98	25.84	23.94	23.87	23.91	23.96	23.80
LTE Band 66	23.59	23.63	23.71	23.67	23.66	20.07	20.14	20.14	20.15	20.13
Sub 6 Band n2	23.35	23.57	23.46	23.38	23.51	19.99	20.03	19.99	20.02	19.98
Sub 6 Band n25	23.72	23.67	23.71	23.78	23.69	19.94	19.90	19.88	19.98	20.09
Sub 6 Band n30	23.41	23.41	23.42	23.41	23.51	20.24	20.14	20.25	20.23	20.26
Sub 6 Band n41	24.29	24.32	24.32	24.31	24.39	20.45	20.32	20.46	20.44	20.44
Sub 6 Band n66	24.10	24.01	23.98	24.16	23.96	19.67	19.65	19.76	19.74	19.75

Bottom side – EUT Moving away (Release) from the Phantom

Mode	Distance to DUT Output power (dBm)									
	9[mm]	10[mm]	11[mm]	12[mm]	13[mm]	14[mm]	15[mm]	16[mm]	17[mm]	18[mm]
GSM1900 /Voice	27.62	27.64	27.69	27.68	27.58	28.58	28.75	28.65	28.66	28.61
GSM1900 /GPRS 1Tx	27.67	27.61	27.68	27.67	27.67	28.55	28.46	28.39	28.49	28.52
GSM1900 /GPRS 2Tx	24.95	24.92	25.02	24.90	24.95	27.53	27.53	27.57	27.37	27.51
GSM1900 /GPRS 3Tx	22.32	22.37	22.44	22.34	22.33	26.00	26.18	26.00	26.07	26.03
GSM1900 /GPRS 4Tx	21.36	21.40	21.45	21.44	21.54	23.87	23.88	23.79	23.98	23.81
PCS RC3/SO55	19.86	19.72	19.77	19.82	19.87	23.89	23.91	23.90	24.05	23.94
PCS EVDO Rev.0	19.74	19.77	19.87	19.87	19.81	23.75	23.59	23.77	23.59	23.66
PCS EVDORev.A	19.95	19.79	19.79	19.81	19.93	23.67	23.70	23.66	23.75	23.62
WCDMA B2	19.36	19.42	19.38	19.45	19.31	24.06	24.05	23.98	24.08	23.97
WCDMA B4	20.14	20.29	20.23	20.08	20.26	24.07	24.09	24.10	24.14	24.11
LTE Band 2	19.20	19.10	19.19	19.26	19.20	23.41	23.44	23.41	23.41	23.45
LTE Band 4	19.73	19.73	19.76	19.72	19.60	23.18	23.19	23.20	23.23	23.19
LTE Band 7	19.33	19.31	19.37	19.31	19.29	23.16	23.16	23.11	23.13	23.11
LTE Band 25	17.87	17.83	17.79	17.74	17.82	23.31	23.49	23.39	23.42	23.39
LTE Band 30	20.96	20.99	20.96	20.79	20.95	23.31	23.31	23.38	23.39	23.37
LTE Band 38	20.07	20.22	20.16	20.14	20.24	22.94	22.91	22.91	22.90	23.04
LTE Band 41(Class 3)	22.13	22.10	22.11	22.19	22.11	23.80	23.66	23.71	23.66	23.77
LTE Band 41(Class 2)	23.96	23.89	23.92	23.98	23.82	25.84	25.81	25.87	25.98	25.84
LTE Band 66	20.08	20.14	20.15	20.17	20.14	23.59	23.64	23.72	23.68	23.67
Sub 6 Band n2	20.00	20.04	20.00	20.02	20.00	23.35	23.57	23.47	23.39	23.51
Sub 6 Band n25	19.95	19.92	19.89	19.99	20.10	23.72	23.67	23.71	23.78	23.71
Sub 6 Band n41	20.26	20.14	20.27	20.25	20.27	23.42	23.43	23.44	23.41	23.53
Sub 6 Band n66	20.46	20.32	20.47	20.44	20.46	24.29	24.32	24.34	24.32	24.40

Based on the most conservative measured triggering distance of 12mm, additional Phablet SAR measurements were required at 11mm from rear side for the above modes

## 1.2 Proximity Sensor Coverage for SAR measurements

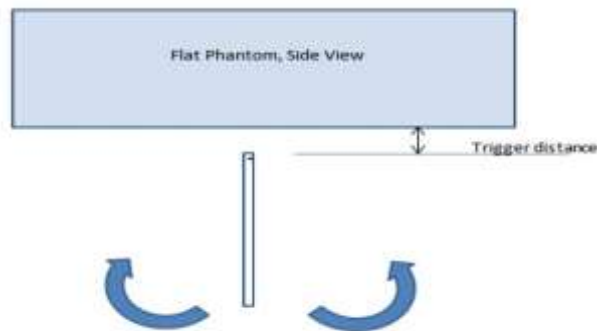
(KDB 616217 D04v01r02§6.3)

As there is no spatial offset between the antenna and the proximity sensor element, proximity sensor coverage did not need to be assessed.

## 1.3 Proximity Sensor Tilt Angle Assessment

(KDB 616217 D04v01r02 §6.4)

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Bottom side parallel to the base of the flat phantom for each band. The EUT was rotated about Bottom side for angles up to  $\pm 45^\circ$ . If the output power increased during the rotation the DUT was moved 1mm toward the phantom and the rotation repeated. This procedure was repeated until the power remained reduced for all angles up to  $\pm 45^\circ$ .



Proximity sensor tilt angle assessment (Bottom side) KDB 616217 §6.4

### Summary of Tablet Tilt Angle influence to Proximity Sensor Triggering (Bottom side)

Tissue	Minimum distance at which power reduction was maintained over-45°	Power reduction status											
		-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°	
850 MHz Tissue	12 mm	On	On	On	On	On	On	On	On	On	On	On	On
1750 MHz Tissue	12 mm	On	On	On	On	On	On	On	On	On	On	On	On
1900 MHz Tissue	12 mm	On	On	On	On	On	On	On	On	On	On	On	On
2300 MHz Tissue	12 mm	On	On	On	On	On	On	On	On	On	On	On	On
2600 MHz Tissue	12 mm	On	On	On	On	On	On	On	On	On	On	On	On

### 1.5 Resulting test positions for Phablet SAR measurements

Wireless technologies	Position	§6.2 Triggering Distance [mm]	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for Phablet SAR [mm]
WWAN (GSM1900 /CDMA BC1 /WCDMA B2/B4 /LTEB2/B4/B7/B25 /B30/B38/B41(Class3) /B41(Class2)/B66 /SUB6 n2/n25/n30 n41 Lower/n66 )	Rear	9	N/A	N/A	8
	Front	7	N/A	N/A	6
	Bottom	12	N/A	N/A	11

Note:FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device when being used in phablet use conditions

## 2. Power reduction Verification for Antenna F

This device uses a power reduction mechanism for SAR compliance for operations during voice or VoIP held to ear scenarios.

When a user makes or receives a voice call or VOIP call for Antenna F the audio of the call is sent through the Receiver at the top of the device will trigger the Power reduction for Antenna F (i.e. reducing output power for Head SAR compliance)

Detailed descriptions of the power reduction mechanism are included in the Main operational description document

Condition For Power reduction	Wireless Technologies	Conducted Power[dBm]	
		Un-Triggered (Max Power)	Triggered (Reduced Power)
RCV-on	NR n41 PC3	24.69	19.90
RCV-on	NR n41 PC2	25.68	19.82

## 3. Power reduction Verification for Antenna G

This device uses a power reduction mechanism for SAR compliance for operations during voice or VoIP held to ear scenarios.

When a user makes or receives a voice call or VOIP call for Antenna G the audio of the call is sent through the Receiver at the top of the device will trigger the Power reduction for Antenna G (i.e. reducing output power for Head SAR compliance)

Detailed descriptions of the power reduction mechanism are included in the Main operational description document

Condition For Power reduction	Wireless Technologies	Conducted Power[dBm]	
		Un-Triggered (Max Power)	Triggered (Reduced Power)
RCV-on	LTE 48	23.11	18.58
RCV-on	NR n77 PC3	24.39	18.47
RCV-on	NR n77 PC2	25.72	18.56

#### 4. Power reduction Verification for WLAN Ant

This device uses a power reduction mechanism for SAR compliance for WLAN operations during voice or VoIP held to ear scenarios.

When a user makes or receives a WLAN voice or WLAN VOIP call for WLAN Ant the audio of the call is sent through the Receiver at the top of the device will trigger the Power reduction for WLAN Ant (i.e. reducing output power for Head SAR compliance)

Detailed descriptions of the power reduction mechanism are included in the Main operational description document

#### Power Measurement Verification for WLAN

Condition For Power reduction	Wireless Technologies	Conducted Power[dBm]			
		Un-Triggered (Max Power)		Triggered (Reduced Power)	
		Ant1	Ant2	Ant1	Ant2
RCV-on	2.4GHz 802.11b (Exclude 12/13ch)	19.91	19.94	16.56	16.57
RCV-on	2.4GHz 802.11g (Exclude 12/13ch))	16.23	16.12	16.22	16.69
RCV-on	2.4GHz 802.11n (Exclude 12/13ch)	16.21	16.18	16.19	16.10
RCV-on	5GHz 802.11a (Exclude 100~144ch)	17.35	17.24	13.01	13.12
RCV-on	5GHz 802.11n 20MHz	17.46	17.17	13.42	13.21
RCV-on	5GHz 802.11n 40MHz	16.05	16.01	13.65	13.18
RCV-on	5GHz 802.11ac 20MHz	17.41	17.42	13.21	13.19
RCV-on	5GHz 802.11ac 40MHz	16.12	16.15	13.19	13.02
RCV-on	5GHz 802.11ac 80MHz	15.01	15.04	13.21	13.11

## Appendix I. – DLCA Power Measurement

## 1. LTE Down-link Carrier Aggregation Conducted Powers

SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number component carriers (CCs) supported by test product implementation. For those configurations required by April 2018 TCBC Workshop notes, conducted power measurements with LTE Carrier Aggregation (CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s) (SCC) on the downlink only.

### Downlink Carrier aggregation:

1. This device only supports downlink carrier aggregation. For every supported combination of downlink carrier aggregation, power measurements were performed with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.
2. All control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
3. Per FCC KDB publication 941225 D05A v01r02, Section C)3)b)ii), PCC uplink channel was selected at downlink carrier aggregation combinations. The downlink PCC channel was paired with the selected PCC uplink channel according to normal configurations without carrier aggregation.
4. For continuous intra-band carrier aggregation, the downlink channel spacing between the component carriers was set to multiple of 300kHz less than the nominal channel spacing defined in section 5.4.1A of 3GPP TS 36.521.
5. For non-continuous intra-band carrier aggregation, the downlink channel spacing between the component carriers was set to be larger than the nominal channel spacing and provided maximum separation between the component carriers.
6. All selected downlink channels remained fully within the downlink transmission band of the respective component carrier.

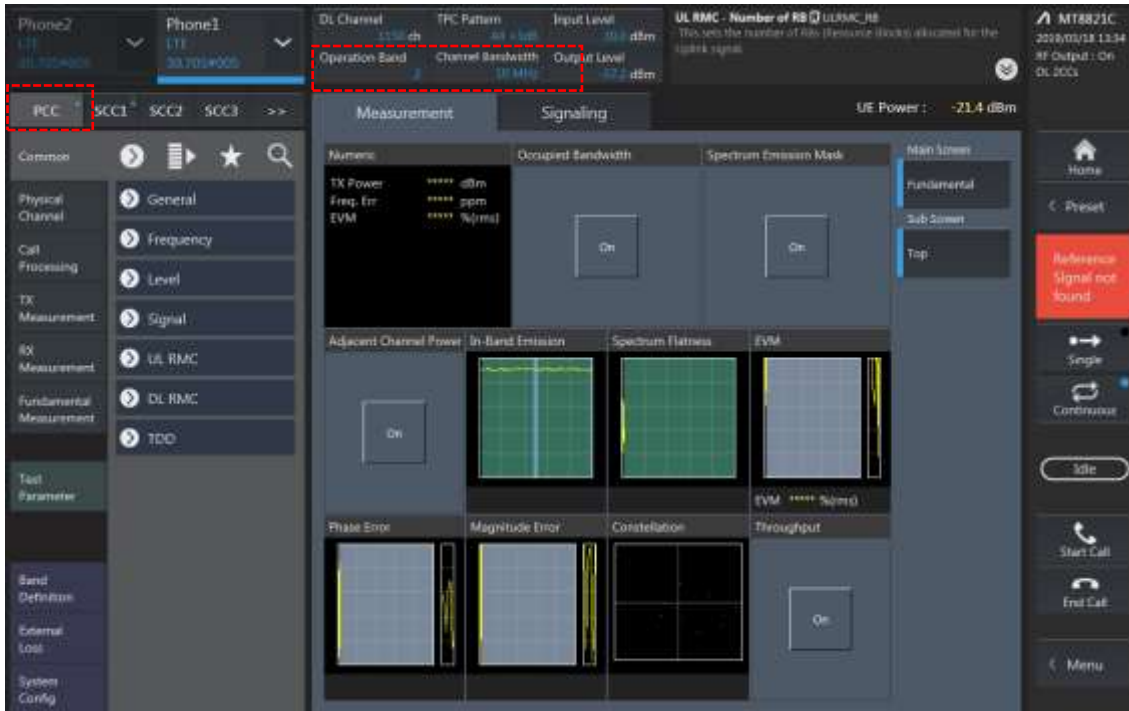


Power Measurement setup

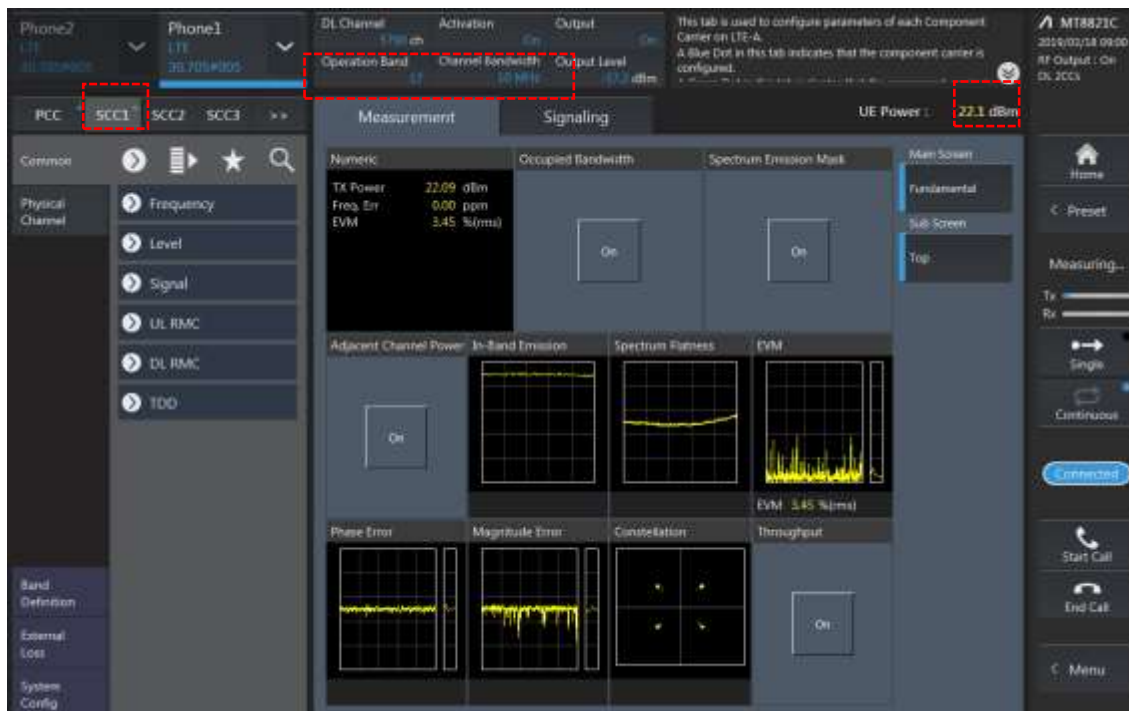


### LTE Down Link 2CA Call Setup

PCC Setting : Channel/ RB/ BW/ Modulation



SCC Setting : Channel/ RB/ BW/ Modulation and call Connection

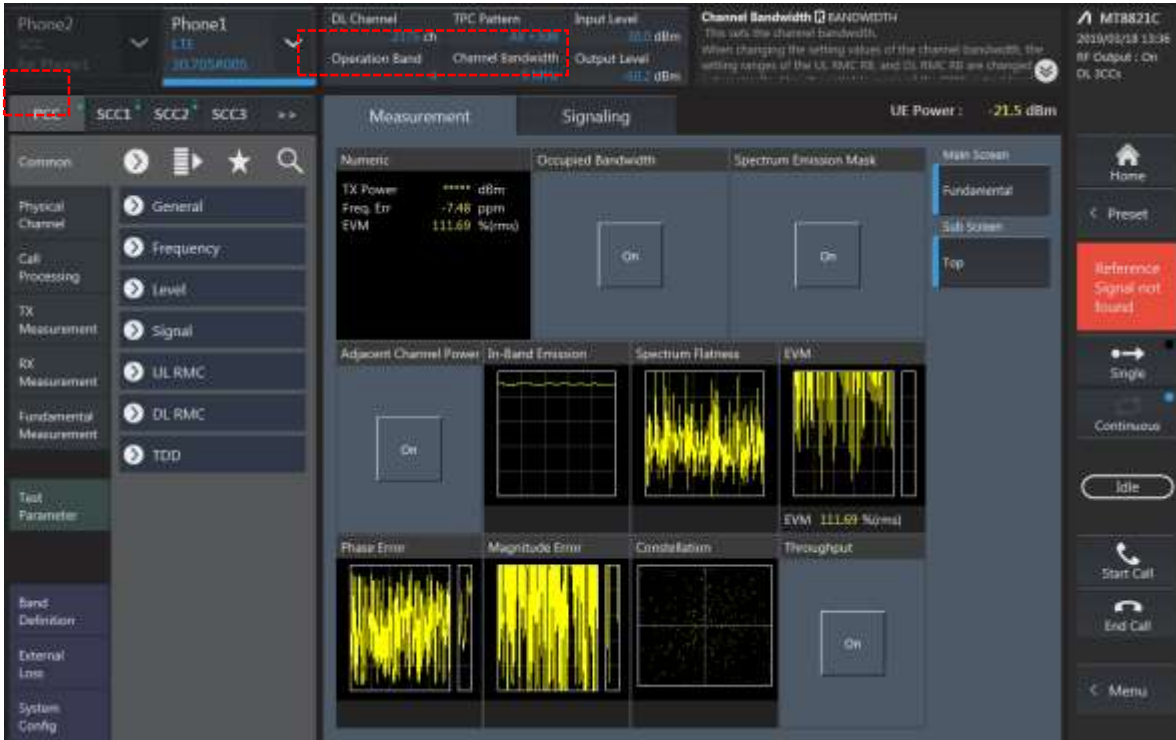


**2CA Downlink Carrier aggregation Maximum conducted Powers**

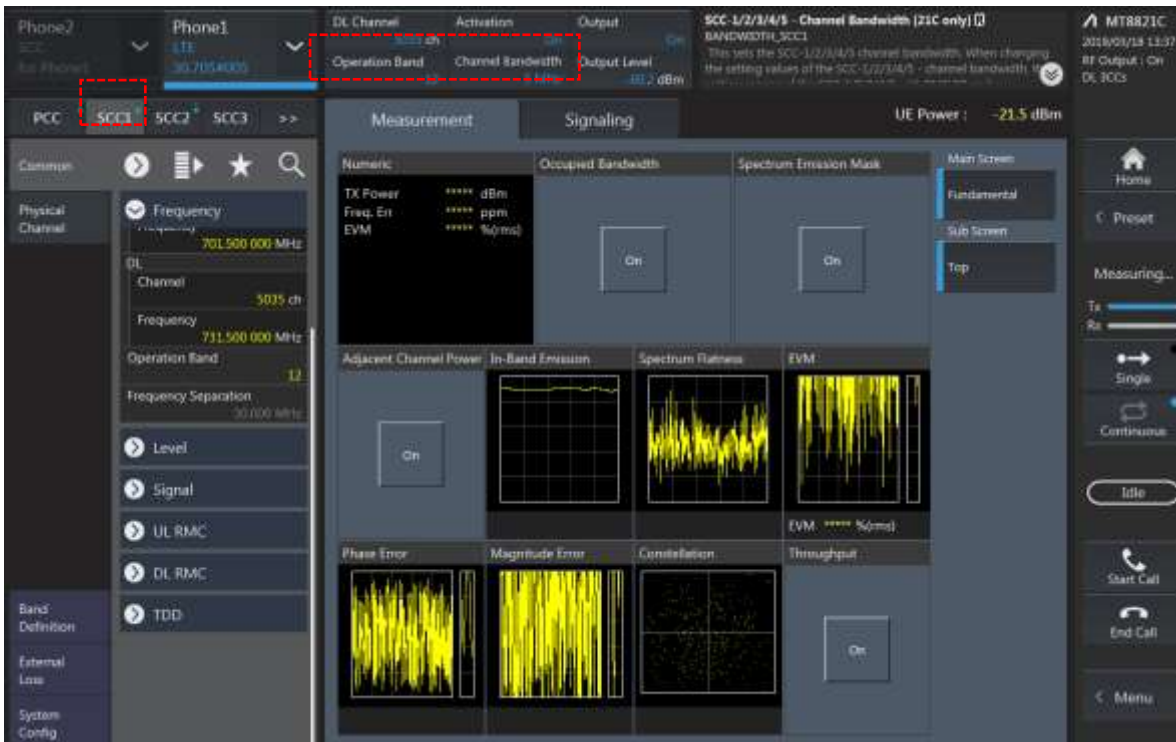
Combination	PCC									SCC				Tx Power	
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled(dBm)
5A-25A	5	5	20625	846.5	2625	891.5	QPSK	1	12	25	20	8365	1962.5	24.78	24.68
5A-25A	25	20	26365	1882.5	8365	1962.5	QPSK	1	0	5	10	2525	881.5	23.65	23.64
12A-25A	12	5	23035	701.5	5035	731.5	QPSK	1	0	25	20	8365	1962.5	25.03	24.87
12A-25A	25	20	26365	1882.5	8365	1962.5	QPSK	1	0	12	10	5095	737.5	23.65	23.63

### LTE Down Link 3CA Call Setup

#### 1) PCC Setting: Channel /RB/BW/Modulation



#### 2) SCC1 Setting : Channel /RB/BW/Modulation



3) SCC2 Setting (Channel /RB/BW/Modulation )and call Connection

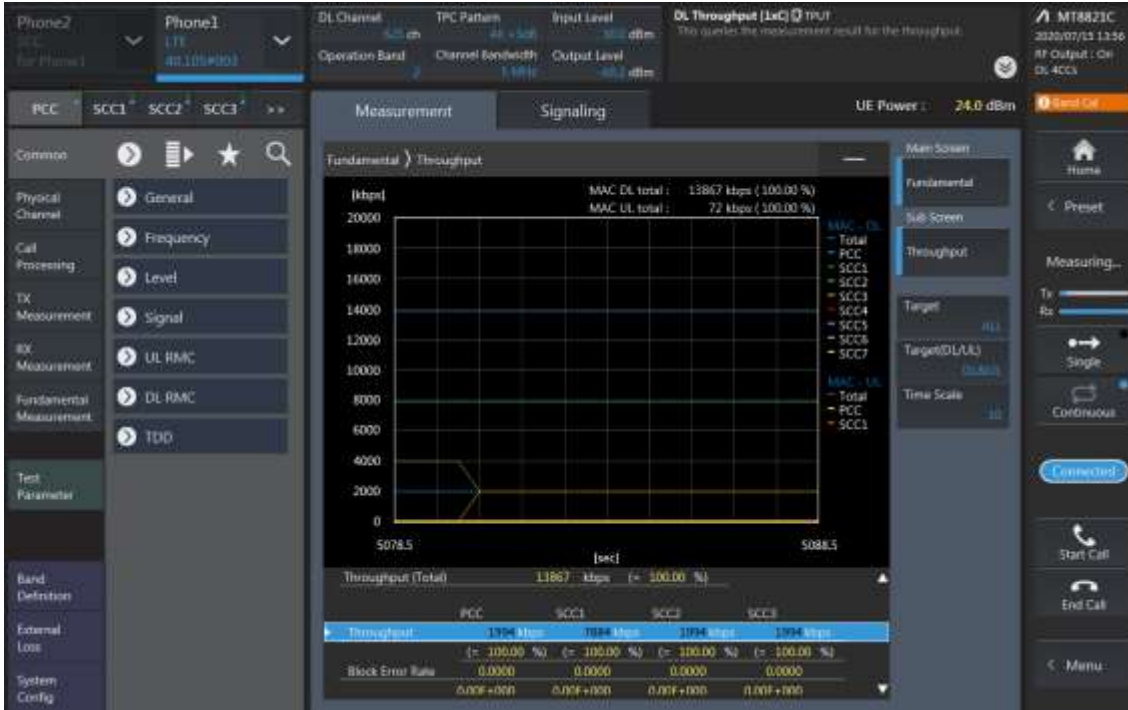


### 3CA Downlink Carrier aggregation Maximum conducted Powers

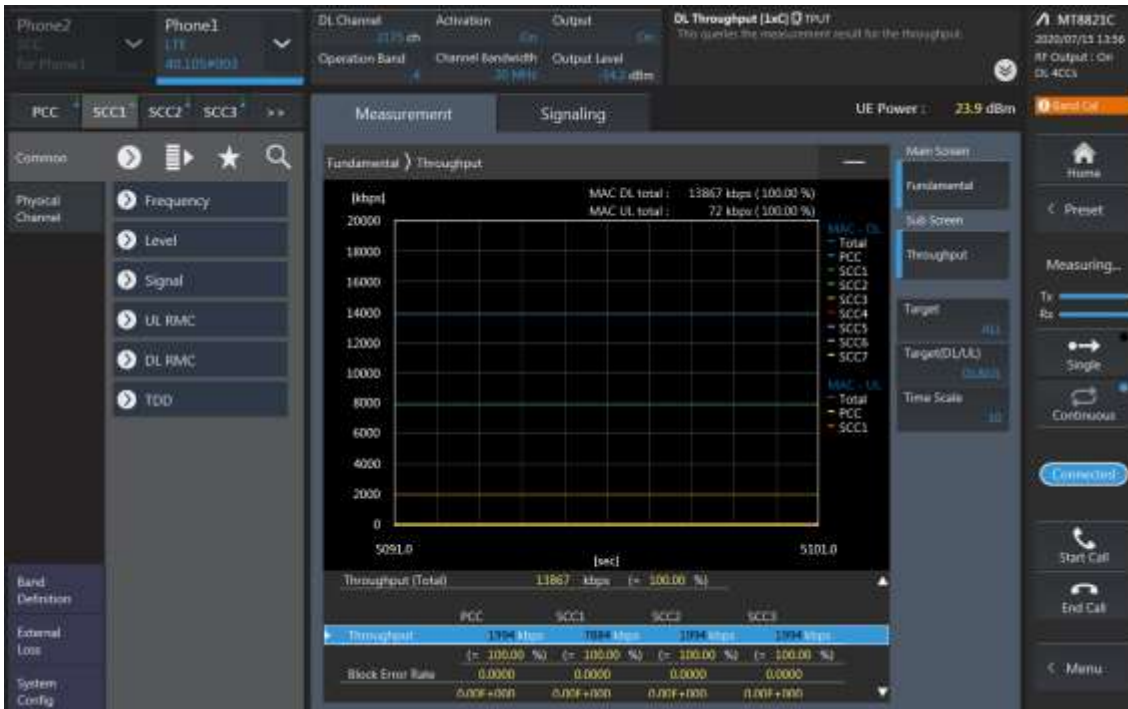
Combination	PCC									SCC				SCC				Tx Power	
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled(dBm)
2A-4A-13A	2	10	18900	1880	900	1960	QPSK	1	24	4	20	2175	2132.5	13	10	5230	751	23.8	23.68
2A-4A-13A	4	5	20375	1752.5	2375	2152.5	QPSK	1	12	2	20	900	1960	13	10	5230	751	23.63	23.61
2A-4A-13A	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	4	20	2175	2132.5	24.21	23.75
4A-4A-13A	4	5	20375	1752.5	2375	2152.5	QPSK	1	12	4	20	2050	2120	13	10	5230	751	23.63	23.66
4A-4A-13A	13	10	23230	782	5230	751	QPSK	1	0	4	20	2175	2132.5	4	10	2350	2150	24.21	23.70
4A-4A-71A	4	5	20375	1752.5	2375	2152.5	QPSK	1	12	4	20	2050	2120	71	20	68786	637	23.63	23.61
4A-4A-71A	71	5	133447	695.5	68911	649.5	QPSK	1	12	4	20	2175	2132.5	4	10	2350	2150	24.97	24.70
25A-25A-26A	25	20	26365	1882.5	8365	1962.5	QPSK	1	0	25	20	8590	1985	26	5	8865	876.5	23.65	23.65
25A-25A-26A	26	5	27015	846.5	9015	891.5	QPSK	1	12	25	20	8365	1962.5	25	20	8590	1985	24.7	24.65
48A-48A-71A	71	5	133447	695.5	68911	649.5	QPSK	1	12	48	20	55990	3625	48	20	56640	3690	24.97	25.01
48C-71A	71	5	133447	695.5	68911	649.5	QPSK	1	12	48	20	55990	3625	48	20	56188	3644.8	24.97	24.67
66A-66C	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	67038	2170.2	66	20	67236	2190	23.81	23.81
66A-66C	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	66903	2156.7	66	20	67236	2190	23.81	23.78

**LTE Down Link 4CA Call Setup**

PCC Setting: Channel /RB/BW/Modulation

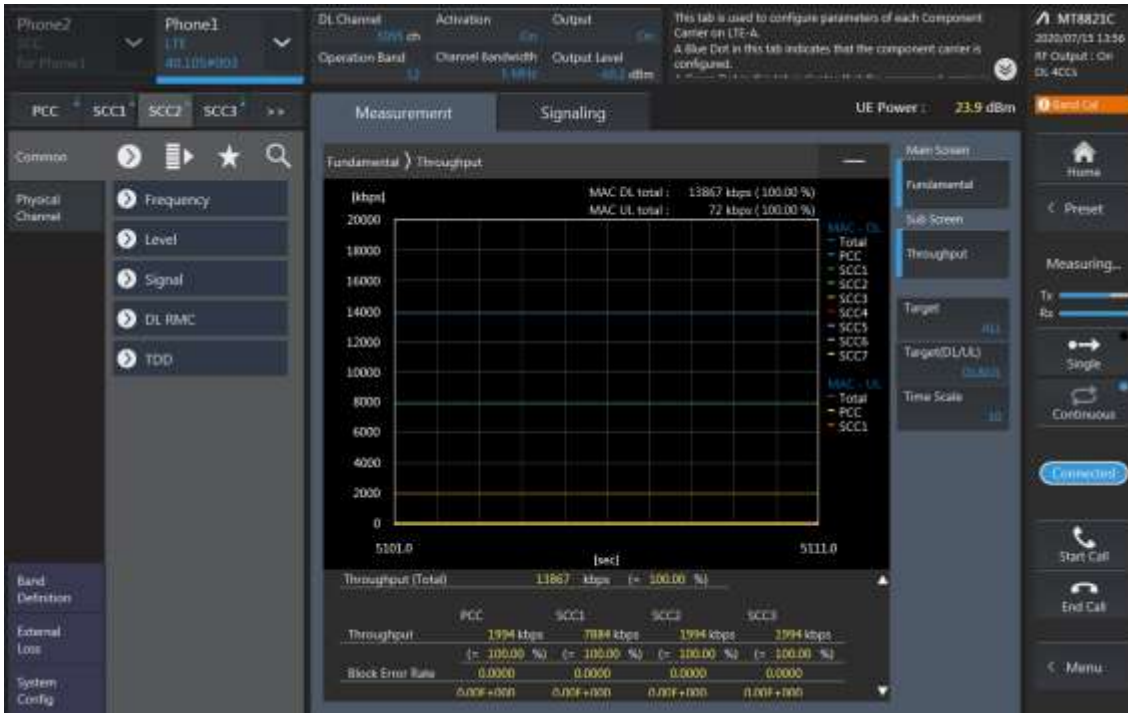


**SCC1 Setting (Channel /RB/BW/Modulation)and call Connection**

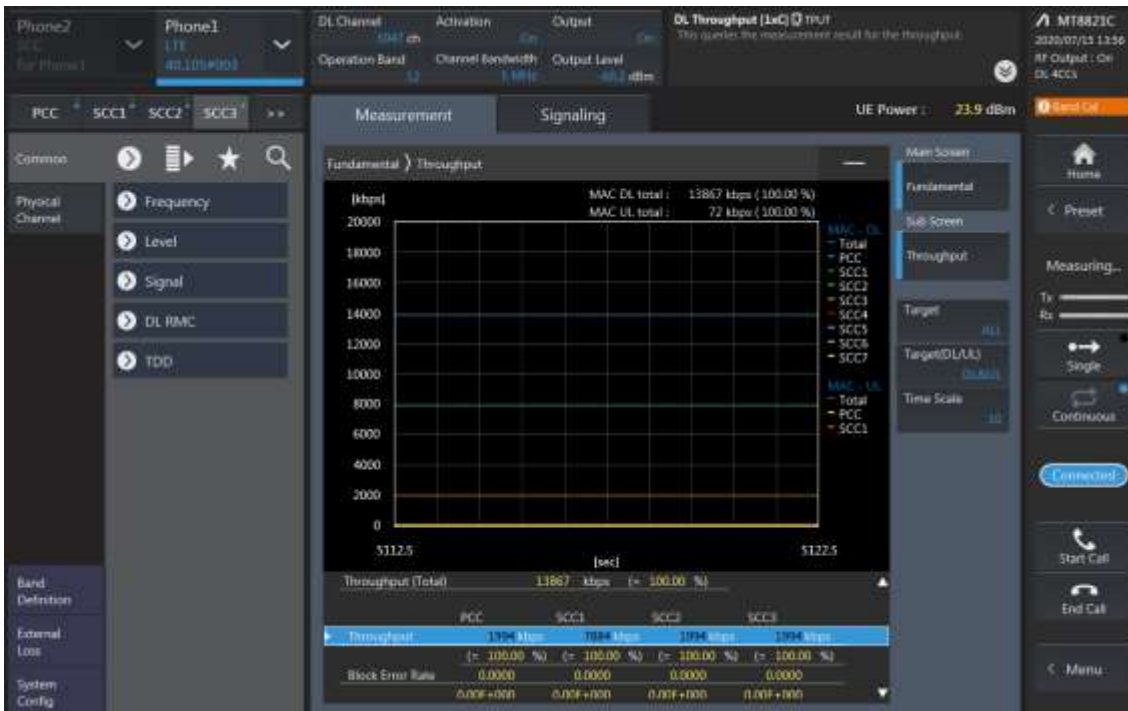




SCC2 Setting (Channel /RB/BW/Modulation )and call Connection



SCC3 Setting (Channel /RB/BW/Modulation )and call Connection

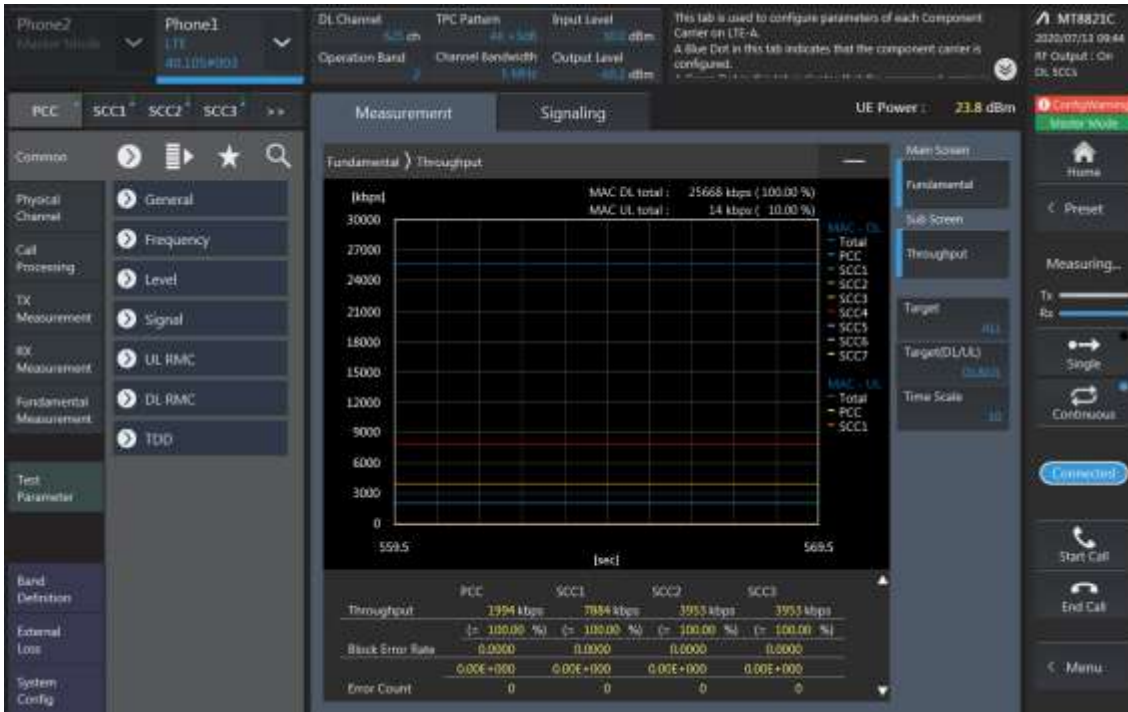




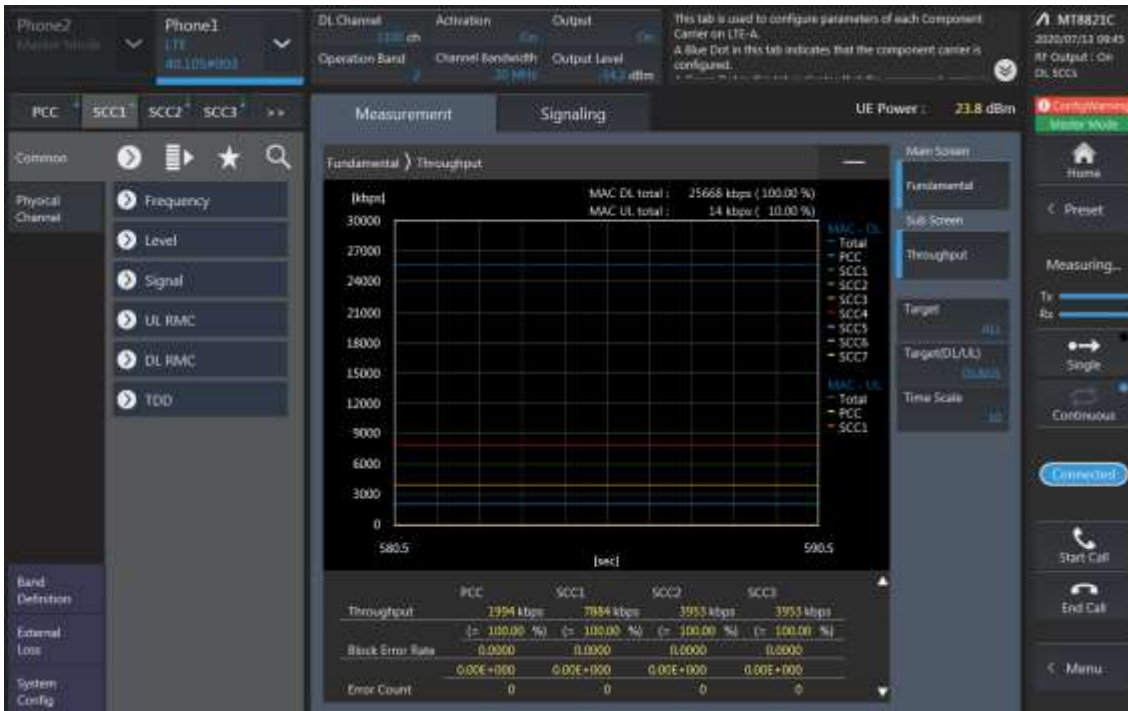


**LTE Down Link 5CA Call Setup**

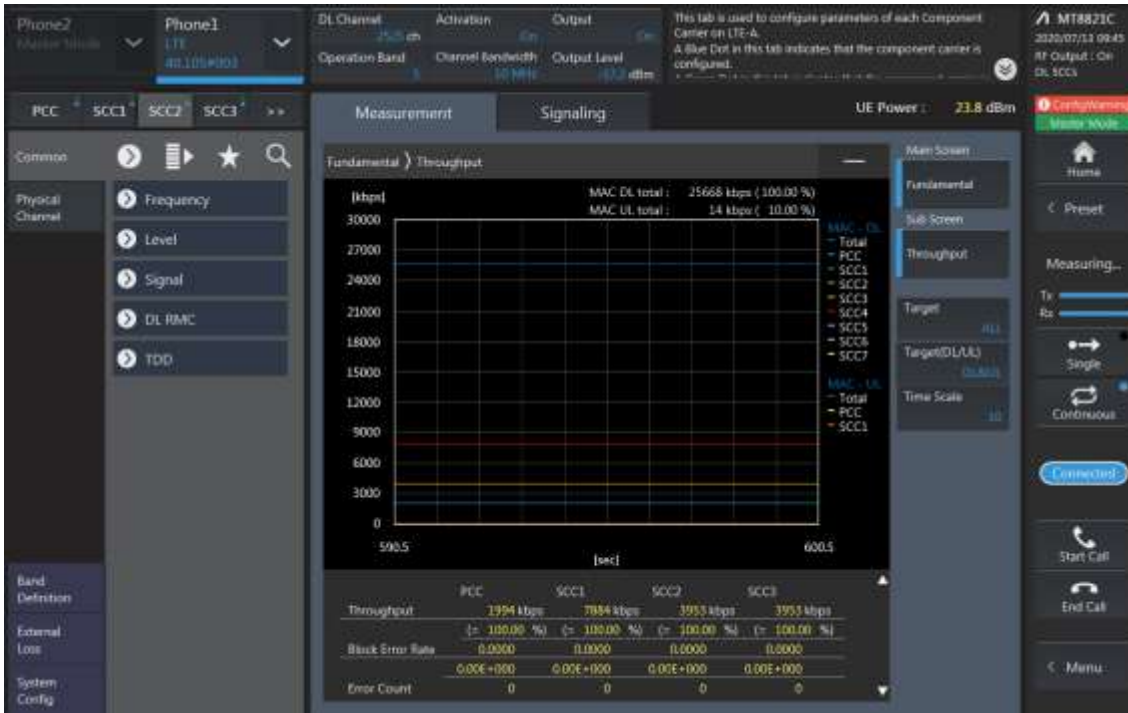
PCC Setting: Channel /RB/BW/Modulation



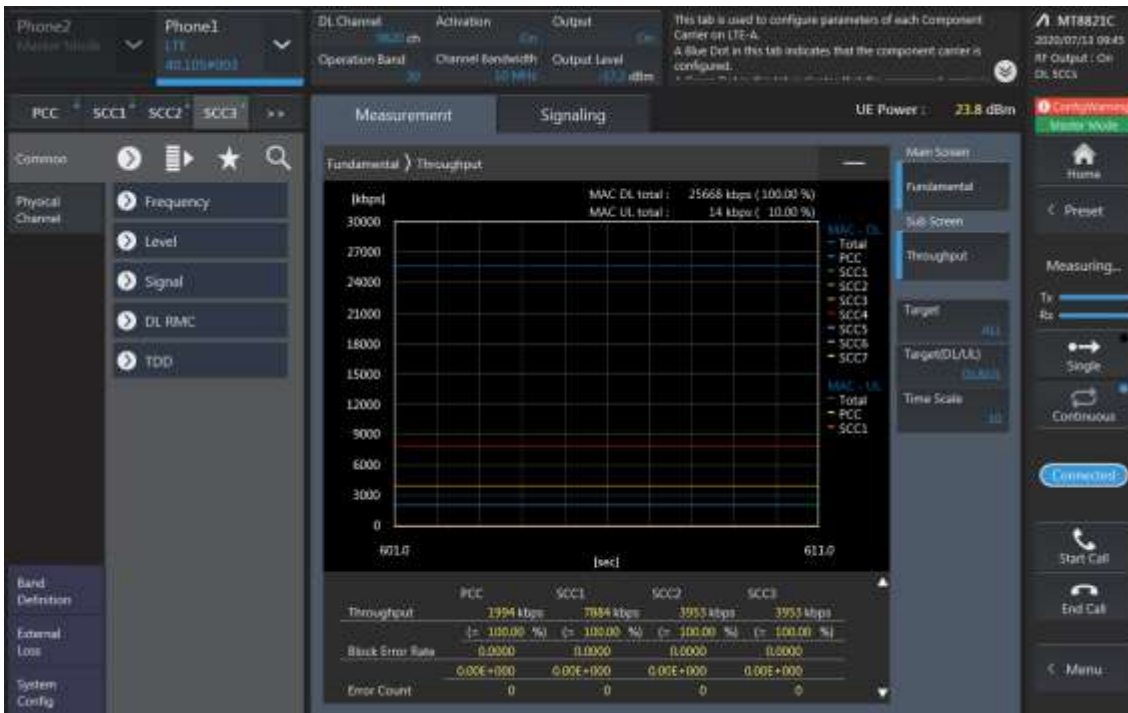
**SCC1 Setting (Channel /RB/BW/Modulation )and call Connection**



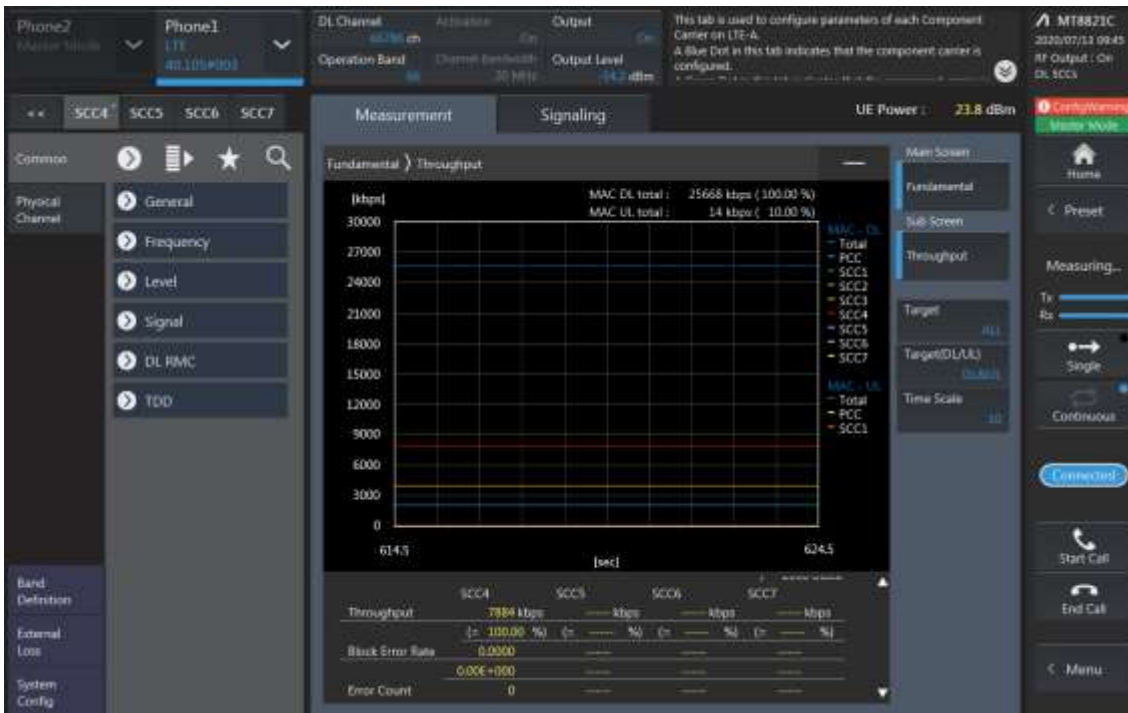
SCC2 Setting (Channel /RB/BW/Modulation)and call Connection



SCC3 Setting (Channel /RB/BW/Modulation )and call Connection



SCC4 Setting (Channel /RB/BW/Modulation )and call Connection



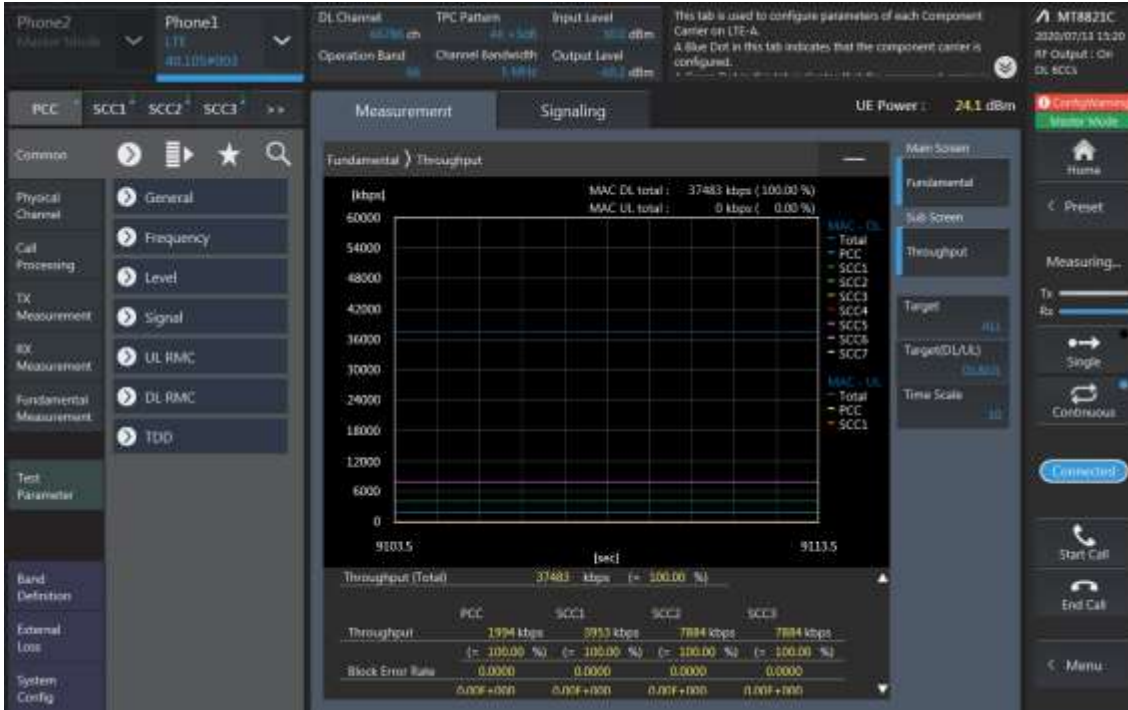




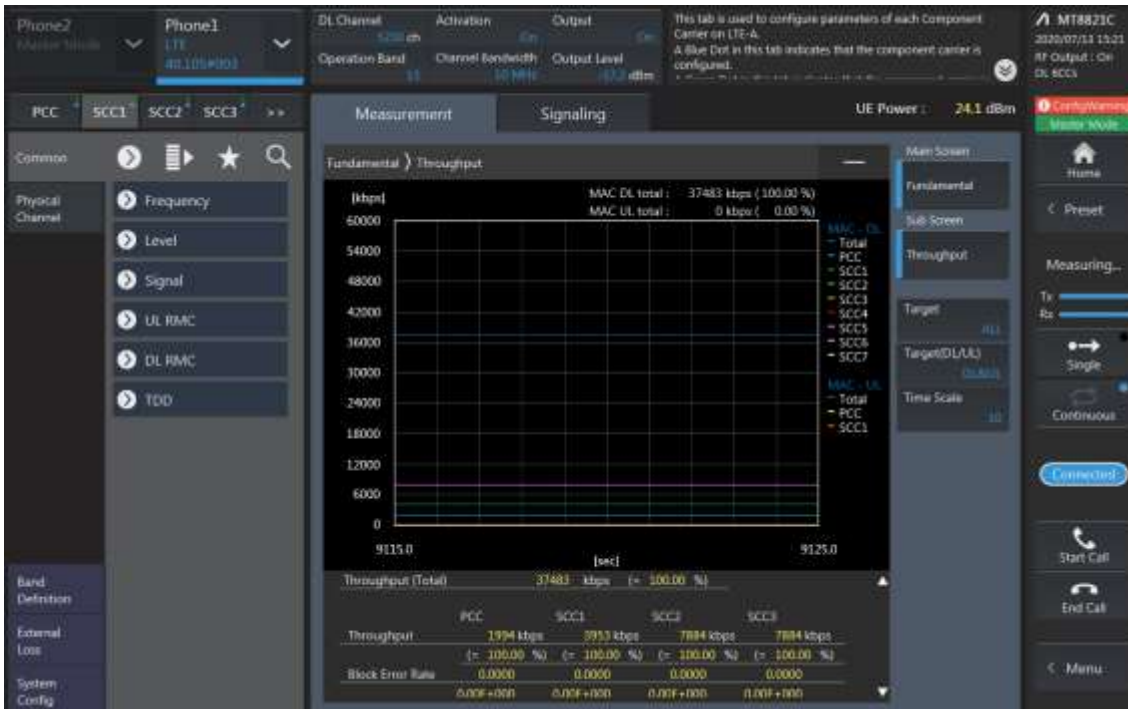


**LTE Down Link 6CA Call Setup**

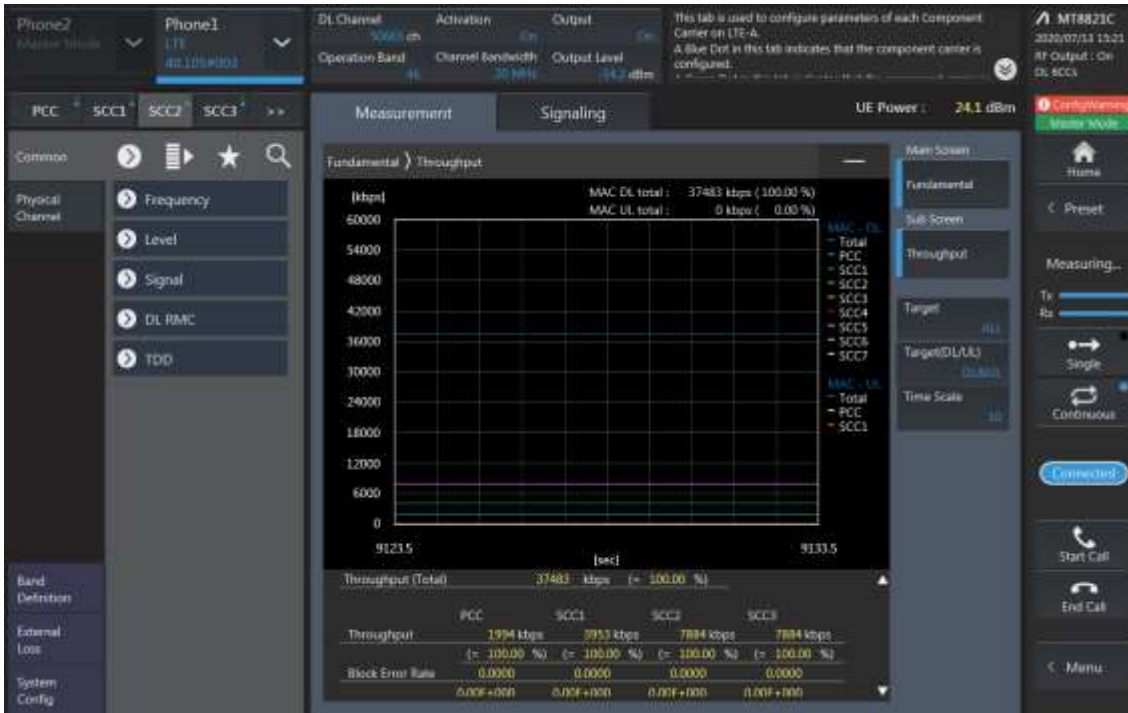
PCC Setting: Channel /RB/BW/Modulation



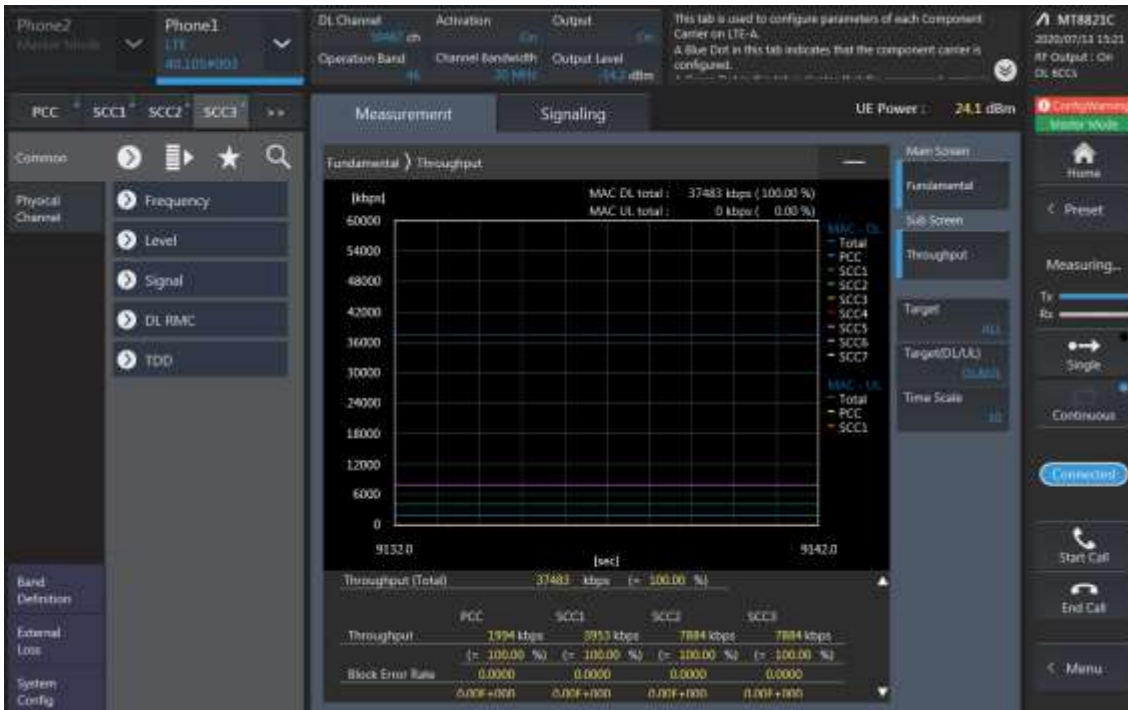
**SCC1 Setting (Channel /RB/BW/Modulation )and call Connection**



SCC2 Setting (Channel /RB/BW/Modulation )and call Connection

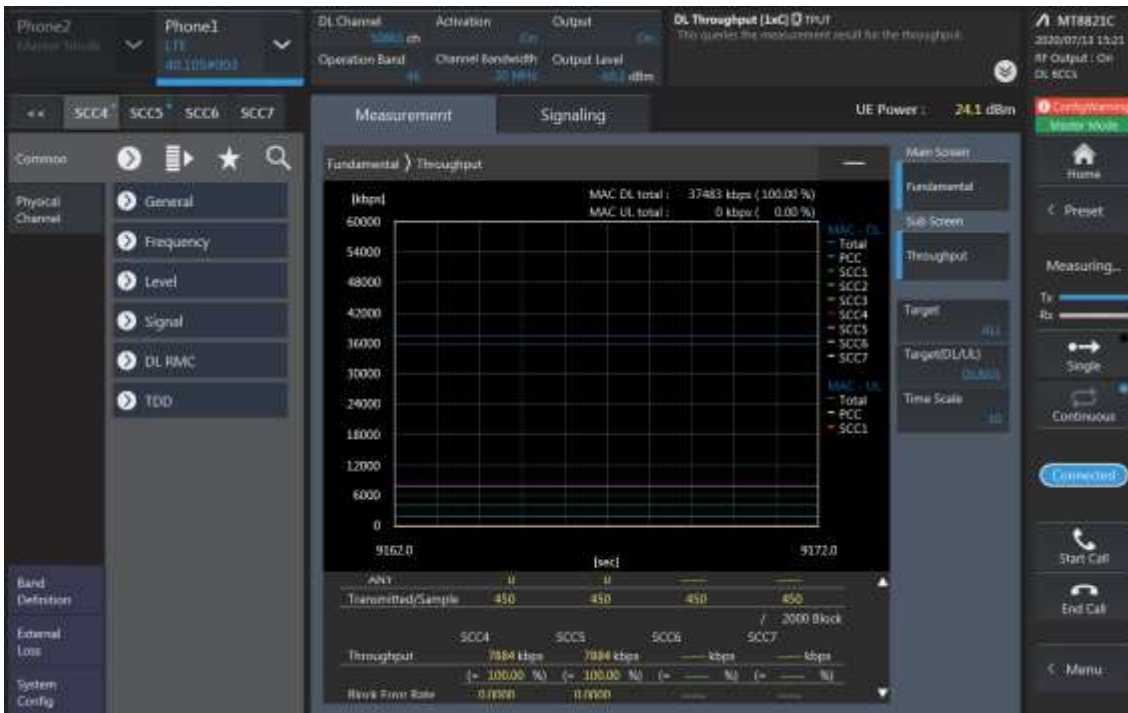


SCC3 Setting (Channel /RB/BW/Modulation )and call Connection

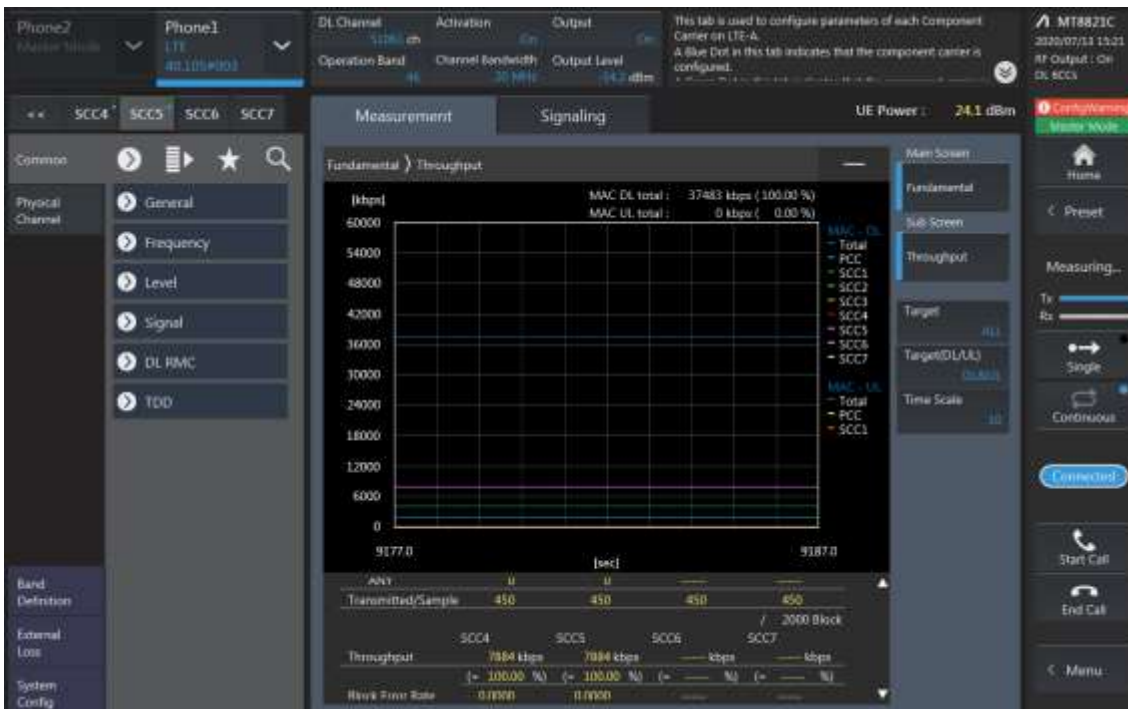




SCC4 Setting (Channel /RB/BW/Modulation )and call Connection



SCC5 Setting (Channel /RB/BW/Modulation )and call Connection



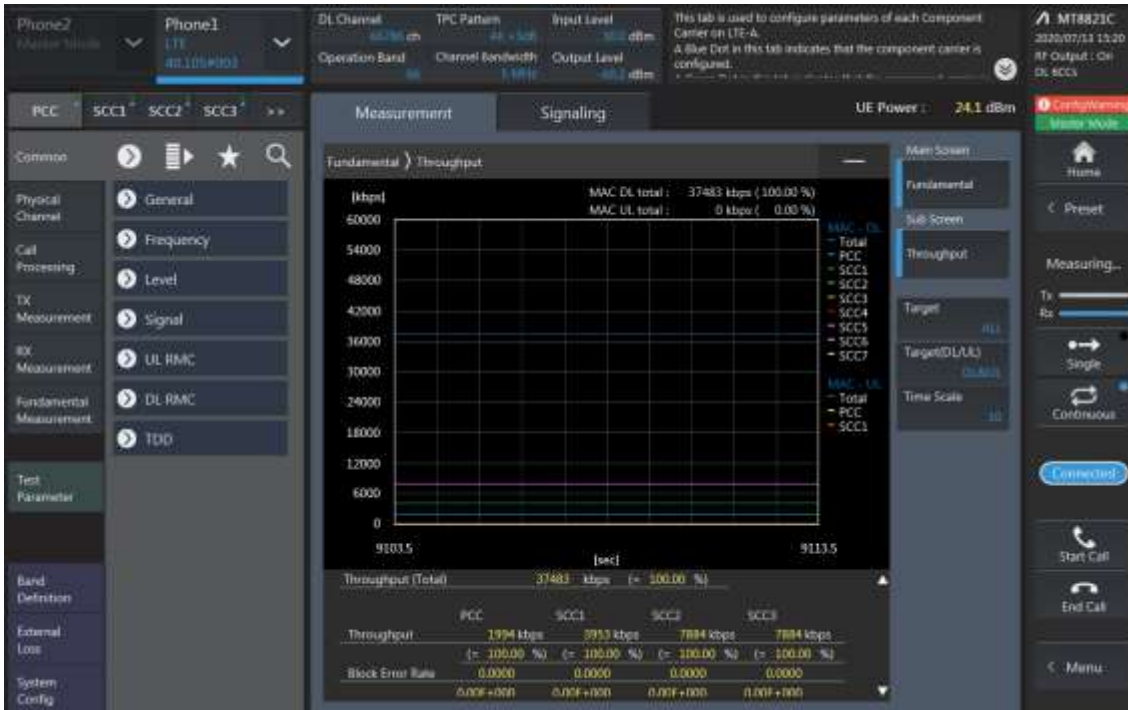


**6CA Downlink Carrier aggregation Maximum conducted Powers**

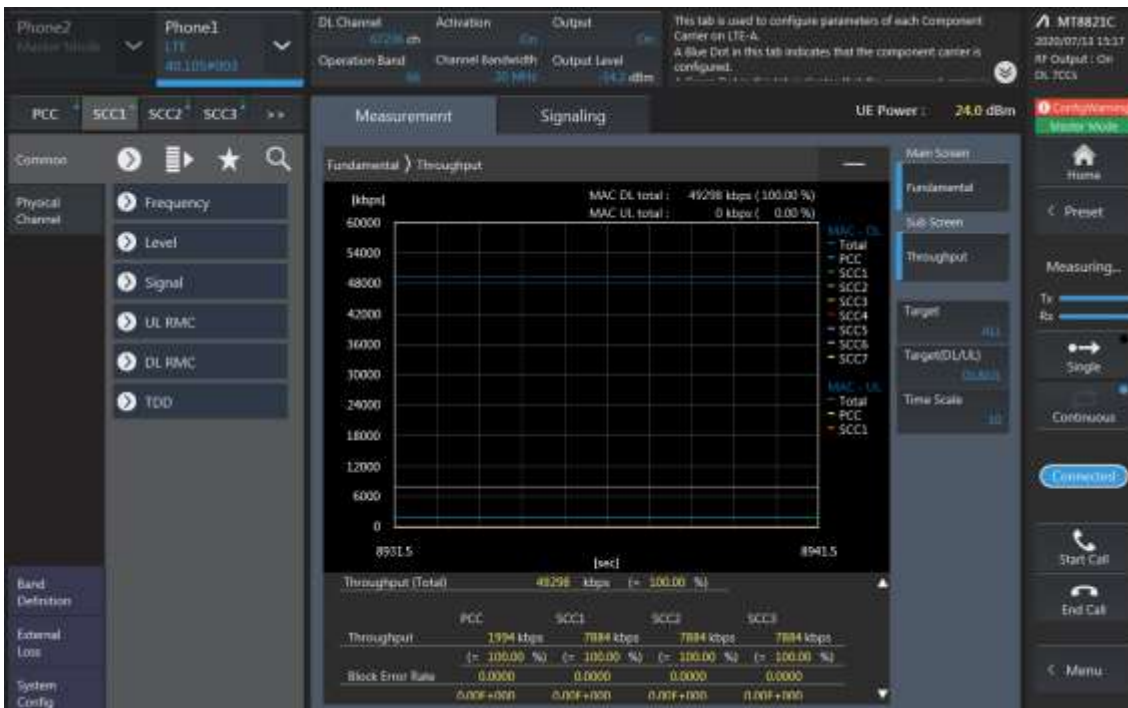
Combination	PCC								SCC				SCC				SCC				SCC				Tx Power						
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled (dBm)
2A-13A-46E	2	10	18900	1880	900	1960	QPSK	1	24	13	10	5230	751	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	23.8	23.6
2A-13A-46E	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	24.21	24.12
2A-48E-66A	2	10	18900	1880	900	1960	QPSK	1	24	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	66	20	66786	2145	23.8	23.65
2A-48E-66A	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.81	23.81
13A-46E-66A	13	10	23230	782	5230	751	QPSK	1	0	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	66	20	66786	2145	24.21	24.13
13A-46E-66A	66	5	132322	1745	66786	2145	QPSK	1	12	13	10	5230	751	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	23.81	23.76
13A-48E-66A	13	10	23230	782	5230	751	QPSK	1	0	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	66	20	66786	2145	24.21	24.19
13A-48E-66A	66	5	132322	1745	66786	2145	QPSK	1	12	13	10	5230	751	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.81	23.75

LTE Down Link 7CA Call Setup

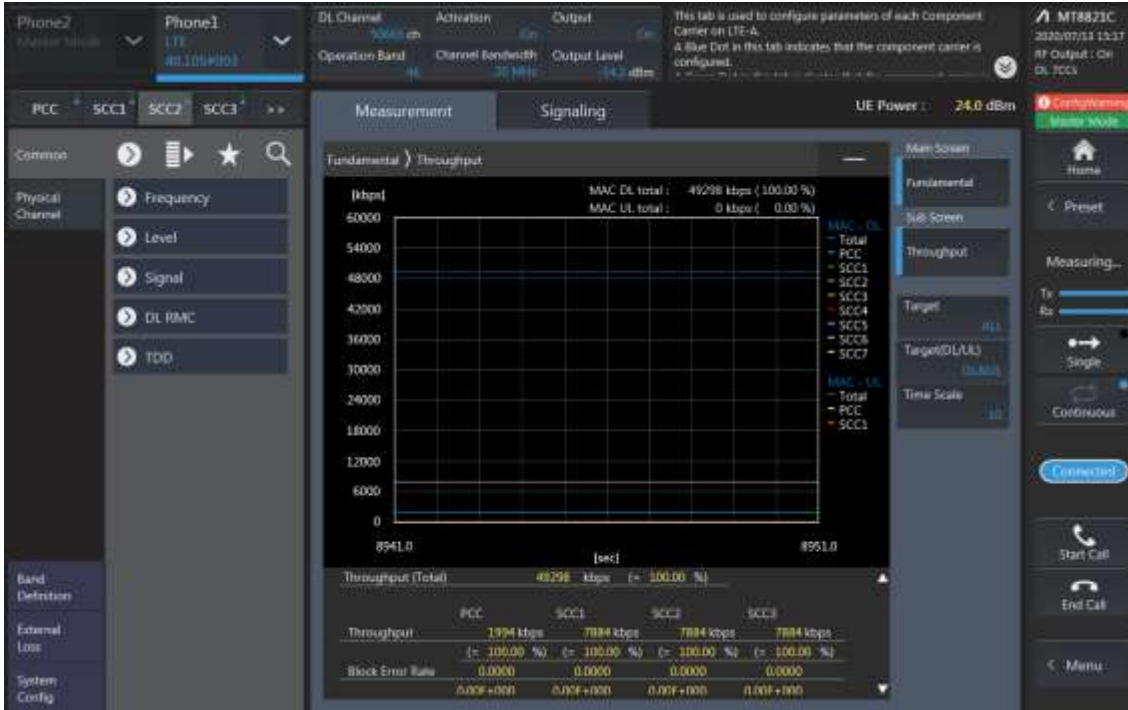
PCC Setting: Channel /RB/BW/Modulation



SCC1 Setting (Channel /RB/BW/Modulation )and call Connection



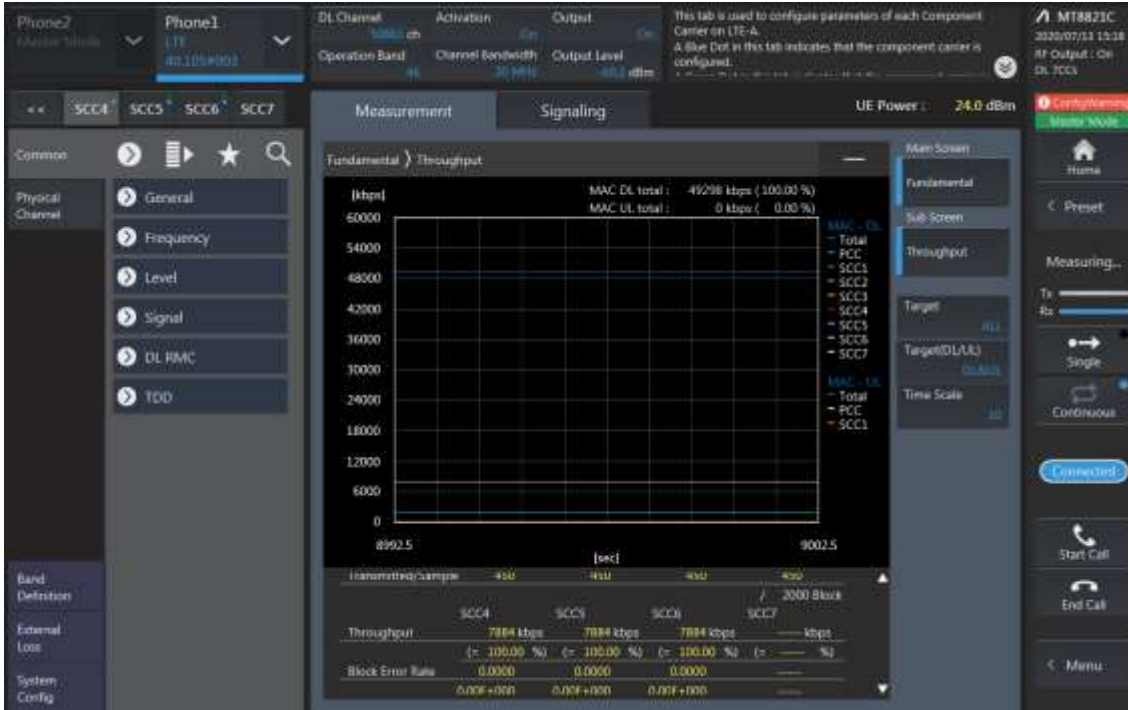
SCC2 Setting (Channel /RB/BW/Modulation) and call Connection



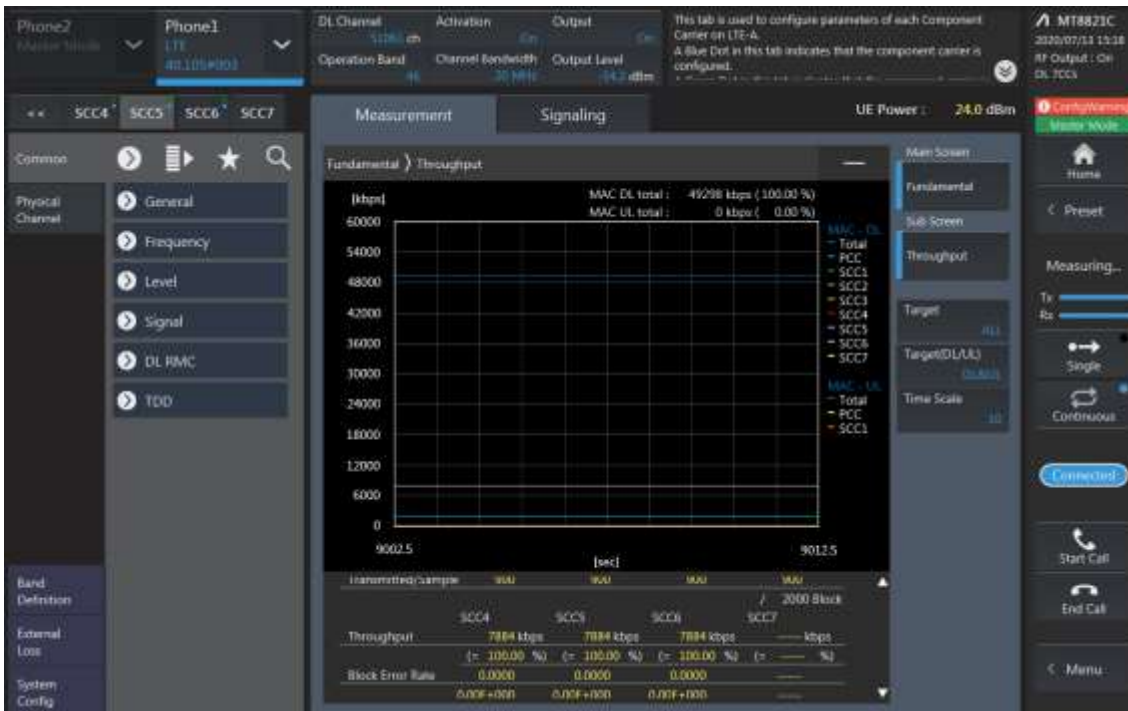
SCC3 Setting (Channel /RB/BW/Modulation )and call Connection



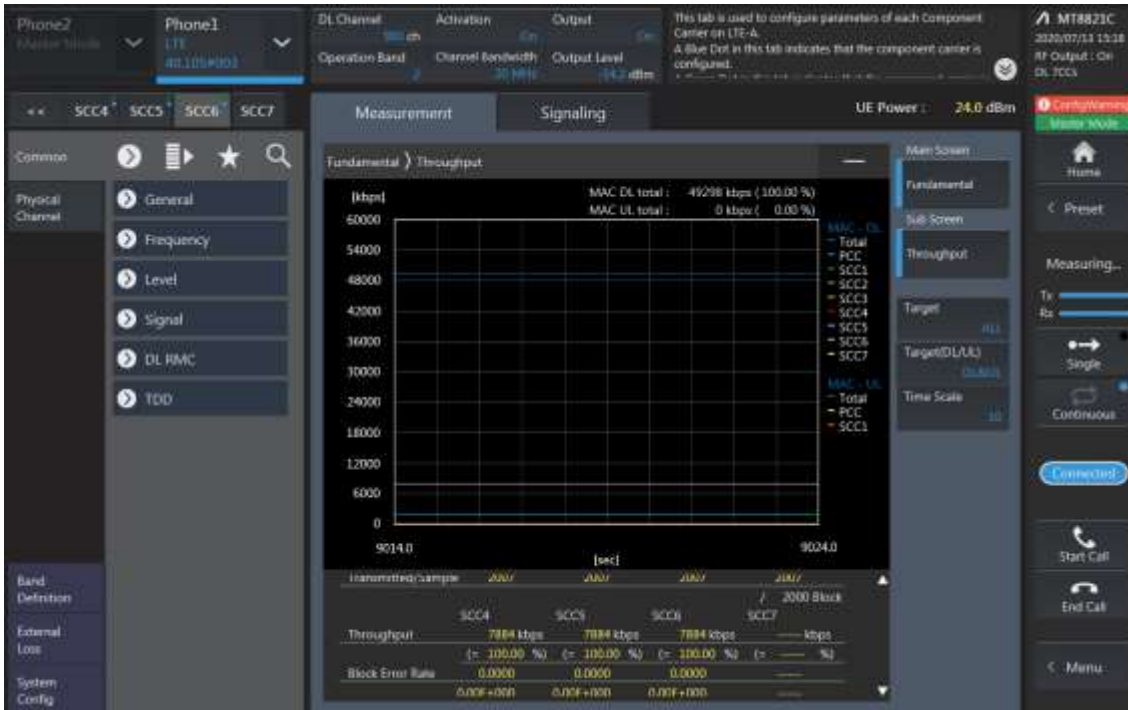
SCC4 Setting (Channel /RB/BW/Modulation )and call Connection



SCC5 Setting (Channel /RB/BW/Modulation )and call Connection



SCC6 Setting (Channel /RB/BW/Modulation )and call Connection



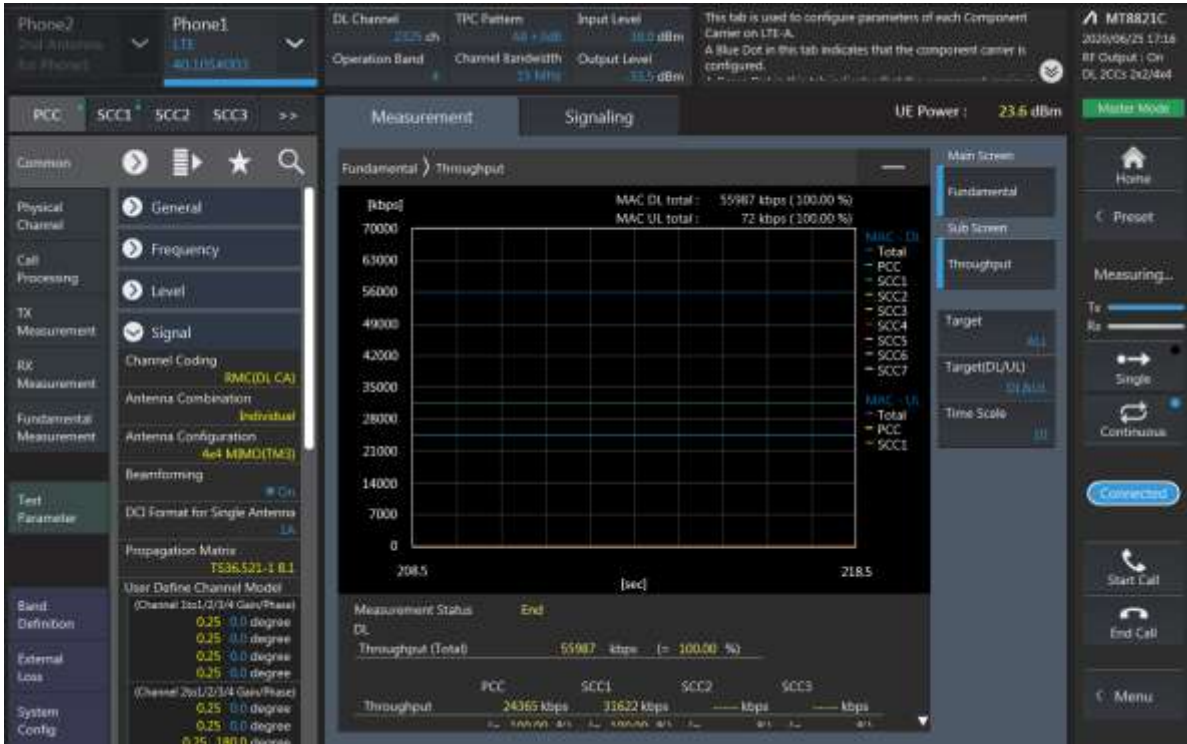


**7CA Downlink Carrier aggregation Maximum conducted Powers**

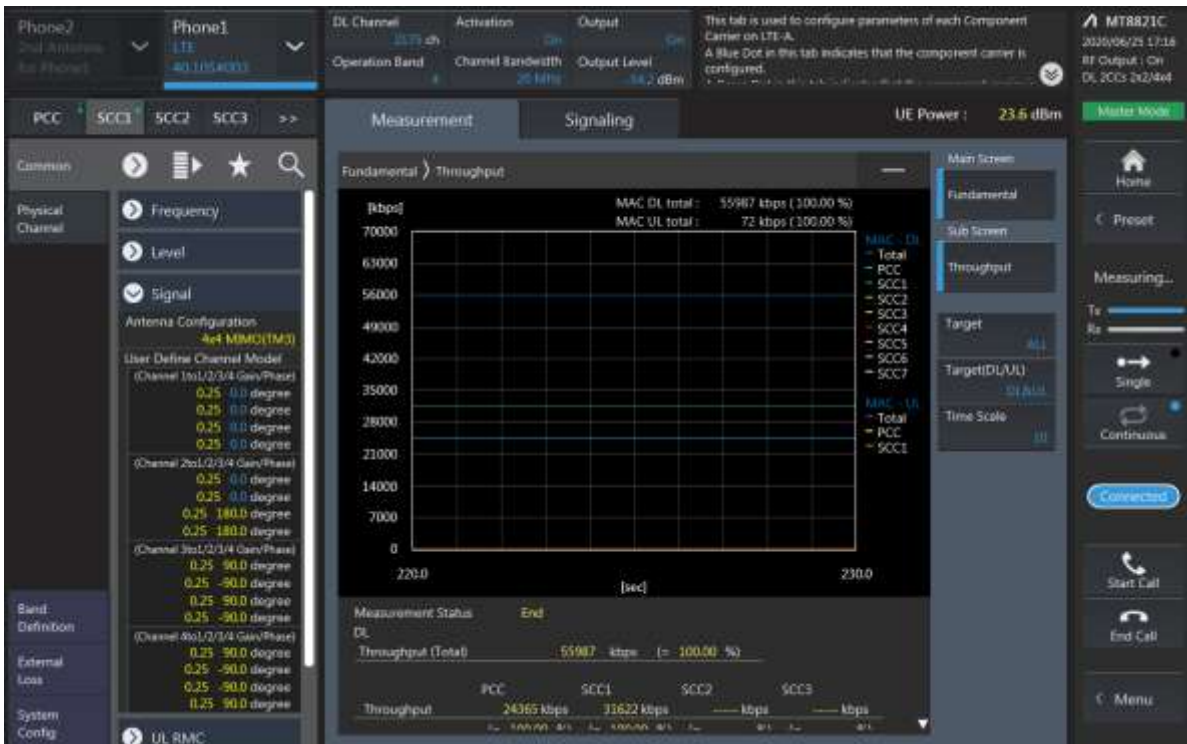
Combination	PCC									SCC				SCC				SCC				SCC				SCC				Tx Power					
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE1 Power with CA Enabled (dBm)
2A-5A-46D-66A-66A	2	10	18900	1880	900	1960	QPSK	1	24	5	10	2525	881.5	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	66	20	66786	2145	66	20	67236	2190	23.8	23.52
2A-5A-46D-66A-66A	5	5	20625	846.5	2625	891.5	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	66	20	66786	2145	66	20	67236	2190	24.78	24.63
2A-5A-46D-66A-66A	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	67236	2190	2	20	900	1960	5	10	2525	881.5	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	23.81	23.75
2A-5A-46E-66A	2	10	18900	1880	900	1960	QPSK	1	24	5	10	2525	881.5	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	66	20	66786	2145	23.8	23.63
2A-5A-46E-66A	5	5	20625	846.5	2625	891.5	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	66	20	66786	2145	24.78	24.72
2A-5A-46E-66A	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	5	10	2525	881.5	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	23.81	23.78
2A-13A-46D-66A-66A	2	10	18900	1880	900	1960	QPSK	1	24	13	10	5230	782	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	66	20	66786	2145	66	20	67236	2190	23.8	23.72
2A-13A-46D-66A-66A	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	66	20	66786	2145	66	20	67236	2190	24.21	24.11
2A-13A-46D-66A-66A	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	67236	2190	2	20	900	1960	13	10	5230	782	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	23.81	23.77
2A-46C-48D-66A	2	10	18900	1880	900	1960	QPSK	1	24	46	20	50665	5537.5	46	20	50467	5517.7	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	66	20	66786	2145	23.8	23.65
2A-46C-48D-66A	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.81	23.65
2A-46D-48C-66A	2	10	18900	1880	900	1960	QPSK	1	24	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	48	20	55990	3625	48	20	56188	3644.8	66	20	66786	2145	23.8	23.77
2A-46D-48C-66A	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	48	20	55990	3625	48	20	56188	3644.8	23.81	23.77
2A-46E-48A-66A	2	10	18900	1880	900	1960	QPSK	1	24	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	48	20	55990	3625	66	20	66786	2145	23.8	23.72
2A-46E-48A-66A	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	48	20	55990	3625	23.81	23.75
2A-46C-48E	2	10	18900	1880	900	1960	QPSK	1	24	46	20	50665	5537.5	46	20	50467	5517.7	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.8	23.66
2A-46E-48C	2	10	18900	1880	900	1960	QPSK	1	24	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	48	20	55990	3625	48	20	56188	3644.8	23.8	23.72
2A-46E-66A-66A	2	10	18900	1880	900	1960	QPSK	1	24	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	66	20	66786	2145	66	20	67236	2190	23.8	23.82
2A-46E-66A-66A	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	67236	2190	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	23.81	23.78
5A-46E-66A-66A	5	5	20625	846.5	2625	891.5	QPSK	1	12	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	66	20	66786	2145	66	20	67236	2190	24.78	24.66
5A-46E-66A-66A	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	67236	2190	5	10	2525	881.5	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	23.81	23.72
46C-48E-66A	66	5	132322	1745	66786	2145	QPSK	1	12	46	20	50665	5537.5	46	20	50467	5517.7	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.81	23.77
46E-48C-66A	66	5	132322	1745	66786	2145	QPSK	1	12	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	48	20	55990	3625	48	20	56188	3644.8	23.81	23.75

### LTE Down Link 2CA 4x4 MIMO Call Setup

PCC Setting : Channel/ RB/ BW/ Modulation



SCC Setting : Channel/ RB/ BW/ Modulation and call Connection



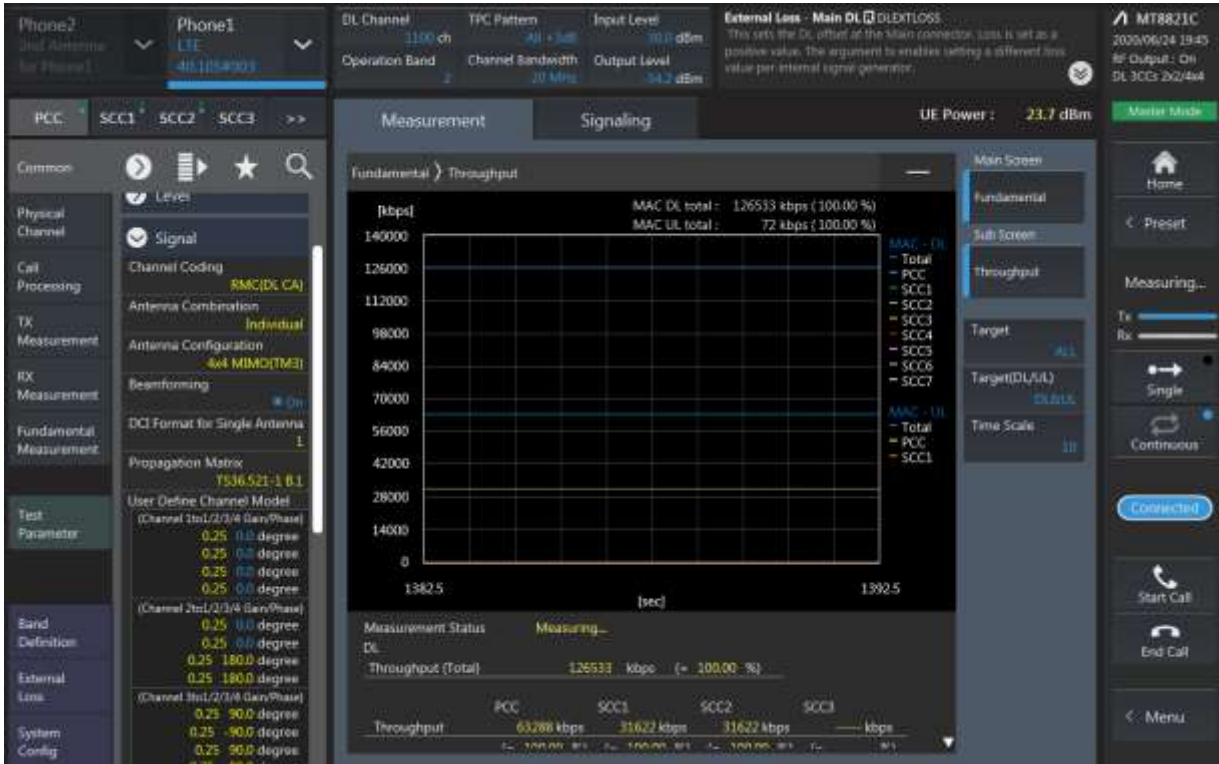
**LTE Downlink 2CA 4X4 MIMO Maximum Conducted Power**

Combination	PCC									SCC				Tx Power	
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled(dBm)
5A-[25A]	5	5	20625	846.5	2625	891.5	QPSK	1	12	25	20	8365	1962.5	24.78	24.72
5A-[25A]	25	20	26365	1882.5	8365	1962.5	QPSK	1	0	5	10	2525	881.5	23.65	23.66

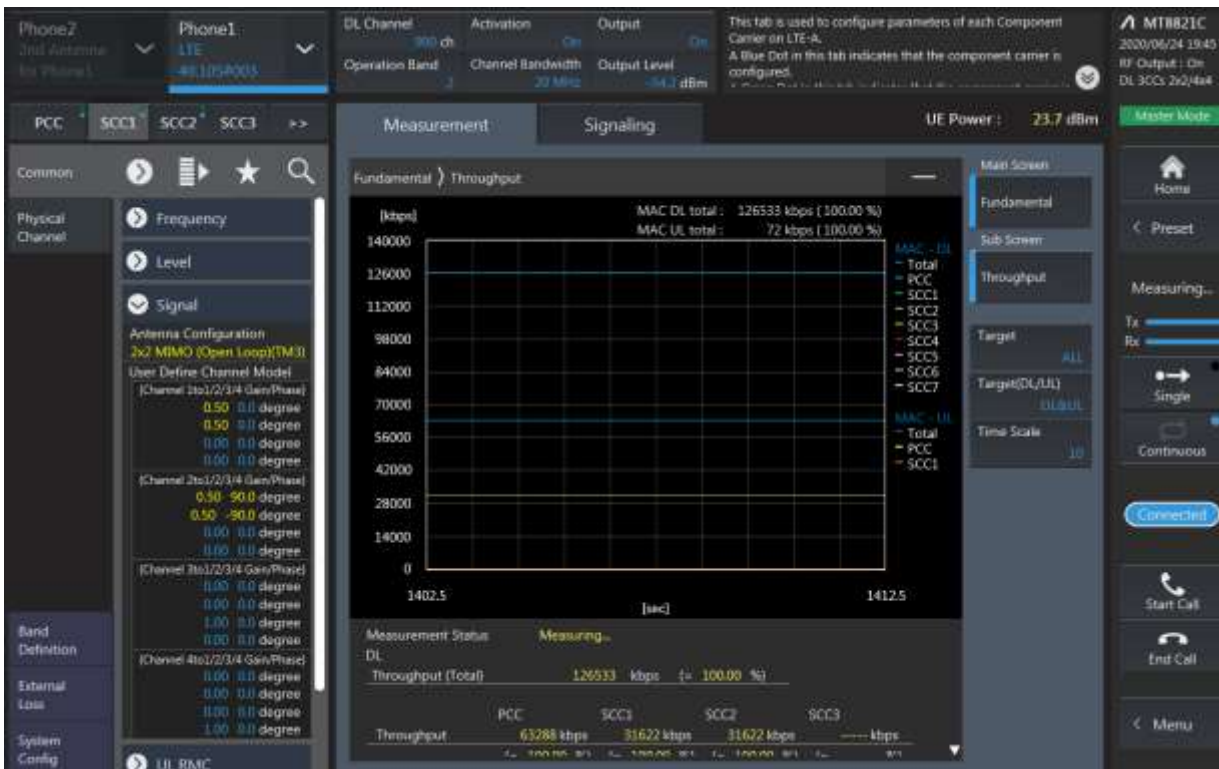


**LTE Down Link 3CA 4x4 MIMO Call Setup**

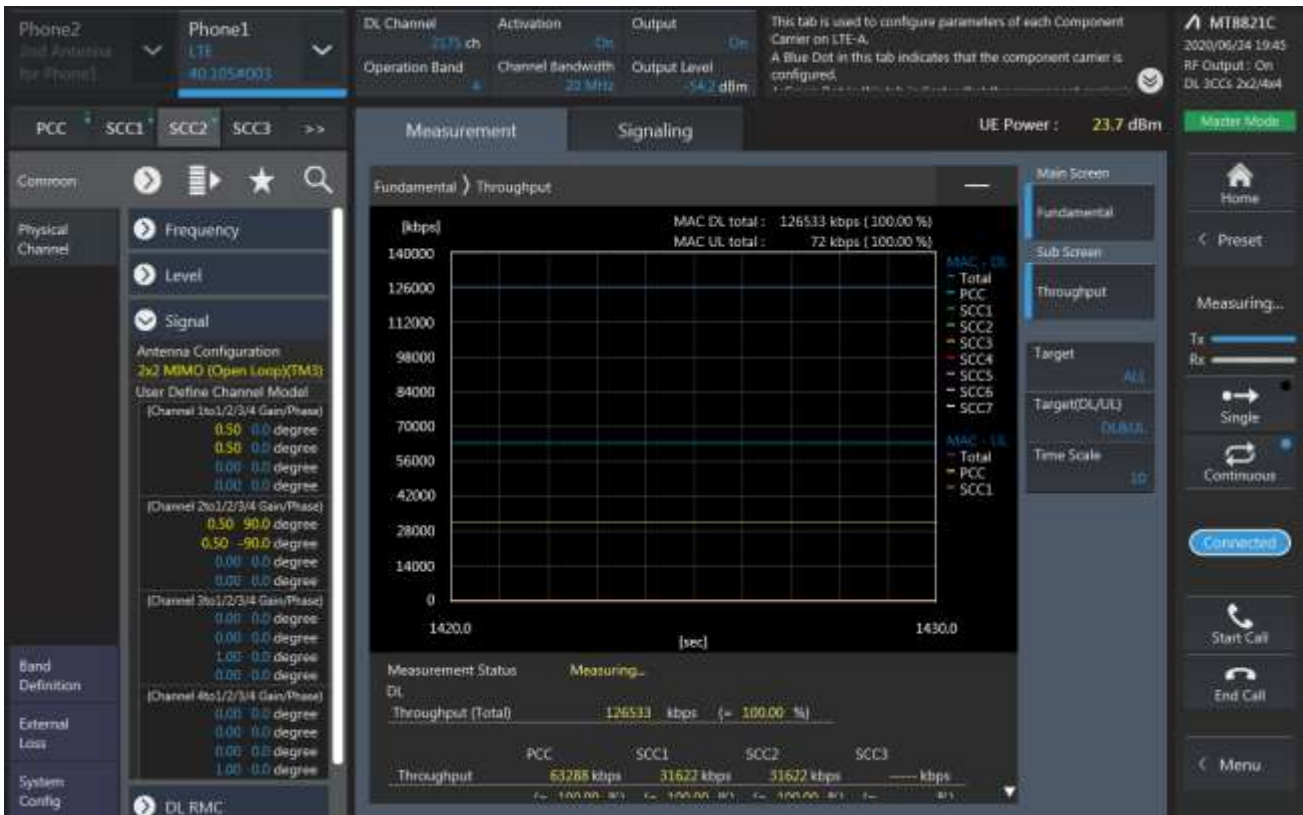
PCC Setting: Channel /RB/BW/Modulation



**CC1 Setting : Channel /RB/BW/Modulation**



SCC2 Setting (Channel /RB/BW/Modulation )and call Connection



**LTE Downlink 3CA 4X4 MIMO Maximum Conducted Power**

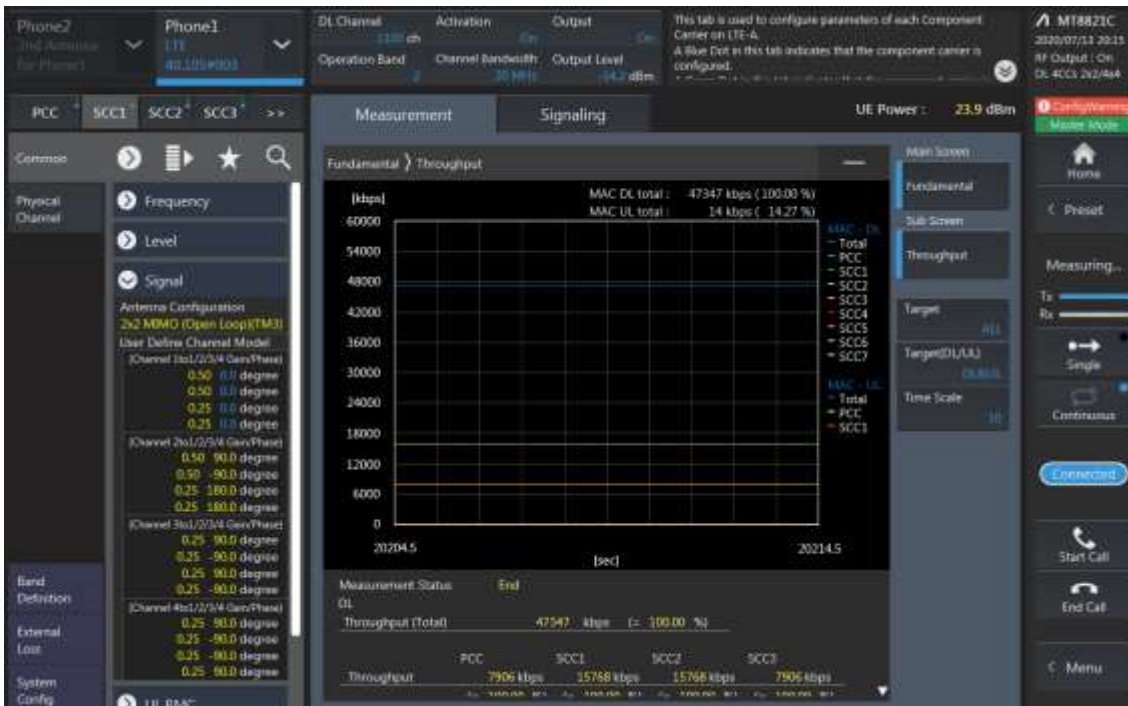
Combination	PCC									SCC				SCC				Tx Power	
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled(dBm)
[2A]-[4A]-13A	2	10	18900	1880	900	1960	QPSK	1	24	4	20	2175	2132.5	13	10	5230	751	23.8	23.75
[2A]-[4A]-13A	4	5	20375	1752.5	2375	2152.5	QPSK	1	12	2	20	900	1960	13	10	5230	751	23.63	23.59
[2A]-[4A]-13A	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	4	20	2175	2132.5	24.21	24.19
[4A]-[4A]-13A	4	5	20375	1752.5	2375	2152.5	QPSK	1	12	4	20	2050	2120	13	10	5230	751	23.63	23.60
[4A]-[4A]-13A	13	10	23230	782	5230	751	QPSK	1	0	4	20	2175	2132.5	4	10	2350	2150	24.21	24.19
[4A]-[4A]-71A	4	5	20375	1752.5	2375	2152.5	QPSK	1	12	4	20	2050	2120	71	20	68786	637	23.63	23.58
[4A]-[4A]-71A	71	5	133447	695.5	68911	649.5	QPSK	1	12	4	20	2175	2132.5	4	10	2350	2150	24.97	24.90
[25A]-[25A]-26A	25	20	26365	1882.5	8365	1962.5	QPSK	1	0	25	20	8590	1985	26	5	8865	876.5	23.65	23.62
[25A]-[25A]-26A	26	5	27015	846.5	9015	891.5	QPSK	1	12	25	20	8365	1962.5	25	20	8590	1985	24.7	24.65
[48A]-[48A]-71A	71	5	133447	695.5	68911	649.5	QPSK	1	12	48	20	55990	3625	48	20	56640	3690	24.97	24.89
[48C]-71A	71	5	133447	695.5	68911	649.5	QPSK	1	12	48	20	55990	3625	48	20	56188	3644.8	24.97	24.92
[66A]-[66C]	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	67038	2170.2	66	20	67236	2190	23.81	23.80
[66A]-[66C]	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	66903	2156.7	66	20	67236	2190	23.81	23.77

**LTE Down Link 4CA 4x4 MIMO Call Setup**

PCC Setting: Channel /RB/BW/Modulation

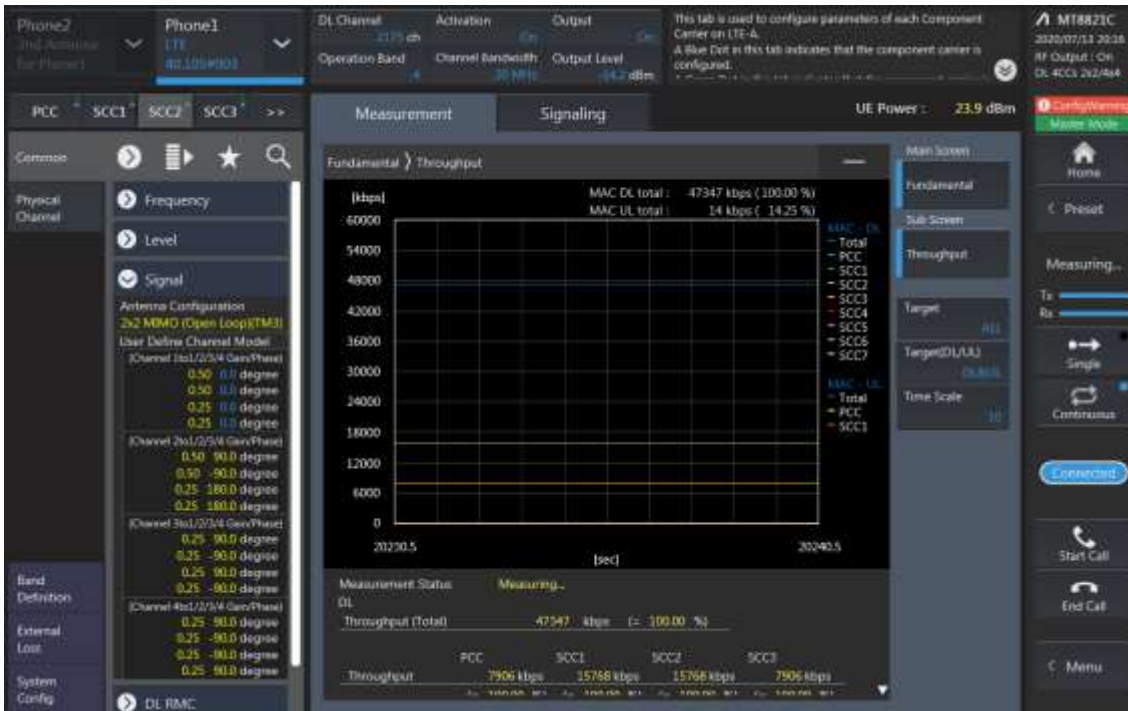


**SCC1 Setting : Channel /RB/BW/Modulation**

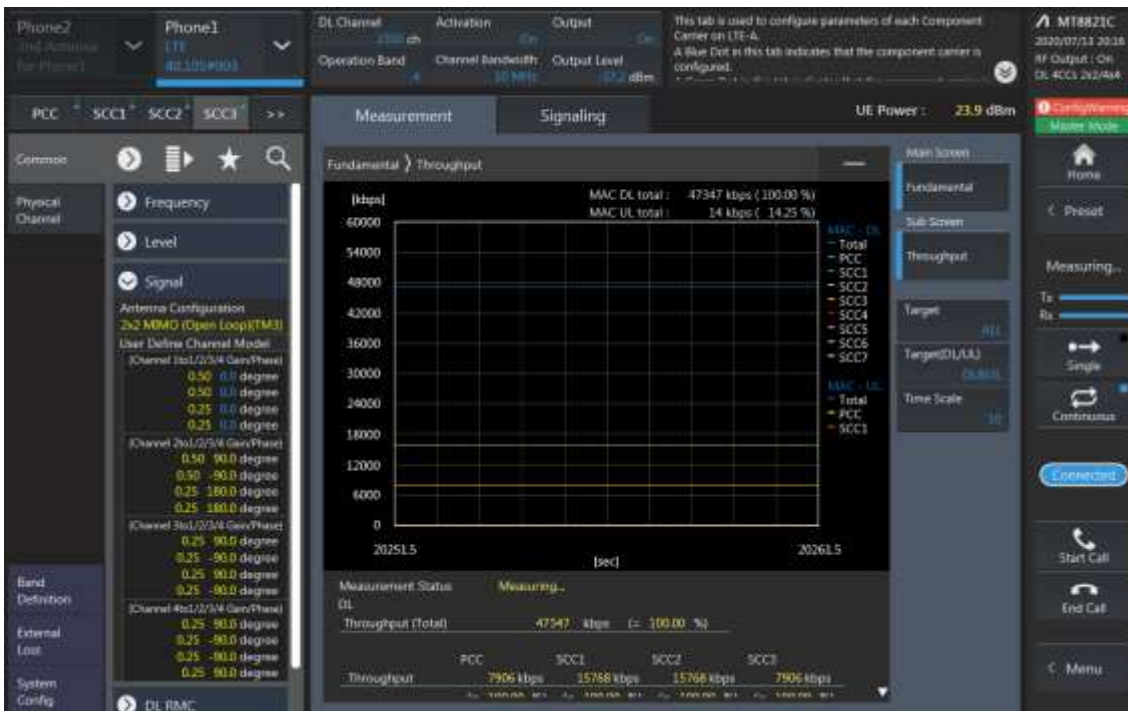




SCC2 Setting (Channel /RB/BW/Modulation ) and call Connection



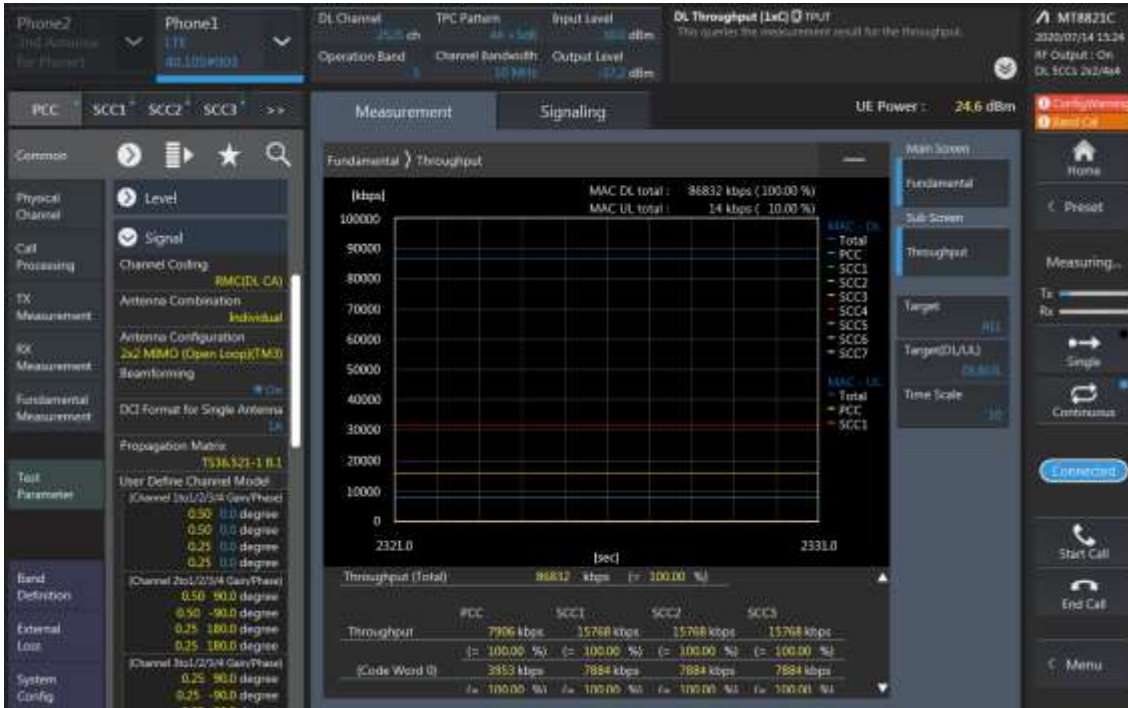
SCC3 Setting (Channel /RB/BW/Modulation ) and call Connection



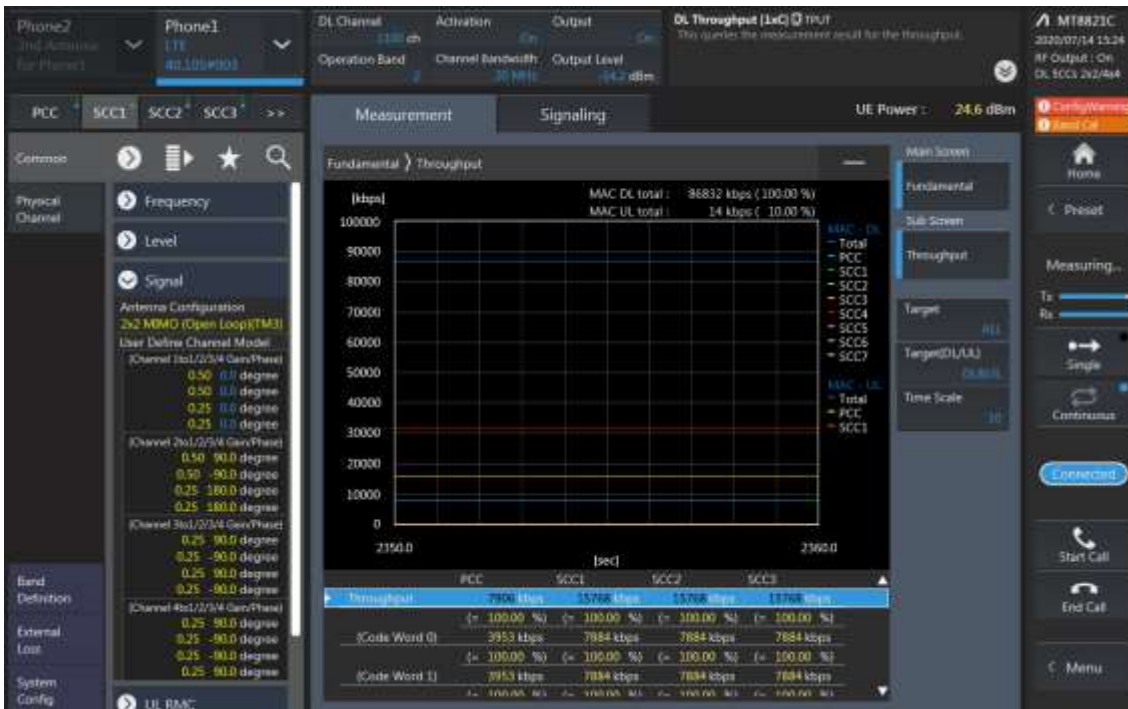


**LTE Down Link 5CA 4x4 MIMO Call Setup**

PCC Setting: Channel /RB/BW/Modulation

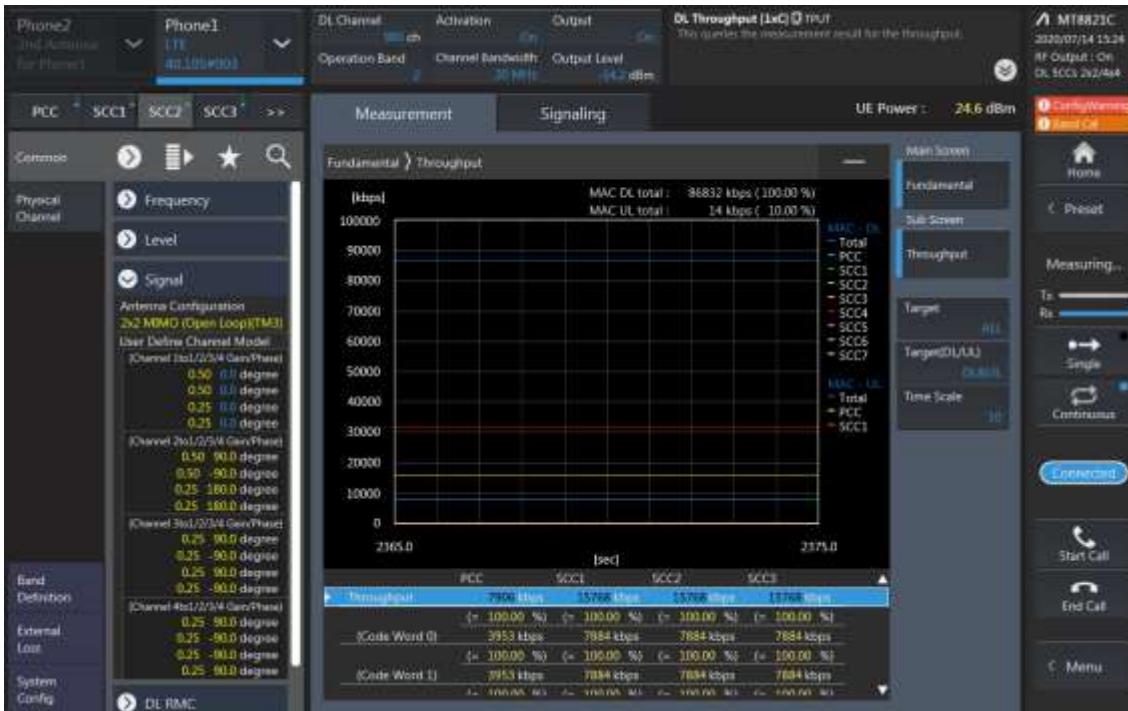


**SCC1 Setting : Channel /RB/BW/Modulation**

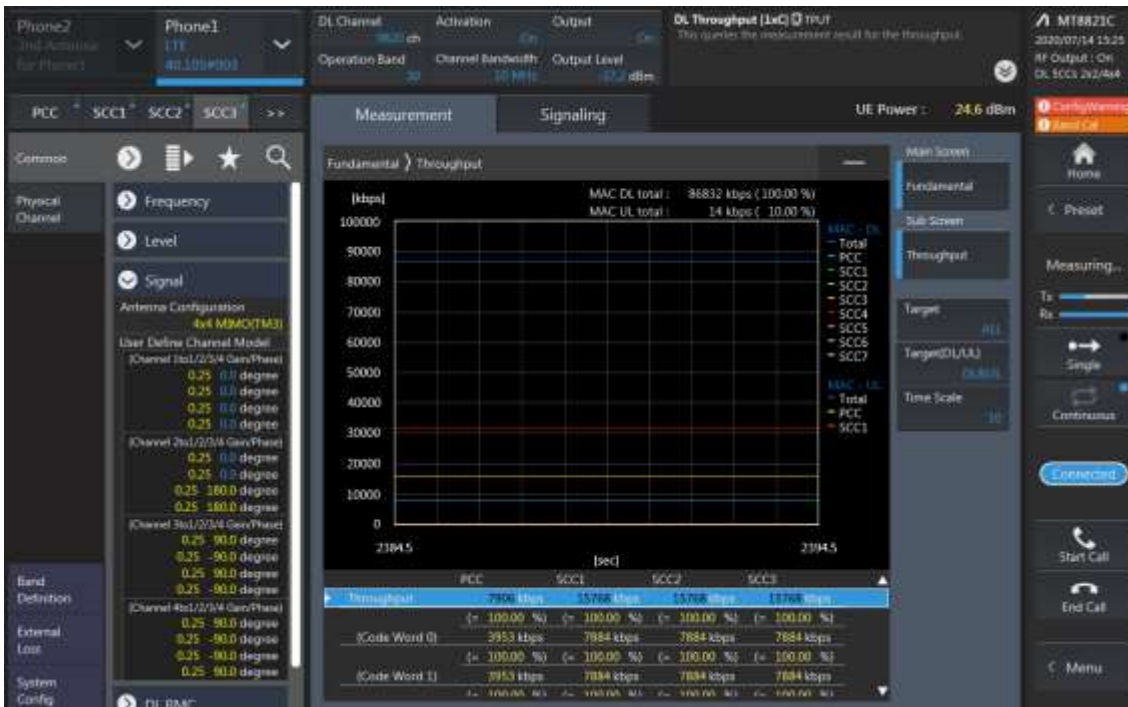




SCC2 Setting (Channel /RB/BW/Modulation ) and call Connection

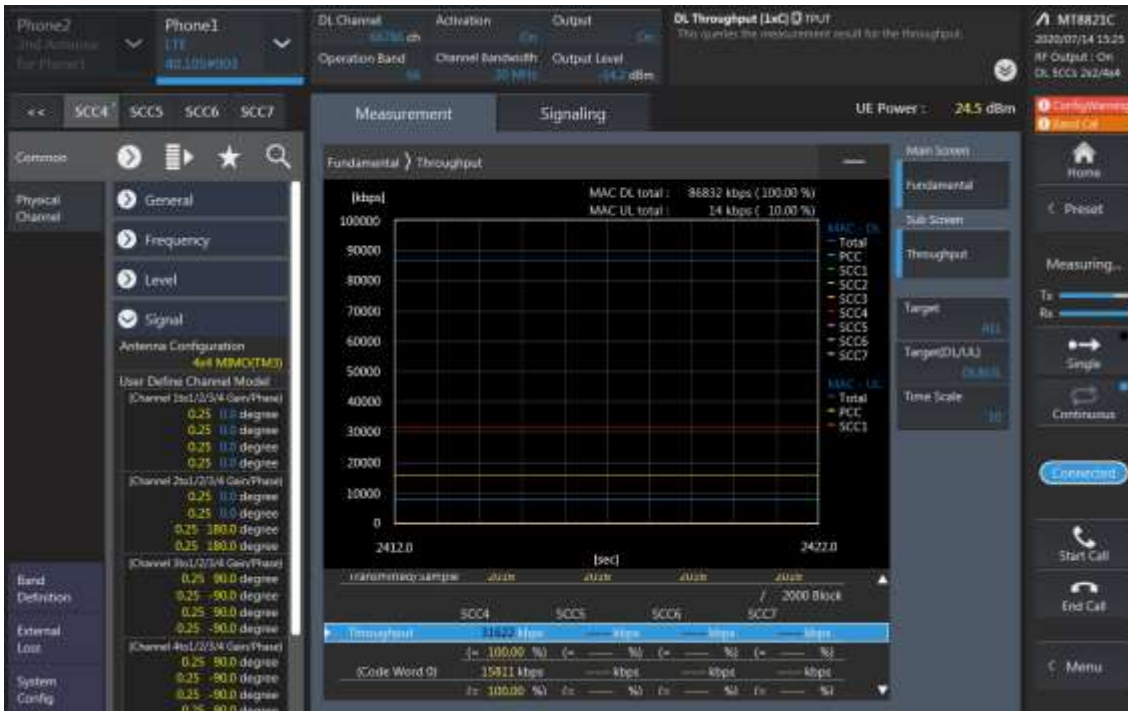


SCC3 Setting (Channel /RB/BW/Modulation ) and call Connection





SCC4 Setting (Channel /RB/BW/Modulation ) and call Connection



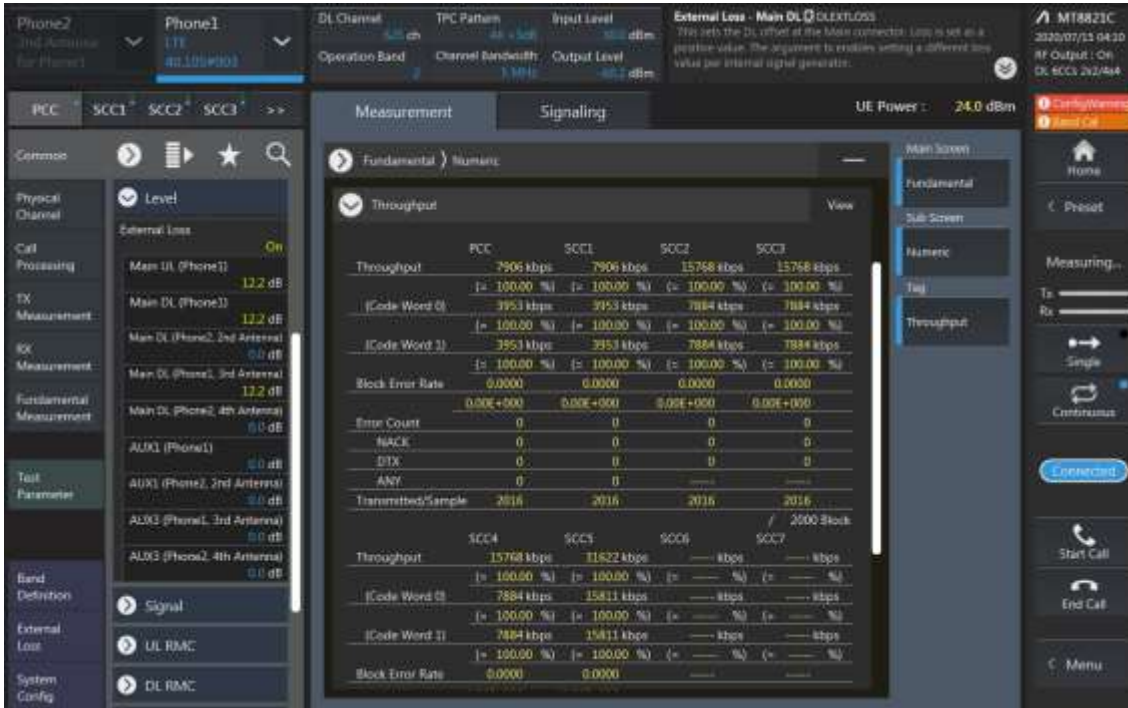






### LTE Down Link 6CA 4x4 MIMO Call Setup

PCC Setting: Channel /RB/BW/Modulation



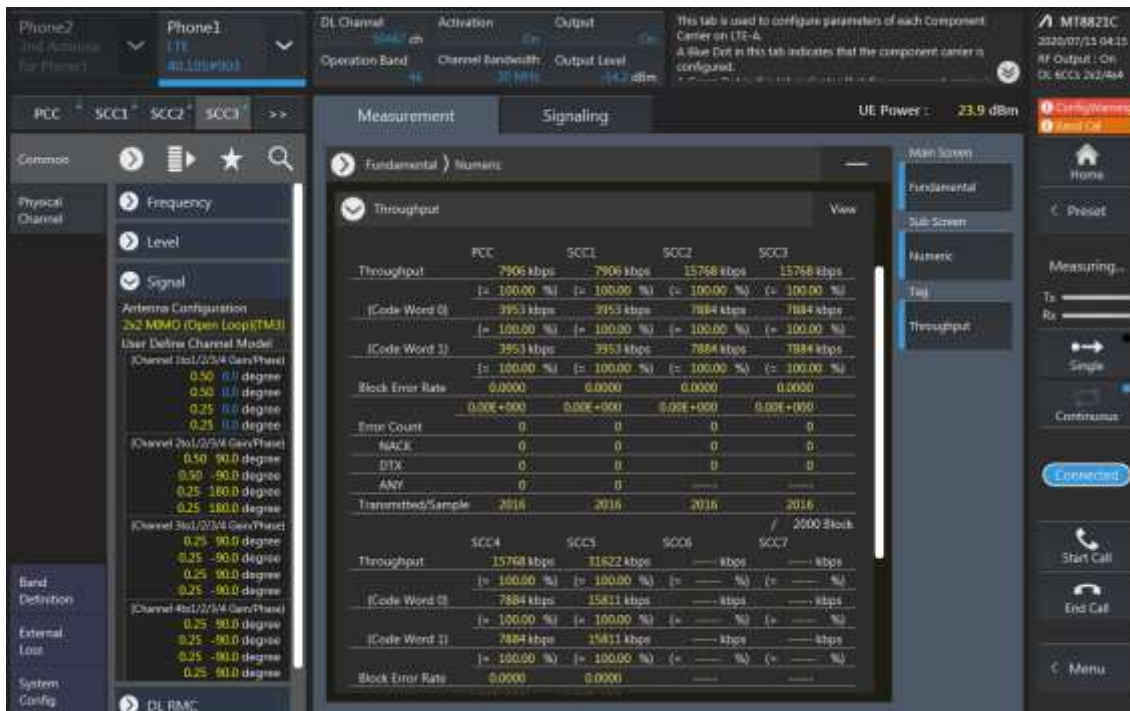
### SCC1 Setting : Channel /RB/BW/Modulation



SCC2 Setting (Channel /RB/BW/Modulation ) and call Connection



SCC3 Setting (Channel /RB/BW/Modulation ) and call Connection



SCC4 Setting (Channel /RB/BW/Modulation ) and call Connection

DL Channel: 662.90 ch, Activation: On, Output: 23.9 dBm

Operation Band: 4G, Channel Bandwidth: 30 MHz, Output Level: 23.9 dBm

UE Power: 23.9 dBm

Antenna Configuration: 2x2 MIMO (Open Loop/TM3)

Throughput	PCC	SCC1	SCC2	SCC3
Throughput	7906 kbps	7906 kbps	15768 kbps	15768 kbps
(Code Word 0)	3953 kbps	3953 kbps	7884 kbps	7884 kbps
(Code Word 1)	3953 kbps	3953 kbps	7884 kbps	7884 kbps
Block Error Rate	0.0000	0.0000	0.0000	0.0000
Error Count	0	0	0	0
NACK	0	0	0	0
DTX	0	0	0	0
ANY	0	0	0	0
Transmitted Sample	1818	1818	1800	1800
	/ 2000 Block			

SCC6 Setting (Channel /RB/BW/Modulation ) and call Connection

DL Channel: 662.90 ch, Activation: On, Output: 23.9 dBm

Operation Band: 4G, Channel Bandwidth: 30 MHz, Output Level: 23.9 dBm

UE Power: 23.9 dBm

Antenna Configuration: 4x4 MIMO (TM3)

Throughput	PCC	SCC1	SCC2	SCC3
Throughput	7906 kbps	7906 kbps	15768 kbps	15768 kbps
(Code Word 0)	3953 kbps	3953 kbps	7884 kbps	7884 kbps
(Code Word 1)	3953 kbps	3953 kbps	7884 kbps	7884 kbps
Block Error Rate	0.0000	0.0000	0.0000	0.0000
Error Count	0	0	0	0
NACK	0	0	0	0
DTX	0	0	0	0
ANY	0	0	0	0
Transmitted Sample	2016	2016	2016	2016
	/ 2000 Block			

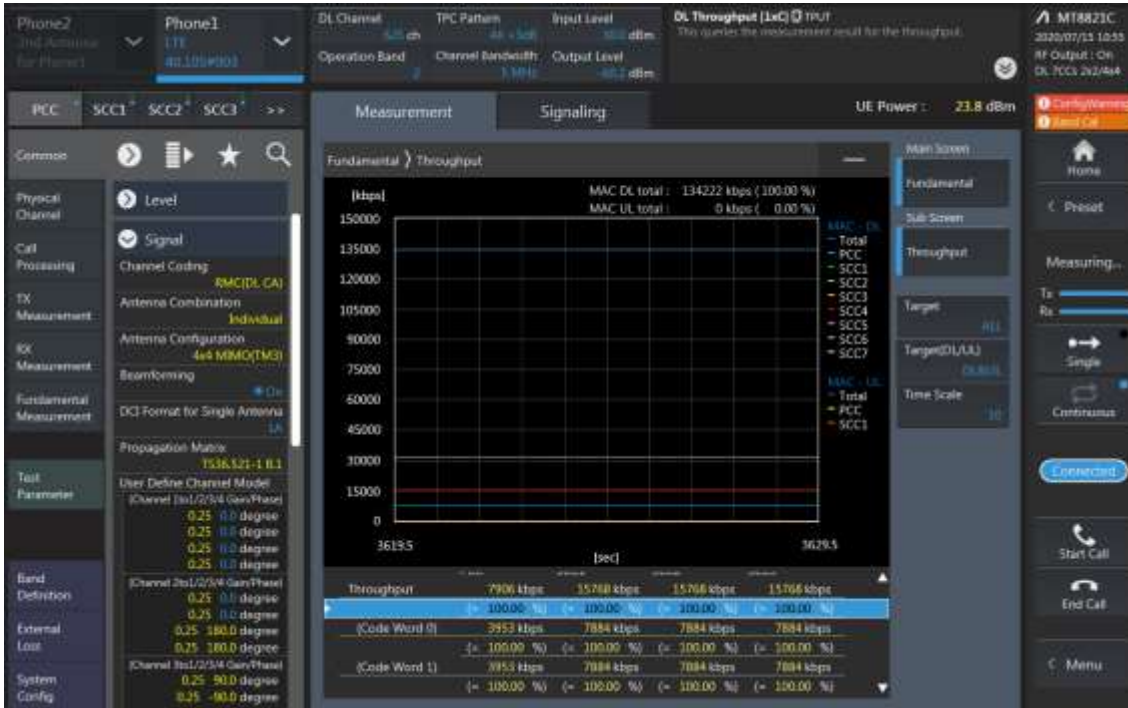


LTE Downlink 6CA 4X4 MIMO Maximum Conducted Power

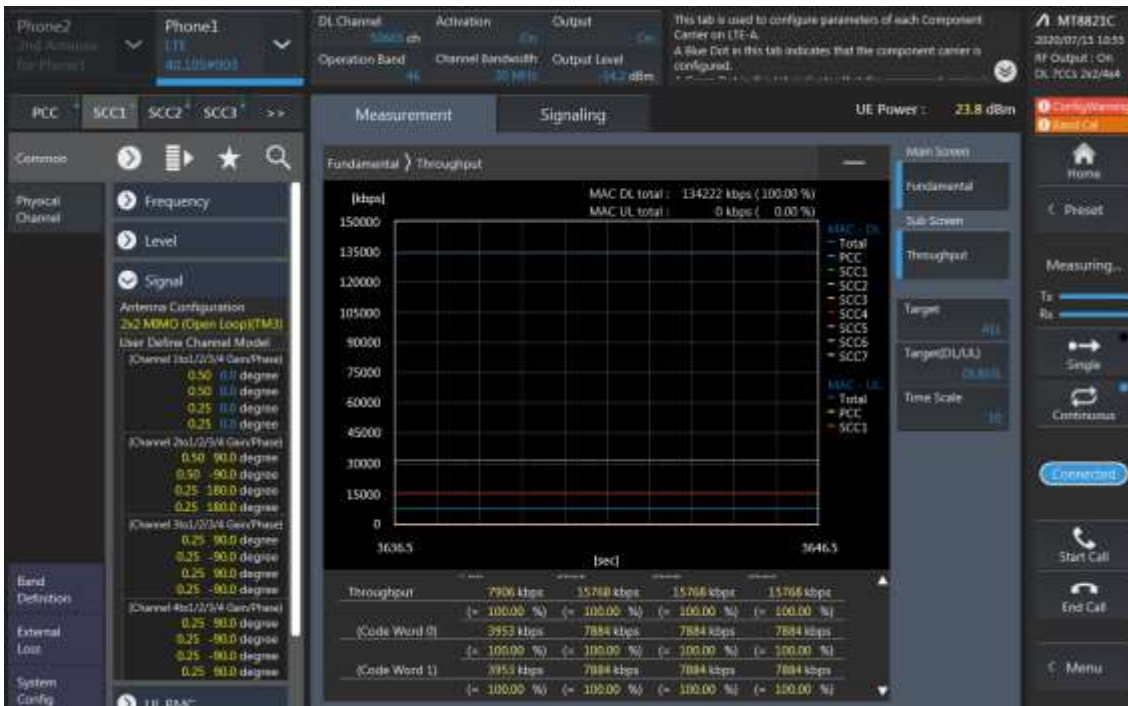
Combination	PCC									SCC				SCC				SCC				SCC				Tx Power					
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled (dBm)
[2A]-13A-46E	2	10	18900	1880	900	1960	QPSK	1	24	13	10	5230	751	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	23.8	23.75
[2A]-13A-46E	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	24.21	24.19
[2A]-46A-[48D]-66A	2	10	18900	1880	900	1960	QPSK	1	24	46	20	50665	5537.5	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	66	20	66786	2145	23.8	23.77
[2A]-46A-[48D]-66A	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.81	23.82
2A-46A-[48D]-[66A]	2	10	18900	1880	900	1960	QPSK	1	24	46	20	50665	5537.5	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	66	20	66786	2145	23.8	23.83
2A-46A-[48D]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.81	23.75
[2A]-46C-[48C]-[66A]	2	10	18900	1880	900	1960	QPSK	1	24	46	20	50665	5537.5	46	20	50467	5517.7	48	20	55990	3625	48	20	56188	3644.8	66	20	66786	2145	23.8	23.81
[2A]-46C-[48C]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	48	20	55990	3625	48	20	56188	3644.8	23.81	23.86
2A-46A-[48E]	2	10	18900	1880	900	1960	QPSK	1	24	46	20	50665	5537.5	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.8	23.79
[2A]-46C-[48D]	2	10	18900	1880	900	1960	QPSK	1	24	46	20	50665	5537.5	46	20	50467	5517.7	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.8	23.8
2A-[48E]-66A	2	10	18900	1880	900	1960	QPSK	1	24	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	66	20	66786	2145	23.8	23.77
2A-[48E]-66A	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.81	23.79
[2A]-48E-[66A]	2	10	18900	1880	900	1960	QPSK	1	24	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	66	20	66786	2145	23.8	23.78
[2A]-48E-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.81	23.82
13A-46E-[66A]	13	10	23230	782	5230	751	QPSK	1	0	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	66	20	66786	2145	24.21	24.2
13A-46E-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	13	10	5230	751	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	23.81	23.83
13A-[48E]-66A	13	10	23230	782	5230	751	QPSK	1	0	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	66	20	66786	2145	24.21	24.18
13A-[48E]-66A	66	5	132322	1745	66786	2145	QPSK	1	12	13	10	5230	751	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.81	23.79
13A-48E-[66A]	13	10	23230	782	5230	751	QPSK	1	0	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	66	20	66786	2145	24.21	24.25
13A-48E-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	13	10	5230	751	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.81	23.83
46A-[48E]-66A	66	5	132322	1745	66786	2145	QPSK	1	12	46	20	50665	5537.5	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.81	23.84
46C-[48D]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	46	20	50665	5537.5	46	20	50467	5517.7	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.81	23.79

**LTE Down Link 7CA 4x4 MIMO Call Setup**

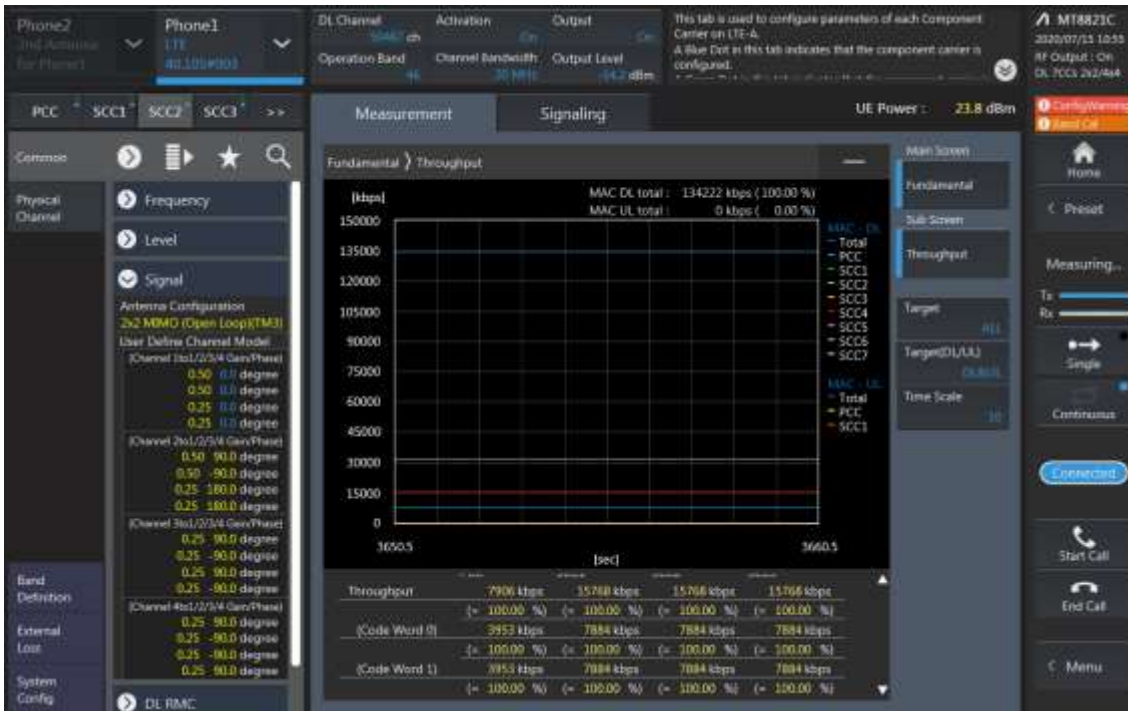
PCC Setting: Channel /RB/BW/Modulation



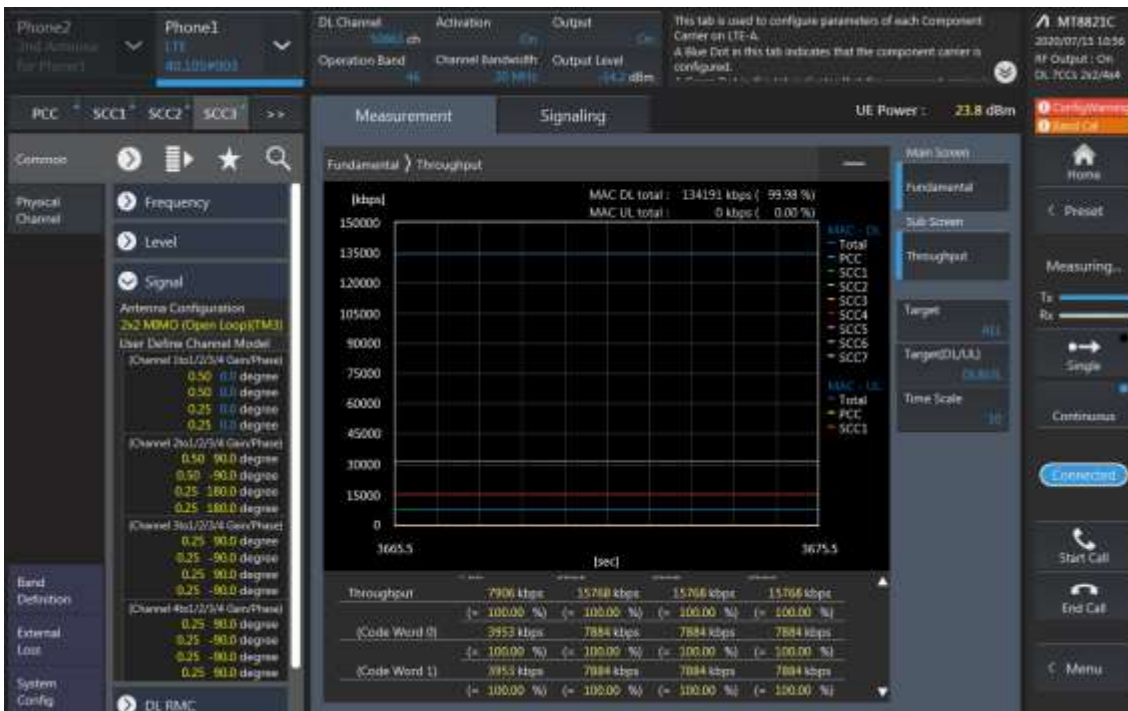
**SCC1 Setting : Channel /RB/BW/Modulation**



SCC2 Setting (Channel /RB/BW/Modulation ) and call Connection

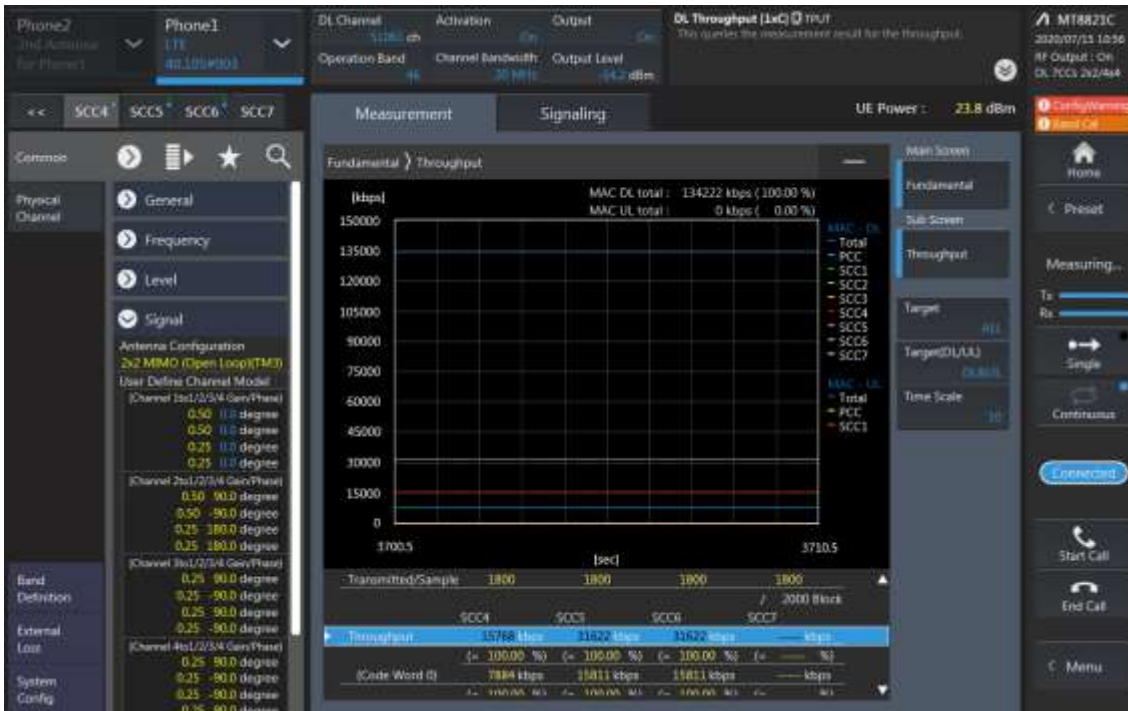


SCC3 Setting (Channel /RB/BW/Modulation ) and call Connection

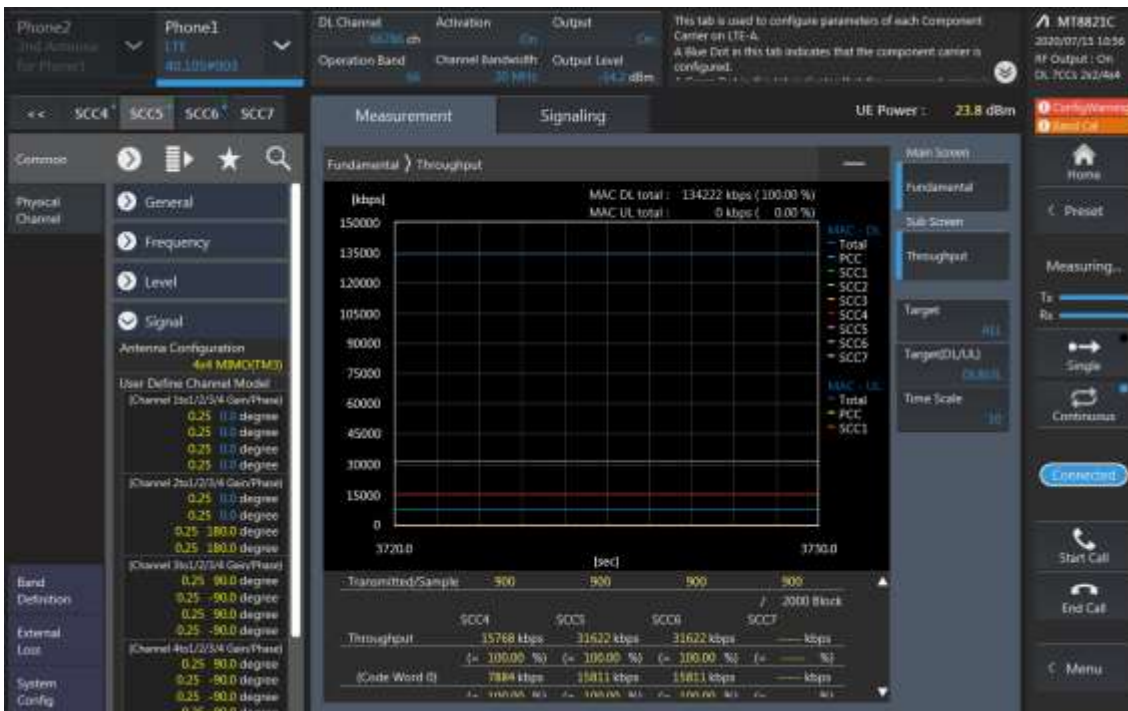




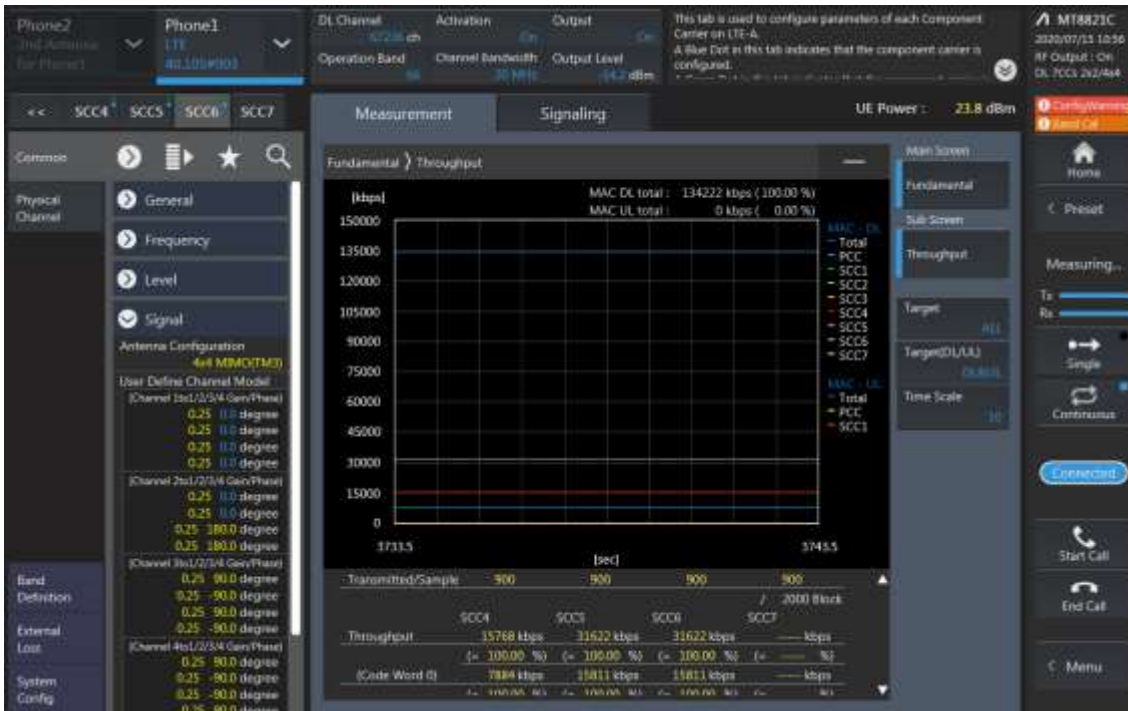
SCC4 Setting (Channel /RB/BW/Modulation ) and call Connection



SCC5 Setting (Channel /RB/BW/Modulation ) and call Connection



SCC6 Setting (Channel /RB/BW/Modulation ) and call Connection



**LTE Downlink 7CA 4X4 MIMO Maximum Conducted Power**

Combination	PCC									SCC				SCC				SCC				SCC				SCC				Tx Power					
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulator	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled (dBm)
[2A]-5A-46D-[66A]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	67236	2190	2	20	900	1960	5	10	2525	881.5	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	23.81	23.78
[2A]-5A-46E-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	5	10	2525	881.5	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	23.81	23.77
[2A]-13A-46D-[66A]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	67236	2190	2	20	900	1960	13	10	782	5230	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	23.81	23.82
2A-46C-[48D]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.81	23.79
[2A]-46C-[48D]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.81	23.82
[2A]-46D-[48C]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	48	20	55990	3625	48	20	56188	3644.8	23.81	23.75
[2A]-46D-[48C]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	48	20	55990	3625	48	20	56188	3644.8	23.81	23.79
2A-46D-[48C]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	48	20	55990	3625	48	20	56188	3644.8	23.81	23.8
[2A]-46E-[48A]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	48	20	55990	3625	23.81	23.76
[2A]-46E-[66A]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	67236	2190	2	20	900	1960	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	23.81	23.75
5A-46E-[66A]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	66	20	67236	2190	5	10	2525	881.5	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	23.81	23.77
46C-48E-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	46	20	50665	5537.5	46	20	50467	5517.7	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.81	23.83
46E-[48C]-[66A]	66	5	132322	1745	66786	2145	QPSK	1	12	46	20	50665	5537.5	46	20	50467	5517.7	46	20	50863	5557.3	46	20	51061	5577.1	48	20	55990	3625	48	20	56188	3644.8	23.81	23.81