

Appendix I. – Down-link CA Power Measurement / 5G NR Call Box Setup

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:

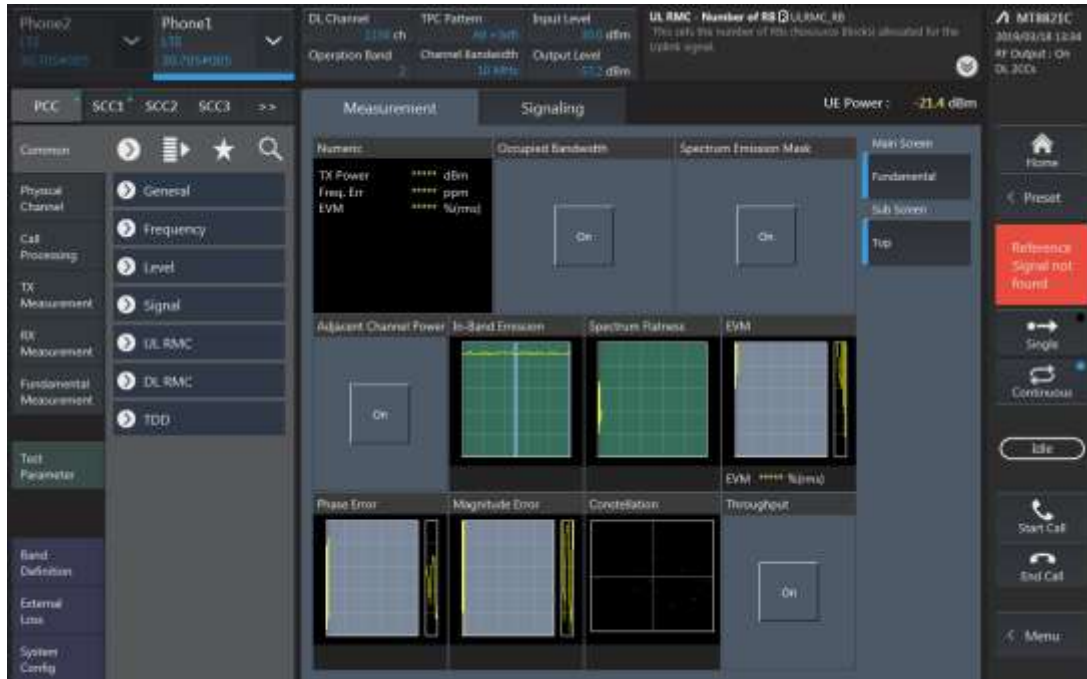
1. This device only supports downlink carrier aggregation. For every supported combination of downlink carrier aggregation, power measurements were performed with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation 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.



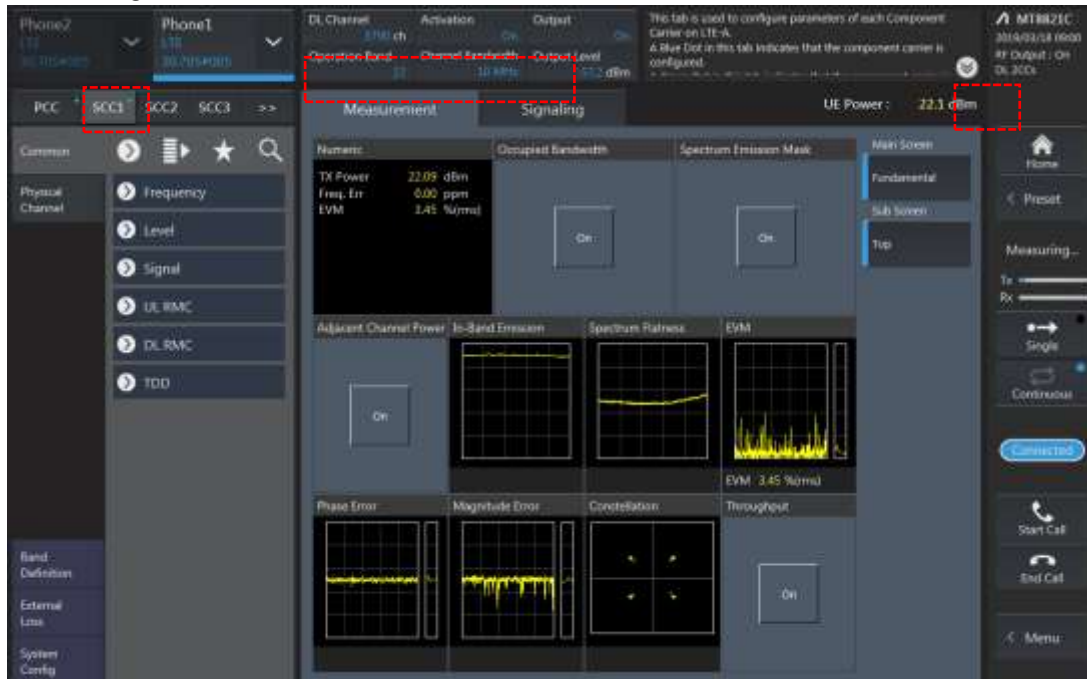
Power Measurement setup

LTE Down Link 2CA Call Setup

PCC Setting (Channel/ RB/ BW/ Modulation)



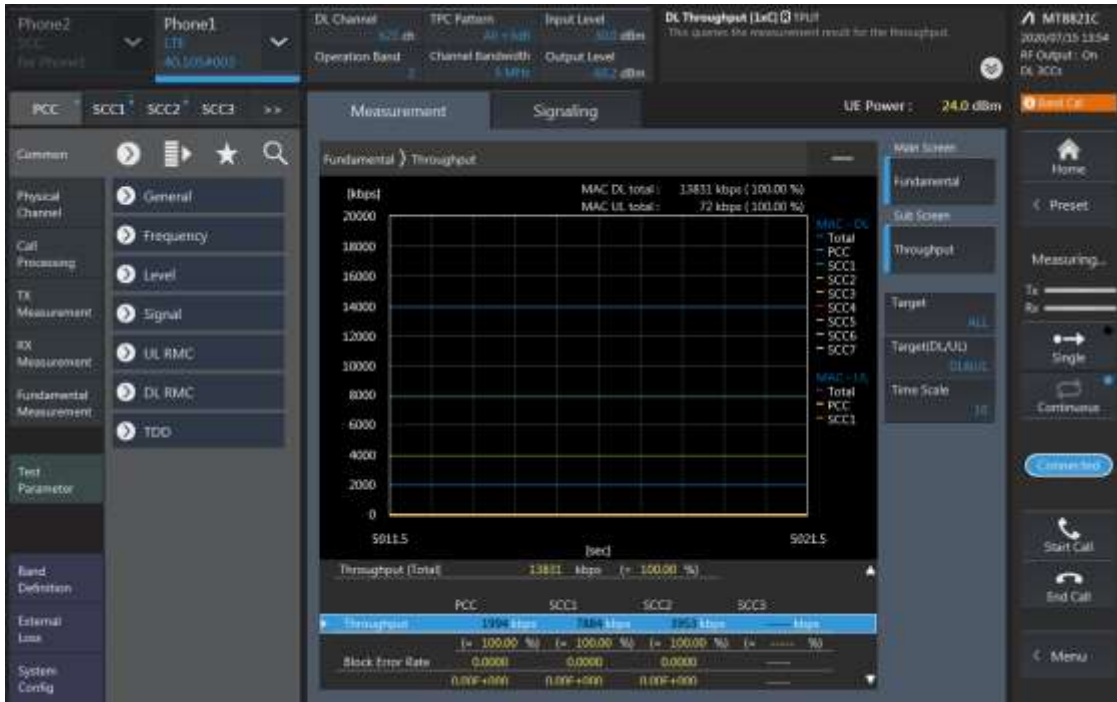
SCC Setting (Channel/ RB/ BW/ Modulation) and call Connection



2CA Downlink Carrier aggregation Maximum conducted Powers

Combination	PCC									SCC				Tx Power		Deviaion (dB) (2)-(1)
	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) (1)	LTE Tx Power with DL CA Enabled(dBm) (2)	
5A-25A	5	10	20525	836.5	2525	881.5	QPSK	1	0	25	20	8365	1962.5	23.57	23.51	-0.06
5A-25A	25	20	26590	1905	8590	1985	QPSK	1	0	5	10	2525	881.5	22.71	22.77	0.06
5A-41A	5	10	20525	836.5	2525	881.5	QPSK	1	0	41	20	40620	2593	23.57	23.54	-0.03
12A-25A	12	5	23035	701.5	5035	731.5	QPSK	1	12	25	20	8365	1962.5	23.93	23.93	0.00
12A-25A	25	20	26590	1905	8590	1985	QPSK	1	0	12	10	5095	737.5	22.71	22.66	-0.05
25A-25A(0)	25	10	26365	1882.5	8365	1962.5	QPSK	1	49	25	10	8640	1990	22.48	22.45	-0.03
25A-25A(1)	25	20	26590	1905	8590	1985	QPSK	1	0	25	20	8140	1940	22.71	22.79	0.08
48B	48	10	55290	3555	55290	3555	QPSK	1	49	48	10	55389	3564.9	23.44	23.44	0.00

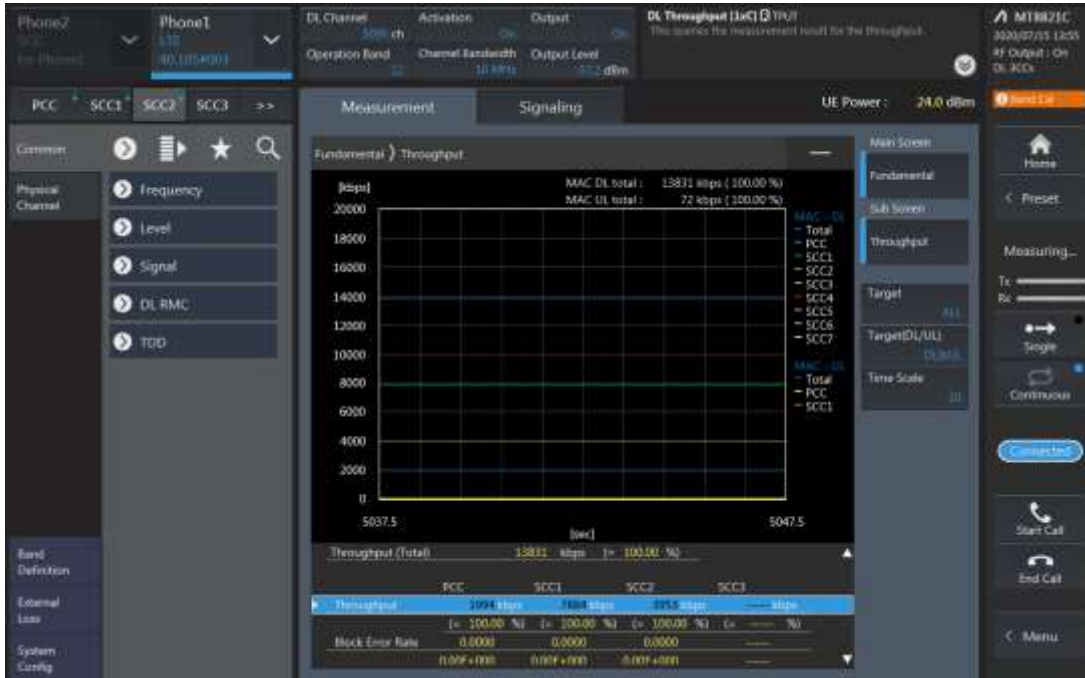
LTE Down Link 3CA Call Setup
PCC Setting (Channel/ RB/ BW/ Modulation)



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



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

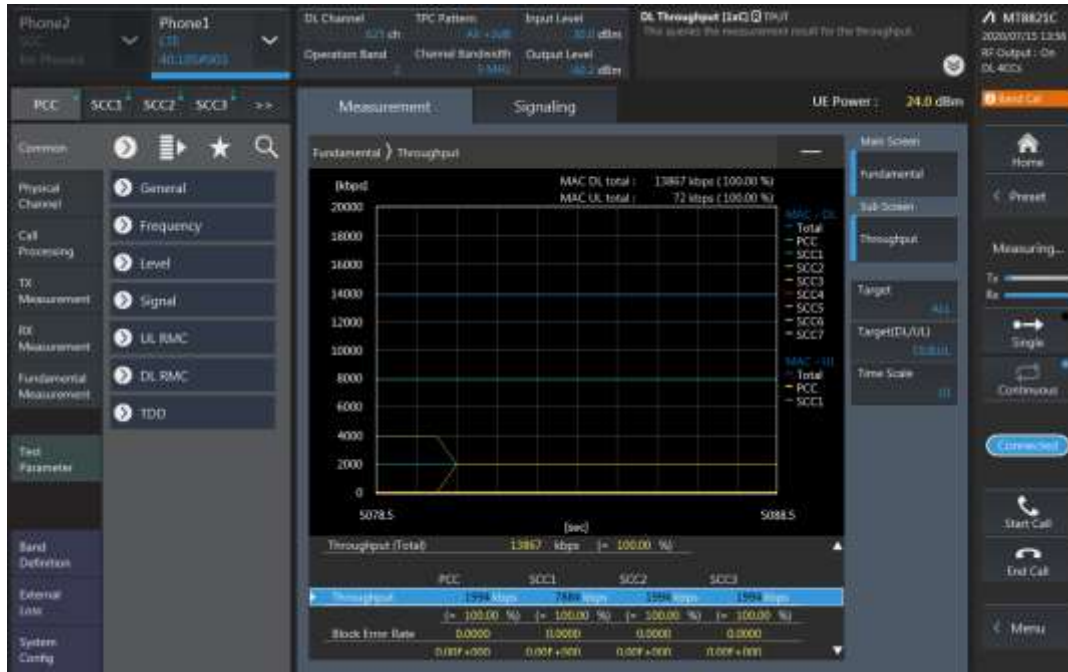


3CA Downlink Carrier aggregation conducted Powers

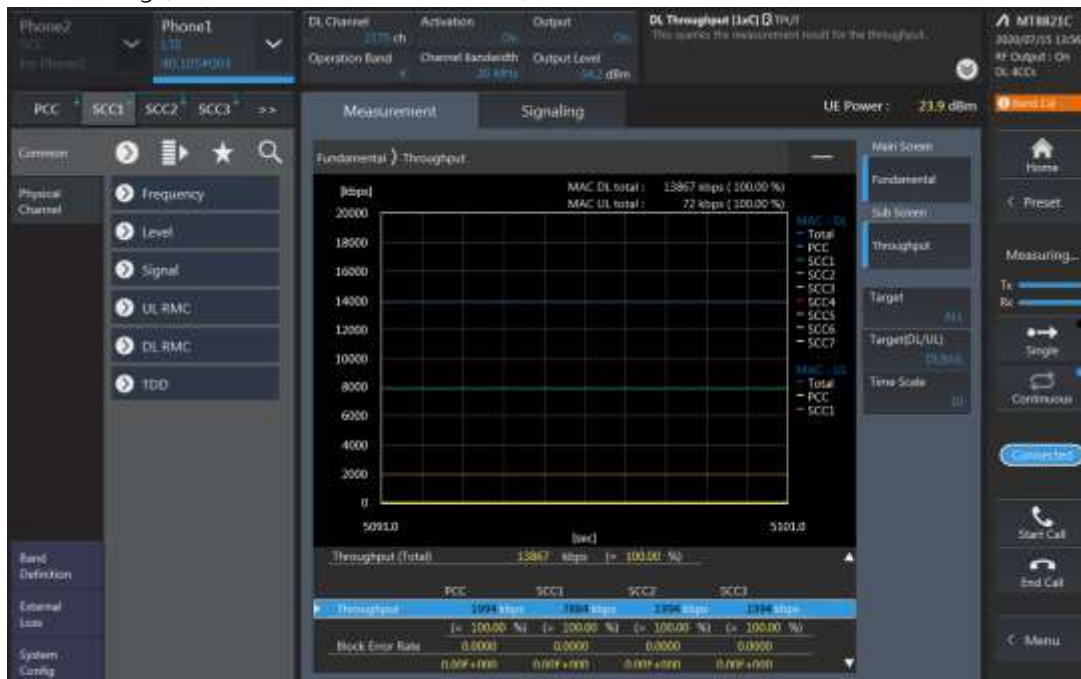
Combination	PCC									SCC				SCC				Tx Power		Deviation (dB) (2)-(1)
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	Offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm) (1)	LTE Tx Power with DL CA Enabled (dBm) (2)	
2A-4A-13A	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	4	20	2175	2132.5	13	10	5230	751	22.74	22.59	-0.15
2A-4A-13A	4	5	20175	1732.5	2175	2132.5	QPSK	1	0	2	20	900	1960	13	10	5230	751	22.47	22.32	-0.15
2A-4A-13A	13	10	23230	782	5230	751	QPSK	1	24	2	20	900	1960	4	20	2175	2132.5	23.49	23.57	0.08
4A-4A-13A	4	5	20175	1732.5	2175	2132.5	QPSK	1	0	4	20	2050	2120	13	10	5230	751	22.47	22.42	-0.05
4A-4A-13A	13	10	23230	782	5230	751	QPSK	1	24	4	20	2175	2132.5	4	10	2000	2115	23.49	23.38	-0.11
4A-4A-71A	4	5	20175	1732.5	2175	2132.5	QPSK	1	0	4	20	2050	2120	71	20	68761	634.5	22.47	22.48	0.01
4A-4A-71A	71	15	133397	690.5	68861	644.5	QPSK	1	0	4	20	2175	2132.5	4	10	2000	2115	24.15	24.11	-0.04
41A-41C(PC3)	41	20	39750	2506	39750	2506	QPSK	1	0	41	20	41292	2660.2	41	20	41490	2680	21.14	21.18	0.04
41A-41C(PC3)	41	20	39750	2506	39750	2506	QPSK	1	0	41	20	39948	2525.8	41	20	41490	2680	21.14	21.06	-0.08
41A-41C(PC2)	41	20	39750	2506	39750	2506	QPSK	1	49	41	20	41292	2660.2	41	20	41490	2680	24.19	24.25	0.06
41A-41C(PC2)	41	20	39750	2506	39750	2506	QPSK	1	49	41	20	39948	2525.8	41	20	41490	2680	24.19	24.20	0.01
41D(PC3)	41	20	39750	2506	39750	2506	QPSK	1	0	41	20	39948	2525.8	41	20	40146	2545.6	21.14	21.14	0.00
41D(PC2)	41	20	39750	2506	39750	2506	QPSK	1	49	41	20	39948	2525.8	41	20	40146	2545.6	24.19	24.24	0.05
48A-48A-71A	71	15	133397	690.5	68861	644.5	QPSK	1	0	48	20	55990	3625	48	20	56640	3690	24.15	24.02	-0.13
48C-71A	71	15	133397	690.5	68861	644.5	QPSK	1	0	48	20	55990	3625	48	20	56188	3644.8	24.15	24.10	-0.05

LTE Down Link 4CA Call Setup

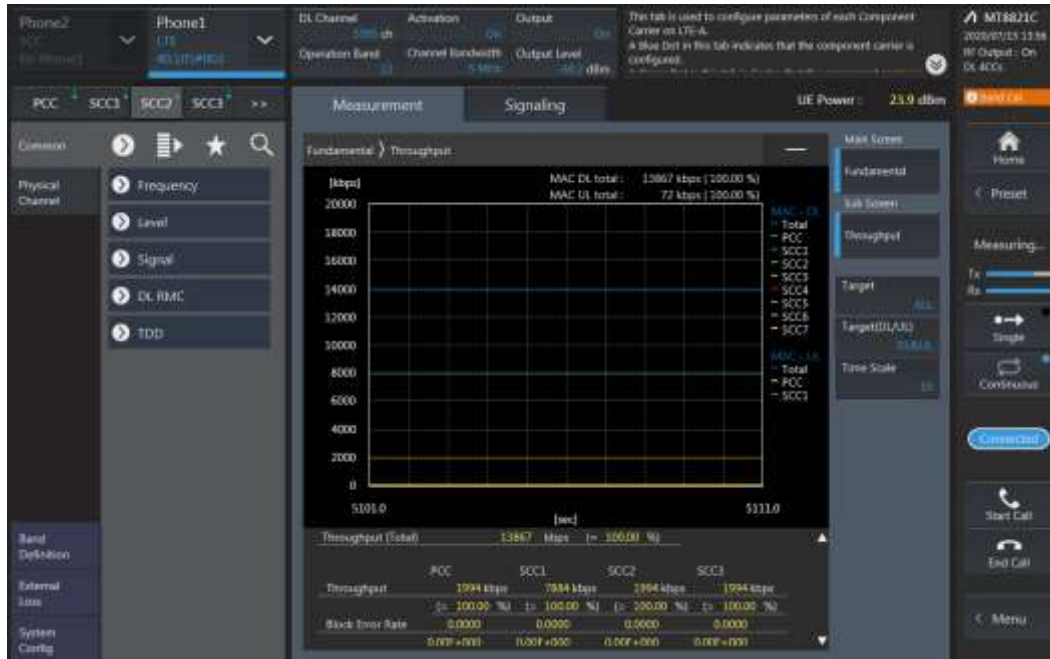
PCC Setting (Channel/ RB/ BW/ Modulation)



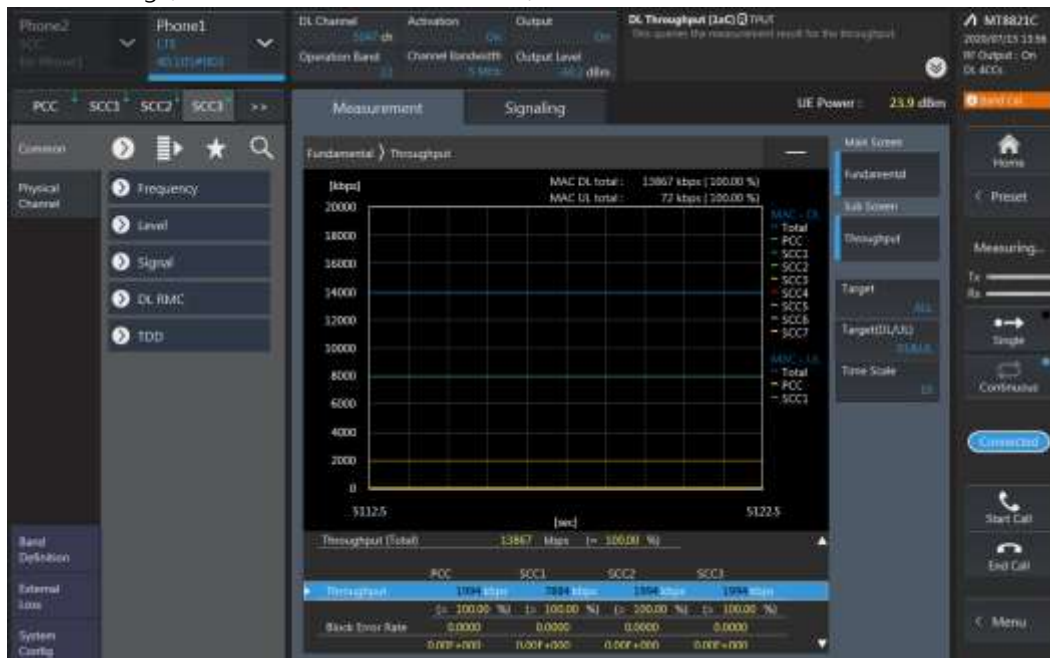
SCC1 Setting (Channel/ RB/ BW/ Modulation) and call Connection



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



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

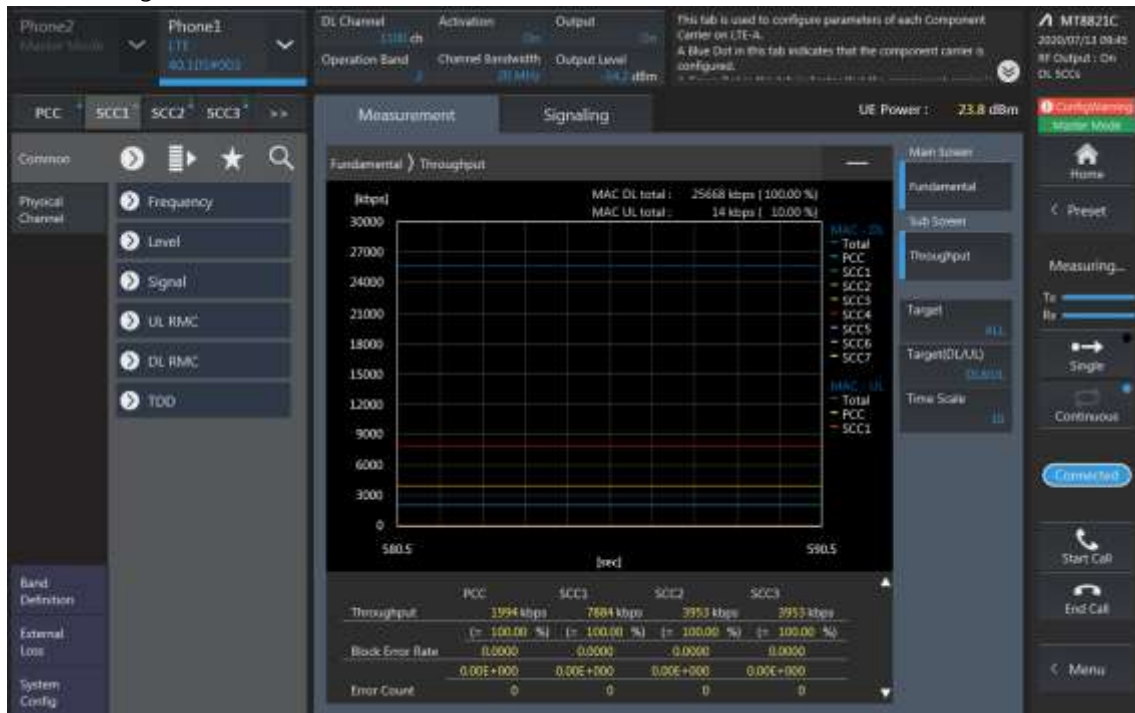


LTE Down Link 5CA Call Setup

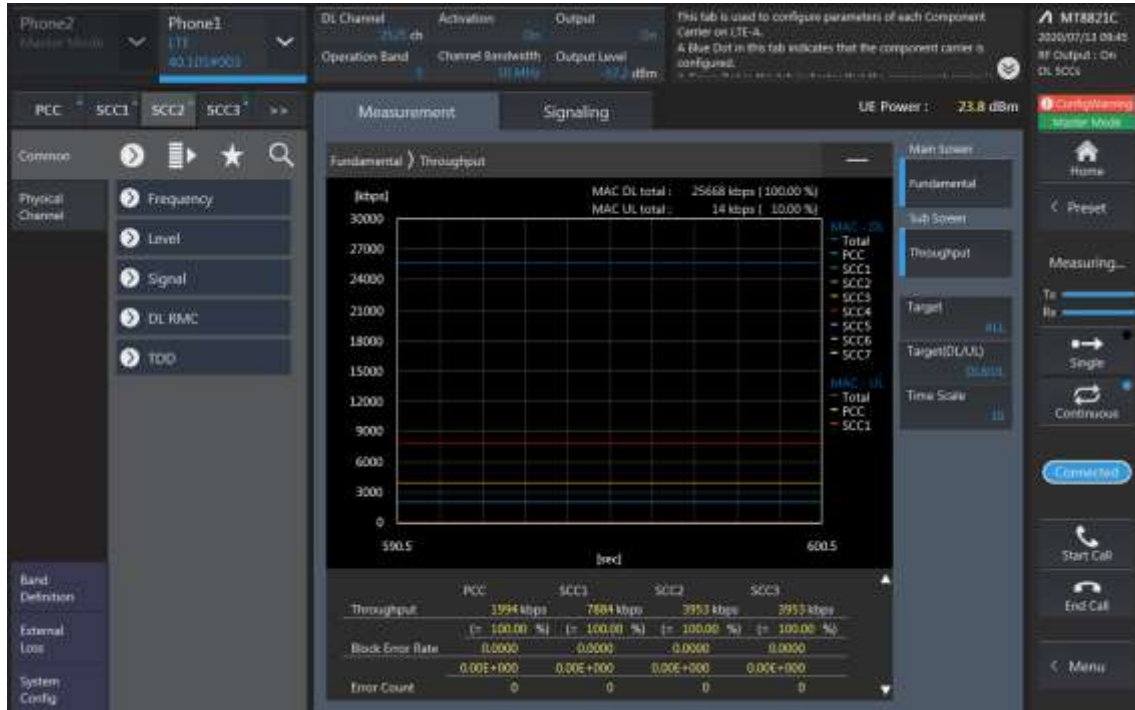
PCC Setting: Channel /RB/BW/Modulation



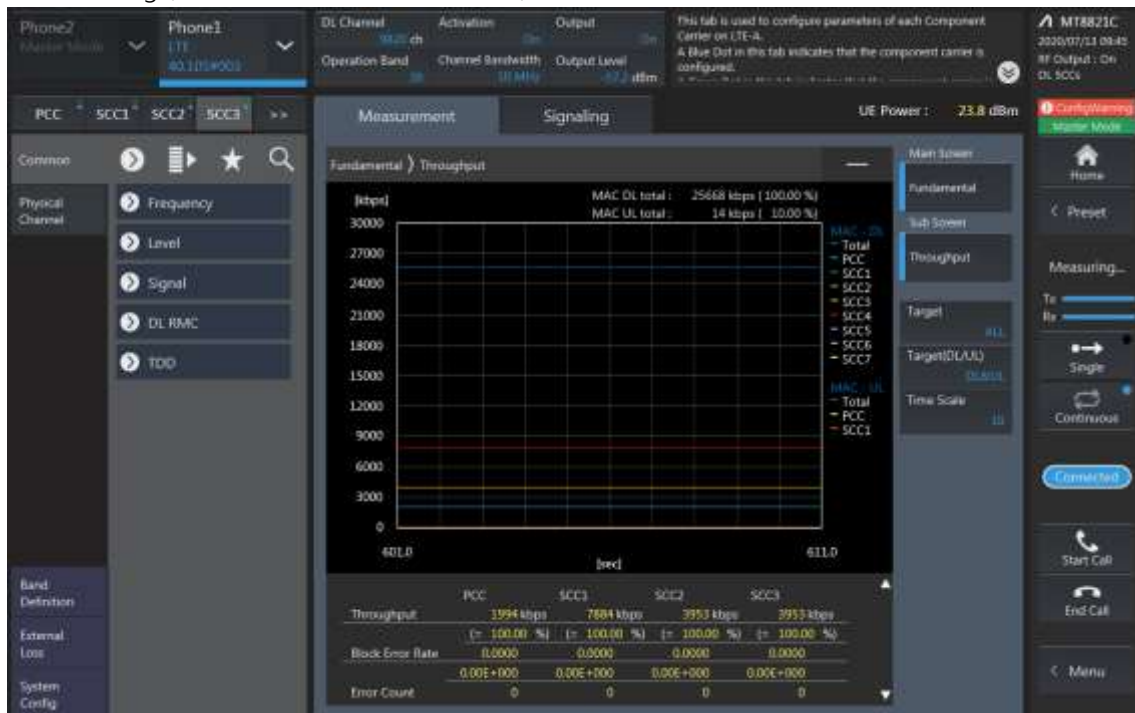
SCC1 Setting (Channel /RB/BW/Modulation)and call Connection



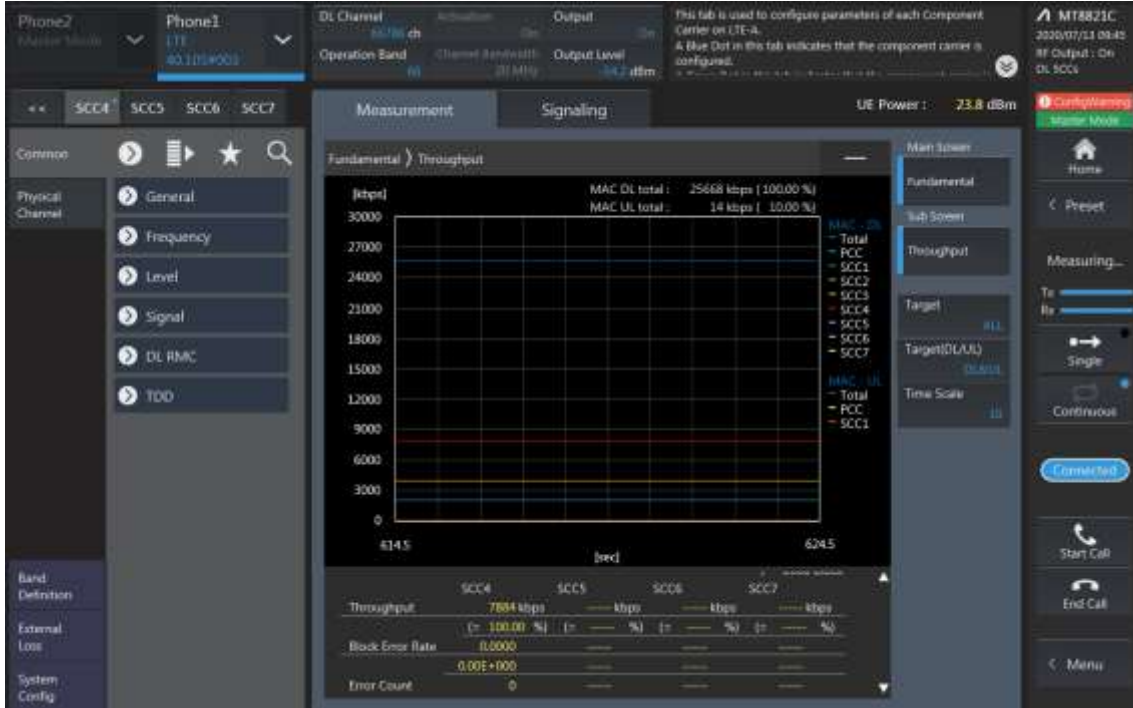
SCC2 Setting (Channel /RB/BW/Modulation)and call Connection



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

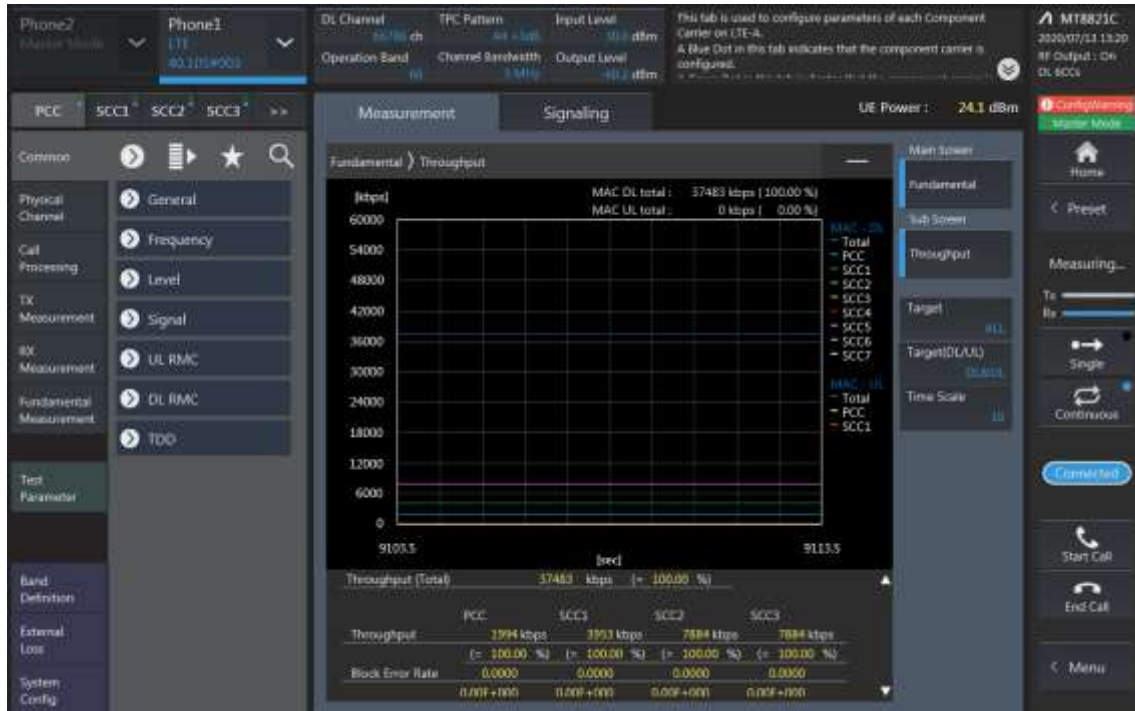


SCC4 Setting (Channel /RB/BW/Modulation)and call Connection

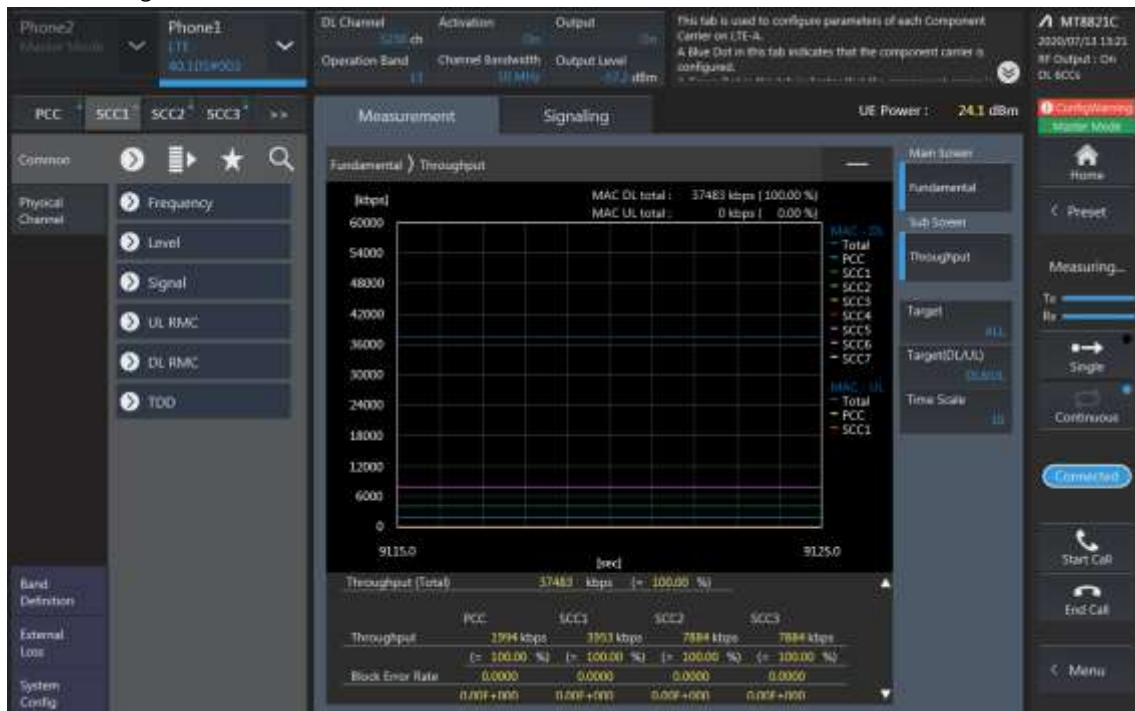


Combination	PCC								SCC				SCC				SCC				Tx Power		Deviation (dB) (2)-(1)					
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band		BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm) (1)	LTE Tx Power with DL CA Enabled (dBm) (2)
2A-13A-48D	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	13	10	5230	751	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	22.74	22.76	0.02
2A-13A-48D	13	10	23230	782	5230	751	QPSK	1	24	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.49	23.57	0.08
2A-14A-30A-66A-66A	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	14	10	5330	763	30	10	9820	2355	66	20	66786	2145	66	20	67236	2190	22.74	22.77	0.03
2A-14A-30A-66A-66A	14	5	23330	793	5330	763	QPSK	1	0	2	20	900	1960	30	10	9820	2355	66	20	66786	2145	66	20	67236	2190	23.32	23.32	0.00
2A-14A-30A-66A-66A	30	5	27710	2310	9820	2355	QPSK	1	12	2	20	900	1960	14	10	5330	763	66	20	66786	2145	66	20	67236	2190	20.74	20.62	-0.12
2A-14A-30A-66A-66A	66	20	132322	1745	66786	2145	QPSK	1	99	66	20	67236	2190	2	20	900	1960	14	10	5330	763	30	10	9820	2355	23.48	23.37	-0.11
2A-48A-48C-66A	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	48	20	55990	3625	48	20	56442	3670.2	48	20	56640	3690	66	20	66786	2145	22.74	22.63	-0.11
2A-48A-48C-66A	66	20	132322	1745	66786	2145	QPSK	1	99	2	20	900	1960	48	20	55990	3625	48	20	56442	3670.2	48	20	56640	3690	23.48	23.56	0.08
2A-48C-48C	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	48	20	55990	3625	48	20	55792	3605.2	48	20	56442	3670.2	48	20	56640	3690	22.74	22.80	0.06
4A-48E	4	5	20175	1732.5	2175	2132.5	QPSK	1	0	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	22.47	22.53	0.06
13A-48E	13	10	23230	782	5230	751	QPSK	1	24	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.49	23.36	-0.13
48C-48C-66A	66	20	132322	1745	66786	2145	QPSK	1	99	48	20	55990	3625	48	20	55792	3605.2	48	20	56442	3670.2	48	20	56640	3690	23.48	23.37	-0.11
48A-48D-66A	66	20	132322	1745	66786	2145	QPSK	1	99	48	20	55990	3625	48	20	56244	3650.4	48	20	56442	3670.2	48	20	56640	3690	23.48	23.54	0.06
48A-48E	48	20	55340	3560	55340	3560	QPSK	1	99	48	20	56046	3630.6	48	20	56244	3650.4	48	20	56442	3670.2	48	20	56640	3690	23.59	23.65	0.06
48A-48E	48	20	55340	3560	55340	3560	QPSK	1	99	48	20	55538	3579.8	48	20	55736	3599.6	48	20	55934	3619.4	48	20	56640	3690	23.59	23.55	-0.04
48C-48D	48	20	55340	3560	55340	3560	QPSK	1	99	48	20	55538	3579.8	48	20	56244	3650.4	48	20	56442	3670.2	48	20	56640	3690	23.59	23.69	0.10
48C-48D	48	20	55340	3560	55340	3560	QPSK	1	99	48	20	55538	3579.8	48	20	55736	3599.6	48	20	56442	3670.2	48	20	56640	3690	23.59	23.65	0.06

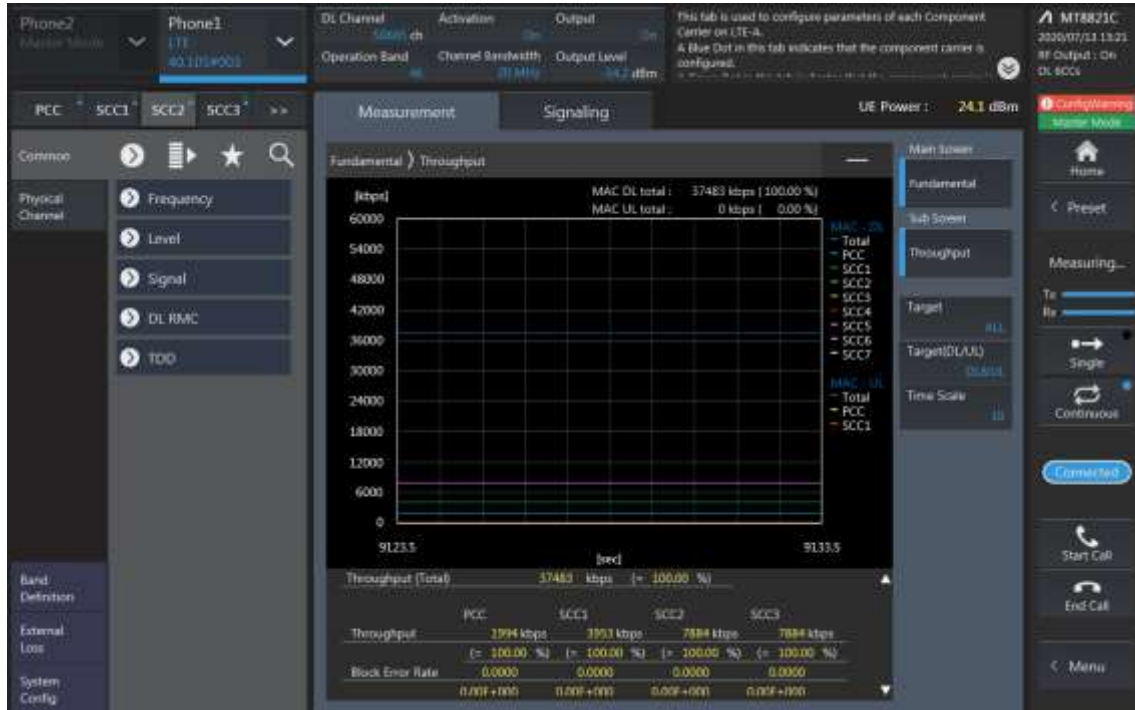
LTE Down Link 6CA Call Setup PCC Setting (Channel/ RB/ BW/ Modulation)



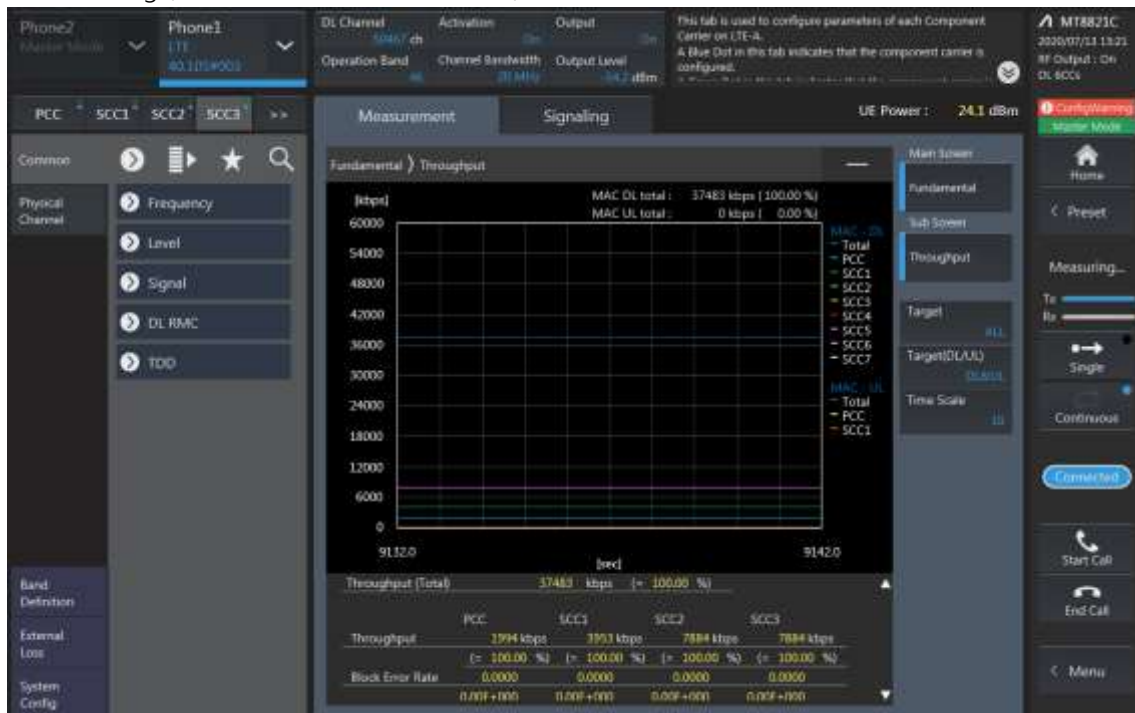
SCC1 Setting (Channel/ RB/ BW/ Modulation) and call Connection



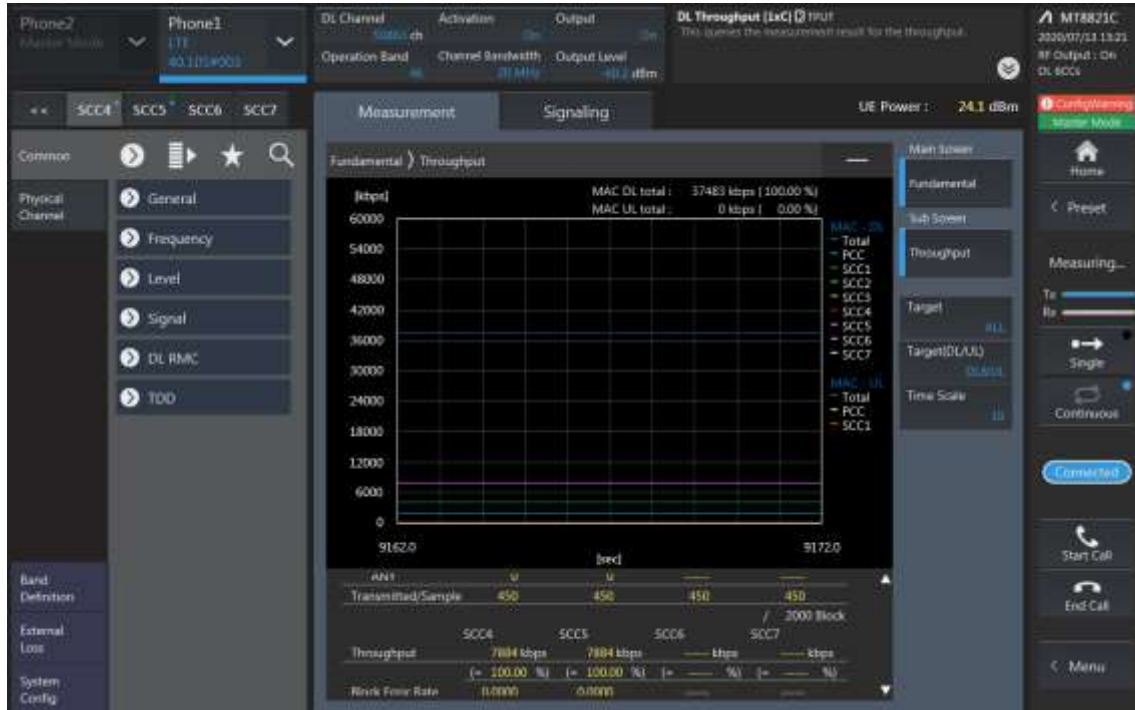
SCC2 Setting (Channel /RB/BW/Modulation) and call Connection



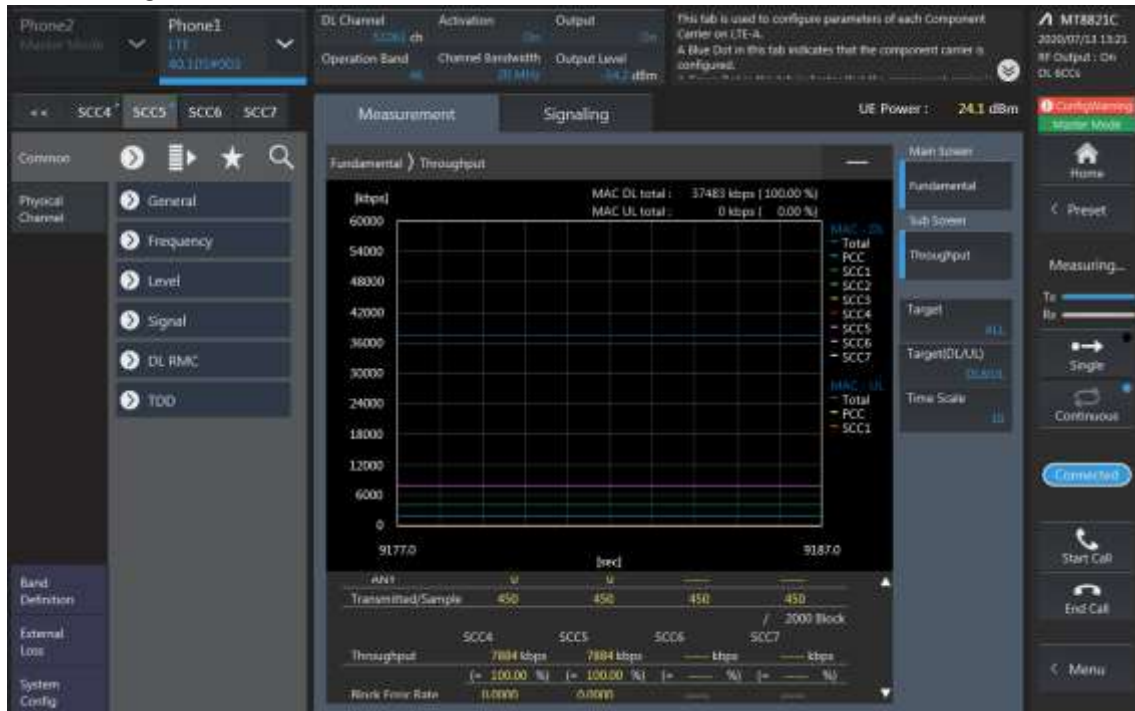
SCC3 Setting (Channel /RB/BW/Modulation) and call Connection



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



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

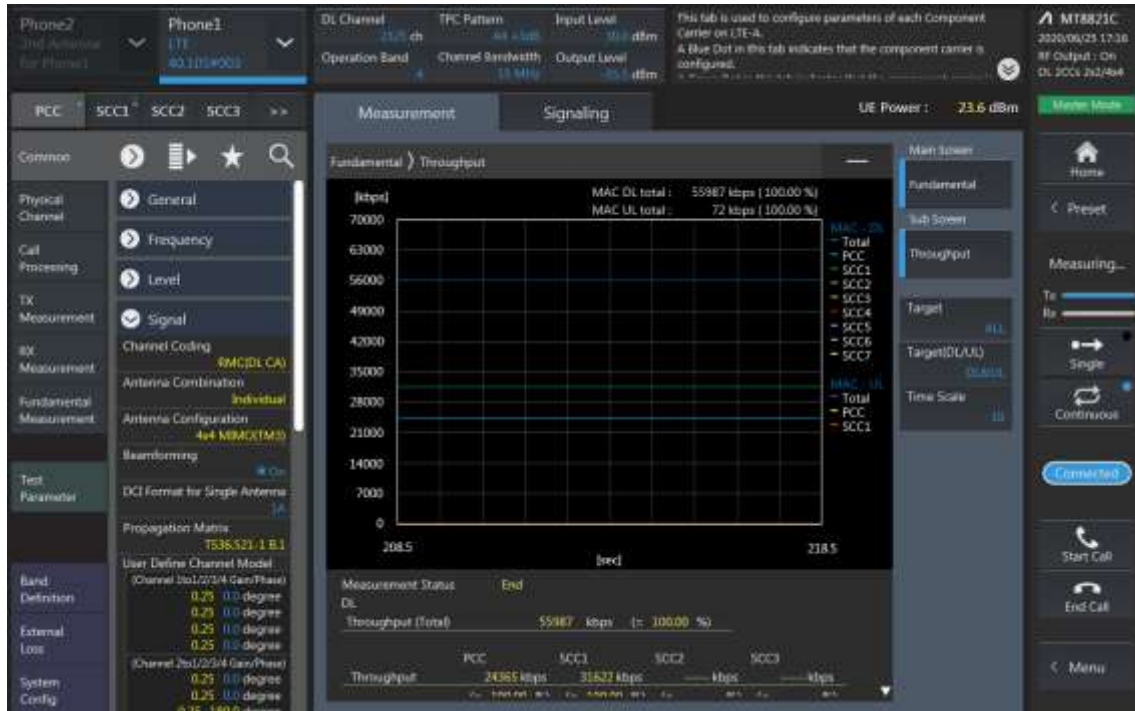


6CA Downlink Carrier aggregation conducted Powers

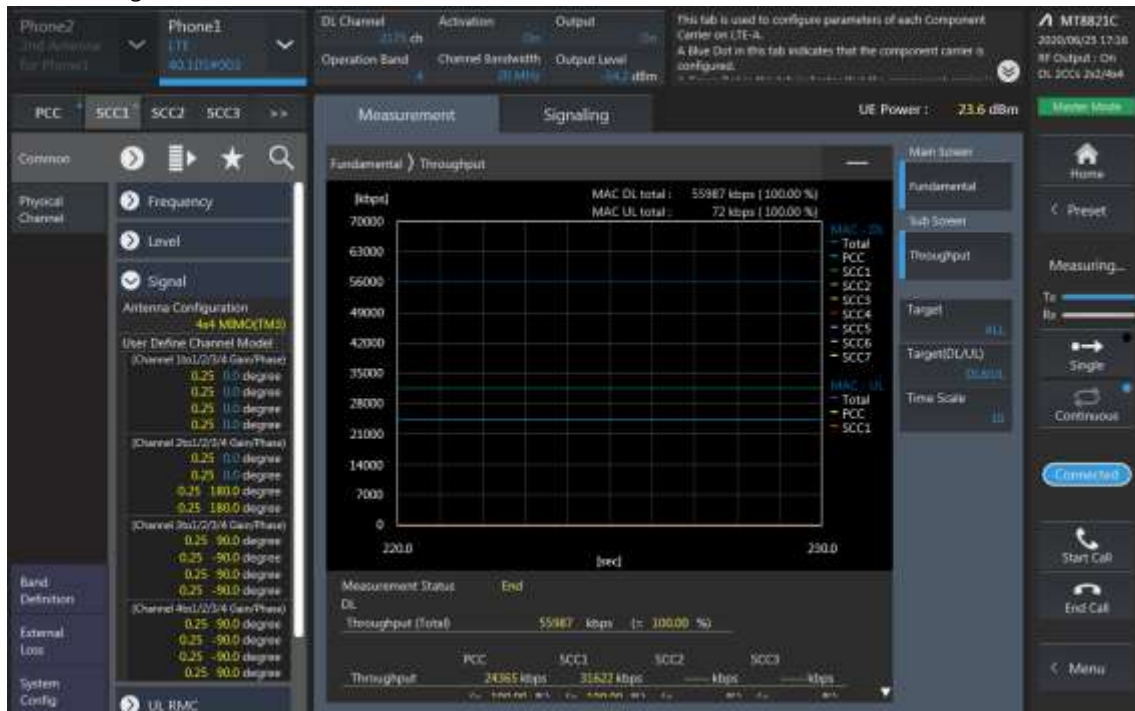
Combination	PCC								SCC				SCC				SCC				SCC				Tx Power		Deviaion (dB) (2)-(1)					
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW		SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm) (1)	LTE Tx Power with DL CA Enabled (dBm) (2)	
2A-5A-48C-66A-66A	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	5	10	2525	881.5	48	20	55990	3625	48	20	56188	3644.8	66	20	66786	2145	66	20	67236	2190	22.74	22.70	-0.04
2A-5A-48C-66A-66A	5	10	20525	836.5	2525	881.5	QPSK	1	0	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	66	20	66786	2145	66	20	67236	2190	23.57	23.44	-0.13
2A-5A-48C-66A-66A	66	20	132322	1745	66786	2145	QPSK	1	99	66	20	67236	2190	2	20	900	1960	2	20	1100	1980	48	20	55990	3625	48	20	56188	3644.8	23.48	23.40	-0.08
2A-48E-66A	2	15	19125	1902.5	1125	1982.5	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	22.74	22.79	0.05
2A-48E-66A	66	20	132322	1745	66786	2145	QPSK	1	99	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.48	23.40	-0.08
5A-48D-66A-66A	5	10	20525	836.5	2525	881.5	QPSK	1	0	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	66	20	66786	2145	66	20	67236	2190	23.57	23.47	-0.10
5A-48D-66A-66A	66	20	132322	1745	66786	2145	QPSK	1	99	66	20	67236	2190	5	10	2525	881.5	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.48	23.50	0.02
13A-48E-66A	13	10	23230	782	5230	751	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	23.49	23.55	0.06
13A-48E-66A	66	20	132322	1745	66786	2145	QPSK	1	99	13	10	5230	751	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.48	23.47	-0.01

LTE Down Link 2CA 4x4 MIMO Call Setup

PCC Setting : Channel/ RB/ BW/ Modulation



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

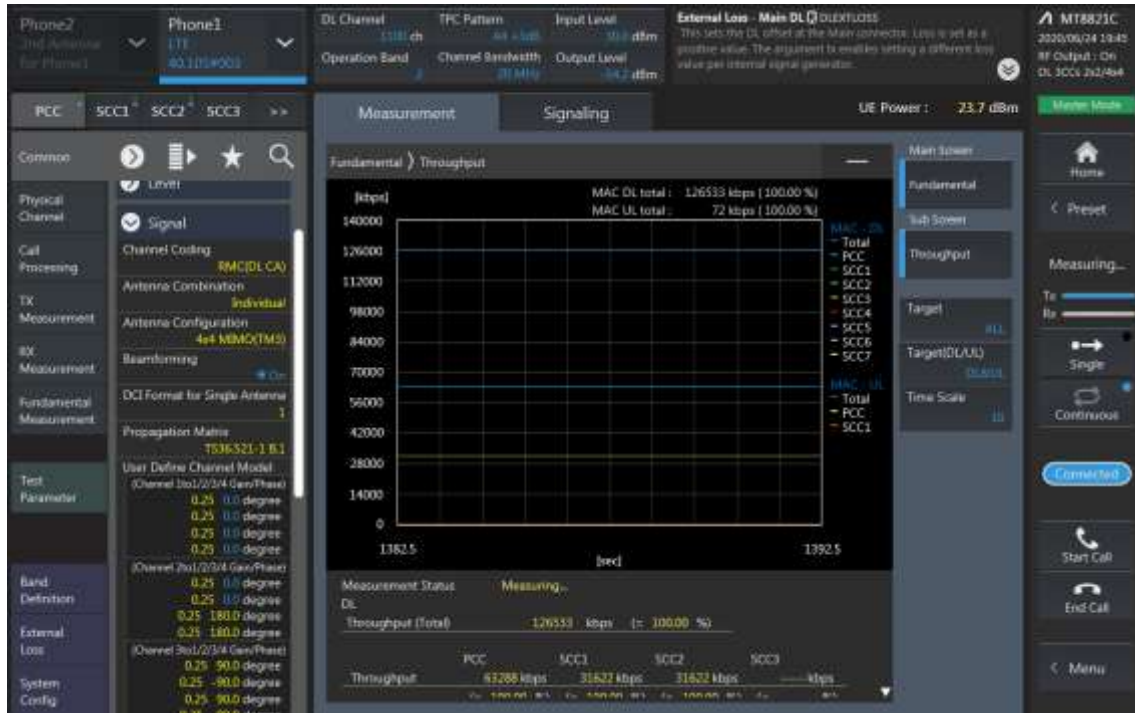


LTE Downlink 2CA 4X4 MIMO Maximum Conducted Power

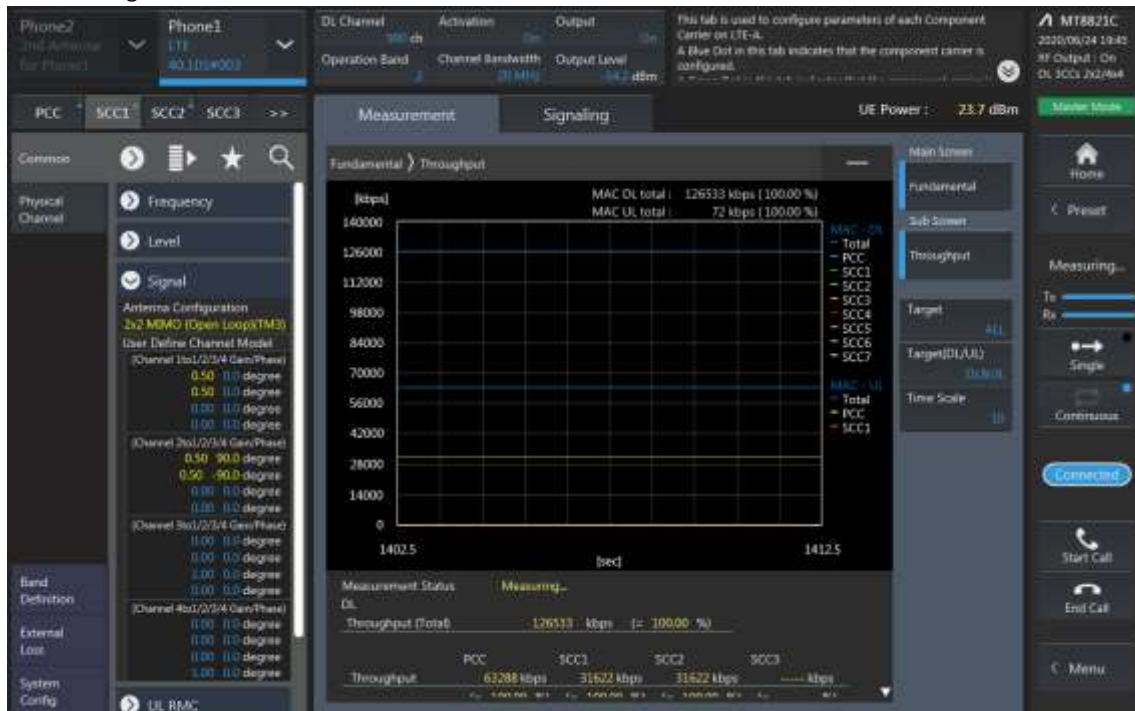
Combination	PCC									SCC				Tx Power		Deviaion (dB) (2)-(1)
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm) (1)	LTE Tx Power with DL CA Enabled(dBm) (2)	
5A-[25A]	5	10	20525	836.5	2525	881.5	QPSK	1	0	25	20	8365	1962.5	23.57	23.59	0.02
5A-[25A]	25	20	26590	1905	8590	1985	QPSK	1	0	5	10	2525	881.5	22.71	22.71	0.00
5A-[41A]	5	10	20525	836.5	2525	881.5	QPSK	1	0	41	20	40620	2593	23.57	23.53	-0.04
12A-[25A]	12	5	23035	701.5	5035	731.5	QPSK	1	12	25	20	8365	1962.5	23.93	23.98	0.05
12A-[25A]	25	20	26590	1905	8590	1985	QPSK	1	0	12	10	5095	737.5	22.71	22.74	0.03
[25A]-[25A](0)	25	10	26365	1882.5	8365	1962.5	QPSK	1	49	25	10	8640	1990	22.48	22.51	0.03
[25A]-[25A](1)	25	20	26590	1905	8590	1985	QPSK	1	0	25	20	8140	1940	22.71	22.66	-0.05
[48B]	48	10	55290	3555	55290	3555	QPSK	1	49	48	10	55389	3564.9	23.44	23.48	0.04

LTE Down Link 3CA 4x4 MIMO Call Setup

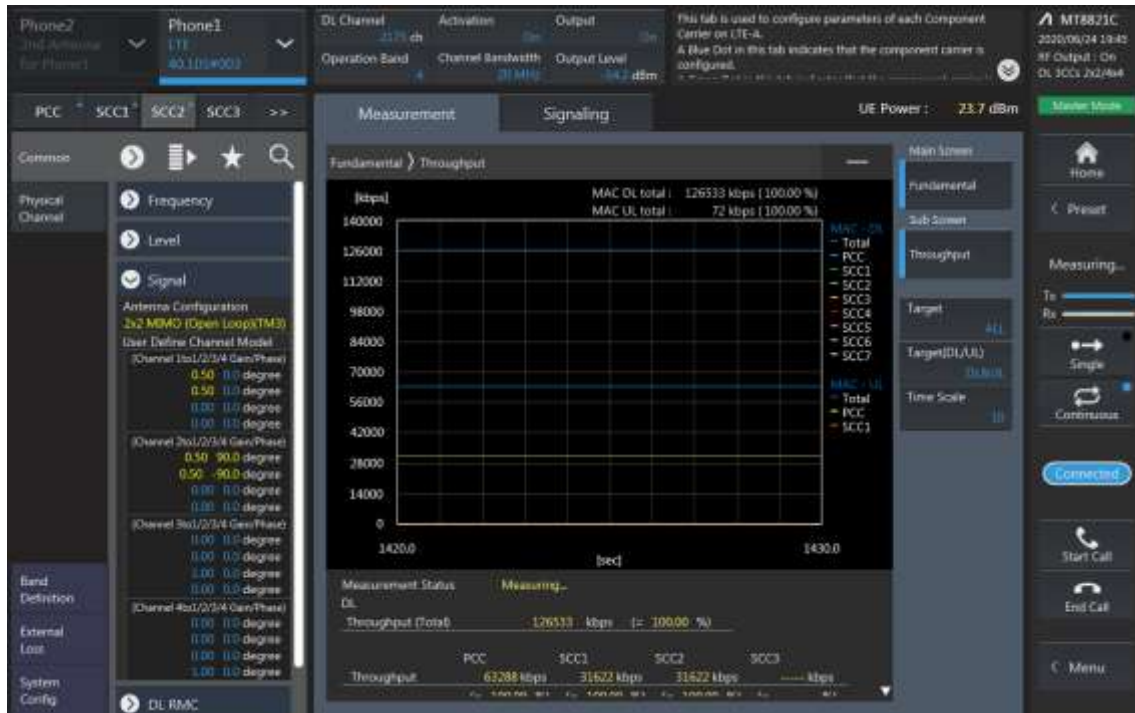
PCC Setting: Channel /RB/BW/Modulation



CC1 Setting : Channel /RB/BW/Modulation



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



LTE Downlink 3CA 4X4 MIMO Maximum Conducted Power

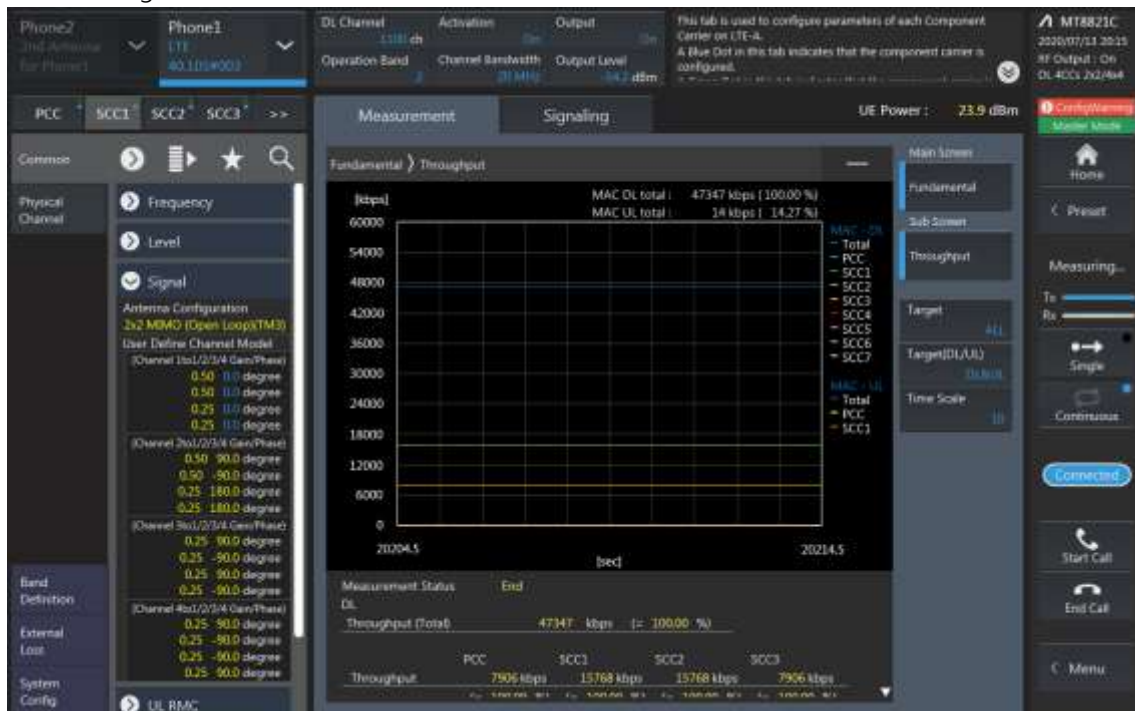
Combination	PCC								SCC				SCC				Tx Power		Deviation (dB) (2)-(1)
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm) (1)	LTE Tx Power with DL CA Enabled (dBm) (2)	
[2A]-[4A]-13A	2	15	19125	1902.5	1125	1982.5	QPSK	1 0	4	20	2175	2132.5	13	10	5230	751	22.74	22.67	-0.07
[2A]-[4A]-13A	4	5	20175	1732.5	2175	2132.5	QPSK	1 0	2	20	900	1960	13	10	5230	751	22.47	22.52	0.05
[2A]-[4A]-13A	13	10	23230	782	5230	751	QPSK	1 24	2	20	900	1960	4	20	2175	2132.5	23.49	23.55	0.06
[4A]-[4A]-13A	4	5	20175	1732.5	2175	2132.5	QPSK	1 0	4	20	2050	2120	13	10	5230	751	22.47	22.33	-0.14
[4A]-[4A]-13A	13	10	23230	782	5230	751	QPSK	1 24	4	20	2175	2132.5	4	10	2000	2115	23.49	23.41	-0.08
[4A]-[4A]-71A	4	5	20175	1732.5	2175	2132.5	QPSK	1 0	4	20	2050	2120	71	20	68761	634.5	22.47	22.45	-0.02
[4A]-[4A]-71A	71	15	133397	690.5	68861	644.5	QPSK	1 0	4	20	2175	2132.5	4	10	2000	2115	24.15	24.09	-0.06
[41A]-[41C](PC3)	41	20	39750	2506	39750	2506	QPSK	1 0	41	20	41292	2660.2	41	20	41490	2680	21.14	21.21	0.07
[41A]-[41C](PC3)	41	20	39750	2506	39750	2506	QPSK	1 0	41	20	39948	2525.8	41	20	41490	2680	21.14	21.24	0.10
[41A]-[41C](PC2)	41	20	39750	2506	39750	2506	QPSK	1 49	41	20	41292	2660.2	41	20	41490	2680	24.19	24.05	-0.14
[41A]-[41C](PC2)	41	20	39750	2506	39750	2506	QPSK	1 49	41	20	39948	2525.8	41	20	41490	2680	24.19	24.21	0.02
[41D](PC3)	41	20	39750	2506	39750	2506	QPSK	1 0	41	20	39948	2525.8	41	20	40146	2545.6	21.14	21.17	0.03
[41D](PC2)	41	20	39750	2506	39750	2506	QPSK	1 49	41	20	39948	2525.8	41	20	40146	2545.6	24.19	24.16	-0.03
[48A]-[48A]-71A	71	15	133397	690.5	68861	644.5	QPSK	1 0	48	20	55990	3625	48	20	56640	3690	24.15	24.06	-0.09
[48C]-71A	71	15	133397	690.5	68861	644.5	QPSK	1 0	48	20	55990	3625	48	20	56188	3644.8	24.15	24.04	-0.11

LTE Down Link 4CA 4x4 MIMO Call Setup

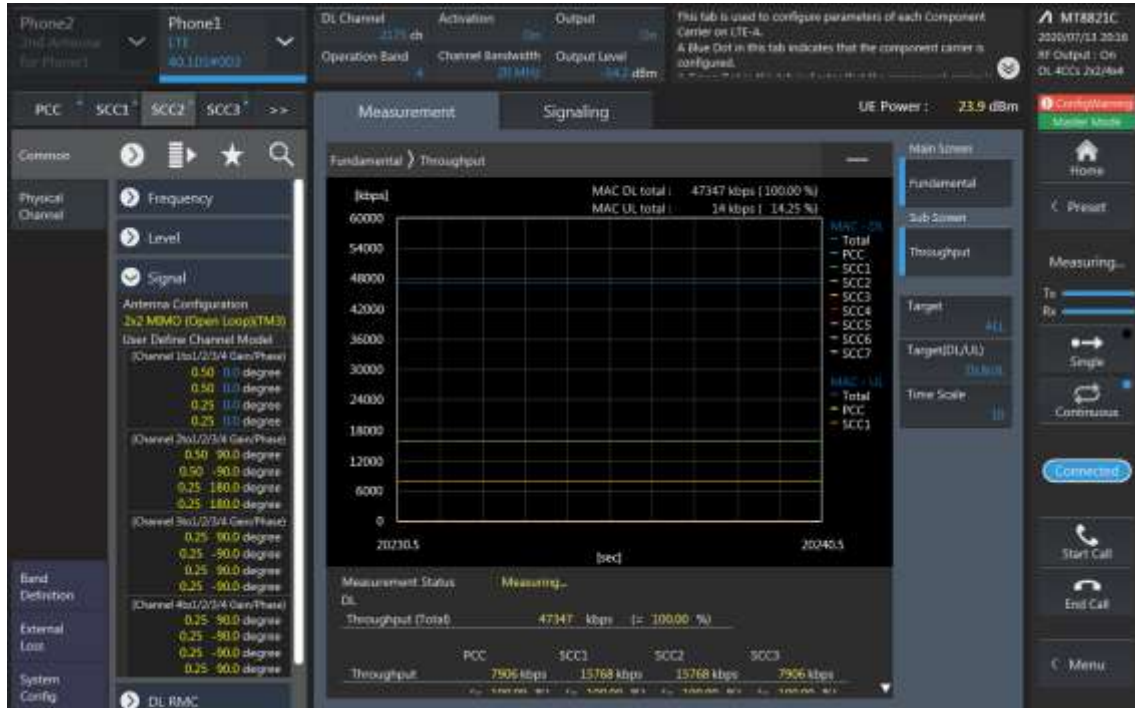
PCC Setting: Channel /RB/BW/Modulation



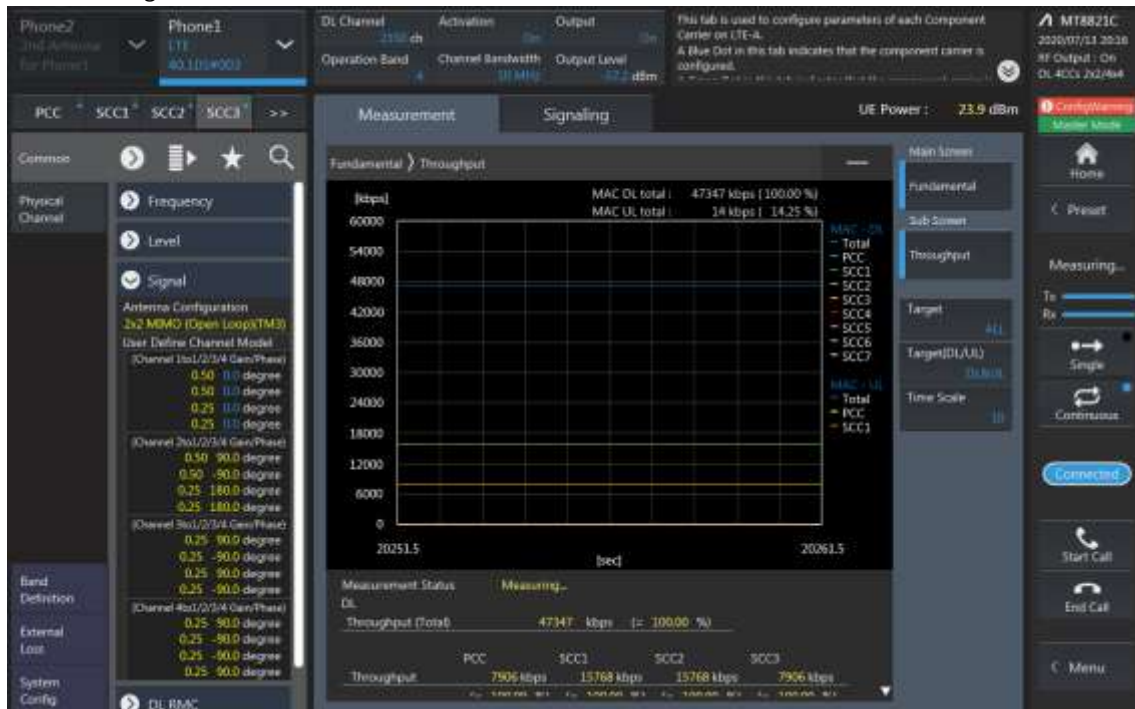
SCC1 Setting : Channel /RB/BW/Modulation



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

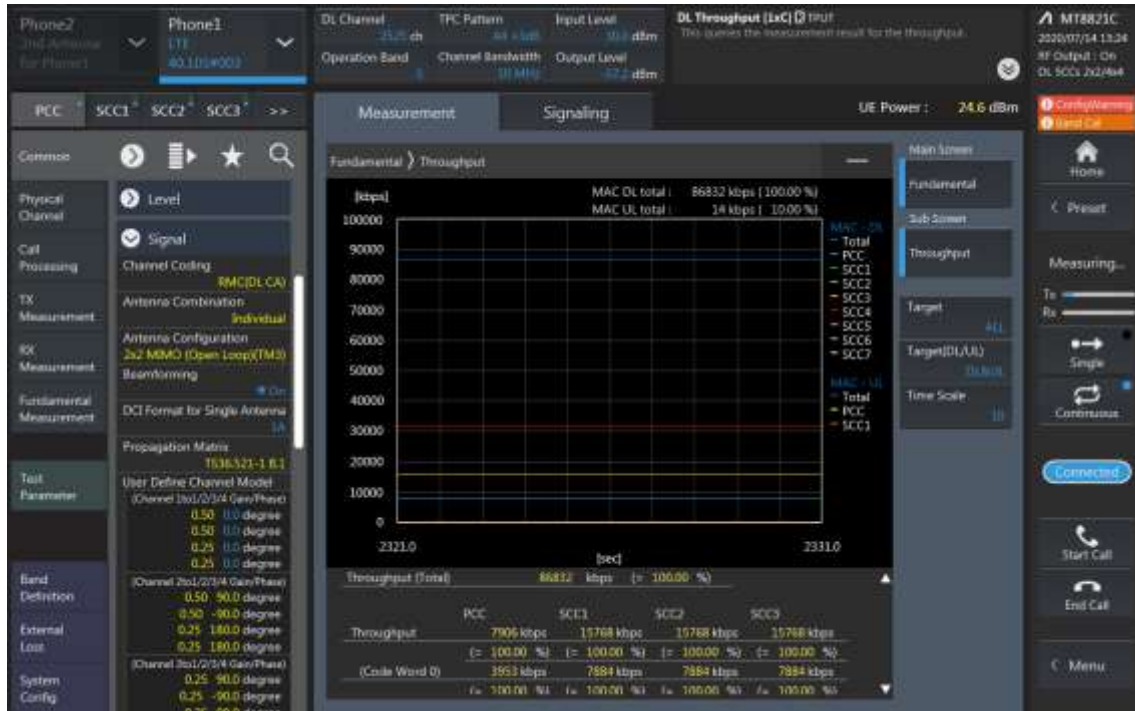


SCC3 Setting (Channel /RB/BW/Modulation) and call Connection

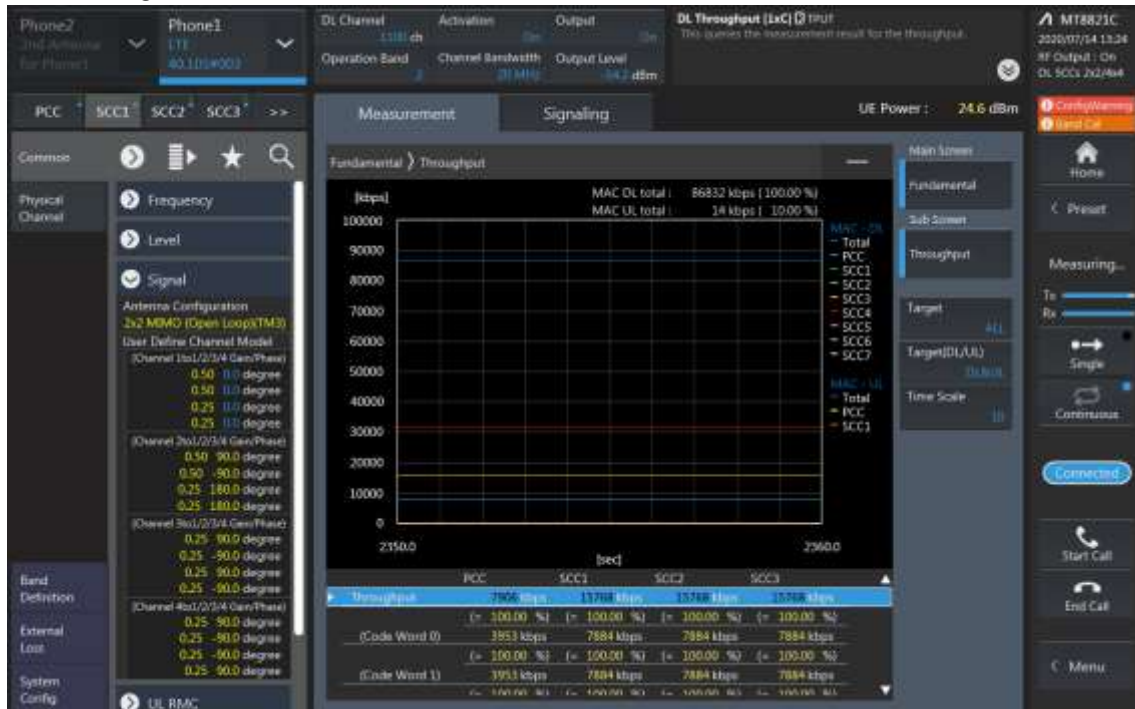


LTE Down Link 5CA 4x4 MIMO Call Setup

PCC Setting: Channel /RB/BW/Modulation



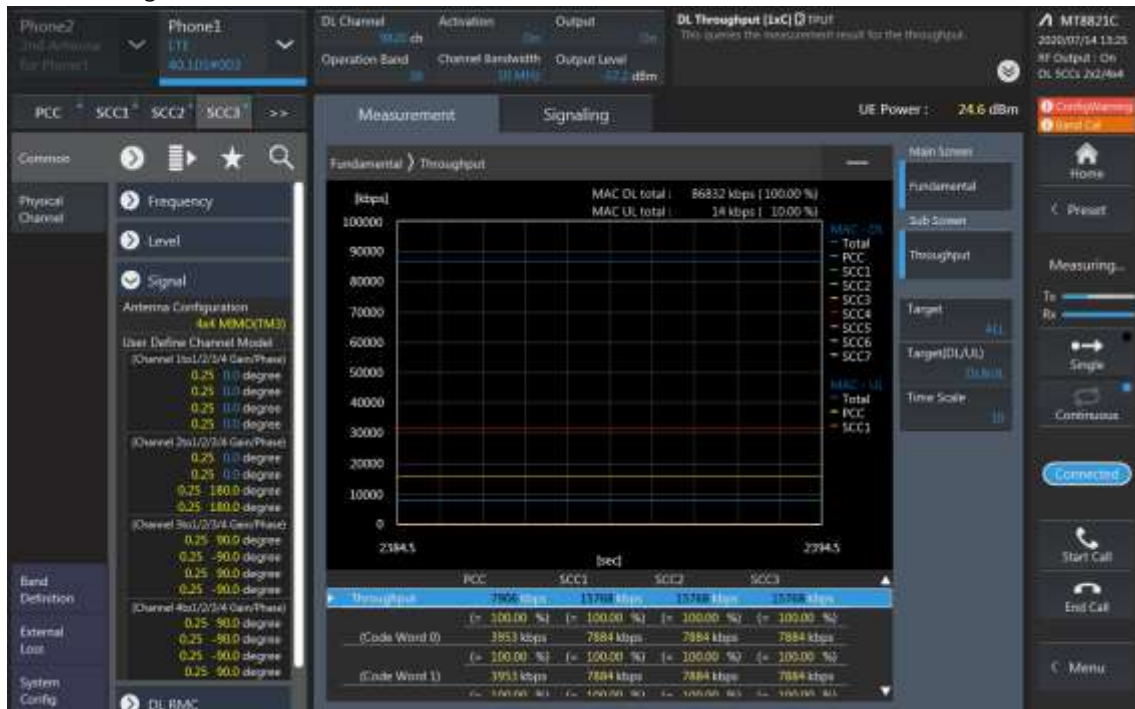
SCC1 Setting : Channel /RB/BW/Modulation



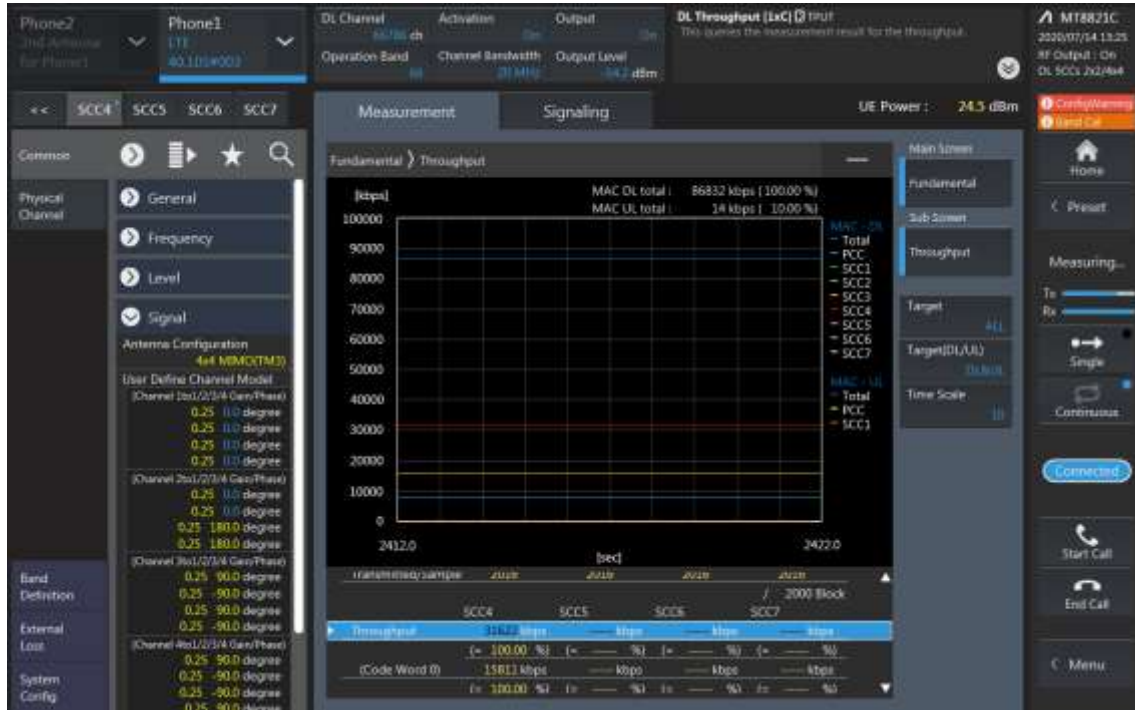
SCC2 Setting (Channel /RB/BW/Modulation) and call Connection



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

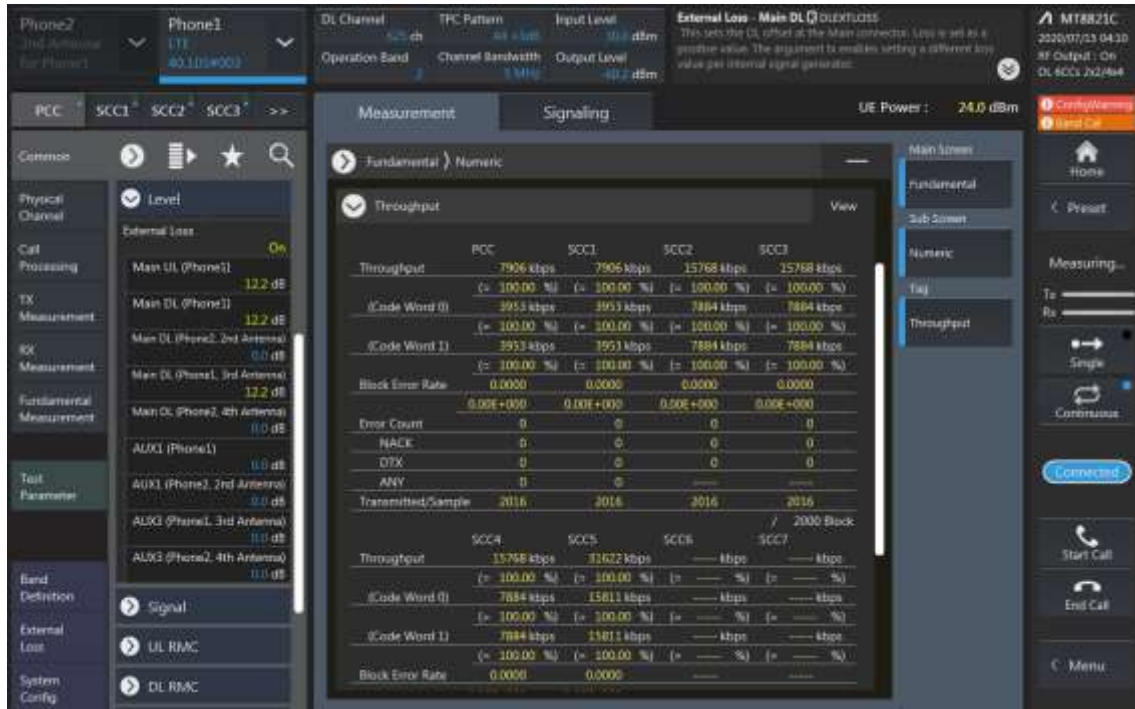


SCC4 Setting (Channel /RB/BW/Modulation) and call Connection

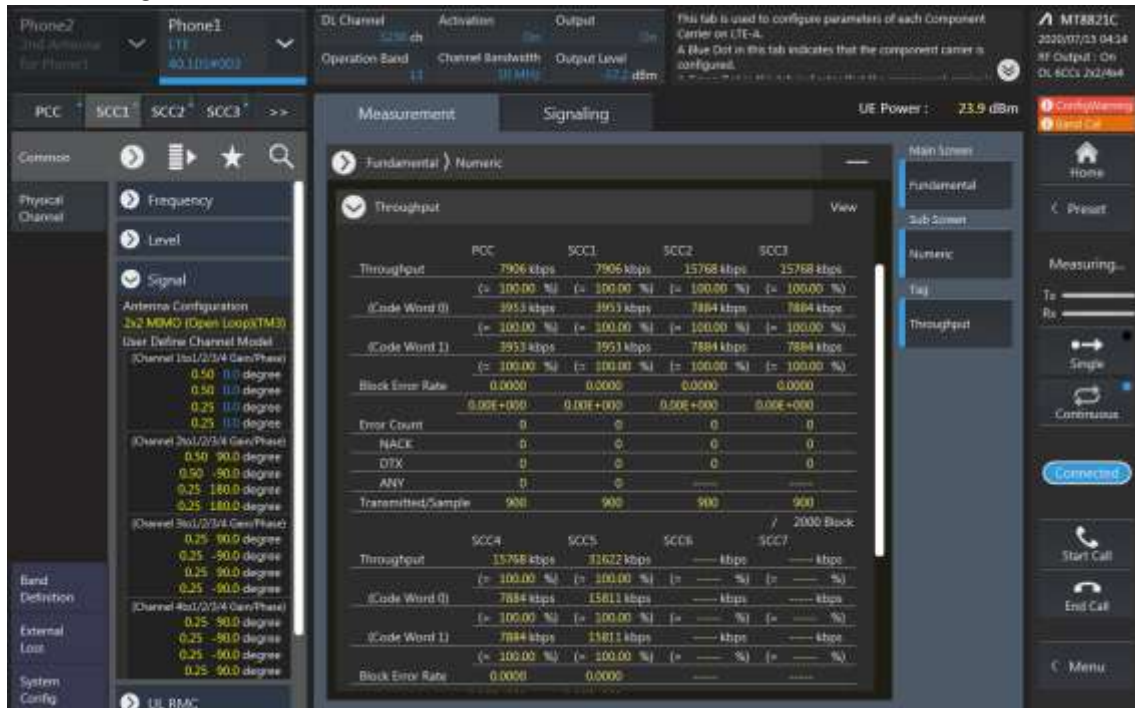


Combination	PCC									SCC				SCC				SCC				Tx Power		Deviation (dB) (2)-(1)				
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW		SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm) (1)	LTE Tx Power with DL CA Enabled (dBm) (2)
[2A]-[13A]-[48D]	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	13	10	5230	751	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	22.74	22.60	-0.14
[2A]-[13A]-[48D]	13	10	23230	782	5230	751	QPSK	1	24	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.49	23.50	0.01
[2A]-[14A]-[30A]-[66A]-[66A]	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	14	10	5330	763	30	10	9820	2355	66	20	66786	2145	66	20	67236	2190	22.74	22.64	-0.10
[2A]-[14A]-[30A]-[66A]-[66A]	14	5	23330	793	5330	763	QPSK	1	0	2	20	900	1960	30	10	9820	2355	66	20	66786	2145	66	20	67236	2190	23.32	23.29	-0.03
[2A]-[14A]-[30A]-[66A]-[66A]	30	5	27710	2310	9820	2355	QPSK	1	12	2	20	900	1960	14	10	5330	763	66	20	66786	2145	66	20	67236	2190	20.74	20.77	0.03
[2A]-[14A]-[30A]-[66A]-[66A]	66	20	132322	1745	66786	2145	QPSK	1	99	66	20	67236	2190	2	20	900	1960	14	10	5330	763	30	10	9820	2355	23.48	23.49	0.01
[2A]-[48A]-[48C]-[66A]	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	48	20	55990	3625	48	20	56442	3670.2	48	20	56640	3690	66	20	66786	2145	22.74	22.61	-0.13
[2A]-[48A]-[48C]-[66A]	66	20	132322	1745	66786	2145	QPSK	1	99	2	20	900	1960	48	20	55990	3625	48	20	56442	3670.2	48	20	56640	3690	23.48	23.50	0.02
[2A]-[48C]-[48C]	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	48	20	55990	3625	48	20	55792	3605.2	48	20	56442	3670.2	48	20	56640	3690	22.74	22.79	0.05
[4A]-[48E]	4	5	20175	1732.5	2175	2132.5	QPSK	1	0	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	22.47	22.44	-0.03
[13A]-[48E]	13	10	23230	782	5230	751	QPSK	1	24	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.49	23.42	-0.07
[48C]-[48C]-[66A]	66	20	132322	1745	66786	2145	QPSK	1	99	48	20	55990	3625	48	20	55792	3605.2	48	20	56442	3670.2	48	20	56640	3690	23.48	23.44	-0.04
[48A]-[48D]-[66A]	66	20	132322	1745	66786	2145	QPSK	1	99	48	20	55990	3625	48	20	56244	3650.4	48	20	56442	3670.2	48	20	56640	3690	23.48	23.58	0.10
[48A]-[48E]	48	20	55340	3560	55340	3560	QPSK	1	99	48	20	56046	3630.6	48	20	56244	3650.4	48	20	56442	3670.2	48	20	56640	3690	23.59	23.64	0.05
[48A]-[48E]	48	20	55340	3560	55340	3560	QPSK	1	99	48	20	55538	3579.8	48	20	55736	3599.6	48	20	55934	3619.4	48	20	56640	3690	23.59	23.57	-0.02
[48C]-[48D]	48	20	55340	3560	55340	3560	QPSK	1	99	48	20	55538	3579.8	48	20	56244	3650.4	48	20	56442	3670.2	48	20	56640	3690	23.59	23.51	-0.08
[48C]-[48D]	48	20	55340	3560	55340	3560	QPSK	1	99	48	20	55538	3579.8	48	20	55736	3599.6	48	20	56442	3670.2	48	20	56640	3690	23.59	23.65	0.06

LTE Down Link 6CA 4x4 MIMO Call Setup
PCC Setting (Channel/ RB/ BW/ Modulation)



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



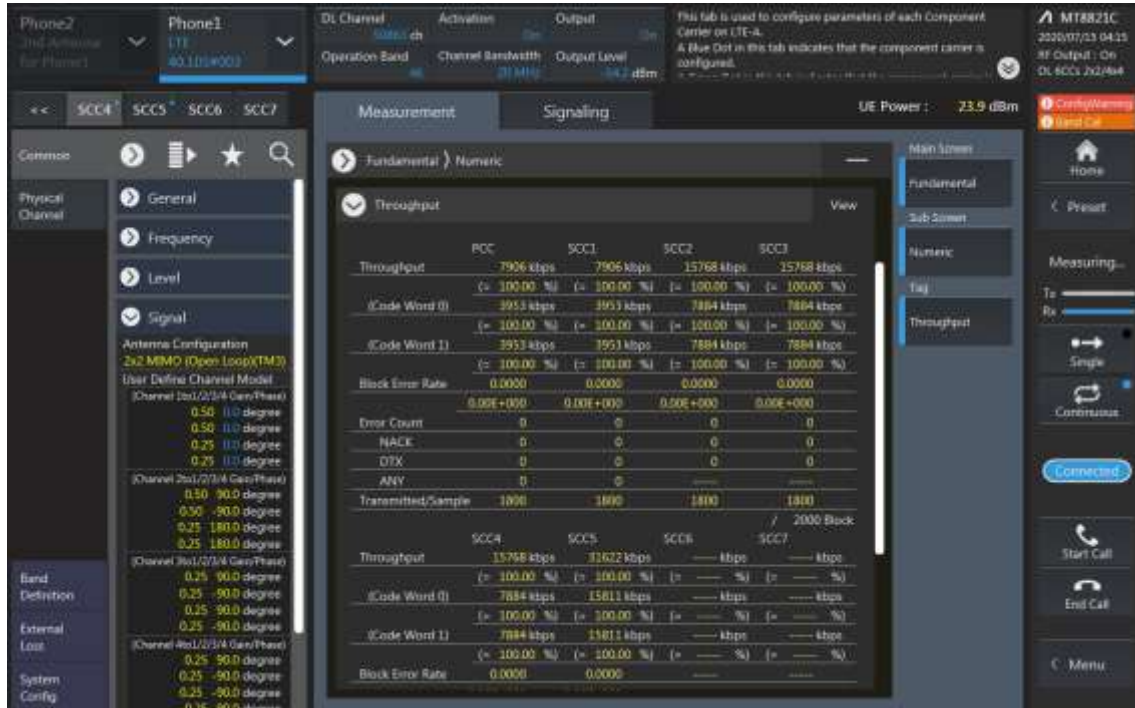
SCC2 Setting (Channel/ RB/ BW/ Modulation) and call Connection



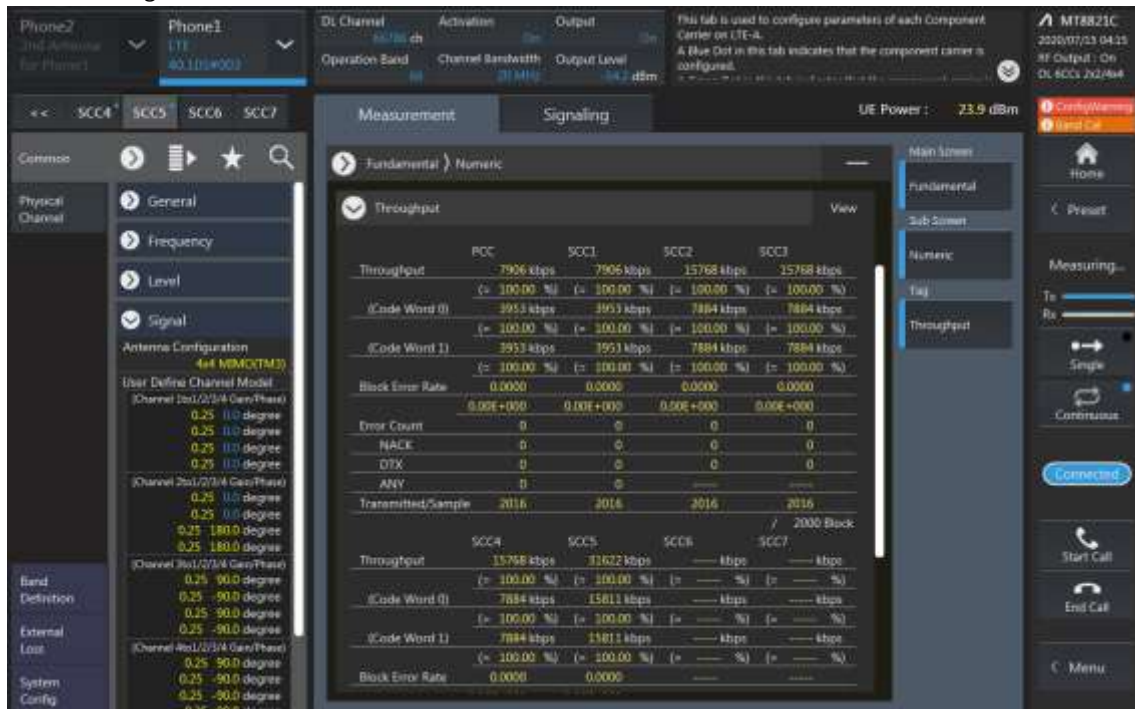
SCC3 Setting (Channel/ RB/ BW/ Modulation) and call Connection



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



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



LTE Downlink 6CA 4X4 MIMO Maximum Conducted Power

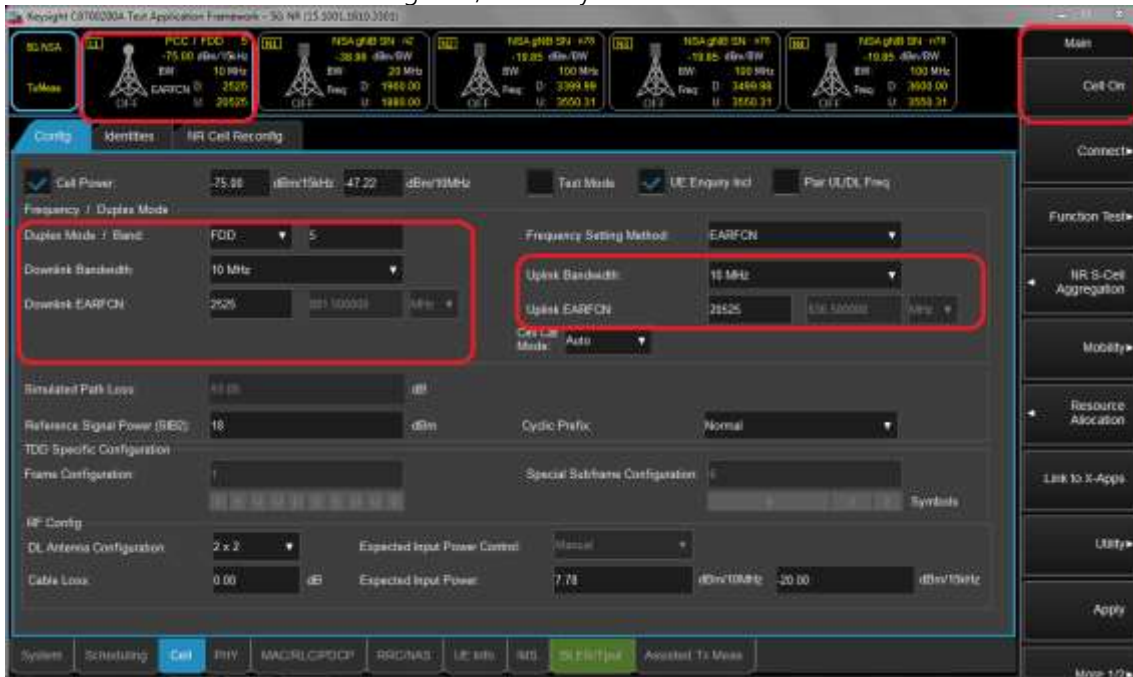
Combination	PCC								SCC				SCC				SCC				SCC				Tx Power			Deviation (dB) (2)-(1)				
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel		SCC DL Frequency	LTE Single Carrier Tx Power (dBm) (1)	LTE Tx Power with DL CA Enabled (dBm) (2)	
2A-5A-[48C]-[66A]-[66A]	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	5	10	2525	881.5	48	20	55990	3625	48	20	56188	3644.8	66	20	66786	2145	66	20	67236	2190	22.74	22.81	0.07
2A-5A-[48C]-[66A]-[66A]	5	10	20525	836.5	2525	881.5	QPSK	1	0	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	66	20	66786	2145	66	20	67236	2190	23.57	23.48	-0.09
2A-5A-[48C]-[66A]-[66A]	66	20	132322	1745	66786	2145	QPSK	1	99	66	20	67236	2190	2	20	900	1960	2	20	1100	1980	48	20	55990	3625	48	20	56188	3644.8	23.48	23.53	0.05
[2A]-5A-48C-[66A]-[66A]	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	5	10	2525	881.5	48	20	55990	3625	48	20	56188	3644.8	66	20	66786	2145	66	20	67236	2190	22.74	22.78	0.04
[2A]-5A-48C-[66A]-[66A]	5	10	20525	836.5	2525	881.5	QPSK	1	0	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	66	20	66786	2145	66	20	67236	2190	23.57	23.58	0.01
[2A]-5A-48C-[66A]-[66A]	66	20	132322	1745	66786	2145	QPSK	1	99	66	20	67236	2190	2	20	900	1960	2	20	1100	1980	48	20	55990	3625	48	20	56188	3644.8	23.48	23.41	-0.07
[2A]-5A-[48C]-[66A]-66A	2	15	19125	1902.5	1125	1982.5	QPSK	1	0	5	10	2525	881.5	48	20	55990	3625	48	20	56188	3644.8	66	20	66786	2145	66	20	67236	2190	22.74	22.65	-0.09
[2A]-5A-[48C]-[66A]-66A	5	10	20525	836.5	2525	881.5	QPSK	1	0	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	66	20	66786	2145	66	20	67236	2190	23.57	23.57	0.00
[2A]-5A-[48C]-[66A]-66A	66	20	132322	1745	66786	2145	QPSK	1	99	66	20	67236	2190	2	20	900	1960	2	20	1100	1980	48	20	55990	3625	48	20	56188	3644.8	23.48	23.39	-0.09
2A-[48E]-66A	2	15	19125	1902.5	1125	1982.5	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	22.74	22.64	-0.10
2A-[48E]-66A	66	20	132322	1745	66786	2145	QPSK	1	99	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.48	23.36	-0.12
[2A]-48E-[66A]	2	15	19125	1902.5	1125	1982.5	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	22.74	22.76	0.02
[2A]-48E-[66A]	66	20	132322	1745	66786	2145	QPSK	1	99	2	20	900	1960	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.48	23.56	0.08
5A-48D-[66A]-[66A]	5	10	20525	836.5	2525	881.5	QPSK	1	0	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	66	20	66786	2145	66	20	67236	2190	23.57	23.47	-0.10
5A-48D-[66A]-[66A]	66	20	132322	1745	66786	2145	QPSK	1	99	66	20	67236	2190	5	10	2525	881.5	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.48	23.40	-0.08
5A-[48D]-[66A]-66A	5	10	20525	836.5	2525	881.5	QPSK	1	0	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	66	20	66786	2145	66	20	67236	2190	23.57	23.58	0.01
5A-[48D]-[66A]-66A	66	20	132322	1745	66786	2145	QPSK	1	99	66	20	67236	2190	5	10	2525	881.5	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	23.48	23.48	0.00
13A-48E-[66A]	13	10	23230	782	5230	751	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	23.49	23.34	-0.15
13A-48E-[66A]	66	20	132322	1745	66786	2145	QPSK	1	99	13	10	5230	751	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.48	23.51	0.03
13A-[48E]-66A	13	10	23230	782	5230	751	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	23.49	23.48	-0.01
13A-[48E]-66A	66	20	132322	1745	66786	2145	QPSK	1	99	13	10	5230	751	48	20	55990	3625	48	20	56188	3644.8	48	20	56386	3664.6	48	20	56584	3684.4	23.48	23.49	0.01

2. 5G NR Call Box Setup

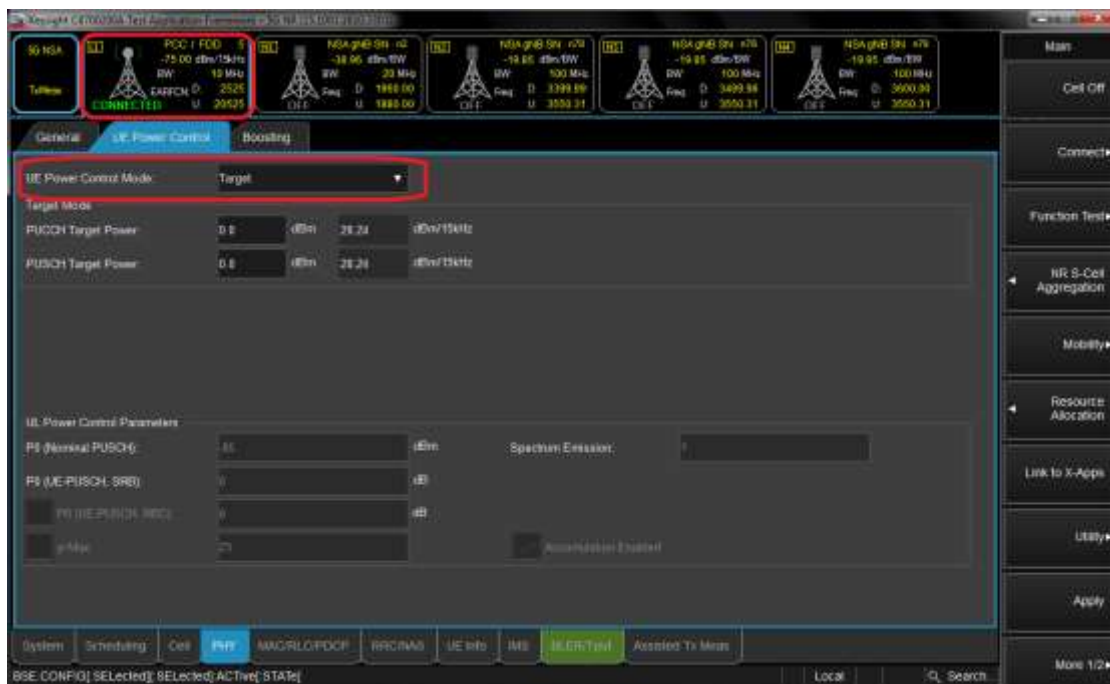
Procedure used to establish output Power measurement for NR Bands

Select operating band, BW and Channel.

- Click Cell on button in the right of Test application screen.
- Turn the LTE Cell On using "ON/OFF" Key.



- Turn the Airplane Mode On and then turn the Airplane mode off.
- Select All down bits for UL Power control Mode in LTE.

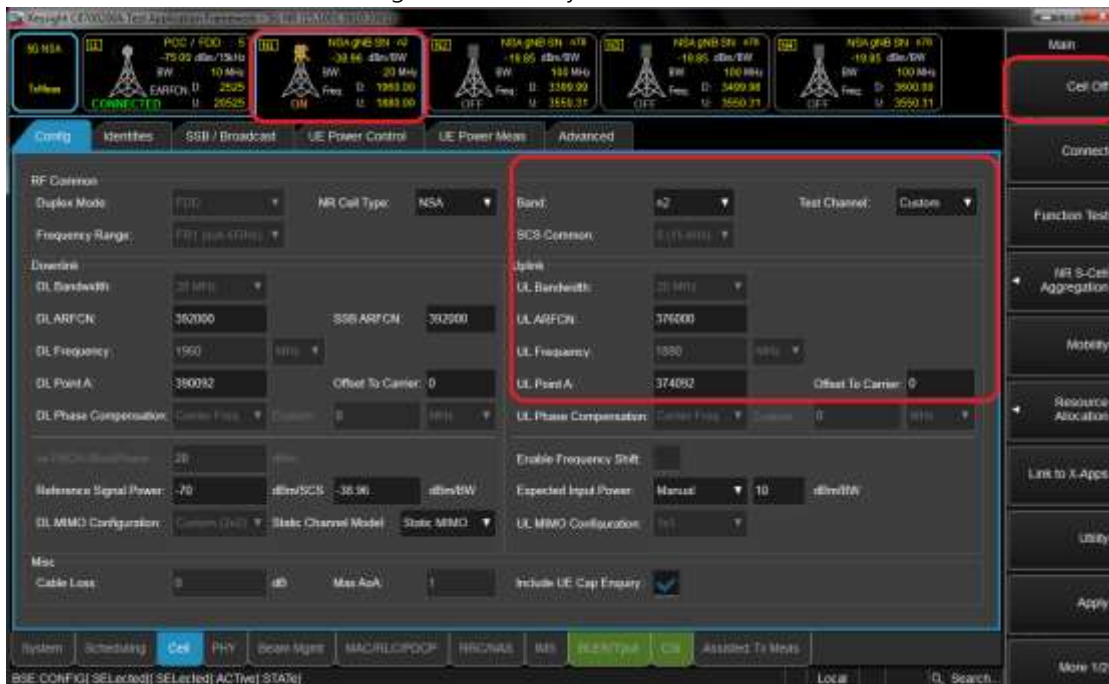


Setup for NR Band

- Select waveform for Setting NR Band (PHY->PUSCH->Enable Transform Precoder)
 - Enable : DFT-s-OFDM, Disable : CP-OFDM



- Select operating band, BW, SCS and Channel.
- Turn the NR Cell On using "ON/OFF" Key.



Connect NR S-Cell Aggregation

- Click NR S-Cell Aggregation
- Check the Cell 1's DL and UL box(PCC) and than Click Apply.
- Check the message summary If message shows NR Msg 5, It is connected.



Max Power setting

- Click "Cell" in the bottom of screen.
- Click "UE Power control" than change UE Power control mode to All Up bits.



Selecting Start RB/Count/MCS

- Select the each test configuring (Start RB, Count, MCS).



View Tx Power

- Click "Link to X-Apps." (Please refer to Figure-7)
- Select "Channel Power".

