

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.

Procedures for determining proximity sensor triggering distances

(KDB 616217 D04v01r02 §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. For Licensed modes, the device state index(DSI) on the device UI was monitored to determine the triggering state.
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 was 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

1.1 Power Reduction Verification for Main 1 Ant

This device utilizes a power reduction mechanism for some wireless modes under some conditions when the device is being used in close proximity to the user's hand for Main1 Ant

FCC KDB Publication 616217D04v01r02 section 6 was used as a guideline for selection SAR test distances for this device when being used in Proximity use conditions.

Mechanism(s)	Mode/Band	Device State Index	
		Un-triggered (Max Power)	Triggered (Reduced Power)
Grip	LTE Band 14	DSI 0	DSI 1
Grip	LTE Band 30	DSI 0	DSI 1
Grip	N30	DSI 0	DSI 1

Note: This device uses different Device State Indices(DSI) to configure different time averaged power level based on certain exposure scenarios. For this model, DSI=1 represents the case when the grip sensor is active, and DSI=0 represents the case where the device cannot detect the use condition.

1.2 Proximity sensor triggering Distance Verification.



Proximity Sensor Trigger Distance Assessment KDB 616217 D04 §6.2 (Rear / Right / Top 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 Right Side		Trigger distance Right Corner Side		Trigger distance -Top	
	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]	Moving toward phantom [mm]	Moving away from phantom [mm]
700MHz	22	23	8	9	9	10	21	22
800MHz	22	23	8	9	9	10	21	22
2300 MHz	22	23	8	9	9	10	21	22

Distance Measurement verification for Proximity sensor

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

Distance	Distance to DUT Output power (dBm)									
	27	26	25	24	23	22	21	20	19	18
LTE Band 14	24.23	24.29	24.22	24.26	24.26	13.79	13.82	13.88	13.80	13.77
LTE Band 30	22.10	22.13	22.02	22.13	22.11	10.34	10.30	10.20	10.28	10.28
N30	22.52	22.52	22.58	22.59	22.47	12.51	12.44	12.48	12.43	12.45

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

Distance	Distance to DUT Output power (dBm)									
	19	20	21	22	23	24	25	26	27	28
LTE Band 14	13.79	13.90	13.80	13.87	13.87	24.28	24.29	24.26	24.28	24.17
LTE Band 30	10.38	10.35	10.24	10.33	10.36	22.09	22.06	22.19	22.10	22.01
N30	12.45	12.52	12.59	12.49	12.53	22.43	22.42	22.42	22.59	22.46

Based on the most conservative measured triggering distance of 22mm, additional Body SAR measurements were required at 21mm from rear side for the above modes.

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

Distance	Distance to DUT Output power (dBm)									
	13	12	11	10	9	8	7	6	5	4
LTE Band 14	24.25	24.28	24.21	24.27	24.18	13.77	13.82	13.83	13.79	13.81
LTE Band 30	22.10	22.13	22.02	22.13	22.11	10.34	10.30	10.20	10.28	10.28
N30	22.52	22.52	22.58	22.59	22.47	12.51	12.44	12.48	12.43	12.45

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

Distance	Distance to DUT Output power (dBm)									
	5	6	7	8	9	10	11	12	13	14
LTE Band 14	13.89	13.88	13.90	13.87	13.80	24.21	24.28	24.13	24.26	24.21
LTE Band 30	10.38	10.35	10.24	10.33	10.36	22.09	22.06	22.19	22.10	22.01
N30	12.45	12.52	12.59	12.49	12.53	22.43	22.42	22.42	22.59	22.46

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

Right Corner side – EUT Moving toward (trigger) to the Phantom

Distance	Distance to DUT Output power (dBm)									
	14	13	12	11	10	9	8	7	6	5
LTE Band 14	24.27	24.14	24.22	24.12	24.13	13.72	13.80	13.85	13.82	13.84
LTE Band 30	22.13	22.18	22.07	22.05	22.12	10.23	10.31	10.39	10.20	10.39
N30	22.52	22.52	22.58	22.59	22.47	12.51	12.44	12.48	12.43	12.45

Right Corner side – EUT Moving away (Release) from the Phantom

Distance	Distance to DUT Output power (dBm)									
	6	7	8	9	10	11	12	13	14	15
LTE Band 14	13.84	13.70	13.78	13.78	13.71	24.21	24.13	24.22	24.15	24.16
LTE Band 30	10.35	10.24	10.25	10.40	10.24	22.14	22.04	22.04	22.16	22.01
N30	12.41	12.55	12.57	12.49	12.53	22.58	22.41	22.41	22.41	22.49

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

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

Distance	Distance to DUT Output power (dBm)									
	26	25	24	23	22	21	20	19	18	17
LTE Band 14	24.20	24.28	24.12	24.16	24.20	13.90	13.87	13.71	13.70	13.85
LTE Band 30	22.06	22.02	22.00	22.12	22.17	10.23	10.32	10.20	10.27	10.26
N30	22.47	22.40	22.45	22.56	22.58	12.41	12.50	12.53	12.43	12.55

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

Distance	Distance to DUT Output power (dBm)									
	18	19	20	21	22	23	24	25	26	27
LTE Band 14	13.90	13.86	13.80	13.70	13.83	24.14	24.22	24.23	24.24	24.18
LTE Band 30	10.23	10.36	10.32	10.36	10.22	22.00	22.07	22.00	22.06	22.11
N30	12.41	12.49	12.52	12.53	12.41	22.44	22.46	22.53	22.44	22.46

Based on the most conservative measured triggering distance of 21mm, additional Body SAR measurements were required at 20mm from top side for the above modes.

1.3 Proximity Sensor Coverage for SAR measurements

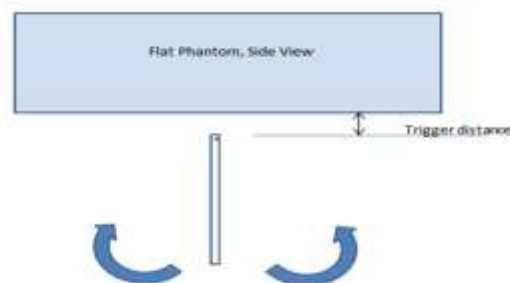
(KDB 616217 D04v01r02 §6.3)

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

1.4 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 (Top side)

Band (MHz)	Minimum distance at which power reduction was maintained over-45°	Power reduction status										
		-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°
700MHz	21 mm	On	On	On	On	On	On	On	On	On	On	On
800MHz	21 mm	On	On	On	On	On	On	On	On	On	On	On
2300MHz	21 mm	On	On	On	On	On	On	On	On	On	On	On

1.5 Resulting test positions for Body SAR measurements

Wireless technologies	Position	§6.2 Triggering Distance [mm]	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for Body SAR [mm]
Main 1 Ant	Rear	22	N/A	N/A	21
	Right Side	8	N/A	N/A	7
	Right Corner	9	N/A	N/A	8
	Top	21	N/A	N/A	20

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 use conditions.

2. Power reduction Verification for Sub 1 Ant

This device utilizes a power reduction mechanism for some wireless modes under some conditions when the device is being used in close proximity to the user's hand for Sub 1 Ant

FCC KDB Publication 616217D04v01r02 section 6 was used as a guideline for selection SAR test distances for this device when being used in Proximity use conditions.

Mechanism(s)	Mode/Band	Device State Index	
		Un-triggered (Max Power)	Triggered (Reduced Power)
Grip	LTE Band 30	DSI 0	DSI 1

Note: This device uses different Device State Indices(DSI) to configure different time averaged power level based on certain exposure scenarios. For this model, DSI=1 represents the case when the grip sensor is active, and DSI=0 represents the case where the device cannot detect the use condition.

2.1 Proximity sensor triggering Distance Verification.



Proximity Sensor Trigger Distance Assessment KDB 616217 D04 §6.2 (Rear / Right / 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 – Right Side		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]
2300 MHz	18	19	8	9	24	25

Distance Measurement verification for Proximity sensor

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

Distance	Distance to DUT Output power (dBm)									
	23	22	21	20	19	18	17	16	15	14
LTE Band 30	22.17	22.02	22.04	22.08	22.07	10.57	10.59	10.46	10.51	10.53

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

Distance	Distance to DUT Output power (dBm)									
	15	16	17	18	19	20	21	22	23	24
LTE Band 30	10.55	10.48	10.47	10.41	10.52	22.16	22.13	22.01	22.12	22.07

Based on the most conservative measured triggering distance of 18mm, additional Body SAR measurements were required at 17mm from top side for the above modes.

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

Distance	Distance to DUT Output power (dBm)									
	13	12	11	10	9	8	7	6	5	4
LTE Band 30	22.04	22.05	22.02	22.00	22.12	10.53	10.49	10.42	10.57	10.55

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

Distance	Distance to DUT Output power (dBm)									
	5	6	7	8	9	10	11	12	13	14
LTE Band 30	10.58	10.53	10.42	10.55	10.46	22.00	22.20	22.07	22.10	22.19

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

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

Distance	Distance to DUT Output power (dBm)									
	29	28	27	26	25	24	23	22	21	20
LTE Band 30	22.20	22.01	22.12	22.11	22.02	10.45	10.52	10.59	10.48	10.50

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

Distance	Distance to DUT Output power (dBm)									
	21	22	23	24	25	26	27	28	29	30
LTE Band 30	10.56	10.50	10.50	10.54	10.40	22.11	22.05	22.02	22.07	22.09

Based on the most conservative measured triggering distance of 24mm, additional Body SAR measurements were required at 23mm from top side for the above modes.

2.3 Proximity Sensor Coverage for SAR measurements

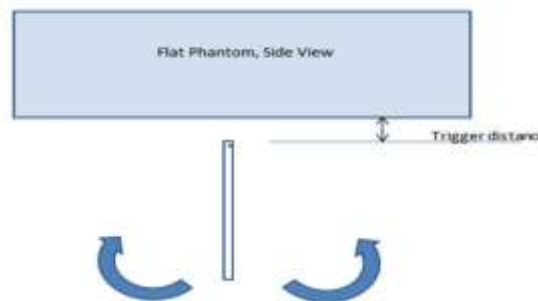
(KDB 616217 D04v01r02 §6.3)

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

2.4 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)

Band (MHz)	Minimum distance at which power reduction was maintained over-45°	Power reduction status										
		-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°
2300 MHz	24 mm	On	On	On	On	On	On	On	On	On	On	On

2.5 Resulting test positions for Body SAR measurements

Wireless technologies	Position	§6.2 Triggering Distance [mm]	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for Body SAR [mm]
Sub 1 Ant	Rear	18	N/A	N/A	17
	Right Side	8	N/A	N/A	7
	Bottom	24	N/A	N/A	23

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 user conditions.

Appendix I. – DL 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:

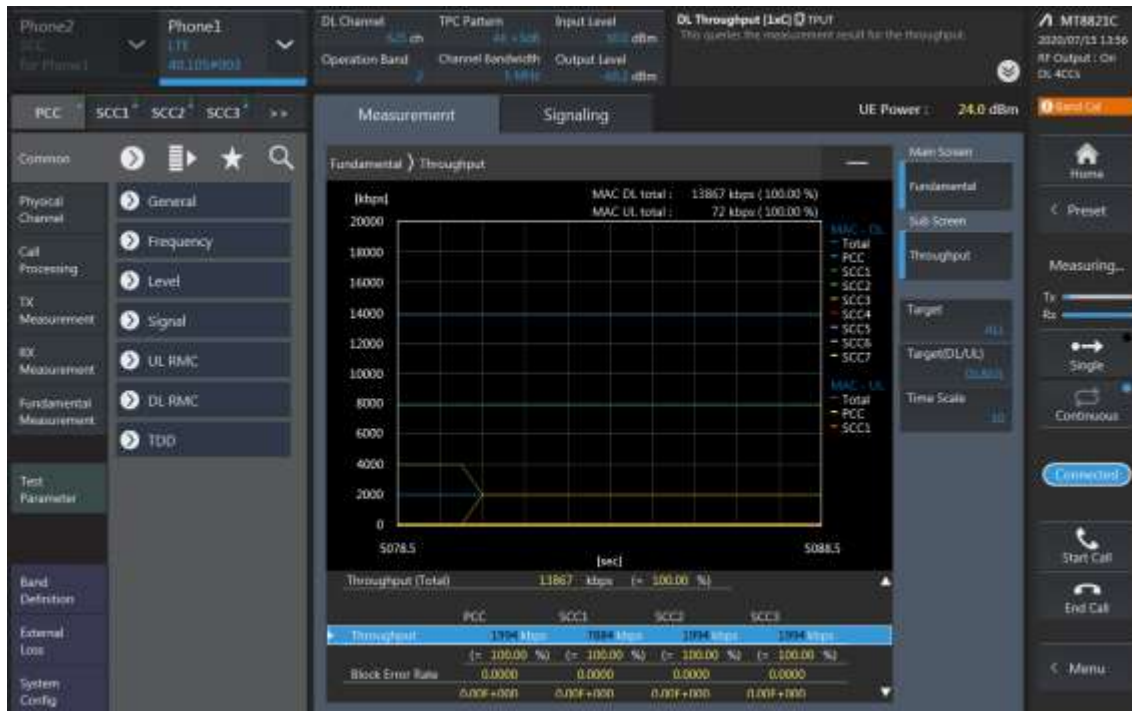
1. This device only supports downlink carrier aggregation. For every supported combination of downlink carrier aggregation, power measurements were performed with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation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



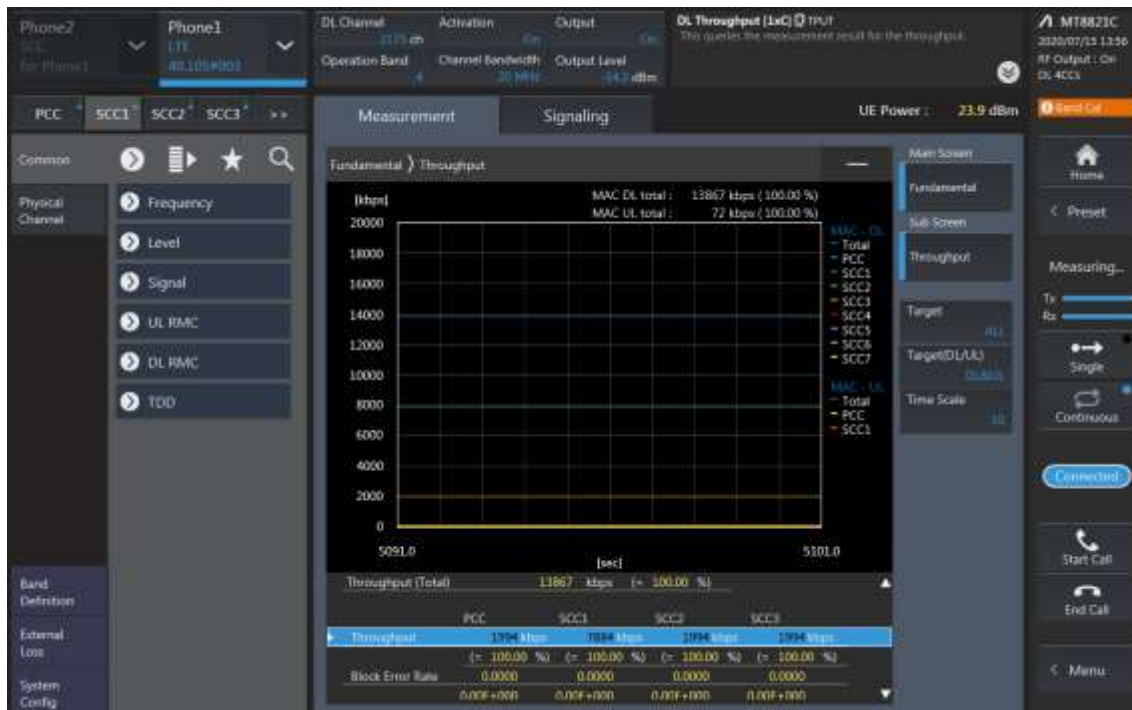
Power Measurement setup

LTE Down Link 4CA Call Setup

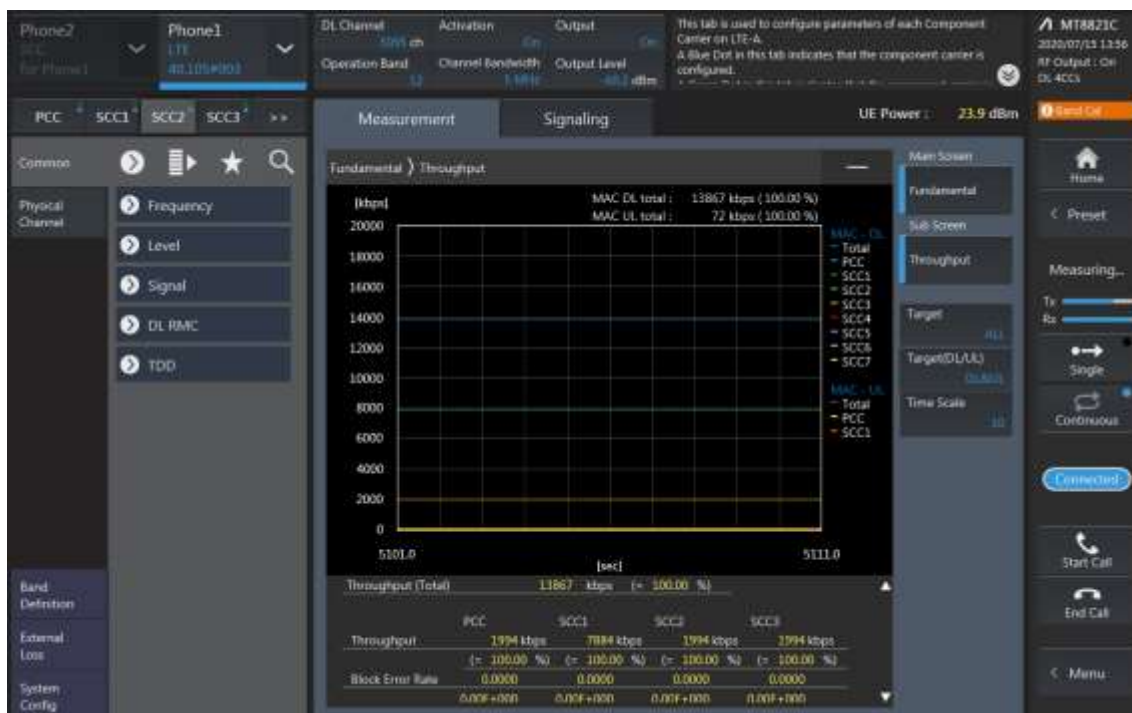
PCC Setting: Channel /RB/BW/Modulation



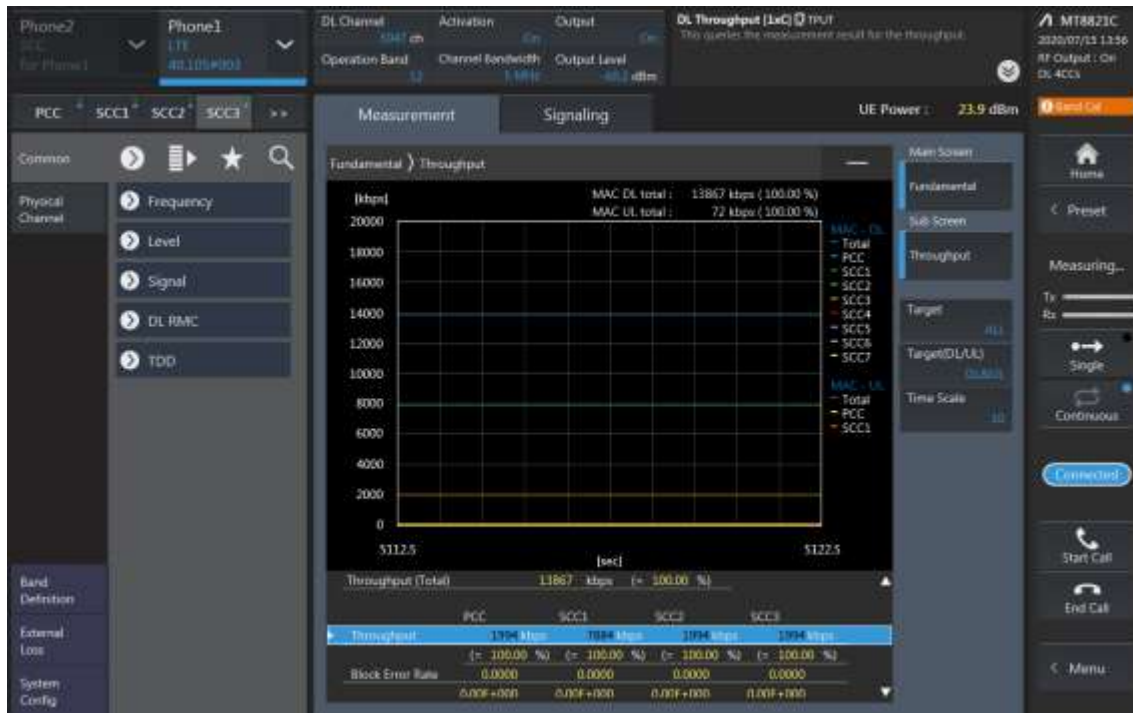
SCC1 Setting (Channel /RB/BW/Modulation)and call Connection



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



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

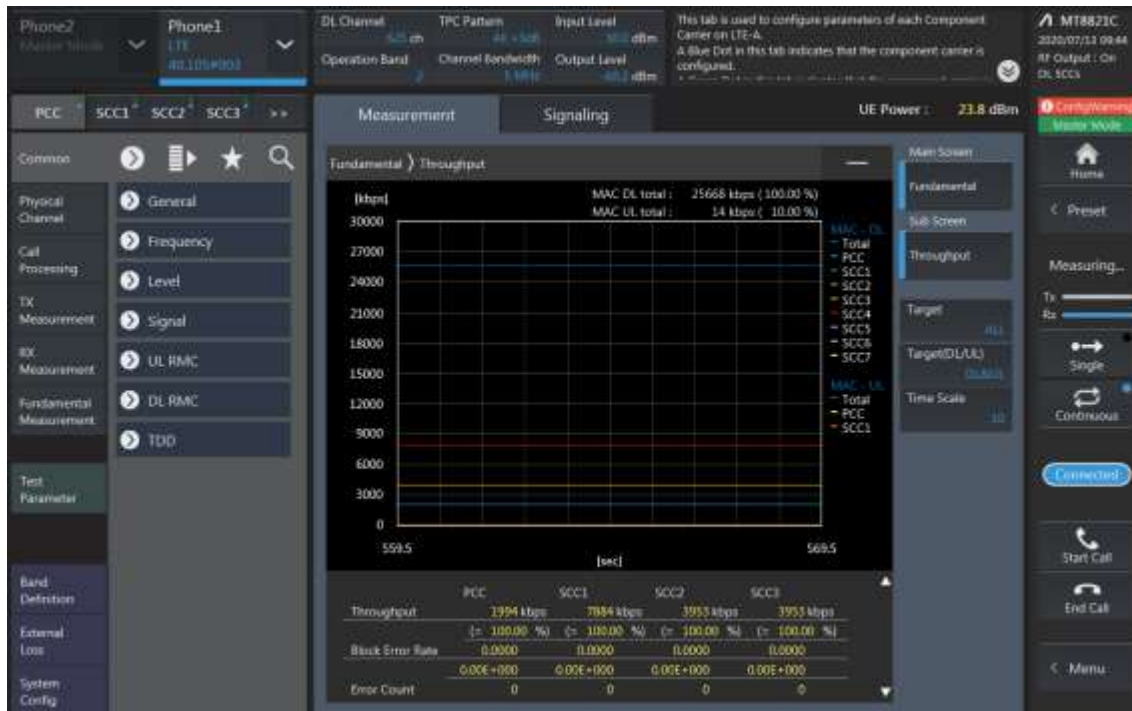


4CA Downlink Carrier aggregation conducted Powers

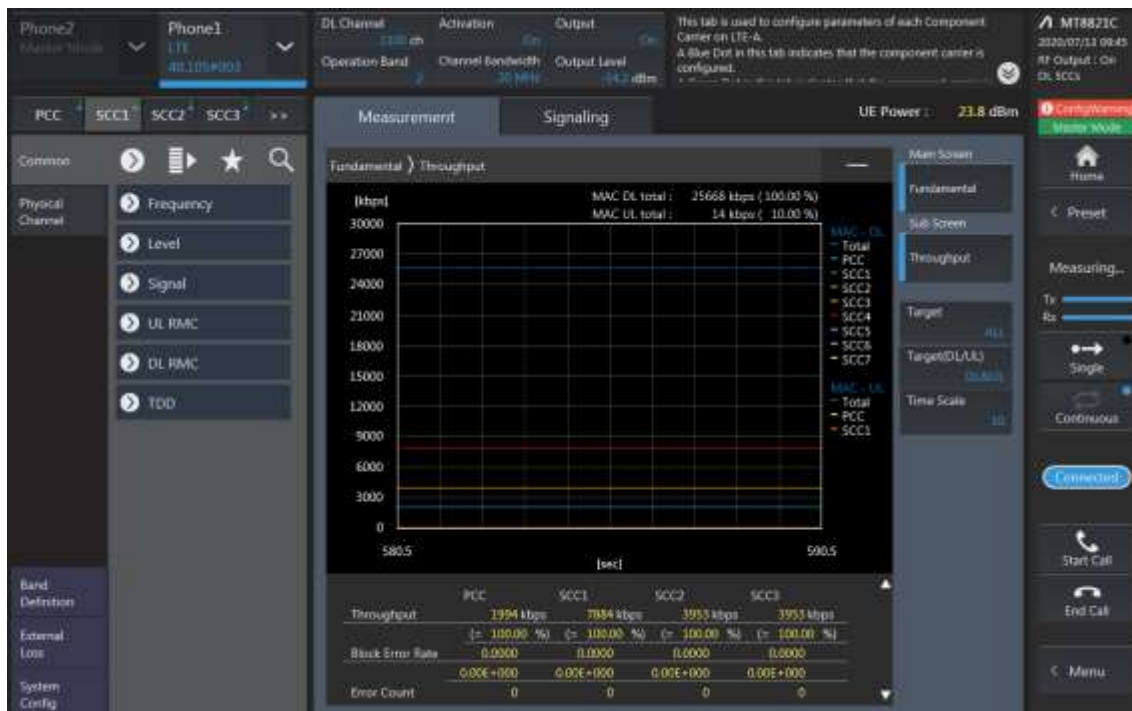
Combination	PCC									SCC				SCC				SCC				Tx Power		Delta (2)-(1)
	Band	BW	PCC UL Ch.	PCC UL Freq.	PCC DL Ch.	PCC DL Freq.	Modulation	RB	RB offset	Band	BW	SCC DL Ch.	SCC DL Freq.	Band	BW	SCC DL Ch.	SCC DL Freq.	Band	BW	SCC DL Ch.	SCC DL Freq.	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled (dBm)	
																						(1)	(2)	
2A-2A-29A-30A	2	10	18900	1880	900	1960	QPSK	1	24	2	20	1100	1980	29	10	9715	722.5	30	10	9820	2355	24.54	24.5	-0.04
2A-2A-29A-30A	30	10	27710	2310	9820	2355	QPSK	1	0	2	20	900	1960	2	20	1100	1980	29	10	9715	722.5	22.22	22.15	-0.07
2A-29A-30A-66A	2	10	18900	1880	900	1960	QPSK	1	24	29	10	9715	722.5	30	10	9820	2355	66	20	66786	2145	24.54	24.51	-0.03
2A-29A-30A-66A	30	10	27710	2310	9820	2355	QPSK	1	0	2	20	900	1960	29	10	9715	722.5	66	20	66786	2145	22.22	22.2	-0.02
2A-29A-30A-66A	66	15	132047	1717.5	66511	2117.5	QPSK	1	74	2	20	900	1960	29	10	9715	722.5	30	10	9820	2355	24.29	24.24	-0.05

LTE Down Link 5CA Call Setup

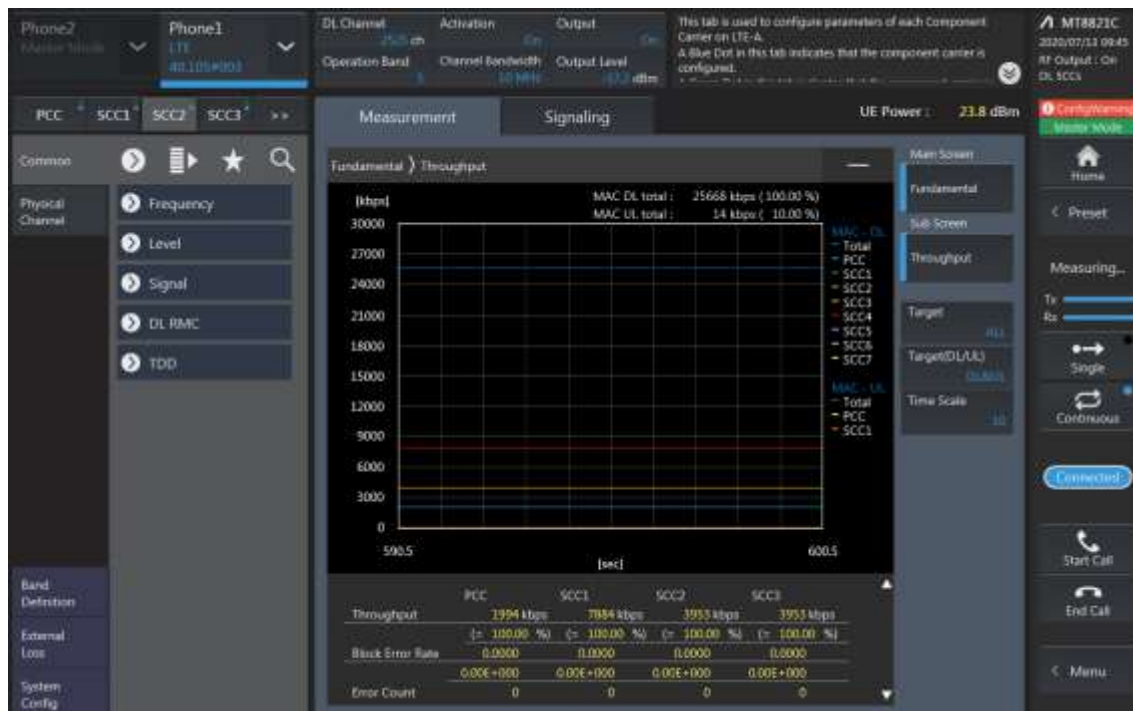
PCC Setting: Channel /RB/BW/Modulation



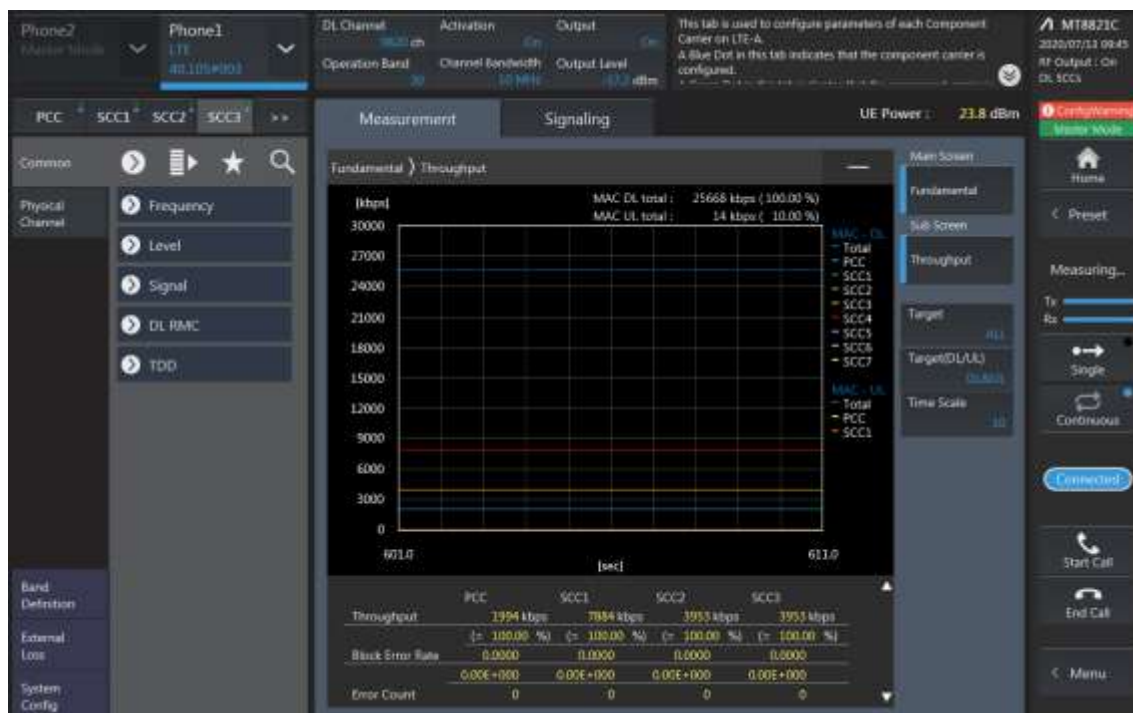
SCC1 Setting (Channel /RB/BW/Modulation) and call Connection



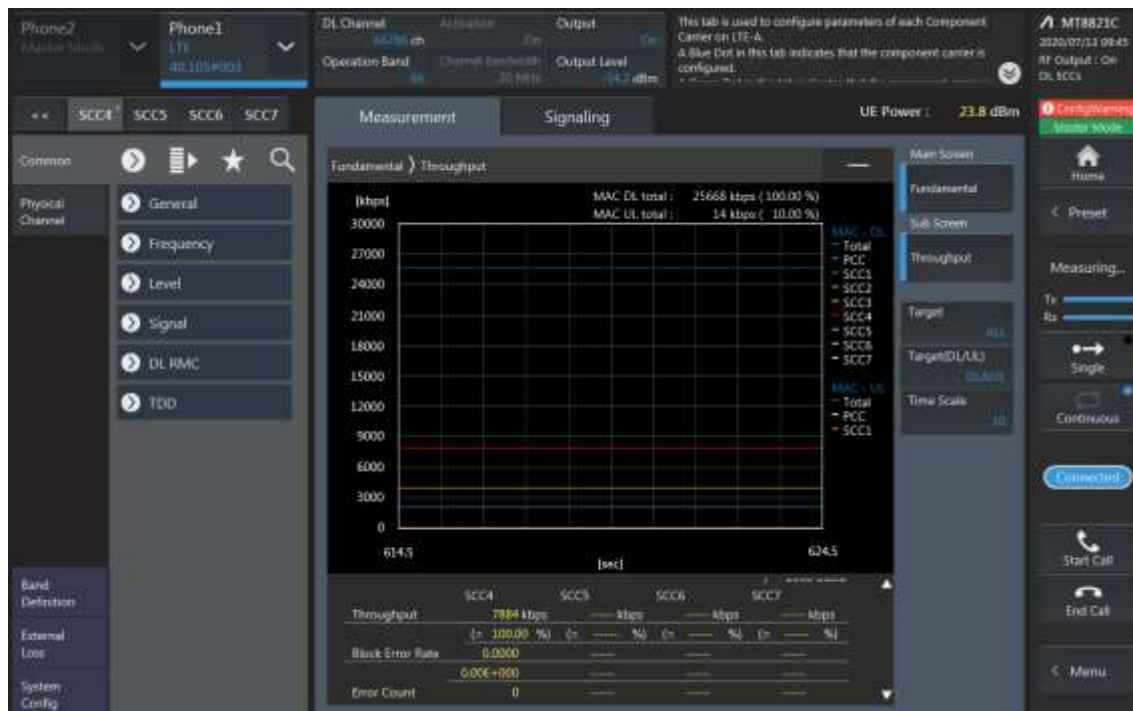
SCC2 Setting (Channel /RB/BW/Modulation)and call Connection



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



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



5CA Downlink Carrier aggregation conducted Powers

Combination	PCC									SCC				SCC				SCC				SCC				Tx Power		Delta (2)-(1)
	Band	BW	PCC UL Ch.	PCC UL Freq.	PCC DL Ch.	PCC DL Freq.	Modulation	RB	RB offset	Band	BW	SCC DL Ch.	SCC DL Freq.	Band	BW	SCC DL Ch.	SCC DL Freq.	Band	BW	SCC DL Ch.	SCC DL Freq.	Band	BW	SCC DL Ch.	SCC DL Freq.	LTE Single Carrier Tx Power (dBm) (1)	LTE Tx Power with DL CA Enabled (dBm) (2)	
2A-2A-5B-66A	2	10	18900	1880	900	1960	QPSK	1	24	2	20	1100	1980	5	10	2525	881.5	5	5	2453	874.3	66	20	66786	2145	24.54	24.44	-0.1
2A-2A-5B-66A	5	5	20625	846.5	2625	891.5	QPSK	1	12	5	10	2553	884.3	2	20	900	1960	2	20	1100	1980	66	20	66786	2145	24.28	24.3	0.02
2A-2A-5B-66A	66	15	132047	1717.5	66511	2117.5	QPSK	1	74	5	20	900	1960	2	20	1100	1980	5	10	2525	881.5	5	5	2453	874.3	24.29	24.32	0.03
2A-2A-5A-30A-66A	2	10	18900	1880	900	1960	QPSK	1	24	2	20	1100	1980	5	10	2525	881.5	30	10	9820	2355	66	20	66786	2145	24.54	24.47	-0.07
2A-2A-5A-30A-66A	5	5	20625	846.5	2625	891.5	QPSK	1	12	2	20	900	1960	2	20	1100	1980	30	10	9820	2355	66	20	66786	2145	24.28	24.35	0.07
2A-2A-5A-30A-66A	30	10	27710	2310	9820	2355	QPSK	1	0	2	20	900	1960	2	20	1100	1980	5	10	2525	881.5	66	20	66786	2145	22.22	22.17	-0.05
2A-2A-5A-30A-66A	66	15	132047	1717.5	66511	2117.5	QPSK	1	74	2	20	900	1960	2	20	1100	1980	5	10	2525	881.5	30	10	9820	2355	24.29	24.33	0.04
2A-2A-12A-30A-66A	2	10	18900	1880	900	1960	QPSK	1	24	2	20	1100	1980	12	10	5095	737.5	30	10	9820	2355	66	20	66786	2145	24.54	24.55	0.01
2A-2A-12A-30A-66A	12	5	23155	713.5	5155	743.5	QPSK	1	12	2	20	900	1960	2	20	1100	1980	30	10	9820	2355	66	20	66786	2145	24.87	24.93	0.06
2A-2A-12A-30A-66A	30	10	27710	2310	9820	2355	QPSK	1	0	2	20	900	1960	2	20	1100	1980	12	10	5095	737.5	66	20	66786	2145	22.22	22.26	0.04
2A-2A-12A-30A-66A	66	15	132047	1717.5	66511	2117.5	QPSK	1	74	2	20	900	1960	2	20	1100	1980	12	10	5095	737.5	30	10	9820	2355	24.29	24.35	0.06
2A-2A-12A-66A-66A	2	10	18900	1880	900	1960	QPSK	1	24	2	20	1100	1980	12	10	5095	737.5	66	20	66786	2145	66	20	67236	2190	24.54	24.46	-0.08
2A-2A-12A-66A-66A	12	5	23155	713.5	5155	743.5	QPSK	1	12	2	20	900	1960	2	20	1100	1980	66	20	66786	2145	66	20	67236	2190	24.87	24.77	-0.1
2A-2A-12A-66A-66A	66	15	132047	1717.5	66511	2117.5	QPSK	1	74	66	20	67236	2190	2	20	900	1960	2	20	1100	1980	12	10	5095	737.5	24.29	24.2	-0.09
2A-2A-14A-30A-66A	2	10	18900	1880	900	1960	QPSK	1	24	2	20	1100	1980	14	10	5330	763	30	10	9820	2355	66	20	66786	2145	24.54	24.46	-0.08
2A-2A-14A-30A-66A	14	5	23330	793	5330	763	QPSK	1	12	2	20	900	1960	2	20	1100	1980	30	10	9820	2355	66	20	66786	2145	24.3	24.3	0

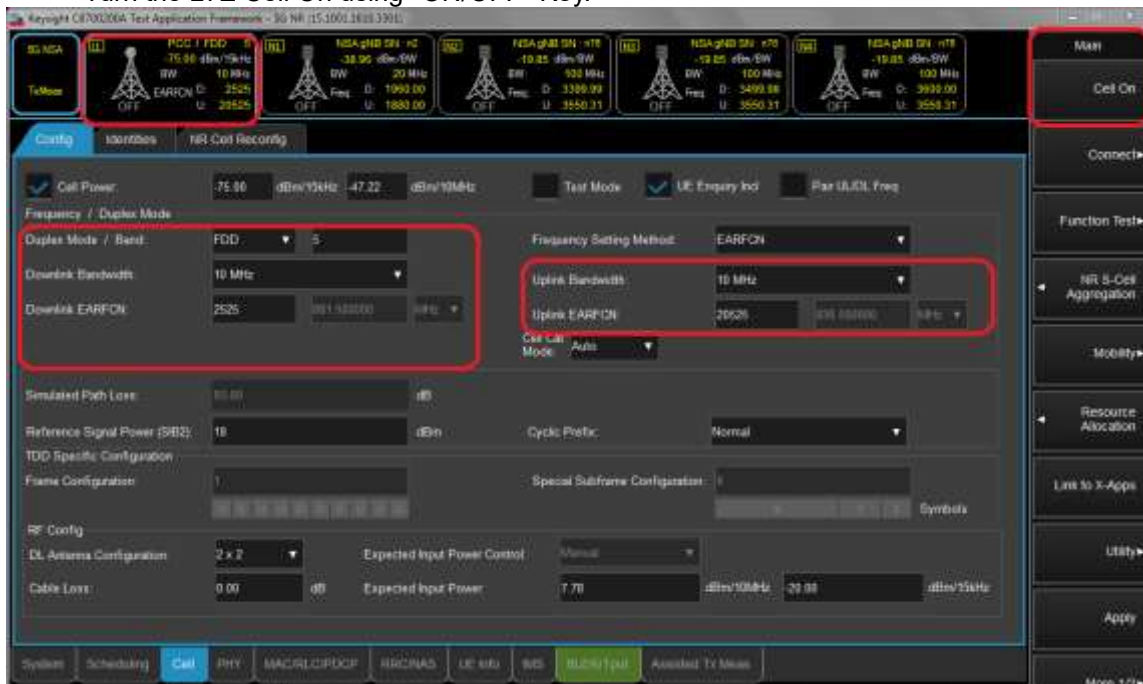
2A-2A-14A-30A-66A	30	10	27710	2310	9820	2355	QPS K	1	0	2	20	900	1960	2	20	1100	1980	14	10	5330	763	66	20	66786	2145	22.22	22.22	0
2A-2A-14A-30A-66A	66	15	132047	1717.5	66511	2117.5	QPS K	1	74	2	20	900	1960	2	20	1100	1980	14	10	5330	763	30	10	9820	2355	24.29	24.2	-0.09
2A-5B-30A-66A	2	10	18900	1880	900	1960	QPS K	1	24	5	10	2525	881.5	5	5	2453	874.3	30	10	9820	2355	66	20	66786	2145	24.54	24.47	-0.07
2A-5B-30A-66A	5	5	20625	846.5	2625	891.5	QPS K	1	12	5	10	2553	884.3	2	20	900	1960	30	10	9820	2355	66	20	66786	2145	24.28	24.34	0.06
2A-5B-30A-66A	30	10	27710	2310	9820	2355	QPS K	1	0	2	20	900	1960	5	10	2525	881.5	5	5	2453	874.3	66	20	66786	2145	22.22	22.22	0
2A-5B-30A-66A	66	15	132047	1717.5	66511	2117.5	QPS K	1	74	2	20	900	1960	5	10	2525	881.5	5	5	2453	874.3	30	10	9820	2355	24.29	24.24	-0.05
2A-5A-30A-66A-66A	2	10	18900	1880	900	1960	QPS K	1	24	5	10	2525	881.5	30	10	9820	2355	66	20	66786	2145	66	20	67236	2190	24.54	24.52	-0.02
2A-5A-30A-66A-66A	5	5	20625	846.5	2625	891.5	QPS K	1	12	2	20	900	1960	30	10	9820	2355	66	20	66786	2145	66	20	67236	2190	24.28	24.24	-0.04
2A-5A-30A-66A-66A	30	10	27710	2310	9820	2355	QPS K	1	0	2	20	900	1960	5	10	2525	881.5	66	20	66786	2145	66	20	67236	2190	22.22	22.26	0.04
2A-5A-30A-66A-66A	66	15	132047	1717.5	66511	2117.5	QPS K	1	74	66	20	67236	2190	2	20	900	1960	5	10	2525	881.5	30	10	9820	2355	24.29	24.28	-0.01
2A-12A-30A-66A-66A	2	10	18900	1880	900	1960	QPS K	1	24	12	10	5095	737.5	30	10	9820	2355	66	20	66786	2145	66	20	67236	2190	24.54	24.56	0.02
2A-12A-30A-66A-66A	12	5	23155	713.5	5155	743.5	QPS K	1	12	2	20	900	1960	30	10	9820	2355	66	20	66786	2145	66	20	67236	2190	24.87	24.77	-0.1
2A-12A-30A-66A-66A	30	10	27710	2310	9820	2355	QPS K	1	0	2	20	900	1960	12	10	5095	737.5	66	20	66786	2145	66	20	67236	2190	22.22	22.14	-0.08
2A-12A-30A-66A-66A	66	15	132047	1717.5	66511	2117.5	QPS K	1	74	66	20	67236	2190	2	20	900	1960	12	10	5095	737.5	30	10	9820	2355	24.29	24.21	-0.08
2A-14A-30A-66A-66A	2	10	18900	1880	900	1960	QPS K	1	24	14	10	5330	763	30	10	9820	2355	66	20	66786	2145	66	20	67236	2190	24.54	24.25	-0.04
2A-14A-30A-66A-66A	14	5	23330	793	5330	763	QPS K	1	12	2	20	900	1960	30	10	9820	2355	66	20	66786	2145	66	20	67236	2190	24.3	24.32	0.04
2A-14A-30A-66A-66A	30	10	27710	2310	9820	2355	QPS K	1	0	2	20	900	1960	14	10	5330	763	66	20	66786	2145	66	20	67236	2190	22.22	22.15	-0.07
2A-14A-30A-66A-66A	66	15	132047	1717.5	66511	2117.5	QPS K	1	74	66	20	67236	2190	2	20	900	1960	14	10	5330	763	30	10	9820	2355	24.29	24.29	0

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.

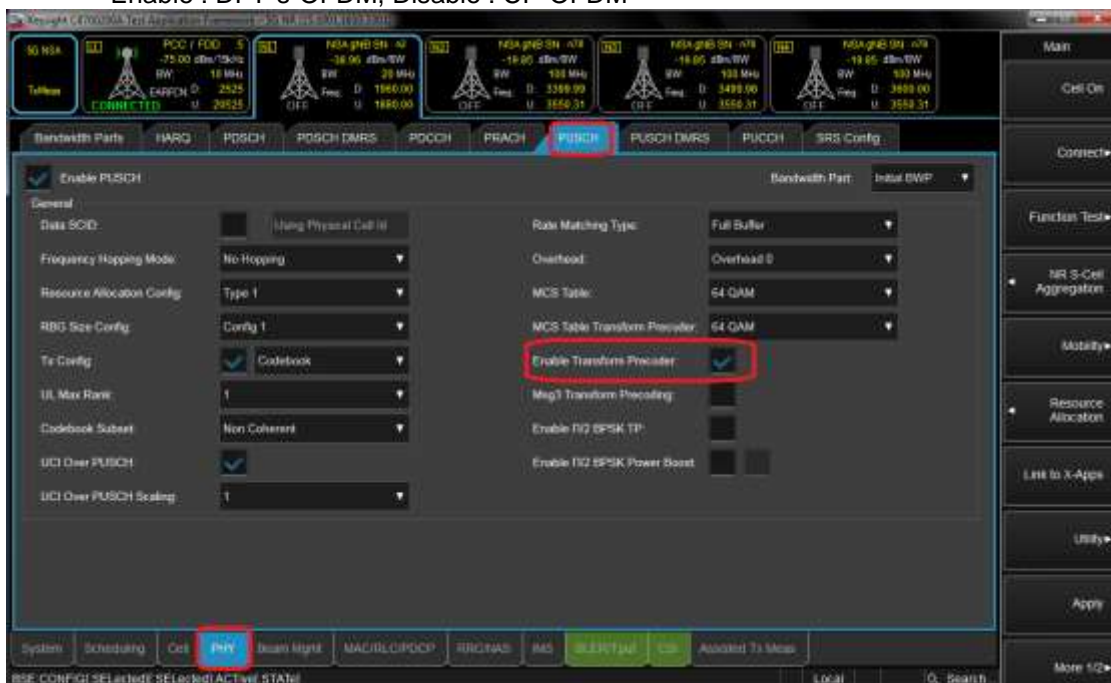


- Turn the Airplane Mode On and then turn the Airplane mode off.
- Select All down bits for UL Power control Mode in LTE.



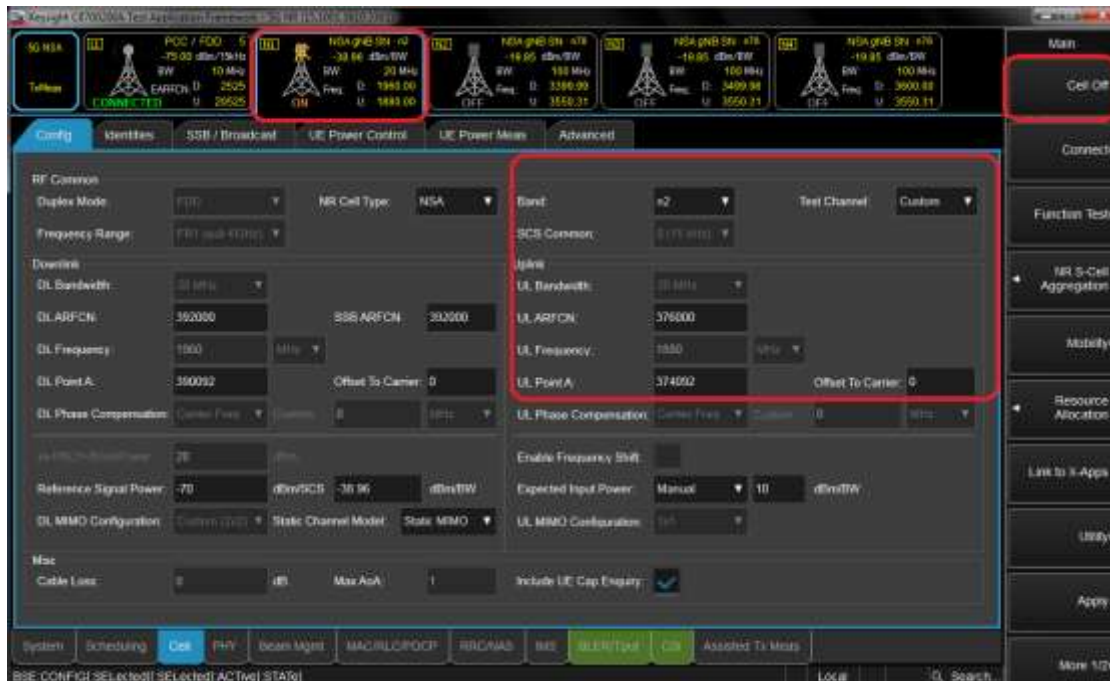
Setup for NR Band

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



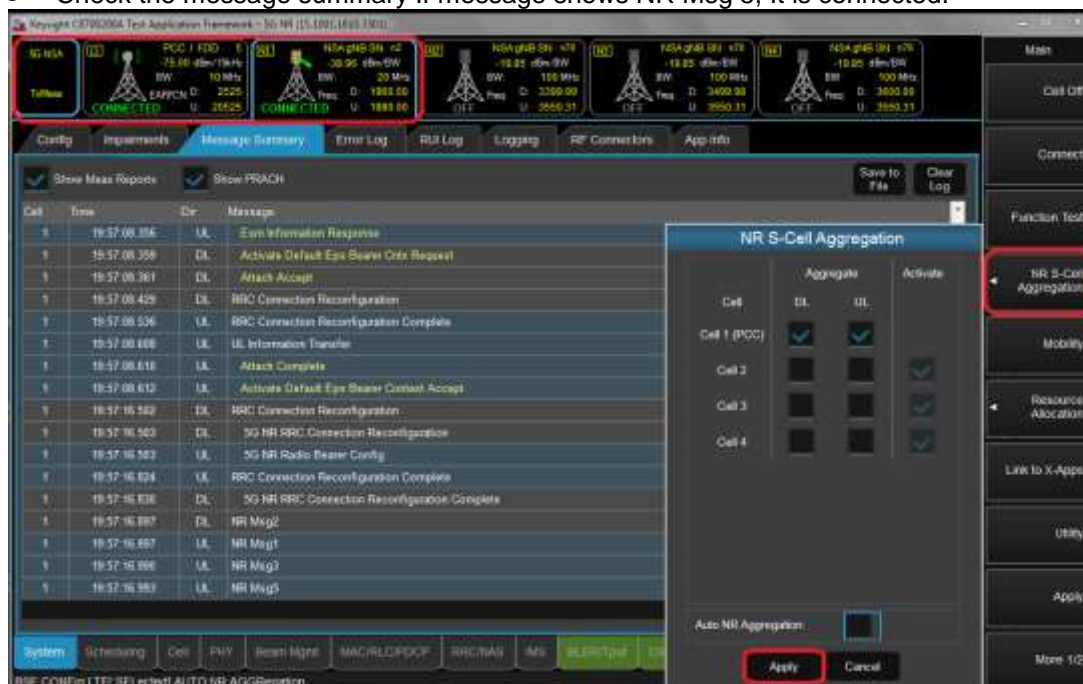
- Select operating band, BW, SCS and Channel.

- 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 then 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".

