

APPENDIX G: LTE DLCA TEST REDUCTION METHODOLOGY

SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number of component carriers (CCs) supported by the product implementation. Per April 2018 TCBC Workshop Notes, the following test reduction methodology was applied to determine the combinations required for conducted power measurements.

LTE DLCA Test Reduction Methodology:

- The supported combinations were arranged by the number of component carriers in columns.
- Any limitations on the PCC or SCC for each combination were identified alongside the combination (e.g. CA_2A-2A-4A-12A, but B12 can only be configured as a SCC).
- Power measurements were performed for "supersets" (LTE CA combinations with multiple component carriers) and any "subsets" (LTE CA combinations with fewer component carriers) that were not completely covered by the supersets.
- Only subsets that have the exact same components as a superset were excluded for measurement.
- When there were certain restrictions on component carriers that existed in the superset that were not applied for the subset, the subset configuration was additionally evaluated.
- Both inter-band and intra-band downlink carrier aggregation scenarios were considered.
- Downlink CA combinations for SISO and 4x4 Downlink MIMO operations were measured independently, per May 2017 TCBC Workshop notes.

Table G-1 – Example of Exclusion Table for SISO Configurations

Index	2CC	Supported Channel Bandwidth (MHz)			Restriction	Completely Covered by Measurement Superset				Index	4CC	Supported Channel Bandwidth (MHz)			Restriction	Completely Covered by Measurement Superset				Index	8CC	Supported Channel Bandwidth (MHz)			Restriction	Completely Covered by Measurement Superset								
		CC1	CC2	CC3		CC1	CC2	CC3	CC4			CC1	CC2	CC3		CC1	CC2	CC3	CC4			CC1	CC2	CC3	CC1	CC2	CC3	CC4	CC5	CC6	CC7	CC8		
ICC #41	CA [2C]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #42	CA [2A-2B]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #43	CA [2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #44	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #45	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #46	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #47	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #48	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #49	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #50	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #51	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #52	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #53	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #54	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #55	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #56	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #57	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #58	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #59	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #60	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #61	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #62	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #63	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #64	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #65	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #66	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #67	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #68	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	ICC #4					ICC #4		S, 5, 10, 15, 20											
ICC #69	CA [2A-2A-2A]	S, 5, 10, 15, 20	S, 5, 10, 15, 20			ICC #4				ICC #4		S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 15, 20	S, 5, 10, 1																			

G.1 LTE Downlink Only Carrier Aggregation Test Selection and Setup

SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number component carriers (CCs) supported by the 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. All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. Additional conducted output powers are measured 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.

Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for carrier aggregation configurations when the maximum average output power with downlink only carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink only carrier aggregation inactive. All bands required for SAR testing per FCC KDB procedures were considered. Based on the measured maximum powers below, no additional SAR tests were required for DLCA SAR configurations.

General PCC and SCC configuration selection procedure

- PCC uplink channel, channel bandwidth, modulation and RB configurations were selected based on section C(3)b)ii) of KDB 941225 D05 V01r02. All LTE bandwidth conducted powers needed for PCC uplink configuration selection can be found in RF Conducted Powers Section and LTE/NR Lower Bandwidth RF Conducted Powers Appendix. The downlink PCC channel was paired with the selected PCC uplink channel according to normal configurations without carrier aggregation.
- To maximize aggregated bandwidth, highest channel bandwidth available for that CA combination was selected for SCC. For inter-band CA, the SCC downlink channels were selected near the middle of their transmission bands. For contiguous intra-band CA, the downlink channel spacing between the component carriers was set to multiple of 300 kHz less than the nominal channel spacing defined in section 5.4.1A of 3GPP TS 36.521. For non-contiguous intra-band CA, 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.
- All selected PCC and SCC(s) remained fully within the uplink/downlink transmission band of the respective component carrier.

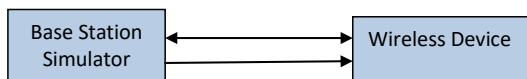


Figure G-1
DL CA Power Measurement Setup

FCC ID: BCGA2899	SAR EVALUATION REPORT	Approved by: Technical Manager
DUT Type: Tablet Device		APPENDIX G: Page 2 of 13

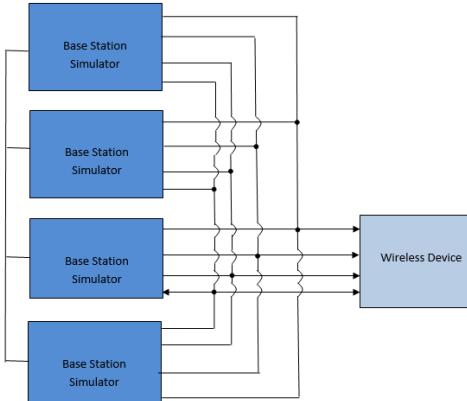


Figure G-2
DL CA with DL 4x4 MIMO Power Measurement Setup

G.2 Downlink Carrier Aggregation RF Conducted Powers

G.2.1 LTE Band 71 as PCC

Table G-3
Maximum Output Powers

Combination	PCC										SCC 1				SCC 2				SCC 3				SCC 4				Power		
	PCC Band	PCC BW [MHz]	PCC (U) Ch.	PCC (U) Freq. [MHz]	Mod.	PCC ULL# RB	PCC ULL# Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)			
CA_3G-4G-71A	LTE B71	10	133172	668	64QAM	1	0	68636	622	LTE B4	20	960	1960	LTE B4	20	2175	2132.5	-	-	-	-	-	-	-	-	20.32	20.27		
CA_4G-4G-71A	LTE B71	10	133172	668	64QAM	1	0	68636	622	LTE B4	20	900	1960	LTE B4	10	2350	2150	-	-	-	-	-	-	-	-	19.76	20.27		
CA_4G-4G-71A	LTE B71	10	133172	668	64QAM	1	0	68636	622	LTE B2	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	20	67236	2150	-	-	-	-	-	-	19.76	20.27
CA_2A-6G-71A	LTE B71	10	133172	668	64QAM	1	0	68636	622	LTE B2	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	20	66984	2164.8	-	-	-	-	-	-	19.31	20.27
CA_2A-6G-71A	LTE B71	10	133172	668	64QAM	1	0	68636	622	LTE B6B	20	66786	2145	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B7	20	3100	2655	19.91	20.27		

G.2.2 LTE Band 12 as PCC

Table G-4
Maximum Output Powers

Combination	PCC										SCC 1				SCC 2				SCC 3				SCC 4				Power				
	PCC Band	PCC BW [MHz]	PCC (U) Ch.	PCC (U) Freq. [MHz]	Mod.	PCC ULL# RB	PCC ULL# Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)					
CA_2A-12A (1)	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B2	20	702	1940.2	-	-	-	-	-	-	-	-	19.80	19.92				
CA_4G-12A (1)	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B4	20	2175	2132.5	-	-	-	-	-	-	-	-	-	-	-	-	19.92	19.92				
CA_4G-12A (2)	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B4	20	2175	2132.5	-	-	-	-	-	-	-	-	-	-	-	-	19.92	19.92				
CA_12A-12A	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	20	66984	2164.8	-	-	-	-	-	-	19.76	20.27		
CA_12A-4G-12A	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B4	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	20	66984	2164.8	-	-	-	-	-	-	19.82	19.92		
CA_12A-6G-12A	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B6B	20	66786	2145	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B7	20	3100	2655	19.91	20.27				
CA_12A-6G-12A (2)	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B6B	20	66786	2145	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B7	20	3100	2655	19.82	19.92				
CA_2G-12A	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B2	20	702	1940.2	-	-	-	-	-	-	-	-	19.90	19.92				
CA_12A-4G-12B	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B4	20	55990	3625	LTE B48	20	56188	3644.8	-	-	-	-	-	-	-	-	19.85	19.92				
CA_2A-2A-4A-12A	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B4	20	2175	2132.5	-	-	-	-	-	-	19.85	19.92		
CA_2A-2A-4A-12B	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B4	20	2350	2150	-	-	-	-	-	-	19.88	19.92		
CA_2A-4A-4A-12A	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	20	66984	2164.8	-	-	-	-	-	-	19.85	19.92		
CA_2A-4A-4A-12B	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	20	66984	2164.8	-	-	-	-	-	-	19.85	19.92		
CA_2A-4A-12A	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	20	66984	2164.8	-	-	-	-	-	-	19.85	19.92		
CA_2A-4A-12B	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	20	66984	2164.8	-	-	-	-	-	-	19.85	19.92		
CA_2A-7A-12B-6G	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	20	66984	2164.8	-	-	-	-	-	-	19.85	19.92		
CA_2A-12A-3G-6G	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B30	10	9820	2355	LTE B6B	20	66786	2145	LTE B30	10	9820	2355	LTE B6B	20	67236	2150	19.83	19.92
CA_2A-12A-3G-6G	LTE B12	10	23095	707.5	QPSK	1	0	5095	737.5	LTE B2	20	900	1960	LTE B30	10	9820	2355	LTE B6B	20	67236	2150	LTE B30	10	9820	2355	LTE B6B	20	67236	2150	19.83	19.92

FCC ID: BCGA2899	SAR EVALUATION REPORT	Approved by: Technical Manager
DUT Type: Tablet Device	APPENDIX G: Page 3 of 13	



G.2.3 LTE Band 13 as PCC

Table G-5
Maximum Output Powers

Combination	PCC Band	PCC						SCC 1			SCC 2			SCC 3			SCC 4			Power											
		PCC BW [MHz]	PCC (UL) Ch.	PCC (UL) Freq. [MHz]	Mod.	PCC UL# RB	PCC UL# Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE single Carrier Tx Power (dBm)								
CA_3A-4A-13A	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	-	-	-	-	-	20.42	20.53							
CA_2A-13A-4B-A	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	55990	3625	-	-	-	-	-	20.37	20.53							
CA_4A-4A-13A	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	2175	2132.5	LTE B4	10	2350	2150	-	-	-	-	-	20.40	20.53							
CA_3A-4A-13A	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	55990	3625	LTE B4	20	67236	2150	-	-	-	-	-	20.46	20.53							
CA_3A-4A-13A	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	67236	2150	-	-	-	-	-	20.46	20.53							
CA_3A-4A-13A	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	67236	2150	-	-	-	-	-	20.46	20.53							
CA_2A-13A-4B-B	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	67236	2150	-	-	-	-	-	20.46	20.53							
CA_2A-13A-4B-C	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	55990	3625	LTE B4	20	66188	3644.8	-	-	-	-	-	20.50	20.53			
CA_2A-13A-4B-B	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	15	66786	2145	LTE B4	5	67236	2154.3	-	-	-	-	-	20.56	20.53			
CA_2A-13A-4B-C	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	66786	2145	LTE B4	20	66984	2164.8	-	-	-	-	-	20.50	20.53			
CA_13A-4B-4B	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	66786	2145	LTE B4	20	66786	2145	-	-	-	-	-	20.50	20.53			
CA_13A-4B-4B	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	66786	2145	LTE B4	20	66786	2145	-	-	-	-	-	20.50	20.53			
CA_13A-4B-4B	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	66786	2145	LTE B4	20	66786	2145	-	-	-	-	-	20.50	20.53			
CA_2A-13A-4B-A	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	700	1940	LTE B4	20	700	1940	LTE B4	20	66786	2145	LTE B4	20	67236	2150	20.58	20.53
CA_2A-7A-13A-4B-A	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	900	1960	LTE B4	20	2850	1940	LTE B4	20	3100	2605	LTE B4	20	66536	2120	-	20.47	20.53			
CA_13A-4B-D-4B-A	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	55990	3625	LTE B4	20	56138	3644.8	LTE B4	20	56386	3664.6	LTE B4	20	66786	2145	-	20.52	20.53			
CA_13A-4B-E	LTE B13	10	23230	782	QPSK	1	0	6230	751	LTE B2	20	55990	3625	LTE B4	20	56138	3644.8	LTE B4	20	56386	3664.6	LTE B4	20	66786	2145	-	20.57	20.53			

G.2.4 LTE Band 14 as PCC

Table G-6
Maximum Output Powers

Combination	PCC Band	PCC						SCC 1			SCC 2			SCC 3			SCC 4			Power							
		PCC BW [MHz]	PCC (UL) Ch.	PCC (UL) Freq. [MHz]	Mod.	PCC UL# RB	PCC UL# Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)				
CA_2A-2A-14A-30A-66A	LTE B14	5	23330	793	64QAM	1	12	5330	763	LTE B2	20	900	1960	LTE B4	20	700	1940	LTE B4	20	9820	2355	LTE B6	20	66786	2145	20.50	20.94
CA_2A-2A-14A-66A-66A	LTE B14	5	23330	793	64QAM	1	12	5330	763	LTE B2	20	900	1960	LTE B4	20	2850	1940	LTE B4	20	3100	2605	LTE B6	20	66536	2120	20.47	20.94
CA_2A-14A-30A-66A-66A	LTE B14	5	23330	793	64QAM	1	12	5330	763	LTE B2	20	900	1960	LTE B4	20	55990	3625	LTE B4	20	66786	2145	LTE B6	20	67236	2150	20.51	20.94

G.2.5 LTE Band 5 as PCC

Table G-7
Maximum Output Powers

Combination	PCC Band	PCC						SCC 1			SCC 2			SCC 3			SCC 4			Power							
		PCC BW [MHz]	PCC (UL) Ch.	PCC (UL) Freq. [MHz]	Mod.	PCC UL# RB	PCC UL# Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)				
CA_5A-7A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	3100	2605	-	-	-	-	-	-	-	-	-	19.98	19.98			
CA_5A-2A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	8360	1962.5	-	-	-	-	-	-	-	-	-	19.99	19.98			
CA_5A-4A-14A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	2850	1940	LTE B4	20	3100	2605	LTE B4	20	55990	3625	LTE B4	20	66786	2145	20.01	19.98
CA_5A-5B	LTE B5	5	20265	836.5	QPSK	1	12	2525	881.5	LTE B5	3	2486	877.6	-	-	-	-	-	-	-	-	-	19.79	19.93			
CA_5C-5A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B4	10	2350	2150	-	-	-	19.98	19.98	
CA_5D-5A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	900	1960	LTE B4	20	55990	3625	LTE B4	20	66786	2145	LTE B4	20	66786	2145	20.01	19.98
CA_5E-5A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	900	1960	LTE B4	20	2850	1940	LTE B4	20	3100	2605	LTE B4	20	55990	3625	20.03	19.98
CA_5F-5A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	900	1960	LTE B4	20	55990	3625	LTE B4	20	66786	2145	LTE B4	20	66786	2145	20.03	19.98
CA_5G-5A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	900	1960	LTE B4	20	2850	1940	LTE B4	20	3100	2605	LTE B4	20	55990	3625	20.03	19.98
CA_5H-5A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	900	1960	LTE B4	20	55990	3625	LTE B4	20	66786	2145	LTE B4	20	66786	2145	20.03	19.98
CA_5I-5A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	900	1960	LTE B4	20	2850	1940	LTE B4	20	3100	2605	LTE B4	20	55990	3625	20.03	19.98
CA_5J-5A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	900	1960	LTE B4	20	55990	3625	LTE B4	20	66786	2145	LTE B4	20	66786	2145	20.03	19.98
CA_5K-5A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	900	1960	LTE B4	20	2850	1940	LTE B4	20	3100	2605	LTE B4	20	55990	3625	20.03	19.98
CA_5L-5A	LTE B5	10	20265	836.5	QPSK	25	12	2525	881.5	LTE B2	20	900	1960	L													



G.2.6 LTE Band 26 as PCC

Table G-8
Maximum Output Powers

Combination	PCC								SCC 1				SCC 2				Power		
	PCC Band	PCC BW [MHz]	PCC (UL) Ch.	PCC (UL) Freq. [MHz]	Mod.	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_7A-26A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	LTE B7	20	3100	2655	-	-	-	-	19.54	19.37
CA_25A-26A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	LTE B25	20	8365	1962.5	-	-	-	-	19.55	19.37
CA_26A-41A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	LTE B41	20	40620	2593	-	-	-	-	19.43	19.37
CA_7A-25A-26A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	LTE B7	20	3100	2655	LTE B7	20	2850	2630	19.46	19.37
CA_25A-26A-26A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	LTE B25	20	8365	1962.5	LTE B25	20	8590	1985	19.48	19.37
CA_26A-41C	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	LTE B41	20	40620	2593	LTE B41	20	40422	2573.2	19.60	19.37

G.2.7 LTE Band 66 as PCC

Table G-9
Maximum Output Powers

G.2.8 LTE Band 25 as PCC

Table G-10
Maximum Output Powers

		Maximum Output Powers																										
		PCC						SCC 1						SCC 2			SCC 3			SCC 4			Power					
Combination	PCC Band	PCC BW [MHz]	PCC [UL] Ch. Freq. [MHz]	PCC [UL] Ch. Freq. [MHz]	Mod.	PCC UL Offset	PCC UL RB Offset	PCC [DL] Channel	PCC [DL] Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC [DL] Channel	SCC [DL] Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC [DL] Channel	SCC [DL] Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC [DL] Channel	SCC [DL] Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC [DL] Channel	SCC [DL] Freq. [MHz]	LTE Tx Power with DL Enabled [dBm]	LTE Single Carrier Tx Power [dBm]	
	CA_5A-25A	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	LTE B5	10	2526	881.5	-	-	-	-	-	-	-	-	-	-	-	14.95	14.95	
CA_12A-25A	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	LTE B12	10	8095	737.5	-	-	-	-	-	-	-	-	-	-	-	-	15.02	14.95	
CA_25A-25A	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	LTE B25	15	8865	876.5	-	-	-	-	-	-	-	-	-	-	-	-	15.00	14.95	
CA_25A-25A-25A	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	LTE B25	20	8140	1940	LTE_B26	5	8865	876.5	-	-	-	-	-	-	-	-	14.20	14.00	
CA_25A-25A-41A	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	LTE B25	20	8140	1940	LTE_B41	20	40620	2593	-	-	-	-	-	-	-	-	15.13	14.95	
CA_25A-41C	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	LTE B41	20	40620	2593	LTE_B41	20	40422	2573.2	-	-	-	-	-	-	-	-	15.05	14.95	
CA_7A-25A-25A	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	LTE B7	20	3100	2655	LTE_B7	20	2850	2830	LTE_B66	20	67236	2190	-	-	-	-	-	14.63	14.95
CA_25A-25A-41C	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	LTE B25	20	8090	1985	LTE_B41	20	40620	2593	LTE_B41	20	40422	2573.2	-	-	-	-	-	15.16	14.95
CA_25A-25A-41D	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	LTE B25	20	8590	1985	LTE_B41	20	40422	2573.2	LTE_B41	20	40620	2593	LTE_B41	20	40818	2612.8	15.12	14.95	

FCC ID: BCGA2899

CAP EVALUATION REPORT

Approved by:

DUT Type:

APPENDIX G:
Page 5 of 13

G.2.9 LTE Band 30 as PCC

Table G-11
Maximum Output Powers

Combination	PCC Band	PCC						SCC 1			SCC 2			SCC 3			SCC 4			Power							
		PCC BW [MHz]	PCC (UL) Ch	PCC (UL) Freq. [MHz]	Mod.	PCC ULR RB	PCC ULR Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE single Carrier Tx Power (dBm)				
CA_2C-30A	LTE B30	10	27710	2310	QPSK	25	12	980	2355	LTE B2	20	900	1960	LTE B2	20	702	1940.2	-	-	-	-	-	14.34	14.36			
CA_5B-30A	LTE B30	10	27710	2310	QPSK	25	12	980	2355	LTE B5	10	2025	881.5	LTE B5	5	2453	874.3	-	-	-	-	-	14.30	14.36			
CA_2B-30A-66A-66A	LTE B30	10	27710	2310	QPSK	25	12	980	2355	LTE B29	10	9715	722.5	LTE B29	20	66786	2145	LTE B66	20	67236	2190	-	-	-	14.34	14.36	
CA_30A-66A-66A-66A	LTE B30	10	27710	2310	QPSK	25	12	980	2355	LTE B66	20	66786	2145	LTE B66	20	67236	2190	-	-	-	-	-	14.34	14.36			
CA_2B-2C-30A	LTE B30	10	27710	2310	QPSK	25	12	980	2355	LTE B2	20	900	1960	LTE B2	20	702	1940.2	-	-	-	-	-	14.34	14.36			
CA_2B-2C-30A-66A	LTE B30	10	27710	2310	QPSK	25	12	980	2355	LTE B2	20	900	1960	LTE B2	20	702	1940	LTE B12	20	66786	2145	-	-	-	14.34	14.36	
CA_2A-2A-30A-66A	LTE B30	10	27710	2310	QPSK	25	12	980	2355	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B14	10	5330	763	LTE B66	20	66786	2145	14.40	14.36
CA_2A-2B-29A-30A-66A	LTE B30	10	27710	2310	QPSK	25	12	980	2355	LTE B2	20	900	1960	LTE B2	10	9715	722.5	LTE B2	20	700	1940	LTE B66	20	66786	2145	14.35	14.36
CA_2A-5A-30A-66A-66A	LTE B30	10	27710	2310	QPSK	25	12	980	2355	LTE B2	20	900	1960	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	-	-	-	14.34	14.36	
CA_2A-12A-30A-66A-66A	LTE B30	10	27710	2310	QPSK	25	12	980	2355	LTE B2	20	900	1960	LTE B5	10	5095	737.5	LTE B66	20	66786	2145	-	-	-	14.41	14.36	
CA_2B-14A-30A-66A-66A	LTE B30	10	27710	2310	QPSK	25	12	980	2355	LTE B2	20	900	1960	LTE B14	10	5330	763	LTE B66	20	66786	2145	-	-	-	14.40	14.36	

G.2.10 LTE Band 7 as PCC

Table G-12
Maximum Output Powers

Combination	PCC Band	PCC						SCC 1			SCC 2			SCC 3			SCC 4			Power					
		PCC BW [MHz]	PCC (UL) Ch	PCC (UL) Freq. [MHz]	Mod.	PCC ULR RB	PCC ULR Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE single Carrier Tx Power (dBm)		
CA_5A-7A	LTE B7	5	21100	2535	16QAM	1	25	3100	2655	LTE B5	10	2525	881.5	-	-	-	-	-	-	-	-	-	11.35	11.79	
CA_7A-2B6	LTE B7	5	21425	2567.5	16QAM	1	12	3425	2687.5	LTE B2	15	8865	876.5	-	-	-	-	-	-	-	-	-	12.04	11.79	
CA_7A-2B8	LTE B7	5	21425	2567.5	16QAM	1	12	3425	2687.5	LTE B9	10	9715	722.5	-	-	-	-	-	-	-	-	-	11.99	11.79	
CA_7B	LTE B7	5	21100	2535	16QAM	1	50	3370	2680	LTE B7	20	3102	2602	-	-	-	-	-	-	-	-	-	11.88	11.76	
CA_4A-4A-7A(1)	LTE B7	5	21425	2567.5	16QAM	1	12	3425	2687.5	LTE B4	20	2175	2132.5	LTE B4	10	2350	2150	-	-	-	-	-	11.41	11.79	
CA_7A-2B-2A6	LTE B7	10	21100	2535	16QAM	1	25	3100	2655	LTE B7	20	2850	2630	LTE B2	15	8865	876.5	-	-	-	-	-	11.59	11.78	
CA_2A-4A-7A-12A	LTE B7	5	21425	2567.5	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21425	2567.5	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5	-	-	11.21	11.79
CA_2A-2B-7A-12A	LTE B7	5	21100	2535	16QAM	1	12	3425	2687.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5075	737.5</				

G.3 DL CA with DL 4x4 MIMO RF Conduction Powers

This device supports downlink 4x4 MIMO operations for some LTE bands. Uplink transmission is limited to a single output stream. When carrier aggregation was applicable, the general test selection and setup procedures described in Section G.1 were applied.

Per May 2017 TCB Workshop Notes, SAR for 4x4 DL MIMO was not needed since the maximum average output power in 4x4 DL MIMO mode was not more than 0.25 dB higher than the maximum output power with 4x4 DL MIMO inactive. Additionally, SAR for 4x4 MIMO Downlink Carrier Aggregation was not needed since the maximum average output power in 4x4 MIMO Downlink Carrier Aggregation mode was not more than 0.25 dB higher than the maximum output power with 4x4 MIMO Downlink and downlink carrier aggregation inactive.

G.3.1 LTE 4x4 MIMO DL Standalone Powers

Table G-15
Maximum Output Powers - Antenna 1b

LTE Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Modulation	RB Size	RB Offset	4x4 DL MIMO Tx. Power [dBm]	Single Antenna Tx. Power [dBm]	Target Power [dBm]
7	5	21425	2567.5	16QAM	1	12	12.00	11.79	11.4

Table G-16
Maximum Output Powers - Antenna 2

LTE Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Modulation	RB Size	RB Offset	4x4 DL MIMO Tx. Power [dBm]	Single Antenna Tx. Power [dBm]	Target Power [dBm]
25	5	26365	1882.5	256QAM	1	12	15.05	14.91	14.5

Table G-17
Maximum Output Powers - Antenna 3b

LTE Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Modulation	RB Size	RB Offset	4x4 DL MIMO Tx. Power [dBm]	Single Antenna Tx. Power [dBm]	Target Power [dBm]
41	20	40620	2593	QPSK	50	25	14.20	14.17	14.0

Table G-18
Maximum Output Powers - Antenna 4

LTE Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Modulation	RB Size	RB Offset	4x4 DL MIMO Tx. Power [dBm]	Single Antenna Tx. Power [dBm]	Target Power [dBm]
66	10	132022	1715	16QAM	1	49	14.96	14.78	14.6
30	10	27710	2310	QPSK	25	12	14.39	14.36	14.5
48	5	56715	3697.5	64QAM	1	12	12.60	12.56	11.9

FCC ID: BCGA2899	SAR EVALUATION REPORT	Approved by: Technical Manager
DUT Type: Tablet Device		APPENDIX G: Page 7 of 13



G.3.2 LTE Band 71 as PCC

Table G-19
Maximum Output Powers

Combination	PCC						SCC 1						SCC 2						SCC 3						SCC 4						Power			
	PCC Band	PCC BW [MHz]	PCC [UL] Ch	PCC [UL] Freq [MHz]	Mod.	PCC UL RB	PCC UL RB Offset	PCC [DL] Ch	PCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [UL] Ch	SCC [UL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [UL] Ch	SCC [UL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [UL] Ch	SCC [UL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [UL] Ch	SCC [UL] Freq. [MHz]	DL Ant. Config.	LTE Tx Power with DL Config.	LTE Single Carrier Tx Power [dBm]		
CA_4G(8A)-71A	LTE B71	10	133172	668	64QAM	1	0	68636	622	2x2	LTE B48	20	56640	3630	4x4	-	-	-	-	-	-	-	-	-	-	-	-	-	19.98	20.27				
CA_4A-71A	LTE B71	10	133172	668	64QAM	1	0	68636	622	2x2	LTE B2	20	900	1960	4x4	LTE B4	20	2175	2132.5	4x4	-	-	-	-	-	-	-	-	19.47	20.27				
CA_4A-71A	LTE B71	10	133172	668	64QAM	1	0	68636	622	2x2	LTE B4	20	2175	2132.5	4x4	LTE B4	10	2550	2150	4x4	-	-	-	-	-	-	-	-	19.50	20.27				
CA_[2A](66A)-(66A)-71A	LTE B71	10	133172	668	64QAM	1	0	68636	622	2x2	LTE B2	20	900	1960	4x4	LTE B66	20	66786	2145	4x4	LTE B66	20	67236	2190	4x4	-	-	-	-	-	-	-	19.42	20.27
CA_[2A](66B)-(66B)-71A	LTE B71	10	133172	668	64QAM	1	0	68636	622	2x2	LTE B2	20	900	1960	4x4	LTE B66	20	66786	2145	4x4	LTE B66	20	66984	2168	4x4	-	-	-	-	-	-	-	19.36	20.27
CA_[2A](7A)-(66A)-71A	LTE B71	10	133172	668	64QAM	1	0	68636	622	2x2	LTE B16	20	67876	2145	4x4	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	4x4	LTE B7	20	3100	2655	4x4	-	20.19	20.27	

G.3.3 LTE Band 12 as PCC

Table G-20
Maximum Output Powers

G.3.4 LTE Band 13 as PCC

Table G-21
Maximum Output Powers

Maximum Output Power																																
Combination	PCC				SCC 1				SCC 2				SCC 3				SCC 4				Power											
	PCC Band	PCC BW [MHz]	PCC [U] Ch	PCC [U] Freq [MHz]	PCC UL/RB	PCC UL/RB Offset	PCC [DU] Ch	PCC [DU] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DU] Ch	SCC [DU] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DU] Ch	SCC [DU] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DU] Ch	SCC [DU] Freq [MHz]	DL Ant. Config.	LTE Tx Power with DL Co-Channel	LTE Single Carrier Tx Power [dBm]						
CA_12A-[44]-13A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B2	20	900	1960	4x4	LTE B4	20	2575	2132.5	4x4	-	-	-	-	20.46	20.53						
CA_12A-[34]-13A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B2	20	900	1960	4x4	LTE B4	20	55990	3625	2x2	-	-	-	-	20.46	20.53						
CA_14A-[44]-13A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B4	20	2175	2123.5	4x4	LTE B4	10	2550	2150	4x4	-	-	-	-	20.47	20.53						
CA_13A-[46A]-16A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B4	20	55990	3625	4x4	LTE B6	20	66786	2140	4x4	-	-	-	-	20.54	20.53						
CA_12A-[7]-13A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B2	20	900	1960	4x4	LTE B7	20	3100	2655	4x4	LTE B7	20	2502	2652.5	4x4	-	-	-	-	20.51	20.53	
CA_12A-[12]-13A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B2	20	900	1960	4x4	LTE B7	20	66786	2140	4x4	LTE B7	20	66786	2140	4x4	-	-	-	-	20.51	20.53	
CA_12A-[13]-13A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B2	20	900	1960	4x4	LTE B6	15	66786	2145	4x4	LTE B6	5	166787	2154.5	4x4	-	-	-	-	20.55	20.53	
CA_12A-[14]-13A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B2	20	900	1960	4x4	LTE B6	20	66786	2145	4x4	LTE B6	20	166784	2168.5	4x4	-	-	-	-	20.59	20.53	
CA_13A-[4C]-16A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B4	20	55990	3625	4x4	LTE B6	20	56188	3644.8	4x4	LTE B6	20	66786	2145	4x4	-	-	-	-	20.49	20.53	
CA_13A-[6A]-16A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B4	20	55990	3625	4x4	LTE B6	5	67188	2183.5	4x4	LTE B6	15	67250	2192.5	4x4	-	-	-	-	20.54	20.53	
CA_13A-[6A]-16A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B6	20	66786	2145	4x4	LTE B6	20	67250	2190	4x4	-	-	-	-	20.54	20.53						
CA_12A-[2A]-13A-[6A]-16A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	4x4	LTE B6	20	66786	2145	4x4	LTE B6	20	67236	2190	4x4	20.44	20.53
CA_12A-[7A]-13A-[6A]-16A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B2	20	900	1960	4x4	LTE B7	20	2850	3630	4x4	LTE B7	20	3100	2655	4x4	LTE B6	20	66536	2120	4x4	20.52	20.53
CA_13A-[4BD]-16A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B4	20	55990	3625	4x4	LTE B4	20	16188	3644.8	4x4	LTE B4	20	56786	3646.4	4x4	LTE B6	20	66786	2145	4x4	20.48	20.53
CA_13A-[4E]-16A	LTE B13	10	2320	782	OPSK	1	0	5230	751	2x2	LTE B4	20	55990	3625	4x4	LTE B4	20	56188	3644.8	4x4	LTE B4	20	56588	3644.4	4x4	LTE B4	20	56588	3644	4x4	20.59	20.53

G.3.5 LTE Band 14 as PCC

Table G-22
Maximum Output Powers

Maximum Output Power																																
Combination	PCC												SCC																			
	PCC Band	PCC BW [MHz]	PCC [U] Ch	PCC [U] Freq [MHz]	Mod.	PCC ULA RB	PCC ULA Offset	PCC [D] Ch	PCC [D] Freq [MHz]	Dl. Ant. Config.	SCC Band	SCC BW [MHz]	SCC [D] Ch	SCC [D] Freq [MHz]	Dl. Ant. Config.	SCC Band	SCC BW [MHz]	SCC [D] Ch	SCC [D] Freq [MHz]	Dl. Ant. Config.	SCC Band	SCC BW [MHz]	SCC [D] Ch	SCC [D] Freq [MHz]	Dl. Ant. Config.	LTE Tx.Power with DL CA Enabled	LTE single Carrier Tx Power (dBm)					
CA_2[2][2][14A-14A][66A]	LTE B14	5	23300	793	64QAM	1	12	5330	763	2x2	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	4x4	LTE B30	10	9820	2355	4x4	LTE B66	20	66786	2145	4x4	20.42	20.94
CA_2[2][2][14A-14A][66A]	LTE B14	5	23300	793	64QAM	1	12	5330	763	2x2	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	4x4	LTE B66	20	66786	2145	4x4	LTE B66	20	67236	2190	4x4	20.45	20.94
CA_2[2][2][14A-14A][66A]	LTE B14	5	23300	793	64QAM	1	12	5330	763	2x2	LTE B2	20	900	1960	4x4	LTE B30	10	9820	2355	4x4	LTE B66	20	66786	2145	4x4	LTE B66	20	67236	2190	4x4	20.43	20.94

FCC ID: BCGA2899	SAR EVALUATION REPORT	Approved by: Technical Manager
DUT Type: Tablet Device		APPENDIX G: Page 8 of 13



G.3.6 LTE Band 5 as PCC

Table G-23
Maximum Output Powers

G.3.7 LTE Band 26 as PCC

Table G-24
Maximum Output Powers

Combination	PCC										Maximum Output Power										Power	
	PCC Band	PCC BW [MHz]	PCC (UL) Ch.	PCC (UU) Freq. [MHz]	Mod.	PCC UL# RB	PCC UL RB Offset	PCC (DL) Ch.	PCC (DL) Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC (DL) Ch.	SCC (DL) Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC (DL) Ch.	SCC (DL) Freq. [MHz]	DL Ant. Config.	LTE Tx. Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_7[TA]-26A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	2x2	LTE B7	20	3100	2655	4x4	-	-	-	-	-	18.48	19.37
CA_25A]-26A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	2x2	LTE B25	20	3835	1962.5	4x4	-	-	-	-	-	18.49	19.37
CA_26A-[41A]	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	2x2	LTE B41	20	40620	2593	4x4	-	-	-	-	-	19.41	19.37
CA_7[TA]-26A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	2x2	LTE B7	20	3100	2655	4x4	LTE B7	20	2850	2630	4x4	18.62	19.37
CA_25A]-26A-26A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	2x2	LTE B25	20	3835	1962.5	4x4	LTE B25	20	8590	1985	4x4	18.81	19.37
CA_26A-[41C]	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	2x2	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4	19.38	19.37

FCC ID: BCGA2899	SAR EVALUATION REPORT	Approved by: Technical Manager
DUT Type: Tablet Device		APPENDIX G: Page 9 of 13



G.3.8 LTE Band 66 as PCC

Table G-25
Maximum Output Powers

G.3.9 LTE Band 25 as PCC

Table G-26
Maximum Output Powers

Combination	PCC										Maximum Output Power																					
	PCC Band	PCC BW [MHz]	PCC [UL] Ch	PCC [DL] Freq [MHz]	Mod.	PCC UL RB	PCC UL RB Offset	PCC [UL] Ch	PCC [DL] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch	SCC [UL] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch	SCC [UL] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch	SCC [UL] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch	SCC [UL] Freq [MHz]	DL Ant. Config.	LTE Rx Power with DL CA Enabled (dBm)	LTE Single Carrier Power (dBm)
CA_5A-[25A]	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	4x4	LTE B15	10	2525	881.5	-2x2	-	-	-	-	-	-	-	-	-	-	-	-	14.29	14.93			
CA_12A-[25A]	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	4x4	LTE B12	10	5095	737.5	2x2	-	-	-	-	-	-	-	-	-	-	-	-	14.24	14.91			
CA_21A-[26A]	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	4x4	LTE B26	15	8865	676.5	2x2	-	-	-	-	-	-	-	-	-	-	-	-	14.21	14.91			
CA-[25A]-[26A]	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	4x4	LTE B25	20	8140	1940	4x4	LTE B26	5	8860	876.5	2x2	-	-	-	-	-	-	-	-	14.42	14.91		
CA_5A-[25A]-[26A]	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	4x4	LTE B25	20	4020	2593.5	4x4	LTE B26	20	4020	2593.5	4x4	-	-	-	-	-	-	-	-	14.23	14.91		
CA_5A-[25A]-[26A]	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	4x4	LTE B25	20	4020	2593.5	4x4	LTE B26	20	4020	2593.5	4x4	-	-	-	-	-	-	-	-	14.02	14.91		
CA_5A-[25A]-[26A]	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	4x4	LTE B25	20	2850	2630	4x4	LTE B26	20	67236	2150	4x4	-	-	-	-	-	-	-	-	14.23	14.91		
CA_5A-[25A]-[26A]	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	4x4	LTE B25	20	8860	1985	4x4	LTE B26	20	4020	2593	4x4	LTE B24	20	40242	2573.2	4x4	-	-	-	-	-	14.06	14.91
CA-[25A]-[25A]-[41D]	LTE B25	5	26365	1882.5	256QAM	1	12	8365	1962.5	4x4	LTE B25	20	8890	1985	4x4	LTE B24	20	40242	2573.2	4x4	LTE B24	20	40260	2593	4x4	LTE B24	20	40819	2612.8	4x4	14.44	14.93



G.3.10 LTE Band 30 as PCC

Table G-27
Maximum Output Powers

Combination	PCC						SCC 1						SCC 2						SCC 3						SCC 4						Power										
	PCC Band	PCC BW [MHz]	PCC Uplink Ch	PCC Freq. Offset [MHz]	Mod.	PCC ULL	PCC UL R	PCC DL R	PCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC DL Ch	SCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC DL Ch	SCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC DL Ch	SCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC DL Ch	SCC [DL] Freq. [MHz]	DL Ant. Config.	LTE Tx Power with DL CA Enabled	LTE Single Carrier Tx Power [dBm]									
CA_2G-[3G-104A]-[66A]	LTE B30	10	27710	2310	QPSK	25	12	9820	2355	4x4	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	4x4	LTE B2	20	700	1940	4x4	LTE B2	20	700	1940	4x4	-	-	-	-	-	14.36	14.36				
CA_5B-[3G-104A]-[66A]	LTE B30	10	27710	2310	QPSK	25	12	9820	2355	4x4	LTE B5	10	7520	8815	2x2	LTE B5	10	5453	8743	2x2	-	-	-	-	-	-	-	-	-	-	-	-	14.36	14.36							
CA_29A-[3G-104A]-[66A]	LTE B30	10	27710	2310	QPSK	25	12	9820	2355	4x4	LTE B29	10	9715	722.5	2x2	LTE B29	10	60786	2145	4x4	LTE B95	20	67236	2190	4x4	-	-	-	-	-	-	-	-	-	-	14.39	14.36				
CA_[3G-104A]-[66A]-[66A]	LTE B30	10	27710	2310	QPSK	25	12	9820	2355	4x4	LTE B66	20	66786	2160	4x4	LTE B66	20	66786	2145	4x4	LTE B66	20	67236	2190	4x4	-	-	-	-	-	-	-	-	-	-	14.37	14.36				
CA_[2A]-[2A]-[3G-104A]-[66A]	LTE B30	10	27710	2310	QPSK	25	12	9820	2355	4x4	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	4x4	LTE B5	10	2525	8815	2x2	LTE B66	20	66786	2145	4x4	-	-	-	-	-	-	-	-	-	14.38	14.36
CA_[2A]-[2A]-[3G-104A]-[66A]	LTE B30	10	27710	2310	QPSK	25	12	9820	2355	4x4	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	4x4	LTE B12	10	5098	737.5	2x2	LTE B66	20	66786	2145	4x4	-	-	-	-	-	-	-	-	-	14.37	14.36
CA_[2A]-[2A]-[144]-[30A]-[66A]	LTE B30	10	27710	2310	QPSK	25	12	9820	2355	4x4	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	4x4	LTE B14	10	5330	763	2x2	LTE B66	20	66786	2145	4x4	-	-	-	-	-	-	-	-	-	14.36	14.36
CA_[2A]-[2A]-[29A]-[30A]-[66A]	LTE B30	10	27710	2310	QPSK	25	12	9820	2355	4x4	LTE B2	20	900	1960	4x4	LTE B29	10	9715	722.5	2x2	LTE B2	20	700	1940	4x4	LTE B66	20	66786	2145	4x4	-	-	-	-	-	-	-	-	-	14.37	14.36
CA_[2A]-[3G-104A]-[66A]-[66A]	LTE B30	10	27710	2310	QPSK	25	12	9820	2355	4x4	LTE B2	20	900	1960	4x4	LTE B5	10	2525	881.5	2x2	LTE B66	20	66786	2145	4x4	LTE B66	20	67236	2190	4x4	-	-	-	-	-	-	-	-	-	14.40	14.36
CA_[2A]-[2A]-[3G-104A]-[66A]-[66A]	LTE B30	10	27710	2310	QPSK	25	12	9820	2355	4x4	LTE B2	20	900	1960	4x4	LTE B12	10	5095	737.5	2x2	LTE B66	20	66786	2145	4x4	LTE B66	20	67236	2190	4x4	-	-	-	-	-	-	-	-	-	14.39	14.36
CA_[2A]-[2A]-[3G-104A]-[66A]-[66A]	LTE B30	10	27710	2310	QPSK	25	12	9820	2355	4x4	LTE B2	20	900	1960	4x4	LTE B14	10	5330	763	2x2	LTE B66	20	66786	2145	4x4	LTE B66	20	67236	2190	4x4	-	-	-	-	-	-	-	-	-	14.38	14.36

G.3.1 LTE Band 7 as PCC

Table G-28
Maximum Output Powers

G.3.2 LTE Band 41 as PCC

Table G-29
Maximum Output Powers

Combination	PCC										SCC 1										SCC 2										SCC 3										Power				
	PCC Band	PCC BW [MHz]	PCC [DU] Ch.	PCC [UL] Freq [MHz]	Mod.	PCC UL RB	PCC UL RB Offset	PCC [DL] Ch.	PCC [DL] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch.	SCC [UL] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch.	SCC [UL] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch.	SCC [UL] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch.	SCC [UL] Freq [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch.	SCC [UL] Freq [MHz]	DL Ant. Config.	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)								
CA_4[1A](4 1A)(1)	LTE B41	20	40620	2593	GPSK	50	25	40620	2593	4x4	LTE B41	20	41490	2680	4x4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.25	14.17					
CA_4[1A](4 1C)	LTE B41	20	40620	2593	GPSK	50	25	40620	2593	4x4	LTE B41	20	41292	2660	4x4	LTE B41	20	41490	2680	4x4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.19	14.17			
CA_4[1C](4 1A)	LTE B41	20	40620	2593	GPSK	50	25	40620	2593	4x4	LTE B41	20	40818	2618.8	4x4	LTE B41	20	41490	2680	4x4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.20	14.17				
CA_4[1A](4 1D)	LTE B41	20	40620	2593	GPSK	50	25	40620	2593	4x4	LTE B41	20	41094	2640.4	4x4	LTE B41	20	41292	2660.2	4x4	LTE B41	20	41490	2680	4x4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.15	14.17		
CA_4[1D](4 1A)	LTE B41	20	40620	2593	GPSK	50	25	40620	2593	4x4	LTE B41	20	41094	2640.4	4x4	LTE B41	20	41292	2660.2	4x4	LTE B41	20	41490	2680	4x4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.15	14.17		
CA_4[1C](4 1C)	LTE B41	20	40620	2593	GPSK	50	25	40620	2593	4x4	LTE B41	20	40422	2575.2	4x4	LTE B41	20	41094	2640.2	4x4	LTE B41	20	41490	2680	4x4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.16	14.17		
CA_4[1C](4 1E)	LTE B41	20	40620	2593	GPSK	50	25	40620	2593	4x4	LTE B41	20	40422	2575.2	4x4	LTE B41	20	40818	2618.8	4x4	LTE B41	20	41094	2640.4	4x4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.18	14.17			
CA_4[1E](4 1C)	LTE B41	20	40620	2593	GPSK	50	25	40620	2593	4x4	LTE B41	20	40422	2575.2	4x4	LTE B41	20	41094	2640.4	4x4	LTE B41	20	41292	2660.2	4x4	LTE B41	20	41490	2680	4x4	-	-	-	-	-	-	-	-	-	-	-	-	-	14.16	14.17
CA_4[1D](4 1D)	LTE B41	20	40620	2593	GPSK	50	25	40620	2593	4x4	LTE B41	20	41094	2640.4	4x4	LTE B41	20	41292	2660.2	4x4	LTE B41	20	41490	2680	4x4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.22	14.17			
CA_4[1D](4 1C)	LTE B41	20	40620	2593	GPSK	50	25	40620	2593	4x4	LTE B41	20	41094	2640.4	4x4	LTE B41	20	41292	2660.2	4x4	LTE B41	20	41490	2680	4x4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.20	14.17			

G.3.3 LTE Band 48 as PCC

Table G-30
Maximum Output Powers

Combination	PCC								SCC 1				SCC 2				SCC 3				Power						
	PCC Band	PCC BW [MHz]	PCC [UL] Ch.	PCC [UL] Freq. [MHz]	Mod.	PCC ULP RB	PCC UL RB Offset	PCC Ch.	PCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch.	SCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch.	SCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Ch.	SCC [DL] Freq. [MHz]	DL Ant. Config.	LTE Tx.Power with DL CA Enabled	LTE Single Carrier Tx Power [dBm]
CA_ [48A][48B]	LTE B48	5	56715	3697.5	64QAM	1	12	56715	3697.5	4x4	LTE B48	20	55340	3560	4x4	-	-	-	-	-	-	-	-	-	12.67	12.56	
CA_ [48B]	LTE B48	5	56715	3697.5	64QAM	1	12	56715	3697.5	4x4	LTE B48	15	56622	3688.2	4x4	-	-	-	-	-	-	-	-	-	12.59	12.56	
CA_ [48A][48C]	LTE B48	5	56715	3697.5	64QAM	1	12	56715	3697.5	4x4	LTE B48	20	55340	3560	4x4	LTE B48	20	55538	3579.8	4x4	-	-	-	-	-	12.62	12.56
CA_ [48C][48A]	LTE B48	5	56715	3697.5	64QAM	1	12	56715	3697.5	4x4	LTE B48	20	56598	3685.8	4x4	LTE B48	20	55340	3560	4x4	-	-	-	-	-	12.67	12.56
CA_ [48D]	LTE B48	5	56715	3697.5	64QAM	1	12	56715	3697.5	4x4	LTE B48	20	56598	3685.8	4x4	LTE B48	20	56400	3666	4x4	-	-	-	-	-	12.65	12.56
CA_ [48E]	LTE B48	5	56715	3697.5	64QAM	1	12	56715	3697.5	4x4	LTE B48	20	56598	3685.8	4x4	LTE B48	20	56400	3666	4x4	LTE B48	20	56202	3646.2	4x4	12.73	12.56

FCC ID: BCGA2899	SAR EVALUATION REPORT	Approved by: Technical Manager
DUT Type: Tablet Device		APPENDIX G: Page 11 of 13



G.4 Additional Downlink Carrier Aggregation with Uplink Carrier Aggregation Enabled

This device supports uplink carrier aggregation (ULCA) with additional Carrier Aggregation configurations active in the downlink. Power measurements were performed with ULCA active and additional CA configurations active in the downlink for the configuration per Fall 2017 TCB Workshop Notes.

Per FCC Guidance, additional SAR measurements for these configurations were not required since their maximum output power was not more than 0.25 dB higher than the maximum output power for with only CA 7C, CA 41C, or CA 48C ULCA active.

G.4.1 Additional DL Carrier Aggregation RF Conducted Powers with Uplink Carrier Aggregation Enabled

Table G-31
Maximum Output Powers LTE Band 41

Combination	PCC												Maximum Output Powers E2E Band-4												Power				
	PCC-Band	PCC BW [MHz]		PCC UL Ch		PCC UL Freq. [MHz]		PCC UL RSR		PCC Channel		PCC DL Freq. [MHz]		SCC1		SCC2		SCC3		SCC4		ULCA							
		Mod.	RSR	Offset	UL	DL	UL	DL	UL	DL	UL	DL	UL	Mod.	SCC UL RSR	SCC Channel	SCC DL Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC DL Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC DL Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC DL Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC DL Freq. [MHz]
GA_41C-A1A	LTE_B41	20	30/75	25/50	25/50	50	50	30/75	25/50	LTE_B41	20	30/40	25/25	LTE_B41	50	0	20/40	LTE_B41	20	40/20	LTE_B41	20	40/20	LTE_B41	20	40/20	15.33	18.23	
GA_41D-A1A	LTE_B41	20	30/75	25/50	25/50	50	50	30/75	25/50	LTE_B41	20	30/40	25/25	LTE_B41	50	0	30/40	LTE_B41	20	40/40	25/25	LTE_B41	20	40/40	25/25	15.33	18.23		
GA_41C-A1C	LTE_B41	20	30/75	25/50	25/50	50	50	30/75	25/50	LTE_B41	20	30/40	25/25	LTE_B41	50	0	30/40	LTE_B41	20	40/40	25/25	LTE_B41	20	40/40	25/25	15.33	18.23		
GA_41C-A1D	LTE_B41	20	30/75	25/50	25/50	50	50	30/75	25/50	LTE_B41	20	30/40	25/25	LTE_B41	50	0	30/40	LTE_B41	20	40/40	25/25	LTE_B41	20	40/40	25/25	15.33	18.23		
GA_41D-A1C	LTE_B41	20	30/75	25/50	25/50	50	50	30/75	25/50	LTE_B41	20	30/40	25/25	LTE_B41	50	0	30/40	LTE_B41	20	40/40	25/25	LTE_B41	20	40/40	25/25	15.33	18.23		
GA_41D-A1C	LTE_B41	20	30/75	25/50	25/50	50	50	30/75	25/50	LTE_B41	20	30/40	25/25	LTE_B41	50	0	30/40	LTE_B41	20	40/40	25/25	LTE_B41	20	40/40	25/25	15.33	18.23		

Table G-32
Maximum Output Powers LTE Band 48

Maximum Output Powers ETE Band 40																												
Combination	PCC								SCC 1								SCC 2				SCC 3			Power				
	PCC Band	PCC BW [MHz]	PCC UL Ch.	PCC UL Freq. [MHz]	Mod.	PCC UL#RB	PCC UL#Offset	PCC DL Ch.	PCC Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC UL Ch.	SCC UL Freq. [MHz]	Mod	SCC UL#RB	SCC UL#Offset	SCC (DL) Ch	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Ch	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Ch	SCC (DL) Freq. [MHz]		
CA_48D	LTE B48	20	56207	36464.7	QPSK	50	50	56207	36464.7	LTE B48	20	56405	36665.6	QPSK	50	0	56405	36665.6	LTE B48	20	56009	3626.9	-	-	-	-	12.05	11.97
CA_48E	LTE B48	20	56207	36464.7	QPSK	50	50	56207	36464.7	LTE B48	20	56405	36665.6	QPSK	50	0	56405	36665.6	LTE B48	20	56009	3626.9	LTE B48	20	55811	3607.1	12.18	11.97

G.4.2 Additional 4x4 MIMO DL Carrier Aggregation RF Conducted Powers with Uplink Carrier Aggregation Enabled

Note: 4x4 DL MIMO is only operating in the downlink. Uplink transmission is limited to a single output stream for each component carrier of ULCA.

Table G-33
Maximum Output Powers | TF Band 7

	Maximum Output Powers LTE Band 7																Power					
Combination	PCC								SCC 1								Power					
	PCC Band	PCC BW [MHz]	PCC [UL] Ch.	PCC (UL) Freq. [MHz]	Mod.	PCC UL# RB	PCC UL RB Offset	PCC (DL) Ch.	PCC (DL) Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [UL] Ch.	SCC (UL) Freq. [MHz]	Mod	SCC UL# RB	SCC UL RB Offset	SCC (DL) Ch.	SCC (DL) Freq. [MHz]	DL Ant. Config.	ULCA Tx Power with DL CA Enabled (dBm)	ULCA Tx Power (dBm)
CA_7[7C]	LTE B7	20	20850	2510	QPSK	1	99	2850	2630	4x4	LTE B7	20	21048	2529.8	QPSK	1	0	3048	2649.8	4x4	15.50	15.55

Table G-34
Maximum Output Powers LTE Band 41

FCC ID: BCGA2899	SAR EVALUATION REPORT	Approved by: Technical Manager
DUT Type: Tablet Device		APPENDIX G: Page 12 of 13



Table G-35
Maximum Output Powers LTE Band 48

Combination	Maximum Output Powers ETE Band 40												Power																			
	PCC						SCC A						SCC B						Power													
	PCC Band	PCC BW [MHz]	PCC UL [W]	PCC UL Ch.	PCC (UL) Freq. [MHz]	PCC UL RB Offset	PCC UL RB	PCC DL [MHz]	PCC (DL) Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC UL Freq. [MHz]	SCC UL RB Offset	SCC (UL) Freq. [MHz]	SCC DL [MHz]	SCC (DL) Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC DL Ch.	SCC (DL) Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC DL Ch.	SCC (DL) Freq. [MHz]	DL Ant. Config.	ULCA Tx Power with DL CA Enabled [dBm]	ULCA Tx Power [dBm]		
CA_14[BC]	LTE B48	20	56207	3646.7	0	PBK	SD	50	56207	3646.7	4x4	LTE B48	20	56405	3666.5	0	56405	3666.5	4x4	-	-	-	-	-	-	-	-	-	12.03	11.97		
CA_14[BC]	LTE B48	20	56207	3646.7	0	PBK	SD	50	56207	3646.7	4x4	LTE B48	20	56405	3666.5	0	56405	3666.5	4x4	LTE B48	20	56403	3686.3	4x4	-	-	-	-	-	11.96	11.97	
CA_14[BC]	LTE B48	20	56207	3646.7	0	PBK	SD	50	56207	3646.7	4x4	LTE B48	20	56405	3666.5	0	56405	3666.5	4x4	LTE B48	20	56403	3686.3	4x4	LTE B48	20	56009	3626.9	4x4	-	12.00	11.97

G.5 Downlink Carrier Aggregation with Inter-band Uplink Carrier Aggregation enabled

This device supports inter-band uplink carrier aggregation (ULCA) with additional Carrier Aggregation configurations active in the downlink. Power measurements were performed with inter-band ULCA active and additional CA configurations active in the downlink for the configuration per Fall 2017 TCB Workshop Notes.

Per FCC Guidance, additional SAR measurements for these configurations were not required since their maximum output power was not more than 0.25 dB higher than the maximum output power for with only ULCA active.

G.5.1 DL Carrier Aggregation RF Conducted Powers

Table G-36
Maximum Output Powers

G.5.2 DL Carrier Aggregation with DL 4x4 MIMO RF Conducted Powers

Note: 4x4 DL MIMO is only operating in the downlink. Uplink transmission is limited to a single output stream for each component carrier of ULCA.

Table G-37
Maximum Output Powers

FCC ID: BCGA2899	SAR EVALUATION REPORT	Approved by: Technical Manager
DUT Type: Tablet Device		APPENDIX G: Page 13 of 13