

APPENDIX F: DOWNLINK LTE CA RF CONDUCTED POWERS

FCC ID: BCGA2764	SAR EVALUATION REPORT	Approved by: Technical Manager
DUT Type: Tablet Device		APPENDIX F: Page 1 of 15

F.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 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 components 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 F-1 – Example of Exclusion Table for SISO Configurations

Index	ACC	Supported Channel Bandwidth (MHz)	Restriction	Completely Covered by Measurement Superset
CCC #1	CA [2C]	5, 10, 15, 20		Yes
CCC #2	CA [2A]	5, 10, 15, 20		Yes
CCC #3	CA [2A]	5, 10, 15, 20		Yes
CCC #4	CA [2A]	5, 10, 15, 20		Yes
CCC #5	CA [2A]	5, 10, 15, 20		Yes
CCC #6	CA [2A]	5, 10, 15, 20		Yes
CCC #7	CA [2A]	5, 10, 15, 20		Yes
CCC #8	CA [2A]	5, 10, 15, 20		Yes
CCC #9	CA [2A]	5, 10, 15, 20		Yes
CCC #10	CA [2A]	5, 10, 15, 20		Yes
CCC #11	CA [2A]	5, 10, 15, 20		Yes
CCC #12	CA [2A]	5, 10, 15, 20		Yes
CCC #13	CA [2A]	5, 10, 15, 20		Yes
CCC #14	CA [2A]	5, 10, 15, 20		Yes
CCC #15	CA [2A]	5, 10, 15, 20		Yes
CCC #16	CA [2A]	5, 10, 15, 20		Yes
CCC #17	CA [2A]	5, 10, 15, 20		Yes
CCC #18	CA [2A]	5, 10, 15, 20		Yes
CCC #19	CA [2A]	5, 10, 15, 20		Yes
CCC #20	CA [2A]	5, 10, 15, 20		Yes
CCC #21	CA [2A]	5, 10, 15, 20		Yes
CCC #22	CA [2A]	5, 10, 15, 20		Yes
CCC #23	CA [2A]	5, 10, 15, 20		Yes
CCC #24	CA [2A]	5, 10, 15, 20		Yes
CCC #25	CA [2A]	5, 10, 15, 20		Yes
CCC #26	CA [2A]	5, 10, 15, 20		Yes
CCC #27	CA [2A]	5, 10, 15, 20		Yes
CCC #28	CA [2A]	5, 10, 15, 20		Yes
CCC #29	CA [2A]	5, 10, 15, 20		Yes
CCC #30	CA [2A]	5, 10, 15, 20		Yes
CCC #31	CA [2A]	5, 10, 15, 20		Yes
CCC #32	CA [2A]	5, 10, 15, 20		Yes
CCC #33	CA [2A]	5, 10, 15, 20		Yes
CCC #34	CA [2A]	5, 10, 15, 20		Yes
CCC #35	CA [2A]	5, 10, 15, 20		Yes
CCC #36	CA [2A]	5, 10, 15, 20		Yes
CCC #37	CA [2A]	5, 10, 15, 20		Yes
CCC #38	CA [2A]	5, 10, 15, 20		Yes
CCC #39	CA [2A]	5, 10, 15, 20		Yes
CCC #40	CA [2A]	5, 10, 15, 20		Yes
CCC #41	CA [2A]	5, 10, 15, 20		Yes
CCC #42	CA [2A]	5, 10, 15, 20		Yes
CCC #43	CA [2A]	5, 10, 15, 20		Yes
CCC #44	CA [2A]	5, 10, 15, 20		Yes
CCC #45	CA [2A]	5, 10, 15, 20		Yes
CCC #46	CA [2A]	5, 10, 15, 20		Yes
CCC #47	CA [2A]	5, 10, 15, 20		Yes
CCC #48	CA [2A]	5, 10, 15, 20		Yes
CCC #49	CA [2A]	5, 10, 15, 20		Yes
CCC #50	CA [2A]	5, 10, 15, 20		Yes
CCC #51	CA [2A]	5, 10, 15, 20		Yes
CCC #52	CA [2A]	5, 10, 15, 20		Yes
CCC #53	CA [2A]	5, 10, 15, 20		Yes
CCC #54	CA [2A]	5, 10, 15, 20		Yes
CCC #55	CA [2A]	5, 10, 15, 20		Yes
CCC #56	CA [2A]	5, 10, 15, 20		Yes
CCC #57	CA [2A]	5, 10, 15, 20		Yes
CCC #58	CA [2A]	5, 10, 15, 20		Yes
CCC #59	CA [2A]	5, 10, 15, 20		Yes
CCC #60	CA [2A]	5, 10, 15, 20		Yes
CCC #61	CA [2A]	5, 10, 15, 20		Yes
CCC #62	CA [2A]	5, 10, 15, 20		Yes
CCC #63	CA [2A]	5, 10, 15, 20		Yes
CCC #64	CA [2A]	5, 10, 15, 20		Yes
CCC #65	CA [2A]	5, 10, 15, 20		Yes
CCC #66	CA [2A]	5, 10, 15, 20		Yes
CCC #67	CA [2A]	5, 10, 15, 20		Yes
CCC #68	CA [2A]	5, 10, 15, 20		Yes
CCC #69	CA [2A]	5, 10, 15, 20		Yes
CCC #70	CA [2A]	5, 10, 15, 20		Yes
CCC #71	CA [2A]	5, 10, 15, 20		Yes
CCC #72	CA [2A]	5, 10, 15, 20		Yes
CCC #73	CA [2A]	5, 10, 15, 20		Yes
CCC #74	CA [2A]	5, 10, 15, 20		Yes
CCC #75	CA [2A]	5, 10, 15, 20		Yes
CCC #76	CA [2A]	5, 10, 15, 20		Yes
CCC #77	CA [2A]	5, 10, 15, 20		Yes
CCC #78	CA [2A]	5, 10, 15, 20		Yes
CCC #79	CA [2A]	5, 10, 15, 20		Yes
CCC #80	CA [2A]	5, 10, 15, 20		Yes
CCC #81	CA [2A]	5, 10, 15, 20		Yes
CCC #82	CA [2A]	5, 10, 15, 20		Yes
CCC #83	CA [2A]	5, 10, 15, 20		Yes
CCC #84	CA [2A]	5, 10, 15, 20		Yes
CCC #85	CA [2A]	5, 10, 15, 20		Yes
CCC #86	CA [2A]	5, 10, 15, 20		Yes
CCC #87	CA [2A]	5, 10, 15, 20		Yes
CCC #88	CA [2A]	5, 10, 15, 20		Yes
CCC #89	CA [2A]	5, 10, 15, 20		Yes
CCC #90	CA [2A]	5, 10, 15, 20		Yes
CCC #91	CA [2A]	5, 10, 15, 20		Yes
CCC #92	CA [2A]	5, 10, 15, 20		Yes
CCC #93	CA [2A]	5, 10, 15, 20		Yes
CCC #94	CA [2A]	5, 10, 15, 20		Yes
CCC #95	CA [2A]	5, 10, 15, 20		Yes
CCC #96	CA [2A]	5, 10, 15, 20		Yes
CCC #97	CA [2A]	5, 10, 15, 20		Yes
CCC #98	CA [2A]	5, 10, 15, 20		Yes
CCC #99	CA [2A]	5, 10, 15, 20		Yes
CCC #100	CA [2A]	5, 10, 15, 20		Yes

Table F-2 – Example of Exclusion Table for 4x4 Downlink MIMO Configurations

Index	ACC	Supported Channel Bandwidth (MHz)	Restriction	Completely Covered by Measurement Superset
CCC #1	CA [2C]	5, 10, 15, 20		Yes
CCC #2	CA [2A]	5, 10, 15, 20		Yes
CCC #3	CA [2A]	5, 10, 15, 20		Yes
CCC #4	CA [2A]	5, 10, 15, 20		Yes
CCC #5	CA [2A]	5, 10, 15, 20		Yes
CCC #6	CA [2A]	5, 10, 15, 20		Yes
CCC #7	CA [2A]	5, 10, 15, 20		Yes
CCC #8	CA [2A]	5, 10, 15, 20		Yes
CCC #9	CA [2A]	5, 10, 15, 20		Yes
CCC #10	CA [2A]	5, 10, 15, 20		Yes
CCC #11	CA [2A]	5, 10, 15, 20		Yes
CCC #12	CA [2A]	5, 10, 15, 20		Yes
CCC #13	CA [2A]	5, 10, 15, 20		Yes
CCC #14	CA [2A]	5, 10, 15, 20		Yes
CCC #15	CA [2A]	5, 10, 15, 20		Yes
CCC #16	CA [2A]	5, 10, 15, 20		Yes
CCC #17	CA [2A]	5, 10, 15, 20		Yes
CCC #18	CA [2A]	5, 10, 15, 20		Yes
CCC #19	CA [2A]	5, 10, 15, 20		Yes
CCC #20	CA [2A]	5, 10, 15, 20		Yes
CCC #21	CA [2A]	5, 10, 15, 20		Yes
CCC #22	CA [2A]	5, 10, 15, 20		Yes
CCC #23	CA [2A]	5, 10, 15, 20		Yes
CCC #24	CA [2A]	5, 10, 15, 20		Yes
CCC #25	CA [2A]	5, 10, 15, 20		Yes
CCC #26	CA [2A]	5, 10, 15, 20		Yes
CCC #27	CA [2A]	5, 10, 15, 20		Yes
CCC #28	CA [2A]	5, 10, 15, 20		Yes
CCC #29	CA [2A]	5, 10, 15, 20		Yes
CCC #30	CA [2A]	5, 10, 15, 20		Yes
CCC #31	CA [2A]	5, 10, 15, 20		Yes
CCC #32	CA [2A]	5, 10, 15, 20		Yes
CCC #33	CA [2A]	5, 10, 15, 20		Yes
CCC #34	CA [2A]	5, 10, 15, 20		Yes
CCC #35	CA [2A]	5, 10, 15, 20		Yes
CCC #36	CA [2A]	5, 10, 15, 20		Yes
CCC #37	CA [2A]	5, 10, 15, 20		Yes
CCC #38	CA [2A]	5, 10, 15, 20		Yes
CCC #39	CA [2A]	5, 10, 15, 20		Yes
CCC #40	CA [2A]	5, 10, 15, 20		Yes
CCC #41	CA [2A]	5, 10, 15, 20		Yes
CCC #42	CA [2A]	5, 10, 15, 20		Yes
CCC #43	CA [2A]	5, 10, 15, 20		Yes
CCC #44	CA [2A]	5, 10, 15, 20		Yes
CCC #45	CA [2A]	5, 10, 15, 20		Yes
CCC #46	CA [2A]	5, 10, 15, 20		Yes
CCC #47	CA [2A]	5, 10, 15, 20		Yes
CCC #48	CA [2A]	5, 10, 15, 20		Yes
CCC #49	CA [2A]	5, 10, 15, 20		Yes
CCC #50	CA [2A]	5, 10, 15, 20		Yes
CCC #51	CA [2A]	5, 10, 15, 20		Yes
CCC #52	CA [2A]	5, 10, 15, 20		Yes
CCC #53	CA [2A]	5, 10, 15, 20		Yes
CCC #54	CA [2A]	5, 10, 15, 20		Yes
CCC #55	CA [2A]	5, 10, 15, 20		Yes
CCC #56	CA [2A]	5, 10, 15, 20		Yes
CCC #57	CA [2A]	5, 10, 15, 20		Yes
CCC #58	CA [2A]	5, 10, 15, 20		Yes
CCC #59	CA [2A]	5, 10, 15, 20		Yes
CCC #60	CA [2A]	5, 10, 15, 20		Yes
CCC #61	CA [2A]	5, 10, 15, 20		Yes
CCC #62	CA [2A]	5, 10, 15, 20		Yes
CCC #63	CA [2A]	5, 10, 15, 20		Yes
CCC #64	CA [2A]	5, 10, 15, 20		Yes
CCC #65	CA [2A]	5, 10, 15, 20		Yes
CCC #66	CA [2A]	5, 10, 15, 20		Yes
CCC #67	CA [2A]	5, 10, 15, 20		Yes
CCC #68	CA [2A]	5, 10, 15, 20		Yes
CCC #69	CA [2A]	5, 10, 15, 20		Yes
CCC #70	CA [2A]	5, 10, 15, 20		Yes
CCC #71	CA [2A]	5, 10, 15, 20		Yes
CCC #72	CA [2A]	5, 10, 15, 20		Yes
CCC #73	CA [2A]	5, 10, 15, 20		Yes
CCC #74	CA [2A]	5, 10, 15, 20		Yes
CCC #75	CA [2A]	5, 10, 15, 20		Yes
CCC #76	CA [2A]	5, 10, 15, 20		Yes
CCC #77	CA [2A]	5, 10, 15, 20		Yes
CCC #78	CA [2A]	5, 10, 15, 20		Yes
CCC #79	CA [2A]	5, 10, 15, 20		Yes
CCC #80	CA [2A]	5, 10, 15, 20		Yes
CCC #81	CA [2A]	5, 10, 15, 20		Yes
CCC #82	CA [2A]	5, 10, 15, 20		Yes
CCC #83	CA [2A]	5, 10, 15, 20		Yes
CCC #84	CA [2A]	5, 10, 15, 20		Yes
CCC #85	CA [2A]	5, 10, 15, 20		Yes
CCC #86	CA [2A]	5, 10, 15, 20		Yes
CCC #87	CA [2A]	5, 10, 15, 20		Yes
CCC #88	CA [2A]	5, 10, 15, 20		Yes
CCC #89	CA [2A]	5, 10, 15, 20		Yes
CCC #90	CA [2A]	5, 10, 15, 20		Yes
CCC #91	CA [2A]	5, 10, 15, 20		Yes
CCC #92	CA [2A]	5, 10, 15, 20		Yes
CCC #93	CA [2A]	5, 10, 15, 20		Yes
CCC #94	CA [2A]	5, 10, 15, 20		Yes
CCC #95	CA [2A]	5, 10, 15, 20		Yes
CCC #96	CA [2A]	5, 10, 15, 20		Yes
CCC #97	CA [2A]	5, 10, 15, 20		Yes
CCC #98	CA [2A]	5, 10, 15, 20		Yes
CCC #99	CA [2A]	5, 10, 15, 20		Yes
CCC #100	CA [2A]	5, 10, 15, 20		Yes

Note: [CC] indicates component carrier with 4x4 DL MIMO antenna configuration

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F.2 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.

This device supports LAA with downlink carrier aggregation only. It uses carrier aggregation in the downlink to combine LTE in the unlicensed spectrum (i.e. LTE Band 46) with LTE in the licensed band (served as PCC). All uplink communications and acknowledgements on the PCC remain identical to specifications when downlink carrier aggregation is inactive.

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 Section 8.2 and appendix F. 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.

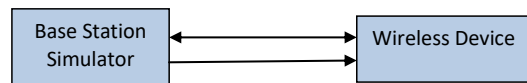


Figure F-1
DL CA Power Measurement Setup

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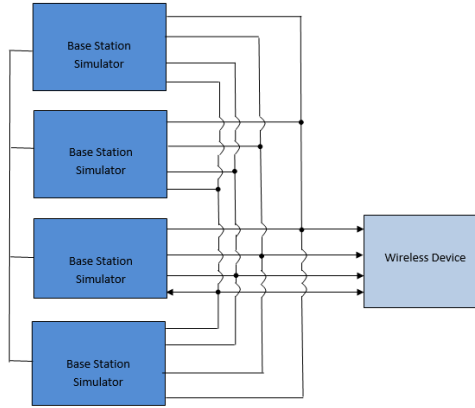


Figure F-2
DL CA with DL 4x4 MIMO Power Measurement Setup

F.3 Downlink Carrier Aggregation RF Conducted Powers

F.3.1 LTE Band 71 as PCC

Table F-3
Maximum Output Powers – Antenna 3

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Ch.	PCC				SCC 1				SCC 2				SCC 3				Power			
				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]	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 4BA-71A	LTE B71	15	133297	680.5	15QAM	1	36	68763	634.5	LTE B48	20	55990	3625	-	-	-	-	-	-	-	-	21.03	21.00
CA 2A-4A-71A	LTE B71	15	133297	680.5	15QAM	1	36	68763	634.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	-	-	-	-	20.98	21.00
CA 4A-4A-71A	LTE B71	15	133297	680.5	15QAM	1	36	68763	634.5	LTE B4	20	2175	2132.5	LTE B4	10	2360	2150	-	-	-	-	20.93	21.00
CA 2A-2A-66A-71A	LTE B71	15	133297	680.5	15QAM	1	36	68763	634.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B66	20	66786	2145	20.69	21.00
CA 2A-7A-66A-71A	LTE B71	15	133297	680.5	15QAM	1	36	68763	634.5	LTE B2	20	900	1960	LTE B66	20	66786	2145	LTE B7	20	67236	2150	20.73	21.00
CA 2A-66A-66A-71A	LTE B71	15	133297	680.5	15QAM	1	36	68763	634.5	LTE B2	20	900	1960	LTE B66	20	66786	2145	LTE B66	20	66984	2164.8	20.71	21.00

F.3.2 LTE Band 12 as PCC

Table F-4
Maximum Output Powers – Antenna 1

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Ch.	PCC				SCC 1				SCC 2				SCC 3				Power							
				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]	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-12A (1)	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B2	20	900	1960	-	-	-	-	-	-	-	-	20.16	20.14				
CA 4A-12A (1)	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B4	20	2175	2132.5	-	-	-	-	-	-	-	-	20.17	20.14				
CA 4A-12A (2)	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B4	20	2175	2132.5	-	-	-	-	-	-	-	-	20.17	20.14				
CA 12A-75A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B25	20	8365	1902.5	-	-	-	-	-	-	-	-	20.13	20.14				
CA 12A-66A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B46	20	59665	1937.5	-	-	-	-	-	-	-	-	20.19	20.14				
CA 12A-48A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B46	20	59960	3625	-	-	-	-	-	-	-	-	20.42	20.14				
CA 12A-66A (1)	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B66	20	66786	2145	-	-	-	-	-	-	-	-	20.11	20.14				
CA 12A-66A (2)	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B66	20	66786	2145	-	-	-	-	-	-	-	-	20.11	20.14				
CA 2C-12A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B2	20	900	1960	LTE B2	20	700	1940.2	-	-	-	-	20.21	20.14				
CA 12A-48C	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B46	20	59990	3625	LTE B46	20	59208	2644.8	-	-	-	-	20.22	20.14				
CA 2A-2A-12A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B4	20	2175	2132.5	-	20.02	20.14			
CA 2A-2A-12B	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B12	10	5107	738.7	LTE B2	20	900	1960	LTE B2	20	700	1940	-	19.96	20.14			
CA 2A-4A-12A-12A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B4	10	2250	2150	-	20.08	20.14			
CA 2A-4A-7A-12A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B7	20	3020	2066	-	19.98	20.14			
CA 2A-4A-12A-30A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B30	10	9820	2395	-	20.00	20.14			
CA 2A-4A-30A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B12	10	5107	738.7	LTE B5	20	800	1960	LTE B4	20	2175	2132.5	-	19.91	20.14			
CA 2A-12A-66C	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B2	20	900	1960	LTE B66	20	66786	2145	LTE B66	20	66984	2164.8	-	19.96	20.14			
CA 4A-4A-12A-30A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B4	20	2175	2132.5	LTE B30	10	9820	2395	-	-	-	-	19.95	20.14				
CA 4A-4A-12B	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B12	10	5107	738.7	LTE B5	20	800	1960	LTE B4	20	2175	2132.5	-	19.87	20.14			
CA 2A-7A-7A-12A-66A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B7	20	3000	2055	LTE B66	20	66786	2145	20.03	20.14
CA 2A-12A-12A-30A-66A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B30	10	9820	2355	LTE B66	20	66786	2145	20.07	20.14
CA 2A-2A-12A-66A-66A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B66	20	66786	2145	LTE B66	20	67236	2150	20.00	20.14
CA 2A-12A-30A-66A-66A	LTE B12	5	23035	701.5	15QAM	1	12	5035	731.5	LTE B2	20	900	1960	LTE B20	10	9820	2355	LTE B66	20	66786	2145	LTE B66	20	67236	2150	20.02	20.14

F.3.3 LTE Band 13 as PCC

Table F-5
Maximum Output Powers – Antenna 3

Combination	PCC Band	PCC BW [MHz]	PCC										SCC 1				SCC 2				SCC 3				SCC 4				Power	
			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]	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-4A-13A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B4	20	2175	2122.5	-	-	-	-	-	-	-	-	-	-	20.08	20.08	
CA 2A-13A-4A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B46	20	50665	5537.5	-	-	-	-	-	-	-	-	-	-	20.08	20.08	
CA 2A-13A-46A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B48	20	55990	3625	-	-	-	-	-	-	-	-	-	-	20.04	20.08	
CA 4A-4A-13A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B4	20	2175	2122.5	LTE B4	10	2360	2350	-	-	-	-	-	-	-	-	-	-	20.07	20.08	
CA 13A-46A-46A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46	20	50665	5537.5	LTE B46	20	47090	5180	-	-	-	-	-	-	-	-	-	-	19.98	20.08	
CA 13A-46A-66A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46	20	50665	5537.5	LTE B66	20	66786	2145	-	-	-	-	-	-	-	-	-	-	20.05	20.08	
CA 13A-46A-66B	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B48	20	55990	3625	LTE B48	20	55340	3660	-	-	-	-	-	-	-	-	-	-	20.11	20.08	
CA 13A-46A-66C	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B48	20	55990	3625	LTE B48	20	55990	3625	-	-	-	-	-	-	-	-	-	-	20.14	20.08	
CA 2A-7C-13A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B7	20	3100	2655	LTE B7	20	2902	2632.2	-	-	-	-	-	-	20.24	20.08	
CA 2A-13A-46C	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B46	20	50665	5537.5	LTE B46	20	50667	5537.7	-	-	-	-	-	-	20.26	20.08	
CA 2A-13A-46C	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B48	20	55990	3625	LTE B48	20	55180	3644.8	-	-	-	-	-	-	20.17	20.08	
CA 2A-13A-66B	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B66	15	66878	2145	LTE B66	15	66878	2145	-	-	-	-	-	-	20.19	20.08	
CA 2A-13A-66C	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B66	20	66786	2145	LTE B66	20	66894	2164.4	-	-	-	-	-	-	20.21	20.08	
CA 13A-46C-66A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B48	20	55990	3625	LTE B48	20	56188	3644.8	LTE B66	15	66786	2145	-	-	-	-	-	-	20.23	20.08	
CA 13A-46C-66B	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B48	20	55990	3625	LTE B48	20	56188	3644.8	LTE B66	15	66786	2145	-	-	-	-	-	-	20.23	20.08	
CA 13A-66A-66B	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B66	15	66786	2145	LTE B66	15	67458	2183.2	LTE B66	15	67281	2192.5	-	-	-	-	-	-	20.18	20.08	
CA 13A-66A-66C	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B66	15	66786	2145	LTE B66	15	67458	2183.2	LTE B66	15	67281	2192.5	-	-	-	-	-	-	20.25	20.08	
CA 2A-2A-13A-46A-66A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B66	15	66786	2145	LTE B66	15	67236	2190	-	-	20.14	20.08	
CA 2A-7A-7A-13A-66A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B7	20	3100	2655	LTE B7	20	2950	2630	LTE B66	15	66536	2130	-	-	20.04	20.08	
CA 2A-13A-46D	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B46	20	50665	5537.5	LTE B46	20	50665	5537.5	-	-	-	-	-	-	20.01	20.08	
CA 13A-46D-66A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46	20	50665	5537.5	LTE B46	20	50667	5517.7	LTE B46	20	50663	5517.7	LTE B66	15	66786	2145	-	-	20.03	20.08	
CA 13A-46E	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46	20	50665	5537.5	LTE B46	20	50667	5517.7	LTE B46	20	50663	5517.7	LTE B46	20	51063	3577.3	-	-	19.97	20.08	
CA 13A-46D-66A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B48	20	55990	3625	LTE B48	20	56188	3644.8	LTE B48	20	56386	3664.6	LTE B66	15	66786	2145	-	-	20.02	20.08	
CA 13A-46E	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B48	20	55990	3625	LTE B48	20	56188	3644.8	LTE B48	20	56386	3664.6	LTE B48	20	61063	3684.4	-	-	20.08	20.08	

F.3.4 LTE Band 14 as PCC

Table F-6
Maximum Output Powers – Antenna 3

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Ch.	PCC				Mod.	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC 1			SCC 2			SCC 3			SCC 4			LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)			
				PCC (UL) Freq. [MHz]	PCC (UL) Freq. [MHz]	PCC (UL) Freq. [MHz]	PCC (UL) 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]					
CA 2A-2A-1A-30A-46A	LTE B14	5	23330	793	QPSK	1	0	5330	763	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B30	10	9620	2355	LTE B66	15	66786	2145	-	-	20.39	20.25
CA 2A-2A-1A-46A-46A	LTE B14	5	23330	793	QPSK	1	0	5330	763	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B66	15	66786	2145	LTE B66	15	67236	2190	-	-	20.35	20.25
CA 2A-2A-30A-30A-46A	LTE B14	5	23330	793	QPSK	1	0	5330	763	LTE B2	20	900	1960	LTE B2	20	9620	2355	LTE B66	15	66786	2145	LTE B66	15	67236	2190	-	-	20.37	20.25

F.3.5 LTE Band 26 as PCC

Table F-7
Maximum Output Powers – Antenna 3

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	-	-	-	-	18.80	18.70	
CA 25A-26A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	LTE B25	20	8365	1962.5	-	-	-	-	18.79	18.70	
CA 26A-41A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	LTE B41	20	40620	2593	-	-	-	-	18.81	18.70	
CA 7A-7A-26A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	LTE B7	20	3100	2655	LTE B7	20	2850	2630	18.44	18.70	
CA 25A-25A-26A	LTE B26	5	26715	816.5	16QAM	1	12	8715	861.5	LTE B25	20	8365	1962.5	LTE B25	20	8590	1985	18.42	18.70	
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	18.53	18.70	

F.3.8 LTE Band 25 as PCC

Table F-10
Maximum Output Powers – Antenna 1

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Ch. Freq. [MHz]	PCC		Mod.	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC 1			SCC 2			SCC 3			SCC 4			LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
				PCC (UL) Ch. Freq. [MHz]	PCC (UL) Ch. 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]		
CA_SA-25A	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B5	10	2525	881.5	-	-	-	-	-	-	-	-	16.99	16.82
CA_12A-25A	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B12	10	5095	737.5	-	-	-	-	-	-	-	-	16.93	16.82
CA_25A-25A	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B25	15	8895	876.5	-	-	-	-	-	-	-	-	16.96	16.82
CA_25A-46A	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B46	20	50065	5537.5	-	-	-	-	-	-	-	-	16.78	16.82
CA_25A-25A-25A	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B25	20	8140	1940	LTE B25	5	8895	876.5	-	-	-	-	16.98	16.82
CA_25A-25A-41A	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B25	20	8140	1940	LTE B41	20	40020	2593	-	-	-	-	16.98	16.82
CA_25A-41C	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B41	20	40020	2593	LTE B41	20	40020	2593	-	-	-	-	16.78	16.82
CA_25A-46C	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B46	20	50065	5537.5	LTE B46	20	50065	5537.7	-	-	-	-	16.68	16.82
CA_7A-7A-25A-66A	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B7	20	3100	2605	LTE B7	20	2950	2630	LTE B66	20	66786	2145	16.67	16.82
CA_25A-25A-41C	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B25	20	8140	1940	LTE B41	20	40020	2593	LTE B41	20	40020	2593	16.75	16.82
CA_25A-46D	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B46	20	50065	5537.5	LTE B46	20	50065	5537.7	LTE B46	20	50065	5537.3	16.75	16.82
CA_25A-25A-41D	LTE B25	20	26590	1905	1905	1905	1	50	6590	1905	LTE B25	20	8140	1940	LTE B41	20	40020	2593	LTE B41	20	40020	2593	16.67	16.82

F.3.9 LTE Band 30 as PCC

Table F-11
Maximum Output Powers – Antenna 3

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Ch. Freq. [MHz]	PCC		Mod.	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC 1			SCC 2			SCC 3			SCC 4			LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
				PCC (UL) Ch. Freq. [MHz]	PCC (UL) Ch. 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]		
CA_30-30A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B2	10	900	1960	LTE B2	10	700	1940.0	-	-	-	-	15.21	15.44
CA_2A-4A-30A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B2	10	900	1960	LTE B4	20	2175	2132.5	LTE B5	10	2525	881.5	14.99	15.44
CA_2A-4A-12A-30A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B2	10	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	15.01	15.44
CA_2A-4A-25A-30A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B2	10	900	1960	LTE B5	10	2525	881.5	LTE B29	10	6715	723.5	14.99	15.44
CA_4A-4A-30A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B4	20	2175	2132.5	LTE B4	20	2175	2132.5	LTE B5	10	2525	881.5	14.98	15.44
CA_4A-4A-12A-30A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B4	20	2175	2132.5	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	14.99	15.44
CA_30A-30A-66A-66A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B30	10	900	1960	LTE B30	10	900	1960	LTE B66	20	66786	2145	15.00	15.44
CA_30A-66A-66A-66A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B66	20	66786	2145	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.00	15.44
CA_2A-2A-12A-30A-66A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B2	10	900	1960	LTE B2	10	700	1940	LTE B12	10	5095	737.5	15.21	15.44
CA_2A-2A-12A-30A-66A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B2	10	900	1960	LTE B2	10	700	1940	LTE B12	10	5095	737.5	15.21	15.44
CA_2A-2A-25A-30A-66A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B2	10	900	1960	LTE B2	10	700	1940	LTE B29	10	6715	723.5	15.22	15.44
CA_2A-2A-30A-66A-66A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B2	10	900	1960	LTE B2	10	700	1940	LTE B66	20	66786	2145	15.24	15.44
CA_2A-5B-30A-66A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B2	10	900	1960	LTE B5	10	2525	881.5	LTE B5	5	2455	874.3	15.25	15.44
CA_6A-6A-30A-66A-66A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B6	10	900	1960	LTE B12	10	5095	737.5	LTE B66	20	66786	2145	15.00	15.44
CA_2A-1A-30A-66A-66A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B2	10	900	1960	LTE B12	10	5095	737.5	LTE B66	20	66786	2145	15.00	15.44
CA_5B-30A-66A-66A	LTE B30	10	27710	2310	2310	2310	1	0	9620	2355	LTE B5	10	2525	881.5	LTE B5	5	2455	874.3	LTE B66	20	66786	2145	15.30	15.44

F.3.10 LTE Band 7 as PCC

Table F-12
Maximum Output Powers – Antenna 3

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Ch. Freq. [MHz]	PCC				Mod.	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC 1			SCC 2			SCC 3			SCC 4			LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)		
				PCC (UL) Ch. Freq. [MHz]	PCC (UL) Ch. 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]						
CA_SA-7A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B5	10	2525	881.5	-	-	-	-	-	-	-	-	-	16.18	16.14			
CA_7A-25A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B25	15	8895	876.5	-	-	-	-	-	-	-	-	-	16.18	16.14			
CA_7A-25A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B29	15	9715	722.5	-	-	-	-	-	-	-	-	-	16.18	16.14			
CA_7A-46A(1)	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B46	20	50065	5537.5	-	-	-	-	-	-	-	-	-	16.25	16.14			
CA_7B	LTE B7	15	21375	2562.5	2562.5	2562.5	1	56	3575	2662.5	LTE B7	5	5282	2673.2	-	-	-	-	-	-	-	-	-	15.85	15.90			
CA_4A-4A-7A (1)	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B4	20	2175	2132.5	LTE B4	20	2175	2132.5	-	-	-	-	-	15.95	16.14			
CA_7A-7A-25A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B25	15	8895	876.5	-	-	-	-	-	15.90	16.14			
CA_7A-46C (1)	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B46	20	50065	5537.5	-	-	-	-	-	15.90	16.14			
CA_7C-46A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B46	20	50065	5537.5	-	-	-	-	-	15.90	16.14			
CA_2A-4A-7A-7A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B2	10	900	1960	LTE B4	20	2175	2132.5	LTE B4	20	2175	2132.5	15.94	16.14
CA_2A-7A-7A-66A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B4	20	2175	2132.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.91	16.14
CA_2A-4A-7C	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B2	10	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	15.91	16.14
CA_2A-7A-7C	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B2	10	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	15.93	16.14
CA_2A-7A-66A-71A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.90	16.14
CA_2A-7C-13A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B2	10	900	1960	LTE B13	10	5290	751	LTE B66	20	66786	2145	15.94	16.14
CA_2A-7C-66A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B2	10	900	1960	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.96	16.14
CA_5A-7A-66A-66A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.98	16.14
CA_7A-7A-25A-66A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B25	15	8895	876.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.95	16.14
CA_7A-46A-66A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B46	20	50065	5537.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.90	16.14
CA_7B-46B	LTE B7	15	21375	2562.5	2562.5	2562.5	1	56	3575	2662.5	LTE B7	5	5282	2673.2	LTE B7	5	5282	2673.2	LTE B46	20	50065	5537.5	LTE B46	20	50065	5537.5	15.86	15.94
CA_2A-2A-7A-13A-66A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B2	10	900	1960	LTE B12	10	5095	737.5	LTE B66	20	66786	2145	15.97	16.14
CA_2A-2A-7A-66A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B2	10	900	1960	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-5A-6A-7A-66A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B2	10	900	1960	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.88	16.14
CA_2A-7A-13A-66A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B2	10	900	1960	LTE B13	10	5290	751	LTE B66	20	66786	2145	15.83	16.14
CA_2A-7A-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B2	10	900	1960	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B2	10	900	1960	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.82	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	15.85	16.14
CA_2A-7C-66A-8A	LTE B7	20	21390	2560	2560	2560	1	50	3590	2680	LTE B7	20	2650	2630	LTE B5	10												

F.3.12 LTE Band 48 as PCC

Table F-14
Maximum Output Powers – Antenna 3

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# 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]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)	
CA 48B	LTE B48	10	56690	3695	16QAM	25	25	56690	3695	LTE B48	10	56691	3695.1	-	-	-	-	-	-	-	-	14.18	14.17	
CA 48A-48C	LTE B48	20	56640	3690	16QAM	50	50	56640	3690	LTE B48	20	56340	3690	LTE B48	20	56338	3679.8	-	-	-	-	14.03	14.20	
CA 48C-48A	LTE B48	20	56640	3690	16QAM	50	50	56640	3690	LTE B48	20	56442	3670.2	LTE B48	20	56340	3690	-	-	-	-	14.04	14.20	
CA 2A-48A-48A-48A	LTE B48	20	56640	3690	16QAM	50	50	56640	3690	LTE B48	20	56340	3690	LTE B48	20	56990	3625	LTE B2	20	900	1960	14.19	14.20	
CA 13A-48A-48A-48A	LTE B48	20	56640	3690	16QAM	50	50	56640	3690	LTE B48	20	56340	3690	LTE B48	20	56990	3625	LTE B13	10	5930	781	14.18	14.20	
CA 48A-48A-48A-66A	LTE B48	20	56640	3690	16QAM	50	50	56640	3690	LTE B48	20	56340	3690	LTE B48	20	56990	3625	LTE B66	20	66786	2145	14.22	14.20	

F.4 DLCA 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 F.2 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.

F.4.1 LTE 4x4 MIMO DL Standalone Powers

Table F-15
Maximum Output Powers – Antenna 1

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	15	132597	1772.5	16QAM	1	36	16.85	16.66	16.1
25	20	26590	1905	16QAM	1	50	17.01	16.82	16.8

Table F-16
Maximum Output Powers – Antenna 2b

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	41490	2680	16QAM	100	0	16.51	16.49	16.0

Table F-17
Maximum Output Powers – Antenna 3

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	20	21350	2560	256QAM	1	50	16.18	16.14	15.5
30	10	27710	2310	64QAM	1	0	15.57	15.44	14.9
48	20	56640	3690	16QAM	50	50	14.25	14.20	13.8

FCC ID: BCGA2764	SAR EVALUATION REPORT	Approved by:
DUT Type:		Technical Manager
Tablet Device		APPENDIX F: Page 8 of 15

F.4.10 LTE Band 30 as PCC

Table F-26
Maximum Output Powers – Antenna 3

CA Combination		PCC										SCC 1										SCC 2										SCC 3										SCC 4										Power	
		PCC Band	PCC BW [MHz]	PCC [UL]	PCC [DL] Freq. [MHz]	PCC Mod.	PCC UL RB	PCC UL RB Offset	PCC [DL] Freq. [MHz]	PCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Freq. [MHz]	SCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Freq. [MHz]	SCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Freq. [MHz]	SCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Freq. [MHz]	SCC [DL] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [DL] Freq. [MHz]	SCC [DL] Freq. [MHz]	DL Ant. Config.	LTE Tx Power [dBm]	LTE Single Carrier Tx Power [dBm]															
CA 12C12B3A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	900	1960	4x4	15.78	15.44																
CA 12C1413A15A19A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 12C1413A15A19A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 12C1413A15A19A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E8B	20	900	1960	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	LTE E8B	20	2175	2122.5	4x4	15.78	15.44																
CA 14A1414A14A16A16A	LTE E8B	20	27720	2310	64QAM	1	0	8620	2355	4x4	LTE E																																										

F.4.11 LTE Band 7 as PCC

Table F-27
Maximum Output Powers – Antenna 3

[illegible]

F.4.12 LTE Band 41 as PCC

Table F-28
Maximum Output Powers – Antenna 2b

[illegible]

F.4.13 LTE Band 48 as PCC

Table F-29
Maximum Output Powers – Antenna 3

		PCC										SCC1			SCC2			SCC3			Power							
Combination	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 [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 [dBm]	LTE Single Carrier Tx Power [dBm]	
CA [4B]	LTE B48	10	56690	3695	16QAM	25	25	56690	3695	4x4	LTE B48	10	56591	3685.1	4x4	-	-	-	-	-	-	-	-	-	-	-	14.16	14.17
CA [4BA]-[4B]	LTE B48	20	56640	3690	16QAM	50	50	56640	3690	4x4	LTE B48	20	55340	3560	4x4	LTE B48	20	55538	3579.8	4x4	-	-	-	-	-	-	14.19	14.20
CA [4B]-[4BA]	LTE B48	20	56640	3690	16QAM	50	50	56640	3690	4x4	LTE B48	20	56642	3670.2	4x4	-	-	-	-	-	-	-	-	-	-	-	14.18	14.20
CA [2A]-[4BA]-[4BA]-[4BA]	LTE B48	20	56640	3690	16QAM	50	50	56640	3690	4x4	LTE B48	20	55990	3625	4x4	LTE B48	20	55340	3560	4x4	LTE B2	20	9600	1960	4x4	14.15	14.20	
CA [3A]-[4BA]-[4BA]-[4BA]	LTE B48	20	56640	3690	16QAM	50	50	56640	3690	4x4	LTE B48	20	56642	3670.2	4x4	LTE B48	20	55340	3560	4x4	LTE B13	20	9200	1813	4x4	14.16	14.20	
CA [4BA]-[4BA]-[4BA]-[6BA]	LTE B48	20	56640	3690	16QAM	50	50	56640	3690	4x4	LTE B48	20	56642	3670.2	4x4	LTE B48	20	55340	3560	4x4	LTE B66	20	66785	2145	4x4	14.19	14.20	
CA [4B]	LTE B48	20	56640	3690	16QAM	50	50	56640	3690	4x4	LTE B48	20	56642	3670.2	4x4	LTE B48	20	56284	3650.4	4x4	LTE B48	20	66646	3630.6	4x4	14.16	14.20	

F.5 Additional Downlink Carrier Aggregation with Uplink Carrier Aggregation Enabled

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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_66B, CA_66C, CA_41C, or CA_48C ULCA active.

F.5.1 Additional DL Carrier Aggregation RF Conducted Powers with Uplink Carrier Aggregation Enabled

F.5.1.1 LTE Band 41

Table F-30
Maximum Output Powers – Antenna 2b

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] Channel	PCC [DL] Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC [UL] Channel	SCC [UL] Freq. [MHz]	Mod.	SCC UL RB	SCC UL RB Offset	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]	SCC Band	SCC BW [MHz]	SCC [DL] Channel	SCC [DL] Freq. [MHz]	ULCA Tx Power with DL CA Enabled [dBm]	ULCA Tx Power [dBm]																
CA 41C-41A	LTE B41	20	39750	2500	QPSK	50	50	39750	2500	LTE B41	20	39940	2520.0	QPSK	50	0	39940	2520.0	LTE B41	20	40000	2520.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.22	13.22														
CA 41D-41A	LTE B41	20	39750	2500	QPSK	50	50	39750	2500	LTE B41	20	39940	2520.0	QPSK	50	0	39940	2520.0	LTE B41	20	40000	2520.0	LTE B41	20	40000	2520.0	-	-	-	-	-	-	-	-	-	-	13.24	13.24														
CA 41C-41C	LTE B41	20	39750	2500	QPSK	50	50	39750	2500	LTE B41	20	39940	2520.0	QPSK	50	0	39940	2520.0	LTE B41	20	40000	2520.0	LTE B41	20	40000	2520.0	-	-	-	-	-	-	-	-	-	-	13.21	13.21														
CA 41E	LTE B41	20	39750	2500	QPSK	50	50	39750	2500	LTE B41	20	39940	2520.0	QPSK	50	0	39940	2520.0	LTE B41	20	40000	2520.0	LTE B41	20	40000	2520.0	-	-	-	-	-	-	-	-	-	-	13.14	13.14														
CA 41C-41D	LTE B41	20	39750	2500	QPSK	50	50	39750	2500	LTE B41	20	39940	2520.0	QPSK	50	0	39940	2520.0	LTE B41	20	40000	2520.0	LTE B41	20	40000	2520.0	-	-	-	-	-	-	-	-	-	-	13.22	13.22														
CA 41D-41C	LTE B41	20	39750	2500	QPSK	50	50	39750	2500	LTE B41	20	39940	2520.0	QPSK	50	0	39940	2520.0	LTE B41	20	40000	2520.0	LTE B41	20	40000	2520.0	-	-	-	-	-	-	-	-	-	-	13.22	13.22														

F.5.1.2 LTE Band 48

Table F-31
Maximum Output Powers – Antenna 3

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 RB Offset	PCC [DL] Ch.	PCC [DL] Freq. [MHz]	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]	SCC Band	SCC BW [MHz]	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]	ULCA Tx Power with DL CA Enabled (dBm)	ULCA Tx Power (dBm)		
CA 48D	LTE B48	20	56207	3646.7	QPSK	50	50	56207	3646.7	LTE B48	20	56405	3666.5	QPSK	50	0	56405	3666.5	LTE B48	20	56009	3626.9	-	-	-	-	-	-	-	-	-	-	13.79	13.81
CA 48E	LTE B48	20	56207	3646.7	QPSK	50	50	56207	3646.7	LTE B48	20	56405	3666.5	QPSK	50	0	56405	3666.5	LTE B48	20	56009	3626.9	LTE B48	20	55811	3607.1	-	-	-	-	-	-	13.80	13.81

F.5.2 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.

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F.5.2.1 LTE Band 7

Table F-32
Maximum Output Powers – Antenna 3

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 [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	15.70	15.55

F.5.2.2 LTE Band 41

Table F-33
Maximum Output Powers – Antenna 2b

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 [41C] [41A]	LTE B41	20	39750	3106	QPSK	50	50	39750	3106	4x4	LTE B41	20	39948	3125.8	QPSK	50	0	39948	3125.8	4x4	15.70	15.55
CA [41C] [41A]	LTE B41	20	39750	3106	QPSK	50	50	39750	3106	4x4	LTE B41	20	39948	3125.8	QPSK	50	0	39948	3125.8	4x4	15.70	15.55
CA [41C] [41C]	LTE B41	20	39750	3106	QPSK	50	50	39750	3106	4x4	LTE B41	20	39948	3125.8	QPSK	50	0	39948	3125.8	4x4	15.70	15.55
CA [41C] [41C]	LTE B41	20	39750	3106	QPSK	50	50	39750	3106	4x4	LTE B41	20	39948	3125.8	QPSK	50	0	39948	3125.8	4x4	15.70	15.55
CA [41C] [41C]	LTE B41	20	39750	3106	QPSK	50	50	39750	3106	4x4	LTE B41	20	39948	3125.8	QPSK	50	0	39948	3125.8	4x4	15.70	15.55

F.5.2.3 LTE Band 48

Table F-34
Maximum Output Powers – Antenna 3

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 [48C]	LTE B48	20	56207	3646.7	QPSK	50	50	56207	3646.7	4x4	LTE B48	20	56405	3666.5	QPSK	50	0	56405	3666.5	4x4	13.78	13.81
CA [48C]	LTE B48	20	56207	3646.7	QPSK	50	50	56207	3646.7	4x4	LTE B48	20	56405	3666.5	QPSK	50	0	56405	3666.5	4x4	13.78	13.81
CA [48C]	LTE B48	20	56207	3646.7	QPSK	50	50	56207	3646.7	4x4	LTE B48	20	56405	3666.5	QPSK	50	0	56405	3666.5	4x4	13.78	13.81

F.6 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.

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