

# APPENDIX I: LTE DOWNLINK ONLY CARRIER AGGREGATION 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 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 I-1 – Exclusion Table for SISO Configurations**

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**Table I-2 – Exclusion Table for 4x4 Downlink MIMO Configurations**

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

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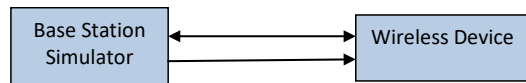
## I.1 LTE Downlink Only Carrier Aggregation Test Selection and Setup

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 the RF Conducted Powers Section and LTE/NR Lower Bandwidth RF Conducted Power 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 I-1**  
**DL CA Power Measurement Setup**

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## I.2.3 LTE Band 13 as PCC

**Table I-5  
Maximum Output Powers**

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Ch.	PCC					SCC 1				SCC 2				SCC 3				Power							
				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 2A-13A (2)	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B2	20	900	1960	-	-	-	-	-	-	-	-	-	-	-	-	24.18	24.31	
CA 2A-13A-13A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	-	-	-	-	-	-	-	-	-	24.18	24.20
CA 2A-13A-45A	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B2	20	900	1960	LTE B4	20	55990	3625	-	-	-	-	-	-	-	-	-	24.25	24.31
CA 4A-4A-13A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B4	20	2175	2132.5	LTE B4	10	2350	2150	-	-	-	-	-	-	-	-	-	24.14	24.20
CA 13A-45A-45A	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B4B	20	55990	3625	LTE B4B	20	55940	3690	-	-	-	-	-	-	-	-	-	24.25	24.31
CA 13A-48B	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B4B	10	55990	3625	LTE B4B	10	56080	3634.9	-	-	-	-	-	-	-	-	-	24.30	24.31
CA 2A-13A-48C	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B2	20	900	1960	LTE B4B	20	55990	3625	LTE B4B	20	56188	3644.8	-	-	-	-	-	24.24	24.31
CA 13A-48A-66A-66A	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B4B	20	55990	3625	LTE B6B	20	66786	2145	LTE B6B	20	67230	2160	-	-	-	-	-	24.22	24.31
CA 13A-48A-66B	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B4B	20	55990	3625	LTE B6B	15	66786	2145	LTE B6B	5	66879	2154.3	-	-	-	-	-	24.17	24.31
CA 13A-48A-66C	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B4B	20	55990	3625	LTE B6B	20	66786	2145	LTE B6B	20	66984	2164.8	-	-	-	-	-	24.19	24.31
CA 13A-48C-66A	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B4B	20	55990	3625	LTE B4B	20	56188	3644.8	LTE B6B	20	66786	2145	-	-	-	-	-	24.16	24.31
CA 13A-48A-48C	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B4B	20	55990	3625	LTE B4B	20	55340	3560	LTE B4B	20	55538	3579.8	-	-	-	-	-	24.31	24.31
CA 2A-13A-48D	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B2	20	900	1960	LTE B4B	20	55990	3625	LTE B4B	20	56188	3644.8	-	-	-	-	-	24.23	24.31
CA 2A-13A-66A-66B	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B2	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	5	67168	2183.2	-	-	-	-	-	24.22	24.31
CA 2A-13A-66A-66C	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B2	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	20	67038	2170.2	-	-	-	-	-	24.21	24.31
CA 2A-13A-66D	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B2	20	900	1960	LTE B6B	20	66786	2145	LTE B6B	20	66984	2164.8	-	-	-	-	-	24.19	24.31
CA 2A-2A-13A-66A-66A	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B6B	20	66786	2145	-	-	-	-	-	24.23	24.31
CA 2A-2A-13A-66B	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B6B	15	66786	2145	-	-	-	-	-	24.20	24.31
CA 13A-48D-66A	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B4B	20	55990	3625	LTE B4B	20	56188	3644.8	LTE B4B	20	56386	3664.6	-	-	-	-	-	24.23	24.31
CA 13A-48A-48D	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B4B	20	55990	3625	LTE B4B	20	55340	3560	LTE B4B	20	55538	3579.8	-	-	-	-	-	24.21	24.31
CA 13A-48C-48C	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B4B	20	55990	3625	LTE B4B	20	56188	3644.8	LTE B4B	20	55340	3560	-	-	-	-	-	24.25	24.31
CA 13A-48E	LTE B13	5	23230	782	QPSK	1	12	5230	751	LTE B4B	20	55990	3625	LTE B4B	20	56188	3644.8	LTE B4B	20	56386	3664.6	-	-	-	-	-	24.26	24.31

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I.2.8 LTE Band 2 as PCC

LTE Band 2 as PCC

Table I-10 Maximum Output Powers

Combination	PCC Band	PCC BW [MHz]	PCC					SCC 1					SCC 2					SCC 3					LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)									
			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]												
CA 2A-4A	LTE B2	5	18000	1800	QPSK	1	12	900	1960	LTE B4	20	2175	2132.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.42	24.40
CA 2A-12A (1)	LTE B2	5	18000	1800	QPSK	1	12	900	1960	LTE B12	10	5095	737.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.41	24.40
CA 2A-13A (2)	LTE B2	5	18000	1800	QPSK	1	12	900	1960	LTE B13	10	5230	751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.37	24.40
CA 2A-29A	LTE B2	5	18000	1800	QPSK	1	12	900	1960	LTE B29	10	9715	722.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.38	24.40
CA 2A-29A (2)	LTE B2	5	18000	1800	QPSK	1	12	900	1960	LTE B29	10	9715	722.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.38	24.40
CA 2A-66A	LTE B2	5	18000	1800	QPSK	1	12	900	1960	LTE B66	20	66786	2145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.37	24.40

I.2.9 LTE Band 25 as PCC

LTE Band 25 as PCC

Table I-11 Maximum Output Powers

Combination	PCC Band	PCC BW [MHz]	PCC					SCC 1					SCC 2					SCC 3					LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)									
			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]												
CA 2A-25A	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	LTE B5	10	2525	881.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.50	24.51
CA 12A-25A	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	LTE B12	10	5095	737.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.49	24.51

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### I.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 I.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.

#### I.3.1 LTE 4x4 MIMO DL Standalone Powers

Table I-15  
Maximum Output Powers

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	5	132322	1745	QPSK	1	0	24.57	24.63	24.0
2	5	18900	1880	QPSK	1	12	24.31	24.40	24.0
25	5	26065	1852.5	QPSK	1	12	24.48	24.51	24.0
30	10	27710	2310	QPSK	1	25	22.05	22.11	22.0
41	10	41490	2680	QPSK	1	49	24.54	24.56	24.0
48	10	56223	3648.3	QPSK	1	25	20.45	20.52	19.6

#### I.3.2 LTE Band 71 as PCC

Table I-16  
Maximum Output Powers

Combination	PCC Band	PCC BW [MHz]	PCC [UL] Ch.	PCC [UL] Freq. [MHz]	Mod.	PCC		PCC [DL] Ch.	PCC [DL] Freq. [MHz]	DL Ant. Config.	SCC 1				SCC 2				SCC 3				Power						
						PCC UL RB	PCC UL RB Offset				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 [4B] [16B] [71A]	LTE B71	15	133297	680.5	QPSK	1	36	68761	634.5	2x2	LTE B48	20	5590	3625	4x4	LTE B48	20	55340	3560	4x4	-	-	-	-	-	-	24.23	24.26	
CA [4B] [71A]	LTE B71	15	133297	680.5	QPSK	1	36	68761	634.5	2x2	LTE B48	20	5590	3625	4x4	LTE B48	20	56188	3648.8	4x4	-	-	-	-	-	-	24.20	24.26	
CA [2A] [4A] [71A]	LTE B71	15	133297	680.5	QPSK	1	36	68761	634.5	2x2	LTE B2	20	900	1960	4x4	LTE B4	20	2175	2132.5	4x4	-	-	-	-	-	-	24.22	24.26	
CA [2A] [66A] [66A] [71A]	LTE B71	15	133297	680.5	QPSK	1	36	68761	634.5	2x2	LTE B2	20	900	1960	4x4	LTE B66	20	66786	2145	4x4	LTE B66	20	67236	2190	4x4	-	-	24.19	24.26
CA [2A] [2A] [4A] [71A]	LTE B71	15	133297	680.5	QPSK	1	36	68761	634.5	2x2	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	4x4	LTE B4	20	2175	2132.5	4x4	-	-	24.21	24.26
CA [2A] [2A] [66A] [71A]	LTE B71	15	133297	680.5	QPSK	1	36	68761	634.5	2x2	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	4x4	LTE B66	20	66786	2145	4x4	-	-	24.19	24.26
CA [2A] [66A] [66A] [71A]	LTE B71	15	133297	680.5	QPSK	1	36	68761	634.5	2x2	LTE B2	20	900	1960	2x2	LTE B66	20	66786	2145	4x4	LTE B66	20	67236	2190	2x2	-	-	24.17	24.26
CA [2A] [66A] [71A]	LTE B71	15	133297	680.5	QPSK	1	36	68761	634.5	2x2	LTE B2	20	900	1960	4x4	LTE B66	20	66786	2145	4x4	LTE B66	20	66984	2164.8	4x4	-	-	24.15	24.26
CA [2A] [2A] [4A] [71A]	LTE B71	15	133297	680.5	QPSK	1	36	68761	634.5	2x2	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	2x2	LTE B4	20	2175	2132.5	4x4	-	-	24.15	24.26
CA [2A] [2A] [66A] [71A]	LTE B71	15	133297	680.5	QPSK	1	36	68761	634.5	2x2	LTE B2	20	900	1960	4x4	LTE B2	20	700	1940	2x2	LTE B66	20	66786	2145	4x4	-	-	24.13	24.26
CA [2A] [2A] [4A] [71A]	LTE B71	15	133297	680.5	QPSK	1	36	68761	634.5	2x2	LTE B2	20	900	1960	2x2	LTE B2	20	700	1940	2x2	LTE B4	20	2175	2132.5	4x4	-	-	24.17	24.26

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# I.3.7 LTE Band 26 as PCC

## Table I-21 Maximum Output Powers

Combination	PCC										SCC1				SCC2				SCC3				SCC4				Power							
	PCC Band	PCC BW [MHz]	PCC (UL) CL	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.	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 (2A)-26A	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	800	1960	4x4																24.41	24.45		
CA (2A)-26A-16A	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	800	1960	4x4	LTE B26	20	800	1960	4x4	LTE B41	20	40422	2573.2	4x4							24.41	24.45	
CA (2A)-26A-14A	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4							24.46	24.49	
CA (2A)-26A-14C	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4												24.46	24.45	
CA (2A)-26A-14B	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	800	1960	4x4	LTE B26	20	800	1960	4x4	LTE B41	20	40422	2573.2	4x4								24.46	24.45
CA (2A)-26A-16A-14C	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4							24.46	24.45	
CA (2A)-26A-14B-14C	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4							24.46	24.45	
CA (2A)-26A-14B-14C-14D	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4	LTE B41	20	40620	2593	4x4			24.46	24.45
CA (2A)-26A-14B-14C-14D-14E	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4	LTE B41	20	40620	2593	4x4			24.46	24.45
CA (2A)-26A-14B-14C-14E	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4							24.46	24.45	
CA (2A)-26A-14B-14E	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4							24.46	24.45	
CA (2A)-26A-14B-14E-14C	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4	LTE B41	20	40620	2593	4x4			24.46	24.45
CA (2A)-26A-14E	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4							24.46	24.45	
CA (2A)-26A-14E-14C	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4	LTE B41	20	40620	2593	4x4			24.46	24.45
CA (2A)-26A-14E-14D	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4	LTE B41	20	40620	2593	4x4			24.46	24.45
CA (2A)-26A-14E-14C-14D	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	2x2	LTE B26	20	8365	1962.5	4x4	LTE B41	20	40620	2593	4x4	LTE B41	20	40422	2573.2	4x4	LTE B41	20	40620	2593	4x4			24.46	24.45

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I.3.8

LTE Band 66 as PCC

Table I-22  
Maximum Output Powers

Component	PCC						BCH						BCH						BCH						BCH										
	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]	FCC Max Power [dBm]		
Component	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784	1.5784

### I.3.9 LTE Band 2 as PCC

### Table I-23 Maximum Output Powers

Combination	PCC											SBC1				SBC2				SBC3				PwrOut
	PCC Max Power	PCC Max Power	PCC Max Power	PCC Max Power	PCC Max Power	PCC Max Power	PCC Max Power	PCC Max Power	PCC Max Power	PCC Max Power	PCC Max Power	SBC1 Max Power	SBC1 Max Power	SBC1 Max Power	SBC1 Max Power	SBC2 Max Power	SBC2 Max Power	SBC2 Max Power	SBC2 Max Power	SBC3 Max Power	SBC3 Max Power	SBC3 Max Power	SBC3 Max Power	
CA-PCC-CA1	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500

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I.3.10 LTE Band 25 as PCC

Table I-24  
Maximum Output Powers

Combination	PCC Band	PCC BW [MHz]	PCC [M] CA	PCC [M] Freq. [MHz]	Mod.	PCC				SCC1				SCC2				SCC3				SCC4				LTE Tx Power with DL CA Enabled [dBm]	LTE Single Carrier Tx Power [dBm]							
						PCC UL RB [MHz]	PCC UL RB [MHz]	PCC [M] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [M] CA	SCC [M] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [M] CA	SCC [M] Freq. [MHz]	DL Ant. Config.	SCC Band	SCC BW [MHz]	SCC [M] CA	SCC [M] Freq. [MHz]	DL Ant. Config.										
CA 10A_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B5	10	876.5	881.5	2x2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.43	24.51		
CA 10A_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B10	10	876.5	881.5	2x2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.43	24.51		
CA 10A_10B_41A	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B5	10	876.5	881.5	2x2	LTE B41	20	40620	2593	4A4	-	-	-	-	-	-	-	-	-	-	-	24.47	24.51	
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B10	20	8700	1885	4A4	LTE B10	20	8700	1885	4A4	-	-	-	-	-	-	-	-	-	-	-	24.45	24.51	
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B10	20	8700	1885	4A4	LTE B10	20	8700	1885	4A4	-	-	-	-	-	-	-	-	-	-	-	24.45	24.51	
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B10	20	8700	1885	2x2	LTE B10	20	8700	1885	2x2	-	-	-	-	-	-	-	-	-	-	-	24.46	24.51	
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B10	20	8700	1885	2x2	LTE B10	20	8700	1885	2x2	-	-	-	-	-	-	-	-	-	-	-	24.46	24.51	
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	2x2	LTE B25	20	8700	1885	4A4	LTE B25	20	8700	1885	4A4	-	-	-	-	-	-	-	-	-	-	-	24.49	24.51	
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	2x2	LTE B25	20	8700	1885	4A4	LTE B25	20	8700	1885	4A4	-	-	-	-	-	-	-	-	-	-	-	24.49	24.51	
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B25	20	8700	1885	4A4	LTE B25	20	8700	1885	4A4	-	-	-	-	-	-	-	-	-	-	-	24.44	24.51	
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B25	20	8700	1885	4A4	LTE B25	20	8700	1885	4A4	LTE B41	20	40422	2573.2	4A4	-	-	-	-	-	-	-	24.43	24.51
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B25	15	8865	876.5	2x2	LTE B41	20	40620	2593	4A4	LTE B41	20	40422	2573.2	4A4	-	-	-	-	-	-	24.48	24.51	
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B25	15	8865	876.5	2x2	LTE B41	20	40620	2593	2x2	LTE B41	20	40422	2573.2	2x2	-	-	-	-	-	-	24.44	24.51	
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B25	15	8865	876.5	2x2	LTE B41	20	40422	2573.2	4A4	LTE B41	20	40620	2593	4A4	LTE B41	20	40818	2612.8	4A4	24.46	24.51		
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B41	20	40620	2593	4A4	LTE B41	20	40422	2573.2	4A4	LTE B41	20	40620	2593	4A4	LTE B41	20	40818	2612.8	4A4	24.45	24.51		
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B41	20	40620	2593	2x2	LTE B41	20	40422	2573.2	2x2	LTE B41	20	40620	2593	2x2	LTE B41	20	40818	2612.8	2x2	24.47	24.51		
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B41	20	40620	2593	2x2	LTE B41	20	40422	2573.2	2x2	LTE B41	20	40620	2593	2x2	LTE B41	20	40818	2612.8	2x2	24.48	24.51		
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B41	20	40620	2593	2x2	LTE B41	20	40422	2573.2	2x2	LTE B41	20	40620	2593	2x2	LTE B41	20	40818	2612.8	2x2	24.49	24.51		
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B41	20	40620	2593	2x2	LTE B41	20	40422	2573.2	4A4	LTE B41	20	40620	2593	4A4	LTE B41	20	40818	2612.8	4A4	24.49	24.51		
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	2x2	LTE B25	20	8700	1885	4A4	LTE B41	20	40422	2573.2	4A4	LTE B41	20	40620	2593	4A4	LTE B41	20	40818	2612.8	4A4	24.47	24.51		
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	2x2	LTE B25	20	8700	1885	4A4	LTE B41	20	40422	2573.2	4A4	LTE B41	20	40620	2593	4A4	LTE B41	20	40818	2612.8	4A4	24.48	24.51		
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B25	20	8700	1885	4A4	LTE B41	20	40422	2573.2	4A4	LTE B41	20	40620	2593	4A4	LTE B41	20	40818	2612.8	4A4	24.48	24.51		
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B25	20	8700	1885	4A4	LTE B41	20	40422	2573.2	4A4	LTE B41	20	40620	2593	4A4	LTE B41	20	40818	2612.8	4A4	24.48	24.51		
CA 10A_10B_10B	LTE B25	5	26065	1852.5	QPSK	1	12	8065	1932.5	4A4	LTE B41	20	40620	2593	2x2	LTE B41	20	40422	2573.2	2x2	LTE B41	20	40620	2593	2x2	LTE B41	20	40818	2612.8	2x2	24.48	24.51		

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Maximum Output Powers

Combination	PCC												SCC						Power																
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	DL Ant. Config.	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	SCC UL RB	SCC UL RB Offset	SCC (DL) Ch.	SCC (DL) Freq. [MHz]	DL Ant. Config.	ULCA Tx Power with add'l CA config. active on DL (dBm)	ULCA Tx Power (dBm)													
CA_41C	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.49	24.52													
CA_48C	LTE B48	20	56640	3690	QPSK	1	0	56640	3690	4x4	LTE B48	20	56442	3670.2	QPSK	1	99	56442	3670.2	4x4	20.33	20.35													
CA_86B	LTE B66	10	132022	1715	QPSK	1	49	66486	2115	4x4	LTE B66	10	132121	1724.9	QPSK	1	0	66585	2124.9	4x4	23.81	23.86													
CA_86C	LTE B66	20	132072	1720	QPSK	1	99	66536	2120	4x4	LTE B66	20	132270	1733.8	QPSK	1	0	66734	2133.8	4x4	23.85	23.84													
PCC																						SCC 1						SCC 2						Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	DL Ant. Config.	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	SCC UL RB	SCC UL RB Offset	SCC (DL) Channel	SCC (DL) Frequency [MHz]	DL Ant. Config.	ULCA Tx Power with add'l CA config. active on DL (dBm)	ULCA Tx Power (dBm)													
CA_41C_41A	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	2x2	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	2x2	24.52	24.52													
CA_41C_41A	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.51	24.52													
CA_41C_41A	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.49	24.52													
CA_41C	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.53	24.52													
CA_48C	LTE B48	20	56640	3690	QPSK	1	0	56640	3690	4x4	LTE B48	20	56442	3670.2	QPSK	1	99	56442	3670.2	4x4	20.37	20.35													
CA_48C_48A	LTE B48	20	56640	3690	QPSK	1	0	56640	3690	4x4	LTE B48	20	56442	3670.2	QPSK	1	99	56442	3670.2	4x4	20.79	20.35													
CA_48C_48B	LTE B48	20	56640	3690	QPSK	1	0	56640	3690	2x2	LTE B48	20	56442	3670.2	QPSK	1	99	56442	3670.2	2x2	20.79	20.35													
CA_48C_48A	LTE B48	20	56640	3690	QPSK	1	0	56640	3690	2x2	LTE B48	20	56442	3670.2	QPSK	1	99	56442	3670.2	2x2	20.79	20.35													
CA_48C_48B	LTE B48	20	56640	3690	QPSK	1	0	56640	3690	4x4	LTE B48	20	56442	3670.2	QPSK	1	99	56442	3670.2	4x4	20.79	20.35													
PCC																						SCC 1						SCC 2						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 (UL) Channel	SCC (UL) Freq. [MHz]	Modulation	SCC UL RB	SCC UL RB Offset	SCC (DL) Channel	SCC (DL) Freq. [MHz]	DL Ant. Config.	ULCA Tx Power with add'l CA config. active on DL (dBm)	ULCA Tx Power (dBm)													
CA_41E	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.53	24.52													
CA_41E_41A	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	2x2	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	2x2	24.51	24.52													
CA_41E_41A	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	2x2	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	2x2	24.51	24.52													
CA_41E_41A	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.51	24.52													
PCC																						SCC 1						SCC 2						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 (UL) Channel	SCC (UL) Freq. [MHz]	Modulation	SCC UL RB	SCC UL RB Offset	SCC (DL) Channel	SCC (DL) Freq. [MHz]	DL Ant. Config.	ULCA Tx Power with add'l CA config. active on DL (dBm)	ULCA Tx Power (dBm)													
CA_41C_41E	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	2x2	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	2x2	24.46	24.52													
CA_41C_41E	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.48	24.52													
CA_41E_41D	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.44	24.52													
CA_41E_41D	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	2x2	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	2x2	24.44	24.52													
CA_41E_41D	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.41	24.52													
CA_41E_41E	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.44	24.52													
CA_41E_41E	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.43	24.52													
CA_41E_41E	LTE B41	20	41490	2680	QPSK	1	0	41490	2680	4x4	LTE B41	20	41292	2660.2	QPSK	1	99	41292	2660.2	4x4	24.43	24.52													

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