

LTE Downlink Carrier Aggregation

1. DL Inter Band(2CC)

| E-UTRA CA configuration | Bandwidth Combination Set | E-UTRA Band | Bandwidth | | | | | | Max Aggregated BW |
|-------------------------|---------------------------|-------------|-----------|-------|-------|--------|--------|--------|-------------------|
| | | | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | |
| 2A-4A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 40 |
| | | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | (1) | Band 2 | | Yes | Yes | | | | 20 |
| 2A-5A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 30 |
| | | Band 5 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-12A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 30 |
| | | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | (1) | Band 2 | | Yes | Yes | Yes | Yes | Yes | 30 |
| 2A-46A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 40 |
| | | Band 46 | | | | | | Yes | |
| 2A-66A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 40 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | (1) | Band 2 | | Yes | Yes | Yes | Yes | Yes | 20 |
| 2A-71A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 40 |
| | | Band 71 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | (1) | Band 2 | | Yes | Yes | Yes | Yes | Yes | 20 |
| 4A-5A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 20 |
| | | Band 71 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | (1) | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | 30 |
| 4A-12A | (0) | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | 20 |
| | | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | (1) | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | 30 |
| | (2) | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | 30 |
| | (3) | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | 20 |
| 4A-46A | (0) | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | 40 |
| | | Band 46 | | | | | | Yes | |
| | (0) | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | 40 |
| | (1) | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | 20 |
| | (2) | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | 20 |
| 5A-66A | (0) | Band 5 | Yes | Yes | Yes | Yes | Yes | Yes | 30 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | (0) | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | 20 |
| | (1) | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | 30 |
| | (2) | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | 20 |
| 12A-66A | (0) | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | 30 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | (3) | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | 20 |
| | (4) | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | 30 |
| | (5) | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | 20 |
| 25A-26A | (0) | Band 25 | Yes | Yes | Yes | Yes | Yes | Yes | 35 |
| | | Band 26 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | (1) | Band 25 | Yes | Yes | Yes | Yes | Yes | Yes | 20 |
| 25A-41A | (0) | Band 25 | Yes | Yes | Yes | Yes | Yes | Yes | 40 |
| | | Band 41 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 26A-41A | (0) | Band 26 | Yes | Yes | Yes | Yes | Yes | Yes | 35 |
| | | Band 41 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 66A-46A | (0) | Band 66 | 3 | Yes | Yes | Yes | Yes | Yes | 40 |
| | | Band 46 | | | | | | Yes | |
| 66A-71A | (0) | Band 26 | Yes | Yes | Yes | Yes | Yes | Yes | 40 |
| | | Band 41 | Yes | Yes | Yes | Yes | Yes | Yes | |

2. DL Inter Band(3CC)

| E-UTRA CA configuration | Bandwidth Combination Set | E-UTRA Band | Bandwidth | | | | | | Max Aggregated BW |
|-------------------------|---------------------------|-------------|---------------|-------|-------|--------|--------|--------|-------------------|
| | | | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | |
| 2A-2A-4A | (0) | Band 2 | 2A-2A BCS 0 | | | | | | 60 |
| | | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-2A-12A | (0) | Band 2 | 2A-2A BCS 0 | | | | | | 50 |
| | | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-2A-66A | (0) | Band 2 | 2A-2A BCS 0 | | | | | | 60 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-2A-71A | (0) | Band 2 | 2A-2A BCS 0 | | | | | | 60 |
| | | Band 71 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-4A-4A | (0) | Band 2 | 4A-4A BCS 0 | | | | | | 60 |
| | | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-4A-5A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 50 |
| | | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | | Band 5 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-4A-12A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 50 |
| | | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-4A-71A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 60 |
| | | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-5A-66A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 50 |
| | | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-12A-66A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 50 |
| | | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | (1) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 40 |
| 2A-66A-66A | (0) | Band 2 | 66A-66A BCS 0 | | | | | | 60 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-66C | (0) | Band 2 | 66C BCS 0 | | | | | | 60 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-66A-71A | (0) | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | 60 |
| | | Band 71 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2C-66A | (1) | Band 2 | 2C BCS 0 | | | | | | 50 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 4A-4A-12A | (0) | Band 4 | 4A-4A BCS 0 | | | | | | 50 |
| | | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 4A-4A-71A | (0) | Band 4 | 4A-4A BCS 0 | | | | | | 60 |
| | | Band 71 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 12A-66A-66A | (0) | Band 12 | 66A-66A BCS 0 | | | | | | 50 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 12A-66C | (0) | Band 12 | 66C BCS 0 | | | | | | 50 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-46A-46A | (0) | Band 2 | 46A-46A BCS 0 | | | | | | 60 |
| | | Band 46 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-46A-66A | (0) | Band 2 | 66A-66A BCS 0 | | | | | | 60 |
| | | Band 46 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-46C | (0) | Band 2 | 46C BCS 0 | | | | | | 60 |
| | | Band 46 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 4A-46A-46A | (0) | Band 4 | 46A-46A BCS 0 | | | | | | 60 |
| | | Band 46 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 4A-46C | (0) | 4 | 46C BCS 0 | | | | | | 60 |
| | | Band 46 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 66A-46A-46A | (0) | Band 46 | 46A-46A BCS 0 | | | | | | 60 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 66A-46C | (0) | Band 46 | 46C BCS 0 | | | | | | 60 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 66A-66A-71A | (0) | Band 66 | 66A-66A BCS 0 | | | | | | 60 |
| | | Band 71 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 66C-71A | (0) | Band 66 | 66C BCS 0 | | | | | | 60 |
| | | Band 71 | Yes | Yes | Yes | Yes | Yes | Yes | |

3. DL Inter Band(4CC)

| E-UTRA CA configuration | Bandwidth Combination Set | E-UTRA Band | Bandwidth | | | | | | Max Aggregated BW |
|-------------------------|---------------------------|-------------|---------------|-------|-------|--------|--------|--------|-------------------|
| | | | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | |
| 2A-2A-4A-12A | (0) | Band 2 | 2A-2A BCS 0 | | | | | | 70 |
| | | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-2A-4A-66A | (0) | Band 12 | 2A-2A BCS 0 | | | | | | 80 |
| | | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-2A-4A-71A | (0) | Band 2 | 2A-2A BCS 0 | | | | | | 80 |
| | | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | | Band 71 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-2A-12A-66A | (0) | Band 12 | 2A-2A BCS 0 | | | | | | 70 |
| | | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-2A-66A-71A | (0) | Band 66 | 2A-2A BCS 0 | | | | | | 80 |
| | | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | | Band 71 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-66C-71A | (0) | Band 66 | 66C BCS 0 | | | | | | 80 |
| | | Band 71 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2C-66A-66A | (0) | Band 2 | 2A-2A BCS 0 | | | | | | 80 |
| | | Band 66 | 2C BCS 0 | | | | | | |
| 2A-2A-66A-66A | (0) | Band 2 | 66A-66A BCS 0 | | | | | | 80 |
| | | Band 66 | 66A-66A BCS 0 | | | | | | |
| 2A-2A-66C | (0) | Band 2 | 2A-2A BCS 0 | | | | | | 80 |
| | | Band 66 | 66C BCS 0 | | | | | | |
| 2A-4A-4A-12A | (0) | Band 2 | 4A-4A BCS 0 | | | | | | 70 |
| | | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-12A-66C | (0) | Band 2 | 66C BCS 0 | | | | | | 70 |
| | | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-66A-66A-71A | (0) | Band 2 | 66A-66A BCS 0 | | | | | | 80 |
| | | Band 66 | 66A-66A BCS 0 | | | | | | |
| 2A-46A-46C | (0) | Band 2 | 46A-46C BCS 0 | | | | | | 80 |
| | | Band 46 | 46A-46C BCS 0 | | | | | | |
| 2A-46D | (0) | Band 2 | 46D BCS 0 | | | | | | 80 |
| | | Band 46 | 46D BCS 0 | | | | | | |
| 2A-46A-46A-66A | (0) | Band 2 | 46D BCS 0 | | | | | | 80 |
| | | Band 46 | 46D BCS 0 | | | | | | |
| | | Band 66 | 46D BCS 0 | | | | | | |
| 2A-46C-66A | (0) | Band 2 | 46C BCS 0 | | | | | | 80 |
| | | Band 46 | 46C BCS 0 | | | | | | |
| | | Band 66 | 46C BCS 0 | | | | | | |
| 2A-12A-66A-66A | (0) | Band 2 | 66A-66A BCS 0 | | | | | | 70 |
| | | Band 12 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | | Band 66 | 66A-66A BCS 0 | | | | | | |
| 25A-41D | (0) | Band 25 | 41D BCS 0 | | | | | | 80 |
| | | Band 41 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-46D | (0) | Band 2 | 46D BCS 0 | | | | | | 80 |
| | | Band 46 | 46D BCS 0 | | | | | | |
| 2C-66A-66A | (0) | Band 2 | 2C BCS 0 | | | | | | 80 |
| | | Band 66 | 66A-66A BCS 0 | | | | | | |
| 4A-46A-46C | (0) | Band 4 | 46A-46C BCS 0 | | | | | | 80 |
| | | Band 46 | 46A-46C BCS 0 | | | | | | |
| 4A-46D | (0) | Band 4 | 46D BCS 0 | | | | | | 80 |
| | | Band 46 | 46D BCS 0 | | | | | | |
| 66A-46A-46C | (0) | Band 46 | 46A-46C BCS 0 | | | | | | 80 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 66A-46D | (0) | Band 46 | 46D BCS 0 | | | | | | 80 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |

LTE Downlink Carrier Aggregation (Continued)

4. DL Inter Band(5CC)

| E-UTRA CA configuration | Bandwidth Combination Set | E-UTRA Band | Bandwidth | | | | | | Max Aggregated BW |
|-------------------------|---------------------------|-------------|---------------|-------|-------|--------|--------|--------|-------------------|
| | | | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | |
| 2A-46A-46C-66A | (0) | Band 2 | | | Yes | Yes | Yes | Yes | 100 |
| | | Band 46 | 46A-46C BCS 0 | | | | | | |
| | | Band 66 | | | Yes | Yes | Yes | Yes | |
| 2A-46A-46D | (0) | Band 2 | | | Yes | Yes | Yes | 100 | |
| | | Band 46 | 46A-46D BCS 0 | | | | | | |
| 2A-46D-66A | (0) | Band 2 | | | Yes | Yes | Yes | 80 | |
| | | Band 46 | 46D BCS 0 | | | | | | |
| | | Band 66 | | | Yes | Yes | Yes | | Yes |
| 2A-46E | (0) | Band 2 | | | Yes | Yes | Yes | 80 | |
| | | Band 46 | 46E BCS 0 | | | | | | |
| 4A-46A-46D | (0) | Band 4 | | | Yes | Yes | Yes | 100 | |
| | | Band 46 | 46A-46D BCS 0 | | | | | | |
| 66A-46A-46D | (0) | Band 66 | | | Yes | Yes | Yes | 80 | |
| | | Band 46 | 46A-46D BCS 0 | | | | | | |
| 66A-46E | (0) | Band 66 | | | Yes | Yes | Yes | 100 | |
| | | Band 46 | 46E BCS 0 | | | | | | |

5. DL Inter Band(6CC)

| E-UTRA CA configuration | Bandwidth Combination Set | E-UTRA Band | Bandwidth | | | | | | Max Aggregated BW |
|-------------------------|---------------------------|-------------|-----------|-------|-------|--------|--------|--------|-------------------|
| | | | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | |
| 2A-46E-66A | (0) | Band 2 | | | Yes | Yes | Yes | Yes | 120 |
| | | Band 46 | 46E BCS 0 | | | | | | |
| | | Band 66 | | | Yes | Yes | Yes | Yes | |

6. DL Intra Band(non-contiguous)

| E-UTRA CA configuration | Bandwidth Combination Set | E-UTRA Band | Allowed Channel BW Per Carrier (MHz) | | | | Max Aggregated BW |
|-------------------------|---------------------------|-------------|--------------------------------------|---------------|-------------|-------------|-------------------|
| | | | 1st Carrier | 2nd Carrier | 3rd Carrier | 4th Carrier | |
| 4A-4A | (0) | Band 4 | 5, 10, 15, 20 | 5, 10, 15, 20 | | | 40 |
| | | Band 4 | 5, 10 | 5, 10 | | | 20 |
| 25A-25A | (0) | Band 25 | 5, 10 | 5, 10 | | | 20 |
| | | Band 25 | 5, 10, 15, 20 | 5, 10, 15, 20 | | | 40 |
| 41A-41A | (0) | Band 41 | 10, 15, 20 | 10, 15, 20 | | | 40 |
| | | Band 41 | 5, 10, 15, 20 | 5, 10, 15, 20 | | | 40 |
| 41A-41C | (0) | Band 41 | 5, 10, 15, 20 | | 41C BCS 1 | | 60 |
| | | Band 41 | 41C BCS 1 | 5, 10, 15, 20 | | | 60 |
| 66A-66A | (0) | Band 66 | 5, 10, 15, 20 | 5, 10, 15, 20 | | | 40 |
| 66A-66C | (0) | Band 66 | 5, 10, 15, 20 | 66C BCS 0 | | | 60 |
| | | | 66C BCS 0 | 5, 10, 15, 20 | | | |

7. UL & DL Intra Band(contiguous)

| E-UTRA CA configuration | Bandwidth Combination Set | E-UTRA Band | Allowed Channel BW Per Carrier (MHz) | | | | Max Aggregated BW |
|-------------------------|---------------------------|-------------|--------------------------------------|---------------|-------------|-------------|-------------------|
| | | | 1st Carrier | 2nd Carrier | 3rd Carrier | 4th Carrier | |
| 2C | (0) | Band 2 | 5 | 20 | | | 40 |
| | | | 10 | 15, 20 | | | |
| | | | 15 | 10, 15, 20 | | | |
| | | | 20 | 5, 10, 15, 20 | | | |
| 66B | (0) | Band 66 | 5 | 5, 10, 15 | | | 20 |
| | | | 10 | 5, 10 | | | |
| 41C | (0) | Band 41 | 15 | 15, 20 | | | 40 |
| | | | 20 | 10, 15, 20 | | | |
| | | | 5, 10 | 20 | | | |
| | | | 15 | 15, 20 | | | |
| 41C | (1) | Band 41 | 10 | 15, 20 | | | 40 |
| | | | 20 | 5, 10, 15, 20 | | | |
| | | | 10 | 15, 20 | | | |
| | | | 15 | 10, 15, 20 | | | |
| 41C | (2) | Band 41 | 10 | 15, 20 | | | 40 |
| | | | 20 | 5, 10, 15, 20 | | | |
| | | | 10 | 15, 20 | | | |
| | | | 15 | 10, 15, 20 | | | |
| 41C | (3) | Band 41 | 10 | 20 | | | 40 |
| | | | 20 | 20 | | | |
| | | | 10 | 20 | 15 | | |
| | | | 10 | 15, 20 | 20 | | |
| 41D | (0) | Band 41 | 15 | 20 | 10, 15 | | 60 |
| | | | 15 | 10, 15, 20 | 20 | | |
| | | | 20 | 15, 20 | 10 | | |
| | | | 20 | 10, 15, 20 | 15, 20 | | |
| | | | 5 | 20 | | | |
| 66C | (0) | Band 66 | 10 | 15, 20 | | | 40 |
| | | | 15 | 10, 15, 20 | | | |
| | | | 20 | 5, 10, 15, 20 | | | |
| | | | 20 | 5, 10, 15, 20 | | | |

Note(s):

Except LTE CA_41C, All CA bands are support to Downlink.

LTE Uplink Carrier Aggregation Combinations

Maximum Output Power (Tune-up Limit) for LTE UL Carrier Aggregation

UL CA shall be tested based on the worst-case SAR configuration determined from non-CA SAR testing result. The channel BW, channel number, RB Allocation, etc. would be selected to allow contiguous CA of PCC and SCC. Uplink output power for UL CA is the total power measured across the PCC and SCC.

UL CA power measurements were performed with QPSK modulation based on the worst-case standalone SAR. The tune-up limits are provided in table below. The UL CA mode power measurements represent the total power across both carriers. Measurements were made for all supported PCC bandwidths using the channel/RB combination resulting in the highest standalone output power at the least MPR (0 dB). SCCs were set to use configurations similar to the PCC to establish conservative or worst case equivalent SAR test conditions (highest maximum power with MPR of 0 dB).

The standalone power measurement is the power for the PCC in the non-CA mode (i.e. single carrier power). In all cases the UL CA power is less than or equal to the standalone power, which is in accordance with the tune-up limits in table below.

According to November 2017 TCB workshop, Uplink CA SAR Test Guidance as follows;

- a) When the maximum output for UL CA is \leq standalone LTE mode (without CA)
 - PCC is configured according to the highest standalone SAR configuration tested
 - SCC and subsequent CCs are configured according to procedures used for power measurement and parameters (BW, RB etc.) similar to that used for the PCC.
- b) When the Reported SAR for UL CA configuration, described above, is $>$ 1.2 W/kg, UL CA SAR is also required for all required test channels (PCC based).
- c) UL CA SAR is also required for standalone SAR configurations $>$ 1.2 W/kg when they are scaled to the UL CA power level.

SAR measurement is not required for the 16QAM and 64QAM. When the highest maximum output power for 16QAM and 64QAM is \leq 0.25 dB higher than the QPSK or when the reported SAR for the QPSK configuration is \leq 1.45 W/kg.

LTE Uplink 2CA for SAR testing

| E-UTRA CA configurations | RF exposure conditions | Bands | | UL | | | | | | | | | | | | | | LTE Rel.8 Tune-up Limit (dBm) | | | |
|----------------------------------|------------------------|-------|-----|------|----|--------|----|------|-------|------|----|--------|----|--------|-------|-----|---------------|-------------------------------|---------------------|--------------------------------|------------|
| | | PCC | SCC | PCC | | | | | | SCC | | | | | | MPR | PCC + SCC | | | | |
| | | 1st | 2nd | Mod | RB | Offset | BW | Freq | Ch | Mod | RB | Offset | BW | Freq | Ch | | Aggregated BW | | Tune-up Limit (dBm) | CA power (total PCC+SCC) (dBm) | 3GPP Rel.# |
| CA_41C (0)(1) -Power Class 3- | Standalone | 41C | 41C | QPSK | 50 | 0 | 20 | 2593 | 40620 | QPSK | 50 | 50 | 20 | 2573.2 | 40422 | 0 | 40 | 18.0 | 17.1 | 15 | 18.0 |
| CA_41C (0)(1) -Power Class 2- | Standalone | 41C | 41C | QPSK | 50 | 0 | 20 | 2593 | 40620 | QPSK | 50 | 50 | 20 | 2573.2 | 40422 | 0 | 40 | 19.5 | 18.7 | 15 | 19.5 |

Note:
Standalone output power values are referenced from Sec.9.2 in the SAR Part.1 Test Report.

LTE Downlink Carrier Aggregation Combinations

The DL CA power measurement conditions for various CC's combinations were determined according LTE DL CA SAR Test Exclusion guidance in TCB workshop note (April 2018). Only yellow highlighted cells need power measurement. The following power measurements were performed with a single carrier uplink; CA for this particular project only supports one (1) uplink and up to four (6) downlinks.

LTE Release 10 Carrier Aggregation

| Index | 2CC | Restriction | Completely Covered by Measurement Superset | Index | 3CC | Restriction | Completely Covered by Measurement Superset | Index | 4CC | Restriction | Completely Covered by Measurement Superset | Index | 5CC | Restriction | Completely Covered by Measurement Superset | Index | 6CC | Restriction | Completely Covered by Measurement Superset |
|--------|---------|--------------|--|--------|-------------|--------------|--|--------|----------------|------------------|--|-------|----------------|------------------|--|-------|------------|--------------|--|
| 2CC#1 | 2A-4A | | 4CC#1 | 3CC#1 | 2A-2A-4A | | 4CC#2 | 4CC#1 | 2A-2A-4A-12A | | | 5CC#1 | 2A-46A-46D | 46A 46D SCC only | | 6CC#1 | 2A-46E-66A | 46E SCC only | |
| 2CC#2 | 2A-5A | | 3CC#9 | 3CC#2 | 2A-2A-12A | | 4CC#3 | 4CC#2 | 2A-2A-4A-71A | | | 5CC#2 | 2A-46E | 46E SCC only | | | | | |
| 2CC#3 | 2A-12A | | 4CC#9 | 3CC#3 | 2A-2A-66A | | 4CC#7 | 4CC#3 | 2A-2A-12A-66A | | | 5CC#3 | 2A-46A-46C-66A | 46A 46C SCC only | | | | | |
| 2CC#4 | 2A-46A | 46A SCC only | 5CC#1 | 3CC#4 | 2A-2A-71A | | 4CC#2 | 4CC#4 | 2A-2A-66A-66A | | | 5CC#4 | 2A-46D-66A | 46D SCC only | | | | | |
| 2CC#5 | 2A-66A | | 5CC#7 | 3CC#5 | 2A-4A-4A | | 4CC#8 | 4CC#5 | 2A-2A-66C | | | 5CC#5 | 4A-46A-46D | 46A 46D SCC only | | | | | |
| 2CC#6 | 2A-71A | | 4CC#14 | 3CC#6 | 2A-4A-5A | | | 4CC#6 | 2C-66A-66A | | | 5CC#6 | 66A-46A-46D | 46D SCC only | | | | | |
| 2CC#7 | 4A-4A | | 4CC#8 | 3CC#7 | 2A-4A-12A | | 4CC#1 | 4CC#7 | 2A-2A-66A-71A | | | 5CC#7 | 66A-46E | 46E SCC only | | | | | |
| 2CC#8 | 4A-5A | | 3CC#6 | 3CC#8 | 2A-4A-71A | | 4CC#2 | 4CC#8 | 2A-4A-4A-12A | | | | | | | | | | |
| 2CC#9 | 4A-12A | | 4CC#1 | 3CC#9 | 2A-5A-66A | | | 4CC#9 | 2A-12A-66A-66A | | | | | | | | | | |
| 2CC#10 | 4A-46A | 46A SCC only | 5CC#5 | 3CC#10 | 2A-12A-66A | | 4CC#9 | 4CC#10 | 2A-12A-66C | | | | | | | | | | |
| 2CC#11 | 4A-71A | | 4CC#2 | 3CC#11 | 2A-66A-66A | | 4CC#11 | 4CC#11 | 2A-66A-66A-71A | | | | | | | | | | |
| 2CC#12 | 5A-66A | | 3CC#9 | 3CC#12 | 2A-66C | | 4CC#12 | 4CC#12 | 2A-66C-71A | | | | | | | | | | |
| 2CC#13 | 12A-66A | | 4CC#9 | 3CC#13 | 2C-66A-71A | | 4CC#7 | 4CC#13 | 25A-41D | 41D SCC only | | | | | | | | | |
| 2CC#14 | 25A-25A | | | 3CC#14 | 2C-66A | | 4CC#6 | 4CC#14 | 2A-46A-46C | 46A 46C SCC only | 5CC#3 | | | | | | | | |
| 2CC#15 | 25A-26A | | | 3CC#15 | 4A-4A-12A | | 4CC#8 | 4CC#15 | 2A-46D | 46D SCC only | 5CC#4 | | | | | | | | |
| 2CC#16 | 25A-41A | 41A SCC only | | 3CC#16 | 4A-4A-71A | | | 4CC#16 | 2A-46A-46A-66A | 46A SCC only | | | | | | | | | |
| 2CC#17 | 26A-41A | 41A SCC only | | 3CC#17 | 12A-66A-66A | | 4CC#9 | 4CC#17 | 2A-46C-66A | 46C SCC only | | | | | | | | | |
| 2CC#18 | 41A-41A | 41A SCC only | | 3CC#18 | 12A-66C | | 4CC#10 | 4CC#18 | 4A-46A-46C | 46A 46C SCC only | | | | | | | | | |
| 2CC#19 | 66A-46A | 46A SCC only | 5CC#8 | 3CC#19 | 41A-41C | | | 4CC#19 | 4A-46D | 46D SCC only | | | | | | | | | |
| 2CC#20 | 66A-66A | | 4CC#4 | 3CC#20 | 41D | | 4CC#21 | 4CC#20 | 66A-2A-46A-46A | 46A SCC only | | | | | | | | | |
| 2CC#21 | 66A-71A | | 4CC#11 | 3CC#21 | 66A-66C | | | 4CC#21 | 66A-2A-46C | 46C SCC only | | | | | | | | | |
| 2CC#22 | 2C | | 4CC#6 | 3CC#22 | 66A-66A-71A | | 4CC#11 | 4CC#22 | 66A-46A-46C | 46C SCC only | 5CC#6 | | | | | | | | |
| 2CC#23 | 41C | | 3CC#30 | 3CC#23 | 66C-71A | | 4CC#12 | 4CC#23 | 66A-46D | 46D SCC only | | | | | | | | | |
| 2CC#24 | 66B | | | 3CC#24 | 2A-46A-46A | 46A SCC only | 4CC#37 | | | | | | | | | | | | |
| 2CC#25 | 66C | | 4CC#10 | 3CC#25 | 2A-46C | 46C SCC only | 4CC#38 | | | | | | | | | | | | |
| | | | | 3CC#26 | 2A-46A-66A | 46A SCC only | 5CC#6 | | | | | | | | | | | | |
| | | | | 3CC#27 | 4A-46A-46A | 46A SCC only | | | | | | | | | | | | | |
| | | | | 3CC#28 | 4A-46C | 46C SCC only | | | | | | | | | | | | | |
| | | | | 3CC#29 | 66A-46A-46A | 46A SCC only | | | | | | | | | | | | | |
| | | | | 3CC#30 | 66A-46C | 46C SCC only | | | | | | | | | | | | | |

Note:

Only yellow highlight cells need power measurement according to LTE DL CA SAR test Exclusion in TCB workshop (April.2018).

LTE Release 10 Carrier Aggregation with 4x4 MIMO

| Index | 2CC | Restriction | Completely Covered by Measurement Superset | Index | 3CC | Restriction | Completely Covered by Measurement Superset | Index | 4CC | Restriction | Completely Covered by Measurement Superset | CA combos | 5CC | Restriction | Completely Covered by Measurement Superset | CA combos | 6CC | Restriction | Completely Covered by Measurement Superset |
|--------|-------------|--------------|--|--------|-----------------|--------------|--|--------|-----------------------|-------------|--|-----------|--------------------|--------------|--|-----------|----------------|--------------|--|
| 2CC#1 | [2A]-[2A] | | 4CC#4 | 3CC#1 | 2A-2A-[4A] | | 4CC#1 | 4CC#1 | 2A-2A-[4A]-12A | | | 5CC#1 | 2A-46A-66C-[66A] | B46 SCC only | | 6CC#1 | 2A-46E-[66A] | B46 SCC only | |
| 2CC#2 | 2A-[4A] | | 4CC#1 | 3CC#2 | [2A]-2A-4A | | 4CC#2 | 4CC#2 | 2A-[2A]-4A-12A | | | 5CC#2 | [2A]-46A-46C-66A | B46 SCC only | | 6CC#2 | [2A]-46E-66A | B46 SCC only | |
| 2CC#3 | [2A]-4A | | 4CC#2 | 3CC#3 | [2A]-2A-[4A] | | 4CC#3 | 4CC#3 | 2A-[2A]-[4A]-12A | | | 5CC#3 | [2A]-46A-46C-[66A] | B46 SCC only | | 6CC#3 | [2A]-46E-[66A] | B46 SCC only | |
| 2CC#4 | [2A]-[4A] | | 4CC#5 | 3CC#4 | [2A]-[2A]-4A | | 4CC#3 | 4CC#4 | [2A]-[2A]-4A-12A | | | 5CC#4 | [2A]-46A-46D | B46 SCC only | | | | | |
| 2CC#5 | [2A]-5A | | 3CC#21 | 3CC#5 | [2A]-[2A]-[4A] | | 4CC#5 | 4CC#5 | [2A]-[2A]-[4A]-12A | | | 5CC#5 | 2A-46D-[66A] | B46 SCC only | | | | | |
| 2CC#6 | [2A]-12A | | 4CC#3 | 3CC#6 | 2A-[2A]-12A | | 4CC#4 | 4CC#6 | 2A-2A-[4A]-71A | | | 5CC#6 | [2A]-46D-66A | B46 SCC only | | | | | |
| 2CC#7 | [2A]-46A | B46 SCC only | 4CC#49 | 3CC#7 | [2A]-[2A]-12A | | 4CC#5 | 4CC#7 | 2A-[2A]-4A-71A | | | 5CC#7 | [2A]-46D-[66A] | B46 SCC only | | | | | |
| 2CC#8 | 2A-[66A] | | 4CC#11 | 3CC#8 | 2A-2A-[66A] | | 4CC#11 | 4CC#8 | 2A-[2A]-[4A]-71A | | | 5CC#8 | [2A]-46E | B46 SCC only | 6CC#3 | | | | |
| 2CC#9 | [2A]-66A | | 4CC#14 | 3CC#9 | 2A-[2A]-66A | | 4CC#12 | 4CC#9 | [2A]-[2A]-4A-71A | | | 5CC#9 | [4A]-46A-46D | B46 SCC only | | | | | |
| 2CC#10 | [2A]-[66A] | | 4CC#15 | 3CC#10 | 2A-[2A]-[66A] | | 4CC#13 | 4CC#10 | [2A]-[2A]-[4A]-71A | | | 5CC#10 | [66A]-46A-46D | B46 SCC only | | | | | |
| 2CC#11 | [2A]-71A | | 4CC#30 | 3CC#11 | [2A]-[2A]-66A | | 4CC#14 | 4CC#11 | 2A-2A-12A-[66A] | | | 5CC#11 | [66A]-46E | B46 SCC only | 6CC#1 | | | | |
| 2CC#12 | [2C] | | 4CC#66 | 3CC#12 | [2A]-[2A]-[66A] | | 4CC#15 | 4CC#12 | 2A-[2A]-12A-66A | | | | | | | | | | |
| 2CC#13 | 4A-[4A] | | 4CC#34 | 3CC#13 | [2A]-2A-71A | | 4CC#7 | 4CC#13 | 2A-[2A]-12A-[66A] | | | | | | | | | | |
| 2CC#14 | [4A]-4A | | 4CC#34 | 3CC#14 | [2A]-[2A]-71A | | 4CC#9 | 4CC#14 | [2A]-[2A]-12A-66A | | | | | | | | | | |
| 2CC#15 | [4A]-[4A] | | 4CC#36 | 3CC#15 | 2A-[4A]-4A | | 4CC#34 | 4CC#15 | [2A]-[2A]-12A-[66A] | | | | | | | | | | |
| 2CC#16 | [4A]-5A | | 3CC#20 | 3CC#16 | [2A]-4A-4A | | 4CC#35 | 4CC#16 | 2A-2A-[66A]-66A | | | | | | | | | | |
| 2CC#17 | [4A]-12A | | 4CC#1 | 3CC#17 | 2A-[4A]-[4A] | | 4CC#36 | 4CC#17 | [2A]-2A-66A-66A | | | | | | | | | | |
| 2CC#18 | [4A]-46A | B46 SCC only | 3CC#58 | 3CC#18 | [2A]-[4A]-4A | | 4CC#37 | 4CC#18 | 2A-2A-[66A]-[66A] | | | | | | | | | | |
| 2CC#19 | [4A]-71A | | 4CC#8 | 3CC#19 | [2A]-[4A]-[4A] | | 4CC#38 | 4CC#19 | [2A]-2A-[66A]-66A | | | | | | | | | | |
| 2CC#20 | 5A-[66A] | | 3CC#29 | 3CC#20 | 2A-[4A]-5A | | | 4CC#20 | [2A]-[2A]-66A-66A | | | | | | | | | | |
| 2CC#21 | 12A-[66A] | | 4CC#39 | 3CC#21 | [2A]-4A-5A | | | 4CC#21 | [2A]-2A-[66A]-[66A] | | | | | | | | | | |
| 2CC#22 | 25A-[25A] | | | 3CC#22 | [2A]-[4A]-5A | | | 4CC#22 | [2A]-[2A]-[66A]-66A | | | | | | | | | | |
| 2CC#23 | [25A]-25A | | | 3CC#23 | 2A-[4A]-12A | | 4CC#1 | 4CC#23 | [2A]-[2A]-[66A]-[66A] | | | | | | | | | | |
| 2CC#24 | [25A]-[25A] | | | 3CC#24 | [2A]-4A-12A | | 4CC#2 | 4CC#24 | 2A-2A-[66C] | | | | | | | | | | |
| 2CC#25 | [25A]-26A | | | 3CC#25 | [2A]-[4A]-12A | | 4CC#3 | 4CC#25 | [2A]-2A-66C | | | | | | | | | | |
| 2CC#26 | 25A-[41A] | B41 SCC only | | 3CC#26 | 2A-[4A]-71A | | 4CC#6 | 4CC#26 | [2A]-2A-[66C] | | | | | | | | | | |
| 2CC#27 | [25A]-41A | B41 SCC only | | 3CC#27 | [2A]-4A-71A | | 4CC#7 | 4CC#27 | [2A]-[2A]-66C | | | | | | | | | | |
| 2CC#28 | [25A]-[41A] | B41 SCC only | | 3CC#28 | [2A]-[4A]-71A | | 4CC#8 | 4CC#28 | [2A]-[2A]-[66C] | | | | | | | | | | |
| 2CC#29 | 26A-[41A] | B41 SCC only | | 3CC#29 | 2A-5A-[66A] | | | 4CC#29 | 2A-2A-[66A]-71A | | | | | | | | | | |
| 2CC#30 | 41A-[41A] | | | 3CC#30 | [2A]-5A-66A | | | 4CC#30 | [2A]-2A-66A-71A | | | | | | | | | | |
| 2CC#31 | [41A]-41A | | | 3CC#31 | [2A]-5A-[66A] | | | 4CC#31 | [2A]-2A-[66A]-71A | | | | | | | | | | |
| 2CC#32 | [41A]-[41A] | | | 3CC#32 | 2A-12A-[66A] | | 4CC#11 | 4CC#32 | [2A]-[2A]-66A-71A | | | | | | | | | | |
| 2CC#33 | [41C] | | 3CC#63 | 3CC#33 | [2A]-12A-66A | | 4CC#12 | 4CC#33 | [2A]-[2A]-[66A]-71A | | | | | | | | | | |
| 2CC#34 | [66A]-46A | B46 SCC only | 4CC#73 | 3CC#34 | [2A]-12A-[66A] | | 4CC#13 | 4CC#34 | 2A-[4A]-4A-12A | | | | | | | | | | |
| 2CC#35 | 66A-[66A] | | 3CC#67 | 3CC#35 | [2A]-46A-46A | B46 SCC only | 4CC#49 | 4CC#35 | [2A]-4A-4A-12A | | | | | | | | | | |
| 2CC#36 | [66A]-66A | | 4CC#58 | 3CC#36 | 2A-46A-[66A] | B46 SCC only | 4CC#48 | 4CC#36 | 2A-[4A]-[4A]-12A | | | | | | | | | | |
| 2CC#37 | [66A]-[66A] | | 4CC#57 | 3CC#37 | [2A]-46A-66A | B46 SCC only | 4CC#49 | 4CC#37 | [2A]-[4A]-4A-12A | | | | | | | | | | |
| 2CC#38 | [66A]-71A | | 4CC#33 | 3CC#38 | [2A]-46A-[66A] | B46 SCC only | 4CC#50 | 4CC#38 | [2A]-[4A]-[4A]-12A | | | | | | | | | | |
| 2CC#39 | [66B] | | | 3CC#39 | [2A]-46C | B46 SCC only | 5CC#2 | 4CC#39 | 2A-12A-[66A]-66A | | | | | | | | | | |
| 2CC#40 | [66C] | | 4CC#46 | 3CC#40 | 2A-[66A]-66A | | 4CC#16 | 4CC#40 | [2A]-12A-66A-66A | | | | | | | | | | |

[*] is 4X4 MIMO configuration.

Note:

Only yellow highlight cells need power measurement according to LTE DL CA SAR test Exclusion in TCB workshop (April.2018).

LTE Release 10 Carrier Aggregation with 4x4 MIMO

| Index | 2CC | Restriction | Completely Covered by Measurement Superset | Index | 3CC | Restriction | Completely Covered by Measurement Superset | Index | 4CC | Restriction | Completely Covered by Measurement Superset | CA combos | 5CC | Restriction | Completely Covered by Measurement Superset | CA combos | 6CC | Restriction | Completely Covered by Measurement Superset |
|--------|------------------|--------------|--|--------|----------------------|--------------|--|--------|----------------------|--------------|--|-----------|-----|-------------|--|-----------|-----|-------------|--|
| 3CC#41 | [2A]-66A-66A | | 4CC#17 | 4CC#41 | 2A-12A-[66A]-[66A] | | | 4CC#47 | [2A]-46A-46C | B46 SCC only | 5CC#2 | | | | | | | | |
| 3CC#42 | 2A-[66A]-[66A] | | 4CC#18 | 4CC#42 | [2A]-12A-[66A]-66A | | | 4CC#48 | 2A-46A-46A-[66A] | B46 SCC only | | | | | | | | | |
| 3CC#43 | [2A]-[66A]-66A | | 4CC#19 | 4CC#43 | [2A]-12A-[66A]-[66A] | | | 4CC#49 | [2A]-46A-46A-66A | B46 SCC only | | | | | | | | | |
| 3CC#44 | [2A]-[66A]-[66A] | | 4CC#21 | 4CC#44 | 2A-12A-[66C] | | | 4CC#50 | [2A]-46A-46A-[66A] | B46 SCC only | | | | | | | | | |
| 3CC#45 | 2A-[66A]-71A | | 4CC#29 | 4CC#45 | [2A]-12A-66C | | | 4CC#51 | 2A-46C-[66A] | B46 SCC only | 5CC#1 | | | | | | | | |
| 3CC#46 | [2A]-66A-71A | | 4CC#30 | 4CC#46 | [2A]-12A-[66C] | | | 4CC#52 | [2A]-46C-66A | B46 SCC only | 5CC#2 | | | | | | | | |
| 3CC#47 | [2A]-[66A]-71A | | 4CC#31 | 4CC#47 | [2A]-46A-46C | B46 SCC only | 5CC#2 | 4CC#53 | [2A]-46C-[66A] | B46 SCC only | 5CC#3 | | | | | | | | |
| 3CC#48 | 2A-[66C] | | 4CC#44 | 4CC#48 | 2A-46A-46A-[66A] | B46 SCC only | | 4CC#54 | [2A]-46D | B46 SCC only | 5CC#4 | | | | | | | | |
| 3CC#49 | [2A]-66C | | 4CC#45 | 4CC#49 | [2A]-46A-46A-66A | B46 SCC only | | 4CC#55 | 2A-[66A]-66A-71A | | | | | | | | | | |
| 3CC#50 | [2A]-[66C] | | 4CC#46 | 4CC#50 | [2A]-46A-46A-[66A] | B46 SCC only | | 4CC#56 | [2A]-66A-66A-71A | | | | | | | | | | |
| 3CC#51 | 2C-[66A] | | 4CC#63 | 4CC#51 | 2A-46C-[66A] | B46 SCC only | 5CC#1 | 4CC#57 | 2A-[66A]-[66A]-71A | | | | | | | | | | |
| 3CC#52 | [2C]-66A | | 4CC#64 | 4CC#52 | [2A]-46C-66A | B46 SCC only | 5CC#2 | 4CC#58 | [2A]-[66A]-66A-71A | | | | | | | | | | |
| 3CC#53 | [2C]-[66A] | | 4CC#66 | 4CC#53 | [2A]-46C-[66A] | B46 SCC only | 5CC#3 | 4CC#59 | [2A]-[66A]-[66A]-71A | | | | | | | | | | |
| 3CC#54 | 4A-[4A]-12A | | 4CC#34 | 4CC#54 | [2A]-46D | B46 SCC only | 5CC#4 | 4CC#60 | 2A-[66C]-71A | | | | | | | | | | |
| 3CC#55 | [4A]-[4A]-12A | | 4CC#36 | 4CC#55 | 2A-[66A]-66A-71A | | | 4CC#61 | [2A]-66C-71A | | | | | | | | | | |
| 3CC#56 | [4A]-4A-71A | | | 4CC#56 | [2A]-66A-66A-71A | | | 4CC#62 | [2A]-[66C]-71A | | | | | | | | | | |
| 3CC#57 | [4A]-[4A]-71A | | | 4CC#57 | 2A-[66A]-[66A]-71A | | | 4CC#63 | 2C-[66A]-66A | | | | | | | | | | |
| 3CC#58 | [4A]-46A-46A | B46 SCC only | | 4CC#58 | [2A]-[66A]-66A-71A | | | 4CC#64 | [2C]-66A-66A | | | | | | | | | | |
| 3CC#59 | [4A]-46C | B46 SCC only | 4CC#68 | 4CC#59 | [2A]-[66A]-[66A]-71A | | | 4CC#65 | 2C-[66A]-[66A] | | | | | | | | | | |
| 3CC#60 | 12A-[66A]-66A | | 4CC#39 | 4CC#60 | 2A-[66C]-71A | | | 4CC#66 | [2C]-[66A]-66A | | | | | | | | | | |
| 3CC#61 | 12A-[66A]-[66A] | | 4CC#41 | 4CC#61 | [2A]-66C-71A | | | 4CC#67 | [2C]-[66A]-[66A] | | | | | | | | | | |
| 3CC#62 | 12A-[66C] | | 4CC#44 | 4CC#62 | [2A]-[66C]-71A | | | 4CC#68 | [4A]-46A-46C | B46 SCC only | | | | | | | | | |
| 3CC#63 | 41A-[41C] | | | 4CC#63 | 2C-[66A]-66A | | | 4CC#69 | [4A]-46D | B46 SCC only | 5CC#9 | | | | | | | | |
| 3CC#64 | [41A]-41C | | | 4CC#64 | [2C]-66A-66A | | | 4CC#70 | 25A-[41D] | B41 SCC only | | | | | | | | | |
| 3CC#65 | [41A]-[41C] | | | 4CC#65 | 2C-[66A]-[66A] | | | 4CC#71 | [25A]-41D | B41 SCC only | | | | | | | | | |
| 3CC#66 | [41D] | | 4CC#70 | 4CC#66 | [2C]-[66A]-66A | | | 4CC#72 | [25A]-[41D] | B41 SCC only | | | | | | | | | |
| 3CC#67 | 66A-[66A]-71A | | 4CC#55 | 4CC#67 | [2C]-[66A]-[66A] | | | 4CC#73 | [66A]-46A-46C | B46 SCC only | 5CC#3 | | | | | | | | |
| 3CC#68 | [66A]-[66A]-71A | | 4CC#57 | 4CC#68 | [4A]-46A-46C | B46 SCC only | | 4CC#74 | [66A]-46D | B46 SCC only | 5CC#10 | | | | | | | | |
| 3CC#69 | 66A-[66C] | | | 4CC#69 | [4A]-46D | B46 SCC only | 5CC#9 | | | | | | | | | | | | |
| 3CC#70 | [66A]-66C | | | 4CC#70 | 25A-[41D] | B41 SCC only | | | | | | | | | | | | | |
| 3CC#71 | [66A]-[66C] | | | 4CC#71 | [25A]-41D | B41 SCC only | | | | | | | | | | | | | |
| 3CC#72 | [66A]-46A-46A | B46 SCC only | | 4CC#72 | [25A]-[41D] | B41 SCC only | | | | | | | | | | | | | |
| 3CC#73 | [66A]-46C | B46 SCC only | | 4CC#73 | [66A]-46A-46C | B46 SCC only | 5CC#3 | | | | | | | | | | | | |
| 3CC#74 | [66C]-71A | | 4CC#60 | 4CC#74 | [66A]-46D | B46 SCC only | 5CC#10 | | | | | | | | | | | | |
| 3CC#75 | 71A-[66A]-66A | | 4CC#55 | 4CC#75 | 71A-[66A]-[66A] | | 4CC#57 | | | | | | | | | | | | |
| 3CC#76 | 71A-[66A]-[66A] | | 4CC#57 | 4CC#76 | 71A-[66A]-[66A] | | 4CC#57 | | | | | | | | | | | | |
| 3CC#77 | 71A-[66C] | | 4CC#60 | 4CC#77 | 71A-[66C] | | 4CC#60 | | | | | | | | | | | | |

[*] is 4X4 MIMO configuration.

Note: Only yellow highlight cells need power measurement according to LTE DL CA SAR test Exclusion in TCB workshop (April.2018).

Single Carrier Downlink 4x4 MIMO output power results

| LTE Bands | Modulation | BW (MHz) | Channel | Freq. (MHz) | RB/Offset | LTE Rel 8 Tx. Power [dBm] | DL 4x4 MIMO Tx. Power [dBm] | Delta |
|-----------|------------|----------|---------|-------------|-----------|---------------------------|-----------------------------|-------|
| Band 2 | QPSK | 20 | 19100 | 1900.0 | 1/99 | 24.5 | 24.4 | -0.10 |
| Band 41 | QPSK | 20 | 41490 | 2680 | 1/0 | 23.9 | 23.8 | -0.06 |
| Band 4 | QPSK | 20 | 20175 | 1732.5 | 1/49 | 23.8 | 23.8 | 0.03 |
| Band 66 | QPSK | 20 | 132072 | 1745 | 1/49 | 23.8 | 23.7 | -0.12 |

Note: According to LTE Test Conditions in TCB workshop (May, 2017), SAR is excluded for LTE downlink 4x4 MIMO operation when uplink output with DL MIMO does not exceed highest uplink output power configuration without DL MIMO by more than 1/4 dB. And for DL MIMO with carrier aggregation, the same SAR test exclusion procedure is considered.

DL CA output power results (continued)

| E-UTRA CA configuration (BCS) | Bands | | | | | | UL | | | | | | DL | | | | | | | | | | | | LTE Rel 8 Tx. Power [dBm] | LTE Rel 10 Tx. Power | Delta | | | | | | | |
|-------------------------------|-------|-----|-----|-----|-----|-----|------|----------|---------|-------------|------------|----------|---------|-------------|----------|---------|-------------|----------|---------|-------------|----------|---------|-------------|----------|---------------------------|----------------------|-------|---------|-------------|----------|---------|-------------|-------|-------|
| | PCC | | SCC | | SCC | | PCC | | | SCC1 | | | SCC2 | | | SCC3 | | | SCC4 | | | SCC5 | | | | | | SCC6 | | | | | | |
| | 1st | 2nd | 3rd | 4th | 5th | 6th | Mode | BW (MHz) | Channel | Freq. (MHz) | RB/Offs et | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | | | | Channel | Freq. (MHz) | BW (MHz) | Channel | Freq. (MHz) | | |
| 25A-41D | 25A | 41D | 41D | 41D | | | QPSK | 20 | 26590 | 1905 | 1/99 | 20 | 8590 | 1985 | 20 | 40620 | 2593 | 20 | 40818 | 2612.8 | 20 | 41016 | 2632.6 | | | | | | | | | 24.1 | 24.0 | -0.08 |
| 2A-46A-46A-66A | 2A | 46A | 46A | 66A | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 50665 | 5537.5 | 20 | 47090 | 5180 | 20 | 66786 | 2145 | | | | | | | | | 24.0 | 23.9 | -0.05 |
| | 66A | 2A | 46A | 46A | | | QPSK | 20 | 132072 | 1720 | 1/49 | 20 | 66536 | 2120 | 20 | 900 | 1960 | 20 | 50665 | 5537.5 | 20 | 47090 | 5180 | | | | | | | | | 23.8 | 23.7 | -0.06 |
| 2A-46C-66A | 2A | 46C | 46C | 66A | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 50665 | 5537.5 | 20 | 50467 | 5517.7 | 20 | 66786 | 2145 | | | | | | | | | 24.0 | 23.9 | -0.05 |
| | 66A | 2A | 46C | 46C | | | QPSK | 20 | 132072 | 1720 | 1/49 | 20 | 66536 | 2120 | 20 | 900 | 1960 | 20 | 50665 | 5537.5 | 20 | 50467 | 5517.7 | | | | | | | | | 23.8 | 23.8 | -0.01 |
| 4A-46A-46C | 4A | 46A | 46C | 46C | | | QPSK | 20 | 20175 | 1732.5 | 1/49 | 20 | 2175 | 2132.5 | 20 | 50665 | 5537.5 | 20 | 53540 | 5825 | 20 | 53342 | 5805.2 | | | | | | | | | 23.8 | 23.8 | -0.01 |
| 4A-46D | 4A | 46D | 46D | 46D | | | QPSK | 20 | 20175 | 1732.5 | 1/49 | 20 | 2175 | 2132.5 | 20 | 50665 | 5537.5 | 20 | 50467 | 5517.7 | 20 | 50863 | 5557.3 | | | | | | | | | 23.8 | 23.8 | -0.04 |
| 66A-2A-46A-46A | 66A | 2A | 46A | 46A | | | QPSK | 20 | 132072 | 1720 | 1/49 | 20 | 66536 | 2120 | 20 | 900 | 1960 | 20 | 50665 | 5537.5 | 20 | 47090 | 5180 | | | | | | | | | 23.8 | 23.8 | -0.02 |
| | 2A | 46A | 46A | 66A | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 50665 | 5537.5 | 20 | 50467 | 5517.7 | 20 | 66786 | 2145 | | | | | | | | | 24.0 | 23.9 | -0.02 |
| 66A-46A-46C | 66A | 46A | 46C | 46C | | | QPSK | 20 | 132072 | 1720 | 1/49 | 20 | 66536 | 2120 | 20 | 50665 | 5537.5 | 20 | 53540 | 5825 | 20 | 53342 | 5805.2 | | | | | | | | | 23.8 | 23.7 | -0.03 |
| 66A-46D | 66A | 46D | 46D | 46D | | | QPSK | 20 | 132072 | 1720 | 1/49 | 20 | 66536 | 2120 | 20 | 50665 | 5537.5 | 20 | 50467 | 5517.7 | 20 | 50863 | 5557.3 | | | | | | | | | 23.8 | 23.7 | -0.06 |
| 2A-46A-46D | 2A | 46A | 46D | 46D | 46D | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 50665 | 5537.5 | 20 | 53540 | 5825 | 20 | 53342 | 5805.2 | 20 | 53144 | 5785.4 | | | | | 24.0 | 23.9 | -0.06 | |
| 2A-46E | 2A | 46E | 46E | 46E | 46E | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 50665 | 5537.5 | 20 | 50467 | 5517.7 | 20 | 50863 | 5557.3 | 20 | 51061 | 5577.1 | | | | | 24.0 | 23.9 | -0.05 | |
| 2A-46A-46C-66A | 2A | 46A | 46C | 46C | 66A | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 50665 | 5537.5 | 20 | 53540 | 5825 | 20 | 53342 | 5805.2 | 20 | 67036 | 2170 | | | | | 24.0 | 23.9 | -0.09 | |
| | 66A | 46A | 46C | 46C | 2A | | QPSK | 20 | 132072 | 1720 | 1/49 | 20 | 66536 | 2120 | 20 | 50665 | 5537.5 | 20 | 53540 | 5825 | 20 | 53342 | 5805.2 | 20 | 900 | 1960 | | | | | 23.8 | 23.6 | -0.19 | |
| 2A-46D-66A | 2A | 46D | 46D | 46D | 66A | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 50665 | 5537.5 | 20 | 50467 | 5517.7 | 20 | 50863 | 5557.3 | 20 | 67036 | 2170 | | | | | 24.0 | 24.0 | -0.01 | |
| | 66A | 2A | 46D | 46D | 46D | | QPSK | 20 | 132072 | 1720 | 1/49 | 20 | 66536 | 2120 | 20 | 900 | 1960 | 20 | 50665 | 5537.5 | 20 | 50467 | 5517.7 | 20 | 50863 | 5557.3 | | | | | 23.8 | 23.7 | -0.07 | |
| 4A-46A-46D | 4A | 46A | 46D | 46D | 46D | | QPSK | 20 | 20175 | 1732.5 | 1/49 | 20 | 2175 | 2132.5 | 20 | 50665 | 5537.5 | 20 | 53540 | 5825 | 20 | 53342 | 5805.2 | 20 | 53144 | 5785.4 | | | | | 23.8 | 23.8 | -0.01 | |
| 66A-46A-46D | 66A | 46A | 46D | 46D | 46D | | QPSK | 20 | 132072 | 1720 | 1/49 | 20 | 66536 | 2120 | 20 | 50665 | 5537.5 | 20 | 53540 | 5825 | 20 | 53342 | 5805.2 | 20 | 53144 | 5785.4 | | | | | 23.8 | 23.8 | -0.02 | |
| 66A-46E | 66A | 46E | 46E | 46E | 46E | | QPSK | 20 | 132072 | 1720 | 1/49 | 20 | 66536 | 2120 | 20 | 50665 | 5537.5 | 20 | 50467 | 5517.7 | 20 | 50863 | 5557.3 | 20 | 51061 | 5577.1 | | | | | 23.8 | 23.7 | -0.03 | |
| 2A-46E-66A | 2A | 46E | 46E | 46E | 46E | 66A | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 50665 | 5537.5 | 20 | 50467 | 5517.7 | 20 | 50863 | 5557.3 | 20 | 51061 | 5577.1 | 20 | 67036 | 2170 | | | 24.0 | 23.9 | -0.06 |
| | 66A | 2A | 46E | 46E | 46E | 46E | QPSK | 20 | 132072 | 1720 | 1/49 | 20 | 66536 | 2120 | 20 | 900 | 1960 | 20 | 50665 | 5537.5 | 20 | 50467 | 5517.7 | 20 | 50863 | 5557.3 | 20 | 51061 | 5577.1 | | | 23.8 | 23.8 | -0.01 |

Note:

- Per KDB 941225 D05A LTE Rel. 10 KDB Inquiry Sheet: SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a 1/4 dB.
- When the same frequency band is used for both contiguous and non-contiguous in DL CA Intra band, power was measured using the configuration with the largest aggregated bandwidth and maximum output power among the contiguous and non-contiguous in DL CA Intra band configurations.

