

LTE Downlink Carrier Aggregation configurations

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 | |
| | (1) | Band 2 | | | Yes | Yes | | | 20 |
| | | Band 4 | | | Yes | Yes | | | |
| | (2) | Band 2 | | | Yes | Yes | Yes | Yes | 40 |
| | | Band 4 | | | Yes | Yes | Yes | Yes | |
| 2A-5A | (0) | Band 2 | | | Yes | Yes | Yes | Yes | 30 |
| | | Band 5 | | | Yes | Yes | | | |
| 2A-12A | (0) | Band 2 | | | Yes | Yes | Yes | Yes | 30 |
| | | Band 12 | | | Yes | Yes | | | |
| | (1) | Band 2 | | | Yes | Yes | Yes | Yes | 30 |
| | | Band 12 | | Yes | Yes | Yes | | | |
| | (2) | Band 2 | | | Yes | Yes | | | 20 |
| | | Band 12 | | Yes | Yes | Yes | | | |
| 2A-13A | (0) | Band 2 | | | Yes | Yes | Yes | Yes | 30 |
| | | Band 13 | | | | Yes | | | |
| | (1) | Band 2 | | | Yes | Yes | | | 20 |
| | | Band 13 | | | | Yes | | | |
| | (2) | Band 2 | | | Yes | Yes | Yes | Yes | 30 |
| | | Band 13 | | | Yes | Yes | | | |
| 2A-17A | (0) | Band 2 | | | Yes | Yes | | | 20 |
| | | Band 17 | | | Yes | Yes | | | |
| | | Band 2 | Yes | Yes | Yes | Yes | Yes | Yes | |
| 2A-66A | (0) | Band 2 | | | Yes | Yes | Yes | Yes | 40 |
| | | Band 66 | | | Yes | Yes | Yes | Yes | |
| | (1) | Band 2 | | | Yes | Yes | | | 20 |
| | | Band 66 | | | Yes | Yes | | | |
| | (2) | Band 2 | | | Yes | Yes | Yes | Yes | 40 |
| | | Band 66 | | | Yes | Yes | Yes | Yes | |
| 4A-5A | (0) | Band 4 | | | Yes | Yes | | | 20 |
| | | Band 5 | | | Yes | Yes | | | |
| (1) | Band 4 | | | Yes | Yes | Yes | Yes | 30 | |
| | Band 5 | | | Yes | Yes | | | | |
| 4A-12A | (0) | Band 4 | Yes | Yes | Yes | Yes | | | 20 |
| | | Band 12 | | | Yes | Yes | | | |
| | (1) | Band 4 | Yes | Yes | Yes | Yes | Yes | Yes | 30 |
| | | Band 12 | | | Yes | Yes | | | |
| | (2) | Band 4 | | | Yes | Yes | Yes | Yes | 30 |
| | | Band 12 | | Yes | Yes | Yes | | | |
| | (3) | Band 4 | | | Yes | Yes | | | 20 |
| | | Band 12 | | | Yes | Yes | | | |
| | (4) | Band 4 | | | Yes | Yes | Yes | Yes | 30 |
| | | Band 12 | | | Yes | Yes | | | |
| | (5) | Band 4 | | | Yes | Yes | Yes | | 20 |
| | | Band 12 | | | Yes | Yes | | | |
| 4A-13A | (0) | Band 4 | | | Yes | Yes | Yes | Yes | 30 |
| | | Band 13 | | | | Yes | | | |
| | (1) | Band 4 | | | Yes | Yes | | | 20 |
| | | Band 13 | | | | Yes | | | |

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 | |
| 4A-17A | (0) | Band 4 | | | Yes | Yes | | | 20 |
| | | Band 17 | | | Yes | Yes | | | |
| 5A-41A | (0) | Band 5 | | | Yes | Yes | | | 20 |
| | | Band 41 | | | | | | Yes | |
| 5A-66A | (0) | Band 5 | | | Yes | Yes | | | 30 |
| | | Band 66 | | | Yes | Yes | Yes | Yes | |
| 12A-25A | (0) | Band 12 | | | Yes | Yes | | | 30 |
| | | Band 25 | | | Yes | Yes | Yes | Yes | |
| 12A-66A | (0) | Band 12 | | | Yes | Yes | | | 20 |
| | | Band 66 | Yes | Yes | Yes | Yes | | | |
| | (1) | Band 12 | | | Yes | Yes | | | 30 |
| | | Band 66 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | (2) | Band 12 | | Yes | Yes | Yes | | | 30 |
| | | Band 66 | | | Yes | Yes | Yes | Yes | |
| | (3) | Band 12 | | | Yes | Yes | | | 20 |
| | | Band 66 | | | Yes | Yes | | | |
| | (4) | Band 12 | | | Yes | Yes | | | 30 |
| | | Band 66 | | | Yes | Yes | Yes | Yes | |
| | (5) | Band 12 | | | Yes | | | | 20 |
| | | Band 66 | | | Yes | Yes | Yes | | |
| 26A-41A | (0) | Band 26 | | | Yes | Yes | Yes | | 35 |
| | | Band 41 | | | 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-4A-5A | (0) | Band 2 | | | Yes | Yes | Yes | Yes | 50 |
| | | Band 4 | | | Yes | Yes | Yes | Yes | |
| | | Band 5 | | | Yes | Yes | | | |
| 2A-4A-13A | (0) | Band 2 | | | Yes | Yes | Yes | Yes | 50 |
| | | Band 4 | | | Yes | Yes | Yes | Yes | |
| | | Band 13 | | | | Yes | | | |
| 2A-5A-66A | (0) | Band 2 | | | Yes | Yes | Yes | Yes | 50 |
| | | Band 5 | | | Yes | Yes | | | |
| 2A-66A-66A | (0) | Band 2 | | | Yes | Yes | Yes | Yes | 60 |
| | | Band 66 | | | 66A-66A BCS 0 | | | | |
| 4A-4A-12A | (0) | Band 4 | | | 4A-4A BCS 0 | | | | 50 |
| | | Band 12 | | | Yes | Yes | | | |
| 5A-66A-66A | (0) | Band 5 | | | Yes | Yes | | | 50 |
| | | Band 66 | | | 66A-66A BCS 0 | | | | |
| 5A-66C | (0) | Band 5 | | | Yes | Yes | | | 50 |
| | | Band 66 | | | 66C BCS 0 | | | | |
| 12A-66A-66A | (0) | Band 12 | | | Yes | Yes | | | 50 |
| | | Band 66 | | | 66A-66A BCS 0 | | | | |
| 26A-41C | (0) | Band 26 | | | Yes | Yes | Yes | | 55 |
| | | Band 41 | | | 41C BCS 1 | | | | |

Downlink Carrier Aggregation Intra-band configurations

3 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 | |
| 2A-2A | (0) | Band 2 | 5, 10, 15, 20 | 5, 10, 15, 20 | | | 40 |
| 4A-4A | (0) | Band 4 | 5, 10, 15, 20 | 5, 10, 15, 20 | | | 40 |
| | (1) | Band 4 | 5, 10 | 5, 10 | | | 20 |
| 41A-41A | (0) | Band 41 | 10, 15, 20 | 10, 15, 20 | | | 40 |
| | (1) | Band 41 | 5, 10, 15, 20 | 5, 10, 15, 20 | | | 40 |
| 66A-66A | (0) | Band 66 | 5, 10, 15, 20 | 5, 10, 15, 20 | | | 40 |
| 41A-41C | (0) | Band 41 | 5, 10, 15, 20 | 41 BCS1 | | | 60 |
| | | Band 41 | 41C BCS1 | 5, 10, 15, 20 | | | 60 |
| 41A-41D | (0) | Band 41 | 5, 10, 15, 20 | 41D BCS0 | | | 80 |
| | | Band 41 | 41D BCS0 | 5, 10, 15, 20 | | | 80 |
| 41C-41C | (0) | Band 41 | 41C BCS0 | 41C BCS0 | | | 80 |
| 41C-41D | (0) | Band 41 | 41C BCS0 | 41D BCS0 | | | 100 |
| | | Band 41 | 41D BCS0 | 41C BCS0 | | | 100 |

4. DL Intra Band(contiguous)

| E-UTRA CA configuration | Bandwidth Combination Set | E-UTRA Band | Allowed Channel BW Per Carrier (MHz) | | | | Max Aggregated |
|-------------------------|---------------------------|-------------|--------------------------------------|---------------|-------------|-------------|----------------|
| | | | 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 | | | |
| 41C | (0) | Band 41 | 10 | 20 | | | 40 |
| | | | 15 | 15, 20 | | | |
| | | | 20 | 10, 15, 20 | | | |
| | | | 5, 10 | 20 | | | |
| | (1) | Band 41 | 15 | 15, 20 | | | 40 |
| | | | 20 | 5, 10, 15, 20 | | | |
| | | | 10 | 15, 20 | | | |
| | | | 15 | 10, 15, 20 | | | |
| | (2) | Band 41 | 10 | 15, 20 | | | 40 |
| | | | 15 | 10, 15, 20 | | | |
| | | | 20 | 10, 15, 20 | | | |
| | | | 10 | 20 | | | |
| (3) | Band 41 | 10 | 20 | | | 40 | |
| | | 20 | 20 | | | | |
| 66B | (0) | Band 66 | 5 | 5, 10, 15 | | | 20 |
| | | | 10 | 5, 10 | | | |
| | | | 15 | 5 | | | |
| 66C | (0) | Band 66 | 5 | 20 | | | 40 |
| | | | 10 | 15, 20 | | | |
| | | | 15 | 10,15, 20 | | | |
| | | | 20 | 5, 10, 15, 20 | | | |
| 41D | (0) | Band 41 | 10 | 20 | 15 | | 60 |
| | | | 10 | 15, 20 | 20 | | |
| | | | 15 | 20 | 10, 15 | | |
| | | | 15 | 10, 15, 20 | 20 | | |
| | | | 20 | 15, 20 | 10 | | |
| | | | 20 | 10, 15, 20 | 15, 20 | | |
| 41E | (0) | Band 41 | 15, 20 | 15, 20 | 15, 20 | 20 | 80 |

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 (4) downlinks.

LTE Release 10 Carrier Aggregation

| Index | 2CC | Restriction | Completely Covered by Measurement Superset |
|--------|---------|--------------|--|
| 2CC#1 | 2A-2A | | |
| 2CC#2 | 2C | | |
| 2CC#3 | 2A-4A | | 3CC#1 |
| 2CC#4 | 2A-5A | | 3CC#1 |
| 2CC#5 | 2A-12A | | |
| 2CC#6 | 2A-13A | | 3CC#2 |
| 2CC#7 | 2A-17A | | |
| 2CC#8 | 2A-66A | | 3CC#3 |
| 2CC#9 | 4A-4A | | 3CC#5 |
| 2CC#10 | 4A-5A | | 3CC#1 |
| 2CC#11 | 4A-12A | | 3CC#5 |
| 2CC#12 | 4A-13A | | 3CC#2 |
| 2CC#13 | 4A-17A | | |
| 2CC#14 | 5A-41A | 41A SCC only | |
| 2CC#15 | 5A-66A | | 3CC#3 |
| 2CC#16 | 12A-25A | | |
| 2CC#17 | 12A-66A | | 3CC#8 |
| 2CC#18 | 26A-41A | 41A SCC only | |
| 2CC#19 | 41A-41A | | |
| 2CC#20 | 41C | | 3CC#10 |
| 2CC#21 | 66A-66A | | 3CC#4 |
| 2CC#22 | 66B | | |
| 2CC#23 | 66C | | 3CC#7 |

| Index | 3CC | Restriction | Completely Covered by Measurement Superset |
|--------|-------------|--------------|--|
| 3CC#1 | 2A-4A-5A | | |
| 3CC#2 | 2A-4A-13A | | |
| 3CC#3 | 2A-5A-66A | | |
| 3CC#4 | 2A-66A-66A | | |
| 3CC#5 | 4A-4A-12A | | |
| 3CC#6 | 5A-66A-66A | | |
| 3CC#7 | 5A-66C | | |
| 3CC#8 | 12A-66A-66A | | |
| 3CC#9 | 26A-41C | 41A SCC only | |
| 3CC#10 | 41A-41C | | |
| 3CC#11 | 41D | | 4CC#1 |

| Index | 4CC | Restriction | Completely Covered by Measurement Superset |
|-------|---------|-------------|--|
| 4CC#1 | 41A-41D | | |
| 4CC#2 | 41C-41C | | |
| 4CC#3 | 41E | | |

| Index | 5CC | Restriction | Completely Covered by Measurement Superset |
|-------|---------|-------------|--|
| 5CC#1 | 41C-41D | | |

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 | Index | 4CC | Restriction | Completely Covered by Measurement Superset |
|--------|-------------|--------------|--|--------|-----------------|-------------|--|-------|-------------|-------------|--|-------|-------------|-------------|--|
| 2CC#1 | 2A-[4A] | | 3CC#1 | 3CC#1 | 2A-[4A]-5A | | | 4CC#1 | 41A-[41D] | | | 5CC#1 | 41C-[41D] | | |
| 2CC#2 | 2A-[66A] | | 3CC#3 | 3CC#2 | 2A-[4A]-13A | | | 4CC#2 | [41A]-41D | | | 5CC#2 | [41C]-41D | | |
| 2CC#3 | 4A-[4A] | | 3CC#6 | 3CC#3 | 2A-5A-[66A] | | | 4CC#3 | [41A]-[41D] | | | 5CC#3 | [41C]-[41D] | | |
| 2CC#4 | [4A]-[4A] | | 3CC#7 | 3CC#4 | 2A-66A-[66A] | | | 4CC#4 | 41C-[41C] | | | | | | |
| 2CC#5 | [4A]-5A | | 3CC#1 | 3CC#5 | 2A-[66A]-[66A] | | | 4CC#5 | [41C]-[41C] | | | | | | |
| 2CC#6 | [4A]-12A | | 3CC#6 | 3CC#6 | 4A-[4A]-12A | | | 4CC#6 | [41E] | | | | | | |
| 2CC#7 | [4A]-13A | | 3CC#2 | 3CC#7 | [4A]-[4A]-12A | | | | | | | | | | |
| 2CC#8 | [4A]-17A | | | 3CC#8 | 5A-66A-[66A] | | | | | | | | | | |
| 2CC#9 | 5A-[41A] | | | 3CC#9 | 5A-[66A]-[66A] | | | | | | | | | | |
| 2CC#10 | 5A-[66A] | | 3CC#3 | 3CC#10 | 5A-[66C] | | | | | | | | | | |
| 2CC#11 | 12A-[66A] | | 3CC#11 | 3CC#11 | 12A-66A-[66A] | | | | | | | | | | |
| 2CC#12 | 26A-[41A] | 41A SCC only | | 3CC#12 | 12A-[66A]-[66A] | | | | | | | | | | |
| 2CC#13 | 41A-[41A] | | | 3CC#13 | 26A-[41C] | | | | | | | | | | |
| 2CC#14 | [41A]-[41A] | | | 3CC#14 | 41A-[41C] | | | | | | | | | | |
| 2CC#15 | [41C] | | 3CC#14 | 3CC#15 | [41A]-41C | | | | | | | | | | |
| 2CC#16 | 66A-[66A] | | 3CC#4 | 3CC#16 | [41A]-[41C] | | | | | | | | | | |
| 2CC#17 | [66A]-[66A] | | 3CC#5 | 3CC#17 | [41D] | | 4CC#1 | | | | | | | | |
| 2CC#18 | [66B] | | | | | | | | | | | | | | |
| 2CC#19 | [66C] | | 3CC#10 | | | | | | | | | | | | |

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 |
|-----------|------------|----------|---------|-------------|-----------|---------------------------|-----------------------------|-------|
| 4 | QPSK | 20 | 20175 | 1732.5 | 1/99 | 23.7 | 23.5 | -0.14 |
| 41 | QPSK | 20 | 39750 | 2506 | 1/0 | 23.9 | 23.8 | -0.05 |
| 66 | QPSK | 20 | 132572 | 1770 | 1/49 | 24.0 | 24.1 | 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

| E-UTRA CA configuration (BCS) | Bands | | | | | | | UL | | | | | | | | DL | | | | | | | | | | | | LTE Rel 8 Tx. Power (dBm) | LTE Rel 10 Tx. Power | Delta | | | | | | | | |
|-------------------------------|-------|------|------|------|------|------|------|------|----------|---------|-------------|-----------|----------|---------|-------------|----------|---------|-------------|----------|---------|-------------|----------|---------|-------------|----------|---------|-------------|---------------------------|----------------------|-------|----------|---------|-------------|-------|-------|-------|-------|-------|
| | PCC | SCC1 | SCC2 | SCC3 | SCC4 | SCC5 | SCC6 | PCC | | | | SCC1 | | | | SCC2 | | | SCC3 | | | SCC4 | | | SCC5 | | | | | | SCC6 | | | | | | | |
| | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | Mode | BW (MHz) | Channel | Freq. (MHz) | RB/Offset | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel | Freq. (MHz) | | | | BW (MHz) | Channel | Freq. (MHz) | | | | | |
| 2A-2A | 2A | 2A | | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 700 | 1940 | | | | | | | | | | | | | | | 23.81 | 23.51 | -0.30 | | | |
| 2C | 2C | | | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 902 | 1960.2 | | | | | | | | | | | | | | | 23.81 | 23.50 | -0.31 | | | |
| 2A-12A | 2A | 12A | | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 10 | 5095 | 737.5 | | | | | | | | | | | | | | | 23.81 | 23.93 | 0.12 | | | |
| 2A-17A | 2A | 17A | | | | | | QPSK | 10 | 23095 | 707.5 | 1/49 | 10 | 5095 | 737.5 | 20 | 900 | 1960 | | | | | | | | | | | | | | | 24.30 | 24.18 | -0.12 | | | |
| 4A-17A | 4A | 17A | | | | | | QPSK | 10 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 10 | 5790 | 740 | | | | | | | | | | | | | | | | 23.81 | 23.69 | -0.12 | | |
| 5A-17A | 4A | 17A | | | | | | QPSK | 10 | 20350 | 1750 | 1/49 | 10 | 2350 | 2150 | 10 | 5790 | 740 | | | | | | | | | | | | | | | | 23.82 | 23.46 | -0.36 | | |
| 5A-41A | 5A | 41A | | | | | | QPSK | 10 | 20525 | 836.5 | 1/25 | 10 | 2525 | 881.5 | 20 | 40620 | 2593 | | | | | | | | | | | | | | | | 23.84 | 23.85 | 0.01 | | |
| 12A-25A | 12A | 25A | | | | | | QPSK | 10 | 23095 | 707.5 | 1/49 | 10 | 5095 | 737.5 | 20 | 8365 | 1962.5 | | | | | | | | | | | | | | | | 24.30 | 23.72 | -0.58 | | |
| 26A-41A | 26A | 41A | | | | | | QPSK | 20 | 26140 | 1860 | 1/0 | 20 | 8140 | 1940 | 10 | 5095 | 737.5 | | | | | | | | | | | | | | | | 23.79 | 23.68 | -0.11 | | |
| 41A-41A | 41A | 41A | | | | | | QPSK | 15 | 26865 | 831.5 | 1/37 | 15 | 8865 | 876.5 | 20 | 40620 | 2593 | | | | | | | | | | | | | | | | 23.55 | 23.52 | -0.03 | | |
| 66B | 41A | 41A | | | | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | 20 | 41490 | 2680 | | | | | | | | | | | | | | | | 23.85 | 23.90 | 0.05 | | |
| 66B | 66B | 66B | | | | | | QPSK | 15 | 132597 | 1772.5 | 1/37 | 15 | 67061 | 2172.5 | 5 | 66968 | 2163.2 | | | | | | | | | | | | | | | | | 24.04 | 24.00 | -0.04 | |
| 2A-4A-5A | 2A | 4A | 5A | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 2175 | 2132.5 | 10 | 2525 | 881.5 | | | | | | | | | | | | | | 23.81 | 23.95 | 0.14 | |
| 2A-4A-5A | 4A | 2A | 5A | | | | | QPSK | 20 | 20175 | 1732.5 | 1/99 | 20 | 2175 | 2132.5 | 20 | 900 | 1960 | 10 | 2525 | 881.5 | | | | | | | | | | | | | | 23.66 | 23.30 | -0.36 | |
| 2A-4A-5A | 5A | 2A | 4A | | | | | QPSK | 10 | 20525 | 836.5 | 1/25 | 10 | 2525 | 881.5 | 20 | 900 | 1960 | 20 | 2175 | 2132.5 | | | | | | | | | | | | | | 23.84 | 23.85 | 0.01 | |
| 2A-4A-13A | 2A | 4A | 13A | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 2175 | 2132.5 | 10 | 5230 | 751 | | | | | | | | | | | | | | 23.81 | 23.94 | 0.13 | |
| 2A-4A-13A | 4A | 2A | 13A | | | | | QPSK | 20 | 20175 | 1732.5 | 1/99 | 20 | 2175 | 2132.5 | 20 | 900 | 1960 | 10 | 5230 | 751 | | | | | | | | | | | | | | 23.66 | 23.23 | -0.43 | |
| 2A-4A-13A | 13A | 2A | 4A | | | | | QPSK | 10 | 23230 | 782 | 1/0 | 10 | 5230 | 751 | 20 | 900 | 1960 | 20 | 2175 | 2132.5 | | | | | | | | | | | | | | 23.53 | 23.55 | 0.02 | |
| 2A-5A-66A | 2A | 5A | 66A | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 10 | 2525 | 881.5 | 20 | 66786 | 2145 | | | | | | | | | | | | | | 23.81 | 23.91 | 0.10 | |
| 2A-5A-66A | 5A | 2A | 66A | | | | | QPSK | 10 | 20525 | 836.5 | 1/25 | 10 | 2525 | 881.5 | 20 | 900 | 1960 | 20 | 66786 | 2145 | | | | | | | | | | | | | | 23.84 | 23.84 | 0.00 | |
| 2A-5A-66A | 66A | 2A | 5A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 900 | 1960 | 10 | 2525 | 881.5 | | | | | | | | | | | | | | | 23.99 | 23.72 | -0.27 |
| 2A-66A-66A | 2A | 66A | 66A | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 66536 | 2120 | 20 | 67036 | 2170 | | | | | | | | | | | | | | | 23.81 | 23.73 | -0.08 |
| 2A-66A-66A | 66A | 66A | 2A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66536 | 2120 | 20 | 900 | 1960 | | | | | | | | | | | | | | | 23.99 | 24.04 | 0.05 |
| 4A-4A-12A | 4A | 4A | 12A | | | | | QPSK | 20 | 20175 | 1732.5 | 1/99 | 20 | 2175 | 2132.5 | 10 | 2000 | 2115 | 10 | 5095 | 737.5 | | | | | | | | | | | | | | | 23.66 | 23.07 | -0.59 |
| 4A-4A-12A | 12A | 4A | 4A | | | | | QPSK | 10 | 23095 | 707.5 | 1/49 | 10 | 5095 | 737.5 | 20 | 2175 | 2132.5 | 10 | 2000 | 2115 | | | | | | | | | | | | | | | 24.30 | 24.18 | -0.12 |
| 5A-66A-66A | 5A | 66A | 66A | | | | | QPSK | 10 | 20525 | 836.5 | 1/25 | 10 | 2525 | 881.5 | 20 | 66536 | 2120 | 20 | 67036 | 2170 | | | | | | | | | | | | | | | 23.84 | 23.85 | 0.01 |
| 5A-66A-66A | 66A | 66A | 5A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66536 | 2120 | 10 | 2525 | 881.5 | | | | | | | | | | | | | | | 23.99 | 23.73 | -0.26 |
| 5A-66C | 5A | 66C | 66C | | | | | QPSK | 10 | 20525 | 836.5 | 1/25 | 10 | 2525 | 881.5 | 20 | 67036 | 2170 | 20 | 66838 | 2150.2 | | | | | | | | | | | | | | | 23.84 | 23.89 | 0.05 |
| 5A-66C | 66C | 66C | 5A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66838 | 2150.2 | 10 | 2525 | 881.5 | | | | | | | | | | | | | | | 23.99 | 23.70 | -0.29 |
| 12A-66A-66A | 12A | 66A | 66A | | | | | QPSK | 10 | 23095 | 707.5 | 1/49 | 10 | 5095 | 737.5 | 20 | 66536 | 2120 | 20 | 67036 | 2170 | | | | | | | | | | | | | | | 24.30 | 24.20 | -0.10 |
| 12A-66A-66A | 66A | 66A | 12A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66536 | 2120 | 10 | 5095 | 737.5 | | | | | | | | | | | | | | | 23.99 | 23.71 | -0.28 |
| 26A-41C | 26A | 41C | 41C | | | | | QPSK | 15 | 26865 | 831.5 | 1/37 | 15 | 8865 | 876.5 | 20 | 39750 | 2506 | 20 | 39948 | 2525.8 | | | | | | | | | | | | | | | 23.55 | 23.54 | -0.01 |
| 41A-41C | 41A | 41C | 41C | | | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | 20 | 41490 | 2680 | | | | | | | | | | | | | | | | | 23.85 | 23.79 | -0.06 | |
| 41A-41C | 41C | 41C | 41A | | | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | 20 | 39948 | 2525.8 | 20 | 41490 | 2680 | | | | | | | | | | | | | | | 23.85 | 23.83 | -0.02 |
| 41A-41D | 41A | 41D | 41D | 41D | | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | 20 | 41490 | 2680 | 20 | 41292 | 2660.2 | 20 | 41094 | 2640.4 | | | | | | | | | | | | 23.85 | 23.78 | -0.07 |
| 41A-41D | 41D | 41D | 41D | 41A | | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | 20 | 39948 | 2525.8 | 20 | 40146 | 2545.6 | 20 | 41490 | 2680 | | | | | | | | | | | | 23.85 | 23.78 | -0.07 |
| 41C-41C | 41C | 41C | 41C | 41C | | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | 20 | 39948 | 2525.8 | 20 | 41490 | 2680 | 20 | 41292 | 2660.2 | | | | | | | | | | | | 23.85 | 23.79 | -0.06 |
| 41E | 41E | 41E | 41E | 41E | | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | 20 | 39948 | 2525.8 | 20 | 40146 | 2545.6 | 20 | 40344 | 2565.4 | | | | | | | | | | | | 23.85 | 23.93 | 0.08 |
| 41C-41D | 41C | 41C | 41D | 41D | 41D | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | 20 | 39948 | 2525.8 | 20 | 41490 | 2680 | 20 | 41292 | 2660.2 | 20 | 41094 | 2640.4 | | | | | | | | | 23.85 | 23.89 | 0.04 |
| 41C-41D | 41D | 41D | 41D | 41C | 41C | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | | | | | | | | | | | | | | | | | | | | | | | |

DL CA with 4x4 MIMO output power results

| E-UTRA CA configuration (BCS) | Bands | | | | | | | UL | | | | | | | | | | | | | | DL | | | | | | | | | | | | | | LTE Rel 8 Tx Power [dBm] | LTE Rel 10 Tx Power | Delta | | | | | | |
|-------------------------------|-------|-------|-------|------|------|------|------|------|----------|---------|-------------|-----------|----------|---------|-------------|----------|---------|-------------|----------|---------|-------------|----------|---------|-------------|----------|---------|-------------|----------|---------|-------------|----------|---------|-------------|----------|---------|--------------------------|---------------------|-------|-------------|-------|-------|-------|-------|-------|
| | PCC | SCC1 | SCC2 | SCC3 | SCC4 | SCC5 | SCC6 | PCC | | | | SCC1 | | | | SCC2 | | | | SCC3 | | | | SCC4 | | | | SCC5 | | | | SCC6 | | | | | | | | | | | | |
| | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | Mode | BW (MHz) | Channel | Freq. (MHz) | RB/Ofs et | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel | | | | Freq. (MHz) | | | | | |
| [4A]-17A | [4A] | 17A | | | | | | QPSK | 10 | 20350 | 1750 | 1/49 | 10 | 2350 | 2150 | 10 | 5790 | 740 | | | | | | | | | | | | | | | | | | | 23.66 | 23.59 | -0.07 | | | | | |
| 5A-[41A] | 5A | [41A] | | | | | | QPSK | 10 | 20525 | 836.5 | 1/25 | 10 | 2525 | 881.5 | 20 | 40620 | 2593 | | | | | | | | | | | | | | | | | | | | 23.84 | 23.88 | 0.04 | | | | |
| 26A-[41A] | 26A | [41A] | | | | | | QPSK | 15 | 26865 | 831.5 | 1/37 | 15 | 8865 | 876.5 | 20 | 40620 | 2593 | | | | | | | | | | | | | | | | | | | | 23.55 | 23.69 | 0.14 | | | | |
| 41A-[41A] | 41A | [41A] | | | | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | 20 | 41490 | 2680 | | | | | | | | | | | | | | | | | | | | | 23.85 | 23.67 | -0.18 | | | |
| [41A]-[41A] | [41A] | [41A] | | | | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | 20 | 41490 | 2680 | | | | | | | | | | | | | | | | | | | | | 23.85 | 23.85 | 0.00 | | | |
| [41A]-[41A] | [41A] | [41A] | | | | | | QPSK | 20 | 39750 | 2506 | 1/0 | 20 | 39750 | 2506 | 20 | 41490 | 2680 | | | | | | | | | | | | | | | | | | | | | 23.85 | 23.95 | 0.10 | | | |
| [66B] | [66B] | [66B] | | | | | | QPSK | 15 | 132597 | 1772.5 | 1/37 | 15 | 67061 | 2172.5 | 5 | 66968 | 2163.2 | | | | | | | | | | | | | | | | | | | | | 24.04 | 24.17 | 0.13 | | | |
| 2A-[4A]-5A | 2A | [4A] | 5A | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 2175 | 2132.5 | 10 | 2525 | 881.5 | | | | | | | | | | | | | | | | | | 23.81 | 23.69 | -0.12 | | | |
| | [4A] | 2A | 5A | | | | | QPSK | 20 | 20175 | 1732.5 | 1/99 | 20 | 2175 | 2132.5 | 20 | 900 | 1960 | 10 | 2525 | 881.5 | | | | | | | | | | | | | | | | | | 23.66 | 23.79 | 0.13 | | | |
| | 5A | 2A | [4A] | | | | | QPSK | 10 | 20525 | 836.5 | 1/25 | 10 | 2525 | 881.5 | 20 | 900 | 1960 | 20 | 2175 | 2132.5 | | | | | | | | | | | | | | | | | | | 23.84 | 23.98 | 0.14 | | |
| | 2A | [4A] | 13A | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 2175 | 2132.5 | 10 | 5230 | 751 | | | | | | | | | | | | | | | | | | | 23.81 | 23.85 | 0.04 | | |
| 2A-[4A]-13A | [4A] | 2A | 13A | | | | | QPSK | 20 | 20175 | 1732.5 | 1/99 | 20 | 2175 | 2132.5 | 20 | 900 | 1960 | 10 | 5230 | 751 | | | | | | | | | | | | | | | | | | | 23.66 | 23.50 | -0.16 | | |
| | 13A | 2A | [4A] | | | | | QPSK | 10 | 23230 | 782 | 1/0 | 10 | 5230 | 751 | 20 | 900 | 1960 | 20 | 2175 | 2132.5 | | | | | | | | | | | | | | | | | | | 23.53 | 23.67 | 0.14 | | |
| | 2A | 5A | [66A] | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 10 | 2525 | 881.5 | 20 | 66786 | 2145 | | | | | | | | | | | | | | | | | | | 23.81 | 23.92 | 0.11 | | |
| 2A-5A-[66A] | 5A | 2A | [66A] | | | | | QPSK | 10 | 20525 | 836.5 | 1/25 | 10 | 2525 | 881.5 | 20 | 900 | 1960 | 20 | 66786 | 2145 | | | | | | | | | | | | | | | | | | | 23.84 | 23.62 | -0.22 | | |
| | [66A] | 2A | 5A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 900 | 1960 | 10 | 2525 | 881.5 | | | | | | | | | | | | | | | | | | | | 23.99 | 23.97 | -0.02 | |
| | 2A | 66A | [66A] | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 66536 | 2120 | 20 | 67036 | 2170 | | | | | | | | | | | | | | | | | | | | 23.81 | 23.74 | -0.07 | |
| 2A-66A-[66A] | 66A | [66A] | 2A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66536 | 2120 | 20 | 900 | 1960 | | | | | | | | | | | | | | | | | | | | 23.99 | 24.04 | 0.05 | |
| | [66A] | 66A | 2A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66536 | 2120 | 20 | 900 | 1960 | | | | | | | | | | | | | | | | | | | | 23.99 | 24.17 | 0.18 | |
| 2A-[66A]-[66A] | 2A | [66A] | [66A] | | | | | QPSK | 20 | 19100 | 1900 | 1/99 | 20 | 1100 | 1980 | 20 | 66536 | 2120 | 20 | 67036 | 2170 | | | | | | | | | | | | | | | | | | | | 23.81 | 23.99 | 0.18 | |
| | [66A] | [66A] | 2A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66536 | 2120 | 20 | 900 | 1960 | | | | | | | | | | | | | | | | | | | | 23.99 | 23.81 | -0.18 | |
| | 4A | [4A] | 12A | | | | | QPSK | 20 | 20175 | 1732.5 | 1/99 | 20 | 2175 | 2132.5 | 10 | 2000 | 2115 | 10 | 5095 | 737.5 | | | | | | | | | | | | | | | | | | | 23.66 | 23.72 | 0.06 | | |
| 4A-[4A]-12A | [4A] | 4A | 12A | | | | | QPSK | 20 | 20175 | 1732.5 | 1/99 | 20 | 2175 | 2132.5 | 10 | 2000 | 2115 | 10 | 5095 | 737.5 | | | | | | | | | | | | | | | | | | | 23.66 | 23.83 | 0.17 | | |
| | 12A | 4A | [4A] | | | | | QPSK | 10 | 23095 | 707.5 | 1/49 | 10 | 5095 | 737.5 | 20 | 2175 | 2132.5 | 10 | 2000 | 2115 | | | | | | | | | | | | | | | | | | | | 24.30 | 24.32 | 0.02 | |
| [4A]-[4A]-12A | [4A] | [4A] | 12A | | | | | QPSK | 20 | 20175 | 1732.5 | 1/99 | 20 | 2175 | 2132.5 | 10 | 2000 | 2115 | 10 | 5095 | 737.5 | | | | | | | | | | | | | | | | | | | | 23.66 | 23.80 | 0.14 | |
| | 12A | [4A] | [4A] | | | | | QPSK | 10 | 23095 | 707.5 | 1/49 | 10 | 5095 | 737.5 | 20 | 2175 | 2132.5 | 10 | 2000 | 2115 | | | | | | | | | | | | | | | | | | | | 24.30 | 24.23 | -0.07 | |
| 5A-66A-[66A] | 5A | 66A | [66A] | | | | | QPSK | 10 | 20525 | 836.5 | 1/25 | 10 | 2525 | 881.5 | 20 | 66536 | 2120 | 20 | 67036 | 2170 | | | | | | | | | | | | | | | | | | | | | 23.84 | 23.80 | -0.04 |
| | 66A | [66A] | 5A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66536 | 2120 | 20 | 2525 | 881.5 | | | | | | | | | | | | | | | | | | | | | 23.99 | 23.84 | -0.15 |
| | [66A] | 66A | 5A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66536 | 2120 | 10 | 2525 | 881.5 | | | | | | | | | | | | | | | | | | | | 23.99 | 23.99 | 0.00 | |
| 5A-[66A]-[66A] | 5A | [66A] | [66A] | | | | | QPSK | 10 | 20525 | 836.5 | 1/25 | 10 | 2525 | 881.5 | 20 | 66536 | 2120 | 20 | 67036 | 2170 | | | | | | | | | | | | | | | | | | | | | 23.84 | 23.89 | 0.05 |
| | [66A] | [66A] | 5A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66536 | 2120 | 10 | 2525 | 881.5 | | | | | | | | | | | | | | | | | | | | | 23.99 | 24.12 | 0.13 |
| 5A-[66C] | 5A | [66C] | [66C] | | | | | QPSK | 10 | 20525 | 836.5 | 1/25 | 10 | 2525 | 881.5 | 20 | 67036 | 2170 | 20 | 66838 | 2150.2 | | | | | | | | | | | | | | | | | | | | 23.84 | 23.82 | -0.02 | |
| | [66C] | [66C] | 5A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66838 | 2150.2 | 10 | 2525 | 881.5 | | | | | | | | | | | | | | | | | | | | 23.99 | 23.84 | -0.15 | |
| 12A-66A-[66A] | 12A | 66A | [66A] | | | | | QPSK | 10 | 23095 | 707.5 | 1/49 | 10 | 5095 | 737.5 | 20 | 66536 | 2120 | 20 | 67036 | 2170 | | | | | | | | | | | | | | | | | | | | | 24.30 | 24.17 | -0.13 |
| | 66A | [66A] | 12A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66536 | 2120 | 10 | 5095 | 737.5 | | | | | | | | | | | | | | | | | | | | | 23.99 | 24.09 | 0.10 |
| | [66A] | 66A | 12A | | | | | QPSK | 20 | 132572 | 1770 | 1/49 | 20 | 67036 | 2170 | 20 | 66536 | 2120 | 10 | 5095 | 737.5 | | | | | | | | | | | | | | | | | | | | | 23.99 | 23.82 | -0.17 |
| 12A-[66A]-[66A] | 12A | [66A] | [66A] | | | | | QPSK | 10 | 23095 | 707.5 | 1/49 | 10 | 5095 | 737.5 | 20 | 66536 | 2120 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | |