





LTE Downlink Carrier Aggregation Inter-band (Continued)

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	
2A-5A-46D-66A	(0)	Band 2			Yes	Yes	Yes	Yes
		Band 5			Yes	Yes		
		Band 46			46D BCS 0			
		Band 66			Yes	Yes	Yes	Yes
2A-5A-46E	(0)	Band 2			Yes	Yes	Yes	Yes
		Band 5			Yes	Yes		
		Band 46			46E BCS 0			
2A-13A-46D-66A	(0)	Band 2			Yes	Yes	Yes	Yes
		Band 13			Yes	Yes		
		Band 46			46D BCS 0			
		Band 66			Yes	Yes	Yes	Yes
2A-13A-46E	(0)	Band 2			Yes	Yes	Yes	Yes
		Band 13			Yes	Yes		
		Band 46			46E BCS 0			
2A-13A-46D-66A	(0)	Band 2			Yes	Yes	Yes	Yes
		Band 13			Yes	Yes		
		Band 46			46D BCS 0			
		Band 66			Yes	Yes	Yes	Yes
2A-46E-66A	(0)	Band 2			Yes	Yes	Yes	Yes
		Band 46			46E BCS 0			
		Band 66			Yes	Yes	Yes	Yes
5A-46D-66A-66A	(0)	Band 2			Yes	Yes		
		Band 46			46D BCS 0			
		Band 66			66A-66A BCS 0			
5A-46E-66A	(0)	Band 5			Yes	Yes		
		Band 46			46E BCS 0			
		Band 66			Yes	Yes	Yes	Yes
13A-46D-66A-66A	(0)	Band 2			Yes	Yes		
		Band 46			46D BCS 0			
		Band 66			66A-66A BCS 0			
13A-46E-66A	(0)	Band 2			Yes	Yes		
		Band 46			46E BCS 0			
		Band 66			Yes	Yes	Yes	Yes
66A-66A-46E	(0)	Band 66			66A-66A BCS 0			
		Band 46			46E BCS 0			
		Band 2						

6. DL Inter Band(7CC)

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	
2A-5A-46D-66A-66A	(0)	Band 2			Yes	Yes	Yes	Yes
		Band 5			Yes	Yes		
		Band 46			46D BCS 0			
		Band 66			66A-66A BCS 0			
2A-5A-46E-66A	(0)	Band 2			Yes	Yes	Yes	Yes
		Band 5			Yes	Yes		
		Band 46			46E BCS 0			
		Band 66			66A-66A BCS 0			
2A-13A-46D-66A-66A	(0)	Band 2			Yes	Yes	Yes	Yes
		Band 13			Yes	Yes		
		Band 46			46D BCS 0			
		Band 66			66A-66A BCS 0			
2A-46E-66A-66A	(0)	Band 2			Yes	Yes	Yes	Yes
		Band 46			46E BCS 0			
		Band 66			66A-66A BCS 0			
5A-46E-66A-66A	(0)	Band 5			Yes	Yes		
		Band 46			46E BCS 0			
		Band 66			66A-66A BCS 0			

**LTE Downlink Carrier Aggregation Intra-band non-contiguous**

**7. 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
5A-5A	(0)	Band 5	5, 10	5, 10			20
	(1)	Band 5	3	5			8
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		

**LTE Uplink / Downlink Carrier Aggregation Intra-band contiguous**

**8. 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	
5B	(0)	Band 5	5, 10	10			20
			10	5			
	(1)	Band 5	3	5			8
66B	(0)	Band 66	5	3			20
			5	5, 10, 15			
			10	5, 10			
66C	(0)	Band 66	15	5			40
			5	20			
			10	15, 20			
			15	10, 15, 20			
			20	5, 10, 15, 20			

**Note(s):**

LTE CA\_5B, CA\_66B and CA\_66C are supported in both Uplink and 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_5B (0)(1)	Standalone	5B	5B	QPSK	25	25	10	836.5	20525	QPSK	12	0	5	843.7	20597	1	15	21.5	20.5	15	21.5
CA_66B (0)	Standalone	66B	66B	QPSK	1	49	10	1715	132022	QPSK	1	0	10	1724.9	132121	0	20	24.5	24.2	15	24.5
CA_66C (0)	Standalone	66C	66C	QPSK	1	99	20	1720	132072	QPSK	1	0	20	1739.8	132270	0	40	24.5	24.5	15	24.5

**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
2CC#1	2A-2A		5CC#1
2CC#2	2A-4A		4CC#1
2CC#3	2A-5A		7CC#1
2CC#4	2A-12A		5CC#5
2CC#5	2A-13A		7CC#3
2CC#6	2A-14A		5CC#8
2CC#7	2A-29A	B29 SCC Only	3CC#6
2CC#8	2A-46A	B46 SCC Only	5CC#17
2CC#9	2A-66A		7CC#1
2CC#10	4A-4A		4CC#1
2CC#11	4A-5A		4CC#2
2CC#12	4A-46A	B46 SCC Only	5CC#21
2CC#13	5A-5A		5CC#10
2CC#14	5A-46A	B46 SCC Only	3CC#32
2CC#15	5A-66A		7CC#1
2CC#16	5B		5CC#4
2CC#17	12A-66A		5CC#5
2CC#18	13A-46A	B46 SCC Only	3CC#16
2CC#19	13A-66A		7CC#3
2CC#20	14A-66A		5CC#8
2CC#21	66A-29A	B29 SCC Only	3CC#19
2CC#22	66A-46A	B46 SCC Only	5CC#27
2CC#23	66A-66A		7CC#1
2CC#24	66B		5CC#2
2CC#25	66C		5CC#3

Index	3CC	Restriction	Completely Covered by Measurement Superset
3CC#1	2A-2A-4A		4CC#1
3CC#2	2A-2A-5A		5CC#1
3CC#3	2A-2A-12A		5CC#5
3CC#4	2A-2A-13A		5CC#6
3CC#5	2A-2A-14A		5CC#8
3CC#6	2A-2A-29A	B29 SCC Only	
3CC#7	2A-2A-46A	B46 SCC Only	
3CC#8	2A-2A-66A		5CC#1
3CC#9	2A-4A-4A		4CC#1
3CC#10	2A-4A-5A		4CC#2
3CC#11	2A-4A-13A		
3CC#12	2A-5A-46A	B46 SCC Only	
3CC#13	2A-5A-66A		7CC#1
3CC#14	2A-5B		5CC#4
3CC#15	2A-12A-66A		5CC#5
3CC#16	2A-13A-46A	B46 SCC Only	
3CC#17	2A-13A-66A		7CC#3
3CC#18	2A-14A-66A		5CC#8
3CC#19	2A-29A-66A	B29 SCC Only	
3CC#20	2A-46A-66A	B46 SCC Only	
3CC#21	2A-46A-66A	B46 SCC Only	
3CC#22	2A-46C	B46 SCC Only	5CC#18
3CC#23	2A-66A-66A		7CC#1
3CC#24	2A-66B		5CC#2
3CC#25	2A-66C		5CC#3
3CC#26	4A-4A-5A		4CC#12
3CC#27	4A-4A-13A		
3CC#28	4A-5B		4CC#13
3CC#29	4A-46A-46A	B46 SCC Only	
3CC#30	4A-46C	B46 SCC Only	4CC#30
3CC#31	5A-5A-66A		5CC#10
3CC#32	5A-46A-66A	B46 SCC Only	
3CC#33	5A-46C	B46 SCC Only	4CC#15
3CC#34	5A-66A-66A		7CC#1
3CC#35	5A-66B		5CC#2
3CC#36	5A-66C		5CC#3
3CC#37	5B-46A	B46 SCC Only	
3CC#38	5B-66A		5CC#4
3CC#39	12A-66A-66A		5CC#5
3CC#40	13A-46A-66A	B46 SCC Only	
3CC#41	13A-46C	B46 SCC Only	4CC#21
3CC#42	13A-66A-66A		7CC#3
3CC#43	13A-66B		5CC#7
3CC#44	13A-66C		4CC#24
3CC#45	14A-66A-66A		5CC#8
3CC#46	66A-46A-46A	B46 SCC Only	
3CC#47	66A-46C	B46 SCC Only	5CC#28
3CC#48	66A-66A-46A	B46 SCC Only	
3CC#49	66A-66C		

Index	4CC	Restriction	Completely Covered by Measurement Superset
4CC#1	2A-2A-4A-4A		
4CC#2	2A-2A-4A-5A		
4CC#3	2A-2A-5A-66A		5CC#1
4CC#4	2A-2A-5B		5CC#4
4CC#5	2A-2A-12A-66A		5CC#5
4CC#6	2A-2A-13A-66A		5CC#6
4CC#7	2A-2A-14A-66A		5CC#7
4CC#8	2A-2A-46C	B46 SCC Only	
4CC#9	2A-2A-66A-66A		5CC#1
4CC#10	2A-2A-66B		5CC#2
4CC#11	2A-2A-66C		5CC#3
4CC#12	2A-4A-4A-5A		
4CC#13	2A-4A-5B		
4CC#14	2A-5A-5A-66A		5CC#10
4CC#15	2A-5A-46C	B46 SCC Only	
4CC#16	2A-5A-66A-66A		7CC#1
4CC#17	2A-5A-66B		5CC#2
4CC#18	2A-5A-66C		5CC#3
4CC#19	2A-5B-66A		5CC#4
4CC#20	2A-12A-66A-66A		5CC#5
4CC#21	2A-13A-46C	B46 SCC Only	
4CC#22	2A-13A-66A-66A		7CC#3
4CC#23	2A-13A-66B		5CC#7
4CC#24	2A-13A-66C		
4CC#25	2A-14A-66A-66A		5CC#8
4CC#26	2A-46A-46C	B46 SCC Only	
4CC#27	2A-46C-66A	B46 SCC Only	
4CC#28	2A-46D	B46 SCC Only	7CC#1
4CC#29	4A-4A-5B		
4CC#30	4A-46A-46C	B46 SCC Only	
4CC#31	4A-46D	B46 SCC Only	5CC#21
4CC#32	5A-5A-66A-66A		5CC#10
4CC#33	5A-5A-66B		
4CC#34	5A-5A-66C		
4CC#35	5A-46C-66A	B46 SCC Only	
4CC#36	5A-46D	B46 SCC Only	7CC#1
4CC#37	5B-46C	B46 SCC Only	
4CC#38	5B-66A-66A		5CC#12
4CC#39	5B-66B		5CC#13
4CC#40	5B-66C		5CC#14
4CC#41	13A-46C-66A	B46 SCC Only	
4CC#42	13A-46D	B46 SCC Only	7CC#3
4CC#43	66A-46A-46C	B46 SCC Only	
4CC#44	66A-46D	B46 SCC Only	7CC#1
4CC#45	66A-66A-46C	B46 SCC Only	

Index	5CC	Restriction	Completely Covered by Measurement Superset
5CC#1	2A-2A-5A-66A-66A		
5CC#2	2A-2A-5A-66B		
5CC#3	2A-2A-5A-66C		
5CC#4	2A-2A-5B-66A		
5CC#5	2A-2A-12A-66A-66A		
5CC#6	2A-2A-13A-66A-66A		
5CC#7	2A-2A-13A-66B		
5CC#8	2A-2A-14A-66A-66A		
5CC#9	2A-2A-46D	B46 SCC Only	
5CC#10	2A-5A-5A-66A-66A		
5CC#11	2A-5A-46D	B46 SCC Only	7CC#1
5CC#12	2A-5B-66A-66A		
5CC#13	2A-5B-66B		
5CC#14	2A-5B-66C		
5CC#15	2A-13A-46D	B46 SCC Only	7CC#3
5CC#16	2A-13A-66A-66B		
5CC#17	2A-46A-46D	B46 SCC Only	
5CC#18	2A-46C-46C	B46 SCC Only	
5CC#19	2A-46D-66A	B46 SCC Only	7CC#1
5CC#20	2A-46E	B46 SCC Only	7CC#2
5CC#21	4A-46A-46D	B46 SCC Only	
5CC#22	5A-46D-66A	B46 SCC Only	7CC#1
5CC#23	5A-46E	B46 SCC Only	7CC#2
5CC#24	5B-46D	B46 SCC Only	
5CC#25	13A-46D-66A	B46 SCC Only	7CC#3
5CC#26	13A-46E	B46 SCC Only	6CC#4
5CC#27	66A-46A-46D	B46 SCC Only	
5CC#28	66A-46C-46C	B46 SCC Only	
5CC#29	66A-46E	B46 SCC Only	7CC#2
5CC#30	66A-66A-46D	B46 SCC Only	7CC#1
Index	6CC	Restriction	Completely Covered by Measurement Superset
6CC#1	2A-5A-46D-66A	B46 SCC Only	7CC#1
6CC#2	2A-5A-46E	B46 SCC Only	7CC#2
6CC#3	2A-13A-46D-66A	B46 SCC Only	7CC#3
6CC#4	2A-13A-46E	B46 SCC Only	
6CC#5	2A-46D-66A-66A	B46 SCC Only	7CC#1
6CC#6	2A-46E-66A	B46 SCC Only	7CC#2
6CC#7	5A-46D-66A-66A	B46 SCC Only	
6CC#8	5A-46E-66A	B46 SCC Only	7CC#2
6CC#9	13A-46D-66A-66A	B46 SCC Only	7CC#3
6CC#10	13A-46E-66A	B46 SCC Only	
6CC#11	66A-66A-46E	B46 SCC Only	7CC#4
Index	7CC	Restriction	Completely Covered by Measurement Superset
7CC#1	2A-5A-46D-66A-66A	B46 SCC Only	
7CC#2	2A-5A-46E-66A	B46 SCC Only	
7CC#3	2A-13A-46D-66A-66A	B46 SCC Only	
7CC#4	2A-46E-66A-66A	B46 SCC Only	
7CC#5	5A-46E-66A-66A	B46 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 (continued)

Index	SCC	Restriction	Completely Covered by Measurement Superset
5CC#1	2A-2A-5A-[66A]-66A		
5CC#2	[2A]-2A-5A-66A-66A		
5CC#3	2A-2A-5A-[66A]-[66A]		
5CC#4	[2A]-2A-5A-[66A]-66A		
5CC#5	[2A]-[2A]-5A-66A-66A		
5CC#6	[2A]-2A-5A-[66A]-[66A]		
5CC#7	[2A]-[2A]-5A-[66A]-66A		
5CC#8	[2A]-[2A]-5A-[66A]-[66A]		
5CC#9	2A-2A-5A-[66B]		
5CC#10	[2A]-2A-5A-66B		
5CC#11	[2A]-2A-5A-[66B]		
5CC#12	[2A]-[2A]-5A-66B		
5CC#13	[2A]-[2A]-5A-[66B]		
5CC#14	2A-2A-5A-[66C]		
5CC#15	[2A]-2A-5A-66C		
5CC#16	[2A]-2A-5A-[66C]		
5CC#17	[2A]-[2A]-5A-66C		
5CC#18	[2A]-[2A]-5A-[66C]		
5CC#19	2A-2A-5B-[66A]		
5CC#20	[2A]-2A-5B-66A		
5CC#21	[2A]-2A-5B-[66A]		
5CC#22	[2A]-[2A]-5B-66A		
5CC#23	2A-2A-12A-[66A]-66A		
5CC#24	[2A]-2A-12A-66A-66A		
5CC#25	2A-2A-12A-[66A]-[66A]		
5CC#26	[2A]-2A-12A-[66A]-66A		
5CC#27	[2A]-[2A]-12A-66A-66A		
5CC#28	[2A]-2A-12A-[66A]-[66A]		
5CC#29	[2A]-[2A]-12A-[66A]-66A		
5CC#30	[2A]-[2A]-12A-[66A]-[66A]		
5CC#31	2A-2A-13A-[66A]-66A		
5CC#32	[2A]-2A-13A-66A-66A		
5CC#33	2A-2A-13A-[66A]-[66A]		
5CC#34	[2A]-2A-13A-[66A]-66A		
5CC#35	[2A]-[2A]-13A-66A-66A		
5CC#36	[2A]-2A-13A-[66A]-[66A]		
5CC#37	[2A]-[2A]-13A-[66A]-66A		
5CC#38	[2A]-[2A]-13A-[66A]-[66A]		
5CC#39	2A-2A-13A-[66B]		
5CC#40	[2A]-2A-13A-66B		
5CC#41	[2A]-2A-13A-[66B]		
5CC#42	[2A]-[2A]-13A-66B		
5CC#43	[2A]-[2A]-13A-[66B]		
5CC#44	2A-2A-14A-[66A]-66A		
5CC#45	[2A]-2A-14A-66A-66A		
5CC#46	2A-2A-14A-[66A]-[66A]		
5CC#47	[2A]-2A-14A-[66A]-66A		
5CC#48	[2A]-[2A]-14A-66A-66A		
5CC#49	[2A]-2A-14A-[66A]-[66A]		
5CC#50	[2A]-[2A]-14A-[66A]-66A		
5CC#51	[2A]-[2A]-14A-[66A]-[66A]		
5CC#52	[2A]-2A-46D	B46 SCC Only	
5CC#53	[2A]-[2A]-46D	B46 SCC Only	
5CC#54	2A-5A-5A-[66A]-66A		
5CC#55	[2A]-5A-5A-66A-66A		
5CC#56	2A-5A-5A-[66A]-[66A]		
5CC#57	[2A]-5A-5A-[66A]-66A		
5CC#58	[2A]-5A-5A-[66A]-[66A]		
5CC#59	[2A]-5A-46D	B46 SCC Only	7CC#2
5CC#60	2A-5B-[66A]-66A		

Index	SCC	Restriction	Completely Covered by Measurement Superset
5CC#61	[2A]-5B-66A-66A		
5CC#62	2A-5B-[66A]-[66A]		
5CC#63	[2A]-5B-[66A]-66A		
5CC#64	[2A]-5B-[66A]-[66A]		
5CC#65	2A-5B-[66B]		
5CC#66	[2A]-5B-66B		
5CC#67	[2A]-5B-[66B]		
5CC#68	2A-5B-[66C]		
5CC#69	[2A]-5B-66C		
5CC#70	[2A]-5B-[66C]		
5CC#71	[2A]-13A-46D	B46 SCC Only	7CC#10
5CC#72	2A-13A-[66A]-[66B]		
5CC#73	2A-13A-[66A]-66B		
5CC#74	[2A]-13A-66A-66B		
5CC#75	2A-13A-[66A]-[66B]		
5CC#76	[2A]-13A-66A-[66B]		
5CC#77	[2A]-13A-[66A]-66B		
5CC#78	[2A]-13A-[66A]-[66B]		
5CC#79	[2A]-46A-46D	B46 SCC Only	
5CC#80	[2A]-46C-46C	B46 SCC Only	
5CC#81	2A-46D-[66A]	B46 SCC Only	7CC#1
5CC#82	[2A]-46D-66A	B46 SCC Only	7CC#2
5CC#83	[2A]-46D-[66A]	B46 SCC Only	7CC#4
5CC#84	[2A]-46E	B46 SCC Only	7CC#7
5CC#85	[4A]-46A-46D	B46 SCC Only	
5CC#86	5A-46D-[66A]	B46 SCC Only	7CC#1
5CC#87	13A-46D-[66A]	B46 SCC Only	7CC#9
5CC#88	[66A]-46A-46D	B46 SCC Only	
5CC#89	[66A]-46C-46C	B46 SCC Only	
5CC#90	[66A]-46E	B46 SCC Only	7CC#6
5CC#91	[66A]-66A-46D	B46 SCC Only	7CC#1
5CC#92	[66A]-[66A]-46D	B46 SCC Only	7CC#3

Index	6CC	Restriction	Completely Covered by Measurement Superset
6CC#1	2A-5A-46D-[66A]	B46 SCC Only	7CC#1
6CC#2	[2A]-5A-46D-66A	B46 SCC Only	7CC#2
6CC#3	[2A]-5A-46D-[66A]	B46 SCC Only	7CC#4
6CC#4	[2A]-5A-46E	B46 SCC Only	7CC#7
6CC#5	2A-13A-46D-[66A]	B46 SCC Only	7CC#9
6CC#6	[2A]-13A-46D-66A	B46 SCC Only	7CC#10
6CC#7	[2A]-13A-46D-[66A]	B46 SCC Only	7CC#12
6CC#8	[2A]-13A-46E	B46 SCC Only	
6CC#9	2A-46D-[66A]-66A	B46 SCC Only	7CC#1
6CC#10	[2A]-46D-66A-66A	B46 SCC Only	7CC#2
6CC#11	2A-46D-[66A]-[66A]	B46 SCC Only	7CC#3
6CC#12	[2A]-46D-[66A]-66A	B46 SCC Only	7CC#4
6CC#13	[2A]-46D-[66A]-[66A]	B46 SCC Only	7CC#5
6CC#14	2A-46E-[66A]	B46 SCC Only	7CC#6
6CC#15	[2A]-46E-66A	B46 SCC Only	7CC#7
6CC#16	[2A]-46E-[66A]	B46 SCC Only	7CC#8
6CC#17	5A-46D-[66A]-66A	B46 SCC Only	7CC#1
6CC#18	5A-46D-[66A]-[66A]	B46 SCC Only	7CC#3
6CC#19	5A-46E-[66A]	B46 SCC Only	7CC#6
6CC#20	13A-46D-[66A]-66A	B46 SCC Only	7CC#9
6CC#21	13A-46D-[66A]-[66A]	B46 SCC Only	7CC#11
6CC#22	13A-46E-[66A]	B46 SCC Only	
6CC#23	[66A]-66A-46E	B46 SCC Only	7CC#14
6CC#24	[66A]-[66A]-46E	B46 SCC Only	7CC#16

Index	7CC	Restriction	Completely Covered by Measurement Superset
7CC#1	2A-5A-46D-[66A]-66A	B46 SCC Only	
7CC#2	[2A]-5A-46D-66A-66A	B46 SCC Only	
7CC#3	2A-5A-46D-[66A]-[66A]	B46 SCC Only	
7CC#4	[2A]-5A-46D-[66A]-66A	B46 SCC Only	
7CC#5	[2A]-5A-46D-[66A]-[66A]	B46 SCC Only	
7CC#6	2A-5A-46E-[66A]	B46 SCC Only	
7CC#7	[2A]-5A-46E-66A	B46 SCC Only	
7CC#8	[2A]-5A-46E-[66A]	B46 SCC Only	
7CC#9	2A-13A-46D-[66A]-66A	B46 SCC Only	
7CC#10	[2A]-13A-46D-66A-66A	B46 SCC Only	
7CC#11	2A-13A-46D-[66A]-[66A]	B46 SCC Only	
7CC#12	[2A]-13A-46D-[66A]-66A	B46 SCC Only	
7CC#13	[2A]-13A-46D-[66A]-[66A]	B46 SCC Only	
7CC#14	2A-46E-[66A]-66A	B46 SCC Only	
7CC#15	[2A]-46E-66A-66A	B46 SCC Only	
7CC#16	2A-46E-[66A]-[66A]	B46 SCC Only	
7CC#17	[2A]-46E-[66A]-66A	B46 SCC Only	
7CC#18	[2A]-46E-[66A]-[66A]	B46 SCC Only	
7CC#19	5A-46E-[66A]-66A	B46 SCC Only	
7CC#20	5A-46E-[66A]-[66A]	B46 SCC Only	

**Note:**

Only yellow highlight cells need power measurement according to LTE DL CA SAR test Exclusion in TCB workshop (April.2018).  
 [\*] is 4X4 MIMO configuration.



**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	18700	1860	1/0	23.7	23.6	-0.10
Band 4	QPSK	20	20175	1732.5	1/49	23.8	23.8	0.04
Band 66	QPSK	20	132072	1720	1/49	23.8	23.8	-0.07

**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 with 4x4 MIMO output power results (continued)

Table with columns for E-UTRA CA configuration (BCS), Bands (PCC, SCC1, SCC2, SCC3, SCC5, SCC6), UL (Mode, BW, Channel, Freq, RB/Ofs, et), DL (PCC, SCC1, SCC2, SCC3, SCC5, SCC6), LTE Rel 8 Tx Power [dBm], LTE Rel 10 Tx Power [dBm], and Delta.

Note:

- 1. 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.
2. 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.

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