

1. 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-2A	(0)	Band 2			Yes	Yes	Yes	Yes	40
		Band 2			Yes	Yes	Yes	Yes	
2A-5A	(0)	Band 2			Yes	Yes	Yes	Yes	30
		Band 5			Yes	Yes			
	(1)	Band 2			Yes	Yes			20
		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	Yes	30
		Band 12		Yes	Yes	Yes			
2A-13A	(0)	Band 2			Yes	Yes	Yes	Yes	30
		Band 13			Yes	Yes			
	(1)	Band 2			Yes	Yes			20
		Band 13			Yes	Yes			
2A-17A	(0)	Band 2			Yes	Yes			20
		Band 17			Yes	Yes			
	(1)	Band 4			Yes	Yes	Yes	Yes	40
		Band 4			Yes	Yes	Yes	Yes	
4A-4A	(0)	Band 4			Yes	Yes	Yes	Yes	40
		Band 4			Yes	Yes	Yes	Yes	
	(1)	Band 4			Yes	Yes			20
		Band 4			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		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	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	Yes			
	(1)	Band 4			Yes	Yes			20
		Band 13			Yes	Yes			
4A-17A	(0)	Band 4			Yes	Yes			20
		Band 17			Yes	Yes			
5A-41A	(0)	Band 5			Yes	Yes			30
		Band 41					Yes		
5A-66A	(0)	Band 5			Yes	Yes			30
		Band 66			Yes	Yes	Yes	Yes	
26A-41A	(0)	Band 26			Yes	Yes	Yes		35
		Band 41			Yes	Yes	Yes	Yes	
		Band 41			Yes	Yes	Yes	Yes	
41A-41A	(0)	Band 41			Yes	Yes	Yes	Yes	40
		Band 41			Yes	Yes	Yes	Yes	
	(1)	Band 41			Yes	Yes	Yes	Yes	40
Band 41				Yes	Yes	Yes	Yes		
66A-66A	(0)	Band 66			Yes	Yes	Yes	Yes	40
		Band 66			Yes	Yes	Yes	Yes	

2. 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	5th Carrier	
2C	(0)	Band 2	5	20				40 MHz
			10	15, 20				
			15	10, 15, 20				
			20	5, 10, 15, 20				
41C	(0)	Band 41	10	20				40 MHz
			15	15, 20				
	(1)	Band 41	20	5, 10, 15, 20				40 MHz
			10	15, 20				
66B	(0)	Band 66	5	5, 10, 15				20 MHz
			10	5, 10				
			15	5				
			5	20				
66C	(0)	Band 66	10	15, 20				40 MHz
			15	10, 15, 20				
			20	5, 10, 15, 20				
			5	20				

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 (5) downlinks.

LTE Release 10 Carrier Aggregation

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

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	PCC					PCC			SCC1			SCC2					
	1st	2nd	3rd	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offsets	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)			
2A-2A	2A	2A		QPSK	20	18700	1860	1/0	20	700	1940	20	1100	1980				23.9	24.0	0.07
2C	2C	2C		QPSK	20	18700	1860	1/0	20	700	1940	20	898	1959.8				23.9	24.0	0.03
2A-5A	2A	5A		QPSK	20	18700	1860	1/0	20	700	1940	10	2525	881.5				23.9	24.0	0.03
	5A	2A		QPSK	10	20525	836.5	1/0	10	2525	881.5	20	900	1960				24.1	24.1	-0.02
2A-12A	2A	12A		QPSK	20	18700	1860	1/0	20	700	1940	10	5095	737.5				23.9	23.9	-0.06
	12A	2A		QPSK	10	23095	707.5	1/0	10	5095	737.5	20	900	1960				24.3	24.4	0.09
2A-17A	2A	17A		QPSK	10	18650	1855	1/0	10	650	1935	10	5790	740				23.4	23.4	0.04
	17A	2A		QPSK	10	23790	710	1/0	10	5790	740	10	900	1960				24.7	24.8	0.11
4A-4A	4A	4A		QPSK	20	20175	1732.5	1/99	20	2175	2132.5	10	2350	2150				23.9	23.8	-0.10
4A-5A	4A	5A		QPSK	20	20175	1732.5	1/99	20	2175	2132.5	10	2525	881.5				23.9	23.8	-0.05
	5A	4A		QPSK	10	20525	836.5	1/0	10	2525	881.5	20	2175	2132.5				24.1	24.2	0.02
4A-12A	4A	12A		QPSK	20	20175	1732.5	1/99	20	2175	2132.5	10	5095	737.5				23.9	23.8	-0.07
	12A	4A		QPSK	10	23095	707.5	1/0	10	5095	737.5	20	2175	2132.5				24.3	24.3	-0.04
4A-17A	4A	17A		QPSK	10	20350	1750	1/25	10	2350	2150	10	5790	740				23.7	23.7	0.02
5A-41A	5A	41A		QPSK	10	20525	836.5	1/0	10	2525	881.5	20	40620	2593				24.1	24.2	0.01
5A-66A	5A	66A		QPSK	10	20525	836.5	1/0	10	2525	881.5	20	66786	2145				24.1	24.2	0.02
	66A	5A		QPSK	20	132572	1770	1/49	20	67036	2170	10	2525	881.5				24.3	24.3	0.01
26A-41A	26A	41A		QPSK	15	26865	831.5	1/0	15	8865	876.5	20	40620	2593				23.8	23.8	0.03
41A-41A	41A	41A		QPSK	20	40620	2593	1/49	20	40620	2593	20	41490	2680				23.7	23.8	0.05
41C	41C	41C		QPSK	20	40620	2593	1/49	20	40620	2593	20	40818	2612.8				23.7	23.7	-0.05
66A-66A	66A	66A		QPSK	20	132572	1770	1/49	20	67036	2170	20	66536	2120				24.3	24.3	0.04
66B	66B	66B		QPSK	15	132322	1745	1/37	15	66786	2145	5	66879	2154.3				23.8	23.8	0.02
66C	66C	66C		QPSK	20	132572	1770	1/49	20	67036	2170	20	67234	2189.8				24.3	24.3	0.03

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.

- END -