10 Area Scan Based 1-g SAR

10.1 Requirement of KDB

According to the KDB447498 D01 v05, when the implementation is based the specific polynomial fit algorithm as presented at the 29th Bioelectromagnetics Society meeting (2007) and the estimated 1-gSAR is ≤ 1.2 W/kg, a zoom scan measurement is not required provided it is also not needed for any other purpose; for example, if the peak SAR location required for simultaneous transmission SAR test exclusion can be determined accurately by the SAR system or manually to discriminate between distinctive peaks and scattered noisy SAR distributions from area scans.

There must not be any warning or alert messages due to various measurement concerns identified by the SAR system; for example, noise in measurements, peaks too close to scan boundary, peaks are too sharp, spatial resolution and uncertainty issues etc. The SAR system verification must also demonstrate that the area scan estimated 1-g SAR is within 3% of the zoom scan 1-g SAR (See Annex B). When all the SAR results for each exposure condition in a frequency band and wireless mode are based on estimated 1-g SAR, the 1-g SAR for the highest SAR configuration must be determined by a zoom scan.

10.2 Fast SAR Algorithms

The approach is based on the area scan measurement applying a frequency dependent attenuation parameter. This attenuation parameter was empirically determined by analyzing a large number of phones. The MOTOROLA FAST SAR was developed and validated by the MOTOROLA Research Group in Ft. Lauderdale.

In the initial study, an approximation algorithm based on Linear fit was developed. The accuracy of the algorithm has been demonstrated across a broad frequency range (136-2450 MHz)and for both 1- and 10-g averaged SAR using a sample of 264 SAR measurements from 55wireless handsets. For the sample size studied, the root-mean-squared errors of the algorithm mare 1.2% and 5.8% for 1- and 10-g averaged SAR, respectively. The paper describing the algorithm in detail is expected to be published in August 2004 within the Special Issue of Transactions on MTT.

In the second step, the same research group optimized the fitting algorithm to an Polynomial fit whereby the frequency validity was extended to cover the range 30-6000MHz. Details of this study can be found in the BEMS 2007 Proceedings.

Both algorithms are implemented in DASY software.

11 Conducted Output Power

11.1 GSM Measurement result

During the process of testing, the EUT was controlled via Agilent Digital Radio Communication tester (E5515C) to ensure the maximum power transmission and proper modulation. This result contains conducted output power for the EUT. In all cases, the measured peak output power should be greater and within 5% than EMI measurement.

Table 11.1-1: The conducted power measurement results for GSM, GPRS and EGPRS

GSM 850	Measured Power (dBm)			Tune up	calculation	Averaged Power (dBm)		
Speech (GMSK)	251	190	128			251	190	128
1 Txslot	32.38	32.41	32.28	**33.5**	/	/	/	/
GSM 850	Measured Power (dBm)				calculation	Averaged Power (dBm)		
GPRS (GMSK)	251	190	128			251	190	128
1 Txslot	32.41	32.41	32.31	**33.5**	-9.03	23.38	23.38	23.28
2 Txslots	30.87	30.82	30.71	**32**	-6.02	24.85	24.80	24.69
3Txslots	29.65	29.58	29.42	**30.5**	-4.26	**25.39**	**25.32**	**25.16**
4 Txslots	28.30	28.31	28.13	**29.5**	-3.01	25.29	25.30	25.12
GSM 850	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (GMSK)	251	190	128			251	190	128
1 Txslot	32.48	32.52	32.36	**33**	-9.03	23.45	23.49	23.33
2 Txslots	30.96	30.94	30.79	**32.5**	-6.02	24.94	24.92	24.77
3Txslots	29.73	29.66	29.50	**30.5**	-4.26	**25.47**	**25.40**	**25.24**
4 Txslots	28.40	28.39	28.20	**29.5**	-3.01	25.39	25.38	25.19
GSM 850	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (8PSK)	251	190	128			251	190	128
1 Txslot	26.01	26.00	26.09	**28**	-9.03	16.98	16.97	17.06
2 Txslots	24.32	24.29	24.37	**26**	-6.02	18.30	18.27	18.35
3Txslots	23.01	23.45	23.14	**25**	-4.26	18.75	19.19	18.88
4 Txslots	21.81	21.70	21.94	**23**	-3.01	18.80	18.69	18.93
PCS1900	Measured Power (dBm)			Tune up	calculation	Averaged Power (dBm)		
Speech (GMSK)	810	661	512			810	661	512
1 Txslot	29.26	29.08	28.96	**30.5**	/	/	/	/
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
GPRS (GMSK)	810	661	512			810	661	512
1 Txslot	29.24	29.03	28.92	**30**	-9.03	20.21	20.00	19.89
2 Txslots	27.94	27.70	27.67	**28**	-6.02	21.92	21.68	21.65
3Txslots	26.57	26.43	26.30	**27**	-4.26	22.31	22.17	22.04
4 Txslots	25.42	25.26	25.12	**26**	-3.01	**22.41**	**22.25**	**22.11**
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (GMSK)	810	661	512			810	661	512
1 Txslot	29.33	29.03	29.01	**30**	-9.03	20.30	20.00	19.98
2 Txslots	27.99	27.76	27.63	**28**	-6.02	21.97	21.74	21.61

3Txslots	26.61	26.42	26.37	**27**	-4.26	22.35	22.16	22.11
4 Txslots	25.39	25.24	25.19	**26**	-3.01	**22.38**	**22.23**	**22.18**
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (8PSK)	810	661	512			810	661	512
1 Txslot	25.33	25.17	25.10	**27**	-9.03	16.30	16.14	16.07
2 Txslots	23.86	23.58	24.18	**25.5**	-6.02	17.84	17.56	18.16
3Txslots	22.66	22.48	22.43	**23.5**	-4.26	18.40	18.22	18.17
4 Txslots	22.20	21.40	21.35	**22.5**	-3.01	19.19	18.39	18.34

NOTES:

1) Division Factors

To average the power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

According to the conducted power as above, the body measurements are performed with 3Txslots for GSM850 and 4Txslots for GSM1900.

11.2 WCDMA Measurement result

Table 11.2-1: The conducted Power for WCDMA

Item	band	FDDV result			Tune up
	ARFCN	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)	
WCDMA	\	23.44	23.48	23.52	**24**
HSUPA	1	22.34	22.38	22.36	**23**
	2	20.34	20.40	20.38	**21**
	3	21.33	21.37	21.40	**22**
	4	20.33	20.37	20.38	**21**
	5	22.31	22.35	22.38	**23**
DC-HSDPA	1	22.02	22.01	22.00	**22.5**
	2	22.03	22.00	21.99	**22.5**
	3	22.02	21.99	22.00	**22.5**
	4	22.03	22.01	21.99	**22.5**
Item	band	FDDIV result			
	ARFCN	1513 (1752.6MHz)	1412 (1732.4MHz)	1312 (1712.4MHz)	
WCDMA	\	23.72	23.85	23.86	**24**
HSUPA	1	22.64	22.86	22.77	**23**
	2	20.67	20.84	20.76	**21**
	3	21.68	21.84	21.80	**22**
	4	20.69	20.85	20.80	**21**
	5	22.67	22.83	22.75	**23**
DC-HSDPA	1	22.18	22.34	22.29	**23**
	2	22.19	22.35	22.28	**23**
	3	22.18	22.34	22.27	**23**
	4	22.20	22.35	22.29	**23**
Item	band	FDDII result			
	ARFCN	9538 (1907.6MHz)	9400 (1880MHz)	9262 (1852.4MHz)	
WCDMA	\	23.75	23.70	23.74	**24**
HSUPA	1	22.80	22.74	22.78	**23**
	2	20.80	20.73	20.79	**21**
	3	21.75	21.75	21.78	**22**
	4	20.76	20.72	20.77	**21**
	5	22.75	22.69	22.77	**23**
DC-HSDPA	1	22.44	22.36	22.38	**23**
	2	22.45	22.37	22.39	**23**
	3	22.44	22.35	22.40	**23**
	4	22.46	22.36	22.39	**23**

11.3 LTE Measurement result

Maximum Target Power for Production Unit

LTE Band 2				
Modulation	**BW (MHz)**	**RB size**	**Target MPR**	**Target Power**
QPSK	20	≤ 18	0	23.0+/- 1
QPSK	20	> 18	1	22.0+/- 1
16QAM	20	≤ 18	1	22.0+/- 1
16QAM	20	> 18	2	21.0+/- 1
64QAM	20	≤ 18	2	21.0+/- 1
64QAM	20	> 18	3	20.0+/- 1
QPSK	15	≤ 16	0	23.0+/- 1
QPSK	15	> 16	1	22.0+/- 1
16QAM	15	≤ 16	1	22.0+/- 1
16QAM	15	> 16	2	21.0+/- 1
64QAM	15	≤ 16	2	21.0+/- 1
64QAM	15	> 16	3	20.0+/- 1
QPSK	10	≤ 12	0	23.0+/- 1
QPSK	10	> 12	1	22.0+/- 1
16QAM	10	≤ 12	1	22.0+/- 1
16QAM	10	> 12	2	21.0+/- 1
64QAM	10	≤ 12	2	21.0+/- 1
64QAM	10	> 12	3	20.0+/- 1
QPSK	5	≤ 8	0	23.0+/- 1
QPSK	5	> 8	1	22.0+/- 1
16QAM	5	≤ 8	1	22.0+/- 1
16QAM	5	> 8	2	21.0+/- 1
64QAM	5	≤ 8	2	21.0+/- 1
64QAM	5	> 8	3	20.0+/- 1
QPSK	3	≤ 4	0	23.0+/- 1
QPSK	3	> 4	1	22.0+/- 1
16QAM	3	≤ 4	1	22.0+/- 1
16QAM	3	> 4	2	21.0+/- 1
64QAM	3	≤ 4	2	21.0+/- 1
64QAM	3	> 4	3	20.0+/- 1
QPSK	1.4	≤ 5	0	23.0+/- 1
QPSK	1.4	> 5	1	22.0+/- 1
16QAM	1.4	≤ 5	1	22.0+/- 1
16QAM	1.4	> 5	2	21.0+/- 1
64QAM	1.4	> 5	2	21.0+/- 1
64QAM	1.4	> 5	3	20.0+/- 1

LTE Band 5				
Modulation	BW (MHz)	RB size	Target MPR	Target Power
QPSK	10	≤ 12	0	23.0+/- 1
QPSK	10	> 12	1	22.0+/- 1
16QAM	10	≤ 12	1	22.0+/- 1
16QAM	10	> 12	2	21.0+/- 1
64QAM	10	≤ 12	2	21.0+/- 1
64QAM	10	> 12	3	20.0+/- 1
QPSK	5	≤ 8	0	23.0+/- 1
QPSK	5	> 8	1	22.0+/- 1
16QAM	5	≤ 8	1	22.0+/- 1
16QAM	5	> 8	2	21.0+/- 1
64QAM	5	≤ 8	2	21.0+/- 1
64QAM	5	> 8	3	20.0+/- 1
QPSK	3	≤ 4	0	23.0+/- 1
QPSK	3	> 4	1	22.0+/- 1
16QAM	3	≤ 4	1	22.0+/- 1
16QAM	3	> 4	2	21.0+/- 1
64QAM	3	≤ 4	2	21.0+/- 1
64QAM	3	> 4	3	20.0+/- 1
QPSK	1.4	≤ 5	0	23.0+/- 1
QPSK	1.4	> 5	1	22.0+/- 1
16QAM	1.4	≤ 5	1	22.0+/- 1
16QAM	1.4	> 5	2	21.0+/- 1
64QAM	1.4	> 5	2	21.0+/- 1
64QAM	1.4	> 5	3	20.0+/- 1

LTE Band 7				
Modulation	**BW (MHz)**	**RB size**	**Target MPR**	**Target Power**
QPSK	20	≤ 18	0	23.0+/- 1
QPSK	20	> 18	1	22.0+/- 1
16QAM	20	≤ 18	1	22.0+/- 1
16QAM	20	> 18	2	21.0+/- 1
64QAM	20	≤ 18	2	21.0+/- 1
64QAM	20	> 18	3	20.0+/- 1
QPSK	15	≤ 16	0	23.0+/- 1
QPSK	15	> 16	1	22.0+/- 1
16QAM	15	≤ 16	1	22.0+/- 1
16QAM	15	> 16	2	21.0+/- 1
64QAM	15	≤ 16	2	21.0+/- 1
64QAM	15	> 16	3	20.0+/- 1
QPSK	10	≤ 12	0	23.0+/- 1
QPSK	10	> 12	1	22.0+/- 1
16QAM	10	≤ 12	1	22.0+/- 1
16QAM	10	> 12	2	21.0+/- 1
64QAM	10	≤ 12	2	21.0+/- 1
64QAM	10	> 12	3	20.0+/- 1
QPSK	5	≤ 8	0	23.0+/- 1
QPSK	5	> 8	1	22.0+/- 1
16QAM	5	≤ 8	1	22.0+/- 1
16QAM	5	> 8	2	21.0+/- 1
64QAM	5	≤ 8	2	21.0+/- 1
64QAM	5	> 8	3	20.0+/- 1

LTE Band 12				
Modulation	BW (MHz)	RB size	Target MPR	Target Power
QPSK	10	≤ 12	0	23.0+/- 1
QPSK	10	> 12	1	22.0+/- 1
16QAM	10	≤ 12	1	22.0+/- 1
16QAM	10	> 12	2	21.0+/- 1
64QAM	10	≤ 12	2	21.0+/- 1
64QAM	10	> 12	3	20.0+/- 1
QPSK	5	≤ 8	0	23.0+/- 1
QPSK	5	> 8	1	22.0+/- 1
16QAM	5	≤ 8	1	22.0+/- 1
16QAM	5	> 8	2	21.0+/- 1
64QAM	5	≤ 8	2	21.0+/- 1
64QAM	5	> 8	3	20.0+/- 1
QPSK	3	≤ 4	0	23.0+/- 1
QPSK	3	> 4	1	22.0+/- 1
16QAM	3	≤ 4	1	22.0+/- 1
16QAM	3	> 4	2	21.0+/- 1
64QAM	3	≤ 4	2	21.0+/- 1
64QAM	3	> 4	3	20.0+/- 1
QPSK	1.4	≤ 5	0	23.0+/- 1
QPSK	1.4	> 5	1	22.0+/- 1
16QAM	1.4	≤ 5	1	22.0+/- 1
16QAM	1.4	> 5	2	21.0+/- 1
64QAM	1.4	> 5	2	21.0+/- 1
64QAM	1.4	> 5	3	20.0+/- 1

LTE Band 13				
Modulation	BW (MHz)	RB size	Target MPR	Target Power
QPSK	10	≤ 12	0	23.0+/- 1
QPSK	10	> 12	1	22.0+/- 1
16QAM	10	≤ 12	1	22.0+/- 1
16QAM	10	> 12	2	21.0+/- 1
64QAM	10	≤ 12	2	21.0+/- 1
64QAM	10	> 12	3	20.0+/- 1
QPSK	5	≤ 8	0	23.0+/- 1
QPSK	5	> 8	1	22.0+/- 1
16QAM	5	≤ 8	1	22.0+/- 1
16QAM	5	> 8	2	21.0+/- 1
64QAM	5	≤ 8	2	21.0+/- 1
64QAM	5	> 8	3	20.0+/- 1

LTE Band 41				
Modulation	**BW (MHz)**	**RB size**	**Target MPR**	**Target Power**
QPSK	20	≤ 18	0	23.0+/- 1
QPSK	20	> 18	1	22.0+/- 1
16QAM	20	≤ 18	1	22.0+/- 1
16QAM	20	> 18	2	21.0+/- 1
64QAM	20	≤ 18	2	21.0+/- 1
64QAM	20	> 18	3	20.0+/- 1
QPSK	15	≤ 16	0	23.0+/- 1
QPSK	15	> 16	1	22.0+/- 1
16QAM	15	≤ 16	1	22.0+/- 1
16QAM	15	> 16	2	21.0+/- 1
64QAM	15	≤ 16	2	21.0+/- 1
64QAM	15	> 16	3	20.0+/- 1
QPSK	10	≤ 12	0	23.0+/- 1
QPSK	10	> 12	1	22.0+/- 1
16QAM	10	≤ 12	1	22.0+/- 1
16QAM	10	> 12	2	21.0+/- 1
64QAM	10	≤ 12	2	21.0+/- 1
64QAM	10	> 12	3	20.0+/- 1
QPSK	5	≤ 8	0	23.0+/- 1
QPSK	5	> 8	1	22.0+/- 1
16QAM	5	≤ 8	1	22.0+/- 1
16QAM	5	> 8	2	21.0+/- 1
64QAM	5	≤ 8	2	21.0+/- 1
64QAM	5	> 8	3	20.0+/- 1

LTE Band 66				
Modulation	**BW (MHz)**	**RB size**	**Target MPR**	**Target Power**
QPSK	20	≤ 18	0	23.0+/- 1
QPSK	20	> 18	1	22.0+/- 1
16QAM	20	≤ 18	1	22.0+/- 1
16QAM	20	> 18	2	21.0+/- 1
64QAM	20	≤ 18	2	21.0+/- 1
64QAM	20	> 18	3	20.0+/- 1
QPSK	15	≤ 16	0	23.0+/- 1
QPSK	15	> 16	1	22.0+/- 1
16QAM	15	≤ 16	1	22.0+/- 1
16QAM	15	> 16	2	21.0+/- 1
64QAM	15	≤ 16	2	21.0+/- 1
64QAM	15	> 16	3	20.0+/- 1
QPSK	10	≤ 12	0	23.0+/- 1
QPSK	10	> 12	1	22.0+/- 1
16QAM	10	≤ 12	1	22.0+/- 1
16QAM	10	> 12	2	21.0+/- 1
64QAM	10	≤ 12	2	21.0+/- 1
64QAM	10	> 12	3	20.0+/- 1
QPSK	5	≤ 8	0	23.0+/- 1
QPSK	5	> 8	1	22.0+/- 1
16QAM	5	≤ 8	1	22.0+/- 1
16QAM	5	> 8	2	21.0+/- 1
64QAM	5	≤ 8	2	21.0+/- 1
64QAM	5	> 8	3	20.0+/- 1
QPSK	3	≤ 4	0	23.0+/- 1
QPSK	3	> 4	1	22.0+/- 1
16QAM	3	≤ 4	1	22.0+/- 1
16QAM	3	> 4	2	21.0+/- 1
64QAM	3	≤ 4	2	21.0+/- 1
64QAM	3	> 4	3	20.0+/- 1
QPSK	1.4	≤ 5	0	23.0+/- 1
QPSK	1.4	> 5	1	22.0+/- 1
16QAM	1.4	≤ 5	1	22.0+/- 1
16QAM	1.4	> 5	2	21.0+/- 1
64QAM	1.4	> 5	2	21.0+/- 1
64QAM	1.4	> 5	3	20.0+/- 1

Table 11.3-1: The conducted Power for LTE

Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)	64QAM Actual output power (dBm)
1.4 MHz	1RB High (5)	1909.3	23.40	22.37	21.40
		1880	23.35	22.75	21.47
		1850.7	23.30	22.37	21.43
	1RB Middle (3)	1909.3	23.42	22.46	21.29
		1880	23.42	22.84	21.39
		1850.7	23.38	22.42	21.42
	1RB Low (0)	1909.3	23.39	22.38	21.42
		1880	23.36	22.77	21.32
		1850.7	23.27	22.31	21.33
	3RB High (3)	1909.3	23.23	22.38	21.28
		1880	23.39	22.66	21.38
		1850.7	23.29	22.56	21.42
	3RB Middle (1)	1909.3	23.37	22.44	21.36
		1880	23.46	22.71	21.44
		1850.7	23.32	22.66	21.38
	3RB Low (0)	1909.3	23.23	22.40	21.40
		1880	23.41	22.63	21.36
		1850.7	23.37	22.53	21.29
	6RB (0)	1909.3	22.41	21.57	20.18
		1880	22.34	21.31	20.17
		1850.7	22.32	21.53	20.35
3 MHz	1RB High (14)	1908.5	23.45	22.34	21.29
		1880	23.36	22.30	21.42
		1851.5	23.35	22.73	21.41
	1RB Middle (7)	1908.5	23.50	22.50	21.32
		1880	23.48	22.48	21.42
		1851.5	23.50	22.87	21.34
	1RB Low (0)	1908.5	23.43	22.43	21.42
		1880	23.33	22.30	21.43
		1851.5	23.35	22.71	21.40
	8RB High (7)	1908.5	22.43	21.48	20.22
		1880	22.42	21.57	20.30
		1851.5	22.40	21.49	20.26
	8RB Middle (4)	1908.5	22.47	21.55	20.24
		1880	22.44	21.64	20.33
		1851.5	22.44	21.56	20.24
	8RB Low (0)	1908.5	22.46	21.53	20.17
		1880	22.44	21.59	20.29
		1851.5	22.39	21.52	20.19
	15RB (0)	1908.5	22.47	21.46	20.18
		1880	22.41	21.56	20.24
		1851.5	22.39	21.45	20.30

5 MHz	1RB High (24)	1907.5	23.49	22.47	21.31
		1880	23.47	22.61	21.37
		1852.5	23.31	22.89	21.41
	1RB Middle (12)	1907.5	23.48	22.48	21.35
		1880	23.50	22.61	21.38
		1852.5	23.35	22.94	21.40
	1RB Low (0)	1907.5	23.44	22.48	21.33
		1880	23.47	22.60	21.38
		1852.5	23.33	22.84	21.35
	12RB High (13)	1907.5	22.40	21.55	20.32
		1880	22.43	21.55	20.25
		1852.5	22.37	21.56	20.23
	12RB Middle (6)	1907.5	22.48	21.59	20.30
		1880	22.46	21.62	20.31
		1852.5	22.40	21.63	20.20
	12RB Low (0)	1907.5	22.44	21.56	20.24
		1880	22.40	21.58	20.31
		1852.5	22.42	21.56	20.21
	25RB (0)	1907.5	22.44	21.47	20.18
		1880	22.44	21.54	20.20
		1852.5	22.35	21.50	20.29
10 MHz	1RB High (49)	1905	23.41	22.31	21.30
		1880	23.43	22.42	21.36
		1855	23.44	22.82	21.39
	1RB Middle (24)	1905	23.39	22.42	21.31
		1880	23.38	22.38	21.34
		1855	23.39	22.86	21.40
	1RB Low (0)	1905	23.42	22.43	21.33
		1880	23.47	22.43	21.39
		1855	23.49	22.81	21.35
	25RB High (25)	1905	22.41	21.56	20.24
		1880	22.41	21.53	20.29
		1855	22.38	21.48	20.24
	25RB Middle (12)	1905	22.47	21.62	20.27
		1880	22.48	21.57	20.31
		1855	22.41	21.52	20.25
	25RB Low (0)	1905	22.47	21.64	20.19
		1880	22.43	21.54	20.30
		1855	22.33	21.44	20.22
	50RB (0)	1905	22.46	21.53	20.14
		1880	22.45	21.53	20.17
		1855	22.38	21.51	20.28
15 MHz	1RB High (74)	1902.5	23.50	22.64	21.31
		1880	23.29	22.29	21.37
		1857.5	23.27	22.64	21.40
	1RB Middle (37)	1902.5	23.51	22.77	21.33
		1880	23.37	22.36	21.43
		1857.5	23.31	22.73	21.35

	1RB Low (0)	1902.5	23.48	22.79	21.39
		1880	23.35	22.32	21.38
		1857.5	23.33	22.68	21.35
	36RB High (38)	1902.5	22.47	21.54	20.26
		1880	22.39	21.53	20.27
		1857.5	22.29	21.46	20.29
	36RB Middle (19)	1902.5	22.47	21.54	20.24
		1880	22.44	21.54	20.29
		1857.5	22.34	21.51	20.28
	36RB Low (0)	1902.5	22.44	21.51	20.22
		1880	22.39	21.47	20.23
		1857.5	22.33	21.44	20.24
	75RB (0)	1902.5	22.49	21.55	20.11
		1880	22.37	21.49	20.18
		1857.5	22.32	21.47	20.26
20 MHz	1RB High (99)	1900	23.44	22.75	21.36
		1880	23.38	22.82	21.43
		1860	23.37	22.97	21.44
	1RB Middle (50)	1900	23.45	22.80	21.37
		1880	23.37	22.85	21.41
		1860	23.28	22.90	21.39
	1RB Low (0)	1900	23.27	22.76	21.40
		1880	23.40	22.75	21.40
		1860	23.27	22.84	21.37
	50RB High (50)	1900	22.46	21.56	20.29
		1880	22.45	21.50	20.30
		1860	22.41	21.53	20.28
	50RB Middle (25)	1900	22.49	21.59	20.28
		1880	22.42	21.48	20.30
		1860	22.38	21.51	20.27
	50RB Low (0)	1900	22.36	21.47	20.22
		1880	22.40	21.48	20.28
		1860	22.33	21.45	20.24
	100RB (0)	1900	22.36	21.47	20.15
		1880	22.38	21.46	20.23
		1860	22.41	21.55	20.31

Band 5					
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
1.4 MHz	1RB High (5)	848.3	22.99	22.23	21.38
		836.5	23.08	22.56	21.44
		824.7	22.95	22.14	21.46
	1RB Middle (3)	848.3	23.07	22.31	21.38
		836.5	23.13	22.61	21.41
		824.7	23.00	22.18	21.49
	1RB Low (0)	848.3	22.99	22.28	21.49
		836.5	23.07	22.55	21.41
		824.7	22.94	22.13	21.37
	3RB High (3)	848.3	23.08	22.29	20.21
		836.5	23.12	22.46	20.26
		824.7	23.04	22.34	20.29
	3RB Middle (1)	848.3	23.14	22.31	20.16
		836.5	23.14	22.43	20.33
		824.7	23.08	22.40	20.31
	3RB Low (0)	848.3	23.06	22.22	20.23
		836.5	23.14	22.42	20.37
		824.7	23.01	22.35	20.29
	6RB (0)	848.3	21.99	21.26	20.25
		836.5	22.05	21.08	20.27
		824.7	21.96	21.24	20.25
3 MHz	1RB High (14)	847.5	23.02	22.21	21.42
		836.5	23.06	22.08	21.42
		825.5	23.02	22.48	21.42
	1RB Middle (7)	847.5	23.13	22.32	21.46
		836.5	23.14	22.21	21.39
		825.5	23.14	22.63	21.38
	1RB Low (0)	847.5	23.06	22.25	21.40
		836.5	23.08	22.08	21.42
		825.5	23.06	22.54	21.42
	8RB High (7)	847.5	22.06	21.23	20.20
		836.5	22.12	21.33	20.21
		825.5	22.02	21.20	20.33
	8RB Middle (4)	847.5	22.12	21.35	20.22
		836.5	22.17	21.38	20.32
		825.5	22.07	21.27	20.30
	8RB Low (0)	847.5	22.09	21.25	20.21
		836.5	22.14	21.34	20.32
		825.5	22.05	21.26	20.34
	15RB (0)	847.5	22.12	21.17	20.25
		836.5	22.16	21.30	20.35
		825.5	22.07	21.22	20.26
5 MHz	1RB High (24)	846.5	23.10	22.24	21.40
		836.5	23.14	22.45	21.48
		826.5	23.12	22.71	21.43

	1RB Middle (12)	846.5	23.13	22.29	21.45
		836.5	23.14	22.38	21.42
		826.5	23.01	22.66	21.41
	1RB Low (0)	846.5	23.01	22.21	21.50
		836.5	23.12	22.39	21.39
		826.5	23.01	22.64	21.41
	12RB High (13)	846.5	22.11	21.31	20.16
		836.5	22.15	21.34	20.24
		826.5	22.16	21.38	20.25
	12RB Middle (6)	846.5	22.16	21.36	20.24
		836.5	22.16	21.37	20.29
		826.5	22.23	21.47	20.26
	12RB Low (0)	846.5	22.03	21.24	20.29
		836.5	22.14	21.36	20.35
		826.5	22.09	21.31	20.32
	25RB (0)	846.5	22.06	21.14	20.21
		836.5	22.17	21.27	20.35
		826.5	22.18	21.32	20.30
10 MHz	1RB High (49)	844.0	23.07	22.54	21.40
		836.5	23.13	22.25	21.46
		829.0	23.15	22.12	21.44
	1RB Middle (24)	844.0	23.01	22.50	21.42
		836.5	23.09	22.22	21.44
		829.0	23.07	22.09	21.45
	1RB Low (0)	844.0	23.08	22.54	21.46
		836.5	23.04	22.20	21.46
		829.0	22.99	22.05	21.41
	25RB High (25)	844.0	22.04	21.22	20.20
		836.5	22.12	21.33	20.25
		829.0	22.23	21.37	20.30
	25RB Middle (12)	844.0	22.09	21.27	20.23
		836.5	22.20	21.40	20.32
		829.0	22.20	21.32	20.28
	25RB Low (0)	844.0	22.08	21.26	20.26
		836.5	22.20	21.36	20.34
		829.0	22.20	21.31	20.33
	50RB (0)	844.0	22.09	21.22	20.23
		836.5	22.16	21.28	20.32
		829.0	22.18	21.28	20.28

Band 7					
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
5 MHz	1RB High (24)	2567.5	23.44	22.52	21.06
		2535	23.54	22.63	21.02
		2502.5	23.45	22.99	20.71
	1RB Middle (12)	2567.5	23.45	22.47	21.10
		2535	23.53	22.60	20.94
		2502.5	23.42	22.98	20.69
	1RB Low (0)	2567.5	23.42	22.44	21.11
		2535	23.46	22.60	20.92
		2502.5	23.42	22.94	20.75
	12RB High (13)	2567.5	22.43	21.58	20.01
		2535	22.47	21.61	19.91
		2502.5	22.50	21.74	19.59
	12RB Middle (6)	2567.5	22.45	21.55	19.98
		2535	22.46	21.65	19.87
		2502.5	22.53	21.73	19.62
	12RB Low (0)	2567.5	22.43	21.58	20.04
		2535	22.48	21.63	19.84
		2502.5	22.49	21.72	19.64
	25RB (0)	2567.5	22.42	21.46	19.95
		2535	22.46	21.57	19.89
		2502.5	22.49	21.64	19.52
10 MHz	1RB High (49)	2565	23.45	22.40	21.05
		2535	23.49	22.44	21.04
		2505	23.52	22.92	20.67
	1RB Middle (24)	2565	23.35	22.42	21.12
		2535	23.43	22.39	20.96
		2505	23.49	22.85	20.65
	1RB Low (0)	2565	23.41	22.45	21.08
		2535	23.43	22.38	20.92
		2505	23.50	22.83	20.84
	25RB High (25)	2565	22.50	21.61	20.04
		2535	22.56	21.68	19.94
		2505	22.50	21.64	19.56
	25RB Middle (12)	2565	22.50	21.65	20.06
		2535	22.57	21.68	19.89
		2505	22.56	21.65	19.67
	25RB Low (0)	2565	22.43	21.60	19.97
		2535	22.49	21.59	19.90
		2505	22.49	21.62	19.64
	50RB (0)	2565	22.45	21.58	20.01
		2535	22.50	21.61	19.85
		2505	22.49	21.60	19.50
15 MHz	1RB High (74)	2562.5	23.45	22.34	21.15
		2535	23.57	22.88	21.12
		2507.5	23.59	22.89	20.64

	1RB Middle (37)	2562.5	23.42	22.34	21.10
		2535	23.49	22.83	20.96
		2507.5	23.47	22.88	20.75
	1RB Low (0)	2562.5	23.40	22.36	21.15
		2535	23.49	22.86	20.96
		2507.5	23.49	22.87	20.76
	36RB High (38)	2562.5	22.46	21.57	19.95
		2535	22.52	21.67	19.90
		2507.5	22.53	21.62	19.60
	36RB Middle (19)	2562.5	22.49	21.57	20.05
		2535	22.52	21.68	19.95
		2507.5	22.56	21.55	19.64
	36RB Low (0)	2562.5	22.43	21.53	20.03
		2535	22.50	21.66	19.91
		2507.5	22.48	21.55	19.65
	75RB (0)	2562.5	22.44	21.52	20.01
		2535	22.53	21.66	19.89
		2507.5	22.50	21.59	19.53
20 MHz	1RB High (99)	2560	23.41	22.81	21.11
		2535	23.53	22.87	21.09
		2510	23.37	22.99	20.68
	1RB Middle (50)	2560	23.35	22.79	21.08
		2535	23.40	22.85	20.97
		2510	23.41	22.93	20.71
	1RB Low (0)	2560	23.36	22.85	21.12
		2535	23.41	22.85	20.99
		2510	23.42	22.99	20.82
	50RB High (50)	2560	22.44	21.58	20.01
		2535	22.54	21.60	19.95
		2510	22.42	21.55	19.58
	50RB Middle (25)	2560	22.47	21.55	20.03
		2535	22.57	21.65	19.91
		2510	22.55	21.68	19.66
	50RB Low (0)	2560	22.48	21.57	20.03
		2535	22.50	21.58	19.87
		2510	22.50	21.63	19.64
	100RB (0)	2560	22.44	21.53	20.00
		2535	22.50	21.60	19.87
		2510	22.37	21.54	19.56

Band 12					
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
1.4 MHz	1RB High (5)	715.3	23.02	22.01	20.99
		707.5	23.06	21.95	20.98
		699.7	23.03	22.00	21.03
	1RB Middle (3)	715.3	23.03	22.05	21.05
		707.5	23.08	21.94	21.12
		699.7	23.04	22.04	21.07
	1RB Low (0)	715.3	23.03	22.02	21.12
		707.5	23.08	21.90	21.09
		699.7	23.05	22.05	21.17
	3RB High (3)	715.3	22.84	21.82	20.05
		707.5	22.78	21.98	20.03
		699.7	22.84	21.82	20.09
	3RB Middle (1)	715.3	22.89	21.98	20.03
		707.5	22.92	22.02	20.05
		699.7	22.98	21.90	20.12
	3RB Low (0)	715.3	22.86	21.92	20.04
		707.5	22.83	21.92	20.14
		699.7	22.82	21.88	20.13
	6RB (0)	715.3	22.09	21.17	20.08
		707.5	22.04	21.17	20.09
		699.7	22.10	21.16	20.07
3 MHz	1RB High (14)	714.5	23.11	22.04	20.95
		707.5	23.08	21.88	20.96
		700.5	23.12	22.35	20.95
	1RB Middle (7)	714.5	23.17	22.13	20.99
		707.5	23.08	21.94	21.04
		700.5	23.15	22.38	21.11
	1RB Low (0)	714.5	23.14	22.09	21.12
		707.5	23.09	21.91	21.19
		700.5	23.11	22.37	21.07
	8RB High (7)	714.5	22.10	21.09	20.05
		707.5	21.98	21.06	20.04
		700.5	22.07	21.11	20.10
	8RB Middle (4)	714.5	22.11	21.15	20.11
		707.5	22.04	21.14	20.12
		700.5	22.11	21.17	20.15
	8RB Low (0)	714.5	22.07	21.14	20.08
		707.5	22.03	21.11	20.15
		700.5	22.10	21.09	20.17
	15RB (0)	714.5	22.06	21.07	20.02
		707.5	22.01	21.02	20.08
		700.5	22.05	21.08	20.10
5 MHz	1RB High (24)	713.5	23.15	22.14	21.03
		707.5	23.14	22.16	20.91
		701.5	23.16	22.47	20.96

	1RB Middle (12)	713.5	23.13	22.14	21.05
		707.5	23.18	22.14	21.12
		701.5	23.09	22.51	21.06
	1RB Low (0)	713.5	23.09	22.05	21.10
		707.5	23.16	22.17	21.16
		701.5	23.15	22.49	21.08
	12RB High (13)	713.5	22.05	21.08	20.04
		707.5	22.01	21.08	20.02
		701.5	22.06	21.14	20.05
	12RB Middle (6)	713.5	22.11	21.14	20.11
		707.5	22.06	21.12	20.13
		701.5	22.13	21.21	20.14
	12RB Low (0)	713.5	21.99	21.07	20.03
		707.5	22.02	21.08	20.06
		701.5	22.07	21.19	20.11
	25RB (0)	713.5	21.99	20.94	20.03
		707.5	22.02	21.02	20.07
		701.5	22.07	21.11	20.16
10 MHz	1RB High (49)	711	23.12	22.37	21.02
		707.5	23.05	21.95	20.98
		704	23.10	21.90	21.00
	1RB Middle (24)	711	23.05	22.25	21.03
		707.5	23.04	21.96	21.09
		704	23.07	21.91	21.09
	1RB Low (0)	711	23.10	22.29	21.11
		707.5	23.07	21.97	21.16
		704	23.10	21.94	21.14
	25RB High (25)	711	22.00	21.04	20.03
		707.5	21.99	21.10	20.03
		704	22.07	21.04	20.09
	25RB Middle (12)	711	22.04	21.09	20.08
		707.5	22.06	21.09	20.10
		704	22.10	21.08	20.14
	25RB Low (0)	711	21.99	21.03	20.06
		707.5	22.00	21.12	20.12
		704	22.06	21.07	20.16
	50RB (0)	711	22.01	21.00	20.07
		707.5	22.00	21.01	20.09
		704	22.06	21.03	20.14

Band 13					
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
5 MHz	1RB High (24)	784.5	23.06	22.18	21.18
		782	23.10	22.31	21.25
		779.5	23.02	22.64	21.34
	1RB Middle (12)	784.5	23.08	22.24	21.16
		782	23.13	22.28	21.35
		779.5	23.05	22.70	21.58
	1RB Low (0)	784.5	23.07	22.23	21.29
		782	23.15	22.31	21.48
		779.5	23.05	22.65	21.62
	12RB High (13)	784.5	22.08	21.23	20.10
		782	22.05	21.26	20.19
		779.5	22.11	21.35	20.34
	12RB Middle (6)	784.5	22.10	21.28	20.13
		782	22.10	21.31	20.23
		779.5	22.16	21.40	20.29
	12RB Low (0)	784.5	22.08	21.27	20.17
		782	22.09	21.30	20.25
		779.5	22.18	21.39	20.40
	25RB (0)	784.5	22.07	21.13	20.24
		782	22.10	21.25	20.26
		779.5	22.15	21.28	20.31
10 MHz	1RB High (49)	782	22.96	21.96	21.25
	1RB Middle (24)	782	23.00	22.04	21.42
	1RB Low (0)	782	23.02	22.08	21.46
	25RB High (25)	782	22.08	21.24	20.22
	25RB Middle (12)	782	22.13	21.26	20.27
	25RB Low (0)	782	22.14	21.30	20.29
	50RB (0)	782	22.12	21.25	20.25

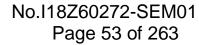| Band 41					
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
5 MHz	1RB High (24)	2687.5	23.58	22.90	21.46
		2640.3	23.74	22.98	21.23
		2593	23.58	22.76	20.70
		2545.8	23.50	22.91	20.99
		2498.5	23.46	22.61	20.50
	1RB Middle (12)	2687.5	23.58	22.93	21.52
		2640.3	23.74	23.00	21.23
		2593	23.39	22.80	20.71
		2545.8	23.42	22.89	20.92
		2498.5	23.43	22.59	20.44
	1RB Low (0)	2687.5	23.60	22.95	21.70
		2640.3	23.55	22.99	21.28
		2593	23.40	22.78	21.11
		2545.8	23.56	22.94	21.03
		2498.5	23.51	22.51	20.59
	12RB High (13)	2687.5	22.68	21.80	20.60
		2640.3	22.78	21.88	20.35
		2593	22.53	21.64	19.78
		2545.8	22.53	21.71	20.04
		2498.5	22.51	21.59	19.58
	12RB Middle (6)	2687.5	22.70	21.82	20.69
		2640.3	22.77	21.88	20.34
		2593	22.58	21.67	19.84
		2545.8	22.60	21.77	20.11
		2498.5	22.54	21.64	19.60
	12RB Low (0)	2687.5	22.65	21.80	20.77
		2640.3	22.76	21.86	20.35
		2593	22.52	21.63	19.94
		2545.8	22.55	21.73	20.09
		2498.5	22.54	21.59	19.65
	25RB (0)	2687.5	22.66	21.75	20.72
		2640.3	22.78	21.84	20.29
		2593	22.52	21.68	19.92
		2545.8	22.57	21.63	20.10
		2498.5	22.47	21.54	19.55
10 MHz	1RB High (49)	2685	23.60	22.91	21.51
		2639	23.74	22.92	21.29
		2593	23.51	22.88	20.72

		2547	23.54	22.94	21.01
		2501	23.57	22.69	20.57
	1RB Middle (24)	2685	23.59	22.90	21.50
		2639	23.73	22.93	21.20
		2593	23.51	22.89	20.81
		2547	23.51	22.94	20.97
		2501	23.55	22.65	20.52
	1RB Low (0)	2685	23.66	22.99	21.73
		2639	23.75	22.92	21.29
		2593	23.52	22.91	21.07
		2547	23.52	22.94	21.00
		2501	23.56	22.58	20.50
	25RB High (25)	2685	22.71	21.82	20.70
		2639	22.83	21.89	20.32
		2593	22.57	21.57	19.77
		2547	22.59	21.68	20.09
		2501	22.53	21.63	19.56
	25RB Middle (12)	2685	22.62	21.83	20.70
		2639	22.58	21.74	20.35
		2593	22.62	21.73	19.84
		2547	22.57	21.66	20.10
		2501	22.53	21.61	19.57
	25RB Low (0)	2685	22.77	21.71	20.78
		2639	22.56	21.92	20.28
		2593	22.61	21.59	19.93
		2547	22.57	21.77	20.03
		2501	22.55	21.61	19.60
	50RB (0)	2685	22.71	21.79	20.69
		2639	22.71	21.81	20.39
		2593	22.50	21.64	19.88
		2547	22.62	21.74	20.02
		2501	22.53	21.62	19.59
15 MHz	1RB High (74)	2682.5	23.63	22.92	21.51
		2637.8	23.39	22.82	21.26
		2593	23.49	22.64	20.68
		2548.3	23.66	22.94	20.93
		2503.5	23.50	22.69	20.48
	1RB Middle (37)	2682.5	23.69	22.97	21.57
		2637.8	23.69	22.82	21.24
		2593	23.45	22.68	20.77
		2548.3	23.64	22.82	20.93
		2503.5	23.47	22.75	20.52

	1RB Low (0)	2682.5	23.72	22.92	21.71
		2637.8	23.81	22.97	21.36
		2593	23.67	22.70	21.05
		2548.3	23.71	22.91	21.01
		2503.5	23.59	22.73	20.60
	36RB High (38)	2682.5	22.66	21.80	20.65
		2637.8	22.75	21.88	20.39
		2593	22.46	21.53	19.87
		2548.3	22.56	21.68	20.03
		2503.5	22.44	21.57	19.53
	36RB Middle (19)	2682.5	22.59	21.81	20.65
		2637.8	22.79	21.80	20.36
		2593	22.48	21.65	19.90
		2548.3	22.59	21.69	20.05
		2503.5	22.54	21.59	19.55
	36RB Low (0)	2682.5	22.70	21.82	20.78
		2637.8	22.80	21.73	20.31
		2593	22.54	21.59	19.96
		2548.3	22.64	21.63	20.11
		2503.5	22.62	21.68	19.65
	75RB (0)	2682.5	22.71	21.76	20.73
		2637.8	22.70	21.82	20.32
		2593	22.53	21.65	19.85
		2548.3	22.62	21.73	20.02
		2503.5	22.55	21.64	19.61
20 MHz	1RB High (99)	2680	23.70	22.82	21.53
		2636.5	23.78	22.67	21.30
		2593	23.39	22.98	20.71
		2549.5	23.67	22.81	20.99
		2506	23.37	22.59	20.54
	1RB Middle (50)	2680	23.66	22.89	21.56
		2636.5	23.78	22.92	21.24
		2593	23.58	22.86	20.78
		2549.5	23.61	22.72	20.97
		2506	23.59	22.68	20.49
	1RB Low (0)	2680	23.84	22.85	21.76
		2636.5	23.66	22.91	21.33
		2593	23.62	22.96	21.08
		2549.5	23.70	22.85	21.07
		2506	23.65	22.60	20.56
	50RB High (50)	2680	22.67	21.69	20.66
		2636.5	22.55	21.86	20.36

		2593	22.58	21.69	19.83
		2549.5	22.63	21.64	20.07
		2506	22.52	21.66	19.56
	50RB Middle (25)	2680	22.78	21.81	20.71
		2636.5	22.87	21.88	20.33
		2593	22.62	21.73	19.89
		2549.5	22.62	21.71	20.08
		2506	22.61	21.66	19.59
	50RB Low (0)	2680	22.62	21.84	20.78
		2636.5	22.89	21.99	20.34
		2593	22.63	21.67	19.98
		2549.5	22.66	21.70	20.09
		2506	22.59	21.62	19.62
	100RB (0)	2680	22.66	21.74	20.71
		2636.5	22.72	21.86	20.35
		2593	22.60	21.67	19.89
		2549.5	22.63	21.70	20.08
		2506	22.56	21.63	19.58

Band 66					
Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)	64QAM Actual output power (dBm)
1.4 MHz	1RB High (5)	1779.3	23.24	22.42	21.12
		1745	23.37	22.50	21.29
		1710.7	23.41	22.60	21.47
	1RB Middle (3)	1779.3	23.36	22.46	21.18
		1745	23.48	22.61	21.43
		1710.7	23.47	22.68	21.71
	1RB Low (0)	1779.3	23.30	22.39	21.20
		1745	23.37	22.50	21.41
		1710.7	23.49	22.55	21.51
	3RB High (3)	1779.3	23.36	22.68	21.07
		1745	23.49	22.63	21.22
		1710.7	23.49	22.69	21.38
	3RB Middle (1)	1779.3	23.46	22.77	21.17
		1745	23.50	22.66	21.42
		1710.7	23.51	22.77	21.62
	3RB Low (0)	1779.3	23.34	22.69	21.28
		1745	23.47	22.58	21.37
		1710.7	23.48	22.69	21.51
	6RB (0)	1779.3	22.36	21.65	19.85
		1745	22.47	21.58	19.98
		1710.7	22.54	21.69	20.28
3 MHz	1RB High (14)	1778.5	23.24	22.23	21.13
		1745	23.21	22.46	21.29
		1711.5	23.39	22.46	21.41
	1RB Middle (7)	1778.5	23.44	22.54	21.20
		1745	23.51	22.68	21.39
		1711.5	23.50	22.69	21.69
	1RB Low (0)	1778.5	23.26	22.45	21.23
		1745	23.30	22.54	21.38
		1711.5	23.45	22.59	21.54
	8RB High (7)	1778.5	22.42	21.50	19.86
		1745	22.48	21.64	19.98
		1711.5	22.62	21.76	20.25
	8RB Middle (4)	1778.5	22.47	21.67	19.88
		1745	22.56	21.71	20.05
		1711.5	22.72	21.82	20.22
	8RB Low (0)	1778.5	22.41	21.54	19.89
		1745	22.50	21.64	20.10
		1711.5	22.62	21.78	20.33
	15RB (0)	1778.5	22.42	21.51	19.86
		1745	22.49	21.60	20.05
		1711.5	22.62	21.68	20.20
5 MHz	1RB High (24)	1777.5	23.18	22.30	21.07
		1745	23.30	22.40	21.22
		1712.5	23.35	22.57	21.40

	1RB Middle (12)	1777.5	23.39	22.50	21.20
		1745	23.46	22.61	21.40
		1712.5	23.50	22.70	21.67
	1RB Low (0)	1777.5	23.21	22.32	21.21
		1745	23.29	22.39	21.35
		1712.5	23.41	22.51	21.55
	12RB High (13)	1777.5	22.27	21.47	19.83
		1745	22.35	21.51	19.95
		1712.5	22.45	21.67	20.31
	12RB Middle (6)	1777.5	22.39	21.56	19.81
		1745	22.48	21.64	20.00
		1712.5	22.55	21.74	20.29
	12RB Low (0)	1777.5	22.32	21.48	19.89
		1745	22.37	21.57	20.02
		1712.5	22.47	21.68	20.34
	25RB (0)	1777.5	22.31	21.37	19.86
		1745	22.40	21.46	20.05
		1712.5	22.49	21.61	20.19
10 MHz	1RB High (49)	1775	23.37	22.21	21.10
		1745	23.31	22.31	21.22
		1715	23.42	22.44	21.45
	1RB Middle (24)	1775	23.37	22.30	21.24
		1745	23.37	22.43	21.37
		1715	23.45	22.52	21.62
	1RB Low (0)	1775	23.35	22.29	21.23
		1745	23.30	22.34	21.37
		1715	23.45	22.40	21.58
	25RB High (25)	1775	22.44	21.47	19.86
		1745	22.39	21.50	20.00
		1715	22.47	21.63	20.23
	25RB Middle (12)	1775	22.45	21.47	19.82
		1745	22.42	21.55	19.98
		1715	22.54	21.66	20.28
	25RB Low (0)	1775	22.46	21.46	19.94
		1745	22.41	21.55	20.10
		1715	22.47	21.66	20.31
	50RB (0)	1775	22.39	21.48	19.87
		1745	22.36	21.49	20.02
		1715	22.50	21.58	20.25
15 MHz	1RB High (74)	1772.5	23.19	22.25	21.10
		1745	23.27	22.82	21.21
		1717.5	23.41	22.98	21.45
	1RB Middle (37)	1772.5	23.36	22.39	21.21
		1745	23.44	22.96	21.41
		1717.5	23.51	22.82	21.62
	1RB Low (0)	1772.5	23.29	22.31	21.17
		1745	23.37	22.92	21.36
		1717.5	23.49	22.94	21.60

	36RB High (38)	1772.5	22.22	21.34	19.86
		1745	22.30	21.38	20.03
		1717.5	22.46	21.59	20.26
	36RB Middle (19)	1772.5	22.29	21.45	19.81
		1745	22.40	21.49	19.99
		1717.5	22.49	21.70	20.21
	36RB Low (0)	1772.5	22.19	21.33	19.90
		1745	22.32	21.40	20.10
		1717.5	22.45	21.58	20.37
	75RB (0)	1772.5	22.25	21.36	19.87
		1745	22.34	21.47	20.08
		1717.5	22.42	21.58	20.26
20 MHz	1RB High (99)	1770	23.16	22.64	21.14
		1745	23.28	22.92	21.28
		1720	23.36	22.98	21.45
	1RB Middle (50)	1770	23.30	22.86	21.21
		1745	23.44	22.91	21.38
		1720	23.52	22.95	21.66
	1RB Low (0)	1770	23.20	22.75	21.23
		1745	23.34	22.91	21.37
		1720	23.43	22.95	21.57
	50RB High (50)	1770	22.21	21.42	19.87
		1745	22.32	21.46	20.02
		1720	22.48	21.62	20.28
	50RB Middle (25)	1770	22.23	21.37	19.86
		1745	22.37	21.52	20.05
		1720	22.45	21.60	20.27
	50RB Low (0)	1770	22.24	21.35	19.92
		1745	22.41	21.57	20.09
		1720	22.46	21.60	20.35
	100RB (0)	1770	22.19	21.39	19.90
		1745	22.34	21.51	20.06
		1720	22.46	21.64	20.26

The device supports downlink Release 10 LTE Carrier Aggregation (CA) only. It supports 2 carriers in the downlink. Other Release 10 features are not supported, including Uplink Carrier Aggregation, Enhanced SC-FDMA and Uplink MIMO or other antenna diversity configurations etc. All uplink communications are identical to the Release 8 Specifications.

According to KDB 941225 D05A, the downlink LTE CA SAR test is not required and PAG requirements can be excluded.

The following conducted power measurement results of downlink LTE carrier aggregation are provided to quantify downlink only carrier aggregation SAR test exclusion per KDB 941225 D05A.

Uplink maximum output power is measured with downlink carrier aggregation active, using the channel with highest measured maximum output power when downlink carrier aggregation is inactive, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

The conducted power measurement results of downlink LTE CA Conduted Power are as below:

| DL LTE CA Class | PCC | | | | | | | | SCC | | | Power | |
	PCC Band	PCC Band width (MHz)	PCC ULR B size	PCC ULR B offset	PCC DLR B size	PCC DLR B offset	PCC UL Channel	PCC DL Channel	SCC Band	SCC Band width (MHz)	SCC DL Channel	Rel 8 LTE Tx Power (dBm)	Rel 10 DL LTE CA Tx Power (dBm)
2C	2	15	1	37	75	0	19125	1125	2	15	975	23.51	23.54
2A-2A	2	15	1	37	75	0	19125	1125	2	20	700	23.51	23.51
2A-4A	2	15	1	37	75	0	19125	1125	4	20	2175	23.51	23.53
2A-5A	2	15	1	37	75	0	19125	1125	5	10	2525	23.51	23.53
2A-7A	2	15	1	37	75	0	19125	1125	7	20	3100	23.51	23.50
2A-12A	2	15	1	37	75	0	19125	1125	12	10	5095	23.51	23.54
2A-13A	2	15	1	37	75	0	19125	1125	13	10	5230	23.51	23.47
2A-29A	2	15	1	37	75	0	19125	1125	29	10	9715	23.51	23.56
2A-66A	2	15	1	37	75	0	19125	1125	66	20	66786	23.51	23.54
5B	5	10	1	49	50	0	20450	2450	5	10	2549	23.15	23.15
5A-5A	5	10	1	49	50	0	20450	2450	5	10	2600	23.15	23.14
5A-2A	5	10	1	49	50	0	20450	2450	2	20	900	23.15	23.16
5A-4A	5	10	1	49	50	0	20450	2450	4	20	2175	23.15	23.15
5A-66A	5	10	1	49	50	0	20450	2450	66	20	66786	23.15	23.15
7A-7A	7	15	1	74	75	0	20825	2825	7	20	3350	23.59	23.58
7A-2A	7	15	1	74	75	0	20825	2825	2	20	900	23.59	23.6
7A-3A	7	15	1	74	75	0	20825	2825	3	20	1575	23.59	23.57
7A-4A	7	15	1	74	75	0	20825	2825	4	20	2175	23.59	23.56
7A-8A	7	15	1	74	75	0	20825	2825	8	10	3625	23.59	23.59

7A-12A	7	15	1	74	75	0	20825	2825	12	10	5095	23.59	23.58
7A-28A	7	15	1	74	75	0	20825	2825	28	20	9460	23.59	23.57
12B	12	5	1	24	25	0	23035	5035	12	5	5083	23.16	23.12
12A-2A	12	5	1	12	25	0	23095	5095	2	20	900	23.18	23.03
12A-4A	12	5	1	12	25	0	23095	5095	4	20	2175	23.18	23.19
12A-7A	12	5	1	12	25	0	23095	5095	7	20	3100	23.18	23.17
12A-66A	12	5	1	12	25	0	23095	5095	66	20	66786	23.18	23.17
13A-2A	13	5	1	0	25	0	23230	5230	2	20	900	23.15	23.05
13A-4A	13	5	1	0	25	0	23230	5230	4	20	2175	23.15	23.11
13A-66A	13	5	1	0	25	0	23230	5230	66	20	66786	23.15	23.14
41C	41	20	1	0	100	0	41490	41490	41	20	41292	23.84	23.86
66B	66	15	1	37	75	0	132047	66511	66	5	66604	23.51	23.51
66C	66	20	1	50	100	0	132072	66536	66	20	66734	23.52	23.52
66A-66A	66	20	1	50	100	0	132072	66536	66	20	67236	23.52	23.52
66A-2A	66	20	1	50	100	0	132072	66536	2	20	900	23.52	23.52
66A-5A	66	20	1	50	100	0	132072	66536	5	10	2525	23.52	23.56
66A-12A	66	20	1	50	100	0	132072	66536	12	10	5095	23.52	23.56
66A-13A	66	20	1	50	100	0	132072	66536	13	10	5230	23.52	23.5
66A-29A	66	20	1	50	100	0	132072	66536	29	10	9715	23.52	23.55

Note: Testing is not required in bands or modes not intended/allowed for US operation.