

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.

Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 6: β_{ed} can not be set directly, it is set by Absolute Grant Value.

General Note

1. Per KDB 941225 D01, RMC 12.2kbps setting is used to evaluate SAR. If AMR 12.2kbps power is < 0.25dB higher than RMC 12.2kbps, SAR tests with AMR 12.2kbps can be excluded.
2. By design, AMR and HSDPA/HSUPA RF power will not be larger than RMC 12.2kbps, detailed information is included in Tune-up Procure exhibit.
3. It is expected by the manufacturer that MPR for some HSDPA/HSUPA subtests may differ from the specification of 3GPP, according to the chipset implementation in this model. The implementation and expected deviation are detailed in tune-up procedure exhibit.

Conducted Power Measurement Results(WCDMA Band II/V)

Item	band	WCDMA Band II result (dBm)			WCDMA Band V result (dBm)		
		Channel/Frequency(MHz)			Channel/Frequency(MHz)		
	sub-test	9262/ 1852.4	9400/ 1880	9538/ 1907.6	4132/ 826.4	4182/ 836.4	4233/ 846.6
RMC	12.2kbps	23.49	23.55	23.43	23.57	23.53	23.56
	64kbps	23.21	23.57	23.20	23.48	23.09	23.51
	144kbps	23.42	23.08	23.62	23.62	23.11	23.38
	384kbps	23.13	23.42	23.34	23.15	23.24	23.12
HSDPA	Sub -Test 1	22.95	22.91	22.95	22.94	22.97	22.97
	Sub -Test 2	22.87	22.88	22.82	22.83	22.87	22.87
	Sub -Test 3	22.81	22.84	22.75	22.78	22.78	22.76
	Sub -Test 4	22.76	22.73	22.75	22.70	22.75	22.81
HSUPA	Sub -Test 1	22.72	22.72	22.80	22.82	22.86	22.76
	Sub -Test 2	22.82	22.82	22.88	22.84	22.89	22.85
	Sub -Test 3	22.74	22.74	22.78	22.79	22.82	22.83
	Sub -Test 4	22.84	22.85	22.85	22.89	22.84	22.86
	Sub -Test 5	22.74	22.75	22.74	22.72	22.82	22.80

Note: When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/2$ dB higher than the primary mode (RMC12.2kbps) or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

LTE Band4

BW (MHz)	Frequency (MHz)	RB Configuration		Average Power [dBm]	
		Size	Offset	QPSK	16QAM
1.4	1710.7	1	0	23.33	22.48
		1	3	23.16	22.41
		1	5	22.97	22.21
		3	0	23.00	22.06
		3	2	22.94	21.97
		3	3	22.82	21.86
		6	0	22.54	21.68
	1732.5	1	0	23.33	22.18
		1	3	23.32	22.15
		1	5	23.35	21.84
		3	0	23.22	22.29
		3	2	23.21	22.27
		3	3	23.10	22.15
		6	0	22.02	21.21
	1754.3	1	0	23.75	22.38
		1	3	23.92	22.56
		1	5	23.77	22.46
		3	0	23.50	22.62
		3	2	23.63	22.72
		3	3	23.63	22.64
		6	0	22.46	21.55
3	1711.5	1	0	22.91	22.20
		1	7	22.67	22.01
		1	14	22.29	21.61
		8	0	22.52	21.83
		8	4	22.43	21.68
		8	7	22.28	21.48
		15	0	22.43	21.54
	1732.5	1	0	23.24	22.62
		1	7	23.23	22.92
		1	14	23.12	23.05
		8	0	22.22	21.03
		8	4	22.20	21.01
		8	7	22.07	20.89
		15	0	22.07	21.08
	1753.5	1	0	23.29	22.29
		1	7	23.72	22.87
		1	14	23.87	22.98
		8	0	22.32	21.17
		8	4	22.59	21.37
		8	7	22.45	21.39
		15	0	22.34	21.29
5	1712.0	1	0	22.68	22.14
		1	12	22.27	21.79
		1	24	21.95	21.42
		12	0	22.39	21.64
		12	6	22.20	21.47
		12	13	21.96	21.24
		25	0	22.14	21.32
	1732.5	1	0	23.11	22.39
		1	12	23.44	22.28
		1	24	23.10	22.16
		12	0	22.13	21.24
		12	6	22.14	21.27
		12	13	22.14	21.21
		25	0	22.13	21.11
	1752.5	1	0	23.19	22.49
		1	12	24.06	23.05

		1	24	24.54	23.08
		12	0	22.35	21.45
		12	6	22.55	21.69
		12	13	22.62	21.76
		25	0	22.45	21.41
10	1715.0	1	0	22.08	21.45
		1	24	22.29	21.65
		1	49	22.23	21.65
		25	0	22.03	21.14
		25	12	22.12	21.21
		25	25	22.13	21.26
		50	0	22.04	21.16
	1732.5	1	0	22.59	22.00
		1	24	23.52	22.93
		1	49	22.92	22.89
		25	0	22.12	21.24
		25	12	22.17	21.22
		25	25	22.03	20.95
		50	0	22.06	21.10
	1750.0	1	0	22.15	21.63
		1	24	23.26	22.80
		1	49	23.74	23.26
		25	0	22.31	21.20
		25	12	22.55	21.57
		25	25	22.56	21.72
		50	0	22.31	21.39
15	1717.5	1	0	21.77	21.09
		1	37	22.48	21.87
		1	74	22.96	22.32
		37	0	21.78	20.91
		37	18	22.35	21.46
		37	38	22.94	22.04
		75	0	22.34	21.47
	1732.5	1	0	22.70	22.11
		1	37	23.38	22.81
		1	74	23.31	22.01
		37	0	22.30	21.41
		37	18	22.20	21.32
		37	38	21.96	21.03
		75	0	22.13	21.26
	1747.5	1	0	23.06	22.30
		1	37	22.73	22.16
		1	74	23.50	22.88
		37	0	22.06	21.04
		37	18	22.30	21.30
		37	38	22.53	21.61
		75	0	22.27	21.51
20	1720.0	1	0	21.32	20.52
		1	49	23.19	22.39
		1	99	22.06	21.22
		50	0	21.79	20.92
		50	25	22.86	22.01
		50	50	22.74	21.90
		100	0	22.47	21.59
	1732.5	1	0	22.71	21.91
		1	49	23.40	22.49
		1	99	22.60	21.15
		50	0	22.43	21.45
		50	25	22.18	21.29
		50	50	21.95	21.03
		100	0	22.17	21.28

	1745.0	1	0	23.02	21.62
		1	49	22.86	21.76
		1	99	23.21	22.45
		50	0	22.00	21.07
		50	25	22.09	21.09
		50	50	22.36	21.45
		100	0	22.24	21.27

<WLAN 2.4GHz Conducted Power>

Mode	Channel	Frequency (MHz)	Data rate (Mbps)	Average Output Power (dBm)
IEEE 802.11b	1	2412	1	11.90
			2	11.24
			5.5	11.05
			11	11.13
	6	2437	1	12.68
			2	12.12
			5.5	12.63
			11	12.47
	11	2462	1	11.56
			2	11.02
			5.5	11.39
			11	11.25
IEEE 802.11g	1	2412	6	12.87
			9	12.08
			12	12.18
			18	12.21
			24	12.32
			36	12.12
			48	12.74
			54	12.65
	6	2437	6	11.89
			9	11.55
			12	11.31
			18	11.20
			24	11.82
			36	11.60
			48	11.73
			54	11.67
	11	2462	6	11.02
			9	10.57
			12	10.64
			18	10.83
			24	10.57
			36	10.38
			48	10.72
			54	10.59
IEEE 802.11n HT20	1	2412	MCS0	11.94
			MCS1	11.12
			MCS2	11.20
			MCS3	11.65
			MCS4	11.85
			MCS5	11.90
			MCS6	11.24
	6	2437	MCS7	11.23
			MCS0	10.83
			MCS1	10.22
			MCS2	10.55
			MCS3	10.20
			MCS4	10.24
			MCS5	10.63

	11	2462	MCS6	10.20
			MCS7	10.11
			MCS0	13.03
			MCS1	12.56
			MCS2	12.25
			MCS3	12.42
			MCS4	12.25
			MCS5	12.31
			MCS6	12.56
			MCS7	12.74
IEEE 802.11n HT40	3	2422	MCS0	12.97
			MCS1	12.42
			MCS2	12.53
			MCS3	12.36
			MCS4	12.72
			MCS5	12.35
			MCS6	12.40
			MCS7	12.28
	6	2437	MCS0	12.72
			MCS1	12.02
			MCS2	12.10
			MCS3	12.92
			MCS4	12.43
			MCS5	12.25
			MCS6	12.62
			MCS7	12.52
	9	2452	MCS0	13.16
			MCS1	13.10
			MCS2	12.28
			MCS3	12.67
			MCS4	12.54
			MCS5	12.35
			MCS6	12.41
			MCS7	13.03

<WLAN 5GHz U-NI-1 Conducted Power>

Mode	Channel	Frequency (MHz)	Conducted Output Power(dBm)
802.11a	36	5180	11.38
	40	5200	11.14
	48	5240	10.79
802.11n(20MHz)	36	5180	11.27
	40	5200	11.25
	48	5240	12.16
802.11n(40MHz)	38	5190	12.93
	46	5230	12.62
802.11ac(20MHz)	36	5180	11.35
	40	5200	11.41
	48	5240	11.24
802.11ac(40MHz)	38	5190	12.03
	46	5230	11.64

<WLAN 5GHz U-NI-3 Conducted Power>

Mode	Channel	Frequency (MHz)	Conducted Output Power(dBm)
802.11a	149	5745	11.09
	157	5785	12.11
	165	5825	11.63
802.11n(20MHz)	149	5745	11.15
	157	5785	11.70
	165	5825	11.21
802.11n(40MHz)	151	5755	10.87
	159	5795	11.41
802.11ac(20MHz)	149	5745	11.35
	157	5785	11.41
	165	5825	11.24
802.11ac(40MHz)	151	5755	12.03
	159	5795	11.64

Note: SAR is not required for the following 2.4 GHz OFDM conditions as the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

<BT Conducted Power>

Mode	channel	Frequency (MHz)	Conducted AVG output power (dBm)
GFSK-BLE	0	2402	2.876
	19	2440	1.291
	39	2480	0.741
GFSK	0	2402	3.147
	39	2441	1.539
	78	2480	1.001
$\pi/4$ -DQPSK	0	2402	0.331
	39	2441	-0.947
	78	2480	-2.099
8DPSK	0	2402	0.721
	39	2441	-0.646
	78	2480	-1.541

Per KDB 447498 D01v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$

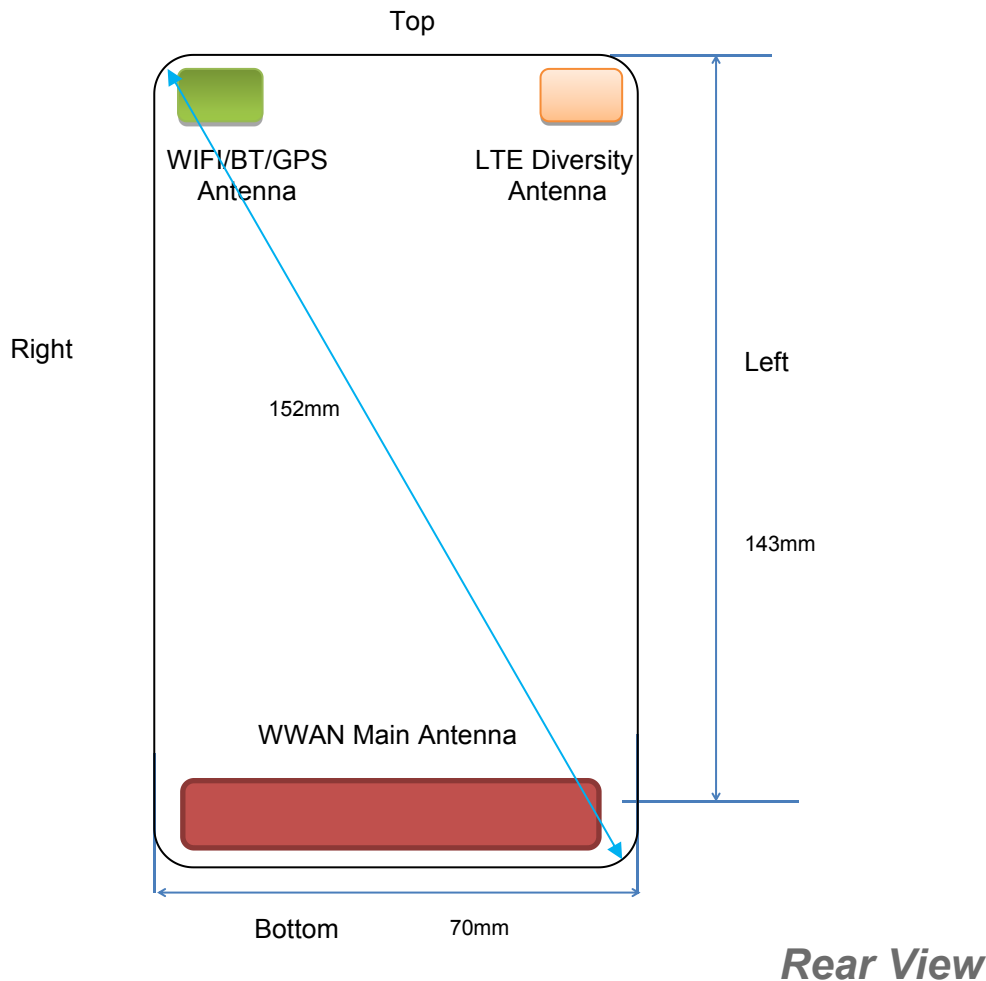
for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

Bluetooth Turn up Power (dBm)	Separation Distance (mm)	Frequency (GHz)	Exclusion Thresholds
4.0	5	2.45	0.78

Per KDB 447498 D01v06, when the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion. The test exclusion threshold is $0.78 < 3.0$, SAR testing is not required.

4.2 Transmit Antennas and SAR Measurement Position



Antenna information:

WWAN Main Antenna	GSM/UMTS/LTE TX/RX
LTE Diversity antenna	Only RX
WLAN/GPS/BT Antenna	WLAN/BT TX/RX

Note:

- 1). Per KDB648474 D04, because the overall diagonal distance of this devices is 161mm > 160mm, it is considered as "Phablet" device.
- 2). Per KDB648474 D04, 10-g extremity SAR is not required when Body-Worn mode 1-g reported SAR < 1.2 W/Kg.
- 3). According to the KDB941225 D06 Hot Spot SAR v02, the edges with less than 25 mm distance to the antennas need to be tested for SAR.

Distance of The Antenna to the EUT surface and edge (mm)

Antennas	Front	Back	Top Side	Bottom Side	Left Side	Right Side
WWAN	<5	<5	131	<5	<5	20
BT/WLAN	<5	<5	<5	128	56	<5

Positions for SAR tests; Hotspot mode

Antennas	Front	Back	Top Side	Bottom Side	Left Side	Right Side
WWAN	Yes	Yes	No	Yes	Yes	Yes
BT/WLAN	Yes	Yes	Yes	No	No	Yes

General Note: Referring to KDB 941225 D06 v02, When the overall device length and width are $\geq 9\text{cm} \times 5\text{cm}$, the test distance is 10mm, SAR must be measured for all sides and surfaces with a transmitting antenna located with 25mm from that surface or edge.

4.3 SAR Measurement Results

The calculated SAR is obtained by the following formula:

$$\text{Reported SAR} = \text{Measured SAR} * 10^{(P_{\text{target}} - P_{\text{measured}})/10}$$

$$\text{Scaling factor} = 10^{(P_{\text{target}} - P_{\text{measured}})/10}$$

$$\text{Reported SAR} = \text{Measured SAR} * \text{Scaling factor}$$

Where

P_{target} is the power of manufacturing upper limit;

P_{measured} is the measured power;

Measured SAR is measured SAR at measured power which including power drift)

Reported SAR which including Power Drift and Scaling factor

Duty Cycle

Test Mode	Duty Cycle
Speech for GSM850/1900	1:8
GPRS850	1:2.67
GPRS1900	1:2.67
UMTS	1:1
LTE	1:1
WLAN2450	1:1
5GWLAN	1:1

4.3.1 SAR Results

SAR Values [GSM 850]

Ch.	Freq. (MHz)	Time slots	Test Position	Conducted Power (dBm)	Maximum Allowed Power (dBm)	Power Drift (%)	Scaling Factor	SAR _{1-g} results(W/kg)		Graph Results
								Measured	Reported	
measured / reported SAR numbers – Head <SIM1>										
190	836.6	Voice	Left Cheek	32.36	33.00	0.47	1.159	0.053	0.061	Plot 1
190	836.6	Voice	Left Tilt	32.36	33.00	-1.42	1.159	0.037	0.043	
190	836.6	Voice	Right Cheek	32.36	33.00	2.03	1.159	0.024	0.028	
190	836.6	Voice	Right Tilt	32.36	33.00	0.56	1.159	0.016	0.019	
measured / reported SAR numbers - Body (hotspot open, distance 10mm) <SIM1>										
251	848.8	4Txslots	Front	28.52	29.00	2.31	1.117	0.072	0.080	
251	848.8	4Txslots	Rear	28.52	29.00	-0.42	1.117	0.103	0.115	Plot 2
251	848.8	4Txslots	Left	28.52	29.00	3.02	1.117	0.084	0.094	
251	848.8	4Txslots	Right	28.52	29.00	1.45	1.117	0.043	0.048	
251	848.8	4Txslots	Bottom	28.52	29.00	-0.21	1.117	0.039	0.044	

Remark:

1. The value with black color is the maximum SAR Value of each test band.
2. The frame average of GPRS (4Tx slots) higher than GSM and sample can support VoIP function, tested at GPRS (4Tx slots) mode for head.
3. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is optional for such test configuration(s).

SAR Values [GSM 1900]

Ch.	Freq. (MHz)	time slots	Test Position	Conducted Power (dBm)	Maximum Allowed Power (dBm)	Power Drift (%)	Scaling Factor	SAR _{1-g} results(W/kg)		Graph Results
								Measured	Reported	
measured / reported SAR numbers – Head<SIM1>										
810	1909.8	Voice	Left Cheek	29.89	30.00	3.08	1.026	1.020	1.046	Plot 3
512	1850.2	Voice	Left Cheek	29.64	30.00	0.31	1.086	0.742	0.806	
810	1880.0	Voice	Left Cheek	29.56	30.00	-0.87	1.107	0.836	0.925	
810	1909.8	Voice	Left Tilt	29.89	30.00	0.59	1.026	0.610	0.626	
810	1909.8	Voice	Right Cheek	29.89	30.00	-1.24	1.026	0.635	0.651	
810	1909.8	Voice	Right Tilt	29.89	30.00	-0.96	1.026	0.417	0.428	
measured / reported SAR numbers – Body (hotspot open, distance 10mm) <SIM1>										
810	1909.8	4Txslots	Front	25.51	26.00	-3.65	1.119	0.539	0.603	
810	1909.8	4Txslots	Rear	25.51	26.00	-2.21	1.119	0.863	0.966	Plot 4
512	1850.2	4Txslots	Rear	25.31	26.00	0.43	1.172	0.625	0.733	
661	1880.0	4Txslots	Rear	25.43	26.00	1.96	1.140	0.701	0.799	
810	1909.8	4Txslots	Left	25.51	26.00	0.86	1.119	0.524	0.587	
810	1909.8	4Txslots	Right	25.51	26.00	-1.42	1.119	0.367	0.411	
810	1909.8	4Txslots	Bottom	25.51	26.00	-0.01	1.119	0.186	0.208	

Remark:

1. The value with black color is the maximum SAR Value of each test band.
2. The frame average of GPRS (4Tx slots) higher than GSM and sample can support VoIP function, tested at GPRS (4Tx slots) mode for head.
3. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is optional for such test configuration(s).

SAR Values [WCDMA Band V]

Ch.	Freq. (MHz)	Channel Type	Test Position	Conducted Power (dBm)	Maximum Allowed Power (dBm)	Power Drift (%)	Scaling Factor	SAR _{1-g} results(W/kg)		Graph Results
								Measured	Reported	
measured / reported SAR numbers – Head <SIM1>										
4132	826.4	RMC*	Left Cheek	23.57	24.00	-1.83	1.104	0.018	0.020	
4132	826.4	RMC*	Left Tilt	23.57	24.00	0.74	1.104	0.012	0.013	
4132	826.4	RMC*	Right Cheek	23.57	24.00	2.15	1.104	0.036	0.040	Plot 5
4132	826.4	RMC*	Right Tilt	23.57	24.00	-0.26	1.104	0.023	0.025	
measured / reported SAR numbers - Body (hotspot open, distance 10mm) <SIM1>										
4132	826.4	RMC*	Front	23.57	24.00	-0.56	1.104	0.031	0.034	
4132	826.4	RMC*	Rear	23.57	24.00	1.78	1.104	0.047	0.052	Plot 6
4132	826.4	RMC*	Left	23.57	24.00	1.25	1.104	0.034	0.038	
4132	826.4	RMC*	Right	23.57	24.00	-0.26	1.104	0.026	0.029	
4132	826.4	RMC*	Bottom	23.57	24.00	-4.02	1.104	0.011	0.012	

Remark:

1. The value with black color is the maximum SAR Value of each test band.
2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is optional for such test configuration(s).
3. RMC* - RMC 12.2kbps mode;

SAR Values [WCDMA Band II]

Ch.	Freq. (MHz)	Channel Type	Test Position	Conducted Power (dBm)	Maximum Allowed Power (dBm)	Power Drift (%)	Scaling Factor	SAR _{1-g} results(W/kg)		Graph Results
								Measured	Reporte d	
measured / reported SAR numbers – Head <SIM1>										
9400	1880.0	RMC*	Left Cheek	23.55	24.00	0.79	1.109	1.314	1.457	Plot 7
9262	1852.4	RMC*	Left Cheek	23.49	24.00	1.59	1.125	1.169	1.315	
8538	1907.6	RMC*	Left Cheek	23.43	24.00	-0.23	1.140	1.023	1.166	
9400	1880.0	RMC*	Left Tilt	23.55	24.00	0.25	1.109	0.715	0.793	
9400	1880.0	RMC*	Right Cheek	23.55	24.00	-1.62	1.109	0.638	0.708	
9400	1880.0	RMC*	Right Tilt	23.55	24.00	-0.64	1.109	0.323	0.358	
measured / reported SAR numbers - Body (hotspot open, distance 10mm) <SIM1>										
9400	1880.0	RMC*	Front	23.55	24.00	1.26	1.109	1.058	1.174	
9262	1852.4	RMC*	Front	23.49	24.00	-0.17	1.125	0.826	0.929	
8538	1907.6	RMC*	Front	23.43	24.00	2.41	1.140	0.745	0.849	
9400	1880.0	RMC*	Rear	23.55	24.00	-0.30	1.109	1.301	1.443	Plot 8
9262	1852.4	RMC*	Rear	23.49	24.00	-0.08	1.125	1.025	1.153	
8538	1907.6	RMC*	Rear	23.43	24.00	3.32	1.140	0.968	1.104	
9400	1880.0	RMC*	Left	23.55	24.00	-0.56	1.109	0.712	0.790	
9400	1880.0	RMC*	Right	23.55	24.00	-0.87	1.109	0.538	0.597	
9400	1880.0	RMC*	Bottom	23.55	24.00	1.09	1.109	0.324	0.359	

Remark:

1. The value with black color is the maximum SAR Value of each test band.
2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is optional for such test configuration(s).
3. RMC* - RMC 12.2kbps mode;

SAR Values [LTE Band 4]

Ch.	Freq. (MHz)	Channel Type (20M)	Test Position	Conducted Power (dBm)	Maximum Allowed Power (dBm)	Power Drift (%)	Scaling Factor	SAR _{1-g} results(W/kg)		Graph Results
								Measured	Reported	
measured / reported SAR numbers – Head <SIM1>										
20175	1732.5	1RB	Left Cheek	23.40	24.00	-1.53	1.148	0.515	0.591	Plot 9
20175	1732.5	1RB	Left Tilt	23.40	24.00	0.13	1.148	0.329	0.378	
20175	1732.5	1RB	Right Cheek	23.40	24.00	0.26	1.148	0.755	0.867	
20050	1720.0	1RB	Right Cheek	23.19	24.00	-0.89	1.205	0.623	0.751	
20300	1745.0	1RB	Right Cheek	23.21	24.00	-1.13	1.199	0.542	0.650	
20175	1732.5	1RB	Right Tilt	23.40	24.00	-0.74	1.148	0.431	0.495	
20050	1720.0	50%RB	Left Cheek	22.86	23.00	0.32	1.033	0.310	0.320	
20050	1720.0	50%RB	Left Tilt	22.86	23.00	2.87	1.033	0.143	0.148	
20050	1720.0	50%RB	Right Cheek	22.86	23.00	1.36	1.033	0.427	0.441	
20050	1720.0	50%RB	Right Tilt	22.86	23.00	0.25	1.033	0.256	0.264	
measured / reported SAR numbers - Body (hotspot open, distance 10mm) <SIM1>										
20175	1732.5	1RB	Front	23.40	24.00	-0.39	1.148	0.428	0.491	Plot 10
20175	1732.5	1RB	Rear	23.40	24.00	4.12	1.148	0.670	0.769	
20175	1732.5	1RB	Left	23.40	24.00	0.81	1.148	0.410	0.471	
20175	1732.5	1RB	Right	23.40	24.00	-1.23	1.148	0.326	0.374	
20175	1732.5	1RB	Bottom	23.40	24.00	-0.85	1.148	0.225	0.258	
20050	1720.0	50%RB	Front	22.86	23.00	1.01	1.033	0.231	0.239	
20050	1720.0	50%RB	Rear	22.86	23.00	-2.85	1.033	0.425	0.439	
20050	1720.0	50%RB	Left	22.86	23.00	1.79	1.033	0.140	0.145	
20050	1720.0	50%RB	Right	22.86	23.00	-0.58	1.033	0.085	0.088	
20050	1720.0	50%RB	Bottom	22.86	23.00	-0.32	1.033	0.042	0.043	

Remark:

1. The value with black color is the maximum SAR Value of each test band.
2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is optional for such test configuration(s).

SAR Values [WIFI2.4G]

Ch.	Freq. (MHz)	Service	Test Position	Conducted Power (dBm)	Maximum Allowed Power (dBm)	Power Drift (%)	Scaling Factor	SAR _{1-g} results(W/kg)		Graph Results
								Measured	Reported	
measured / reported SAR numbers – Head<SIM1>										
9	2452.0	802.11n40	Left Cheek	13.16	14.00	-3.92	1.213	0.052	0.063	Plot 11
9	2452.0	802.11n40	Left Tilt	13.16	14.00	2.01	1.213	0.037	0.045	
9	2452.0	802.11n40	Right Cheek	13.16	14.00	-1.42	1.213	0.028	0.034	
9	2452.0	802.11n40	Right Tilt	13.16	14.00	0.24	1.213	0.014	0.017	
measured / reported SAR numbers - Body (hotspot open, distance 10mm) <SIM1>										
9	2452.0	802.11n40	Front	13.16	14.00	-1.85	1.213	0.052	0.063	
9	2452.0	802.11n40	Rear	13.16	14.00	2.08	1.213	0.078	0.095	Plot 12
9	2452.0	802.11n40	Right	13.16	14.00	-3.26	1.213	0.041	0.050	
9	2452.0	802.11n40	Top	13.16	14.00	0.02	1.213	0.023	0.028	

Remark:

1. The value with blue color is the maximum SAR Value of each test band.
2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is optional for such test configuration(s).

SAR Values [WIFI5.2G]

Ch.	Freq. (MHz)	Service	Test Position	Conducted Power (dBm)	Maximum Allowed Power (dBm)	Power Drift (%)	Scaling Factor	SAR _{1-g} results(W/kg)		Graph Results
								Measured	Reported	
measured / reported SAR numbers – Head<SIM1>										
38	5190.0	802.11ac40	Left Cheek	12.03	13.00	-1.93	1.250	0.096	0.120	Plot 13
38	5190.0	802.11ac40	Left Tilt	12.03	13.00	2.31	1.250	0.052	0.065	
38	5190.0	802.11ac40	Right Cheek	12.03	13.00	0.56	1.250	0.043	0.054	
38	5190.0	802.11ac40	Right Tilt	12.03	13.00	1.56	1.250	0.028	0.035	
measured / reported SAR numbers - Body (hotspot open, distance 10mm) <SIM1>										
38	5190.0	802.11ac40	Front	12.03	13.00	0.16	1.250	0.062	0.078	
38	5190.0	802.11ac40	Rear	12.03	13.00	4.41	1.250	0.103	0.129	Plot 14
38	5190.0	802.11ac40	Right	12.03	13.00	1.23	1.250	0.049	0.061	
38	5190.0	802.11ac40	Top	12.03	13.00	0.75	1.250	0.025	0.031	

Remark:

1. The value with blue color is the maximum SAR Value of each test band.
2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is optional for such test configuration(s).

SAR Values [WIFI5.8G]

Ch.	Freq. (MHz)	Service	Test Position	Conducted Power (dBm)	Maximum Allowed Power (dBm)	Power Drift (%)	Scaling Factor	SAR _{1-g} results(W/kg)		Graph Results
								Measured	Reported	
measured / reported SAR numbers – Head<SIM1>										
151	5755	802.11ac40	Left Cheek	12.03	13.00	1.89	1.250	0.105	0.131	Plot 15
151	5755	802.11ac40	Left Tilt	12.03	13.00	0.16	1.250	0.072	0.090	
151	5755	802.11ac40	Right Cheek	12.03	13.00	-3.31	1.250	0.053	0.066	
151	5755	802.11ac40	Right Tilt	12.03	13.00	2.38	1.250	0.036	0.045	
measured / reported SAR numbers - Body (hotspot open, distance 10mm) <SIM1>										
151	5755	802.11ac40	Front	12.03	13.00	2.31	1.250	0.083	0.104	
151	5755	802.11ac40	Rear	12.03	13.00	-0.20	1.250	0.112	0.140	Plot 16
151	5755	802.11ac40	Right	12.03	13.00	1.47	1.250	0.045	0.056	
151	5755	802.11ac40	Top	12.03	13.00	-0.86	1.250	0.032	0.040	

Remark:

1. The value with blue color is the maximum SAR Value of each test band.
2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is optional for such test configuration(s).

4.3.2 Standalone SAR Test Exclusion Considerations and Estimated SAR

Per KDB447498 requires when the standalone SAR test exclusion of section 4.3.1 is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to the following to determine simultaneous transmission SAR test exclusion;

• $(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})} / x]$ W/kg for test separation distances ≤ 50 mm;

where $x = 7.5$ for 1-g SAR, and $x = 18.75$ for 10-g SAR.

• 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is > 50 mm

Per FCC KD B447498 D01, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the transmitting antenna in a specific a physical test configuration is ≤ 1.6 W/Kg. When the sum is greater than the SAR limit, SAR test exclusion is determined by the SAR to peak location separation ratio.

$$\text{Ratio} = \frac{(\text{SAR}_1 + \text{SAR}_2)^{1.5}}{(\text{peak location separation, mm})} < 0.04$$

Estimated stand alone SAR					
Communication system	Frequency (MHz)	Configuration	Maximum Power (dBm)	Separation Distance (mm)	Estimated SAR _{1-g} (W/kg)
Bluetooth*	2450	Head	3.00	5	0.083
Bluetooth*	2450	Hotspot	3.00	10	0.042
Bluetooth*	2450	Body-worn	3.00	10	0.042

Remark:

1. Bluetooth*- Including Lower power Bluetooth
2. Maximum average power including tune-up tolerance;
3. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion
4. Body as body use distance is 10mm from manufacturer declaration of user manual

4.4 Simultaneous TX SAR Considerations

4.4.1 Introduction

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna. The device has 3 antennas, WWAN main antenna and WWAN diversity antenna(RX only), WiFi/BT antenna supports 2.4Wi-Fi, 5.2GWi-Fi, 5.8GWi-Fi and BT. The 2 TX antennas can always transmit simultaneously. The work mode combination is showed as below table.;

Application Simultaneous Transmission information:

Combination No.	Mode
1	WWAN+WIFI
2	WWAN+BT

4.4.2 Evaluation of Simultaneous SAR

Head Exposure Conditions

Simultaneous transmission SAR for WiFi and GSM

Test Position	GSM850 Reported SAR _{1-g} (W/kg)	GSM1900 Reported SAR _{1-g} (W/kg)	WiFi2.4G Reported SAR _{1-g} (W/kg)	WiFi5.2G Reported SAR _{1-g} (W/kg)	WiFi5.8G Reported SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Left Cheek	0.061	1.046	0.063	0.120	0.131	1.177	1.6	no	no
Left Tilt	0.043	0.626	0.045	0.065	0.090	0.716	1.6	no	no
Right Cheek	0.028	0.651	0.034	0.054	0.066	0.717	1.6	no	no
Right Tilt	0.019	0.428	0.017	0.035	0.045	0.473	1.6	no	no

Simultaneous transmission SAR for WiFi and UMTS

Test Position	UMTS Band V Reported SAR _{1-g} (W/kg)	UMTS Band II Reported SAR _{1-g} (W/kg)	WiFi2.4G Reported SAR _{1-g} (W/kg)	WiFi5.2G Reported SAR _{1-g} (W/kg)	WiFi5.8G Reported SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Left Cheek	0.020	1.457	0.063	0.120	0.131	1.588	1.6	no	no
Left Tilt	0.013	0.793	0.045	0.065	0.090	0.883	1.6	no	no
Right Cheek	0.040	0.708	0.034	0.054	0.066	0.774	1.6	no	no
Right Tilt	0.025	0.358	0.017	0.035	0.045	0.403	1.6	no	no

Simultaneous transmission SAR for WiFi and LTE

Test Position	LTE Band4 Reported SAR _{1-g} (W/kg)	WiFi2.4G Reported SAR _{1-g} (W/kg)	WiFi5.2G Reported SAR _{1-g} (W/kg)	WiFi5.8G Reported SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Left Cheek	0.591	0.063	0.120	0.131	0.722	1.6	no	no
Left Tilt	0.378	0.045	0.065	0.090	0.468	1.6	no	no
Right Cheek	0.867	0.034	0.054	0.066	0.933	1.6	no	no
Right Tilt	0.495	0.017	0.035	0.045	0.540	1.6	no	no

Simultaneous transmission SAR for BT and GSM

Test Position	GSM850 Reported SAR _{1-g} (W/kg)	GSM1900 Reported SAR _{1-g} (W/kg)	BT Estimated SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Left Cheek	0.061	1.046	0.083	1.129	1.6	no	no
Left Tilt	0.043	0.626	0.083	0.709	1.6	no	no
Right Cheek	0.028	0.651	0.083	0.734	1.6	no	no
Right Tilt	0.019	0.428	0.083	0.511	1.6	no	no

Simultaneous transmission SAR for BT and UMTS

Test Position	UMTS Band V Reported SAR _{1-g} (W/kg)	UMTS Band II Reported SAR _{1-g} (W/kg)	BT Estimated SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Left Cheek	0.020	1.457	0.083	1.540	1.6	no	no
LeftTilt	0.013	0.793	0.083	0.876	1.6	no	no
RightChek	0.040	0.708	0.083	0.791	1.6	no	no
Right Tilt	0.025	0.358	0.083	0.441	1.6	no	no

Simultaneous transmission SAR for BT and LTE

Test Position	LTE Band4 Reported SAR _{1-g} (W/kg)	BT Estimated SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Left Cheek	0.591	0.083	0.674	1.6	no	no
LeftTilt	0.378	0.083	0.461	1.6	no	no
RightChek	0.867	0.083	0.950	1.6	no	no
Right Tilt	0.495	0.083	0.578	1.6	no	no

Body Hotspot Exposure Conditions

Simultaneous transmission SAR for WiFi and GSM

Test Position	GSM850 Reported SAR _{1-g} (W/kg)	GSM1900 Reported SAR _{1-g} (W/kg)	WiFi2.4G Reported SAR _{1-g} (W/kg)	WiFi5.2G Reported SAR _{1-g} (W/kg)	WiFi5.8G Reported SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Front	0.080	0.603	0.063	0.078	0.104	0.707	1.6	no	no
Rear	0.115	0.966	0.095	0.129	0.140	1.106	1.6	no	no
Left	0.094	0.587	/	/	/	0.587	1.6	no	no
Right	0.048	0.411	0.05	0.061	0.056	0.472	1.6	no	no
Bottom	0.044	0.208	/	/	/	0.044	1.6	no	no
Top	/	/	0.028	0.031	0.040	0.040	1.6	no	no

Simultaneous transmission SAR for WiFi and UMTS

Test Position	UMTS Band V Reported SAR _{1-g} (W/kg)	UMTS Band II Reported SAR _{1-g} (W/kg)	WiFi2.4G Reported SAR _{1-g} (W/kg)	WiFi5.2G Reported SAR _{1-g} (W/kg)	WiFi5.8G Reported SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Front	0.034	1.174	0.063	0.078	0.104	1.278	1.6	no	no
Rear	0.052	1.443	0.095	0.129	0.140	1.583	1.6	no	no
Left	0.038	0.790	/	/	/	0.790	1.6	no	no
Right	0.029	0.597	0.05	0.061	0.056	0.658	1.6	no	no
Bottom	0.012	0.359	/	/	/	0.359	1.6	no	no
Top	/	/	0.028	0.031	0.040	0.040	1.6	no	no

Simultaneous transmission SAR for WiFi and LTE

Test Position	LTE Band4 Reported SAR _{1-g} (W/kg)	WiFi2.4G Reported SAR _{1-g} (W/kg)	WiFi5.2G Reported SAR _{1-g} (W/kg)	WiFi5.8G Reported SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Front	0.491	0.063	0.078	0.104	0.595	1.6	no	no
Rear	0.769	0.095	0.129	0.140	0.909	1.6	no	no
Left	0.471	/	/	/	0.471	1.6	no	no
Right	0.374	0.05	0.061	0.056	0.435	1.6	no	no
Bottom	0.258	/	/	/	0.258	1.6	no	no
Top	/	0.028	0.031	0.040	0.040	1.6	no	no

Simultaneous transmission SAR for BT and GSM

Test Position	GSM850 Reported SAR _{1-g} (W/kg)	GSM1900 Reported SAR _{1-g} (W/kg)	BT Estimated SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Front	0.080	0.603	0.042	0.645	1.6	no	no
Rear	0.115	0.966	0.042	1.008	1.6	no	no
Left	0.094	0.587	/	0.587	1.6	no	no
Right	0.048	0.411	0.042	0.453	1.6	no	no
Bottom	0.044	0.208	/	0.208	1.6	no	no
Top	/	/	0.042	0.042	1.6	no	no

Simultaneous transmission SAR for BT and UMTS

Test Position	UMTS Band V Reported SAR _{1-g} (W/kg)	UMTS Band II Reported SAR _{1-g} (W/kg)	BT Estimated SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Front	0.034	1.174	0.042	1.216	1.6	no	no
Rear	0.052	1.443	0.042	1.485	1.6	no	no
Left	0.038	0.790	/	0.790	1.6	no	no
Right	0.029	0.597	0.042	0.639	1.6	no	no
Bottom	0.012	0.359	/	0.359	1.6	no	no
Top	/	/	0.042	0.042	1.6	no	no

Simultaneous transmission SAR for WiFi and LTE

Test Position	LTE Band4 Reported SAR _{1-g} (W/kg)	BT Estimated SAR _{1-g} (W/kg)	MAX. Σ SAR _{1-g} (W/kg)	SAR _{1-g} Limit (W/kg)	Peak location separation ratio	Simut Meas. Required
Front	0.491	0.042	0.533	1.6	no	no
Rear	0.769	0.042	0.811	1.6	no	no
Left	0.471	/	0.471	1.6	no	no
Right	0.374	0.042	0.416	1.6	no	no
Bottom	0.258	/	0.258	1.6	no	no
Top	/	0.042	0.042	1.6	no	no

Note:

1. The WiFi and BT share same antenna, so cannot transmit at same time.
2. The value with **block** color is the maximum values of standalone
3. The value with blue color is the maximum values of Σ SAR_{1-g}

4.5 SAR Measurement Variability

According to KDB865664, Repeated measurements are required only when the measured SAR is ≥ 0.80 W/kg. If the measured SAR value of the initial repeated measurement is < 1.45 W/kg with $\leq 20\%$ variation, only one repeated measurement is required to reaffirm that the results are not expected to have substantial variations, which may introduce significant compliance concerns. A second repeated measurement is required only if the measured result for the initial repeated measurement is within 10% of the SAR limit and vary by more than 20%, which are often related to device and measurement setup difficulties. The following procedures are applied to determine if repeated measurements are required. The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.¹⁹ The repeated measurement results must be clearly identified in the SAR report. All measured SAR, including the repeated results, must be considered to determine compliance and for reporting according to KDB 690783. Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.

- 3) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 4) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).
- 5) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

- 6) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20

Frequency Band (MHz)	Air Interface	RF Exposure Configuration	Test Position	Repeated SAR (yes/no)	Highest Measured SAR _{1-g} (W/kg)	First Repeated	
						Measured SAR _{1-g} (W/kg)	Largest to Smallest SAR Ratio
835	GSM850	Standalone	Body-Rear	no	0.103	n/a	n/a
	WCDMA Band V	Standalone	Body-Rear	no	0.047	n/a	n/a
1800	LTE Band 4	Standalone	Cheek-Right	no	0.755	n/a	n/a
1900	GSM1900	Standalone	Cheek-Left	no	1.020	0.925	1.103
	WCDMA Band II	Standalone	Cheek-Left	no	1.314	1.308	1.005
2450	2.4GWLAN	Standalone	Body-Rear	no	0.078	n/a	n/a
5000-6000	5.2GWLAN	Standalone	Body-Rear	no	0.103	n/a	n/a
	5.8GWLAN	Standalone	Body-Rear	no	0.112	n/a	n/a

Remark:

1. Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not > 1.20 or 3 (1-g or 10-g respectively)

4.6 General description of test procedures

1. The DUT is tested using CMU 200 communications testers as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted peak power.
2. Test positions as described in the tables above are in accordance with the specified test standard.
3. Tests in body position were performed in that configuration, which generates the highest time based averaged output power (see conducted power results).
4. Tests in head position with GSM were performed in voice mode with 1 timeslot unless GPRS/EGPRS/DTM function allows parallel voice and data traffic on 2 or more timeslots.
5. UMTS was tested in RMC mode with 12.2 kbit/s and TPC bits set to 'all 1'.
6. WiFi was tested in 802.11b/g/n mode with 1 Mbit/s and 6 Mbit/s. According to KDB 248227 the SAR testing for 802.11g/n is not required since When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
7. Required WiFi test channels were selected according to KDB 248227
8. According to FCC KDB pub 248227 D01, When there are multiple test channels with the same measured maximum output power, the channel closest to mid-band frequency is selected for SAR measurement and when there are multiple test channels with the same measured maximum output power and equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.
9. According to FCC KDB pub 941225 D06 this device has been tested with 10 mm distance to the phantom for operation in WiFi hot spot mode.
10. Per FCC KDB pub 941225 D06 the edges with antennas within 2.5 cm are required to be evaluated for SAR to cover WiFi hot spot function.
11. According to IEEE 1528 the SAR test shall be performed at middle channel. Testing of top and bottom channel is optional.
12. According to KDB 447498 D01 testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
13. IEEE 1528-2003 require the middle channel to be tested first. This generally applies to wireless devices that are designed to operate in technologies with tight tolerances for maximum output power variations across channels in the band.
14. Per KDB648474 D04 require when the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is < 1.2 W/kg.
15. Per KDB648474 D04 require when the separation distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, using the same wireless mode test configuration for voice and data, such as UMTS, LTE and Wi-Fi, and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface)
16. 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g SAR > 1.2 W/kg.

17. Per KDB648474 D04 require for phablet SAR test considerations. For Smartphones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.
18. 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g SAR > 1.2 W/kg.

4.7 Measurement Uncertainty (450MHz-6GHz)

Not required as SAR measurement uncertainty analysis is required in SAR reports only when the highest measured SAR in a frequency band is ≥ 1.5 W/kg for 1-g SAR according to KDB865664D01.

4.8 System Check Results

Test mode:835MHz(Head)

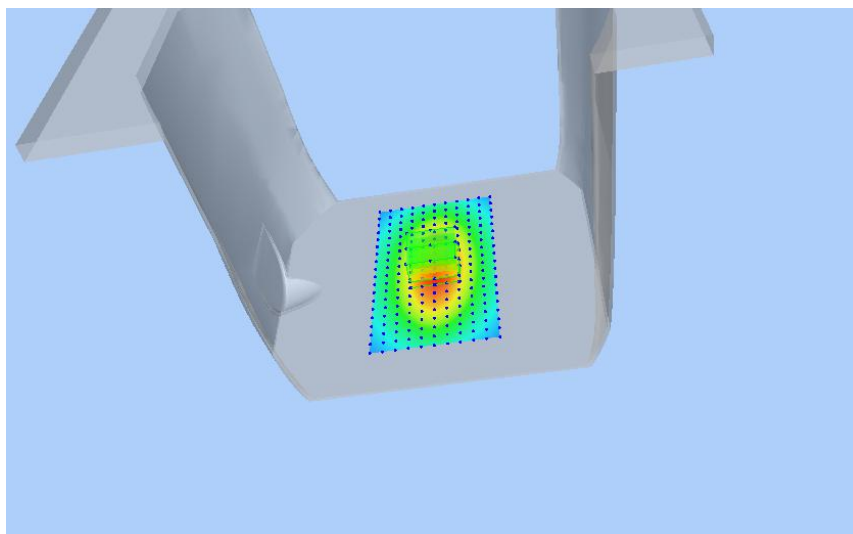
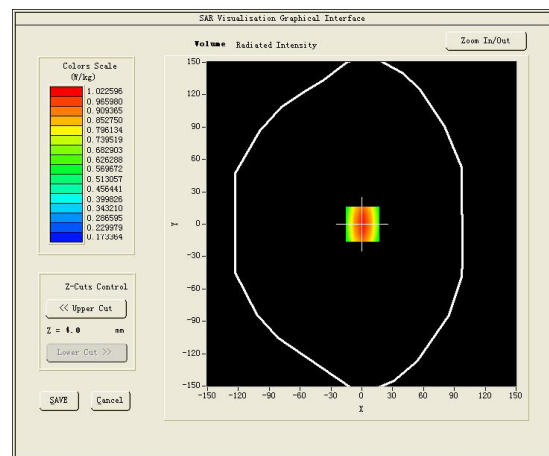
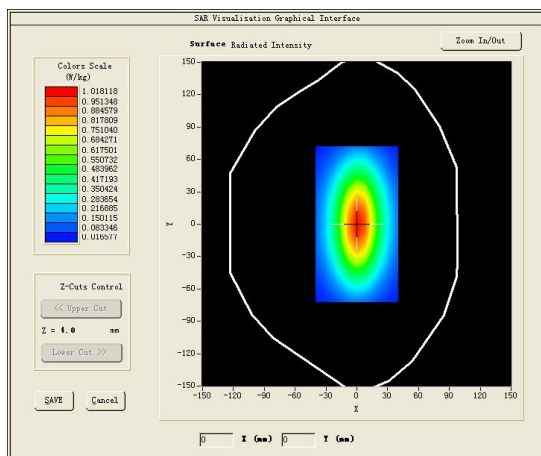
Product Description:Validation

Model:Dipole SID835

E-Field Probe:SSE2(SN 31/17 EPGO324)

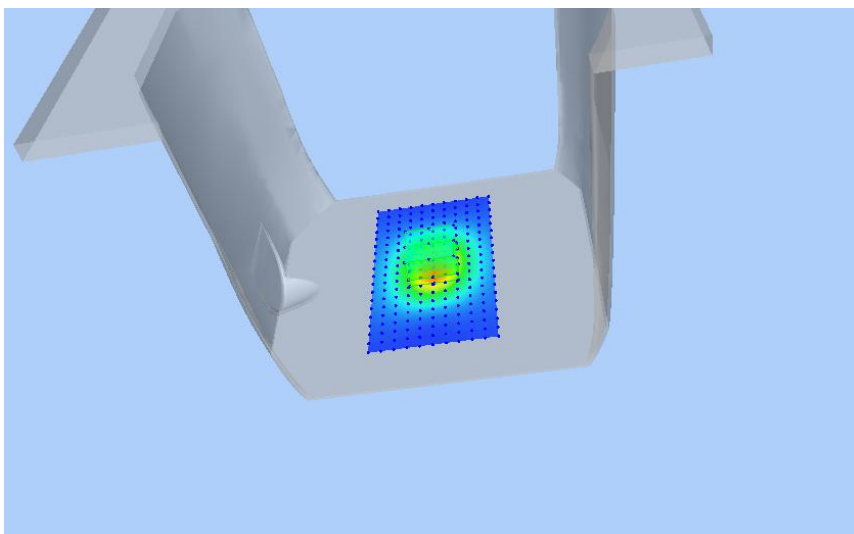
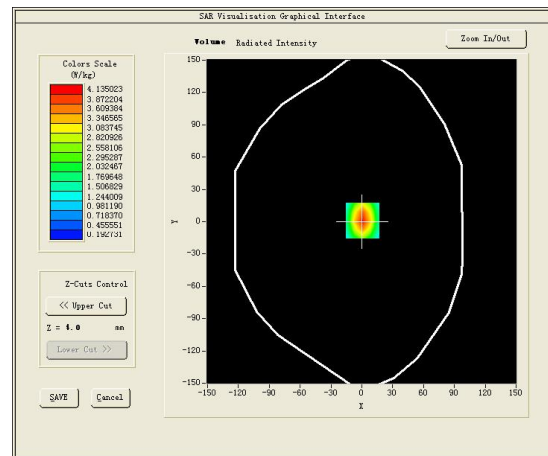
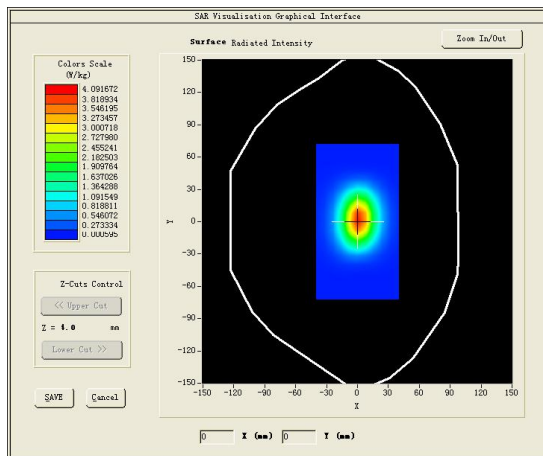
Test Date: May 06, 2020

Medium(liquid type)	HSL_850
Frequency (MHz)	835.0000
Relative permittivity (real part)	42.56
Conductivity (S/m)	0.87
Input power	100mW
Crest Factor	1.0
Conversion Factor	1.55
Variation (%)	1.240000
SAR 10g (W/Kg)	0.699430
SAR 1g (W/Kg)	0.931728
SURFACE SAR	VOLUME SAR



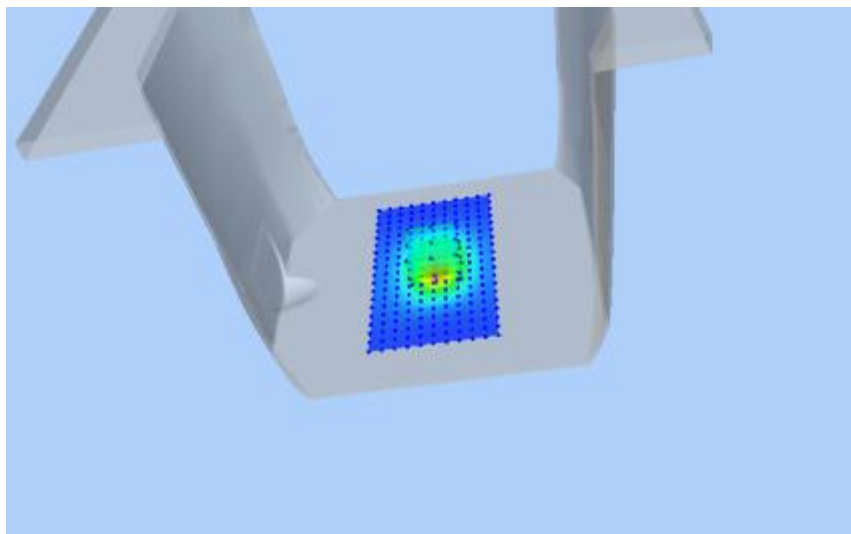
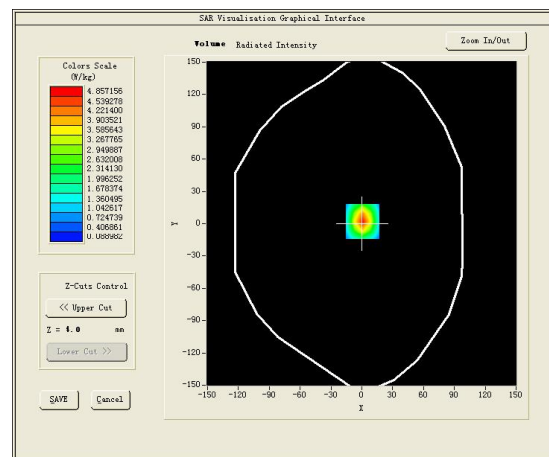
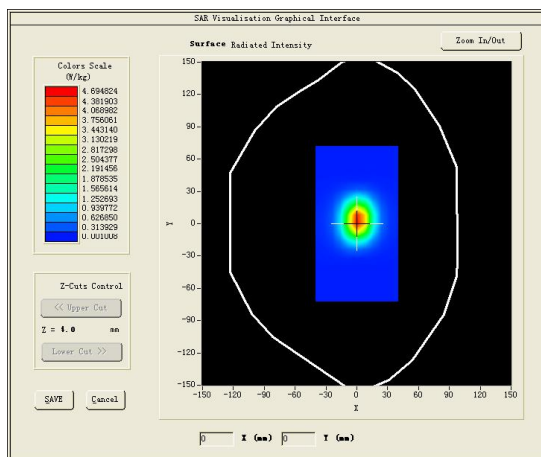
Test mode:1800MHz(Head)
 Product Description:Validation
 Model :Dipole SID1800
 E-Field Probe:SSE2(SN 31/17 EPG0324)
 Test Date: May 08, 2020

Medium(liquid type)	HSL_1800
Frequency (MHz)	1800.0000
Relative permittivity (real part)	38.79
Conductivity (S/m)	1.45
Input power	100mW
Crest Factor	1.0
Conversion Factor	1.65
Variation (%)	0.890000
SAR 10g (W/Kg)	2.013342
SAR 1g (W/Kg)	3.835145
SURFACE SAR	VOLUME SAR



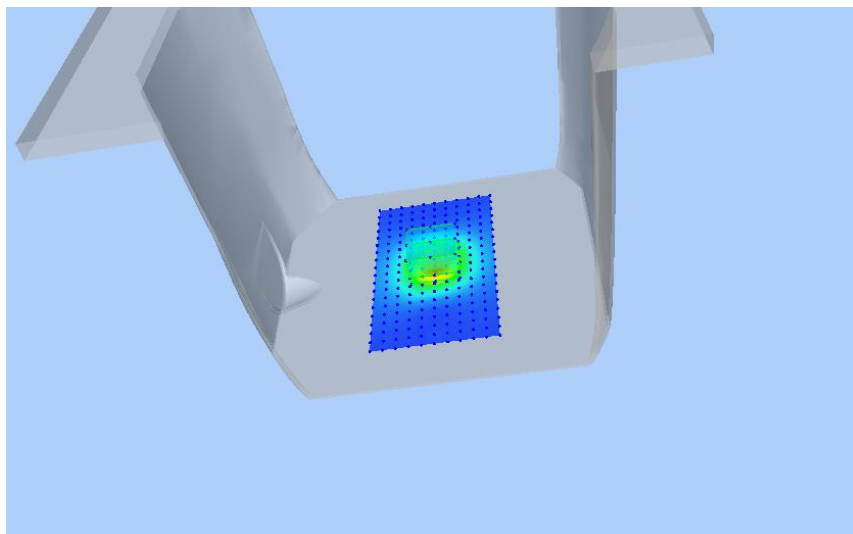
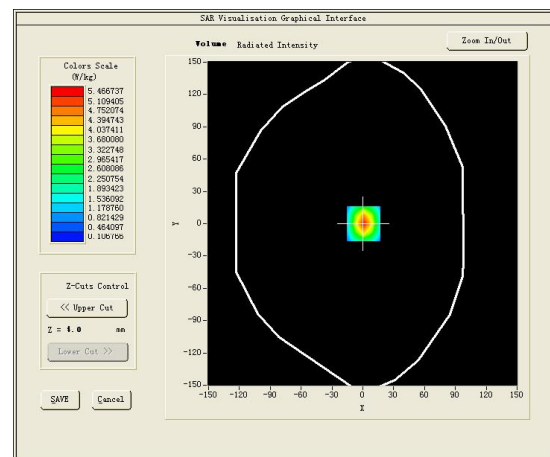
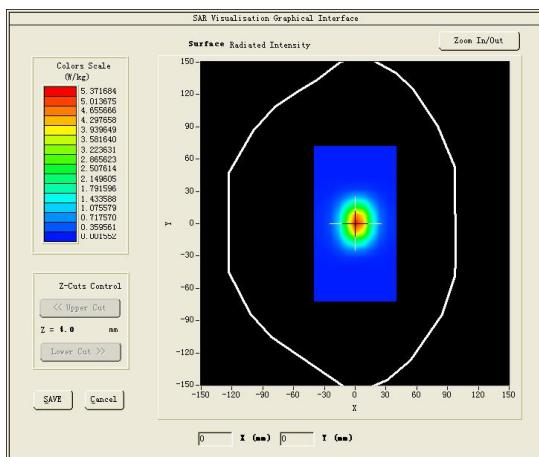
Test mode:1900MHz(Head)
 Product Description:Validation
 Model :Dipole SID1900
 E-Field Probe: SSE2(SN 31/17 EPGO324)
 Test Date: May 11, 2020

Medium(liquid type)	HSL_1900
Frequency (MHz)	1900.0000
Relative permittivity (real part)	41.23
Conductivity (S/m)	1.37
Input power	100mW
Crest Factor	1.0
Conversion Factor	1.86
Variation (%)	1.730000
SAR 10g (W/Kg)	2.027452
SAR 1g (W/Kg)	3.978226
SURFACE SAR	VOLUME SAR



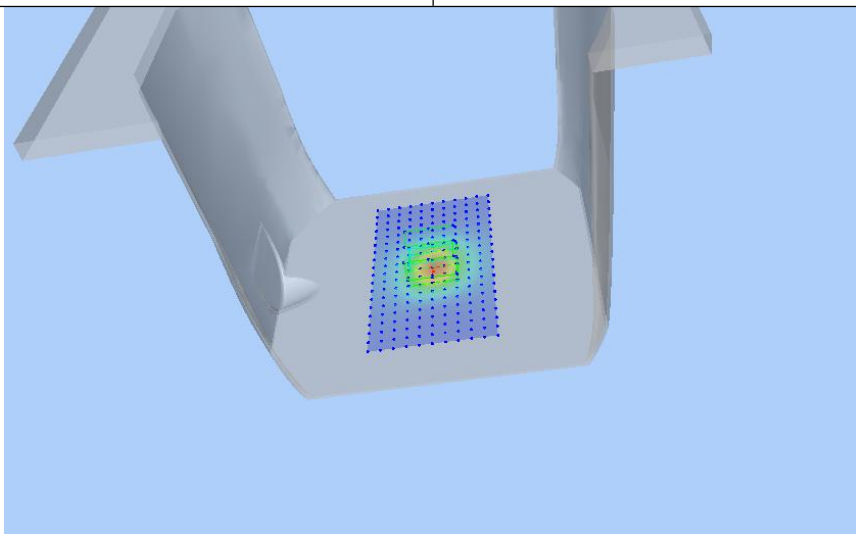
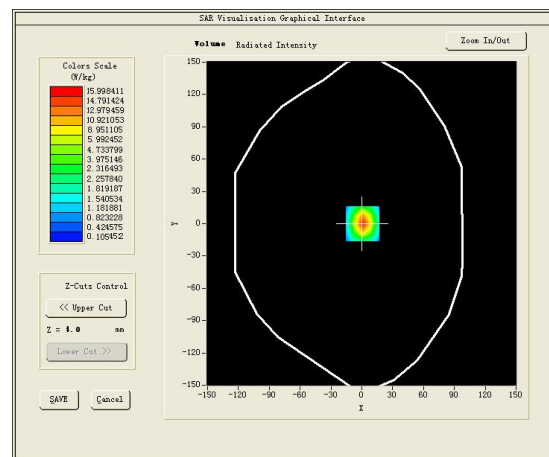
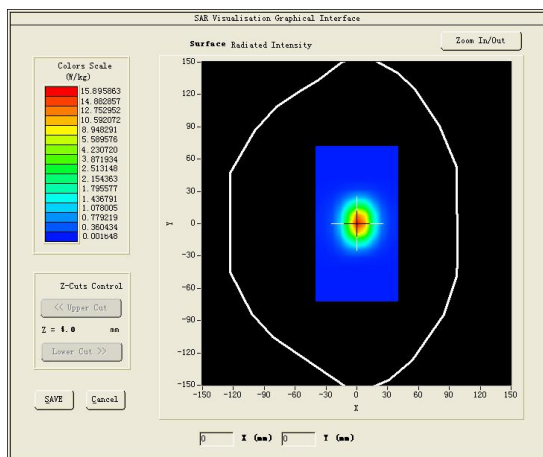
Test mode:2450MHz(Head)
 Product Description:Validation
 Model:Dipole SID2450
 E-Field Probe:SSE2(SN 31/17 EPGO324)
 Test Date: May 15, 2020

Medium(liquid type)	HSL_2450
Frequency (MHz)	2450.0000
Relative permittivity (real part)	39.83
Conductivity (S/m)	1.82
Input power	100mW
Crest Factor	1.0
Conversion Factor	1.91
Variation (%)	2.560000
SAR 10g (W/Kg)	2.458756
SAR 1g (W/Kg)	5.436324
SURFACE SAR	VOLUME SAR



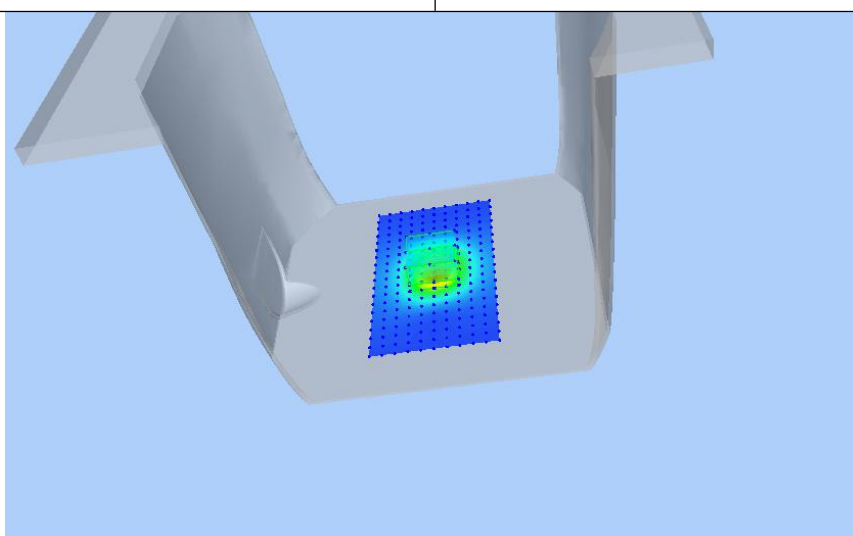
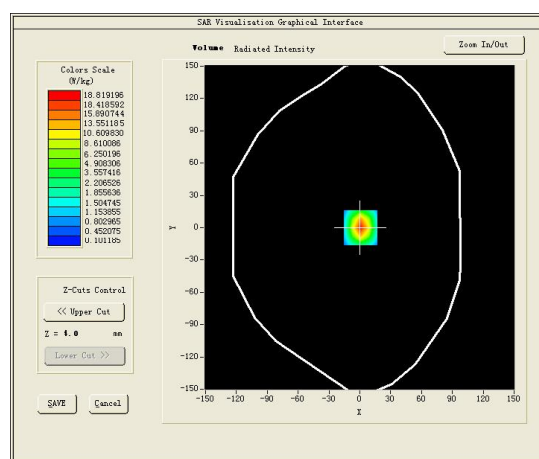
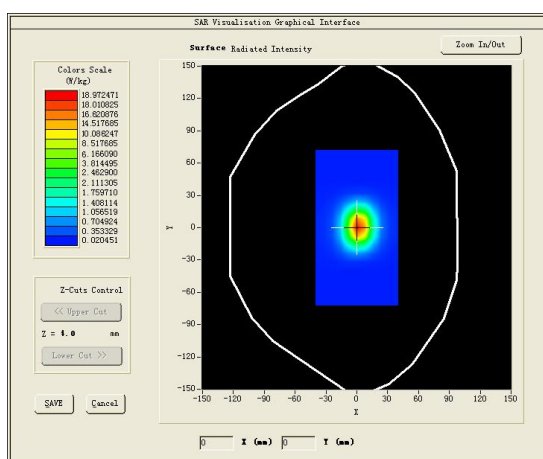
Test mode:5200MHz(Head)
 Product Description:Validation
 Model:Dipole SID5000
 E-Field Probe: SSE2(SN 31/17 EPGO324)
 Test Date: May 20, 2020

Medium(liquid type)	MSL_5000
Frequency (MHz)	5000.0000
Relative permittivity (real part)	35.94
Conductivity (S/m)	4.52
Input power	100mW
Crest Factor	1.0
Conversion Factor	1.50
Variation (%)	-0.910000
SAR 10g (W/Kg)	5.813245
SAR 1g (W/Kg)	16.420457
SURFACE SAR	VOLUME SAR



Test mode:5800MHz(Head)
 Product Description:Validation
 Model:Dipole SID5000
 E-Field Probe: SSE2(SN 31/17 EPGO324)
 Test Date: May 30, 2020

Medium(liquid type)	MSL_5000
Frequency (MHz)	5000.0000
Relative permittivity (real part)	34.86
Conductivity (S/m)	5.20
Input power	100mW
Crest Factor	1.0
Conversion Factor	1.50
Variation (%)	-3.080000
SAR 10g (W/Kg)	6.385417
SAR 1g (W/Kg)	18.677365
SURFACE SAR	VOLUME SAR



4.10 SAR Test Graph Results

SAR plots for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination according to FCC KDB 865664 D02;

#1

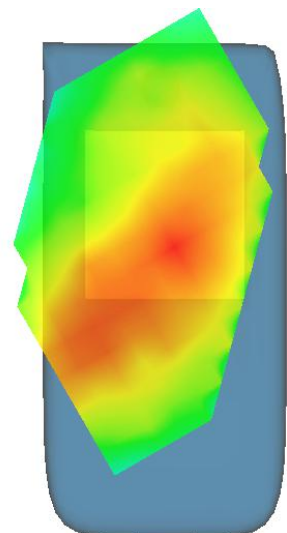
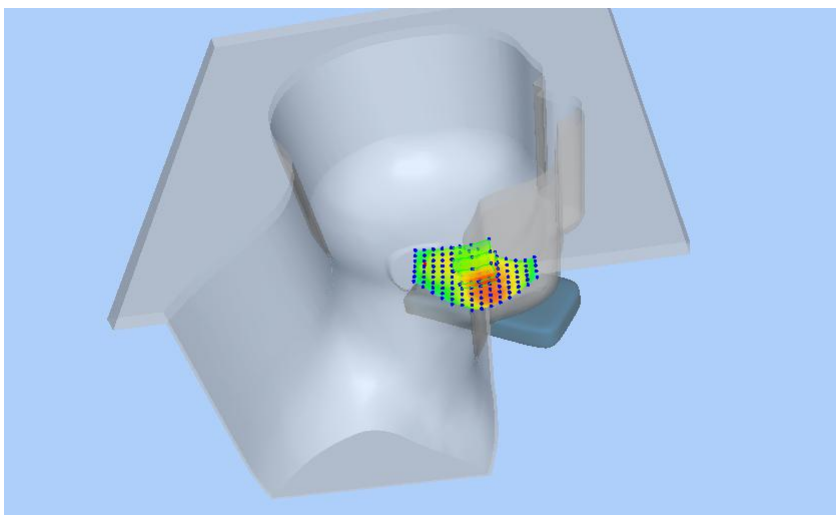
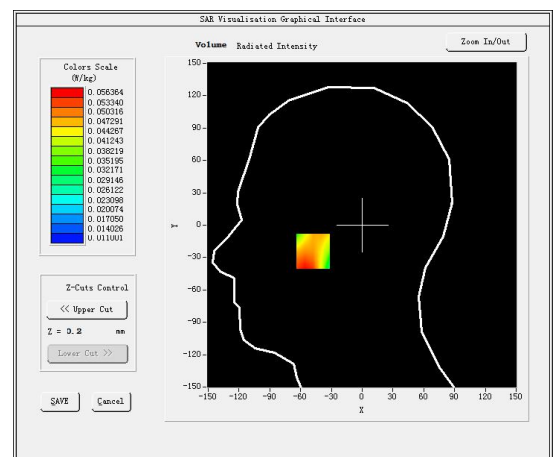
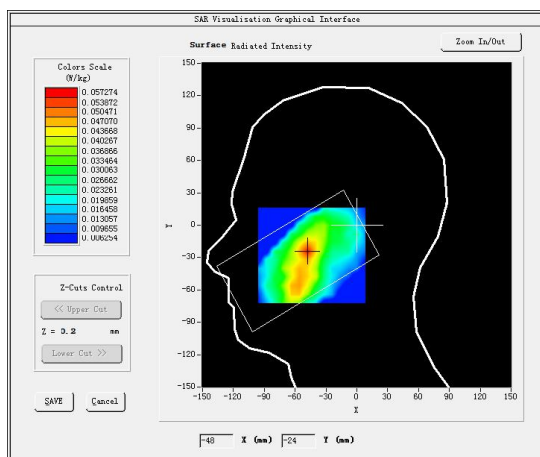
Test Mode: GSM 850MHz, Middle channel (Head Left Cheek)

Product Description: Smartphone

Model: M5

Test Date: May 06, 2020

Medium (liquid type)	HSL 850
Frequency (MHz)	836.6000
Relative permittivity (real part)	42.58
Conductivity (S/m)	0.88
E-Field Probe	SN 31/17 EPG0324
Crest Factor	8.0
Conversion Factor	1.55
Sensor	4mm
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm
Variation (%)	0.470000
SAR 10g (W/Kg)	0.039536
SAR 1g (W/Kg)	0.052678
SURFACE SAR	VOLUME SAR



#2

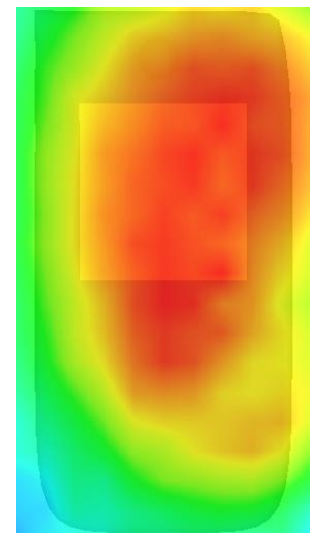
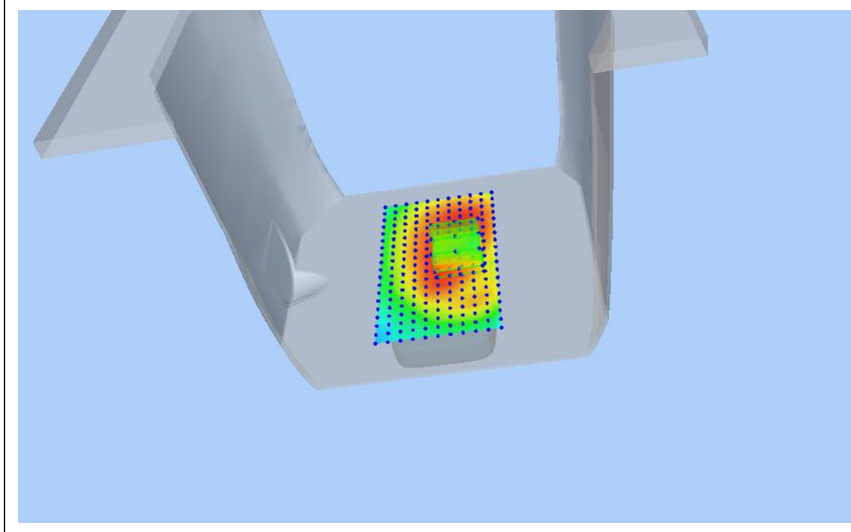
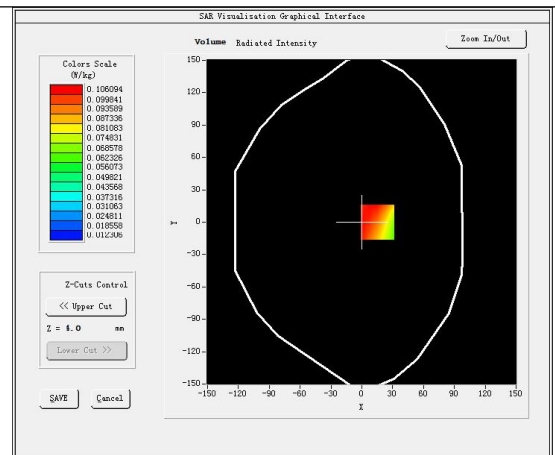
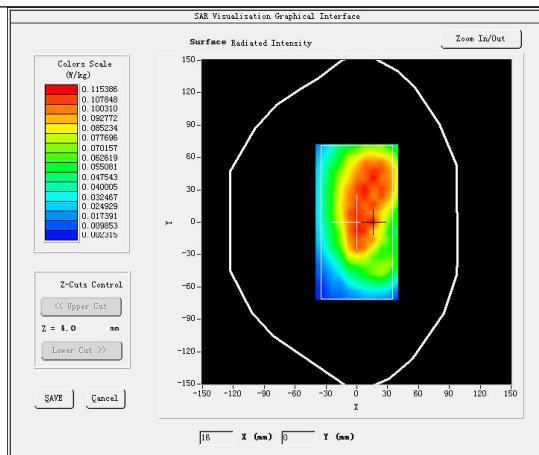
Test Mode: Hotspot GSM850MHz,High channel(Body Rear Side)

Product Description: Smartphone

Model: M5

Test Date: May 06, 2020

Medium(liquid type)	MSL 850
Frequency (MHz)	848.8000
Relative permittivity (real part)	42.23
Conductivity (S/m)	0.90
E-Field Probe	SN 31/17 EPG0324
Crest Factor	2.0
Conversion Factor	1.55
Sensor	4mm
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Variation (%)	-0.420000
SAR 10g (W/Kg)	0.074501
SAR 1g (W/Kg)	0.102956
SURFACE SAR	VOLUME SAR



#3

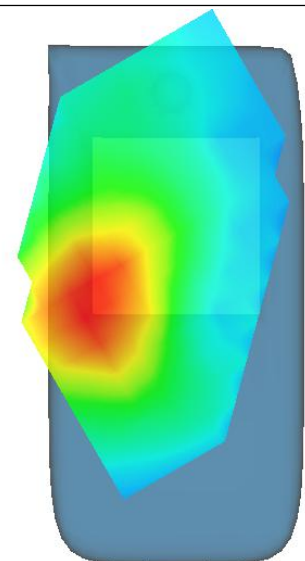
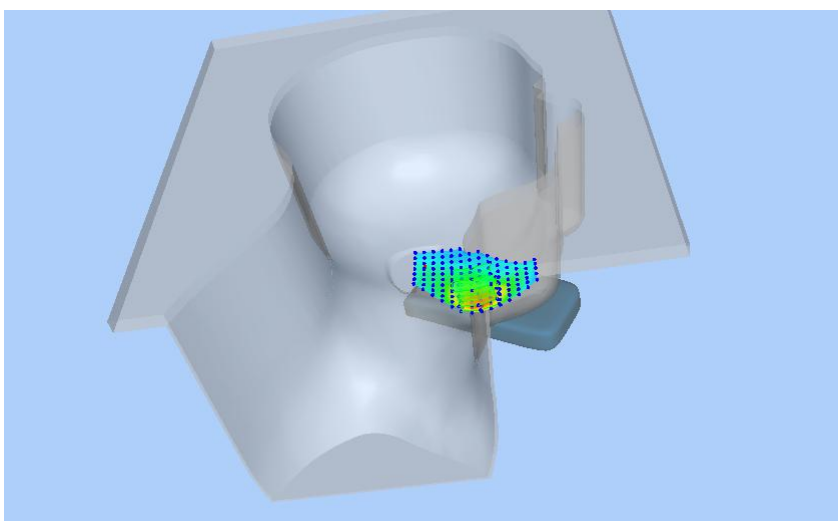
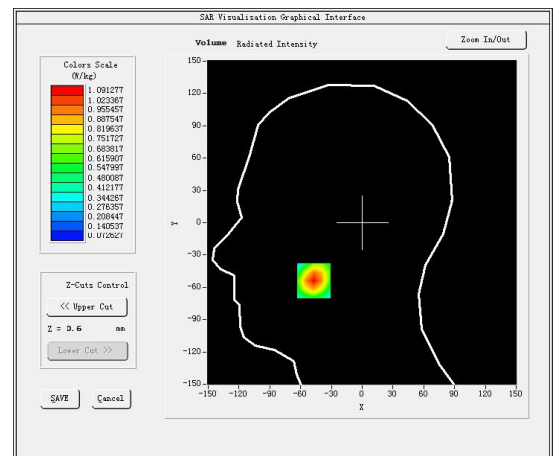
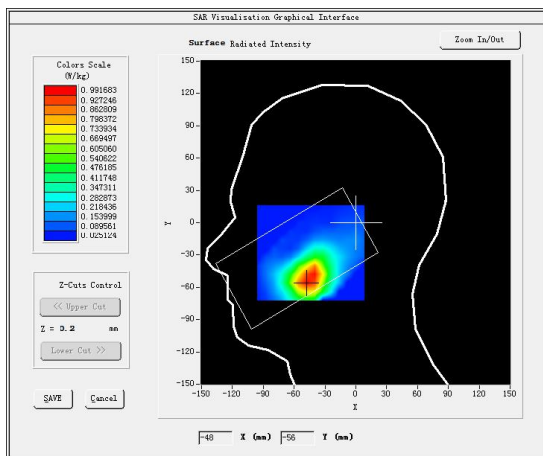
Test Mode: GSM 1900MHz, High channel (Head Left Cheek)

Product Description: Smartphone

Model: M5

Test Date: May 11, 2020

Medium (liquid type)	HSL 1900
Frequency (MHz)	1909.8000
Relative permittivity (real part)	39.74
Conductivity (S/m)	1.42
E-Field Probe	SN 31/17 EPGO324
Crest Factor	8.0
Conversion Factor	1.86
Sensor	4mm
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm
Variation (%)	3.080000
SAR 10g (W/Kg)	0.594357
SAR 1g (W/Kg)	1.020166
SURFACE SAR	VOLUME SAR



#4

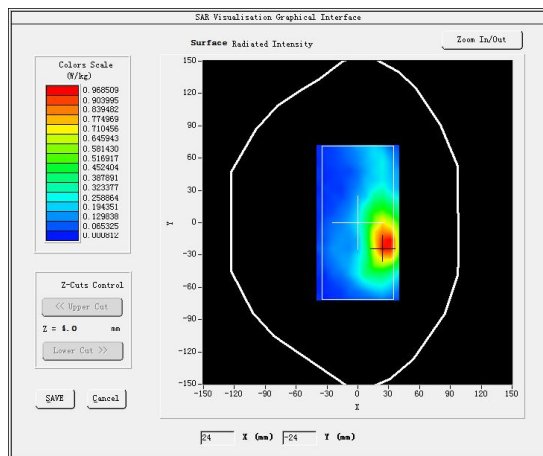
Test Mode: Hotspot GPRS1900MHz,High channel(Body Rear Side)

Product Description: Smartphone

Model: M5

Test Date: May 11, 2020

Medium(liquid type)	MSL 1900
Frequency (MHz)	1909.8000
Relative permittivity (real part)	39.83
Conductivity (S/m)	1.41
E-Field Probe	SN 31/17 EPG0324
Crest Factor	2.0
Conversion Factor	1.86
Sensor	4mm
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Variation (%)	-2.210000
SAR 10g (W/Kg)	0.514064
SAR 1g (W/Kg)	0.863474
SURFACE SAR	VOLUME SAR



#5

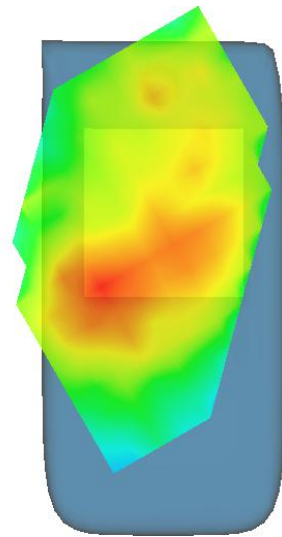
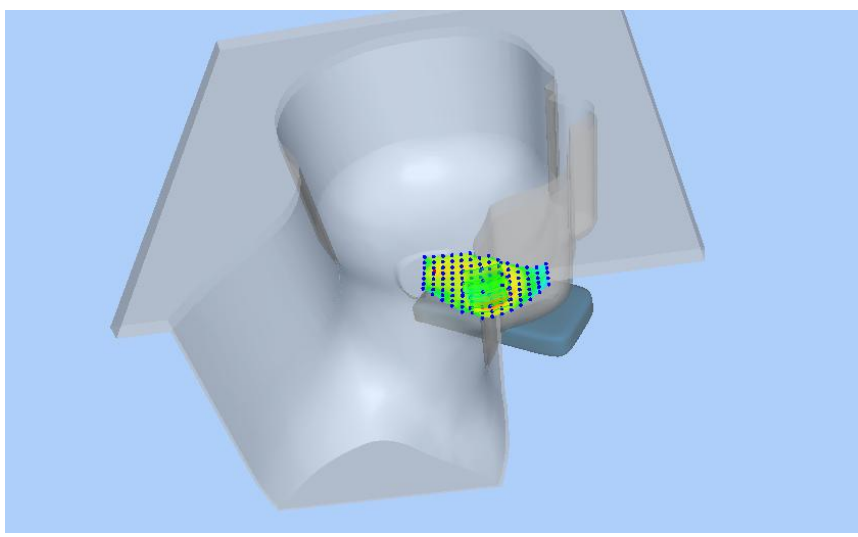
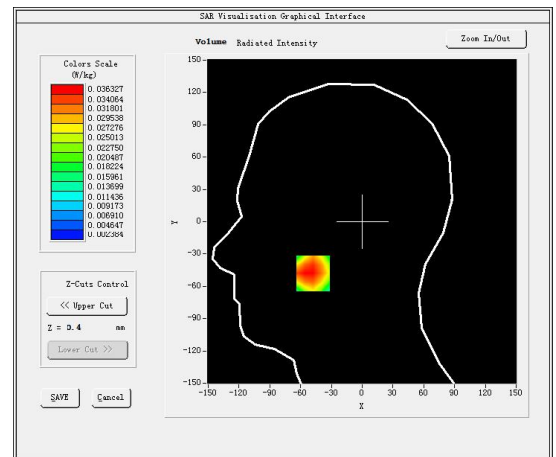
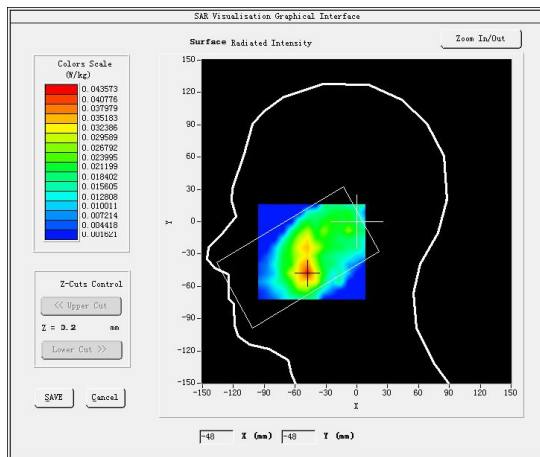
Test Mode: WCDMA Band V, Low channel (Head Right Cheek)

Product Description: Smartphone

Model: M5

Test Date: May 06, 2020

Medium (liquid type)	HSL 850
Frequency (MHz)	826.4000
Relative permittivity (real part)	41.30
Conductivity (S/m)	0.91
E-Field Probe	SN 31/17 EPGO324
Crest Factor	1.0
Conversion Factor	1.55
Sensor	4mm
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm
Variation (%)	2.150000
SAR 10g (W/Kg)	0.022824
SAR 1g (W/Kg)	0.036243
SURFACE SAR	VOLUME SAR



#6

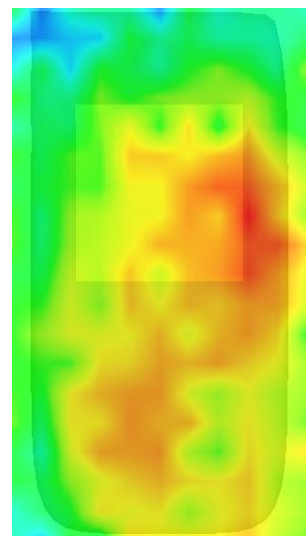
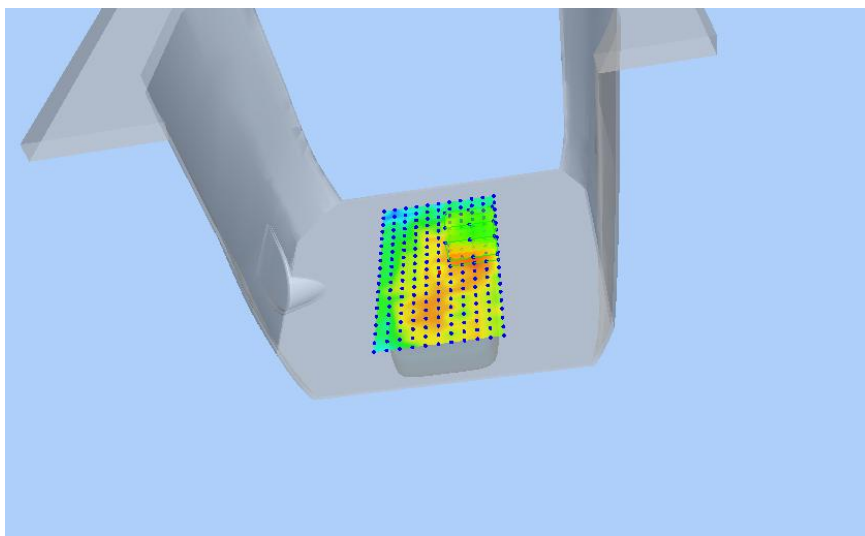
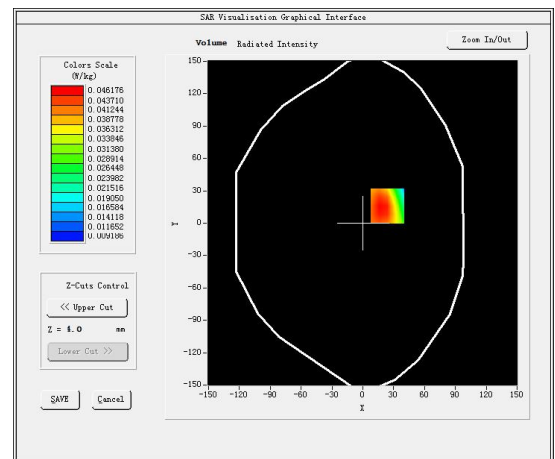
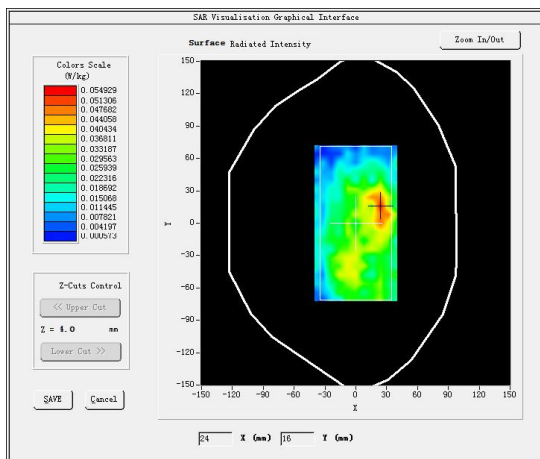
Test Mode: Hotspot WCDMA Band V, Low channel (Body Rear Side)

Product Description: Smartphone

Model: M5

Test Date: May 06, 2020

Medium (liquid type)	MSL_850
Frequency (MHz)	826.4000
Relative permittivity (real part)	41.42
Conductivity (S/m)	0.89
E-Field Probe	SN 31/17 EPG0324
Crest Factor	1.0
Conversion Factor	1.55
Sensor	4mm
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm
Variation (%)	1.780000
SAR 10g (W/Kg)	0.032343
SAR 1g (W/Kg)	0.047023
SURFACE SAR	VOLUME SAR



#7

Test Mode: WCDMA Band II, Middle channel (Head Left Cheek)

Product Description: Smartphone

Model: M5

Test Date: May 11, 2020

Medium (liquid type)	HSL 1900
Frequency (MHz)	1880.0000
Relative permittivity (real part)	40.21
Conductivity (S/m)	1.38
E-Field Probe	SN 31/17 EPG0324
Crest Factor	1.0
Conversion Factor	1.86
Sensor	4mm
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm
Variation (%)	0.790000
SAR 10g (W/Kg)	0.722031
SAR 1g (W/Kg)	1.313527
SURFACE SAR	VOLUME SAR

