

FCC SAR Test Report

<Power for LTE Uplink CA>

The conducted power for uplink CA active was measured on the highest reported SAR configuration for each exposure condition with both two carrier components was set to largest channel bandwidth.

7C							
Combination 20MHz+20MHz (100RB+100RB)							
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)
			RB Size	RB offset	RB Size	RB offset	
20850	21048	QPSK	1	0	0	0	19.28
			1	99	1	0	21.45
		16QAM	1	0	0	0	18.73
			1	99	1	0	20.76
		64QAM	1	0	0	0	18.47
			1	99	1	0	19.79
21001	21199	QPSK	1	0	0	0	19.17
			1	99	1	0	21.07
		16QAM	1	0	0	0	18.52
			1	99	1	0	20.60
		64QAM	1	0	0	0	18.17
			1	99	1	0	19.51
21152	21350	QPSK	1	0	0	0	19.21
			1	99	1	0	21.64
		16QAM	1	0	0	0	18.52
			1	99	1	0	20.92
		64QAM	1	0	0	0	18.03
			1	99	1	0	19.87

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41C							
Combination 20MHz+20MHz (100RB+100RB)							
PCC Channel	SCC Channel	Modulation	PCC		SCC		Measured Power (dBm)
			RB Size	RB offset	RB Size	RB offset	
39750	39948	QPSK	1	0	0	0	22.35
			1	99	1	0	20.72
		16QAM	1	0	0	0	21.49
			1	99	1	0	20.16
		64QAM	1	0	0	0	20.13
			1	99	1	0	19.52
40185	39987	QPSK	1	0	0	0	22.05
			1	99	1	0	12.55
		16QAM	1	0	0	0	21.33
			1	99	1	0	12.49
		64QAM	1	0	0	0	20.13
			1	99	1	0	12.39
40620	40422	QPSK	1	0	0	0	22.12
			1	99	1	0	11.98
		16QAM	1	0	0	0	20.89
			1	99	1	0	11.72
		64QAM	1	0	0	0	19.98
			1	99	1	0	11.38
41055	40857	QPSK	1	0	0	0	21.85
			1	99	1	0	12.21
		16QAM	1	0	0	0	20.89
			1	99	1	0	11.99
		64QAM	1	0	0	0	19.98
			1	99	1	0	11.56
41490	41292	QPSK	1	0	0	0	21.77
			1	99	1	0	11.25
		16QAM	1	0	0	0	19.98
			1	99	1	0	11.30
		64QAM	1	0	0	0	19.83
			1	99	1	0	11.28

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2.4GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)
	802.11b 1Mbps	1	2412	12.82
		6	2437	14.06
		11	2462	14.87
	802.11g 6Mbps	1	2412	14.21
		6	2437	14.88
		11	2462	14.32
	802.11n-HT20 MCS0	1	2412	14.03
		6	2437	14.67
		11	2462	14.06
	802.11n-HT40 MCS0	3	2422	14.12
		6	2437	16.13
		9	2452	13.62

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Bluetooth			
Mode	Channel	Frequency (MHz)	Average Power (dBm)
BR / EDR	0	2402	3.19
	39	2441	3.22
	78	2480	5.17
BLE 1Mbps	0	2402	2.43
	19	2440	2.45
	39	2480	4.33
BLE 2Mbps	0	2402	-0.35
	19	2440	-0.38
	39	2480	1.57
BLE S2	0	2402	2.10
	19	2440	2.15
	39	2480	3.87
BLE S8	0	2402	3.72
	19	2440	3.71
	39	2480	5.51

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5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)
	802.11a 6Mbps	36	5180	13.45
		40	5200	15.66
		44	5220	15.84
		48	5240	15.92
	802.11n-HT20 MCS0	36	5180	12.80
		40	5200	15.32
		44	5220	15.65
		48	5240	15.62
	802.11n-HT40 MCS0	38	5190	8.92
		46	5230	15.34
	802.11ac-VHT20 MCS0	36	5180	12.84
		40	5200	15.34
		44	5220	15.70
		48	5240	15.60
	802.11ac-VHT40 MCS0	38	5190	8.90
		46	5230	15.32
	802.11ac-VHT80 MCS0	42	5210	7.35

5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)
	802.11a 6Mbps	52	5260	15.68
		56	5280	15.70
		60	5300	15.90
		64	5320	14.65
	802.11n-HT20 MCS0	52	5260	15.80
		56	5280	15.60
		60	5300	15.65
		64	5320	13.43
	802.11n-HT40 MCS0	54	5270	14.76
		62	5310	9.12
	802.11ac-VHT20 MCS0	52	5260	15.74
		56	5280	15.57
		60	5300	15.66
		64	5320	13.42
	802.11ac-VHT40 MCS0	54	5270	15.28
		62	5310	10.40
	802.11ac-VHT80 MCS0	58	5290	9.46

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5.6GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)
	802.11a 6Mbps	100	5500	14.26
		116	5580	14.62
		124	5620	16.78
		132	5660	16.38
		140	5700	14.38
		144	5720	16.45
	802.11n-HT20 MCS0	100	5500	14.18
		116	5580	14.40
		124	5620	15.83
		132	5660	15.40
		140	5700	14.25
		144	5720	15.47
	802.11n-HT40 MCS0	102	5510	13.71
		110	5550	13.90
		126	5630	16.10
		134	5670	13.72
		142	5710	15.53
	802.11ac-VHT20 MCS0	100	5500	14.14
		116	5580	14.42
		124	5620	15.78
		132	5660	15.38
		140	5700	13.34
		144	5720	15.44
	802.11ac-VHT40 MCS0	102	5510	12.78
		110	5550	13.92
		126	5630	15.20
		134	5670	15.48
		142	5710	14.77
	802.11ac-VHT80 MCS0	106	5530	10.54
		122	5610	14.22
		138	5690	13.40

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5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)
	802.11a 6Mbps	149	5745	17.45
		157	5785	17.52
		165	5825	16.82
	802.11n-HT20 MCS0	149	5745	16.48
		157	5785	16.56
		165	5825	15.82
	802.11n-HT40 MCS0	151	5755	16.68
		159	5795	16.64
	802.11ac-VHT20 MCS0	149	5745	16.34
		157	5785	16.56
		165	5825	15.87
	802.11ac-VHT40 MCS0	151	5755	15.68
		159	5795	15.82
	802.11ac-VHT80 MCS0	155	5775	14.64

4.6 SAR Testing Results

4.6.1 SAR Test Reduction Considerations

<KDB 447498 D01, General RF Exposure Guidance>

Testing of other required channels within the operating mode of a frequency band is not required when the reported SAR for the mid-band or highest output power channel is:

- (1) ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
- (2) ≤ 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
- (3) ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

<KDB 941225 D01, 3G SAR Measurement Procedures>

The mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/4$ dB higher than the primary mode 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.

<KDB 941225 D05, SAR Evaluation Considerations for LTE Devices>

(1) QPSK with 1 RB and 50% RB allocation

Start with the largest channel bandwidth and measure SAR, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

(2) QPSK with 100% RB allocation

SAR is not required when the highest maximum output power for 100% RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

(3) Higher order modulations

SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> 1/2$ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

(4) Other channel bandwidth

SAR is required when the highest maximum output power of the smaller channel bandwidth is $> 1/2$ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

<KDB 248227 D01, SAR Guidance for Wi-Fi Transmitters>

- (1) For handsets operating next to ear, hotspot mode or mini-tablet configurations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When the reported SAR of initial test position is ≤ 0.4 W/kg, SAR testing for remaining test positions is not required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
- (2) For WLAN 2.4 GHz, the highest measured maximum output power channel for DSSS was selected for SAR measurement. When the reported SAR is ≤ 0.8 W/kg, no further SAR testing is required. Otherwise, SAR is evaluated at the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel. For OFDM modes (802.11g/n), SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and it is ≤ 1.2 W/kg.
- (3) For WLAN 5 GHz, the initial test configuration was selected according to the transmission mode with the highest maximum output power. When the reported SAR of initial test configuration is > 0.8 W/kg, SAR is required for the subsequent highest measured output power channel until the reported SAR result is ≤ 1.2 W/kg or all required channels are measured. For other transmission modes, SAR is not required when the highest reported SAR for initial test configuration is adjusted by the ratio of subsequent test configuration to initial test configuration specified maximum output power and it is ≤ 1.2 W/kg.
- (4) For WLAN MIMO mode, the power-based standalone SAR test exclusion or the sum of SAR provision in KDB 447498 to determine simultaneous transmission SAR test exclusion should be applied. Otherwise, SAR for MIMO mode will be measured with all applicable antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

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4.6.2 SAR Results for Head Exposure Condition

Plot No.	Band	Mode	Test Position	Ch.	Sample	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
1	GSM850	GPRS10	Right Cheek	128	1	30.5	30.34	-0.18	0.427	1.04	0.44
	GSM850	GPRS10	Right Cheek	128	2	30.5	30.34	-0.01	0.326	1.04	0.34
2	GSM1900	GPRS11	Right Cheek	810	1	26.5	26.38	0.01	0.086	1.03	0.09
	GSM1900	GPRS11	Right Cheek	810	2	26.5	26.38	0.07	0.083	1.03	0.09
3	WCDMA II	RMC12.2K	Right Cheek	9538	1	22.0	21.73	0.09	0.116	1.06	0.12
	WCDMA II	RMC12.2K	Right Cheek	9538	2	22.0	21.73	0.07	0.113	1.06	0.12
4	WCDMA IV	RMC12.2K	Right Cheek	1312	1	21.5	21.33	-0.04	0.166	1.04	0.17
	WCDMA IV	RMC12.2K	Right Cheek	1312	2	21.5	21.33	0.04	0.163	1.04	0.17
5	WCDMA V	RMC12.2K	Right Cheek	4132	1	24.0	23.43	0.11	0.360	1.14	0.41
	WCDMA V	RMC12.2K	Right Cheek	4132	2	24.0	23.43	0.07	0.355	1.14	0.40

Plot No.	Band	Mode	Test Position	Ch.	RB#	RB Offset	Sample	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
6	LTE 5	QPSK10M	Left Cheek	20525	1	49	1	-	24.0	23.03	0.09	0.077	1.00	1.25	0.10
	LTE 5	QPSK10M	Left Cheek	20525	1	49	2	-	24.0	23.03	0.01	0.065	1.00	1.25	0.08
7	LTE 7	QPSK20M	Left Cheek	21100	1	0	1	-	22.0	21.68	-0.06	0.168	1.00	1.08	0.18
	LTE 7	QPSK20M	Left Cheek	21100	1	0	2	-	22.0	21.68	-0.01	0.151	1.00	1.08	0.16
8	LTE 12	QPSK10M	Left Cheek	23060	1	0	1	-	23.5	23.23	0.04	0.019	1.00	1.06	0.02
	LTE 12	QPSK10M	Left Cheek	23060	1	0	2	-	23.5	23.23	0	0.016	1.00	1.06	0.02
9	LTE 13	QPSK10M	Right Cheek	23230	1	0	1	-	24.0	23.69	-0.06	0.069	1.00	1.07	0.07
	LTE 13	QPSK10M	Right Cheek	23230	1	0	2	-	24.0	23.69	0.01	0.037	1.00	1.07	0.04
10	LTE 14	QPSK10M	Right Cheek	23330	1	0	1	-	24.0	23.57	-0.11	0.078	1.00	1.10	0.09
	LTE 14	QPSK10M	Right Cheek	23330	1	0	2	-	24.0	23.57	-0.06	0.044	1.00	1.10	0.05
11	LTE 25	QPSK20M	Right Cheek	26590	1	0	1	-	21.5	20.89	0.03	0.130	1.00	1.15	0.15
	LTE 25	QPSK20M	Right Cheek	26590	1	0	2	-	21.5	20.89	0.04	0.126	1.00	1.15	0.15
12	LTE 26	QPSK15M	Left Cheek	26965	1	74	1	-	24.5	22.87	0.05	0.056	1.00	1.46	0.08
	LTE 26	QPSK15M	Left Cheek	26965	1	74	2	-	24.5	22.87	-0.07	0.050	1.00	1.46	0.07
13	LTE 30	QPSK10M	Left Cheek	27710	1	0	1	-	24.0	22.55	0	0.227	1.00	1.40	0.32
	LTE 30	QPSK10M	Left Cheek	27710	1	0	2	-	24.0	22.55	-0.02	0.213	1.00	1.40	0.30
14	LTE 41	QPSK20M	Left Cheek	41055	1	0	1	62.9	23.0	22.27	0.04	0.145	1.01	1.18	0.17
	LTE 41	QPSK20M	Left Cheek	41055	1	0	2	62.9	23.0	22.27	0	0.085	1.01	1.18	0.10
14	LTE CA 41C	QPSK20M	Left Cheek	PCC:41055 SCC:40857	PCC:1 SCC:0	PCC:0 SCC:0	1	62.9	23.0	21.85	0.07	0.121	1.01	1.30	0.16
15	LTE 66	QPSK20M	Right Cheek	132072	1	50	1	-	21.0	20.61	0.11	0.141	1.00	1.09	0.15
	LTE 66	QPSK20M	Right Cheek	132072	1	50	2	-	21.0	20.61	0	0.133	1.00	1.09	0.15
16	LTE 71	QPSK20M	Right Cheek	133222	1	50	1	-	23.0	21.69	0.09	0.259	1.00	1.35	0.35
	LTE 71	QPSK20M	Right Cheek	133222	1	50	2	-	23.0	21.69	-0.04	0.249	1.00	1.35	0.34

Plot No.	Band	Mode	Test Position	Ch.	Sample	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
17	WLAN2.4G	802.11b	Left Cheek	11	1	100	15.5	14.87	0.07	0.232	1.00	1.16	0.27
	WLAN2.4G	802.11b	Left Cheek	11	2	100	15.5	14.87	0.09	0.190	1.00	1.16	0.22
18	WLAN5G	802.11a	Left Cheek	60	1	97.2	16.0	15.90	0.04	0.554	1.03	1.02	0.58
	WLAN5G	802.11a	Left Cheek	60	2	97.2	16.0	15.90	-0.09	0.532	1.03	1.02	0.56
19	WLAN5G	802.11a	Left Cheek	144	1	97.2	17.0	16.45	0.09	0.476	1.03	1.14	0.56
	WLAN5G	802.11a	Left Cheek	144	2	97.2	17.0	16.45	0	0.442	1.03	1.14	0.52
20	WLAN5G	802.11a	Left Cheek	157	1	98.1	18.0	17.52	0.02	0.618	1.02	1.12	0.70
	WLAN5G	802.11a	Left Cheek	157	2	98.1	18.0	17.52	0.04	0.613	1.02	1.12	0.70
21	BT	GFSK	Left Cheek	78	1	76.8	6.0	5.17	0.09	0.047	1.30	1.21	0.07
	BT	GFSK	Left Cheek	78	2	76.8	6.0	5.17	0.02	0.045	1.30	1.21	0.07

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4.6.3 SAR Results for Body-worn Exposure Condition (Separation Distance is 1.0 cm Gap)

Plot No.	Band	Mode	Test Position	Ch.	Sample	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
22	GSM850	GPRS10	Rear Face	128	1	30.5	30.34	0.01	0.553	1.04	0.57
	GSM850	GPRS10	Rear Face	128	2	30.5	30.34	0.02	0.521	1.04	0.54
23	GSM1900	GPRS11	Rear Face	810	1	26.5	26.38	0.07	0.680	1.03	0.70
	GSM1900	GPRS11	Rear Face	810	2	26.5	26.38	-0.09	0.627	1.03	0.64
24	WCDMA II	RMC12.2K	Rear Face	9400	1	22.0	21.50	-0.07	0.941	1.12	1.06
	WCDMA II	RMC12.2K	Rear Face	9262	1	22.0	21.71	0	0.949	1.07	1.01
	WCDMA II	RMC12.2K	Rear Face	9538	1	22.0	21.73	-0.12	0.929	1.06	0.99
	WCDMA II	RMC12.2K	Rear Face	9400	2	22.0	21.50	-0.04	0.869	1.12	0.98
25	WCDMA IV	RMC12.2K	Rear Face	1312	1	21.5	21.33	0.12	1.050	1.04	1.09
	WCDMA IV	RMC12.2K	Rear Face	1413	1	21.5	21.39	0.02	0.983	1.03	1.01
	WCDMA IV	RMC12.2K	Rear Face	1513	1	21.5	21.15	0.07	0.969	1.08	1.05
	WCDMA IV	RMC12.2K	Rear Face	1312	2	21.5	21.33	0.03	1.030	1.04	1.07
26	WCDMA V	RMC12.2K	Rear Face	4132	1	24.0	23.43	-0.18	0.417	1.14	0.48
	WCDMA V	RMC12.2K	Rear Face	4132	2	24.0	23.43	0.08	0.391	1.14	0.45

Plot No.	Band	Mode	Test Position	Ch.	RB#	RB Offset	Sample	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
27	LTE 5	QPSK10M	Rear Face	20525	1	49	1	-	24.0	23.03	-0.08	0.147	1.00	1.25	0.18
	LTE 5	QPSK10M	Rear Face	20525	1	49	2	-	24.0	23.03	0.03	0.119	1.00	1.25	0.15
28	LTE 7	QPSK20M	Rear Face	21350	1	0	1	-	22.0	21.50	-0.05	0.911	1.00	1.12	1.02
	LTE 7	QPSK20M	Rear Face	20850	1	0	1	-	22.0	21.63	0.03	0.538	1.00	1.09	0.59
	LTE 7	QPSK20M	Rear Face	21100	1	0	1	-	22.0	21.68	0.12	0.770	1.00	1.08	0.83
	LTE 7	QPSK20M	Rear Face	21350	1	0	2	-	22.0	21.50	0	0.823	1.00	1.12	0.92
29	LTE 12	QPSK10M	Rear Face	23060	1	0	1	-	23.5	23.23	0.04	0.062	1.00	1.06	0.07
	LTE 12	QPSK10M	Rear Face	23060	1	0	2	-	23.5	23.23	-0.09	0.061	1.00	1.06	0.06
30	LTE 13	QPSK10M	Rear Face	23230	1	0	1	-	24.0	23.69	0.02	0.151	1.00	1.07	0.16
	LTE 13	QPSK10M	Rear Face	23230	1	0	2	-	24.0	23.69	0.01	0.129	1.00	1.07	0.14
31	LTE 14	QPSK10M	Rear Face	23330	1	0	1	-	24.0	23.57	0.06	0.241	1.00	1.10	0.27
	LTE 14	QPSK10M	Rear Face	23330	1	0	2	-	24.0	23.57	-0.05	0.129	1.00	1.10	0.14
32	LTE 25	QPSK20M	Rear Face	26365	1	0	1	-	21.5	21.18	0.01	0.819	1.00	1.08	0.88
	LTE 25	QPSK20M	Rear Face	26140	1	0	1	-	21.5	21.05	0.09	0.590	1.00	1.11	0.65
	LTE 25	QPSK20M	Rear Face	26590	1	0	1	-	21.5	20.89	0.02	0.828	1.00	1.15	0.95
	LTE 25	QPSK20M	Rear Face	26590	1	0	2	-	21.5	20.89	0.07	0.824	1.00	1.15	0.95
33	LTE 26	QPSK15M	Rear Face	26865	1	74	1	-	24.5	22.84	0.1	0.144	1.00	1.47	0.21
	LTE 26	QPSK15M	Rear Face	26865	1	74	2	-	24.5	22.84	-0.05	0.118	1.00	1.47	0.17
34	LTE 30	QPSK10M	Rear Face	27710	1	0	1	-	24.0	22.55	0.06	0.652	1.00	1.40	0.91
	LTE 30	QPSK10M	Rear Face	27710	1	0	2	-	24.0	22.55	-0.01	0.633	1.00	1.40	0.88
35	LTE 41	QPSK20M	Rear Face	40185	1	0	1	62.9	23.0	22.40	0.07	0.669	1.01	1.15	0.77
	LTE 41	QPSK20M	Rear Face	40185	1	0	2	62.9	23.0	22.40	-0.05	0.619	1.01	1.15	0.72
	LTE CA 41C	QPSK20M	Rear Face	PCC:40185 SCC:39987	PCC:1 SCC:0	PCC:0 SCC:0	1	62.9	23.0	22.05	0	0.555	1.01	1.24	0.70
36	LTE 66	QPSK20M	Rear Face	132072	1	50	1	-	21.0	20.61	0.03	0.877	1.00	1.09	0.96
	LTE 66	QPSK20M	Rear Face	132322	1	50	1	-	21.0	20.74	-0.17	0.776	1.00	1.06	0.82
	LTE 66	QPSK20M	Rear Face	132572	1	50	1	-	21.0	20.70	-0.15	0.723	1.00	1.07	0.77
	LTE 66	QPSK20M	Rear Face	132072	1	50	2	-	21.0	20.61	-0.02	0.819	1.00	1.09	0.90
37	LTE 71	QPSK20M	Rear Face	133372	1	50	1	-	23.0	21.69	-0.01	0.384	1.00	1.35	0.52
	LTE 71	QPSK20M	Rear Face	133372	1	50	2	-	23.0	21.69	-0.07	0.281	1.00	1.35	0.38

Plot No.	Band	Mode	Test Position	Ch.	Sample	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
38	WLAN2.4G	802.11b	Front Face	11	1	100	15.5	14.87	0	0.045	1.00	1.16	0.05
	WLAN2.4G	802.11b	Front Face	11	2	100	15.5	14.87	0	0.036	1.00	1.16	0.04



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Plot No.	Band	Mode	Test Position	Ch.	Sample	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
39	WLAN5G	802.11a	Rear Face	60	1	97.2	16.0	15.90	-0.07	0.717	1.03	1.02	0.75
	WLAN5G	802.11a	Rear Face	60	2	97.2	16.0	15.90	-0.05	0.423	1.03	1.02	0.45
40	WLAN5G	802.11a	Rear Face	144	1	97.2	17.0	16.45	-0.04	0.496	1.03	1.14	0.58
	WLAN5G	802.11a	Rear Face	144	2	97.2	17.0	16.45	-0.04	0.423	1.03	1.14	0.49
41	WLAN5G	802.11a	Rear Face	149	1	98.1	18.0	17.45	-0.02	0.617	1.02	1.14	0.71
	WLAN5G	802.11a	Rear Face	149	2	98.1	18.0	17.45	0.04	0.580	1.02	1.14	0.67
42	BT	GFSK	Rear Face	78	1	76.8	6.0	5.17	0.08	0.0093	1.30	1.21	0.01
	BT	GFSK	Rear Face	78	2	76.8	6.0	5.17	0.03	0.00928	1.30	1.21	0.01

4.6.4 SAR Results for Hotspot Exposure Condition (Separation Distance is 1.0 cm Gap)

Plot No.	Band	Mode	Test Position	Ch.	Sample	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
43	GSM850	GPRS10	Rear Face	128	1	30.5	30.34	0.01	0.553	1.04	0.57
	GSM850	GPRS10	Rear Face	128	2	30.5	30.34	0.02	0.521	1.04	0.54
44	GSM1900	GPRS11	Rear Face	810	1	26.5	26.38	0.07	0.680	1.03	0.70
	GSM1900	GPRS11	Rear Face	810	2	26.5	26.38	-0.09	0.627	1.03	0.64
45	WCDMA II	RMC12.2K	Rear Face	9400	1	22.0	21.50	-0.07	0.941	1.12	1.06
	WCDMA II	RMC12.2K	Rear Face	9262	1	22.0	21.71	0	0.949	1.07	1.01
	WCDMA II	RMC12.2K	Rear Face	9538	1	22.0	21.73	-0.12	0.929	1.06	0.99
	WCDMA II	RMC12.2K	Rear Face	9400	2	22.0	21.50	-0.04	0.869	1.12	0.98
46	WCDMA IV	RMC12.2K	Rear Face	1312	1	21.5	21.33	0.12	1.050	1.04	1.09
	WCDMA IV	RMC12.2K	Rear Face	1413	1	21.5	21.39	0.02	0.983	1.03	1.01
	WCDMA IV	RMC12.2K	Rear Face	1513	1	21.5	21.15	0.07	0.969	1.08	1.05
	WCDMA IV	RMC12.2K	Rear Face	1312	2	21.5	21.33	0.03	1.030	1.04	1.07
47	WCDMA V	RMC12.2K	Rear Face	4132	1	24.0	23.43	-0.18	0.417	1.14	0.48
	WCDMA V	RMC12.2K	Rear Face	4132	2	24.0	23.43	0.08	0.391	1.14	0.45

Plot No.	Band	Mode	Test Position	Ch.	RB#	RB Offset	Sample	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
48	LTE 5	QPSK10M	Rear Face	20525	1	49	1	-	24.0	23.03	-0.08	0.147	1.00	1.25	0.18
	LTE 5	QPSK10M	Rear Face	20525	1	49	2	-	24.0	23.03	0.03	0.119	1.00	1.25	0.15
49	LTE 7	QPSK20M	Bottom Side	21350	1	0	1	-	22.0	21.50	0.10	0.907	1.00	1.12	1.02
	LTE 7	QPSK20M	Bottom Side	20850	1	0	1	-	22.0	21.63	-0.02	0.587	1.00	1.09	0.64
	LTE 7	QPSK20M	Bottom Side	21100	1	0	1	-	22.0	21.68	-0.02	0.839	1.00	1.08	0.90
	LTE 7	QPSK20M	Bottom Side	21350	1	0	2	-	22.0	21.50	0.01	0.875	1.00	1.12	0.98
50	LTE 12	QPSK10M	Rear Face	23060	1	0	1	-	23.5	23.23	0.04	0.062	1.00	1.06	0.07
	LTE 12	QPSK10M	Rear Face	23060	1	0	2	-	23.5	23.23	-0.09	0.061	1.00	1.06	0.06
51	LTE 13	QPSK10M	Rear Face	23230	1	0	1	-	24.0	23.69	0.02	0.151	1.00	1.07	0.16
	LTE 13	QPSK10M	Rear Face	23230	1	0	2	-	24.0	23.69	0.01	0.129	1.00	1.07	0.14
52	LTE 14	QPSK10M	Rear Face	23330	1	0	1	-	24.0	23.57	0.06	0.241	1.00	1.10	0.27
	LTE 14	QPSK10M	Rear Face	23330	1	0	2	-	24.0	23.57	-0.05	0.129	1.00	1.10	0.14
	LTE 25	QPSK20M	Rear Face	26365	1	0	1	-	21.5	21.18	0.01	0.819	1.00	1.08	0.88
	LTE 25	QPSK20M	Rear Face	26140	1	0	1	-	21.5	21.05	0.09	0.590	1.00	1.11	0.65
53	LTE 25	QPSK20M	Rear Face	26590	1	0	1	-	21.5	20.89	0.02	0.828	1.00	1.15	0.95
	LTE 25	QPSK20M	Rear Face	26590	1	0	2	-	21.5	20.89	0.07	0.824	1.00	1.15	0.95
54	LTE 26	QPSK15M	Rear Face	26865	1	74	1	-	24.5	22.84	0.1	0.144	1.00	1.47	0.21
	LTE 26	QPSK15M	Rear Face	26865	1	74	2	-	24.5	22.84	-0.05	0.118	1.00	1.47	0.17
55	LTE 30	QPSK10M	Bottom Side	27710	1	0	1	-	24.0	22.55	-0.08	0.719	1.00	1.40	1.00
	LTE 30	QPSK10M	Bottom Side	27710	1	0	2	-	24.0	22.55	0.01	0.689	1.00	1.40	0.96
56	LTE 41	QPSK20M	Bottom Side	40620	1	0	1	62.9	23.0	22.45	0.06	0.645	1.01	1.14	0.74
	LTE 41	QPSK20M	Bottom Side	40620	1	0	2	62.9	23.0	22.45	0.15	0.619	1.01	1.14	0.71
	LTE CA 41C	QPSK20M	Bottom Side	PCC:40620 SCC:40422	PCC:1 SCC:0	PCC:0 SCC:0	1	62.9	23.0	22.12	0.03	0.588	1.01	1.22	0.72
57	LTE 66	QPSK20M	Rear Face	132072	1	50	1	-	21.0	20.61	0.03	0.877	1.00	1.09	0.96

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Plot No.	Band	Mode	Test Position	Ch.	RB#	RB Offset	Sample	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
	LTE 66	QPSK20M	Rear Face	132322	1	50	1	-	21.0	20.74	-0.17	0.776	1.00	1.06	0.82
	LTE 66	QPSK20M	Rear Face	132572	1	50	1	-	21.0	20.70	-0.15	0.723	1.00	1.07	0.77
	LTE 66	QPSK20M	Rear Face	132072	1	50	2	-	21.0	20.61	-0.02	0.819	1.00	1.09	0.90
58	LTE 71	QPSK20M	Rear Face	133372	1	50	1	-	23.0	21.69	-0.01	0.384	1.00	1.35	0.52
	LTE 71	QPSK20M	Rear Face	133372	1	50	2	-	23.0	21.69	-0.07	0.281	1.00	1.35	0.38

Plot No.	Band	Mode	Test Position	Ch.	Sample	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
59	WLAN2.4G	802.11b	Right Side	11	1	100	15.5	14.87	0.09	0.058	1.00	1.16	0.07
	WLAN2.4G	802.11b	Right Side	11	2	100	15.5	14.87	0.18	0.055	1.00	1.16	0.06
60	WLAN5G	802.11a	Right Side	48	1	97.2	16.0	15.92	-0.07	0.729	1.03	1.02	0.76
	WLAN5G	802.11a	Right Side	48	2	97.2	16.0	15.92	-0.15	0.706	1.03	1.02	0.74
61	WLAN5G	802.11a	Rear Face	149	1	98.1	18.0	17.45	-0.02	0.617	1.02	1.14	0.71
	WLAN5G	802.11a	Rear Face	149	2	98.1	18.0	17.45	0.04	0.580	1.02	1.14	0.67
62	BT	GFSK	Right Side	78	1	76.8	6.0	5.17	0.18	0.014	1.30	1.21	0.02
	BT	GFSK	Right Side	78	2	76.8	6.0	5.17	0.07	0.010	1.30	1.21	0.02

4.6.5 SAR Results for Extremity Exposure Condition (Separation Distance is 0 cm Gap)

Plot No.	Band	Mode	Test Position	Ch.	RB#	RB Offset	Sample	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-10g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-10g (W/kg)
63	LTE 7	QPSK20M	Bottom Side	21350	1	0	1	-	22.0	21.50	-0.08	1.760	1.00	1.12	1.97
	LTE 7	QPSK20M	Bottom Side	21350	1	0	2	-	22.0	21.50	-0.17	1.580	1.00	1.12	1.77

Plot No.	Band	Mode	Test Position	Ch.	Sample	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-10g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-10g (W/kg)
64	WLAN5G	802.11a	Right Side	60	1	97.2	16.0	15.90	0.06	1.590	1.03	1.02	1.67
	WLAN5G	802.11a	Right Side	60	2	97.2	16.0	15.90	-0.13	1.070	1.03	1.02	1.11
65	WLAN5G	802.11a	Right Side	144	1	97.2	17.0	16.45	-0.07	1.050	1.03	1.14	1.23
	WLAN5G	802.11a	Right Side	144	2	97.2	17.0	16.45	0	0.958	1.03	1.14	1.12

4.6.6 SAR Measurement Variability

According to KDB 865664 D01, SAR measurement variability was assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10 , the highest SAR configuration for either head or body tissue-equivalent medium may be used to perform the repeated measurement. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3. 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, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 , and the original, first or second repeated measurement is ≥ 1.5 W/kg, perform a third repeated measurement.

Band	Test Position	Ch.	Original Measured SAR-1g (W/kg)	1st Repeated SAR-1g (W/kg)	L/S Ratio	2nd Repeated SAR-1g (W/kg)	L/S Ratio	3rd Repeated SAR-1g (W/kg)	L/S Ratio
WCDMA II	Rear Face	9262	0.949	0.929	1.02	N/A	N/A	N/A	N/A
WCDMA IV	Rear Face	1312	1.05	1.01	1.04	N/A	N/A	N/A	N/A
LTE 7	Rear Face	21350	0.911	0.899	1.01	N/A	N/A	N/A	N/A

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4.6.7 Simultaneous Multi-band Transmission Evaluation

<SAR Summation Analysis>

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. When the sum of SAR_{1g} of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR_{1g} 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR_{1g} is greater than the SAR limit (SAR_{1g} 1.6 W/kg), SAR test exclusion is determined by the SPLSR.

<Head>

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM850	Right Cheek	0.44	0.13	0.62	0.02	0.57	1.09
	Right Tilted	0.24	0.08	0.58	0.02	0.31	0.84
	Left Cheek	0.34	0.27	0.69	0.07	0.61	1.10
	Left Tilted	0.22	0.15	0.74	0.03	0.38	0.99
GSM1900	Right Cheek	0.09	0.13	0.62	0.02	0.21	0.73
	Right Tilted	0.07	0.08	0.58	0.02	0.15	0.67
	Left Cheek	0.13	0.27	0.69	0.07	0.40	0.90
	Left Tilted	0.11	0.15	0.74	0.03	0.27	0.88
WCDMA II	Right Cheek	0.12	0.13	0.62	0.02	0.25	0.77
	Right Tilted	0.05	0.08	0.58	0.02	0.12	0.65
	Left Cheek	0.09	0.27	0.69	0.07	0.36	0.85
	Left Tilted	0.07	0.15	0.74	0.03	0.22	0.84
WCDMA IV	Right Cheek	0.17	0.13	0.62	0.02	0.30	0.82
	Right Tilted	0.10	0.08	0.58	0.02	0.17	0.70
	Left Cheek	0.12	0.27	0.69	0.07	0.39	0.88
	Left Tilted	0.09	0.15	0.74	0.03	0.24	0.86
WCDMA V	Right Cheek	0.41	0.13	0.62	0.02	0.54	1.06
	Right Tilted	0.31	0.08	0.58	0.02	0.39	0.91
	Left Cheek	0.42	0.27	0.69	0.07	0.69	1.18
	Left Tilted	0.31	0.15	0.74	0.03	0.46	1.08
LTE Band 5	Right Cheek	0.32	0.13	0.62	0.02	0.44	0.96
	Right Tilted	0.34	0.08	0.58	0.02	0.42	0.94
	Left Cheek	0.10	0.27	0.69	0.07	0.36	0.86
	Left Tilted	0.29	0.15	0.74	0.03	0.45	1.06
LTE Band 7	Right Cheek	0.10	0.13	0.62	0.02	0.22	0.74
	Right Tilted	0.04	0.08	0.58	0.02	0.11	0.64
	Left Cheek	0.18	0.27	0.69	0.07	0.45	0.95
	Left Tilted	0.06	0.15	0.74	0.03	0.21	0.83
LTE Band 12	Right Cheek	0.24	0.13	0.62	0.02	0.36	0.88
	Right Tilted	0.18	0.08	0.58	0.02	0.25	0.78

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WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
	Left Cheek	0.02	0.27	0.69	0.07	0.29	0.79
	Left Tilted	0.22	0.15	0.74	0.03	0.37	0.99
LTE Band 13	Right Cheek	0.07	0.13	0.62	0.02	0.20	0.72
	Right Tilted	0.27	0.08	0.58	0.02	0.35	0.87
	Left Cheek	0.36	0.27	0.69	0.07	0.63	1.12
	Left Tilted	0.25	0.15	0.74	0.03	0.41	1.02
LTE Band 14	Right Cheek	0.09	0.13	0.62	0.02	0.21	0.73
	Right Tilted	0.23	0.08	0.58	0.02	0.31	0.83
	Left Cheek	0.33	0.27	0.69	0.07	0.60	1.10
	Left Tilted	0.21	0.15	0.74	0.03	0.37	0.98
LTE Band 25	Right Cheek	0.15	0.13	0.62	0.02	0.28	0.80
	Right Tilted	0.04	0.08	0.58	0.02	0.12	0.64
	Left Cheek	0.10	0.27	0.69	0.07	0.37	0.87
	Left Tilted	0.07	0.15	0.74	0.03	0.23	0.84
LTE Band 26	Right Cheek	0.42	0.13	0.62	0.02	0.54	1.06
	Right Tilted	0.28	0.08	0.58	0.02	0.35	0.88
	Left Cheek	0.08	0.27	0.69	0.07	0.35	0.85
	Left Tilted	0.23	0.15	0.74	0.03	0.38	1.00
LTE Band 30	Right Cheek	0.17	0.13	0.62	0.02	0.29	0.81
	Right Tilted	0.06	0.08	0.58	0.02	0.14	0.66
	Left Cheek	0.32	0.27	0.69	0.07	0.59	1.08
	Left Tilted	0.08	0.15	0.74	0.03	0.24	0.85
LTE Band 41	Right Cheek	0.06	0.13	0.62	0.02	0.19	0.71
	Right Tilted	0.04	0.08	0.58	0.02	0.12	0.64
	Left Cheek	0.17	0.27	0.69	0.07	0.44	0.94
	Left Tilted	0.05	0.15	0.74	0.03	0.20	0.82
LTE Band 66	Right Cheek	0.15	0.13	0.62	0.02	0.28	0.80
	Right Tilted	0.08	0.08	0.58	0.02	0.16	0.68
	Left Cheek	0.12	0.27	0.69	0.07	0.39	0.88
	Left Tilted	0.09	0.15	0.74	0.03	0.24	0.86
LTE Band 71	Right Cheek	0.35	0.13	0.62	0.02	0.48	1.00
	Right Tilted	0.20	0.08	0.58	0.02	0.27	0.80
	Left Cheek	0.31	0.27	0.69	0.07	0.57	1.07
	Left Tilted	0.18	0.15	0.74	0.03	0.34	0.95

FCC SAR Test Report

<Body Worn>

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM850	Front	0.20	0.05	0.36	0.02	0.26	0.59
	Back	0.57	0.07	0.75	0.01	0.65	1.34
GSM1900	Front	0.68	0.05	0.36	0.02	0.73	1.06
	Back	0.70	0.07	0.75	0.01	0.77	1.47
WCDMA II	Front	0.62	0.05	0.36	0.02	0.68	1.01
	Back	1.06	0.07	0.75	0.01	1.13	1.83
WCDMA IV	Front	0.46	0.05	0.36	0.02	0.52	0.85
	Back	1.09	0.07	0.75	0.01	1.17	1.86
WCDMA V	Front	0.35	0.05	0.36	0.02	0.40	0.74
	Back	0.48	0.07	0.75	0.01	0.55	1.24
LTE Band 5	Front	0.33	0.05	0.36	0.02	0.38	0.71
	Back	0.18	0.07	0.75	0.01	0.26	0.95
LTE Band 7	Front	0.97	0.05	0.36	0.02	1.03	1.36
	Back	1.02	0.07	0.75	0.01	1.10	1.79
LTE Band 12	Front	0.28	0.05	0.36	0.02	0.33	0.67
	Back	0.07	0.07	0.75	0.01	0.14	0.84
LTE Band 13	Front	0.25	0.05	0.36	0.02	0.30	0.63
	Back	0.16	0.07	0.75	0.01	0.24	0.93
LTE Band 14	Front	0.26	0.05	0.36	0.02	0.31	0.64
	Back	0.27	0.07	0.75	0.01	0.34	1.04
LTE Band 25	Front	0.64	0.05	0.36	0.02	0.69	1.02
	Back	0.95	0.07	0.75	0.01	1.03	1.72
LTE Band 26	Front	0.30	0.05	0.36	0.02	0.35	0.68
	Back	0.21	0.07	0.75	0.01	0.29	0.98
LTE Band 30	Front	0.82	0.05	0.36	0.02	0.87	1.20
	Back	0.91	0.07	0.75	0.01	0.99	1.68
LTE Band 41	Front	0.57	0.05	0.36	0.02	0.62	0.95
	Back	0.77	0.07	0.75	0.01	0.84	1.54
LTE Band 66	Front	0.43	0.05	0.36	0.02	0.48	0.81
	Back	0.96	0.07	0.75	0.01	1.03	1.73
LTE Band 71	Front	0.29	0.05	0.36	0.02	0.34	0.67
	Back	0.52	0.07	0.75	0.01	0.59	1.29

FCC SAR Test Report

<Hotspot>

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM850	Front	0.20	0.05	0.31	0.02	0.26	0.53
	Back	0.57	0.07	0.71	0.01	0.65	1.30
	Left side	0.16				0.16	0.16
	Right side	0.30	0.07	0.76	0.02	0.36	1.08
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.26				0.26	0.26
GSM1900	Front	0.68	0.05	0.31	0.02	0.73	1.01
	Back	0.70	0.07	0.71	0.01	0.77	1.43
	Left side	0.09				0.09	0.09
	Right side	0.16	0.07	0.76	0.02	0.23	0.95
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.71				0.71	0.71
WCDMA II	Front	0.62	0.05	0.31	0.02	0.68	0.95
	Back	1.06	0.07	0.71	0.01	1.13	1.78
	Left side	0.07				0.07	0.07
	Right side	0.12	0.07	0.76	0.02	0.18	0.90
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.72				0.72	0.72
WCDMA IV	Front	0.46	0.05	0.31	0.02	0.52	0.79
	Back	1.09	0.07	0.71	0.01	1.17	1.82
	Left side	0.06				0.06	0.06
	Right side	0.12	0.07	0.76	0.02	0.19	0.91
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.64				0.64	0.64
WCDMA V	Front	0.35	0.05	0.31	0.02	0.40	0.68
	Back	0.48	0.07	0.71	0.01	0.55	1.20
	Left side	0.22				0.22	0.22
	Right side	0.34	0.07	0.76	0.02	0.41	1.13
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.37				0.37	0.37
LTE Band 5	Front	0.33	0.05	0.31	0.02	0.38	0.65
	Back	0.18	0.07	0.71	0.01	0.26	0.91
	Left side	0.20				0.20	0.20
	Right side	0.35	0.07	0.76	0.02	0.41	1.13
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.33				0.33	0.33
LTE Band 7	Front	0.97	0.05	0.31	0.02	1.03	1.30
	Back	1.02	0.07	0.71	0.01	1.10	1.75

FCC SAR Test Report

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
	Left side	0.25				0.25	0.25
	Right side	0.17	0.07	0.76	0.02	0.24	0.96
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	1.02				1.02	1.02
LTE Band 12	Front	0.28	0.05	0.31	0.02	0.33	0.61
	Back	0.07	0.07	0.71	0.01	0.14	0.79
	Left side	0.28				0.28	0.28
	Right side	0.43	0.07	0.76	0.02	0.50	1.22
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.14				0.14	0.14
LTE Band 13	Front	0.25	0.05	0.31	0.02	0.30	0.58
	Back	0.16	0.07	0.71	0.01	0.24	0.89
	Left side	0.15				0.15	0.15
	Right side	0.32	0.07	0.76	0.02	0.38	1.10
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.27				0.27	0.27
LTE Band 14	Front	0.26	0.05	0.31	0.02	0.31	0.58
	Back	0.27	0.07	0.71	0.01	0.34	0.99
	Left side	0.14				0.14	0.14
	Right side	0.29	0.07	0.76	0.02	0.36	1.08
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.20				0.20	0.20
LTE Band 25	Front	0.64	0.05	0.31	0.02	0.69	0.96
	Back	0.95	0.07	0.71	0.01	1.03	1.68
	Left side	0.07				0.07	0.07
	Right side	0.12	0.07	0.76	0.02	0.19	0.91
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.77				0.77	0.77
LTE Band 26	Front	0.30	0.05	0.31	0.02	0.35	0.63
	Back	0.21	0.07	0.71	0.01	0.29	0.94
	Left side	0.29				0.29	0.29
	Right side	0.40	0.07	0.76	0.02	0.47	1.19
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.31				0.31	0.31
LTE Band 30	Front	0.82	0.05	0.31	0.02	0.87	1.15
	Back	0.91	0.07	0.71	0.01	0.99	1.64
	Left side	0.21				0.21	0.21
	Right side	0.12	0.07	0.76	0.02	0.19	0.91
	Top side		0.04	0.15	0.01	0.04	0.16

FCC SAR Test Report

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
	Bottom side	1.00				1.00	1.00
LTE Band 41	Front	0.57	0.05	0.31	0.02	0.62	0.89
	Back	0.77	0.07	0.71	0.01	0.84	1.50
	Left side	0.17				0.17	0.17
	Right side	0.09	0.07	0.76	0.02	0.15	0.87
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.74				0.74	0.74
LTE Band 66	Front	0.43	0.05	0.31	0.02	0.48	0.75
	Back	0.96	0.07	0.71	0.01	1.03	1.69
	Left side	0.19				0.19	0.19
	Right side	0.09	0.07	0.76	0.02	0.16	0.88
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.61				0.61	0.61
LTE Band 71	Front	0.29	0.05	0.31	0.02	0.34	0.62
	Back	0.52	0.07	0.71	0.01	0.59	1.25
	Left side	0.13				0.13	0.13
	Right side	0.29	0.07	0.76	0.02	0.35	1.07
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.16				0.16	0.16

<Extremity>

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 1	5GHz WLAN Ant 1	Bluetooth Ant 1		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
LTE Band 7	Front Face			0.54		0.00	0.54
	Rear Face			1.03		0.00	1.03
	Right Side			1.67		0.00	1.67
	Top Side			0.23		0.00	0.23
	Bottom Side	1.97				1.97	1.97

Note: Except for verified data, all of the data use for the Simultaneous Transmission analysis on this report was copied from the original report (W7L-P21040030SA02, FCC ID: HD5-CT45L1NG).

<SAR to Peak Location Separation Ratio Analysis>

The simultaneous transmitting antennas in each operating mode and exposure condition combination are considered one pair at a time to determine the SPLSR. When SAR is measured for both antennas in the pair, the peak location separation distance is computed by the following formula.

$$\text{Peak Location Separation Distance} = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2}$$

Where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the area or zoom scans.

When standalone test exclusion applies, SAR is estimated; the peak location is assumed to be at the feed-point or geometric center of the antenna. Due to curvatures on the SAM phantom, when SAR is estimated for one of the antennas in an antenna pair, the measured peak SAR location will be translated onto the test device to determine the peak location separation for the antenna pair.

The SPLSR is determined by the following formula.

$$\text{SPLSR} = \frac{(\text{SAR}_1 + \text{SAR}_2)^{1.5}}{R_i}$$

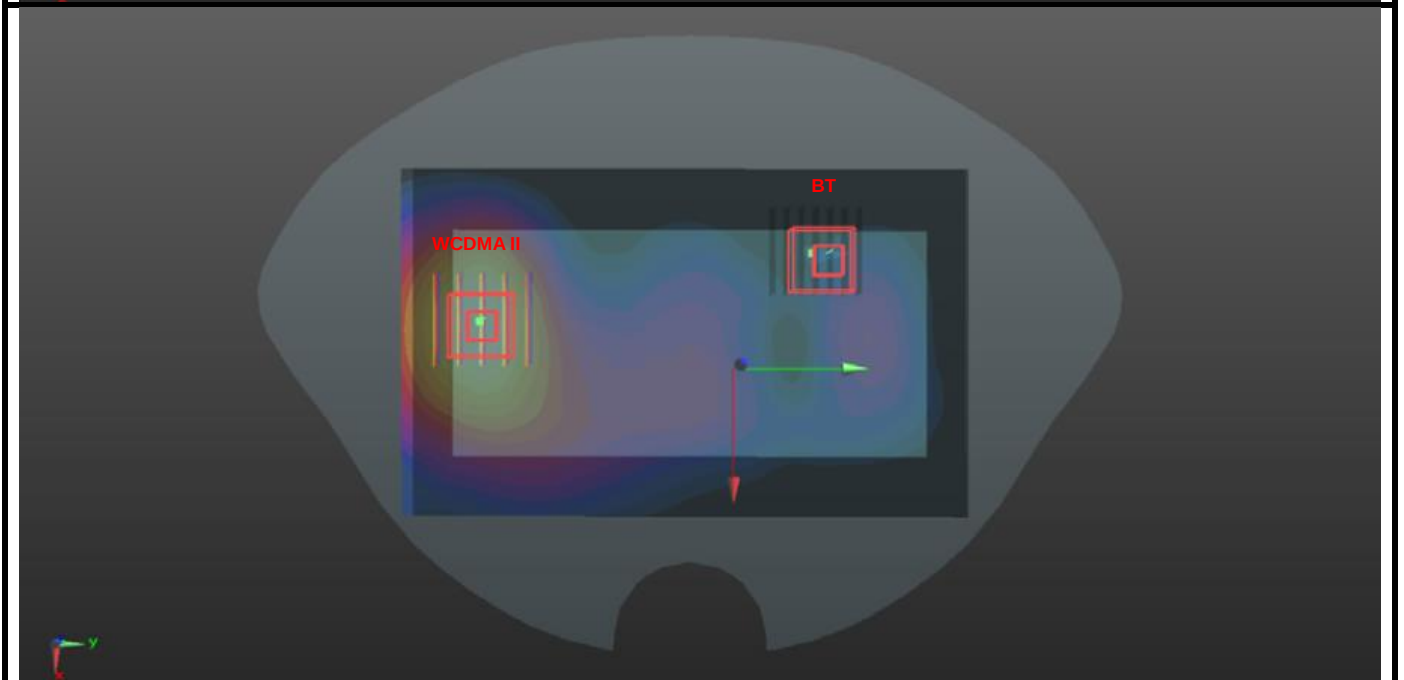
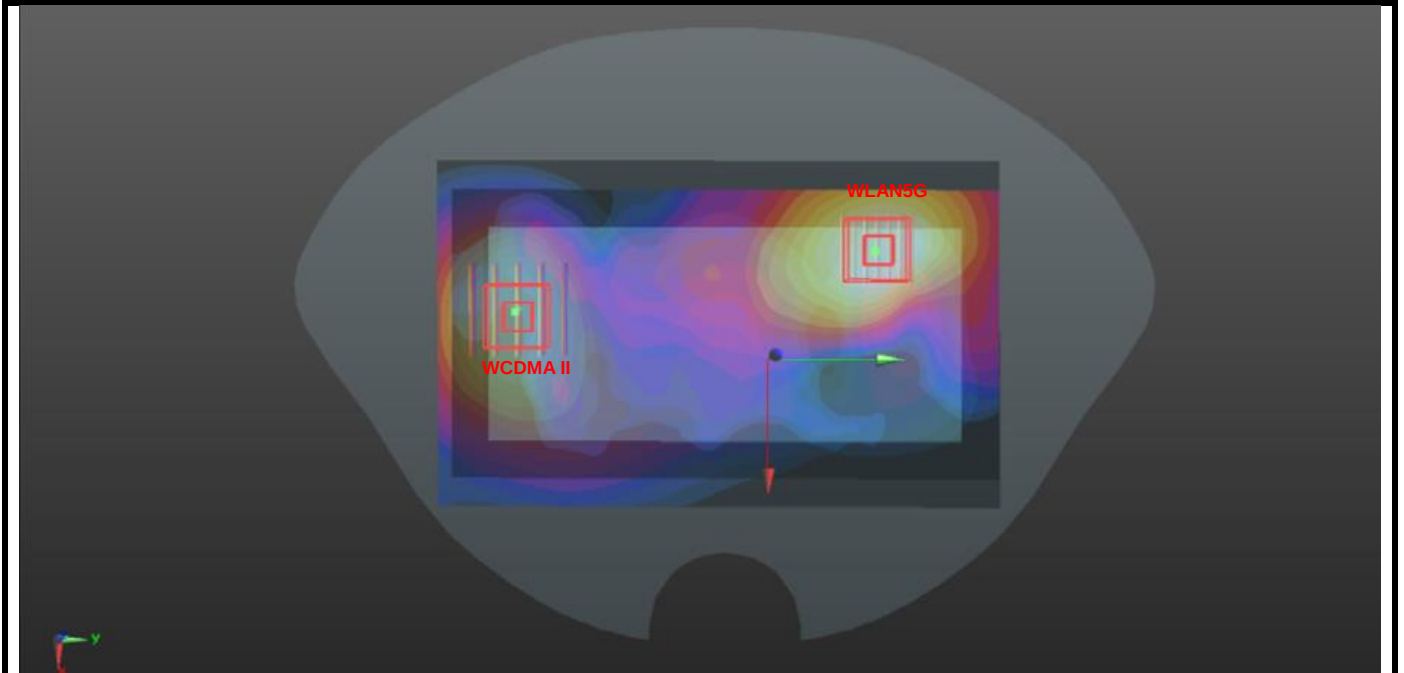
Where SAR_1 and SAR_2 are the highest reported or estimated SAR for each antenna in the pair, and R_i is the separation distance between the peak SAR locations for the antenna pair in mm.

When the SPLSR is ≤ 0.04 , the simultaneous transmission SAR is not required. Otherwise, the enlarged zoom scan and volume scan post-processing procedures will be performed.

FCC SAR Test Report

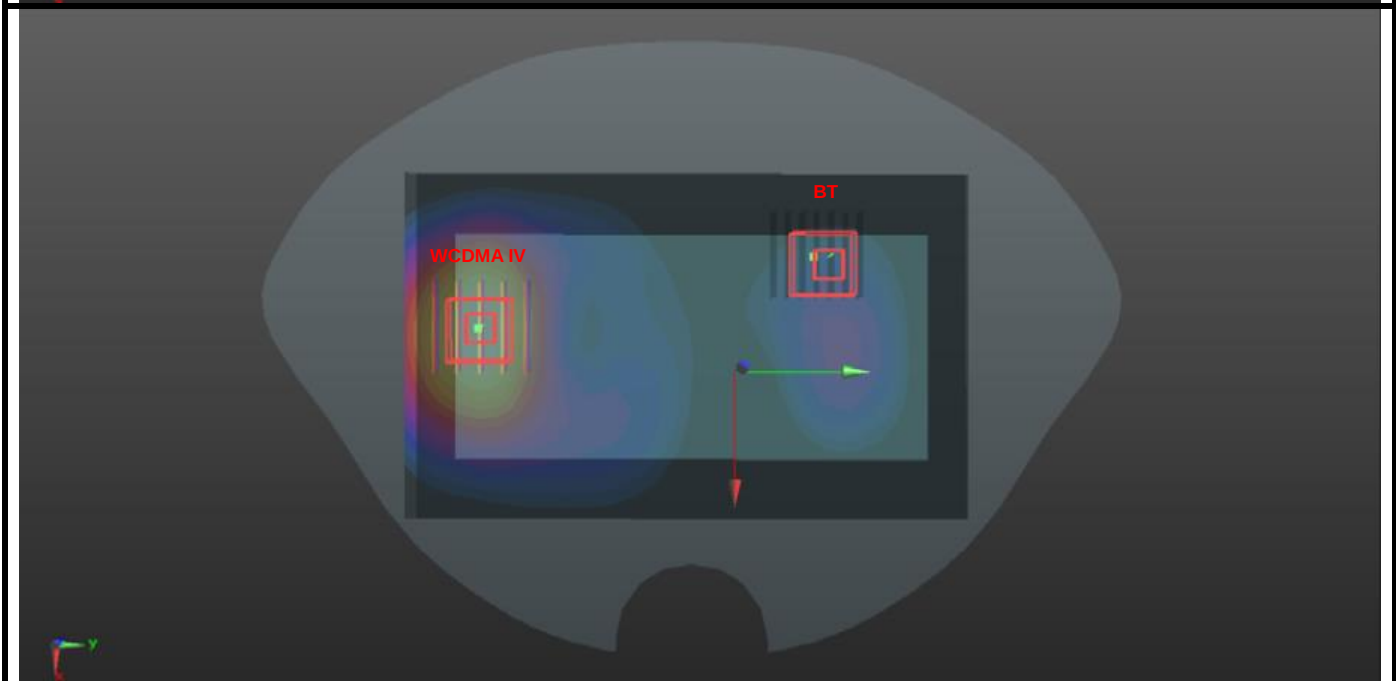
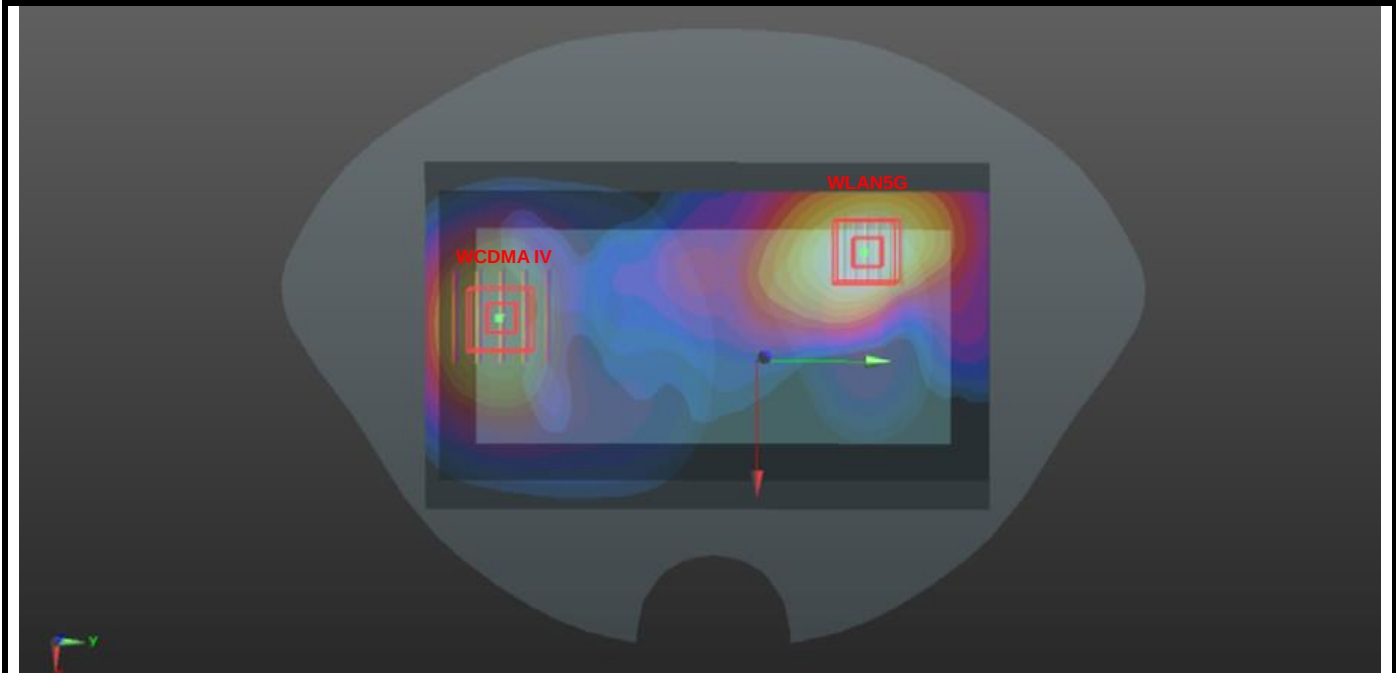
< Body worn>

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
WCDMA II	Rear Face	1.06	10	-0.0245	-0.073	-0.203	127.0	1.81	0.02	Not required
WLAN5G		0.75	10	-0.046	0.052	-0.21				
WCDMA II	Rear Face	1.06	10	-0.0245	-0.073	-0.203	122.3	1.07	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



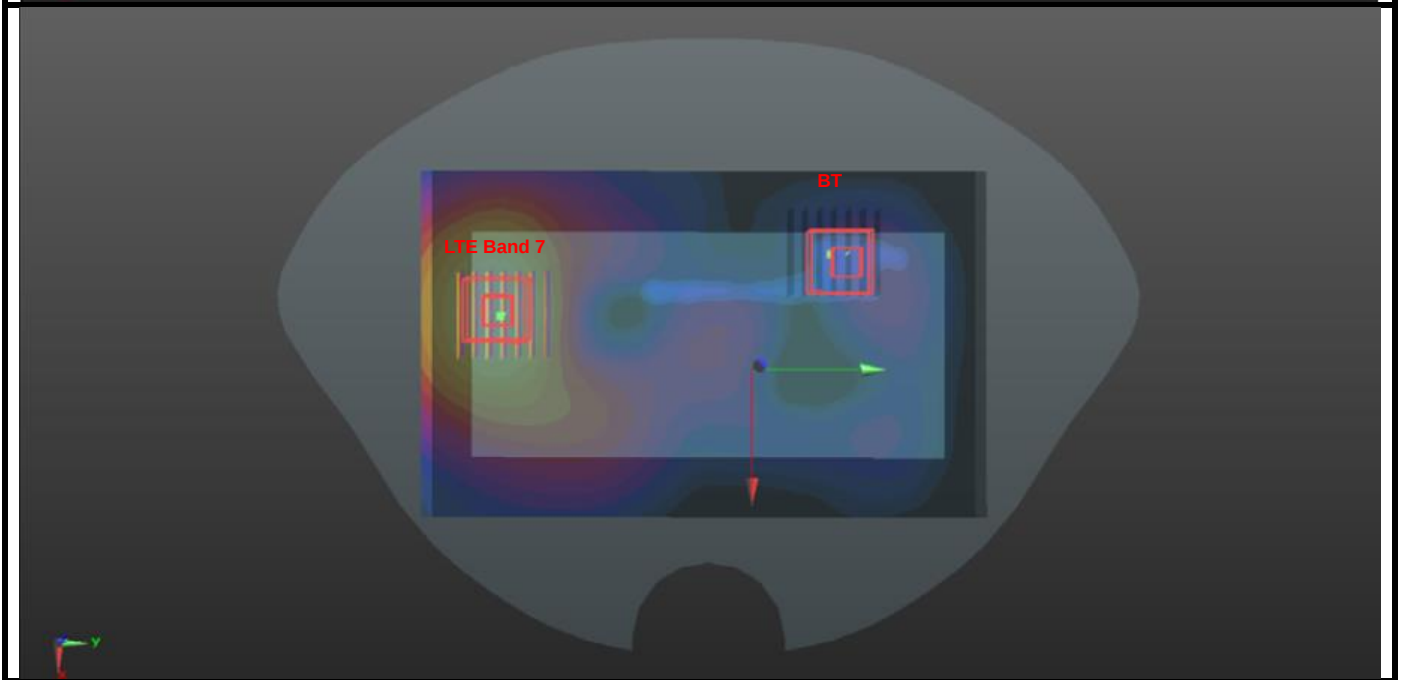
FCC SAR Test Report

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
WCDMA IV	Rear Face	1.09	10	-0.023	-0.0745	-0.203	128.8	1.85	0.02	Not required
WLAN5G		0.75	10	-0.046	0.052	-0.21				
WCDMA IV	Rear Face	1.09	10	-0.023	-0.0745	-0.203	124.1	1.11	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



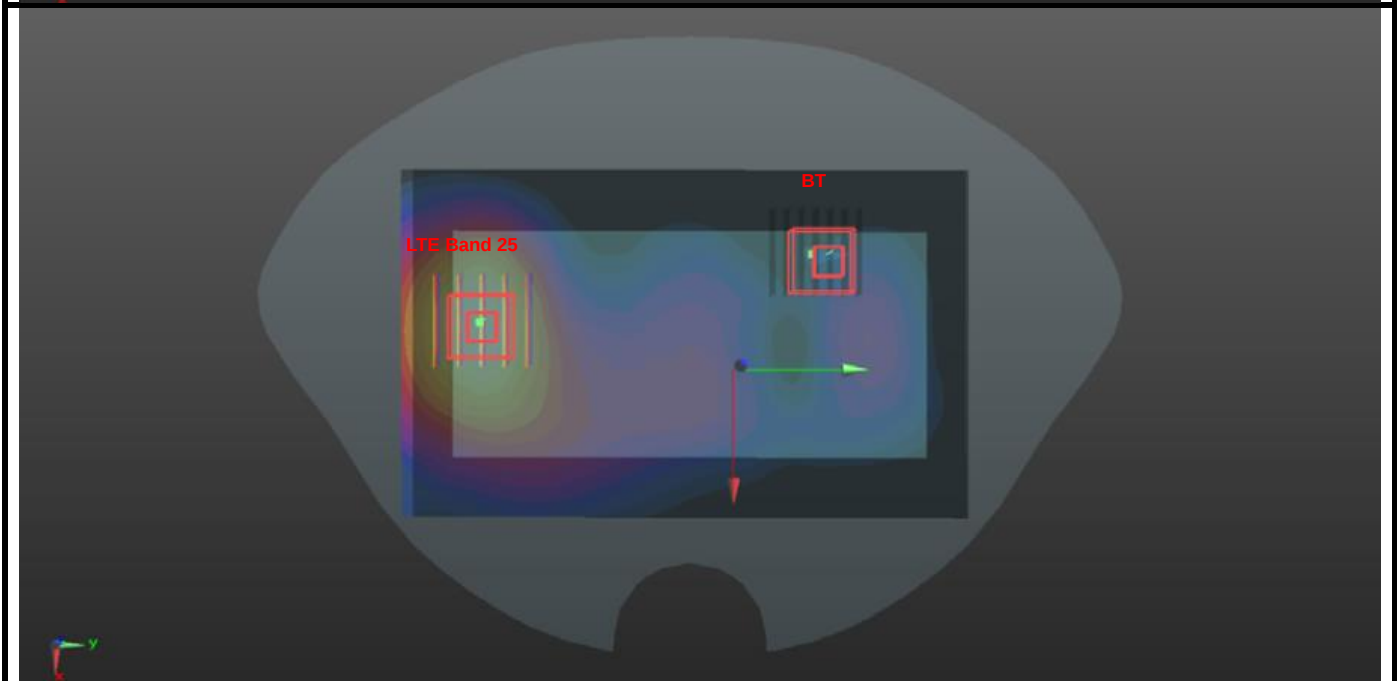
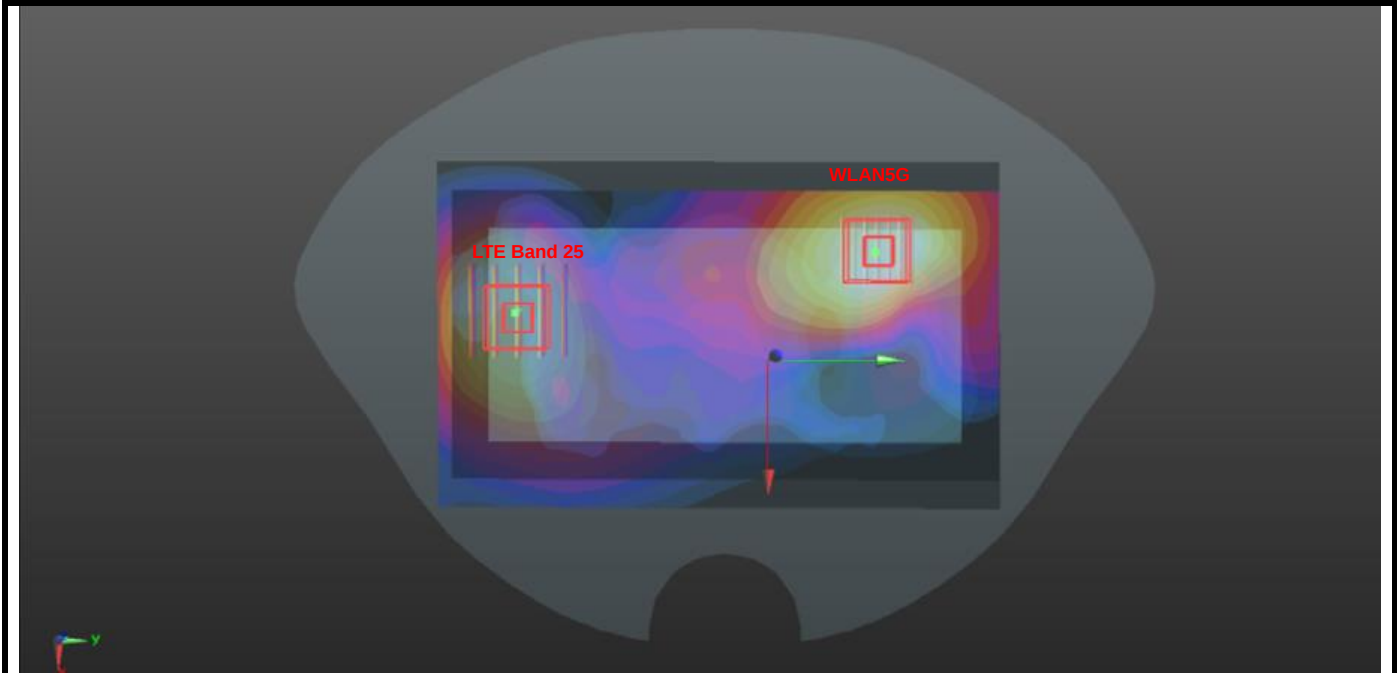
FCC SAR Test Report

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE Band 7	Rear Face	1.02	10	-0.0266	-0.0724	-0.203	126.1	1.78	0.02	Not required
WLAN5G		0.75	10	-0.046	0.052	-0.21				
LTE Band 7	Rear Face	1.02	10	-0.0266	-0.0724	-0.203	121.3	1.04	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



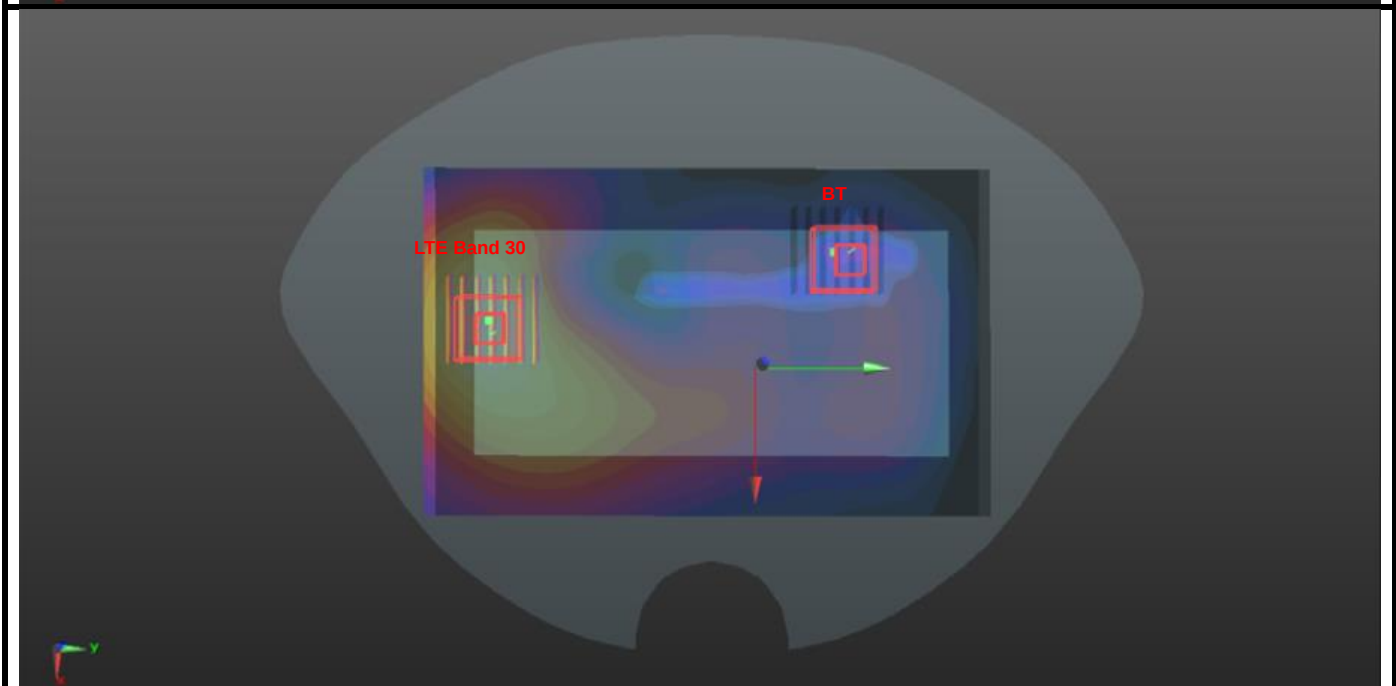
FCC SAR Test Report

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE Band 25	Rear Face	0.95	10	-0.0335	-0.0745	-0.203	127.3	1.71	0.02	Not required
WLAN5G		0.75	10	-0.046	0.052	-0.21				
LTE Band 25	Rear Face	0.95	10	-0.0335	-0.0745	-0.203	122.4	0.97	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



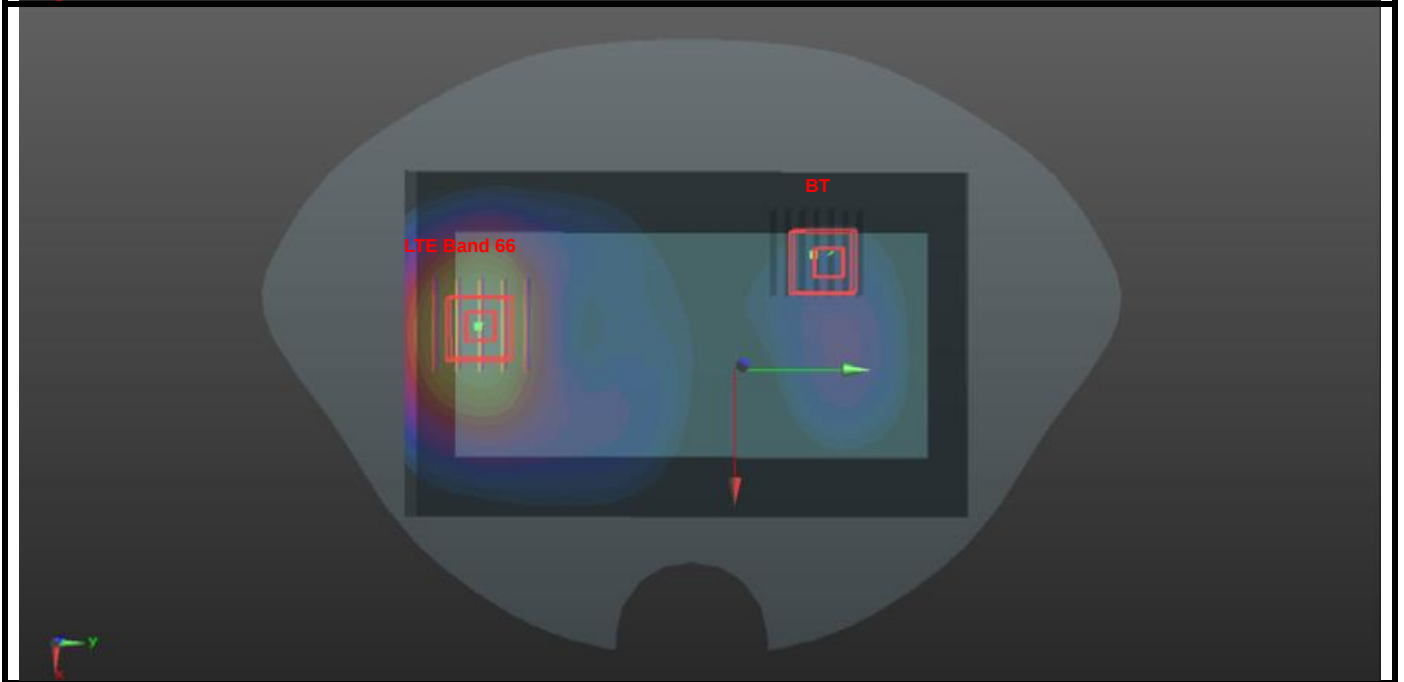
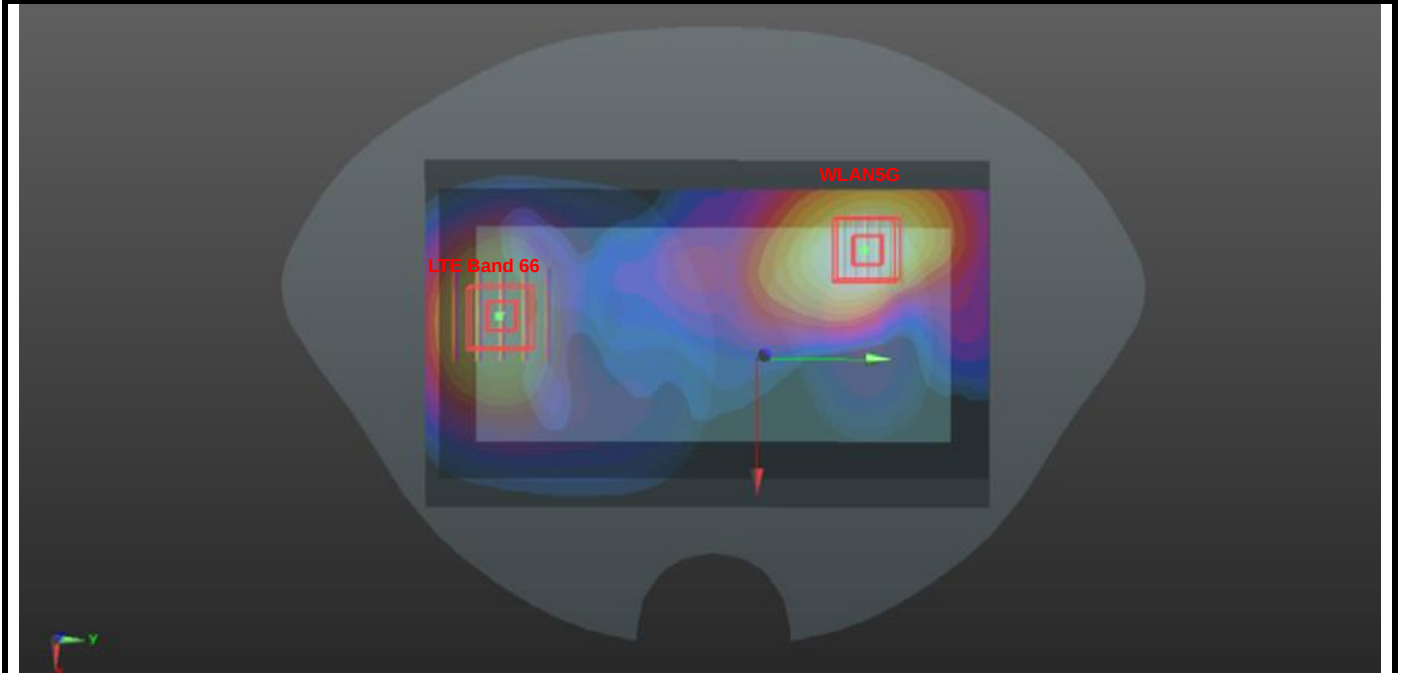
FCC SAR Test Report

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE Band 30	Rear Face	0.91	10	-0.0192	-0.0772	-0.203	132.1	1.67	0.02	Not required
WLAN5G		0.75	10	-0.046	0.052	-0.21				
LTE Band 30	Rear Face	0.91	10	-0.0192	-0.0772	-0.203	127.5	0.93	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



FCC SAR Test Report

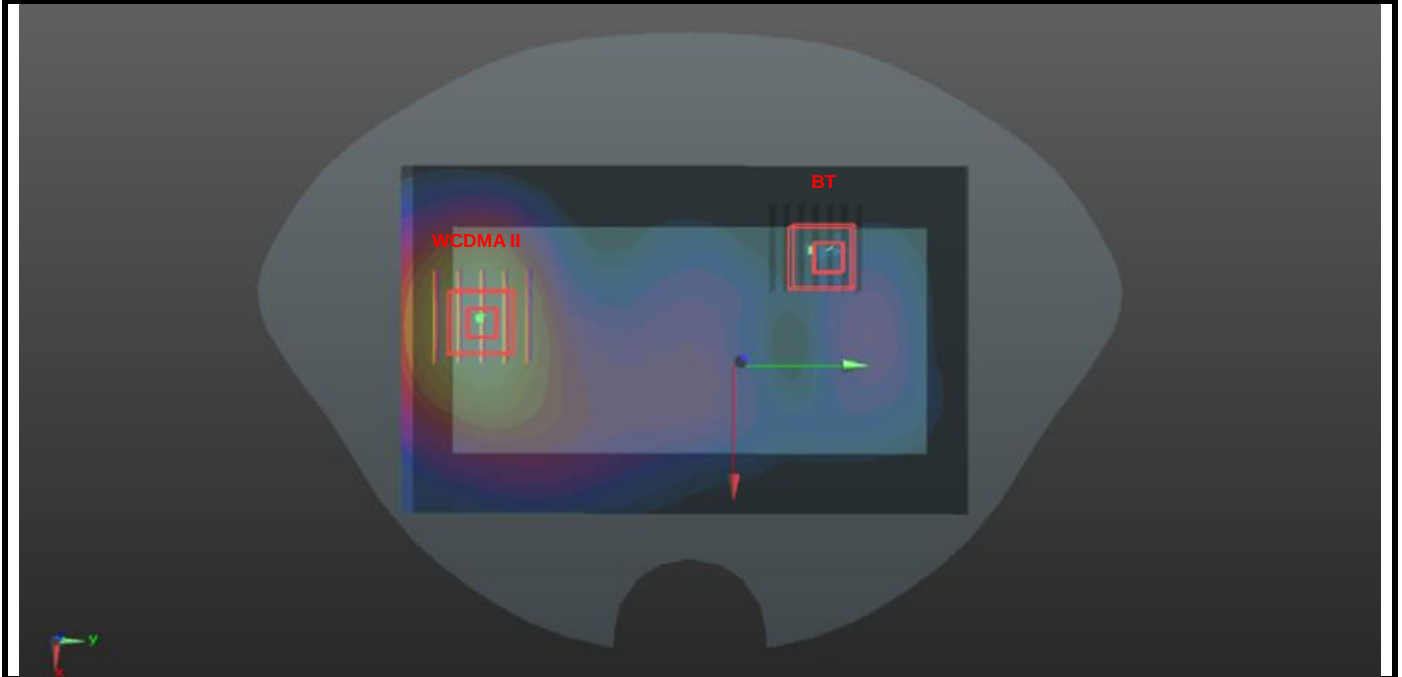
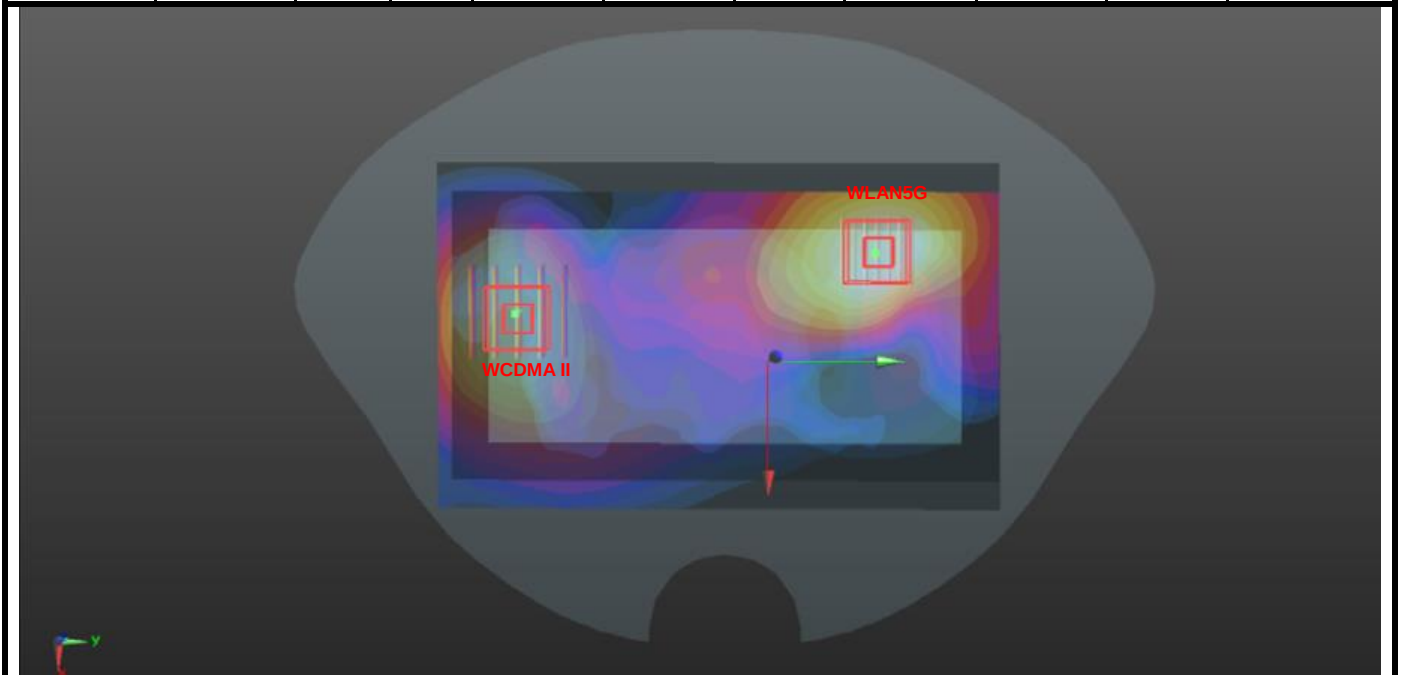
Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE Band 66	Rear Face	0.96	10	-0.0275	-0.0745	-0.203	128.0	1.71	0.02	Not required
WLAN5G		0.75	10	-0.046	0.052	-0.21				
LTE Band 66	Rear Face	0.96	10	-0.0275	-0.0745	-0.203	123.3	0.97	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



FCC SAR Test Report

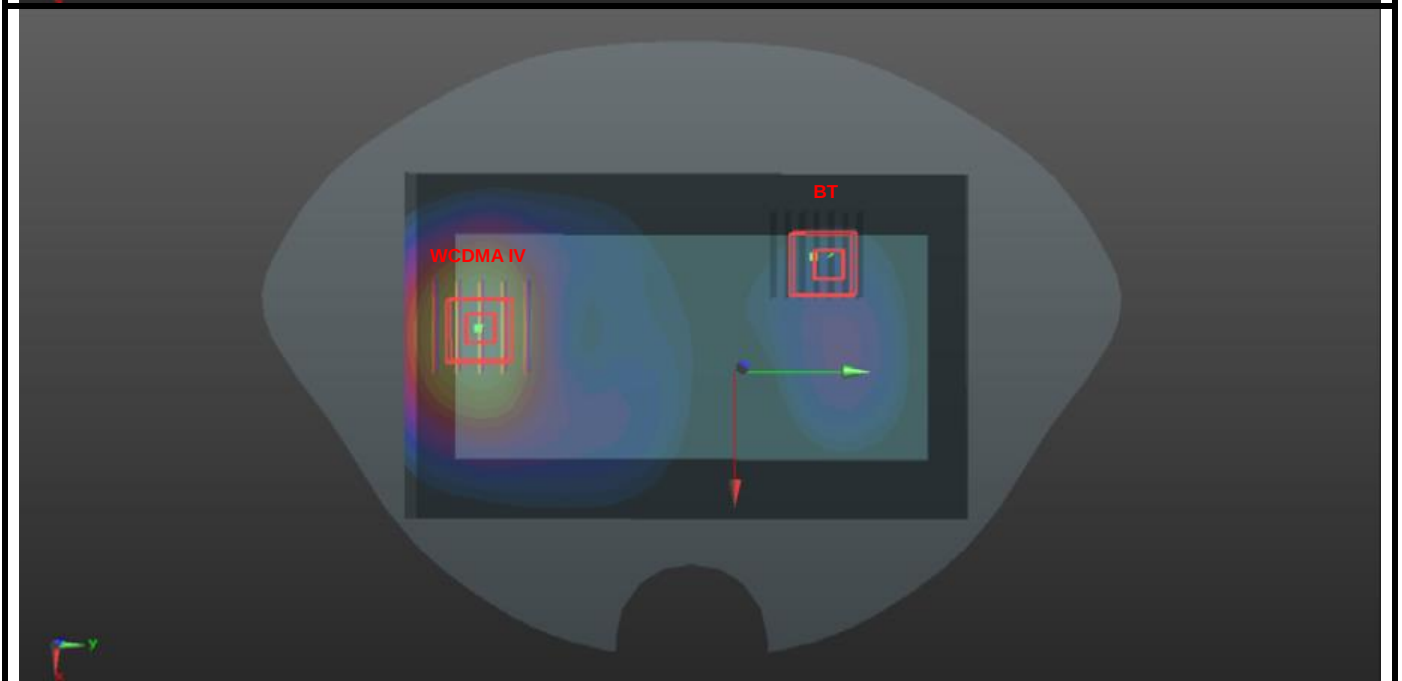
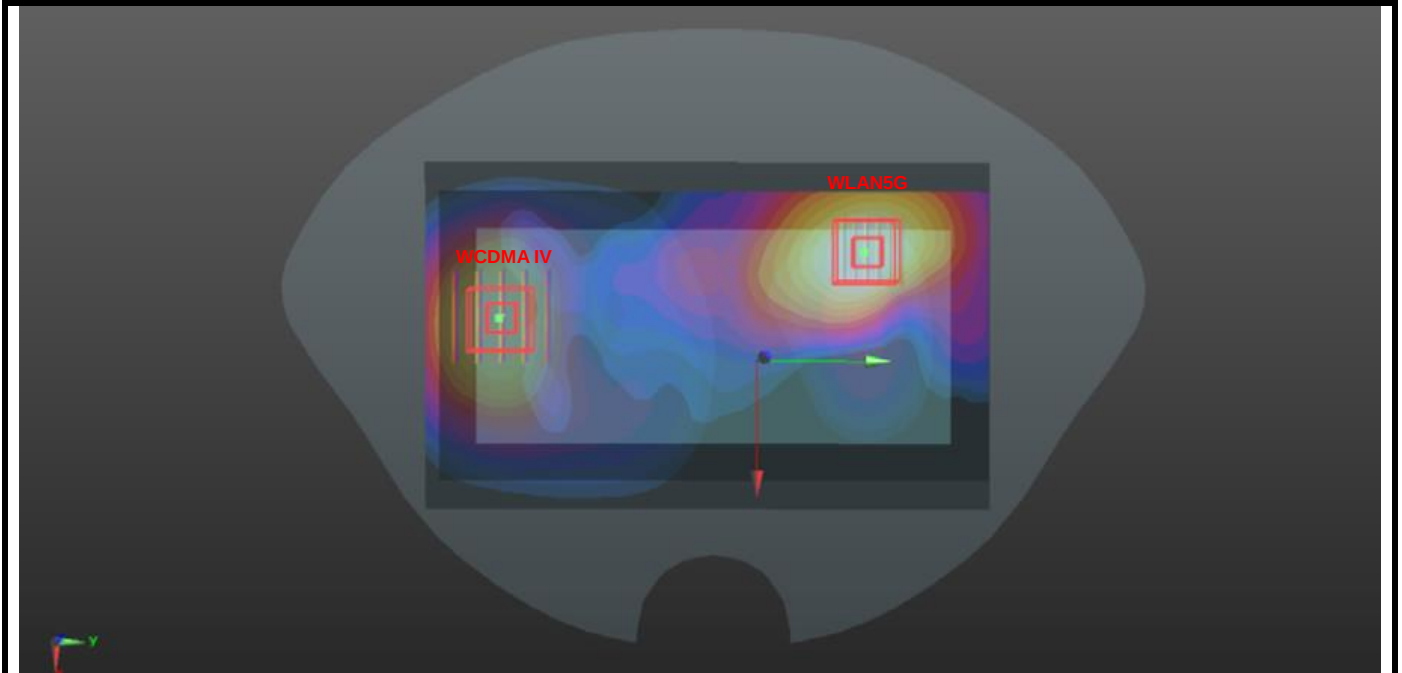
< Hotspot>

Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
WCDMA II	Rear Face	1.06	10	-0.0245	-0.073	-0.203	127.0	1.77	0.02	Not required
WLAN5G		0.71	10	-0.046	0.052	-0.21				
WCDMA II	Rear Face	1.06	10	-0.0245	-0.073	-0.203	122.3	1.07	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



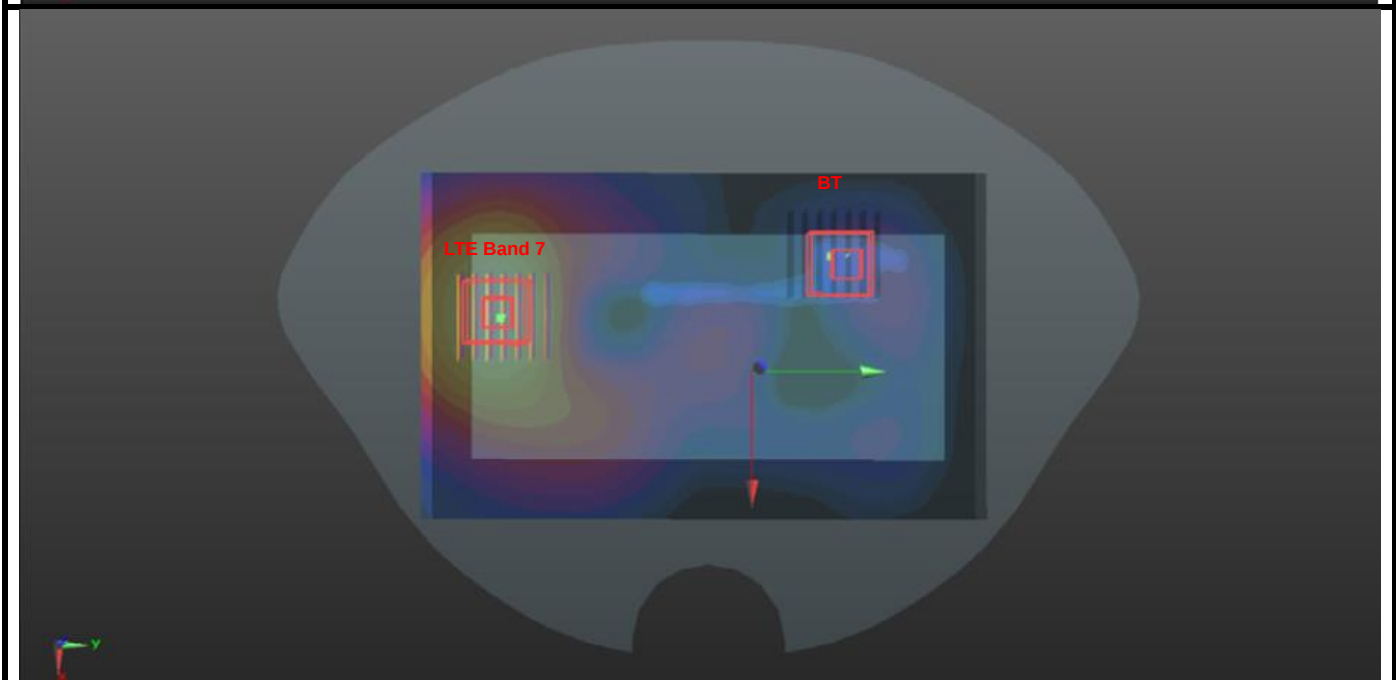
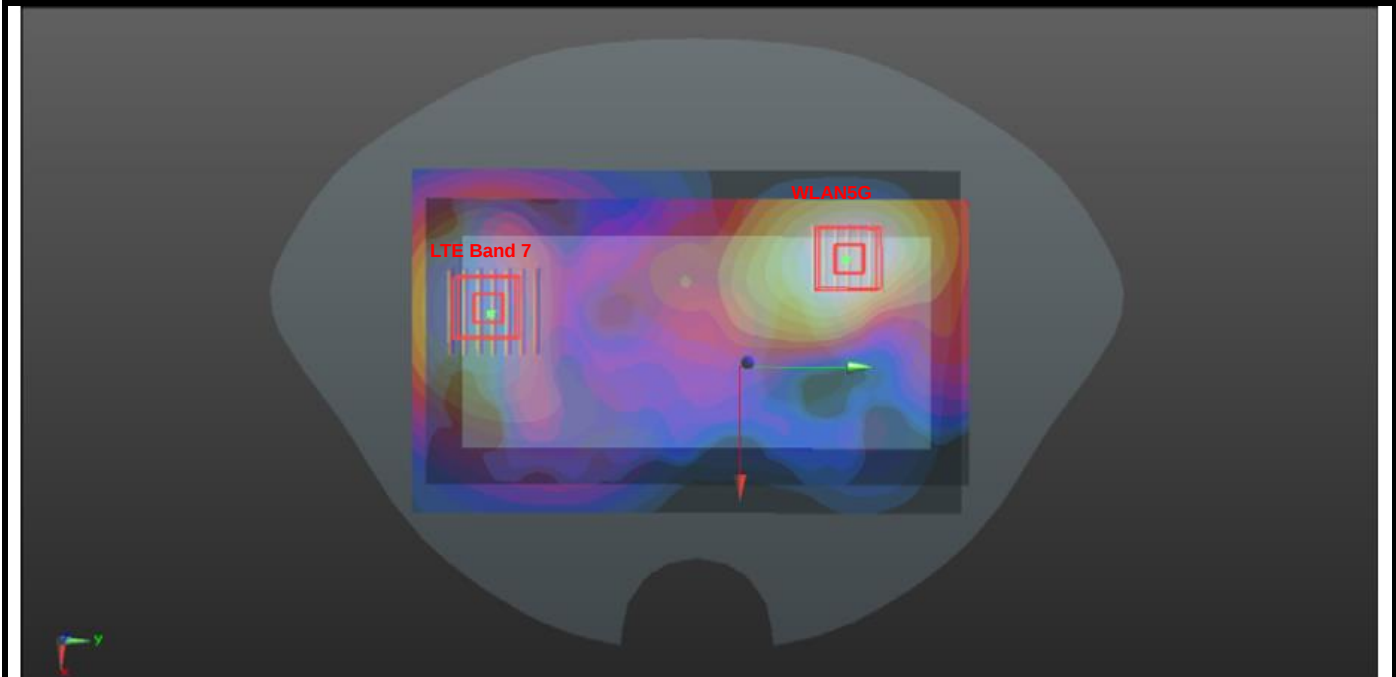
FCC SAR Test Report

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
WCDMA IV	Rear Face	1.09	10	-0.023	-0.0745	-0.203	128.8	1.80	0.02	Not required
WLAN5G		0.71	10	-0.046	0.052	-0.21				
WCDMA IV	Rear Face	1.09	10	-0.023	-0.0745	-0.203	124.1	1.11	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



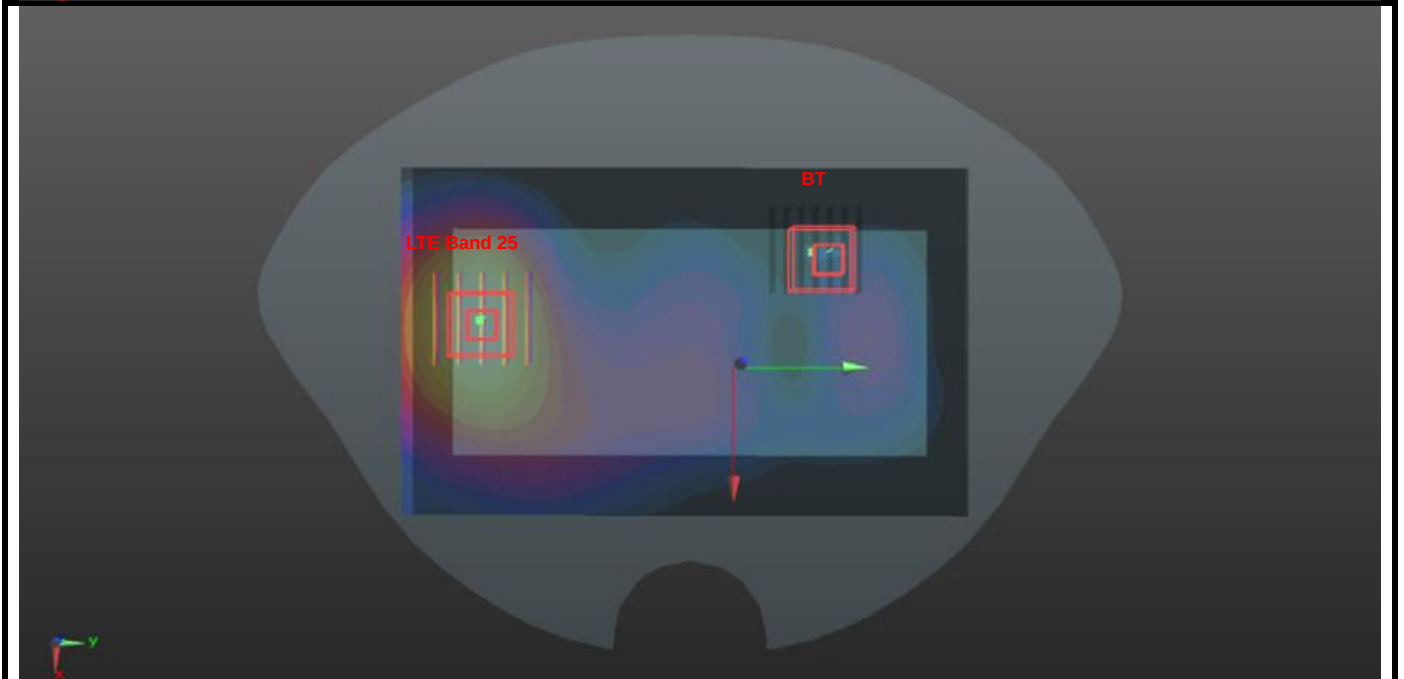
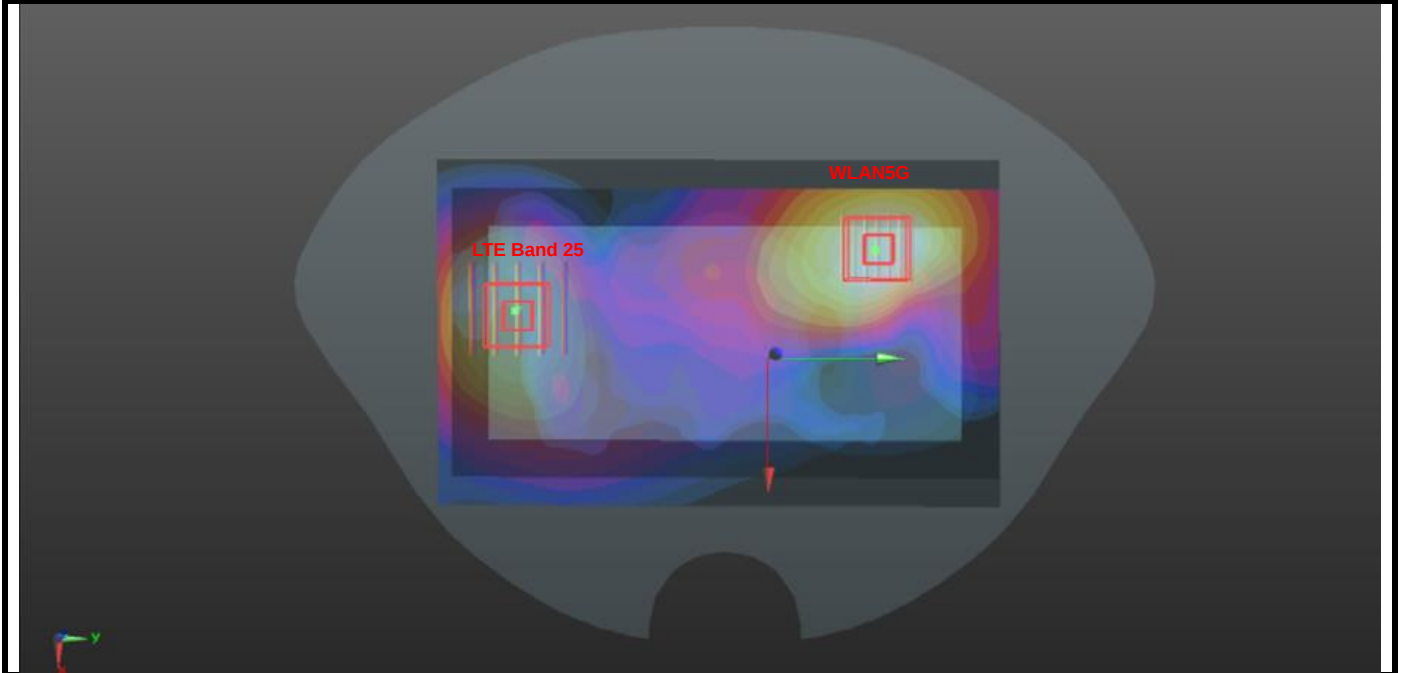
FCC SAR Test Report

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE Band 7	Rear Face	1.02	10	-0.0266	-0.0724	-0.203	126.1	1.73	0.02	Not required
WLAN5G		0.71	10	-0.046	0.052	-0.21				
LTE Band 7	Rear Face	1.02	10	-0.0266	-0.0724	-0.203	121.3	1.04	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



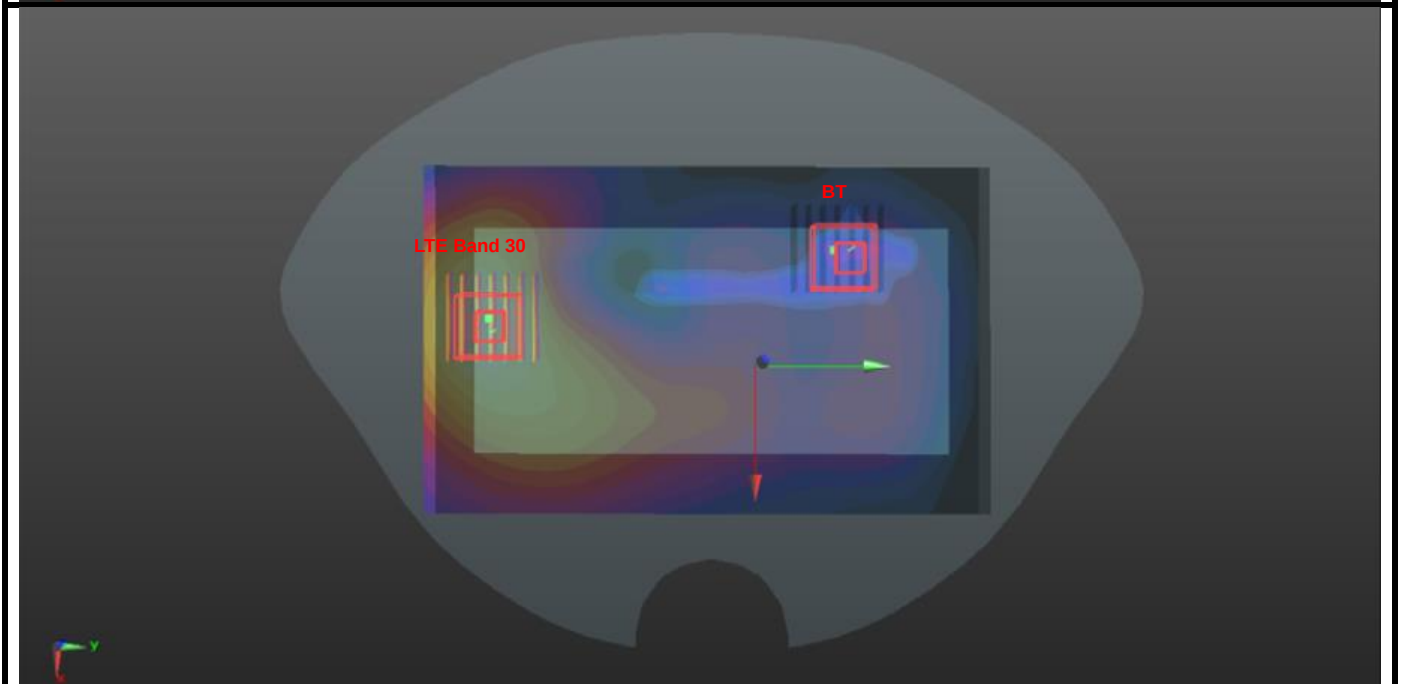
FCC SAR Test Report

Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
LTE Band 25	Rear Face	0.95	10	-0.0335	-0.0745	-0.203	127.3	1.66	0.02	Not required
WLAN5G		0.71	10	-0.046	0.052	-0.21				
LTE Band 25	Rear Face	0.95	10	-0.0335	-0.0745	-0.203	122.4	0.97	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



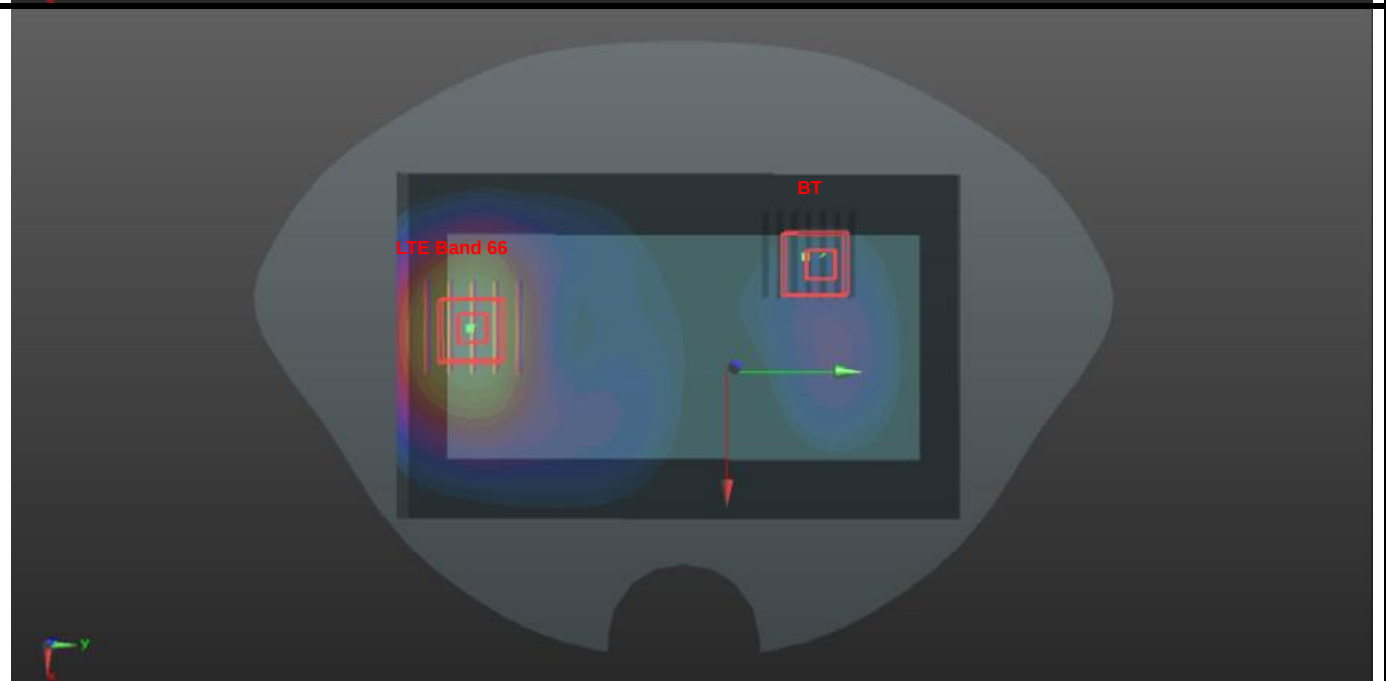
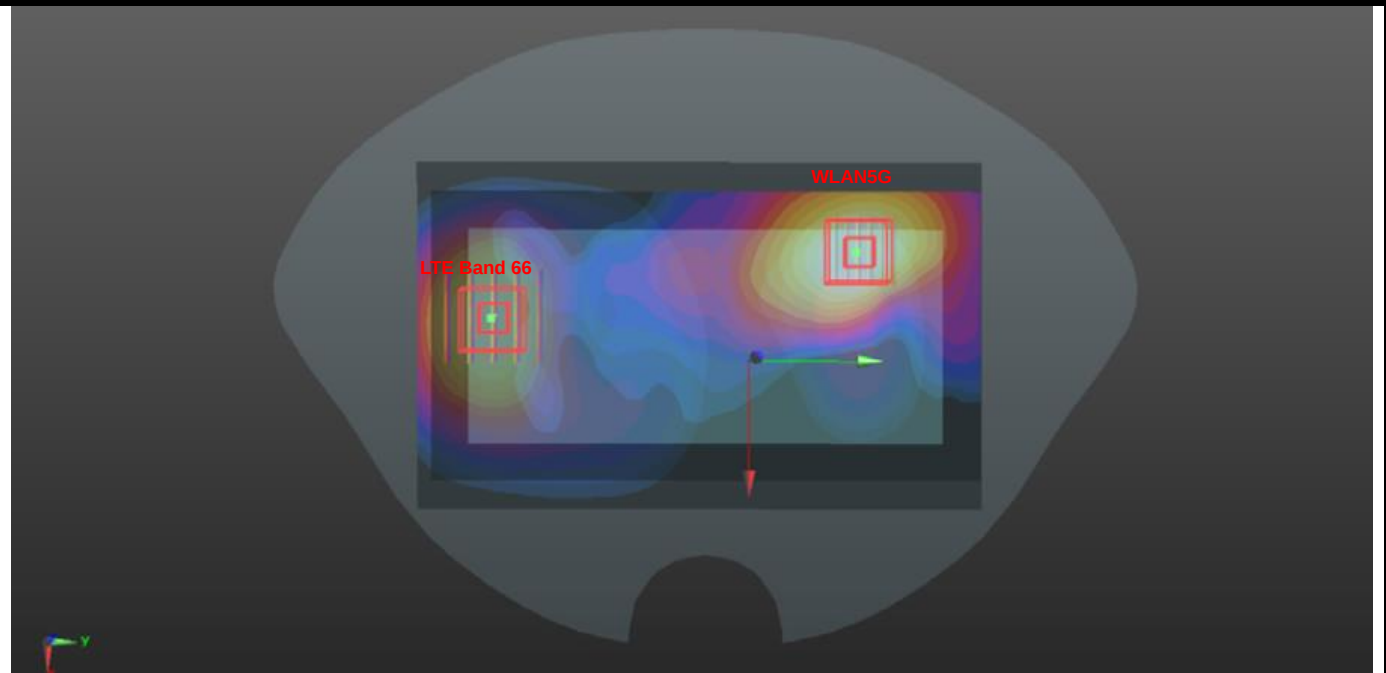
FCC SAR Test Report

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE Band 30	Rear Face	0.91	10	-0.0192	-0.0772	-0.203	132.1	1.62	0.02	Not required
WLAN5G		0.71	10	-0.046	0.052	-0.21				
LTE Band 30	Rear Face	0.91	10	-0.0192	-0.0772	-0.203	127.5	0.93	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



FCC SAR Test Report

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE Band 66	Rear Face	0.96	10	-0.0275	-0.0745	-0.203	128.0	1.67	0.02	Not required
WLAN5G		0.71	10	-0.046	0.052	-0.21				
LTE Band 66	Rear Face	0.96	10	-0.0275	-0.0745	-0.203	123.3	0.97	0.01	Not required
BT		0.01	10	-0.0482	0.047	-0.203				



Test Engineer : Rikou Lu, and Dennis Ye

5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D750V3	1067	Sep. 16, 2021	1 Year
System Validation Dipole	SPEAG	D835V2	4d139	Sep. 17, 2021	1 Year
System Validation Dipole	SPEAG	D1750V2	1071	Sep. 18, 2021	1 Year
System Validation Dipole	SPEAG	D1900V2	5d159	Sep. 16, 2021	1 Year
System Validation Dipole	SPEAG	D2300V2	1053	Sep. 22, 2021	1 Year
System Validation Dipole	SPEAG	D2450V2	893	Sep. 18, 2021	1 Year
System Validation Dipole	SPEAG	D2600V2	1110	Sep. 16, 2021	1 Year
System Validation Dipole	SPEAG	D5GHzV2	1133	Sep. 14, 2021	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1288	Aug. 20, 2021	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1389	Oct. 26, 2021	1 Year
Dosimetric E-Field Probe	SPEAG	ES3DV3	3268	Aug. 24, 2021	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3873	Aug. 25, 2021	1 Year
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 25, 2021	1 Year
Wireless Communication Test Set	Agilent	E5515C	MY50260600	Jun. 02, 2021	1 Year
ENA Series Network Analyzer	Agilent	E5071C	MY46214638	Jun. 03, 2021	1 Year
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510355	Jun. 03, 2021	1 Year
MXG Analog Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 09, 2021	1 Year
Power Meter	Agilent	N1914A	MY52180044	Mar. 02, 2021	1 Year
Power Sensor	Agilent	E9304A H18	MY52050011	Feb. 25, 2021	1 Year
Power Meter	ANRITSU	ML2495A	1506002	Apr. 07, 2021	1 Year
Power Sensor	ANRITSU	MA2411B	1339353	May. 07, 2021	1 Year
Temp. & Humi. Recorder	CLOCK	HTC-1	157248	Jun. 02, 2021	1 Year
Electronic Thermometer	YONGFA	YF-160A	120100323	Jun. 02, 2021	1 Year
Coupler	Woken	0110A056020-10	COM27RW1A3	Jun. 02, 2021	1 Year

6. Measurement Uncertainty

DASY5 Uncertainty Budget								
Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)	(Vi) Veff
Measurement System								
Probe Calibration	6.0	N	1	1	1	6.0	6.0	∞
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9	∞
Boundary Effects	1.0	R	1.732	1	1	0.6	0.6	∞
Linearity	4.7	R	1.732	1	1	2.7	2.7	∞
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6	∞
Modulation Response	3.2	R	1.732	1	1	1.8	1.8	∞
Readout Electronics	0.3	N	1	1	1	0.3	0.3	∞
Response Time	0.0	R	1.732	1	1	0.0	0.0	∞
Integration Time	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7	∞
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7	∞
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2	∞
Probe Positioning	2.9	R	1.732	1	1	1.7	1.7	∞
Max. SAR Eval.	2.0	R	1.732	1	1	1.2	1.2	∞
Test Sample Related								
Device Positioning	3.0	N	1	1	1	3.0	3.0	35
Device Holder	3.6	N	1	1	1	3.6	3.6	12
Power Drift	5.0	R	1.732	1	1	2.9	2.9	∞
Power Scaling	0.0	R	1.732	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty	6.1	R	1.732	1	1	3.5	3.5	∞
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0	∞
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1	5
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0	∞
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0	∞
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4	∞
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0	5
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8	∞
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4	∞
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1	∞
Combined Std. Uncertainty						11.4%	11.4%	1013
Coverage Factor for 95 %						K=2	K=2	
Expanded STD Uncertainty						22.9%	22.7%	

Uncertainty budget for frequency range 30 MHz to 3 GHz

FCC SAR Test Report

DASY5 Uncertainty Budget								
Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)	(Vi) Veff
Measurement System								
Probe Calibration	6.55	N	1	1	1	6.5	6.5	∞
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9	∞
Boundary Effects	2.0	R	1.732	1	1	1.2	1.2	∞
Linearity	4.7	R	1.732	1	1	2.7	2.7	∞
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6	∞
Modulation Response	3.2	R	1.732	1	1	1.8	1.8	∞
Readout Electronics	0.3	N	1	1	1	0.3	0.3	∞
Response Time	0.0	R	1.732	1	1	0.0	0.0	∞
Integration Time	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7	∞
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7	∞
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2	∞
Probe Positioning	6.7	R	1.732	1	1	3.9	3.9	∞
Max. SAR Eval.	4.0	R	1.732	1	1	2.3	2.3	∞
Test Sample Related								
Device Positioning	3.0	N	1	1	1	3.0	3.0	35
Device Holder	3.6	N	1	1	1	3.6	3.6	12
Power Drift	5.0	R	1.732	1	1	2.9	2.9	∞
Power Scaling	0.0	R	1.732	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty	6.6	R	1.732	1	1	3.8	3.8	∞
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0	∞
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1	5
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0	∞
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0	∞
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4	∞
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0	5
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8	∞
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4	∞
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1	∞
Combined Std. Uncertainty						12.5%	12.5%	1458
Coverage Factor for 95 %						K=2	K=2	
Expanded STD Uncertainty						25.0%	24.9%	

Uncertainty budget for frequency range 3 GHz to 6 GHz

7. Information on the Testing Laboratories

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: www.bureauveritas.com

The road map of all our labs can be found in our web site also.

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Appendix A. SAR Plots of System Verification

The plots for system verification with largest deviation for each SAR system combination are shown as follows.

System Check_HSL750_211029

DUT: Dipole:750 MHz;Type:D750V3

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1

Medium: HSL750_1029 Medium parameters used: $f = 750$ MHz; $\sigma = 0.881$ S/m; $\epsilon_r = 42.342$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3°C; Liquid Temperature : 22.6°C

DASY5 Configuration:

- Probe: ES3DV3 - SN3268; ConvF(6.6, 6.6, 6.6); Calibrated: 2021/8/24;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1288; Calibrated: 2021/8/20
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.77 W/kg

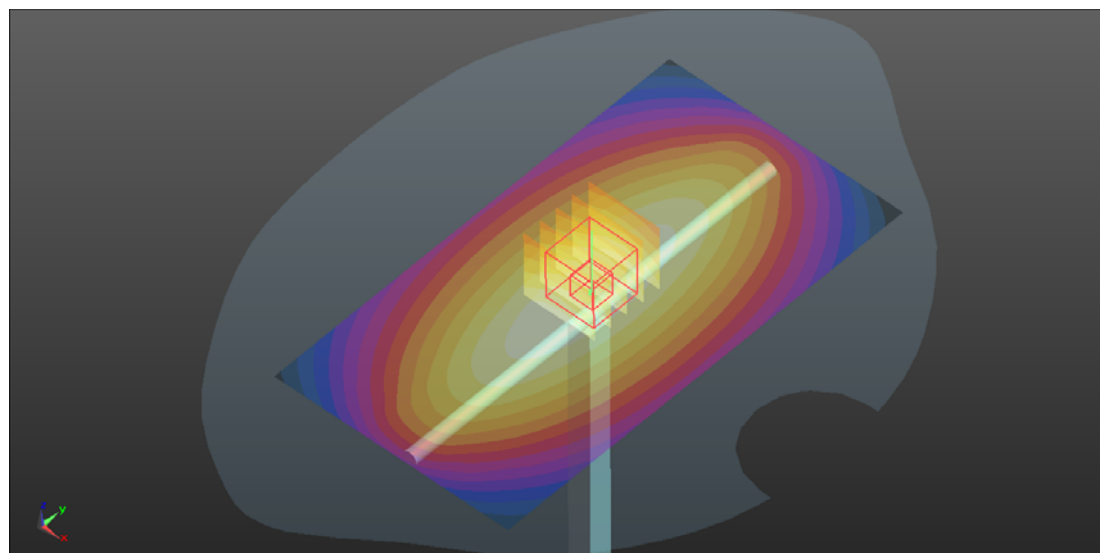
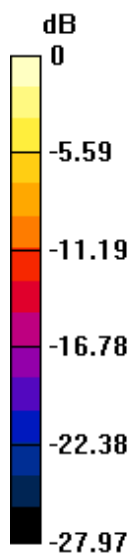
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 55.714 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.21 W/kg

SAR(1 g) = 2.1 W/kg; SAR(10 g) = 1.38 W/kg

Maximum value of SAR (measured) = 2.83 W/kg



0 dB = 2.77 W/kg

System Check_HSL835_211029

DUT: Dipole:835 MHz;Type:D835V2

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1

Medium: HSL835_1029 Medium parameters used: $f = 835$ MHz; $\sigma = 0.915$ S/m; $\epsilon_r = 42.395$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: ES3DV3 - SN3268; ConvF(6.04, 6.04, 6.04); Calibrated: 2021/8/24;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1288; Calibrated: 2021/8/20
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 3.26 W/kg

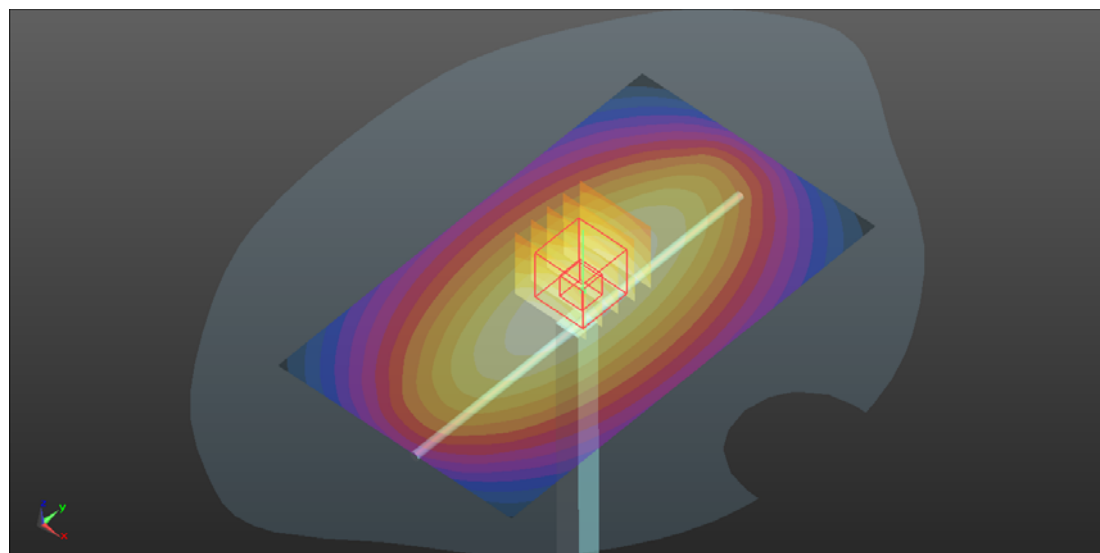
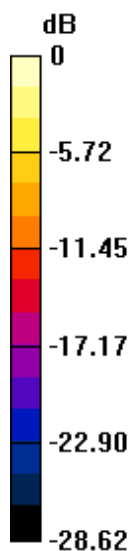
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 59.151 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 3.71 W/kg

SAR(1 g) = 2.45 W/kg; SAR(10 g) = 1.6 W/kg

Maximum value of SAR (measured) = 3.29 W/kg



0 dB = 3.26 W/kg

System Check_HSL1750_211030

DUT: Dipole:1750 MHz;Type:D1750V2

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: HSL1750_1030 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.328$ S/m; $\epsilon_r = 39.657$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: ES3DV3 - SN3268; ConvF(5.43, 5.43, 5.43); Calibrated: 2021/8/24;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1288; Calibrated: 2021/8/20
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 13.1 W/kg

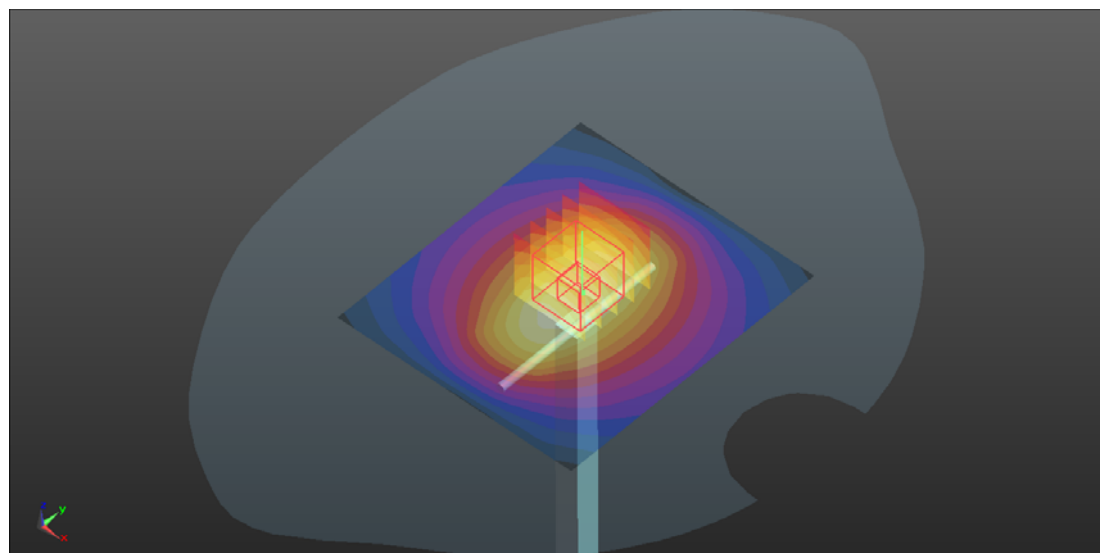
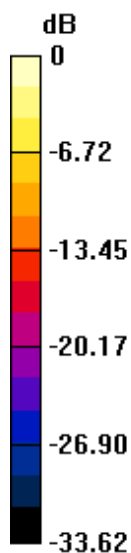
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 102.9 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 16.0 W/kg

SAR(1 g) = 8.51 W/kg; SAR(10 g) = 4.51 W/kg

Maximum value of SAR (measured) = 13.3 W/kg



0 dB = 13.1 W/kg