4.7.4 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	9538	1.130	1.100	1.03	N/A	N/A	N/A	N/A
WCDMA IV	Rear Face	1312	0.947	0.929	1.02	N/A	N/A	N/A	N/A
LTE 7	Rear Face	21100	0.804	0.756	1.06	N/A	N/A	N/A	N/A

4.7.5 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.

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	GSM850 + BT (DSS)	Head	Right Cheek	0.63	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.62	-	-	ΣSAR < 1.6, Not required
			Left Cheek	0.64	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.59	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.35	0.01	**0.36**	ΣSAR < 1.6, Not required
			Rear Face	0.39	0.01	**0.40**	ΣSAR < 1.6, Not required
2	GSM1900 + BT (DSS)	Head	Right Cheek	0.44	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.30	-	-	ΣSAR < 1.6, Not required
			Left Cheek	0.44	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.30	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.39	0.01	**0.40**	ΣSAR < 1.6, Not required
			Rear Face	0.60	0.01	**0.61**	ΣSAR < 1.6, Not required
3	WCDMA II + BT (DSS)	Head	Right Cheek	0.93	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.62	-	-	ΣSAR < 1.6, Not required
			Left Cheek	0.94	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.60	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.82	0.01	**0.83**	ΣSAR < 1.6, Not required
			Rear Face	1.35	0.01	**1.36**	ΣSAR < 1.6, Not required
4	WCDMA IV + BT (DSS)	Head	Right Cheek	0.89	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.63	-	-	ΣSAR < 1.6, Not required
			Left Cheek	1.15	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.59	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.74	0.01	**0.75**	ΣSAR < 1.6, Not required
			Rear Face	1.25	0.01	**1.26**	ΣSAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	**WCDMA V + BT (DSS)**	Head	Right Cheek	1.08	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.90	-	-	ΣSAR < 1.6, Not required
			Left Cheek	1.15	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.92	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.52	0.01	**0.52**	ΣSAR < 1.6, Not required
			Rear Face	0.66	0.01	**0.67**	ΣSAR < 1.6, Not required
2	**LTE Band 2 + BT (DSS)**	Head	Right Cheek	0.79	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.55	-	-	ΣSAR < 1.6, Not required
			Left Cheek	0.85	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.53	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.69	0.01	**0.70**	ΣSAR < 1.6, Not required
			Rear Face	1.15	0.01	**1.16**	ΣSAR < 1.6, Not required
3	**LTE Band 4 + BT (DSS)**	Head	Right Cheek	0.62	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.47	-	-	ΣSAR < 1.6, Not required
			Left Cheek	0.95	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.50	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.60	0.01	**0.61**	ΣSAR < 1.6, Not required
			Rear Face	1.03	0.01	**1.04**	ΣSAR < 1.6, Not required
4	**LTE Band 5 + BT (DSS)**	Head	Right Cheek	0.94	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.70	-	-	ΣSAR < 1.6, Not required
			Left Cheek	0.97	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.76	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.69	0.01	**0.70**	ΣSAR < 1.6, Not required
			Rear Face	0.72	0.01	**0.73**	ΣSAR < 1.6, Not required
4	**LTE Band 7 + BT (DSS)**	Head	Right Cheek	0.75	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.45	-	-	ΣSAR < 1.6, Not required
			Left Cheek	0.99	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.70	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.26	0.01	**0.27**	ΣSAR < 1.6, Not required
			Rear Face	0.93	0.01	**0.94**	ΣSAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	LTE Band 12 + BT (DSS)	Head	Right Cheek	0.63	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.40	-	-	ΣSAR < 1.6, Not required
			Left Cheek	0.68	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.39	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.42	0.01	**0.43**	ΣSAR < 1.6, Not required
			Rear Face	0.42	0.01	**0.43**	ΣSAR < 1.6, Not required
2	LTE Band 13 + BT (DSS)	Head	Right Cheek	0.83	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.58	-	-	ΣSAR < 1.6, Not required
			Left Cheek	0.75	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.54	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.45	0.01	**0.46**	ΣSAR < 1.6, Not required
			Rear Face	0.47	0.01	**0.48**	ΣSAR < 1.6, Not required
2	LTE Band 17 + BT (DSS)	Head	Right Cheek	0.63	-	-	ΣSAR < 1.6, Not required
			Right Tilted	0.40	-	-	ΣSAR < 1.6, Not required
			Left Cheek	0.67	-	-	ΣSAR < 1.6, Not required
			Left Tilted	0.39	-	-	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.40	0.01	**0.41**	ΣSAR < 1.6, Not required
			Rear Face	0.41	0.01	**0.42**	ΣSAR < 1.6, Not required

Test Engineer : Lily Zhao,

5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D750V3	1067	Sep. 03, 2019	1 Year
System Validation Dipole	SPEAG	D835V2	4d139	Sep. 03, 2019	1 Year
System Validation Dipole	SPEAG	D1750V2	1071	Aug. 30, 2019	1 Year
System Validation Dipole	SPEAG	D1900V2	5d159	Sep. 02, 2019	1 Year
System Validation Dipole	SPEAG	D2450V2	893	Sep. 04, 2019	1 Year
System Validation Dipole	SPEAG	D2600V2	1110	Sep. 05, 2019	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	7554	Sep. 16, 2019	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1589	Sep. 10, 2019	1 Year
Radio Communication Analyzer	ANRITSU	MT8820C	6201300717	Jun. 03, 2020	1 Year
Wireless Communication Test Set	Agilent	E5515C	MY50260600	Feb. 25, 2020	1 Year
ENA Series Network Analyzer	Agilent	E5071C	MY46214638	Jun. 03, 2020	1 Year
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510355	Jul. 08, 2020	1Year
MXG Analog Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 26, 2020	1 Year
Power Meter	Agilent	N1914A	MY52180044	Oct. 10, 2018	2 Years
Power Sensor	Agilent	E9304A H18	MY52050011	Jan. 20, 2020	1 Year
Power Meter	ANRITSU	ML2495A	1506002	Feb. 25, 2020	1 Year
Power Sensor	ANRITSU	MA2411B	1339353	Feb. 25, 2020	1 Year
Temp. & Humi. Recorder	CLOCK	HTC-1	157248	Jun. 07, 2020	1 Year
Electronic Thermometer	YONGFA	YF-160A	120100323	Aug. 29, 2019	1 Year
Coupler	Woken	0110A056020-10	COM27RW1A3	Aug. 30, 2019	1 Year

6. Measurement Uncertainty

Source of Uncertainty	Tolerance (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
Probe Calibration	6.0	Normal	1	1	1	6.0	6.0	∞
Axial Isotropy	4.7	Rectangular	√3	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.707	0.707	3.9	3.9	∞
Boundary Effect	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
System Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Modulation Response	2.4	Rectangular	√3	1	1	1.4	1.4	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions - Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom Shell	2.9	Rectangular	√3	1	1	1.7	1.7	∞
Extrapolation, Interpolation, and Integration Algorithms for Max. SAR Evaluation	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Test Sample Related								
Test Sample Positioning	1.5 / 0.7	Normal	1	1	1	1.5	0.7	32
Device Holder Uncertainty	4.2 / 1.8	Normal	1	1	1	4.2	1.8	32
Output Power Variation - SAR Drift Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
SAR Scaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Tissue								
Phantom Shell Uncertainty - Shape, Thickness and Permittivity	7.2	Rectangular	√3	1	1	4.2	4.2	∞
Uncertainty in SAR Correction for Deviations in Permittivity and Conductivity	1.2 / 0.97	Normal	1	1	0.84	1.2	0.8	∞
Liquid Conductivity Measurement	1.0	Normal	1	0.78	0.71	0.8	0.7	25
Liquid Permittivity Measurement	0.5	Normal	1	0.23	0.26	0.1	0.1	25
Liquid Conductivity - Temperature Uncertainty	2.2	Rectangular	√3	0.78	0.71	1.0	0.9	∞
Liquid Permittivity - Temperature Uncertainty	1.9	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Combined Standard Uncertainty						± 11.2 %	± 10.4 %	
Expanded Uncertainty (K=2)						**± 22.4 %**	**± 20.8 %**	

Uncertainty budget for the frequency range of 300 MHz to 3 GHz

Source of Uncertainty	Tolerance (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
Probe Calibration	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	4.7	Rectangular	√3	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.707	0.707	3.9	3.9	∞
Boundary Effect	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
System Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Modulation Response	2.4	Rectangular	√3	1	1	1.4	1.4	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions - Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom Shell	6.7	Rectangular	√3	1	1	3.9	3.9	∞
Extrapolation, Interpolation, and Integration Algorithms for Max. SAR Evaluation	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	1.5 / 0.7	Normal	1	1	1	1.5	0.7	32
Device Holder Uncertainty	4.2 / 1.8	Normal	1	1	1	4.2	1.8	32
Output Power Variation - SAR Drift Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
SAR Scaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Tissue								
Phantom Shell Uncertainty - Shape, Thickness and Permittivity	7.6	Rectangular	√3	1	1	4.4	4.4	∞
Uncertainty in SAR Correction for Deviations in Permittivity and Conductivity	1.2 / 0.97	Normal	1	1	0.84	1.2	0.8	∞
Liquid Conductivity Measurement	1.0	Normal	1	0.78	0.71	0.8	0.7	25
Liquid Permittivity Measurement	0.5	Normal	1	0.23	0.26	0.1	0.1	25
Liquid Conductivity - Temperature Uncertainty	2.2	Rectangular	√3	0.78	0.71	1.0	0.9	∞
Liquid Permittivity - Temperature Uncertainty	1.9	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Combined Standard Uncertainty						± 12.3 %	± 11.5 %	
Expanded Uncertainty (K=2)						**± 24.6 %**	**± 23.0 %**	

Uncertainty budget for the frequency range of 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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Email: customerservice.dg@cn.bureauveritas.com
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.

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 7/1/2020

System Check_HSL750_200701

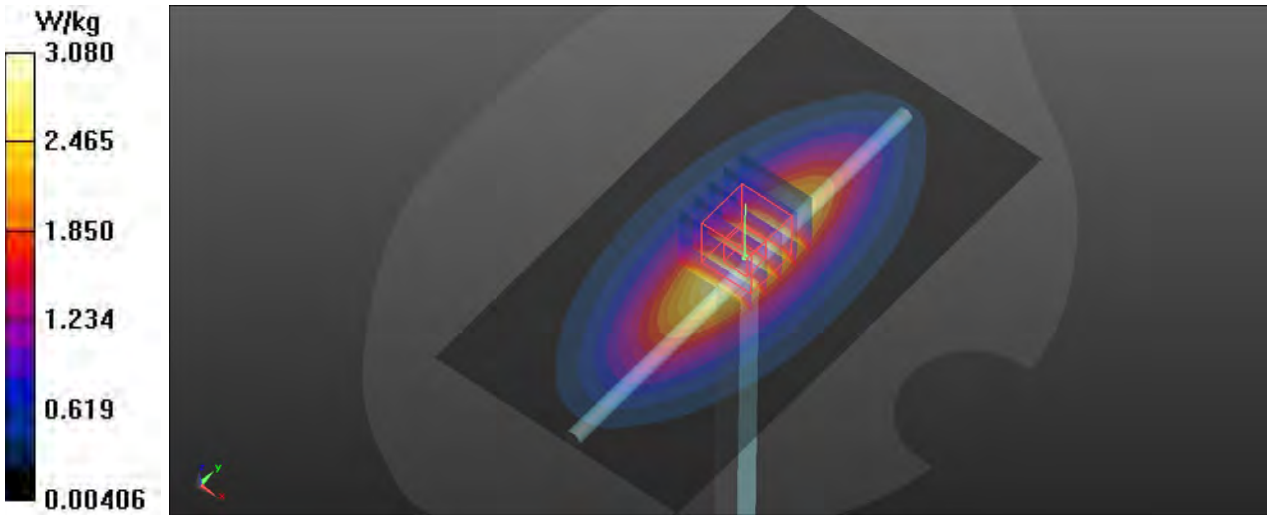
DUT: Dipole:750 MHz;Type:D750V3

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL750_0701 Medium parameters used: f = 750 MHz; σ = 0.891 S/m; ε_r = 40.775; ρ = 1000 kg/m^3
Ambient Temperature：23.2℃; Liquid Temperature：22.1℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(10.23, 10.23, 10.23) @ 750 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.08 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.83 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.64 W/kg
SAR(1 g) = 2.3 W/kg; SAR(10 g) = 1.5 W/kg
Maximum value of SAR (measured) = 3.16 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 7/3/2020

System Check_HSL835_200703

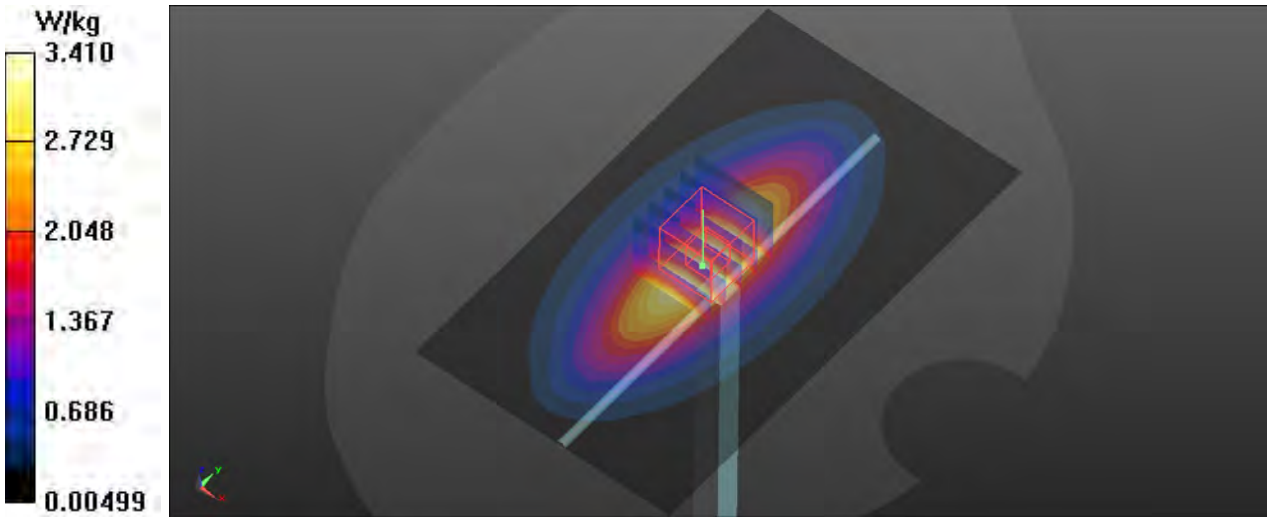
DUT: Dipole:835 MHz;Type:D835V2

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL835_0703 Medium parameters used: f = 835 MHz; σ = 0.9 S/m; ε_r = 40.574; ρ = 1000 kg/m^3
Ambient Temperature：23.4℃; Liquid Temperature：22.2℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(9.89, 9.89, 9.89) @ 835 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.41 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 59.71 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 3.98 W/kg
SAR(1 g) = 2.55 W/kg; SAR(10 g) = 1.65 W/kg
Maximum value of SAR (measured) = 3.46 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 7/6/2020

System Check_HSL1750_200706

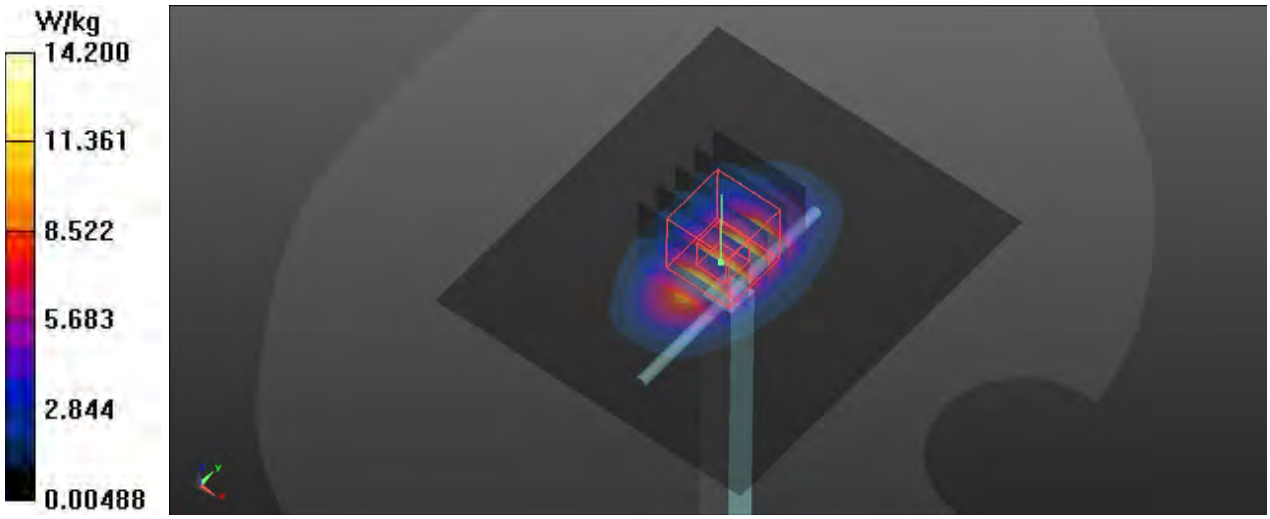
DUT: Dipole:1750 MHz;Type:D1750V2

Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: HSL1750_0706 Medium parameters used: f = 1750 MHz; σ = 1.325 S/m; ε_r = 40.765; ρ = 1000 kg/m^3
Ambient Temperature：23.6℃; Liquid Temperature：22.5℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(8.54, 8.54, 8.54) @ 1750 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 14.2 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 106.9 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 17.5 W/kg
SAR(1 g) = 9.27 W/kg; SAR(10 g) = 4.92 W/kg
Maximum value of SAR (measured) = 14.5 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 7/7/2020

System Check_HSL1900_200707

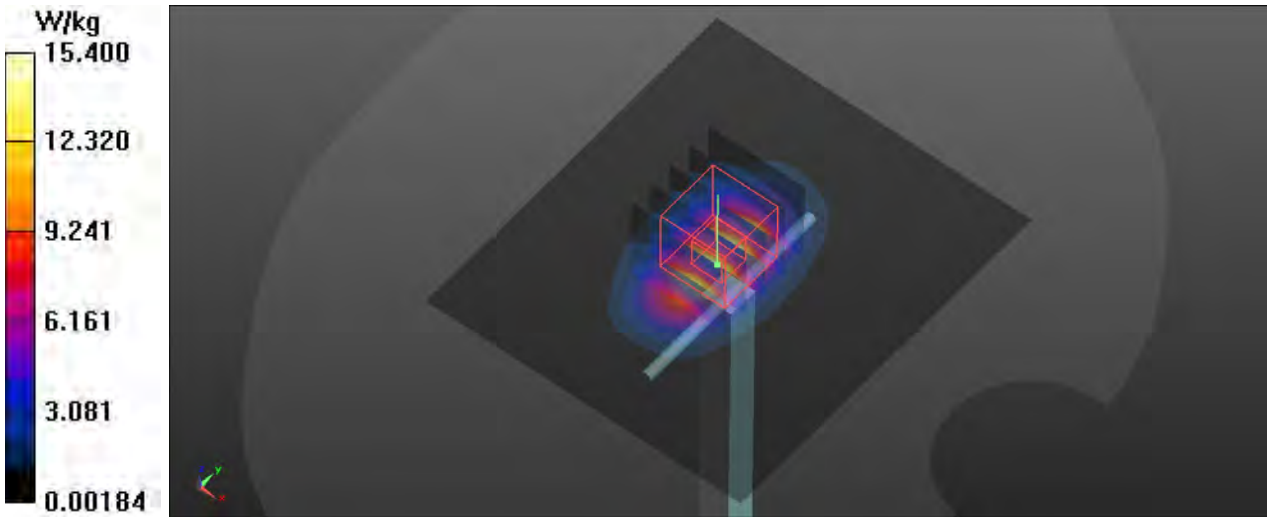
DUT: Dipole:1900MHz;Type:D1900V2

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL1900_0707 Medium parameters used: f = 1900 MHz; σ = 1.443 S/m; ε_r = 40.221; ρ = 1000 kg/m^3
Ambient Temperature：23.1℃; Liquid Temperature：22.4℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(8.09, 8.09, 8.09) @ 1900 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 15.4 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 98.54 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 9.97 W/kg; SAR(10 g) = 5.2 W/kg
Maximum value of SAR (measured) = 15.4 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 7/20/2020

System Check_HSL2450_200720

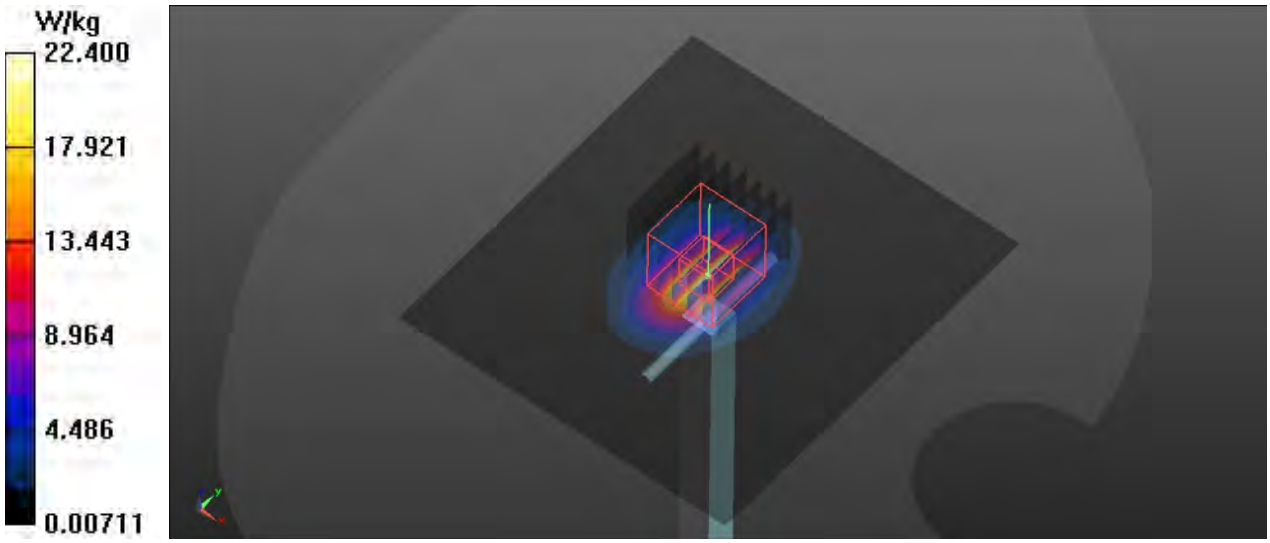
DUT: Dipole:2450 MHz;Type:D2450V2

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: HSL2450_0720 Medium parameters used: f = 2450 MHz; σ = 1.845 S/m; ε_r = 39.397; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃; Liquid Temperature：22.2℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(7.37, 7.37, 7.37) @ 2450 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (91x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 22.4 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 112.5 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 28.0 W/kg
SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.08 W/kg
Maximum value of SAR (measured) = 22.3 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 7/8/2020

System Check_HSL2600_200708

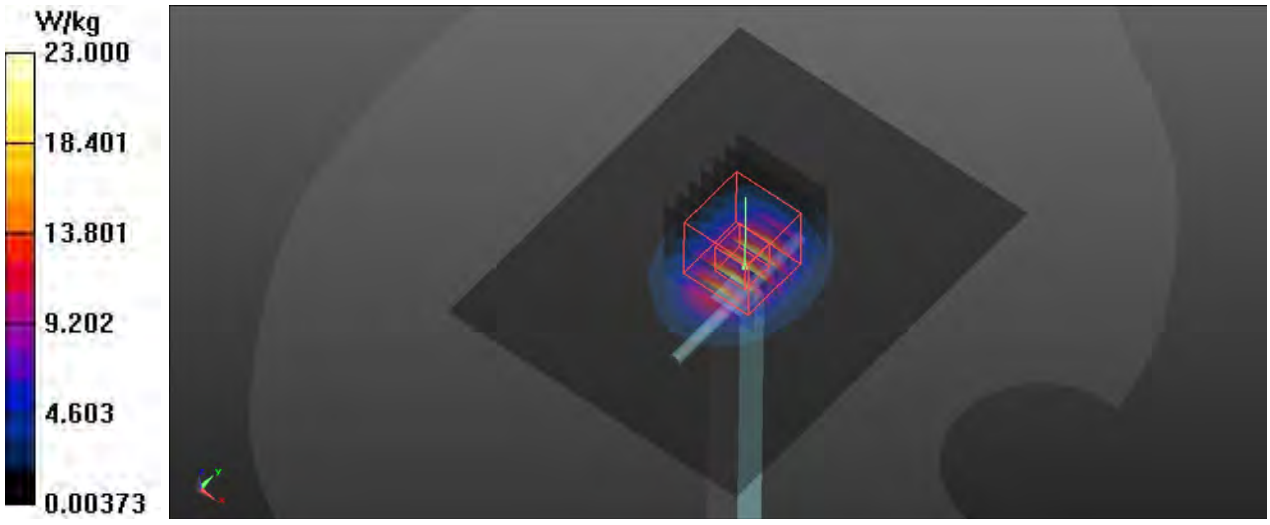
DUT: Dipole:2600 MHz;Type:D2600V2

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL2600_0708 Medium parameters used: f = 2600 MHz; σ = 2.039 S/m; ε_r = 38.932; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃; Liquid Temperature：22.3℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(7.17, 7.17, 7.17) @ 2600 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 23.0 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 109.8 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 28.6 W/kg
SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.2 W/kg
Maximum value of SAR (measured) = 23.0 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 8/6/2020

System Check_HSL750_200806

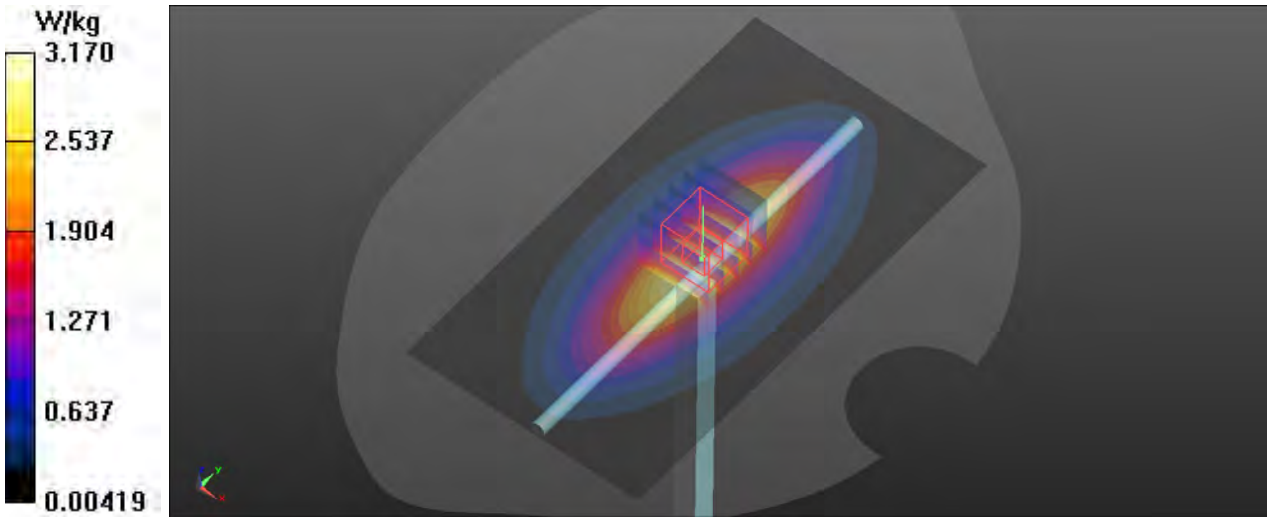
DUT: Dipole:750 MHz;Type:D750V3

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL750_0806 Medium parameters used: f = 750 MHz; σ = 0.918 S/m; ε_r = 40.521; ρ = 1000 kg/m^3
Ambient Temperature：23.2℃; Liquid Temperature：21.8℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(10.23, 10.23, 10.23) @ 750 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.17 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 58.66 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 3.75 W/kg
SAR(1 g) = 2.27 W/kg; SAR(10 g) = 1.55 W/kg
Maximum value of SAR (measured) = 3.26 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 8/6/2020

System Check_HSL835_200806

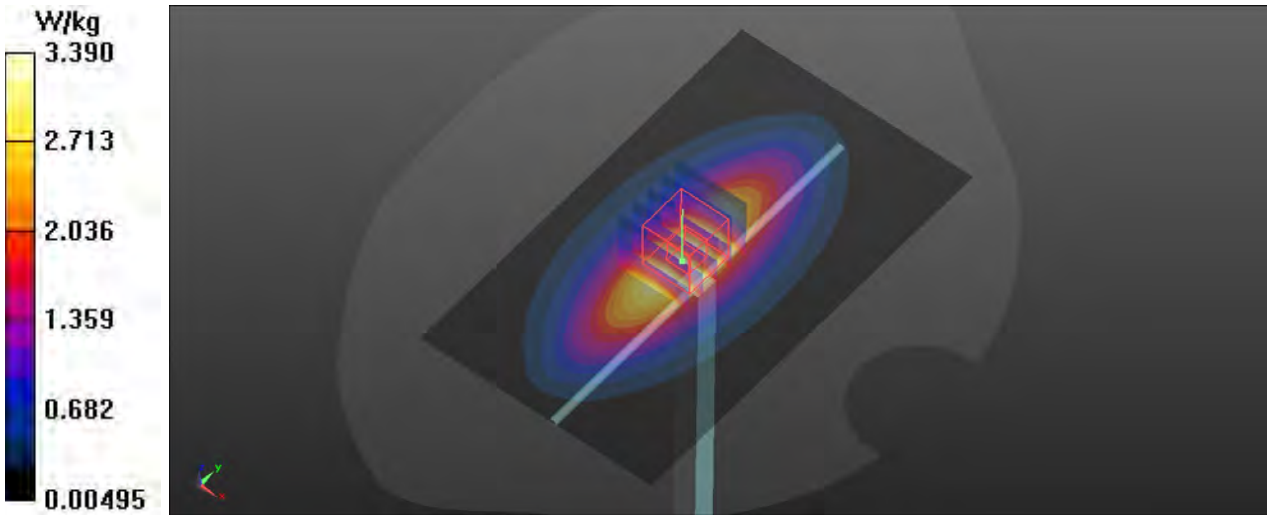
DUT: Dipole:835 MHz;Type:D835V2

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL835_0806 Medium parameters used: f = 835 MHz; σ = 0.892 S/m; ε_r = 42.479; ρ = 1000 kg/m^3
Ambient Temperature：23.2℃; Liquid Temperature：21.8℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(9.89, 9.89, 9.89) @ 835 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.39 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 60.41 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.94 W/kg
SAR(1 g) = 2.52 W/kg; SAR(10 g) = 1.64 W/kg
Maximum value of SAR (measured) = 3.43 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 8/7/2020

System Check_HSL1750_200807

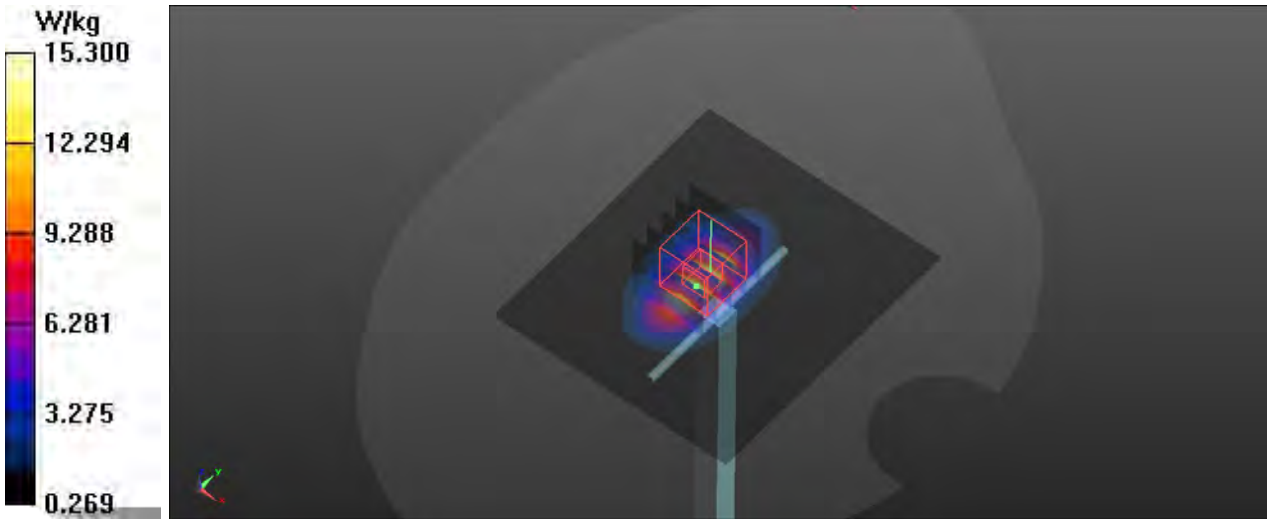
DUT: Dipole:1750 MHz;Type:D1750V2

Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: HSL1750_0807 Medium parameters used: f = 1750 MHz; σ = 1.364 S/m; ε_r = 40.873; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃; Liquid Temperature：22.2℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(8.54, 8.54, 8.54) @ 1750 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm=
Maximum value of SAR (interpolated) = 15.6 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm=
Reference Value = 95.11 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 18.8 W/kg
SAR(1 g) = 9.82 W/kg; SAR(10 g) = 5.26 W/kg
Maximum value of SAR (measured) = 15.3 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 8/7/2020

System Check_HSL1900_200807

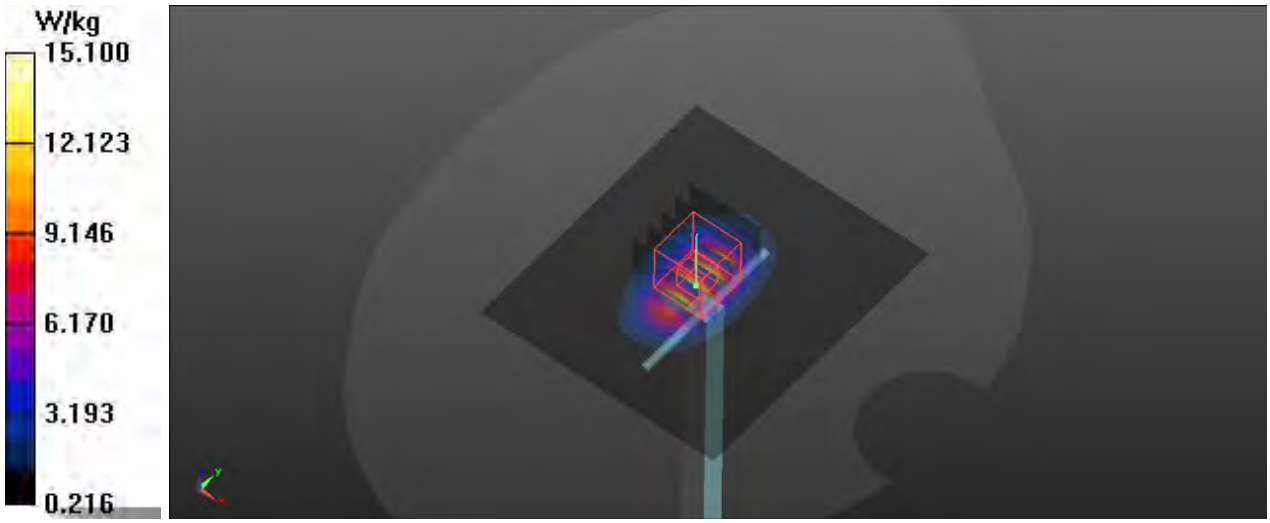
DUT: Dipole:1900MHz;Type:D1900V2

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL1900_0807 Medium parameters used: f = 1900 MHz; σ = 1.413 S/m; ε_r = 41.33; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃; Liquid Temperature：22.2℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(8.09, 8.09, 8.09) @ 1900 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 15.1 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 98.32 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 9.77 W/kg; SAR(10 g) = 5.09 W/kg
Maximum value of SAR (measured) = 15.1 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 8/8/2020

System Check_HSL2450_200808

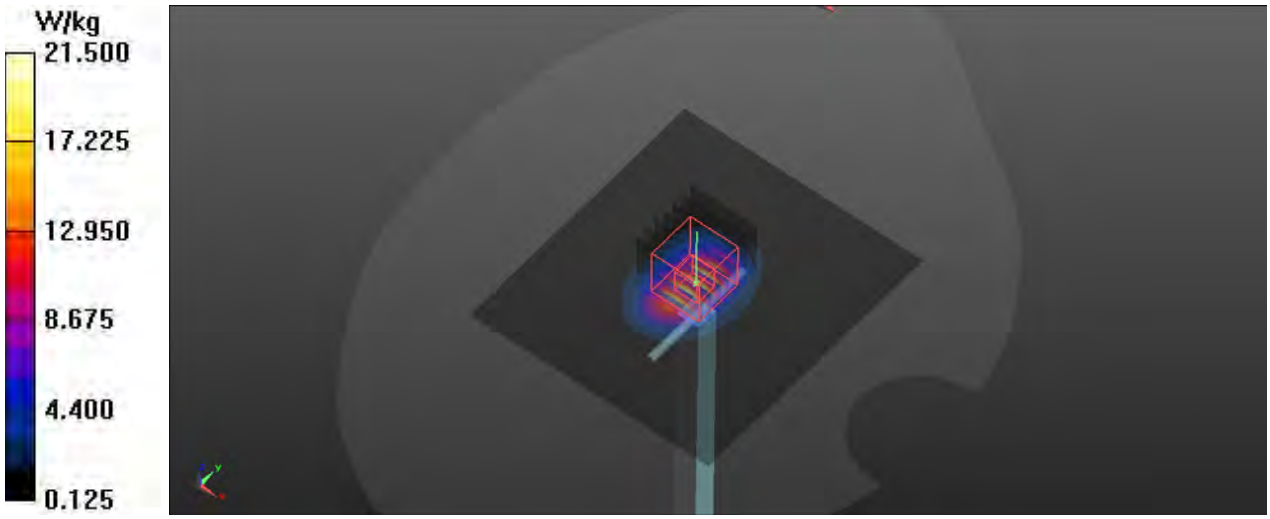
DUT: Dipole:2450 MHz;Type:D2450V2; SN:893

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: HSL2450_0808 Medium parameters used: f = 2450 MHz; σ = 1.777 S/m; ε_r = 40.205; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃; Liquid Temperature：22.3℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(7.37, 7.37, 7.37) @ 2450 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (91x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 21.6 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 113 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 27.0 W/kg
SAR(1 g) = 12.6 W/kg; SAR(10 g) = 5.86 W/kg
Maximum value of SAR (measured) = 21.5 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 8/8/2020

System Check_HSL2600_200808

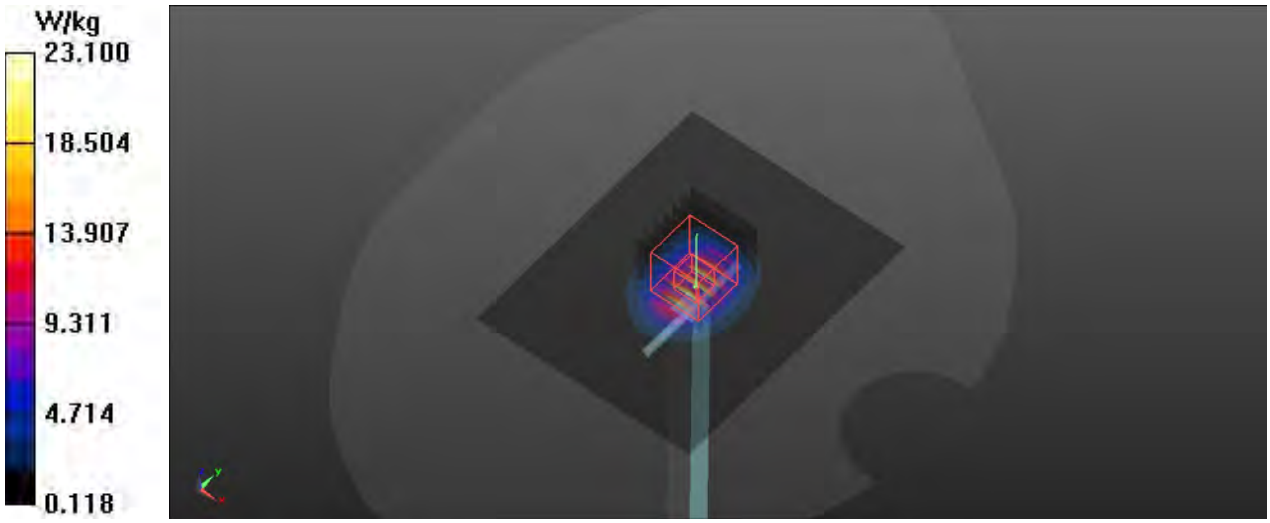
DUT: Dipole:2600 MHz;Type:D2600V2

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL2600_0808 Medium parameters used: f = 2600 MHz; σ = 2.054 S/m; ε_r = 37.977; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃; Liquid Temperature：22.3℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7554; ConvF(7.17, 7.17, 7.17) @ 2600 MHz; Calibrated: 9/16/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 9/10/2019
- Phantom: Twin-SAM (Right SAM2); Type: QD 000 P41 AA; Serial: 1986
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 23.1 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 108.5 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.24 W/kg
Maximum value of SAR (measured) = 23.1 W/kg



Appendix B. SAR Plots of SAR Measurement

The SAR plots for highest measured SAR in each exposure configuration, wireless mode and frequency band combination, and measured SAR > 1.5 W/kg are shown as follows.