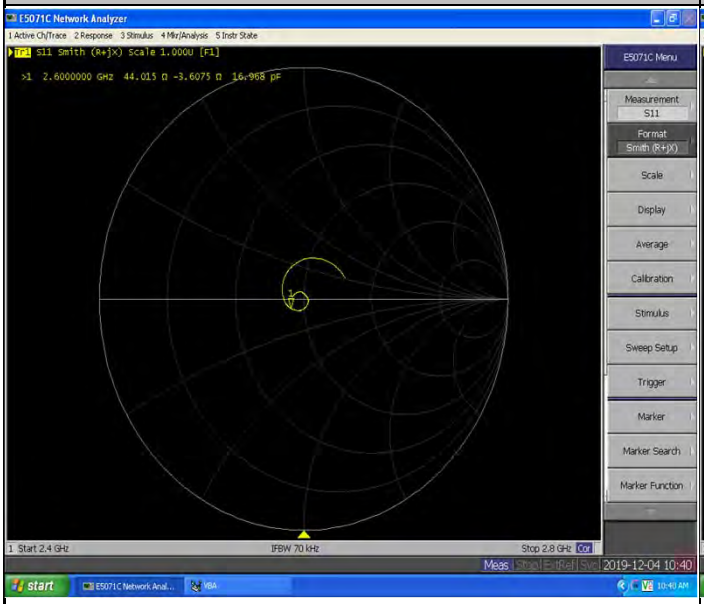
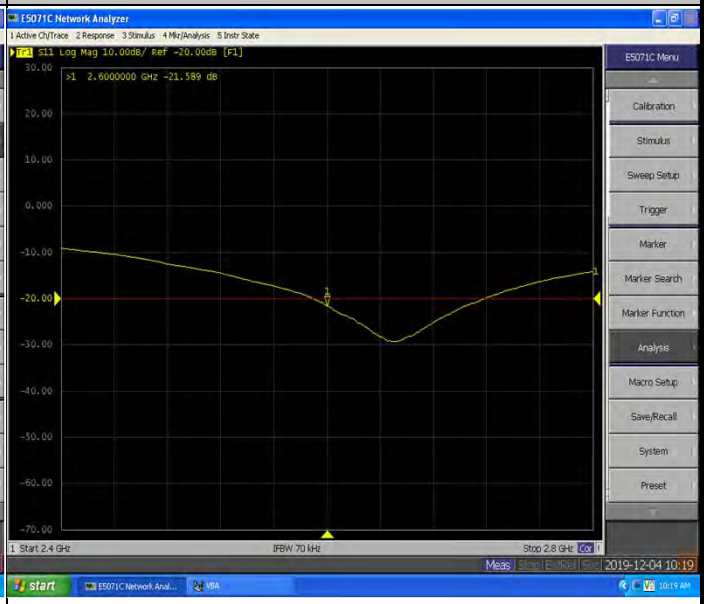
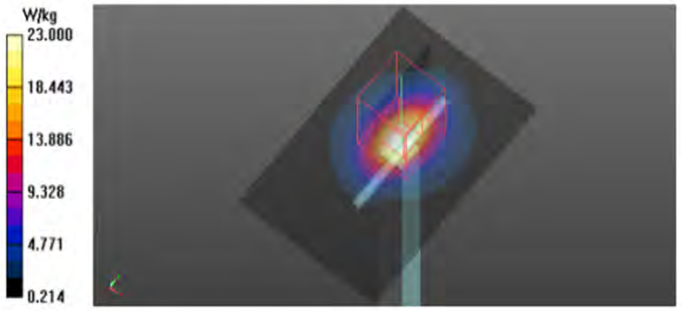
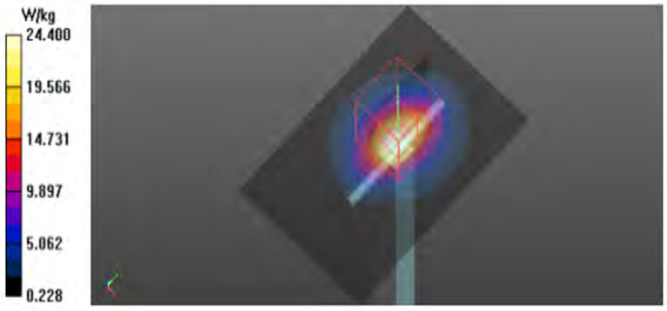
Impedance Test-Body	Return Loss-Body
	

Validation Report for Head TSL	Validation Report for Body TSL
Test Laboratory: BTL Inc. Date: 2019/12/04	Test Laboratory: BTL Inc. Date: 2019/12/04
System Check_H2600_1204	**System Check_B2600_1204**
DUT: Dipole 2600 MHz D2600V2;	**DUT: Dipole 2600 MHz D2600V2;**
Communication System: UID 0, CW (0); Frequency: 2600 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2600 MHz; σ = 2.047 S/m; ε_r = 37.734; ρ = 1000 kg/m^3 Ambient Temperature : 23.1 ℃; Liquid Temperature : 22.4 ℃	Communication System: UID 0, CW (0); Frequency: 2600 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2600 MHz; σ = 2.223 S/m; ε_r = 51.533; ρ = 1000 kg/m^3 Ambient Temperature : 23.1 ℃; Liquid Temperature : 22.4 ℃
DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(7.4, 7.4, 7.4) @ 2600 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)	DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(7.35, 7.35, 7.35) @ 2600 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)
Area Scan (6x8x1): Interpolated grid: dx=12 mm, dy=12 mm Maximum value of SAR (interpolated) = 24.9 W/kg	**Area Scan (6x8x1):** Interpolated grid: dx=12 mm, dy=12 mm Maximum value of SAR (interpolated) = 26.5 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 91.46 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 28.8 W/kg **SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.09 W/kg** Maximum value of SAR (measured) = 23.0 W/kg	**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 90.48 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 30.6 W/kg **SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.37 W/kg** Maximum value of SAR (measured) = 24.4 W/kg
	

Calibrator: Rot - Liang

Approver: Herbert Liu

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client **BTL Inc .** **Certificate No: Z18-60185**

CALIBRATION CERTIFICATE

Object D5GHzV2 - SN: 1160

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: June 20, 2018

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	102083	01-Nov-17 (CTTL, No.J17X08756)	Oct-18
Power sensor NRP-Z91	100542	01-Nov-17 (CTTL, No.J17X08756)	Oct-18
ReferenceProbe EX3DV4	SN 3846	25-Jan-18(SPEAG,No.EX3-3846_Jan18)	Jan-19
DAE4	SN 1525	02-Oct-17(SPEAG,No.DAE4-1525_Oct17)	Oct-18
DAE4	SN 777	15-Dec-17(SPEAG,No.DAE4-777_Dec17	Dec-18
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	23-Jan-18 (CTTL, No.J18X00560)	Jan-19
NetworkAnalyzerE5071C	MY46110673	24-Jan-18 (CTTL, No.J18X00561)	Jan-19

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: June 23, 2018

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016

c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010

d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	52.10.1.1476
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5200 MHz ± 1 MHz 5300 MHz ± 1 MHz 5500 MHz ± 1 MHz 5600 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.6 ± 6 %	4.63 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.50 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**75.3 mW /g ± 24.4 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.16 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**21.7 mW /g ± 24.2 % (k=2)**

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Head TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.76 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.3 ± 6 %	4.75 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5300 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.66 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**76.8 mW /g ± 24.4 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.20 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**22.1 mW /g ± 24.2 % (k=2)**

Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.6 ± 6 %	4.94 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.08 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**80.8 mW /g ± 24.4 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.30 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**23.0 mW /g ± 24.2 % (k=2)**

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.8 ± 6 %	4.98 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.85 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**78.6 mW /g ± 24.4 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.25 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**22.5 mW /g ± 24.2 % (k=2)**

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.6 ± 6 %	5.24 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.78 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**77.9 mW /g ± 24.4 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.21 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**22.1 mW /g ± 24.2 % (k=2)**

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.8 ± 6 %	5.32 mho/m ± 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	6.99 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**69.8 mW /g ± 24.4 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	1.92 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**19.2 mW /g ± 24.2 % (k=2)**

Body TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.42 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.4 ± 6 %	5.38 mho/m ± 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL at 5300 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.25 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**72.3 mW /g ± 24.4 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.04 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.3 mW /g ± 24.2 % (k=2)**

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.4 ± 6 %	5.56 mho/m ± 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.63 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**76.2 mW /g ± 24.4 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.13 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.3 mW /g ± 24.2 % (k=2)**

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.1 ± 6 %	5.80 mho/m ± 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.78 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**77.7 mW /g ± 24.4 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.14 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.4 mW /g ± 24.2 % (k=2)**

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.0 ± 6 %	6.07 mho/m ± 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.66 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**76.6 mW /g ± 24.4 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.15 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.5 mW /g ± 24.2 % (k=2)**

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	53.5Ω - 8.96jΩ
Return Loss	- 20.7dB

Antenna Parameters with Head TSL at 5300 MHz

Impedance, transformed to feed point	50.1Ω - 3.00jΩ
Return Loss	- 30.5dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	51.4Ω - 5.39jΩ
Return Loss	- 25.2dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	57.5Ω - 2.95jΩ
Return Loss	- 22.5dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	54.5Ω - 1.38jΩ
Return Loss	- 26.9dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	53.1Ω - 7.52jΩ
Return Loss	- 22.1dB

Antenna Parameters with Body TSL at 5300 MHz

Impedance, transformed to feed point	49.3Ω - 2.06jΩ
Return Loss	- 33.1dB

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	50.9Ω - 4.94jΩ
Return Loss	- 26.1dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	58.5Ω - 0.79jΩ
Return Loss	- 22.1dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	54.3Ω + 0.12jΩ
Return Loss	- 27.6dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.065 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Head TSL Date: 06.20.2018

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1160

Communication System: CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz,
Medium parameters used: f = 5200 MHz; σ = 4.633 S/m; εr = 36.62; ρ = 1000 kg/m3, Medium parameters used: f = 5300 MHz; σ = 4.754 S/m; εr = 36.31; ρ = 1000 kg/m3, Medium parameters used: f = 5500 MHz; σ = 4.942 S/m; εr = 35.58; ρ = 1000 kg/m3, Medium parameters used: f = 5600 MHz; σ = 4.984 S/m; εr = 35.81; ρ = 1000 kg/m3, Medium parameters used: f = 5800 MHz; σ = 5.241 S/m; εr = 35.58; ρ = 1000 kg/m3,
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3846; ConvF(5.57, 5.57, 5.57) @ 5200 MHz; Calibrated: 1/25/2018, ConvF(5.34, 5.34, 5.34) @ 5300 MHz; Calibrated: 1/25/2018, ConvF(4.91, 4.91, 4.91) @ 5500 MHz; Calibrated: 1/25/2018, ConvF(4.73, 4.73, 4.73) @ 5600 MHz; Calibrated: 1/25/2018, ConvF(4.9, 4.9, 4.9) @ 5800 MHz; Calibrated: 1/25/2018,
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn777; Calibrated: 12/15/2017
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/3
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Dipole Calibration /Pin=100mW, d=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.38 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 31.8 W/kg
SAR(1 g) = 7.5 W/kg; SAR(10 g) = 2.16 W/kg
Maximum value of SAR (measured) = 17.8 W/kg

Dipole Calibration /Pin=100mW, d=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 62.70 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 33.3 W/kg
SAR(1 g) = 7.66 W/kg; SAR(10 g) = 2.2 W/kg
Maximum value of SAR (measured) = 18.4 W/kg

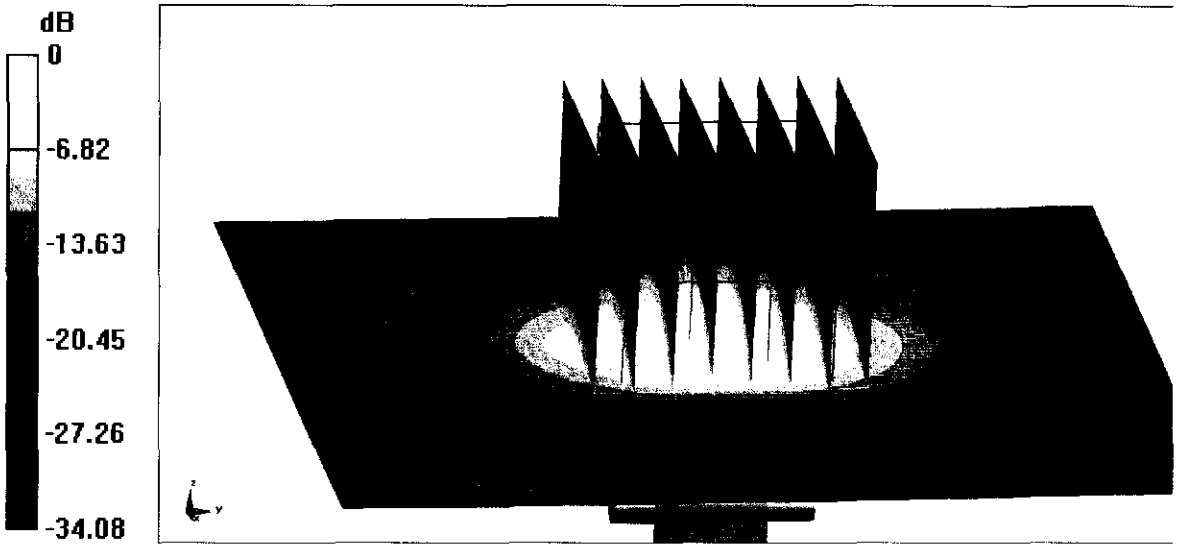
In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Dipole Calibration /Pin=100mW, d=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 66.94 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 36.4 W/kg
SAR(1 g) = 8.08 W/kg; SAR(10 g) = 2.3 W/kg
Maximum value of SAR (measured) = 19.4 W/kg

Dipole Calibration /Pin=100mW, d=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.08 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 35.7 W/kg
SAR(1 g) = 7.85 W/kg; SAR(10 g) = 2.25 W/kg
Maximum value of SAR (measured) = 18.9 W/kg

Dipole Calibration /Pin=100mW, d=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 62.16 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 37.2 W/kg
SAR(1 g) = 7.78 W/kg; SAR(10 g) = 2.21 W/kg
Maximum value of SAR (measured) = 19.1 W/kg

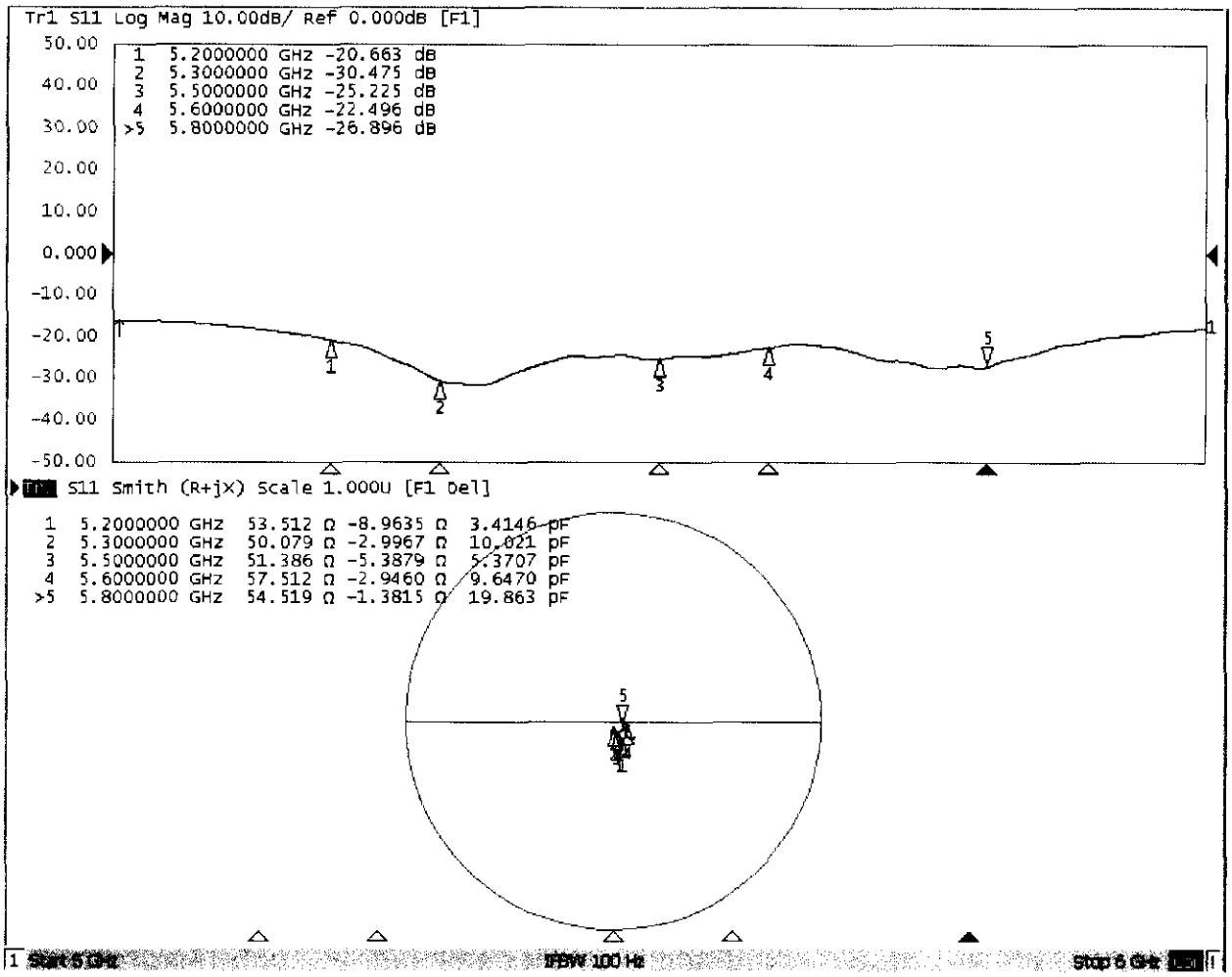


0 dB = 19.1 W/kg = 12.81 dBW/kg

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Impedance Measurement Plot for Head TSL



In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Body TSL Date: 06.19.2018

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1160

Communication System: CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz,
Medium parameters used: f = 5200 MHz; σ = 5.317 S/m; εr = 48.78; ρ = 1000 kg/m3, Medium parameters used: f = 5300 MHz; σ = 5.381 S/m; εr = 48.35; ρ = 1000 kg/m3, Medium parameters used: f = 5500 MHz; σ = 5.56 S/m; εr = 48.36; ρ = 1000 kg/m3, Medium parameters used: f = 5600 MHz; σ = 5.795 S/m; εr = 48.14; ρ = 1000 kg/m3, Medium parameters used: f = 5800 MHz; σ = 6.065 S/m; εr = 48.03; ρ = 1000 kg/m3,
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3846; ConvF(5.15, 5.15, 5.15) @ 5200 MHz; Calibrated: 1/25/2018, ConvF(5.04, 5.04, 5.04) @ 5300 MHz; Calibrated: 1/25/2018, ConvF(4.46, 4.46, 4.46) @ 5500 MHz; Calibrated: 1/25/2018, ConvF(4.36, 4.36, 4.36) @ 5600 MHz; Calibrated: 1/25/2018, ConvF(4.51, 4.51, 4.51) @ 5800 MHz; Calibrated: 1/25/2018,
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1525; Calibrated: 10/2/2017
- Electronics: DAE4 Sn777; Calibrated: 12/15/2017
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/3
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Dipole Calibration /Pin=100mW, d=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 62.32 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 31.6 W/kg
SAR(1 g) = 6.99 W/kg; SAR(10 g) = 1.92 W/kg
Maximum value of SAR (measured) = 16.7 W/kg

Dipole Calibration /Pin=100mW, d=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 56.59 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 33.3 W/kg
SAR(1 g) = 7.25 W/kg; SAR(10 g) = 2.04 W/kg
Maximum value of SAR (measured) = 18.2 W/kg

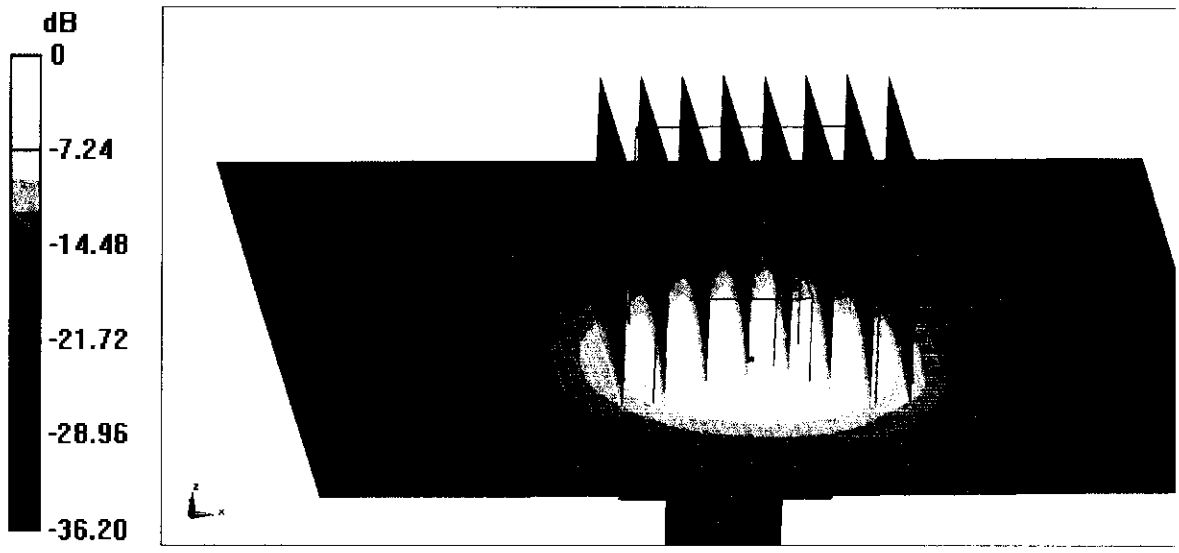
In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Dipole Calibration /Pin=100mW, d=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.72 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 35.6 W/kg
SAR(1 g) = 7.63 W/kg; SAR(10 g) = 2.13 W/kg
Maximum value of SAR (measured) = 19.2 W/kg

Dipole Calibration /Pin=100mW, d=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 57.49 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 37.4 W/kg
SAR(1 g) = 7.78 W/kg; SAR(10 g) = 2.14 W/kg
Maximum value of SAR (measured) = 19.3 W/kg

Dipole Calibration /Pin=100mW, d=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 41.04 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 36.5 W/kg
SAR(1 g) = 7.66 W/kg; SAR(10 g) = 2.15 W/kg
Maximum value of SAR (measured) = 18.8 W/kg

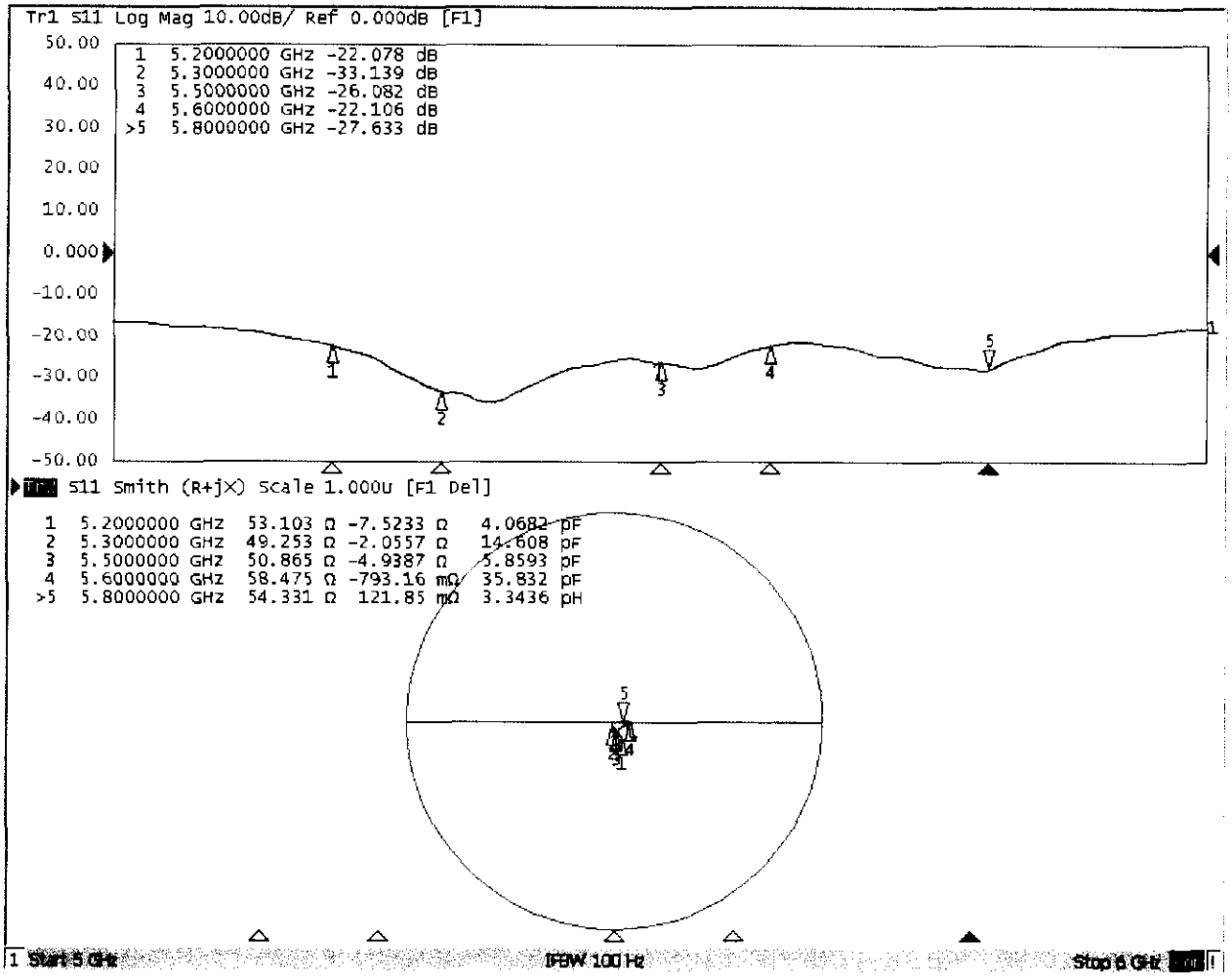


0 dB = 18.8 W/kg = 12.74 dBW/kg

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Impedance Measurement Plot for Body TSL



Dipole Internal Calibration Record

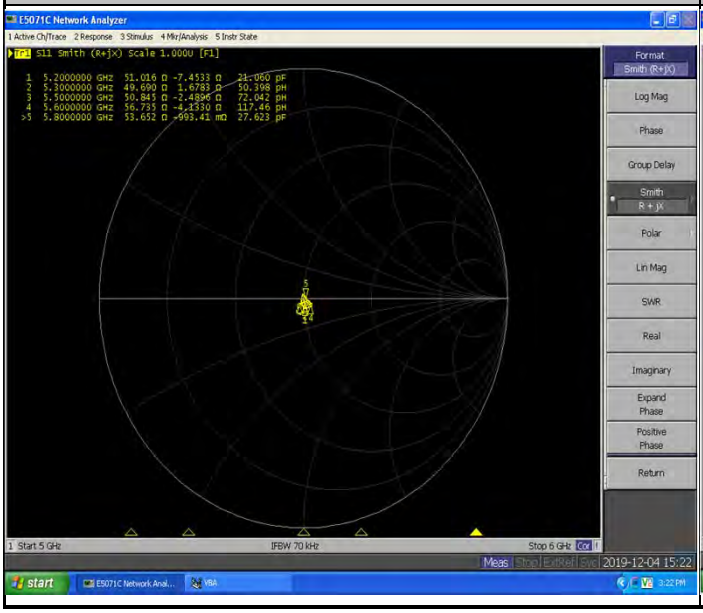
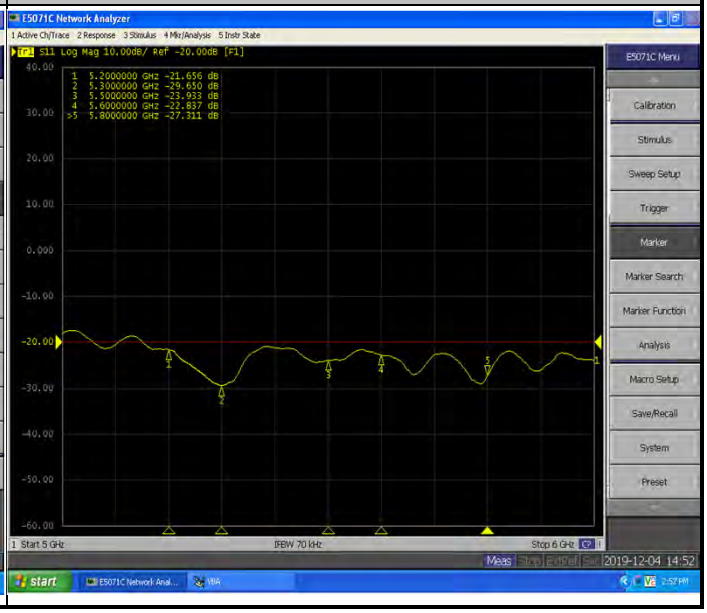
Asset No. :	E-436	Model No. :	D5GHzV2	Serial No. :	1160
Environmental	23.2℃, 49 %	Original Cal. Date :	June 20, 2018	Next Cal. Date :	June 20, 2021

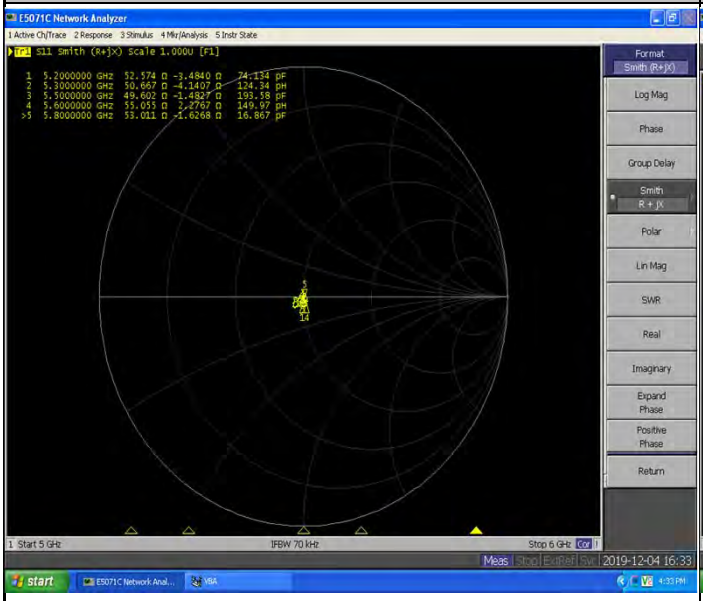
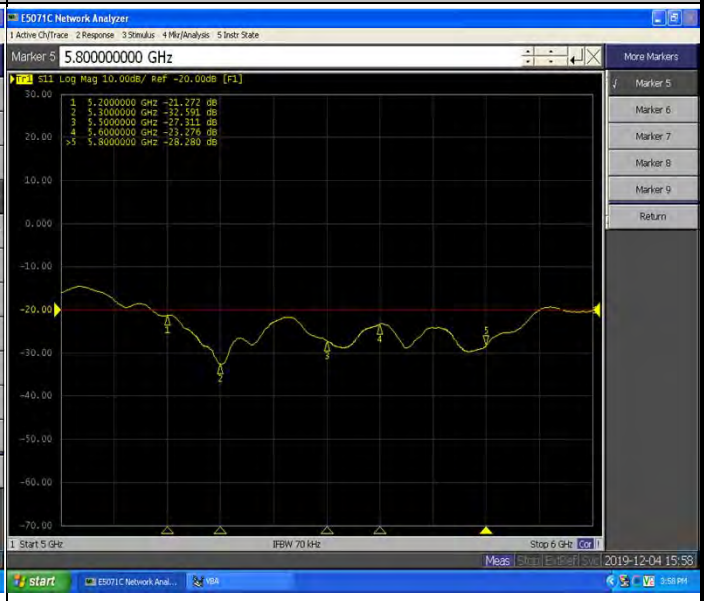
Standard List		
1	IEEE Std 1528-2013	IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorpiton Rate(SAR) in the Human Head from Wireless Communication Devices: Measurement Texhniques, June 2013
2	IEC 62209-2	Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body(frequency range of 30 MHz to 6 GHz), March 2010
3	KDB865664	SAR Measurement Requirements for 100 MHz to 6 GHz

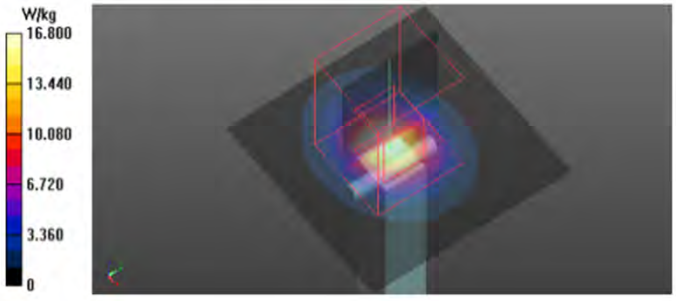
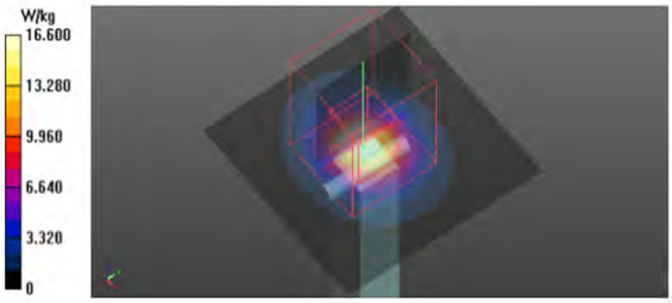
Equipment Information					
Equipment :	Manufacturer :	Model No. :	Serial No. :	Cal.Organization :	Cal. Date :
Power Amplifier	Mini-Circuits	ZVE-8G+	520701341	NA	February 25, 2019
DC Source	Iteck	OT6154	M00157	NA	August 3, 2019
P-series power meter	Agilent	N1911A	MY45100473	NA	September 23, 2019
wideband power sensor	Agilent	N1921A	MY51100041	NA	September 23, 2019
Smart Power Sensor	R&S	NRP-Z21	102209	NA	March 1, 2019
Dual directional coupler	Woken	TS-PCC0M-05	107090019	NA	March 10, 2019
Signal Generator	Agilent	E4438C	MY4907131	NA	Mar. 10, 2019
ENA Network Analyzer	Agilent	E5071C	MY46102965	NA	March 10, 2019

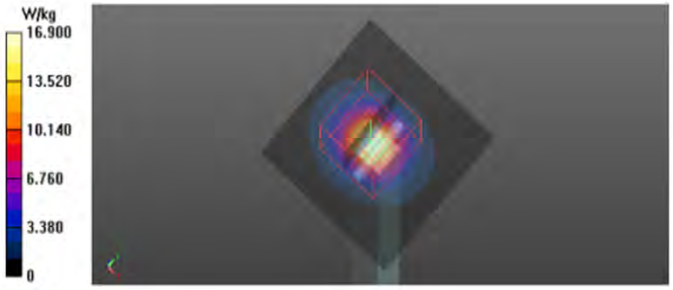
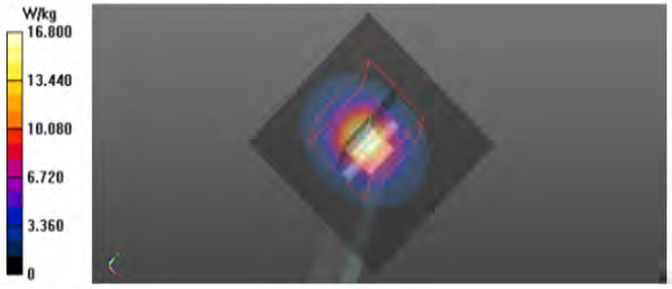
Model No	For Head Tissue				
	Item	Originak Cal. Result	Verified on 2019/12/4	Deviation	Result
D5GHzV2(5.2GHz)	Impedance, transformed to feed point	53.5Ω-8.96jΩ	51.016Ω-7.45jΩ	<5Ω	Pass
	Return Loss(dB)	-20.7	-21.656	4.6%	Pass
	SAR Value for 1g(mW/g)	7.5	7.84	4.5%	Pass
	SAR Value for 10g(mW/g)	2.16	2.24	3.7%	Pass
D5GHzV2(5.3GHz)	Impedance, transformed to feed point	50.1Ω-3jΩ	49.690Ω-1.68jΩ	<5Ω	Pass
	Return Loss(dB)	-30.5	-29.65	-2.8%	Pass
	SAR Value for 1g(mW/g)	7.66	7.72	0.8%	Pass
	SAR Value for 10g(mW/g)	2.2	2.2	0.0%	Pass
D5GHzV2(5.5GHz)	Impedance, transformed to feed point	51.4Ω-5.39jΩ	50.8452Ω-2.49jΩ	<5Ω	Pass
	Return Loss(dB)	-25.2	-23.933	-5.0%	Pass
	SAR Value for 1g(mW/g)	8.08	7.79	-3.6%	Pass
	SAR Value for 10g(mW/g)	2.3	2.21	-3.9%	Pass
D5GHzV2(5.6GHz)	Impedance, transformed to feed point	57.5Ω-2.95jΩ	56.735Ω-4.13jΩ	<5Ω	Pass
	Return Loss(dB)	-22.5	-22.837	1.5%	Pass
	SAR Value for 1g(mW/g)	7.85	7.82	-0.4%	Pass
	SAR Value for 10g(mW/g)	2.25	2.19	-2.7%	Pass
D5GHzV2(5.8GHz)	Impedance, transformed to feed point	54.5Ω-1.38jΩ	53.652Ω-0.993jΩ	<5Ω	Pass
	Return Loss(dB)	-26.9	-27.311	1.5%	Pass
	SAR Value for 1g(mW/g)	7.78	7.83	0.6%	Pass
	SAR Value for 10g(mW/g)	2.21	2.19	-0.9%	Pass

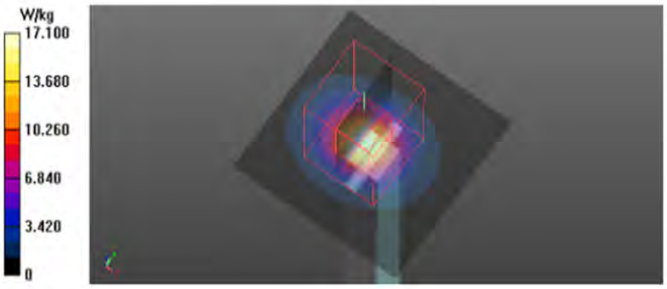
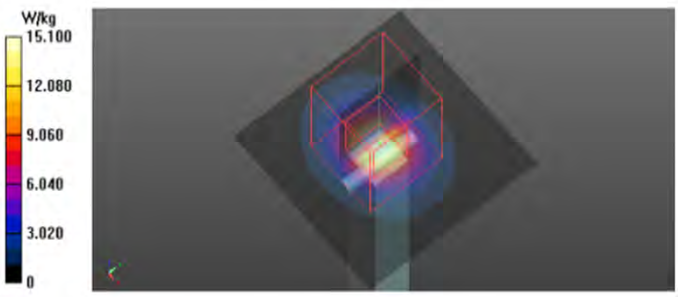
Model No	For Body Tissue				
	Item	Originak Cal. Result	Verified on 2019/12/4	Deviation	Result
D5GHzV2(5.2GHz)	Impedance, transformed to feed point	53.1Ω-7.52jΩ	52.574Ω-3.48jΩ	<5Ω	Pass
	Return Loss(dB)	-22.1	-21.272	-3.7%	Pass
	SAR Value for 1g(mW/g)	6.99	7.02	0.4%	Pass
	SAR Value for 10g(mW/g)	1.92	2.01	4.7%	Pass
D5GHzV2(5.3GHz)	Impedance, transformed to feed point	49.3Ω-2.06jΩ	50.667Ω-4.14jΩ	<5Ω	Pass
	Return Loss(dB)	-33.1	-32.591	-1.5%	Pass
	SAR Value for 1g(mW/g)	7.25	7.48	3.2%	Pass
	SAR Value for 10g(mW/g)	2.04	2.13	4.4%	Pass
D5GHzV2(5.5GHz)	Impedance, transformed to feed point	50.9Ω-4.94jΩ	49.602Ω-1.48jΩ	<5Ω	Pass
	Return Loss(dB)	-26.1	-27.311	4.6%	Pass
	SAR Value for 1g(mW/g)	7.63	7.74	1.4%	Pass
	SAR Value for 10g(mW/g)	2.13	2.21	3.8%	Pass
D5GHzV2(5.6GHz)	Impedance, transformed to feed point	58.5Ω-0.79jΩ	55.055Ω+2.28jΩ	<5Ω	Pass
	Return Loss(dB)	-22.1	-23.276	5.3%	Pass
	SAR Value for 1g(mW/g)	7.78	8.01	3.0%	Pass
	SAR Value for 10g(mW/g)	2.14	2.23	4.2%	Pass
D5GHzV2(5.8GHz)	Impedance, transformed to feed point	54.3Ω+0.12jΩ	53.011Ω-1.63jΩ	<5Ω	Pass
	Return Loss(dB)	-27.6	-28.28	2.5%	Pass
	SAR Value for 1g(mW/g)	7.66	7.73	0.9%	Pass
	SAR Value for 10g(mW/g)	2.15	2.17	0.9%	Pass

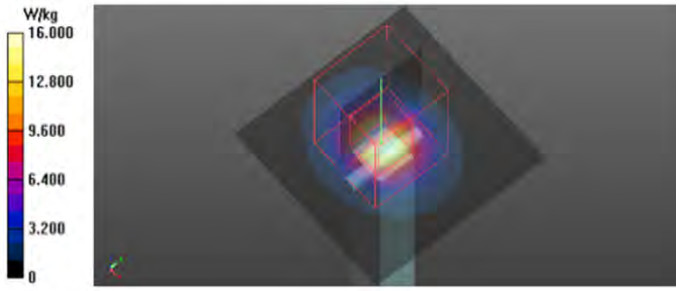
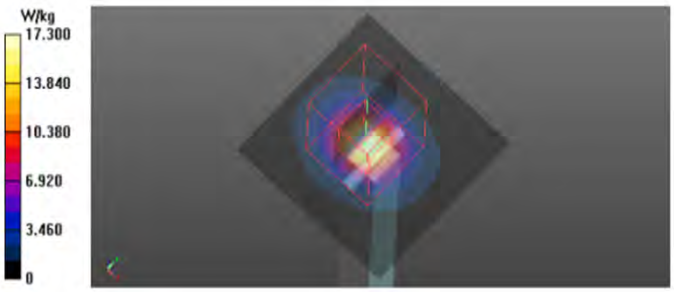
Impedance Test-Head	Return Loss-Head
	

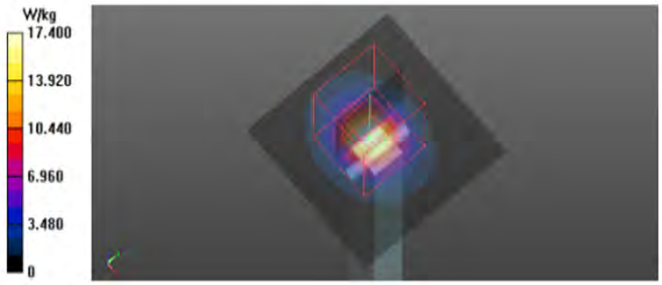
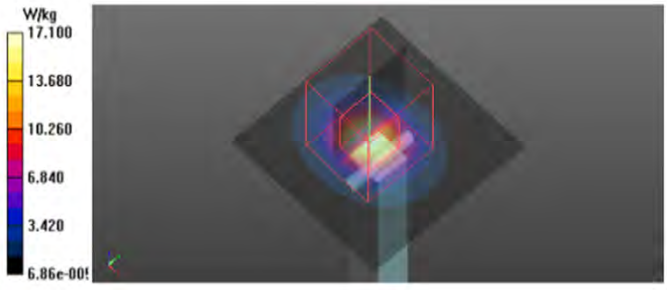
Impedance Test-Body	Return Loss-Body
	

Validation Report for Head TSL of 5.2GHz	Validation Report for Head TSL of 5.3GHz
Test Laboratory: BTL Inc. Date: 2019/12/04	Test Laboratory: BTL Inc. Date: 2019/12/04
System Check_H5200_1204	**System Check_H5300_1204**
DUT: Dipole D5GHzV2;SN;1160;	**DUT: Dipole D5GHzV2;SN;1160;**
Communication System: UID 0, CW (0); Frequency: 5200 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5200 MHz; σ = 4.756 S/m; ε_r = 35.67; ρ = 1000 kg/m^3 Ambient Temperature : 23.2 ℃; Liquid Temperature : 22.3 ℃	Communication System: UID 0, CW (0); Frequency: 5300 MHz; Duty Cycle: 1:1 Medium parameters used (interpolated): f = 5300 MHz; σ = 4.869 S/m; ε_r = 35.413; ρ = 1000 kg/m^3 Ambient Temperature : 23.2 ℃; Liquid Temperature : 22.3 ℃
DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(5.54, 5.54, 5.54) @ 5200 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)	DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(5.21, 5.21, 5.21) @ 5300 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)
Area Scan (6x6x1): Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 16.8 W/kg	**Area Scan (6x6x1):** Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 16.8 W/kg
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 60.39 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 34.2 W/kg **SAR(1 g) = 7.84 W/kg; SAR(10 g) = 2.24 W/kg** Maximum value of SAR (measured) = 16.8 W/kg	**Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 59.72 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 34.9 W/kg **SAR(1 g) = 7.72 W/kg; SAR(10 g) = 2.2 W/kg** Maximum value of SAR (measured) = 16.6 W/kg
	

Validation Report for Head TSL of 5.5GHz	Validation Report for Head TSL of 5.6GHz
Test Laboratory: BTL Inc. Date: 2019/12/04 **System Check_H5500_1204** **DUT: Dipole D5GHzV2;** Communication System: UID 0, CW (0); Frequency: 5500 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5500 MHz; σ = 5.089 S/m; ε_r = 34.996; ρ = 1000 kg/m^3 Ambient Temperature : 23.2 ℃; Liquid Temperature : 22.3 ℃ DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(4.95, 4.95, 4.95) @ 5500 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450) **Area Scan (6x6x1):** Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 16.9 W/kg **Zoom Scan (7x7x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 58.79 V/m; Power Drift = 0.04 dB Peak SAR (extrapolated) = 37.2 W/kg **SAR(1 g) = 7.79 W/kg; SAR(10 g) = 2.21 W/kg** Maximum value of SAR (measured) = 16.9 W/kg 	Test Laboratory: BTL Inc. Date: 2019/12/04 **System Check_H5600_1204** **DUT: Dipole D5GHzV2;** Communication System: UID 0, CW (0); Frequency: 5600 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5600 MHz; σ = 5.212 S/m; ε_r = 34.691; ρ = 1000 kg/m^3 Ambient Temperature : 23.2 ℃; Liquid Temperature : 22.3 ℃ DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(4.81, 4.81, 4.81) @ 5600 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450) **Area Scan (6x6x1):** Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 17.4 W/kg **Zoom Scan (7x7x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 58.21 V/m; Power Drift = 0.08 dB Peak SAR (extrapolated) = 38.4 W/kg **SAR(1 g) = 7.82 W/kg; SAR(10 g) = 2.19 W/kg** Maximum value of SAR (measured) = 16.8 W/kg 

Validation Report for Head TSL of 5.8GHz	Validation Report for Body TSL of 5.2GHz
Test Laboratory: BTL Inc. Date: 2019/12/04 **System Check_H5800_1204** **DUT: Dipole D5GHzV2;SN;1160;** Communication System: UID 0, CW (0); Frequency: 5800 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5800 MHz; σ = 5.468 S/m; ε_r = 34.215; ρ = 1000 kg/m^3 Ambient Temperature : 23.2 ℃; Liquid Temperature : 22.3 ℃ DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(4.75, 4.75, 4.75) @ 5800 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450) **Area Scan (6x6x1):** Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 17.0 W/kg **Zoom Scan (7x7x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 57.22 V/m; Power Drift = 0.06 dB Peak SAR (extrapolated) = 41.0 W/kg **SAR(1 g) = 7.83 W/kg; SAR(10 g) = 2.19 W/kg** Maximum value of SAR (measured) = 17.1 W/kg 	Test Laboratory: BTL Inc. Date: 2019/12/04 **System Check_B5200_1204** **DUT: Dipole D5GHzV2;SN;1160;** Communication System: UID 0, CW (0); Frequency: 5200 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5200 MHz; σ = 5.368 S/m; ε_r = 47.819; ρ = 1000 kg/m^3 Ambient Temperature : 23.3 ℃; Liquid Temperature : 22.4 ℃ DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(4.68, 4.68, 4.68) @ 5200 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450) **Area Scan (6x6x1):** Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 15.0 W/kg **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 55.25 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 29.3 W/kg **SAR(1 g) = 7.02 W/kg; SAR(10 g) = 2.01 W/kg** Maximum value of SAR (measured) = 15.1 W/kg 

Validation Report for Body TSL of 5.3GHz	Validation Report for Body TSL of 5.5GHz
Test Laboratory: BTL Inc. Date: 2019/12/04 **System Check_B5300_1204** **DUT: Dipole D5GHzV2;SN;1160;** Communication System: UID 0, CW (0); Frequency: 5300 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5300 MHz; σ = 5.503 S/m; ε_r = 47.637; ρ = 1000 kg/m^3 Ambient Temperature : 23.3 ℃; Liquid Temperature : 22.4 ℃ DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(4.51, 4.51, 4.51) @ 5300 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450) **Area Scan (6x6x1):** Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 16.5 W/kg **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 57.20 V/m; Power Drift = -0.05 dB Peak SAR (extrapolated) = 32.1 W/kg **SAR(1 g) = 7.48 W/kg; SAR(10 g) = 2.13 W/kg** Maximum value of SAR (measured) = 16.0 W/kg 	Test Laboratory: BTL Inc. Date: 2019/12/04 **System Check_B5500_1204** **DUT: Dipole D5GHzV2;** Communication System: UID 0, CW (0); Frequency: 5500 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5500 MHz; σ = 5.792 S/m; ε_r = 47.276; ρ = 1000 kg/m^3 Ambient Temperature : 23.3 ℃; Liquid Temperature : 22.4 ℃ DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(4.26, 4.26, 4.26) @ 5500 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450) **Area Scan (6x6x1):** Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 17.0 W/kg **Zoom Scan (7x7x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 57.07 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 37.0 W/kg **SAR(1 g) = 7.74 W/kg; SAR(10 g) = 2.21 W/kg** Maximum value of SAR (measured) = 17.3 W/kg 

Validation Report for Body TSL of 5.6GHz	Validation Report for Body TSL of 5.8GHz
Test Laboratory: BTL Inc. Date: 2019/12/04 **System Check_B5600_1204** **DUT: Dipole D5GHzV2;** Communication System: UID 0, CW (0); Frequency: 5600 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5600 MHz; σ = 5.943 S/m; ε_r = 47.085; ρ = 1000 kg/m^3 Ambient Temperature : 23.3 ℃; Liquid Temperature : 22.4 ℃ DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(4.1, 4.1, 4.1) @ 5600 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450) **Area Scan (6x6x1):** Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 17.6 W/kg **Zoom Scan (7x7x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 55.73 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 39.0 W/kg **SAR(1 g) = 8.01 W/kg; SAR(10 g) = 2.23 W/kg** Maximum value of SAR (measured) = 17.4 W/kg 	Test Laboratory: BTL Inc. Date: 2019/12/04 **System Check_B5800_1204** **DUT: Dipole D5GHzV2;SN;1160;** Communication System: UID 0, CW (0); Frequency: 5800 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5800 MHz; σ = 6.234 S/m; ε_r = 46.686; ρ = 1000 kg/m^3 Ambient Temperature : 23.3 ℃; Liquid Temperature : 22.4 ℃ DASY Configuration: • Probe: EX3DV4 - SN7544; ConvF(4.13, 4.13, 4.13) @ 5800 MHz; Calibrated: 2019/9/9 • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 • Electronics: DAE4 Sn1390; Calibrated: 2019/10/29 • Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1222 • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450) **Area Scan (6x6x1):** Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 16.8 W/kg **Zoom Scan (7x7x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 54.08 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 38.5 W/kg **SAR(1 g) = 7.73 W/kg; SAR(10 g) = 2.17 W/kg** Maximum value of SAR (measured) = 17.1 W/kg 

Calibrator: Rot - Liang

Approver: Herbert Liu