

D835V2 Sn:4d023 (1/2)

Calibration Certificate

Client: SRTC Certificate No: Z17-07135

Calibration Procedure: PP-Z17-005-01
Calibration date: September 12, 2017

This calibration Certificate documents the accuracy in national standards, which make the physical unit of measurement. 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 closest laboratory facility, environment temperature, humidity and humidity.

Calibration Equipment used (METS) (initial for calibration):

Primary Standards	Q#	Cal Date/Calibrated by: Certificate No. ()	Scheduled Calibration
Power Meter (NIST)	100100	30-Mar-17 (JCTL, No. Z1701254)	Mar-18
Power sensor (NIST)	100100	30-Mar-17 (JCTL, No. Z1701254)	Mar-18
Antenna Probe (NIST)	501101	25-Sep-16 (SPLAG, No. 043-1431_16416)	Sep-17
GNSS	501101	19-Jan-17 (JCTL, No. Z1701254)	Jan-18

Secondary Standards	Q#	Cal Date/Calibrated by: Certificate No. ()	Scheduled Calibration
Signal Generator (NIST)	100100	12-Jan-17 (JCTL, No. Z1701254)	Jan-18
Network Analyzer (NIST)	100100	12-Jan-17 (JCTL, No. Z1701254)	Jan-18

Calibrated by: Zhan Jing SRTC Test Engineer
Reviewed by: Yu Zongping SRTC Test Engineer
Approved by: Q. Zhang SRTC Project Leader

Issued: September 12, 2017

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Certificate No: Z17-07135 Page 1 of 4

Calibration Certificate

Client: SRTC Certificate No: Z17-07135

Calibration Procedure: PP-Z17-005-01
Calibration date: September 12, 2017

This calibration Certificate documents the accuracy in national standards, which make the physical unit of measurement. 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 closest laboratory facility, environment temperature, humidity and humidity.

Calibration Equipment used (METS) (initial for calibration):

Primary Standards	Q#	Cal Date/Calibrated by: Certificate No. ()	Scheduled Calibration
Power Meter (NIST)	100100	30-Mar-17 (JCTL, No. Z1701254)	Mar-18
Power sensor (NIST)	100100	30-Mar-17 (JCTL, No. Z1701254)	Mar-18
Antenna Probe (NIST)	501101	25-Sep-16 (SPLAG, No. 043-1431_16416)	Sep-17
GNSS	501101	19-Jan-17 (JCTL, No. Z1701254)	Jan-18

Secondary Standards	Q#	Cal Date/Calibrated by: Certificate No. ()	Scheduled Calibration
Signal Generator (NIST)	100100	12-Jan-17 (JCTL, No. Z1701254)	Jan-18
Network Analyzer (NIST)	100100	12-Jan-17 (JCTL, No. Z1701254)	Jan-18

Calibrated by: Zhan Jing SRTC Test Engineer
Reviewed by: Yu Zongping SRTC Test Engineer
Approved by: Q. Zhang SRTC Project Leader

Issued: September 12, 2017

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Certificate No: Z17-07135 Page 1 of 4

Measurement Conditions

SRTC system configuration, as far as not given on page 1:

BAW Resonator	SAW Resonator	SAW Resonator
Extrapolation	Advanced Extrapolation	Advanced Extrapolation
Phase	Time (1000 Hz) 10	Time (1000 Hz) 10
Distance to Dipole Center - TSL	10 mm	10 mm
Zero State Resolution	40, 40, 40 = 9 mm	40, 40, 40 = 9 mm
Frequency	800 MHz ± 1 kHz	800 MHz ± 1 kHz

Head TSL parameters

The following parameters and calculations were applied:

Parameter	Temperature	Permittivity	Conductivity
Normal Head TSL parameters	20.0 °C	41.3	0.81 mS/m
Measured Head TSL parameters	22.0 ± 0.2 °C	41.3 ± 0.5 %	0.80 mS/m ± 0.5 %
Head TSL temperature change during test	+1.0 °C	—	—

SAR result with Head TSL

Parameter	Condition	Value
SAR averaged over 1 cm ² (1 g) of Head TSL	Condition	2.20 mW/g
SAR measured	250 mW input power	2.20 mW/g
SAR for normal Head TSL parameters	normalized to 1W	8.87 mW/g ± 10.8 % (avg)
SAR averaged over 10 cm ² (10 g) of Head TSL	Condition	1.52 mW/g
SAR measured	250 mW input power	1.52 mW/g
SAR for normal Head TSL parameters	normalized to 1W	6.88 mW/g ± 18.7 % (avg)

Body TSL parameters

The following parameters and calculations were applied:

Parameter	Temperature	Permittivity	Conductivity
Normal Body TSL parameters	20.0 °C	41.3	0.81 mS/m
Measured Body TSL parameters	22.0 ± 0.2 °C	41.3 ± 0.5 %	0.80 mS/m ± 0.5 %
Body TSL temperature change during test	+1.0 °C	—	—

SAR result with Body TSL

Parameter	Condition	Value
SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	2.24 mW/g
SAR measured	250 mW input power	2.24 mW/g
SAR for normal Body TSL parameters	normalized to 1W	8.97 mW/g ± 10.8 % (avg)
SAR averaged over 10 cm ² (10 g) of Body TSL	Condition	1.53 mW/g
SAR measured	250 mW input power	1.53 mW/g
SAR for normal Body TSL parameters	normalized to 1W	6.97 mW/g ± 18.7 % (avg)

Certificate No: Z17-07135 Page 1 of 4

Appendix (Additional assessments outside the scope of CNAS L0870)

Antenna Parameters with Head TSL

Parameter	Value
Impedance, transformed to feed point	51.0 Ω ± 7.0 Ω
Return Loss	-32.7 dB

Antenna Parameters with Body TSL

Parameter	Value
Impedance, transformed to feed point	40.0 Ω ± 2.0 Ω
Return Loss	-29.0 dB

General Antenna Parameters and Design

Parameter	Value
Coaxial Cable (one direction)	1.400 m

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

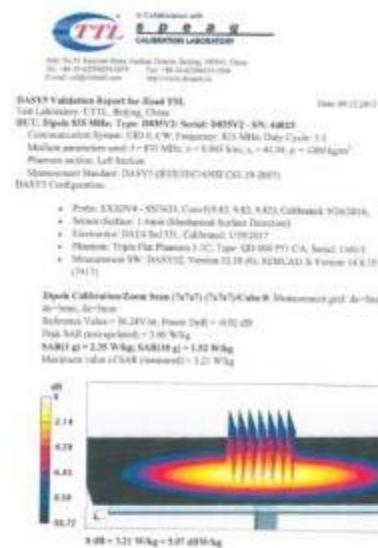
The dipole is made of standard aluminum coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short circuited for DC signals. On both of the dipole arms and coils are added to the dipole arms in order to improve matching when loaded according to the position as depicted 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 BUT Data

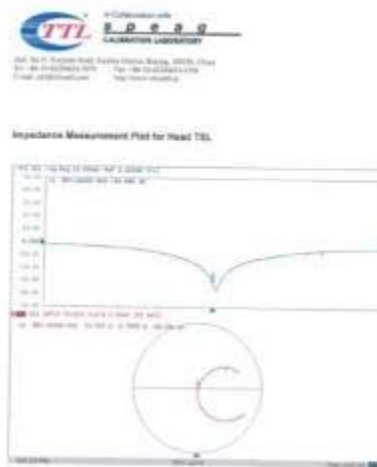
Parameter	Value
Manufactured by	SPLAG

Certificate No: Z17-07135 Page 1 of 4

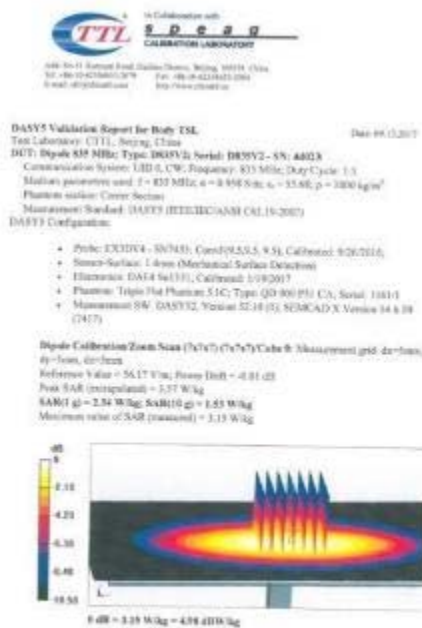
D835V2 Sn:4d023 (2/2)



Certificate No. 21147133 Page 1 of 6



Certificate No. 21147133 Page 4 of 6



Certificate No. 21147133 Page 1 of 6



Certificate No. 21147133 Page 4 of 6

D1800V2 Sn:2d084 (1/2)

Client: SRTC **Certificate No.:** Z17-01138

Calibration Certificate

Object: D1800V2 SN 2d084

Calibration Procedure(s): PF-Z11-003-01
Calibration Procedures for dipole antennas etc.

Calibration date: September 15, 2017

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

All calibrations have been conducted in the closed laboratory facility, environment temperature(23±1)°C and humidity(70%.

Calibration Equipment used (NIST critical for calibration):

Primary Standards	Cert #	Cal Date/Calibrated by Certificate No.:	Scheduled Calibration
Power Sensor: N1912	100196	02-Mar-17 (CTL, No. J1700104)	Mar-18
Power Sensor: N1912	500906	02-Mar-17 (CTL, No. J1700104)	Mar-18
Reference Probe: EX3004	SN 7433	26-Sep-16 (SFCAG, No. FNS-1455, Rev10)	Sep-17
Probe	SN 1331	16-Jun-17 (CTL, GPCAG, No. Z17-01138)	Jun-18

Secondary Standards	Cert #	Cal Date/Calibrated by Certificate No.:	Scheduled Calibration
Signal Generator: E4430C	MH4001430	10-Jan-17 (CTL, No. J1700080)	Jan-18
Network Analyzer: E5071C	MH40118073	10-Jan-17 (CTL, No. J1700080)	Jan-18

Calibrated by: Zhen Jing, SAR Test Engineer, Signature: [Signature]

Reviewed by: Yu Zongping, SAR Test Engineer, Signature: [Signature]

Approved by: Qi Changshu, SAR Project Leader, Signature: [Signature]

Issued September 18, 2017

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Certificate No: Z17-01138

Page 1 of 6

Glossary:

TSL: Ideal simulating liquid
Confl: sensitivity in TSL / NORM, y/z
N/A: not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Device Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) For hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2015
- 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 3GHz)", March 2010
- RDB85964, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- DAST410 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from this 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 this spacer to position its feed point exactly below the center marking of the far phantom section, with the arms oriented parallel to the body arm.
- 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 normal TSL parameters: The measured TSL parameters are used to calculate the normal 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%.

Certificate No: Z17-01138

Page 2 of 6

Measurement Conditions:

SAR system configuration, as far as not given on page 1:

SAR Headset	Headset	52 10.2 1440
Extrapolation	Antenna Extrapolation	
Phantom	Triple Flat Phantom & TC	
Distance Dipole Center - TSL	10 mm	with spacer
Zoom Scan Resolution	45.80, 45 ± 7 mm	
Frequency	1800 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied:

Parameter	Temperature	Permittivity	Conductivity
Normal Head TSL parameters	22.0 ± 1.0 °C	40.0	1.80 mS/m
Measured Head TSL parameters	22.0 ± 0.2 °C	42.4 ± 0.6 %	1.42 mS/m ± 0.6 %
Head TSL temperature change during test	< 1.0 °C		

SAR result with Head TSL

SAR averaged over 1 cm ² of Head TSL	Condition	Value
SAR measured	250 mW input power	0.10 mW/g
SAR for normal Head TSL parameters	normalized to 1W	25.0 mW/g ± 10.8 % (k=2)
SAR averaged over 10 cm ² of Head TSL	Condition	
SAR measured	250 mW input power	0.10 mW/g
SAR for normal Head TSL parameters	normalized to 1W	25.4 mW/g ± 10.7 % (k=2)

Body TSL parameters

The following parameters and calculations were applied:

Parameter	Temperature	Permittivity	Conductivity
Normal Body TSL parameters	22.0 ± 1.0 °C	50.0	1.50 mS/m
Measured Body TSL parameters	22.0 ± 0.2 °C	53.9 ± 0.6 %	1.05 mS/m ± 0.6 %
Body TSL temperature change during test	< 1.0 °C		

SAR result with Body TSL

SAR averaged over 1 cm ² of Body TSL	Condition	Value
SAR measured	250 mW input power	0.14 mW/g
SAR for normal Body TSL parameters	normalized to 1W	35.7 mW/g ± 10.6 % (k=2)
SAR averaged over 10 cm ² of Body TSL	Condition	
SAR measured	250 mW input power	0.13 mW/g
SAR for normal Body TSL parameters	normalized to 1W	33.8 mW/g ± 10.7 % (k=2)

Certificate No: Z17-01138

Page 3 of 6

Appendix (Additional assessments outside the scope of CNAS L8070)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	40.20 ± 1.00 Ω
Return Loss	> 20 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	40.00 ± 1.00 Ω
Return Loss	> 21 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.316 ns
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After long term use with 100W input power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard shielded 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 by DC signals. On some of the dipoles, small wire caps are added to the dipole arms in order to improve matching when tested 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 500 mm according to the Standard. No excessive force should be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

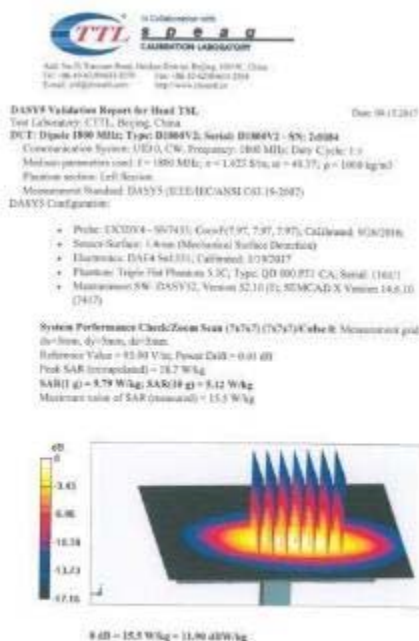
Additional EUT Data

Manufactured by	SPT02
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Certificate No: Z17-01138

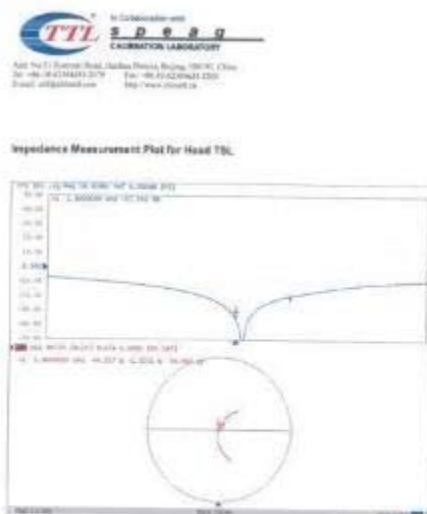
Page 4 of 6

D1800V2 Sn:2d084 (2/2)



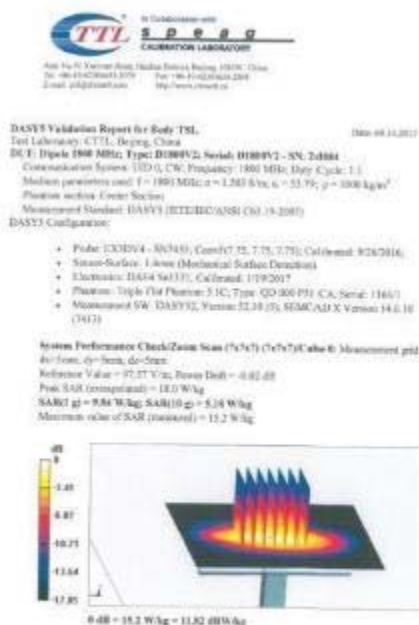
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Page 4 of 8



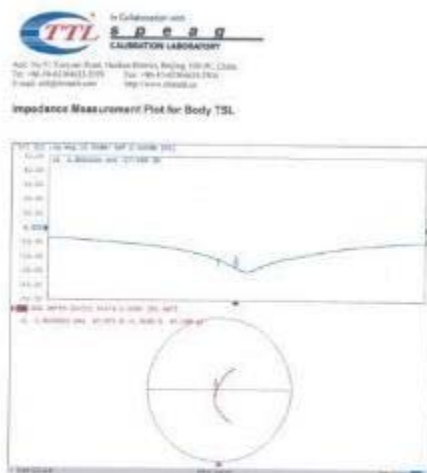
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Page 5 of 8



CalDate No: 217-07118

Page 7 of 8



CalDate No: 217-07118

Page 8 of 8

D2000V2 Sn:1009 (1/2)

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Client: **SRTC** Certificate No.: **Z18-07021**

CALIBRATION CERTIFICATE

Object: **D2000V2 - GH-1009**

Calibration Procedure(s): **RP-211-003-01**
Calibration Procedures for static verification only

Calibration date: **February 5, 2018**

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

All calibrations have been conducted in the closed laboratory facility environment temperature 20.0°C and humidity 45%.

Calibration Equipment used (NISTe critical for calibration)

Primary Standards	ID #	Cal Date/Calibrated by: Certificate No.	Scheduled Calibration
Power Meter: NIVVD	102190	02-Mar-17 (J.TTL, Mo.J17021254)	Mar-18
Power sensor: NIVVJ2	102646	02-Mar-17 (J.TTL, Mo.J17021254)	Mar-18
Reference Probe: EXD24H	SN 1464	12-Sep-17 (SPFA/AG/NO.5292-194H_Sep17)	Sep-18
ISMA	SN 1528	02-Oct-17 (SPFA/AG/NO.5454-1528_Oct17)	Oct-18

Secondary Standards	ID #	Cal Date/Calibrated by: Certificate No.	Scheduled Calibration
Signal Generator: E4438C	MP4802143C	23-Jan-18 (J.TTL, No.J18030562)	Jan-19
Network Analyzer: B1671C	MY4610073	24-Apr-18 (J.TTL, No.J18040050)	Jan-19

Calibrated by: **Zhao Jing** SAR Test Engineer

Reviewed by: **Li-Hao** SAR Test Engineer

Approved by: **Qi Qianyan** SAR Project Leader

Issued: February 4, 2018

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Certificate No. Z18-07021

Page 1 of 8

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Client: **SRTC** Certificate No.: **Z18-07021**

Appendix

Glossary:

TSL: tissue simulating liquid
ConF: conformity in TSL / NORMs, p.1
NA: not applicable or not measured

Calibration is performed according to the following standards:

- IEC 61024-1, "IEC 61024-1: Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Device Measurement Techniques", June 2013
- 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 300 MHz to 3 GHz)", July 2016
- 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 300 MHz to 6 GHz)", March 2016
- IEC 62209-3, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documents/Books:

- IEC 62209-3, SAR Measurement Requirements for 100 MHz to 6 GHz

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 this 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.
- Cable 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%.

Certificate No. Z18-07021

Page 1 of 8

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Measurement Conditions

DUT system configuration, see for an example on page 5

Parameter	Value	Uncertainty
Antenna	Advanced Calibration	±0.10 dB
Phantom	Triple Flat Phantom: 5.5C	±0.10 dB
Distance Dipole Center - TSL	10 mm	±0.10 mm
Antenna Head Reproduction	10 mm	±0.10 mm
Frequency	2320 MHz ± 1 MHz	±0.10 MHz

Head TSL parameters

The following parameters and calculations were applied:

Parameter	Value	Uncertainty
Measured Head TSL parameters	22.8 °C	±0.5 °C
Measured Head TSL parameters	22.8 ± 0.2 °C	±0.5 °C
Head TSL temperature change during test	+1.8 °C	±0.5 °C

SAR result with Head TSL

Parameter	Value	Uncertainty
SAR averaged over 1 cm ² (1 g) of Head TSL	12.2 mW/kg	±0.5 mW/kg
SAR for nominal Head TSL parameters	normalized to 1W	49.3 mW/kg ± 19.3 mW/kg
SAR averaged over 10 cm ² (10 g) of Head TSL	Condition	Condition
SAR measured	22.8 mW/kg	±0.5 mW/kg
SAR for nominal Head TSL parameters	normalized to 1W	20.5 mW/kg ± 18.7 mW/kg

Body TSL parameters

The following parameters and calculations were applied:

Parameter	Value	Uncertainty
Measured Body TSL parameters	20.0 °C	±0.5 °C
Measured Body TSL parameters	20.0 ± 0.2 °C	±0.5 °C
Body TSL temperature change during test	+1.8 °C	±0.5 °C

SAR result with Body TSL

Parameter	Value	Uncertainty
SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	Condition
SAR measured	22.8 mW/kg	±0.5 mW/kg
SAR for nominal Body TSL parameters	normalized to 1W	49.3 mW/kg ± 19.3 mW/kg
SAR averaged over 10 cm ² (10 g) of Body TSL	Condition	Condition
SAR measured	22.8 mW/kg	±0.5 mW/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.5 mW/kg ± 18.7 mW/kg

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Page 3 of 8

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Appendix (Additional assessments outside the scope of CNAS L8873)

Antenna Parameters with Head TSL

Parameter	Value	Uncertainty
Impedance, transformed to feed point	49.3 ± 0.05 Ω	±0.05 Ω
Return Loss	-31.5 dB	±0.1 dB

Antenna Parameters with Body TSL

Parameter	Value	Uncertainty
Impedance, transformed to feed point	49.3 ± 0.05 Ω	±0.05 Ω
Return Loss	-31.5 dB	±0.1 dB

General Antenna Parameters and Design

Parameter	Value	Uncertainty
Element Delay (one direction)	1.047 ns	±0.001 ns

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

The dipole is made of standard enameled copper cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited at DC voltage. On some of the dipoles, small metal caps are added to the dipole arms in order to improve matching when loaded according to the position as indicated in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall cable 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.

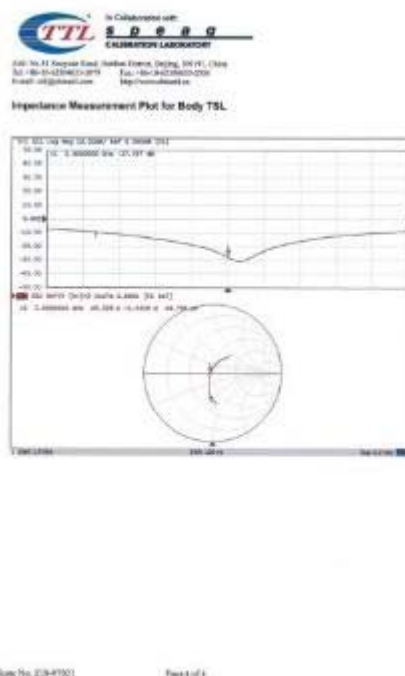
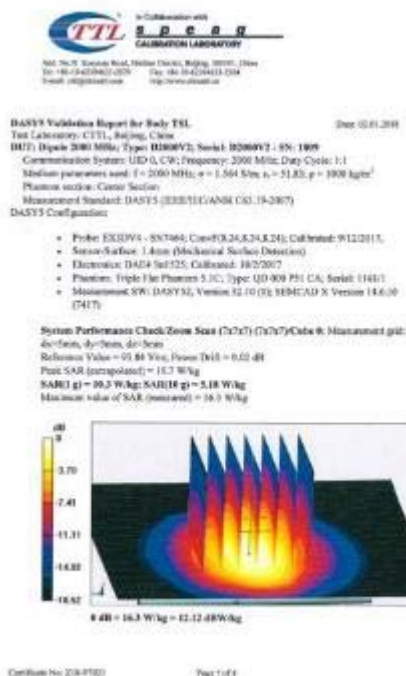
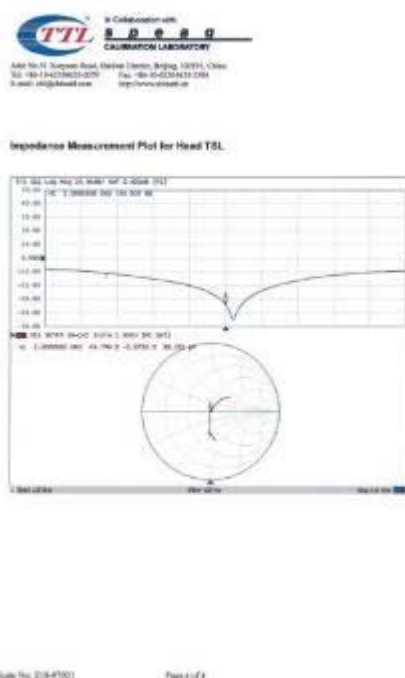
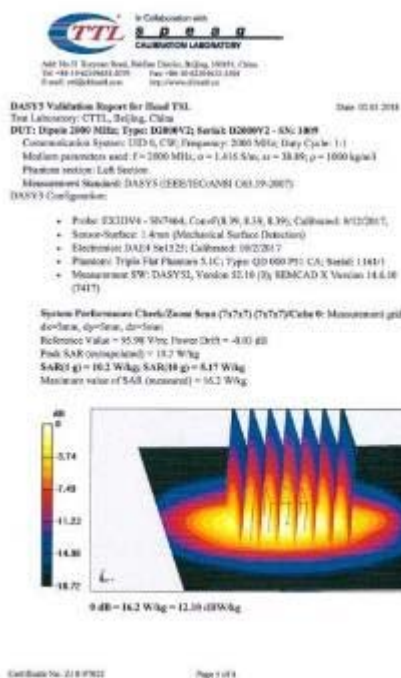
Additional EUT Data

Parameter	Value	Uncertainty
Manufactured by	SPFA	±0.10 dB

Certificate No. Z18-07021

Page 4 of 8

D2000V2 Sn:1009 (2/2)



D2450V2 Sn:738 (1/2)

TTL In Collaboration with **SPCAG** CALIBRATION LABORATORY

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E-mail: srtc@ttdi.com.cn Web: www.ttdi.com.cn

Client: **SRTC** Certificate No.: **Z17-07140**

CALIBRATION CERTIFICATE

Object: **D450V2 - W: TSL**

Calibration Procedure(s): **PP-215-003-01**
Calibration Procedure for dipole calibration kit

Calibration date: **September 18, 2017**

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

All calibrations have been conducted in the closest laboratory facility environment temperature(s): and humidity(ies).

Calibration Equipment used (SRTC official for calibration)

Primary Standards	ID #	Cal Date/Calibrated by Certificate No.	Scheduled Calibration
Power Meter: NISTD	102146	02-May-17 (CITL No. J17001254)	May-18
Power sensor: NIST-25	100546	02-May-17 (CITL No. J17001254)	May-18
Reference Probe EX300A	04-1433	29-Sep-16 (SPCAG No. E25-1432_Sep16)	Sep-17
SWR	04-1431	18-Jan-17 (CITL SPCAG No. Z17-07015)	Jan-18

Secondary Standards	ID #	Cal Date/Calibrated by Certificate No.	Scheduled Calibration
Signal Generator: R430C	M140071430	15-Jan-17 (CITL No. J17000885)	Jan-18
Network Analyzer: R107C	M140119073	15-Jan-17 (CITL No. J17000885)	Jan-18

Calibrated by: **Zhao Jing** SAR Test Engineer Signature: *[Signature]*

Reviewed by: **Yu Zongping** SAR Test Engineer Signature: *[Signature]*

Approved by: **Qi Chenyuan** SAR Project Leader Signature: *[Signature]*

Issued: September 21, 2017

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Glossary:

TSL: Issue simulating liquid

Const: sensitivity in TSL NORM, y/a

N/A: not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1529-2015, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2015.
- IEC 62209-1, "Measurement procedures 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 3GHz)", July 2016.
- 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.
- ICNIRG 1998, "SAR Measurement Requirements for 100 MHz to 6 GHz".

Additional Documentation:

a) D450V2 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 measured with the spacer to position its feed point exactly below the center marking of the flat platform 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 is obtained by transformation 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 normal TSL parameters:** The measured TSL parameters are used to calculate the normal 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%.

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Page 2 of 8

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Measurement Conditions

SRTC system configuration, see for details at page 1.

DAF Version	D450V2	92-10-0 (440)
Exposure position <td>Adopted Exposure</td> <td></td>	Adopted Exposure	
Phantom <td>Triaxial Flat Phantom 10</td> <td></td>	Triaxial Flat Phantom 10	
Distance Dipole Center - TSL <td>10 mm</td> <td>with spacer</td>	10 mm	with spacer
Power Plane Resolution <td>0.1 dB / 2°</td> <td></td>	0.1 dB / 2°	
Frequency <td>2450 MHz ± 1 MHz</td> <td></td>	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied:

Parameter	Temperature	Permittivity	Conductivity
Normal Head TSL parameters	22.0 °C	52.0	1.80 mS/m
Measured Head TSL parameters	22.0 ± 0.5 °C	52.0 ± 0.5 %	1.80 mS/m ± 0.5 %
Head TSL temperature change during test	+1.0 °C		

SAR result with Head TSL

SAR averaged over 1 cm ² (1 g) of Head TSL	Condition	Result
SAR measured	250 mW input power	12.1 mW/g
SAR for normal Head TSL parameters	normalized to 1W	30.2 mW/g ± 18.0 % (k=2)
SAR averaged over 10 cm ² (10 g) of Head TSL <td>Condition</td> <td>Result</td>	Condition	Result
SAR measured	250 mW input power	6.10 mW/g
SAR for normal Head TSL parameters	normalized to 1W	14.4 mW/g ± 18.7 % (k=2)

Body TSL parameters

The following parameters and calculations were applied:

Parameter	Temperature	Permittivity	Conductivity
Normal Body TSL parameters	32.0 °C	52.0	1.00 mS/m
Measured Body TSL parameters	32.0 ± 0.5 °C	52.0 ± 0.5 %	1.00 mS/m ± 0.5 %
Body TSL temperature change during test	+1.0 °C		

SAR result with Body TSL

SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	Result
SAR measured	250 mW input power	12.2 mW/g
SAR for normal Body TSL parameters	normalized to 1W	30.2 mW/g ± 18.0 % (k=2)
SAR averaged over 10 cm ² (10 g) of Body TSL <td>Condition</td> <td>Result</td>	Condition	Result
SAR measured	250 mW input power	6.10 mW/g
SAR for normal Body TSL parameters	normalized to 1W	14.4 mW/g ± 18.7 % (k=2)

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Page 3 of 8

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Appendix (Additional measurements outside the scope of CNAS L8870)

Antenna Parameters with Head TSL

Parameter	Result
Impedance, transformed to feed point	21.20 ± 0.30 Ω
Return Loss	-24.5 dB

Antenna Parameters with Body TSL

Parameter	Result
Impedance, transformed to feed point	47.60 ± 0.30 Ω
Return Loss	-23.1 dB

General Antenna Parameters and Design

Parameter	Result
Electrical Delay (one direction)	1.280 ns

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

The dipole is made of stainless steel spiral coils. 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 and large arms are added to the dipole axis in order to increase shielding 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 Standards. The SAR data are not affected by this change. The overall dipole length is still according to the Standards. The SAR data are not affected by this change. The overall dipole length is still according to the Standards.

Additional EUT Data

Manufacturer	SPCAG
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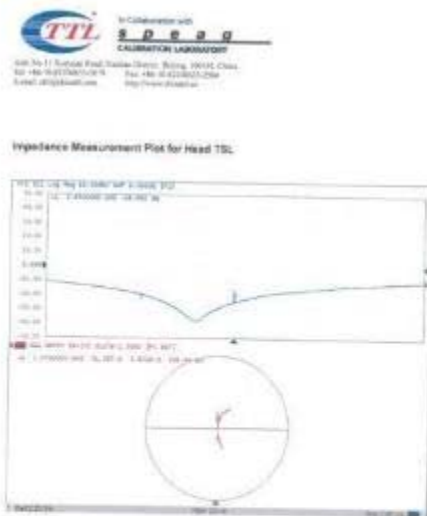
Page 4 of 8

D2450V2 Sn:738 (2/2)



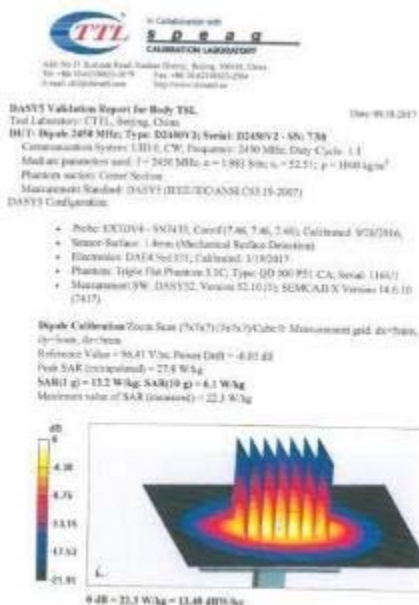
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Page 7 of 8



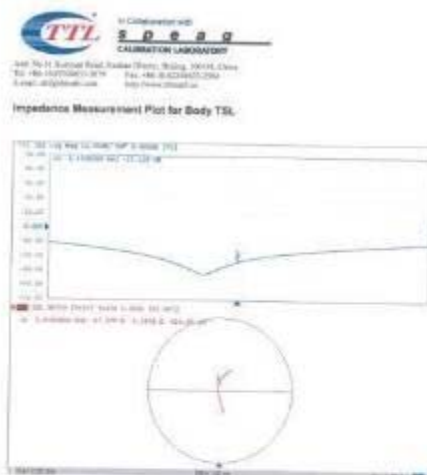
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Page 8 of 8



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Page 7 of 8



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Page 8 of 8

D5GHzV2 Sn:1079 (1/4)

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Client	SRTC	Certificate No.	Z17-01533
CALIBRATION CERTIFICATE			
Client	DSGHVQ2-101 1079		
Calibration Procedures	FF-Z17-005.01 Calibration Procedures for digital calibration kits		
Calibration date	September 28, 2017		
This Calibration Certificate documents the traceability to national standards, which realize the physical units of measurement(s). 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 closest laboratory facility environment temperature(20±0.5°C) humidity(70%).			
Calibration Equipment used (MPE's actual for calibration)			
Primary Standards	ID #	Cal Dates/Calibrated by Certificate No.)	Scheduled Calibration
Power Meter /HP92	122196	22-Mar-17 (CTTL No.J17001254)	May-18
Power sensor /NRP-235	122086	22-Mar-17 (CTTL No.J17001254)	May-18
Reference probe EXCDA3	SN 3846	13-Jan-17(CTTL SPGAS.No.Z16-07251)	Jan-18
DSD4	SN 1231	19-Jan-17(CTTL-SPGAS.No.Z17-00118)	Jan-18
Secondary Standards	ID #	Cal Dates/Calibrated by Certificate No.)	Scheduled Calibration
Signal Generator EA4302	MH9071438	13-Jan-17 (CTTL No.J17A00208)	Jan-18
Network Analyzer S30716	N198119673	13-Jan-17 (CTTL No.J17A00208)	Jan-18
Carried out by	Name Zhao Jing	Function SAR Test Engineer	Signature 
Reviewed by	Yu Zongying	SAR Test Engineer	
Approved by	Ji Dianxin	SAR Project Leader	
Issued: September 29, 2017			
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Display: TSL Conf: N/A	Issue simulating liquid sensitivity in TSL / NORMA.y.z not applicable or not measured
Calibration is Performed According to the Following Standards:	
a) IEEE Std 1529-2013, "IEEE Recommended Practice for Determining the Peak 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 3GHz)", July 2016	
c) IEC 62209-2, "Measurement to measure the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 3GHz)", March 2016	
d) ETSI 895994, SAR Measurement Requirements for 100 MHz to 6 GHz	
Additional Documentation:	
a) DASY6 System Handbook	
Methods Applied and Interpretation of Parameters:	
a) Measurement Condition: 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.	
b) Average Parameters with TSL: The dipole is mounted with the spacers to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.	
c) Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance is transformed from the feed point to the SMA connector in the feed point. The Return Loss ensures low reflected power. No uncertainty required.	
d) Electrical Delay: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.	
e) SAR measured: SAR measured at the stated antenna input power.	
f) SAR normalized: SAR as measured at an input power of 1 W at the antenna connector.	
g) SAR for nonoral TSL parameters: The measured TSL parameters are used to calculate the overall SAR result.	

Cont. from Sec. 219-47(3)

Page 2 of 16



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Measurement Conditions

ES&G applies configuration, as far as not given on page 1.

DARTY Version	DARTY2	10, 10, 0, 1440
Pre-amplifier	Advanced Examination	
Phantom	Triple Flat Phantom 6-10	
Distance (Source Center - TSL)	10 mm	with Splicer
Scatter Shield Rescuer	46.9 ± 4.7 mm, 66 ± 1.6 mm	Ceased Ratio = 1.4 (2 detectors)
Frequency	2100 kHz ± 1 MHz 3300 kHz ± 1 MHz 3300 kHz ± 1 MHz 5000 kHz ± 1 MHz 5000 kHz ± 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters are (calculated) were applied:

	Temperature	Reactivity	Efficiency
Normal Head TSL parameters	23.0 °C	30.0	4.46 mSv/mSv
Measured Head TSL parameters	32.6 ± 0.9 °C	39.7 ± 6.6	4.82 mSv/mSv ± 6.6
Head TSL temperature change starting test	< 1.0 °C		

SAR result with Head TSL at 5200 MHz

	Condition	
SAR averaged over 1 cm ³ (2 g) of Head TSL		
SAR measured	100 mW /out power	7.71 mW / g
SAR for normal Head TSL parameters	normalised to 1W	17.6 mW/g (24.6 J/kg)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Constant	
SAR measured	130 mW /out power	2.24 mW / g
SAR for normal Head TSL parameters	normalised to 1W	22.3 mW/g (34.2 J/kg)

Environ Biol Fish (2014) 97:491–501

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Heat TSL parameters at 1300 MHz

The following parameters and conditions were applied

	Temperature	Permittivity	Conductivity
Nominal Heat TSL parameters	32.0 °C	10.5	4.75 mS/m
Measured Heat TSL parameters	32.0 ± 0.5 °C	10.1 ± 0.5	4.67 mS/m ± 0.5
Heat TSL Temperature change during test	+1.2 °C	---	---

SAR result with Heat TSL at 1300 MHz

	Condition	
SAR averaged over 1 cm ³ (1 g) of Heat TSL	100 mW input power	0.12 mW/g
SAR measured	---	---
SAR for nominal Heat TSL parameters	normalised to 1W	01.3 mW/g ± 0.6 M ± 0.2
SAR averaged over 10 cm ³ (10 g) of Heat TSL	Condition	---
SAR measured	100 mW input power	0.30 mW/g
SAR for nominal Heat TSL parameters	normalised to 1W	01.2 mW/g ± 0.6 M ± 0.2

Heat TSL parameters at 3500 MHz

The following parameters and conditions were applied

	Temperature	Permittivity	Conductivity
Nominal Heat TSL parameters	32.0 °C	10.5	4.98 mS/m
Measured Heat TSL parameters	32.0 ± 0.5 °C	10.5 ± 0.5	4.65 mS/m ± 0.5
Heat TSL Temperature change during test	+1.2 °C	---	---

SAR result with Heat TSL at 3500 MHz

	Condition	
SAR averaged over 1 cm ³ (1 g) of Heat TSL	100 mW input power	0.26 mW/g
SAR measured	---	---
SAR for nominal Heat TSL parameters	normalised to 1W	02.6 mW/g ± 0.6 M ± 0.2
SAR averaged over 10 cm ³ (10 g) of Heat TSL	Condition	---
SAR measured	100 mW input power	0.57 mW/g
SAR for nominal Heat TSL parameters	normalised to 1W	02.6 mW/g ± 0.6 M ± 0.2

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Head TSL parameters at 5890 MHz
The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Normal Head TSL parameters	22.0 °C	39.0	0.07 mho/cm
Measured Head TSL parameters	22.0 ± 0.2 °C	38.7 ± 0.6 %	0.08 mho/cm ± 0.6 %
Head TSL temperature change during test	< ± 0.1 °C	—	—

SAR result with Head TSL at 5890 MHz

	Condition	
SAR averaged over 1 cm ² (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.18 mW/g
SAR for normal Head TSL parameters	normalized to 1W	81.8 mW/g ± 0.4 % (k=2)
SAR averaged over 10 cm ² (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.34 mW/g
SAR for normal Head TSL parameters	normalized to 1W	23.4 mW/g ± 0.4 % (k=2)

Head TSL parameters at 5800 MHz
The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Normal Head TSL parameters	22.0 °C	39.0	0.07 mho/cm
Measured Head TSL parameters	22.0 ± 0.2 °C	38.8 ± 0.6 %	0.08 mho/cm ± 0.6 %
Head TSL temperature change during test	< ± 0.1 °C	—	—

SAR result with Head TSL at 5800 MHz

	Condition	
SAR averaged over 1 cm ² (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.55 mW/g
SAR for normal Head TSL parameters	normalized to 1W	75.5 mW/g ± 0.4 % (k=2)
SAR averaged over 10 cm ² (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.21 mW/g
SAR for normal Head TSL parameters	normalized to 1W	22.1 mW/g ± 0.4 % (k=2)

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Page 4 of 16

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Body TSL parameters at 5890 MHz
The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Normal Body TSL parameters	22.0 °C	40.0	0.30 mho/cm
Measured Body TSL parameters	22.0 ± 0.2 °C	40.4 ± 0.6 %	0.38 mho/cm ± 0.6 %
Body TSL temperature change during test	< ± 0.1 °C	—	—

SAR result with Body TSL at 5890 MHz

	Condition	
SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.52 mW/g
SAR for normal Body TSL parameters	normalized to 1W	75.2 mW/g ± 0.4 % (k=2)
SAR averaged over 10 cm ² (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.12 mW/g
SAR for normal Body TSL parameters	normalized to 1W	21.2 mW/g ± 0.4 % (k=2)

Body TSL parameters at 5800 MHz
The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Normal Body TSL parameters	22.0 °C	40.0	0.42 mho/cm
Measured Body TSL parameters	22.0 ± 0.2 °C	40.2 ± 0.6 %	0.50 mho/cm ± 0.6 %
Body TSL temperature change during test	< ± 0.1 °C	—	—

SAR result with Body TSL at 5800 MHz

	Condition	
SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.68 mW/g
SAR for normal Body TSL parameters	normalized to 1W	76.8 mW/g ± 0.4 % (k=2)
SAR averaged over 10 cm ² (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.18 mW/g
SAR for normal Body TSL parameters	normalized to 1W	21.8 mW/g ± 0.4 % (k=2)

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Page 4 of 16

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Body TSL parameters at 5890 MHz
The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Normal Body TSL parameters	22.0 °C	40.0	0.30 mho/cm
Measured Body TSL parameters	22.0 ± 0.2 °C	40.0 ± 0.6 %	0.32 mho/cm ± 0.6 %
Body TSL temperature change during test	< ± 0.1 °C	—	—

SAR result with Body TSL at 5890 MHz

	Condition	
SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	8.22 mW/g
SAR for normal Body TSL parameters	normalized to 1W	82.2 mW/g ± 0.4 % (k=2)
SAR averaged over 10 cm ² (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.35 mW/g
SAR for normal Body TSL parameters	normalized to 1W	23.5 mW/g ± 0.4 % (k=2)

Body TSL parameters at 5800 MHz
The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Normal Body TSL parameters	22.0 °C	40.0	0.37 mho/cm
Measured Body TSL parameters	22.0 ± 0.2 °C	40.4 ± 0.6 %	0.50 mho/cm ± 0.6 %
Body TSL temperature change during test	< ± 0.1 °C	—	—

SAR result with Body TSL at 5800 MHz

	Condition	
SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	8.05 mW/g
SAR for normal Body TSL parameters	normalized to 1W	80.5 mW/g ± 0.4 % (k=2)
SAR averaged over 10 cm ² (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.36 mW/g
SAR for normal Body TSL parameters	normalized to 1W	23.6 mW/g ± 0.4 % (k=2)

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Body TSL parameters at 5890 MHz
The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Normal Body TSL parameters	22.0 °C	40.0	0.30 mho/cm
Measured Body TSL parameters	22.0 ± 0.2 °C	40.0 ± 0.6 %	0.34 mho/cm ± 0.6 %
Body TSL temperature change during test	< ± 0.1 °C	—	—

SAR result with Body TSL at 5890 MHz

	Condition	
SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.73 mW/g
SAR for normal Body TSL parameters	normalized to 1W	77.3 mW/g ± 0.4 % (k=2)
SAR averaged over 10 cm ² (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.17 mW/g
SAR for normal Body TSL parameters	normalized to 1W	21.7 mW/g ± 0.4 % (k=2)

Body TSL parameters at 5800 MHz
The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Normal Body TSL parameters	22.0 °C	40.0	0.37 mho/cm
Measured Body TSL parameters	22.0 ± 0.2 °C	40.4 ± 0.6 %	0.50 mho/cm ± 0.6 %
Body TSL temperature change during test	< ± 0.1 °C	—	—

SAR result with Body TSL at 5800 MHz

	Condition	
SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.73 mW/g
SAR for normal Body TSL parameters	normalized to 1W	77.3 mW/g ± 0.4 % (k=2)
SAR averaged over 10 cm ² (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.17 mW/g
SAR for normal Body TSL parameters	normalized to 1W	21.7 mW/g ± 0.4 % (k=2)

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Appendix (Additional measurements outside the scope of CNAS L0570)	
Antenna Parameters with Head TSL at 5380 MHz	
Impedance, transformed to feed point	47.640 - j6.710
Return Loss	-20.14dB
Antenna Parameters with Head TSL at 5300 MHz	
Impedance, transformed to feed point	46.780 - j6.610
Return Loss	-21.46dB
Antenna Parameters with Head TSL at 5500 MHz	
Impedance, transformed to feed point	50.710 - j7.140
Return Loss	-23.08dB
Antenna Parameters with Head TSL at 5600 MHz	
Impedance, transformed to feed point	55.220 - j4.290
Return Loss	-24.14dB
Antenna Parameters with Head TSL at 5800 MHz	
Impedance, transformed to feed point	62.250 - j3.910
Return Loss	-21.60dB
Antenna Parameters with Body TSL at 5380 MHz	
Impedance, transformed to feed point	50.800 - j9.110
Return Loss	-23.56dB
Antenna Parameters with Body TSL at 5300 MHz	
Impedance, transformed to feed point	49.930 - j8.860
Return Loss	-21.18dB

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Antenna Parameters with Body TSL at 5580 MHz	
Impedance, transformed to feed point	54.940 - j8.850
Return Loss	-21.56dB
Antenna Parameters with Body TSL at 5600 MHz	
Impedance, transformed to feed point	48.910 - j2.280
Return Loss	-23.78dB
Antenna Parameters with Body TSL at 5800 MHz	
Impedance, transformed to feed point	60.710 - j9.120
Return Loss	-20.34dB
General Antenna Parameters and Design	
Electrical (Size) and structure	1.213m
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 extruded metal tube. The center conductor of the feeding line is directly connected to the center wire of the dipole. The antenna is designed to be connected to DC ground. On some of the dipoles, small seal caps are added to the dipole arms in order to improve matching when located according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by its change. The overall dipole is given in accordance to the Standard. No excessive force must be applied to the dipole arms, because they may be bent or the soldered connections near the feedpoint may be damaged.	
Additional EUT Data	
Manufacturer for	SPEERG

Certificate No: Z17-0110

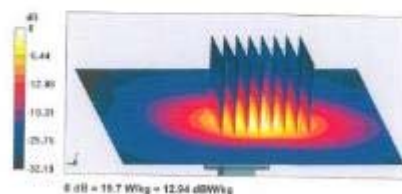
Page 4 of 4

TTL in Collaboration with S P E R G CALIBRATION LABORATORY Address: No. 11, Suzhou Road, Suzhou District, Beijing, 100013, China Tel: +86-10-52054313/31313131 Fax: +86-10-52054313/31313131 E-mail: srtc@ttdi.com.cn http://www.ttdi.com.cn	
DASY5 Validation Report for Head TSL	
Test Laboratory: TTL, Beijing, China	
EUT: Dipole 5GHz, Type: D5GHzV2, Serial: D5GHzV2 - SN: 1079	
Communication System: CW, Frequency: 5300 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz	
Medium parameters used: f = 5300 MHz, $\alpha = 4.610$ mW/kg, $\mu = 35.72$, $\rho = 1000$ kg/m ³ , Medium parameters used: f = 5500 MHz, $\alpha = 4.685$ mW/kg, $\mu = 35.86$, $\rho = 1000$ kg/m ³ , Medium parameters used: f = 5600 MHz, $\alpha = 4.834$ mW/kg, $\mu = 35.92$, $\rho = 1000$ kg/m ³ , Medium parameters used: f = 5800 MHz, $\alpha = 4.664$ mW/kg, $\mu = 35.73$, $\rho = 1000$ kg/m ³ , Medium parameters used: f = 5800 MHz, $\alpha = 5.150$ mW/kg, $\mu = 35.83$, $\rho = 1000$ kg/m ³	
Phantom section: Left Section	
Measurement Standard: DASY5 (IEEE/IEC/ANSI C37.19-2007)	
DASY5 Configuration:	
- Probe: EX304 - 80348, Conf#(5.37.5.37.5.37), Calibrated: 1/13/2017, Conf#(5.37.5.37.5.37), Calibrated: 1/13/2017, Conf#(4.72.4.72.4.72) - Calibrated: 1/13/2017, Conf#(4.72.4.72.4.72), Calibrated: 1/13/2017, Conf#(4.95.4.95.4.95), Calibrated: 1/13/2017 - Sensor: Surface, 1.4mm (Mechanical Surface Detector) - Electronics: DAE4 De1331, Calibrated: 2017/1/10 - Phantom: Triple Flat Phantom 5.1C, Type: 00 000 P61 CA, Serial: 1161/8 - Measurement SW: DASY52, Version: 52.10 (B), SEMCAD X Version: 14.5.10 (7417)	
Dipole Calibration (Pin=100mW, d=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0; Measurement grid: 3x4mm, dy=4mm, dz=1.4mm; Reference Value = 57.81 V/m; Power Drift = -0.01 dB; Peak SAR (extrapolated) = 30.8 W/kg; SAR(1 g) = 7.77 W/kg; SAR(10 g) = 2.24 W/kg; Maximum value of SAR (measured) = 18.2 W/kg	
Dipole Calibration (Pin=100mW, d=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0; Measurement grid: 3x4mm, dy=4mm, dz=1.4mm; Reference Value = 55.19 V/m; Power Drift = 0.05 dB; Peak SAR (extrapolated) = 33.7 W/kg; SAR(1 g) = 6.12 W/kg; SAR(10 g) = 2.32 W/kg; Maximum value of SAR (measured) = 19.3 W/kg	

Certificate No: Z17-0110

Page 11 of 16

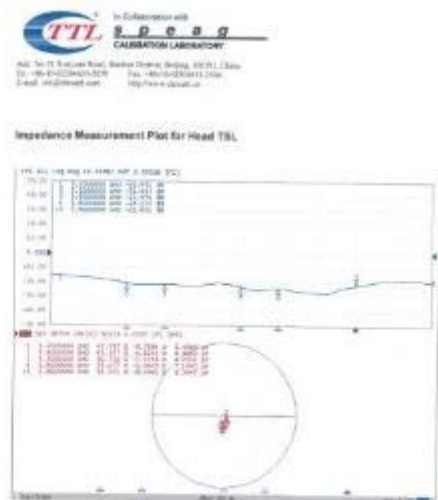
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Dipole Calibration (Pin=100mW, d=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0; Measurement grid: 3x4mm, dy=4mm, dz=1.4mm; Reference Value = 57.81 V/m; Power Drift = 0.02 dB; Peak SAR (extrapolated) = 34.2 W/kg; SAR(1 g) = 6.24 W/kg; SAR(10 g) = 2.27 W/kg; Maximum value of SAR (measured) = 18.8 W/kg	
Dipole Calibration (Pin=100mW, d=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0; Measurement grid: 3x4mm, dy=4mm, dz=1.4mm; Reference Value = 57.81 V/m; Power Drift = 0.04 dB; Peak SAR (extrapolated) = 35.7 W/kg; SAR(1 g) = 6.16 W/kg; SAR(10 g) = 2.34 W/kg; Maximum value of SAR (measured) = 22.0 W/kg	
Dipole Calibration (Pin=100mW, d=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0; Measurement grid: 3x4mm, dy=4mm, dz=1.4mm; Reference Value = 53.58 V/m; Power Drift = -0.08 dB; Peak SAR (extrapolated) = 35.0 W/kg; SAR(1 g) = 7.85 W/kg; SAR(10 g) = 2.26 W/kg; Maximum value of SAR (measured) = 19.7 W/kg	



Certificate No: Z17-0110

Page 12 of 16

D5GHzV2 Sn:1079 (4/4)



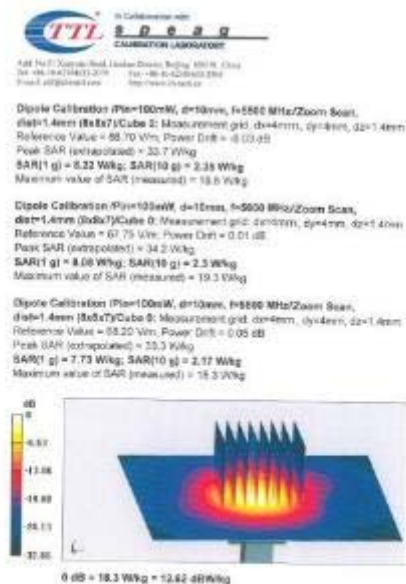
Order No. 717-0713

Page 10 of 44



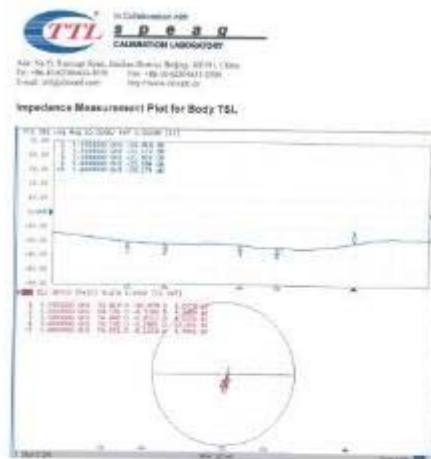
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Page 44 of 44



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Abstract—The purpose of this study was to determine the effect of a 12-week training program on the heart rate (HR) and energy expenditure (EE) of sedentary, middle-aged women. The subjects were 12 sedentary women, 40 to 50 years of age, who were randomly assigned to a 12-week training program or a control group. The training program consisted of three sessions per week, each lasting 30 minutes, and included a combination of aerobic and resistance training. The control group consisted of 12 sedentary women who did not participate in the training program. The HR and EE were measured at rest and during the training sessions. The results showed that the training program had a significant effect on the HR and EE of the subjects. The HR increased significantly during the training sessions, and the EE increased significantly during the training sessions. The control group showed no significant change in HR or EE. The results suggest that a 12-week training program can improve the HR and EE of sedentary, middle-aged women.



Cardiac No. 217-40139

Keywords: child sexual abuse; disclosure; self-blame

---End of the test report---