



EX3DV4 Sn:3708 (5/7)

Certificate No: PWD-07986, Date: 8

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Certificate No. 1022-2020, China

第二部分：阅读理解

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EX3DV4 Sn:3708 (6/7)

Exhibit 26-322-228.GIF

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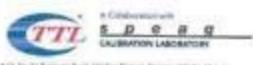


EX3DV4 Sn:3708 (7/7)

D750V3 Sn:1101 (1/2)

<p> In Collaboration with </p> <p>Client: SRTC Certificate No: 211-07134</p> <p>CALIBRATION CERTIFICATE</p> <p>Object: D750V3-SN-1101</p> <p>Calibration Procedure(s): PP-215-002-01 Calibration Procedure for dipole-antennas, etc.</p> <p>Calibration date: September 12, 2017</p> <p>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 results.</p> <p>All calibrations have been conducted in the closed laboratory facility environment (temperature(23±1)°C and humidity(70%).</p> <p>Calibration Equipment used (SAR₁₀ critical for calculation):</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date/Calibrated by, Certificate No.</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power Meter, NIPCO</td> <td>102198</td> <td>E2-Man-17 (CTTL, No. J17007294)</td> <td>Mar-18</td> </tr> <tr> <td>Power sensor, NIPCO</td> <td>102098</td> <td>E2-Man-17 (CTTL, No. J17007304)</td> <td>Mar-18</td> </tr> <tr> <td>Reference Power EKKA/NA</td> <td>EN 7433</td> <td>25-Sep-18(SPE46/NA/EKKA/7433, Sep-18)</td> <td>Sep-17</td> </tr> <tr> <td>DAI/4</td> <td>EN 1337</td> <td>18-Jan-17(CTTL SPE46/NA Z17-07018)</td> <td>Jan-18</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Cal Date/Calibrated by, Certificate No.</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Digital Generator L443EC</td> <td>MF48871438</td> <td>13-Jan-17 (CTTL, No. J17005296)</td> <td>Jan-18</td> </tr> <tr> <td>Network Analyzer E5570C</td> <td>MF74871123</td> <td>13-Jan-17 (CTTL, No. J17005298)</td> <td>Jan-18</td> </tr> </tbody> </table> <p>Calibrated by: Zhao Feng SAR Test Engineer </p> <p>Revised by: Yu Zongying SAR Test Engineer </p> <p>Approved by: G.Dianyan SAR Project Leader </p> <p>Issue: September 16, 2017</p> <p>This calibration certificate shall not be reproduced except in full without written approval of the laboratory.</p> <p>Certificate No: 211-07134 Page 1 of 8</p>	Primary Standards	ID #	Cal Date/Calibrated by, Certificate No.	Scheduled Calibration	Power Meter, NIPCO	102198	E2-Man-17 (CTTL, No. J17007294)	Mar-18	Power sensor, NIPCO	102098	E2-Man-17 (CTTL, No. J17007304)	Mar-18	Reference Power EKKA/NA	EN 7433	25-Sep-18(SPE46/NA/EKKA/7433, Sep-18)	Sep-17	DAI/4	EN 1337	18-Jan-17(CTTL SPE46/NA Z17-07018)	Jan-18	Secondary Standards	ID #	Cal Date/Calibrated by, Certificate No.	Scheduled Calibration	Digital Generator L443EC	MF48871438	13-Jan-17 (CTTL, No. J17005296)	Jan-18	Network Analyzer E5570C	MF74871123	13-Jan-17 (CTTL, No. J17005298)	Jan-18	<p> In Collaboration with </p> <p>Add No.21 Xizhimen South Street, Beijing, 100044, China Tel: +86-10-65230023, 2009 Fax: +86-10-65230024, 2008 E-mail: spt@spero.com</p> <p>Glossary: TSL: liquid simulating liquid Conf: sensitivity in TSL, I(NORM)x.y.z N/A: not applicable or not measured</p> <p>Calibration is Performed According to the Following Standards:</p> <ul style="list-style-type: none"> a) IEEE 990.1503-2013 - "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 held next to the ear (Frequency range of 300MHz to 6 GHz)", 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 2012 d) ICNIRP 2004, SAR Measurement Requirements for 100 MHz to 6 GHz <p>Additional Documentation:</p> <ul style="list-style-type: none"> e) DASY4.5 System Handbook <p>Methods Applied and Interpretation of Parameters:</p> <ul style="list-style-type: none"> • Measurement Configuration: Further details are available from the Validation Report at the end of the contract. 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 antenna 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 reflection losses. Not uncertainty required. • Electrical Delay: The 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. <p>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%.</p> <p>Certificate No: 211-07134 Page 2 of 8</p>																																																																		
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TSL)	10 mm	with spacer	Dober Scan Resolution	4x 0.25x 0.25 mm		Frequency	210 MHz ± 1 MHz			Temperature	Permeability	Conductivity	Nominal Head TSL parameters	22.9 °C	41.8	0.80 mS/m	Measured Head TSL parameters	(22.3 ± 0.1) °C	41.5 ± 0.1%	0.78 mS/m ± 0.1%	Head TSL temperature change starting test	<1.2 °C	—	—	SAR averaged over 1 cm ³ (1 g of Head TSL)	Condition	SAR measured	250 mW input power	2.15 mW/g	SAR for nominal Head TSL parameters	normalized to 1W	0.29 mW/g ± 18.8 % (k=2)	SAR averaged over 1 cm ³ (10 g of Head TSL)	Condition		SAR measured	250 mW input power	0.24 mW/g	SAR for nominal Head TSL parameters	normalized to 1W	0.09 mW/g ± 18.7 % (k=2)		Temperature	Permeability	Conductivity	Nominal Body TSL parameters	22.2 °C	39.1	0.96 mS/m	Measured Body TSL parameters	(22.3 ± 0.1) °C	39.4 ± 0.1%	0.98 mS/m ± 0.1%	Body TSL temperature change starting test	<1.3 °C	—	—	SAR averaged over 1 cm ³ (1 g of Body TSL)	Condition	SAR measured	250 mW input power	2.15 mW/g	SAR for nominal Body TSL parameters	normalized to 1W	0.09 mW/g ± 18.8 % (k=2)	SAR averaged over 1 cm ³ (10 g of Body TSL)	Condition		SAR measured	250 mW input power	0.24 mW/g	SAR for nominal Body TSL parameters	normalized to 1W	0.03 mW/g ± 18.7 % (k=2)	<p> In Collaboration with </p> <p>Add No.21 Xizhimen South Street, Beijing, 100044, China Tel: +86-10-65230023, 2009 Fax: +86-10-65230024, 2008 E-mail: spt@spero.com</p> <p>Appendix (Additional assessments outside the scope of CNAS L0570):</p> <p>Antenna Parameters with Head TSL:</p> <table border="1"> <thead> <tr> <th>Impedance, transformed to feed port</th> <th>53.00 ± 0.00Ω</th> </tr> </thead> <tbody> <tr> <td>Return Loss</td> <td>-28.4 dB</td> </tr> </tbody> </table> <p>Antenna Parameters with Body TSL:</p> <table border="1"> <thead> <tr> <th>Impedance, transformed to feed port</th> <th>50.00 ± 2.25Ω</th> </tr> </thead> <tbody> <tr> <td>Return Loss</td> <td>-30.0 dB</td> </tr> </tbody> </table> <p>General Antenna Parameters and Design:</p> <table border="1"> <thead> <tr> <th>Electrical Delay (one directed)</th> <th>1.180 ms</th> </tr> </thead> </table> <p>After long-term use with 100mW validated power, only a slight warming of the dipole near the feedpoint can be measured.</p> <p>The dipole is made of standard unshielded coaxial cable. The center conductor of the feeding line is electrically connected to the second arm of the dipole. The antenna is therefore short-circuited for DC supply. On some of the dipole, small metal caps are added to the dipole arms in order to improve matching when loaded with a dummy load. As explained in the "Measurement Conditions" paragraph, the SAR data are not affected by this change. The dipole is not shielded by the outer jacket of the feeding line. No excessive force must be applied to the dipole arms, because they might break if the soldered connections near the feedpoint may be damaged.</p> <p>Additional EUT Data:</p> <table border="1"> <thead> <tr> <th>Manufactured by</th> <th>SPERO</th> </tr> </thead> </table> <p>Certificate No: 211-07134 Page 4 of 8</p>		Impedance, transformed to feed port	53.00 ± 0.00Ω	Return Loss	-28.4 dB	Impedance, transformed to feed port	50.00 ± 2.25Ω	Return Loss	-30.0 dB	Electrical Delay (one directed)	1.180 ms	Manufactured by	SPERO
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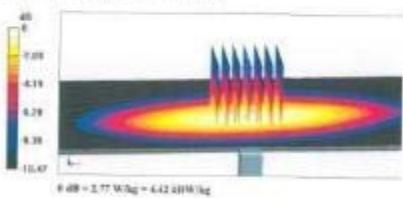
D750V3 Sn:1101 (2/2)



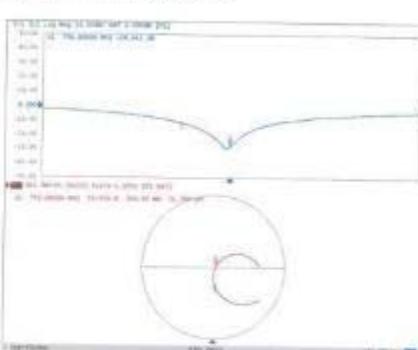
DASY3 Validation Report for Head TSL.
Test Laboratory: CTTL, Beijing, China
DUT: Dipole 750 MHz; Type: D750V3 - SN: 1101
Communication System: (EDO, CW); Frequency: 750 MHz; Duty Cycle: 1:1
Maximum parameters used: $f = 750$ MHz; $n = 0.479$; $S_{11} = -41.54$; $\rho = 1600$ kg/m³
Position antenna: Left Ear/Side
Measurement Standard: DASY3 (IEEE-IEC/ANSI C61.19-2007)
DASY3 Configuration:

- Probe: EX3014 - 807932; Content (1.0E, 10.0E, 100.0E), Calibrated: 9/26/2016;
- Source Surface: 1 mm (Mechanical Surface Detector)
- Electronics: DA14 Sat111; Calibrated: 1/18/2017
- Phantom: Triple Flat Phantom 3.0G; Type: QD 300 (P) CA; Serial: 11601
- Measurement SW: DASY32; Version: 5.2.18 (P); SEMCADX Version: 14.6.10 (247)

Dipole Calibration/Zoom Noise (Tx/Tx) (Tx/Tx) Color: R; Measurement grid: ds=5mm, dy=1mm, dz=1mm
Reference Value = 53.10 V/m; Power (Ref) = -0.05 dB
Peak SAR (averaged) = 3.17 W/kg
SAR(1 g) = 2.38 W/kg; SAR(10 g) = 1.34 W/kg
Maximum value of SAR (measured) = 2.77 W/kg



Impedance Measurement Plot for Head TSL



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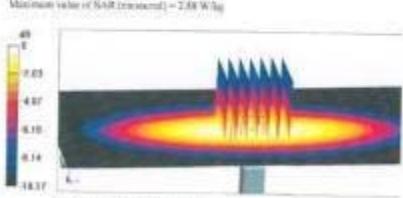


DASY3 Validation Report for Body TSL.
Test Laboratory: CTTL, Beijing, China
DUT: Dipole 750 MHz; Type: D750V3 - SN: 1101
Communication System: (EDO, CW); Frequency: 750 MHz; Duty Cycle: 1:1
Maximum parameters used: $f = 750$ MHz; $n = 0.946$; $S_{11} = -35.61$; $\rho = 1000$ kg/m³
Position antenna: Center Section
Measurement Standard: DASY3 (IEEE-IEC/ANSI C61.19-2007)
DASY3 Configuration:

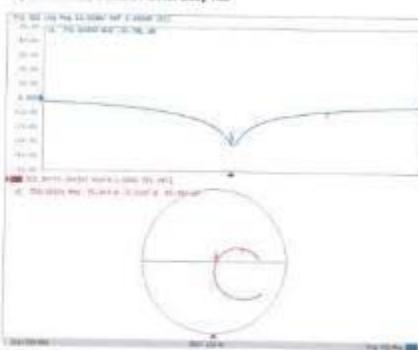
• Probe: EX3014 - 807932; Content (1.0E, 10.0E, 100.0E), Calibrated: 9/26/2016;

- Source Surface: 1 mm (Mechanical Surface Detector)
- Electronics: DA14 Sat111; Calibrated: 1/18/2017
- Phantom: Triple Flat Phantom 3.0G; Type: QD 300 (P) CA; Serial: 11601
- Measurement SW: DASY32; Version: 5.2.18 (P); SEMCADX Version: 14.6.10 (247)

Dipole Calibration/Zoom Noise (Tx/Tx) (Tx/Tx) Color: R; Measurement grid: ds=5mm, dy=1mm, dz=1mm
Reference Value = 53.35 V/m; Power (Ref) = -0.02 dB
Peak SAR (averaged) = 3.27 W/kg
SAR(1 g) = 2.15 W/kg; SAR(10 g) = 1.42 W/kg
Maximum value of SAR (measured) = 2.38 W/kg



Impedance Measurement Plot for Body TSL



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