

EX3DV4 Sn:3708 (5/7)

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Journal of Management Education 35(10)

Keywords: social support; self-esteem; coping strategies

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Cellular-Sci. 833-878, 2005

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CARRYING THE LED-STRIP CUBE

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CellRays No. FCS 5702, 5/04

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D750V3 Sn:1101 (1/2)

 TTL CALIBRATION LABORATORY	in Collaboration with  UKAS Metrology, Limited, 201711, China Tel: +86 (0)21 604931379 Fax: +86 (0)21 604931338 E-mail: ttllab@ttllab.com Web: www.ttllab.com	 中国认证认可 检验检测机构 资质认定 证书编号: CNAS L1801
Client: BRTC	Certificate No.: Z17 07134	
CALIBRATION CERTIFICATE		
Object: 0150V1 - EN 1121		
Calibration Procedure(s): PP-Z15-005-01		
	Calibration Procedure for dipole antennas etc.	
Calibration date: September 13, 2017		
This calibration Certificate documents the traceability to national standards, which realize the physical units of measurement (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 (23.0 ± 0.1 °C) at humidity 70%.		
Calibration Equipment used (MATE, critical for calibration)		
Primary Standards	Q1 #	Cal Date/Calibrated by, Certificate No.
Power Meter: N6150	102106	02-May-17 (CTTL No. J17002104)
Power splitter: N6147A	102106	02-May-17 (CTTL No. J17002104)
Reference Probe (E537A)	SN 7423	20-Sep-16 (NPL/NA No. F43.233_24C16)
GNR4	SN 1331	16-Jun-17 (CTTL, BPR/NA No. Z17-07010)
Secondary Standards	12 #	Cal Date/Calibrated by, Certificate No.
Signal Generator E4438C	8946817418	15-Jan-17 (CTTL No. J17002286)
Network Analyzer E5717B	8946811122	15-Jan-17 (CTTL No. J17002286)
Calibrated by:	Name: Zhou Jing Function: SAR Test Engineer	Signature: 
Reviewed by:	Yu Zongping SAR Test Engineer	
Approved by:	Qi Danyuan SAR Project Leader	
Issued: September 19, 2017		
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.		

Families for Zephaniah

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TTI
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Glossary:

TBL	Test simulating liquid
Conf: A	sensitivity in TBL / NORMA.yz
NA	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1059-2013, "IEEE Recommended Practice for Determining the Peak-to-Peak Average 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 62209-3, "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) KCB006064, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- a) DAT45's System Handbook

Methods Applied and Interpretation of Parameters:

- **Measurement Caveats:** 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 used:** TSL. The device is mounted with the antenna position in the test point exactly below the center marking of the flat platform 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 "phantom". The impedance is transformed from the measurement at the SMA connector to the test 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 of the stated antenna input power.
- **SAR normalized:** SAR is measured, normalized to an input power of 1 W at the antenna connector.
- **SAR for reference 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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Sd/-, No. 12, Veerappa Road, Narayan Pet, Hosur, 56001, Chenn. Tel:- 080-26526525, 26526526 Fax:- 080-26526524 E-mail: info@tttlindia.com http://www.tttlindia.com					
Measurement Conditions					
GARY applied configuration, as far as not given on page 1					
GARY Version	SW-8752	02/10/2014			
Extrapolation	Advanced Extrapolation				
Phenomenon	Single Field Phenomenon 5-12				
Distance (Apex Center - TSL)	10 mm	with Spacer			
Zoom Scan Resolution	40, 80, 160 = 1 mm				
Frequency	250 MHz $\pm$ 5 MHz				
Head TSL parameters					
The following parameters and calculations were applied:					
Normalised Head TSL parameters	Temperature	Permittivity	Conductivity		
	22.9 $\pm$ 0.1	41.5	0.85 mW/m		
Measured Head TSL parameters	22.5 $\pm$ 0.2 $\pm$ 0.1	41.5 $\pm$ 5 %	2.55 mW/m $\pm$ 6 %		
Head TSL temperature change during test	+1.2 $\pm$ 0.2	---			
SAR result with Head TSL					
SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition				
SAR measured	250 mW input power	0.28 mW / g			
SAR for normal Head TSL parameters	normalised to 1W	0.26 mW / g $\pm$ 10.5 % (std)			
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition				
SAR measured	250 mW input power	1.24 mW / g			
SAR for normal Head TSL parameters	normalised to 1W	0.10 mW / g $\pm$ 10.7 % (std)			
Body TSL parameters					
The following parameters and calculations were applied:					
Normalised Body TSL parameters	Temperature	Permittivity	Conductivity		
	22.5 $\pm$ 0.1	59.5	0.98 mW/m		
Measured Body TSL parameters	22.2 $\pm$ 0.2 $\pm$ 0.1	55.4 $\pm$ 5 %	0.86 mW/m $\pm$ 6 %		
Body TSL temperature change during test	+1.3 $\pm$ 0.2	---			
SAR result with Body TSL					
SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition				
SAR measured	250 mW input power	0.15 mW / g			
SAR for normal Body TSL parameters	normalised to 1W	0.09 mW / g $\pm$ 10.8 % (std)			
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition				
SAR measured	250 mW input power	1.42 mW / g			
SAR for normal Body TSL parameters	normalised to 1W	0.75 mW / g $\pm$ 10.7 % (std)			

Certificate No. 22-141-01

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Cardinals No. 218-011-00

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Appendix (Additional assessments outside the scope of CNAS L0070)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.00+0.24jΩ
Return Loss	-29.4dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.00+2.25jΩ
Return Loss	30.0dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.138ns
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After being turn on with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard serrated coaxial cable. The center conductor of the feeding line is soldered to the second arm of the dipole. The antenna is therefore short-circuited by DC signals. On all of the dipoles, small end caps are added to the dipole ends in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SWR data are not affected by this change. The overall dipole length is still according to the Standard.

No electric force must be applied to the dipole arms, because they might bend in the selected conditions near the feedpoint may be damaged.

Additional EUT Data

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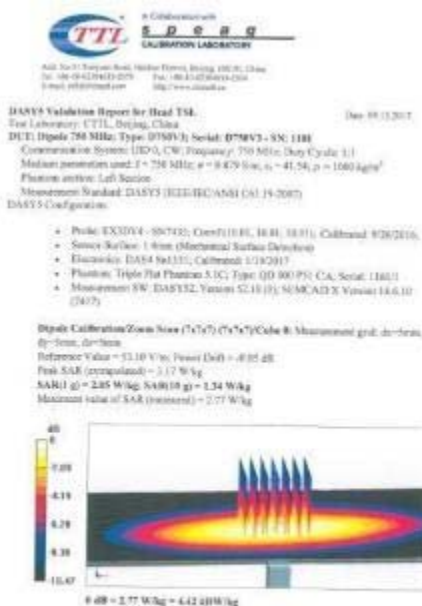
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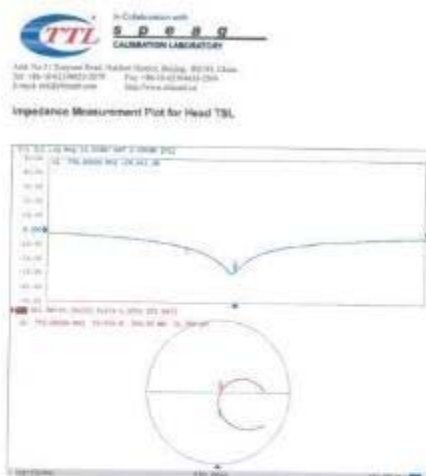
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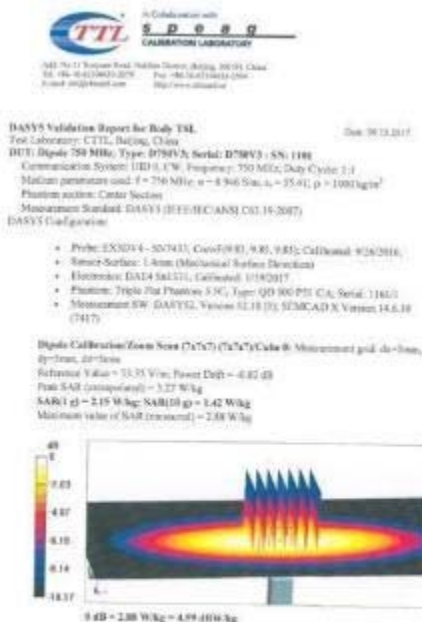
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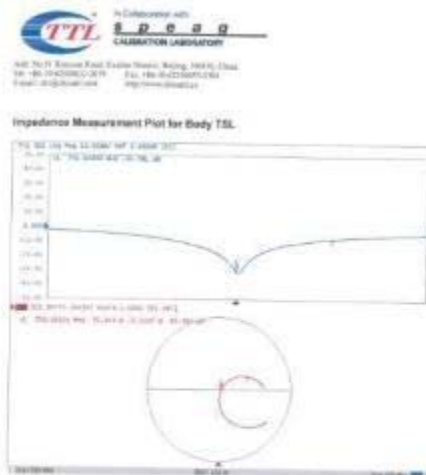
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