



Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
 E-mail: cttl@chinattl.com Http://www.chinattl.cn



DASY5 Validation Report for Body TSL

Date: 01.09.2014

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786

Communication System: UID 0, CW, Frequency: 2450 MHz; Duty Cycle: 1; 1

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.988 \text{ S/m}$; $\epsilon_r = 51.25$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Center Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3149; ConvF(4.21, 4.21, 4.21); Calibrated: 2013-09-03;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn536; Calibrated: 2014-01-23
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/2
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

System Performance Check at Frequencies above 1 GHz/d=10mm, Pin=250 mW,

dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

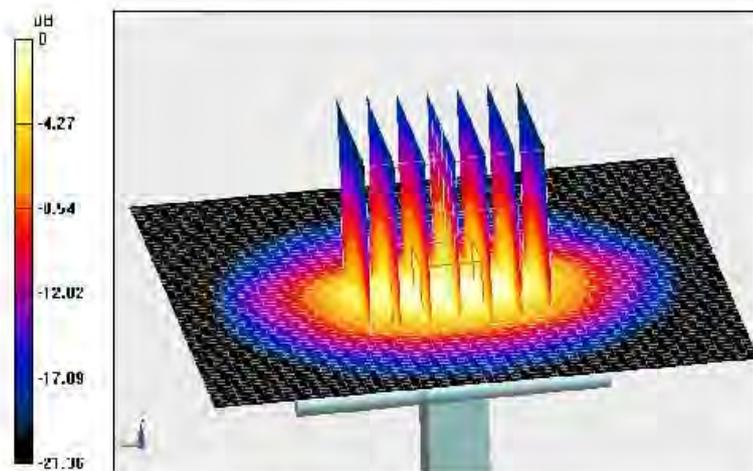
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 97.120 V/m; Power Drift = -0.05 dB

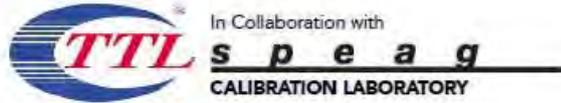
Peak SAR (extrapolated) = 27.8 W/kg

SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.2 W/kg

Maximum value of SAR (measured) = 17.7 W/kg



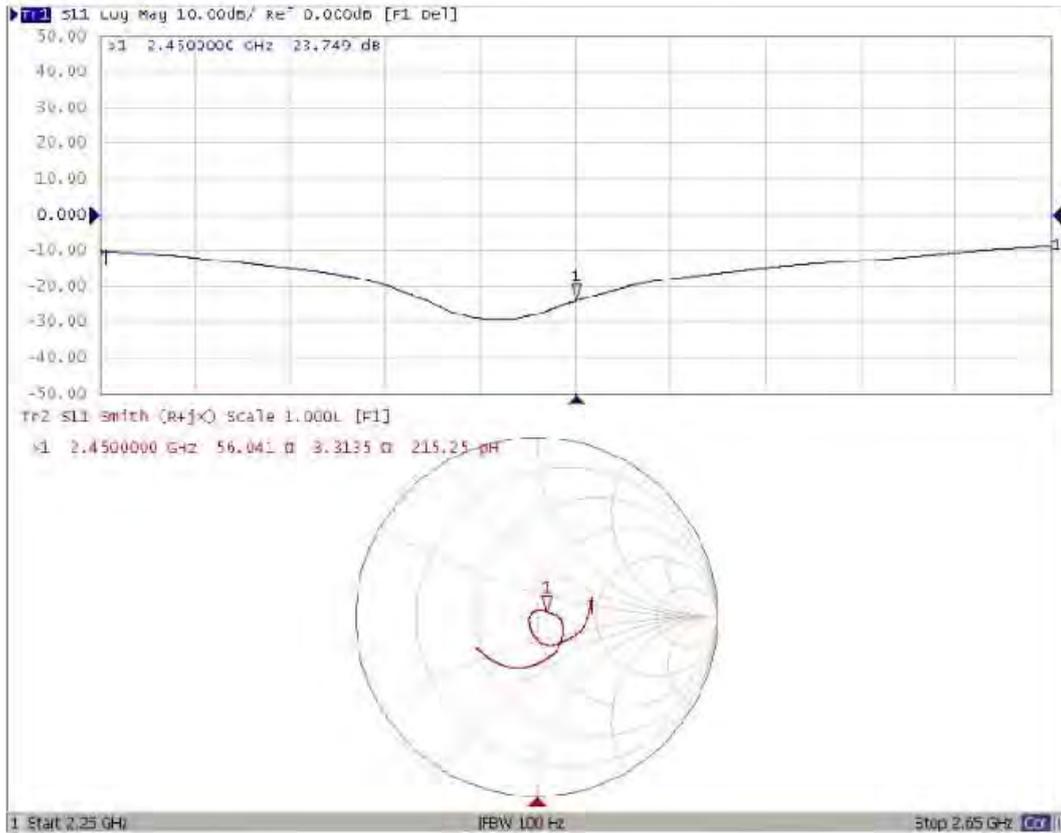
0 dB = 17.7 W/kg = 12.48 dBW/kg



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Impedance Measurement Plot for Body TSL





ANNEX H: D2600V2 Dipole Calibration Certificate

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



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The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **TA (Auden)**

Certificate No: **D2600V2-1025_Dec14**

CALIBRATION CERTIFICATE																																															
Object	D2600V2 - SN: 1025																																														
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz																																														
Calibration date:	December 08, 2014																																														
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter EPM-442A</td> <td>GB37480704</td> <td>07-Oct-14 (No. 217-02020)</td> <td>Oct-15</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>US37292783</td> <td>07-Oct-14 (No. 217-02020)</td> <td>Oct-15</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>MY41092317</td> <td>07-Oct-14 (No. 217-02021)</td> <td>Oct-15</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: 5058 (20k)</td> <td>03-Apr-14 (No. 217-01918)</td> <td>Apr-15</td> </tr> <tr> <td>Type-N mismatch combination</td> <td>SN: 5047.2 / 06327</td> <td>03-Apr-14 (No. 217-01921)</td> <td>Apr-15</td> </tr> <tr> <td>Reference Probe ES3DV3</td> <td>SN: 3205</td> <td>30-Dec-13 (No. ES3-3205_Dec13)</td> <td>Dec-14</td> </tr> <tr> <td>DAE4</td> <td>SN: 601</td> <td>18-Aug-14 (No. DAE4-601_Aug14)</td> <td>Aug-15</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>RF generator R&S SMT-06</td> <td>100005</td> <td>04-Aug-99 (in house check Oct-13)</td> <td>In house check: Oct-16</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585 S4206</td> <td>18-Oct-01 (in house check Oct-14)</td> <td>In house check: Oct-15</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Power meter EPM-442A	GB37480704	07-Oct-14 (No. 217-02020)	Oct-15	Power sensor HP 8481A	US37292783	07-Oct-14 (No. 217-02020)	Oct-15	Power sensor HP 8481A	MY41092317	07-Oct-14 (No. 217-02021)	Oct-15	Reference 20 dB Attenuator	SN: 5058 (20k)	03-Apr-14 (No. 217-01918)	Apr-15	Type-N mismatch combination	SN: 5047.2 / 06327	03-Apr-14 (No. 217-01921)	Apr-15	Reference Probe ES3DV3	SN: 3205	30-Dec-13 (No. ES3-3205_Dec13)	Dec-14	DAE4	SN: 601	18-Aug-14 (No. DAE4-601_Aug14)	Aug-15	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-16	Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-14)	In house check: Oct-15
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Calibrated by:	Name Michael Weber	Function Laboratory Technician	Signature 																																												
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature 																																												
			Issued: December 9, 2014																																												
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.																																															

**Calibration Laboratory of
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,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 Devices: 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 300 MHz to 3 GHz)", February 2005
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- 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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.1 ± 6 %	2.02 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.4 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	56.9 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	25.4 W/kg ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	50.5 ± 6 %	2.22 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	14.4 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	56.4 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.36 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	25.1 W/kg ± 16.5 % (k=2)

**Appendix (Additional assessments outside the scope of SCS108)****Antenna Parameters with Head TSL**

Impedance, transformed to feed point	49.7 Ω - 6.2 j Ω
Return Loss	- 24.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.6 Ω - 5.4 j Ω
Return Loss	- 23.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.150 ns
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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
Manufactured on	May 13, 2008

DASY5 Validation Report for Head TSL

Date: 08.12.2014

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1025

Communication System: UID 0 - CW; Frequency: 2600 MHz

Medium parameters used: $f = 2600$ MHz; $\sigma = 2.02$ S/m; $\epsilon_r = 39.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.46, 4.46, 4.46); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

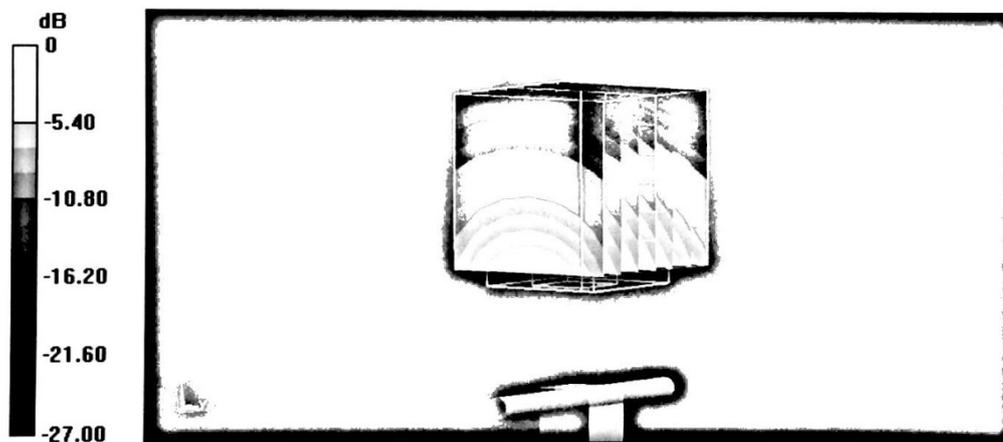
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 102.3 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 30.9 W/kg

SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.4 W/kg

Maximum value of SAR (measured) = 19.4 W/kg



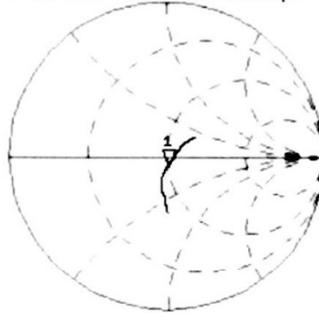
0 dB = 19.4 W/kg = 12.88 dBW/kg



Impedance Measurement Plot for Head TSL

8 Dec 2014 12:05:44
S11 1 U FS 1: 49.746 Ω -6.1641 Ω 9.9307 pF 2 600.000 000 MHz

*
De1
CA



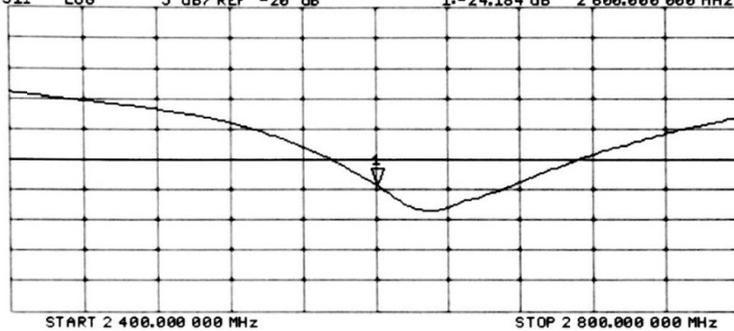
Avg
16
H1d

CH2 S11 LOG 5 dB/REF -20 dB 1:-24.184 dB 2 600.000 000 MHz

CA

Avg
16

H1d



DASY5 Validation Report for Body TSL

Date: 08.12.2014

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1025

Communication System: UID 0 - CW; Frequency: 2600 MHz

Medium parameters used: $f = 2600$ MHz; $\sigma = 2.22$ S/m; $\epsilon_r = 50.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.24, 4.24, 4.24); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

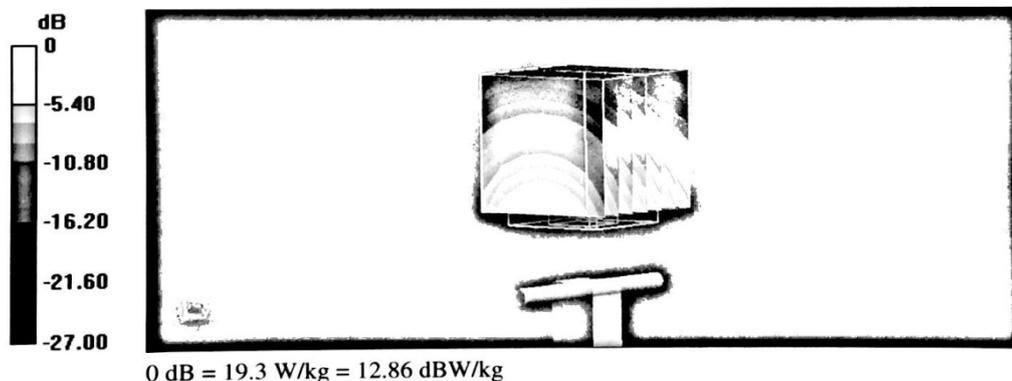
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.72 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 30.9 W/kg

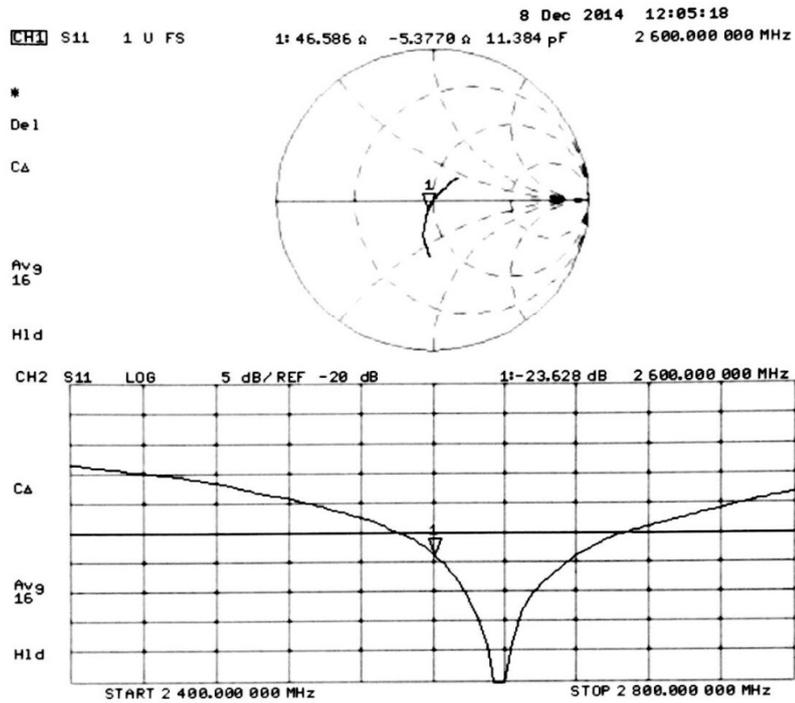
SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.36 W/kg

Maximum value of SAR (measured) = 19.3 W/kg





Impedance Measurement Plot for Body TSL





ANNEX I: DAE4 Calibration Certificate

**Calibration Laboratory of
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Accreditation No.: **SCS 0108**

Client **TA - SH (Auden)**

Certificate No: **DAE4-1317_Aug16**

CALIBRATION CERTIFICATE																							
Object	DAE4 - SD 000 D04 BM - SN: 1317																						
Calibration procedure(s)	QA CAL-06.v29 Calibration procedure for the data acquisition electronics (DAE)																						
Calibration date:	August 02, 2016																						
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Keithley Multimeter Type 2001</td> <td>SN: 0810278</td> <td>09-Sep-15 (No:17153)</td> <td>Sep-16</td> </tr> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> <tr> <td>Auto DAE Calibration Unit</td> <td>SE UWS 053 AA 1001</td> <td>05-Jan-16 (in house check)</td> <td>In house check: Jan-17</td> </tr> <tr> <td>Calibrator Box V2.1</td> <td>SE UMS 006 AA 1002</td> <td>05-Jan-16 (in house check)</td> <td>In house check: Jan-17</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Keithley Multimeter Type 2001	SN: 0810278	09-Sep-15 (No:17153)	Sep-16	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	Auto DAE Calibration Unit	SE UWS 053 AA 1001	05-Jan-16 (in house check)	In house check: Jan-17	Calibrator Box V2.1	SE UMS 006 AA 1002	05-Jan-16 (in house check)	In house check: Jan-17
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Calibrated by:	Name Dominique Steffen	Function Technician	Signature 																				
Approved by:	Fin Bomholt	Deputy Technical Manager																					
			Issued: August 2, 2016																				
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.																							

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- **Connector angle:** The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
 - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
 - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage
 - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
 - **Input Offset Current:** Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - **Input resistance:** Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
 - **Power consumption:** Typical value for information. Supply currents in various operating modes.



DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV

Low Range: 1LSB = 61nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	403.696 \pm 0.02% (k=2)	404.461 \pm 0.02% (k=2)	403.818 \pm 0.02% (k=2)
Low Range	3.97862 \pm 1.50% (k=2)	3.96348 \pm 1.50% (k=2)	3.96891 \pm 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	117.0° \pm 1°
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Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	200032.79	-3.68	-0.00
Channel X + Input	20006.07	1.13	0.01
Channel X - Input	-20003.21	2.37	-0.01
Channel Y + Input	200031.96	-4.57	-0.00
Channel Y + Input	20005.25	0.33	0.00
Channel Y - Input	-20004.62	1.11	-0.01
Channel Z + Input	200034.76	-1.90	-0.00
Channel Z + Input	20003.54	-1.36	-0.01
Channel Z - Input	-20007.05	-1.23	0.01

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2001.07	0.05	0.00
Channel X + Input	200.98	0.05	0.03
Channel X - Input	-198.75	0.16	-0.08
Channel Y + Input	2001.23	0.25	0.01
Channel Y + Input	200.04	-0.72	-0.36
Channel Y - Input	-199.83	-0.78	0.39
Channel Z + Input	2000.78	-0.03	-0.00
Channel Z + Input	200.06	-0.74	-0.37
Channel Z - Input	-201.07	-1.98	1.00

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	12.74	10.34
	- 200	-8.06	-10.25
Channel Y	200	10.89	10.77
	- 200	-11.81	-11.91
Channel Z	200	1.17	1.05
	- 200	-3.56	-3.36

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	1.62	-5.02
Channel Y	200	8.83	-	2.99
Channel Z	200	10.37	5.96	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15752	15528
Channel Y	16479	15966
Channel Z	16106	15725

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.01	-0.95	1.23	0.46
Channel Y	0.35	-1.00	1.91	0.54
Channel Z	-1.31	-3.35	0.42	0.79

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

ANNEX J: The EUT Appearances and Test Configuration



Front Side



Back Side

a: EUT



b: Battery



c: Earphone

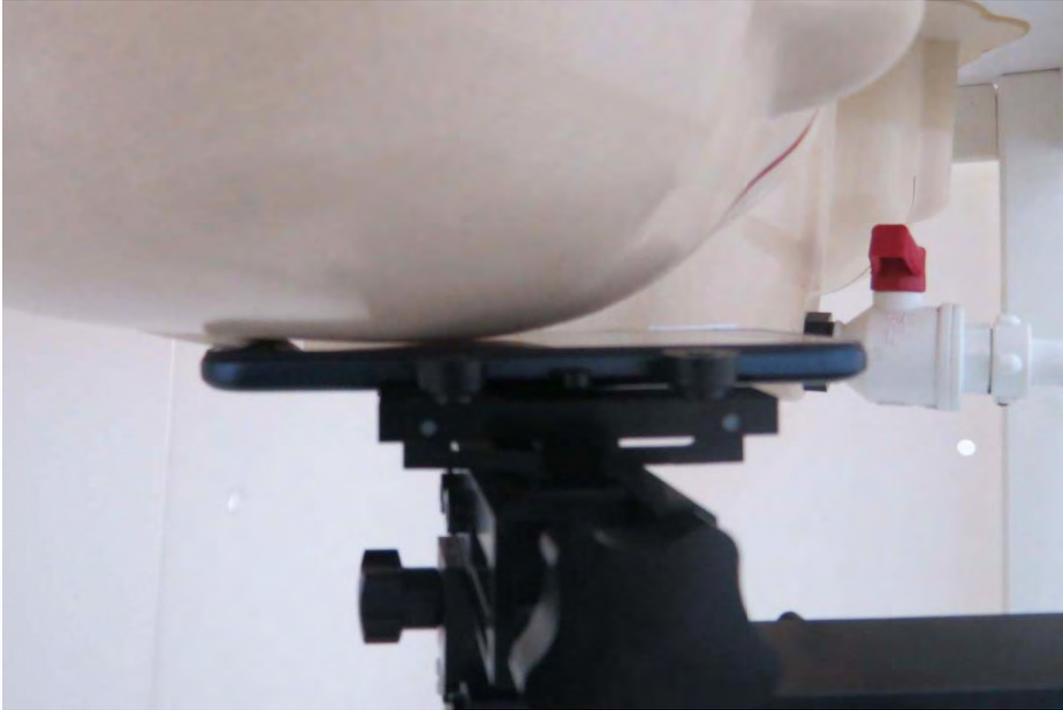
Picture 11: Constituents of EUT



Picture 12: Left Hand Touch Cheek Position



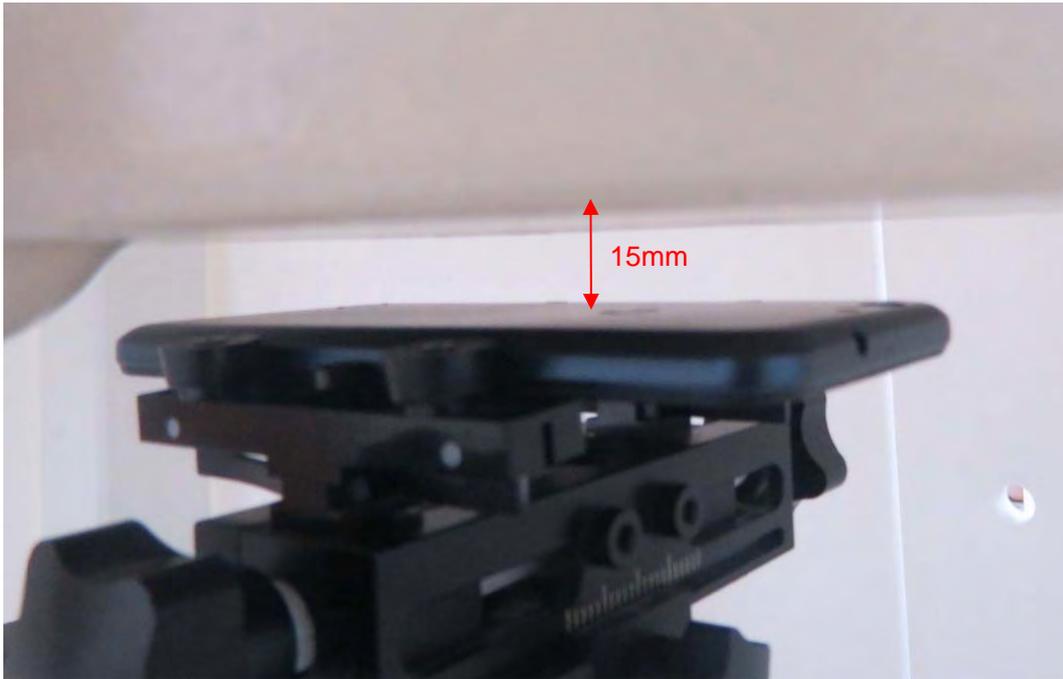
Picture 13: Left Hand Tilt 15 Degree Position



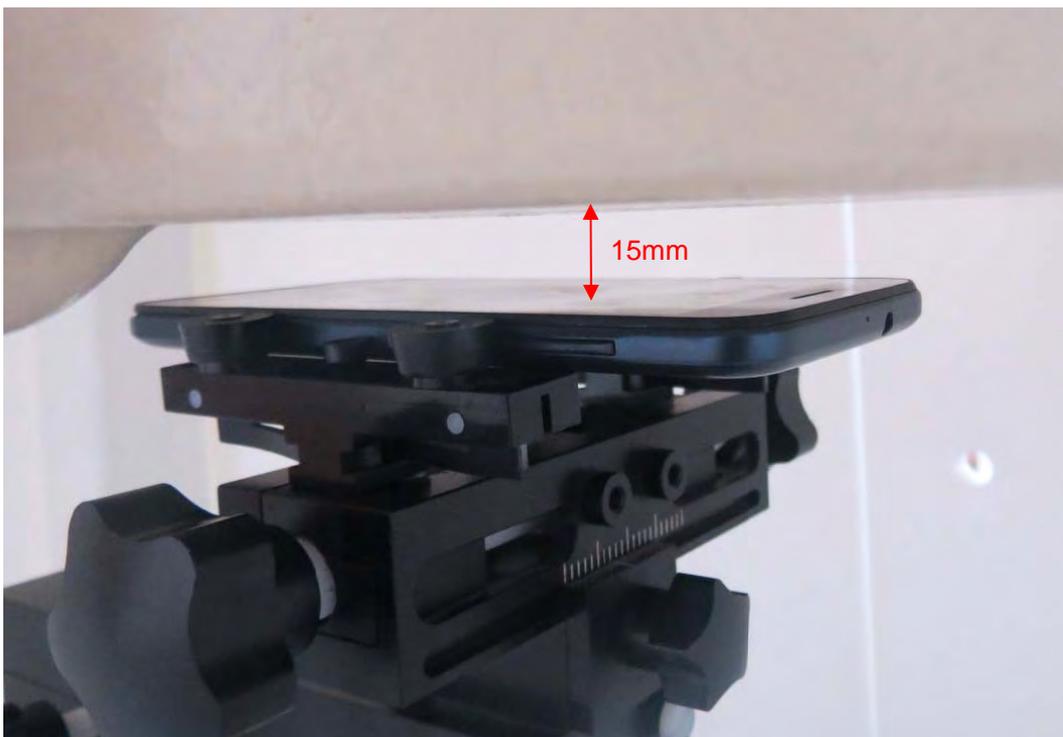
Picture 14: Right Hand Touch Cheek Position



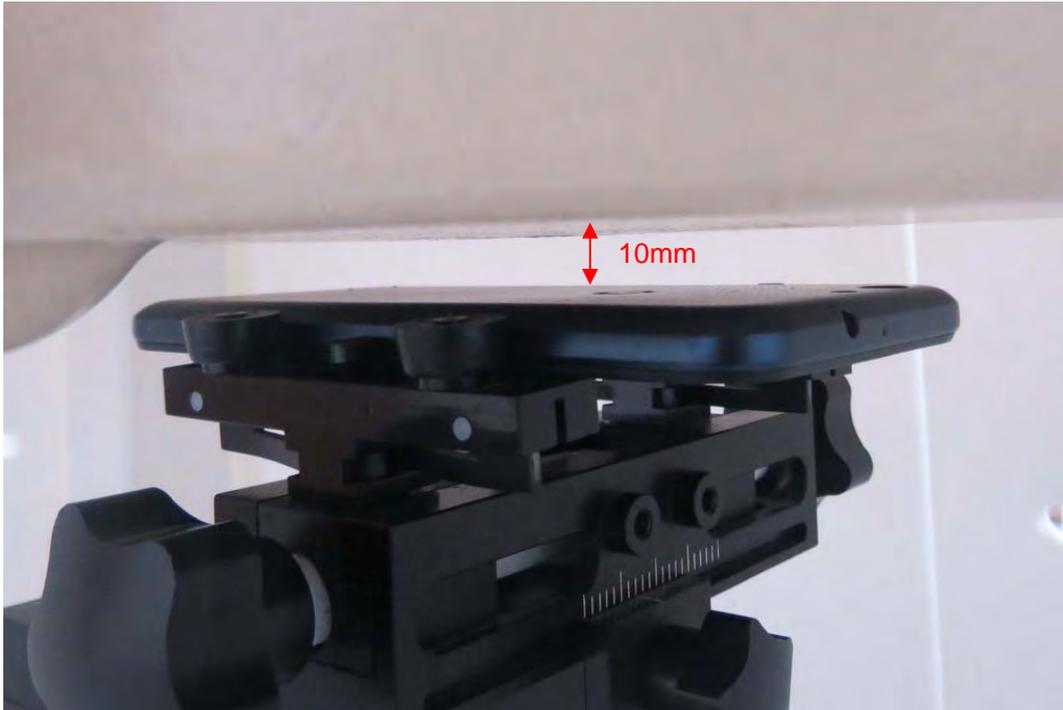
Picture 15: Right Hand Tilt 15 Degree Position



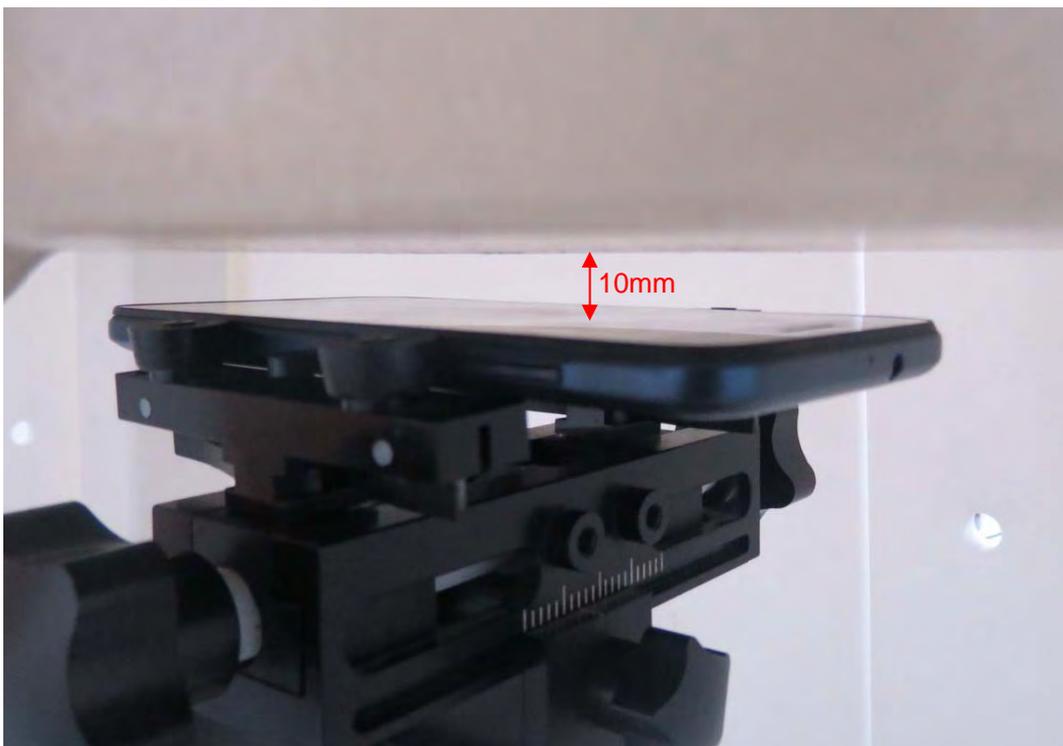
Picture 16: Back Side, the distance from handset to the bottom of the Phantom is 15mm



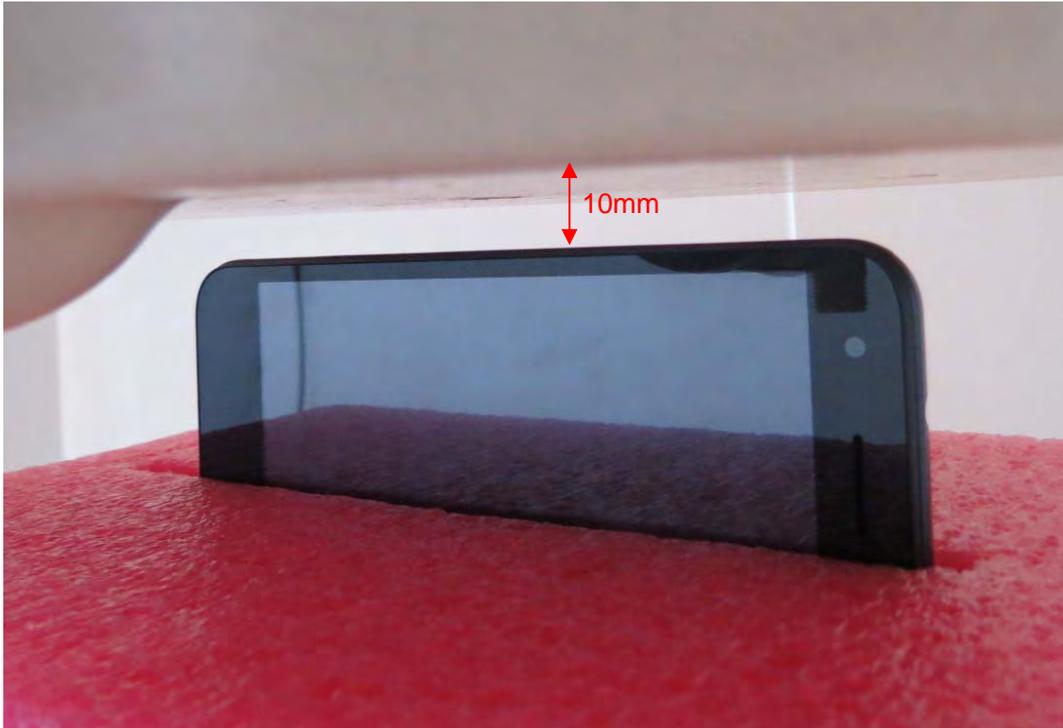
Picture 17: Front Side, the distance from handset to the bottom of the Phantom is 15mm



Picture 18: Back Side, the distance from handset to the bottom of the Phantom is 10mm



Picture 19: Front Side, the distance from handset to the bottom of the Phantom is 10mm



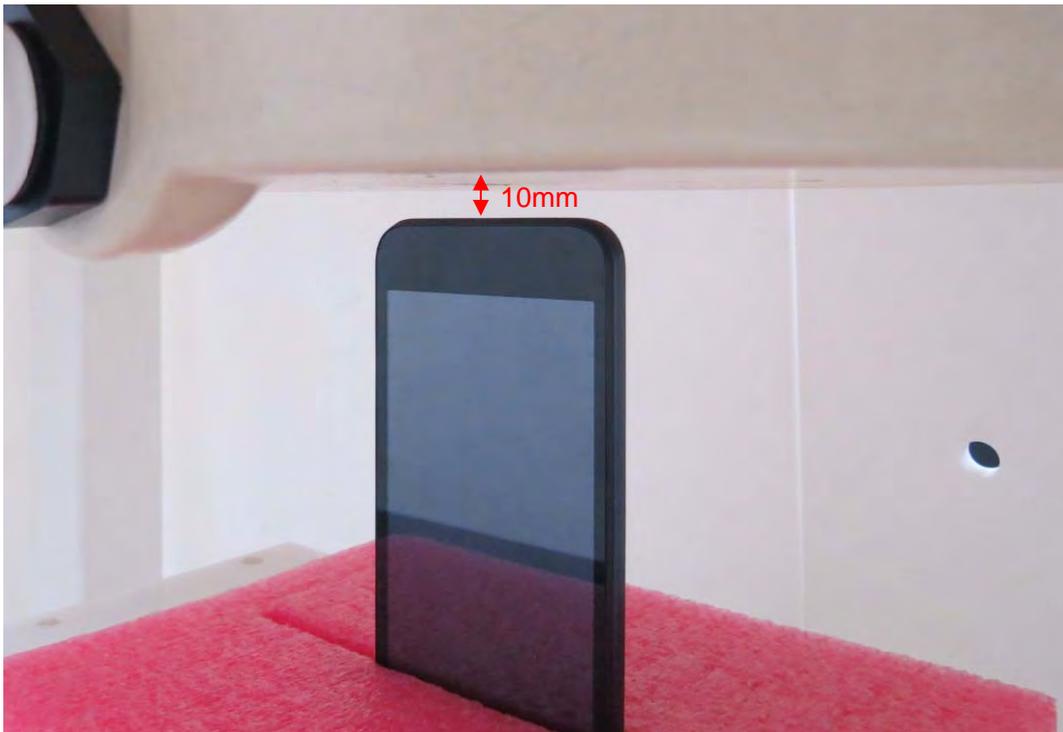
Picture 20: Left Side, the distance from handset to the bottom of the Phantom is 10mm



Picture 21: Right Side, the distance from handset to the bottom of the Phantom is 10mm



Picture 22: Top Side, the distance from handset to the bottom of the Phantom is 10mm



Picture 23: Bottom Side, the distance from handset to the bottom of the Phantom is 10mm

ANNEX K: Product Change Description

ZTE CORPORATION

Product Change Description

As the applicant of the below model, [ZTE Corporation] declares that the product,

[VFD512]

[ZTE Corporation]

is the variant of the initial certified product,

[VFD510]

[ZTE Corporation]

SOFTWARE MODIFICATIONS:

Protocol Stack changes: NO

MMS/STK changes: NO

JAVA changes: NO

Other changes detailed: **YES (Enable dual-SIM feature)**

HARDWARE MODIFICATION:

Band changes: NO

Power Amplifier changes: NO

Antenna changes: NO

PCB Layout changes: NO

Components on PCB changes: **YES (Add separating SIM slot2)**

LCD changes: NO

Speaker changes: NO

Camera changes: NO

Vibrator changes: NO

Bluetooth changes: NO



FM changes: NO

Other changes:

MECHANICAL MODIFICATIONS:

Use new metal front/back cover or keypad: NO

Mechanical shell changes: YES (Add separating SIM slot2)

Other changes detailed: NO

ACCESSORY MODIFICATIONS:

Battery changes: NO

AC Adaptor changes: NO

Earphone changes: NO

APPROVED BY: Zhao Yang

Date: 2017-5-15

Company: ZTE Corporation