DASY5 Validation Report for Head TSL

Date: 16.07.2019

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1012

Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.02 S/m; ε_r = 37.1; ρ = 1000 kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.69, 7.69, 7.69) @ 2600 MHz; Calibrated: 29.05.2019

- Sensor-Surface: 1.4mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn601; Calibrated: 30.04.2019

- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001

- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

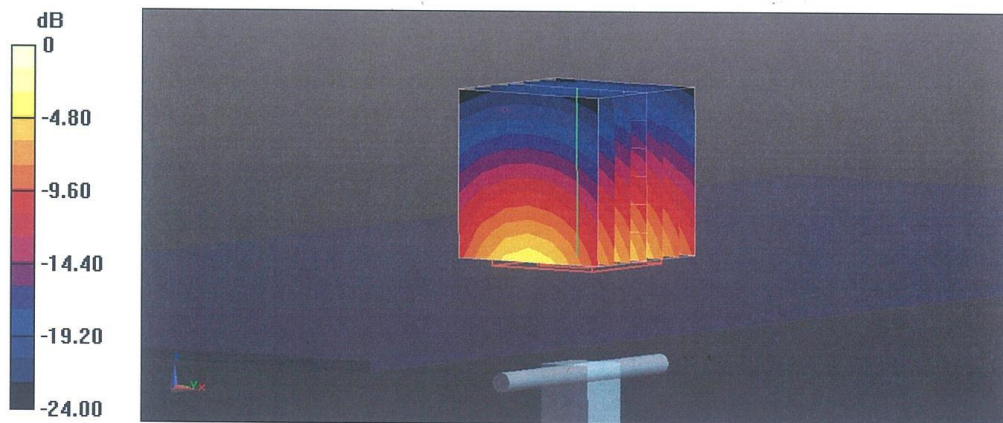**Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 118.6 V/m; Power Drift = 0.00 dB
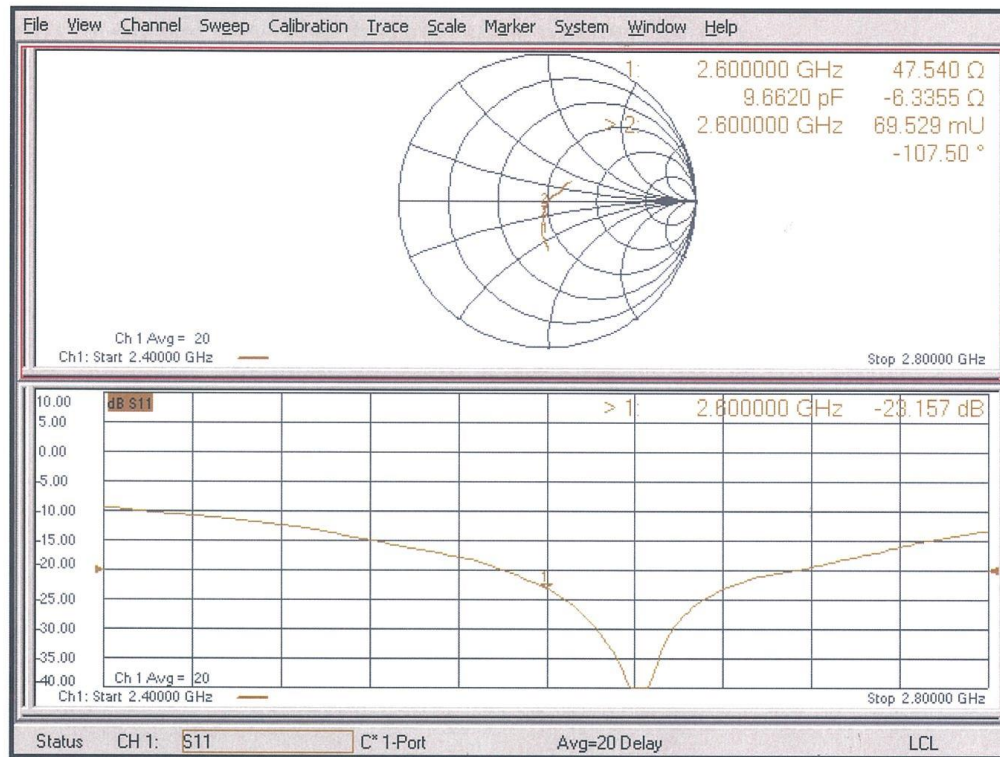Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.38 W/kg
Maximum value of SAR (measured) = 24.0 W/kg

0 dB = 24.0 W/kg = 13.80 dBW/kg

Certificate No: D2600V2-1012_Jul19   Page 5 of 8

Impedance Measurement Plot for Head TSL

DASY5 Validation Report for Body TSL

Date: 17.07.2019

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1012

Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.2 S/m; ε_r = 50.4; ρ = 1000 kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.8, 7.8, 7.8) @ 2600 MHz; Calibrated: 29.05.2019

- Sensor-Surface: 1.4mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn601; Calibrated: 30.04.2019

- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002

- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

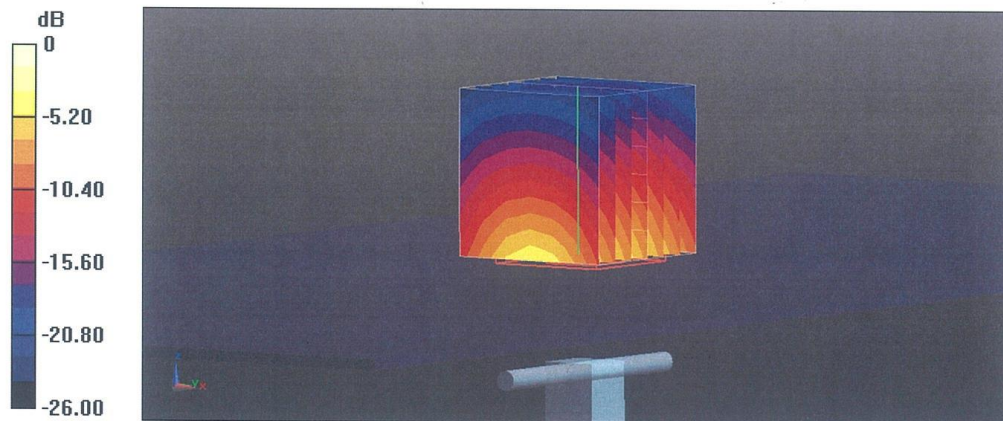**Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 110.1 V/m; Power Drift = -0.06 dB
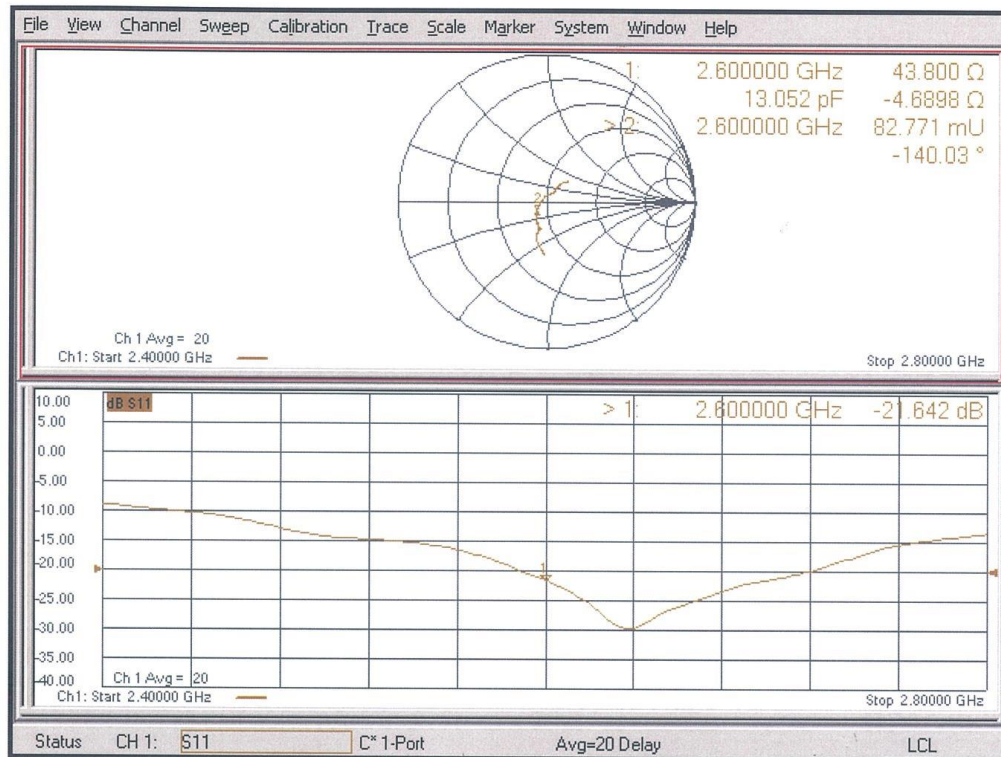Peak SAR (extrapolated) = 28.3 W/kg
SAR(1 g) = 14 W/kg; SAR(10 g) = 6.26 W/kg
Maximum value of SAR (measured) = 23.3 W/kg

0 dB = 23.3 W/kg = 13.67 dBW/kg

Certificate No: D2600V2-1012_Jul19   Page 7 of 8

Impedance Measurement Plot for Body TSL

	File	View	Channel	Sweep	Calibration	Trace	Scale	Marker	System	Window	Help

1: 2.600000 GHz 43.800 Ω
13.052 pF -4.6898 Ω
2: 2.600000 GHz 82.771 mU
-140.03 °

Ch 1 Avg = 20
Ch1: Start 2.40000 GHz
Stop 2.80000 GHz

> 1: 2.600000 GHz -21.642 dB

10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
-30.00
-35.00
-40.00
dB S11
Ch 1 Avg = 20
Ch1: Start 2.40000 GHz
Stop 2.80000 GHz

Status CH 1: S11 C* 1-Port Avg=20 Delay LCL

Certificate No: D2600V2-1012_Jul19   Page 8 of 8

ANNEX I   Sensor Triggering Data Summary

SAR Sensor Detect	Near	Far
Back	<=18mm	>18mm
Bottom	<=18mm	>18mm

According to the above description, this device was tested by the manufacturer to determine the SAR sensor triggering distances for the rear and bottom edge of the device. The measured power state within ±5mm of the triggering points (or until touching the phantom) is included for rear and each applicable edge.

To ensure all production units are compliant it is necessary to test SAR at a distance 1mm less than the smallest distance from the device and SAR phantom with the device at maximum output power without power reduction.

We tested the power and got the different proximity sensor triggering distances for rear and bottom edge. But the manufacturer has declared 18mm (rear/bottom) is the most conservative triggering distance for main antenna. Therefore base on the most conservative triggering distances as above, additional SAR measurements were required at 17mm (rear/bottom) for main antenna.

Rear of main antenna

Moving device toward the phantom:

The power state											
Distance [mm]	**23**	**22**	**21**	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**
Main antenna	Normal	Normal	Normal	Normal	Normal	Low	Low	Low	Low	Low	Low

Moving device away from the phantom:

The power state											
Distance [mm]	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
Main antenna	Low	Low	Low	Low	Low	Low	Normal	Normal	Normal	Normal	Normal

Bottom Edge of main antenna

Moving device toward the phantom:

The power state											
Distance [mm]	**23**	**22**	**21**	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**
Main antenna	Normal	Normal	Normal	Normal	Normal	Low	Low	Low	Low	Low	Low

Moving device away from the phantom:

The power state										
Distance [mm]	13	14	15	16	17	18	19	20	21	22	23
Main antenna	Low	Low	Low	Low	Low	Low	Normal	Normal	Normal	Normal	Normal

The influence of table tilt angles to proximity sensor triggering is determined by positioning each edge that contains a transmitting antenna, perpendicular to the flat phantom, at the smallest sensor triggering test distance by rotating the device around the edge next to the phantom in ≤ 10° increments until the tablet is ±45° or more from the vertical position at 0°.
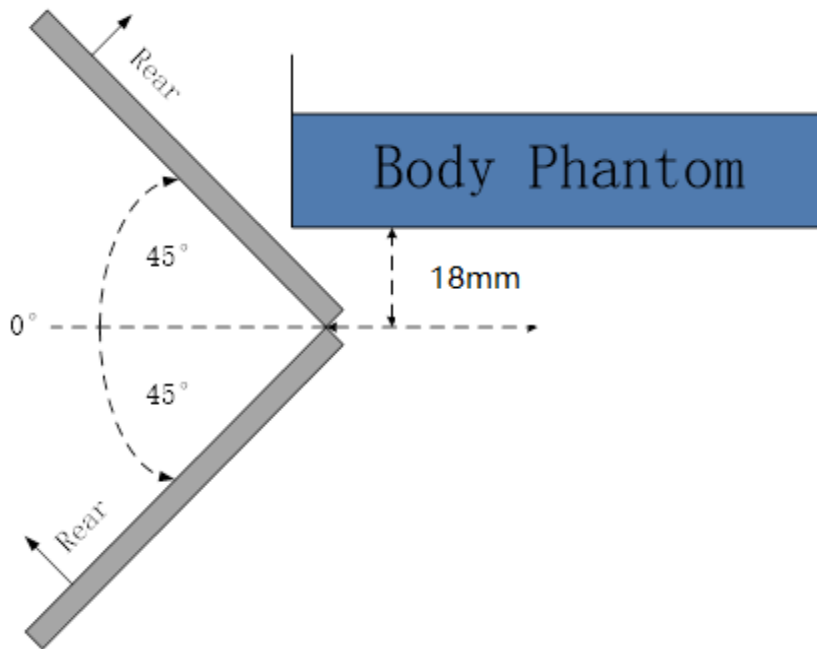
The Rear evaluation
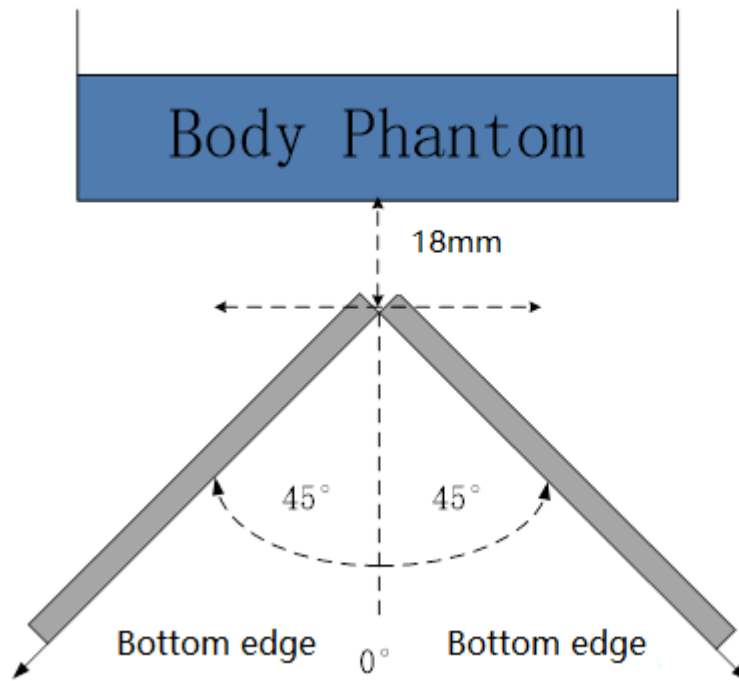
The bottom edge evaluation

Based on the above evaluation, we come to the conclusion that the sensor triggering is not released and normal maximum output power is not restored within the ±45° range at the smallest sensor triggering test distance declared by manufacturer.

ANNEX J   Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology

NVLAP ®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2019-09-26 through 2020-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program