



Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.9 ± 6 %	1.85 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	13.5 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.7 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.29 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.9 W/kg ± 16.5 % (k=2)

Certificate No: D2450V2-853_Jul22





Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.3 Ω + 4.7 jΩ	
Return Loss	- 24.3 dB	

General Antenna Parameters and Design

Electrical Delay (one direction)	1.162 ns

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 by	SI LAG

Certificate No: D2450V2-853_Jul22

Page 4 of 6



DASY5 Validation Report for Head TSL

Date: 20.07.2022

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:853

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used: f = 2450 MHz; $\sigma = 1.85$ S/m; $\varepsilon_r = 37.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

Probe: EX3DV4 - SN7349; ConvF(7.96, 7.96, 7.96) @ 2450 MHz; Calibrated: 31.12.2021

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

Electronics: DAE4 Sn601; Calibrated: 02.05.2022

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

• DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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 = 116.2 V/m; Power Drift = 0.03 dB

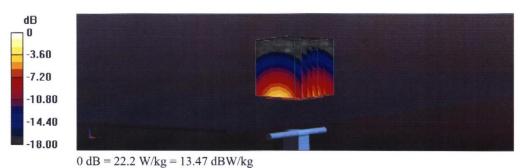
Peak SAR (extrapolated) = 26.6 W/kg

SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.29 W/kg

Smallest distance from peaks to all points 3 dB below = 9 mm

Ratio of SAR at M2 to SAR at M1 = 50.6%

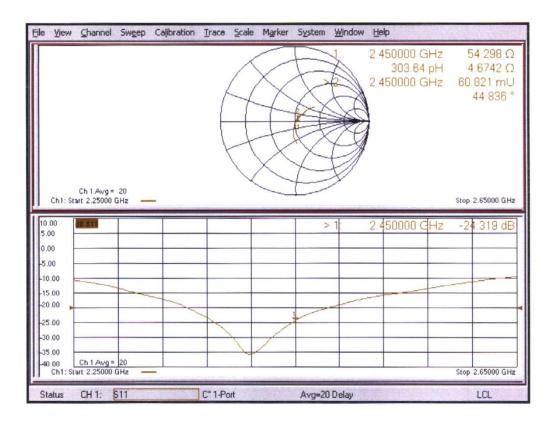
Maximum value of SAR (measured) = 22.2 W/kg



0 db 22.2 Wing 13.17 db Wing



Impedance Measurement Plot for Head TSL



Certificate No: D2450V2-853_Jul22

Page 6 of 6





5 GHz Dipole Calibration Certificate

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





S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
Servizio svizzero di taratura
Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS)

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

Client

CTTL (Auden)

Certificate No: D5GHzV2-1060_Jul22

Object	D5GHzV2 - SN:1	060	
Calibration procedure(s)	QA CAL-22.v6 Calibration Proce	edure for SAR Validation Sources	between 3-10 GHz
Calibration date:	July 05, 2022		
This calibration certificate documen	its the traceability to nation	onal standards, which realize the physical unit	ts of measurements (SI).
	And the second s	robability are given on the following pages and	AND
		540	
All calibrations have been conducted	ed in the closed laborator	ry facility: environment temperature (22 ± 3)°C	and humidity < 70%.
Calibration Equipment used (M&TE	critical for calibration)		
Cambradon Equipment used (Mart	Grada for dalibradori)		
Primary Standards	ID#	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
Power sensor NRP-Z91	SN: 103245	04-Apr-22 (No. 217-03525)	Apr-23
Reference 20 dB Attenuator	SN: BH9394 (20k)	04-Apr-22 (No. 217-03527)	Apr-23
Type-N mismatch combination	SN: 310982 / 06327	04-Apr-22 (No. 217-03528)	Apr-23
Reference Probe EX3DV4	SN: 3503	08-Mar-22 (No. EX3-3503 Mar22)	Mar-23
DAE4	SN: 601	02-May-22 (No. DAE4-601_May22)	May-23
Secondary Standards	ID#	Check Date (in house)	Scheduled Check
	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power meter E4419B	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power meter E4419B Power sensor HP 8481A			In house check: Oct-22
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-20)	
Power sensor HP 8481A Power sensor HP 8481A	SN: MY41093315 SN: 100972	07-Oct-15 (in house check Oct-20) 15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06	The first of the f		
Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06 Network Analyzer Agilent E8358A	SN: 100972 SN: US41080477 Name	15-Jun-15 (in house check Oct-20) 31-Mar-14 (in house check Oct-20) Function	In house check: Oct-22 In house check: Oct-22 Signature
Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06 Network Analyzer Agilent E8358A	SN: 100972 SN: US41080477	15-Jun-15 (in house check Oct-20) 31-Mar-14 (in house check Oct-20)	In house check: Oct-22
	SN: 100972 SN: US41080477 Name	15-Jun-15 (in house check Oct-20) 31-Mar-14 (in house check Oct-20) Function Laboratory Technician	In house check: Oct-22
Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06 Network Analyzer Agilent E8358A Calibrated by:	SN: 100972 SN: US41080477 Name Aldonia Georgiadou	15-Jun-15 (in house check Oct-20) 31-Mar-14 (in house check Oct-20) Function	In house check: Oct-22

Certificate No: D5GHzV2-1060_Jul22

Page 1 of 13





Calibration Laboratory of

Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland





S Schweizerischer Kalibrierdienst Service suisse d'étalonnage Servizio svizzero di taratura

Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS)

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

Glossary:

TSL

tissue simulating liquid

ConvF N/A

sensitivity in TSL / NORM x,y,z not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

c) DASY 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 source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. 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: D5GHzV2-1060_Jul22

Page 2 of 13



Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5200 MHz ± 1 MHz 5250 MHz ± 1 MHz 5300 MHz ± 1 MHz 5500 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200 MHz The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.9 ± 6 %	4.50 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.84 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	77.8 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.26 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.3 W/kg ± 19.5 % (k=2)

Certificate No: D5GHzV2-1060_Jul22



Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.8 ± 6 %	4.55 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.87 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	78.1 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.25 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.3 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.76 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.7 ± 6 %	4.60 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL at 5300 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	81.1 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.1 W/kg ± 19.5 % (k=2)

Certificate No: D5GHzV2-1060_Jul22

Page 4 of 13



Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.4 ± 6 %	4.80 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.60 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	85.3 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.44 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.1 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.3 ± 6 %	4.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.39 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	83.2 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.7 W/kg ± 19.5 % (k=2)

Certificate No: D5GHzV2-1060_Jul22

Page 5 of 13



Head TSL parameters at 5750 MHz The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.1 ± 6 %	5.05 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.12 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.4 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.31 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.8 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.0 ± 6 %	5.10 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.27 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	82.0 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.34 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.1 W/kg ± 19.5 % (k=2)

Certificate No: D5GHzV2-1060_Jul22





Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	49.4 Ω - 6.5 jΩ	
Return Loss	- 23.7 dB	

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	47.7 Ω - 5.5 jΩ	
Return Loss	- 24.3 dB	

Antenna Parameters with Head TSL at 5300 MHz

Impedance, transformed to feed point	46.2 Ω - 3.2 jΩ
Return Loss	- 25.8 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	50.0 Ω - 3.1 jΩ	
Return Loss	- 30.1 dB	

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	$53.6 \Omega + 0.5 j\Omega$	
Return Loss	- 29.2 dB	

Certificate No: D5GHzV2-1060_Jul22





Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	51.9 Ω - 1.7 jΩ
Return Loss	- 32.1 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	51.2 Ω - 3.2 jΩ
Return Loss	- 29.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.202 ns	
----------------------------------	----------	--

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
-----------------	-------

Certificate No: D5GHzV2-1060_Jul22

Page 8 of 13





DASY5 Validation Report for Head TSL

Date: 05.07.2022

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1060

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5250 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz, Frequency: 5800 MHz Medium parameters used: f = 5200 MHz; $\sigma = 4.50 \text{ S/m}$; $\varepsilon_r = 34.9$; $\rho = 1000 \text{ kg/m}^3$, Medium parameters used: f = 5250 MHz; $\sigma = 4.55 \text{ S/m}$; $\varepsilon_r = 34.8$; $\rho = 1000 \text{ kg/m}^3$, Medium parameters used: f = 5300 MHz; $\sigma = 4.60 \text{ S/m}$; $\epsilon_r = 34.7$; $\rho = 1000 \text{ kg/m}^3$, Medium parameters used: f = 5500 MHz; $\sigma = 4.80 \text{ S/m}$; $\varepsilon_r = 34.4$; $\rho = 1000 \text{ kg/m}^3$, Medium parameters used: f = 5600 MHz; $\sigma = 4.90$ S/m; $\varepsilon_r = 34.3$; $\rho = 1000$ kg/m³, Medium parameters used: f = 5750 MHz; $\sigma = 5.05$ S/m; $\epsilon_r = 34.1$; $\rho = 1000$ kg/m³, Medium parameters used: f = 5800 MHz; σ = 5.10 S/m; ϵ_r = 34.0; ρ = 1000 kg/m³ Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(5.8, 5.8, 5.8) @ 5200 MHz, ConvF(5.5, 5.5, 5.5) @ 5250 MHz, ConvF(5.49, 5.49, 5.49) @ 5300 MHz, ConvF(5.25, 5.25, 5.25) @ 5500 MHz, ConvF(5.1, 5.1, 5.1) @ 5600 MHz, ConvF(5.08, 5.08, 5.08) @ 5750 MHz, ConvF(5.01, 5.01, 5.01) @ 5800 MHz; Calibrated: 08.03.2022
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601: Calibrated: 02.05.2022.
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 74.40 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 27.9 W/kg

SAR(1 g) = 7.84 W/kg; SAR(10 g) = 2.26 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 69.1%

Maximum value of SAR (measured) = 17.6 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 75.86 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 27.1 W/kg

SAR(1 g) = 7.87 W/kg; SAR(10 g) = 2.25 W/kg

Smallest distance from peaks to all points 3 dB below = 6.8 mm

Ratio of SAR at M2 to SAR at M1 = 69.8%

Maximum value of SAR (measured) = 17.4 W/kg

Certificate No: D5GHzV2-1060_Jul22

Page 9 of 13



Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 77.09 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 28.9 W/kg

SAR(1 g) = 8.17 W/kg; SAR(10 g) = 2.33 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 68.9%

Maximum value of SAR (measured) = 18.3 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 76.69 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 32.9 W/kg

SAR(1 g) = 8.60 W/kg; SAR(10 g) = 2.44 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 66.4%

Maximum value of SAR (measured) = 19.8 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 76.44 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 31.2 W/kg

SAR(1 g) = 8.39 W/kg; SAR(10 g) = 2.40 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 67.3%

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

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 73.53 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 31.8 W/kg

SAR(1 g) = 8.12 W/kg; SAR(10 g) = 2.31 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 65.4%

Maximum value of SAR (measured) = 19.0 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 74.35 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 32.9 W/kg

SAR(1 g) = 8.27 W/kg; SAR(10 g) = 2.34 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 65.2%

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

Certificate No: D5GHzV2-1060_Jul22

Page 10 of 13



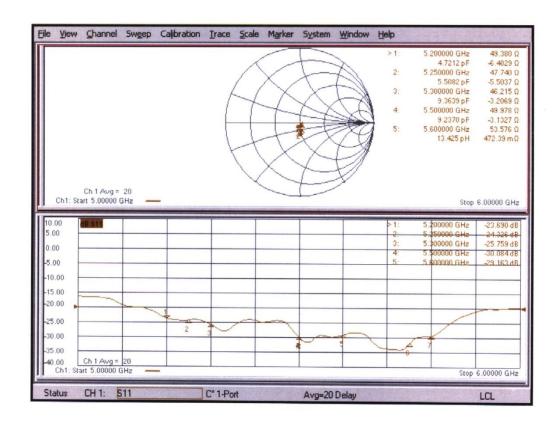


0 dB = 19.8 W/kg = 12.96 dBW/kg



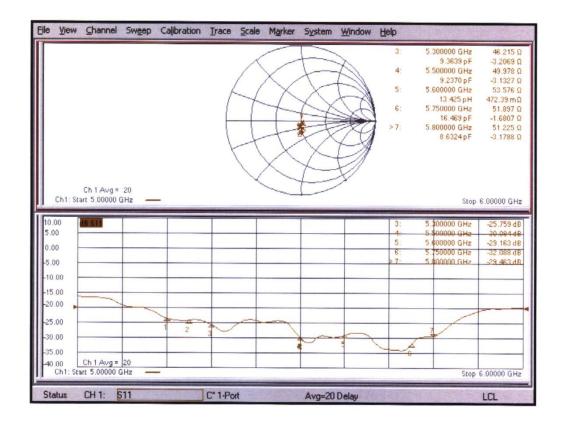


Impedance Measurement Plot for Head TSL (5200, 5250, 5300, 5500, 5600 MHz)





Impedance Measurement Plot for Head TSL (5300, 5500, 5600, 5750, 5800 MHz)



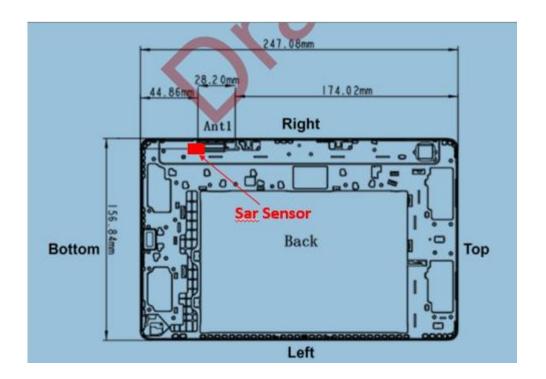
Certificate No: D5GHzV2-1060_Jul22





ANNEX I Sensor Triggering Data Summary

SAR sensor trigger Diagram:



Ant	enna	Mode				
Aı	nt1	WIFI2.4G/WIFI5G/BT				
Mode	Front	Back	Right			
WIFI2.4G/5G	10mm	15mm 14mn				

Per FCC KDB Publication 616217 D04v01r02, this device was tested by the manufacturer to determine the proximity sensor triggering distances for some positions. The measured output power within ± 5 mm of the triggering points (or until touching the phantom) is included for front, 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 (determined from these triggering tests according to the KDB 616217 D04v01r02) with the device at maximum output power without power reduction. These SAR tests are included in addition to the SAR tests for the device touching the SAR phantom, with reduced power.





WIFI Ant:

Rear

Moving device toward the phantom:

sensor near or far(KDB 616217 6.2.6)											
Distance [mm]	21	20	19	18	17	16	15	14	13	12	11
Main antenna	Far	Far	Far	Far	Far	Far	Near	Near	Near	Near	Near

Moving device away from the phantom:

sensor near or far(KDB 616217 6.2.6)											
Distance [mm]	11	12	13	14	15	16	17	18	19	20	21
Main antenna	Near	Near	Near	Near	Near	Far	Far	Far	Far	Far	Far

Right Edge

Moving device toward the phantom:

sensor near or far(KDB 616217 6.2.6)											
Distance [mm] 19 18 17 16 15 14 13 12 11 10								9			
Main antenna	Far	Far	Far	Far	Far	Near	Near	Near	Near	Near	Near

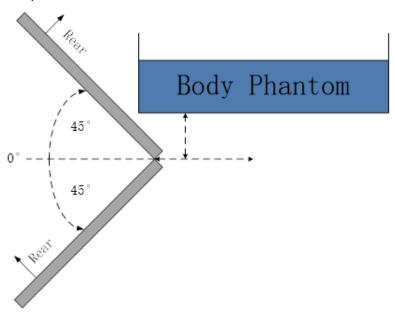
Moving device away from the phantom:

sensor near or far(KDB 616217 6.2.6)											
Distance [mm] 9 10 11 12 13 14 15 16 17 18							19				
Main antenna	Near	Near	Near	Near	Near	Near	Far	Far	Far	Far	Far

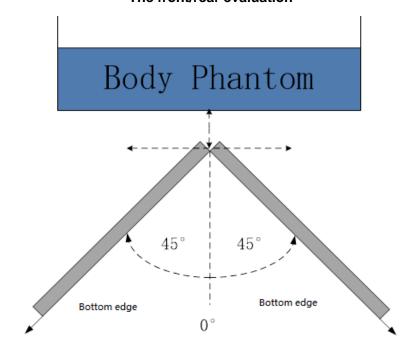




Per FCC KDB Publication 616217 D04v01r02, the influence of table tilt angles to proximity sensor triggering is determined by positioning each edge that contains a transmitting antenna, perpendicular to the flat phantom, at the smallest sensor triggering test distance by rotating the device around the edge next to the phantom in $\leq 10^{\circ}$ increments until the tablet is $\pm 45^{\circ}$ or more from the vertical position at 0° .

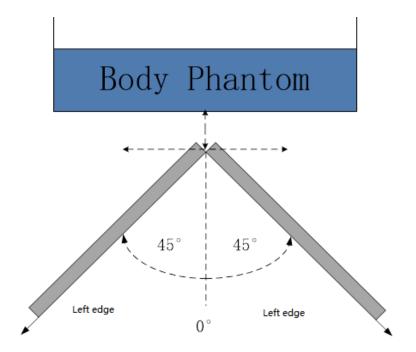


The front/rear evaluation



The top edge evaluation





The Right 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 $\pm 45^{\circ}$ 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



Certificate of Accreditation to ISO/IEC 17025:2017

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 17025:2017.

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).

2022-10-01 through 2023-09-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program