

WPT RF EXPOSURE EVALUATION TEST REPORT**Applicant Name:**

Samsung Electronics Co., Ltd.
129, Samsung-ro,
Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:

10/2/2025

Test Site/Location:

Element Washington DC LLC,
Columbia, MD, USA

Test Report Serial No.:

1M2508250079-05.A3L

Date of Issue:

11/11/2025

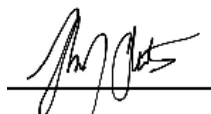
FCC ID:**A3LSMS948B****APPLICANT:****SAMSUNG ELECTRONICS CO., LTD.**

Apparatus/Device:	Portable Handset
Application Type:	Certification
Model:	SM-S948B/DS
Additional Model:	SM-S948B
Device Serial No.:	Pre-production Sample [SN: 0276M]
FCC Specification(s):	FCC 47 CFR Part 2.1093 KDB 680106 D01 v03r01

Mode	Thermal
	Basic Restriction
	Peak Spatial SAR (W/kg)
WPT	<0.01
Digitizer	<0.01
FCC Limit	1.6
Tested Distance	0mm
VERDICT	Pass

The device bearing the identifier specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and has been tested in accordance with the measurement procedures specified in FCC 47 CFR Part 2.1093 and KDB 680106 D01 v03r01. These measurements were performed with no deviation from the standards. Test results reported herein relate only to the item(s) tested.

I authorize and attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.



R1 Ortañez
Executive Vice President



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APPENDIX A: RF EXPOSURE TEST PLOTS

APPENDIX B: TEST SETUP PHOTOGRAPHS

APPENDIX C: CALIBRATION CERTIFICATE

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1 DATA REFERENCING

1.1 Data Referencing

Reference Device	Variant Device	Mode	Comments
FCC: A3LSMS948U	FCC: A3LSMS948B	WPT Testing	See Section 7 for reference and spot-check data
		Digitizer	See Section 7 for reference and spot-check data

Per manufacturer declaration, there are two portable handset devices FCC ID: A3LSMS948U and FCC ID: A3LSMS948B, with high degree of similarity, reference model FCC ID: A3LSMS948U and variant model FCC ID: A3LSMS948B. Both models share the same material, form factor, circuit design, and components, including antennas and their locations.

Based on the Data Referencing Test Plan, testing was done fully on the reference model FCC ID: A3LSMS948U, while spot-check verification has been performed on variant model FCC ID: A3LSMS948B. The spot check verification has been performed on the overall worst-case condition. The reference and variant model comparison data summary is included in section 7.

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2 DEVICE UNDER TEST

2.1 Device Overview

**Table 2-1
WPT Specifications**

Item	Description
Mode(s) Evaluated	Ping Signal (Standby) Device to Device – Inline Device to Device – Offset Device to Earbuds Device to Watch
Operating Frequency	110-148kHz
Maximum Tx Power	9W
Modulation/Protocol	FSK/ASK
Maximum Duty Cycle	50%
# of Coil Turns	30
Tx Coil Diameter	10.9mm (Inner) / 42mm (Outer)



Figure 2-1 WPT Load Removal Power Down



Figure 2-2 WPT Occupied Bandwidth

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**Table 2-2
Digitizer Specifications**

Item	Description
Mode(s) Evaluated	Button Push Hover Eraser (*)
Operating Frequency	531kHz: Button Push 562kHz: Hover 593kHz: Eraser
Max Tx Power	25mW
Modulation/Protocol	None
Tx Coils	X Axis Coil Y Axis Coil

*Digitizer is evaluated while EUT was placed in the eraser condition (worst case) using a factory test mode to ensure continuous operation.



Figure 2-3 Digitizer Occupied Bandwidth

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MEASUREMENT SYSTEM

3.1 DASY6/8 Module WPT V2.6+

System	DASY6/8 Module WPT is composed of the isotropic probe MAGPy-8H3D+E3D Version 2, the reference probe (MAGPy-RAφ), and the data acquisition system (MAGPy-DAS) mounted to the DASY6/8 robot via the emergency stop (MAGPy-ES). It measures the incident electric (E-) and magnetic (H-) fields in a volume from the surface of the device under test (DUT) using advanced field reconstructions to obtain a high-resolution (mm range) field distribution. The induced E-field distributions and specific absorption rate (SAR) are assessed with Sim4Life's Quasi-Static EM Solver (P-EM-QS) using only the measured data. At each probe location, eight sets of isotropic H-field values and one set of isotropic E-field values are acquired in parallel. The dedicated graphical user interface (GUI) fully automates the testing workflow.
Applications	Laboratory evaluation of WPT systems and any other local electromagnetic source not requiring magnetic (H-) field volume scans exceeding 2000 mm × 1000 mm × 1500 mm: - Assessment of high-resolution H-field distribution (3 kHz – 10 MHz) - Assessment of high-resolution E-field distribution (3 kHz – 10 MHz) - Determination of the induced field and SAR distribution in the standard phantom (3 kHz – 4 MHz) - Demonstration of compliance (3 kHz – 4 MHz) with international standards and national regulations, e.g., IEC PAS 63184, FCC KDB 680106 D01, ISED Canada SPR-002
Basic Components	The basic components of DASY6/8 Module WPT are: - Platform and DASY6/8 TX-90XL or TX2-90XL Robot - DASY6/8 Measurement Server - EOC8 - Light-Beam Unit - Quick Adapter Change System (QACSV1) - DASY6/8 PC
MAGPy-DAS	The MAGPy-DAS includes: 27 14-bit ADC channels with 25 MSPs - Peak detection stage - Hardware supervising unit - Data transfer to the backend 22 tap FIR filter
MAGPy-8H3D+E3D V2	The MAGPy-8H3D+E3D probe consists of eight isotropic H-field sensors and one isotropic E-field sensor: Probe design: - Probe length: 335 mm - Probe tip diameter: 60 mm 8H3D: eight isotropic 1 cm²-H-field sensors, arranged at the corners of a 22 mm cube - First H-field sensor plane: 7.5 mm from the probe tip - E3D: one isotropic E-field sensor (dipole/monopole) Sensor specifications: - Frequency range: 3 kHz – 10 MHz - H-field dynamic range: 0.1 A/m – 3200 A/m (0.12 μT – 4 mT) - H-field extrapolation uncertainty: 0.6 dB (k = 2) - E-field dynamic range: 0.08 V/m – 2000 V/m

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MAGPy-RAϕV2	Specifications of the MAGPy-RA ϕ reference amplitude and phase probe: • Frequency range: 3 kHz – 10 MHz • Dynamic range: 0.1 A/m – 3200 A/m (0.12 μT – 4 mT) • Loop coil area: 18.9 cm² • Sensor size: 51 mm $\times$ 51 mm $\times$ 0.2 mm
Software	Software components: • DASY6/8 Module WPT application programming interface (API) • WPT backend • Jupyter Notebook GUI • Sim4Life plugin (vector potential reconstruction, P-EM-QS solver)



Figure 3-1
DASY 6/8 Module WPT V2.6+ Test System

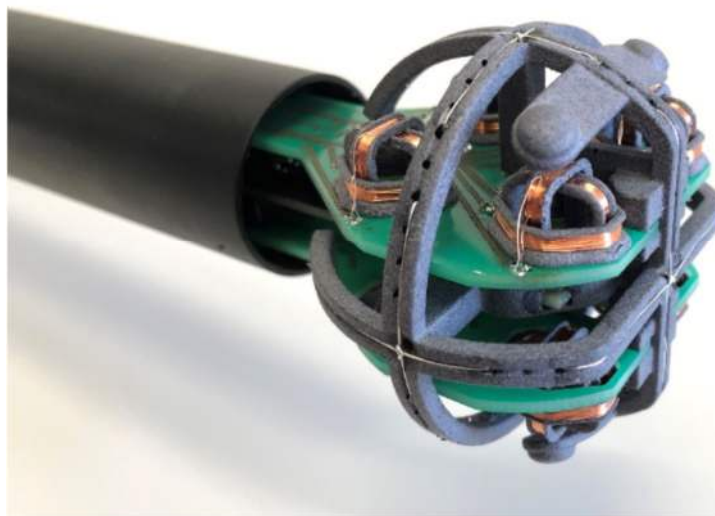


Figure 3-2
MAGPy-8H3D+E3 V2 Measurement Probe

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4 MEASUREMENT PROCEDURE

4.1 Measurement Procedure

Direct measurement (per FCC 47 CFR Part 2.1093 and KDB 680106 D01 v03r01) against the basic restrictions was employed for this report.

4.2 Measurement Distance

The measurement distance (spacing) is the manufacturer's declared separation distance obtained via information in the user manual. This shall be measured as the distance from the edge of the device to the edge of the measurement probe. Since it is possible for a user to touch the device while wirelessly charging, all testing was done at 0mm as a conservative approach.

4.3 Load Device Information

Table 4-1
WPT Load Devices

DUT Operating Mode	RX Device	S/N
Ping Signal (Standby)	N/A	N/A
Device to Device	SM-S948B	0276M
Device to Earbuds	SM-R530	6728A
Device to Watch	SM-R860/SM-R935U	NJQ3A/69105

An FTM test mode was activated for all testing to ensure DUT transmits WPT signal at max power regardless of battery level / positioning.

4.4 Measurement Personnel

All measurements in this report were performed by the following personnel:

Test Engineer: Hannah Annunziata

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5 RF EXPOSURE LIMITS

5.1 Limits for Maximum Permissible Exposure

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) LIMITS FOR OCCUPATIONAL/CONTROLLED EXPOSURE				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f ²)	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f ²)	<30
30-300	27.5	0.073	0.2	<30
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

(1) Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. The phrase fully aware in the context of applying these exposure limits means that an exposed person has received written and/or verbal information fully explaining the potential for RF exposure resulting from his or her employment. With the exception of transient persons, this phrase also means that an exposed person has received appropriate training regarding work practices relating to controlling or mitigating his or her exposure. In situations when an untrained person is transient through a location where occupational/controlled limits apply, he or she must be made aware of the potential for exposure and be supervised by trained personnel pursuant to § 1.1307(b)(2) of this part where use of time averaging is required to ensure compliance with the general population exposure limit. The phrase exercise control means that an exposed person is allowed and also knows how to reduce or avoid exposure by administrative or engineering work practices, such as use of personal protective equipment or time averaging of exposure.

(2) General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure. For example, RF sources intended for consumer use shall be subject to the limits for general population/uncontrolled exposure in this section.

5.2 Limits for Peak Spatial SAR

The SAR limits for general population/uncontrolled exposure are 0.08 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 1.6 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit is 4 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 30 minutes to determine compliance with general population/uncontrolled SAR limits.

**An evaluation against the limits for peak spatial SAR shall be performed when the DUT exceeds the limits for maximum permissible exposure.

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6 SYSTEM CHECK

Prior to testing, a system check was performed to verify that the test system operates as expected and measures RF exposure accurately. A known E-field/H-field source was used to verify readings of the measurement probe to $\pm 1.24\text{dB}$ of the known fields. A virtual half-space phantom with tissue properties $\epsilon_r = 55$, $\sigma = 0.75\text{S/m}$, $\rho = 1000\text{kg/m}^3$.

6.1 System Check

**Table 6-1
System Check**

Test Date	Frequency	Distance	Value	Incident H-Field (A/m)	Induced Peak Current Density (A/m ² , RMS)	Induced Peak E-field (V/m)			Peak Spacial SAR (mW/kg)	
						Cube Avg.	Local	Line Avg.	1g Avg.	10g Avg.
10/2/2025	85kHz	0	Measurement	196	2.26	3.21	3.24	3.25	6	4.49
			Deviation (dB)	-0.52	-0.49	-0.52	-0.55	-0.54	-0.46	-0.40
		2	Measurement	180	2.13	3.03	3.05	3.06	5.38	4.07
			Deviation (dB)	-0.42	-0.48	-0.50	-0.52	-0.52	-0.44	-0.39
9/29/2025	400kHz	0	Measurement	256	2.53	3.97	4.09	4.07	6.28	3.12
			Deviation (dB)	-1.05	-1.13	-1.18	-1.15	-1.21	-1.13	-1.07
		2	Measurement	227	2.15	3.43	3.52	3.52	4.59	2.32
			Deviation (dB)	-0.98	-1.10	-1.12	-1.13	-1.15	-1.08	-1.03

* A virtual half-space phantom with tissue properties $\epsilon_r = 55$, $\sigma = 0.75\text{S/m}$, $\rho = 1000\text{kg/m}^3$ was used to calculate the results in Table 5-1 and Table 5-2.

**Table 6-2
Equipment List**

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
SPEAG	V-COIL350/85	85kHz MAGPy System Validation Source	3/27/2025	Annual	3/27/2026	1011
SPEAG	V-COIL50/400	400kHz MAGPy System Validation Source	3/27/2025	Annual	3/27/2026	1012
SPEAG	MAGPy-H3D / MAGPy-DAS	Magnetic Amplitude and Gradient Probe and Data Acquisition System	6/13/2025	Annual	6/13/2026	3060



**Figure 5-1
System Check Setup Photo**

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7 DATA SUMMARY

7.1 A3LSMS948U Reference Data

Frequency (kHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
145	0	1.23	3.89	8.65	6.12	1.80	425.00	1.63
145	2	1.08	3.50	7.20	5.41	1.62	366.00	1.63

Table 7-1. Standby (Ping) Incident H-Field*

Frequency (kHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
145	0	1.70	10.30	4.28	18.50	55.40	35.10	614
145	2	1.57	9.33	4.18	16.90	51.10	33.10	614

Table 7-2. Standby (Ping) Incident E-Field

Frequency (kHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
145	0	1.17E-04	5.99E-04	2.31E-03	2.23E-03	2.56E-04	1.08E+00	1.6
145	2	1.02E-04	5.20E-04	1.95E-03	1.89E-03	2.34E-04	7.49E-01	1.6

Table 7-3. Standby (Ping) SAR

Frequency (kHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	1.50	0.35	8.98	9.56	2.58	3.03	1.63
112	2	1.34	0.31	7.82	8.34	2.32	2.74	1.63

Table 7-4. Device to Device Inline Incident H-Field*

Frequency (kHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	12.80	7.37	32.40	33.70	38.80	66.60	614
112	2	11.60	6.86	29.10	30.30	35.20	59.60	614

Table 7-5. Device to Device Inline Incident E-Field

*An evaluation against the limits for peak spatial SAR shall be performed when the DUT exceeds the limits for maximum permissible exposure.

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Frequency (kHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	7.18E-05	4.90E-06	5.79E-04	6.00E-04	2.18E-04	2.80E-04	1.6
112	2	5.71E-05	4.22E-06	4.43E-04	4.55E-04	1.94E-04	2.48E-04	1.6

Table 7-6. Device to Device Inline SAR

Frequency (kHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	0.71	1.47	0.25	1.63	0.77	3.09	1.63
112	2	0.63	1.30	0.21	1.45	0.71	2.51	1.63

Table 7-7. Device to Device Offset Incident H-Field*

Frequency (kHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	22.00	37.60	5.17	3.15	4.34	32.80	614
112	2	19.80	34.10	4.73	3.03	4.21	29.70	614

Table 7-8. Device to Device Offset Incident E-Field

Frequency (kHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	2.02E-05	4.37E-05	2.84E-06	6.07E-05	2.79E-05	5.98E-05	1.6
112	2	1.81E-05	3.83E-05	2.58E-06	5.46E-05	2.45E-05	5.00E-05	1.6

Table 7-9. Device to Device Offset SAR

Frequency (kHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	1.08	6.13	9.91	6.07	6.15	27.20	1.63
112	2	0.99	5.50	8.63	5.17	5.41	24.50	1.63

Table 7-10. Device to Earbuds Incident H-Field*

Frequency (kHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	52.70	50.10	44.20	44.20	101.00	122.00	614
112	2	47.70	45.60	40.60	40.80	90.30	113.00	614

Table 7-11. Device to Earbuds Incident E-Field

*An evaluation against the limits for peak spatial SAR shall be performed when the DUT exceeds the limits for maximum permissible exposure.

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Frequency (kHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	1.13E-04	1.04E-03	2.12E-03	1.91E-03	2.25E-03	1.79E-02	1.6
112	2	1.11E-04	9.10E-04	1.83E-03	1.60E-03	2.05E-03	1.46E-02	1.6

Table 7-12. Device to Earbuds SAR

Frequency (kHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	1.41	4.39	7.90	14.70	3.71	105.00	1.63
112	2	1.26	3.88	6.17	12.80	3.33	90.90	1.63

Table 7-13. Device to Watch Incident H-Field

Frequency (kHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	27.90	29.80	102.00	139.00	119.00	296.00	614
112	2	25.60	27.30	91.30	126.00	108.00	269.00	614

Table 7-14. Device to Watch Incident E-Field

Frequency (kHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
112	0	1.57E-04	4.42E-04	6.31E-04	4.56E-03	7.87E-04	1.03E-01	1.6
112	2	1.33E-04	3.76E-04	5.38E-04	3.64E-03	6.96E-04	7.86E-02	1.6

Table 7-15. Device to Watch SAR

Frequency (kHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
593	0	0.47	1.89	0.12	0.08	1.73	0.14	1.63
593	2	0.40	1.40	0.09	0.07	1.45	0.13	1.63

Table 7-16. Digitizer Incident H-Field*

Frequency (kHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
593	0	0.32	2.10	0.19	0.29	0.366	0.05	614
593	2	0.30	1.90	0.17	0.26	0.34	0.06	614

Table 7-17. Digitizer Incident E-Field

*An evaluation against the limits for peak spatial SAR shall be performed when the DUT exceeds the limits for maximum permissible exposure.

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Frequency (kHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
593	0	1.24E-05	2.95E-05	5.93E-06	3.51E-06	4.04E-04	9.75E-06	1.6
593	2	8.33E-06	2.05E-05	5.01E-06	3.07E-06	3.22E-04	8.17E-06	1.6

Table 7-18. Digitizer SAR

7.2 A3LSMS948B Spot-Check Data

Configuration	Device	Frequency (kHz)	Distance (mm)	SAR (mW/kg)	Limit (mW/kg)
Standby (Ping) Back Side	A3LSMS948U (Reference)	145	0	1.08	1600
	A3LSMS948U (Reference)	145	2	0.749	1600
	A3LSMS948B (Variant)	145	0	1.41	1600
	A3LSMS948B (Variant)	145	2	0.966	1600

Table 7-19. A3LSMS948B Worst Case Spot-Check Data

RF Exposure Spot-Check Acceptance (per KDB 484596)							
Worst-Case Configuration	RF Exposure Evaluation	Reference (TER _R)	Variant (TER _V)	Relative Difference (d _{TER})	Margin (M)	Max Acceptable Difference (d _{TERmax})	Acceptance
Standby (Ping) Back Side, 0 mm	SAR	6.75E-04	8.81E-04	30.6%	0.999	50%	Yes

Table 7-20. A3LSMS948B Worst-Case Test Configuration for Spot-Check Evaluation

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8 INFORMATIVE MEASUREMENT UNCERTAINTY

8.1 Uncertainty Budget of Peak Incident H-Field

DASY6 Uncertainty Budget for Peak Incident <i>H</i> -field according to IEC/IEEE 63184						
Item	Error Description	Unc. Value (±dB)	Probab. Distr.	Div.	(c_i)	Std. Unc. (±dB)
Measurement system						
1	Amplitude calibration uncertainty	0.35	N	1	1	0.35
2	Probe anisotropy	0.6	R	$\sqrt{3}$	1	0.35
3	Probe dynamic linearity	0.2	R	$\sqrt{3}$	1	0.12
4	Probe frequency domain response	0.3	R	$\sqrt{3}$	1	0.17
5	Probe frequency linear interp. fit	0.15	R	$\sqrt{3}$	1	0.09
6	Spatial averaging	0.1	R	$\sqrt{3}$	1	0.06
7	Parasitic E-field sensitivity	0.1	R	$\sqrt{3}$	1	0.06
8	Detection limit	0.15	R	$\sqrt{3}$	1	0.09
9	Readout electronics	0	N	1	1	0
10	Probe positioning	0.19	N	1	1	0.19
11	Repeatability	0.1	N	1	1	0.10
12	Surface field reconstruction	0.3	N	1	1	0.3
Combined uncertainty ($k = 1$)						0.67
Expanded uncertainty ($k = 2$)						1.33 (16.6%)

8.2 Uncertainty Budget of Peak Incident E-Field

DASY6 Uncertainty Budget for Incident <i>E</i> -field according to IEC/IEEE 63184						
Item	Error Description	Unc. Value (±dB)	Probab. Distr.	Div.	(c_i)	Std. Unc. (±dB)
Measurement system						
1	Amplitude calibration uncertainty	0.53	N	1	1	0.53
2	Probe anisotropy	0.8	R	$\sqrt{3}$	1	0.46
3	Probe dynamic linearity	1	R	$\sqrt{3}$	1	0.58
4	Probe frequency domain response	0.3	R	$\sqrt{3}$	1	0.17
5	Probe frequency linear interp. fit	0.15	R	$\sqrt{3}$	1	0.09
6	Parasitic H-field sensitivity	0.2	R	$\sqrt{3}$	1	0.12
7	Detection limit	0.15	R	$\sqrt{3}$	1	0.09
8	Readout electronics	0	N	1	1	0
9	Repeatability	0.1	N	1	1	0.10
Combined uncertainty ($k = 1$)						0.95
Expanded uncertainty ($k = 2$)						1.89 (24.4%)

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8.3 Uncertainty Budget of Cube Average E_{ind}

DASY6 Uncertainty Budget for Peak $2 \times 2 \times 2 \text{ mm}^3$ Cube-Average E_{ind} according to IEC/IEEE 63184						
Item	Error Description	Unc. Value ($\pm \text{dB}$)	Probab. Distr.	Div.	(c_i)	Std. Unc. ($\pm \text{dB}$)
Measurement system						
1	Amplitude calibration uncertainty	0.35	N	1	1	0.35
2	Probe anisotropy	0.6	R	$\sqrt{3}$	1	0.35
3	Probe dynamic linearity	0.2	R	$\sqrt{3}$	1	0.12
4	Probe frequency domain response	0.3	R	$\sqrt{3}$	1	0.17
5	Probe frequency linear interp. fit	0.15	R	$\sqrt{3}$	1	0.09
6	Spatial averaging	0.1	R	$\sqrt{3}$	1	0.06
7	Parasitic E -field sensitivity	0.1	R	$\sqrt{3}$	1	0.06
8	Detection limit	0.15	R	$\sqrt{3}$	1	0.09
9	Readout electronics	0	N	1	1	0
10	Probe positioning	0.19	N	1	1	0.19
11	Repeatability	0.1	N	1	1	0.1
12	Surface field reconstruction	0.3	N	1	1	0.3
Numerical simulations						
13	Grid resolution	0.18	R	$\sqrt{3}$	1	0.10
14	Tissue parameters	0	R	$\sqrt{3}$	1	0
15	Exposure position	0	R	$\sqrt{3}$	1	0
16	Source representation	0.24	N	1	1	0.24
17	Convergence and power budget	0	R	$\sqrt{3}$	1	0
18	Boundary conditions	0.1	R	$\sqrt{3}$	1	0.06
19	Phantom loading/backscattering	0.1	R	$\sqrt{3}$	1	0.06
Combined uncertainty ($k = 1$)						0.72
Expanded uncertainty ($k = 2$)						1.44 (18.0%)

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8.4 Uncertainty Budget of Line Average E_{ind}

DASY6 Uncertainty Budget for Peak 5 mm Line-Average E_{ind} according to IEC/IEEE 63184						
Item	Error Description	Unc. Value ($\pm$ dB)	Probab. Distr.	Div.	(c_i)	Std. Unc. ($\pm$ dB)
Measurement system						
1	Amplitude calibration uncertainty	0.35	N	1	1	0.35
2	Probe anisotropy	0.6	R	$\sqrt{3}$	1	0.35
3	Probe dynamic linearity	0.2	R	$\sqrt{3}$	1	0.12
4	Probe frequency domain response	0.3	R	$\sqrt{3}$	1	0.17
5	Probe frequency linear interp. fit	0.15	R	$\sqrt{3}$	1	0.09
6	Spatial averaging	0.1	R	$\sqrt{3}$	1	0.06
7	Parasitic E -field sensitivity	0.1	R	$\sqrt{3}$	1	0.06
8	Detection limit	0.15	R	$\sqrt{3}$	1	0.09
9	Readout electronics	0	N	1	1	0
10	Probe positioning	0.19	N	1	1	0.19
11	Repeatability	0.1	N	1	1	0.1
12	Surface field reconstruction	0.3	N	1	1	0.3
Numerical simulations						
13	Grid resolution	0.25	R	$\sqrt{3}$	1	0.14
14	Tissue parameters	0	R	$\sqrt{3}$	1	0
15	Exposure position	0	R	$\sqrt{3}$	1	0
16	Source representation	0.27	N	1	1	0.27
17	Convergence and power budget	0	R	$\sqrt{3}$	1	0
18	Boundary conditions	0.1	R	$\sqrt{3}$	1	0.06
19	Phantom loading/backscattering	0.1	R	$\sqrt{3}$	1	0.06
Combined uncertainty ($k = 1$)						0.74
Expanded uncertainty ($k = 2$)						1.48 (18.5%)

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8.5 Uncertainty Budget of Local E_{ind}

DASY6 Uncertainty Budget for Peak Local E_{ind} according to IEC/IEEE 63184						
Item	Error Description	Unc. Value ($\pm$ dB)	Probab. Distr.	Div.	(c_i)	Std. Unc. ($\pm$ dB)
Measurement system						
1	Amplitude calibration uncertainty	0.35	N	1	1	0.35
2	Probe anisotropy	0.6	R	$\sqrt{3}$	1	0.35
3	Probe dynamic linearity	0.2	R	$\sqrt{3}$	1	0.12
4	Probe frequency domain response	0.3	R	$\sqrt{3}$	1	0.17
5	Probe frequency linear interp. fit	0.15	R	$\sqrt{3}$	1	0.09
6	Spatial averaging	0.1	R	$\sqrt{3}$	1	0.06
7	Parasitic E -field sensitivity	0.1	R	$\sqrt{3}$	1	0.06
8	Detection limit	0.15	R	$\sqrt{3}$	1	0.09
9	Readout electronics	0	N	1	1	0
10	Probe positioning	0.19	N	1	1	0.19
11	Repeatability	0.1	N	1	1	0.1
12	Surface field reconstruction	0.3	N	1	1	0.3
Numerical simulations						
13	Grid resolution	0.09	R	$\sqrt{3}$	1	0.05
14	Tissue parameters	0	R	$\sqrt{3}$	1	0
15	Exposure position	0	R	$\sqrt{3}$	1	0
16	Source representation	0.27	N	1	1	0.27
17	Convergence and power budget	0	R	$\sqrt{3}$	1	0
18	Boundary conditions	0.1	R	$\sqrt{3}$	1	0.06
19	Phantom loading/backscattering	0.1	R	$\sqrt{3}$	1	0.06
Combined uncertainty ($k = 1$)						0.73
Expanded uncertainty ($k = 2$)						1.45 (18.2%)

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8.6 Uncertainty Budget of Peak 1 cm² Area Average J_{ind}

DASY6 Uncertainty Budget for Peak 1 cm ² Area-Average J _{ind} according to IEC/IEEE 63184						
Item	Error Description	Unc. Value (±dB)	Probab. Distr.	Div.	(c _i)	Std. Unc. (±dB)
Measurement system						
1	Amplitude calibration uncertainty	0.35	N	1	1	0.35
2	Probe anisotropy	0.6	R	√3	1	0.35
3	Probe dynamic linearity	0.2	R	√3	1	0.12
4	Probe frequency domain response	0.3	R	√3	1	0.17
5	Probe frequency linear interp. fit	0.15	R	√3	1	0.09
6	Spatial averaging	0.1	R	√3	1	0.06
7	Parasitic E-field sensitivity	0.1	R	√3	1	0.06
8	Detection limit	0.15	R	√3	1	0.09
9	Readout electronics	0	N	1	1	0
10	Probe positioning	0.19	N	1	1	0.19
11	Repeatability	0.1	N	1	1	0.1
12	Surface field reconstruction	0.3	N	1	1	0.3
Numerical simulations						
13	Grid resolution	0.12	R	√3	1	0.07
14	Tissue parameters	0	R	√3	1	0
15	Exposure position	0	R	√3	1	0
16	Source representation	0.1	N	1	1	0.1
17	Convergence and power budget	0	R	√3	1	0
18	Boundary conditions	0.1	R	√3	1	0.06
19	Phantom loading/backscattering	0.1	R	√3	1	0.06
Combined uncertainty (<i>k</i> = 1)						0.68
Expanded uncertainty (<i>k</i> = 2)						1.36 (17.0%)

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8.7 Uncertainty Budget of psSAR 1g

DASY6 Uncertainty Budget for psSAR1 g according to IEC/IEEE 63184						
Item	Error Description	Unc. Value (±dB)	Probab. Distr.	Div.	(c_i)	Std. Unc. (±dB)
Measurement system						
1	Amplitude calibration uncertainty	0.35	N	1	1	0.35
2	Probe anisotropy	0.6	R	$\sqrt{3}$	1	0.35
3	Probe dynamic linearity	0.2	R	$\sqrt{3}$	1	0.12
4	Probe frequency domain response	0.3	R	$\sqrt{3}$	1	0.17
5	Probe frequency linear interp. fit	0.15	R	$\sqrt{3}$	1	0.09
6	Spatial averaging	0.1	R	$\sqrt{3}$	1	0.06
7	Parasitic <i>E</i> -field sensitivity	0.1	R	$\sqrt{3}$	1	0.06
8	Detection limit	0.15	R	$\sqrt{3}$	1	0.09
9	Readout electronics	0	N	1	1	0
10	Probe positioning	0.19	N	1	1	0.19
11	Repeatability	0.1	N	1	1	0.1
12	Surface field reconstruction	0.2	N	1	1	0.2
Numerical simulations						
13	Grid resolution	0.02	R	$\sqrt{3}$	1	0.01
14	Tissue parameters	0	R	$\sqrt{3}$	1	0
15	Exposure position	0	R	$\sqrt{3}$	1	0
16	Source representation	0.09	N	1	1	0.09
17	Convergence and power budget	0	R	$\sqrt{3}$	1	0
18	Boundary conditions	0.1	R	$\sqrt{3}$	1	0.06
19	Phantom loading/backscattering	0.1	R	$\sqrt{3}$	1	0.06
Combined uncertainty ($k = 1$)						0.63
Expanded uncertainty ($k = 2$)						1.27 (33.9%)

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8.8 Uncertainty Budget of psSAR 10g

DASY6 Uncertainty Budget for psSAR10g according to IEC/IEEE 63184						
Item	Error Description	Unc. Value (±dB)	Probab. Distr.	Div.	(c_i)	Std. Unc. (±dB)
Measurement system						
1	Amplitude calibration uncertainty	0.35	N	1	1	0.35
2	Probe anisotropy	0.6	R	$\sqrt{3}$	1	0.35
3	Probe dynamic linearity	0.2	R	$\sqrt{3}$	1	0.12
4	Probe frequency domain response	0.3	R	$\sqrt{3}$	1	0.17
5	Probe frequency linear interp. fit	0.15	R	$\sqrt{3}$	1	0.09
6	Spatial averaging	0.1	R	$\sqrt{3}$	1	0.06
7	Parasitic <i>E</i> -field sensitivity	0.1	R	$\sqrt{3}$	1	0.06
8	Detection limit	0.15	R	$\sqrt{3}$	1	0.09
9	Readout electronics	0	N	1	1	0
10	Probe positioning	0.19	N	1	1	0.19
11	Repeatability	0.1	N	1	1	0.1
12	Surface field reconstruction	0.2	N	1	1	0.2
Numerical simulations						
13	Grid resolution	0	R	$\sqrt{3}$	1	0
14	Tissue parameters	0	R	$\sqrt{3}$	1	0
15	Exposure position	0	R	$\sqrt{3}$	1	0
16	Source representation	0.04	N	1	1	0.04
17	Convergence and power budget	0	R	$\sqrt{3}$	1	0
18	Boundary conditions	0.1	R	$\sqrt{3}$	1	0.06
19	Phantom loading/backscattering	0.1	R	$\sqrt{3}$	1	0.06
Combined uncertainty ($k = 1$)						0.63
Expanded uncertainty ($k = 2$)						1.25 (33.4%)

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9 CONCLUSION

9.1 Measurement Conclusion

The RF exposure evaluation indicates that the DUT complies with the exposure limits presented in FCC 47 CFR Part 2.1093 and KDB 680106 D01 v03r01 with respect to all parameters subject to this test. The worst-case configuration was evaluated against and satisfies the requirement of peak special SAR < 1.6 W/kg. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

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