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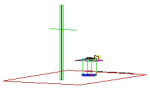

WPT RF EXPOSURE EVALUATION TEST REPORT

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

Date of Testing:
10/14/2024 – 11/1/2024
Test Site/Location:
Element Washington DC LLC,
Columbia, MD, USA
Test Report Serial No.:
1M2408260069-31.A3L
Date of Issue:
11/11/2024

FCC ID: **A3LSMS938B**

APPLICANT: **SAMSUNG ELECTRONICS CO., LTD.**

Apparatus/Device:	Portable Handset
Application Type:	Certification
Model:	SM-S938B/DS
Additional Model(s):	SM-S938B
Device Serial No.:	Pre-production Sample [SN: 0830M]
FCC Specification(s):	FCC 47 CFR Part 2.1093 KDB 680106 D01 v03r01

Mode	Thermal Basic Restriction Peak Spatial SAR (W/kg)
WPT	0.00139
Digitizer	0.00000189
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.

RJ Ortanez
Executive Vice President

ACCREDITED
CERT #2041.01

TABLE OF CONTENTS

1 DEVICE UNDER TEST

1.1 Device Overview

Table 1-1
Operation Summary

Mode	Operating Mode	Tx Frequency
WPT	Device to Device (Inline)	110-145kHz
	Device to Device (Offset)	
	Device to Watch	
	Device to Earbuds	
	Ping Signal	
Digitizer	Button Push, Hover, Eraser (*)	500-600kHz

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

1.2 WPT System Specifications

Table 1-2
WPT System Specifications

Item	Description
Operating Frequency	110-145kHz
Max Tx Power	9W
Modulation/Protocol	FSK/ASK
Tx Coil Diameter	12.5mm (Inner) / 42mm (Outer)

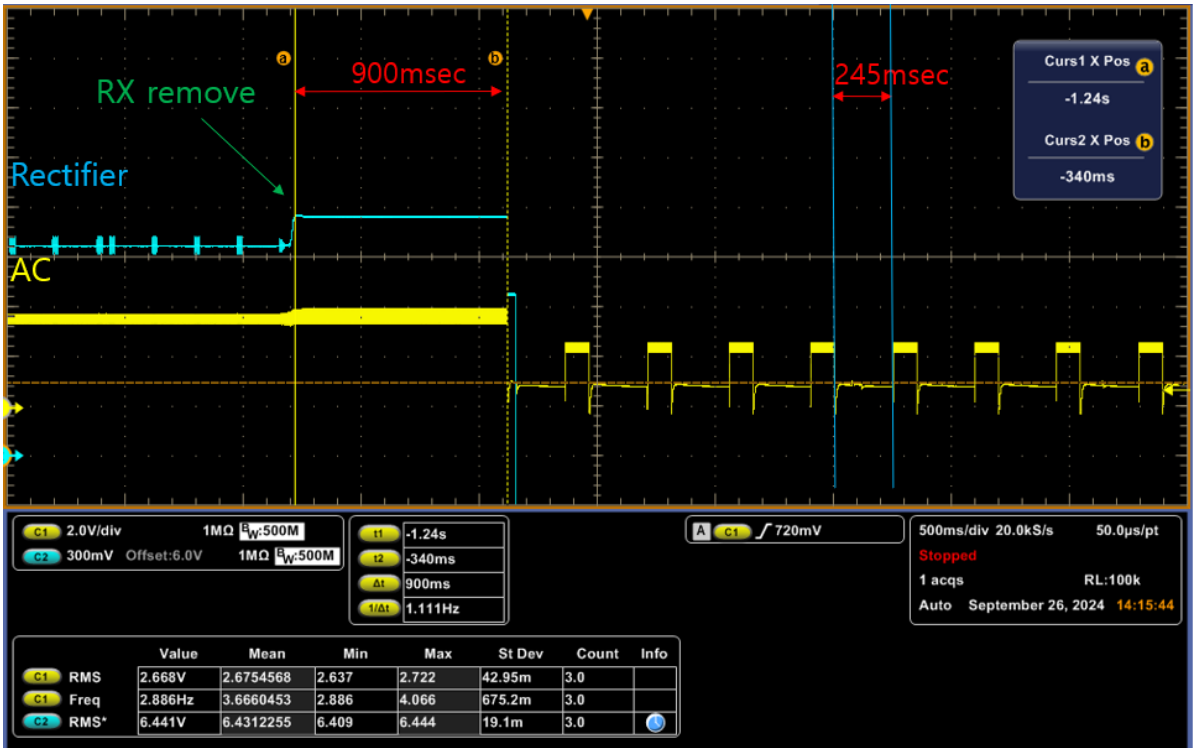

Figure 1-1 WPT Load Removal Power Down

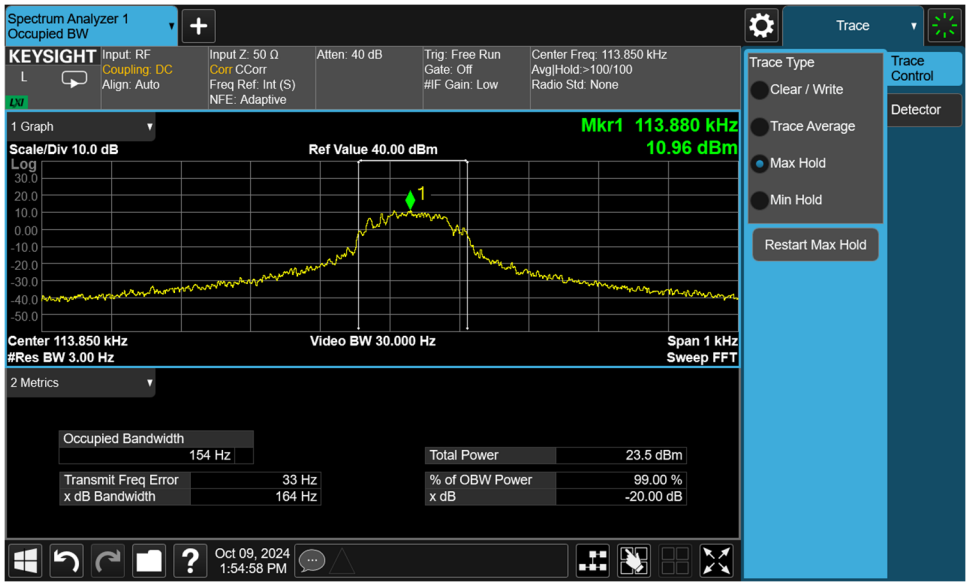

Figure 1-2 WPT Occupied Bandwidth

1.3 Digitizer System Specifications

Table 1-3
Digitizer System Specifications

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

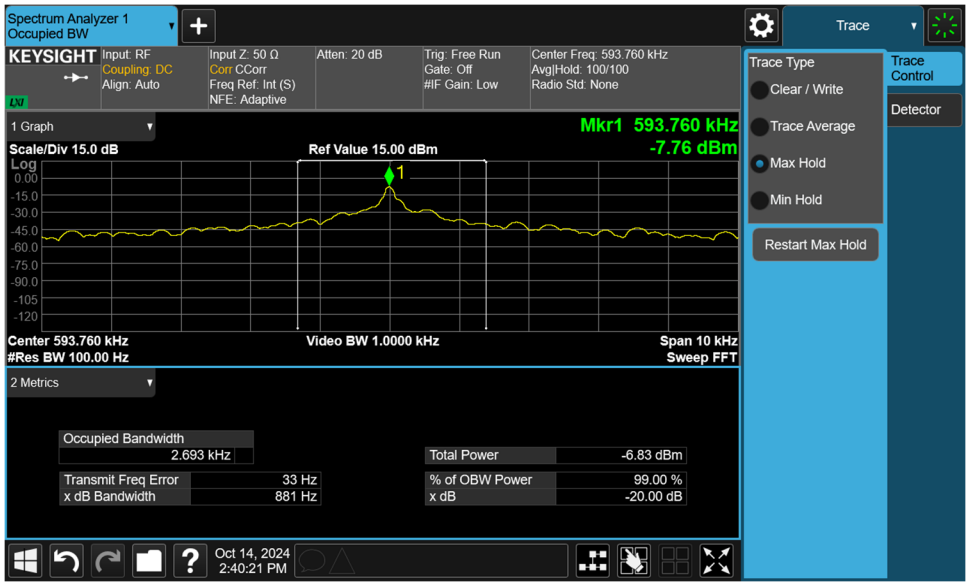

Figure 1-3 Digitizer Occupied Bandwidth

2 MEASUREMENT SYSTEM

2.1 Measurement Probe

Model:	Speag MAGPy-8H3D+E3 V2
S/N:	3060/2051
Frequency:	3 kHz – 10 MHz
Sensitivity:	H-Field: 0.1 A/m, E-Field: 0.08 V/m
Amplitude Flatness:	<0.2 dB (typ)
Linearity:	H-Field: <0.2 dB (typ.), E-Field: <0.5 dB (typ.) @ 1MHz
Linear range:	H-Field: 0.1 to 3200 A/m, E-Field: 0.1 to 2000 V/m
Sensor Size:	H-Field: 10mm, E-Field: 50mm
Isotropy:	<0.5 (typ.)
Dimensions:	110mm x 635mm x 35mm

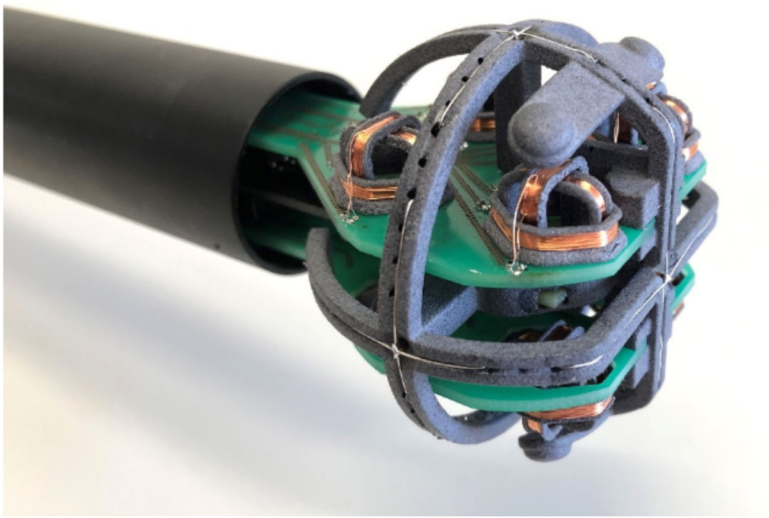

Figure 2-1
MAGPy-8H3D+E3 V2 Measurement Probe

3 MEASUREMENT PROCEDURE

3.1 Measurement Procedure

Direct measurement (per FCC 47 CFR Part 2.1093 and KDB 680106 D01 v03r01) is employed in this report.

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.

3.2 Test Distance

The DUT is evaluated as a portable device that is expected to be used in close proximity to the user's hands and body. The logical separation distance of the DUT to the user's hands and body is 0 mm. All measurements were conducted with a 0mm separation distance between the probe tip and DUT.

3.3 Measurement Personnel

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

Test Engineer: Justin DeVos

4 RF EXPOSURE LIMITS

4.1 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.

4.2 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 again the limits for peak spatial SAR shall be performed when the DUT exceeds the limits for maximum permissible exposure.

5 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 ± 1.24dB of the known fields. A virtual half-space phantom with tissue properties ε_r = 55, σ = 0.75S/m, ρ = 1000kg/m^3.

5.1 System Check

Table 5-1
System Check – 85kHz

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.
85kHz	0	Measurement	**201**	**2.25**	**3.22**	**3.25**	**3.26**	**5.91**	**4.35**
		Deviation (dB)	*0.17*	*-0.15*	*-0.11*	*-0.11*	*-0.11*	*-0.40*	*-0.49*
	2	Measurement	**184**	**2.12**	**3.02**	**3.25**	**3.26**	**5.27**	**3.93**
		Deviation (dB)	*0.19*	*-0.16*	*-0.14*	*0.41*	*0.41*	*-0.42*	*-0.51*

Table 5-2
System Check – 400kHz

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.
400kHz	0	Measurement	**272**	**2.78**	**4.35**	**4.45**	**4.46**	**7.58**	**3.71**
		Deviation (dB)	*0.23*	*0.32*	*0.24*	*0.20*	*0.24*	*0.62*	*0.51*
	2	Measurement	**239**	**2.36**	**3.74**	**3.84**	**3.85**	**5.53**	**2.76**
		Deviation (dB)	*0.26*	*0.26*	*0.19*	*0.14*	*0.18*	*0.58*	*0.52*

* A virtual half-space phantom with tissue properties ε_r = 55, σ = 0.75S/m, ρ = 1000kg/m^3 was used to calculate the results in Table 5-1 and Table 5-2.

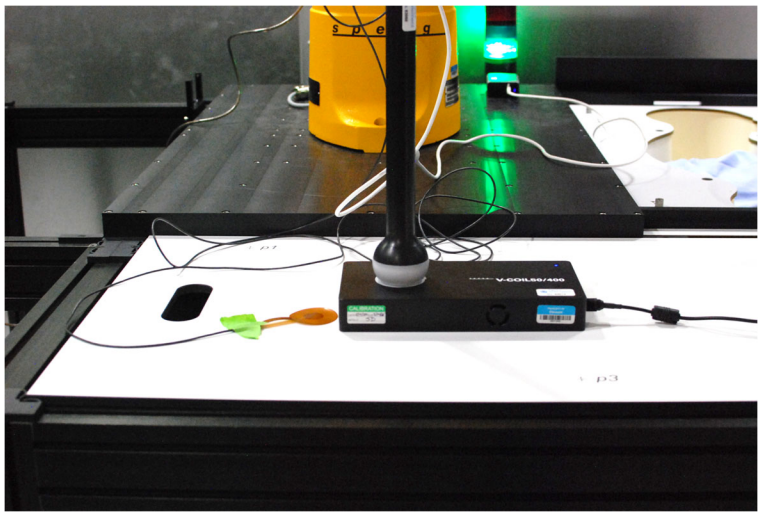

Figure 6-1
System Check Setup Photo

5.2 Equipment

Table 5-3
Equipment List

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
SPEAG	V-COIL350/85	85kHz MAGPy System Validation Source	3/14/2024	Annual	3/14/2025	1011
SPEAG	V-COIL50/400	400kHz MAGPy System Validation Source	3/14/2024	Annual	3/14/2025	1012
SPEAG	MAGPy-H3D / MAGPy-DAS	Magnetic Amplitude and Gradient Probe and Data Acquisition System	6/28/2024	Annual	6/28/2025	2051

6 DATA SUMMARY

Frequency (MHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.113	0	1.990	0.263	9.100	9.260	3.340	3.300	1.63
0.113	2	1.730	0.230	7.860	8.010	2.930	2.880	1.63

Table 1. Device to Device (Inline) Incident H-Field

Frequency (MHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.113	0	0.368	15.100	0.370	0.485	27.000	0.664	614
0.113	2	0.340	13.700	0.354	0.449	24.600	0.607	614

Table 2. Device to Device (Inline) Incident E-Field

Frequency (MHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.113	0	0.000142	0.000004	0.000464	0.000471	0.000376	0.000399	1.6
0.113	2	0.000119	0.000004	0.000386	0.000400	0.000344	0.000358	1.6

Table 3. Device to Device (Inline) SAR

Frequency (MHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.113	0	0.971	0.442	0.459	0.403	4.300	5.080	1.63
0.113	2	0.857	0.403	0.416	0.371	3.830	4.450	1.63

Table 4. Device to Device (Offset) Incident H-Field

Frequency (MHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.113	0	1.020	0.512	0.415	0.318	7.170	6.470	614
0.113	2	0.971	0.471	0.391	0.298	6.610	6.080	614

Table 5. Device to Device (Offset) Incident E-Field

Frequency (MHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.113	0	0.000034	0.000017	0.000036	0.000036	0.000439	0.000423	1.6
0.113	2	0.000034	0.000015	0.000033	0.000033	0.000374	0.000371	1.6

Table 6. Device to Device (Offset) SAR

Frequency (MHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.125	0	2.090	0.771	9.140	5.070	3.290	29.600	1.63
0.125	2	1.840	0.602	8.000	4.490	2.740	26.300	1.63

Table 7. Device to Watch Incident H-Field

Frequency (MHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.125	0	7.520	5.750	7.110	7.390	26.200	66.300	614
0.125	2	7.340	5.260	7.250	7.030	24.200	60.800	614

Table 8. Device to Watch Incident E-Field

Frequency (MHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.125	0	0.000145	0.000074	0.001490	0.000629	0.000305	0.015400	1.6
0.125	2	0.000128	0.000069	0.001230	0.000544	0.000274	0.012500	1.6

Table 9. Device to Watch SAR

Frequency (MHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.113	0	0.335	0.453	6.710	6.450	1.920	21.800	1.63
0.113	2	0.299	0.405	5.710	5.560	1.720	19.700	1.63

Table 10. Device to Earbuds Incident H-Field

Frequency (MHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.113	0	11.400	9.150	12.400	9.740	24.600	40.000	614
0.113	2	10.200	8.290	11.700	9.220	22.500	37.600	614

Table 11. Device to Earbuds Incident E-Field

Frequency (MHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.113	0	0.000012	0.000012	0.000421	0.000403	0.000835	0.005340	1.6
0.113	2	0.000011	0.000011	0.000347	0.000342	0.000730	0.004380	1.6

Table 12. Device to Earbuds SAR

Frequency (MHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.145	0	2.830	0.647	14.000	5.140	3.860	613.000	1.63
0.145	2	2.500	0.539	11.800	4.250	3.420	525.000	1.63

Table 13. Ping Signal Incident H-Field

Frequency (MHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.145	0	62.300	2.470	4.450	7.890	12.300	49.200	614
0.145	2	54.900	2.270	4.240	8.100	11.200	45.300	614

Table 14. Ping Signal Incident E-Field

Frequency (MHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.145	0	0.000032	0.000026	0.003260	0.000394	0.000348	1.390000	1.6
0.145	2	0.000030	0.000025	0.002590	0.000327	0.000318	0.927000	1.6

Table 15. Ping Signal SAR

Frequency (MHz)	Distance (mm)	Incident H-field (A/m)						Limit (A/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.593	0	0.017	0.016	0.528	0.404	4.960	0.060	1.63
0.593	2	0.015	0.014	0.447	0.328	4.150	0.052	1.63

Table 16. Digitizer Incident H-Field

Frequency (MHz)	Distance (mm)	Incident E-field (V/m)						Limit (V/m)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.593	0	0.037	0.075	0.056	0.061	0.498	0.102	614
0.593	2	0.038	0.071	0.057	0.060	0.464	0.100	614

Table 17. Digitizer Incident E-Field

Frequency (MHz)	Distance (mm)	SAR (mW/kg)						Limit (W/kg)
		EUT Sides						
		Top	Bottom	Left	Right	Front	Back	
0.593	0	0.000000	0.000000	0.000016	0.000012	0.001890	0.000001	1.6
0.593	2	0.000000	0.000000	0.000011	0.000008	0.001390	0.000001	1.6

Table 18. Digitizer SAR

7 INFORMATIVE MEASUREMENT UNCERTAINTY

7.1 Uncertainty Budge of Peak Incident H-Field

DASY6 Uncertainty Budget for Peak Incident H-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%)**

7.2 Uncertainty Budge of Peak Incident E-Field

DASY6 Uncertainty Budget for Incident E-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%)**

7.3 Uncertainty Budget of Cube Average E_{ind}

DASY6 Uncertainty Budget for Peak 2×2×2 mm³ Cube-Average E_{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	$\sqrt{3}$	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%)**

7.4 Uncertainty Budge 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 (±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	0.1
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%)**

7.5 Uncertainty Budge of Local E_{ind}

DASY6 Uncertainty Budget for Peak Local E_{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	$\sqrt{3}$	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%)**

7.6 Uncertainty Budge of Peak 1 cm^2 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	$\sqrt{3}$	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	0.12	R	$\sqrt{3}$	1	0.07
14	Tissue parameters	0	R	$\sqrt{3}$	1	0
15	Exposure position	0	R	$\sqrt{3}$	1	0
16	Source representation	0.1	N	1	1	0.1
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 ($k = 1$)						0.68
Expanded uncertainty ($k = 2$)						**1.36 (17.0%)**

7.7 Uncertainty Budge 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 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	0.2	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%)**

7.8 Uncertainty Budge of psSAR 10g

DASY6 Uncertainty Budget for psSAR10 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 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	0.2	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%)**

8 CONCLUSION

8.1 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.

9 REFERENCES

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