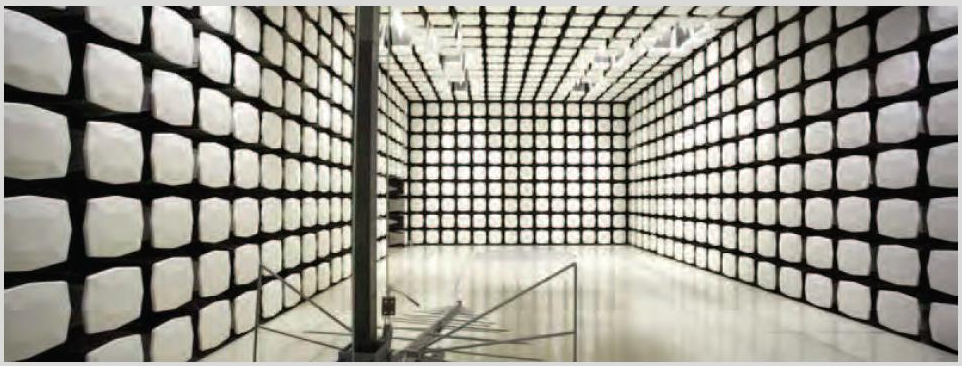
Masimo Corporation

Masimo Wireless Charger

FCC 2.1093:2024

WPT

Report: MASI0919.1 Rev. 2, Issue Date: April 2, 2024



CERT #3310.04

TABLE OF CONTENTS

Section	Page Number

CERTIFICATE OF EVALUATION

Last Date of Evaluation: February 28, 2024
Masimo Corporation
EUT: Masimo Wireless Charger

RF Exposure Evaluation

Standards

Specification	Method
FCC 2.1093:2024	FCC KDB 680106 D01 V04

Results

Method Clause	Description	Applied	Results	Comments
3.3	Field Strength Measurements	Yes	Pass	N/A

Deviations From Evaluation Standards

None

Approved By:

Donald Facteau, Process Architect

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
00	None		
01	Updated EUT model number in configurations.	2024-03-18	9
02	Included ambient values.	2024-03-27	13
	Changed to EUT charging Watch.	2024-03-27	13
	Added extrapolation data to module and added additional comments to show 30% agreement with non-extrapolated data.	2024-03-27	12
	Added spectrum scan.	2024-03-27	14
	Added accreditation logo.	2024-03-27	1

ACCREDITATIONS AND AUTHORIZATIONS

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Each laboratory is accredited by A2LA to ISO / IEC 17025, and as a product certifier to ISO / IEC 17065 which allows Element to certify transmitters to FCC and IC specifications.

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

European Union

European Commission – Recognized as an EU Notified Body validated for the EMCD and RED Directives.

United Kingdom

BEIS – Recognized by the UK as an Approved Body under the UK Radio Equipment and UK EMC Regulations.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIT / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

MIC – Recognized by MIC as a CAB for the acceptance of test data.

SCOPE

For details on the Scopes of our Accreditations, please visit:

California Minnesota Oregon Texas Washington

FACILITIES

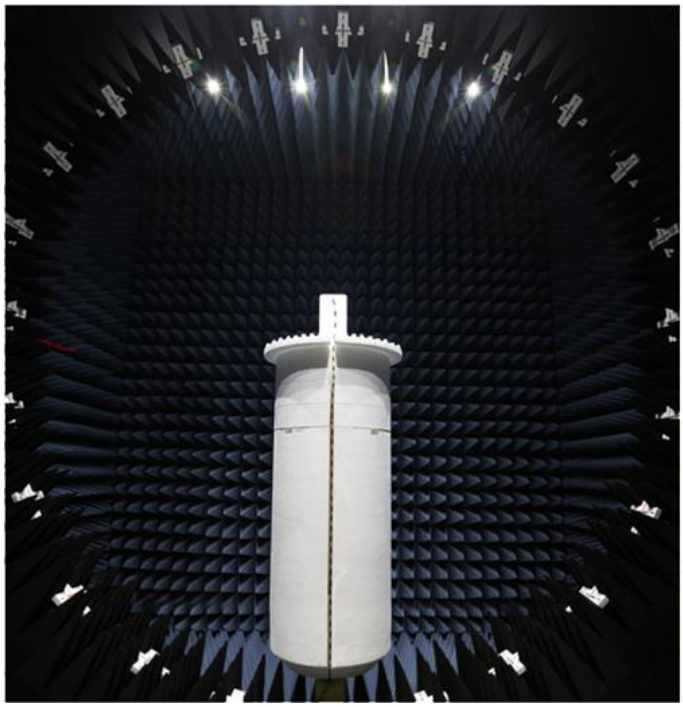
element
2023.09.21

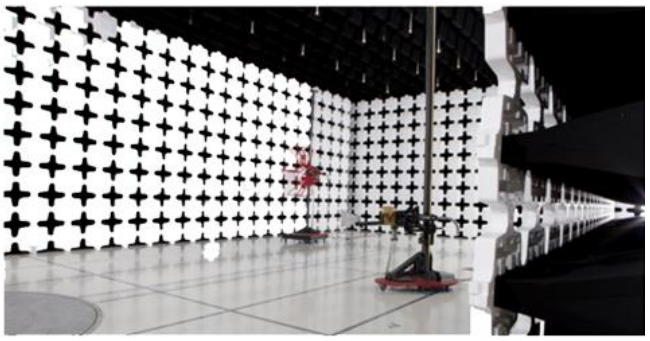
Testing was performed at the following location(s)

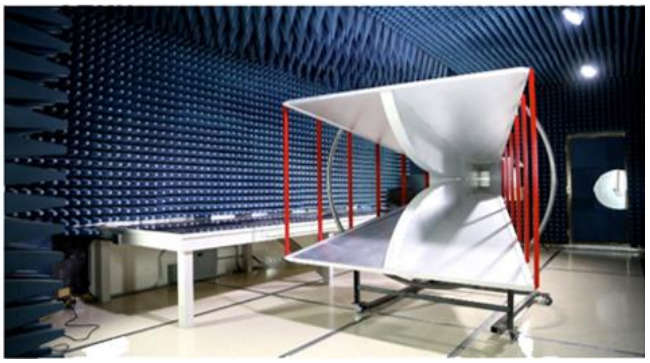
	Location	Labs (1)	Address	A2LA (2)	ISED (3)	BSMI (4)	VCCI (5)	CAB (6)	FDA (7)
☒	California	OC01-17	41 Tesla Irvine, CA 92618 (949) 861-8918	3310.04	2834B	SL2-IN-E-1154R	A-0029	US0158	TL-55
☐	Minnesota	MN01-11	9349 W Broadway Ave. Brooklyn Park, MN 55445 (612) 638-5136	3310.05	2834E	SL2-IN-E-1152R	A-0109	US0175	TL-57
☐	Oregon	EV01-12	6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	3310.02	2834D	SL2-IN-E-1017	A-0108	US0017	TL-56
☐	Texas	TX01-09	3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	3310.03	2834G	SL2-IN-E-1158R	A-0201	US0191	TL-54
☐	Washington	NC01-05	19201 120th Ave NE Bothell, WA 98011 (425) 984-6600	3310.06	2834F	SL2-IN-E-1153R	A-0110	US0157	TL-67
☐	Offsite	N/A	See Product Description	N/A	N/A	N/A	N/A	N/A	N/A

See data sheets for specific labs

(1) The lab designations denote individual rooms within each location. (OC01, OC02, OC03, etc.)
(2) A2LA Certificate No.
(3) ISED Company No.
(4) BSMI No.
(5) VCCI Site Filing No.
(6) CAB Identifier. Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA
(7) FDA ASCA No.







PRODUCT DESCRIPTION

Client and Equipment Under Evaluation Information

Company Name:	Masimo Corporation
Address:	52 Discovery
City, State, Zip:	Irvine, CA 92618
Evaluation Requested By:	Anami Joshi
EUT:	Masimo Wireless Charger
Date of Evaluation:	2/28/2024

Information Provided by the Party Requesting the Evaluation

Functional Description of the Equipment:
Masimo Wireless Charger is intended to charge Masimo devices.

Objective:
To demonstrate compliance with FCC Requirements for RF exposure for 2.1093 for portable devices.

RF EXPOSURE CONDITION

The following RF Exposure conditions were used for the assessment documented in this report:	
Intended Use	Portable
Location on Body (if applicable)	NA
How is the Device Used	Less than 20 cm from user.
Radios Contained in the Same Host Device	WPT
Simultaneous Transmitting Radios	None
Body Worn Accessories	N/A
Environment	General Population/Uncontrolled Exposure

CONFIGURATIONS

Configuration MASI0919-1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Masimo Wireless Charger	Masimo Corporation	29575	ENG0001

Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Watch	Masimo Corporation	STK6	FD00008099
AC Adapter	Masimo Corporation	NY-PW0G6-05001000	3101827

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
USB C Power Cable	No	1.5m	No	Masimo Wireless Charger	AC Mains

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

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WTD.2023.11.13.0

TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

Wireless Power Transfer (WPT) devices operating up to 4 MHz meet the RF exposure requirements defined in 47 CFR 2.1091 and 2.1093 when the near-field E- and H-field strength values do not exceed the reference levels defined for each frequency range. Below 100 kHz: 83 V/m and 90 A/m (assessed on a case-by-case basis through FCC inquiry), from 100 kHz to 300 kHz: 614 V/m and1.63 A/m, and from 300 kHz to 4 MHz: the MPE limits defined in Table 1 to 47 cfr 1.1310 (e)(1). A three-axis near-field probe measured E- and H-field values at all user-accessible surfaces of the EUT (maximum RMS value). The position of the probe relative to the EUT side was investigated to find the maximum field strength values. The separation distance between the probe and the EUT, for portable equipment, was measured from the EUT to 20 cm with 2 cm increments. For table-top equipment, the measurement was made at a maximum distance of 15 cm. Mobile equipment was measured at a distance of 20 cm to the normal use distance.

During measurement, the EUT was configured to deliver maximum charging to a client device.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
MAGPy Probe	SPEAG	MAGPy-DAS V2	HAE	2023-09-08	2024-09-08

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

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MEASUREMENT UNCERTAINTY

Preliminary uncertainty budget for total H-Field magnitude measured in the verification tests. Table provided by MAGPy V2.0 Manual:

Uncertainty component	Tolerance [dB]	Distr.	Div.	ci	Std. unc. [dB]
Amplitude calibration	0.44	N	1	1	0.44
Probe anisotropy	0.01	R	1.732	1	0.01
Probe dynamic linearity	0.10	R	1.732	1	0.06
Probe freq domain response	0.25	R	1.732	1	0.14
Detection limit	0.09	R	1.732	1	0.05
Read electronics	0.00	N	1	1	0.00
Repeatability	0.10	N	1	1	0.10
Vertical positioning	0.15	N	1	1	0.15
Horizontal positioning	0.13	N	1	1	0.13
Probe orientation	0.03	N	1	1	0.03
Sensor displacement	0.10	R	1.732	1	0.06
Source current	0.16	N	1	1	0.16
Physical source tolerance	0.50	R	1.732	1	0.29
Numerical uncertainty	0.30	R	1.732	1	0.17
Combined uncertainty [dB]					0.64
Extended uncertainty ($k = 2$) [dB]					1.3

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

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WTD.2023.11.13.0

EUT:	Masimo Wireless Charger	Work Order:	MASI0919
Serial Number:	ENG0001	Date:	2024-01-31
Customer:	Masimo Corporation	Temperature:	21.7°C
Attendees:	Anami Joshi	Relative Humidity:	49.3%
Customer Project:	None	Bar. Pressure (PMSL):	1013 mbar
Tested By:	Mark Baytan	Job Site:	OC10
Power:	110VAC/60Hz	Configuration:	MASI0919-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2024	KDB 680106 D01 V04 Section 3.3

COMMENTS

WPT charging watch
Max duty cycle set at 50%.

Charging Frequency:	150~200 kHz
Mode of charging:	Inductive
Exposure condition:	Portable (Normal use distance: >0cm)
Rule part for the WPT device:	Part 15.209

Preliminary measurements taken at all sides of EUT (WPT source): Front, Left, Right, Back, Top, Bottom. Worst case determined to be Left side of EUT.

Measurements taken using Speag extrapolation function at 0cm, 2cm, and 4cm. 2cm and 4cm extrapolated values within 30% of non-extrapolated measurements:

At 2cm Distance

E-Field	H-Field	
10.5	0.77	Meas
3.15	0.231	30%
13.65	1.001	Meas + 30%
7.35	0.539	Meas - 30%
13.1	0.93	Meas with extrapolation

At 4cm Distance

E-Field	H-Field	
5.6	0.23	Meas
1.68	0.069	30%
7.28	0.299	Meas + 30%
3.92	0.161	Meas - 30%
6.1	0.2	Meas with extrapolation

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

Tested By

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

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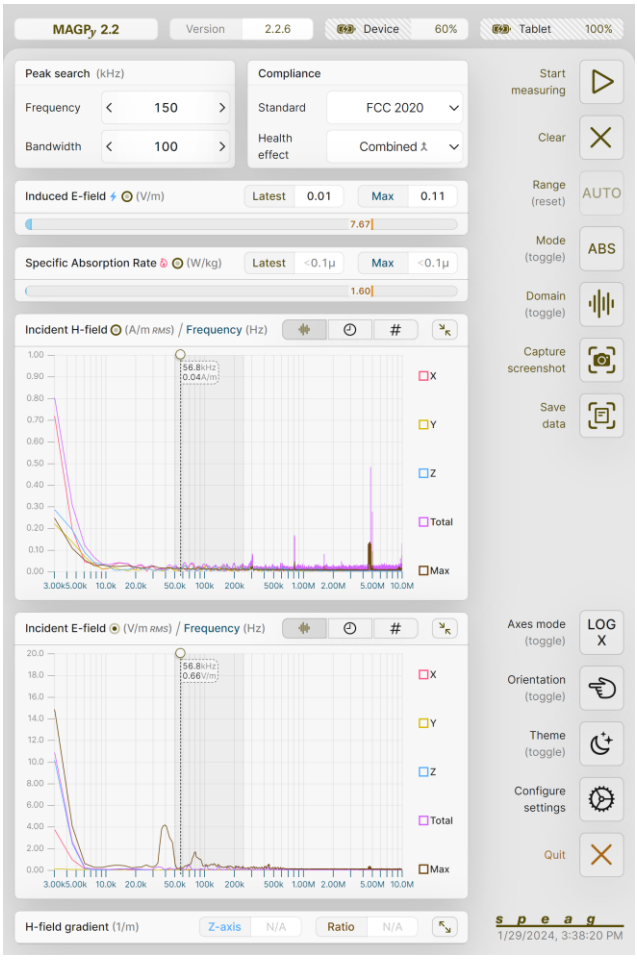
WTD.2023.11.13.0

TEST RESULTS

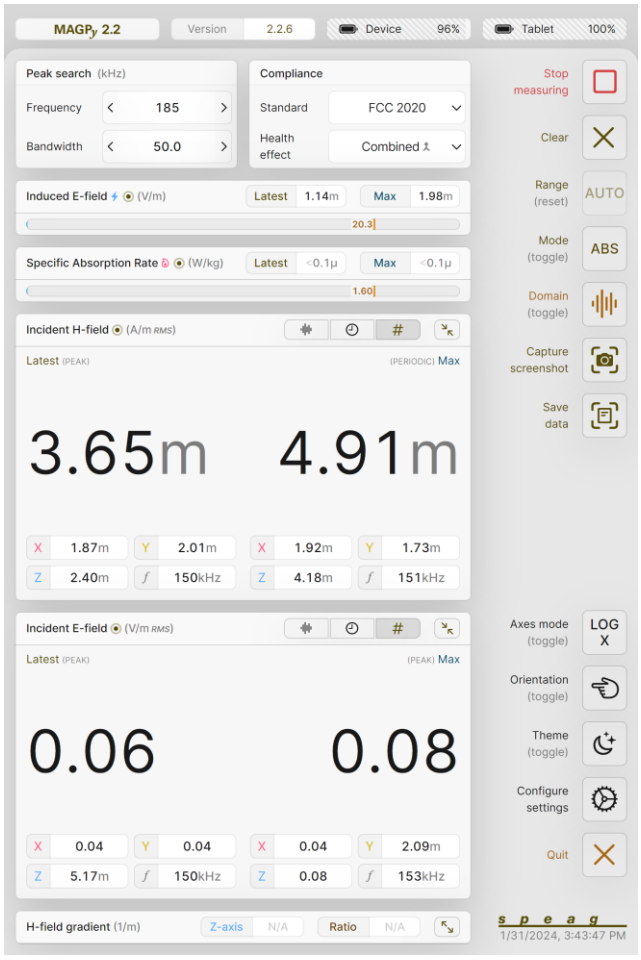
		Measured E-Field (V/m)	E-Field Limit (V/m)	Result	Measured H-Field (A/m)	H-Field Limit (A/m)	Result
Wireless Power Transfer (WPT)							
EUT turned off							
	Ambient						
	Spectrum display	n/a	n/a	n/a	n/a	n/a	n/a
	Numeric display	0.08	614	n/a	0.00	1.63	n/a
EUT charging Watch							
	d(enc) = 0 cm (with extrapolation)						
	Spectrum display	n/a	n/a	n/a	n/a	n/a	n/a
	Numeric display	58.3	614	Meets	1.28	1.63	Meets
	d(enc) = 2 cm (with extrapolation)						
	Numeric display	13.1	614	Meets	0.93	1.63	Meets
	d(enc) = 2 cm						
	Numeric display	10.5	614	Meets	0.77	1.63	Meets
	d(enc) = 4 cm (with extrapolation)						
	Numeric display	6.10	614	Meets	0.20	1.63	Meets
	d(enc) = 4 cm						
	Numeric display	5.60	614	Meets	0.23	1.63	Meets
	d(enc) = 6 cm						
	Numeric display	3.43	614	Meets	0.09	1.63	Meets
	d(enc) = 8 cm						
	Numeric display	2.16	614	Meets	0.05	1.63	Meets
	d(enc) = 10 cm						
	Numeric display	1.51	614	Meets	0.00	1.63	Meets
	d(enc) = 12 cm						
	Numeric display	1.08	614	Meets	0.00	1.63	Meets
	d(enc) = 14 cm						
	Numeric display	0.72	614	Meets	0.00	1.63	Meets
	d(enc) = 16 cm						
	Numeric display	0.39	614	Meets	0.00	1.63	Meets
	d(enc) = 18 cm						
	Numeric display	0.25	614	Meets	0.00	1.63	Meets
	d(enc) = 20 cm						
	Numeric display	0.17	614	Meets	0.00	1.63	Meets

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

element
TbtTx 2023.08.15.2
WTD.2023.11.13.0



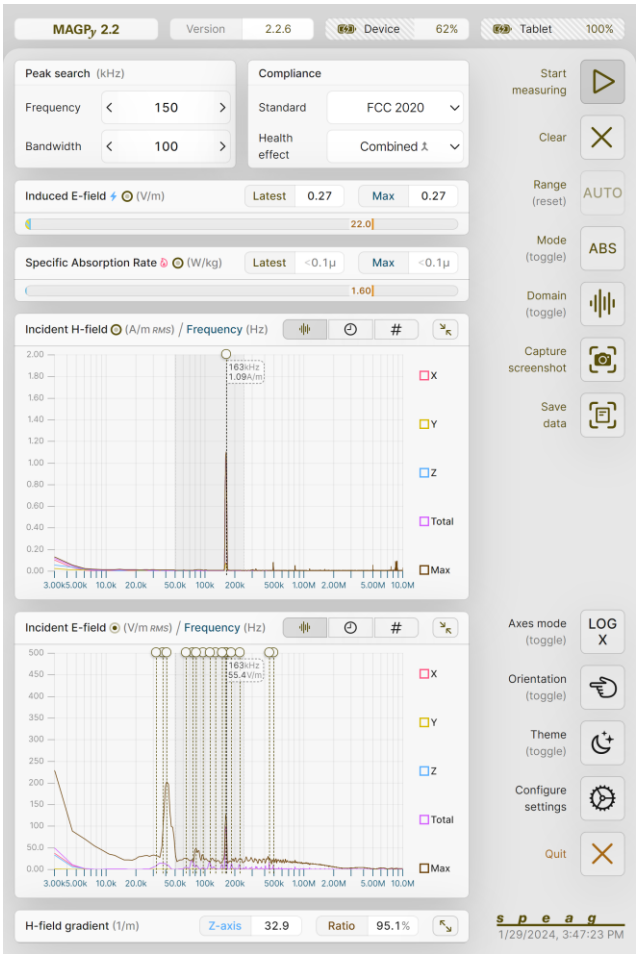
Wireless Power Transfer (WPT)
EUT turned off
Ambient
Spectrum display



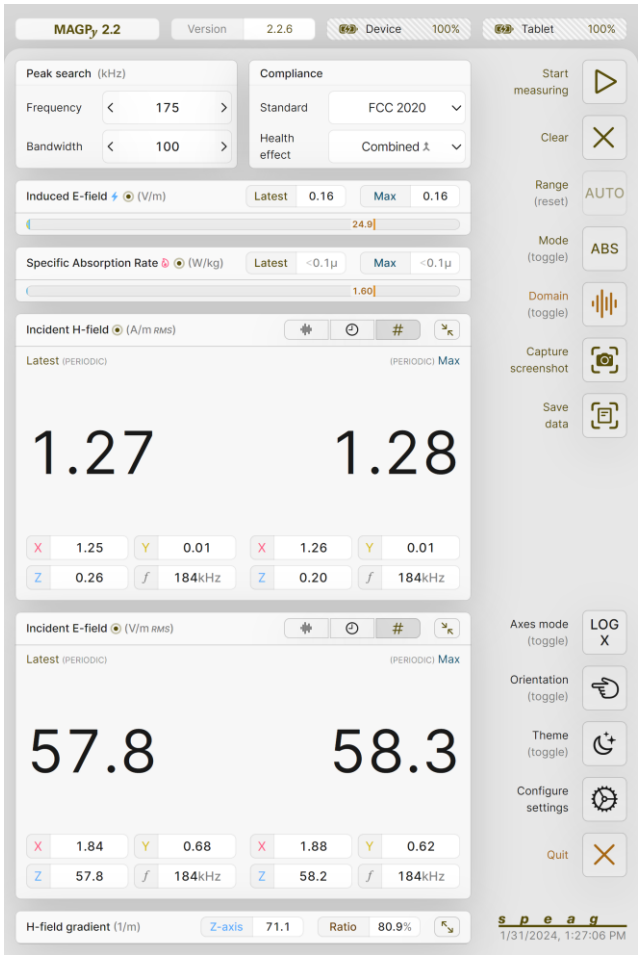
Wireless Power Transfer (WPT)
EUT turned off
Ambient
Numeric display

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

element
TbtTx 2023.08.15.2
WTD.2023.11.13.0



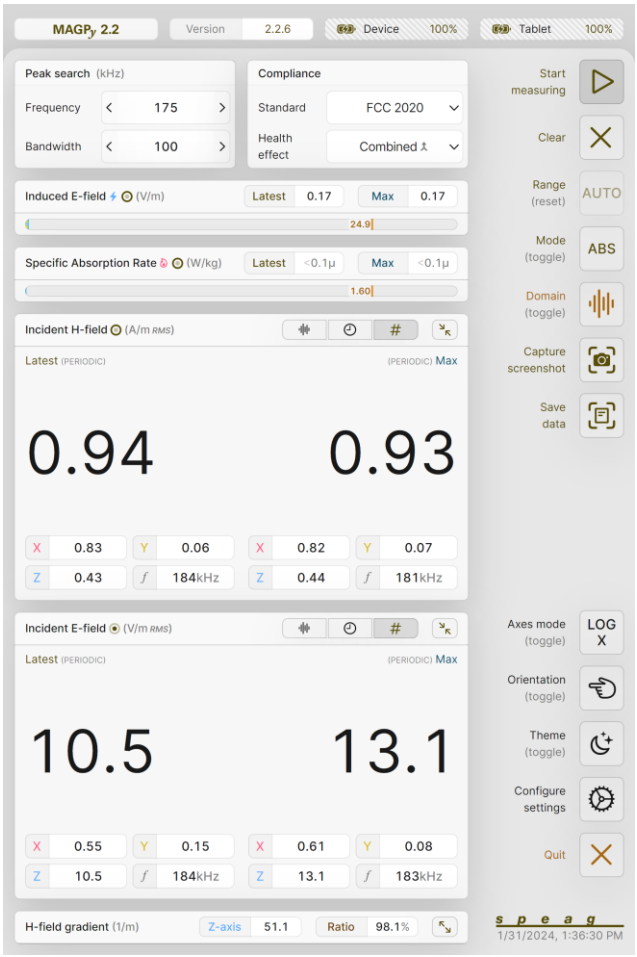
Wireless Power Transfer (WPT)
d(enc) = 0 cm (with extrapolation)
Spectrum display



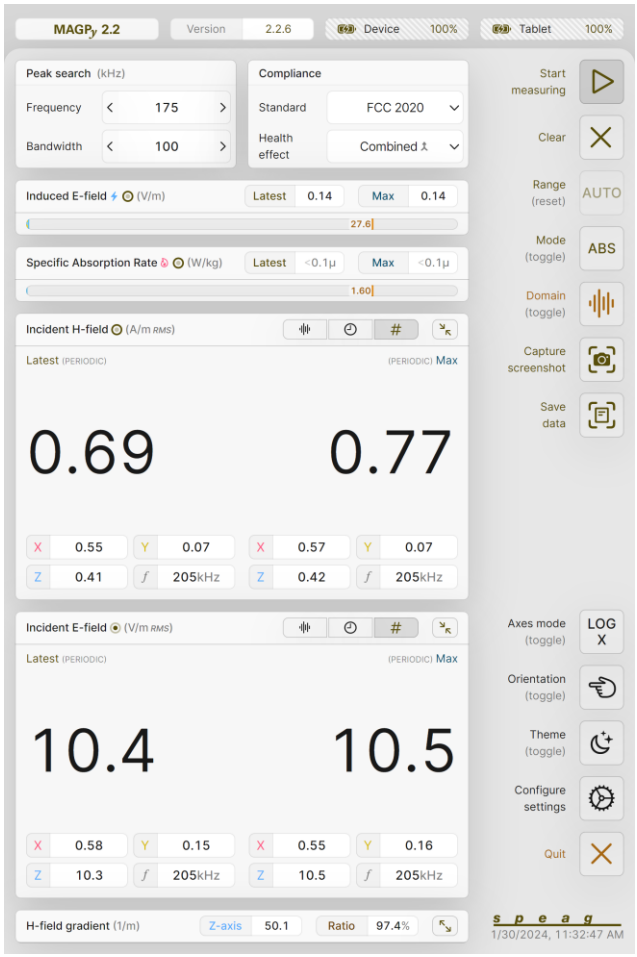
Wireless Power Transfer (WPT)
d(enc) = 0 cm (with extrapolation)
Numeric display

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

element
TbtTx 2023.08.15.2
WTD.2023.11.13.0



Wireless Power Transfer (WPT)
d(enc) = 2 cm (with extrapolation)
Numeric display



Wireless Power Transfer (WPT)
d(enc) = 2 cm
Numeric display

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

element
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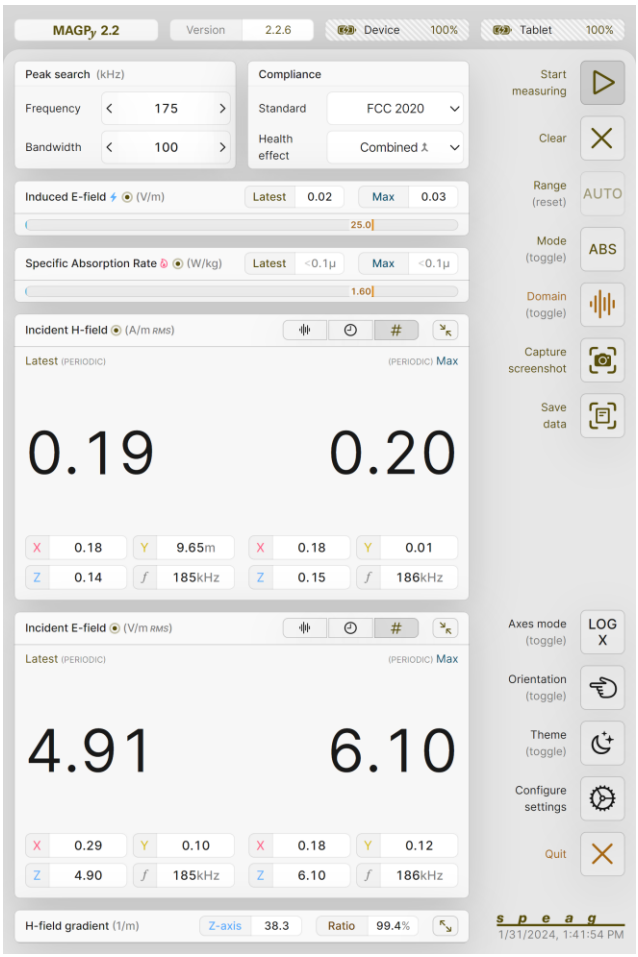
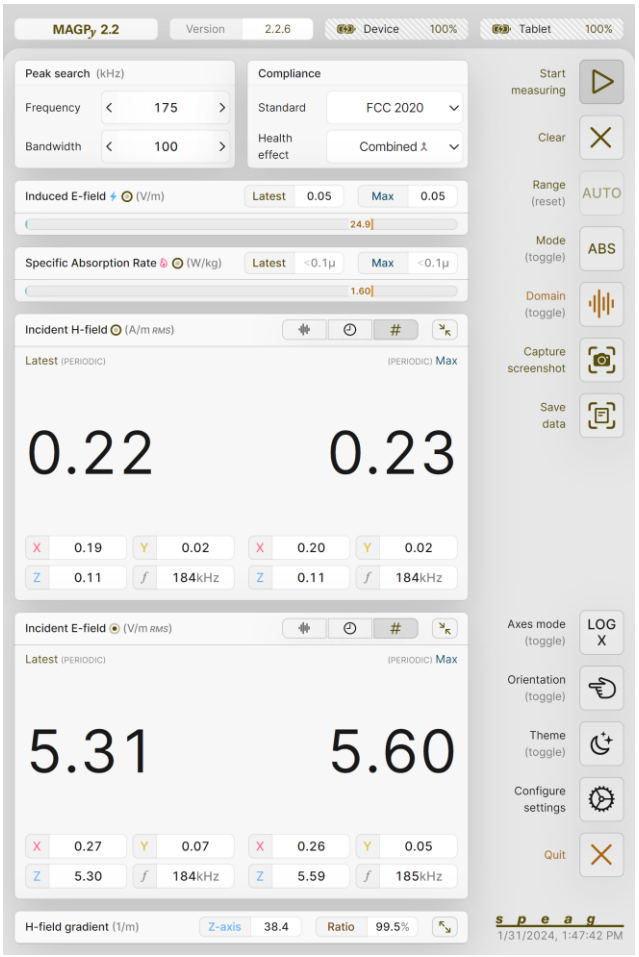
WTD.2023.11.13.0



Wireless Power Transfer (WPT)
d(enc) = 4 cm (with extrapolation)
Numeric display



Wireless Power Transfer (WPT)
d(enc) = 4 cm
Numeric display

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

element
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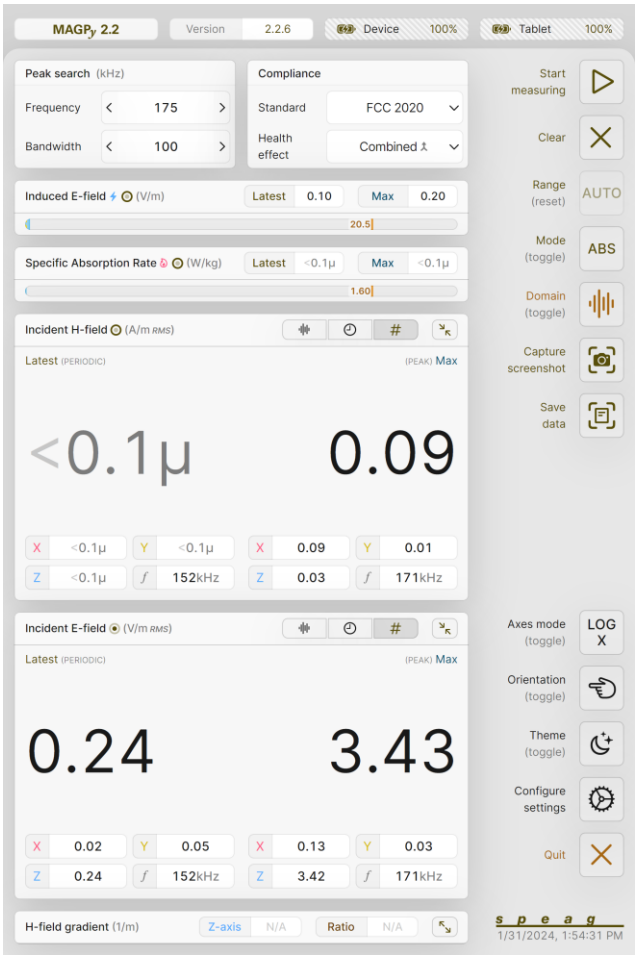
WTD.2023.11.13.0



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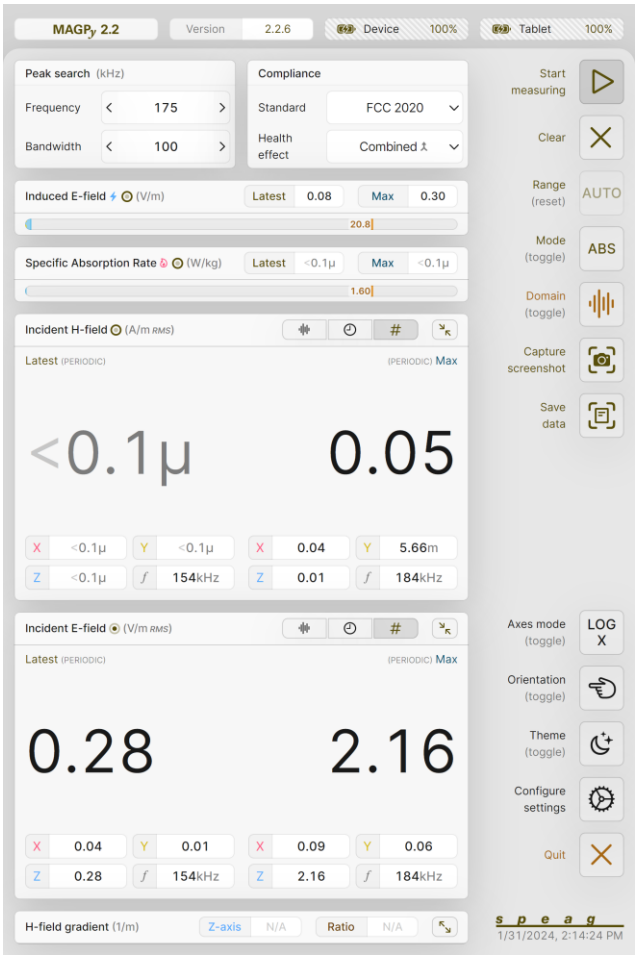
d(enc) = 6 cm
Numeric display



Wireless Power Transfer (WPT)
d(enc) = 8 cm
Numeric display

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

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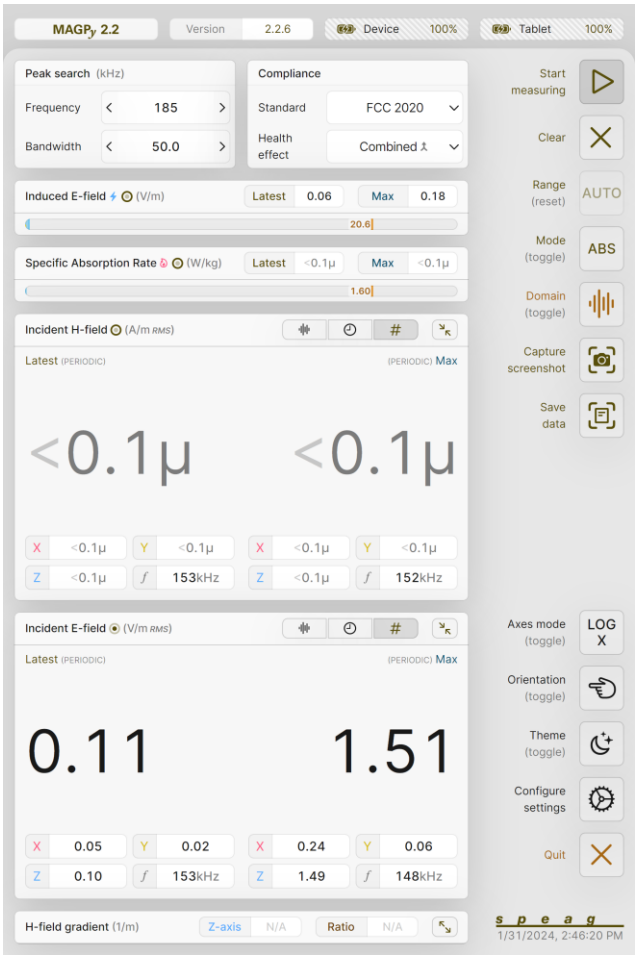
WTD.2023.11.13.0



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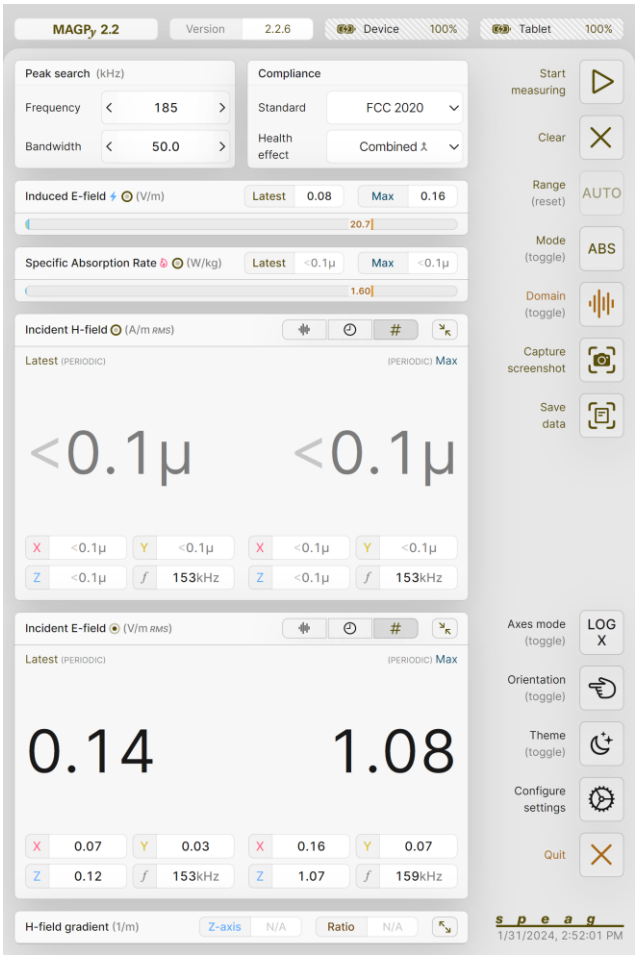
d(enc) = 10 cm
Numeric display



Wireless Power Transfer (WPT)
d(enc) = 12 cm
Numeric display

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

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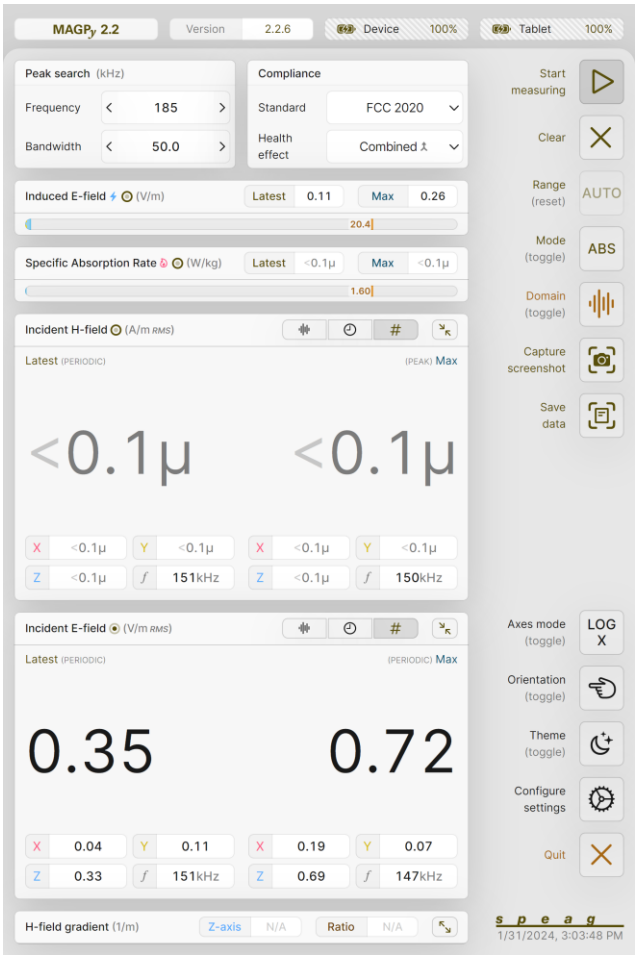
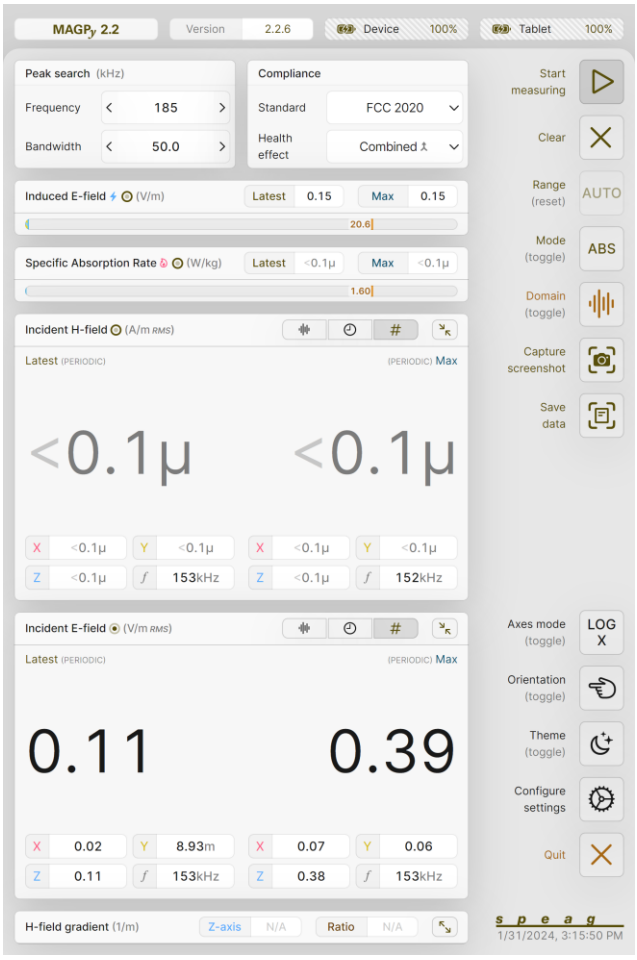
TbtTx 2023.08.15.2
WTD.2023.11.13.0



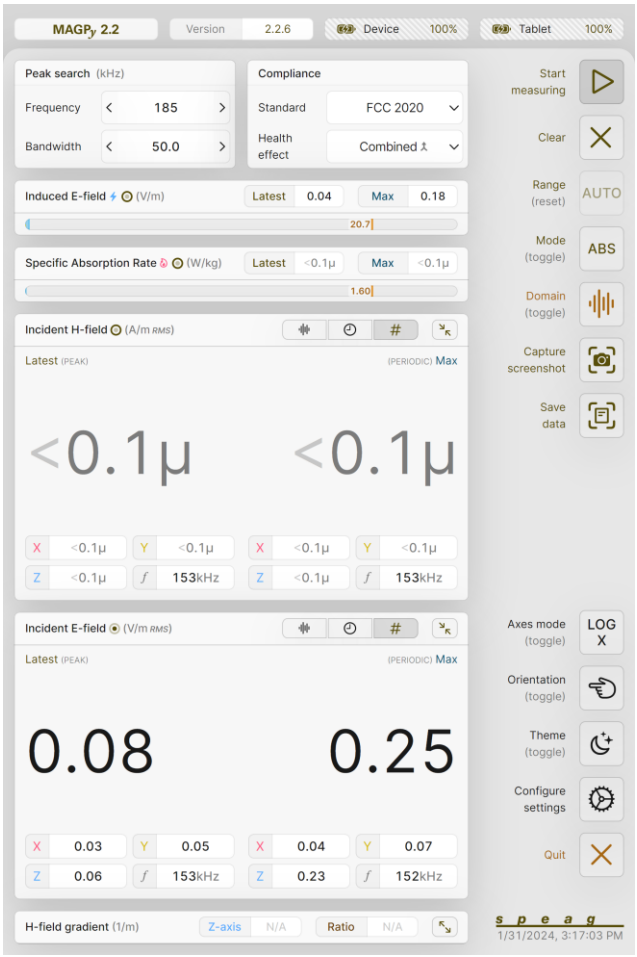
Wireless Power Transfer (WPT)
d(enc) = 14 cm
Numeric display



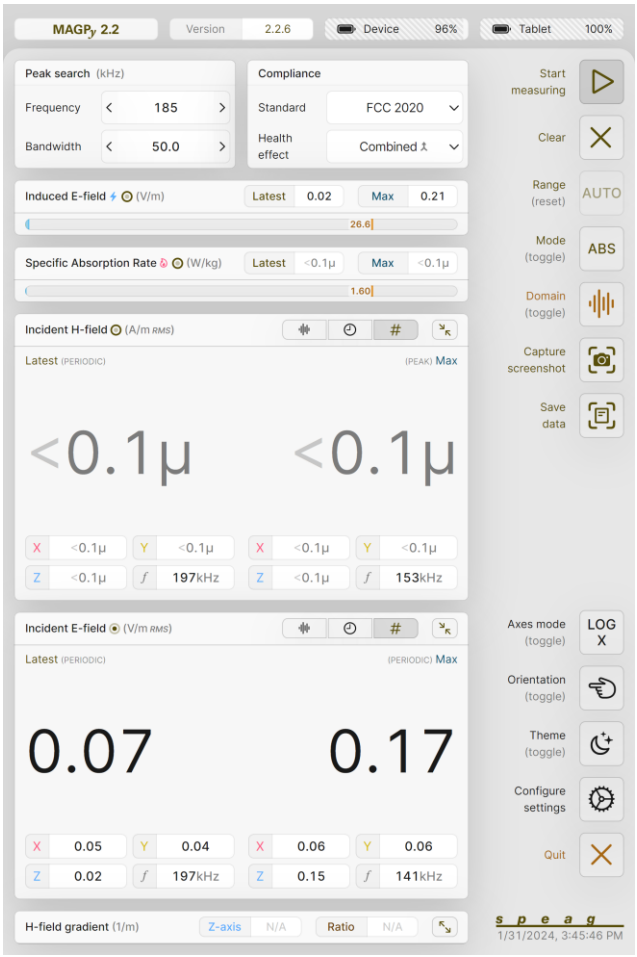
Wireless Power Transfer (WPT)
d(enc) = 16 cm
Numeric display

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD

element
TbtTx 2023.08.15.2
WTD.2023.11.13.0



Wireless Power Transfer (WPT)
d(enc) = 18 cm
Numeric display



Wireless Power Transfer (WPT)
d(enc) = 20 cm
Numeric display

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD TEST PHOTOS

element
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WTD.2023.11.13.0

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD TEST PHOTOS

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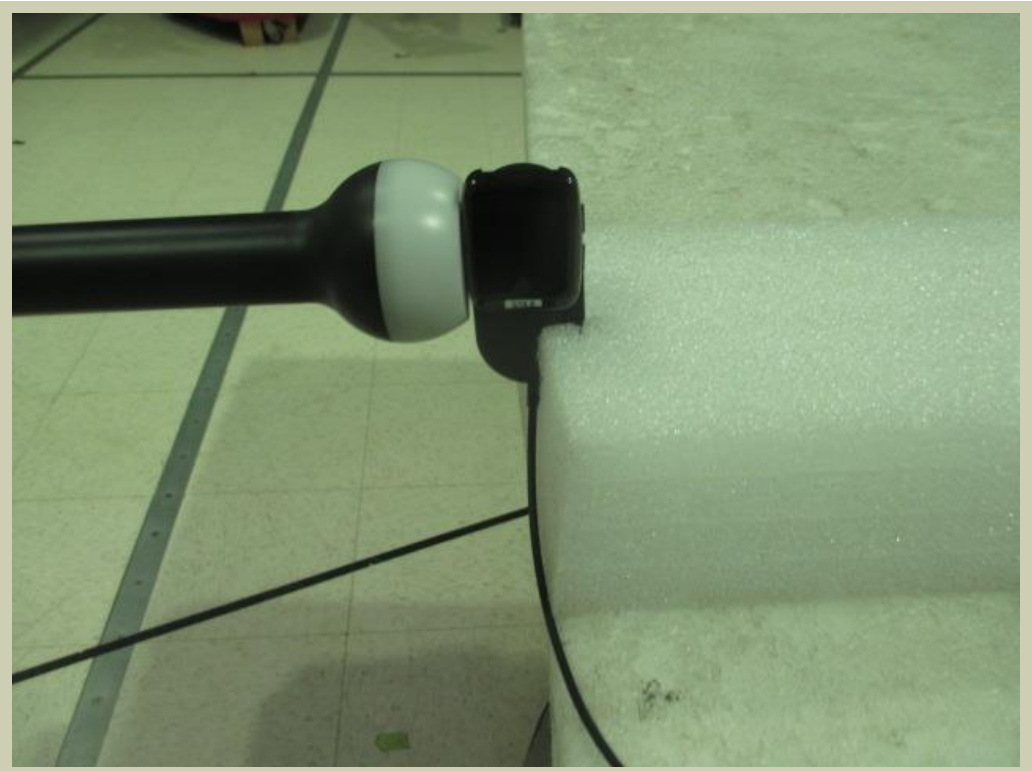

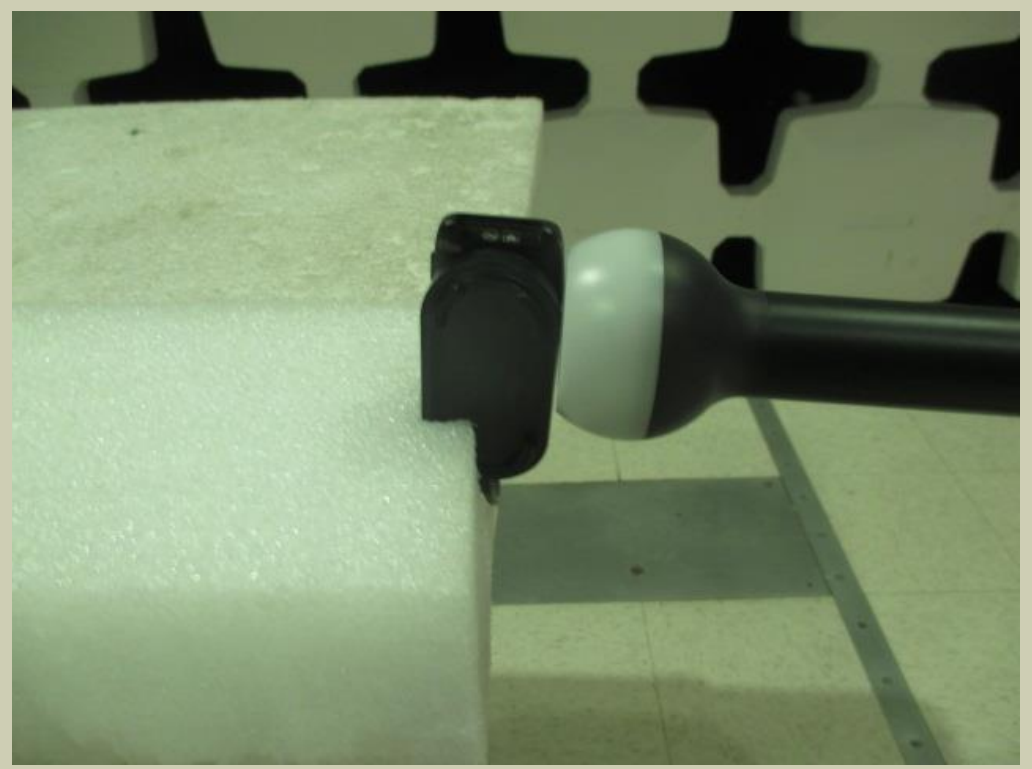

RF EXPOSURE MEASUREMENT OF E-FIELD AND H-FIELD TEST PHOTOS

element
TbtTx 2023.08.15.2
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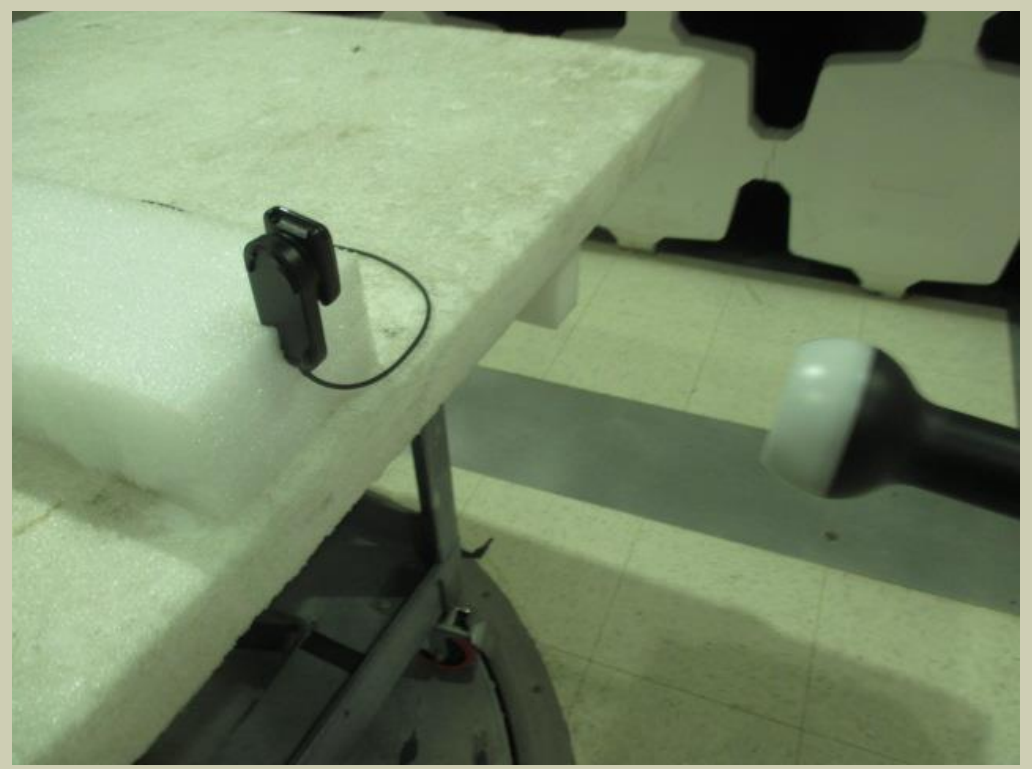

End of Test Report