

RF Exposure Evaluation Of The

Masimo

Model: Masimo Wireless Charger

In accordance with

KDB 680106 D01 RF Exposure Wireless Charging App v03r01

Masimo
52 Discovery
Irvine, CA 92618



Product Service

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Date: June 2022

Document Number: 72180289F Issue 01 | Version Number: 01

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Authorized Signatory	Omar Castillo	June 24, 2022	

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

EXECUTIVE SUMMARY

The EUT in general was confirmed to be in compliance with KDB 680106 D01 RF Exposure Wireless Charging App v03r01.



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REPORT ON	RF Exposure Evaluation of the Masimo Masimo Wireless Charger
TEST REPORT NUMBER	72180289F
TEST REPORT DATE	June 2022
PREPARED FOR	Masimo 52 Discovery Irvine, CA 92618
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APPROVED BY	 Omar Castillo Name Authorized Signatory Title: Senior EMC/Wireless Test Engineer
DATED	June 24, 2022



America

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Revision History

72180289F Masimo Masimo Wireless Charger					
DATE	OLD REVISION	NEW REVISION	REASON	PAGES AFFECTED	APPROVED BY
06/24/2022	—	Initial Release			Omar Castillo



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SECTION 1

REPORT SUMMARY

RF Exposure Evaluation of the
Masimo
Masimo Wireless Charger



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Masimo Wireless Charger to the requirements of KDB 680106 D01 RF Exposure Wireless Charging App v03r01.

Objective	To perform supplementary procedure for assessing compliance with KDB 680106 D01 RF Exposure Wireless Charging App v03r01.
Manufacturer	Masimo
Model Name	Masimo Wireless Charger
Model Number(s)	28671
Serial Number(s)	N/A
Number of Samples Tested	1
Test Specification/Issue/Date	KDB 680106 D01 RF Exposure Wireless Charging App v03r01. RF Exposure Considerations For Low Power Consumer Wireless Power Transfer Applications.
EUT Type	<input type="checkbox"/> Floor-Standing Device <input type="checkbox"/> Floor-Mounted Device <input type="checkbox"/> Hand-Held Device <input type="checkbox"/> Wall-Mounted Device <input checked="" type="checkbox"/> Table-Top Device <input type="checkbox"/> Other (Vehicular Use)
Test Configuration	<input checked="" type="checkbox"/> Passively Used Table-Top Devices <input type="checkbox"/> Actively Used Table-Top Devices
Start of Test	June 24, 2022
Finish of Test	June 24, 2022
Name of Engineer(s)	Ferdinand S. Custodio
Related Document(s)	None

1.2 PRODUCT INFORMATION

1.2.1 EUT General Description

The Equipment Under Test (EUT) was a Masimo Wireless Charger as shown in the photograph below. The EUT is a 190kHz wireless charger designed to charge the manufacturer's W1 Wrist Worn Device.



EUT



1.2.2 EUT General Description

EUT Description	Masimo Wireless Charger
Model Number(s)	28671
Rated Voltage	5VDC via USB
Output Power (Coil)	≤ 5 watts
Number of Coil/s	1
Primary Unit (EUT)	<input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering
Frequency (Capability)	190 kHz Inductive
Mode Verified	190 kHz Inductive
Size	33.64 mm diameter x 9.42 mm height
Weight	31g with ferrite

1.3 EUT TEST CONFIGURATION

1.3.1 Test Configuration Description

Test Configuration	Description
Default	EUT is continuously charging a depleted (<15% charge level) W1 Wrist Worn Device (Watch)

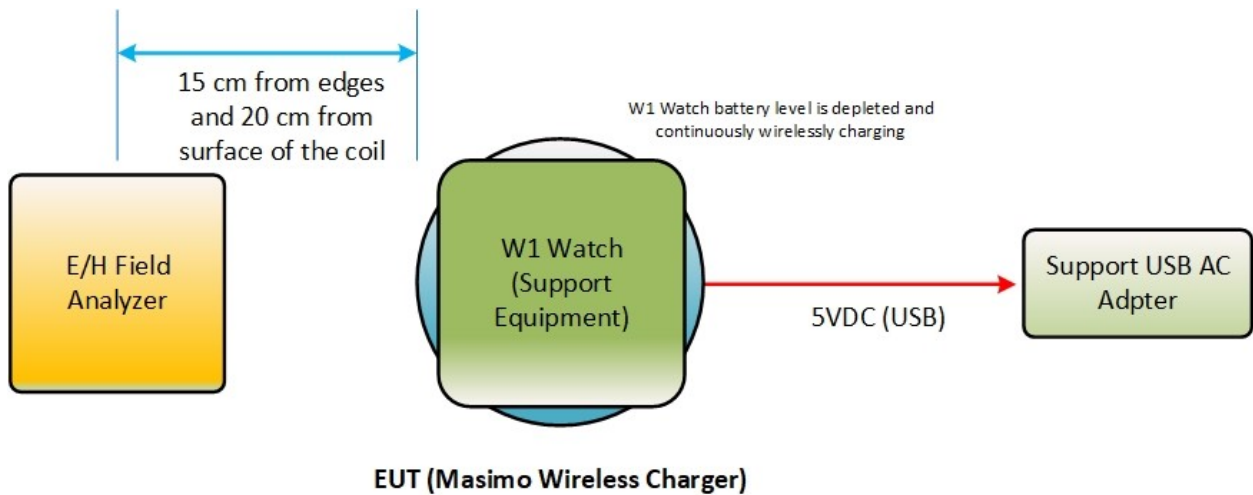
1.3.2 EUT Exercise Software

None

1.3.3 Support Equipment and I/O cables

Manufacturer	Equipment/Cable	Description
GlobTek, Inc.	Support USB AC Adapter (representative only)	Model: GTM41078-0605-USB P/N WR9QA1200USBNMEDRVW Output: 5V@1.2A
Lenovo	Support Laptop for E/H Field Analyzer	Model: Thinkpad T440S Serial Number: PC-03BBGR

1.3.4 Simplified Test Configuration Diagram





1.4 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.5 MODIFICATION RECORD

Description of Modifications	Modification Fitted By	Date Modification Fitted
Serial Number: N/A		
None	—	—

The table above details modifications made to the EUT during the test programme. The modifications incorporated during each test (if relevant) are recorded on the appropriate test pages.

1.6 TEST METHODOLOGY

All measurements contained in this report were conducted with KDB 680106 D01 RF Exposure Wireless Charging App v03r01. RF Exposure Considerations For Low Power Consumer Wireless Power Transfer Applications.

1.7 TEST FACILITY LOCATION

1.7.1 TÜV SÜD America Inc. (Mira Mesa)

10040 Mesa Rim Road, San Diego, CA 92121-2912 (32.901268,-117.177681). Phone: (858) 678-1400 Fax: (858) 546-0364.

1.7.2 TÜV SÜD America Inc. (Rancho Bernardo)

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1.8 TEST FACILITY REGISTRATION

1.8.1 FCC – Designation No.: US1146

TÜV SÜD America Inc. (San Diego), is an accredited test facility with the site description report on file and has met all the requirements specified in §2.948 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Designation is US1146.



1.8.2 Innovation, Science and Economic Development Canada (ISED) Registration No.: 3067A-1 & 22806-1

The 10m Semi-anechoic chamber of TÜV SÜD America Inc. (San Diego Rancho Bernardo) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 3067A-1.

The 3m Semi-anechoic chamber of TÜV SÜD America Inc. (San Diego Mira Mesa) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 22806-1.

1.8.3 BSMI – Laboratory Code: SL2-IN-E-028R (US0102)

TÜV Product Service Inc. (San Diego) is a recognized RF EXPOSURE testing laboratory by the BSMI under the MRA (Mutual Recognition Arrangement) with the United States. Accreditation includes CNS 13438 up to 6GHz.

1.8.4 NCC (National Communications Commission - US0102)

TÜV SÜD America Inc. (San Diego) is listed as a Foreign Recognized Telecommunication Equipment Testing Laboratory and is accredited to ISO/IEC 17025 (A2LA Certificate No.2955.13) which under APEC TEL MRA Phase 1 was designated as a Conformity Assessment Body competent to perform testing of equipment subject to the Technical Regulations covered under its scope of accreditation including RTTE01, PLMN01 and PLMN08 for TTE type of testing and LP0002 for Low-Power RF Device type of testing.

1.8.5 VCCI – Registration No. A-0280 and A-0281

TÜV SÜD America Inc. (San Diego) is a VCCI registered measurement facility which includes radiated field strength measurement, radiated field strength measurement above 1GHz, mains port interference measurement and telecommunication port interference measurement.

1.8.6 RRA – Identification No. US0102

TÜV SÜD America Inc. (San Diego) is National Radio Research Agency (RRA) recognized laboratory under Phase I of the APEC Tel MRA.

1.8.7 OFCA – U.S. Identification No. US0102

TÜV SÜD America Inc. (San Diego) is recognized by Office of the Communications Authority (OFCA) under Appendix B, Phase I of the APEC Tel MRA.



SECTION 2

TEST DETAILS

RF Exposure Evaluation Of The
Masimo
Masimo Wireless Charger



2.1 RF EXPOSURE CONSIDERATIONS FOR LOW POWER CONSUMER WIRELESS POWER TRANSFER APPLICATIONS

2.1.1 Measurement Method

2.1.2 KDB 680106 D01 RF Exposure Wireless Charging App v03r01

2.1.3 Limits

Section 3(c) of KDB 680106 D01 RF Exposure Wireless Charging App v03r01

2.1.4 Equipment Under Test and Modification State

Serial No: N/A / Default Test Configuration

2.1.5 Date of Test/Initial of test personnel who performed the test

June 24, 2022 / FSC

2.1.6 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.7 Environmental Conditions/ Test Location

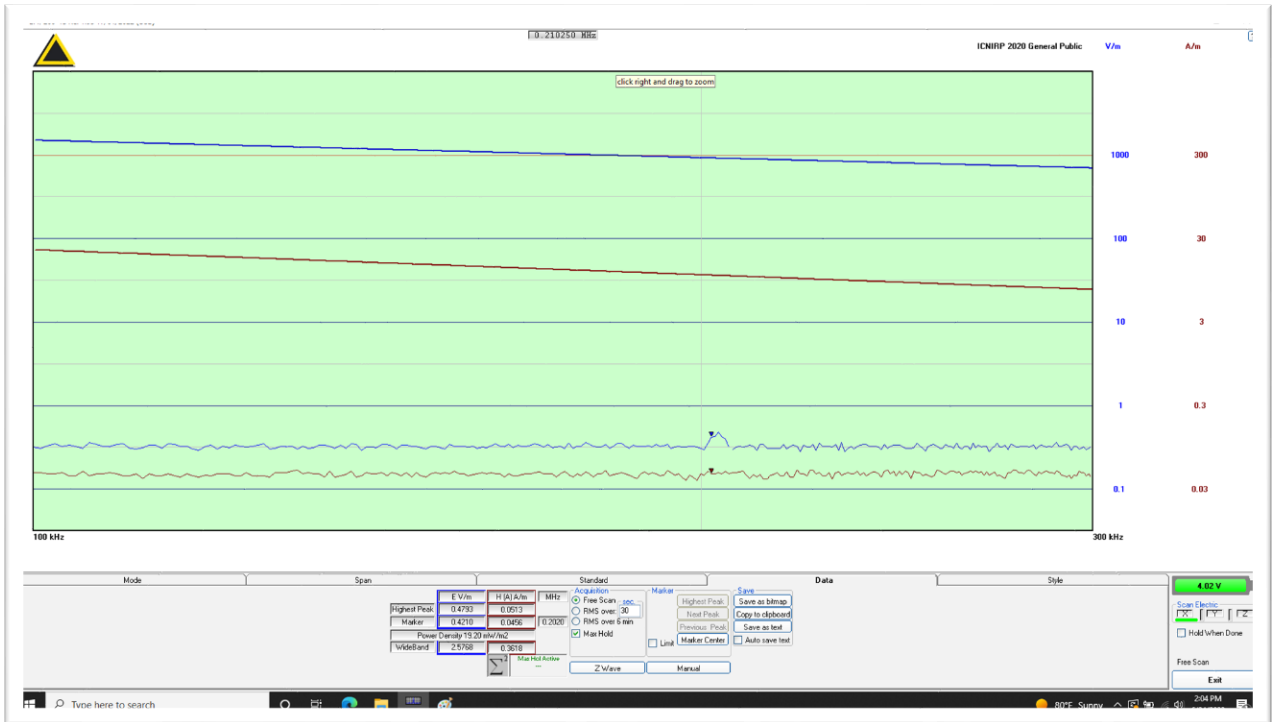
Test performed at TÜV SÜD America Inc. Mira Mesa facility

Ambient Temperature	22.8 °C
Relative Humidity	41.0 %
ATM Pressure	100.1 kPa

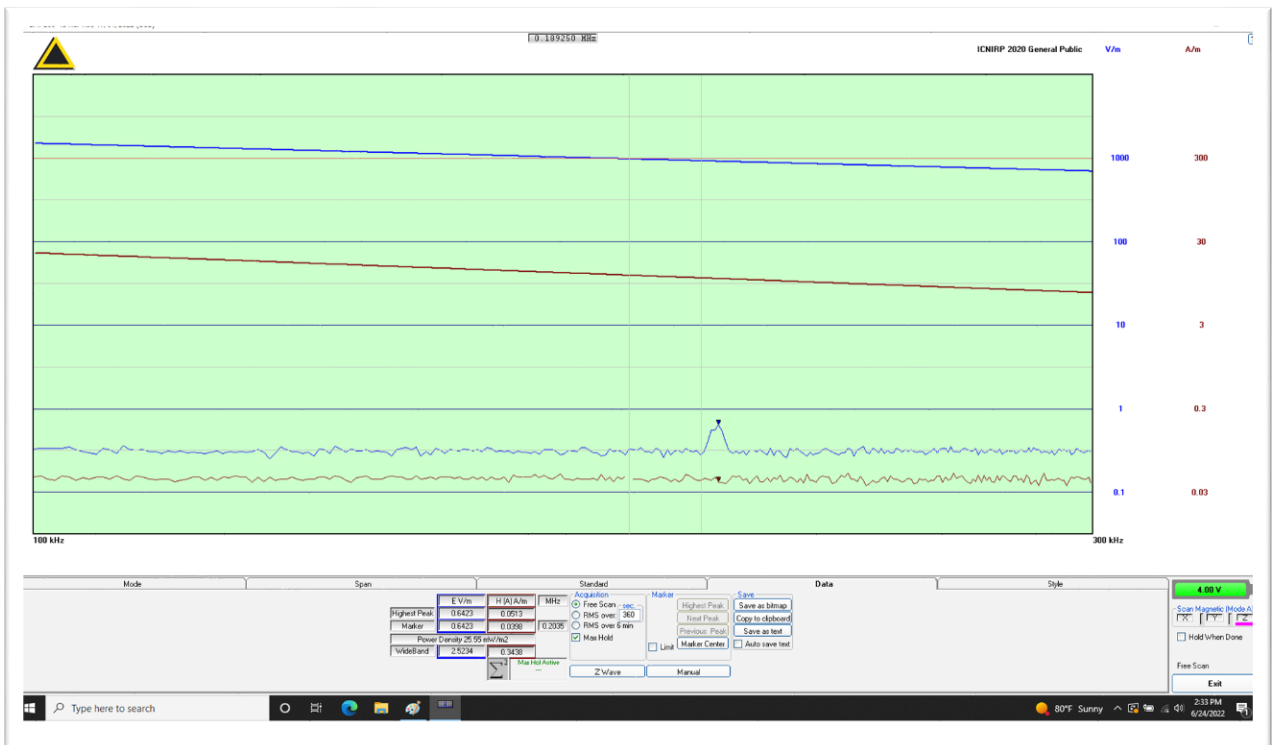
2.1.8 Additional Observations

- RBW set to auto and verified greater than 99% OBW of the fundamental emission.
- Detector is set to Peak and trace display to Max-Hold.
- Multiple prescans are performed covering the range of the analyzer (9kHz to 30MHz). Emissions within 20dBc of the limit will be repeated multiple times and the maximum value observed will be reported, however no such emission is observed other than the fundamental at 190kHz.
- In addition to full charging mode, the placement and removal of the watch were simulated and verified, however worst case mode is determined to be when the watch is resting on the EUT charging.
- The watch is also rotated along the EUTs charging surface with identical results.

2.1.9 Sample Test Plots



Front (F) at 15 cm



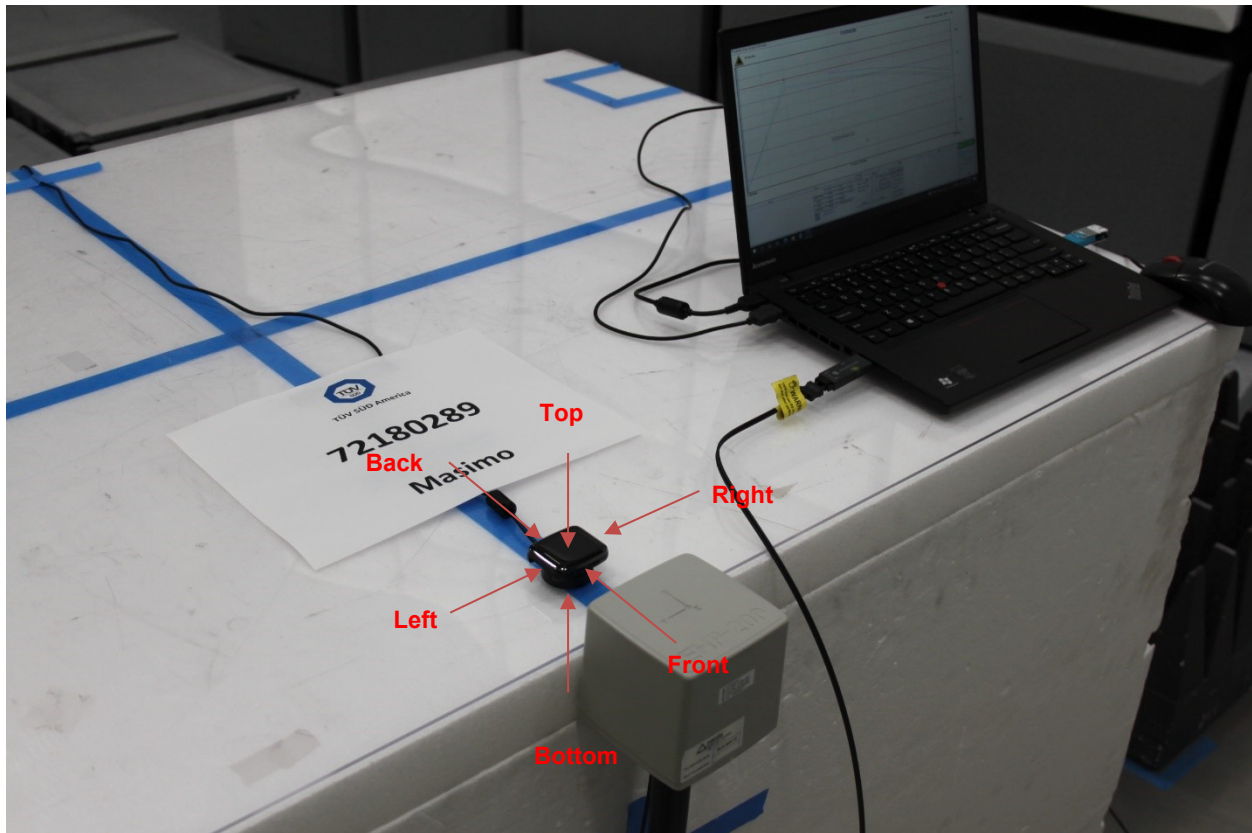
Top (T) at 20 cm

2.1.10 Test Results

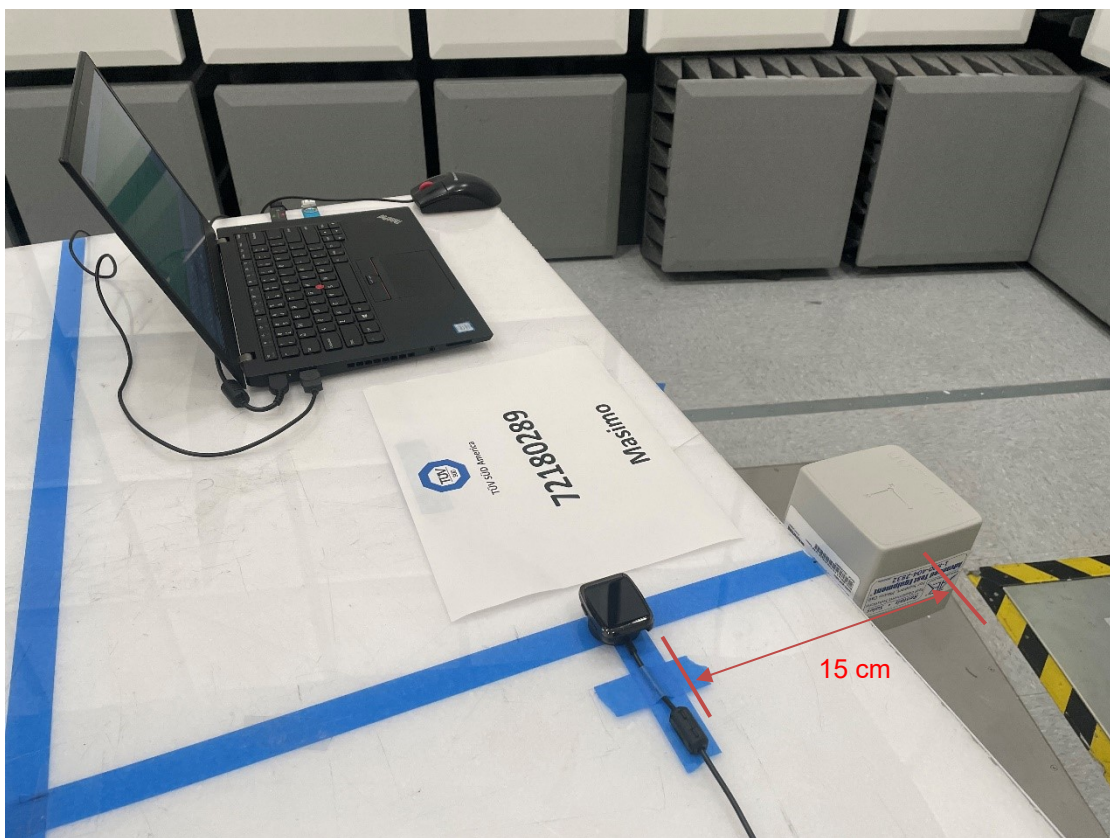
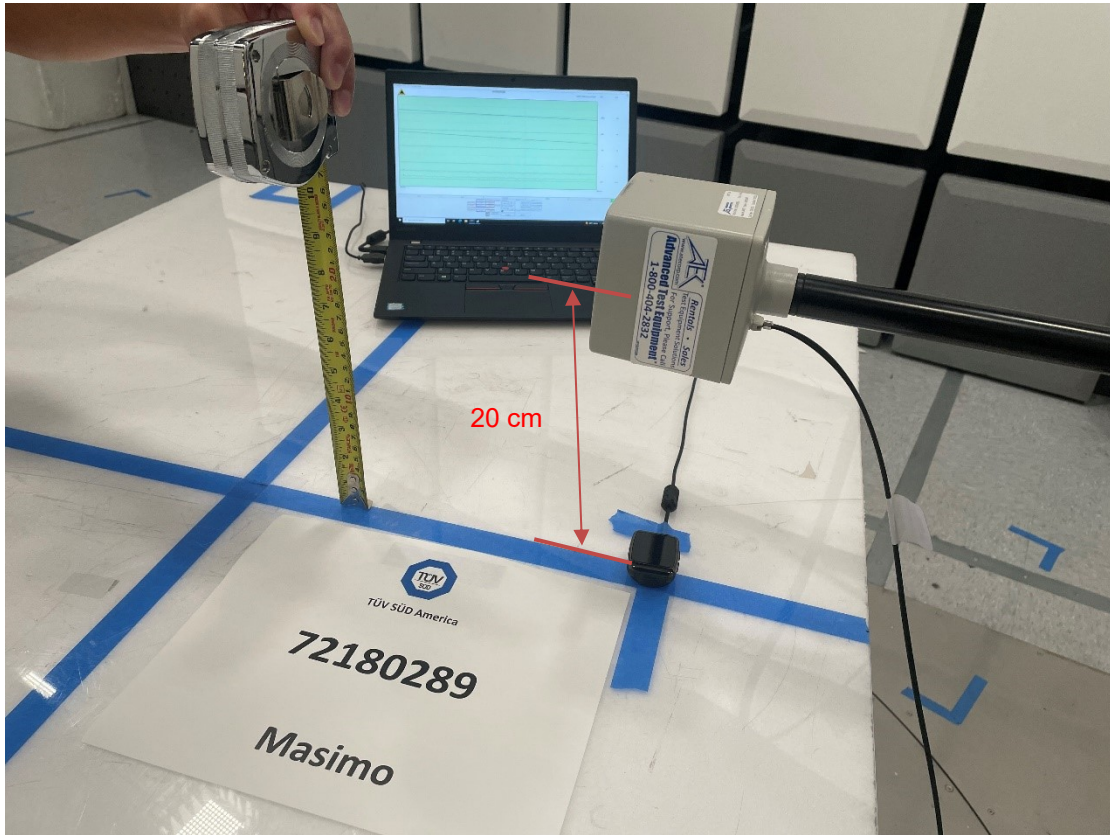
EUT (Masimo Wireless Charger 190kHz) @ 20 cm for T, the rest are 15 cm (B, F, BK, R and L)				
EUT Side	E (V/m)	E Limits	H (A/m)	H Limits
T (Top)	0.642	614 V/m	0.051	1.63 A/m
B (Bottom)	0.589		0.058	
F (Front)	0.479		0.051	
BK (Back)	0.563		0.058	
R (Right Side)	0.422		0.052	
L (Left Side)	0.563		0.056	
All measured levels are less than 50% of the applicable limit.				

E Electric Field Strength
 H Magnetic Field strength

2.1.11 EUT Test Orientation



2.1.12 Test Setup Photos





SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

ID Number (SDPE)	Test Equipment	Type	Serial Number	Manufacturer	Cal Date	Cal Due Date
RF Exposure Evaluation						
29837	Electric and Magnetic Field Analyzer	EHP-200A	180ZX00607	Narda	07/28/20	07/28/22
Miscellaneous						
	Support Laptop	Thinkpad T440S	PC-03BBGR	Lenovo	NCR	
6279	Dickson Circular Humidity & Temp Chart	THDX	5123084	Dickson	07/19/21	07/19/22
6709	Davis Vantage VUE Indoor Climate Monitor	6351M	MJ150401005	Davis Instruments	11/02/21	11/02/22
	Test Software	EHP200-TS	Rel 2.07 02-2022	Narda	N/A	



SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



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