
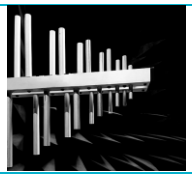
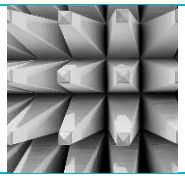

CTC advanced
member of RWTÜV group

TEST REPORT

Test Report No.: 1-1906/21-01-55-A

DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-01

Testing Laboratory

CTC advanced GmbH
Untertuerkheimer Strasse 6 – 10
66117 Saarbruecken/Germany
Phone: + 49 681 5 98 - 0
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Internet: https://www.ctcadvanced.com
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Accredited Test Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2018-03) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate starting with the registration number: D-PL-12076-01.

Applicant

BURY SP. z o.o.
Wojska Polskiego 4
39-300 Mielec / Poland
Phone: -/-
Contact: -/-
e-mail: -/-

Manufacturer

BURY SP. z o.o.
Wojska Polskiego 4
39-300 Mielec / Poland

Test Standard/s

FCC - Title 47 CFR	FCC - Title 47 CFR Chapter I - Subchapter I §1.1310
FCC KDB 680106 D01 Exposure Wireless Charging Apps v03	RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications

For further applied test standards please refer to section 3 of this test report.

Test Item

Kind of test item:	Wireless charger & USB charger with BLE
Device type:	mobile device (according 2.1091 distance ≥ 20cm)
Model name:	**SATZ CONNECTED RIDE CRADLE**
S/N serial number:	321013574686
FCC-ID:	QZ9-SCRC
ISED Number:	5927A- SCRC
Hardware Version Identification No. (HVIN):	SATZ CONNECTED RIDE CRADLE
Product Marketing Name (PMN):	SATZ CONNECTED RIDE CRADLE
Firmware Version Identification Number (FVIN):	-/-
Host Marketing Name (HMN):	-/-
Hardware status:	3970P05
Software status:	001.032.000
Frequency:	WPT 111 kHz (5Watt) / 127 kHz (7.5Watt) BT LE 2450 MHz
Antenna:	Integrated charging coil
Power supply:	14 V DC
Test sample status:	identical prototype
Exposure category:	general population / uncontrolled environment

This test report is electronically signed and valid without handwritten signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Test Report authorised:

cn=Alexander Hnatovskiy, o=CTC advaced GmbH, ou=HNA-211126, email=alexander.hnatovskiy@ctcadvaced.com, c=DE
2022.01.19 14:42:22 +01'00'

Alexander Hnatovskiy
Lab Manager
Radio Communications

Test performed:

cn=Marco Scigliano, o=CTC advanced GmbH, ou=SCI-211118, email=marco.scigliano@ctcadvanced.com, c=DE
2022.01.19 13:22:27 +01'00'

Marco Scigliano
Testing Manager
Radio Communications

1 Table of contents

2 General information

2.1 Notes and disclaimer

The test results of this test report relate exclusively to the test item specified in this test report. CTC advanced GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CTC advanced GmbH.
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In no case this test report can be considered as a Letter of Approval.

2.2 Application details

Date of receipt of order:	2021-05-18
Date of receipt of test item:	2021-09-01
Start of test:	2021-09-28
End of test:	2021-10-13

2.3 Statement of compliance

The EMF values found for the SATZ CONNECTED RIDE CRADLE Wireless charger & USB charger with BLE are below the maximum allowed levels according to the standards listed in section 3.

3 Test standard/s:

Test Standard	Version	Test Standard Description
FCC - Title 47 CFR	June 2013	FCC - Title 47 CFR Chapter I - Subchapter I §1.1310
FCC KDB 680106 D01 Exposure Wireless Charging Apps v03	September 2018	RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications

3.1 RF exposure limits

Reference levels for general public (uncontrolled environment) exposure to time-varying electric and magnetic fields

According to: CFR47, Subpart I - §1.1310 Radiofrequency radiation exposure limits				
Frequency Range (MHz)	**Electric Field** (V/m)	**Magnetic Field** (A/m)	**Power density** (mW/cm^2)	**Averaging time** (minutes)
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
300-1500	--	--	f/300	6
1500-100000	--	--	5	6
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
300-1500	--	--	f/1500	30
1500-100000	--	--	1.0	30

NOTE: Wireless Charger and 50% criteria

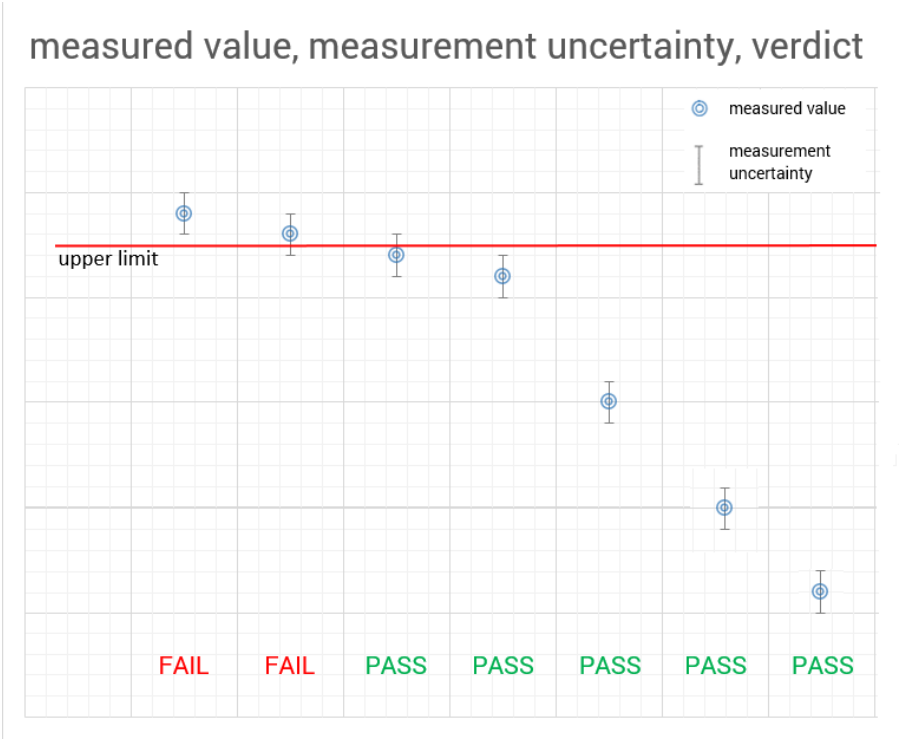
According to **FCC KDB 680106 D01 Paragraph 3 RF Exposure Requirements clause 3** the Emission-Limits in the frequency range from 100 to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of **CFR 47 – Section 1.310** as following (measurement distance shall be 20cm from the center of the probe to the top side and 15cm from the center of the probe to the edge of the device):

	E-field	H-field	B-field
Frequency	V / m	A/m	µT
0.3 – 3.0 MHz	**614**	**1.63**	2.0
0.3 – 3.0 MHz***** (50% criteria)	**307**	**0.815**	1.0

*) **FCC KDB 680106 D01 Paragraph 5b(5)** demands, that the aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit (1.6A/m) which results in an H-Field limit of 0.815 A/m. A device that complies with the 50% criteria is deemed to comply, without any further investigation through the FCC.

4 Reporting statements of conformity – decision rule

Only the measured values related to their corresponding limits will be used to decide whether the equipment under test meets the requirements of the test standards listed in chapter 3.
The measurement uncertainty is mentioned in this test report, see chapter 9, but is not taken into account - neither to the limits nor to the measurement results. Measurement results with a smaller margin to the corresponding limits than the measurement uncertainty have a potential risk of more than 5% that the decision might be wrong."



5 Summary of Measurement Results

☒	**No deviations from the technical specifications ascertained**
☐	Deviations from the technical specifications ascertained

This device complies with the requirements according to FCC KDB 680106 D01 Item 5(b) and is qualified to be submitted for certification without KDB inquiry.

6 Test Environment

Ambient temperature:	20 – 24 °C
Relative humidity content:	40 – 50 %
Air pressure:	not relevant for this kind of testing
Power supply:	230 V / 50 Hz

7 Test Set-up

7.1 Measurement system

7.1.1 Broadband Electromagnetic Field Test system

A state of the art Broadband Electromagnetic Field Test system was used. The probes of the system are fitted with three sensors which measure the field strength of the X, Y and Z plane directions separately. The field strength is calculated by the instrument's processor by summing the squares of the three measured values.

The frequency range 5 Hz to 60 GHz is covered.
Depending on the used probe type Electric and Magnetic Field or Electric Field only is detectable.

- EHP-50D 5 Hz to 100 kHz Electric and Magnetic Field
- EHP-50F 5 Hz to 400 kHz Electric and Magnetic Field
- HF 3061 300 kHz to 30 MHz Magnetic Field
- EF 0691 100 kHz to 6 GHz Electric Field
- EF 6092 100 MHz to 60 GHz Electric Field

7.1.2 Test equipment list

	Manufacturer	Device	Type	Serial number	Last Calibration
☐	Narda	Electric and Magnetic Field Meter	NBM-550	F-0319	2021-03-10
☐	Narda	Electric and Magnetic Field Meter	NBM-520	D-1234	2019-05-15
☐	Narda	Electric Field Probe (100 kHz - 6 GHz)	EF 0691	G-0027	2021-03-10
☐	Narda	Electric Field Probe (100 MHz - 60 GHz)	EF 6092	A-0071	2019-05-15
☐	Narda	Magnetic Field Probe (300 kHz to 30 MHz)	HF 3061	D-0404	2021-02-23
☐	Narda	Electric and Magnetic Field Analyser (5 Hz – 100 kHz)	EHP-50D	230WX50108	2021-03-03
☒	Narda	Electric and Magnetic Field Analyser (5 Hz – 400 kHz)	EHP-50F	000WX60907	2020-10-14

☒ Devices used during the test ☐ Devices not used during the test

7.1.3 Averaging

For time efficient testing an average of 8 seconds was used. With some spot checks was verified, that caused by the time structure of the measured responses, the results did not change with a 6-minute-averaging.

7.1.4 Uncertainties

The probe uncertainties stated by the manufacturer are considered to be the main relevant and dominant issues.

7.1.4.1 Typical uncertainty of EHP-50F

The uncertainties stated in this document have been determined according to EA-4/2 [4].
They were estimated as expanded uncertainty obtained multiplying the standard by the coverage factor k=2, corresponding to a confidence level of about 95%.
The total uncertainty of the probe derived from typical contributions of linearity, anisotropy, frequency response, temperature, relative humidity and with/without contribution of uncertainty of calibration.

Magnetic probe (1)	Magnetic flux density	Total expanded uncertainty (k=2)	
		Without contribution of uncertainty of calibration U_{EHP50F} (%)	With contribution of uncertainty of calibration U_T (%)
Frequency at 50Hz	0.05µT to < 100µT	2.3	3.0 (2)
	100µT to < 3000µT	2.6	3.8 (3)
Frequency from 5 to 40 Hz	0.05µT to < 10µT	5.3	5.7 (2)
Frequency from 40 to 100kHz	0.05µT to < 10µT	4.9	5.3 (2)

(1) This uncertainty budget is for an ambient temperature of (23 +/- 4) °C, and relative humidity of (50 +/- 5) %
The expanded uncertainty for magnetic flux density for values close to 50 nT is calculated with negligible contribution of noise level.
(2) The uncertainty of calibration used is 2.0%
(3) The uncertainty of calibration used is 2.8%

Electric probe (4)	Electric field range	Total expanded uncertainty (k=2)	
		Without contribution of uncertainty of calibration U_{EHP50F} (%)	With contribution of uncertainty of calibration U_T (%)
Frequency at 50Hz	1 V/m to 1000 V/m	7.1	7.4 (5)
	1 V/m to < 100 kV/m	7.8	8.2 (6)
Frequency from 5 Hz to 100 kHz	1 V/m to <1000 V/m	8.8	9.2 (6)

(4) This uncertainty budget is for an ambient temperature of (23 +/- 4) °C, and relative humidity of (50 +/- 5) %
(5) The uncertainty of calibration used is 2.0%
(6) The uncertainty of calibration used is 2.5%

7.1.5 Validation procedure

Before performing the tests the empty test chamber was checked for system immanent frequency responses. The following background signal level was detected. All levels are small enough to allow accurate proof of the limits to be considered.

Probe	Frequency Range	Magnetic Flux Density (B) in µT	Electrical Field Strength in V/m	Remark
EHP-50F	5 – 1000 Hz	0.006	0.50	
EHP-50F	4 – 400 kHz	0.004	0.235	

7.1.6 Definition of test position and distances

In absence of an equipment specific regulation with given test distances, all not further noted test positions were measured in “touched” mode, the probe radome touching the DUT at the defined test position.
Due to the mechanical concept of the used probe a distance between DUT surface and electrical centre of the probe antennas remains.

Probe type	Maximum distance (cm)	
	Magnetic Field	Electrical Field
EHP-50F	4	4

7.1.7 Anisotrophical probe behaviour management

As EMF measurements for safety and health aspects are often performed in the nearfield of a radiation source it is important to be aware of the not ideal isotropic performance of a typical probe and how to reproduce reliable results.

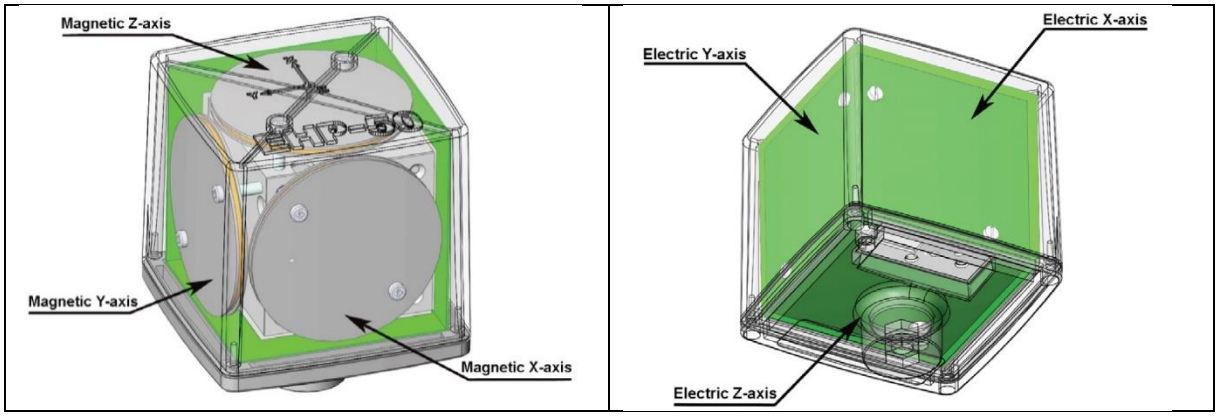
During measurements the following steps are performed to get always the highest possible field strength result and validate that the measured results are always the worst case scenario with the highest energy emitted by the source.

Step 1: Finding the position of the highest radiated field source with a basic probe orientation.
Step 2: Turning the probe to all possible orientations to find the orientation that delivers the maximum field strength.

7.1.8 Measurement distances with EHP probes

In lack of better possibilities to measure in the nearfield at very low frequencies, the touch position of the probe towards the source in the orientation that delivers the largest field is considered as 0cm between source and probe.

The following pictures show the position of the axis



Probe dimensions: 8 x 8 x 8 cm
Electrical center: 4 cm
Distance of probes to the outer housing: according to manufacturer (0.9cm)

7.2 WPT measurement results

For considering worst-case conditions all measurements were performed at smallest possible distance from the device under test. Limits shown in the tables below are the lowest ones within the wideband frequency ranges of the field probe applied.

Test positions see photo documentation (Annex A).

Wireless charging 111 kHz – 5 Watt							
test position	distance (cm)	H (A/m)	Limit (A/m)	Probe	E (V/m)	Limit (V/m)	Probe
top	50	3.00	--	EHP 50F	< 1.46	307 (50% criteria)	EHP 50F
	100	0.74			--	--	
	150	0.05			--		
	200	0.08	0.815 (50% criteria)		--		
left	0*	2.62	--		< 1.46	307 (50% criteria)	
	50	0.79			--	--	
	100	0.23			--		
	150	0.07	0.815 (50% criteria)		--		
right	0*	2.78	--		< 1.46	307 (50% criteria)	
	50	0.80			--	--	
	100	0.20			--		
	150	0.10	0.815 (50% criteria)		--		
front	0*	1.56	--		< 1.46	307 (50% criteria)	
	50	0.44			--	--	
	100	0.12			--		
	150	0.05	0.815 (50% criteria)		--		

Wireless charging 111 kHz – 5 Watt							
test position	distance (cm)	H (A/m)	Limit (A/m)	Probe	E (V/m)	Limit (V/m)	Probe
rear	0*	1.43	--	EHP 50F	< 1.46	307 (50% criteria)	EHP 50F
	50	0.38			--	--	
	100	0.08			--		
	150	0.02	0.815 (50% criteria)		--		
bottom	0*	1.97	--		< 1.46	307 (50% criteria)	
	50	0.70			--	--	
	100	0.16			--		
	150	0.08	0.815 (50% criteria)		--		

Table 1: Test results E-/ H-field for 111 kHz mode

*) touch = 0.7mm for EHP50F with 2 of 3 axis a bit further away from the measured point
See chapter 7.1.8Measurement distances with EHP probes

Wireless charging 127 kHz – 7.5 Watt							
test position	distance (cm)	H (A/m)	Limit (A/m)	Probe	E (V/m)	Limit (V/m)	Probe
top	50	4.27	--	EHP 50F	< 2.01	307 (50% criteria)	EHP 50F
	100	0.99			--	--	
	150	0.79			--		
	200	0.15	0.815 (50% criteria)		--		
left	0*	3.10	--		< 2.01	307 (50% criteria)	
	50	1.14			--	--	
	100	0.32			--		
	150	0.11	0.815 (50% criteria)		--		
right	0*	3.50	--		< 2.01	307 (50% criteria)	
	50	1.15			--	--	
	100	0.36			--		
	150	0.12	0.815 (50% criteria)				
front	0*	1.83	--		< 2.01	307 (50% criteria)	
	50	0.57			--	--	
	100	0.23			--		
	150	0.09	0.815 (50% criteria)		--		

Wireless charging 111 kHz – 7.5 Watt							
test position	distance (cm)	H (A/m)	Limit (A/m)	Probe	E (V/m)	Limit (V/m)	Probe
rear	0*	1.74	--	EHP 50F	< 2.01	307 (50% criteria)	EHP 50F
	50	0.55			--	--	
	100	0.12			--		
	150	0.04	0.815 (50% criteria)		--		
bottom	0*	2.58	--		< 2.01	307 (50% criteria)	
	50	0.90			--	--	
	100	0.22			--		
	150	0.10	0.815 (50% criteria)		--		

Table 2: Test results E-/ H-field for 127 kHz mode

*) touch = 0.7mm for EHP50F with 2 of 3 axis a bit further away from the measured point
See chapter 7.1.8Measurement distances with EHP probes

7.3 BT LE 2450 (MPE 20cm)

Technologies:	Max. measured EIRP
BT LE 2450MHz	< 0dBm (=1mW)

NOTE:
Test results for BT LE can be found in CTC advanced GmbH report 1-1906/21-01-05 (Max ant gain 3.4 dBi [Page 19], max. conducted output power -16.5 dBm [page 23]

Prediction of MPE limit at given distance - FCC

Equation from page 18 of OET Bulletin 65, Edition 97-01

$S = PG / 4\pi R^2$

where: S = Power density
P = Power input to the antenna
G = Antenna gain
R = Distance to the center of radiation of the antenna
PG = Output Power including antenna gain

The table below is excerpted from Table 1B of 47 CFR 1.1310 titled “Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure”

Frequency Range (MHz)	Power Density (mW/cm^2)	Averaging Time (minutes)
300 -1500	f/1500	30
1500 - 100000	1.0	30

where f = Frequency (MHz)

Prediction: worst case

	Technologies:	BT LE	
	Frequency (MHz)	2450	
PG	Declared max power (EIRP)	0	dBm
R	Distance	20	cm
S	MPE limit for uncontrolled exposure	1	mW/cm^2
	Calculated Power density:	0.0002	mW/cm^2
	Calculated percentage of Limit:	0.02%	

This prediction demonstrates the following:

The power density levels for FCC at a distance of 20 cm are below the maximum levels allowed by regulations.

7.4 Collocation

Technology:	Max. percentage of Limit:
BT LE 2450MHz	0.02%
WPT (5W) 110 kHz (7.5W) 127 kHz	18.40%
SUM	**18.42%**

NOTE:
WPT measured max. H-field 0.15 A/m (20cm distance), Limit 0.815 A/m → 18.40%
WPT measured max. E-Field 2.01 V/m (0cm distance), Limit 307 V/m → 0.655%

7.5 Final verdict

This device complies with the requirements according to FCC KDB 680106 D01 Item 5(b) and is qualified to be submitted for certification without KDB inquiry.

Annex A: Photo documentation

Photo 1: EUT - Top side view

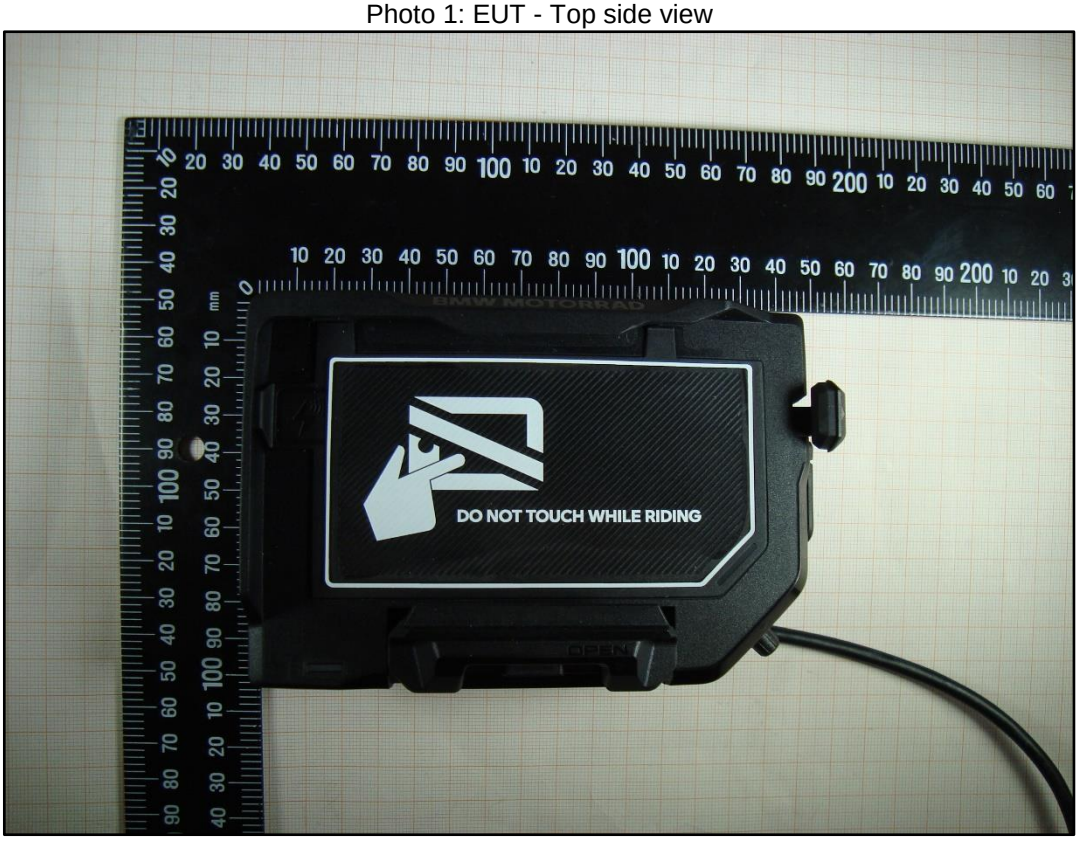


Photo 2: EUT - Front side view

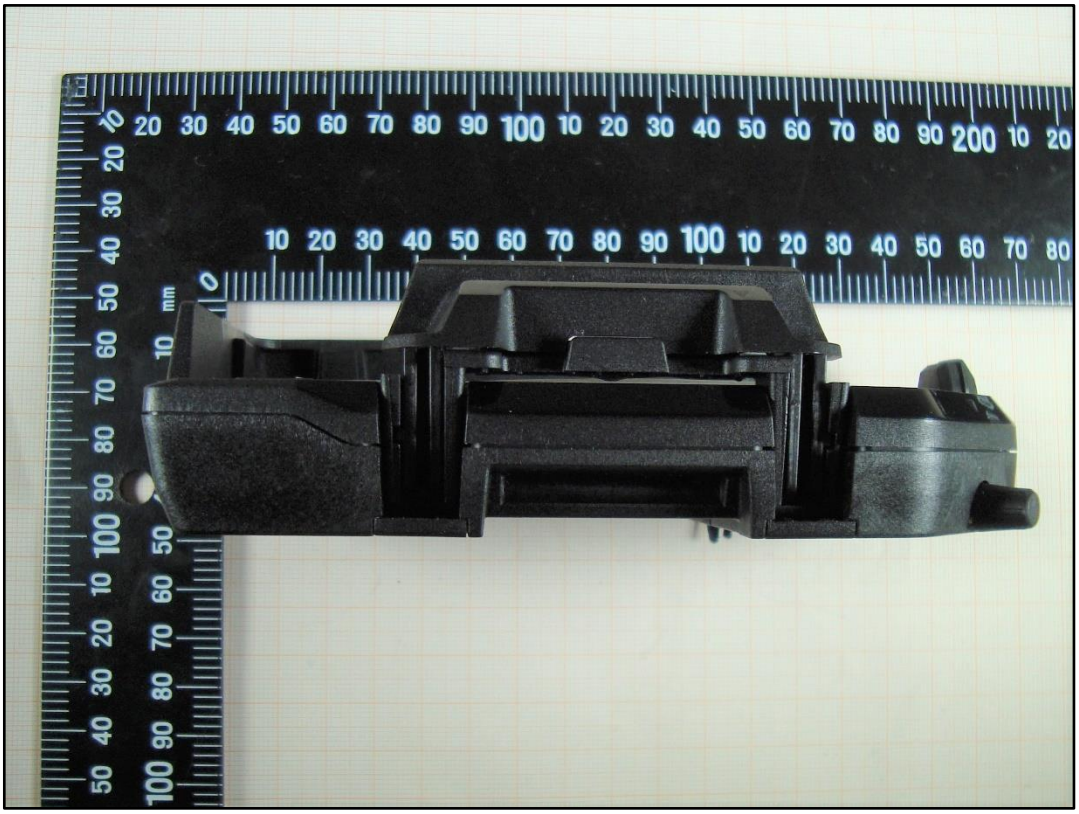


Photo 3: EUT - Right side view

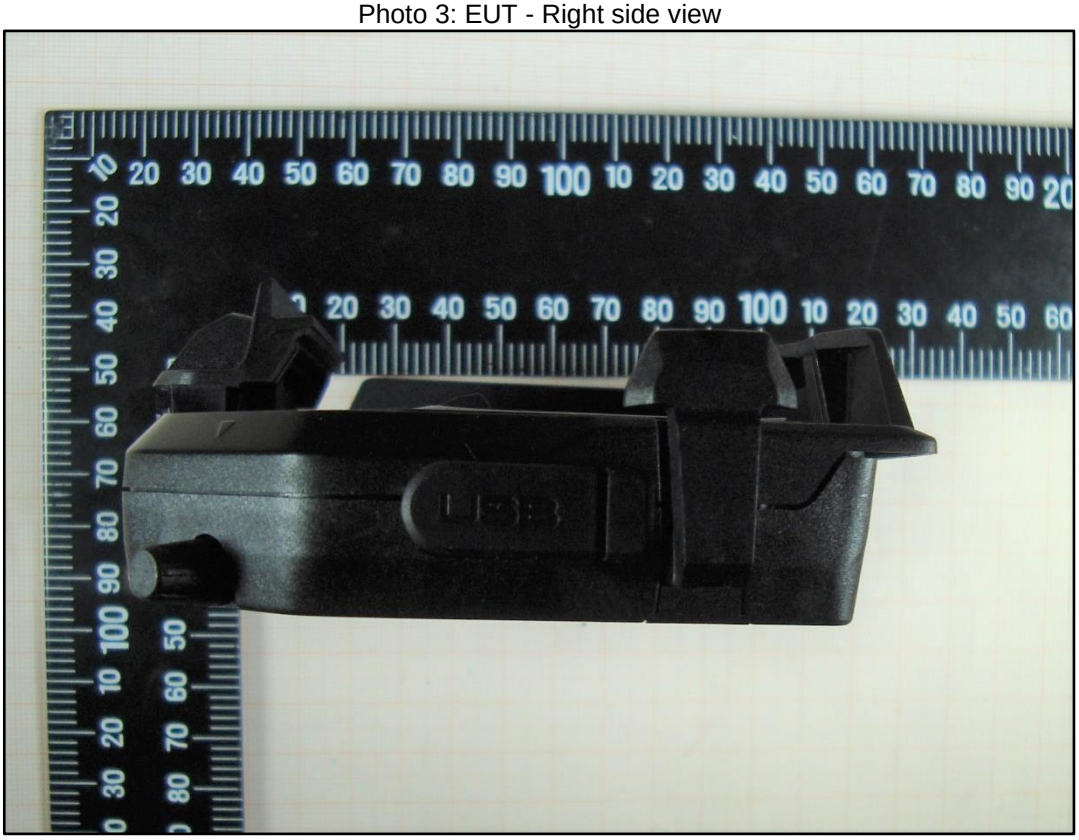


Photo 4: Dummy Load

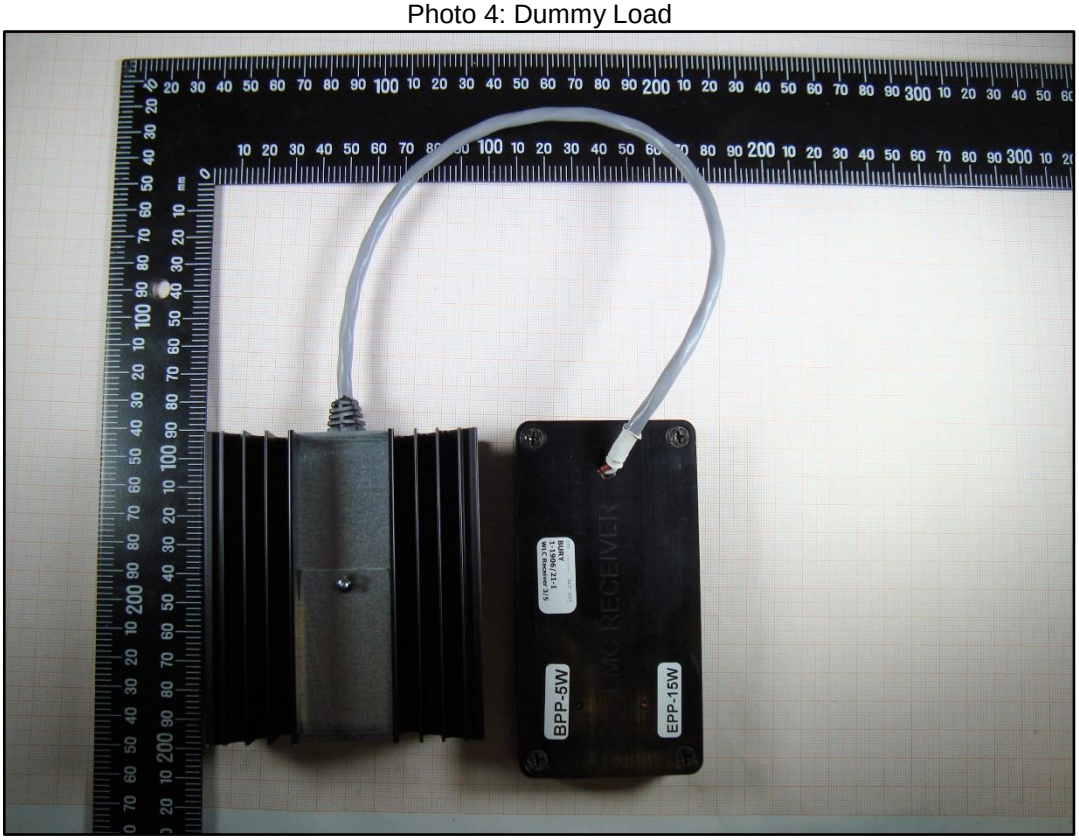


Photo 5: DC Supply Adapter

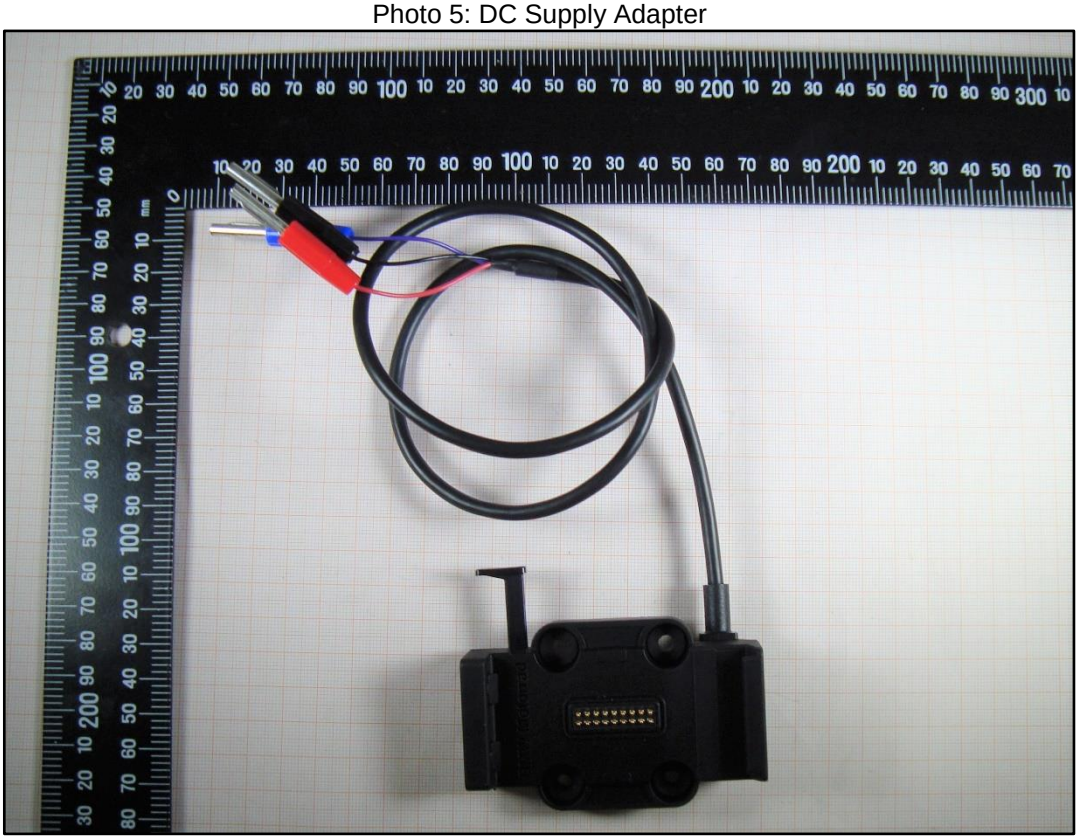


Photo 6: Test Position - Top side with 5cm to the centre of the probe (magnetic z-axis)

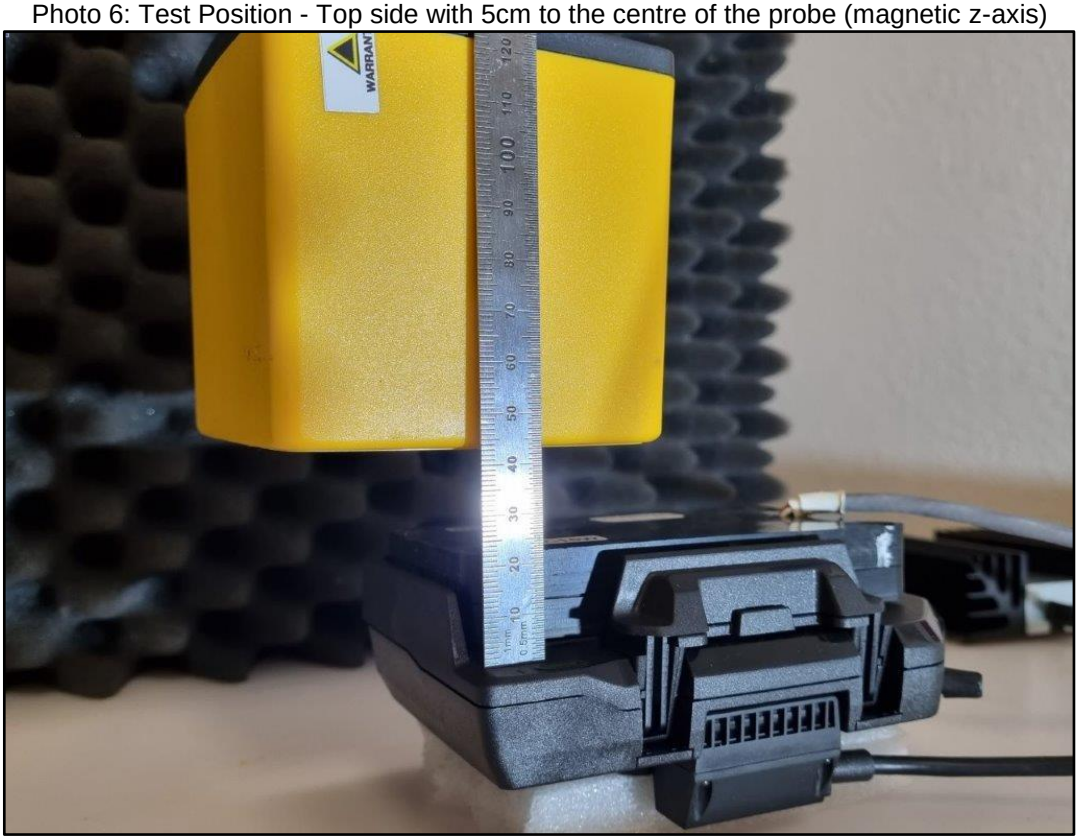


Photo 7: Test Position - Top side with 5cm to the centre of the probe (magnetic z-axis)

Photo 8: Test Position - Right side with 0cm to the centre of the probe (magnetic z-axis)

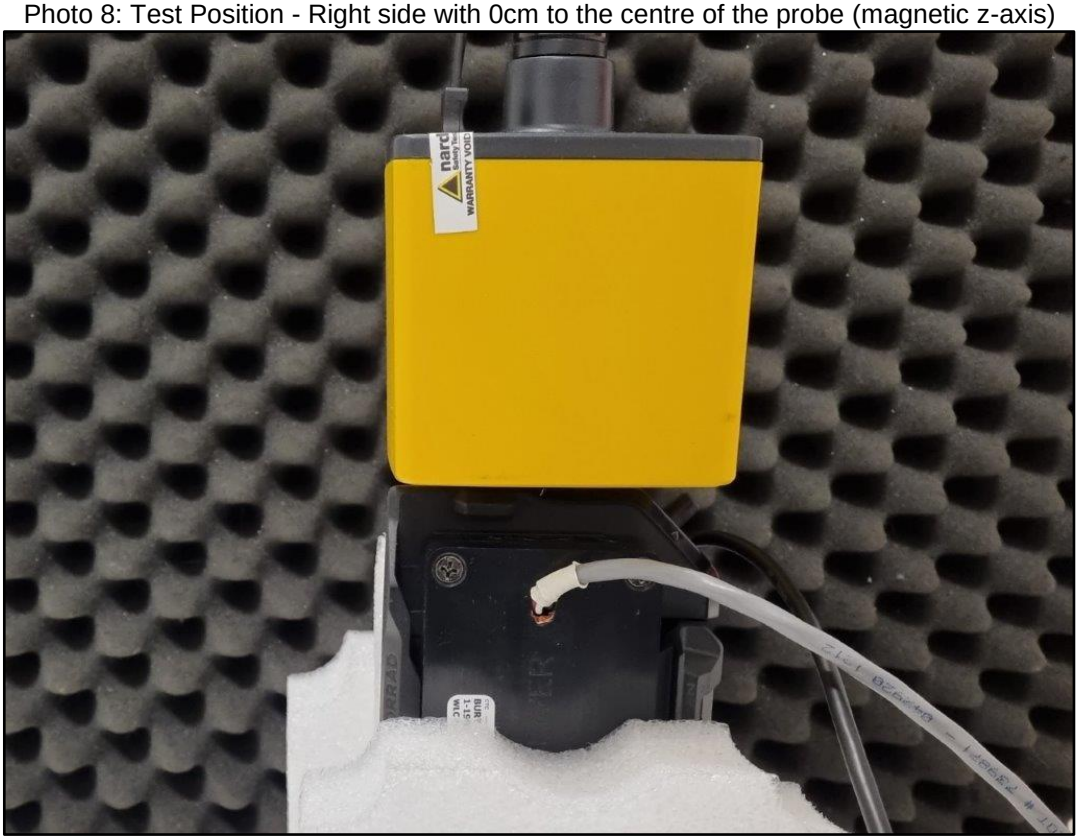


Photo 9: Test Position - Right side with 0cm to the centre of the probe (magnetic z-axis)

Annex B: Document History

Version	Applied Changes	Date of Release
	Initial Release	2021-10-26
-A	Added information for BT LE and Collocation analysis.	2022-01-17

Annex C: Further Information

Glossary

DUT	-	Device under Test
EUT	-	Equipment under Test
FCC	-	Federal Communication Commission
FCC ID	-	Company Identifier at FCC
HW	-	Hardware
Inv. No.	-	Inventory number
ISED	-	Innovation, Science and Economic Development Canada
N/A	-	not applicable
SAR	-	Specific Absorption Rate
S/N	-	Serial Number
SW	-	Software