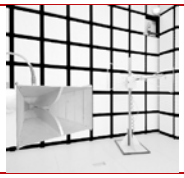
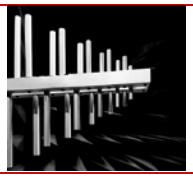
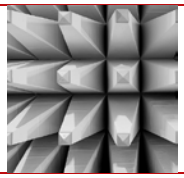




CETECOM™
CETECOM ICT Services
consulting - testing - certification

TEST REPORT

Test Report No.: 1-0992/15-01-25

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-00

Testing Laboratory

CETECOM ICT Services GmbH
Untertürkheimer Straße 6 – 10
66117 Saarbrücken/Germany
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075
Internet: http://www.cetecom.com
e-mail: info@cetecom.com

Accredited Test Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-00

Applicant

Bury GmbH & Co. KG
Robert-Koch-Str. 1-7
32584 Löhne/GERMANY

Phone: +49 5732 9706-0

Contact: Christoph Koston
e-mail: koston@bury.com
Phone: +49 5732 9706-284
Fax: +49 5732 9706-209

Manufacturer

Bury GmbH & Co. KG
Robert-Koch-Str. 1-7
32584 Löhne/GERMANY

Test Standard

FCC KDB 680106 D01 Exposure Wireless Charging Apps v02
Further referenced standards:
FCC CFR 47 part 1, part 2 and part 18

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

Test Item

Kind of test item:	Wireless charger
Device type:	mobile device
Model name:	**WCA Small BMW**
S/N serial number:	315049101653
FCC-ID:	QZ9-WCA
IC:	5927A-WCA
Hardware status:	5072P5
Software status:	4.36
Frequency:	96 ± 2 kHz
Antenna:	Internal loop
DC-Supply:	12V
Accessories:	Smart phone with charging cover
Test sample status:	identical prototype
Exposure category:	general population / uncontrolled environment

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

Test Report authorised:

Thomas Vogler
DN: cn=Thomas Vogler, o=CETECOM ICT Services GmbH, ou=VOG-150728, email=thomas.vogler@cetecom.com, c=DE
Datum: 2016.07.22 13:31:46 +02'00'

Thomas Vogler
Lab Manager
Radio Communications & EMC

Test performed:

cn=Oleksandr Hnatovskiy, o=CETECOM ICT Services GmbH, ou=HNA-151215, email=Oleksandr.Hnatovskiy@cetecom.com, c=DE
2016.07.22 13:31:33 +02'00'

Oleksandr Hnatovskiy
Lab Manager
Radio Communications & EMC

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. CETECOM ICT Services 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 CETECOM ICT Services GmbH.
This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.
The testing service provided by CETECOM ICT Services GmbH has been rendered under the current "General Terms and Conditions for CETECOM ICT Services GmbH".
CETECOM ICT Services GmbH will not be liable for any loss or damage resulting from false, inaccurate, inappropriate or incomplete product information provided by the customer.
Under no circumstances does the CETECOM ICT Services GmbH test report include any endorsement or warranty regarding the functionality, quality or performance of any other product or service provided.
Under no circumstances does the CETECOM ICT Services GmbH test report include or imply any product or service warranties from CETECOM ICT Services GmbH, including, without limitation, any implied warranties of merchantability, fitness for purpose, or non-infringement, all of which are expressly disclaimed by CETECOM ICT Services GmbH.
All rights and remedies regarding vendor’s products and services for which CETECOM ICT Services GmbH has prepared this test report shall be provided by the party offering such products or services and not by CETECOM ICT Services GmbH.
In no case this test report can be considered as a Letter of Approval.

2.2 Application details

Date of receipt of order:	2016-01-15
Date of receipt of test item:	2016-04-01
Start of test:	2016-04-04
End of test:	2016-04-04
Person(s) present during the test:	

2.3 Statement of compliance

The EMF values found for the WCA Small BMW Wireless charger are below the maximum allowed levels according to the standards listed in section 3.

3 Test standard:

FCC KDB 680106 D01 Exposure Wireless Charging Apps v02

Further referenced standards:

FCC CFR 47 part 1
§1.1307 (c) and (d)
§1.1310

FCC CFR 47 part 2
§2.1091 (d) (4)
§2.1093

FCC CFR 47 part 18
§18.107 (c)

3.1 RF exposure limits

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 10cm 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	1.613	2.0
3.0 –30 MHz	824/f (=27.5_{30MHz})	2.19/f (=0.073_{30MHz})	--

A KDB inquiry was required to determine/confirm the applicable limits below 100 kHz.

4 Summary of Measurement Results

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

A minimum safety distance of **10 cm** to the antenna is required when the device is charging a smart phone.
The detected emissions with a distance of 10 cm are below the limitations according **FCC KDB 680106 D01 Paragraph 3. RF Exposure Requirements clause 3 / confirmed by the FCC according Inquiry No. 398955**.

5 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

6 Test Set-up

6.1 Measurement system

6.1.1 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.

- EHP50D 5 Hz to 100 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

6.1.2 Test equipment list

	Manufacturer	Device	Type	Serial number	Last Calibration
☒	Narda	Electric and Magnetic Field Meter	NBM-550	F-0319	2015-03-12
☐	Narda	Electric and Magnetic Field Meter	NBM-520	D-1234	2015-03-11
☐	Narda	Electric Field Probe (100 kHz - 6 GHz)	EF 0691	G-0027	2015-03-04
☐	Narda	Electric Field Probe (100 MHz - 60 GHz)	EF 6092	A-0071	2015-06-24
☐	Narda	Magnetic Field Probe (300 kHz to 30 MHz)	HF 3061	D-0404	2015-03-09
☒	Narda	Electric and Magnetic Field Analyser (5 Hz – 100 kHz)	EHP-50D	230WX50108	2015-03-11

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

Re-calibration cycle of the field probe system is 24 months.
Additional information for the probe are in the attached document **EHP50D_technical specifications.pdf**

6.1.3 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.

6.1.4 Uncertainties

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

6.1.4.1 Typical uncertainty of EHP50D

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_{EHP50D} (%)	With contribution of uncertainty of calibration U_T (%)
Frequency at 50Hz	0.1µT to < 0.3µT	4.1	4.2 (2)
	0.3µT to < 10.0µT	3.3	3.5 (2)
	10µT to < 100µT	3.7	4.3 (3)
	100µT to 500µT	4.1	4.8 (4)
Frequency from 40 to 10kHz	0.1µT to < 0.3µT	6.5	6.7 (5)
	0.3µT to < 10.0µT	6.1	6.3 (5)

(1) The temperature range is from -10°C to 23 °C and relative humidity is from 20% to 50%
(2) (5) The uncertainty of calibration used is 1.5%
(3) The uncertainty of calibration used is 2.0%
(4) The uncertainty of calibration used is 2.7%

Electric probe (6)	Electric field range	Total expanded uncertainty (k=2)	
		Without contribution of uncertainty of calibration U_{EHP50D} (%)	With contribution of uncertainty of calibration U_T (%)
Frequency at 50Hz	10 V/m to 500 V/m	7.8	8.2 (7)
	10 V/m to < 100 kV/m	8.4	8.8 (8)
Frequency from 40 to 10kHz	10 V/m to <500 V/m	9.5	9.9 (8)

(6) The temperature range is from -10°C to 23 °C and relative humidity is from 20% to 50%
(7) The uncertainty of calibration used is 2.0%
(8) The uncertainty of calibration used is 2.5%

6.1.5 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-50D	1 – 100 kHz	0.032	0.230	

6.1.6 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-50D	4	4

6.2 Test results

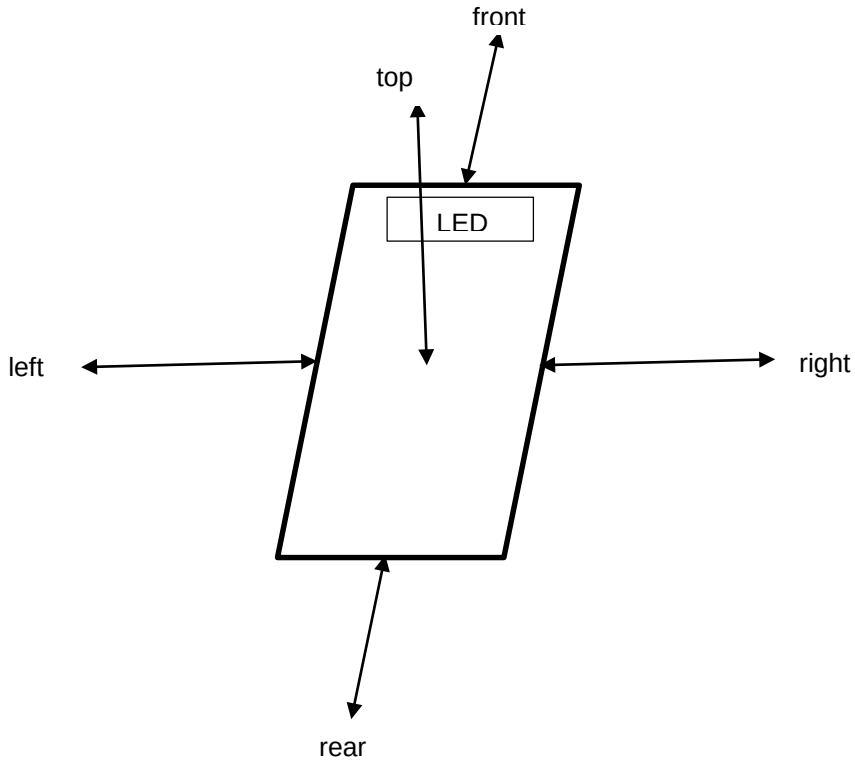
According to **FCC KDB 680106 D01 Paragraph 3.RF Exposure Requirements clause 3** all measurements were performed at a distance of up to 10cm from the center of the probe to the edge of the device under test.
The smallest test distance is limited by the probe dimensions.

Test positions see photo documentation (Annex A).
During the measurements the DUT was switched on and charging the smart phone.
The minimum safety distance was determined by increasing the distance of the probe center to the DUT in 2 cm steps. The minimum distance is limited by the dimensions of the probe.

test position	description	distance	E (V/m) 1 - 100 kHz	H (A/m) 1 - 100 kHz	Smart phone
			EHP50D	EHP50D	
	worst case limit of the considered frequency range	(cm)	**614**	**1.63**	
1	top	10	2.96	**0.88**	Microsoft Lumia 640
2	left	10	2.16	0.27	Microsoft Lumia 640
3	right	10	1.41	0.28	Microsoft Lumia 640
4	front	10	0.74	0.19	Microsoft Lumia 640
5	rear	10	0.44	0.26	Microsoft Lumia 640
1	top	8	4.67	1.74	Microsoft Lumia 640
2	left	8	3.47	0.52	Microsoft Lumia 640
3	right	8	2.30	0.42	Microsoft Lumia 640
4	front	8	0.87	0.26	Microsoft Lumia 640
5	rear	8	0.54	0.41	Microsoft Lumia 640
1	top	6	8.96	3.79	Microsoft Lumia 640
2	left	6	5.43	1.30	Microsoft Lumia 640
3	right	6	4.67	0.85	Microsoft Lumia 640
4	front	6	1.48	0.46	Microsoft Lumia 640
5	rear	6	0.73	0.64	Microsoft Lumia 640
1	top	10	2.96	0.47	Sony Xperia Z2

Table 1: Test results with smart phone video streaming during charging process

Note: Two representative smart phones were selected for the test. A full test was performed with the smart phone causing the highest field levels, while the second one serves for comparison at worst case position.



Due to installation limitations no tests from the underside of the charging device are required.

6.3 Final verdict

A minimum safety distance of **10 cm** to the antenna is required when the device is charging a smart phone.
The detected emissions with a distance of 10 cm are below the limitations according **FCC KDB 680106 D01 Paragraph 3. RF Exposure Requirements clause 3 / confirmed by the FCC according Inquiry No. 398955**.

Annex A: Photo documentation

Photo 1: DUT - top side view

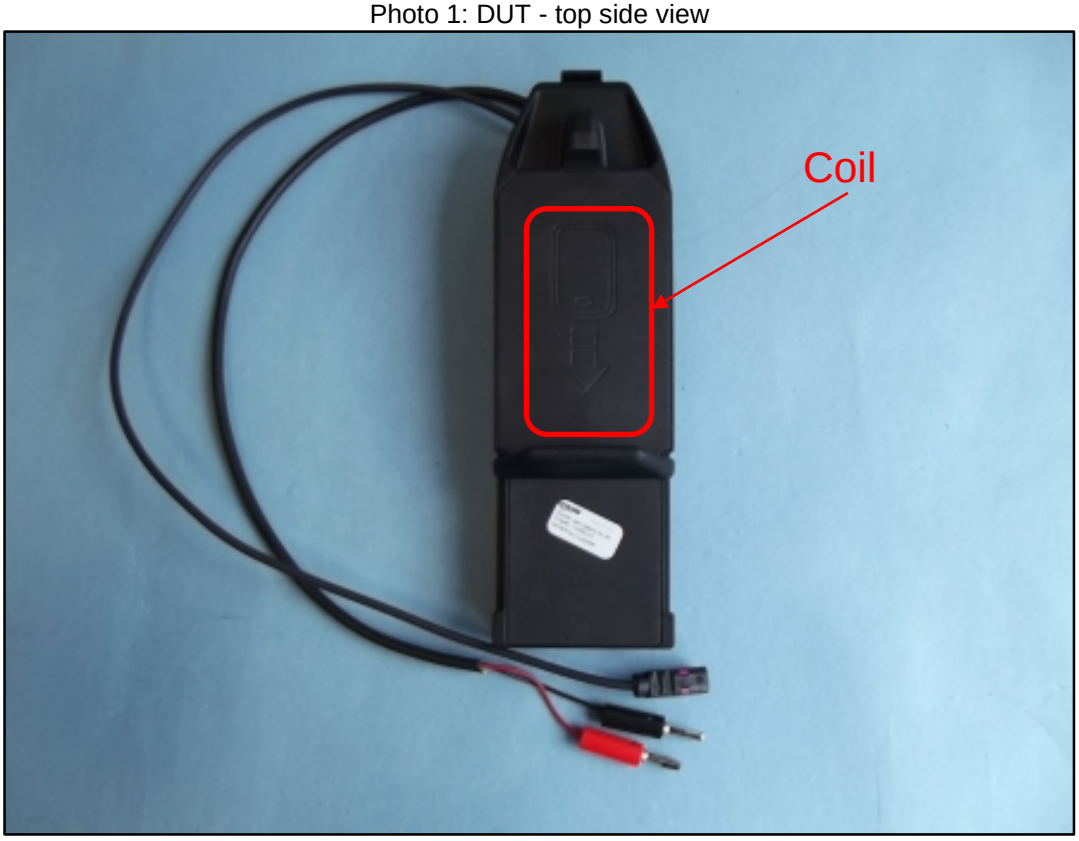


Photo 2: DUT - side view

Photo 3: DUT - bottom side view

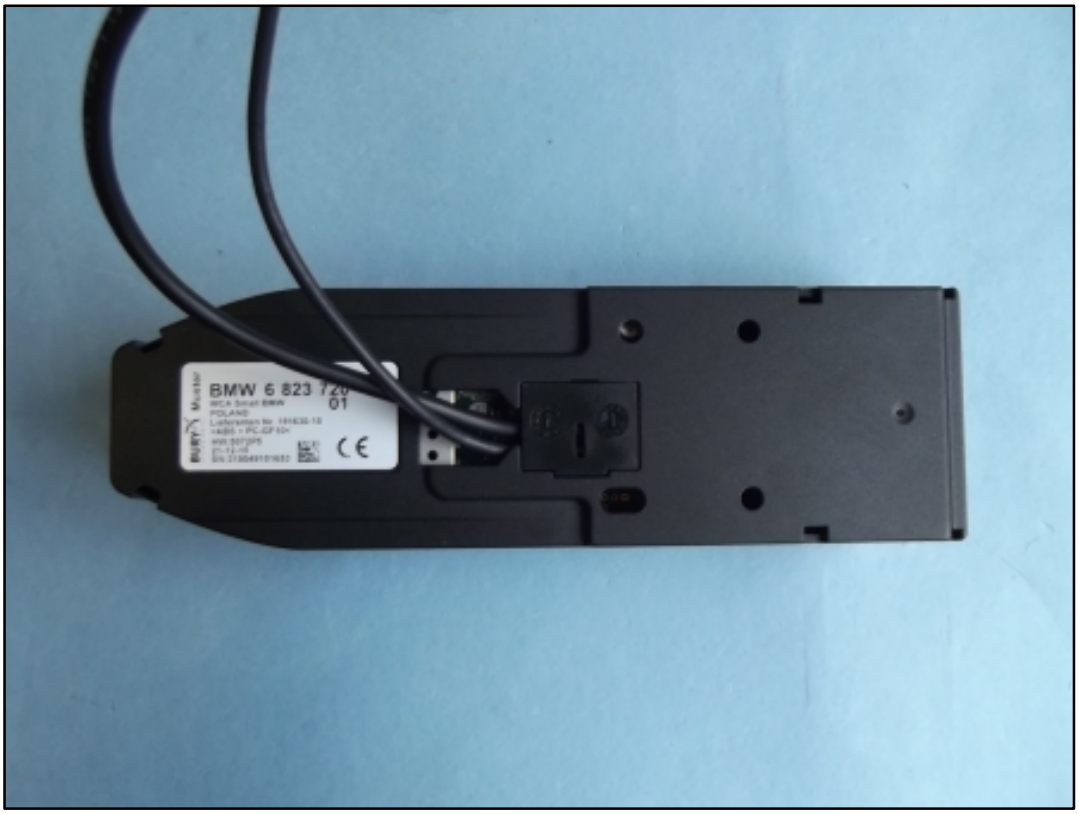


Photo 4: DUT - bottom side view (label)

Photo 5: DUT - measurement position - top side with 10cm distance
charging smartphone (Sony Z2)

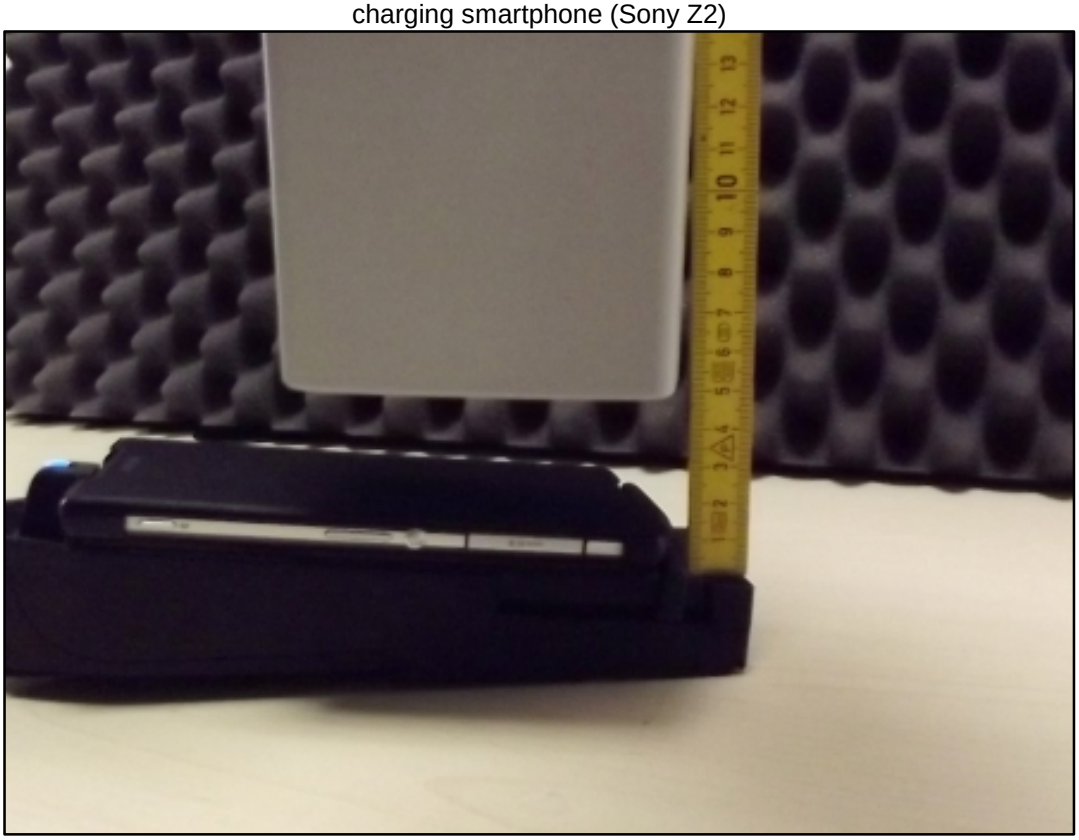


Photo 6: DUT - measurement position - top side with 10cm distance
charging smartphone (Microsoft Lumia 640)

Photo 7: DUT - measurement position - left side with 10cm distance
charging smartphone (Microsoft Lumia 640)

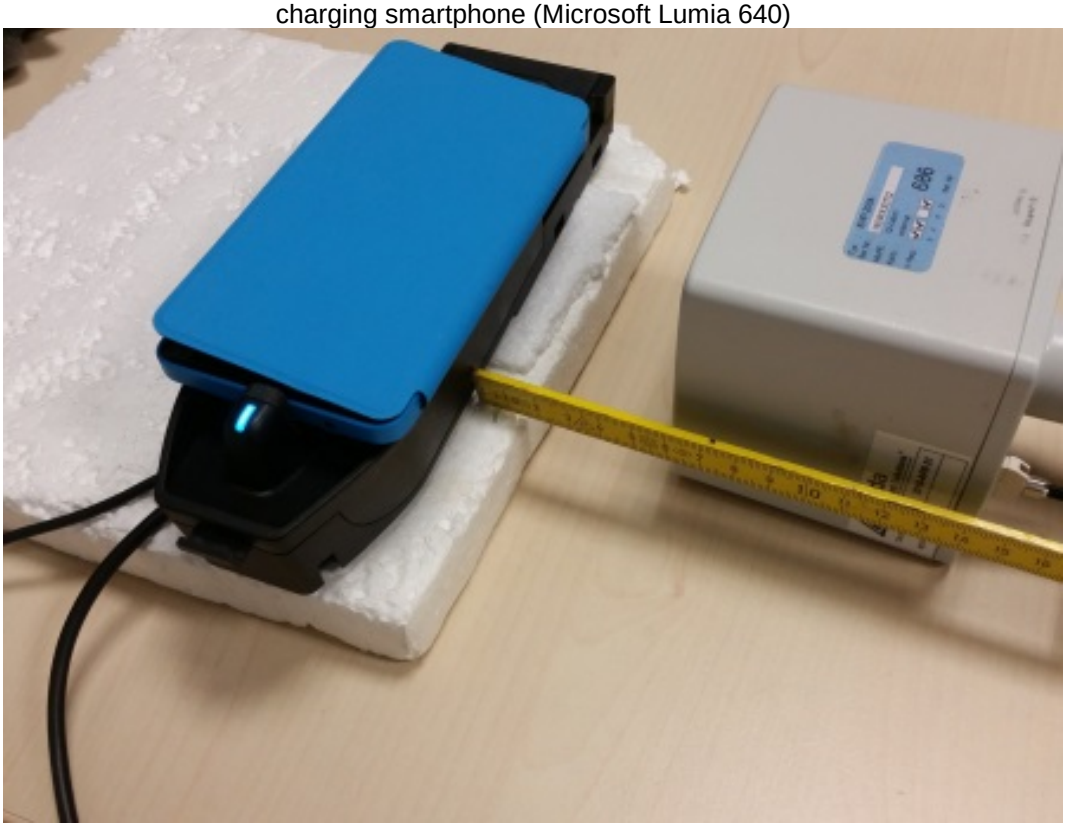


Photo 8: DUT - measurement position - right side with 10cm distance
charging smartphone (Microsoft Lumia 640)

Photo 9: DUT - measurement position - front side with 10cm distance
charging smartphone (Microsoft Lumia 640)

Annex B: Calibration data

Narda Safety Test Solutions GmbH
Sandwiesenstrasse 7 - 72793 Pfullingen - Germany
Phone: +49 7121 9732 0 - Fax: +49 7121 9732 790

narda Safety Test Solutions
an L3 Communications Company

Calibration Certificate

Narda Safety Test Solutions hereby certifies that the object referenced to this certificate has been calibrated by qualified personnel using Narda's approved procedures. The calibration was carried out in accordance with a certified quality management system which conformed to ISO 9001.

OBJECT	**Broadband Field Meter NBM-550**
MANUFACTURER	Narda Safety Test Solutions GmbH
PART NUMBER (P/N)	**2401/01B**
SERIAL NUMBER (S/N)	**F-0319**
CUSTOMER	
CALIBRATION DATE	2015-03-12
RESULT ASSESSMENT	within specifications
AMBIENT CONDITIONS	Temperature: (23 ± 3) °C Relative humidity: (20 to 60) %
CALIBRATION PROCEDURE	2401-8700-00A

ISSUE DATE: 2015-03-12

MANAGEMENT SYSTEM

CALIBRATED BY
Ranz

AUTHORIZED SIGNATORY

Certified by DQS according to ISO 9001:2008 (Reg.-No. 099379 QM08)

CERTIFICATE: NBM-550-F-0319-150312-3709

PAGE 1 OF 3

narda Safety Test Solutions®
an L3 Communications Company

Narda Safety Test Solutions GmbH
Sandwiesenstrasse 7 - 72793 Pfullingen - Germany
Phone: +49 7121 9732 0 - Fax: +49 7121 9732 790

Method of Measurement

The device under test (DUT) represents a three-channel voltage meter offering high accuracy and high resolution. The DUT is calibrated by applying a known DC voltage to each of the inputs.

Uncertainty of Measurement

The measurement uncertainty stated in this document is the expanded uncertainty with a coverage factor of 2 (corresponding, in the case of normal distribution, to a confidence probability of 95 %).

The uncertainty analysis for this calibration was done in accordance with the ISO/TAG-Guide (Guide to the expression of uncertainty in measurement). The measurement uncertainties are derived from contributions from the measurement of power, reflection, attenuation and frequency, mismatch, stability of instrumentation and repeatability of handling.

This statement of uncertainty applies to the measured values only and does not include effects like temperature response and long term stability of the calibrated device.

Traceability of Measuring Equipment

The calibration results are traceable to SI-units according to ISO/IEC 17025. Physical units, which are not included in the list of accredited measured quantities such as field strength or power density, are traced to the basic units via approved measurement and computational methods.

The equipment used for this calibration is traceable to the reference listed below and the traceability is guaranteed by ISO 9001 Narda internal procedure.

Reference- / Working- Standard	Manufacturer	Model	Serial Number	Certificate Number	Cal Due Date	Trace
Digital Multimeter	Agilent	34401A	MY47052911	1-6610359335-1	2017-02	UKAS 0147

CERTIFICATE: NBM-550-F-0316-150312-3709 PAGE 3 OF 3

Results

Voltage display uncertainty

Channel	Input voltage applied	Specified voltage display	Meas. Uncertainty	Meas. voltage display
X	2.400 V	(2.376+/-0.024) V	+/-0.007 V	2.371 V
Y	2.400 V	(2.376+/-0.024) V	+/-0.007 V	2.371 V
Z	2.400 V	(2.376+/-0.024) V	+/-0.007 V	2.371 V

Note: Because of an internal voltage divider the nominal indication is 2.376 V.

Narda Safety Test Solutions GmbH
Sandwiesenstrasse 7 - 72793 Pfullingen - Germany
Phone: +49 7121 9732 0 - Fax: +49 7121 9732 790

narda Safety Test Solutions®
an L3 Communications Company

narda
Safety Test Solutions
an Communications Company

Narda Safety Test Solutions S.r.l.
Sales & Support: Via Leonardo da Vinci 21/23
20090 Segrate (MI)
Tel.: +39 02 2699871 Fax: +39 02 26998700
Manufacturing Plant: Via Benessea, 29/B
17035 Cisano sul Neva (SV)
Tel.: +39 0182 58641 Fax: +39 02 586400

CERTIFICATE OF CALIBRATION
Certificato di taratura

Number Numero 50108

Item *Oggetto*	Electric and Magnetic field Probe - Analyzer
Manufacturer *Costruttore*	Narda S.T.S. / PMM
Model *Modello*	EHP50D
Serial number *Matricola*	230WX50108
Calibration procedure *Procedura di taratura*	Internal procedure PTP 09-31
Date(s) of measurements *Data(e) delle misure*	11.03.2015
Result of calibration *Risultato della taratura*	Measurements results within specifications

This calibration certificate documents the traceability to national/international standards, which realise the physical units of measurements according to the International System of Units (SI). Verification of traceability is guaranteed by mentioning used equipment included in the measurement chain. This equipment includes reference standard directly traceable to (inter)national standard (accuracy rating A) and working standard calibrated by the calibration laboratory of Narda Safety Test Solutions (accuracy rating B) by means of reference standard A or by other calibration laboratory.
The measurement uncertainties stated in this document are estimated at the level of twice the standard deviation (corresponding, in the case of normal distribution, to a confidence level of about 95%). The uncertainties are calculated in conformity to the ISO Guide (Guide to the expression of uncertainty in measurement).The metrological confirmation system for the measuring equipment used is in compliance with ISO 10012-1. The applied quality system is certified to UNI EN ISO 9001.
Questo certificato di taratura documenta la tracciabilità a campioni primari nazionali o internazionali i quali realizzano la riferibilità alle unità fisiche del Sistema Internazionale delle Unità (SI). La verifica della tracciabilità è garantita elencando gli strumenti presenti nella catena di misura.La catena di riferibilità metrologica fa riferimento a campioni di prima linea direttamente riferiti a standard (inter)nazionali (classe A), di seconda linea, tarati nel laboratorio metrologico della Narda Safety Test Solutions con riferibilità ai campioni di prima linea oppure tarati da Enti esterni accreditati (classe B).
Le incertezze di misura dichiarate in questo documento sono espresse come due volte lo scarto tipo (corrispondente, nel caso di distribuzione normale, a un livello di confidenza di circa 95%). Le incertezze di misura sono calcolate in riferimento alla guida ISO. La conferma metrologica della strumentazione usata è conforme alla ISO 10012-1. Il sistema di qualità è certificato ISO 9001.

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV
= ISO 9001:2008 =

Date of issue *Data di emissione*	Measure operator *Operatore misure*	Person responsible *Responsabile*
17.03.2015	F. Ferrari	G. Basso

narda Safety Test Solutions

Calibration Certificate number 50108
Page 2 of 5

The calibration was carried out at an ambient temperature of (23 ± 3)°C and at a relative humidity of (50 +10/-20)%.

Calibration method

The magnetic calibration was set up with the probe in a region of uniform magnetic field at the centre of a calibrated Helmholtz coil system. The magnetic flux density is calculated from the current flowing in the coil. The current waveform was sinusoidal. The current in the Helmholtz coil system was adjusted to produce a series of indicated magnetic flux densities on the instrument at various frequencies. The calibration procedure agrees with the indication of IEC 61786 "Measurement of low frequency magnetic and electric fields with regard to exposure of human beings- Special requirements for instruments."
The instrument readings were recorded and the actual values of magnetic flux density were calculated from the measured currents.
The magnetic correction factor (CF) is defined as rapport between actual and indicated magnetic flux density.

$$CF = \frac{Bo}{Bmis}$$

where Bo is the applied magnetic flux density and Bmis is the indicated magnetic flux density

For the electric calibration the probe is positioned inside a big TEM cell (section 1.8x1.8 mete
For each measurement, the input voltage was adjusted so that the field strength was set to a specified reading on the monitor.
The actual field strength, at the plane of reference of the probe was then determined and the correction factor calculated using the following definition.

$$CF = \frac{Eo}{Emis}$$

where Eo is the applied field strength and Emis is the indicated field strength

The correction factor data are permanently stored in the internal EEPROM.

Calibration equipment and traceability

ID Number	Description	Manufacturer	Model	Trace
PMM 391	Digital multimeter	Agilent	34401A	/SIT
CMR 169	Electric and Magnetic ref. Probe	Narda	EHP50C-REF	/INRIM
CMR 090	Standard resistor	Narda	PMM BSD250	/NPL
CMR 095	Current Trasformer	Frer	AP10-1TAC010	/INRIM
CMR 001	TEM Cell	Narda	1818	/Narda
CMR 020	Helmholtz coil	Narda	HCS5001	/Narda

Uncertainty of measurements

The statement of uncertainty (see first page) does not make any implication or include any estimation as to the long term stablity of the calibrated monitor. The relative expanded uncertainty result are given below

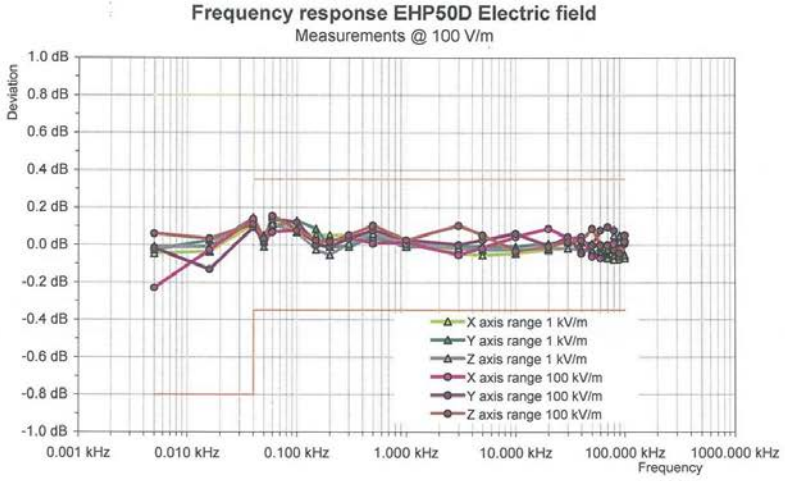
E field	3% at 50 Hz 7.5% other frequencies
H field	2% at 50 Hz with 100µT range 3.5% at 50 Hz with 10mT range 3% other frequencies

Results

The results of measurements in the following pages were obtained after calibration data storing and indicates the residual of the reciprocal CF.
The results given on the tables were obtained with the axis aligned at the electric vector for electric measurements and with axis concatenated at the magnetic flux density for magnetic mesurements
The shown limits of the EHP50D specification in the diagrams are in orange.

Electric field Frequency response for each axis at nominal field of 100 V/m.
The instrument was set as electric field measure with 100 Hz span up to the frequency of 100 Hz, 200 Hz span up to the frequency of 200 Hz, 500 Hz span up to the frequency of 500 Hz, 1 kHz up to 1000 Hz, 10 kHz up to 10 kHz and 100 kHz span for frequency over 10 kHz

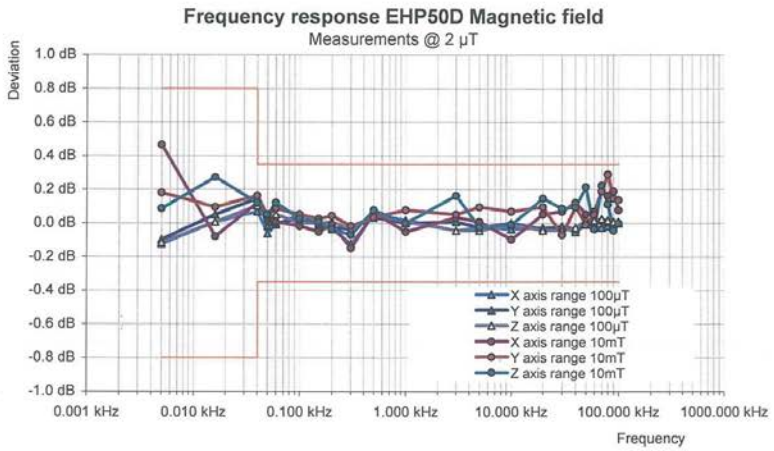
Freq. (kHz)	Deviation with 1kV/m range			Deviation with 100 kV/m range		
	X axis	Y axis	Z axis	X axis	Y axis	Z axis
	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
0.005	-0.04	-0.03	-0.01	-0.23	-0.02	0.06
0.016	-0.03	0.03	-0.01	-0.03	-0.13	0.03
0.04	0.11	0.11	0.15	0.14	0.10	0.11
0.05	0.05	-0.01	0.02	0.03	0.02	0.03
0.06	0.13	0.10	0.11	0.07	0.14	0.15
0.10	0.07	0.13	0.07	0.08	0.12	0.08
0.15	0.05	0.09	-0.03	0.01	0.00	0.03
0.20	0.05	-0.01	-0.05	0.03	-0.01	0.02
0.30	0.05	-0.01	0.01	0.03	0.03	0.05
0.50	0.02	0.04	0.06	0.01	0.08	0.10
1.00	0.03	-0.01	0.01	0.01	0.03	0.03
3.00	-0.04	-0.01	-0.02	-0.05	0.00	0.10
5.00	-0.05	-0.01	-0.03	-0.02	0.03	0.05
10.00	-0.04	-0.01	-0.03	0.04	0.06	-0.03
20.0	-0.03	0.01	-0.02	0.09	-0.01	-0.01
30.0	-0.02	0.02	-0.02	0.03	0.04	0.02
40.0	-0.02	0.02	-0.03	0.04	-0.04	0.03
50.0	-0.03	0.01	-0.03	-0.06	0.00	0.09
60.0	-0.03	-0.01	-0.04	-0.07	0.08	0.00
70.0	-0.05	-0.03	-0.07	0.00	0.10	0.00
80.0	-0.08	-0.05	0.05	0.01	0.08	-0.03
90.0	0.03	0.05	0.02	-0.08	-0.06	-0.04
100.0	-0.07	-0.05	0.04	0.01	0.05	0.02



EHP50D_Narda-Certificate of Calibration_r03_230WX50108.xls

Magnetic Field Frequency response for each axis at nominal magnetic flux density of 2µT.
The instrument was set as magnetic field measure with 100 Hz span up to the frequency of 100 Hz, 200 Hz span up to the frequency of 200 Hz, 500 Hz span up to the frequency of 500 Hz, 1 kHz up to 1000 Hz, 10 kHz up to 10 kHz and 100 kHz span for frequency over 10 kHz

Freq. (kHz)	Deviation with 100µT range			Deviation with 10mT range		
	X axis (dB)	Y axis (dB)	Z axis (dB)	X axis (dB)	Y axis (dB)	Z axis (dB)
0.005	-0.12	-0.10	-0.11	0.47	0.18	0.09
0.016	0.01	0.05	0.01	-0.08	0.10	0.27
0.04	0.07	0.15	0.10	0.12	0.16	0.12
0.05	-0.06	-0.02	0.03	0.03	0.04	0.05
0.06	-0.01	0.00	0.05	0.01	0.09	0.12
0.10	0.05	0.03	0.00	-0.02	0.05	0.03
0.15	-0.02	-0.01	0.00	-0.05	0.03	0.01
0.20	-0.03	-0.03	0.01	-0.01	0.04	-0.03
0.30	-0.12	-0.03	-0.03	-0.15	-0.02	-0.07
0.50	0.05	0.03	0.05	0.06	0.03	0.08
1.00	0.02	0.00	0.01	-0.05	0.08	0.00
3.00	-0.04	0.01	-0.04	0.03	0.05	0.16
5.00	-0.03	-0.03	-0.04	0.01	0.10	-0.03
10.00	-0.03	0.00	-0.01	-0.10	0.07	-0.01
20.0	-0.03	-0.03	-0.04	0.05	0.10	0.15
30.0	-0.03	-0.02	-0.04	0.07	-0.07	0.09
40.0	-0.05	-0.03	-0.03	0.12	0.10	0.10
50.0	-0.01	-0.01	0.02	0.05	-0.01	0.21
60.0	-0.02	0.00	0.02	0.07	0.05	-0.03
70.0	-0.03	0.02	0.03	0.19	0.19	0.22
80.0	-0.02	0.01	0.02	0.16	0.29	0.11
90.0	0.00	-0.01	0.01	0.19	0.15	-0.04
100.0	0.00	0.00	0.01	0.08	0.14	0.00



EHP50D_Narda-Certificate of Calibration_r03_230WX50108.xls

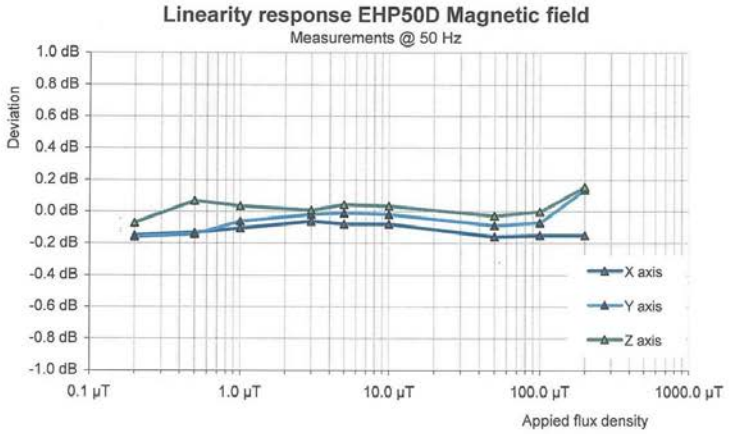
narda Safety Test Solutions

Calibration Certificate number 50108
Page 5 of 5

Magnetic Field Linearity response for each axis at applied frequency of 50 Hz and magnetic flux density below
The instrument was set with 100 Hz span.

Applied flux density (µT)	Deviation		
	X axis (dB)	Y axis (dB)	Z axis (dB)
0.2	-0.15	-0.16	-0.07
0.5	-0.13	-0.14	0.07
1.0	-0.10	-0.06	0.03
3.0	-0.06	-0.02	0.01
5.0	-0.08	-0.01	0.04
10	-0.08	-0.02	0.03
50	-0.16	-0.09	-0.03
100	-0.15	-0.07	0.00
200	-0.15	0.14	0.15

X axis linearity	0.05 dB
Y axis linearity	0.15 dB
Z axis linearity	0.11 dB



EHP50D_Narda-Certificate of Calibration_r03_230WX50108.xls

Annex C: Document History

Version	Applied Changes	Date of Release
	Initial Release	2016-04-04

Annex D: Further Information

Glossary

BW	-	Bandwidth
DUT	-	Device under Test
EUT	-	Equipment under Test
FCC	-	Federal Communication Commission
FCC ID	-	Company Identifier at FCC
HW	-	Hardware
IC	-	Industry Canada
N/A	-	not applicable
OET	-	Office of Engineering and Technology
S/N	-	Serial Number
SW	-	Software
UNII	-	Unlicensed National Information Infrastructure