

Attachment B

(RF Exposure evaluation)

Type / Model Name : CPK 3-MS

Product Description : Correlux wireless charging system

Applicant : Seba Dynatronic Mess- und Ortungstechnik GmbH

Address : Dr.-Herbert-lann-Str. 6

96148 BAUNACH, GERMANY

Manufacturer : Seba Dynatronic Mess- und Ortungstechnik GmbH

Address : Dr.-Herbert-lann-Str. 6

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Licence holder : Seba Dynatronic Mess- und Ortungstechnik GmbH

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according to

Test Report No. :	T41060-01-00KJ
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12. September 2016

Date of issue



Deutsche
Akkreditierungsstelle
D-PL-12030-01-01
D-PL-12030-01-02

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test results
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1 TEST STANDARDS

The tests were performed according to following standards:

KDB 680106 D01 v02: 2013

RF Exposure considerations for low power consumer wireless
power transfer applications

3 TEST CONDITIONS AND RESULTS

3.1 RF exposure requirements (H-Field)

For test instruments and accessories used see section 6 Part **CPR 1**.

3.1.1 Description of the test location

Test location: S6
Test distance: 10 cm

3.1.2 Used field probe

Manufacture:	Type:	Frequency range:
Narda Safety Test Solutions	ELT-400 with 100 cm ² B field probe	1 Hz to 400 kHz

3.1.3 Applicable standard

According to KDB 680106 D01 v02, Section 3, 3):

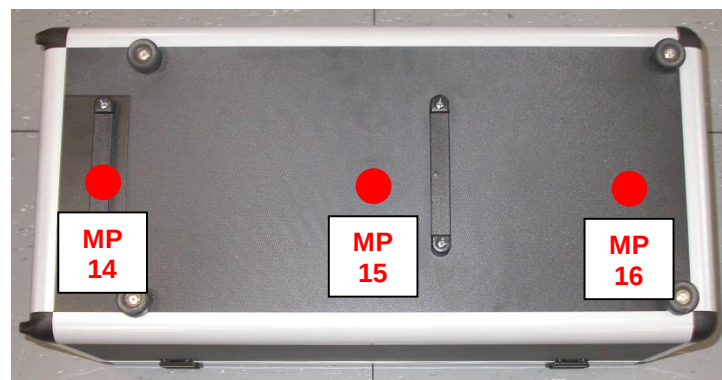
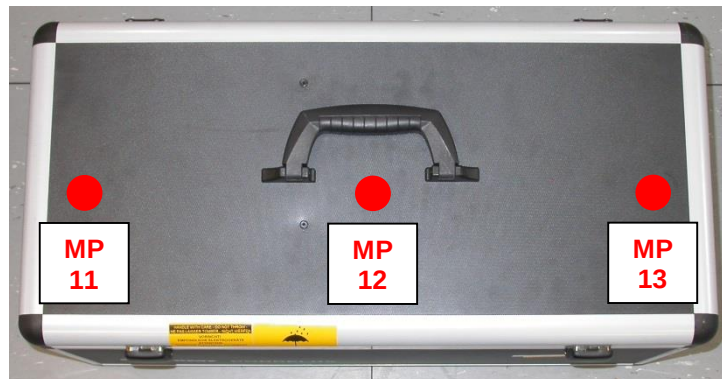
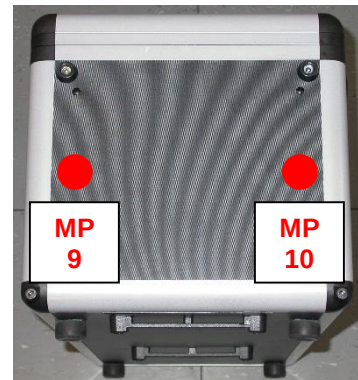
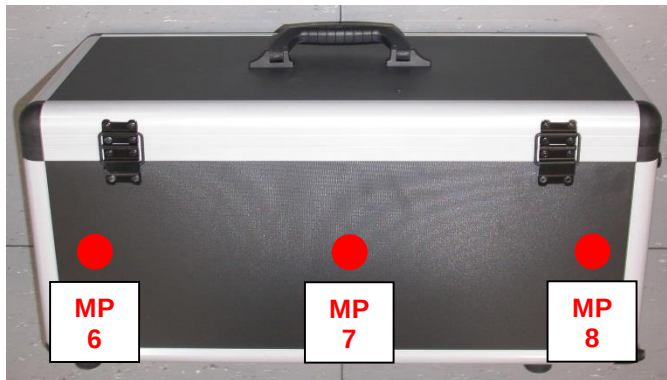
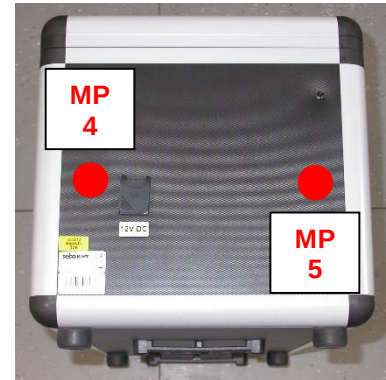
For devices designed for typical desktop applications, such as wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 10 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 10 cm measured from the center of the probe(s) to the edge of the device. Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m. A KDB inquiry is required to determine the applicable exposure limits below 100 kHz.

3.1.4 Description of measurement

The maximum magnetic field strength was measured radiated, 10cm surrounding the device. The EUT is measured in TX continuous mode, modulated, under normal conditions. The exposure level tester was set in RMS detection mode with max. hold function. Each measurement point (MP) was tested over 6 minutes.

Tested operation mode:	standby(empty box) & charging mode
Operation frequencies:	- TX at 246.38 kHz / 245.64 kHz / 245.48 kHz (COR MS-3 - multi-sensor) - TX at 230.56 kHz / 229.17 kHz (COR PT-3 - power transmitter)

3.1.5 Description of measurement points



3.1.6 Test result

Empty box - lid closed (no other equipment is inside; all coils furthermore active)

Measurement Point (MP)	Measurement distance (cm)	Measurement location / place	Measurement position (probe)	Magnetic field ($\mu\text{T RMS}$)	Conversion in to (A/m RMS)	Limit (A/m RMS)	Delta (dB)
1	10	front view	left	0.147	0.118	1.63	-22.8
2	10	front view	middle	0.122	0.098	1.63	-24.5
3	10	front view	right	0.143	0.114	1.63	-23.1
4	10	right view	left	0.127	0.102	1.63	-24.1
5	10	right view	right	0.195	0.156	1.63	-20.4
6	10	back view	left	0.218	0.174	1.63	-19.4
7	10	back view	middle	0.166	0.133	1.63	-21.8
8	10	back view	right	0.083	0.066	1.63	-27.8
9	10	left view	left	0.068	0.054	1.63	-29.5
10	10	left view	right	0.082	0.066	1.63	-27.9
11	10	top view	left	0.092	0.074	1.63	-26.9
12	10	top view	middle	0.164	0.131	1.63	-21.9
13	10	top view	right	0.218	0.174	1.63	-19.4
14	10	bottom view	left	0.159	0.127	1.63	-22.2
15	10	bottom view	middle	0.140	0.112	1.63	-23.3
16	10	bottom view	right	0.158	0.126	1.63	-22.2

Empty box - lid open (no other equipment is inside; all coils furthermore active)

Measurement Point (MP)	Measurement distance (cm)	Measurement location / place	Measurement position (probe)	Magnetic field ($\mu\text{T RMS}$)	Conversion in to (A/m RMS)	Limit (A/m RMS)	Delta (dB)
1	10	front view	left	0.148	0.118	1.63	-22.8
2	10	front view	middle	0.123	0.098	1.63	-24.4
3	10	front view	right	0.144	0.115	1.63	-23.0
4	10	right view	left	0.192	0.154	1.63	-20.5
5	10	right view	right	0.198	0.158	1.63	-20.2
6	10	back view	left	0.221	0.177	1.63	-19.3
7	10	back view	middle	0.169	0.135	1.63	-21.6
8	10	back view	right	0.085	0.068	1.63	-27.6
9	10	left view	left	0.069	0.055	1.63	-29.4
10	10	left view	right	0.083	0.066	1.63	-27.8
11	10	top view	left	0.105	0.084	1.63	-25.8
12	10	top view	middle	0.221	0.177	1.63	-19.3
13	10	top view	right	0.294	0.235	1.63	-16.8
14	10	bottom view	left	0.155	0.124	1.63	-22.4
15	10	bottom view	middle	0.141	0.113	1.63	-23.2
16	10	bottom view	right	0.157	0.126	1.63	-22.3

Charging mode - lid closed (box is fully equipped)

Measurement Point (MP)	Measurement distance (cm)	Measurement location / place	Measurement position (probe)	Magnetic field ($\mu\text{T RMS}$)	Conversion in to (A/m RMS)	Limit (A/m RMS)	Delta (dB)
1	10	front view	left	0.132	0.106	1.63	-23.8
2	10	front view	middle	0.111	0.089	1.63	-25.3
3	10	front view	right	0.131	0.105	1.63	-23.8
4	10	right view	left	0.123	0.098	1.63	-24.4
5	10	right view	right	0.189	0.151	1.63	-20.7
6	10	back view	left	0.220	0.176	1.63	-19.3
7	10	back view	middle	0.164	0.131	1.63	-21.9
8	10	back view	right	0.083	0.066	1.63	-27.8
9	10	left view	left	0.065	0.052	1.63	-29.9
10	10	left view	right	0.076	0.061	1.63	-28.6
11	10	top view	left	0.084	0.067	1.63	-27.7
12	10	top view	middle	0.142	0.114	1.63	-23.1
13	10	top view	right	0.216	0.173	1.63	-19.5
14	10	bottom view	left	0.154	0.123	1.63	-22.4
15	10	bottom view	middle	0.133	0.106	1.63	-23.7
16	10	bottom view	right	0.145	0.116	1.63	-23.0

Charging mode - open lid (box is fully equipped)

Measurement Point (MP)	Measurement distance (cm)	Measurement location / place	Measurement position (probe)	Magnetic field ($\mu\text{T RMS}$)	Conversion in to (A/m RMS)	Limit (A/m RMS)	Delta (dB)
1	10	front view	left	0.132	0.106	1.63	-23.8
2	10	front view	middle	0.112	0.090	1.63	-25.2
3	10	front view	right	0.133	0.106	1.63	-23.7
4	10	right view	left	0.125	0.100	1.63	-24.2
5	10	right view	right	0.192	0.154	1.63	-20.5
6	10	back view	left	0.224	0.179	1.63	-19.2
7	10	back view	middle	0.165	0.132	1.63	-21.8
8	10	back view	right	0.083	0.066	1.63	-27.8
9	10	left view	left	0.064	0.051	1.63	-30.1
10	10	left view	right	0.076	0.061	1.63	-28.6
11	10	top view	left	0.094	0.075	1.63	-26.7
12	10	top view	middle	0.208	0.166	1.63	-19.8
13	10	top view	right	0.289	0.231	1.63	-17.0
14	10	bottom view	left	0.149	0.119	1.63	-22.7
15	10	bottom view	middle	0.129	0.103	1.63	-24.0
16	10	bottom view	right	0.147	0.118	1.63	-22.8

The requirements are **FULFILLED**.

Remarks:

3.2 RF exposure requirements (E-Field)

For test instruments and accessories used see section 6 Part **CPR 1**.

3.2.1 Description of the test location

Test location: A4
Test distance: 10 cm

3.2.2 Used field probe

Manufacture:	Type:	Frequency range:
Narda Safety Test Solutions	PMM EP-601	10 kHz to 9.25 GHz

3.2.3 Applicable standard

According to KDB 680106 D01 v02, Section 3, 3):

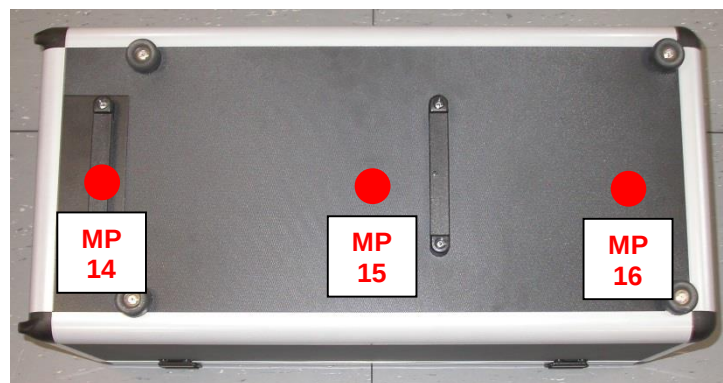
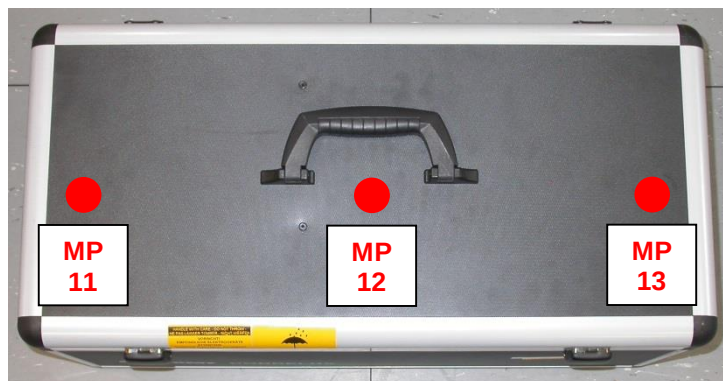
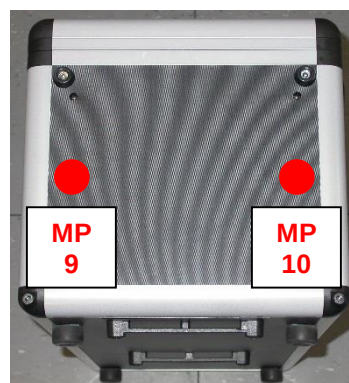
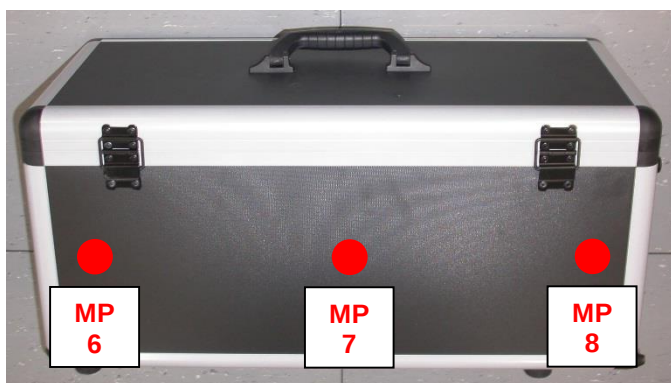
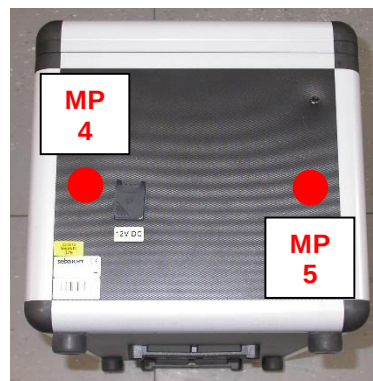
For devices designed for typical desktop applications, such as wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 10 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 10 cm measured from the center of the probe(s) to the edge of the device. Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m. A KDB inquiry is required to determine the applicable exposure limits below 100 kHz.

3.2.4 Description of Measurement

The maximum electric field strength was measured radiated, 10cm surrounding the device. The EUT is measured in TX continuous mode, modulated, under normal conditions. The exposure level tester was set in peak detection mode with max. hold function. Each measurement point (MP) was tested over 6 minutes.

Tested operation mode:	standby(empty box) & charging mode
Operation frequencies:	- TX at 246.38 kHz / 245.64 kHz / 245.48 kHz (COR MS-3 - multi-sensor) - TX at 230.56 kHz / 229.17 kHz (COR PT-3 - power transmitter)

3.2.5 Description of measurement points



3.2.6 Test result

Empty box - lid closed (no other equipment is inside; all coils furthermore active)

Measurement Point (MP)	Measurement distance (cm)	Measurement location / place	Measurement position (probe)	Electric field (V/m)	Limit (V/m PKI)	Delta (dB)
1	10	front view	left	1.0	614	-55.8
2	10	front view	middle	1.4	614	-52.8
3	10	front view	right	2.2	614	-48.9
4	10	right view	left	1.4	614	-52.8
5	10	right view	right	1.1	614	-54.9
6	10	back view	left	1.1	614	-54.9
7	10	back view	middle	1.0	614	-55.8
8	10	back view	right	0.8	614	-57.7
9	10	left view	left	1.0	614	-55.8
10	10	left view	right	0.9	614	-56.7
11	10	top view	left	0.8	614	-57.7
12	10	top view	middle	0.8	614	-57.7
13	10	top view	right	0.8	614	-57.7
14	10	bottom view	left	1.2	614	-54.2
15	10	bottom view	middle	1.1	614	-54.9
16	10	bottom view	right	1.0	614	-55.8

Empty box - lid open (no other equipment is inside; all coils furthermore active)

Measurement Point (MP)	Measurement distance (cm)	Measurement location / place	Measurement position (probe)	Electric field (V/m)	Limit (V/m PKI)	Delta (dB)
1	10	front view	left	1.0	614	-55.8
2	10	front view	middle	1.4	614	-52.8
3	10	front view	right	2.3	614	-48.5
4	10	right view	left	1.5	614	-52.2
5	10	right view	right	1.1	614	-54.9
6	10	back view	left	1.1	614	-54.9
7	10	back view	middle	1.1	614	-54.9
8	10	back view	right	0.9	614	-56.7
9	10	left view	left	1.0	614	-55.8
10	10	left view	right	0.9	614	-56.7
11	10	top view	left	0.9	614	-56.7
12	10	top view	middle	1.2	614	-54.2
13	10	top view	right	1.3	614	-53.5
14	10	bottom view	left	1.2	614	-54.2
15	10	bottom view	middle	1.2	614	-54.2
16	10	bottom view	right	0.9	614	-56.7

Charging mode - lid closed (box is fully equipped)

Measurement Point (MP)	Measurement distance (cm)	Measurement location / place	Measurement position (probe)	Electric field (V/m)	Limit (V/m PKI)	Delta (dB)
1	10	front view	left	2.5	614	-47.8
2	10	front view	middle	2.3	614	-48.5
3	10	front view	right	4.5	614	-42.7
4	10	right view	left	2.3	614	-48.5
5	10	right view	right	1.6	614	-51.7
6	10	back view	left	1.3	614	-53.5
7	10	back view	middle	1.4	614	-52.8
8	10	back view	right	1.2	614	-54.2
9	10	left view	left	1.4	614	-52.8
10	10	left view	right	1.5	614	-52.2
11	10	top view	left	1.2	614	-54.2
12	10	top view	middle	1.2	614	-54.2
13	10	top view	right	1.2	614	-54.2
14	10	bottom view	left	1.8	614	-50.7
15	10	bottom view	middle	1.8	614	-50.7
16	10	bottom view	right	1.6	614	-51.7

Charging mode - open lid (box is fully equipped)

Measurement Point (MP)	Measurement distance (cm)	Measurement location / place	Measurement position (probe)	Electric field (V/m)	Limit (V/m PKI)	Delta (dB)
1	10	front view	left	2.6	614	-47.5
2	10	front view	middle	2.3	614	-48.5
3	10	front view	right	4.5	614	-42.7
4	10	right view	left	2.3	614	-48.5
5	10	right view	right	1.6	614	-51.7
6	10	back view	left	1.4	614	-52.8
7	10	back view	middle	1.3	614	-53.5
8	10	back view	right	1.2	614	-54.2
9	10	left view	left	1.3	614	-53.5
10	10	left view	right	1.5	614	-52.2
11	10	top view	left	1.6	614	-51.7
12	10	top view	middle	1.8	614	-50.7
13	10	top view	right	1.9	614	-50.2
14	10	bottom view	left	1.7	614	-51.2
15	10	bottom view	middle	1.7	614	-51.2
16	10	bottom view	right	1.6	614	-51.7

The requirements are **FULFILLED**.

Remarks:

4 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Last Verif.
CPR 1	ELT-400	01-02/40-13-001	11/02/2017	11/02/2015		
	100 cm ²	01-02/40-13-002	09/02/2017	09/02/2015		
	EP-601	01-02/50-14-013	18/09/2016	04/02/2015		