

TEST REPORT

Applicant: BCS Automotive Interface Solutions, s.r.o.
Address: Jana Nohy 2048 256 01 Benesov
Equipment Type: Wireless Smartphone Connection
Model Name: WSPC2
Brand Name: BCS
FCC ID: 2BCDK-WSPC2
Test Standard: 47 CFR Part 1
(refer to section 3.1)
Sample Arrival Date: Jul. 27, 2023
Test Date: Jul. 28, 2023
Date of Issue: Aug. 08, 2023

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Fan Huimin

Checked by: Xu Rui

Approved by: Tolan Tu
(Testing Director)

Fan Huimin

Xu Rui

Tolan Tu

Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Aug. 08, 2023</u>	<u>Initial Issue</u>

TABLE OF CONTENTS

1	GENERAL INFORMATION.....	3
1.1	Test Laboratory	3
1.2	Test Location	3
2	PRODUCT INFORMATION	4
2.1	Applicant Information	4
2.2	Manufacturer Information.....	4
2.3	General Description for Equipment under Test (EUT).....	4
2.4	Ancillary Equipment.....	4
2.5	Technical Information	5
3	SUMMARY OF TEST RESULT	6
3.1	Test Standards	6
3.2	Radiofrequency Radiation Exposure Limit	7
3.3	Measurement Uncertainty	8
4	DEVICE CATEGORY AND LEVELS LIMITS	9
4.1	Test Setup Photo.....	9
4.2	Measurement procedure.....	9
4.3	Mobile Condition.....	9
4.4	Equipment Approval Considerations item 5.2 of KDB 680106 D01 v03r01.	10
4.5	Test Equipment	10
5	TEST RESULT	11
5.1	H-field.....	11
6	Test Conclusion.....	11
6.1	H-field	11

1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☒ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	BCS Automotive Interface Solutions, s.r.o.
Address	Jana Nohy 2048 256 01 Benesov

2.2 Manufacturer Information

Manufacturer	BCS Automotive Interface Solutions, s.r.o.
Address	Jana Nohy 2048 256 01 Benesov

2.3 General Description for Equipment under Test (EUT)

EUT Name	Wireless Smartphone Connection
Model Name Under Test	WSPC2
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Ancillary Equipment

Note: Not applicable.

2.5 Technical Information

Network and Wireless connectivity	Qi
-----------------------------------	----

The requirement for the following technical information of the EUT was tested in this report:

Operating Frequency	127.58~128.01 kHz	
Antenna Type	Coil Antenna	
About Product	The EUT support the Qi and PMA technology, and they have the same operating frequency.	
Exposure Category	General Population/Uncontrolled Exposure	
Product Type	Mobile Device	
EUT Type	☒ Production unit	☐ Identical prototype

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 1	Practice and Procedure
2	KDB 680106 D01 v03	RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications

3.2 Radiofrequency Radiation Exposure Limit

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW / cm ²)	Averaging time (minutes)
(A) Limits for 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
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for 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
300-1,500			f/1500	30
1,500-100,000			1.0	30
<i>f = frequency in MHz * = Plane-wave equivalent power density</i>				

NOTE:

Limits: According KDB 680106 D01, 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.

General Population/Uncontrolled Exposure: Locations where there is the exposure of individuals who have no knowledge or control of their exposure. General population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Occupational/Controlled Exposure: Locations where there is exposure that may be incurred by persons who are aware of the potential for exposure. In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

3.3 Measurement Uncertainty

Measurement uncertainty evaluation for electric filed strength and magnetic filed strength test

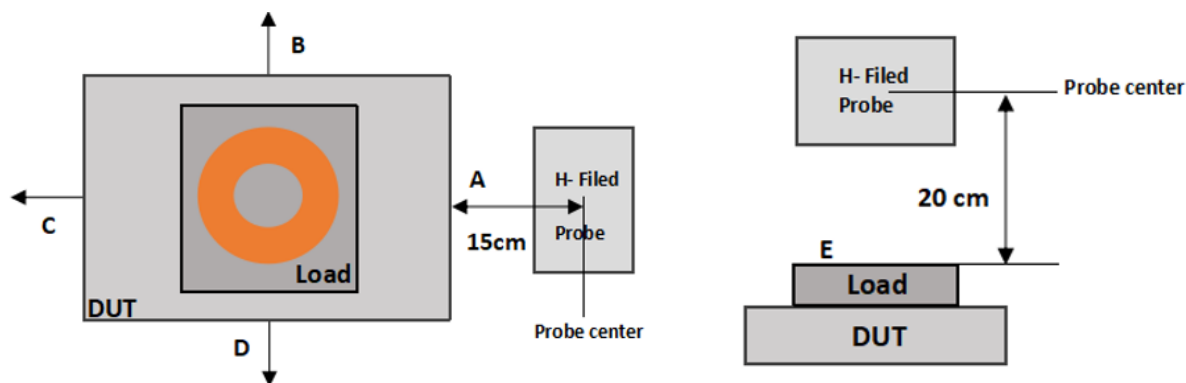
This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Measurement	Value
Magnetic Filed Strength	1.18 dB

4 DEVICE CATEGORY AND LEVELS LIMITS

4.1 Test Setup Photo

Maximum H-field and E-field measurements were made on each of five sides of the EUT that could come in contact with a user. The five sides are defined as follows: A, B, C, D, E. Refer to the test position diagram below.



4.2 Measurement procedure

1. The RF exposure test was performed in anechoic chamber.
2. The measurement probe was placed at test distance 15 cm for Front, Back, Left, Right and 20cm for Top which is between the edge of the charger and the geometric edge of probe.
3. The highest emission level was recorded and compared with limit as soon as measurement of each points were completed.
4. The EUT was measured according the dictates of KDB 680106 D01v03r01.

4.3 Mobile Condition

Probe	Condition	Test Distance (cm) A, B, C, D	Test Distance (cm) E
H-field	Mobile	15	20

4.4 Equipment Approval Considerations item 5.2 of KDB 680106 D01 v03r01.

1. Power transfer frequency is less than 1 MHz.
- The device operates at a frequency 127.58 kHz ~ 128.01 kHz
2. Output power from each primary coil is less than or equal to 15 watts.
- Output power from primary coil 15 watts.
3. The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.
- The transfer system including a charging system with one coils that is able to detect receiver device.
4. Client device is placed directly in contact with the transmitter.
- Client device is placed directly in contact with the transmitter.
5. Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
- According safety guide, on the wireless power sharing function this this DUT should be operate with a minimum distance of 20cm between the DUT and human body, so this EUT only support mobile exposure condition.
6. 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.
- Refer to following test results.
The EUT H-Field Strength levels at 20 cm < 50 % of the MPE H-Field Strength limit
0.259 A/m (Max. at 20 cm) < 0.815 A/m

4.5 Test Equipment

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
PC	Lenovo	E4-ARR	MP1K4PCW	N/A	N/A
Test Software	Narda	WinEP600	N/A	N/A	N/A
H-Field Probe	Narda	ELT B-Field-Probe 100cm ²	M-1775	2022/08/12	2023/08/11
Exposure Level Tester	Narda	ELT-400	O-0362	2022/08/12	2023/08/11
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2021/04/10	2024/04/09
Load	N/A	N/A	N/A	N/A	N/A

5 TEST RESULT

5.1 H-field

Distance(cm)	Unit	EUT Edges					Max. (A/m)	Limit (A/m)	Verdict
		A	B	C	D	E			
15	μT	0.212	0.165	0.243	0.103	/	/	/	/
20	μT	/	/	/	/	0.324	/	/	/
15	A/m	0.170	0.132	0.194	0.082	/	0.194	1.63	Pass
20	A/m	/	/	/	/	0.259	0.259	1.63	Pass

Note: A/m=uT/1.25

6 Test Conclusion

6.1 H-field

Distance (cm)	Worst-case Test Mode	EUT Edge E	Limit (A/m)	50% Limit (A/m)	Verdict
		(A/m)			
20	1	0.259	1.63	0.815	Pass

According KDB 680106 D01v03r01, the EUT is compliant with the 50% of the MPE limits.

Note: Test setup photos please refer the document “BL-EC2360031-AS SAR test setup photo.pdf”.

Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
2. The report without China inspection body and laboratory Mandatory Approval (CMA) mark has no effect of proving to the society.
3. For the report with CNAS mark or A2LA mark, the items marked with "☆" are not within the accredited scope.
4. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the "inspection and testing dedicated stamp" or test report stamp.
5. The test data and results are only valid for the tested samples provided by the customer.
6. This report shall not be partially reproduced without the written permission of the laboratory.
7. Any objection shall be raised to the laboratory within 30 days after receiving the report.

--END OF REPORT--