

TEST REPORT

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu,
Yongin-si, Gyeonggi-do, Korea
Tel: +82-31-339-9970
Fax: +82-31-624-9501

Report No.:
CTK-2024-02328
Page (1) / (10) Pages

1. Applicant

- Name : Hyundai Autoever Corp.
- Address : 510, Teheran-ro, Gangnam-gu, Seoul, Republic of Korea
- Date of Receipt : 2024-06-28

2. Manufacturer

- Name : TEIA Co.,Ltd
- Address : Suite B-303/304, 33 Gwacheon-daero 7-gil, Gwacheon-si, Gyeonggi-do,
Republic of Korea

3. Use of Report : For FCC Certification**4. Test Sample / Model** : Wireless Charging Module for Smart Tag
/ CVN-T10 (HAE-CM-WL-ST-02)**5. Date of Test** : 2024-08-19**6. Test Standard(method) used** : FCC 47 CFR part 1 subpart I 1.1310**7. Testing Environment:** Temp.: (24 ± 1) °C, Humidity: (39 ± 3) % R.H**8. Test Results** : Compliance**9. Location of Test** : ☒ Permanent Testing Lab ☐ On Site Testing
(Address : 5, Dongbu-ro 221beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea)

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This report cannot be reproduced or copied without the written consent of CTK.

Approval	Tested by	Technical Manager
	Bong-jun Jang: (Signature)	Young-taek Lee: (Signature)

2024-08-20

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Page (2) / (10) Pages

REPORT REVISION HISTORY

Date	Revision	Page No
2024-08-20	Issued (CTK-2024-02328)	all

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CONTENTS

1. General Description.....	4
1.1 Client Information	4
1.2 Product Information.....	4
2. Accreditations	5
2.1 Laboratory Accreditations and Listings	5
2.2 Calibration Details of Equipment Used for Measurement	5
3. RF Exposure Assessment	6
3.1 Maximum Permissible Exposure.....	6
APPENDIX A – Test Equipment Used For Tests	10



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Page (4) / (10) Pages

1. General Description

1.1 Client Information

Company	Hyundai Autoever Corp.
Contact Point	510 Teheran-ro, Gangnam-gu, Seoul, Republic of Korea
Contact Person	Name : Yun Su Shim E-mail : ysshim@hyundai-autoever.com

1.2 Product Information

FCC ID	2BFPQ-CVN-T10
Product Description	Wireless Charging Module for Smart Tag
Model name	CVN-T10 (HAE-CM-WL-ST-02)
Variant Model name	-
Charging Frequency	128 kHz
Power Transfer Method	Magnetic induction and only single primary coil coupling secondary coil
Output power from each primary coil	8 W
That may have multiple primary coils	No
Antenna Type	Loop Coil
Charging Method	Directly contact
Power Source	DC 12 V



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Page (5) / (10) Pages

2. Accreditations

2.1 Laboratory Accreditations and Listings

Country	Agency	Registration Number
USA	FCC	805871
CANADA	ISED	CN : 8737A CAB ID : KR0025
KOREA	NRRA	KR0025

2.2 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.



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Page (6) / (10) Pages

3. RF Exposure Assessment

3.1 Maximum Permissible 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

Note 1 : f = frequency in MHz; *Plane-wave equivalent power density
Note 2 : For the applicable limit, see FCC 1.1310

Test method

- Performed aggregate both leakage E-field and H-field at surrounding the device from all simultaneous transmitting coils.
- During testing, the EUT was placed on a non-conductive table top and the ancillary equipment (e.g., WPT Load) was placed on the EUT for charging. Maximum E-field and H-field measurement were tested 15cm from each side of the EUT. Along the side of the EUT to side of E-field probe and H-field probe were positioned at the location to search maximum field strength.



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Report No.:
CTK-2024-02328
Page (7) / (10) Pages

Test Condition

Ancillary Equipment	Condition
WPT Load	Charging Mode

Test Frequency

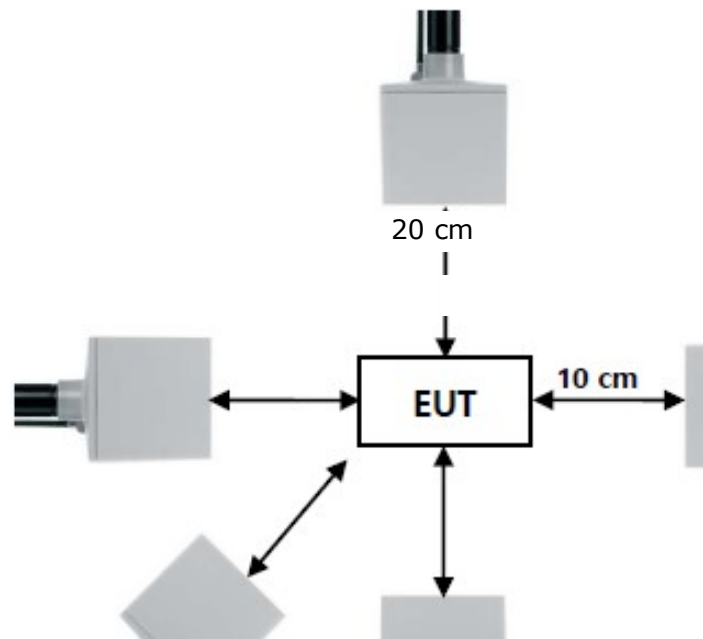
Charging Frequencies
128 kHz

Peripheral Devices

No.	Device	Manufacturer	Model No.	Serial No.
1	WPT Load	-	-	-

Note : WPT load was provided by manufacturer.

Test Setup





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Page (8) / (10) Pages

Equipment approval considerations item 5.2 of KDB 680106 D01 v03r01

※ Equipment approval considerations

- (1) Power transfer frequency is less than 1 MHz.
 - Meet the requirements.
- (2) Output power from each primary coil is less than or equal to 15 watts.
 - Meet the requirements.
- (3) Client device is placed directly in contact with the transmitter.
 - Meet the requirements.
- (4) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
 - Not Applicable.
- (5) The aggregate H-field strengths at 20 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.
 - Meet the requirements.
- (6) 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.
 - Meet the requirements.



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Report No.:
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Page (9) / (10) Pages

Test results

Maximum Permissible Exposure		
Probe from EUT Side	E-field (V/m)	H-field (A/m)
Front	0.460	0.053
Rear	0.426	0.051
Left	0.460	0.051
Right	0.496	0.057
Top	0.379	0.055
Bottom	0.698	0.054
Limit (50% Limit)	614 (307)	1.63 (0.815)

Maximum Measurement Uncertainty

The value of the measurement uncertainty for the measurement of each parameter.
Coverage factor $k = 2$, Confidence levels of 95 %

item	Uncertainty
H-field	15 % (C.L. : Approx. 95 %, $k = 2$)
E-field	15 % (C.L. : Approx. 95 %, $k = 2$)

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Page (10) / (10) Pages

APPENDIX A – Test Equipment Used For Tests

No.	Name of Equipment	Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date
1	Electric and Magnetic Field Analyzer	Narda	EHP-200AC	170WX91010	2023-10-25	2024-10-25
2	EHP200-TS Software	Narda	EHP200-TS	650.000.207	-	-
3	Note Computer	Samsung Electronics Co., Ltd.	NT550P5C	JATQ91ID500157W	-	-

-END-