

# 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

**CTK Co., Ltd.**

**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 (2) / (10) Pages

## REPORT REVISION HISTORY

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

***This report shall not be reproduced except in full, without the written approval of CTK Co., Ltd. This document may be altered or revised by CTK Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by CTK Co., Ltd. will constitute fraud and shall nullify the document.***

## 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



**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 (4) / (10) Pages

## 1. General Description

### 1.1 Client Information

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

### 1.2 Product Information

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



**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 (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.



**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 (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 <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1,500	-	-	f/300	6
1,500-100,000	-	-	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
<b>0.3-1.34</b>	<b>614</b>	<b>1.63</b>	*100	30
1.34-30	824/f	2.19/f	*180/f <sup>2</sup>	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.



**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 (7) / (10) Pages

## Test Condition

Ancillary Equipment	Condition
WPT Load	Charging Mode

## Test Frequency

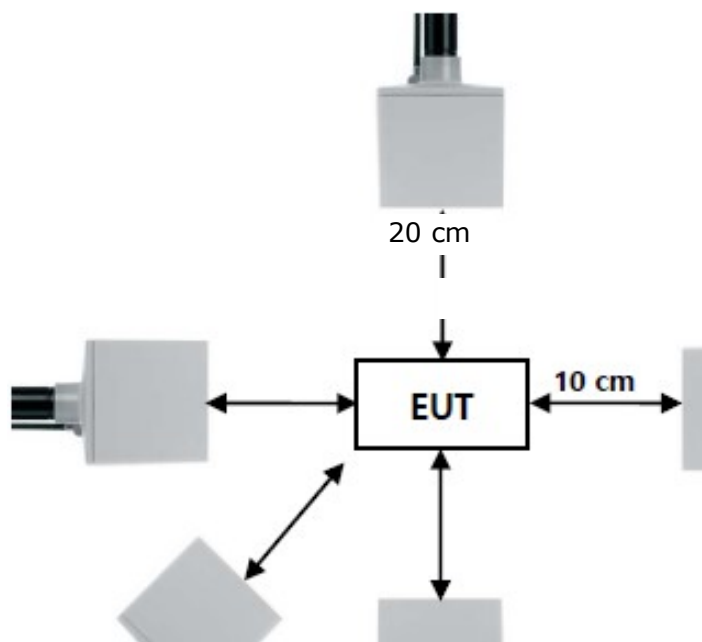
Charging Frequencies
128 kHz


## Peripheral Devices

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

Note : WPT load was provided by manufacturer.

## Test Setup



	<b>CTK Co., Ltd.</b> (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 (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.





**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 (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)	<b>614 (307)</b>	<b>1.63 (0.815)</b>

## 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 %, $k = 2$ )



**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 (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-