



TEST REPORT

FCC MPE Test for VN551ZZAN
Certification

APPLICANT

Hyundai Mobis Co., Ltd

REPORT NO.

HCT-RF-2505-FC072

DATE OF ISSUE

May 16, 2025

Tested by
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Technical Manager
Jong Seok Lee



Accredited by KOLAS, Republic of KOREA

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Applicant	Hyundai Mobis Co., Ltd 203, Teheran-ro, Gangnam-gu, Seoul, Republic of Korea
Product Name	Car infotainment system
Model Name	VN551ZZZAN
FCC ID	TQ8-VN551ZZZAN
Frequency range	2 402 MHz – 2 480 MHz (Bluetooth, Bluetooth LE) 2 412 MHz ~ 2 462 MHz (WLAN) 5 180 MHz ~ 5 240, 5 745 ~ 5 805 MHz (UNII)
Date of Test	February 25, 2025 ~ May 16, 2025
Test Standard Used	§ 1.1310, § 2.1091
Location of Test	<input checked="" type="checkbox"/> Permanent Testing Lab <input type="checkbox"/> On Site Testing Lab (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)
Test Results	PASS

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	May 16, 2025	Initial Release

Notice

Content

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.

Information provided by the applicant is marked **.

Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

This test report provides test result(s) under the scope accredited by the Korea Laboratory

Accreditation Scheme (KOLAS), which signed the ILAC-MRA.

(KOLAS (KS Q ISO/IEC 17025) Accreditation No. KT197)

This test report provides test result(s) under the lab's valid Scope of Accreditation by A2LA (American Association for Laboratory Accreditation), signatory of the ILAC-MRA.

(A2LA (ISO/IEC 17025) Certificate No. 4114.01)

RF Exposure Statement

1. Limit

According to §1.1310, §2.1091 RF exposure is calculated.

(B) Limits for General Population/Uncontrolled Exposures

Frequency range (MHz)	Electric field Strength (V/m)	Magneticfield Strength (A/m)	Powerdensity (mW/cm ²)	Averagingtime (minutes)
0.3 - 1.34.....	614	1.63	^(a) (100)	30
1.34 - 30.....	824/f	2.19/f	^(a) (180/f ²)	30
30 - 300.....	27.5	0.073	0.2	30
300 - 1500.....	f/1500	30
1500 - 100.000.....	1.0	30

F = frequency in MHz

^(a) = Plane-wave equivalent power density

2. Maximum Permissible Exposure Prediction

Prediction of MPE limit at a given distance

$$S = PG/4\pi R^2$$

S = Power density

P = Power input to antenna

G = Power gain to the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

3. RESULTS

3-1. Bluetooth

Average output Power at antenna input terminal	3.00	dBm
Average output Power at antenna input terminal	1.995	mW
Prediction distance	20.00	cm
Prediction frequency	2402 – 2480	MHz
Antenna Gain(typical)	-1.340	dBi
Antenna Gain(numeric)	0.735	-
Power density at prediction frequency(S)	0.0003	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

3-2. Bluetooth LE

Average output Power at antenna input terminal	8.00	dBm
Average output Power at antenna input terminal	6.310	mW
Prediction distance	20.00	cm
Prediction frequency	2402 – 2480	MHz
Antenna Gain(typical)	-1.340	dBi
Antenna Gain(numeric)	0.735	-
Power density at prediction frequency(S)	0.0009	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

3-3. DTS

Average output Power at antenna input terminal	14.00	dBm
Average output Power at antenna input terminal	25.119	mW
Prediction distance	20.00	cm
Prediction frequency	2412 – 2462	MHz
Antenna Gain(typical)	0.190	dBi
Antenna Gain(numeric)	1.045	-
Power density at prediction frequency(S)	0.0052	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

3-4. UNII

Average output Power at antenna input terminal	9.00	dBm
Average output Power at antenna input terminal	7.943	mW
Prediction distance	20.00	cm
Prediction frequency	5180 - 5240, 5745 - 5805	MHz
Antenna Gain(typical)	6.060	dBi
Antenna Gain(numeric)	4.036	-
Power density at prediction frequency(S)	0.0064	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

Simultaneous transmission operations

Worst Case: Simultaneous MPE 20cm is

$$\sum_{i=1}^n \frac{\text{Power density } i}{\text{Limit } i} < 1$$

Simultaneous MPE

- 2.4G WLAN (0.0052) + BT LE(0.0009) = 0.0061 < 1
- 5 GHz WLAN (0.0064) + BT LE(0.0009) = 0.0073 < 1