

TEST REPORT

of


FCC CFR 47 part 1, 1.1307(b), 1.1310

FCC ID: TQ8-ADB10F6AN

Equipment Under Test : DISPLAY CAR SYSTEM
Model Name : ADB10F6AN
Variant Model Name : ADB11F6GG, ADB11F6GN, ADB11F6GL, ADB10F6GB
ADB10F6GP, ADB11F6MG, ADB10F6GU
Applicant : Hyundai Mobis Co., Ltd.
Manufacturer : Hyundai Mobis Co., Ltd.
Date of Receipt : 2019.05.14
Date of Test(s) : 2019.05.14 ~ 2019.05.27
Date of Issue : 2019.06.18

In the configuration tested, the EUT complied with the standards specified above.

Tested By:



Murphy Kim

Date: 2019.06.18

Technical
Manager:



Jungmin Yang

Date: 2019.06.18

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RTT5041-19(2019.04.24)(1)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

- 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- Designation number: KR0150

All SGS services are rendered in accordance with the applicable SGS conditions of service available on request and accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>.

Phone No. : +82 31 688 0901

Fax No. : +82 31 688 0921

1.2. Details of Applicant

Applicant : Hyundai Mobis Co., Ltd.

Address : 203, Teheran-ro, Gangnam-gu, Seoul, 06141, South Korea

Contact Person : Choe, Seung-Hoon

Phone No. : +82 31 260 0098

1.3. Details of Manufacturer

Company : Same as applicant

Address : Same as applicant

1.4. Description of EUT

Kind of Product	DISPLAY CAR SYSTEM
Model Name	ADB10VEGN
Variant Model Names	ADB11F6GG, ADB11F6GN, ADB11F6GL, ADB10F6GB, ADB10F6GP, ADB11F6MG, ADB10F6GU
Power Supply	DC 14.4 V
Frequency Range	2 402 MHz ~ 2 480 MHz (Bluetooth)
Modulation Technique	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels	79 channel (Bluetooth)
Antenna Type	PCB Pattern antenna
Antenna Gain	1.44 dBi

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1.5. Test Report Revision

Revision	Report number	Date of Issue	Description
0	F690501/RF-RTL013904	2019.06.04	Initial
1	F690501/RF-RTL013904-1	2019.06.18	Revised information of variant models

1.6. Information of Variant Models

Model	Model Name	BT	WIFI	HD	RDS	GPS	AA/CP	Rear Camera	AMP
Basic Model	ADB10F6AN	O	X	O	X	O	O	O	Interior
Variant Models	ADB11F6GG	O	X	X	X	O	O	O	Interior
	ADB11F6GN	O	X	X	X	O	O	O	Interior
	ADB11F6GL	O	X	X	X	O	O	O	Interior
	ADB10F6GB	O	X	X	X	O	O	O	Interior
	ADB10F6GP	O	X	X	X	O	O	O	Interior
	ADB11F6MG	O	X	X	O	O	O	O	Interior
	ADB10F6GU	O	X	X	X	O	O	O	Interior

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2. RF Exposure Evaluation

2.1. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time
(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

2.1.1. Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

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2.1.2. Test Result of RF Exposure Evaluation

Test Item : RF Exposure Evaluation Data
Test Mode : Normal Operation

2.1.3. Output Power into Antenna & RF Exposure Evaluation Distance

Bluetooth

- Maximum tune up tolerance

Frequency Range (MHz)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm ²)	Limits (mW/cm ²)
2 402 ~ 2 480	4.0	1.44	0.000 696	1

Note;

- The power density Pd (5th column) at a distance of 20 cm calculated from the friis transmission formula is far below the limit of 1 mW/cm².
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
- This equipment should be installed and operated with minimum 20 cm between the radiator and your body.
- The antenna gain of this transmitter is less than 6 dB i and must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the FCC.

- End of the Test Report -

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