MPE TEST REPORT

of

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

FCC ID : TQ8- AC110GDGN

Equipment Under Test	:	DIGITAL CAR AUDIO SYSTEM
Model Name	:	AC110GDGN(Alt. : AC110GDGG, AC110GDGE, AC110GDGL, AC112GDGG, AC110GDCG)
Applicant	:	Hyundai MOBIS Co., Ltd.
Manufacturer	:	Tianjin Mobis Automotive Parts Co., Ltd.
Date of Test(s)	:	2015.01.26 ~ 2015.01.29
Date of Issue	:	2015.02.03

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

Tested By: Patrick Kang **Date:** 2015.02.03

Approved By: Hyunchae You **Date:** 2015.02.03

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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)
-Wireless Div. 2FL, 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 435-837
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.
Telephone : +82 31 428 5700
FAX : +82 31 427 2370

1.2. Details of Applicant

Applicant : Hyundai MOBIS Co., Ltd.
Address : 203, Teheran-ro, Gangnam-gu, Seoul, 135-977, Korea
Contact Person : Choi, Seung-Hoon
Phone No. : +82 31 260 0098

1.3. Description of EUT

Kind of Product	DIGITAL CAR AUDIO SYSTEM
Model Name	AC110GDGN(Alt. : AC110GDGG, AC110GDGE, AC110GDGL, AC112GDGG, AC110GDCG)
Power Supply	DC 14.4 V (Vehicle Battery)
Frequency Range	2 402 ㎒ ~ 2 480 ㎒
Modulation Technique	GFSK, π/4DQPSK, 8DPSK
Number of Channels	79 channels
Antenna Type	Internal Type
Antenna Gain	3.5 ㏈i

1.4. Test report revision

Revision	Report number	Date of Issue	Description
0	F690501/RF-RTL008367	2015.02.03	Initial

1.5. Alternative models

Model name	Information
AC110GDGN	- Basic model - H/W : Bluetooth(o), DAB(o), Voice recognition(x) - S/W : RDS(o), FM/AM BAND(Europe BAND) - Print : Europe
AC110GDGG	- Same to basic model, but it is different below function. - H/W : Bluetooth(o), DAB(x), Voice recognition(x) - S/W : RDS(x), FM/AM BAND(Normal BAND) - Print : normal
AC110GDGE	- Same to basic model, but it is different below function. - H/W : Bluetooth(o), DAB(x), Voice recognition(x) - S/W : RDS(x), FM/AM BAND(Europe BAND) - Print : normal
AC110GDGL	- Same to basic model, but it is different below function. - H/W : Bluetooth(o), DAB(x), Voice recognition(x) - S/W : RDS(x), FM/AM BAND(Colombia BAND) - Print : normal
AC112GDGG	- Same to basic model, but it is different below function. - H/W : Bluetooth(o), DAB(x), Voice recognition(x) - S/W : RDS(o), FM/AM BAND(Normal BAND) - Print : normal
AC110GDCG	- Same to basic model, but it is different below function. - H/W : Bluetooth(o), DAB(x), Voice recognition(x) - S/W : RDS(x), FM/AM BAND(Normal BAND) - Print : normal

2. RF Exposure Evaluation

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

According to FCC 1.1310 : The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (㎒)	Electric Field Strength(V/m)	Magnetic Field Strength (A/m)	Power Density (㎽/㎠)	Average Time
(A) Limits for Occupational /Control Exposures				
300 – 1 500	--	--	F/300	6
1 500 – 100 000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300 – 1 500	--	--	F/1500	30
1 500 – 100 000	**--**	**--**	**1**	**30**

2.1.1. Friis transmission formula: Pd = (Pout*G)/(4*pi*R^2)

Where Pd = power density in ㎽/㎠

Pout = output power to antenna in ㎽

G = gain of antenna in linear scale

Pi = 3.141 6

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

Pd the limit of MPE, 1 ㎽/㎠. 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.

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

Channel	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	LIMITS (㎽/㎠)
Maximum tune up tolerance	4.00	3.50	0.001 119	1

Note :
1. The power density Pd (5th column) at a distance of 20 ㎝ calculated from the friis transmission formula is far below the limit of 1 ㎽/㎠.