

# TEST REPORT

of

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

FCC ID: TQ8-ACB11H6MG

Equipment Under Test : DIGITAL CAR AUDIO SYSTEM  
Model Name : ACB11H6MG  
Variant Model Name : ACB11H6GN, ACB11H6GE, ACB15H6GG, ACB11H6EE,  
ACB13H6GG, ACB01H6MG, ACB01H6GN, ACB01H6GE,  
ACB03H6GG, ACB01H6EE, ACB01H6GG  
Applicant : Hyundai MOBIS Co., Ltd.  
Manufacturer : Hyundai MOBIS Co., Ltd.  
Date of Receipt : 2017.02.06  
Date of Test(s) : 2017.02.20 ~ 2017.03.01  
Date of Issue : 2017.03.03

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

Tested By:

  
Patrick Kang

Date:

2017.03.03

Technical  
Manager:

  
Logan Lee

Date:

2017.03.03

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SGS Korea Co., Ltd. (Gunpo Laboratory) 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807 <http://www.sgsgroup.kr>

RTT5041-20(2015.10.01)(3)

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)

-Wireless Div. 2FL, 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807

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, Korea

Contact Person : Hyun, Sae-Rom

Phone No. : +82 31 260 2716

### 1.3. Description of EUT

Kind of Product	DIGITAL CAR AUDIO SYSTEM
Model Name	ACB11H6MG
Variant Model Name	ACB11H6GN, ACB11H6GE, ACB15H6GG, ACB11H6EE, ACB13H6GG, ACB01H6MG, ACB01H6GN, ACB01H6GE, ACB03H6GG, ACB01H6EE, ACB01H6GG
Power Supply	DC 12.0 V
Frequency Range	2 402 MHz ~ 2 480 MHz (Bluetooth)
Modulation Technique	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels	79 channels
Antenna Type	Dielectric Chip Antenna
Antenna Gain	-0.10 dBi

### 1.4. Test report revision

Revision	Report number	Date of Issue	Description
0	F690501/RF-RTL010884	2017.03.03	Initial

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### 1.5. Information of Variant model

Model name		Bluetooth	USB/AUX	RDS	FM/AM BAND
Basic model	ACB11H6MG	O	O	X	General BAND
Variant model	ACB11H6GN	O	O	X	North America BAND
	ACB11H6GE	O	O	X	Europe BAND
	ACB15H6GG	O	O	O	General BAND
	ACB11H6EE	O	O	O	Europe BAND
	ACB13H6GG	O	O	X	General BAND
	ACB01H6MG	X	O	X	General BAND
	ACB01H6GN	X	O	X	North America BAND
	ACB01H6GE	X	O	X	Europe BAND
	ACB03H6GG	X	O	O	General BAND
	ACB01H6EE	X	O	O	Europe BAND
	ACB01H6GG	X	O	X	General BAND

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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 <sup>2</sup> )	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 <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) 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 <sup>2</sup>	30
30 – 300	27.5	0.073	0.2	30
300 – 1 500	-	-	f/1500	30
<b><u>1 500 – 100 000</u></b>	-	-	<b><u>1.0</u></b>	<b><u>30</u></b>

#### 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/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

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

$P_d$  the limit of MPE, 1 mW/cm<sup>2</sup>. 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

Operating Frequency (MHz)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm <sup>2</sup> )	Limits (mW/cm <sup>2</sup> )
2 402 ~ 2480	4	-0.10	0.000 488	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/cm<sup>2</sup>.
- 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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