

TEST REPORT

of

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

FCC ID: TQ8-ACB10H6GG

Equipment Under Test : DIGITAL CAR AUDIO SYSTEM

Model Name : ACB10H6GG

Variant Model Name : ACB10H6MG, ACB10H6GN, ACB10H6GE, ACB12H6MG, ACB14H6GG, ACB10H6EE, ACB11H6GG, ACB00H6MG, ACB00H6GN, ACB00H6GE, ACB02H6MG, ACB02H6GG, ACB00H6EE, ACB00H6GG

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:



Date:

2017.03.03

Patrick Kang

Technical
Manager:



Date:

2017.03.03

Logan Lee

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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

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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 | ACB10H6GG |
| Variant Model Name | ACB10H6MG, ACB10H6GN, ACB10H6GE, ACB12H6MG, ACB14H6GG, ACB10H6EE, ACB11H6GG, ACB00H6MG, ACB00H6GN, ACB00H6GE, ACB02H6MG, ACB02H6GG, ACB00H6EE, ACB00H6GG |
| Power Supply | DC 12.0 V |
| Frequency Range | 2 402 MHz ~ 2 480 MHz (Bluetooth) |
| Modulation Technique | GFSK, π/4DQPSK, 8DPSK |
| Number of Channels | 79 channels |
| Antenna Type | Dielectric Chip Antenna |
| Antenna Gain | -0.10 dB i |

1.4. Test report revision

| Revision | Report number | Date of Issue | Description |
|----------|----------------------|---------------|-------------|
| 0 | F690501/RF-RTL010883 | 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 | ACB10H6GG | O | O | X | General BAND |
| Variant model | ACB10H6MG | O | O | X | General BAND |
| | ACB10H6GN | O | O | X | North America BAND |
| | ACB10H6GE | O | O | X | Europe BAND |
| | ACB12H6MG | O | O | O | General BAND |
| | ACB14H6GG | O | O | O | General BAND |
| | ACB10H6EE | O | O | O | Europe BAND |
| | ACB11H6GG | O | O | X | General BAND |
| | ACB00H6MG | X | O | X | General BAND |
| | ACB00H6GN | X | O | X | North America BAND |
| | ACB00H6GE | X | O | X | Europe BAND |
| | ACB02H6MG | X | O | O | General BAND |
| | ACB02H6GG | X | O | O | General BAND |
| | ACB00H6EE | X | O | O | Europe BAND |
| | ACB00H6GG | 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 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 |
| <u>1 500 – 100 000</u> | - | - | <u>1.0</u> | <u>30</u> |

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^2

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^2 . 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 ²) | Limits (mW/cm ²) |
|---------------------------|--|---------------------|--|------------------------------|
| 2 402 ~ 2 480 | 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/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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