HCT CO.,LTD.

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# FCC MPE REPORT

## Certification

**Applicant Name:**
HYUNDAI MOBIS CO., LTD.

**Address:**
203, Teheran-ro, Gangnam-gu, Seoul, 135-977, South Korea

**Date of Issue:**
November 16, 2018

**Test Site/Location:**
HCT CO., LTD., 74,Seoicheon-ro 578beon-gil,Majang-myeo,Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

**Report No.:** HCT-RF-1811-FC002

| | |
|---|---|
| **FCC ID:** | **TQ8-ADBB0S9AN** |
| **APPLICANT:** | **HYUNDAI MOBIS CO., LTD.** |

| | |
|---|---|
| **Model:** | ADBB0S9AN |
| **EUT Type:** | Car Audio System |
| **Frequency Range:** | 2402 MHz - 2480 MHz (Bluetooth) |

The measurements shown in this report were made in accordance with the procedures specified in §2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

**HCT CO., LTD.** Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

**Report prepared by : Se Wook Park**
**Engineer of Telecommunication testing center**

**Approved by : Jong Seok Lee**
**Manager of Telecommunication testing center**

# Version

| TEST REPORT NO. | DATE | DESCRIPTION |
|---|---|---|
| HCT-RF-1811-FC002 | November 16, 2018 | - First Approval Report |
| | | |
| | | |
| | | |

# RF Exposure Statement

## 1. LIMITS

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

(B) Limits for General Population/Uncontrolled Exposures

| Frequency range (MHz) | Electric field Strength (V/m) | Magnetic field Strength (A/m) | Power density ($mW/cm^2$) | Averaging time (minutes) |
|---|---|---|---|---|
| 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 - 1500 | ..... | ..... | f/1500 | 30 |
| 1500 - 100.000 | ..... | ..... | 1.0 | 30 |

F = frequency in MHz
* = 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 of 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 | 4.000 | dBm |
| Average output Power at antenna input terminal | 2.512 | mW |
| Prediction distance | 20.00 | cm |
| Prediction frequency | 2402 - 2480 | MHz |
| Antenna Gain(typical) | 3.60 | dBi |
| Antenna Gain(numeric) | 2.291 | - |
| Power density at prediction frequency( S) | 0.001145 | $mW/cm^2$ |
| MPE limit for uncontrolled exposure at prediction frequency | 1.00 | $mW/cm^2$ |

2.1091

| | | |
|---|---|---|
| EIRP | 7.60 | (dBm) |
| ERP | 5.45 | (dBm) |
| ERP | 0.004 | (W) |
| ERP Limit | 3.0 | (W) |
| MARGIN | 29.32 | (dB) |

3-2. LTE Band 13 (Worst case)

| | | |
|---|---|---|
| Average output Power at antenna input terminal | 25.00 | dBm |
| Average output Power at antenna input terminal | 316.228 | mW |
| Prediction distance | 20.00 | cm |
| Prediction frequency | 777 - 787 | MHz |
| Antenna Gain(typical) | 1.440 | dBi |
| Antenna Gain(numeric) | 1.393 | - |
| Power density at prediction frequency( S) | 0.0876 | $mW/cm^2$ |
| MPE limit for uncontrolled exposure at prediction frequency | 0.5180 | $mW/cm^2$ |

2.1091

| | | |
|---|---|---|
| EIRP | 26.44 | (dBm) |
| ERP | 24.29 | (dBm) |
| ERP | 0.27 | (W) |
| ERP Limit | 1.50 | (W) |
| MARGIN | 7.47 | (dB) |

3-3. CDMA BC0 (Worst case)

| | | |
|---|---|---|
| Average output Power at antenna input terminal | 26.00 | dBm |
| Average output Power at antenna input terminal | 398.107 | mW |
| Prediction distance | 20.00 | cm |
| Prediction frequency | 824 - 849 | MHz |
| Antenna Gain(typical) | 1.870 | dBi |
| Antenna Gain(numeric) | 1.538 | - |
| Power density at prediction frequency( S) | 0.1218 | $mW/cm^2$ |
| MPE limit for uncontrolled exposure at prediction frequency | 0.5493 | $mW/cm^2$ |

2.1091

| | | |
|---|---|---|
| EIRP | 27.87 | (dBm) |
| ERP | 25.72 | (dBm) |
| ERP | 0.37 | (W) |
| ERP Limit | 1.50 | (W) |
| MARGIN | 6.04 | (dB) |

->Simultaneous MPE 20cm is Bluetooth (0.001145/1.0) + LTE Band 13 (0.0876/0.5180) + CDMA BC0 (0.1218/0.5493) = 0.210545 < 1