

FCC MPE REPORT

FCC Certification

Applicant Name:
HYUNDAI MOBIS CO., LTD.**Address:**
203, Teheran-ro, Gangnam-gu, Seoul, Korea (135-977)**Date of Issue:**
September 21, 2016
Test Site/Location:
HCT CO., LTD., 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA
Report No.: HCT-R-1609-E009
HCT FRN: 0005866421
IC Recognition No.: 5944A-5**FCC ID** : TQ8-ATBB0J0AN**APPLICANT** : HYUNDAI MOBIS CO., LTD.**Model(s):** ATBB0J0AN**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)



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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1609-E009	September 21, 2016	- 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

BT Only

Max Average output Power at antenna input terminal	4.000	dBm
Max Average output Power at antenna input terminal	2.512	mW
Prediction distance	20.000	cm
Prediction frequency	2402.000	MHz
Antenna Gain(typical)	2.290	dBi
Antenna Gain(numeric)	1.694	-
Power density at prediction frequency(S)	0.001	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm ²

CDMA Only

Max Average output Power at antenna input terminal	26.000	dBm
Max Average output Power at antenna input terminal	398.107	mW
Prediction distance	20.000	cm
Prediction frequency	824.700	MHz
Antenna Gain(typical)	6.000	dBi
Antenna Gain(numeric)	3.981	-
Power density at prediction frequency(S)	0.315	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.550	mW/cm ²

PCS CDMA Only

Max Average output Power at antenna input terminal	26.000	dBm
Max Average output Power at antenna input terminal	398.107	mW
Prediction distance	20.000	cm
Prediction frequency	1851.250	MHz
Antenna Gain(typical)	6.000	dBi
Antenna Gain(numeric)	3.981	-
Power density at prediction frequency(S)	0.315	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm ²

LTE B4 Only

Max Average output Power at antenna input terminal	25.000	dBm
Max Average output Power at antenna input terminal	316.228	mW
Prediction distance	20.000	cm
Prediction frequency	1710.700	MHz
Antenna Gain(typical)	6.000	dBi
Antenna Gain(numeric)	3.981	-
Power density at prediction frequency(S)	0.250	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm ²

LTE B13 Only

Max Average output Power at antenna input terminal	25.000	dBm
Max Average output Power at antenna input terminal	316.228	mW
Prediction distance	20.000	cm
Prediction frequency	779.500	MHz
Antenna Gain(typical)	6.000	dBi
Antenna Gain(numeric)	3.981	-
Power density at prediction frequency(S)	0.250	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.520	mW/cm ²

Simultaneous transmission operations

1. The power density level at 20 cm is **0.315 mW/cm²**, which is below the uncontrolled exposure limit of **0.550 mW/cm²** at **CDMA**.
2. The power density level at 20 cm is **0.001 mW/cm²**, which is below the uncontrolled exposure limit of **1.0 mW/cm²** at **Bleutooth**.

->Simultaneous MPE 20cm is $(0.315 /0.550) + (0.001/1.0) = 0.574 < 1$
 * The Worst case CDMA : 26 dBm , Bluetooth: 4 dBm is Higest Power.