MPE TEST REPORT

of

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

FCC ID: TQ8-TS310B1AX

Equipment Under Test	:	Premium Gen 2.0 I-BOX
Model Name	:	TS310B1AX
Serial No.	:	N/A
Applicant	:	HYUNDAI MOBIS CO., LTD.
Manufacturer	:	HYUNDAI MOBIS CO., LTD.
Date of Test(s)	:	2013.09.09
Date of Issue	:	2013.09.09

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

Tested By: **Date** **2013.09.09**

Harim Lee

Approved By: **Date** **2013.09.09**

Feel Jeong

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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)
- Wireless Div. 3FL, 18-34, Sanbon-dong, Gunpo-si, Gyeonggi-do, Korea 435-040

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 2371

1.2. Details of Applicant

Applicant : HYUNDAI MOBIS CO., LTD.
Address : 80-9, Mabook-Dong, Giheung-Gu, Yongin-shi, Gyunggi-Do, 446-912, South Korea
Contact Person : Kim, Jong-Tae
Phone No. : +82 31 260 0092

1.3. Description of EUT

Kind of Product	Premium Gen 2.0 I-BOX
Model Name	TS310B1AX
Serial Number	N/A
Power Supply	DC 14.4 V (Vehicle Battery)
Rated Power	CDMA800: 24 ㏈m CDMA1 900: 24 ㏈m
Frequency Range	CDMA800: 824.70 ㎒ ~ 848.31 ㎒ CDMA1 900: 1 851.25 ㎒ ~ 1 908.75 ㎒
Antenna Gain	CDMA800: 2.26 ㏈i CDMA1 900: 3.61 ㏈i
Support Mode	1xRTT, 1xEV-DO
Emission Designator	CDMA800 (1xRTT): 1M27F9W CDMA1 900 (1xRTT): 1M28F9W CDMA800 (1xEV-DO): 1M27F9W CDMA1 900 (1xEV-DO): 1M27F9W

1.4. Test report revision

Revision	Report number	Description
0	F690501/RF-RTL006944	Initial

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/1 500**	**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 = 3.1416

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

Mode: CDMA800 1xRTT

Mode	Channel Frequency (㎒)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	LIMITS (㎽/㎠)
Maximum tune up tolerance	848.31	25.50	2.26	0.118 776	0.565 54

Mode: CDMA1 900 1xRTT

Mode	Channel Frequency (㎒)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	LIMITS (㎽/㎠)
Maximum tune up tolerance	1 851.25	25.50	3.61	0.162 080	1

Mode: CDMA800 1xEV-DO

Mode	Channel Frequency (㎒)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	LIMITS (㎽/㎠)
Maximum tune up tolerance	848.31	25.50	2.26	0.118 776	0.565 54

Mode: CDMA1900 1xEV-DO

Mode	Channel Frequency (㎒)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	LIMITS (㎽/㎠)
Maximum tune up tolerance	1 851.25	25.50	3.61	0.162 080	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 .