MPE TEST REPORT

OF

FCC Per 47 CFR 2.1091(b)

FCC ID: R72IM401

Equipment Under Test	**:**	**Private Land Mobile Radio for Vehicle(UHF)**
Model Name	**:**	**IM401**
Serial No.	**:**	**N/A**
Applicant	**:**	**E-Tech Co., Ltd.**
Manufacturer	**:**	**E-Tech Co., Ltd.**
Date of Test(s)	**:**	**2007-01-26**
Date of Issue	**:**	**2007-02-02**

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

Tested By:  **Date** **2007-02-02**

Feel Jeong

Approved By  **Date** **2007-02-02**

Albert Lim

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1. General Information

1.1. Testing Laboratory

SGS Testing Korea Co., Ltd.
Wireless Div. 2F, 18-34, Sanbon-dong, Gunpo-city, Gyeonggi-do, Korea 435-040
www.electrolab.kr.sgs.com
Telephone : +82 +31 428 5740
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1.2. Details of Applicant

Applicant : E-Tech Co., Ltd.
Address : #403-901, Techno Park Complex, 193, Yakdae-dong, Wonmi-gu, Bucheon-city, Kyunggi-do, 420-734, Korea
Contact Person : Jong-woon Kim
Phone No. : 82-32-328-0611
Fax No. : 82-32-328-0612

1.3. Description of EUT

Kind of Product	Private Land Mobile Radio for Vehicle(UHF)
Model Name	IM401
Serial Number	N/A
Power Supply	DC 13.6 V
Frequency Range	403 MHz ~ 470 MHz
Modulation Technique	FM
Frequency Generation	PLL
Number of Channels	255 Channels
Operating Conditions	-30 ~ 60 deg C
Antenna Type	External Antenna

1.4. Details of modification

-N/A

1.5. Antenna Information

Whip Antenna for vehicle : 403 ~ 470 MHz, 1/4 wave 0 dBi

1.6. Measurement System

- Automobile: Hyundai Elantra(1995)
  E-Field Survey Meter & Probe - NARDA Model EMC 20 (100 kHz ~ 3 GHz)
  Calibration due date: 2007-10-16
- Antennas - (1/4 wave 0 dBi)

2. Measurement Uncertainty

The information below presents an estimate of the possible errors that are associated with the measurement system.

Description	Error
NARDA Survey Meter	**± 3%**
Repeatability Accuracy	**± 7%**

3. Method of measurement

3.1 EME measurements made on trunk mounted antennas

3.1.1 External vehicle EME measurement

(Antenna mounted in trunk center)
With the survey meter and probe, take ten (10) measurements, at the standard test distance of 60 cm to the antenna, from the back of the vehicle in a vertical line and then average the results. These measurements are taken and recorded at every twenty (20) centimeters over a range starting at twenty (20) centimeters above ground and ending at 2.0 meters.

3.1.2 Internal vehicle EME measurement

(Antenna mounted in trunk center)
While rotating survey meter probe through 180 degrees to ensure that the highest level is found, scan the inside of the vehicle, both front and back seating areas, for the highest level in each location. After the highest level is found, scan vertically making two (2) additional measurements within an area approximately 40 cm wide (representing the width of a person) so as to have a total of three (3) measured points as indicated below that will be averaged

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a) Head area
b) Chest area
c) Lower Trunk area

3.2 EME measurements made on center roof mounted antennas

3.2.1 External vehicle EME measurement

With the survey meter and probe, take ten (10) measurements, at the standard test distance of 110 cm from the vehicle-mounted antenna, in a vertical line and then average the results. These measurements are taken and recorded at every twenty (20) centimeters over a range starting at twenty (20) centimeters above ground and ending at 2.0 meters; this would be representative of a person standing next to a vehicle during a mobile radio transmission.

3.2.2 Internal vehicle EME measurement

While rotating survey meter probe through 180 degrees to ensure that the highest level is found, scan the inside of the vehicle, both front and back seating areas, for the highest level in each location. After the highest level is found, scan vertically making two (2) additional measurements within an area approximately 40 cm wide (representing the width of a person) so as to have a total of three (3) measured points as indicated below that will be averaged.

a) Head area
b) Chest area
c) Lower Trunk area

4. Test result

Measurement Information			
Measurement Freq.(MHz)	403.000	433.500	470.000
Raw Data Power(W)	38.32	41.33	36.63
Controlled Limit	1.343	1.445	1.567
Uncontrolled Limit	0.269	0.289	0.313
Cal. Factor	1	1	1
Antenna / gain(dBi)	Whip / 0	Whip / 0	Whip / 0
External Vehicle Power Density(50% duty)	average over body/2		
Internal Vehicle Power Density(50% duty)	average over (head/chest/leg)/2		

External Vehicle MPE Assessment at 403.000 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Body**	**Pwr. Density (mW/cm^2)**
Trunk	Whip / 0	60	E	1	0.077	0.039
Measurement grid						
Test position	**Height (cm)**	**% of controlled limit**	**Test position**	**Height(cm)**	**% of controlled limit**	
1	20	5	6	120	16	
2	40	1	7	140	17	
3	60	11	8	160	6	
4	80	4	9	180	4	
5	100	9	10	200	4	

External Vehicle MPE Assessment at 433.500 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Body**	**Pwr. Density (mW/cm^2)**
Trunk	Whip / 0	60	E	1	0.184	0.092
Measurement grid						
Test position	**Height (cm)**	**% of controlled limit**	**Test position**	**Height(cm)**	**% of controlled limit**	
1	20	4	6	120	53	
2	40	7	7	140	34	
3	60	12	8	160	25	
4	80	8	9	180	11	
5	100	20	10	200	10	

External Vehicle MPE Assessment at 470.000 MHz						
Antenna Location	Antenna/ gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average Over Body	Pwr. Density (mW/cm^2)
Trunk	Whip / 0	60	E	1	0.309	0.155
Measurement grid						
Test position	Height (cm)	% of controlled limit	Test position	Height(cm)	% of controlled limit	
1	20	3	6	120	60	
2	40	2	7	140	70	
3	60	4	8	160	57	
4	80	27	9	180	20	
5	100	56	10	200	10	

External Vehicle MPE Assessment at 470.000 MHz						
Antenna Location	Antenna/ gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average Over Body	Pwr. Density (mW/cm^2)
Roof	Whip / 0	110	E	1	0.162	0.081
Measurement grid						
Test position	Height (cm)	% of controlled limit	Test position	Height(cm)	% of controlled limit	
1	20	2	6	120	7	
2	40	2	7	140	21	
3	60	2	8	160	30	
4	80	4	9	180	49	
5	100	2	10	200	43	

Internal Vehicle MPE Assessment at 403.000 MHz						
Antenna Location	Antenna/ gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head,Chest,Leg Back/Front Seats (mW/cm^2)	Pwr. Density of Higher Level (mW/cm^2)
Trunk	Whip / 0	Highest Reading	E	1	0.310/0.310	0.155/0.155
Measurement grid						
Test position	% of controlled limit Head		% of controlled limit Chest		% of controlled limit Leg	
Back Seat	46		17		30	
Front Seat	38		22		32	

Internal Vehicle MPE Assessment at 433.500 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average over Head,Chest,Leg Back/Front Seats (mW/cm^2)**	**Pwr. Density of Higher Level (mW/cm^2)**
Trunk	Whip / 0	Highest Reading	E	1	0.457/0.483	0.228/0.242

Measurement grid			
Test position	**% of controlled limit Head**	**% of controlled limit Chest**	**% of controlled limit Leg**
Back Seat	72	43	22
Front Seat	65	61	19

Internal Vehicle MPE Assessment at 469.975 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average over Head,Chest,Leg Back/Front Seats (mW/cm^2)**	**Pwr. Density of Higher Level (mW/cm^2)**
Trunk	Whip / 0	Highest Reading	E	1	0.370/0.287	0.185/0.143

Measurement grid			
Test position	**% of controlled limit Head**	**% of controlled limit Chest**	**% of controlled limit Leg**
Back Seat	69	34	8
Front Seat	48	28	10

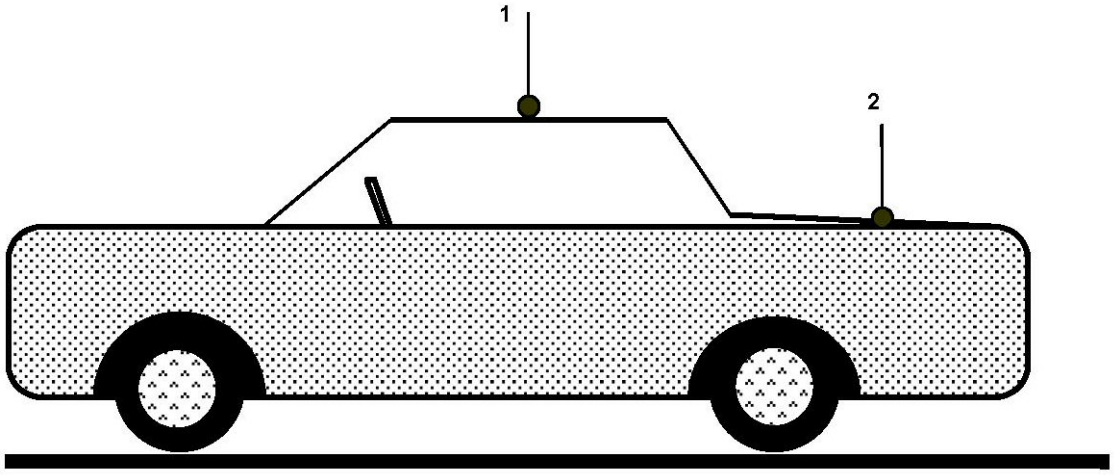
Internal Vehicle MPE Assessment at 433.500 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average over Head,Chest,Leg Back/Front Seats (mW/cm^2)**	**Pwr. Density of Higher Level (mW/cm^2)**
Roof	Whip / 0	Highest Reading	E	1	0.046/0.053	0.023/0.027

Measurement grid			
Test position	**% of controlled limit Head**	**% of controlled limit Chest**	**% of controlled limit Leg**
Back Seat	3	5	6
Front Seat	7	8	1

5. Conclusion

The measurement results complies with the FCC Limit Per 47 CFR 2.1091 (b) for the Uncontrolled RF Exposure.

6. Appendix. Antenna Location Drawing



1 - Roof (center)
2 - Trunk (center)