MPE TEST RESULT

Equipment Under Test: Mobile Radio

Model No.: TM-800U

Date of Test(s): 2006-10-04

Standards: FCC 47CFR 2.1091(b)

Tested by : Army 2006-05-19

The details of the testing results carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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1. Description

HYT'S TM800U mobile radio are Compatible, Conventional radio system operation.
The operation and functions for the TM-800U Series radios are described in this manual.
TM-800U has a compact size with a various features in range of 400 MHz ~ 470 MHz.
TM-800 U has a various features shown as below.

- Wideband frequency separation, Programmable output power
- Programmable 12.5 / 25 kHz channel spacing
- Programmable On / Off hook function, Talk Around
- Scanning, Priority Scanning
- Look Back, Scan list editing
- CTCSS / CDDCS (Conventional operation), Busy channel lockout
- Time-out timer

2. Antenna Information

Whip Antenna for vehicle : 400 ~ 450 MHz, 1/4 wave 3 dBi
Whip Antenna for vehicle : 450 ~ 470 MHz, 1/4 wave 3 dBi

3. Test site

Accurate Technology Co. Ltd.
F1, Bldg, A, Changyuan New Meterial Port, Keyuan Rd. Science & Industry Park, Nanshan District, 518057, Shenzhen P.R. China.

4. Measurement System

- Automobile: Hyundai Verna(2000)
- E-Field Survey Meter & Probe - NARDA Model EMC 20 (100kHz~3GHz)
Calibration due date: 2007-5-4
- Antennas - (1/4 wave 3 dBi)

5. Measurement Uncertainty

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

Description	Error
NARDA Survey Meter:	± 4%
Repeatability Accuracy:	± 7%

6. Method of measurement

6.1 EME measurements made on trunk mounted antennas

6.1.1 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 theresults. 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.

6.1.2 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.

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

6.2 EME measurements made on center roof mounted antennas

6.2.1 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.

6.2.2 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

7. Test result

Measurement Information			
Measurement Freq.(MHz)	400.00	435.00	470.00
Raw Data Power(W)	46.59	46.62	46.56
Controlled Limit	1.33	1.45	1.56
Uncontrolled Limit	0.26	0.29	0.31
Cal. Factor	1	1	1
Antenna / gain(dBi)	Whip / 3	Whip / 3	Whip / 3
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 400.00 MHz						
Antenna Location	**Antenna / Gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Body**	**Power. Density (mW/cm^2)**
Trunk	Whip/3	60	E	1	0.3144	0.1572

Measurement Grid					
Test Position	**Height**	**% of controlled Limit**	**Test Position**	**Height (cm)**	**% of controlled limit**
1	**20**	**18**	**6**	**120**	**25**
2	**40**	**23**	**7**	**140**	**40**
3	**60**	**31**	**8**	**160**	**37**
4	**80**	**34**	**9**	**180**	**42**
5	**100**	**35**	**10**	**200**	**39**

External Vehicle MPE Assessment At 435.00 MHz						
Antenna Location	**Antenna / Gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Body**	**Power. Density (mW/cm^2)**
Trunk	Whip/3	60	E	1	0.3136	0.1568

Measurement Grid					
Test Position	**Height**	**% of controlled Limit**	**Test Position**	**Height (cm)**	**% of controlled limit**
1	**20**	**25**	**6**	**120**	**22**
2	**40**	**22**	**7**	**140**	**26**
3	**60**	**19**	**8**	**160**	**39**
4	**80**	**32**	**9**	**180**	**40**
5	**100**	**37**	**10**	**200**	**38**

External Vehicle MPE Assessment At 470.00 MHz						
Antenna Location	**Antenna / Gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Body**	**Power. Density (mW/cm^2)**
Trunk	Whip/3	60	E	1	0.3042	0.1521

Measurement Grid					
Test Position	**Height**	**% of controlled Limit**	**Test Position**	**Height (cm)**	**% of controlled limit**
1	**20**	**19**	**6**	**120**	**20**
2	**40**	**24**	**7**	**140**	**23**
3	**60**	**28**	**8**	**160**	**24**
4	**80**	**25**	**9**	**180**	**24**
5	**100**	**25**	**10**	**200**	**26**

External Vehicle MPE Assessment At 400.00 MHz						
Antenna Location	**Antenna / Gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Body**	**Power. Density (mW/cm^2)**
Roof	Whip/3	110	E	1	0.1780	0.0890

Measurement Grid					
Test Position	**Height**	**% of controlled Limit**	**Test Position**	**Height (cm)**	**% of controlled limit**
1	**20**	**13**	**6**	**120**	**19**
2	**40**	**14**	**7**	**140**	**23**
3	**60**	**17**	**8**	**160**	**23**
4	**80**	**10**	**9**	**180**	**15**
5	**100**	**16**	**10**	**200**	**14**

Internal Vehicle MPE Assessment At 400.00 MHz						
Antenna Location	**Antenna / Gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Head, Chest, Leg Back / Front Seats(mW/cm^2)**	**Power Density HigherLevel (mW/cm^2)**
Trunk	Whip/3	Highest Reading	E	1	0.24	0.12

Measurement Grid			
Test Position	**% of controlled Limit Head**	**% of controlled Limit Chest**	**% of controlled Limit Leg**
Front	**14**	**12**	**10**
Back	**38**	**27**	**15**

Internal Vehicle MPE Assessment At 435.00 MHz						
Antenna Location	**Antenna / Gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Head, Chest, Leg Back / Front Seats(mW/cm^2)**	**Power Density HigherLevel (mW/cm^2)**
Trunk	Whip/3	Highest Reading	E	1	0.22	0.11

Measurement Grid

Test Position	% of controlled Limit Head	% of controlled Limit Chest	% of controlled Limit Leg
Front	**13**	**12**	**11**
Back	**36**	**28**	**13**

Internal Vehicle MPE Assessment At 470.00 MHz						
Antenna Location	**Antenna / Gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Head, Chest, Leg Back / Front Seats(mW/cm^2)**	**Power Density HigherLevel (mW/cm^2)**
Trunk	Whip/3	Highest Reading	E	1	0.20	0.10

Measurement Grid

Test Position	% of controlled Limit Head	% of controlled Limit Chest	% of controlled Limit Leg
Front	**17**	**13**	**10**
Back	**37**	**25**	**13**

Internal Vehicle MPE Assessment At 400.00 MHz						
Antenna Location	**Antenna / Gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Head, Chest, Leg Back / Front Seats(mW/cm^2)**	**Power Density HigherLevel (mW/cm^2)**
Roof	Whip/3	Highest Reading	E	1	0.084	0.042

Measurement Grid

Test Position	% of controlled Limit Head	% of controlled Limit Chest	% of controlled Limit Leg
Front	**6**	**5**	**3**
Back	**14**	**8**	**6**

8. Conclusion

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