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MPE TEST REPORT

FCC Part 2.1091(b)

Report Reference No.....	**WE11060043**
FCC ID:.....:	**YAM-TM628HV**
Compiled by (position+printed name+signature)..:	File administrators Eric Zhang
Supervised by (position+printed name+signature)..:	Test Engineer Wenliang Li
Approved by (position+printed name+signature)..:	Manager Jeffrey Lu
Date of issue.....:	Aug 15, 2011
Testing Laboratory Name .....:	**Shenzhen Huatongwei International Inspection Co., Ltd**
Address.....:	Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Applicant's name.....:	**Hytera Communications Corporation Ltd.**
Address.....:	HYT Tower,Hi-Tech Industrial Park North,Nanshan District,Shenzhen China.518057
Test specification:	
Standard .....:	**FCC Part 2.1091(b)**
TRF Originator.....:	Shenzhen Huatongwei International Inspection CO., Ltd
Master TRF.....:	Dated 2006-06

Test item description ..... :	Mobile Radio
Trade Mark .....:	HYT
Manufacturer .....:	**Hytera Communications Corporation Ltd.**
Model/Type reference.....:	TM-628HV
Listed Models .....:	/
Channel Separation.....	12.5KHz
Modulation	FM
Ratings.....:	DC 13.60 V
Frequency Range .....:	From 136 MHz to 174 MHz
Rated Power .....:	50 Watts(46.99 dBm)/5 Watts(36.99 dBm)
Result.....:	**Positive**

MPE T E S T R E P O R T

Test Report No. :	WE11060043	Aug 15,2011 Date of issue

Equipment under Test	:	Mobile Radio
Model /Type	:	TM-628HV
Listed Models	:	/
Applicant	:	**Hytera Communications Corporation Ltd.**
Address	:	HYT Tower,Hi-Tech Industrial Park North,Nanshan District,Shenzhen China.518057
Manufacturer	:	**Hytera Communications Corporation Ltd.**
Address	:	HYT Tower,Hi-Tech Industrial Park North,Nanshan District,Shenzhen China.518057

Contents

1. SUMMARY

1.1. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

●	Power Cable (DC)	Length (m) :	3
		Shield :	Unshield
		Detachable :	Detachable
○	Multimeter	Manufacturer :	/
		Model No. :	/

1.2. Product Description

The Hytera Communications Corporation Ltd.'s Model: TM-628HV or the "EUT" as referred to in this report; more general information as follows, for more details, refer to the user's manual of the EUT.

Name of EUT	Mobile Radio	
Model Number	TM-628HV	
FCC ID:	YAM-TM628HV	
Rated Output Power	50 Watts(46.99 dBm)/ 5 Watts(36.99 dBm)	
Modilation Type	FM for Analog Voice	
Emission Designator	Analog	11K0F3E for 12.5KHz Channel Separation
Channel Separation	Analog Voice	12.5KHz
Antenna Type	External	
Frequency Range	From 136 MHz to 174 MHz	
Maximum Transmitter Power	Analog	52.60 W for 12.5 KHz Channel Separation

1.3. Equipment under Test

Power supply system utilised

Power supply voltage	:	○	120V / 60 Hz	○	115V / 60Hz
		○	12 V DC	○	24 V DC
		●	Other (specified in blank below)		

DC 13.60 V

Test frequency list

Modulation Type	Test Channel	Test Frequency
Analog/FM	Low Channel	136.5000 MHz
	Middle Channel	156.5000 MHz
	High Channel	173.5000 MHz

1.4. Note

1. The EUT is a V frequency band (136-174 MHz) Mobile Radio, The functions of the EUT listed as below:

	Test Standards	Reference Report
Radio	FCC Part 90	WE11060042
MPE	FCC OET 65	WE11060043

2. TEST ENVIRONMENT

2.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Phone: 86-755-26715686 Fax: 86-755-26748089

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2009) and CISPR Publication 22.

2.2. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

2.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test Items	Measurement Uncertainty	Notes
Frequency stability	150 Hz	(1)
Transmitter power conducted	0.30 dB	(1)
Transmitter power Radiated	2.20 dB	(1)
Conducted spurious emission 9KHz-12.75 GHz	1.60 dB	(1)
Radiated spurious emission 9KHz-12.75 GHz	2.20 dB	(1)
Conducted Emission 9KHz-30MHz	3.39 dB	(1)
Radiated Emission 30~1000MHz	4.24 dB	(1)
Radiated Emission 1~18GHz	5.16 dB	(1)
Radiated Emission 18-40GHz	5.54 dB	(1)
Occupied Bandwidth	---------	(1)
Emission Mask	---------	(1)
Modulation Characteristic	---------	(1)
Transmitter Frequency Behavior	---------	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

3. Method of measurement

3.1. Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.
According to §1.1310 and §2.1091 RF exposure is calculated.

3.2. Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f)*	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

MPE Calculation Method

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01

$S=PG/4\pi R^2$

Where: 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

As declared by the Applicant, the EUT transmits with the maximum soure-baed Duty Cycle of 50%-see the User manual, and the EUT is a wireless device used in a mobile application, at least 100 cm from any body part of the user or nearby persons; from the peak EUT RF output power, the minimum mobile separation distance, R=100 cm, as well as the gain of the used antenna is 3.5 dBi, the RF power density can be obtained.

TEST RESULTS

For 12.5 KHz Channel Spacing @ Maximum Output power

Frequency (MHz)	Minimum Separation Distance (cm)	Output Power (dBm)	Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm^2)	Power Density At 100 cm (mW/cm^2)	Test Results
136.5000	100	47.21	52601.70	2.2387	1.0000	0.9371	Compliance
156.0000	100	47.11	51404.40	2.2387	1.0000	0.9158	Compliance
173.5000	100	47.11	51404.40	2.2387	1.0000	0.9158	Compliance

For 12.5 KHz Channel Spacing @ Minimum Output power

Frequency (MHz)	Minimum Separation Distance (cm)	Output Power (dBm)	Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm^2)	Power Density At 100 cm (mW/cm^2)	Test Results
136.5000	100	37.33	5407.50	2.2387	1.0000	0.0963	Compliance
156.0000	100	37.05	5069.90	2.2387	1.0000	0.0903	Compliance
173.5000	100	37.04	5058.20	2.2387	1.0000	0.0901	Compliance

4. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 (b) for the controlled RF Exposure

.....End of Report.....