

RF EXPOSURE EVALUATION

1. TEST RESULT CERTIFICATION

Applicant	TYT ELECTRONICS CO., LTD
Address	Block 39-1, Optoelectronics-information industry base, Nan'an, Quanzhou, Fujian, China.
manufacturer	TYT ELECTRONICS CO., LTD
Address	Block 39-1, Optoelectronics-information industry base, Nan'an, Quanzhou, Fujian, China.
Factory	TYT ELECTRONICS CO., LTD
Address	Block 39-1, Optoelectronics-information industry base, Nan'an, Quanzhou, Fujian, China.
Product Designation:	DMR mobile radio
Brand Name:	TYT
Test Model:	MD-9600-5P GPS
Serial Model	MD-9600-5P, MD-9600 GPS, MD-9600
Difference Description	The model is only GPS and 5-Pin cable installation difference MD-9600-5P GPS has GPS & 5-Pin cable MD-9600-5P only has 5-Pin cable MD-9600 GPS only GPS MD-9600 without GPS & 5-Pin cable
FCC ID:	POD-DMR3
Date of Test:	Sep. 04, 2020~Nov. 03, 2020

2. TECHNICAL INFORMATION

A major technical description of EUT is described as following:

Operation Frequency	Bottom Channel: 136.025MHz Middle Channel:151.850MHz Middle Channel:155.025MHz Middle Channel:161.610MHz High Channel: 173.975MHz	Bottom Channel: 400.025MHz Middle Channel: 453.225MHz Middle Channel: 454.025MHz High Channel: 479.975MHz
Modulation	FM/4FSK	
Antenna Designation	Detachable	
Antenna type	External Antenna	
Output power	VHF:40W/5W	UHF:35W/5W
Antenna gain	0dBi	
Power Supply	DC 13.8V	

3. RF EXPOSURE MEASUREMENT

3.1 INTRODUCTION

Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.

The 1992 ANSI/IEEE standard (See Listed limit table) specifies a minimum separation distance of 20 cm for performing reliable field measurements to determine adherence to MPE limits.

If the minimum separation distance between a transmitter and nearby persons is more than 20 cm under normal operating conditions, compliance with MPE limits may be determined at such distance from the transmitter. When applicable, operation instructions and prominent warning labels may be used to alert the exposed persons to maintain a specified distance from the transmitter or to limit their exposure durations and usage conditions to ensure compliance.

3.2 FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE

Frequency Range (MHz)	E-field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (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

*Note:

1. f= Frequency in MHz * Plane-wave Equivalent Power Density
2. The averaging time for General Population/Uncontrolled exposure to fixed transmitters is not applicable for mobile and portable transmitters. See 47 CFR §§2.1091 and 2.1093 on source-based time-averaging requirement for mobile and portable transmitters.

4. CLASSIFICATION OF THE ASSESSMENT METHODS

According to user manual, The antenna of the product, under normal use condition is at least 133.36 cm away from the body of the user. Warning statement to the user for keeping at least 133.36cm separation distance and the prohibition of operating to a person has been printed on the user's manual. So, this product under normal use is located on electromagnetic far field between the human body.

$$S = \frac{PG}{4\pi R^2}$$

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

5. EUT OPERATION CONDITION

Make the EUT to transmit at Bottom channel, Middle channel and Top channel individually.

6. TEST RESULTS

Note: report the worst result in this part

Antenna Gain=0dBi (Numeric 1), $\pi=3.141$, Duty cycle=50%

VHF:

Frequency	Tune-up Tolerance	Max tune-up	Max tune-up	Power Density	Power Density Limit	Result
MHz	dBm	dBm	mW	mW/cm ²	mW/cm ²	Pass/Fail
151.8500	45.5±1	46.5	44668	0.199902123	0.2	Pass

UHF:

Frequency	Tune-up Tolerance	Max tune-up	Max tune-up	Power Density	Power Density Limit	Result
MHz	dBm	dBm	mW	mW/cm ²	mW/cm ²	Pass/Fail
400.025	45.3±1	46.3	44668	0.190906796	0.2667	Pass

Note:

- 1.The output power is refer to **AGC02931200901FE10**.
- 2.Correct Power=Output Power*Duty cycle.
- 3.According to the user manual, the minimum separate distance which used for MPE calculate is 133.36cm.