



RF EXPOSURE EVALUATION

1. TEST RESULT CERTIFICATION

Applicant	ZHENGZHOU YSAIR TECHNOLOGY CO.,LTD
Address	ROOM 709,SANJIANG BUILDING,NO.170 NANYANG ROAD,HUIJI DISTRICT,ZHENGZHOU, HENAN PROVINCE,China
manufacturer	ZHENGZHOU YSAIR TECHNOLOGY CO.,LTD
Address	ROOM 709,SANJIANG BUILDING,NO.170 NANYANG ROAD,HUIJI DISTRICT,ZHENGZHOU, HENAN PROVINCE,China
Product Designation:	FM Transmitter
Brand Name:	RETEKESS
Test Model:	TR510
FCC ID:	2A3NOTR510
Date of Test:	Apr. 19, 2022~Jun. 08, 2022

2. TECHNICAL INFORMATION

A major technical description of EUT is described as following:

Operation Frequency	87.9MHz-91.9MHz
Modulation	FM
Antenna Designation	Detachable Antenna
Output power	7W
Antenna gain	2.5dBi
Power Supply	INPUT: 100-240V~ 50-60Hz 0.4A OUTPUT: 12V 1.0A

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Channel list:

Frequency Band	Channel Number	Test Frequency
87.9~91.9 MHz	200	87.9 MHz
	201	88.1 MHz
	202	88.3 MHz
	203	88.5 MHz
	~	~
	~	~
	210	89.9 MHz
	211	90.1 MHz
	212	90.3 MHz
	~	~
	~	~
	217	91.3 MHz
	218	91.5 MHz
	219	91.7 MHz
	220	91.9 MHz

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.

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3.2 FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

TABLE 1 TO §1.1310(e)(1)—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f ²)	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) Limits for General Population/Uncontrolled Exposure				
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
300-1,500			f/1500	<30
1,500-100,000			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.

3.3 CLASSIFICATION OF THE ASSESSMENT METHODS

According to user manual, The antenna of the product, under normal use condition is at least 31.7cm away from the body of the user. Warning statement to the user for keeping at least 31.7cm 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.

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

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

3.4 EUT OPERATION CONDITION

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

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Note: report the worst result in this part

Antenna Gain=2.5dBi (Numeric 1.78), $\pi=3.141$

TEST Frequency (MHz)	Tune-up Tolerance (dBm)	Max tune-up (dBm)	Max tune-up (mW)	Power Density (mW/cm ²)	Power Density Limit (mW/cm ²)	Result (Pass/Fail)
87.9	38±0.5	38.5	7079.458	0.9981	1.0	Pass

Note:

1. The output power is refer to **AGC13459220401FE10**.
2. According to the user manual, the minimum separate distance which used for MPE calculate is 31.7cm.

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