

EMF TEST REPORT

Test Report No. : OT-264-RWD-076

Reception No. : 2509002935

Applicant : MPIA CO., LTD.

Address : 203-701, 388 Songnae-daero, Wonmi-gu, Bucheon-si, Gyeonggi-do, South Korea

Manufacturer : MPIA CO., LTD.

Address : 203-701, 388 Songnae-daero, Wonmi-gu, Bucheon-si, Gyeonggi-do, South Korea

Type of Equipment : RF Switch Receiver

FCC ID. : 2BTDM-MRAC-500

Model Name : MRAC-500

Multiple Model Name : N/A

Serial number : N/A

Total page of Report : 7 pages (including this page)

Date of Incoming : March 29, 2026

Date of issue : April 29, 2026

SUMMARY

The equipment complies with the regulation; **CFR §2.1093**

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

This test report is not associated with the accreditation granted by the Korean Laboratory Accreditation Scheme (KOLAS).



Tested by
Ha-Ram, Lee / Deputy Chief Engineer
ONETECH Corp.

Reviewed by
Tae-Ho, Kim / Chief Engineer
ONETECH Corp.

Approved by
Jae-Ho, Lee / Director
ONETECH Corp.

CONTENTS

Page

1. VERIFICATION OF COMPLIANCE	4
2. GENERAL INFORMATION	5
2.1 PRODUCT DESCRIPTION.....	5
2.2 ALTERNATIVE TYPE(S)/MODEL(S); ALSO COVERED BY THIS TEST REPORT.....	5
3. EUT MODIFICATIONS.....	5
4. MAXIMUM PERMISSIBLE EXPOSURE	6
4.1 RF EXPOSURE CALCULATION	6
4.2 EUT DESCRIPTION.....	6
4.3 CALCULATED MPE SAFE DISTANCE.....	7

Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-264-RWD-076	April 29, 2026	Initial Release	All

1. VERIFICATION OF COMPLIANCE

Applicant : MPIA CO., LTD.

Address : 203-701, 388 Songnae-daero, Wonmi-gu, Bucheon-si, Gyeonggi-do, South Korea

Contact Person : Jang chanson / Principal research engineer

Telephone No. : +82-32-666-8191

FCC ID : 2BTDM-MRAC-500

Model Name : MRAC-500

Brand Name : -

Serial Number : N/A

Date : April 29, 2026

E.U.T. DESCRIPTION	RF Switch Receiver
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	KDB 447498 D01 General RF Exposure Guidance v06
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
Modifications on the Equipment to Achieve Compliance	None

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. GENERAL INFORMATION

2.1 Product Description

The MPIA CO., LTD., Model MRAC-500 (referred to as the EUT in this report) is a RF Switch Receiver. The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	RF Switch Receiver
Temperature Range	-20 °C ~ +60 °C
OPERATING FREQUENCY	920.7 MHz
MODULATION TYPE	GFSK
RF OUTPUT POWER	3.15 dBm
ANTENNA TYPE	Chip Antenna
ANTENNA GAIN	-1.0 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	26 MHz

2.2 Alternative type(s)/model(s); also covered by this test report.

-. None

3. EUT MODIFICATIONS

-. None

4. MAXIMUM PERMISSIBLE EXPOSURE

4.1 RF Exposure Calculation

According to the FCC rule 1.1310 table 1B, the limit for the maximum permissible RF exposure for an uncontrolled environment are $f/1500$ mW/cm² for the frequency range between 300 MHz and 1 500 MHz and 1.0 mW/cm² for the frequency range between 1 500 MHz and 100 000 MHz.

The electric field generated for a 1 mW/cm² exposure is calculated as follows:

$$E = \sqrt{(30 * P * G) / d}, \text{ and } S = E^2 / Z = E^2 / 377, \text{ because } 1 \text{ mW/cm}^2 = 10 \text{ W/m}^2$$

Where

S = Power density in mW/cm², Z = Impedance of free space, 377 Ω

E = Electric field strength in V/m, G = Numeric antenna gain, and d = distance in meter

Combining equations and rearranging the terms to express the distance as a function of the remaining variable

$$d = \sqrt{(30 * P * G) / (377 * 10 S)}$$

Changing to units of mW and cm, using $P \text{ (mW)} = P \text{ (W)} / 1\,000$, $d \text{ (cm)} = 0.01 * d \text{ (m)}$

$$d = 0.282 * \sqrt{(P * G) / S}$$

Where

d = distance in cm, P = Power in mW, G = Numeric antenna gain, and S = Power density in mW/cm²

4.2 EUT Description

Kind of EUT	RF Switch Receiver
Device Category	☐ Portable (< 20 cm separation) ☒ Mobile (> 20 cm separation) ☐ Others
Exposure Evaluation Applied	☒ MPE ☐ SAR ☐ N/A

4.3 Calculated MPE Safe Distance

According to above equation, the following result was obtained.

Operating Freq. Band (MHz)	Operating Mode	Target Power W/tolerance (dBm)	Max tune up power		Antenna Gain		Safe Distance (cm)	Power Density (mW/cm ²) @ 20 cm Separation	Limit (mW/cm ²)
			(dBm)	(mW)	Log	Linear			
920.7	GFSK	3.15 ± 1.0	4.15	2.60	-1.00	0.794	0.405	0.000 4	0.613 8

According to above table, for 920.7 MHz, safe distance,

$$D = 0.282 * \sqrt{(2.60 * 0.974)/1.00} = 0.000 4 \text{ cm.}$$

For getting power density at 20 cm separation in above table, following formula was used.

$$S = P * G / (4\pi * R^2) = 2.60 * 0.974 / (4 * \pi * 20^2) = 0.000 4$$

Where:

S = Power Density,

P = Power input to the external antenna (Output power from the EUT antenna port (dBm) – cable loss (dB)),

G = Gain of Transmit Antenna (linear gain), R = Distance from Transmitting Antenna