



# RF MPE Report

**Applicant:** Eagle Electronics Inc.

**Address:** 114 Venture Dr Paraskala, OH 43062-9239 United States

**Product:** LTE Cat M1 Module

**Model No.:** I490-M1

**Brand Name:** Eagle

**FCC ID:** 2BNX7I490M1A

**Standards:** 47 CFR Part 2.1091  
FCC KDB 447498 D01 v06

**Report No.:** PD20250084-R3B

**Issue Date:** 2025/06/10

**Test Result:** PASS \*

\* Testing performed at Hefei Panwin Technology Co., Ltd. on the above equipment indicates the product meets the requirements of the relevant standards.

**Reviewed By:** Charlie Wang

**Approved By:** Alec Yang

## Hefei Panwin Technology Co., Ltd.

Floor 1, Zone E, Plant 2#, Mingzhu Industrial Park, No.106 Chuangxin Avenue, High-tech Zone, Hefei City, Anhui Province, China  
TEL: +86-0551-63811775

**Revision History**

Report No.	Version	Description	Issue Date	Note
PD20250084-R3B	01	Initial Report	2025/06/10	Valid

**Remark:**

- The samples tested have been evaluated in accordance with 47 CFR Part 2.1091 and FCC KDB 447498 D01 v06, and have been proven to meet the applicable limit requirements.

**CONTENTS**

<b>1 Test Laboratory</b> .....	<b>4</b>
1.1 Notes of the Test Report .....	4
1.2 Testing Laboratory .....	4
<b>2 General Description of Equipment under Test</b> .....	<b>4</b>
2.1 Details of Application .....	4
2.2 Details of EUT .....	5
<b>3 Test Condition</b> .....	<b>6</b>
3.1 Laboratory Environment .....	6
<b>4 Maximum Permissible Exposure (MPE)</b> .....	<b>7</b>
<b>ANNEX A: RF Exposure Evaluation</b> .....	<b>8</b>
<b>ANNEX B: The EUT Appearance</b> .....	<b>10</b>

## 1 Test Laboratory

### 1.1 Notes of the Test Report

This report is invalid without signature of auditor and approver or with any alterations. The report shall not be partially reproduced without written approval of the testing company. Entrusted test results are only responsible for incoming samples. If there is any objection to the testing report, it shall be raised to the testing company within 15 days from the date of receiving the report. In the test results, "NA" means "not applicable", and the test items marked with "Δ" are subcontracted projects.

### 1.2 Testing Laboratory

<b>Company Name</b>	Hefei Panwin Technology Co., Ltd.
<b>Address</b>	Floor 1, Zone E, Plant 2#, Mingzhu Industrial Park, No.106 Chuangxin Avenue, High-tech Zone, Hefei City, Anhui Province,China
<b>Telephone</b>	+86-0551-63811775
<b>Post Code</b>	230031

## 2 General Description of Equipment under Test

### 2.1 Details of Application

<b>Applicant</b>	Eagle Electronics Inc.
<b>Applicant Address</b>	114 Venture Dr Paraskala, OH 43062-9239 United States
<b>Manufacturer</b>	Eagle Electronics Inc.
<b>Manufacturer Address</b>	114 Venture Dr Paraskala, OH 43062-9239 United States

## 2.2 Details of EUT

<b>Product</b>	LTE Cat M1 Module	
<b>Model</b>	I490-M1	
<b>Hardware Version</b>	R1.0	
<b>Software Version</b>	I490M1LAR02A01	
<b>Antenna Type</b>	<input checked="" type="checkbox"/> External	<input type="checkbox"/> Integrated

**Note:** The declared of product specification for EUT and/or Antenna presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

### 3 Test Condition

#### 3.1 Laboratory Environment

<b>Temperature</b>	Min.= 20°C, Max.=30°C
<b>Relative Humidity</b>	Min.= 25%, Max.=75%
<b>Ground System Resistance</b>	< 1 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards.	
Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

## 4 Maximum Permissible Exposure (MPE)

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

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 <sup>2</sup> )	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 <sup>2</sup> )	<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 <sup>2</sup> )	<30
30–300	27.5	0.073	0.2	<30
300–1,500	--	--	f/1500	<30
1,500–100,000	--	--	1.0	<30

f = frequency in MHz. \* = Plane-wave equivalent power density.

The transmitter is using external antennas that operate at 20 cm or more from nearby persons. The maximum permitted level is calculated using the general equation:

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

Where:

**S** = power density (in appropriate units, e.g. W/m<sup>2</sup>)

**P** = power input to the antenna (in appropriate units, e.g., W)

**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 (appropriate units, e.g., m)

Solve S, the power density at 20 cm is shown in Appendix A, so the limit is kept.

----- THE END -----

**ANNEX A: RF Exposure Evaluation****Maximum Measured Conducted Output Power and Antenna Gain**

Band	TX Freq. (MHz)	Maximum conducted output power (dBm)	Maximum Antenna Gain (dBi)
LTE Band 2	1850 to 1910	22.70	1.59
LTE Band 4	1710 to 1755	22.70	2.00
LTE Band 5	824 to 849	22.70	2.53
LTE Band 12	699 to 716	22.70	3.95
LTE Band 13	777 to 787	22.70	4.45
LTE Band 25	1850 to 1915	22.70	1.59
LTE Band 26	814 to 849	22.70	3.19
LTE Band 66	1710 to 1780	22.70	2.00
LTE Band 85	698 to 716	22.70	3.95

## Test Results of Maximum Permissible Exposure

Band	Frequency (MHz)	Maximum Power (dBm)	Antenna Gain (dBi)	FCC ERP/EIR Limit(W)	FCC MPE Result (mW/cm^2)	MPE Limit (mW/cm^2)	FCC MPE Result / FCC MPE Limit Ratio	Ant Gain to Meet FCC MPE limit (dBi)	Ant Gain to Meet FCC ERP/EI RP limit (dBi)	Max Gain Allowed (dBi)
LTE Band 2	1850.0	22.70	1.59	2.000	0.0534	1.0000	0.0534	14.3	10.3	10.3
LTE Band 4	1710.0	22.70	2.00	1.000	0.0587	1.0000	0.0587	14.3	7.3	7.3
LTE Band 5	824.0	22.70	2.53	7.000	0.0663	0.5493	0.1208	11.7	15.8	11.7
LTE Band 12	699.0	22.70	3.95	3.000	0.0920	0.4660	0.1974	11.0	12.1	11.0
LTE Band 13	777.0	22.70	4.45	3.000	0.1032	0.5180	0.1993	11.5	12.1	11.5
LTE Band 25	1850.0	22.70	1.59	2.000	0.0534	1.0000	0.0534	14.3	10.3	10.3
LTE Band 26	814.0	22.70	3.19	7.000	0.0772	0.5427	0.1423	11.7	15.8	11.7
LTE Band 66	1710.0	22.70	2.00	1.000	0.0587	1.0000	0.0587	14.3	7.3	7.3
LTE Band 85	698.0	22.70	3.95	3.000	0.0920	0.4653	0.1977	11.0	12.1	11.0

**Note 1:** For mobile or fixed location transmitters, minimum separation distance is 20cm, even if calculations indicate EMF distance is less.

**Note 2:** For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band.

**Note 3:** Chose the maximum RF output tune up power of all antennas among same frequency WWAN bands and the maximum antenna gain to perform MPE calculation conservatively.

## **ANNEX B: The EUT Appearance**

**The EUT Appearance (internal and external photographs) are submitted separately.**