

TEST REPORT

FCC MPE Test for AT1K09d-A10
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2402-FC020

DATE OF ISSUE
February 14, 2024

Tested by
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Applicant**SAMSUNG Electronics Co., Ltd.**

129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

**Eut Type
Model Name**

AU(AT1K09d)
AT1K09d-A10

FCC ID

A3LAT1K09D-A10

Location of Test

☒ Permanent Testing Lab ☐ On Site Testing

(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	February 14, 2024	Initial Release

Notice

Content

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

The above Test Report is not related to the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme) / A2LA(American Association for Laboratory Accreditation)(4114.01), which signed the ILAC-MRA.

RF Exposure Statement

1. Limit

According to § 1.1310 RF exposure is calculated.

Table 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)
(A) 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
(B) 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

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

2. Maximum Permissible Exposure Prediction

Prediction of MPE limit at a given distance

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

S = Power density

P = Power input to antenna

G = Power gain to the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

3. Results

[MIMO]

24 GHz: 24 250 MHz ~ 24 450 MHz, 24 750 MHz ~ 25 250 MHz

Max. EIRP[Radiated Power]	66.00	dBm
Max. EIRP[Radiated Power]	3 981 071.71	mW
Prediction distance	800.00	cm
Prediction frequency	24 250 ~ 24 450 24 750 ~ 25 250	MHz
Power density at prediction frequency (S)	0.4950	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

39 GHz: 38 300 MHz ~ 40 000 MHz

Max. EIRP[Radiated Power]	66.00	dBm
Max. EIRP[Radiated Power]	3 981 071.71	mW
Prediction distance	800.00	cm
Prediction frequency	38 300 ~ 40 000	MHz
Power density at prediction frequency (S)	0.4950	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

Simultaneous band emission conditions

Band	MPE Ratio (Power density / Limit)	Sum of MPE Ratio	
24 GHz	0.4950	0.9900	≤ 1
39 GHz	0.4950		

Note

- The result of each band was applied to the worst value.
- MPE ratios are calculated as
$$[(\text{Power density1} / \text{MPE Limit}) + [(\text{Power density2} / \text{MPE Limit}) + \dots] \leq 1$$