

1 Safety Human Exposure

1.1 Radio Frequency Exposure Compliance

1.1.1 Electromagnetic Fields

RESULT:

Pass

Test Specification

Report No. : CN23WJS4 003
Test item : SINAMICS Smart Adapter
Identification / Type No. : 6SL4950-0AJ00-0AA0
FCC ID: 2BCUK-SMARTADAPTER
CFR47 FCC Part 2: Section 2.1091
CFR47 FCC Part 1: Section 1.1310
Test standard : FCC KDB Publication 447498 D01 v06
FCC KDB Publication 865664 D02 v01r02

1.1.1.1 RF Exposure Compliance Requirement for FCC

FCC requirement: Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20cm normally can be maintained between the user and the device.

Max 1.20 dBi for 2.4GHz Wi-Fi, Max 1.6dBi for 5GHz Wi-Fi.

➤ Radio Frequency Exposure Limit

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)
300-1,500	--	--	f/1500
1,500-100,000	--	--	1.0

➤ Radio Frequency Exposure Calculation Formula

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

where: S = power density (in appropriate units, e.g. mW/cm²)
P = power input to the antenna (in appropriate units, e.g., mW)
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., cm)

or:

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

where: EIRP = equivalent (or effective) isotropically radiated power

a) RF Exposure Evaluation standalone operations (worse case)

Mode	*Measured RF Output Power (dBm)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm ²)	FCC Limit (mW/cm ²)
2.4G Wi-Fi	20.90	22.10	20	0.0323	1.0
5G Wi-Fi	13.28	14.98	20	0.0063	1.0

Note:

1. *2.4GHz Band RF Output Power: Refer to CN23WJS4 001.
2. *5GHz Bands RF Output Power: Refer to CN23WJS4 002.

➤ **Conclusion**

Therefore the maximum calculations result of above are meet the requirement of Radio Frequency Exposure (MPE) limit.