RF Exposure Compliance

RESULT: **Pass**

Test standard	:	FCC Part 1.1091 RSS-102 Issue 5 February 2021
Limit	:	Table 1 of 47 CFR FCC Part 1.1310 Section 2.5.2 of RSS-102
Kind of test site	:	Shielded room

This device is mobile device, and the applicant declares that the minimum separation distance is greater than 20cm. Therefore MPE measurement or computational modelling should be used to determine compliance.

1) RF Exposure Compliance Requirement for FCC

MPE Calculation is based on the conducted power, and considering maximum power and Antenna gain. The following formula is used to MPE evaluation.

$$Pd = \frac{Pout * G}{4R^2\pi}$$

Where
P_d = power density in mW/cm^2 or W/m^2
P_{out} = output power to antenna in mW or W
G_{num} = Antenna gain in numeric
π = 3.14159
R = Distance between observation point and the center of radiator in cm or m

- **Radio Frequency Exposure Limit for FCC**

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.

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 Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			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/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

➢ **FCC MPE-Based Evaluation:**

Operating Mode	Max. EIRP incl. tune-up (dBm)	Distance (cm)	MPE (mW/cm2)	Limit (mW/cm2)	Verdict
24GHz SRD	18.158	20	0.013	1.0	Pass
The Max fundamental is 113.387dBuV/m@3m (Refer to report CN23V36A 001), i.e. 18.158dBm when converted to EIRP.					

Inclusion: The MPE is much lower than the limit.

2) RF Exposure Compliance Requirement for IC

➢ **Radio Frequency Exposure Limit for IC**

The EUT shall comply with the requirement of RSS-102 section 2.5.2.

Exemption from Routine Evaluation Limits – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2}\ f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

➢ **IC MPE-Based Evaluation:**

Operating Mode	Max. EIRP incl. tune-up (dBm)	Distance (cm)	Maximum EIRP (W)	Threshold power (W)	Verdict
24GHz SRD	18.158	20	0.065	12.995	Pass
The Max fundamental is 113.387dBuV/m@3m (Refer to report CN23V36A 001), i.e. 18.158dBm when converted to EIRP.					

Note: The maximum EIRP lower than the threshold power in section 2.5.2, thus compliant.

geprüft von: *tested by:*	x Chris Chen
Datum: *Date:* 2023-08-28	Signed by: Chris Chen
Stellung / Position	Department Manager