

Safety Human Exposure

1.1 Radio Frequency Exposure Compliance

1.1.1 Electromagnetic Fields

RESULT:

Pass

Test Specification

Test item : zBox 1
Identification / Type No. : ZXV10 B866V2K
FCC ID : Q78-ZXV10B866V2K
Test standard : CFR47 FCC Part 2: Section 2.1091
CFR47 FCC Part 1: Section 1.1310
FCC KDB Publication 447498
FCC KDB Publication 865664 D02 v01r02

➤ Product Classification

This device defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at 20 cm is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

➤ 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) EUT RF Exposure Evaluation standalone operations(worse case)

Mode	*Measured RF Output Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	FCC Limit (mW/cm ²)
Bluetooth	10.61	3.0	20	0.005	1.0
2.4G Wi-Fi	22.69	3.0	20	0.074	1.0
5G Wi-Fi	15.49	3.0	20	0.014	1.0

Note:

1. *Bluetooth RF Output Power: Refer to CN22UKYT 001
2. *2.4GHz Band RF Output Power: Refer to CN22UKYT 002
3. *5GHz Bands RF Output Power: Refer to CN22UKYT 003

b) Simultaneous transmission MPE:

Per KDB 447498 D01, simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on calculated or measured field strengths or power density, is ≤ 1.0 .

Simultaneous transmission Scenarios

No.	Simultaneous transmission Scenarios
1	Bluetooth + 2.4GHz Wi-Fi
2	Bluetooth + 5GHz Wi-Fi

Simultaneous transmission Scenarios	Sum for the MPE ratio	Limit	Verdict
Bluetooth + 2.4GHz Wi-Fi	$0.005/1+0.074/1=0.079$	1.0	Compliance
Bluetooth + 5GHz Wi-Fi	$0.005/1+0.014/1=0.019$	1.0	Compliance

➤ **Conclusion**

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