

RF Exposure Evaluation Report

Product : Home Assistant Connect ZBT-2
Trade mark : N/A
Model/Type reference : NC-ZBT-9741
Serial Number : N/A
Report Number : EED32R81506104
FCC ID : 2A8ZE04
Date of Issue : Sep. 17, 2025
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB 447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

Nabu Casa, Inc.

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Prepared by:

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Sep. 17, 2025



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2 General Information

2.1 Client Information

Applicant:	Nabu Casa, Inc.
Address of Applicant:	8 The Green, Suite 12630, Dover, DE, United States, 19901
Manufacturer:	Nabu Casa, Inc.
Address of Manufacturer:	8 The Green, Suite 12630, Dover, DE, United States, 19901
Factory:	Yuan Sheng Technology (Shenzhen) Co., Ltd.
Address of Factory:	3rd Floor, Building D1, Foxconn Industrial Park, Donghuan 2nd Road, Longhua District, Shenzhen City.

2.2 General Description of EUT

Product Name:	Home Assistant Connect ZBT-2
Model No.(EUT):	NC-ZBT-9741
Trade Mark:	N/A

2.3 Product Specification subjective to this standard

Frequency Range:	Zigbee: 2405MHz~2480MHz BLE/BT: 2402MHz~2480MHz 2.4G Wi-Fi: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz	
Modulation Type:	BLE: GFSK BT: GFSK, $\pi/4$ DQPSK, 8DPSK 2.4G Wi-Fi: IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM,QPSK,BPSK) Zigbee: O-QPSK	
Test Power Grade:	Default	
Test Software of EUT:	BLE/ BT/ 2.4G Wi-Fi: Esp32.exe Zigbee: sscom5.13.1.exe	
Antenna Type:	BLE/ BT/ 2.4G Wi-Fi: PCB Antenna Zigbee: External Antenna	
Antenna Gain:	BLE/ BT/ 2.4G Wi-Fi: 5.81dBi Zigbee: 4.16 dBi	
Power Supply:	USB Port:	DC 5V
Sample Received Date:	Aug. 20, 2025	
Sample tested Date:	Aug. 20, 2025 to Sep. 17, 2025	

2.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Hongwei Industrial Park, Zone 70, Bao'an District, Shenzhen, Guangdong, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

2.5 Deviation from Standards

None.

2.6 Abnormalities from Standard Conditions

None.

2.7 Other Information Requested by the Customer

None.

3 SAR Evaluation

3.1 RF Exposure Compliance Requirement

3.1.1 Limits

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

3.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3.1.3 EUT RF Exposure Evaluation

For Stand alone:

BLE:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio
@2.4GHz	20	7.04	5.81	10.70	11.7490	3060	0.0038

2.4G Wi-Fi:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio
@2.4GHz	20	14.09	5.81	17.75	59.5662	3060	0.0195

Zigbee:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio
@2.4GHz	20	20.22	4.16	22.23	167.1091	3060	0.0546

Note:

- ① EIRP=conducted power+antenna gain;
- ② ERP=EIRP-2.15;
- ③ EIRP(dBm) = Field strength of the fundamental signal(dBuV/m@3m) – 95.23;
- ④ ERP(mW) = $10^{(ERP \text{ (dBm)}/10)}$;
- ⑤ The estimation distance is 20cm;
- ⑥ The test data please refer to the report of EED32R81506101, EED32R81506102 and EED32R81506103 only the worst case data was recorded in the report.

For Simultaneous Transmission:

As MPE ratio (BLE+2.4G Wi-Fi+Zigbee)=0.0038+0.0195+0.0546=0.0779 < 1, it's deemed to fulfil the RF exposure requirement.

Statement

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
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*** End of Report ***