TCT 通测检测 TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID. ..... :	2AAS9-L0006
Test Report No..... :	TCT211208E043
Date of issue..... :	Jan. 12, 2022
Testing laboratory ..... :	SHENZHEN TONGCE TESTING LAB
Testing location/ address:	TCT Testing Industrial Park Fuqiao 5th Industrial Zone, Fuhai Street, Bao'an District Shenzhen, Guangdong, 518103, People's Republic of China
Applicant's name..... :	BROWAN COMMUNICATIONS INCORPORATION
Address..... :	No.15-1, Zhonghua Rd., Hsinchu Industrial Park, Hukou, Hsinchu Hsien, Taiwan, 303
Manufacturer's name ... :	BROWAN COMMUNICATIONS INCORPORATION
Address..... :	No.15-1, Zhonghua Rd., Hsinchu Industrial Park, Hukou, Hsinchu Hsien, Taiwan, 303
Standard(s) ..... :	FCC CFR Title 47 Part 1.1307
Test item description ..... :	Pico Next Indoor Gateway
Trade Mark ..... :	BROWAN
Model/Type reference..... :	L0006, L0006-1, L0006-2, L0006-3, L0006-5, L0006-6, L0006-7, L0006-9, L0006-10, L0006-11, L0006-12, L0006-13
Rating(s) ..... :	Adapter Information: Model: MS-V1500R120-018H0-US Input: AC 100-240V, 50/60Hz, 0.6A max Output: DC 12.0V, 1.5A
Date of receipt of test item ..... :	Dec. 08, 2021
Date (s) of performance of test..... :	Oct. 19, 2021 ~ Jan. 12, 2022
Tested by (+signature) ... :	Brews XU
Check by (+signature).... :	Beryl ZHAO
Approved by (+signature):	Tomsin

General disclaimer:

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Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

1. General Product Information

1.1. EUT description

Test item description .....:	Pico Next Indoor Gateway
Model/Type reference.....:	L0006
Sample Number.....:	TCT211208E004-0101
Operation Frequency .....:	For WIFI: 2412MHz~2462MHz For LoRa: 923.3MHz~927.5MHz For WCDMA: WCDMA Band V: TX: 826.4MHz ~ 846.6MHz; RX: 871.4MHz ~ 891.6MHz WCDMA Band IV: TX: 1712.4MHz ~ 1752.6MHz RX: 2112.4MHz ~ 2152.6MHz WCDMA Band II: TX: 1852.4MHz ~ 1907.6MHz RX: 1932.4MHz ~ 1987.6MHz For LTE: LTE Band 2: TX: 1850 MHz ~ 1910 MHz RX: 1930 MHz ~ 1990 MHz LTE Band 4: TX: 1710 MHz ~ 1755 MHz RX: 2110 MHz ~ 2155 MHz LTE Band 12: TX: 699 MHz ~ 716 MHz RX: 729 MHz ~ 746 MHz
Modulation Type.....:	For WIFI: DSSS(802.11b), OFDM (802.11g/802.11n) For LoRa: LoRa For WCDMA: QPSK For LTE: QPSK/16QAM
Antenna Type.....:	External Antenna
Antenna Gain.....:	For WIFI: 2.19dBi For LoRa: 0dBi For WCDMA: WCDMA Band V: -0.43dBi WCDMA Band IV: 0.75dBi WCDMA Band II: 1.64dBi For LTE: LTE Band 2: 1.64dBi LTE Band 4: 0.75dBi LTE Band 12: 1.38dBi
Rating(s) .....:	Adapter Information: Model: MS-V1500R120-018H0-US Input: AC 100-240V, 50/60Hz, 0.6A max Output: DC 12.0V, 1.5A

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

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1.2. Model(s) list

No.	Model No.	Tested with
1	L0006	☒
Other models	L0006-1, L0006-2, L0006-3, L0006-5, L0006-6, L0006-7, L0006-9, L0006-10, L0006-11, L0006-12, L0006-13	☐
Note: L0006 is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names. So the test data of L0006 can represent the remaining models.		

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2. General Information

2.1. Test environment and mode

Item	Normal condition
Temperature	+25ºC
Voltage	DC 12V
Humidity	56%
Atmospheric Pressure:	1008 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel

2.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

3. For conducted measurements (Output Power, 20dB Occupied Bandwidth, Carrier Frequencies Separation, Hopping Channel Number, Dwell Time, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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3. Facilities and Accreditations

3.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098

  SHENZHEN TONGCE TESTING LAB

  Designation Number: CN1205

  The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

  SHENZHEN TONGCE TESTING LAB

  CAB identifier: CN0031

  The testing lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

3.2. Location

SHENZHEN TONGCE TESTING LAB

Address: TCT Testing Industrial Park Fuqiao 5th Industrial Zone, Fuhai Street, Bao'an District Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

4. Test Results and Measurement Data

According to §1.1307(b), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

Remark: 1)

Mode	Frequency (MHz)	Max. Power (dBm)	Tune up Power (dBm)	Max. Tune up Power (dBm)	Max. Tune up Power (mW)	Numeric antenna gain(dBi)
WIFI	2462	16.97	16±1	17	50.12	1.66
LoRa	923.3	26.64	26±1	27	501.19	1.00
WCDMA Band V	836.4	23.16	23±1	24	251.19	0.91
WCDMA Band IV	1732.6	23.18	23±1	24	251.19	1.19
WCDMA Band II	1880.0	23.07	23±1	24	251.19	1.46
LTE Band 2	1880.0	22.36	22±1	23	199.53	1.46
LTE Band 4	1720.0	22.50	22±1	23	199.53	1.19
LTE Band 12	715.3	24.10	23.5±1	24.5	281.84	1.37

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2) For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20cm, even if the calculation indicate that the MPE distance would be lesser.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where E = *Field Strength in Volts / meter*
P = *Power in Watts*
G=*Numeric antenna gain*
d=*Distance in meters*
S=*Power Density in milliwatts / square centimeter*

Substituting the MPE safe distance using d=20cm into above equation.
Yields:
*S=0.000199*P*G*

Mode	Power(mW)	numeric antenna gain	Power density(mW/cm^2)	Limit(mW/cm^2)	Result
WIFI	50.12	1.66	0.01656	1.0	PASS
LoRa	501.19	1.00	0.09974		
WCDMA Band V	251.19	0.91	0.04549		
WCDMA Band IV	251.19	1.19	0.05948		
WCDMA Band II	251.19	1.46	0.07298		
LTE Band 2	199.53	1.46	0.05797		
LTE Band 4	199.53	1.19	0.04725		
LTE Band 12	281.84	1.37	0.07684		

Simultaneous Transmission

Mode	Power density	Limit	Result
WIFI + LoRa + WCDMA	0.18928	1.0	PASS
WIFI + LoRa + LTE	0.19314		

(For mobile or fixed location transmitters, the maximum power density is 1.0 even if the calculation
indicates that the power density would be larger.)

********END OF REPORT********

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