

FCC PART 15E TEST REPORT FOR CERTIFICATION
On Behalf of

Shenzhen Jiteng Network Technology Co.,Ltd

Mini PC

Model No.: A Series; A 5; A 6; A 7; A x (x=0-9)

FCC ID: 2AY4C-GM06

Prepared for : Shenzhen Jiteng Network Technology Co.,Ltd
No.1202,Bitian Pavilion,Bizhong Garden,No.10 Bibo First
Street,Bibo Community, Huangbei Street,Luohu
District,Shenzhen City, China

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Kefeng Road, Science & Technology Park,
Nanshan District , Shenzhen, Guangdong, China

Tel: (0755) 26639496

Report Number : ACS-F23073
Date of Test : Mar.22~May.16, 2023
Date of Report : Jun.07, 2023

TABLE OF CONTENTS

<u>Description</u>	<u>Page</u>
1. SUMMARY OF STANDARDS AND RESULTS.....	5
1.1. Description of Standards and Results.....	5
2. GENERAL INFORMATION.....	6
2.1. Description of Equipment Under Test.....	6
2.2. Feature of Equipment Under Test.....	7
2.3. Test Information.....	8
2.4. Tested Supporting System Details.....	9
2.5. Block diagram of connection between the EUT and simulators.....	9
2.6. Test Facility.....	10
2.7. Measurement Uncertainty (95% confidence levels, k=2).....	10
3. POWER LINE CONDUCTED EMISSION TEST.....	11
3.1. Test Equipments.....	11
3.2. Block Diagram of Test Setup.....	11
3.3. Power Line Conducted Emission Test Limits.....	11
3.4. Configuration of EUT on Test.....	11
3.5. Operating Condition of EUT.....	12
3.6. Test Procedure.....	12
3.7. Power Line Conducted Emission Test Results.....	12
4. RADIATED EMISSION TEST.....	17
4.1. Test Equipments.....	17
4.2. Block Diagram of Test Setup.....	18
4.3. Radiated Emission Limits.....	20
4.4. EUT Configuration on Test.....	21
4.5. Operating Condition of EUT.....	21
4.6. Test Procedure.....	21
4.7. Radiated Emission Test Results.....	23
5. BAND EDGE COMPLIANCE TEST.....	133
5.1. Test Equipments.....	133
5.2. Limit.....	133
5.3. Test Procedure.....	133
5.4. Test Results.....	133
6. 6dB & 26dB & 99% Bandwidth Test.....	206
6.1. Test Equipments.....	206
6.2. Limit.....	206
6.3. Test Procedure.....	206
6.4. Test Results.....	207
7. OUTPUT POWER TEST.....	225
7.1. Test Equipments.....	225
7.2. Limit.....	225
7.3. Test Procedure.....	225
7.4. Test Results.....	226
8. SPECTRAL DENSITY TEST.....	236
8.1. Test Equipments.....	236
8.2. Limit.....	236
8.3. Test Procedure.....	236
8.4. Test Results.....	237
9. FREQUENCY STABILITY MEASUREMENT.....	247
9.1. Test Equipments.....	247
9.2. Limit.....	247
9.3. Test Procedure.....	247

9.4. Test Result.....	248
10. ANTENNA REQUIREMENT	251
10.1. Standard Applicable	251
10.2. Antenna Connected Construction.....	251
11. DEVIATION TO TEST SPECIFICATIONS	252

Appendix A. Photograph of Test

Appendix B. Photo of the EUT

TEST REPORT

Applicant : Shenzhen Jiteng Network Technology Co.,Ltd
 Manufacturer : Shenzhen Jiteng Network Technology Co.,Ltd
 Product : Mini PC
 FCC ID : 2AY4C-GM06
 (A) Model No. : A Series; A 5; A 6; A 7; A x (x=0-9)
 (B) Test Voltage : AC 120V/60Hz

Tested for comply with:
FCC CFR47 Part 15 Subpart E

Test procedure used:
ANSI C63.10: 2020
KDB 662911D01v02r01

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to confirm comply with all the FCC Part 15 Subpart E requirements. The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements. This report contains data that are not covered by the NVLAP accreditation.

This Report is made under FCC Part 2.1075. No modifications were required during testing to bring this product into compliance.

This report applies to single evaluation of one sample of above mentioned product and shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Mar.22~May.16, 2023 Report of date: Jun.07, 2023

Prepared by : Crush Liu Reviewed by : Thomas Chen
Crush Liu / Assistant Thomas Chen / Assistant Manager

信華科技(深圳)有限公司
Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept. Report
 Approved & Authorized Signer : Signature: Sunny Lu
 Sunny Lu / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Power Line Conducted Emission	FCC Part 15: 15.207 FCC Part 15: 15.407(b)(6)	PASS
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.205 FCC Part 15.407(b)	PASS
Band Edge Compliance	FCC Part 15: 15.407(b) FCC Part 15.205	PASS
6dB&26dB&99% Bandwidth Test	FCC Part 15: 15.407(e)	PASS
Output Power Test	FCC Part 15: 15.407(a)(5)	PASS
Power Spectral Density Test	FCC Part 15: 15.407(a)	PASS
Frequency Stability	FCC Part 15: 15.407(a)	PASS
Antenna requirement	FCC Part 15: 15.407(g)	PASS

Note: Measurement uncertainty affection to the result is considered, the EUT is technically compliant with standard requirements.

2. GENERAL INFORMATION

2.1. Description of Equipment Under Test

Applicant	Shenzhen Jiteng Network Technology Co.,Ltd
Applicant Address	No.1202,Bitian Pavilion,Bizhong Garden,No.10 Bibo First Street,Bibo Community, Huangbei Street,Luohu District,Shenzhen City, China
Manufacturer	Shenzhen Jiteng Network Technology Co.,Ltd
Manufacturer Address	No.1202,Bitian Pavilion,Bizhong Garden,No.10 Bibo First Street,Bibo Community, Huangbei Street,Luohu District,Shenzhen City, China
Product	Mini PC
Model No.	A Series; A 5; A 6; A 7; A x (x=0-9) Model differences (Declared by the Applicant): some component part difference, As for Radio part: these model's RF module are the same.
Test Model	A Series
FCC ID	2AY4C-GM06
Power supply#1	Manufacturer: SHENZHEN XINSPower TECHNOLOGY CO., LTD M/N:A1001-1904740DI INPUT:100-240V~50/60Hz 2.5A OUTPUT:19.0V; 4.74A 90.0W DC Cable: Shielded, Undetachable, 1.5m
Power supply#2	Manufacturer: MOSO POWER SUPPLY TECHNOLOGY CO., LTD. M/N: MS-Z6320R190-120D0-E INPUT:100-240V~50/60Hz 2.0A OUTPUT:19.0V; 6.32A 120.0W DC Cable: Shielded, Undetachable, 1.5m
Power supply#3	Manufacturer: Shenzhen Honor Electronic Co.,Ltd. M/N: ADS-110CL-19-3 190090G INPUT: AC 100-240V~50/60Hz 1.5A max OUTPUT:19.0V; 4.74A 90.06W DC Cable: Shielded, Undetachable, 1.5m
Power Cable	Unshielded, Detachable, 1.3m(3C)
Sample Type	Prototype production
Date of Receipt	Mar.13, 2023
Date of Test	Mar.22~May.16, 2023
Remark: This report only for WIFI 5GHz.	

2.2.Feature of Equipment Under Test

Product Feature & Specification	
Product	Mini PC
Model No.	A Series
Power Source	<input checked="" type="checkbox"/> Commercial Power AC 100-240V~50/60Hz
	<input checked="" type="checkbox"/> External Power Source DC 19V
	<input type="checkbox"/> Lithium battery DC V, mAh
	<input type="checkbox"/> UM battery DC V
Bluetooth	
Radio	BDR +EDR; BLE
Frequency Range	2402-2480MHz
Type of Modulation	GFSK, $\pi/4$ DQPSK, 8DPSK
Data Rate	1Mbps, 2Mbps, 3Mbps
Quantity of Channels	79/40
Channel Separation	1MHz/2MHz
2.4GHz Wi-Fi	
Support Modes	802.11b/g/n20/n40/ax20/ax40(RU is not support for 802.11ax mode)
Frequency Range	2412-2462MHz
Type of Modulation	802.11b(DSSS): CCK, QPSK, BPSK; 802.11g/n(OFDM): 64QAM,16QAM, QPSK, BPSK 802.11ax(OFDM): 64QAM,16QAM, QPSK, BPSK, 1024QAM
Data Rate	802.11b: 1/2/5.5/11 Mbps; 802.11g: 6/9/12/18/24/36/48/54 Mbps; 802.11n: up to 300Mbps 802.11ax: up to 574Mbps
Channel Separation	5MHz
5GHz Wi-Fi	
Support Modes	802.11a/n20/n40/ac20/ac40/ac80/ax20/ax40/ax80 (RU is not support for 802.11ax mode)
Frequency Range	5180-5240MHz, 5745-5825MHz
Type of Modulation	802.11a/n (OFDM): QPSK, BPSK, 16QAM, 64QAM 802.11ac (OFDM): QPSK, BPSK, 16QAM, 64QAM,256QAM 802.11ax (OFDM): QPSK, BPSK, 16QAM, 64QAM,256QAM, 1024QAM
Data Rate	802.11a: 6/9/12/18/24/36/48/54 Mbps; 802.11n: up to 300Mbps; 802.11ac: up to 867Mbps; 802.11ax: up to 1201Mbps
Channel Separation	20MHz
Antenna System	
Type of Antenna	PIFA
Antenna Peak Gain (NUCBC02)	Bluetooth Peak Gain: 0.54dBi 2.4GHz Peak Gain: ANT 0(MAIN): 0.44dBi; ANT 1(AUX):0.54dBi Band 1 Peak Gain: ANT 0(MAIN): 2.47dBi; ANT 1(AUX):-0.7dBi Band 4 Peak Gain: ANT 0(MAIN): 2.09dBi; ANT 1(AUX):0.03dBi
Antenna Peak Gain (NUCAL02)	Bluetooth Peak Gain: 1.47dBi 2.4GHz Peak Gain: ANT 0(MAIN): 1.23dBi; ANT 1(AUX): 1.47dBi Band 1 Peak Gain: ANT 0(MAIN): 3.28dBi; ANT 1(AUX): 4.39dBi Band 4 Peak Gain: ANT 0(MAIN): 7.53dBi; ANT 1(AUX): 5.95dBi

2.3. Test Information

A special test software (Mass Production Kit V1.0.48) was used to control EUT work in Continuous TX mode(The duty cycle of the test signal is 100%), and select test channel, wireless mode and data rate.

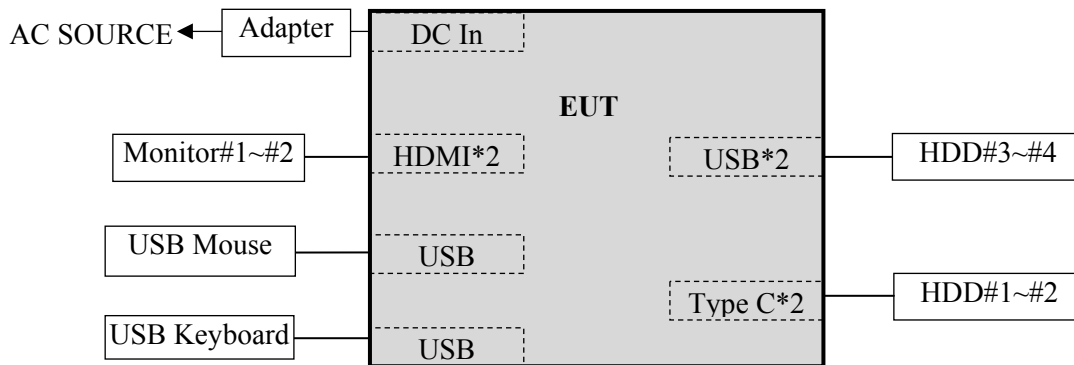
Tested mode, channel, and data rate information			
Mode	data rate (Mbps)(see Note)	Channel	Frequency (MHz)
IEEE 802.11a	6	Low :CH36	5180
	6	Middle: CH40	5200
	6	High: CH48	5240
	6	Low :CH149	5745
	6	Middle: CH157	5785
	6	High: CH165	5825
IEEE 802.11nHT20	MCS0	Low :CH36	5180
	MCS0	Middle: CH40	5200
	MCS0	High: CH48	5240
	MCS0	Low :CH149	5745
	MCS0	Middle: CH157	5785
	MCS0	High: CH165	5825
IEEE 802.11nHT40	MCS0	Low :CH38	5190
	MCS0	High:CH46	5230
	MCS0	Low :CH151	5755
	MCS0	High: CH159	5795
IEEE 802.11acVHT20	MCS0	Low :CH36	5180
	MCS0	Middle: CH40	5200
	MCS0	High: CH48	5240
	MCS0	Low :CH149	5745
	MCS0	Middle: CH157	5785
	MCS0	High: CH165	5825
IEEE 802.11acVHT40	MCS0	Low :CH38	5190
	MCS0	High: CH46	5230
	MCS0	Low :CH151	5755
	MCS0	High: CH159	5795
IEEE 802.11acVHT80	MCS0	CH42	5210
	MCS0	CH155	5775
IEEE 802.11ax HE20	MCS0	Low :CH36	5180
	MCS0	Middle: CH40	5200
	MCS0	High: CH48	5240
	MCS0	Low :CH149	5745
	MCS0	Middle: CH157	5785
	MCS0	High: CH165	5825
IEEE 802.11ax HE40	MCS0	CH38	5190
	MCS0	CH46	5230
	MCS0	Low :CH151	5755
	MCS0	High: CH159	5795
IEEE 802.11ax HE80	MCS0	CH42	5210
	MCS0	CH155	5775

Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.

2.4. Tested Supporting System Details

No.	Description	ACS No.	Manufacturer	Model	Serial Number
1.	Monitor#1	---	Lenovo	---	--
		Power Cord(3C): Unshielded, Detachable, 1.8m HDMI Cable: Shielded, Detachable, 1.8m			
2.	Monitor#2	---	DELL	P2421	--
		Power Cord(3C): Unshielded, Detachable, 1.8m HDMI Cable: Shielded, Detachable, 1.8m			
3.	USB Keyboard	ACS-EMC-K03R	DELL	SK-8120	CN-ODJ365-71616-2 BE-0DCE-A00
		USB Cable: Shielded, Undetachable, 2.0m			
4.	USB Mouse	ACS-EMC-M03R	DELL	M0C5UO	512023253
		USB Cable: Shielded, Undetachable, 1.8m			
5.	HDD#1	---	WD	WDBC3C0010BSL	WX51A794028Y
		Data Cable: Shielded, Detachable, 0.4m			
6.	HDD#2	---	WD	WDBC3C0020BSL	WXF1A19JNX5E
		Date Cable: Shielded, Detachable, 0.4m			
7.	HDD#3	ACS-EMC-HDD34	WD	WD My Book Studio	WCAV4302542
		Data Cable: Shielded, Detachable, 0.4m			
8.	HDD#4	ACS-EMC-HDD35	WD	WD My Book Studio	WCAV5D02502
		Date Cable: Shielded, Detachable, 0.4m			

2.5. Block diagram of connection between the EUT and simulators



(EUT: Mini PC)

2.6. Test Facility

Site Description
Name of Firm

: Audix Technology (Shenzhen) Co., Ltd.
No. 6, Kefeng Road, Science & Technology Park,
Nanshan District , Shenzhen, Guangdong, China

EMC Lab.

- : Certificated by ISED, Canada
Company Number: 5183A
CAB identifier: CN0034
Valid Date: Mar.31, 2024
- : Certificated by FCC, USA
Designation No.: CN5022
Valid Date: Mar.31, 2024
- : Accredited by NVLAP, USA
NVLAP Code: 200372-0
Valid Date: Mar.31, 2023

2.7. Measurement Uncertainty (95% confidence levels, k=2)

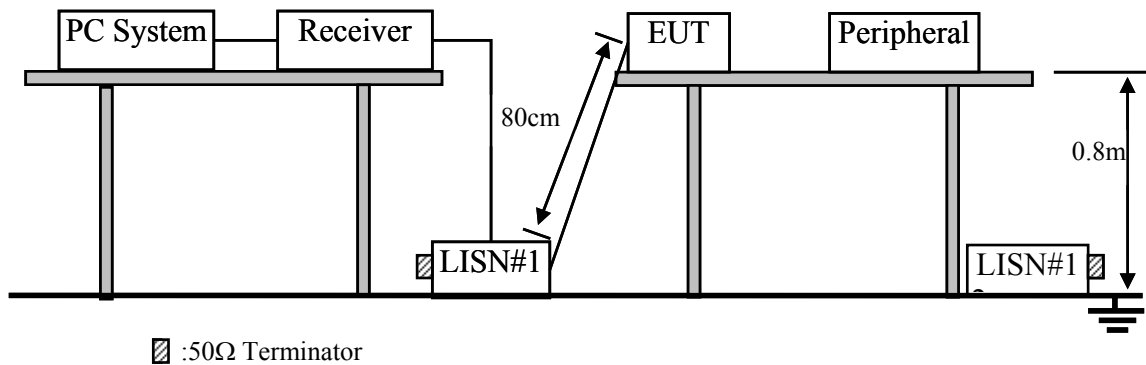
Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	$\pm 2.6\text{dB}(150\text{kHz to } 30\text{MHz})$
Uncertainty for Radiation Emission test in 3m chamber	$\pm 3.8\text{dB}(30\sim 200\text{MHz, Polarization: H})$
	$\pm 3.8\text{dB}(30\sim 200\text{MHz, Polarization: V})$
	$\pm 4.0\text{dB}(200\text{M}\sim 1\text{GHz, Polarization: H})$
	$\pm 4.0\text{dB}(200\text{M}\sim 1\text{GHz, Polarization: V})$
Uncertainty for Radiation Emission test in 3m chamber(1GHz-18GHz)	$\pm 4.0\text{dB}(1\sim 6\text{GHz, Distance: } 3\text{m})$
	$\pm 4.0\text{dB}(6\sim 18\text{GHz, Distance: } 3\text{m})$
Uncertainty for Radiated Spurious Emission test in RF chamber	$\pm 3.7\text{dB}(30\text{MHz}\sim 1000\text{MHz})$
	$\pm 3.3\text{dB}(1\sim 26.5\text{GHz})$
Uncertainty for Power density test	$\pm 2.0\text{dB}$
Uncertainty for Output power test	$\pm 0.8\text{dB}$
Uncertainty for Bandwidth test	$\pm 83\text{kHz}$
Uncertainty for DC power test	$\pm 1\%$
Uncertainty for test site temperature and humidity	$\pm 0.6^\circ\text{C}$
	$\pm 3\%$

3. POWER LINE CONDUCTED EMISSION TEST

3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	1# Shielding Room	AUDIX	N/A	N/A	Nov.09,22	5 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100842	Apr.01,23	1 Year
3.	L.I.S.N.#1	Rohde & Schwarz	ENV216	102160	Oct.08,22	1 Year
4.	L.I.S.N.#2	Kyoritsu	KNW-407	8-1628-5	Apr.01,23	1 Year
5.	RF Cable	Eastsheep	RG223	190424	Oct.08,22	1 Year
6.	Terminator	Hubersuhner	50Ω	No.1	Apr.02,23	1 Year
7.	Test Software	AUDIX	e3	6.100913a	N/A	N/A

3.2. Block Diagram of Test Setup



3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limits shall apply at the transition frequencies.

3. Emission Level (dBμV) = Factor (L.I.S.N.) (dB) + Cable Loss (dB)+Reading (Receiver) (dBμV)

3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. Mini PC (EUT)

Model No. : A Series

Serial No. : N/A

3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.4.

3.5. Operating Condition of EUT

- 3.5.1. Setup the EUT as shown as Section 3.2.
- 3.5.2. Turn on the power of EUT.
- 3.5.3. PC run test software to control EUT work in Tx mode.

3.6. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via AC unit connected to the power mains through a line impedance stabilization network (L.I.S.N. #1). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESCI) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.7. Power Line Conducted Emission Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)