Guangzhou Xaircraft Technology CO.,LTD.

TEST REPORT

SCOPE OF WORK
FCC TESTING–WM101

REPORT NUMBER
230403082SZN-001

ISSUE DATE **[REVISED DATE]**
19 June 2023 [----------]

PAGES
24

DOCUMENT CONTROL NUMBER
FCC ID 247_b

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TEST REPORT

Intertek Report No.: 230403082SZN-001

Guangzhou Xaircraft Technology CO.,LTD.

Application
For
Certification

FCC ID: 2A46G-WM101A

WLAN Model

Model: WM101

2.4GHz Wi-Fi Transceiver

Report No.: 230403082SZN-001

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-21]

Prepared and Checked by:

Allen Qin
Engineer

Approved by:

Ryan Chen
Project Engineer
Date: 19 June 2023

MEASUREMENT/TECHNICAL REPORT

This report concerns (check one) Original Grant _____ Class II Change __X__

Equipment Type: DTS - Part 15 Digital Transmission Systems (Wi-Fi transmitter portion)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No __X__

If yes, defer until: _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes _____ No __X__

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-01-21] Edition] provision.

Report prepared by:

Allen Qin
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1.0 Summary of Test results

Applicant: Guangzhou Xaircraft Technology CO.,LTD.
Applicant Address: Block C, No.115, Gaopu Road, Tianhe District, GuangzhouCity, Guangdong,P.R.China
Manufacturer: Guangzhou Xaircraft Technology CO.,LTD.
Manufacturer Address: Block C, No.115, Gaopu Road, Tianhe District, GuangzhouCity, Guangdong,P.R.China

Model: WM101

FCC ID: 2A46G-WM101A

TEST ITEM	REFERENCE	RESULTS
Max. Output power	15.247(b)(3)	Pass
Radiated Emission in Restricted Bands	15.247(d), 15.209, FCC 15.205	Pass
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses an Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

2.0 General Description

2.1 Product Description

The equipment under test (EUT) is a WLAN Model with2.4G WIFI function operating in 2412-2462MHz and 5.8G WIFI function operating in 5725-5850MHz. The EUT is powered by DC 5V. For more detail information pls. refer to the user manual.

Type of Modulation: BPSK, QPSK, 16QAM, 64QAM for OFDM; CCK, DQPSK, DBPSK for DSSS.
Antenna Type: Integral Antenna
Antenna Gain: 2.7dBi

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

2.2 Related Submittal(s) Grants

This is an application for certification of a transceiver for the WLAN Model which has 2.4GHz WIFI function.
This report is Class II Permissive Change for FCC ID: 2A46G-WM101A, due to the change the antenna, partial tests are required after evaluation.
For the 5.8G WIFI function was tested and demonstrated in report 230403082SZN-002.

2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013) and KDB 558074 D01 v05r02. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst-case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

2.4 Test Facility

The Semi-anechoic chamber and shielded room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Longhua Branch** and located at 101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China. This test facility and site measurement data have been fully placed on file with File Number: CN1188.

3.0 System Test Configuration

3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. The EUT was powered by DC 5V from a board during the test.

On 802.11b/g/n-HT20/n-HT40 mode, two antennas are used, and all data rate were tested and only the worst case data is shown in the report.

For maximizing emissions, the EUT was rotated through 360°, the EUT was placed on the styrene turntable with 0.8m up to 1GHz and 1.5 m above 1GHz. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

The rear of unit shall be flushed with the rear of the table.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst-case configuration is used in all specified testing.

The parameters of test software setting:
During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

Test software: ART2-GUI: V2.3

3.3 Special Accessories

N/A.

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

3.5 Equipment Modification

Any modifications installed previous to testing by Guangzhou Xaircraft Technology CO.,LTD**.** will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Longhua Branch.

3.6 Support Equipment List and Description

Description	Manufacturer	Remark
USB to RJ45 Cable (Provided by Applicant)	/	0.2m
Network cable Provided by Applicant	/	0.5m
Laptop Provided by Intertek	Dell	Latitude 3140
Adapter (Provided by Applicant)	Provided by Applicant	Input: AC100-240V Output: 12V⎓2A

Applicant: Guangzhou Xaircraft Technology CO.,LTD.
Date of Test: 16 April 2023 Model: WM101

4.0 Measurement Results

4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(3):

The antenna power of the EUT was connected to the input of a broadband Average RF power meter. The power meter has a video bandwidth that is greater than DTS bandwidth and utilize a fast-responding diode detector. Power was read directly at the EUT antenna terminals with cable loss added.

For antennas with gains of 6 dBi or less, maximum allowed Transmitter output is 1 watt (+30 dBm). 2.4G band Ant gain: 2.7dBi. In MIMO (2Tx), Ant1+Ant2 Directional gain = GANT + 10 log(N) dBi = 2.7 + 10 log (2) = 5.7 dBi< 6 dBi, so maximum allowed Transmitter output will reduce to 30.0dBm (1W) for conducted TX power

TestMode	Antenna	Channel	Result	Limit	Verdict
11B	Ant1	2412	17.0	<=30	PASS
	Ant2	2412	16.5	<=30	PASS
	Ant1	2437	16.5	<=30	PASS
	Ant2	2437	16.4	<=30	PASS
	Ant1	2462	15.5	<=30	PASS
	Ant2	2462	17.2	<=30	PASS
11G	Ant1	2412	17.6	<=30	PASS
	Ant2	2412	16.9	<=30	PASS
	Ant1	2437	16.7	<=30	PASS
	Ant2	2437	16.7	<=30	PASS
	Ant1	2462	16.4	<=30	PASS
	Ant2	2462	17.0	<=30	PASS
11N20MIMO	Ant1	2412	16.3	<=30	PASS
	Ant2	2412	15.8	<=30	PASS
	total	2412	19.1	<=30	PASS
	Ant1	2437	16.5	<=30	PASS
	Ant2	2437	15.1	<=30	PASS
	total	2437	18.9	<=30	PASS
	Ant1	2462	15.8	<=30	PASS
	Ant2	2462	14.1	<=30	PASS
	total	2462	18.0	<=30	PASS
11N40MIMO	Ant1	2422	16.0	<=30	PASS
	Ant2	2422	14.7	<=30	PASS
	total	2422	18.4	<=30	PASS
	Ant1	2437	16.2	<=30	PASS
	Ant2	2437	14.3	<=30	PASS
	total	2437	18.4	<=30	PASS
	Ant1	2452	16.3	<=30	PASS
	Ant2	2452	14.5	<=30	PASS
	total	2452	18.5	<=30	PASS

Cable loss: 1.5 dB External Attenuation: 0 dB

Cable loss, external attenuation has been included in OFFSET function

EUT max. output level = 19.11dBm
EUT max. E.I.R.P = 19.1dBm + 5.7dBi =24.8dBm =302.0mW

For RF Exposure, the information is saved with filename: RF exposure.pdf.

4.2 Out of Band Radiated Emissions FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

[×] Not required, since all emissions are more than 20dB below fundamental
[ ] See attached data sheet

Applicant: Guangzhou Xaircraft Technology CO.,LTD.
Date of Test: 16 April 2023 Model: WM101

4.3 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b) (c):

Data is included of the worst-case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Applicant: Guangzhou Xaircraft Technology CO.,LTD.
Date of Test: 16 April 2023 Model: WM101

4.4 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD

Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD

Example

Assume a receiver reading of 62.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 42 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0 dB
FS = 62 + 7.4 + 1.6 - 29 + 0 = 42 dBμV/m

Level in mV/m = Common Antilogarithm [(42 dBμV/m)/20] = 125.9 μV/m

Applicant: Guangzhou Xaircraft Technology CO.,LTD.
Date of Test: 16 April 2023 Model: WM101

4.5 Radiated Spurious Emission

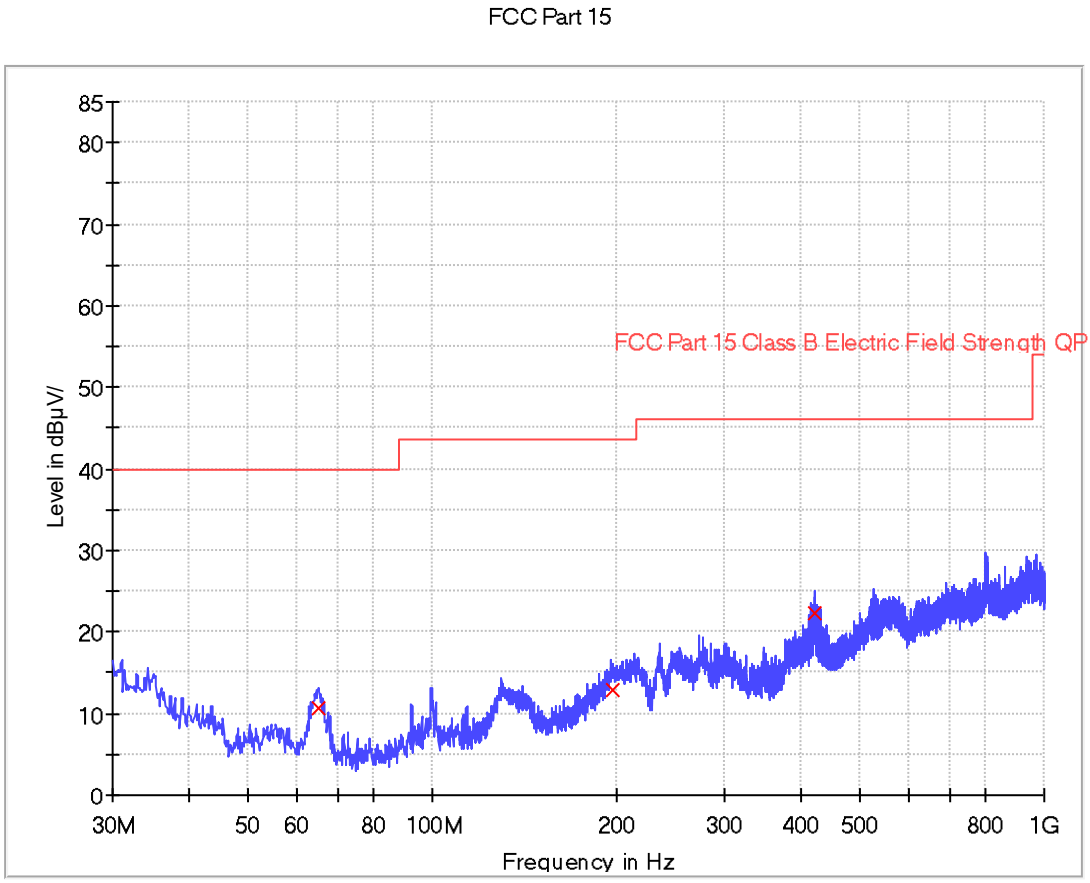
The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit. Simultaneous transmission was considered during the test, only the worst-case data is recorded in this report.

Worst Case Radiated Spurious Emission
at 2390.000MHz
is passed by 4.1dB margin.

For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

Applicant: Guangzhou Xaircraft Technology CO.,LTD.
Date of Test: 16 April 2023 Model: WM101
Worst Case Operating Mode: transmission(channel 01)

ANT Polarity: Horizontal



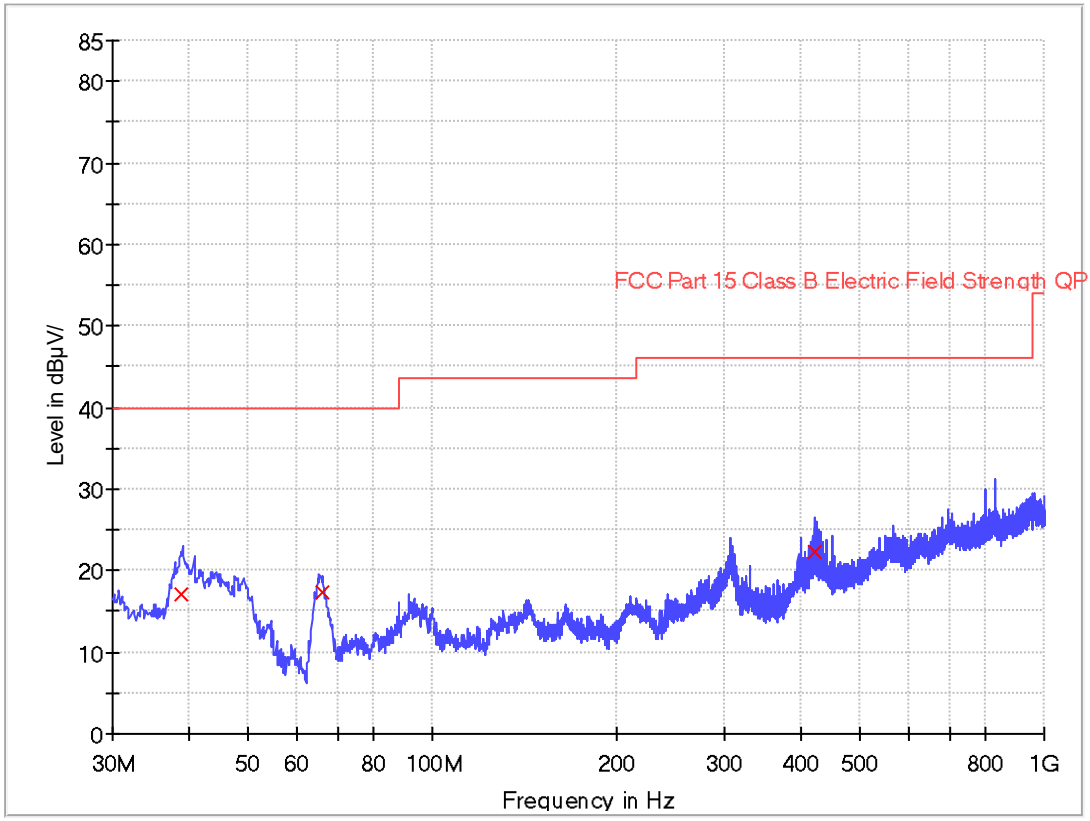
Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµVm)
65.240000	10.6	1000.0	120.000	H	8.0	29.4	40.0
197.203750	12.9	1000.0	120.000	H	11.4	30.7	43.5
422.486250	22.3	1000.0	120.000	H	18.9	23.7	46.0

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Quasi Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Limit Line (dBµV/m) – Level (dBµV/m)

Applicant: Guangzhou Xaircraft Technology CO.,LTD.
Date of Test: 16 April 2023 Model: WM101
Worst Case Operating Mode: transmission(channel 01)

ANT Polarity: Vertical

FCC Part 15



Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
38.840000	17.0	1000.0	120.000	V	13.1	23.0	40.0
65.890000	17.2	1000.0	120.000	V	8.0	22.8	40.0
422.486250	22.3	1000.0	120.000	V	18.9	23.7	46.0

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Quasi Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Limit Line (dBµV/m) – Level (dBµV/m)

Applicant: Guangzhou Xaircraft Technology CO.,LTD.
Date of Test: 16 April 2023 Model: WM101

Radiated Emissions (above 1GHz)

ANT1 Worst Case Operating Mode: Transmitting (802.11b-Channel 01)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*9648.000	49.7	32.7	37.5	54.5	74.0	-19.5
Horizontal	*2390.000	67.0	35.5	28.4	59.9	74.0	-14.1

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*9648.000	40.5	32.7	37.5	45.3	54.0	-8.7
Horizontal	*2390.000	56.6	35.5	28.4	49.5	54.0	-4.5

ANT1Worst Case Operating Mode: Transmitting (802.11b-Channel 06)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	46.2	33.6	32.7	45.3	74.0	-28.7
Horizontal	*7311.000	47.5	33.1	36.7	51.1	74.0	-22.9

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	36.1	33.6	32.7	35.2	54.0	-18.8
Horizontal	*7311.000	39.6	33.1	36.7	43.2	54.0	-10.8

ANT1 Worst Case Operating Mode: Transmitting (802.11b-Channel 11)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	51.1	33.5	32.7	50.3	74.0	-23.7
Horizontal	*7386.000	50.4	33.1	36.9	54.2	74.0	-19.8

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	37.0	33.5	32.7	36.2	54.0	-17.8
Horizontal	*7386.000	37.3	33.1	36.9	41.1	54.0	-12.9

ANT1 Worst Case Operating Mode:
Transmitting (802.11g-Channel 01)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*9648.000	52.7	32.7	37.5	57.5	74.0	-16.5
Horizontal	*2390.000	67.7	35.5	28.4	60.6	74.0	-13.4

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*9648.000	39.0	32.7	37.5	43.8	54.0	-10.2
Horizontal	*2390.000	53.6	35.5	28.4	46.5	54.0	-7.5

ANT1 Worst Case Operating Mode:
Transmitting (802.11g-Channel 06)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	47.7	33.6	32.7	46.8	74.0	-27.2
Horizontal	*7311.000	51.7	33.1	36.7	55.3	74.0	-18.7

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	37.1	33.6	32.7	36.2	54.0	-17.8
Horizontal	*7311.000	38.1	33.1	36.7	41.7	54.0	-12.3

ANT1 Worst Case Operating Mode:
Transmitting (802.11g-Channel 11)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	49.7	33.5	32.7	48.9	74.0	-25.1
Horizontal	*7386.000	50.7	33.1	36.9	54.5	74.0	-19.5

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	37.8	33.5	32.7	37.0	54.0	-17.0
Horizontal	*7386.000	38.7	33.1	36.9	42.5	54.0	-11.5

MIMO Worst Case Operating Mode:
Transmitting (802.11n20-Channel 01)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*9648.000	52.1	32.7	37.5	56.9	74.0	-17.1
Horizontal	*2390.000	70.6	35.5	28.4	63.5	74.0	-10.5

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*9648.000	38.2	32.7	37.5	43.0	54.0	-11.0
Horizontal	*2390.000	54.1	35.5	28.4	47.0	54.0	-7.0

MIMO Worst Case Operating Mode:
Transmitting (802.11n20-Channel 06)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	52.3	33.6	32.7	51.4	74.0	-22.6
Horizontal	*7311.000	52.9	33.1	36.7	56.5	74.0	-17.5

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	43.2	33.6	32.7	42.3	54.0	-11.7
Horizontal	*7311.000	43.7	33.1	36.7	47.3	54.0	-6.7

MIMO Worst Case Operating Mode:
Transmitting (802.11n20-Channel 11)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	53.4	33.5	32.7	52.6	74.0	-21.4
Horizontal	*7386.000	50.5	33.1	36.9	54.3	74.0	-19.7

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	40.9	33.5	32.7	40.1	54.0	-13.9
Horizontal	*7386.000	38.5	33.1	36.9	42.3	54.0	-11.7

MIMO Worst Case Operating Mode:
Transmitting (802.11n40-Channel 03)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*9648.000	60.3	36.4	33.5	57.4	74.0	-16.6
Horizontal	*2390.000	74.3	36.9	29.1	66.5	74.0	-7.5

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*9648.000	46.4	36.4	33.5	43.5	54.0	-10.5
Horizontal	*2390.000	57.7	36.9	29.1	49.9	54.0	-4.1

MIMO Worst Case Operating Mode:
Transmitting (802.11n40-Channel 06)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	51.4	36.7	33.4	48.1	74.0	-25.9
Horizontal	*7311.000	53.8	36.6	35.8	53.0	74.0	-21.0

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	43.5	36.7	33.4	40.2	54.0	-13.8
Horizontal	*7311.000	44.3	36.6	35.8	43.5	54.0	-10.5

MIMO Worst Case Operating Mode:
Transmitting (802.11n40-Channel 09)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4904.000	52.6	36.8	33.3	49.1	74.0	-24.9
Horizontal	*7356.000	59.3	36.5	29.3	52.1	74.0	-21.9

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4904.000	43.3	36.8	33.3	39.8	54.0	-14.2
Horizontal	*7356.000	50.9	36.5	29.3	43.7	54.0	-10.3

NOTES:

1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz/VBW=10Hz for average value.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: Guangzhou Xaircraft Technology CO.,LTD.
Date of Test: 16 April 2023
Model: WM101

4.6 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109

[ ] Not required - No digital part

[ ] Test results are attached

[x] Included in the separated report.

Applicant: Guangzhou Xaircraft Technology CO.,LTD.
Date of Test: 16 April 2023
Model: WM101

4.7 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

	See attached spectrum analyzer chart (s) for Transmitter timing
	See Transmitter timing diagram provided by manufacturer
x	Not applicable, duty cycle was not used.

5.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.pdf & internal photos.pdf.

6.0 Product Labeling

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

7.0 Technical Specifications

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

8.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

9.0 Confidentiality Request

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

10.0 Discussion of Pulse Desensitization

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF.*

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

11.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-13	BiConiLog Antenna	ETS	3142E	00217919	2022-07-13	2025-07-13
SZ185-03	EMI Receiver	R&S	ESR7	101975	2022-12-26	2022-12-26
SZ061-08	Horn Antenna	ETS	3115	00092346	2021-09-05	2024-09-05
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	2021-05-18	2023-05-18
SZ056-08	Signal Analyzer	R&S	FSV 40	101430	2022-12-19	2023-12-19
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	2022-05-10	2023-05-10
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	2021-12-12	2024-12-12
SZ062-24	RF Cable	RADIALL	RG 213U	--	2022-10-27	2023-10-27
SZ062-25	RF Cable	RADIALL	0.04-26.5GHz	--	2022-10-27	2023-10-27
SZ062-38	RF Cable	RADIALL	0.04-26.5GHz	--	2022-05-17	2023-05-17
SZ067-04	Notch Filter	Micro-Tronics	BRM50702-02	--	2022-05-11	2023-05-11

********** End of Report**********