TEST REPORT

Report No.: SHATBL2312027W05

Applicant	:	Jiangsu Niu Electric Technology Co., Ltd
Product Name	:	Motor-dirven cycle
Brand Name	:	NIU
Model Name	:	XQi3
FCC ID	:	2AZ6G-X3JW552
Test Standard	:	47 CFR Part 2.1093
Date of Test	:	2024.01.04-2024.01.09

Report Prepared by : (Jack Suo)

Report Approved by : (Ghost Li)

Authorized Signatory : (Terry Yang)

"Shanghai ATBL Technology Co., Ltd." hereby certifies that according to actual testing conditions. The test results or observations are provided in accordance with measured value, without taking risks caused by uncertainty into account. Without explicit stipulation in special agreements, standards, or regulations, ATBL shall not assume any responsibility. The test results or observations are applicable only to tested sample. Client shall be responsible for representativeness of the sample and authenticity of the material. This report will be void without authorized signature or special seal for testing report. Do not copied without authorization.

TABLE OF CONTENTS

REVISION HISTORY 3
DECLARATION OF REPORT 4
1. GENERAL DESCRIPTION 5
1.1. Applicant 5
1.2. Manufacturer 5
1.3. Factory 5
1.4. General Information of EUT 6
1.5. Laboratory Information 6
2. FCC 47CFR §2.1093 Requirement 7
2.1. Test Standards 7
2.2. Limit 7
2.3. Test Result 10

REVISION HISTORY

Rev.	Issue Date	Revisions	Revised by
00	2024.01.10	Initial Release	Ghost Li

DECLARATION OF REPORT

1. The device has been tested by ATBL, and the test results show that the equipment under test (EUT) is in compliance with the requirements of 47 CFR Part 2.1093. And it is applicable only to the tested sample identified in the report.

2. This report shall not be reproduced except in full, without the written approval of ATBL, this document only be altered or revised by ATBL, personal only, and shall be noted in the revision of the document.

3. The general information of EUT in this report is provided by the customer or manufacture, ATBL is only responsible for the test data but not for the information provided by the customer or manufacture.

4. The results in this report is only apply to the sample as tested under conditions. The customer or manufacturer is responsible for ensuring that the additional production units of this model have the same electrical and mechanical components.

5. In this report, '☐' indicates that EUT does not support content after '☐', and '☑' indicates that it supports content after '☑'

1. GENERAL DESCRIPTION

1.1. Applicant

Name	:	Jiangsu Niu Electric Technology Co., Ltd
Address	:	No.387 Changting Road, West Taihu Science and Technology Industrial Park, Changzhou City,Jiangsu P.R. China

1.2. Manufacturer

Name	:	Jiangsu Niu Electric Technology Co., Ltd
Address	:	No.387 Changting Road, West Taihu Science and Technology Industrial Park, Changzhou City,Jiangsu P.R. China

1.3. Factory

Name	:	Jiangsu Niu Electric Technology Co., Ltd
Address	:	No.387 Changting Road, West Taihu Science and Technology Industrial Park, Changzhou City,Jiangsu P.R. China

1.4. General Information of EUT

General Information	
Equipment Name	Motor-dirven cycle
Brand Name	NIU
Model Name	XQi3
Series Model	N/A
Model Difference	N/A
Operation Frequency	2400MHz - 2483.5MHz
Modulation Type	GFSK
Antenna gain	-3.05 dBi
Antenna Designation	PCB Antenna
Power supply	55V~84V
Hardware Version	X3E13S51
Software Version	X3E13W51

1.5. Laboratory Information

Company Name :	Shanghai ATBL Technology Co., Ltd.
Address :	Building 8,No.160 Basheng Road, Waigaoqiao Free Trade Zone, Pudong New Area, Shanghai
Telephone :	+86(0)21-51298625

2. FCC 47CFR §2.1093 Requirement

2.1. Test Standards

Follow the maximum permissible exposure (MPE) limits specified in 447498 D04 Interim General Radio Frequency Exposure Guidelines v01. The gain of the antenna used in the product was extracted from the supplied antenna data sheet and the maximum total power input to the antenna was also measured. Calculate the distance from the product to the MPE limit by the formula.

2.2. Limit

For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

(A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of Part 1.1307. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

(B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold Pth (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). Pth is given by:

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

Where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\,cm}\sqrt{f}}\right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20\,cm}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases}$$

d = the separation distance (cm);

(C) Or using below table and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole. (1.64 linear value).

RF Source frequency (MHz)	Threshold ERP(watts)
0.3- 1.34	1,920 R^2 .
1.34-30	3,450 R^2/f^2 .
30-300	3.83 R^2 .
300- 1,500	0.0128 R^2f.
1,500- 100,000	19.2R^2 .

For multiple RF sources: Multiple RF sources are exempt if:

(A) The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those is paragraph (b)(3)(i)(A) of Part 1.1307. Medical implant devices may only use this exemption and that in paragraph (b)(3)(i)(A).

(B) in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

Where: $$\sum_{i=1}^{a}\frac{P_i}{P_{th,i}}+\sum_{j=1}^{b}\frac{ERP_j}{ERP_{th,j}}+\sum_{k=1}^{c}\frac{Evaluated_k}{Exposure\ Limit_k}\leq 1$$

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(B) of Part 1.1307 for Pth, including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(C) of Part 1.1307 for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

Pi = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or

portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

Pth,i = the exemption threshold power (Pth) according to paragraph (b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i.

ERPj = the ERP of fixed, mobile, or portable RF source j.

ERPth,j = exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least $\lambda/2\pi$ according to the applicable formula of paragraph (b)(3)(i)(C) of Part 1.1307.

Evaluatedk = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

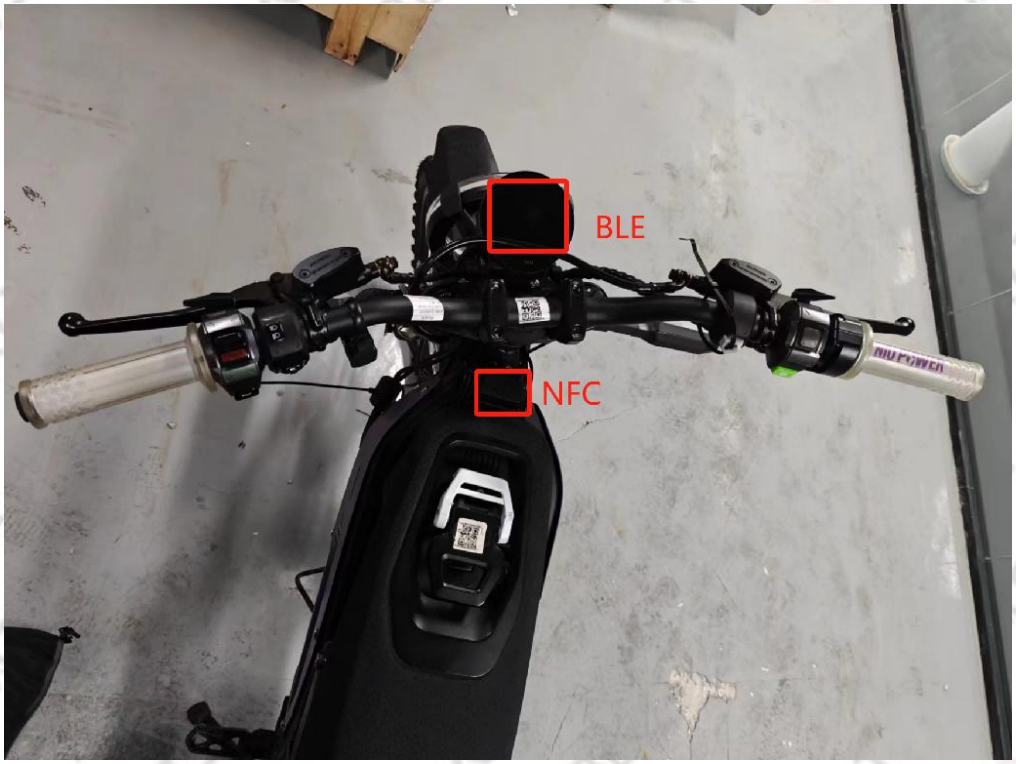
Exposure Limitk = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k, as applicable from § 1.1310.

2.3. Test Result

Operating Band	Frequency (MHz)	Ant. Gain (dBi)	Max Conducted Average Output Power (dBm)	EIRP/ERP (dBm)	EIRP/ERP Limit (dBm)	EIRP/ERP (mW)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)	Result
BLE	2402	-3.05	5.88	2.83	36.00	1.91867	0.000381801	1.000	Pass
NFC	13.56	3.00	-38.8	-35.8	28.80	0.00026	0.000000052	0.979	Pass

2.4. Description

NFC and BLE do not work simultaneously, NFC is only used for vehicle unlocking



According to the BLE and NFC transmission antenna positions shown in the picture, the distance from the vehicle to the human body during use is greater than 20cm.

※※※※※END OF THE REPORT※※※※※