

# APPROVAL SHEET

Doc. No.: 202011040002Customer Name: AKUVOX (XIAMEN) NETWORKS CO., LTDMaterial Code: R03050002403Product Name: AM-SMRTCP-RFIDSupplier: Guangdong ZK RFID Electronic Technology Co.,LtdSpecification: AM-SMRTCP-RFID IC Module 39\*19mm

Test Date: \_\_\_\_\_ Quantity: \_\_\_\_\_

Supplier Confirmed	Editor	Software Engineer	Hardware Engineer	Testing Engineer	Project Manager
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**company address:** 1004 Room, 3 block B, Tian-an-Yun-Gu, Ban Tian Longgang, Shenzhen, China**phone call:** 0755-29062099**Factory address:** Floor 4, Building A, Zhongjin Industrial Park, No.3 South Pusha Road, Shahu Village, Tangxia Town, Dongguan city**Website Address:** www.zkradio.com

Bantian Street, Longgang District, Shenzhen, China

Remarks:

## **Non-Touched Radio Frequency IC Card Reader Module AM-SMRTCP-RFID**

### **I、 Introduction**

AM-SMRTCP-RFID is the reader module specialized for non-touched radio frequency IC card with operating frequency 13.56MHZ. The reader module for non-touched smart card was developed based on ISO/IEC14443 international standard protocol. It uses high integration card reading chips, which NXP OM966302HN product. It has these advantages of high integration, strong anti-interference ability, small volume, better stable performance, also with high reception sensitivity, low operation electricity, single DC power supply, low price, high performance and other characteristics.

### **II、 Application**

This specification is applied to the requirements for access control attendance, file management, electronic ticket, product anti-counterfeiting, public traffic card system, etc.

### **III、 Technical Parameters**

Model	AM-SMRTCP-RFID
ISO	ISO/IEC 14443A
Cards Support	S50 Card/S70 Card/Ultralight Card/NTAG Card/FM11RF08 Card/FM1208 Card/DESfire EV1 Card /FeliCa Card /15693 Card
Operating Frequency	13.56MHz
Baud Rate	9600 bit/s by default
The machine voltage	DC 24V
communication interface	UART, 8N1
Electricity	Standby electricity is less than 90mA, and swipe electricity is less than 90mA
Conditions	Operating Temperature and Humidity Range: -10℃—70℃, 20%—80% Storage Temperature and Humidity Range: -20℃—80℃, 20%—80%

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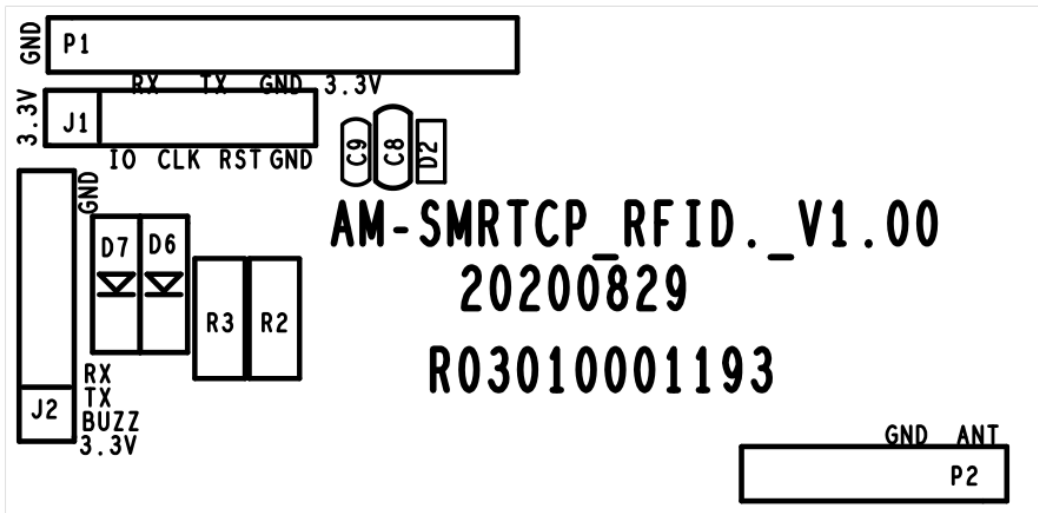
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Module size	39mm*19mm(deviation±1 mm)
Swipe Distance	S50 Card : 0~5cm,S70 Card : 0~5cm,Ultralight Card:0~1.5cm,NTAG Card:0~2cm,FM11RF08 Card:0~4cm,FM1208 Card:0~4cm,DESfire EV1 Card:0~0.8cm, 15693 Card:0~5cm 。 Remark : 0~L(L≥Lmm)(The actual distance depends on the type of cards and the application environment)
Firmware Version	V1.11
Hardware Version	V1.00

#### IV、 Outline drawing and Pin Definition

Remark: Outline drawing actually has the UL mark

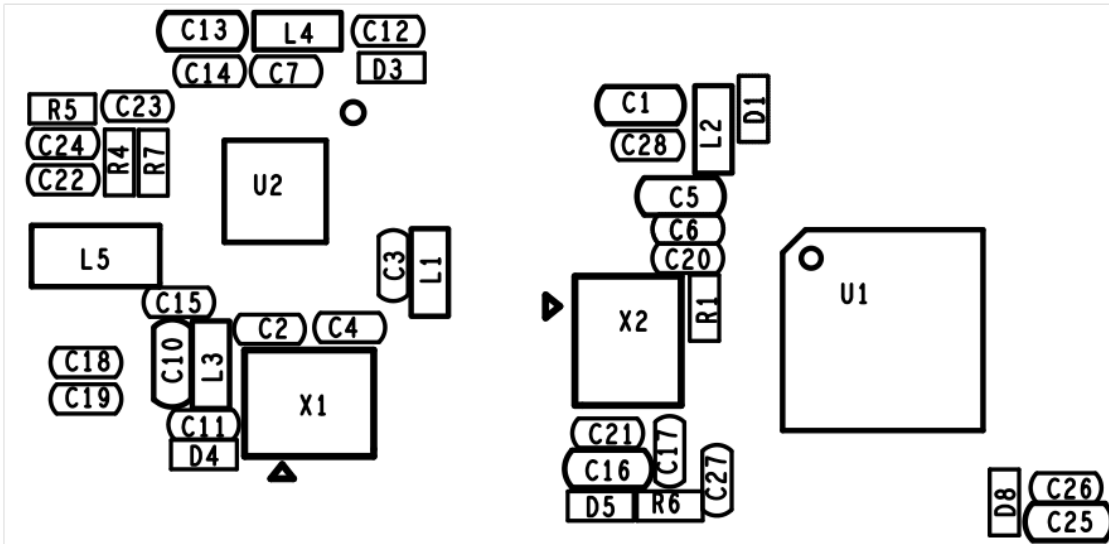


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**P1 is 7 pin connectors , its pitch is 2.54mm:**

p1-1	GND
p1-2	RX
p1-3	TX
p1-4	GND
p1-5	3.3V
p1-6	NC
p1-7	NC

**P2 is 4 pin connectors , its pitch is 2.54mm:**

ANT
TVSS
NC
NC

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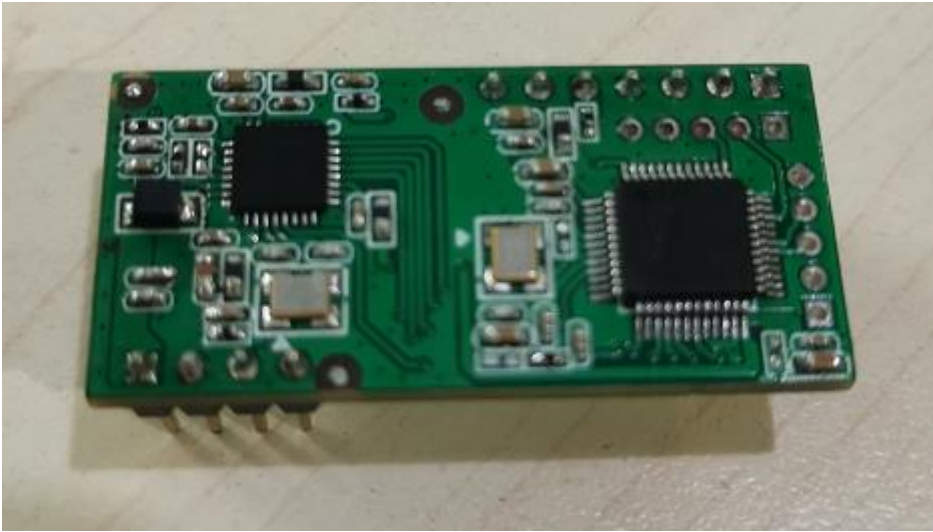
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## V、 Pictures of Real Products

*Pic 1: Front View of Module*



*Pic 2: Reversed View of Module*



## VI、 Package

- 1.Past the beauty grain adhesive on pearl cotton and fix the labeled product above the beauty grain adhesive,pack them with the way of 4\*6 pieces of cotton (refer to Pic 1).
- 2.Put the pearl cotton into the packing box and pack it in 4 cotton/box (refer to Pic 2).

*Pic 1:*

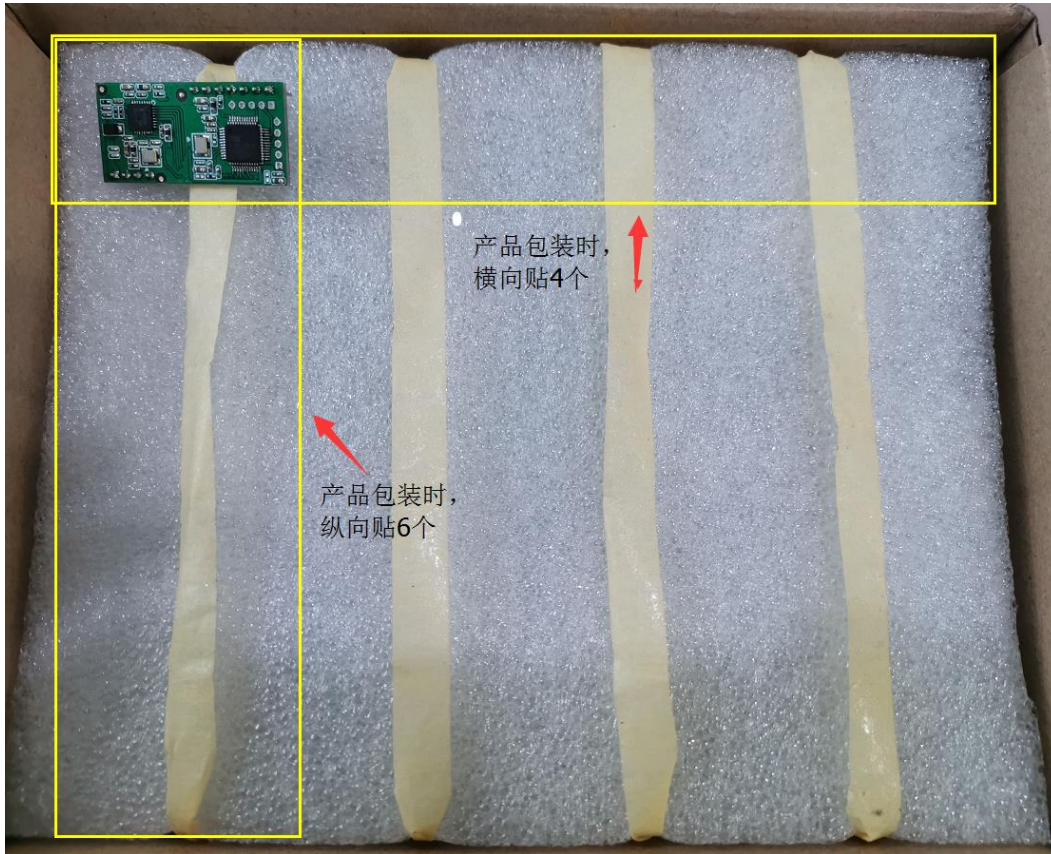
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**Pic 2:**

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## VII、 Contact Information If Any Technical Matters

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## FCC Warning

**Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01**

### 2.2 List of applicable FCC rules

FCC Part 15.225

### 2.3 Specific operational use conditions

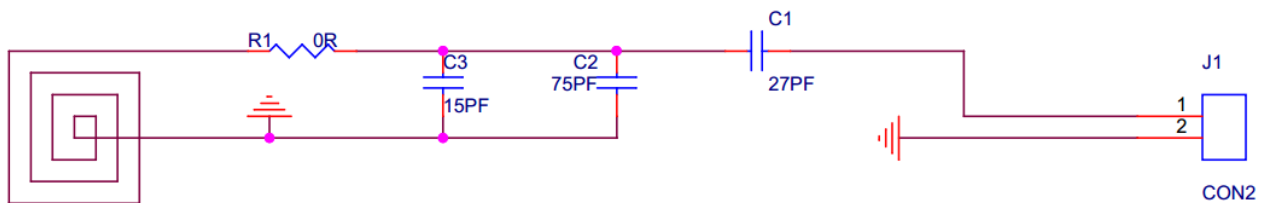
This transmitter/module and its antenna(s) must not be co-located or operating in conjunction with any transmitter. This information also extends to the host manufacturer's instruction manual.

### 2.4 Limited module procedures

The mode of active polling is adopted in the module, and the RF field is intermittently switched on and off. The open duration of the RF field is about 92.8ms, and the close duration is about 1.6ms. After the RF field is opened, the module will identify the electronic tag in the field. The electronic tags conforming to relevant communication protocols are communicated. After anti-collision screening of the electronic tags in the field, the UID of the selected electronic tag will be read.

### 2.5 Trace antenna designs

(The circuit is wired to form a coil, and the capacitor resistance forms a resonant circuit)



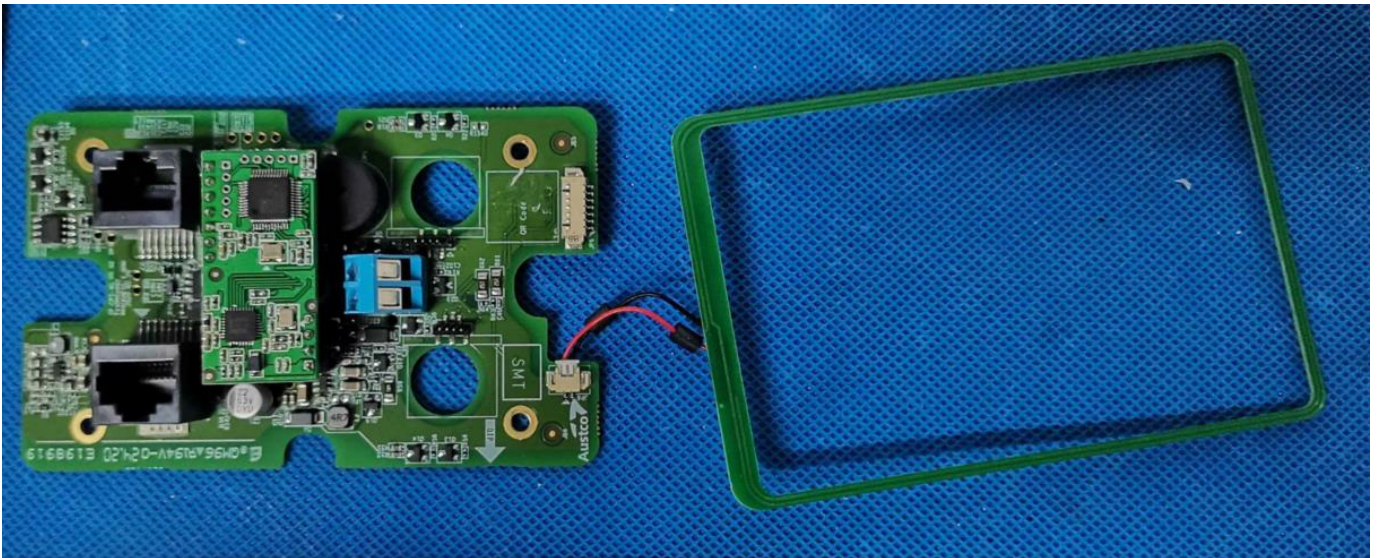
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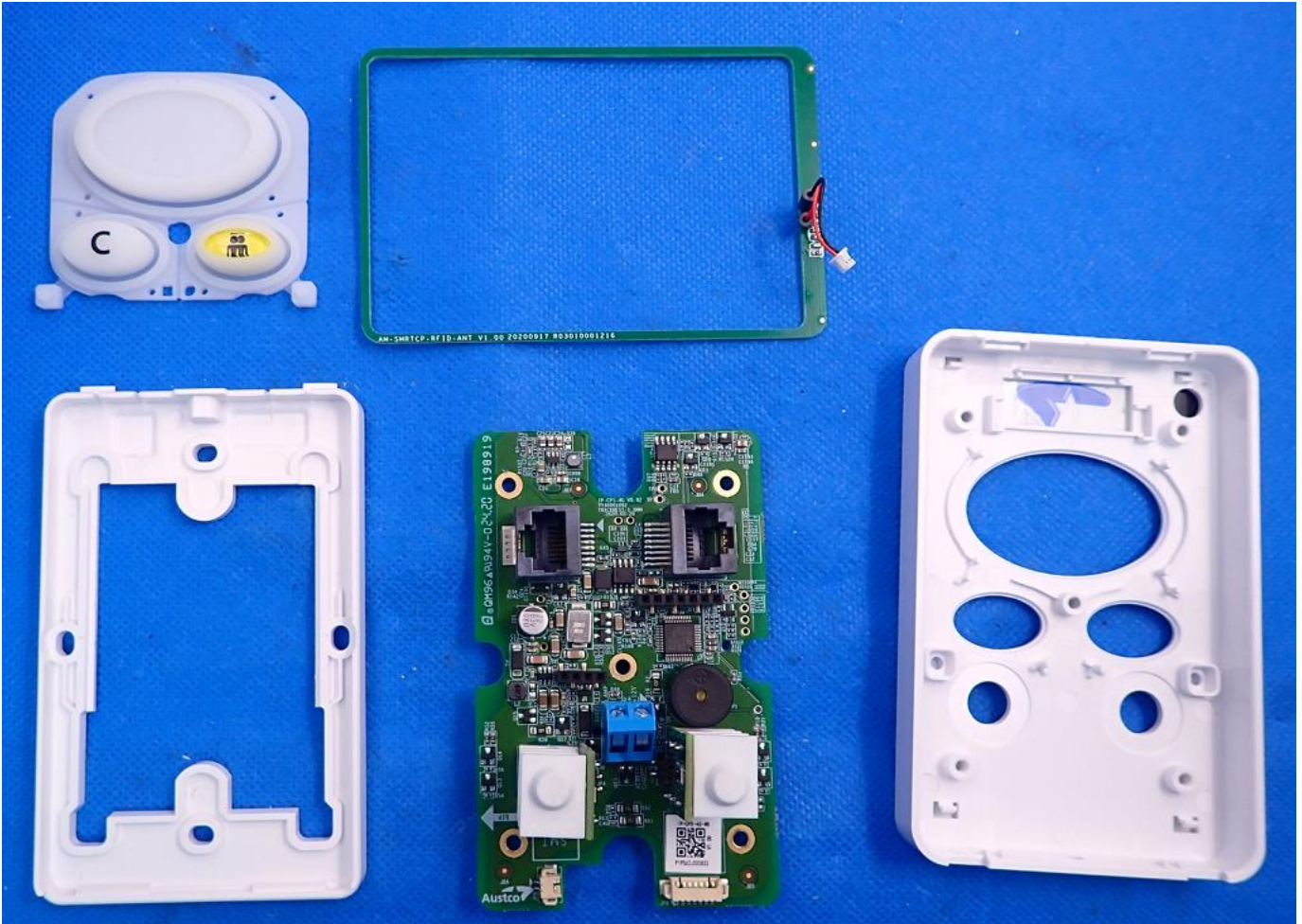
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## 2.6 RF exposure considerations

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This compliance to FCC radiation exposure limits for an uncontrolled environment, and minimum of 20cm separation between antenna and body.

The host product manufacturer would provide the above information to end users in their end-product manuals.

## 2.7 Antennas

Coil antenna; 0dBi; 13.56MHz

## 2.8 Label and compliance information

The end product must carry a physical label or shall use e-labeling followed KDB784748D01 and KDB 784748 stating Transmitter Module FCC ID: 2AKAR-AMSMRTCP.

## 2.9 Information on test modes and additional testing requirements

For more information on testing, please contact the manufacturer.

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**2.10 Additional testing, Part 15 Subpart B disclaimer**

The modular transmitter is only FCC authorized for the specific rule parts (FCC Part 15.225) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed when contains digital circuitry.

**2.11. User manual**

The host is mutual inductive to the electronic tag (card) through the antenna, module, and reads the information inside the electronic tag (such as card number), and then communicates with the host computer through the serial port to achieve the purpose of controlling other electronic equipment.

**FCC Statements**

(OEM) Integrator has to assure compliance of the entire end-product incl. the integrated RF Module. For 15 B (§15.107 and if applicable §15.109) compliance, the host manufacturer is required to show compliance with 15 while the module is installed and operating.

Furthermore the module should be transmitting and the evaluation should confirm that the module's intentional emissions (15C) are compliant (fundamental / out-of-band). Finally the integrator has to apply the appropriate equipment authorization (e.g. Verification) for the new host device per definition in §15.101.

Integrator is reminded to assure that these installation instructions will not be made available to the end-user of the final host device.

"This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation."

"Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment."

The Integrator will be responsible to satisfy SAR/ RF Exposure requirements, when the module integrated into the host device.

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NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

#### IC Statements

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licencecontenudans le présentappareilestconforme aux CNR d'Innovation, Sciences et Développementéconomique Canada applicables aux appareils radio exempts de licence. L'exploitationest autorisée aux deux conditions suivantes :

- (1) L' appareil ne doit pas produire de brouillage;
- (2) L' appareil doit accepter tout brouillageradioélectriquesubi, même si le brouillageest susceptible d' encompromettre le fonctionnement.

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This radio transmitter [IC: 26721-AMSMRTCP] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Antenna Type	Manufacturer	Model	Gain	Frequency Range
Coil Antenna	Guangdong ZK Radio Electronic Tech Co., Ltd	/	0dBi	13.56 MHz

FCC ID: 2AKAR-AMSMRTCP

IC: 26721-AMSMRTCP

Host name: Reader

Main engine product model: IP-SMRTCP/2P/RFID

Specification: The silicone/white

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