ZK8201 RFID Read/Write Module Specification

The ZK8201 module is a single-channel UHF RFID module, developed by Iotelligent based on its own iBAT2000 chip. The module is specially designed to meet the needs of high-end RFID desktop label printers. The ZK8201 module provides one SMA antenna interface and 30dBm RF power output. While maintaining high cost efficiency, this module achieves high integration, low power consumption, excellent performance, stability and reliability, and has excellent Anti-jamming ability. It is the preferred choice for high performance/cost-effective UHF RFID desktop equipment.

Operation instructions

- The module must be stably fixed to the structure of the main machine and ensure good grounding;

- Before turning on the power, please carefully check whether the antenna port has been connected to the load;

- Antenna standing wave is recommended to be better than 2.0.

Key technical parameters

- **Module specification**

Air interface protocol	EPC C1G2、ISO18000-6C、GB/T29768-2013
Antenna interface	One SMA antenna interface (female)
Output power	0 ~ 30dBm, accuracy +/-1dB
Operating frequency	FCC Band: 902 ~ 928 MHz China Band II: 840 ~ 845 MHz
Connector	8-pin connector
Communication interface	3.3V TTL UART (115200 bps)
Dimensions	62mm * 40mm * 12mm
DC power supply	DC voltage 5V
Power saving mode	Sleep mode 0.7W
Power consumption	570mA@20dBm
ESD protection	1500V
Shock-proof	Installation meets IEC requirements
Working temperature	-20℃ ~ +60℃

- **Module interface definition**

Interface pin	Definition	Functional description
1	SWDIO	SWD Data
2	SWCLK	SWD Clock
3	UART0_RX	Serial port 0 input
4	UART0_TX	Serial port 0 output
5	UART1_RX	Serial port 1 input
6	UART1_TX	Serial port 1 output
7	VCC	Power supply, +5V
8	GND	Grounding

IC

IC STATEMENT

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

Cet appareil contient des émetteurs / récepteurs exemptés de

licence conformes aux RSS (RSS)d'Innovation, Sciences et

Développement économique Canada. Le fonctionnement est soumis

aux deux conditions suivantes :

(1) Cet appareil ne doit pas causer d'interférences.

(2) Cet appareil doit accepter toutes les interférences, y compris

celles susceptibles de provoquer un fonctionnement indésirable de

l'appareil.

 avertissements radio pour les appareils mobiles :

L' équipement est conforme aux limites d'exposition aux rayonnements définies par la IC pour les environnements non

contrôlés. La distance minimale entre le dissipateur de chaleur et votre corps doit être de 50 cm lors de l' installation

et de l' utilisation du matériel.

The distance between user and products should be no less than 50cm

FCC Statement

FCC standards: FCC CFR Title 47 Part 15 Subpart C Section 15.249

Integral antenna with antenna gain -24.67dBi

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.

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

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.

FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: 2BCD8-ZK8201 Or Contains FCC ID: 2BCD8-ZK8201"

When the module is installed inside another device, the user manual of the host must contain below warning statements;

1. 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.

(2) This device must accept any interference received, including interference that may cause undesired operation.

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.

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

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Any company of the host device which install this modular with limit modular approval should perform the test of radiated & conducted emission and spurious emission,etc. according to FCC part 15C : 15.247 and 15.209 & 15.207 ,15B Class B requirement, Only if the test result comply with FCC part 15C : 15.247 and 15.209 & 15.207 ,15B Class B requirement，then the host can be sold legally.

1.Basic information

1.1 POSTEK Technology Development Co., Ltd.

Address: Floor 18, Block 2, Building B, Wisdom Plaza,
No. 4068, Qiaoxiang Road, Nanshan District,
Shenzhen, China

1.2 Test Principle
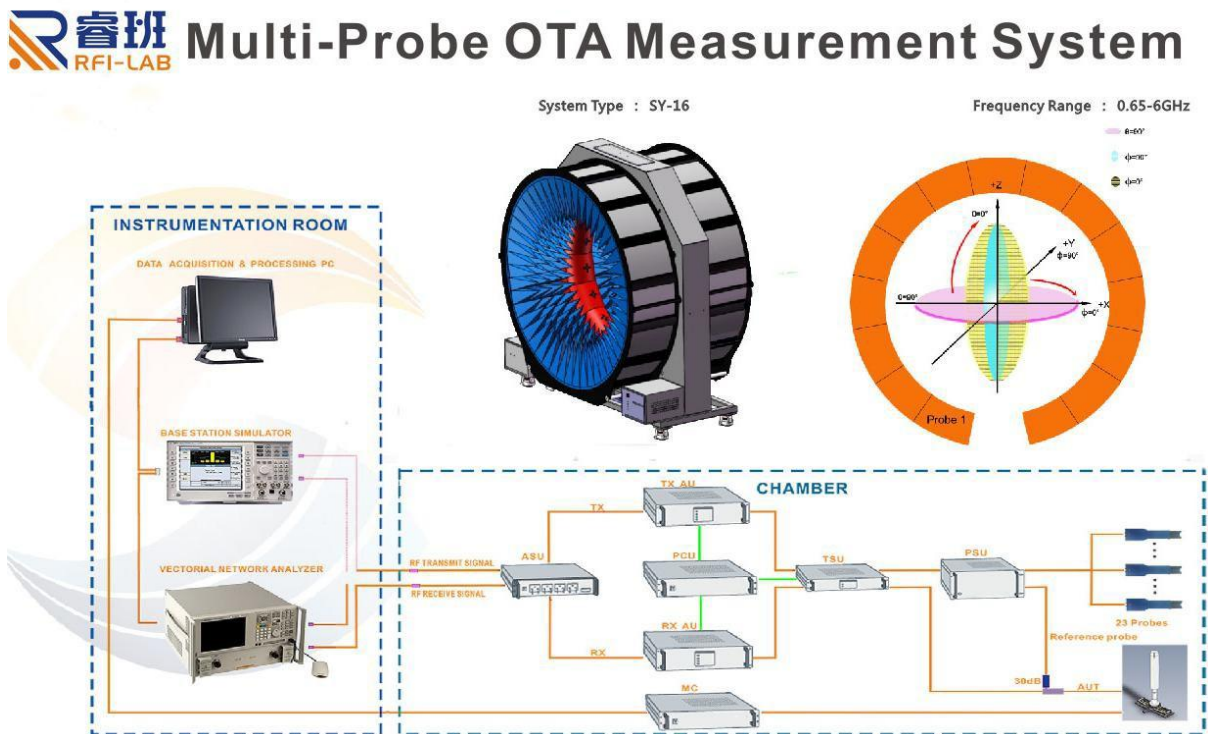
2020、01.03

QP030-013

1.1 Test equipment

Name	Model	Device ID	Manufactures	Calibration Date	Next Cal date
Network Analyzer	E5071B	RFI-LAB-012	Agilent	2019.10.23	2020.10.22
Network Analyzer	E5071C	RFI-LAB-032	Agilent	2019.10.23	2020.10.22
16 probes microwave chamber	3*3*2.5	RFI-LAB-010	Sunyield	2019.03.15	2021.03.14

1.2 Test enviroment

Ambient temperature	23.2℃
Relative humidity	61%RH
Atmospher presure	101.10kPa

2. Sample information

2.1 Sample information

Product name	UHF PCB Antenna
Sample model	POSTEK_A1
Standard size	Antenna size：10.5mm*130mm；Line length：625mm
Factory serial number	/
Test items	VSWR; radiation pattern; antenna gain; efficiency; pattern circularity
Frequency range	800-960MHz
Received date	12/31/2019
Test date	01/02/2020
Remark	/

2.2 Sample physical picture

2.3 Placement of actual samples
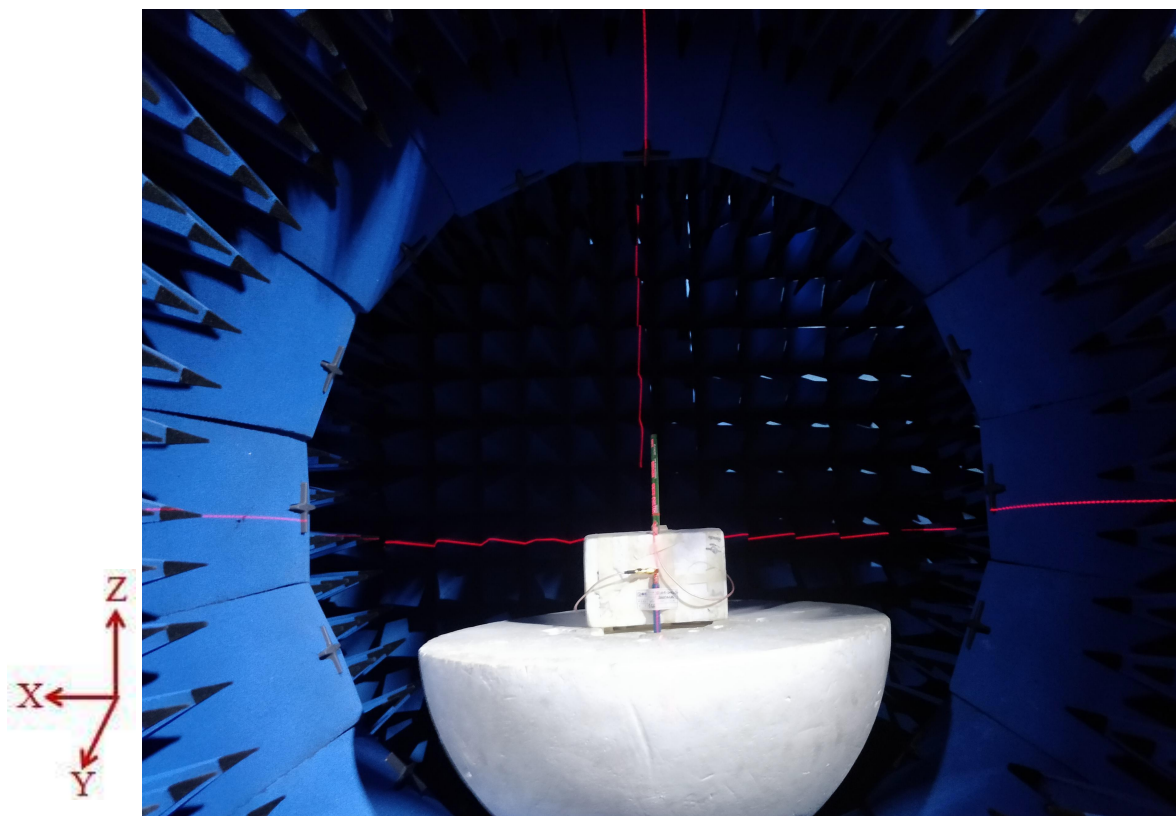
3. Test results

3.1 Test basis

| Object name	Parameter name	Method name	Standard number
Mobile communication antenna	VSWR	General Technical Specifications for Mobile Communication Antennas	GB/T 9410-2008
	Radiation pattern		
	Antenna gain		
	Efficiency		
	Pattern circularity		
Antenna	Efficiency	IEEE Antenna test standard procedure	ANSI/IEEE Std 149-1979

3.2 Test uncertainty

The calculation of uncertainty is based on the "Guide to the Expression of Uncertainty in Measurement" (GUM) issued by ISO, and the expanded uncertainty is represented by a coverage factor of K=2 and a 95% confidence level.

Project	Uncertainty
VSWR	±0.3
Gain	±1dB
Efficiency	±10%

QP030-013

3.3 Test data

3.3.1 Antenna network analyzer test
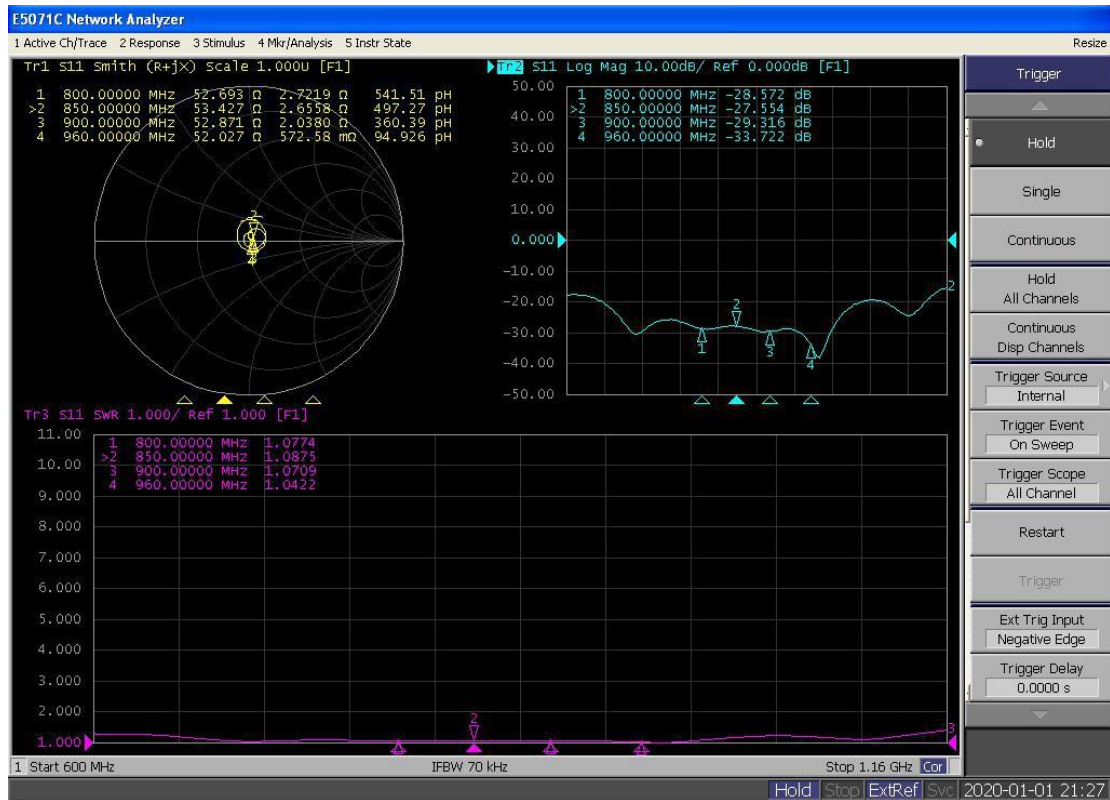
3.3.2 S11 Parameter data

Frequency/MHz	800	850	900	960
VSWR	1. 07 74	1.08 75	1.07 09	1.04 22

3.3.3 Antenna gain and efficiency

Frequency/ MHz	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960
Max gain/ dBi	-22.57	-22.93	-23.41	-23.50	-23.77	-23.96	-24.18	-24.18	-24.42	-24.64	-24.67	-24.88	-25.02	-24.92	-24.80	-24.79	-24.68
Efficiency /%	0.18	0.16	0.14	0.13	0.14	0.11	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09

3.3.4 Pattern circularity

Phi=90

Freq /MHz	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960
Out of roundness/ dB	12.17	10.43	09.19	08.86	08.47	08.92	10.46	10.76	10.20	09.30	11.26	14.40	14.44	12.56	10.95	12.56	18.22

3.3.5 Radiation pattern

(1) X-Z Plane：

V Phi=0

(2) Y-Z Plane：

V Phi=90

8
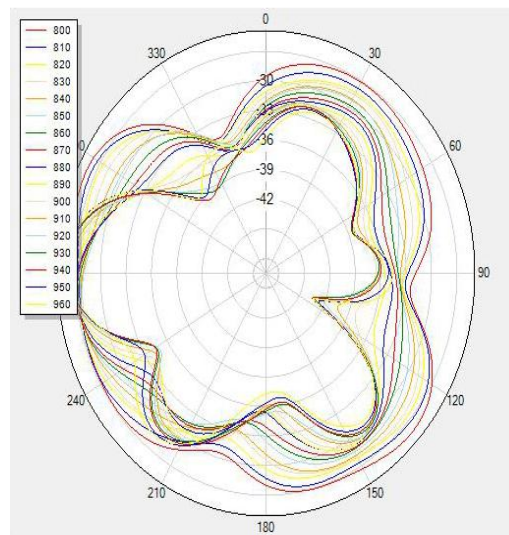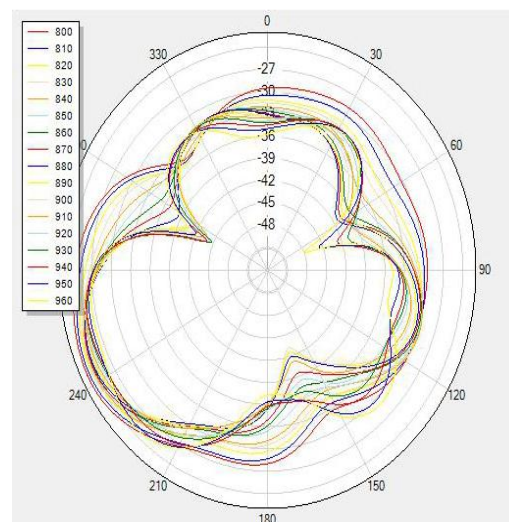
(3) X-Y Plane：

H Theta=90
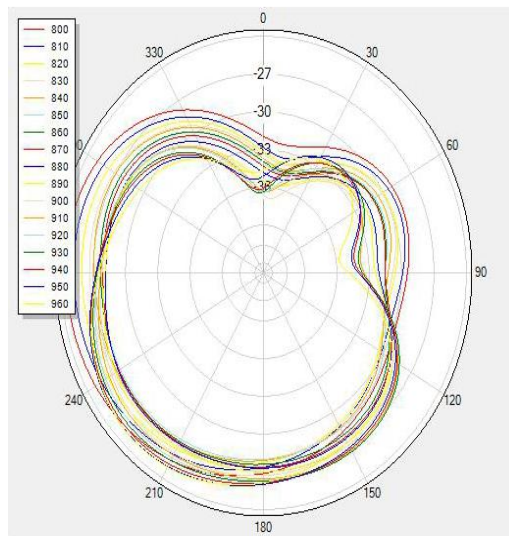
(4)   3D pattern at 880MHz：

---**End**---
(The following entent is blank)