

# RFID Module(EC-RF200-T7)

The RFID module(model EC-RF200-T7) is prepared by Complete Genomics, Inc. Used to identify chip and kit serial numbers in Genetic Sequencer . It is consists of a RFID Controller and an antenna.

## Specifications describe:

### RFID controller

Model:EC-RF200

Power supply: 9-30VDC, 1A

### Antenna

Planar RFID antenna

Model: EC-UHF-ANT-NF0003

Comply with GB/T 9410-2008; ANSI/IEEE Std149-1979

Size: 113mm × 23mm × 4.5mm

Weight: 100g (excluding mounting bracket)

Material: Engineering plastic ABS

Connector type: SMA type RF coaxial connector

Voltage standing wave ratio:  $\leq 1.2:1$

Gain: -15 dBi

Polarization method: linear polarization

Antenna impedance: 50  $\Omega$

Protection level: IP 65

Working frequency band: 902MHz~928MHz

Support protocol: Supports EPC class Gen2 (ISO 18000-6-c), GB/T29768

Working mode: frequency hopping/fixed frequency;

Output power: maximum 0.5W, configurable;

Working temperature: -25 °C ~+70 °C;

Storage temperature: -40 °C ~+85 °C

Working humidity: 10% -95% RH without condensation;

## Safety regulations:

### Complete Genomics, Inc.

Hotline: +1 (888) 811-9644

E-mail: [US-CustomerService@mgi-tech.com](mailto:US-CustomerService@mgi-tech.com);

Address: 2904 Orchard Parkway San Jose, CA 95134

Website: [www.completegenomics.com](http://www.completegenomics.com)

- 1) Radio License:
  - EN 302 208;
  - FCC 47 FCR Part 15C;
  - SRRC;
- 2) EMC: EN 301 489;
- 3) Safety: EN 60 950;
- 4) ROHS certification: Passed relevant tests according to IEC 62321 standard;

### **Interface definition:**

- 1) POWER interface, external DC9-36V power adapter
- 2) LAN interface, RJ45 connector definition

#### 8PIN RJ45 Interface Definition

#### Pin Definition Description

1 TX+Transceive Data+

2 TX - Transceive Data -

3 RX+Receive Data+

4 NC suspended

5 NC suspended

6 RX - Receive Data -

7 NC suspended

8 NC suspended

- 3) ANT1, ANT2, ANT3 interfaces, SMA connectors, connecting antennas

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## **FCC Statement**

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.

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 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.

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

### **IC Note:**

This device complies 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; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme aux CNR exemptes de licence d'Innovation, Sciences et Développement économique Canada . Son fonctionnement est soumis aux deux conditions suivantes :

- (1) Ce dispositif ne peut causer d'interférences ; et
- (2) Ce dispositif doit accepter toute interférence , y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

### **Radiation Exposure Statement**

This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

Cet équipement est conforme aux limites d'exposition aux radiations FCC/IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps.

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

### **2.2 List of applicable FCC rules**

CFR 47 FCC PART 15 SUBPART C and RSS-247 issue2 has been investigated. It is applicable to the modular transmitter.

### **2.3 Specific operational use conditions**

This Modular Approval is limited to OEM installation for mobile and fixed applications only. The antenna installation and operating configurations of this transmitter, including any applicable source-based time averaging duty factor, antenna gain, and cable loss must satisfy MPE categorical Exclusion Requirements of 2.1091.

### **2.4 Limited module procedures**

This module will only use in Complete Genomics, Inc.'s host device only.

We will retain control over the final installation of the modular such that compliance of the end product is assured. In such cases, an operating condition on the limit modular approval for the module must be only approved for use when installed in devices produced by a specific manufacturer. If any hardware modify or RF control software modify will be made by host manufacturer, C2PC or new certificate should be applied to get approval, if those change and modification made by host manufacturer not expressly approved by the party responsible for compliance, then it is illegal.

### **2.5 Trace antenna designs**

Not applicable

### **2.6 RF exposure considerations**

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device if without further certify such as C2PC with SAR. This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.

### **2.7 Antennas**

This radio transmitter has been approved by Federal Communications Commission 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 if without further certify such as C2PC.

Type	Antenna type	Frequency Range	Antenna Gain
EC-UHF-ANT-NF0003	External Planar RFID antenna	840-960MHz	-8.02dBi
EC-UHF-ANT-NF0001	External Planar RFID antenna	840-960MHz	-14.55dBi

### **2.8 Label and compliance information**

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:2A92Z-ECRF200T7 Or Contains FCC ID: 2A92Z-ECRF200T7" and/or "Contains Transmitter Module IC: 29863-ECRF200T7 Or Contains IC: 29863-ECRF200T7"

### **2.9 Information on test modes and additional testing requirements**

Host manufacturer which install this modular with limit modular approval should perform the test of radiated emission and spurious emission according to FCC part 15C:15.247, 15.209, RSS-247 and RSS-Gen requirement, only if the test result comply with the requirement, then the host can be sold legally.

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

Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B.

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