

# **FUJI XEROX**

## **HFD2 User's Manual**

This manual explains the installation process and function and performance of Radio Frequency Identification system (HFD2).

This product does not permit a repair and an exchange by the end user. Please contact our service office or a FX product handling Service Company when the exchange of the device is necessary due to the trouble and so on.

Also, please read this manual to the end surely, and use a product properly before you install HFD2 in your machine.

### **Introduction**

This product uses the radio wave of 13.56MHz (Inductive Loop System).

Therefore, this product takes a regulation and /or law such as output of the RF power by each country and /or self-governing body.

Some cases, the final product (e.g. printer) adapts to the law of each country, and type approval may be required.

The following shall be kept to use a product for the safety.

#### **A cable and TAG shall use designation accessories.**

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When a power supply cable is changed, the following condition will be kept:

- Keep the range of rated current.
- Set the length of the cable at less than 2.5m.

#### **Do not remodel and/or dismantle this product.**

Don't remodel this product because a Fire, Electric shock and Machine trouble may be caused. Because this product uses a radio wave, law of the country may punish for remodeling of the product.

**Shut off the power immediately when you notice smoke or unusual smell.**

Shut off the power (take off the power cable) immediately when you notice smoke or unusual smell, because it short-circuits, and a fire and an electric shock may be caused.

**Don't put wiring and/or other articles on this product.**

This product builds in the antenna that radiates the radio wave. Performance may not be able to be maintained when the wire etc. is installed on the product and so on.

**Don't install this product in the place to have the possibility for a liquid and other material fall.**

You may be struck by electricity or product may short-circuit.

**This product should be protected from any electrostatic discharge.**

This product may be damaged by the static electricity that accumulated in the human body and so on. Connect a human body to the ground at the time of the maintenance or discharge before the work.

**Product use environment is keeping the following.**

Operating temperature: +5 °C to +55°C

Storage temperature: -30°C to 75 °C

Humidity: 5% to 85% non-condensing

Voltage Tolerance: DC +5V +/-10%

**How to scrap this product**

Make contact with Fuji Xerox or our company agency when you scrap this product. Or, follow ordinances such as each country and a local government. Please ask each county and a self-governing body about the information of the regulations.

## Notice about the law and the standard

**CE 0682** 

This product applies the European NB certificate where it followed the 99/5/ EEC.

An applicable standard is as follows;

EN 300 330 V1.3.2

EN 301 489 -1 and EN 301 489 -3

**FCC ID: E46HFD2, IC:xxxx-xxxx**

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.

This product acquires the certification or approval of the wireless module. However, a product (e.g. printer) that contains this module must apply the various standards required to the product.

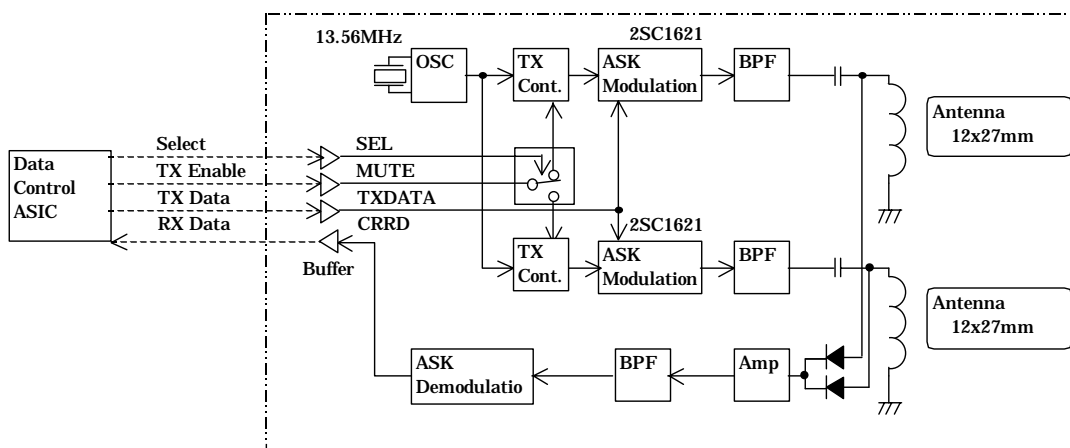
## Outline of the product

### Summary

HFD2 Unit System is RFID (Radio Frequency Identification) device for an Inductive loop coupling. This system has two modules of the Reader/Writer (HFD2-C) and Tag (HFD1-T).

- HFD2 generates a 13.56MHz signal on internal looped antenna.
- Transmitted data are modulated using Amplitude Shift Keying (ASK) modulation.
- Received data are demodulated from the Tag load variation signal, generated on the antenna.
- Tag is battery less memory with a looped antenna.
- Communication distance between HFD2-C and HFD1-T is 3mm to 10mm.

### Block diagram of the product



## System Requirement

The following condition shall be kept, that use HFD2 unit system.

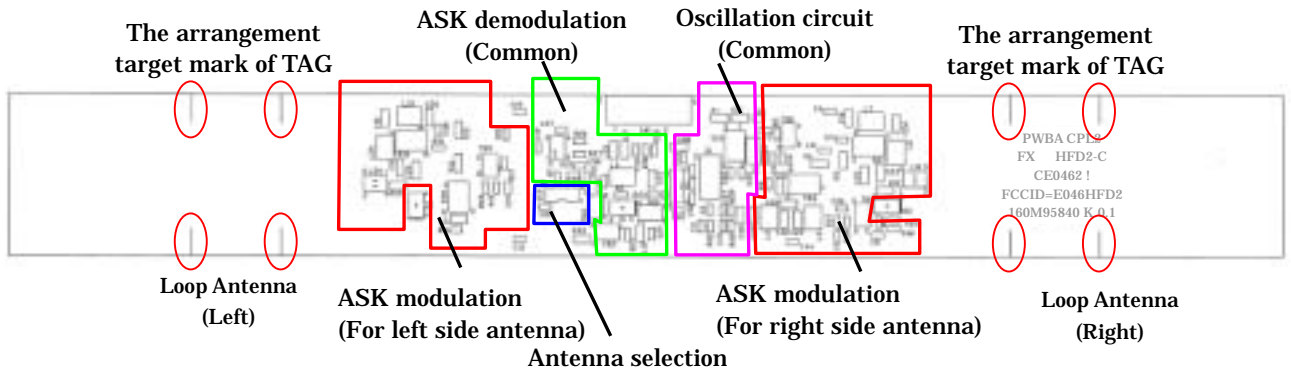
- HFD2 must be used with the HFD1-T.
- HFD2 must be internally installed in machine. (e.g. Printer, Copy machine etc.)
- I/F Cable length (including DC power cable) must be 2.5m or less.
- Supply DC Voltage must be 5V +/- 10%.
- The certification label and/or the notice of the manual may be necessary for the final product enclosure, which contains this unit.

## Specifications

The specifications of the product are as the following;

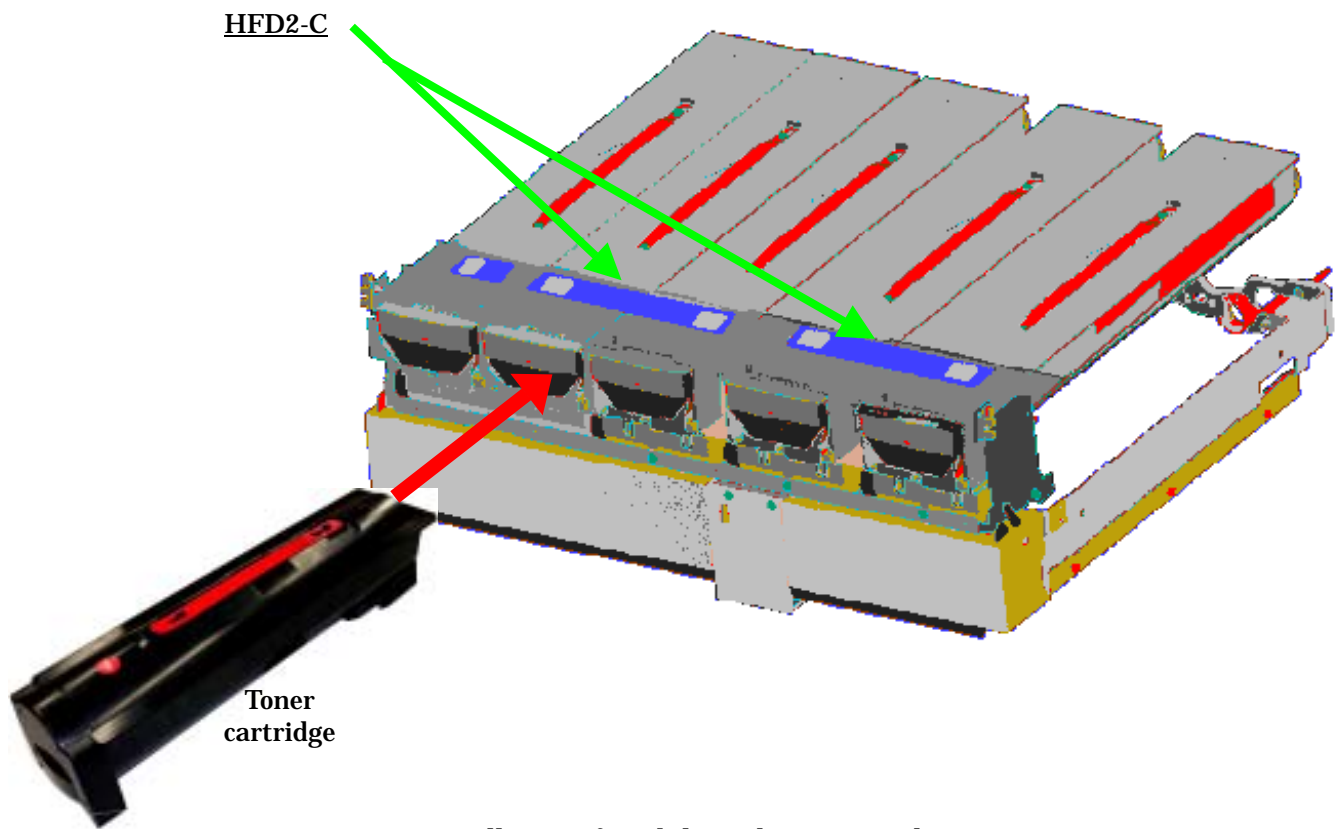
- Carrier Frequency: 13.56MHz +/- 100ppm
- Modulation: 106Kbps ASK
- Communication distance: 3mm to 10mm  
(It means the distance of the Reader Writer Module ANT and Tag Module ANT.)
- Supply Voltage: DC 5V +/- 10%
- Rated current: 100mA
- Signal Level: TTL (3.3V)
- Operating temperature: +5 °C to +55°C
- Maximum RF power: 7mW (Fixed for maximum power)

## Layout of the module



## Installation example

The example used for the toner cartridge sensor of the printer is shown in the following. HFD2-C is not visible from the outside after attachment. Because, HFD2-C is covered with a plastic cover.



Instillation of module to the copy machine



HFD1-T

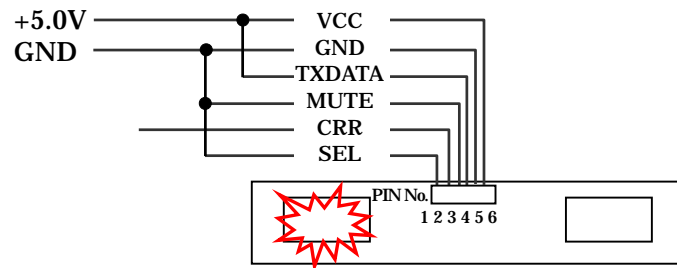
Installation of TAG to the toner cartridge

## The explanation of the test mode

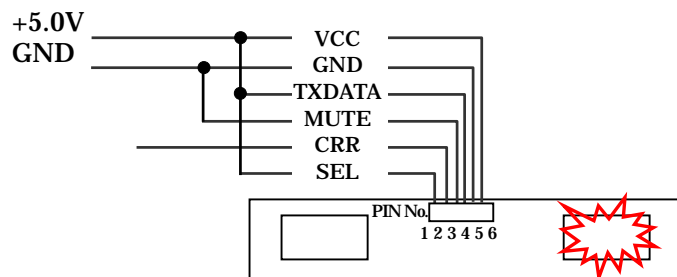
Following the explanation about the continuous radiation and stand-by mode used for the test.

### Continuous Radiation Mode (Maximum radiation power)

Only a left side antenna operates.

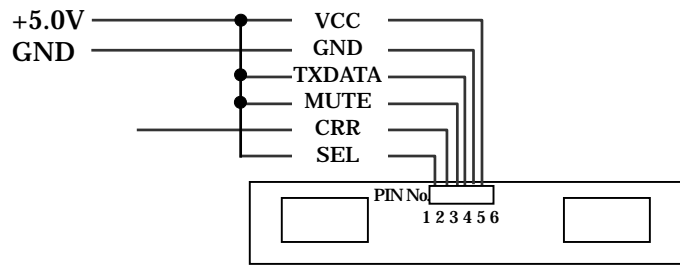
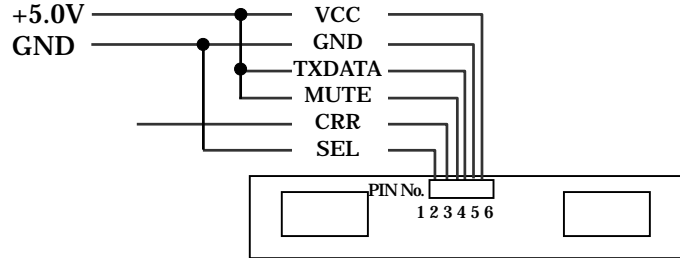


Only a right side antenna operates (Max. Power)



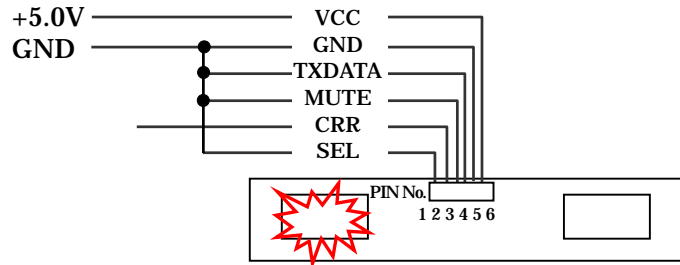
### Standby Mode

Left and Right sides are useless.

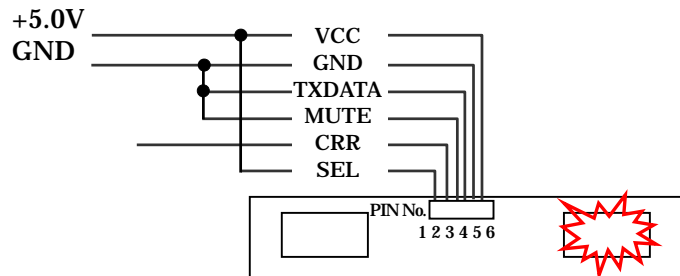


### Continuous Radiation Mode (Minimum radiation power)

Only a left side antenna operates



Only a right side antenna operates





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