Hitachi **Chemical**
Working On Wonders

Product Specification for
UHF RFID Metallic Tag
(IM5-X07)

Ver.3.0
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◉ **Hitachi Chemical Co., Ltd.**

Protection Film R&D Dept.

HITACHI

1. Scope
   This specification defines UHF RFID Metallic Tag IM5-X07

2. Model No.
   Model No. is shown in Table 1.

Table 1.Type

No.	Model	Note
1	IM5-X07	

3. RFID Protocol
   The tag is compliant with RFID standards shown in Table 2.

Table 2. Compliant Standards

No.	Item	Spec
1	Protocol	ISO/IEC 18000-6 TypeC EPCglobal^{TM} Class1 Generation2

4. Operating Conditions
   Operating conditions are shown in Table 3.

Table 3. Operating Environment

No.	Item	Spec	Note
1	Operating Temp.	-40 to 85ºC	Humidity : 10 to 80%RH
2	Storage Temp.	-40 to 85ºC	Humidity : 10 to 80%RH

5. General specs
   General specs are shown in Table 4.

Table 4. General Specs

No.	Item	Spec		Note
1	Frequency	860 to 920MHz		
2	Memory	TID	96bit	48bit : Serial No 16bit : TID Header 32bit : Manufacturer/Model No
		EPC	128bit	
		Passwords	64bit	Kill/Access
3	Data Retention	50 years		Reference
4	Write Endurance	100,000 cycles		Reference

6. Figure

The tag figure is shown in Fig 1.

4-R3

2-φ3.5

＜Top View＞

2.0

10.0

16.0

22.0

Metallic Case

11.5

22.5

＜Side View＞

1.5

21.0

5.2

Tolerance：±0.5

(mm)

Resin Seal(IC Chip Inside)

Fig 1. Figure

7. Material

Material of tag is shown in Table 5.

Table 5. Material

No.	Parts	Spec	Note
1	IC Chip	Monza5 by Impinj	
2	Metallic Case	SUS304 1.0mmt	
3	Resin Seal	PPS Type Resin	

8. Read Range

Read range is shown in Table 6.

Table 6. Read range

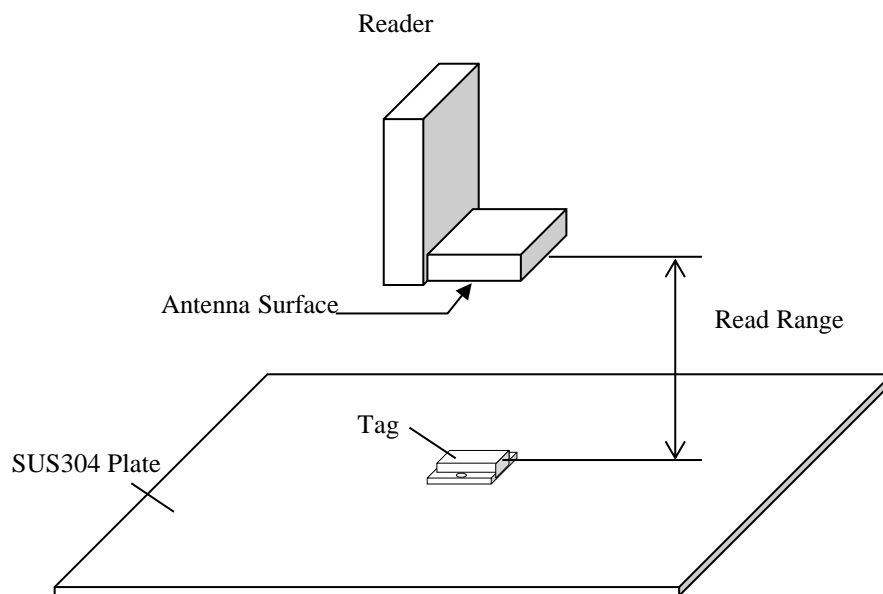| No.	Item	Spec	Condition	
1	Read Range	50cm min.	Reader	AT-880 by ATID
			Frequency	920MHz
			Power	1W
			Environment	Antenna surface of tag is facing reader antenna surface. (Free Air/Room Temp.and Humidity) Put tag on the center of SUS304 plate(300mm×400mm×0.5mmt) (Fig 2.)

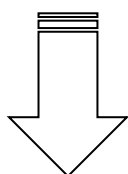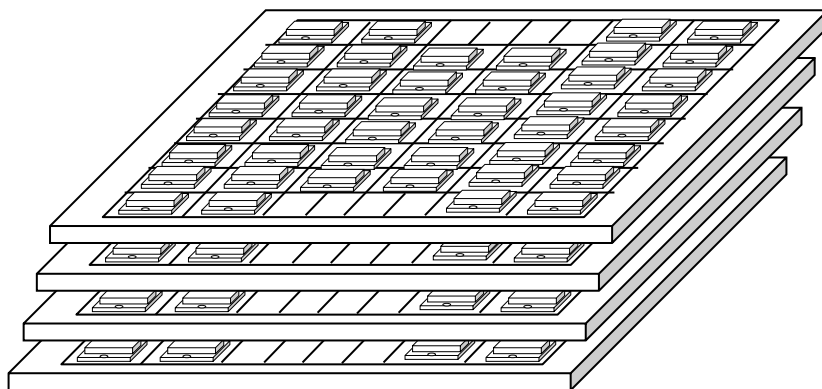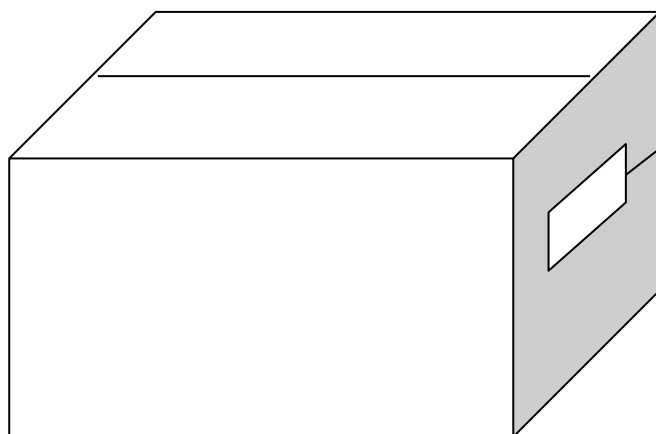Note : Read range will change by the reader model, power, environment.

Fig 2. Communication Condition

9. Packing Specification (Ex.)
 (1)Standard Packing Specification

20Trays/Box

Label

P/N	IM5-X07
QTY	1000
Hitachi Chemical Co.,Ltd.	

Size	31.0×35.5×30.0 cm
Weight	7.5 Kg

10. Precautions for handling of Product
 (1) This product must be stored in a cool and dark place at normal temperature and humidity without direct sunshine in accordance with the provided storage conditions.
 (2) Please care about followings to protect IC chip inside the Product.
   1) Not to add pressure and impact on the chip when the Product is processed or attached on the object.
   2) Not to keep the Product under high temperature such as at direct sunshine, beside fire burning.
   3) Not to keep the Product under high humidity and the place of dewfall for a long time to prevent the malfunctions of Products.
   4) Not to keep the Product in the water or other liquid for a long time to prevent the deterioration in communication distance or the malfunction of Products. In the event that the Product gets wet with water, it must be wiped off with a dry cloth.
   5) To note that the chip might be malfunctioned by static electricity.
   6) Not to use the Product beside strong electric wave to prevent the improper operation or the malfunction of Products.

(3) In the event that the Product has been processed to make other goods, read range will be affected due to material of the object or reading environment. Please confirm the read range at the site and condition before use.

(4) When data is written into the Product, please make sure that writing data is completed. It is possible that writing data cannot be completed normally due to the electricity shortage.

(5) This product is weldable to attach, and please take care to protect burn injury. And please care for too much long time welding with high temperature to avoid damage of the product. We recommend welding with two spots. (Weld spot is shown in Fig.3.)
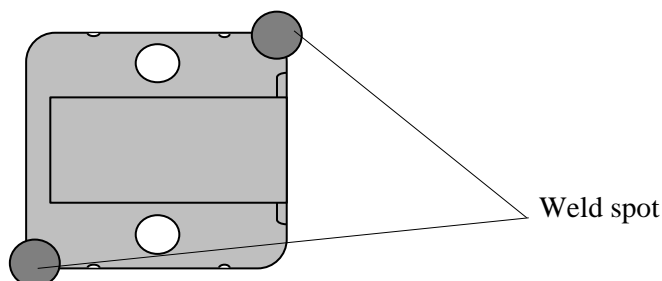
Fig 3. Weld spot

11. Conditions for the use of Products

(1) In order to prevent serious accident in case of the malfunctions of Products, the customer shall back up or take measures to minimize damages as a prerequisite for the use of Products.

(2) The Products are designed and manufactured for general industrial usage and if the customer applies the Products for other than such usage (hereinafter called as "non-general industrial application", the warranty of this Specification regarding the performance or safety is not applied even within warranty period. In the event that the customer applies this product for non-general industrial application and the customer, HCC or third party gets damage, the customer shall indemnify and hold HCC harmless from and against any losses, costs, damages and fees attributable to any such claims or allegations and solve the problem as its responsibility.

Followings are examples of non-general industrial applications, but not be limited to:

1) Atomic power, Aviation, Space, Rail road, Ship, Automotive, Safety equipment, Human-related transportation system, Traffic equipment

2) 24 Hours non-stop operation system, Payment system, Supply system for electricity, gas and water

3) Radiation related equipment

4) Medical, Clinical test

5) All of figures in this specification are just an image and not exactly same as the product.

6) This specification will be changed without notice.