Document No:TNS22275

PRODUCT & DELIVERY
HARDWARE SPECIFICAION

PRODUCT NAME :4ch RFID R/W Module
MODEL NAME :PC-1620001、PC-1040021

GOH SHOJI CO.,INC.
Hitachi High-Tech Nexus Corporation
Tokyo Communication Equipment Manufacturing Co., Ltd.

Table of Contents

1. Scope

This product is the 4ch multi-channel 13.56MHz RFID R/W module. It supports the ISO/IEC15693.

- Product name :4ch RFID R/W Module
- Model name :PC-1620001 PC-1040021

■ Main specification

Item	Function
RFID Tag	ISO/IEC15693
Operation Voltage	DC5V
Communication Frequency	13.56MHz ±7KHz
Type of Modulation	ASK
Output Power	6.4dBm ±0.5dB (Burst Average)
I/F	Data Length 8bit、StopBit:1bit、Parity: NONE error correction: BCC 38400bps(±3%)
Communication Range *	25mm (With RFID Tag:RI-I03-112A-03HA)
Dimmension	PC-1620001 50mm x 40mm
	PC-1040021 52.5mm×15mm
RF Connection	300mm Twisted Pair Cable with Ferrite core (3A4-TRB-16×10×10/Tomita)

* It depends on the surround environment.

■ Supports Legal Regulation

This product complies with the regulations of the Radio Law of the United States and Canada (FCC, ISED) and is certified.

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

FCC CAUTION

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

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines as this equipment has very low levels of RF energy.

・CAN ICES-3 (B)/NMB-3(B)

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 licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the ISED radio frequency (RF) Exposure rules as this equipment has very low levels of RF energy.

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement noncontrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'ISDE puisque cetappareil a une niveau tres bas d'energie RF.

[2.1 General]
This user manual describes the integration procedure per Sec. 2.2 to 2.12 of KDB 996369 D03.

[2.2 List of applicable FCC rules]
This device complies with below part 15 of the FCC Rules.
Part 15 Subpart C

[2.3 Summarize the specific operational use conditions]
Not applicable.

[2.4 Limited module procedures]
Not applicable.

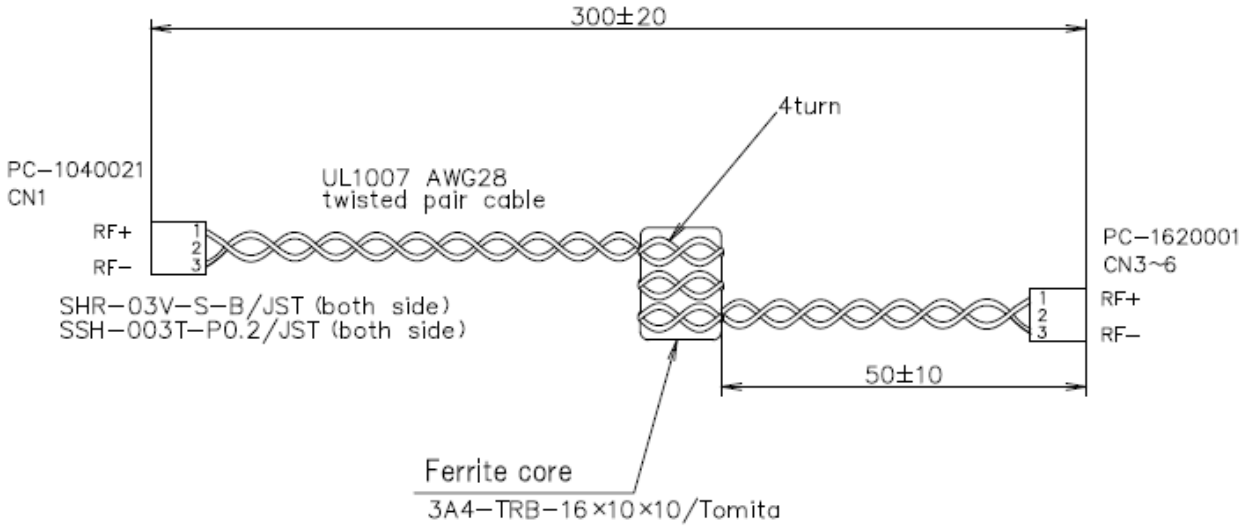
[2.5 Trace antenna designs]
Fine tuning of return loss etc. can be performed using a matching network.
However, it is required to check "Class1 change" and "Class2 change"
which the authorities define then.

[2.6 RF exposure considerations]
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines.

[2.7 Antennas]
The device is designed to use the antennas listed below. Do not modify the antenna or any other part of the module. Any modifications will invalidate the modular certifications and require new approvals for the host system.

Antenna No is PC-1040021, it is a printed magnetic loop type. Gain is -66.3dBi

Wire harness for Antenna with Ferrite core is defined below. (Changes are prohibited.)



[2.8 Label and compliance information]
Following information must be indicated on the host device of this module.

Contains Transmitter Module FCC ID: 2ACJJPC1620001
Contains Transmitter Module IC : 11913A-PC1620001

[2.9 Information on test modes and additional testing requirements]
Test modes should take into consideration different operational conditions for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product.

[2.10 Additional testing, Part 15 Subpart B disclaimer]
The modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant (FCC Part 15.225), and 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.

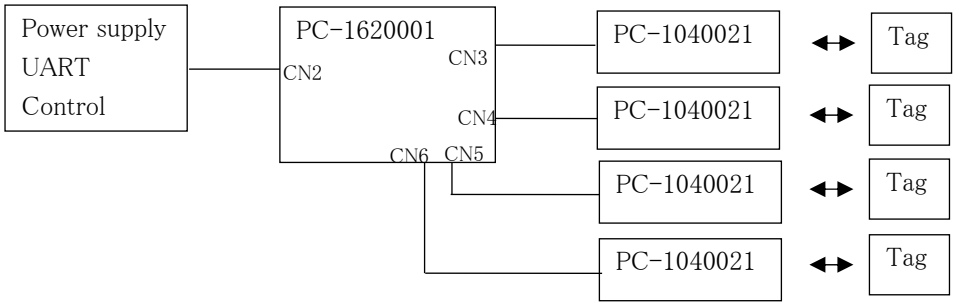
[2.11 Note EMI Considerations]
We recommend to use "best practice" RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant limits due to module placement to host components or properties. The host manufacturer is responsible for ensuring compliance with the applicable FCC rules for the transmitters operating individually and simultaneously. This includes compliance for the summation of all emissions from all outputs occupying the same or overlapping frequency ranges, as defined by the applicable rules.

[2.12 How to make changes]
Only the grantee is permitted to make permissive changes.
Please contact us at Tokyo Communication Equipment Manufacturing Co., Ltd.

(Web) http://www.totsuki.co.jp/
(Mailform) http://www.totsuki.co.jp/support/inquiry.php

2. System Configuration

■ 4ch RFID R/W Module (PC-1620001/PC-1040021) Block diagram



Just one output channel at the same time

3. Connections

【PC-1620001】

■ CN2:SM04B-ZESS-TB／JST

No	Name	Memo
1	V_{IN}	Power(＋)5V
2	GND	Power(－)0V
3	RXD	Receive 3.3V Level
4	TXD	Transmit 3.3V Level

■ CN3-CN6:SM03B-SRSS-TB／JST

No	Name	Memo
1	RF+	Interconnected to the PC-1040021
2	GND	

3	RF-	

【PC-1040021】

■ CN1:SM03B-SRSS-TB／JST

No	Name	Memo
1	RF+	Interconnected to the PC-1620001
2	GND	
3	RF-	

4. Electrical Characteristics

■ Absolute Maximum Rating

Item	Symbol	Rating	Unit	Memo
Input Power	V_{IN}	5.5	V	
Operation Temperature	Topt	10 ～ +50	℃	
Operation Humidity	Hopt	20 ～ 85	%RH	No condensation

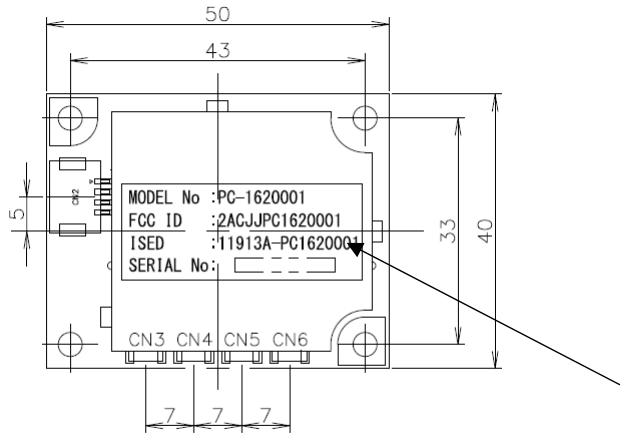
■ Electrical Characteristics

Item	Symbol	Condition	Rate			Unit
			Min.	Typ.	Max.	
Power	V_{IN}		4.8	5.0	5.2	V
Logic Power	V_{DD}		-	3.3	-	V
GND	GND		-	0	-	V
Consumption Current	I_{DD}	V_{IN} = 5V	-	-	200	mA

5. Aspect (Unit:mm)

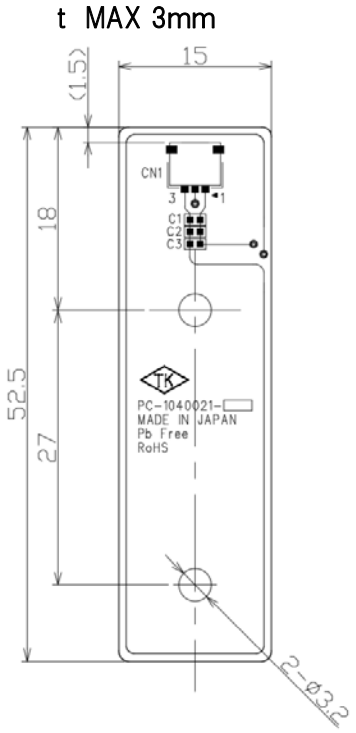
【PC-1620001】

t MAX 6mm

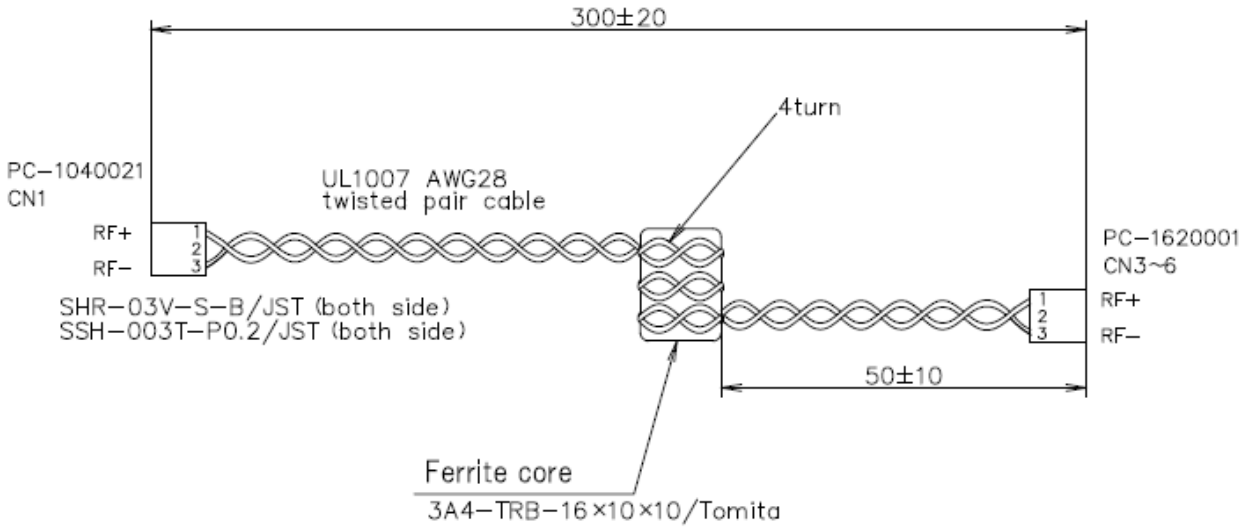


Shield case with Label

【PC-1040021】



【Wire harness】



6. Function Test

Test Item	Content
Insulation Resistance	Over 10kΩ
Voltage	3.3V±5%
Writing Firmware	Success or failed
UART Communication Test	Success or failed
RFID Communication Test	30mm Success or failed
1～4ch Channel Test	1～4ch RF switching test Success or failed

Function test includes PC-1620001,PC-1040021 and connection harness.

7. Shipping

We pack it so that quality isn't damaged during transportation.

8. Warranty

If any defect arises in the product mentioned in this document within six months after delivery, and Supplier is Assumed to be responsible for it, and such the product is undoubtedly out of specification, the product shall be returned and replaced with a new product or a re-tested product by Supplier at Supplier's cost.

We do not assume any responsibility for the expenses of resulting damages caused from the under-mentioned cases even under warranty.

・Any defect and/or abrasion caused by force majeure such as natural hazard and abnormal voltage drop.
・Any defect and/or abrasion caused from displacement, drop, removal and/or transportation.
・Any modification or a party designated by Supplier.
・Improper handling, regardless intention or fault.
・Responsibility for over and short of final specification approved by customer.
・Any defect caused from aging such as degradation of painted surface and plated surface.

9. Revision History

Date	Rev	Content
2023/8/1	1.0	1’ st