

# TX-AH-R900ATR User Manual



珠海泰芯半导体有限公司  
Zhuhai Huge-ic Co., Limited

		<b>TX-AH-R900ATR User Manual</b>	Document No.	
Date	2020-10-15		Version	V1.2

### Revision History

Date	Version	Description	Author
2020-10-15	V1.2	Add Antenna Information	Wangying
2020-09-21	V1.1	Add 1M BW	Wangying
2020-09-01	V1.0	Create	Wangying



珠海泰芯半导体有限公司  
Zhuhai Huge-ic Co., Limited

版权所有侵权必究  
Copyright © 2020 by HUGE-IC All rights reserved

## 目录

TX-AH-R900ATR User Manual .....	1
1 INTRODUCTION.....	1
1.1 Basic Parameters.....	1
2 Specification.....	2
3 ELECTRONICAL CHARACTERISTICS .....	3
3.1 Input voltage .....	3
3.2 RF Performance.....	3
3.3 Module Pins Definition .....	5
4 Antenna Information.....	5

# 1 INTRODUCTION

TX-AH-R900ATR based on TXW83xx is the first 802.11ah module in the world developed by Zhuhai Huge-IC Co.,LTD. It could be widely applied to IOT devices for smart home, smart industry and healthcare.

## 1.1 Basic Parameters

32.5M Mbps

Support 802.11ah

1/2/4/8 Channel bandwidth

Support AP,STA

Rich peripheral interfaces:RMII, USB, SDIO,SPI,I2C,I2S,PCM,UART, GPIO

Support security method: WPA2

## 2 Specification

Item	Parameter
Model	TX-AH-R900ATR
Chipset	TXW83XX
Temperature	-20°C~70°C
Humidity	Working:0~85% (noncondensing) Storage:0~85% (noncondensing)
size	(17.00±0.10)mm×(15.00±0.10)mm×(2.40±0.10)mm

### 3 ELECTRICAL CHARACTERISTICS

#### 3.1 Input voltage

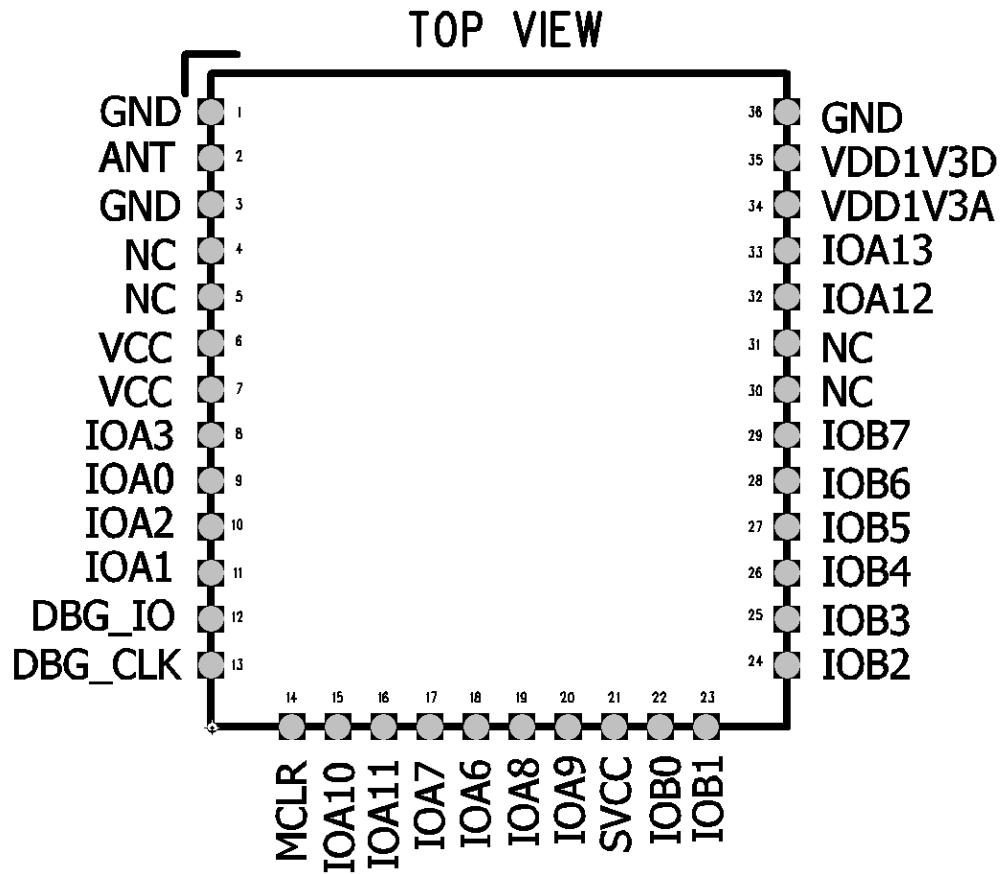
Item	Function	Min Voltage(V)	Typical Voltage(V)	Max Voltage(V)
VCC	Power voltage of Module	3	3.3	3.6
SVCC	Power of IOA6~11		3.3 or 1.8 (optional)	
VDD1V3A/ VDD1V3D	Power of vdd of TXW83xx	1.3	1.3	1.4
IO other than IOA6~11	IO voltage	3	3.3	3.6

#### 3.2 RF Performance

Common					
Item	Condition	Min.	Typ.	Max.	Unit
Frequency Range		902		928	MHz
Transmit					
Item	Condition	Min.	Typ.	Max.	Unit
Tx Power Level		18	20	22	dBm
Frequency Tolerance		-5	0	5	ppm
Spectral Mask (8M)	+/-8M offset			-28	dBc
Spectral Mask (4M)	+/-4M offset			-28	dBc
Spectral Mask (2M)	+/-2M offset			-28	dBc
Spectral Mask (1M)	+/-1M offset			-28	dBc
Modulation Accuracy				-27	dB
Receive					
Item	Condition	Min.	Typ.	Max.	Unit
Min. Input(8M)	MCS=0, PER<10%		-95		dBm
	MCS=2, PER<10%		-92		dBm

	MCS=7, PER<10%		-80		dBm
802.11ah Receive (4M)	MCS=0, PER<10%		-99		dBm
	MCS=2, PER<10%		-96		dBm
	MCS=7, PER<10%		-82		dBm
802.11ah Receive (2M)	MCS=0, PER<10%		-101		dBm
	MCS=2, PER<10%		-99		dBm
	MCS=7, PER<10%		-87		dBm
802.11ah Receive (1M)	MCS=10, PER<10%		-107		dBm
	MCS=0, PER<10%		-104		dBm
	MCS=2, PER<10%		-102		dBm
	MCS=7, PER<10%		-90		dBm

### 3.3 Module Pins Definition



## 4 Antenna Information

The TX-AH-R900ATR has one specification external antenna.

The following is a monopole antenna commonly used by TX-AH-R900ATR:



Frequency range: 900-930



Input impedance: 50 OHM  
Standing wave ratio: < 2.0  
Gain: 0 dbi  
Polarization: vertical  
Directionality: Omni-directional

#### FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

Note 1: This module certified that complies with RF exposure requirement under mobile or fixed condition, this module is to be installed only in mobile or fixed applications.

A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

A fixed device is defined as a device is physically secured at one location and is not able to be easily moved to another location.

Note 2: Any modifications made to the module will void the Grant of Certification, this module is limited to OEM installation only and must not be sold to end-users, end-user has no manual instructions to remove or install the device, only software or operating procedure shall be placed in the end-user operating manual of final products.

Note 3: Additional testing and certification may be necessary when multiple modules are used.

Note 4: To ensure compliance with all non-transmitter functions the host manufacturer is responsible for ensuring compliance with the module(s) installed and fully operational. For example, if a host was previously authorized as an unintentional radiator under the Declaration of Conformity procedure without a transmitter certified module and a module is added, the host manufacturer is responsible for ensuring that after the module is installed and operational the host continues to be compliant with the Part 15B unintentional radiator requirements. Since this may depend on the details of how the module is integrated with the host, Zhuhai Huge-ic co., Ltd. shall provide guidance to the host manufacturer for compliance with the Part 15B requirements.

Note 5: FCC ID label on the final system must be labeled with "Contains FCC ID: TBD" or "Contains transmitter module FCC ID: TBD".

#### FCC Warning

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

The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module.