CHINA DRAGON TECHNOLOGY LIMITED

User Manual

Version：V1.0

Date：2012.4.28

Productÿ CDT-XX5370-00~09

DESIGN：_____ CHECK：_____ APPROVAL：_____

Cdtech 中龙通		DOCUMENT No :
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Change History of Revision

Reversion	Date	Contents of Revision Change	Remark
1.0	2011.4.28	First release	S.heng

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1.Introduction

CDT-XX5370-00~09 is a new generation of embedded CDT-Wifi products module.

CDT-Wifi is based on CDT interface, accord with Wifi wireless network standard embedded module, the built-in wireless network protocol IEEE802.11 protocol stack, and TCP/IP protocol stack, save electricity intelligent control procedures

Can realize, the user serial data to the wireless network conversion between.

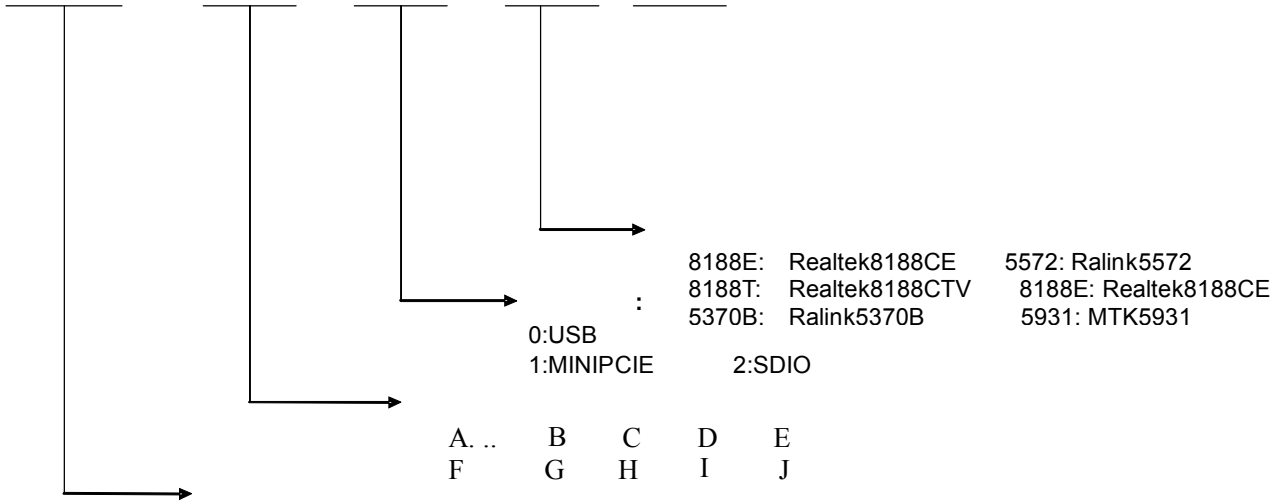
Through the CDT-Wifi module, the traditional serial equipment also can easily access wireless network.

CDT-XX5370-00~09 is in the first two generations of products based on top, and carries on the comprehensive hardware and software upgrades, function more powerful, use more simple, lower power consumption In the original foundation above the intelligent current control program upgrade, than the former two generationproduct province electricity above 40%.

In temperature compensation, the application of the latest software automatic control technology, automatic temperature adjustment, and will not affect the data transmission, it solves the traditional product, because the temperature too high, cause data loss, frequent fall nets, etc

2.Namingrules:

CDT - D 0 5370B



3. Features

CDT-XX5370-00~09 is the small size and low power module for IEEE 802.11b/g/n wireless LAN. CDT-XX5370-00~09 is based on Ralink 5370B solution.

IEEE 802.11 B/G/N Dual Band WLAN infrastructure

Size : 25mm x 12mm x 0.6mm

USB 2.0

Supports drivers for Windows Vista, 2000, XP, Linux

Security : WPA,WPA2,AES(TKIP)

• Application: DTV, DVR, HD DVD Player, Blue-ray Disk Player, STB

4. Ordering Information

Model	Description
CDT-D05370B-00	Wi-Fi Module, 1T1R

5. Label marking

① Model No

② MAC Address BAR Code

③ MAC Address No.

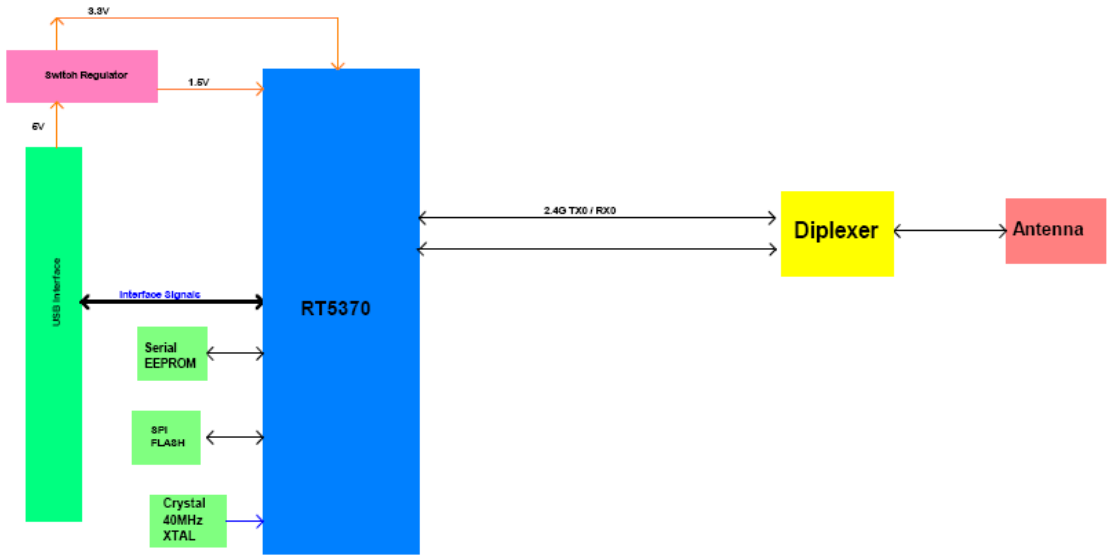
④ Product Lot No. : 1110A0401

-11 : Year - 02 : Date

- 11: Month - 01 : Manufactured

- Revision No. : A Process

6. Block Diagram



7. Absolute Maximum Ratings

Caution : The specifications in Table 1 define levels at which permanent damage to the device can occur. Function operation is not guaranteed under these conditions. Operating at absolute maximum conditions for extend periods can adversely affect the long-term reliability of the device.

Parameter	Min	Max	Unit
Storage Temperature	-10	+80℃	℃
Storage Humidity (40℃)	-	90%	%

< Table 1 Absolute Maximum Ratings > . Other conditions

1) Do not use or store modules in the corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are contained. Also, avoid exposure to moisture.

2) Store the modules where the temperature and relative humidity do not exceed 5 to 40℃ and 20 to 60%.

3) Assemble the modules within 6 months.
Check the soldering ability in case of 6 months over.

8. Operating Conditions

Parameter		Min	Typ	Max	Unit
Operating Temperature		0	-	+60	℃
Operating Humidity		-	-	85	%
Supply Voltage2	VDD_3.3V	2.7	3.3	4.0	Vdc

9. Standard Test Conditions

The Test for electrical specification shall be performed under the following condition unless otherwise specified.

1). Ambient condition

Temperature :25℃ ± 5℃

. Humidity:65% ± 5% R.H.

2). Power supply voltages

3.3V (±5%) input power at the Module

3). Current consumption over recommended range of supply voltage and operating

conditions is like below.

When it's tested, it must be supplied more than 2 times of maximal current.

10. Electrical Specifications

1) DC Characteristics

Current Consumption	Min.	Typ.	Max.	Unit
TX Mode (MCS7)	-	105	-	mA
Idle and Associated state	-	50	-	
Radio disabled state	-	10	-	

2) RF Characteristics for IEEE802.11b (11Mbps mode unless otherwise specified)

Items	Contents			
Specification	IEEE802.11b			
Mode	DSSS/CCK			
Channel frequency	2400 ~ 2483 MHz			
Data rate	1,2,5.5,11Mbps			
TX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Power Level	12.5	13	14	dBm
Spectrum Mask				
1st side lobes (to fc ±11MHz)	-	-43	-30	dBr
2nd side lobes (to fc ±22MHz)	-	-58	-50	dBr
Modulation Accuracy (EVM)	-	30	30	%
Power On/Off ramp	-	0.5	2.0	Usec
Freq. Tolerance	-15	-	15	ppm
Chip Clock Freq. Tolerance	-15	-	15	ppm
RX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Minimum Input Level Sens (FER ≤ 8%)	-	-88	-76	dBm
Maximum Input Level (FER ≤ 8%)	-10	-	-	dBm

* Normal Condition : 25℃, VDD=3.3/5V.

3) RF Characteristics for IEEE802.11g (54Mbps mode unless otherwise specified)

Items	**Contents**			
Specification	IEEB802.11g			
Mode	OFDM			
Channel frequency	2400 ~ 2483 MHz			
Data rate	6,9,12,18,24,36,48,54Mbps			
TX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Power Level	12.5	14	15	dBm
Spectrum Mask				
at fc ±11MHz	-	-32	-20	dBr
at fc ±20MHz	-	-43	-28	dBr
at fc ≥ ± 30MHz	-	-48	-40	dBr
Constellation Error (EVM)	-	-34	-25	dB
Freq. Tolerance	-15	-	15	ppm
Chip Clock Freq. Tolerance	-15	-	15	ppm
RX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Minimum Input Level Sens. (PER ≤ 10%)	-	-75		ppm
Maximum Input Level (PER ≤ 10%)	-20	-		ppm

*Normal Condition : 25℃, VDD=3.3/5V

6) RF Characteristics for IEEE802.11gn (MCS7 mode unless otherwise specified)

Items	**Contents**			
Specification	IEEE802.11n - 2.4GHz			
Mode	OFDM			
Channel frequency	2400 ~ 2483 MHz			
Data rate	6513195263952585,65Mbps.,,.,,			
TX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Power Level	12.5	14	15	dBm
Spectrum Mask				
at fc ±11MHz	-	-32	-20	dBr
at fc ±20MHz	-	-35	-28	dBr
at fc ≥ ± 30MHz	-	-45	-40	dBr
Constellation Error (EVM)	-	-32	-28	dB
Freq. Tolerance	-15	-	15	ppm
Chip Clock Freq. Tolerance	-15	-	15	ppm
RX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Minimum Input Level Sens.(HT20,PER ≤ 10%)	-	-71	-64	ppm
Minimum Input Level Sens.(HT40,PER ≤ 10%)		-70	-62	ppm
Maximum Input Level (PER ≤ 10%)	-20			ppm

11. Environment Tests

Item	Test Conditions	Specifications
Heat Load	Initial values are measured at standard test condition. Leave samples in 60℃±2℃ for 96 ±5 hours, and in standard test condition for 30 minutes, then take measurements within 1 hour. - Supply voltage : standard ± 5% - Supply voltage cycle : 1.5h on, 0.5h off	•TX Power : ±4dB Max Min Input Level : ±4dB Max
Humidity Load Test	Initial values are measured at standard test condition. Leave samples in 40℃±5℃, 90 ~ 95% RH for 96 ±5 hours, and in standard test condition for 30 minutes, then take measurements within 1 hour. - Supply voltage : standard + 5% - Supply voltage cycle : 1.5h on, 0.5h off	
Cold Test	Initial values are measured at standard test condition. Leave samples in －10℃ ±2℃ for 96 ±5 hours, and in standard ambient for 1 hour with standard power Supply then take measurements within 1 hour.	
Temperature	Take measurements in standard test condition. Temp. : -10℃ ~ +80℃ Duration : 30 min Ramp-up & Ramp-down for 5 min Cycle : 100cycle	

12. Pin Description

Terminal No	Terminal name	Terminal Voltage
1	LED_OUT	WIFI_LED
2	GND	
3	USB_D+	USB
4	USB_D-	USB
5	3.3	3.3v
6	GND	
7	WIFI_ANT	WIFI_RF_OUT
8	GND	

1 LED_OUT: WIFI_LED

2 GND: Ground

3 USB_D+: USB Data + as defined by USB 2.0

4.**USB_D-:** USB Data - as defined by USB 2.0

5 3.3V: 3.3V DC

6 GND: Ground

7 WIFI_ANT: WIFI_RF_OUT

8 GND: RF_Ground

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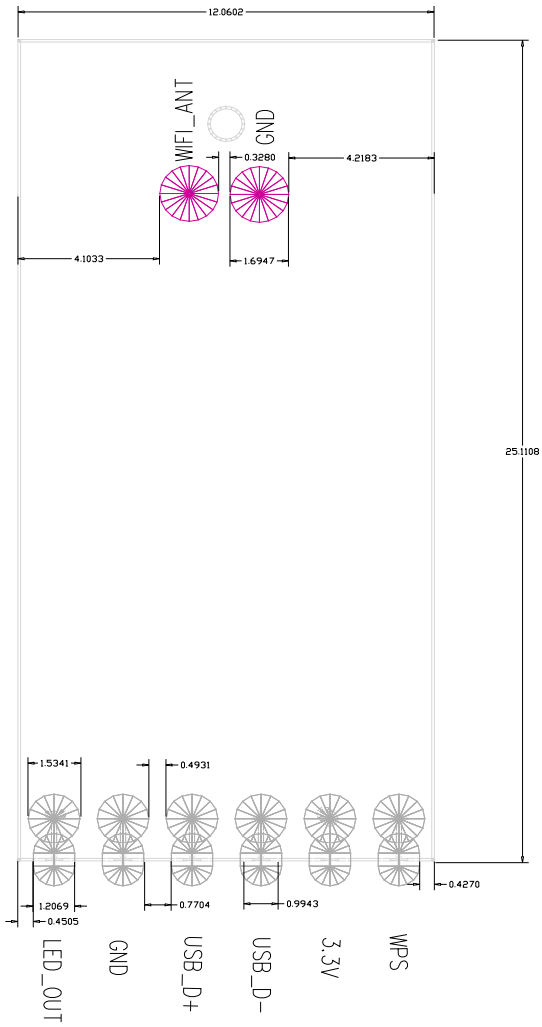
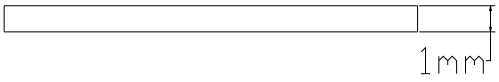
14.Mechanical Drawing & Mechanical size



Thickness:



Usage Guidelines for FCC Compliance

Antenna Selection

In order to maintain compliance with FCC regulations, an antenna with no more than 2dBi gain must be used. This module has been tested with the following antennas:

Part Number	Antenna Type	Antenna Gain
ANT-2400-01A	External antenna	2.0 dBi

The module when used in DTS mode, may be used with the above antennas and maintain the requirements of the FCC grant.

Module Modification

The module must not be physically altered in any way. If any connections are made to the module that bypass the module pins, socket, or antenna connector, the FCC modular certification cannot be inherited.

End Product Labeling Requirements

Pursuant to FCC public notice DA 00-1407, the end product must be labeled on its exterior with the following verbiage:

"Contains FCC ID: ROWCDT-XX5370"

Additional FCC Testing Requirements

While the module's FCC certification can be inherited (presuming the guidelines are met), additional testing will be required to achieve full FCC compliance for your end-product. The integrator is required to perform unintentional radiator testing on the final product per FCC sections 15.107 and 15.109.

Additional, product-specific testing might be required. Please contact the FCC regarding regulatory requirements for your application.

RF exposure compliance

The Module should be install above separation distance 20 cm from human.

It should add SAR testing when it not satisfy.

FCC Statements of Compliance

Statement and Conditions of Modular Compliance

FCC NOTICE (FCC ID: ROWCDT-XX5370)

This device complies with the rules set forth in Part 15 by the Federal Communications Commission. Operation is subject to the following two conditions:

1) This device may not cause harmful interference

2) This device must accept any interference received, including interference that may cause undesired operation.

The B0-9(5370) module is provided with an Single FCC Modular Certification. This certification may be install in an end-user product, negating the need for FCC part 15 intentional radiator testing on this module, provided that the following are met:

1. The module must not be modified in any way. Coupling of external circuitry must not bypass the provided connectors.

2. End product must be externally labeled with "Contains FCC ID: ROWCDT-XX5370"

3. The end product's user's manual must contain an FCC statement equivalent to that listed in Customer FCC Warning Requirements of this manual.

6. The integrator must not provide any information to the end-user on how to install or remove the module from the end-product.

The integrator is required to perform unintentional radiator testing on the final product per FCC sections 15.107 and 15.109.

Customer FCC Warning Requirements

The end-product user's manual must contain the following or equivalent verbiage.

FCC NOTICE (Containing FCC ID: ROWCDT-XX5370)

The RF module (FCC ID: ROWCDT-XX5370) contained within this device complies with the rules set forth in Part 15 by the Federal Communications Commission.

Operation is subject to the following conditions:

1. This device may not cause harmful interference

2. This device must accept any interference received, including interference that may cause undesired operation.

4. The module must not be modified in any way. Coupling of external circuitry must not bypass the provided connectors.

Any changes or modifications could void the user's authority to operate the equipment.

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Notices of Limitation

Product Testing

The integrator must still show that their product complies with FCC regulations applicable to their product. The integrator is not required to perform transmitter testing on the ROWCDT-XX5370 DTS module, provided the guidelines in this document are met.