WT9342
Product Specification
802.11a Module

Version 1.0

CONTENTS

1. Product Overview

The module WT9342 is a complete, small form factor 802.11a Wi-Fi Solution optimized for low power, low-cost, and highly integrated AP and consumer electronic devices, the module integrates all Wi-Fi functionality in a package friendly to low-cost PCB design, requiring only a few external 3.3V and 5V power, and connection to antenna.

The module based on the single chip AR9342 which integrates an 802.11n 2x2 MIMO MAC/BB/ radio with internal PA and LNA. It supports 802.11 n operations up to 150 Mbps for 20MHZ and 300 Mbps for 40MHZ,and 80211a data rates.

The module support AP mode and client mode at the same time and include mass service application software to reduce the research and design work of customer.

1.1 Regulation of Each Countries

The Product must be complied with the radio requirement of

-USA: FCC Part15C compatible

-EN 300328, EN301489 certified before marketing Europe.

-Japan TELEC certified before marketing Japan

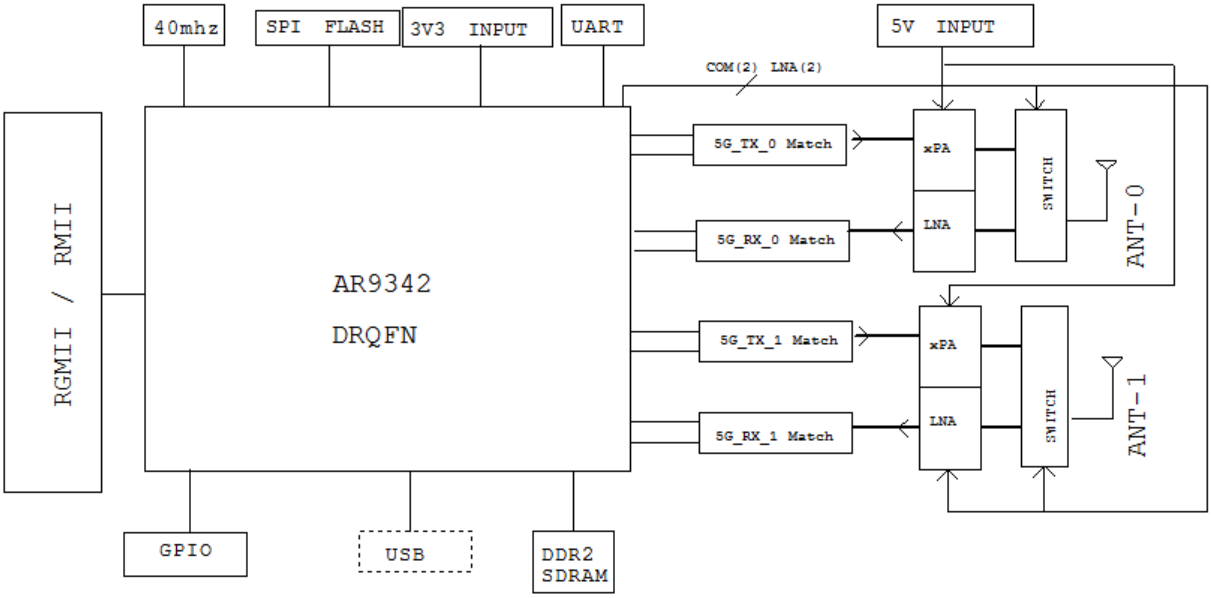
Certification ID Number		
Country	Standard	ID/MARK
US	FCCP15C	TBD
CE	EN 300328 V1.7.1/ 301489-1and-17/60950-1	TBD
JAPAN	ARIB-T66/T33	TBD

Note: Above regulations are representative examples. The module should get an approval by more countries.

2. Module Hardware Overview

2.1 Block Diagram

The general Hardware architecture is shown below Figure:

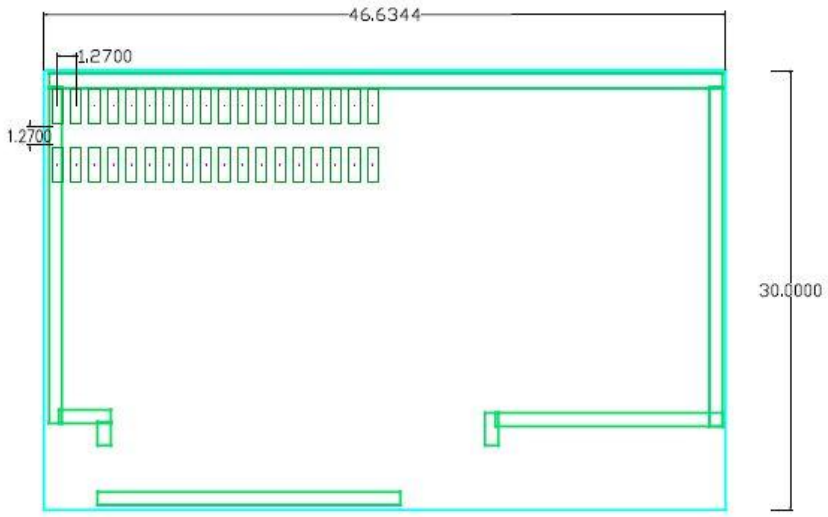


2.2 Features

- 74Kc MIPS processor with 64 KB I-Cache and 32 KB D-Cache operating at up to 533 MHz.
- DD2 memory upto 512 Mb.
- SPI NOR Flash memory up to 64Mb.
- MII/RMII/RGMII interface.
- High-speed UART for console support.
- One USB 2.0 controller with built-in MAC/ PHY supports Host or Device mode.
- GPIO/LED support.

2.3 Interface

- **Interface**
  - **36pin DIP connector**
  - **Antenna: IPEX connector**
- **Pin definition**



Pin Number	Symbol Name	Status	Pin Description
1	PA_5V	P	5 V input 1000mA,
2	PA_5V	P	5V input 1000mA
3	GND	P	GROUND
4	GND	P	GROUND
5	3.3V	P	3.3V input 1000mA, recommended voltage 3.3V, Min2.97V, MAX 3.63V
6	3.3V	P	3.3V input 1000mA, recommended voltage 3.3V, Min2.97V, MAX 3.63V
7	SYS_LED(GPIO 」4)	I/O	SYstem_led/General Purpose Input Output
8	GPIO_16	I/O	General Purpose Input Output

9	WLAN_LED(GPIO 」 2)	I/O	WLAN_LED/General Purpose Input Output
10	GPIO_15	I/O	General Purpose Input Output
11	USB_LED(GPIO 」 1)	I/O	USB_LED/General Purpose Input Output
12	GPIO13	I/O	General Purpose Input Output
13	USB_DP	IA/OA	SignalUSB D+ signal; carries USB data to and from the USB 2.0 PHY
14	UART_TX	O	Serial data output
15	USB_DM	IA/IO	SignalUSB D- signal; carries USB data to and from the USB 2.0 PHY
16	UART_RX	I	Serial data input
17	GND	P	GROUND
18	GND	P	GROUND
19	EMDC	O	Management control interface clock
20	EMDIO	I/O	Management control interface data
21	ERX_CLK	I	Receive clock
22	ERX_EN	I	Receive enable
23	ERXD3	I	Receive data
24	ERXD0	I	Receive data
25	ETX_CLK	O	Transmit clock
26	ERXD1	I	Receive data
27	ETX_EN	O	Transmit enable
28	ERXD2	I	Receive data
29	ETXD2	O	Transmit data
30	ETXD0	O	Transmit data
31	ETXD3	O	Transmit data
32	ETXD1	O	Transmit data
33	GND	P	GROUND
34	GND	P	GROUND
35	3V3	P	3.3V input 1000mA, recommended voltage 3.3V, Min2.97V, MAX 3.63V
36	RESET	I	external power on reset, it has an internal 10 K pull up resistance,the external pull low effective.

Note:

I/O **A digital bidirectional signal**

I **A digital input signal**

O **A digital output signal**

P **A power or ground signal**

OA **An analog output signal**

IA **Analog input signal**

IH **Input signals with weak internal pull-up,to prevent signals from floating when left open**

NC no connection should be made to this pin

3. Electrical Specification

3.1 Recommended operating rating

Element	Symbol	Min	Typ	Max	Unit
DC supply voltage	VDD_3.3V	3.0	3.3	3.6	(V)
DC supply voltage	5V	3.3	5	5.3	V

3.2 DC Characteristics

Symbol	Parameter	Min	Typ	Max	Unit
VDD_3.3V	Continuous Tx Current 5GHz(Dual Chain)	--	630	--	(mA)
VDD_3.3V	Continuous Rx Current 5GHz(Dual Chain)	--	370	--	(mA)
PA_5V	Continuous Tx Current 5GHz(Dual Chain)	--	720	--	(mA)
PA_5V	Continuous Rx Current 5GHz(Dual Chain)	--	90	--	(mA)

3.3 Environment Storage Condition

Environment condition	
Temperature	Operating Temperature: -10deg.C ～70deg.C
	Storage Temperature: -40 deg.C ~80 deg.C
Humidity	Operating Humidity: 5% ~95% (Non-condensing)
	Storage Humidity: 5% ~95% (Non-condensing)

4. RF Specification

4.1 IEEE 802.11a

Items	**Contents**			
Specification	IEEE 802.11a			
Modulation technique	OFDM			
Channel	5180～5825MHz			
Data rate	6,9,12,18,24,36,48,54Mbps			
TX Characteristics	Min.	Typ.	Max.	Unit
1. Power Levels(SISO)				
1)Target Power@6Mbps	20	22	24	dBm
2)Target Power@9Mbps	20	22	24	dBm
3)Target Power@12Mbps	20	22	24	dBm
4)Target Power@18Mbps	20	22	24	dBm
5)Target Power@24Mbps	20	22	24	dBm
6)Target Power@36Mbps	20	22	24	dBm
7)Target Power@48Mbps	18	20	22	dBm
8)Target Power@54Mbps	16	18	20	dBm
2. Frequence Error	-20	-	+20	ppm
3. ModulationAccuracy(EVM)@Target Power			limt	
1) 6Mbps	-		-5	dB
2) 9Mbps	-		-8	dB
3) 12Mbps	-		-10	dB
4) 18Mbps	-		-13	dB
5) 24Mbps	-		-16	dB
6) 36Mbps	-		-19	dB
7) 48Mbps	-		-22	dB
8) 54Mbps	-	-31	-25	dB
RX Characteristics	Min.	Typ.	limt	Unit
4. Minimum Input Level Sensitivity				
1)6Mbps(PER<10%)	-	-92	-82	dBm
2) 9Mbps(PER<10%)	-	-90	-81	dBm
3) 12Mbps(PER<10%)	-	-88	-79	dBm
4) 18Mbps(PER<10%)	-	-86	-77	dBm
5)24Mbps(PER<10%)	-	-82	-74	dBm
6) 36Mbps(PER<10%)	-	-80	-70	dBm
7)48Mbps(PER<10%)	-	-74	-66	dBm
8) 54Mbps(PER<10%)	-	-72	-65	dBm
5. Maximum Input Level (PER < 10%)	-30	-	-	dBm

4.2 IEEE 802.11n HT20(5G)

Items	**Contents**			
Specification	IEEE 802.11a/nHT20			
Modulation technique	OFDM			
Channel	5180 ~5825MHz			
Data rate	MCS0～MCS15			
TX Characteristics	Min.	Typ.	Max.	Unit
1. Power Levels				
1)Target Power@MCS0	20	22	24	dBm
2)Target Power@MCS1	20	22	24	dBm
3)Target Power@MCS2	20	22	24	dBm
4)Target Power@MCS3	20	22	24	dBm
5)Target Power@MCS4	20	22	24	dBm
6)Target Power@MCS5	19	21	23	dBm
7)Target Power@MCS6	16	18	20	dBm
8)Target Power@MCS7	14	16	18	dBm
2. Frequence Error	-20	-	+20	ppm
3. ModulationAccuracy(EVM)@Target Power			limt	
1)MCS0	-		-5	dB
2)MCS1	-		-10	dB
3) MCS2	-		-13	dB
4)MCS3	-		-16	dB
5) MCS4	-		-19	dB
6)MCS5	-		-22	dB
7) MCS6	-		-25	dB
8) MCS7	-	-31.6	-28	dB
RX Characteristics	Min.	Typ.	limt	Unit
4. Minimum Input Level Sensitivity				
1)MCS0(PER<10%)	-	-92	-82	dBm
2)MCS1(PER<10%)	-	-90	-79	dBm
3)MCS2(PER<10%)	-	-88	-77	dBm
4)MCS3(PER<10%)	-	-86	-74	dBm
5)MCS4(PER<10%)	-	-82	-70	dBm
6)MCS5(PER<10%)	-	-80	-66	dBm
7)MCS6(PER<10%)	-	-74	-65	dBm
8)MCS7(PER<10%)	-	-70	-64	dBm
5. Maximum Input Level (PER < 10%)	-30	-	-	dBm

4.3 IEEE 802.11n HT40(5G)

Items	**Contents**			
Specification	IEEE 802.11a/nHT40			
Modulation technique	OFDM			
Channel	5190～5815MHz			
Data rate	MCS0～MCS15			
TX Characteristics	Min.	Typ.	Max.	Unit
1. Power Levels				
1)Target Power@MCS0	20	22	24	dBm
2)Target Power@MCS1	20	22	24	dBm
3)Target Power@MCS2	20	22	24	dBm
4)Target Power@MCS3	20	22	24	dBm
5)Target Power@MCS4	20	22	24	dBm
6)Target Power@MCS5	19	21	23	dBm
7)Target Power@MCS6	16	18	20	dBm
8)Target Power@MCS7	14	16	18	dBm
2. Frequence Error	-20	-	+20	ppm
3. ModulationAccuracy(EVM)@Target Power			limt	
1)MCS0	-		-5	dB
2)MCS1	-		-10	dB
3) MCS2	-		-13	dB
4)MCS3	-		-16	dB
5) MCS4	-		-19	dB
6)MCS5	-		-22	dB
7) MCS6	-		-25	dB
8) MCS7	-	-32	-28	dB
RX Characteristics	Min.	Typ.	limt	Unit
4. Minimum Input Level Sensitivity				
1)MCS0(PER<10%)	-	-90	-79	dBm
2)MCS1(PER<10%)	-	-89	-76	dBm
3)MCS2(PER<10%)	-	-87	-74	dBm
4)MCS3(PER<10%)	-	-86	-71	dBm
5)MCS4(PER<10%)	-	-82	-67	dBm
6)MCS5(PER<10%)	-	-80	-63	dBm
7)MCS6(PER<10%)	-	-74	-62	dBm
8)MCS7(PER<10%)	-	-70	-61	dBm
5. Maximum Input Level (PER < 10%)	-30	-	-	dBm

5. Mechanical Specifications

PCB Assembly Dimension:

- Dimension (Wx L x H): 30mm x 46.68mmx9.7mm
- PCB: 4 layer High Tg-FR4 design