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APPROVAL SHEET

Customer:

Customer P/N:

Description: <u>USB WIFI +Bluetooth dongle</u>

Part No.: <u>802.11N 150M and Bluetooth 2.1+EDR</u>

Customer Approval	Checked By	Issued By

USB WIFI +Bluetooth dongle

A .WIFI PART

1．Introduction

The RT5370 is a cost-effective, highly integrated USB Wi-Fi single chip containing an 802.11n MAC and baseband, a 2.4 GHz RF, PA, LNA and T/R switch on a single die. It supports a 150 Mbps PHY data rate and fully complies with 802.11b/g/n specifications, providing feature-rich wireless connectivity at high standards, and delivering reliable throughput from an extended distance. Optimized RF architecture and baseband algorithms provide superb performance with low power consumption.

Product Features

•1T1R 2.4 GHz with 150 Mbps PHY data rate

•USB2.0 interface

• CMOS single chip with RF (PA, LNA, T/R SW, and diversity SW),

   Baseband, and MAC integration

• QoS: WMM & WMM-PS support

• Multiple BSSID support

• Uses digital CMOS technology exclusively, minimizing power consumption and cost while maximizing reliability

• Extended tuning range for worldwide use Dynamic Frequency Selection/Transmit Power Control (DFS/TPC) for international operation

• Cisco CCX 5.0 support

• Connect without wires at speeds up to 150Mbps

- **Based on IEEE 802.11 b/g/n DRAFT standard wireless protocol-Wi-Fi certified.**

- **Compatible with the increasing number of Public Access facilities.**

- **Low Power usage with Advanced Power Management**

- **Maximum likelihood Decoding support**

- **Security: WEP/TKIP/AES/WPA/WPA2/WAPI**

Application

- **Personal computer**

- **Laptop computer**

- **TV over IP (IPTV)**

- **Voice over IP(VoIP)**

- **Higher data rate wireless broadband access**

- **Network and online gaming**

- **Audio and video streaming and transfer**

- **PC file and application sharing**

3. General Specifications

Model Name	
Product Description	**USB 2.0 802.11N Wireless 150M**
WLAN Standard	**IEEE 802.11 b/g/n ,Wi-Fi compliant**
Host Interface	**USB 2.0**
Major Chipset	**Ralink RT5370L**

Operating Conditions

Voltage	**USB 5V**
Temperature	**-10~70℃**
Humidity Non-Operating	**90% RH non-condensing (12 months among 0~40℃)**

Electrical Specification

Frequency Range	**2.4~2.4835GHZ**
Spread Spectrum	**DSSS**
Transmission Distance	**300m(The transmission speed may vary according to the environment)**
Data Rate	**11b:1/2/5.5/11Mbps** **11g:6/9/12/24/36/48/54Mbps**
Transmit power	**15dbm**
Data security	**64/128/152bitWEP,WPA/WPA2,WPA-PSK/WPA2-PSK(TKIP /AES)**
Receiver Sensitivity	**150M:-68dbm@10%PER**
	135M: -68dbm@10%PER
	54M:-68dbm@10%PER
	11M:-83dbm@10%PER
	6M:-86dbm@10%PER
	1M:-90dbm@10%PER
Environment	**Storage Temperature:-40~70℃(-40℉~158℉)**
	Relative humidity:10%-90%

	Non-condensing
	Storage Humidity:5%~95%
	Non-condensing
Modulation Type	OFDM/CCK/16-QAM/64-QAM
Operating System	Window XP,XP-64 Windows7，32/64,WIN 2000,Vista

4. Power Consumption

Mode	Status	Current (mA) @5V	Note
QA	Idle	89	
	RX	117	54Mbps,CH1
		117	MCS15, 20MHz,CH1
		137	MCS15, 40 MHz,CH3
	TX	173	11Mbps @ 17dBm,CH1
		155	54Mbps @ 13.9dBm, 11g,CH1
		155	MCS7, 20MHz,14dB,CH1
		166	MCS7, 40MHz,CH7
OS	LINK(S0)	102(20M)/120(40M)	
	RX	113	20MHz
		144	40 MHz
	TX	148	20MHz
		152	40 MHz
	SUSPEND	2	
	UNCONFIGURED	59	
	POWER SAVE MODE	52	DTIM=100ms
		47	DTIM=300ms
	RADIO OFF	52	

B. BLUETOOTH PART

*Bluetooth 2.1 compliant with enhanced data rate support

*Class 2 capable with built-in PA

*Programmable output power control meets

 Class1,Class2 or Class3 requirements

*Supports H4DS and WCS

*Use supply voltages up to 5.5V

*Internal OR gate TCXO control

*Fractional-N synthesizer supports frequency

 references from 12 MHz to 40 MHz

*Automatic frequency detection for standard crystal

 and TCXO values

*Lower power consumption

*Supports mobile and PC applications without external memory

5. SPECIFICATIONS

5.1 General Specification

ITEMS	SPECIFICATION	
Supply Voltage	USB Interface Level VDD: 5V+/-0.1V	
Carrier Frequency	2402MHz to 2480MHz	
Modulation Method	GFSK,1Mbps,0.5BT Gaussian	
Data Rate (MAX)	1M	Asynchronous:723.2/57.6kbps
		Synchronous:433.9kbps
	2M	Asynchronous:1448.4/115.2kbps
		Synchronous:864.7kbps
	3M	Asynchronous:2178.1/177.1kbps
		ynchronous:1306.9kbps
Transmission Power	.-4dBm to +2 dBm; Power control 6 stage	
Hopping	1600hops/sec, 1MHz channel space	
Receiving Signal Range	.-88dBm to -20 dBm	

5.2. Electrical Characteristics

5.2.1 Receiver RF Specifications

ITEMS	Mode and Conditions	Minimum	Typicalf	Maximum	Unit
Frequency range	-	2042	-	2480	**MHz**
RX sensitivityc	GFSK, 0.1%BER, 1 Mbps	-	-86	-84	dBm
	pi/4-DQPSK, 0.01%BER 2Mbps	-	-86	-84	dBm
	8-DPSK, 0.01%BER, 3Mbps	-	-82	-80	dBm
Input IP3	-	-16	-	-	dBm
Maximum input	-	-	-	-10	dBm
Interference Performance					
C/I cochannel	GFSK, 0.1%BER	-	-	2	dBm
C/I 1 MHz adjacent channel	GFSK, 0.1%BER	-	-	0	dBm
C/I 2 MHz adjacent channel	GFSK, 0.1%BER	-	-	-30	dBm
C/I 3 MHz adjacent channel	GFSK, 0.1%BER	-	-	-40	dBm
C/I Image channel	GFSK, 0.1%BER	-	-	-9	dBm
C/I 1 MHz adjacent to image channel GFSK, 0.1%BER		-	-	-20	dBm
C/I cochannel	pi/4-DQPSK, 0.1%BER	-	-	13	dBm
C/I 1 MHz adjacent channel	pi/4-DQPSK, 0.1%BER	-	-	0	dBm
C/I 2 MHz adjacent channel	pi/4-DQPSK, 0.1%BER	-	-	-30	dBm
C/I 3 MHz adjacent channel	8-DPSK, 0.1%BER	-	-	-40	dBm
C/I Image channel	pi/4-DQPSK, 0.1%BER	-	-	-7	dBm
C/I 1 MHz adjacent to image channel pi/4-DQPSK, 0.1%BER		-	-	-20	dBm
C/I cochannel	8-DPSK, 0.1%BER	-	-	21	dBm
C/I 1 MHz adjacent channel	8-DPSK, 0.1%BER	-	-	5	dBm
C/I 2 MHz adjacent channel	8-DPSK, 0.1%BER	-	-	-25	dBm
C/I 3 MHz adjacent channel	8-DPSK, 0.1%BER	-	-	-33	dBm
C/I Image channel	8-DPSK, 0.1%BER	-	-	0	dBm
C/I 1 MHz adjacent to image channel 8-DPSK, 0.1%BER		-	-	-13	dBm
Out-of-Band Blocking Performance (CW)					
30 MHz to 2000 MHz,	0.1% BER	-	**-10**	-	dBm
2000 MHz to 2399 MHz	0.1% BER	-	**-27**	-	dBm
2498 MHz to 3000 MHz	0.1% BER	-	**-27**	-	dBm
3000 MHz to 12.75 GHz	0.1% BER	-	**-10**	-	dBm

5.2.2 Transmitter RF Specifications

ITEMS	Mode and Conditions	Minimum	Typicalf	Maximum	Unit
Frequency range	-	2042	-	2480	**MHz**
Output power - Class 2	-	-2	1	4	dBm
Output power - Class 1, GFSK	-	-	TBD	NC	dBm
Output power - Class 1, EDR	-	-	TBD	NC	dBm

In-Band Spurious Emission

:+/-500 kHz	-	-	-	-20	dBc
1.0 MHz < |M - N| < 1.5 MHz (EDR only)	-	-	-	-26	dBc
1.5 MHz < |M - N| < 2.5 MHz (EDR only)	-	-	-	-20	dBc
|M - N| ≥ 2.5 MHz (EDR only)	-	-	-	-40	dBc

Out-of-Band Spurious Emission

30 MHz to 1 GHz	-	-	**-80**	-36	dBm
1 GHz to 12.75 GHz	-	-	-	-30	dBm
1.8 GHz to 1.9 GHz	-	-	**-80**	-47	dBm
5.15 GHz to 5.3 GHz	-	-	**-90**	-36	dBm

Frequency Drift

DH1 packet	-	-	±20	±25	kHz
DH3 packet	-	-	±20	±40	kHz
DH5 packet	-	-	±20	±40	kHz
Drift rate	-	-	10	20	kHz/50 μs