1. General Operational Description

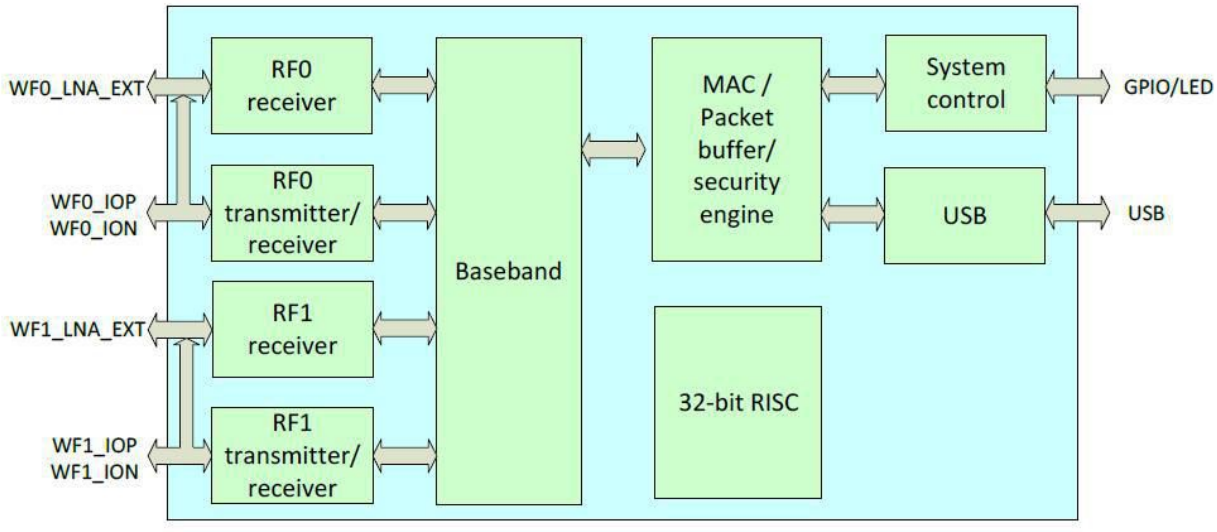
This document is to specify the product requirements for 802.11b/g/n Module. This Card is based on MT7603chipset . It is a highly integrated Wi-Fi single chip which supports 300 Mbps PHY rate. It fully complies with IEEE 802.11n and IEEE 802.11 b/g standards, offering feature-rich wireless connectivity at high standards, and delivering reliable, cost-effective throughput from an extended distance.

2. Features

- Compatible with IEEE 802.11b standard to provide wireless 11Mbps data rate.
- Compatible with IEEE 802.11g standard to provide wireless 54Mbps data rate.
- Compatible with IEEE 802.11n standard to provide wireless 300Mbps data rate.
- Operation at 2.4~2.483.5GHz frequency band to meet worldwide regulations
- Supports infrastructure networks via Access Point and ad-hoc network via peer-to-peer communication
- Supports IEEE 802.11i (WPA and WPA2), WAPI. enhanced security
- Friendly user configuration and diagnostic utilities
- Drivers support Win10,Win8,Win7,XP,Linux
- ROHS compliant
- RF specification： 2.4~2.483.5GHz frequency

3. Application Diagrams

3.1 Functional Block Diagram



3.2 General Requirements

3.2.1 IEEE 802.11b Section

	Feature	Detailed Description
3.2.1.1	Standard	● IEEE 802.11b
3.2.1.2	Radio and Modulation Schemes	● DQPSK , DBPSK , DSSS , and CCK
3.2.1.3	Operating Frequency	● 2400 ～ 2483.5MHz ISM band
3.2.1.4	Channel Numbers	● 11 channels for United States ● 13 channels for Europe Countries ● 14 channels for Japan
3.2.1.5	Data Rate	● 11,5.5,2,and 1Mbps
3.2.1.6	Media Access Protocol	● CSMA/CA with ACK
3.2.1.7	Transmitter Output Power at Antenna Connector	● Typical RF Output Power at each RF chain, Data Rate and at room Temp. 25 degree C ● 17dBm(±2dB) at 1,2,5.5,11Mbps
3.2.1.8	Receiver Sensitivity at Antenna Connector	● Typical Sensitivity at Which Frame(1000-byte PDUs)Error Rate=8% ● -76 dBm at 2Mbps ● -76 dBm for 11Mbps

3.2.2 IEEE 802.11g Section

	Feature	Detailed Description
3.2.2.1	Standard	● IEEE 802.11g
3.2.2.2	**Radio and Modulation Type	● QPSK , BPSK , 16QAM ,64QAM with OFDM
3.2.2.3	Operating Frequency	● 2400 ～ 2483.5MHz ISM band
3.2.2.4	Channel Numbers	● 11 channels for United States ● 13 channels for Europe Countries ● 13 channels for Japan
3.2.2.5	Data Rate	● 6,9,12,18,24,36,48,54Mbps
3.2.2.6	Media Access Protocol	● CSMA/CA with ACK
3.2.2.7	Transmitter Output Power at Antenna Connector	● Typical RF Output Power(tolerance±2dB) at each RF chain, Data Rate and at room Temp. 25degree C ● +17(±2) dBm at 6,9Mbps ● +16(±2) dBm at 12,18Mbps ● +15(±2) dBm at 24,36Mbps ● +14(±2) dBm at 48,54Mbps
3.2.2.8	Receiver Sensitivity at Antenna Connector	• Typical Sensitivity at each RF chain. Frame(1000-byte PDUs)Error Rate<10% at room

Temp 25 degree C

- -82 dBm at 6Mbps
- -81 dBm at 9Mbps
- -79 dBm at 12Mbps
- -77 dBm at 18Mbps
- -74 dBm at 24Mbps
- -70 dBm at 36Mbps
- -66 dBm at 48Mbps
- -65 dBm at 54Mbps

3.2.3 IEEE 802.11n Section

	Feature	Detailed Description
3.2.3.1	Standard	• IEEE 802.11n
3.2.3.2	Radio and Modulation Type	• BPSK , QPSK , 16QAM ,64QAM with OFDM
3.2.3.3	Operating Frequency	• 2.4GHz band:2400 ~ 2483.5MHz

20MHz	40MH	20MHz		40MHz
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65.0	135
7	65	135	72.2	150
8	13	27	14.444	30
9	26	54	28.889	60
10	39	81	43.333	90
11	52	108	57.778	120
12	78	162	86.667	180
13	104	216	115.556	240
14	117	243	130.000	170
15	130	270	144.444	300

3.2.3.4	Media Access	• CSMA/CA with ACK

	Protocol	
3.2.3.5	Transmitter Output Power at Antenna Connector	● Typical RF Output Power (tolerance：±2dB) at each RF chain, Data Rate and at room Temp. 25 degree C ● 2.4GHz Band/HT20 +14(±2)dBm at MCS0~7 ● 2.4GHz Band/HT40 +14(±2)dBm at MCS0~7
3.2.3.6	Receiver Sensitivity at Antenna	Typical Sensitivity at each RF chain at Which Frame(1000-byte PDUs)Error Rate=10% and at room Temp.25 degree C

3.2.3.7	Connector	2.4GHz Band/HT20	2.4GHz Band/HT40
		● -82dBm at MCS0	● -79dBm at MCS0
		● -79dBm at MCS1	● -76dBm at MCS1
		● -77dBm at MCS2	● -74dBm at MCS2
		● -74dBm at MCS3	● -71dBm at MCS3
		● -70dBm at MCS4	● -67dBm at MCS4
		● -66dBm at MCS5	● -63dBm at MCS5
		● -65dBm at MCS6	● -62dBm at MCS6
		● -64dBm at MCS7	● -61dBm at MCS7

4. Electrical and Thermal Characteristics

4.1 Environmental Requirements

Parameter	Minimum	Maximum	Units
Storage Temperature	-40	+80	℃
Ambient Operating Temperature	0	60	℃
Junction Temperature	0	125	℃
Operating Humidity conditions	10	90	%
Non-Operating Humidity Conditions	5	95	%

4.2 General Section

	Feature	Detailed Description
4.2.1	Antenna Type	● WIFI ANT :PIFA Antenna
4.2.2	Operating Voltage	● 3.3V ±10%
4.2.3	Current Consumption	● ＜1000mA
4.2.4	Form Factor and Interface	● High Speed USB2.0 Interface

5、Connector

Pin	Symbol
1	NC
2	Host_wake
3	GND

4	GND
5	D+
6	D-
7	3.3V
8	Rest

6、Product photo


T3
NTUD-T3
5851-W76030-0000
VER00.022018-07-24
SH1 94V-0
E248779
RoHS
CQC
TP2 TP1 TP3 TP4 TP5