

1. General Operational Description

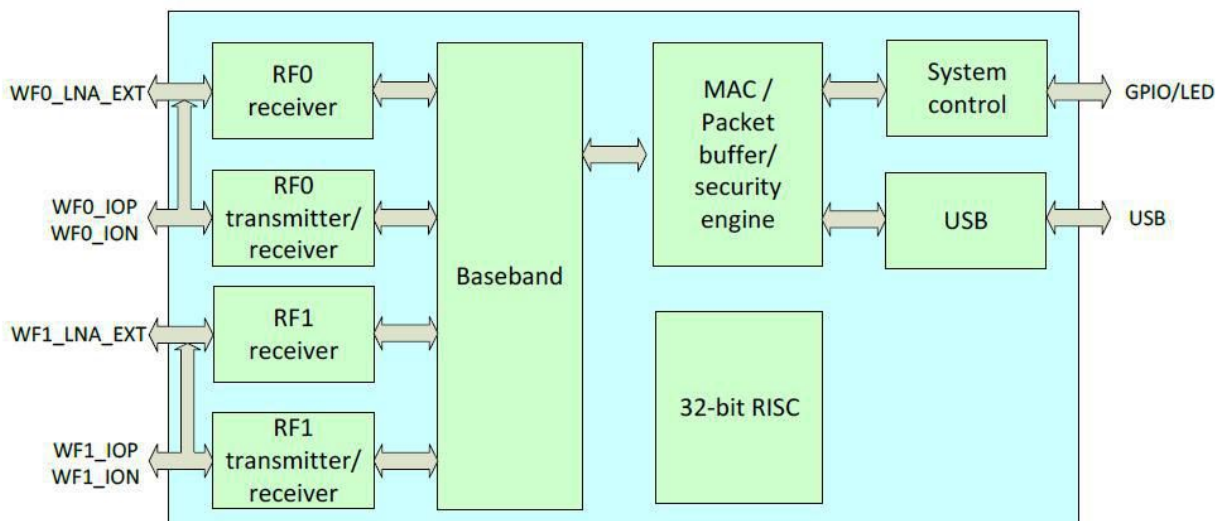
This document is to specify the product requirements for 802.11b/g/n Module. This Card is based on MT7603chipset . It is a highly integrated Wi-Fi single chip which supports 300 Mbps PHY rate. It fully complies with IEEE 802.11n and IEEE 802.11 b/g standards, offering feature-rich wireless connectivity 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 | <ul style="list-style-type: none"> IEEE 802.11b |
| 3.2.1.2 | Radio and Modulation Schemes | <ul style="list-style-type: none"> DQPSK , DBPSK , DSSS , and CCK |
| 3.2.1.3 | Operating Frequency | <ul style="list-style-type: none"> 2400 ~ 2483.5MHz ISM band |
| 3.2.1.4 | Channel Numbers | <ul style="list-style-type: none"> 11 channels for United States 13 channels for Europe Countries 14 channels for Japan |
| 3.2.1.5 | Data Rate | <ul style="list-style-type: none"> 11,5.5,2,and 1Mbps |
| 3.2.1.6 | Media Access Protocol | <ul style="list-style-type: none"> CSMA/CA with ACK |
| 3.2.1.7 | Transmitter Output Power at Antenna Connector | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> IEEE 802.11g |
| 3.2.2.2 | **Radio and Modulation Type | <ul style="list-style-type: none"> QPSK , BPSK , 16QAM ,64QAM with OFDM |
| 3.2.2.3 | Operating Frequency | <ul style="list-style-type: none"> 2400 ~ 2483.5MHz ISM band |
| 3.2.2.4 | Channel Numbers | <ul style="list-style-type: none"> 11 channels for United States 13 channels for Europe Countries 13 channels for Japan |
| 3.2.2.5 | Data Rate | <ul style="list-style-type: none"> 6,9,12,18,24,36,48,54Mbps |
| 3.2.2.6 | Media Access Protocol | <ul style="list-style-type: none"> CSMA/CA with ACK |
| 3.2.2.7 | Transmitter Output Power at Antenna Connector | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> ● IEEE 802.11n |
| 3.2.3.2 | Radio and Modulation Type | <ul style="list-style-type: none"> ● BPSK , QPSK , 16QAM ,64QAM with OFDM |
| 3.2.3.3 | Operating Frequency | <ul style="list-style-type: none"> ● 2.4GHz band:2400 ~ 2483.5MHz |

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

| | | |
|---------|--------------|--|
| 3.2.3.4 | Media Access | <ul style="list-style-type: none"> ● CSMA/CA with ACK |
|---------|--------------|--|

| | | | |
|---------|---|---|---|
| | Protocol | | |
| 3.2.3.5 | Transmitter Output Power at Antenna Connector | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> -82dBm at MCS0 -79dBm at MCS1 -77dBm at MCS2 -74dBm at MCS3 -70dBm at MCS4 -66dBm at MCS5 -65dBm at MCS6 -64dBm at MCS7 | 2.4GHz Band/HT40 <ul style="list-style-type: none"> -79dBm at MCS0 -76dBm at MCS1 -74dBm at MCS2 -71dBm at MCS3 -67dBm at MCS4 -63dBm at MCS5 -62dBm at MCS6 -61dBm at MCS7 |

4. Electrical and Thermal Characteristics

4.1 Environmental Requirements

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

4.2 General Section

| | Feature | Detailed Description |
|-------|---------------------------|---|
| 4.2.1 | Antenna Type | <ul style="list-style-type: none"> WIFI ANT :PIFA Antenna |
| 4.2.2 | Operating Voltage | <ul style="list-style-type: none"> 3.3V $\pm 10\%$ |
| 4.2.3 | Current Consumption | <ul style="list-style-type: none"> <1000mA |
| 4.2.4 | Form Factor and Interface | <ul style="list-style-type: none"> 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





SH1 94V-0
E248779
RoHS 183
COC

NTUD-T3
5851-W76030-0000
VER00.022018-07-24

TP2 TP1 TP3 TP4 TP5