# Product Specification

**IEEE 802.11 b/g/a/n 2T2R WLAN Module**

| | |
|---|---|
| (Project Name) | WLAN Module |
| (Foxconn Part No.) | T77H479.00 |
| (Customer Part No.) | 1130577 |

# Content

## 0. Revision History

| Date | Document revision | Product revision | Change Description |
|---|---|---|---|
| 2013/05/02 | 00 | 015 | Initial release(preliminary) |
| 2013/06/04 | 01 | 015 | 1. Add customer part number<br>2. Update label design<br>3. Remove i-pex connector |
| 2013/07/14 | 02 | 015 | 1. Change 11b power from 16dBm to 13dBm for each chain to pass CE and C-tick<br>2. Add power consumption |
| 2013/08/10 | 03 | 025 | 1. Update label design |
| 2013/9/25 | 04 | 025 | 1. Change 11n 2.4G band HT40 power from 13dBm to 11dBm to pass FCC band-edge<br>2. Update Label design(add FCC logo)<br>3. Update Block Diagram to module level |

# 1. Introduction

Project Name: WLAN Module
Project Number: T77H479.00

This documentation describes the engineering requirements specification of WiFi module with T77H479.00. It is a confidential document of Foxconn.

## 1.1 RF module Overview

The general HW architecture for this module is shown in Figure 1. This WLAN Module design is based on MTK RT5572N. It is a highly integrated MAC/BBP and 2.4/5 GHz RF/PA/LNA single chip which supports a 300Mbps PHY rate. It fully complies with IEEE 802.11n and IEEE 802.11a/ b/g standards, offering feature-rich wireless connectivity at a high standard, and delivering reliable, cost-effective throughput from an extended distance. Optimized RF architecture and base-band algorithms provide superb performance and low power consumption. This module is designed to support standard-based features in the areas of security, QoS and international regulations, giving end users the greatest performance anytime and in any circumstance.

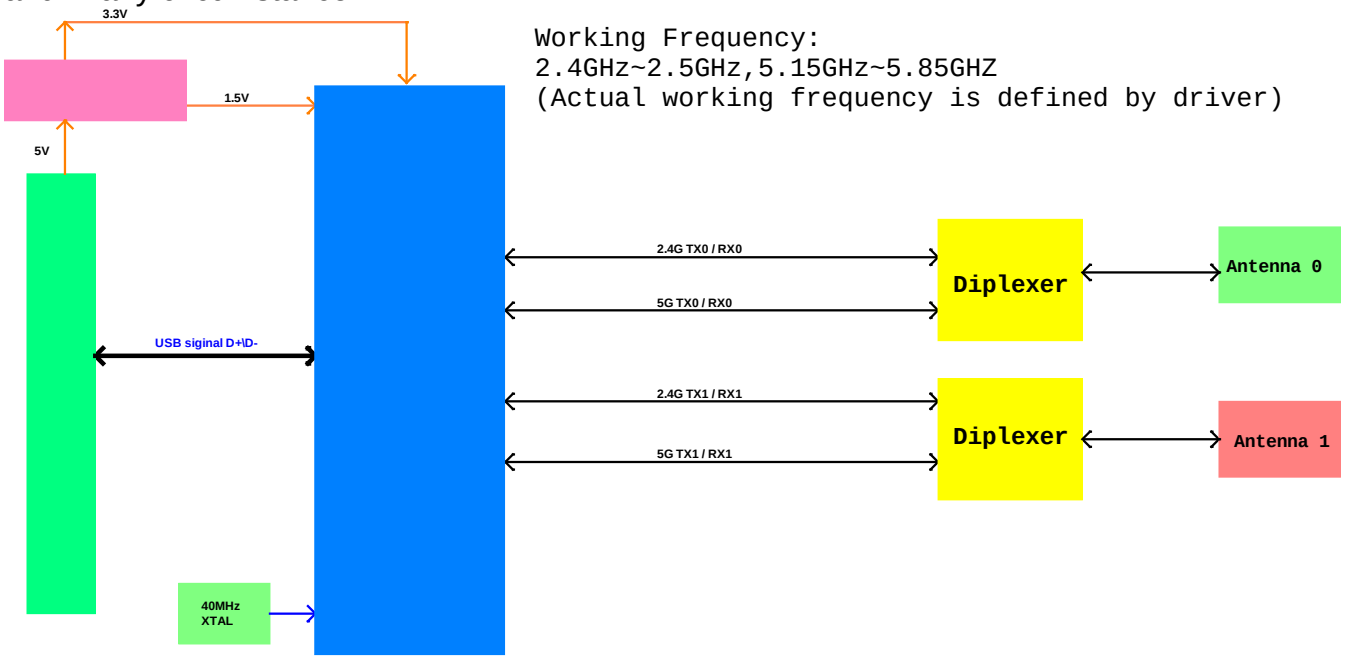



Figure 1 Module Block Diagram

## 1.2 Specification reference

This specification is based on additional references listed below.

- IEEE Std. 802.11a
- IEEE Std. 802.11b
- IEEE Std. 802.11g
- IEEE Std. 802.11n

## 1.3 System Functions

Table1: General Specification as below:

| | |
|---|---|
| Main Chipset | MTK RT5572N |
| Operating Frequency[1] | 2.412 GHz ~2.472GHz<br>5.180 GHz ~5.825 GHz |
| WiFi Standard | 802.11 a/b/g/n(2x2) |
| Modulation | 11b: DBPSK, DQPSK and CCK and DSSS<br>11g: BPSK, QPSK, 16QAM, 64QAM and OFDM<br>11n: MCS0~15 OFDM<br>11a: BPSK, QPSK, 16QAM, 64QAM and OFDM |
| Data rates | 11b:1, 2, 5.5 and 11Mbps<br>11g:6, 9, 12, 18, 24, 36, 48 and 54 Mbps<br>11n(2.4G&5G): MCS0~15, up to 300Mbps<br>11a:6,9,12,18,24,36,48,54Mbps |
| Form factor | 5pin side entry type WTB CONN, 1.25mm pitch, |
| Host Interface | USB 2.0 |
| PCB Stack | 4-layers design |
| PCBA Dimension | Typical，40mm(W)*46.45mm(L)*5.0mm(T)<br>(The height including WTB connector and metal antennas) |
| Antenna type | Two metal antennas on-board |
| Operation Temperature | 0℃ to +60℃ |
| Storage Temperature | -40℃ to +85℃ |
| Operation Voltage | 5V +/-10% |

Sample picture as bellow[2]

TOP view

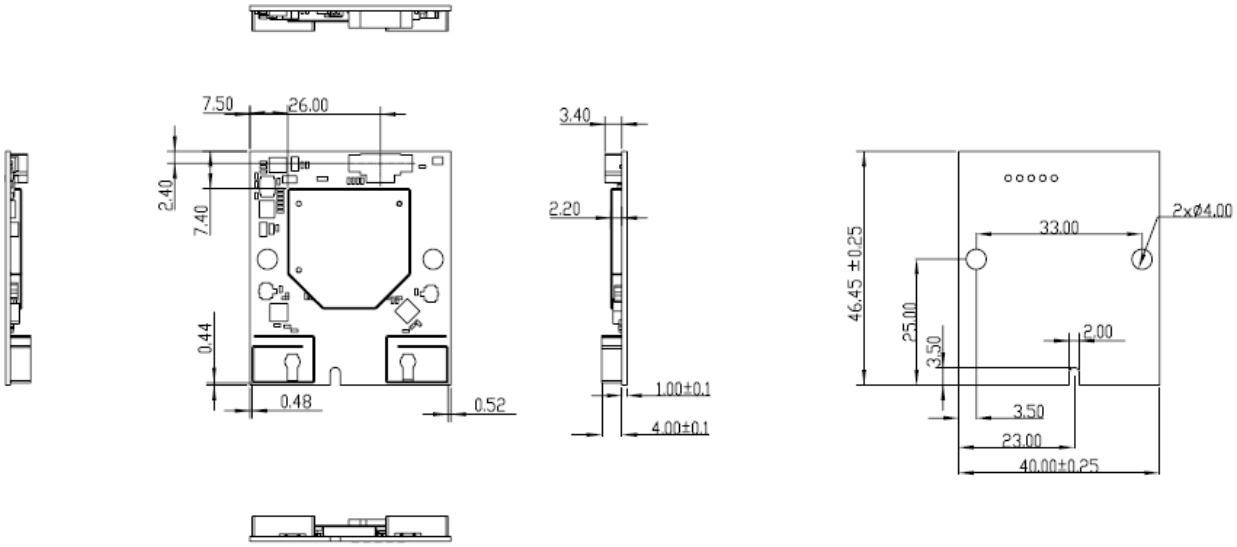

BOT view


*[1] Actual operating frequency may differ base on country code setting (Read from driver setting)
*[2] Above sample pictures are just for reference, may differ for different version

# 2. Mechanical Specification

## 2.1 Mechanical Outline Drawing

Typical PCBA Dimension (W x L x H): 40mmx46.45mmx5.00mm.




Unit: mm

## 2.2 WTB CONNECTOR Pin definition

- 5pin, side entry type WTB CONN, 1.25mm pitch
- Pin No. of WTB connector is marked in sample picture(item 1.3)

| Pin # | Name | Description |
|---|---|---|
| 1 | VCC | 5V DC power supply input |
| 2 | D- | USB Data DP |
| 3 | D+ | USB Data DN |
| 4 | GND | GND |
| 5 | Ctrl | WLAN ON/OFF[3]<br>Pull low to disable WLAN card, internally pull high |

*[3] Module internally pull-high to 3.3V,no need for external pull-high

# 3. Electrical Specification

## 3.1 802.11b Mode

| Items | Contents | | | | |
|---|---|---|---|---|---|
| Specification | IEEE802.11b | | | | |
| Mode | DSSS / CCK | | | | |
| Channel | CH1 to CH13[4] | | | | |
| Data rate | 1, 2, 5.5, 11Mbps | | | | |
| **DC Characteristics** | Min. | Typ. | Max. | Unit | Remark |
| 1.DC current (Average) | | | | | |
| 1) TX throughput mode | | 195 | 261 | mA | |
| 2) RX throughput mode | | 151 | 274 | mA | |
| **TX Characteristics** | Min. | Typ. | Max. | Unit | |
| 2. Power Levels(Calibrated) | | | | | |
| 1) 13dBm Target (For Each antenna port) | 11 | 13 | 15 | dBm | |
| 3. Spectrum Mask @ target power | | | | | |
| 1) fc +/-11MHz to +/-22MHz | - | - | -30 | dBr | |
| 2) fc > +/-22MHz | - | - | -50 | dBr | |
| 4. Frequency Error | -25 | -1 | +25 | ppm | |
| **RX Characteristics(For single chain)** | Min. | Typ. | Max. | Unit | |
| 5 Minimum Input Level Sensitivity | | | | | |
| 1) 1Mbps (FER≦8%) | - | -96 | -83 | dBm | |
| 2) 2Mbps (FER≦8%) | - | -92 | -80 | dBm | |
| 3) 5.5Mbps (FER≦8%) | - | -90 | -79 | dBm | |
| 4) 11Mbps (FER≦8%) | - | -88 | -76 | dBm | |
| 6 Maximum Input Level (FER≦8%) | -10 | | - | dBm | |

*[4]Actual working channel may differ for different country(read from INF and registry),this description apply to 11a/g/n

## 3.2 802.11g Mode

| Items | Contents | | | | |
|---|---|---|---|---|---|
| Specification | IEEE802.11g | | | | |
| Mode | OFDM | | | | |
| Channel | CH1 to CH13 | | | | |
| Data rate | 6, 9, 12, 18, 24, 36, 48, 54Mbps | | | | |
| **DC Characteristics** | Min. | Typ. | Max. | Unit | Remark |
| 1.DC current(Average) | | | | | |
| 1) TX throughput mode | | 191 | 286 | mA | |
| 2) RX throughput mode | | 154 | 281 | mA | |
| **TX Characteristics** | Min. | Typ. | Max. | Unit | |
| 2. Power Levels | | | | | |
| 1) 14dBm Target (For Each antenna port) | 12 | 14 | 16 | dBm | |
| 3. Spectrum Mask @ target power | | | | | |
| 1) at fc +/- 11MHz | - | - | -20 | dBr | |
| 2) at fc +/- 20MHz | - | - | -28 | dBr | |
| 3) at fc > +/-30MHz | - | - | -40 | dBr | |
| 4 Constellation Error(EVM)@ target power | | | | | |
| 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 | - | -32 | -25 | dB | |
| 5 Frequency Error *[1] | -25 | -1.1 | +25 | ppm | |
| **RX Characteristics(For single chain)** | Min. | Typ. | Max. | Unit | |
| 6 Minimum Input Level Sensitivity | | | | | |
| 1) 6Mbps (PER ≤ 10%) | - | -91 | -85 | dBm | |
| 2) 9Mbps (PER ≤ 10%) | - | -89 | -84 | dBm | |
| 3) 12Mbps (PER ≤ 10%) | - | -89 | -82 | dBm | |
| 4) 18Mbps (PER ≤ 10%) | - | -86 | -80 | dBm | |
| 5) 24Mbps (PER ≤ 10%) | - | -84 | -77 | dBm | |
| 6) 36Mbps (PER ≤ 10%) | - | -80 | -73 | dBm | |
| 7) 48Mbps (PER ≤ 10%) | - | -75 | -69 | dBm | |
| 8) 54Mbps (PER ≤ 10%) | - | -74 | -68 | dBm | |
| 7 Maximum Input Level (PER ≤ 10%) | -20 | | - | dBm | |

## 3.3 802.11n 2.4G HT20 Mode

| Items | Contents | | | | |
|---|---|---|---|---|---|
| Specification | IEEE802.11n HT20 @ 2.4GHz | | | | |
| Mode | OFDM | | | | |
| Channel | CH1 to CH13 | | | | |
| Data rate (MCS index) | MCS0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 | | | | |
| **DC Characteristics** | Min. | Typ. | Max. | Unit | Remark |
| 1.DC current(Average) | | | | | |
| 1) TX throughput mode | | 328 | 436 | mA | |
| 2) RX throughput mode | | 172 | 436 | mA | |
| **TX Characteristics** | Min. | Typ. | Max. | Unit | |
| 2. Power Levels | | | | | |
| 14dBm Target (For Each antenna port) | 12 | 14 | 16 | dBm | |
| 3. Spectrum Mask @ target power | | | | | |
| 1) at fc +/- 11MHz | - | - | -20 | dBr | |
| 2) at fc +/- 20MHz | - | - | -28 | dBr | |
| 3) at fc > +/-30MHz | - | - | -45 | dBr | |
| 4. Constellation Error(EVM)@ target power | | | | | |
| 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 | -28 | dB | |
| 5. Frequency Error *1 | -25 | -1.2 | +25 | ppm | |
| **RX Characteristics(For single chain)** | Min. | Typ. | Max. | Unit | |
| 6. Minimum Input Level Sensitivity | | | | | |
| 1) MCS0 (PER ≤ 10%) | - | -90 | -82 | dBm | |
| 2) MCS1 (PER ≤ 10%) | - | -88 | -79 | dBm | |
| 3) MCS2 (PER ≤ 10%) | - | -86 | -77 | dBm | |
| 4) MCS3 (PER ≤ 10%) | - | -83 | -74 | dBm | |
| 5) MCS4 (PER ≤ 10%) | - | -79 | -70 | dBm | |
| 6) MCS5 (PER ≤ 10%) | - | -74 | -66 | dBm | |
| 7) MCS6 (PER ≤ 10%) | - | -73 | -65 | dBm | |
| 8) MCS7 (PER ≤ 10%) | - | -71 | -64 | dBm | |
| 7. Maximum Input Level (PER ≤ 10%) | -20 | | - | dBm | |

## 3.4 802.11n 2.4G HT40 Mode

| Items | Contents | | | | |
|---|---|---|---|---|---|
| Specification | IEEE802.11n HT40 @ 2.4GHz | | | | |
| Mode | OFDM | | | | |
| Channel | CH3 to CH11[5] | | | | |
| Data rate (MCS index) | MCS0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 | | | | |
| **DC Characteristics** | Min. | Typ. | Max. | Unit | Remark |
| 1.DC current(Average) | | | | | |
| 1) TX throughput mode | | 295 | 440 | mA | |
| 2) RX throughput mode | | 187 | 445 | mA | |
| **TX Characteristics** | Min. | Typ. | Max. | Unit | |
| 2. Power Levels (Calibrated) | | | | | |
| 1) 11dBm Target (For Each antenna port) | 9 | 11 | 13 | dBm | |
| 3. Spectrum Mask @ target power | | | | | |
| 1) at fc +/- 22MHz | - | - | -20 | dBr | |
| 2) at fc +/- 40MHz | - | - | -28 | dBr | |
| 3) at fc > +/-60MHz | - | - | -45 | dBr | |
| 4. Constellation Error(EVM)@target power | | | | | |
| 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 | - | -30 | -28 | dB | |
| 5. Frequency Error *1 | -25 | -1.3 | +25 | ppm | |
| **RX Characteristics(For single chain)** | Min. | Typ. | Max. | Unit | |
| 6. Minimum Input Level Sensitivity | | | | | |
| 1) MCS0 (PER ≤ 10%) | - | -87 | -79 | dBm | |
| 2) MCS1 (PER ≤ 10%) | - | -84 | -76 | dBm | |
| 3) MCS2 (PER ≤ 10%) | - | -82 | -74 | dBm | |
| 4) MCS3 (PER ≤ 10%) | - | -78 | -71 | dBm | |
| 5) MCS4 (PER ≤ 10%) | - | -75 | -67 | dBm | |
| 6) MCS5 (PER ≤ 10%) | - | -70 | -63 | dBm | |
| 7) MCS6 (PER ≤ 10%) | - | -69 | -62 | dBm | |
| 8) MCS7 (PER ≤ 10%) | - | -68 | -61 | dBm | |
| 7. Maximum Input Level (PER ≤ 10%) | -20 | | | dBm | |

*[5]Actual working channel may differ for different country(read from INF and registry)

## 3.5 802.11a Mode

| Items | Contents | | | | |
|---|---|---|---|---|---|
| Specification | IEEE802.11a @ 5GHz | | | | |
| Mode | OFDM | | | | |
| Channel | Band1:5.18GHz～5.24GHz<br>Band2:5.26GHz～5.32GH<br>Band3:5.50GHz~5.68GHz<br>Band4:5.745GHz～5.825GHz[6] | | | | |
| Data rate (MCS index) | 6, 9, 12, 18, 24, 36, 48, 54Mbps | | | | |
| **DC Characteristics** | Min. | Typ. | Max. | Unit | Remark |
| 1.DC current(Average) | | | | | |
| 1) TX throughput mode | | 215 | 303 | mA | |
| 2) RX throughput mode | | 176 | 317 | mA | |
| **TX Characteristics** | Min. | Typ. | Max. | Unit | |
| 2. Power Levels | | | | | |
| 1) 12dBm Target (For Each antenna port) | 10 | 12 | 14 | dBm | |
| 3. Spectrum Mask @ target power | | | | | |
| 1) at fc +/- 11MHz | - | - | -20 | dBr | |
| 2) at fc +/- 20MHz | - | - | -28 | dBr | |
| 3) at fc > +/-30MHz | - | - | -40 | dBr | |
| 4 Constellation Error(EVM)@ target power | | | | | |
| 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 | - | -32 | -25 | dB | |
| 5 Frequency Error *[1] | -20 | -1.1 | +20 | ppm | |
| **RX Characteristics(For single chain)** | Min. | Typ. | Max. | Unit | |
| 6 Minimum Input Level Sensitivity | | | | | |
| 1) 6Mbps (PER ≤ 10%) | - | -91 | -82 | dBm | |
| 2) 9Mbps (PER ≤ 10%) | - | -89 | -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%) | - | -73 | -65 | dBm | |
| 7 Maximum Input Level (PER ≤ 10%) | -20 | | - | dBm | |

*[6]Actual working channel may differ for different country(read from INF and registry)

## 3.6 802.11n 5G HT20 Mode

| Items | Contents | | | | |
|---|---|---|---|---|---|
| Specification | IEEE802.11n HT20 @ 5GHz | | | | |
| Mode | OFDM | | | | |
| Channel | Band1:5.18GHz～5.24GHz<br>Band2:5.26GHz～5.32GH<br>Band3:5.50GHz~5.68GHz<br>Band4:5.745GHz～5.825GHz | | | | |
| Data rate (MCS index) | MCS0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 | | | | |
| **DC Characteristics** | Min. | Typ. | Max. | Unit | Remark |
| 1.DC current(Average) | | | | | |
| 3) TX throughput mode | | 364 | 462 | mA | |
| 4) RX throughput mode | | 172 | 462 | mA | |
| **TX Characteristics** | Min. | Typ. | Max. | Unit | |
| 2. Power Levels (Calibrated) | | | | | |
| 1) 12dBm Target (For Each antenna port) | 10 | 12 | 14 | dBm | |
| 3. Spectrum Mask @ target power | | | | | |
| 1) at fc +/- 22MHz | - | - | -20 | dBr | |
| 2) at fc +/- 40MHz | - | - | -28 | dBr | |
| 3) at fc > +/-60MHz | - | - | -45 | dBr | |
| 4. Constellation Error(EVM)@target power | | | | | |
| 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 | - | -30 | -28 | dB | |
| 5. Frequency Error *1 | -20 | -1.3 | +20 | ppm | |
| **RX Characteristics(For single chain)** | Min. | Typ. | Max. | Unit | |
| 6. Minimum Input Level Sensitivity | | | | | |
| 1) MCS0 (PER ≤ 10%) | - | -89 | -82 | dBm | |
| 2) MCS1 (PER ≤ 10%) | - | -86 | -79 | dBm | |
| 3) MCS2 (PER ≤ 10%) | - | -85 | -77 | dBm | |
| 4) MCS3 (PER ≤ 10%) | - | -82 | -74 | dBm | |
| 5) MCS4 (PER ≤ 10%) | - | -78 | -70 | dBm | |
| 6) MCS5 (PER ≤ 10%) | - | -73 | -66 | dBm | |
| 7) MCS6 (PER ≤ 10%) | - | -72 | -65 | dBm | |
| 8) MCS7 (PER ≤ 10%) | - | -70 | -64 | dBm | |
| 7. Maximum Input Level (PER ≤ 10%) | -20 | | | dBm | |

## 3.7 802.11n 5G HT40 Mode

| Items | Contents | | | | |
|---|---|---|---|---|---|
| Specification | IEEE802.11n HT40 @ 5GHz | | | | |
| Mode | OFDM | | | | |
| Channel | Band1:5.18GHz～5.24GHz<br>Band2:5.26GHz～5.32GH<br>Band3:5.50GHz~5.68GHz<br>Band4:5.745GHz～5.825GHz | | | | |
| Data rate (MCS index) | MCS0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 | | | | |
| **DC Characteristics** | Min. | Typ. | Max. | Unit | Remark |
| 1.DC current(Average) | | | | | |
| 3) TX throughput mode | | 331 | 476 | mA | |
| 4) RX throughput mode | | 207 | 476 | mA | |
| **TX Characteristics** | Min. | Typ. | Max. | Unit | |
| 2. Power Levels (Calibrated) | | | | | |
| 1) 11dBm Target (For Each antenna port) | 9 | 11 | 13 | dBm | |
| 3. Spectrum Mask @ target power | | | | | |
| 1) at fc +/- 22MHz | - | - | -20 | dBr | |
| 2) at fc +/- 40MHz | - | - | -28 | dBr | |
| 3) at fc > +/-60MHz | - | - | -45 | dBr | |
| 4. Constellation Error(EVM)@target power | | | | | |
| 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 | - | -30 | -28 | dB | |
| 5. Frequency Error *1 | -20 | -1.3 | +20 | ppm | |
| **RX Characteristics(For single chain)** | Min. | Typ. | Max. | Unit | |
| 6. Minimum Input Level Sensitivity | | | | | |
| 1) MCS0 (PER ≤ 10%) | - | -86 | -79 | dBm | |
| 2) MCS1 (PER ≤ 10%) | - | -83 | -76 | dBm | |
| 3) MCS2 (PER ≤ 10%) | - | -81 | -74 | dBm | |
| 4) MCS3 (PER ≤ 10%) | - | -78 | -71 | dBm | |
| 5) MCS4 (PER ≤ 10%) | - | -75 | -67 | dBm | |
| 6) MCS5 (PER ≤ 10%) | - | -70 | -63 | dBm | |
| 7) MCS6 (PER ≤ 10%) | - | -69 | -62 | dBm | |
| 8) MCS7 (PER ≤ 10%) | - | -67 | -61 | dBm | |
| 7. Maximum Input Level (PER ≤ 10%) | -20 | | | dBm | |

# 4 Software Requirements

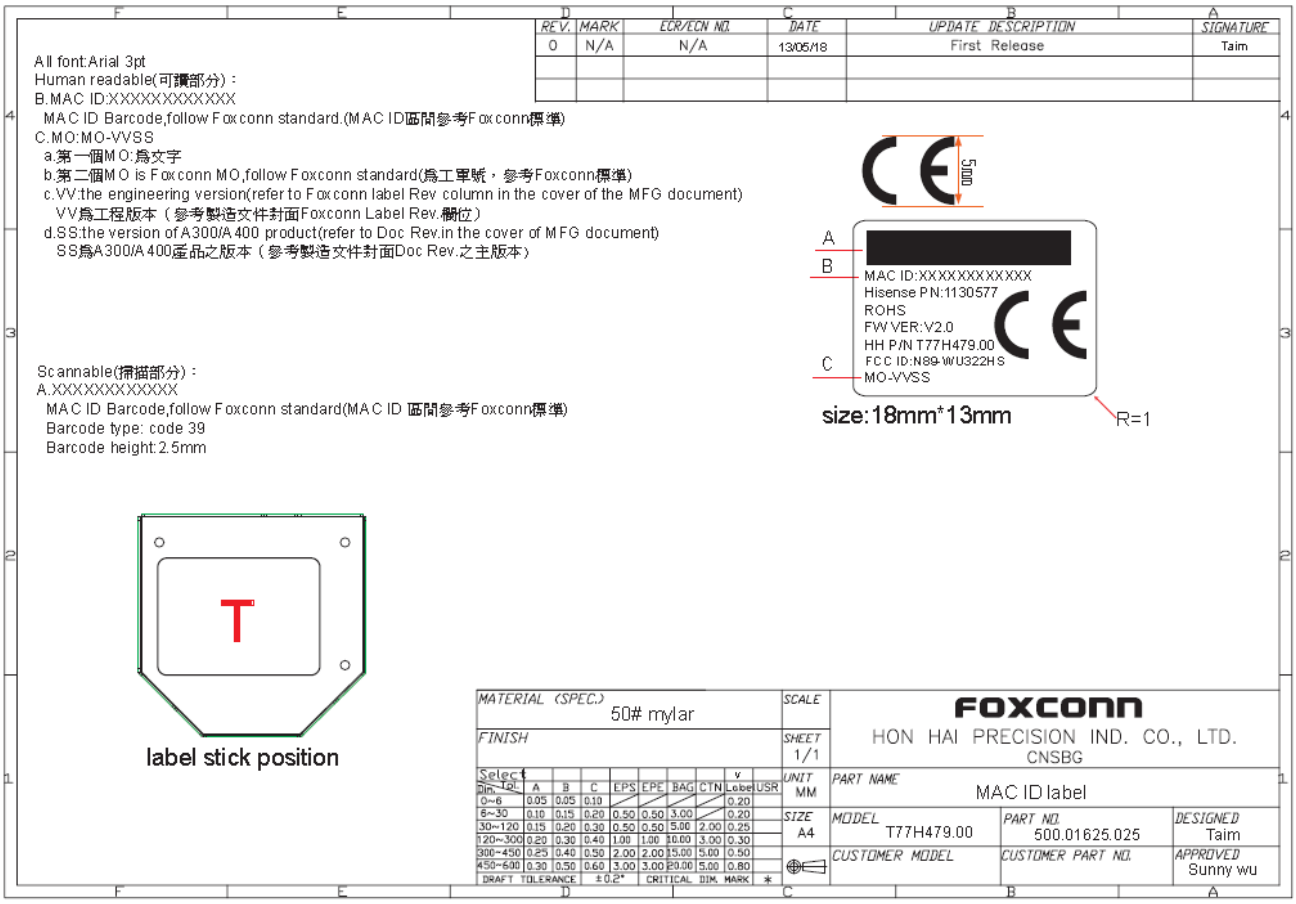
The driver supports the following operating systems: Linux, Microsoft Windows XP and Win7.

# 5. Quality

The product quality must be followed-up by Foxconn factory quality control system.

# 6. Appendix

## 6.1 Label information [7]

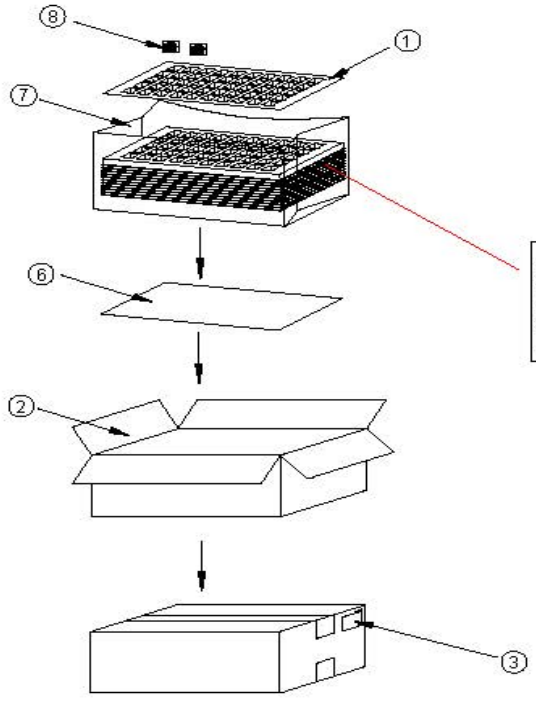



*[7] Label information may be evolve as production revision evolve

## 6.2 Package information

| VER. | MARK | ECR/ECN NO. | DATE | UPDATE DESCRIPTION | SIGNATURE |
|---|---|---|---|---|---|
| 00 | | | 13.03.06 | First Release | Taim |

the picture just for reference





1. Qty: 28pcs/layer, 16 layers/carton
2. The top layer used as shield cover, without products.
3. The two neighboring layers always laid reversely.

Carton outer size: 471*297*160mm
Carton=16 layers=(1*0+15*28)pcs=420pcs

| | | | |
|---|---|---|---|
| 1 | Tray | 513.00351.005 | 16/420 |
| 2 | Carton | 520.00309.005 | 1/420 |
| 3 | Carton label | 503.00098.005 | 1/420 |
| 4 | T77H479.00 | N/A | 1 |
| 5 | Tray ID label | 503.00090.005 | 15/420 |
| 6 | Paper board | 522.00043.005 | 1/420 |
| 7 | PE bag | 510.00404.015 | 1/420 |
| 8 | Drier | 528.00011.005 | 2/420 |

組立圖及包裝出貨方式/T77H479.00/00/1 OF 3

△1

MATERIAL (SPEC.)
FINISH
SCALE
SHEET
UNIT mm
SIZE A4

FOXCONN
HON HAI PRECISION IND. CO., LTD.

PART NAME: Carton ASY
MODEL: T77H479.00
PART NO.:
DESIGNED: Taim
CUSTOMER MODEL:
CUSTOMER PART NO.:
APPROVED: Sunny Wu

| Select Dim. by | A | B | C | EPS | EPE | BAG | CTN | Label | USR |
|---|---|---|---|---|---|---|---|---|---|
| 0~6 | 0.05 | 0.05 | 0.10 | | | | | 0.20 | |
| 6~30 | 0.10 | 0.15 | 0.20 | 0.50 | 0.50 | 3.00 | | 0.20 | |
| 30~120 | 0.15 | 0.20 | 0.30 | 0.50 | 0.50 | 5.00 | 2.00 | 0.25 | |
| 120~300 | 0.20 | 0.30 | 0.40 | 1.00 | 1.00 | 10.00 | 3.00 | 0.30 | |
| 300~450 | 0.25 | 0.40 | 0.50 | 2.00 | 2.00 | 15.00 | 5.00 | 0.50 | |
| 450~800 | 0.30 | 0.50 | 0.60 | 3.00 | 3.00 | 20.00 | 5.00 | 0.80 | |
| DRAFT TOLERANCE | | | ±0.2° | CRITICAL DIM. MARK | | | | | * |

## 6.3 Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**FCC Caution:**

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

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

**FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter module must not be co-located or operating in conjunction with any other antenna or transmitter.

This End equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

**IMPORTANT NOTE:**

In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

The final end product must be labeled in a visible area with the following:

“Contains FCC ID: N89-BU067HS ”.

**Manual Information to the End User**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module.

**Antennas**

Only use the supplied antenna. Unauthorized antennas, modifications or change to the antennas could violate FCC regulations and void the user’s authority to operate the equipment.

**Caution:**

For operation within 5.15 ~5.25GHz /5.25 ~5.35GHz/5.47 ~5.725GHz frequency range, it is restricted to indoor operations to reduce any potential for harmful interference to co-channel Mobile Satellite System (MSS) operations. The band from 5600-5650MHz will be disabled by the software during the manufacturing and cannot be changed by the end user. This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.