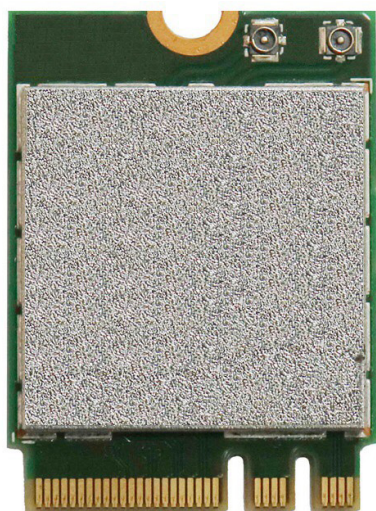


Dual Band 2.4/5 GHz WiFi + Bluetooth Combo M.2 Module

Designed for WLAN/BT and Low-Energy Communications

Model: WLT674



KEY FEATURES

- Qualcomm Atheros QCA6174A-5.
- Supports 2x2 multi-user multiple input, multiple output (MU-MIMO) with two spatial streams.
- Supports IEEE 802.11a/b/g/n/ac WLAN standards.
- Enables seamless integration of WLAN/Bluetooth and low energy technology.
- Provides a highly integrated WLAN system-on-chip (SoC) for 5 GHz 802.11ac, or 2.4 GHz / 5 GHz 802.11n WLAN applications.
- Supports Bluetooth 4.1 + HS, BLE, and ANT+ and backward compatibility with BT 1.2 and BT 2.X + enhanced data rate.
- Supports BT-WLAN coexistence and ISM-LTE coexistence.
- Supports Simple Pairing (SP) and Enhanced Inquiry Response (EIR) function.
- HCI USB interface to work with Windows upper layer stack.

APPLICATIONS

- Medical devices, security systems, robots, video streaming, PoS, digital signs, gaming machine, medical equipment, tablet PCs, handheld devices, thin client devices.

Specifications

Chipset	QCA6174A-5
WLAN Host Interface	MiniPCIe 2.1 interface
Bluetooth Host Interface	USB 1.1 interface
Operating Voltage	3.3 V DC power supply and I/O supply of 1.8 V or 3.3 V
WLAN Frequency Range	2.412 GHz to 2.483 GHz, 5.150 GHz to 5.850 GHz, *Subject to local regulations

Additional Specifications

Standards for WLAN	IEEE 802.11ac/a/b/g/n (2T2R)
Standards for Bluetooth	Bluetooth V4.1, V4.0 LE, V3.0+HS, V2.1+EDR
Channel Spectrum Widths for WLAN	Supports 20/40 MHz at 2.4 GHz Supports 20/40/80 MHz at 5 GHz
Data Rates for WLAN	802.11b : 11 Mbps 802.11a/g : 54 Mbps 802.11n : MCS 0 to MCS 15 802.11ac : MCS 0 to MCS 9
Max Data Rates for WLAN	300 Mbps on 802.11n networks 867 Mbps on 802.11ac networks
Data Rates for Bluetooth	1 Mbps, 2 Mbps, and up to 3 Mbps
Form Factor	M.2 2230, Key A+E
Antenna	2x U.FL connectors, 2T2R Support WiFi/BT co-existence
Modulation Techniques	802.11b : DSSS (DBPSK, DQPSK, CCK) 802.11a/g : OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n : OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac : OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)
Power Consumption	TX : 610 mA RX : 280 mA
Driver Support	Linux with ath10k, Windows 7/8.1/10
Security	64/128-bits WEP, WPA, WPA2, 802.1X
Environmental Temperature	Operating : -20 °C to 70 °C ; Storage : -40 °C to 85 °C
Environmental Humidity, non-condensing	Operating : 5 % to 95 % ; Storage : 5 % to 90 %
Dimensions (W × H × D)	(30 mm × 26.8 mm × 3.05 mm) ± 0.5 mm
Weight	6 g

RF Performance Table

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
2.4 GHz 802.11b	11 Mbps	18 dBm	21 dBm	± 2 dB
2.4 GHz 802.11g	54 Mbps	15 dBm	18 dBm	± 2 dB
2.4 GHz 802.11n HT20	MCS 7	15 dBm	18 dBm	± 2 dB
2.4 GHz 802.11n HT40	MCS 7	15 dBm	18 dBm	± 2 dB
5 GHz 802.11a	54 Mbps	10.5 dBm	13.5 dBm	± 2 dB
5 GHz 802.11n HT20	MCS 7	10 dBm	13 dBm	± 2 dB
5 GHz 802.11n HT40	MCS 7	10 dBm	13 dBm	± 2 dB
5 GHz 802.11ac HT80	MCS 9	6 dBm	9 dBm	± 2 dB
Bluetooth	3 Mbps	4~10 dBm	-	± 2 dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4 GHz 802.11b	11 Mbps	-76 dBm	± 2 dB
2.4 GHz 802.11g	54 Mbps	-65 dBm	± 2 dB
2.4 GHz 802.11n HT20	MCS 7	-64 dBm	± 2 dB
2.4 GHz 802.11n HT40	MCS 7	-61 dBm	± 2 dB
5 GHz 802.11a	54 Mbps	-65 dBm	± 2 dB
5 GHz 802.11n HT20	MCS 7	-64 dBm	± 2 dB
5 GHz 802.11n HT40	MCS 7	-61 dBm	± 2 dB
5 GHz 802.11ac HT80	MCS 9	-51 dBm	± 2 dB
Bluetooth	3 Mbps	-70 dBm (0.1% BER)	± 2 dB

Packaging Content

Item	Quantity
WLT674 Wireless Module	1

Ordering Configuration

Item Code	Chipset	Form Factor	Card Information
WLT674 1.00 7A0000-TE (Prototype)	QCA6174A-5	M.2 2230, Key A+E	2.4/5 GHz WiFi + Bluetooth

Packaging Information

Packaging Type	Dimensions	Weight	Dimensional Weight
Packing Box (100 units)	385 mm x 207 mm x 76 mm	0.68 kg	TBD
Carton Box (5 Packing Boxes / 500 units)	422 mm x 410 mm x 240 mm	4.1 kg	TBD

Federal Communication Commission Interference Statement

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.

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 transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

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

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains **FCC ID: TK4WLT674**”. The grantee's FCC ID can be used only when all FCC compliance requirements are met.

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.

The end user manual shall include all required regulatory information/warning as show in this manual.

Industry Canada statement:

This device complies with ISED's licence-exempt RSSs. 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.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Radiation Exposure Statement:

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

This device is intended only for OEM integrators under the following conditions: (For module device use)

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes: (Pour utilisation de dispositif module)

- 1) L'antenne doit être installée de telle sorte qu'une distance de 20 cm est respectée entre l'antenne et les utilisateurs, et
- 2) Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

Tant que les 2 conditions ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

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 Canada authorization is no longer considered valid and the IC 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 Canada authorization.

NOTE IMPORTANTE:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considéré comme valide et l'ID IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains **IC: 7849A-WLT674**”.

Plaque signalétique du produit final

Ce module émetteur est autorisé uniquement pour une utilisation dans un dispositif où l'antenne peut être installée de telle sorte qu'une distance de 20cm peut être maintenue entre l'antenne et les utilisateurs. Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des **IC: 7849A-WLT674**".

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.

The end user manual shall include all required regulatory information/warning as show in this manual.

Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.

Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.

Caution :

- (i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;
- (ii) the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;
- (iii) the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate; and
- (iv) the worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in Section 6.2.2(3) shall be clearly indicated.
- (v) Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

Avertissement:

Le guide d'utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :

- (i) les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;
- (ii) le gain maximal d'antenne permis pour les dispositifs utilisant les bandes de 5250 à 5350 MHz et de 5470 à 5725 MHz doit être conforme à la limite de la p.i.r.e;
- (iii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande de 5 725 à 5

850 MHz) doit être conforme à la limite de la p.i.r.e. spécifiée pour l'exploitation point à point et l'exploitation non point à point, selon le cas;

(iv) les pires angles d'inclinaison nécessaires pour rester conforme à l'exigence de la p.i.r.e. applicable au masque d'élévation, et énoncée à la section 6.2.2 3), doivent être clairement indiqués.

(v) De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

DETACHABLE ANTENNA USAGE

This radio transmitter (**IC: 7849A-WLT674 / Model: WLT674**) has been approved by ISED to operate with the antenna type listed below with maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (**IC: 7849A-WLT674 / Model: WLT674**) a été approuvé par ISED pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Antenna Set 1									
Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dBi)	5G Cable Loss (dBi)	Connector Type	Cable Length (mm)
Chain (0)	WNC	81-EBJ15.005	PIFA	3.00	Band 1&2: 2.56	1.15	Band 1&2: 1.70	IPEX	300
					Band 3: 4.76		Band 3: 1.74		
					Band 4: 4.76		Band 4: 1.79		
Chain (1)	WNC	81-EBJ15.005	PIFA	3.62	Band 1&2: 3.08	1.15	Band 1&2: 1.70	IPEX	300
					Band 3: 3.31		Band 3: 1.74		
					Band 4: 2.42		Band 4: 1.79		
Antenna Set 2									
Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dBi)	5G Cable Loss (dBi)	Connector Type	Cable Length (mm)
Chain (0)	INPAQ	DAM-I6-H-DB-800-10-17	Dipole	1.13	Band 1&2: 1.33	NA	NA	SMA RP Plug	900
					Band 3: -0.63				
					Band 4: -0.97				
Chain (1)	INPAQ	DAM-I6-H-DB-800-10-17	Dipole	1.29	Band 1&2: 1.94	NA	NA	SMA RP Plug	900
					Band 3: -0.49				
					Band 4: -0.93				

Note: Antenna Set 1 was selected for final test