

Enli Incorporation

User Manual

Wi-Fi (11a/b/g/n/ac 2Tx2R) + BT (V5.0 LE)
Wi-Fi + BT Module(WiFi + BT)

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PRODUCT FEATURES

BT FEATURES:

- Bluetooth V5.0, V4.2, V4.1, V4.0 LE, V3.0+HS, Bluetooth V2.1+EDR system, backwards compatible with BT version of 1.1, 1.2 and 2.0
- Supports Class I
- BT transmission speed including 1M, 2M and 3Mbps EDR operations
- Support for Simple Pairing (SP) and Enhanced Inquiry Response (EIR) function
- HCI USB interface to work with Windows upper layer stack

Wi-Fi FEATURES:

- Operate at ISM frequency Band(2.4/ 5 GHz)
- IEEE Standards Support 802.11ac, 802.11a, 802.11b, 802.11g and 802.11n
- Wi-Fi using Low power PCIe (w/ L1 sub-state) interface
- Enterprise level security supporting:
HW : 64/128-bit WEP, CKIP, TKIP and AES-CCMP encryption
SW : WPA, WPA2, IEEE 802.1x, FIPS140-2
- Support 2 transmission and 2 receiving, transmission rate can up to 867Mbps (Physical Rate) in downstream and upstream
- Additional features include maximal likelihood (ML) decoding, low-density parity check(LDPC), maximum ratio combining(MRC), Rx space time block code(STBC), MU-MIMO and transmit beam forming

COMMON FEATURES:

- Form Factor: Half-Sized PCI Express Card
- Support for BT & WLAN Co-existence
- RoHS compliance
- Halogen Free compliance

PRODUCT SPECIFICATIONS

MAIN CHIPSET

Qualcomm QCA6174A-5

FUNCTIONAL SPECIFICATIONS

BT Function	
Standard	Bluetooth V5.0, V4.2, V4.1, V4.0LE, V3.0+HS, V2.1+EDR
Bus Interface	USB 1.1
Data Rate	1 Mbps, 2Mbps and 3Mbps
Modulation Scheme	LE, GFSK, $\pi/4$ -DQPSK and 8-DPSK
Frequency Range	2.402~2.480 GHz
Receive Sensitivity	< 0.1% BER at -70dBm
Software	Bluetooth Suite
Wi-Fi Function	
Standard	IEEE802.11ac, IEEE802.11a , IEEE802.11b , IEEE 802.11g , IEEE 802.11n
Bus Interface	Low power PCI Express
Data Rate	802.11a: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: MCS 0 to 15 for HT20MHz MCS 0 to 15 for HT40MHz 802.11ac: MCS 0 to 8 for HT20MHz MCS 0 to 9 for HT40MHz MCS 0 to 9 for HT80MHz
Media Access Control	CSMA/CA with ACK
Modulation Techniques	802.11ac: 256QAM, 64QAM, 16QAM, QPSK, BPSK 802.11a: 64QAM, 16QAM, QPSK, BPSK 802.11b: CCK, DQPSK, DBPSK 802.11g: 64QAM, 16QAM, QPSK, BPSK 802.11n:

	64QAM, 16QAM, QPSK, BPSK
Network Architecture	Infrastructure mode
Receiver Sensitivity	802.11b: Less than IEEE Standard -76dBm 802.11g / 802.11a: Less than IEEE Standard -82dBm @ 6Mbps Less than IEEE Standard -65dBm @ 54Mbps 802.11n: HT20: Less than IEEE Standard -82dBm @ MCS0 Less than IEEE Standard -64dBm @ MCS7 HT40: Less than IEEE Standard -79dBm @ MCS0 Less than IEEE Standard -61dBm @ MCS7 HT80: Less than IEEE Standard -76dBm @ MCS0 Less than IEEE Standard -51dBm @ MCS7 HW : 64/128-bit WEP, CKIP, TKIP and AES-CCMP encryption SW : WPA, WPA2, IEEE 802.1x, FIPS140-2

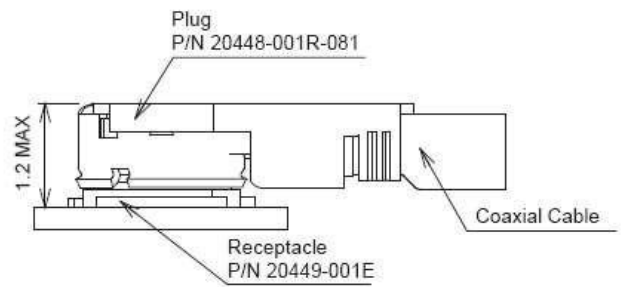
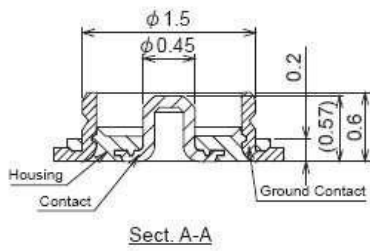
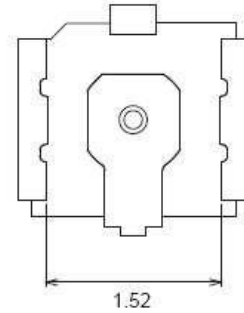
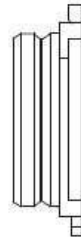
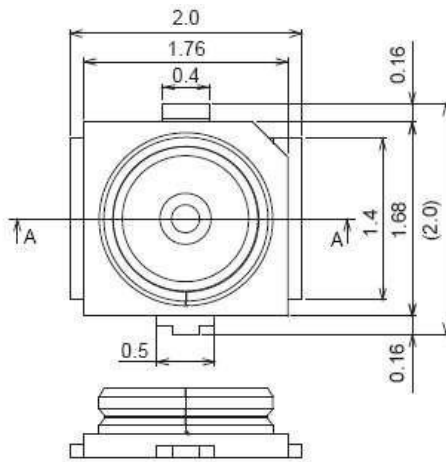
Operating Voltage	3.3 V $\pm$ 9% I/O supply voltage
Antenna Type	Dual MHF4 connectors

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PIN ASSIGNMENT

PIN#	Pin Name		PIN#	Pin Name	
1	WAKE_L	YES	2	3.3V	YES
3	RESERVED	NC	4	GND	YES
5	RESERVED	NC	6	1.5V	NC
7	CLKREQ_L	YES	8	UIM_PWR	NC
9	GND	YES	10	UIM_DATA	NC
11	REFCLK-	YES	12	UIM_CLK	NC
13	REFCLK+	YES	14	UIM_RESET	NC
15	GND	YES	16	UIM_VPP	NC
17	UIM_C8	NC	18	GND	YES
19	UIM_C4	NC	20	W_DISABLE_L	YES
21	GND	YES	22	PERST_L	YES
23	PERn0	YES	24	+3.3VAUX	NC
25	PERp0	YES	26	GND	YES
27	GND	YES	28	+1.5V	NC
29	GND	YES	30	SMB_CLK	NC
31	PETn0	YES	32	SMB_DATA	NC
33	PETp0	YES	34	GND	YES
35	GND	YES	36	USB_D-	YES
37	RESERVED	NC	38	USB_D+	YES
39	RESERVED	NC	40	GND	NC
41	RESERVED	NC	42	LED_WWAN_L	NC
43	GND	YES	44	LED_WLAN_L	YES
45	RESERVED	NC	46	LED_WPAN_L	YES
47	RESERVED	NC	48	+1.5V	NC
49	RESERVED	NC	50	GND	YES
51	BT_DISABLE_L	YES	52	+3.3V	YES

MHF4 CONNECTOR SPEC



ENVIRONMENTAL

OPERATING

Operating Temperature: - 10 to 70 °C (14 to 158°F)

Relative Humidity: 5-90% (non-condensing)

STORAGE

Temperature: -40 to 80 °C (-40 to 176 °F)

Relative Humidity: 5-95% (non-condensing)

Software Installation

Driver installation under Windows

- 1. Click the following Installer**
- 2. Click to begin the driver installation then follow InstallShield Wizard**

3.

4.

Join a Wireless Network in order to get connected.

Step 1 Click the Network Icon on the Task bar Select your preferred WiFi Network and Click.

Step 2 : Enter the correct password of the Network card then click Next

Step 3: When it shows “Connected” the following picture you can surf the internet access now.

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 or more 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.

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

RF exposure statements

This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body or nearby persons.

CFR 47 FCC PART 15 SUBPART C (15.247) and SUBPART E (15.407) has been investigated. It is applicable to the modular transmitter.

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

This radio transmitter 2AWKZ-QCNFA324 has been approved by Federal

Communications Commission to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Unique antenna connector must be used on the Part 15 authorized transmitters used in the host product.

Antenna Type	Antenna Model	Maximum Gain (dBi)		Remark
		2.4 GHz	5GHz	
Dipole	AEDQ4S-B0003	5 dBi	5.3 dBi	
PIFA	AJDP2J-C0012	3.62 dBi	6 dBi	

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: 2AWKZ-QCNFA324” Or “Contains FCC ID: 2AWKZ-QCNFA324”

The modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

Industry Canada statement:

This device complies with Industry Canada license-exempt RSSs. Operation is subject to the following two conditions:

- 1) This device may not cause interference, and
- 2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1) l'appareil ne doit pas produire de brouillage;
- 2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution:

- 1) 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;
- 2) For devices with detachable antenna(s), 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;
- 3) For devices with detachable antenna(s), 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

Avertissement:

- 1) Le dispositif fonctionnant dans la bande 5150-5250 MHz est réservé uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;
- 2) Le gain maximal d'antenne permis pour les dispositifs avec antenne(s) amovible(s) utilisant les bandes 5250-5350 MHz et 5470-5725 MHz doit se conformer à la limitation P.I.R.E.;
- 3) Le gain maximal d'antenne permis pour les dispositifs avec antenne(s) amovible(s) utilisant la bande 5725-5850 MHz doit se conformer à la limitation P.I.R.E. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

Radiation Exposure Statement:

This equipment complies with IC 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 IC 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.

radio transmitter IC: 26176-QCNFA324 has been approved by Industry Canada to operate with the antenna types listed below with the 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: 26176-QCNFA324 a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés cidessous 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 Type	Antenna Model	Maximum Gain (dBi)		Remark
		2.4 GHz	5GHz	
Dipole	AEDQ4S-B0003	5 dBi	5.3dBi	
PIFA	AJDP2J-C0012	3.62 dBi	6 dBi	

If the ISED certification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains IC: 26176-QCNFA324".

Si le numéro de certification ISDE n'est pas visible lorsque le module est installé à l'intérieur d'un autre appareil, alors l'extérieur de l'appareil dans lequel le module est installé doit également afficher une étiquette faisant référence au module inclus.

Cette étiquette extérieure peut utiliser un libellé comme celui-ci: " Contient IC: 26176-QCNFA324".

Plaque signalétique du produit final:

Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: 26176-QCNFA324".

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 manue

Must use the device only in host devices that meet the FCC/ISED RF exposure category of mobile, which means the device is installed and used at distances of at least 20cm from persons.

The end user manual shall include FCC Part 15 /ISED RSS GEN compliance statements related to the transmitter as show in this manual.

Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B, ICES 003.

Host manufacturer is strongly recommended to confirm compliance with FCC/ISED requirements for the transmitter when the module is installed in the host.

Must have on the host device a label showing Contains FCC ID: 2AWKZ-QCNFA324, Contains IC: 26176-QCNFA324

The use condition limitations extend to professional users, then instructions must state that this information also extends to the host manufacturer's instruction manual.

If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.

l'hôte doit utiliser l'instrument uniquement dans des dispositifs qui répondent à la fcc / (catégorie d'exposition rf mobile, ce qui signifie le dispositif est installé et utilisé à une distance d'au moins 20 cm de personnes.

le manuel de l'utilisateur final doit inclure la partie 15 / (fac rss gen déclarations de conformité relatives à l'émetteur que de montrer dans ce manuel.

le fabricant est responsable de la conformité de l'hôte, le système d'accueil avec le module installé avec toutes les autres exigences applicables du système comme la partie 15 b, ices - 003. accueillir le fabricant est fortement recommandé de confirmer la conformité avec les exigences de la fcc / (émetteur lorsque le module est installé dans l'hôte.

le dispositif d'accueil doivent avoir une étiquette indiquant contient FCC ID: 2AWKZ-QCNFA324, contient IC : 26176-QCNFA324

OEM Integration Instructions :

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

The module can be used to installation in other host. the transmitter module may not be colocated with any other transmit or antenna.

The module shall be only used with the integral antenna(s) that has been originally tested and certified with this module.

As long as 3 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 requirement with this module installed (for example, digital device emission, PC peripheral requirements, etc.)

Instructions d'intégration OEM :

Cet appareil est destiné uniquement aux intégrateurs OEM dans les conditions suivantes :

Le module peut être utilisé pour l'installation dans un autre hôte. le module émetteur ne peut être colocalisé avec aucune autre émission ou antenne.

Le module doit être utilisé uniquement avec la ou les antennes intégrées qui ont été initialement testées et certifiées avec ce module.

Tant que les 3 conditions ci-dessus sont remplies, un test supplémentaire de l'émetteur ne sera pas nécessaire.

Cependant, l'intégrateur OEM est toujours responsable de tester son produit final pour toute exigence de conformité supplémentaire avec ce module installé (par exemple, émission d'appareil numérique, exigences de périphérique PC, etc.)