Users Manual of ACAU710R

1. Introduction

ACAU710R is a Wi-Fi / Bluetooth IoT module compliant with IEEE802.11 a.b.g.n.ax MAC/baseband/radio and Bluetooth 5.2 optimized for low-power applications.

The core chipset is from Realtek part number SDA8702EAH.

2. Product Photos

【TOP】

[BOTTOM]

- Product Details

- WIFI

> Data Modulation:

WLAN(802.11b/g/n/ax_HT20/HE20)_DSSS, OFDM, OFDMA

> Frequency Range: 2412-2472MHz, 5180-5825MHz
(Channel 12, 13 set disable in FCC/IC only.)

> Module power output

Mode	Frequency	Target Power [dBm]				
		a	b	g	n	ac
2.4 GHz	2412 ~ 2462 MHz		17.5	16.0	16.0	
	2467 MHz		15.5	11.5	11.5	
	2472 MHz		12.5	9.0	9.0	
5 GHz (20 MHz)	5180 ~ 5720 MHz	16.0			15.0	15.0
	5745 ~ 5825 MHz	11.0			11.0	11.0

Mode	Frequency	Target Power [dBm]			
		26T	52T	106T	242T / SU
2.4 GHz	2412 MHz	12.0	14.5	16.0	15.0
	2437 MHz	16.0	16.0	16.0	16.0
	2442 MHz	13.0	16.0	16.0	16.0
	2462 MHz	10.0	14.5	16.0	15.0
	2467 MHz	10.0	13.0	13.0	10.5
	2472 MHz	0.0	3.0	5.0	7.0
5 GHz (20 MHz)	5180 ~ 5200 MHz	12.5	15.0	15.0	15.0
	5240 MHz	6.0	8.0	11.0	15.0
	5260 MHz	12.5	15.0	15.0	15.0
	5280 MHz	12.0	15.0	15.0	15.0
	5320 MHz	12.0	14.0	15.0	15.0
	5500 ~ 5720 MHz	13.0	15.0	15.0	15.0
	5745 ~ 5825 MHz	11.0	11.0	11.0	11.0

> Output Power tolerance
Output power +/-1dB

- Bluetooth & Bluetooth Low Energy

> Data Modulation: Bluetooth(BDR/EDR)_GFSK, π/4DQPSK, 8DPSK
Bluetooth(BLE)_GFSK

> Frequency Range: 2402-2480MHz

> Module power output

Parameter	Min	Typ.	Max	Unit
RF Characteristics				
RF Frequency Range	2.402		2.48	GHz
TX Output Power [BDR]		6		dBm
TX Output Power [EDR]		6		dBm
TX Output Power [LE]		6		dBm
TX Frequency Tolerance	-45	0	45	KHz

> Output Power tolerance
Output power +/-1dB

Approval Statement

● FCC approval statement

RF Software restrictions

1. Contention-Based Protocol, as demonstrated in the FCC test report, is permanently embedded in the module and is not host-dependent and can' t be changed by anyone.

2. Operation of transmitters in the 5.25-5.35GHz, 5.47-5.725GHz bands in this Modular device will only associate and connect with a low-power indoor access point or subordinate device and never directly c onnect to other client devices.

This feature is included in its firmware and can't be changed by anyone.

3. Operation of transmitters in the 5.25-5.35GHz, 5.47-5.725GHz bands in this Modular device will always initiate transmission under t he control of a low-power indoor AP or subordinate except for brief trans missions before joining a network. These short messages will only occur if the client has detected an indoor AP or subordinate operating on a cha nnel. These brief messages will have a time-out mechanism such that if it does not receive a response from an AP it will not continually repeat th e request.

This device complies with Part 15 of the FCC`s Rules. Operation is subje ct to the following two Conditions:

1.This device may not cause harmful interference.

2.This device must accept any interference received, including interference that may cause undesirable operation.

To satisfy FCC exterior labeling requirements, the following text must be placed on the exterior of the end-product.

Contains Transmitter module FCC ID: A3LACAU710R

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 lim its are designed to provide reasonable protection against harmful interfere nce in a residential installation. This equipment generates, uses and can r adiate radio frequency energy and, if not installed and used in accordanc e with the instructions, may cause harmful interference to radio communi cations.

However, there is no guarantee that interference will not occur in a partic ular installation. If this equipment does cause harmful interference to radi o or television reception, which can be determined by turning the equipm ent off and on, the user is encouraged to try to correct the interference b y 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.

-The OEM integrator is responsible for ensuring the end-user has no man ual instruction to remove or install module.

-The module is limited to installation in mobile or fixed applications.

FCC Caution: Any changes or modifications not expressly approved by th e party responsible for compliance could void the user's authority to oper ate this equipment.

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

-RF exposure considerations

The module has been certified for integration into products only by OEM integrators under the following condition:

-The antenna(s) must be installed such that a minimum separationdistance of at least 20cm is maintained between the radiator(antenna) and all pers ons at all times.

-The transmitter module must not be co-located or operating in conjunctio n with any other antenna or transmitter except in a ccordance with FCC multi-transmitter product procedures.

This device can support Ad-hoc and Wi-Fi Direct for 2.4GHz, UNII 1, and UNII 3 bands.

The device operates strictly as a client in DFS channels (with passive sca n). It does not support ad-hoc, Wi-Fi Direct Group Owner, Hotspot, or any other peer-to-peer modes that may initiate a network in DFS channels (U NII2-2A and UNII2-2C band)

OEM/Host manufacturer responsibilities

OEM/Host manufacturers are ultimately responsible for the compliance of the Host and Module.

The final product must be reassessed against all the essential requirements of the FCC rule such as FCC Part 15 Subpart B before it can be placed on the US market. This includes reassessing the transmitter module for compliance with the Radio and EMF essential requirements of the FCC rules. This module must not be incorporated into any other device or system without retesting for compliance as multi-radio and combined equipment.

IMPORTANT: The final host product must have an integral antenna that is not removable by the end user.

2.4G WiFi

Antenna	Frequency(MHz)	Antenna Type	MAX Antenna Gain(dBi)
1	2400-2480	Chip Antenna	-0.10dBi

5G WiFi

Antenna	Frequency(MHz)	Antenna Type	MAX Antenna Gain(dBi)
1	5150-5850	Chip Antenna	0.90dBi

● Canada IC approval statement

IC approval

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exe mpt RSS(s). Operation is subject to the following two conditions:

(1) This device may not causeinterference.

(2) This device must accept any interference, including interference that m ay cause undesired operation of thedevice.

L'émetteur/récepteur exempt de licencecontenudans le présentappareilestco nforme aux CNR d'Innovation, Sciences et Développementéconomique Can ada applicables aux appareils radio exempts de licence. L'exploitationesta utorisée aux deux conditions suivantes :

(1) L'appareil ne doit pas produire debrouillage;

(2)L'appareildoitaccepter toutbrouillageradioélectriquesubi, mêmesi le brouil lageest susceptible d'encompromettre lefonctionnement.

Caution: Any changed or modifications not expressly approved by the par ty responsible for compliance could void the user`s authority to operate t his equipment.

Attention: Toutechangéou modifications non expressémentapprouvéspar la partieresponsable de la conformitépourraientannulerl'utilisateur `autorité de faire fonctionnercetéquipement.

Please notice that 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 foll owing: "Contains IC: 649E-ACAU710R" any similar wording that expresses the same meaning may be used.

l'appareil hôte doit porter une étiquette donnant le numéro de certification du module d'Industrie Canada, précédé des mots (Contient un module d' émission , du mot IC: 649E-ACAU710R) ou d'une formulation similaire exp rimant le même sens, comme suit

The device for operation in the band 5150-5250 MHz is only for indoor us e to reduce the potential for harmful interference to co-channel mobile sat ellite systems.

Les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés u niquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les m êmes canaux;

User should also be advised that high-power radars are allocated as prim ary 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.

Les utilisateurs doivent également être informés que les radars de haute puissance sont affectés aux bandes 5250 - 5350 MHz et 5650 - 5850 MHz en tant qu'utilisateurs principaux (c. - à - D. utilisateurs prioritaires) et qu e ces radars peuvent causer des interférences et / ou des dommages à l' équipement le - lan.

The device meets the exemption from the routine evaluation limits in sect ion 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Le dispositif rencontre l'exemption des limites courantes d'évaluation dans la section 2.5 de RSS 102 etla conformité à l'exposition de RSS-102 RF, utilisateurs peut obtenir l'information canadienne surl'exposition et la conf ormité de RF.

This transmitter must not be co-located or operating in conjunction with a ny other antenna or transmitter. This equipment should be installed and o perated with a minimum distance of 20 centimeters between the radiator and your body.

Cet émetteur ne doit pas être Co-placé ou ne fonctionnant en même temp s qu'aucune autre antenne ouémetteur. Cet équipement devrait être install é et actionné avec une distance minimum de 20 centimètres entre le radi ateur et votre corps.

IMPORTANT: The final host product must have an integral antenna that is not removable by the end user.