PRODUCT SPECIFICATION

Wi-Fi (11a/b/g/n/ac 2Tx2R)+BT (V4.2LE) SDIO Combo Module

WCBN3514A

User Manual

CONTENT

FCC Statement:

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.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

This device and its antenna(s) must not be co-located with any other transmitters except in accordance with FCC multi transmitter product procedures.

Referring to the multi transmitter policy, multiple transmitter(s) and module(s) can be operated simultaneously without C2PC.

IMPORTANT NOTE:

FCC 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 20 cm between the radiator & your body.

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is responsible for the compliance to all the rules that apply to the product into which this certified RF module is integrated.

Additional testing and certification may be necessary when multiple modules are used.

20 cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

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

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20 cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: PPQ- WCBN3514A ". If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of 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.

OEM Integrator Checklist

The party below will implement the LITE-ON Module in host systems in accordance with the instructions specified in this document and the documents referenced herein.

1. The OEM integrator will ensure the Module is integrated in a host systems using only the approved antenna model(s) described in this document.
2. The OEM integrator will ensure the antenna placement inside the host system will

maintain the required spacing to end user for RF Exposure compliance, as specified in this document.

3. If other radios are integrated inside the host with the LITE-ON Module, the OEM integrator will contact its test lab, TCB or LITE-ON to determine if additional FCC compliance evaluation is required to meet FCC collocation rules.

4. The OEM integrator will ensure end user documentation will contain the specified regulatory wording and ensure the host system and the Module itself are labeled as specified in this document.

5. The OEM integrator will ensure the Module is programmed in the factory with compliant transmit power not exceeding the levels specified in this document.

LITE-ON requests that the OEM integrator acknowledge its receipt of this document and the above instructions. You may contact LITE-ON with any questions concerning this document or the responsibilities of the OEM integrator.

IC Statement:

This device complies with Industry Canada license exempt RSS standard(s). 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.
Pour les produits disponibles aux États Unis / Canada du marché, seul le canal 1 à 11 peuvent être exploités. Sélection d'autres canaux n'est pas possible.

This device and its antenna(s) must not be co-located with any other transmitters except in accordance with IC multi transmitter product procedures.
Referring to the multi transmitter policy, multiple transmitter(s) and module(s) can be operated simultaneously without reassessment permissive change.
Cet appareil et son antenne (s) ne doit pas être co-localisés ou fonctionnement en association avec une autre antenne ou transmetteur.

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.

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.

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.

le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5725-5850 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non-point à point, selon le cas.

Dynamic Frequency Selection (DFS) for devices operating in the bands 5250- 5350 MHz, 5470-5600 MHz and 5650-5725 MHz.

Sélection dynamique de fréquences (DFS) pour les dispositifs fonctionnant dans les bandes 5250-5350 MHz, 5470-5600 MHz et 5650-5725 MHz.

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.

le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5250-5350 MHz et 5470-5725 MHz doit se conformer à la limite de p.i.r.e.

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.

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.

Pour une utilisation en intérieur uniquement.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

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.

This module is intended for OEM integrator. The OEM integrator is still responsible for the IC compliance requirement of the end product, which integrates this module.

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

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20 cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the IC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX IC: 4491A-WCBN3514A ".

Antenna Information

Group.	Ant.	Project	Brand	P/N	Antenna Type	Connector
1	1	-	Walsin	RFMTA401020IMLB701	PIFA	Mini i-Pex
	2					
	3					
2	4	(Sparrow 10 inch)	Shenzhen South Star Technology Co., LTD	N12-4140-R0A	PIFA	N/A
	5			N12-4141-R0A		
	6			N14-0594-R0A		

Group.	Ant.	Project	Brand	P/N	Antenna Type	Connector
3	7	(Sparrow 8 inch)	Shenzhen South Star Technology Co., LTD	N12-4142-R0A	PIFA	N/A
	8			N12-4143-R0A		
	9			N14-0595-R0A		
4	10	-	INPAQ	EAA65404602	PIFA	N/A
	11			EAA65404601		
	12			EAA65404701		
5	13	-	Airgain	N2420SDAR-T6-G120U4LI (Rev B)	PIFA	Mini i-Pex
	14			N2420DCB3-T10-G200U4LI (Rev B)		
	15			N2410MST-T-G85U4LI (Rev G)		

Group.	Ant.	Port	Gain (dBi)		
			2.4G	5G	BT
1	1	1	3.52	4.18	-
	2	2	3.52	4.18	-
	3	1	-	-	3.52
2	4	1	2.97	4.04	-
	5	2	3.41	4.05	-
	6	1	-	-	3.31
3	7	1	3.35	3.97	-
	8	2	3.35	3.86	-
	9	1	-	-	2.86
4	10	1	2.99	3.46	-
	11	2	3.06	3.23	-
	12	1	-	-	2.74
5	13	1	4.00	4.80	-
	14	2	4.00	4.30	-
	15	1	-	-	2.70

DESCRIPTION

QCA9379-3 is a single-die wireless local area network(WLAN) and Bluetooth(BT) combo solution to support 2x2 MIMO with two spatial streams IEEE802.11 a/b/g/n/ac WLAN standards and BT 4.2+HS enabling seamless integration of WLAN/BT and Low Energy technology.

PRODUCT FEATURES

- ■ Bluetooth V4.2 LE system
  Backwards compatible with BT version of 1.1, 1.2, 2.0, 2.1, 3.0+HS and V4.0LE
- ■ Bluetooth Class I transmission power
- ■ Support for Adaptive Frequency Hopping(AFH), Secure Simple Pairing (SSP) and Extended Inquiry Response (EIR) function
- ■ Scatternet operation with up to four active piconets with background scan and support for scatter mode
- ■ Low power consumption for meeting worldwide energy standards
- ■ Operate at ISM frequency Band (2.4/5GHz)
- ■ IEEE Standards Support, 802.11a ,802.11b, 802.11g 802.11n and 802.11ac
- ■ Support for both 20 MHz/40 MHz channel width in 2.4GHz and 20 MHz/40 MHz/80MHz channel width in 5GHz
- ■ Enterprise level security supporting: WPS2.0,WAPI, WPA, WPA2
- ■ Dual-stream IEEE 802.11n support for 20MHz and 40MHz channels provides PHY layer rates up to 300Mbps
- ■ Dual-stream IEEE 802.11ac support for 80MHz channels provides PHY layer rates up to 867Mbps
- ■ Support for WI-Fi Direct
- ■ Support MU-MIMO
- ■ Fully compliance with SDIO v3.0 specification
- ■ Support OS: Linux based
- ■ RoHS compliance
- ■ Low Halogen compliance

PRODUCT SPECIFICATIONS

MAIN CHIPSET

Qualcomm Atheros QCA9379-3

FUNCTIONAL SPECIFICATIONS

BT Function	
Standard	Bluetooth V4.2LE
Bus Interface	UART
Data Rate	1 Mbps, 2Mbps and Up to 3.2Mbps
Modulation Scheme	GFSK, π/4-DQPSK and 8-DPSK
Frequency Range	2.402~2.480 GHz
Transmit Output Power	$+4 \leq$ Output Power $\leq +10$dBm; Class I Device
Receiver Sensitivity	< 0.1% BER at -94dBm

Wi-Fi Function	
Standard	IEEE802.11a; IEEE802.11b; IEEE 802.11g; IEEE 802.11n; IEEE802.11ac
Bus Interface	SDIO 3.0

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 Technique	*802.11a*:
	    64QAM, 16QAM, QPSK, BPSK
	802.11b:
	    CCK, DQPSK, DBPSK
	802.11g:
	    64QAM, 16QAM, QPSK, BPSK
	802.11n:
	    64QAM, 16QAM, QPSK, BPSK
	802.11ac:
	    256QAM, 64QAM, 16QAM, QPSK, BPSK

Network Architecture	Infrastructure mode

Operation Channel	**2.4GHz**
	  11: (Ch. 1-11) – United States
	  13: (Ch. 1-13) – Europe
	  14: (Ch. 1-14) – Japan
	5GHz
	  21: USA
	  19: EU
	   8: Japan

Frequency Range	**802.11bg**
	  2.400 ~ 2.4835 GHz
	802.11a
	  5.15 ~ 5.85 GHz

Transmit Output Power - single chain @ant;
Tolerance: ±2dBm@2.4GHz; ±2.5dBm@5GHz

2.4GHz

802.11b	*1Mbps*	*2Mbps*	*5.5Mbps*	*11Mbps*
Tgtpwr (dBm)	17	17	17	17

802.11g	*6~24Mbps*	*36Mbps*	*48Mbps*	*54Mbps*
Tgtpwr (dBm)	16.5	16	15	13.5

802.11n HT20	*MCS0*	*MCS1*	*MCS2*	*MCS3*	*MCS4*
Tgtpwr (dBm)	16.5	16.5	16.5	16	16
	MCS5	*MCS6*	*MCS7*	*MCS8*	*MCS9*
	15	14	13.5	11.5	

802.11n HT40	*MCS0*	*MCS1*	*MCS2*	*MCS3*	*MCS4*
Tgtpwr (dBm)	15.5	15.5	15.5	15	15
	MCS5	*MCS6*	*MCS7*	*MCS8*	*MCS9*
	14	13	12.5	11.5	10.5

5GHz

802.11a	*6~24Mbps*	*36Mbps*	*48Mbps*	*54Mbps*
Tgtpwr (dBm)	15.5	14	13	12

802.11n HT20	*MCS0*	*MCS1*	*MCS2*	*MCS3*	*MCS4*
Tgtpwr (dBm)	15.5	15.5	15.5	15	15
	MCS5	*MCS6*	*MCS7*	*MCS8*	*MCS9*
	14	13	12	11	

802.11n HT40	*MCS0*	*MCS1*	*MCS2*	*MCS3*	*MCS4*
Tgtpwr	14.5	14.5	14.5	14	14

(dBm)	MCS5	MCS6	MCS7	MCS8	MCS9
	13	12	11	10	9

802.11ac VHT80	MCS0	MCS1	MCS2	MCS3	MCS4
Tgtpwr (dBm)	13.5	13.5	13.5	13	13
	MCS5	MCS6	MCS7	MCS8	MCS9
	12	11	10	9	8

Receiver Sensitivity

Frequency Band	Rate	Condition	1x1(1SS) (dBm)	2x2(1SS) (dBm)
2.4G	11b-1M	PER < 8%	-95	-97
	11b-11M	PER < 8%	-87	-87
	11g-6M	PER < 10%	-90	-92
	11g-54M	PER < 10%	-73	-75
	11ac-VHT20MCS0	PER < 10%	-89.5	-91.5
	11ac-VHT20MCS7	PER < 10%	-73	-75
	11ac-VHT20MCS8	PER < 10%	-68	-70
	11ac-VHT40MCS0	PER < 10%	-87	-89
	11ac-VHT40MCS7	PER < 10%	-69.5	-71.5
	11ac-VHT40MCS8	PER < 10%	-66.5	-68.5
	11ac-VHT40MCS9	PER < 10%	-63	-66
5G	11a-6M	PER < 10%	-87.5	-89.5
	11a-54M	PER < 10%	-71	-73
	11ac-VHT20MCS0	PER < 10%	-87.5	-89.5
	11ac-VHT20MCS7	PER < 10%	-70	-73
	11ac-VHT20MCS8	PER < 10%	-66	-69
	11ac-VHT40MCS0	PER < 10%	-84.5	-86.5
	11ac-VHT40MCS7	PER < 10%	-67	-69
	11ac-VHT40MCS9	PER < 10%	-61	-64
	11ac-VHT80MCS0	PER < 10%	-81.5	-83.5
	11ac-VHT80MCS7	PER < 10%	-65	-67
	11ac-VHT80MCS9	PER < 10%	-57	-60

Security	WPS, WPA, WPA2, WEP 64bit & 128bit, IEEE 802.1X, IEEE 802.11i

Common Function

Operating Voltage	3.3 V ±5% I/O supply voltage

	Mode	Average		Peak		
		2.4G	5G	2.4G	5G	
Power Consumption	TX					
	RX					
	Disable					
	WiFi+BT @Wake up mode					

Antenna Type	Triple MHF4 Antenna connectors for WiFi/BT

RECOMMENDED OPERATION CONDITIONS

| Symbol	Parameter	Min	Typ	Max	Units
VDD33	3.3V Supply Voltage	3.14	3.3	3.46	V
VDD33_SWREG_VIN	Supply Voltage for internal PMU	3.14	3.3	3.46	V
VDDIO_GPIO0 VDDIO_GPIO1 VDDIO_GPIO2 VDDIO_AO_IN	Voltage supply for all IO signals	1.71 3.14	1.8 3.3	1.89 3.46	V
AVDD11	1.1V supply from internal 1.1V PMU	1.05	1.1	1.2	V

PIN ASSIGMENT

* The following signal type is defined:

I: Input; O: Output; I/O: Input/Output; G: Ground

Pin.	Pin Define	I/O	Description	Status
1	GND	G	Ground	YES
2	AVDD11	I	Analog 1.1V input from Pin#28 of Module (**Host no need to connect**)	NC
3	GND	G	Ground	YES
4	VDD33_WL_PA1	I	3.3V Power for both 2.4GHz/5GHz PA in WLAN Chain 1	YES
5	VDD33	I	3.3V power for WLAN	YES
6	GND	G	Ground	YES
7	VDDIO_XTAL	I	Share same voltage of VDDIO_AO_IN (Pin#32)	YES
8	BT_UART_CTS	I	UART Clear to Send for BT interface	YES
9	BT_UART_TXD	O	UART Transmit Data for BT interface	YES
10	HOST_WAKEUP_BT#	I	Host wake up BT of QCA9379-3, Low Active	YES
11	BT_UART_RXD	I	UART Receive Data for BT interface	YES
12	BT_PCM_SYN	I	PCM synchronous for BT	YES
13	BT_PCM_OUT	O	PCM Data out for BT	YES
14	BT_UART_RTS	O	UART Ready to Send for BT interface	YES
15	BT_PCM_CLK	I	PCM Clock for BT	YES
16	AVDD11	I	Analog 1.1V input from Pin#28 of Module (**Host no need to connect**)	NC
17	BT_PCM_IN	I	PCM Data in for BT. 10K PU in the module	YES
18	VDDIO_GPIO1	I	1.8V or 3.3V upon signal interface	YES
19	RESERVED			NC
20	RESERVED			NC
21	VDDIO_GPIO0	I	Can be 1.8V (SDIO3.0) or 3.3V (SDIO2.0)	YES
22	SDOI_DATA3	I/O	SDIO Data Line3 for WLAN	YES
23	WOW#	O	WLAN wake up Host, Low Active	YES
24	SDIO_CLK	I	SDIO Clock for WLAN	YES

25	SDOI_DATA2	I/O	SDIO Data Line2 for WLAN	YES
26	SDOI_DATA1	I/O	SDIO Data Line1 for WLAN	YES
27	SDOI_DATA0	I/O	SDIO Data Line0 for WLAN	YES
28	AVDD11	O	Analog 1.1V output (**Host no need to connect**)	NC
29	SDIO_CMD	I/O	SDIO Command for WLAN	YES
30	WLAN_EN#	I	Active low to reset WLAN	YES
31	BT_EN#	I	Active low to reset BT	YES
32	VDDIO_AO_IN	I	Can be 1.8V or 3.3V to support always on circuit of QCA9379-3. This signal must be connected to 1st power on and last power off power rail. The design is target to connect to 3.3V	YES
33	BT_WAKEUP_HOST#	O	BT wake up Host. 10K PU in the module , Low Active	YES
34	Debug_UART_TXD	O	Firmware Debug pin, **Host can be not connected**	NC
35	Debug_UART_RXD	I	Firmware Debug pin, **Host can be not connected**	NC
36	VDD33_SWREG_VIN	I	3.3V input to internal SWREG PMU and OTPREG PMU	YES
37	SWREG_GND	G	Ground	YES
38	SWREG_GND	G	Ground	YES
39	VDDIO_GPIO2	I	1.8V or 3.3V upon signal interface	YES
40	32.768KHz_IN	I	Optional external low-power 32.768KHz input Signal can not be active before VDDIO_GPIO2 is applied	YES
41	AVDD11	I	Analog 1.1V input from Pin#28 of Module (**Host no need to connect**)	NC
42	GND	G	Ground	YES
43	GND	G	Ground	YES
44	GND	G	Ground	YES
45	GND	G	Ground	YES
46	VDD33	I	3.3V Power for BT PA	YES
47	VDD33	I	3.3V Power for both 2.4GHz/5GHz PA in WLAN Chain 0	YES
48	GND	G	Ground	YES
49	AVDD11	I	Analog 1.1V input from Pin#28 of Module (**Host no need to connect**)	NC
50~66	GND	G	Ground	YES

MECHANICAL

Tolerance: C

DEG DIM	A	B	C	D	ANGLE	
0-5	±0.02	±0.05	±0.10		0°-30°	±0.1°
5-10	±0.05	±0.10	±0.15		31°-60°	±0.3°
10-50	±0.10	±0.15	±0.20		61°-90°	±0.5°
50-100	±0.15	±0.20	±0.25			
100-	±0.15%	±0.20%	±0.25%			

Unit: mm

FOOTPRINT

Bottom View
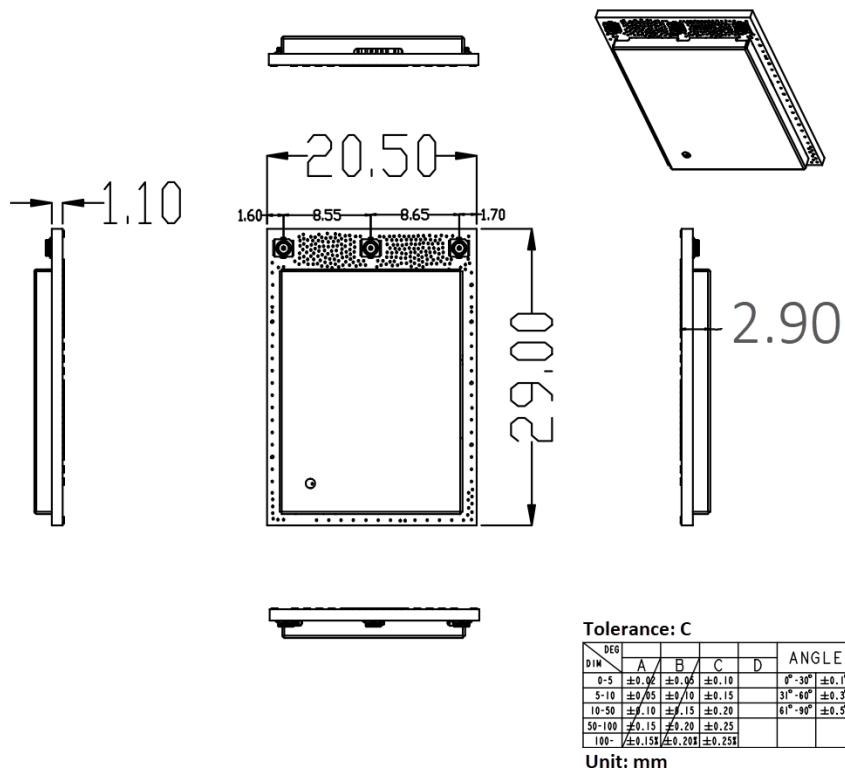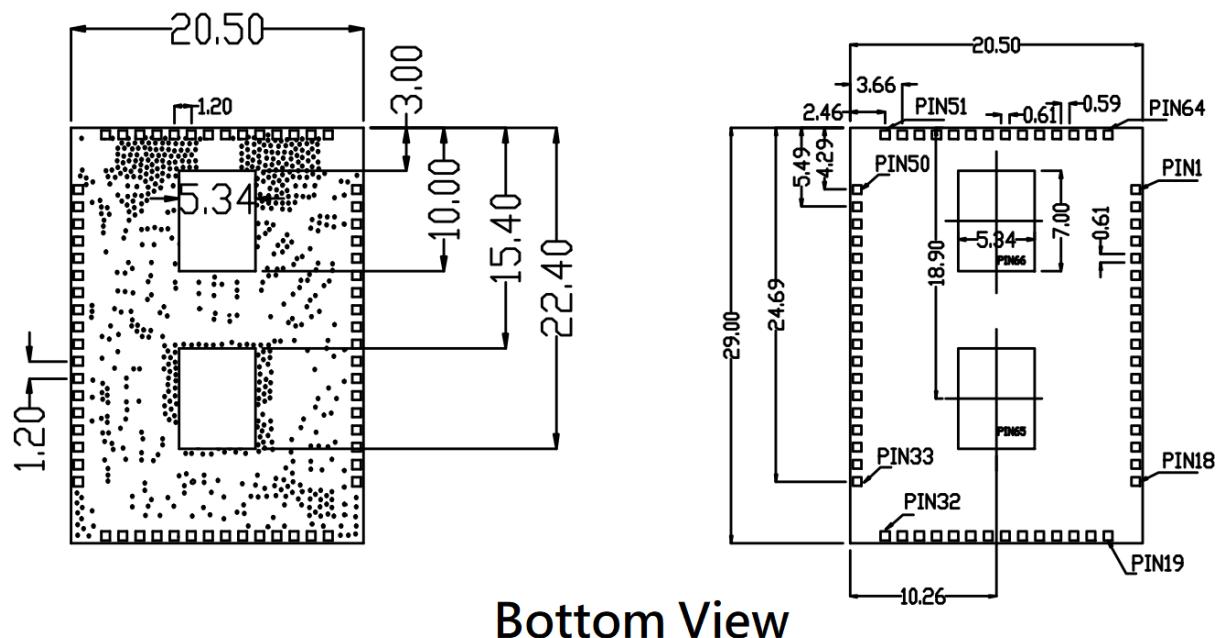
MODULE PINOUT

	64	63	62	61	60	59	58	57	56	55	54	53	52	51		
	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND		
1	GND														GND	50
2	AVDD11_RF1														AVDD11	49
3	GND					GND									GND	48
4	VDD33_WL_PA1														VDD33	47
5	VDD33														VDD33	46
6	GND														GND	45
7	VDDIO_XTAL														GND	44
8	BT_UART_CTS														GND	43
9	BT_UART_TXD				TOP View										GND	42
10	HOST_WAKEUP_BT														AVDD11	41
11	BT_UART_RXD														32.768KHz_IN	40
12	BT_PCM_SYN														VDDIO_GPIO2	39
13	BT_PCM_OUT														GND	38
14	BT_UART_RTS				GND										GND	37
15	BT_PCM_CLK														VDD33 for SWREG_IN	36
16	AVDD11														Debug_UART_RXD	35
17	BT_PCM_IN														Debug_UART_TXD	34
18	VDDIO_GPIO1														BT_WAKEUP_HOST	33
		RESERVED	RESERVED	VDDIO_GPIO0	SDIO_DATA3	WoW	SDIO_CLK	SDIO_DATA2	SDIO_DATA1	SDIO_DATA0	AVDD11	SDIO_CMD	WLAN_EN#	BT_EN#	VDDIO_AO_IN	
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	

MHF4 CONNECTOR SPEC
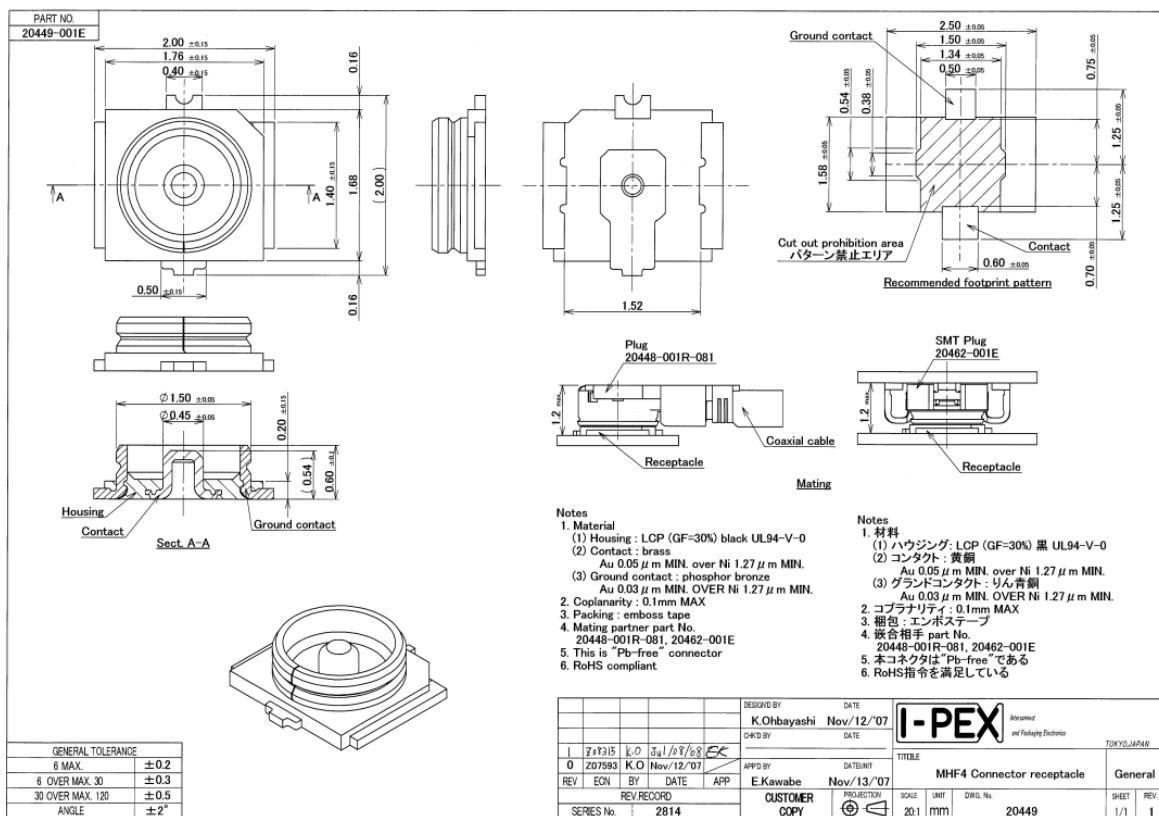
POWER-UP SEQUENCE TIMING
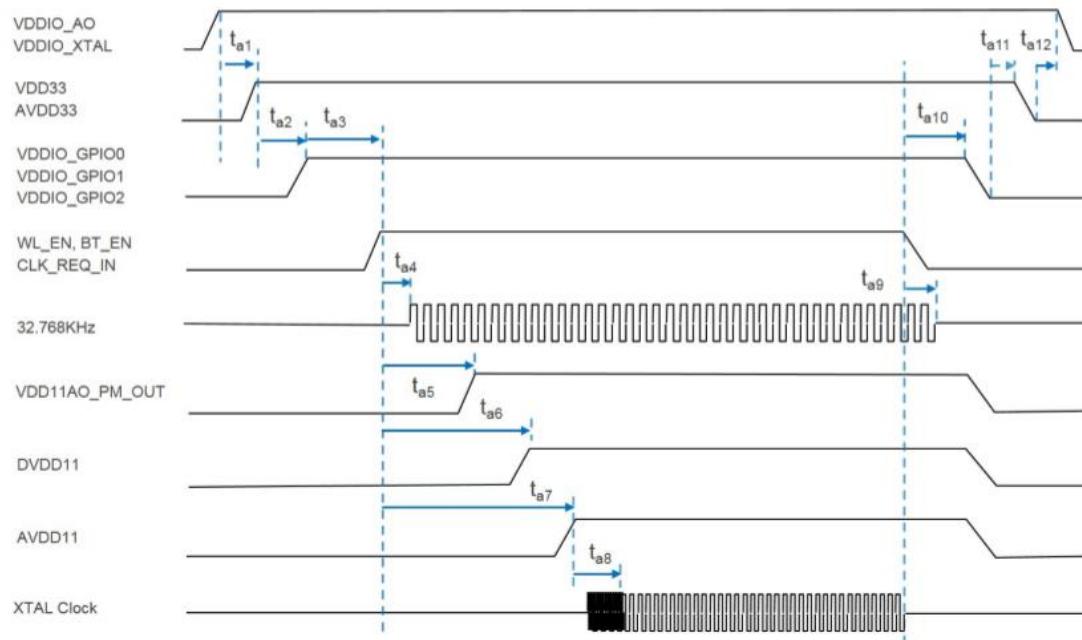
Symbol	Parameter	Min	Max	Units
t_{a1}	VDDIO_AO connect from VDD33 power rail	0	–	us
t_{a2}	If VDDIO_ connected to 1.8V : VDD33 valid to VDDIO_ valid	1	–	us
	If VDDIO_ connected to 3.3V : VDD33 valid to VDDIO_ valid	0	0	us
t_{a3}	VDDIO_ valid to WLAN_EN and BT_EN input active (high)	10	–	us
t_{a4}	WL_EN and BT_EN valid to 32.768KHz input	0	–	us
t_{a5}	WL_EN valid to VDD11AO_PM_OUT established	–	50	
t_{a6}	WL_EN to DVDD11	–	3.5	ms
t_{a7}	WL_EN to AVDD11	–	4	ms
t_{a8}	AVDD11 to XTAL Clock stable	1	–	ms
t_{a9}	WLAN_EN and BT_EN de-assert ("Low") to 32.768KHz de-assert (Tri-state or Low)	0	–	us
t_{a10}	If VDDIO_ connected to 1.8V : WL_EN and BT_EN de-assert to VDDIO_ de-assert	10	–	us
	If VDDIO_ connected to 3.3V : WL_EN and BT_EN de-assert to VDDIO_ de-assert	10	–	us
t_{a11}	If VDDIO_ Connected to 1.8V : VDDIO_ @ 0V to VDD33 @ 3.3V	0	–	us
	If VDDIO_ connected to 3.3V : VDDIO to VDD33	–	–	us
t_{a12}	If VDDIO_AO connected to 1.8V: VDD33 @ 0V to VDDIO_AO (1.8V)	0	–	us

EEPROM INFORMATION

BT

Vendor ID	0x0271
Product ID	0x0801

WI-FI

Reg Domain	TBD
Vendor ID	0x0271
Product ID	0x0801

ENVIRONMENTAL

OPERATING

Operating Temperature: 0 to 50 °C (32 to 122 °F)
Relative Humidity: 5-90% (non-condensing)

STORAGE

Temperature: -40 to 80 °C (-40 to 176 °F)
Relative Humidity: 5-95% (non-condensing)