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AzureWave AW-CU570 Wireless MCU with Tri Radio Wi-Fi 6 BLE 5.3 LGA Module Owner's Manual
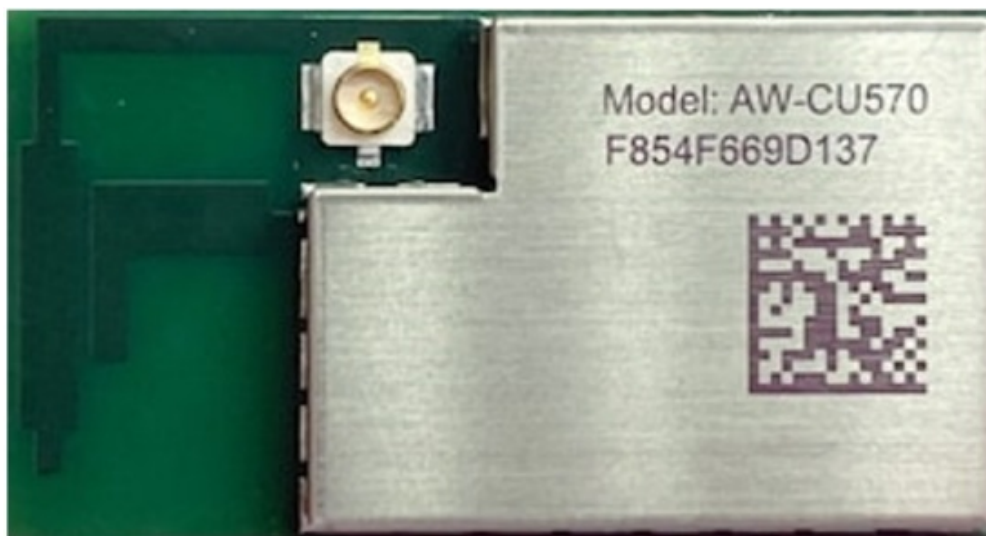
AW-CU570
Wireless MCU with Integrated Tri-radio
Wi-Fi 6 + BLE 5.3/802.15.4
LGA module
Datasheet
Rev. A
DF
(For Standard)

Contents

Features

WLAN

- Support 1×1 dual-band 2.4 GHz/5 GHz Wi-Fi a/b/g/n/ac/ax radio
- 20 MHz channel operation
- Wi-Fi 6 Target Wake Time(TWT) support
- Wi-Fi 6 Extended Range (ER) and Dual Carrier Modulation (DCM)
- Low-power Wi-Fi idle, standby, and sleep modes
- WPA/WPA2/WPA3 personal and enterprise

Bluetooth/802.15.4

- Supports Bluetooth 5.2 (Class 1/Class 2) and Bluetooth Low Energy
- Integrated high power PA up to +20 dBm transmit power for Bluetooth LE and BDR
- Integrated high power PA up to +10 dBm transmit power for EDR
- BDR/EDR packet types—1 Mbps (GFSK), 2 Mbps (/4-DQPSK), 3 Mbps (8DPSK)
- Bluetooth LE long range (125/500 kbps) support improving range by 4x
- Bluetooth LE 2 Mbps
- Bluetooth LE advertising extensions for improved capacity
- Isochronous channels (ISOC) supporting Bluetooth Low Energy (LE) audio
- Security:AES

Revision History

Document NO: R2-2570-DST-01

Version	Revision Date	DCN NO.	Description	Initials	Approved
A	2023/06/29	DCN029400	Draft version	Roger Liu	N.C Chen

Introduction

1.1 Product Overview

AzureWave AW-CU570 is a highly integrated, low-power tri-radio Wireless RW612 MCU with an integrated MCU and Wi-Fi 6 + Bluetooth Low Energy (LE) 5.2 / 802.15.4 radios designed for a broad array of applications.

Applications include connected smart home devices, enterprise and industrial automation, smart accessories, and smart energy.

AW-CU570 includes a 260 MHz Arm Cortex-M33 core with TrustZone-M, 1.2 MB on-chip SRAM and a Quad SPI interface with high bandwidth

AW-CU570 includes a full-featured 1×1 dual-band (2.4 GHz / 5 GHz) 20 MHz Wi-Fi 6 (802.11ax) subsystem bringing higher throughput, better network efficiency, lower latency, and improved range over previous generation Wi-Fi standards. The Bluetooth LE radio supports 2 Mbit/s high-speed data rate, long range and extended advertising as well as LE Audio for a better overall audio experience. The on-chip 802.15.4 radio can support the latest Thread mesh networking protocol. In addition, AW-CU570 can support Matter over Wi- Fi or Matter over Thread offering a common, interoperable application layer across ecosystems and products.

The advanced design of the AW-CU570 delivers tight integration, low power, and highly secure operation in a space- and cost-efficient wireless MCU requiring only a single 3.3 V power supply.

1.2 Block Diagram
TBD

1.3 Specifications Table
1.3.1 General

Features	Description
Product Description	IEEE 802.11 a/b/g/n/ac/ax Wi-Fi 6 with Bluetooth 5.2 and 802.15.4 tri- radio Module
Major Chipset	NXP RW612 HVQFN(116 pins)
Host Interface	UART/JTAG
Dimension	28 mm x 15 mm x 2.39 mm
Package	LGA module, 88 pins
Antenna	u.FL Connector Receptacle ANT1 WiFi à TX/RX Printed antenna ANT2 WiFi à TX/RX
Weight	TBD

1.3.2 WLAN

Features	Description
WLAN Standard	IEEE 802.11 a/b/g/n/ac/ax 1T1R
WLAN VID/PID	NA
WLAN SVID/SPID	NA
Frequency Rage	2.4 GHz ISM Bands 2.412-2.472 GHz 5.15-5.25 GHz (FCC UNII-low band) for US/Canada and Europe 5.25-5.35 GHz (FCC UNII-middle band) for US/Canada and Europe 5.47-5.725 GHz for Europe 5.725-5.825 GHz (FCC UNII-high band) for US/Canada 5.825 GHz-5.895 GHz (FCC UNII-IV band) for US
Modulation	DSSS, OFDM, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, 256-AQM, 1024-QAM, OFDMA

Number of Channels	2.4GHz: USA, NORTH AMERICA, Canada and Taiwan – 1 ~ 11 China, Australia, Most European Countries – 1 ~ 13 Japan, 1 ~ 13 5GHz: USA, Canada, Most European Countries – 36,40,44,48,52,56,60,64,100,104,108,112,116,120,124,128,132,1 36,140,149,15 3,157,161,165 , 169 , 173 ,177
	Japan – 36,40,44,48,52,56,60,64,100,104,108,112,116,120,124,128,132,1 36,140 China – 36,40,44,48,52,56,60,64, 149,153,157,161,165
Output Power (Board Level Limit)*	2.4G 2.4G table below 5G

2.4G

	Min	Typ	Max	Unit
11b (11Mbps) ©EVM<35`)/0		TBD		dBm
11g (54Mbps) ©EVM-27 dB		TBD		dBm
11n (HT20 MCS7) ©EVM-28 dB		TBD		dBm
11n (HT40 MCS7) ©EVM-28 dB		TBD dBm		
11ax(HE20 MCS1 1) ©EVM-35 dB		TBD		dBm
11ax(HE40 MCS1 1) ©EVM-35 dB		TBD		dBm

	Min	Typ	Max	Unit
11 a (54Mbps) ©EVM-27 dB		TBD		dBm
11n (HT20 MCS7) ©EVM-28 dB		TBD		dBm
11n (HT40 MCS7) ©EVM-28 dB		TBD		dBm
11ac(VHT20 MCS8) © EVM-31 dB		TBD		dBm
11ac(VHT40 MCS9) © EVM-32 dB		TBD		dBm
11ac(VHT80 MCS9) © EVM-32 dB		TBD		dBm
11ax(HE20 MCS11) © EVM-35 dB		TBD		dBm
11ax(HE40 MCS11) © EVM-35 dB		TBD		dBm
11ax(HE80 MCS11) © EVM-35 dB		TBD		dBm

Receiver Sensitivity	2.4G					
		Min	Typ	Max	Unit	
	11b (11Mbps)		TBD		dBm	
	11 g (54Mbps)		TBD		dBm	
	11n (HT20 MCS7)		TBD		dBm	
	11 n (HT40 MCS7)		TBD		dBm	
	11 ax (HE20 MCS11)		TBD		dBm	
	11 ax (HE40 MCS11)		TBD		dBm	
	5G					
		Min	Typ	Max	Unit	
	11 a (54Mbps)		TBD		dBm	
	11n (HT20 MCS7)		TBD		dBm	
	11n (HT40 MCS7)		TBD		dBm	
	11ac(VHT20 MCS8)		TBD		dBm	
	11ac(VHT40 MCS9)		TBD		dBm	
	11ac(VHT80 MCS9)		TBD		dBm	
	11ax(HE20 MCS11)		TBD		dBm	
	11ax(HE40 MCS11)		TBD		dBm	
	11ax(HE80 MCS11)		TBD		dBm	
Data Rate	WLAN: 802.11b : 1, 2, 5.5, 11Mbps 802.11a/g : 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n : Maximum data rates up to 72 Mbps (20 MHz channel), 150 Mbps (40 MHz channel) 802.11ac: Maximum data rates up to 433 Mbps (80 MHz channel) 802.11ax: Maximum data rates up to 600 Mbps (80 MHz channel)					
Security	WPA/WPA2/WPA3					

1.3.3 Bluetooth

Features	Description				
Bluetooth Standard	Full Bluetooth 5.3 features				
Frequency Rage	2402MHz~2483MHz				
Modulation	Header GFSK Payload 2M: π/4-DQPSK Payload 3M: 8DPSK				
Output Power		Min	Typ	Max	Unit
	Low Energy		TBD		dBm
Receiver Sensitivity	BT Sensitivity (BER<0.1%)				
		Min	Typ	Max	Unit
	Low Energy		TBD		dBm

1.3.4 Thread

Features	Description				
Thread Standard	IEEE 802.15.4-2015 compliant supporting Thread in 2.4 GHz band				
Frequency Rage	2400MHz~2483.5MHz				
Modulation	O-QPSK				
Output Power		Min	Typ	Max	Unit
	Thread		TBD		dBm
Receiver Sensitivity	Thread Sensitivity (PER<1%)				
		Min	Typ	Max	Unit
	Thread		TBD		dBm

1.3.5 Operating Conditions

Features	Description
Operating Conditions	
Voltage	3.3V +-5%
Operating Temperature	-30℃ ~ 85℃
Operating Humidity	Less than 85% R.H.
Storage Temperature	-40℃ to +85℃
Storage Humidity	Less than 60% R.H.
ESD Protection	
Human Body Model	+-2KV
Changed Device Model	+-500V

Pin Definition

2 .1 Pin Map
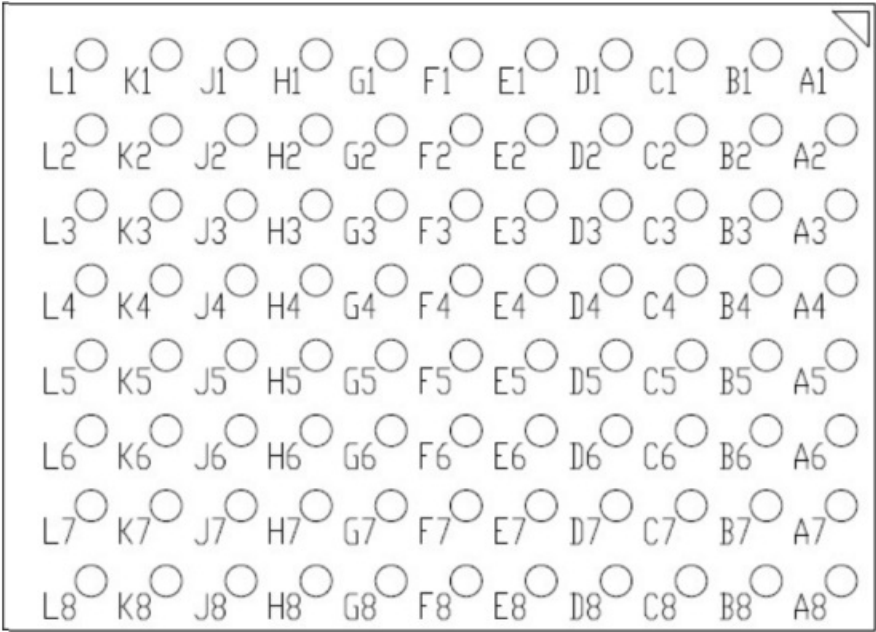
AW-CU570 Pin Map (Top View)

2.2 Pin Table
2.2.1 Power

Pin No	Definition	Basic Description	Voltage	Type
A7	3.3V_IN_1	3.3V Power input	3.3V	P
B7	3.3V_IN_2	3.3V Power input	3.3V	P
K1	VIO_1	1.8V/3.3V Digital I/O Power Supply	1.8V/3.3V	P
F1	VIO_2	1.8V/3.3V Digital I/O Power Supply	1.8V/3.3V	P
A2	VIO_3	1.8V/3.3V Digital I/O Power Supply	1.8V/3.3V	P
E1	VIO_4	1.8V/3.3V Digital I/O Power Supply	1.8V/3.3V	P
B8	VIO_6	1.8V/3.3V Digital I/O Power Supply	1.8V/3.3V	P

2.2.2 GPIO

Pin No	Definition	Basic Description	Voltage	Type
A3	GPIO_22	GPIO[22]/AON_XTAL32K_IN/SLP_CLK_32K/ SCT0_PIN_INP2/ENET_RX_DATA0	VIO_3	I/O
A5	USB_DM	USB bus data-	3.3V	I/O
A6	USB_DP	USB bus data+	3.3V	I/O
B1	GPIO_24	GPIO[24]/AON_WAKEUP/CT1_MAT2/CT_INP6/ ENET_TIMER2/FC3_RXD_SDA_MOSI_DATA_USA RT/I2C/I2S/SPI	VIO_3	I/O
B2	GPIO_26	GPIO[26]/AON_CAPT/SCT0_OUT4/SCT0_PIN_INP4/ENET_TIMER3/FC3_TXD_SCL_MOSI_WS_USA RT/I2C/I2S/SPI	VIO_3	I/O
B3	GPIO_23	GPIO[23]/AON_XTAL32K_OUT/SCT0_PIN_INP3/E NET_RX_DATA1	VIO_3	I/O
B4	GPIO_25	GPIO[25]/AON_WAKEUP/CT1_MAT3/ CT_INP7/ ENET_CLK/FC3_SCK_USART/I2S/SPI	VIO_3	I/O
B5	USB_VBUS	VBUS selection, 5 V analog power supply	—	I/O
B6	USB_IDPIN	USB OTG ID pin	3.3V	I
C1	GPIO_28	QSPI flash slave select 0	VIO_4	I/O

C2	GPIO_31	Data bit 1 for QSPI flash	VIO_4	I/O
C3	GPIO_32	Data bit 2 for QSPI flash	VIO_4	I/O
C4	GPIO_29	QSPI flash data strobe input/output	VIO_4	I/O
C5	GPIO_27	GPIO[27]/AON_OUT/SCT0_OUT5/SCT0_PIN_INP5 /ENET_TIMER0	VIO_3	I/O
C6	GPIO_4	GPIO[4]/Coexistence mode /SCT0_OUT1/SCT0_PIN_INP1/CLKIN_FRM_PD/ FC0_S CK_USART/I2S/SPI	VIO_6	I/O
C7	GPIO_3	GPIO[3]/SCT0_OUT0/SCT0_PIN_INP0/FC0_TXD_ SCL _MISO_WS_USART/I2C/I2S/SPI	VIO_4	I/O
C8	RESETn	Full Power-down (input) (active low) 0 = full power-down mode 1 = normal mode This pin has an internal pull high 51k ohm to 3.3V	3.3V	I
D1	GPIO_34	GPIO[34]/ QSPI_flash_CLK0/ SPIO0[2]	VIO_4	I/O
D2	GPIO_33	GPIO[33]/ QSPI_flash_D3/ SPIO0[2]	VIO_4	I/O
D3	GPIO_30	GPIO[30]/ QSPI_flash_D0	VIO_4	I/O
D7	GPIO_2	GPIO[2]/FC0_RXD_SDA_MOSI_DATA_USART/I2C/ I2S/ SPI	VIO_6	I/O
D8	GPIO_49	GPIO[49]/LCD_D4/LCD SPI interface chip select/ADC0_ 7/ADC1_7/ACOMP7/SPIO0[17]	VIO_6	I/O
E7	GPIO_48	GPIO[48]/LCD 8080 interface read control /LCD SPI interf ace clock/ADC0_6/ ADC1_6/ ACOMP6/ SPIO0[16]	VIO_6	I/O
E8	GPIO_47	GPIO[47]/LCD_D3 /LCD SPI interface data/ ADC0_5/ AC OMP5/ SPIO0[15]	VIO_6	I/O
F2	GPIO_13	GPIO[13]/ CT_INP3/CT0_MAT3/ SWDIO/ FC2_RXD_SD A_MOSI_DATA_USART/I2C/I2S/SPI	VIO_2	I/O
F7	GPIO_46	GPIO[46]/ LCD_D2/LCD SPI interface data in_out/ADC0_ 4/ ACOMP4/ SPIO0[14]	VIO_6	I/O

F8	GPIO_45	GPIO[45]/LCD tearing effect input signal used to synchro nize MCU frame writing/ LCD tearing effect input signal u sed to synchronize MCU frame writing/ ADC0_3/ACOMP 3/EXT_VREF_ADC0_DAC/ SPIO0[13]	VIO_6	I/O
G1	GPIO_15	GPIO[15]/SD_CLK/UTICK_CAP0/UCLK/FC2_SCK_ US ART/I2S/SPI	VIO_2	I/O
G2	GPIO_16	GPIO[16]/SD_D3/UTICK_CAP1/URST/FC2_CTS_S DA_ SSELN0_USART/FC2_CTS_SDA_SSELN0_SP I/FC2_CTS_SDA_SSELN0_I2C_COPY	VIO_2	I/O
G7	GPIO_44	GPIO[44]/DAC_A/ADC0_2/ ACOMP2/output signal to res et the LCD device/SPIO0[12]	VIO_6	I/O
G8	GPIO_43	GPIO[43]/LCD_D1/ADC0_1/ACOMP1/DACB/SPIO0 [11]	VIO_6	I/O
H1	GPIO_17	GPIO[17]/SDIO_CMD/UTICK_CAP2/UIO/FC2_RTS _SCL_SSELN1_USART/FC2_RTS_SCL_SSELN1_I 2C _COPY	VIO_2	I/O
H2	GPIO_18	GPIO[18]/SDIO_DAT2/UTICK_CAP3/UVS/ GPIO_INT_B MAT	VIO_2	I/O
H7	GPIO_42	GPIO[42]/ ADC0_0/ACOMP0/LCD_D0/SPIO0[10]	VIO_6	I/O
H8	GPIO_50	GPIO[50]/FREQME_GPIO_CLK/ADC_DAC_TRIGG ER0 / SPIO0[18]	VIO_6	I/O
J1	GPIO_19	GPIO[19]/SDIO_DAT0/FC3_RTS_SCL_SSELN1_U SAR T/ FC3_RTS_SCL_SSELN1_I2C_COPY	VIO_2	I/O
J2	GPIO_20	GPIO[20]/SDIO_DAT1/FC3_CTS_SDA_SSELN0_U SAR T/SPI/_I2C_COPY	VIO_2	I/O
J3	RF_CNTL1	RF_CNTL1	3.3V	O
J4	RF_CNTL2	RF_CNTL2	3.3V	O
J5	RF_CNTL3	RF_CNTL3	3.3V	O
J7	EXT_FREQ	External radio frequency input signal (optional) – muxed with WCI-2_SOUT signal of WCI-2 interface.	1.8V	I
J8	EXT_PRI	External radio input priority signal (optional) Priority of the request from the external radio.	1.8V	I

Pin No	Definition	Basic Description	Voltage	Type
K2	GPIO_14	GPIO[14]/ CT_INP4/CT1_MAT0/ SWCLK/ FC2_TXD_SCL_MISO_WS_USART/I2C/I2S/SPI	VIO_2	I/O
K3	GPIO_7	GPIO[7]/ JTAG_TMS/ FC1_SCK_USART/I2S/SPI	VIO_1	I/O
K4	GPIO_8	GPIO[8]/ JTAG_TDI/ FC1_TXD_SCL_MISO_WS_USART/I2C/I2S/SPI	VIO_1	I/O
K5	GPIO_10	GPIO[10]/ JTAG_TRSTN/ FC1_RTS_SCL_SSELN1_USART	VIO_1	I/O
K7	EXT_GNT	External radio grant output signal	1.8V	O
K8	EXT_REQ	Request from external radio	1.8V	I
L2	GPIO_5	GPIO[5]/ MCLK/FC0_RTS_SCL_SSELN1_USART	VIO_1	I/O
L3	GPIO_6	GPIO[6]/ JTAG_TCK/ FC1_CTS_SDA_SSELN0_USART/ SPI	VIO_1	I/O
L4	GPIO_9	GPIO[9]/ JTAG_TDO/ FC1_RXD_SDA_MOSI_DATA_USART/I2C/I2S/SPI	VIO_1	I/O
L5	GPIO_11	GPIO[11]/ SCT0_OUT8:	VIO_1	I/O
L7	GPIO_12	GPIO[12]/UTMI_DRV_VBUS/CT0_MAT2/CT_INP2/ SD_HOST_INT	3.3V	I/O

2.2.3. GND

Pin No	Definition	Basic Description	Voltage	Type
A1	GND_A1	Ground	—	—
A4	GND_A4	Ground	—	—
A8	GND_A8	Ground	—	—
D4	GND_D4	Ground	—	—
D5	GND_D5	Ground	—	—
D6	GND_D6	Ground	—	—

E2	GND_E2	Ground	—	—
E3	GND_E3	Ground	—	—
E4	GND_E4	Ground	—	—
E5	GND_E5	Ground	—	—
E6	GND_E6	Ground	—	—
F3	GND_F3	Ground	—	—
F4	GND_F4	Ground	—	—
F5	GND_F5	Ground	—	—
F6	GND_F6	Ground	—	—
G3	GND_D3	Ground	—	—
G4	GND_G4	Ground	—	—
G5	GND_G5	Ground	—	—
G6	GND_G6	Ground	—	—
H3	GND_H3	Ground	—	—
H4	GND_H4	Ground	—	—
H5	GND_H5	Ground	—	—
H6	GND_H6	Ground	—	—
J6	GND_J6	Ground	—	—
K6	GND_K6	Ground	—	—
L1	GND_L1	Ground	—	—
L6	GND_L6	Ground	—	—
L8	GND_L8	Ground	—	—

Electrical Characteristics

3.1 Absolute Maximum Ratings

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VBAT	DC supply for the 3.3V input	–	3.3	3.96	V
VIO	1.8 V/3.3 V digital I/O power supply	–	1.8	2.16	V
			3.3	3.96	V

3.2 Recommended Operating Conditions

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VBAT	DC supply for the 3.3V input	3.14	3.3	3.46	V
VIO	1.8 V/3.3 V digital I/O power supply	1.71	1.8	1.89	V
		3.14	3.3	3.46	V

3.3 Digital IO Pin DC Characteristics
3.3.1 VIO 1.8V Operation

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VIO	I/O pad supply voltage	1.71	1.8	1.89	V
VIH	Input high voltage	0.7*VIO	–	VIO+0.4	V
VIL	Input low voltage	-0.4	–	0.3*VIO	
VOH	Output High Voltage	VIO-0.4	–	–	
VOL	Output Low Voltage	–	–	0.4	
VHYS	Input Hysteresis	100			mV

3.3.2 VIO 3.3V Operation

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VIO	I/O pad supply voltage	3.14	3.3	3.46	V
VIH	Input high voltage	0.7*VIO	–	VIO+0.4	V
VIL	Input low voltage	-0.4	–	0.3*VIO	
VOH	Output High Voltage	VIO-0.4	–	–	
VOL	Output Low Voltage	–	–	0.4	
VHYS	Input Hysteresis	100			mV

3.4 Power Consumption

Power Supply=3.3V				
MCU Status	WiFi Deep Sleep	WiFi STA Connected	WiFi IEEE Power Saving	WiFi Power Down
	200Mhz	200Mhz	200Mhz	200Mhz
PM0(Active)	**TBD**			
PM1(Idle)				
PM2(Standby)				
PM3(Sleep)				
PM4(Shutdown)				

Current Unit: mA

(1) The MCU gets its clock from the WiFi subsection. When WiFi is powered down, the MCU is forced to run off of the internal RC32M clock. NXP does not recommend this and hence this mode is not supported. Customers can instead put the WiFi in Deep Sleep to save power.

– CURRENT consumption (MFG WLAN TX /RX)

| Item				Power Supply=3.3V			
Band (GHz)	Mode	BW (MHz)	RF Power (dBm)	Transmit		Receive	
				Max.	Avg.	Max.	Avg.
2.4	11b@1M	20	17	**TBD**			
	11b@11M	20	17				
	11g@54M	20	14				
	11n@MCS7	20	13				

3.6 External 32.768KHZ Crystal Requirement

An external 32.768kHz crystal can be used for low-power consumption. Below are the specifications for this crystal.

Parameter	Min	Typ	Max	Unit
Clock frequency range/accuracy • CMOS input clock signal type • ± 250 ppm (initial, aging, temperature)	–	32.768	–	kHz
Phase noise requirement (@ 100 kHz)	–	-125	–	dBc/Hz
Cycle jitter	–	1.5	–	ns (RMS)
Slew rate limit (10-90%)	–	–	100	ns
Duty cycle tolerance	20	–	80	%

Mechanical Information

4.1 Mechanical Drawing
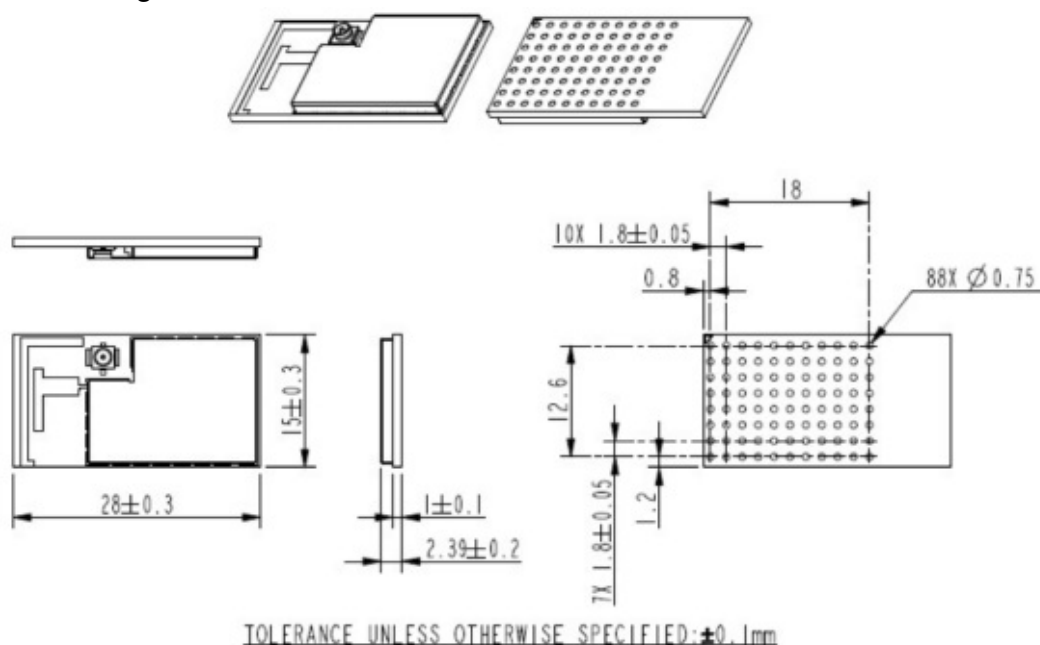
Packing Information

1. One reel can pack 3,000pcs modules
2. One production label is pasted on the reel, one desiccant and one humidity indicator card are put on the reel
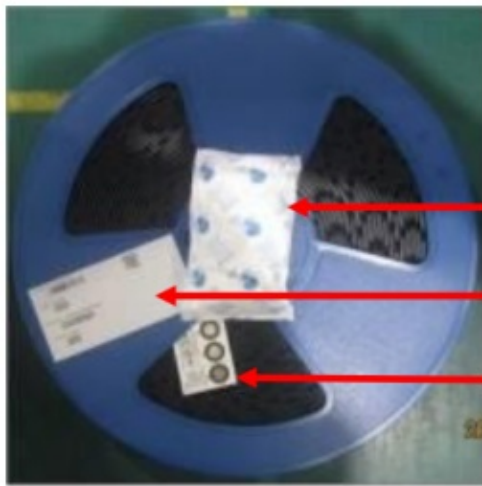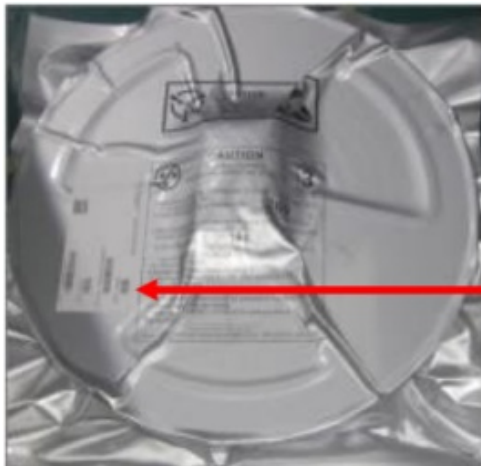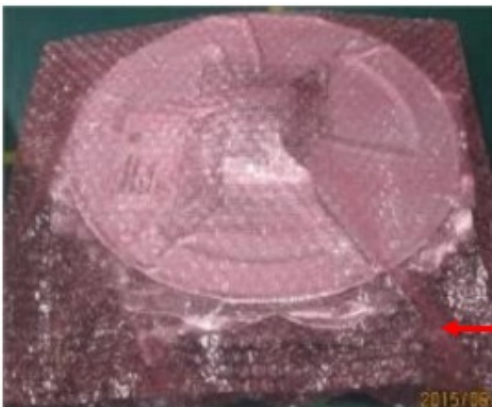
One desiccant

One production label

One humidity indicator card

3. One reel is put into the anti-static moisture barrier bag, and then one label is pasted on the bag

One production label

4. A bag is put into the anti-static pink bubble wrap

One anti-static pink bubble wrap

5. A bubble wrap is put into the inner box and then one label is pasted on the inner box

Production label

One production label

6. 5 inner boxes could be put into one carton

7. Sealing the carton by AzureWave tape

8. One carton label and one box label are pasted on the carton. If one carton is not full, one balance label pasted on the carton

One carton label

One box label

Example of carton label	<table><tr><td colspan="2" align="center">**AzureWave** AzureWave Technologies Inc.</td></tr><tr><td>AzureWave P/N</td><td>2-XXXXX-XXX</td></tr><tr><td>Customer</td><td>由業務提供</td></tr><tr><td>Customer P/N</td><td>由業務提供</td></tr><tr><td>Customer P/O</td><td>由業務提供</td></tr><tr><td>Description</td><td>AW-XXXXXX</td></tr><tr><td>Q'ty</td><td>依照實際出貨數量</td></tr><tr><td>C/N</td><td></td></tr><tr><td>N.W.</td><td>G.W.</td></tr><tr><td colspan="2">**RoHS** Made in China</td></tr></table>
Example of box label	2-XXXXX-XXX BOX0275351 數量：XXX XXXXXX 股份有限公司
Example of production label	P/N: D/C: 1309 PCK NO.: PCKNO0069097 QTY: 294 BAG SEAL DATE: _____

Example of balance label	尾 数 Balance

FCC:

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.

IMPORTANT NOTE:

This module is intended for OEM integrator. This module is only FCC authorized for the specific rule parts listed on the grant, and that 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.

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

OEM integrators that they must use the equivalent antennas or C2PC will be required.

This equipment complies with FCC mobile radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. If the module is installed in a portable host, a separate SAR evaluation is required to confirm compliance with relevant FCC portable RF exposure rules.

The host manufacturer should reference KDB Publication 996369 D04 Module Integration Guide.

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 20cm 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.

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.

FCC regulations restrict the operation of this device to indoor use only.

This device cannot operate as a subordinate between separate buildings or structures.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: TLZ-CU5XX".

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.

FCC regulations restrict the operation of this device to indoor use only.

Ant list

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	ARISTOTLE	RFA-27-C38H1-C198	Dipole Antenna	u.FL	Note1
2	1	Molex	2128600011	Dipole Antenna	u.FL	
3	1	LYNwave	2570	PCB Antenna	N/A	

Note 1:

| Ant. | Gain (dBi) | |
	WLAN 2.4GHz/Bluetooth/Thread	WLAN 5GHz
1	3	5
2	5.3	4.5
3	2.2	4.4

The antenna is limited as the antenna listed.

Documents / Resources

AzureWave AW-CU570 Wireless MCU with Tri Radio Wi-Fi 6 BLE 5.3 LGA Module [pdf] Owner's Manual
CU5XX, TLZ-CU5XX, TLZCU5XX, AW-CU570 Wireless MCU with Tri Radio Wi-Fi 6 BLE 5.3 LGA Module, AW-CU570, Wireless MCU with Tri Radio Wi-Fi 6 BLE 5.3 LGA Module, MCU with Tri Radio Wi-Fi 6 BLE 5.3 LGA Module, Tri Radio Wi-Fi 6 BLE 5.3 LGA Module, Wi-Fi 6 BLE 5.3 LGA Module, BLE 5.3 LGA Module, LGA Module, Module

References

- **User Manual**