802.11 b/g/n 2.4G Band 1T1R AP Module
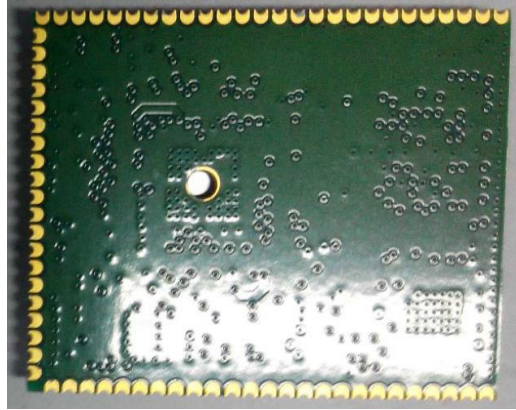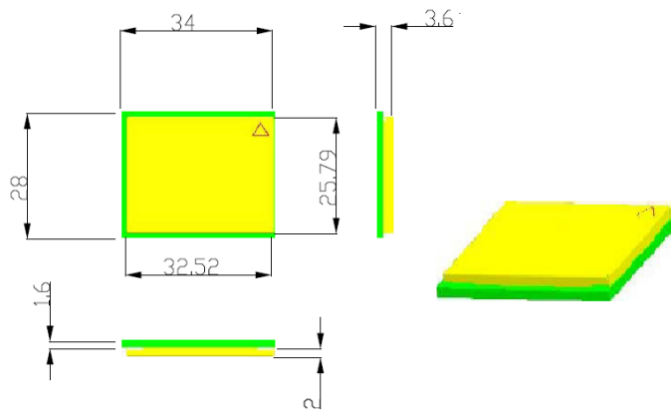
WLL6540(RoHS)

OEM Manual

802.11 b/g/n 2.4G Band 1T1R AP Module

WLL6540(RoHS)

1. Product (module) photo

2. Module dimensions

3. Antenna info
   Part number: 2108517-1
   Antenna type: stamped metal antenna
   Max Peak gain: 2.4 dBi

4. Feature:

The WLL6540(RoHS) module integrates a 1T1R 802.11n WI-FI radio, 1-Port fast Ethernet PHY, USB2.0 host, I2S/PCM and 4 GPIO. This module embedded high performance process a CPU can process advanced applications effortlessly, such as routing, security and VoIP; and includes variety of applications, such as a USB port for accessing external storage.

◆Embedded MIPS24KEc（575/580MHz）with 64KB I-Cache and 32 KB D- Cache
◆1T1R 2.4GHz with 150Mbps PHY data rate
◆Legacy 802.11b/g and 802.11n modes，20/40MHz channel bandwidth
◆802.11v
◆1-port 10/100 FE PHY
◆Iot (Internet of Things)
◆Green AP/STA
◆16 Multiple BSSID
◆AES128/256-CBC
◆WEP64/128/, TKIP, AES, WPA, WPA2, WAPI
◆WPS: PBC, PIN
◆ Small size 34mm*28mm

5. How to use this module
◆ Install application on IOT (Internet of Thing) device (eg. smartphone or notebook program)
◆ Power up processor unit (WLL6540(RoHS) power source).
◆ Scan for Wi-Fi network SSID (WLL6540(RoHS) as default SSID), connect to SSID, and input password. (End-user can change SSID/Password from the application program)
◆ Launch application and follow program's guide to link wireless data
◆ For detail, please reference end-product's user's manual

6. Pin assignment:

Pin	Assignment	GPIO	Used	Type	Description
1	3.3V		YES	P	3.3V power supply
2	3.3V		YES	P	3.3V power supply
3	NC		NO	NC	Not connected
4	REF_CLK		YES	O	reference clock output
5	GND		YES	G	ground
6	WPS_RST_PBC		YES	O	watchdog timeout reset
7	EPHY_LED4_N_JTRST_N		YES	I/O	10/100 PHY port #4 activity LED,JTAG_TRST_N
8	GND		YES	G	ground
9	EPHY_LED3_N_JTCLK		YES	I/O	10/100 PHY port #3 activity LED,JTAG_CLK
10	EPHY_LED2_N_JTMS		YES	I/O	10/100 PHY port #2 activity LED,JTAG_TMS
11	EPHY_LED1_N_JTDI		YES	I/O	10/100 PHY port #1 activity LED,JTAG_TDI
12	EPHY_LED0_N_JTDO		YES	I/O	10/100 PHY port #0 activity LED,JTAG_TDO
13	WLED_N		YES	O	WLAN activity LED
14	GND		YES	G	Ground
15	UART_TXD1	45	YES	O	UART1 lite TXD
16	UART_RXD1	46	YES	I	UART1 lite RXD
17	GND		YES	G	Ground
18	I2C_SCLK	4	YES	I/O	I2C clock
19	GND		YES	G	Ground
20	I2C_SD	5	YES	I/O	I2C data
21	I2S_WS	2	YES	O	I2S word select
22	I2S_DI	0	YES	O	I2S data input
23	NC		NO	NC	Not connected
24	3.3V		YES	P	3.3V power supply
25	3.3V		YES	P	3.3V power supply
26	ANT0		YES	I/O	RF0 input/output
27	GND		YES	G	Ground
28	I2S_DO	1	YES	I/O	I2S data output
29	GND		YES	G	Ground
30	I2S_CLK	3	YES	I/O	I2S clock
31	GND		YES	G	Ground
32	UART_TXD0	12	YES	O	UART0 lite TXD
33	UART_RXD0	13	YES	I	UART0 lite RXD
34	GND		YES	G	Ground
35	RXIP0		YES	A	10/100 PHY port#0 RXP
36	RXIN0		YES	A	10/100 PHY port#0 RXN
37	GND		YES	G	Ground
38	TXOP0		YES	A	10/100 PHY port#0 TXP
39	TXON0		YES	A	10/100 PHY port#0 TXN
40	GND		YES	G	Ground

41	SPIS_CS/TXOP1	14	YES	A	SPI Bus Chip select&10/100 PHY port#1 TXP
42	SPIS_CLK/TXON1	15	YES	A	SPI Bus clock&10/100 PHY port#1 TXN
43	GND		YES	G	Ground
44	ANT1		NO	I/O	RF1 input/output
45	GND		YES	G	Ground
46	SPIS_MISO/RXIP1/UART-TXD2	16	YES	A	SPI Bus Master Input/Slave Output&10/100 PHY port#1 RXP
47	SPIS_MOSI/RXIN1/UART-RXD2	17	YES	A	SPI Bus Master Output/Slave Input&10/100 PHY port#1 RXN
48	NC		NO	NC	Not connected
49	3.3V		YES	P	3.3V power supply
50	NC		NO	NC	Not connected
51	PWM_CH0/RXIP2	18	YES	A	PWM_CH0 mode&10/100 PHY port#2 RXP
52	PWM_CH1/RXIN2	19	YES	A	PWM_CH1 mode&10/100 PHY port#2 RXN
53	GND		YES	G	Ground
54	UART_TXD2/PWM_CH2/TXOP2	20	YES	A	PWM_CH2 mode&10/100 PHY port#2 TXP
55	UART_RXD2/PWM_CH3/TXON2	21	YES	A	PWM_CH3 mode&10/100 PHY port#2 TXN
56	GND		YES	G	Ground
57	SD_WP/TXOP3	22	YES	A	SDIO_WP&10/100 PHY port#3 TXP
58	SD_CD/TXON3	23	YES	A	SDIO_CD&10/100 PHY port#3 TXN
59	GND		YES	G	Ground
60	SD_D1/RXIP3	24	YES	A	SDIO_D1&10/100 PHY port#3 RXP
61	SD_D0/RXIN3	25	YES	A	SDIO_D0&10/100 PHY port#3 RXN
62	GND		YES	G	Ground
63	SD_CLK/RXIP4	26	YES	A	SDIO_CLK&10/100 PHY port#4 RXP
64	SD_CMD/RXIN4	27	YES	A	SDIO_CMD&10/100 PHY port#4 RXN
65	GND		YES	G	Ground
66	SD_D3/TXOP4	28	YES	A	SDIO_D3&10/100 PHY port#4 TXP
67	SD_D2/TXON4	29	YES	A	SDIO_D2&10/100 PHY port#4 TXN
68	GND		YES	G	Ground
69	USB_D+		YES	I/O	USB port0 data pin data+
70	USB_D-		YES	I/O	USB port0 data pin data-
71	GND		YES	G	Ground
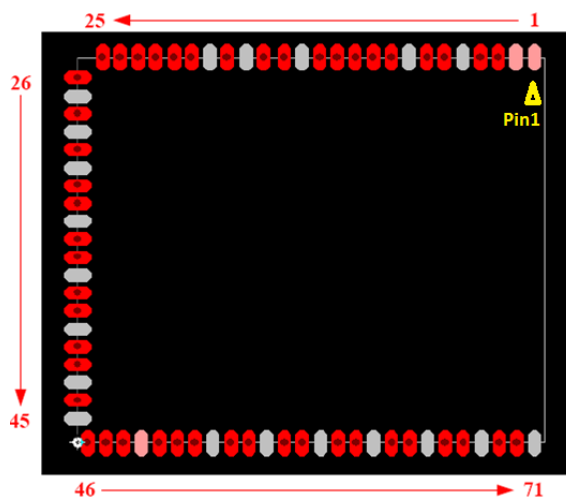
USA - Federal Communications Commission (FCC)

FCC Radiation Exposure Statement
Interference Statement
These devices comply with Part 15 of the FCC Rules. Operation of the devices is subject to the following two conditions: (1) The devices may not cause harmful interference, and (2) The devices must accept any interference that might 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. If the equipment is not installed and used in accordance with the instructions, the equipment might cause harmful interference to radio communications. There is no guarantee, however, that such 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 taking one or more of the following measures:

- Relocate this device.
- Increase the separation between the device and the receiver.
- Connect the device into an outlet on a circuit different from that of other electronics.
- Consult the dealer or an experienced radio 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.

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 <u>transmitter</u> 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 <u>can not be met</u> (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID <u>can not</u> 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: H8N-WLL6540". 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.

OEM integrators instruction

1. This module is restricted to installation in products for use only in mobile and fixed applications.
2. This module can only be used with a host antenna circuit trace layout design in strict compliance with the OEM instructions provided in this manual
3. The antenna circuit and layout must follow "WLL6540(RoHS) OEM board design guide" to design their own antenna circuit.

Canada. Industry Canada (IC)

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

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 **20cm** between the radiator & your body.

OEM integrator is still responsible for testing their end product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.). IMPORTANT NOTE: In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the IC authorization is no longer considered valid and the IC No. cannot 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 IC 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 transmitter module IC: 1353A-WLL6540".

Contient le module d'émission IC: 1353A-WLL6540

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

CAN ICES-3 (*)/NMB-3(*)

* Insert either "A" or "B" but not both to identify the applicable Class of ITE.

The Country Code Selection feature is disabled for products marketed in the US/Canada