

# infineon CYW4373 AIROC Wi-Fi and Bluetooth Combo Chip Owner's Manual



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## Infineon Linux Wi-Fi driver (FMAC) release notes

### About this document

#### Scope and purpose

Thank you for your interest in Infineon's Linux Wi-Fi driver (FMAC). This document provides an overview of the new features, bug fixes, and known issues for the AIROC™ Wi-Fi chips (CYW4373, CYW43012, CYW43439, CYW54591, CYW43022, and CYW5557X) on the current release for Linux.

#### Intended audience

This document is intended for anyone who uses the Infineon AIROC™ Wi-Fi Combo Chips on a Linux host.

Please read the sections "Important notice" and "Warnings" at the end of this document

## 1 Overview

### 1.1 High-level summary

This document details the new features and bug fixes for CYW4373, CYW43012, CYW43022, CYW43439, and CYW5557X on the software release.

This software release includes the following:

- FMAC driver
  - [ifx-backports](#) GitHub page
- Firmware and Clm blob
  - [ifx-linux-firmware](#) GitHub page
- Supplicant and hostapd
  - [ifx-hostap](#) GitHub page

All the above files can also be found in the Infineon [Developer Community](#) page.

- To bring up Wi-Fi with FMAC on RPI host for kernel 6.1.21, download the patches from the Infineon [Developer Community](#) page.
- To bring up Wi-Fi with FMAC on EA iMX8 Nano host for kernel 6.1.36, download the patches from the Infineon [Developer Community](#) page.
- To bring up Wi-Fi with BRCMFMAC on a non-RPI host for kernel 6.6, download the patches from the Infineon [Developer Community](#) page.

### 1.2 Device firmware change summary

**Table 1 Device firmware change summary**

Device	SDIO	PCIe
CYW4373	Bug fixes	NA
CYW43012	Bug fixes	NA
CYW43022	NA	NA
CYW55572/CYW55571/CYW55573	Bug fixes	Bug fixes
CYW43439	Bug fixes	Bug fixes

Note: Contact the local Infineon Technologies distribution channel (FAE or local sales representative) to get the latest hardware, NVRAM, and software files.

### 1.3 Device firmware revision details

**Table 2 Firmware revision details**

Device		Wi-Fi firmware version
CYW4373	PCIe	13.35.205.90
	SDIO	13.10.246.343
	Industrial	13.10.246.343
	USB	13.10.246.343
CYW43012	SDIO	13.10.271.319
CYW43022	SDIO	13.34.107.121
CYW55572/ CYW55571/CYW55573	PCIe	18.53.366.19
	SDIO	18.53.366.19
CYW54591	PCIe	13.35.347
	SDIO	13.35.347
CYW43439	SDIO	7.95.86

## 2 Description of changes

This section explains the features, enhancements, and issues that may have an impact on various devices.

### 2.1 Driver – FMAC changes

- Support for kernel 6.6+
- Support for CYW43022
- Support for 6G scan enhancement
- Fix to handle system crash on UDP traffic during Deep Sleep
- Fix for configuring iovar setting for during multiple BSS scenarios
- Fix for Rx throughput improvement
- Fix for ping delay noticed in P2P auto GO scenarios

### 2.2 Hostapd/supplicant changes

- Support for DPP2.0 and enablement of PFS flow on event update.
- Updated AKM value on 11w MFP flag enabled.
- Reset authentication and encryption parameters in hostapd while handling roam event.
- Add a configurable link\_loss parameter for background scan.

Note: For commercial SAP use on an IoT device, we recommend launching the AP with DTIM\_PERIOD as 1. dtim\_period=1 in hostapd.conf.

### 2.3 Firmware changes

#### 2.3.1 CYW4373

### New features

Component	Description	Implication/advantage
Wi-Fi	NA	NA

#### Wi-Fi certification

Chipset	WFA program supported
CYW4373	11n, 11ac, PMF, P2P, and vulnerability

#### Bug fix

- Fix for ping loss issue with powersave enabled in device.
- Fix for connectivity issue with device in WPA2 security and AP configured with WPA3/WPA2.
- Fix for PAPD optimization. · Fix for USB suspend and resume issues.
- Fix for Low-Power mode in suspend mode reducing lower VBat current.
- [Soft AP]Fix for internal SAE for ignoring commit messages of rejected group IE.
- Fix for invalid RSSI report failure noticed in the 5 – 20 MHz band.
- [Soft AP]Fix for handling reassociation request with PMKID.
- [Soft AP]Fix for low throughput noticed with SoftAP scenarios.
- [Intermittent]Fix for CYW4373 USB enumeration failure.
- Fix for Throughput/ping loss failures noticed with WLAN powersave.

#### Known issues

N/A

#### 2.3.2 CYW43439

#### New features

Component	Description	Implication/advantage
Wi-Fi	NA	NA

#### Wi-Fi certification

Chipset	WFA program supported
CYW43439	WPA3 (SCV, TLS 1.3)
	11n, PMF, P2P, and vulnerability

#### Bug fix

- WFA certification :
  - WPA3: Test case : 4.2.2 – Fix for missing H2E only in WPA3 AP.

- Fix for MFP support in SoftAP mode with WPA3 transition mode.
- Fix for connectivity issue with the device in WPA2 security and AP configured with WPA3/WPA2.
- Fix for regulatory power issues in 2.4 GHz.
- Fix for ETSI Rx blocking test in 11g scenario.
- Fix for invalid BSSID address with WPA3 SoftAP on WLAN interface reset.
- [SoftAP]Fix for association failures with AP configured to WPA3/WPA2 transition security.
- [SoftAP]Fix for stability issues noticed on SoftAP interface reset.
- Fix for missing RSNX Information element as part of association request.

#### Known issues

N/A

#### 2.3.3 CYW43022

#### New features

Component	Description	Implication/advantage
Wi-Fi	Offloads	Improves performance in low power

#### Wi-Fi certification

Chipset	WFA program supported
CYW43022	11n, 11ac, WPA3, PMF, and vulnerability

#### Bug fix

N/A

#### Known issues

N/A

#### 2.3.4 CYW43012

#### New features

N/A

#### Wi-Fi certification

Chipset	WFA program supported
CYW43012	11n, 11ac, WPA3, PMF, and vulnerability

#### Bug fix

- WFA certification fixes:
  - WPA3: Test case – 5.8.6, 5.8.3 Fix for roam issue from 5G configured AP to 6G configured AP.
- Fix for device PAPD optimization.
- Fix for device Deauthentication attack failure during 11W enabled scenarios.
- Fix for authentication failure due to WPA3 SoftAP beacon advertising RSN extension and SAE hash.
- [Soft AP]Fix for handling reassociation request with PMKID.
- Fix for RSSI report failures noticed in 2.4 Ghz.
- Fix for Power Optimization noticed during CSA and power save enabled.

## Known issues

N/A

### 2.3.5 CYW54591

## New features

Component	Description	Implication/advantage
Wi-Fi	Support for survey dump	Provides channel assessment functionality to understand environment behavior

## Wi-Fi certification

Chipset	WFA program supported
CYW54591	11n, 11ac, WPA3, PMF, and vulnerability

## Bug fix

- WFA certification fixes:
  - 11N: Test case – 5.2.35 Fix for device connection with 2.4 Ghz 40 MHz access point.
  - 11N: Test case 5.2.30 -Fix for WMM traffic differentiation with legacy station.
  - VHT: Test case 5.2.50 Fix for device to transmit data at spatial streams advertised in capability.
  - WPA3: Test Case 5.2.9,5.2.10 Fix for scan result updation with multiple BSSID scenario.
- Fix for RX throughput improvements.
- Fix for maximum client support during AP+AP+STA scenario.
- Fix for stability issue on WLAN country code change.
- Fix for connectivity issues noticed due to PMK expiry.
- Fix for stability issues noticed in multiple BSS scenarios.

## Known issues

N/A

## New features

Component	Description	Implication/advantage
Wi-Fi	Support for WLBGA package	
	Offload support with GTKOE and MQTT/TLS	Better performance in power-save scenarios
	Support for Survey Dump	Provides channel assessment functionality to understand environment behavior
	Support for Fast Transition in WPA3	Reduces roam time latency in WPA3 security

## Wi-Fi certification

Chipset	WFA program supported
CYW55572/55573	11ax – R2, 6E
	MBO, OCE, OWE
	WPA3 (192 bits, TLS 1.3, PSK, SCV)
	11n, 11ac, PMF, P2P, and vulnerability

## Bug fix

- WFA certification fixes:
  - WPA3: Test case – 5.8.6 - Fix for roam issue from 5G configured AP to 6G configured AP.
  - 11N: Test case - 5.2.30 - Fix for WMM Prioritization in BSS with non-WMM station in same environment.
  - 11N: Test Case - 5.2.5 - Fix for throughput issue noticed with 802.11 b/g mixed mode scenario.
  - WPA3: Test Case - 5.8.6 - Fix for BTM request in WPA3 roam scenarios.
  - WPA3:Test Case - 9.1.10 - Fix for association failure noticed with fast transition enabled AP.
  - WPA3:Test Case - 9.1.1 - 9.1.10 - Fix for roam failure noticed with fast transition enabled AP.
  - WPA3:Test Case - 9.2.1 - Fix for RSN extension IE in association request frame on AP association.
  - OCE: Test Case - 5.7.3,5.12.1 - Fix for initial AP selection based on the metrics information from Beacon/Probe response.
  - 11AX: Fix for low throughput and rate drop seen with UL OFDMA test cases in 5/6 GHz.
  - QuickTrack : WPA2 - Fix for the WPA2 Personal mixed mode association failure.
- Fix for WPA supplicant status update on disconnection scenarios.
- Fix for regulatory power issues for 6E.
- Fix for RX throughput improvements.
- [SDIO]Fix for Zero stalls noticed with WPA3 security specific to Mercusys AC1300.
- Fix for PAPD issues for TPC improvements.
- Fix for roaming issues noticed during WPA2 Security.

- Fix for roaming issue noticed in 11R intra band scenarios.
- Fix for RSSI corrections with Tri-Band chips.
- Fix for connectivity issue noticed in WPA3 Enterprise only security.
- Fix for connectivity issue noticed due to beacon loss from AP.
- Fix for AP connection latency with VSDB STA and Auto Go or STA and AP scenarios.
- Fix for stability issues noticed with Dual AP + STA interface.
- [SDIO] Fix for stability issue noticed during throughput scenario with Soft AP and STA interface .
- Fix for Power measurement failures on random channels during 11ax UL-OFDMA.
- Fix for interop issue with 6 GHz AP like Asus , NEP.
- Fix for connectivity issues noticed with OWE Soft AP scenarios.
- Fix for connectivity issue noticed with WoWLAN key rotation enabled.
- Fix for memory leak issue in STA/P2P scenarios.
- Fix for RX sensitivity in signaling mode for 2G band.

### **NVRAM changes**

- For WLEPA and WLIPA should consider with latest NVRAM for better performance.
- Support for 6 GHz ED threshold parameters.
- Fix for TPC tuning which benefits range enhancements.
- PPR adjustments for power update in 2.4 GHz.

Note: Contact the module vendor or local Infineon distribution channel (FAE or local sales representative) to get the NVRAM changes.

### **Known issues**

#### **WLEPA**

- Support for TPC (11h) not available for 5G band.

#### **FCIPA/WLIPA**

- Support for AFC is not available in 6G band .
- Support for connecting to only LPI AP in the 6G band is not available.

### **3 Documentation**

For more details, see the following documents:

- 002-38637: Getting started with AIROC™ Wi-Fi & Bluetooth® combo chip on Raspberry Pi CM4 Lite in Linux  
This guide provides step-by-step instructions to configure the AIROC™ Wi-Fi & Bluetooth® combo chip on the host, to load the FMAC driver, and to establish a Wi-Fi connection between an access point (AP)/SoftAP and a station (STA).
- 002-30394: Connectivity technical brief for Linux  
Infineon's Wi-Fi & Bluetooth® or Bluetooth® Low Energy connectivity solutions are integrated into the Linux



open-source ecosystem. The supported hardware and software are described in this document, including their features, modes, and limitations.

## **Glossary**

### **AKM**

authentication and key management

### **AP**

access point

### **ARP**

address resolution protocol

### **CSA**

channel switch announcement

### **DPP**

device provisioning protocol

### **mDNS**

multicast DNS

### **NDOE**

neighbor discovery offload engine

### **OWE**

opportunistic wireless encryption

### **PFS**

perfect forward secrecy

### **PMF**

protected management frame

### **SAE**

simultaneous authentication of equals

### **SAP**

soft access point

### **TKO**

TCP keepalive offload

### **TWT**

target wake time

### **SCV**

server certificate validation

### **TLS**

transport layer security

## **PMK**

pairwise master key

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## **Documents / Resources**

	<a href="#">infineon CYW4373 AIROC Wi-Fi and Bluetooth Combo Chip</a> [pdf] Owner's Manual CYW4373 AIROC Wi-Fi and Bluetooth Combo Chip, CYW4373, AIROC Wi-Fi and Bluetooth Co mbo Chip, Wi-Fi and Bluetooth Combo Chip, Bluetooth Combo Chip, Combo Chip, Chip
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## References

- [Semiconductor & System Solutions - Infineon Technologies](#)
- [Semiconductor & System Solutions - Infineon Technologies](#)
- [Wi-Fi A-class Linux Driver releases \(latest and ar... - Infineon Developer Community](#)
- [ifx-backports/v5.15.58-backports at master · Infineon/ifx-backports · GitHub](#)
- [GitHub - Infineon/ifx-hostap: ifx-hostap](#)
- [ifx-linux-firmware/firmware at master · Infineon/ifx-linux-firmware · GitHub](#)
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