

12.3.4 Helpful Websites

A document that can be used as a starting point in understanding the use of Short Range Devices (SRD) in Europe is the European Radio Communications Committee (ERC) Recommendation 70-03 E, which can be downloaded from the European Communications Committee (ECC) at: <http://www.ecodocdb.dk/>.

Additional helpful web sites are:

- Radio Equipment Directive (2014/53/EU):
https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/red_en
- European Conference of Postal and Telecommunications Administrations (CEPT):
<http://www.cept.org>
- European Telecommunications Standards Institute (ETSI):
<http://www.etsi.org>
- The Radio Equipment Directive Compliance Association (REDCA):
<http://www.redca.eu/>

12.4 Japan

The ATWINC1500-MR210PB and ATWINC1510-MR210PB modules has/have received type certification and is required to be labeled with its own technical conformity mark and certification number as required to conform to the technical standards regulated by the Ministry of Internal Affairs and Communications (MIC) of Japan pursuant to the Radio Act of Japan.

Integration of this module into a final product does not require additional radio certification provided installation instructions are followed and no modifications of the module are allowed. Additional testing may be required:

- If the host product is subject to electrical appliance safety (for example, powered from an AC mains), the host product may require Product Safety Electrical Appliance and Material (PSE) testing. The integrator should contact their conformance laboratory to determine if this testing is required
- There is an voluntary Electromagnetic Compatibility (EMC) test for the host product administered by VCCI: www.vcci.jp/vcci_e/index.html

12.4.1 Labeling and User Information Requirements

The label on the final product which contains the ATWINC1500-MR210PB and ATWINC1510-MR210PB modules must follow Japan marking requirements. The integrator of the module should refer to the labeling requirements for Japan available at the Ministry of Internal Affairs and Communications (MIC) website.

For the ATWINC1500-MR210PB and ATWINC1510-MR210PB module/s, due to a limited module size, the technical conformity logo and ID is displayed in the data sheet and/or packaging and cannot be displayed on the module label. The final product in which this module is being used must have a label referring to the type certified module inside:



12.4.2 Helpful Web Sites

- Ministry of Internal Affairs and Communications (MIC): www.tele.soumu.go.jp/e/index.htm.
- Association of Radio Industries and Businesses (ARIB): www.arib.or.jp/english/.

12.5 Korea

The ATWINC1500-MR210PB and ATWINC1510-MR210PB modules has/have received certification of conformity in accordance with the Radio Waves Act. Integration of this module into a final product does not require additional radio certification provided installation instructions are followed and no modifications of the module are allowed.

12.5.1 Labeling and User Information Requirements

The label on the final product which contains the ATWINC1500-MR210PB and ATWINC1510-MR210PB modules must follow KC marking requirements. The integrator of the module should refer to the labeling requirements for Korea available on the Korea Communications Commission (KCC) website.

For ATWINC1500-MR210PB and ATWINC1510-MR210PB module/s, due to a limited module size, the KC mark and ID are displayed in the data sheet and/or packaging and cannot be displayed on the module label. The final product requires the KC mark and certificate number of the module:



12.5.2 Helpful Websites

- Korea Communications Commission (KCC): www.kcc.go.kr.
- National Radio Research Agency (RRA): rra.go.kr.

12.6 Taiwan

The ATWINC1500-MR210PB and ATWINC1510-MR210PB modules has/have received compliance approval in accordance with the Telecommunications Act. Customers seeking to use the compliance approval in their product should contact Microchip Technology sales or distribution partners to obtain a Letter of Authority.

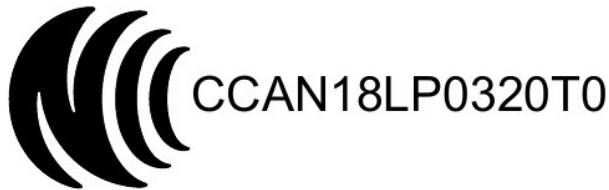
Integration of this module into a final product does not require additional radio certification provided installation instructions are followed and no modifications of the module are allowed.

12.6.1 Labeling and User Information Requirements

For the ATWINC1500-MR210PB module, due to the limited module size, the NCC mark and ID are displayed in the data sheet only and cannot be displayed on the module label:



For the ATWINC1510-MR210PB module, due to the limited module size, the NCC mark and ID are displayed in the data sheet only and cannot be displayed on the module label:



The user's manual should contain following warning (for RF device) in traditional Chinese:

根據 NCC LP0002 低功率射頻器材技術規範_章節 3.8.2:

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前述合法通信，指依電信管理法規定作業之無線電通信。

低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

12.6.2 Helpful Web Sites

National Communications Commission (NCC): www.ncc.gov.tw

12.7 China

The ATWINC1500-MR210PB and ATWINC1510-MR210PB modules has/have received certification of conformity in accordance with the China MIIT Notice 2014-01 of State Radio Regulation Committee (SRRC) certification scheme. Integration of this module into a final product does not require additional radio certification, provided installation instructions are followed and no modifications of the module are allowed. Refer to SRRC certificate available in ATWINC15x0-MR210xB product page for expiry date.

12.7.1 Labeling and User Information Requirements

The ATWINC1500-MR210PB module is labeled with its own CMIIT ID as follows:

CMIIT ID: 2018DJ1305

The ATWINC1500-MR210PB module is labeled with its own CMIIT ID as follows:

CMIIT ID: 2018DJ1310

When Host system is using an approved Full Modular Approval (FMA) radio: The host must bear a label containing the statement "This device contains SRRC approved Radio module CMIIT ID: 2018DJ2733".

12.8 Brazil

The ATWINC1500-MR210PB, ATWINC1510-MR210PB, ATWINC1500-MR210UB and ATWINC1510-MR210UB modules has/have received compliance approval in accordance with the Telecommunications Act of the Federal Republic of Brazil National Telecommunications Agency (ANATEL). Customers seeking to use the compliance approval in their product must contact Microchip Technology Inc. sales or distribution partners to obtain a Letter of Authority.

Modelo: ATWINC1500-MR210PB



08497-18-08759

Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário

The End product (Host) manual must include the following statement:

Este product contém a placa Modelo ATWINC1500-MR210PB código de homologação ANATEL08497-18-08759.

Modelo: ATWINC1510-MR210PB



08497-18-08759

Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário

The End product (Host) manual must include the following statement:

Este product contém a placa Modelo ATWINC1510-MR210PB código de homologação ANATEL 08497-18-08759.

Modelo: ATWINC1500-MR210UB



08497-18-08759

Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário

The End product (Host) manual must include the following statement:

Este product contém a placa Modelo ATWINC1500-MR210UB código de homologação ANATEL 08497-18-08759.

Modelo: ATWINC1510-MR210UB



08497-18-08759

Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário

The End product (Host) manual must include the following statement:

Este product contém a placa Modelo ATWINC1510-MR210UB código de homologação ANATEL 08497-18-08759.

12.8.1 Helpful Web Sites

- ANATEL: www.anatel.gov.br.

12.9 Other Regulatory Information

- For information about other countries' jurisdictions not covered here, refer to www.microchip.com/ATWINC1500 (available under Documents > Certifications).
- If the customer needs another regulatory jurisdiction certification or to recertify the module for other reasons, contact Microchip for the required utilities and documentation.

13. Reference Documentation and Support

13.1 Reference Documentation

The following table provides the set of collateral documents to ease integration and device ramp.

Table 13-1. Reference Documents

Title	Content
ATWINC15x0B-MU SoC Data Sheet	Data sheet for the ATWINC15x0 SmartConnect Wi-Fi component. For more details, contact a Microchip sales representative.
Platform Getting Started Guide	Details on how to evaluate the WINC15X0 Network Controller Module.
Flash Memory Download Procedure	Details the download procedures of firmware, root certificate, gain table values, etc.
ATWINC1500 Wi-Fi Network Controller Software Design Guide	Integration guide with a clear description of High-level Arch, an overview on how to write a networking application, list all APIs, parameters and structures. Features of the device, SPI/handshake protocol between device and host MCU, with flow/sequence/state diagram and timing.
Software Programming Guide (ATWINC15x0)	Details the flow chart and how to use each API to implement all generic use cases (for example, start AP, start STA, provisioning, UDP, TCP, HTTP, TLS, p2p, errors management, connection/recovery mechanism/state diagram) – usage and sample application note.
ATWINC15x0B/ATWINC15x0 – MR210xB Errata	This document provides details on the anomalies identified in the ATWINC15x0 family of devices.
ATWINC15x0 – Deriving Application Gain Table Application Note (available in the ATWINC15x0B Reference Design Package on ATWINC1500-IC webpage under Supporting Collateral)	This application note describes the Wi-Fi gain table structure and procedure to derive the application gain table. This document contains further details on the steps to update the device with the gain table.
MCHPRT2 User guide	This document provides detailed information about the MCHPRT2 tool, which allows the user to easily configure, evaluate and test an RF system.

Note: A Design Files Package is available under NDA. For more details, contact a Microchip sales representative.

For a complete list of development-support tools and documentation, visit www.microchip.com or refer to the customer support section on options to locate the nearest Microchip field representative.

14. Document Revision History

Note: The data sheet revision is independent of the die revision (Revision bit in the Device Identification register of the Device Service Unit, DSU.DID.REVISION) and the device variant (last letter of the ordering number).

Revision	Date	Section	Changes
F	03/2025	Features	- Removed Wi-Fi® Direct - Added compatibility for Wi-Fi 6/7 2.4 GHz band - Updated Superior MAC throughput - Editorial updates
		WLAN Subsystem	Updated content
		Description	Removed HCCA
		MAC Features	- Removed PCF, traffic scheduling - Removed transmission feature in Advanced IEEE 802.11n - Editorial updates.
		PHY Features	Editorial updates.
		Recommended External Antenna for ATWINC15x0-MR210UB	Removed RN-SMA-4 from Table 11-1
		Receiver Performance	Added note
		Memory Subsystem	Changed unit MB to Mb
		Application Schematic	- Updated Figure 9-1 - Updated notes
		Module Package Drawing	Updated Package drawing
		Pin Description	Updated Pin description and notes for WAKE Pin
E	06/2021	Document	Replaced Master/Slave with the new terminologies. For more details, see the following note.
		Europe	Updated European Compliance table
		Ordering Information and Module Marking	Updated Figure 1-1 with Tray and Tape and Reel packing information

Document Revision History (continued)			
Revision	Date	Section	Changes
D	10/2020	ATWINC15x0-MR210PB Placement and Routing Guidelines	Updated - Figure 11-1 - Figure 11-2
		Nonvolatile Memory (eFuse)	Updated the contents
		Interfacing with the Host Microcontroller	Updated - Figure 6-1 - Table 6-1
		Application Schematic	Updated Figure 9-1
		ATWINC15x0-MR210UB Placement and Routing Guidelines	Updated
		Reference Documentation	Updated Table 13-1
		Block Diagram	Updated Figure 2-1
		Pin Description	Updated Figure 2-2
		WLAN Subsystem	Added footnotes for Short GI feature
		Transmitter Performance	- Updated Table 3-6 - Added notes
		External Interfaces	- Added lead sentence - Updated the list - Updated Figure 6-1 - Updated Table 6-1
		GPIO Pins	Added Notes
		Current Consumption in Various Device States	Updated Table 7-1
		Recommended External Antenna for ATWINC15x0-MR210UB	Added
		Regulatory Approval	- Added Gain Table for Individual Regulatory Region section - Updated United States, Canada and Europe with the details of antennas used for approval - Revamped Europe section - Added expiry date information in China - Added regulatory note for Brazil (ANATEL) in Brazil
		Reference Documentation	Updated Table 13-1

Document Revision History (continued)			
Revision	Date	Section	Changes
C	09/2018	Features	Added Enterprise security feature and related note.
		Ordering Information and Module Marking	Updated Table 1-1
		Pin Description	Updated Table 2-1
		SPI Timing	Added note for Table 6-3
		Schematic Design Information	Editorial updates
		Module Assembly Considerations	Editorial updates
		Reflow Profile Information	- Removed Solder Paste - Removed Stencil Design - Editorial updates
		Regulatory Approvals	Updated the content of certifications to include the details of ATWINC1510-MR210UB module
B	12/2017	Introduction	Editorial updates
		Features	Editorial updates
		Regulatory Approvals	Revised the content of certifications
		Reference Documents	Updated Table 15-1
A	02/2017	Document	- Change of document style - Change the name to incorporate all the ATWINC15x0-MR210xB module family - New Microchip document number. Previous version was Atmel document 42502 rev. B.
		Product Description	- Added description information indicating that the document content is relevant to all WINC1500 Module models unless noted. - Changed SSL references to TLS. - Removed WAPI security. - Removed UART as host interface. - Editorial updates.
		Product Features	- Removed WAPI security. - Removed UART and I²C as host interfaces. - Removed Bluetooth coexistence interface. - Replaced SSL with TLS. - Added 26 MHz crystal. - Removed: (4KB flash – less than 1KB RAM).
		Order Information and Module Marking	- Revised Ordering table. - Revised Marking information. Figure.

Document Revision History (continued)

Revision	Date	Section	Changes
		Block Diagram	Revised Block Diagram figure.
		Pin Description	- Revised Pin Description drawing. - Editorial updates.
		Electrical Specifications	- Revised VDDIO maximum voltage in table 4.1 and added max temperatures. - Revised table 4-2 to include Recommended operating temperature.
		CPU and Memory Subsystems	Editorial update.
		WLAN Subsystem RADIO	- Added text regarding performance derating at cold temperature. - Features table revisions and changes: - Corrected the package height - Revised Storage temperature - Added performance test conditions to the performance tables. - Revised the Receive performance in table 6-2. - Revised the 802.11b mode Transmit performance numbers in table 6-3. - Revised Transmit performance Footnotes. - Changed max frequency to 2.472GHz. - Editorial updates.
		External Interfaces	- Revised SPI timing information in table 7-3. - Removed Bluetooth Coexistence section. - Removed SDIO. - Editorial updates.
		Power Consumption	- Added Module Reset section for reset duration. - Editorial updates.
		ATWINC15x0-MR210PB Placement and Routing Guidelines	- Added text for antenna types used in test and an associated table. - Revised Co-Ax connector type.
		Schematic Design Information	- Removed SDIO schematic. - Editorial updates.
		Module Drawings	- Updated module drawing figures and figure titles. - Added section with footprint drawing.
		Design Considerations	Added sections for Module design and assembly considerations and module PCB placement.
		Reflow Profile Information	- Revised reflow profile picture to be clearer. - Editorial updates.
		Certification Notices	Added section for Agency Certification notices (now under Regulatory Approvals with Rev. B).
		Agency Regulatory Approvals	- Added back Agency Approval section. - Revised content of certifications.
		Reference Documents	Moved Design File Package to a separate paragraph below the table to remove web availability aspect and to contact sales.

Note: Microchip is aware that some terminologies used in the technical documents and existing software codes of this product are outdated and unsuitable. This document may use these new terminologies, which may or may not reflect on the source codes, software GUIs and the documents referenced within this document. The following table shows the relevant terminology changes made in this document.

Table 14-1. Terminology Related Changes

Old Terminology	New Terminology	Description
Master	Host	The following sections are updated with new terminology:
Slave	Client	
		• Pin Description • SPI Timing Characteristics • Interfacing with the Host Microcontroller • SPI Client Interface • Overview • SPI Timing

(Atmel) Rev B - 02/2016

Document	• Updated copyright date to 2016. • Updated footers.
Module Outline Drawing	• Revised Module outline drawings to show Ground pad to be soldered. • Pulled out Footprint drawing as this is covered in the Module drawing.
WLAN Subsystem Radio	• Revised Transmit Performance Table 6-3.
Power Consumption	• Revised current table references in Table 8-1.
Schematic Design Information	• Updated Schematics Section 11 text and figures Figure 11-1 and Figure 11-2.
Reflow Profile Information	• Revised section 12 Reflow Profile Information.
Reference Documents	• Updated Document Reference table to include the ATWINC1500-MU datasheet.

(Atmel) Rev A - 07/2015

Document	Updated due to changes in the ATWINC1500 from Rev A to Rev B.
Description	• Updated model revisions to rev B. • Corrected Package dimensions.
Features	• Added Hardware Accelerator content to features list.
Pinout Information	• Updated reference schematic. • New pin list adds GPIO's 3,4,5 and 6.
CPU and Memory Subsystems	• Increased Memory from 182KB to 160KB.
External Interfaces	• Improved and corrected description of Coexistence interface. • Editorial updates.
Power Consumption	• Updated power numbers and description, added high-power and low-power modes.

WLAN Subsystem Radio

- Updated Performance numbers.

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ISBN: 978-1-6683-1170-7

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