

Antenna Information

YOMY smart cat feeder - FCC ID: 2BW6H-YOMY-SCF1

Antenna item	Final information
Antenna manufacturer	Espressif Systems (Shanghai) Co., Ltd.
Manufacturer address	Suite 204, Block 2, 690 Bibo Road, Zhang Jiang Hi-Tech Park, Shanghai, China
Antenna identifier	Integrated on-board PCB antenna of ESP32-S3-WROOM-2-N32R16V module
RF module / module FCC ID	ESP32-S3-WROOM-2-N32R16V / 2AC7Z-ESPS3WROOM2
Antenna type	Integrated PCB antenna
Host FCC filing gain	2.33 dBi for Wi-Fi and BLE
Wi-Fi frequency range	2412-2462 MHz for U.S. channels 1-11
BLE frequency range	2402-2480 MHz
External antenna / connector	None
Antenna modification by YOMY	None

Integration summary

The YOMY product uses the complete Espressif ESP32-S3-WROOM-2-N32R16V module. The radiating element is the on-board PCB antenna integrated in that module. YOMY does not add, replace, tune or modify the antenna and provides no external RF connector or user-replaceable antenna.

Evidence basis

Antenna information is provided using the antenna-manufacturer / certified-module documentation route described in the Part 15 Antenna Update guidance supplied by SGS, together with SGS YOMY host reports and SGS internal photos. No separate proprietary YOMY antenna is characterized or claimed.

Antenna requirement cross-check

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SGS / Part 15 antenna information	YOMY evidence supplied
Manufacturer name and address	Espressif Systems (Shanghai) Co., Ltd.; address stated above and supported by the module FCC filing.
Antenna model / identifier	The antenna has no separate marketed model number; it is the integrated PCB antenna of module ESP32-S3-WROOM-2-N32R16V.
Maximum gain	2.33 dBi retained for the YOMY host filing, consistent with SGS reports SZEM260200122101, SZEM260200122102 and SZEM260200122103.
Antenna type and anti-replacement construction	Integrated PCB antenna; no external connector and no user replacement.
Physical / layout information	Espressif datasheet pages included below: module dimensions, antenna area, PCB land pattern and module placement guidance.
Internal photo / antenna location	SGS internal-photo exhibit included below shows the actual YOMY host PCBA and installed RF module.
2D / 3D antenna pattern point	No separate YOMY AUT report is applicable: the antenna is not proprietary to YOMY and is not modified. The evidence route is the manufacturer datasheet / previously FCC-certified module documentation. The SGS-provided Part 15 guidance lists 2D/3D patterns as preferred for a manufacturer datasheet. This package therefore uses manufacturer / certified-module evidence rather than a separate YOMY AUT characterization.

Source references

- Espressif ESP32-S3-WROOM-2 Datasheet v1.7.
- Original module FCC filing: FCC ID 2AC7Z-ESPS3WROOM2.
- SGS YOMY BLE report SZEM260200122101 - antenna requirement / 2.33 dBi host filing gain.
- SGS YOMY Wi-Fi report SZEM260200122102 - PCB antenna / 2.33 dBi host filing gain.
- SGS YOMY RF exposure report SZEM260200122103 - PCB antenna / 2.33 dBi and 20 cm separation.
- SGS Internal Photos appendix SZEM2602001221HS.

1.2 Series Comparison

ESP32-S3-WROOM-2 is a powerful, generic Wi-Fi + Bluetooth LE MCU module that has a rich set of peripherals. It provides acceleration for neural network computing and signal processing workloads. It is an ideal choice for a wide variety of application scenarios related to AI and Artificial Intelligence of Things (AIoT), such as wake word detection and speech commands recognition, face detection and recognition, smart home, smart appliances, smart control panel, smart speaker, etc.

ESP32-S3-WROOM-2 comes with a PCB antenna. It has ESP32-S3R8V or ESP32-S3R16V SoC embedded. A selection of module variants are available for customers with flash memory of 16/32 MB and PSRAM memory of 8/16 MB. Please note that if the PSRAM ECC function is enabled, the maximum ambient temperature of the modules can be improved to 85 °C, while the usable size of PSRAM will be reduced by 1/16.

The series comparison for ESP32-S3-WROOM-2 is as follows:

Table 1-1. ESP32-S3-WROOM-2 Series Comparison

Part Number	Flash ^{1, 2}	PSRAM ²	Ambient Temp. ³ (°C)	Size ⁴ (mm)
ESP32-S3-WROOM-2-N32R16V	32 MB (Octal SPI)	16 MB (Octal SPI)	-40 ~ 65	18.0 × 25.5 × 3.1
ESP32-S3-WROOM-2-N16R8V (EOL)	16 MB (Octal SPI)	8 MB (Octal SPI)		
ESP32-S3-WROOM-2-N32R8V (EOL)	32 MB (Octal SPI)			

¹ By default, the SPI flash on the module operates at a maximum clock frequency of 120 MHz and does not support the auto suspend feature.

² This module uses PSRAM integrated in the chip's package. For specifications, refer to Section [6.5 Memory Specifications](#).

³ Ambient temperature specifies the recommended temperature range of the environment immediately outside the Espressif module.

⁴ For details, refer to Section [10 Module Dimensions](#).

At the core of the modules is an ESP32-S3 series of SoC, an Xtensa® 32-bit LX7 CPU that operates at up to 240 MHz. You can power off the CPU and make use of the low-power co-processor to constantly monitor the peripherals for changes or crossing of thresholds.

Note:

For more information on ESP32-S3, please refer to [ESP32-S3 Series Datasheet](#).

For chip revision identification, ESP-IDF release that supports a specific chip revision, and other information on chip revisions, please refer to [ESP32-S3 Series SoC Errata](#) > Section *Chip Revision Identification*.

1.3 Applications

- Smart Home
- Industrial Automation
- Health Care
- Consumer Electronics
- Smart Agriculture
- POS Machines
- Service Robot
- Audio Devices

10 Module Dimensions

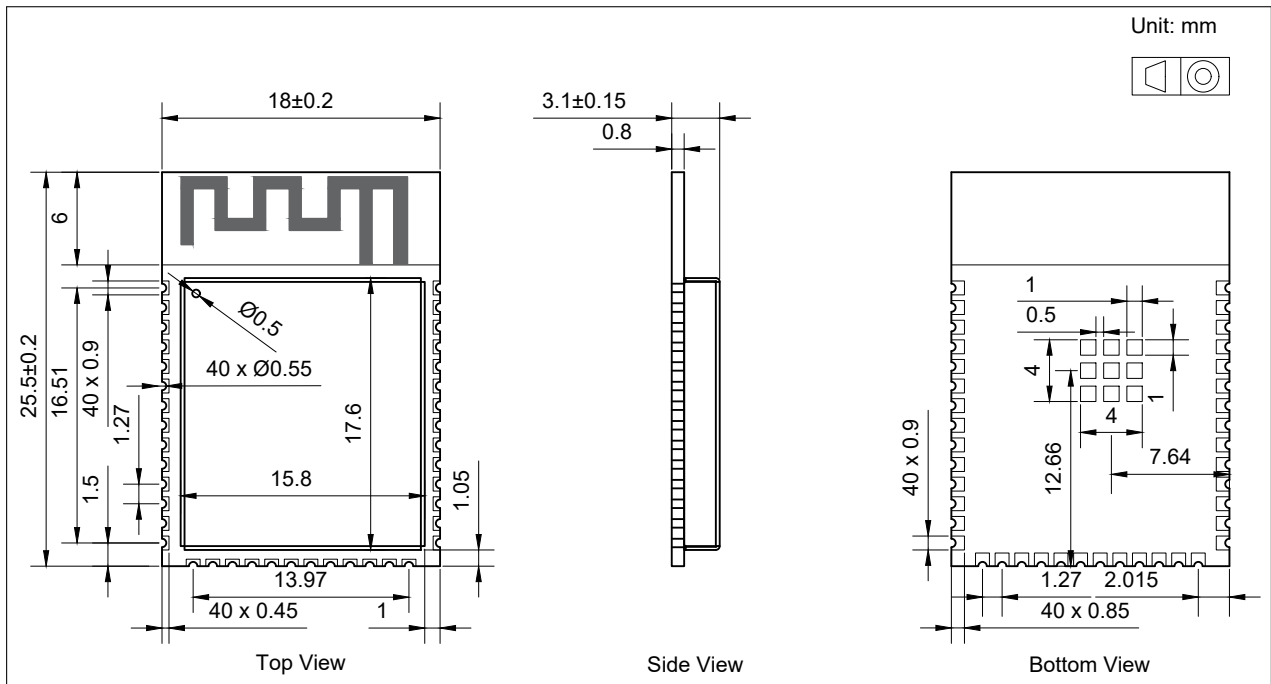


Figure 10-1. Physical Dimensions

Note:

For information about tape, reel, and product marking, please refer to [ESP32-S3 Module Packaging Information](#).

11 PCB Layout Recommendations

11.1 PCB Land Pattern

This section provides the following resources for your reference:

- Figure for recommended PCB land pattern with all the dimensions needed for PCB design. See Figure 11-1 *Recommended PCB Land Pattern*.
- Source file of recommended PCB land pattern to measure dimensions not covered in Figure 11-1. You can view the source files for [ESP32-S3-WROOM-2](#) with [Autodesk Viewer](#).
- 3D model of [ESP32-S3-WROOM-2](#). Please make sure that you download the 3D model file in .STEP format (beware that some browsers might add .txt).

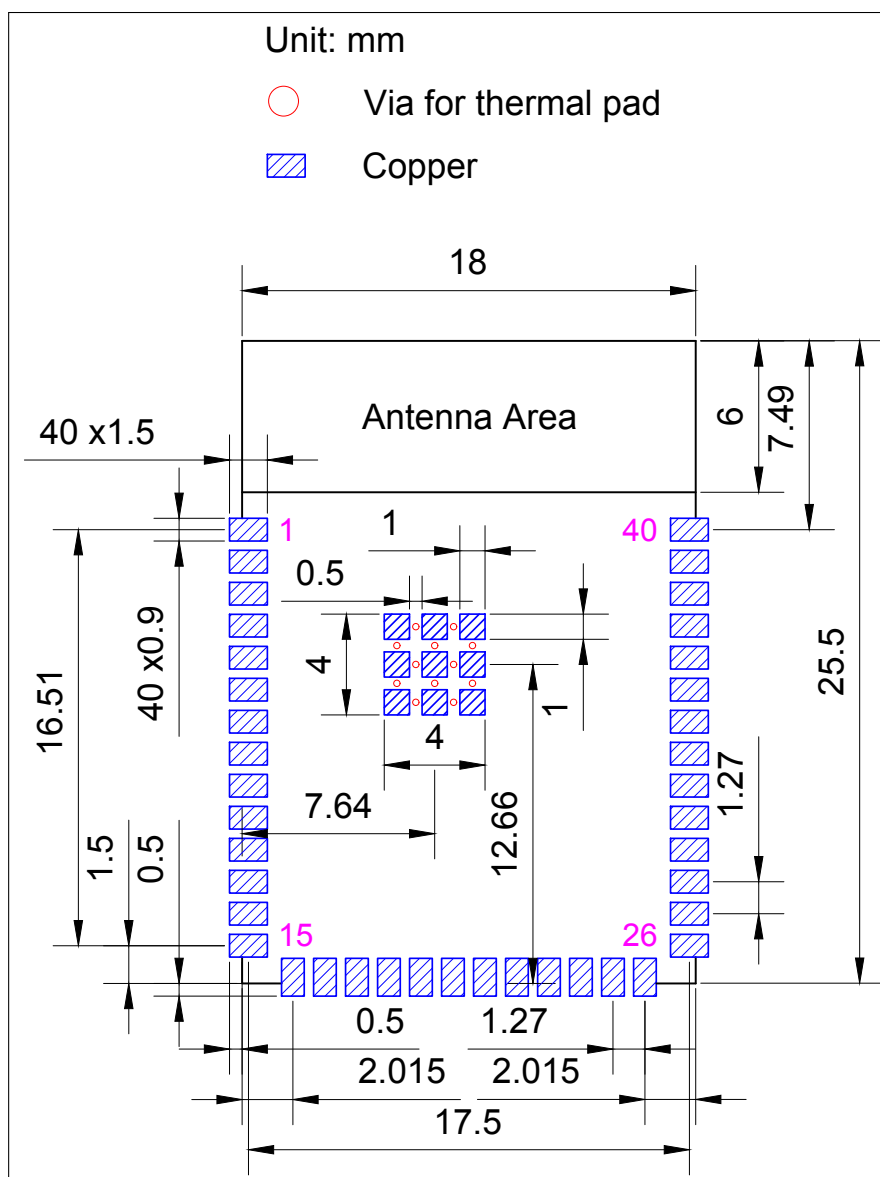


Figure 11-1. Recommended PCB Land Pattern

11.2 Module Placement for PCB Design

If module-on-board design is adopted, attention should be paid while positioning the module on the base board. The interference of the base board on the module's antenna performance should be minimized.

For details about module placement for PCB design, please refer to [ESP32-S3 Hardware Design Guidelines](#) > Section *General Principles of PCB Layout for Modules*.

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

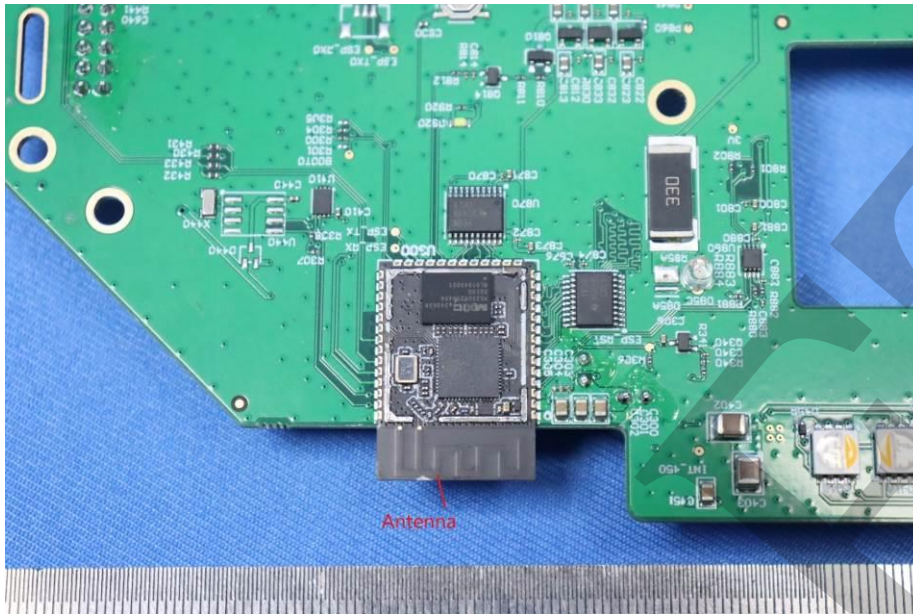
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2.33dBi

Antenna location: Refer to internal photo.





- End of the Appendix -



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