



DOCUMENT NUMBER AND REVISION

CC2500-A1 RF Module REV:A1

DOCUMENT TITLE:

SPECIFICATION OF RF Module

CUSTOMER PART NO.	
Product Name	CC2500A1S RF Module
MODEL NUMBER	CC2500A1S
SAMPLE LOT NO.	
CUSTOMER APPROVAL	
DATE	

DEPARTMENT	NAME	SIGNATURE	DATE
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☒ **PRELIMINARY SPECIFICATION**

☒ **FINAL SPECIFICATION AND SAMPLE**

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Specification of CC2500 RF Module

1. GENERAL DESCRIPTION

The CC2500 module is a low cost and highly integrated 2.4GHz RF transceiver designed for very low power wireless applications. These pre-certified RF modules, working in the license free ISM band of 2.4GHz MHz can be easily integrated into your application, thereby reducing development time and cost.

2. MECHANICAL SPECIFICATIONS

The mechanical detail is shown in Fig. 1 and Table 1 as below:

Table 1

Parameter	Specifications	Unit
Outline dimensions	20.80(L) x 18.20(W) x0.8(H)	mm

1) outline size

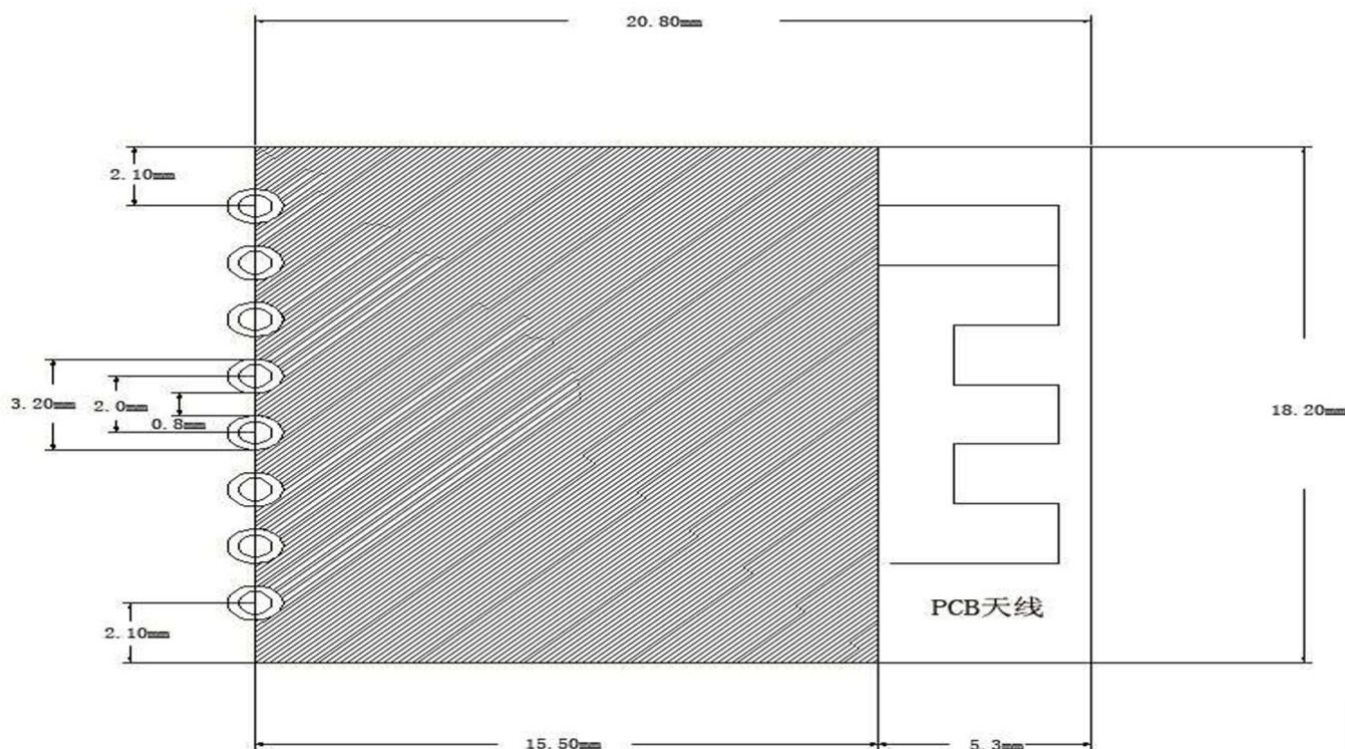
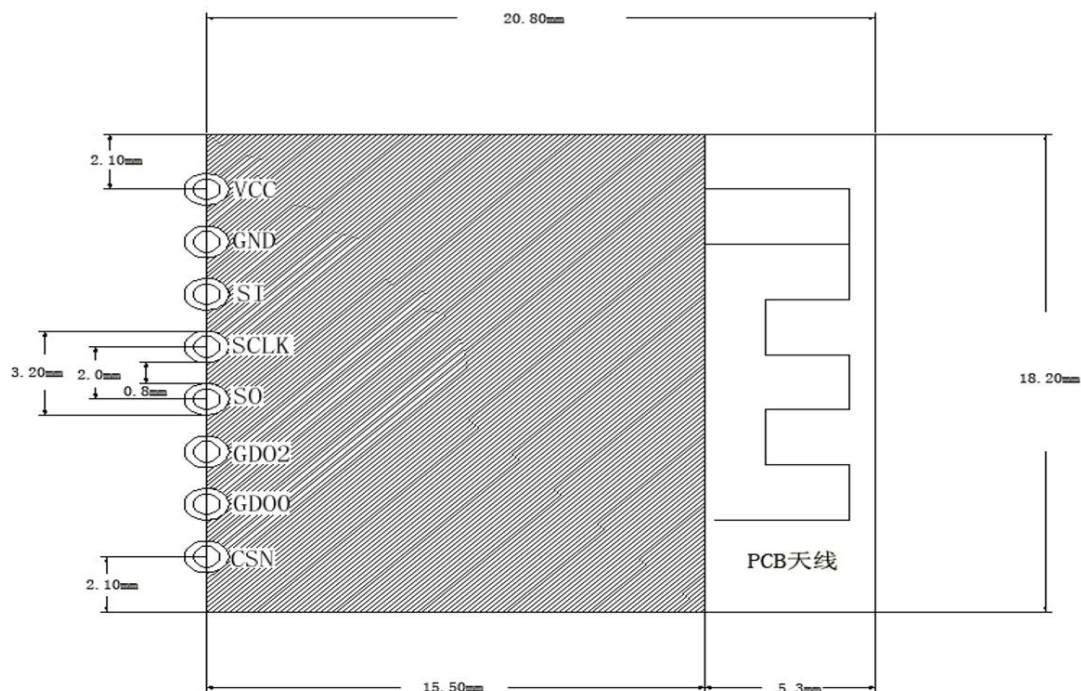


Figure 1(a): Module's outline



Pin Assignment



Pin No	Symbol	Function	Remark
1	VCC	Power	1.8V-3.6V
2	GND	Power	Ground
3	SI	Digital Input	Serial configuration interface, data input
4	SCLK	Digital Input	Serial configuration interface, clock input
5	SO	Digital Onput	Serial configuration interface, data output.
6	GNDO2	Digital Output	Digital output pin for general use: Test signals/ FIFO status signals/Clear Channel Indicator/ Clock output, down-divided from XOSC/Serial output RX data
7	GNDO0	Digital I/O	Digital output pin for general use: Test signals/ FIFO status signals/Clear Channel Indicator/ Clock output, down-divided from XOSC/Serial output RX data/ Serial input TX data
8	CSN	Digital Input	Serial configuration interface, chip select



4. ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Unit	Min	Max	Note
Power voltage	VCC	V	-0.3	+3.6	1
Voltage on any digital pin		V	-0.3	VDD+0.3 , max 3.6	1
Voltage ramp-up rate	VCC	kV/ μ s		120	1
Input RF level		dBm		+10	1
Operation Temperature	Topr	°C	-40	+85	3

Notes

- 1、 If used beyond the absolute maximum ratings, the product may be permanently damaged. It is strongly recommended that the device be used within the electrical characteristics in normal operations. If exposed to the condition not within the electrical characteristics, it may affect the reliability of the device.
- 2、 The operating temperature is defined as the temperature range where the products operation is guaranteed. All the contents of electrical and optical specifications are guaranteed under the room temperature condition.



5. ELECTRICAL SPECIFICATIONS

Operating Conditions :

Parameter	Sym.	Min	Typ.	Max	Unit
Operating temperature	Topr	-40		85	°C
Operating supply voltage	VCC	1.8		3.6	V

General Characteristics : Ta = 25°C

Item	Min	Typ	Max	Unit	Condition/Note
Frequency range	2414.5		2449.35	MHz	
Data rate	1.2		500	kbps	FSK
	1.2		250	kbps	GFSK and OOK
	26		500	kbps	(Shaped)MSK(also known as differential offset QPSK) Optional Manchester encoding(halves the data rate)
Rx Current		15		mA	
Receive sensitivity Data rate=1.2kbps		-106		dBm	
RF output Max.power		0		dBm	
PM3 Current Power down mode		0.4		uA	



FCC Statement

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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 or more 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 important announcement

Important Note:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID 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 FCC authorization.

End Product Labeling

The final end product must be labeled in a visible area with the following" Contains FCC ID: **2AXU3CC2500A1S** "

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.



Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01

2.2 List of applicable FCC rules

CFR 47 FCC PART 15 SUBPART C has been investigated. It is applicable to the modular transmitter

2.3 Specific operational use conditions

This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.

2.4 Limited module procedures

Not applicable

2.5 Trace antenna designs

Not applicable

2.6 RF exposure considerations

The EUT application the FCC part 15.249 rules, No need to evaluate RF exposure.

2.7 Antennas

This radio transmitter **2AXU3CC2500A1S** has been approved by Federal Communications Commission to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Model	Type	Connector	Peak gain (dBi)
2414.5-2449.5MHz	PCB Antenna	/	0 dBi

2.8 Label and compliance information

The final end product must be labeled in a visible area with the following" Contains FCC ID: **2AXU3CC2500A1S**".

2.9 Information on test modes and additional testing requirements

Host manufacturer which install this modular with limit modular approval should perform the test of radiated emission and spurious emission according to FCC part 15C:15.231 and 15.209 requirement, only if the test result comply with FCC part 15.231 and 15.209 requirement, then the host can be sold legally.

2.10 Additional testing, Part 15 Subpart B disclaimer

Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B.



ISED Statement

- English: This device complies with Industry Canada license-exempt RSS standard(s).

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.

The digital apparatus complies with Canadian CAN ICES-3 (B)/NMB-3(B).

- French: 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.

L'appareil numérique du CIEM conforme canadien peut - 3 (b) / nmb - 3 (b).

This device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS 102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Cet appareil est conforme à l'exemption des limites d'évaluation courante dans la section 2.5 du CNR - 102 et conformité avec RSS 102 de l'exposition aux RF, les utilisateurs peuvent obtenir des données canadiennes sur l'exposition aux champs RF et la conformité.

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment.

Cet équipement est conforme Canada limites d'exposition aux radiations dans un environnement non contrôlé.

ISED Modular Usage Statement

NOTE 1: When the ISED certification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use the wording "Contains transmitter module IC: 26955-CC2500A1S" or "Contains IC: 26955-CC2500A1S".

NOTE 1: Lorsque le numéro de certification ISED n'est pas visible lorsque le module est installé dans un autre appareil, l'extérieur de l'appareil dans lequel le module est installé doit également afficher une étiquette faisant référence au module inclus. Cette étiquette extérieure peut être libellée Contient le module émetteur IC: 26955-CC2500A1S ou Contient IC: 26955-CC2500A1S.