XE9721 User Manual

Confidential

List of Contents

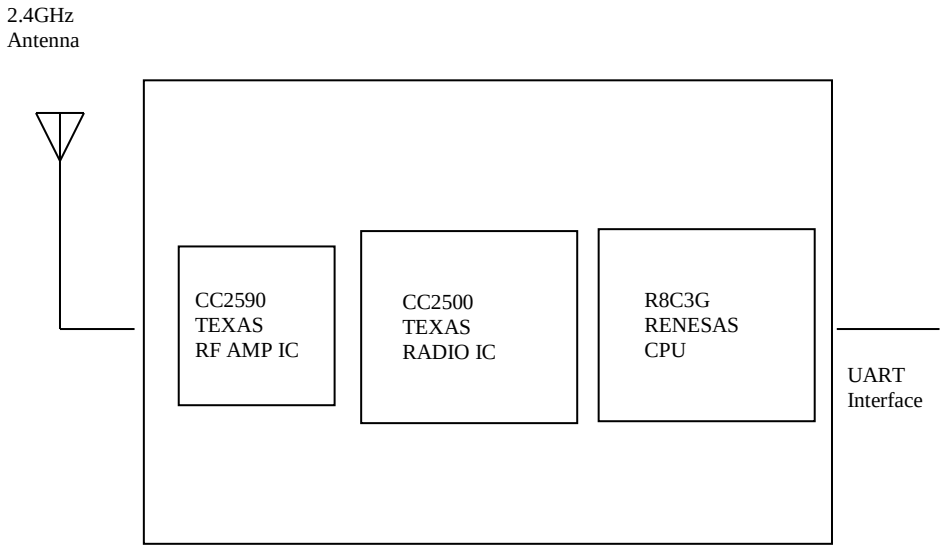
1. General

1.1 Overview

This specification covers XE9721 Data Radio Unit, which complies with
ARIB STD T-66, FCC Part 15 247 RSS-247 and ETSI EN 300 400.

This unit consist of Texas CC2590,CC2500 radio IC and Renesas CPU R8C3G for
Radio Data communication in 2.4GHz band.

All detailed specification may be changed without notice.



1.2 Features

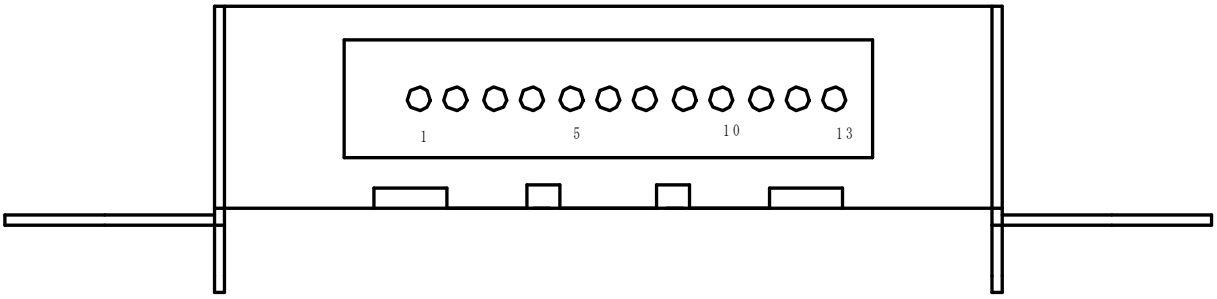
- Radio Data rate up to 32kbps.
- Support Slow Hopping 22channels in 2.401GHz ~ 2.4115GHz
- Ultra Low Power Consumption
- RoHS Compliant
- Support USART connection speed up to 115.2kbps
- Small Package Size (38.8 x 23.8 x 6.5)
- Integrated 26MHz TCXO

1.3 Application

- Radio Data Modem
- Wireless Controller
- Wireless Data Logger
- Wireless Security Sensor

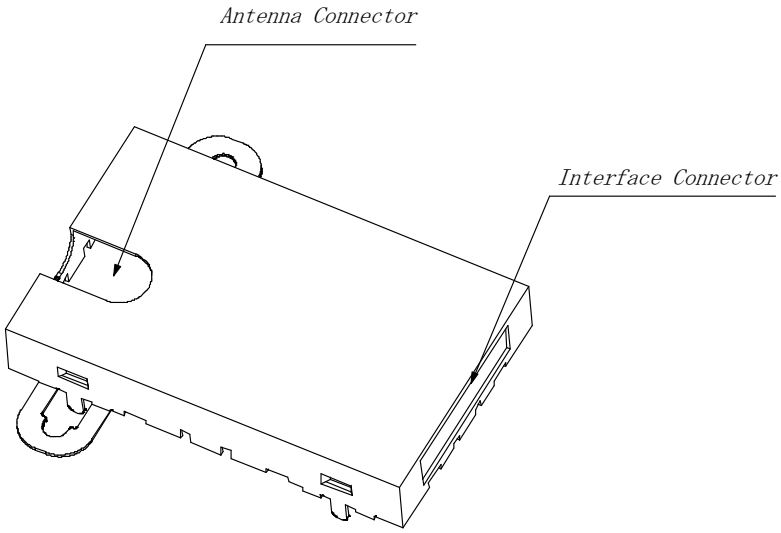
1.4 Interface connecter pin assignment

Back Side View of XE9721

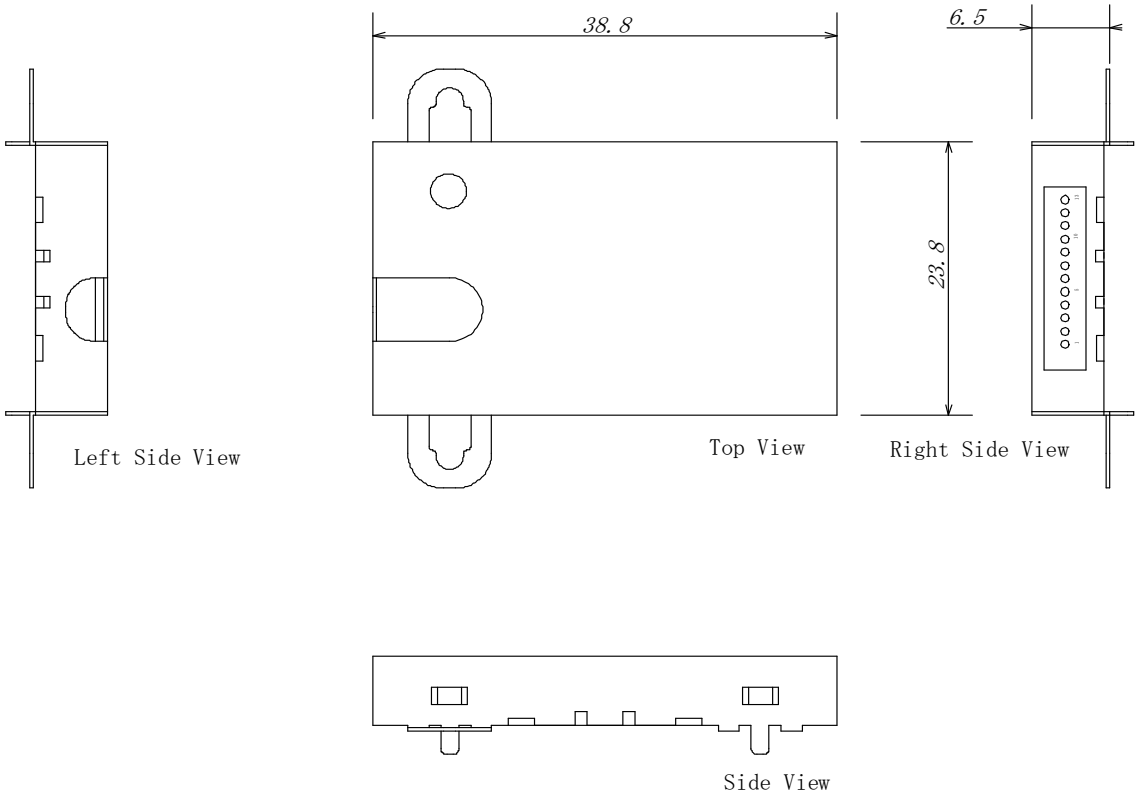


1. +B (Power In)
2. +3V REF (Reference Voltage Out)
3. GND (Power GND)
4. CS (Carrier Sense)
5. PWR CONT (Unit Power Control)
6. PTT (Transmit Switch)
7. GD_MONI (Not Used)
8. RTS (UART RTS)
9. CTS (UART CTS)
10. RXD (UART RXD)
11. TXD (UART TXD)
12. MODE (Not Used)
13. RESET (Unit Reset)

1.5 Outline View



1.6 Package Dimensions



Weight 8 g

2.Characteristics

2.1 Electrical Characteristics

Absolute Maximum Rating				
Rating	Minimum	Typical	Maximum	Unit
Supply Voltage	3.2	3.5	6.5	V
Operating Temperature Range	-20	25	55	C
RX Current consumption			40	mA
TX Current consumption			60	mA

2.2 RF Characteristics

Transmitter

Specification	Condition	Min.	Typ.	Max.
Output Transmit Power	Normal			9dBm
Frequency Range	Normal GHz	2.401		2.4115
20dB Bandwidth	Normal MHz			0.1
Modulation Characteristics	Normal MHz			0.05
Carrier Frequency Drift	-20 ~ +50 C			2.5ppm

Receiver

Specification	Condition	Min.	Typ.	Max.
Sensitivity	BER 0.1%			-105dBm
Maximum Input Level	Normal			-20dBm
Adjacent Channel rejection	Normal		18dB	

3. Notes

Please notice that if the FCC identification number or ISED certification number are 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 wording such as the following: “Contains FCC ID: PH3XE9721”or “Contains IC: 3070C-XE9721” any similar wording that expresses the same meaning may be used.
The module is limited to OEM installation ONLY.
The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.
The module is limited to installation in mobile application;
A separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and difference antenna configurations.
There is requirement that the grantee provide guidance to the host manufacturer for compliance with Part 15B requirements.

Federal Communications Commission (FCC) Statement:

15.105(b)

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.

15.21:

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user’s authority to operate the equipment.

FCC RF Radiation Exposure Statement:

1.This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2.This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should

be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

FCC RF Exposure requirements:
This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

15.19:
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 of the device.

Industry Canada Statement

This device complies with ISED’s applicable 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.

RF Radiation Exposure Statement:
This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Avis d’industrie Canada:
Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisee aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et, and (2) l'utilisateur de l'appareil doit accepter tout brouillage radioelectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement.

RF exposure:
To comply with the IC RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter. Pour se conformer aux exigences de conformité RF canadienne l'exposition, cet appareil et son antenne ne doivent pas être co-localisés ou fonctionnant en conjonction avec une autre antenne ou transmetteur.
Industry Canada Class B Emission Compliance Statement:
This Class B digital apparatus complies with Canadian ICES-003.

Avis de conformite a la reglementation d'Industrie Canada:
Cet appareil numerique de la classe B est conforme a la norme NMB-003 du Canada. Déclaration d'exposition aux radiations: Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.