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## 1. General Functions

The wireless module is a GFSK transceiver operating in the world-wide ISM frequency band at **2407 - 2477 MHz**. The embedded packet processing engines enable their full operation with a very simple MCU as a radio system. The module operates in TDD mode, either as a transmitter or as a receiver. The module is specifically developed for embedded system devices.

## 2. Technique Parameters

Table 1. Module Parameters

Categories	Feature	parameters
Wireless specification	Operating Bands	<b>2407MHz – 2477MHz</b>
	frequency modulation mode	GFSK
	Receive Sensitivity	-88dBm@2Mbps -91dBm@1Mbps -96dBm@250Kbps
	Data Rate	250Kbps, 1Mbps, 2Mbps
	Antenna gain	-20 dBi
	Impedance	50-Ohm
electrical specification	Supply Voltage	+3.3V
	Connect	<b>FPC Near Field Antenna</b>

physical	Dimensions	63mmx45mm
Operating Temperature	--	-40 - 85 deg C.

### 3. Circuit Description

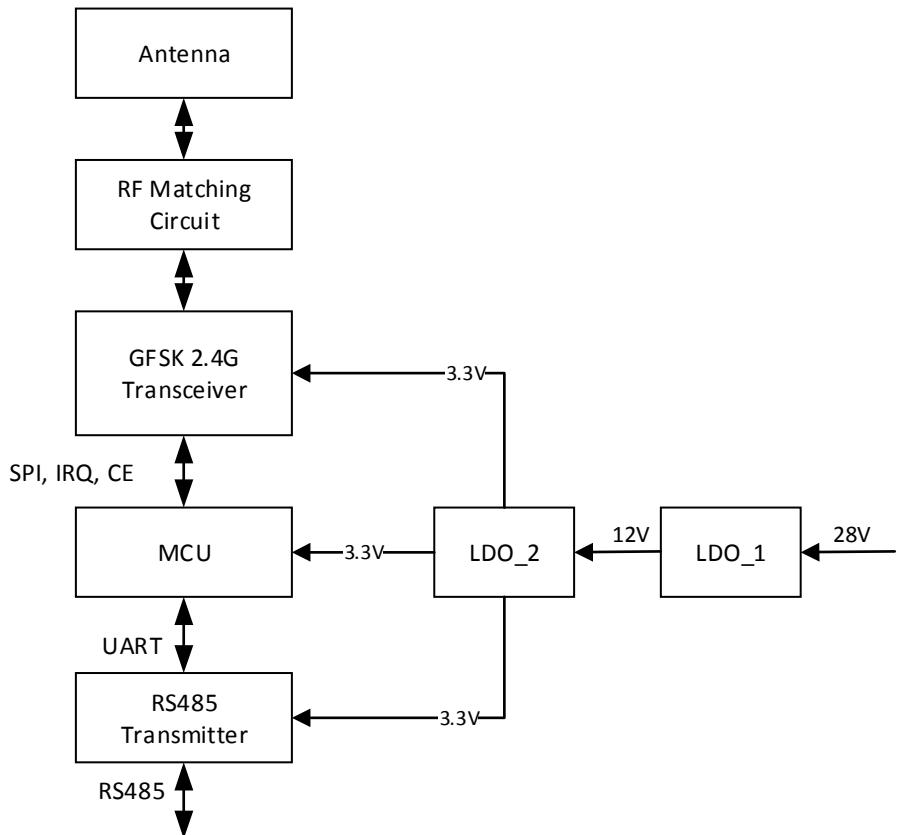


Figure 1. Block Diagram

The module has an independent power management system, and the system provides

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a high quality of power supply for the whole module. Input 28V power is transform to 12V and then 3.3V for the total system. The inner MCU use the SPI interface communicate with the 2.4G transceiver. The Excellent matching circuit in RF-Front ensures that the signal has minimal signal loss and radiation. The MCU provides the UART interfaces and transform to RS485 interface to communicate with the baseboard.

## 485 Interface

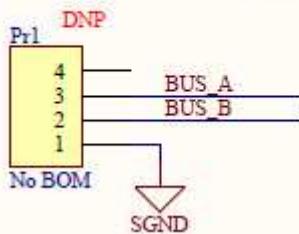


Figure 2. Communication Interface Definition

Table 2. Pin Definition

PIN	Name	Mode
1	GND	Ground
2	BUS_A	RS485 A Line
3	BUS_B	RS485 B Line
4	NULL	

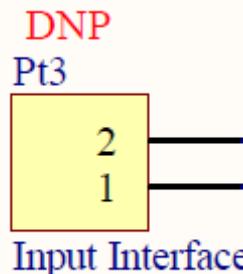


Table 2. Pin Definition

PIN	Name	Mode
1	GND	Ground
2	VCC	28V power input

5. Requirement of FCC KDB 996369 D03 for module certification:

5.1 List of applicable FCC rules:

The module complies with FCC Part 15.249

5.2 Summarize the specific operational use conditions:

The module has been certified for Fix/Mobile applications. The host product operating conditions must be such that there is a minimum separation distance of 20 cm (or possibly greater than 20 cm) between the antenna radiating structures and nearby persons. The host manufacturer is obligated to confirm the use conditions of the host product to ensure that distance specified in the instructions is met. In this case the host product is classified as either a mobile device or a fixed device for RF exposure purposes. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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### 5.3 Limited module procedures:

Not applicable.

### 5.4 Trace antenna designs:

Not applicable.

### 5.5 RF exposure considerations:

This equipment complies with FCC's RF radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must be installed and operated to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter.

#### Installers

must ensure that 20cm separation distance will be maintained between the device and users.

Note: the host product manuals must include a statement in order to alert the users of FCC RF exposure compliance.

### 5.6 Antennas:

Type	Gain	Impedance	Application	Min Separation
FPC Near Field Antenna	-20dBi	50 Ω	Fixed/Mobile	20 cm.

The antenna is permanently attached, can't be replaced.

### 5.7 Label and compliance information:

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.

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NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to this equipment. Such modifications or changes could void the user's authority to operate the equipment.

Warning: Changes or modifications to this unit 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.

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The system integrator must place an exterior label on the outside of the final product housing the **CPDL70W-1** Modules. Below is the contents that must be included on this label.

The host product Labeling Requirements:

NOTICE: The host product must make sure that FCC labeling requirements are met. This includes a clearly visible exterior label on the outside of the final product housing that displays the contents shown in below:

**Model: CPDL70W-1**

**Contains FCC ID: 2ATQ5-CPDL70W-1**

#### 5.8 Information on test modes and additional testing requirements:

When testing host product, the host manufacture should follow FCC KDB Publication 996369 D04 Module Integration Guide for testing the host products. The host manufacturer may operate their product during the measurements. In setting up the configurations, if the pairing and call box options for testing does not work, then the host product manufacturer should coordinate with the module manufacturer for access to test mode software.

#### 5.9 Additional testing, Part 15 Subpart B disclaimer:

The modular transmitter is only FCC authorized for the specific rule parts (FCC Part 15.249) list on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed when contains digital circuitry.