



Design Specification

Model No.: ZM108

Model name: ZM108

IEEE 802.15.4 RF4CE ZigBee transceiver module

Version: v0.1

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U.S. Regulatory Wireless Notice

Federal Communication Commission Interference Statement

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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna,

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

IMPORTANT NOTE: In the event that these conditions can not 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 can not 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.

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End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: T5U-ZM108".

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.

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1. Revision History

Date	Release	Author	Description
Jul 15, 2010	0.1	Jack Ong	First release



2. Overview

2.1. Scope

This document describes the specifications of ZM108 IEEE 802.15.4 transceivers module. The low power consumption and smaller size are suitable for consumer electronic. ZM108 also provides a cost-effective solution for **short-range** data links and networks.

2.2. Features

- Extremely low cost
- Ease of implementation
- Reliable data transfer
- Short range operation
- Very low power consumption
- Appropriate levels of security
- Can be used globally

2.3. Specification

Absolute Maximum Ratings

Rating	Symbol	Value	Unit
Power Supply Voltage	V_{BATT}, V_{DDINT}	-0.3 to 3.9	Vdc
RF Input Power	P_{max}	10	dBm
Storage Temperature Range	T_{stg}	-20 to 70	°C

Operating conduction

Rating	Symbol	Min	Typ	Max	Unit
Power Supply Voltage	V_{BATT}, V_{DDINT}	2.0	3.0	3.6	V_{DC}
Operation Temperature Rang	T_A	-10	25	60	°C
Operation Frequency	f	2.405		2.48	GHz
Transmit Center Frequency Tolerance		-40		+40	ppm

Characteristic (operating voltage=3.0V_{DC} ; temperature=25°C)

Characteristic	Min	Typ	Max	Unit
DC Electrical Characteristics				
Normal mode current	20		40	mA
Idle mode current	1		6	mA
Transmit				
Transmit Power	-4	0	3	dBm
Error Vector Magnitude (EVM) (over temp.)	---	18	35	
Receiver				
Sensitivity for 1% Packet Error Rate (PER)		-92	-86	dBm
Maximum Input Power			10	dBm
Channel Rejection for 1% PER (desired signal -82 dBm)				
+/-5 MHz (adjacent channel)		-40		dBm
+/-10 MHz (alternate channel)		-35		dBm
>= 15 MHz		-35		dBm
Energy Detect / Link Quality Indicator	-5		5	dB

2.5. Interface Definition

CON6

Pin	Pin Name
1	Reserve
2	RST_N
3	GND
4	RX (TBD)
5	TX (TBD)
6	Voltage input



2.6. RoHS Compliant

ZM108 is fully compliant to RoHS requirement.

2.7. EMI EMC Certifications

ZM108 is fully compliant with FCC, CE regulatory requirements.