MC26D-Operation Description

V1.0

Contents

1、 Bluetooth module

1. Purpose: The purpose of this document is to describe key component operations on Bluetooth.
2. Key components:

   U1- OM6626B QFN, A Single Chip Radio and baseband IC for Bluetooth 2.4GHz system, Bluetooth 5.3 low energy solution.

   J1 – ANT-PCB.

   X1-32MHz crystal providing high speed clock.
3. Operation Principle:

   VDD_BAT supply voltage: 1.8V to 3.6V

   Operating clock is provided by 32MHz crystal.

   Operating Temperature Range: -30°C --+70°C.

2、 Bluetooth Radio

1. On-chip balun (50Ω impedance in TX and RXmodes)

2. No external trimming is required in production
3. Bluetooth v5.3 specification compliant

3、 Bluetooth Transmitter

1. +4 dBm RF transmit power
2. No external power amplifier or TX/RX switch required

4、 Bluetooth Receiver

1. -95dBm sensitivity
2. Digital demodulator for improved sensitivity and co- channel rejection
3. Fast AGC for enhanced dynamic range

5、 Synthesizer

1. Fully integrated synthesizer requires no external VCO varactor diode, resonator or loop filter
2. Baseband and Software
3. Hardware MAC for all packet types enables packet handling without the need to involve the MCU

6、 Physical Interfaces

1. SPI master interface

2. SPI programming and debug interface
3. I²C
4. Digital PIOs
5. Analogue AIOs

7、 Auxiliary Features

1. Battery monitor
2. Power management features include software shutdown and hardware wake-up
3. Integrated switch-mode power supply
4. Linear regulator (internal use only)
5. Power-on-reset cell detects low supply voltage

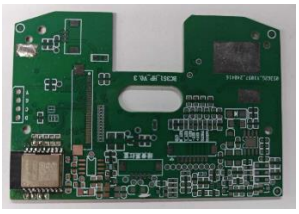
8、 Bluetooth Stack

OnMicro’ s Bluetooth Protocol Stack runs on-chip in a variety of configurations:

1. -Standard HCI (UART ,I2C or SPI)
2. -Fully embedded to RFCOMM
3. -Customized builds with embedded application code
4. -The module internal encapsulation AT command, through a serial port complete Bluetooth search, matching, and data transmission

9、 Usage scenarios

The module is mainly used for the display of Ebike and its installation position, as shown in the following figure:



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.

Any 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.

-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 module is intended for OEM integrators only.

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

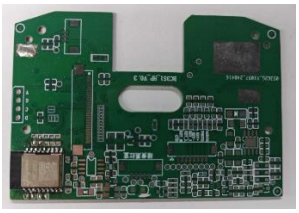
KDB 996369 D03 OEM Manual v01 rule sections:

2.2 List of applicable FCC rules

This module has been tested for compliance to FCC Part 15.247.

2.3 Summarize the specific operational use conditions

The module is mainly used for the display of Ebike and its installation position, as shown in the following figure:



2.4 Limited module procedures

not applicable

2.5 Trace antenna designs

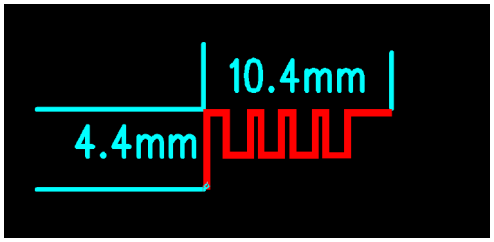
Not applicable.

2.6 RF exposure considerations

This equipment complies with FCC mobile radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. If the module is installed in a portable host, a separate SAR evaluation is required to confirm compliance with relevant FCC portable RF exposure rules.

2.7 Antennas

The following antennas have been certified for use with this module; antennas of the same type with equal or lower gain may also be used with this module. The antenna must be:



Frequency (MHz)	Effi(%)	Effi(dB)	Peak Gain
2400	42%	-3.8	1.0
2410	42%	-3.8	0.9
2420	44%	-3.5	1.0
2430	44%	-3.6	1.3
2440	45%	-3.5	1.3
2450	46%	-3.4	1.3
2460	43%	-3.7	1.5
2470	45%	-3.4	1.6
2480	42%	-3.8	1.8
2490	43%	-3.7	1.8
2500	42%	-3.8	1.9
Average	43%	-3.6	1.4

2.8 Label and compliance information

The final end product must be labeled in a visible area with the following: “Contains FCC ID: **2BRL3-MC26D**”. The grantee's FCC ID can be used only when all FCC compliance requirements are met.

2.9 Information on test modes and additional testing requirements

This transmitter is tested in a standalone mobile RF exposure condition and any co-located or simultaneous transmission with other transmitter(s) or portable use will require a separate class II permissive change re-evaluation or new certification.

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.

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.

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.

OEM/Host manufacturer responsibilities

OEM/Host manufacturers are ultimately responsible for the compliance of the Host and Module. The final product must be reassessed against all the essential requirements of the FCC rule such as FCC Part 15 Subpart B before it can be placed on the US market. This includes reassessing the transmitter module for compliance with the Radio and EMF essential requirements of the FCC rules. This module must not be incorporated into any other device or system without retesting for compliance as multi-radio and combined equipment