

WMDG-228 DISHCreek Module

User Manual

Version 0.1

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Revision History

[illegible]

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WMDG-228 Module

Feature Overview

- Form Factor
 - ✓ LGA2522: 25mm x 21.8mm
- RF
 - ✓ BAND: FDD Half duplex(LB+HB)
- SYSTEM
 - ✓ LTE Chipset: GDM7243i
 - ✓ Flash: Quad Flash(MX25U12835FXDI-10G)
 - ✓ USIM (1.8V and 3.0V)
 - ✓ USB/I2C/I2S/UART0123/ADC
 - ✓ SDIO/PWM/JTAG/GPIOs
 - ✓ BLE: Supported (SW disables BLE)

Manufacturing Process

This section describes board-level characterization process parameters. During board's reflow process, the temperature seen by the package must be controlled. The recommended peak temperature during production assembly is 245°C. This is comfortably above the solder melting point (217°C).

SMT process verification

Recommends verification of the SMT process prior to high-volume board assembly, including:

- Electrical continuity
- Visual and x-ray inspection after soldering to confirm adequate alignment, solder voids, solder-ball shape, and solder bridging.
- Cross-section inspection of solder joints to confirm registration, fillet shape, and print volume.

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.

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.

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.

Professional installation instruction

Please be advised that due to the unique function supplied by this product, the device is intended for use with our interactive entertainment software and licensed third-party only. The product will be distributed through controlled distribution channel and installed by trained professional and will not be sold directly to the general public through retail store.

1. Installation personal

This product is designed for specific application and needs to be installed by a qualified personal who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.

2. Installation location

The product shall be installed at a location where the radiating antenna can be kept 20cm from nearby person in normal operation condition to meet regulatory RF exposure requirement.

3. External antenna

Use only the antennas which have been approved by the applicant. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC/IC limit and is prohibited.

4. Installation procedure

Please refer to user's manual for the detail.

5. Warning

Please carefully select the installation position and make sure that the final output power does not exceed the limit set force in relevant rules. The violation of the rule could lead to serious federal penalty.

Integration instructions for host product manufacturers

Applicable FCC rules to module

FCC Part 27

Summarize the specific operational use conditions

The module is professional installed equipment and must be installed in mobile device.

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. 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.

Limited module procedures

The modular is professional installed equipment and must follow procedure of user manual to install and setup the module. Permissive change is required for SAR evaluation if the module is installed in portable device.

Trace antenna designs

Refer to trace antenna design document.

RF exposure considerations

20 cm separation distance and co-located issue shall be met as mentioned in "Summarize the specific operational use conditions".

Product manufacturer shall provide below text in end-product manual

"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.

Antennas

Dipole antenna with 1.23 dBi gain, SMA connector

Label and Compliance Information

Product manufacturers need to provide a physical or e-label stating “Contains FCC ID: MXFGCM7243IDS-APB” with finished product.

Information on Test Modes and Additional Testing Requirements

Simulator is required to link up and set the module to transmit at specific frequency, output power level under operation mode.

Additional Testing, Part 15 Subpart B Disclaimer

The module is only FCC authorized for the specific rule parts listed 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.