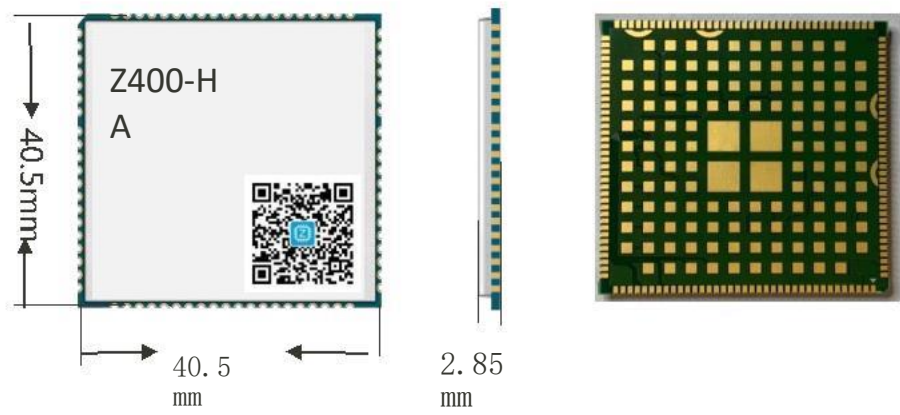


Z400-H

Z500-H

Smart LTE Module

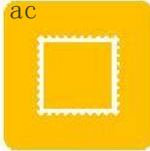


The Z400\500-H3 series core board adopts MT8766/ MT8768 main control of MTK. The CPU adopts 12nm process, 64-bit ARM and 4-core A53 (4*2.0GHz), support Decode/ ENCODE up to 1080P@30fps, H.264, support FHD screen resolution, support two ISP camera Head, Android 12 operating system, board memory for EMCP design, support LPDDR3. Supports LTE Cat4 with maximum downlink speed 150Mbps with a maximum uplink rate of 50Mbps. Support TD-LTE/FDD-LTE/WCDMA/TD-SCDMA/GSM network standards, set It's GNSS and 2.4&5G WIFI.

The Z400\500H provides voice, SMS, address book, 2.4G/5G WiFi, BT and GPS functions; With interfaces such as MIPI_DSI/CSI /UART/SPI/I2C/GPIO/USB, it can be widely used in intelligent POS cash register, law enforcement instrument, logistics terminal, intelligent robot, video security monitoring, vehicle equipment, intelligent information collection equipment, intelligent identity verification terminal, intelligent code scanning terminal and other products.

performance parameter

- 1, Supports LTE Cat 4 with a maximum downlink rate of 150Mbps
- 2, Comprehensive coverage of each network system, double card double wait
- 3, Integrated multi-constellation GNSS receiver to meet the needs of fast and accurate positioning in different environments

 MTK 4* CA53 , 2. 0GHz	 FHD 1080P	 Android 12
 C 150Mbps 50Mbps (UL)	 BT 5.0 (BR/DDR+B LE)	 IEEE 802 11 a/b/g/n/ ac
 GPS+BeiD ou+ GLONAS	 H. 2 64 HEVC, VP8	 LCC+ LGA

LTE FDD:
B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71
LTE TDD: B38/B41
WCDMA: B2/B4/B5
GSM:850/1900MHz

LTE:
Cat4 FDD:MAX 150Mbps (DL)/50Mbps (UL)
Cat4 TDD:MAX 117Mbps (DL)/30Mbps (UL)
WCDMA:
MAX 384Kbps (DL/UL)/384Kbps (UL)
DC-HSPA+:MAX
21Mbps(DL)/5.76Mbps(UL)
GSM:
GPRS:MAX 85.6Kbps (DL)/85.6Kbps (UL)
EDGE:MAX 236.8Kbps (DL)/236.8Kbps(UL)

output power:

Class 3 (33dBm±2dB) for GSM850
Class 3 (33dBm±2dB) for EGSM900
Class 3 (30dBm±2dB) for DCS1800
Class 3 (30dBm±2dB) for PCS1900
Class 3 (27dBm±3dB) for GSM850 8-PSK
Class 3 (27dBm±3dB) for EGSM900 8-PSK
Class 3 (26dBm±3dB) for DCS1800 8-PSK
Class 3 (26dBm±3dB) for PCS1900 8-PSK
Class 3 (24dBm+1/-3dB) for WCDMA
bands
Class 3 (24dBm+1/-3dB) for TD-SCDMA
bands
Class 3 (23dBm+1/-2.7dB) for LTE-FDD
bands
Class 3 (23dBm+1/-2.7dB) for LTE-TDD
bands
WLAN: 2.4G/5G, 802.11a/b/g/n/ac
bluetooth: BT2.1+EDR/3.0/4.1 LE/4.2
BT5.0
GNSS: GPS/GLONASS/BeiDou

electric parameter
supply voltage:3.55V~4.4V, typical value 3.8V

Video:
1080p30, H.264, H.265, VP8
Audio:
G711; Raw PCM; QCELP; EVRC;
EVRC-B、
EVRC-WB; AMR-NB、AMR-WB; GSM-EFR、GSM-FR、GSM
HR MP3; aacPlus; eAAC, AMR-NB;
AMR-WB;
port:
LCM: 4-lane MIPI_DSI FHD(1920*1080) 60fps
Camera: 4-lane MIPI_CSI

highest rate : 2.1Gbps/Lane;
Audio : Analog audio: speaker, receiver, headset, 2 groups Microphone One group of noise cancelling microphones is supported.

USB:Complies with USB2.0 specifications and supports USB OTG .

I2C interface: supports a maximum of 5 groups.

(U)SIM: 2 groups (1.8V/2.95V)

UART: Supports a maximum of 2 groups (supports hardware flow control, with a maximum speed of 4Mbps)
SD card interface: 1 group (supports SD 3.0, 4-BitsDIO)
PWRKEY: 1.8V, internal pull up
Antenna ports: main antenna, diversity antenna, GNSS antenna, Wi-Fi and BT antenna ports

Supports diversity receiver antennas and MIMO 2×2 downlink

Support 3GPP E-UTRA Release 12

MHZ bandwidth: 1.4/3/5/10/15/20

Operating system: Android 12

Operating temperature range: -30°C to +75°C

Storage temperature range: -40°C to +85°C

Module dimensions: 40.5mm x 40.5mm x 2.85mm

Encapsulation: LCC+LGA encapsulation

Weight: about 13.0g

1.Integration instructions for host product manufacturers according to KD B 996369 D03 OEM Manual v01

2.2List of applicable FCC rules.

Part 15C,15E,22H,24E,27

2.3 Specific operational use conditions

Operating Frequency: part 2.3.1

Z400-H Is a universal Smart LTE Module, with the industry's competitive package size and ultra-low energy consumption technology, designed for mobile devices and Internet of Things applications, Users can connect to the network through GSM, WCDMA, LTE WIFI, network communication, networking functions.

To maintain compliance with FCC RF exposure requirements, Please use the antenna provided with the product.

2.4 Limited Module Procedures. KDB 996369 D03, Section 2.4

not applicable .Please refer to the manual for usage scenarios Single Modular Approval Request

2.5Trace antenna designs. KDB 996369 D03, Section 2.5

not applicable .without trace antenna

Trace loss

Frequency	Loss
2400MHz-2500MHz	1dB
5150MHz-5850MHz	2dB

To facilitate the antenna tuning and certification test, a RF connector and an antenna matching circuit should be added. The following figure is the recommended circuit.

The module needs to be attached to the PCB board and connected to the external antenna

through the solder joint of the circuit on the PCB. A resistance of 0R is added between the module and the antenna at E1 to ensure that the impedance of the connection between the module and the antenna reaches 50R.The ANT1 position on the PCB is where the external antenna is connected.

The antenna line distribution circuit please see page6

2.6 RF exposure considerations.

RF exposure requirements are fulfilled for mobile configuration. This equipment should be installed and operated with minimum distance between 20cm the radiator your body

The installation of the module is restricted to mobile host devices

For portable applications OEM integrators need SAR evaluation and an own FCC ID.

2.7 Antennas.

The module comes with permanently attached External antennas. The spurious emission requirements are fulfilled.

BT/2.4G WIFI: 1.45 dBi; 5G WIFI: 3.86 dBi; GSM/WCMDA/LTE: 1 dBi;

2.8 Label and compliance information.

See Guidelines for Labeling and User Information for RF Devices –KDB Publication 784748.host product manufacturers that they need to provide a physical or e-label stating “Contains FCC ID 2A9FT-Z400H ” with their finished product.

2.9 Information on test modes and additional testing requirements.

The test mode in the report is the module's maximum transmitting power emission for testing

Test modes should take into consideration different operational conditions for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product.

2.10 Additional testing, Part 15 Subpart B disclaimer

the modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) 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.

If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains

unintentional-radiator digital circuitry), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

2.11 OEM integration instructions:

This device is intended only for OEM integrators under the following conditions: The transmitter module may not be co-located with any other transmitter or antenna. The module shall be only used with the external antenna(s) that has been originally tested and certified with this module. As long as the 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 (for example, digital device emissions, PC peripheral requirements, etc.).

2.12 Validity of using the module certification:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot 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.

FCC WARNING

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.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

15.105 Information to the user.

(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

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 20 cm between the radiator and your body.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

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

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination.

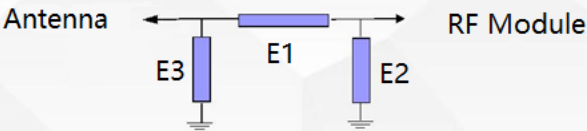
The firmware setting is not accessible by the end user.

The final end product must be labelled in a visible area with the following:

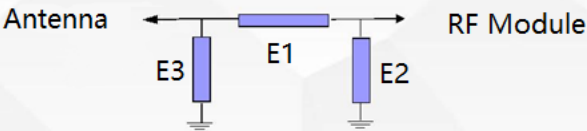
“Contains Transmitter Module 2A9FT-Z400H”

The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems

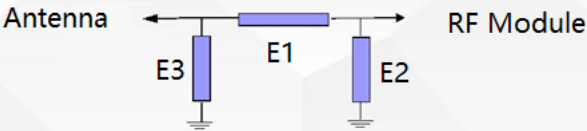
The antenna line distribution circuit



DRX	Element	Value	
	E1(0402)	0R	
	E2(0402)	NA	
	E3(0402)	NA	



PRX	Element	Value	
	E1(0402)	0R	
	E2(0402)	NA	
	E3(0402)	NA	



WIFI	Element	Value	
	E1(0402)	0R	
	E2(0402)	NA	
	E3(0402)	NA	