



Cohda Wireless™

MK4a V2X Evaluation Kit

Field-proven, market-ready reference design for complete V2X systems

Description

The 4th generation V2X system from Cohda Wireless, the MK4a is a mature product, ready to be used in large scale field trials, aftermarket deployments, or serve as a reference design for automotive production. It is a small, low cost module, and incorporates dual IEEE 802.11 radios, a powerful processor running V2X software stacks and applications, a GNSS positioning system providing lane-level accuracy, and V2X security with hardware acceleration and tamper-proof key storage.

The MK4a is based upon the automotive-grade RoadLink™ chipset developed by NXP/Cohda, and has unmatched radio performance in harsh outdoor, mobile environments – particularly in critical safety use-case scenarios.

Applications

- Traffic signal priority for transit and emergency vehicles
- Situational awareness for mine safety
- Improved traffic flow and intersection safety for heavy vehicles
- Test beds and large scale V2X field operational trials
- Series-production reference design for the NXP/Cohda RoadLink™ chip set

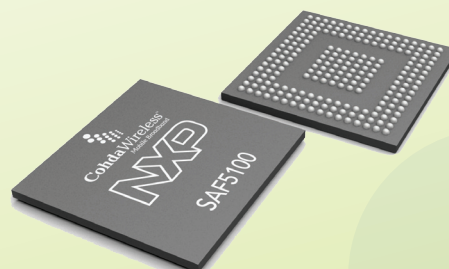


Features

- Small size & low cost
- Embedded processor with SDK
- Embedded GNSS with dead reckoning
- IEEE 802.11p Access Layer
- IEEE 1609 Network Layer software
- ETSI TC-ITS Network Layer software
- V2X Facilities Layer software
- V2X Applications Layer software
- Japanese 760 MHz (ARIB STD-T109)
- Standard WiFi (IEEE 802.11an)
- Dual or single antenna operation
- Dual or single radio operation
- Outstanding performance under outdoor, mobile conditions
- Security co-processor with tamper-proof key storage
- USB 2.0 host and OTG interfaces
- Dual CAN bus interfaces
- Gigabit Ethernet interface
- 12V & 24V Operation
- Available in NEMA2 OBE enclosure
- Available in NEMA4 RSE enclosure



RoadLINK

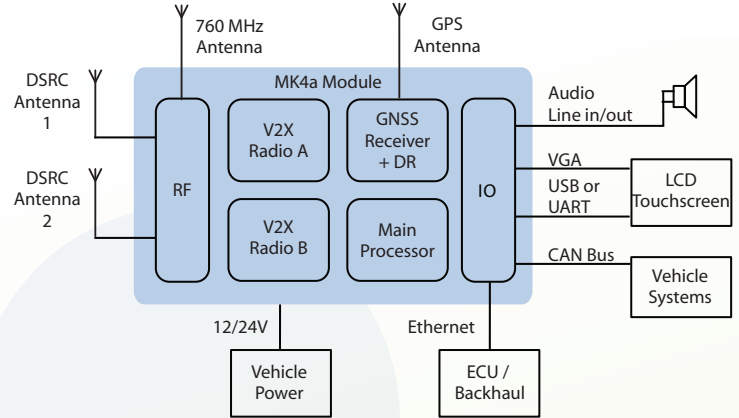




Functional Description

The MK4a V2X Module is compliant with European, US, and Japanese vehicle-to-vehicle and vehicle-to-infrastructure standards. It is based upon an IEEE 802.11p Access Layer with best-in-world performance, and also supports WiFi. It incorporates field-proven Network Layer, Facilities Layer, and Applications Layer software libraries. In addition, the Software Development Kit allows users to develop their own applications and customize the system. The GNSS positioning system incorporates dead reckoning sensors and supports multiple satellite constellations simultaneously. A security co-processor provides hardware acceleration for signature verification and tamper-proof private key storage.

The MK4a has a powerful embedded multi-core 1GHz ARM Cortex-A9 processor running Linux with USB 2.0, Ethernet, HDMI and CAN interfaces. Both on-board and road-side enclosures are available.



The use of a MK4a V2X Module in V2V or V2I applications will result in performance improvements such as:

- Greatly improved range, particularly in Non-Line-of-Sight conditions
- Performance independent of vehicle speed or packet length
- Full transmit and receive diversity
- Tamper-proof storage of security keys
- Vehicle positioning with lane-level accuracy, even in challenging urban environments

Specifications

Standards Conformance

IEEE 802.11p - 2010
 IEEE 802.11an - 2012
 ETSI ES 202 663
 IEEE 1609 - 2010
 ARIB STD - T109 - 2012
 SAE J2735 - 2009

Bandwidths

10 MHz

Data Rates

3 - 54 Mbps

Operating System

Linux 3.4

Antenna Diversity

CDD Transmit Diversity
 MRC Receive Diversity

Receiver Sensitivity

-100 dBm @ 3 Mbps

Environmental Operating Ranges

-40° to 85° C

Frequency Bands

760 MHz, 2.4 GHz, 5 GHz

Max Tx Power

+24 dBm (ETSi Mask C)

GNSS

1.5 m Accuracy

Mobility & Multipath Tolerance

Doppler Spread: 800 km/hr
 Delay Spread: 1500ns

Dimensions

100 x 80 x 25 mm

Power Supply

12/24V, 10W (Dual Radio configuration)

Specifications subject to change without notice

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