

MWC415 User Manual

60GHz RF/BB Module with USB3.0 interface

Rev. 1.0

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Revision History

Date	Written by	Rev.	Description
20.006.17	Ken. Jung	1.0	MWC415 User manual .1.0 Release

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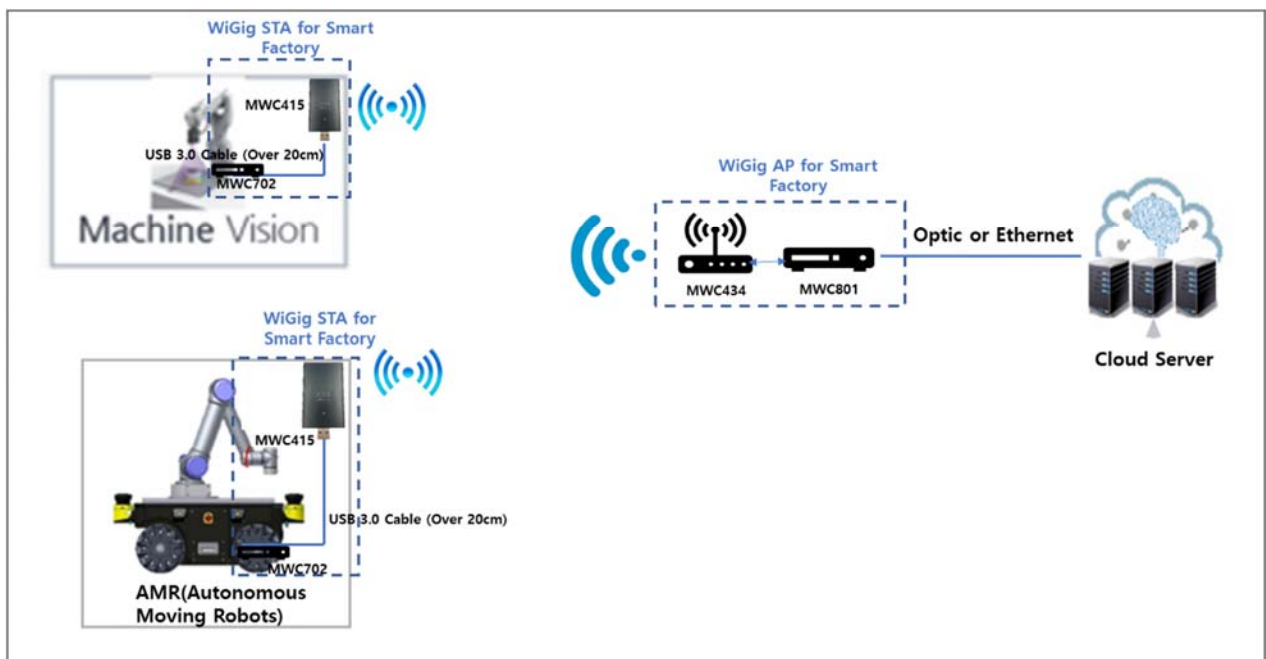
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1.Introduction

1.1 Overview

Miliwave's MWC415 module operates in the 60GHz unlicensed frequency band, IEEE802.11ad compliant, and is designed for only using for Smart Factory IoT Applications(ex. AMR(Autonomous Moving Robot, Machine Vision Camera) with Point to Multi-Pont (PTMP) or Point to Point (PTP) bridge wireless communication, primarily for Line-of Sight (LOS) operation. The MWC415 module connects to a Linux based Host Communication Processor board via an available USB 3.0 port . All required drivers and firmware is pre-installed on the MWC415 module as a self-contained device . However, the MWC415 module would not be operational unless it is connected to the Linux-based Host Communication Processor board for PTP or PTMP bridge wireless communication.



< Figure 1. MWC415 Use Case for Smart Factory(ex. AMR, Machine Vision Camera)>

For more information, please contact your Miliwave (sales@miliwave.co.kr)

1.2 Abbreviations and Acronym Definitions

Acronym	Definition
Gbps	Giga bits per second
GHz	Giga Hertz
IEEE	Institute of Electrical and Electronics Engineers
LED	Light Emitting Diode
LoS	line-of-sight
Mbps	Mega bits per second
MCS	Modulation and Coding Scheme
MHz	Mega Hertz
PTMP	Point-to-multipoint Communication
QAM	Quadrature amplitude modulation



<Figure 2. MWC415>

1.3 MWC415 Module Description

The Miliwave's MWC415 module in conjunction with the Host Communication Processor board can function as a PTP or PTMP wireless bridge communication . Main chracteristics of the MWC415 module include:

- Adaptive Modulation and Link Adaptation: Up to 16QAM and MCS1-12 support
- Integrated Phased Array Planar Antena: EIRP 16dBm, 120 degree beam sweep range
- Advanced Security: AES-128
- Compact Form Factor: 37 x14 x 72mm

- Connectivity: USB 3.0 type A, 60GHz wireless

2. Technical Specifications

- Aggregate capacity: 1.0Gbps uni-directional, 2.0 Gbps bi-directional
- Latency : less than 1 millisecond round-trip
- Security: AES-128
- I/O interface: USB 3.0(Type Micro-A)
- Other Interface: LEDs indicators for connection status

3.0 Radio Specifications

- Modulation : Single Carrier(SC)
- Time Division Duplex
- Frequencies: 59.40 ~ 61.56GHz(Ch.2)
- Channel Bandwidth: 2.16 GHz
- Antenna: Double Side Dipoles(DSD) 2 or 4 elements Phased Arrays to Scan over 240 degrees in azimuth
- EIRP: 16 dBm

4.0 Mechanical, Power and Environmental Specification

- Dimension(L x W x H): 37 x 14 x 72mm
- Weight: 27g
- Power Consumption: 4W(Max)
- Operating Temperature: -40°C ~ +85°C
- Humidity: 5%~95%

5.0 Module Throughput

- MCS Index : 0~12,
- Modulation: BPSK, QPSK, 16QAM
- Data Rate : Max PHY rate 4620 Mbit/s

6.0 Installation

The MWC415 could only be installed with Host Communication Processor board at the factory level.

There is no user serviceable parts in the MWC415 module

7.0 FCC Statement

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.

The antenna(s) must be installed such that a minimum separation distance of at least 20 cm is maintained between the radiator (antenna) and all persons at all times.

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.