

MWC-441 User Manual

airPATH 60 TWIX

Rev. 1.0

2025.06

Revision History

Date	Written by	Rev.	Description
25.06	Sun.Lee	1.0	MWC-2143 User manual v1.0 release

Address: Room 504, 106-40 Gwahakdnji-ro, Gangneung-si, Gangwon-do.
25440 KOREA.

<http://www.miliwave.co.kr/>
Tel. 070-8825-0630
Fax.
Email: sales@miliwave.co.kr

Copyright © Miliwave Inc. 2025. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Miliwave Co., Ltd. All specification supplied herein are subject to change without notice at any time.

1.Introduction

1.1 Overview

Miliwave's MWC-441 model operates in the 60GHz unlicensed frequency band, IEEE802.11ad compliant, and is designed for wireless bridge communication, primarily for Line-of Sight (LOS) operation.

The MWC-441 model connects to a Linux based Host Communication Processor board via an available USB3.0 connector. All required drivers and firmware is pre-installed on the MWC-441 model as a self-contained device .

However, the MWC-441 model would not be operational unless it is connected to the Host Communication Processor board for wireless bridge communication.



<Figure 1. MWC-441>

For more information, please contact Miliwave (sales@miliwave.net)

1.2 Abbreviations and Acronym Definitions

Acronym	Definition
Gbps	Giga bits per second
Mbps	Mega bits per second
GHz	Giga Hertz
IEEE	Institute of Electrical and Electronics Engineers
LED	Light Emitting Diode
Los	Line of Sight
MCS	Modulation and Coding Scheme
MHz	Mega Hertz
PTP	Point to Point Communication
QAM	Quadrature amplitude modulation

1.3 MWC-441 Model Description

The Miliwave's MWC-441 model in conjunction with the Host Communication Processor board can function as wireless bridge communication. Main characteristics of the MWC-441 model include:

- Adaptive Modulation and Link Adaptation: Up to 16QAM and MCS0-12 support
- Transmit power : EIRP max 25 dBm
- Beam Steering Range : $\pm 140^\circ$ (E-plane),
- Advanced Security: AES-128
- Connectivity: USB3.0

2. Technical Specifications

- Capacity: Max 2.5Gbps
- Latency : less than 1 millisecond round-trip
- Security: AES-128
- I/O interface: USB3.0

3.0 Radio Specifications

- Access Technology: Single Carrier beam-forming physical layer
- Frequencies: 57.24GHz ~ 65.88GHz (CH1~CH4)
- Channel Bandwidth: 2160 MHz
- Antenna: PCB Antenna
- EIRP: max 25 dBm

4.0 Mechanical, Power and Environmental Specification

- Dimension: 37mm x 14mm x 72mm
- Weight: 27g
- Power Consumption: 3.5W(Max)
- Operating Temperature: $-20^\circ\text{C} \sim +70^\circ\text{C}$
- Humidity: 5%~95%

5.0 Throughput

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

6.0 Installation

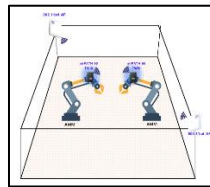
The MWC-441 could only be installed with Host Communication Processor board at the factory level. There is no user serviceable parts in the MWC-441 model.

The MWC-441 model would not be operational unless it is connected to the Host Communication Processor board for wireless bridge communication.

To connect to the host communication processor board, connect through the MWC-441 model USB3.0 port.

Note:

The MWC-441 model can be connected to the external USB 3.0 port of the smart factory utility (for Machine Vision and AMM (autonomous mobile robot), etc) and can configure wireless communication.



<Figure 2. Use case example>

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.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.

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