

## JustWiFi<sup>7</sup>™ - Cat8

Tri-Band WiFi 7 (802.11be) Embedded Board  
 Qualcomm's IPQ5322 SoC with QCN6274 Radio  
 2x2 MU-MIMO 2.4GHz, 5GHz, and 6GHz

### Model: WPM530RJ



#### KEY FEATURES

- Qualcomm IPQ5322 Quad-Core Cortex-A53 @ 1.5GHz processor
- Qualcomm QCN6274 'Waikiki' series WiFi 7 (802.11a/b/g/n/ac/ax/be)
- 2.4GHz, 2x2 MU-MIMO, up to 688Mbps physical data rate
- 5GHz, 2x2 MU-MIMO, up to 4324Mbps physical data rate
- 6GHz, 2x2 MU-MIMO, up to 5765Mbps physical data rate
- Concurrent Tri-Band 2.4+5+6GHz WiFi 7
- 1x 10Gbps Ethernet port
- USB-C PD support. Can be powered from a 25W phone charger
- Easymesh implemented in FW
- Supports long-range wireless deployment with adjustable ACK timeout

#### APPLICATIONS

- 802.11be MU-MIMO OFDMA Access Point
- Internet of Things (IoT)
- Miniature size for easy mounting/integration in AI in-premise servers, security gateways, or application as standalone triband APs or mesh nodes.

## Specifications

Chipset	Qualcomm IPQ5322 Quad-Core Cortex-A53 @ 1.5GHz processor 'Miami' Series QCN6274 'Waikiki' series for radio
Reference Design	Qualcomm AP.MI01.2+WK01.7
System Memory	512MB, DDR4 16-bit (1x16-bit) interface
Flash	NAND: 128MB NOR: 4MB / 8MB
On board radio	3 radios (Tri band concurrent radio)
Wireless	On-board 2x2 2.4GHz MU-MIMO OFDMA 802.11b/g/n/ax/be, max 22 dBm per chain On-board 2x2 5GHz MU-MIMO OFDMA 802.11a/n/ac/ax/be, max 17 dBm per chain On-board 2x2 6GHz MU-MIMO OFDMA 802.11ax/be, max 17 dBm per chain
Frequency Range	2.4GHz: 2.412~2.472GHz 5GHz: 5.180~5.825GHz 6GHz: 5.945~7.125GHz
Modulation Techniques	OFDMA: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM, 4096-QAM
Channel Spectrum Widths for WLAN	Supports 20/40MHz at 2.4GHz Supports 20/40/80/160/240MHz at 5GHz Supports 20/40/80/160/320MH at 6GHz
Interfaces	1x USB Type-C port (power supply only) 1x 10 Gigabit Ethernet LAN/WAN port (RJ45) 1x Serial Interface 1x Reset Button 1x USB_Boot 2x U.FL Connectors 1x Bluetooth (BT)
Operating Voltage	5V
Power Consumption	18W (max)
Certification	REACH & RoHS Compliance

Continued on Page 2 ...

## Specifications

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Environmental Humidity, Non-Condensing	Operating: 5% to 95%, Storage: Max. 90%
Temperature Range	Operating: -20°C to 50°C, Storage: -40°C to 90°C
Supports Dynamic Frequency Selection (DFS)	YES
Dimensions (W x H x D) in mm	87 x 56 x 30.5 mm

\*Configurations are subject to change without notifications.

## RF Performance Table for 2.4GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
2.4GHz 802.11be EHT20	MCS 0	22dBm	25dBm	±2dB
	MCS 1	22dBm	25dBm	±2dB
	MCS 2	21dBm	24dBm	±2dB
	MCS 3	20dBm	23dBm	±2dB
	MCS 4	19dBm	22dBm	±2dB
	MCS 5	19dBm	22dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	18dBm	21dBm	±2dB
	MCS 8	17dBm	20dBm	±2dB
	MCS 9	17dBm	20dBm	±2dB
	MCS 10	16dBm	19dBm	±2dB
	MCS 11	16dBm	19dBm	±2dB
	MCS 12	15dBm	18dBm	±2dB
	MCS 13	15dBm	18dBm	±2dB
2.4GHz 802.11be EHT40	MCS 0	22dBm	25dBm	±2dB
	MCS 1	22dBm	25dBm	±2dB
	MCS 2	21dBm	24dBm	±2dB
	MCS 3	20dBm	23dBm	±2dB
	MCS 4	19dBm	22dBm	±2dB
	MCS 5	19dBm	22dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	18dBm	21dBm	±2dB
	MCS 8	17dBm	20dBm	±2dB
	MCS 9	17dBm	20dBm	±2dB
	MCS 10	16dBm	19dBm	±2dB
	MCS 11	16dBm	19dBm	±2dB
	MCS 12	15dBm	18dBm	±2dB
	MCS 13	15dBm	18dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11be EHT20	MCS 0	-94dBm	±2dB
	MCS 1	-91dBm	±2dB
	MCS 2	-88dBm	±2dB
	MCS 3	-86dBm	±2dB
	MCS 4	-83dBm	±2dB
	MCS 5	-79dBm	±2dB
	MCS 6	-77dBm	±2dB
	MCS 7	-75dBm	±2dB
	MCS 8	-72dBm	±2dB
	MCS 9	-70dBm	±2dB
	MCS 10	-67dBm	±2dB
	MCS 11	-65dBm	±2dB
	MCS 12	-	±2dB
	MCS 13	-	±2dB
2.4GHz 802.11be EHT40	MCS 0	-91dBm	±2dB
	MCS 1	-88dBm	±2dB
	MCS 2	-85dBm	±2dB
	MCS 3	-83dBm	±2dB
	MCS 4	-80dBm	±2dB
	MCS 5	-77dBm	±2dB
	MCS 6	-75dBm	±2dB
	MCS 7	-72dBm	±2dB
	MCS 8	-68dBm	±2dB
	MCS 9	-66dBm	±2dB
	MCS 10	-64dBm	±2dB
	MCS 11	-61dBm	±2dB
	MCS 12	-	±2dB
	MCS 13	-	±2dB

## RF Performance Table for 5GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
5GHz 802.11be EHT20	MCS 0	17dBm	20dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	15dBm	18dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	14dBm	17dBm	±2dB
	MCS 9	13dBm	16dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB
5GHz 802.11be EHT40	MCS 13	11dBm	14dBm	±2dB
	MCS 0	17dBm	20dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	15dBm	18dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	14dBm	17dBm	±2dB
	MCS 9	13dBm	16dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB
MCS 12	11dBm	14dBm	±2dB	
MCS 13	11dBm	14dBm	±2dB	
5GHz 802.11be EHT80	MCS 0	16dBm	19dBm	±2dB
	MCS 1	16dBm	19dBm	±2dB
	MCS 2	16dBm	19dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	15dBm	18dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	15dBm	18dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB
	MCS 9	12dBm	15dBm	±2dB
	MCS 10	11dBm	14dBm	±2dB
	MCS 11	11dBm	14dBm	±2dB
	MCS 12	10dBm	13dBm	±2dB
MCS 13	10dBm	13dBm	±2dB	

	Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11be EHT20	MCS 0	-92dBm	±2dB
	MCS 1	-89dBm	±2dB
	MCS 2	-86dBm	±2dB
	MCS 3	-83dBm	±2dB
	MCS 4	-80dBm	±2dB
	MCS 5	-75dBm	±2dB
	MCS 6	-74dBm	±2dB
	MCS 7	-73dBm	±2dB
	MCS 8	-69dBm	±2dB
	MCS 9	-67dBm	±2dB
	MCS 10	-64dBm	±2dB
	MCS 11	-62dBm	±2dB
	MCS 12	-57dBm	±2dB
5GHz 802.11be EHT40	MCS 13	-56dBm	±2dB
	MCS 0	-89dBm	±2dB
	MCS 1	-86dBm	±2dB
	MCS 2	-84dBm	±2dB
	MCS 3	-81dBm	±2dB
	MCS 4	-77dBm	±2dB
	MCS 5	-73dBm	±2dB
	MCS 6	-71dBm	±2dB
	MCS 7	-70dBm	±2dB
	MCS 8	-66dBm	±2dB
	MCS 9	-64dBm	±2dB
	MCS 10	-61dBm	±2dB
	MCS 11	-59dBm	±2dB
MCS 12	-56dBm	±2dB	
MCS 13	-54dBm	±2dB	
5GHz 802.11be EHT80	MCS 0	-86dBm	±2dB
	MCS 1	-82dBm	±2dB
	MCS 2	-80dBm	±2dB
	MCS 3	-77dBm	±2dB
	MCS 4	-74dBm	±2dB
	MCS 5	-70dBm	±2dB
	MCS 6	-68dBm	±2dB
	MCS 7	-67dBm	±2dB
	MCS 8	-64dBm	±2dB
	MCS 9	-62dBm	±2dB
	MCS 10	-59dBm	±2dB
	MCS 11	-58dBm	±2dB
	MCS 12	-55dBm	±2dB
MCS 13	-53dBm	±2dB	

## RF Performance Table for 5GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
5GHz 802.11be EHT160	MCS 0	16dBm	19dBm	±2dB
	MCS 1	16dBm	19dBm	±2dB
	MCS 2	16dBm	19dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	15dBm	18dBm	±2dB
	MCS 5	14dBm	17dBm	±2dB
	MCS 6	13dBm	16dBm	±2dB
	MCS 7	12dBm	15dBm	±2dB
	MCS 8	11dBm	14dBm	±2dB
	MCS 9	10dBm	13dBm	±2dB
	MCS 10	9dBm	12dBm	±2dB
	MCS 11	9dBm	12dBm	±2dB
	MCS 12	8dBm	11dBm	±2dB
	MCS 13	8dBm	11dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11be EHT160	MCS 0	-84dBm	±2dB
	MCS 1	-80dBm	±2dB
	MCS 2	-78dBm	±2dB
	MCS 3	-75dBm	±2dB
	MCS 4	-72dBm	±2dB
	MCS 5	-67dBm	±2dB
	MCS 6	-66dBm	±2dB
	MCS 7	-65dBm	±2dB
	MCS 8	-61dBm	±2dB
	MCS 9	-60dBm	±2dB
	MCS 10	-56dBm	±2dB
	MCS 11	-53dBm	±2dB
	MCS 12	-52dBm	±2dB
	MCS 13	-51dBm	±2dB

COMPEX SYSTEMS  
PRELIMINARY

## RF Performance Table for 6GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
6GHz 802.11be EHT20	MCS 0	17dBm	20dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB
	MCS 5	16dBm	19dBm	±2dB
	MCS 6	15dBm	18dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB
	MCS 9	12dBm	15dBm	±2dB
	MCS 10	11dBm	14dBm	±2dB
	MCS 11	11dBm	14dBm	±2dB
	MCS 12	10dBm	13dBm	±2dB
	MCS 13	10dBm	13dBm	±2dB
6GHz 802.11be EHT40	MCS 0	16dBm	19dBm	±2dB
	MCS 1	16dBm	19dBm	±2dB
	MCS 2	16dBm	19dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	15dBm	18dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB
	MCS 9	12dBm	15dBm	±2dB
	MCS 10	11dBm	14dBm	±2dB
	MCS 11	11dBm	14dBm	±2dB
	MCS 12	10dBm	13dBm	±2dB
	MCS 13	10dBm	13dBm	±2dB
6GHz 802.11be EHT80	MCS 0	16dBm	19dBm	±2dB
	MCS 1	16dBm	19dBm	±2dB
	MCS 2	16dBm	19dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	15dBm	18dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB
	MCS 9	12dBm	15dBm	±2dB
	MCS 10	11dBm	14dBm	±2dB
	MCS 11	11dBm	14dBm	±2dB
	MCS 12	10dBm	13dBm	±2dB
	MCS 13	10dBm	13dBm	±2dB

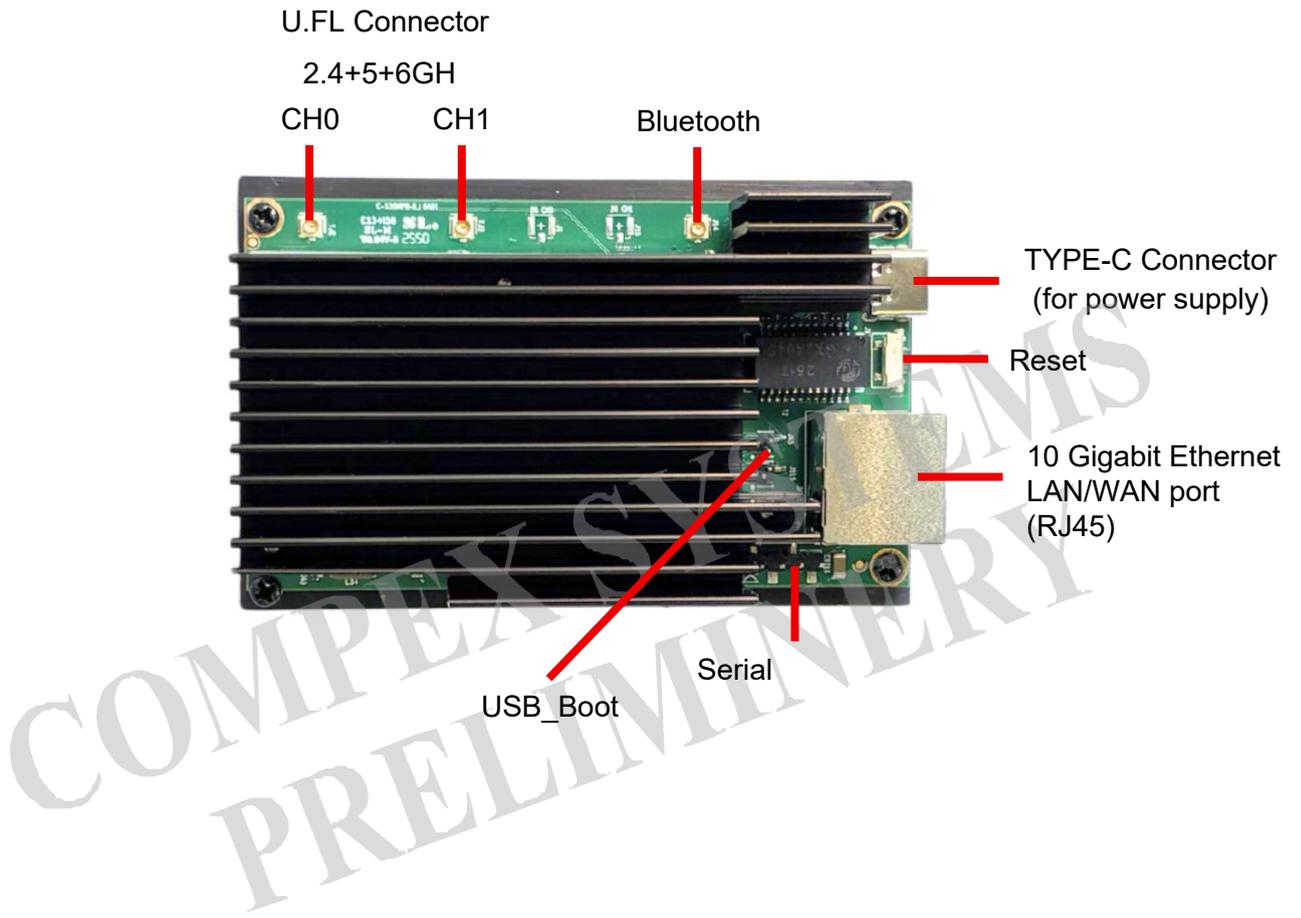
	Data Rate	RX Specifications Sensitivity	Tolerance
6GHz 802.11be EHT20	MCS 0	-90dBm	±2dB
	MCS 1	-88dBm	±2dB
	MCS 2	-85dBm	±2dB
	MCS 3	-83dBm	±2dB
	MCS 4	-79dBm	±2dB
	MCS 5	-75dBm	±2dB
	MCS 6	-74dBm	±2dB
	MCS 7	-72dBm	±2dB
	MCS 8	-69dBm	±2dB
	MCS 9	-67dBm	±2dB
	MCS 10	-63dBm	±2dB
	MCS 11	-62dBm	±2dB
	MCS 12	-58dBm	±2dB
	MCS 13	-56dBm	±2dB
6GHz 802.11be EHT40	MCS 0	-87dBm	±2dB
	MCS 1	-86dBm	±2dB
	MCS 2	-83dBm	±2dB
	MCS 3	-80dBm	±2dB
	MCS 4	-77dBm	±2dB
	MCS 5	-72dBm	±2dB
	MCS 6	-71dBm	±2dB
	MCS 7	-70dBm	±2dB
	MCS 8	-66dBm	±2dB
	MCS 9	-64dBm	±2dB
	MCS 10	-61dBm	±2dB
	MCS 11	-59dBm	±2dB
	MCS 12	-55dBm	±2dB
	MCS 13	-54dBm	±2dB
6GHz 802.11be EHT80	MCS 0	-85dBm	±2dB
	MCS 1	-83dBm	±2dB
	MCS 2	-81dBm	±2dB
	MCS 3	-78dBm	±2dB
	MCS 4	-75dBm	±2dB
	MCS 5	70dBm	±2dB
	MCS 6	-69dBm	±2dB
	MCS 7	-67dBm	±2dB
	MCS 8	-64dBm	±2dB
	MCS 9	-62dBm	±2dB
	MCS 10	-58dBm	±2dB
	MCS 11	-56dBm	±2dB
	MCS 12	-54dBm	±2dB
	MCS 13	-52dBm	±2dB

## RF Performance Table for 6GHz

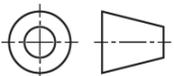
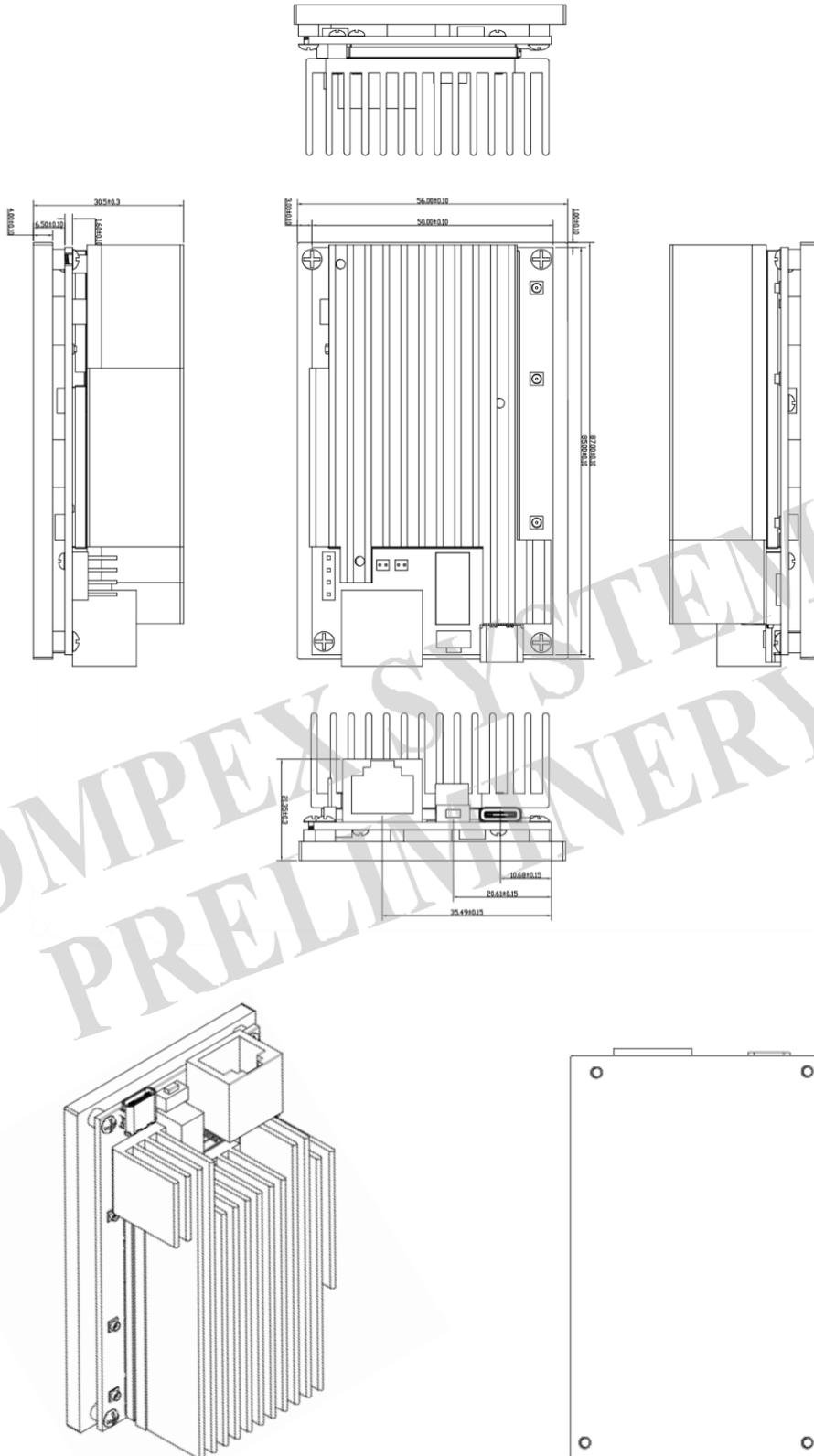
	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
6GHz 802.11be EHT160	MCS 0	15dBm	18dBm	±2dB
	MCS 1	15dBm	18dBm	±2dB
	MCS 2	15dBm	18dBm	±2dB
	MCS 3	15dBm	18dBm	±2dB
	MCS 4	14dBm	17dBm	±2dB
	MCS 5	13dBm	16dBm	±2dB
	MCS 6	13dBm	16dBm	±2dB
	MCS 7	13dBm	16dBm	±2dB
	MCS 8	12dBm	15dBm	±2dB
	MCS 9	11dBm	14dBm	±2dB
	MCS 10	10dBm	13dBm	±2dB
	MCS 11	10dBm	13dBm	±2dB
	MCS 12	9dBm	12dBm	±2dB
	MCS 13	9dBm	12dBm	±2dB
6GHz 802.11be EHT320	MCS 0	15dBm	18dBm	±2dB
	MCS 1	15dBm	18dBm	±2dB
	MCS 2	15dBm	18dBm	±2dB
	MCS 3	15dBm	18dBm	±2dB
	MCS 4	14dBm	17dBm	±2dB
	MCS 5	13dBm	16dBm	±2dB
	MCS 6	12dBm	15dBm	±2dB
	MCS 7	11dBm	14dBm	±2dB
	MCS 8	10dBm	13dBm	±2dB
	MCS 9	10dBm	13dBm	±2dB
	MCS 10	9dBm	12dBm	±2dB
	MCS 11	9dBm	12dBm	±2dB
	MCS 12	8dBm	11dBm	±2dB
	MCS 13	8dBm	11dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
6GHz 802.11be EHT160	MCS 0	-82dBm	±2dB
	MCS 1	-80dBm	±2dB
	MCS 2	-78dBm	±2dB
	MCS 3	-75dBm	±2dB
	MCS 4	-72dBm	±2dB
	MCS 5	-67dBm	±2dB
	MCS 6	-66dBm	±2dB
	MCS 7	-65dBm	±2dB
	MCS 8	-62dBm	±2dB
	MCS 9	-59dBm	±2dB
	MCS 10	-55dBm	±2dB
	MCS 11	-53dBm	±2dB
	MCS 12	-51dBm	±2dB
	MCS 13	-50dBm	±2dB
6GHz 802.11be EHT320	MCS 0	-81dBm	±2dB
	MCS 1	-78dBm	±2dB
	MCS 2	-76dBm	±2dB
	MCS 3	-72dBm	±2dB
	MCS 4	-69dBm	±2dB
	MCS 5	-65dBm	±2dB
	MCS 6	64dBm	±2dB
	MCS 7	-63dBm	±2dB
	MCS 8	-60dBm	±2dB
	MCS 9	-55dBm	±2dB
	MCS 10	-52dBm	±2dB
	MCS 11	-50dBm	±2dB
	MCS 12	-49dBm	±2dB
	MCS 13	-48dBm	±2dB

## Component Map



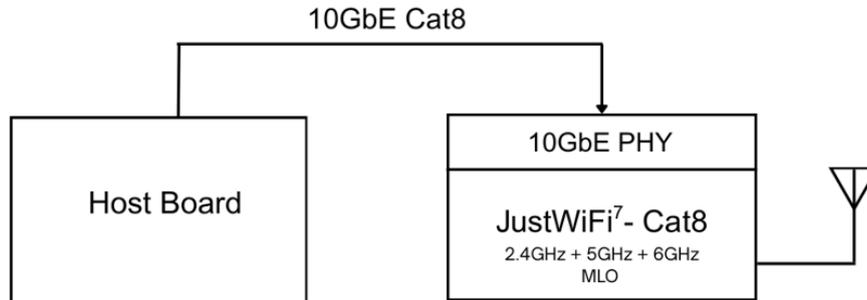
## Mechanical Dimension



All dimensions are in mm.

## Block Diagram

The following figure provides a basic overview of the JustWiFi<sup>7</sup>™ Cat-8 module.



## Firmware / Software

Firmware

OpenWRT 24.10

## Development Kits

SDK

SDKs with QCA binary drivers are available for software developers.

Accessory

Serial Converter, Power Supply Only if available

## Ordering Options

Item Code	Processor	Model	Description
WPM530-RJ 6A01PR8512BR-TE	IPQ5322	WPM530RJ	IPQ5322 + QCN6274 (with 8MB NOR) Supports 2x2 MU-MIMO 802.11a/b/g/n/ac/ax/be Concurrent 2.4GHz + 5GHz + 6GHz tri-band radio
WPM530-RJ 6A01PR4512BR-TE	IPQ5322	WPM530RJ	IPQ5322 + QCN6274 (with 4MB NOR) Supports 2x2 MU-MIMO 802.11a/b/g/n/ac/ax/be Concurrent 2.4GHz + 5GHz + 6GHz tri-band radio