

## WiFi 7 (802.11BE) 2x2 MU-MIMO 5+6GHz Dual Band Dual Concurrent Wireless Module

**Model: WLE7002E56**



### KEY FEATURES

- Qualcomm QCN6274 'Waikiki' series for Commercial grade
- Qualcomm QCN9274 'Waikiki' series for Industrial grade
- 5GHz, 2x2 MU-MIMO, up to 2882 Mbps physical data rate
- 6GHz, 2x2 MU-MIMO, up to 5765 Mbps physical data rate
- Dual-Band Concurrent 5+6GHz WiFi 7 (802.11be)
- MiniPCIe Interface with PCIe 3.0
- Based on WK01.7 reference design
- Supports up to 4096-QAM
- -20°C to 70°C operating temperature for commercial grade
- -40°C to 85°C operating temperature for industrial grade

## Specifications

Chipset	Qualcomm QCN6274 'Waikiki' series for Commercial Grade Qualcomm QCN9274 'Waikiki' series for Industrial Grade
System Memory	2Mbit serial I <sup>2</sup> C bus EEPROM
Reference Design	WK01.7
Host Interface	MiniPCIe Interface with PCIe 3.0
Operating Voltage	3.3V
Power Consumption	8.7W(Max)
Wireless	5GHz 802.11a/n/ax/be, max 19 dBm per chain 6GHz 802.11a/n/ax/be, max 19 dBm per chain 4x U.FL Connectors
Frequency Range	5GHz: 5.150~5.825GHz 6GHz: 5.945~7.125GHz
Modulation Techniques	OFDMA: BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM, 1024QAM, 4096QAM
Channel Spectrum Widths for WLAN	Supports 20/40/80/160 MHz at 5GHz Supports 20/40/80/160/320 MHz at 6GHz
Operating Systems	OpenWRT
Certification	REACH & RoHS Compliance
Environmental Temperature	Operating(Commercial Grade): -20°C to 70°C, Storage: -40°C to 90°C Operating(Industrial Grade): -40°C to 85°C, Storage: -40°C to 90°C
Environmental Humidity, Non-Condensing	Operating: 5% to 95%, Storage: Max. 90%
Dimensions (W x H x D) in mm	30 X 50.8 X 13 mm

\*Configurations are subject to change without notifications.

\*\*Can be requested from respective sales executive.

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## RF Performance Table at 5 GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance		Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11be EHT20	MCS 0	19dBm	22dBm	±2dB	5GHz 802.11be EHT20	MCS 0	-96dBm	±2dB
	MCS 1	19dBm	22dBm	±2dB		MCS 1	-92dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB		MCS 2	-89dBm	±2dB
	MCS 3	18dBm	21dBm	±2dB		MCS 3	-86dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB		MCS 4	-85dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB		MCS 5	-81dBm	±2dB
	MCS 6	16dBm	19dBm	±2dB		MCS 6	-79dBm	±2dB
	MCS 7	15dBm	18dBm	±2dB		MCS 7	-77dBm	±2dB
	MCS 8	14dBm	17dBm	±2dB		MCS 8	-73dBm	±2dB
	MCS 9	14dBm	17dBm	±2dB		MCS 9	-70dBm	±2dB
	MCS 10	13dBm	16dBm	±2dB		MCS 10	-67dBm	±2dB
	MCS 11	13dBm	16dBm	±2dB		MCS 11	-64dBm	±2dB
	MCS 12	12dBm	15dBm	±2dB		MCS 12	-61dBm	±2dB
	MCS 13	12dBm	15dBm	±2dB		MCS 13	-58dBm	±2dB
5GHz 802.11be EHT40	MCS 0	19dBm	22dBm	±2dB	5GHz 802.11be EHT40	MCS 0	-92dBm	±2dB
	MCS 1	19dBm	22dBm	±2dB		MCS 1	-89dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB		MCS 2	-87dBm	±2dB
	MCS 3	18dBm	21dBm	±2dB		MCS 3	-84dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB		MCS 4	-82dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB		MCS 5	-78dBm	±2dB
	MCS 6	16dBm	19dBm	±2dB		MCS 6	-76dBm	±2dB
	MCS 7	15dBm	18dBm	±2dB		MCS 7	-74dBm	±2dB
	MCS 8	14dBm	17dBm	±2dB		MCS 8	-70dBm	±2dB
	MCS 9	14dBm	17dBm	±2dB		MCS 9	-68dBm	±2dB
	MCS 10	13dBm	16dBm	±2dB		MCS 10	-64dBm	±2dB
	MCS 11	13dBm	16dBm	±2dB		MCS 11	-62dBm	±2dB
	MCS 12	12dBm	15dBm	±2dB		MCS 12	-59dBm	±2dB
	MCS 13	12dBm	15dBm	±2dB		MCS 13	-56dBm	±2dB
5GHz 802.11be EHT80	MCS 0	19dBm	22dBm	±2dB	5GHz 802.11be EHT80	MCS 0	-90dBm	±2dB
	MCS 1	19dBm	22dBm	±2dB		MCS 1	-87dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB		MCS 2	-83dBm	±2dB
	MCS 3	18dBm	21dBm	±2dB		MCS 3	-81dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB		MCS 4	-78dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB		MCS 5	-74dBm	±2dB
	MCS 6	16dBm	19dBm	±2dB		MCS 6	-71dBm	±2dB
	MCS 7	15dBm	18dBm	±2dB		MCS 7	-70dBm	±2dB
	MCS 8	14dBm	17dBm	±2dB		MCS 8	-66dBm	±2dB
	MCS 9	14dBm	17dBm	±2dB		MCS 9	-63dBm	±2dB
	MCS 10	13dBm	16dBm	±2dB		MCS 10	-60dBm	±2dB
	MCS 11	13dBm	16dBm	±2dB		MCS 11	-58dBm	±2dB
	MCS 12	12dBm	15dBm	±2dB		MCS 12	-55dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB		MCS 13	-52dBm	±2dB

## RF Performance Table at 5 GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
5GHz 802.11be EHT160	MCS 0	19dBm	22dBm	±2dB
	MCS 1	19dBm	22dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB
	MCS 3	18dBm	21dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB
	MCS 6	16dBm	19dBm	±2dB
	MCS 7	15dBm	18dBm	±2dB
	MCS 8	14dBm	17dBm	±2dB
	MCS 9	13dBm	16dBm	±2dB
	MCS 10	13dBm	16dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11be EHT160	MCS 0	-87dBm	±2dB
	MCS 1	-83dBm	±2dB
	MCS 2	-80dBm	±2dB
	MCS 3	-78dBm	±2dB
	MCS 4	-73dBm	±2dB
	MCS 5	-70dBm	±2dB
	MCS 6	-68dBm	±2dB
	MCS 7	-66dBm	±2dB
	MCS 8	-63dBm	±2dB
	MCS 9	-60dBm	±2dB
	MCS 10	-57dBm	±2dB
	MCS 11	-54dBm	±2dB
	MCS 12	-52dBm	±2dB
	MCS 13	-50dBm	±2dB

## RF Performance Table at 6GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance		Data Rate	RX Specifications Sensitivity	Tolerance
6GHz 802.11be EHT20	MCS 0	19dBm	22dBm	±2dB	6GHz 802.11be EHT20	MCS 0	-93dBm	±2dB
	MCS 1	18dBm	21dBm	±2dB		MCS 1	-90dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB		MCS 2	-87dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB		MCS 3	-85dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB		MCS 4	-82dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB		MCS 5	-79dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB		MCS 6	-77dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB		MCS 7	-75dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB		MCS 8	-71dBm	±2dB
	MCS 9	13dBm	16dBm	±2dB		MCS 9	-68dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB		MCS 10	-66dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB		MCS 11	-63dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB		MCS 12	-60dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB		MCS 13	-57dBm	±2dB
6GHz 802.11be EHT40	MCS 0	19dBm	22dBm	±2dB	6GHz 802.11be EHT40	MCS 0	-91dBm	±2dB
	MCS 1	18dBm	21dBm	±2dB		MCS 1	-89dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB		MCS 2	-86dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB		MCS 3	-83dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB		MCS 4	-80dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB		MCS 5	-76dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB		MCS 6	-74dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB		MCS 7	-71dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB		MCS 8	-69dBm	±2dB
	MCS 9	13dBm	16dBm	±2dB		MCS 9	-67dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB		MCS 10	-63dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB		MCS 11	-60dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB		MCS 12	-57dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB		MCS 13	-55dBm	±2dB
6GHz 802.11be EHT80	MCS 0	19dBm	22dBm	±2dB	6GHz 802.11be EHT80	MCS 0	-88dBm	±2dB
	MCS 1	18dBm	21dBm	±2dB		MCS 1	-86dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB		MCS 2	-83dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB		MCS 3	-80dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB		MCS 4	-76dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB		MCS 5	-72dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB		MCS 6	-70dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB		MCS 7	-68dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB		MCS 8	-65dBm	±2dB
	MCS 9	13dBm	16dBm	±2dB		MCS 9	-62dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB		MCS 10	-60dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB		MCS 11	-57dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB		MCS 12	-54dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB		MCS 13	-52dBm	±2dB

## RF Performance Table at 6 GHz

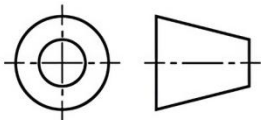
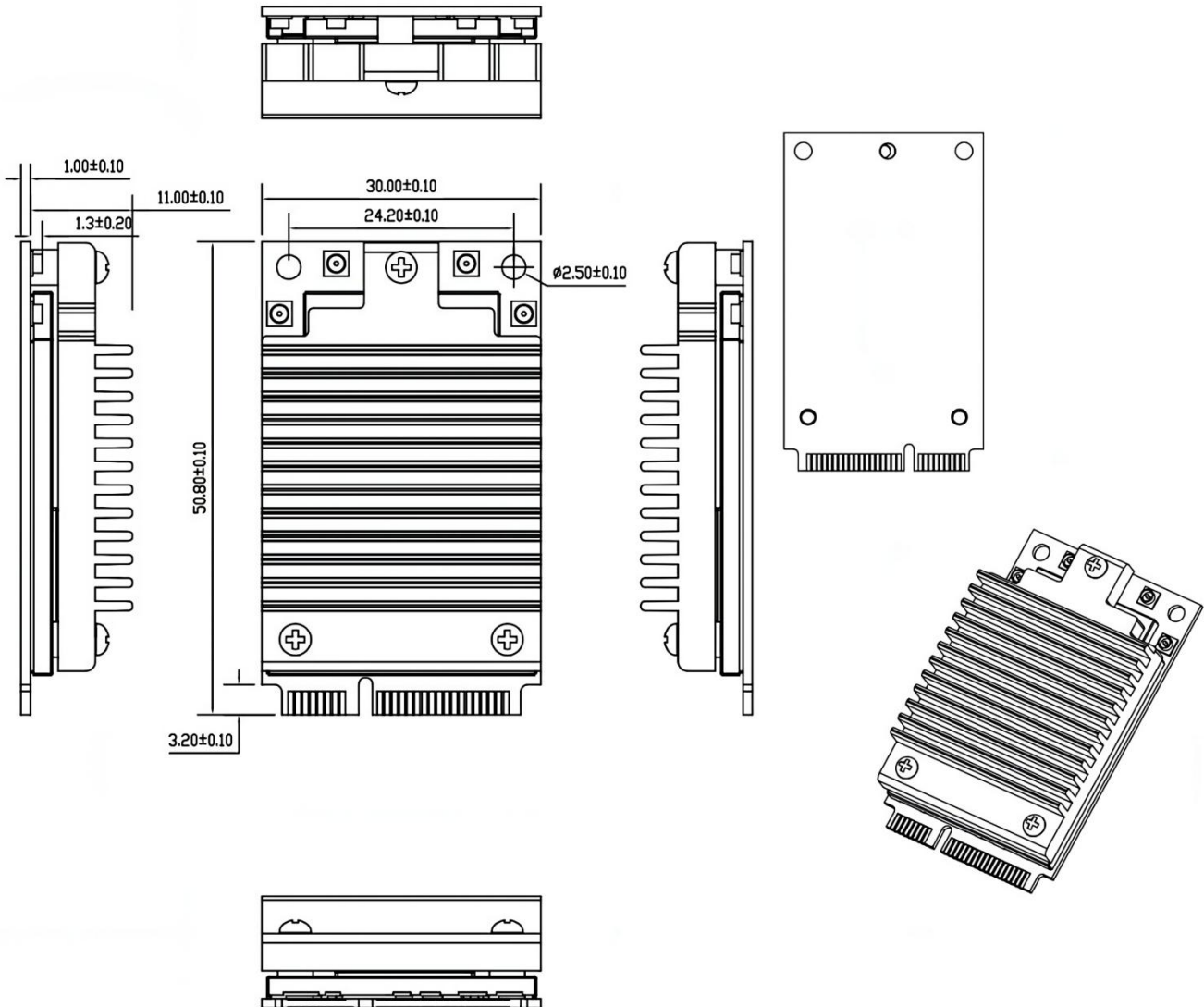
	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
6GHz 802.11be EHT160	MCS 0	19dBm	22dBm	±2dB
	MCS 1	18dBm	21dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB
	MCS 9	13dBm	16dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB
6GHz 802.11be EHT320	MCS 0	19dBm	22dBm	±2dB
	MCS 1	18dBm	21dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	13dBm	16dBm	±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

	Data Rate	RX Specifications Sensitivity	Tolerance
6GHz 802.11be EHT160	MCS 0	-85dBm	±2dB
	MCS 1	-83dBm	±2dB
	MCS 2	-80dBm	±2dB
	MCS 3	-78dBm	±2dB
	MCS 4	-74dBm	±2dB
	MCS 5	-69dBm	±2dB
	MCS 6	-67dBm	±2dB
	MCS 7	-66dBm	±2dB
	MCS 8	-62dBm	±2dB
	MCS 9	-60dBm	±2dB
	MCS 10	-57dBm	±2dB
	MCS 11	-54dBm	±2dB
	MCS 12	-51dBm	±2dB
	MCS 13	-49dBm	±2dB
6GHz 802.11be EHT320	MCS 0	-83dBm	±2dB
	MCS 1	-80dBm	±2dB
	MCS 2	-76dBm	±2dB
	MCS 3	-73dBm	±2dB
	MCS 4	-70dBm	±2dB
	MCS 5	-66dBm	±2dB
	MCS 6	-64dBm	±2dB
	MCS 7	-62dBm	±2dB
	MCS 8	-59dBm	±2dB
	MCS 9	-56dBm	±2dB
	MCS 10	-53dBm	±2dB
	MCS 11	-51dBm	±2dB
	MCS 12	-48dBm	±2dB
	MCS 13	-46dBm	±2dB

## Component Map



## Mechanical Dimensions



All dimensions are in mm.

## Ordering Configuration

Item Code	Model	Description
WLE7002E56 7A0674S-TE	WLE7002E56	QCN6274 2x2 802.11a/b/g/n/ac/ax/be support 5+6GHz Dual-band Concurrent MiniPCle interface with PCIe 3.0 Module
WLE7002E56 7A0974S-TE	WLE7002E56-I	QCN9274 2x2 802.11a/b/g/n/ac/ax/be support 5+6GHz Dual-band Concurrent MiniPCle interface with PCIe 3.0 Module