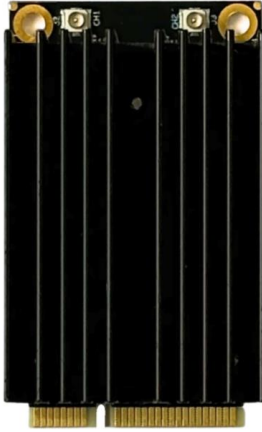


WiFi 7 (802.11BE) 2x2 MU-MIMO 5+6GHz Dual Band Dual Concurrent Wireless Module

Model: WLE7002E56



KEY FEATURES

- Qualcomm QCN6274 'Waikiki' series for Commercial grade
- Qualcomm QCN9274-I 'Waikiki' series for Industrial grade
- 5GHz, 2x2 MU-MIMO, up to 4324 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 industrial-grade environmental temperature requirements, please contact our sales representative for a customized heatsink solution.*

Specifications

Chipset	Qualcomm QCN6274 'Waikiki' series for Commercial Grade Qualcomm QCN9274-I 'Waikiki' series for Industrial Grade
System Memory	2Mbit serial I ² 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	2x2 5 GHz 802.11a/n/ac/ax/be, max 18 dBm per chain 2x2 6 GHz 802.11ax/be, max 18 dBm per chain 2 x U.FL Connectors
Frequency Range	5 GHz: 5.180~5.925GHz 6 GHz: 5.945~7.125GHz
Modulation Techniques	OFDMA: BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM, 4096-QAM
Channel Spectrum Widths for WLAN	Supports 20/40/80/160/240 MHz at 5GHz Supports 20/40/80/160/320 MHz at 6GHz
Operating Systems	Linux
Certification	FCC, CE, IC Certified, REACH & RoHS Compliance
Environmental Temperature ^[1]	Operating temperature: -20°C to 70°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 25.4 mm

*Configurations are subject to change without notifications.

**Can be requested from respective sales executive.

[1] For industrial-grade environmental temperature requirements, please contact our sales representative for a customized heatsink solution.

RF Performance Table at 5 GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
5GHz 802.11be EHT20	MCS 0	18dBm	21dBm	±2dB
	MCS 1	18dBm	21dBm	±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	15dBm	18dBm	±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 EHT40	MCS 0	18dBm	21dBm	±2dB
	MCS 1	18dBm	21dBm	±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	15dBm	18dBm	±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	18dBm	21dBm	±2dB
	MCS 1	18dBm	21dBm	±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	15dBm	18dBm	±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

	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
	MCS 13	-56dBm	±2dB
5GHz 802.11be EHT40	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 at 5 GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
5GHz 802.11be EHT160	MCS 0	18dBm	21dBm	±2dB
	MCS 1	18dBm	21dBm	±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	15dBm	18dBm	±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

	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

RF Performance Table at 6 GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
6GHz 802.11be EHT20	MCS 0	18dBm	21dBm	±2dB
	MCS 1	18dBm	21dBm	±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	18dBm	21dBm	±2dB
	MCS 1	18dBm	21dBm	±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 EHT80	MCS 0	18dBm	21dBm	±2dB
	MCS 1	18dBm	21dBm	±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

	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 at 6 GHz

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

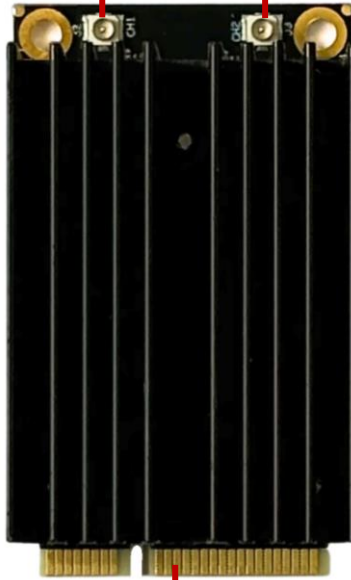
	Data Rate	RX Specifications Sensitivity	Tolerance
6GHz 802.11be EHT160	MCS 0	-82dBm	±2dB
	MCS 1	-80dBm	±2dB
	MCS 2	-78dBm	±2dB
	MCS 3	-75dBm	±2dB
	MCS 4	-72dBm	±2dB
	MCS 5	-67dBm	±2dB
	MCS 6	-66dBm	±2dB
	MCS 7	-65dBm	±2dB
	MCS 8	-62dBm	±2dB
	MCS 9	-59dBm	±2dB
	MCS 10	-55dBm	±2dB
	MCS 11	-53dBm	±2dB
	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

U.FL Connectors

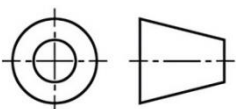
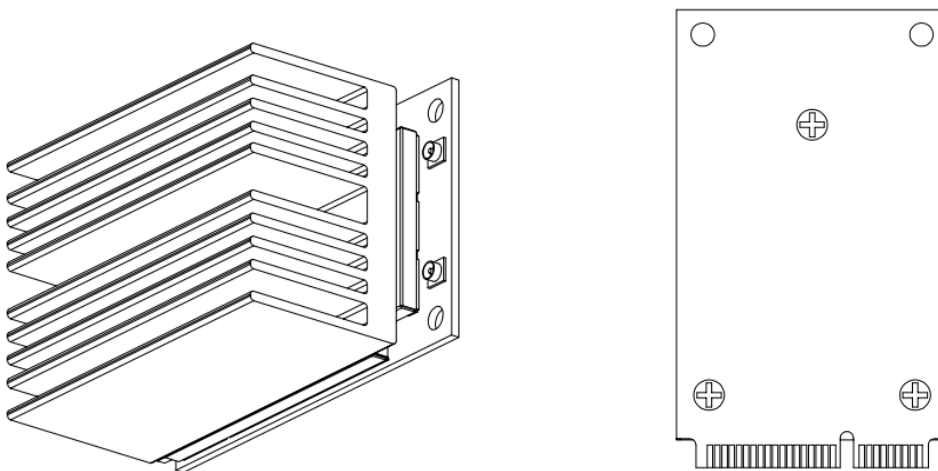
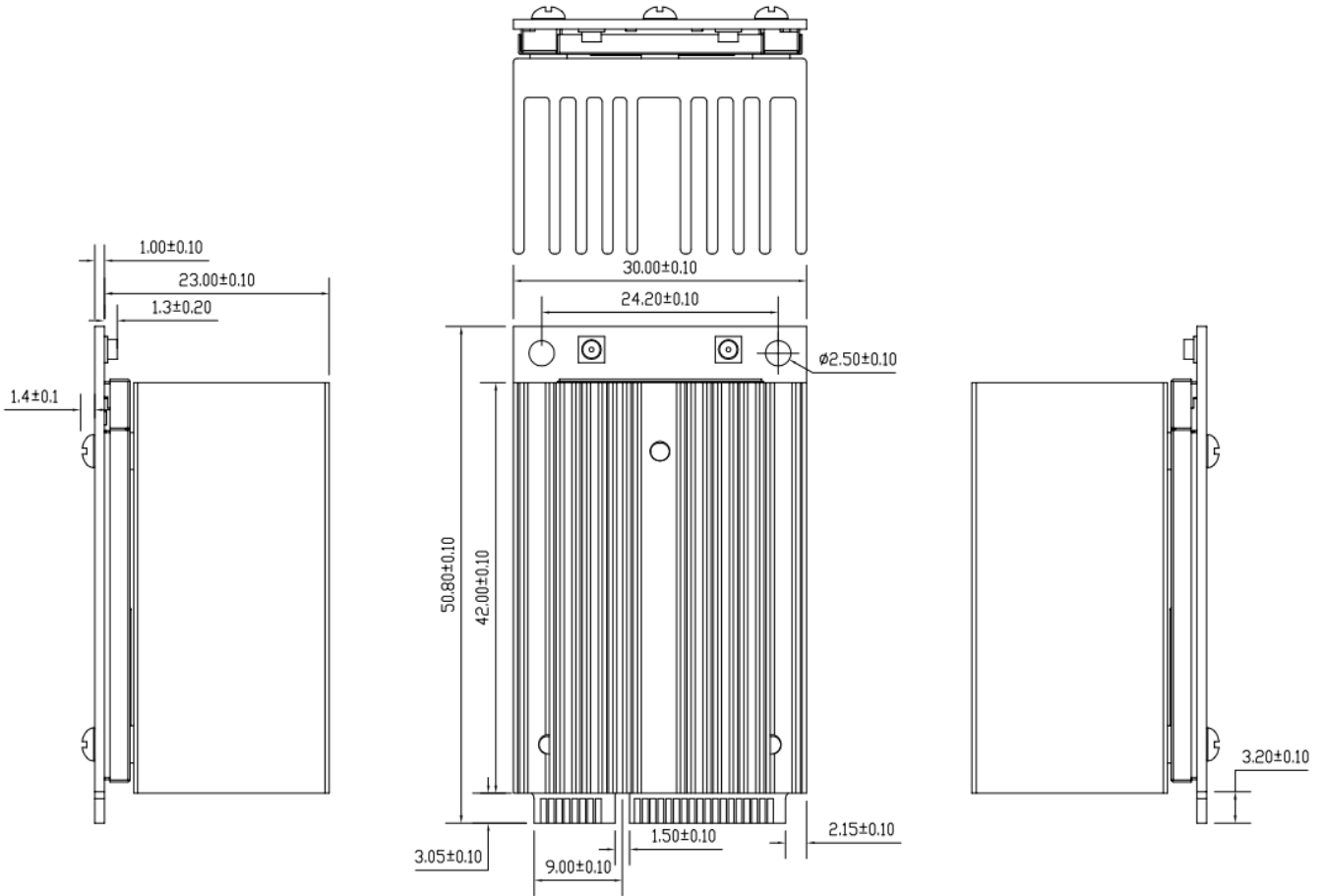
CH1

CH2



Mini PCI Express 3.0 Standard

Mechanical Dimensions



All dimensions are in mm.

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Ordering Configuration

Item Code	Model	Description
WLE7002E56 7A000SXND	WLE7002E56	QCN6274 2x2 802.11a/n/ac/ax/be support 5+6GHz Dual-band Concurrent MiniPCIe interface with PCIe 3.0 Module
WLE7002E56 7B000NXND-I	WLE7002E56-I	QCN9274-I 2x2 802.11a/n/ac/ax/be support 5+6GHz Dual-band Concurrent MiniPCIe interface with PCIe 3.0 Module

Chipsets Comparisons

		QCN6224	QCN6274	QCN9274
Band Operation	4 Single Band	✓	✓	✓
	2+2 Dual Band	✓	✓	✓
	2.4GHz	✓	✓	✓
	4.9GHz	-	-	✓
	5GHz	✓	✓	✓
	6GHz	-	✓	✓
	Channel Support	Up to 160MHz at 5GHz	Up to 320MHz at 6GHz	Up to 320MHz at 6GHz
Performance	4K QAM	✓	✓	✓
	#clients	128	256	512
	#OFDMA users	8	16	37
	DL OFDMA + TxBF	-	✓	✓
	DL/UL MU-MIMO	✓	✓	✓
Advanced 11be Features	WFA certified MLO	✓	✓	✓
	Puncture	Static	Static	Static & Dynamic
Others	DPD	✓	✓	✓
	FIPS	-	-	✓
Software Packages	Provisioned Multi Link	✓	✓	✓
	Dense Deployment	✓	✓	✓
	Location & RF Sensing	✓	✓	✓