

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

Model: WLE7002E55



KEY FEATURES

- Qualcomm QCN6224/6274 'Waikiki' series for Commercial Grade
- Qualcomm QCN9274-I 'Waikiki' series for Industrial Grade
- 5GHz, 2x2 MU-MIMO, up to 4324 Mbps physical data rate
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- Dual-Band Concurrent 5GHz+5GHz WiFi 7 (802.11be)
- MiniPCIe Interface with PCIe 3.0
- Based on WK01.4 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 QCN6224/6274 'Waikiki' series for Commercial grade Qualcomm QCN9274-I 'Waikiki' series for Industrial grade
System Memory	2Mbit serial I ² C bus EEPROM
Reference Design	WK01.4
Host Interface	MiniPCIe Interface with PCIe 3.0
Operating Voltage	3.3V
Power Consumption	8.5W (Max)
Wireless	2x2 5-LGHz 802.11a/n/ax/be, max 18dBm per chain 2x2 5-HGHz 802.11a/n/ax/be, max 17dBm per chain 2 x U.FL Connectors
Frequency Range	5 GHz: 5.180~5.320GHz, 5.500~5.825GHz
Modulation Techniques	OFDMA: BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM, 4096-QAM
Channel Spectrum Widths for WLAN	Support 20/40/80/160/240MHz at 5G-L or 5G-H
Operating Systems	Linux
Certification	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 20.3 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-L GHz with Filter

	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	-91dBm	±2dB
	MCS 1	-89dBm	±2dB
	MCS 2	-86dBm	±2dB
	MCS 3	-83dBm	±2dB
	MCS 4	-80dBm	±2dB
	MCS 5	-75dBm	±2dB
	MCS 6	-73dBm	±2dB
	MCS 7	-72dBm	±2dB
	MCS 8	-69dBm	±2dB
	MCS 9	-67dBm	±2dB
	MCS 10	-64dBm	±2dB
	MCS 11	-62dBm	±2dB
	MCS 12	-57dBm	±2dB
	MCS 13	-55dBm	±2dB
5GHz 802.11be EHT40	MCS 0	-88dBm	±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	-53dBm	±2dB
5GHz 802.11be EHT80	MCS 0	-85dBm	±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-L GHz with Filter

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance		Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11be EHT160	MCS 0	18dBm	21dBm	±2dB	5GHz 802.11be EHT160	MCS 0	-83dBm	±2dB
	MCS 1	18dBm	21dBm	±2dB		MCS 1	-80dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB		MCS 2	-78dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB		MCS 3	-75dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB		MCS 4	-72dBm	±2dB
	MCS 5	16dBm	19dBm	±2dB		MCS 5	-67dBm	±2dB
	MCS 6	15dBm	18dBm	±2dB		MCS 6	-66dBm	±2dB
	MCS 7	15dBm	18dBm	±2dB		MCS 7	-65dBm	±2dB
	MCS 8	14dBm	17dBm	±2dB		MCS 8	-61dBm	±2dB
	MCS 9	13dBm	16dBm	±2dB		MCS 9	-60dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB		MCS 10	-55dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB		MCS 11	-53dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB		MCS 12	-52dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB		MCS 13	-50dBm	±2dB

RF Performance Table at 5-H GHz with Filter

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance		Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11be EHT20	MCS 0	17dBm	20dBm	±2dB	5GHz 802.11be EHT20	MCS 0	-91dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB		MCS 1	-89dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB		MCS 2	-86dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB		MCS 3	-83dBm	±2dB
	MCS 4	15dBm	18dBm	±2dB		MCS 4	-80dBm	±2dB
	MCS 5	14dBm	17dBm	±2dB		MCS 5	-75dBm	±2dB
	MCS 6	13dBm	16dBm	±2dB		MCS 6	-73dBm	±2dB
	MCS 7	12dBm	15dBm	±2dB		MCS 7	-72dBm	±2dB
	MCS 8	11dBm	14dBm	±2dB		MCS 8	-69dBm	±2dB
	MCS 9	10dBm	13dBm	±2dB		MCS 9	-67dBm	±2dB
	MCS 10	9dBm	12dBm	±2dB		MCS 10	-64dBm	±2dB
	MCS 11	9dBm	12dBm	±2dB		MCS 11	-62dBm	±2dB
	MCS 12	8dBm	11dBm	±2dB		MCS 12	-57dBm	±2dB
	MCS 13	8dBm	11dBm	±2dB		MCS 13	-55dBm	±2dB
5GHz 802.11be EHT40	MCS 0	17dBm	20dBm	±2dB	5GHz 802.11be EHT40	MCS 0	-88dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB		MCS 1	-86dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB		MCS 2	-84dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB		MCS 3	-81dBm	±2dB
	MCS 4	15dBm	18dBm	±2dB		MCS 4	-77dBm	±2dB
	MCS 5	14dBm	17dBm	±2dB		MCS 5	-73dBm	±2dB
	MCS 6	13dBm	16dBm	±2dB		MCS 6	-71dBm	±2dB
	MCS 7	12dBm	15dBm	±2dB		MCS 7	-70dBm	±2dB
	MCS 8	11dBm	14dBm	±2dB		MCS 8	-66dBm	±2dB
	MCS 9	10dBm	13dBm	±2dB		MCS 9	-64dBm	±2dB
	MCS 10	9dBm	12dBm	±2dB		MCS 10	-61dBm	±2dB
	MCS 11	9dBm	12dBm	±2dB		MCS 11	-59dBm	±2dB
	MCS 12	8dBm	11dBm	±2dB		MCS 12	-56dBm	±2dB
	MCS 13	8dBm	11dBm	±2dB		MCS 13	-53dBm	±2dB
5GHz 802.11be EHT80	MCS 0	17dBm	20dBm	±2dB	5GHz 802.11be EHT80	MCS 0	-85dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB		MCS 1	-82dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB		MCS 2	-80dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB		MCS 3	-77dBm	±2dB
	MCS 4	15dBm	18dBm	±2dB		MCS 4	-74dBm	±2dB
	MCS 5	14dBm	17dBm	±2dB		MCS 5	-70dBm	±2dB
	MCS 6	13dBm	16dBm	±2dB		MCS 6	-68dBm	±2dB
	MCS 7	12dBm	15dBm	±2dB		MCS 7	-67dBm	±2dB
	MCS 8	11dBm	14dBm	±2dB		MCS 8	-64dBm	±2dB
	MCS 9	10dBm	13dBm	±2dB		MCS 9	-62dBm	±2dB
	MCS 10	9dBm	12dBm	±2dB		MCS 10	-59dBm	±2dB
	MCS 11	9dBm	12dBm	±2dB		MCS 11	-58dBm	±2dB
	MCS 12	8dBm	11dBm	±2dB		MCS 12	-55dBm	±2dB
	MCS 13	8dBm	11dBm	±2dB		MCS 13	-53dBm	±2dB

RF Performance Table at 5-H GHz with Filter

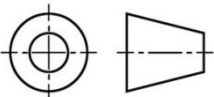
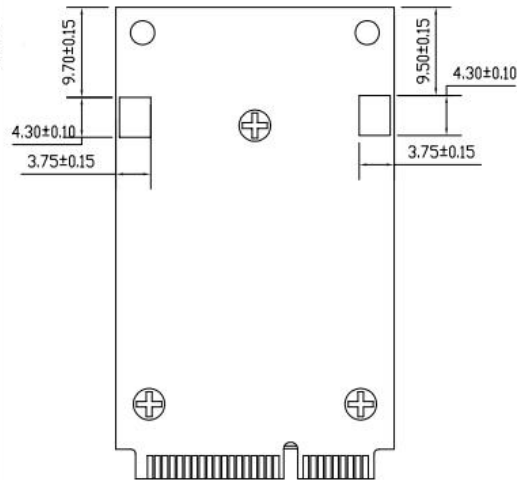
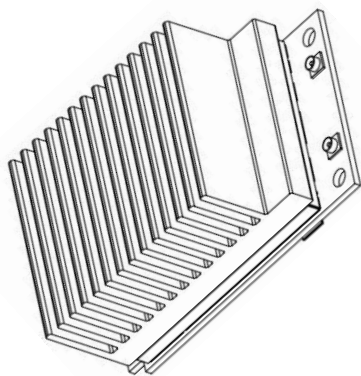
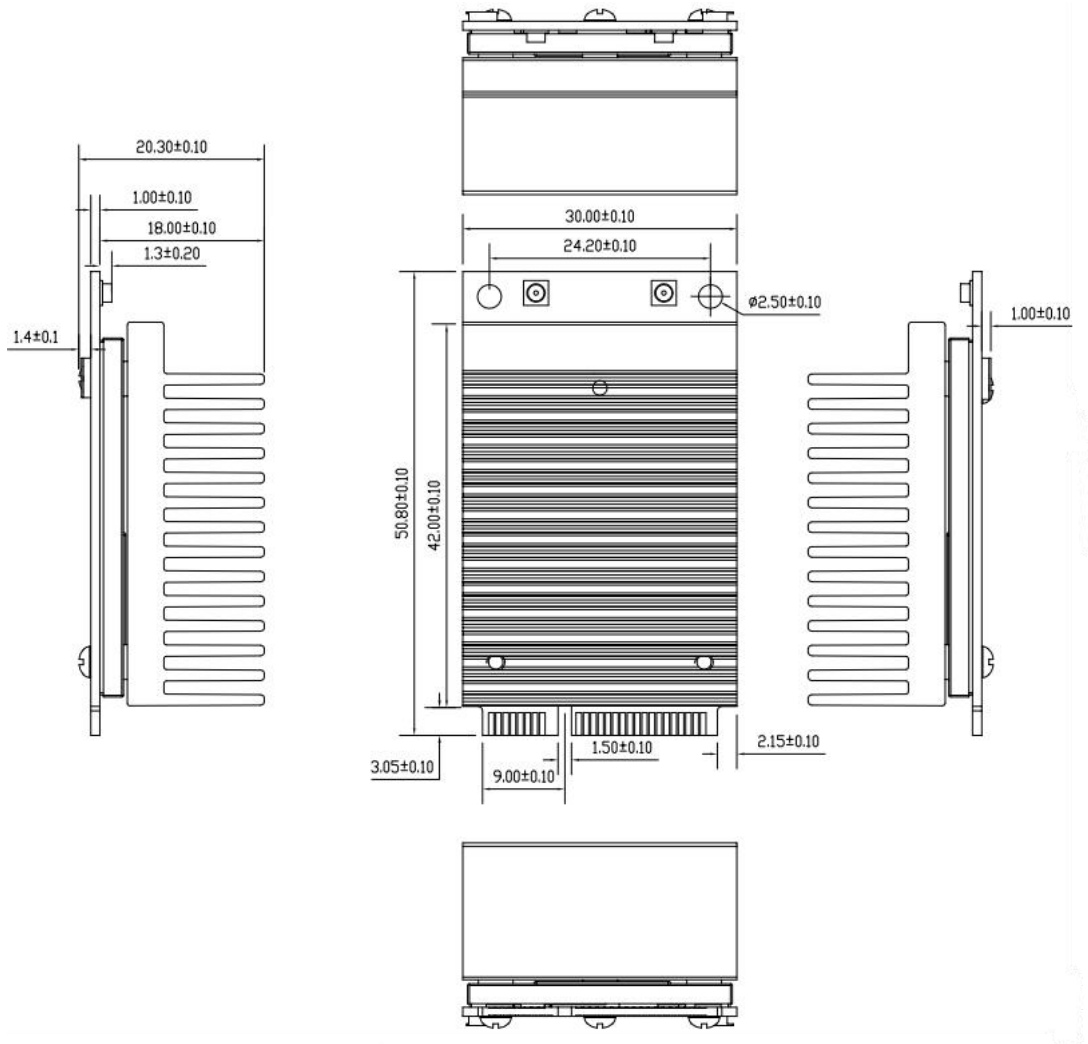
	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
5GHz 802.11be EHT160	MCS 0	17dBm	20dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	15dBm	18dBm	±2dB
	MCS 5	14dBm	17dBm	±2dB
	MCS 6	13dBm	16dBm	±2dB
	MCS 7	12dBm	15dBm	±2dB
	MCS 8	11dBm	14dBm	±2dB
	MCS 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	-83dBm	±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	-55dBm	±2dB
	MCS 11	-53dBm	±2dB
	MCS 12	-52dBm	±2dB
	MCS 13	-50dBm	±2dB

Component Map



Mechanical Dimensions



All dimensions are in mm

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Ordering Configuration

Item Code	Model	Description	Type
WLE7002E55 7A000SXF-TE	WLE7002E55	QCN6274 2x2 802.11a/n/ac/ax/be support 5+5GHz Dual-Band Concurrent MiniPCIe interface with PCIe 3.0 Module	Sample
WLE7002E55 7A000TXF	WLE7002E55	QCN6224 2x2 802.11a/n/ac/ax/be support 5+5GHz Dual-Band Concurrent MiniPCIe interface with PCIe 3.0 Module	Mass Production
WLE7002E55 7B000NXF-I	WLE7002E55-I	QCN9274-I 2x2 802.11a/n/ac/ax/be support 5+5GHz Dual-Band Concurrent MiniPCIe interface with PCIe 3.0 Module	Mass Production

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	✓	✓	✓