

WiFi 7 (802.11BE) 2x2 MU-MIMO 2.4+5GHz Dual Band Dual Concurrent Wireless Module

Model: WLTE7002E25



KEY FEATURES

- Qualcomm QCN6224 'Waikiki' series for Commercial Grade
- Qualcomm QCN9274-I 'Waikiki' series for Industrial Grade
- 2.4GHz, 2x2 MU-MIMO, up to 688 Mbps physical data rate
- 5GHz, 2x2 MU-MIMO, up to 4324 Mbps physical data rate
- Dual-Band Concurrent 2.4+5GHz WiFi 7 (802.11be)
- M.2 E Key Interface with PCIe 3.0
- Based on WK03.2 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 'Waikiki' series for Commercial grade Qualcomm QCN9274-I 'Waikiki' series for Industrial grade
System Memory	2Mbit serial I ² C bus EEPROM
Reference Design	WK03.2
Host Interface	M.2 E Key Interface with PCIe 3.0
Operating Voltage	3.3V
Power Consumption	8W (Max)
Wireless	2x2 2.4GHz 802.11b/g/n/ax/be, max 20dBm per chain 2x2 5GHz 802.11a/n/ac/ax/be, max 18dBm per chain 2 x U.FL Connectors
Frequency Range	2.4 GHz: 2.412~2.472GHz 5 GHz: 5.150~5.825GHz
Modulation Techniques	OFDMA: BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM, 1024QAM, 4096QAM
Channel Spectrum Widths for WLAN	Supports 20/40MHz at 2.4GHz Supports 20/40/80/160/240MHz at 5GHz
Operating Systems	Linux
Certification	FCC, CE, IC Certified, REACH & RoHS Compliance
Environmental Temperature ^[1]	Operating: -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 52 X 13.1 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 2.4GHz with filter

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance		Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11be EHT20	MCS 0	20dBm	23dBm	±2dB	2.4GHz 802.11be EHT20	MCS 0	-92dBm	±2dB
	MCS 1	20dBm	23dBm	±2dB		MCS 1	-90dBm	±2dB
	MCS 2	20dBm	23dBm	±2dB		MCS 2	-88dBm	±2dB
	MCS 3	19dBm	22dBm	±2dB		MCS 3	-85dBm	±2dB
	MCS 4	18dBm	21dBm	±2dB		MCS 4	-81dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB		MCS 5	-77dBm	±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	-69dBm	±2dB
	MCS 10	13dBm	16dBm	±2dB		MCS 10	-65dBm	±2dB
	MCS 11	13dBm	16dBm	±2dB		MCS 11	-63dBm	±2dB
	MCS 12	12dBm	15dBm	±2dB		MCS 12	-59dBm	±2dB
	MCS 13	12dBm	15dBm	±2dB		MCS 13	-57dBm	±2dB
2.4GHz 802.11be EHT40	MCS 0	20dBm	23dBm	±2dB	2.4GHz 802.11be EHT40	MCS 0	-89dBm	±2dB
	MCS 1	20dBm	23dBm	±2dB		MCS 1	-87dBm	±2dB
	MCS 2	20dBm	23dBm	±2dB		MCS 2	-85dBm	±2dB
	MCS 3	19dBm	22dBm	±2dB		MCS 3	-82dBm	±2dB
	MCS 4	18dBm	21dBm	±2dB		MCS 4	-78dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB		MCS 5	-73dBm	±2dB
	MCS 6	16dBm	19dBm	±2dB		MCS 6	-72dBm	±2dB
	MCS 7	15dBm	18dBm	±2dB		MCS 7	-71dBm	±2dB
	MCS 8	14dBm	17dBm	±2dB		MCS 8	-67dBm	±2dB
	MCS 9	14dBm	17dBm	±2dB		MCS 9	-65dBm	±2dB
	MCS 10	13dBm	16dBm	±2dB		MCS 10	-62dBm	±2dB
	MCS 11	13dBm	16dBm	±2dB		MCS 11	-60dBm	±2dB
	MCS 12	12dBm	15dBm	±2dB		MCS 12	-56dBm	±2dB
	MCS 13	12dBm	15dBm	±2dB		MCS 13	-55dBm	±2dB

RF Performance Table at 5GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance		Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11be EHT20	MCS 0	18dBm	21dBm	±2dB	5GHz 802.11be EHT20	MCS 0	-91dBm	±2dB
	MCS 1	18dBm	21dBm	±2dB		MCS 1	-89dBm	±2dB
	MCS 2	17dBm	20dBm	±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	16dBm	19dBm	±2dB		MCS 5	-76dBm	±2dB
	MCS 6	15dBm	18dBm	±2dB		MCS 6	-74dBm	±2dB
	MCS 7	15dBm	18dBm	±2dB		MCS 7	-73dBm	±2dB
	MCS 8	14dBm	17dBm	±2dB		MCS 8	-69dBm	±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	-58dBm	±2dB
5GHz 802.11be EHT40	MCS 13	12dBm	15dBm	±2dB	5GHz 802.11be EHT40	MCS 13	-56dBm	±2dB
	MCS 0	18dBm	21dBm	±2dB		MCS 0	-88dBm	±2dB
	MCS 1	18dBm	21dBm	±2dB		MCS 1	-86dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB		MCS 2	-83dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB		MCS 3	-80dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB		MCS 4	-77dBm	±2dB
	MCS 5	16dBm	19dBm	±2dB		MCS 5	-73dBm	±2dB
	MCS 6	15dBm	18dBm	±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	-65dBm	±2dB
	MCS 10	13dBm	16dBm	±2dB		MCS 10	-61dBm	±2dB
	MCS 11	13dBm	16dBm	±2dB		MCS 11	-58dBm	±2dB
MCS 12	12dBm	15dBm	±2dB	MCS 12	-55dBm	±2dB		
5GHz 802.11be EHT80	MCS 13	12dBm	15dBm	±2dB	5GHz 802.11be EHT80	MCS 13	-54dBm	±2dB
	MCS 0	18dBm	21dBm	±2dB		MCS 0	-85dBm	±2dB
	MCS 1	18dBm	21dBm	±2dB		MCS 1	-83dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB		MCS 2	-80dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB		MCS 3	-78dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB		MCS 4	-75dBm	±2dB
	MCS 5	16dBm	19dBm	±2dB		MCS 5	-70dBm	±2dB
	MCS 6	15dBm	18dBm	±2dB		MCS 6	-69dBm	±2dB
	MCS 7	15dBm	18dBm	±2dB		MCS 7	-68dBm	±2dB
	MCS 8	14dBm	17dBm	±2dB		MCS 8	-64dBm	±2dB
	MCS 9	14dBm	17dBm	±2dB		MCS 9	-62dBm	±2dB
	MCS 10	13dBm	16dBm	±2dB		MCS 10	-59dBm	±2dB
	MCS 11	13dBm	16dBm	±2dB		MCS 11	-57dBm	±2dB
MCS 12	12dBm	15dBm	±2dB	MCS 12	-54dBm	±2dB		
MCS 13	12dBm	15dBm	±2dB	MCS 13	-52dBm	±2dB		

RF Performance Table at 5GHz

	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	14dBm	17dBm	±2dB
	MCS 10	13dBm	16dBm	±2dB
	MCS 11	13dBm	16dBm	±2dB
	MCS 12	12dBm	15dBm	±2dB
	MCS 13	12dBm	15dBm	±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	-68dBm	±2dB
	MCS 6	-67dBm	±2dB
	MCS 7	-66dBm	±2dB
	MCS 8	-62dBm	±2dB
	MCS 9	-61dBm	±2dB
	MCS 10	-56dBm	±2dB
	MCS 11	-54dBm	±2dB
	MCS 12	-53dBm	±2dB
	MCS 13	-50dBm	±2dB

RF Performance Table at 5GHz 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	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	-73dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB		MCS 8	-69dBm	±2dB
	MCS 9	13dBm	16dBm	±2dB		MCS 9	-68dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB		MCS 10	-64dBm	±2dB
	MCS 11	11dBm	14dBm	±2dB		MCS 11	-62dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB		MCS 12	-58dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB		MCS 13	-56dBm	±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	16dBm	19dBm	±2dB		MCS 2	-83dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB		MCS 3	-80dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB		MCS 4	-77dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB		MCS 5	-73dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB		MCS 6	-71dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB		MCS 7	-70dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB		MCS 8	-66dBm	±2dB
	MCS 9	13dBm	16dBm	±2dB		MCS 9	-65dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB		MCS 10	-61dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB		MCS 11	-58dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB		MCS 12	-55dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB		MCS 13	-54dBm	±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	-83dBm	±2dB
	MCS 2	16dBm	19dBm	±2dB		MCS 2	-80dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB		MCS 3	-78dBm	±2dB
	MCS 4	16dBm	19dBm	±2dB		MCS 4	-75dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB		MCS 5	-70dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB		MCS 6	-69dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB		MCS 7	-68dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB		MCS 8	-64dBm	±2dB
	MCS 9	13dBm	16dBm	±2dB		MCS 9	-62dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB		MCS 10	-59dBm	±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 5GHz 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	16dBm	19dBm	±2dB
	MCS 3	16dBm	19dBm	±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
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	-68dBm	±2dB
	MCS 6	-67dBm	±2dB
	MCS 7	-66dBm	±2dB
	MCS 8	-62dBm	±2dB
	MCS 9	-61dBm	±2dB
	MCS 10	-56dBm	±2dB
	MCS 11	-54dBm	±2dB
	MCS 12	-53dBm	±2dB
	MCS 13	-50dBm	±2dB

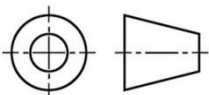
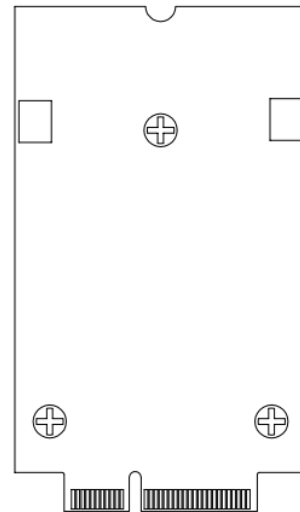
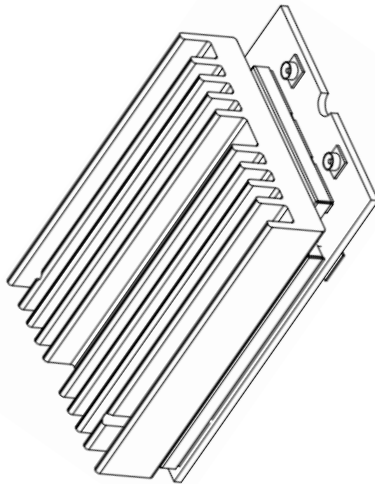
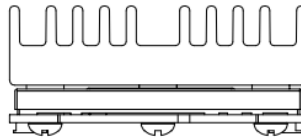
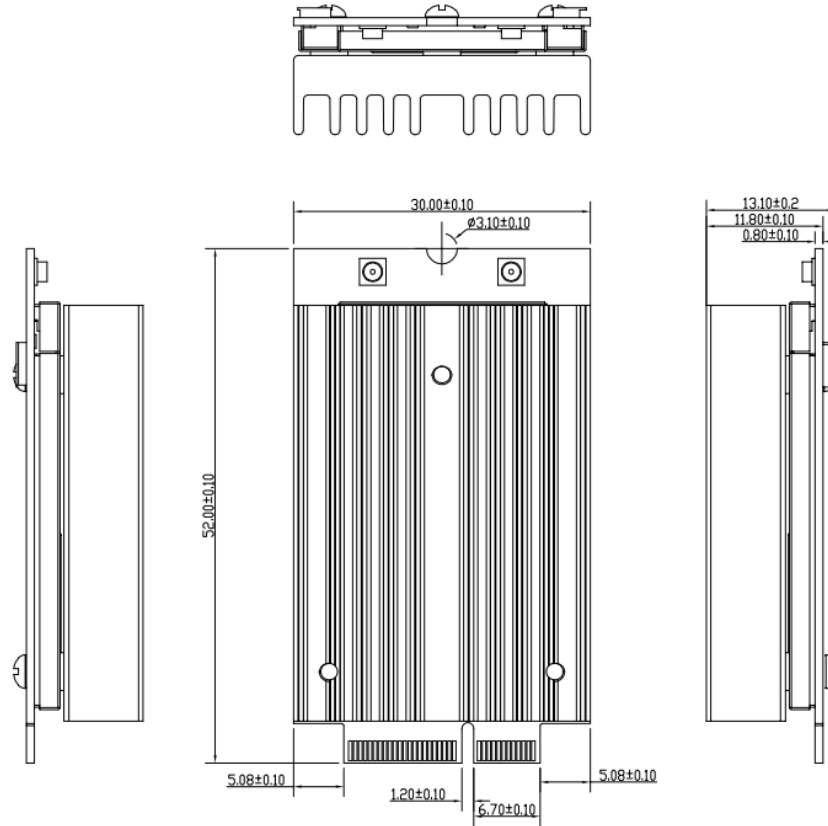
Component Map

U.FL Connectors



M.2 E Key Interface with PCIe 3.0

Mechanical Dimensions



All dimensions are in mm

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Ordering Configuration

Item Code	Model	Description
WLTE7002E25 7A000TXLF	WLTE7002E25	QCN6224 2x2 802.11a/b/g/n/ac/ax/be support 2.4+5GHz Dual-Band Concurrent M.2 E Key Interface with PCIe 3.0
WLTE7002E25 7B000NXLF-I	WLTE7002E25-I	QCN9274-I 2x2 802.11a/b/g/n/ac/ax/be support 2.4+5GHz Dual-Band Concurrent M.2 E Key Interface with PCIe 3.0

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	✓	✓	✓