

## WiFi 7 (802.11BE) 2x2 MU-MIMO 2.4+6GHz Dual Band Dual Concurrent Wireless Module

**Model: WLTE7002E26**



### KEY FEATURES

- Qualcomm QCN6274 '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
- 6GHz, 2x2 MU-MIMO, up to 5765 Mbps physical data rate
- Dual-Band Concurrent 2.4+6GHz 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 QCN6274 'Waikiki' series for Commercial grade<br>Qualcomm QCN9274-I 'Waikiki' series for Industrial grade |
| System Memory                            | 2Mbit serial I <sup>2</sup> C bus EEPROM                                                                           |
| Reference Design                         | WK03.2                                                                                                             |
| Host Interface                           | M.2 E Key Interface with PCIe 3.0                                                                                  |
| Operating Voltage                        | 3.3V                                                                                                               |
| Power Consumption                        | 8.3W (Max)                                                                                                         |
| Wireless                                 | 2.4GHz 802.11b/g/n/ax/be, max 20dBm per chain<br>6GHz 802.11ax/be, max 17dBm per chain<br>2x U.FL Connectors       |
| Frequency Range                          | 2.4 GHz: 2.412~2.472GHz<br>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         | Support 20/40MHz at 2.4 GHz<br>Support 20/40/80/160/320MHz at 6GHz                                                 |
| Operating Systems                        | Linux                                                                                                              |
| Certification                            | FCC, CE, IC Certified, REACH & RoHS Compliance                                                                     |
| Environmental Temperature <sup>[1]</sup> | 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 52 X 20.1 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<br>(per chain) | TX Power<br>(2 chains) | Tolerance |
|-----------------------------|-----------|-------------------------|------------------------|-----------|
| 2.4GHz<br>802.11be<br>EHT20 | MCS 0     | 20dBm                   | 23dBm                  | ±2dB      |
|                             | MCS 1     | 20dBm                   | 23dBm                  | ±2dB      |
|                             | MCS 2     | 20dBm                   | 23dBm                  | ±2dB      |
|                             | MCS 3     | 19dBm                   | 22dBm                  | ±2dB      |
|                             | MCS 4     | 18dBm                   | 21dBm                  | ±2dB      |
|                             | MCS 5     | 17dBm                   | 20dBm                  | ±2dB      |
|                             | MCS 6     | 16dBm                   | 19dBm                  | ±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      |
| 2.4GHz<br>802.11be<br>EHT40 | MCS 0     | 20dBm                   | 23dBm                  | ±2dB      |
|                             | MCS 1     | 20dBm                   | 23dBm                  | ±2dB      |
|                             | MCS 2     | 20dBm                   | 23dBm                  | ±2dB      |
|                             | MCS 3     | 19dBm                   | 22dBm                  | ±2dB      |
|                             | MCS 4     | 18dBm                   | 21dBm                  | ±2dB      |
|                             | MCS 5     | 17dBm                   | 20dBm                  | ±2dB      |
|                             | MCS 6     | 16dBm                   | 19dBm                  | ±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<br>Sensitivity | Tolerance |
|-----------------------------|-----------|----------------------------------|-----------|
| 2.4GHz<br>802.11be<br>EHT20 | MCS 0     | -92dBm                           | ±2dB      |
|                             | MCS 1     | -90dBm                           | ±2dB      |
|                             | MCS 2     | -88dBm                           | ±2dB      |
|                             | MCS 3     | -85dBm                           | ±2dB      |
|                             | MCS 4     | -81dBm                           | ±2dB      |
|                             | MCS 5     | -77dBm                           | ±2dB      |
|                             | MCS 6     | -76dBm                           | ±2dB      |
|                             | MCS 7     | -74dBm                           | ±2dB      |
|                             | MCS 8     | -70dBm                           | ±2dB      |
|                             | MCS 9     | -69dBm                           | ±2dB      |
|                             | MCS 10    | -65dBm                           | ±2dB      |
|                             | MCS 11    | -63dBm                           | ±2dB      |
|                             | MCS 12    | -59dBm                           | ±2dB      |
|                             | MCS 13    | -57dBm                           | ±2dB      |
| 2.4GHz<br>802.11be<br>EHT40 | MCS 0     | -89dBm                           | ±2dB      |
|                             | MCS 1     | -87dBm                           | ±2dB      |
|                             | MCS 2     | -85dBm                           | ±2dB      |
|                             | MCS 3     | -82dBm                           | ±2dB      |
|                             | MCS 4     | -78dBm                           | ±2dB      |
|                             | MCS 5     | -73dBm                           | ±2dB      |
|                             | MCS 6     | -72dBm                           | ±2dB      |
|                             | MCS 7     | -71dBm                           | ±2dB      |
|                             | MCS 8     | -67dBm                           | ±2dB      |
|                             | MCS 9     | -65dBm                           | ±2dB      |
|                             | MCS 10    | -62dBm                           | ±2dB      |
|                             | MCS 11    | -60dBm                           | ±2dB      |
|                             | MCS 12    | -56dBm                           | ±2dB      |
|                             | MCS 13    | -55dBm                           | ±2dB      |

## RF Performance Table at 6 GHz with Filter

|                           | Data Rate | TX Power<br>(per chain) | TX Power<br>(2 chains) | Tolerance |                           | Data Rate | RX Specifications<br>Sensitivity | Tolerance |
|---------------------------|-----------|-------------------------|------------------------|-----------|---------------------------|-----------|----------------------------------|-----------|
| 6GHz<br>802.11be<br>EHT20 | MCS 0     | 17dBm                   | 20dBm                  | ±2dB      | 6GHz<br>802.11be<br>EHT20 | MCS 0     | -90dBm                           | ±2dB      |
|                           | MCS 1     | 17dBm                   | 20dBm                  | ±2dB      |                           | MCS 1     | -88dBm                           | ±2dB      |
|                           | MCS 2     | 16dBm                   | 19dBm                  | ±2dB      |                           | MCS 2     | -85dBm                           | ±2dB      |
|                           | MCS 3     | 15dBm                   | 18dBm                  | ±2dB      |                           | MCS 3     | -83dBm                           | ±2dB      |
|                           | MCS 4     | 15dBm                   | 18dBm                  | ±2dB      |                           | MCS 4     | -79dBm                           | ±2dB      |
|                           | MCS 5     | 15dBm                   | 18dBm                  | ±2dB      |                           | MCS 5     | -75dBm                           | ±2dB      |
|                           | MCS 6     | 14dBm                   | 17dBm                  | ±2dB      |                           | MCS 6     | -74dBm                           | ±2dB      |
|                           | MCS 7     | 13dBm                   | 16dBm                  | ±2dB      |                           | MCS 7     | -72dBm                           | ±2dB      |
|                           | MCS 8     | 12dBm                   | 15dBm                  | ±2dB      |                           | MCS 8     | -68dBm                           | ±2dB      |
|                           | MCS 9     | 11dBm                   | 14dBm                  | ±2dB      |                           | MCS 9     | -67dBm                           | ±2dB      |
|                           | MCS 10    | 10dBm                   | 13dBm                  | ±2dB      |                           | MCS 10    | -63dBm                           | ±2dB      |
|                           | MCS 11    | 10dBm                   | 13dBm                  | ±2dB      |                           | MCS 11    | -62dBm                           | ±2dB      |
|                           | MCS 12    | 9dBm                    | 12dBm                  | ±2dB      |                           | MCS 12    | -58dBm                           | ±2dB      |
|                           | MCS 13    | 9dBm                    | 12dBm                  | ±2dB      |                           | MCS 13    | -55dBm                           | ±2dB      |
| 6GHz<br>802.11be<br>EHT40 | MCS 0     | 17dBm                   | 20dBm                  | ±2dB      | 6GHz<br>802.11be<br>EHT40 | MCS 0     | -87dBm                           | ±2dB      |
|                           | MCS 1     | 17dBm                   | 20dBm                  | ±2dB      |                           | MCS 1     | -85dBm                           | ±2dB      |
|                           | MCS 2     | 16dBm                   | 19dBm                  | ±2dB      |                           | MCS 2     | -83dBm                           | ±2dB      |
|                           | MCS 3     | 15dBm                   | 18dBm                  | ±2dB      |                           | MCS 3     | -80dBm                           | ±2dB      |
|                           | MCS 4     | 15dBm                   | 18dBm                  | ±2dB      |                           | MCS 4     | -77dBm                           | ±2dB      |
|                           | MCS 5     | 15dBm                   | 18dBm                  | ±2dB      |                           | MCS 5     | -72dBm                           | ±2dB      |
|                           | MCS 6     | 14dBm                   | 17dBm                  | ±2dB      |                           | MCS 6     | -71dBm                           | ±2dB      |
|                           | MCS 7     | 13dBm                   | 16dBm                  | ±2dB      |                           | MCS 7     | -69dBm                           | ±2dB      |
|                           | MCS 8     | 12dBm                   | 15dBm                  | ±2dB      |                           | MCS 8     | -66dBm                           | ±2dB      |
|                           | MCS 9     | 11dBm                   | 14dBm                  | ±2dB      |                           | MCS 9     | -64dBm                           | ±2dB      |
|                           | MCS 10    | 10dBm                   | 13dBm                  | ±2dB      |                           | MCS 10    | -61dBm                           | ±2dB      |
|                           | MCS 11    | 10dBm                   | 13dBm                  | ±2dB      |                           | MCS 11    | -58dBm                           | ±2dB      |
|                           | MCS 12    | 9dBm                    | 12dBm                  | ±2dB      |                           | MCS 12    | -55dBm                           | ±2dB      |
|                           | MCS 13    | 9dBm                    | 12dBm                  | ±2dB      |                           | MCS 13    | -53dBm                           | ±2dB      |
| 6GHz<br>802.11be<br>EHT80 | MCS 0     | 17dBm                   | 20dBm                  | ±2dB      | 6GHz<br>802.11be<br>EHT80 | MCS 0     | -85dBm                           | ±2dB      |
|                           | MCS 1     | 17dBm                   | 20dBm                  | ±2dB      |                           | MCS 1     | -83dBm                           | ±2dB      |
|                           | MCS 2     | 16dBm                   | 19dBm                  | ±2dB      |                           | MCS 2     | -81dBm                           | ±2dB      |
|                           | MCS 3     | 15dBm                   | 18dBm                  | ±2dB      |                           | MCS 3     | -78dBm                           | ±2dB      |
|                           | MCS 4     | 15dBm                   | 18dBm                  | ±2dB      |                           | MCS 4     | -75dBm                           | ±2dB      |
|                           | MCS 5     | 14dBm                   | 17dBm                  | ±2dB      |                           | MCS 5     | -70dBm                           | ±2dB      |
|                           | MCS 6     | 13dBm                   | 16dBm                  | ±2dB      |                           | MCS 6     | -69dBm                           | ±2dB      |
|                           | MCS 7     | 13dBm                   | 16dBm                  | ±2dB      |                           | MCS 7     | -68dBm                           | ±2dB      |
|                           | MCS 8     | 12dBm                   | 15dBm                  | ±2dB      |                           | MCS 8     | -64dBm                           | ±2dB      |
|                           | MCS 9     | 11dBm                   | 14dBm                  | ±2dB      |                           | MCS 9     | -63dBm                           | ±2dB      |
|                           | MCS 10    | 10dBm                   | 13dBm                  | ±2dB      |                           | MCS 10    | -59dBm                           | ±2dB      |
|                           | MCS 11    | 10dBm                   | 13dBm                  | ±2dB      |                           | MCS 11    | -57dBm                           | ±2dB      |
|                           | MCS 12    | 9dBm                    | 12dBm                  | ±2dB      |                           | MCS 12    | -54dBm                           | ±2dB      |
|                           | MCS 13    | 9dBm                    | 12dBm                  | ±2dB      |                           | MCS 13    | -52dBm                           | ±2dB      |

## RF Performance Table at 6GHz with Filter

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

|                            | Data Rate | RX Specifications<br>Sensitivity | Tolerance |
|----------------------------|-----------|----------------------------------|-----------|
| 6GHz<br>802.11be<br>EHT160 | MCS 0     | -83dBm                           | ±2dB      |
|                            | MCS 1     | -80dBm                           | ±2dB      |
|                            | MCS 2     | -78dBm                           | ±2dB      |
|                            | MCS 3     | -74dBm                           | ±2dB      |
|                            | MCS 4     | -72dBm                           | ±2dB      |
|                            | MCS 5     | -67dBm                           | ±2dB      |
|                            | MCS 6     | -67dBm                           | ±2dB      |
|                            | MCS 7     | -65dBm                           | ±2dB      |
|                            | MCS 8     | -62dBm                           | ±2dB      |
|                            | MCS 9     | -60dBm                           | ±2dB      |
|                            | MCS 10    | -55dBm                           | ±2dB      |
|                            | MCS 11    | -53dBm                           | ±2dB      |
|                            | MCS 12    | -52dBm                           | ±2dB      |
|                            | MCS 13    | -50dBm                           | ±2dB      |
| 6GHz<br>802.11be<br>EHT320 | MCS 0     | -80dBm                           | ±2dB      |
|                            | MCS 1     | -77dBm                           | ±2dB      |
|                            | MCS 2     | -75dBm                           | ±2dB      |
|                            | MCS 3     | -71dBm                           | ±2dB      |
|                            | MCS 4     | -69dBm                           | ±2dB      |
|                            | MCS 5     | -64dBm                           | ±2dB      |
|                            | MCS 6     | -64dBm                           | ±2dB      |
|                            | MCS 7     | -42dBm                           | ±2dB      |
|                            | MCS 8     | -59dBm                           | ±2dB      |
|                            | MCS 9     | -57dBm                           | ±2dB      |
|                            | MCS 10    | -52dBm                           | ±2dB      |
|                            | MCS 11    | -50dBm                           | ±2dB      |
|                            | MCS 12    | -49dBm                           | ±2dB      |
|                            | MCS 13    | -49dBm                           | ±2dB      |

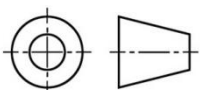
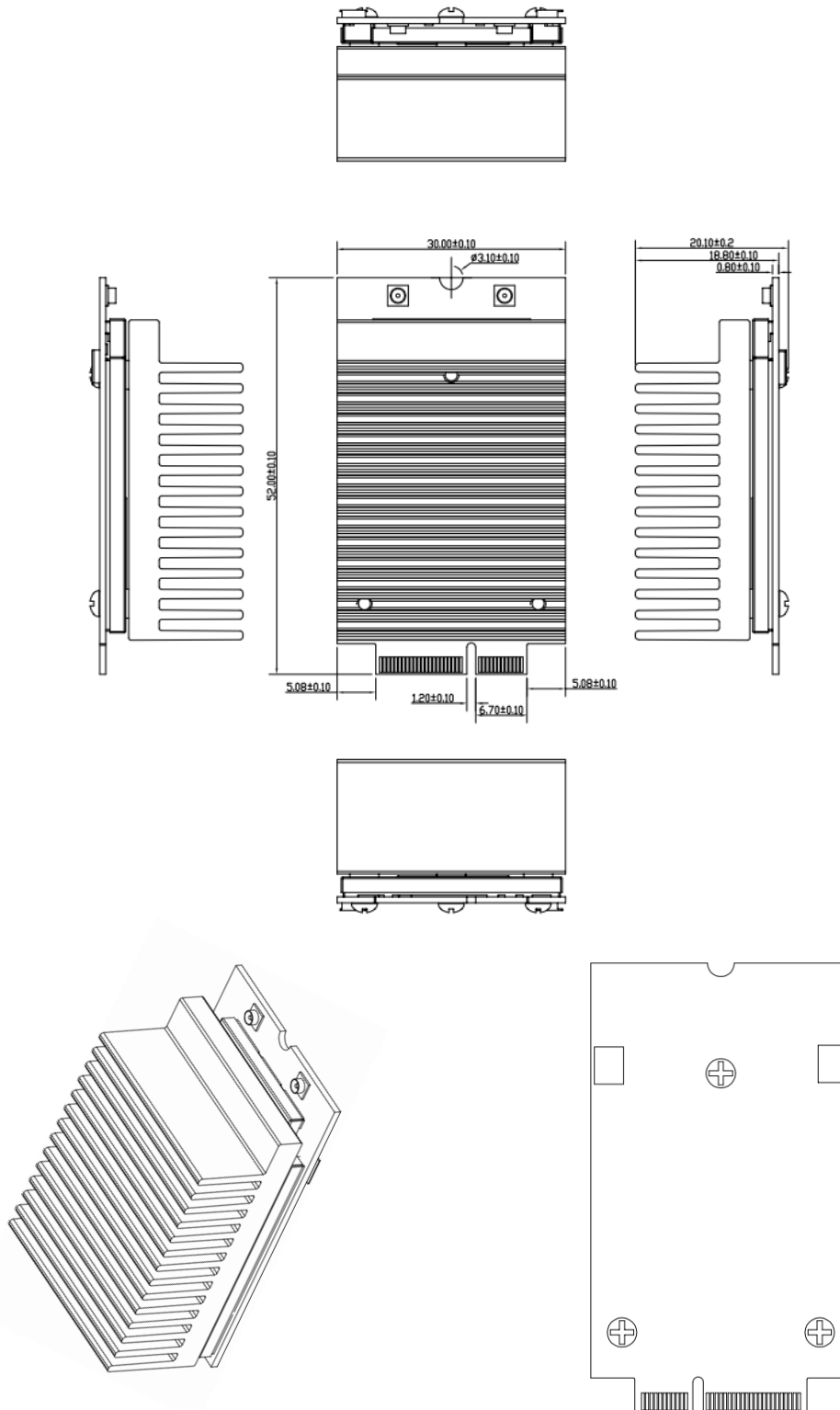
## Component Map

U.FL Connectors



M.2 E Key Interface with PCIe 3.0

## Mechanical Dimensions



All dimensions are in mm

## Ordering Configuration

| Item Code               | Model         | Description                                                                                                             |
|-------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------|
| WLTE7002E26 7A000SXLF   | WLTE7002E26   | QCN6274 2x2<br>802.11b/g/n/ax/be support<br>2.4+6GHz Dual-Band Concurrent<br>M.2 E Key interface with PCIe 3.0 Module   |
| WLTE7002E26 7B000NXLF-I | WLTE7002E26-I | QCN9274-I 2x2<br>802.11b/g/n/ax/be support<br>2.4+6GHz Dual-Band Concurrent<br>M.2 E Key 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  | ✓                    | ✓                    | ✓                    |