Quick Fact Sheet

# VectorStar™

## E and W Band Millimeter-Wave (mmWave) VNA System

Anritsu
Advancing beyond

### High-Performance Waveguide Band System Using Compact Anritsu mmWave Modules

The VectorStar E and W band mmWave system incorporates the high-performance, compact Anritsu mmWave modules in an economical extended E or W band configuration. The compact size and weight of the 3743AX mmWave module allows users to easily set up a high-performance waveguide banded system for the most demanding measurement and installation challenges. The compact modules are optimal for waveguide measurements where traditional large and cumbersome mmWave modules provide limited power control and poor stability. For antenna measurements, the compact module is ideal when mmWave modules must be placed on an X/Y positioner for pattern scanning.

The banded version modules are supplied with a standard 1 mm test port connector and appropriate waveguide adapter. The modules are thus ideally suited for typical waveguide measurements as well as on-wafer applications where DC bias is needed.

- The VectorStar E and W band system combines the VectorStar MS4644B 40 GHz or higher frequency VNA with the 3739C test set to control the banded version mmWave modules.
- The 3744A-EE mmWave module provides extended E band coverage from 56 to 94 GHz with WR12 waveguide flange and operates to 95 GHz.
- The 3744A-EW mmWave module provides extended W band coverage from 65 to 110 GHz with WR10 waveguide flange.
- The Anritsu mmWave modules provide the first mmWave system with real-time electronic power leveling, thereby eliminating power correction time lag found on alternative systems using software correction feedback.
- Provides accurate, stable power control with the widest power sweep for safe, accurate gain compression measurements.
- The waveguide adapter can be removed for on-wafer applications and DC bias.
- The mmWave module can be easily adapted for any waveguide band operating from 54 to 125 GHz.

**VectorStar ME7838AX mmWave System**

As with the broadband VectorStar ME7838AX system, the waveguide banded system provides power control and power sweep capabilities using real-time monitoring and correction through a closed loop. Thus, power sweep is available in an industry-leading range of up to 55 dB or more and without the need for mechanical or electronic attenuators in the mmWave module. The result is stable power even at extremely low levels.

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## E and W Band mmWave VNA System

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### 3744A-EE Extended-E Band Specifications (Summary)

| Frequency (GHz) | Dynamic Range (dB) | Noise Floor (dBm) | Power Range (dBm) |
|---|---|---|---|
| 56-80 | 106 | -106 to -111 | 55 to 1, -2, or -4 |
| 80-85 | 115 | -112 | -55 to -6 |
| 85-90 | 105 | -110 | -55 to -4 |
| 90-94 | 103 | -105 | -55 to 0 |

### 3744A-EW Extended-W Band Specifications (Summary)

| Frequency (GHz) | Dynamic Range (dB) | Noise Floor (dBm) | Power Range (dBm) |
|---|---|---|---|
| 6-80 | 106 | -106 to -111 | 55 to 1 or -2 |
| 80-85 | 115 | -112 | -55 to -6 |
| 85-90 | 105 | -110 | -55 to -4 |
| 90-105 | 103 | -105 | -55 to 0 |
| 105-110 | 103 | -110 | -55 to -5 |

### Configuration for VectorStar ME7838 E Band mmWave System

| Action | Part Number | Description |
|---|---|---|
| Choose and Order One of the Three Base VNAs, with the Options Listed | MS4642B<br>MS4640B-007<br>MS4642B-082 | Vector Network Analyzer, 10 MHz to 40 GHz<br>Receiver Offset<br>Option mmWave Interface |
| | MS4644B<br>MS4640B-007<br>MS4644B-082 | Vector Network Analyzer, 10 MHz to 0 GHz<br>Receiver Offset Option<br>mmWave Interface<br>(Opt 081 if Opt 061 or 062 are used) |
| Order Test Set | 3739C | Broadband and mmWave Test Set<br>(Test set also drives mmWave modules >110 GHz) |
| Order Pair of EE Band mmWave Modules | 3744A-EE (2) | mmWave module with WR12 extended<br>E band waveguide output |
| Add Options if Desired to the Selected VNA | MS464xB-061 | Active Measure Suite, 2 atten.<br>(Substitute MS464xB-082 with MS464xB-083) |
| | -or- MS464xB-062 | Active Measure Suite, 4 atten.<br>(substitute MS464xB-082 with MS464xB-083) |
| | MS4640B-070 | 70 kHz coverage |
| | MS4640B-002 | Time Domain |
| | MS4640B-049* | Spectrum Analyzer |

### Configuration for VectorStar ME7838 W Band mmWave System

| Action | Part Number | Description |
|---|---|---|
| Choose and Order One of the Two Base VNAs, with the Options Listed | MS4644B<br>MS4640B-007<br>MS4644B-082 | Vector Network Analyzer, 10 MHz to 40 GHz<br>Receiver Offset Option<br>mmWave Interface |
| | MS4647B<br>MS4640B-007<br>MS4647B-080 | Vector Network Analyzer, 10 MHz to 70 GHz<br>Receiver Offset Option<br>mmWave Interface<br>(Opt 081 if Opt 061 or 062 are used) |
| Order Test Set | 3739C | Broadband and mmWave Test Set<br>(Test set also drives mmWave modules >110 GHz) |
| Order Pair of EW Band mmWave Modules | 3744A-EW (2) | mmWave module with WR10 extended<br>W band waveguide output |
| Add Options if Desired to the Selected VNA | MS464xB-061 | Active Measure Suite, 2 atten.<br>(Substitute MS464xB-082 with MS464xB-083) |
| | -or- MS464xB-062 | Active Measure Suite, 4 atten.<br>(Substitute MS464xB-082 with MS464xB-083) |
| | MS4640B-070 | 70 kHz coverage |
| | MS4640B-002 | Time Domain |
| | MS4640B-049* | Spectrum Analyzer |

*Spectrum analyzer options can be enabled for any VectorStar configuration

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