

5G FR2 Solution for MFG Test

E6681A EXM-WB Wireless Test Set

Optimize Throughput

Controlling a DUT is essential to verify performance. Non-signaling test solutions are typically preferred in manufacturing environments because the DUT responds more quickly. However, these solutions cannot use signaling to control a DUT. Instead, the EXM-WB makes use of the control software of chipset vendors. The EXM-WB is endorsed in QDART and integration with other chipset vendors is in progress.



Decrease test time with sequencing and parallel test

Sequencing is one method of decreasing overall test time. A set of test steps is prepared in one sequence and then initiated with a single trigger. Test speed increases since fewer commands are used. The sequence analyzer of the EXM-WB solution supports 5G NR measurement sequences with varying power levels and frequencies.

Parallel test is another method of decreasing overall test time. The new V9065EM2E parallel analysis of multiple devices software application runs with or without the sequence analyzer to provide fast test speed. Test time is significantly reduced when data is analyzed while configuring the device for the next tests and acquiring the next sets of data.



Flexibly verify multiple devices

Connect once to test the RF performance of your 5G FR2 device. Many use cases are supported with the combination of the E6681A EXM-WB wireless test, the M1740A remote radio head (RRH), and optional OTA chamber with accessories. Choose the configuration that provides optimal throughput for your manufacturing area.

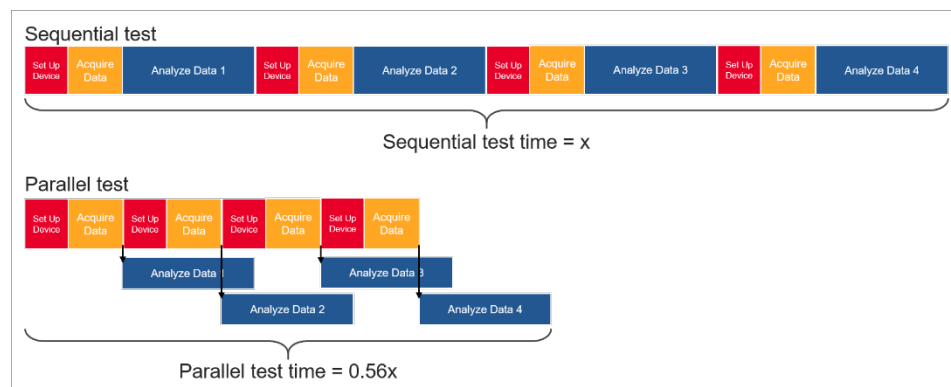


Figure 1. Example of speed improvement when using parallel test

Configure Hardware

The E6681A EXM-WB wireless test set hardware includes the following capabilities by default.

- Frequency ranges of 24.25 to 29.5 GHz and 37 to 43.5 GHz
- Chassis, reference, and embedded controller

Select transceiver and bandwidth options

Start by configuring the first transceiver, then add and configure one more transceiver, if desired. Each transceiver has three bandwidth options.

| Option number | Description | Requirements |
|---------------|--------------------|--------------|
| E6681A-001 | Transceiver 1 | Mandatory |
| • E6681A-B3X | Bandwidth, 300 MHz | Default |
| • E6681A-B6X | Bandwidth, 600 MHz | Optional |
| • E6681A-B12 | Bandwidth, 1.2 GHz | Optional |
| E6681A-002 | Transceiver 2 | Optional |
| • E6681A-B3X | Bandwidth, 300 MHz | Default |
| • E6681A-B6X | Bandwidth, 600 MHz | Optional |
| • E6681A-B12 | Bandwidth, 1.2 GHz | Optional |

Select remote radio head options

At least one remote radio head is required. More than one can be purchased depending on the desired configuration.

| Option number | Description | Requirements |
|---------------|---------------------------|---|
| M1740A | mmWave transceiver for 5G | Mandatory |
| M1740A-CA4 | RF cable N-SMA 4m | Two are mandatory for each M1740A ordered |
| M1740A-CB4 | RF cable TNC-SMA 4m | One is mandatory for each M1740A ordered |

Configure Software

The E6681A includes the following by default.

- V9060EM0E IQ analysis measurement software
- V9065EM1E sequence analyzer for device applications
- Perpetual, node-locked licenses with 12-month support for every application selected

Select software applications

Software applications purchased with new hardware are installed before shipment. Additional software applications can be added later with a software license.

| Product number | Description | Requirements |
|----------------|--|--------------|
| V9065EM2E | Parallel analysis of multiple devices | Mandatory |
| V9085EM1E | PAvT measurement application | Optional |
| Y9085EM0E | 5G NR non-signaling waveform and measurement application | Mandatory |

Add Accessories

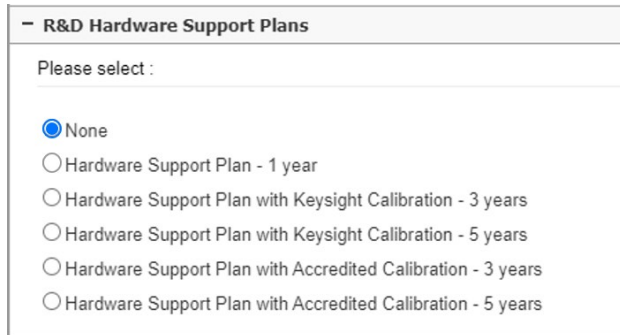
The E6681A EXM-WB and M1740A RRH include Getting Started Guide documents by default.

| Product number | Description | Requirements |
|----------------|--------------------------------|--------------|
| Y1168A | USB keyboard and optical mouse | Optional |
| Y1217A | Rack mount and rack rail kit | Optional |

Add Services

The E6681A EXM-WB includes KeysightCare Assured First Year Support by default. Two-, three-, and five-year extensions are available along with KeysightCare Enhanced upgrades for one, two, three, and five years. For details, visit www.keysight.com/find/keysightcare.

To configure services for the M1740A RRH, select 'None' under 'R&D Hardware Support Plans.'



- R&D Hardware Support Plans

Please select :

- None
- Hardware Support Plan - 1 year
- Hardware Support Plan with Keysight Calibration - 3 years
- Hardware Support Plan with Keysight Calibration - 5 years
- Hardware Support Plan with Accredited Calibration - 3 years
- Hardware Support Plan with Accredited Calibration - 5 years

Figure 2: Selections for hardware support

Then, select the desired 'Manufacturing HW Support – Warranty' and 'Manufacturing HW Support Recalibration' options. One-, two-, three-, and five-year warranty options are available, depending on your location, and three- and five-year recalibration options are available.

Product assistance is available for solution startup and other custom services. For details, contact your Keysight representative or visit www.keysight.com/find/services.

Example Configurations

Following are configurations for some typical test scenarios. Select accessories and services as the final step for all example configurations.

Example 1: 5G FR2 device with 100 MHz signal bandwidth using one transceiver and one RRH

1. Select hardware.

| Option number | Description | Quantity |
|---------------|---------------------------|----------|
| E6681A-001 | Transceiver 1 | 1 |
| • E6681A-B3X | Bandwidth, 300 MHz | 1 |
| M1740A | mmWave transceiver for 5G | 1 |
| M1740A-CA4 | RF cable N-SMA 4m | 2 |
| M1740A-CB4 | RF cable TNC-SMA 4m | 1 |

2. Select software.

| Product number | Description | Quantity |
|----------------|--|----------|
| V9065EM2E | Parallel analysis of multiple devices | 1 |
| Y9085EM0E | 5G NR non-signaling waveform and measurement application | 1 |

Example 2: 5G FR2 device with 200 MHz signal bandwidth using two transceivers and two RRH

1. Select hardware.

| Option number | Description | Quantity |
|---------------|---------------------------|----------|
| E6681A-001 | Transceiver 1 | 1 |
| • E6681A-B3X | Bandwidth, 300 MHz | 1 |
| E6681A-002 | Transceiver 2 | 1 |
| • E6681A-B3X | Bandwidth, 300 MHz | 1 |
| M1740A | mmWave transceiver for 5G | 2 |
| M1740A-CA4 | RF cable N-SMA 4m | 4 |
| M1740A-CB4 | RF cable TNC-SMA 4m | 2 |

2. Select software.

| Product number | Description | Requirements |
|----------------|--|--------------|
| V9065EM2E | Parallel analysis of multiple devices | 1 |
| Y9085EM0E | 5G NR non-signaling waveform and measurement application | 1 |

Example 3: 5G FR2 device with 400 MHz signal bandwidth using one transceiver and two RRH

1. Select hardware.

| Option number | Description | Quantity |
|---------------|---------------------------|----------|
| E6681A-001 | Transceiver 1 | 1 |
| • E6681A-B3X | Bandwidth, 300 MHz | 1 |
| M1740A | mmWave transceiver for 5G | 2 |
| M1740A-CA4 | RF cable N-SMA 4m | 4 |
| M1740A-CB4 | RF cable TNC-SMA 4m | 2 |

2. Select software.

| Product number | Description | Quantity |
|----------------|--|----------|
| V9065EM2E | Parallel analysis of multiple devices | 1 |
| Y9085EM0E | 5G NR non-signaling waveform and measurement application | 1 |

Efficiently Verify 5G FR2 Devices in Manufacturing

The E6681A EXM-WB wireless test set, M1740A RRH, and optional OTA chamber are a quick and cost-effective solution for 5G FR2 chipset and device MFG test.

- Purchase what is needed today and be ready for tomorrow using software-only upgrades and three bandwidth options
- Start testing right away with licensing and software apps pre-installed on the embedded controller
- Reduce test development time by re-using existing test code from the E6640A EXM or VXT
- Optimize throughput with sequencing, chipset control, and flexible configurations

Conclusion

The E6681A EXM-WB is the optimal solution for your 5G FR2 device manufacturing needs.

More information is available at www.keysight.com/find/exmwb and at the following links.

M1740A mmWave transceiver for 5G (RRH): www.keysight.com/find/rrh

Keysight 5G solutions: www.keysight.com/find/5g

E6640A EXM mmWave non-signaling solution: [5G non-signaling manufacturing test solution](#)

E7760B mmWave non-signaling solution: www.keysight.com/find/e7760b

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

