

# Keysight Technologies

## Integrated 802.11ad RF Test Solution

### Design Your Device with Confidence

#### Overcome your design challenges

802.11ad delivers high-speed wireless LAN for multimedia, computer displays, peripheral devices, and data backup. Testing 802.11ad devices presents new test challenges, compared to previous WLAN standards: frequencies are 10 times higher, modulation bandwidths are 100 times wider, and a mixture of single carrier and OFDM. Instead of isotropic antennas used at RF, these new mmWave devices use active phased-array antennas to steer the RF beam in the desired direction. These antennas are attached directly to the chip itself, so all mmWave measurements will be made over the air (OTA) instead of by RF cable. Keysight Technologies, Inc. helps you overcome these challenges with a powerful 802.11ad mmWave test solution that is easy to use and flexible enough to cover testing from R&D through device validation testing (DVT) and early manufacturing.



#### Faster, deeper design insight

Combine the Keysight E7760A wideband transceiver and M1650A mmWave transceiver with chipset automation software to accelerate your design timeline. The E7760A transceiver provides both IF ports and RF ports so you can fully characterize the device transmit and receive paths, at both IF (2 to 18 GHz) and RF (55 to 68 GHz) frequencies. The E7760A IF ports also support “closed loop” testing to validate the IF-to-RF and RF-to-IF performance of the DUT. The M1650A is a bidirectional and tunable mmWave transceiver. It supports both transmitter and receiver measurements over the full 802.11ad bands of 55 to 68 GHz.

#### Achieve the most accurate measurements through internal switching and calibration

The E7760A wideband transceiver periodically runs an internal self-alignment program to ensure your measurements are always accurate. This built-in feature is faster and less expensive than external calibration hardware and software. All signal switching between Tx and Rx modes, and IF and RF ports, is performed inside the E7760A and M1650A transceivers. This produces a test set that is simple to control, accurate, and reliable.



Unlocking Measurement Insights

## Optimize RF testing over the full 802.11ad bands

### M1650A mmWave transceiver

- Optimize RF testing with signals delivered at the correct distance from the device under test (DUT)
- Perform Tx and Rx measurements over the full 802.11ad bands of 55 to 68 GHz with the tunable M1650A transceiver
- Test beam forming and beam steering by combining one E7760A with up to six (6) M1650A transceivers
- Perform faster multi-DUT throughput testing with multiple M1650A transceivers
- Analyze signals in diverse environments with amplitude range of -80 to +10 dBm

## Fully evaluate IF performance of your device under test

E7760A wideband transceiver enables in depth analysis of your device's IF performance.

- Save rack and floor space with the compact 2U (two unit) form factor
- Fully evaluate IF performance with 2 to 18 GHz coverage
- Perform in-depth DUT evaluation with the integrated 802.11ad application's signal creation and analysis capability

## Reduce time to insight in R&D and increase throughput in manufacturing

### Chipset Automation Software

- Save valuable development resources by leveraging Keysight's library of chipset tests. Customize as needed for R&D and device validation testing
- Maximize early manufacturing throughput without compromising quality
- Supports leading chipset vendor tools and application program interfaces (APIs)

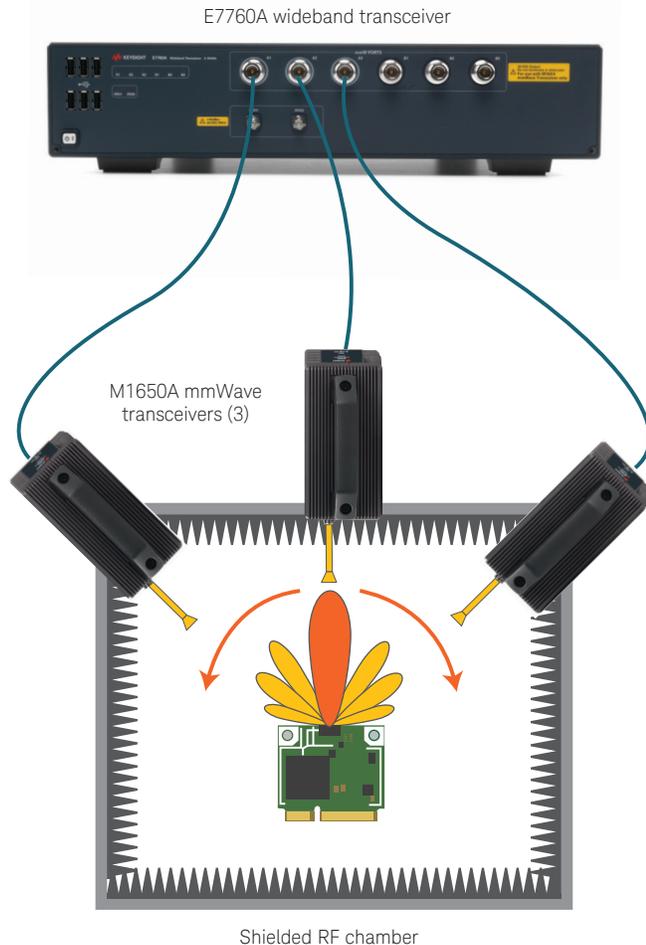


Figure 3. Validate device beam steering

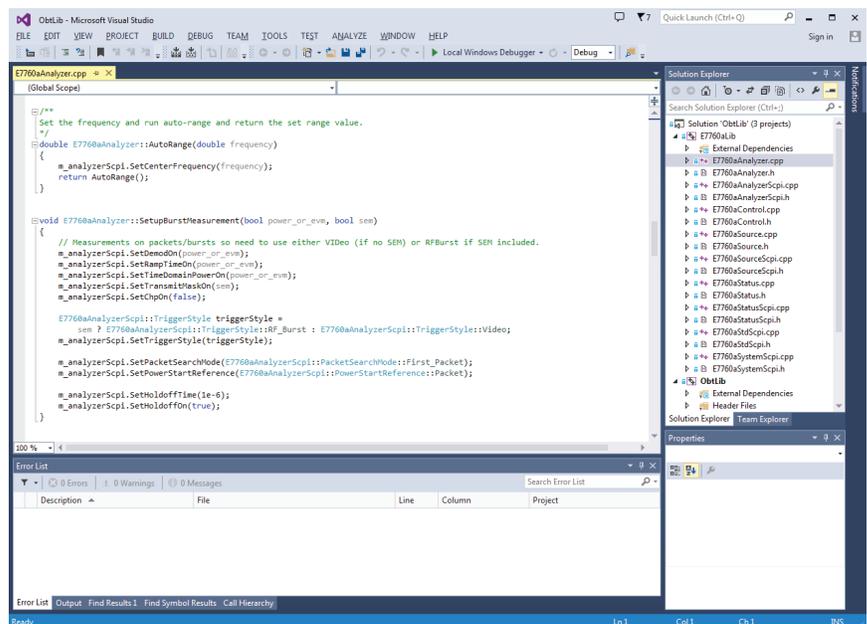


Figure 4. 802.11ad Chipset Automation Software