

Top Five Reasons Why U2040/50/60 and L2050/60 X-Series Power Sensors are Ideal

For Wireless Chipset Manufacturing Tests

Your Challenge

The explosive growth of smart phones and wireless devices have pushed wireless chipset manufacturers to constantly seek ways to increase capacity and lower cost of tests.

Manufacturers need RF power measurement solutions that can:

- Increase test capacity, to ensure that they meet the shipment date
- Reduce cost of test, to counter intense pricing competition
- Measure accurately and repeatably, to improve yield and meet tight production limits
- Cover a wide range of signal formats, allowing flexible sharing of test setups or equipment

Your Solution

The Keysight U2040/50/60 and L2050/60 X-Series USB/LAN wide dynamic range peak and average power sensors offer super-fast measurement speed to meet your ever increasing test capacity and wide dynamic range needs while providing true average (or RMS) power measurements similar to what you are getting with thermocouple power sensor solutions. These sensors allow you to enjoy the benefits of both worlds – fast and wide dynamic range offered by a diode detector, and the accuracy and broadband coverage of a thermocouple detector. The X-Series power sensor is the ideal solution for achieving accurate and fast multi-channel power measurements over a wide dynamic range for wireless chipset and module manufacturing.



1. Wide dynamic range to cover a wide range of signals

With a total dynamic range of 96 dB in average mode, no other sensor can match the X-Series power sensor capability. Having the industry's widest dynamic range allows the sensor to measure a wide range of signals, from high power amplifier (PA) outputs to small reflected signals from a well-matched PA.

2. Broadband coverage for accurate average power measurements of any wireless signal formats

The X-Series power sensor makes accurate average or time-gated average power measurements for any modulated signal, and covers all common wireless signals such as LTE, LTE-Advanced with 100 MHz bandwidth and WLAN 802.11ac with 80/160 MHz bandwidth. The X-Series power sensor design provides seamless range transition with high accuracy and repeatability and enables all the diodes to operate in the diode's square law region, allowing the X-Series power sensor to function like thermocouple power sensors to provide accurate RMS power for broadband modulated signals.

3. Fast measurement speed to increase your test capacity and lower cost of test

The X-Series power sensor takes up to 50,000 real time readings per second in average mode. This is a 10 times improvement over Keysight's previous sensor offerings. This measurement speed is fast enough to measure every continuous pulse without leaving time gaps in between measurement acquisitions.

With a new function called average power time-selectivity, users are able to set the measurement acquisition size by configuring the aperture duration. This function also allows users to control the portion of the signal to be measured, giving the same results as conventional time-gated measurements in normal mode/peak mode. This is especially useful for pulsed signal measurements whereby users can set the aperture duration to match the signal period and input the duty cycle of the signal for the sensor to automatically calculate the pulse power ($\text{pulse power} = \text{average power} / \text{duty cycle}$). The sensor can then perform very fast and accurate pulse power measurements with an average count of 1, as opposed to conventional sensors which required a larger average count setting.

4. Accurate and repeatable measurements increase the confidence of your measurements

The X-Series power sensor offers warranted accuracy specifications over the full operating temperature range of 0 to 55 °C. No other instrument is capable of offering a similar level of accuracy over this temperature or frequency range. You may be able to find a spectrum analyzer or network analyzer that provides accuracy close to this range, but that accuracy is only a typical specification and hence valid only for certain power levels and at a specific temperature. With the X-Series power sensor, you can be assured that there will be no over-rejecting of good parts due to tight production limits. All the measurements obtained with the X-Series power sensor are traceable to standards set by national or international standard laboratories.

5. Cost-effective and flexible solution for multi-channel power measurements

The X-Series power sensor is a cost-effective solution for multi-channel power measurements. A complete multi-channel power measurement solution of a wireless chipset's input power, output power and reflected power can be achieved with three X-Series power sensor; these sensors also provide the high accuracy and fast measurement speed required to measure any broadband wireless signal format. This solution can be reused for other calibration purposes to improve the accuracy of a test system over a wide frequency, power and temperature range.

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