KRAVE® Testing

Revised May 2020

Why 802.11k/r/v Testing?

Multi-AP and dual-band-AP installations are ubiquitous in commercial and consumer networks today. High-availability and high-bandwidth client applications demand seamless AP and band roaming performance. Verify your product meets customer expectations with KRAVE-2 before you ship.

Convenient 802.11k/r/v Testing

The KRAVE-2 testbed provides quick and repeatable STA or AP black box testing in a benchtop form factor.

OEMs can easily validate production releases without obtrusive test instrumentation or debug code stubs. Network operators can quickly perform conformance testing on products and product updates before rollout to the customer.

Flexible DUT Options

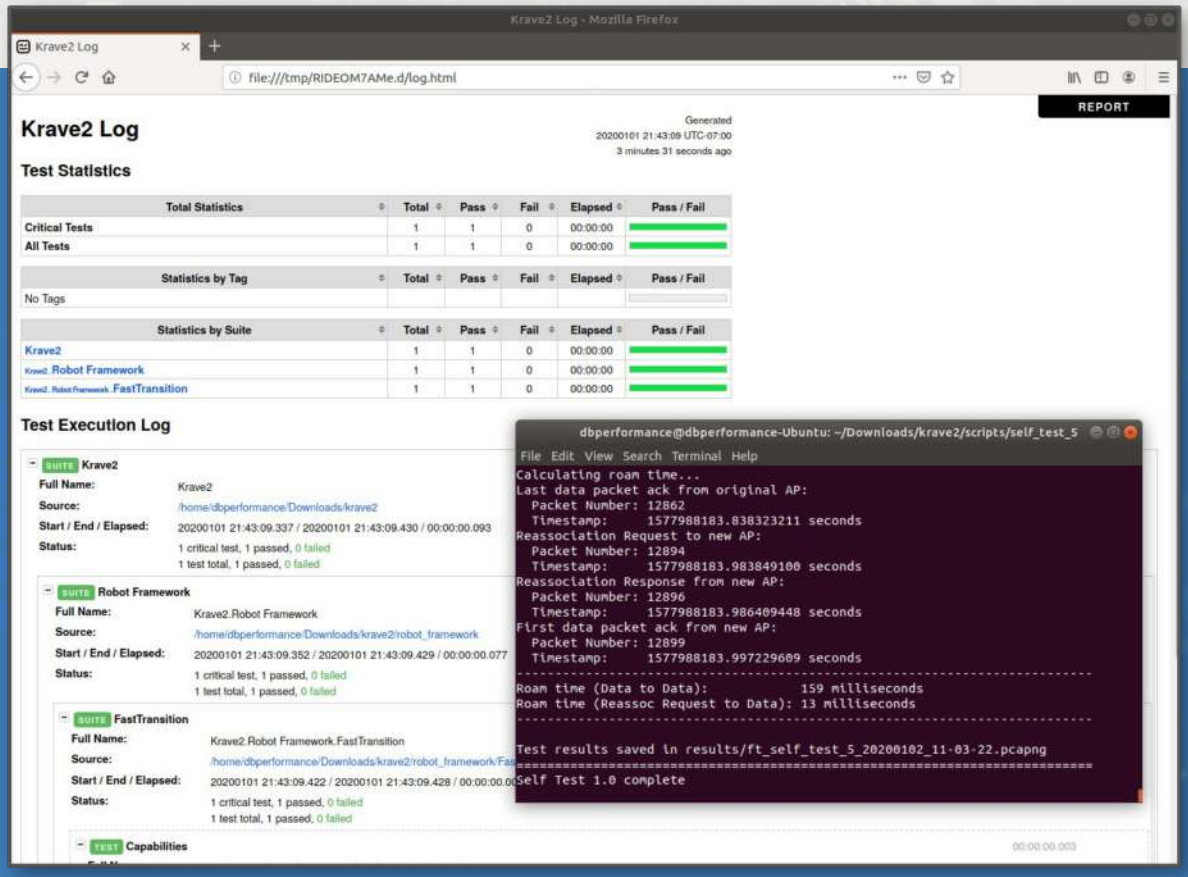
PCIe, miniPCIe, M.2, and external standalone hardware DUT formats are supported, using either cabled or air RF interfaces.

Comprehensive Test Coverage

AP and STA 802.11k/r/v protocol validation
AP and STA 802.11k Radio Measurements
AP and STA 802.11r Fast Transition (FT), both over-the-air and over-the-DS
AP and STA 802.11v BSS Transition Management (BTM) stress testing

KRAVE Testing-as-a-Service (TaaS)

Leverage dB Performance's extensive expertise to provide full turnkey Testing-as-a-Service to a standard test plan, or a custom test plan. dB Performance has been a leader in CCKM and 802.11k/r/v testing since 2011.



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Simultaneous Channel Monitoring

The KRAVE-2 testbed can monitor up to three channels at the same time. The tester will always get the full picture when the STA roams to another channel on the same band, or to another band.

Captive Client Support

dB Performance simplifies real-life client loading with integrated Wi-Fi captive clients. These captive clients can associate to the same SSID as the STA to generate non-DUT traffic, and include independent RF attenuation settings to simulate numerous loading scenarios.

Automated Wireshark Analysis

Eliminate the tedious effort of scrolling through packet capture files to determine proper operation and roam timing, especially for long-duration tests.

Suitable for Mesh Networks

The KRAVE-2 testbed supports up to three dual-band APs, and supports a variety of roaming scenarios.

Full 802.1X Support

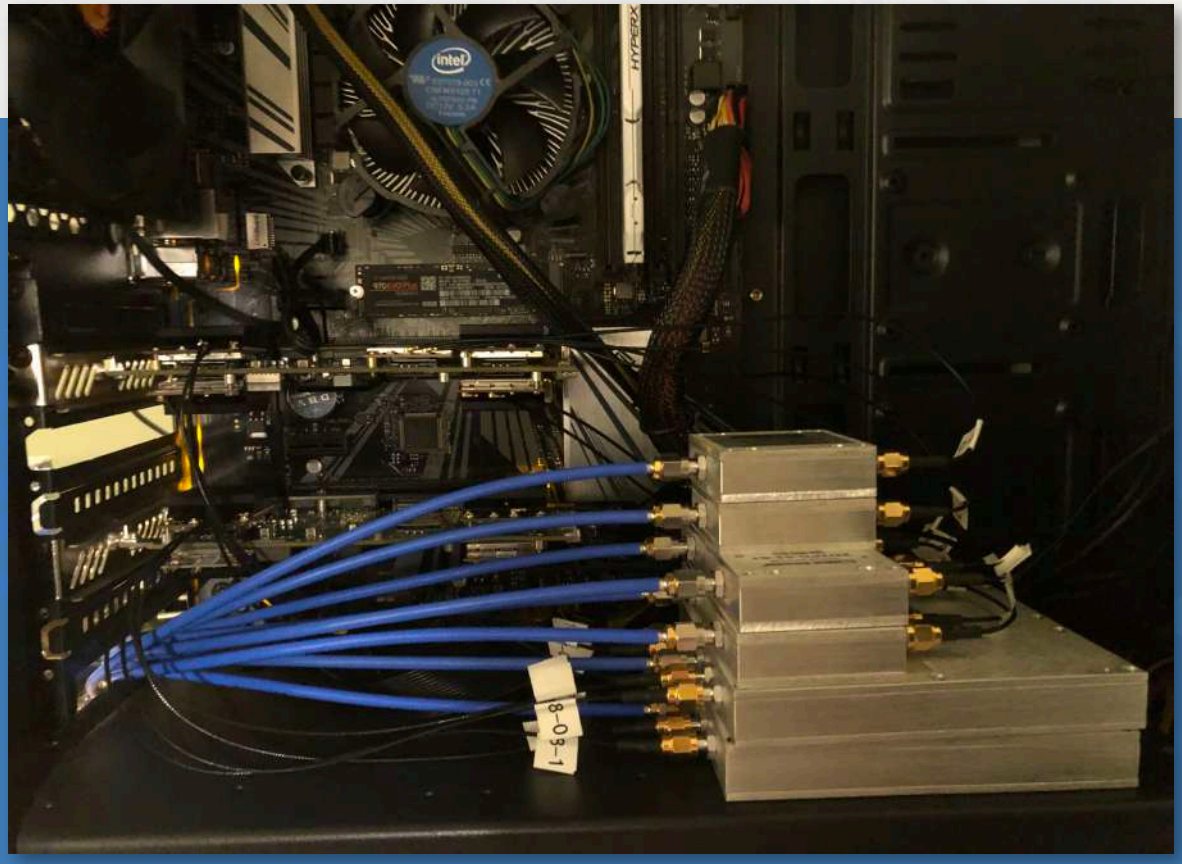
An integrated RADIUS server allows testing the same security configuration a commercial customer would use.

Advanced Features

Simultaneous IPv4 and IPv6 testing, along with 2x2 MIMO support with per-chain attenuation for impairment testing, allows testing for mixed-mode scenarios.

Future-proof

Radios can be upgraded as Wi-Fi technology evolves.



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KRAVE Testing Specifications

PROTOCOL

802.11n/ac/ax 2x2 MIMO

802.11a/b/g legacy mode support

WPA2-PSK with AES encryption

WPA2-Enterprise with AES encryption

802.11k:

- Beacon Report – Active
- Beacon Report - Passive
- Beacon Report – Beacon Table
- Link Measurement Report
- Neighbor Report
- Transmit/Stream Measurement

802.11r:

- FT-over-air mode
- FT-over-DS mode

802.11v:

- BSS Transition Management

IPv4 and IPv6 traffic generation

DEVICE UNDER TEST (DUT)

STA or AP mode

Cabled or air RF interface

Dual-band STA DUT support

Up to 3 dual-band AP DUTs

PCIe, miniPCIe, M.2, or external standalone hardware form factor

REFERENCE STA and AP

Internal 2.4/5 GHz reference STA included

Programmable reference APs (2.4 GHz only)

Optional External APs

MONITORING

Up to 3 simultaneous packet capture channels across 2.4 and 5 GHz bands

TRAFFIC GENERATION

Up to 3 captive STAs available to generate traffic to a designated AP

Industry-standard iperf profiles

ATTENUATORS

Per-chain attenuation of each captive STA

Per-chain attenuation of each AP

Typical 25 dB end-to-end cabled loss (2 APs)

Typical 30 dB end-to-end cabled loss (3 APs)

PLATFORM CONFIGURATIONS

Linux 5.6+, desktop tower PC form factor

Standard Configuration:

- Support for 2 dual-band APs
- 2 x 2.4/5 GHz packet capture
- 2 x 2.4/5 GHz captive clients
- 1 x 2.4/5 GHz reference STA

Extended Configuration:

- Support for 3 dual-band APs
- 3 or 2 x 2.4/5 GHz packet capture
- 2 or 3 x 2.4/5 GHz captive clients

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