# Spirent **Landslide**™

## Wi-Fi RF Multi-Client Emulation

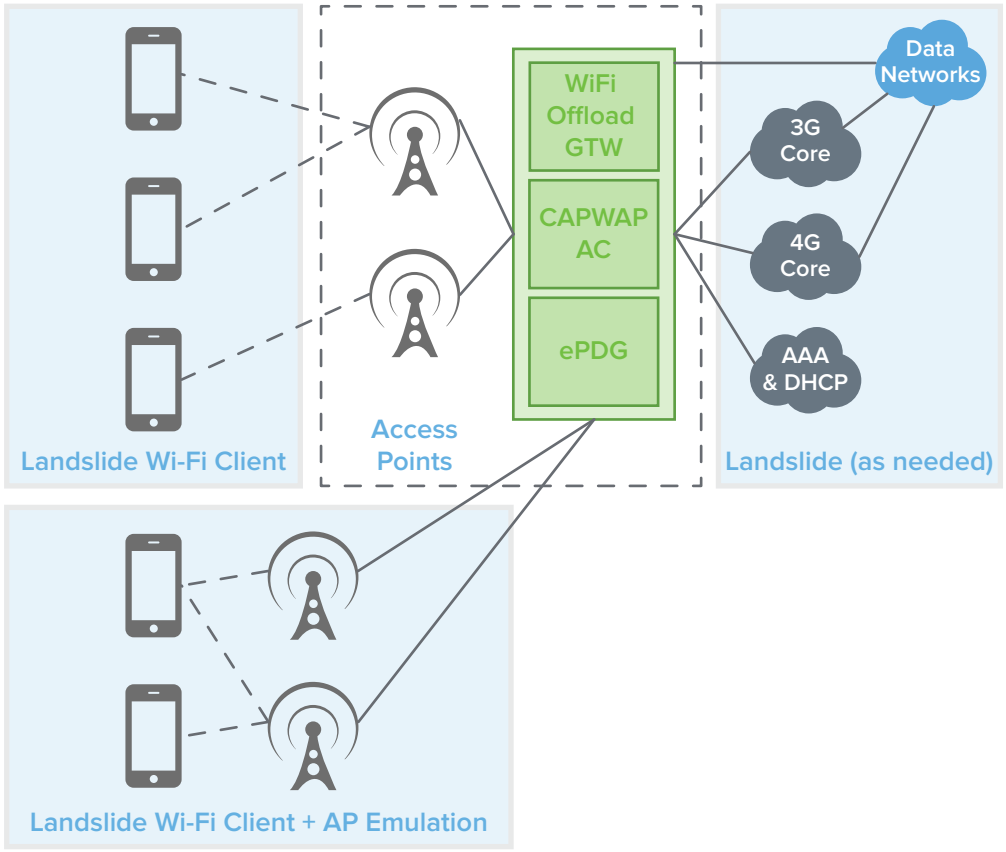
### Applications

- Multi-client Wi-Fi RF testing scenarios
- AP only and combined AP and WLAN gateway testing
- Wi-Fi roaming
- Wi-Fi client to ePDG IPsec testing
- Long term stability testing
- Regression Testing

### Standard Landside features and benefits

- Multi-user test manager environment with support for up to 32 test servers under a single test manager
- Up to 3 simultaneous users per test server/48 per test manager
- Standard web browser interface. No need to load software on user PCs
- Interactive network topology diagrams to troubleshoot and visualize complex test setups
- Full TCL automation interface for both test creation and test execution. NTAF interface provided

Landslide supports Wi-Fi RF multi-client emulation for direct testing of Access Points (APs) and end-to-end testing of Wi-Fi ecosystems that include WLAN access controllers, gateways and ePDGs. By adding one or more Wi-Fi client emulation cards to the Landslide C50 or Landslide C100 test server, users can simulate a large number of 802.11a/b/g/n/ac RF clients toward an access point via a cabled connection or over-the-air link. SIM-based authentication, Wi-Fi roaming and sophisticated L4-7 data and voice over Wi-Fi are supported on the emulated clients. Simultaneous RF client emulation and high-scale client+AP emulation is supported for loading both APs and WLAN gateways at the same time.



# Spirent Landslide™

Wi-Fi RF Multi-Client Emulation

## Card types/part numbers

- L-NIC-51 -4 transceiver/radio cardwith support for up to 256 individual 802.11 a/b/g/n/ac clients; 3x3 MIMO
- L-WIFI-51 Includes L-NIC-51, 3x20DB attenuators, and 3x6 ft SMA Cables
- L-NIC-53 -4 transceiver/radio cardwith support for up to 800 individual 802.11 a/b/g/n clients; 3x3 MIMO
- L-WIFI-53 Includes L-NIC-53, 3x20DB attenuators, and 3x6 ft SMA Cables
- L-APP-041 Landslide Wi-Fi ClientEmulation Test Application
- L-APP-041-Landslide Wi-Fi ClientEmulation Test Application for C50

## Specific features and benefits

- Independent MAC control per client
- Extensive data generation– high bandwidth application data generation including HTTP, HTTPS, HTTP redirect, FTP, RTP, SIP, etc., including “any protocol” capture and replay, network host/internet server emulation
- DNS support
- AMR-NB and AMR-WB voice codecs over Wi-Fi with POLQA quality measurements
- IR-94 video and SMSoIP
- Roaming between access points and SSIDs
- Client IPsec tunnel support for ePDG testing including APN specification and IP address assignment from 4G PGW
- EAP-SIM, EAP-AKA SIM-based mobile handset authentication
- WPS, WEP-PSK, EAP-TLS and EAP-PEAP authentication
- Web-authentication and WSPR 2.0 authentication
- Additional integrated simultaneous support for DHCP server emulation, AAA radius server emulation, AAA diameter server emulation (SWm interface), and PGW and GGSN emulation as needed
- Simultaneous Wi-Fi RF client emulation and high-scale Wi-Fi client+AP emulation (1.6 Million Clients/300,000 APs) for combined AP loading and WLAN gateway/ AC/ePDG loading
- Real time reporting of client statistics including connection status, Tx power and PHY rate

| Technical specification | L-NIC-51 | L-NIC-53 |
|---|---|---|
| 802.11 modes | 802.11a/b/g/n/ac | 802.11 a/b/g/n |
| Maximum number of emulated clients | 256 | 800 |
| MIMO supported | Up to 3x3 | Up to 3x3 |
| Number of RF ports | 3 | 3 |
| Interface connector | SMA female connector, standard thread, AC coupled, 50 Ohms | |
| Frequency range | 2.412 ~ 2.484GHz & 5.150 ~ 5.875 GHz | |
| Modulation techniques | OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM | OFDM: BPSK, QPSK, 16-QAM, 64-QAM |
| Coding supported | Supports Spatial Multiplexing, Cyclic-Delay Diversity (CDD), Low-Density Parity Check (LDPC), Maximum Ratio combining (MRC), Space Time Block Code (STBC) | |
| Supported CCK preamble types | Short and Long in 802.11n and 802.11ac modes | |
| OFDM guard intervals | 400 and 800 ns | Short and long in 802.11n mode |
| Channel bandwidth | 20 MHz, 40 MHz, 80 MHz | 20 MHz, 40 MHz |
| MCS index support | 0-31 MCS Index for 802.11n<br>0-9 MCS index for 802.11ac | 0-31 MCS Index for 802.11n |
| Frame aggregation | RX and TX: A-MPDU, A-MSDU, and Block-ACK in 802.11n 802.11ac | |
| Maximum Phy rate | 1.3Gbps for 802.11ac 80MHz channel operation<br>216.7 Mbps for 802.11n 20MHz channel operation<br>450 Mbps for 802.11n 40MHZ operation<br>IEEE 802.11 a/b/g data rates: 54 Mbps(11a), 11 Mbps (11b), 54 Mbps (11g) | 216.7 Mbps for 802.11n 20MHz channel operation<br>450 Mbps for 802.11n 40MHZ operation<br>IEEE 802.11 a/b/g data rates: 54 Mbps(11a), 11 Mbps (11b), 54 Mbps (11g) |
| TX power control | 1 db resolution | |
| 802.11 MAC control | Independent per client | |
| RoHS compliance | Yes | |

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