

A New Pathway for 5G Security Enhancement.



Delivers a collaborative, hands-on approach to security.

The 5G Security Test Bed is a unique security initiative that brings stakeholders together and allows product developers to use real networks to test 5G security enhancements.



Enhances 5G security and industry threat response.

By testing security functionality in different scenarios, industry and government can identify, mitigate, and respond to evolving threats, protecting consumers, businesses, and government agencies.



Contributes to government and industry research programs and priorities.

Government partners—including NIST, NCCoE, and the FCC's CSRIC—can use the Test Bed to review and explore the security use cases they consider most critical to their evolving needs.

5G Security Test Bed Confirms 5G Encryption Features Improve Network Security

The wireless industry's 5G Security Test Bed validated in first-of-its-kind testing that encryption techniques are incorporated into 5G networks protect data from interception, modification, or other manipulation.

The 5G STB Is the Latest Industry Initiative to Advance 5G Security

Stakeholders from across the entire wireless ecosystem work together to develop and improve security features for wireless networks and consumers. The wireless industry's new 5G Security Test Bed (5G STB) is the next piece of this commitment.

Formally launched in 2022, the 5G STB is a unique collaborative endeavor between wireless providers, equipment manufacturers, cybersecurity experts, academia, and government agencies. Its sole purpose is to test and validate 5G security recommendations and use cases from government groups, wireless operators, and others. The 5G STB is the only initiative that uses commercial-grade network equipment and facilities to demonstrate and validate how 5G security recommendations will work in practical, real-world conditions.

5G STB Proves Encryption Technology Protects User and Network Data from Cyber Threats for 5G NSA

The FCC's Communications Security Reliability, and Interoperability Council (CSRIC), a leading advisory body on wireless security, recently released recommendations for 5G non-standalone (NSA) networks, or those initial 5G networks built on top of 4G networks and technology. CSRIC's guidance is not typically a result of direct testing, so industry and academia saw value in validating the effectiveness and achievability of recent CSRIC recommendations.

For its inaugural tests, the 5G STB assessed and validated recommendations from CSRIC's VII 2020 report on optional security features for 5G NSA networks. The 5G STB successfully tested encryption methods for securing data sent from a user device through a 5G NSA network, validating that:

✓ IPsec encryption protects networks

When using an enhanced encryption method called an IPsec tunnel—a secure pathway where data is fully encrypted as it travels through the internet—eavesdroppers could not read or change the data as it was transferred through the network.

✓ Adding Transport Layer Security (TLS) enhances IPsec encryption further

The Test Bed ran testing of IPsec encryption two ways—with Transport Layer Security (TLS) and without. TLS is the type of security added through use of “https” versus “http” when visiting a webpage—an extra layer that offers basic encryption, authentication of the parties exchanging data, and verification that the data being exchanged hasn't been tampered with. Using TLS encryption, which can only be deciphered when you send the data and when it's received using digital keys, further enhanced IPsec's protections.

What Does This Mean?

Encryption protects the data you send while it moves from your device and network to somewhere else on the internet. Bad actors cannot read or tamper with the information while it travels over-the-air. This improves both your personal security and makes the network safer.

The 5G STB tests confirm that when CSRIC's 2020 recommendations are implemented for initial non-standalone 5G networks, data from consumers, governments, and enterprises is secure and unable to be tampered with.

The 5G Security Test Bed's Inaugural Members Span Industry, Government, and Academia

Wireless Providers



Industry



Academia



The Future of the 5G Security Test Bed Is the Future of 5G Security

The 5G Security Test Bed's verification of the CSRIC NSA recommendations in a real-world environment is the first of its kind—and it's just the beginning. Future test cases will assess 5G standalone (SA) architecture, where a 5G network is built with only 5G components. Anticipated test case topics include CSRIC's SA recommendations, network slicing and roaming security concerns, IMSI privacy, and new trust anchor solutions.

The 5G STB members and administrator welcome engagement from stakeholders with an interest in the mission of the 5G Security. As new participants and the diversity of test cases grow in tandem, the 5G STB will continue contributing to the future of 5G network security.

To learn more about the 5G STB, membership, or read the full report, visit www.5Gsecuritytestbed.com.