



CASE STUDY

Personalized Support Helps 5G Device Team Master New Tests in Hours



Consumer demand for wireless network capacity, availability, and speed drives the 5G ecosystem. Nowhere is the pressure more intense than in 5G device development, where first-to-market advantage provides substantial opportunities for share gain or loss in each cycle. Teams developing 5G devices must master a wide range of constantly evolving standards and tests for those standards. Standards evolution reaches far beyond radio interface, touching every system in the phone, including RF conformance and interface standards for I/O, memory, and compute.

Though USB compliance testing has existed since 1995, an older standard does not mean a simple one. In particular, policies and procedures related to the USB-IF Certification Program continue to change.

New devices must meet these test standards, which come with new techniques that require new equipment and processes. The application development team must understand these standards to ensure that its 5G solutions achieve design specifications and logo certifications.

Company:

- 5G device developer

Key issues:

- master unfamiliar USB 2.0 compliance test
- rapidly learn new test instrument

Solutions:

- remote demo with overview of test setup and procedures
- real-time access to USB compliance test experts

Results:

- reduced learning-related delays by > 2 days
- avoided \$200,000 in lost productivity



Challenge: An Updated Standard. A New Instrument. A New Test Matrix.

To test the USB interface, the wireless application development team at a 5G device development company needed to add a piece of equipment to its bench. It purchased a Keysight 81160A pulse function arbitrary noise generator for USB 2.0 receiver compliance testing. The pulse-pattern generator has all the necessary tools to measure real-life data sequences for high-speed serial buses and generate the data packets for digital bus device tests. One test verifies the sensitivity of a device's receivers on both the upstream and downstream data ports in noisy environments. It's important to perform the test correctly.

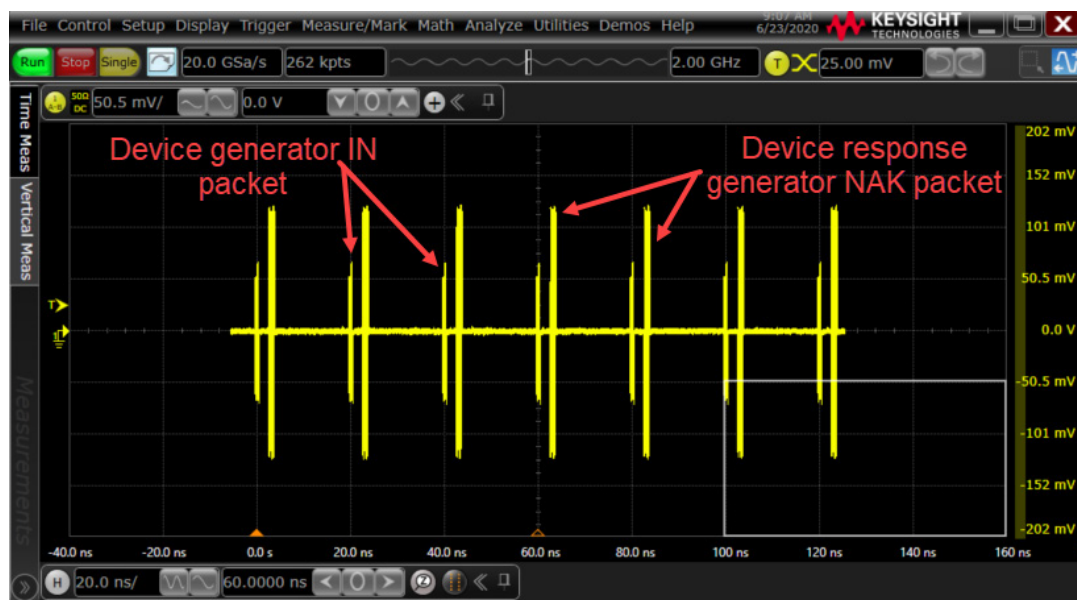


Figure 1. Receiver Sensitivity Test

The team knew the deadline for completing the USB 2.0 receiver sensitivity test loomed, threatening to compromise its tight schedule. Though this was a well-understood technology, the team did not know how to perform these new test procedures. With schedules tight and pressure high to test the device to multiple standards, the application developers could not afford to spend engineering time on trial-and-error testing. With a new piece of equipment and an unfamiliar standard test procedure, it would take days to figure it out on their own.

Solution: Personalized Support with Fast Access to a Team of Experts

Faced with the challenges of a new instrument and a new-to-them compliance standard, the 5G application developers turned to a trusted partner, Keysight.

Unknown to the team, when the company purchased the 81160A pulse function arbitrary noise generator, it received KeysightCare Assured service and support. KeysightCare Assured is a premiere support solution that offers committed four-business-hour technical response, plus repair coverage with 10- business-day repair turnaround time and proactive firmware notifications.

Getting precise, personalized support accelerated the application developers' work and propelled them into action in a matter of hours. After articulating their needs, they connected with a KeysightCare application engineer, who scheduled a live remote demonstration to provide support tailored to their specific requirements.

Over WebEx, the KeysightCare application engineer remotely demonstrated how to configure the 81160A for the required USB 2.0 receiver testing. The customer watched the demonstration remotely, learning how to successfully test both standard and non-standard USB 2.0. The KeysightCare hardware and software engineers supporting the customer received training in the latest USB specifications and test requirements, including the USB 2.0 compliance test update from February 2020. Expertise on the latest standards proved critical in resolving the customer's need quickly.

In addition, the KeysightCare application engineer recorded notes in the KeysightCare portal for future reference by the customer's 5G application development team.

Result: The Right Answer at the Right Time Saved Two Days and \$200,000

The personalized online support enabled the customer to move forward immediately and accurately complete its tests on schedule. The personalized, real-time support allowed the customer to focus on its core design and not spend days coming up to speed on a new piece of equipment and a new standard. It stayed ahead of the curve and met its schedule.

Technical problems and unfamiliarity with test equipment and procedures directly impact productivity, with even greater potential losses if these issues delay product shipments. A recent survey revealed that 53% of R&D engineers said this cost was \$100,000 a day or more — and 5% said it was more than \$1 million.¹ By reducing its time to competence, the customer easily saved two days, or about \$200,000 in productivity



¹ The survey, conducted by Dimensional Research, consisted of 305 R&D engineers from a range of global organizations, including those in the technology and telecoms sectors.

Related Information

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