

iQgig-UWB™ Ultra Wide Band (UWB) Test System

Overview

Ultra Wide Band (UWB) employs short pulses with ultra-low power for communication and ranging. Its combination of low emitted power ($< -41.3 \text{ dBm/MHz}$) and large bandwidth ($> 500 \text{ MHz}$) makes ideal for a variety of applications, such as:

- Short range wireless transmission alternative to wired connections
- Indoor positioning with centimeter-level accuracy for location and tracking applications
- Secure connection applications. Operates below the noise floor making UWB signals difficult to intercept and are largely immune to interference

Testing From R&D to the Manufacturing Floor

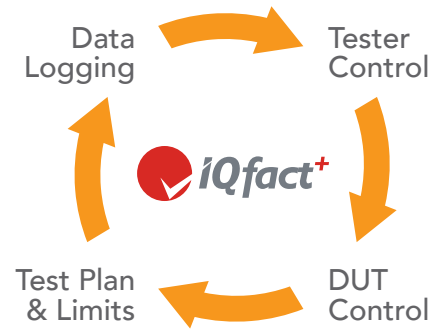
iQgig-UWB is the first fully-integrated, one-box test solution for physical-layer testing of devices enabled with UWB technology. It is ideal for both R&D characterization and high-volume production, making it the perfect platform to enable a cost-effective, seamless transition from the lab to production. The fully-integrated test solution, with intuitive GUI and programming interface, replaces traditional rack-and-stack bench equipment, simplifying test setups. Turnkey IQfact+™ application software provides quick and reliable results for both calibration and verification.

High Performance for a New Generation of UWB Devices

iQgig-UWB is a complete UWB test solution with all signal generation, analysis, and processing contained in a single, robust instrument. The integrated VSG and VSA enable comprehensive transmitter and receiver testing with over 1 GHz instantaneous signal bandwidth. iQgig-UWB has a precision trigger and response mechanism to enable accurate Time of Flight (ToF) measurements with picosecond level precision.

Validate Device Sensitivity with Wide Dynamic Range

Combined with the IQ5631 Power and Delay Control Module (PDCM), iQgig-UWB enables per-antenna receiver sensitivity testing for modulated signals below -100 dBm .

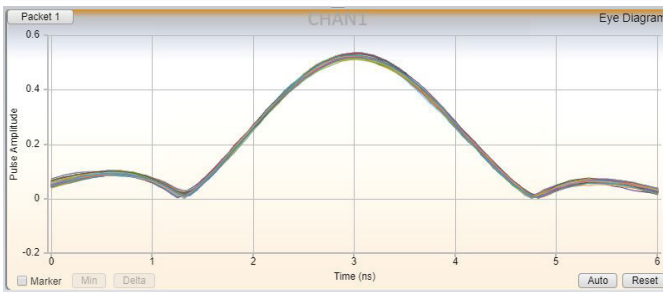
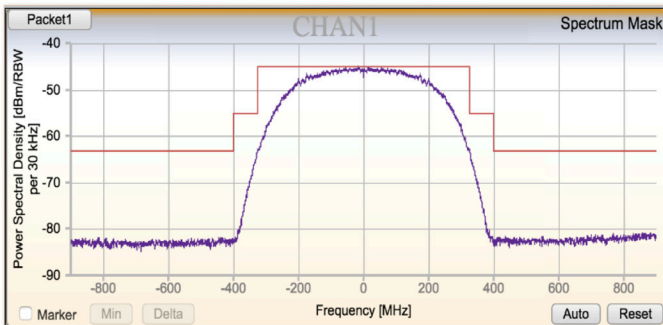


Key Features for UWB Testing

- > 1 GHz single-shot VSA / VSG bandwidth
- High-accuracy trigger mechanism for Time-of-Flight (TOF) testing
- Extended VSG dynamic range for stringent sensitivity test (with IQ5631 PDCM)

Available Turnkey Test Software Solutions

- IQfact+ software solutions for customized testing of UWB chipsets
- Ideal for characterization and production, automates tester control, DUT control, and data collection



| Measurement | Value | Unit |
|----------------------------|--------|-------|
| Carrier Frequency Offset | -6.21 | Hz |
| Chip Clock Error | -0.04 | ppm |
| Chip Frequency Error | -0.49 | Hz |
| Symbol Modulation Accuracy | 99.56 | % |
| Pulse Main Lobe Width | 1.184 | ns |
| Pulse Side Lobe Power | 18.96 | % |
| Data Rate | 0.85 | Mbps |
| PSDU Length | 20 | Bytes |
| Analysed Symbols | 229 | |
| Preamble Power | -21.01 | dBm |
| Preamble Peak Power | -9.93 | dBm |
| Data Power | -20.8 | dBm |
| Data Peak Power | -8.27 | dBm |
| PHR CRC | Pass | |
| Pulse Jitter | 0.09 | ps |
| Pulse NMSE | 7.08 | ppm |
| PSDU CRC | Pass | |

UWB Test Coverage

- TX Mask Testing
- TX Modulation Quality
 - Symbol Modulation Accuracy
 - Carrier Frequency Offset
 - Chip Clock Error / Frequency Error
 - Pulse Main Lobe width / Side Lobe Power
 - Data /Preamble power
 - Pulse Jitter
- RX Packet Error Rate (PER)
- Includes support for UWB technology standard 802.15.4z

Key Specifications

- Frequency Range: 5 to 19 GHz
- Modulation Bandwidth: > 1 GHz
- Maximum Input Power: +20 dBm
- Output Power Range: +5 to -60 dBm, -15 to -110 dBm (with IQ5631 PDCM)



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