nextgen™

Automated End-to-end User Testing

Improving End User Out of Box Experience

A New Approach to Testing

Using rapid automation technology, ATAM tests a months' worth of customer usage in just hours, shortening development cycles and increasing quality of your Internet of Things (IOT) device. ATAM controls products being tested using their standard user interfaces, just like the end user, and improves the out of box end user experience. Developers using ATAM create entirely new types of test cases by accurately simulating the end user and performing multiple functions simultaneously – just like the customer will.

Full end-to-end testing of all product features and functions

Traditional test processes separate various aspects of product functionality and test each separately. This approach can miss real world issues by not testing the entire product as an end user would. ATAM automated testing provides a 360 degree view of all product functions, including hardware interfaces, sensors, software and firmware, cloud connections, apps and more.

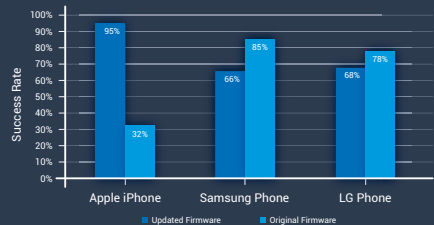## Quicker Time to Market with shorter QA cycles

Test automation shortens QA cycles by rapidly executing the tests, operates 24/7 without needing breaks and works through evenings and weekends. This approach gets results fast and captures any bugs, along with logs and traces for analysis and fix.
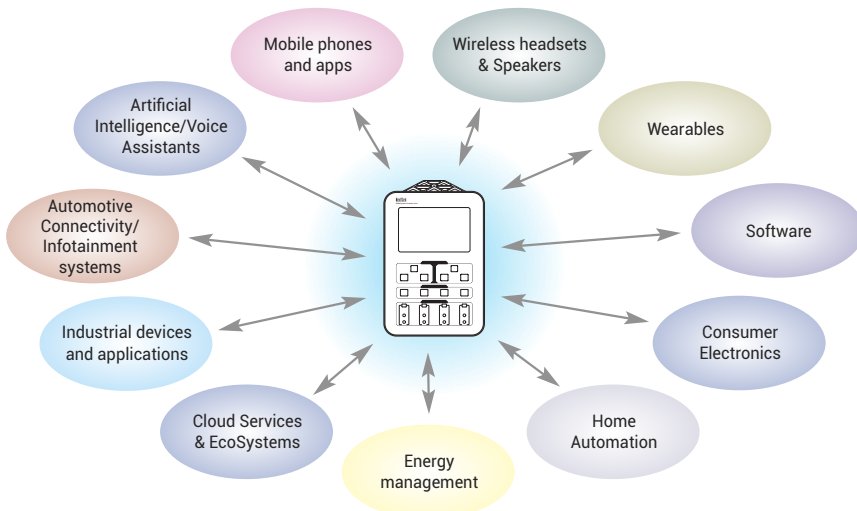
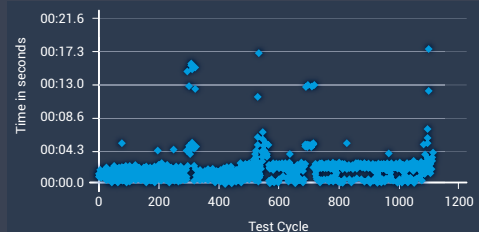

ATAM applications.

### Discovery on First Scan Success Rate

ATAM being used to validate a new firmware release. Performance comparison of new firmware build compared to original firmware. Chart illustrates pass rate for successful Bluetooth discovery on first scan from three different mobile phones.

Bluetooth Reconnection Time

Analysis of Bluetooth Reconnection performance used by an automotive OEM to optimise new firmware build. Bluetooth reconnection time over 1000 cycles showing connection time variances.
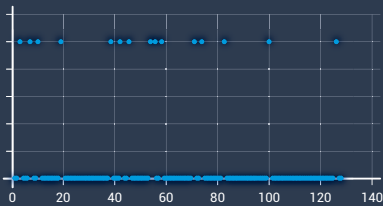
Connection time over 100 cycles
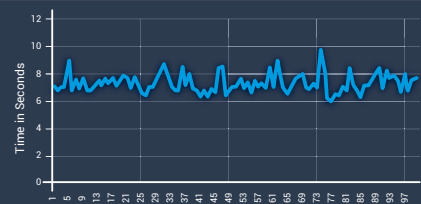
A connection time test cycle used to ensure product performance for a wearable device.

ATAM tests complex, yet everyday, use cases - such as automotive infotainment.

Repeat Bluetooth Pairing Failures

Improving product performance by using automated repeated pairing test metrics. The results show intermittent failures over time, Bluetooth air traces captured concurrently helped to locate the root cause of intermittent pairing failure.

ATAM Audio Analysis
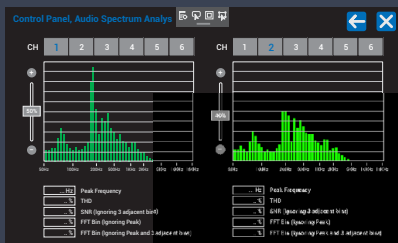
ATAM Audio Analysis showing real time FFT audio spectrum, Total Harmonic Distortion and Signal to Noise calculation. Data can be utilised during automated testing to ensure audio quality and check for signal issues such as noise, distortion and dropouts.

Find bugs before your customers find them

Automated testing with ATAM allows deeper testing that finds problems manual testing will miss. By using continuous high repetition testing ATAM will identify hard to find bugs and capture the precise parameters that allow the bug to be reproduced and eliminated.

Emulate complex use case and events

ATAM controls products as an end user will, and tests complex yet everyday use cases that end users will encounter. For example, ATAM controls automotive infotainment systems testing Bluetooth hands free, streaming music over Bluetooth and a phonebook being downloaded, receiving an incoming call, music is paused, call answered, call ended and music is resumed at the correct point in the song, all tested concurrently and at the same time.

Instant replay of bugs and failures

Reproducibility is key when debugging issues. ATAM captures and compiles all events generated during testing, including debug logs, air traces and more. Continuous smart video recording features mean a HD video record of events and bugs is captured and stored alongside other data. This makes replay of test cases and failures easy, allowing developers to locate, view and fix bugs quickly.

Fast test creation no programming required

Featuring graphical test creation with FlexFlow, test creation with ATAM is intuitive, easy to learn and doesn't require programming knowledge. The ATAM FlexFlow drag and drop interface is perfect for fast and intuitive test setup. It is easy to use and doesn't require your development team to create test cases, releasing team resources to focus on development work.
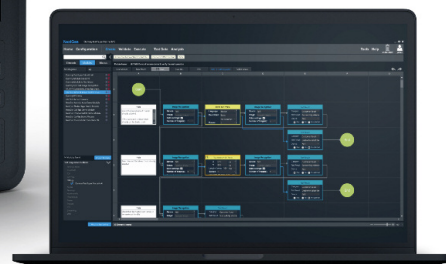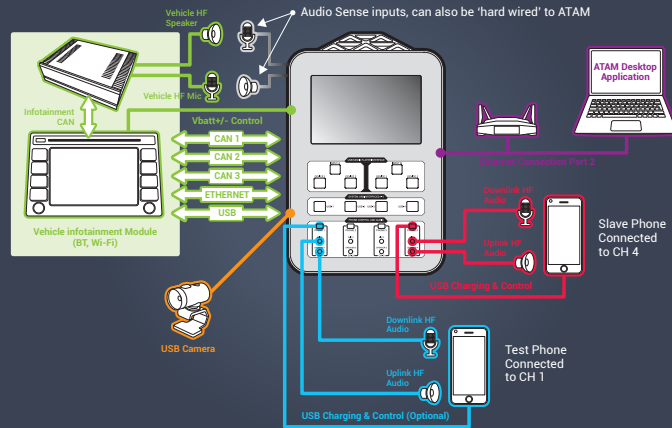
Physical Attributes

- Portable and easy to setup in lab or in field
- Wide variety of interfaces provide many control and monitoring options
- Robotic arm option extends ability to easily add support for additional devices
- Vision system with text and object recognition
- Global type approval: CE, FCC, Japan PSE, China, Korea.

## ATAM Architecture Overview – An example of an automotive use case.

Front Panel

Screen

USB Media Player Interface

System USB Interfaces 1-4

Phone 1 - 4
Mic 1 - 4
Speaker 1 - 4

Back Panel

4 USB Control Nodes Wi-Fi / Bluetooth

3 CAN Channels

2 LIN Nodes & Resistive Ladder Interface

16 Programmable I/O lines for switch control and monitoring inputs

2 Ethernet Ports

IVIS Power Control Switches

On-Off

ATAM System Specifications

Function	Specifications
Touch Screen	7" widescreen TFT Capacitive Touch Screen 800x480
USB	For phone device control
USB	Media players, mass storage, USB control
USB Webcam	Webcam interface to log device behaviour during IOP simulation and Field test in vehicle
Input-Outputs	
• USB Media Player	2 USB inputs and outputs to switch media players
• USB Power	4 USB 0.5A power ports for test devices
• Audio Out	Audio Function Monitoring
• Audio In	Audio Function Monitoring
• ATAM Mobile Client Interface	Remotely control device functions to Log device activity and state changes
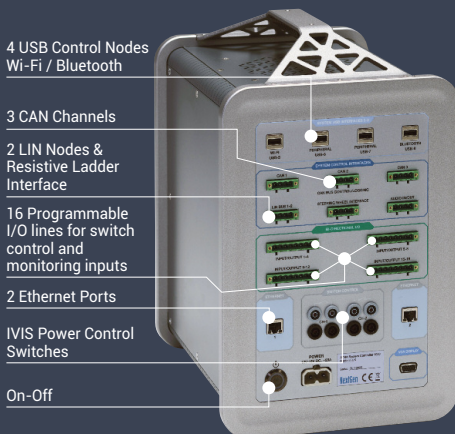
ATAM System Controller Specifications

Function	Specifications
Power	12v via external adapter
Power Switching	2 power switching inputs to multimedia system
CAN Bus	3 CAN bus interfaces configurable to specific system requirements
Steering Wheel Control	SWC input configuration for extensive range of network values
LIN Bus	LIN bus control of steering wheel and vehicle functions
Audio In Sense	Speaker audio in: audio check and distortion measurement
Programmable Switches	16 programmable switches for multi-function operations
Mic Audio In	Downlink Test audio from consumer device
Network	2 Ethernet ports
Ethernet	Wi-Fi Access Point for device control
USB Wi-Fi 2	Programmable Wi-Fi Module on Pro Version
Bluetooth Protocol Analysis	Supports API integration with Frontline(tm) BPA 600, Sodera and Ellisys(tm) Explorer 400 Bluetooth Analysers.
USB Bluetooth®	Bluetooth® node for service discovery

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