

PROFESSIONAL SUPPORT SELF-TEST SERVICES FOR ALEXA BUILT-IN PRODUCTS & AUDIO LAB SERVICES

Q2 2019



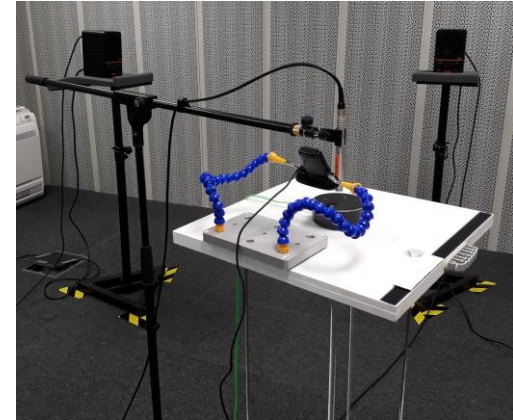
EXTERNAL USE



SECURE CONNECTIONS
FOR A SMARTER WORLD

Self-test services for Alexa Built-in products

- When you integrate Alexa into your AVS devices, you provide your customers with a built-in Alexa experience that enables them to control any Works with Alexa smart home device, access thousands of Alexa skills, play Flash Briefings, stream music and books, and more, using just their voice. You also become part of a growing community, and you'll reach new customers looking to access Alexa in new ways in and out of the home.
- Alexa Built-in products requires developers to perform self-test based on the Alexa Voice Service (AVS) self-test checklists before submitting their products to Amazon for testing.
- Device makers can work directly with NXP and utilize our lab for self-tests of Alexa built-in products.
 - Product Testing life cycle is a 3 steps process in which a product must:
 - Complete the Amazon Self-Test Checklists
 - Be submitted for Testing
 - Tested by Amazon
- All products are required to go through Functional and User Experience testing, and if Music is supported, that too has to be tested and certified by the appropriate MSPs.
- This is where Pro-Support Audio Voice Services can help complete the self-test checklists, before an Alexa Built-in product can be submitted to Amazon for evaluation prior to commercial distribution of your product.



Annotation	Scoring
1	woke up and completed the full task intended
i	woke up and the intent was understood but not the complete task
w	woke up but either did nothing, timed out or tried non-sequitur task
0	didn't wake up and therefore didn't attempt a task

Facilities - Audio Lab For Far-Field

- The NXP Lab facilities is located in Mougins France and features an absorbent room with control room and fully automated test equipment.



- Large audio test room: **4.2 x 6.1m**
- Low noise floor: **< 30 dBSPL(A)**
- Controlled reverberation
- **Localized noise** and **diffuse noise** field
- Head And Torso Simulator **HATS**
- Turn Table for **directional response**
- High precision, large frequency range, large dynamic, **reference microphone**
- Sound Pressure Level **SPL Meters**
- **Tests Automation** [calibration, run, analysis]

Alexa Qualification Tests



- Includes renting the Audio Lab facility and equipment with support of one NXP Audio support engineer for 3 days.
 - 2 days of Acoustic testing which covers False Response Rate (FRR), Response Accuracy Rate (RAR), Wake Word Detection Delay (WWDD) and 24 hours of False Accept Rate (FAR).
 - 1 day wrap-up: report review and debriefing with the Customer.
- Device makers can work directly with NXP and utilize our lab for self-tests of Alexa built-in products.
- Product testing is in two steps: self-test, and product submission. Self-test checklists ensure your product delivers a familiar Alexa experience to customers. During self-test, we will use a series of checklists provided by Amazon to ensure that your product meets music, functional, and user experience (UX) requirements.
- We will also provide self-test results in the form of Alexa Qualification Tool (AQT) reports, which you can submit to Amazon with the Certification Intake Form and the self-test checklists for the product submission step of product testing.

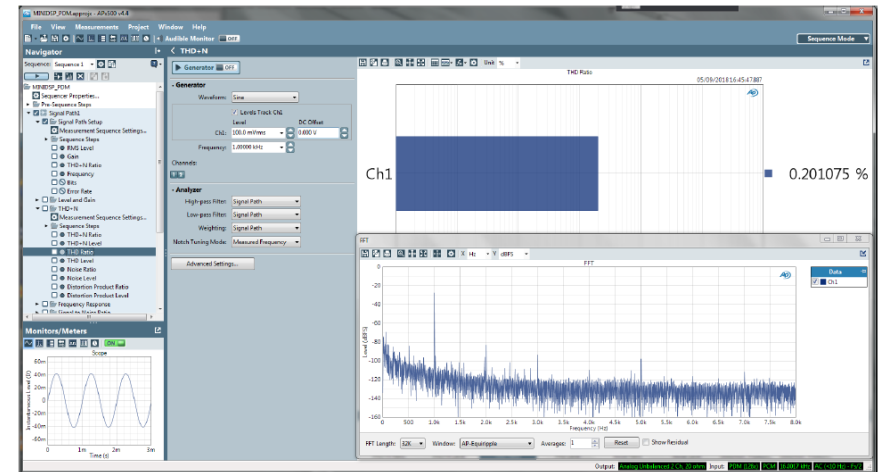
AQT Approved Self Test Lab



Audio Lab 'Audio Performance'



- Includes renting the NXP Audio Lab facility and equipment with support of one NXP Audio support engineer for 2 days.
- This service includes the measurement of a customer device audio performances such as:
 - Frequency response
 - SNR
 - THD
 - Microphone input audio path
 - Directionality
 - Electroacoustic measurement
 - Sensitivity
 - Transducers audio paths (both loudspeaker and microphone)



Alexa Built-in product Self-test



- Includes renting the Audio Lab facility and equipment with support of one NXP Audio support engineer for 4 days.
 - 1 day Alexa Built-in setup
 - 2 days of Acoustic testing which covers False Response Rate (FRR), Response Accuracy Rate (RAR), Wake Word Detection Delay (WWDD) and 24 hours of False Accept Rate (FAR).
 - 1 day wrap-up: report review and debriefing with the Customer.
 - Alexa Built-in self-test checklists
 - Benchmarking vs. EchoDot
 - Availability of all supported AVS languages

Alexa Built-in product Self-test - pack



- Includes renting the Audio Lab facility and equipment with support of one NXP Audio support engineer for 4 days (Pre-Certification pack) plus 2 additional sessions of 2 days.
 - 1 day Alexa Built-in setup
 - 3 x 2 days of Acoustic testing which covers False Response Rate (FRR), Response Accuracy Rate (RAR), Wake Word Detection Delay (WWDD) and 24 hours of False Accept Rate (FAR).
 - 3 x 1 day wrap-up: report review and debriefing with the Customer.
 - Alexa Built-in self-test checklists
 - Benchmarking vs. EchoDot

Package valid for one year.

Audio Lab Services – line up

\$ 8000

Alexa Qualification Tests

- Includes renting the Audio Lab facility
- One NXP Audio support engineer for 3 days.
 - 2 days of Acoustic testing which covers False Response Rate (FRR), Response Accuracy Rate (RAR), Wake Word Detection Delay (WWDD) and 24 hours of False Accept Rate (FAR).
 - 1 day wrap-up: report review and debriefing with the Customer.
 - Alexa Qualification Tests
 - Approved Lab for AQT

\$10,000

Audio Performance

- Includes renting the NXP Audio Lab facility
- One NXP Audio support engineer for 2 days.
- Measurements of devices audio performances such as:
 - Frequency response
 - SNR
 - THD
 - Electroacoustic measurement
 - Microphone input audio path
 - Directionality
 - Sensitivity,
 - Transducers audio paths (both loudspeaker and microphone)

\$17,500

Pre-Certification

- Includes renting the Audio Lab facility
- One NXP Audio support engineer for 4 days.
 - 1 day Alexa Built-in setup
 - 2 days of Acoustic testing which covers False Response Rate (FRR), Response Accuracy Rate (RAR), Wake Word Detection Delay (WWDD) and 24 hours of False Accept Rate (FAR).
 - 1 day wrap-up: report review and debriefing with the Customer.
 - Alexa Built-in self-test checklists
 - Benchmarking vs. EchoDot

\$30,000

Pre-Certification pack ^{1 year}

- Includes renting the Audio Lab
- One NXP Audio support engineer for 8 days.
 - 1 day Alexa Built-in setup
 - 3 x 2 days of Acoustic testing which covers False Response Rate (FRR), Response Accuracy Rate (RAR), Wake Word Detection Delay (WWDD) and 24 hours of False Accept Rate (FAR).
 - 3 x1 day wrap-up: report review and debriefing with the Customer.
 - Alexa Built-in self-test checklists
 - Benchmarking vs. EchoDot

Professional Support and Services Contacts...

To request assistance with NXP Professional Support and Services, send an email to:

prosupport@nxp.com

Or contact us directly:

Ed White (Global Pro Support Manager) ed.white@nxp.com

Michel Becle (EMEA Pro Support Manager) michel.becle@nxp.com

AVS Developer portal: <http://developer.amazon.com/avs>

NXP Pro-Support portal: nxp.com/prosupport





SECURE CONNECTIONS
FOR A SMARTER WORLD