



8 January 2024

To whom it may concern,

iBeta Quality Assurance conducted Presentation Attack Detection (PAD) testing in accordance with ISO/IEC 30107-3. iBeta is accredited by NIST/NVLAP (NVLAP Lab Code: 200962) to test and provide results to this PAD standard ([certificate and scope](#) may be downloaded from the NVLAndP website).

This testing was conducted with Shopee Singapore Pte. Ltd.'s ALC ISO v4.9 application and its associated server. Testing of the active liveness identification solution was conducted from 8 December 2023 to 8 January 2024, on two devices: a Samsung Galaxy A50 running Android 9 and an Apple iPhone 12 Pro running iOS 14.1.

Testing was conducted in accordance with the contract for a level of spoofing technique that only utilized mid-level methods to create an artefact of the genuine biometric for use in the presentation attack. The subjects for the test effort were cooperative – meaning that they were willing and able to provide any and all biometric samples, including high quality biometric facial samples. The test time for each PAD test per Presentation Attack Instrument (PAI) was limited to 24 hours. This is considered a Level 2 PAD test effort (second of three levels).

The test method involved enrolling subjects and having them authenticate five times successfully. Five species of presentation attacks (PAs) per subject were then attempted ten times each, with seven different species used over the course of the testing. The results were displayed for the tester on the device as "Face Matched, Verification Successful" for a successful presentation, and "Face Not Matched, Verification Failed" for an unsuccessful presentation. At the conclusion of the PAD testing, the subject returned and authenticated five times successfully to verify that the capture device and application was still able to recognize the genuine subject.

iBeta was not able to accomplish verification with the presentation attacks (PAs) on either the Samsung Galaxy A50 or the Apple iPhone 12 Pro. With 10 PAs for each of 5 species per subject per device, the total number of attacks was 600, and the Imposter Attack Presentation Accept Rate (IAPAR) was 0%. The bona fide False Non-Match Rate (FNMR) was also calculated and may be found in the final report.

Shopee Singapore Pte. Ltd.'s ALC ISO v4.9 application and its associated server, evaluated on both the Samsung Galaxy A50 running Android 9 and Apple iPhone 12 Pro running iOS 14.1, were tested by iBeta to the ISO 30107-3 Biometric Presentation Attack Detection Standard and were found to be in compliance with Level 2.

Best regards,

A handwritten signature in black ink, appearing to read "Ryan Borgstrom".

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