To whom it may concern:

The Swiss Center for Biometrics Research and Testing (SCBRT) is part of the Biometrics Security and Privacy group at the Idiap Research Institute. The SCBRT is accredited by the FIDO Alliance and by Google as an Accredited Biometrics Laboratory (ABL). On behalf of Identy Inc., the SCBRT has conducted an evaluation of the presentation attack detection (PAD) efficacy of the Identy Fingerprint Authentication solution in accordance with ISO/IEC 30107-3 evaluation protocols. This letter describes the evaluation and summarizes the main outcomes.

Target Of Evaluation (TOE): Identy Touchless Fingerprint Authentication solution, version 3.0.3.0. Among other components, the TOE includes three subsystems: a quality-filter to assess the quality of captured sample-images, a fingerprint-matching system, and a fingerprint-PAD system.

Biometric Trait: Contactless fingerprint images. Each biometric sample includes four fingerprints – index-, middle-, ring-, and little-finger of the same hand.

Test Harness: Motorola g7 smartphone, running Android 9. The TOE uses the rear camera of the smartphone to capture fingerprint biometric samples. For each biometric sample, apart from the final decision (accept or reject), the TOE also records the outputs (scores and decisions) of the three subsystems in a logfile.

Scope of Evaluation: PAD, using Level B attacks only. The Presentation Attack Instruments (PAI) have been created in accordance with ISO standards used to assess and triage the attack potential of presentation attacks (PA). Level B PAIs are attack-instruments that can be easily created within a day, requiring neither sophisticated equipment nor a high degree of expertise. Four Level B PAI species have been used in this evaluation. Ten subjects participated in this evaluation. For each PAI species listed in Table 1 one PAI has been constructed for each hand of each subject. Thus, a total of 80 PAIs (over the four species) have been used in this evaluation.

PA Species	Description
1	Video replayed on Apple iPad 2 tablet
2	Video replayed on an Android Smartphone
3	Four fingers cut out from image printed on glossy paper
4	Four fingers cut out from image printed on matte paper

Table 1: List of Level B PAI species used in this evaluation.

Evaluation Protocol: Ten subjects participated in this evaluation. Each subject first enrolled oneself, and then performed five *bona fide* transactions. Subsequently, five PA *transactions* were made for each PAI. Each transaction may include up to a maximum of five attempts, within a time-period of 30 seconds. A transaction ends when either an attempt in the transaction is accepted, or the time-out event occurs, or the maximum number of attempts (5) is reached. The performance metrics reported here have been computed on a transaction-basis. This evaluation is based on a total of 100 *bona fide* transactions and 400 Level B PA transactions.

Evaluation Results: The performance metrics estimated in this evaluation are presented in Table 2. The metrics BPCER and APCER have been computed as defined in the ISO/IEC 30107-3 standard.

Metric	Value	Explanation
BPCER	0%	Bona-fide Presentation Classification Error Rate (BPCER) is the proportion of *bona fide* transactions that were incorrectly rejected by the PAD subsystem of the TOE.
APCER	0%	Attack Presentation Classification Error Rate (APCER) is the proportion of PAs that were incorrectly classified as *bona fide* by the PAD subsystem of the TOE.

Table 2: Performance metrics estimated for the TOE in this evaluation for Level B presentation attacks.

Additional Analysis: In this evaluation the average capture-time per attempt, that is, the time required to capture a biometric sample, was approximately 3.7 seconds. This estimate takes into account all *bona fide* and PA attempts. The average PAD processing time, after capturing the biometric sample, was about 2.3 seconds. The PAD processing time, in fact, includes the time required to extract fingerprints (cropping, binarization) and the corresponding minutiae (required for further processing), as well as the actual time required for PAD analysis. This estimate is based on all attempts (*bona fide* and PA) that were accepted by the quality-filter.

Sincerely yours,

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