PROJECT ASSURE
DIAMOND VERIFICATION INSTRUMENT STANDARD REPORT

Summary Report for: Yehuda Diamond Company / Sherlock Holmes

Prepared For: Lisa Levinson
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Hoveniersstraat 22
Antwerp, 2018
Belgium

Received Date:	September 10, 2018
Invid Number:	671338
Assessment Dates:	January 3, 2019 through January 27, 2019
Preliminary Testing ID:	1817173S-D*
Assessment Testing ID:	1817173-A
Report Issue Date:	March 1, 2019

*****This report supersedes test report dated February 28, 2019. The report has been amended to include the definitions for each category per the DPA's request.

Approval By:

Judith V Haber

Judith V. Haber
Global Technical Lead Chemistry

Manufacturer's Name: Yehuda Diamond Company
Instrument Model: ZD1
Serial Number: ZY 14.500586
Software Version: NA
Lab Manager: Winson Wong
Analyst/Operator: Julie Mason, Lawrence Scialdone

Overview

The stated instrument was evaluated to Diamond Verification Instrument Standard Part 1 – Diamond Verification Instrument for Screening Diamonds from Synthetic Diamonds (30 January 2019) as referenced by the Diamond Verification Instrument Standard – General Requirements for Evaluation Diamond Verification Instruments (30 January 2019).

Manufacturer's Claims for Instrument Capability

Sample Composition	
Type of Stones	Diamonds and Synthetic diamonds
Stone Size Range	0.863 to 14.4 ct.
Stone Color Range	Stone Color D to J
Loose / Mounted	Loose and Mounted
Single / Batch Stone Testing	Single
Automated / Manual Feed	Manual Feed

Summary of Assessment

The instrument has been verified to be able to screen loose and mounted, round brilliant cut diamonds and synthetic diamonds in the size range of 0.86 to 3.7 mm (0.003 to 0.2 ct.) and D to J color range.

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Results of Performance Testing to the Diamond Verification Instrument Standard

Test Stone Sets used to Assess Performance

Loose, Polished Stone Test Sets	Diamond	Synthetic Diamond	Diamond Simulant
Primary Set (>2.00 mm, D-J colour) 748 diamonds, 150 synthetic diamonds and 148 diamond simulants	☒	☒	☐
Supp. Set A (>2.00 mm, D-J colour) 249 diamonds	☒		
Supp. Set AB (>2.00 mm, D-J colour) 50 synthetic diamonds, 47 diamond simulants		☒	☐

Results of instrument stone assessment testing of Primary and A&AB Combined - Expert

Test Property	Results for Loose, Polished Stone Test Sets
	Primary and A&AB Combined
Diamond accuracy (%)	97.5
Synthetic diamond accuracy (%)	100.0
Diamond referral rate (%)	na[1]
Synthetic diamond referral rate (%)	na[1]
Diamond false positive rate (%)	0.0
Synthetic diamond false positive rate (%)	2.5
Diamond false negative rate (%)	2.5
Synthetic diamond false negative rate (%)	0.0

Results of instrument stone assessment testing of Primary and A&AB Combined - Novice

Test Property	Results for Loose, Polished Stone Test Sets
	Primary and A&AB Combined
Diamond accuracy (%)	99.5
Synthetic diamond accuracy (%)	95.5
Diamond referral rate (%)	na[1]
Synthetic diamond referral rate (%)	na[1]
Diamond false positive rate (%)	4.5
Synthetic diamond false positive rate (%)	0.5
Diamond false negative rate (%)	0.5
Synthetic diamond false negative rate (%)	4.5

Notes:

na Not applicable per instrument manufacturer

[1] Does not apply because this instrument does not classify stones as 'Refer'

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Results of instrument testing speed assessment

Rate of Testing Speed Test Method	Average Test Result
☐ Test Method A: Fixed number of stones ☒ Test Method B: Fixed time frame ☐ Test Method C: Reduced number of stones	530 stones per hour

Results of instrument stone assessment testing of individual stone sets - Expert

Test Property	Results for Loose, Polished Stone Test Sets					
	Primary	A & AB	B & AB	C[2]	D & DE[2]	E & DE
Diamond accuracy (%)	97.6	97.2	na	TBD	TBD	na
Synthetic diamond accuracy (%)	100.0	100.0	na	TBD	TBD	na
Diamond referral rate (%)	na[1]	na[1]	na	TBD	TBD	na
Synthetic diamond referral rate (%)	na[1]	na[1]	na	TBD	TBD	na
Diamond false positive rate (%)	0.0	0.0	na	TBD	TBD	na
Synthetic diamond false positive rate (%)	2.4	2.8	na	TBD	TBD	na
Diamond false negative rate (%)	2.4	2.8	na	TBD	TBD	na
Synthetic diamond false negative rate (%)	0.0	0.0	na	TBD	TBD	na

Results of instrument stone assessment testing of individual stone sets - Novice

Test Property	Results for Loose, Polished Stone Test Sets					
	Primary	A & AB	B & AB	C[2]	D & DE[2]	E & DE
Diamond accuracy (%)	99.3	100.0	na	TBD	TBD	na
Synthetic diamond accuracy (%)	98.7	85.7	na	TBD	TBD	na
Diamond referral rate (%)	na[1]	na[1]	na	TBD	TBD	na
Synthetic diamond referral rate (%)	na[1]	na[1]	na	TBD	TBD	na
Diamond false positive rate (%)	1.3	14.3	na	TBD	TBD	na
Synthetic diamond false positive rate (%)	0.7	0.0	na	TBD	TBD	na
Diamond false negative rate (%)	0.7	0.0	na	TBD	TBD	na
Synthetic diamond false negative rate (%)	1.3	14.3	na	TBD	TBD	na

Notes:
na Not applicable per instrument manufacturer
TBD To Be Determined
[1] Does not apply because this instrument does not classify stones as 'Refer'
[2] C Stone set and DE Stone set deviates from the standard as a reduced number of stones were analyzed;
Set C deviation – the standard calls for 900 mixed stones to be tested, 877 stones were tested;
Set DE deviation – the standard calls for 52 synthetic/simulant stones to be tested, 51 stones are tested

Additional Notes from Assessment Findings

Below is a summary of an additional findings from assessment:

- No additional comments

Definitions

Diamond Accuracy	Defined as the fraction of test stones correctly classified by the specific diamond verification instrument as diamond.
Synthetic Diamond Accuracy	Defined as the fraction of test stones correctly classified by the specific diamond verification instrument as synthetic diamond.
Diamond Referral Rate	Defined as the fraction of diamonds that could not be classified by the specific diamond verification instrument and requires further.
Synthetic Diamond Referral Rate	Defined as the fraction of synthetic diamonds that could not be classified by the specific diamond verification instrument and requires further testing.
Diamond False Positive Rate	Defined as the fraction of synthetic diamonds incorrectly classified as diamond by the specific diamond verification instrument.
Synthetic Diamond False Positive Rate	Defined as the fraction of diamonds incorrectly classified as synthetic diamonds by the specific diamond verification instrument.
Diamond False Negative Rate	Defined as the fraction of diamonds incorrectly classified as synthetic diamond by the specific diamond verification instrument.
Synthetic Diamond False Negative Rate	Defined as the fraction of synthetic diamonds incorrectly classified as diamond by the specific diamond verification instrument.
Rate of Testing Speed	Defined as the average speed at which the diamond verification instrument evaluates unknown stones.

********** End of Report **********