NATURAL DIAMOND COUNCIL

PROJECT ASSURE
DIAMOND VERIFICATION INSTRUMENT STANDARD REPORT

Summary Report for: OGI System, Ltd. / DiaTrue CS



Prepared For:	Lisa Levinson Natural Diamond Council Hoveniersstraat 22 Antwerp, 2018 Belgium
Received Date:	November 12, 2020
Invid Number:	754068
Assessment Dates:	November 12, 2020 through November 18, 2020
Testing ID Number:	2016265S
Assessment Testing ID:	2016265
Report Issue Date:	November 24, 2020

Approval By:

Judith V Haber

Judith V. Haber
Technical Manager CRS

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Manufacturer's Name: OGI Systems, Ltd
Instrument Model: DiaTrue CS
Serial Number: 8153
Software Version: 3.1.69-3
Lab Manager: Winson Wong
Analyst/Operator: Julie Mason

Overview

The stated instrument was evaluated to Diamond Verification Instrument Standard Part 1 – Diamond Verification Instrument for Screening Diamonds from Synthetic Diamonds (23 September 2020) as referenced by the Diamond Verification Instrument Standard – General Requirements for Evaluation Diamond Verification Instruments (23 September 2020).

Manufacturer's Claims for Instrument Capability

Sample Composition	
Type of Stones	Diamonds and Synthetic diamonds
Stone Size Range	Not specified in the manual, client requested testing >2.00 mm
Stone Color Range	Stone Color D to K
Loose / Mounted	Loose and Mounted
Single / Batch Stone Testing	Batch Stone Testing
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 1.7 mm to 3.7 mm (0.02 ct. 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) 747 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) 49 synthetic diamonds, 47 diamond simulants		☒	☐
Supp. Set B (>2.00 mm, K-Z colour) 250 diamonds	☐		
Supp. Set C (1.00-2.00 mm, D-J colour) 737 diamonds, 140 synthetic diamonds and 145 diamond simulants	☐	☐	☐
Supp. Set D (1.00-2.00 mm, D-J colour) 250 diamonds	☐		
Supp. Set DE (1.00-2.00 mm, D-J colour) 51 synthetic diamonds, 47 diamond simulants		☐	☐
Supp. Set E (1.00-2.00 mm, K-Z colour) 250 diamonds	☐		

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

Test Property	Results for Loose, Polished Stone Test Sets Primary and A&AB Combined
Diamond accuracy (%)	93.7
Synthetic diamond accuracy (%)	96.0
Diamond referral rate (%)	0.0
Synthetic diamond referral rate (%)	0.0
Diamond false positive rate (%)	4.0
Synthetic diamond false positive rate (%)	6.3
Diamond false negative rate (%)	6.3
Synthetic diamond false negative rate (%)	4.0

Notes:
None

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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	201 stones per hour

Results of instrument stone assessment testing of individual stone sets

Test Property	Results for Loose, Polished Stone Test Sets					
	Primary[1]	A & AB	B & AB	C	D & DE	E & DE
Diamond accuracy (%)	94.0	92.8	na	nt	nt	na
Synthetic diamond accuracy (%)	96.0	95.9	na	nt	nt	na
Diamond referral rate (%)	0.0	0.0	na	nt	nt	na
Synthetic diamond referral rate (%)	0.0	0.0	na	nt	nt	na
Diamond false positive rate (%)	4.0	4.1	na	nt	nt	na
Synthetic diamond false positive rate (%)	6.0	7.2	na	nt	nt	na
Diamond false negative rate (%)	6.0	7.2	na	nt	nt	na
Synthetic diamond false negative rate (%)	4.0	4.1	na	nt	nt	na

Notes:
na Not applicable per instrument manufacturer
nt Not requested to be tested by the client
[1] Primary Stone set deviates from the standard as a reduced number of stones were analyzed; Primary set deviation – the standard call for 748 diamonds to be tested, only 747diamonds were tested.

Additional Notes from Assessment Findings

Below is a summary of an additional findings from assessment:

- No additional comments

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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**********

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