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**PROJECT ASSURE
DIAMOND VERIFICATION INSTRUMENT STANDARD REPORT**

**Summary Report for: Presidium Instruments Pte Ltd / Synthetic Diamond
Screener (SDS II)**



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Received Date: September 14, 2018
Invid Number: 671335
Assessment Dates: December 27, 2018 through February 21, 2019
Testing ID Number: 1817178S-E*
Assessment Testing ID: 1817178
Report Issue Date: March 14, 2019

*This report supersedes test report dated March 1, 2019. This report has been amended to correct results as this instrument classifies synthetic stones as refer.

Approval By:
Judith V Haber
Judith V. Haber
Global Technical Lead Chemistry

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	Presidium Instruments Pte Ltd / Synthetic Diamond Screener II (SDSII)		
	Date:	March 14, 2019	Testing ID:

Manufacturer's Name: Presidium Instruments Pte Ltd
Instrument Model: Synthetic Diamond Screener II (SDSII)
Serial Number: PTD003034
Software Version: Not Applicable
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 (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	1.7 to 14.4 mm (0.02 to 10.0 ct.)
Stone Color Range	Stone Color D to J
Loose / Mounted	Loose and Mounted (Open back only)
Single / Batch Stone Testing	Single 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 to 3.7 mm (0.02 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	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Supp. Set A (>2.00 mm, D-J colour) 249 diamonds	<input checked="" type="checkbox"/>		
Supp. Set AB (>2.00 mm, D-J colour) 50 synthetic diamonds, 47 diamond simulants		<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 (%)	84.5
Synthetic diamond accuracy (%)	na ^[1]
Diamond referral rate (%)	15.5
Synthetic diamond referral rate (%)	100.0 ^[2]
Diamond false positive rate (%)	0.0
Synthetic diamond false positive rate (%)	0.0
Diamond false negative rate (%)	0.0
Synthetic diamond false negative rate (%)	0.0

Notes:

na Not applicable per instrument manufacturer

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

[2] This instrument classifies synthetic stones as 'Refer'

Results of instrument testing speed assessment

Rate of Testing Speed Test Method	Average Test Result
<input type="checkbox"/> Test Method A: Fixed number of stones	240 stones per hour
<input checked="" type="checkbox"/> Test Method B: Fixed time frame	
<input type="checkbox"/> Test Method C: Reduced number of stones	

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	Presidium Instruments Pte Ltd / Synthetic Diamond Screener II (SDSII)				
	Date:	March 14, 2019	Testing ID:	1817178S-E	

Results of instrument stone assessment testing of individual stone sets

Test Property	Results for Loose, Polished Stone Test Sets					
	Primary	A & AB	B & AB	C	D & DE	E & DE
Diamond accuracy (%)	82.4	90.8	na	na	na	na
Synthetic diamond accuracy (%)	na ^[1]	na ^[1]	na	na	na	na
Diamond referral rate (%)	17.6 ^[1]	9.2 ^[1]	na	na	na	na
Synthetic diamond referral rate (%)	100.0 ^[2]	100.0 ^[2]	na	na	na	na
Diamond false positive rate (%)	0.0	0.0	na	na	na	na
Synthetic diamond false positive rate (%)	0.0	0.0	na	na	na	na
Diamond false negative rate (%)	0.0	0.0	na	na	na	na
Synthetic diamond false negative rate (%)	0.0	0.0	na	na	na	na

Notes:

na Not applicable per instrument manufacturer

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

[2] This instrument classifies synthetic stones as 'Refer'

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.

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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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