



## PROJECT ASSURE DIAMOND VERIFICATION INSTRUMENT STANDARD REPORT

**Summary Report for: Gemological Institute of America, Inc.  
iD100**



**Prepared For:** Lisa Levinson  
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Received Date: September 13, 2018  
Invid Number: 671340  
Assessment Dates: February 18, 2019 through February 20, 2019  
Preliminary Testing ID: 1903069S-B\*  
Assessment Testing ID: 1903069  
Report Issue Date: March 1, 2019

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


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Approval By:

*Judith V. Haber*  
Judith V. Haber  
Global Technical Lead Chemistry

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	Gemological Institute of America, Inc., iD100		
	<b>Date:</b>	March 1, 2019	<b>Testing ID:</b>

**Manufacturer's Name:** Gemological Institute of America. Inc.  
**Instrument Model:** GIA iD100  
**Serial Number:** A 0475 2200  
**Software Version:** 3.4.0.0  
**Lab Manager:** Winson Wong  
**Analyst/Operator:** Joseph Tiburcio, Lawrence Scialdone

### Overview

The stated instrument was evaluated to Diamond Verification Instrument Standard Part 2 – Diamond Verification Instrument for Screening Diamonds from Synthetic Diamonds and Diamond Simulants (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, Synthetic diamonds and Diamond Simulants
Stone Size Range	0.9 mm or greater (0.005 ct. or greater)
Stone Color Range	Stone Color D to J
Loose / Mounted	Loose and Mounted
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 from synthetic diamonds and simulant diamonds in the size range of 0.9 to 3.7 mm (0.005 to 0.20 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**

Test Property	Results for Loose, Polished Stone Test Sets
	Primary and A&AB Combined
Diamond accuracy (%)	89.9
Synthetic diamond accuracy (%)	na <sup>[1]</sup>
Diamond simulant accuracy (%)	na <sup>[1]</sup>
Diamond referral rate (%)	10.1
Synthetic diamond referral rate (%)	100.0 <sup>[2]</sup>
Diamond simulant referral rate (%)	100.0 <sup>[2]</sup>
Diamond false positive rate (%)	0.0
Synthetic diamond false positive rate (%)	0.0
Diamond simulant false positive rate (%)	0.0
Diamond false negative rate (%)	0.0
Synthetic diamond false negative rate (%)	0.0
Diamond simulant 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 diamond on Simulant diamond’

[2] This instrument is designed to classify synthetic diamonds and simulant diamonds as ‘Refer’

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**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	440 stones per hour <sup>[1]</sup>
<input checked="" type="checkbox"/> Test Method B: Fixed time frame	
<input type="checkbox"/> Test Method C: Reduced number of stones	

[1] Results references test report 1817175 dated February 5, 2019

**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 (%)	90.2	88.8	na	TBD	TBD	na
Synthetic diamond accuracy (%)	na <sup>[1]</sup>	na <sup>[1]</sup>	na	TBD	TBD	na
Diamond simulant accuracy (%)	na <sup>[1]</sup>	na <sup>[1]</sup>	na	TBD	TBD	na
Diamond referral rate (%)	9.8	11.2	na	TBD	TBD	na
Synthetic diamond referral rate (%)	100.0 <sup>[2]</sup>	100.0 <sup>[2]</sup>	na	TBD	TBD	na
Diamond simulant referral rate (%)	100.0 <sup>[2]</sup>	100.0 <sup>[2]</sup>	na	TBD	TBD	na
Diamond false positive rate (%)	0.0	0.0	na	TBD	TBD	na
Synthetic diamond false positive rate (%)	0.0	0.0	na	TBD	TBD	na
Diamond simulant false positive rate (%)	0.0	0.0	na	TBD	TBD	na
Diamond false negative rate (%)	0.0	0.0	na	TBD	TBD	na
Synthetic diamond false negative rate (%)	0.0	0.0	na	TBD	TBD	na
Diamond simulant false negative rate (%)	0.0	0.0	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 ‘Synthetic diamond on Simulant diamond’


[2] This instrument is designed to classify synthetic diamonds and simulant diamonds as ‘Refer’

**Additional Notes from Assessment Findings**

Below is a summary of an additional findings from assessment:

- No additional comments

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**Definitions**

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

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

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