

**PROJECT ASSURE
DIAMOND VERIFICATION INSTRUMENT STANDARD REPORT**

**Summary Report for: Taidiam Technology (Zhengzhou) Co. Ltd. / Natural
Synthetic DiamondDect™3**

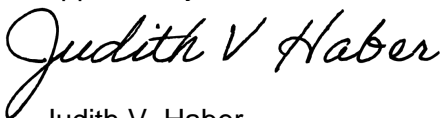


Prepared For: Lisa Levinson
Diamond Producers Association Belgium ESV
Hoveniersstraat 22
Antwerp, 2018
Belgium

Received Date: September 17, 2018
Invid Number: 671429
Assessment Dates: November 8, 2018 through January 22, 2019
Preliminary Testing ID: 1817237S-C*
Assessment Testing ID: 1817237
Report Issue Date: March 1, 2019

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

Approval By:



Judith V. Haber
Global Technical Lead Chemistry

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	Taidiam Technology (Zhengzhou) Co. Ltd. / Natural Synthetic DiamondDect™3		
	Date:	March 1, 2019	Testing ID:

Manufacturer's Name: Taidiam Technology (Zhengzhou) Co. Ltd.
Instrument Model: DD3
Serial Number: NA
Software Version: NA
Lab Manager: Winson Wong
Analyst/Operator: Julie Mason, Joseph iburcio

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	1.0 to 14.4 mm (0.005 to 10 ct.)
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 and synthetic diamonds in the size range of 1.0 to 3.7 mm (0.005 ct. – 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 (%)	96.4
Synthetic diamond accuracy (%)	99.5
Diamond referral rate (%)	0.6
Synthetic diamond referral rate (%)	0.5
Diamond false positive rate (%)	0.0
Synthetic diamond false positive rate (%)	3.0
Diamond false negative rate (%)	3.0
Synthetic diamond false negative rate (%)	0.0

Notes:


na Not applicable per instrument manufacturer

[1] Stones tested repeatedly, but only read as abnormal are classified 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	289 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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	Date:	March 1, 2019	Testing ID:	1817237S-C	

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 (%)	96.8	95.2	na	TBD	TBD	na
Synthetic diamond accuracy (%)	99.3	100.0	na	TBD	TBD	na
Diamond referral rate (%)	0.0	2.4 ^[1]	na	TBD	TBD	na
Synthetic diamond referral rate (%)	0.7 ^[1]	0.0	na	TBD	TBD	na
Diamond false positive rate (%)	0.0	0.0	na	TBD	TBD	na
Synthetic diamond false positive rate (%)	3.2	2.4	na	TBD	TBD	na
Diamond false negative rate (%)	3.2	2.4	na	TBD	TBD	na
Synthetic diamond false negative rate (%)	0.0	0.0	na	TBD	TBD	na

Notes:

na Not applicable per instrument manufacturer

TBD to Be Determined

[1] Stones tested repeatedly, but only read as abnormal are classified 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.

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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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