

Agilent High Sensitivity D1000 ScreenTape Assay Quick Guide for 4200 TapeStation System

The Agilent 4200 TapeStation system (G2991AA) is an automated platform for scalable, flexible, faster and more reliable electrophoresis. The High Sensitivity D1000 ScreenTape assay is designed for analyzing DNA molecules from 35 – 1000 bp.

Specifications

Analytical Specifications	High Sensitivity D1000 ScreenTape Assay
Sizing Range	35 – 1000 bp
Typical Resolution	35 – 300 bp: 15 %, 300 – 1000 bp: 10 %
Sensitivity ¹	5 pg/ μ L
Sizing Precision ²	5 % CV
Sizing Accuracy ^{2,3}	\pm 10 %
Quantitative Precision	0.1 – 1 ng/ μ L: 15 % CV, 1 – 50 ng/ μ L: 10 % CV
Quantitative Accuracy ⁴	\pm 20 %
Quantitative Range	10 – 1000 pg/ μ L
Maximum sample buffer strength	7 mM KCl, 20 mM Phosphate Buffer, 20 mM Guanidine-HCl, 80 mM NaCl, 20 mM Acetate
Physical Specifications	
Analysis Time	16 samples: <20 min, 96 samples: <105 min
Samples per consumable	16
Sample volume required	1 μ L
Kit stability	4 months
Kit size	112 samples

¹ Signal-to-noise >3 (single peak)

² Measured using one ladder per ScreenTape device

³ Sizing Accuracy for analysis with electronic ladder: \pm 20%

⁴ Measured against 2200 TapeStation system






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Storage Conditions

- Reagent vials and the ScreenTape device: 2 – 8 °C (36 – 46 °F).
- Store partially used ScreenTape device upright at 2 – 8 °C (36 – 46 °F) for a maximum of 2 weeks.
- Never freeze ScreenTape device. Discard any accidentally frozen ScreenTape device.

Kit Components

Part Number	Name	Color	Amount
5067-5584	High Sensitivity D1000 ScreenTape		7 ScreenTape devices
5067-5585	High Sensitivity D1000 Reagents <ul style="list-style-type: none">• High Sensitivity D1000 Ladder• High Sensitivity D1000 Sample Buffer	 	2 vials 20 µL 300 µL
5067-5587	High Sensitivity D1000 Ladder		1 vial, 20 µL

Limited Use Label License

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For Research Use Only

Not for use in Diagnostic Procedures.

Additional Material Required for the 4200 TapeStation Instrument

- Loading tips (5067-5598, 1pk or 5067-5599, 10pk)
- 96-well Plates (5042-8502) and 96-well Plate Foil Seal (5067-5154)
- Optical Tube 8x Strip (401428) and Optical Cap 8x Strip (401425)
- Vortex mixer IKA MS3 with adapter

Additional Equipment Required (Not Supplied)

- Volumetric pipette
- Centrifuges for tube strips and well plates

WARNING

Toxic agents

- Refer to product material safety datasheets for further information.
- When working with the ScreenTape assay follow the appropriate safety procedures such as wearing goggles, safety gloves and protective clothing.

CAUTION

Damage to the 4200 TapeStation instrument

- Use only the recommended consumables and reagents with the 4200 TapeStation system.

Essential Measurement Practices

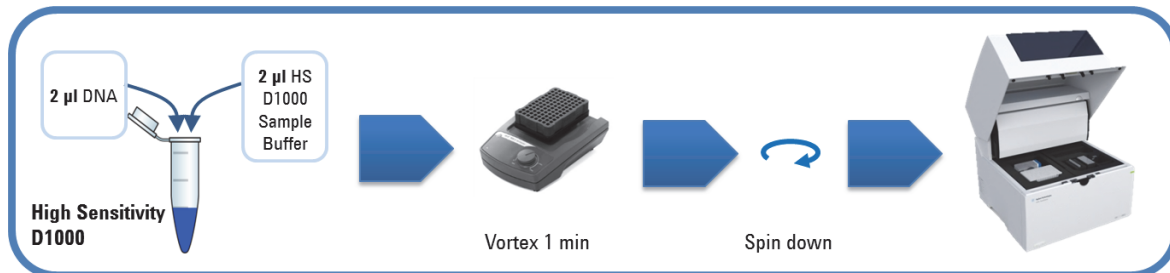
Environmental conditions	<ul style="list-style-type: none"> • Optimal operating temperature: 20 °C (68 °F) • Ambient operating temperature: 17 - 37 °C (63 - 99 °F) • Keep reagents during sample preparation at room temperature.
Steps before sample preparation	<ul style="list-style-type: none"> • For best results ensure that all kit components are allowed to equilibrate to room temperature for 30 min prior to use. • Vortex mix each vial and briefly spin down. • 'Flick' ScreenTape device to eliminate bubbles in the separation channel, which could interfere with sample loading.
Pipette carefully	<ul style="list-style-type: none"> • Always pipette reagents against the side of the well plate or sample tube. • When pipetting small volumes ensure that no liquid remains within the tip. • Ensure that no residual material is left on the outside of the tip. • Care must be taken due to the viscosity of sample buffer.
Mix properly after each pipetting step	<ul style="list-style-type: none"> • When adding sample buffer to sample, please ensure that they are mixed correctly. • To achieve this, seal the well plate or cap the sample tubes, centrifuge to collect content at the base, then vortex mix using IKA vortexer and adaptor at 2000 rpm for 1 min. • Improper mixing can lead to quantification errors.
Centrifuge samples before use	<ul style="list-style-type: none"> • Briefly centrifuge to ensure all liquid is collected at the bottom of the tubes or well plate and any air bubble is removed. • Apply seal foils to well plates prior to centrifugation and during analysis. • Improper centrifugation of well plates or sample tubes can lead to missing sample data.
Storage after use	<ul style="list-style-type: none"> • Reagent vials and the ScreenTape device: 2 – 8 °C (36 – 46 °F). • Store partially used ScreenTape device upright at 2 – 8 °C (36 – 46 °F) for a maximum of 2 weeks. • Never freeze ScreenTape device. Discard any accidentally frozen ScreenTape device.

Ladder considerations

- Ladder is exclusively loaded from location A1 on the tube strip holder.
- The analysis of one ladder per ScreenTape device is required, for 2 – 8 ScreenTape devices a distinct higher ladder volume is prepared.
- For best sizing precision and accuracy, a ladder per ScreenTape device is recommended. Alternatively an electronic ladder is also available, which can be selected in the Agilent 4200 Controller Software.

Agilent High Sensitivity D1000 Assay Operating Procedure

- 1 Allow High Sensitivity D1000 Reagents (5067-5585) to equilibrate at room temperature for 30 minutes.
- 2 Launch the Agilent 4200 TapeStation Controller Software.
- 3 Flick the High Sensitivity D1000 ScreenTape device (5067-5584) and load it into the 4200 TapeStation instrument.
- 4 Place loading tips (5067-5598) into the Agilent 4200 TapeStation instrument.
- 5 Vortex reagents and spin down before use.
- 6 Prepare ladder:
 - For 1 – 15 samples: pipette 2 μ L High Sensitivity D1000 Sample Buffer (●) and 2 μ L High Sensitivity D1000 Ladder (●) at position A1 in a tube strip (401428).
 - For 16 or more samples: pipette 15 μ L High Sensitivity D1000 Sample Buffer (●) and 15 μ L High Sensitivity D1000 Ladder (●) at position A1 in a tube strip.
- 7 For each sample, pipette 2 μ L High Sensitivity D1000 Sample Buffer (●) and 2 μ L DNA sample in a well plate (5042-8502) or a tube strip (401428).
- 8 Apply foil seal (5067-5154) to sample well plate and caps (401425) to tube strips with ladder or sample.
- 9 Mix liquids in sample and ladder vials using the IKA vortex at 2000 rpm for 1 min.
- 10 Spin down to position the sample and ladder at the bottom of the well plate and tube strip.



Sample Analysis

- 1 Load samples into the Agilent 4200 TapeStation instrument. Carefully remove caps of tube strips.
- 2 Place ladder in position A1 on tube strip holder in the 4200 TapeStation instrument.
- 3 Select required sample positions on the 4200 TapeStation Controller Software.
- 4 Click **Start**.
- 5 The Agilent TapeStation Analysis Software opens after the run and displays results.

Technical Support and Further Information

For technical support, please visit www.agilent.com/genomics/contact. Visit Agilent Technologies' web site. It offers useful information, support and current developments about the products and technology: www.agilent.com/genomics/tapestation.



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