Agilent High Sensitivity RNA 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 RNA ScreenTape system is designed for analyzing eukaryote and prokaryote RNA molecules from 50 – 6000 nt (nucleotides).

Specifications

Analytical Specifications	**High Sensitivity RNA ScreenTape Assay**
Quality Score	RIN^e
RIN^e functional range	1000 – 25000 pg/µL
Analysis Type	Eukaryotic or Prokaryotic Total RNA QC
Sensitivity[1]	100 pg/µL
Quantitative Range	500 – 10000 pg/µL
Quantitative Precision	15 % CV
Quantitative Accuracy[2]	±30 %
Maximum sample buffer strength	10 mM Tris, 1 mM EDTA
Physical Specifications	
Analysis Time	16 samples: <35 min, 96 samples: <180 min
Samples per consumable	16
Sample volume required	2 µL
Kit stability	4 months
Kit size	112 samples

1 Signal-to-noise >3 (single peak)
2 Measured against 2200 TapeStation System

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Storage Conditions

- Reagent vials and the ScreenTape device: 2 – 8 °C (36 – 46 °F).
- Store High Sensitivity RNA Ladder below -20 °C (-4 °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
5067-5579	High Sensitivity RNA ScreenTape		7 ScreenTape devices
5067-5580	High Sensitivity RNA ScreenTape Sample Buffer		1 vial, 250 µL
5067-5581	High Sensitivity RNA ScreenTape Ladder		1 vial, 10 µL

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
- Heating block or PCR machine

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

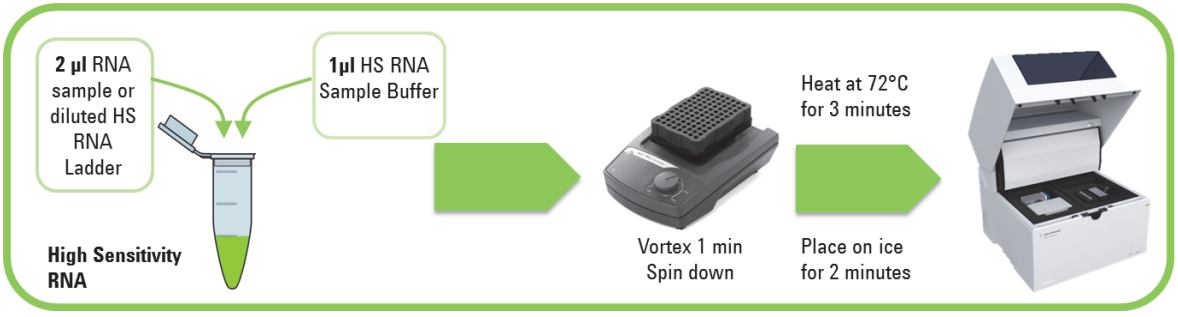
Environmental conditions	• Optimal operating temperature: 20 °C (68 °F) • Ambient operating temperature: 14 - 30 °C (57 - 86 °F) • Keep reagents during sample preparation at room temperature.
Working with RNA samples	• Wear gloves all the times. • Thaw RNA samples and ladder on ice and keep them on ice during sample preparation. • Ensure all working areas and plastic ware are RNase free.
Steps before sample preparation	• For best results ensure that High Sensitivity RNA sample buffer is 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	• 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	• 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	• 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	• High Sensitivity RNA sample buffer and the ScreenTape device: 2 – 8 °C (36 – 46 °F). • High Sensitivity RNA ScreenTape Ladder should be stored at -20 °C (-4 °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.
- For best sizing precision and accuracy, a ladder per TapeStation run is recommended. Alternatively an electronic ladder is also available, which can be selected in the Agilent 4200 Controller Software.

Agilent High Sensitivity RNA Assay Operating Procedure

1 Allow High Sensitivity RNA Sample buffer (5067-5580) to equilibrate at room temperature for 30 min.
2 Thaw High Sensitivity RNA ladder (5067-5581) and total RNA samples on ice.
3 Launch the Agilent 4200 TapeStation Controller Software and select RNA assay mode under settings.
4 Flick the High Sensitivity RNA ScreenTape device (5067-5579) and load it into the 4200 TapeStation instrument.
5 Place loading tips (5067-5598) into the Agilent 4200 TapeStation instrument.
6 Vortex reagents and spin down before use.
7 Prepare diluted Ladder solution by adding 10 µL RNase free water to the High Sensitivity RNA Ladder vial and mix thoroughly. Pipette 1 µL High Sensitivity RNA Sample Buffer (●) and 2 µL diluted High Sensitivity RNA Ladder (●) at position A1 in a tube strip (401428).
8 For each sample, pipette 1 µL High Sensitivity RNA Sample Buffer (●) and 2 µL RNA sample in a well plate (5042-8502) or a tube strip (401428).
9 Apply foil seal (5067-5154) to sample well plate and caps (401425) to tube strips with ladder or sample.
10 Mix liquids in sample and ladder vials using the IKA vortex at 2000 rpm for 1 min.
11 Spin down to position the sample and ladder at the bottom of the well plate and tube strip.
12 Samples and ladder denaturation:
   a Heat samples and ladder to 72 °C (162 °F) for 3 min.
   b Place samples and ladder on ice for 2 min.
   c Spin down to position the samples 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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