TECHNICAL PROCEDURE

SOP Number: S_HA_CD_SOP0050

SOP Name: Viewing Thromboelastography (TEG) Results

Document review and amendment history held on Q-Pulse

Acknowledgement & Understanding of SOP documented in Q-Pulse

Location of Copies: 1. Coagulation SOP Folder (JCUH)

2. Intranet

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Introduction

Principle and Purpose of Examination

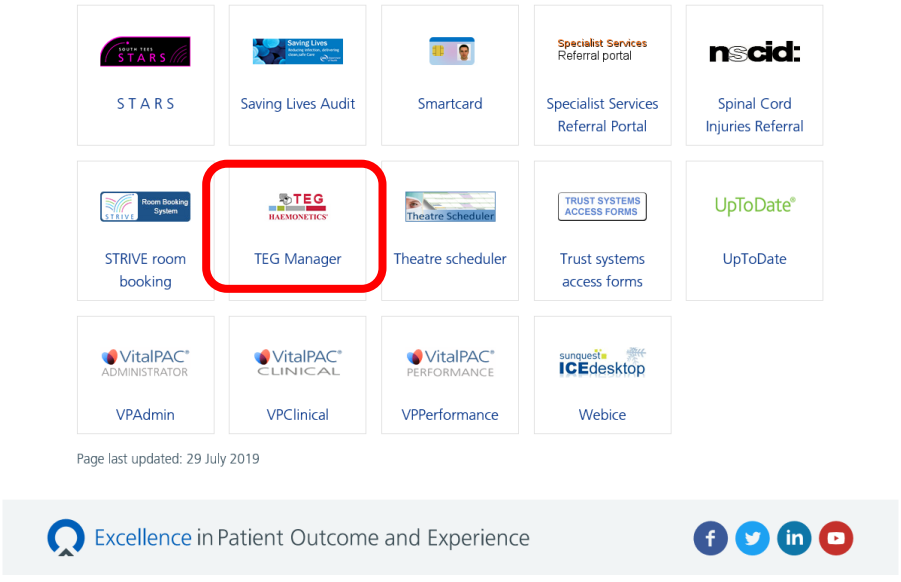
TEG is a real time analyser of whole blood that can quickly provide patient results to allow for faster treatments and decision-making. The concept of individualised goal-directed therapy allows clinicians to treat each patient more appropriately. From testing whole blood, TEG measures the viscoelastic properties in a functional way. TEG is a diagnostic tool that provides clinicians with the most complete information to determine the right blood product or drug, at the right time, to manage a patient's risk for haemorrhage or thrombosis.

Clinical Relevance

TEG has been shown to help differentiate between surgical bleeding and a pathological coagulopathy; this information can support the need for further exploration of surgical sites to ensure surgical haemostasis. TEG can express function and pinpoint dysfunction in the haemostatic process. By doing so, it can reference the types and amounts of blood products to stop bleeding. It can also be used to monitor anti-platelet drugs and anticoagulants to help reduce thromboembolic complications.

The TEG service is provided by the Coagulation department at James Cook University Hospital where the testing is performed. Live remote viewing can be accessed from the South Tees NHS Trust Intranet page

On the intranet page, go to **IT Systems** and then **TEG Manager**



Requesting Requirements

TEG requests can be ordered through WebIce.

There are two options on WebIce for TEG requests:

- Routine TEG profile (this incorporates a CK, CKH, CFF and CRT and is used for major trauma and routine monitoring of patients)

- Platelet Mapping (this determines the MA (clot strength) and the level of inhibition caused by antiplatelet therapy).

Theatres without access to WebIce (cardiothoracics) may use a manual requesting form for TEG requests.

Ensure the provided TEG request form is filled in appropriately with date and time, requesting clinician and telephone extension. TEG request forms contain four categories. Fill in the appropriate group whether you are using the TEG in the major haemorrhage protocol, a general TEG screen, for cardiac surgery or as a pre assessment screen. Please ensure all drugs and products given are indicated.

Specimen Requirements

Whole blood collected into 1x vacutainers containing tri-sodium citrate (blue top).
Used for Routine TEG

Whole blood collected into 1x vacutainers containing Lithium Heparin (green top).
Used for Platelet Mapping

Note Lithium Heparin (green top) samples MUST have a date and time on them and cannot be tested until 30 minutes post-venepuncture.

Samples should ideally be tested within 30 minutes (unless platelet mapping, which should be tested at 30 minutes) but should not be tested more than 2 hours post venepuncture.

Sample must be labelled with at least 3 points of identification which must include surname, forename, date of birth and/or hospital number.

Transportation Requirements

The TEG requests MUST reach the Laboratory within 30 of venepuncture.

Health and Safety and COSHH, Risk Assessment

N/A

Contact Information

If further advice is required please contact the Coagulation Laboratory:

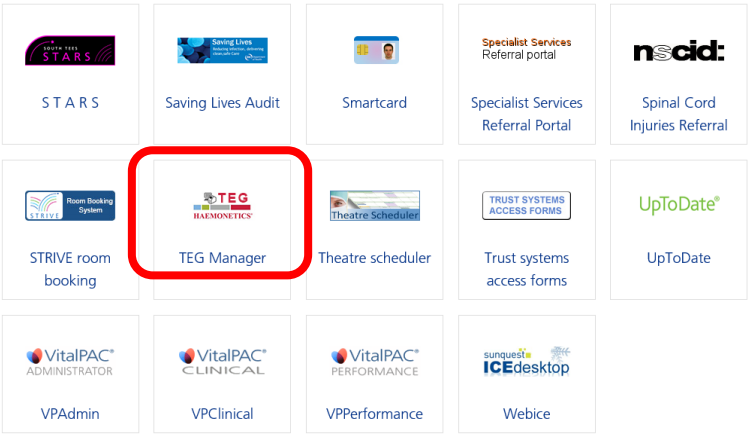
Extension 54315 (09:00 – 17:30)
Extension 52630 (17:30 – 09:00)

Daniella M Winterburn Lead Clinical Scientist in Coagulation daniella.winterburn@nhs.net
Rachel Webb Senior Biomedical Scientist in Coagulation rachel.webb5@nhs.net
Lee Ford-Huggins Senior Biomedical Scientist in Coagulation lee.ford-huggins@nhs.net

For clinical advice please contact Dr A Wood, Dr J Maddox, or the on-call Haematologist if neither are available.

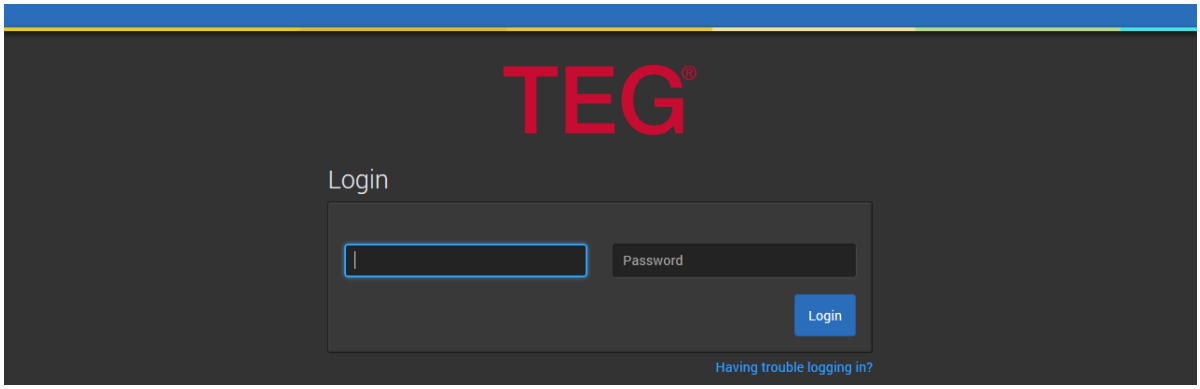
Computer and Software Login

On the intranet page, go to **IT Systems** and then **TEG Manager**

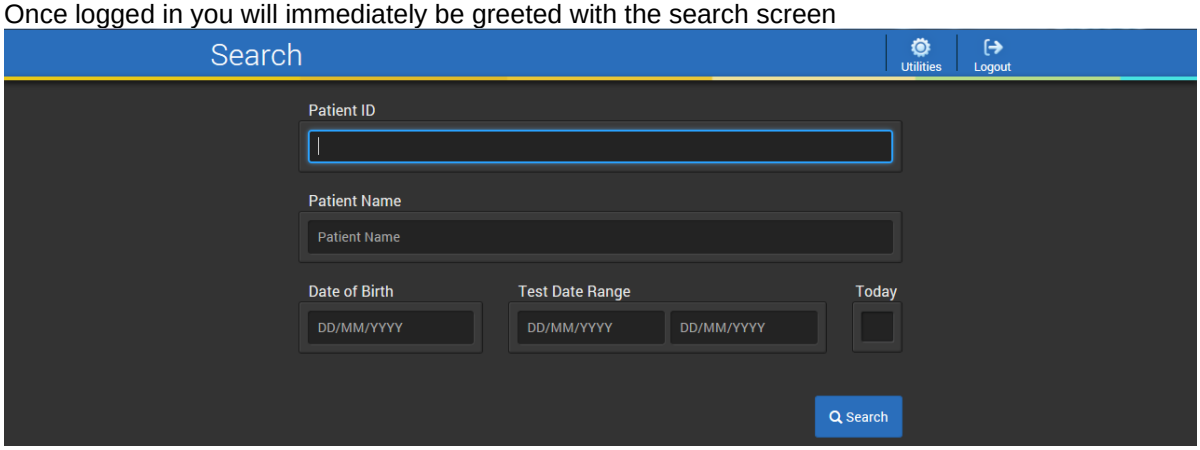


Log in to TEG Manager using your username and password

If you have forgotten your username/password, please contact a member of the coagulation senior team (see contact information) or Ian Whitehead (ian.whitehead@nhs.net) for a password reset.



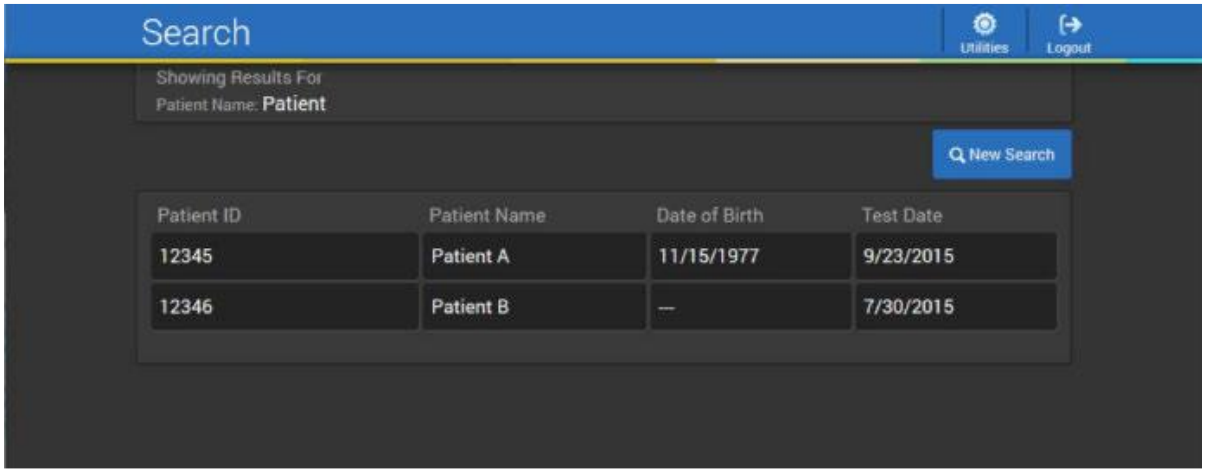
Once logged in you will immediately be greeted with the search screen



Select today for quick access to active or recent tests or enter desired **patient ID** (hospital number) or **patient name**

Viewing Traces

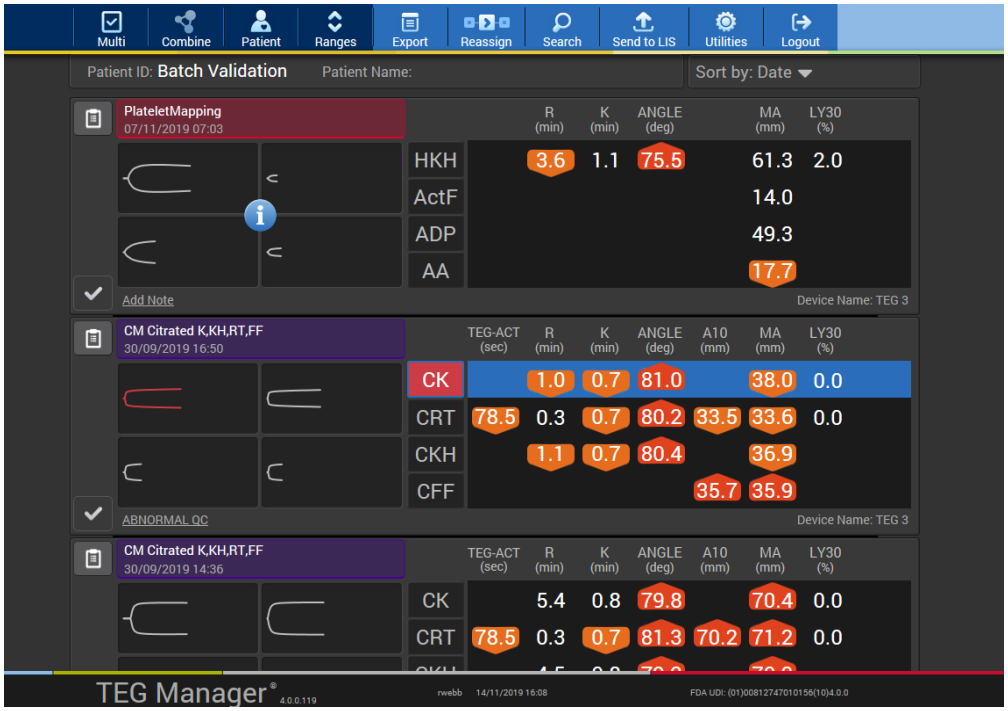
After you perform a search, up to a maximum of 100 search results are displayed on the *Search Results* screen. The **Test Date** column displays the date of each patient's most recent test.



On the *Search* results screen, select a patient record. Tests associated with that patient record are displayed on the *Main* screen

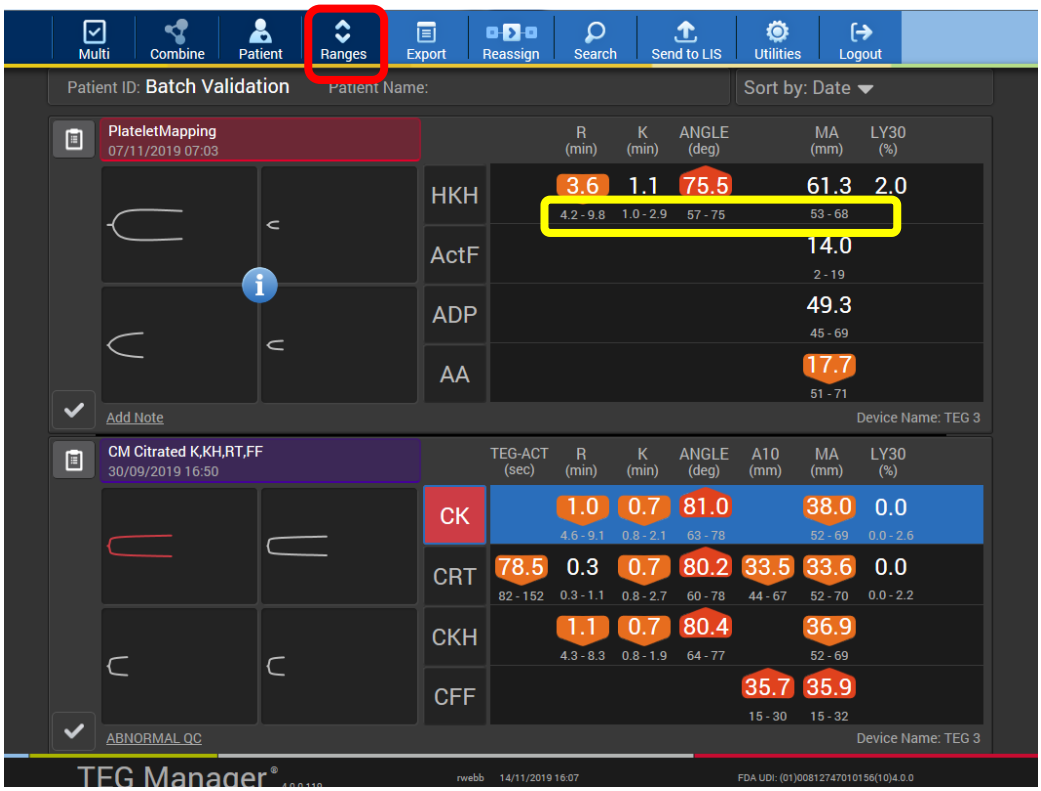
After you select a search result from the *Search Results* screen, the most recent active and completed tests are displayed on the *Main* screen. The *Main* screen enables you to view the tracings, and export the results.

When you select a search result on the *Search Results* screen, all of the selected patient's tests are displayed on the *Main* screen. The tests are sorted by date, with the most recent test displayed first.



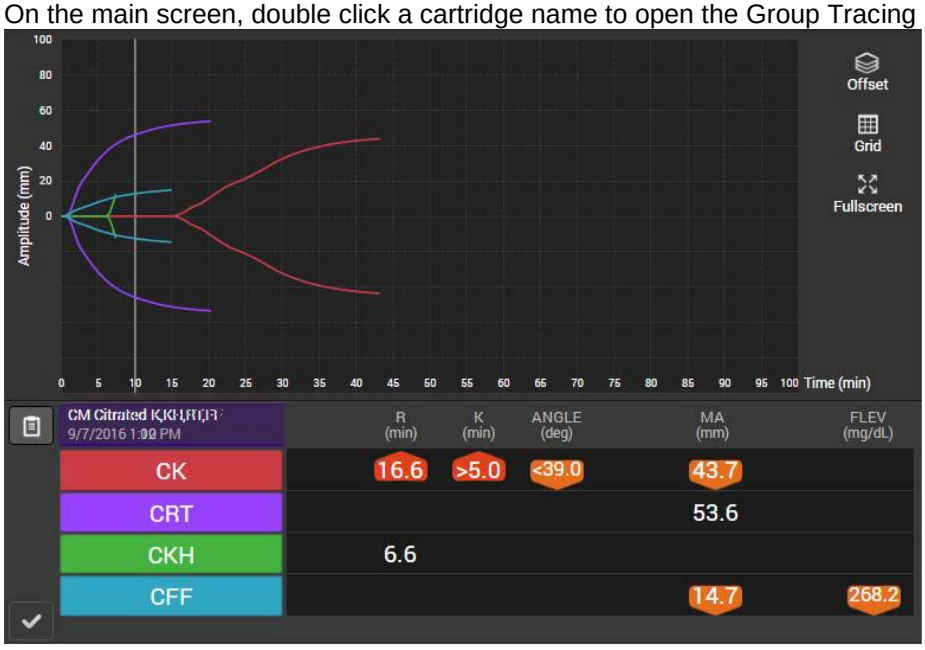
Displaying Reference Ranges for Test Results

Selecting the ranges button (highlighted in red) will display the normal reference ranges below each parameter (highlighted in yellow).



Viewing Group Traces

On the main screen, double click a cartridge name to open the Group Tracing Details screen.



At the bottom of the screen the parameters table displays each test name and result. Each row is labelled using a unique colour. Each colour corresponds to the colour of a single trace within the group trace.

Click a row in the parameters table to hide or re-display the corresponding trace within the group.

A group trace is comprised of multiple overlapping traces; click **offset** to see the individual traces more clearly.

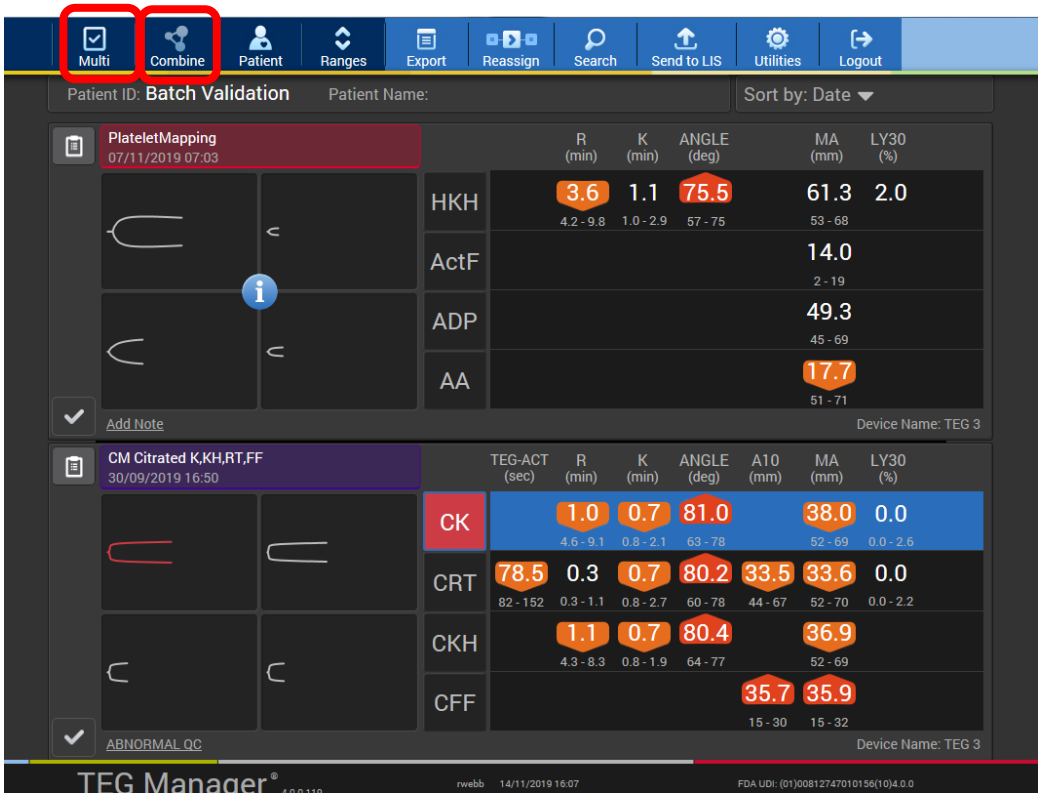
Percent Inhibition/Aggregation results are displayed at the bottom of the parameters table, if they are applicable.

Viewing Multiple (Composite) Traces

You can combine any number of single tracings or group tracings into a multiple (composite) tracing. The selected tracings are overlaid in a single trace. This enables you to compare test results.

On the main screen, click **Multi**
Select two or more single tracings
Click **Combine**

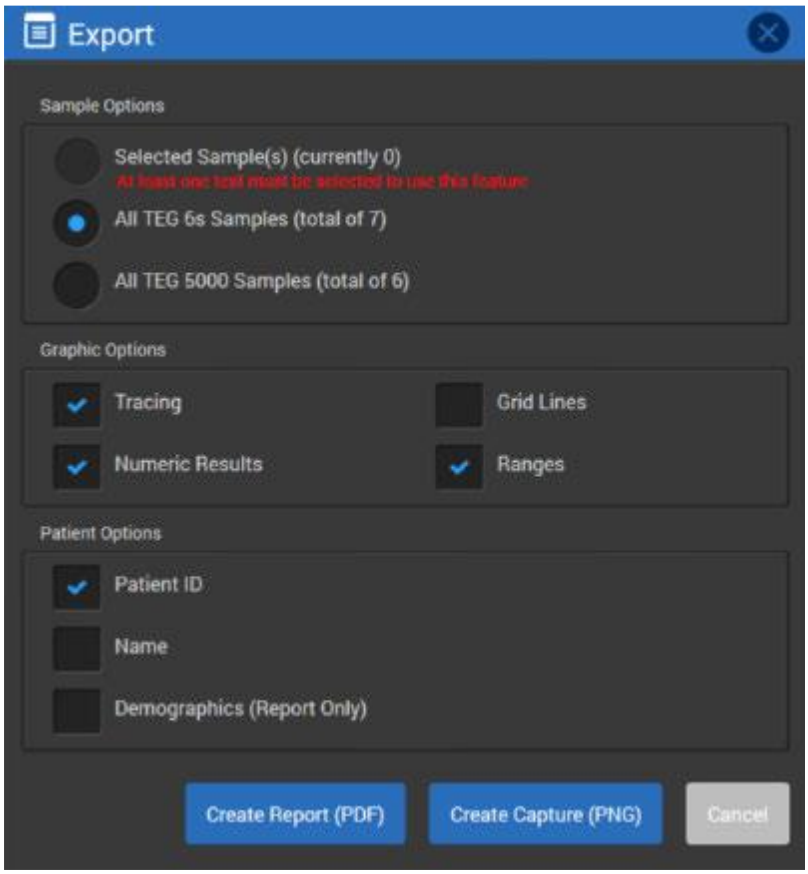
The selected tracings are combined into a composite tracing



Exported Test Results

This enables you to export test results to PDF or to a PNG image file, including exporting composite tracings.

On the *Main* screen either select a group tracing or a single tracing; or click **Multi** and then select two or more tracings to export them.



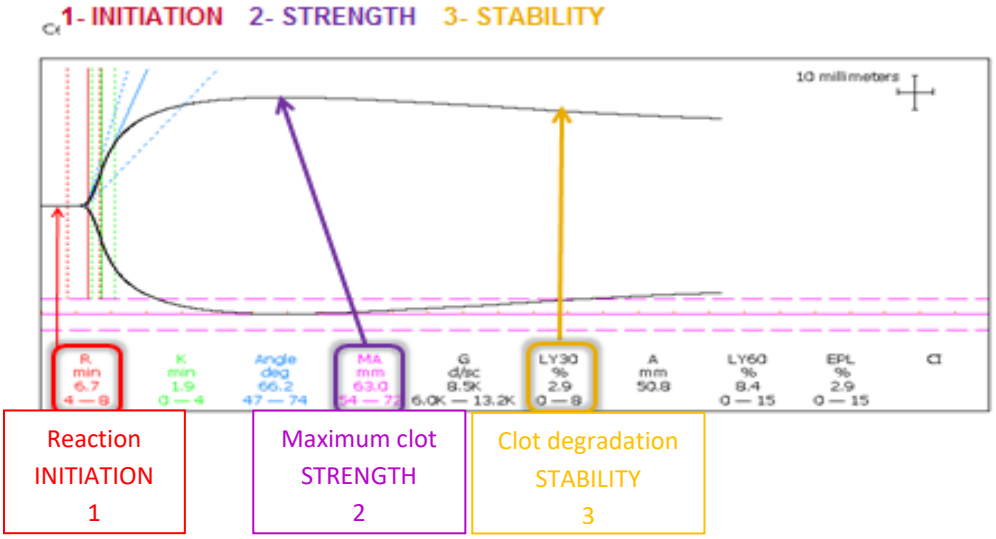
Select from the following options to specify what to include in the export:

- *Selected Samples*, *All TEG 6s Samples*, or *All TEG 5000 Samples*
- *Tracing*
- *Grid Lines*
- *Numeric Results (*parameter values and percent inhibition/aggregation results)
- *Ranges*
- *Patient ID*
- *Name* (patient's name)
- *Demographics (Report Only)* - patient's age, birthdate and gender.

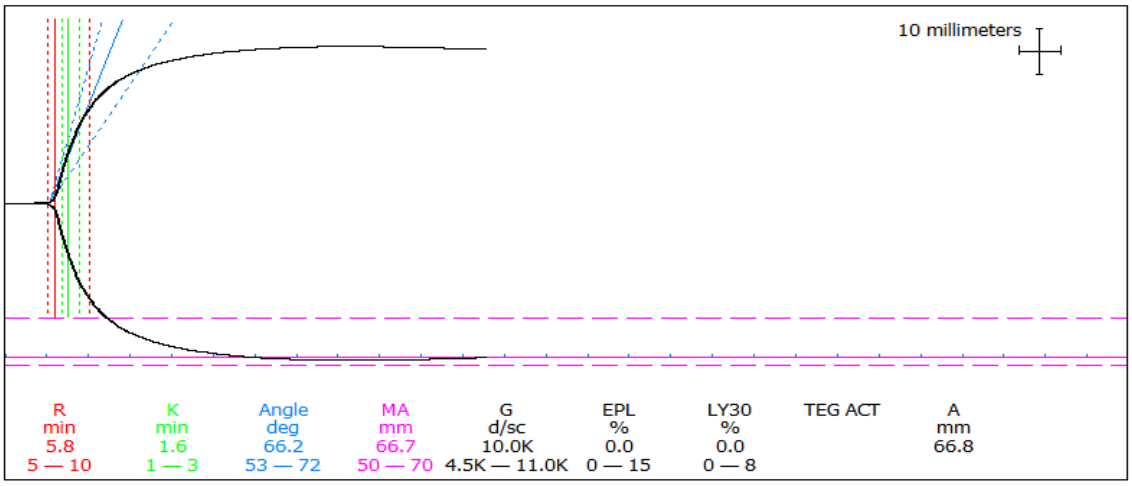
Click **Create Report (PDF)** or **Create Capture (PNG)**. The PDF or PNG file is created automatically.

View the file, print it, or save it for later viewing.

Basic Trace Interpretation



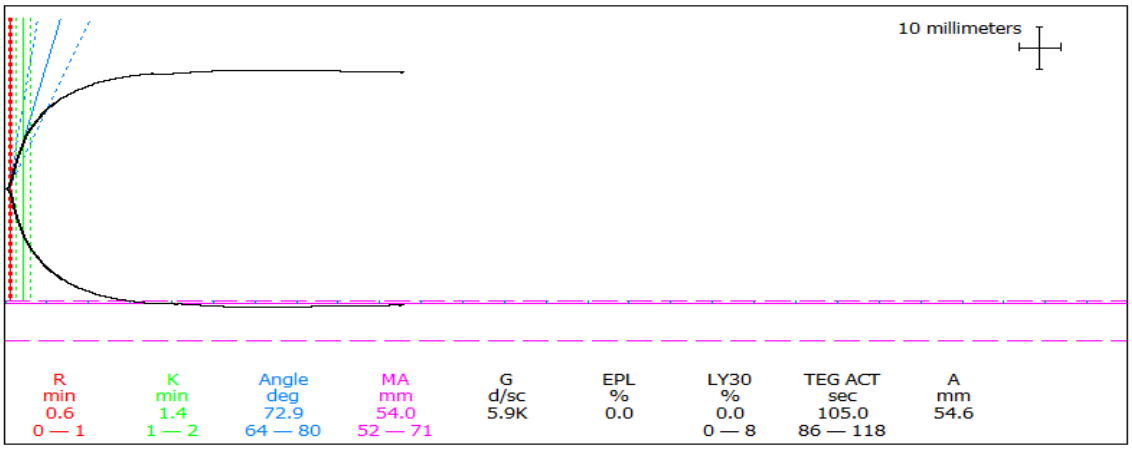
Citrated Kaolin (CK)



This is the standard TEG profile expressing initiation, amplification, propagation and dissolution phases of clot development and breakdown

- R-Time: This represents the clot initiation
- K-Time. This represents the rate of clot development
- MA: This represents the clot strength
- LY30: This represents the clot stability

Citrated Rapid TEG (CRT)



The Rapid TEG® essentially provides a quicker assessment of the clot development and clot breakdown. It provides a more immediate MA value and can be used in conjunction with the R-Time of the CK curve and the MA of the CFF to provide a quick initial assessment of clot initiation, strength and stability.

Citrated Kaolin Heparinase (CKH)

This is used in conjunction with the CK to assess heparin effect. If the R-Time of the CK trace is prolonged but the R-Time of the CKH trace is normal, this indicates the presence of heparin.

Citrated Functional Fibrinogen (CFF)

This provides the clot integrity based on fibrinogen contribution.

- The MA is the key value:
    - ↑ MA = increased fibrinogen contribution to the clot
    - ↓ MA = decreased fibrinogen contribution to the clot