

## **ANALYZER CALIBRATION CERTIFICATE**

### **CALIBRATION PROTOCOL :**

The purpose of this calibration protocol is to define the qualifications and the acceptance standard in order to verify the normal operation and function of the Dirul CS- T180 auto chemistry analyzer in the laboratory. Trained knowledgeable personnel from Genworks Health Pvt Ltd along with the department personnel will perform and review analyzer calibration protocol as mentioned by the manufacturer. The satisfactory outcome of this procedures assures that the system functions according to the parameters.

### **EQUIPMENT INFORMATION**

**Instrument Name : DIRUI CS-T180 AUTO CHEMISTRY ANALYZER**

**Model/Type : CS T180**

**Serial No : 200T180CS0035K**

**Installation Date : 09.04.2021**

**Calibration Done On : 04.04.2024**

**Next Calibration Due On : 05.04.2025**

**Laboratory/Hospital : INTERNATIONAL DIAGNOSTIC & MEDICAL CENTRE**

**42,Swarnamoyee road, Beharampore, Murshidabad, WB-742101**

### **Supported By :**

Genworks Health Pvt Ltd, 12 floor DN 62, DN Block, Sector V, Bidhannagar, Kolkata, West Bengal 700091

This is to certify that this Analyzer has been inspected and calibrated for following parameters.

| TEST PARAMETER                       | TARGET VALUE & RANGE           | OBTAINED VALUE |
|--------------------------------------|--------------------------------|----------------|
| INPUT VOLTAGE                        | 230-240V AC                    | 231V AC        |
| LAMP INTENSITY CHECK                 | 9000-18000 for all wavelengths | 9500 to 11,500 |
| CUVETTE CHECK                        | <+/- 1500 for all wavelengths. | within +/- 150 |
| INCUBATOR TEMP                       | 37 degree +/-0.3               | 37 degree      |
| REAGENT COMPARTMENT<br>COOLING CHECK | 4 to 10 degrees centigrade     | 5.1 degree     |
| DETECTOR PERFORMANCE<br>CHECK        | Voltage b/w 3.5 to 4.5V        | 3.7 to 4.2V    |
| 12V LAMP SUPPLY                      | 12 +/-0.3V                     | 12.10V         |
| 5V SUPPLY                            | 5+/-0.3V                       | 5.01V          |
| 24V SUPPLY                           | 24 +/-0.3V                     | 23.97V         |

The results are obtained as per specifications & tolerance ranges. Routine chemistry parameters precision study was carried out. The CV's obtained are in acceptable range (< 3.0% CV). Calibrations of routine tests were also done & the results of controls & samples found satisfactory.

**Report Sign Off:**Calibration Done By: **Sourav Chanda**

Designation: Application Specialist-IVD

Date &amp; Sign:



Note: Supportive data to be attached along with this certificate.

## Calibration Curve

Calibration Method: 2 Point Linear

Calibration Time: 21-06-2024 11:36:07

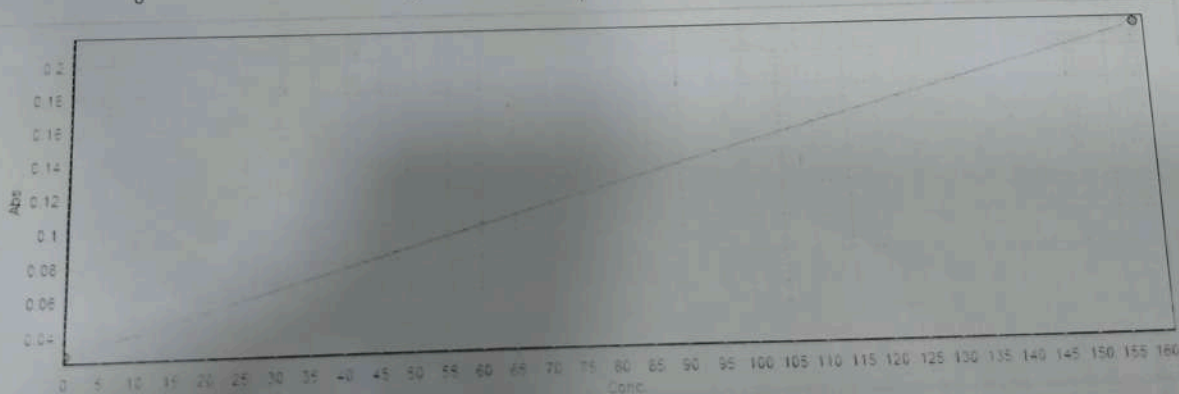
Test Item: TC

Absorbance: 0.02935

Calibrator: 1

|         |          |   |   |   |
|---------|----------|---|---|---|
| S1 Abs  | K        | A | B | C |
| 0.02935 | 867.4438 | 0 | 0 | 0 |

| Calibration | Concentration | Abs.    | Calibration | Concentration | Abs. |
|-------------|---------------|---------|-------------|---------------|------|
| 1.          | 0             | 0.02935 | 6.          | 0             | 0    |
| 2.          | 160           | 0.2138  | 7.          | 0             | 0    |
| 3.          | 0             | 0       | 8.          | 0             | 0    |
| 4.          | 0             | 0       | 9.          | 0             | 0    |
| 5.          | 0             | 0       | 10.         | 0             | 0    |



# Calibration Curve

Calibration Method: 2 Point Linear

Calibration Time: 21-06-2024 11:37:27

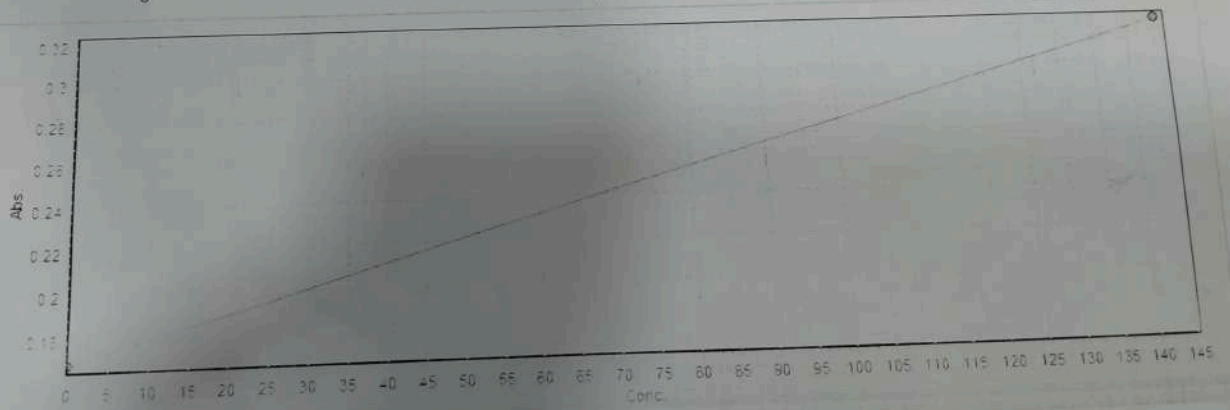
Test Item: TG

Absorbance: 0.1687

Calibrator: 1

| S1 Abs | K       | A | B | C |
|--------|---------|---|---|---|
| 0.1687 | 945.192 | 0 | 0 | 0 |

| Calibration | Concentration | Abs.    | Calibration | Concentration | Abs. |
|-------------|---------------|---------|-------------|---------------|------|
| 1.          | 0             | 0.1687  | 6.          | 0             | 0    |
| 2.          | 144           | 0.32105 | 7.          | 0             | 0    |
| 3.          | 0             | 0       | 8.          | 0             | 0    |
| 4.          | 0             | 0       | 9.          | 0             | 0    |
| 5.          | 0             | 0       | 10.         | 0             | 0    |



# Calibration Curve

Calibration Method: 2 Point Linear

Calibration Time: 21-06-2024 11:34:47

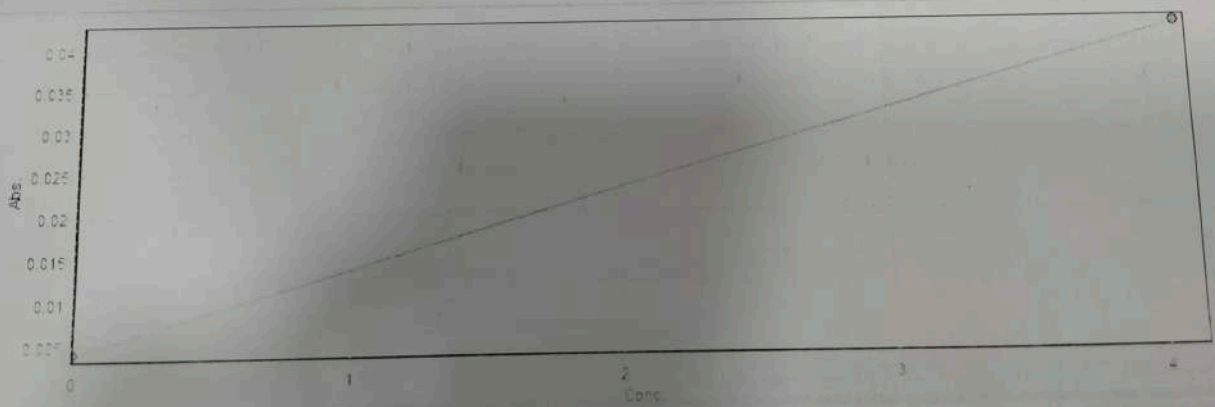
Test Item: TBIL

Absorbance: 0.0042

Calibrator: 1

| S1 Abs | K       | A | B | C |
|--------|---------|---|---|---|
| 0.0042 | 107.874 | 0 | 0 | 0 |

| Calibration | Concentration | Abs.   | Calibration | Concentration | Abs. |
|-------------|---------------|--------|-------------|---------------|------|
| 1.          | 0             | 0.0042 | 6.          | 0             | 0    |
| 2.          | 4.11          | 0.0423 | 7.          | 0             | 0    |
| 3.          | 0             | 0      | 8.          | 0             | 0    |
| 4.          | 0             | 0      | 9.          | 0             | 0    |
| 5.          | 0             | 0      | 10.         | 0             | 0    |





# Calibration Curve

Calibration Method: 2 Point Linear

Calibration Time: 21-06-2024 11:38:46

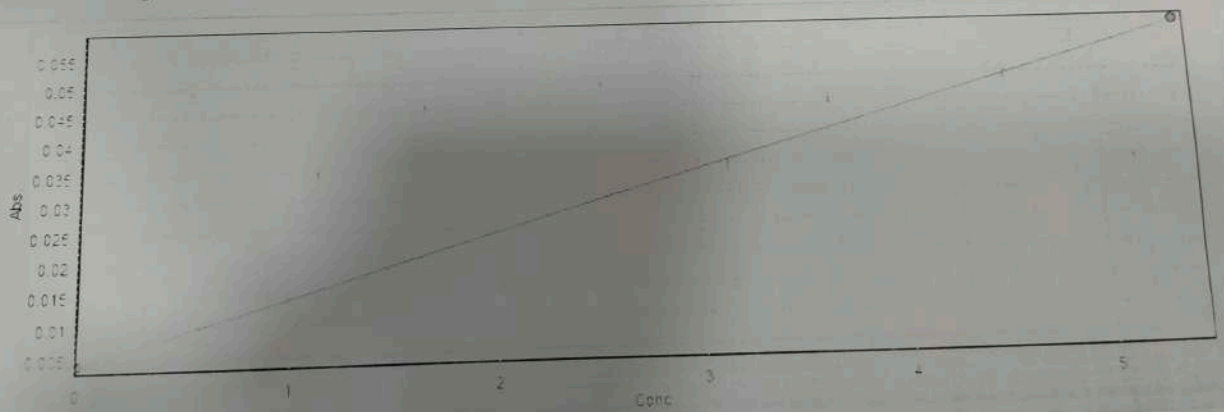
Test Item: UA

Absorbance: 0.00395

Calibrator: 1

| S1 Abs  | K       | A | B | C |
|---------|---------|---|---|---|
| 0.00395 | 99.7245 | 0 | 0 | 0 |

| Calibration | Concentration | Abs.    | Calibration | Concentration | Abs. |
|-------------|---------------|---------|-------------|---------------|------|
| 1.          | 0             | 0.00395 | 6.          | 0             | 0    |
| 2.          | 5.43          | 0.0584  | 7.          | 0             | 0    |
| 3.          | 0             | 0       | 8.          | 0             | 0    |
| 4.          | 0             | 0       | 9.          | 0             | 0    |
| 5.          | 0             | 0       | 10.         | 0             | 0    |



## Calibration Curve

Calibration Method: 2 Point Linear

Calibration Time: 21-06-2024 11:50:27

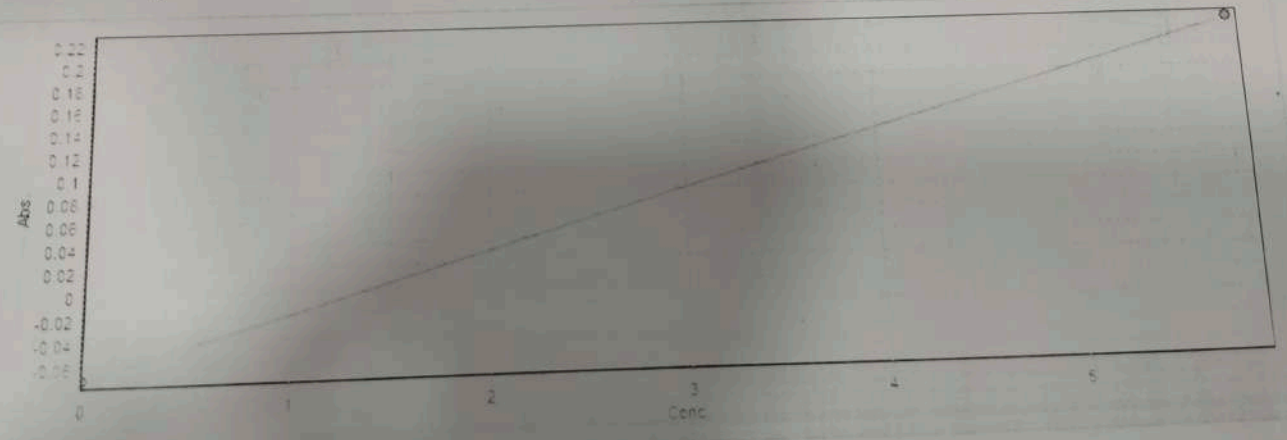
Test Item: TP

Absorbance: -0.0699

Calibrator: 1

| S1 Abs  | K      | A | B | C |
|---------|--------|---|---|---|
| -0.0699 | 20.034 | 0 | 0 | 0 |

| Calibration | Concentration | Abs.    |  | Calibration | Concentration | Abs. |
|-------------|---------------|---------|--|-------------|---------------|------|
| 1.          | 0             | -0.0699 |  | 6.          | 0             | 0    |
| 2.          | 5.90          | 0.2246  |  | 7.          | 0             | 0    |
| 3.          | 0             | 0       |  | 8.          | 0             | 0    |
| 4.          | 0             | 0       |  | 9.          | 0             | 0    |
| 5.          | 0             | 0       |  | 10.         | 0             | 0    |



# Calibration Curve

Calibration Method: 2 Point Linear

Calibration Time: 21-06-2024 11:33:29

Test Item: GLU

Absorbance: 0.05775

Calibrator: 1

S1 Abs  
0.05775

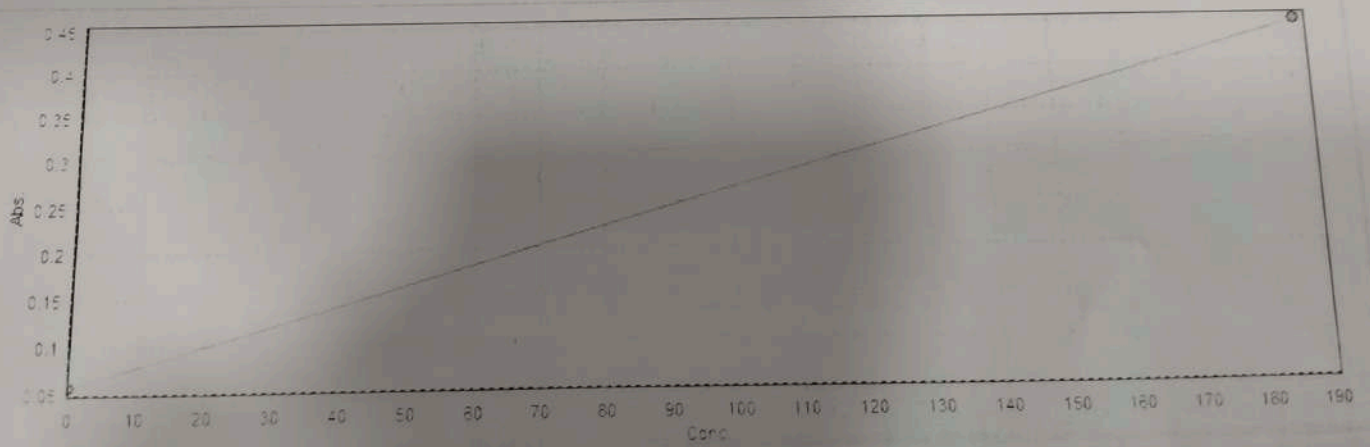
K  
484.4912

A  
0

B  
0

C  
0

| Calibration | Concentration | Abs.    | Calibration | Concentration | Abs. |
|-------------|---------------|---------|-------------|---------------|------|
| 1.          | 0             | 0.05775 | 6.          | 0             | 0    |
| 2.          | 189           | 0.44785 | 7.          | 0             | 0    |
| 3.          | 0             | 0       | 8.          | 0             | 0    |
| 4.          | 0             | 0       | 9.          | 0             | 0    |
| 5.          | 0             | 0       | 10.         | 0             | 0    |





## Calibration Curve

Calibration Method: 2 Point Linear

Calibration Time: 21-06-2024 11:25:28

Test Item: ALB

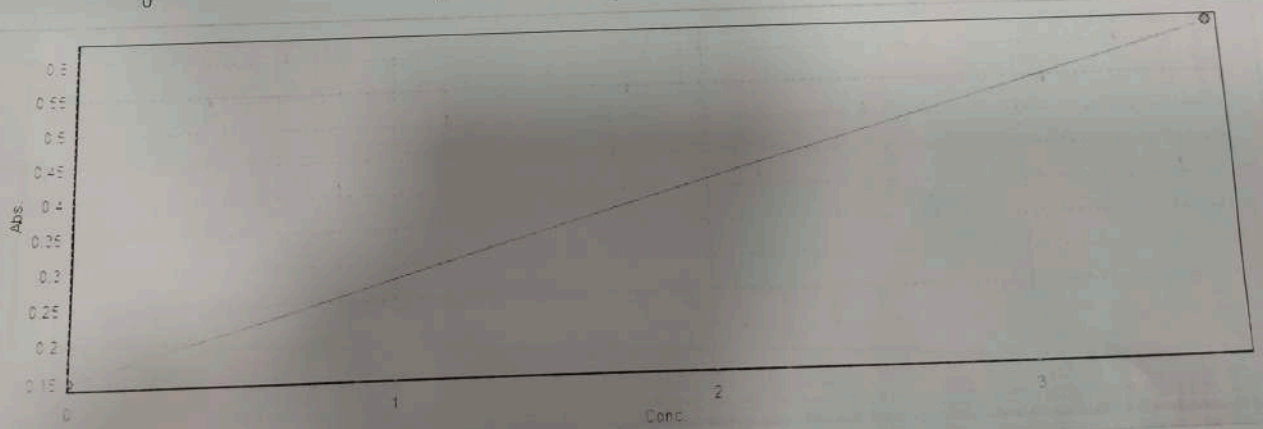
Absorbance: 0.14905

Calibrator: 1

| SI Abs  | K      | A | B | C |
|---------|--------|---|---|---|
| 0.14905 | 7.6559 | 0 | 0 | 0 |

| Calibration | Concentration | Abs.    |  | Calibration | Concentration | Abs. |
|-------------|---------------|---------|--|-------------|---------------|------|
| 1.          | 0             | 0.14905 |  | 6.          | 0             | 0    |
| 2.          | 3.64          | 0.6245  |  | 7.          | 0             | 0    |
| 3.          | 0             | 0       |  | 8.          | 0             | 0    |
| 4.          | 0             | 0       |  | 9.          | 0             | 0    |
| 5.          | 0             | 0       |  | 10.         | 0             | 0    |



# Calibration Curve

Calibration Method: 2 Point Linear

Calibration Time: 21-06-2024 11:32:07

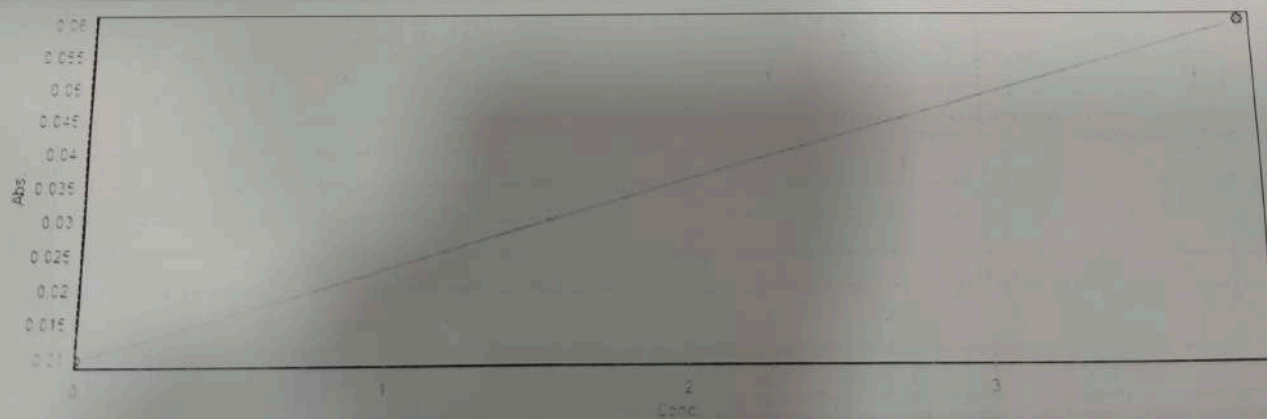
Test Item: CRE-E

Absorbance: 0.00985

Calibrator: 1

| S1 Abs  | K       | A | B | C |
|---------|---------|---|---|---|
| 0.00985 | 77.4576 | 0 | 0 | 0 |

| Calibration | Concentration | Abs.    | Calibration | Concentration | Abs. |
|-------------|---------------|---------|-------------|---------------|------|
| 1.          | 0             | 0.00985 | 6.          | 0             | 0    |
| 2.          | 3.90          | 0.0602  | 7.          | 0             | 0    |
| 3.          | 0             | 0       | 8.          | 0             | 0    |
| 4.          | 0             | 0       | 9.          | 0             | 0    |
| 5.          | 0             | 0       | 10.         | 0             | 0    |



# Calibration Curve

Calibration Method: 2 Point Linear

21-06-2024 11:54:28

Calibration Time: 21-06-2024 11:54:28

Test Item: UREA

Absorbance: -0.005

Calibrator: 1

| SI Abs | K          | A | B | C |
|--------|------------|---|---|---|
| -0.005 | -1035.6818 | 0 | 0 | 0 |

| Calibration | Concentration | Abs.   | Calibration | Concentration | Abs. |
|-------------|---------------|--------|-------------|---------------|------|
| 1.          | 0             | -0.005 | 6.          | 0             | 0    |
| 2.          | 45.57         | -0.049 | 7.          | 0             | 0    |
| 3.          | 0             | 0      | 8.          | 0             | 0    |
| 4.          | 0             | 0      | 9.          | 0             | 0    |
| 5.          | 0             | 0      | 10.         | 0             | 0    |

