

شرکت مهندس پزشکی دانش بنیان (سهامی خاص)

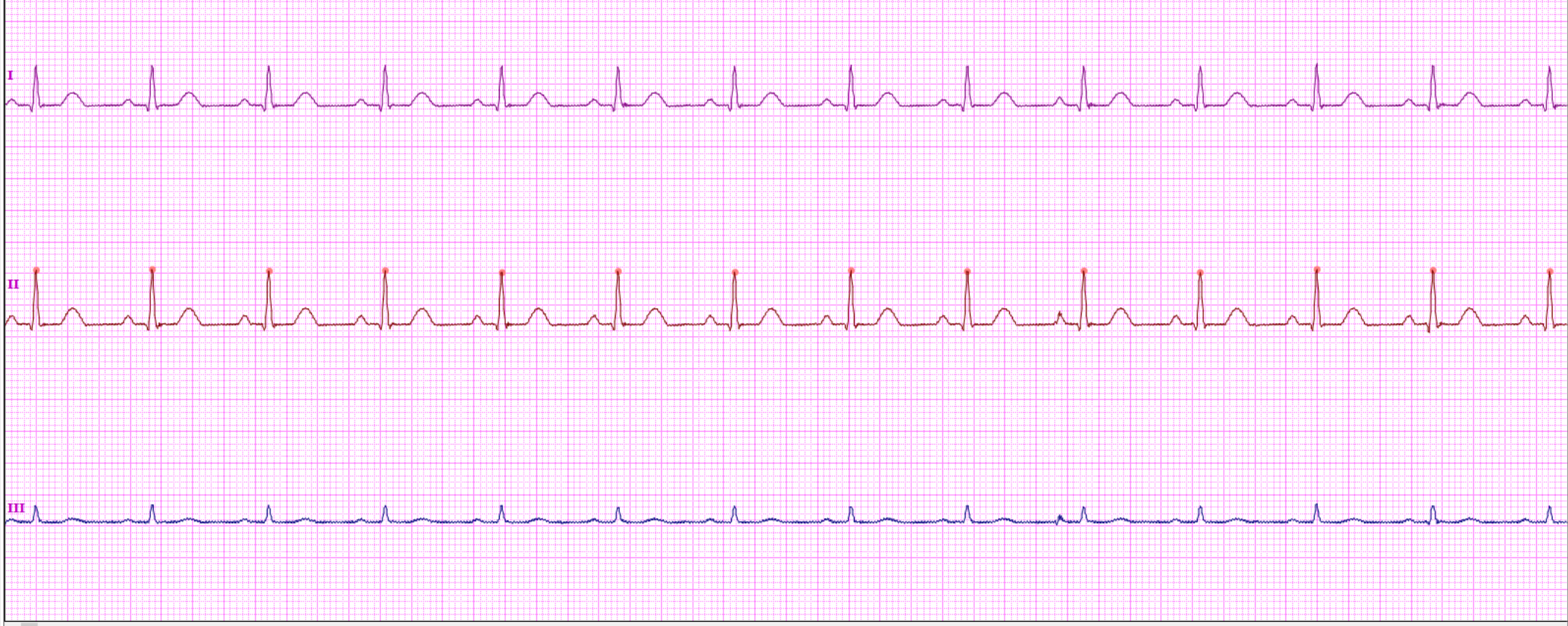
**کاوشگران طب خوارزمی**  
**Kavoshgaran Teb Kharazmi**

مشخصات نرم افزار هولتر ریتم و الکتروکاردیوگرام

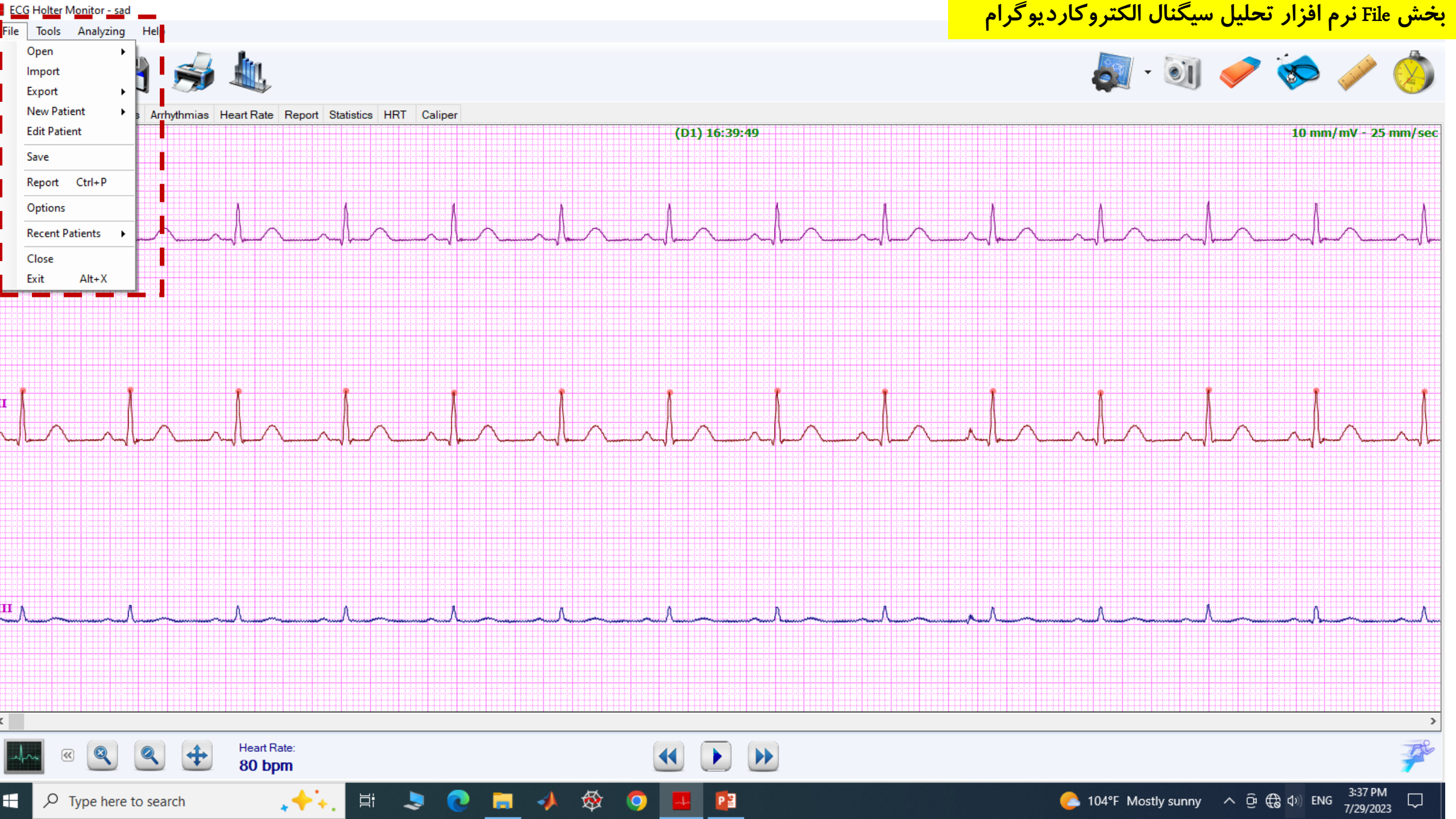


ECG View Overview Beats Arrhythmias Heart Rate Report Statistics HRT Caliper

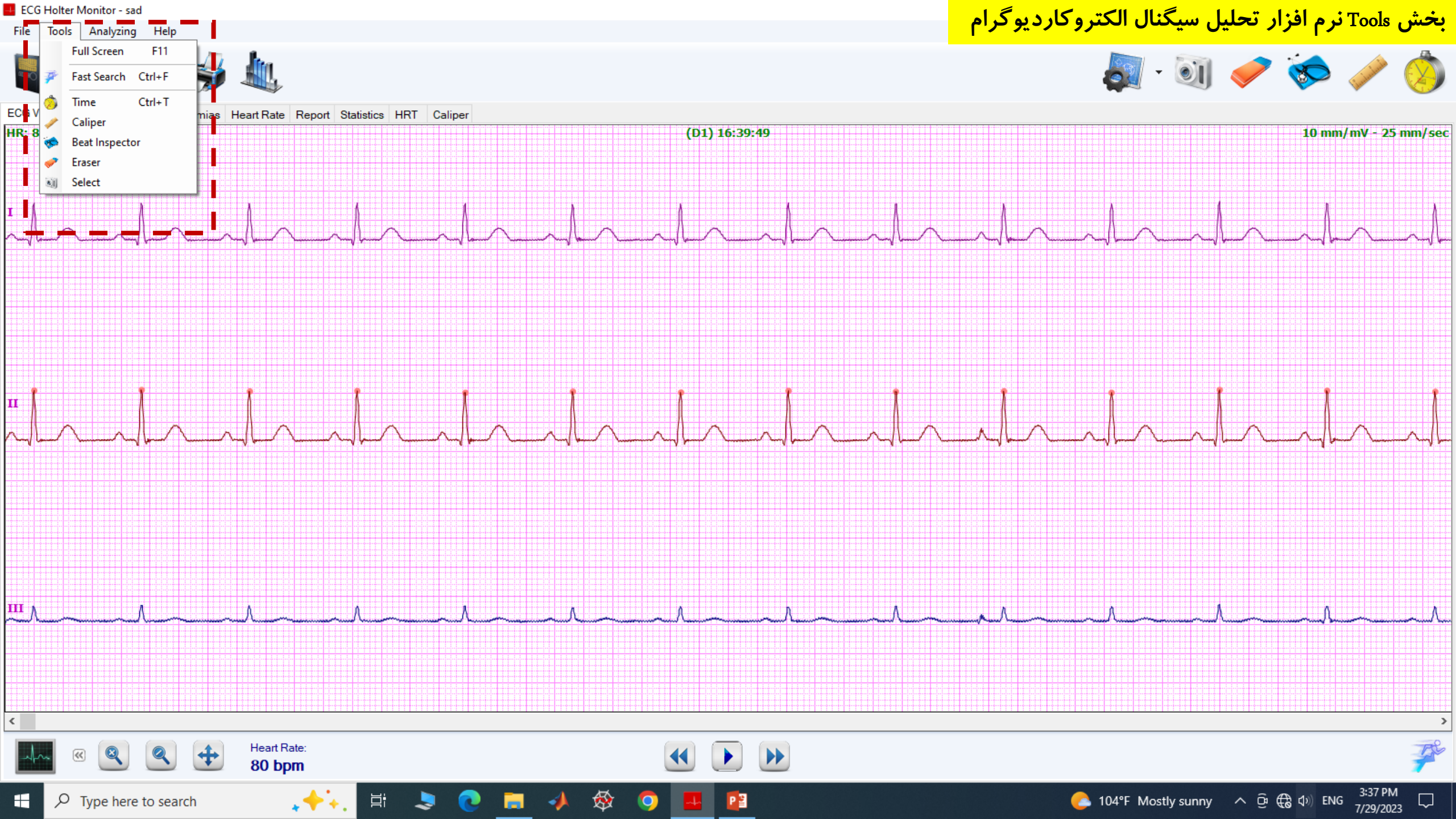
HR: 80 bpm (D1) 16:39:49 10 mm/mV - 25 mm/sec



Navigation and control panel for the ECG software, including zoom in/out, pan, and playback controls. Heart Rate: 80 bpm is displayed.







- Full Screen F11
- Fast Search Ctrl+F
- Time Ctrl+T
- Caliper
- Beat Inspector
- Eraser
- Select

(D1) 16:39:49

10 mm/mV - 25 mm/sec

Heart Rate:  
80 bpm

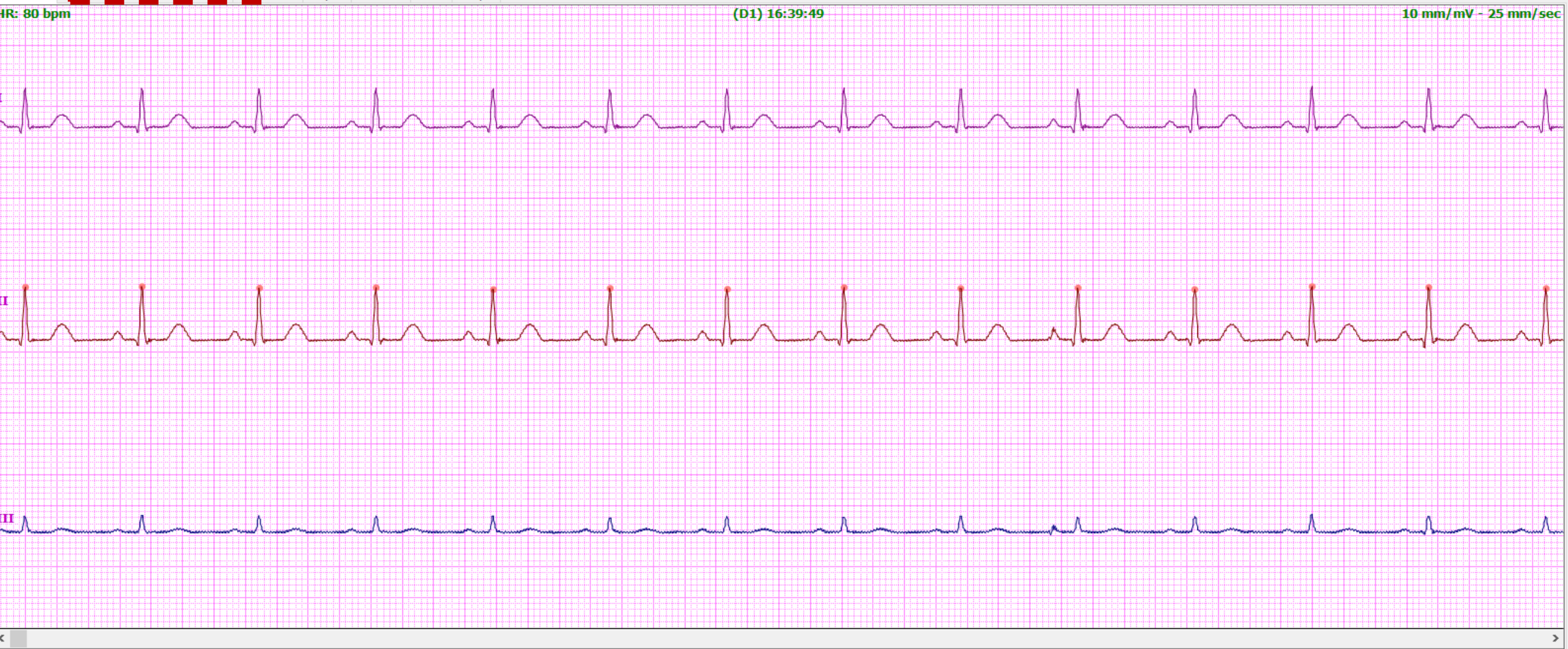
ECG Holter Monitor - sad

File Tools Analyzing Help

- Analyze
- ECG Configuration
- Artifact Configuration

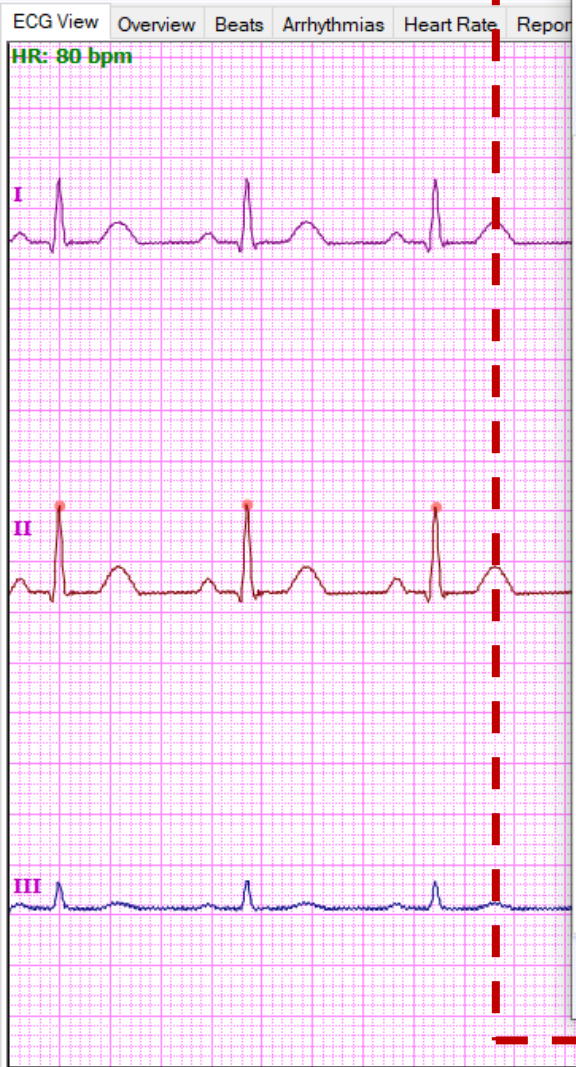
ECG View Overview Beats Arrhythmias Heart Rate Report Statistics HRT Caliper

10 mm/mV - 25 mm/sec



Heart Rate: 80 bpm

Navigation icons: back, zoom in, zoom out, pan, play, stop, next.



### Settings...

#### Options

Options | ECG Interpretation Characteristics | ECG Analysis Parameters | Artifact Detection Settings

##### Display

Colors

Original	Filtered	Denosed
<input type="checkbox"/> I	<input type="checkbox"/> I	<input type="checkbox"/> I
<input type="checkbox"/> II	<input type="checkbox"/> II	<input type="checkbox"/> II
<input type="checkbox"/> III	<input type="checkbox"/> III	<input type="checkbox"/> III
<input type="checkbox"/> aVR		
<input type="checkbox"/> aVL		
<input type="checkbox"/> aVF		
<input type="checkbox"/> Average		

Hide Windows Including Noise More Than: 30 %

##### General

Default Patient's Files Location: C:\HolterFiles

Beat Clustering

Default Similarity (%): 80

Automatically Find Similar Beats.

Including Similarity of Beat Durations.

QRS Weight: 1 Non QRS Weight: 1

Voltage Peak (V): 9

Contribute To The Development By Sending Detailed Log File.

##### Print

Default Printer: [Dropdown]

ECG Strip Positions

Top: Denosed-I

Middle: Denosed-II

Bottom: Denosed-III

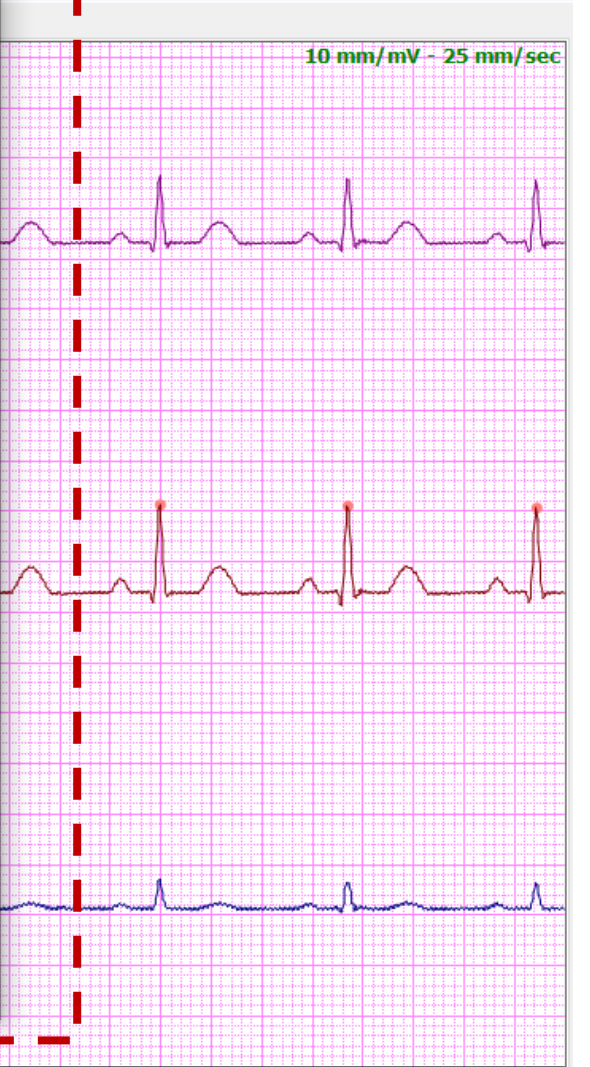
Default Zoom: Page Width

##### Time Shifts Correction

Time Shift: [Input]

```
3500 / -9693.12:56:00
3542 / -9750.14:50:00
3528 / -10338.00:00:00
```

Restore Default | Ok | Cancel | Apply



Navigation controls: Home, Previous, Next, Play/Pause, Stop. Heart Rate: 80 bpm





### Settings... ECG Interpretation Characteristics

Options ECG Interpretation Characteristics ECG Analysis Parameters Artifact Detection Settings

**Ventricular Rate (bpm)**

Extra Slow:

Very Slow:

Slow:

Fast:

Very Fast:

Extra Fast:

**Thresholds**

PR Interval Normal Range (s):

AV Block PR Interval (s):

QRS Interval Normal Range (s):

Max. Heart Rate (bpm):

Sinoatrial Pause (s):

RR Tolerance (%):

**Atrial Rate (bpm)**

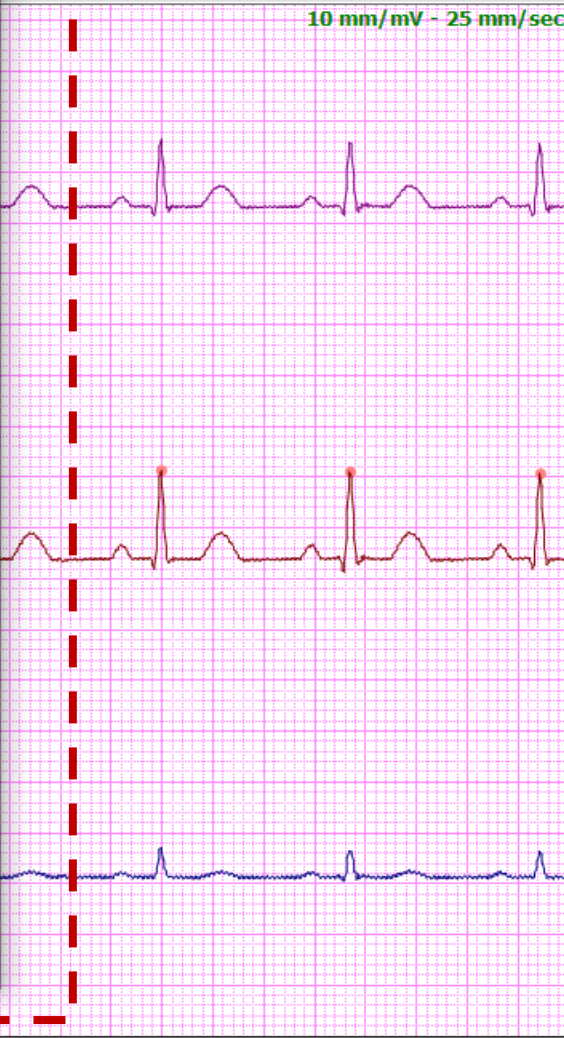
Very Fast:

Extra Fast:

**Sinus Arrhythmia**

Difference of Max-Min RR (ms):

Restore Default



Heart Rate: 80 bpm

Navigation icons: Home, Previous, Next, Stop



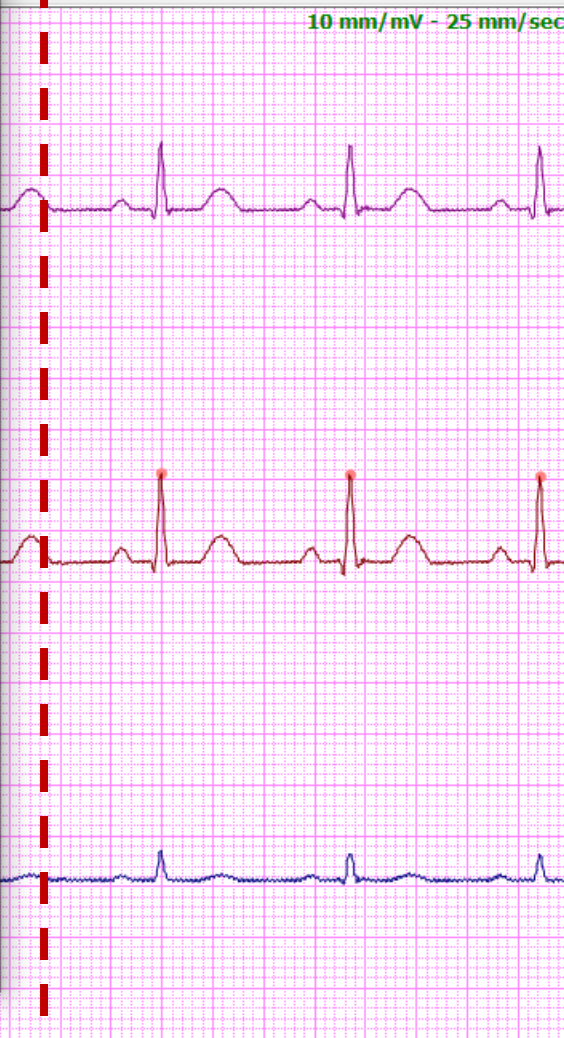
**Settings...**

**ECG Analysis Parameters**

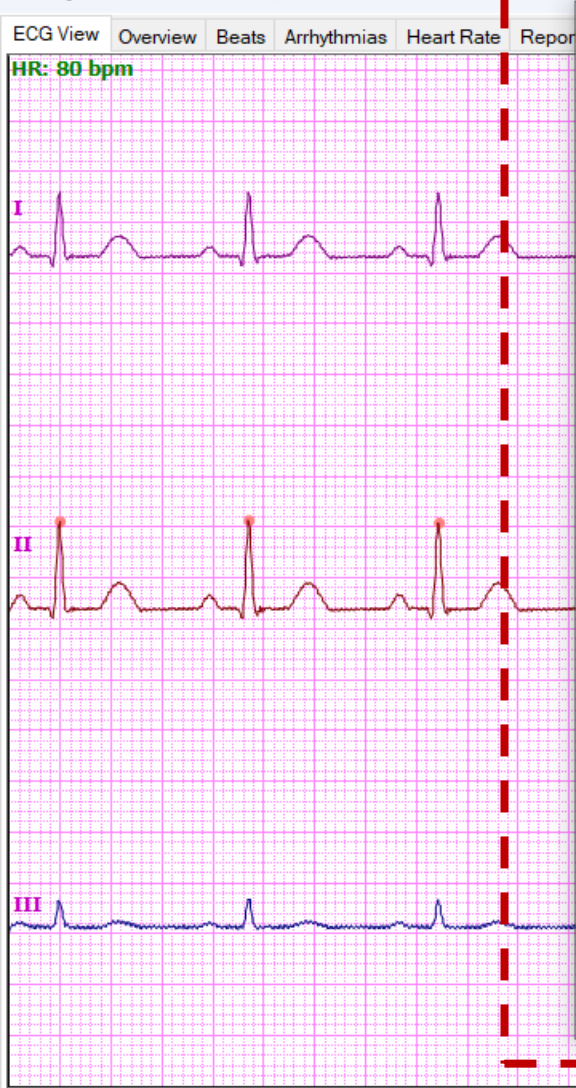
Options ECG Interpretation Characteristics **ECG Analysis Parameters** Artifact Detection Settings

Threshold Parameter Range: <input type="text" value="8"/> <input type="text" value="12"/>	Max. Q-S Width (ms): <input type="text" value="130"/>
Threshold Parameter: <input type="text" value="8"/>	Max. QnS Width (ms): <input type="text" value="140"/>
Threshold Parameter Ratio (%): <input type="text" value="60"/>	T Wave Search Gap (ms): <input type="text" value="10"/>
Filter Parameter: <input type="text" value="16"/>	T Wave Search Domain (ms): <input type="text" value="800"/>
P Wave Parameter: <input type="text" value="0.01"/>	T Wave Peak Search Domain (ms): <input type="text" value="200"/>
T Wave Parameter: <input type="text" value="0.01"/>	T Wave Offset Search Domain Ratio: <input type="text" value="1.3"/>
No. of Preprocessing Beats: <input type="text" value="20"/>	P Wave Search Gap (ms): <input type="text" value="0"/>
P Wave Width Range (ms): <input type="text" value="80"/> <input type="text" value="150"/>	P Wave Peak Search Domain (ms): <input type="text" value="200"/>
P Wave Height Range (mV): <input type="text" value="0.05"/> <input type="text" value="0.3"/>	P Wave Onset Search Domain Ratio: <input type="text" value="1.3"/>
T Wave Width Range (ms): <input type="text" value="100"/> <input type="text" value="400"/>	Initial Value of MaxI Assigning Interval (s): <input type="text" value="1"/> <input type="text" value="3"/>
Min. T Wave Height (mV): <input type="text" value="0.05"/>	Accepted Value of MaxI: <input type="text" value="20"/> <input type="text" value="100"/>
Q-Onset Search Domain (ms): <input type="text" value="80"/>	J-Point Search Domain (ms): <input type="text" value="80"/>
Threshold of Q-Onset Slope: <input type="text" value="0.4"/>	Threshold of J-Point Slope: <input type="text" value="0.4"/>
Threshold of Q-Onset Regression: <input type="text" value="0.5"/>	Threshold of J-Point Regression: <input type="text" value="0.6"/>
QRS Width Range (ms): <input type="text" value="40"/> <input type="text" value="150"/>	P Wave Similarity Coefficient: <input type="text" value="0.5"/>
Min. QRS Height (mV): <input type="text" value="0.2"/>	P Wave Distance Coefficient: <input type="text" value="0.5"/>
Min. QT Interval (ms): <input type="text" value="510"/>	

Restore Default







### Settings... Artifacts Detection Settings

Options | ECG Interpretation Characteristics | ECG Analysis Parameters | **Artifacts Detection Settings**

**Saturation**

Dynamic Range (%):

Lead Failure Detection

Min. Duration (ms):

Threshold of Saturation:

**Noise**

**Variance**

Including QRS Complex

Thresh of Variance (%):

**Hardware Failure**

Check Hardware Failure

Underline RR Ratio:

**Entropy & Tuning Point**

Window Length (s):

Entropy Weight:

Tuning Point Weight:

Min. Max. Threshold:

Tuning Point Successive Samples:

Tuning Point Width Range (s):

Tuning Point Height Range (%):

Height

<input type="text" value="1"/>	<input type="text" value="0.75"/>	<input type="text" value="0.5"/>
<input type="text" value="0.75"/>	<input type="text" value="0.75"/>	<input type="text" value="0.4"/>
<input type="text" value="0.75"/>	<input type="text" value="0.4"/>	<input type="text" value="0.2"/>

Width

Entropy Level Interval (%):

Merge Noise Distance (s):

Restore Default |  |  |



Heart Rate: 80 bpm

Navigation icons: back, search, zoom, pan, play, stop, next.



HR: 80 bpm

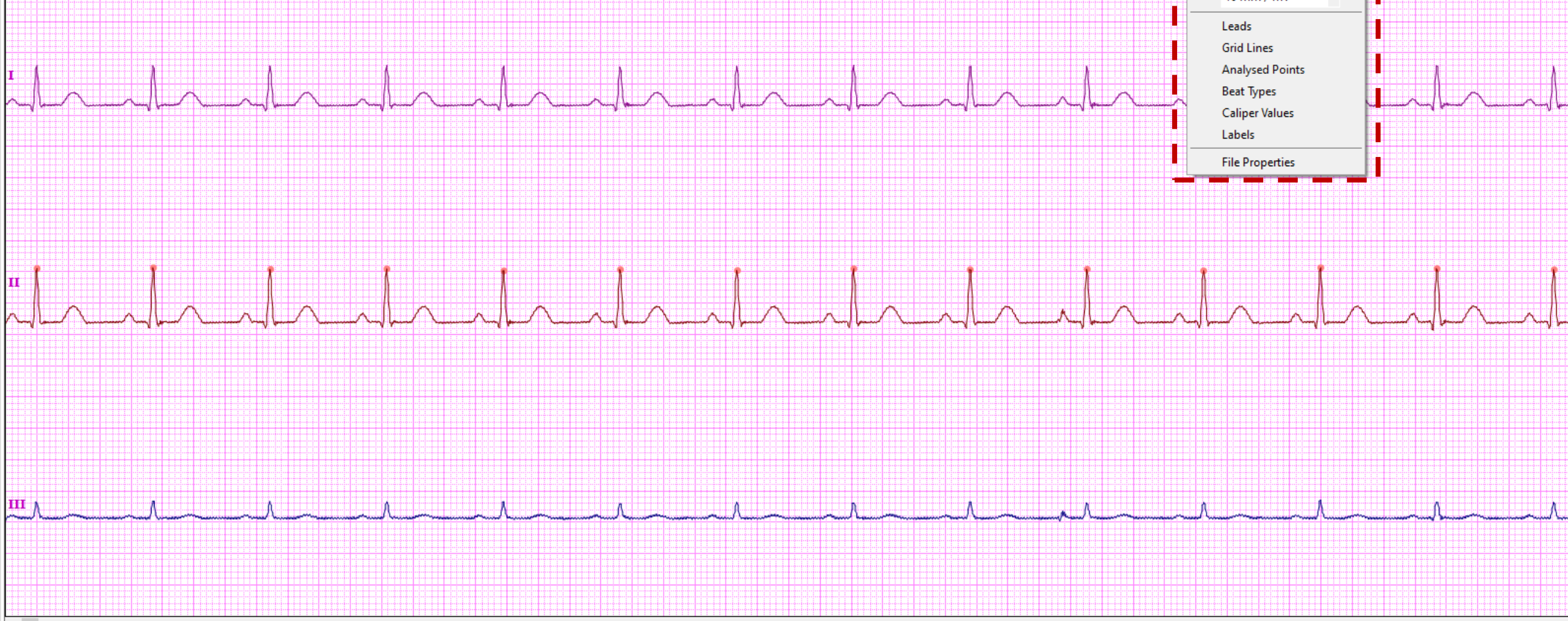
(D1) 16:39:49

25 mm / sec

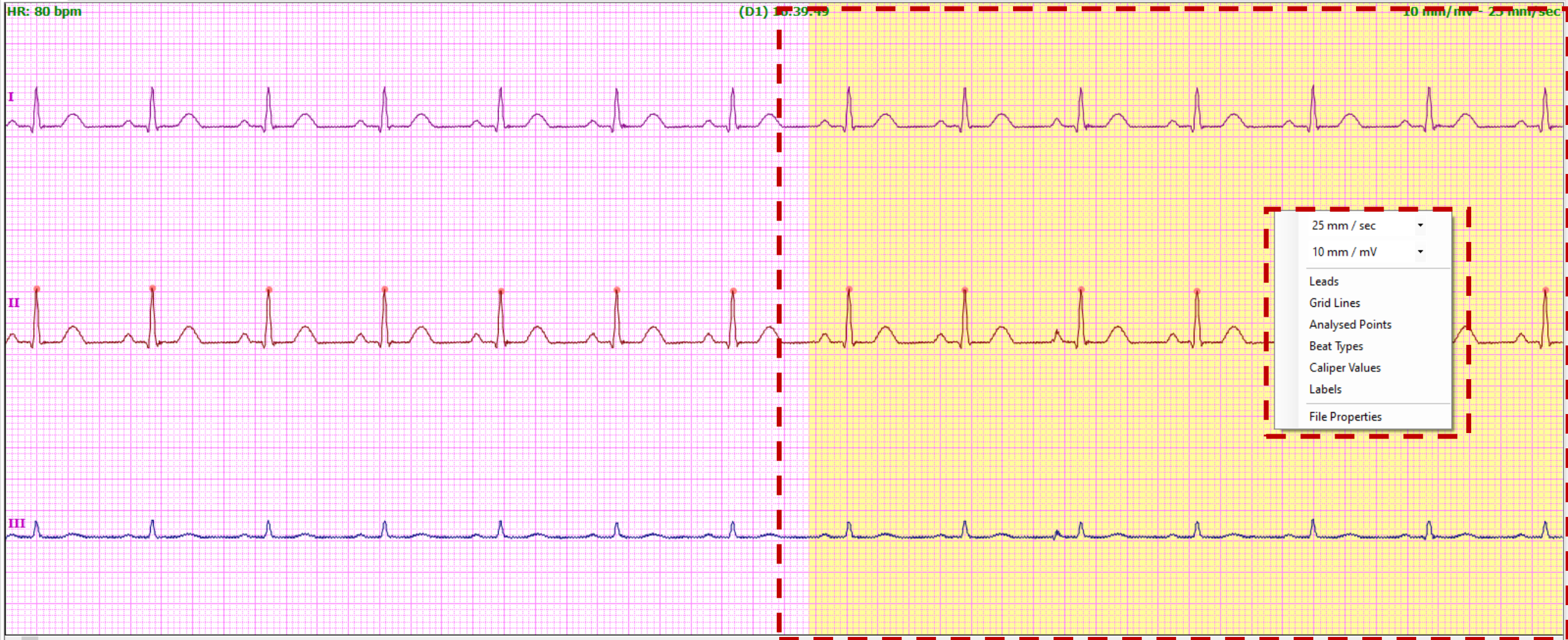
10 mm / mV

- Leads
- Grid Lines
- Analysed Points
- Beat Types
- Caliper Values
- Labels
- File Properties

10 mm/mV - 25 mm/sec



Heart Rate: 80 bpm



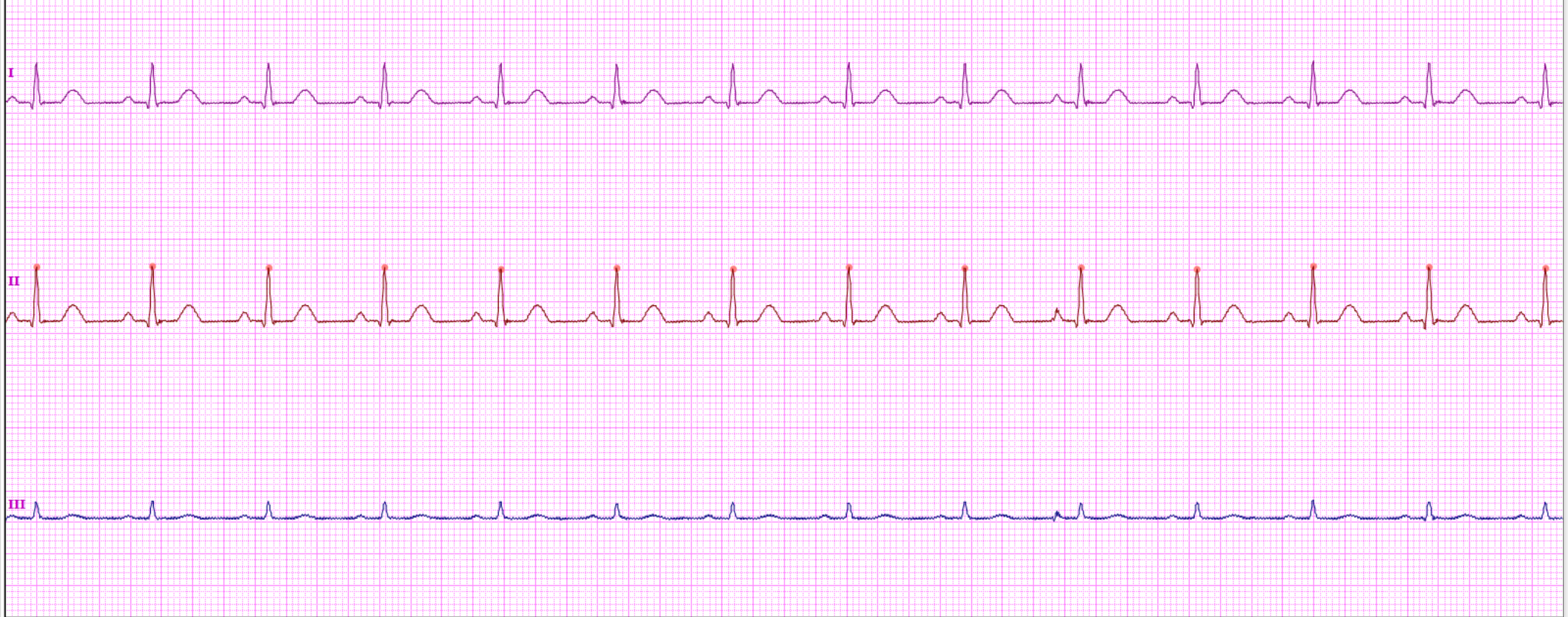
- 25 mm / sec
- 10 mm / mV
- Leads
- Grid Lines
- Analysed Points
- Beat Types
- Caliper Values
- Labels
- File Properties



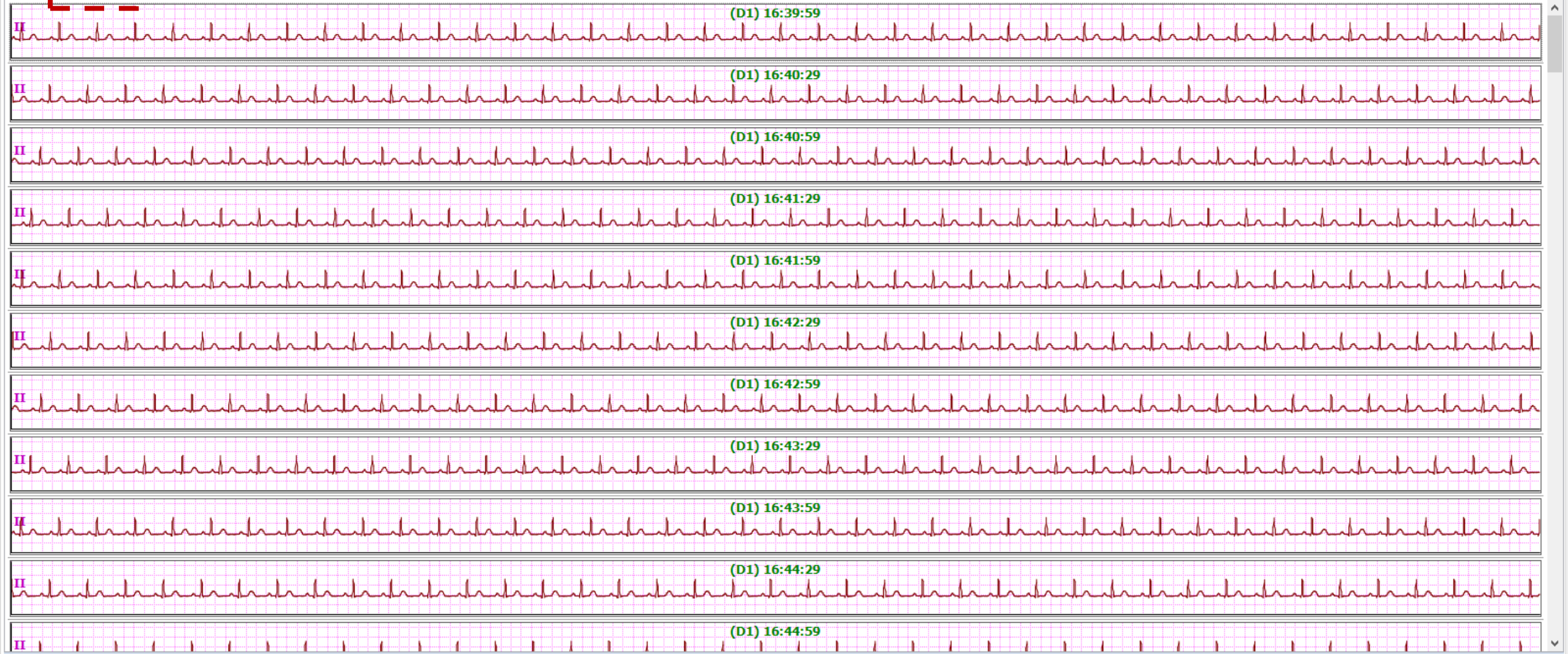


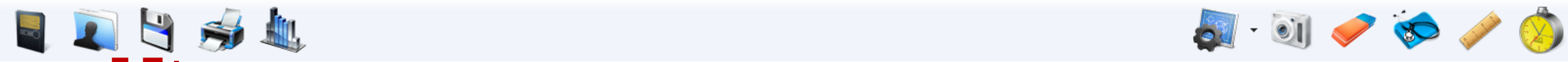


HR: 80 bpm (D1) 16:39:49 10 mm/mV - 25 mm/sec



Navigation controls including zoom in/out, pan, and playback buttons. Heart Rate: 80 bpm



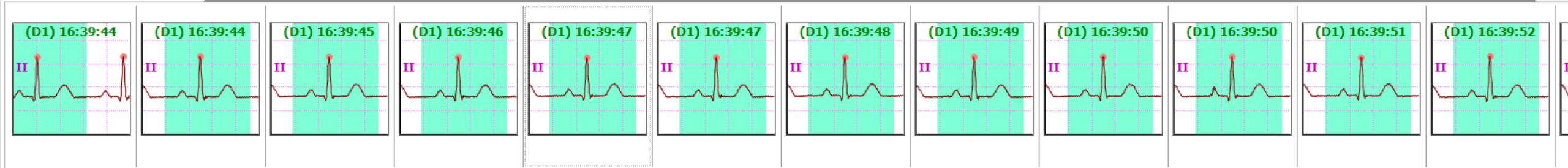


ECG View Overview **Beats** Arrhythmias Heart Rate Report Statistics HRT Caliper

UnAnalysed (37)  
Normal (4543)  
Ventricular (8)



REC ⓘ Similarity Coefficient: 80 🔍 0% ⏪ 1/1 ⏩

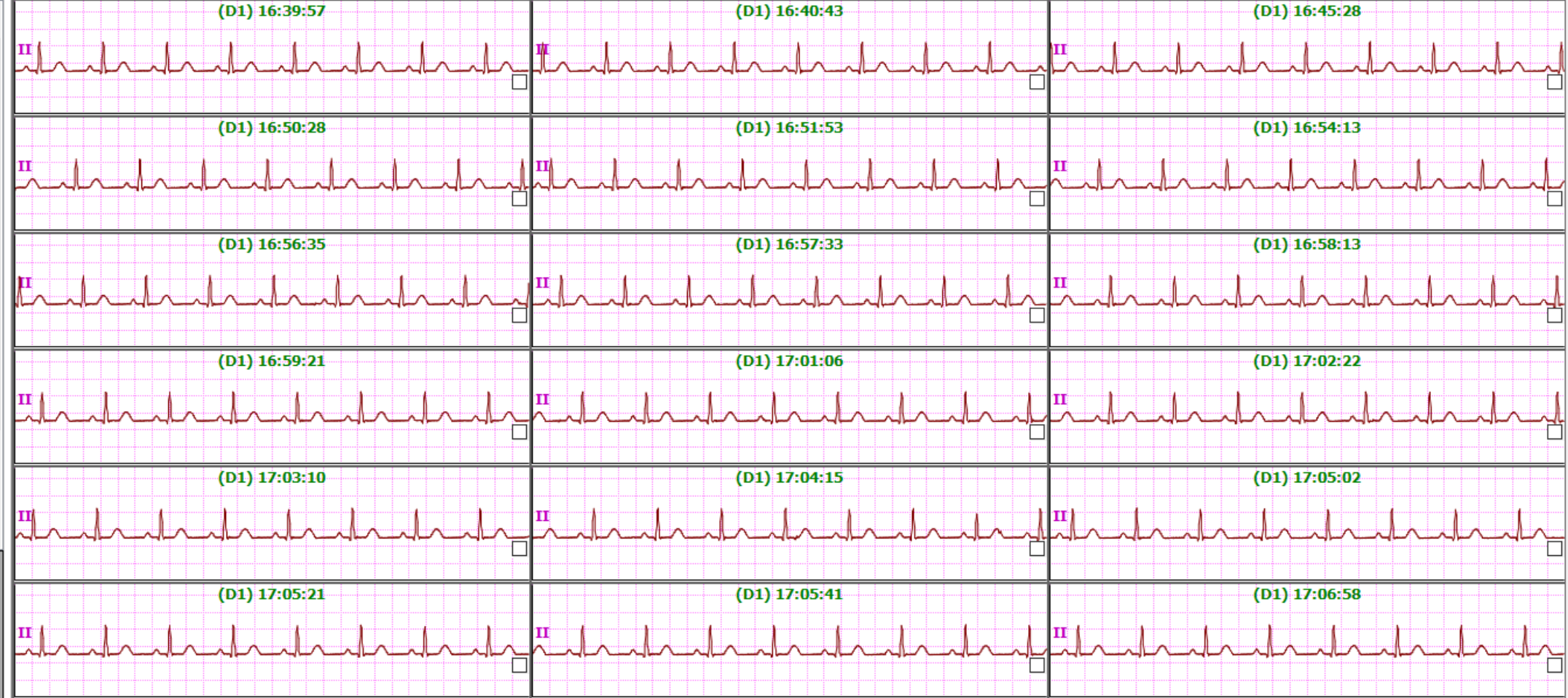


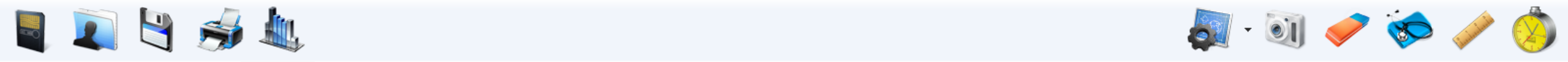
Use <Ctrl + Mouse Click> to select a beat.  
Hold <Shift> to select a range. Select All Deselect All





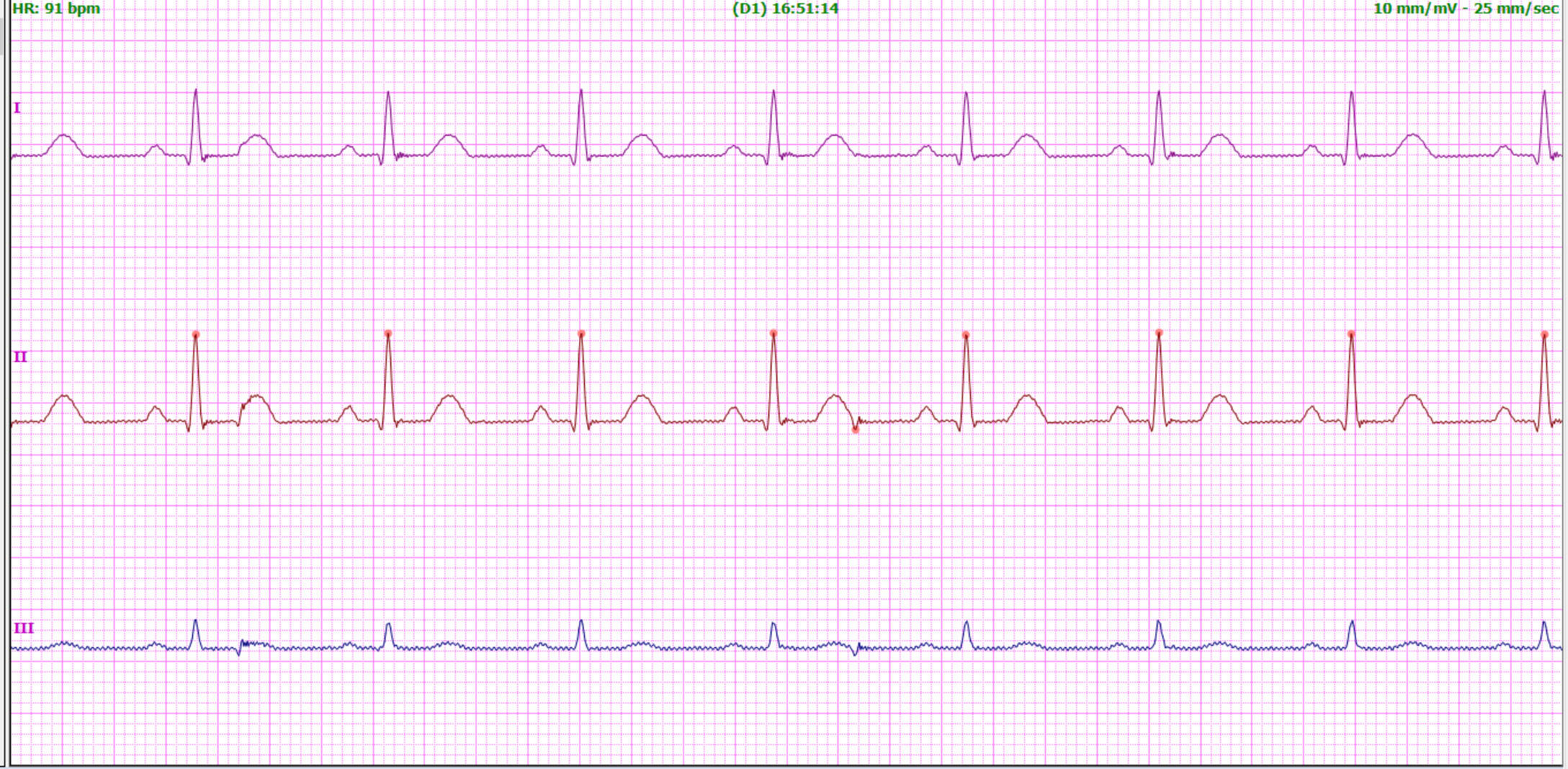
- Normal Sinus Rhythm (34)
- Sinus Bradycardia (0)
- Sinus Tachycardia (0)
- Sinus Arrhythmia (8)
- Sinus Pause (0)
- SA Block (0)
- Atrial
- Junctional
- Block
- Ventricular (2)
  - IDIOVENTRICULAR RHYTHM (0)
  - ACCELERATED IDIOVENTRICULAR RHYTHM (0)
  - PREMATURE VENTRICULAR CONTRACTIONS (0)
  - PVC UNIFORM (0)
  - PVC MULTIFORM (0)
  - VENTRICULAR BIGEMINY (0)
  - VENTRICULAR TRIGEMINY (0)
  - VENTRICULAR QUADRIGEMINY (0)
  - PVC COUPLETS (0)
  - PVC R ON T (0)
  - INTERPOLATED PVC (0)
  - VENTRICULAR TACHYCARDIA (0)
  - VENTRICULAR TACHYCARDIA WITH ABNORMAL QRS (0)
  - RUN OF V TACH (0)
  - TORSADE DE POINTES (0)





ECG View Overview Beats Arrhythmias Heart Rate Report Statistics HRT Caliper

Time	HR
4:51:15 PM	91
4:52:33 PM	91
4:58:33 PM	91
5:00:09 PM	91
5:02:45 PM	91
5:05:33 PM	91
5:08:27 PM	91
5:10:03 PM	91
5:11:57 PM	91
5:12:39 PM	91
5:21:03 PM	91
5:25:03 PM	91
5:30:09 PM	91
5:21:51 PM	86
5:09:27 PM	85
4:39:51 PM	80
4:39:57 PM	80
4:40:03 PM	80
4:40:09 PM	80
4:40:15 PM	80
4:40:21 PM	80
4:40:27 PM	80
4:40:33 PM	80
4:40:39 PM	80
4:40:45 PM	80
4:40:51 PM	80
4:40:57 PM	80
4:41:03 PM	80
4:41:09 PM	80

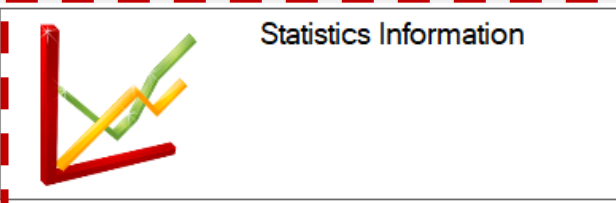


Set Min **Min: 80 bpm (D1) 17:36:24** Set Max **Max: 91 bpm (D1) 16:51:12** روز اول



### Heart Rate Variability

(D1) 16:00-22:00



**X-Axis: Time (hh:mm:ss)**

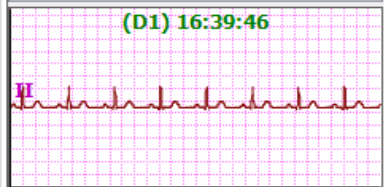
From: 16:39:00  
To: 17:35:00

**X-Axis: Time (hh:mm:ss)**

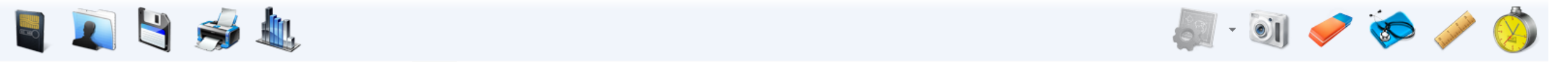
Minimum: 80      x: 16:39:00  
Maximum: 82      x: 17:21:00

Average: 80.25  
Median: 80  
Standard Deviation: .47

Time	HRV
16:39:00	80.000
16:40:00	80.000
16:41:00	80.000
16:42:00	80.000
16:43:00	80.000
16:44:00	80.000
16:45:00	80.000
16:46:00	80.000
16:47:00	80.000
16:48:00	80.000
16:49:00	80.000
16:50:00	80.000
16:51:00	81.000
16:52:00	81.000
16:53:00	80.000
16:54:00	80.000
16:55:00	80.000
16:56:00	80.000
16:57:00	80.000
16:58:00	81.000
16:59:00	80.000
17:00:00	81.000
17:01:00	80.000
17:02:00	81.000
17:03:00	80.000
17:04:00	80.000
17:05:00	81.000
17:06:00	80.000

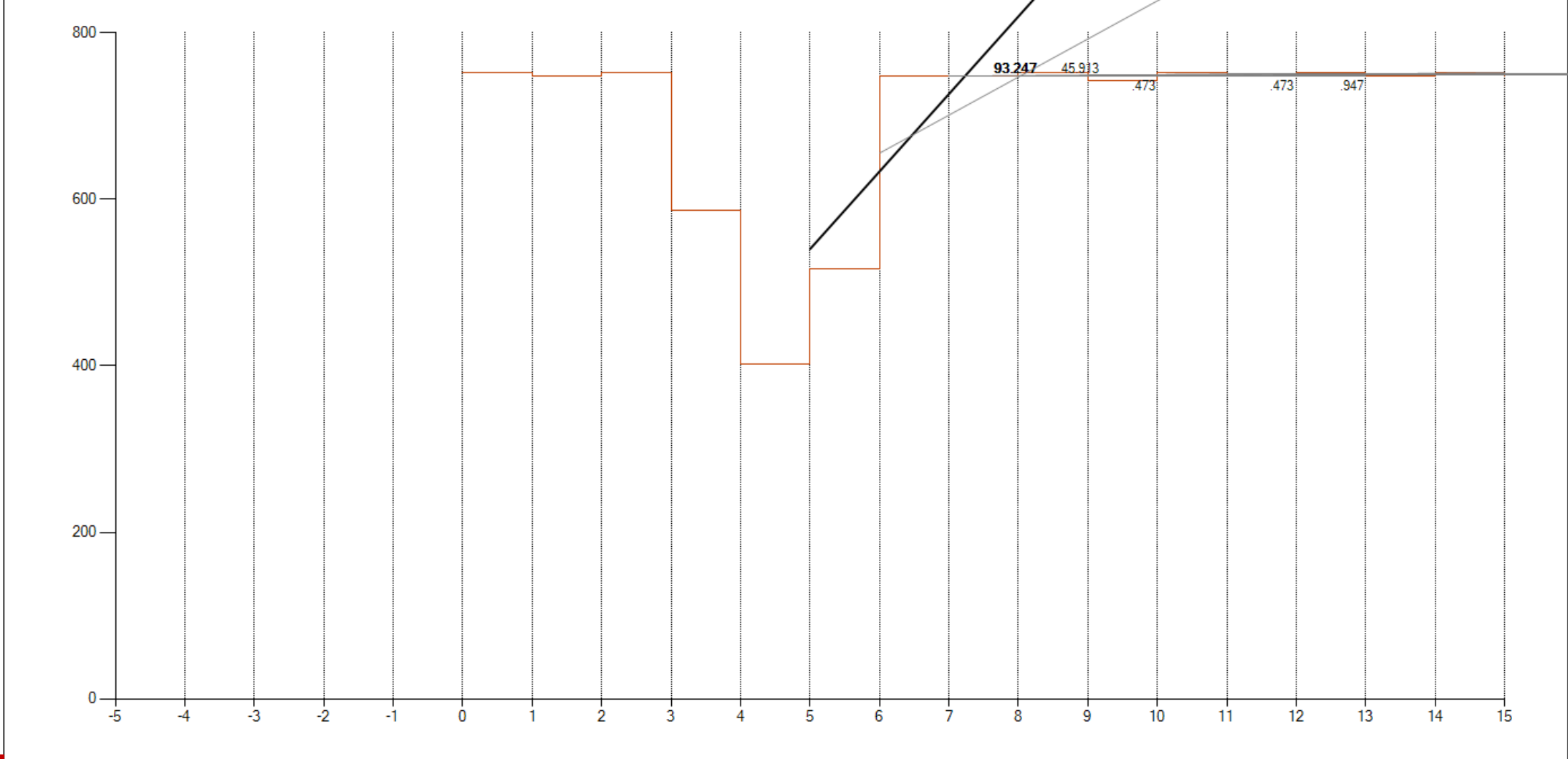






ECG View Overview Beats Arrhythmias Heart Rate Report Statistics HRT Caliper

(D1) 17:20:58



Turbulence Onset: 63.4 %  
Turbulence Slope: 93.247





پزشک معالج: کاوشگران طب خوارزمی  
 آدرس: اصفهان، چهار راه وفايي

قد/وزن: 0/0  
 ضربان ساز: ندارد  
 علت مراجعه:  
 داروهای مصرفی:  
 شماره تماس مراجعه کننده:  
 آدرس مراجعه کننده:

دستگاه ثبت کننده: ECG Holter Monitor  
 S/N: C022003033585

شرکت مهندسی پزشکی کاوشگران طب خوارزمی

- Signal Specifications
  - QT & QTc
  - Heart Rate Variability
  - ECG Strip Samples
- Summary
- English
  - Farsi
  - None

HEART RATE		VENTRICULAR ECTOPY		HEART RATE VARIABILITY	
Minimum HR- 1 Min:	<b>80 bpm at D(1) 17:36</b>	VE Total:	<b>3 (0.07%)</b>	SDNN-Total (ms):	<b>18.46</b>
Maximum HR- 1 Min:	<b>91 bpm at D(1) 16:51</b>	V-Pair Total:	<b>0</b>	SDANN Index (ms):	<b>N/A</b>
Average HR- 24Hour	<b>80 bpm</b>	V-Run Total:	<b>0</b>	SDNN Index (ms):	<b>18.41</b>
Minimum HR- Hourly:	<b>80 bpm at D(1)16:00</b>	Longest V-Run:	<b>N/A</b>	rMSSD (ms):	<b>.64</b>
Maximum HR- Hourly:	<b>80 bpm at D(1)16:00</b>	Maximum HR V-Run:	<b>N/A</b>	pNN50 (%):	<b>.44</b>
Analysed Beats:	<b>4,588</b>	Minimum HR V-Run:	<b>N/A</b>		
Analysed Period:	<b>56 minutes</b>	Ventricular R on T:	<b>0</b>		
ECG Monitoring Period:	<b>56 minutes</b>				

- Repeat First Page
- Print Report
- Export PDF

Analysed Period: 56 minutes		Ventricular R on T: 0	
ECG Monitoring Period: 56 minutes			
<b>ST SEGMENT ANALYSIS</b>		<b>SUPRAVENTRICULAR ECTOPY</b>	
Total ST Minutes CH2:	7.48	SVE Total:	0 (0.00%)
Max Abs ST Depression:	-0.26 at D(1)16:51	SV-Run Total:	0
Max Abs ST Elevation:	0.07 at D(1)16:58	Longest SV-Run:	N/A
Max ST Episode:	N/A	Maximum HR SV-Run:	N/A
Max HR In ST Episode:	N/A	Total Fib/Flutter:	0
		<b>PAUSES</b>	
		Pauses In Excess of 2.5 sec:	0
		Max Pause (sec):	N/A
		<b>QT</b>	
		Max QT:	445
		Max QTc:	499
		Time of Max QT:	D(1)17:02:43

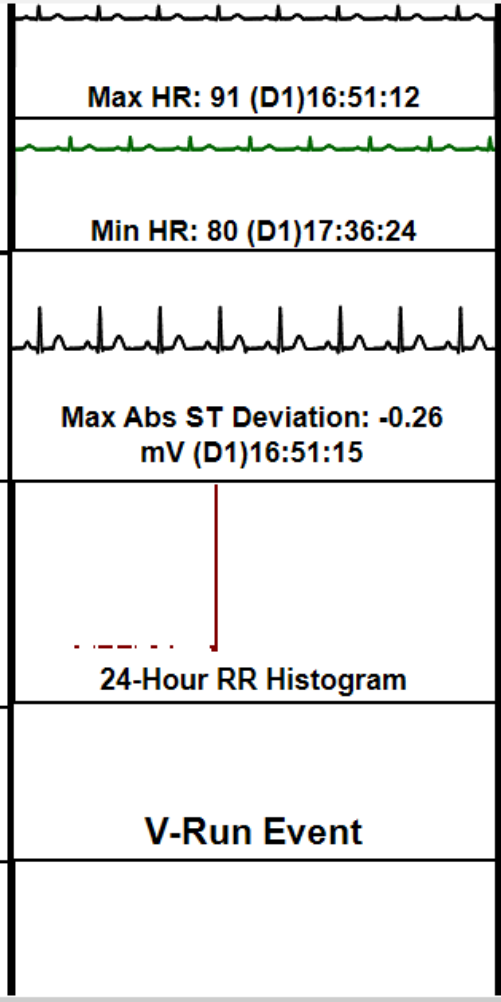
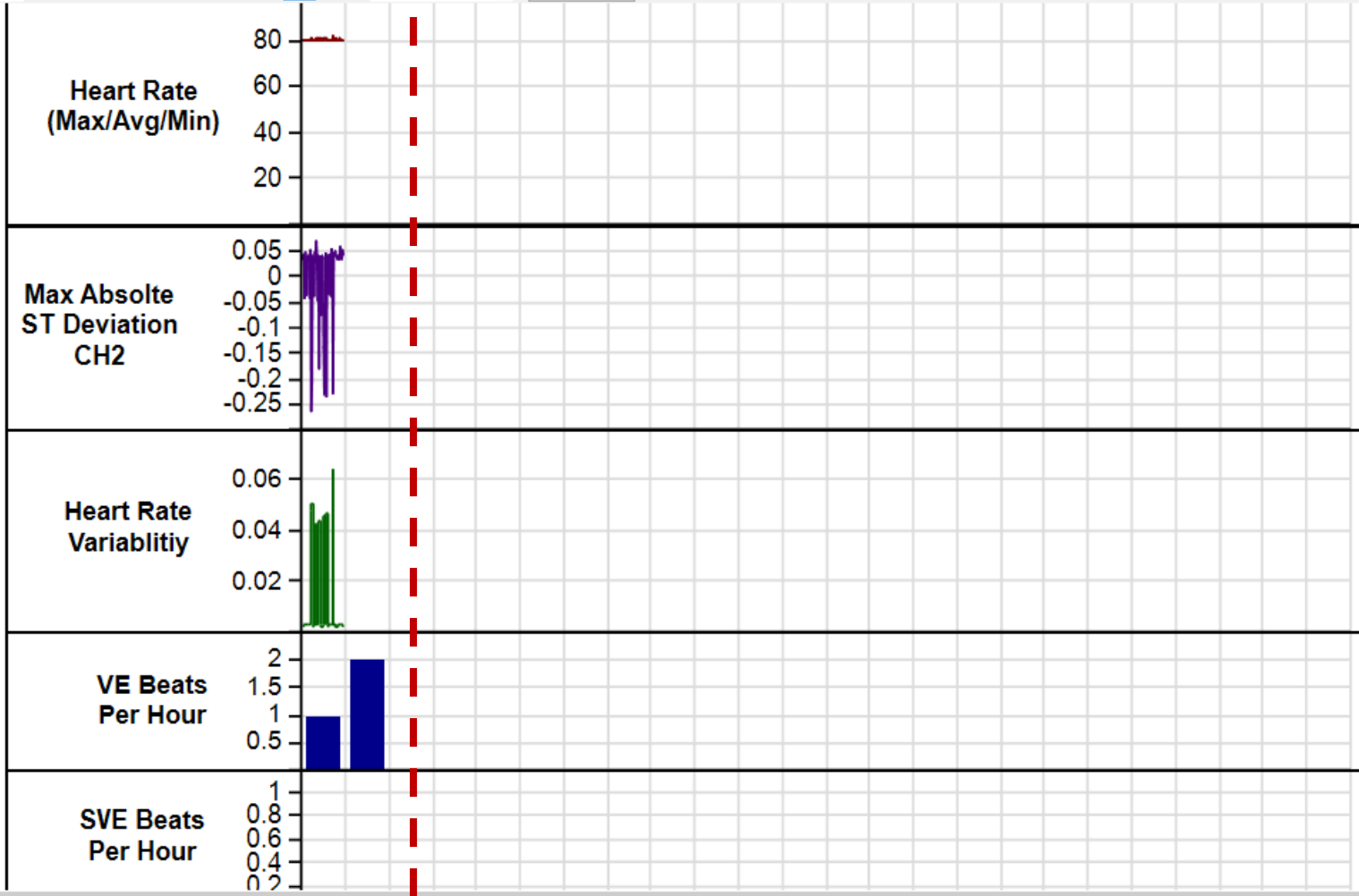
- Signal Specifications
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  - None

نتیجه گیری

Monitoring started at Thursday 1431/07/26 16:39 and continued for 56 minutes. The average heart rate was 80 bpm. The minimum heart rate was 80 bpm at D(1) 17:36 and the maximum heart rate was 91 bpm at D(1) 16:51. Pauses greater than 2.5 seconds were 0. Artifact noted for approximately 0 and total beats amount were 4588. Ventricular ectopy was 3 (0.07%) with 0 V-Run and 0 V-Pair. Ventricular Bigeminy events were 0 and Ventricular Trigeminy events were 0. Supraventricular ectopy was 0 (0.00%) with 0 SV-Run. Supraventricular Bigeminy events were 0 and Ventricular Trigeminy events were 0. Total A-Fib (Flu) were 0. ST episode minutes totaled 7.48 and the maximum Absolute ST change was -0.26.

- Repeat First Page
- Print Report
- Export PDF





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- Repeat First Page
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SV-Run Event

Time	Total Beats	Avg Heart Rate	Max Heart Rate	Min Heart Rate	SDNN	ST	VE	V-Pair	V-Run	SVE	SVE-Run	Pause	SV-Bi	SV-Tri	V-Bi	V-Tri	Missed Beat
16:00	1,635	80	91	80	18.26	-0.26	1	0	0	0	0	0	0	0	0	0	0
17:00	2,953	80	91	80	18.57	-0.24	2	0	0	0	0	0	0	0	0	0	0
18:00																	
19:00																	
20:00																	
21:00																	
22:00																	
23:00																	
00:00																	
01:00																	
02:00																	
03:00																	
04:00																	
05:00																	
06:00																	
07:00																	

- Signal Specifications
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  - Heart Rate Variability
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  - None

Repeat First Page

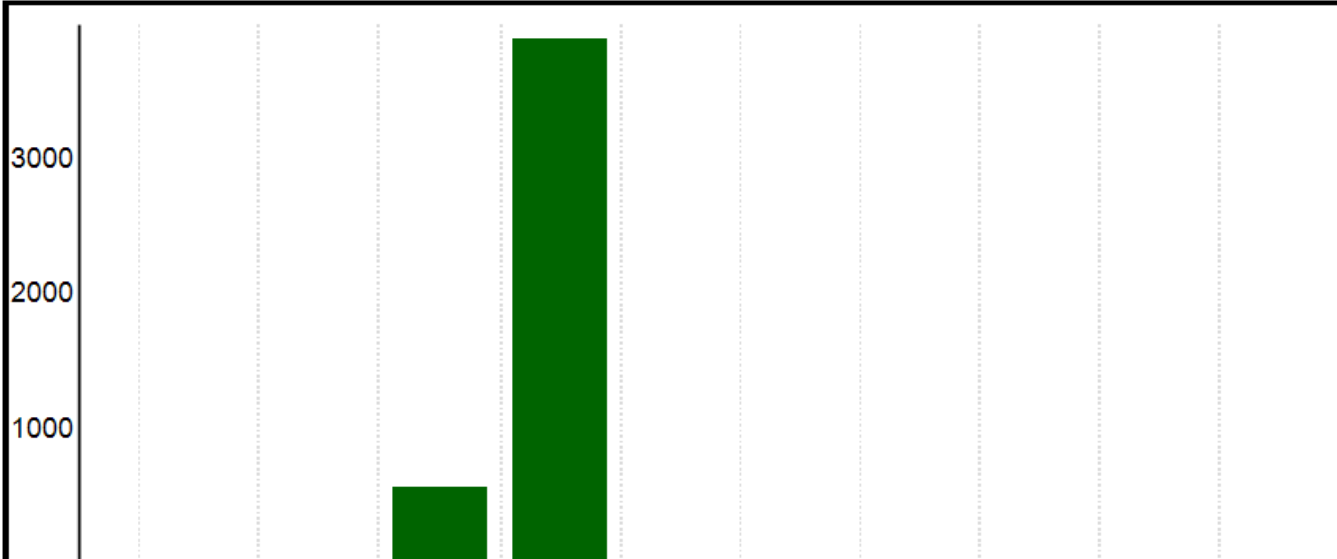
Print Report

Export PDF





Max QTc: 17:02:43



	< 350	350-370	370-390	390-410	410-430	430-450	450-470	470-490	490-510	> 510
<b>QT</b>	0%	98%	0%	0%	0%	0%	0%	0%	0%	0%
<b>QTc</b>	0%	0%	12%	86%	0%	0%	0%	0%	0%	0%

Validated QTc Analysis:

<= 450 ms (N)	99.93%
> 450 ms (ABN)	0.07%
> 490 ms (ABN+)	0.00%

Max QT = 445ms at 17:04:46

Max QT = 499ms at 17:02:43

Normal Range QTc: 350 to 450 ms

Signal Specifications

QT & QTc

Heart Rate Variability

ECG Strip Samples

Summary

- English
- Farsi
- None

Repeat First Page

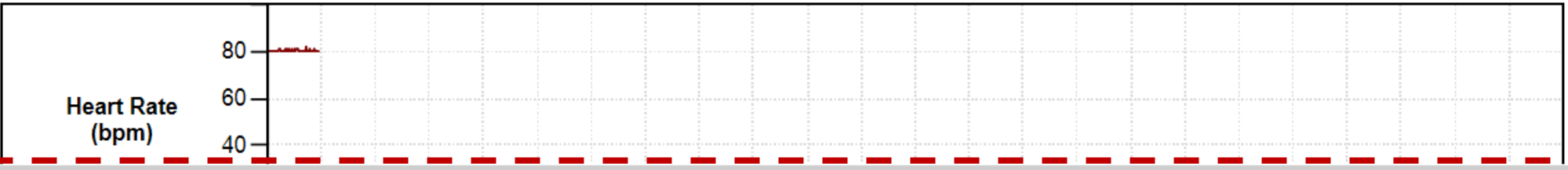
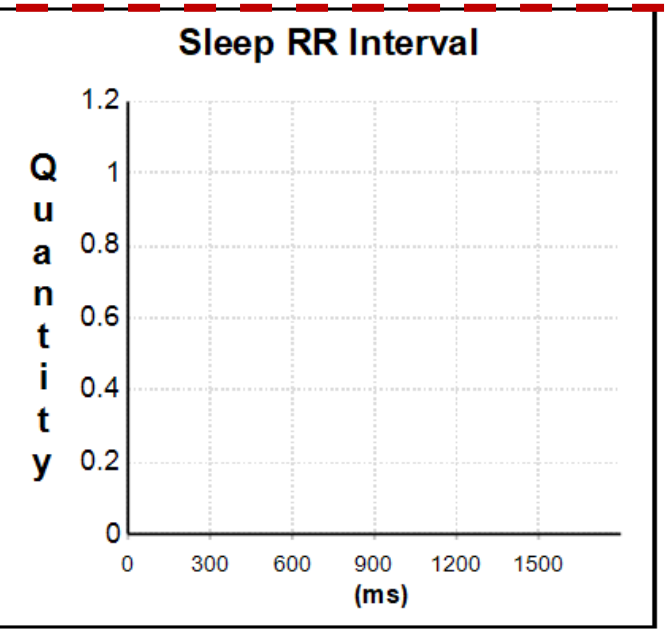
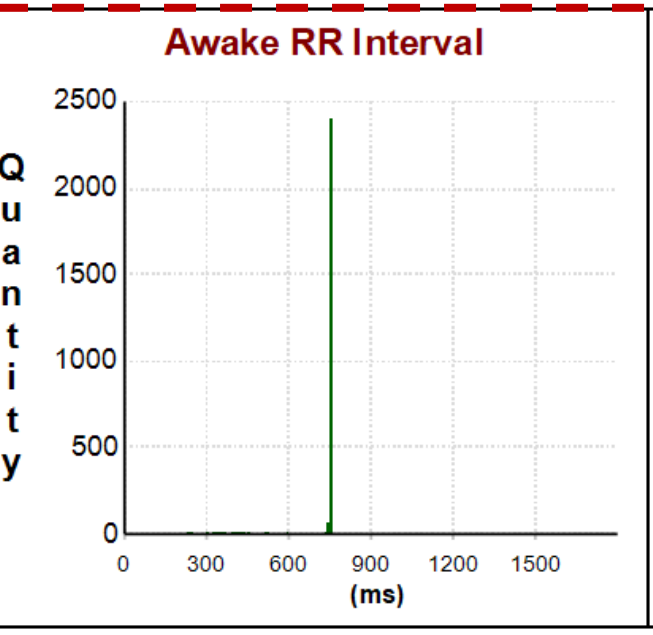
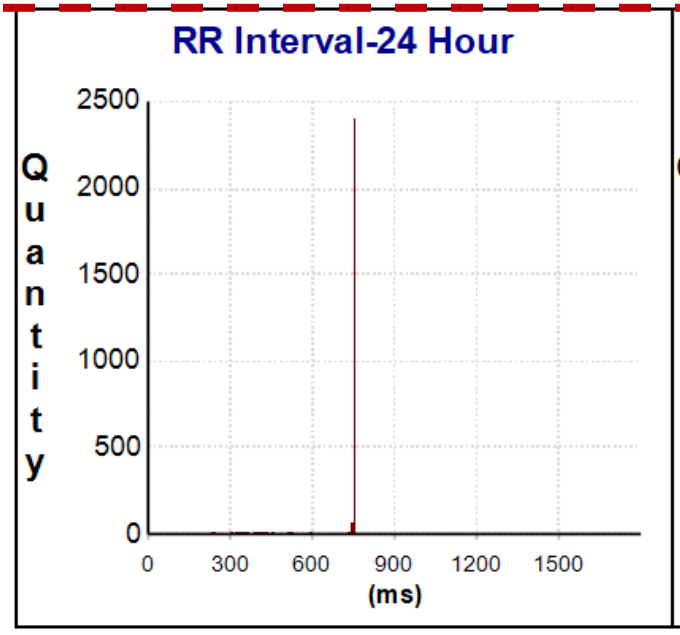
Print Report

Export PDF





تغيير پذيري HeartRate در 24 ساعت اول:

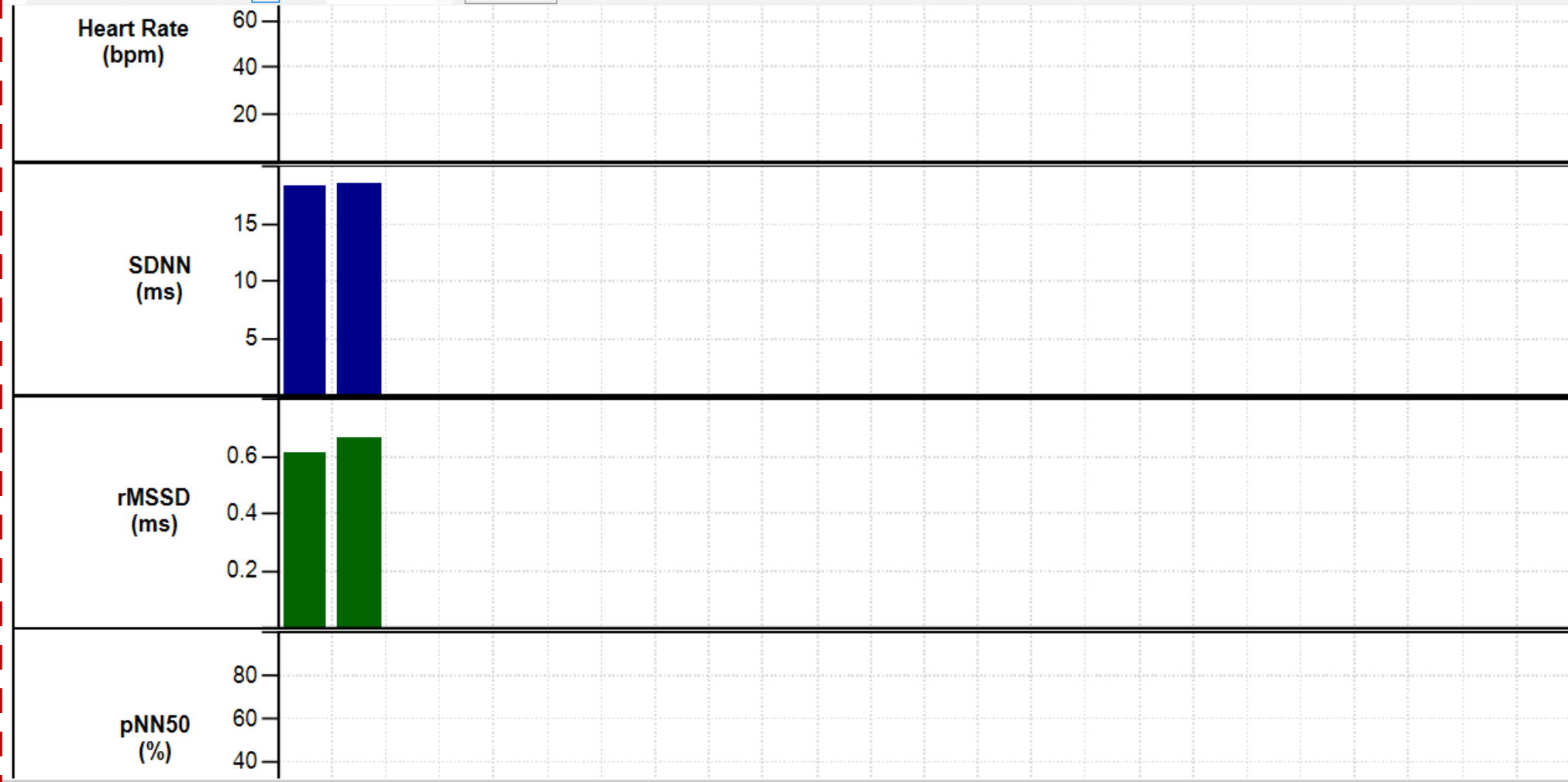


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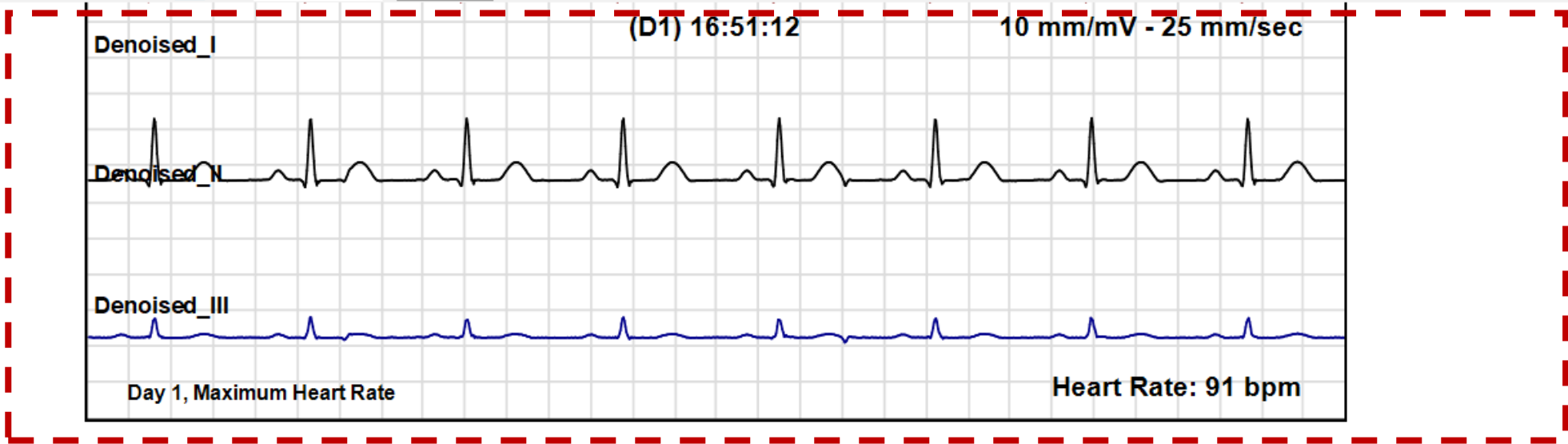
- Signal Specifications
  - QT & QTc
  - Heart Rate Variability
  - ECG Strip Samples
- Summary
- English
  - Farsi
  - None

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- Signal Specifications
  - QT & QTc
  - Heart Rate Variability
  - ECG Strip Samples
- Summary
- English
  - Farsi
  - None

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