



# NIR-M-R3

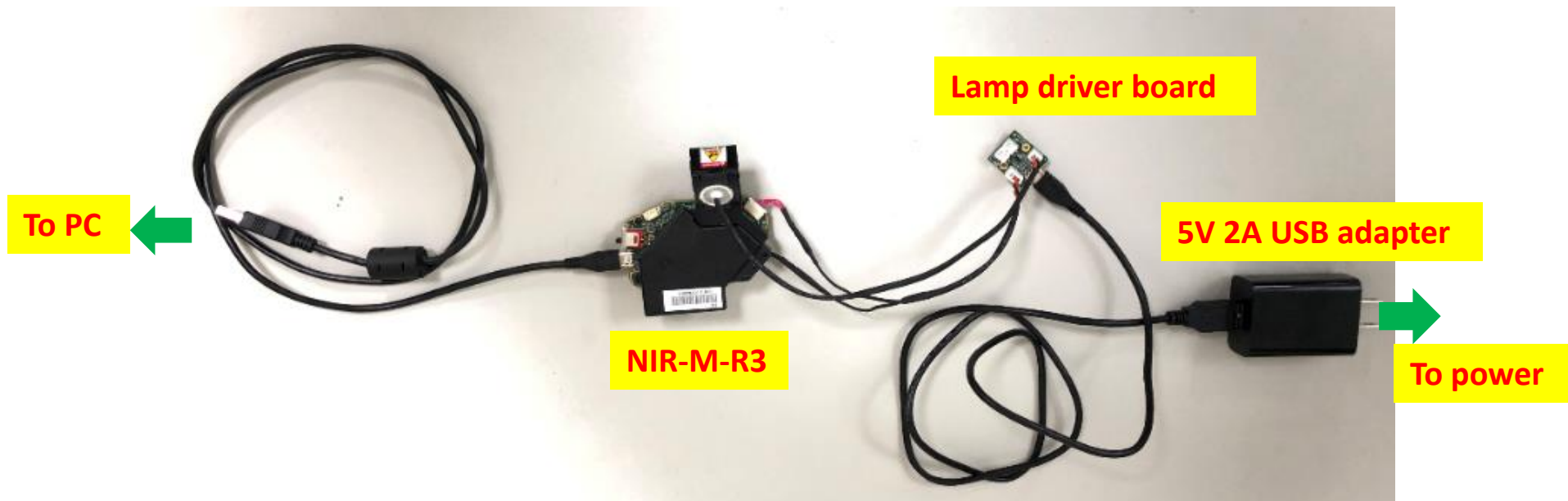
# Product Introduction

2022/6/21

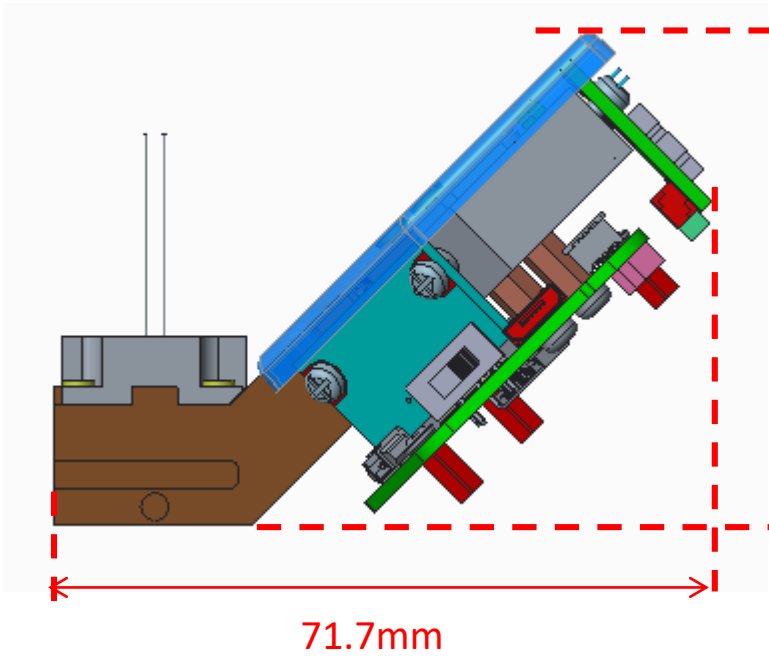
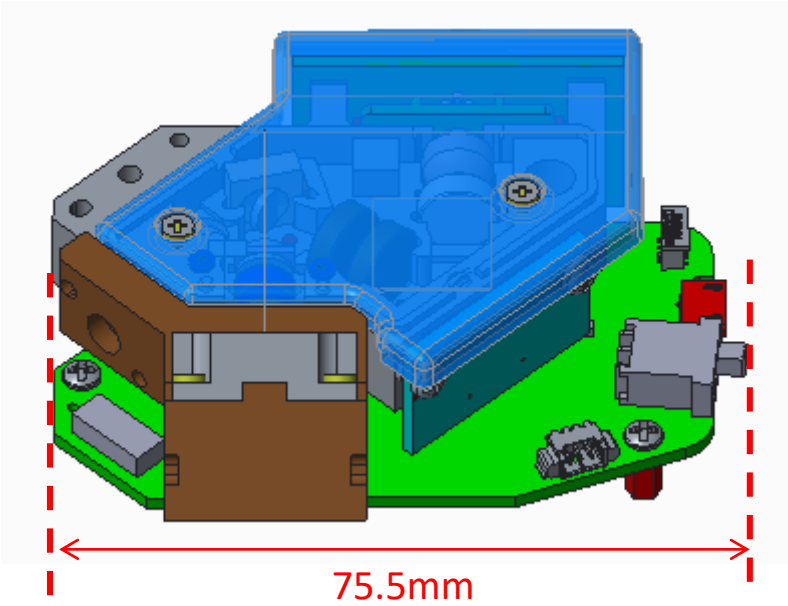


Responsibility Innovation Superiority Entrepreneurship

# Appearance & Interface



# NIR-M-R3 Dimensions



53.5mm

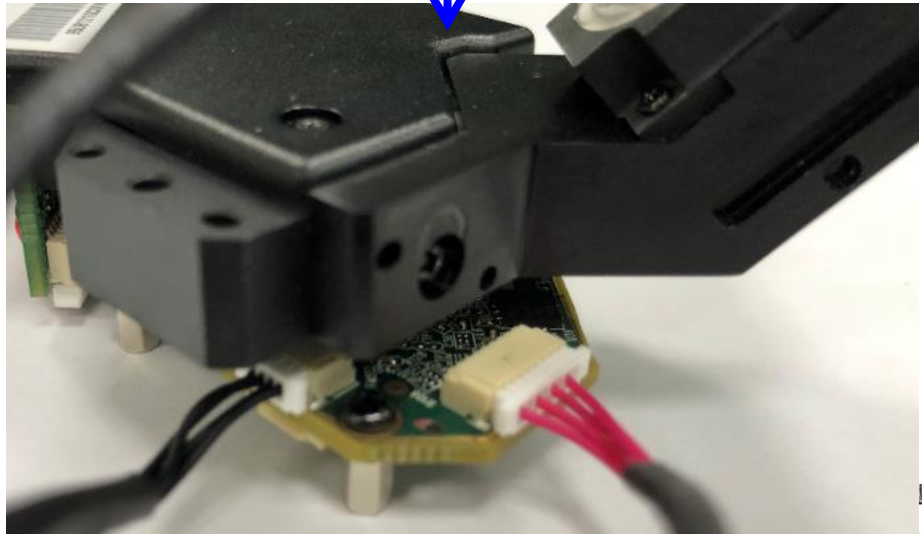
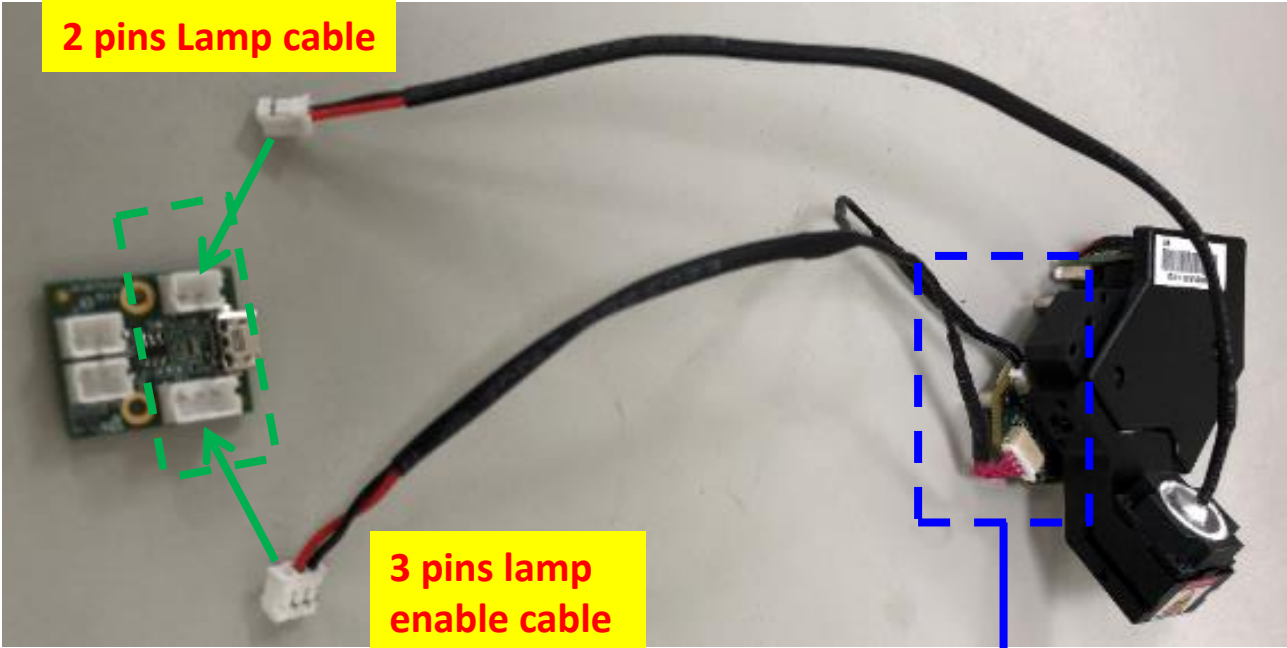
71.7mm

# Product Highlights



- Wavelength Range: 900 to 1700nm
- Signal-to-Noise Ratio (SNR): 5,000:1
- Optical Resolution: Typ. 10nm, Max. 12nm
- Wavelength Accuracy: Typ.  $\pm 1$  nm (verified with SRM2036), Max.  $\pm 2$  nm
- Micro Mirror Array: TI DLP2010NIRAFQJ 0.2 WVGA Near-Infrared DMD
- Detector: 1mm InGaAs (Uncooled)
- Slit Size: 1.8mm \* 0.025mm
- Scan Capability: Linear / Hadamard / Slew Scan
- Sensors: Humidity and temperature sensor
- Illumination Module: one 5W tungsten filament lamp with reflector
- Sampling Module: Non-contact diffuse reflective sampling module
- Collection Region: Typ. 16mm in diameter
- Working Distance: Typ. 8mm from the sample surface to the sampling module
- Communication Interface: USB 2.0
- Power Supply for Spectrometer : 5V 500mA for USB interface
- Power Supply for Illumination Module : AC 100-240V~50-60Hz 0.4A / DC 5V 2A USB Adapter
- Dimensions: 75.5\*71.7\*53.5 mm
- Weight: < 150g
- Operating Temperature: 0 ~ 40 °C, RH Max. 85%

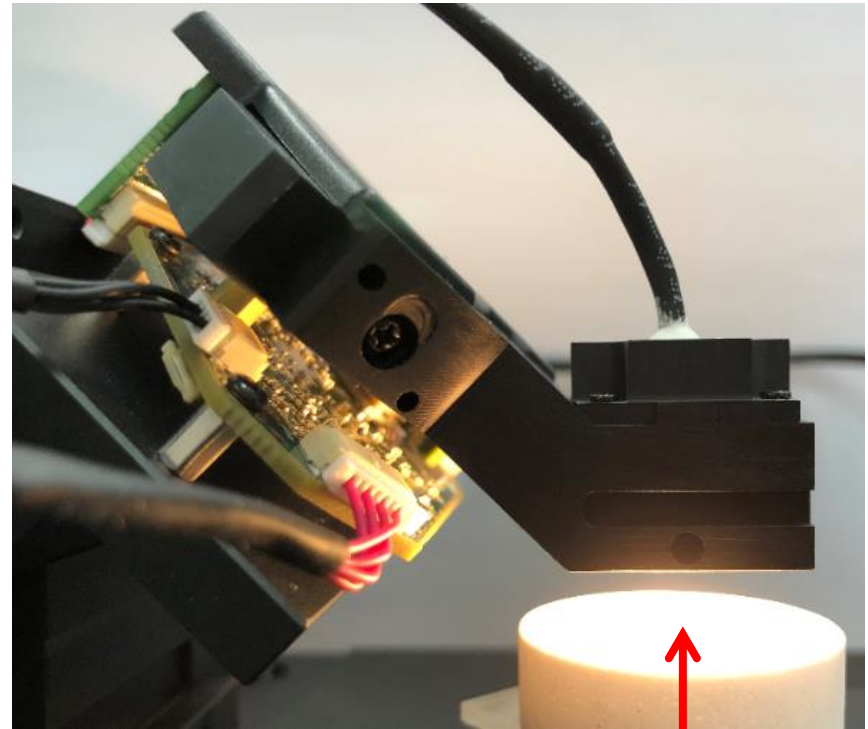
# Measurement Setup



# Warning



**Hot surface !**



**High energy !  
Avoid looking directly at light !**

# Perform a Scan Job

- Select a **scan configuration**, for example, **Column 1** is a preset scan configuration.

Scan Setting | Scan Config | Saved Scans

*Device Default Configuration : Column 1*

Local configurations

Device configurations

Column 1

Hadamard 1

Copy >>

Copy <<

Move >>

Move <<

Set Device Default Config

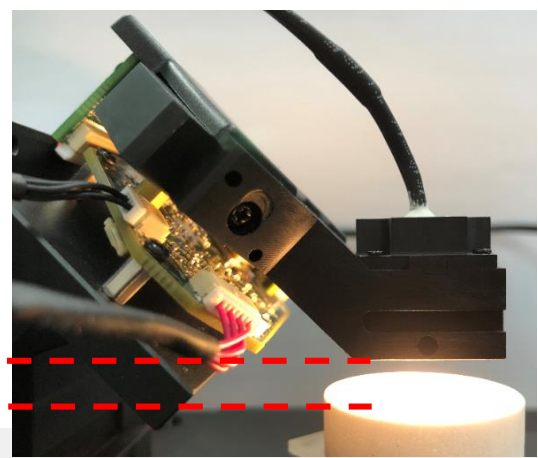
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Details

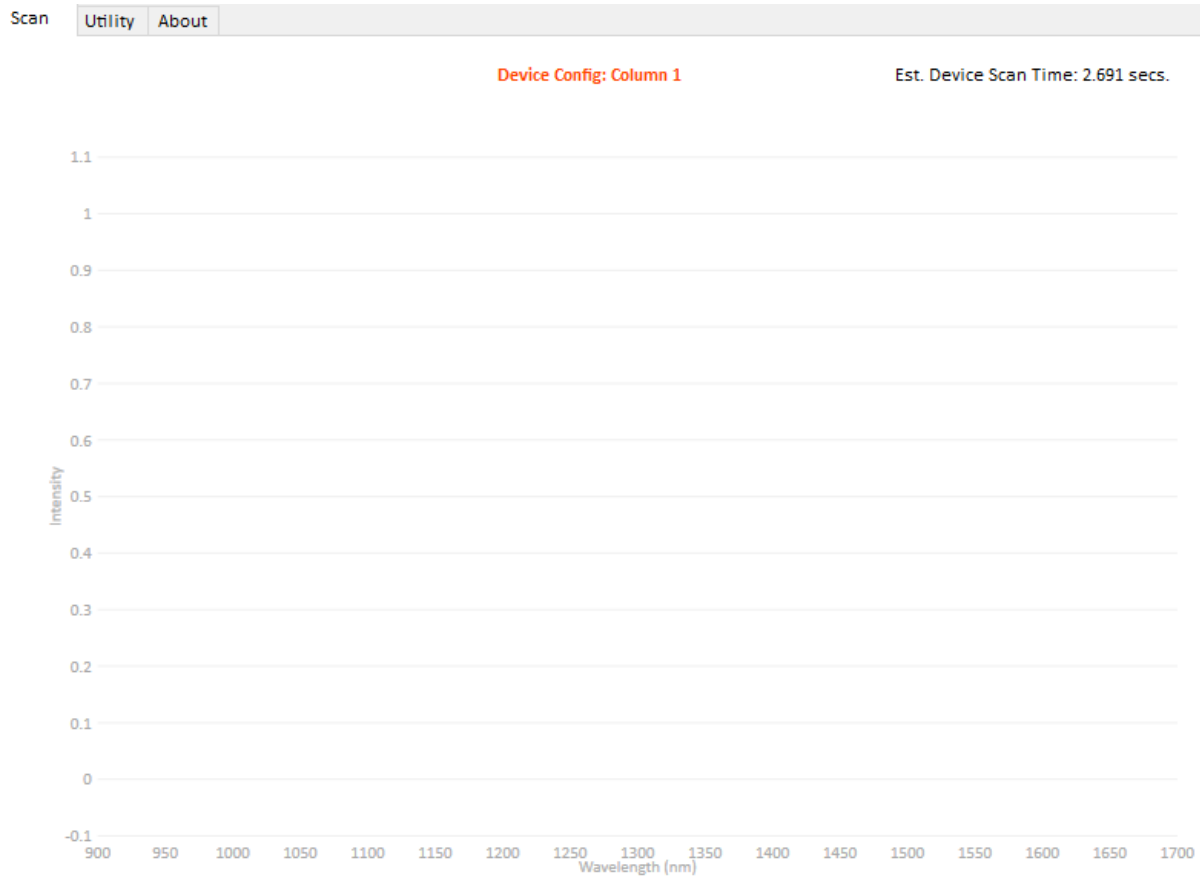
Name	Column 1	Num Scans to Avg.	6
Num Sections	1	2	3
Scan Type	Col	4	5
Spectral Range Start	900		
Spectral Range End	1700		
Width (nm)	7.03		
Exposure Time (ms)	0.635		
Dig. Resolution	228		
<b>Max Resolution</b>	<b>355</b>		
Pattern Used	228		
Total Pattern Used	228		

New | Edit | Delete | Save | Cancel

- Please scan a **white reference** to capture a reference signal.



8mm



Scan Setting   Scan Config   Saved Scans

Reference Select  
 New    Previous    Built-in

Lamp Control  
 Keep Lamp Off  
 Lamp Stable Time (Unit: ms, Default: 625)  

GainControl  
PGA Gain       Auto

Scan Average  
Num Scans of Average :  

Continuous Scan Select  
Cont. Scan:      Scan Delay (s):     
 Stop continuous scans on error

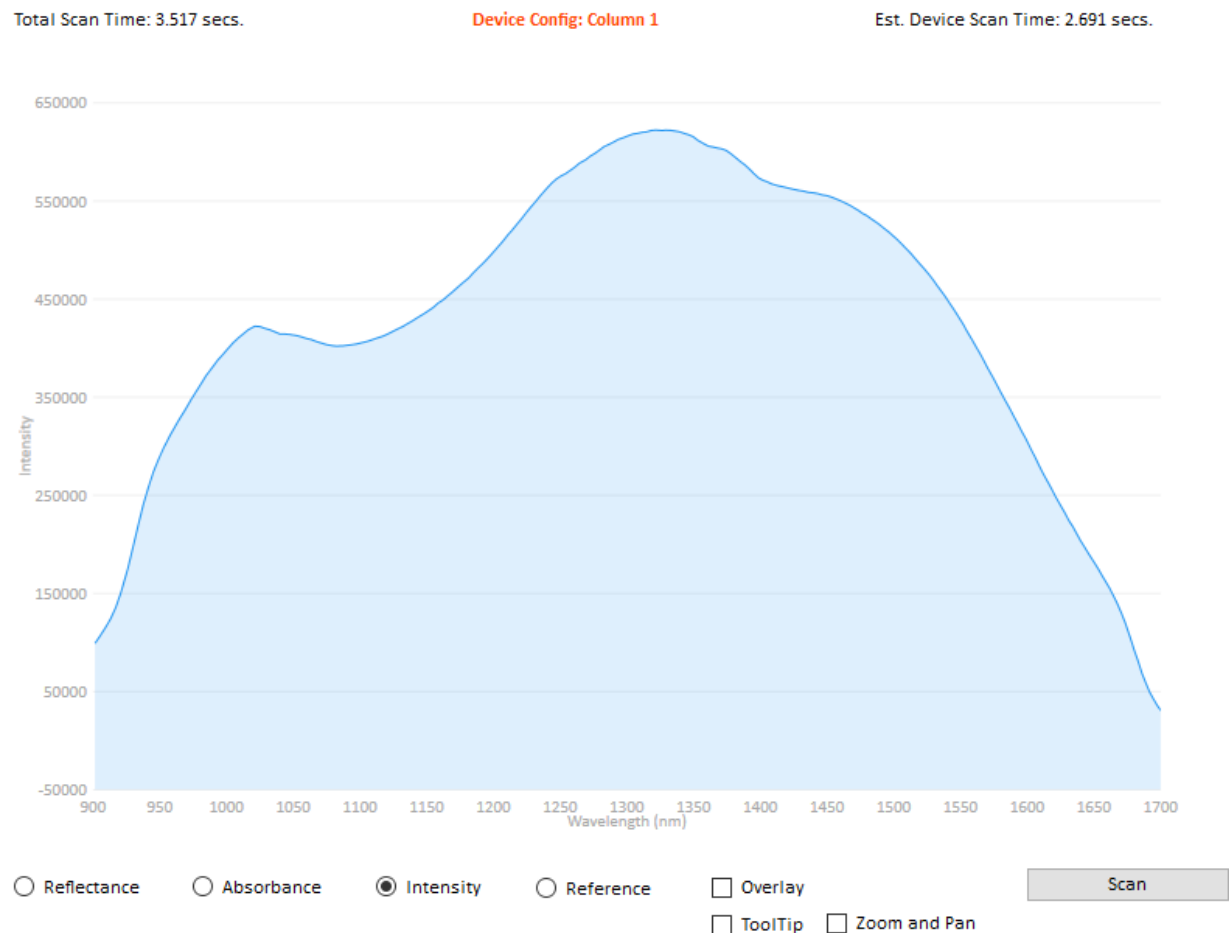
Save Scan As  
 \*.dat    -combined.csv    -average.csv  
 \*.csv    -intensity    -absorbance    -reflectance  
                  .idx    -intensity    -absorbance    -reflectance  
     
 File Name Prefix    -  -

Reflectance    Absorbance    Intensity    Reference    Overlay    ToolTip    Zoom and Pan



- A reference signal is captured as below.



Scan Setting | **Scan Config** | Saved Scans

Reference Select

New   
  Previous   
  Built-in

Previous reference last set on : 2022/5/4 @ 10:11:3

Lamp Control

Keep Lamp Off  
 Lamp Stable Time (Unit: ms, Default: 625)

GainControl

PGA Gain   Auto

Scan Average

Num Scans of Average :

Continuous Scan Select

Cont. Scan:  (1/1)    Scan Delay (s):

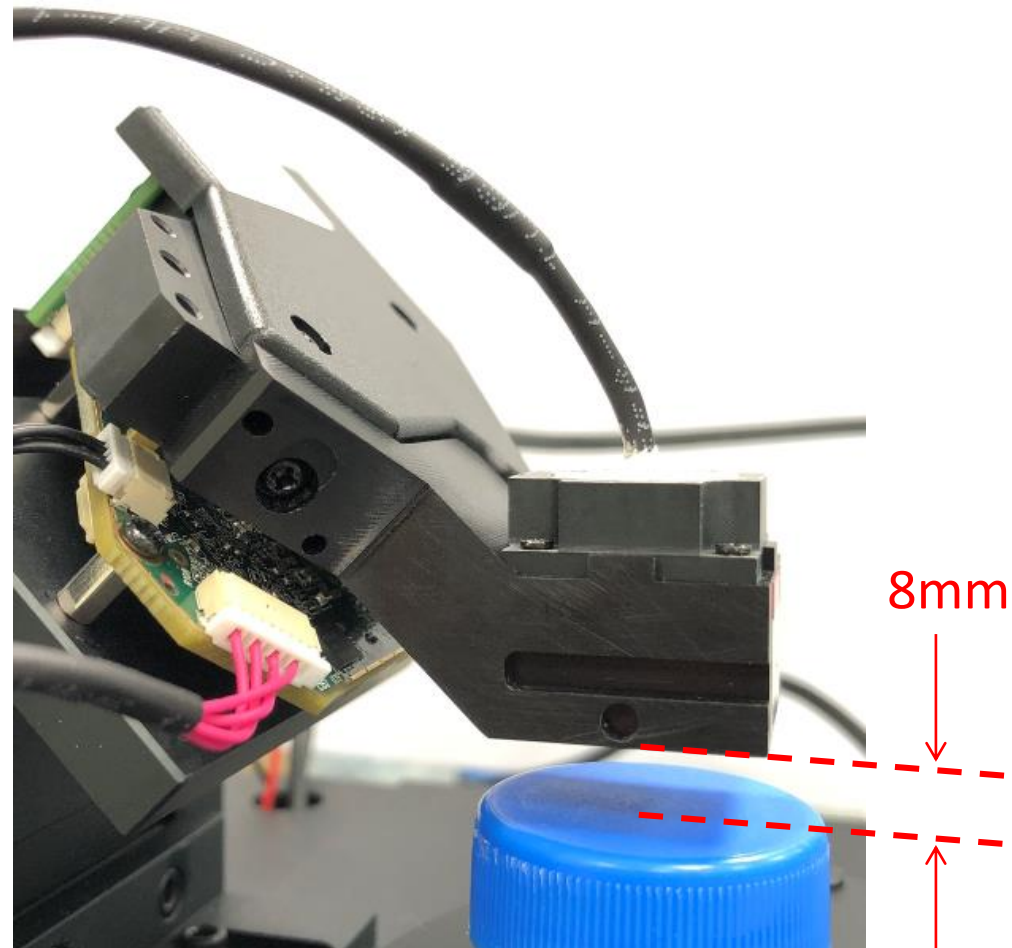
Stop continuous scans on error

Save Scan As

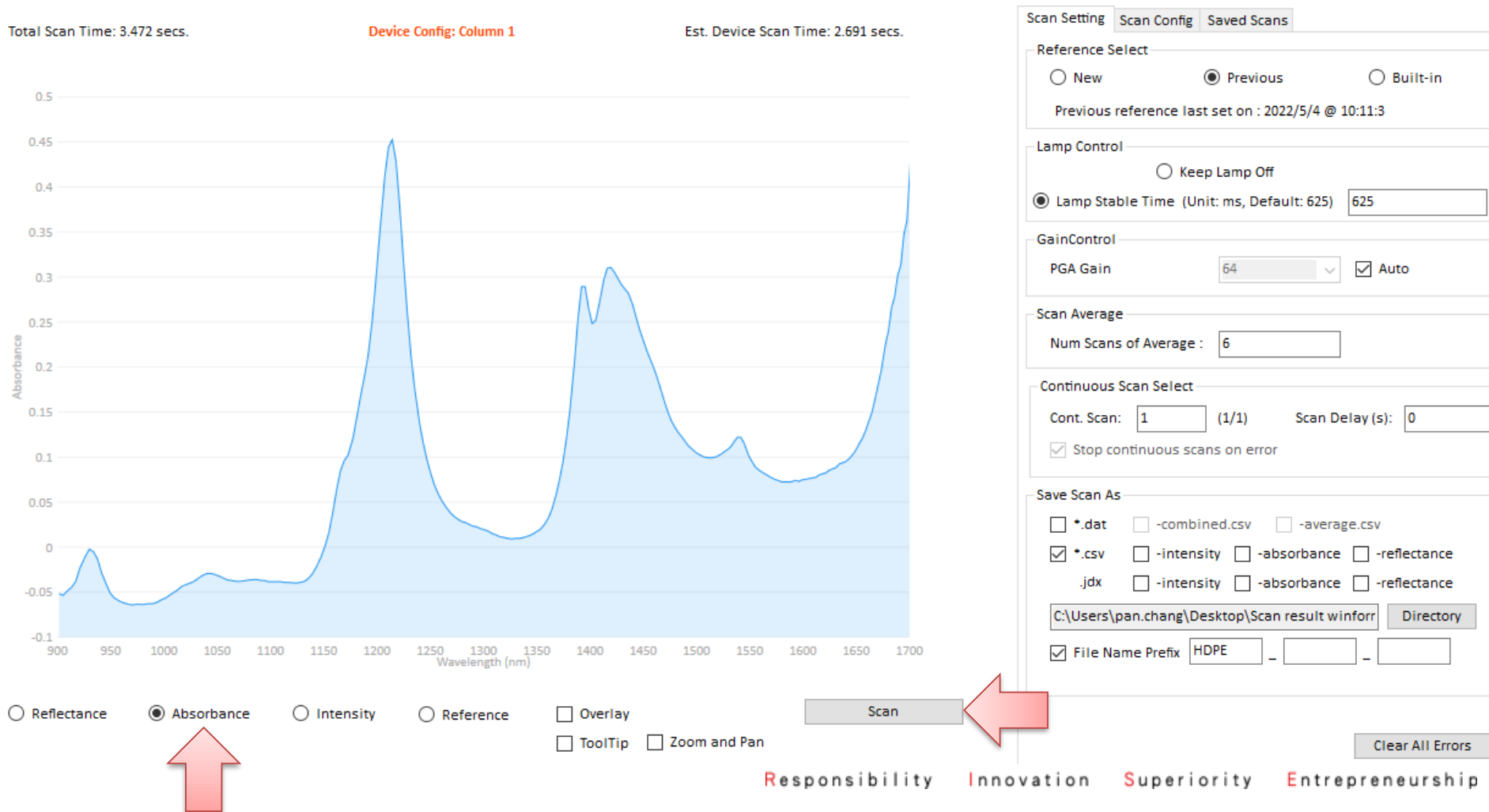
\*.dat   
  -combined.csv   
  -average.csv  
 \*.csv   
 -intensity   
 -absorbance   
 -reflectance  
 .jdx   
 -intensity   
 -absorbance   
 -reflectance

File Name Prefix  -  -

- Place a sample (HDPE cap) at a distance of 8 mm below the reflective head.



- Push “Scan” to start the sample scan.
- The absorbance data will be captured and displayed as follows.

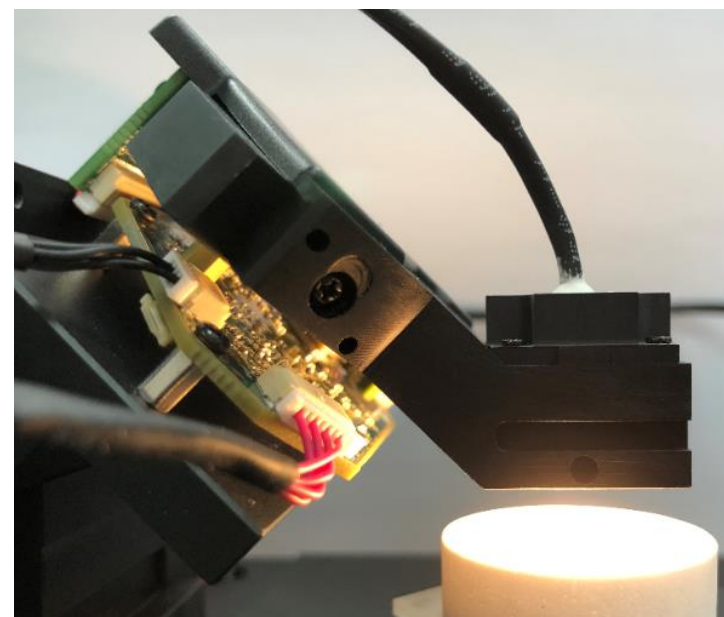


# Perform a Turmeric Powder Scan

- Create a new **Turmeric** configuration and do the reference scan.

Details

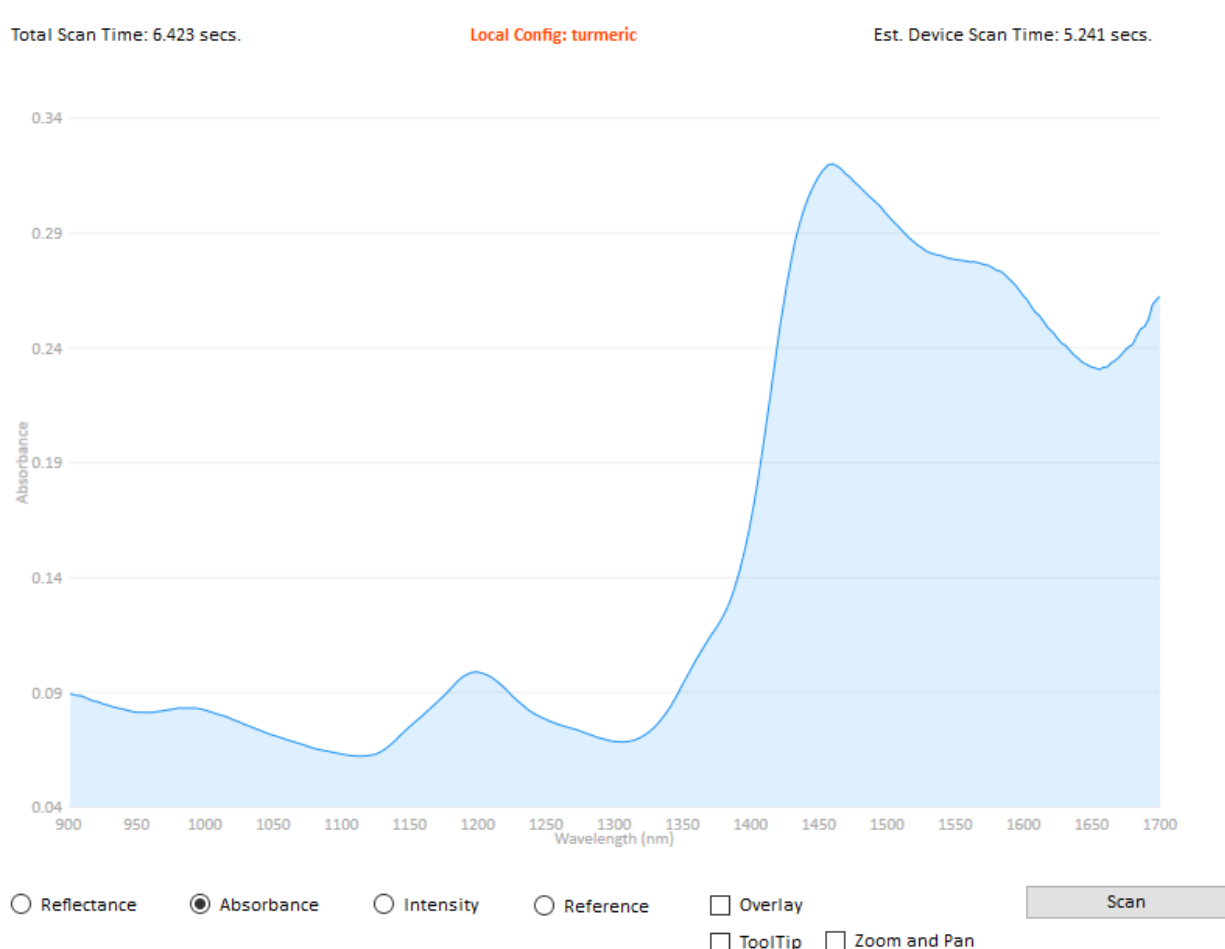
Name	<input type="text" value="turmeric"/>	Num Scans to Avg.	<input type="text" value="10"/>			
Num Sections	<input type="button" value="1"/> ▾	<input type="button" value="1"/>	<input type="button" value="2"/>	<input type="button" value="3"/>	<input type="button" value="4"/>	<input type="button" value="5"/>
Scan Type	<input type="button" value="Had"/> ▾					
Spectral Range Start	<input type="text" value="900"/>					
Spectral Range End	<input type="text" value="1700"/>					
Width (nm)	<input type="button" value="7.03"/> ▾					
Exposure Time (ms)	<input type="button" value="1.27"/> ▾					
Dig. Resolution	<input type="text" value="228"/>					
Max Resolution	<input type="text" value="583"/>					
Pattern Used	<input type="text" value="237"/>					
Total Pattern Used	<input type="text" value="237"/>					



- Place **Turmeric Powder** at a distance of 8 mm below the reflective head.



- Push “Scan” to start the sample scan.
- The absorbance data will be captured and displayed as follows.



Scan Setting    Scan Config    Saved Scans

Reference Select

New   
  Previous   
  Built-in

Previous reference last set on : 2022/5/4 @ 15:7:39

Lamp Control

Keep Lamp Off  
 Lamp Stable Time (Unit: ms, Default: 625)

GainControl

PGA Gain   Auto

Scan Average

Num Scans of Average :

Continuous Scan Select

Cont. Scan:  (1/1)    Scan Delay (s):

Stop continuous scans on error

Save Scan As

\*.dat   
  -combined.csv   
  -average.csv  
 \*.csv   
  -intensity   
  -absorbance   
  -reflectance  
 .jdx   
  -intensity   
  -absorbance   
  -reflectance

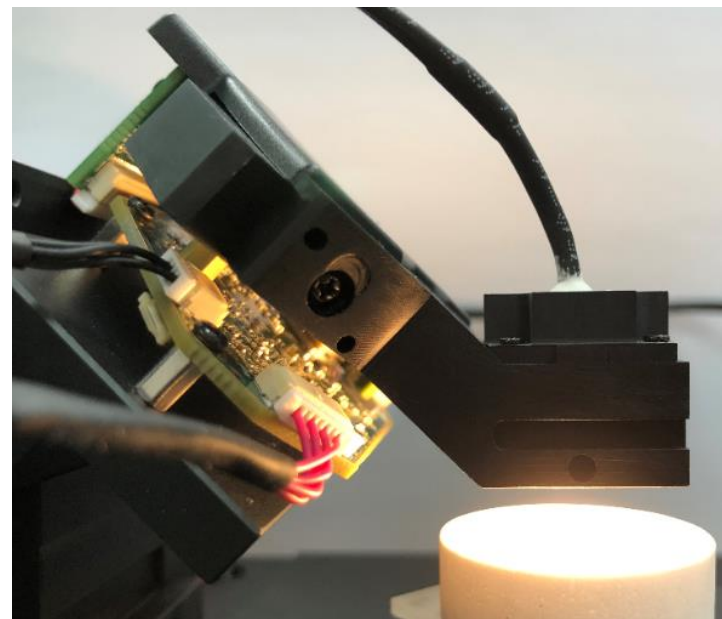
File Name Prefix  -  -

# Perform a Coffee Scan

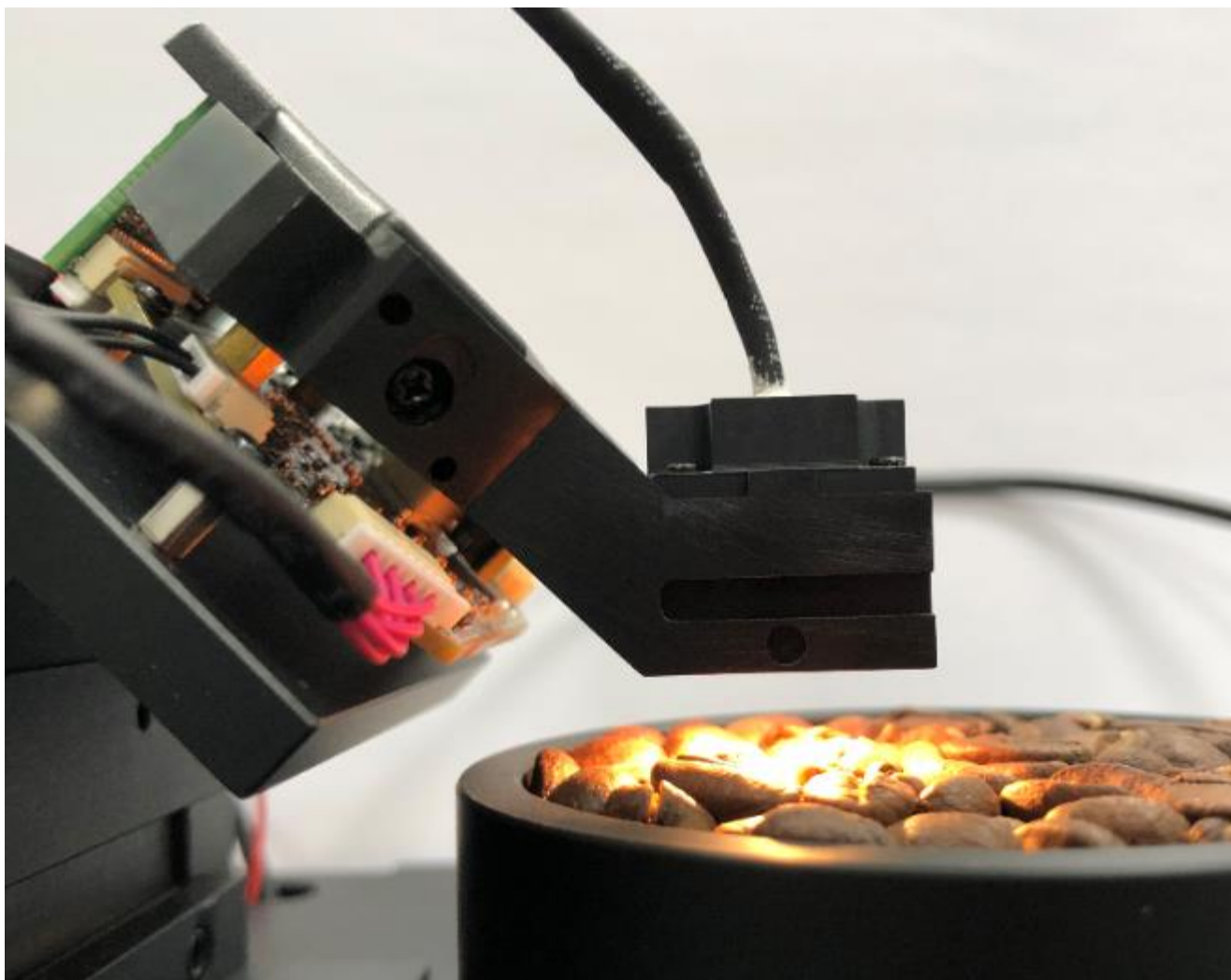
- Create a new **Coffee scan** configuration and do the reference scan.

Details

Name	coffee scan					Num Scans to Avg.	16
Num Sections	1	2	3	4	5		
Scan Type	Had						
Spectral Range Start	900						
Spectral Range End	1700						
Width (nm)	10.54						
Exposure Time (ms)	1.27						
Dig. Resolution	160						
Max Resolution	594						
Pattern Used	177						
Total Pattern Used	177						

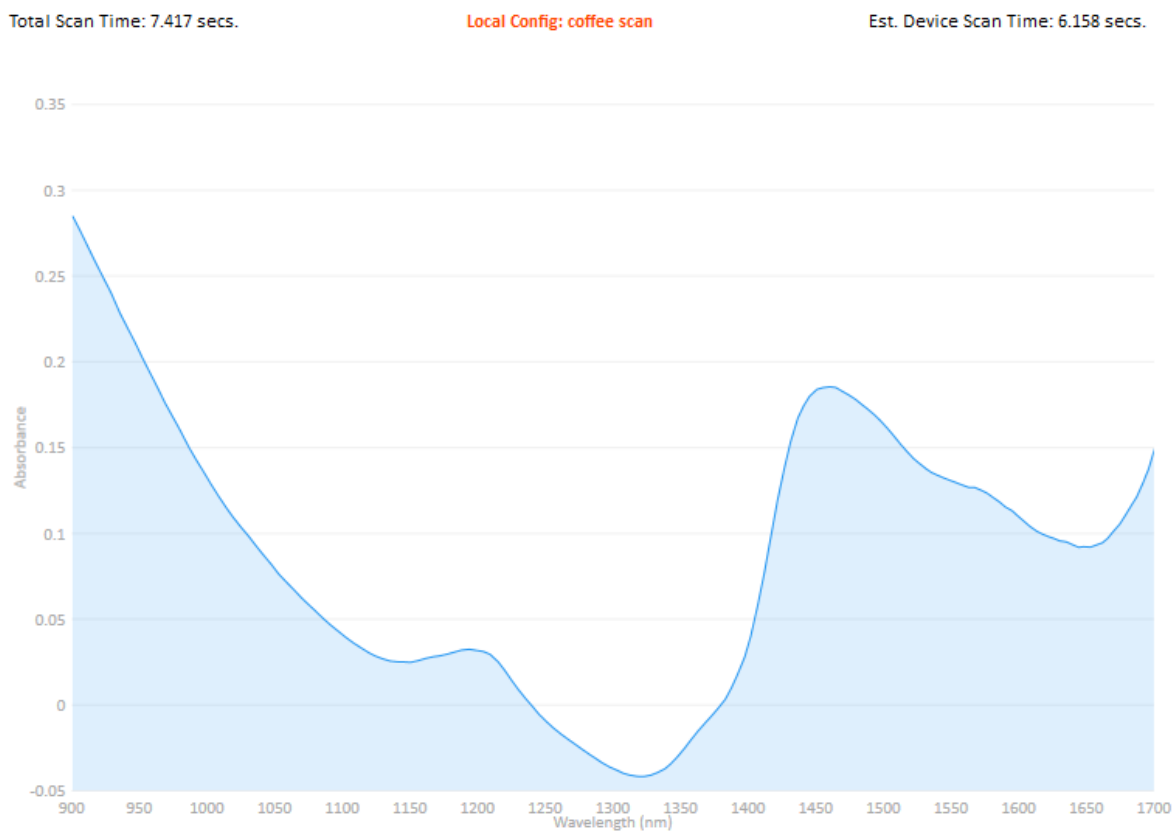


- Place **Coffee Bean** at a distance of 8 mm below the reflective head.





- Push “**Scan**” to start the sample scan.
- The absorbance data will be captured and displayed as follows.



Scan Setting | Scan Config | Saved Scans

Reference Select  
 New     Previous     Built-in  
 Previous reference last set on : 2022/5/4 @ 14:38:5

Lamp Control  
 Keep Lamp Off  
 Lamp Stable Time (Unit: ms, Default: 625)    625


GainControl  
 PGA Gain    16     Auto

Scan Average  
 Num Scans of Average :    16

Continuous Scan Select  
 Cont. Scan:    1    (1/1)    Scan Delay (s):    0  
 Stop continuous scans on error

Save Scan As  
 \*.dat     -combined.csv     -average.csv  
 \*.csv     -intensity     -absorbance     -reflectance  
                          .jdx     -intensity     -absorbance     -reflectance  
 C:\Users\pan.chang\Desktop\Scan result winforr    Directory  
 File Name Prefix    coffee    -       -      

Reflectance     Absorbance     Intensity     Reference     Overlay  
 ToolTip     Zoom and Pan

Scan 

Clear All Errors

