

# EASY-PROFILER™

Operation Manual

## SEP-306RFV

PC Software V1.1

Manual V1.0



SEILIECO CORP.

TEL:82-31-429-6462 FAX:82-31-429-6466

URL : <http://www.seilieco.com>

DANG JUNG DONG 9-3 SANBON-RO 101  
GUNOP-SI, GYUNGKI-DO KOREA.



# EASY PROFILER

1. Temperature measuring system of Profiling
2. Cost reduction of PCB ASS' Y (Thermocouple, Tape )
- 3 Monitoring system of low cost (Wireless DATA )
- 4 Easy check to Profile measuring ( OK/NG )
- 5 Quick simulation
- 6 Vibration function → REFLOW warning system.  
→ PCB drop warning system.

## - Contents-

1. Specification -----	4P	6. Explanation for Program -----	46p
2. Installation -----	5P	6-1. Time analysis -----	48p
2-1. PC Program Setting pot -----	6p	6-2. Temp zone -----	49p
2-2. PC Program Installation -----	7p	6-3. Simulation -----	50p
2-3. PC Program Punction -----	9p	7. Memory Unit Program Reset -----	52p
3. Operating -----		7-1. Sampling Time Chart -----	53p
3-1 EASY PROFILER Simple Installation -----	10p	8. Charge and Transfer Method -----	54p
3-2 EASY PROFILER Vibration-----	18p	8-1 BATTERY Operation -----	55p
4. Measuring of EASY PROFILER -----			
4-1. EASY PROFILER Measuring Method and Installation 1 -----	28p	9. Composition of Micro-Profiler -----	56p
4-2. EASY PROFILER Operation -----	30p		
4-3. EASY PROFILER –Cautions -----	31p	* Attachment	
4-4. Installation of Protect Case -----	32p	- Test Certificate and Sample	
		- After Service Sheet	
5. Installation for Program-----	35p		
5-1. Bring Data -----	36p		
5-2. Zone setting -----	37p		
5-3. Run Ref PCB -----	39p		
5-4. Pwi options -----	40p		
5-5. Easy option -----	43p		
5-6. Input data of Profiler-----	45p		

# SEP-306RFV

## 1. Specification

### 1.1 Dimension

MODEL	SMP-306RFV
Memory Unit	130 x 57.8 x 19
Protect Case	180 x 71.6 x 30

### 1.2 Measurement range : 0~400°C

- ※ Keep use protect-case in high temperature sampling.
- ※ limit time while **Heating** : 200°C → max 5 min, 250°C → max 2 min.

### 1.3 Accuracy : ±1°C

### 1.4 Channels

- Temperature : 6ch by K-type sensor
- Vibration : 2ch ( X,Z )

### 1.5 Battery : 3.6V Lithium Polymer Rechargeable

- Battery Guarantee : 6-months .

### 1.6 Resolution

- a. Sampling Time : 0.5s, 1s, 2s, 5s, 10s
- b. Total Samples : 500sec, 1000sec, 2000sec, 4000sec, 6000sec, 8000sec

ex) Sampling Time : 0.5s

Total Samples : 2000 → 16 minute

### 1.7 Internal protect temperature : 5min at max70°C

### 1.8 P.C Spec

- IBM compatible or equivalent.
- Microsoft Windows XP.
- SVGA graphic card(256 color) or more.
- Resolution : 1024\*768 min.

### 1.9 Weight :

MODEL	SMP-306RFV
Memory Unit	250g
Protect Case	370g

## 2. Installation

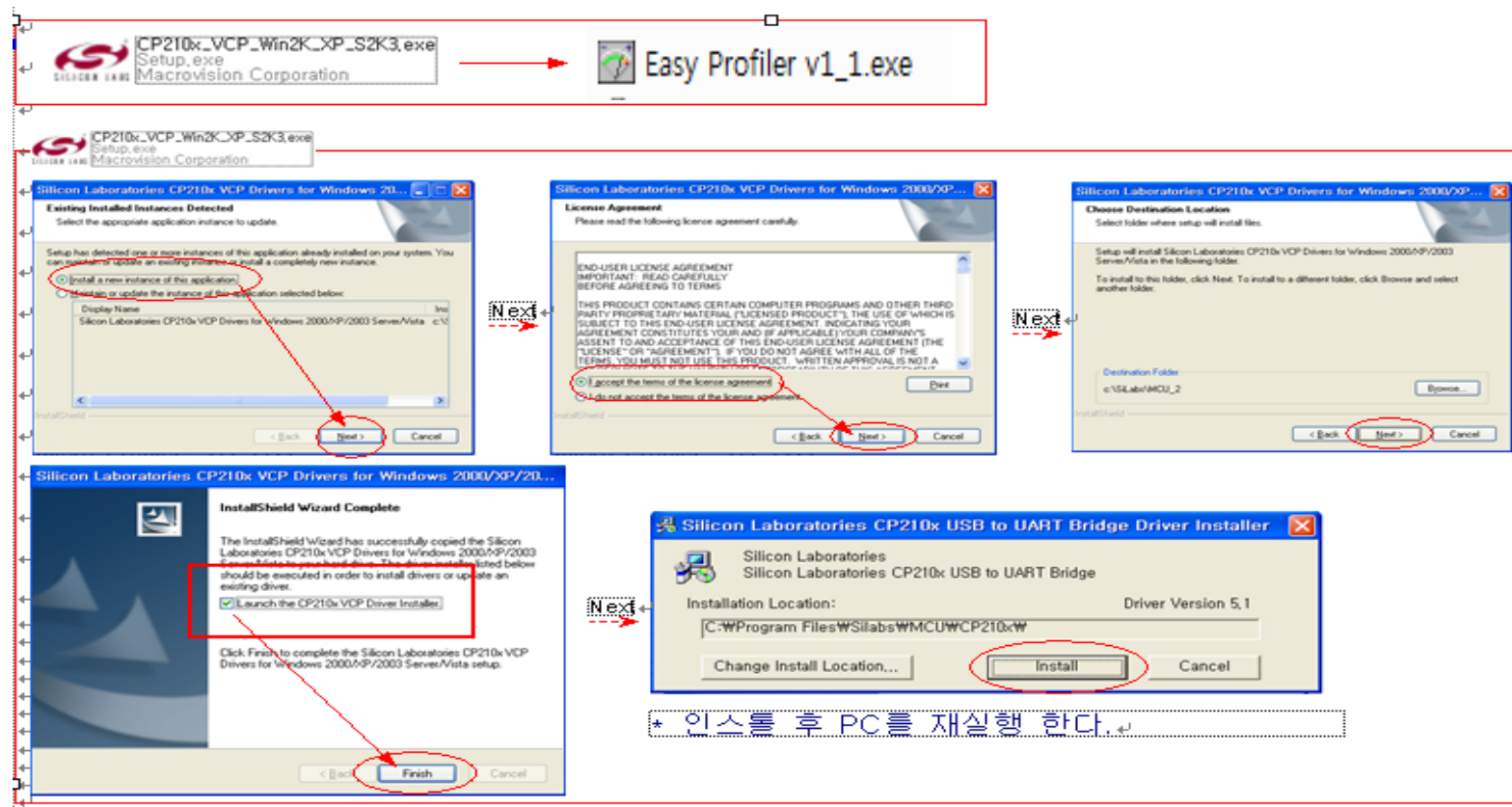
### 2.1. PC Program

- (1) WINDOWS XP ,Disply resolution :  
1024\*768 piccell

### 2-1. PC Program setting

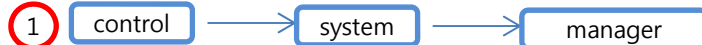
- (2) Installation of Software

- a. Take "CP210x\_VCP\_Win2k\_XP\_S2K3.exe" & "Easy Profiler v1\_1.exe" as below.

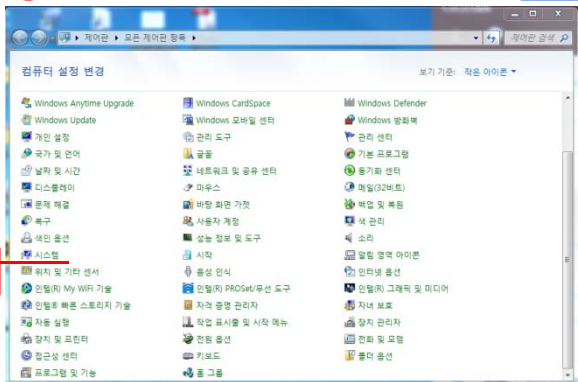


## 2-1. PC Program Setting pot

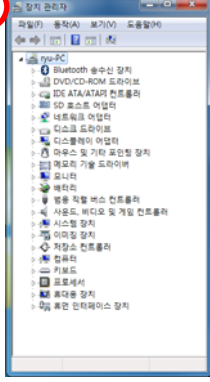
### 1) PC system control , SEP-306RFV Program installation




**2** system



**3**

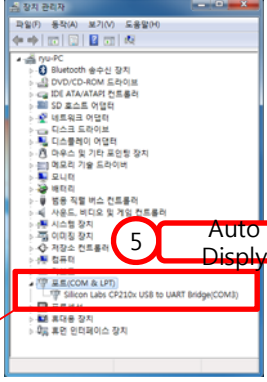


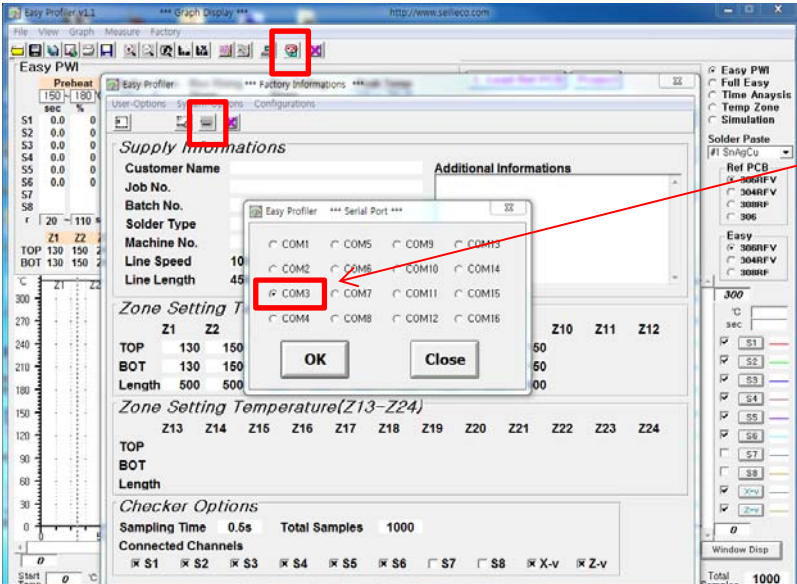
**4** PC connect to EASY PROFILER RF unit By USB cable



EASY PROFILER RF UNIT

**5** Auto Display





**키보드**

**포트(COM & LPT)**

Silicon Labs CP210x USB to UART Bridge(COM3)

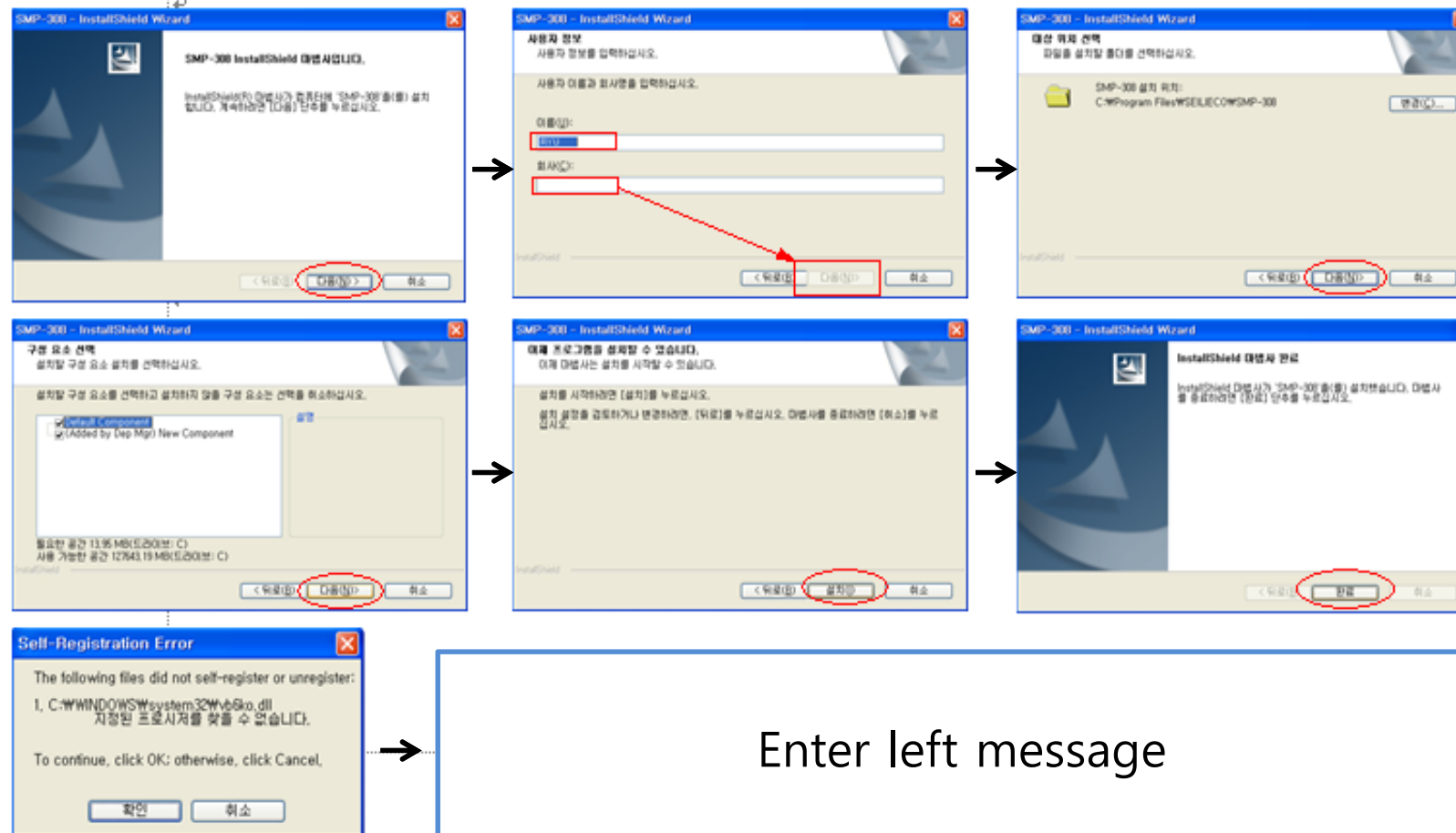
**프로세서**

※

1. To remove USB, will go out 5 process automatically .
2. If can not operate working ,recheck to SEP-306 RFV program setting pot with manager pot.
3. It is will be changeable to not connect other device with SEP-306 RFV RF UNIT of created sequence chart by PC system .

## 2-2. PC Program Installation

Easy Profiler v1\_1.exe





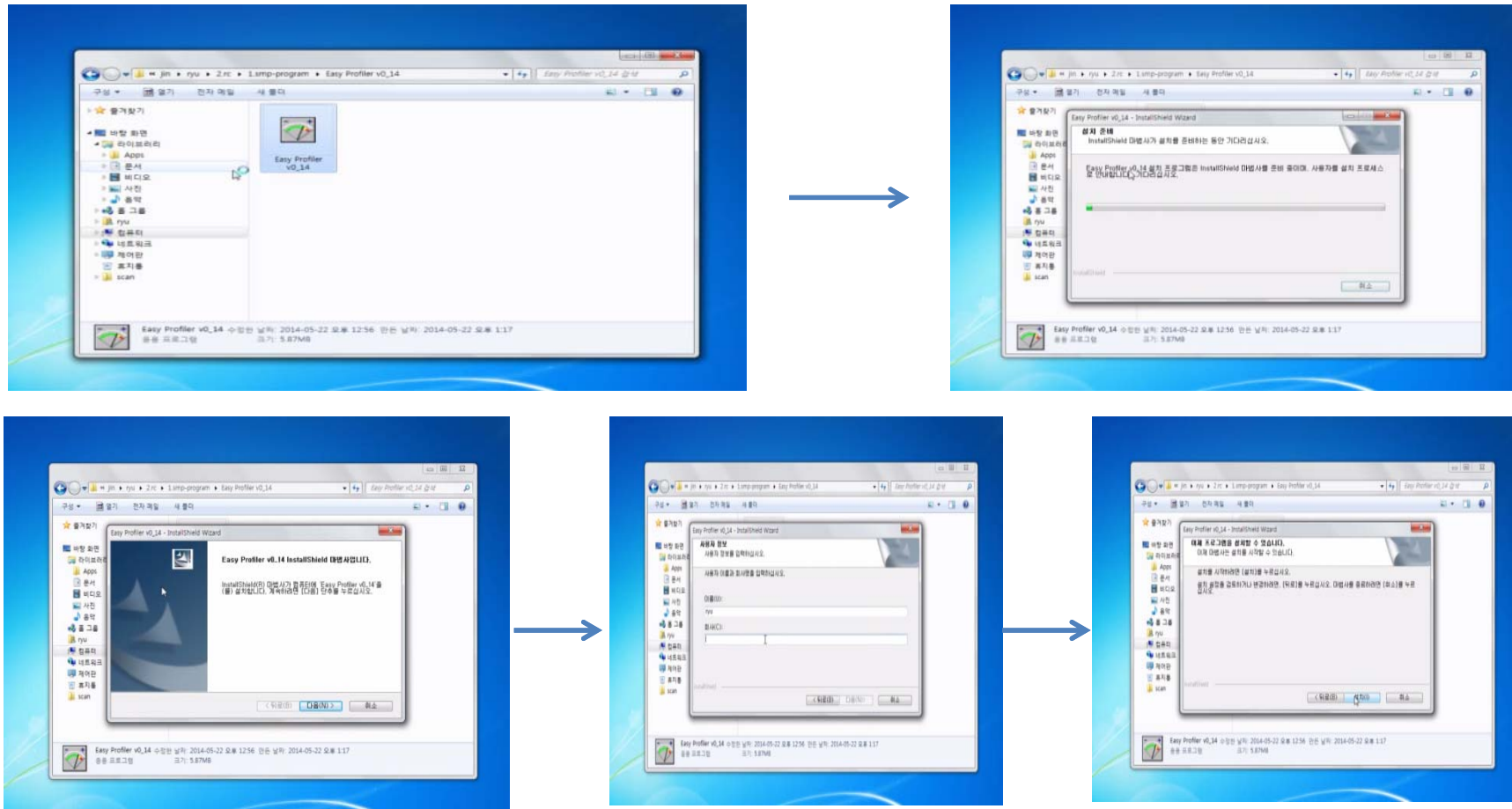
## Installation

### 2.1. PC Program

(1) WINDOW-8, Display Resolution ;1024\* 768

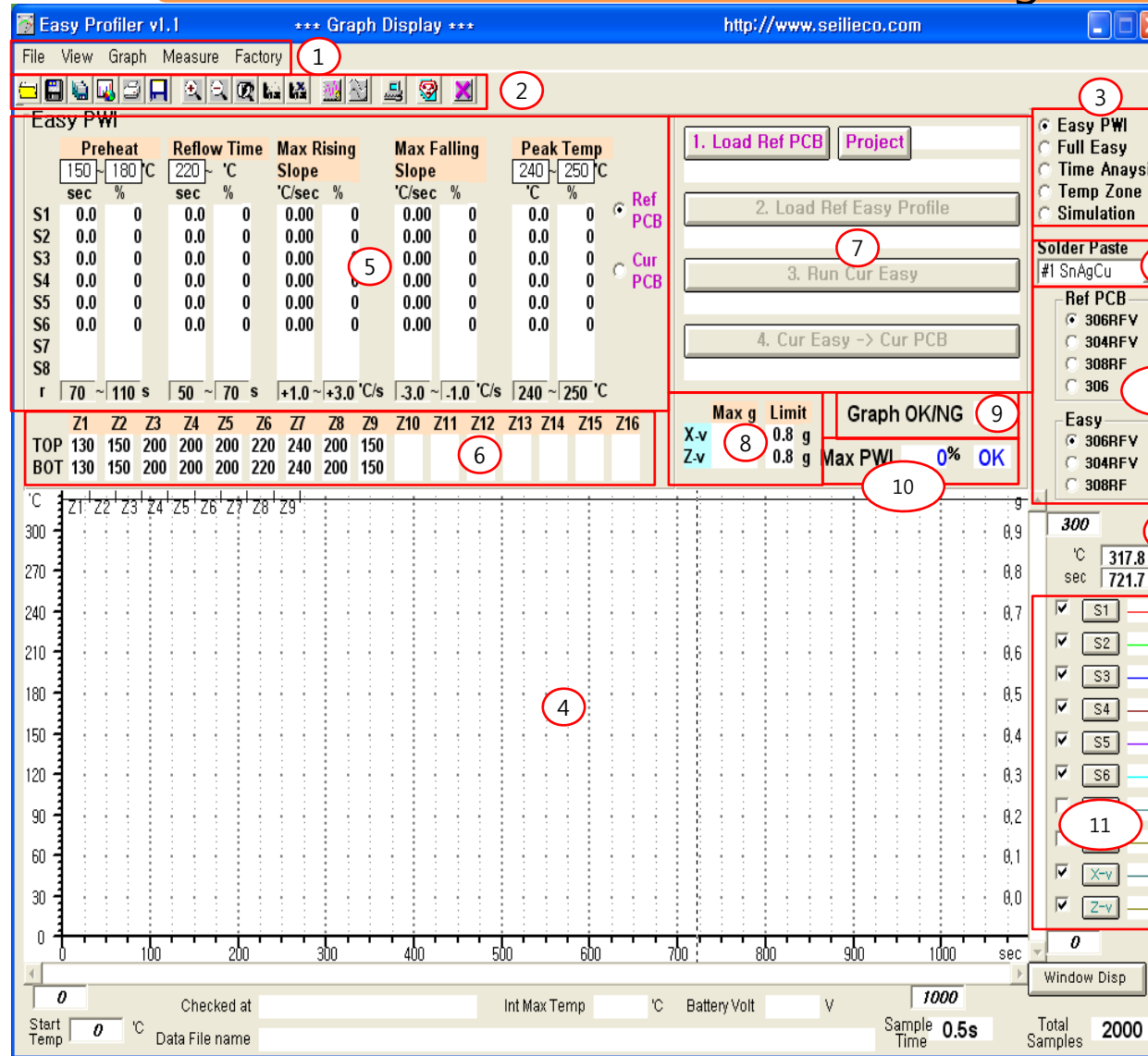
(2) Installation of Program

a. Take "CP210x\_VCP\_Win2k\_XP\_S2K3.exe" & "Easy Profiler v1\_1.exe" as below





## 2-3. PC Function of Program



- ① Menu
- ② Icon
- ③ Program Menu, Select Menu
  - EASY PWI (Basic measure)
  - FULL EASY (Manager measure)
  - Temperature Analysis (Measuring of operator interval)
  - Time Analysis (Graph analysis of time interval)
  - TEMP ZONE (SEPC SETTING, measuring) (Graph analysis of temperature interval)
  - SIMULATION (Graph analysis of not reality)
- ④ Display graph:
  - Display to screen with graph by measuring data.
- ⑤ EASY PWI SPEC DISPLAY
- ⑥ ZONE SETTING TEMPERATURE
- ⑦ EASY PWI MEASURE ZONE
- ⑧ VIBRATION MEASURE ZONE
- ⑨ GRAPH COMPARE OK/NG ZONE
- ⑩ GRAPH PWI CHECK ZONE
- ⑪ Decide to select color of sensor channel(SELECT?)
- ⑫ EASY PROFILER DATA RECEIVING SELECT ZONE
  - Model select of Ref PCB profile and Easy profile.
- ⑬ PWI condition select ZONE
  - Select Solder paste with PWI Options.
- ⑭ Information on Cursor.

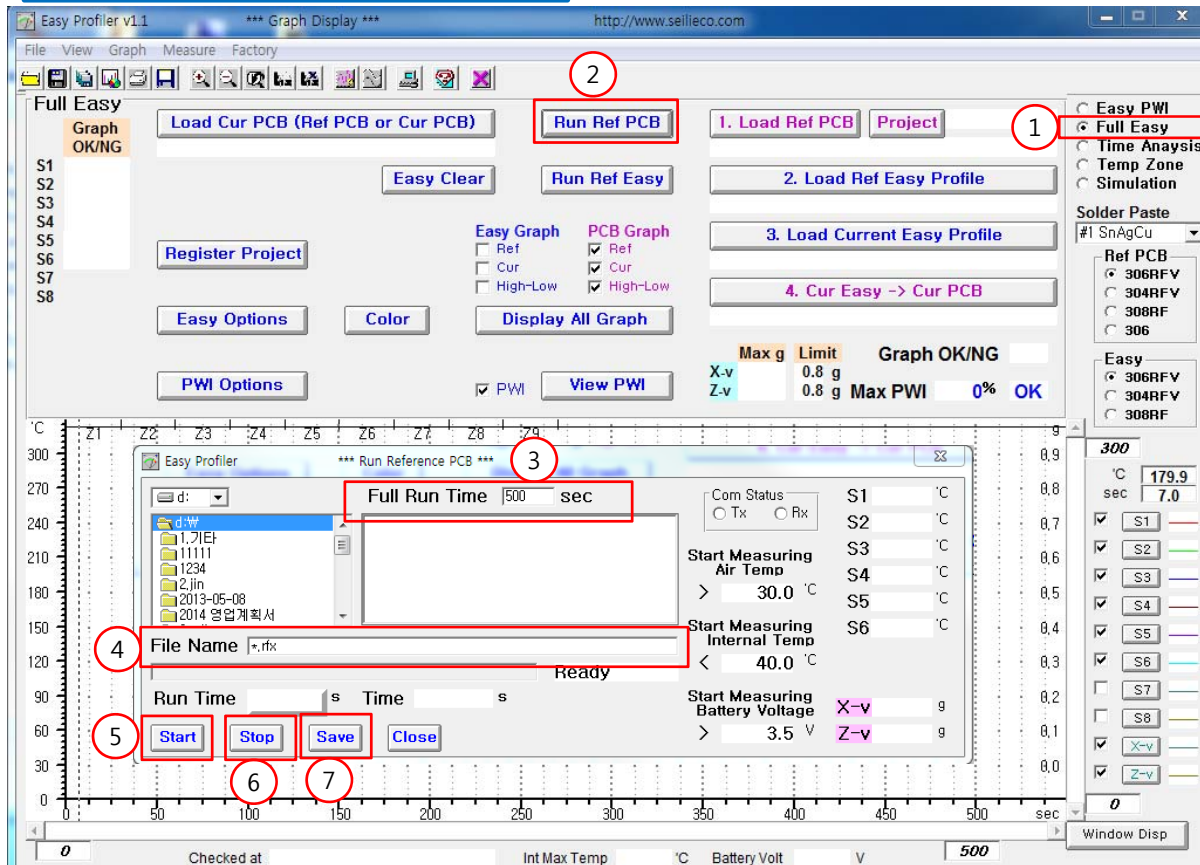
### 3-1. EASY PROFILER Operation

#### 1 Make up PCB profile

ZONE ETING TEMPERATURE SETTING

Full Easy

Run Ref PCB



### FULL EASY PROJECT

- ① FULL EASY CLICK
- ② RUN REF PCB CLICK
- ③ FULL RUN TIME SETTING  
(reflow Total Time - SMT ; 400sec)
- ④ FILE NAME check
- ⑤ START CLICK
- ⑥ STOP CLICK
- ⑦ SAVE CLICK

FULL EASY - RUN REF PCB - FILE NAME

Model 306RFV\_PCB\_Ref\_140611\_1644.rfx

RUN REF pcb fixed      date, week,month,year.

Ex) FILE NAME ( Same Model)

Model , - Do not use ( only alphabet)

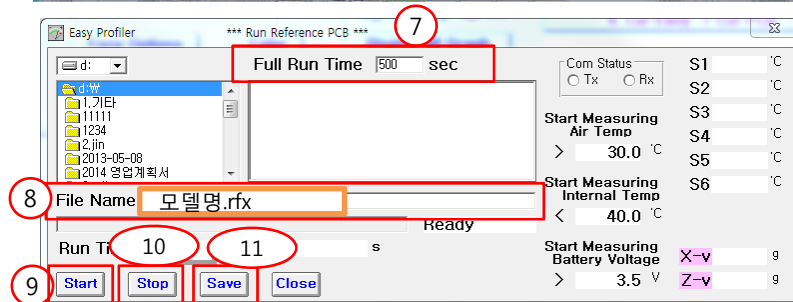
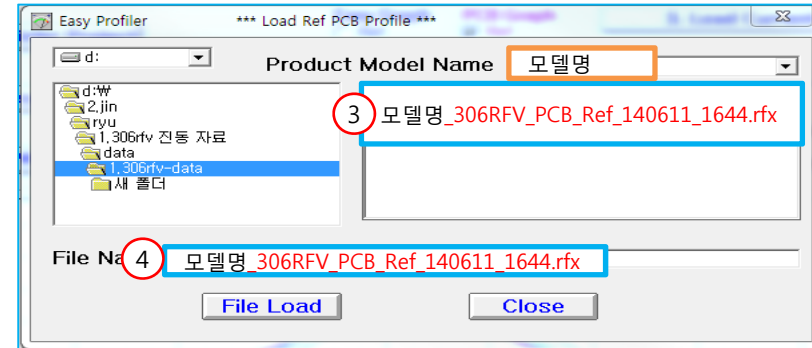
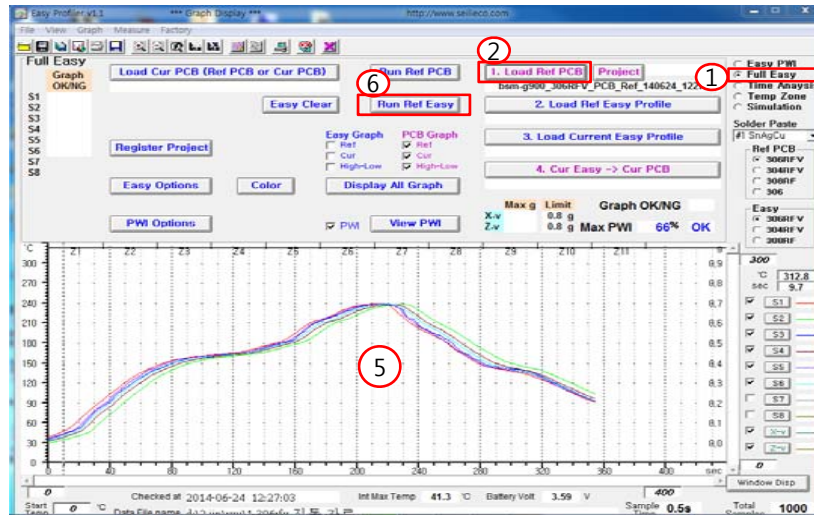
Caution use EASY PROFILER.

## 3-1. EASY PROFILER Operation

### 2 To make to basic Easy profile

Full Easy

Run Ref PCB



FULL EASY -RUN EASY- FILE NAME

Mode ;\_306RFV\_Easy\_140611\_1644.rfx

RUN REF pcb fixed date, week, month, year.

- ① FULL EASY CLICK
- ② LOAD REF PCB CLICK
- ③ FILE CLICK
- ④ FILE NAME check, FILE LOAD CLICK
- ⑤ GRAPH DISPLAY
- ⑥ RUN REF EASY CLICK
- ⑦ FULL RUN TIME SETTING  
(reflow interval - SMT ; 400sec)
- ⑧ FILE NAME check
- ⑨ START CLICK
- ⑩ STOP CLICK
- ⑪ SAVE CLICK

Ex) FILE NAME( Same Model )

Model \_ , - Do not use( Only Alphabet)

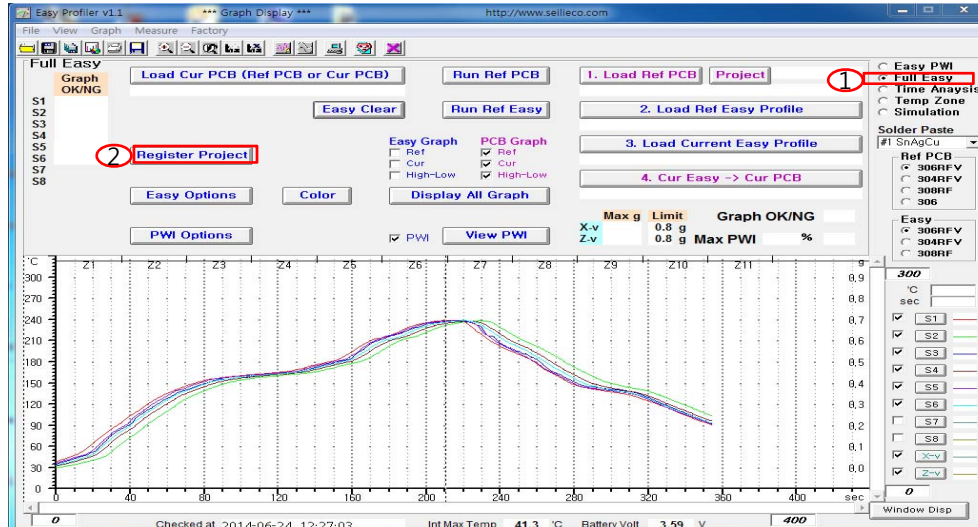
Caution use EASY PROFILER .

## 3-1. EASY PROFILER Operation

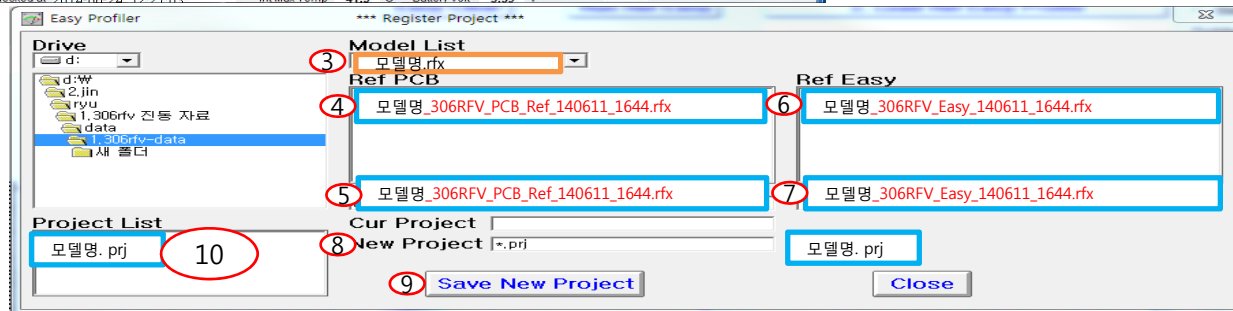
### 3 Project Register

Full Easy

Register Project



- ① FULL EASY CLICK
- ② REGISTER PROJECT CLICK
- ③ MODEL LIST check
- ④ REF PCB FILE CLICK
- ⑤ REF PCB FILE LOAD check
- ⑥ REF EASY FILE CLICK
- ⑦ REF EASY FILE LOAD check
- ⑧ NEW PROJECT NAME ( EX = Model;.prj )
- ⑨ SAVE NEW PROJECT CLICK
- ⑩ PROJECT LIST register check
- ⑪ CLOSE



FULL EASY – PROJECT - FILE NAME  
MODEL;.prj

Ex) FILE NAME( keep same Model )

- /  
Caution use on EASY PROFILER



### 3-1. EASY PROFILER Operation

#### 4 Select Project

Full Easy → Register Project → Project LOAD

- ① FULL EASY CLICK
- ② PROJECT CLICK
- ③ PROJECT LIST check CLICK
- ④ PROJECT LOAD check
- ⑤ LOAD PROJECT CLICK
- ⑥ CLOSE

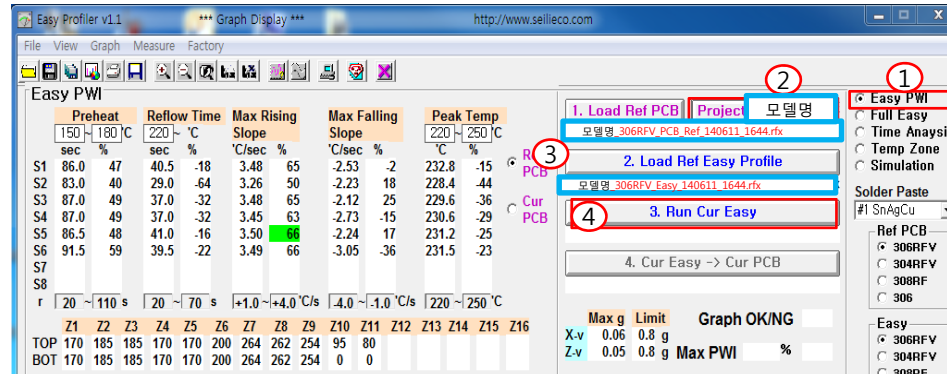
모델명.prj → Model.prj

FULL EASY – PROJECT - FILE NAME  
Model ,prj

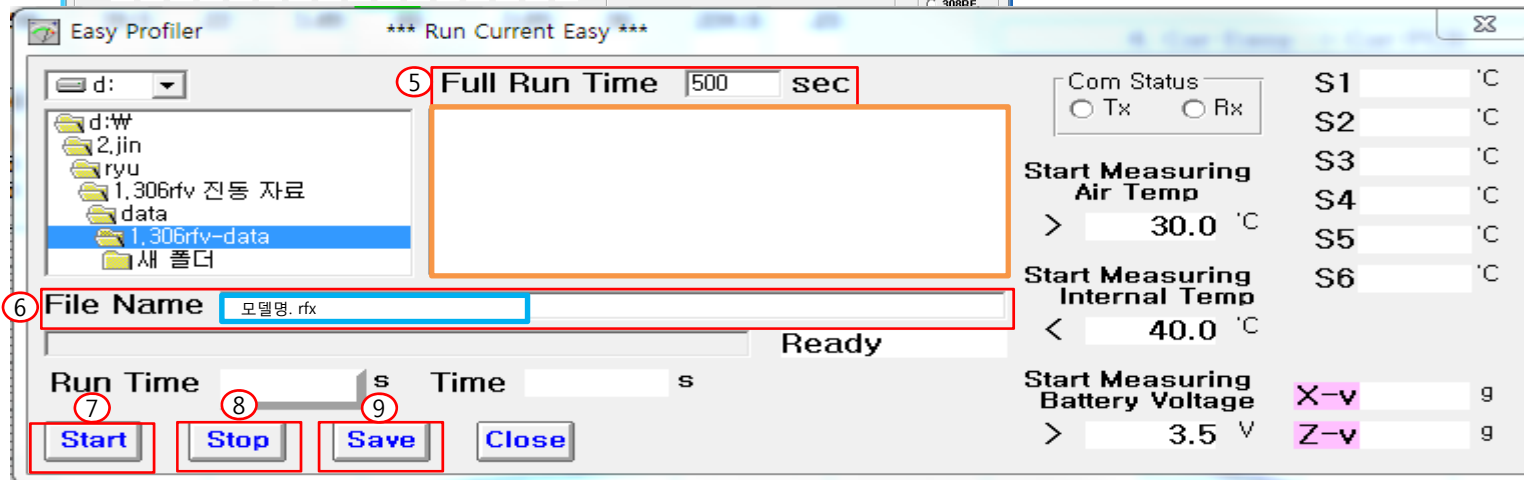
Ex) FILE NAME( SHOULD SAME MODEL)  
MODEL \_ , - NOT USE ( Only Aphabet)  
Caution to use EASY PROFILER.

### 3-1. EASY PROFILER Operation

#### 5 Run Cur Easy



- ① EASY PWI CLICK
- ② PROJECT CLICK ( MODEL.prj)
- ③ PROJECT LOAD 간단동적 방법 1-4 참조
- ④ RUN CUR EASY CLICK
- ⑤ FULL RUN TIME SETTING  
(reflow 총 통과 시간 - SMT 기준 400sec)
- ⑥ FILE NAME 확인
- ⑦ START CLICK
- ⑧ STOP CLICK
- ⑨ SAVE CLICK
- ⑩ CLOSE



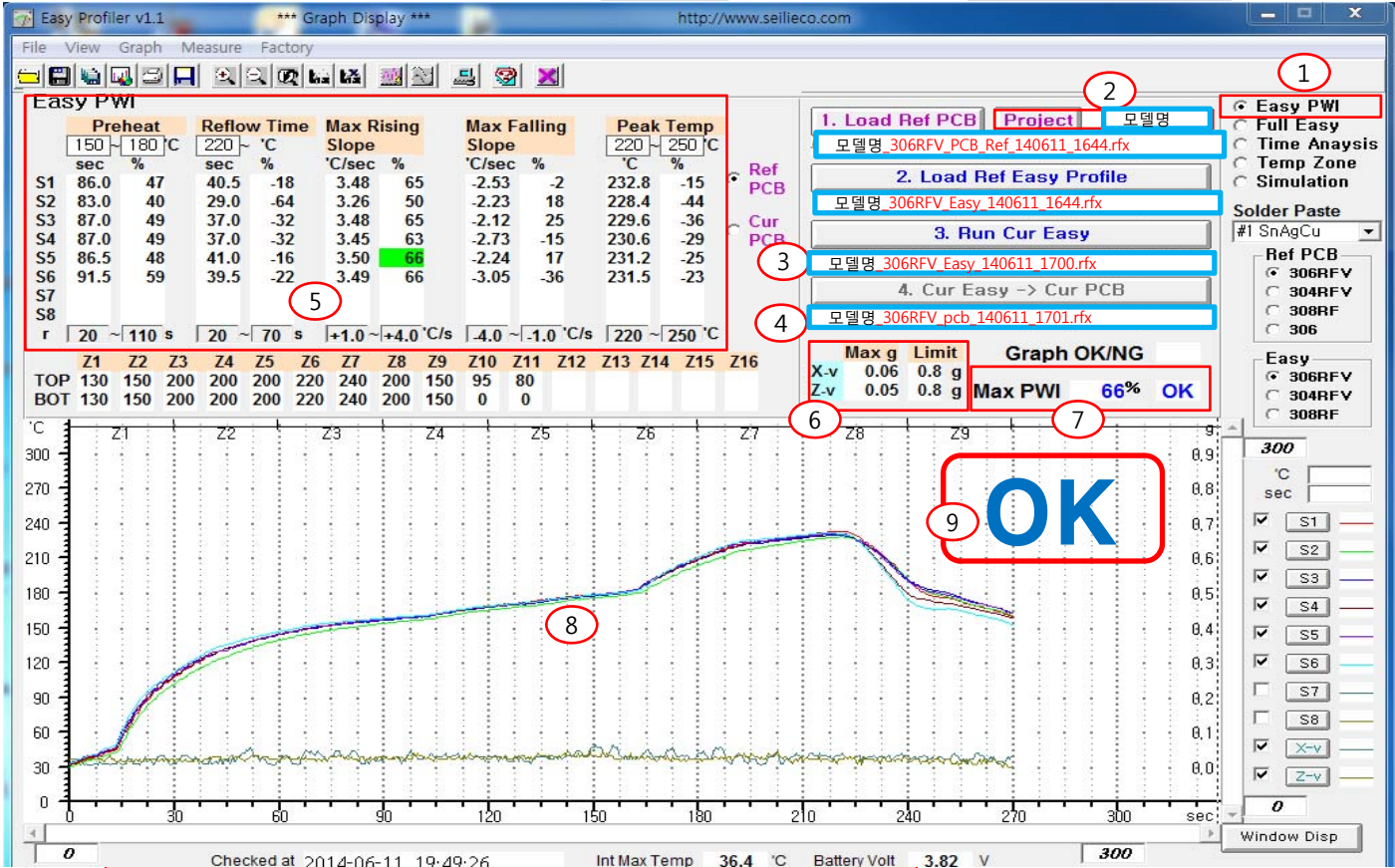
FULL EASY -RUN EASY- FILE NAME  
 MODEL\_306RFV\_Easy\_140611\_1644.rfx  
 RUN EASY fixed      date,week,month,year

Ex) FILE NAME( keep same model)  
 IN MODEL \_ , - NOT USE (Only Alphabet)  
 Caution use on EASY PROFILER



## SEP-306RFV

6 Auto transfer of PCB profile,not reality



- ① EASY PWI CLICK
- ② PROJECT CLICK ( 모델명.prj)
- ③ RUN CUR EASY CLICK
- ④ CUR EASY – CUR PCB  
AUTO DISPLAY
- ⑤ EASY PWI DATA
- ⑥ 진동 DATA
- ⑦ MAX PWI
- ⑧ CUR PCB DATA
- ⑨ OK – PASS  
NG - Measured again

FULL EASY – CUR PCB- FILE NAME

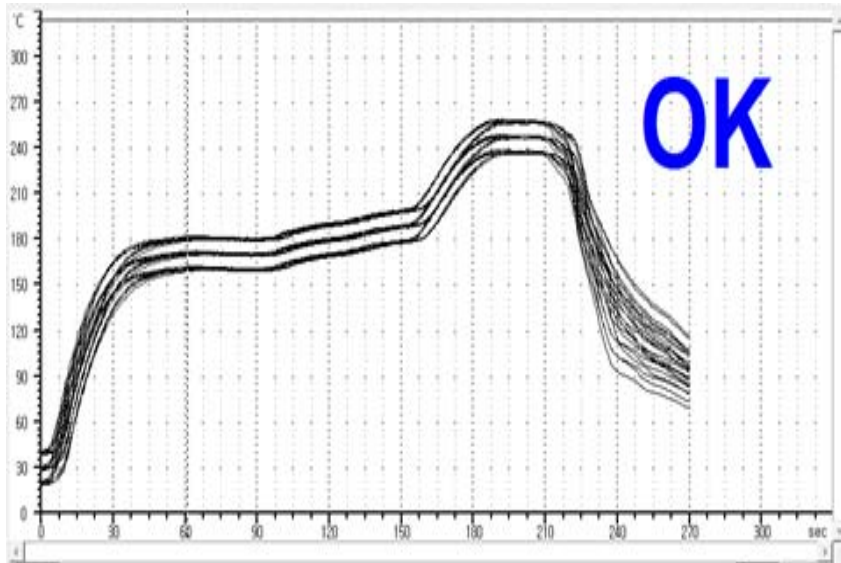
Model \_306RFV\_PCB\_140611\_1644.rfx

CUR pcb fixed      date,week,month,year

Ex) FILE NAME( keep same model)  
In MODEL \_ , - Not use (Only Aphabet)  
Take notice on EASY PROFILER

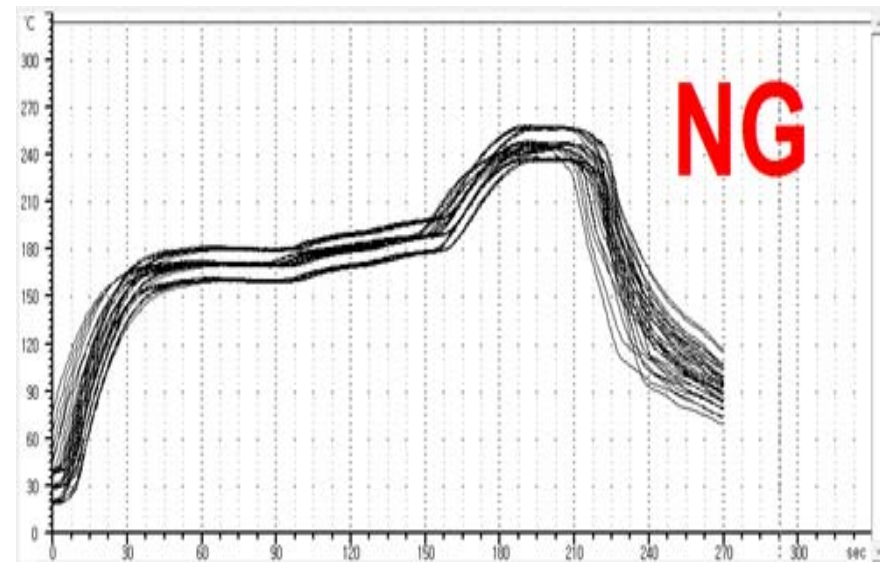
### 3-1. EASY PROFILER Installation Compare with 7 temperature condition

OK



	Ref Graph		Target Graph		Easy OK/NG
	Max 'C	at sec	Max 'C	at sec	
S1	246.4	217	246.4	217	OK
S2	248.7	201	248.7	201	OK
S3	247.0	206	247.0	206	OK
S4	248.5	201	248.5	201	OK
S5	246.7	217	246.7	217	OK
S6	248.3	215	248.3	215	OK
S7	247.2	217	247.2	217	OK
S8	246.7	214	246.7	214	OK

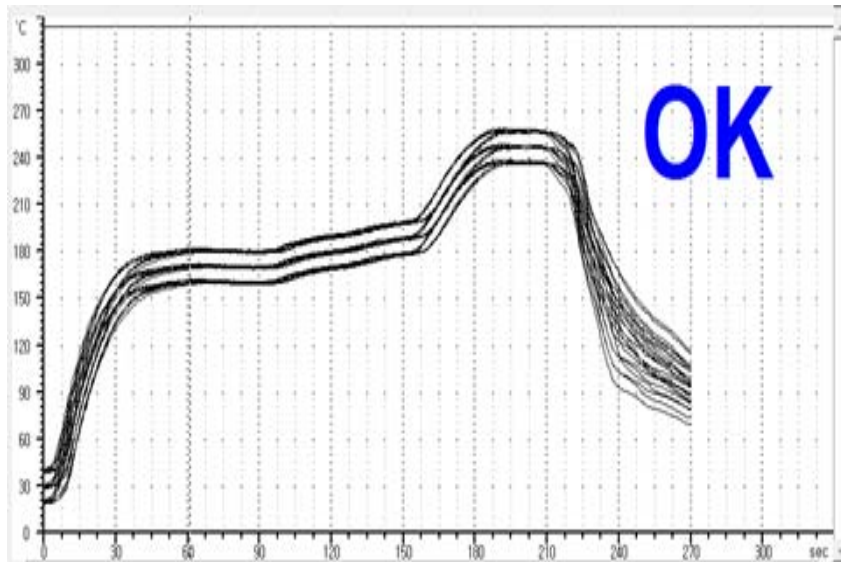
NG



	Ref Graph		Target Graph		Easy OK/NG
	Max 'C	at sec	Max 'C	at sec	
S1	246.4	217	243.7	224	NG
S2	248.7	201	245.8	221	NG
S3	247.0	206	244.1	224	NG
S4	248.5	201	245.8	220	NG
S5	246.7	217	244.6	222	NG
S6	248.3	215	246.0	219	NG
S7	247.2	217	244.5	219	NG
S8	246.7	214	244.3	216	NG

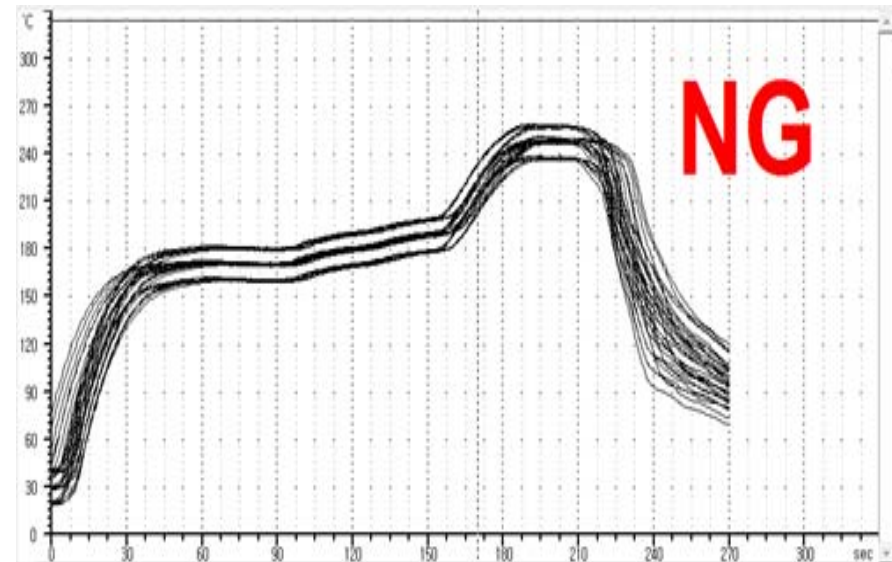
### 3-1. EASY PROFILER Installation Compare with 8 speed control

OK



	Ref Graph		Target Graph		Easy OK/NG
	Max 'C	at sec	Max 'C	at sec	
S1	246.4	217	246.4	217	OK
S2	248.7	201	248.7	201	OK
S3	247.0	206	247.0	206	OK
S4	248.5	201	248.5	201	OK
S5	246.7	217	246.7	217	OK
S6	248.3	215	248.3	215	OK
S7	247.2	217	247.2	217	OK
S8	246.7	214	246.7	214	OK

NG



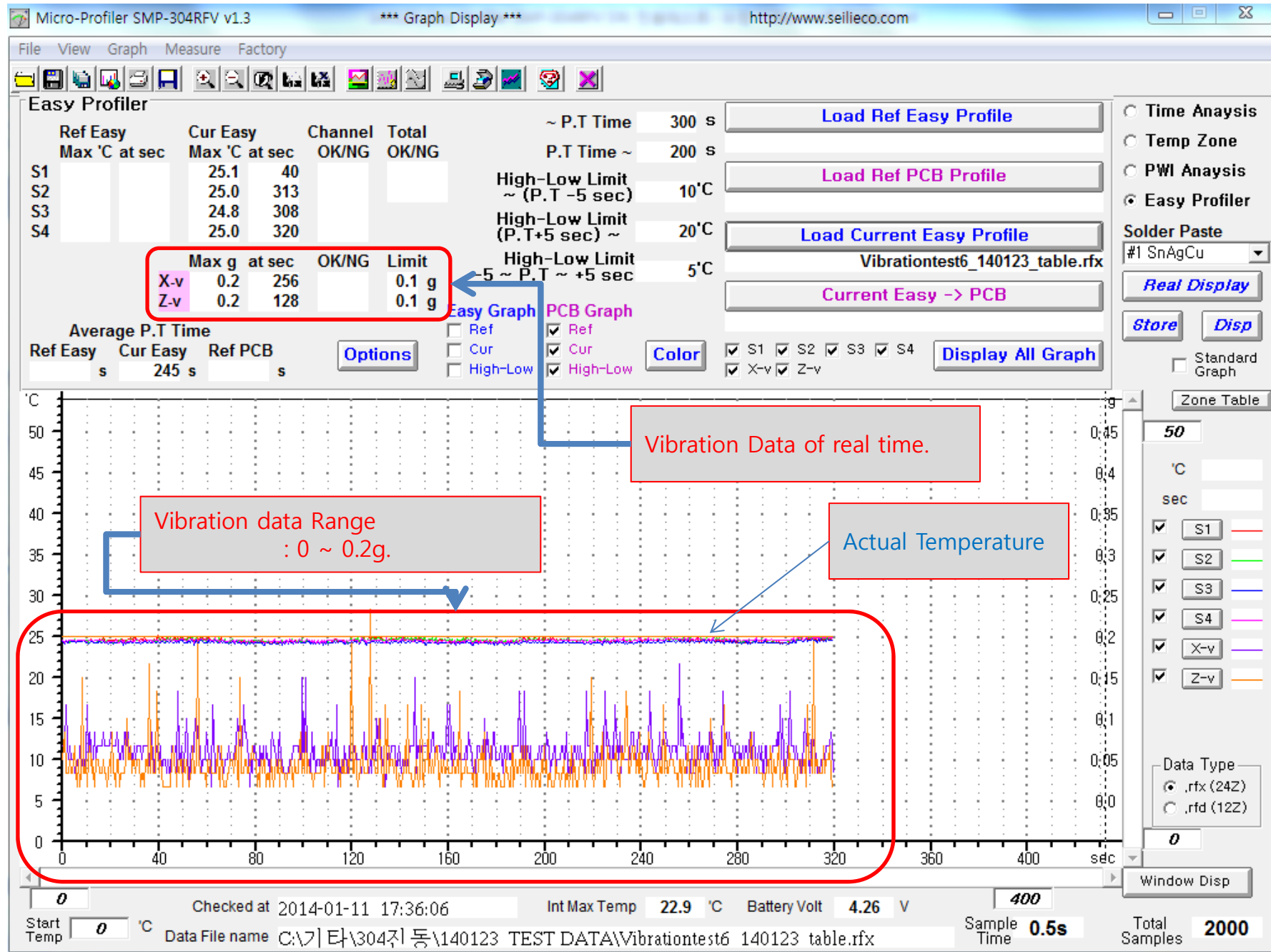
	Ref Graph		Target Graph		Easy OK/NG
	Max 'C	at sec	Max 'C	at sec	
S1	246.4	217	248.9	222	NG
S2	248.7	201	251.0	218	NG
S3	247.0	206	248.5	221	NG
S4	248.5	201	250.6	214	NG
S5	246.7	217	248.9	218	NG
S6	248.3	215	249.7	230	NG
S7	247.2	217	247.7	229	NG
S8	246.7	214	247.3	227	NG

## **3-2. Vibration Sensing of Easy Profiler**

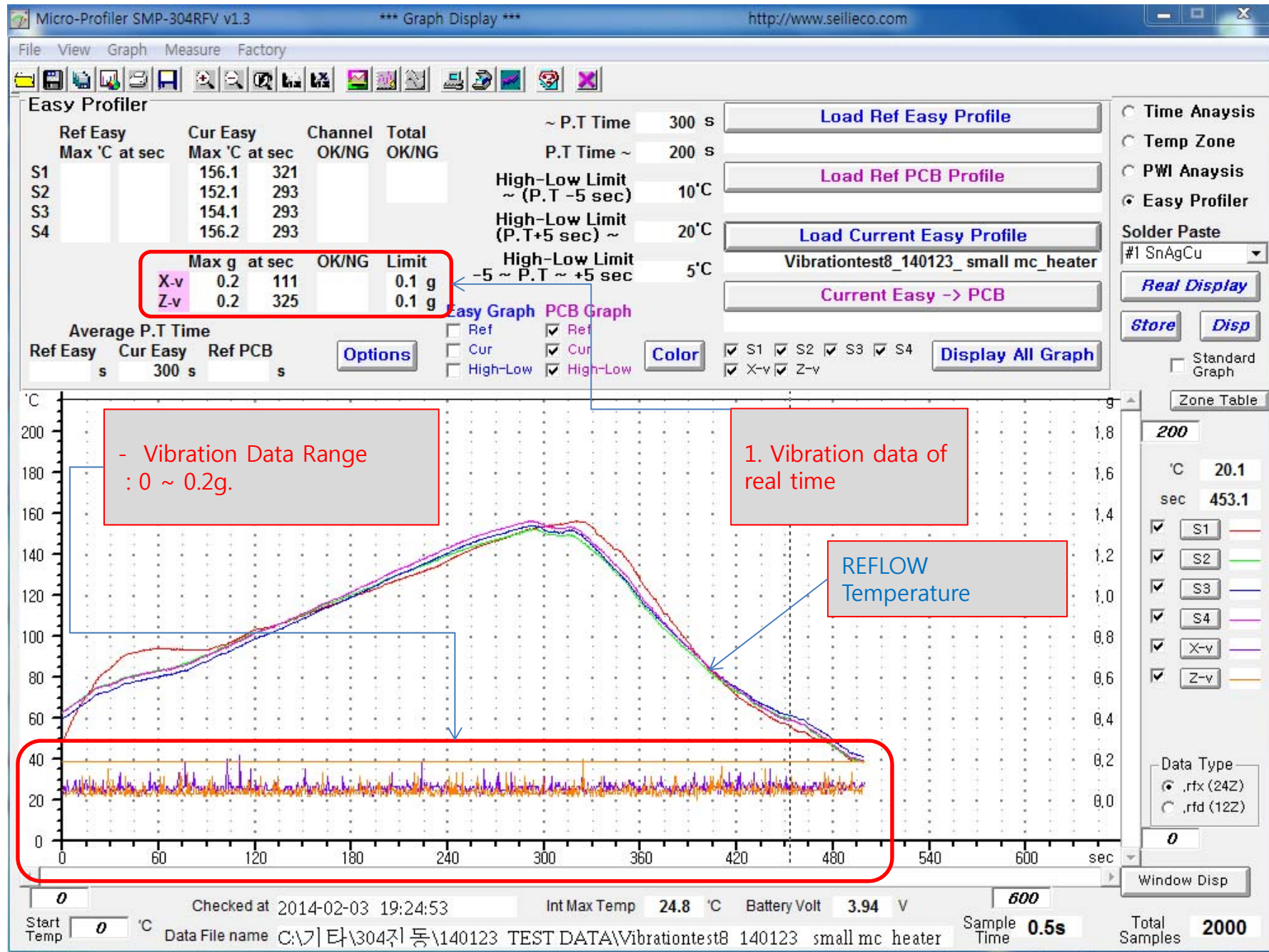
- ( To monitoring for Reflow Vibration do not drop PCB ass'y of M/C Conveyor Vibration . )



Attach-1 No vibration on working table. Test(room temperature)-Disply capture after real time measuring.

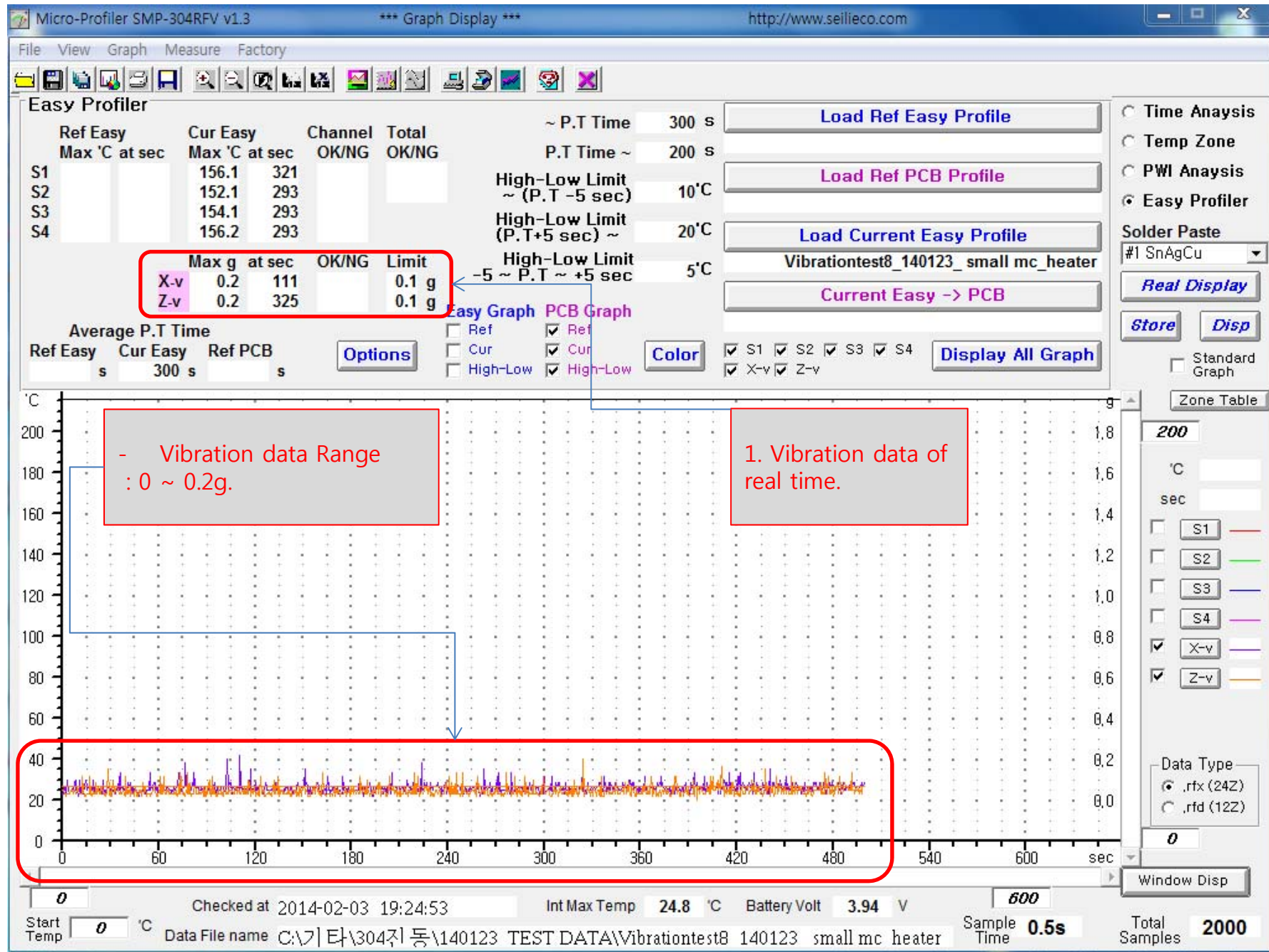


Attach-2-1. Disply capture after relow real time measuring.

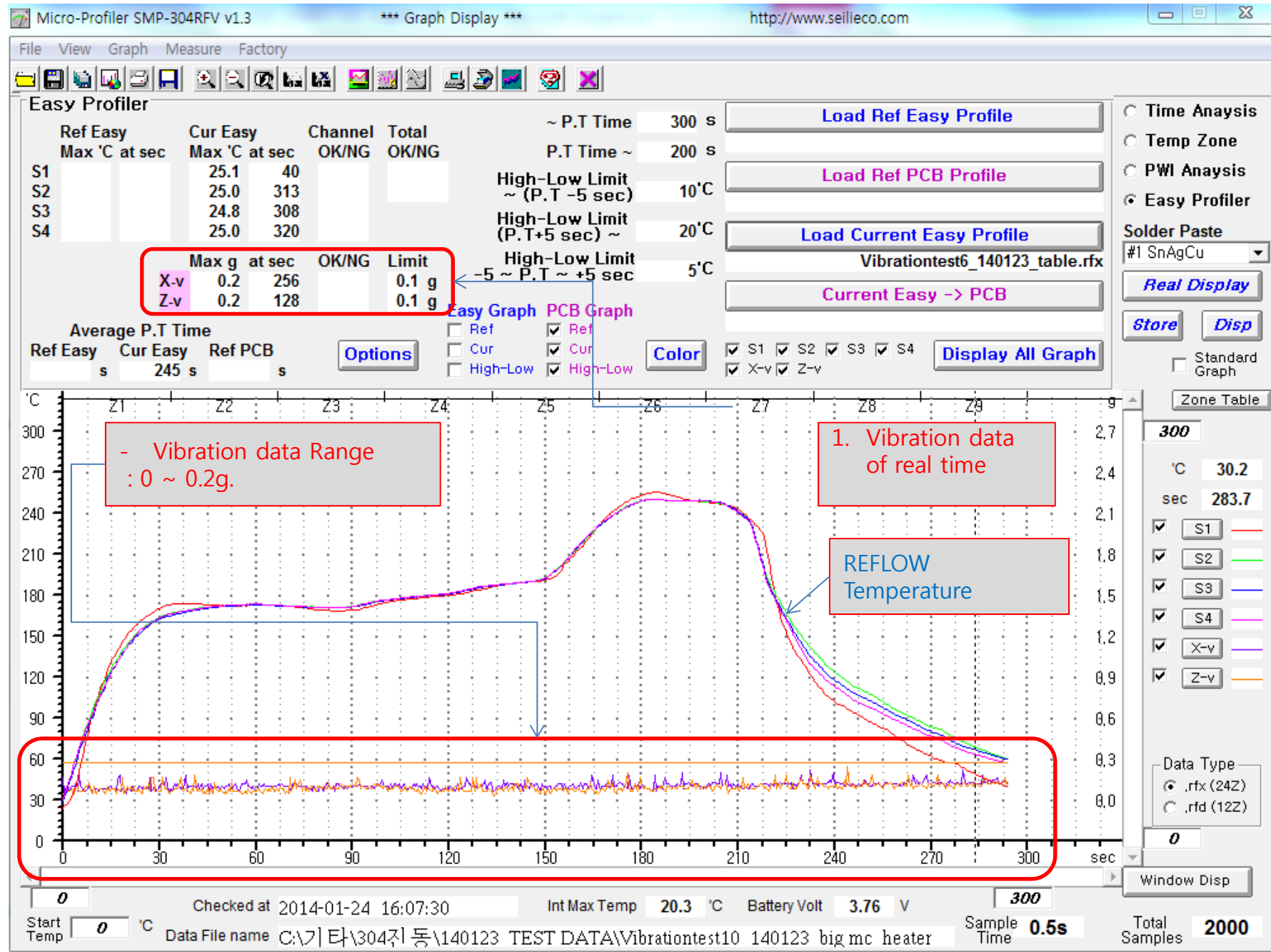




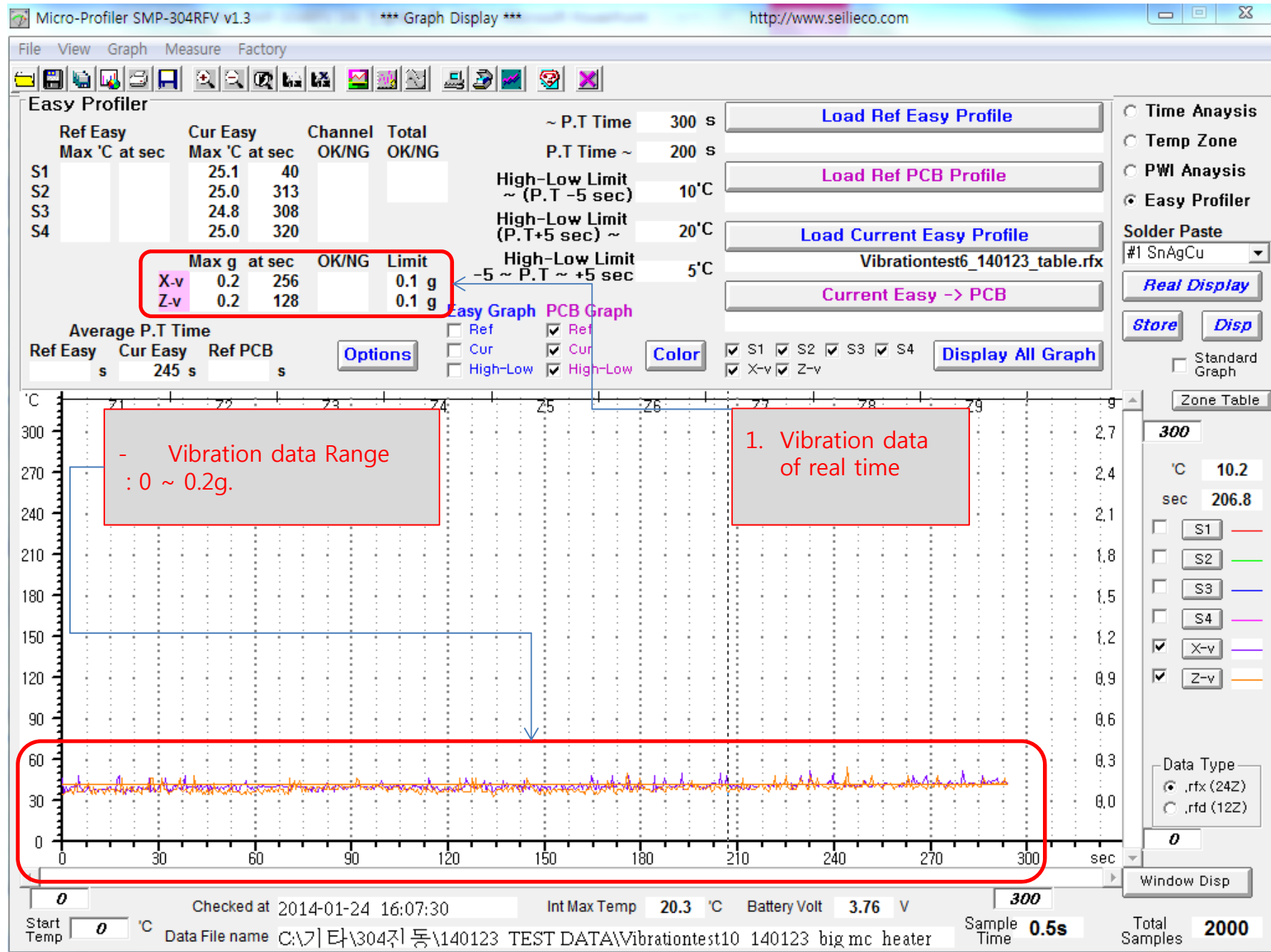
Attach 2-2. Vibration test reflow , displ capture after real time measuring == display of vibration

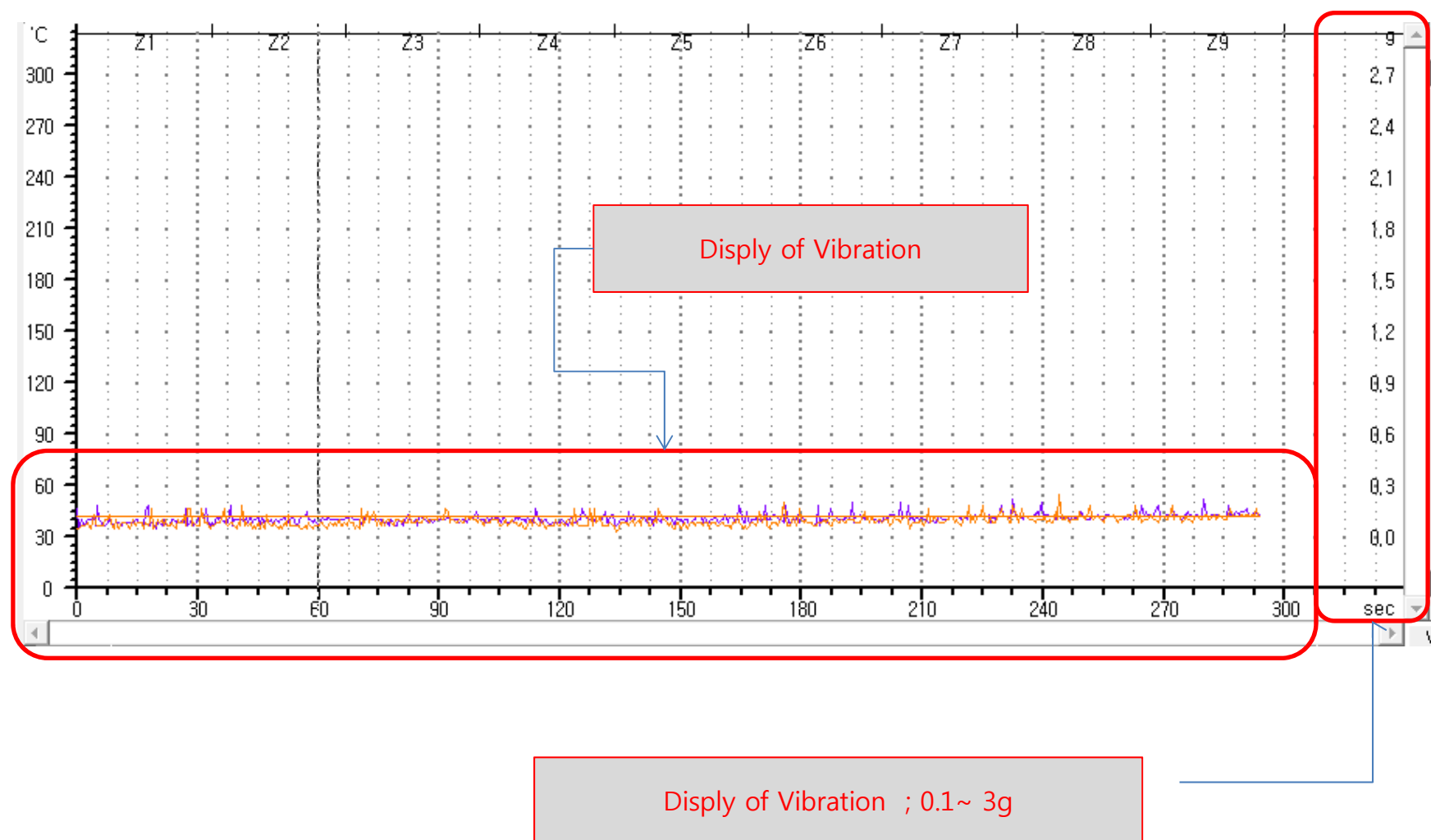


# Attach 3-1. Vibration test reflow . Disply capture after realtime measuring

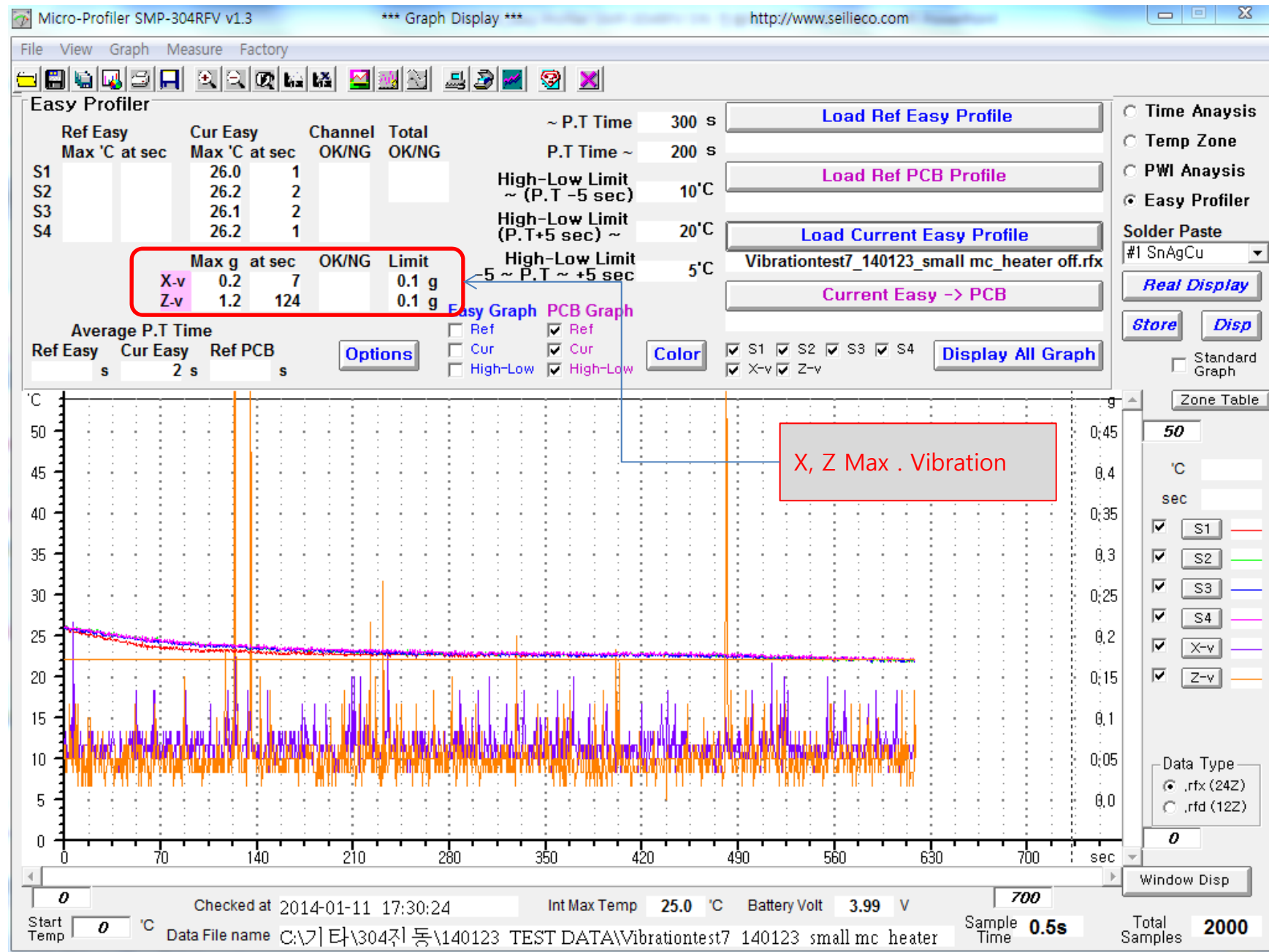


Attach 3-2. Vibration test reflow . Disply capture after realtime measuring == disply of vibration.



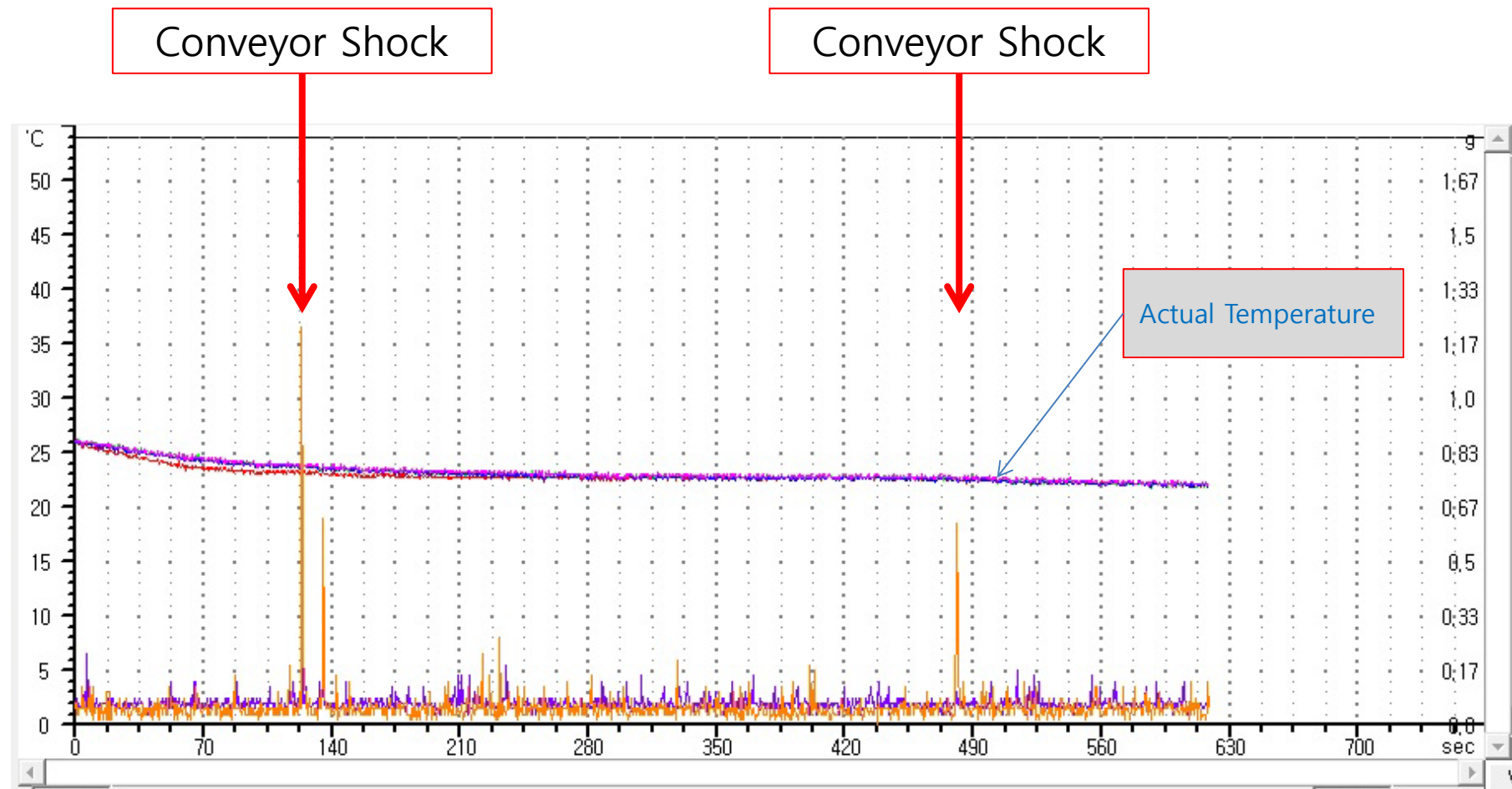


Attach 5. SMP-304RFV, vibration test in reflow line( Heater Off) – to take shock to conveyor on feeding.



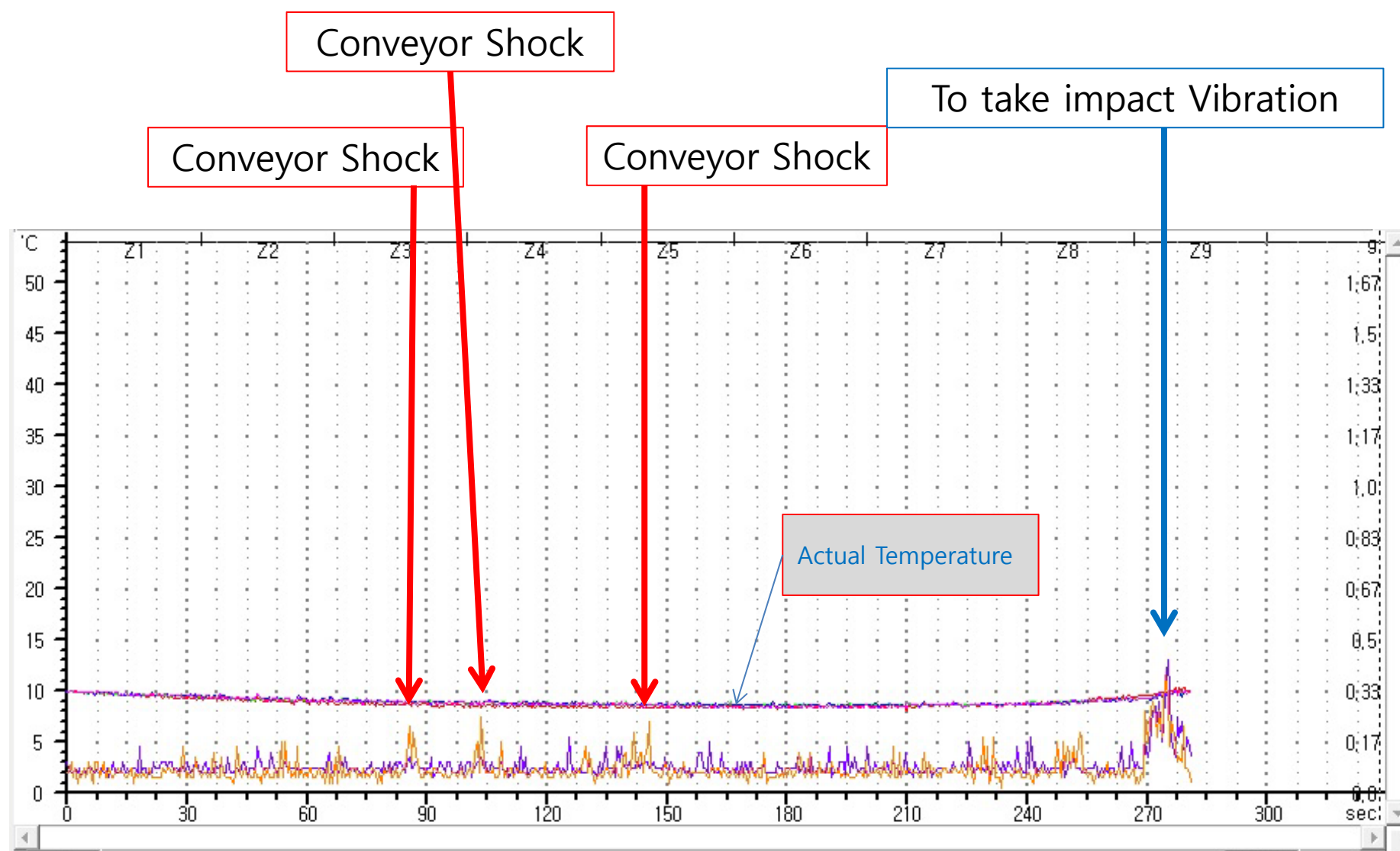


Attach 5-1. Expansion data of attached 5 data.





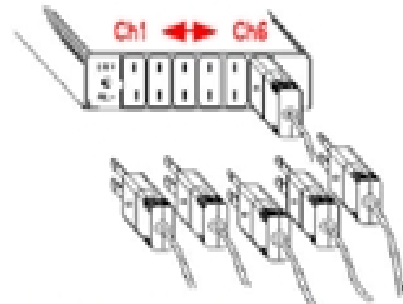
Attach 5-2 Expansion picture of attached 5 data.



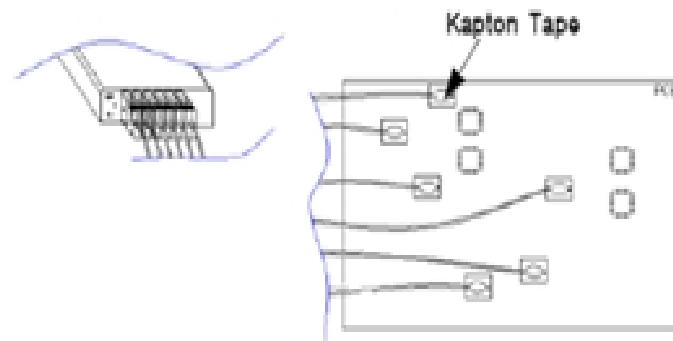
## 4-1. EASY PROFILER Measuring Method and Installation 1

### 1-1 REF PCB Measuring Method

1) To connect memory unit with sensor



2) Attach to sensor on pcb end.

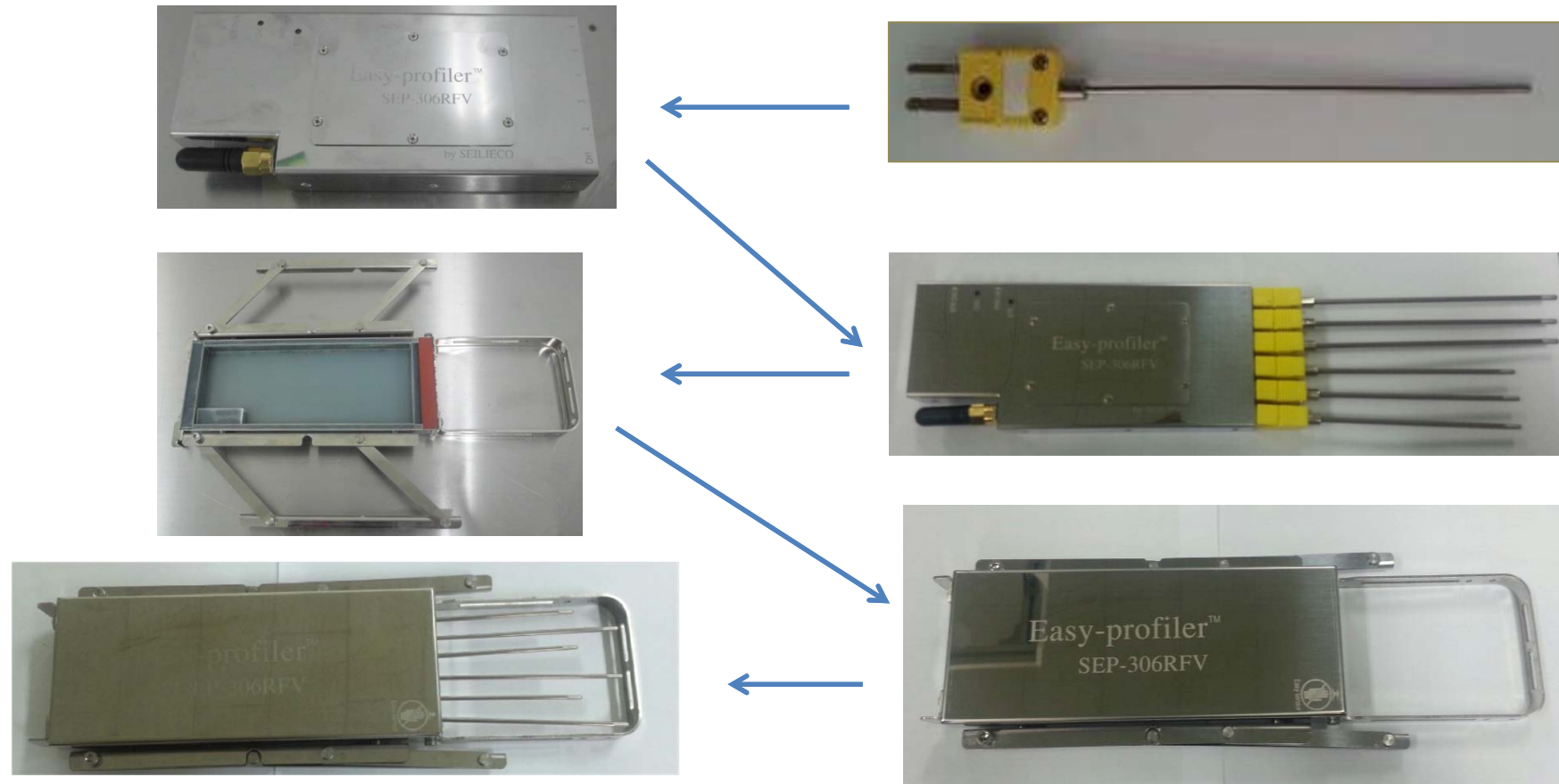


Remark.

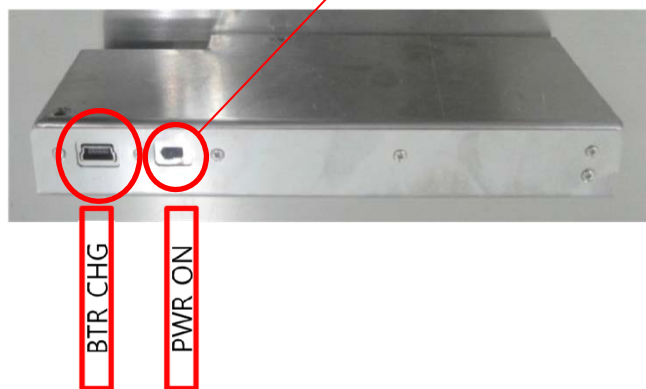
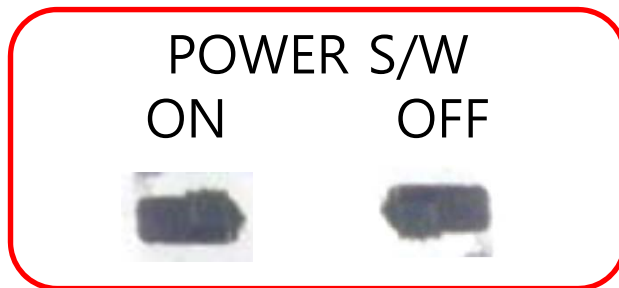
- 1) Sensor number.left-ch1-right-ch6
- 2) Do not insert checking connector sensor +/- signal.
- 3) To caution damage for thin wire and
- 4) To caution wire break and interference abnormal vending, twist of sensor.
- 5) Need more attach pcb with sensor end.
- 6) To cause temperature tolerance in case of gap of capton tape or lot of pb.
- 7) Need no touch sensor ending.
- 8) Do not twisting or over wiring with sensor wire.

## 4-1. EASY PROFILER Measuring and Preparation 2

### 1-2 EASY PROFILER Measuring and Preparation



## 4-2. EASY PROFILER Operation



(1) Power Switch on **"PWR ON"** of SEP -306 RFV Memory Unit.

1) Stop on green lamp switching green and red signal on **"STR"** LED.

- "STR" : Run( green) / Warning(red)
- Do not run STR switch among monitoring device of cross signal.

2) **red color** : Abnormal condition such as need to charge of Memory or down stay inside high temperature.

- Display on RED signal at 60 degree high temperature, Please down stay to normal room temperature.
- Display on RED signal under DC 3.5V ,If all discharge has off.

(2) To start measuring on **PC PROGRAM에서 START CLICK** STR LED .  
To memory to process and operating on normal temperature before heating system

1) Recording available to set interval on lamp turn on of STR LED.

(3) Stop on **PC PROGRAM STOP CLICK"** after closing measuring.

- To transfer automatic control after 1000 cycle ,if not switch off **PWR ON "** .

※ Remark ; more detail is page-8.

## 4-3. EASY PROFILER -Cautions

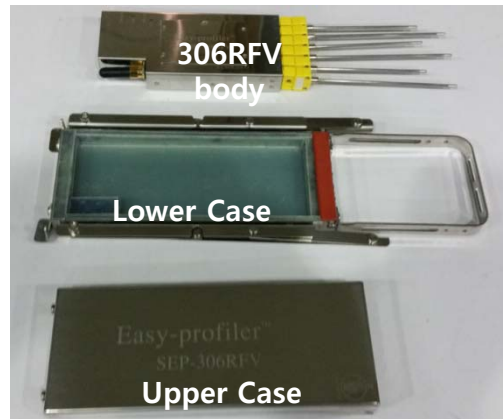
- ① Must to keep insert protect case in case of assemble of memory unit in SEP 306 RFV of reflow machine and heating device .
- ② To keep to operate installation and process on normal room temperature.
- ③ To keep to down temperature stay in case of Red of SEP-306RFV Memory Unit "STR" LED or heated .
- ④ Notice will be delete on data if power off PWR 'OFF ' after measuring.
- ⑤ To switch off to pc transfer saving data of SEP-306RFV Memory Unit .
- ⑥ Do not shock around RF -Antena of SEP-306RFV Memory Unit .  
→ Cause to damage .( can not wireless radio )
- ⑦ To avoid interference and touch other sensor.
- ⑧ Do not keep in refrigerator , keep normal temperature on SEP-306RFV Memory Unit .

#### 4-4. Installation of Protect Case

- (1) Open Locker from Protect case .
- (2) Setting arrange PCB and extension wing.
  - 1) Fixed bolt or lench opened case cover after arrange guide.  
※ It is careful to become narrow of vibration on feeding c onveyor ,if not fixed .
- (3) Beginning Memory Unit insert and opened case cover.  
To memory process normal temperature before heating system
  - 1) Check LED lamp STR-LED of power switch of Memory Unit  
"STR" **LED** .
  - 2) Locking for cross cover.



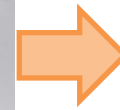
## Installation of Protect Case



306RFV , Case and Body



Assembly ( Lower case + body )



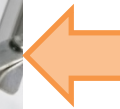
Assembly ( Upper case +Lower  
Case of sensor hanger )



Sub Assembly



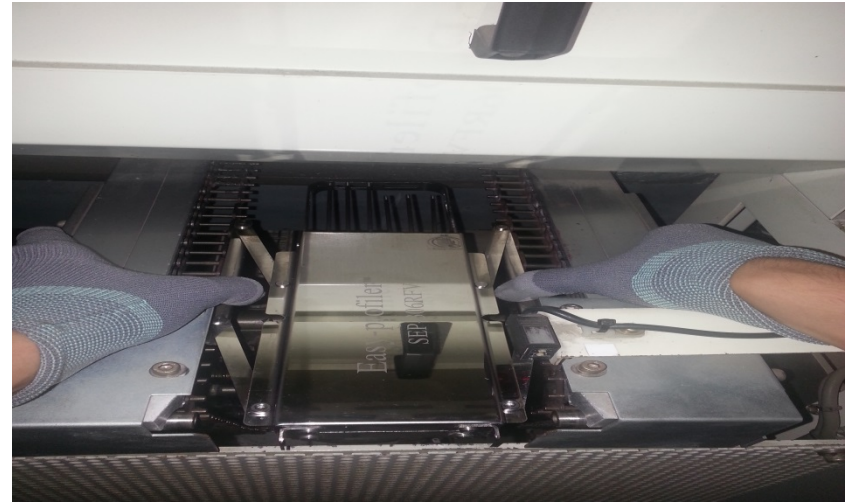
Ass'y hanger 2 point against  
Sensor .



Assembly ( close Upper case  
After fixed side hanging )

# SEP-306RFV

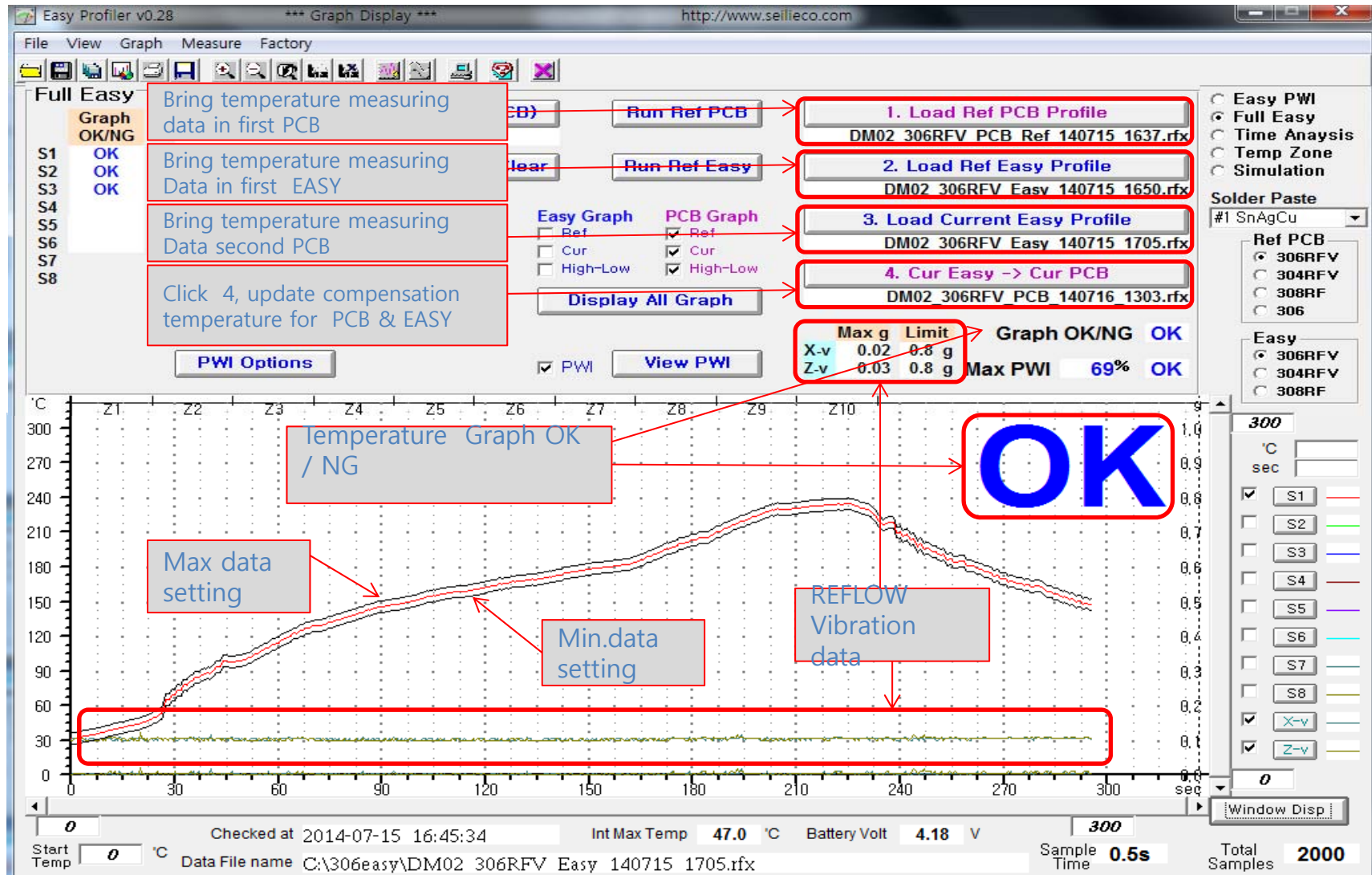
## Setting for Protect case



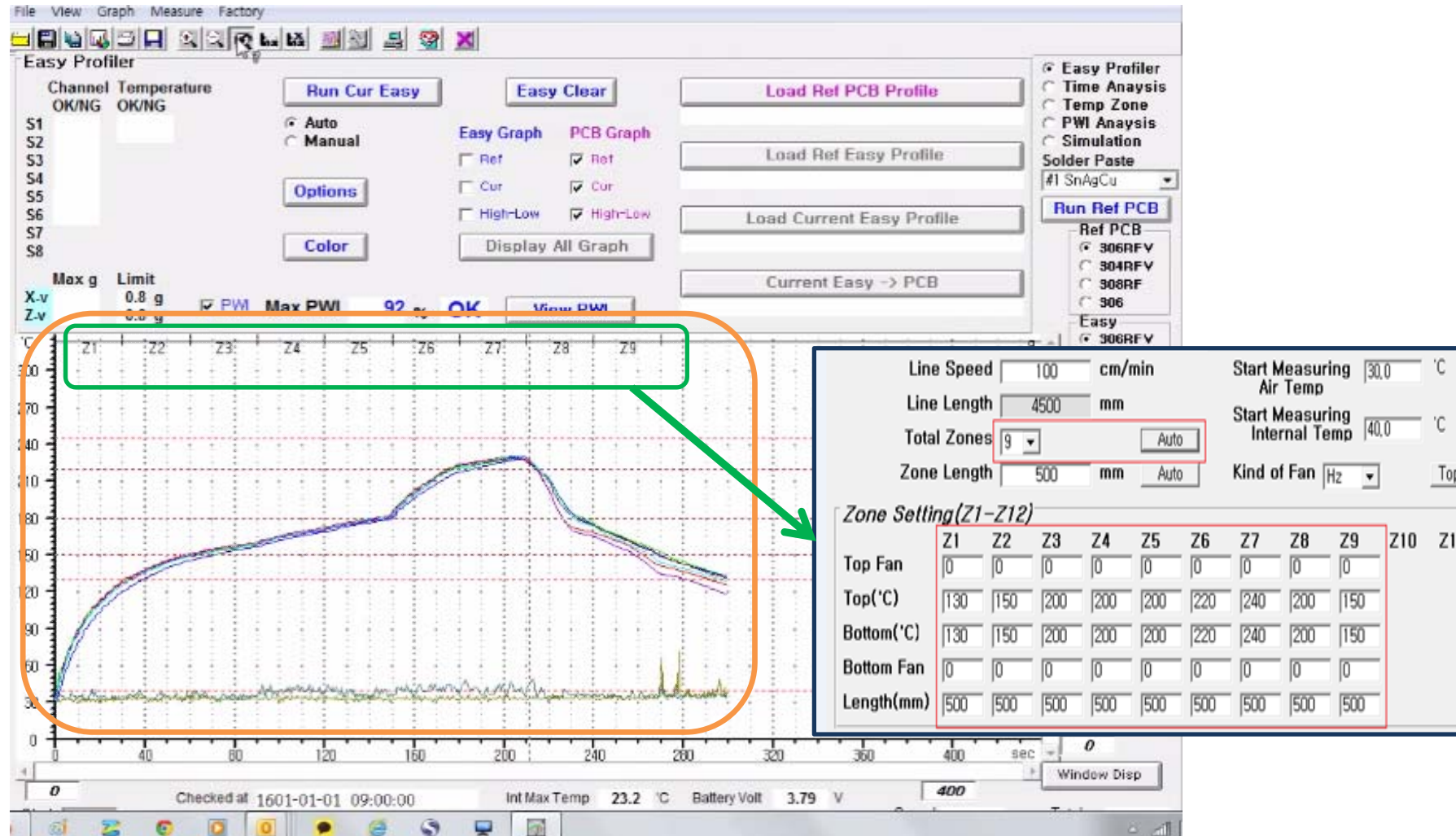
## 5. Installation of Program



## 5-1. Bring Data

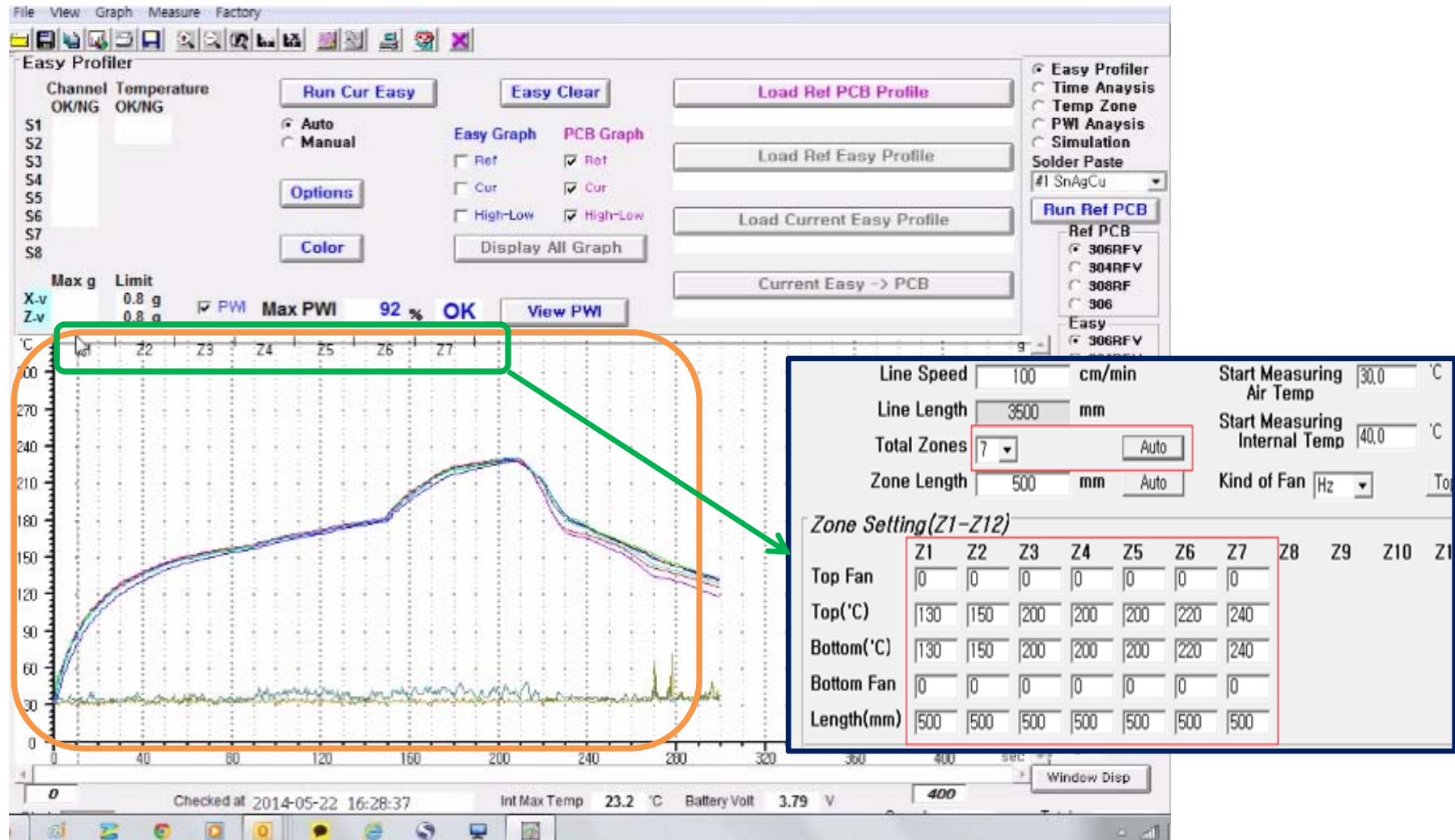


## 5-2.Zone setting ( Before )





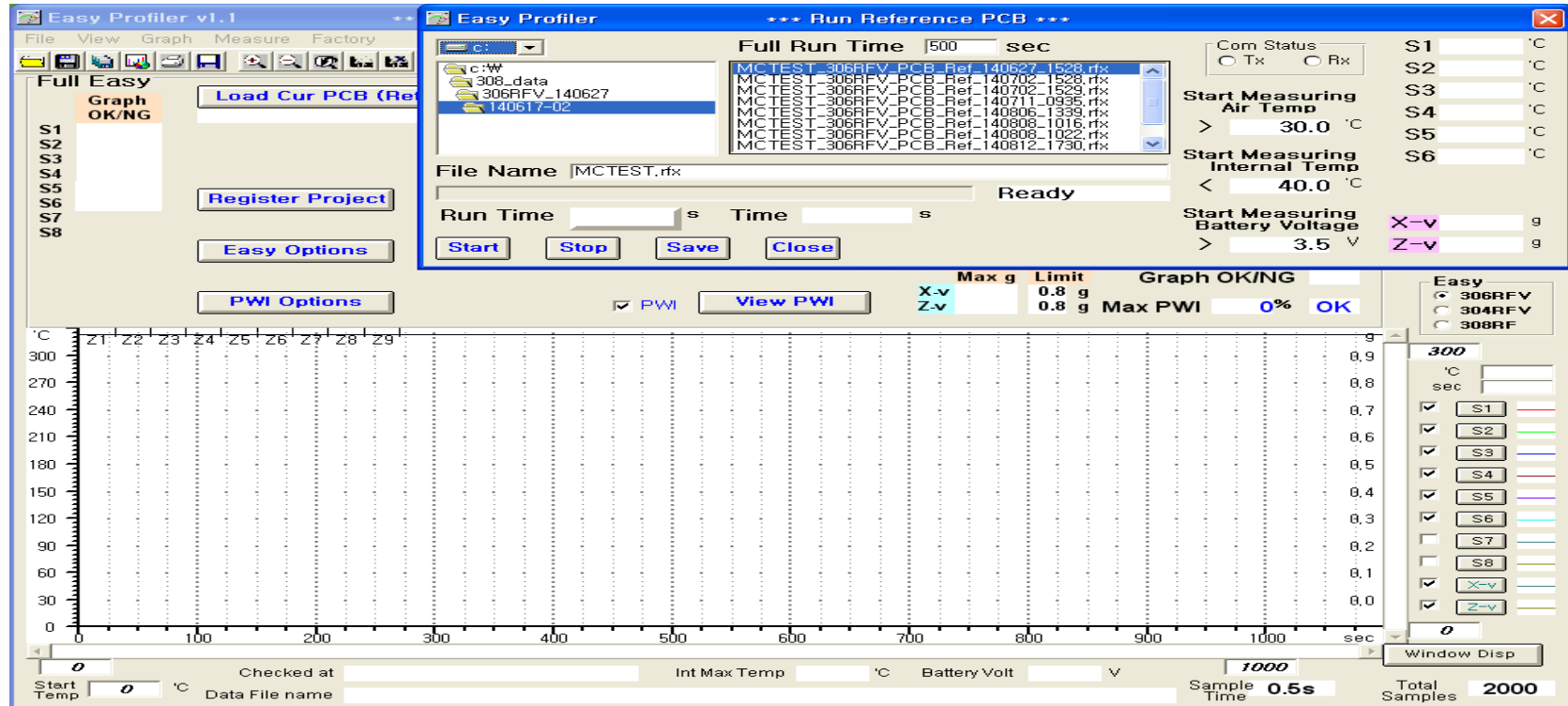
## 5-2.Zone setting ( After )



# SEP-306RFV

## 5-3. Run Ref PCB

Run Ref PCB : To generate PCB Profile

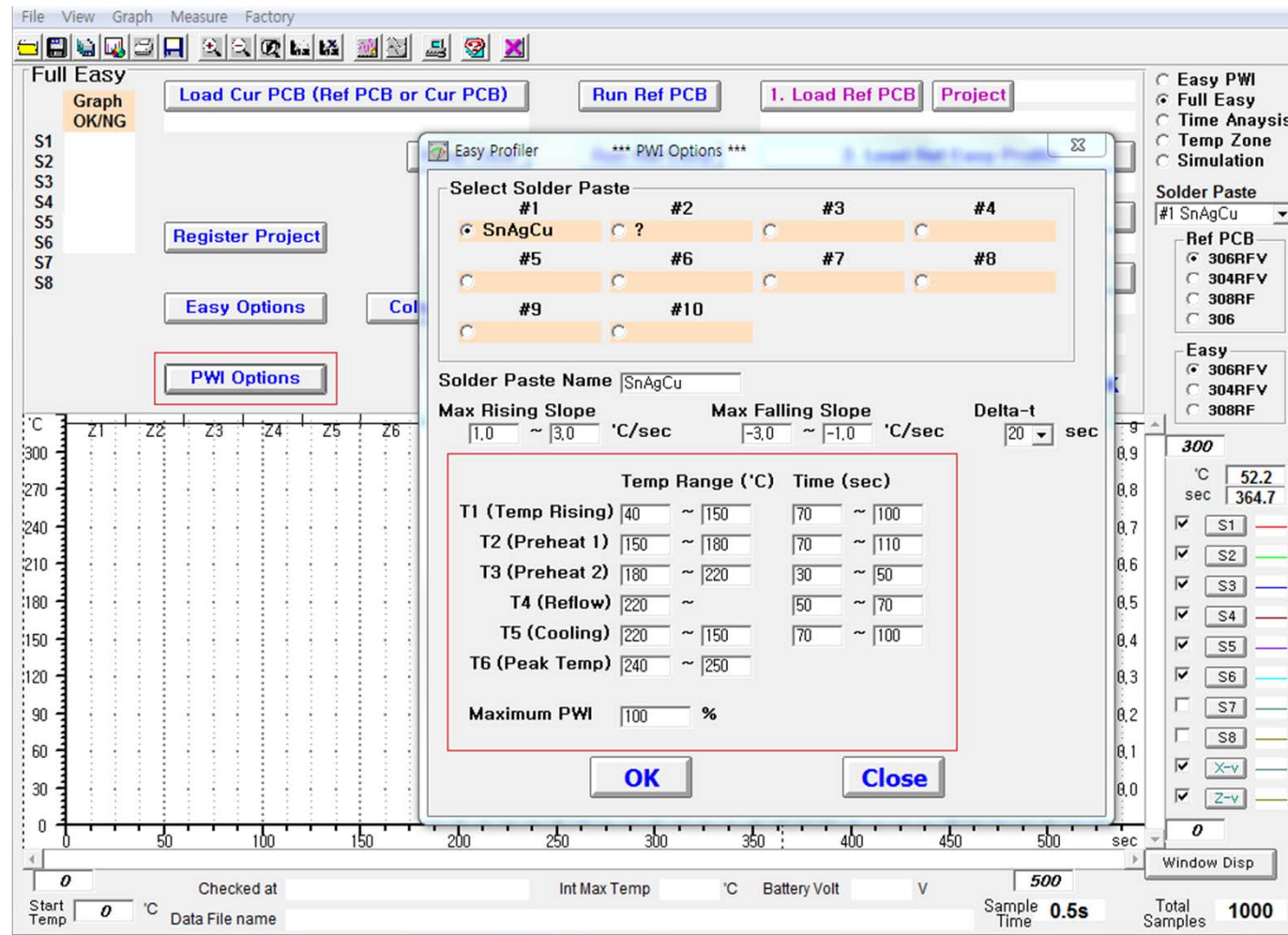


1. Start Measuring Air Temp : Start to test more than setting temperature at all sensor temperature .
2. Start Measuring Internal Temp : Start to test less than setting temperature at internal temperature of case.
3. Start Measuring Battery Voltage : Run to test more than setting voltage in Battery voltage.
4. Full Run Time : Test off over setting time of actual measuring time.
5. File Name : Input product item of PCB profile name, to create ref PCB profile ,when close the test ( for example: Test\_306RFV\_PCB\_Ref\_140828\_1423)

# SEP-306RFV

PWI Options

## 5-4.Pwi options 1



## 5-3.Pwi options 2

Before

	Temp Range ('C)	Time (sec)
T1 (Temp Rising)	30 ~ 120	70 ~ 100
T2 (Preheat 1)	120 ~ 150	70 ~ 110
T3 (Preheat 2)	150 ~ 200	30 ~ 50
T4 (Reflow)	200 ~	50 ~ 70
T5 (Cooling)	200 ~ 150	70 ~ 100
T6 (Peak Temp)	240 ~ 250	

Maximum PWI 100 %

OK Close

After

	Temp Range ('C)	Time (sec)
T1 (Temp Rising)	50 ~ 150	70 ~ 100
T2 (Preheat 1)	150 ~ 200	70 ~ 110
T3 (Preheat 2)	200 ~ 250	30 ~ 50
T4 (Reflow)	200 ~	50 ~ 70
T5 (Cooling)	200 ~ 150	70 ~ 100
T6 (Peak Temp)	240 ~ 250	

Maximum PWI 100 %

OK Close



## 5-3.PWI Options

### 3.SET MEASURE

Easy Profiler \*\*\* PWI Options \*\*\*

Select Solder Paste

#1 <input checked="" type="radio"/> SnAgCu	#2 <input type="radio"/> ?	#3 <input type="radio"/>	#4 <input type="radio"/>
#5 <input type="radio"/>	#6 <input type="radio"/>	#7 <input type="radio"/>	#8 <input type="radio"/>
#9 <input type="radio"/>	#10 <input type="radio"/>		

① Solder Paste Name

Max Rising Slope ②  ~  'C/sec

Max Falling Slope ③  ~  'C/sec

Delta-t ④  sec

	Temp Range ('C)	Time (sec)
⑤ T1 (Temp Rising)	<input type="text" value="40"/> ~ <input type="text" value="150"/>	<input type="text" value="70"/> ~ <input type="text" value="100"/>
⑥ T2 (Preheat 1)	<input type="text" value="150"/> ~ <input type="text" value="180"/>	<input type="text" value="70"/> ~ <input type="text" value="110"/>
⑦ T3 (Preheat 2)	<input type="text" value="180"/> ~ <input type="text" value="220"/>	<input type="text" value="30"/> ~ <input type="text" value="50"/>
⑧ T4 (Reflow)	<input type="text" value="220"/> ~ <input type="text" value="250"/>	<input type="text" value="50"/> ~ <input type="text" value="70"/>
⑨ T5 (Cooling)	<input type="text" value="220"/> ~ <input type="text" value="150"/>	<input type="text" value="70"/> ~ <input type="text" value="100"/>
T6 (Peak Temp)	<input type="text" value="240"/> ~ <input type="text" value="250"/>	<input type="text" value="10"/>

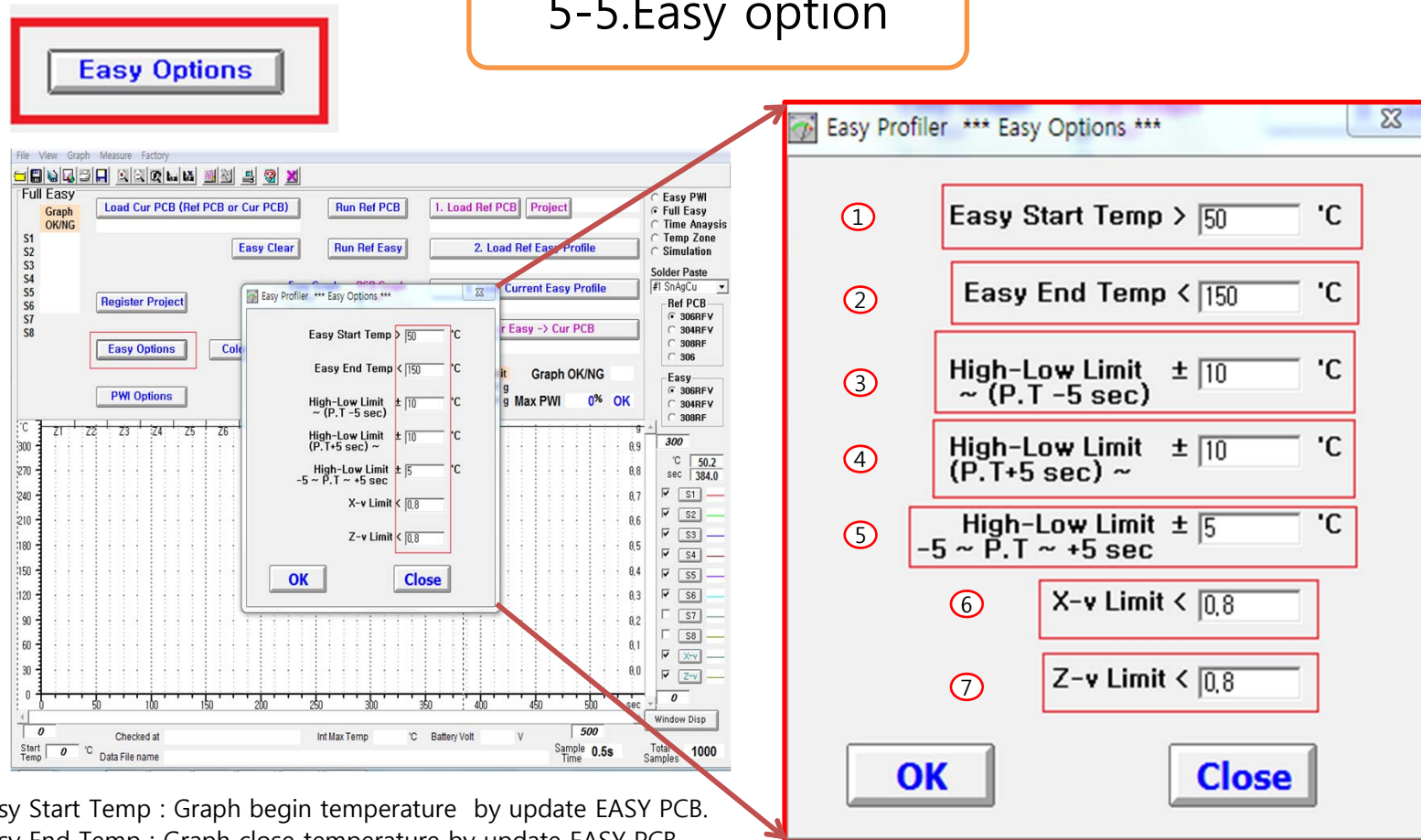
Maximum PWI  % ⑪

OK Close

1. Select Solder Paste :  
Solder Paste Select
2. Max Rising Slope :  
Tolerance of max upper temperature
3. Max Falling Slope :  
Tolerance of min down temperature
4. Delta-t :  
Timeinterval of slope chart
5. T1(Temp Rising) : Tlme tolerance and Temperature of up temperature,
6. T2(Preheat 1) : Time tolerance and pre -heater -1 zoon.
7. T3(Preheat 2) : Time tolerance and pre-heat -2 zoon.  
Time and Temperature Tolerance
8. T4(Reflow) :Time Tolerance and Reflow zoon temperature
9. T5(Cooling) :Time Temperature and Cooling zoon temperature
10. T6(Peak Temp ) :  
Time temerature of max temperature
11. Maximum PWI :  
PWI max. tolerance



## 5-5.Easy option



1. Easy Start Temp : Graph begin temperature by update EASY PCB.
2. Easy End Temp : Graph close temperature by update EASY PCB.
3. High-Low Limit ~ (P.T - 5sec) : Low and high limit temperature from beginGraph to before 5 sec of Peak temperature.
4. High-Low Limit (P.T + 5sec) ~ : Low and high limit temperature from 5 sec of Peak temperature to close of Graph.
5. High-Low Limit (P.T - 5sec) ~ (P.T + 5sec) : Low and high temperature from before 5 sec Peak temperature to later 5 sec Peak temperature
6. X-v Limit : Vibration tolerance in X-axis.
7. Z-v Limit : Vibration tolerance in Z-axis.

## 5-5.Easy option

Before

Easy Start Temp >  °C

Easy End Temp <  °C

High-Low Limit ±  °C  
~ (P.T -5 sec)

High-Low Limit ±  °C  
(P.T+5 sec) ~

High-Low Limit ±  °C  
-5 ~ P.T ~ +5 sec

X-v Limit <

Z-v Limit <

After

Easy Start Temp >  °C

Easy End Temp <  °C

High-Low Limit ±  °C  
~ (P.T -5 sec)

High-Low Limit ±  °C  
(P.T+5 sec) ~

High-Low Limit ±  °C  
-5 ~ P.T ~ +5 sec

X-v Limit <

Z-v Limit <

## 5-6. Input data of Profiler

1

2

REFLOW SPEED

REFLOW LENGTH

NUMBER OF REFLOW ZONE

NUMBER OF REFLOW ZONE

CUSTOMER NAME CLIENT

JOB NO. MODEL

BATCH NO. LINE

SOLDER TYPE SOLDER

MACHINE NO. REFLOW명

Line Speed 100 cm/min

Line Length 4500 mm

Total Zones 9

Length 500 mm

KEY Auto

START TEMPERATURE SETTING

SEP-306RFV INSIDE TEMPERATURE

Zone Setting (Z1-Z12)												
	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9	Z10	Z11	Z12
Top Fan	0	0	0	0	0	0	0	0	0	0	0	0
Top('C)	130	150	200	200	200	220	240	200	150			
Bottom('C)	130	150	200	200	200	220	240	200	150			
Bottom Fan	0	0	0	0	0	0	0	0	0	0	0	0
Length(mm)	500	500	500	500	500	500	500	500	500	500	500	500

REFLOW ZONE TEMPERATURE

Zone Setting (Z13-Z24)

	Z13	Z14	Z15	Z16	Z17	Z18	Z19	Z20	Z21	Z22	Z23	Z24
Top Fan												
Top('C)												
Bottom('C)												
Bottom Fan												
Length(mm)												

## 6.Explanation for Program 1

### 6.1. Cursor Informations

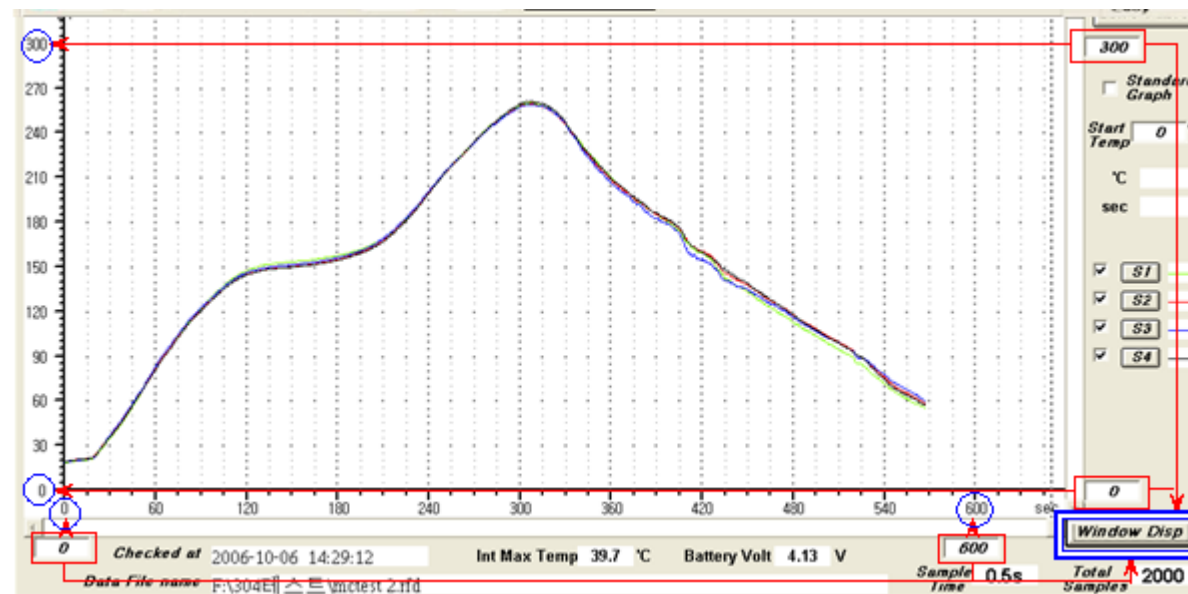
#### ◇ Cursor Inform( data base of time)

1.  $t1-^{\circ}\text{C}$  : Temperature range of each sensor channel cross  $t1$ ( cursor) and Graph.
2.  $/t1-t2$  : Slope of average temperature change each sensor channel about  $t1$  and  $t2$ .
3.  $t1$  : Channel time of each sensor to point starting 0 sec , $t1$ .
4.  $t1-t2$  : Channel time of each sensor from  $t1$  beginning point to  $t2$  beginning point.

#### ◇ Time Zone( data base of temperature

1.  $T1$  : Input of temperature tolerance to take the graph.
2.  $T1\text{-sec}$  : Time range of each sensor to cross the point of temperature range graph input  $t1$  ..
3.  $T1-^{\circ}\text{C/s}$  : Slope of average temperature change each sensor channel about  $t1$ .

### 6.2. Graph Zoom In/Out & Re-display(Zoom100%)



#### ◎ Quick Zoom

- ⊕ : Expansion 4 times serial,
- ⊖ : Reduction 4 times serial
- ↺ : Re-display, Back to Graph Display

#### ◎ User Zoom

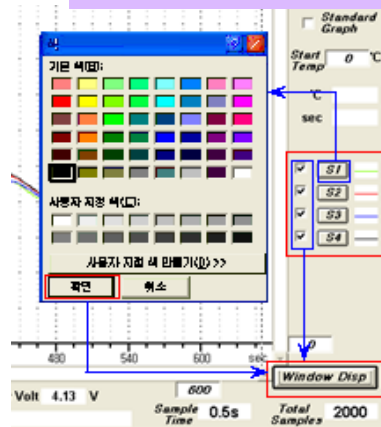
In case of to need each expansion With width and vertical graph,

input the program, update next step as "Window Disp".



## 6. Explanation for Program 2

### 6.3. Graph Line Color change and hidden



#### ◎ Line Color

Press select button of "Window Disp" .to select color of sensor channel, If change .

#### ◎ Line Hidden

Press select button of "Window Disp" to release Check box of sensor channel ,if hidden .

### 6.4. Remark.

- : open file-open data for storage(Data Type ).
- :Saving otrhe file name
- :Transfer to excel file(saving folder ).
- :Transfer to picture program (saving folder ).
- :closing

### 6.5. Standard Graph.

The function is can be check based main graph compare with measured data graph .

- ① Select Icon
- ② "File Open" : Select open file by saved base graph.  
or "File Save" : Select saving graph by new file.
- ③ "Option Save" : Save the based graph on disply .  
or "Close" : closing the window.
- ④ "Window Disp" Select the graph on selecting button.

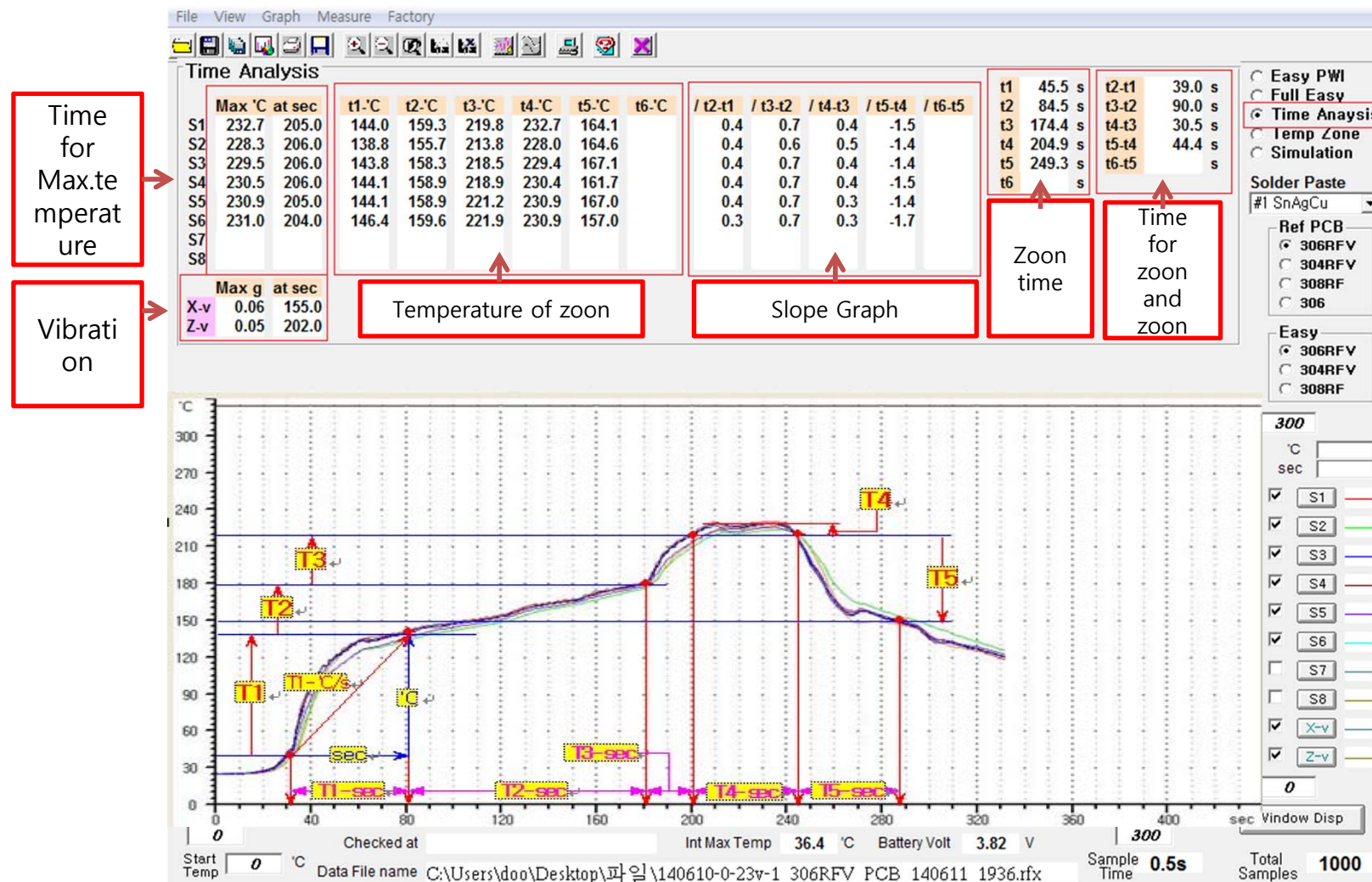
#### Remark.

1. The basic graph is connected graph with inputed each liner line .
2. This interval can be increase max 25 with program main display which data type of the right and bottom position.
3. Data of has been opened closed on changed data type. Need receive data from memory unit.



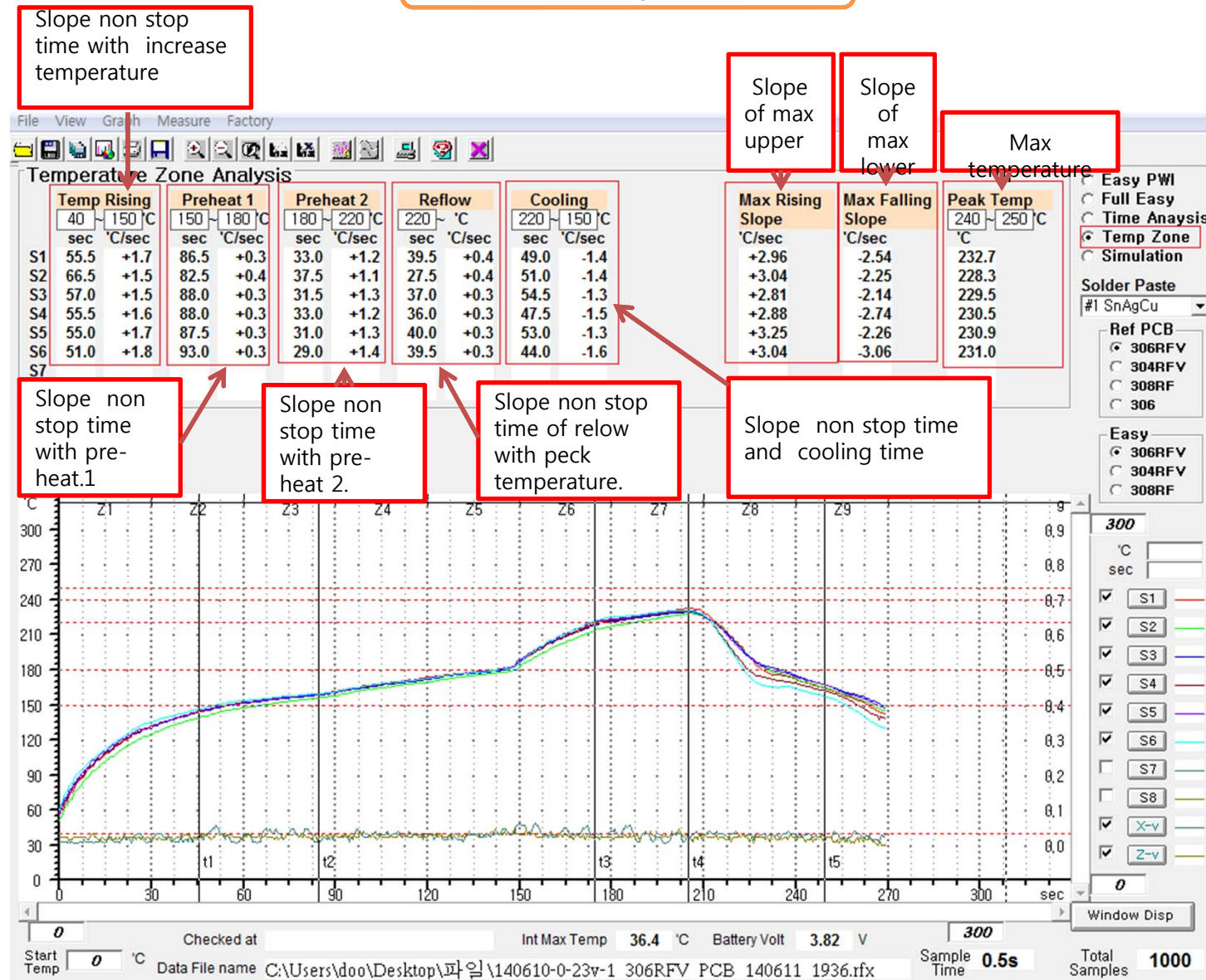
# SEP-306RFV

## 6-1. Time analysis



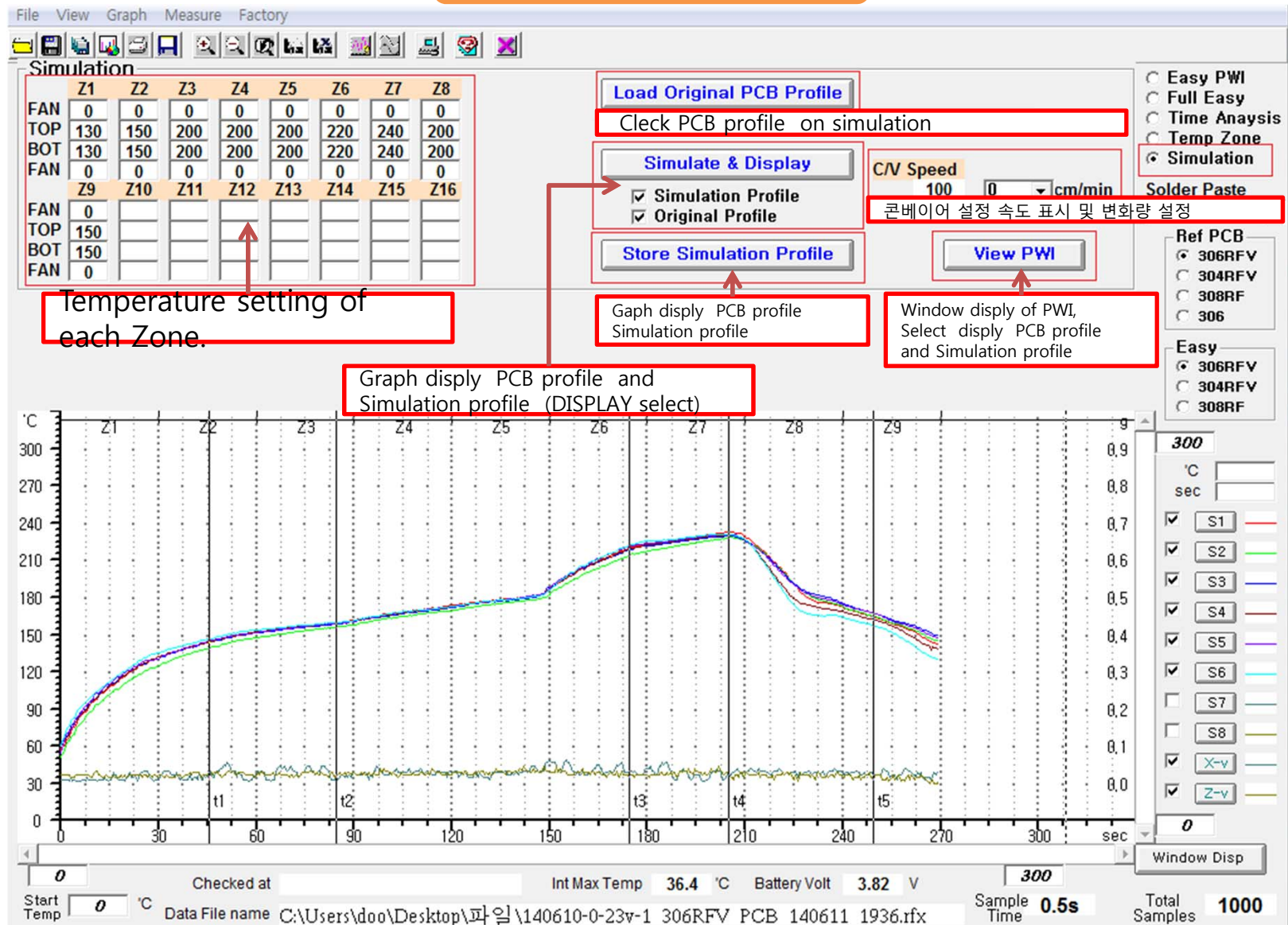
# SEP-306RFV

## 6-2.Temp zone



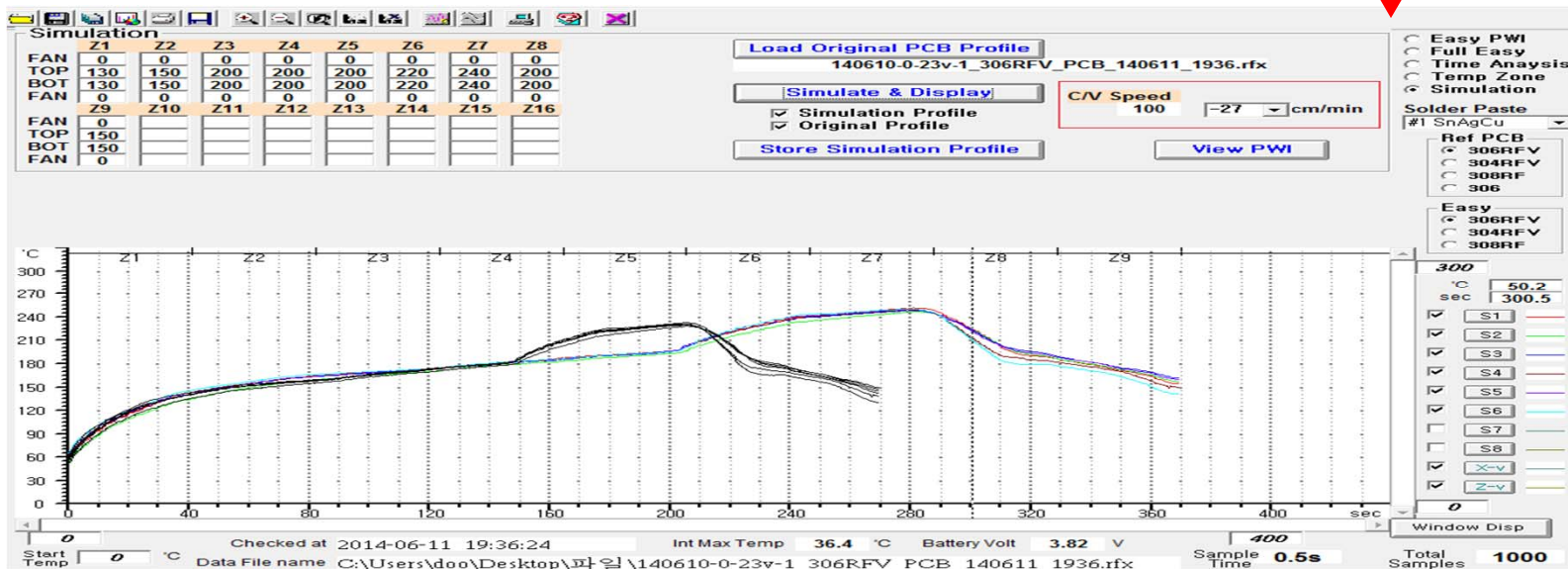
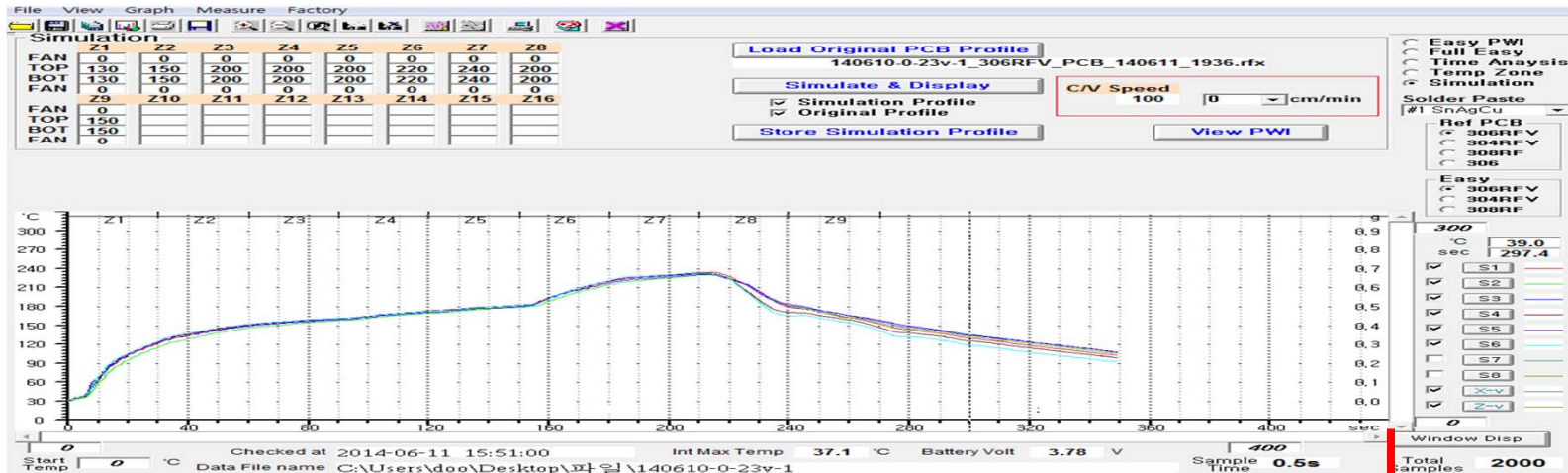


## 6-3.Simulation



# SEP-306RFV

## 6-3.Simulation 1.SPEED



## 7.Memory Unit Program Reset

**Note.** Please check measuring data of memory unit ,can not delete if reset .

### 7.1. Sampling Time & Total Samples

1. **Sampling Time** : Interval of Temperature measuring  
**Total Samples** : Total times of Measuring

In case of Sampling Time 0.5s,

set of Total Samples 2000 ,

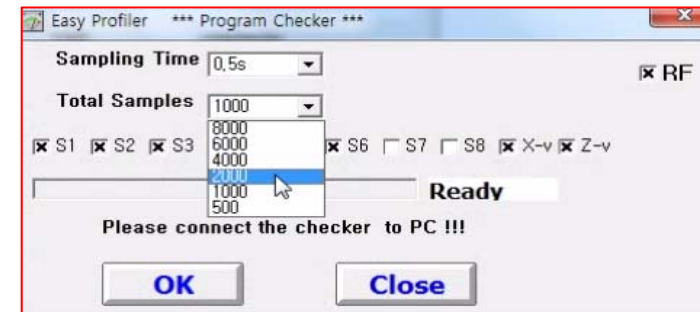
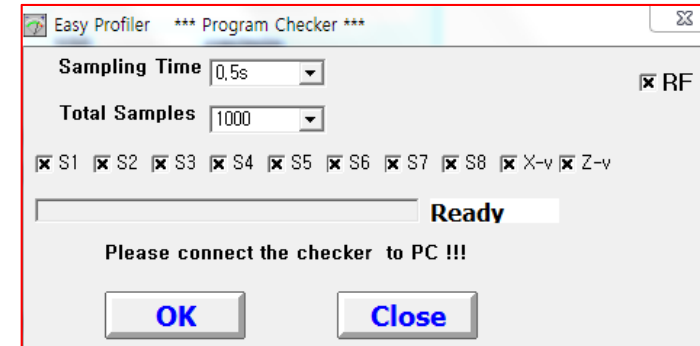
: Run off record and measure 2000 cycle interval 0.5 sec.

-  $0.5\text{sec} \times 2000 = 1000\text{sec}$  ( stop 16 min after. )

2. To transfer automatic saving-power after measuring.

※ Setting process for outgoing goods.

- Sampling Time : 0.5s
- Total Sampling : 1000



### ◇ Sequence Setting

- ① Switch on Memory Unit "**PWR**" ON after connect USB Cable of memory unit.
- ② Select the sub window ( program checker ) check the PC program
- ③ Select ok after sampling time and total sampling.
- ④ To transfer **Ready to Tx End on complete sending.**

Remark

It is not off "Program Checker Setting" ,power off in memory unit.



## 7-1.Sampling Time Chart

Chart of Memory unit by "Sampling Time" & "Total Samples" .								
			0.5s			1S		
			8000	4000sec	≒ 66 min	8000	8000sec	≒ 2 hr 10 min
			6000	3000sec	≒ 50 min	6000	6000sec	≒ 1 hr 40 min
			4000	2000sec	≒ 33 min	4000	4000sec	≒ 1 hr 6min
			2000	1000sec	≒ 16 min	2000	2000sec	≒ 3 min
			1000	500sec	≒ 8 min	1000	1000sec	≒ 1 min
			500	250sec	≒ 4 min	500	500sec	≒ 8 min
2S			5S			10S		
8000	16000sec	≒ 4 hr 26 min	8000	40000sec	≒ 11 hr 6 min	8000	80000sec	≒ 22hr 13min
6000	12000sec	≒ 3 hr 20 min	6000	30000sec	≒ 8hr 20 min	6000	60000sec	≒ 16 hr 40 min
4000	8000sec	≒ 133 min	4000	20000sec	≒ 5 hr 33 min	4000	40000sec	≒ 11hr 6 min
2000	4000sec	≒ 66 min	2000	10000sec	≒ 2hr 46min	2000	20000sec	≒ 5 hr 33 min
1000	2000sec	≒ 33 min	1000	5000sec	≒ 83 min	1000	10000sec	≒ 2hr 46 min
500	1000sec	≒ 16 min	500	2500sec	≒ 41 min	500	5000sec	≒ 83 min

※ 1. Memory Unit의 배터리소모는 측정횟수와 시간에 비례함, 0.5s 초과 설정상태로 사용시 배터리 충전상태를 확인하여야 함.  
 2. 1시간이상 설정상태에서 사용시에는 반드시 상온/ USB 전원 공급상태로 사용하여야 함, 측정 중 데이터 소실될 수 있음.

## 8. Charge and Transfer Method



- To connect PC USB terminal and Memory unit USB terminal with USB Cable as upper picture.

### ◇ Charging display

- 1 Chaging : Lamp on Red by "**CHG**" LED of memory unit .
- 2 Finish charge : Lamp on Green by "**CHG**" LED of memory unit.
- 3 Over charging : Lamp on Red by "**CHG**" LED. ( No problem over charging )

### ◇ How to use

- 1) Switch on "ON" , display on green lamp "R/W" LED .
- 2) Click memory on PC program Memory Unit "ON" by switch on .( page 8. ).

### ◇ Remark.

- Notice low Voltage : Switch on "ON" , switch off "R/W" LED by swithing red or green .
- Full discharge : LED is not off by switch on ."ON" ( need time of charging : 4~5 Hr. ).

Battery Spec.

## 8.-1 BATTERY Operation

1) 3.6V Rechargeable Battery(LG Rechargeable ; Use same grade Battery.)

MODEL : B-1522(Ni-MN. 3.6V 550mAh)

Lithium Polymer Battery

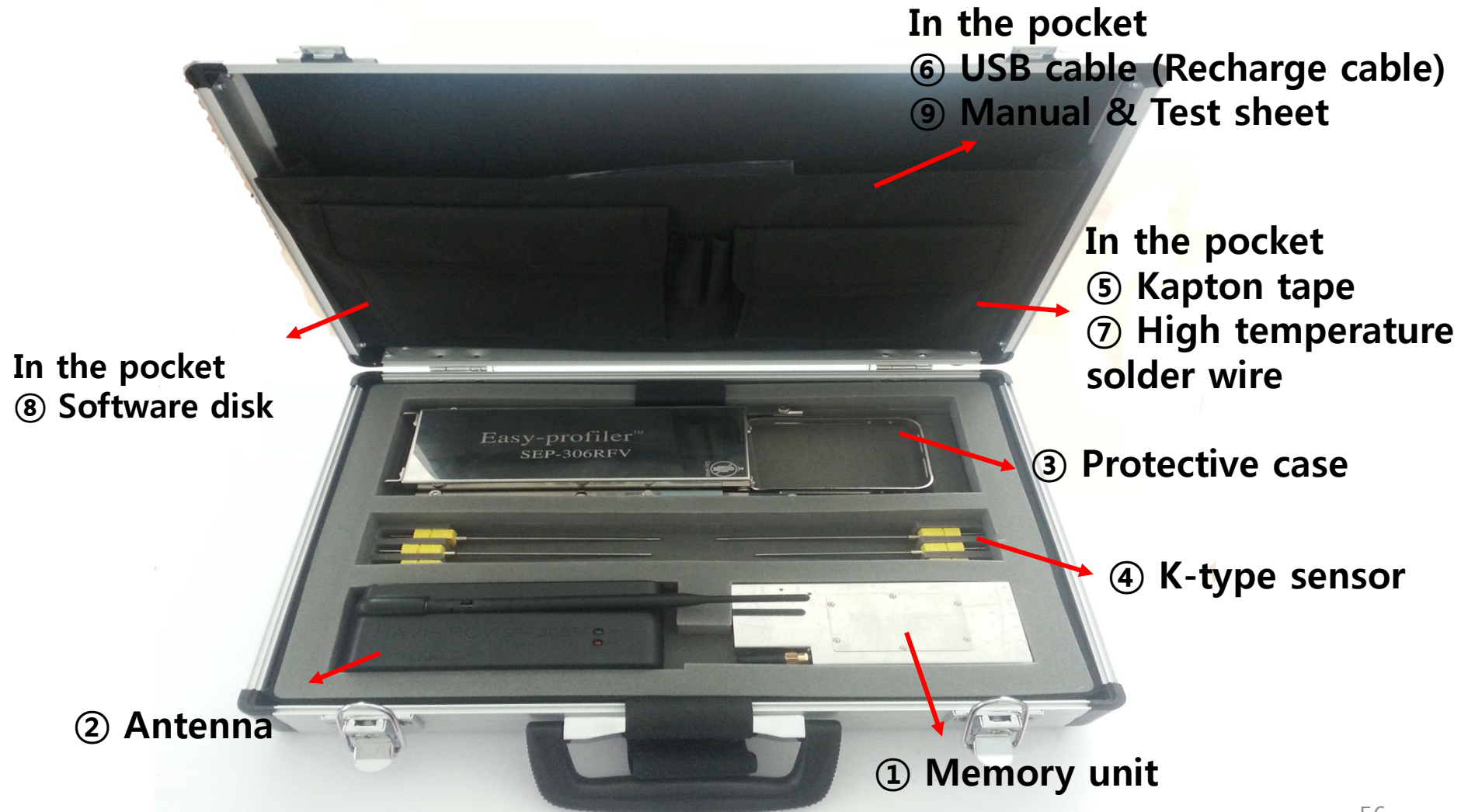
2) Life of Battery

- 6 months . ( It's normal condition without extra working environment. )  
(8000 hr; 3 times use per day ).
- 8-10 times / Battery , ( Battery is reduce performance )  
( Measuring interval is valiable discharge and Battery quality fator however  
it is not important operation performanse. )
- Battery is more long time when recharge after discharge Battery .

3) Caution of use Battery

- Must full charging before operating .
- Do not disassembly of Battery - Use only guaranteed goods.

## 9. Composition of **Micro-Profiler™** (SEP-306RFV)





# SEP-306RFV

## Part List.

No.	Description	No.	Contents	Etc.
①	Memory unit	M-001	Main memory equipment for temperature profile	
②	Battery	M-002	3.6(Ni-Mn) Rechargeable Battery	CSP
③	Protect case	M-003	For Product to memory unit from high temperature of reflow M/C	
④	K-type sensor	M-004	Made connector Ass'y (about 40cm)	CSP
⑤	Kapton tape	M-005	10mm(w) X 15m	CSP
⑥	USB cable(Recharge cable)	M-006	USB Port	
⑦	High temperature solder wire	M-007	Samples	CSP
⑧	Software disk	M-008	Microsoft Window XP	
⑨	Manual & Test sheet	M-009	User's manual	
⑩	Parking case	M-010	Quality assurance of memory unit	