CONFIDENTIAL B

Basic Tuning Flow – Flash Calibration

Flash Online calibration

- Introduction
  a) NVRAM I/O control
  b) Calibration Control
     - Calibration
  c) Flash AWB light area
     - List flash point in AWB light area.
  d) Flash AWB
     - Import/Export flash awb setting.
  e) Flash AE
     - Import/Export flash ae setting.

Flash Online calibration

- Calibration flow
  a) Setting phone with tripod.
  b) Capture gray chart with 20 cm distance for full screen occupation.
  c) All black environment.
  d) Click “Calibration” button on CCT.
  e) Check the pink points drawing on light area.

Setting Environment

Calibration Processing

Flash Offline calibration

- Introduction

If CCT connection is not convenient, we can use adb cmd for full calibration.

adb cmd:

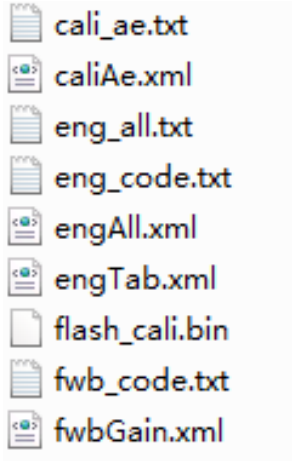
adb shell setprop debug.flash_ratio 1

Choose Flash on in the Phone UI, Do The calibration on dark environment as introduced in last page.

After calibration, we can get data as the right:

Get data from eng_code.txt and fwb_code.txt, and fill in below parameters

XXXmipiraw_$Scenario_Flash_Calibration.cpp



Flash Preference Gain

- Introduction

Different with Prior Platform, P60 has different Preference Gain for Different LV. LV gets from the environment before flash fired.

XXXmipiraw_$Scenario_Flash_AWB.cpp

```
// FlashPreferenceGain
{
    {508, 512, 536}, // LV0
    {508, 512, 536}, // LV1
    {508, 512, 536}, // LV2
    {508, 512, 536}, // LV3
    {510, 512, 536}, // LV4
    {510, 512, 536}, // LV5
    {510, 512, 536}, // LV6
    {510, 512, 536}, // LV7
    {512, 512, 536}, // LV8
    {512, 512, 512}, // LV9
    {512, 512, 512}, // LV10
    {512, 512, 512}, // LV11
    {512, 512, 512}, // LV12
    {512, 512, 512}, // LV13
    {512, 512, 512}, // LV14
    {512, 512, 512}, // LV15
    {512, 512, 512}, // LV16
    {512, 512, 512}, // LV17
    {512, 512, 512}, // LV18
},
```

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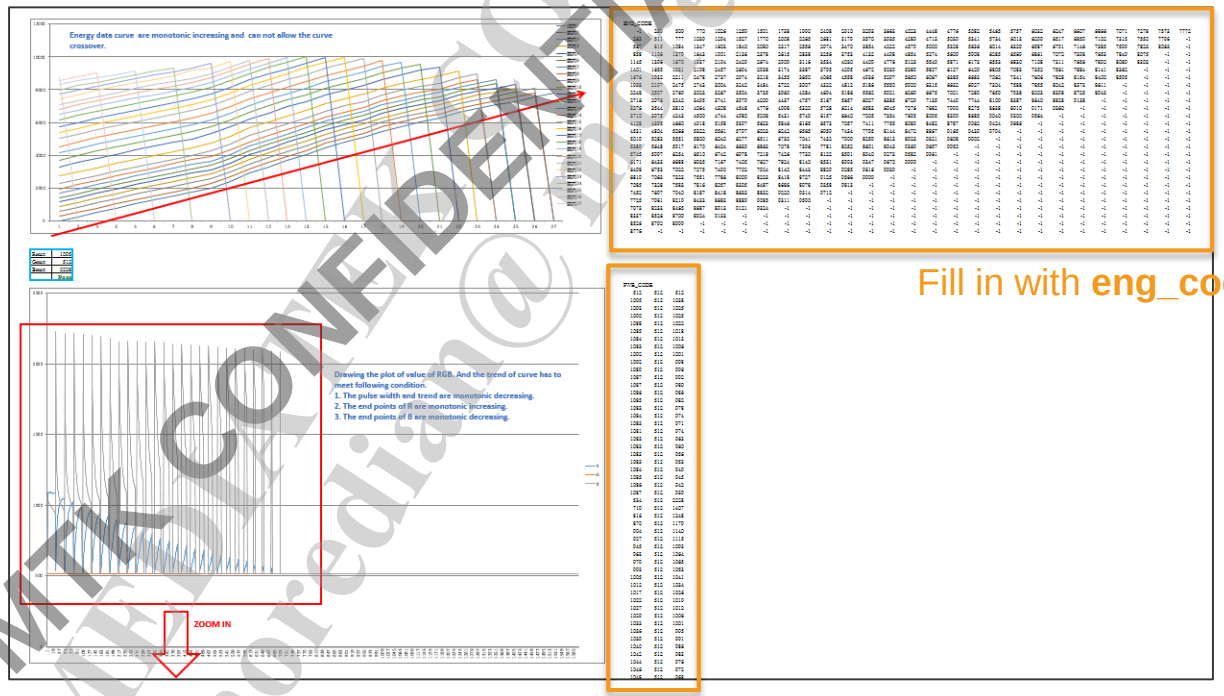
Verify Flash calibration data

- Method1 : use CCT Flash Calibration data
  - **A. Get result** - Go to root folder to get **fwb_code.txt**, **eng_code.txt** after Flash Calibration is done.
  - **B. Verify calibration data** - Fill in the energy data in EXCEL file.
    (use 3A_Calibration_Check_Report.xlsx)



Fill in with **eng_code.txt**

Fill in with **fwb_code.txt**

Verify Flash calibration data

- Method 2 : use ADB command

(The result is the same as CCT Flash Calibration output)

A. **Environment prepare** - In dark room, Gray card put in front of camera in 15cm ~ 20cm.

B. **ADB commend** - Connect USB to your computer, and then send ADB commend through USB "**adb shell setprop z.flash_ratio 1**".

C. **Pre-check** - Lunch camera APP and press capture key in low light environment to check ADB commend work well or not.

   I. Flash will fire several times with different duty

   II. There are two files (fwb_code.txt, eng_code.txt)will save in the root folder.

D. **Calibration** - If pre-check is okay, go to the correct environment as **Step A**, then Lunch camera APP and press capture key.

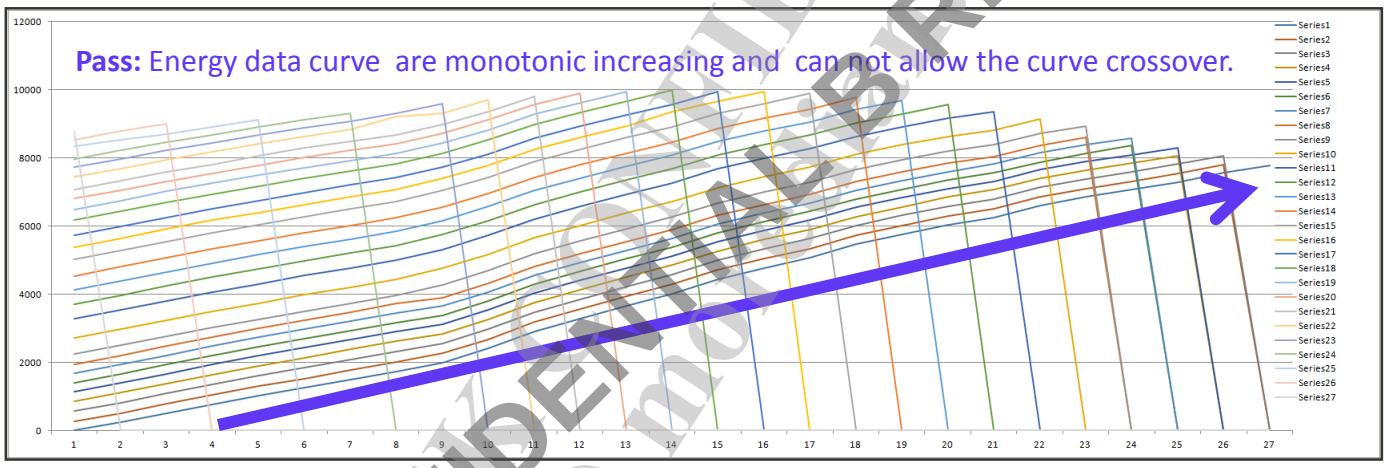
E. **Get result** - Go to root folder to get **fwb_code.txt**, **eng_code.txt**.

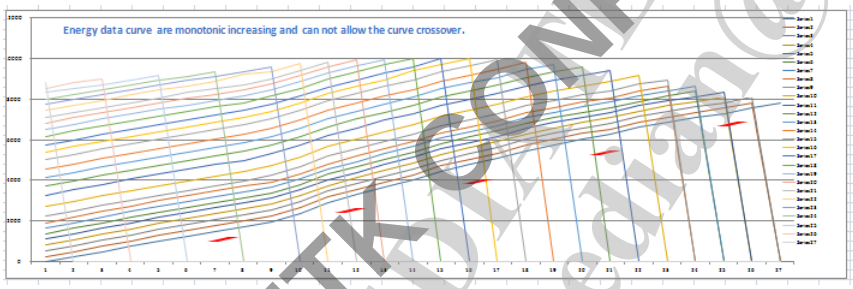
F. **Verify calibration data** - Fill in the energy data in EXCEL file.

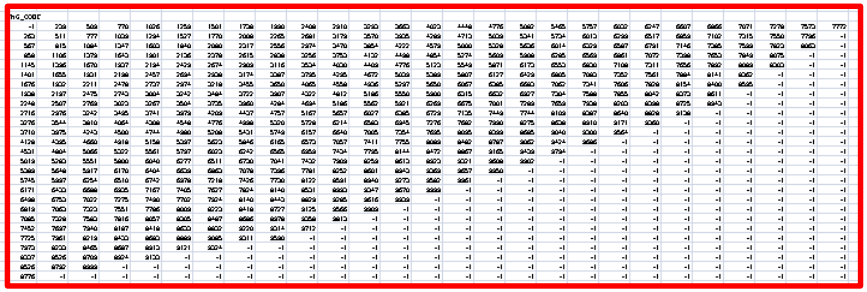
(use 3A_Calibration_Check_Report.xlsx)

Verify Flash calibration data

- **Verify eng_code.txt** (use 3A_Calibration_Check_Report.xlsx)



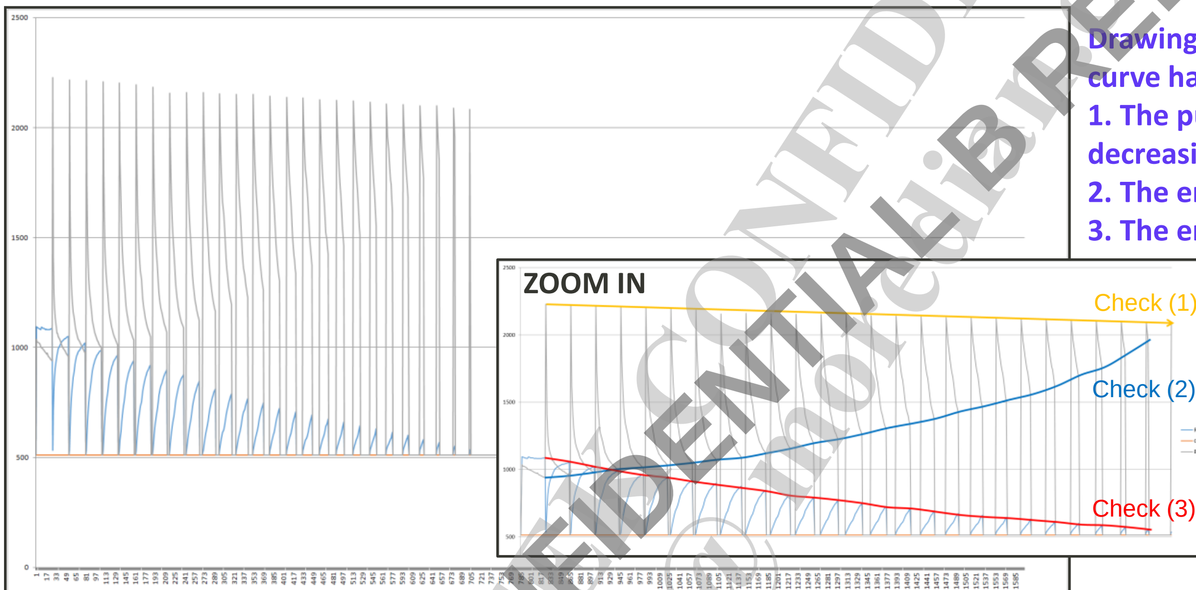




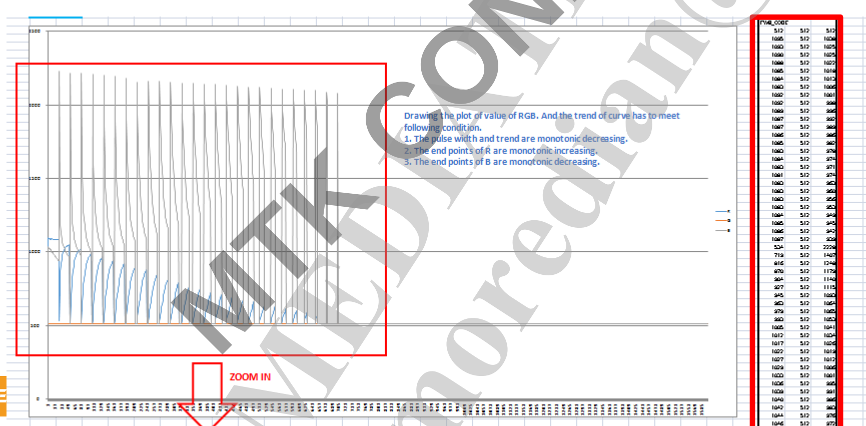
Fill in area in EXCEL with eng_code.txt

Verify Flash calibration data

- **Verify fwb_code.txt** (use 3A_Calibration_Check_Report.xlsx)



Drawing the plot of value of RGB. And the trend of curve has to meet following condition.
1. The pulse width and trend are monotonic decreasing.
2. The end points of B are monotonic increasing.
3. The end points of R are monotonic decreasing.



Fill in area in EXCEL with fwb_code.txt