

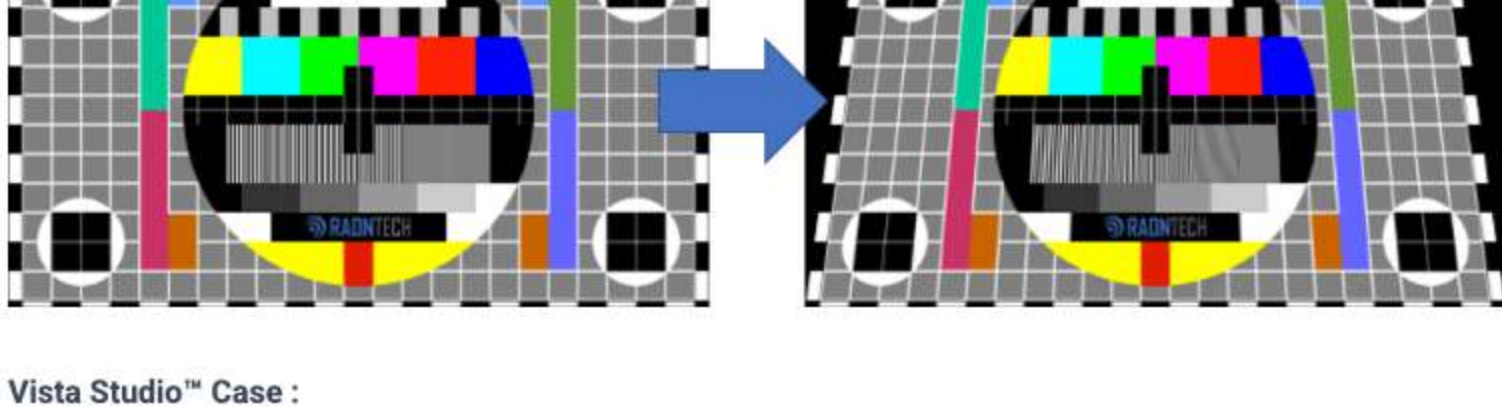
[VistaStudio/VistaCube] How to active CoKOA and configure its parameters

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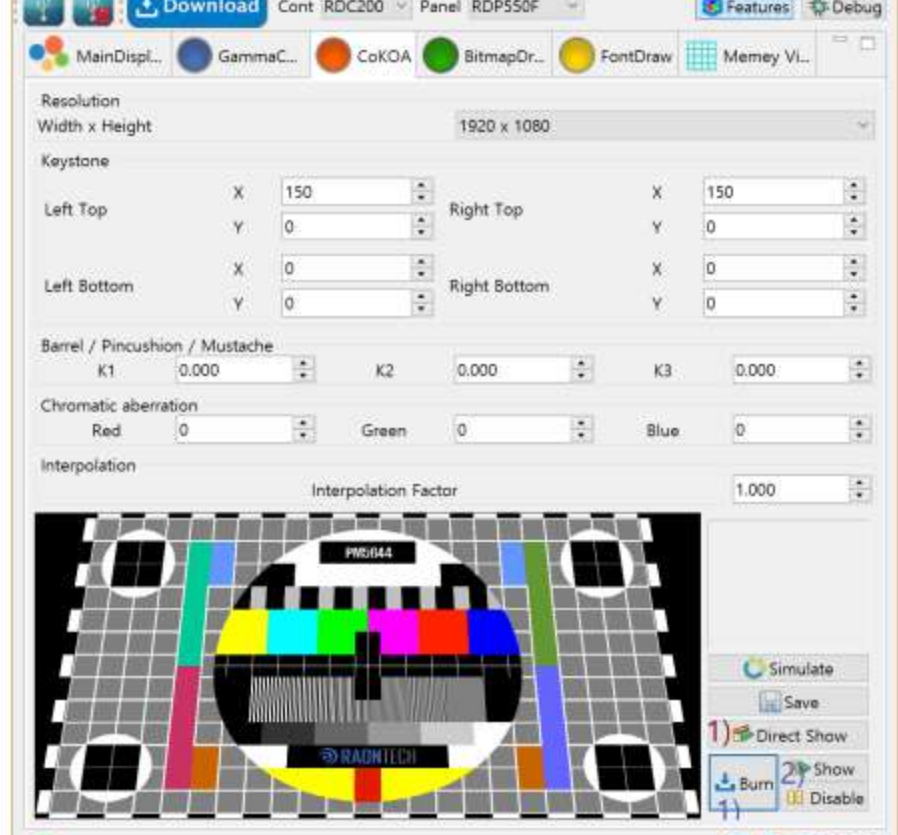
The **CoKOA**(Correction of Keystone and Optical Aberrations) is a powerful feature of RDC which compensates a perspective distortion such as keystone and optical distortion, pincushion, chromatic aberration and so on.

This post describes two ways of using CoKOA in Vista Studio™ GUI tool and in linux console application of Vista Cube™ SDK. If you do not use both, you should make use of API code in Vista Cube™ (Refer to VistaCube_User_Guid_RDC200.pdf for details).

Our demo aims to transform a square-shaped screen to a trapezoid-shaped one like below.



Vista Studio™ Case :



- Open Vista Studio™ and then click a CoKOA Feature tap.
- Type Keystone parameters as the above image.
 - Left Top X : 150
 - Right Top X : 150
- (Optional) You can view the simulated image by clicking a **Simulate** button.
- (Optional) You can also save the image by clicking a **Save** button and the LUT values that is used for its transformation
- Click a **Burn** button. It causes CoKOA LUT values to be calculated and then to be downloaded into flash memory in RDC.
- After a download finish, click a **Show** button to see the result.
- (Optional) Instead of clicking a **Burn** button, you can use a **Direct Show** button. (It makes the almost same result with the very fast speed)
- If you want to keep this CoKOA turn-on even after reboot, you should set **cokoa_en_boot** bit to "1".

```
121 #0x70 0x00 1 0
122 #0x71 0x00 1 0
123 0x72 0x3C 1 0
124 #0x73 0x00 1 0
125 #0x74 0x00 1 0
126 0x75 0x80 1 0
127 #0x76 0x55 1 0
128 #0x77 0x00 1 0
129 #0x78 0x00 1 0
130 #0x79 0x00 1 0
131 #0x7A 0x52 1 0
```

<- e.g in RDC200 init file.

- In your RDC init file, modify the 0x75 address to be 0x80 (that is **cokoa_en_boot** = 1).
- If you do not use Chromatic aberration function means the same R/G/B of them, set a **cokoa_en_ca**(**0x74 0x80 1 0**) bit to be "0"(There will be operation reduction).
- Download it into flash of RDC.
 - Click a **Download** button on main menu of Vista Studio™.



- In a Download dialog, select the modified init file only.



- Click a **Start** button.



- Reboot and then check the result.

Vista Cube™ Case :

```
o: Direct update CoKOA
x: [Register IO Test] RDC200
y: [Register IO Test] Panel 0: RDP550F
z: [Register IO Test] Panel 1: RDP550F

t [Demo] CoKOA
u [Demo] OSD

w: FLASH Chip Erase

q or Q: Quit

=====
Generate CoKOA Lut
CoKOA test
0: Create CoKOA file
1: Create CoKOA file and download
q or Q: Quit

=====
Create CoKOA file and download
Input CoKOA parameters
width: 1920 height: 1080
left top x(0 ~ 255) y(0 ~ 63): [x y]. q(Quit), r(Retype):
150 0
right top x(0 ~ 255) y(0 ~ 63): [x y]. q(Quit), r(Retype):
150 0
left bottom x(0 ~ 255) y(0 ~ 63): [x y]. q(Quit), r(Retype):
150 0
right bottom x(0 ~ 255) y(0 ~ 63): [x y]. q(Quit), r(Retype):
150 0
pincushion/barrel (-0.500 ~ 0.500): [k1 k2 k3]. q(Quit), r(Retype):
0 0 0
chromatic aberration (0 ~ 100%): [R G B]. q(Quit), r(Retype):
0 0 0
interpolation (0.500 ~ 1.500): [interpolation]. q(Quit), r(Retype):
1.0
=====
Inputted parameters
Resolution: width(1920) height(1080)
Keystone:
LT(150, 0) RT(150, 0)
LB(0, 0) RB(0, 0)
pincushion/barrel: k1(0.0) k2(0.0) k3(0.0)
chromatic aberration: R(0) G(0) B(0)
interpolation: 1.0
Use this inputted parameters(y) or retype(n)?y.
```

- Execute linux console application of Vista Cube™.
 - This console application is provided in source level, so you should build it with your i2c interface according to your target system (Refer to this blog).
 - As run it, you will see a lot of prompt messages.
- Type **l** in order to create CoKOA LUT.
- Type **1** (If you just only make a CoKOA LUT file, type **2**).
- Follow the prompt messages to insert CoKOA parameters.
 - Type **1920 1080**
 - Type **150 0**
 - Type **150 0**
 - Type **0 0**
 - Type **0 0**
 - Type **0 0 0**
 - Type **0 0 0**
 - Type **1.0**
- If the entered-parameters like the above image is correct, type **y**. CoKOA LUT will be automatically calculated and then be downloaded it into flash of RDC.
 - Note : Even if you finish download without error, CoKOA won't enable.
- To activate the CoKOA LUT you just download, you should use a **cokoa_en_boot** bit like Vista Studio™ case.
 - Edit your RDC200 init file so that the 0x75 address has 0x80. (**0x75 0x80 1 0**)
 - The **cokoa_en_ca**(**0x74 0x80 1 0**) bit is the same as Vista Studio™ case.
 - Download the init file by using RDC init on the prompts of linux console application.
 - Reboot and check the result.
- (Optional) You can use Direct CoKOA you saw in Vista Studio™ case.
 - Type **o**
 - Type **0**
 - Follow the next prompt messages to write CoKOA parameters
 - NOTE : This time, only Keystone function for Direct CoKOA is supported in linux console application of VistaCube™.
 - Lastly, after checking the values you entered, type **y**. You can see the results immediately.

```
o: Direct update CoKOA
x: [Register IO Test] RDC200
y: [Register IO Test] Panel 0: RDP550F
z: [Register IO Test] Panel 1: RDP550F

t [Demo] CoKOA
u [Demo] OSD

w: FLASH Chip Erase

q or Q: Quit

=====
Direct update CoKOA
CoKOA test
0: Direct update
q or Q: Quit

=====
Create CoKOA file
Input CoKOA keystone
left top x(0 ~ 255) y(0 ~ 63): [x y]. q(Quit), r(Retype):
150 0
right top x(0 ~ 255) y(0 ~ 63): [x y]. q(Quit), r(Retype):
150 0
left bottom x(0 ~ 255) y(0 ~ 63): [x y]. q(Quit), r(Retype):
150 0
right bottom x(0 ~ 255) y(0 ~ 63): [x y]. q(Quit), r(Retype):
150 0
=====
Inputted parameters
Keystone :
LT(150, 0) RT(150, 0)
LB(0, 0) RB(0, 0)
Use this inputted parameters(y) or retype(n)?y.
```

CoKOA paramters:

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[VistaStudio/VistaCube] Description of Config file.

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