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## 4 Alignments and Adjustments

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### 4-1 General Alignment Instruction

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1. Usually, a color TV-VCR needs only slight touch-up adjustment upon installation.  
Check the basic characteristics such as height, horizontal and vertical sync.
2. Use the specified test equipment or its equivalent.
3. Correct impedance matching is essential.
4. Avoid overload. Excessive signal from a sweep generator might overload the front-end of the TV. When inserting signal markers, do not allow the marker generator to distort test result.
5. Connect the TV only to an AC power source with voltage and frequency as specified on the backcover nameplate.
6. Do not attempt to connect or disconnect any wire while the TV is turned on. Make sure that the power cord is disconnected before replacing any parts.
7. To protect against shock hazard, use an isolation transform.

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### 4-2 Factory Mode Adjustments

#### 4-2-1 Entering Factory Mode

1. To enter "Service Mode" Press the remote -control keys in this sequence :

- If you do not have Factory remote - control



- If you have Factory remote - control



- The buttons are active in the service mode.

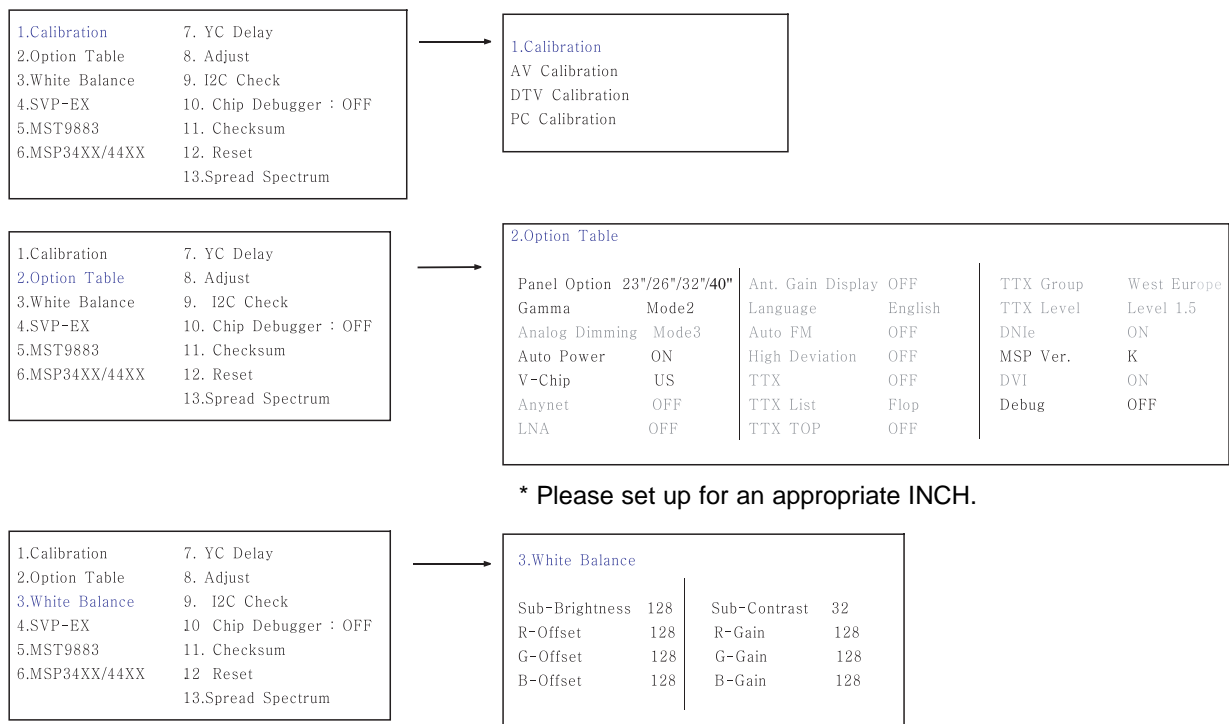
1. Remote - Control Key : Power, Arrow Up, Arrow Down, Arrow Left

Arrow Right, Menu, Enter, Number Key(0~9)

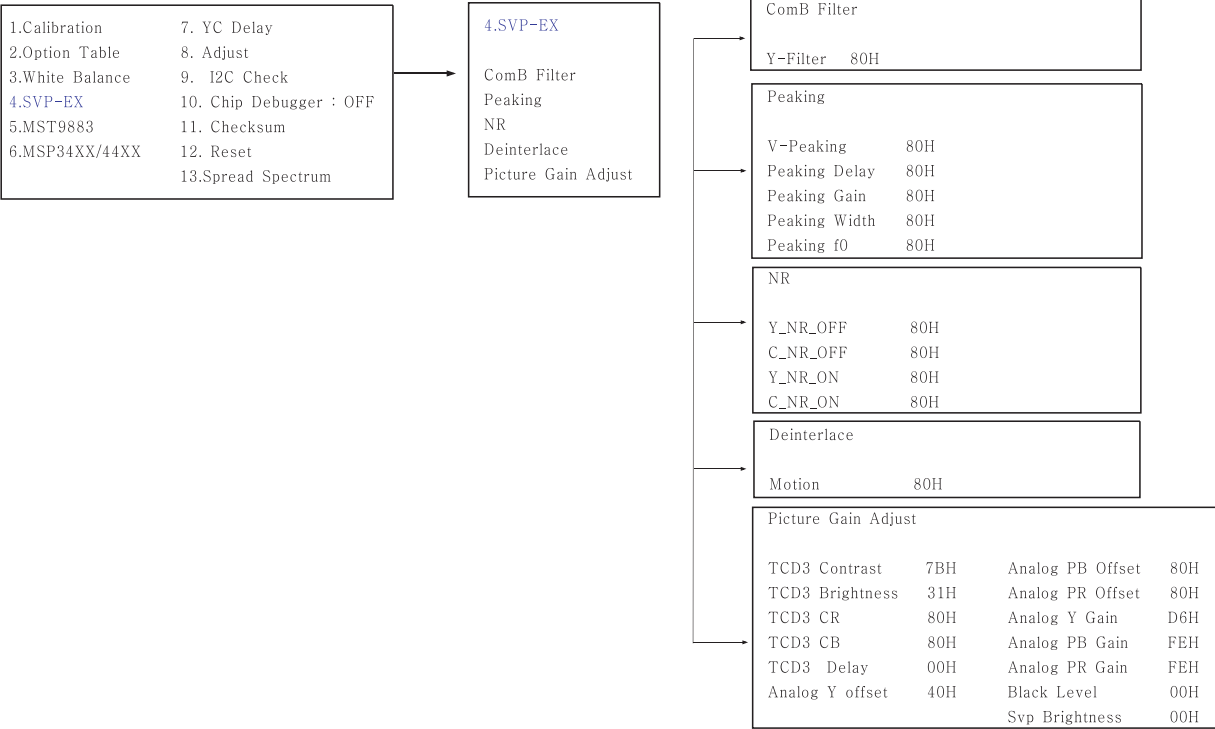
2. Function - Control Key : Power, CH +, CH -, VOL +, VOL -,

Menu, TV/VIDEO(Enter)

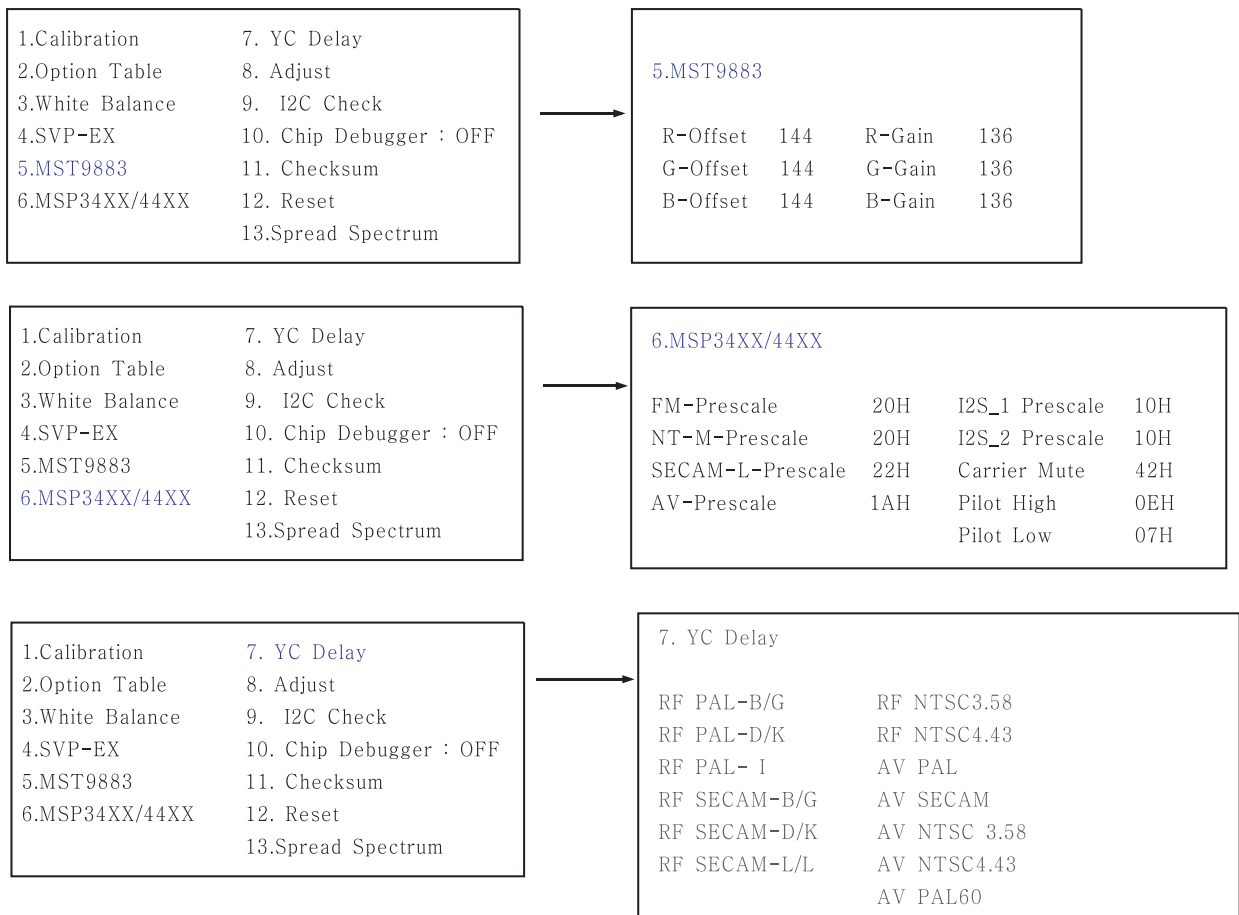
#### 4-2-2 Factory Mode Tree



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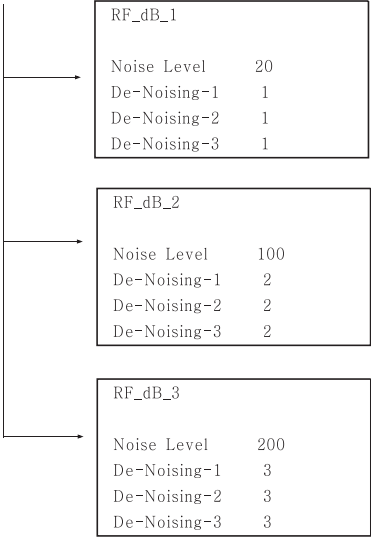


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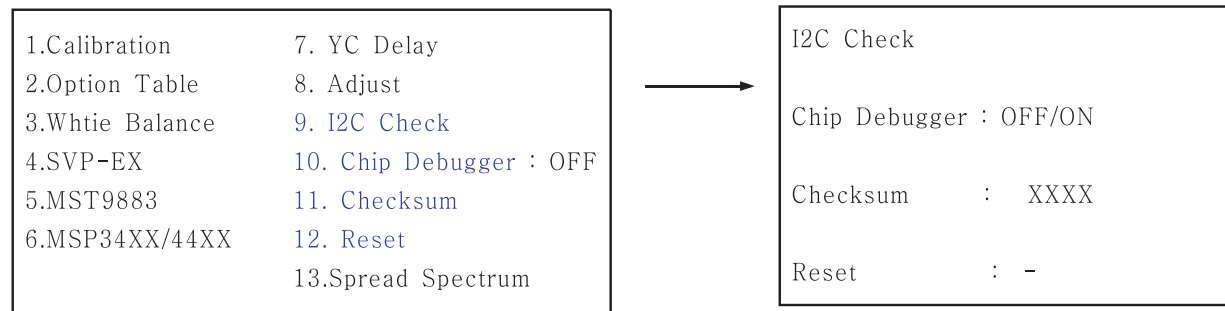
1.Calibration	7. YC Delay
2.Option Table	8. Adjust
3.White Balance	9. I2C Check
4.SVP-EX	10. Chip Debugger : OFF
5.MST9883	11. Checksum
6.MSP34XX/44XX	12. Reset
	13.Spread Spectrum



8. Adjust					
Video Mute Time	8	Dynamic Color	50	Movie Brightness	50
Melody Volume	5	Dynamic Sharpness	60	Movie Color	50
Ana_Dimm_Max	FEH	Standard Contrast	90	Movie Sharpness	40
TTX Contrast	50	Standard Brightness	80	RF_dB_1	0
TTX Brightness	50	Standard Color	70	RF dB 2	0
TTX Color	50	Standard Sharpness	70	RF_dB_3	0
Dynamic Contrast	100	Movie Contrast	60		



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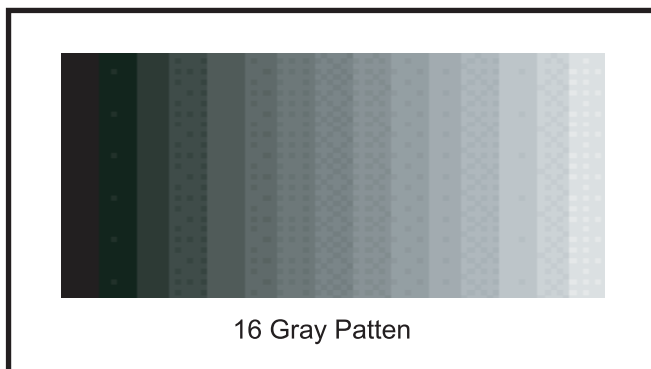
### 4-3-1 White Balance - Calibration

If picture color is wrong, do calibration first

Equipment : CA210, Pattern : 16 gray

Execute calibration in Factory Mode

Source AV : PAL composite, Component : 1280\*720/60Hz  
PC : 1024\*768/60Hz



### 4-3-2 White Balance - Adjustment

If picture color is wrong, check White Balance condition

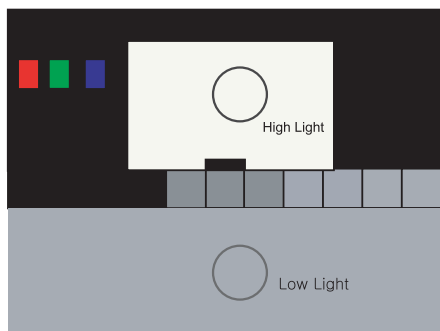
Equipment : CA210, Pattern : Toshiba

Adjust W/B in Factory Mode

Sub brightness and R/G/B Offset controls low light region

Sub contrast and R/G/B Gain controls high light region

Source AV : PAL composite, Component : 1280\*720/60Hz  
HDMI[DVI] : 1280\*720/60Hz



[ Test Pattern : MSPG-945 Series Pattern #16 ]

\*Color temperature  
1500K +/-500, -6 ~-20 MPCD

\*Color coordinate  
H/L : 267/263 +/- 2 35.0 Ft +/- 2.0Ft  
L/L : 270/260 +/- 3 1.5 Ft +/- 0.2Ft

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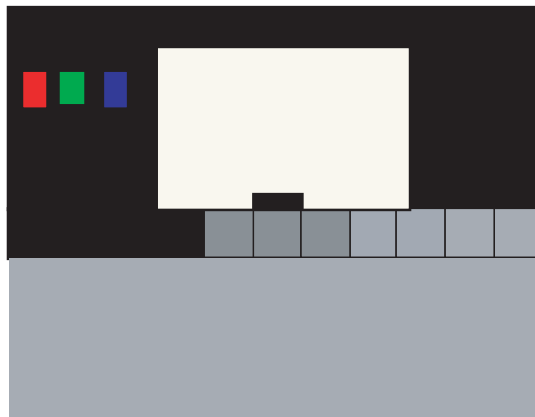
### 4-3-3 Conditions for Measurement

1. On the basis of toshiba ABL pattern : High Light level (57 IRE)
  - INPUT SIGNAL GENERATOR : MSPG-925LTH
    - \* Mode NO 1 : 744X484@60 Hz
    - NO 6 : 1280X720@60 Hz
    - NO 21 : 1024X768@60 Hz
  - \* Pattern NO 36 : 16 Color Pattern
  - NO 16 : Toshiba ABL Pattern
2. Optical measuring device : CA210 (FL)  
Please use the MSPG-925 LTH generator for model LT26A33W.

### 4-3-4 Method of Adjustment

1. Adjust the basic level of DTV and PC input signals.
  - a) Set the input to the mode in which the adjustment will be made (DTV → PC ).
    - \* Input signal - DTV Mode : Model #6 (1280\*720 Mode), Pattern #36
    - PC Mode : Model #21 (1024\*768 Mode), Pattern #16 (Picture 4-1)
  - b) Enter factory Calibration, confirm the ADC data (DTV, PC Mode Only).
    - \* ADC default value : Table 4-3.

Picture 4-1 Toshiba ABL Pattern



2. Adjust the white balance of RF, DTV, PC and DVI Modes.
  - a) Set the input to the mode in which the adjustment will be made(RF → DTV → PC → DVI).
    - \* Input signal - VIDEO Mode : Model #1 (744\*484 Mode), Pattern #16
    - DTV,DVI Mode : Model #6 (1280\*720 Mode), Pattern #16
    - PC Mode : Model #21 (1024\*768 Mode), Pattern #16
  - b) Enter factory color control, confirm the data.

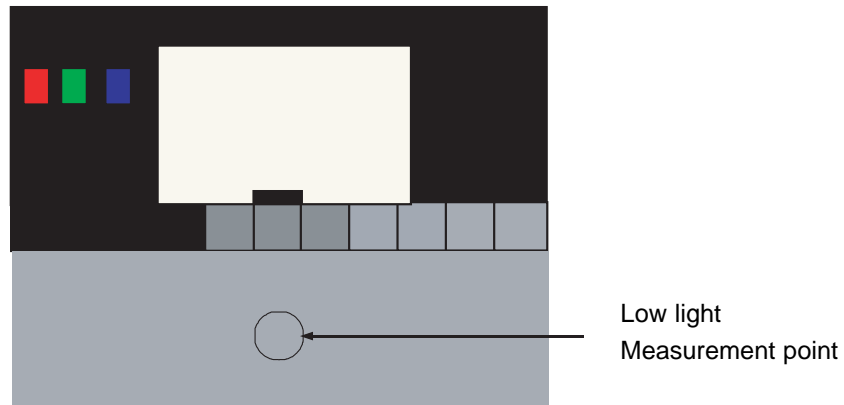


c) Adjust the low light. (Refer to table 1, 2 in adjustment position by mode)

- Adjust sub - Brightness to set the 'Y' value.
- Adjust red offset ('x') and blue offset ('y') to the color coordinates.

\* Do not adjust green offset data.

Picture 4-2 Toshiba ABL Pattern

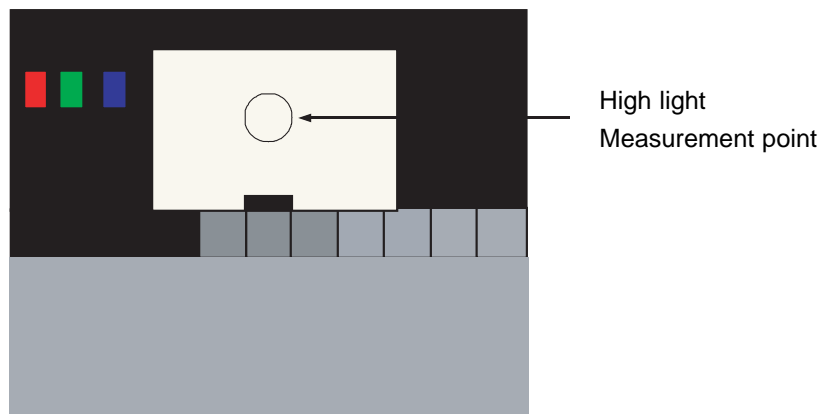


d) Adjust the high light. (Refer to table 1, 2 in adjustment position by mode)

- Adjust red gain ('x') and blue gain ('y') to the color coordinates.

\* Do not adjust the green gain and sub-contrast (Y) data.

Picture 4-3 Toshiba ABL Pattern



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### 4-4 Flash ROM Update

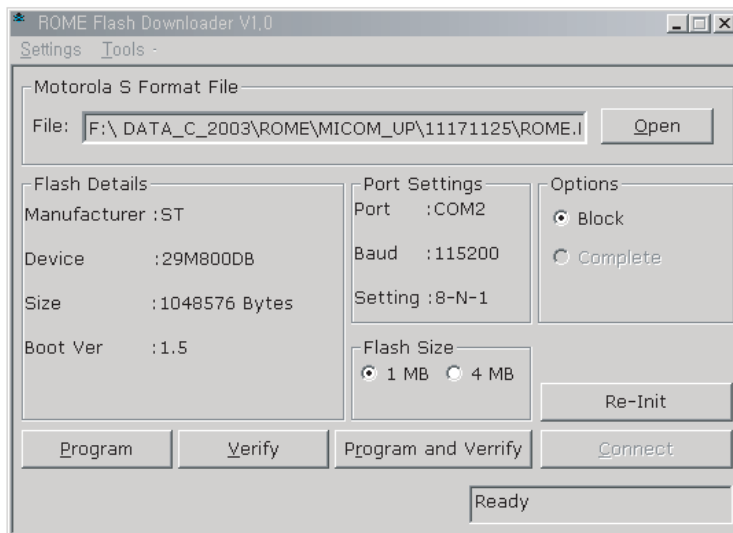
#### 1. Install the Flash Downloader

Connect Set (Service Jack) and Jig Cable to execute Program Update.



#### 2. Flash Downloader program update

- Before Turning on the set, Click "connect" which is under of OSD Screen!
- Turn on the Set.



3. Open the New Update File and Click the Program and Verify.
4. Program update sledding is marked sequentially on OSD screen.
5. After program update completion, message should be pop up.