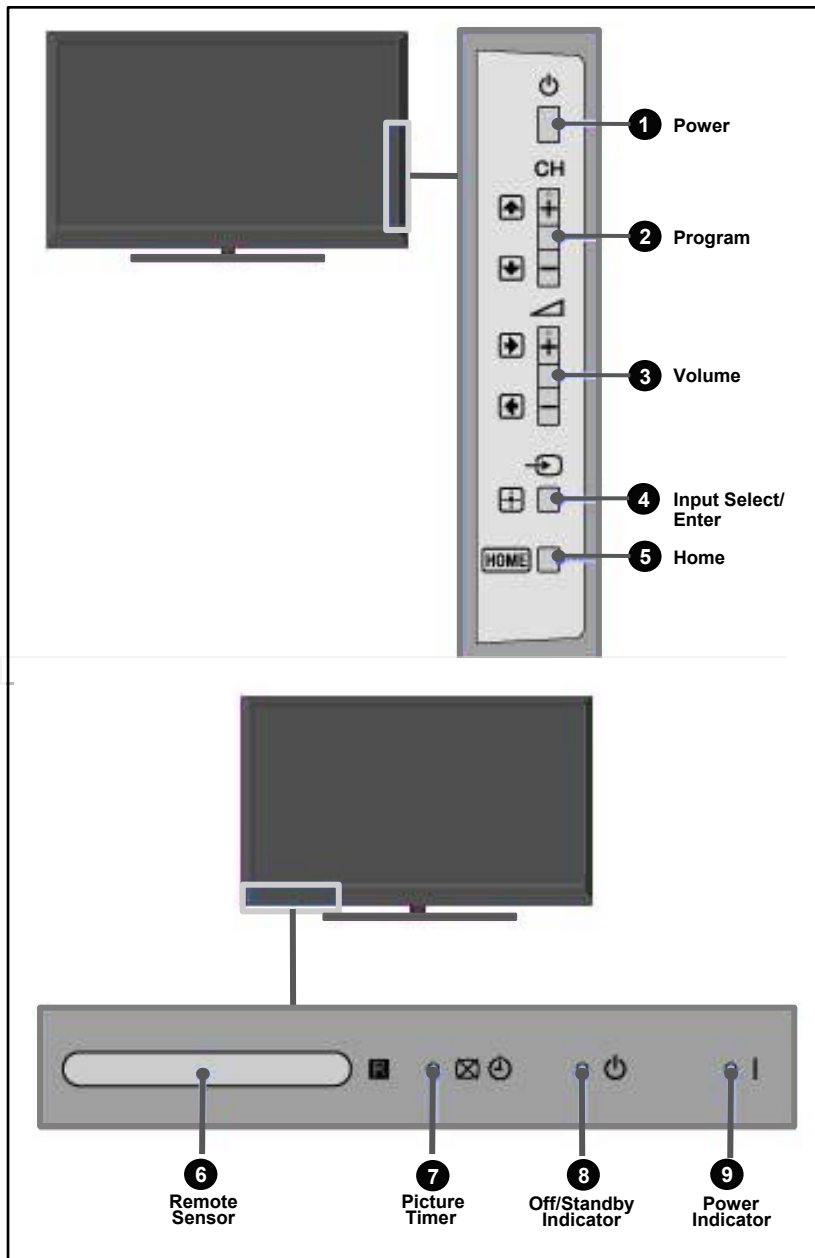


SECTION 2 SELF DIAGNOSTIC FUNCTION

2-1. Overview of Control Buttons



2-2. LED Display Specification

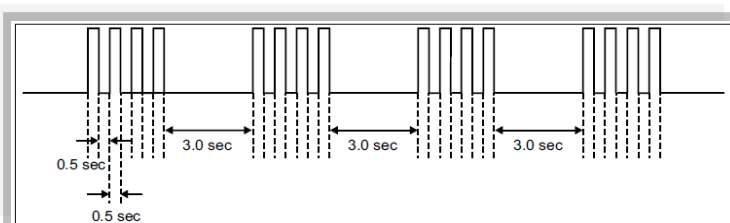
LED Type	Description	Remark
POWER	Green: LED Red : LED	Green lights at Power On. Red lights when recording (Japan and Europe models only)
STANDBY	Red:One LED	Red lights during standby
Timer/ Pic Off	Orange/Green: Two LEDs	Green Lights during Picture Off and Orange Lights during Timer Activation.

2-3. LED Display Control

Status	Pic off / Connecting / Timer	Standby	Power/REC	Blinking Pattern
POWERON	Off	Off	Green	
Standby (by Remote Control Off)	Off	Red Lit	Off	
Self Diagnosis	Off	Red Blink	Off	Refer to Blinking Pattern of Self Diagnosis Mode
End of the Aging Mode	Off	Off	Green Blink	3sec On / 3sec Off
Aging Mode	Off	Off	Green Blink	0.5sec On / 0.5sec Off
Software Updating	Orange Blink	Red Lit	Off	5sec On / 1sec Off
Software Update Finish	Orange Lit	Off	Green Lit	
Test Reset	Orange Lit	Red Lit	Green Lit	
Error on Panel ID	Orange Blink	Off	Green Blink	0.5sec On / 0.5sec Off
(REC)(Sleep Timer)(Power ON)		Off	Red	
(Picture Off) (On Timer) (REC) (Power On)		Off	Red	

2-4. LED Pattern

When safety shutdown occurs, Standby LED display reports the cause by using the lighting patterns as indicated below.



Example: The figure above shows LED display when SHUTDOWN is caused by Balancer Error. It repeats flashing for a specified number of times in 0.5sec/cycle and has a 3 seconds interval of lighting off. Please note that a 3 second interval of lighting off is fixed regardless of abnormal state types.

2-5. Standby LED Error Display

Blinking Times	Error	Countermeasure to replaced either / all
2	Main Power Error	<ul style="list-style-type: none"> ● Power Supply Board ● Main Board
3	Main Board / DC Alert Error / Audio Error	<ul style="list-style-type: none"> ● Main Board
4	Balancer Error / MM SPI Error / VLED Error	Not applicable for this manual
5	Tcon Error / HFR Error / FRC No	Not applicable for this manual
	Panel ID NVM Error	<ul style="list-style-type: none"> ● Tcon ● Panel Module
6	Backlight Error	<ul style="list-style-type: none"> ● Power Supply Board ● Main Board ● Panel
7	Temperature Error	<ul style="list-style-type: none"> ● Main Board
8	Software Error	<ul style="list-style-type: none"> ● Main Board ● Wifi (Not applicable for this manual)
9	Reserved	Reserved
10	Emitter Board Power Error	Not applicable for this manual

2-6. Triage Chart

Reference	Symptoms - Shutdown. Power LED blinking red diagnostics sequences								Green LED Blinking	No Power	Video - missing or distorted			Remote	Network	Audio	Skype
	2	3	4 **	5	6	7	8	10 **	Green LED non-stop Blinking	No Green Power LED (Dead Set)	Stationary colored lines or dots	No video One of Inputs	No video all Inputs	No Remote	Wireless can't connect	No Audio	Skype Can't Work
B* BOARD	▲	●	▲	▲	▲	●	●		▲	▲	▲	●	●	▲	▲	●	▲
G* BOARD	●	▲	▲	▲	●				▲	●						▲	
H* BOARD (IR)				▲				●						●			
RF Module (RF)														● **			
SPEAKER		▲														●	
Skype Module																	●
Wifi Module								● **							● **		▲
LD BOARD**			●		▲												
LVDS CABLE			▲	▲							▲		▲				
TCON				●				▲									
LCD Panel			●		●	▲			●		●						
Problem	POWER	POWER	POWER	PANEL (TCON)	PANEL (Backlight)	TEMP		EMIT-TER									
		AUDIO				FAN (N/A)											

- Doubtful Part
- ▲ Few Possibility
- ** Not applicable for this manual

Segment	Size	B* Board Type	G* Board Type	H* Board Type
P-1	22	BAT-S	G1A	HLR2
P-1	26	BAT-S	G1B	HLR2
P-1	32	BAT-V	GE2A	HLR2
P-1	40	BAT-V	GE3A	HLR2
P-1	46	BAT-V	GE3A	HLR2

SECTION 4 SERVICE ADJUSTMENT

4-1. Accessing Self Diagnostic Menu

1. While LCD TV set is on standby mode, press the following sequence on the Remote Commander key. (RM-GD020)
< i+> → <5> → <Vol Down> → <TV Power>



SELF CHECK	<1>	NEXT PAGE->
000	RGB_SEN	00
002	MAIN_POWER	00
003	DC_ALERT	00
003	AUD_PROT	00
003	DTT_WDT	00
004	BALANCER	00
005	HFR_ERR	00
005	TCON_ERR	00
005	P_ID_ERR	00
006	BACKLITE	00
007	TEMP_ERR	00
007	FAN_ERR	00
010	EMITTER	00
011	RESERVED	00
012	1A	00
101	VPC-WDT	00
102	MEPS-WDT	00
103	HOST_WDT	00
12345-67891-23456		


Indicating error detected.

Remote Commander

Diagnosis Menu Sample

2. To Reset Error Count & Error History: Press < 8 > → < 0 > key

3. To Reset Panel Operation Time (Applicable Only when Panel is replaced):
Press < 7 > → < 0 > key



SELF CHECK	<1>	NEXT PAGE->
000	RGB_SEN	00
002	MAIN_POWER	00
003	DC_ALERT	00
003	AUD_PROT	00
003	DTT_WDT	00
004	BALANCER	00
005	HFR_ERR	00
005	TCON_ERR	00
005	P_ID_ERR	00
006	BACKLITE	00
007	TEMP_ERR	00
007	FAN_ERR	00
010	RESERVED	00
011	RESERVED	00
12345-67891-23456		

Panel Operation Time

Remote Commander

Diagnosis Menu Sample

4. To exit, turn the power off using Remote Commander key.

4-2. Accessing Service Mode

While LCD TV set is on standby mode, press the following sequence on the Remote Commander key. <Display> → <5> → <Vol Up> → <Power>



Remote Commander

Service Menu Sample

For Main CPU		DIGITAL	SERVICE		
Host CPU main program version		001 OP			
VPC FW version		000 VERS	---		
Vendor FW version		<MAIN>	<EXT>		
Standby CPU program version		DM1.301W00AA	RF:01.05	←	RF module program version
Boot program version		WF1.003W00AA	WF:2.0.0.99	←	FW version of Wifi module
MP release Host program version		DF1.001W00AA	WF:0B	←	Data version of Wifi module (Country code)
NVM Data version		YM1.010W00AA	CAM:X.XXX		
Pack Data version		DB2.105W00AA	FD:XXXX	←	Fennel Core Flash Data version
Model ID		(DM1.301W00AA)			000-255 (1Byte) version data is for Fennel core.
Product ID		DD1.016W00AA			
Panel ID (Title)		WP0.521W00AA	<PEM>		
		MID:1C117081	PM1.012W00LU	←	Panel Micro Main program version
		PID:04020000	PB1.000W00LU	←	Boot program version
		PNL:LTY320AB01	PL1.011J46LUX	←	Boot Loader version
		POP:X.XXX	PD1.011J46LUX	←	NVM Data version

4-3. Transition of each module in service mode

- There are 3 modules in Service Mode:
 - a) Chassis } Service Mode 1
 - b) VPC } Service Mode 1
 - c) Digital } Service Mode 2
- Digital Service Mode will be appeared first whenever entering Service Mode.
- To changed the module, please press either OPTION or JUMP key on the remote commander.

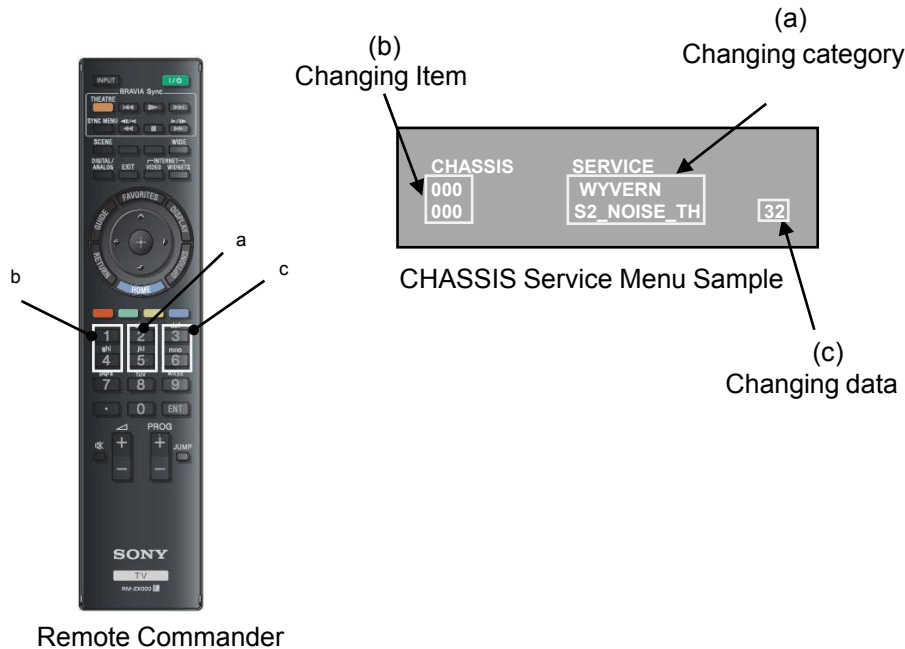


Remote Commander

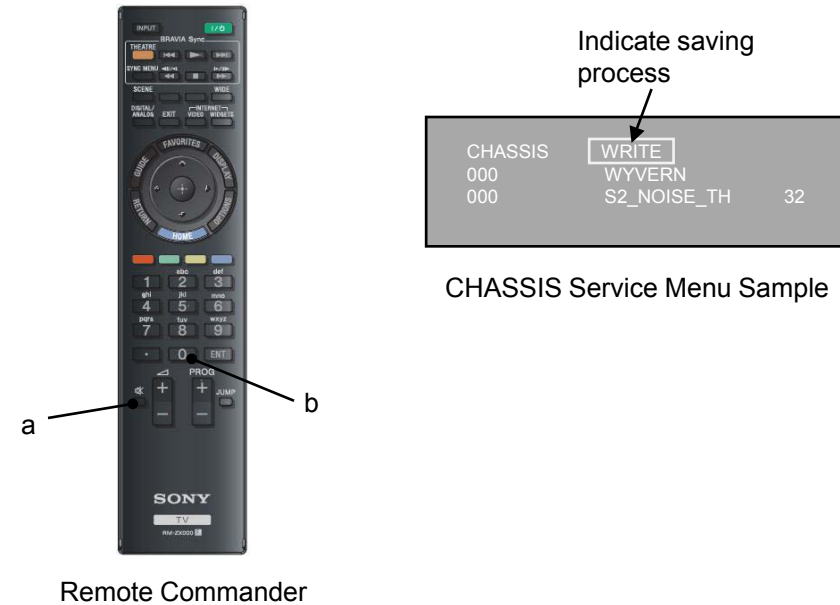
4-4. Change data by Service Mode 1 (Chassis and VPC module)

1. To change category, item and data in CHASSIS or VPC service mode:
 - a. Press key **2** or **5** on remote commander to select (up or down) category.
 - b. Press key **1** or **4** on remote commander to select (up or down) item.
 - c. Press key **3** or **6** on remote commander to change(up or down) data.

Remote commander key : 1, 2, 3 is for increment
Remote commander key : 4, 5, 6 is for decrement



2. To save changed data in Service Mode 1
 - a. Press key **Mute** on remote commander. It shows green SERVICE changes to green WRITE.
 - b. Press key **0**. Green WRITE changes to red WRITE. It indicate writing is processing.
 - c. After a while, red WRITE changes to green SERVICE. Writing process is done at this point.
3. TV reboot is necessary for applying data change.



4-5. Change data by Service Mode 2 (Digital Service Mode)

4-5-1. Change data for all Except 003 DIG_SRV_MODE

To change category, item and data in DIGITAL service mode (except 003 DIG_SRV_MODE category):

- Press key **2** or **5** on remote commander to select (up or down) category.
- Press key **1** or **4** on remote commander to select (up or down) Item.
- Press key **3** or **6** to change (up or down) data.

Remote commander key : 1, 2, 3 is for increment

Remote commander key : 4, 5, 6 is for decrement

No need to save for Digital Service Mode (except for 002 MODEL & 005 CHPRESET category)



Remote Commander



DIGITAL Service menu sample

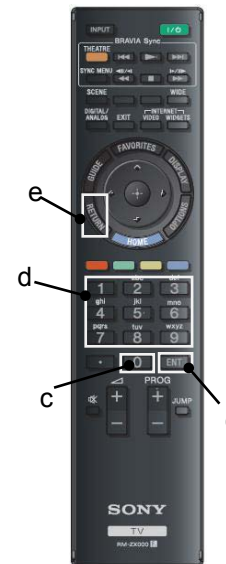
6

4-5-2. Change data for 003 DIG_SRV_MODE

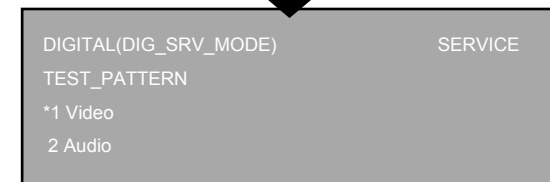
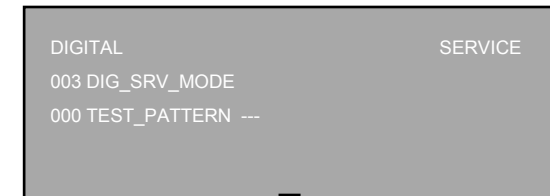
To change item and data in DIGITAL service mode (003 DIG_SRV_MODE category):

Please note because this operation is special.

- Press key **2** or **5** on remote commander to select 003 DIG_SRV_MODE.
- Press key **1** or **4** on remote commander to select (up or down) Item.
- Press key **0** or **10** on remote commander to select item.
- Press key **1~9** on remote commander directly. Star (*) mark will move accordingly.
- Press key **ENTER** or **SELECT** to decide and advance next step.
Press Remote Commander key RETURN to return to the previous page.



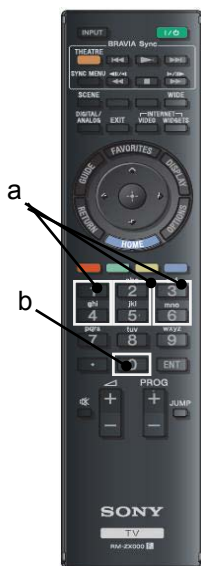
Remote Commander



DIGITAL Service menu sample

4-5-3. Save changing data by Service Mode 2 (for 002 MODEL category)

1. This is only required only when B Board is replaced.
2. Items in Digital service mode for 002 MODEL category.
000 SEG . . . Select segment information
001 DEST . . . Select destination information
002 MODELNAME . . . Select Model Name
003 SERIAL . . . Can be set Only Once for the new board
3. To change category, item and data :
a. Press key **2** or **5** on remote commander to select (up or down) category.
b. Press key **1** or **4** on remote commander to select (up or down) item.
c. Press key **3** or **6** on remote commander to change (up or down) data.
Remote commander key : **1, 2, 3** is for increment
Remote commander key : **4, 5, 6** is for decrement
4. Press key **mute +0** on remote commander . It shows red WRITE.
5. After a while, red WRITE dissapears. Green DONE will be displayed.
6. For the item SEG, DEST MODELNAME, after changing each item, service save(mute+0) is needed. For the item SERIAL, after inputting the serial number, press key 12 or Enter, the serial data will be saved.
7. Please save the item SEG, DEST, MODELNAME sequentially. SEG→ DEST→ MODELNAME
8. When Saving the item "SEG", sometimes instead of "Writing", word "Pending" will appear. In this case, skip the "SEG", save the "DEST" and "MODELNAME" is OK.



Remote Commander

DIGITAL	SERVICE
002 MODEL	
000 SEG	I-1
	Write

DIGITAL Service menu

4-6. White Balance Adjustment

- To access to White Balance Service mode, choose VPC Service Mode.
- a. Press key **1** or **4** on remote commander to select WB adjustment menu.
006 WB category will be seen on the menu.
 - b. Change data by pressing **3** or **6**. Each range of these items is 0~255.
 - c. Press **mute + 0** on remote commander to save the data.
SERVICE comment is changed to **WRITE**, indicating writing process.
 - d. After a while, **WRITE** comment returns to **SERVICE**, which means writing process is done. (takes about a couple of seconds)



Remote Commander

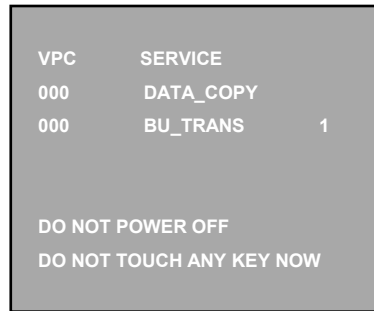
VPC	SERVICE	VPC	SERVICE
006	WB	006	WB
000	R_DRV	003	R_BKG
VPC	SERVICE	VPC	SERVICE
006	WB	006	WB
001	G_DRV	004	G_BKG
VPC	SERVICE	VPC	SERVICE
006	WB	006	WB
002	B_DRV	005	B_BKG

VPC Service menu sample

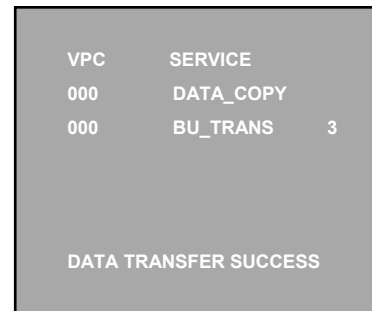
4-7. Restore WB / Gamma adj-data to B board.

In VPC service mode:

- a. Select 000 DATA_COPY category by pressing key **2** or **5** on remote commander.
- b. Change data from **0** to **1** by pressing key **3** or **6** on remote commander.
- c. Wait until data is changed from **1** to **3**.
- d. When data is changed from **1** to **3**, restoring process is finished.
- e. In case data is changed from **1** to **2**, keep default setting.
(No more process is needed.)



Restore process menu sample



End restore process menu sample

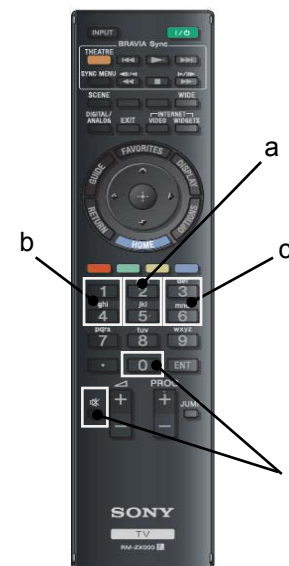
Remote Commander

Notes:

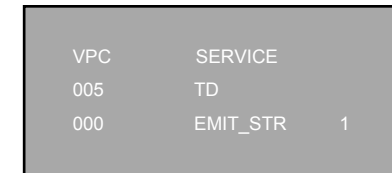
1. This restoration should be applied after USB-DL being assembled when B Board is replaced.
2. This process only applicable for 120Hz / 240Hz models only.

4-8. Change the emitter output level (Applicable only for TD model).

1. Purpose to reduce the emitter LED output power strength.
2. Select VPC service mode and then press:
 - a. Select 005 TD category by pressing key **2** or **5** on remote commander.
 - b. Select 000 EMIT_STR item by pressing key **1** or **4** on remote commander.
 - c. Change data from **0** to **1** by pressing key **3** or **6** on remote commander.
0: Strong (Default)
1: Weak
 - d. Save by pressing **Mute & 0** or **10 & Reboot**.



Remote Commander



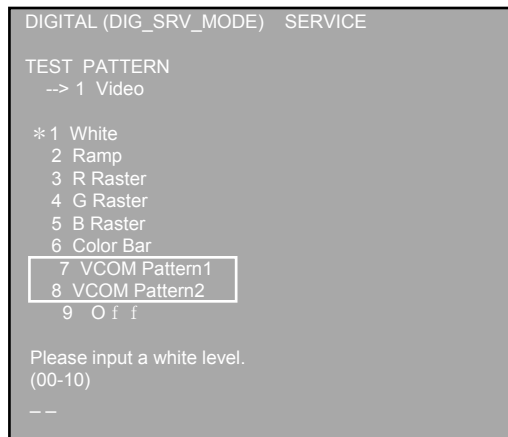
Sub Service menu

4-9. Viewing VCOM Test Pattern

4-9-1. Step 1

To access VCOM Step 1, please select Digital Service Mode first

- a. Select **003 DIG_SRV_MODE** category by pressing key **2** or **5** on remote commander.
- b. Press key **0** on remote commander to go to TEST PATTERN Mode.
- c. Press key **Enter** or **1** or **2** on remote commander to go into Video TEST PATTERN.
- d. Press key **7** or **8** on remote commander to select the test pattern
- e. Press key **Enter** or **Select** on remote commander twice to show the VCOM TEST PATTERN.

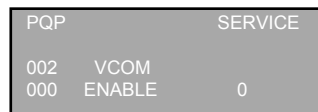


VCOM Test Pattern Step 1 menu sample

4-9-2. Step 2

To access VCOM Step 2, please select VPCService Mode first

- a. Select **002 VCOM** category by pressing key **2** or **5** on remote commander.
- b. Select **000 ENABLE** item by pressing key **1** or **4** on remote commander.
- c. Change ENABLE from 0 to 1 to enable VCOM adjustment.

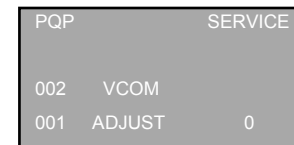


VCOM Test Pattern Step 2 menu sample

4-9-3. Step 3

To access VCOM Step 3, please select VPC Service Mode.

- a. Select 002 VCOM category by pressing key **2** or **5** on remote commander.
- b. Select 001 ADJUST item by pressing key **1** or **4** on remote commander.
- c. Change data by pressing key **3** or **6** on remote commander.
- d. Finish the adjustment when the picture seems OK.



VCOM Test Pattern Step 3 menu sample

4-9-4. Step 4

To access VCOM Step 4, please select Digital Service .

- a. Select 007 VCOM category by pressing key **2** or **5** on remote commander.
- b. Change data from 1 to 0 by pressing key **3** or **6** on remote commander.
- c. Confirm the final result of the VCOM adjustment .
- d. If OK, Finish the VCOM adjustment. If NG, pressing key **3** or **6** to show the OSD again and go back to VCOM adjustment STEP3

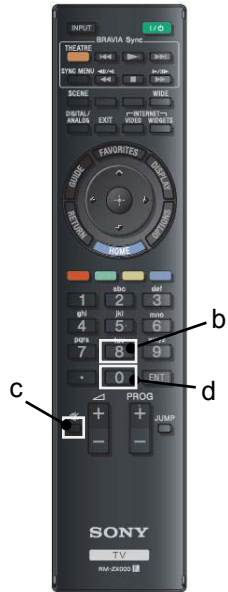


VCOM Test Pattern Step 4 menu sample

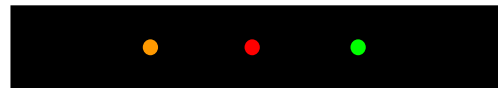
4-10. Set to Shipping Condition

4-10-1. Option 1 (By Accessing to Service Mode)

- a. Move to Digital service mode.
- b. Press **8** on remote.
It shows green color letter SERVICE changes to green color letter RST-.
- c. Press **mute** on remote.
Added green color letter EXE after green color letter RST- .
- d. Press **0** on remote. Green color letter RST-EXE changes to red color letter RST-EXE. It indicated writing is in process.
- e. After a while, red color letter RST –EXE changes to green color letter SERVICE. And all LED lights.
Writing process is done at this point.



Remote Commander



TIMER Standby POWER

4-10-2. Option 2 (Without accessing to Service Mode)

Without accessing to Service Mode, shipping condition still can be set by pressing remote commander key:

-> **Cursor Up** on remote + **Power Key** on Front panel

4-11. Remote Commander Function

Function	The flow of control
Service mode on	<Test>+<TV>/<Display><5><Vol Up><Power>
Service mode off	<Other> / <Power off + on>
Item up / down	<1>/<4>
Category up / down	<2>/<5>
Data up / down	<3>/<6>
Test reset	<8> + <Mute> + <0>
Execute	<10 or 0>
Write data	<Mute> + <0>
Change module	<Jump> / <Option>

4-12. Index Flow of Service Control

4-12-1. Digital Service Mode

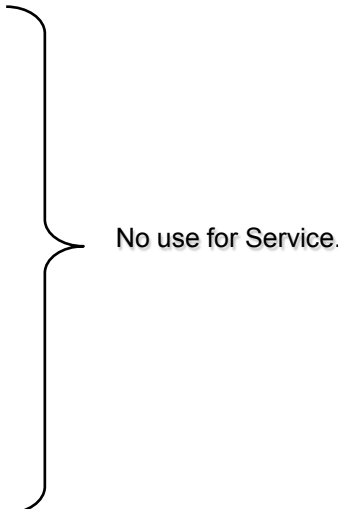
- 001 OP
 - 000 VERS.....Software version
- 002 MODEL
 - 000 SEGSelect segment information
 - 001 DEST.....Select destination information
 - 002 MODELNAMESelect Model Name
 - 004 SERIALCan be set Only Once for the new board
- 003 DIG_SRV_MODE
 - 000 TEST_PATTERN.....EMMA Test Pattern
 - 001 MONITOR_MODE.....Tuner Monitor
 - 002 FACT_SETTING.....Factory shipment settings
 - <omission>
- 004 TUNER
 - 000 A_NOSIG_DET.....Analog-RF No signal detection
 - 001 SCAN_COPY.....Copy the scan data to USB.
 - <omission>
- 005 CHPRSET.....For factory use only.
- <omission>
- 006 RFRC Mode..... Service item for RF Remote Commander
- <omission>
- 007 VCOM..... Service item for VCOM Adjustment
- <omission>
- 008 WIFIService item for WIFI (only WIFI model)
- <omission>

4-12-2. VPC Service Mode

- 000 DATA_COPY.....WB Data Save Function
 - 000 BU_TRANS
- 001 DATABACKUP.....No use for Service.
- <omission>
- 002 VCOMVCOM Adjustment Function.
 - 000 ENABLE
 - 001 ADJUST
- 003 SG_EPNo use for Service.
- <omission>
- 004 MEASURENo use for Service.
- <omission>
- 005 Emitter Strength setting Function.
 - 000 EMIT_STR
- 006 WB W/B adjustment
- <omission>
- 007 GAISO Change RGB sensor setting by bezel color.
 - 000 GAISO

4-12. Index Flow of Service Control

4-12-3. Chassis Service Mode

- 000 WYVERN
 <omission>
 - 001 TUNING
 <omission>
 - 002 D_DEMOD
 <omission>
 - 003 SATELLITE
 <omission>
 - 004 HDMI
 000 FORCE_ARC
 - 005 AUDIO
 - 000 MPEG_LV ...Level OFFSET for MPEG1-L1/L2.
 - 001 HEAAC_LV ...Level OFFSET for HE-AAC.
 - 005 TEMPSSEN No Use for Service
 <omission>
- 
- No use for Service.