

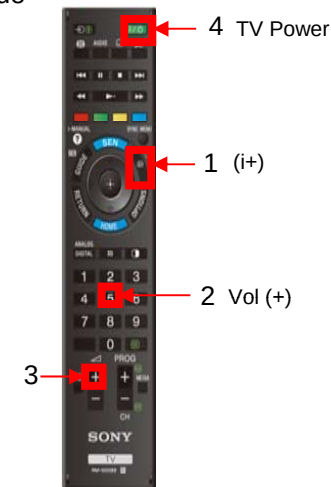
SECTION 4

SERVICE ADJUSTMENTS

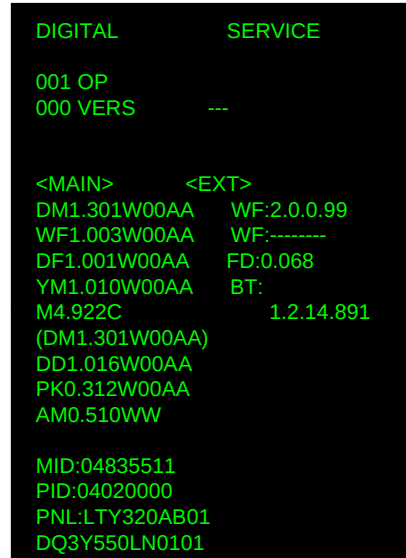
4-1. Accessing Service Mode

- 1) Go to TV standby condition by remote commander.
- 2) Press "i+ (info)", "5", "Volume +" then "TV power" on remote.
- 3) You can see Service Mode on display.

* The above operation should be finished within 15 seconds after the set go to STBY mode



Remote Commander



Screen Sample

4-2. Transition of Each Micro's Service Mode

1. First of all, when you enter Service Mode, you can see "Digital" service mode.
2. Whenever you press "OPTIONS" on remote, service mode is changed according to the flow below:

Digital" -> "Chassis" -> "VPC"

p.5-6 "Chassis" & "VPC"

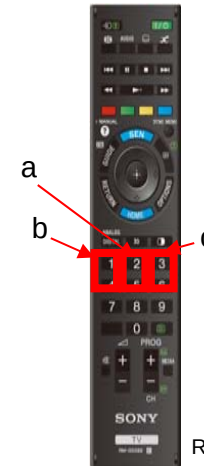
p.7-9 "Digital" service mode



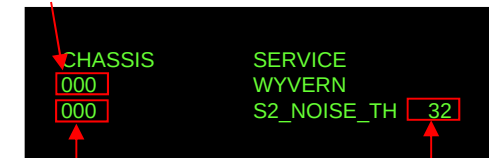
Remote Commander

4-3. Change Data by Service Mode 1

1. Change Data of "Chassis" or "VPC" service mode
 - a. Press "2 / 5" on remote to select (up / down) category.
 - b. Press "1 / 4" on remote to select (up / down) Item.
 - c. Press "3 / 6" on remote to change (up / down) data.



Press 2: increment
Press 5: decrement



Press 1: increment
Press 4: decrement

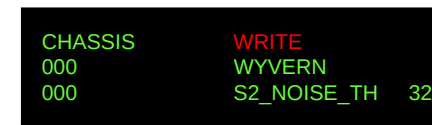
Press 3: increment
Press 6: decrement

CHASSIS Service menu

Remote Commander

4-4. Save Changing Data by Service Mode 1

2. Write data for "Chassis" or "VPC" service mode.
 - a. Press "Mute" on remote. It shows green "SERVICE" changes to green "WRITE".
 - b. Press "0" on remote. 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.



CHASSIS Service menu



Remote Commander

4-5. Change Data by Service Mode 2

1. Change Data of “**Digital**” service mode (except “003 DIG_SRV_MODE” category)
 - a. Press “2 / 5” on remote to select (up / down) category.
 - b. Press “1 / 4” on remote to select (up / down) Item.
 - c. Press “3 / 6” on remote to change (up / down) data.



“Digital” service mode don’t have to Save. (except “002 MODEL”)



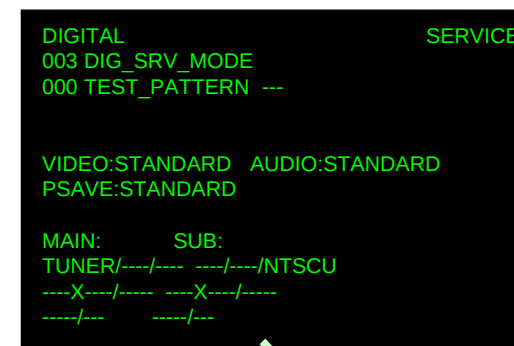
DIGITAL Service menu

Remote Commander

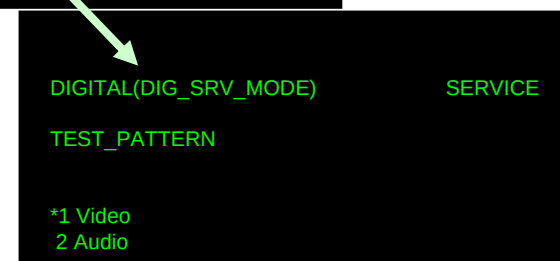
2. Change Data of “**Digital**” service mode (“003 DIG_SRV_MODE” category). “003 DIG_SRV_MODE” is one category of “Digital” service mode. Please note because this operation is special.
 - a. Press “2 / 5” on remote to select “003 DIG_SRV_MODE”.
 - b. Press “1 / 4” on remote to select (up / down) Item.
 - c. Press “0 / 10” on remote to select item.
 - d. Press number key “1”~“9” directly. “*” stamp move.
 - e. Press “12 / enter / select” to decide and advance to the next step. Press “return”, to return to the previous page.



Remote Commander



DIGITAL Service menu



4-6 Save Changing Data by Service Mode 2

a) Only when B* board is replaced.

1. In **"Digital"** service mode ("002 MODEL" category)

000 SEGSelect segment information

001 DESTSelect destination information

002 MODELNAMESelect Model Name

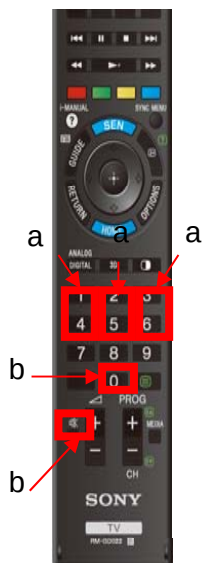
003 SERIALCan be set Only Once for the new board

005 VAR_TYPESelect variable information

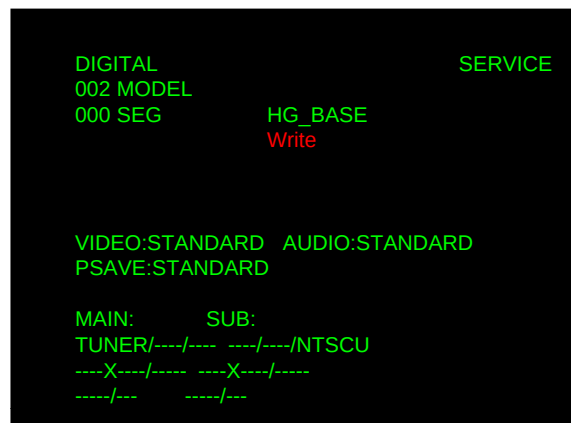
- Change data for each model. (Refer previous mode.)
- Press "Mute", "0" on remote sequentially. Red "WRITE" is shown. This indicates writing is in process.
- After a while, red "WRITE" disappears. Green Done will be displayed for a while, which means writing process is done.
- For the items SEG, DEST, MODELNAME after changing each item, service save ("mute"+"0") is required. For the item SERIAL, after inputting the serial number, press key "12" or "Enter" to save the data.

-Please save the items according to the sequence "SEG -> DEST -> MODELNAME"

-When Saving the item "SEG", sometimes instead of "Writing", the word "Pending" will appear. In this case, skip "SEG", saving "DEST" and "MODELNAME" is OK.



Remote Commander

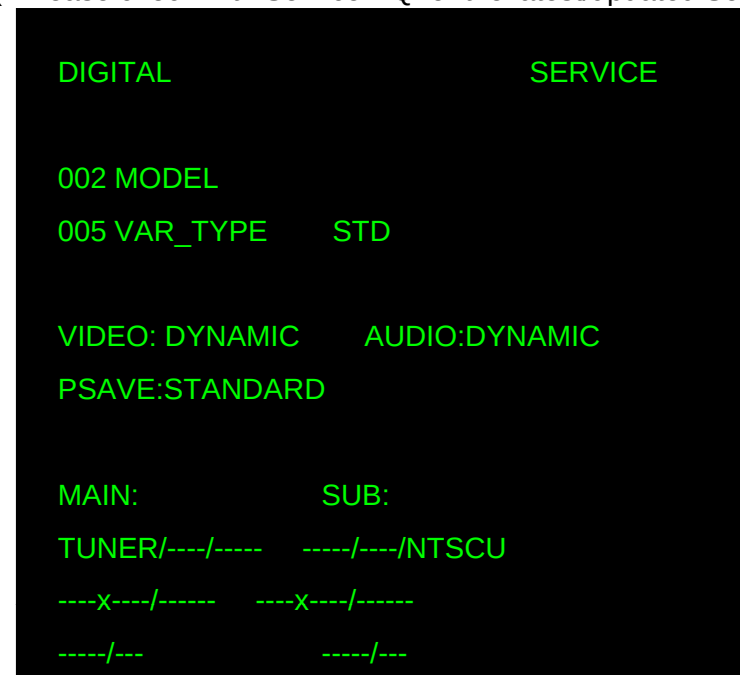


DIGITAL Service menu

4-6. Save Changing Data by Service Mode 2b) Only when B board is replaced.
& VAR_TYPE change is necessaryIn **"Digital"** Service Mode,

- Select **"002 MODEL"** category by pressing "2" and "5" on remote
- Press "1" or "4" on remote to select 005 VAR_TYPE
- Change data by pressing "3" or "6" on remote.
- After data is selected, press "Mute" then "0".
- When Smart Core Green and Amber LED blink alternately, insert USB with software.
- After a few minutes, Smart Core White LED will lit.
- TV reboots itself and goes to standby mode.
- Turn on TV by "Power" key on TV or "Power" button on remote. Message of Software Update completion will appear.
- Disconnect USB.
- 001 DEST update is necessary if VAR_TYPE is changed from STD to UC or vice versa

(* Please check with Service HQ for the latest/updated Software update)

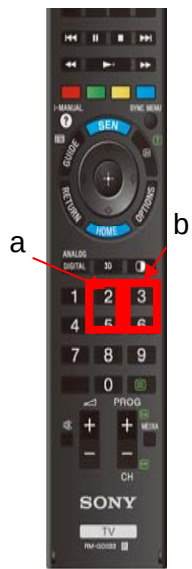
DIGITAL
Service menu

4-7. Restore WB / Gamma Adj. Data to B board.

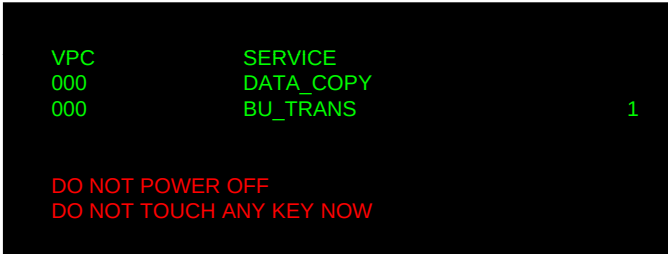
Please apply after USB-DL when B board is replaced.

HG,TE Models

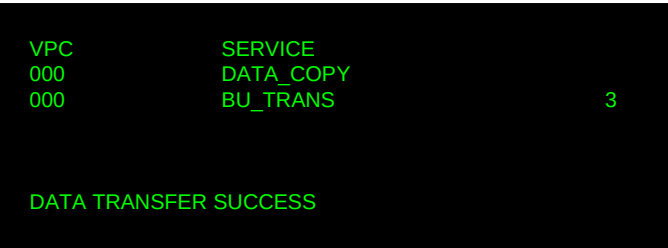
- 1.in “VPC” service mode
- a.Select “000 DATA_COPY” category by pressing “2 / 5” on remote.
 - b.Change data from “0” to “1” by pressing “3 / 6” on remote.
 - c.Wait until data is changed from 1 to 3.
 - d.When data is changed from 1 to 3, restoring process is finished.
 - e.In case data is changed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



Remote Commander



Restore process



End restore process

4-8. WB Adjustment by Service Mode

1. in “VPC” service mode (“004 WB” category)
- a. Press “1” or “4” on remote to select WB adjustment menu.
 - b. Change data by pressing “3” or “6”. Each range of these items is 0~1023.
 - c. Press “mute” + ”0” on remote 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)

VPC	SERVICE	VPC	SERVICE
003	WB	003	WB
001	G_DRV	004	G_BKG
	512		512
VPC	SERVICE	VPC	SERVICE
003	WB	003	WB
002	B_DRV	005	B_BKG
	512		512

VPC Service menu

4-9. VCOM Adjustment (NFR-AUO Panel)**4-9-1. STEP1**

1. in "Digital" service mode
 - a. Select "003 DIG_SRV_MODE" category by pressing "2 / 5" on remote.
 - b. Press "0" to go to "TEST PATTERN" Mode.
 - c. Press "Enter" or "12" to go into Video TEST PATTERN.
 - d. Press "7" or "8" to select the test pattern
 - e. Press "Enter" or "12" twice to show the VCOM TEST PATTERN.

```

DIGITAL (DIG_SRV_MODE)  SERVICE
TEST PATTERN
--> 1 Video

*1 White
2 Ramp
3 R Raster
4 G Raster
5 B Raster
6 Color Bar
7 VCOM Pattern1
8 VCOM Pattern2
9 Off
  
```

4-9-2. STEP2

2. in "VPC" service mode
 - a. Select "002 VCOM" category by pressing "2 / 5" on remote.
 - b. Select "000 ENABLE" item by pressing "1 / 4" on remote.
 - c. Change ENABLE from "0" to "1" by pressing "3" to enable VCOM adjustment.

```

VPC  SERVICE
002  VCOM
000  ENABLE    0
  
```

4-9-3. STEP3

3. in "VPC" service mode
 - a. Select "002 VCOM" category by pressing "2 / 5" on remote.
 - b. Select "001 ADJUST" item by pressing "1 / 4" on remote.
 - c. Change data by pressing "3 / 6" on remote.

```

VPC  SERVICE
002  VCOM
001  ADJUST    64
  
```

4-9-4. STEP4

4. in "Digital" service mode
 - a. Select "007 VCOM" category by pressing "2 / 5" on remote.
 - b. Change data from "1" to "0" by pressing "3 or 6" on remote.
 - c. Confirm the final result of the VCOM adjustment .
 - d. If OK, Finish the VCOM adjustment. If NG, pressing "3 or 6" to show the OSD again and go back to VCOM adjustment Step 3.

```

DIGITAL  SERVICE
007 VCOM
000 SRV_OSD_EN  1

VIDEO:STANDARD  AUDIO:STANDARD
PSAVE:STANDARD

MAIN:      SUB:
TUNER/---/---  ---/---/NTSCU
---X---/---  ---X---/---
---/---  ---/---
  
```

4-10. VCOM Adjustment (HFR-SDC Panel)**4-10-1. STEP1**

1. in "VPC" service mode
 - a. Select "002 VCOM" category by pressing "2 / 5" on remote.
 - b. Select "000 ENABLE" item by pressing "1 / 4" on remote..
 - c. Change ENABLE from "0" to "1" by pressing "3" to enable VCOM adjustment.

```

VPC    SERVICE
002    VCOM
000    ENABLE      0
  
```

4-8-2. STEP2

2. in "VPC" service mode
 - a. Select "002 VCOM" category by pressing "2 / 5" on remote.
 - b. Select "001 ADJUST" item by pressing "1 / 4" on remote.
 - c. Change data by pressing "3 / 6" on remote. Every time you push the button, an evaluation screen is displayed for 5 seconds.
 - d. Finish the adjustment when the picture seems OK.

```

VPC    SERVICE
002    VCOM
001    ADJUST      64
  
```

4-11. REC Setting (Japan/Europe/Australia/New Zealand)**4-11-1. STEP1**

```

DIGITAL (DIG_SRV_MODE)    SERVICE
REC_SETTING
* 1 Key Copy
2 HDD Re-Register
  
```

1. in "Digital" service mode
 - a. Select "003 DIG_SRV_MODE" category by pressing "2 / 5" on remote.
 - b. Select "006 REC_SETTING" item by pressing "1 / 4" on remote.
 - c. Press "0" or "10" to go to detailed REC Setting screen.

4-11-2. STEP2

2. in detailed REC setting screen
 - a. Press "1" to select "Key Copy" item
 - b. Press "Enter" or "12" twice to execute the command.
 - c. If OK, show the message "Key Copy OK". If NG, show the message "Key Copy NG (= xx)".
 - d. Press "Return" to return to previous page.

```

DIGITAL (DIG_SRV_MODE)    SERVICE
REC_SETTING
* 1 Key Copy
2 HDD Re-Register
Key Copy OK
  
```

```

DIGITAL (DIG_SRV_MODE)    SERVICE
REC_SETTING
* 1 Key Copy
2 HDD Re-Register
Key Copy NG ( xx )
  
```

4-11-3. STEP3

3. in detailed REC setting screen
 - a. Press "2" to select "HDD Re-Register" Item.
 - b. Press "Enter" or "12" twice to execute the command.
 - c. If OK, xx= x+1. If NG, xx=x.
 - d. Press "Return" to return to previous page.

```

DIGITAL (DIG_SRV_MODE)    SERVICE
REC_SETTING
1 Key Copy
* 2 HDD Re-Register
(x) HDDs OK ( xx )
  
```

4-12. Reset Panel Operation Time

Only when Panel is replaced.

1. In Self Diagnosis Display (Refer to p.27)
 - a. Reset Panel Operation Time <7> -> <0>

Remote Commander



```

SELF CHECK
 002 MAIN_POWE ----- 00 Model Name      : KDL-46W90AA
 003 AFE_I2C   ----- 00 Serial Number   : -----
 003 DC_ALERT  ----- 00 Package Number  : PKG1.301JPA
 003 AUD_PROT  ----- 00 Wired MAC       : 30:F9:ED:04:2C:17
 003 HDMI_EQ   ----- 00 Wireless MAC    : F0:F0:02:AA:82:DA
 003 TU_DEMOD  ----- 00 USB dongle      : N/A
 003 AFE_SPI   ----- 00
 004 VLED      ----- 00 <MAIN>          <EXT>
 004 LD_ERR    ----- 00 DM1.301JPA      WF:2.0.0.99
 005 TCON_ERR  120823132523 ----- 01 WF1.003W00AA  WF:0B
 005 P_ID_ERR  ----- 00 DF1.001W00AA    FD:-,---
 006 BACKLITE ----- 00 YM1.010W00AA     BT:1.2.14.848
 007 TEMP_ERR  ----- 00 M4.992C
 007 FAN_ERR   ----- 00 DM1.301W00AA
 008 VPC_WDT   ----- 00 DD1.016W00AA
 008 MEPS_WDT  ----- 00 PK1.016W00AA
 008 HOST_WDT  ----- 00 AM01.300JP
 008 STBY_WDT  ----- 00
 008 AFE_WDT   ----- 00 MID:1C117081
 010 EMIT_ERR  ----- 00 PID:04020000
                                PNL:LC470EUF-FFP1
                                PANEL OPERATION TIME
00081-000671-00088 000000000000570-000000000000132
  
```

Diagnosis Display

4-13. Set to Shipping Condition

1. How to do shipping condition.

- a. Move to “**Digital**” service mode.
- b. Press “8” on remote. It shows green “SERVICE” changes to green “RST-”.
- c. Press “mute” on remote. Added green “EXE” after green “RST-”.
- d. Press “0” on remote. Green “EXE-RST” changes to red “EXE-RST”. It indicate writing is processing.
- e. After a while, red “EXE-RST” changes to green “SERVICE”.
- f. And blink Smart Core WHITE LED. Writing process is done at this point.



<Another way>

You can set to shipping condition w/o entering Service Mode.

-> “Cursor Up” + “Power Key” on remote.

Remote Commander

4-14. Summary of Service Control

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 (テストリセット)	<8> + <Mute> + <0>
HDD Deregistration (HDD登録削除)	From UI Menu: HDD登録削除 (JPモデル) HDD Deregistration (AEP Model)
Execute (実行)	<10 or 0>
Write data (書込み)	<Mute> + <0>
Change module (モジュール変更)	<Jump> / <Option>

4-15. Service Menu Tree**4-15-1. Tree 1**

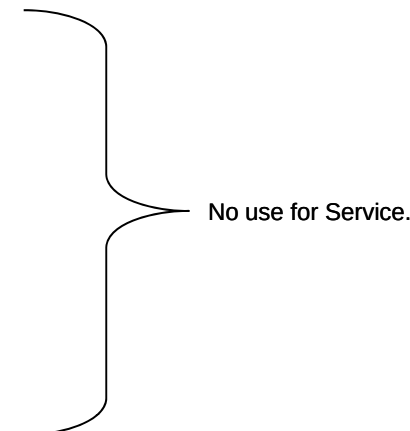
“Digital”

001 OP	
000 VERS	...Software version
002 MODEL	
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
004 SHIP_CONFIRM	...Can set correct Product Code
005 VAR_TYPE	
003 DIG_SRV_MODE	
000 TEST_PATTERN	...Main Chip Test Pattern
001 MONITOR_MODE	...Tuner Monitor
002 FACT_SETTING	...Factory shipment settings
003 MODEL_DATA	
004 NETWORK	
005 TT84	...Only for AEP
006 REC_SETTING	
004 TUNER	
000 A_NOSIG_DET	...Analog-RF No signal detection
001 SCAN_COPY	...Copy the scan data to USB.
003 ASCOT	
004 WYVERN_1	
007 VCOM	...Service item for VCOM Adjustment
000 SRV_OSD_EN	
008 WIFI	...Service item for WIFI (only WiFi model)
000 PING	
001 MONITOR	
009 BT MODE	
000 MONITOR	

4-15-2. Tree 2

“Chassis”

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.	
006 TEMPSN	No Use for Service	
<omission>		
007 DL		
000 PID_DATA_MISMAT		
008 BT_MODE	... Service Item for BT (only BT model)	
000 FEATURE		
001 FIRST_DIS_CH		
002 LAST_DIS_CH		
009 CAM	... Service Item for CI (only AEP/CH/HK model)	
000 CAM_TS_FORMAT		



4-15-3. Tree 3

“VPC”

000 DATA_COPY	...WB Data Restore Function (Tcon board-to-B board).
000 BU_TRANS	
001 DATA_BACKUP	...WB Data Backup Function (B board-to-Tcon board).
000 BU_FLASH	
002 VCOM	...VCOM Adjustment Function.
000 ENABLE	
001 ADJUST	
003 WB	...W/B adjustment
<omission>	
004 TEST_PTN	
<omission>	
005 PANEL	
<omission>	

4-16. How to Enter Self Diagnosis Display

1. Go to TV standby condition by remote commander.
2. Press “i+ (info)”, “5”, “Volume-” then “TV power” on remote.
3. You can see Self Diagnosis Display.
4. To Exit , Press Power Off and On.



Remote Commander

SELF CHECK

```

002 MAIN_POWE ----- 00 Model Name      : KDL-46W90AA
003 AFE_I2C     ----- 00 Serial Number   : -----
003 DC_ALERT    ----- 00 Package Number  : PKG1.301JPA
003 AUD_PROT    ----- 00 Wired MAC       : 30:F9:ED:04:2C:17
003 HDMI_EQ     ----- 00 Wireless MAC    : F0:F0:02:AA:82:DA
003 TU_DEMOD    ----- 00 USB dongle      : N/A
003 AFE_SPI     ----- 00
004 VLED        ----- 00 <MAIN>          <EXT>
004 LD_ERR      ----- 00 DM1.301JPA      WF:2.0.0.99
005 TCON_ERR    120823132523 ----- 01 WF1.003W00AA  WF:0B
005 P_ID_ERR    ----- 00 DF1.001W00AA  FD:-.---
006 BACKLITE    ----- 00 YM1.010W00AA  BT:1.2.14.848
007 TEMP_ERR    ----- 00 M4.992C
007 FAN_ERR     ----- 00 DM1.301W00AA
008 VPC_WDT     ----- 00 DD1.016W00AA
008 MEPS_WDT    ----- 00 PK1.016W00AA
008 HOST_WDT    ----- 00 AM01.300JP
008 STBY_WDT    ----- 00
008 AFE_WDT     ----- 00 MID:1C117081
010 EMIT_ERR    ----- 00 PID:04020000
                                PNL:LC470EUF-FFP1

00081-000671-00088  000000000000570-000000000000132

```

Diagnosis Display

a) Self Diagnosis Display [1]

Format of error time stamps

YYMMDDhhmmss (in UTC)

Example:

120823132523 -> Aug 23 2012 13:25:23 UTC

* Only when time is set, an error timestamp is saved.

*Following error is invalid in RB1.

- FAN_ERR
- EMIT_ERR

Error history clear

<8> -> <0>

Panel operation time clear

<7> -> <0>

Smart Core Red
LED blinking countTotal Operation Time
[hr] – Boot Count –
Panel Operation
Time [hr]

SELF CHECK	Error Naming	Error count
002 MAIN_POWE		
003 AFE_I2C	Error timestamp for last recorded error	Error timestamp for 3rd last recorded error
003 DC_ALERT		
003 AUD_PROT		
003 HDMI_EQ		
003 TU_DEMOD		
003 AFE_SPI		
004 VLED		
004 LD_ERR		
005 TCON_ERR	120823132523	
005 P_ID_ERR		
006 BACKLITE		
007 TEMP_ERR		
007 FAN_ERR		
008 VPC_WDT		
008 MEPS_WDT		
008 HOST_WDT		
008 STBY_WDT		
008 AFE_WDT		
010 EMIT_ERR		
00081-000671-00088		
0000000000000570-000000000000132		

•Panel Operation Time is recorded every 30 min, but Total Operation Time is recorded every 1 hr. Therefore, the panel op. time might become larger than the total op. time.

Count of writing to NAND device:
As vfat partition– As ext4 partition

b) Self Diagnosis Display [2]

USB dongle:

1. When no Wi-Fi USB dongle is connected, NA is displayed.
 2. If you insert/disconnect Wi-Fi USB Dongle during Self Diagnosis Display, press <1> - <4> on remote commander to refresh MAC address displayed on "USB dongle".
- Alternatively, you can re-display Self Diagnosis Display to update the information.

Model Name	: KDL-46W90AA	
Serial Number	: -----	
Package Number	: PKG1.301JPA	
Wired MAC	: 30:F9:ED:04:2C:17	
Wireless MAC	: F0:F0:02:AA:82:DA	
USB dongle	: N/A	MAC address of Wi-Fi USB dongle.
<MAIN>	<EXT>	
DM1.301JPA	WF:2.0.0.99	
WF1.003W00AA	WF:0B	
DF1.001W00AA	FD:--	
YM1.010W00AA	BT:1.2.14.848	External module information
M4.992C		
DM1.301W00AA		
DD1.016W00AA		
PK1.016W00AA		
AM01.300JP		
MID:1C117081		
PID:04020000		
PNL:LC470EUF-FFP1		
		Main CPU information