ADJUSTMENT INSTRUCTION

1. Application Object

These instructions are applied all of the 42" PLASMA TV, PA81A Chassis.

2. Note

(1) Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.
(2) Adjustment must be done in the correct order.
(3) The adjustment must be performed in the circumstance of 25±5°C of temperature and 65±10% of relative humidity if there is no specific designation.
(4) The input voltage of the receiver must keep 100-240V~, 50/60Hz.
(5) The receiver must be operated for about 15 minutes prior to the adjustment.

● After RGB Full white HEAT-RUN Mode, the receiver must be operated prior to adjustment.
● Enter into HEAT-RUN MODE
1) Press the POWER ON KEY on R/C for adjustment.
2) OSD display and screen display PATTERN MODE.
- Select "3. Test Pattern" by using ▲/▼(CH+/-) and press ENTER(■)
- Select "White" by using (◄/►VOL+/-) and press ENTER(■)

* Set is activated HEAT-RUN without signal generator in this mode.
* Single color pattern(RED/BLUE/GREEN) of HEAT-RUN mode uses to check PANEL.

* Using 'power on' button off the control R/C, power on TV.
All adjustment process is executed one time through RS-232C.
Do not connect extrenal input calbe.

3. S/W auto download using the USB Memory stick

* Using 'power on' button of the control R/C, power on TV.
USB file(EPK) version must be bigger than downloaded version of main B/D.

(1) Insert the USB memory sick the PCB ASSEMBLY.
(2) Using 'power on' button of the control R/C, power on TV.
(3) S/W download process is executed automatically.

* Using 'power on' button off the control R/C, power on TV.

4. Auto-control adjustment process

■ All adjustment process is executed one time through RS-232C.
■ Command send -> ADC Calibration -> Model name download -> EDID download.

NO	Item	CMD1	CMD2	Data 0		Remark
1	Ready	a	d	0	0	Ready
2	ADC	a	d	1	0	ADC start
3	ADC Confirmation	a	d	9	9	
4	ADC Mode Out	a	d	9	0	
5	Download Mode In	a	e	0	0	Transmitting adjustment mode In instruction, operate adjustment command.
6	EDID Download	a	e	1	0~4,9	All=0 ; HDMI1,2,3,4=1,2,3,4 ; RGB=9
7	Check EDID Status	a	e	2	0~4,9	All=0 ; HDMI1,2,3,4=1,2,3,4 ; RGB=9
8	Define model name	a	e	5	1~7	Model define index(Data0) are listed at next table.
9	Adjustment Confirmation	a	e	9	9	EDID data existence check in SET assembly
10	Download Mode Out	a	e	9	0	

■ Adjsutment process protocol(RS-232C)

CMD1	CMD2	Data 0		Remark
a	e	5	4	42PG60UD-AA

5. Manual model name download

(1) Press ADJ KEY on R/C for model name D/L.
(2) Select "0.Model Option" and press ENTER(■).
(3) Select model name by using ▲/▼(CH+/-)and press ENTER(■).

Model Name	Model Option Value
42PG60UD-AA	56030130

6. Manual ADC Adjustment

RF Input	AV / Component / RGB input
NO SIGNAL or White noise	NO SIGNAL

■ Adjustment is done using internal ADC, so input signal is not necessary.
■ Do not connect external input cable.

6-1. Required Equipment

(1) Press ADJ KEY on R/C and enter EZ ADJUST.
(2) Select “1.EDID D/L” by using ▲/▼(CH+/-) and press ENTER(■).
(3) Select “Start” by using ◄/►(VOL+/-) and press ENTER(■).
(4) ADC Adjustment is executed automatically.

7. EDID Download

7-1. Required Equipment

*Do not connect HDMI and RGB cable.

(1) Press ADJ KEY on R/C and enter EZ ADJUST.
(2) Select “5.EDID D/L” by using ▲/▼(CH+/-) and press ENTER(■).
(3) Select “Start” and press ENTER(■).
(4) EDID download is executed automatically.
(5) Press EXIT key on R/C.

7-2. EDID DATA

(1) RGB EDID

Addr	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
0000	00	FF	FF	FF	FF	FF	FF	00	1E	6D	DC	C3	01	01	01	01
0010	03	12	01	03	01	46	27	78	EA	D9	B0	A3	57	49	9C	25
0020	11	49	4B	A1	08	00	31	40	45	40	61	40	81	80	90	40
0030	D1	C0	01	01	01	01	1A	36	80	A0	70	38	1F	40	30	20
0040	35	00	E8	26	32	00	00	1A	1B	21	50	A0	51	00	1E	30
0050	48	88	35	00	BC	86	21	00	00	1C	00	00	00	FD	00	39
0060	4B	1F	54	12	00	0A	20	20	20	20	20	20	00	00	00	FC
0070	00	4C	47	54	56	0A	20	20	20	20	20	20	20	20	00	5F

(2) HDMI 1

Addr	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
0000	00	FF	FF	FF	FF	FF	FF	00	1E	6D	DD	C3	01	01	01	01
0010	03	12	01	03	80	46	27	78	EA	D9	B0	A3	57	49	9C	25
0020	11	49	4B	A1	08	00	31	40	45	40	61	40	81	80	90	40
0030	D1	C0	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
0040	45	00	C4	8E	21	00	00	1E	1B	21	50	A0	51	00	1E	30
0050	48	88	35	00	BC	86	21	00	00	1C	00	00	00	FD	00	39
0060	4B	1F	54	12	00	0A	20	20	20	20	20	20	00	00	00	FC
0070	00	4C	47	54	56	0A	20	20	20	20	20	20	20	20	01	F0
0080	02	03	22	F1	4D	02	11	01	03	12	13	04	14	05	1F	20
0090	22	10	23	09	57	07	83	01	00	00	67	03	0C	00	10	00
00A0	B8	2D	01	1D	00	72	51	D0	1E	20	6E	28	55	00	C4	8E
00B0	21	00	00	1E	01	1D	00	BC	52	D0	1E	20	B8	28	55	40
00C0	C4	8E	21	00	00	1E	01	1D	80	D0	72	1C	16	20	10	2C
00D0	25	80	C4	8E	21	00	00	9E	8C	0A	D0	90	20	40	31	20
00E0	0C	40	55	00	C4	8E	21	00	00	18	02	3A	80	D0	72	38
00F0	2D	40	10	2C	45	00	BC	88	21	00	00	18	00	00	00	15

(3) HDMI 2

Addr	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
0000	00	FF	FF	FF	FF	FF	FF	00	1E	6D	DD	C3	01	01	01	01
0010	03	12	01	03	80	46	27	78	EA	D9	B0	A3	57	49	9C	25
0020	11	49	4B	A1	08	00	31	40	45	40	61	40	81	80	90	40
0030	D1	C0	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
0040	45	00	C4	8E	21	00	00	1E	1B	21	50	A0	51	00	1E	30
0050	48	88	35	00	BC	86	21	00	00	1C	00	00	00	FD	00	39
0060	4B	1F	54	12	00	0A	20	20	20	20	20	20	00	00	00	FC
0070	00	4C	47	54	56	0A	20	20	20	20	20	20	20	20	01	F0
0080	02	03	22	F1	4D	02	11	01	03	12	13	04	14	05	1F	20
0090	22	10	23	09	57	07	83	01	00	00	67	03	0C	00	20	00
00A0	B8	2D	01	1D	00	72	51	D0	1E	20	6E	28	55	00	C4	8E
00B0	21	00	00	1E	01	1D	00	BC	52	D0	1E	20	B8	28	55	40
00C0	C4	8E	21	00	00	1E	01	1D	80	D0	72	1C	16	20	10	2C
00D0	25	80	C4	8E	21	00	00	9E	8C	0A	D0	90	20	40	31	20
00E0	0C	40	55	00	C4	8E	21	00	00	18	02	3A	80	D0	72	38
00F0	2D	40	10	2C	45	00	BC	88	21	00	00	18	00	00	00	05

(4) HDMI 3

Addr	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
0000	00	FF	FF	FF	FF	FF	FF	00	1E	6D	DD	C3	01	01	01	01
0010	03	12	01	03	80	46	27	78	EA	D9	B0	A3	57	49	9C	25
0020	11	49	4B	A1	08	00	31	40	45	40	61	40	81	80	90	40
0030	D1	C0	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
0040	45	00	C4	8E	21	00	00	1E	1B	21	50	A0	51	00	1E	30
0050	48	88	35	00	BC	86	21	00	00	1C	00	00	00	FD	00	39
0060	4B	1F	54	12	00	0A	20	20	20	20	20	20	00	00	00	FC
0070	00	4C	47	54	56	0A	20	20	20	20	20	20	20	20	01	F0
0080	02	03	22	F1	4D	02	11	01	03	12	13	04	14	05	1F	20
0090	22	10	23	09	57	07	83	01	00	00	67	03	0C	00	30	00
00A0	B8	2D	01	1D	00	72	51	D0	1E	20	6E	28	55	00	C4	8E
00B0	21	00	00	1E	01	1D	00	BC	52	D0	1E	20	B8	28	55	40
00C0	C4	8E	21	00	00	1E	01	1D	80	D0	72	1C	16	20	10	2C
00D0	25	80	C4	8E	21	00	00	9E	8C	0A	D0	90	20	40	31	20
00E0	0C	40	55	00	C4	8E	21	00	00	18	02	3A	80	D0	72	38
00F0	2D	40	10	2C	45	00	BC	88	21	00	00	18	00	00	00	F5

(5) HDMI 4

Addr	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
0000	00	FF	FF	FF	FF	FF	FF	00	1E	6D	DD	C3	01	01	01	01
0010	03	12	01	03	80	46	27	78	EA	D9	B0	A3	57	49	9C	25
0020	11	49	4B	A1	08	00	31	40	45	40	61	40	81	80	90	40
0030	D1	C0	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
0040	45	00	C4	8E	21	00	00	1E	1B	21	50	A0	51	00	1E	30
0050	48	88	35	00	BC	86	21	00	00	1C	00	00	00	FD	00	39
0060	4B	1F	54	12	00	0A	20	20	20	20	20	20	00	00	00	FC
0070	00	4C	47	54	56	0A	20	20	20	20	20	20	20	20	01	F0
0080	02	03	22	F1	4D	02	11	01	03	12	13	04	14	05	1F	20
0090	22	10	23	09	57	07	83	01	00	00	67	03	0C	00	40	00
00A0	B8	2D	01	1D	00	72	51	D0	1E	20	6E	28	55	00	C4	8E
00B0	21	00	00	1E	01	1D	00	BC	52	D0	1E	20	B8	28	55	40
00C0	C4	8E	21	00	00	1E	01	1D	80	D0	72	1C	16	20	10	2C
00D0	25	80	C4	8E	21	00	00	9E	8C	0A	D0	90	20	40	31	20
00E0	0C	40	55	00	C4	8E	21	00	00	18	02	3A	80	D0	72	38
00F0	2D	40	10	2C	45	00	BC	88	21	00	00	18	00	00	00	E5

1.[1]-Product ID

Model Name	Product ID	Product ID		Product ID	HDMI
		Hex	EDID table		
42PG60UD	40207	9D0F	0F9D	Analog(RGB)	
	40208	9D10	109D	Digital(HDMI)	4EA

Each PCB assembly must be checked by check JIG set.
(Because power PCB Assembly damages to PDP Module, especially be careful)

8. POWER PCB Assy Voltage Adjustments (Va, Vs Voltage adjustments)

8-1. Test Equipment : D.M.M. 1EA

8-2.Connection Diagram for Measuring

: refer to Fig.1

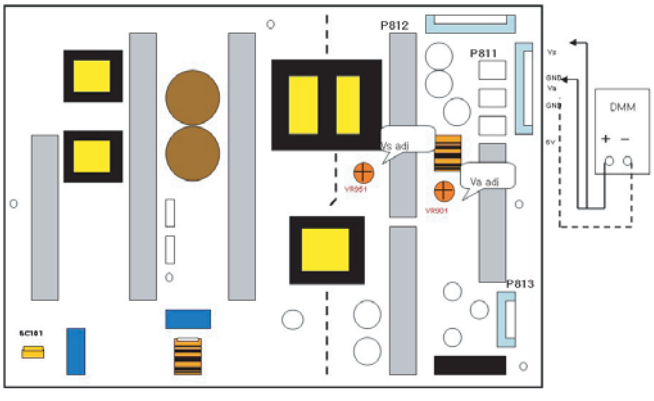
8-3. Adjustment Method

(1) Va Adjustment

1) After receiving 100% Full White Pattern, HEAT RUN.
2) Connect + terminal of D.M.M to Va pin of P811, connect - terminal to GND pin of P811.
3) After turning VR901, voltage of D.M.M adjustment as same as Va voltage which on label of panel right/top. (Deviation; ±0.5V)

(2) Vs Adjustment

1) Input signal : RF noise signal.
2) Connect + terminal of D.M.M to Vs pin of P811, connect – terminal to GND pin of P811.
3) After turning VR951, voltage of D.M.M adjustment as same as Va voltage which on label of panel right/top. (Deviation; ±0.5V)



(Fig.1) Connection diagram of power adjustment for measuring

* Press the POWER ON KEY on R/C before Model name download.
Befor adjusting White-balance, the AV ADC should be done.
If ADC status were “NG”, Need to ADC adjustment.

9. Adjustment of White Balance

9-1. Required Equipment

(1) Color Analyzer : CA-1000, CA-100+(CH.10) CA-210(CH.10).
* Please adjust CA-100+/CA-210 by CS-1000 before measuring.
-> You should use Channel 10 which is Matrix compensated(White, Red, Green, Blue revised) by CS-1000 and adjust in accordance with balance adjustment coordinate.

◆ Color temperature standards according to CSM and Module.

CSM	PLASMA	Remark
Cool	11000K	
Normal	9300K	
Warm	6500K	

◆ Change target luminance and range of the Auto adjustment W/B equipment.

Target luminance	65
Range	20

◆ White balance adjustment coordinate and color temperature.

Cool	CS-1000	CA-100+(CH.10)	CA-210(CH.10)
X	0.276	0.276±0.002	0.276±0.002
y	0.283	0.283±0.002	0.283±0.002
△uv	0.000	0.000	0.000

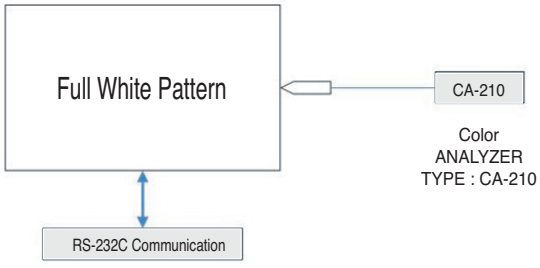
Medium	CS-1000	CA-100+(CH.10)	CA-210(CH.10)
X	0.285	0.285±0.002	0.285±0.002
y	0.293	0.293±0.002	0.293±0.002
△uv	0.000	0.000	0.000

Warm	CS-1000	CA-100+(CH.10)	CA-210(CH.10)
X	0.313	0.313±0.002	0.313±0.002
y	0.329	0.329±0.002	0.329±0.002
△uv	0.003	0.003	0.003

* PC(for communication through RS-232C)
-> UART Baud rate : 115200 bps

9-2. Connection Picture of the Measuring Instrument(On Automatic control)

(1) Inside PATTERN is used when W/B is controlled. Connect to auto controller or push control R/C IN-START -> Enter the mode of White-Balance, the pattern will come out.



(Fig.3) Auto AV(CVBS) Color Balance Test Pattern

9-3. Auto-control interface and directions

(1) Adjust in the place where the influx of light like floodlight around is blocked.(illumination is less than 10ux)
(2) Measure and adjust after sticking the Color Analyzer(CA-100+, CA210) to the side of the module.
(3) Aging time
- After ajing start, keep the power on(no suspension of power supply) and heat-run over 15minutes.
- keep white pattern using inside pattern.

■ Auto adjustment Map(RS-232C)

	RS-232C COMMAND [CMD ID DATA]			Min	CENTER (DEFAULT)			MAX
	Cool	Med	Warm		Cool	Med	Warm	
R Gain	jg	Ja	js	00	192	192	192	255
G Gain	jh	Jb	je	00	192	192	192	255
B Gain	ji	Jc	jf	00	192	192	192	255
R Cut					64	64	64	128'
G Cut					64	64	64	128
B Cut					64	64	64	128

10. Adjustment of White Balance

(1) Press ADJ KEY on R/C and enter EZ ADJUST.
Select "3. Test Pattern" by using ▲/▼(CH+/-) and press ENTER(■)
Select "White" by using ◄/►(VOL+/-) and press ENTER(■) and heat run over 15minutes.
(2) Zero Calibrate CA-100+/CA-210, and when controlling, stick the sensor to the center of PDP module.
(3) Press ADJ KEY on R/C and enter EZ ADJUST.
Select "2. White Balance" and press ►(VOL +).
Set test-pattern on and display inside pattern.
(5) Control is carried out on three color temperatures, COOL, MEDIUM,WARM.
(Control is carried out thress times)

<Temperature : COOL>
- R-Cut / G-Cut / B-Cut is set to 64
- Control R-Gain and G-Gain.
- Each Gain is limited to 192.

<Temperature : MEDIUM>
- R-Cut / G-Cut / B-Cut is set to 64
- Control R-Gain and G-Gain.
- Each Gain is limited to 192.

<Temperature : WARM>
- R-Cut / G-Cut / B-Cut is set to 64
- Control G-Gain and B-Gain.
- Each Gain is limited to 192.

11. Input the Shipping Option Data

1) Push the IN-START key in a Adjust Remocon.
2) Input the Option Number that was specified in the BOM, into the Shipping area.
3) The work is finished, Push ■ Key.

12. Set Information (Serial No& Model name)

12-1. Check the serial number & Model Name

(1) Push the menu button in DTV mode.
(2) Select the SETUP -> Diagnostics -> To set.
(3) Check the information.

13. SET factoring condition

(1) This adjustment is setting factory shipment mode.
(2) Push the IN-STOP key of adjustment remote controller before the factory shipment.

No	Item			Condition	Remark
1	Input Mode			Antenna	
2	Volume Level			10	
3	Mute			Off	
4	Aspect Ratio			16:9	
5	SET ID			1	
6	Picture	PSM		Vivid	
		Color Temp.		Medium	
		Advanced	Cinema	Off	
			Black level	Auto	
7	Sound	SSM		Standard	
		AVL		Off	
		Balance		0	
		TV Speaker		On	
8	Time	Auto Clock		On	
		Manual Clock		--	
		Off Timer / On Timer Sleep Timer / Auto Off		Off	
9	Option	SIMPLINK		On	
		Key Lock		Off	
		ISM Method		Normal	
		Power Saving		Level 0	
10	Channel Memory		Analog		
			Digital		