

G8(6PN9) COLOUR TELEVISION SERVICE MANUAL

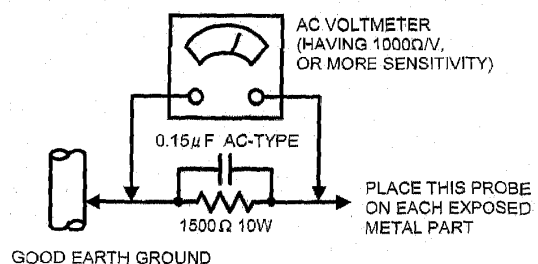


CONTENTS

1. Safety Precautions.....	3
2. MCU and signal Processor for a PAL/SECAM/NTSC TV.....	4
3. Definition of A8897CPNG-6PN9 Pin.....	5
4. Remote Control Circuit Diagram and Function.....	6
1)User Remote.....	6
2)Service Remote.....	7
5. Service Controlled Function.....	8
1)White balance adjustment.....	8
2)Pictureand AGC adjustment.....	8
3)Option set.....	9
6. Service and Design Data.....	16
7. ICs Functional Description.....	17
8. Test Point Waveforms.....	17
9. IC Voltages.....	17
10. Other.....	18

1. SAFETY PRECAUTIONS

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
 2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
 3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. Electrical components having such features are identified by shading on the schematics and by (!) on the parts list in Service manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards
 4. Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing. Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE: (⚡) side GND, ISOLATED (NEUTRAL) : (⊥) side GND and EARTH : (⊕) side GND. Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time. If above note will not be kept, a fuse or any parts will be broken.
 5. If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).
 6. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
 7. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.
 8. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the
 9. manufacturer's replacement components.
 10. Isolation Check
(Safety for Electrical Shock Hazard)
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
 11. The surface of the TV screen is coated with a thin film which can easily be damaged. Be very careful with it when handle the TV. Should the TV screen become soiled, wipe it with a soft dry cloth. Never rub it forcefully. Never use any cleaner or detergent on it.
- (1) Dielectric Strength Test
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second.
(...Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a periode of one second.)
This method of test requires a test equipment not generally found in the service trade.
- (2) Leakage Current Check
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).
- Alternate Check Method
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.3V AC (r.m.s.).
This corresponds to 0.2mA AC (r.m.s.)

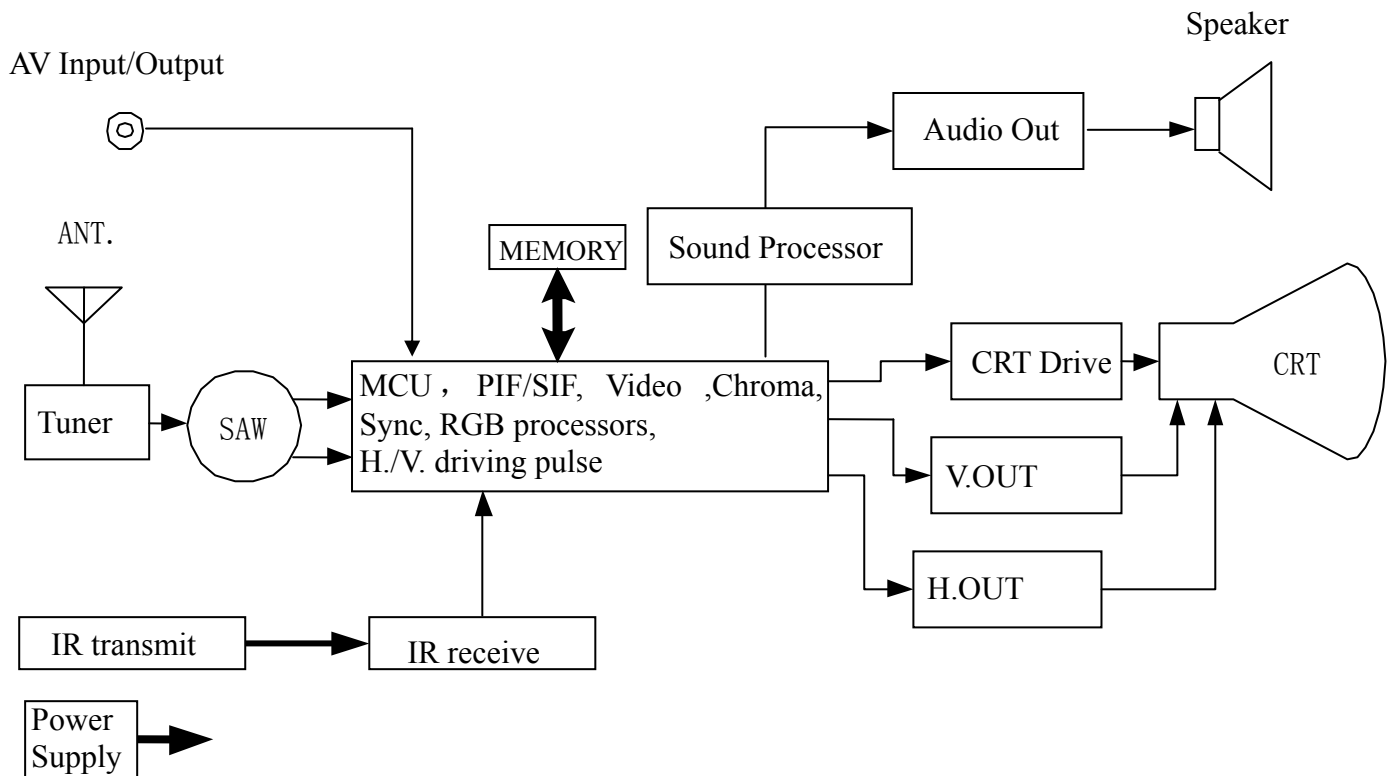


2.MCU and signal processor for a PAL/SECAM/NTSC TV

The A8897CPNG-6PN9 is an integrated circuit for a PAL/SECAM/NTSC TV. A MCU and a TV signal processor are integrated in a 64-pin shrink DIP package. The MCU contains 8-bit CPU, ROM, RAM, I/O ports, timer/counters, A/D converters, an on-screen display controller, remote control interfaces, IIC bus interfaces and the Closed Caption decoder. The TV signal processor contains PIF, SIF, Video, multi-standard chroma, Sync, RGB processors.

- ◆A8897CPNG-6PN9 MCU+OSD+EW+TV Processor controller with Software inside.
- ◆24C16 Non Volatile memory(EEPROM)
- ◆STV9378 Vertical deflection system output circuit.
- ◆TDA7263 Audio Output
- ◆TA1343 Sound Processor
- ◆SC6122 Remote Controlled Transmitter.

TOSHIBA G8 chassis color TV block diagram



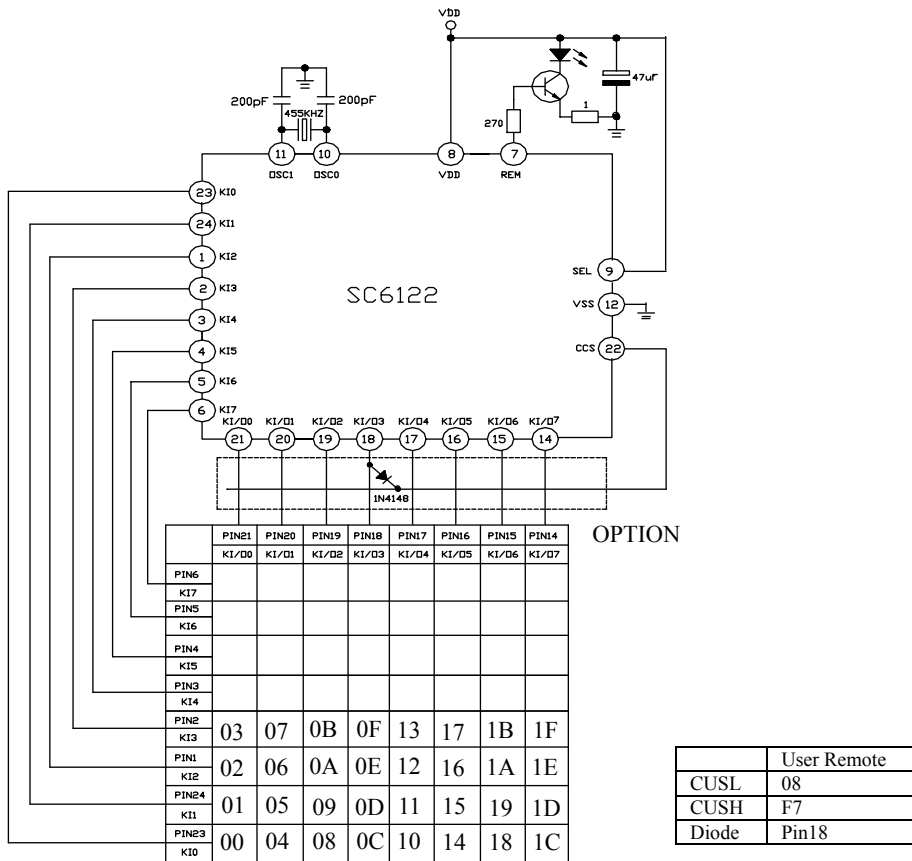
3. Definition of A8897CPNG-6PN9 Pin

NO.	Pin name	I/O	Function
1	BAND1/ EyeCare or X-ray	I/O	BAND data output 1 (VS) / EYECARE or X-ray (FS)
2	BAND2/Thermal resistance	Out	BAND data output 2 (VS) / Thermal resistance (FS)
3	KEY	I/O	Key input
4	VSS	-	GND connection
5	RESET	I/O	Reset signal input
6	XOUT	In	8 MHz oscillator connecting
7	XIN	Out	8 MHz oscillator connecting
8	TEST	In	GND connection
9	VDD	-	5V power supply
10	VSS	-	GND connection
11	TV DEF AGND	-	GND yerminal for TV DEF block
12	FBP in	In	Input terminal for FBP
13	H out	Out	Output terminal for Horizontal driving pulse
14	HAFC 1	-	Terminal to be connected capacitor for H AFC filter
15	V saw	-	Terminal to be connected capacitor to generate Vsaw signal
16	V out	Out	Output terminal for Vertical driving pulse
17	AVcc(8V)	-	Vcc terminal for DEF,RGB,Audio out and PIF out circuit
18	TV A GND	-	GND terminal for TV block
19	Cb in	In	Input terminal for Cb signal
20	EW out	Out	output terminal for EWsignal
21	Cr in	In	Input terminal for Cr signal
22	Ext AU1 in	In	Input terminal for Audio1 signal 1
23	C/V3 in	In	Input terminal for Chroma or Video signal
24	Y/V2 in	In	Input terminal for Video signal2 or Y signal
25	ALC Filter	In	Terminal to be connected capacitor for ALC(Audio Level Control)
26	V1 in	In	Input terminal for Video signal.(Input leave = 1 Vp-p)
27	ABCL	In	Input terminal for ABL/ACL control
28	AU out1	Out	Output terminal 1 for Audio signal
29	AU out2	Out	Output terminal 2 for Audio signal
30	TV out/FM radio	Out	Output terminal for detected PIF signal or FM radio
31	SIF out	Out	Output terminal for 1bit DAC, detected SIF signal or audio monitor out 2.
32	Ext AU2 in	In	Input terminal for External Audio signal 1
33	H correct/SIF in	In	Input terminal for H correction and 2nd SIF
34	DC NF	Out	Terminal to be connected capacitor for DC Negative Feedback from SIF Det output
35	PIF PLL	-	Terminal to be connected with loop filter for PIF PLL.This terminal voltage is controlled PIF VCO frequency.
36	IF Vcc 5V	-	Vcc terminal for IF circuit. Supply 5V.
37	Reg Fil	-	Terminal to be connected capacitor for stabilizing internal bias.
38	AU monitor out1		Output terminal for External Audio signal or TV audio signal selected by BUS(Audio SW)
39	IF AGC	-	Terminal to be connected with IF AGC filter.
40	IF GND	-	GND terminal for IF circuit.
41	IF in	In	Input terminals for IF signals.
42	IF in	In	Input terminals for IF signals.
43	RF AGC		Output terminal for RF AGC control level.
44	Black Det	-	Terminal to be connected with Black Det filter for black stretch.
45	SVM/Monitor		Output terminal for monitor function. Also output terminal for SVM signal selectable through IIC bus.
46	APC Filter		Terminal to be connected with APC filter for chroma demodulation.
47	YC Vcc 5V		Vcc terminal for Y/C circuit
48	EHT in	In	EHT input
49	DVCC		Vcc terminal for digital block
50	R out	Out	Output terminal for R signal.
51	G out	Out	Output terminal for G signal.
52	B out	Out	Output terminal for B signal.
53	TV DGND	-	GND terminal for digital block.
54	up AGND	-	GND for Oscillator circuit

55	up AVDD	-	Vdd for Oscillator circuit Supply 5V
56	VIDEO1/2	Out	TV=0,AV1=OPEN, AV2=5V
57	SDA1	I/O	IIC-BUS SDA1
58	SCL1	I/O	IIC-BUS SCL1
59	50/60Hz control	I/O	50/60Hz
60	PWM	I/O	PWM
61	MUTE	I/O	MUTE
62	H.SYNC	I/O	Horizontal sync signal input
63	REMOTE	I/O	Remote controller signal input
64	POWER	I/O	Power control & Check, On=Hi-Z(input),Off=L(output)

4. Remote Control Circuit Diagram and Function

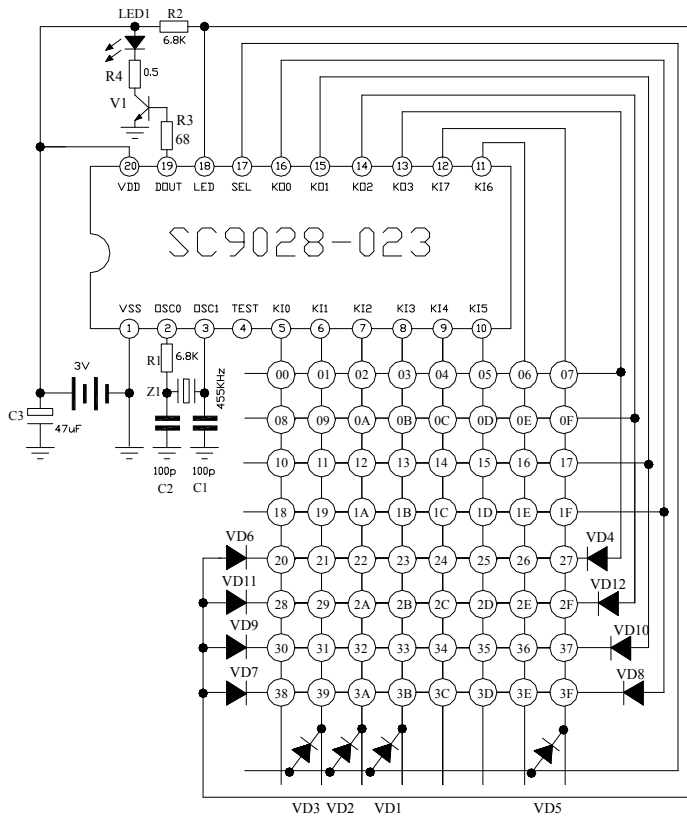
A. User Remote



NO.	Code	Name	TV Mode
01	00	1(ABC)	1(ABC)
02	01	2(DEF)	2(DEF)
03	02	3(GHI)	3(GHI)
04	03	4(JKL)	4(JKL)
05	04	5(MNO)	5(MNO)
06	05	6(PQR)	6(PQR)
07	06	7(STU/)	7(STU/)
08	07	8(VWX?)	8(VWX?)
09	08	9(YZ&:)	9(YZ&:)
10	09	0(-,.)	0(-,.)
11	0A	-/--	-/--/---
12	0B	POWER	Power on/off
13	0C	FIRE	Game fire key
14	0D	→ S ←	Audio PP
15	0E	→ P ←	Video PP
16	0F	TV/AV	TV/AV
17	10	P- / ↓	Channel -/Menu Item select
18	11	P+ / ↑	Channel +/Menu Item select
19	12	V- / ←	Volume -/Menu Item adjust(decrease)

20	13	V+/-→	Volume +/Menu Item adjust(increase) and confirm
21	14	MUTE	Mute/unmute
22	15	SLEEP	Sleep
23	16	DISPLAY	Status Recall
24	17	MSG	Message
25	18	NO USE	NO USE
26	19	LOCK	Lock
27	1A	NO USE	NO USE
28	1B	QV	Quick View
29	1C	MENU	Menu switch
30	1D	PIC	Picture
31	1E	NO USE	NO USE
32	1F	EyeCare	EyeCare

B. Service Remote



	Service Remote
CUSL	8E
CUSH	8E
Diode	Pin6,7,8,12



NO.	Code	Name	TV Mode
1	00	G-DRV	G DRIVE
2	01	B-DRV	B DRIVE
3	0A	MUTE3	To set the screen into a horizontal line.
4	0B	MENU	MENU
5	0C	↑	ITEM SELECT UP
6	0D	↓	ITEM SELECT DOWN
7	0E	←	Menu Item adjust(decrease)
8	0F	→	Menu Item adjust(increase)
9	10	EWP	50Hz Parabola-Distortion
10	11	EWPS	60Hz Parabola-Distortion
11	12	EWT	50Hz T-Distortion
12	13	EWTS	60Hz T-Distortion
13	14	POWER	Power / Stand-by
14	15	WID	50Hz Horizontal Size
15	17	HPOS	50Hz HORIZONTAL PHASE
16	18	OSD	OSD POSITION ADJUSTMENT
17	19	M-MODE ON	M-MODE ON
18	1A	EWCT	50Hz Top Corner
19	1B	WIDS	60Hz Horizontal Size
20	1C	VP50	50Hz VERTICAL PHASE
21	1D	HIT	50Hz VERTICAL AMPLITUDE
22	1E	HPS	60Hz HORIZONTAL PHASE

23	1F	VP60	60Hz VERTICAL PHASE
24	20	RCUT -	R CUT adjust(decrease)
25	21	RCUT +	R CUT adjust(increase)
26	22	GCUT -	G CUT adjust(decrease)
27	23	GCUT +	G CUT adjust(increase)
28	24	BCUT -	B CUT adjust(decrease)
29	25	BCUT +	B CUT adjust(increase)
30	26	HITS	60Hz VERTICAL AMPLITUDE
31	27	VLIN	50Hz VERTICAL-LINEARILTY
32	29	EWCB	50Hz Bottom Corner
33	2A	Search Up	Manual Search Up
34	2B	BRTC	Sub Bright
35	2C	D-Mode ON/OFF	D-Mode ON/OFF switch
36	2D	VCEN	VERTICAL CENTERING
37	2F	POS UP	Position Up
38	30	POS DOWN	Position Down
39	31	Shopout	Shop-out
40	32	S-PVOC	LOGO ADDRESS
41	39	BUS OFF	BUS OFF
42	3B	VSC	50Hz VERTICAL-S CORRECTION
43	3C	VLIS	60Hz VERTICAL-LINEARILTY
44	3D	AGC	RF-AGC
45	3E	TV IC ADJUST	White balance automatic adjustment

5. Service Controlled Function



The Service mode is entered by pressing the “D-MODE ON/OFF” key when the TV is in ON condition, “D” is displayed on the screen. Press the “P+ / P-” key to select item. Press the “V+ / V-” key to adjustment value. Press the “POWER” key to exit Service mode.

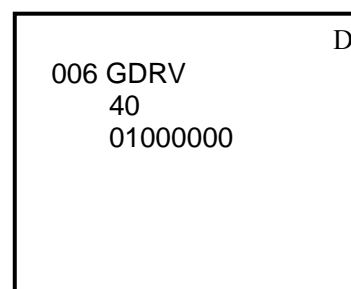
Note: How to use user remote enter Service mode?

- Press “V-” key of TV set to set volume into ‘00’, hold this key, and press “Call” key. “S” is displayed on the screen. (The TV set as been into Service-MODE)
- Press “Call” key again. The ‘S’ disappear. Press “V-” key of TV set to set and hold this key, then press “Call” key. “D” is displayed on the screen. (The TV set as been into Design-MODE)

(1) White balance adjustment

The items within the White Balance mode can be accessed using “Item up” (↑) / “Item down” (↓) keys and the selected item value is modified using “Value+” (→) / “Value-” (←) keys. The parameters controlled in the White Balance menu are:

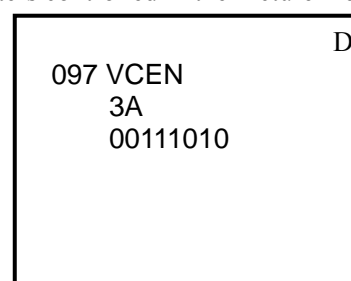
- Press the  key to set the screen into a horizontal line. Turn the “Screen” varactor resistor of the FBT to the horizontal line just appear.
- RCUT + : Red cut-off value increase
- RCUT - : Red cut-off value decrease
- GCUT +: Green cut-off value increase
- GCUT -: Green cut-off value decrease
- BCUT +: Blue cut-off value increase
- BCUT -: Blue cut-off value decrease
- Press the  key again to return to the normal picture.
- GDRV -: Green drive
- j) → : value increase
- k) ← : value decrease
- BDRV +: Blue drive
- m) → : value increase
- n) ← : value decrease



(2) Picture and AGC service adjustment

The items within the Picture mode can be accessed using “Item up” (↑) / “Item down” (↓) keys and the selected item value is modified using “Value+” (→) / “Value-” (←) keys. The parameters controlled in the Picture menu are:

- VCEN: 50Hz VERTICAL PHASE
- HPOS: 50Hz HORIZONTAL PHASE
- VP50: 50Hz VERTICAL PHASE fine adjustment
- HIT: 50Hz VERTICAL AMPLITUDE
- HITZ: 50Hz ZOOM VERTICAL AMPLITUDE
- HITW: 50Hz WIDE VERTICAL AMPLITUDE
- VLIN: 50Hz VERTICAL-LINEARILTY



- h) VSC: 50Hz VERTICAL-S CORRECTION
- i) EWP: 50Hz EW Parabola correction adjustment
- j) EWPZ: EW Parabola correction adjustment at ZOOM mode
- k) EWPW: EW Parabola correction adjustment at WIDE mode
- l) EWT: 50Hz EW Trapeziums adjustment
- m) EWCT: 50Hz EW corner top adjustment
- n) EWCB: 50Hz EW corner bottom adjustment
- o) WID: 50Hz EW Horizontal size adjustment
- p) HPS: 60Hz HORIZONTAL PHASE
- q) VP60: 60Hz VERTICAL PHASE
- r) HITS: 60Hz VERTICAL AMPLITUDE
- s) VLIS: 60Hz VERTICAL-LINEARILTY
- t) VSS: 60Hz VERTICAL-S CORRECTION
- u) EWPS: 60Hz EW Parabola correction adjustment
- v) EWTS: 60Hz EW Trapeziums adjustment
- w) WIDS: 60Hz EW Horizontal size adjustment
- x) AGC:Tuner AGC.

Note:Maybe some chassis vertical position can not adjustment to CRT center, you can adjustment VCEN item value.

(3)Option set

1)OPT(D7)

	Bit	Function	Status "0"	Status "1"
OPT	Bit7	Mute of AV Switch Key	No use	use
	Bit6	Fjp_mute_process	no volume down process before mute	Firstly volume reduced to zero, then mute
	Bit5	Fjp_dvd_output(PIN56)	DVD same as VIDEO1	DVD same as VIDEO2
	Bit4	Fjp_av_stereo	AV mono	AV stereo
	Bit3	Fjp_fm	no FM	use FM
	Bit2	Fjp_video2	no video2	use video2
	Bit1	Fjp_dvd	no dvd	use dvd
	Bit0	Fjp_s-video	no s-vide	use s-video auto identify function

2)UVBK(88)

	Bit	Function	Status "0"	Status "1"
UVBK	Bit7-4	U BLK ADJ	0: -22mV, Input DC	8: 0mV F: 19mV, 2.75mV/dev
	Bit3-0	V BLK ADJ	0: -22mV, Input DC	8: 0mV F: 19mV, 2.75mV/dev

3)ABCL(E7)

	Bit	Function	Status "0"	Status "1"
ABCL	Bit7	Fjp_rf_agc	IF isn't mute while AV	IF mute while AV
	Bit6	Y Peak Limiter	Y peak limiter on,105IRE	Y peak limiter off
	Bit5	ACL STATR POINT	00: 0V	01: -0.2V
			10: -0.3V	11: -1.0V ACL OFF
	Bit3	ABL START POINT	00: 0V	01: -0.2V
			10: -0.30V	11: -0.4V
	Bit1	ABL GAIN	00: -0.2V	01: -0.35V
			10: -0.5V	11: -0.65V

4)DCBS(24)

	Bit	Function	Status "0"	Status "1"
DCBS	Bit7	C Trap Q C Signal of Y signal	LOW	High
	Bit6	Blanking switch	H, V blanking on	H,V blanking off
	Bit5	Select Sync	TV sync	Monitor sync
	Bit4	Fjp_rf_pwrn	AV status memory	only TV while power on
	Bit3		00: off	01: Y point 78IRE,Gain -6dB
			10: 68IRE	11: 58IRE
	Bit1	VT Down of AFT when No Signal	no use	use
	Bit0	Fpol_tint	Red	Green

5)CLTB(A7)

	Bit	Function	Status "0"	Status "1"
CLTB	Bit7	P/N ID	PAL/NTSC killer sensitivity, Normal	LOW
	Bit6	Killer off	Norma	Always killer off
	Bit5	N COMB	Off	Color comb filter for NTSC. On
	Bit4	Demodulation Phase	00: PAL	01: NTSC1
	Bit3		10: NTSC2	11: DVD
	Bit2	Y Delay Time	000: 0ns	001: 40ns
	Bit1		010: 80ns	011: 120ns
Bit0	100: 160ns		101: 200ns	
		110: 240ns	111: 280ns	

6)SECD(18)

	Bit	Function	Status "0"	Status "1"
SECD	Bit7	No use		
	Bit6	Select SECAM YS-SW mode	Normal operation	SECAM black level alignment mode
	Bit5	select SECAM Ident mode	H ID	H + V ID
	Bit4	select SECAM Bell filter bandwidth	Bell filter	Boost mode
	Bit3	select SECAM Ident sensitivity	Normal	Low
	Bit2	Fno_secam	SECAM	SECAM inhibit
	Bit1-0	select SECAM Gate Pulse phase	00: Auto, normal 10 : center	01: +200ns (delay) 11: -200ns (forward)

7)HAFC(86)

	Bit	Function	Status "0"	Status "1"
HAFC	Bit7-6	AFC GAIN (TV mode, weak signal and Nois_Bit4=0)	Data Description Blanking Blanking period Picture period	
	Bit5-4	AFC GAIN (TV mode, strong signal and Nois_Bit4=0)	00: 1 1	
	Bit3-2	AFC GAIN (AV mode)	01: 4/3 1/3	
	Bit1-0	AFC GAIN (TV mode, and Nois_Bit4=1)	10: 2 1	11: OFF OFF

8)EFF1(40)

	Bit	Function	Status "0"	Status "1"
EFF1	Bit7	No use	This bit must be zero	
	Bit6	ALS SW for ta1343	off	on
	Bit5-4	ALS start point	00:220[mv] 01:380[mv] 10:525[mv]	11:770[mv]
	Bit3	No use	This bit must be zero	
	Bit2	Input attenuation	0dB	-5dB
	Bit1-0	No use		

9)EFF2(17)

	Bit	Function	Status "0"	Status "1"
EFF2	Bit7	Bass boost	off	on
	Bit6	No use	This bit must be zero	
	Bit5-4	Woofer LPF	00:100[hz] 01:125[hz] 10:170[hz]	11:210[hz]
	Bit3	No use		
	Bit2-0	Surround effect level	000:off 001:1 111:7

10)FLG0(46)

	Bit	Function	Status "0"	Status "1"
FLG0	Bit7	vco adjust when position select	enable	disable
	Bit6	Select f0 of chroma BPF	00: BPF (AV)	01: TOF1 (F0=5MHZ) RF
	Bit5		10: TOF2 (F0=6MHZ) RF	11: TOF3 (F0=7MHZ) RF
	Bit4	BPF-SW	Normal, CVBS signal passes along BPF	Normal, CVBS signal passes along BPF
	Bit3	Fvcd_spot_killer	Off	If BB=1, RGB out is 110 IRE
	Bit2	Nyquist Buzz cancel	Nyquist Buzz cancel, on	off
	Bit1	Fvcd_ver_freq	Auto ,free-run depending on the frequency of the signal inputted before that	Auto, free run 50Hz
	Bit0	Over mode	Normal	PIF over modulation switch on

11)FLG1(20)

	Bit	Function	Status "0"	Status "1"
FLG1	Bit7	OSD ABL	ABCL active for OSD	inactive
	Bit6	No use		
	Bit5	OSD CONTRAST	00: 95 IRE	01: 60 IRE
	Bit4		10: 70 IRE	11: 80 IRE
	Bit3	Horizontal side blanking	Off	On, 92% (FBP BLK off, then internal BLK only)
	Bit2	No use		
	Bit1	V ramp bias	power from Y/C VCC	power from IC bus
	Bit0	CW SW	Off	On CW output from "V1 IN (#26)" pin

12)SVM(04)

	Bit	Function	Status "0"	Status "1"
SVM	Bit7	No use		
	Bit6	Fjp_panel_power	panel power key is permitted while panel lock	panel power key is forbidden while panel lock
	Bit5	Fvcd_fm_band	Normal	Wide
	Bit4	Fjp_screen	no use	use
	Bit3	Fjp_geo_option(pin60)	no use	GEO control
	Bit2	Mon/SVM	Function of #45, SVM out	Monitor out
	Bit1	SVM Delay	00: off;	01: -120ns;
	Bit0		10: -100ns;	11: -80ns

13)UCOM(10)

	Bit	Function	Status "0"	Status "1"
UCOM	Bit7-5	No use		
	Bit4-3	C APC DATA	00: data 1-normal for black & white & NTSC 01: Data 2 10: Data 3 for PAL 11: the same as 10	
	Bit2	Set chroma APC	disable	enable use Bit 3,4 data
	Bit1-0	Internal ADC	00:GND 01: R output 10: B output 11: Monitor RF AGC via ADC	

14)OPT2(DD)

	Bit	Function	Status "0"	Status "1"
OPT2	Bit7	Fjp_close_screen	no use	use
	Bit6	Fjp_open_screen	no use	use
	Bit5	Fjp_poschg_mute	mute pin(pin61) output high voltage while changing pos	mute pin(pin61) doesn't output high voltage while changing pos
	Bit4	Fjp_telephone	no telephone book	use telephone book
	Bit3	Fjp_mute_exmute	mute pin(pin61) doesn't output high voltage at mute status	mute pin(pin61) output high voltage at mute status
	Bit2	Fjp_av_nosignal_mute	no mute for AV while no signal (in AV mode, blue background for 15 minutes TV set will not automatically switch off)	mute for AV while no signal
	Bit1	Fjp_uhf_port	p3	p2
	Bit0	Fjp_pwr_delay	no delay for power on	1s delay for power on

15)MOD0(C4)

	Bit	Function	Status "0"	Status "1"
MOD0	Bit7	Shop Out sound system	00: No use	01: I
	Bit6		10: BG	11: DK
	Bit5	Fjp_eyecare	no use	use
	Bit4	The algorithm of ASM	ASM doesn't judge Fhsync with case 4	ASM judge Fhsync with case 4
	Bit3	The algorithm of ASM	ASM doesn't judge IFLOCK with case 4	ASM judge IF LOCK with case 4
	Bit2	Fjp_message	no use	use
	Bit1	Fjp_tuner_refresh	no refresh	refresh the registers of FS tuner at the interval of 256ms
	Bit0	Fjp_bb_v_freq	C BB V_FREQ_313H	:C BB V_FREQ_312_5H

16)MOD1(25)

	Bit	Function	Status "0"	Status "1"
MOD1	Bit7	Fjp_extend_mode	according to eff1 for extend mode	-5db
	Bit6	Fjp_swoofer	no woofer	use woofer
	Bit5	Fjp_sound	no ta1343n	use ta1343n
	Bit4	Sound System	No use	BG2
	Bit3	Sound System	No use	M
	Bit2	Sound System	No use	DK
	Bit1	Sound System	No use	I
	Bit0	Sound System	No use	BG

17)MOD2(60)

	Bit	Function	Status "0"	Status "1"
MOD2	Bit7	Fjp_xray(PIN1)	no xray	xray
	Bit6	Fvmute_type	Y mute only	RGB mute only
	Bit5	Fymute_use	no mute while changing pos	mute while changing pos
	Bit4	Fjp_50_60hz_control(PIN59)	no use	50/60hz control
	Bit3	Fjp_thermal_resistance(PIN2)	no thermal resistance	thermal resistance
	Bit2	Fjp_power_option	Last power memory function	Standby state after power on
	Bit1	Fjp_fs	VS	FS
	Bit0	Fjp_hotel_mode	Normal	Hotel mode

18)SSBG(07)

	Bit	Function	Status "0"	Status "1"
SSBG	Bit7-6	No use		
	Bit5-4	S Trap Frequency response Control HP/LP For B/G	00:OFF 01:1dB HPF 10:-3dB LPF 11:-2dB LPF	
	Bit3-2	S Trap Q. for B/G	00: Q = 3 01:Q = 5 10:Q = 7 (Recommended) 11:Q = 9	
	Bit1-0	S Trap Group Delay Control for B/G	00:off 01:60ns 10:90ns 11:120ns	

19)SYNC(02)

	Bit	Function	Status "0"	Status "1"
SYNC	Bit7-3	No use		
	Bit2	H sync judgement	BUS	TC3
	Bit1	Fvcd_sync_separation_level	40%	50%
	Bit0	Sync slice level for weak signal	normal	low

20)SYBN(44)

	Bit	Function	Status "0"	Status "1"
SYBN (Sync detecti on setting for BB On)	Bit7	No use		
	Bit6	Reg.19H bit7 SY-DET-1 for 889x	Select the input IF signal level of Sync Lock detection. 00010: 0dB 00011: 0dB 10010: 0dB 10011: 0dB 10001:-4dB 10000:-8dB weak signal others:Do not use	
	Bit5	Reg.19H bit6 SY-DET-4 for 889x		
	Bit4	Reg.19H bit5 0 for 889x		
	Bit3	Reg.21H bit1 SY-DET-2 for 889x		
	Bit2	Reg.21H bit0 SY-DET-3 for 889x		
Bit1-0	Sel sync check mode for BB on	00:checking H-LOCK-1 flag(bit3 of r0) 01:checking H-LOCK-2 flag(bit4 of r1) 1x:checking VLOCK flag (bit7 of r1)		

21)SYBF(44)

	Bit	Function	Status "0"	Status "1"
SYBN (Sync detecti on setting for BB Off)	Bit7	No use		
	Bit6	Reg.19H bit7 SY-DET-1 for 889x	Select the input IF signal level of Sync Lock detection. 00010: 0dB 00011: 0dB 10010: 0dB 10011: 0dB 10001:-4dB 10000:-8dB weak signal others:Do not use	
	Bit5	Reg.19H bit6 SY-DET-4 for 889x		
	Bit4	Reg.19H bit5 0 for 889x		
	Bit3	Reg.21H bit1 SY-DET-2 for 889x		
	Bit2	Reg.21H bit0 SY-DET-3 for 889x		
Bit1-0	Sel sync check mode for BB OFF	00:checking H-LOCK-1 flag(bit3 of r0) 01:checking H-LOCK-2 flag(bit4 of r1) 1x:checking VLOCK flag (bit7 of r1)		

22)SYSR(44)

	Bit	Function	Status "0"	Status "1"
SYNB (Sync detecti on setting for search /tunin g)	Bit7	No use		
	Bit6	Reg.19H bit7 SY-DET-1 for 889x	Select the input IF signal level of Sync Lock detection. 00010: 0dB 00011: 0dB 10010: 0dB 10011: 0dB 10001:-4dB 10000:-8dB weak signal others:Do not use	
	Bit5	Reg.19H bit6 SY-DET-4 for 889x		
	Bit4	Reg.19H bit5 0 for 889x		
	Bit3	Reg.21H bit1 SY-DET-2 for 889x		
	Bit2	Reg.21H bit0 SY-DET-3 for 889x		
Bit1-0	Sel sync check mode for search/tuning	00:checking H-LOCK-1 flag(bit3 of r0) 01:checking H-LOCK-2 flag(bit4 of r1) 1x:checking VLOCK flag (bit7 of r1)		

23)VCD0(0E)

	Bit	Function	Status "0"	Status "1"
VCD0	Bit7-6	Audio Monitor Out	00:depend on Audio SW 01:TV 1X:mute	
	Bit5-4	C Trap MD	00: interlocking video SW 01: as 00 10: not interlocking C-trap off 11: not interlock C-trap on	
	Bit3	Halftone Gain	Main:OSD 30%: 70%	Main:OSD 50%: 50%
	Bit2	U/V Switch	Cb/Cr, Cr input(#21)gain up,+3Db	U/V
	Bit1	Sharpness f0 frequency	2.75MHz	4MHz
	Bit0	Sync. skew switch	OFF	sync skew detection on

24)VCD1(60)

	Bit	Function	Status "0"	Status "1"
VCD1	Bit7	Fvcd_bell_f0	Center(Normal)	:High
	Bit6	Fvcd_bell_q	Low	High(Normal)
	Bit5-4	PIF detected output level trimming	00: 1.05Vp-p 01 : Do not use 10: 2.2Vp-p 11: Do not use	
	Bit3-2	FM BPF	00: internal BPF mode 01: not use 10: not use 11: external BPF mode	
	Bit1-0	IF Freq	00 : 38M 01: 38.9 M 10 : 45.75 M 11: Nouse	

25)CCOR(03)

	Bit	Function	Status "0"	Status "1"
CCOR	Bit7	No use	No use	
	Bit6	Italic enable specification register	normal	italic
	Bit5-4	No use	No use	
	Bit3-0	Set the color of unselected menu character	0:BLACK 1:BLUE 2:GREEN 3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE 8:BLACK 9: DARK BLUE 10:DARK GREEN and so on	

26)TCOR(03)

	Bit	Function	Status "0"	Status "1"
TCOR	Bit7	No use	No use	
	Bit6	Italic enable specification register	normal	italic
	Bit5	Underline enable specification register	normal	underline
	Bit4	No use	No use	
	Bit3-0	Set the color of menu title	0:BLACK 1:BLUE 2:GREEN 3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE 8:BLACK 9: DARK BLUE 10:DARK GREEN and so on	

27)SCOR(06)

	Bit	Function	Status "0"	Status "1"
SCOR	Bit7	No use	No use	
	Bit6	Italic enable specification register	0:normal 1: italic	
	Bit5-4	No use	No use	
	Bit3-0	Set menu selected character's color	0:BLACK 1:BLUE 2:GREEN 3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE	

28)ACOR(89)

	Bit	Function	Status "0"	Status "1"
ACOR	Bit7	Transparency enable register for menu area	not assign half transparency	assign half transparency
	Bit6-4	Background color for the menu area	0:BLACK 1:BLUE 2:GREEN 3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE	
	Bit3	Transparency enable register for highlight area	not assign half transparency	assign half transparency
	Bit2-0	Background color for the highlight area	0:BLACK 1:BLUE 2:GREEN 3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE	

29)CALB(89)

	Bit	Function	Status "0"	Status "1"
CALB	Bit7	Transparency enable register for calendar area	not assign half transparency	assign half transparency
	Bit6-4	Background color for the calendar area	0:BLACK 1:BLUE 2:GREEN3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE	
	Bit3	Transparency enable register for week area	not assign half transparency	assign half transparency
	Bit2-0	Background color for the week area	0:BLACK 1:BLUE 2:GREEN3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE	

30)CALC(03)

	Bit	Function	Status "0"	Status "1"
CALC	Bit7-3	No use		
	Bit2-0	Set the character color of calendar	0:BLACK 1:BLUE 2:GREEN3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE	

31)LANG(01)

	Bit	Function	Status "0"	Status "1"
LANG	Bit7	Fjp_Arabic	no use	use
	Bit6	Fjp_Farsi	no use	use
	Bit5	Fjp_Indonesian	no use	use
	Bit4	Fjp_Vietnam	no use	use
	Bit3	Fjp_Spanish	no use	use
	Bit2	Fjp_French	no use	use
	Bit1	Fjp_Turkish	no use	use
	Bit0	Fjp_Russian	no use	use

32)LOGH

adjust the horizontal display position of lo

33)LOGV

adjust the vertical display position of logo

34)LOGO

	Bit	Function	Status "0"	Status "1"
LOGO	Bit7	No use		
	Bit6	Fjp_logv_plus	minus	plus
	Bit5	Fjp_logo_size	middle	large
	Bit4	Fjp_logo_tvon	no use	logo display while switching on TV set
	Bit3	Fjp_logo_nosignal	no use	logo display while no signal
	Bit2-0	Set logo color	000: black 001:blue 010: green 011: cyan 100: red 101: magenda 110: yellow 111: white	

35) LOGO address

445-454 logo display while switching on TV set

455-464 logo display while no signal

Use No.5 Service Remote press “S-PVOC” key into LOGO address, then use No.1 Service Remote press “↑/↓” key to select LOGO address and press “←/→” key to adjustment data.

alphabet	A	B	C	D	E	F	G	H	I	J	K	L	M
data	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D

alphabet	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
data	4E	4F	50	51	52	53	54	55	56	57	58	59	5A

alphabet	a	b	c	d	e	f	g	h	i	j	k	l	m
data	80-21	80-22	80-23	80-24	80-25	80-26	80-27	80-28	80-29	80-2A	80-2B	80-2C	80-2D

alphabet	n	o	p	q	r	s	t	u	v	w	x	y	z
data	80-2E	80-2F	80-30	80-31	80-32	80-33	80-34	80-35	80-36	80-37	80-38	80-39	80-3A

number	0	1	2	3	4	5	6	7	8	9	Spacing	End
data	30	31	32	33	34	35	36	37	38	39	20	00

symbol	:	,	.	_	?	&	/	()	-
data	3A	3B	2E	3D	3E	3F	2F	80-56	80-57	40

Space: 20

end: 00

36) PVHH/PVHL/PUHH/PUHL

FS Tuner band set

For example: Some Tuner band specification is:

L: 49.75-144.25 MHz(C1-Z5)/M:152.25-424.25 MHz(Z6 – Z33)/H:432.25-863.25 MHz(Z34 –C57)

PVHH/PVHL

$\{[(144.25+152.25)\div 2+38]\times 32\}=5960$ (algorithm), change to hex is 1748, so PVHH=17 , PVHL=48

PUHH/PUHL

$\{[(424.25+432.25)\div 2+38]\times 32\}=14920$ (algorithm), change to hex is 3A48, so PVHH=3A , PVHL=48

PVHH=17

PVHL=48

PUHH=3A

PUHL=48

6. Service and Design Data

21"VX CPT:SAMSUNG A51QG991X001				Data:2007.06.22			
NO.	ITEM	DATA	REMARK	NO.	ITEM	DATA	REMARK
003	RCUT	20	R CUT OFF	080	AV100	7F	AV VOLUME 100%
004	GCUT	20	G CUT OFF	081	ATTV	70	To set the register of audio ATT while using ta1343n at TV or FM mode
005	BCUT	20	B CUT OFF	082	ATAV	70	To set the register of audio ATT while using ta1343n at VIDEO or DVD mode
006	GDRV	40	G DRIVE	083	BASC	40	BASS CENTER VALUE
007	BDRV	40	B DRIVE	084	TREC	40	TREBLE CENTER VALUE
008	CNTX	7F	SUB CONTRAST MAX	085	BALC	3F	BALANCE CENTER VALUE
009	BRTS	00	SUB BRIGHNESS	086	WOFC	39	WOFFER CENTER VALUE
010	BRTC	48	SUB BRIGHT CENTER	087	BASX	72	BASS MAX VALUE
011	COLC	40	SUB COLOR for NTSC	088	TREX	72	TREBLE CENTER VALUE
012	TNTC	40	SUB TINT CENTER	089	WOFX	72	WOFFER CENTER VALUE
013	COLP	00	SUB COLOR for PAL	090	EFF1	40	SOUND EFFECT1
014	COLS	40	SECAM COLOR CENTER	091	EFF2	17	SOUND EFFECT2
015	COLD	00	DVD COLOR CENTER	092	MUTT	00	Y-Mute time of soft start
016	SCNT	0A	SUB CONTRAST	093	FLG0	46	FLAGS
017	CNTC	58	SUB CONTRAST CENTER	094	FLG1	20	FLAGS
018	CNTN	00	SUB CONTRAST MIN	095	SVM	04	SVM
019	CNTD	7F	DVD CONTRAST MAX	096	VBLK	00	V BLK Start/Stop
020	BRTX	35	SUB BRIGHT MAX	097	VCEN	34	V CENTERING
021	BRTN	25	SUB BRIGHT MIN	098	UCOM	10	Miciom Control
022	COLX	35	SUB COLOR MAX	099	PYNX	33	NORMAL H.SYNC MAX
023	ST3	20	TV—3.58 SHARP	100	PYNN	11	NORMAL H.SYNC MIN
024	SV3	25	AV—3.58 SHARP	101	PYXS	22	SEARCH H.SYNC MAX
025	ST4	15	TV—4.43 SHARP	102	PYNS	1E	SEARCH H.SYNC MIN
026	SV4	25	AV—4.43 SHARP	103	RCUTS	00	FOR YCbCr R CUTOFF
027	SVD	25	DVD SHARP CENTER	104	GCUTS	00	FOR YCbCr G CUTOFF
028	ASSH	07	ASYMMETRY SHARP	105	BCUTS	00	FOR YCbCr B CUTOFF
029	SHPX	35	SUB SHARP MAX	106	GDRVS	00	FOR YCbCr G DRIVE
030	SHPN	10	SUB SHARP MIN	107	BDRVS	00	FOR YCbCr B DRIVE
031	UVBK	88	U/V BLK ADJ	108	AUSTP	04	AUDIO STEP
032	ABCL	E7	ABL SYSTEM	109	OPT2	DD	Option2
033	DCBS	24	A part of Video data in detail	110	MOD0	C4	MODE0
034	CLTB	A7	Chroma data (TV mode&SOUND SYS=B/G)	111	MOD1	05	MODE1(Woofers use)
035	CLTD	A7	Chroma data(TV mode&SOUND SYS=D/K)	112	MOD2	60	MODE2
036	CLTM	A3	Chroma data(TV mode&SOUND SYS=M)	113	OSDF	53	OSD WIDTH
037	CLVO	A7	Chroma data when VIDEO (not DVD)mode	114	STBG	08	S Trap f0 for BG
038	CLVD	98	The data when YUV mode&SOUND SYS=M	115	STI	08	S Trap f0 for I
039	HPOS	12	50Hz HORIZONTAL PHASE	116	STDK	0A	S Trap f0 for DK
040	VP50	03	50Hz VERTICAL PHASE	117	STM	08	S Trap f0 for M
041	HIT	26	50Hz VERTICAL AMPLITUDE	118	SSBG	07	S Trap for BG
042	HITZ	08	Zoom VERTICAL AMPLITUDE	119	SSI	0C	S Trap for I
043	HITW	10	Wide VERTICAL AMPLITUDE	120	SSDK	0F	S Trap for DK
044	VLIN	11	50Hz VERTICAL-LINEARILTY	121	SSM	09	S Trap for M
045	VSC	19	50Hz VERTICAL-S CORRECTION	122	SYNC	02	SYNC
046	HBOW	03	H. BOW	123	SYBN	44	Sync detection setting for BB On
047	HPAR	03	H. PAR	124	SYBF	44	Sync detection setting for BB Off
048	EWP	56	50Hz EW Parabola correction adjustment	125	SYSR	44	Sync detection setting for search/tuning
049	EWPZ	16	50Hz EW Parabola correction adjustment at ZOOM mode	126	BBCT	04	Blue back hysteresis counter (BUS H sync detection)
050	EWPW	21	50Hz EW Parabola correction adjustment at WIDE mode	127	VCD0	0E	VCD0 data
051	EWT	1D	50Hz EW Trapeziums adjustment	128	VCD1	60	VCD1 data
052	EWCT	08	50Hz EW corner top adjustment	129	CCOR	03	Set menu character's color
053	EWCW	0A	50Hz EW corner bottom adjustment	130	TCOR	03	Set menu top character's color
054	HEHT	00	Horizontal EHT control	131	SCOR	06	Set menu selected character's color
055	VEHT	04	Vertical EHTcontrol	132	ACOR	89	Set menu's background color
056	WID	3B	50Hz EW Horizontal size adjustment	133	CALB	89	Menu color option
057	OVS0	00	OSD Vertical position for 50Hz	134	CALC	03	SET CALENDAR BACKGROUND COLOR
058	HPS	02	60Hz HORIZONTAL PHASE	135	SOSP	10	Position OSD adjustment
059	VP60	01	60Hz VERTICAL PHASE	136	CUSL	08	To set remote controller's custom code(low byte)
060	HITS	01	60Hz VERTICAL AMPLITUDE	137	CUSH	F7	To set remote controller's custom code(high byte)
061	VLIS	00	60Hz VERTICAL-LINEARILTY	138	FSAD	C0	FS tuner address
062	VSS	01	60Hz VERTICAL-S CORRECTION	139	LANG	01	Language select
063	EWPS	01	60Hz EW Parabola correction adjustment	140	VPL	F0	Be used to adjust the xray protect voltage
064	EWTS	00	60Hz EW Trapeziums adjustment	141	VADJ	00	Be used to adjust the base input voltage of eyecare
065	WIDS	01	60Hz EW Horizontal size adjustment	142	SADJ	07	Be used to adjust the check speed of eyecare
066	OVS0	00	OSD Vertical position for 60Hz	143	LOGH	15	LOGO HORIZONTAL POSITION
067	GEOC	32	Center position of GEO control	144	LOGV	0F	LOGO VERTICAL POSITION
068	SECD	18	SECAM mode	145	LOGO	7C	LOGO select
069	SBY	08	SECAM B-Y Black	146	ERAS	A3	Be used to adjust the time of thermal resistance control
070	SRY	08	SECAM R-Y Black	147	PVHH	17	Be used to set the start frequency of VHFH band of FS tuner(high byte)
071	AGC	22	RF AGC	148	PVHL	28	Be used to set the start frequency of VHFH band of FS tuner(low byte)
072	HAFC	86	AFC GAIN	149	PUHH	3A	Be used to set the start frequency of UHF band of FS tuner(high byte)
073	NOIS	0F	NOISE	150	PUHL	28	Be used to set the start frequency of UHF band of FS tuner(low byte)
074	NDTC	1F	NOISE DET count (Weak -> Normal)	151	WTON	7D	Turn on delay set
075	V1	09	TV VOLUME 1%	152	WOTF	EF	Turn off delay set
076	V25	3D	TV VOLUME 25%	153	CURC	A5	Curtain center adjustment
077	V50	57	TV VOLUME 50%	154	HPSD	03	Horizontal center of DVD
078	V100	76	TV VOLUME 100%	001	OSD	10	OSD POSITION ADJUSTMENT
079	AV50	57	AV VOLUME 50%	002	OTP	D5	OPTION

NO.	ITEM	DATA	REMARK
003	RCUT	20	R CUT OFF
004	GCUT	20	G CUT OFF
005	BCUT	20	B CUT OFF
006	GDRV	40	G DRIVE
007	BDRV	40	B DRIVE
008	CNTX	7F	SUB CONTRAST MAX
009	BRTS	00	SUB BRIGHTNESS
010	BRTC	58	SUB BRIGHT CENTER
011	COLC	40	SUB COLOR for NTSC
012	TNTC	40	SUB TINT CENTER
013	COLP	00	SUB COLOR for PAL
014	COLS	40	SECAM COLOR CENTER
015	COLD	00	DVD COLOR CENTER
016	SCNT	0A	SUB CONTRAST
017	CNTC	58	SUB CONTRAST CENTER
018	CNTN	00	SUB CONTRAST MIN
019	CNTD	7F	DVD CONTRAST MAX
020	BRTX	35	SUB BRIGHT MAX
021	BRTN	25	SUB BRIGHT MIN
022	COLX	35	SUB COLOR MAX
023	ST3	20	TV—3.58 SHARP
024	SV3	25	AV—3.58 SHARP
025	ST4	15	TV—4.43 SHARP
026	SV4	25	AV—4.43 SHARP
027	SVD	25	DVD SHARP CENTER
028	ASSH	07	ASYMMETRY SHARP
029	SHPX	35	SUB SHARP MAX
030	SHPN	10	SUB SHARP MIN
031	UVBK	88	U/V BLK ADJ
032	ABCL	E7	ABL SYSTEM
033	DCBS	24	A part of Video data in detail
034	CLTB	A7	Chroma data (TV mode&SOUND SYS=B/G)
035	CLTD	A7	Chroma data(TV mode&SOUND SYS=D/K)
036	CLTM	A3	Chroma data(TV mode&SOUND SYS=M)
037	CLVO	A7	Chroma data when VIDEO (not DVD)mode
038	CLVD	98	The data when YUV mode&SOUND SYS=M
039	HPOS	12	50Hz HORIZONTAL PHASE
040	VP50	03	50Hz VERTICAL PHASE
041	HIT	33	50Hz VERTICAL AMPLITUDE
042	HITZ	08	Zoom VERTICAL AMPLITUDE
043	HITW	10	Wide VERTICAL AMPLITUDE
044	VLIN	0E	50Hz VERTICAL-LINEARILTY
045	VSC	1C	50Hz VERTICAL-S CORRECTION
046	HBOW	04	H. BOW
047	HPAR	06	H. PAR
048	EWP	68	50Hz EW Parabola correction adjustment
049	EWPZ	16	50Hz EW Parabola correction adjustment at ZOOM mode
050	EWPW	22	50Hz EW Parabola correction adjustment at WIDE mode
051	EWT	22	50Hz EW Trapeziums adjustment
052	EWCT	07	50Hz EW corner top adjustment
053	EWCW	07	50Hz EW corner bottom adjustment
054	HEHT	00	Horizontal EHT control
055	VEHT	04	Vertical EHTcontrol
056	WID	29	50Hz EW Horizontal size adjustment
057	OVS0	00	OSD Vertical position for 50Hz
058	HPS	02	60Hz HORIZONTAL PHASE
059	VP60	01	60Hz VERTICAL PHASE
060	HITS	01	60Hz VERTICAL AMPLITUDE
061	VLIS	00	60Hz VERTICAL-LINEARILTY
062	VSS	01	60Hz VERTICAL-S CORRECTION
063	EWPS	01	60Hz EW Parabola correction adjustment
064	EWTS	00	60Hz EW Trapeziums adjustment
065	WIDS	01	60Hz EW Horizontal size adjustment
066	OVS60	00	OSD Vertical position for 60Hz
067	GEOC	32	Center position of GEO control
068	SECD	18	SECAM mode
069	SBY	08	SECAM B-Y Black
070	SRY	08	SECAM R-Y Black
071	AGC	22	RF AGC
072	HAFC	86	AFC GAIN
073	NOIS	0F	NOISE
074	NDTC	1F	NOISE DET count (Weak -> Normal)
075	V1	09	TV VOLUME 1%
076	V25	3D	TV VOLUME 25%
077	V50	57	TV VOLUME 50%
078	V100	76	TV VOLUME 100%
079	AV50	57	AV VOLUME 50%

Data:2007.06.22			
NO.	ITEM	DATA	REMARK
080	AV100	7F	AV VOLUME 100%
081	ATTV	78	To set the register of audio ATT while using ta1343n at TV or FM mode
082	ATAV	7F	To set the register of audio ATT while using ta1343n at VIDEO or DVD mode
083	BASC	40	BASS CENTER VALUE
084	TREC	40	TREBLE CENTER VALUE
085	BALC	3F	BALANCE CENTER VALUE
086	WOFC	39	WOFFER CENTER VALUE
087	BASX	72	BASS MAX VALUE
088	TREX	72	TREBLE CENTER VALUE
089	WOFX	72	WOFFER CENTER VALUE
090	EFF1	40	SOUND EFFECT1
091	EFF2	17	SOUND EFFECT2
092	MUTT	00	Y-Mute time of soft start
093	FLG0	46	FLAGS
094	FLG1	20	FLAGS
095	SVM	04	SVM
096	VBLK	00	V BLK Start/Stop
097	VCEN	38	V CENTERING
098	UCOM	10	Miciom Control
099	PYNX	33	NORMAL H.SYNC MAX
100	PYNN	11	NORMAL H.SYNC MIN
101	PYXS	22	SEARCH H.SYNC MAX
102	PYNS	1E	SEARCH H.SYNC MIN
103	RCUTS	00	FOR YCbCr R CUTOFF
104	GCUTS	00	FOR YCbCr G CUTOFF
105	BCUTS	00	FOR YCbCr B CUTOFF
106	GDRVS	00	FOR YCbCr G DRIVE
107	BDRVS	00	FOR YCbCr B DRIVE
108	AUSTP	04	AUDIO STEP
109	OPT2	DD	Option2
110	MOD0	C4	MODE0
111	MOD1	25	MODE1(Woofer use)
112	MOD2	60	MODE2
113	OSDF	53	OSD WIDTH
114	STBG	08	S Trap f0 for BG
115	STI	08	S Trap f0 for I
116	STDK	0A	S Trap f0 for DK
117	STM	08	S Trap f0 for M
118	SSBG	07	S Trap for BG
119	SSI	0C	S Trap for I
120	SSDK	0F	S Trap for DK
121	SSM	09	S Trap for M
122	SYNC	02	SYNC
123	SYBN	44	Sync detection setting for BB On
124	SYBF	44	Sync detection setting for BB Off
125	SYSR	44	Sync detection setting for search/tuning
126	BBCT	04	Blue back hysteresis counter (BUS H sync detection)
127	VCD0	0E	VCD0 data
128	VCD1	60	VCD1 data
129	CCOR	03	Set menu character's color
130	TCOR	03	Set menu top character's color
131	SCOR	06	Set menu selected character's color
132	ACOR	89	Set menu's background color
133	CALB	89	Menu color option
134	CALC	03	SET CALENDAR BACKGROUND COLOR
135	SOSP	10	Position OSD adjustment
136	CUSL	08	To set remote controller's custom code(low byte)
137	CUSH	F7	To set remote controller's custom code(high byte)
138	FSAD	C0	FS tuner address
139	LANG	01	Language select
140	VPL	F0	Be used to adjust the xray protect voltage
141	VADJ	00	Be used to adjust the base input voltage of eyecare
142	SADJ	07	Be used to adjust the check speed of eyecare
143	LOGH	00	LOGO HORIZONTAL POSITION
144	LOGV	0F	LOGO VERTICAL POSITION
145	LOGO	45	LOGO select
146	ERAS	A3	Be used to adjust the time of thermal resistance control
147	PVHH	17	Be used to set the start frequency of VHFH band of FS tuner(high byte)
148	PVHL	28	Be used to set the start frequency of VHFH band of FS tuner(low byte)
149	PUHH	3A	Be used to set the start frequency of UHF band of FS tuner(high byte)
150	PUHL	28	Be used to set the start frequency of UHF band of FS tuner(low byte)
151	WTON	7D	Turn on delay set
152	WOTF	EF	Turn off delay set
153	CURC	A5	Curtain center adjustment
154	HPSD	03	Horizontal center of DVD
001	OSD	10	OSD POSITION ADJUSTMENT
002	OTP	D7	OPTION

7. ICs Functional Description

TDA9378 Function : Vertical Output

PIN	PIN CONNECTIONS	PIN	PIN CONNECTIONS
1	Input	5	V. OUT
2	+Vcc	6	Output Stage Vcc
3	PUMP UP OUT	7	NON. INV. IN
4	-Vcc		

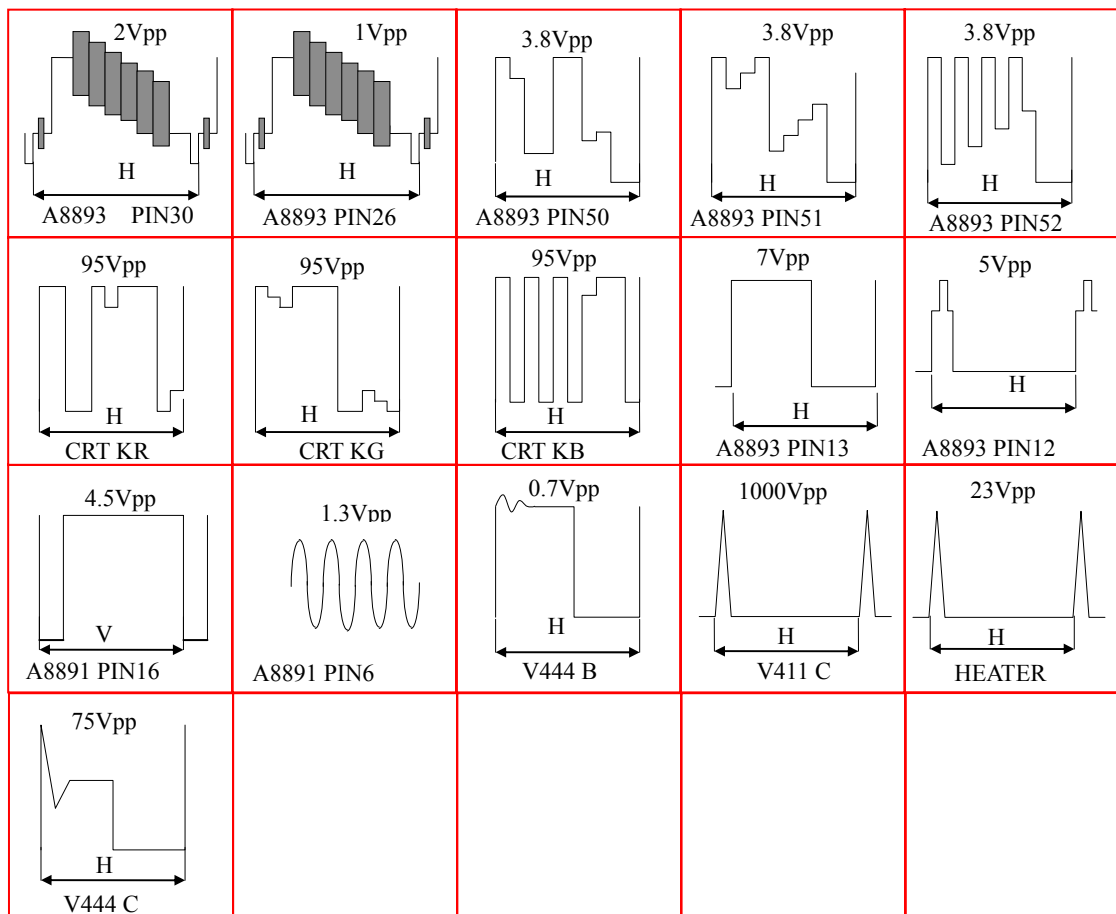
TDA7263(Stereo IC) Function : Audio Output

PIN	PIN CONNECTIONS	PIN	PIN CONNECTIONS
1	NON INVERTING INPUT(1)	7	NC
2	INVERTING INPUT(1)	8	OUTPUT(2)
3	SVR/MUTING	9	+Vs
4	INVERTING INPUT(2)	10	OUTPUT(1)
5	NON INVERTING INPUT(2)	11	NC
6	GND		

TA1343 Function : Sound processor

PIN	PIN CONNECTIONS	PIN	PIN CONNECTIONS	PIN	PIN CONNECTIONS
1	Offset canceling filter	9	Bais filter	17	Woofers LPF 1
2	$\Phi 4$	10	Bass LPF(R)	18	Woofers LPF 2
3	$\Phi 3$	11	Treble HPF(R)	19	Woofers LPF 3
4	$\Phi 2$	12	Wch output	20	Vcc
5	$\Phi 1$	13	Rch output	21	Volume filter
6	Lch input	14	Treble HPF(L)	22	Woofers LPF
7	GND	15	Bass LPF(L)	23	SCL
8	Rch input	16	Lch output	24	SDA

8. Test Point Waveforms



C Voltages

97CPNG-6PN9

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Voltage	0	0	5	0	5	2.2	2	0	5	0	0	1.2	2.1	5.6	4	5	8	0	2.5
Pin	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Voltage	1.9	2.5	3.8	0	2.4	0.3	2.6	4.4	3	0.3	2.8	2.9	3.8	2.9	3	2.4	5	2.1	3.1
Pin	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	53	55	56	57
Voltage	2.9	0	1.9	1.9	3.6	2.4	2.8	2.1	4.9	2.5	3.3	2.5	2.5	2.4	0	0	5	0	5
Pin	58	59	60	61	62	63	64												
Voltage	5	0	0	0	0.3	5	4.2												

STV9378

Pin	1	2	3	4	5	6	7
Voltage	2	16.5	-12.7	-16.5	0	17	2

TDA7263(Stereo)

Pin	1	2	3	4	5	6	7	8	9	10	11
Voltage	1.7	1.8	12.6	1.8	1.7	0	0	11	23	11	0

TA1343

Pin	1	2	3	4	5	6	7	8	9	10	11	12
Voltage	4.5	4.5	4.5	4.5	4.5	4.5	0.0	4.5	5.9	4.5	4.5	4.4
Pin	13	14	15	16	17	18	19	20	21	22	23	24
Voltage	4.3	4.5	4.5	4.3	5.2	5.1	5.2	7.9	3.3	1.5	5.0	5.0

AC supply : 150~250V 50/60Hz

10. Other

1) Binary code change to hex

Binary code	Hex
0 0 0 0	0
0 0 0 1	1
0 0 1 0	2
0 0 1 1	3
0 1 0 0	4
0 1 0 1	5
0 1 1 0	6
0 1 1 1	7
1 0 0 0	8
1 0 0 1	9
1 0 1 0	A
1 0 1 1	B
1 1 0 0	C
1 1 0 1	D
1 1 1 0	E
1 1 1 1	F

2) Some skills of factory adjustment:

a) How to use Service Remote enter service mode?

Pressing the "D MODE ON/OFF" key. Press "D MODE ON/OFF" key again to exit service mode.

b) How to use User remote enter Service mode?

Press "MENU" → "6" → "4" → "8" → "3" key (within 6s) or press "V-" key of TV set to set volume into '00', hold this key, and press "Call" key.

c) In the S-mode, press the LOCK key can edit the LOGO

d) How to Direct select adjustment item?

Press Service Remote "D MODE ON/OFF" key to enter "D-MODE". Then press user Remote Direct select key (0-9)

3) Keyboard input:

Key In	Key Pressed
0.0-0.3V	POWER
0.3-1.0V	Program+
1.0-1.7V	Program-
1.7-2.4V	Volume+
2.4-3.1V	Volume-
3.1-3.8V	TV/AV
3.8-4.5V	Menu