A Brief Explanation on the Reception of Radio Frequency Signals

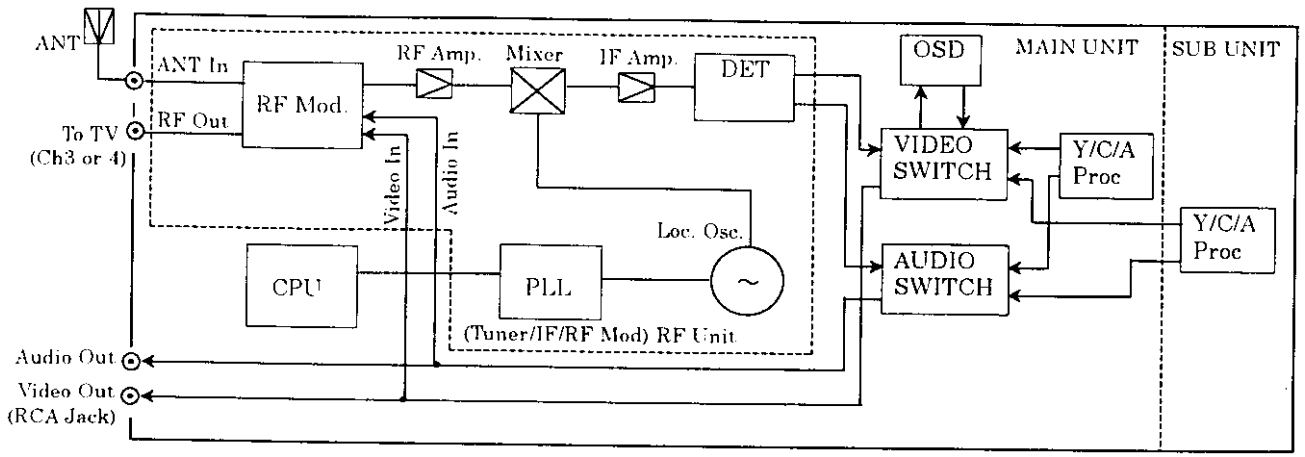
RF (Radio Frequency) signals, which are received by a reception antenna installed in a household, are fed to the Antenna Input Terminals of the RF Modulator Section of the RF Unit (ET2A01) of the subject TV Interface Device, or the VCR (Video Cassette Recorder) model GV-6025, where the bandwidth of the RF signals is limited to between 54 and 806 MHz through a band pass filter, and then they are supplied to the RF Amplifying circuitry where they are amplified. While the CPU (IC2701) sends the data of the Local Oscillation Frequency { fosc = fd + IF(Intermediate frequency : 45.75 MHz)} to the PLL (Phase Locked Loop) IC in the tuner unit, a desired RF signal (fd) can be obtained.

An amplified RF signal (fd) and the Local Oscillation Frequency (fosc) being generated in the local oscillation circuitry are then fed into a mixer, where the RF signal being converted into the IF frequency is obtained. After the RF signal is amplified through the IF amplifier circuit , a desired signal is demodulated to a video signal, an audio signal , output from the video output and the audio output terminals, respectively.

A video output signal is fed to a 44th port of the video and audio processor IC (IC1201 & IC2201), where the output level of the video signal is regulated with the AGC(Automatic Gain Control) circuit, and then output from the 41st port. The video output signal passes through the video switch IC (IC2D01) and goes to the OSD (On Screen Display) unit in order to superimpose the OSD information data. Then, it return to the video switch IC and outputs to the video output terminal and the RF modulator. A picture image can be obtained on the picture tube by feeding the modulated video output signal to the TV monitor/receiver with an appropriate connector cable.

On the other hand, a demodulated audio signal, after being fed to the 57th port of the video and audio processor IC (IC1201 & IC2201), where it is amplified, passes through the audio switch IC(IC2D01) and outputs to the audio output terminal and the RF modulator. Just like a picture reproduction process, an audio image can be reproduced through a speaker of the TV receiver.

[GV-6025]



FCC ID : BFYVDE431ANA

TENTATIVE

NATIONAL / PANASONIC

NO. RST-98-0060

DATE : 04 SEPT. 1998

CUSTOMER : TALK CO-OPERATION

ATTN :

MODEL : FRONT END SYSTEM UNIT

PART NO : ENG 567XXG

PRODUCT SPECIFICATION (FOR SUPPLY)

年 月 日
受領

RECEPTION USED COLUMN

トーク仕様確認 1999/04/09
トーク品目ｺｰﾄﾞ 104308850
トーク品 目 名 ET-ENG56706G
御社品番 ENG56706G

高濱

ISSUED
05 SEP 1998
RESEARCH & DEVELOPMENT

仮

MATSUSHITA ELECTRONIC COMPONENTS (M) SDN. BHD.
HIGH FREQUENCY PRODUCTS DIVISION
NO.1, JALAN SS 8/4 SUNGEI WAY (FIZ),
47300 PETALING JAYA, SELAGOR DARUL EHSAN.

5. Sep. '98.

(Manufacturing Section)

Final Production Plant	Name	Matsushita Electronic Components (M) Sdn. Bhd. (MECOM)
	Address	No.1, Jalan SS 8/4 Sungei Way (FIZ), 47300 Petaling Jaya, Selangor Darul Ehsan, Malaysia.
Final Inspection Plant	:	The same as above

3. RATINGS AND TEST CONDITIONS

Measurements shall be made under room temperature and humidity conditions.
The following conditions shall be applied for the measurement of electrical characteristics unless otherwise specified.

3.1 Voltage and current at each terminal and operation guaranteed voltage.

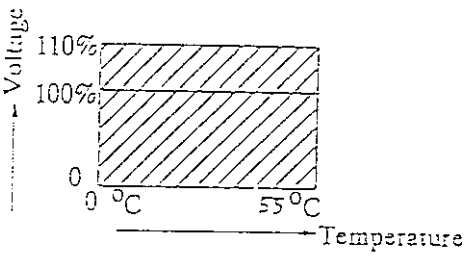
	Terminal	Supply Voltage (V)	Current average AGC G. MAX (mA)		Operation voltage range (V)
			TYP.	MAX.	
RFC	CONTROL	5.0 / 0 (VTR/TV)	——	——	4 ~ 5.0 ~ 0.5
	+ BC	5.0	25	40	5 ± 0.2
TNR/VIF	BTL	30.0	1.2	4.0	30^{+4}_{-1}
	BM	5.0	150	130	5 ± 0.2

3.2 RF CONVERTER CH SW Terminal.

TERMINAL	RF CONVERTER OUTPUT CHANNEL
CHANNEL SW	OPEN CH 3 / GND CH 4 (USA CH)

3.3 Maximum allowable voltage for BV: Terminal must be positioned within the hatched area.

CLOCK
DATA
ENABLE
] BM + 5.5V



BTL+34V BM + 5.5V

3.4 Operation guaranteed -10 °C ~ 60 °C

3.5 Operation temperature range 0 °C ~ 55 °C

3.6 Signal levels are 75Ω open unless other condition is specified.

5. Performance of Tuner section.

5.1 Specified channels (The specified channels shall be as follows unless particularly specified).

VHF : ch. 2 , 6 , A-2 , B , C , I , 10 , J , N , R , W , FF , KK.

UHF : ch. LL , QQ , WW , 14 , 20 , 26 , 32 , 38 , 44 , 50 , 56 , 62, 69.

5.2 High - frequency waveform characteristics (F-characteristics,S/N related items)

Test Items	Test Condition	Specification	Remarks
1. NF	G.Max	ch. 2 ~ B : MAX. 13 dB : TYP. dB ch. C ~ I : MAX. 13 dB : TYP. dB ch. 7 ~ 13 : MAX. 13 dB : TYP. dB ch. J ~ FFF : MAX. 14 dB : TYP. dB ch. 14 ~ 69 : MAX. 14 dB : TYP. dB	However, the tester shall be of HP make.

5.4 Local oscillation characteristics

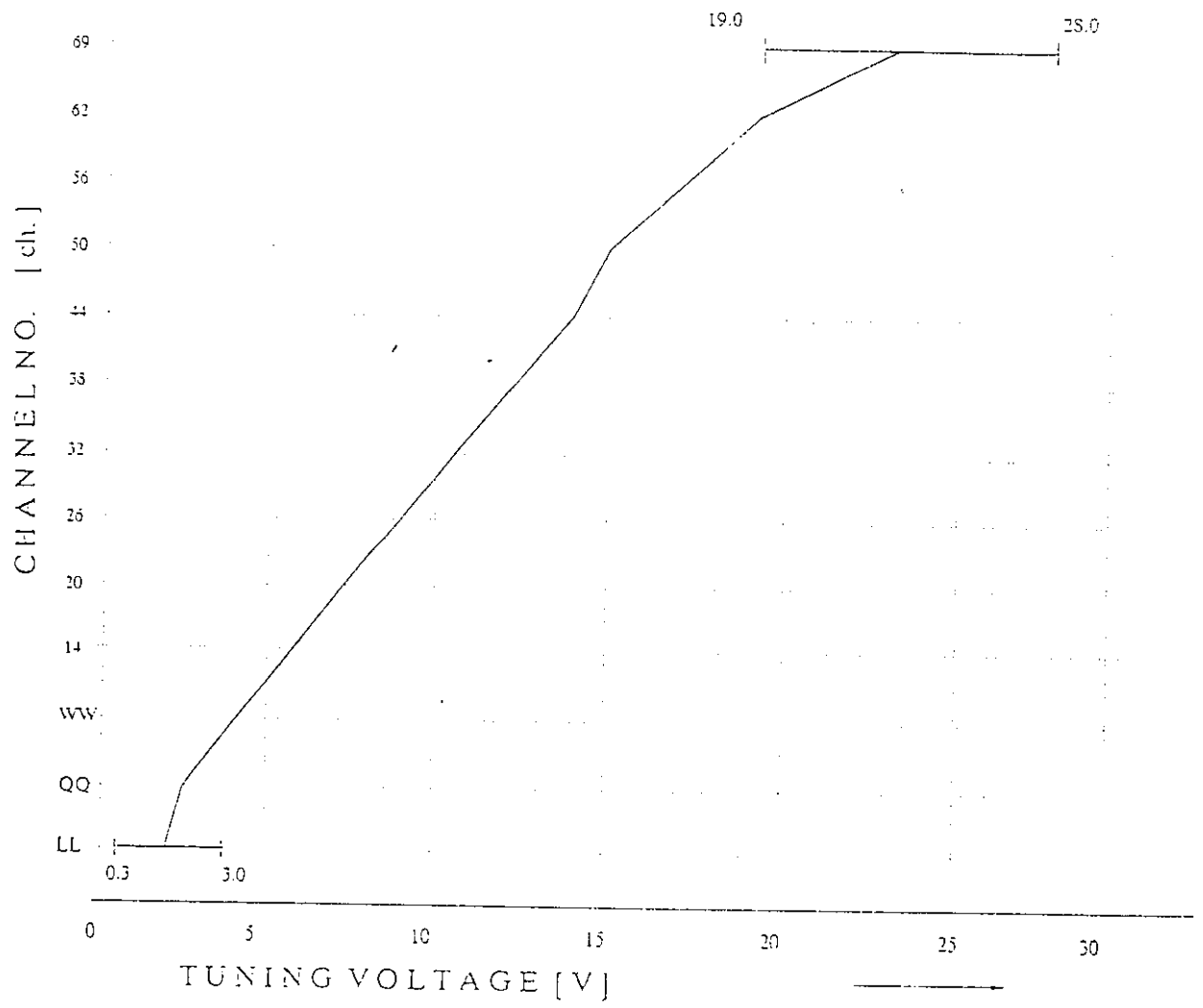
Test Items	Test Conditions	Specification	Remarks
1. Oscillator starting voltage	BM	ch. 2 ~ KK : MAX. 4.6 V ch. LL ~ 69 : MAX. 4.6 V	
2. B Voltage drift	BM ± 5 %	ch. 2 ~ B : MAX. ± 30 kHz ch. C ~ KK : MAX. ± 30 kHz ch. LL ~ 69 : MAX. ± 30 kHz	PLL Function
3. Warm-up drift		(see table below)	PLL Function
4. Variation range * Over range * Under range	BT 29V BT 29V BT 29V BT 0.2V BT 0.2V BT 0.2V	ch B : MIN. 2 MHz ch KK : MIN. 2 MHz ch 69 : MIN. 4 MHz ch 2 : MIN. 3.5 MHz ch C : MIN. 4 MHz ch LL : MIN. 4 MHz	

Condition	Channel	+ (kHz)	- (kHz)
+ 20°C + 30°C up	ch. 2 ~ B	MAX. 60	MAX. 60
	ch. C ~ KK	MAX. 60	MAX. 60
	ch. LL ~ 69	MAX. 60	MAX. 60
+ 20°C - 30°C down	ch. 2 ~ B	MAX. 60	MAX. 60
	ch. C ~ KK	MAX. 60	MAX. 60
	ch. LL ~ 69	MAX. 60	MAX. 60

THIS TENTATIVE SPECIFICATION

APPLIES TO PLL SYSTEM

(UHF)



Matsushita Electronic Components (M) Sdn. Bhd.
High Frequency Products Division,
No. 1, Jalan SS 8/4, Sungei Way (FIZ),
47300 Petaling Jaya, Selangor Darul Ehsan.

Approved	Checked	Designed

6.6 Input Signal Voltage

(SDA,SCL)

" L " Input Voltage MAX. 1.0 V

" H " Input Voltage MIN. 4.0 V MAX. 5.5V

Write data format

MSB LSB

address	1	1	0	0	0	MA1	MA0	0*	A	byte 1
programable divider	0	n14	n13	n12	n11	n10	n9	n8	A	byte 2
programable divider	n7	n6	n5	n4	n3	n2	n1	n0	A	byte 3
charge-pump and test bits	1	CP	0	0	1	RSA	RSB	OS	A	byte 4
I/O port control bits	X	X	X	X	B4	B3	B2	B1	A	byte 5

Where
X is don't care.

A is the acknowledge bit.

0* = Read /Write institution bit is ' 0 '

n 14 to n0 are the programable divider bits :

$n = n\,14 \times 2^{14} + n\,13 \times 2^{13} + \cdots + n\,1 \times 2 + n\,0.$

CP is the charge-pump current:

CP = 0 : 50 μA

CP = 1 : 250 μA

B4 to B1 = 1 : Limited current output is active.

B4 to B1 = 0 : output are in high-impedance state.

OS = 1 : operational amplifier output is switched off (variable capacitor drive is disabled).

0 : operational amplifier output is switched on.

Programable address bit

MA1	MA0	Adress terminal applied voltages
0	0	0 ~ 0.1 x VBM
0	1	Open or 0.2 x VBM to 0.3 x VBM.
1	0	0.4 x VBM ~ 0.6 x VBM.
1	1	0.9 x VBM ~ 1.0 x VBM.

RSA	RSB	Reference divider
X	0	640
0	1	1024
1	1	512

7. Performance of VIF section.

Test Items	Test Conditions	Specification	Remarks
1. MAX. signal level at S/N =30dB	75Ω Close	VHF : MAX. 53 dBμ UHF : MAX. 53 dBμ	
2. Video S / N	Input :70 dBμ Video mod : 87.5% 75Ω Close	VHF : MIN. 44 dB (CH 12) UHF : MIN. 43 dB (CH 33) Video signal : white 100%	
3. MAX. Input level	P/S=10dB	VHF : MAX. 100 dBμ UHF : MAX. 100 dBμ Measuring method : There shall be no problem in the practical operation with no color dying beat and excessive pull out.	
4. AGC Characteristics	Video signal color bar Video mod. : 87.5%	VHF/UHF: less than 3dB for 40dBμ to 100dBμ input signal level.	

Test Items	Test Conditions	Specification	Remarks
11.Audio output level	fm =400Hz Load 47kΩ	0.50 ± 0.20 Vrms , 25 kHz deviation	DE-EMPHASIS 5.6kΩ / 18nF
12.Audio S/N	fm =1kHz 100% / 0% Load 47kΩ Input:70dBμ Video mod: 87.5%	Min : 40 dB (P / S = 10 dB) NOISE METER : Q-PEAK,WIDE BAND Video signal color bar	DE-EMPHASIS 5.6kΩ / 18nF
13. Audio distortion	fm = 400 Hz Load 47kΩ Video mod off Input:70dBμ	± 7.5kHz deviation MAX 2 % ± 25kHz deviation MAX 2 %	DE-EMPHASIS 5.6k Ω / 18nF
14. Audio frequency Characteri-stic	fm =400Hz = 0 dB	$^{+3}_{-8}$ dB) 50 Hz ~ 100kHz	

8. Performance of RF CONVERTER section

Test Items	Test Conditions	Specification	Remarks
1. Video Carrier Frequency		CH 3 : 61250 ± 100 kHz CH 4 : 67250 ± 100 kHz	USA
2. Video Carrier Output Level.		66 $^{+\ 2.5}_{-\ 3}$ dBμ	75Ω terminated Max. RMS Output voltage.
3. Video Modulation Factor	1.0Vp-p APL 50 % 10 stair step	80 ± 5 %	RFC Open
4. Differential Gain	At standard modulation	± 10 %	
5. Differential Phase	"	± 10 deg	
6. Amplitude Frequency Characteristics	Measurement range; 0.1 ~ 4.1 MHz Based on : 1 MHz	± 3 dB	
7. Sync Linearity	V:S= 7:3	$^{+\ 5}_{-\ 10}$ %	$\frac{\frac{7 \times S}{V} - 3}{3} \times 100\%$
8. Over Shoot		10% MAX	Measure at the output of the Standard Demodulator.

Test Items	Test Conditions	Specification	Remarks
16.In-Band Spurious	Measure the difference between Fv and Spurious Beat levels Measure frequency between Fv ~ Fs.	- 60 dB MAX.	
17.Out-Band Spurious	Measure the difference between Fv and Spurious levels except the range of Fv ± Fs	- 33 dB MAX.	
18.Operating Rise Up Time		1.5 sec MAX.	Picture stable time.
19.Sound Carrier Frequency	The time to approach the set value is within 3 min.	4500 ± 7 kHz	

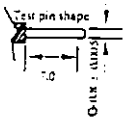
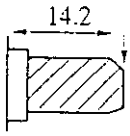
9.Temperature Stability (Test Condition; -10 ~ 60°C)

Test Items	Test Conditions	Specification	Remarks
1.Video Carrier Frequency	-10 ~ 60° C	CH 3 : 61250 ± 100 kHz CH 4 : 67250 ± 100 kHz	
2.Video Carrier Output Level	"	66dBμ $^{+\ 3}_{-\ 5}$ dBμ	
3.Video Modulation Factor	"	± 10 %	Based on standard room temperature of 25°C
4.Sync Linearity	"	± 12 %	"
5.Sound Carrier Frequency	"	± 15 kHz	"
6.Sound Carrier Output Level	"	-16 $^{+\ 2.5}_{-\ 5}$ dB	"
7. Sound Modulation Factor	"	± 20 %	"

10. Reliability

Test Items	Test Conditions	Specification	Remarks
1. Load life test in humidity		There shall be no trouble in the practical operation when left at room temperature and humidity for 1 hour after being actively used at 40 ± 2°C with 90 ~ 95 % RH for 500 ± 8 hours.	
2. Load life test in temperature		There shall be no trouble in the practical operation when left at room temperature and humidity for 1 hour after being actively used at 60 ± 2°C for 96 ± 8 hours.	
3. Low temperature test		The unit satisfy specifications and there shall be no abnormality on external and internal structure when left at room temperature and humidity for 1 hour after being OFF at -30 ± 2°C for 2^{+1}_{-0} hours.	
4. High temperature test		The unit satisfy specifications and there shall be no abnormality on external and internal structure when left at room temperature and humidity for 1 hour after being OFF at 70 ± 2°C for 2^{+1}_{-0} hours.	
5. Vibration test		The unit satisfy specifications and there shall be no abnormality on external and internal structure when 1.5mm vibration amplitude varying from 10Hz to 55Hz in 1 minute are appied in X,Y and Z directions for 30 ± 5 minutes each.	

12. Mechanical characteristics

Test Items	Test Conditions	Specification	Remarks
1. Holding strength of F connector		Initial inserting force MAX. 29.4 N (3.0kgf) Extracting force after 5 cycles MIN. 0.294 N (30gf)	 COMPLY WITH EIAJ REGULATION "RC-6012A".
2. Destructive strength of F connector		 Shall stand the force up to 98N applied to the end (14.2mm)	