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	APPLIANCE SYSTEMS GROUP SHARP CORPORATION	APPLICABLE DIVISION
		YAO PLANT APPLIANCE SYSTEMS GROUP
	SPECIFICATION	

Preliminary

SPECIFICATIONS FOR USB CAMERA

Model No. USBVIEW99

☐CUSTOMER'S APPROVAL

DATE _____

BY _____

SHARP CORPORATION

RECORDS OF REVISION

Spec No.	Date	Revised No.	Summary		Note
			Page		
YH9VC1	June 11.1999	01	----	----	1st issue

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1. Application

This document describes the specifications of USB Camera to be supplied to _____.

All figures described in this document are based on the conditions that the Camera is used under *normal operating temperature and *normal operating humidity.

*Normal operating temperature : +20 ~ +25°C

*Normal operating humidity : 65 ± 5%RH

2. General Description

This USB camera conforms to the Universal Serial Bus Specification Revision 1.1and Serial interface Engine of the USB developer's conference.

This USB camera incorporates 1/4-inch 330K CCD with the following characteristics:

1) Direct connection with a PC

2) Output signal: Digital YUV 12-bit and RGB 24-bit

3) Image size:

Video Image

VGA (640x480)/ QVGA (320x240)/
1/16VGA (160x120)/ CIF (352×288)/
QCIF (176×144)/ SIF (352x240)/ QSIF (176x120)

Still Image

VGA (640x480)

4) Data transfer mode: Isochronous transfer

5) Camera control: Change Mode, Camera Setting, Image Size, Zoom etc

6) Image compression algorithm: JPEG

7) Indicator: Focus, Frame rate, Count-down timer

8) Power management: Suspend mode available

9) Power requirement: DC 5V

10) USB cable: 1.8m cable with Series A Plug.

11) Cabinet: Small size with Privacy Shutter.

12) Software: Sharp original viewer and Windows98 mini-driver.

3. Agency Approval

Radio interference

The camera complies with "FCC standard's part 15, Class B digital device", CSA, 89/336/EEC and 93/68/EEC.

4. Camera Specifications

Item		Specifications
Image sensor		1/4" progressive transfer CCD RGB mosaic color filter
	Total pixels	692 (H) x 504 (V) (Total 350K)
	Effective pixels	659 (H) x 494 (V) (Total 330K)
	Pixel pitch	5.6um(H) x 5.6um(V)
Resolution Distance from chart to Camera: 70cm		Horizontal: 350 TV lines
Lens		
	Focal length	Approx. 3.85mm
	F-number	approx. 2.8
	Viewing angle	H:50° V:38°
	Focus range	30mm to Infinity (manual adjustable)
	TV distortion	0.3%
Minimum illumination		max 20 lx
White balance		TTL auto tracing/ Manual
Iris control		EE (1/30 to 1/15,000) + AGC: Auto/ Manual
Gamma correction		approx. 0.45, 0.6 , 0.8and 1.0 selectable
Camera control		Change mode Video/Still Camera Setting Quality/Effects control Sharpness, Video Quality(Frame Rate/ Picture Quality), Gamma(0.45/0.6/0.8/1), Effects(Flip/Mirror/Negative) Color control Brightness (Auto/ Manual) Manual mode: Gain and Shutter Speed adjustable Flicker-less (OFF/ Dark/ Light) White Balance(Auto/ Manual) Saturation Record/Take Picture control Mode Still Video(Frame Rate/Enable Time limit/Audio) Option(Capture Effect/Self Timer) Image size Full screen/ VGA/ QVGA/ 1/16VGA/ CIF/ QCIF/ SIF/ QSIF/Undo Zoom Nomal/X2/ X4

Camera control	Focus Bar Status Bar(Standard/Frame Rate) Quick Pan/Tilt
Compression	JPEG(DCT base algorithm)
Data transfer mode ;	Isochronous Transfer Support
USB isochronous bandwidth	1022/ 958/ 894/ 830/ 702/ 574/ 446 byte/ms (8,176,000/ 7,664,000/ 7,152,000/ 6,640,000/ 5,616,000/ 4,592,000/ 3,568,000 bps)
USB Camera image output format (note1)	Compression Mode VGA/ QVGA/ CIF/ QCIF Non Compression Mode QCIF
Frame rate (note2)	VGA/ QVGA/ 1/16VGA/ CIF/ QCIF/ SIF/ QSIF max.30fps
Data format	YUV12 and RGB24
Interface format	Video For Windows/ Direct Show/ Twain
Power requirement (supplied from Host or Powered Hub)	DC 4.4 V to 5.25 V max 200mA (≦500μA: suspend mode)
Operating temperature	-10 to +40 ° C
Storage temperature	-20 to +60 ° C
Case size	Camera body: approx. 33 (W)x33 (H)x53(D)mm (without cable) Camera body and Clip base: approx. 33 (W)x65.8 (H)x60.2 (D)mm (without cable)
Weight	Camera body: approx. 23g (without cable) Clip base: approx. 18g
USB cable	1.8m with Series A Plug
USB bus speed	Full speed (12Mbps)

Note 1:

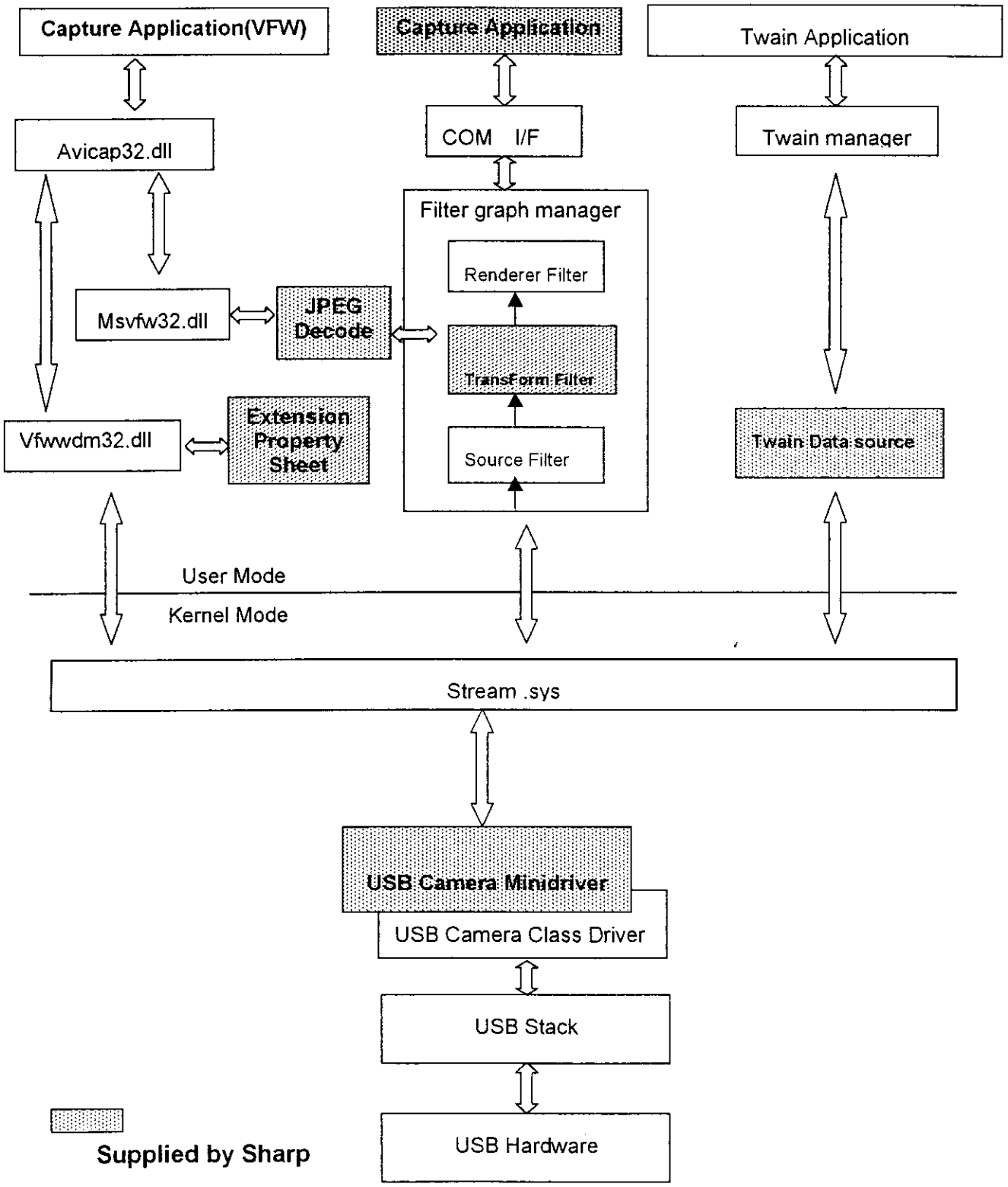
In compression mode, the USB camera outputs VGA, QVGA, CIF and QCIF video formats to the driver software. In non-compression mode, the camera only outputs QCIF to the Video For Windows driver.

Note 2:

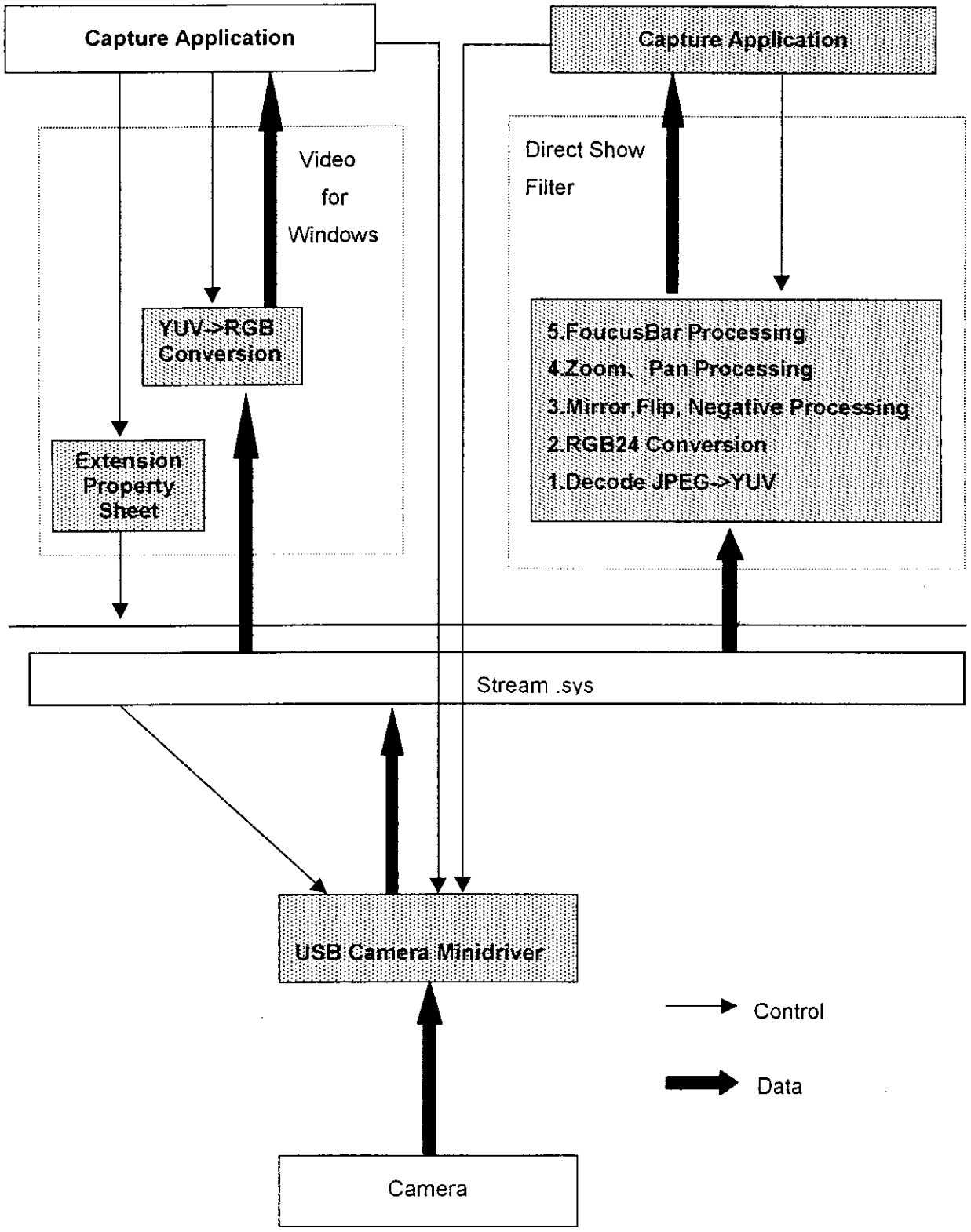
The frame rate depends on CPU speed, displayed image size, selected compression ratio and availability of USB isochronus bandwidth.

5.Software

The software architecture for the USB camera is shown in the following diagram.



Data and Control Signal Flow is shown below.



The software supplied by SHARP consists of the following:

- Video For Windows (VFW)/ Direct show/ Twain capture device driver
- USB WDM camera Mini Driver
- Sharp original viewer
- Installer

6. Minimum system requirement
   - Intel Pentium-Processor MMX(233MH or Higher)
     ADM K6-2 (300MHz or higher)
   - 64MB System Memory or Higher
   - Windows 98 (Direct X)
   - USB Interface

7. Operating manual
   Online help included.

8. Reliability Tests

Unless otherwise stated, the following reliability tests are conducted (sampling base) to confirm the reliability of the camera in the testing room kept in normal temp. and humidity.

1) Low temperature storage test

To prove that the camera shows no abnormal operation and function after it is stored at ambient temp. of -20°C for 24H and then left at room temp. for 2H min.

2) Low temperature operation test

To prove that the camera normally operates for continuously 5H at the ambient temp. of -10°C.

3) High temperature storage test

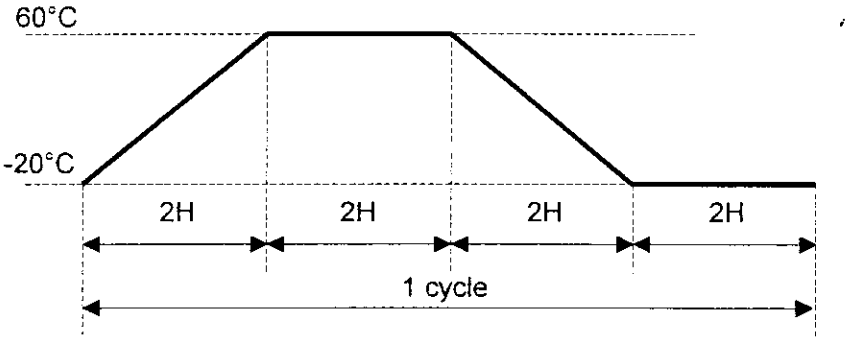
To prove that the camera shows no abnormal operation and function after it is stored at ambient temp. of 60°C for 24H and then left at room temp. for 2H min.

4) High temperature operation test

To prove that the camera normally operates for continuously 5H at the ambient temperature of 50°C.

5) Temperature cycle test

To prove that the camera shows no abnormal operation and function during 5 cycles as stipulated in the following pattern, and then 2H storage at room temp.



6) High humidity test

To prove that the camera shows no abnormal operation and function after the module has been operated for 24H at ambient temp. of 30°C and relative humidity of 90%RH, and take out from test chamber with water drop removed.

7) Vibration test

To prove that the camera shows no abnormal operation and function after vibration test under the condition of 10~55~10Hz/min. at acceleration speed 3.6G and up/down for 4H and left/right for 2H and back/forward for 2H.

8) Shock test

To prove that the camera shows no abnormal operation and function after shock test under the condition of three successive shocks in both direction of 3 mutually perpendicular axes (a total of 18 shocks) at peak acceleration of 50G and duration of pulse of 10msec.

9. Pixel Defect

Number of defective pixels	not more than 10
Condition:	Temperature 25°C
	Shield the light
	AGC off
	PC monitor

* 10 pixels in both horizontal edges and 9 lines in both vertical edges shall be disregarded as a void area.

10. Precautions & Notes

1) Do not shoot at direct sunlight.
The display picture disappears in case of shooting sunlight.

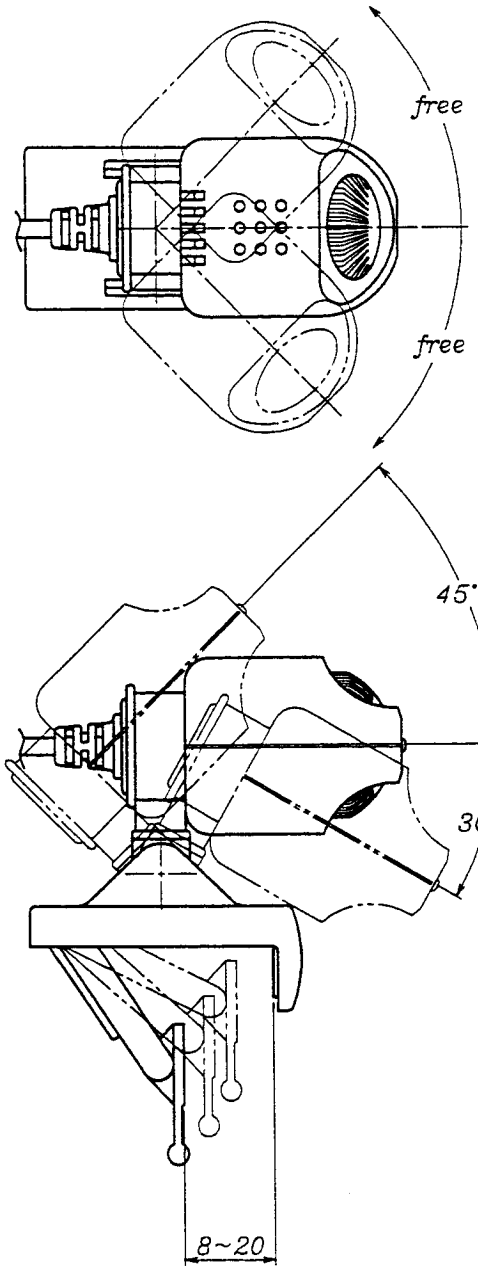
2) Care shall are used not to damage the camera during installation or removed of the cable.

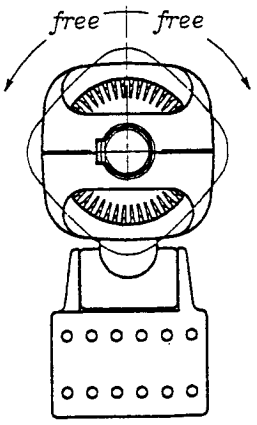
3) These products are made specifically for indoor use.
(Office and ordinary home-use environment.)

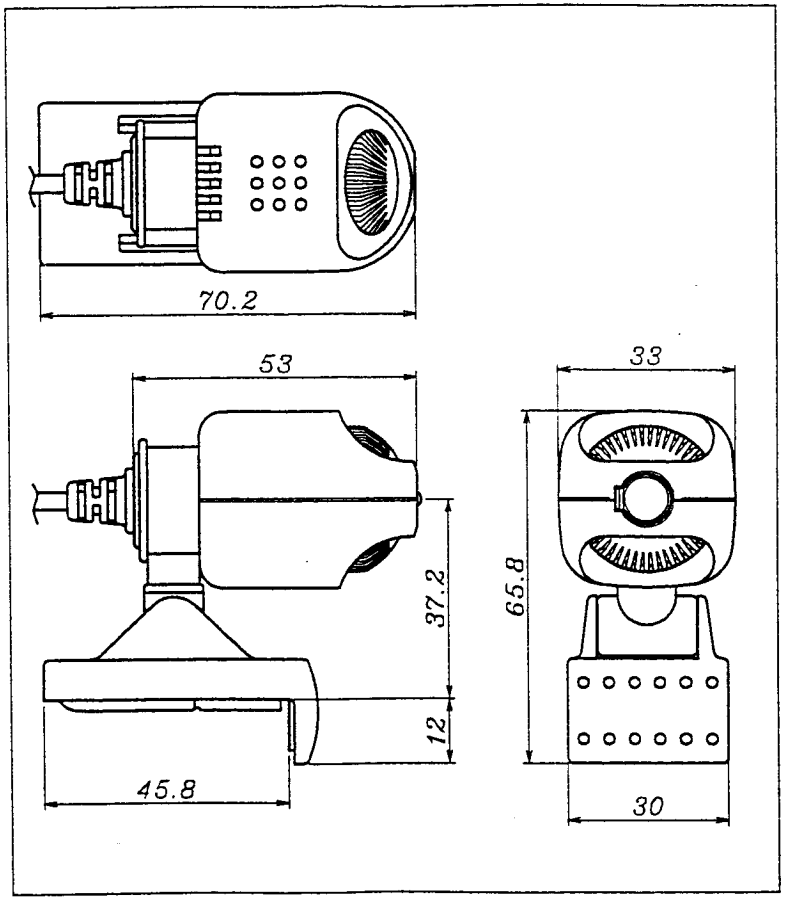
4) Any agency approval for safety is not applicable to this color CCD camera.

5) Don't touch lens
Keep lens away from dirt and dust.
Please don't touch lens. Cause it's made from plastic, it's scratched easily.
In case of dust sticking, please blow it off in blower and never touch lens.
As lens is spoiled, use of solvent such as alcohol is strict prohibition.

Please note that Sharp cannot guarantee the performance and quality under any use other than the conditions stated above, such as circumstances where vibrations are constant as in a moving vehicle, where shocks may occur as in a moving vehicle or where shocks exceed ordinary house-hold or office use.







	PARTS CODE		PROCESS	PIECES	MATERIAL	FINISH	NAME	
					APPROVE	CHECK	DESIGN	DRAW	CHARGE
	DATE	NO.	REVISE		ASSIGN NO.		DRAWING NO.		

HP Business