Specification

27x Optical 10x Digital
Zoom Day/Night Camera

Prosecutor Day / Night
Windshield Mount Camera

TABLE OF CONTENTS

1. General Specifications

Signal System	NTSC	PAL	REMARKS
Scanning System	2 : 1 Interlace		
Scanning Frequency (H)	15.734 KHz	15.625KHz	
Scanning Frequency (V)	59.94Hz	50Hz	
Pick- Up Device	1 / 4 " Super HAD CCD		
Total Pixels No.	811 (H) X 508 (V) 410K		
S/N Ratio	More Than 48 dB		
Horizontal Resolution	More Than 480 TV Lines		
LENS	X 27 Zoom (F 1.5 (W) ,F 3.8(T) f = 3.25 ~88.0 mm)		
Minimum Shooting Distance	W 0.01m , T 1.0m		
Minimum Illumination	Normal Mode; 1 Lux (30 IRE)		
Sync System	Internal		
Video Output	1Vp-p Composite Output 75 Ω Terminated		
Camera ID	**Off** , 0 ~ 255 (Total 256)		
Focus Mode	**Push Auto** / Auto / Manual		
White Balance	**Push Auto** / Special / Indoor / Outdoor / Manual / Auto		
AE Mode	**Auto** / Iris Manual / AGC Manual / Manual		
Special Mode	User Title : 10 Characters , Position : Right Bottom Sharpness : 0 ~**10** ~15 (16steps) Mirror : ON / **OFF** (Left/Right) Color : **ON** / OFF Negative : ON / **OFF** Wide Burst : ON / **OFF** OSD : English		
Motion detect	**OFF** / ON (Level Sensitivity : 0 ~15 (16steps)		
OSD Display	Function / Motion / Camera ID / Zoom MAG / User Title / Initial Title		
Wide Dynamic Range	On / Auto / **Off**		
Operation Temperature	-10 ˚C ~ 50 ˚C , 0 % RH ~ 80 % RH		
Storage Temperature	-20 ˚C ~ 60 ˚C , 0 % RH ~ 85 % RH		
Supplied Voltage	DC12V		
Power Consumption	Max 5.3 W		
Dimensions (W x H x D)	57x 75x 101 (mm)		
Weight	500g		

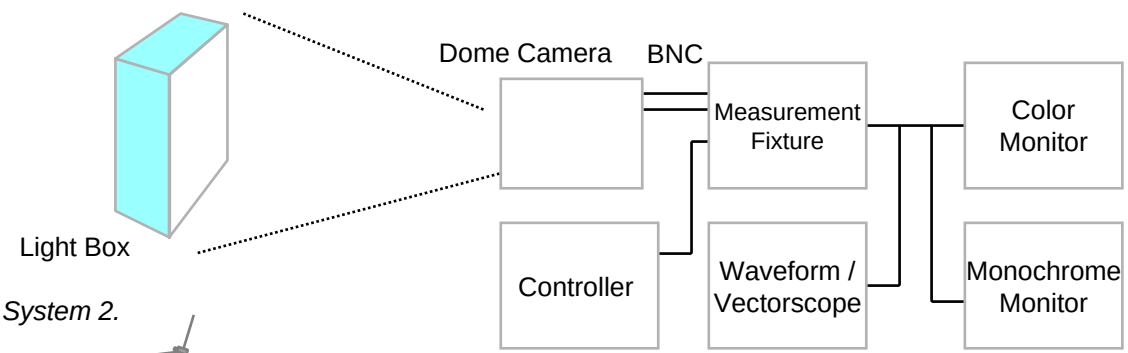
1. MEASUREMENT CONDITIONS

1. Standard Measurement Conditions

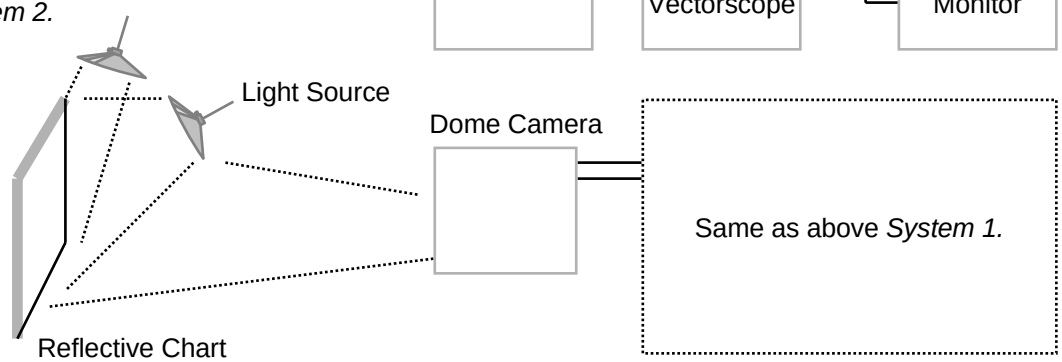
Supplied Voltage		DC 12V ± 0.5 V
Ambient Temperature		23 ℃
Humidity		60 % RH
EQUIPMENTS	Measurement Fixture	Video output , DC input , RS-232C level Convert (5Vpp -> 12Vpp)
	Power Supply	9V ~ 15V variable power supply
	Color Monitor	CMM20 - 11 , Shibasoku or Equivalent
	Monochrome Monitor	More than 800 TV Lines Horizontal Resolution
	Waveform Monitor / Vector Scope	1750A , Tektronix (NTSC / EIA) or Equivalent 1751A , Tektronix (PAL / CCIR) or Equivalent
	S / N (Signal to Noise)Meter	VN31AX , Shibasoku (NTSC/PAL/EIA/CCIR) or Equivalent
	Illumination Meter / Color Temperature Meter	XY-1 / CL-100 , Minolta Camera or Equivalent
	Light Box	LV-1005GS , Kyorits Denki - Color Temperature 3200。K ± 100 。K - Illuminantion More than 2000 Lux
	Test Charts	(Tranparent Chart) Color Bar Chart , Kyorits Denki Gray Scale Chart , Kyorits Denki (Gamma 2.2) Resolution Chart , Kyorits Denki (Reflective Chart) Gray Scale Chart , Murakami Color Research Lab
	Light Source	Halogen Lamp (with Dimmer Switch) - Color Temperature 3200。K ± 100 。K - Illuminantion Variable with Dimmer
	Color Temperature Filter	LB 140 , Hoya or Kenko or Equivalent (Colot Temperature Conversion Filter)
	Adjustment PC	With Serial Port 1 or 2
	RS-232C Cable	Each Terminal Connector (D-Sub 9 Pin)

2. Measuring System

1) System 1.



2) System 2.



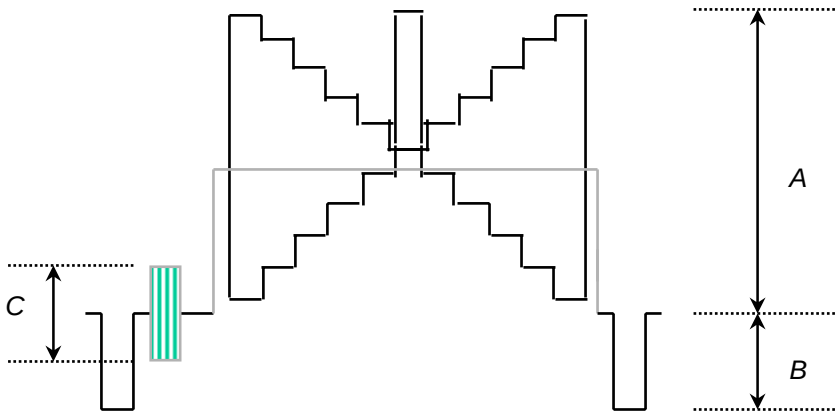
2. MEASUREMENT PROCEDURE

1. VIDEO OUPUT LEVEL

TEST CONDITIONS	Refer to " 1. MEASUREMENT CONDITIONS "
MEASURING SYSTEM	*System 1.*

PROCEDUTE :

1. Shoot the gray scale chart , and zooming WIDE or TELE to fit a scene of monitor fully by PC .
2. Measure the video output level on the waveform monitor
   (Before the above measurement , Measure the SYNC and BURST level)



(Fig 1.) Video Output Waveform

SPECIFICATION :

NTSC	Video Level *A*	100 ± 10 IRE
	Sync Level *B*	40 ± 5 IRE
	Burst Level *C*	40 ± 5 IRE
PAL	Video Level *A*	700 ± 70 mV
	Sync Level *B*	300 ± 35 mV
	Burst Level *C*	300 ± 35 mV

NOTE :

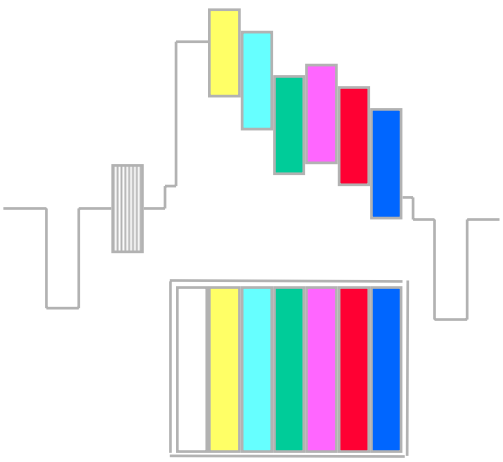
The video output must be stable

2. COLOR REPRODUCTION

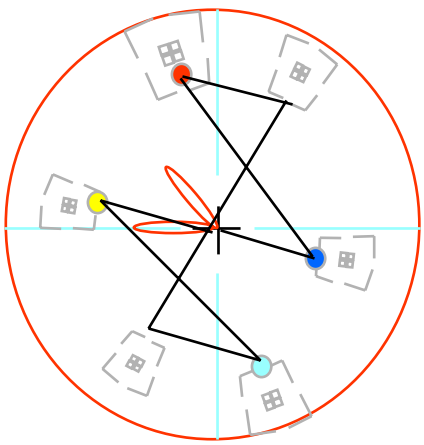
TEST CONDITIONS	Refer to " 1. MEASUREMENT CONDITIONS "
MEASURING SYSTEM	*System 1.*

PROCEDUTE :

1. Shoot the color bar chart , and zooming WIDE or TELE to fit a scene of monitor fully by PC .
2. Measure the color amplitude and color phase on the vector scope of Red,Blue,Yellow .
   (Before the above measurement , Adjust the burst amplitude and phase on the vectorscope . so that the burst level becomes 75% and its phase becomes 180 。 (NTSC) (135 。 PAL)



(Fig 2.) Video Output Waveform



(Fig 3.) Video Output Color Vector

SPECIFICATION :

COLOR		RED	BLUE	YELLOW	BURST
NTSC	Amplitude (%)	150 ± 30 %	98 ± 30 %	86 ± 30 %	75 %
	Phase (˚)	103 ± 20˚	340 ± 20˚	170 ± 20˚	180˚
PAL	Amplitude (%)	150 ± 30 %	98 ± 30 %	86± 30 %	75 %
	Phase (˚)	103 ± 20˚	340 ± 20˚	170 ± 20˚	135˚

NOTE :

3. LUMINANCE S / N	
TEST CONDITIONS	Refer to " 1. MEASUREMENT CONDITIONS "
MEASURING SYSTEM	*System 1.*

PROCEDUTE :

1. Shoot the light box , and zooming WIDE or TELE to fit a scene of monitor fully by PC . Set the focus to defocus. Set AGC OFF Mode.
2. The noise meter setting are ;

Input level	:	Preset
High Pass Filter	:	100KHz
Low Pass Filter	:	4.2 MHz
Subcarrier Trap	:	On
Weighting	:	On
Sag & Hue Comp.	:	Optimum

3. Mesure the maximum S/N on the noise meter .

SPECIFICATION :

NTSC : More than 48 dB

4. HORIZONTAL RESOLUTION	
TEST CONDITIONS	Refer to " 1. MEASUREMENT CONDITIONS "
MEASURING SYSTEM	*System 1.*

PROCEDUTE :

1. Shoot the resolution chart , and zooming WIDE or TELE to fit a scene of monitor fully by PC .
2. Adjust the brightness and contrast of the B/W monitor so that each steps of gray scale part can be observed .
3. Change the scan size of monitor to underscan
4. The reference arrows on the resolution chart are positioned at edge of the underscanned picture .
5. Change the scan size of monitor from underscan to overscan .
6. Measure the maximum horizontal resolution on the picture .

SPECIFICATION :

High Resolution : More than 480 TV Lines

NOTE :

Set the camera panning slightly to the right and left to get the highest resolution .

5. LOW LUMINANCE SENSITIVITY	
TEST CONDITIONS	Refer to " 1. MEASUREMENT CONDITIONS "
MEASURING SYSTEM	*System 2.*

PROCEDUTE :

1. Shoot the gray scale chart (reflective), and zooming WIDE fully by PC .
2. Adjust the brightness of the light source using the dimmer switch so that the white peak level of the chart becomes 30 IRE on the waveform monitor .
3. Measure the level of illumination using the illumination meter .

SPECIFICATION :

Less than 6 Lux (Normal Mode)

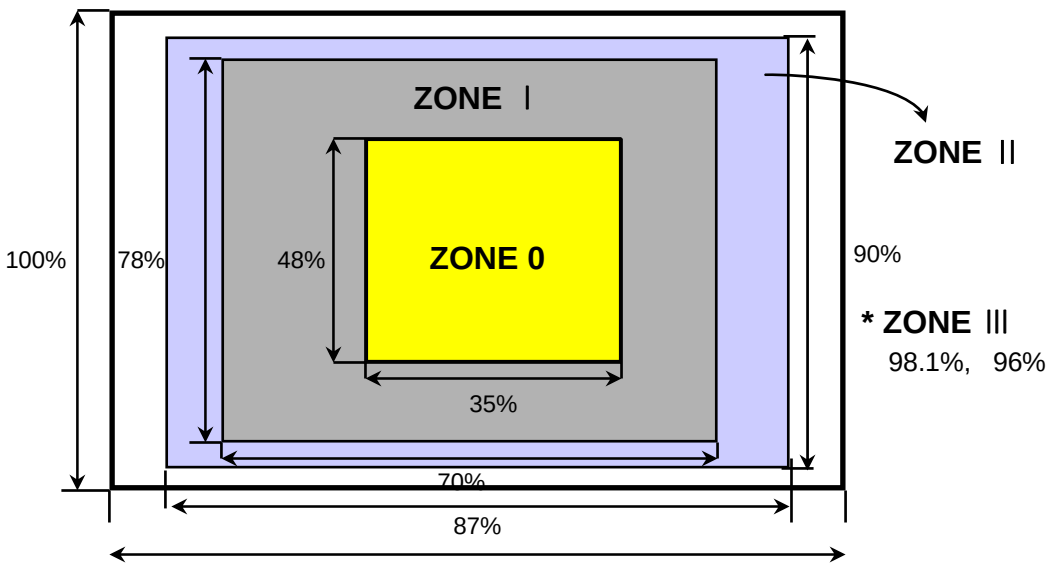
NOTE :

6. CCD Imager Defect Specification

TEST CONDITIONS	Refer to " 1. MEASUREMENT CONDITIONS " with black cap on the lens
MEASURING SYSTEM	*System 2.*

PROCEDURE :

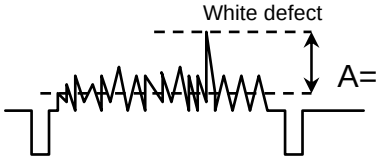
1. Cap on the lens with black mask
2. When camera is dark state, check output Waveform Monitor (line selection mode).
3. Measure the level of waveform monitor each region.



SPECIFICATION :

A (Defect level)	ZONE 0	ZONE Ⅰ	ZONE Ⅱ	ZONE Ⅲ	The number of defect
Less than60 mV	Don't care				* Total Permission : less than 3 defect is been permission.
60 mV ~120mV	0	1EA	1EA	1EA	
120 mV ~200mV	0	0	1EA	1EA	
More than200mV	0	0	0	0	

NOTE :

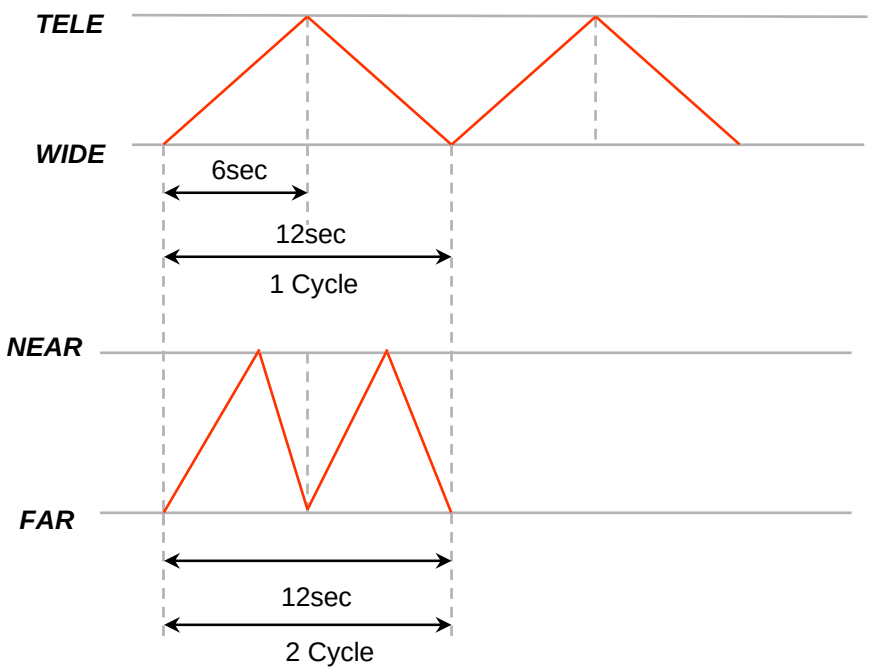


A= White defect level (Ta = 60℃)

7. Lens Reliability	
TEST CONDITIONS	Heat Run Chamber (40 'C)
MEASURING SYSTEM	*System 2. Shot the Focus chart*
PROCEDURE :	

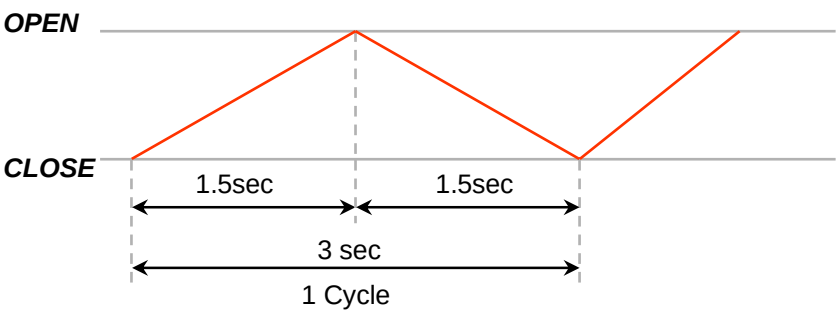
1) Lens Test Pattern

a) Zoom ;



b) Focus ;

c) Iris ;



SPECIFICATION :

Reliability of Focus : 1,000,000 Cycle
Reliability of Zoom : 1,000,000 Cycle
Reliability of Iris er : 1,000,000 Cycle

Failure : There is no malfunction on the zoom, focus, iris

6. EMC Requirements and approvals

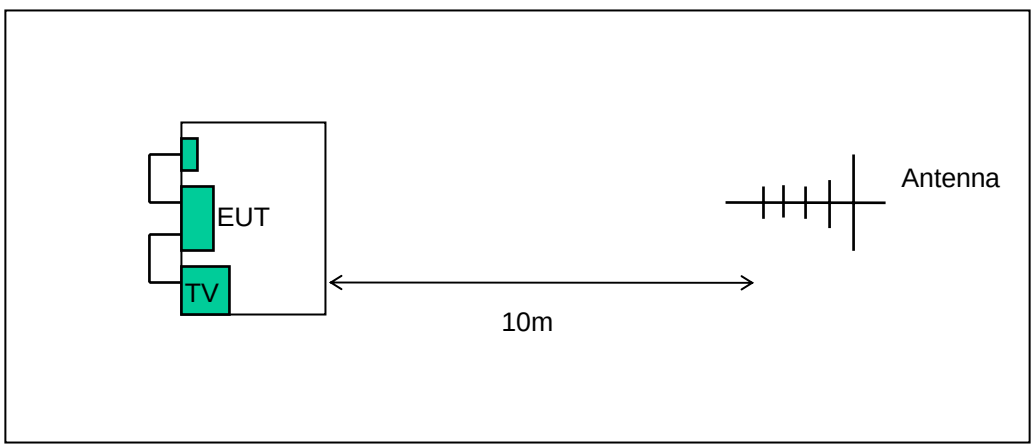
FCC Approval

1.This standards shall be for NTSC camera.
2. All administrative and performance requirements for CFR 47, Part15 class A using the C.I.S.P.R Publication 22 limits and the ANSI C63.4 procedures.

CE Approval

Test set-up

Open area site



FCC

This equipment has been tested and found to comply with the limits for a Class A digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment . This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in the residential area is likely to cause harmful interference in which case the user will be required the correct the interference at this his own expense.

4. RELIABILITY TESTS

1) Normal Operation Test (Initial dome camera's Performance Test)

23 ˚C ± 5 ˚C 60 % RH
* Check the dome camera's performance and measurement data.

2) Operating Conditions (Temperature , Humidity)

-10 ˚C ~ 50 ˚C 0 % RH ~ 60 % RH

3) Environmental Test Procedure (With dome camera only)

50 ˚C , 60 % RH 8 Hours
-10 ˚C , 0 % RH 8 Hours
* 1. Leave the dome camera unit at above condition (High temperature & Low temperature).
2. After this test , Check the dome camera's performance and measurement data .
3. Compare the data with given specifications

4) Storage Test Conditions & Procedure (With Carton)

60 ˚C , 85 % RH 48 Hours
-20 ˚C , 0 % RH 48 Hours

* Conditions : 1. Leave the carton at above condition (High temperature & Low temperature) .
2. After this test , moving it at normal temperature (23 ˚C) for 10hours .
3. Check the dome camera's performance and measurement data .
4. Compare the data with given specifications

5) Electrostatic Caution

* It will be damaged Camera module without outer case which flowed in the Electrostatic.
It is necessary to prepare Electrostatic ring , clothes , etc to prevent electrostatic.

6) Vibration Test (With Carton)

* Vibrate the camera 4mm widths of a vibration (1000rpm , 17Hz) .
Check the camera"s operations after testing each direction X,Y,Z for 30 minutes duration of a vibration .

7) Drop Test (WITH CARTON)

* Drop the camera under conditions of height 76 Cm , one corner , 3 edges , 6 surfaces .
Check the camera's operations after testing for 1 time .