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## CM2300 107S2 ( GS3 COCA+ Chassis) 71KHz General Specification (Sheet 590)

### FEATURES / BENEFITS

- Light Frame™
  - Brightness and sharpness boost on user selectable windows.
  - User interface application for Windows® 95/98/NT/2000 and MacOS 8/9. Supported languages: English, French, German, Spanish, Dutch, Portuguese (for Windows® version) and English, French, Spanish, German (for MacOS).
  
- EXTREMELY HIGH MTBF (OVER 75K HRS, EXCLUDING CRT)
- PROFESSIONAL LOOK, WITH NON-FLAMMABLE CABINET (94V-0)
- USER'S CONTROLS
  - . FRONT MOUNTED CONTROLS FOR EASY ACCESS
- BETTER DISPLAY PERFORMANCE
  - . FINER CRT DOT PITCH (0.28 MM)
  - . FULL SCREEN SIZE APPLICATION
  - . REAL MULTI-FREQ.
- POWER SAVING MANAGEMENT SYSTEM
- MAXIMIZED CONTAINER LOADING
- VESA DDC1 AND 2B
- LOW EMISSION MPR II /TCO99 (optional)

CLASS NO.		17" CM 23-- GS3 CMTR		8639 000 10743	
00-06-07		TYPE : 107S21/97C (COCA+)			
		BRAND : PHILIPS ( 71K)			
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1.0 Introduction

This document is related to the 17" AUTOSCAN (VGA above and Max. resolution 1280X1024 by 60HZ refresh) color monitor for world-wide destination.

2.0 General description

The AUTOSCAN analog color monitor is specified as a display peripheral within an IBM PC, PS/2, VGA and advance VGA compatible system.

The AUTOSCAN analog color monitor is to operate at horizontal line rates between 30 to 70 KHz and refreshment rate between 50 to 160 Hz, can be applied to all RGB analog computers within this scanning frequencies.

The AUTOSCAN analog color monitor is intended to be a finished product, basically a display device mounted inside a plastic enclosure which provides the aesthetic mechanical, ergonomic and safety requirements.

2.1 General condition

The unit will produce a usable image after switching-on, measurements are to be carried out with a full stabilized set after 30 minutes warm-up at room temperature of 25XC. Repetitive power on/off cycles are allowed though should be avoided within 4 sec.

3.0 Electrical characteristics

3.1 Signal interface

The AUTOSCAN analog color display has an analog video interface to operates at a multi-frequencies timing in several display modes.

3.1.1 Input requirements

A. Input signals

- Video : Analog level
- Sync. : Separated sync. with TTL level
- Polarity : Positive or negative

B. Signal input level

- Video : 0.7 Vp-p 75 ohms (for individual of R,G and B signals must not deviate 0.015 Vp-p from each other for balance of white pattern)
- Sync : TTL level  
(between 0 and 0.6 V to be considered as low level ,between 2.3 and 5.0 V as high level)

C. Impedance

- Video : Terminated with 75 ohms
- Sync : Terminated with 4.7K ohms pull down resistors.

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3.1.2 Signals input

The input video signals are applied to the display device through a video cable which is fixed to the monitor (standard cable length 1.5M).

Video input cable :  
15 pin D-shell male connector type AMP 211350-1(3 rows)  
or equivalent, with pin assignment as follows :

Pin assignment of 15P D-SUB connector

Pin nbr.	Assignment
P1	Red video input
P2	Green video input
P3	Blue video input
P4	GND
P5	For selftest (PC Ground)
P6	Red video ground
P7	Green video ground
P8	Blue video ground
P9	Not connected -- No pin
P10	Sync ground
P11	GND
P12	Bi-directional Data (SDA)
P13	H SYNC
P14	V SYNC (VCLK)
P15	Data clock (SCL)

3.1.3 Factory preset modes:

Factory preset modes : 8

	Resolution	H. freq.	V. freq.	H.	V.
1.	720 x 400	31.5 KHz	70Hz (VGA)	-	+
2.	640 x 480	31.47 KHz	60Hz (VGA)	-	-
3.	640 x 480	43.3 KHz	85Hz (VESA)		
4.	800 x 600	46.9 KHz	75Hz (VESA)		
5.	800 x 600	53.674KHz	85Hz (VESA)		
6.	1024 x 768	60.0 KHz	75Hz (VESA)		
7.	1024 x 768	68.7 KHz	85Hz (VESA)		
8.	1280 x 1024	64.0 KHz	60Hz (VESA)		

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Factory preload modes : 14

	Resolution	H. freq.	V. freq.
9.	640 x 350	31.5 KHz	70Hz
10.	640 x 350	37.9 KHz	85Hz
11.	640 x 480	37.5 KHz	75Hz
12.	640 x 480	37.9 KHz	72.8Hz
13.	640 x 480	50.6 KHz	100Hz
14.	720 x 400	37.9 KHz	85Hz
15.	800 x 600	37.9 KHz	60Hz
16.	800 x 600	48.1 KHz	72Hz
17.	800 x 600	63.9 KHz	100Hz
18.	832 x 624	49.7 KHz	75Hz
19.	1024 x 468	48.4 KHz	60Hz
20.	1024 x 768	56.5 KHz	70Hz
21.	1152 x 864	67.5 KHz	75Hz
22.	1280 x 960	60 KHz	60Hz

### 3.2 Timing requirements

The AUTOSCAN color monitor must be capable of displaying standard resolutions within the vertical(refresh) frequency range of 50 to 160 Hz and horizontal scan range of 30 - 71 KHz.

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TIMING FOR CM2300 COCA+ GS3 107S2-71K COLOR MONITOR

REFERENCE PATTERN GENERATOR : CHROMA 2135

\* According VESA version 1.0 release 0.6p

Factory preset modes

TABLE 1: 31.469 KHz/70.087 Hz, 720 X 400, pixel=28.325MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
<u>Total size = 31.774 us</u>	<u>Total size = 14.268 ms</u>
Display size = 25.422 us	Display size = 12.711 ms
Rear porch = 1.907 us	Rear porch = 1.112 ms
Sync width = 3.813 us	Sync width = 0.064 ms
Sync.polarity = -	Sync.polarity = +

TABLE 2: 31.469KHz/59.940 Hz, 640 X 480, pixel=25.175 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
<u>Total size = 31.778 us</u>	<u>Total size = 16.683 ms</u>
Display size = 25.422 us	Display size = 15.253 ms
Rear porch = 1.907 us	Rear porch = 1.049 ms
Sync width = 3.813 us	Sync width = 0.064 ms
Sync.polarity = -	Sync.polarity = -

TABLE 3: 43.269KHz/85.008 Hz, 640 X 480, pixel=36.000 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
<u>Total size = 23.111 us</u>	<u>Total size = 11.764 ms</u>
Display size = 17.778 us	Display size = 11.093 ms
Rear porch = 2.222 us	Rear porch = 0.578 ms
Sync width = 1.556 us	Sync width = 0.069 ms
Sync.polarity = -	Sync.polarity = -

TABLE 4: 46.875 KHz/75 Hz, 800 X 600, pixel=49.500 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
<u>Total size = 21.333 us</u>	<u>Total size = 13.333 ms</u>
Display size = 16.162 us	Display size = 12.800 ms
Rear porch = 3.232 us	Rear porch = 0.448 ms
Sync width = 1.616 us	Sync width = 0.064 ms
Sync.polarity = +	Sync.polarity = +

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TABLE 5: 53.674 KHz/85.061 Hz, 800 X 600, pixel=56.250 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 18.631 us	Total size = 11.756 ms
Display size = 14.222 us	Display size = 11.179 ms
Rear porch = 2.702 us	Rear porch = 0.503 ms
Sync width = 1.138 us	Sync width = 0.056 ms
Sync.polarity = +	Sync.polarity = +

TABLE 6: 60.03 KHz/75 Hz, 1024 X 768, pixel=78.750 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 16.660 us	Total size = 13.328 ms
Display size = 13.003 us	Display size = 12.795 ms
Rear porch = 2.235 us	Rear porch = 0.466 ms
Sync width = 1.219 us	Sync width = 0.050 ms
Sync.polarity = +	Sync.polarity = +

TABLE 7: 63.981 KHz/60 Hz, 1280 X 1024, pixel=108 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 15.630 us	Total size = 16.661 ms
Display size = 11.852 us	Display size = 16.005 ms
Rear porch = 2.296 us	Rear porch = 0.594 ms
Sync width = 1.037 us	Sync width = 0.047 ms
Sync.polarity = +	Sync.polarity = +

TABLE 8: 68.677 KHz/85 Hz, 1024 X 768, pixel=94.500 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 14.561 us	Total size = 11.765 ms
Display size = 10.836 us	Display size = 11.183 ms
Rear porch = 2.201 us	Rear porch = 0.524 ms
Sync width = 1.016 us	Sync width = 0.044 ms
Sync.polarity = +	Sync.polarity = +

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TABLE 13: 50.625 KHz/100.049 Hz, 640 X 480, pixel=40.5MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 19.752 us	Total size = 9.995 ms
Display size = 15.802 us	Display size = 9.481 ms
Rear porch = 1.975 us	Rear porch = 0.435 ms
Sync width = 1.580 us	Sync width = 0.059 ms
Sync.polarity = -	Sync.polarity = -

TABLE 14: 37.927 KHz/85.039 Hz, 720 X 400, pixel=35.5 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 26.366 us	Total size = 11.759 ms
Display size = 20.282 us	Display size = 10.546 ms
Rear porch = 3.042 us	Rear porch = 1.107 ms
Sync width = 2.028 us	Sync width = 0.079 ms
Sync.polarity = -	Sync.polarity = +

TABLE 15: 37.879 KHz/60.317 Hz, 800 X 600, pixel=40MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 26.400 us	Total size = 16.579 ms
Display size = 20.000 us	Display size = 15.840 ms
Rear porch = 2.200 us	Rear porch = 0.607 ms
Sync width = 3.200 us	Sync width = 0.106 ms
Sync.polarity = +	Sync.polarity = +

TABLE 16: 48.077 KHz/72.188 Hz, 800 X 600, pixel=50MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 20.800 us	Total size = 13.853 ms
Display size = 16.000 us	Display size = 12.480 ms
Rear porch = 1.280 us	Rear porch = 0.478 ms
Sync width = 2.400 us	Sync width = 0.125 ms
Sync.polarity = +	Sync.polarity = +

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TABLE 17: 63.92KHz/100 Hz, 800 X 600, pixel=67.5MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 15.644 us	Total size = 9.997 ms
Display size = 11.852 us	Display size = 9.387 ms
Rear porch = 2.370 us	Rear porch = 0.548 ms
Sync width = 0.948 us	Sync width = 0.047 ms
Sync.polarity = +	Sync.polarity = +

TABLE 18: 49.714KHz/74.534 Hz, 832 X 624, pixel=57.27MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 20.115 us	Total size = 13.417 ms
Display size = 14.528 us	Display size = 12.552 ms
Rear porch = 3.911 us	Rear porch = 0.784 ms
Sync width = 1.118 us	Sync width = 0.060 ms
Sync.polarity = -	Sync.polarity = -

TABLE 19: 48.363 KHz/60.004 Hz, 1024 X 768, pixel=65MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 20.677 us	Total size = 16.666 ms
Display size = 15.754 us	Display size = 15.880 ms
Rear porch = 2.462 us	Rear porch = 0.600 ms
Sync width = 2.092 us	Sync width = 0.124 ms
Sync.polarity = -	Sync.polarity = -

TABLE 20: 56.476KHz/70.069 Hz, 1024 X 768, pixel=75MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 17.707 us	Total size = 14.272 ms
Display size = 13.653 us	Display size = 13.599 ms
Rear porch = 1.920 us	Rear porch = 0.513 ms
Sync width = 1.813 us	Sync width = 0.106 ms
Sync.polarity = -	Sync.polarity =

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Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 15.644 us	Total size = 9.997 ms
Display size = 11.852 us	Display size = 9.387 ms
Rear porch = 2.370 us	Rear porch = 0.548 ms
Sync width = 0.948 us	Sync width = 0.047 ms
Sync.polarity = +	Sync.polarity = +

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Rear porch = 3.911 us	Rear porch = 0.784 ms
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Rear porch = 1.920 us	Rear porch = 0.513 ms
Sync width = 1.813 us	Sync width = 0.106 ms
Sync.polarity = -	Sync.polarity =

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TABLE 21: 67.5 KHz/75Hz, 1152 X 864, pixel=108MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 14.815 us	Total size = 13.333 ms
Display size = 10.667 us	Display size = 12.8 ms
Rear porch = 2.370 us	Rear porch = 0.474 ms
Sync width = 1.185 us	Sync width = 0.044 ms
Sync.polarity = +	Sync.polarity = +

TABLE 22: 60 KHz/60 Hz, 1280 X 960, pixel=108MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 16.667 us	Total size = 16.667 ms
Display size = 11.852 us	Display size = 16.000 ms
Rear porch = 2.889 us	Rear porch = 0.600 ms
Sync width = 1.037 us	Sync width = 0.050 ms
Sync.polarity = +	Sync.polarity = +

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3.2.1 Horizontal scanning

Scanning frequency : 30 - 70 KHz  
 H-shift range : ± 10 mm Min. (for preset modes only)

3.2.2 Vertical scanning

Scanning frequency : 50 - 160 Hz  
 V-shift range : ± 10 mm min. (for preset modes only)

3.3 Power supply

The display device maintains the specified performance in the range described as bellows :

Type	Mains current	Mains Voltage	Mains freq.
Universal	1.5A Max.	90 - 264 VAC	47 - 63 Hz
230V version	0.7A Max.	195 - 264 VAC	47 - 63 Hz
115V version	1.5A Max.	90 - 132 VAC	60 ± 3 Hz

Power consumption : 90 Watts Max.  
 Power cord length : 1.5M  
 Power cord type : 3 leads plug power cord with protective earth plug or IBM Hooded

3.4 Power saving management system

Mode	Signal			Compliance Requirement	Power	Recovery Time
	H-Sync	V-Sync	Video			
On	Active	Active	Active	Mandatory	90w	N/A
Stand-by	Inactive	Active	Blanked	Mandatory	10w	3 sec.
Suspend	Active	Inactive	Blanked	Mandatory	10w	3 sec.
Off	Inactive	Inactive	Blanked	Mandatory	3w	Normal

Remark: Transition time from "ON" to any power saving mode will have 5 seconds delay.

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### 3.5 CRT Description

This display unit employs a high resolution CRT complying with the following specifications :

Dimensions	: 17 inches. flat/square screen
Pitch	: 0.27mm dotted with black matrix
Deflection angle	: 90 degrees
Light transmission	: 47% (dark glass)
Face treatment	: Anti-glare, anti-static
Implosion protection	: By P-Mini-rim-band.
EHT	: 25.0 ± 1 KV (Ib=0)
Visible screen area	: 327.2 mm x 245.44mm
CRT Source	: PHILIPS, CPT tube

### 3.6 RGB Amplifier

#### 3.6.1 Video amplifiers

Dot Rate	: 110 MHz
Over / undershoot	: 10% Max. (Transient response)
Sag	: 5% Max.(pulses of 0.70H)
Black level shift	: 5% Max.

#### 3.6.2 Brightness and Contrast

Reference mode 68.7 KHZ/85 HZ full white pattern.

#### DISPLAY LIGHT OUTPUT

		Light output
Brightness	Contrast	(full white)
Minimum	Minimum	No visible
Center	Maximum	30 ± 5 FL.
50mmx50mm block		

Brightness at center and contrast at maximum light output is 41+/-6 FL.

#### 3.6.3 Raster light output

Apply 68.7KHz/85Hz mode with no video pattern, set brightness at center click and contrast control at minimum The light output on the screen center should < 0.2FL.

### 3.7 Variation of image size ( For preset modes only )

Due to brightness change : 2.0 % max at 31,5Khz, 37.5Khz  
1.0 % max at timing > 37.5 KHz

(Set brightness control at center click, turn contrast control from Min. to Max.)

Due to aging (25 C, 300 hrs) : 1.0 %

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**Due to mains voltage variation ( 10% ) : ≤ 1.0 %**

3.8 Degaussing

An automatic degaussing circuit is provided which requires no intervention. The degaussing activated at the time of switch on or switch on again after switching off degaussing circuits for longer than 30 minutes.

3.9 Phosphor protection

The display device is sufficiently protected against the burning of phosphors in case of repetitive power cycling or absence of horizontal deflection.

3.10 Low emission requirements (MPR-II )

Items	Band I ELF (rms)	Band II VLF (rms)
Alternating Electric Field	MPR-II < 25 V/M	MPR-II < 2.5V/M
Magnetic Field	MPR-II < 250 nT	MPR-II < 25 nT
Electrostatic Potential	< +/- 500 V	

Band I : 5 to 2K HZ.

Band II : 2K to 400K HZ.

Test procedure according to MPR-II and E.S.P. test method.

3.11 Display data channel : DDC1/2B (VESA STANDARD)

The DDC HEX Data (refer sheet 190) should be written into the DDC IC and MCU EEPROM.

4.0 Display image (CRT facing east)

The monitor is aligned in a magnetic cage having the following magnetic field components :

Northern Hemisphere : H = 0, V = 450 mG, Z = 0

Southern Hemisphere : H = 0, V = -500 mG, Z = 0

Conditions for visual testing, unless otherwise stated:

Input video signal - 700 mVpp cross hatch

Brightness control - center position

Contrast control - maximum position

4.1 Display resolutions

See 3.1.3

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#### 4.2 Image size (For preset modes only)

The dimensions of guaranteed display area to be measured along the picture center of horizontal and vertical axis of the screen as listed below: (preset modes only, refer to fig. 1)

Width :  $270 \pm 3$  mm  
 Height :  $202 \pm 3$  mm

#### 4.3 Image centering deviation (For preset modes only)

With respect to fig. 2, the target relationships are the following :

$$IA - BI \leq 5 \text{ mm} \quad IC - DI \leq 5 \text{ mm}$$

Note : This centering is adjustable by the end-user.

#### 4.4 Picture shift control range (For preset modes only)

H-shift range : 10 mm min.  
 V-shift range : 10 mm min.

#### 4.5 Picture tilt

With respect to Fig. 3, Tilt to be measured on extremes of center line from bezel.

$$IA - BI : \leq 2 \text{ mm}$$

#### 4.6 Geometrical distortions (For preset modes only)

It is acceptable that pincushion, trapezoid, rhomboid, rotation and various waves distortions must remain within the limits of tolerance as in fig. 4, where  $A = B = 2.0$  mm.

$$C = D = 2.0 \text{ mm.}$$

The waviness of any vertical or horizontal shall be less than 1.0 mm over a 50 mm distance.

#### 4.7 Image non-linearity pattern with 12 equal blocks along horizontal axis, 10 equal blocks along vertical axis. (see Fig. 1) (For preset modes only)

Overall : 10 % (each horizontal and vertical)

Deviation of Two adjacent block :  $\leq 6$  %

$$H. \text{ non-linearity} = (X. \text{ Max.} - X. \text{ Min.}) / (X. \text{ Max.}) \times 100\%$$

$$V. \text{ non-linearity} = (Y. \text{ Max.} - Y. \text{ Min.}) / (Y. \text{ Max.}) \times 100\%$$

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#### 4.8 Mis-convergence

The maximum convergence error to be measured on a white spot or white display line to represents the maximum distance between the energy centers of any two primary colors. (See Fig. 6)

##### CONVERGENCE SPEC.

Zones	0.28 mm CRT
Zone C	0.15 mm
Zone A	0.25 mm
Zone B	0.35 mm

#### 4.9 Focus check ( 68.7 KHZ / 85 HZ )

Adjust brightness control to center click and contrast control to get 25 FL at full white pattern , then generate "@" characters to cover entire of the picture the characters should be clearly identified in all display area. (See Fig. 7)

#### 4.10 Luminance uniformity

condition : With full white pattern, set contrast control at maximum position and brightness control at center click position.

The center of the display is 30 FL+/-5. , the Max. deviation of the screen should not exceed 25% .

#### 4.11 White color adjustment

Based on the 1931 CIE chromatic diagram (x,y) coordinates of white display on screen center should be:

For 9300° K X = 0.283 +/- 0.015  
 Y = 0.297 +/- 0.015  
 For 6500° K X = 0.313 +/- 0.015  
 Y = 0.329 +/- 0.015

Check conditions :

Set brightness control at center click position and contrast at maximum position.

#### 4.12 Color tracking on full white pattern

To adjust the luminance output from 3 to 30 FL. By turning the contrast control (brightness control at center click position), the color co-ordinates should not deviate more than the following tolerance when compare to display center:

X= X (center) +/- 0.015  
 Y= Y (center) +/- 0.015

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#### 4.13 Purity

Test patterns : Full white / Red / Green / Blue.

Conditions : As stated in item 4.0, the purity must be checked under specific destinations of earth magnetic environments and the monitor to be well degaussed.

After warming-up time of 30 min. , no color stains may occur in above four patterns.

#### 4.14 Moire'e

Condition: Displaying a full white pattern, at any preset mode , the display size to be set as Fig.1

The clouding effect must not rise to disturbing levels in 1/3 of the screen with luminance setting from 15 to 30 FL.

#### 4.15 Blemish

Blemish shall be in accordance with CRT specification.

#### 5.0 Mechanical characteristics

##### 5.1 User controls

- Power ON/OFF switch
- 5 Key digital user control

##### 5.2 Connectors and cables

5.2.1 Power cord type : 3 leads plugable power cord with protective earthed plug or IBM Hooded

Length : 1.5 m +/- 50 mm (exc. connector)

Safety requirements : See following.

Countries	Approval		
	Mains plug	Wire	Connector
Germany	VDE	VDE	VDE
Switzerland	--	SVE	SVE
Belgium	CEBEC	--	--
Sweden	SEMKO	SEMKO	SEMKO
Finland	EI	--	EI
Norway	NEMKO	NEMKO	--
Denmark	DEMKO	DEMKO	DEMKO
Italy	OVE	--	OVE
Netherlands	KEMA	KEMA	KEMA
U.K.	ASTA	HAR	ASTA
U.S.A.	UL	UL	UL
Canada	CSA	CSA	CSA
Australia	SAA	SAA	SAA

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5.2.2 Signal cable

Length of video : 1.5 m 50 mm flying with 15 pin PS/2 D-shell socket

5.3 Tilt and swivel base

Tilt angle : 5 forward and 15 Max. backward  
Swivel rotation : 90 leftward or rightward

6.0 Environmental characteristics

The following sections to define the interference and susceptibility condition limits that might occur between external environment and the display device.

6.1 Susceptibility of display to external environment

6.1.1 (A) Operating limits

Temperature : 0 C to 40 C Humidity : 10 to 90% (W/O condensation)  
Air pressure : 700 ~ 1100 mbar

(B) Non-operating limits (storage)

Temperature : -25 C to 60 C  
Humidity : 5 to 95 % (W/O condensation)  
Altitude : 300 to 1100 mbar

6.1.2 Transportation packages

A) Carton box

A-1 Size (with pedestal)  
496(W) x 518(D) x 495(H)

A-2 Carton paper : double wall AB fute corrugate board, color brown

Bursting : 19.3 kg/cm2 min  
Compression : 600 kg min

B) Transportation conditions

B-1 Container loading (separated pedestal)

Q'ty	Container size			
	40'		20'	
	W/ palette		W/ palette	
	Yes	No	Yes	No
Layers	4	4	4	4
Sets per layer	4	4	4	4
Sets per block	16	16	16	16
Blocks per container	24	24	10	10
Total sets	384	384	160	160

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B-2 Transportation standards

Standards		EU / Asia versions PHILIPS's UN-D1400	U.S.A. version NSTA
Drop test	Height	61 cm	61 cm
	Sequence	-10 °C for 16 hours, 1 corner, 3 faces Right/Back/Top faces Left/Front/Bottom faces (only for reference)	1 corner. 3 edges. 6 faces
	Result	- Electrical function OK. - Mechanical function OK. - No serious damage in Set.	
Vibration Test	Sequence	a . 5~200Hz. 0.25G operating random vibration 30 min/axis, 3 axes b. 5~200Hz. 0.73 packing random - vibration 30 min/axis, 3 axes	
	Result	- Electrical function OK. - Mechanical function OK. - No serious damage in set.	
Shock test	For design evaluation only. Half sine shock : 120G, <3m sec. 6 shocks Temp. : 23 °C Humidity : 60 % Air pressure : 100 kpa Standard : Mechanical Guideline		

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6.2 Display disturbances from external environment

6.2.1 ESD Disturbances

According to EN50082-1 (also refer to IEC801-2 for detail).

6.3 Display disturbances to external environment

The disturbances induced by the display and tolerated by the environment are defined as follows :

6.3.1 Ionizetic radiation

Completely fulfilled International Commission of Radio logical Protection (ICRP) requirement 0.5 mR/Hr.

Actually the set can reach 0.1 mR/Hr.

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6.3.2 EMI  
Can comply with FCC part 15, DOC C108.8 and EN55022

7.0 Safety tests

7.1 Dielectric strength (Hi-pot test)  
According to IEC950, UL1950 and CSA 22.2 No 950

7.2 Resistance for protective earthing  
According to IEC950

7.3 Leakage current  
According to IEC950, UL1950 and CSA22.2 No. 950

7.4 Grounding  
According to IEC950, UL1950 and CSA22.2 No. 950

8.0 Certifications

8.1 Safety  
The monitors comply with the following safety standards:

- IEC950
- UL1950
- DHHS 21 CFR, subchapter J
- CSA-22.2 NO. 950
- GERMANY ZH1/618(GS), ISO 9241-3,-8

8.2 EMI (Electromagnetic Interference)  
The monitor comply with the following EMI standards :

- En55022
- FCC Part 15
- DOC C108.8

8.3 Fulfil approbation requirements  
Destination basis, set can fulfil following requirements:

Countries	Safety	EMI
Germany	TUV,GS	CE
Sweden	SEMKO	----
Norway	NEMKO	----
Denmark	DEMKO	----
Finland	FIMKO	----
Spain	HOMOLOGATION	CE
UK	BEAB	CE
U.S.A.	UL , DHHS	FCC
Canada	CSA	DOC
Japan	----	VCCI

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9.0 Reliability

9.1 Mean time between failures

MTBF to be calculated according to Military standard MIL-HDBK-217C.

MTBF 75,000 Hours (Excluding CRT)

$$\text{PRACTICE of MTBF} = \frac{\text{TOTAL HRS (POWER ON) X TOTAL SETS}}{\text{NBR. OF FAILURE SETS}}$$

10.0 Quality assurance requirements

10.1 Acceptance test

According to MIL-STD-105D level II,  
 AQL : 0.4 (Major)  
 : 1.0 (Minor)

Customer acceptance : UAW 0377/40  
 Criteria

11.0 Service ability

The service ability of this monitor should fulfil the requirements which are prescribed in UAW-0346 and must be checked with the check list UAT - 0361

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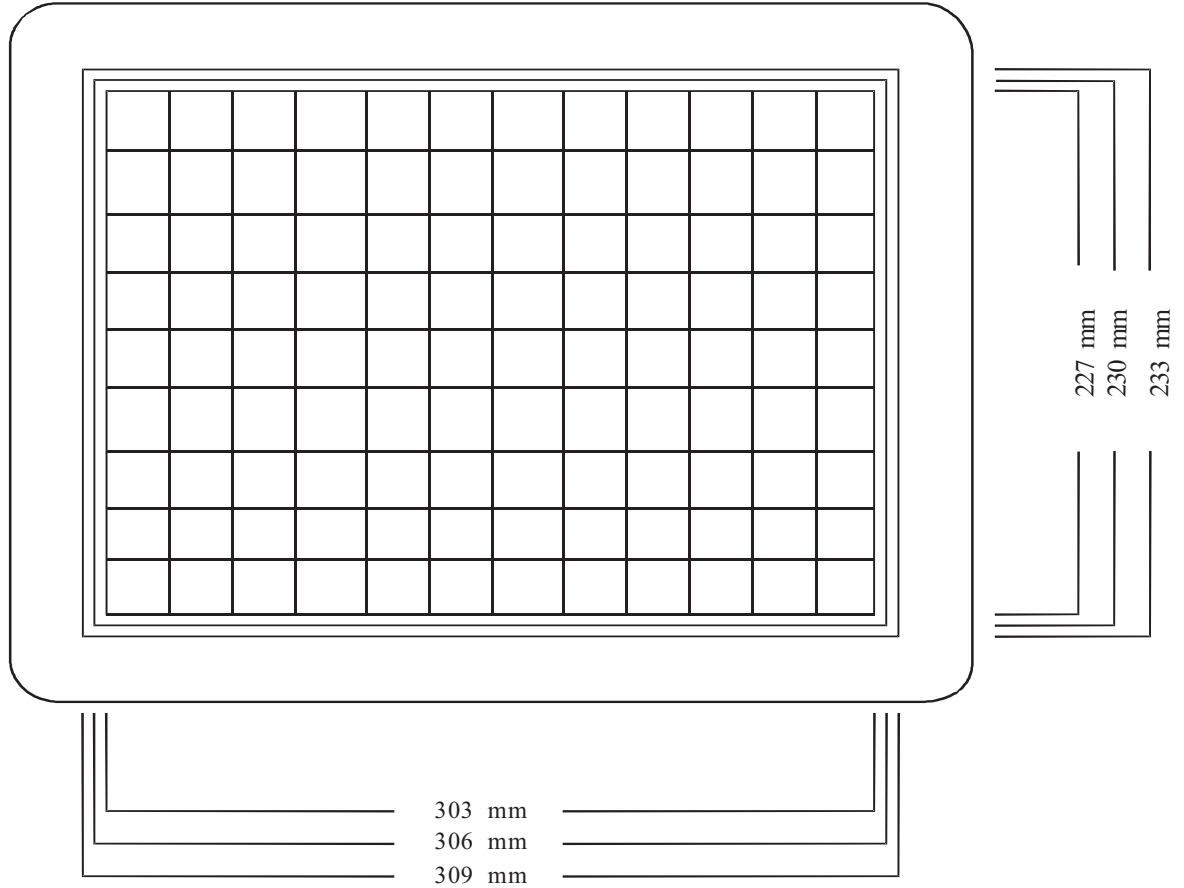


FIG-1 IMAGE DIMENSION

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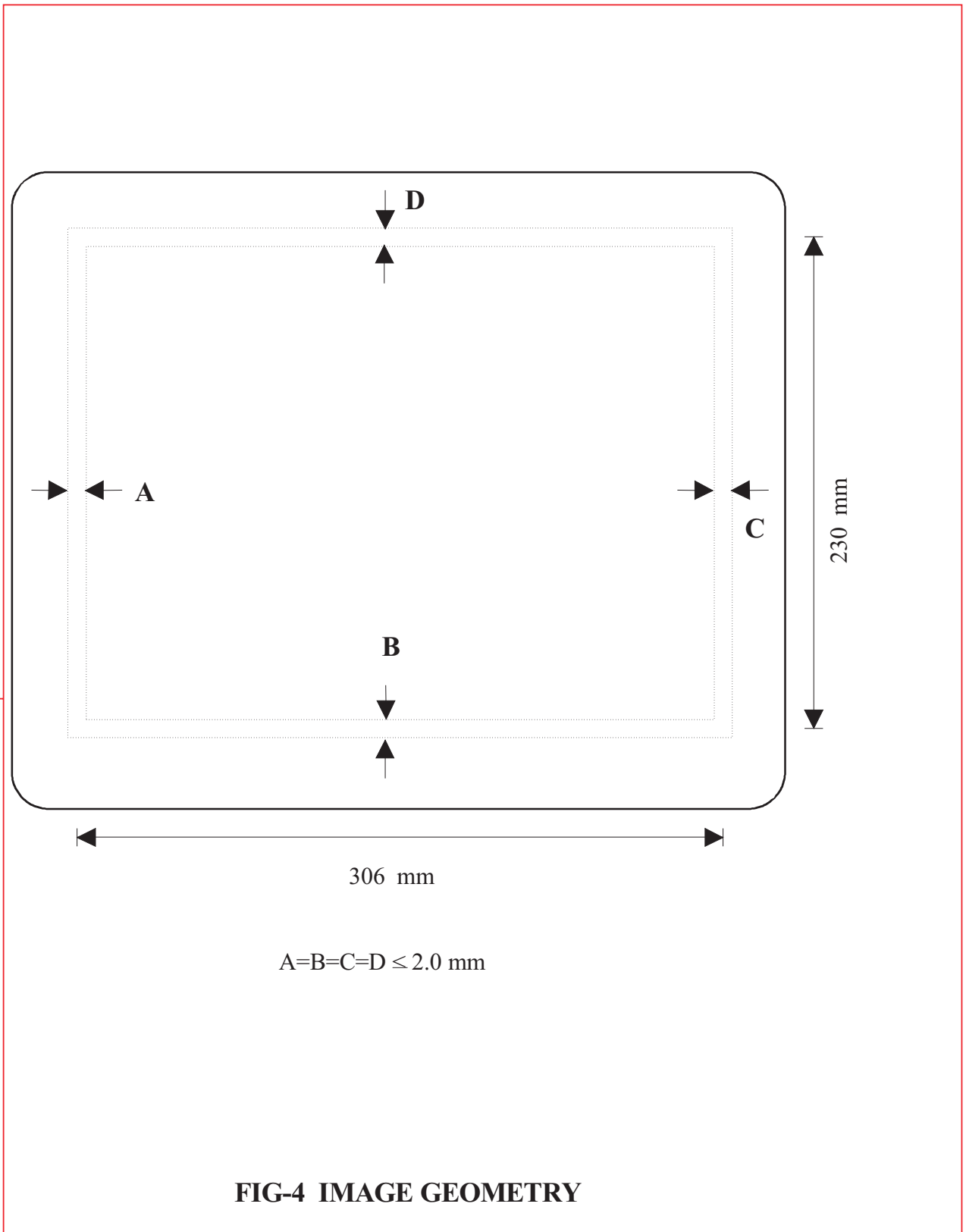


FIG-4 IMAGE GEOMETRY

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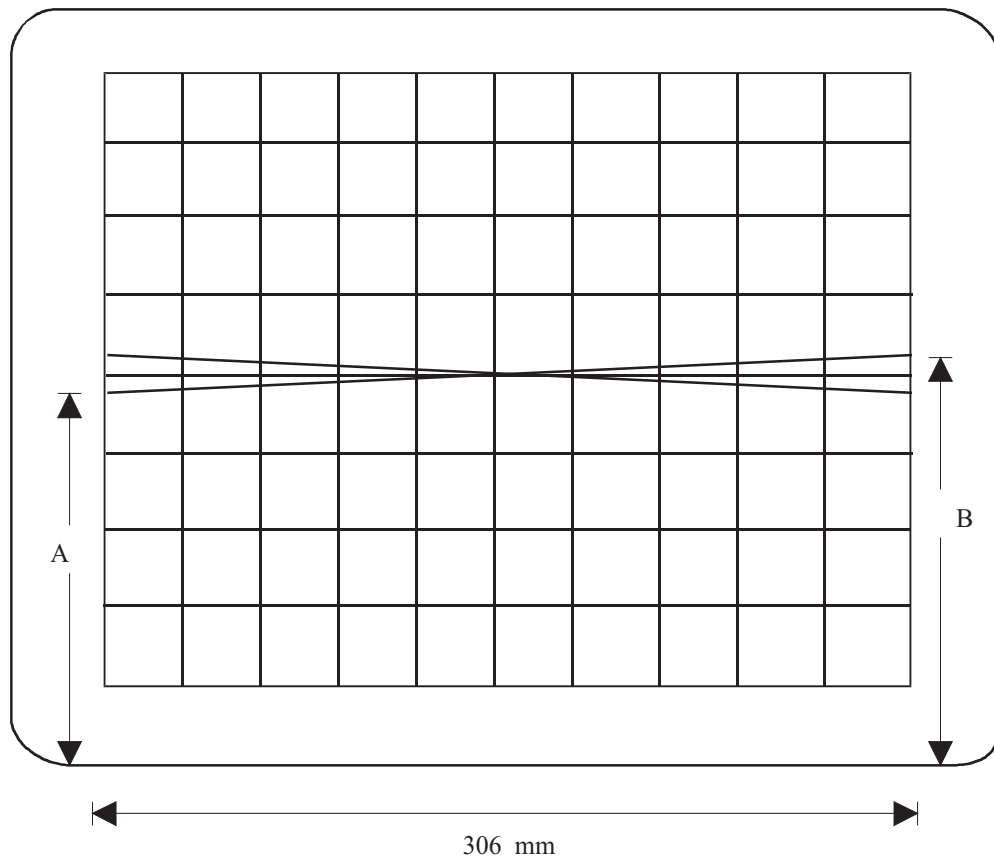


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$$|A-B| \leq 2 \text{ mm}$$

FIG-3 IMAGE ROTATION

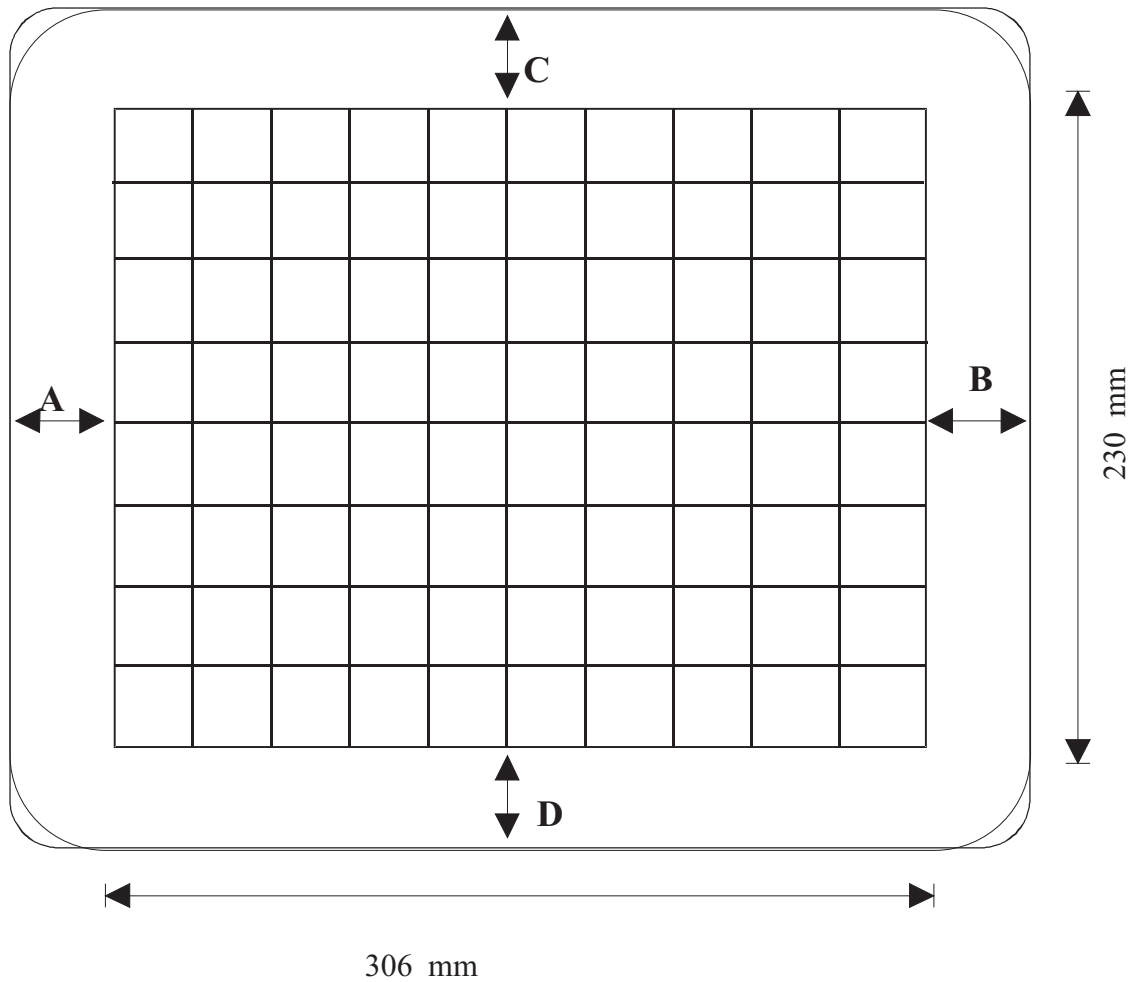
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$|A-B| \text{ AND } |C-D| \leq 5 \text{ mm}$

FIG-2 IMAGE CENTERING

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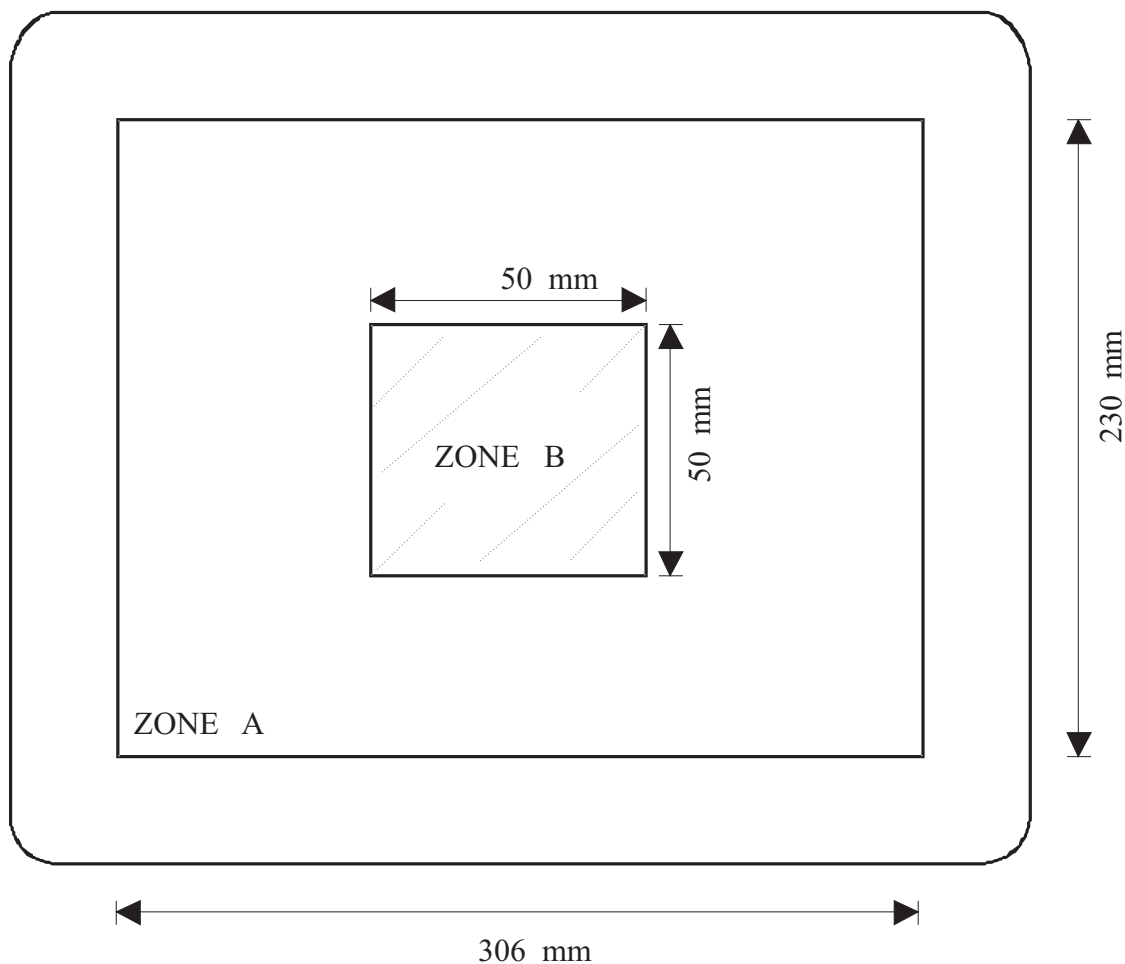


FIG-5 CONTRAST AND BRIGHTNESS MEASUREMENT AREA

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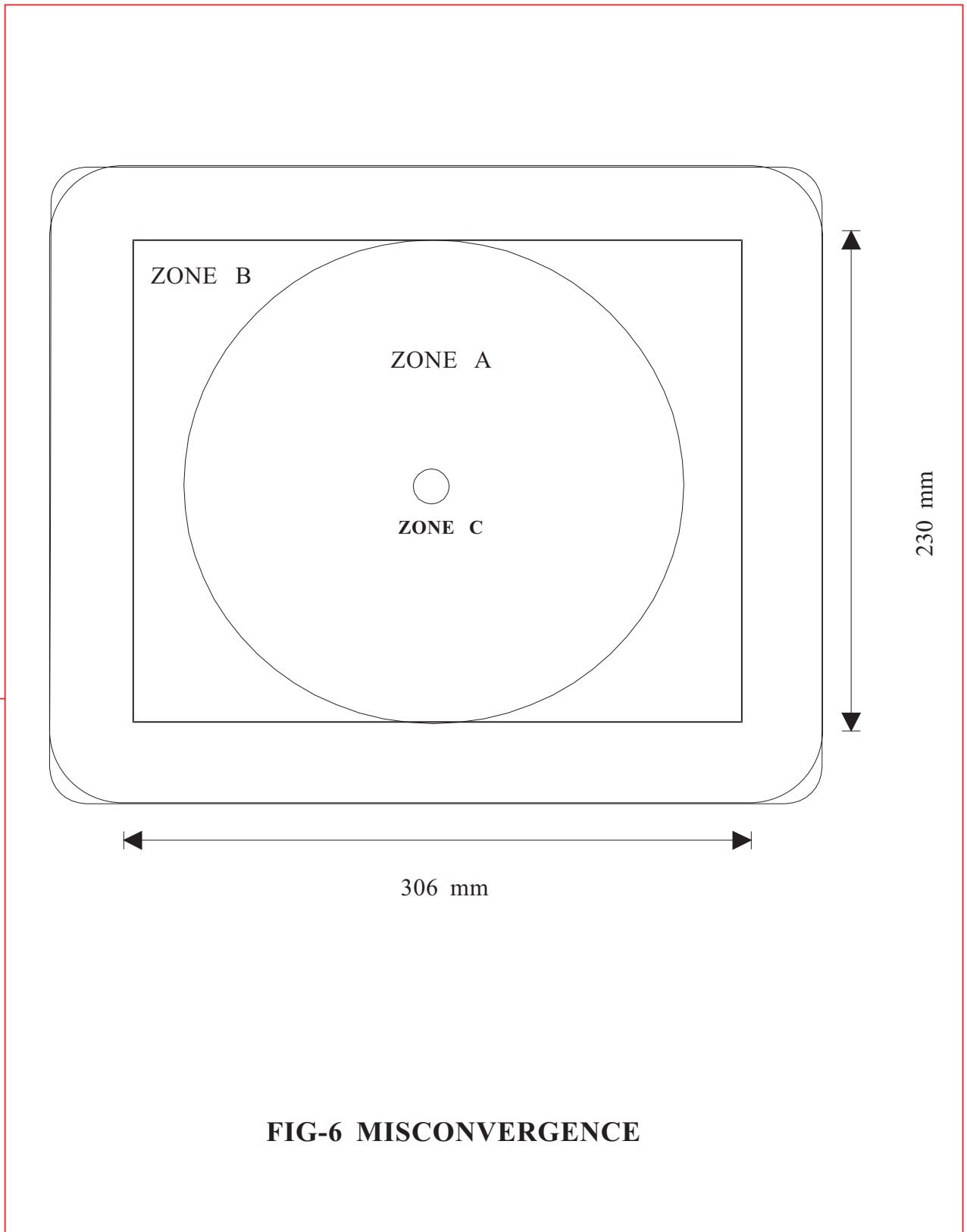


FIG-6 MISCONVERGENCE

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1 BYTE = 8BITS

LINE	HEX.DATA	7	6	5	4	3	2	1	0
0	0 0								
1	0 0								
2	7 C								
3	8 2								
4	8 2								
5	9 E								
6	9 2								
7	9 2								
8	9 C								
9	8 0								
A	7 C								
B	0 0								
C	0 0								
D	0 0								
E	0 0								
F	0 0								

Fig 7 CHARACTER FORMAT FOR FOCUS CHECK

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