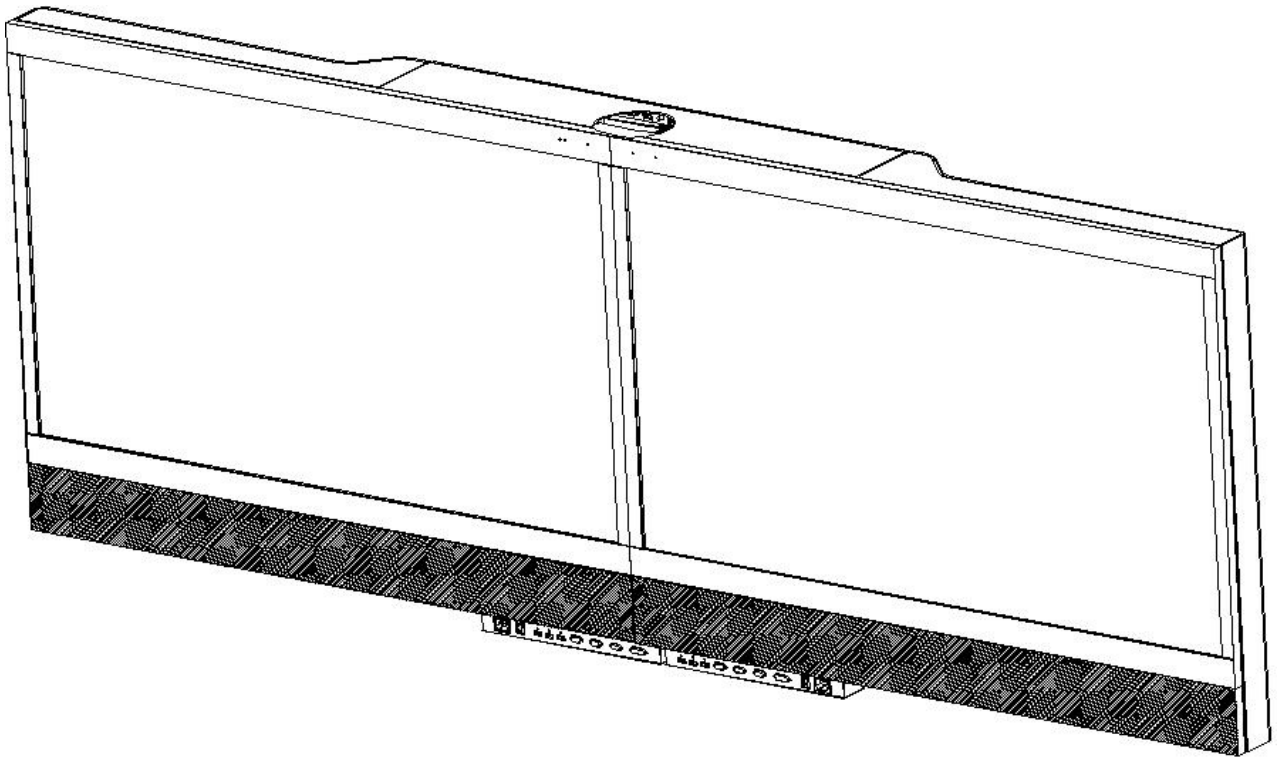
User's Manual

52" Dual Color TFT LCD Monitor

Model Name : FS-S5202C
Model Number : 0100400003AA
Customer Project name : Aquarius Dual



TANDBERG					Page 1 of
Item number :			Item name :		
117336			TANDBERG Monitor Dual 52" Assembly		Rev.:01-draft
	Date	Sign	Changes : Rev 01		
Init			First build of the specification		
Tech					
App					
Vendor			Vendor/Manufacturer Part No	FS-S5202C	0100400003AA
Vendor/Manufacturer must guarantee that assembly is in compliance with RoHS directive(tick-off)					

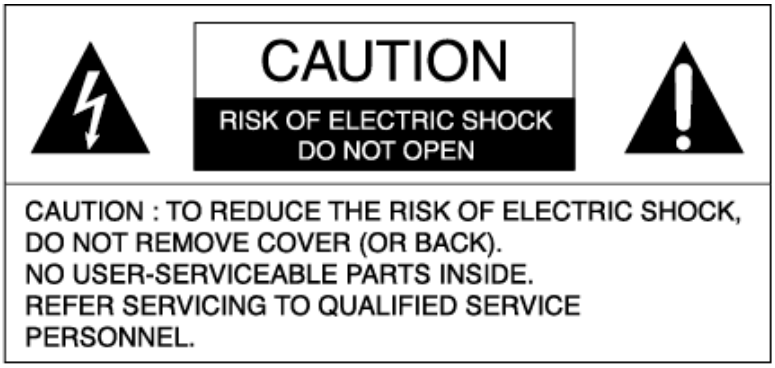
INFORMATION TO USER :

This equipment has been tested and found to comply with limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment can generates, uses, and radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause unacceptable interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced Radio/TV technician for help.

Caution

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitude a risk of electric shock to people.

The exclamation point within an equilateral trangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions.

1. General Description and Scope

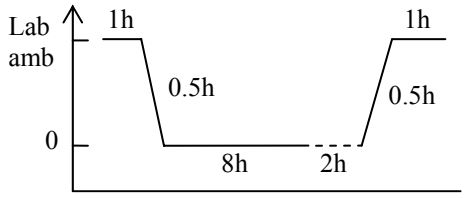
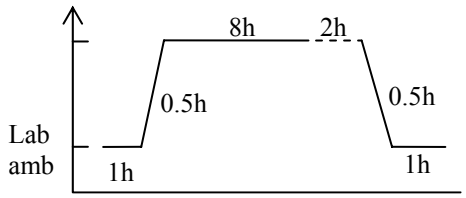
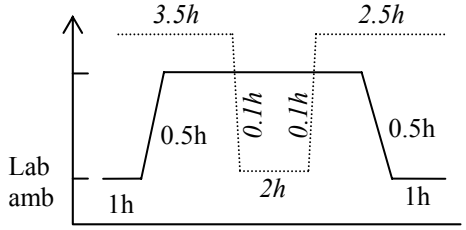
2.1 General Description

This specification applies to the Type 52" Color TFT/LCD Module "LTI520HB01". This module is designed for a LCD TV style display unit. The screen format and electrical interface are intended to support the VESA WUXGA (1920(H) ×1080(V) at 60Hz) screen. Supported Color is native 16.7M colors (RGB-8bit data driver).
All input signals are LVDS (Low Voltage Differential Signaling) interface compatible.

2. Environmental and Reliability Specifications

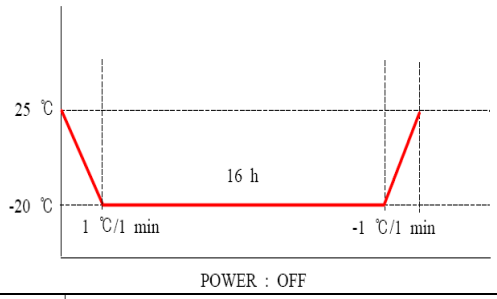
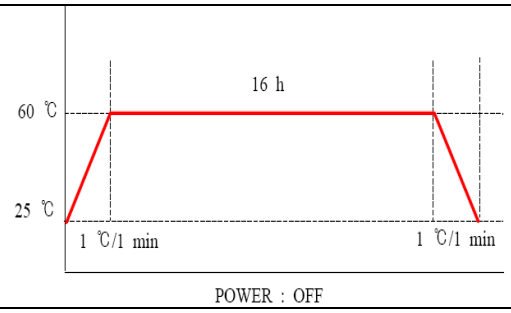
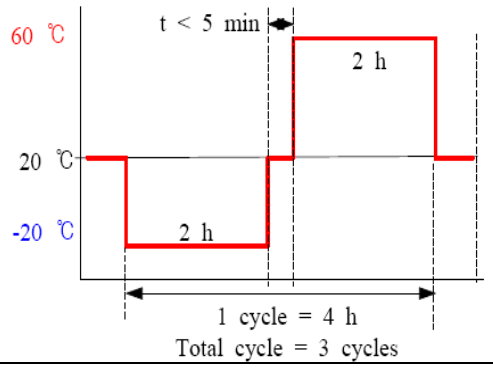
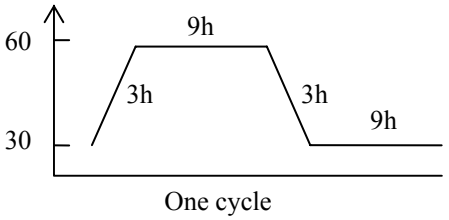
3.1 Operating Conditions

3.1.1 Temperature : 0℃~ 40℃
Note : Max. Operating Temperature 40℃ in the spec means the temperature measured at the point of the front surface of the LCD glass cell.
3.1.2 Humidity : 10% ~ 90%, non-condensing
3.1.3 Altitude : maximum 4,500m
3.1.4 Test

Type	Parameters	Description and comments	Results
Low temperature	T = 0°C Dwell time = 8h + 2h (power-off) Cold start-up after the power-off period		Passed
High temperature	T = +40°C Dwell time = 8h + 2h (power-off) Warm start-up after the power-off period	 Shield the unit against direct airflow	Passed
Low pressure	P = 60kPa (4206m) Pressure dwell time = 2h T = +40°C	 Shield the unit against direct airflow	Passed

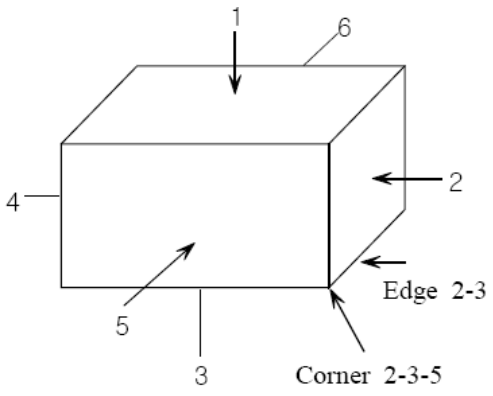
3.2 Non-Operational Conditions

3.2.1 Temperature : -20℃~ 60℃
3.2.2 Humidity : 10% ~ 90%, non-condensing
3.2.3 Altitude : maximum 15,000m
3.2.4 Test

Type	Parameters	Description and comments	Results
Low temperature	T = -20°C Dwell time = 16h		Passed
High temperature	T = +60°C Dwell time = 16h		Passed
Thermal shock	Low temperature = -20°C High temperature = +60°C Temperature gradient = 5°C/min Dwell time = 2h No. of cycles = 3		Passed
Humidity	RH = 90% Low temperature = 30°C High temperature = 60°C No. of cycles: 5 ea 24h		Passed

3.3 Packing Conditions

3.3.1 Temperature : -20℃~ 50℃
3.3.2 Humidity : 10% ~ 90%, non-condensing
3.3.3 Altitude : maximum15,000m
3.3.4 Test

Type	**Parameters**			**Result**
Freefall Drop	Drop surface	Concrete or steel		Passed
	Drop height	Weight > 100kg: 0.1m		
	Impact area	6 faces 1 selected corner 1 selected edge 		
	No. of drops	1 per impact area		
vibration	Frequency range	5-10Hz	10-50Hz	Passed
	Displacement	3.5mm		
	Acceleration		1g	
	Sweep rate	3min(5-50-5)		
	Duration	Right/Left : 15min Front/Back : 15min Up/Down : 30min		

3. Input Signal and AC Power

4.1 AC Power

4.1.1 AC input voltage : AC 100 to 240 Volts (Universal power)

4.1.2 AC input frequency : 50~60Hz ±3Hz

4.2 Video and Sync Signal

4.2.1 Video signal

A. Horizontal frequency : 25 ~ 90KHz
B. Vertical frequency : 24 ~ 120Hz
C. Applicable maximum pixel frequency : 170MHz(Analog), 165MHz(Digital)
D. Maximum resolution : 1920x1200 / 60Hz

4.2.2 Signal connectors

A. HDMI type Ax3x2(Dual) : HDMI input
B. 15p D-Sub(Female, 3row) x1x2(Dual) : Analog RGB input
C. 9p D-Sub (Female) x1x2(Dual) : RS232C Input
D. 9p D-Sub (Male) x1x2(Dual) : RS232C Output
E. 15p D-Sub(Male, 2row) x1x(Dual) : Audio AMP signal input
F. AC Inlet x1x2(Dual) : main AC power input

4. Electrical Performance: Except where noted, the following test conditions are required.

5.1 Standard Testing Conditions

5.1.1 AC power voltage and frequency : AC 100 ~ 240V±10%, 60Hz/50Hz±3Hz
5.1.2 Ambient temperature: 25℃± 5℃
5.1.3 Brightness setting : set brightness control to the maximum level of the OSD
5.1.4 LCD panel direction : test at the parallel position with LCD panel center line
5.1.5 Ambient light level : between 300 lux and 700 lux

5.2 Power management

5.2.1 Power management

: This system can save energy by switching this monitor into a low-mode when the display video signal is none. But power Management system can not be corresponded with VESA DPMS, because of the TANDBERG's operation specification.

5.2.1 Power Management Modes.

State	Power consumption
Normal operation	Max 1000Wrms
DPMS or Standby mode	Max 50Wrms
Sleep mode	Max 3.5Wrms

5.3 LCD (Liquid Crystal Display) Panel Specifications

This specification applies to the Type 52" Color TFT/LCD Module "LTI520HB01". This module is designed for a LCD TV style display unit.
The screen format and electrical interface are intended to support the WUXGA(1920(H) ×1080(V)) screen. Supported gray scales are native 8bit per 1(one) sub pixel. All input signals are LVDS(Low Voltage Differential Signaling) interface compatible.

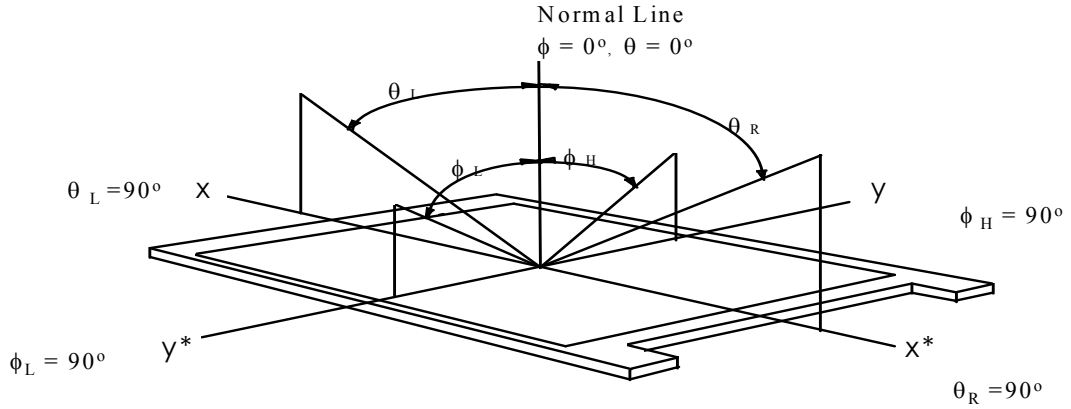
5.3.1 General specification

Item		SPECIFICATION	UNIT	NOTE
Display area	diagonal	1321	mm	
	viewable	1152.0(H) × 648.0(V)	mm	
Driver element		a-Si TFT Active matrix		
Number of Pixels		1920x1080, 2.07Million	pixels	
Pixel Pitch		0.6(H) ×0.6(V)	mm	
Pixel arrangement		R. B, G Vertical Stripe		
Display colors		16.7M (RGB 8-bit data)		
Viewing angle(max)		178(H), 178(V)	degrees	120 minutes after lighting on
Display mode		Normally black		

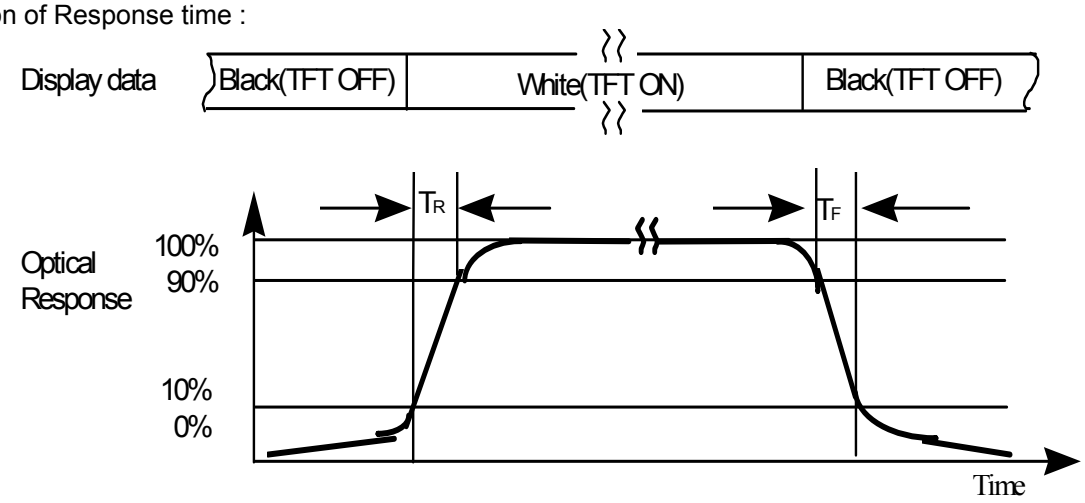
5.3.2 Optical characteristics (LCD panel specification)

The following optical characteristics are measured under stable conditions. It takes about 120minutes to reach stable conditions. The measuring point is the center of display area unless otherwise noted.
The optical characteristics should be measured in a dark room or equivalent state.
Measuring equipment : TOPCON BM-7, SPECTRORADIOMETER SR-3
Temperature of LCD surface=25℃, VDD=12.0V, fV=60Hz, BRT=High(PWM Duty 100%)

ITEM		SYMBOL	CONDITION	Min.	Typ.	Max.	UNIT
Contrast Ratio		C/R		1300	1700	–	–
Response Time	Rise	Tr		–	14	24	ms
	Fall	Tf		–	8	10	ms
Brightness of white		Bwh		500	600	–	cd/m²
Color Chromaticity (CIE)	Red	x	θ=0° 1)	TYP −0.03	0.645	TYP +0.03	–
		y			0.336		
	Green	x			0.275		
		y			0.606		
	Blue	x			0.143		
		y			0.067		
	White	x			0.280		
		y			0.290		
Viewing Angle	Hor	θL		75	89	–	Degree
		θR		75	89	–	
	Ver	θU		75	89	–	
		θD		75	89	–	



Definition of Response time :



5.3.3 Luminance Uniformity

When the backlight is on with all pixels in the white (maximum gray) level, the luminance uniformity is defined as follow;

Where;
L_{bright} : The luminance of the brightest part of the area
L_{dark} :The luminance of the darkest part of the area

Adjacent Area
Luminance Uniformity = (L_{bright} - L_{dark}) / L_{bright} $\leq$ 0.25
Over a circular area of 10mm diameter placed anywhere on the screen

Screen Total
Luminance Uniformity = (L_{bright} - L_{dark}) / L_{bright} $\leq$ 0.25
Over the entire screen

5.4 Front of screen (FOS) performance

5.4.1 Chromaticity(White) : X = 0.280, Y = 0.290

5.4.2 Luminance : no less than 500cd/㎡

Controls setting condition : contrast and brightness max

5.4.3 Minimum luminance : less than 30cd/㎡ with full white pattern at the contrast default and minimum brightness and minimum back light level

5.4.4 Gray scale linearity : The 16 step gray bars shall be distinguishable at the default contrast and default brightness or 3 steps down contrast setting of the OSD menu

5.4.5 Noise : Pixel displacement, jitter, or swim shall not be visible to the eye when viewed at 50cm from the LCD panel surface.

5.5 Defect

: Defects are considered to be impairments to video quality, which exist independently of displayed information. They may be electrical, mechanical, or physical imperfection of display resulting from processing, handling, shipping, etc.

5.5.1 Bright and Black Dots

The following Table describes the specification of bright and black dots in the visual screen quality of the TFT-LCD module at power-ON.

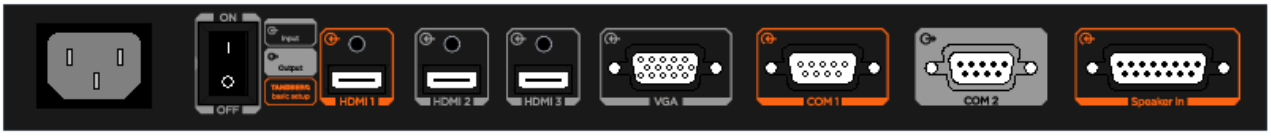
Items	Specification
Any Bright Dots(Two joined dot must be counted 2) Any Black Dots(Two joined dot must be counted 2) Bright and Black Dots(total) Two Joined Bright Dots Three Joined Bright Dots. Two joined Black Dots Three Joined Black Dots Minimum distance between dot defects Bright dot – Bright dot Black dot – Black dot	5x2 Max 10x2 Max 15x2 Max 1x2 Max 1x2 Max 2x2 Max 1x2 Max 5mm Ignore
Basic Conditions: Viewing Distance 1500±10 mm Ambient Illumination 300~700 lux(Normal 500lux) Ambient Temperature 25±5 ℃	

5.5.2 Visual Screen Quality

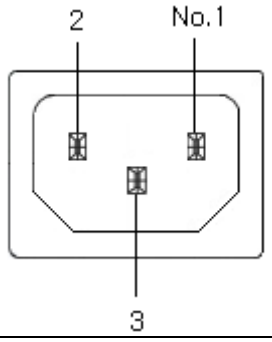
Item		Size(mm)	Permissible Number	Operation Condition
Foreign Material (in the polarizer, Cell)	Circular	0.3∠D≤3.0	5	with white picture
	Linear	2∠L≤15.0	5	with white or black picture
Bright Foreign Material (in polarizer or cell)		0.3≤D≤0.5	5	with black picture
Scratches on the polarizer / glass		2∠L≤15.0	5	Non operation
Dent on the polarizer / glass		0.3≤D≤0.8	10	

- D: Average Diameter, L: Length,

5. Signal Connections and Pin Assignments

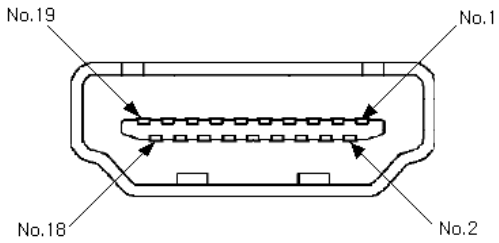


6.1 AC Inlet socket



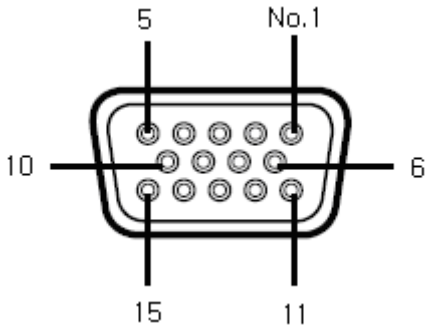
Pin	Signal Assignment
1	Live
2	Neutral
3	GND

6.2 HDMI Connector (Type A)



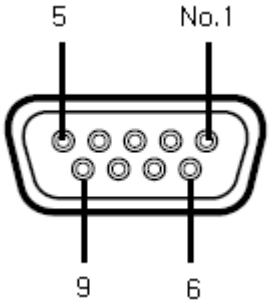
Pin	Signal Assignment	Pin	Signal Assignment
1	TMDS Data2+	2	TMDS Data2 Shield
3	TMDS Data2-	4	TMDS Data1+
5	TMDS Data1 Shield	6	TMDS Data1-
7	TMDS Data0+	8	TMDS Data0 Shield
9	TMDS Data0-	10	TMDS Clock+
11	TMDS Clock Shield	12	TMDS Clock-
13	NC	14	NC
15	DDC SCL	16	DDC SDA
17	DDC Ground	18	+5V Power
19	Hot Plug Detect		

6.3 15pin D-Sub Connector : Analog RGB signal input



Pin	Signal Assignment	Pin	Signal Assignment
1	Red	9	NC
2	Green	10	GND-Sync
3	Blue	11	GND
4	GND	12	DDC SDA
5	DDC 5V Standby /Cable connection check	13	H Sync
6	GND-Red	14	V Sync
7	GND-Green	15	DDC SCL
8	GND-Blue		

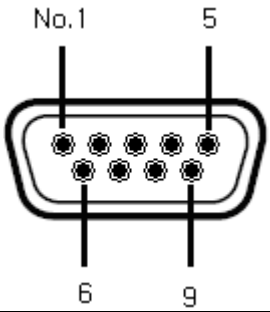
6.4 9pin D-Sub(Female) Connector : RS232C Input



Pin	Signal Assignment	Pin	Signal Assignment
1	RS232 ID	6	NC
2	RS232 RXD	7	NC
3	RS232 TXD	8	+5V Output
4	NC	9	NC
5	GND		

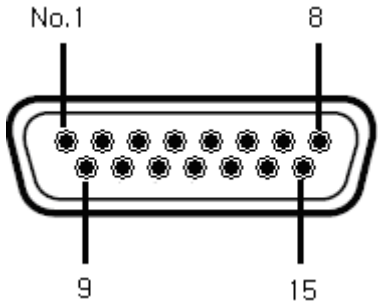
6.5 9pin D-Sub(Male) Connector : RS232C Output

- This connector is used for chain connection with other Eagle monitor.



Pin	Signal Assignment	Pin	Signal Assignment
1	NC	6	NC
2	RS232 RXD	7	NC
3	RS232 TXD	8	NC
4	NC	9	NC
5	GND		

6.6 15pin D-Sub(Male, 2row) Connector



Pin	Signal Assignment	Pin	Signal Assignment
1	Speaker ID 1	9	Left Full Range +
2	Speaker ID 0	10	Left Full Range -
3	Center Tweeter +	11	Right Full Range +
4	Center Tweeter -	12	Right Full Range -
5	Center woofer1 +	13	LMNT
6	Center woofer1 -	14	AMP Ground
7	Center woofer2 +	15	Speaker ID 2
8	Center woofer2 -		

- This connection is optimized for TANDBERG's DNAM AMP system, And DNAM Identify the speaker ID so that output appropriate audio signal to match this monitor's speaker module.*
- On this monitor the pin1(Speaker ID 1) must be connected to ground by using internal speaker wiring.

Pin name	LMNT	Speaker ID 2	Speaker ID 1	Speaker ID 0
Set digit to	1	1	0	1

1 : must be floated
0 : must be tied to circuit ground

6. Supported Timing

7.1 Standard Timing Chart

Resolution / Timing Item	640x480 @60Hz	800x600 @50Hz	800x600 @60Hz	800x600 @75Hz	1024x768 @60Hz	1280x720 @50Hz	1280x720 @60Hz
Pixel Clock (MHz)	25.175	35.4375	40.000	49.500	65.000	74.250	74.250
Sync Polarity (H/V)	N/N	P/P	P/P	P/P	N/N	P/P	P/P
Scanning Type	Progressive	Progressive	Progressive	Progressive	Progressive	Progressive	Progressive
-Hor Frequency (kHz)	31.469	31.500	37.879	46.875	48.363	37.500	45.000
-Period (us)	31.778	31.746	26.400	21.333	20.677	26.667	22.222
-Active time (us)	25.422	22.575	20.000	16.162	15.754	17.239	17.239
-Front porch (us)	0.318	1.129	1.000	0.323	0.369	5.926	1.481
-Sync width (us)	3.813	3.612	3.200	1.616	2.092	0.539	0.539
-Back porch (us)	1.589	4.430	2.200	3.232	2.462	2.963	2.963
-Ver Frequency(Hz)	59.940	50.000	60.317	75.000	60.004	50.000	60.000
-Period (ms)	16.683	20.000	16.579	13.333	16.666	20.000	16.666
-Active time (ms)	15.253	19.048	15.840	12.800	15.880	19.200	16.000
-Front porch (ms)	0.064	0.032	0.026	0.021	0.062	0.133	0.111
-Sync width (ms)	0.064	0.127	0.106	0.064	0.124	0.133	0.111
-Back porch (ms)	0.794	0.794	0.626	0.488	0.600	0.533	0.444

Resolution / Timing Item	1280x720 @100Hz	1280x720 @120Hz	1280x1024 @60Hz	1280x768 @60Hz	1360x768 @60Hz	1366x768 @60Hz	1400x1050 @60Hz
Pixel Clock (MHz)	148.500	148.500	108.00	79.500	85.500	87.750	121.751
Sync Polarity (H/V)	P/P	P/P	P/P	N/P	P/P	N/P	N/P
Scanning Type	Progressive	Progressive	Progressive	Progressive	Progressive	Progressive	Progressive
-Hor Frequency (kHz)	75.000	90.000	63.981	47.776	47.712	48.320	65.317
-Period (us)	13.333	11.111	15.630	20.931	20.959	20.695	15.309
-Active time (us)	8.620	8.620	11.852	16.101	15.906	15.567	11.499
-Front porch (us)	2.963	0.741	0.444	0.805	0.749	0.661	0.607
-Sync width (us)	0.269	0.269	1.037	1.610	1.310	0.912	1.240
-Back porch (us)	1.481	1.481	2.296	2.415	2.994	3.556	1.963
-Ver Frequency(Hz)	100.000	120.000	60.020	59.870	60.015	59.803	59.979
-Period (ms)	10.000	8.333	16.661	16.703	16.662	16.722	16.672
-Active time (ms)	9.600	8.000	16.005	16.075	16.097	15.894	16.075
-Front porch (ms)	0.066	0.055	0.016	0.063	0.063	0.041	0.046
-Sync width (ms)	0.067	0.056	0.047	0.147	0.126	0.248	0.061
-Back porch (ms)	0.267	0.222	0.594	0.419	0.377	0.538	0.490

Resolution / Timing Item	1680x1050 @60Hz	1600x1200 @60Hz	1920x1080 @24Hz	1920x1080 @25Hz	1920x1080 @30Hz	1920x1080 @48Hz	1920x1080 @50Hz
Pixel Clock (MHz)	119.000	162.000	74.250	74.250	74.250	148.5	148.500
Sync Polarity (H/V)	P/N	P/P	P/P	P/P	P/P		P/P
Scanning Type	Progressive	Progressive	Progressive	Progressive	Progressive	Progressive	Progressive
-Hor Frequency (kHz)	64.674	75.000	27.000	28.125	33.750	52.000	56.250
-Period (us)	15.462	13.333	37.037	35.555	29.629		17.777
-Active time (us)	14.118	9.877	25.859	25.859	25.859		12.929
-Front porch (us)	0.403	0.395	8.592	7.110	1.184		3.555
-Sync width (us)	0.269	1.185	0.593	0.593	0.593		0.296
-Back porch (us)	0.672	1.877	1.993	1.993	1.993		0.997
-Ver Frequency(Hz)	59.883	60.000	24.000	25.000	30.000	48.000	50.000
-Period (ms)	16.699	16.667	41.666	40.000	33.333		20.000
-Active time (ms)	16.235	16.000	40.000	38.400	32.000		19.200
-Front porch (ms)	0.031	0.013	0.148	0.142	0.116		0.071
-Sync width (ms)	0.093	0.040	0.185	0.178	0.148		0.089
-Back porch (ms)	0.340	0.613	1.333	1.280	1.067		0.640

Resolution Timing Item	1920x1080 @60Hz	1920x1200 @60Hz					
Pixel Clock (MHz)	148.500	154.000					
Sync Polarity (H/V)	P/P	P/N					
Scanning Type	Progressive	Progressive					
-Hor Frequency (kHz) -Period (us) -Active time (us) -Front porch (us) -Sync width (us) -Back porch (us)	67.500 14.814 12.929 0.592 0.296 0.997	74.038 13.506 12.468 0.312 0.208 0.519					
-Ver Frequency(Hz) -Period (ms) -Active time (ms) -Front porch (ms) -Sync width (ms) -Back porch (ms)	60.000 16.666 16.000 0.059 0.074 0.533	59.950 16.681 16.208 0.041 0.081 0.351					

7. User control function

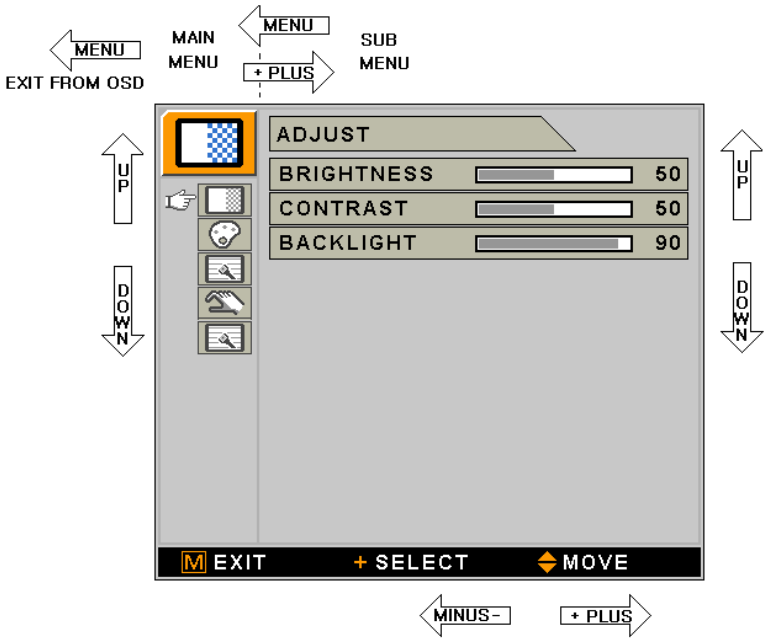
8.1 User Controls

We will not provide remote controller, because no need to control the OSD function normally, but will provide it for service engineer to check the RS232C function easily.

Following is the description how you can adjust or change the OSD function

Function name	Operation	RS232C command from external controller
POWER	• Monitor power on and off	@@1KESPWR
MENU	• With OSD deactivated, Activated to OSD menu • With OSD activated, Exit from main menu or sub menu.	@@1KESMNU
SOURCE	• With OSD deactivated, you can see the kind of displayed source on right under of the screen.	@@1KESSRC
UP	• With OSD deactivated, Hot key of the brightness control and increases the brightness. • With OSD activated, move the cursor upward.	@@1KESUPK
DOWN	• With OSD deactivated, Hot key of the brightness control and decreases the brightness. • With OSD activated, move the cursor downward	@@1KESDWN
PLUS	• With OSD deactivated, Hot key of the contrast control and increases the contrast. • With OSD activated, enter sub menu and increases the adjustment of the selected	@@1KESPLS
MINUS	• With OSD deactivated, Hot key of the contrast control and decreases the contrast. • With OSD activated, decreases the adjustment of the selected function.	@@1KESMNS
SET	• With OSD activated, Enter sub menu and change each sub menu's item	@@1KESSET

- 3rd character "1" of the RS232C command is the unit ID, so this can be changed according to unit ID.



8. Special Consideration

9.1 All the supported timing modes (includes LCD Panel mode) are described in chapter8.
(Optimized with TANDBERG's requirement signal timing)

9.2 This model have plug & play feature of DDC 1, DDC2B. This function is operating when the monitor is connected to a system compatible with VESA DDC standard.
The DDC data structure is based on VESA DDC 1.3 standard

9.3 You can adjust and change the several function without buttons, by using RS232C serial communication protocol through 9pin D-Sub (Female) connector.
(Refer to RS232C serial interface protocol)

9.4 RS232C chain connection with several monitor is available through RS232C IN/OUT connector.
(ex, TANDBERG's T3 system, Max 9 monitor)
So you can adjust and change the several monitor individually or at the same time.

9. Applicable Regulations

:The products described in this specification must meet all applicable safety and regulatory requirements as listed in this chapter.

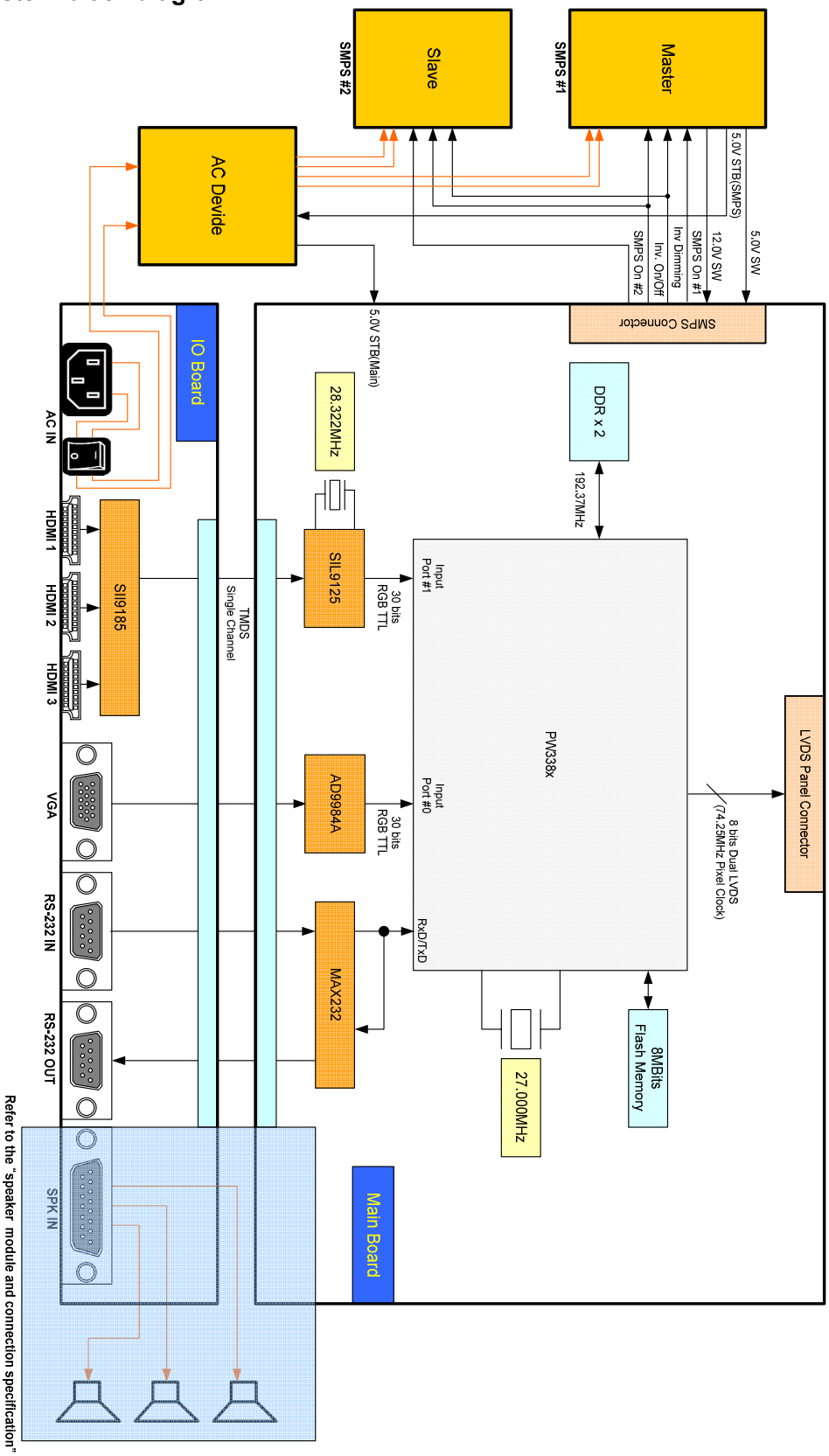
10.1 Approvals-Europe(CE Mark)

Type	Requirement
CE Mark	All Products must have CE mark
LVD Directive 73/23/EEC	Standards for LVD: IEC/EN 60950-1 2nd ed CB according to IEC60950-1 incl all the different nation deviations. Special requirements. • Ambient temperature 40℃ • Cl. 5. 1 Touch current Max 0.5mA touch current with switch "ON" and "OFF" position. • Approved to 3,000 meter altitude above sea level.
EMC Directive 89/336/EEC	EN 55022 : 2005 (Class B) EN 55024 : 1998 Incl A1/A2 EN 61000-3-2 : 2000 EN 61000-3-3 : 1995 Incl A1 Testing: All testing must be performed in accredited test laboratory EMC testing must be performed in laboratory appointed as competent body according to the EMC directive
RoHS Directive	Product must comply with the European RoHS Directive 2002/95/EC Signed declarations or test reports is accepted to document compliance.

10.2 Approvals-North America(USA/Canada : UL, FCC Mark)

Type	Requirement
Electrical Safety	Product must be tested and approved according to relevant standard
	CSA 60950-1-07 2nd ed / UL 60950-1 2nd ed Approval agency must be accredited as an NRTL
EMC	EMC Requirements according to FCC15B (Class B)

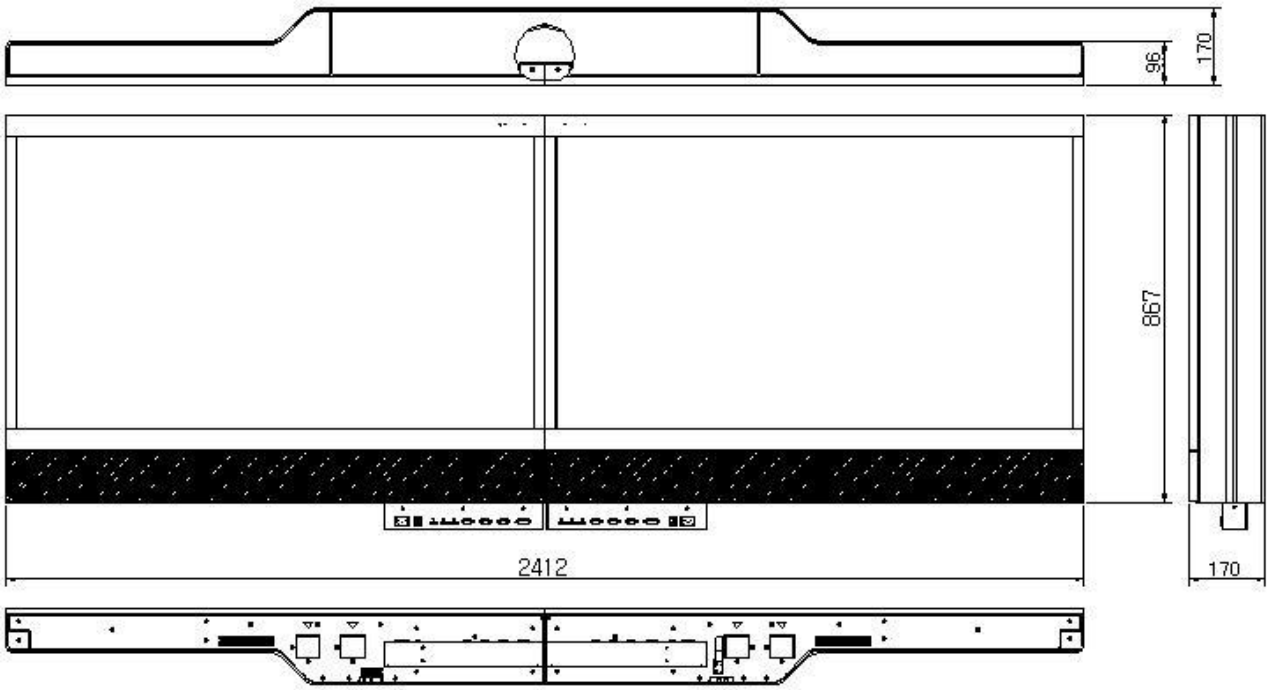
10. Entire system block diagram



11. Mechanical and printing Specifications

This monitor is used for TANDBERG's video conferencing system 'EAGLE'.
Following dimension and outward sharp is designed by TANDBERG originally.

16.1 Outward drawing and Weight

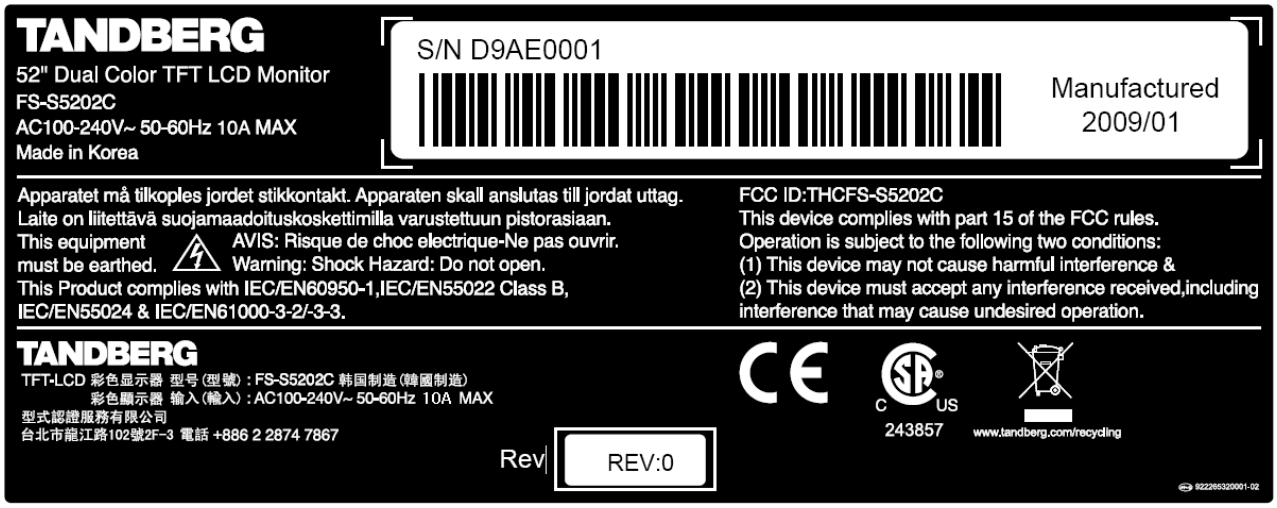


Outward Size	2412 X 170 X 867 mm
Weight	Max 130Kg

16.2 Product label

16.2.1 Brand Logo : TANDBERG
16.2.2 Model No : FS-S5202C
16.2.3 Rating Label (This may vary based on the TANDBERG's request, and the changed contents of the Rating Label shall not be specified in this specification.)

A. Location : on the top module (Refer to the following picture)
B. Tilt : Shall not be tilted more than 1mm
C. Size : 40 x 102 mm (R0.5 x 4edge)
D. Material : Enumudeurong (Polyester film)
E. Base Color : Black
F. Printing Color : PMS877(Silver)
G. Description:



16.2.4 Product's barcode label and Serial number structure

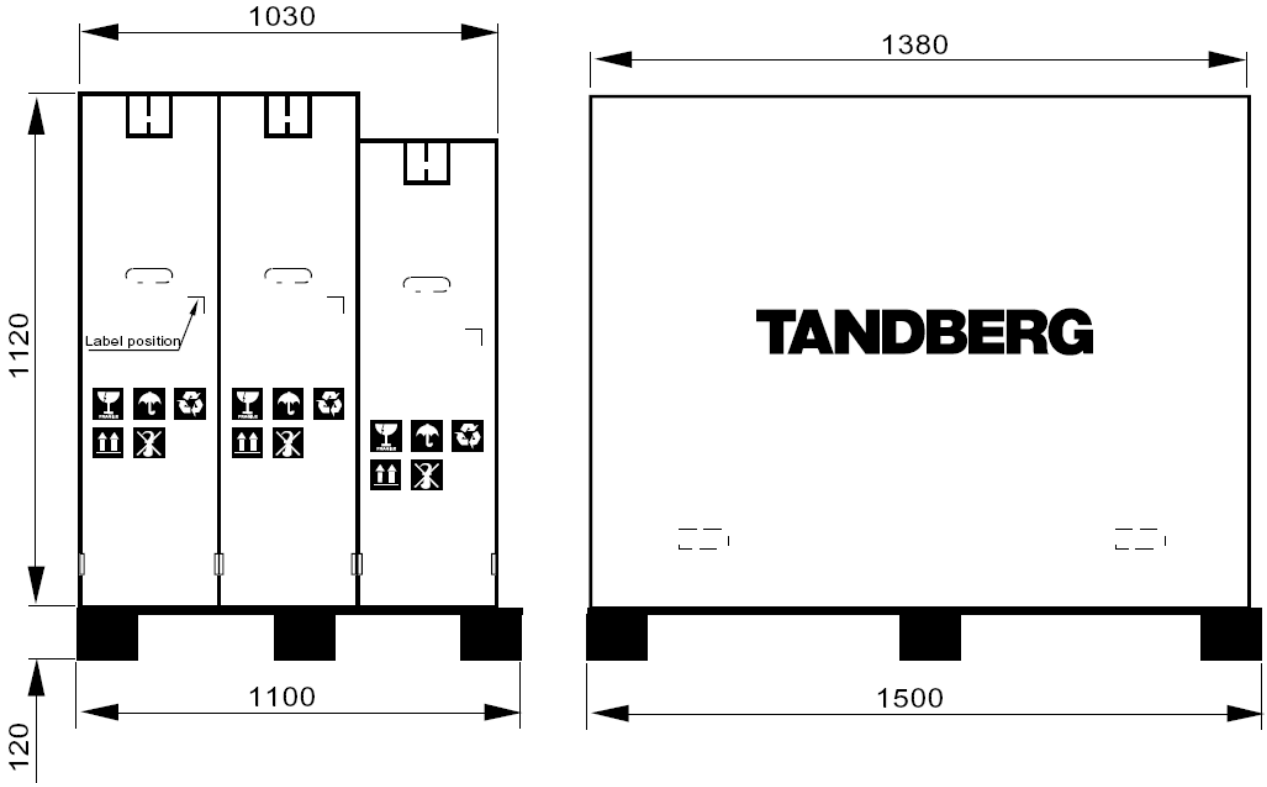
A. Location : On the product label
B. Tilt : Shall not be tilted more than 1mm
C. Size : 70 x 11mm
D. Material : Art paper
E. Base Color : White
F. Printing Color : Black
G. Description:

Serial No digit	Item	Initial
1	D	This mean D&T Inc
2	9	Build year (7:2007, 8:2008, 9:2009~)
3	A	Build month(A: January, B: February, ~L: December)
4	E	Model (A : FS-L4201C, B: FS-S5201C, C: FS-P6501C, D: FS-L4205C, E : FS-S5202C....)
5~8	0001	Serial Number (0001~9999)

Manufactured digit	Item	Initial
1~4	2009	Build year
5~6	01	Build month(01:January, 02:February, ~12: December)

16.3 Packing Specification (Full set 1unit)

16.3 1 Dimension

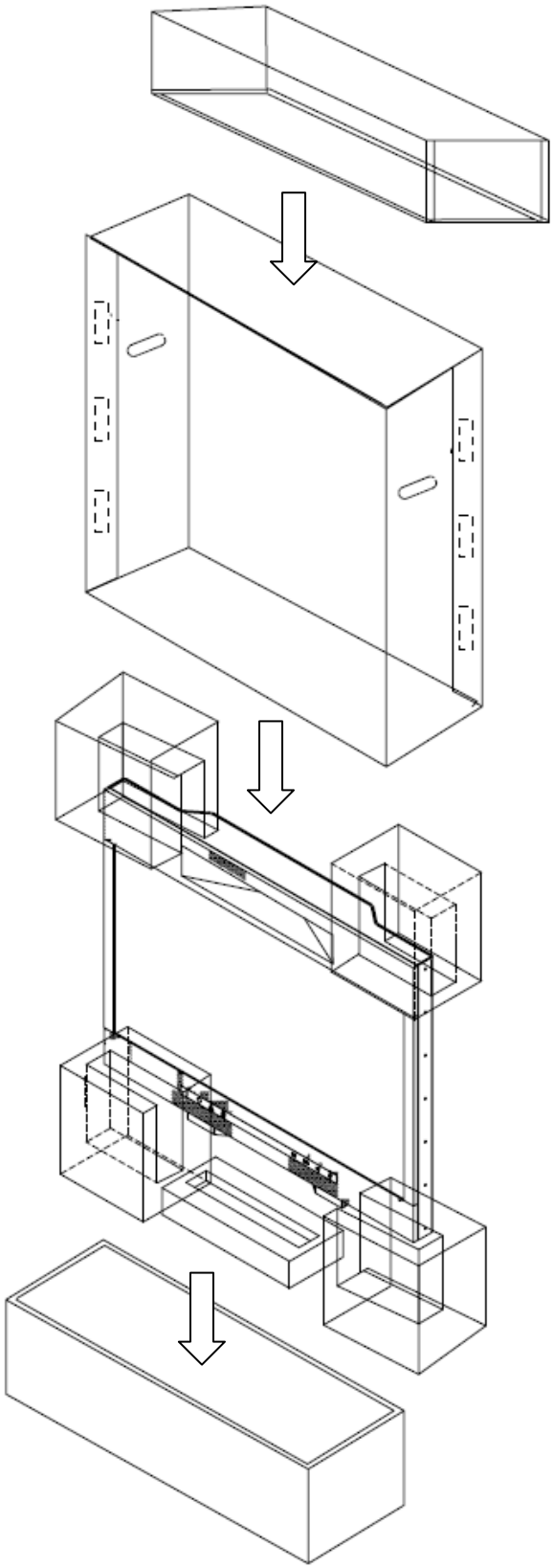


	Width	Depth	Height
Carton box (Outside, Full set 1 unit)	1500mm	1100mm	1240mm

16.3.2 Packing Weight & Volume

Packing Weight(Max)		Volume	
kg	lbs	m^3	ft^3
170	375	2.05	72.26

16.3.3 Cushion and inside view



16.3.4 BOX label

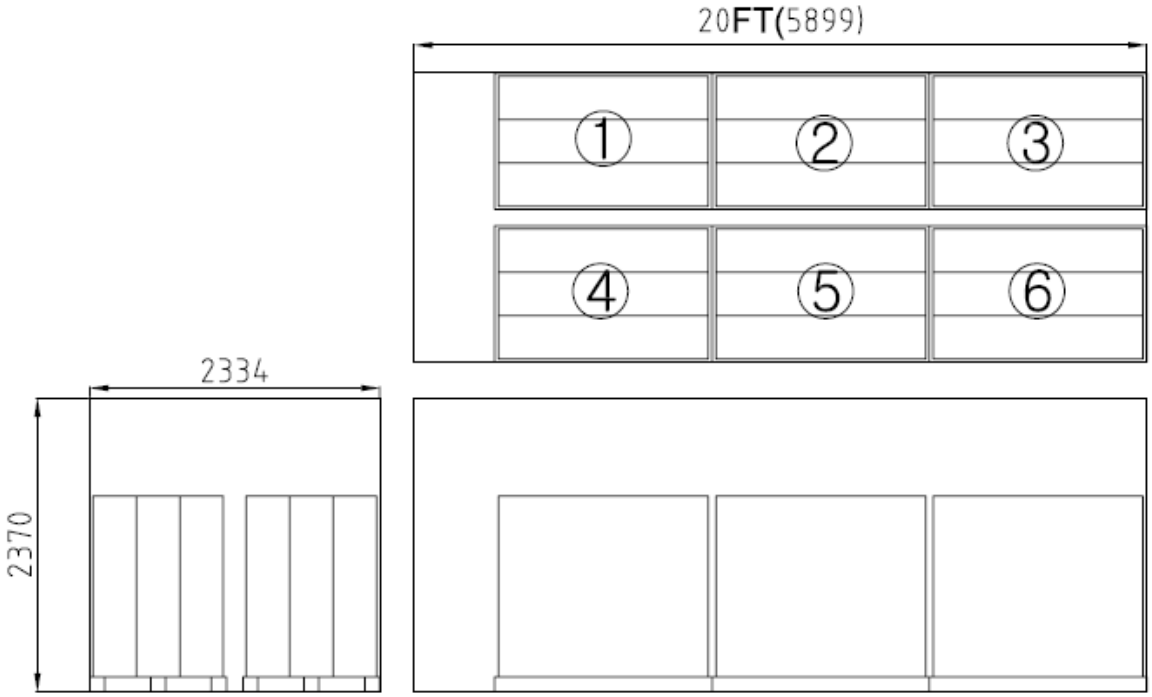
A. Location : On the 2 narrow side of carton box (Refer to the following picture)
B. Tilt : Shall not be tilted more than 3mm
C. Size : 104 x 127mm
D. Material : Art paper
E. Base Color : White
F. Description:

G. Barcode structure(when we read the barcode by reader: 01000000000117336240P21D9AE0001)
The barcode is in accordance with UCC/EAN128 format

Readied digit	Item	Initial	
1~2	01	First reference	
3~10	00000000	Supplementary 8 digits	
11~16	117336	TANDBERG's item number	
17~19	240	Second reference	
20	P	Variant	
21~22	21	Third reference	
23	D	This mean D&T Inc	Same as product's barcode digits
24	9	Build year (7:2007, 8:2008,~)	
25	A	Build month(A: January, B: February, ~L: December)	
26	E	Model (A : FS-S5202C, …)	
27~30	0001	Serial number (0001~9999)	

16.5 Container loading

16.5.1 In case of 20ft container
: 6 pallets= 18units



16.5.2 In case of 40ft container
: 13 pallets= 39units