



HDMI SOURCE TESTER VA-1830



ASTRODESIGN, Inc.

Target market

HDMI Source / Repeater test

- DVD/Blu-ray player
- Set Top Box
- AV amplifier
- Digital Camera

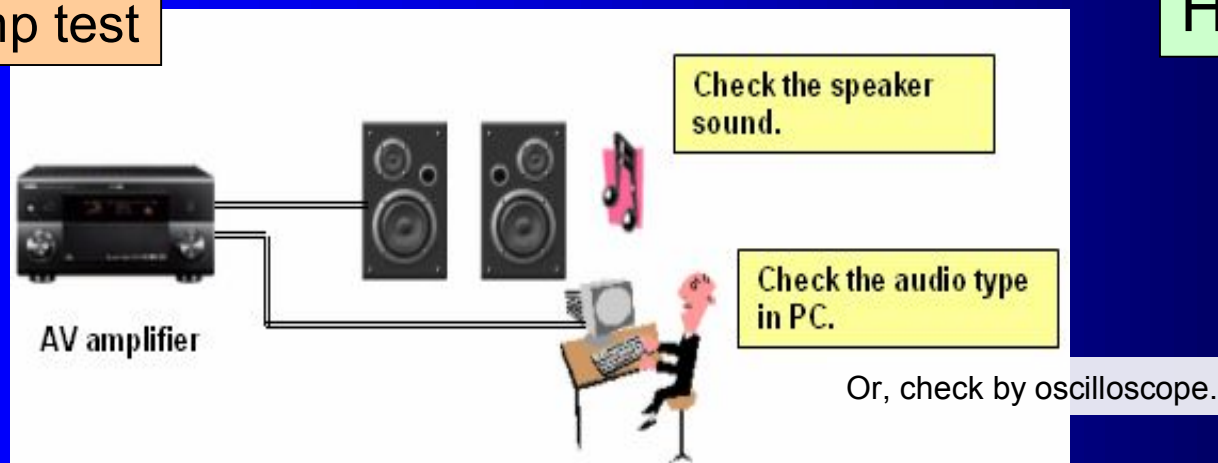
Developing background

- HDMI Source/Repeater equipments test

DVD Player test



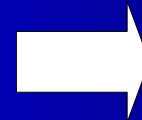
AV amp test



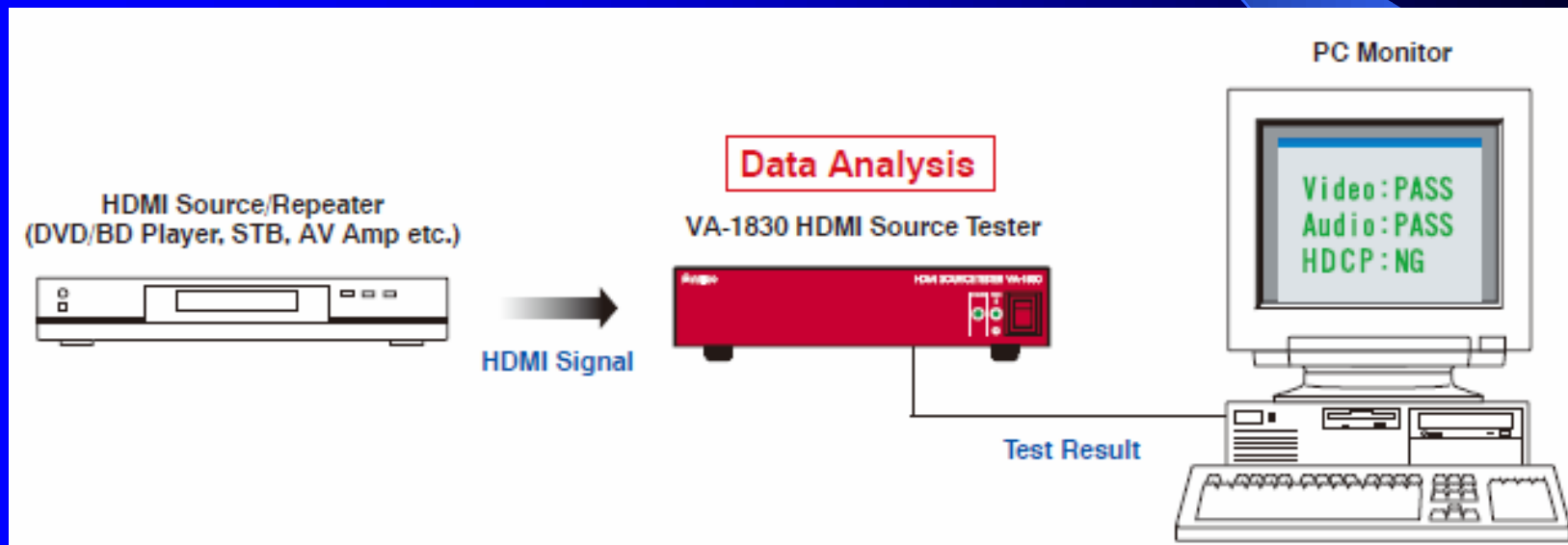
Currently
Human work

Developing background

- ◆ Shorten the testing time
- ◆ Higher accuracy



VA-1830

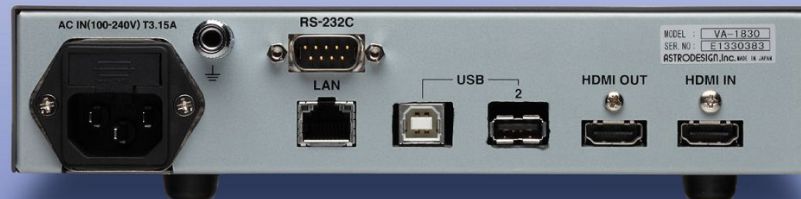


Automated test system :only by VA-1830 and PC

Interface

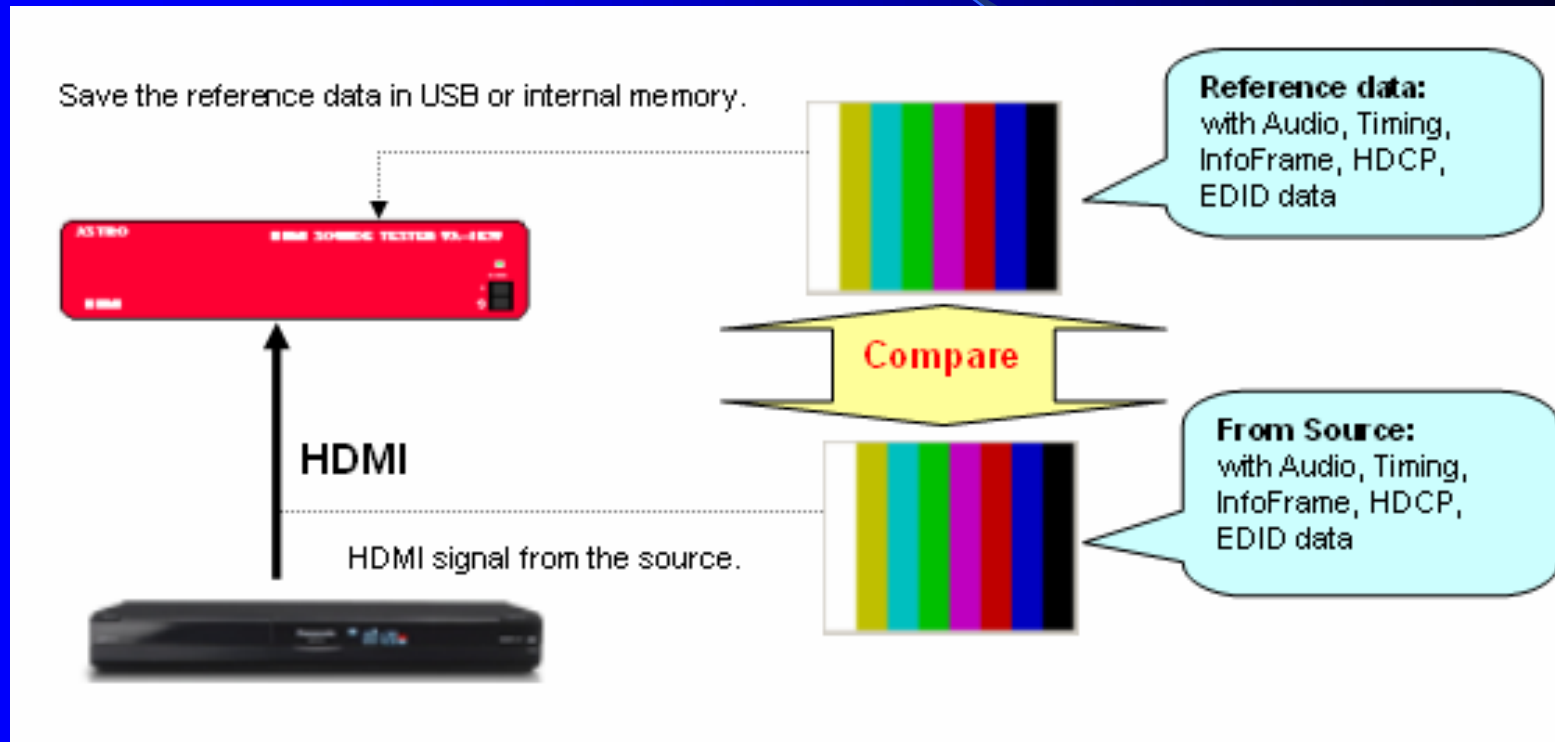
- HDMI Input & Output
- Memory storage : USB and main unit
- PC communication : USB, LAN, RS-232C

Note) All operation is controlled by PC.



Test Reference data

Users prepares "Golden sample data" as program data.



Reference data (program) is saved in:

Main unit : 10 Programs

USB memory : 256 programs

Compare it with the input signal.

➡ Judge **PASS** / **NG**

Function

1. VIDEO DATA CHECK

36bit
(deep color, xvYCC)

3. CONTROL SIGNAL CHECK

DDC(HDCP)
CEC

2. AUDIO DATA CHECK

Audio level
Audio frequency

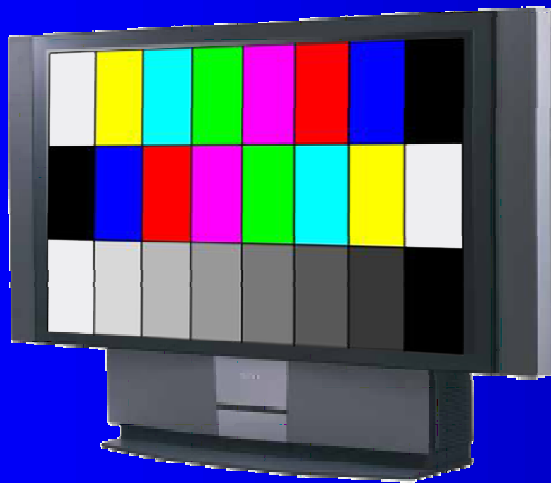
4. THROUGH

Monitoring
DDC and CEC lines

1.Video Data Check

All frame and all pixel can be checked

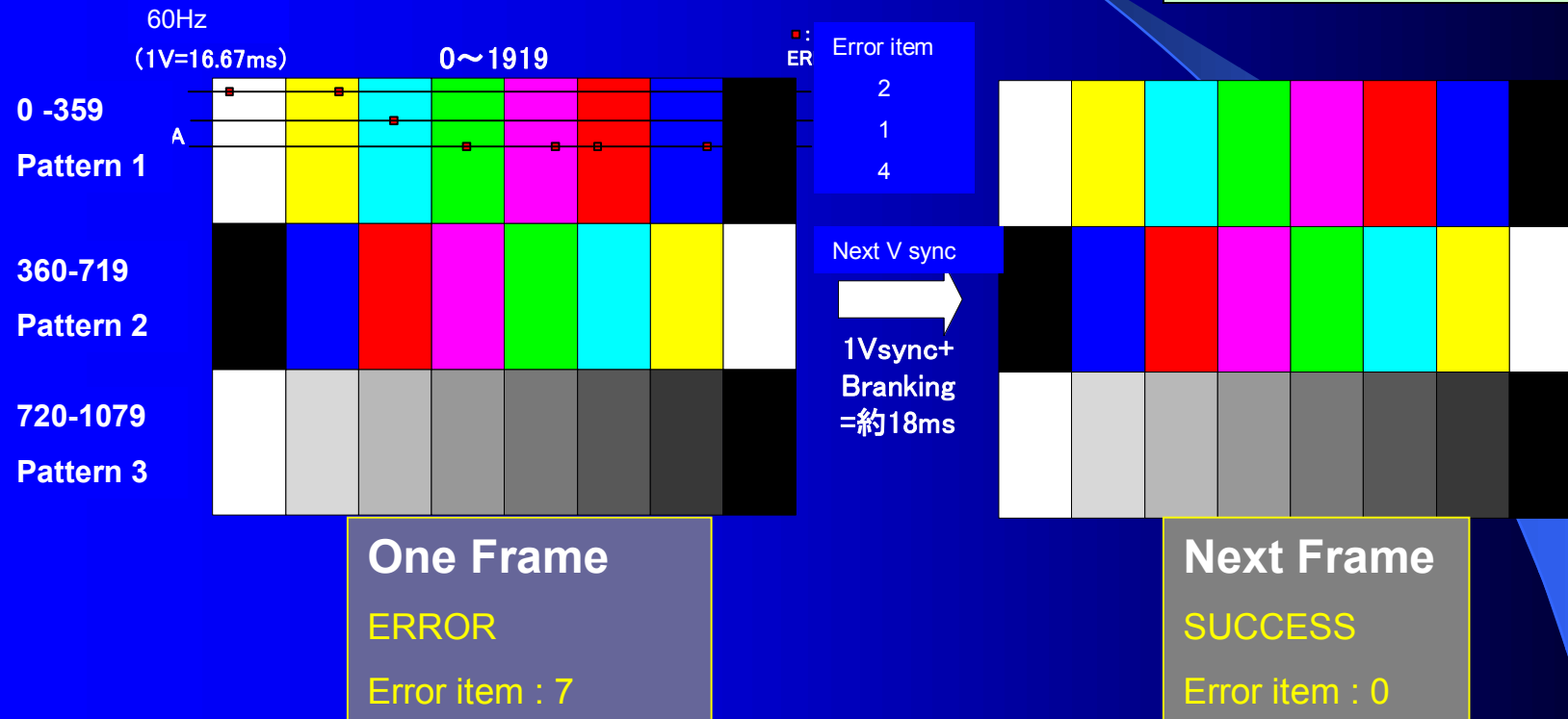
- Max 15 testing colors are test.
- Max 3 sequences can be set.



	0~1919							
Pattern1	0	1	2	3	4	5	6	7
Pattern2	7	6	5	4	3	2	1	0
Pattern3	0	8	9	A	B	C	D	7
	0~1919							
0 -359								
Pattern 1								
...								
360-719								
Pattern 2								
...								
720-1079								
Pattern 3								

1.Video Data Check

Check by frame

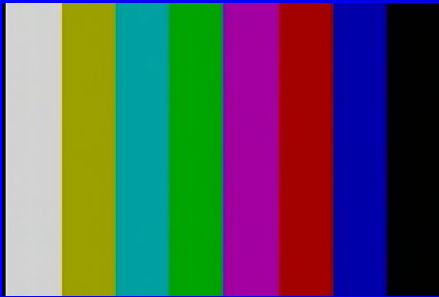


TMDS line is too fast to check by human eyes.

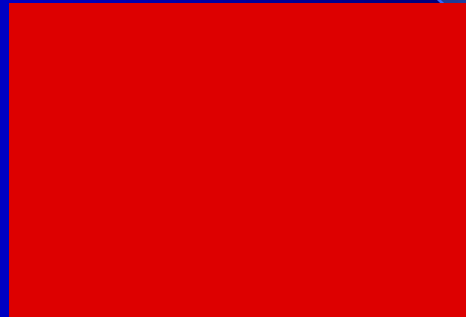
1.Video Data Check

- Pattern colors should have max 15 colors.

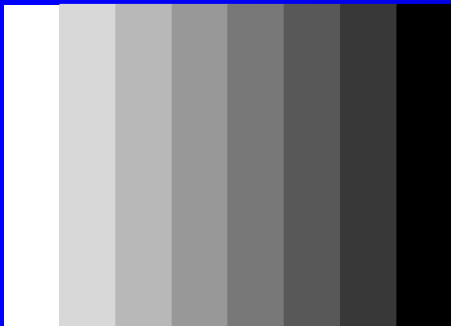
Color bar



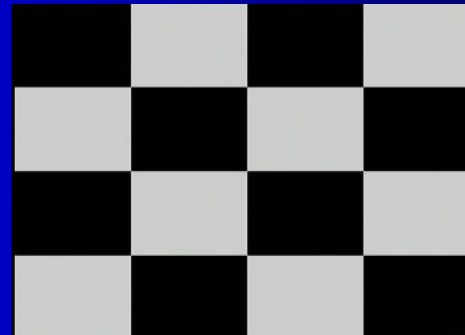
Plain color



Gray scale



Checker



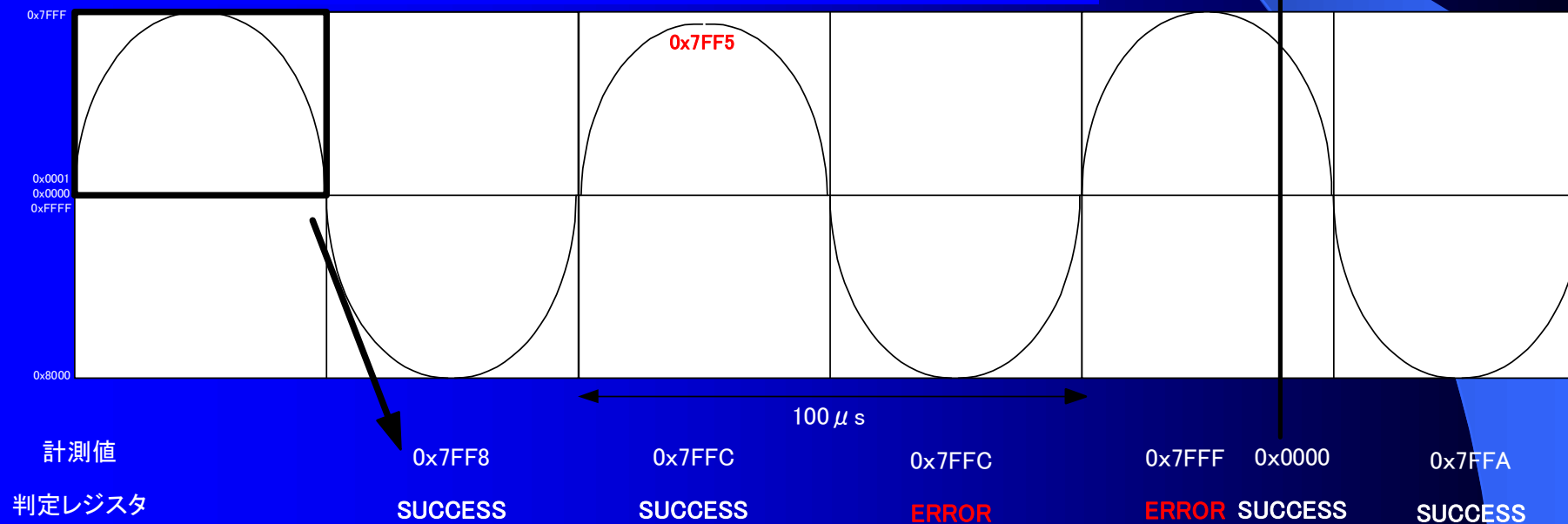
2. Audio Data Check

- Liner PCM Audio Level (8CH)
- Liner PCM Audio Frequency (8CH)
- Compressed audio (header, sampling freq and channel status bit.)

2.Audio Data Check

- Audio level

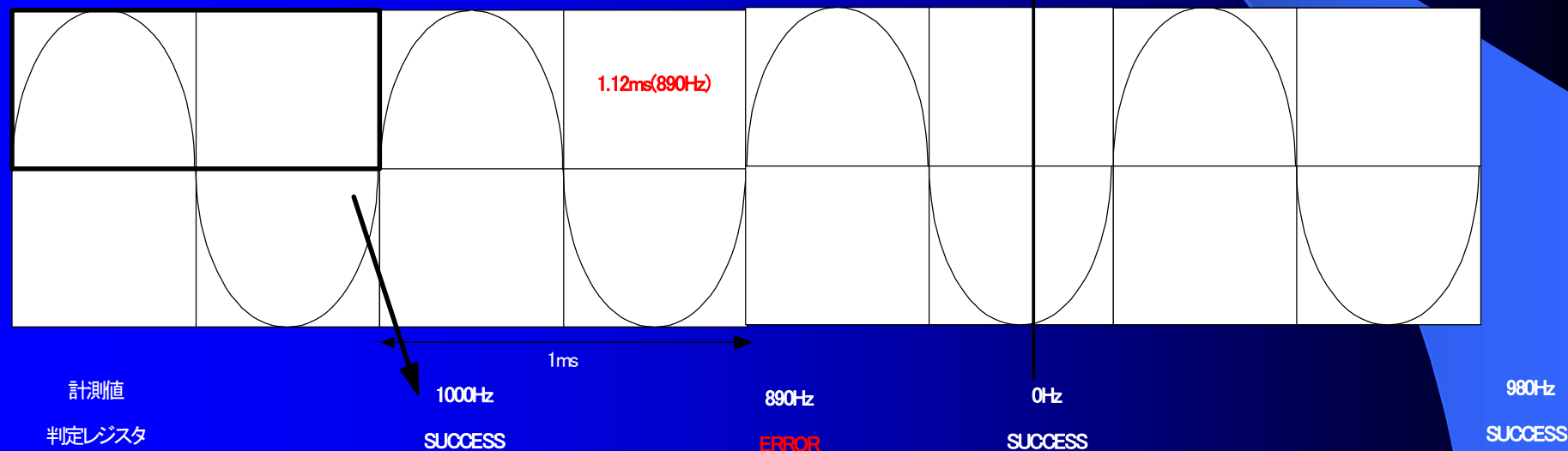
Setting example 1CH (L) Data : 10KHz, level range 0x7FF6 to 0x7FFF



2.Audio Data Check

- Audio Frequency

Setting example 1CH (L) Data : 1000Hz, level range 900Hz to 1100Hz

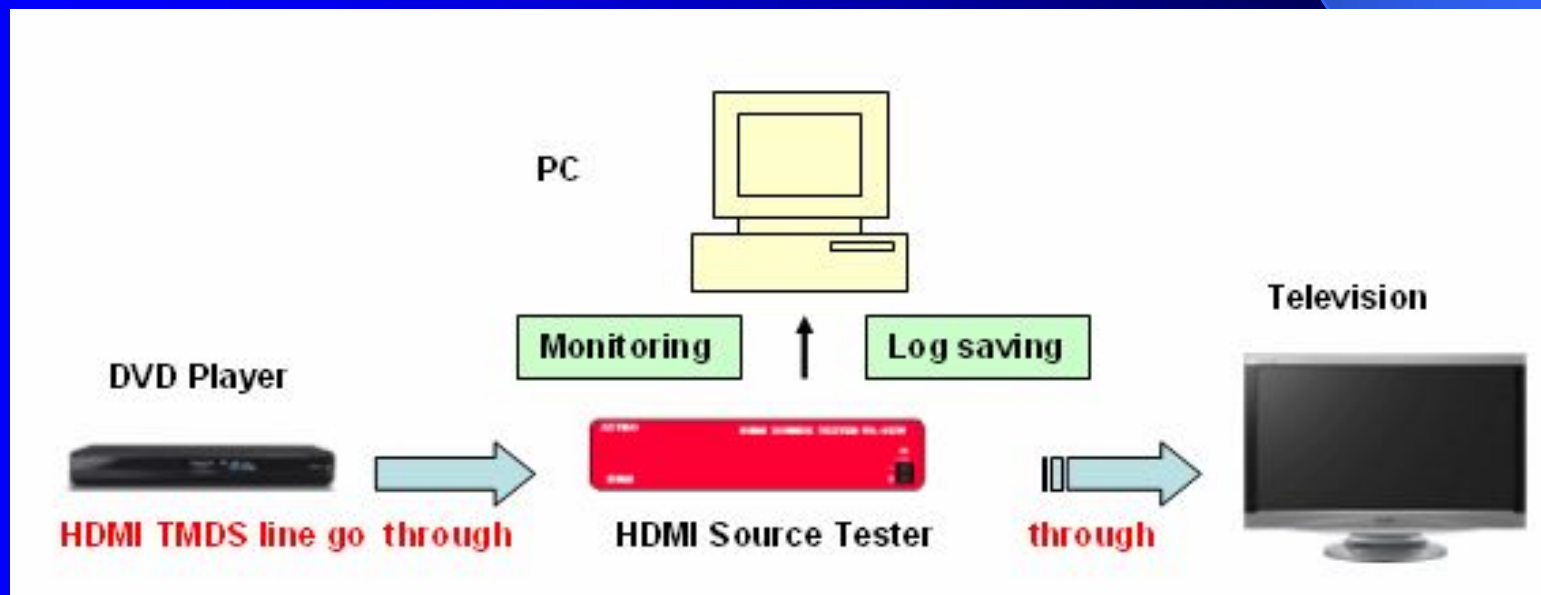


4.THROUGH Mode

Confirm the signal from the Source.

(TMDS signal go through VA-1830)

Monitoring DDC and CEC lines



Note) LOG saving is upgrading option

Software

ASTRODESIGN provides

- Terminal commands.



Users make their own system.

- Option software

DDC, CEC line monitoring

EDID data edit

Log data save

Data analyze

Option software

DDC line monitoring

No.	Time	Item	Data	note
1	12.345678	DDC	S 74 08 S 75 00 P	
2	12.345689	DDC	S A0 00 S A1 00 FF FF FF FF FF 00 ..	
3	13.456789	Sync	Detect	
4	13.555555	HotPlug	Assert	
5	14.000000	DDC	S 74 08	Ack Error
6	14.123456	DDC	S 74 08	Ack Error

0000 0F 82 10 00

Intel(R) PRO/1000 CT Network Connection (---) Packets: 34 Displayed: 34 Marked: 0

CEC line monitoring

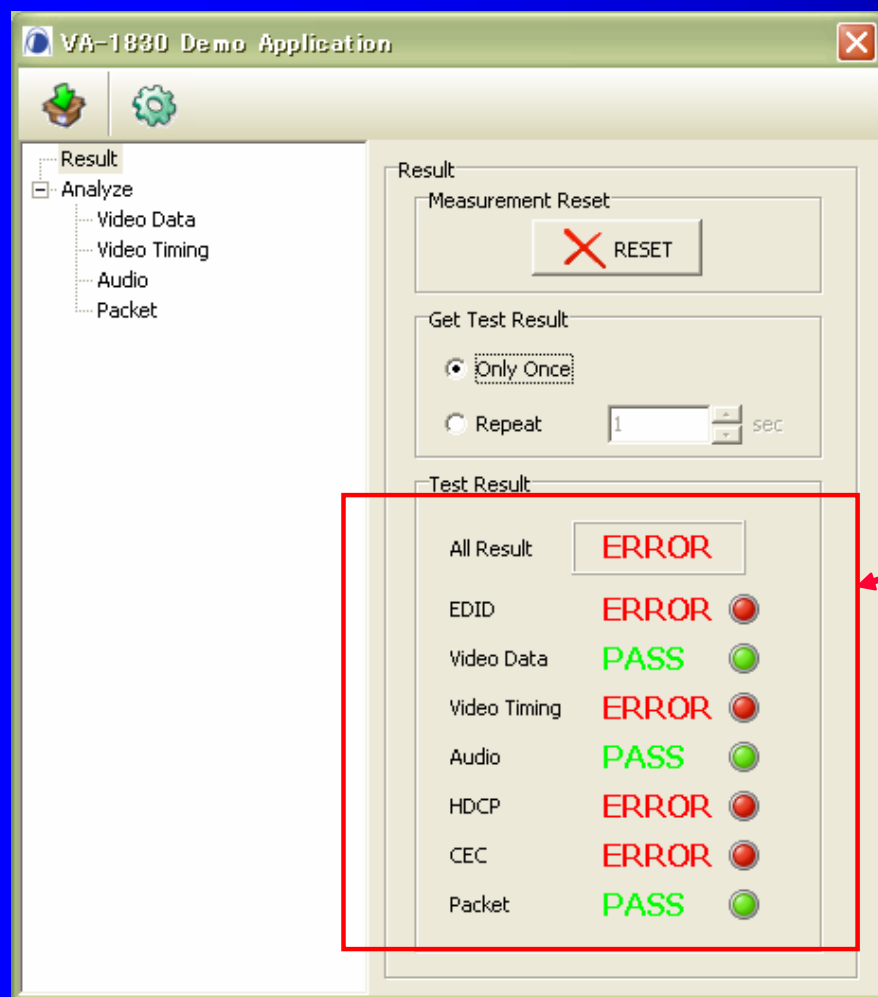
No.	Time	Item	Data	note
1	12.345678	CEC	S 01 8C E	
2	12.345689	CEC	S 10 FF 8C 04 E	
3	13.456789	Sync	Detect	
4	13.555555	HotPlug	Assert	
5	14.000000	CEC	S 03	Ack Error
6	14.123456	CEC	S 03	Ack Error

0000 0F 82 10 00

Intel(R) PRO/1000 CT Network Connection (---) Packets: 34 Displayed: 34 Marked: 0

This GUI software is an option.

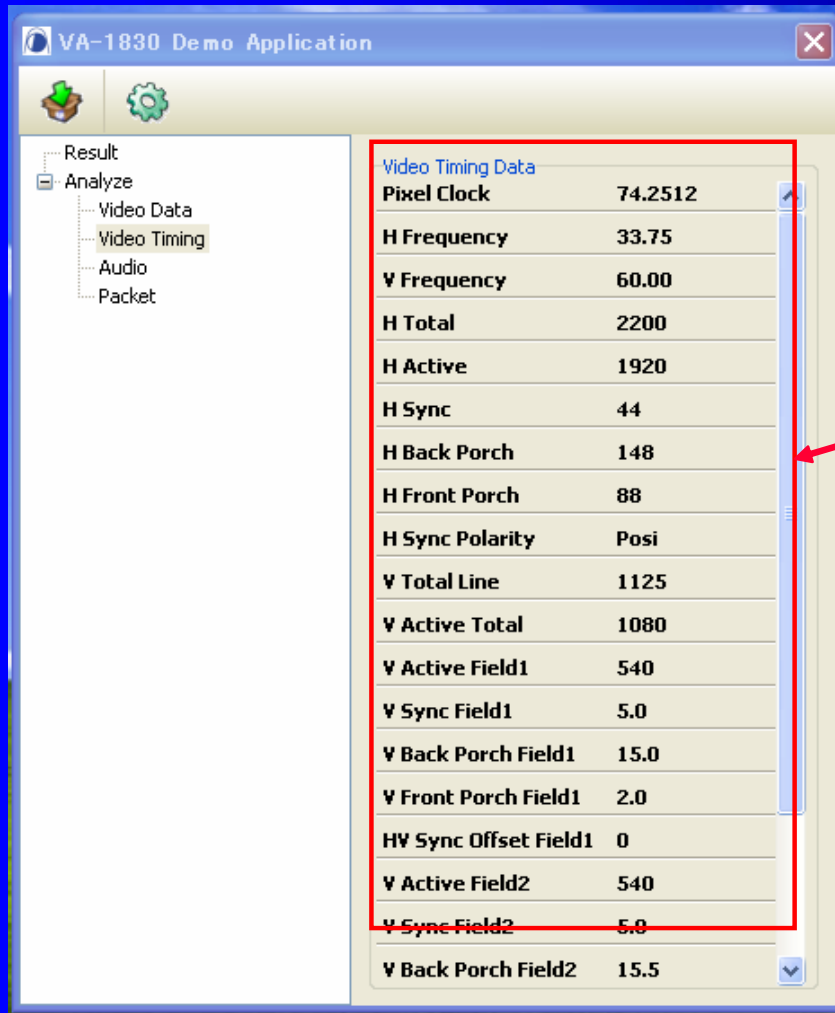
Software example (reference only)



PASS / ERROR is judged by comparing the reference program and input data.

This is example of demonstration software.

Software example (reference only)



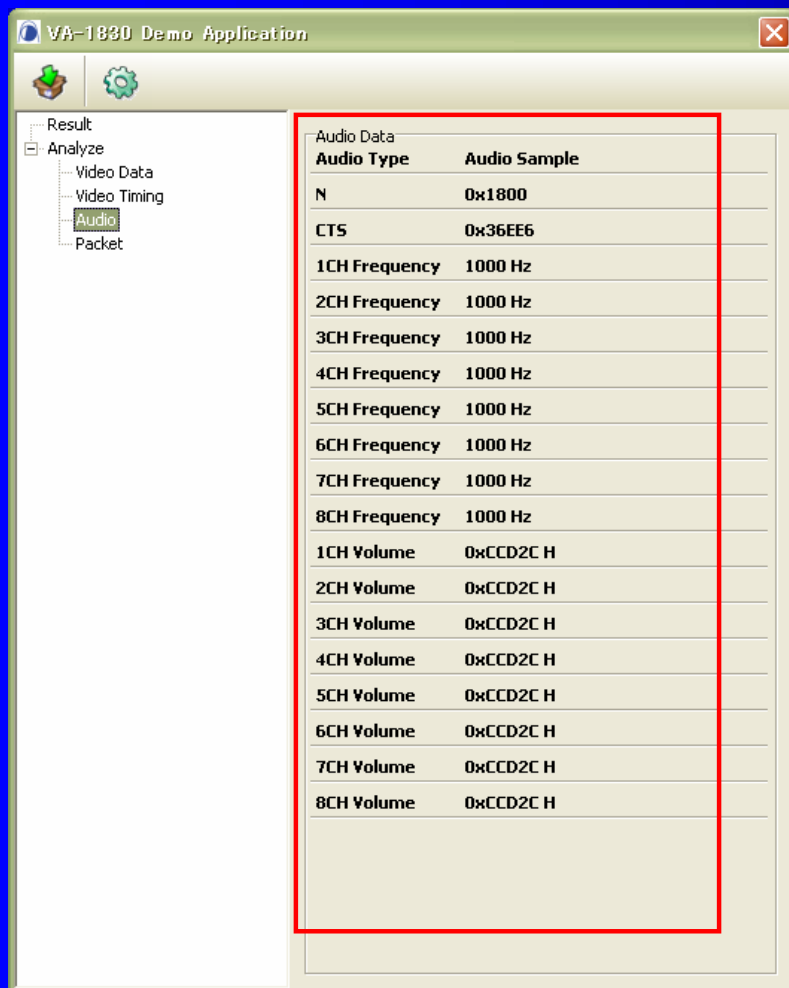
The screenshot shows a software window titled "VA-1830 Demo Application". On the left is a tree view with "Result" expanded, showing "Analyze", "Video Data", "Video Timing" (selected), "Audio", and "Packet". The main area displays a table of video timing data. A red rectangle highlights the table content, and a red arrow points from a text box to the right side of the table.

Video Timing Data	
Pixel Clock	74.2512
H Frequency	33.75
V Frequency	60.00
H Total	2200
H Active	1920
H Sync	44
H Back Porch	148
H Front Porch	88
H Sync Polarity	Posi
V Total Line	1125
V Active Total	1080
V Active Field1	540
V Sync Field1	5.0
V Back Porch Field1	15.0
V Front Porch Field1	2.0
HV Sync Offset Field1	0
V Active Field2	540
V Sync Field2	5.0
V Back Porch Field2	15.5

Video Timing detail
information confirmed.

This is example of demonstration software.

Software example (reference only)



Audio Data	
Audio Type	Audio Sample
N	0x1800
CTS	0x36EE6
1CH Frequency	1000 Hz
2CH Frequency	1000 Hz
3CH Frequency	1000 Hz
4CH Frequency	1000 Hz
5CH Frequency	1000 Hz
6CH Frequency	1000 Hz
7CH Frequency	1000 Hz
8CH Frequency	1000 Hz
1CH Volume	0xCCD2C H
2CH Volume	0xCCD2C H
3CH Volume	0xCCD2C H
4CH Volume	0xCCD2C H
5CH Volume	0xCCD2C H
6CH Volume	0xCCD2C H
7CH Volume	0xCCD2C H
8CH Volume	0xCCD2C H

Audio type

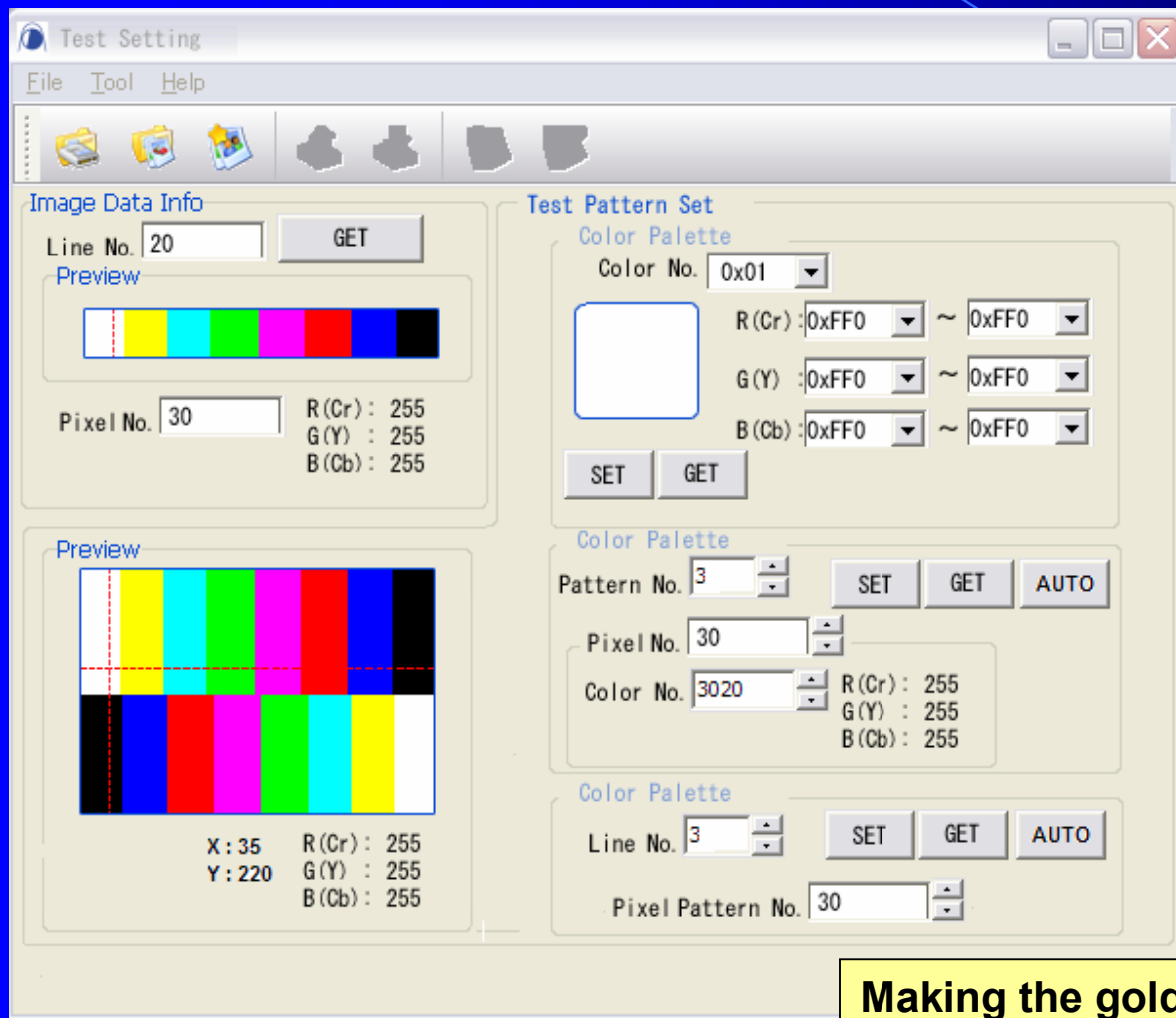
Frequency

Volume

Confirmed.

This is example of demonstration software.

Software example (reference only)



Making the golden sample data by user's own software application.

Thank you
謝謝

