



ALLION[®]

An ISO/IEC 17025
Qualified Test Laboratory

Real World CE IOP Test

百佳泰家庭應用產品測試中心

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Agenda

- What is Real World CE IOP
- Potential Risks
- Possible Root Causes
- Check Point in Test
- Test Configuration
- Worldwide Coverage
- Devices for Target Product
- Q&A

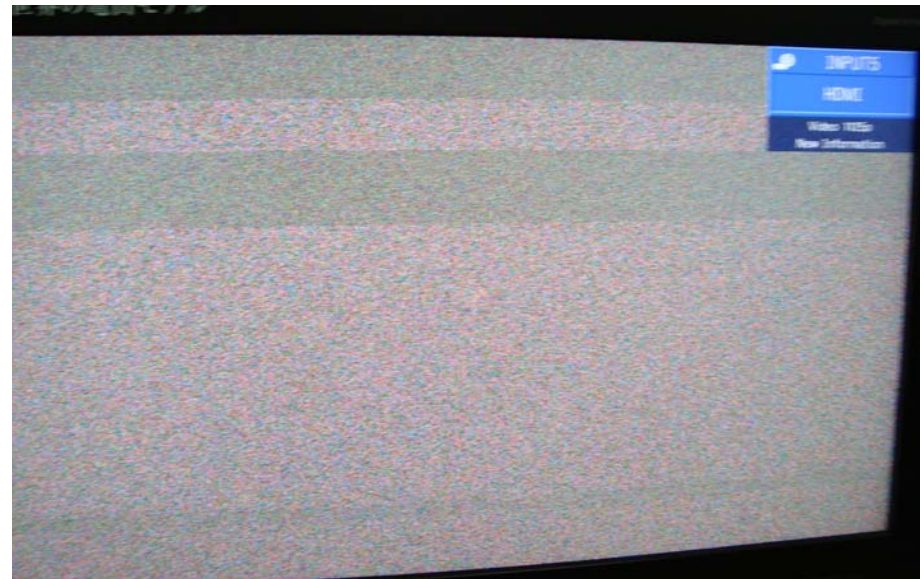


What is Real World CE IOP

- Interoperability with Real World Consumer Devices
- Make sure the product can work properly between different Regions, Brands and Interfaces.
 - Region
 - US, JP, EU, CN, TW
 - Brand
 - Giant brand, Local brand, Popular brand/ model
 - Interface
 - HDMI, Component, Composite, Network, USB

Potential Risks

- **Detection**
 - Unable to detect
 - Unable to recognize
- **Functionality**
 - Hang / NO response
 - CEC function NOT working
 - Not match Standard
- **Display / Audio**
 - AV Synchronize
 - Resolution
 - Noise
 - HDCP



❖ These risks may damage brand image and increase the cost of after-service.

Possible Root Causes

- Signal level issue
- HDCP handshake fail
- USB handshake fail
- Incorrect EDID data
- Incorrect implementation for CEC function
- Incorrect Video / Audio format detection
- Not follow the industry standard (HDMI, USB, WiFi...)
- Analog Interference
- Mechanical compatibility issue
- Firmware / Coding issue

Check Point in Test – 1/2

- **Video Signal**

- Video can be displayed
- OSD timing information match current setting

- **Display**

- Video is not over screen
- Video can full screen
- Display Color is correctly
- No other abnormal display

- **Noise / Video Problem**

- Blank / No Signal
- Color / Snow noise
- Flash / Flicker / Ripple screen
- Ghost Shadow / Frame Drop
- Playback delay
- Corruption on screen



Check Point in Test – 2/2

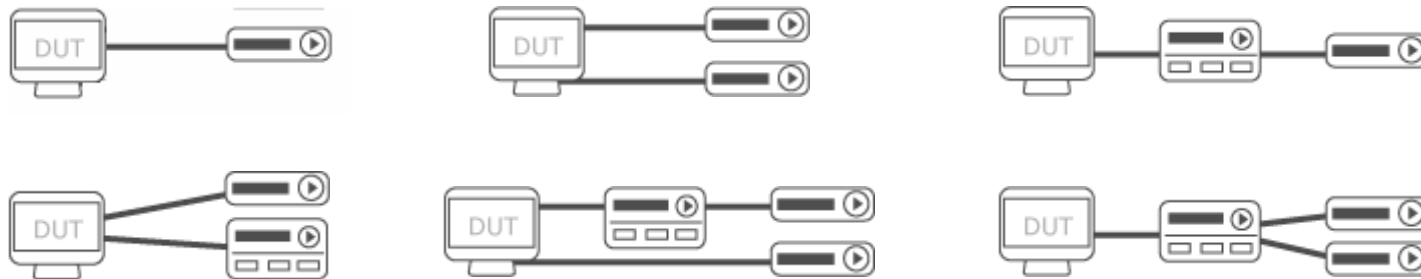
- **Audio Signal**
 - Audio playback normally
 - OSD Audio information match current setting
- **Audio Playback**
 - Audio and Video output in the same time
 - Audio is not slower / faster than Video
- **Noise / Audio Problem**
 - No Audio outputted
 - Audio Pop noise
 - Audio lag / jumping
 - Audio volume is stable (No increase or decrease)

Test Configuration

- Test Configuration

All function checked when DUT is connected in the most popular configuration in user's point of view; The purpose is to check every I/O port of DUT can work correctly when connected with other devices.

(Note: The connection can be HDMI, Component, USB, Wireless...etc)








Worldwide Coverage – 1/2

- Allion will prepare most popular consumer devices by each major market (JP, US, EU, TW, CN)
- Selection Criteria Priority
 - Selling Ranking
 - Popular / Noteworthy Ranking
 - Giant Brand / Local Brand
 - Satisfaction Ranking
 - New Model / Specification / Feature Related
- Device will be updated quarterly

Worldwide Coverage – 2/2

Target Device Categories versus Regions

Category		HDMI / Analog				USB			
Region		TV	Player	AMP	Game	Camera	Camcorder	USB	Total
Japan		20	50	23	2	109	30	67	301
USA		18	31	6	2	23	19	145	244
Europe		15	28	3	5	7	7	138	203
Taiwan		7	7	2	4	178	14	308	520
China		6	35	5	2	5	5	9	67
Total		66	151	39	15	322	75	667	1326

Devices for Target Product

- **For CE AV IOP:**

- TV : 66 sets
- AMP: 39 sets
- Player : 151 sets
- Game Console : 15 sets

- **For CE Network IOP:**

- DLNA-DMS : 23 sets
- DLNA-DMP : 28 sets
- Wireless AP : 140 sets

- **For CE USB IOP**

- Camcorder : 75 sets
- Camera : 322 sets
- Keyboard / Mouse: 160 sets
- Card Reader : 88 sets
- Storage device : 243 sets
- Media player : 131 sets
- HUB : 45 sets

- ✓ For a Worldwide DUT, we choose target device from each regions
- ✓ For different DUT / Function, target device can be customize
- ✓ Regular purchase for the top selling model

Q&A

Thank You