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Title :



CS106 Test Report for LCD Monitor

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TESTING REPORT

EQUIPMENT TYPE : 20.1 Multimedia LCD Monitor

MODEL NO. : WMRM920-PIP

SERIAL NO. : WMRM920-PIP

BRAND NAME : N/A

RECEIVED DATE : April 13, 2010

TESTED DATE : May 21, 2010

COMPLETED DATE : May 21, 2010

STANDARDS : MIL-STD-461F

TEST ITEM : CS106

PERIPHERY : Desktop PC without mouse and keyboard

CABLE : AC Power Cord

POWER CORD : Unshielding

TEST RESULT : PASS

NOTE : Input power AC 110 V

APPLICANT : iTech Company LLC

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TESTED LAB : Electronic Systems Research Division, CSIST
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Approved Signature : (Report Signer /Chief of LAB.)

Shueng-huang
2010/05/29

CONTENTS

Section	Title	Page
1.	SCOPE OF WORK	2
2.	TEST LABORATORY	2
3.	TEST PERIOD	2
4.	EQUIPMENT UNDER TEST	3
4.1	EQUIPMENT SUBMITTED FOR TESTS	3
4.2	MODES OF OPERATION	3
4.3	MODIFICATIONS DURING TESTING	3
5.	EVALUATION OF PERFORMANCE DURING THE TEST	3
5.1	CRITERIA OF ACCEPTANCE	3
6.	EMC TESTS	4
6.1	CS106	4
6.1.1	Test specification	4
6.1.2	Test Set-up	4
6.1.3	Test Procedures	5
7.	SUMMARY OF TEST RESULTS	7
8.	TEST FACILITIES AND INSTRUMENTS	7
9.	ATTACHMENT	8
9.1	PHOTOS OF TEST SETUP	8
9.2	PHOTOS OF EUT PCB	9
9.3	TEST DATA	10

1. SCOPE OF WORK

The 20.1 Multimedia LCD Monitor, manufactured by iTech Company LLC has been tested according to the following specification:

- ◇ MIL-STD-461F, 10 December 2007, "Requirements for the control of electromagnetic interference characteristics of subsystems and equipment " Navy applications for **CS106**

2. TEST LABORATORY

The testing for 20.1 Multimedia LCD Monitor was carried out in the EMC Laboratory at CSIST, Tao Yuan, Taiwan, R.O.C.

Ambient conditions in the test site:

Parameter	Actual	Note
Temperature [°C]	25°C~27°C	
Relative Humidity [%RH]	61%~62%	

For details about the measurement facilities and instruments used, see Chapter 8.

3. TEST PERIOD

The LCD Monitor was received for test on 13 April 2010, and then the test was completed on 21 May 2010.

4. EQUIPMENT UNDER TEST

4.1 Equipment submitted for tests

Overall designation of system/product :

Item	Manufacturer	Model No.
LCD	Samsung	LTM201U1-L01 1600*1200
M/B	iTech	R2A
VGA switch board	iTech	BNCV-100
OSD control board	iTech	MIOSD-110
RS232 board	iTech	PM1102S-200
Inverter board	TPCI	WM2006-25
Power board	ETASIS	EOFP-90M 90W 12V

Hereafter the test sample is referred to as **EUT (Equipment Under Test)**.

4.2 Modes of operation

All tests were carried out with the EUT running in **H pattern**.

4.3 Modifications during testing

No modification of the EUT was made during the compliance test.

5. EVALUATION OF PERFORMANCE DURING THE TEST

5.1 Criteria of acceptance

To pass the test, the EUT shall meet the following criteria:

Susceptibility test :

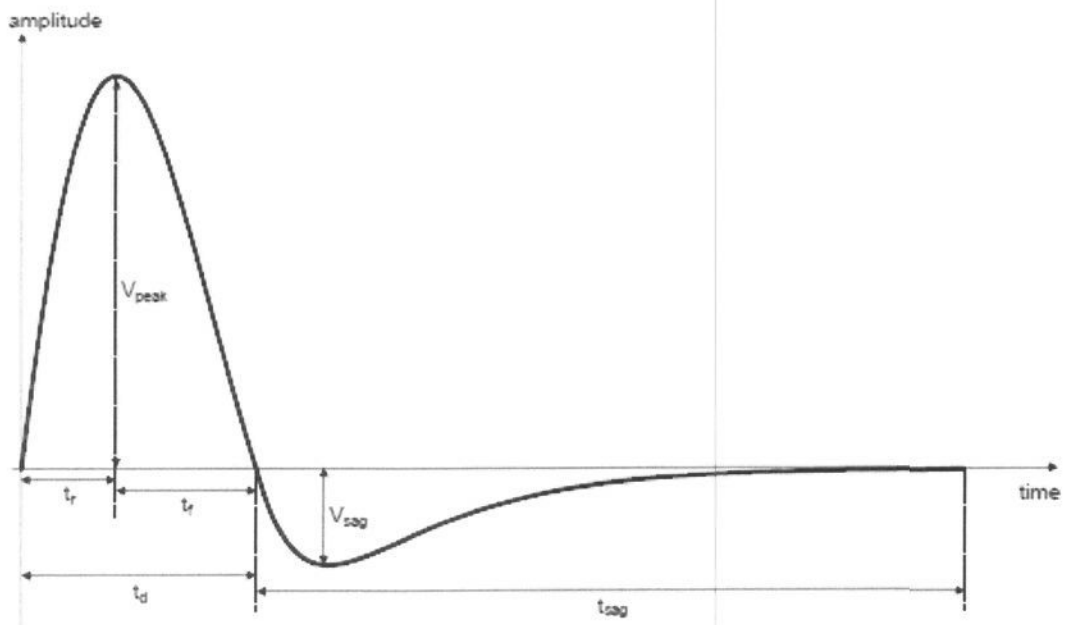
- ◇ Shall not exhibit any malfunction, degradation of performance, or deviation from specified indications, beyond the tolerances indications in the individual equipment or subsystem specification.

6. EMC TESTS

6.1 CS106

6.1.1 Test specification

The EUT shall not exhibit any malfunction, degradation of performance, or deviation from specified indications, beyond the tolerances indicated in the indicated in the individual equipment or subsystem specification, when subjected to a test signal with voltage levels as specified in Figure 1.



Where:

- $V_{peak} = 400$ volt peak
- $t_r = 1.5 \mu\text{sec}, \pm 0.5 \mu\text{sec}$
- $t_f = 3.5 \mu\text{sec}, \pm 0.5 \mu\text{sec}$
- $t_d = 5.0 \mu\text{sec}, \pm 22\%$
- $V_{sag} \leq 120$ volt peak (maximum)
- $t_{sag} \leq 20 \mu\text{sec}$

Measured across a 5.0 ohm non-inductive resistor.

Figure 1. CS106 voltage Limit.

6.1.2 Test Set-up

Typical test setups are shown in Figure 3 and Figure 4.

Test setup for CS106 is shown in the following figure: Figure 2.

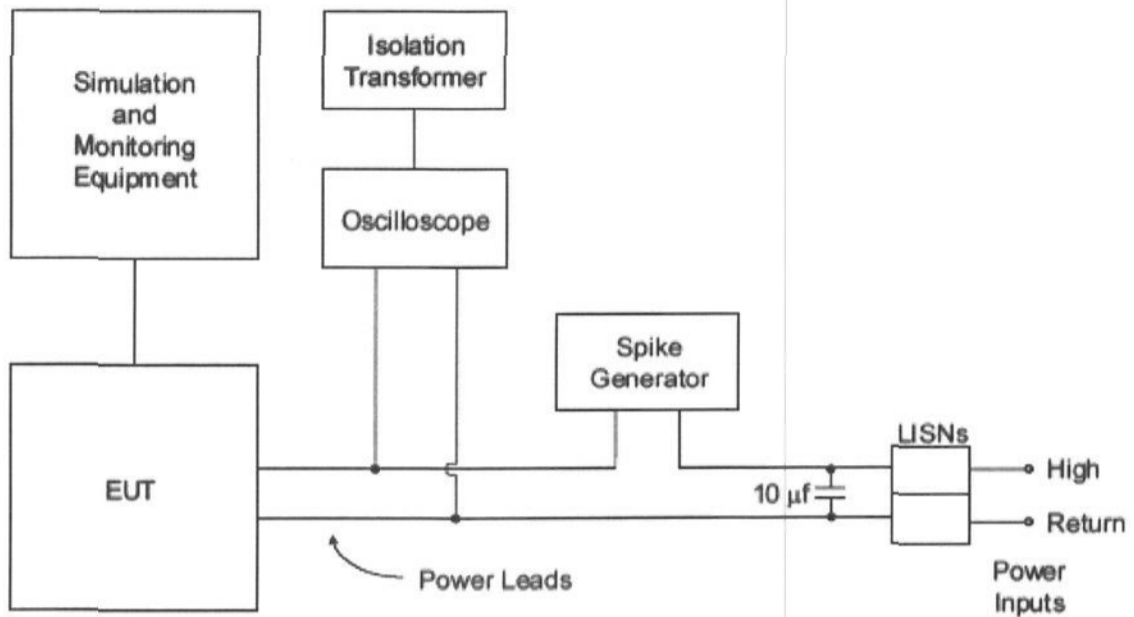


Figure 2. CS106 Signal Injection, DC or Single phase AC.

6.1.3 Test Procedures

- (1) Turn on the EUT and allow sufficient time for stabilization.
- (2) Set the transient generator to minimum output. Increase the signal level until the required voltage is reached on the power lead.
- (3) While maintaining at least the required signal level, apply transient pulses to the test sample's ungrounded input lines at a pulse repetition rate of between 5 and 10 pulses per second for not less than 5 minutes.
- (4) Susceptibility evaluation: Monitor the EUT for degradation of performance. If susceptibility is noted, determine and record its threshold level and phase position on the AC waveform and verify that it is above the limit.
- (5) Repeat (2) through (4) for each power lead and test condition, as required.

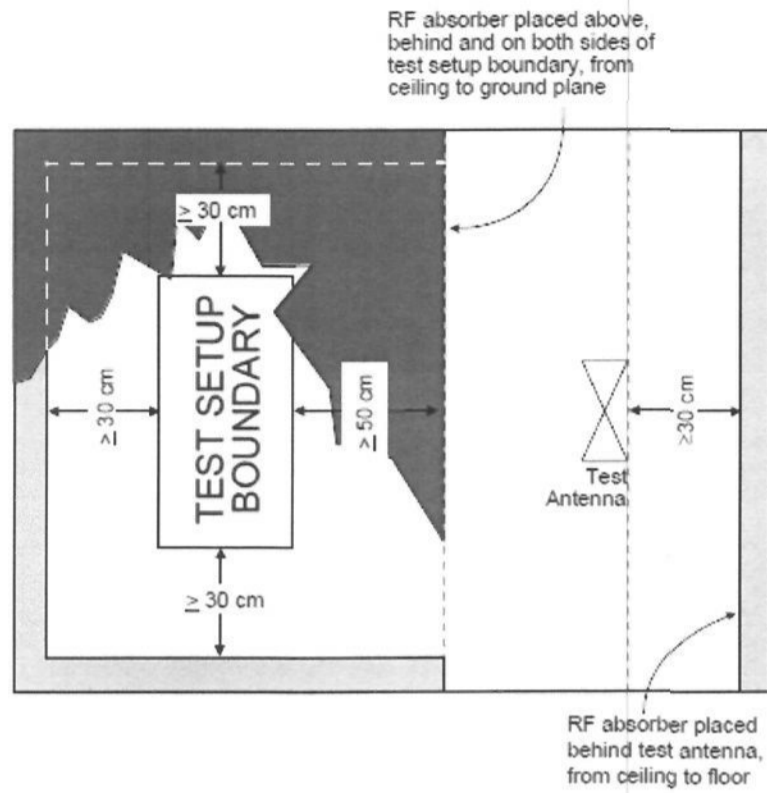


Figure 3. Typical Test Setup in RF Absorber Loading Chamber

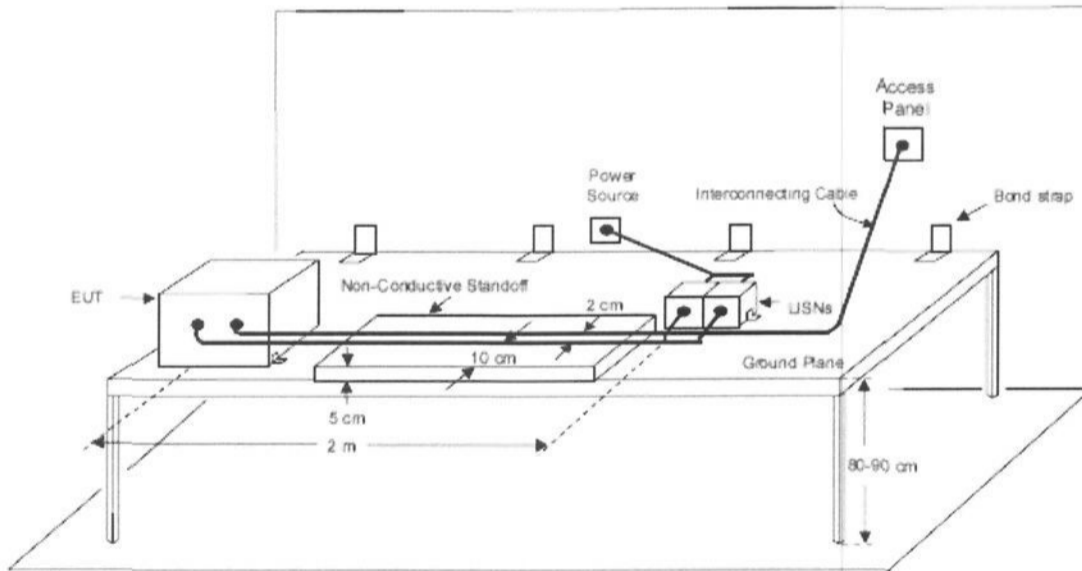


Figure 4. General Test Setup

7. SUMMARY OF TEST RESULTS

The LCD Monitor, made by WinMate Communication, INC., has been tested according to the following specification:

Test Item	Description	Test Specification for Navy	Test Result
MIL-STD-461F, 10 December 2007, Requirements For The Control of Electromagnetic Interference Characteristics of Subsystems and Equipment.			
CS106	Conducted Susceptibility, Transients, Power Leads.	CS106-1	PASS

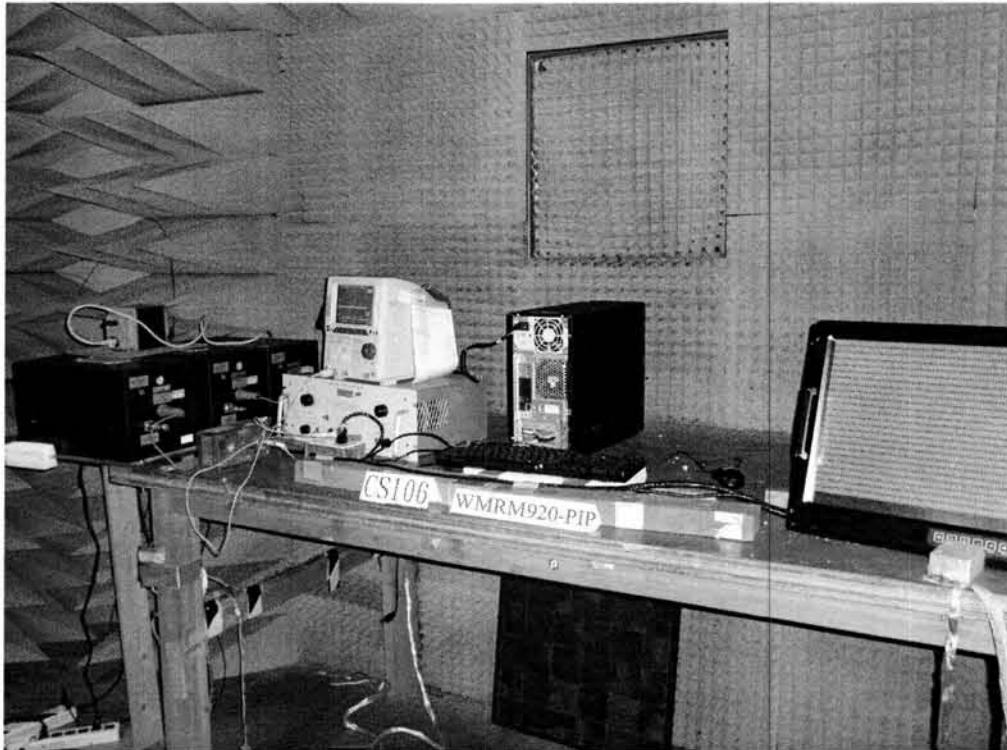
8. TEST FACILITIES AND INSTRUMENTS

The following test facilities and instruments were used during the tests:

Instrument	Manufacturer	Model #	Serial #
Transient Generator	SOLAR ELECTRONICS	2854-1	N/A
10 μ F Capacitor (x2)	SOLAR ELECTRONICS	6512-106R	N/A
Audio Isolation Transformer	SOLAR ELECTRONICS	6220-4	N/A
Isolation Transformer	SOLAR ELECTRONICS	7032-1	N/A
LISN	TEGAM	95300-50	T-128532 T-128534
Oscilloscope	YOKOGAWA	DL1720	12B-10145E

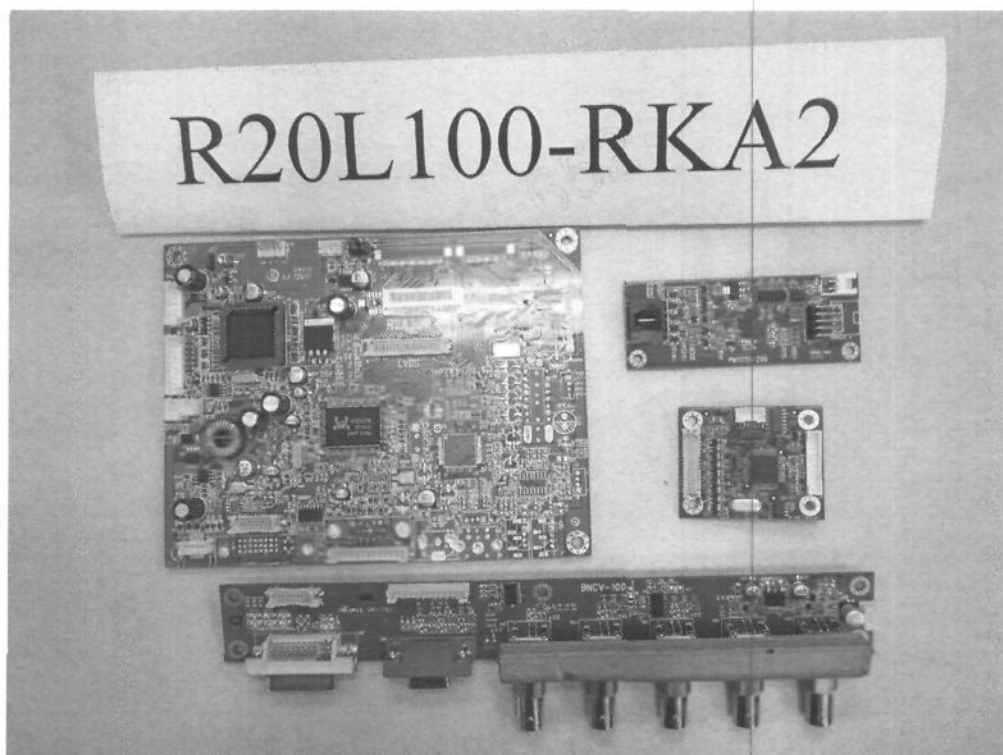
9. ATTACHMENT

9.1 Photos of Test Setup

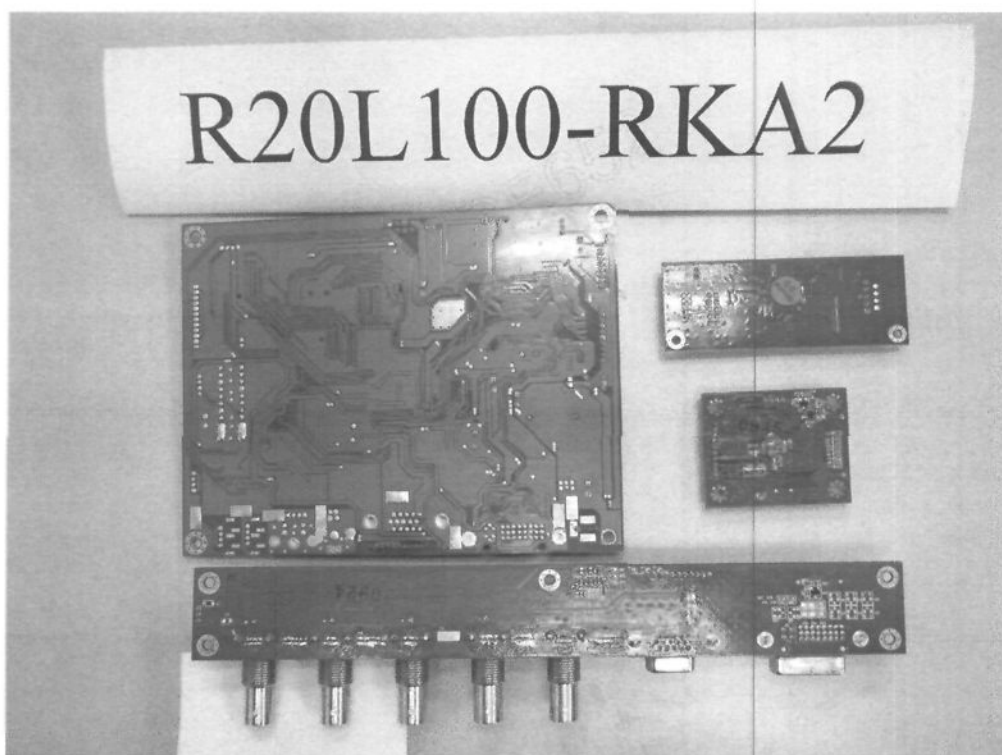


CS106 TEST

9.2 Photos of EUT PCB



EUT (1)



EUT (2)

9.3 Test Data
CS106 :

