



High Speed Cable Test Software



高速线缆组件
测试软件介绍

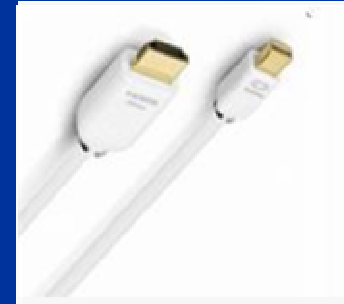
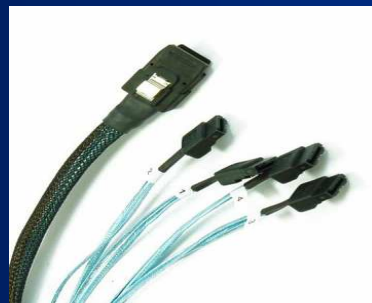
JIETAI Technology
2013-6-20

目 录



- 1 软件介绍.....
- 2 软件流程图.....
- 3 操作说明.....
- 4 报告导读.....

软件介绍



JTTS 主要是针对 SFP+, QSFP, Mini-SAS, Mini-SAS HD, USB3.0 等高速线缆产品开发的高频量测软件。它能准确快速量测产品的 Differential impedance, Common Impedance, Intra-pair Skew, Inter-pair Skew, Delay, Rise time, Insertion Loss, Return Loss, Crosstalk 等高频性能。

软件特点



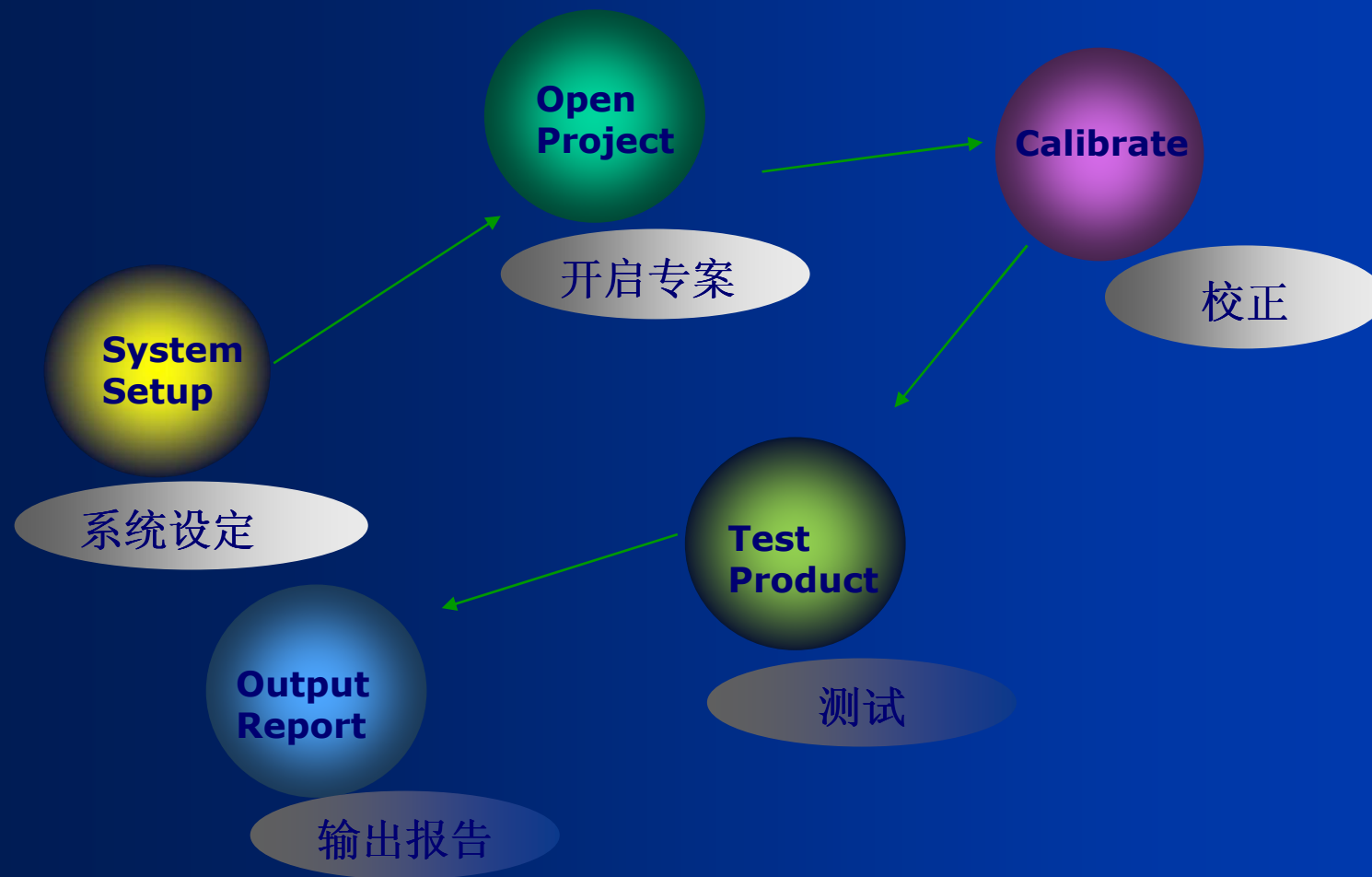
特点:

- ◆ 高测试效率和精确
- ◆ 支持大部分型号 VNA&TDR。
- ◆ 专案管理功能: 支持Mini-SAS, SFP+, QSFP, USB3.0 等标准
- ◆ 校正功能
- ◆ 支持全自动量测
- ◆ 自动输出报告
- ◆ **TDNA S-参数功能**
- ◆ 软件界面友好, 操作方便
- ◆ 防呆设计

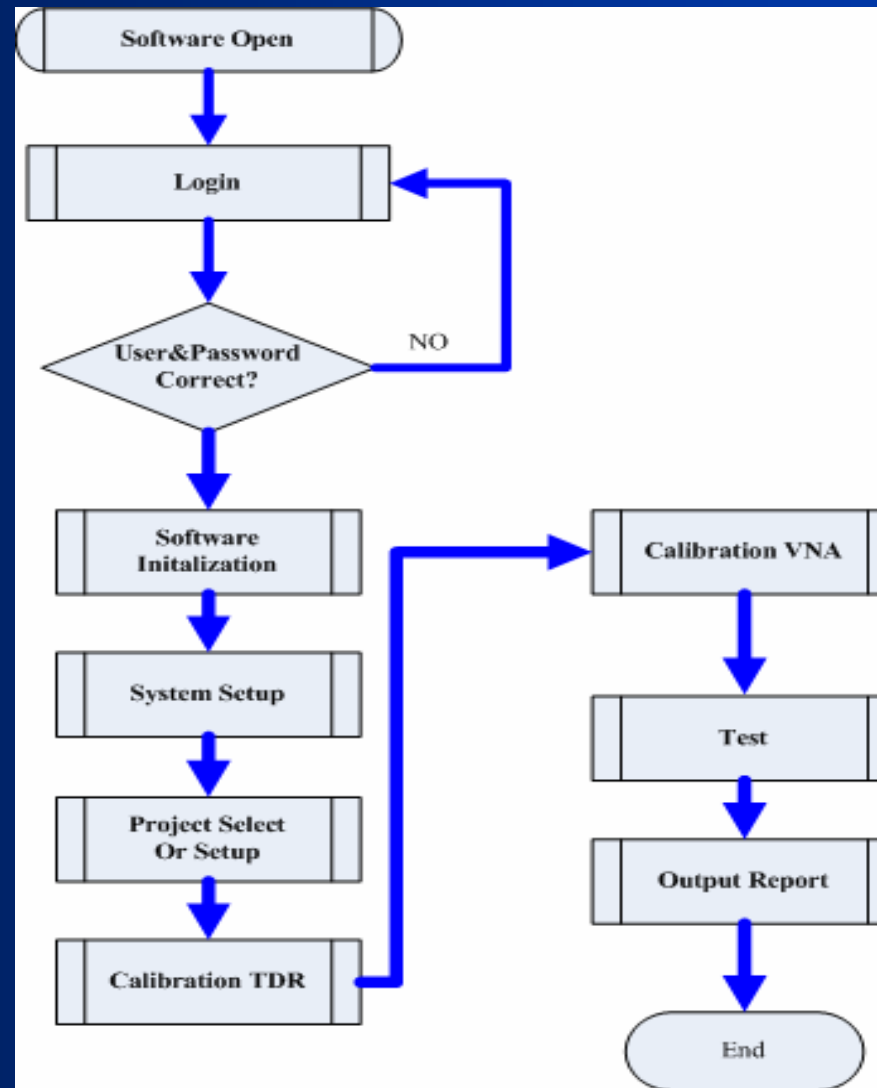
软件功能



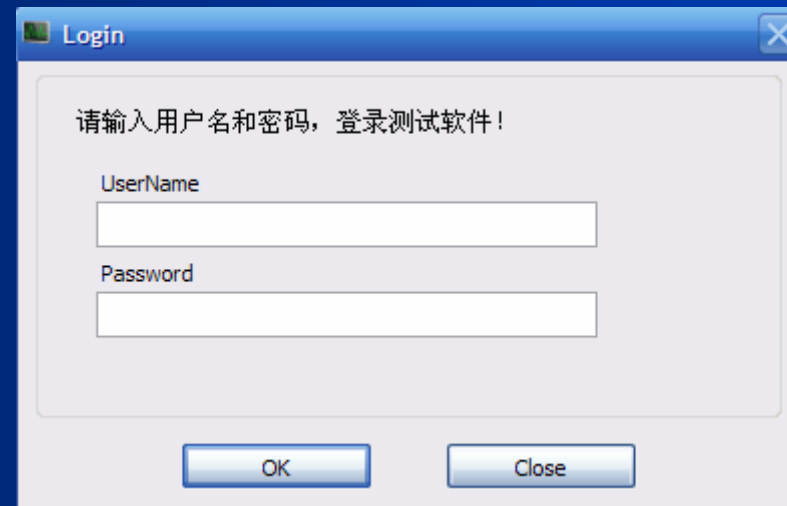
软件执行流程



软件流程图



软件具体操作——登陆



软件具体操作——帮助文件



Easy CHM - Made by UNREGISTERED version of Easy CHM

目录 (C) | 索引 (I) | 搜索 (S) | 书签 (B)

- 关于 High Speed Cable Test Software
- 软件模块简介
- 基本操作

JTTS

File Option

jt 深圳捷泰 (中国) 科技有限公司
JIETAI Technology (China) Co., LTD.

High Speed Cable Test Software

JT_SZ Rev 1.0

注意: 测试前, 请先登录,

该软件 主要是针对 Mini-SAS, USB3.0, DP, SATA, SFP+ 等 High Speed Cable 产品开发的高频测量软件。它能准确地测量产品的 Differential Impedance, Common Impedance, Intra-pair Skew, Inter-pair Skew, Delay, Rise time, Insertion Loss, Return Loss, Crosstalk 等高频性能。

主要使用的仪器有

1. 网络测试仪 如: Agilent N5230A, Agilent N5230C
2. 时域反射仪 如: Tektronix DSA8300
3. GPIB Card 如: NI GPIB-USB-HS



Agilent N5230C



Tektronix DSA8300



NI GPIB-USB-HS

软件具体操作---设置System信息



JTTS_Main.vi

System
Project
Calibration
Test
Exit

Instrument Setting

TDR

Model: DSA8300 Header_num: 1
Header_1: C1+C2
Header_2: C1+C2
Addr: 12

VNA ☒ OFF ☐ ON
Model: N5230A
Addr: 18

TDVNA ☐ OFF ☐ ON
I-Connect ☐ OFF ☐ ON

GBIP

Model: GPIB_AGIUSB

Company Information

Company Name: SHENZHEN JTP Technology CO., LTD.
Company Log: E:\LabView\Project\JieTai HPTS\Spec\JT.png **Open**

Telephone: Tel: (+86)755-83908488 Fax: (+86)755-83900338
Address: East 1501, Coast Times Building, Shennan road, Nanshan District, Shenzhen city
深圳市南山区深南路海岸时代大厦(海岸·卡夫诺)东座1501
Report Title: SHENZHEN JTP Technology CO., LTD. ELECTRICAL LAB

JTTS High Speed Cable Test Software
Copyright ? 2012 JTP Technology Ltd. All rights reserved.
This product is licensed to :
JTP
Product ID: "JKiJK-OPKJH-GHJFD-KLCVB-DFSDH"

Save Setting **Return Home**

使用TDR S-parameter Option, TDR
就能完成IL, RL 等S-参数的测量



软件具体操作---专案选择



点击Page1或是Page2选择需要测试的产品

JTTS

Page_1 Page_2

Serial Attached SCSI SFP QSFP USB 3.0 HDMI DisplayPort SERIAL ATA

SELECT PARAMETER Edit VNA PARAMETER Edit TDR PARAMETER

Project Properties VNA/TDR Set

Project Set:

Project Name: New SFP+ 10G Project

Product Type: SFP+ 10G Passive Cable Assembly

Specification: SFP+ 10G Standard

DUT Set:

Part Number: 1

Pair Num: 2

Length: 2 m

Automatic Set:

Pair Name:

✓ TX

✓ RX

Content Format

User-defined

OFF/ON

Standard

OFF/ON 8 Pairs

VNA Parameter TDR Parameter

Selected VNA Item:

- ✓ Insertion Loss
- ✓ Insertion Loss deviation (ILD)
- ✓ Return Loss
- ✓ Diff to Common Conversion
- ✓ Jitter
- ✓ NEXT
- ✓ FEXT

Note: Right-click item to modify!

Open Project Save Project Return Home

SYSTEM PROJECT CALIBRATION TEST EXIT

14:45 2013/6/21

软件具体操作——专案选择



Page2所示的测试产品专案

JTTS

Page_1 Page_2

DVI **Coaxial**

SELECT PARAMETER **Edit VNA PARAMETER** **Edit TDR PARAMETER**

Project Properties **VNA/TDR Set**

Project Set:

Project Name:

Product Type:

Specification:

DUT Set:

Part Number:

Pair Num:

Length: m

Automatic Set:

Pair Name:

☒ TX

☒ RX

Content Format

User-defined

☒ OFF/ON

Standard

☐ OFF/ON Pairs

VNA Parameter **TDR Parameter**

Selected VNA Item:

- ☒ Insertion Loss
- ☒ Insertion Loss deviation (ILD)
- ☒ Return Loss
- ☒ Diff to Common Conversion
- ☒ Jitter
- ☒ NEXT
- ☒ FEXT

Note: Right-click item to modify!

Open Project **Save Project** **Return Home**

SYSTEM

PROJECT

CALIBRATION

TEST

EXIT

14:48 2013/6/21

软件具体操作---专案设置



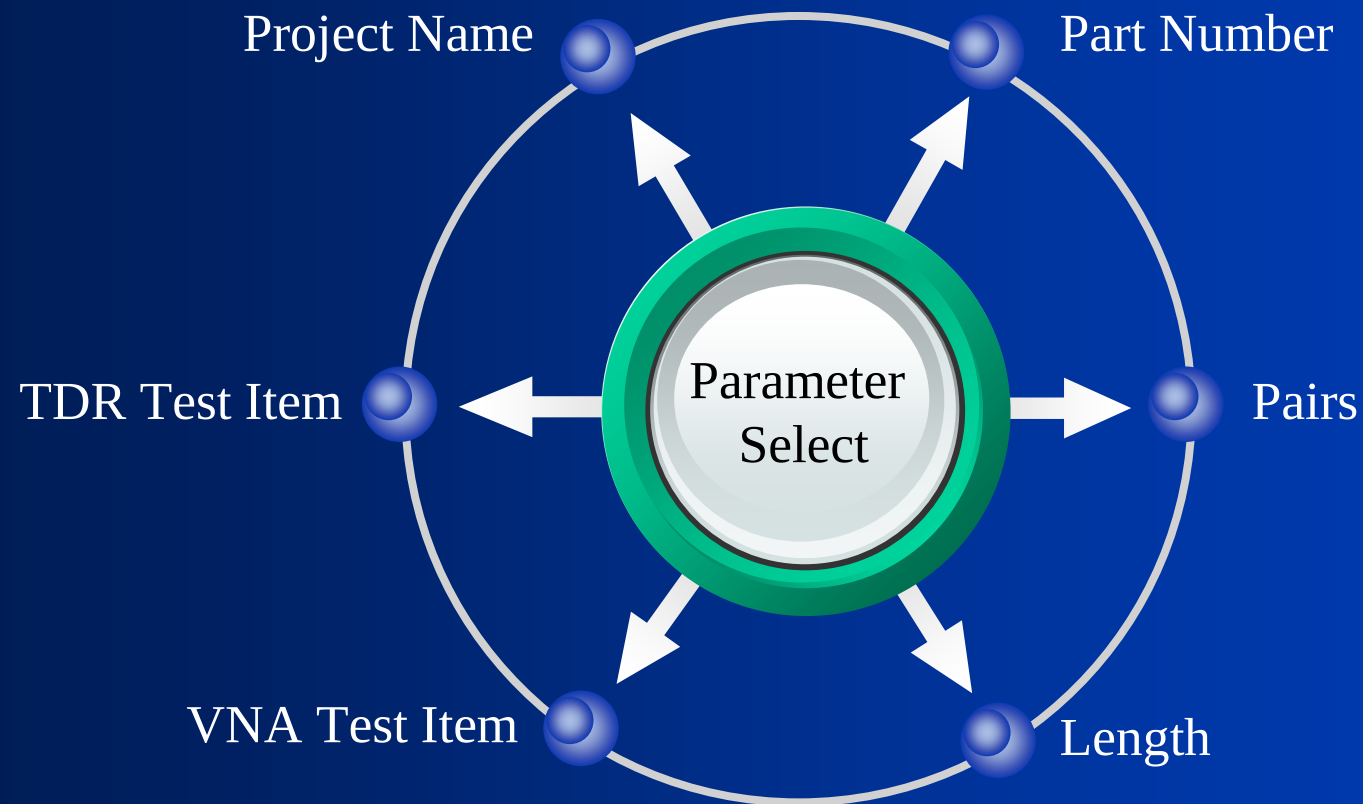
Select Parameter

Edit VNA Parameter

Edit TDR Parameter

**Project
Setup**

软件具体操作---选择参数



添加删除对数、测试项目



Pair Name:

✓ TX0
✓ RX0
✓ TX1
✓ RX1
✓ TX2
✓ RX2
✓ TX3
✓ RX3

Add

Delete

Reset

右键菜单

VNA Parameter | **TDR Parameter**

Selected VNA Item:

✓ Insertion Loss
✓ Return Loss
✓ Diff to Common Mode IL(SCD21)
✓ Diff to Common Mode RL(SCD22)
✓ SCD21-SDD21
✓ Next

Reset

Delete

软件具体操作---VNA 参数



VNA Parameter List:

- Return Loss
- Insertion Loss
- ✓ Return Loss
- Diff to Common Mode IL(SCD21)
- Diff to Common Mode RL(SCD22)
- SCD21-SDD21



VNA Parameter List:

Return Loss SAVE

Set VNA Parameters **Set VNA Parameters Specification**

General

Equip. Model: N5230A

Start Frequency: 100 MHz Stop Frequency: 6000 MHz

IFBW: 300 HZ Sweep Points: 1601

Sweep Type: Linear Frequency

Average: ON

Smooth: ON

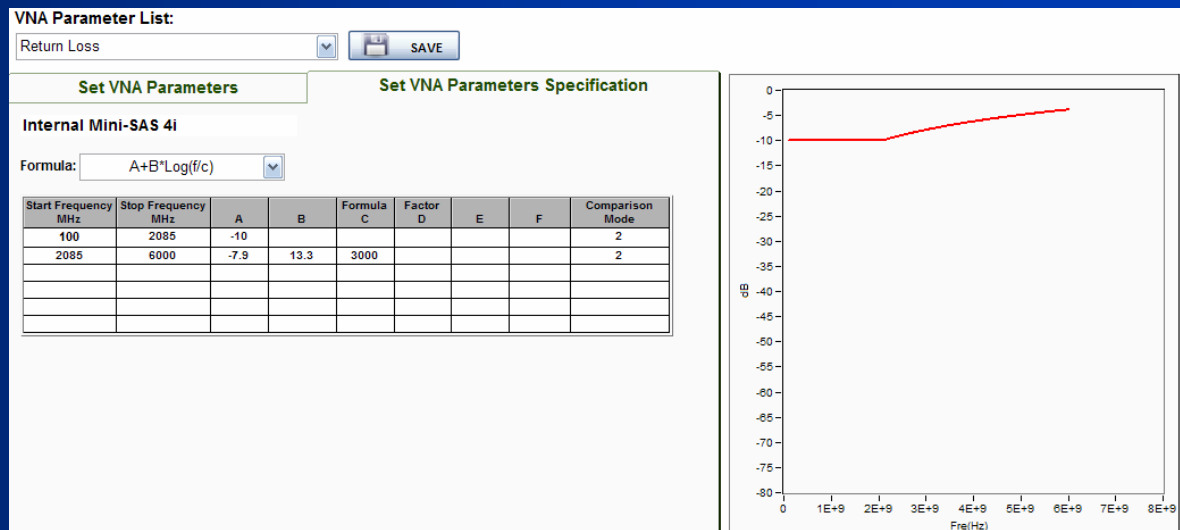
Parameter

Parameter Name: Return Loss

S-parameter: SDD22

Data Format: Log Mag

Topology: BAL-BAL



软件具体操作---VNA校正



2选1

VNA

Calibration Type:

☒ 2 Ports ☐ 4 Ports

Start Ecal

Ecal calibration, it will take about 1 minute, please wait...

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5 8 8.5 9 9.5 10

Calibration Finished!

VNA

Calibration Type:

☒ 2 Ports ☐ 4 Ports

Reflect	Port1	Port2	Port3	Port4
	Open	Open	Open	Open
	Short	Short	Short	Short
	Load	Load	Load	Load

Thru	Port1	Port2	Port3
	1~2	1~3	1~4
	2~3	2~4	3~4

测试治
具校正

Fixture Simulator

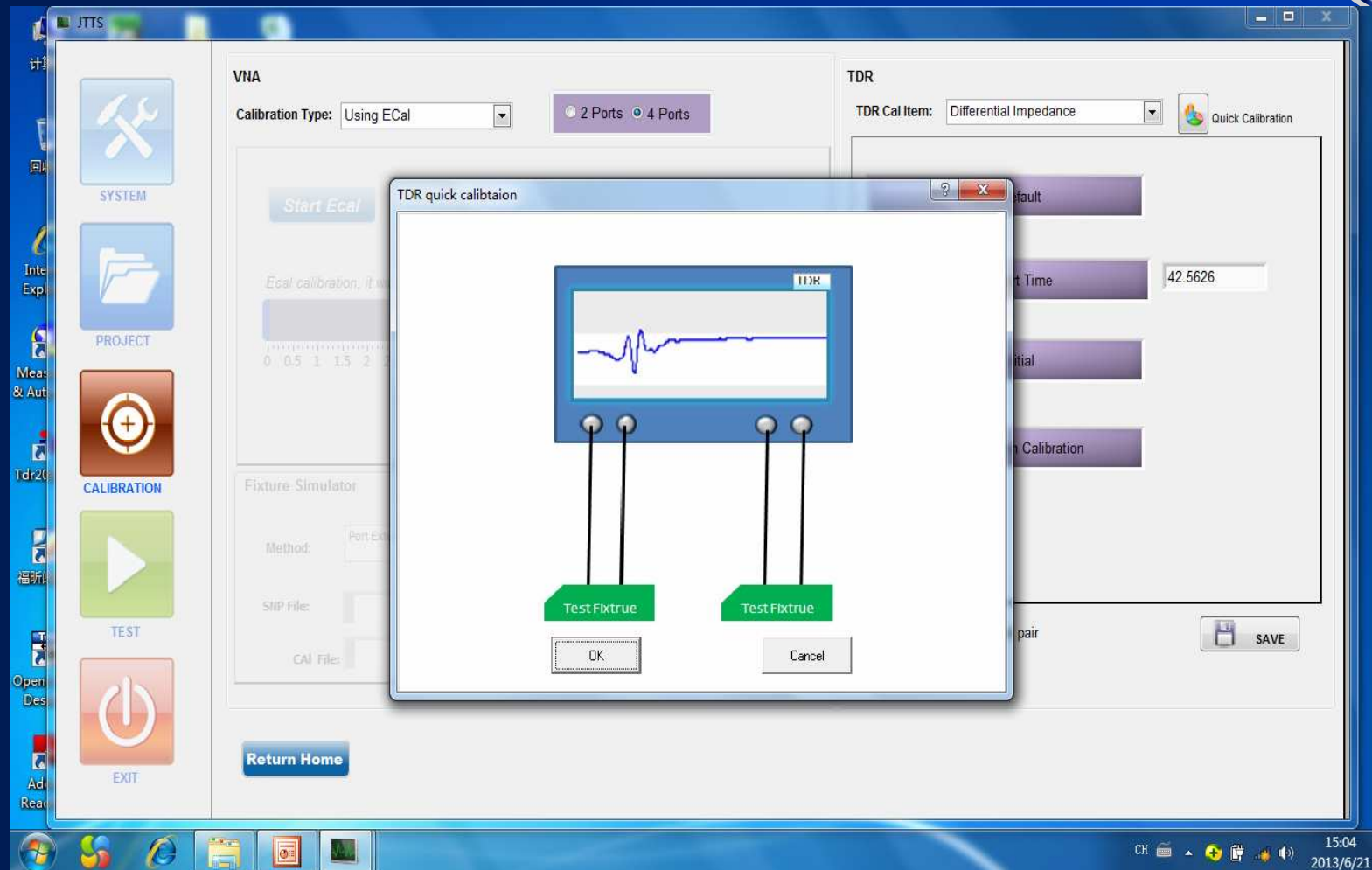
Method:

Topology:

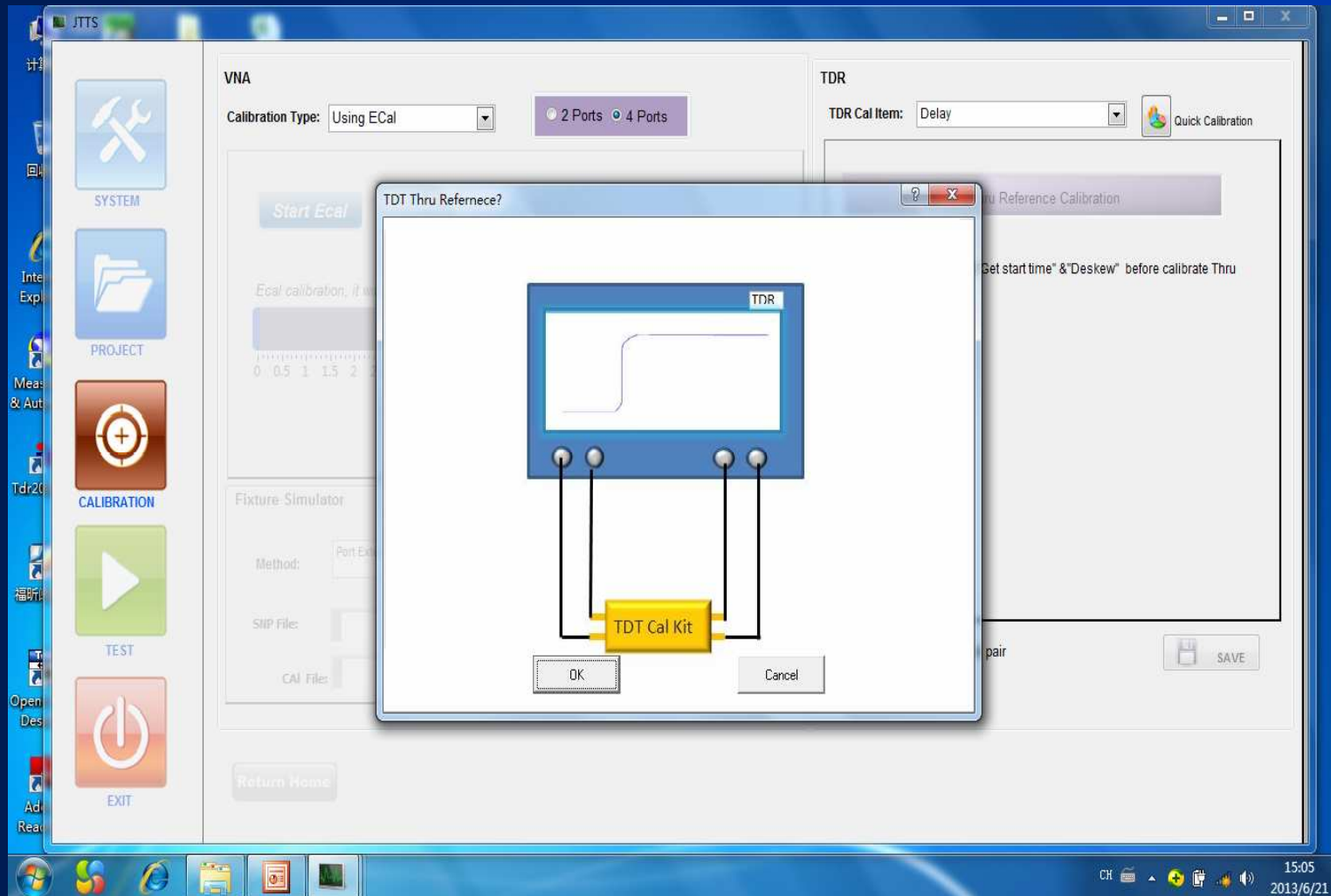
SNP File:

Enable Fixture

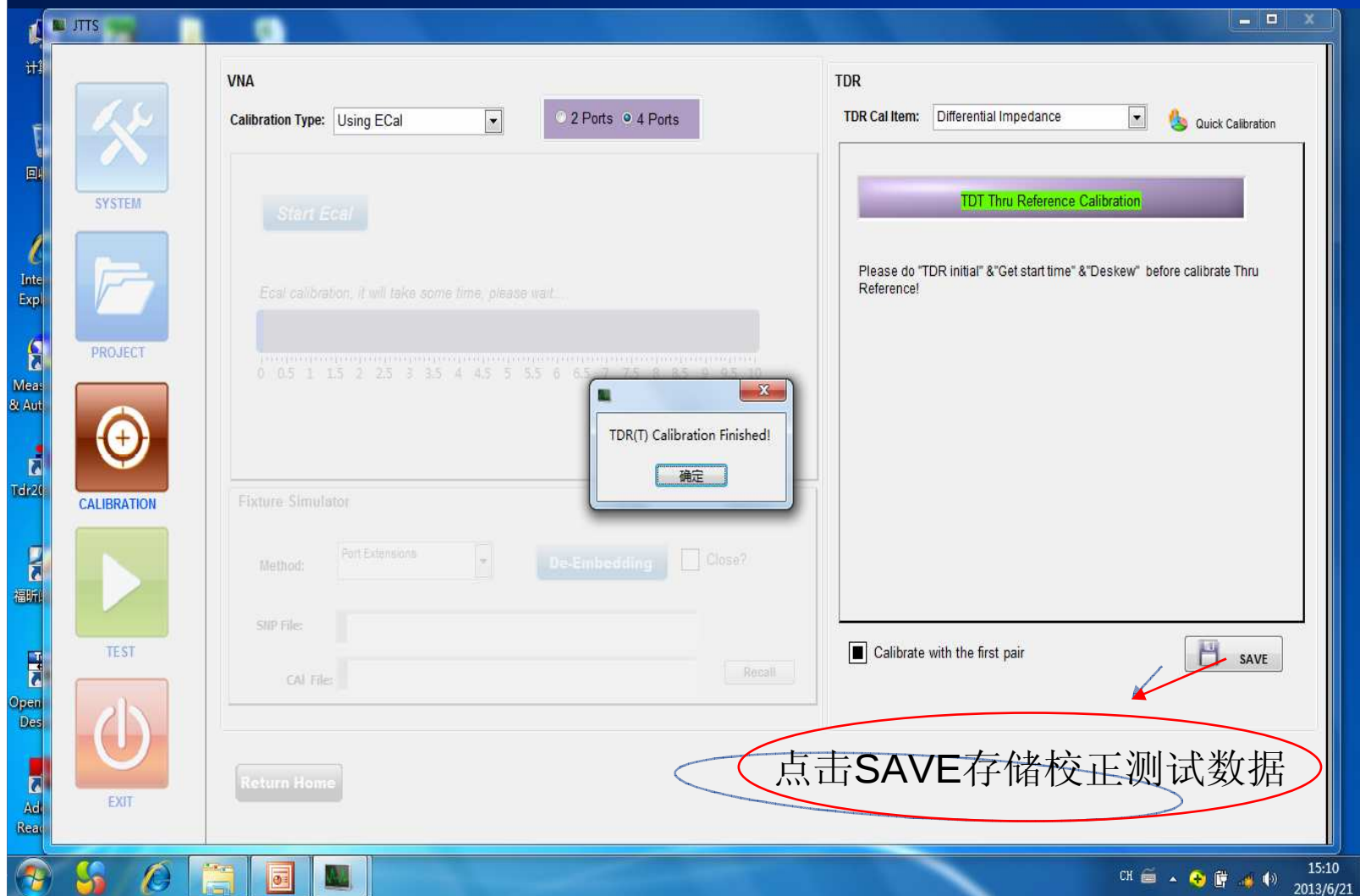
软件具体操作---TDR校正



软件具体操作---TDT校正



软件具体操作-校正完成以后提示



软件具体操作-单项测试



JTTS

Start Test Sample Number:

Pair to measure:

Item Name	Result
☒ Differential Impedance TX	
☐ Differential Impedance RX	

Parameters to measure:

Item Name
☒ Differential Impedance
☐ Intra-pair Skew
☐ Insertion Loss
☐ Insertion Loss deviation (ILD)
☐ Return Loss
☐ Diff to Common Conversion
☐ Jitter
☐ NEXT
☐ FEXT

☐ Multiple Items Test
☐ Automatic Test

Return Home

TEST

Test Graph **Export Report**

Impedance(Ohm)

START = 100 ns STOP = 10000 ns

Para Name: Date: 2013/5/8 16:16:27

Spec: 3000 Test Value:

Map mode: Save Image Data? ☐

CH 15:21 2013/6/21

软件具体操作-多项测试



Software interface for JTS (Jitter Test Software) showing the 'Start Test' configuration screen.

Start Test Sample Number:

Pair to measure:

Item Name	Result
☒ Differential Impedance TX	
☐ Differential Impedance RX	

Parameters to measure:

Item Name
☒ Differential Impedance
☐ Intra-pair Skew
☐ Insertion Loss
☐ Insertion Loss deviation (ILD)
☐ Return Loss
☐ Diff to Common Conversion
☐ Jitter
☐ NEXT
☐ FEXT

☒ Multiple Items Test
☐ Automatic Test

Test Graph **Export Report**

Impedance(Ohm)

START = 100 ns STOP = 10000 ns

Para Name: Diff to Common Conversion TX
Spec: 3000 Date: 2013/5/8 16:16:27
Test Value:

Map mode: Save Image Data? ☐

15:55 2013/6/21

点击保存测试
图形

软件具体操作——测试



测试方式分类

软件具体操作---测试



Start Test

Sample Number: 1

Pair to measure:

Item Name	Result
☒ Differential impedance TX0	PASS
☐ Differential impedance RX0	
☐ Differential impedance TX1	
☐ Differential impedance RX1	
☐ Differential impedance TX2	
☐ Differential impedance RX2	
☐ Differential impedance TX3	
☐ Differential impedance RX3	

Parameters to measure:

Item Name
☒ Differential impedance
☐ Delay
☐ Insertion Loss
☐ Return Loss
☐ Diff to Common Mode IL(SCD21)
☐ Diff to Common Mode RL(SCD22)
☐ SCD21-SDD21

☐ Multiple Items Test

☐ Automatic Test

Return Home

STOP TEST

Test Graph

Export Report

规格

测试曲线图

抓图

Impedance(Ohm)

Max:106.16@57.304ns

Max

Min

PASS

START= 56.562 ns

STOP= 61.562 ns

Para Name: Differential impedance TX0

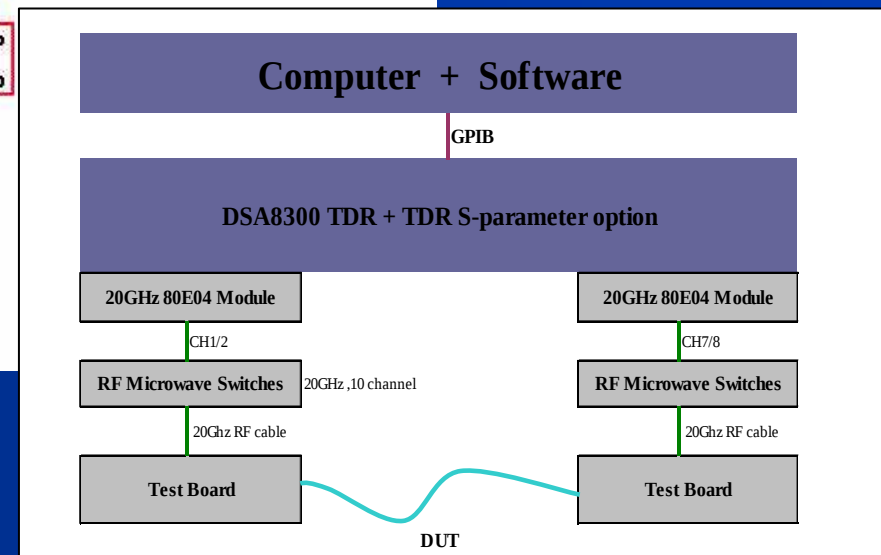
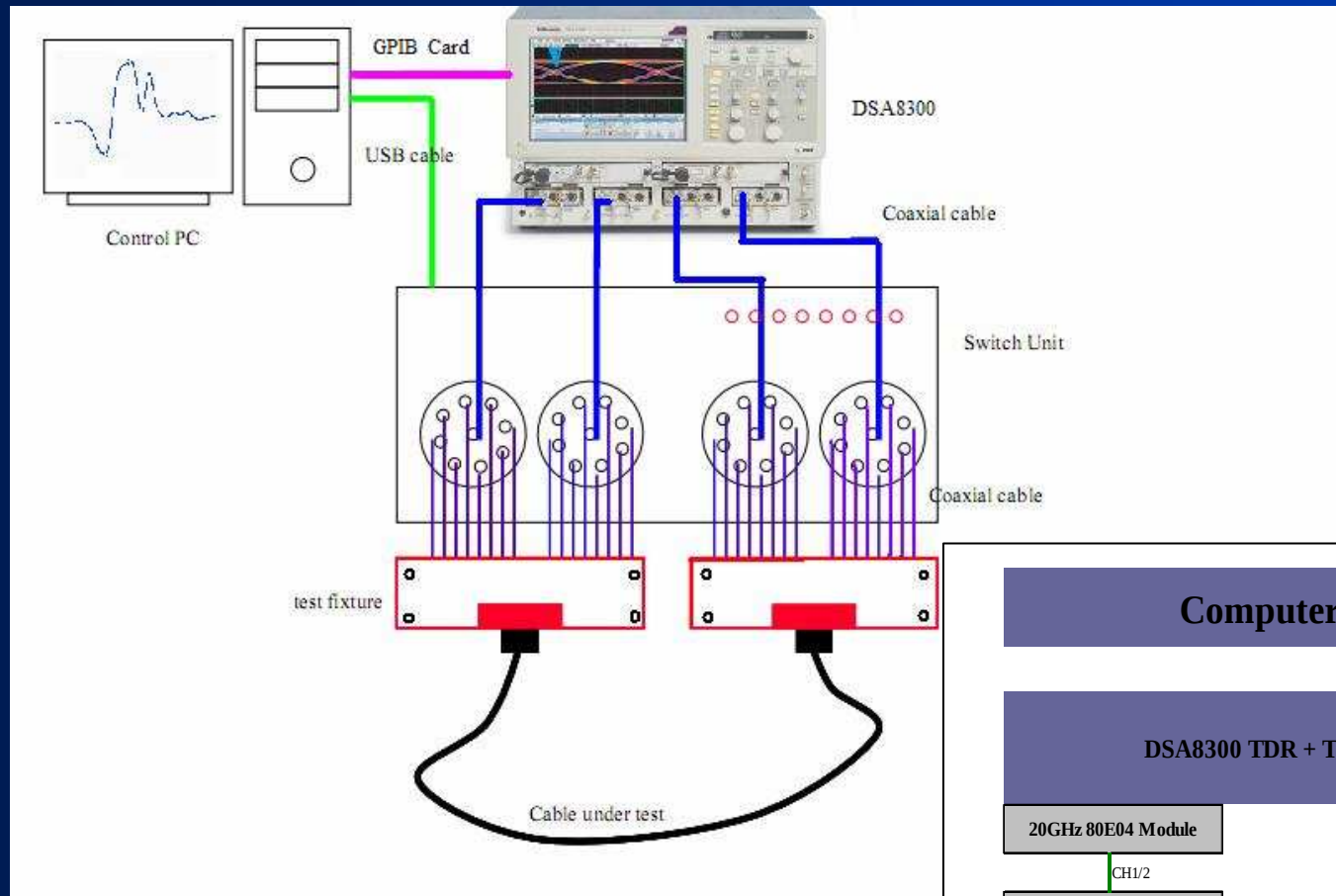
Spec: 100+/-15 ohms

Date: 2012-6-14 16:55:41

Test Value: Term_Max:106.16 Term_Min:94.63 Cable_Max:99.64 Cable_Min:99.03

Save Graph

软件具体操作——自动化测试



软件具体操作——报告输出



Test Graph

Export Report

Report Title

Report No. :
HF-12060001

Part No:
74752001

Part Name:
74752001,Internal Mini-SAS 4i,1.0m

Applicant:
JTB

Test Owner:
JTB

Approved By:
JTB

Report Option

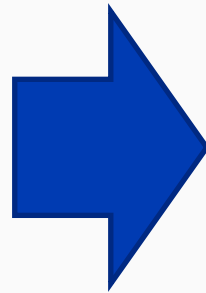
No
☒ OFF/ON

Image
☐ OFF/ON

Chart
☐ OFF/ON

Summary
☐ OFF/ON

Export Report



- 1.输出带有所有测试数据的报告
- 2.输出带有图片的报告
- 3.输出带有 曲线图的报告
- 4.输出仅有总结数据的报告

报告导读



第一页:

公司logo

报告标题

报告申请人

报告编号

物料名称

序列号

Microsoft Excel - HF-13060001 30617SFP+ 10G P,1.20m, #1

文件(F) 编辑(E) 视图(V) 格式(O) 工具(T) 数据(D) 窗口(W) 帮助(H)

013

1 深圳市捷泰普科技有限公司

2  电话: 0755-83908188 83503866 传真: 0755-83900338

3 地址: 中国广东省深圳市宝安区西乡立交万骏汇商业大厦 709

4

5

6

7

8 **SFP+ 10G PASSIVE CABLE ASSEMBLY TEST REPORT**

9

10

11

12 ReportNo.: HF-13060001

13 2013/6/17 16:52

14

15

16 **Test Information**

17 DUT: 10G Passive Cable Assembly 20130617SFP+ 10G P, Temperature: °C

18

19 Specification: SFP+ 10G Standard Humidity: %

20

21 Applicant: Serial Number: 1

22

23 Length: 1.20m PN: 1

24

25

26 **Test Equipments**

27

28 1. Time Domain Reflector (TDR): DSA8200

29

30

就绪

数字

16:07

2013/6/21

报告导读



第一页

Microsoft Excel - HF-13060001.1 20130617SFP+ 10G P,1.20m,##1

文件(F) 编辑(E) 视图(V) 插入(I) 格式(O) 工具(T) 数据(D) 窗口(W) 帮助(H)

键入需要帮助的问题

100%

Arial 12

B I U

N26

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
25																				
26																				
27																				
28																				
29																				
30																				
31																				
32																				
33																				
34																				
35																				
36																				
37																				
38																				
39																				
40																				
41																				
42																				
43																				
44																				
45																				
46																				
47																				
48																				
49																				
50																				
51																				
52																				

.Test Equipments

1.Time Domain Reflector(TDR):DSA8200

2.Network Analyzer(VNA):TDVNA

使用TDR仪器

使用TDVNA软件

联系方式

Tested by:

JT

测试工程师

Approved by:

JT

审核

JIETAI Technology (China) CO., LTD. ELECTRICAL LAB

Tel: (+86)755-83908488 83503866 Fax: (+86)755-83900338

Room0709-0715 Wanjunhui Commerical Bldg., Xixiang Road, Baoan Dist., Shenzhen, Guangdong, China

Report

就绪

数字

16:12 2013/6/21

报告导读



Microsoft Excel - HF-13060001,1 20130617SFP+ 10G P,1.20m,##1

文件(F) 编辑(E) 视图(V) 插入(I) 格式(O) 工具(T) 数据(D) 窗口(W) 帮助(H)

键入需要帮助的问题

100%

Arial 12

B I U

N26

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
54																				
55																				
56																				
57																				
58																				
59																				
60																				
61																				
62																				
63																				
64																				
65																				
66																				
67																				
68																				
69																				
70																				
71																				
72																				
73																				
74																				
75																				
76																				
77																				
78																				
79																				
80																				
81																				

就绪

Report/

数字

16:20 2013/6/21

测试参数列表

Tested Parameters List

Tested Parameters List	Result
Differential Impedance	PASS
Intra-pair Skew	PASS
Insertion Loss	PASS
Insertion Loss deviation (ILD)	PASS
Return Loss	PASS
Diff to Common Conversion	FAIL
Jitter	PASS
NEXT	FAIL
FEXT	FAIL

报告导读



Microsoft Excel - HF-13060001,1 20130617SFP+ 10G P,1.20m,##1

文件(F) 编辑(E) 视图(V) 插入(I) 格式(O) 工具(T) 数据(D) 窗口(W) 帮助(H)

图片 128

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
102																				
103																				
104																				
105																				
106																				
107																				
108																				
109																				
110																				
111																				
112																				
113																				
114																				
115																				
116																				
117																				
118																				
119																				
120																				
121																				
122																				
123																				
124																				
125																				
126																				
127																				
128																				
129																				

Summary Result

1.Differential Impedance

Spec --- Conn. Max:110.00ohm Conn. Min:90.00ohm
Cable Max:105.00ohm Cable Min:95.00ohm

Pair No.	Conn.A		Conn.B		Cable		Result
	Max	Min	Max	Min	Max	Min	
TX	97.26	92.15	97.7	97.33	97.48	96.79	PASS
RX	97.23	92.17	97.71	97.39	97.44	96.79	PASS

2.Intra-pair Skew

Spec --- Max:70.00ps

Pair No.	Vaule	Result
TX	-7.29	PASS
RX	-6.49	PASS

3.Insertion Loss

Spec---100~600MHz:NaNdB 600~1250MHz:-2.34dB 1250~2500MHz:-3.52dB 2500~3250MHz:-4.44dB 3250~5000MHz:-5.85dB

Pair No.	Frequency					Result
	600M	1250M	2500M	3250M	5000M	
TX	-0.96	-1.54	-2.59	-3.08	-4.74	PASS
RX	-0.97	-1.54	-2.62	-3.14	-4.71	PASS

4.Insertion Loss deviation (ILD)

Spec---50~6000MHz:±1.90dB

就绪

数字

16:25
2013/6/21

参数测试规格以及测试值

判断PASS或FAIL

报告导读



第一种:带有所有测试数据的报告

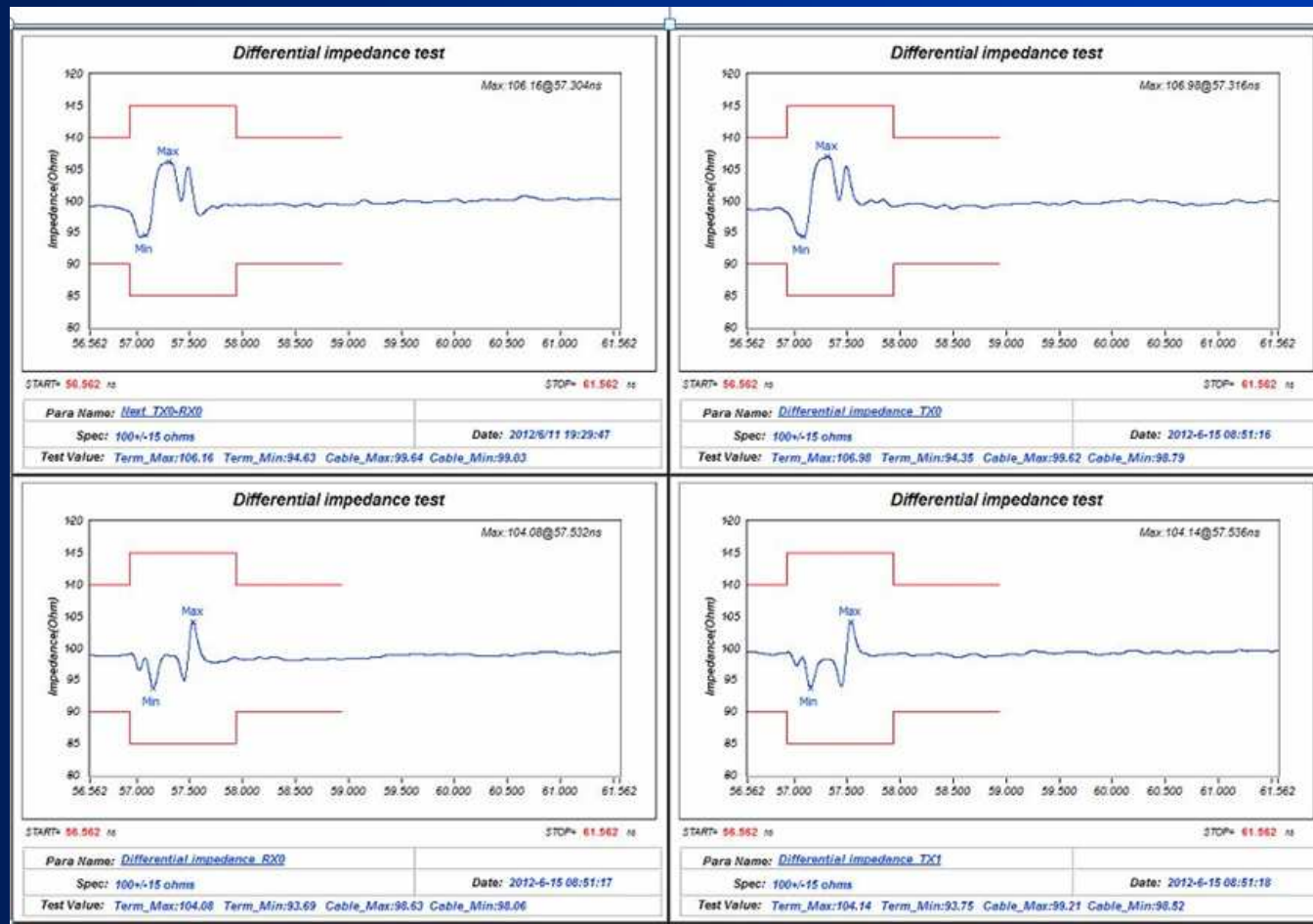
	Spec	TX0	RX0	TX1	RX1	TX2	RX2	TX3	RX3
10000000	NaN	99.064	98.696	98.902	99.459	99.405	98.606	99.61	99.383
14681250	NaN	99.066	98.694	98.901	99.461	99.407	98.613	99.611	99.384
19362500	NaN	99.069	98.692	98.9	99.463	99.409	98.619	99.611	99.384
24043750	NaN	99.071	98.691	98.899	99.464	99.411	98.626	99.611	99.385
28725000	NaN	99.074	98.689	98.899	99.465	99.413	98.634	99.611	99.385
33406250	NaN	99.076	98.687	98.897	99.466	99.416	98.641	99.611	99.385
38087500	NaN	99.079	98.685	98.896	99.467	99.418	98.649	99.611	99.385
42768750	NaN	99.081	98.683	98.895	99.468	99.42	98.657	99.611	99.385
47450000	NaN	99.084	98.681	98.894	99.469	99.423	98.665	99.61	99.385
52131250	NaN	99.087	98.679	98.892	99.47	99.425	98.673	99.609	99.385
56812500	NaN	99.09	98.677	98.89	99.47	99.427	98.681	99.609	99.385
61493750	NaN	99.093	98.675	98.889	99.471	99.429	98.689	99.608	99.384
66175000	NaN	99.096	98.672	98.887	99.471	99.431	98.698	99.606	99.384
70856250	NaN	99.099	98.67	98.885	99.471	99.433	98.706	99.605	99.384
75537500	NaN	99.102	98.668	98.883	99.471	99.435	98.715	99.603	99.383
80218750	NaN	99.105	98.666	98.881	99.471	99.437	98.723	99.602	99.382
84900000	NaN	99.108	98.664	98.879	99.471	99.439	98.732	99.6	99.382
89581250	NaN	99.112	98.661	98.877	99.471	99.441	98.74	99.598	99.381
94262500	NaN	99.115	98.659	98.875	99.471	99.443	98.749	99.596	99.38
98943750	NaN	99.118	98.657	98.872	99.471	99.445	98.757	99.594	99.38
103625000	-26	99.121	98.655	98.87	99.471	99.446	98.766	99.592	99.379
108306250	-26	99.124	98.653	98.868	99.47	99.448	98.774	99.59	99.378
112987500	-26	99.127	98.651	98.866	99.47	99.45	98.783	99.588	99.377
117668750	-26	99.131	98.649	98.864	99.47	99.451	98.791	99.586	99.376
122350000	-26	99.134	98.647	98.862	99.469	99.453	98.8	99.584	99.375
127031250	-26	99.137	98.645	98.86	99.469	99.454	98.808	99.582	99.375
131712500	-26	99.14	98.643	98.858	99.468	99.456	98.816	99.58	99.374
136393750	-26	99.146	98.64	98.855	99.469	99.459	98.832	99.577	99.373
141075000	-26	99.151	98.637	98.851	99.47	99.461	98.847	99.574	99.372
145756250	-26	99.157	98.633	98.848	99.47	99.464	98.863	99.571	99.371
150437500	-26	99.163	98.63	98.845	99.471	99.467	98.878	99.568	99.37
155118750	-26	99.168	98.627	98.842	99.471	99.47	98.894	99.565	99.369
159800000	-26	99.174	98.624	98.838	99.471	99.472	98.909	99.562	99.369
164481250	-26	99.18	98.62	98.835	99.47	99.475	98.924	99.559	99.368
169162500	-26	99.186	98.617	98.831	99.47	99.477	98.939	99.556	99.367
173843750	-26	99.191	98.614	98.827	99.469	99.479	98.954	99.553	99.366

Report Differential impedance Delay Insertion Loss Return Loss Diff t

报告导读



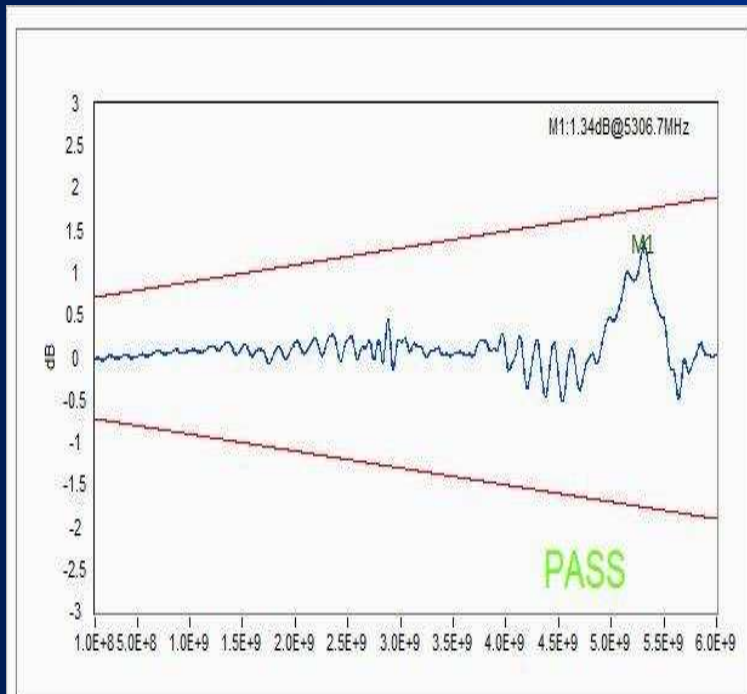
第二种:带有图片的报告



报告导读

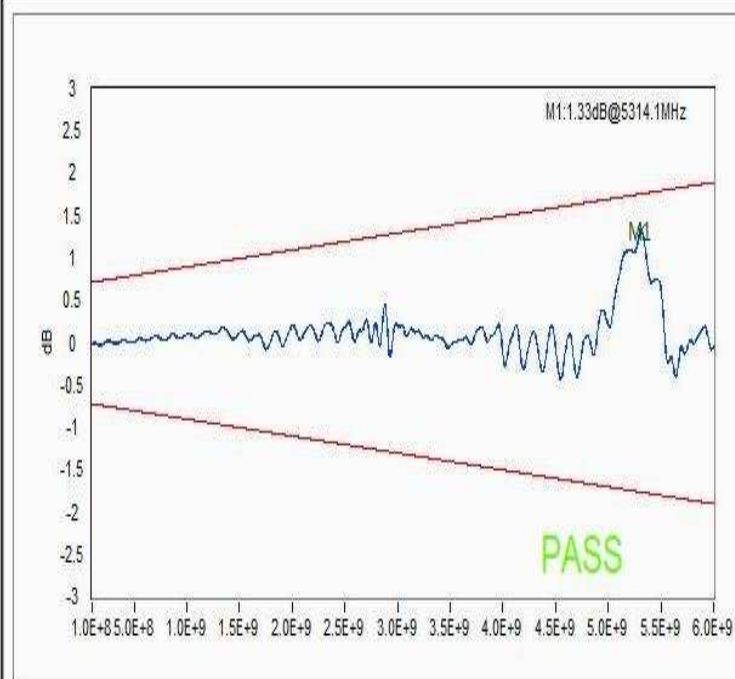


第三种:带有曲线图的报告



START = 100 MHz STOP = 6000 MHz

Para Name: Insertion Loss deviation (ILD) RX	
IF BW(Hz): 3000	Date: 2013/6/17 16:50:26
Smoothing: OFF	



START = 100 MHz STOP = 6000 MHz

Para Name: Insertion Loss deviation (ILD) TX	
IF BW(Hz): 3000	Date: 2013/6/17 16:50:06
Smoothing: OFF	

第四种:仅有总结性数据的报告,没有测试数据、图片、曲线图,速度快。

Microsoft Excel - HF-13060001.1 20130617SFP+ 10G P,1.20m,##1

文件(F) 编辑(E) 视图(V) 插入(I) 格式(O) 工具(T) 数据(D) 窗口(W) 帮助(H)

键入需要帮助的问题

L122

A B C D E F G H I J K L M N O P Q R S T

102

103

104 .Summary Result

105

106 1.Differential Impedance

107 Spec --- Conn. Max:110.00ohm Conn. Min:90.00ohm

108 Cable Max:105.00ohm Cable Min:95.00ohm

Pair No.	Conn.A		Conn.B		Cable		Result
	Max	Min	Max	Min	Max	Min	
TX	97.26	92.15	97.7	97.33	97.48	96.79	PASS
RX	97.23	92.17	97.71	97.39	97.44	96.79	PASS

113

114 2.Intra-pair Skew

115 Spec --- Max:70.00ps

Pair No.	Vaule	Result
TX	-7.29	PASS
RX	-6.49	PASS

120

121 3.Insertion Loss

122 Spec---100~600MHz:NaNdB 600~1250MHz:-2.34dB 1250~2500MHz:-3.52dB 2500~3250MHz:-4.44dB 3250~5000MHz:-5.85dB

Pair No.	Frequency					Result
	600M	1250M	2500M	3250M	5000M	
TX	-0.96	-1.54	-2.59	-3.08	-4.74	PASS
RX	-0.97	-1.54	-2.62	-3.14	-4.71	PASS

127

128 4.Insertion Loss deviation (ILD)

129 Spec---50~6000MHz:±1.90dB

就绪

数字

16:37 2013/6/21

DEMO HSTS



HSTS测试软件演示。



Thank You !