

APX 测试简易手册



广州精音电子科技有限公司 020-37588772 13719186696 魏文君.aproxjx - APx500 v3.3

测试前需先进行信号路径设置, 根据实际测试产品连线进行选择

输出信号方式

测试信号路径

输入分析仪的信号方式

输入端的阻抗, 一般为高阻

信号耦合方式, 一般为AC

测试带宽, 一般选择90k Hz

信号源开关

信号的基本属性, 用键盘输入进行更改

测试项目列表, 可打上勾, 进行顺序测试, 增加测试项目, 所有测试项目在此增加

可增加信号路径, 进行顺序测试, 此功能在产线上非常实用

测试报告, 可根据需求存成不同格式文件, 顺序测试启动开关, 在产线上非常实用

信号监控, 可看波形, 频谱, 信号强度, 失真值等, 此功能对电脑配置要求较高, 如非必要建议关掉此功能

FFT Spectrum Monitor

Level (Vrms)

Frequency (Hz)

Output: Analog Unbalanced 2 Ch, 50 Ohm Input: Analog Unbalanced 2 Ch, 100 kOhm 90 kHz 320.0 mVrms

信号路径的设置

蓝牙播放器测试

1. 在信号源路径中选择 bluetooth.
2. 点击 settings 进行配对连接。
3. 选择 A2DP Source HSP
4. 点击 Scan for devices 搜索被测产品
5. 点击 pair 进行配对
6. 连接 A2DP 协议
7. 开始测试相关测试项目

The screenshot displays a software interface for Bluetooth testing. The main window is titled "蓝牙播放器测试" (Bluetooth Player Test). The "Signal Path Setup" panel shows the "Output Configuration" section with "Bluetooth" selected as the connector and "A2DP" as the audio protocol. The "Input Configuration" section shows "Analog Unbalanced" as the connector. The "Bluetooth Settings" dialog box is open, showing the "APx Profile Set" as "A2DP Source, HSP Audio Gateway, AVRCP Target". The "Scan Duration (sec)" is set to 5, and the "Scan For Devices" button is highlighted. The "Device Under Test" table lists two devices: "Logitech Speakerphone P710s" and "Philips W632". The "Logitech Speakerphone P710s" device is selected, and the "Pair" button is highlighted. The "APx Settings" section shows the "Friendly Name" as "A2DP-27478", the "Address" as "00:07:80:4c:8a:4f", and the "APx Pin" as "0000". The "Interface Settings" section shows "A2DP", "SCO/eSCO", and "mSBC" options, with "A2DP" selected. The "SSP Mode" is set to "Just Works". The "Audio Coupling" is set to "AC".

连接协议

1. 蓝牙播放器: 选择HSP Target

2. 扫描被测产品,

3. 配对

4. 协议

5.

Ch1

Ch2

100u

10

100

蓝牙主机 (Audio Gateway)的测试

1. Input Configuraton 路径设置 为 bluetooth
2. 点击 settings 进行配对连接。
3. 选择 A2DP link (Hand-free 或者 headset)
4. 点击 Scan for devices 搜索被测产品
5. 点击 pair 进行配对
6. 连接 A2DP 协议
7. 开始测试相关测试项目

蓝牙输入测试

扫描产品

配对

Ch1

选择协议

Bluetooth Settings

APx Profile Set: A2DP Sink, HSP Headset, AVRCP Controller

Scan Duration (sec) 5 Scan For Devices... Get Friendly Names

Name	Address	Paired	Status	Notes
Philips W632	00:1	Paired	Conne...	
Logitech Speakerphone P710e	00:1	Paired	Found	

APx Settings

Friendly Name: APX2-27476 Edit...

Address: 00:07:60:4c:da:4f

APx Pin: 0000

Device Class: Auto (240408) Custom

Interface Settings A2DP SCO/eSCO mSBC

Auto Discoverable/Pair/Connect

A2DP AVRCP HSP

Not Discoverable, No Pair/Connect

SSP Mode: Just Works

Auto Answer Incoming HFP/HSP Calls

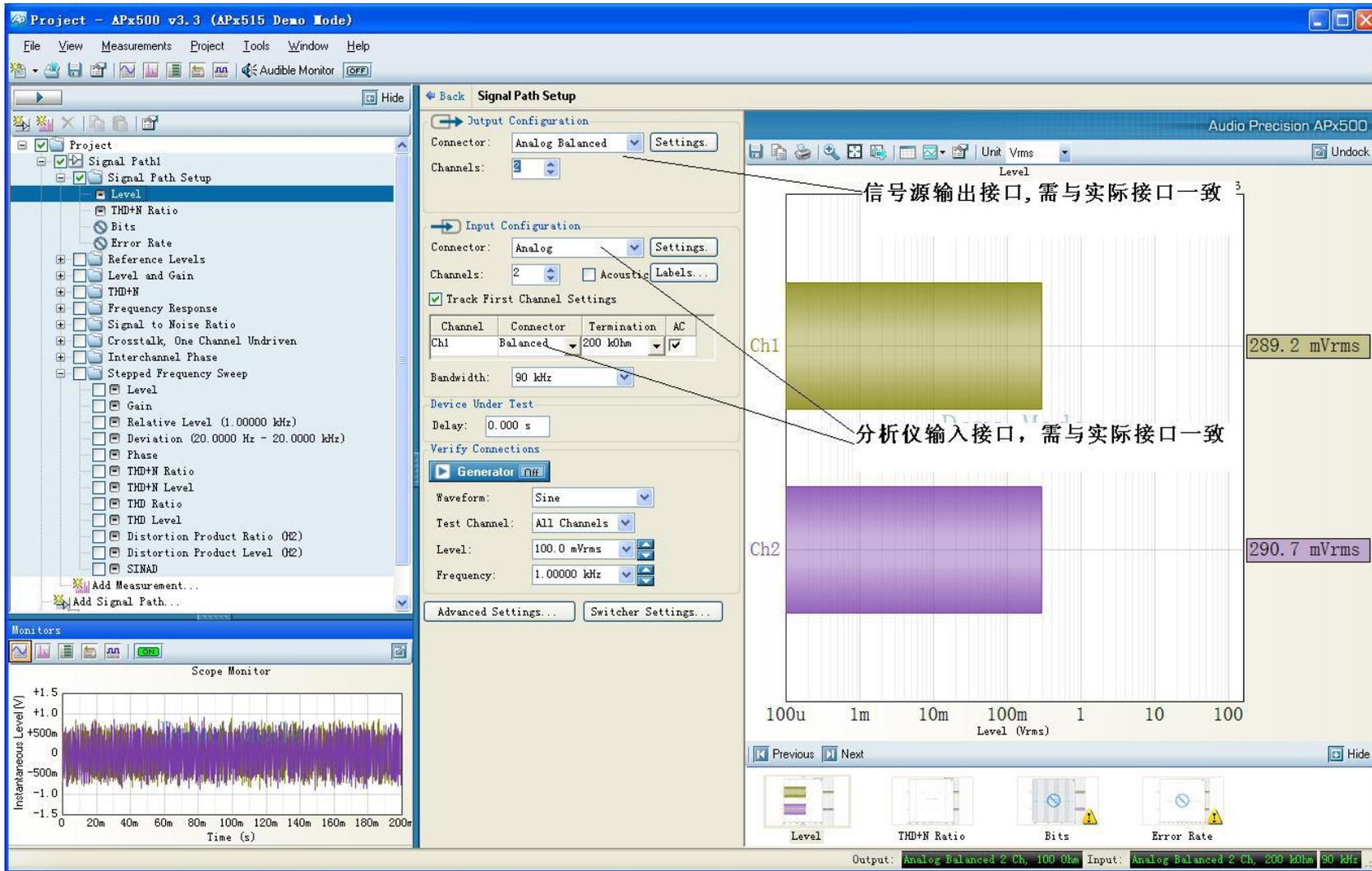
Audio Coupling AC DC

WARNING: The A2DP profile may occasionally exhibit a ± 1 sample phase error between channels.

Close Help

功放测试

1. 根据实际接线，设置信号源的输出信号方式
2. 根据实际接线，设置分析仪的输入信号方式



DVD、CD 的测试

1. 信号源设为 none
2. 分析仪接口设置与实际接线方式一致。

信号路径设置

信号源接口设置，CD类设为None

分析仪接口根据实际接线设置相对应接法

测试最大频率，一般设置为90K

测试前须先根据实际情况设置测试路径参数

Output: External Input: Analog Unbalanced 2 Ch, 100 kOhm 90 kHz

Level (Vrms) vs Frequency (Hz) graph showing Demo Mode and Signal monitors are off.

Level (Vrms) vs Level (Vrms) graph showing Ch1: 291.7 mVrms and Ch2: 290.0 mVrms.

Device Under Test Settings: Delay: 0.000 s

Verify Connections: Refer to the Help file for information about compatible signal sources.

Unit: Vrms

2012-5-11 11:10:30

APx500

Project - APx500 v2.9

File View Measurements Project Tools Window Help

Signal Path Setup

Output Configuration

Connector: None (External)

Settings...

Input Configuration

Loopback

Connector: Analog Unbalance

Settings...

Channels: 2

Labels...

Bandwidth: 90 kHz

Device Under Test Settings

Delay: 0.000 s

Back

Switcher Settings...

Verify Connections

Refer to the Help file for information about compatible signal sources.

Level (Vrms)

2012-5-11 11:10:30

Ch1: 291.7 mVrms

Ch2: 290.0 mVrms

Level (Vrms)

100u 1m 10m 100m 1 10 100

Level (Vrms)

1 1m 1u

20 50 100 200 500 1k 2k 5k 10k 20k

Frequency (Hz)

Unit: Vrms

APx500

Project - APx500 v2.9

File View Measurements Project Tools Window Help

Signal Path Setup

Output Configuration

Connector: None (External)

Settings...

Input Configuration

Loopback

Connector: Analog Unbalance

Settings...

Channels: 2

Labels...

Bandwidth: 90 kHz

Device Under Test Settings

Delay: 0.000 s

Back

Switcher Settings...

Verify Connections

Refer to the Help file for information about compatible signal sources.

Level (Vrms)

2012-5-11 11:10:30

Ch1: 291.7 mVrms

Ch2: 290.0 mVrms

Level (Vrms)

100u 1m 10m 100m 1 10 100

Level (Vrms)

1 1m 1u

20 50 100 200 500 1k 2k 5k 10k 20k

Frequency (Hz)

Unit: Vrms

APx500

选择测试项目

根据测试需求增加项目

The screenshot displays the 'Signal Path Setup' window in the APx500 v3.4 software. The window is divided into several sections:

- Output Configuration:** Connector: Analog Unbalanced, Channels: 2, EQ: None.
- Input Configuration:** Connector: Analog Unbalanced, Channels: 2, Bandwidth: 90 kHz, Termination: 100 kOhm, Coupling: AC.
- Device Under Test:** Delay: 0.000 s.
- Generator:** Off, Waveform: Sine, Test Channel: All Channels, Level: 100.0 mVrms, Frequency: 1.00000 kHz.

The 'Add Measurement' dialog box is open, showing a list of measurement options. The 'Acoustic Response' item is highlighted. A black arrow points from the 'Add Measurement...' button in the left sidebar to the dialog box. Another black arrow points from the 'Acoustic Response' item in the list to the 'Acoustic' checkbox in the 'Output Configuration' section of the 'Signal Path Setup' window.

1.增加测试项目

Add Measurement

Measurements:

All Basic Meters Sweeps Distortion Crosstalk

- Acoustic Response — 声学测量
- Bandpass Frequency Sweep — 带通
- Bandpass Level
- Bandpass Level Sweep
- CMRR — 共模抑制
- Compare Encoded Bitstream to Reference
- Continuous Sweep — 连续扫描
- Crosstalk Sweep, Custom
- Crosstalk Sweep, One Channel Driven — 串音
- Crosstalk Sweep, One Channel Undriven
- Crosstalk, Custom
- Crosstalk, One Channel Driven
- Crosstalk, One Channel Undriven
- DC Level
- DC Level Sweep
- Digital Error Rate
- Dynamic Range - AES17
- Frequency — 频率
- Frequency Response — 频响
- IMD (QFD/MOD/SMPTE/CCIF)
- IMD (QFD/MOD/SMPTE/CCIF) rrequency Sweep
- IMD (QFD/MOD/SMPTE/CCIF) Level Sweep
- Interchannel Phase
- Level and Gain
- Maximum Output — 电平
- Maximum Output (CEA-2006)
- Measurement Recorder
- Metadata Recorder
- Multitone Analyzer
- Noise (Q-peak per ITU-R-BS 468-4)
- Noise (RMS)
- Noise Recorder (RMS)
- Pass/Fail
- PESQ
- PESQ (Averaged)
- Regulated Frequency Sweep
- Signal Analyzer
- Signal to Noise Ratio
- SINAD
- Stepped Frequency Sweep
- Stepped Level Sweep
- THD+N

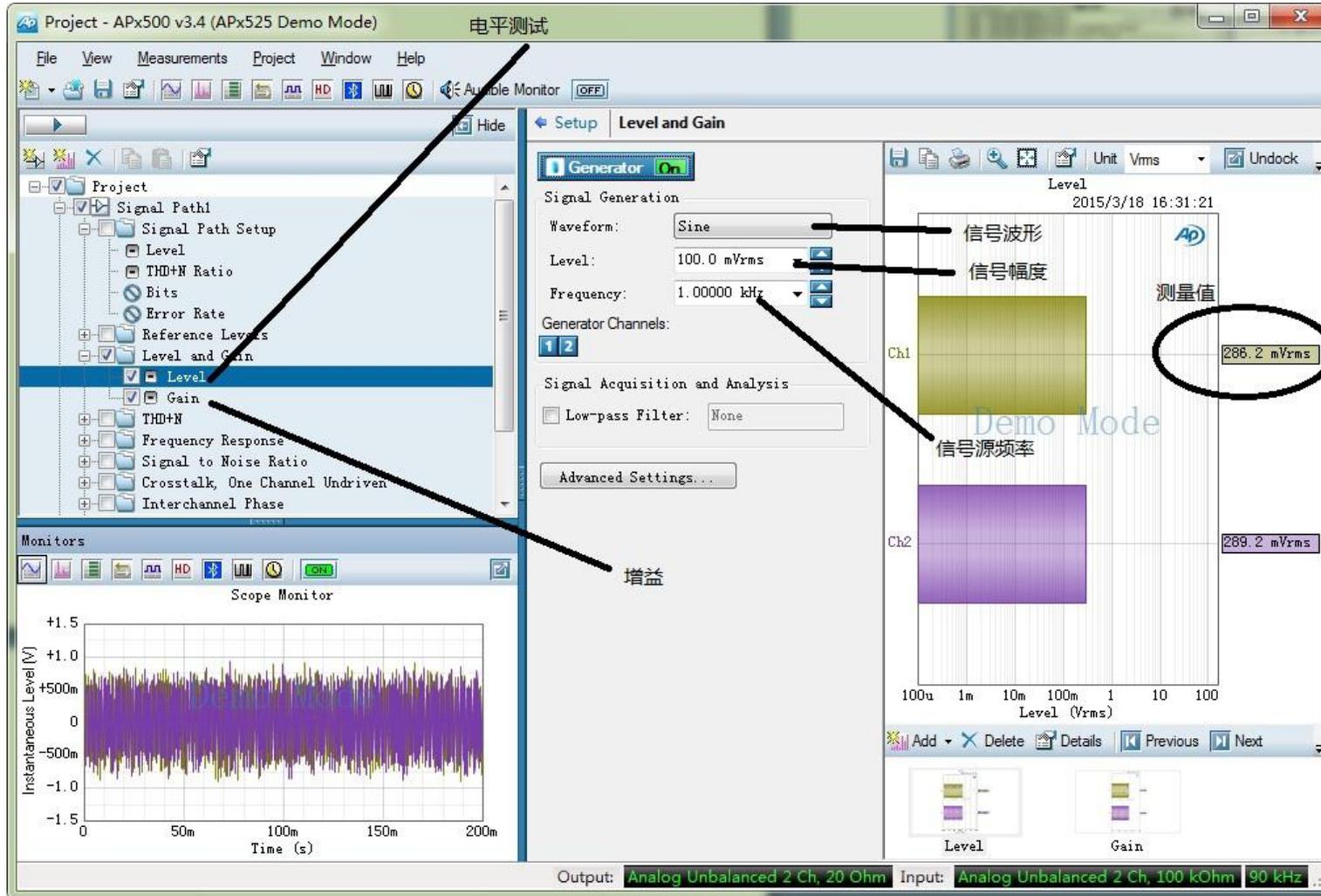
Annotations:

- 声学测量
- 带通
- 共模抑制
- 连续扫描
- 串音
- 直流
- 动态范围
- 失码率
- 互调失真
- 相位
- 电平
- 最大输出
- 测量时间记录
- 数据格式
- 多音分析
- 噪声
- 自动调整频率测度
- 信号分析 (频谱和波形)
- 频率扫描
- 电平扫描
- 信纳
- 信噪比
- 总谐波失真加噪声

Buttons: Add & Close, Add, Close, Help

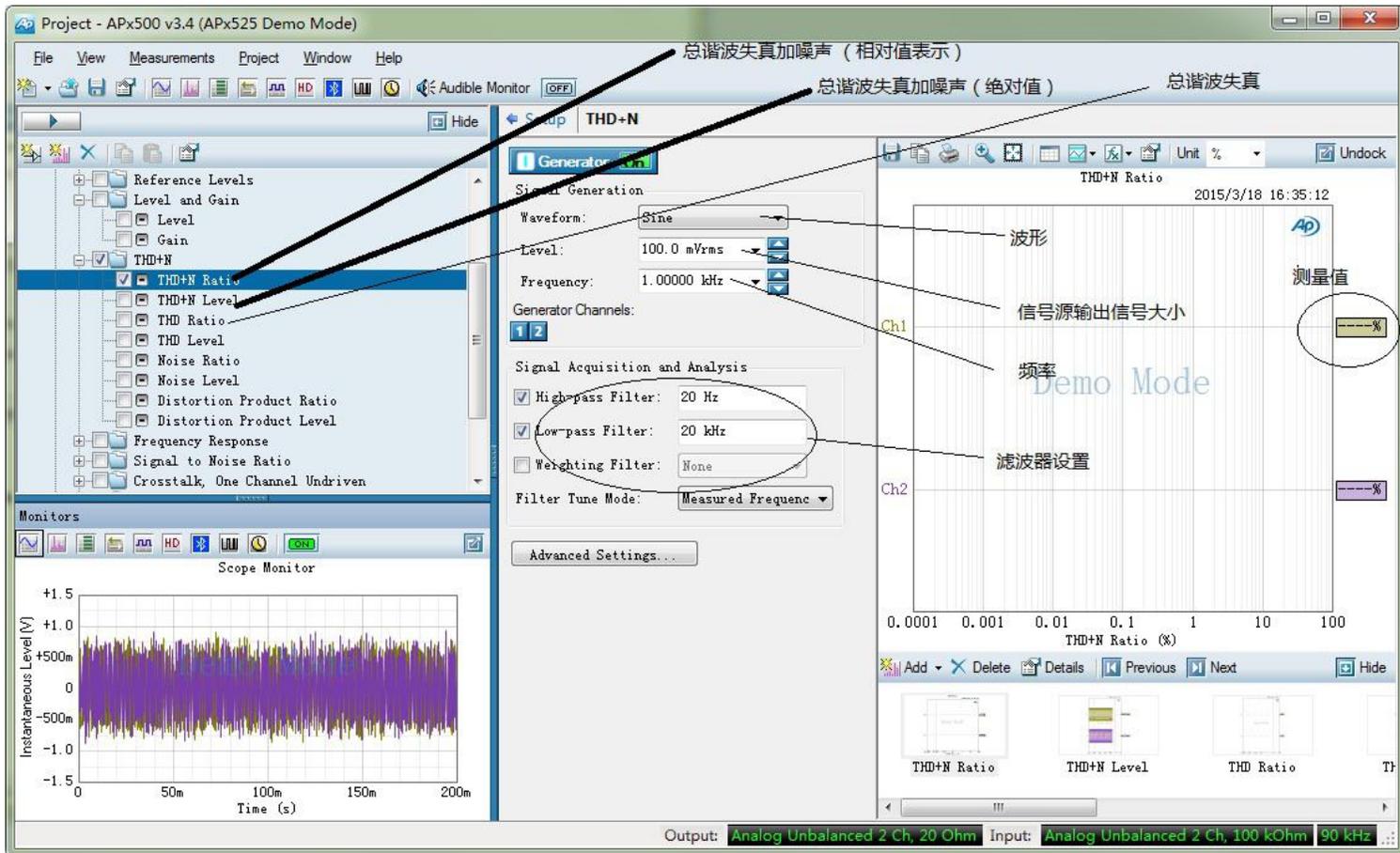
电平测试

1. 设置信号源输出波形
2. 设置信号源大小
3. 设置信号源频率
4. 打开信号源开关
5. 读取测量值



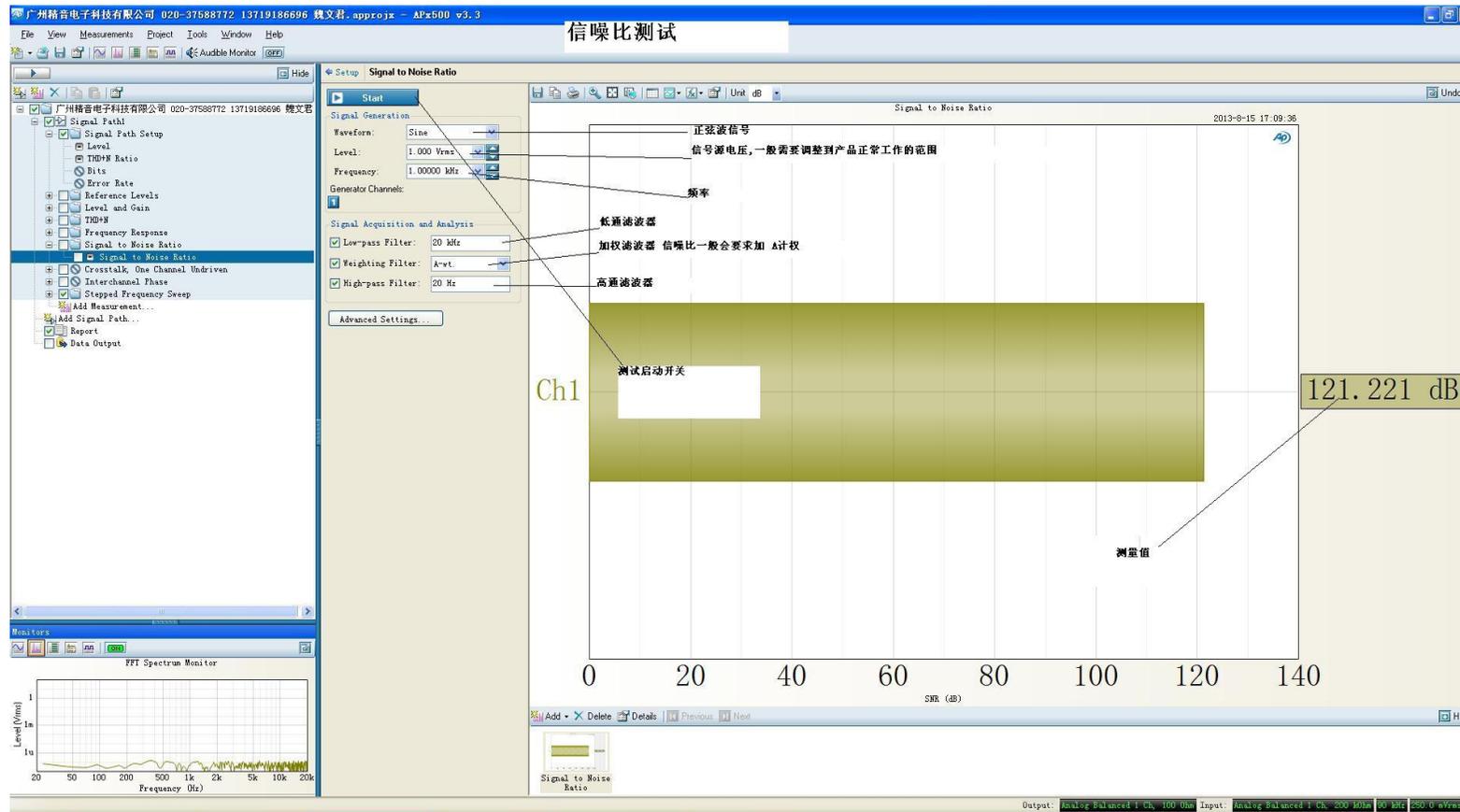
失真测试

- 1 设置信号源输出波形,
- 2 设置信号源大小
- 3 设置信号源频率
- 4 打开信号源开关
- 5 按需求设置滤波器
- 6 读取测量值



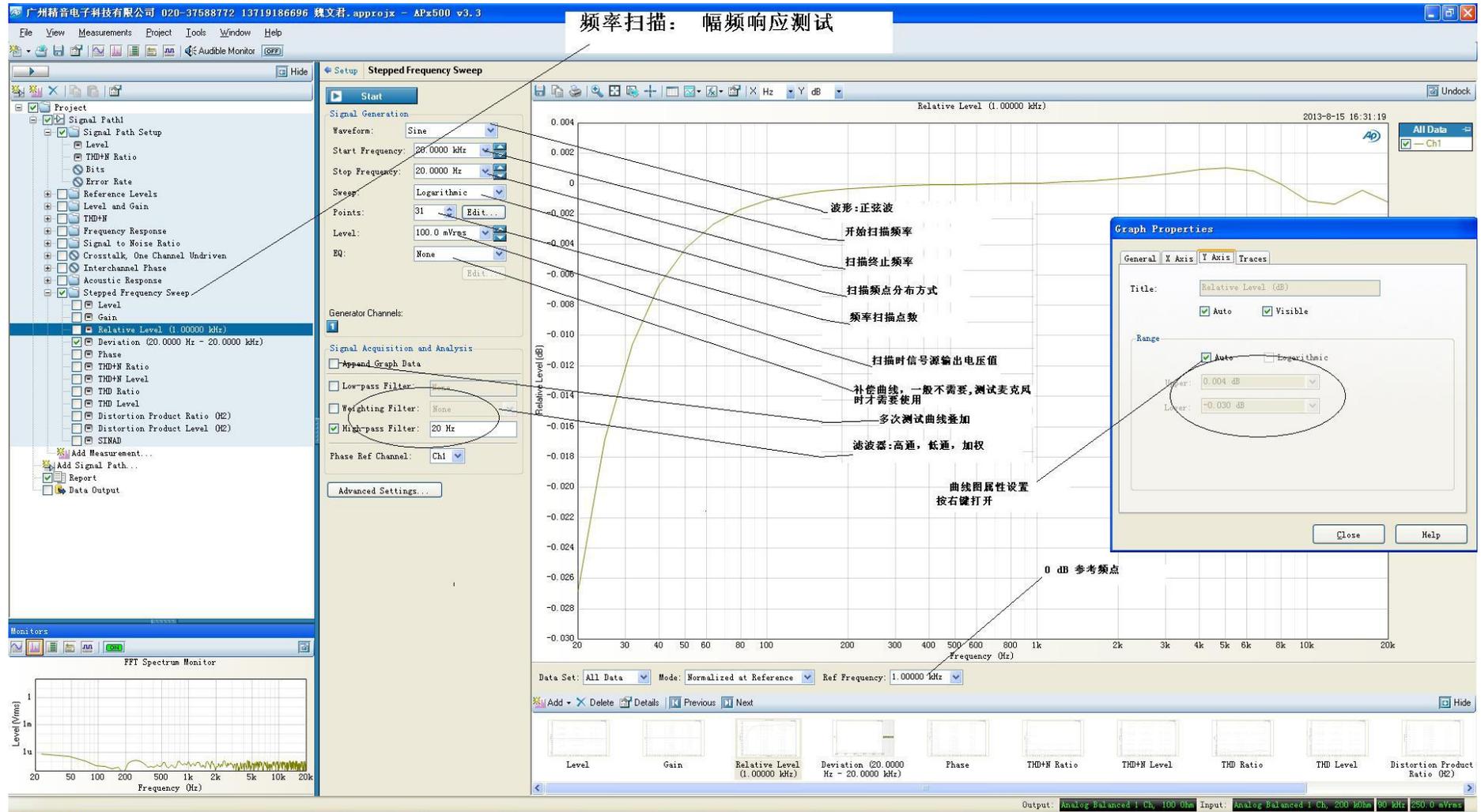
信噪比测试

- 1 设置信号源输出波形
- 2 设置信号源大小
- 3 设置信号源频率
- 4 打开信号源开关
- 5 按需求设置滤波器
- 6 读取测量值



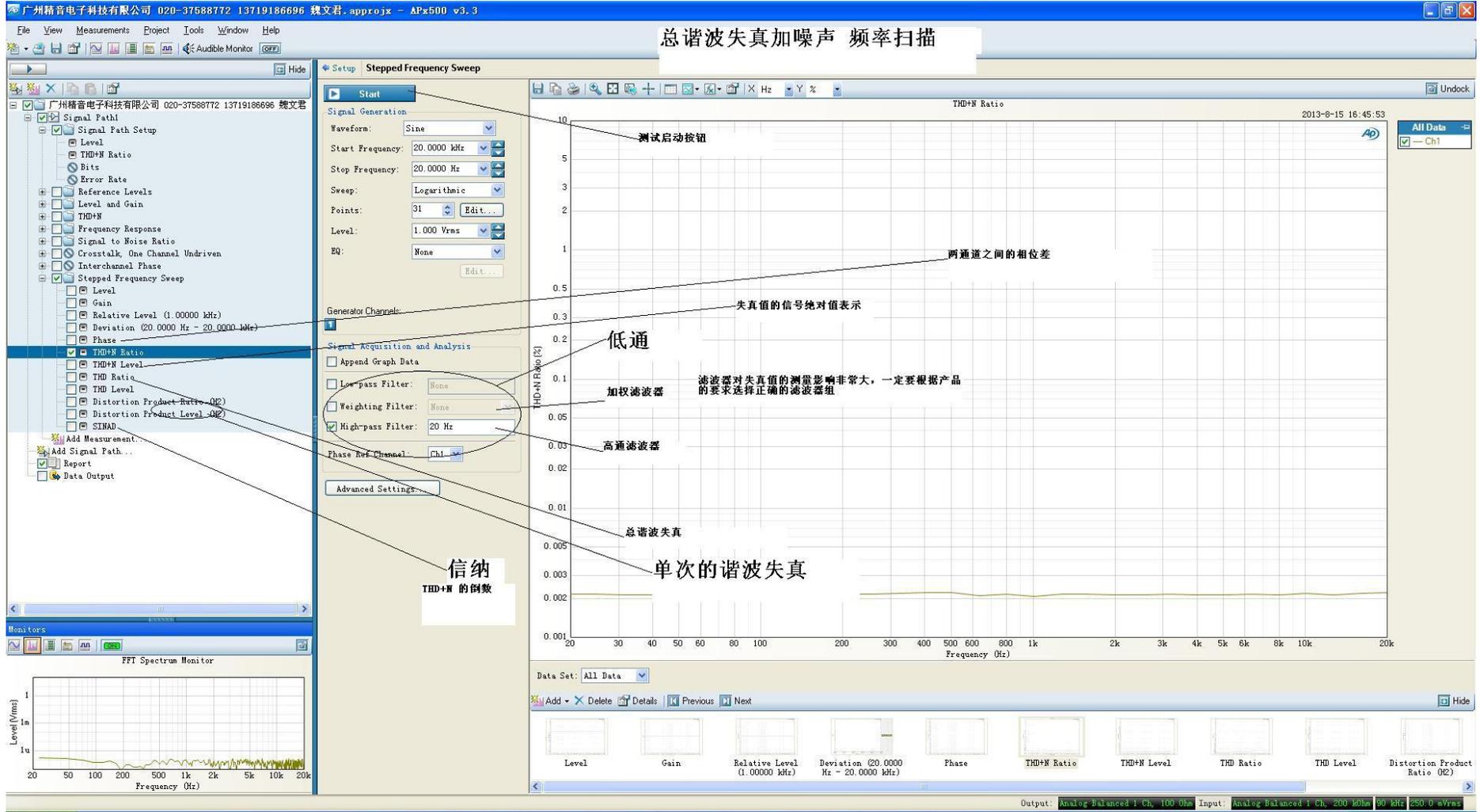
频率扫描测试

1. 设置信号源波形
2. 设置信号源大小
3. 设置信号源开始频率，结束频率，扫描点数
4. 设置滤波器
5. 点击 Start 开始测试。



总谐波失真加噪声 频率扫描测试

- 1 设置信号源波形
- 2 设置信号源大小
- 3 设置信号源开始频率，结束频率，扫描点数
- 4 设置滤波器
- 5 点击 Start 开始测试



生成测试报告

