

APX 测试简易手册



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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 "Signal Path Setup" and is divided into "Output Configuration" and "Input Configuration" sections. The "Output Configuration" section shows the "Connector" set to "Bluetooth" and the "Audio" protocol set to "A2DP". The "Input Configuration" section shows the "Connector" set to "Analog Unbalanced".

Overlaid on this is a "Bluetooth Settings" dialog box. The "APx Profile Set" is set to "A2DP Source, HSP Audio Gateway, AVRCP Target". The "Scan Duration (sec)" is set to 5. The "Scan For Devices" button is highlighted. Below this is a table of discovered devices:

| Name | Address | Class | Paired | Status | Notes |
|-----------------------------|-------------------|--------|----------|----------|-------|
| Logitech Speakerphone P710s | 00:1F:20:95:73:8e | 240418 | Paired | Conne... | |
| Philips W632 | 00:1d:07:9a:09:52 | 5A0204 | Not P... | Found | |

Below the table, 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 "Device Class" is set to "Auto (60020C)". The "Interface Settings" section shows "A2DP" selected, with "Auto Discoverable/Pair/Connect" checked, and "A2DP", "AVRCP", and "HSP" also checked. The "SSP Mode" is set to "Just Works".

Annotations on the image include:

- "连接协议" (Connection Protocol) pointing to the "A2DP" selection in the "Output Configuration" section.
- "1. 蓝牙播放器: 选择HSP Target" (1. Bluetooth player: select HSP Target) pointing to the "APx Profile Set" dropdown.
- "2. 扫描被测产品," (2. Scan the product to be tested,) pointing to the "Scan For Devices" button.
- "3. 配对" (3. Pair) pointing to the "Pair" button in the "Bluetooth Settings" dialog.
- "4. 协议" (4. Protocol) pointing to the "A2DP" checkbox in the "Interface Settings" section.
- "5." (5.) pointing to the "Auto Discoverable/Pair/Connect" checkbox in the "Interface Settings" section.

Other elements in the screenshot include a "Monitors" window at the bottom left showing an "FFT Spectrum Monitor" and a "100u" label on the left side of the main window.

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

The screenshot displays the APx500 software interface for Bluetooth input testing. The main window is titled "蓝牙输入测试" (Bluetooth Input Test). The "Signal Path Setup" panel is visible, with the "Input Configuration" section set to "Bluetooth". The "Audio Profile" is set to "HSP". A "Bluetooth Settings" dialog box is open, showing a list of discovered devices. The "Pair" button is highlighted, and a context menu is shown with "A2DP" selected. The "APx Settings" section shows the device name "APX2-27476" and address "00:07:60:4c:da:4f". The "Interface Settings" section shows "A2DP" selected under "Auto Discoverable/Pair/Connect".

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

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

APx Settings

Friendly Name: APX2-27476

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

APx Pin: 0000

Device Class: Auto (240408)

Interface Settings

Auto Discoverable/Pair/Connect

A2DP AVRCP HSP

SSP Mode: Just Works

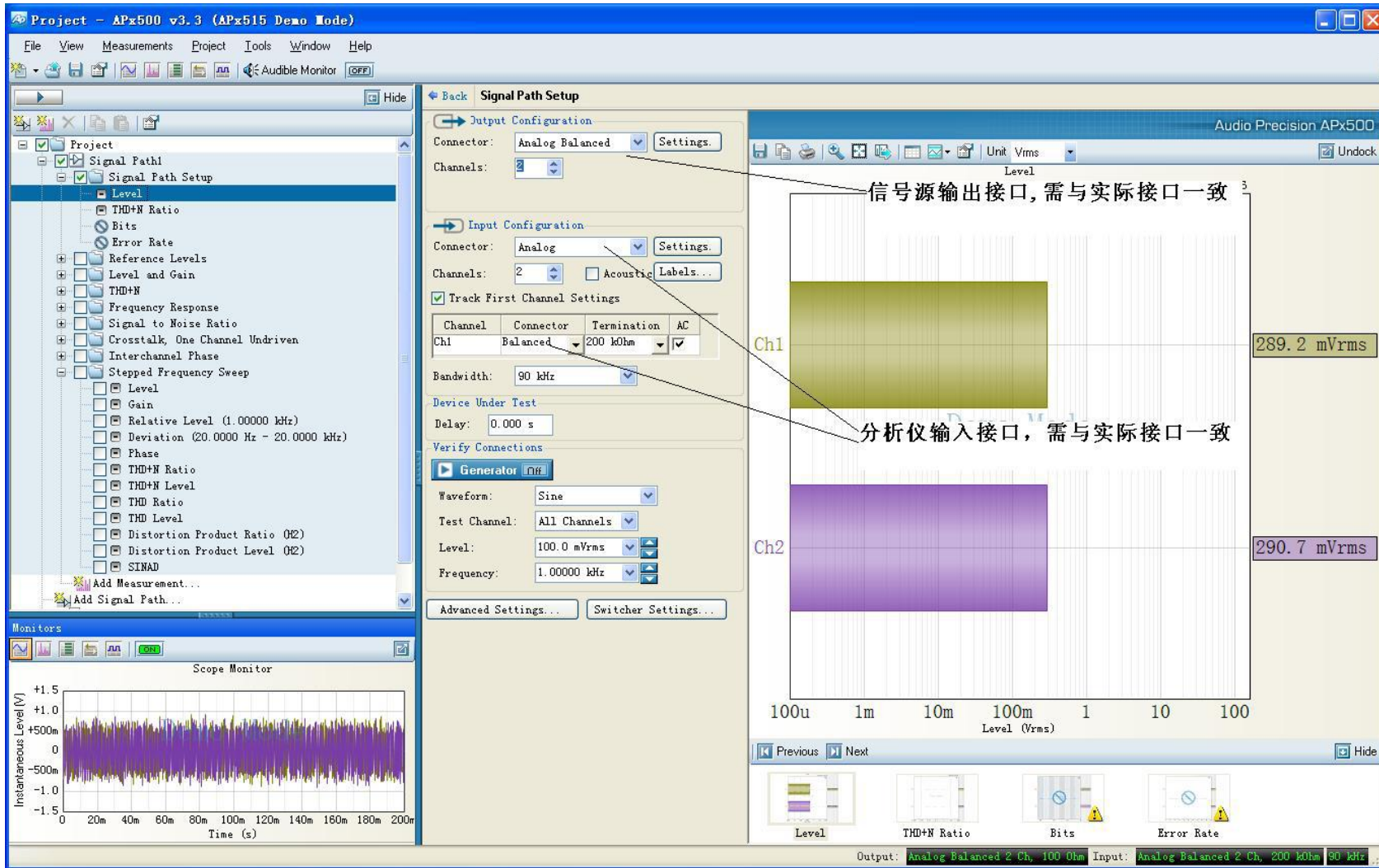
Auto Answer Incoming HFP/HSP Calls

Audio Coupling: AC

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

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) vs Frequency (Hz)

Level (Vrms) vs Level (Vrms)

Ch1: 291.7 mVrms

Ch2: 290.0 mVrms

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) vs Frequency (Hz)

Level (Vrms) vs Level (Vrms)

Ch1: 291.7 mVrms

Ch2: 290.0 mVrms

Unit: Vrms

2012-5-11 11:10:30

APx500

选择测试项目

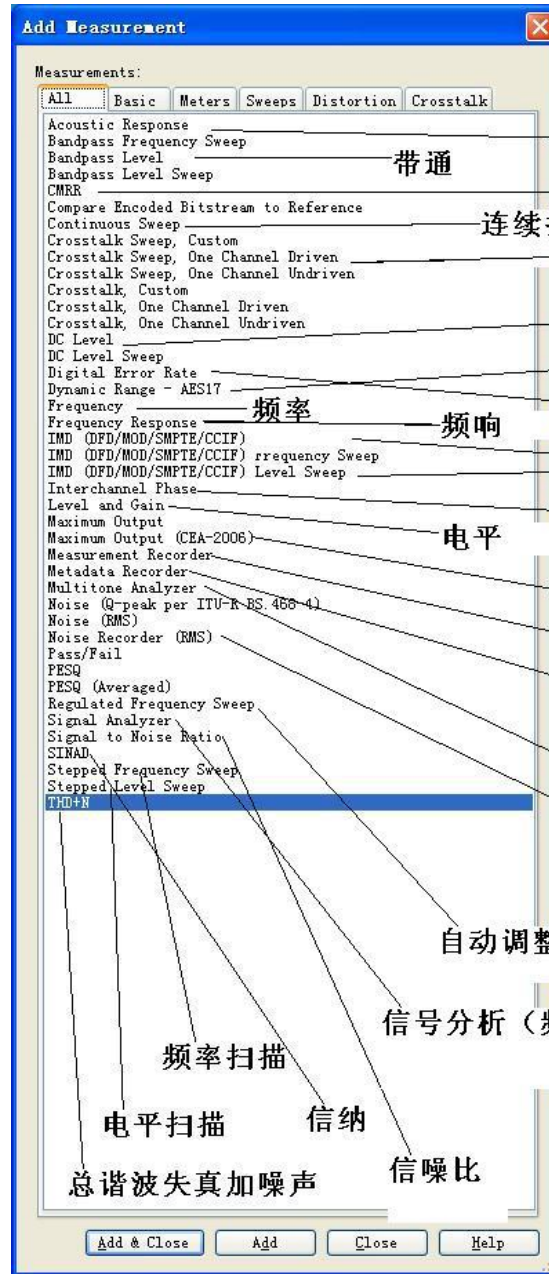
根据测试需求增加项目

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



声学测量

带通

共模抑制

连续扫描

串音

直流

动态范围

频率

频响

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

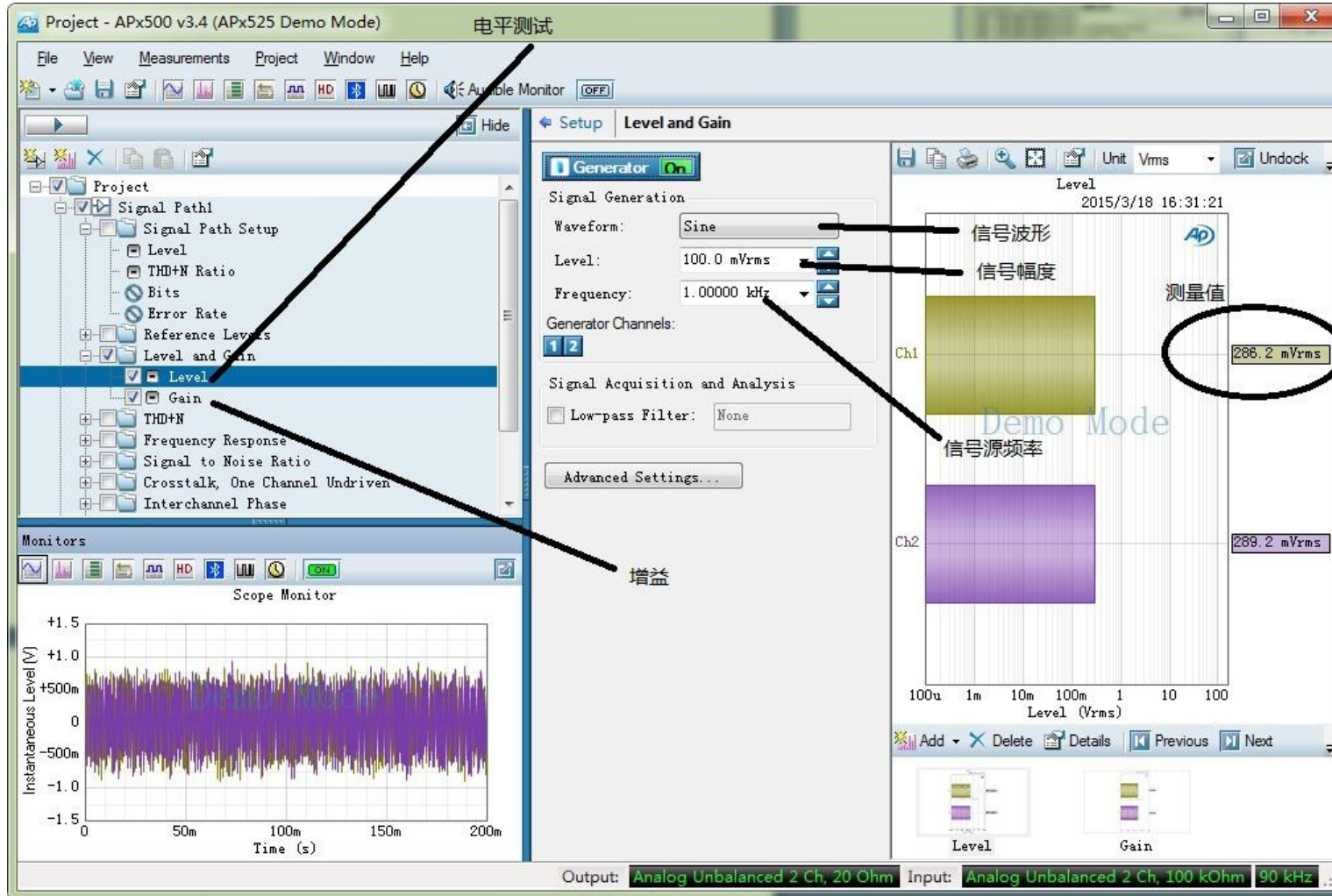
信纳

总谐波失真加噪声

信噪比

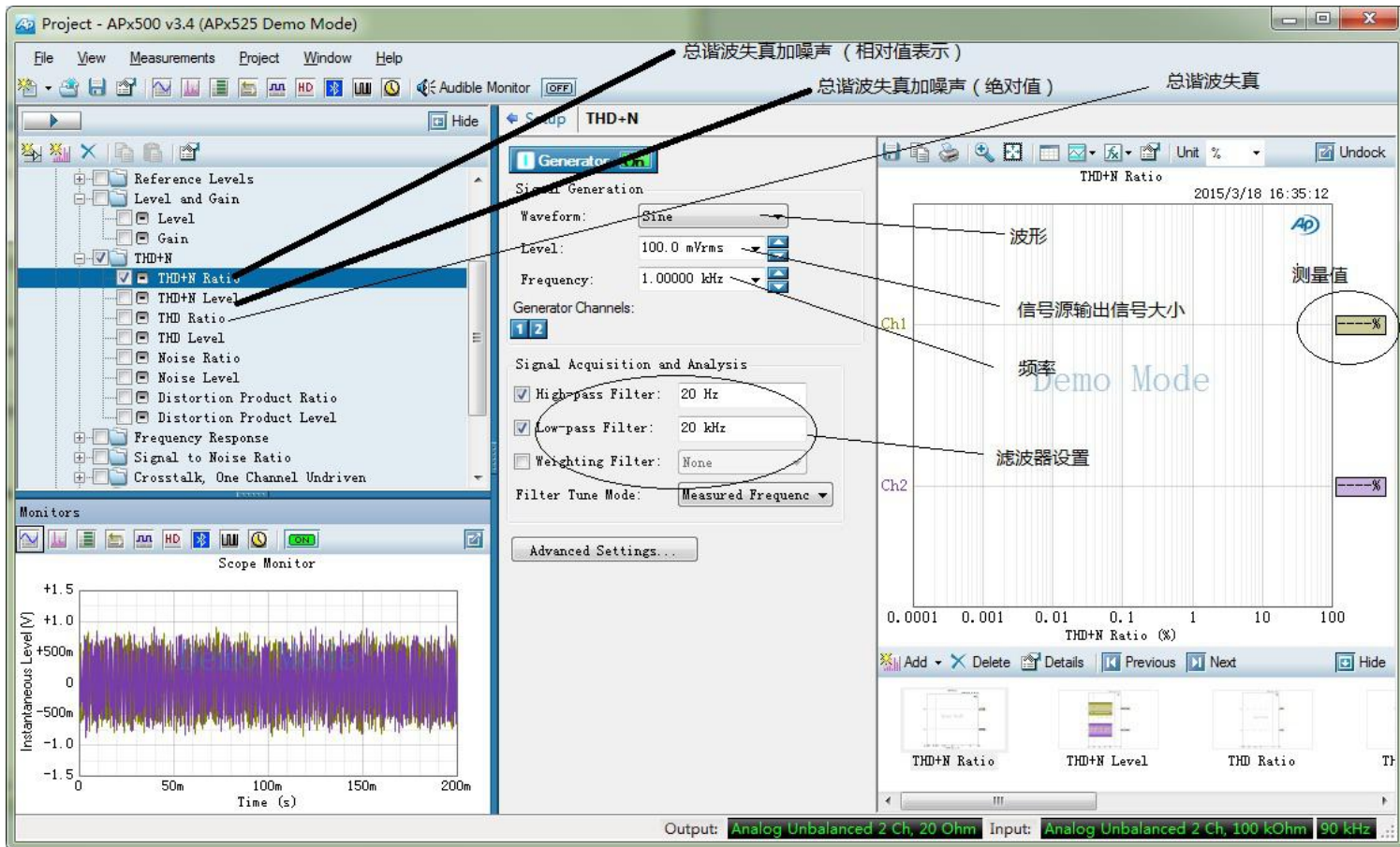
电平测试

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



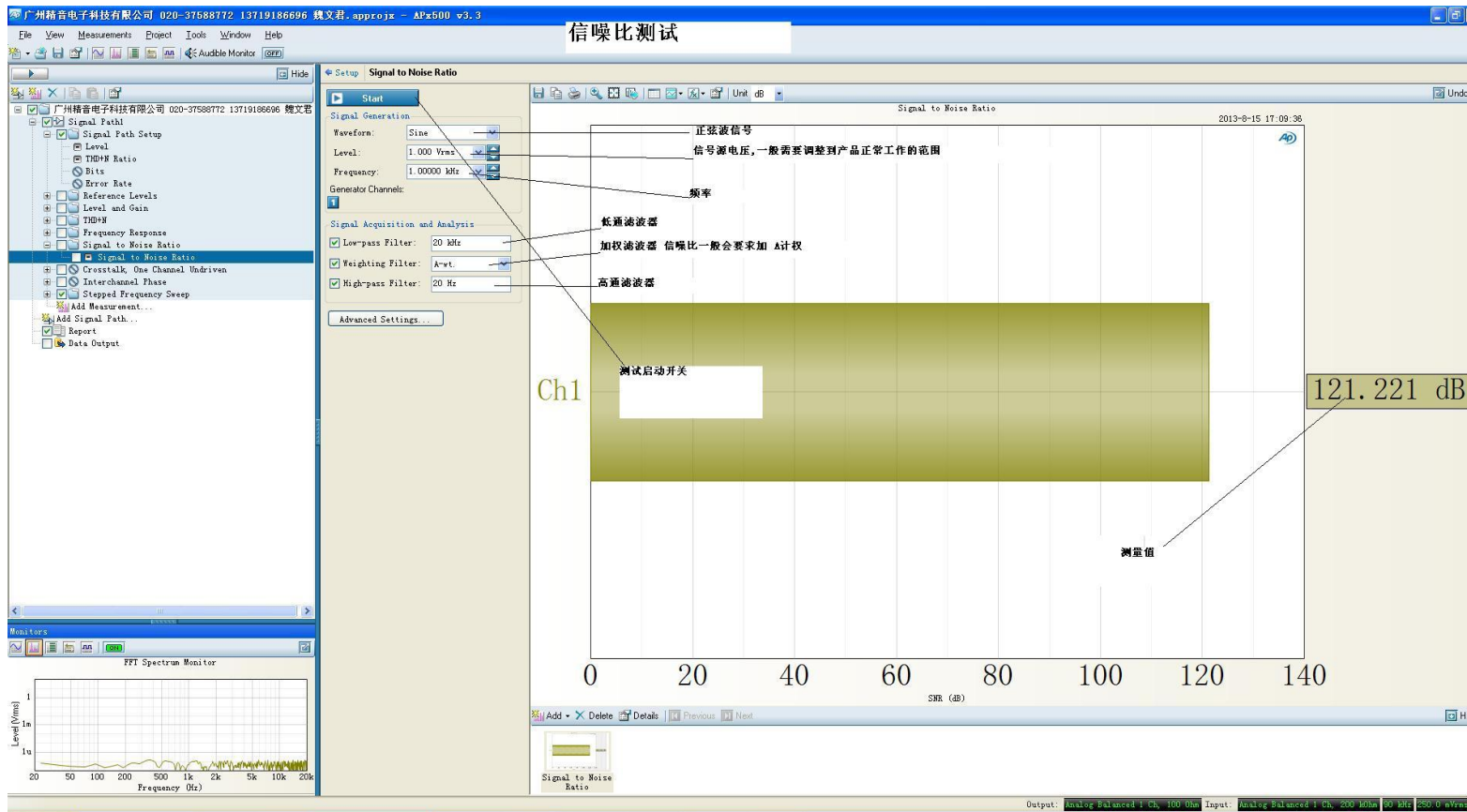
失真测试

- 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



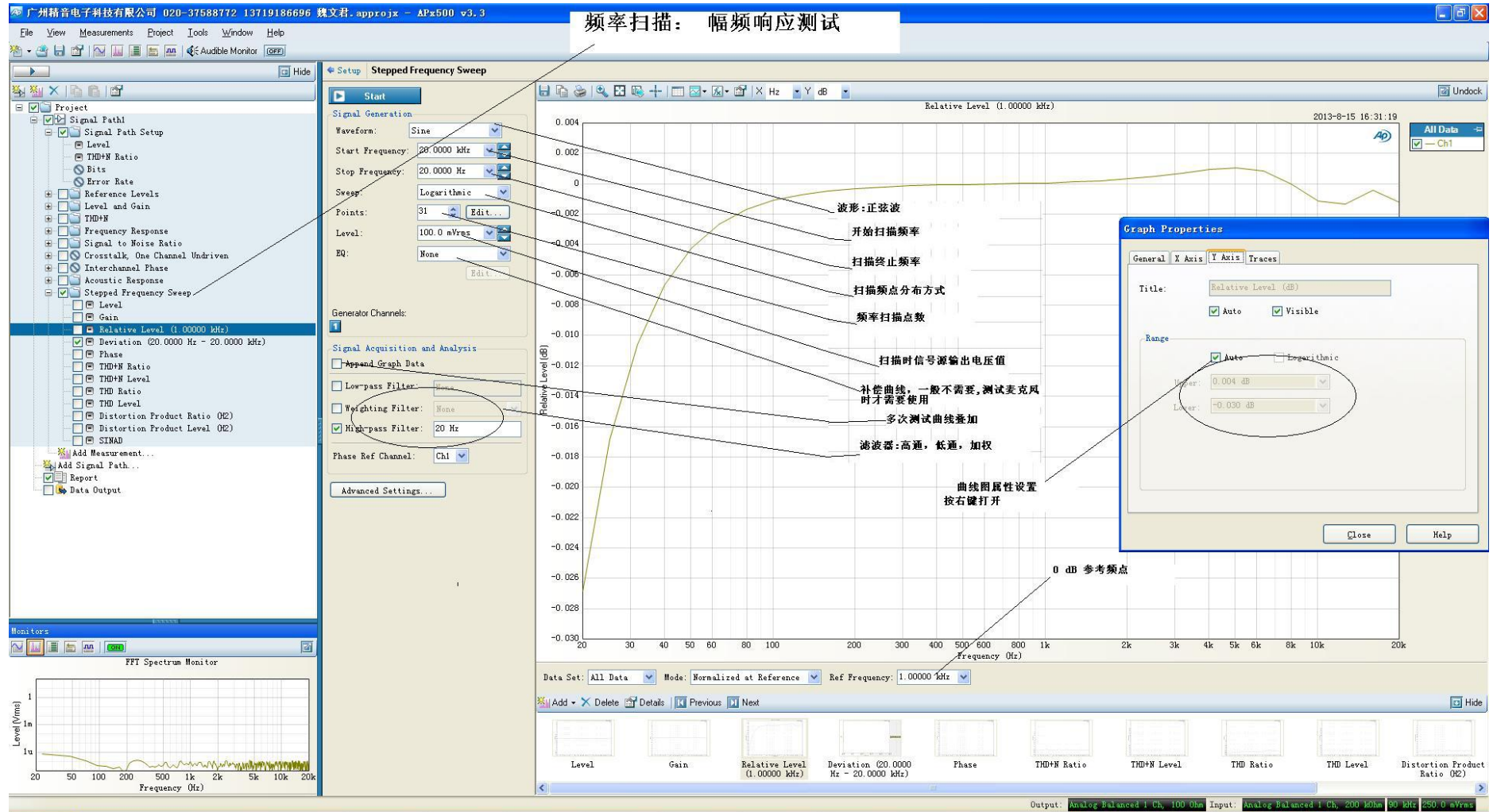
信噪比测试

- 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



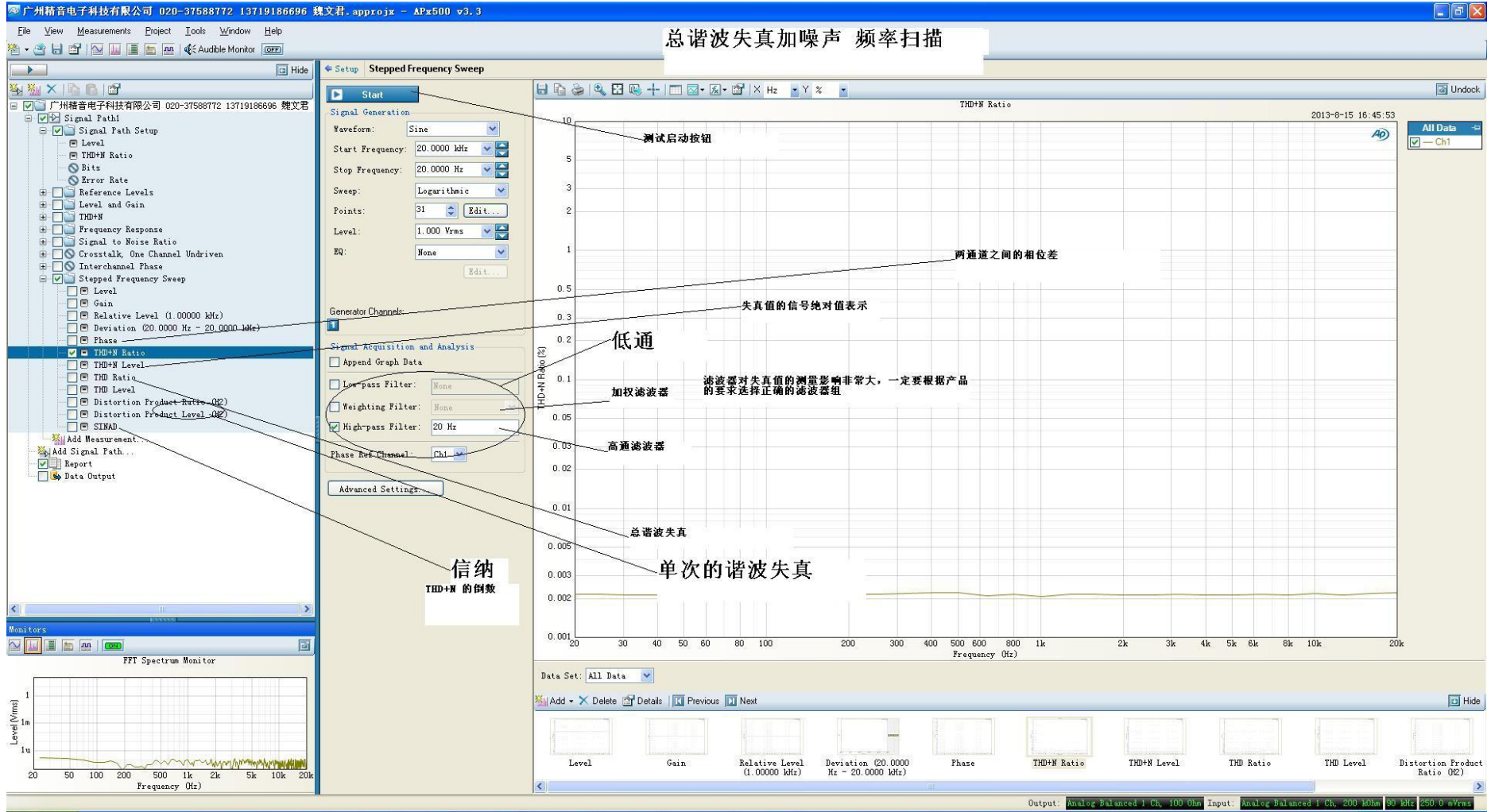
频率扫描测试

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

The screenshot displays the APx500 software interface. On the left, the 'Reference Levels' tree is visible, with 'THD+N' expanded to show 'THD+N Ratio' selected. The 'Monitors' section at the bottom shows a 'Scope Monitor' with a graph of 'Instantaneous Level (V)' over 'Time (s)'. The main window is titled 'Sequence Report' (生成报告) and contains an 'Edit Properties' dialog box. The dialog has three tabs: 'General', 'Auto-Save', and 'Logo'. The 'Auto-Save' tab is active, showing options for saving reports. Annotations in Chinese point to various settings: '自动保存' (Auto-Save) points to the 'Automatically Save Report When Sequence Completed' checkbox; '保存路径' (Save Path) points to the 'Location' field; '自动生成文件名' (Auto-generate file name) points to the 'Automatically Generate File Name' radio button; '提示输入, 可用扫描枪' (Prompt input, can use scanner) points to the 'Query to Display to User' field; and '使用前缀' (Use prefix) points to the 'Save File Using Prefix' radio button and the 'File Name Prefix' field.

Sequence Report 生成报告

File Edit Help

Edit Properties Print... 100 % 1/1

Edit Properties

General **Auto-Save** Logo

Automatically Save Report When Sequence Completed Show Report

File Format: Portable Document Format (.pdf)

Saved File Path

Location: Browse...

Automatically Generate File Name

Prompt for File Name Before Sequence Starts

Query to Display to User:

Save File Using Prefix

File Name Prefix: APx500Report

If Report File Exists

Make a new file with a unique name

Replace the file

Append data to the file

OK Cancel Help

Annotations:

- 自动保存
- 保存路径
- 自动生成文件名
- 提示输入, 可用扫描枪
- 使用前缀