CRYSOUND

CRY2830 Series
Sound Level Meter
User Manual

Warranty Statement

We proudly offer a one-year warranty on the CRY2830 Series Sound Level Meter device, ensuring it meets the highest standards of quality and performance. This warranty covers defects in materials and workmanship under normal use.

Coverage Details:

- Warranty Period: One year from the date of purchase.

- What's Covered: Defects in materials or workmanship that occur under normal use.

- What's Not Covered: Damage caused by misuse, unauthorized modifications, accidents, or external factors.

To request a warranty service, please contact our customer support team with your proof of purchase. We will repair or replace the device at our discretion.

CRYSOUND

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⚠ Safety Use Instructions

To prevent possible fire or personal injury:

- Please read the contents of this safety notice carefully before using the product.

- Use the product only for its intended purpose.

- Unauthorized opening of the unit will void the warranty.Contact CRYSOUND for more information.

- Stop using the device if it malfunctions or heats up abnormally.

- Please contact the manufacturer for equipment repair work.

- Do not store the equipment near heat sources, flames or in a hot environment.

- If the storage time is longer than 1 month, please store the product at an ambient temperature of less than 40℃/ 140℉.

Catalog

1 Introduction

1.1 About This Manual

This user manual describes the CRY2830 Series Sound Level Meter and is divided into the following sections:

- Introduction
- Technical Specifications
- Instructions For Use
- Appendix

1.2 About the CRY2830 Series

CRY2830 Series sound level meters meet the stringent requirements of Class 1 and Class 2 ensuring accurate and reliable acoustic measurements. Functions such as statistical analysis, data logging, wireless control and transmission are included.

The CRY2830 Series' design balances esthetics and ergonomics. They feature a 2.8 inch high-resolution, color TFT display and simple ergonomic controls. Data can be stored on an internal TF memory card for easy transfer to external analysis systems.

2 Technical Specifications

Technical Specifications		
Type	**CRY2834**	**CRY2833**
Microphone	CRY331(-28±2dBV/Pa）	CRY333(-26±2dBV/Pa）
Pre-amplifier	CRY2830PA-1	
Linear range	25-140dBA	
Time weighting	F, S, I	
Frequency weighting	A, C, Z	
Sampling rate	48kHz	
A/D resolution	24-bit	
Frequency range	20Hz-12.5kHz	10Hz-20kHz
Applicable standards	IEC 61672-1:2013	
Accuracy	Class 2	Class 1
Measuring parameter	Lp, Leq,t, Lpeak, Leq,T, Lmax, Lmin, SEL, Lex8h, LAVG, TWA, DOSE, Ln(n=5, 10, 50, 90, 95), SD, E	
Measurement function	Integral Measurement, Statistical Analysis, 1/1 Oct, Sound Exposure Measurement, Monitoring	
Display	320*240 TFT Display	
Battery	4*AA	
Operating time	24 hours(Screen off)	
Interface	AC/DC、PWM、USB、RS232	
Memory	32 GB TF card	
Reference level	94dB@1kHz/114dB@1kHz	
Calibration	Sound Calibrator Class 1 or Class 2	
External power supply	5V DC、USB Type-C、4*AA battery	
Operating	-20~+60℃	

temperature range	
Humidity range	≤90% RH
Weight	330g
Size	L*W*H=249x76x30.5mm
Operation	Button

3 Instructions For Use

Power key

Power on: Tap to start the SLM.

Power off: After pressing 5s, the device will automatically shut down.

Back key

Return to the previous menu.

Arrow keys

Four directions to move the cursor selection.

Confirm key

Press to select the interface aggregation box, then you will enter the corresponding page or implement the corresponding function.

Recording key

Start, Stop, and Pause recording.

USB Type-C Power Supply

RS232 Communication port

DC Power Supply

Heaphone monitoring

TF Card Slot

3.1 Preparations

1) Check whether the microphone and the preamplifier are properly installed.

2) Check whether the battery is sufficiently charged.

3) If necessary, use a sound calibrator to calibrate the sound level meter before using.

4) The sound level meter should be regularly (e.g., once a year) sent to a calibration department for verification to ensure its accuracy.

3.2 Power on

1) Before official use, install four new AA batteries to ensure the device operates normally during measurements.

2) Press the power button for 1-2 seconds until the startup animation appears on the screen. The screen will then display the measurement main interface.
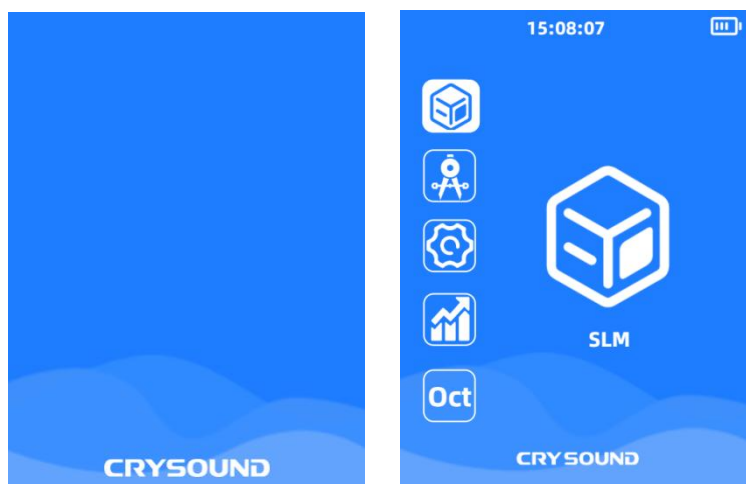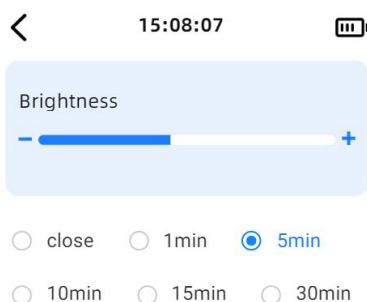
3.3 Setup

From the main interface screen, simply press the "Confirm" button to enter the "Setup" screen. The Setup screen provides access to display settings, storage, date & time, language settings and device information.
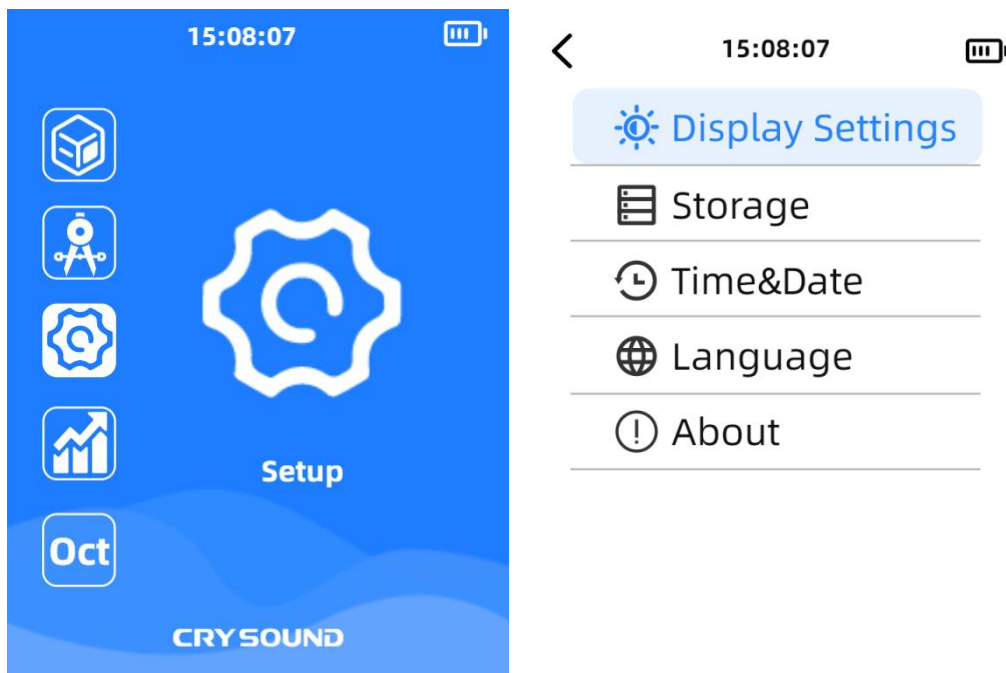
3.3.1 Display Settings

In the "Display Settings," users can adjust the screen brightness using the left and right buttons, and set the screen timeout below. The

device defaults to 50% brightness and does not automatically turn off the screen.

3.3.2 Storage

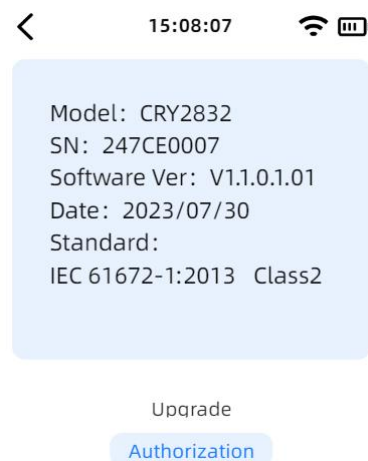Users can view the TF card usage status on this screen.

3.3.3 Date& Time

In this interface, users can manually set the time according to the specified format.

3.3.4 Language

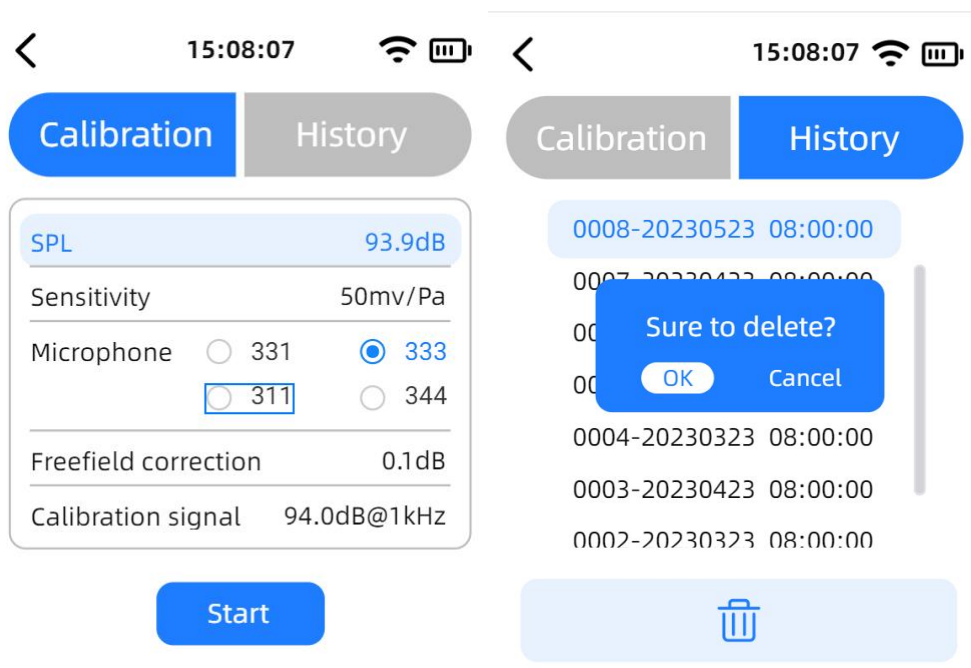In the "Language" section, users can switch between Chinese and English.

3.3.5 About

In the "About" section, users can view device information, as well as perform authorization and upgrade operations.

For information on the operations regarding authorization and updates, please see the appendix.

3.4 Calibration

Users can click "Calibration" to enter the "Calibration" app. The "Calibration" interface displays the current sound pressure level and the microphone sensitivity. Users can set the microphone model, and the corresponding free-field correction value will change accordingly, with CRY2832 defaulting to the CRY331 sensor and CRY2833 defaulting to the CRY333 sensor.

Users can select from four different calibration signals. When the calibrator is connected and producing a stable sound, users can press "Start" to begin calibration. After calibration, the sensitivity will automatically update. If there are significant fluctuations in the sound signal during calibration, it may fail. We recommend to use a 114dB sound source in high background noise conditions for calibration.

Users can view the "Calibration History" in the "History" section and can select specific calibration records for deletion.
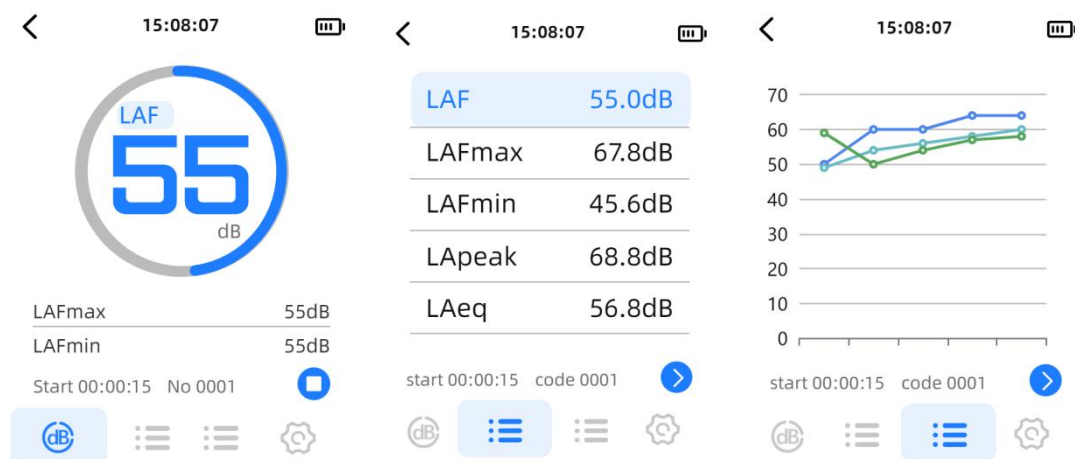
3.5 Measurement Parameters Table

Parameters	SLM(Basic)	SLM	Statistics	1/1 OCT
Lp, Lmax, Lpeak	■	■	■	
Leq, Lmin		■	■	
Ln(n=5、10、50、90、95),SD			■	
1/1 OCT				■

3.6 Use of the Testing App

The use of the SLM and statistics app on the sound level meter is quite similar.

Below are the instructions for usage.

3.6.1 Parameter Interface

The sound level meter contains two measurement parameter interfaces, where users can set 3 or 5 test parameters on each interface. By clicking on a test parameter, users can enter the parameter selection and return to the parameter interface.

The third interface is the curve mode. When the test begins, the device will automatically plot the curves of LAeq, LCpeak, LAFmax, displaying the value changes for up to the past 30 seconds.
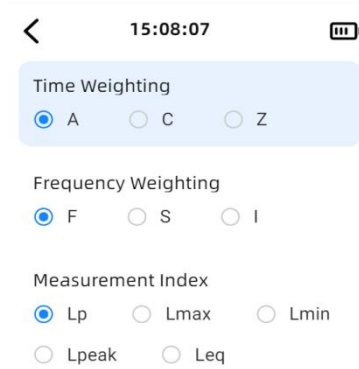
Users can click the "Test" button to start testing. During the test, a long press on the "Test" button will pause the test, while a short press will stop the test.
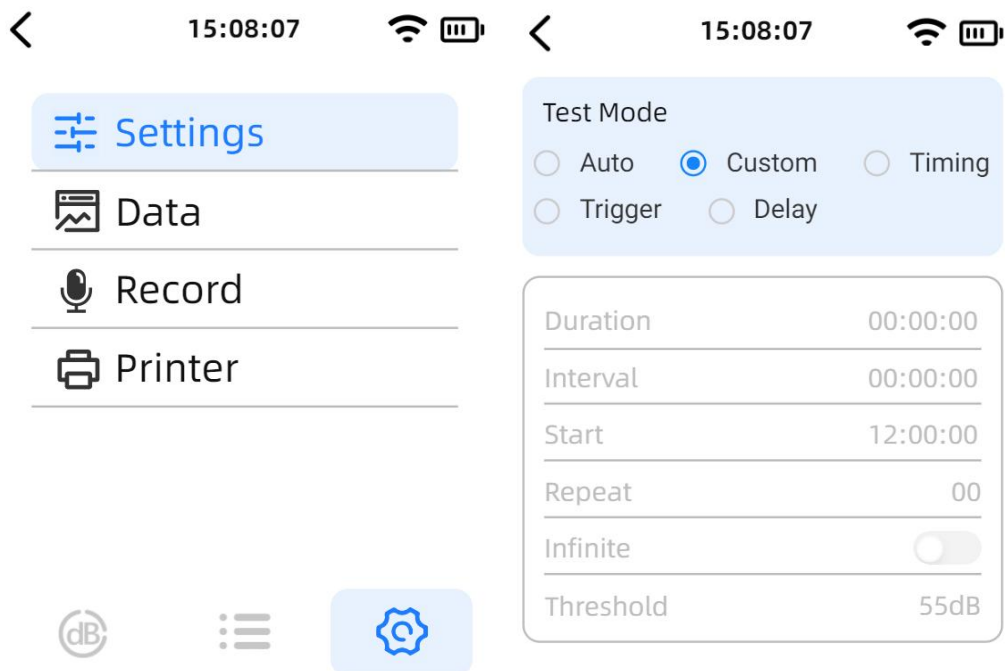
When users switch to the "Settings" interface, they can configure the test mode, view data playback, set recording options, and choose

printing methods.

In the "Test Mode" settings, users can select from "Auto" , "Custom" , "Timing", "Trigger", and "Delay" test modes. The meanings of each test mode are as follows:

① **Auto:** Test duration, test interval and repetition times can be set. After pressing the start measurement button, the test will be conducted according to the set test parameters and stored automatically.

② **Custom:** Manually start a measurement and manually stop the measurement in the main interface operation button area.

③ **Timing:** You can set the test duration and start test time in the setting interface, and when it reaches the start test time, it will automatically start measuring and stop after reaching the test duration.

④ **Trigger:** The test duration and threshold value can be set in the setting interface. When the LAF reaches the set threshold value, the test will start automatically and the test time will be the test duration set by the user.

⑤ **Delay:** Users can set the duration for the delay. After pressing the test button, the device will not start testing immediately but will begin after the specified delay duration.

3.6.2 Data
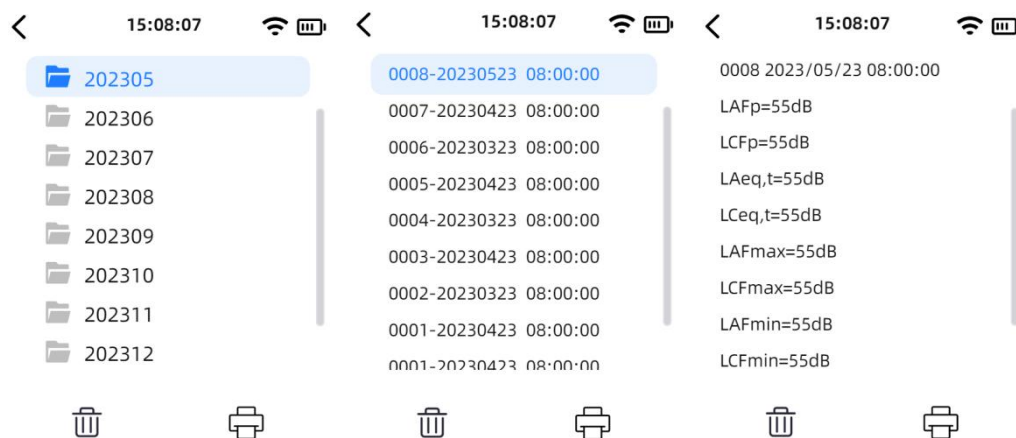
Users can click on "Data" to enter the data viewing list.

When the TF card is inserted, the test data will be automatically saved to the TF card. Users can find the corresponding test data files based on the test time, and click to review the data .

This feature only supports viewing the last second of data for all data displayed in the list. If you need to view all parameters during the test, you can insert the TF card into the computer to view the CSV data file.

3.6.3 Record

The recording function is under development.
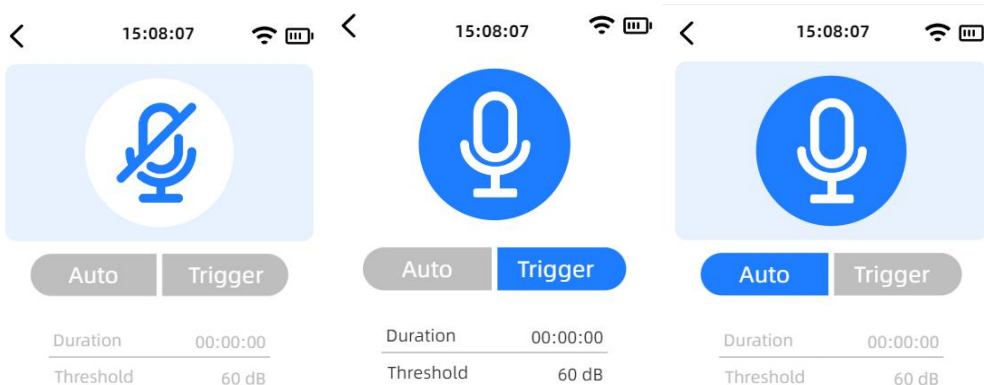
Users can click on "Record" to enter the recording settings interface.

Press the "Confirm" button to control the start and stop of recording.

This device supports two recording modes: automatic(auto) and triggered. Below is an explanation of the two recording modes:

Auto: Start recording as soon as you start the test, no need to set the recording duration.

Trigger: you can set the recording duration as needed, when the LAF reaches the set threshold, it will automatically start recording, and the test time will be the recording duration set by the user.

3.6.4 Printer

Users can click on "Print" to enter the print settings interface.

The printing feature is under development.

3.7 Use of the 1/1 OCT App

1/1 OCT measurement operation is similar to total value integration and can refer to 3.6. Below is an introduction to the interface display.

3.7.1 Parameter Interface

As shown in the figure, this is the display interface for the 1/1 octave band. Once entered, users can select measurement parameters and display frequencies using the up and down keys. The left and right keys are used to switch between the measurement interface and the settings interface.
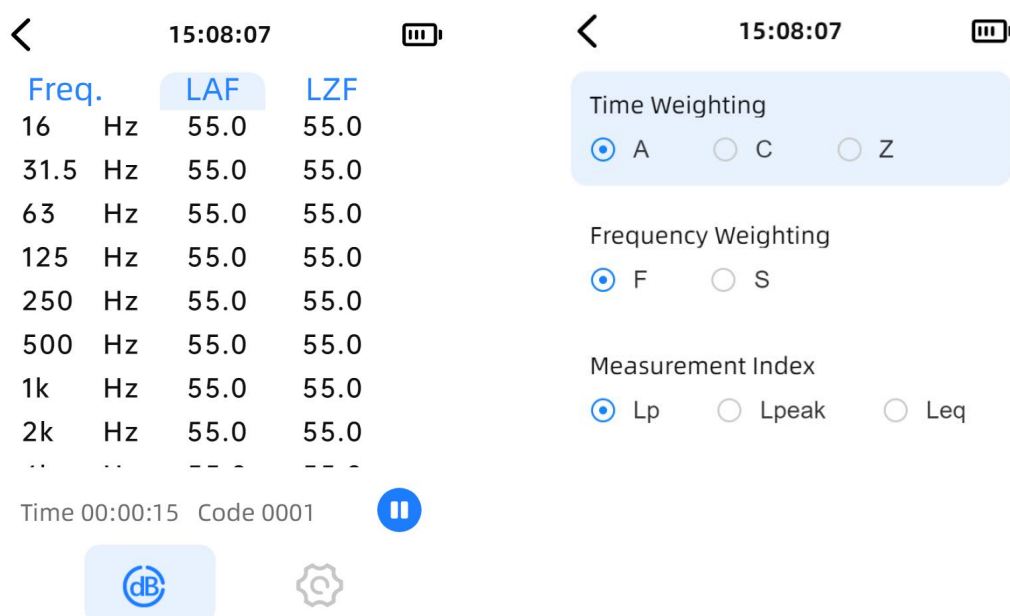
3.7.2 Setting

Users can enter the "Settings" interface by using the left and right arrow keys. For detailed operations, please refer to section 3.6.

Appendix A: Table of Measured Values

Measured Values	
Lp	Sound pressure level
Leq	Equivalent continuous sound level
Lmax	Maximum sound level
Lmin	Minimum sound level
Lpeak	Peak sound level
LN	Percentile sound level
	For CRY2833, the accuracy of LN is 0.2 dB and it only supports simultaneous calculations for one type of weighting among A, C, and Z.

Appendix B: Free Field Response of The Sound Level Meter At Different Incident Directions
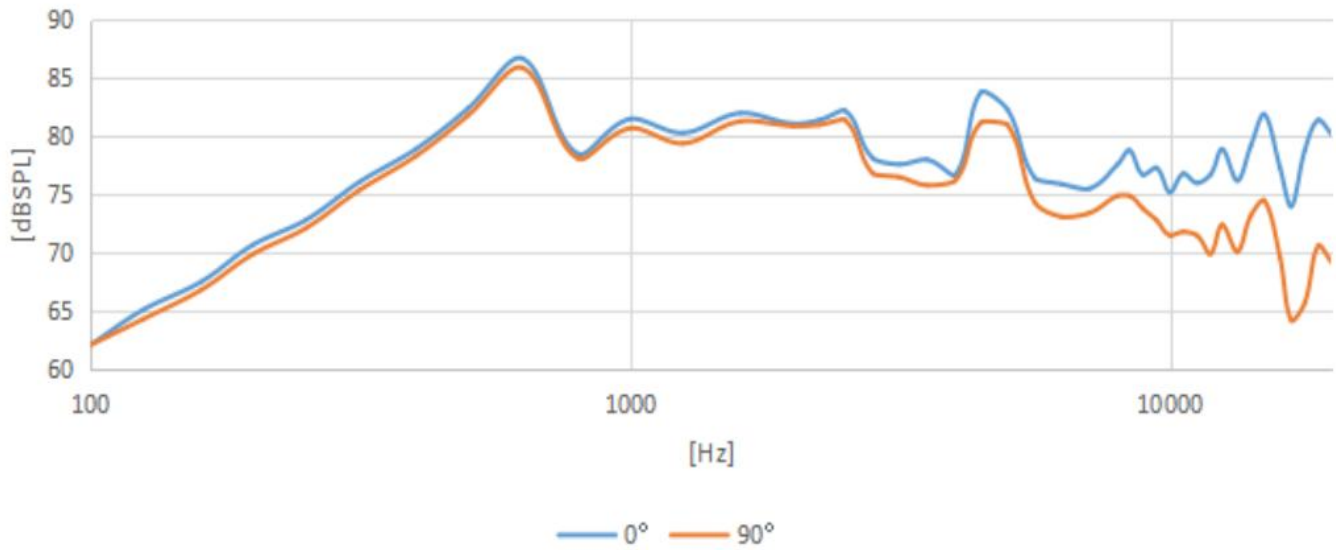
Appendix C: CRY333 Typical Frequency Response (0° Incidence Angle)

0° Incidence Free-filed Response —— - · - Actuator Response
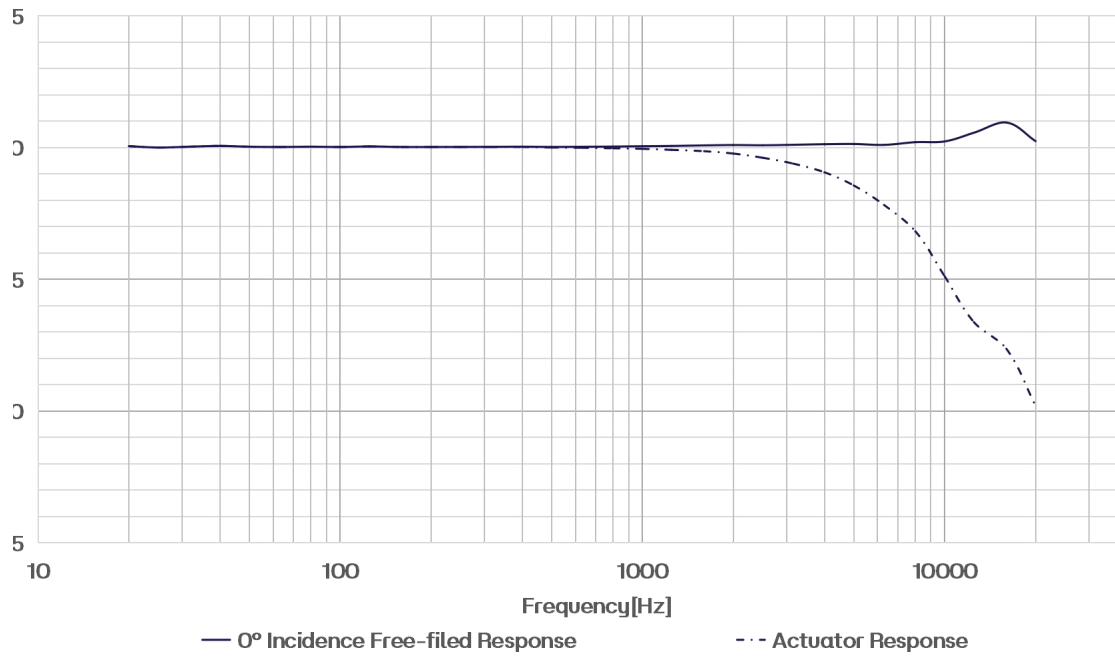
Appendix D: Firmware Upgrade

1- Remove the TF card and connect it to the computer, then place the update folder in the root directory of the TF card.

2- Insert the TF card back into the device, power it on.

3- Go to Settings - About - Upgrade interface. Select the "cry283x" folder and press the "Confirm" key to start the upgrade.

4- Note that the device must remain powered on during the upgrade process; otherwise, the upgrade will fail.

5- After the upgrade is complete, the device will automatically power on.