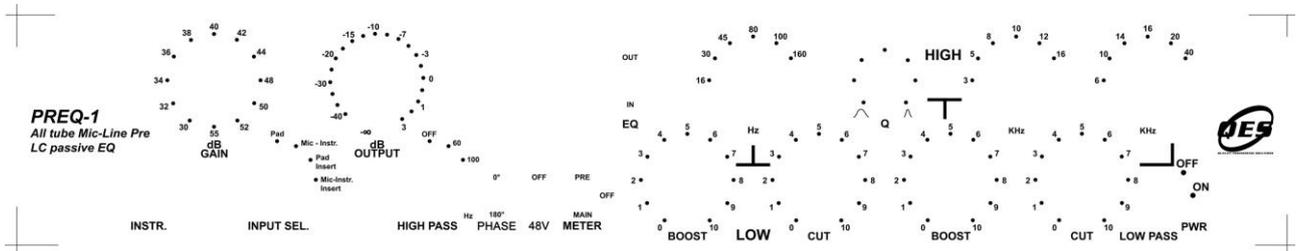


# PREQ-1

## Vacuum Tube Recording Channel

Rev. 6

Date: 09/07/2017



## OWNER'S MANUAL

Thank you for purchasing our product.

We strive to provide you with a professional product, a toolbox you will use for several years with satisfaction.

This unit has been carefully handcrafted by Val in Italy, choosing the finest components available, aiming for your complete satisfaction.

It is of extreme importance that the unit be earthed !  
You should use it with a FULLY functional earth well.  
NEVER disconnect the earth from the receptacle.

Please make sure that your line mains voltage matches with the Preq-1 AC Inlet indication.

FUSE:

You should replace defective fuse with 2AT (slow blow) for 230Vac line, or 4AT for 115Vac line.

Please carefully read this manual throughout before operating the unit.

ANY real tube equipment is sensitive to a high SPL environment. This may cause microphonics in a recording situation. Make sure you are able to shock mount and or place the unit in isolation if need be.

Be sure to have at least one rack space between any tube products from above and below the unit. This will ensure your tube unit will not over heat. Overheating will cause damage to the tubes and shorten their life span.

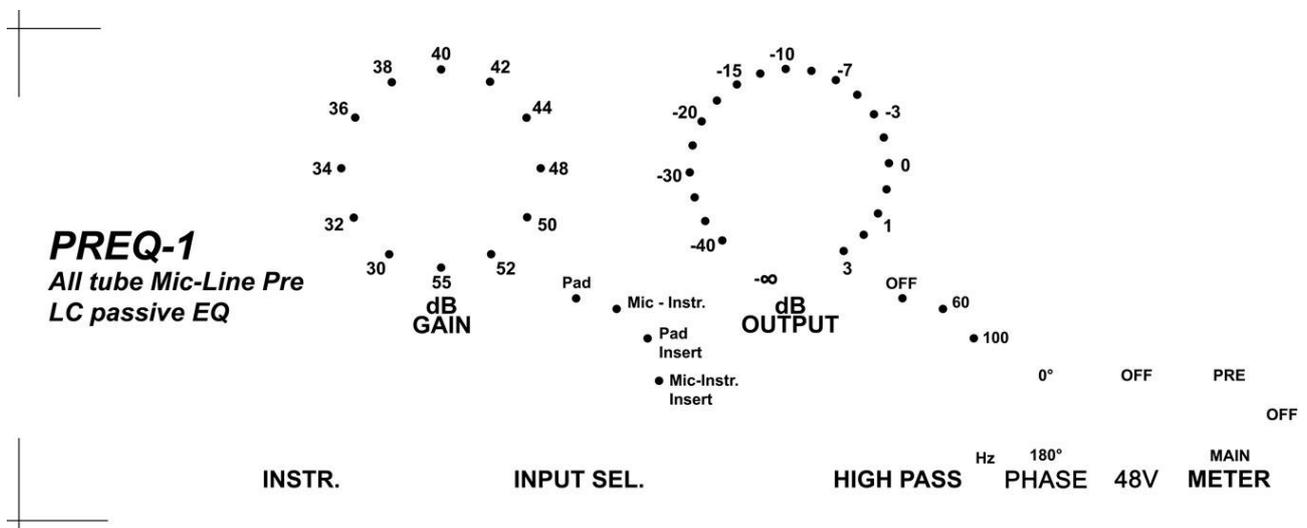
QES Labs reserves the right to make improvements or changes to it's products at any time, without notice.

Then have fun with your job.

## 1. OPERATION

Connect the unit before switching it on.

Make sure that all of the external connectors are plugged into the Preq-1 sockets, then switch the unit on.



## 2. THE PREAMPLIFIER

From left to right, the first stage of the PREQ-1 is the Microphone Preamp.

The mic input connector accepts Microphone and line levels.

Make sure that the **“Input Sel.”** Selector matches your source.

- In the first position, **“Line Pad”**, the unit engages a 20-dB pad, so that you can connect a line-level source, and operate it through the Mic Preamp for your colourful applications.
- Second pos. **“Mic-Instr.”** allows you to connect a dynamic microphone, or use the front panel D.I. input jack **“Instr.”**, to connect your piezo source, or guitar, electric bass, keyboard.

- c) Third step “*48V*” allows you to use the Mic Input on the rear panel for your condenser type microphones which are fed from Phantom Power.
- d) In the fourth position, “*Insert*”, the Preamplifier, unlike the first three steps, is physically isolated from the following Equalizer stage, thus allowing you to use the “*Direct Out*” rear panel connector as the “send” of an AUXILIARY INSERT point, and the “*EQ INPUT*” as the “Return” plug. You can have a compressor, any dynamic processor here in this chain. In this position the Phantom power remains active.

### **Mic Preamp Gain selector**

It is a 12-step rotary switch, allowing you to match your microphone with the PREQ-1 mic preamp.

The positions are spaced in 2 dB points:

30 to 55 dB

Of gain from the Preamplifier stage.

### **HIGH PASS FILTER**

Toggles between OFF, 60Hz and 100Hz, it is useful when you are recording an instrument having an annoying resonance in the very low end.

### **PHASE**

When activated, it rotates the phase on the microphone input connector.

0° means off (in-phase), 180° means active (phase reversed).

### **OUT METER**

This selector controls the movement of the VU meter.

- 1. In the upper position “*Pre*” the indication refers to the signal level present at the “*DIRECT PRE OUT*” xlr male connector on the rear panel.

- 2. In the lower position “**MAIN**”, the VU indication refers to the amplitude of the rear panel “**MAIN OUT**” XLR Male connector.

In every case, the VU indication follows an “*Average*” rectifier circuit. Even if the average rectification is not exactly the same as a true R.M.S. rectification, it is very close, and acceptable for the most practical purposes.

When the needle hits the “**0**” on the VU scale, a level of **+8dBu** (1.947Vrms) is present at the selected output connector (measured on a 10kohm load).

## **dB OUTPUT**

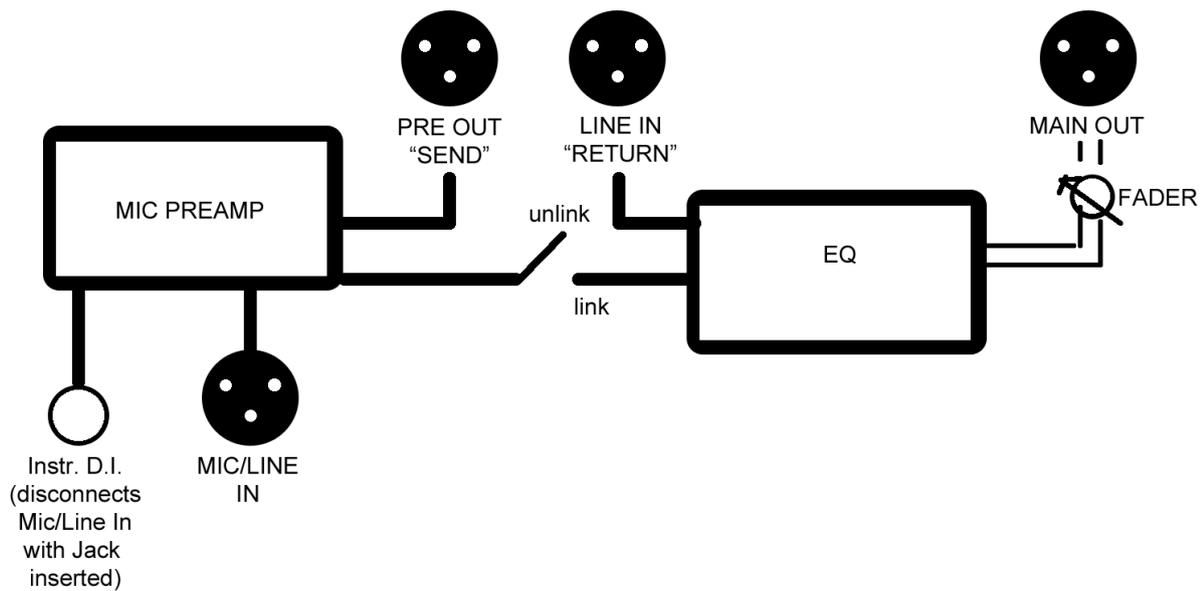
This potentiometer (or 24-step rotary switch for the mastering version) is located at the output stage, in the EQ section, at the end of the chain.

It controls the attenuation of the output signal being fed at the “**MAIN OUT**” connector.

It is useful to match the PREQ-1 main output level to the optimal input level required by the next piece of equipment, such as an analog to digital converter.

It is also useful to bring the output level, when you want to use higher mic preamp’s “*dB GAIN*” settings, in order to let the mic amp work more, and obtain more *colour*.

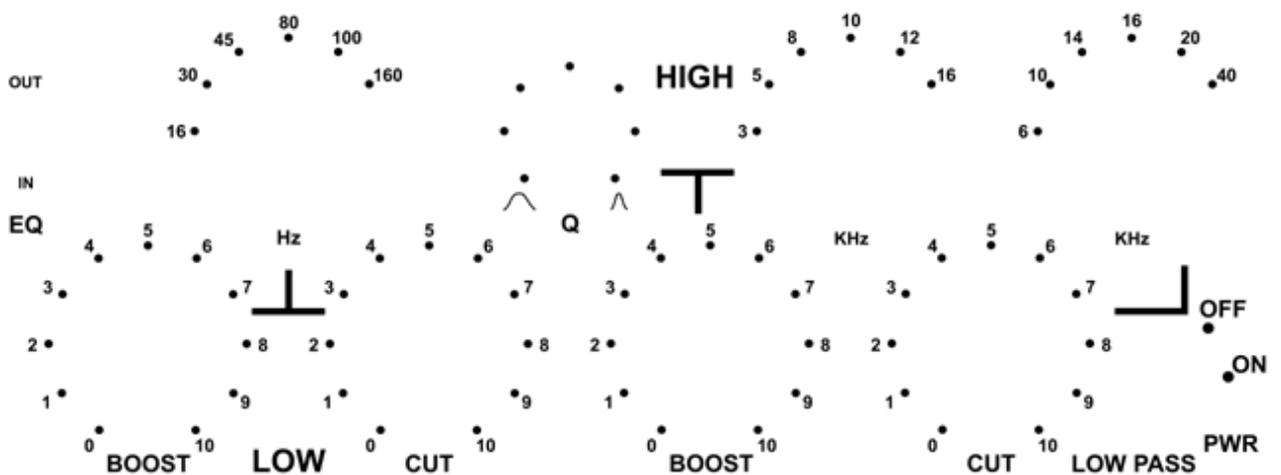
Consider this control as the fader in a mixing console: at it’s 0 position you get the gain values stated in the ‘*dB gain*’ stepped control, whilst going full clockwise, you have a 3dB ( $\pm 1$ dB) extra gain.



## BLOCK DIAGRAM

### 3. THE EQUALIZER

The filter circuitry is a passive LC and RC stage, similar to the Western Electric passive filter design of the 30's/40's, used later on by famous brands such as Pultec, Lang, etc.



## **EQ SWITCH**

Out – The Equalizer action is out. (Bypass)

In - The Equalizer is active.

### ***LOW SECTION (Shelving)***

## **BOOST**

When the Cut is out (ccw), raising it allows you to boost the low frequencies indicated in the selector "**Hz**".

## **Hz**

This selector sets the frequency where the maximum action of boost or cut is at around 15dB.

## **CUT**

When the "*boost*" action is out (ccw position), moving the knob in clock-wise direction allows you to attenuate the low frequencies set by the "*Hz*" selector.

# **TREBLE SECTION**

## **HIGH BOOST**

It comprises the Frequency selector (3, 5, 8, 10, 12, 16 KHz) refers to the central frequency, affecting the action of the "*Q*" and "*Boost*" potentiometers.

This section of the filter has a *Peaking* action.

## **Q**

It sets the *bell* of the filter, broadens or narrows the frequency range that this filter section controls.

## **BOOST**

Moving it clock-wise boosts the frequencies set by the selector. It can be combined with the action of the “*HIGH CUT/LOW PASS*” filter section.

## **HIGH CUT (LOW PASS)**

This section has a *shelving* action.

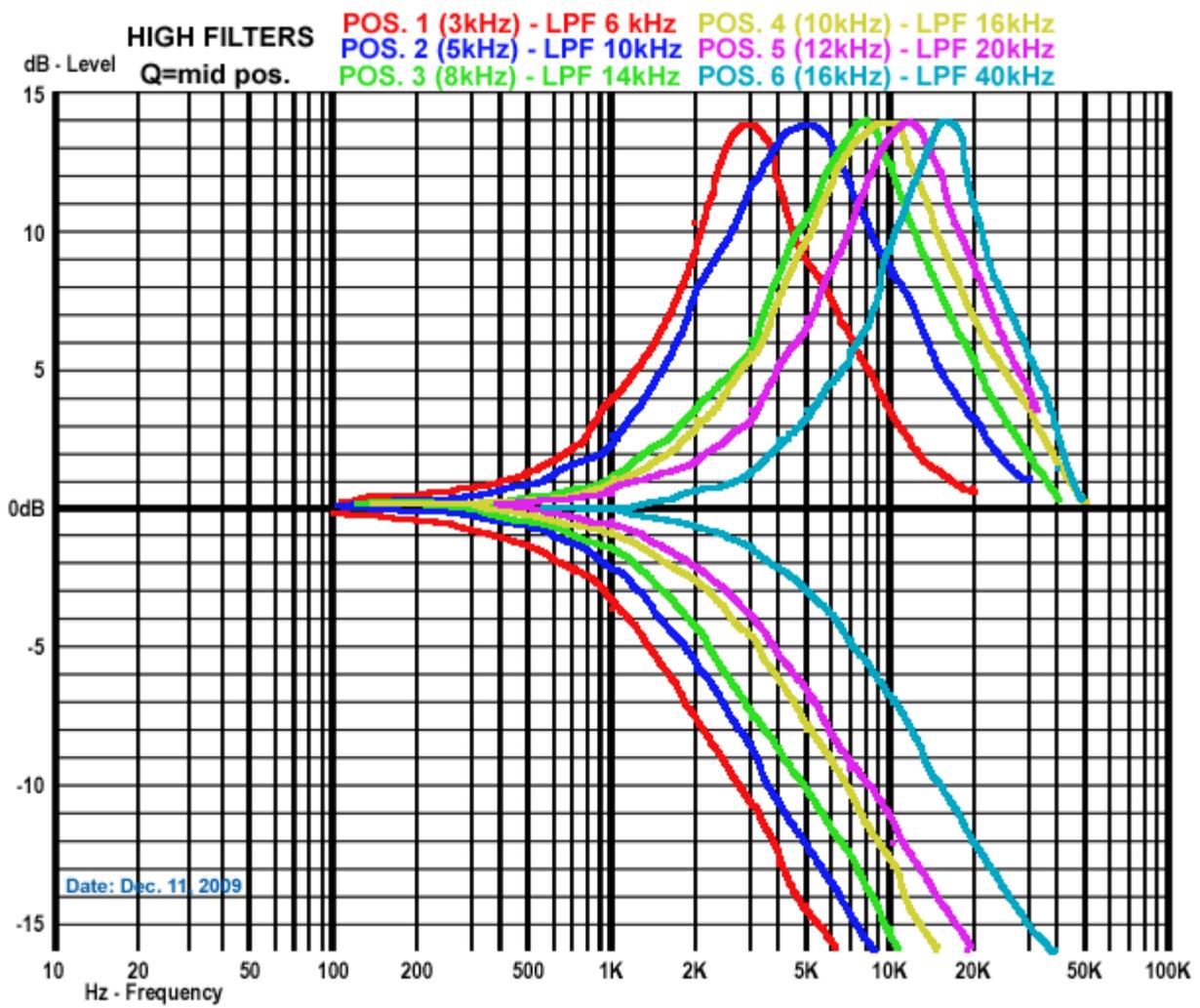
It comprises the frequency selector (6, 10, 14, 16, 20, 40 KHz), indicating the frequency point where the “*CUT*” attenuation is at maximum, around -15dB.

## **CUT**

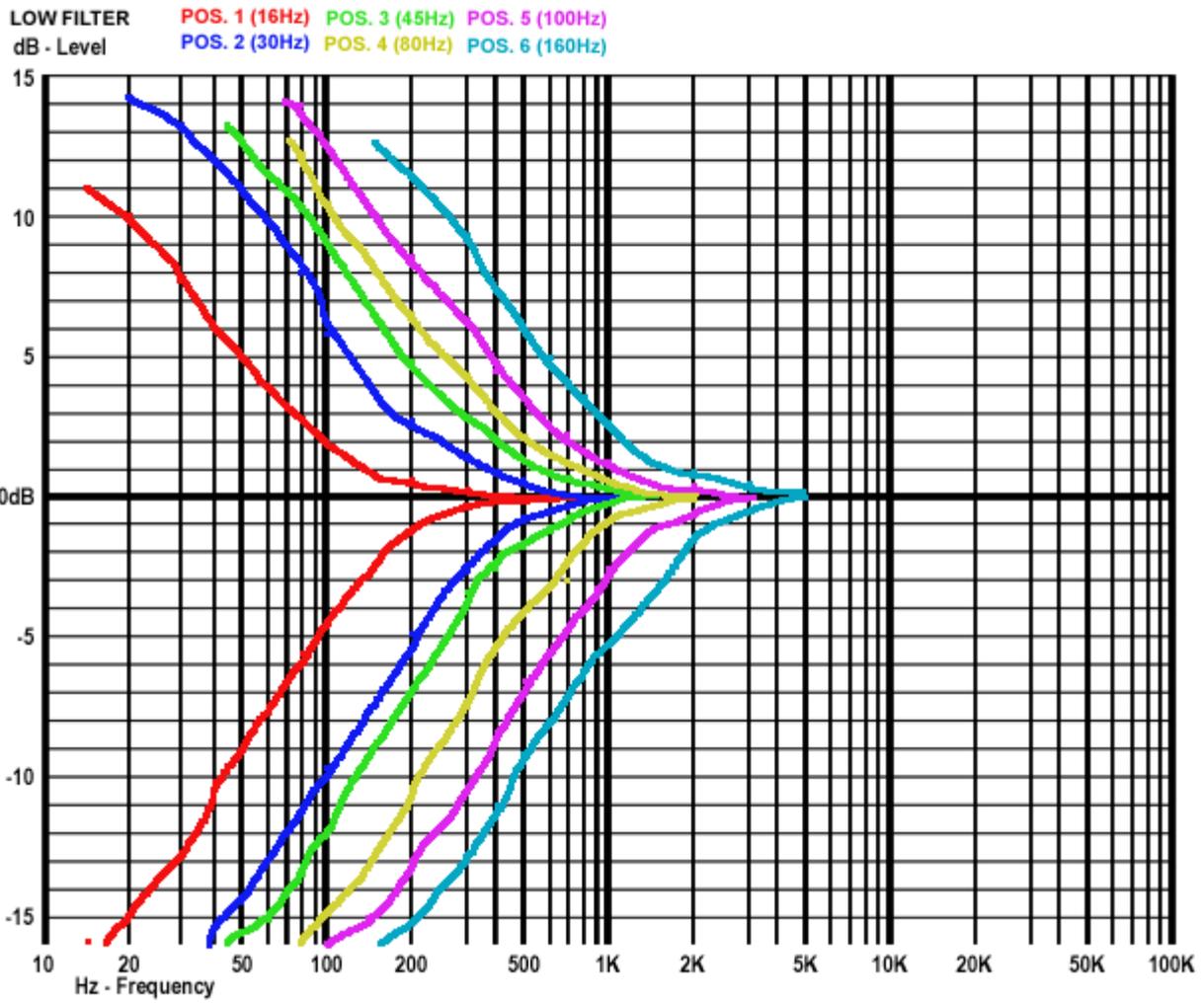
Rotating the knob in cw direction, allows you to attenuate the frequencies set by the selector.

You can also combine the action of the two filter sections, by creating very useful sets of equalization, i.e. boosting 10/12 KHz to give air to a track, while cutting 40KHz to get rid of the digital artifacts of a plug-in.

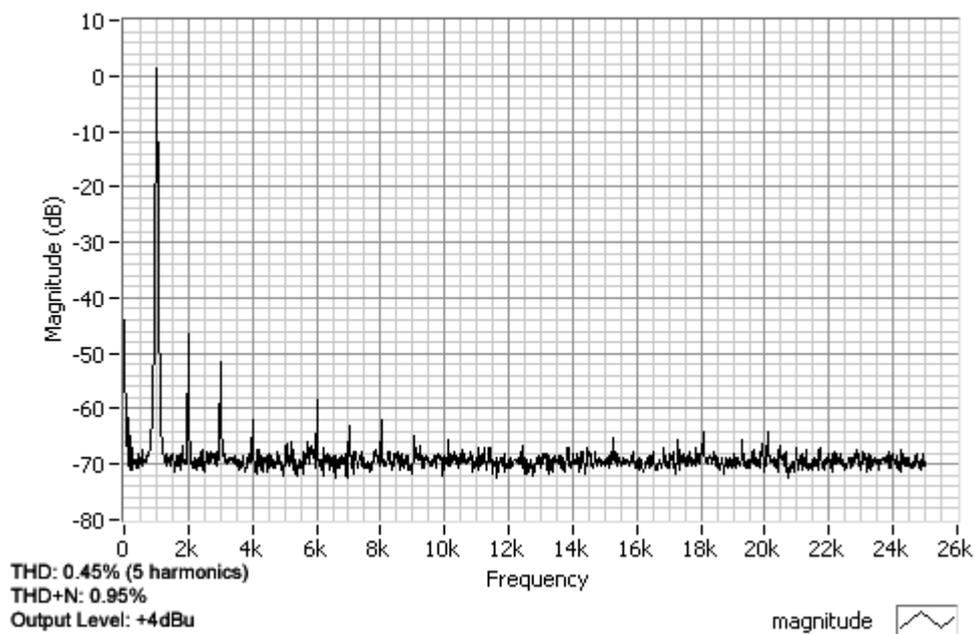
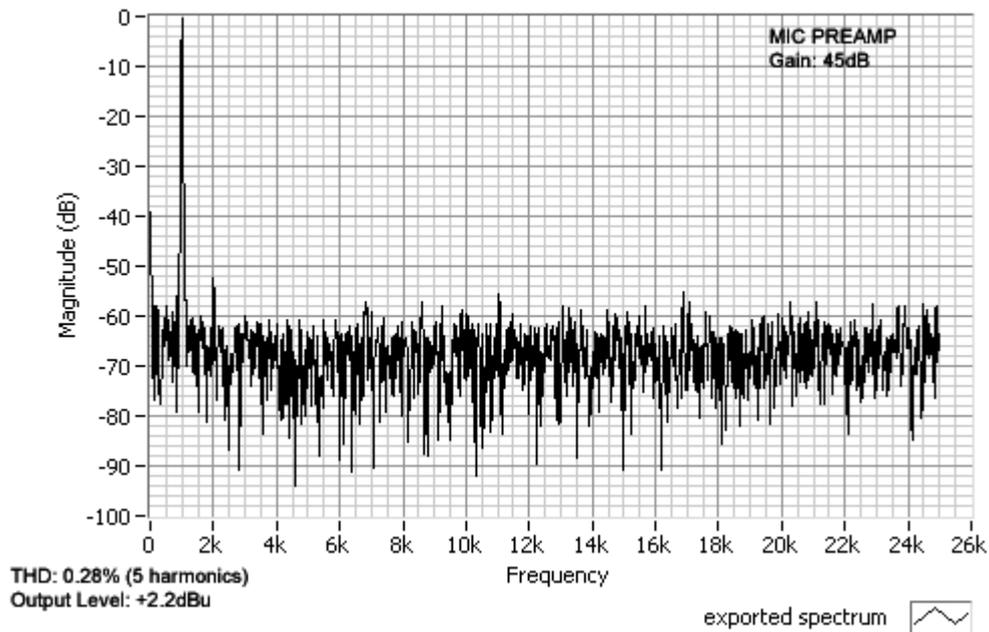
**CURVES:**



These are the curves for the LOW section:



Measurements:



## TECHNICAL SPECIFICATIONS:

*Frequency response (+0/-1dB):*

Mic Preamp (55 dB gain): 10Hz – 45KHz

Equalizer (unity gain): 20Hz – 45KHz

*Signal to noise ratio (unweighted, 200Ω source Z, 10Kohm load, ref. +20dBu):*

Greater or equal to 80dB (complete chain, Mic preamp + EQ) 20Hz-40KHz

*Common Mode Rejection Ratio (C.M.R.R.) ref. 1KHz, 55dB gain:*

70dB.

*Total Harmonic Distortion + Noise (THD+N), 1KHz, 5 harmonics count:*

Mic Preamp (45dB gain, Output level: 2.2dBu): 0.28%

Equalizer (unity gain, ref. +4dBm): 0.45%

*Intermodulation Distortion IMD (SMPTE), 60Hz/7kHz, 4:1, ref. +4dBu:*

Line amp: less than 0.1%

*Input and Output Impedance:*

Mic In: 1Kohm

Line (EQ) In: 600 ohms

Direct Out: 600 ohms

Main Out: 600 ohms

*Maximum Input Level, balanced, for THD less or equal to 1%:*

Mic Preamp (30dB gain): -10dBu (±2dB)

Line (EQ) amp (unity gain): +20dBm (±2dB)

*Maximum Output Level, balanced, 20Hz-20kHz, load 10kΩ, THD less than 1%:*

Mic Preamp (55dB gain): +18dBu (±2dB)

Line (EQ) amp (unity gain): +20dBu (±2dB)

## DECLARATION OF CONFORMITY

I declare that the models PREQ-1 and PREQ-1B conform to the following standards adopted by the European Community:  
EMC (electro magnetic compatibility) 89/336/CEE directive  
LV (low voltage equipment) 73/23/CEE directive  
on electrical safety (EN61010) and electromagnetic compatibility (EN61000).  
RoHS (Restriction of Hazardous Substances) 2002/95/CEE directive.

QES Labs  
di Valerio Riccelli  
4 Via Ugo Niutta  
Napoli, NA 80128  
Italy.

Data / Date / Datum: 11/09/2007.

Firma / Signature / Signatur / Unterschrift

A handwritten signature in black ink that reads "Valerio Riccelli". The signature is written in a cursive style with a large, sweeping flourish under the name.

Direttore tecnico / Technical manager / Directeur technique.

# WARRANTY

This equipment is covered by a limited warranty against manufacturing defects in materials and workmanship for a period of 1 (one) year (vacuum tubes 60 days) since the date of purchase to the original purchaser only.

This warranty excludes the following conditions: normal wear and tear, misuse, customer negligence, accidental damage, unauthorized repair or modification, cosmetic damage and damage incurred during shipment.

This warranty is provided by the dealer where the unit was purchased, and by QES Labs. In case of a valid warranty claim, buyer's sole and exclusive remedy and QES entire liability under any theory of liability will be, at its option, to repair or replace the product without charge, or, if not possible, to refund the purchase price.

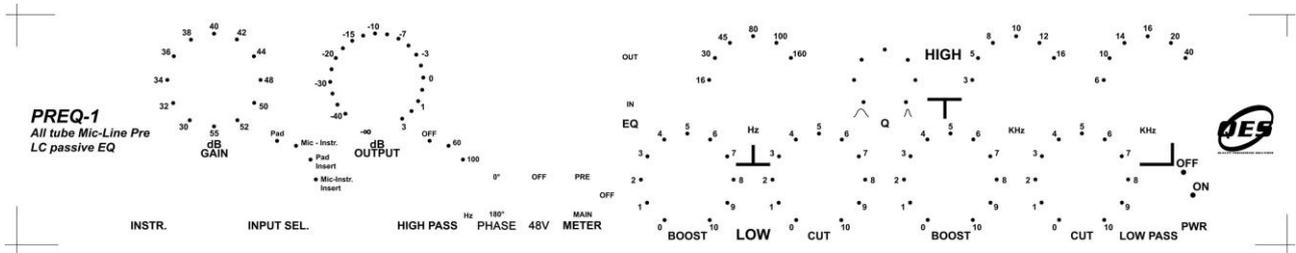
The warranty is not transferable, and applies only to the original purchaser of the product.

This warranty is in lieu of all warranties whether oral or written, expressed or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose.

The warrantor assumes no liability for lost profits, property damage or any other direct, indirect, special, incremental, exemplary, incidental or consequential damage whatsoever which may result from failure of this product. In no event will QES Labs' liability exceed the purchase price of the product.

Any and all warranties of merchantability and fitness implied by law are limited to the duration of the expressed warranty.

# RECALL SHEET



SESSION: \_\_\_\_\_

SONG: \_\_\_\_\_

PRODUCTION: \_\_\_\_\_

ARTIST: \_\_\_\_\_

ALBUM: \_\_\_\_\_

SOUND ENG.: \_\_\_\_\_

SETTINGS FOR: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_