Waves Version 3.5

Release Notes and information

Windows edition.

This document lists general information, Installation instructions, Demo info, Authorization info. Specific information on supported host applications, sample rate support charts, acceleration compared to version 3.2 and known issues. We hope you will find this document useful and informative.

The Waves team.

General Information

Waves Digital Audio Processors are software modules designed to provide professional audio processing as Plug-Ins within a wide range of supported audio host applications.

Waves version 3.5 presents the integration of many efforts to make Waves Plug-Ins better then ever. It presents improvements in performance, better support of dual processors, Support for automation in VST and DirectX8.
This version is a free update to any version 3.x users. It will work with the same authorizations generated for versions 3.0 or 3.2.

The Waves version 3.5 plug-ins support 3 major Plug-In architectures on Windows –

Direct-X – This plug-ins architecture is provided by the makers of Windows, Microsoft. It is the main Plug-Ins architecture of some the industry's finest hosts and lately has become Automation enabled in Sonar.
Steinberg - Cubase VST 5.1, NUENDO 1.52, WaveLab 4 | Emagic Logic Audio 5 | Sonic Foundry Sound Forge 6.0, Vegas Pro 3.0, Vegas Video 3.0, Acid 3.0 | Cakewalk – Sonar 1.3.1 | Magix - Samplitude 6 | Syntrillium – CoolEdit 1.2 |

WaveShell-DAE 3.5 - Provides compatibility with Digidesign systems running Pro-Tools LE. The WaveShell-DAE.dpm and it's accompaniment the WaveShell-DAE.dpm.rsr will provide support for Digidesign's RTAS and AudioSuite architectures. Waves users with Digidesign systems can read important information in the DAE section of this guide.

WaveShell-VST 3.5 – Provides compatibility with some of the leading VST host applications. Officially supported are –
Steinberg Cubase VST 5, NUENDO 1.5, WaveLab 4.0 | Emagic Logic Audio 5 |

Other unlisted hosts are not officially supported by Waves and though the plug-ins may work, Waves has not tested them in house for operation in the standards we expect. We aim to support the widest possible range of hosts and will post notices on the Waves web site when we adapt support for more hosts.

The Waves Digital Audio Processors cover a wide range of features and applications minding the highest standards in audio quality. Different processors require different amounts of computational resources and each processor will support processing in Sample Rates as high as possible. The processors were tested for sample rates as high as 192kHz of 24bit audio. Waves Ltd. invests a big amount of R&D to make sure the audio processors are as good as possible. Much thought and hard work are incorporated into each tool as well as consulting with world class professionals and practical testing. Many present such a grand

amount of possibilities and subtleties, while others are designed to help you get great results at the least effort to save time in the studio.
We hope you will come to realize the power and value in these tools that are sometimes just superior to anything you could get in hardware.
If you experience any problems with any aspect of usage of Waves products, our technical support crew will be there to provide service and help you solve it.

Products

Waves Digital Audio Processors are sold separately and at different price points for Native processing using the host computer CPU to process audio in real time.

With the release of version 3.5 our product line includes 29 separate plug-ins with over 100 separate units of which you can run as many as your DAW will allow. In contemporary computers and audio workstation this goes to a very hi count allowing you to dress full multichannel mixes with state of the art EQ, Dynamics, Creative Effects processing and Restoration.

Waves Ltd. Distributes its Software Audio Processors in bundles. The bundles are collections of plug-ins compiled by application type i.e. Scientific Mixing essentials - NPP, Sound sweetening tools - Renaissance Collections, FX processing – ProFX, Purist Quality Mastering – Masters bundle and Noise reduction and recovery of damaged audio – Waves Restoration.

Waves Digital Audio Processors version 3.5 include the following products:

Waves Platinum Package - This is the most comprehensive collection
of tools we ever sold in a single package. Including:
Waves Gold Bundle, Renaissance Collection 2 and Waves Masters Bundle.

Waves Gold Bundle – The Gold Bundle is included in the Platinum Package
and bundles all the Waves essentials into 1 box. Including:
Native Power Pack (1+2), Renaissance Collection 1, ProFX Bundle and AudioTrack, C4-Multiband parametric & MaxxBass. Waves Gold bundle is part of the Waves Platinum package.

Native Power Pack 1 – The essentials. Including: C1-Compander, DeEsser, L1-UltraMaximizer, S1-Stereo Imager, Q10-Paragraphic EQ, SuperTap-2taps, TrueVerb and IDR. This bundle's components are included in the Waves Gold Bundle.

Native Power Pack 2 – (2.x upgrades) The Native brother of the TDM bundle 2 – A set of second generation tools Including: MaxxBass and Renaissance tools. Including: Renaissance Compressor, Renaissance EQ, Renaissance Reverb, MaxxBass and DeEsser. This bundle's components are included in the Waves Gold Bundle.

Renaissance Collection 1 – Next generation tools offered in a cost effective collection since version 3.0 Including: Renaissance Compressor, Renaissance EQ and Renaissance Reverb. This bundle's components are included in the Waves Gold Bundle.

Renaissance Collection 2 – More practical tools that improve the effort/results ratio. Including: Renaissance VOX, Renaissance Bass and Renaissance DeEsser. This bundle is part of the Waves Platinum package

Waves Masters Bundle – Purist quality processors with a focus on audio mastering for CD's DVD's etc. Quality wise this is the supreme team Including: L2-UltraMaximizer, Linear Phase EQ, Linear Phase MultiBand. This bundle is part of the Waves Platinum package

Waves Restoration – An Intensive Care Unit for audio in need of noise or click reduction. Including: X-Noise, X-Click, X-Crackle and X-Hum. This bundle is sold separately and is not included within any other Waves Product.

All of these products are available at version 3.5 for all the listed supported host applications. All products work for a 14 days demo period at the first time they are installed on a computer.

Read the next chapter for an overview of the different products and their installation instructions

Installation

To Install any Waves Digital Audio Processors –
The Waves 3.5 CD Includes Installers for all Listed products. When Inserting the Disk into your CD-Rom drive it will display a set of installation options and for launching this guide. You may select between installing everything to installing just a specific bundle according to your Needs.

Important Installation note! If you are updating, it is most recommended to first perform uninstall to the Installed Waves products.

The Install options are as follows:

Install All Waves Version 3.5
Select this to install all products listed Including the Waves Platinum Package and Waves Restoration. You will have 14 days to demo the ones installed for the first time. If you are updating from a previous 3.x version then your authorizations will be valid for version 3.5 as it is a free update for version 3.x users.

Installing for the first time or for demo-Read this! At 95% of the installers progress you will need to click "Try-It" up to 4 times when the plug-ins prompt you with the demo dialog. This is for trying 29 different plug-ins with about 100 separate variants. This is because there are separate demo periods for the whole product line.

Install Waves Gold Line Processors version 3.5
Select this installer to install the following products:
Waves Gold Bundle, Waves TDM bundle 1+2, Native Power Pack Bundle 1+2, Renaissance Collection 1, Waves ProFX.

Install Waves Renaissance Collection 2 version 3.5
This will install the Waves Renaissance Collection 2 on your computer.

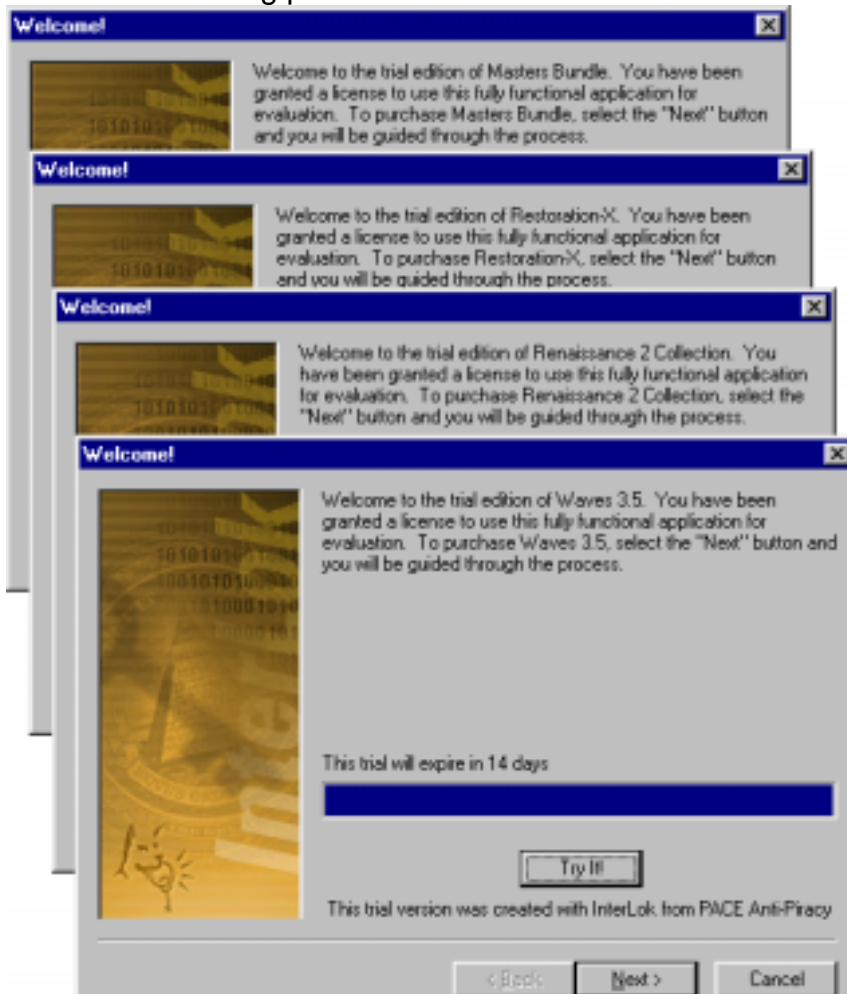### Install Waves Restoration version 3.5
This will install the Waves Restoration bundle on your computer.

Install Waves Masters Bundle version 3.5
This will install Waves Masters Bundle version 3.5 on your computer.

Important Note! If you are installing for the first time, when the installer reaches 95% you should select "Try-It" when prompted in the Welcome dialog or Next to collect the challenge for authorizing, however it is recommended to perform authorizations using the included Authorizer executables. Avoid selecting cancel as it will fail the install.
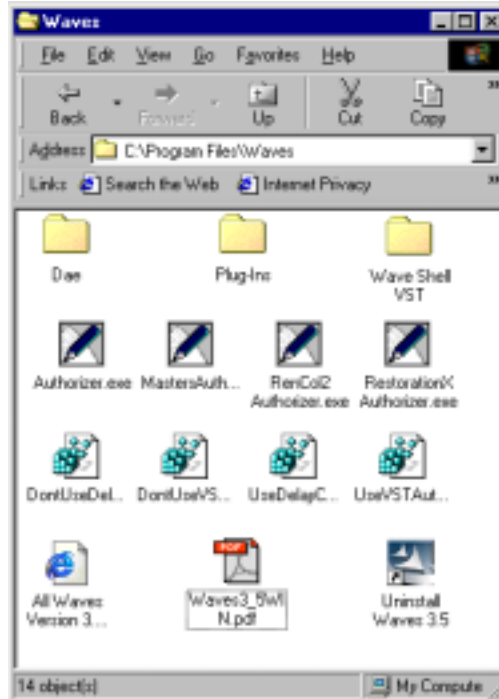
Here's what the welcome dialogs look like. There are 4 separate ones as you can see in the following pictures.

Each dialog refers to a separate product that requires a separate authorization. The demo period is started at the time of the installation.

AFTER INSTALLATION

Installing any of the Waves version 3.5 installers will result in the installer creating a Waves folder In the Program Files folder of your system disk.
The Waves folder includes Authorizers, Registry switches and a WaveShell-VST folder, DAE folder & Plug-Ins folder. It also contains the Version 3.5 Readme file and this document as seen in the following screenshot:

The Installer will attempt to find the DAE plug-ins folder automatically and will install the DAE directory if it does not find one. It will also prompt you to locate the VST plug-ins folder in order to install the WaveShell-VST. You will be able to copy the WaveShell.dll into your host applications VST folder at any time. The Installer will also create shortcuts in your Start menu under Programs/Waves.

VST note! When you run the VST host application for the first time the WaveShell will prompt you to Select a Waves Plug-In, you should select any plug-in and the host will load normally the next time.

Demonstration

For demonstration of Waves Digital Audio Processors all you need to do is install the product you wish to demo. When a certain product is installed on a certain computer for the first time it will run for 14 days with full features so that you are not annoyed with beeps, dropouts or any kind of cripple-ware. After 14 days the demo for the product installed will be gone and you will have to authorize the products to continue using them on that computer.

When the demo expires for some or all of the installed plug-ins you can uninstall them or authorize them. Otherwise they will continue to prompt you that the demo expired every time you launch your host application. To eliminate any Waves plug-ins from loading with Pro-Tools or VST hosts, remove the WaveShell from the host application's Plug-Ins directory. For Direct-X applications only uninstall will work.

Important demo note! All of the Waves Gold Processors share a common demo period, for this reason if you want to demo the Native Power Pack only you will be using up your demo for Renaissance Collection 1 and ProFX as well as C4 and AudioTrack.
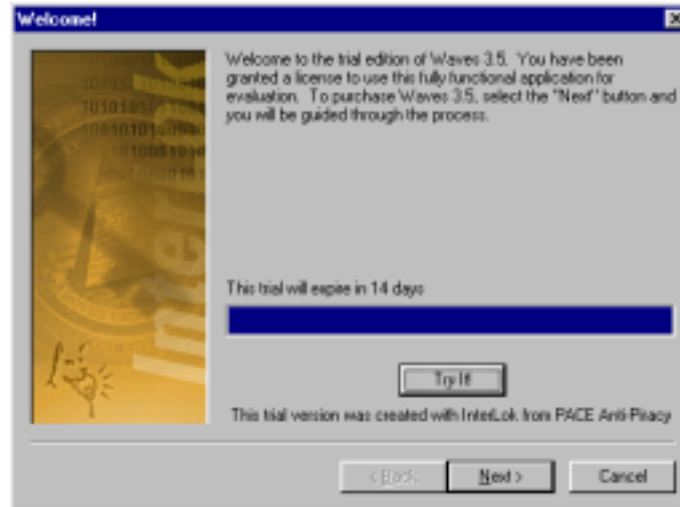After you authorize a subset of the Waves Gold Processors the demo for the rest of them will be over.
For these reasons we recommend to use the 14 weeks demonstration before authorizing a Gold bundle subset. If you have the full Gold Bundle, authorize at any time you like.

The Waves Renaissance Collection 2, Waves Restoration and Waves Masters bundles have separate demo periods.

Waves tries to supply ongoing updates for free, for this reason if you demonstrated a Waves product ever since version 3.0 then the demo is expired for version 3.5. You will have to try them on a different computer.

When you launch your host application with Waves Audio Processors in demo mode the demo plug-ins will issue a demo notice while your host is launching or when you try to launch the first Waves plug-in of a certain demo. The demonstration notice for Waves Gold Processors will look like this –

To run the plug-ins in demo select "Try-It". This will assure that all the plug-ins under the same demo period will continue to load properly.

Important Demo Note! If you select Cancel you will get this dialog for each of the separate plug-ins and sometimes multiple times for the Gold processors this can add up to clicking cancel 100's of times.

You can also click authorize to perform an authorization or just to collect your challenge but we highly recommend to perform authorizations using the supplied Authorizers. Read more in the Authorization section.

After the demo expires, you can use the related product "Authorizer" to obtain the challenge at any time and perform the full authorization whenever you are ready.

If you have installed all Waves Digital audio processors for demo purposes you will to go through a total of 4 demo dialogs to demo all 29 plug-ins.
The product you are demonstrating will be written at the top of the dialog and you should select "Try-It" for each of these.

Registration

In order to be able to authorize your Waves product, you will have to register your product with Waves by using the Waves Online Registration and Authorization application. This service is waiting for you at – http://www.register.waves.com. You can also select "Register" from the menu at the Waves Homepage at - http://www.waves.com.

To perform the registration you will have to have your product serial number at hand. Be sure you receive your product serial number when you purchase any Waves product. In the process of registration you will be requested to enter some personal information and this product serial number will register you to your purchased product. This will enable you to Authorize your product, receive upgrade deals to your registered products and be eligible to receive technical support.

If you are registering your first Waves product, you will need to select the choice for New Customer – Create a New Account. If you already have an account you may simply log into the system with your username and password, this will get you to your Account management page where you can select "Register Products" to register additional products using the Serial number that you received with your purchase.

Whenever a new account is created an email notice with the important account details will be sent to the email specified in the registration information.

The Waves Online Registration and Authorization application is live 24/7 except when it temporarily goes down for maintenance. It is full of helpful information to get you through the process successfully. If you have no convenient access to the Internet, you can fill a form and send or FAX it to Waves for manual registration. This however is not a 24/7 service but our staff will handle these quickly within office hours with commitment to serve you within 2 business days.

Once you have successfully registered your copy, you can continue to authorize your software to run on the computer of your choice. You can perform authorizations from any Internet connected computer but remember to collect you product "Challenge" only from the computer on which you wish to authorize your copy.

Authorization

Authorization can be carried out only after you registered your product with Waves and collected the product "Challenge" from the computer on which you want to install the Waves Digital Audio Processors.

If you have registered, you will have a user name and password with which you can use to log in to your account page where you will find all of your registered products listed. If you have not yet performed authorization for the product you will see an "Authorize" Action next to the registered product. Select this option to authorize that product. You will be prompted to type or paste the Challenge. Providing the challenge is valid you will receive a Response which you will need to enter back into the Challenge/Response of the correct Authorizer. This should provide Unlock to your registered product. We highly recommend to use the Authorizer to perform authorizations rather then using the prompt that launches with the plug-in.

Important Authorization Note!
It is important to know that the challenge you are issuing is the correct one for the product that you are trying to authorize. The name of the product will show at the top of the demo or challenge response dialog with the message – "Welcome to the Trial of "_____" and in the current Waves Digital Audio Processors products there can be up to 4 different challenges as follows –

"Waves 3.5" provides the challenge for the Waves Gold Processors so this is the challenge you should use to authorize – Waves Gold Bundle, Waves NPP1+2, Waves TDM Bundle 1+2, Renaissance Collection (1 only RC2 has a separate challenge) and ProFX. To get this challenge at any time you should launch the WavesGoldAuthorizer.exe from the Authorizers folder or use the challenge from the dialog titled Waves 3.5. Please remember that if you are authorizing a sub Gold bundle product authorizing it will end the demo period for the rest of them.
"Masters Bundle" provides the challenge for the Waves Masters Bundle.
"RenColl2" provides the challenge for the Renaissance Collection 2
"Restoration-X" provides the challenge for the Waves Restoration Bundle.

To Authorize Waves Platinum Package you will need to separately authorize Waves Gold Processors, Waves Renaissance collection 2 and Waves Masters Bundle.

In the event that your authorizations are lost due to Hard Disk change or failure, or for any reason, you can Request Reauthorization from your account page, but in many cases using the same response originally generated should work unless the actual authorized hard drive was changed. Requesting reauthorization and a log of issued responses are available from within your online account page.

Known Issues

In every version there are some issues which are either bugs or anomalies between host and plug-in standards. We try to eliminate any issue that imposes on successful operation but some minor issues may remain and we will continue to try to sort them. Until then we try to provide a list of Known Issues which you can expect with this version of Waves Digital Audio Processors.

GENERAL

- In plug-ins containing EQ filters ranging to cutoffs 100Hz and lower (Bass enhancement plug-ins, all equalizers except LinEQ and LinMB), the noise floor of the filters is generally higher by about 6dB in 96kHz than in 48kHz.
- In L2, in 192kHz, the 'Ultra' noise shaping with IDR type2 may produce tonal artifacts in the absence of input signal.
- Some plug-ins that do not support 96kHz or 192kHz can be opened to process in native in all environments, but the sound may be bad or with inconsistent results to the settings compared to 48kHz. Studio the Sample Rate compatibility chart to know what to expect.
- Due to limited resolution of the peak-meters in many plug-ins (PAZ,L1,REQ,RCL and more) , the peak-holds will not show input signal if the input is too low (such as -130dB).
- PAZ does not measure quite all the way down to -80dB, so depending on sample-rate the meters (and graph) may not go all the way down. In 44kHz the range is down to about -79dB and in 96kHz down to about -60dB.
- UltraPitch - when loading settings saved in version 3.2 the pitch and top frequency parameters will get wrong values.
- SuperTap – when loading settings saved with 3.2 Grid mode and Tempo mode will not load correctly, this effects view not sound. The Tap Gains will load the correct value but produce different sound, this is due to a bug fix. When opening sessions saved with 3.2 you should mind SuperTap.

DIRECTX

- All Plug-Ins show separate Mono and Stereo components. Some have a mono to stereo component. The mono or mono to stereo components will not operate on Stereo sources and may extend an error, however the stereo components will work for mono sources. So In DirectX you really only need the stereo components (which are the ones that don't have mono in their name) and the mono to stereo components to open on mono sources only. It is recommended to use only the Stereo (Normal) components in Sonic Foundry hosts as well as Samplitude.
- X-Noise may cause Cubase VST 5 (fixed in Cubase SX) and Nuendo to load for a long time.

- DirectX 8 is not sample accurate, the smaller the buffers the better the accuracy, but the CPU performance is more stressed.
- DirectX 8 Automation is not 100% reliable with switches. It does not remember the parameter state, just when it was switched. For example writing automation for an On/Off switch that started "Off" and finished "On" will work in reverse next time unless you manually set it Off again.

DAE

- Plug-In parameter linking in MultiMono inserts does not work unless you select all plug-in parameters for automation.
- When plug-in parameters are armed for automation the focus is stolen from pro-tools and keyboard events will not reach the host unless you click outside the plug-in.

AudioSuite

- Plug Ins will open in mono mode by default. For stereo processing select stereo mode manually.
- Waves Plug-Ins will not allow using overwrite mode.

VST

In the Waves Folder you will find 2 VST Automation related Reg files. These can switch on or off the VST automation feature. It is on by default but if you do not use plug-ins automation clicking Don't use VST automation can save some unnecessary calls between host and plug-in and improve real time performance.

- When launching some VST hosts for the first time you will get a WaveShell dialog requesting that you select a Waves plug-in. You must select a plug-in and the host will continue to launch normally. This will cease to happen the next time you launch that VST host.
- VST Automation is not 100% reliable with switches. It does not remember the parameter state, just when it was switched. For example writing automation for an On/Off switch that started "Off" and finished "On" will work in reverse next time unless you manually set it Off again. The timing is also not quite accurate.
- In Logic Audio L1+ shows under Mono to Stereo, but there is no such process.
- Logic Audio 5.0 appears to be sensitive to plug-ins with too many parameters and some of our plug-ins have too many parameters.

Sample Rate Support
Waves Version 3.5 Sample Rate support chart
Waves Digital Audio Processors All Support 44.1 and 48kHz Sample Rates.
Many support also higher rates as 96kHz or 192kHz now being used more and
more. In some hosts plug-ins may be listed even if the session sample rate is
higher then what they can handle. Use this chart to know what to expect.

Processor	Up to 96K in Native	Up to 192 in Native
WAVES GOLD BUNDLE		
AudioTrack	+	+
MaxxBass	+	+
C4	+	+
IDR	+	+
L1	+	+
C1(Includes C1gate & C1comp)	+	+
S1	+	+
Q10	+	+
TrueVerb	+	-
PAZ	+	+
DeEsser	+	+
Renaissance Compressor	+	-
Renaissance Equalizer	+	+
Renaissance Reverberator	+	-
MetaFlanger	+	+
MondoMod	+	+
SuperTap	-	-
Enigma	+	+
Doppler	-	-
UltraPitch	-	-
RENAISSANCE COLLECTION 2		
Renaissance VOX	+	+
Renaissance Bass	+	+
Renaissance DeEsser	+	+
WAVES MASTERS		
L2 Ultramaximizer	+	+
Linear Phase Equalizer	+	-
Linear Phase Multiband	+	-
WAVES RESTORATION BUNDLE – NATIVE ONLY		
X-Noise	+	-
X-Click	+	-
X-Crackle	+	-
X-Hum	+	-

Native Performance acceleration Chart

All Waves Digital audio processors were optimized to take advantage of technologies integrated in contemporary CPU types with SIMD, SSE, SSE2. Enigma is the only plug-in that was not improved in performance and the Masters bundle processors were accelerated from version 1. All the others show a significant boost in performance as the following chart reveals.

All measurements show CPU load in % per single instance on 44.1kHz stereo audio.

CPU Type -	Intel P4 1.7gHz		Intel P3 700mHz		AMD AthlonXP1700	
PlugIn \ Version	3.2	3.5	3.2	3.5	3.2	3.5
AT	1.87	1.55	3.07	2.07	1.89	1.52
C1 Comp/SC	5.81	3.4	6.55	4.16	5.8	2.58
C4	11.3	5.49	15.89	6.95	11.53	5.47
DeEsser	3.38	1.35	3.45	1.75	3.32	1.36
Doppler	7.91	2.71	8.83	4.6	7.78	2.7
IDR	0.72	0.57	1.51	1.33	0.71	0.57
MB	2.89	1.96	3.47	2.49	2.9	1.95
L1+	2.15	2.44	3.6	2.83	2.14	2.35
MF	5.71	0.65	4.25	1.38	4.87	0.65
MM	4.39	0.52	3.32	0.91	4.28	0.54
Q10	2.42	2.17	3.48	3.28	2.27	2.16
RCL	4.12	2.88	6.51	3.24	3.75	2.74
RBass	5.5	3.66	6.45	4.78	5.51	3.64
RdeEsser	4	3.53	6.1	3.79	4.22	3.49
Rvox	2.39	1.94	4.08	3.04	2.34	1.97
REQ6	2.95	0.71	2.58	1.74	2.6	0.72
Rverb	21.65	6.79	32.17	12.92	21.85	7.04
S1 SHFL	0.33	0.25	0.96	0.64	0.55	0.24
ST 6	8.5	4.75	11.37	7.72	9.2	5.19
TV	7.87	3.28	5.83	4.61	7.85	2.79
UP6	3.76	3.41	6.63	6.82	3.36	1.84
Xclick	4.52	2.35	9.85	4.25	4.55	2.2
Xcrackle	4.53	4.51	6.85	6.04	4.51	3.5
Xhum	3.92	2.22	3.91	2.93	3.77	2.03
Xnoise	5.29	4.11	7.42	6.05	4.97	3.71