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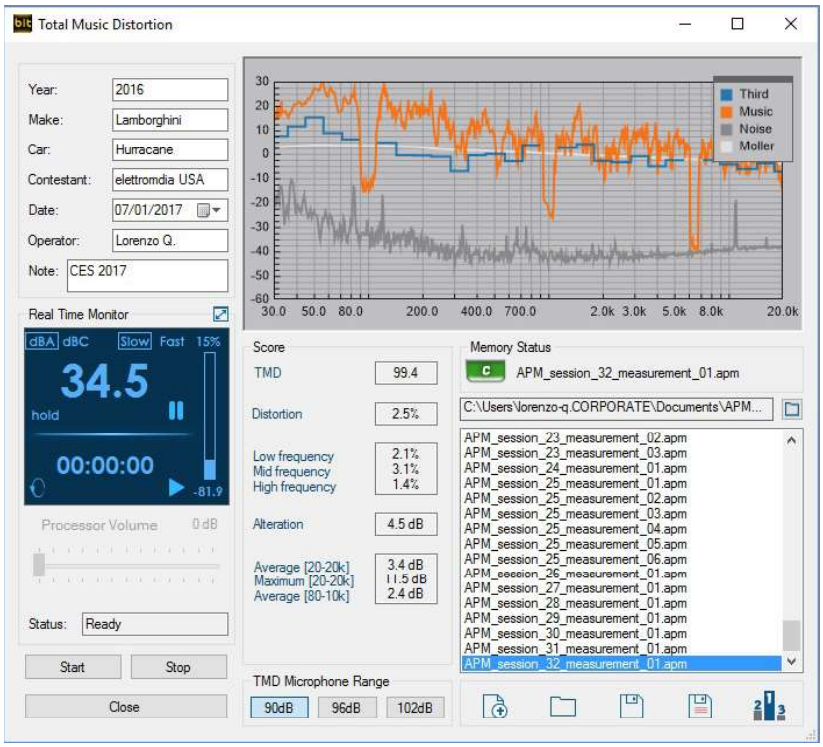
acoustic
performance
measurement

TMD (Total Music Distortion) is a tool that can measure the linear and non-linear distortions of the system's frequency response using a real musical track unlike conventional methods of measurement.

This analysis can be performed at different sound pressure levels, which is very significant for the system's performance identification when we push the system close to or over its distortion point, providing different TMD scores for different SPL categories.

This measurement in **official and online contests** is tested in specific system listening sound pressure categories that the contestant is free to choose.

The Specialized Centre will also offer the customer the possibility to post real time measurements online via the **internet portal dedicated to the Competition circuit.**



TDM (Total Music Distortion)

Technology, Art & Sound
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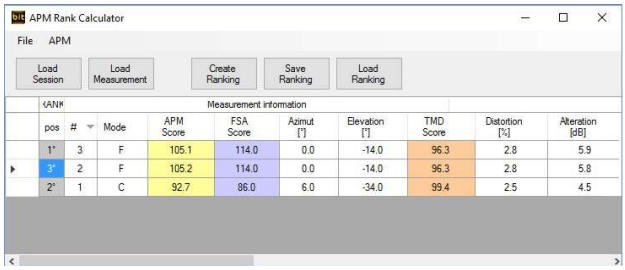
Master Sound Quality Race Project

We are not looking to replace human presence with our technology; we rather see in the **APM** technology an opportunity to add further value to the judge's critical listening. The goal is to create an online worldwide network to let all the participants ***compete, compare and share the APM results***, with the **Specialized Centre back to occupying a key role.**

APM Rank Calculator



APM main software window

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bit Tune

dsp auto-tuning & audio analyzer toolkit

bit Drive

Power Supply

Voltage	11 ÷ 15 VDC
Idling current	0.8 A
Internal fuse (Cylindrical fuse)	2 A delayed

Input Stage

	Sensitivity	Bandwith
RCA	max ± 100 V pp	20 kHz
BNC	max ± 100 V pp	20 kHz
Hi-Level	max ± 1000 V pp	20 kHz

HSM microphone	1
LPM microphone	1

Optical Input	S/PDIF Max 192 kHz / 24 bit

Output Stage

2 x Analog Pre Out	4 V RMS
2 x Analog Hi-Level Out	5.5 V RMS
1 x Digital Optical Out	S/PDIF Max 192 kHz / 24 bit

Using With Pc

PC connections	USB 1.0 / 2.0
Software / PC requirements	Windows XP, Vista, 7 (32 bit or 64 bit)
Graphic card min. resolution	1024 x 600 pixel
Temperature range Operating:	0°C to 55°C (32°F to 131°F)

Size

Case:	
W x H x D (mm / in.)	490 x 390 x 160 / 19.21 x 14.92 x 6.29
Weight (kg / lb.)	4,1 / 9.03
bit Tune unit:	
W x H x D (mm / in.)	232 x 165 x 51 / 9.13 x 6.49 x 2
Weight (kg / lb.)	1,24 / 2.73

Audison bit Tune is a suite of electronic and acoustic test instruments used for the automatic calibration of Audison bit processors. This “single-chassis” solution offers a complete tuning process, improving the ease of installation and sound quality of car audio systems.
The heart of this device is the CMU Central Measurement Unit, packaged with two microphone systems, various connections as well as PC based software used to manage and analyse the audio system.

AUTO PROCESSOR SETUP: the automatic calibration function includes: Auto EQ, Auto Time Alignment, and Level Check. Automatic setting of: time alignment, equalization curve and output levels of an Audison bit processor connected to the bit Tune. The Processor Auto Setup tool is used with an on-screen wizard, and can be used independently to carry out specific measurements.

SOURCE CHECK: takes electrical measurements of the Pre Out or Hi-Level outputs of the connected source, displaying signal level. Using the spectrum analyser function (Spectrum), the user can graphically assess if the source signal is equalized or not.

RTA - REAL TIME ANALYZER: measures the acoustic response of the audio system, considering the characteristics of the vehicle acoustics. Measurements are taken using the HSM microphone.

POLARITY CHECK: with this tool you can check the electrical phase of the speakers installed in the audio system.

OSCILLOSCOPE: includes the following tools: Voltmeter, Power Meter, Distortion and Spectrum. Thanks to these tools, it is possible to perform electrical measurements of the signal level and distortion of an inputted audio signal as well as the power of amplifiers. The result of the measurements is available in graphic and numeric formats.

GENERATOR: creates sinusoidal signals adjustable in frequency (20Hz-20KHz) and amplitude. A bandwidth limited, adjustable time sweep can also be generated. It also features a generator of Pink and White Noise used to measure acoustic response.

PLAYER: a software tool used for the playback of music formats *.wav, *.Wma, *.mp3, *.flv, *.flac. Capable of handling up to 24bit/192kHz resolution files.

BATTERY SCOPE: implements an oscilloscope in DC, specifically calibrated to measure the vehicles' battery voltage found during vehicle start-up or audio system demands. This tool can detect immediate voltage drops which a common volt meter can't detect.

OPTICAL CABLE TEST: checks if signal is present on sources with S/PDIF optical output and provides the ability to analyse the digital bit rate and sampling frequency of the signal; audio can be heard through the built-in speaker of the bit Tune.

CREATE REPORT: automatically creates a report (in PDF format) with information concerning: the technician, the client, the vehicle, obtained measurements and the adjustments made through the Processor Auto Setup.

LOAD SIMULATOR: allows the user to check if the OEM source unit or amplifier requires a load (speaker connected) on the speaker leads to output audio. The check is performed by the bit Tune by applying a resistive or inductive load. Once the check has been performed, a similar load has to be connected to the OEM source outputs, to then connect an amplifier or a processor to the source.

HI-LEVEL ART TEST: checks if the Hi-Level outputs of the OEM source are compatible and capable of working with ART (Automatic Remote Turn On) equipped processors and/or amplifiers.

LINE NOISE ANALYZER: checks if there is audio signal and possible noise disturbances along the analogue or optical digital audio line. The check is confirmed by listening to the signal on the built-in speaker of the bit Tune.

ELECTROMAGNETIC SNIFFER TEST: with the EMS probe placed on or near electrical parts or wiring of the vehicle, you can acoustically identify the source of electromagnetic (radiated noise) disturbance using the built-in speaker of the bit Tune.

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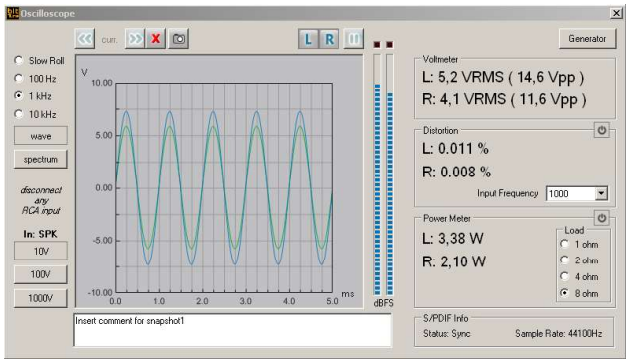

bit Tune: Software licenses

STANDARD. Default software version found in every bit Tune; making it possible to automatically calibrate any product featuring the Audison bit Drive technology (the Audison bit processors as well as future products).

PRO. This version has all the functionality of the Standard version, with the added benefit of fully enabling all of the analysis and measurement instruments (oscilloscope, RTA, etc.) that the bit Tune is capable of, only when connected to a product featuring the Audison bit Drive technology (the Audison bit processors as well as future products). To activate the PRO version, simply register the product by logging onto the Audison bit Drive portal.

FULL. This version has been designed for professional installation technicians performing extensive in-car and test bench measurements and experimentations. In fact, it offers all the functions found in the PRO version, enabling the analysis and measurement instruments (oscilloscope, RTA, etc.) even without being connected to a device featuring the Audison bit Drive technology.

bit Tune Instruments	with PC	bit Tune status					
		T	S	SP	P	PP	F
PROCESSOR AUTO SETUP	✓	✓	🔒	✓	🔒	✓	✓
SOURCE CHECK	✓	✓	🔒	🔒	🔒	✓	✓
RTA	✓	✓	🔒	🔒	🔒	✓	✓
POLARITY CHECK	✓	✓	🔒	✓	🔒	✓	✓
OSCILLOSCOPE	✓	✓	🔒	🔒	🔒	✓	✓
POWER METER	✓	✓	🔒	🔒	🔒	✓	✓
DISTORTION METER	✓	✓	🔒	🔒	🔒	✓	✓
GENERATOR	✓	✓	🔒	✓	🔒	✓	✓
PLAYER	✓	✓	🔒	✓	🔒	✓	✓
BATTERY SCOPE	✓	✓	🔒	🔒	🔒	✓	✓
OPTICAL CABLE TEST	✓	✓	🔒	🔒	🔒	✓	✓
CREATE REPORT	✓	✓	✓	✓	✓	✓	✓
LOAD SIMULATOR SPEAKER IN	-	✓	✓	✓	✓	✓	✓
HI-LEVEL ART TEST	-	✓	✓	✓	✓	✓	✓
SOURCE LINE ANALYZER	-	✓	✓	✓	✓	✓	✓
ELETTROMAGNETIC SNIFFER TEST	-	✓	✓	✓	✓	✓	✓

Legend

TRIAL 90 days	T
STANDARD	S
STANDARD + PROCESSOR	SP
PRO	P
PRO + PROCESSOR	PP
FULL	F

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