ULTRA-CURVE PRO DEQ2496

ULTRACURVE Ultra High-Precision Digital 24-Bit/96 kHz EQ/RTA Mastering Processor

- Ultra-high resolution processor for all EQ, RTA and dynamic applications, especially for PA and audiophile mastering

- 4 concurrently selectable EQ modules (31-band graphic EQ, 10-band parametric EQ, Feedback Destroyer plus 3 Dynamic EQs per stereo channel)

- Flexible compressor/expander function with peak limiter per stereo channel as well as additional stereo imager and stereo delay for delay line applications

- Unique VPQ (Virtual Paragraphic EQ) option allows parametric control of graphic EQs

- Ultra-high resolution 61-band real-time FFT analyzer with additional auto EQ function for room and loudspeaker equalization

- Multi-functional level meters (peak/RMS, VU and SPL meter with dBA/dBC weighting via RTA/Mic input)

- 64 user memories for complete setups and/or individual module configurations

- Separate RTA mic/line input with phantom power, professional Wordclock input and MIDI connections for full remote control, preset dumps and system updates

The DEQ2496 is a high-precision digital 24-bit/96 kHz EQ/RTA mastering processor, ideal for sophisticated live sound trouble-shooting or audiophile mastering. Whether you're putting the finishing touches on recorded material or creating an optimal live sound for a multi-way PA, the DEQ2496 is built to provide meticulous control.

Equalization? Dynamics? Feedback correction? Yes, yes, yes. You can have it all with the DEQ2496. Automatic FFT analysis with Auto EQ? We added that too.

The DEQ2496 is a whole rack of flexible equalization, dynamics and time correction functions designed to fix problems and generally optimize sound quality.

- Dual 31-band Graphic Equalizers (stereo linkable)

- Dual 31-band Virtual Paragraphic Equalizers (stereo linkable)

- Dual 10-band Parametric EQ's per stereo side

- Dynamically-activated EQ

- Feedback Destroyer with Learning Mode

- Stereo Imager

- Compressor/Expander

- Limiter

- Digital Delay

- RTA/SPL/FFT Analyzer with Auto EQ function

Dual 31-band Graphic Equalizers, 31-band Virtual Paragraphic Equalizers and 10-band Parametric.
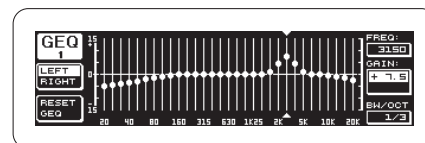
Naturally the DEQ2496 has phase-neutral digital graphic EQ…but in addition we've added a function that allows you to change the bandwidth of each frequency from standard 1/3 to as much as 59/3.

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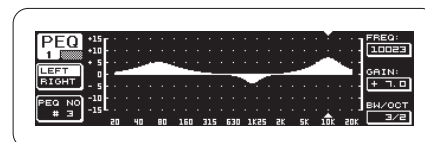
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- Ultra-high resolution 24-bit/96 kHz A/D- and D/A converters (113 dB dynamic range)

- Open architecture allowing future software updates via MIDI

- 2 high-performance 32/40-bit floating-point DSPs for ultimate sonic resolution

- Balanced inputs and servo-balanced outputs with gold-plated XLR connectors, stereo aux output, AES/EBU and S/PDIF inputs and outputs (XLR and optical)

- Internal switch-mode power supply for maximum flexibility (100 - 240 V~), noise-free audio, superior transient response and lowest possible power consumption

- High-quality components and exceptionally rugged construction ensure long life

- Conceived and designed by BEHRINGER Germany

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Or, if you prefer the old-school approach to variable bandwidth, we've included 10-band parametrics that can be fine-tuned in increments down to 1/60 of an octave.
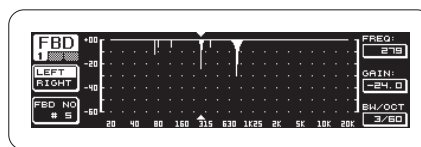
Dynamically-activated EQ

Dynamic EQ automatically raises or lowers a defined frequency range based on volume level. It's literally a combination of an equalizer (with frequency center and bandwidth controls) and a dynamics processor (with ATTACK, RELEASE, THRESHOLD and RATIO parameters).
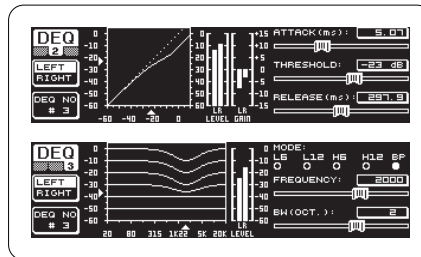
DEQ opens up a world of both creative mastering and PA problem solving possibilities. We've given you total control with multiple filter types including bandpass mode. And of course you can store DEQ settings for recall at any time manually or via MIDI.

Feedback Destroyer with Learning Mode

With the digital capabilities we've just listed, it's easy to see why we were able to include a highly-effective Feedback Destroyer (FBD) feature — it's essentially a dynamically-activated parametric EQ that "watches" the whole frequency spectrum in 1/60-octave bands and then instantly identifies and notches out feedback.

FBD can be run in AUTO mode to compensate for movements of performers on stage, or in SNGLE mode that locks onto individual frequencies and then varies the amount of attenuation and bandwidth depending on feedback stimulus — more suited to fixed microphone installations.

We also included a LEARN mode that generates short audio pulses, raises their gain until feedback occurs and then locks into potential trouble-causing band centers.
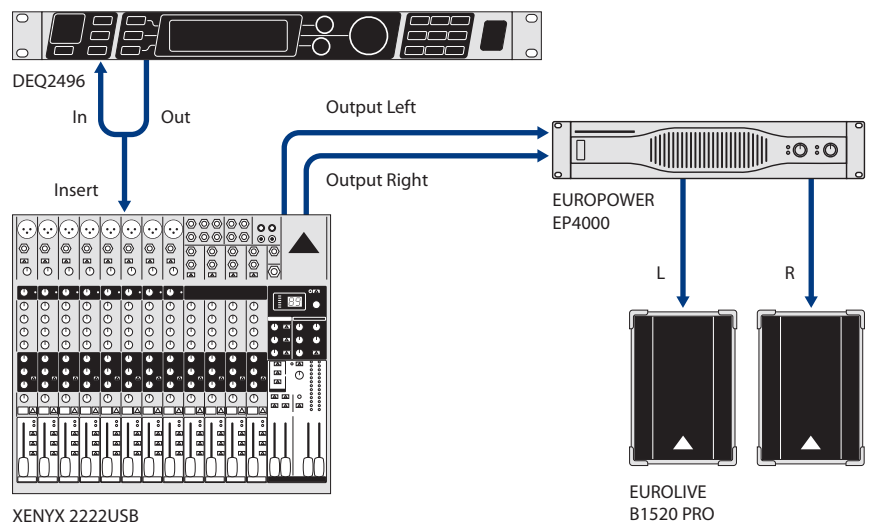
Stereo Imager (WIDTH).
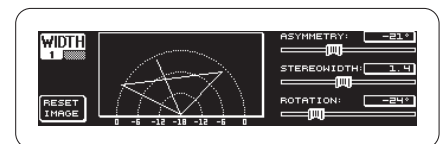
While usually considered a mastering technique, the ability to widen the stereo image can be useful in live sound work, too. When you hear it in action, we think you and your audience will be impressed.

Continued on next page

DEQ2496

In Out

Output Left

Output Right

Insert

EUROPOWER EP4000

L R

XENYX 2222USB

EUROLIVE B1520 PRO

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The DEQ2496 WIDTH processor provides control over STEREOWIDTH (how clearly the two sides of the stereo image are separated from each other), ASYMMETRY (relative volume of left/right stereo signal), ROTATION (panning of stereo + mono in the stereo image), and a multipart SHUFFLE function than can generate an additional low-frequency Stereowidth effect.

Compressor/Expander and Limiter

The DEQ2496 has a comprehensive set of dynamics processing tools that can be used as two independent channels or stereo linked.
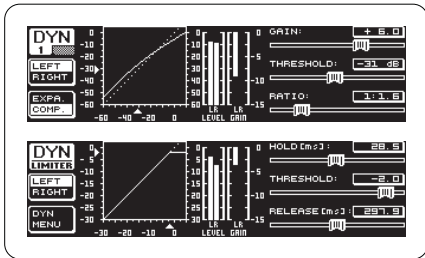
Everything you'd find on a dedicated compressor/expander is here including variable rations from 1:1.1 to 1:100, ATTACK times from 0 to 200ms, 0-3dB variable knee and 20 to 4000ms RELEASE, all adjustable from a coarse/fine adjustment scale. The built-in separate LIMITER has Threshold, Hold and Release functions.
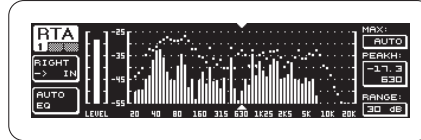
Digital Delay

You can delay either the DEQ2496's Main or AUX outputs anywhere from 0 to 300ms and can process left and right channels independently.
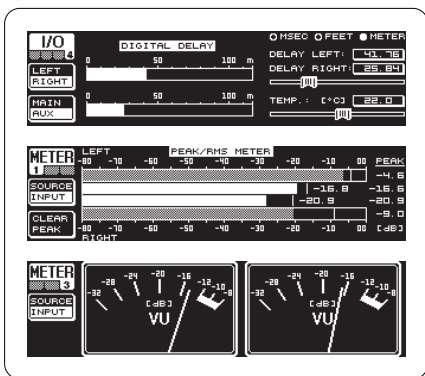
Not only can you specify time delay in feet or meters but simultaneously compensate for ambient temperature which affects sound speed!

## RTA/SPL/FFT Analyzer with Auto EQ function

The DEQ2496 features an FFT real time analyzer for precise graphic display of 61 frequency bands. You can monitor main or digital inputs and outputs, AUX/digital out or a feed from an RTA microphone and display the results in a multitude of ways including funky retro VU meters.

You get all of the usual peak/hold, display rate and scale features you would expect from a professional measurement tool, plus our user-definable AEQ (Auto EQ function), which allows you to analyze and adjust your system's frequency response automatically (perfect for "roughing out" initial room adjustments).

In Graphic EQ mode, you can choose between UNCORRECTED response, which shows the mutual influence of adjacent bands, or select TRUE response to apply a specially developed algorithm that displays the actual results of the equalizer setting.
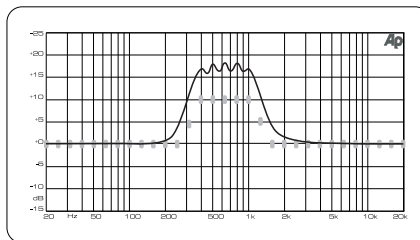
Graphic equalizer without frequency response correction (UNCORRECTED)
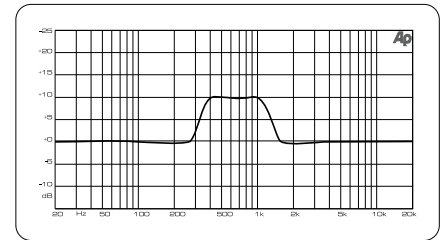
Graphic equalizer with frequency response correction (TRUE RESPONSE)

Easy to set up and use.

The DEQ2496 has balanced inputs and servo balanced outputs with gold-plated XLR connectors, stereo aux output, AES/EBU and S/PDIF inputs and XLR and optical output. Configuration is intuitive, with on-screen block diagram displays and you get a separate RTA mic/line input with phantom power, a professional wordclock input and MIDI connections for full remote control, as well as preset dumps and system updates.
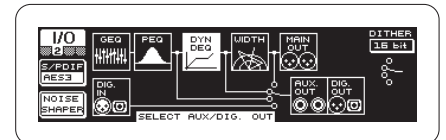
You can maintain up to 64 comprehensive user presets at a time and of course dump and load as needed. You can also save and recall individual modules such as DEQ, PEQ, WIDTH or DYN. These subsets of complete presets let you maintain most of a preset's settings but vary a few (such as graphic EQ) without having to generate a whole new preset.

Built tough for the road, precise for the studio.

The DEQ2496 features high-quality 24-bit/96 kHz A/D and D/A converters and two high-performance 32/40-bit floating-point digital signal processors for incredible sonic resolution and 113 dB dynamic range.

The internal switch-mode power supply assures maximum flexibility (100-240V~), noise-free audio, superior transient response, lowest possible power consumption and freedom from power surge damage.

Continued on next page

ULTRA-CURVE PRO DEQ2496

Compare features. Compare prices. Own ULTRACURVE.

Quite frankly, we believe that the DEQ2496 is the best multi-function processor value in the pro audio industry. Why pay much more for a status name?

METER and CLIP LEDs

RTA (Real Time Analyzer) selector

PAGE browses pages within a menu

High-resolution display

DATA WHEELS are used to select and edit parameters in a selected menu

POWER switch

METER menu key

MEMORY where you can save or recall complete presets or individual modules from one preset

COMPARE either complete presets or individual modules

A and B functions depend on the selected menu, and are indicated in the display

MENU keys select individual menus within modules

The FUSE HOLDER holds the mains fuse of the DEQ2496. Blown fuses must be replaced by fuses of the same type and rating

Synchronize to external equipment via BNC coaxial WORDCLOCK input

XLR AES/EBU or S/PDIF I/O

RTA/MIC IN for realtime analyzer or SPL meter has +15V phantom power supply for condenser mics

Balanced XLR input connectors

Connect the enclosed power cord to the mains connection

MIDI IN / OUT / THRU

AES/EBU and S/PDIF optical I/O

Stereo AUX OUT taps the audio signal present at the digital outputs in analog form

Raises MAX level present at the MAIN inputs/ outputs from +12 dBu to +22 dBu

Balanced XLR output connectors

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Monitor

AUX Outputs 1 to 8

XENYX 2222USB

Sidefill L

Sidefill R

Sidefill Drums

Keyboard Fill

Wedge 1

Wedge 2

Wedge 3

Wedge 4

DEQ2496

Main

DEQ2496

Stereo output
Left/Right

Main output
Left/Right

EUROPOWER
EP4000

XENYX 2222USB

Aux Output
L/R
(Delay Line)

Main PA
Speaker

EUROLIVE B215A
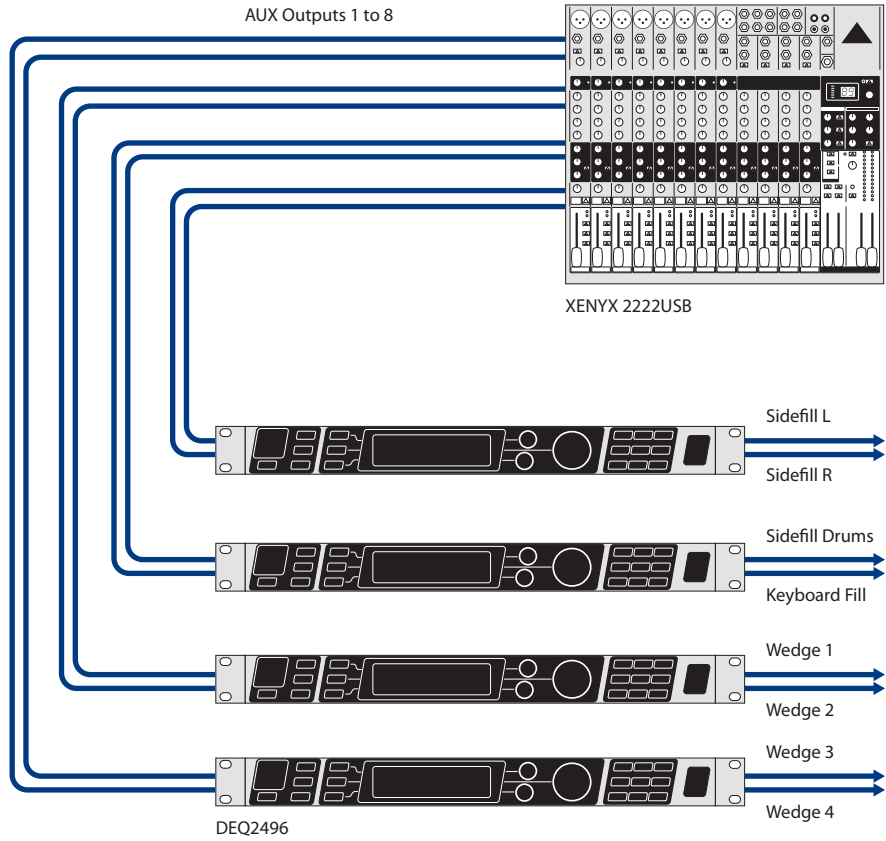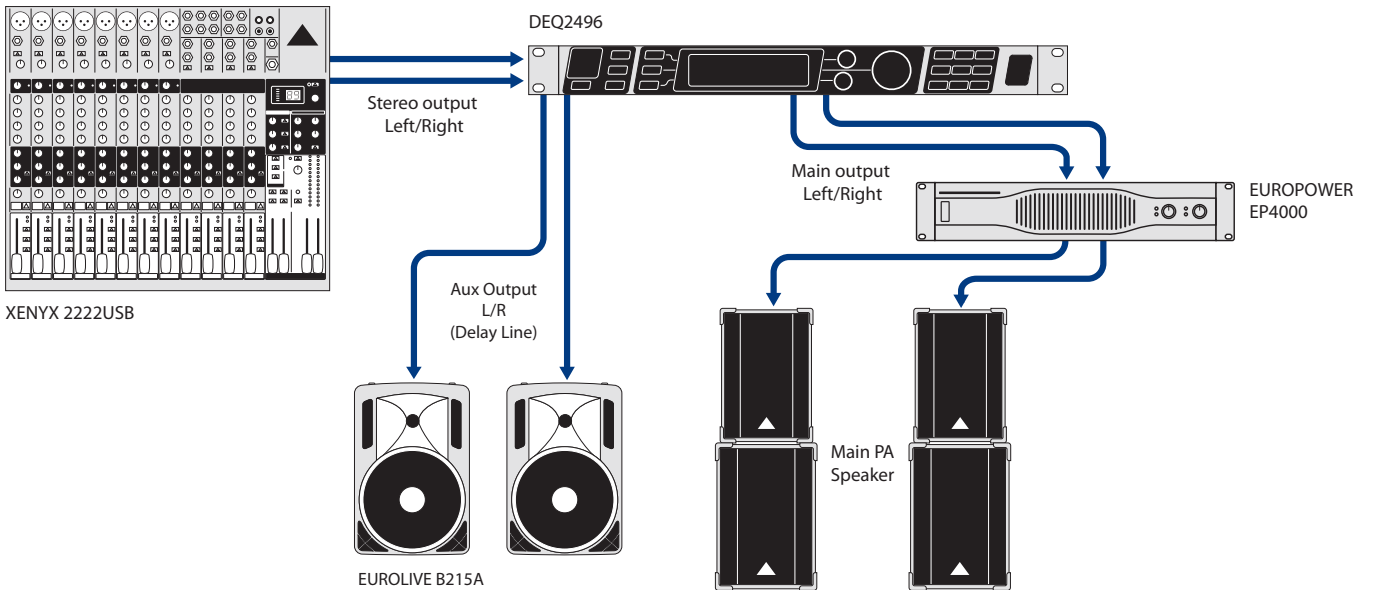
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Analog inputs

Type	electronically balanced
Connector	XLR
Impedance	22 kΩ
Max. input level	+12 or +22 dBu, switchable
CMRR	40 dB typ.

Analog outputs (main)

Type	servo-balanced
Connector	XLR
Impedance	100 Ω at 1 kHz
Max. output level	+12 or +22 dBu, switchable

Analog outputs (aux)

Type	servo-balanced
Conector	¼" stereo jack
Impedance	100 Ω at 1 kHz
Max output level	+12 dBu

SYSTEM SPECIFICATIONS

Frequency range	10 Hz to 35 kHz (-1 dB) @ 96 kHz sampling rate
Signal-to-noise ratio	> 113 dB main input/output > 107 dB aux output
THD	0.007 % TYP. @ +4 dBu, 1kHz, unity gain
Crosstalk	< -92 dB/-95 dB

Bypass

Type	Relay, hard-bypass in case of power failure

Measurement microphone input

Type	electronically balanced
Input impedance	2kΩ
Max. input level (LINE)	variable from -14 dBu to +22 dBu
Max. input level (MIC)	variable from -42 dBV/Pa to -6 dBV/Pa
Phantom power	+15 V, switchable

Digital input 1

Type	XLR transformer-balanced
Standard	AES/EBU or S/PDIF
Input impedance	110 Ω
Nom. Input level	0.2 – 5 V peak-to-peak

Digital input 2

Type	TOSLINK optical
Standard	AES/EBU or S/PDIF

Digital output 1

Type	XLR transformer-balanced
Standard	AES/EBU or S/PDIF
Impedance	110 Ω
Output	3.5 V peak-to-peak

Digital output 2

Type	TOSLINK optical
Standard	AES/EBU or S/PDIF

Sync input

Type	BNC
Standard	Wordclock (1 x sample rate)
Input impedance	50 k Ω
Nom. Level	2–6 V peak-to-peak

MIDI interface

Type	5-pole Din jacks In/Out/Thru
Implementation	cf. MIDI implementation chart

Digital processing

Converter	24-bit Delta-Sigma, 64/128-oversampling (AKM®)
Sample rate	44.1, 48, 88.2, 96 kHz

Graphic equalizer (GEQ)

Type	digital 1/3-oct. EQ
Frequency Range	20 Hz to 20 kHz, 31 1/3-oct. bands according to ISO frequencies
Bandwidth	1/3-oct.
Control range	+15 to -15 dB

Parametric equalizer (PEQ)

Type	max. 10 independent, fully parametric filters per channel
Frequency range	20 Hz to 20 kHz
Bandwidth	1/10 to 10 oct., shelving filters (6 and 12 dB)
Control range	+15 to -15 dB

Dynamic equalizer (DEQ)

Type	max. 3 independent, fully parametric filters per channel
Frequency range	20 Hz to 20 kHz
Bandwidth	1/10 to 10 oct., shelving filters (6 and 12 dB)
Control range	+15 to -15 dB
Threshold	variable from 0 to -60 dB
Attack	0 to 200 msec
Release	20 to 4,000 msec
Ratio	1:2 to 1:100

Feedback Destroyer (FBD)

Type	digital signal analysis for feedback identification
Filter	max. 10 digital notch filters per channel, programmable or as automatic feedback suppression system
Frequency range	20 Hz to 20 kHz
Bandwidth	1/10 to 1/60 oct.
Control range	0 to -60 dB

Digital delay

Type	digital stereo delay
Max. delay time	300 ms, independently adjustable for each channel
Min. resolution	0.02 ms
Delay units	seconds, meters or feet

Level meters

Type	digital level meter with simultaneous graphic display of Peak and RMS values and virtual analog VU meter

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SPL meter

Weighting	dB (A), dB (C) or OFF
Microphone calibration	-42 dBV/Pa to -6 dBV/Pa

Dynamics

Type	Expander or compressor with digital IGC (Interactive Gain Control)
Threshold	variable from 0 to -60 dB
Attack	0 to 200 msec
Ratio	1:1.1 to 1:100 msec

Limiter

Type	Peak limiter (zero attack)
Hold	0 to 1,000 msec
Threshold	variable from 0 to -24 dB
Release	20 to 4,000 msec

Real-time analyzer

Type	digital 61-band FFT analyzer
Frequency range	20 Hz to 20kHz, 61 bands According to ISO frequencies
Detectors	peak and average
Noise generator	pink noise, levels from 0 to -60 dB

Display

Type	320 x 80 dot-matrix LC display
Backlighting	LED, orange
Contrast	adjustable

Memory

Presets	64 memory locations with 16-character names, single modules can be recalled and saved

Power supply

Mains voltage	85 to 250 V~, 50/60 Hz
Power consumption	10 W typ.
Fuse	T 1 A H
Mains Connector	Standard IEC receptacle

Dimensions/Weight

Dimensions (H x W x D)	1 ¾ x 19 x 8 ½"/44.5 x 482.6 x 217 mm
Weight	approx. 2.05 kg
Shipping weight	approx. 3.5 kg

Please note these specifications are preliminary and conceptual in nature, and as such are subject to change as product development progresses. This information is supplied for market research purposes only and is not to be made public in any manner. This document is solely the property of The MUSIC Group, or one of its subsidiaries, and must be surrendered upon request of the owner.

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