



RED ROAD IMMERSIVE

A Look at Dolby Atmos in Music Production

Angus Davidson

ANGUS DAVIDSON – BRIEF BIO



STUDIO

SING SING - 1981 – AUSTRALIA'S FIRST LEDE CONTROL ROOM

WORKED AT AAV, PLATINUM, ALLEN EATON, ETC. CROWDED HOUSE, TIM FINN, SPLIT ENZ, VINCE JONES, MAX Q, ROSS WILSON, MASTERS APPRENTICES, KISS, NEIL FINN, MEN AT WORK.

LOS ANGELES 1987-88 - GROUND CONTROL STUDIOS - BILL WATROUS, JONI MITCHELL, JULIO IGLESIAS, AL STEWART, ROBERT REDFORD, KENNY LOGGINS, TONI CHILDS, TORI AMOS, MICHAEL JACKSON, BRIAN SETZER.

PUBLISHING

DOO DAH MUSIC - ROSS WILSON, PAUL KELLY, TINA ARENA, SHERINE ABERATNE-BIG PIG, JOHN FARNHAM, DEBBIE BYRNE, JOE CREIGHTON

LIVE

CROWDED HOUSE, SUPERTRAMP, SEAL, DES'REE, KIMBRA, PAUL KELLY, MSO, WASO, RODRIGUEZ, WOMADELAIDE, - L'ACOUSTICS-V'DOSC – FIRST INTERNATIONAL TOUR

OTHER HIGHLIGHTS

STUDIO & VENUE DESIGN, FISHING GUIDE TASSIE, RESTAURATEUR,
LECTURING – AUDIO FOR FILM, VIDEO & GAMING, AVID, KV2 AUDIO

STUDIO DESIGN



- ✓ What size room?
 - ✓ Near Field – Music/Video
 - ✓ Mid Field – Video/Music
 - ✓ Far Field – Film/Video
- ✓ Treatment
 - ✓ Absorption/Reflection
- ✓ Mixing Console or Mix In the box?
 - ✓ I like faders and knobs!

EQUIPMENT



- SPEAKERS
 - KV2 AUDIO EX SERIES
 - ALL ANALOG
 - VERY LOW DISTORTION
 - VERY HIGH INTELLIGIBILITY AND DETAIL
 - FAST TRANSIENT RESPONSE AND WIDE DYNAMIC RANGE
 - BETTER THAN MANY PRO STUDIO MONITORS THAT ARE MUCH MORE EXPENSIVE!
 - REQUIRED SPL FOR DOLBY ATMOS IS 85dB_C WITH 20DB HEADROOM (105dB_C)
 - MANY STUDIO MONITORS STRUGGLE WITH THAT SPL IN A LARGER ROOM
 - LFE/SUB (WHAT'S THE DIFFERENCE?)
 - SUB EXTENDS THE RANGE OF THE MAIN SPEAKERS TO 40Hz
 - LFE (LOW FREQUENCY EFFECT) SPEAKER ADDS SUB FREQUENCY TO SOUNDS TO AS AN EFFECT, RATHER THAN AS PART OF A FULL RANGE SIGNAL.
 - USE OF THE LFE CHANNEL CAN BE CONSIDERED FOR SUPPORTIVE ELEMENTS OF THE MIX BUT NOT AS A DESTINATION FOR ALL LOW-FREQUENCY CONTENT.
 - DO NOT RELY ON THE LFE CHANNEL AS YOUR EXCLUSIVE BASS CHANNEL.

EQUIPMENT



- DAW
 - PRO TOOLS, AVID MTRX, HD I/O, (NUENDO, LOGIC, ABLETON)
- COMPUTERS
 - APPLE FOR DOLBY ATMOS PRODUCTION SUITE (DAPS)
 - APPLE/PC FOR DOLBY ATMOS MASTERING SUITE (DAMS) ALLOWS A USER TO RUN A RENDERING AND MASTERING WORKSTATION ON APPROVED HARDWARE AVAILABLE FOR PURCHASE FROM QUALIFIED RESELLERS, FOR THE ULTIMATE IN DOLBY ATMOS MASTERING WORKFLOW
 - INCLUDES SUPPORT FOR SPEAKER ARRAYS AND ONBOARD EQ, DELAY, GAIN ADJUSTMENTS
- NETWORK
 - CISCO MANAGED SWITCHES
 - DANTE/MADI

DOLBY ATMOS DELIVERY SPECIFICATION



	DOLBY ATMOS MASTERING SUITE (DAMS)	DOLBY ATMOS PRODUCTION SUITE (DAPS)
Use	Multi-system workflows for complex content productions (cinema, Blu-Ray and streaming)	Single system workflows for Music, OTT productions and others (editorial, sound design...)
Workflow support	Supports multi-system workflows where dialogue, FX, and music tracks are on...	Does not support multi-system workflows
Components	<ul style="list-style-type: none"> • Dolby Atmos Renderer (Mastering suite licence) • 3 licenses for Dolby... 	<ul style="list-style-type: none"> • Dolby Atmos Renderer (Production suite license) • Dolby Audio Bridge...

External requirements	Requires external system with MADI or Dante I/O	In-the-box solution, runs on the same system as DAW
Operating system support	Windows and Mac	Mac only
Routing requirements	Uses physical output via MADI or Dante	Uses software-based routing via the Dolby Audio Bridge or Send/Return Plugins
EQ and room calibration support	Yes	No
Speaker Array Mode support	Yes	No

DOLBY ATMOS MUSIC PANNER

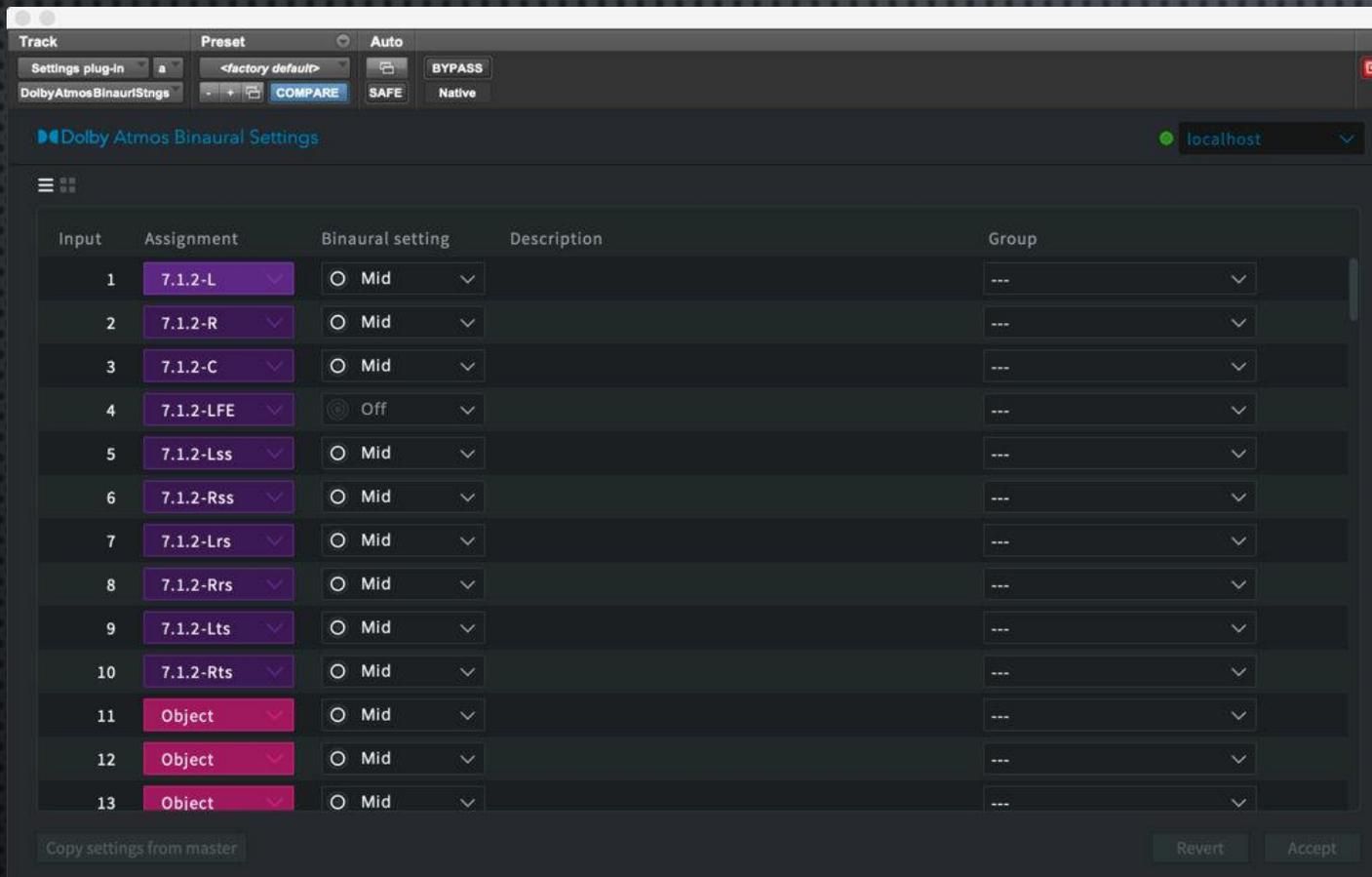


- The Dolby Atmos Music Panner plug-in is for positioning audio objects in a Dolby Atmos Music mix in a supported DAW.
- The Dolby Atmos Music Panner installer includes Avid Audio eXtension (AAX), Apple Audio Units (AUs), and VST3 format versions of the Dolby Atmos Music Panner plug-in.
- This panner plug-in lets you position audio objects in a three-dimensional audio field. Additionally, the panner includes a sequencer for syncing object positioning to the DAW tempo.

DOLBY ATMOS BINAURAL SETTINGS PLUGIN



The Dolby Atmos Binaural Settings plug-in provides remote control of Dolby Atmos Renderer settings (input configuration and Binaural Render mode) from a digital audio workstation (DAW).



When the plug-in is connected to the Renderer, you can use the plug-in to modify input configuration and Binaural Render mode settings in these Dolby Atmos workflows:

- Monitoring a mix
- Writing plug-in settings to a new master
- Copying Binaural Render mode settings from the plug-in to the master
- Copying groups from the plug-in to the master

DOLBY ATMOS RENDERER



Monitoring: Physical 48 Source: INPUT MASTER 01:00:48:16 24 Record in/out: In 00:00:00:00 Out 00:00:00:00 Attenuation: 0.00 dB Dim Mute Beds Objects

Channel Level Meters (128 channels): A grid of 128 circular meters, numbered 1 to 128. Channels 1-10 are highlighted in purple. Channels 11-100 are green, and channels 101-128 are blue.

Loudness Meter: Shows levels for Dolby Atmos, Stereo, and Mono. Values include -24.5 (Short term), -23.7 (Momentary), -23.5 (Integrated), 5.0 (Range), and -8.7 (True peak). Includes a '10.5% speech' indicator.

Channel Labels: L, R, C, LFE, Ls, Rs, Lrs, Rrs, Ltf, Ltr, Rtf, Rtr, Lrs, Rrs.

3D Spatializer: A 3D visualization of the audio field with numbered green spheres representing channels. Labels include L, C, R, LFE, Ltf, Rtf, Ls, Rs, Ltr, Rtr, Lrs, Rrs.

The Input configuration is defined by the master

ARVUS H2-4D



ARVUS®

REACHING BEYOND BOUNDARIES SINCE 1983

Introducing **H2-4D**, the world's first **dedicated** 16 channel **DOLBY ATMOS®** digital audio renderer



Allows us to listen to Dolby Atmos Surround Sound directly from the output of an Apple 4K TV or other Smart receiver outputting HDMI.

ARVUS H2-4D



PRIMARY FUNCTIONS

CONVERT up to 16 Channels of HDMI Audio simultaneously to:

AES/EBU (AES3)

DANTE (AES67 included)

Ravenna

BALANCED ANALOG

HDMI (Audio Only)

DECODE MP3, AAC, FLAC, DSD, ALAC

Dolby EX, Dolby Digital Plus, Dolby True HD

DTS - ES Matrix, ES Discrete, DTS 96/24, HD High Resolution, HD Master Audio

RENDER Dolby Atmos® and DTS-X®

STREAMING

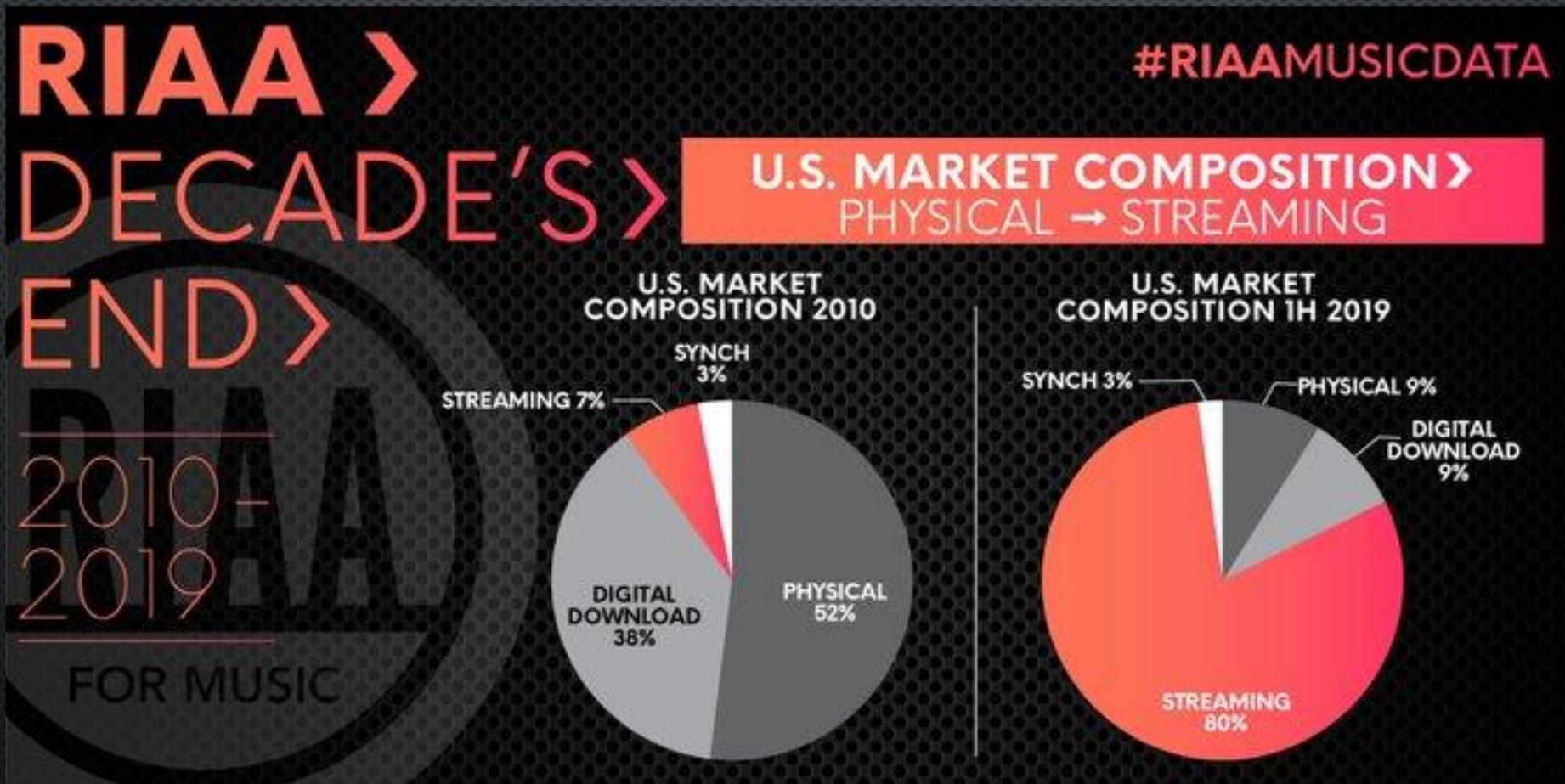


- STREAMING HAS COMPLETELY RESHAPED THE FACE OF THE MUSIC INDUSTRY OVER THE LAST DECADE, WITH THE LIKES OF SPOTIFY AND APPLE MUSIC PROVING TO BE OVERWHELMINGLY POPULAR WITH MUSIC FANS.
- STREAMING SUBSCRIPTIONS ROSE FROM ABOUT 1.5 MILLION TO AROUND 61 MILLION BETWEEN 2010 AND THE FIRST HALF OF 2019, ACCORDING TO THE RIAA.

US STREAMING MARKET



The Recording Industry Association of America has revealed that streaming accounts for 80 percent of the US music market, compared with seven percent in 2010.



DOLBY ATMOS STREAMING PLATFORMS



- APPLE MUSIC (US)
- TIDAL (US)
- AMAZON MUSIC (US)
- ANGHAMI (LEBANESE-ARABIC)
- HUNGAMA MUSIC (INDIA)
- NAVER VIBE (SOUTH KOREA)

DOLBY ATMOS DELIVERY SPECIFICATION



DOLBY ATMOS SESSION REQUIREMENTS

- SHALL BE MIXED IN A DOLBY ATMOS ROOM WITH A MINIMUM SPEAKER CONFIGURATION OF 7.1.4 (L, C, R, LS, RS, LR, RR, LFE PLUS 4 OVERHEADS). THE MIX SHOULD ALSO BE CHECKED WITH A 5.1.X CONFIGURATION.
- SHALL ALSO HAVE BEEN MONITORED OVER HEADPHONES WITH THE HEADPHONE RENDER MODE SET TO 'BINAURAL'
NOTE: HEADPHONE MIXING IS ONLY RECOMMENDED WHERE A ROOM OF THE ABOVE CONFIGURATION IS UTILIZED FOR FINAL CHECKS.
- THIS IS A NEARFIELD MIX. THE MOST COMMON MONITORING LEVELS FOR NEARFIELD ARE 79DB OR 82DB SPL LCS (SLOW, C-WEIGHTED). ALL SPEAKERS SHALL BE SET TO THE SAME REFERENCE LEVEL.
- LOUDNESS SHALL NOT EXCEED -18.0 LKFS, BASED ON ITU RECOMMENDATION BS.1770-4. IT IS NOT A TARGET BUT A **MAXIMUM**. FOR ALBUM ASSEMBLY, BALANCE THE ALBUM TO MATCH THE RELATIVE STEREO VERSION LEVELS E.G., LOUDEST TRACK AT -18.0 LKFS AND THE QUIETEST TRACK TO BE RELATIVE TO THE DIFFERENCE.
- PEAKS SHALL NOT EXCEED -1.0 DBTP (TRUE PEAK).
- FRAME RATE SHALL BE SET TO 24FPS.

DOLBY ATMOS DELIVERY SPECIFICATION



- THE MINIMUM REQUIRED SAMPLE RATE IS 48 KHZ AND A BIT DEPTH OF 24-BITS. ONLY 48 KHz / 24-BIT & 96 KHz / 24-BIT SAMPLE RATES ARE SUPPORTED.
- DOLBY ATMOS MIXES WILL BE ARCHIVED AT NATIVE SAMPLE RATE AND BIT DEPTH (DAMF) BUT ARE CURRENTLY LIMITED TO 48K/24BIT FOR STREAMING DISTRIBUTION (ADM). WHEN MIXING AT 96KHz / 24 BIT PLEASE ENSURE YOU DELIVER YOUR DAMF AT THIS RESOLUTION.
- THE DEFAULT 10-CHANNEL BED CONFIGURATION IN THE DOLBY ATMOS RENDERER SHALL BE RETAINED, EVEN IF CHANNELS ARE UNUSED. THIS IS IMPORTANT FOR THE ENCODING AND INGESTION PROCESS.

DOLBY ATMOS DELIVERY SPECIFICATION



- 5.1 DOWNMIX SETTING SHALL BE SET TO 'DIRECT RENDER' IN THE DOLBY ATMOS RENDERER (THIS IS NOT THE DEFAULT SETTING AND MUST BE OVERWRITTEN. SEE APPENDICES FOR MORE DETAILS). *NOTE: WE ARE AWARE THAT IN SOME DAWs WITH INTEGRATED RENDERERS THIS IS NOT ALWAYS POSSIBLE. WE WOULD ASK IN THIS CASE YOU MAKE US AWARE SO WE CAN MANAGE THIS ON YOUR BEHALF.*
- ALL ACTIVE BEDS AND OBJECTS SHALL BE UNMUTED FOR THE PRINT SESSION.
- BINAURAL METADATA SHALL BE SET FOR ALL BED AND OBJECT ELEMENTS. UTILIZE AS MANY BINAURAL PARAMETERS AS POSSIBLE. UTILIZING ONLY ONE CAN DELAY DELIVERY. UTILIZING 'OFF', IN ISOLATION, DOES NOT CONSTITUTE A BINAURAL PARAMETER. (SEE SECTION 3.5 FOR FURTHER INFORMATION).
- LFE FILTERING SHALL BE SET TO LOW PASS IN THE RANGE OF 100-150HZ ON YOUR INPUT (IN ADDITION TO YOUR MONITORING PATH). YOU SHOULD FILTER THE LFE ON YOUR DAW SESSION TO AVOID PRINTING FULL-RANGE SIGNAL TO THE LFE CHANNEL (AVOID USING THE LFE SEND IN THE PANNER AND INSTEAD SET UP AN AUXILIARY SEND USING A PLUG-IN TO FILTER).

DOLBY ATMOS DELIVERY SPECIFICATION



GETTING STARTED ON A MIX

- PLEASE ENSURE YOUR ROOM IS TUNED REGULARLY AND THAT YOU ARE REGULARLY MONITORING METERING ON THE RENDERER.
- IF NOT WORKING DIRECTLY WITH THE ARTIST / ORIGINAL PRODUCTION TEAM, PLEASE MAKE SURE YOU ARE MATCHING THE CREATIVE INTENT OF THE ORIGINAL MASTERED STEREO VERSION. WHEN MIXING MUSIC WHERE A MASTERED STEREO REFERENCE EXISTS, MAKE SURE THAT THE ASSETS DELIVERED MATCH AS CLOSELY AS POSSIBLE, MAKING ADJUSTMENTS WHERE NECESSARY. THIS CAN BE EASIER TO ADDRESS PRIOR TO COMMENCEMENT OF DOLBY ATMOS MIXING.
- IT IS HELPFUL TO RETAIN THE STEREO MASTER IN YOUR DAW SESSION TO ALLOW YOU TO REFERENCE THE INTENTION / BALANCE OF THE ORIGINAL WORK AS YOU CRAFT YOUR DOLBY ATMOS MIX.
- YOU WILL NEED TO MATCH THE TIMING OF THE STEREO MASTER YOU ARE REFERENCING. IF YOU ARE LOCKING TO AN RMU VIA AN EXTERNAL SYNC SOURCE, YOU MAY EXPERIENCE LOSS OF FRAMES. THEREFORE, YOU MAY NEED TO PRINT THE DAMF WITH A 1 SECOND PAD AT THE BEGINNING BUT REMOVE IT UPON ADM EXPORT. WE RECOMMEND USING THE DOLBY LTC OPTION WHEN PRINTING AND EXPORTING TRACKS OR ALBUMS.

DOLBY ATMOS DELIVERY SPECIFICATION



MIX APPROACHES

- USE THE FORMAT TO EXPRESS THE MUSIC IN A MEANINGFUL WAY. BE MINDFUL THAT YOUR WORKFLOW CAN CHANGE TO SUIT THE RESPECTIVE GENRE OR TRACK.
- IT IS GENERALLY NOT PREFERRED, IN MOST CASES, TO PLACE A LEAD VOCAL ISOLATED IN THE CENTRE CHANNEL. MULTIPLE REASONS INCLUDE THE TRANSLATABILITY ACROSS CONSUMER DEVICES AND HOW THEY BEHAVE AND DECODE THE CENTRE CHANNEL. AS WELL AS THIS, WE HAVE OBSERVED MANY APPROVERS FEELING A SENSE OF NARROWING OF THEIR VOCAL BECAUSE THEY HAVE BECOME FAMILIAR WITH THE SOUND OF A PHANTOM CENTRE SIGNAL.
- IF UTILIZING THE CENTRE FOR VOCAL IT WOULD BE RECOMMENDED NOT TO LEAVE IT 'DRY'. WHEN VOCAL STEMS ARE DELIVERED DRY WITH FX SEPARATELY, THIS OPENS OPPORTUNITY TO UTILIZE THE ISOLATED FX IN THE IMMERSIVE SPACE. HOWEVER, IT WOULD BE RECOMMENDED TO HAVE THE DRY VOCAL SUPPORTED BY ITS RESPECTIVE FX STEM WHENEVER IT IS PRESENTED TO AVOID IT BEING 'EXPOSED'.
- BE MINDFUL OF YOUR LFE LEVELS AND FILTERING. DOLBY ATMOS IS FULL-RANGE AND THEREFORE LFE IS OPTIONAL AND AVAILABLE FOR LOW-END EXTENSION BUT MAY NOT BE NECESSARY FOR EVERY MIX. THIS WILL BE DEPENDENT ON THE GENRE, ARTIST OR TRACK. IF ENGAGING THE LFE CHANNEL, WE RECOMMEND PEAKS NOT EXCEEDING -25dB ON THE LFE METER IN THE DOLBY ATMOS RENDERER. THIS ASSUMES A CORRECTLY TUNED ROOM AND IF YOU ARE EXCEEDING THIS THEN YOU WILL WANT TO REFERENCE ON ANOTHER SYSTEM TO MAKE SURE IT TRANSLATES WELL. A PROPERLY CALIBRATED ENVIRONMENT WILL GIVE A GOOD RESPONSE OF LFE ON MOST SYSTEMS. REGULARLY MUTE THE LFE CHANNEL AND MAKE SURE THE MIX STANDS UP WITHOUT IT. IT SHOULD BE AN ENHANCEMENT FOR LOW FREQUENCIES — NOT PROVIDING THE PRIMARY LOW FREQUENCY FOR THE MIX. TAKE CARE NOT TO SEND FULL RANGE SIGNALS TO THE LFE CHANNEL BY APPLYING A LOW-PASS FILTER AT A MAXIMUM OF 150Hz.

DOLBY ATMOS FOR MUSIC



- CHALLENGES
- MUSIC STYLES
 - EDM/ELECTRONICA – RÜFÜS DÜ SOL – LIVE AT JOSHUA TREE
 - CLASSICAL – THE NUTCRACKER SUITE – BERLIN PHILHARMONIC
 - JAZZ – SNARKY PUPPY – EMPIRE CENTRAL
 - MODERN/CONTEMPORARY – TAYLOR SWIFT - FOLKLORE
 - HEAVY ROCK/METAL – GRAYSCALE – LAMB OF GOD
 - SYNCH –
 - JOHN WILLIAMS – OBI WAN
 - HANS ZIMMER – MESSAGE FROM AN OLD FRIEND



THANK YOU



Q & A