

NCM FIRSTLOOKSM 3D

"Thank you for your interest in NCM's FirstLook 3D pre-show program. NCM is committed to premiering the highest quality stereoscopic 3D content on our world-class media network. This document should serve as a helpful guide as you develop and prepare your 3D advertising campaign."

- Mike Fuchsman, SVP - Media Operations & Technology



Coca-Cola® "Arctic Beach Party"
2D/3D conversion
performed by Cinema Concepts



New Balance® "Love/Hate"
2D/3D conversion
performed by Legend 3D, Inc.

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Frequently Asked Questions:

What is Stereoscopic 3D and how does it work?

Stereoscopic 3D (S3D) is essentially the replication of human sight. 96% of humans have Binocular Vision where two eyes are used to see objects. Each eye sees the objects slightly differently as a result of separation (typically 2.5 inches apart) and the viewing angle of each eye being slightly different. Close one eye and focus on an object. Now retain the image that you've captured in your mind, and then close that eye and open the other. Notice the difference between what you're seeing? Now put these two images together and what you end up with is not only the ability to see a wider field of view, but also the ability to perceive depth. It is our natural, binocular vision that S3D takes advantage of to create the illusion of depth.

How is S3D different from 3D?

S3D requires two images, a left eye file and a right eye file, to display or see the illusion of realistic depth in a three dimensional object or visual scene. 3D is a term used to describe computer-generated (CG) graphics that has the appearance of three dimensions but in fact is a single, 2D, flat image.

From an advertising standpoint, what does S3D add?

S3D brings an innovative and immersive sense of realism to the viewer. It adds a remarkable visual impact, and takes the audience deeper into the story by allowing them to feel like they are a part of the moment. Textures are more alive, depth of field is clearer, images are crisper, spatial design and product form + function are more expressive and dramatic.

How does editing in 2D differ from S3D?

S3D viewing requires added muscular and brain activity that 2D imagery viewing does not require. Because of this increased visual complexity and extended reading time required to visually process what the viewer is seeing; S3D tends to incorporate a smoother, gentler, slower editing pace than 2D.



What is the most important thing to keep in mind when creating S3D content?

Stereoscopic content should be comfortable to watch. Eye fatigue can occur with rapid cuts between scenes with very different depth, and/or overuse of negative parallax that causes the viewer to cross his/her eyes to focus on an object coming out of the screen. Viewer discomfort also occurs when left and right eye images are vertically misaligned. *(Also, hire a professional stereographer).*

What is a “Stereographer”?

A stereographer is someone who possesses expert knowledge of recording three-dimensional visual information to create the illusion of depth. On set the stereographer works with the DP and the Director to attain S3D images that are comfortable, compelling and immersive for viewers. *NO S3D PRODUCTION SHOULD BE DONE WITHOUT ONE.* Forgoing a professional stereographer on set would be like going into surgery without a surgeon.



JCPenney "Picture Day" 2D/3D conversion performed by Geneva Films

What types of 3D glasses are used in cinema?

The majority of NCM's media network use inexpensive "passive" eyewear. Passive technology uses polarized or filtered light that is “unlocked” by a special material in the eyewear. As images are flashed onto a silver oxide screen (non-depolarizing), the polarized lenses block the left eye from seeing what the right eye is supposed to see and vice versa. This continuous left eye, right eye sequence happens so fast that the viewer can't tell he or she is not looking at something real.

A second technology that is rarely used in theatres is Active Shutter Glasses. This technology uses a transmitter that sends sync signals to a pair of liquid crystal shutter glasses. The signal alternates turning the left and right eye lenses on and off very rapidly (120 times per second), in sync with the image being shown on the screen, which creates the 3D image in the brain.

The old technology of cyan and red glasses, also known as Anaglyph is no longer available in cinema. As a result, NCM advertisers cannot create content for playback in cinema using this technology.

Can I convert my 2D spot to S3D?

Yes. The most cost effective method is simulated **3D Enhancement**. This process takes original 2D source material and integrates super realistic 3D pop-out elements into the adapted production. Another S3D Enhancement technique places 2D material into a CG created S3D environment. These services are offered by NCM. [\(see page 7\)](#)



Sprint "Reversal Him" 2D/3D conversion performed by Geneva Films

3D Dimensionalization[®] (pioneered by In-Three, Inc.) is the most common form of converting 2D content to S3D. Short of capturing or shooting your spot natively in 3D, 3D Dimensionalization[®] offers the most realistic and truly convincing S3D pictures while maintaining the artistic and technical integrity of the original material.

The first step is to separate the shot into layers of depth. This process requires cutting elements out of the 2D video footage

(3D Dimensionalization[®] continued...)

(rotoscoping) and placing them into foreground (negative parallax), mid-ground (zero parallax) and background (positive parallax) and then manually painting in the holes that are left behind after cutting out the 2D images/objects. A high quality conversion will incorporate the use of depth or volume maps, a process that adds a volumetric surface representation to the objects by drawing depth lines onto the objects that have been cut out (in a 3D program like Maya or 3ds Max) and turning them into a sort of topographical map. When properly executed, this process should create a “perfect” S3D video that conveys the director’s vision with no distracting disparities. These services are not offered by NCM but we have strategic partners that can assist in this process. Illustrated, the process looks like this:

(1) Video Rotoscoping → (2) Depth/Volume Map Generation → (3) Source/Depth Map Shifting L/R → (4) Hole & Pattern Filling

How much does 3D Dimensionalization[®] cost, and how long does it take?

Costs vary by the complexity of the material, the overall amount of stereoscopic work being tasked, the duration of the spot, and the quality of work and company you contract. Conversion typically ranges between \$20 – 50K per minute of footage.

3D Dimensionalization[®] and 3D Enhancement projects typically require 3 weeks to complete for up to: 60 of video.



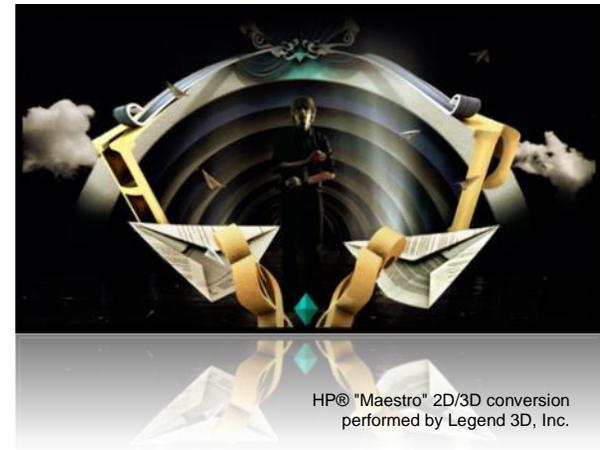
Lexus (LFA) "Pitch" 2D/3D conversion performed by Geneva Films

Does a S3D production cost twice as much as a standard 2D video?

No. Costs do vary with each project; however, the difference is rarely more than 25%. The added cost is for some specialized equipment and production personnel. Also, S3D does take a little more time to produce/post-produce than 2D.

Can a standard 2D video be made from a S3D video?

Yes. S3D production records a discreet left eye and right eye signal simultaneously. Each of these is standard 2D video captures. The S3D is accomplished when both left and right eye videos are combined. The 2D video can be made from either the left eye or right eye video captures.



HP® "Maestro" 2D/3D conversion performed by Legend 3D, Inc.

Are all Digital Cinema Projectors also S3D?

No. Digital cinema projectors require additional hardware in order to present S3D material. The most widely used S3D technology in cinema is RealD[®] which uses a "passive," circular polarized image technology (allows the viewer to tilt his/her head without breaking the 3D effect) that places a Z Screen polarization switch in front of the projector lens. The switch is synchronized with the projector and alternates the projected polarization of the image for each eye. The audience wears passive eyewear with oppositely circularly polarized lenses to ensure each eye sees only its designated frame. NCM currently has nearly 1,500 RealD[®] S3D screens in our

network. Expect this number to double within the next 18 months. NCM's media network also includes nearly 190 IMAX 3D[®] screens which makes use of passive technology.

How can I ensure my audio sounds optimal?

Create your 5.1 mix using a 80dB Leq(m) OR -29 LKFS level. The FirstLook 3D preshow plays at a different audio range than the movie trailers, thus to best maintain your mix leveling and creative intent, have your mixing facility set up your session at this level.



RPX "Regal Premium Experience"
produced by NCM Studios

Can I provide NCM Media Networks with a Digital Cinema Package (DCP) master?

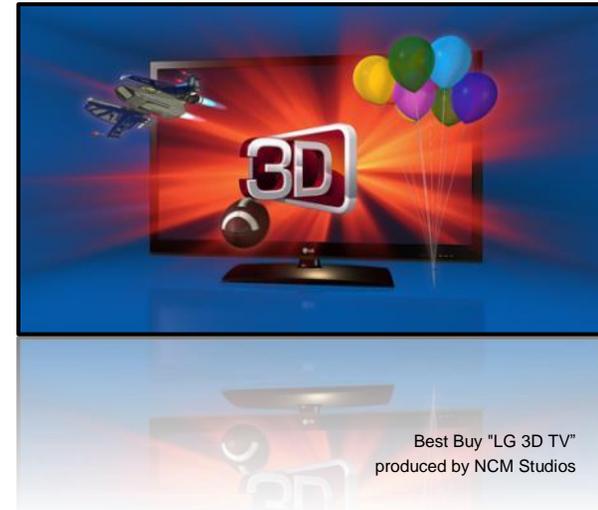
No. NCM Media Networks requires that we receive left eye and right eye video sequence files, and 5.1 surround audio stems. DCP mastering is completed by NCM's professional encoding engineers to ensure that all quality control measurements unique to the FirstLook 3D program are met. ([see page 8](#))

What if I'm running behind schedule to deliver my S3D advertising spot?

Deadlines for submitting S3D content are firm. The fulfillment and upload processes for delivering S3D content are complex and unyielding. Please consult with your Account Director or NCM Planning to confirm new start dates if you cannot meet the specified deadline for your media buy. ([see page 9](#))

Any last words of advice?

Yes. Let NCM be your S3D partner as the excitement and immersive benefits of Stereoscopic 3D advertising is within your reach!



Best Buy "LG 3D TV"
produced by NCM Studios

Important Things to Incorporate in the 3D Production Process:

- **Scaling depth for different display screen sizes.** Always shoot your 3D source at IA and convergence settings for the largest viewing screen anticipated. It is always best to scale down from the source, not up. Issues can arise with divergence, among others, in a scale-up process. The stereographer can assist in this planning process and how it affects the inter-axial and convergence settings at time of capture. Post can make some adjustments to the L/R eye images convergence point as well.
- **Post Production Input.** It is important to involve the post and VFX supervisors into the planning process. As there are many more 3D elements to consider, it is important everyone is working on the same page.
- **Production Crew.** 3D production requires additional crew and resources above normal 2D production costs; these additional expenses can range from \$20,000 - \$60,000 a day based on the type of rig(s) used, types of cameras and the amount of preparation time. Some of the new positions include: *3D Technical Supervisor, Stereographer, Convergence Operator, and 3D Systems Tech.*

2D to Stereoscopic 3D Conversion Facilities

Legend 3D, Inc. • www.legend3D.com • San Diego, CA • 760-497-1922 • Contact: Matt Akey

Geneva Film Co. • genevafilmco.com • Toronto, Ontario Canada • (416) 516-6885 x222 • Contact: James Stewart

3ality Digital • www.3alitydigital.com • Burbank, CA • (818) 333-3000 • Contact: George Taweel email: info@3alitydigital.com.

Cinema Concepts • www.cinemaconcepts.com • Atlanta, GA • 770-956-7460 • Contact: John Price or Teresa Dickey

Live-Action Digital 3D Content Creation Facilities

Geneva Film Co. • genevafilmco.com • Toronto, Ontario • Canada • (416) 516-6885 x222 • Contact: James Stewart

3ality Digital • www.3alitydigital.com • Burbank, CA • email: info@3alitydigital.com

21st Century 3D • 21stcentury3d.com • New York, NY • (212) 244-8585

The 3D Film Factory • www.3dfilmfactory.com • San Diego, CA • (619) 384-4014 • Contact: Sean Gilmore • email: info@3dfilmfactory.com

S3D Production Equipment (beam-splitters, side-by-side camera rigs, stereo image processors, etc.)

3ality Digital • www.3alitydigital.com • Burbank, CA • email: info@3alitydigital.com

Cameron | Pace Group • www.cameronpace.com • Burbank, CA • 818-565-0005

Stereoscopic 3D Media Specifications and Submission Form

IMAX theatres receive the same source digital file as traditional 3D DCinema theatres

- Digital Source Master: video image sequence - (TIFF, TGA, EXR, or DPX)
- Resolution: 1920 x 1080 pixels
- Frame Rate: 24 frames per eye per second - gross frame rate - 48 frames per second
- Left eye and right eye frames should be broken into two folders: "Left_Eye", "Right_Eye"
- Filenames should appear as follows in their respective folders:
 - lefteye_000001, lefteye_000002 ...
 - righteye_000001, righteye_000002 ...
- Left and right eyes must have the same number of files
- Any digital color space is acceptable - Rec. 709, RGB, X' Y' Z'
- Audio - 5.1 surround - each channel should be labeled appropriately and provided as a 24-bit WAV.
 - Channel Designation is as follows:
1=Left, 2=Right, 3=Center, 4=LFE Sub, 5=Left Surround, 6=Right Surround
- Create your 5.1 mix using a 80dB Leq(m) OR -29 LKFS level. The FirstLook 3D pre-show plays at a different audio range than trailers, thus to best maintain your mix leveling and creative intent, have your mixing facility set up your session at this level.
- Audio must be provided as true 24P and not another frame rate variant.
- Ship all digital materials on a NTFS or FAT 32 formatted hard drive (ext3 or MAC OS X Extended drives are not accepted)

A well-presented stereoscopic ad should be pleasing to look at. When developing 3D stereoscopic creative, NCM recommends that the director compose his/her shot so that the display screen equals the Zero Parallax Plane where the center of visual interest resides. Secondary visual elements and effects should be perceived to be behind the surface of the display screen or at Positive Parallax. This will give the appearance that the display screen is a window and the action is taking place in 3D behind that window. Negative Parallax or "out of screen effects" should be used in moderation.

WHERE TO SHIP MATERIALS:

DIGITAL Materials

National CineMedia, LLC
 Attn: Judy Duke, National Accounts
 9110 E. Nichols Avenue, Suite 200
 Centennial, CO 80112-3405
 P: 303-792-8725 | F: 720-874-5207

Important Client Contact Information:

Date: ____ / ____ / ____
 Contact Name : _____
 Company Name: _____
 Phone #: () _____ Email: _____
 Notes: _____

In addition to submitting stereoscopic 3D source materials, you must also provide a 2D version of your advertising spot for non-3D screen playback.

3D Advertising Creative & Production Timeline and Deadlines

Monday	Tuesday	Wednesday	Thursday	Friday
Day 24 All creative assets requiring NCM Creative Services for 3D wrapping or bookends due to NCM	Day 23 NCM Creative 3D production	Day 22	Day 21	Day 20
Monday	Tuesday	Wednesday	Thursday	Friday
Day 19	Day 18	Day 17	Day 16	Day 15 All client created 3D content due to NCM
Monday	Tuesday	Wednesday	Thursday	Friday
Day 14 NCM Media Post-Production (ingest, audio processing, DVS encode & DCP packaging, QC-1)	Day 13	Day 12	Day 11	Day 10
Monday	Tuesday	Wednesday	Thursday	Friday
Day 9 NCM Fulfillment (replication, QC-2, distribution)	Day 8	Day 7	Day 6	Day 5
Monday	Tuesday	Wednesday	Thursday	Friday
Day 4 Content arrival at theatres	Day 3 Theatres check drives, ingest content, QC-3	Day 2	Day 1	On-Screen 3D Advertising pod starts in theatres

Client Deadlines are in **RED**. This schedule does not account for holidays which will shift all dates backwards. A custom schedule will be created for all projects requiring NCM Creative Services other than 3D wrapping or bookending.