

# DVD REPLICATION SPEC KIT

06/02/2016

**Replication:** "molding" discs from a glass master. **Duplication:** "burning" discs using blank recordable media.  
This Kit is primarily for "Replicated" DVD's. See our web page for "Duplicated" DVD's, however, this kit contains a plethora of useful knowledge for anyone making DVDs.

## Contents

Pricing..... see web: [www.bullseyedisc.com](http://www.bullseyedisc.com)

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**PLEASE CAREFULLY REVIEW THE FOLLOWING PAGES**  
(not doing so may result in time delays, additional costs, nail biting, and insomnia.)  
We are here to make this process as smooth as possible.  
If you have any questions, don't hesitate to call.



## Flavors of DVD



A DVD-ROM disc is simply a DVD containing computer files. Like a CD-ROM that holds much more, playable on computers with a DVD drive. Like CDs, any file that can be stored on a hard drive can be stored on DVD-ROM.



A DVD-Video disc contains fully authored MPEG2 video playable on set-top DVD players and DVD-Video ready computers. DVD-Video features:

- High quality video and audio
- Interactive menu navigation
- Non-linear navigation to any part of the video
- Alternate audio tracks for any video track
- Multi-language subtitle support

## Capacity

- **DVD5** (Maximum: 4,699,979,776Bytes = 4.38giga-bytes, single side, single data layer) Like a CD, the data is accessed from the underside, and the top of the disc is used for screening your artwork. Only the bottom layer contains data, the top layer is blank.
- **DVD9** (Maximum : 8,539,996,160Bytes = 7.95giga-bytes, single side, dual data layer) It is hard to tell a DVD-9 from the DVD-5 disc. The data is accessed from 2 data layers from the underside (the lower layer is semi-opaque), and the top of the disc is available to screen your artwork onto. Due to the challenges of reading data from dual layers, some low quality DVD players may have trouble reading DVD-9's.
- **DVD10** (Maximum : 4,699,979,776Bytes x 2 =4.38x2giga-bytes, dual side, single layer per side) This format uses the top and bottom sides of the disc as data areas leaving only a thin inner circle for your text and artwork. (Basically, two DVD-5s glued back to back.)

**TIP:** Maxing out the media limit can cause problems with some DVD players. We recommend staying 2-3% below the maximum.

## Standard Order Flow

1. **You** contact us for a quote and send source materials.
2. **We** confirm receipt of materials and review project details.
3. **We** forward art proofs for your approval before production begins, and send estimated ship dates after approval.
4. **We** confirm order status around mid-point of production.
5. **We** notify you when order ships and send tracking information.

### DVD LINGO

**Authoring** – The conversion of your content (video, audio, images, etc) into a format readable by DVD video set-top players and computers w/ DVD.

**Bit Rate** – the throughput used to transfer the audio & video from the DVD to your eyes & ears. For best compatibility, we recommend the audio & video total not exceed an average of 6Mbps with peaks of 8Mbps.

**DVD-R or +R** – a write once recordable media that holds about 4.4GB (DVD5 single layer).

**DL DVD-R or +R** – a Dual Layer write once recordable media that holds about 8GB (DVD9 dual layer).

**Encoding** – converting video and audio into the DVD formats, (usually, video becomes MPEG2 files and audio becomes Dolby Digital AC3 files.)

**Premastering** – Creating/burning a DVD recordable disc or DDP Image file ready for replication or duplication.

**UDF** – (Universal Disc Format) the file system used for DVD. Some programs will let you burn a DVD in ISO9660, but we don't recommend it.

### DVD Video Capacity

Time	DVD-5	DVD-9
60min	9.61 Mbps	-n/a-
90min	6.42	-n/a-
120min	4.82	8.87 Mbps
150min	3.82	7.06
180min	3.15	5.85
240min	2.31	4.34
300min	1.81	3.43

## Source Materials \_\_\_\_\_

### **SEND A FULLY AUTHORED MASTER IN ONE OF THESE FORMATS:**

Converting your content into the DVD format is known as "Authoring"

**DVD-R (or +R):** Send a mint condition "UDF format" disc that has been verified. Record your master disc at 1x or 2x, and choose the VERIFY option.

**DDP Image File:** Required for DVDs with CSS Copy Protection or Region Coding. Write out a DDP image file (version 2.0 or 2.1) and supply it to us on any convenient media (hard drive, USB drive, DVD-R media, etc). Note: Place the DDP file at the root level, not in a folder.

#### Tips:

- If your turnaround will be rushed, please send two source masters on different brands of media and mark one "master" and the other "backup master".
- We do not recommend the "CMF / Cutting Master Format".

## Steps for Creating a Standard Video DVD \_\_\_\_\_

1. Encode video and audio (usually MPEG2 video & AC3 Dolby Digital audio)
2. Create graphics for interactive menus, disc label art, and printed packaging
3. Author the assets, create recordable discs for testing, and test thoroughly.
4. Submit mint condition source materials to us for replication and packaging

...Need Help? We can handle this process for you for a nominal cost. See our [DVD Authoring Page](#) or give us a call to discuss.

## Licensing \_\_\_\_\_

When submitting your order to us, please be sure to provide the "Return Pages" found at the end of this Kit. Having this paperwork and any required licensing information completed in advance can help ensure no delays once your project has been submitted.

### **COPY PROTECTION**

We offer two options for protecting standard video on replicated DVDs and one option for duplicated DVDs: (call for samples & pricing)

#### **CopyBlock - Replication Digital & Analog Protection**

This technology offers the strongest protection with the best compatibility that we have found. It adds minimal cost, is transparent to the end user, and can be added to most all DVD projects. You may submit a standard DVD master.

#### **CSS - Replication Digital Protection**

This is the original protection method for DVD. It will usually deter the average user from making digital copies. It should be flagged during the authoring phase, but we can sometimes add it after the fact if needed.

#### **CopyLock - Duplication Digital Protection**

This method is very similar to the "CopyBlock" protection used for replication orders (see above). For more information, please see our website [here](#)

#### **CHECK DISCS**

Since we make exact copies of the source master you send us, we only recommend check discs if you are using copy protection. Check discs are manufactured in the same manner as the final discs, less artwork, and usually add a few days to the turnaround (call for quote.) However, if, after testing your check discs, you decide to submit new source data or cancel the project a mastering fee would apply.

## Authoring the DVD Yourself? ...here are some tips

### DVD Menus

- As a general guide, use sans serif fonts no smaller than 18 points and make no graphic elements, especially horizontal lines, less than 3 pixels thick. Keep text and important graphics within the "title-safe" area, (about 70 pixels from the sides and 50 pixels from the top and bottom.) Use the NTSC filter, but you'll have to set your black and white levels manually, (white maximum = RGB: 235, 235, 235 / black minimum = RGB:16, 16, 16.)
- Square to rectangular pixel compensation: Manual Method: When first creating the DVD menu document, for NTSC 4x3 menus, set it up at 720x540 with square pixels and resize to 720x480 just before sending it to DVD authoring. (For NTSC 16x9 menus, create at 960 x 540). Preset Method: Create the document with a video pixel aspect at either standard 4x3 or widescreen anamorphic 16x9. We prefer doing it manually.
- If you have more than a couple of buttons on a menu, use one color simple geometric shapes/lines for the button selection/roll-over states through the "sub-picture overlay" method, (we don't recommend making text part of the selection graphic). If you have a few buttons, feel free to use the Photoshop layer method, and your selection states will have less graphic limitations, but know that there may be an annoying delay when moving between buttons on set top players.

### Compatibility

The DVD specification is complex and some parts are open to interpretation. Combining this with the fact that some hardware manufacturers cut corners to rush their DVD players to market, can result in instances in which a well authored and flawlessly replicated DVD may have trouble playing in a certain player. These instances are rare, but keep in mind that the more complex your DVD authoring is, the better chance these instances may occur. To increase compatibility follow these tips:

- Use a professional level authoring program and quality recordable media.
- Encode your Audio into Dolby Digital instead of Mpeg.
- Encode your video under 7Mbps average (closed GOP).
- Don't pack the disc full – round down 2-3% from the media limit.
- When mastering/burning your DVD, choose the standard UDF format (not the ISO 9660 format) and perform a "binary compare" or "verify pass". If you are using software that doesn't have a verify after burn feature, you can use a utility like FileSync (for Windows) to do this.

**PLAN** Allow enough time for your project. Most people underestimate the time it takes to create and proof the artwork, author and test the DVD, and replicate/package their discs.

**TEST** Play and test your DVD-R disc on as many different systems/players as possible. Consider hiring a company like IntellikeyLabs.com to test your DVD on a wall full of players. If you request, we'll make sure that your disc plays in our bank of test players before replication begins at no additional cost.

**PROOFREAD** Carefully proofread all text in the video and DVD menus, on the packaging and the disc art before sending your materials to us. Finding typos at the last minute is a common source of delays and extra costs.

### PRINTING LINGO

#### CMYK vs Pantone

These are terms for the two standard printing processes.

#### CMYK "4 color process":

Method of mixing Cyan, Magenta, Yellow, and black to produce full color printing.

#### PANTONE "spot colors":

Method of picking specific colors from the *Pantone Solid/Spot Color Guide* to print the precise colors you desire.

#### 4/0 - 4/1 - 4/4

Refers to how the two sides of the stock are printed. Said, "four over ..."

**4/0:** CMYK on one side with no ink on back

**4/K:** CMYK on one side with black on back

**4/4:** CMYK on both sides

#### Gang Printing

Like most printers, we "Gang Run" most jobs over 1000 pieces; meaning, the job is run on the same press sheet with other jobs. If you have a project that requires color "tweaking" on press, call for an exclusive press run quote.

### Duplication vs Replication

**Replication:** "stamping" out discs from a glass master. The industry standard method for large runs; producing discs that are tough and compatible.

**Duplication:** "burning" discs using recordable media. Great for short runs, however, some drives have trouble reading recordable media, and they are vulnerable to sunlight.

[<more info online>](#)



## Printing your replicated disc artwork

As an industry standard, Replicated discs are printed with semi-opaque inks, and because parts of the disc are silver and clear, for better color accuracy and legibility, we recommend a white background. Even though we

use the finest equipment available, due to the inherent challenges of printing onto plastic, precise color matching is not always achieved. We can print discs through two methods (Offset CMYK & Screen Print):

[<see our Disc Art Examples page online>](#)

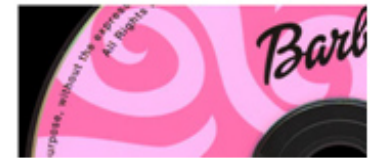
## Offset CMYK Printing: Best for full color art

- **The CMYK process** works best with raster pictures, not even color fills.
- **RGB objects** will be converted to CMYK which can result in a color shift.
- **Small type** should be 100% black, not a CMYK build.



## Screen Printing: Best for Pantone color art

- **Small type** should be 100% of one color.
- **Percentage** of a spot color "tint" results in a dot pattern.
- Choose Pantone colors from the "[Pantone Solid Coated Spot Color Guide](#)"
- **Overprinting Colors:** If your disc art is made up of 2 or more Pantone colors, we recommend knocking out the color underneath when *overprinting* a color. Overprinting colors without *knock-out* usually produces color shift due to the semi-transparent nature of the inks. Knock out is not necessary when overprinting any color with black, or when overprinting any color onto a white background.
- **Trapping:** When knocking out, in order to minimize gaps between colors, adjacent colors must overlap slightly (the definition of *trap*). For example, to trap in Illustrator, apply strokes to objects and text at twice the desired trap, check the "overprint stroke" box, and uncheck the "overprint fill" box. Strokes should be set to 1 point to achieve the trap we recommend of .5 point.
- **Gradients, Tints & Halftones:** Due to the limitations of screen printing onto plastic, it is best to avoid gradients, and only use tints, duotones, or halftones if you have experience using these methods with screen printing. [<see our Screen Print Examples page online>](#). When Screen Printing the dot density of tints should fall between 15% and 85%. Gradients crossing the 60% tint density usually show a slight banding line due to a jump in density when the screen dots begin to touch each other. If you must have a gradient, then run it from 10 - 55%, or 65 - 90%, or run it "CMYK" and bypass these concerns.



Screen Printing Minimums:	1 or more colors	CMYK
Type - Positive / Negative	6 / 7 points	8 / 8 points
Line - Positive / Negative	.5 / 1.5 points	.5 / 1.5 points

## Tips & Specs

*\*Larger type recommended for serif or fine fonts.*

- **Printing onto a plastic disc does not result in the same look as printing onto paper stock; therefore, we do not recommend trying to color match the same colors between the disc and packaging.**
- We accept Illustrator (our favorite), InDesign, and Photoshop files for disc art (We do not recommend using Photoshop for Pantone color artwork with more than one color.). If you don't have one of these programs, then send us your art as a 300 DPI full size JPEG or PDF.
- **Proof:** Be sure to include a proof with your files, (printed hard copy or PDF/JPEG) and all fonts and linked graphics if needed.
- **Rush:** For rush turn orders, we recommend sending the artwork as early as possible.
- **Template:** Let our template "mask" your artwork on a separate layer. Don't cut your art down to the inner and outer limits, or, simply provide your art as a square and we will mask it to the disc shape for you.
- **Art Symmetry:** Due to the high spin rate of some drives, asymmetrical art or unbalanced ink application to the disc may cause vibrations. We recommend creating the artwork so the ink is distributed as evenly as possible across the surface of the disc.
- **VECTOR -VS- RASTER:** When possible, use vector elements, because vector graphics produce crisper results than raster graphics.
  - **Vector:** composed of lines and arcs based on mathematical data. Resolution independent. Think line-art & fonts. Edit with Illustrator.
  - **Raster:** composed of dots. Raster / bitmapped elements should be at 300dpi. Resolution dependent. Think photographs & halftone images. Edit with Photoshop.



## DVD-5 or DVD-9 Label Art Specs

DVDs can be printed without interruption from 23-117mm.  
(And perhaps even closer than 23mm on special request.)

## DVD-10 Label Art Specs

Since both sides of the disc are used for the data, only the inner hub is available for about 120 characters of text, to be printed in 2 colors within a 4 - 5mm circular ring. Call for a template or provide us the text and we'll lay out the art.

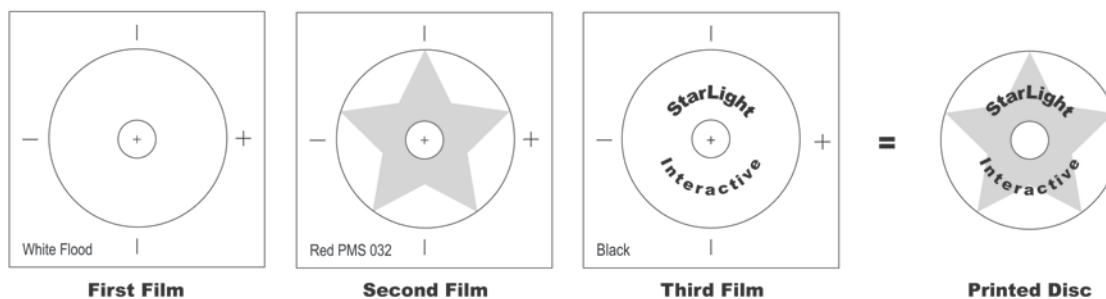
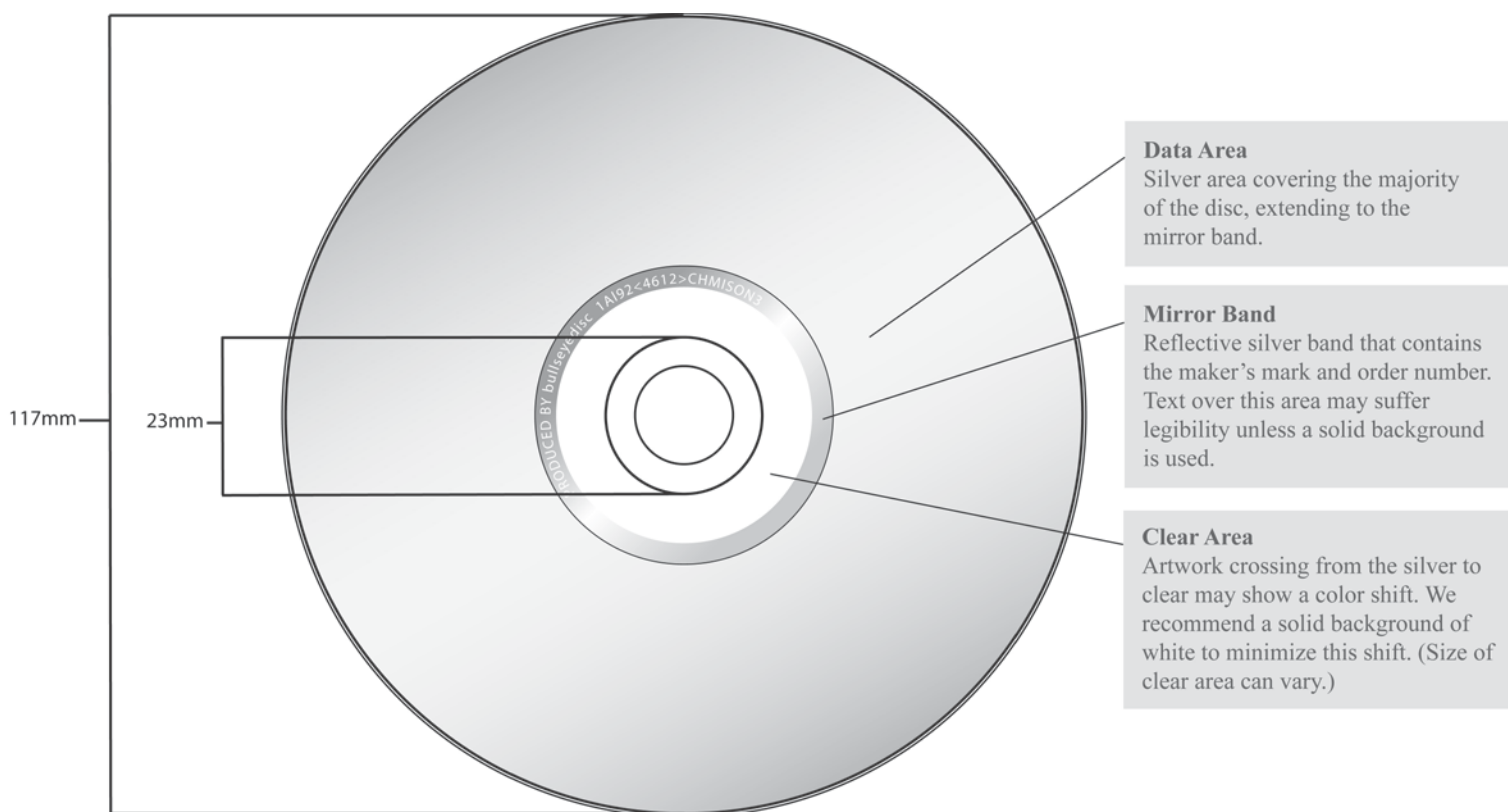
## DVD Logo



Since CDs and DVDs look alike, we highly recommend placing the DVD logo in your artwork. These logos are included within our DVD template.

## Templates

You can download eps template here:  
[DVD replication template](#)



# Prepress Tips for Packaging



To help your job go to press smoothly, avoiding extra costs and delays, check your art against this list. We will work diligently to prepare your files for printing and are happy to make a simple change to your art if possible before proofing at no charge (changes made after PDF proof creation incurs a fee). We will apply our experience to your project to help it look its best and sidestep potential problems.

## Art Preparation Checklist:

- Document is spell checked.
- Document has minimum bleed of 1/8", (artwork extends 1/8" past cut edge).
- Super blacks, and other color builds, should not exceed 300% total ink. Our recommend Rich Black is C: 30 M: 30 Y: 0 K: 100.
- Color profile set to: US Web coated SWOP V.2.
- Proofs of artwork included with files, (hardcopy printout, full size JPG, or PDF w/ embedded fonts).
- Artwork is laid out to BULLSEYEDISC template, (leave template in document on a separate layer).
- Images are high-resolution (300 - 600dpi).
- Photos and Colors are CMYK (RGB & Pantone items will be converted to CMYK which usually results in a color shift). Use of Pantone spot colors adds \$250/PMS/side per item. If you would like to use Pantone colors, please let us know in advance.
- Images and graphics are CMYK: TIFF, JPG, or EPS files only.
- All linked image and graphic files are included.
- All screen and printer fonts are included with a list of all fonts used, (or text is converted to outlines/paths).
- All elements should be set to knock out for auto-trapping to work, (trapping spec: .002" / .144points.).

### Supported Art Files:

- Illustrator
- InDesign
- Photoshop
- CMYK Jpeg
- PDF

### Proofing:

An emailed PDF is our standard proofing method. If you would like a more color accurate proof, we recommend having us overnight you a hard copy proof – (extra charge applies).

## General Tips

### FILES

- Please organize your files with the master layout files at the root level and all linked files in a subfolder.
- Do not use screen resolution images captured from the web. Images should be CMYK, actual size at 300dpi.

### TEXT

- Allow for 1/8" 'safety area' between text and template edges.
- Small black type should be 100% black, not a CMYK build.

### FONTS

- If you are using Illustrator or InDesign, *please* convert all type to "Outlines", and you will not have to send us any fonts. Font problems often cause delays.
- IF YOU CHOOSE TO SEND FONTS:
  - MACs: For Postscript fonts (.pfb and .pfm files), be sure to provide both the screen font file and PostScript print driver file for each font. TrueType fonts have only one file per font.
  - PCs: Use TrueType fonts (.tff files) or convert to outlines, as we are usually not able to use PostScript fonts (.pfb and .pfm files) on PC artwork.

### MISC.

- Set layout program's output resolution to 1200dpi or more.
- Make a folding mock-up and send it to us with your files.
- Do not set white type to Overprint.
- Don't set thin lines to "hairline" – set them to .25 point.
- Leave Stroke and Fill check boxes for Overprinting unchecked for colors imported from draw programs (EPS files).
- Avoid "nesting" EPS files (placing an EPS within an EPS file).
- BOOKLETS: If you are using InDesign, submit booklets in the *Book layout*, a "reader's spread". If you are using any other program, submit booklets as a "printer's spread".

### Adobe Illustrator

- When saving files, if you have embedded your images into the document, then do not check the box, "Include Linked Files".
- To help avoid issues with Illustrator's "Transparency" feature, save file as flattened EPS.

...questions? –call us

**Return Page****bullseyedisc****Intellectual Property Rights (IPR) Form**

To be submitted with every order. Orders without this form cannot be

- OWNED content indicates the individual/organization completing this form is the IPR owner.
- LICENSED content requires proof of licensing for replication. Letters of indemnity are not adequate.
- This form must be completed by the organization ordering replication and not an intermediary.

Project Title: \_\_\_\_\_

Distribution of Discs: \_\_\_Within an organization \_\_\_Retail \_\_\_Free to Public Other\_\_\_\_\_

Countries of Distribution \_\_\_\_\_

Are you the IPR owner for the entire disc contents? \_\_\_YES \_\_\_NO\*

Complete the section(s) below describing the content that is applicable to the media you have ordered.

Does your CD include ISRC codes or CD Text? \_\_\_YES \_\_\_NO

**Data/software content:**

\*If you are not the IPR owner, list all included non-owned software, freeware, and shareware products.

Attach necessary distribution licensing documentation from the IPR owner. Some shareware and freeware products require distribution licensing. Consult the software vendor for what is necessary.

**Audio/Video Content:** (If Audio is separately licensed, provide necessary Audio/Video Synchronization licensing)

Content used: \_\_\_\_\_

\* If you are not the IPR owner, proof of replication licensing from IPR owner for licensed tracks is required.

An attached list of track title, artist, and IPR owner is REQUIRED. Sampling/mixing of additional recordings not owned (regardless of type, quantity, and length) requires licensing of those original recordings.

*I declare that all information provided herein is true and that all disc contents indicated as being "licensed" are properly licensed for replication under the terms of the original rights holder(s). I further declare that I am the intellectual property rights owner for all contents indicated as being "owned" and I authorize replication of the above listed title by BullseyeDisc. I understand that in accordance with the Anti-Piracy Compliance Program procedures and standards of the International Recording Media Association (available at [www.recordingmedia.org](http://www.recordingmedia.org)), the replicator reserves the right to refuse the processing of any order not complying with the Anti-Piracy Compliance Program guidelines.*

Company: \_\_\_\_\_ Phone # \_\_\_\_\_

Contact: \_\_\_\_\_ Title \_\_\_\_\_

Signed \_\_\_\_\_ Date \_\_\_\_\_

Billing address: \_\_\_\_\_ Shipping address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Ship to phone number:



## TERMS & CONDITIONS

**Materials:** Customer is responsible for disc content and unless hired to do so, BullseyeDisc does not modify or test disc content. We rigorously respect the privacy and security of Customer's materials, ideas, and artwork and will make every effort to protect intellectual property of both Customer and third parties. We use extreme care when handling Customer's source materials, however, we are not liable for any damage to materials. We will store source materials for one year. After one year, if Customer fails to claim its source materials, BullseyeDisc may dispose of Customer's source materials. We reserve the right to refuse any order.

**Delivery:** BullseyeDisc will do everything possible to make delivery dates, however, delivery dates are estimates and we shall not be liable for any delays in delivery. In no event shall BullseyeDisc be liable for any of Customer's lost profits or any other special or consequential damages. Orders are FOB at the Plant.

**Copyright:** Customer represents and warrants to BullseyeDisc that (1) Customer owns and/or has the right and authority to possess, use, and replicate any and all materials provided for replication; (2) neither such materials, nor the replication, reproduction or use of the same in any way is defamatory or violates or infringes any copyright, trademark, patent, other intellectual property right or any other right of any third party or entity and will not cause injury to any third party or entity; and (3) such materials are not vulgar, obscene or invasive of public or private rights and do not give rise to civil liability or otherwise violate any local, state, or federal law or regulation. BullseyeDisc reserves the right to immediately halt production and/or delivery of any Customer product which, in its sole discretion, may appear to infringe the rights of any third party. In such cases, all sums due by Customer to BullseyeDisc shall become immediately due and payable. Customer agrees to indemnify, defend and hold harmless BullseyeDisc, its members, successors and assigns, jointly and severally, from any and all claims, suits, liabilities, losses, damages and expenses (including, but not limited to, reasonable legal fees and expenses) which are related to or arise out of any breach of the representations made by Customer herein, whether during the service and/or manufacturing relationship or at any time thereafter. BullseyeDisc reserves the right to participate in the defense of any third party claim which Customer is obligated to indemnify BullseyeDisc as provided above at the expense of the Customer.

**Pricing/Billing:** Prices and specifications are subject to change without notice. Disc orders are subject to a 5% under or over run and printing is subject to a 10% under or over run. Though under runs rarely occur, customers will only be charged for actual quantities manufactured.

**Warranty:** BullseyeDisc will manufacture exact copies of the data source provided. Our products are warranted against manufacturing defects in quality and workmanship. Customer must make any claims of nonconformity to BullseyeDisc in writing with reasonable particularity within ten days following the date of delivery. The Customer's exclusive and sole remedy, and BullseyeDisc's sole obligation, for breach of such warranty reported during the warranty period shall be, the replacement of nonconforming products. This limited warranty does NOT apply to any product that has been subjected to misuse, negligence or accident. BullseyeDisc shall make the final determination as to the existence and cause of any alleged defect.

EXCEPT AS EXPRESSLY STATED HEREIN, BULLSEYEDISC MAKES NO OTHER REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE OR ANY OTHER MATTER. The remedies set forth herein are the exclusive remedies available to Customer for losses or damages of any kind. IN NO EVENT SHALL BULLSEYEDISC BE LIABLE TO ANY PERSON FOR CONSEQUENTIAL, INCIDENTAL, INDIRECT, OR SPECIAL DAMAGES OF ANY KIND, WHETHER ARISING OUT OF WARRANTY OR OTHER CONTRACT, NEGLIGENCE OR OTHER TORT OR OTHERWISE. No agent, employee or representative of BullseyeDisc has any authority to bind BullseyeDisc to any affirmation, representation or warranty except as stated herein.

**Venue:** This Agreement shall be governed and construed in accordance with the laws of the State of Oregon. Any controversy or claim arising out of, or relating to, this Agreement, shall be submitted to arbitration in Multnomah County, Oregon. Customer consents to the jurisdiction of the District and Circuit Courts of Multnomah County, Oregon in any action or proceeding relating to this Agreement and waives any claims that such forum is inconvenient.

**Conclusion:** This agreement is accepted by BullseyeDisc and (a) is a complete, final, and exclusive statement of the terms of the agreement between the parties, (b) is intended to supersede and replace all prior and coexisting agreements, whether oral or in writing, (c) may be modified or rescinded only by a writing signed by authorized representatives of the parties, and (d) applies to all orders submitted to BULLSEYEDISC.

Customer has read, understands, and accepts these terms and conditions:

\_\_\_\_\_  
Signature / Date

\_\_\_\_\_  
Printed name

\_\_\_\_\_  
Company / Title