Subject: WWGC | V2 Manufacturers Guide Available Now
Date: Thursday, August 27, 2015 at 19:01:19 Central Daylight Time
From: wwgc@google.com <wwgc@google.com>
To: craig@dodocase.com <craig@dodocase.com>
Attachments: wwgc_manufacturers_kit_v2.0.zip

Dear Partner,

We are excited to share with you that the V2 Manufacturer's Guide is now available!

We strongly encourage any future production on your side to implement the new V2 guide. I have attached the V2 Manufacturer's Guide to this email for your convenience.

The new Cardboard was unveiled at Google I/O 2015. It supports larger phones with screens up to 6 inches. It has a new button that works with any phone. It assembles (and disassembles) in just 3 steps. Like the first Cardboard, it's still about VR for everyone.

If you have any questions please feel free to reach out to wwgc@google.com .

Cheers,

The WWGC Team

If you received this communication by mistake, please don't forward it to anyone else (it may contain confidential or privileged information), please erase all copies of it, including all attachments, and please let the sender know it went to the wrong person. Thanks.

Works with Google Cardboard

Guidelines and Best Practices

Introduction

"Works with Google Cardboard" Program has been designed to indicate to users that a given virtual reality viewer has been certified by the manufacturer to meet Google standards, and works well with thousands of applications made for the Google Cardboard ecosystem.

This document describes the best practices and lessons for manufacturing virtual reality viewers that are compatible with Works with Google Cardboard ecosystem. It includes guidelines for mechanical viewer components, instructions for generating software viewer profiles to ensure that all apps work well on your viewer, common pitfalls and things to avoid, and so on.

This document is accompanied by a set of specifications for manufacturing the new Google Cardboard (I/O 2015 edition). These specifications can be found in the manufacturing template collection (wwgc_manufacturers_kit_v2.0.zip).

If you have any questions or comments about the Works with Google Cardboard program, contact us at wwgc@google.com.

Viewer guidelines

The following sections describe the guidelines for individual components of a typical "Works with Google Cardboard" viewer.

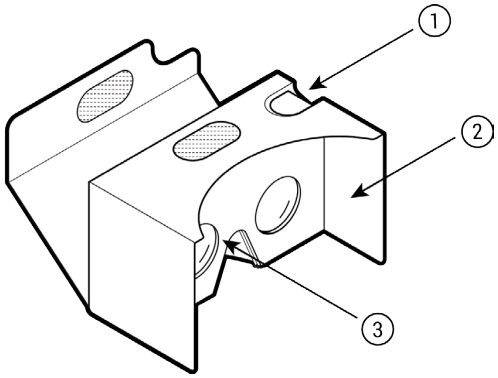


Figure 1. Typical components of a WWGC viewer: (1) - input, (2) - enclosure, (3) - lenses.

Input

- Your viewer should contain exactly one input. If your viewer has affordances for a direct screen touch, ensure that there is at most one dedicated area for touching the screen.
- Your viewer can use different types of inputs, from a simple smartphone screen touch, conductive and capacitive inputs, to Bluetooth-based buttons, magnets and so on.
- If your viewer is using a magnet based input, use a neodymium ring magnet (at least NH35 grade) as an outside trigger. Google Cardboard ring magnet's dimensions are 0.740" x 0.105". Similarly, use a ceramic disk magnet with at least C8 grade for Cardboard inside. Ceramic magnet's dimensions are 0.701" x 0.197". Make sure to glue the ceramic disk magnet in place, otherwise the whole magnet pair could come off easily. Also, note that due to the magnetometer position variance within the smartphone, magnets tend to work less reliably than e.g. conductive or capacitive inputs.
- If you're using a conductive input which passes user's body charge onto the smartphone screen, ensure that the input is not touching the screen in a "non-pressed" state.

Viewer enclosure

- You can use various materials for the viewer enclosure: cardboard, plastic, foam, aluminum and so on.
- An enclosure which fully blocks ambient/stray light is not mandatory. Lightweight forms of VR viewers with partial enclosures which do not necessarily block all ambient light may still work with Google Cardboard software ecosystem.
- If you're using cardboard for the enclosure, use the corrugated E-flute cardboard sheets. Flute thickness should not be less than 0.06" (1.5mm), otherwise the viewer itself will become unstable. This typically manifests in bending when opening/closing the top flap or side flaps.
- Similarly if you're using cardboard for the lens plate, apply food grade varnish or stickers to the cardboard to minimize unattractive staining on it, since it will be in frequent contact with skin.

Lenses

- If your viewer is using custom lenses, it may still be fully compatible with the Google Cardboard ecosystem. Just make sure to create a viewer profile to correct for lens barrel or pincushion distortion using the Viewer Profile Generator as described in "Viewer profile" section below.
- If you're designing custom lenses from scratch, aim for wide eyebox and avoid a mechanical inter-lens/IPD adjustment.
- If you're facing a trade-off between the FOV and the eyebox size, err on the side on the more forgiving eyebox.
- Google Cardboard (I/O 2015 edition) uses 34 mm diameter aspherical singlet lenses. You can find the exact specification and technical drawings of these lenses in wwgc_manufacturers_kit_v2.0.zip template collection.

Parts to avoid

Do not include a headstrap with your viewer. When the user holds the Cardboard with their hands against the face, their head rotation speed is limited by the torso rotational speed (which is much slower than the neck rotational speed). This reduces the chance of "VR sickness" caused by rendering/IMU latency and increases the immersiveness in VR.

Miscellaneous parts (velcros, stickers, rubber band, print)

- If your viewer is using strips of adhesive-backed velcro for flaps, make sure that the adhesive is sufficiently strong not to loosen from the viewer over time, as the strips will be getting a lot of use.
- Ensure that the phone cannot easily slide out from the viewer. For example, you can use the rubber band or rubber dots to increase the friction between the phone and the viewer.
- If your viewer is made out of cardboard and has print assembly instructions on both sides, avoid designs that require perfect alignment on both sides. Also leave sufficient margins (1/4" - 1/8") between the print patterns and the die-cut lines.

Viewer profile

To ensure that all apps in the Google Cardboard app ecosystem work great on your viewer, create a QR viewer profile for your device using the Viewer Profile Generator.

Figure 2. Typical output of this tool

Users will be prompted to scan this profile upon installing Google Cardboard apps for Android and iOS, so make sure that this QR profile is clearly placed. The recommended place for the profile is on the viewer itself, but you should also include it on the viewer's packaging, and/or on its website. You can find the detailed guidelines for sizing, spacing and other details of the generated QR profile in the Viewer Profile and Badge Guidelines.

Usage Guidelines for WWGC Devices

Audiences

- Refrain from promoting and recommending Cardboard-like viewers to kids without conducting additional testing.
- If you include magnets, retain the messaging that the viewer contains magnets that may affect pacemakers.
- If your viewer is made out of cardboard, make sure that your audiences understand the limitations of the material: not water-resistant, potentially combustible (especially if lenses are facing a strong light source), limited life span.

Brand Use

Naming

- Do not use “Google Cardboard” or any similar name for your products, your domain name, your website, social media handles, or business, that makes your product look like an official Google product.
- Do not file trademark applications or otherwise claim trademark rights in any marks that are confusingly similar to Google’s trademarks, including GOOGLE and GOOGLE CARDBOARD.
- Do not use any Google or Google Cardboard graphical assets (logos, product icons, etc) on your website, your physical products or in packaging without express, written authorization from Google.

Referring to Google Cardboard

- You are allowed to use any of the following approved text on your website or printed materials to refer to Google Cardboard:
  - This [XYZ VR headset] was inspired by Google Cardboard.
  - Inspired by Google Cardboard
- If you use any of the above approved text to refer to Google or Google Cardboard, you must include an attribution statement on your website that states “Google Cardboard is a trademark of Google Inc.”

Other communications, media, and press

Do not overstate your relationship with Google: do not state or imply that you are an exclusive partner with Google. Do not suggest or imply that you have an exclusive or privileged arrangement with Google that differs from any other manufacturer.

Do not speak on behalf of Google, its representatives or products. You are welcome to conduct your own interviews and provide statements about your organization’s specific product. However, please do not speak on behalf of Google or speculate about any Google initiatives. We’re happy to take any questions from the press that are about Google as a company, Google’s strategy, or the ins and outs of a Google product. Simply direct inquiries to press@google.com.

Applying to WWGC Program

1. Fill out the form at g.co/joinwwgc.
2. Send two (2) representative samples of each candidate viewer stock keeping unit (SKU) so that Google may evaluate them.

The samples should be sent to:

WWGC Program
1600 Amphitheatre Parkway
Mountain View, CA 94043

You are responsible for all costs associated with delivering the samples to Google. Google may keep the devices and is not required to return them to you.

Disclaimer

Google provides these guidelines in an effort to help manufacturers provide a quality VR user experience. Google, however, does not make any warrants or representations, does not accept any liability, and will not indemnify any manufacturers for these designs or for third-party viewers generally.

Change Log

Version	Date	Change Description
2.0	8/17/2015	Updated to incorporate the new Google Cardboard (I/O 2015 edition) specifications.
1.2	4/16/2015	Added information about the “Works with Google Cardboard” Program.
1.0	12/10/2014	Initial manufacturing guidelines for Google Cardboard v1.1

Works with Google Cardboard

Viewer Profile and Badge Guidelines

Introduction

Use the information in this guide to understand the appropriate use of the viewer QR profile and the “Works with Google Cardboard” badge/term to develop marketing materials for your viewer.

This guide is intended for “Works with Google Cardboard” Program participants making VR headsets/viewers. If you are creating software VR apps for Google Cardboard, see the UX guidelines on Designing for Virtual Reality.

Viewer QR Profile

To ensure that all Google Cardboard apps work well on your virtual reality viewer, generate a QR profile. Here is the typical output from the QR profile generator:

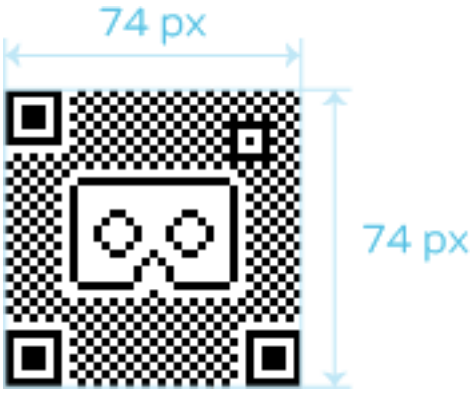
The generated QR profile encodes the viewer lens parameters, input details, names, and so on.

You can place this generated profile on your physical viewer (recommended) and on the viewer’s packaging. You can also include the generated QR profile on the viewer’s website (recommended).

The guidelines below describe the proper use of the viewer QR profile.

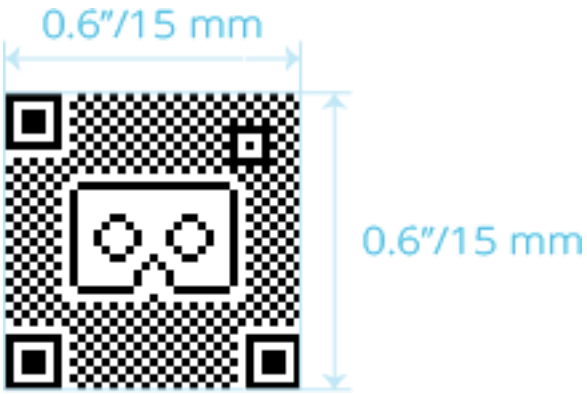
Size

You can change the size of the QR profile as needed, as long as the minimum size requirements are respected. Ensure that aliasing is not used if you are resizing a raster version of the QR profile.



When used in digital media, the QR profile size should never be smaller than 74 x 74 px (in other words, the individual QR modules should never be smaller than 2 x 2 px.)

When used in print, the QR profile size should never be smaller than 0.6 x 0.6” / 15 x 15 mm.



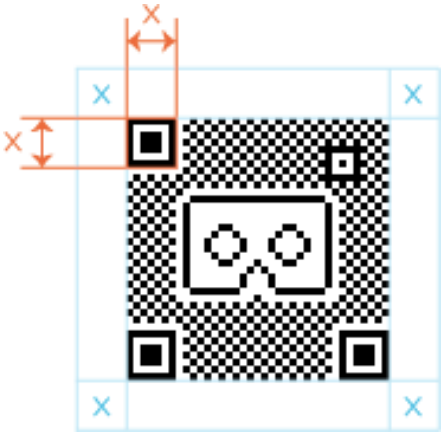
Do not increase the size of a QR profile to the point where it would become a dominant graphical element in your design.

Placement

Here are the guidelines for the QR profile placement.

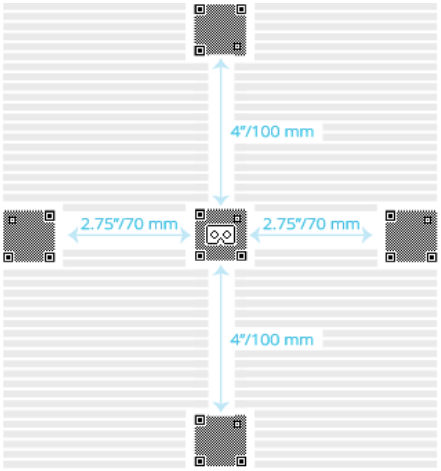
Clear space

To avoid visual clutter, the clear space around the viewer profile should be equal to or greater than the QR code position patterns (▣). Do not place photos, text or any other graphic elements inside the minimum clear space.



Multiple QR codes

QR codes are difficult to scan when multiple codes are placed closely next to each other. If your viewer, packaging, website or other materials include multiple QR codes, ensure that these QR codes are spaced sufficiently far apart.



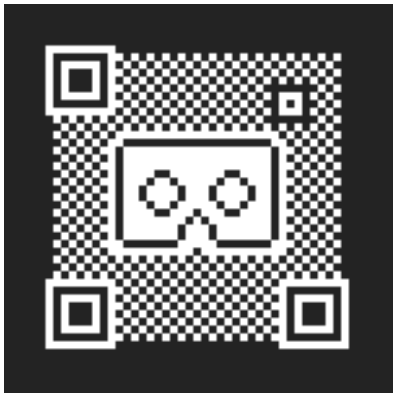
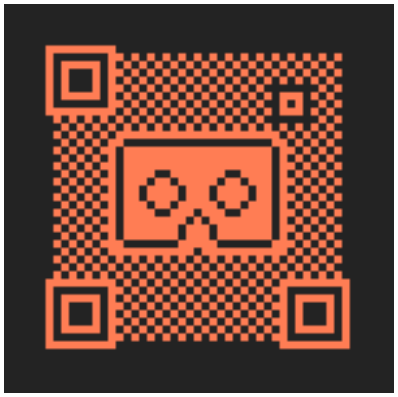
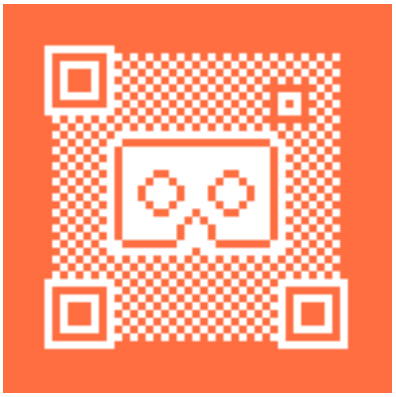
For example, at 7” / 175 mm scanning distance, a typical smartphone QR reader covers about 5.5 x 8” / 140 x 200 mm area. Do not place any other QR codes in this area.

Colors

You can adapt the colors of the QR code to match the design of your viewer.

Do

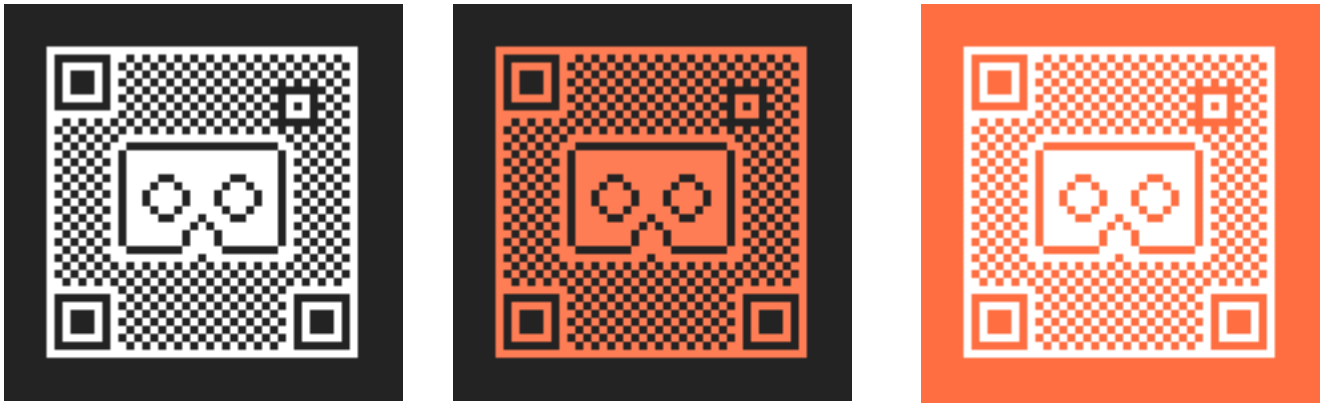
- Use only two colors (e.g. white and orange, instead of white and black):

- Preserve the color contrast on dark backgrounds by reversing-out the print process. Ultimately, pixels which were black in the original QR code should remain darker than the pixels which were originally white:

Make sure to leave a border around the position patterns (▣) as per images above if you are using reversed-out QR profiles.

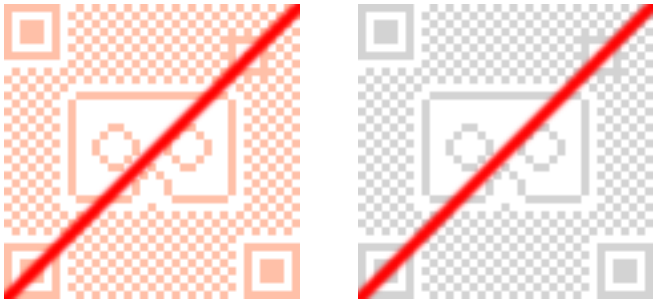
Alternatively, you can include a one-module width border around the whole reversed-out QR profile:



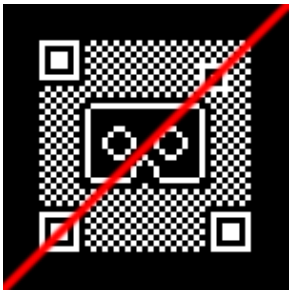
Don't

- Use more than two colors:

- Decrease the contrast between the foreground and the background:



- Invert the color contrast such that the pixels which were originally black end up being brighter than the originally white pixels.



- Place the profile on a busy or non-uniform background:

- Use a different color for the border:

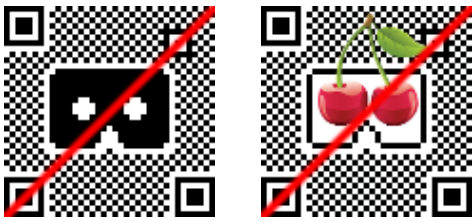
Modifications

Avoid modifying the generated QR viewer profile in any way, apart from scaling/color changes as described above.

Don't

- Change the shape of QR modules:

- Add or modify the existing visual elements:



- Add shadows:

- Disproportionately stretch or skew the QR profile.

“Works with Google Cardboard” Badge and Term

The “Works with Google Cardboard” (WWGC) badge and term are designed to indicate that a particular VR viewer has been certified by the manufacturer to be compatible with a Google Cardboard application ecosystem.

You may use the Google Cardboard assets described below (specifically the “Works with Google Cardboard” badge and the phrase “Works with Google Cardboard”) in plain text, on your viewer, on your viewer’s packaging and on your promotional and advertising materials if and only if you have been accepted to the WWGC Program and received a written approval from Google.

Badge colors

Primary

Orange is the primary WWGC badge color. Use it whenever possible.

WWGC Orange
RGB - R255, G110, B64
CMYK - C0, M71, Y79, K0
Web - #FF6E40
Pantone - 1645 C

Secondary

If you cannot use the primary badge because of an existing color scheme, use the secondary badge (gray). If the surrounding background requires a higher contrast, you can also use a reversed-out version of the gray badge. No other color variations are permitted.

WWGC Gray
RGB - R117, G120, B123
CMYK - K60
Web - #75787B
Pantone - Cool Gray 9 C

Transparency

You can also make the reversed-out badge transparent to match your viewer's color scheme:

Minimum size

The badge width should never be smaller than 64 px when used in digital media, and 0.5" when printed.

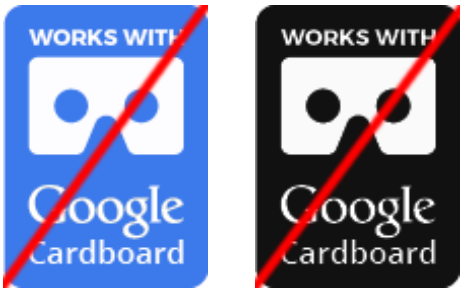
Clear space

Minimum clear space around the WWGC badge is equal to one sixth of the badge's width. Do not place photos, text or any other graphic elements inside the minimum clear space.

Modifications

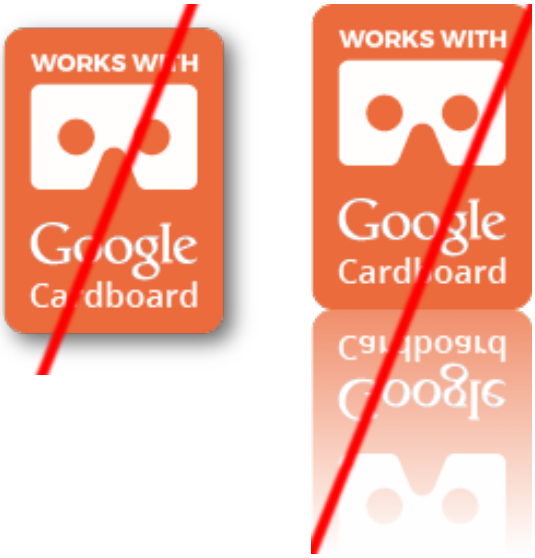
Avoid modifying the WWGC badge in any way, apart from scaling and using the appropriate color options as described above.

- Do not use different color badges than orange or gray:



- Do not use more than two colors:

- Do not add reflections or shadows:



- Do not scale the badge disproportionately, or skew it:

- Do not add any visual elements or modify the existing ones:

Badge placement

Do not make the WWGC badge a dominant graphic in a printed or digital layout. In particular, the WWGC badge should occupy less area than your viewer or company signage.

Multiple badge use

If your viewer supports multiple platforms, the WWGC badge should be placed first in the lineup of badges, and should be of equal or greater size.

Website use

If you are placing the WWGC badge on your website, make sure that the badge links to http://g.co/cardboard.

“Works with Google Cardboard” term use

If your viewer has been accepted to the WWGC Program and you have received a written approval from Google, you can use any of the following text with your viewer messaging:

- “This [device] works with Google Cardboard.”
- “Works with Google Cardboard.”

Do not modify these phrases and change the conjugation. For example, do not say “Working with Google Cardboard,” or “[device] works on Google Cardboard”.

Use the title case for “Works with Google Cardboard”, unless the phrase is used within a sentence (“we would like to announce that [device] now works with Google Cardboard”).

With any of the above text, you must also include the following attribution statement on your website(s) or printed materials: “Google Cardboard is a trademark of Google Inc.”.

Applying to WWGC Program

1. Fill out the form at http://g.co/joinwwgc.
2. Send two (2) representative samples of each candidate viewer stock keeping unit (SKU) so that Google may evaluate them.

The samples should be sent to:

WWGC Program
1600 Amphitheatre Parkway
Mountain View, CA 94043

You are responsible for all costs associated with delivering the samples to Google. Google may keep the devices and is not required to return them to you.

The chances of being accepted into the program are increased if your device:

- Does not have a headstrap.
- Has exactly one input (can be a magnet, a capacitive/conductive input, screen touch, Bluetooth or other type of input).
- Contains two wide eyebox (single-piece or multi-piece) lenses without a mechanical inter-lens/IPD adjustment.

For other manufacturing guidelines, download the best practices kit for Google Cardboard-inspired devices. If you have any questions or comments about the WWGC Program, please contact wwgc@google.com.

General Brand Use Guidelines

- Unauthorized use of Google trademarks is expressly prohibited. For information about using other Google Trademarks, please refer to Google Branding Guidelines.
- Do not name your device(s), domain name(s), website(s), social media handle(s), company, or other assets “Google Cardboard”, or anything similar that may make your product appear to be an official Google product.
- Do not file trademark applications or otherwise claim any trademark rights in any marks that are confusingly similar to Google’s trademarks, including Google and Google Cardboard.
- Do not use any Google Cardboard or other Google graphical assets (e.g., logos, product icons, etc.) other than those permitted.
- Do not overstate your relationship with Google: do not state or imply that you are an exclusive partner with Google.
- Do not suggest or imply that you have an exclusive or privileged arrangement with Google.
- Do not speak on behalf of Google, its representatives or products. You are welcome to conduct your own interviews and provide statements about your organization’s specific initiatives. However, please do not speak on behalf of Google or speculate about any Google initiatives. We’re happy to take any questions from the press that are about Google as a company, Google’s strategy, or the ins and outs of a Google product. Simply direct inquiries to press@google.com.

Change Log

Version	Date	Change description
1.0	04/16/2015	Initial “Works with Google Cardboard” viewer profile and badge guidelines.