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WAINHOUSE Research

Evaluation of the Logitech GROUP Solution

Hands-on testing of the new and improved version of the leading USB audio / video add-on solution

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Background

With 7,000 employees and generating $2.1B in revenue, Logitech is a leading PC peripheral manufacturer offering webcams, keyboards, standard and "gaming" computer mice, PC speakers, mobile speakers, tablet accessories, home control devices / remotes, and more.

Logitech is also a longstanding player in the video conferencing market.

- The company's webcams have been used for desktop video conferencing for many years.
- In 2008, Logitech acquired SightSpeed, a small video conferencing service provider, for $30M.
- In 2009, Logitech announced Logitech Vid, a video calling service based on SightSpeed technology and available free to Logitech webcam owners. Citing that other more widely used calling services (e.g. Skype) were available, Logitech shut down the Vid service in mid-2013.
- In 2009, Logitech acquired Lifesize, a Texas-based video conferencing vendor founded in 2003. In 2016, Lifesize spun off from Logitech. Today, Logitech holds 37.5% of the shares in Lifesize.

In 2011, Logitech formed the "Logitech for Business" division offering a variety of products and accessories targeting business / enterprise users. Products within the "for Business" portfolio include keyboard and mouse combination devices, wireless mice, desktop PC speakers, mobile speakerphones, tablet accessories, business headsets (wired, wireless, noise canceling microphones, etc.), presentation devices with laser pointers, and more. In addition, the company offers solution-specific devices and peripherals such as keyboards optimized for Cisco Jabber and webcams optimized for Lync.

In early 2012, the Logitech for Business division released the ConferenceCam BCC950 – an all-in-one USB peripheral that connects to a user's notebook / desktop PC and enables that device to host video conferencing sessions for small groups.

The BCC950 (see image at right) includes a 1080p-capable webcam mounted on a 9 inch extender stem with motorized pan and tilt and digital zoom, an integrated speakerphone, and a remote control for a list price of US $249.99.

<u>Introducing the "Group Conferencing Add-On Category"</u>

The Logitech BCC950 was the debut product (or at least the first heavily promoted product) in a category of offerings that Wainhouse Research (WR) has dubbed, "group conferencing add-ons."

Solutions in this category are designed to solve a very specific challenge – the fact that most personal devices (e.g. notebook PCs, tablets, and smartphones) are designed to support the audio needs of a single person and NOT a group.

Group add-on solutions include microphone(s) and speaker(s) optimized for group situations that are used in place of the BYOD device's integrated mics and speakers. Note that some add-ons also include a video camera, and as a result provide both enhanced (group ready) audio and video functionality.

In January 2014, Logitech announced a new member of the ConferenceCam family – the CC3000e. Sporting a compelling combination of features, performance, and low price (MSRP of just under US $1,000), the CC3000e has enjoyed notable success within the enterprise over the last 24 months.

In early 2015, WR contacted Logitech and asked for a demo CC3000e for our use. A few months later, WR performed an evaluation of the CC3000e solution and published the results. To be clear, Logitech did NOT pay WR to evaluate the CC3000e. Logitech licensed the evaluation results document for public distribution.

In late 2015, Logitech informed WR that a new ConferenceCam would be announced in early 2016. This new product, called "Logitech GROUP," would be a new version of the CC3000e with a handful of notable improvements as follows:

- Enhanced audio quality (thanks to a complete redesign of the acoustic platform)
- Support for five (5) camera presets
- Support for two (2) optional satellite microphones

Logitech then commissioned the WR test team to evaluate the Logitech GROUP solution and release an updated evaluation report. This document contains the results of our independent, third-party testing, and our overall opinions of the Logitech GROUP add-on solution.

The Logitech GROUP

Logitech GROUP (also referred to as "GROUP" throughout this document) provides both audio and video add-on functionality. The solution includes the following parts:

1) Camera – a 1080p-capable, motorized pan / tilt / zoom camera with 5x optical and 5x digital zoom, a 90 degree field of view, and 5 camera presets.[1]

2) Base Unit – the "brains" of the solution includes four (4) omni-directional microphones, a speaker, a control panel, and a small monochrome LCD display. The base unit also supports Bluetooth with NFC pairing.

3) Hub – a small, round, puck-like device that connects to power and acts as the cable connection point between the camera, the base unit, and the user's device.

4) Accessories – a small IR remote control that fits neatly into the front of the base unit, various connection cables, a power supply, and a multi-purpose camera mount.

5) Optional Extension Microphones – two (2) satellite microphones that connect to the Base Unit and expands the microphone coverage area from 6 meters /20 feet to 8.5 meters /28 feet (according to Logitech's published specifications). These mics are included in the Logitech GROUP + Extension Mics package for a list price of US $1,249.

The Logitech GROUP is designed to be permanently installed in a meeting room and supports two basic functions / use cases:

1) Bluetooth Speakerphone – GROUP uses Bluetooth and NFC pairing to connect to the user's smartphone, tablet, or notebook PC and act as the external mic and speaker for that device.

2) USB Audio / Video Add-On – when connected to the USB port of a BYO device (e.g. the user's notebook PC) or an in-room PC (common for DIY installations within many enterprises), GROUP's mics, speaker, and camera become available as audio input and output devices.

[1] For situations with an existing audio system, a Logitech PTZ camera is available separately for US $799.99 (MSRP).

Logitech GROUP was designed with interoperability in mind. For example, the device works with any Bluetooth-capable device (smartphone, tablet, or notebook PC) and is UVC 1.5 compliant which allows it to work with Windows systems, Mac systems, and many other devices (e.g. Chromebooks, etc.) without the need for proprietary audio and video drivers, plug-ins, or apps.

In addition, when used with some software applications (e.g. Microsoft Lync / Skype for Business, Cisco Jabber, etc.), GROUP provides additional features such as caller-ID on the LCD display, the ability to accept and hang-up calls using the control pad or IR remote, and far-end camera control.[2]

Hands-On Testing of Logitech GROUP

System Installation

As we unpacked the various pieces of the solution, we noted the solid build quality of Logitech GROUP. Despite having the same list price, GROUP's build quality is superior to that of its predecessor.

Installing GROUP took only a few minutes. In fact, it took longer to remove the pieces from the box than it took to connect the solution. No configuration was required (true plug-and-play).

As shown in the image above, the hub acts as the connection point for, 1) the speakerphone (base unit), 2) the camera, 3) system power, and 4) the USB connection to the user's BYO device or dedicated / in-room PC. The hub offers several benefits including:

- Reducing the number of cable connections at the speakerphone and camera
- Extending the maximum distance between the camera and speakerphone to 32 feet (2x the normal maximum cable length for USB 2.0 devices)
- Passing control commands between the camera and speakerphone so that a user can point the remote at the speakerphone and control the camera

We appreciate that Logitech saved time and money by leveraging USB connections throughout the system, but we also suggest the addition of a USB connection for the user's BYOD device on the base unit / speakerphone. This would eliminate the need to situate the hub near the users, or the alternative of having to run a long USB cable between the hub and the user's notebook PC.

[2] Platform-specific features depend on the platform and version in use and may require the installation of plug-ins or other applications.

We also noticed that Logitech chose to use 6-pin mini-din (a.k.a. PS/2 connectors) on the camera and base unit cables. While functional and color-coded for ease of installation, we question why the solution doesn't use standard CAT-5 or USB connections which are not only more rugged, but also easily replaced if necessary. Whenever possible, we recommend the use of standard vs. custom cabling.

Function #1 – Bluetooth Speakerphone Testing

WR tested the Logitech GROUP's Bluetooth speakerphone functionality using the following devices:

- An iPhone 6 smartphone (iOS device)
- A Samsung S6 smartphone (Android device)
- A MacBook Air notebook

The Bluetooth pairing between the devices and the GROUP base unit worked as expected. For the NFC-capable Android device, the automatic NFC pairing worked fine. For the non-NFC-capable Apple devices, standard Bluetooth pairing worked properly.

After pairing with each device, we tested the ability to conduct audio calls over Bluetooth using GROUP's microphones and speaker. In all cases, the audio performance was strong in both directions. Specifically, we noted that the GROUP's audio performance was better than its predecessor, the CC3000e.

Overall, we believe that this device would meet and exceed the expectations of the typical enterprise seeking a Bluetooth speakerphone for mobile devices for use within small to medium meeting rooms.[3]

Function #2 – USB Audio / Video Add-On

We then tested Logitech GROUP's USB add-on functionality with a Windows PC and a Mac notebook using several conferencing clients including Lync 2013 / Skype for Business, Lync 2011 (Mac), Blue Jeans Network (app and Browser client), Zoom, and Skype.

Our testing confirmed that GROUP uses standard audio and video drivers. A few seconds after connecting the USB cable, both the Windows and Mac test machines properly identified GROUP's audio and video components and made them available to the various software clients.

In all cases, the core functionality (meaning replacing the integrated mics, speakers, and camera with GROUP's mics, speaker, and camera) worked as expected. The audio quality – including the integrated echo cancellation functionality - was quite strong. In addition, the video quality was good.

[3] While not the intended purpose of the device, we also tested the playback of music via Bluetooth through Logitech GROUP. In this area, we'd categorize GROUP's performance as more than acceptable for background music playback. The system, however, was not designed for music playback and thus does not provide the dynamic range needed for natural music reproduction.

We found GROUP's user interface – both on the base unit and on the IR remote – to be simple enough to use without training or a user's guide. For example, setting a camera preset requires only positioning the camera holding down the preset button. This degree of simplicity is a rarity in the video conferencing and A/V market. Note, however, that under the USB add-on model, most of the control functions reside within the software client on the user's device and NOT on the USB add-on device.

The test team also appreciated that GROUP supports audio in/out and video in over a single USB cable. This makes the solution easy to connect compared to DIY or multi-vendor solutions requiring one audio in/out cable and one video in cable.

We then tested some of the special features available for specific software clients for Microsoft Lync and Skype for Business, Cisco Jabber, and Skype. This involved installing plug-ins and extensions available for free on the Logitech support website on our test notebooks / desktop PCs.[4] Without exception, the additional features worked as expected. For example …

- the Lync 2013 Far End Control plug-in provided both near and far-end camera control functionality (pan, tilt, zoom) during Lync calls. Note that this same software plug-in also provided near-end / local camera control while not in a call, and also digital pan / tilt / zoom for standard Logitech webcams.
- the Cisco Jabber plug-in enabled the call answer / hang-up buttons on GROUP base unit and IR remote, the in-call LED on the base unit, and the display of caller ID on the base unit during Jabber calls. [5]

We believe these convenience features will be very interesting to many users.[6]

Testing with Zoom Rooms Solution

In addition, we tested Logitech GROUP with a Zoom Rooms system. As described within our Zoom evaluation report, Zoom Rooms is a software-based group video conferencing client designed for installation on a customer-provided Mac OSX computer. The image below (courtesy of Zoom) shows the concept of using a Logitech ConferenceCam system (e.g. GROUP) with a 3-screen Zoom Rooms setup.

[4] At the time of our testing, the plug-ins and extensions were documented as being intended for use with the Logitech CC3000e. However, our testing showed that they also worked perfectly with Logitech GROUP.

[5] Caller ID on the base unit's LCD display is enabled by default (without the need for a plug-in) during Lync and Skype for Business calls.

[6] The specific features provided depends on the software client in use. Some plug-ins (e.g. the Lync 21013 far end control plug-in) can be installed with a standard user account. In other cases, admin access on the user's notebook/ desktop PC may be required.

Installing Logitech GROUP on the Zoom Rooms host PC took 30 seconds to complete. Immediately after connecting the USB cable, Zoom Rooms detected GROUP's camera, mic, and speakers. Throughout our testing, the call experience using GROUP's camera and speakerphone was strong. We also appreciated the ability to control pan / tilt / zoom of GROUP's camera via the Zoom Rooms' iPad UI. The entire process was plug and play, requiring no advanced configuration or setup.

Additional Notes / Commentary

During the testing we also stumbled across a few noteworthy items. For example, at times the auto focus on GROUP's camera did not work properly, forcing us to zoom in/out or move the camera until the image cleaned up.

In addition, the camera's pan / tilt motors are a bit loud and slow. Also at times when shifting between presets, the camera would take a strange and convoluted path. To be fair, we don't consider these issues to be particularly important for two reasons; i) we do not expect users in small / medium conference rooms to move the camera frequently, and ii) the camera offers a wide 90 degree field of view (FOV), which reduces the need to pan the camera to capture people in the room.

All in all, based on our testing with six different solutions as described above, we expect that Logitech GROUP would meet or exceed the USB audio / video add-on expectations of the typical enterprise.

Analysis and Opinions

Logitech GROUP is a shining star within the "group conferencing add-on" market category. It is easy to install, ease to use, and provides a strong audio and video user experience that leverages the user's mobile device or notebook PC, or a PC installed in an office or meeting room.

But the real story about Logitech GROUP is not around bits and bytes, frame rates and video resolution, audio quality or cable management. The headline here is the price --- specifically what you get for GROUP's sub-$1k base price. It is in the "bang for the buck" area that Logitech GROUP really shines.

Smaller meeting rooms have always presented a challenge for the audio-visual and video conferencing industry. Solutions designed for larger meeting rooms were too expensive, complex, or physically large for the smaller rooms. And lower-end solutions often forced unacceptable compromises in ease of use, performance, security, or other key areas. Logitech GROUP is a winner because despite its relatively low cost, it requires users to make only "acceptable" compromises.

At WR, we refer to the making of acceptable compromises in AV as the "good enough" or "more than adequate" syndrome which means that in small meeting rooms and huddle / teaming spaces, good enough performance is the ultimate goal. Anything beyond good enough is certainly interesting, but only if it doesn't introduce unacceptable compromises (e.g. increased cost, complexity, etc.). With GROUP, Logitech made small but noteworthy improvements to its hugely successful CC3000e product, offering an enhanced user experience without increasing the price. From our vantage point, Logitech made good choices here.

Logitech GROUP fits in the "good enough" / "more than adequate" category in many areas including …

- **Cost -** at less than $1,000, GROUP sits above the consumer-grade solutions one might use at home and below the professional (and expensive) grade solutions typically installed in enterprise meeting rooms. As a point of reference, the entire GROUP basic package (camera, base unit with mics and speaker, etc.) costs a fraction of what a professional pan / tilt / zoom cameras found in professional video conferencing systems alone might cost.
- **Audio Performance** – GROUP's audio performance is more than adequate to support the needs of a small to medium sized meeting room in the typical enterprise.
    - The device's four (4) microphones offer omni-directional (360 degrees) coverage and pick up speech at up to 20 feet from the base unit (or 28 feet with the two (2) optional extension microphones).
    - The device's speaker performance is more than adequate to handle its primary task of reproducing speech audio in small to medium sized rooms.
    - Although GROUP does not support the lower end (50 – 100 Hz) of the wide-band audio spectrum, GROUP covers a wider frequency range than its predecessor (the CC3000e) and offers a solid end-to-end audio experience. In addition, the noise cancellation within the system is good, but not exceptional.

- **Video Performance** – GROUP's camera works quite well and is more than good-enough for most applications. And in fact, GROUP offers not just H.264 encoding, but also H.264 SVC encoding which decreases the processing burden on host devices running Lync 2013 / Skype for Business.

In addition, GROUP is missing some of the key features and capabilities that end-users expect in small meeting rooms. For example, the solution does not include / support for…

- **Stand-alone audio conferencing** – GROUP does not include a SIP stack or dialer, and thus cannot act as a stand-alone speakerphone. Only as a Bluetooth or USB add-on. Over time, as users become more accustomed to using their mobile devices in meeting rooms, this will become less of an issue. But the stand-alone speaker concept is well understood and convenient. And the need to pair your phone with each GROUP system you use takes time and effort.

- **Wireless presentation** – this is the #1 most commonly requested feature within small meeting rooms today, yet it is not provided by GROUP. As a result, organizations wishing to offer this capability need to install a wireless presentation system (e.g. the AMX Enzo, Barco ClickShare, Crestron AirMedia, Kramer Via Collage, Mersive Solstice, etc. – see our comparison matrix for more information) or use GROUP with a 3rd party collaboration application (e.g. Zoom Rooms) that supports wireless presentation. This means more expense, additional cabling, and more user interfaces for the user to deal with.

- **Routing of the video output** – GROUP doesn't process or switch the video from the user's notebook in any way. Instead, the routing of the video from the user's notebook to the room display is left to the integrator or user to deal with. Given that the user already has to connect his computer to GROUP's hub, why not add an HDMI input? This would be more convenient for the user, and would neaten up the cabling in the space.

So what's the takeaway here? Logitech GROUP is not perfect. It does not cover every single feature, function, and capability that a user might want in a small to medium meeting room. But what GROUP does, it does quite well, in a neat and tidy form factor, and at a price low enough for use in thousands of meeting rooms. And the newly available optional satellite mics make GROUP viable for use in medium sized rooms as well.

Logitech GROUP is not the only solution in the group conferencing add-on category. Others include Aver's VC520 USB camera, Biamp's Devio collaboration system, Conference Room Systems' package solutions, Logitech's own ConferenceCam BCC950 and ConferenceCam Connect devices, Polycom's Trio collaboration solution, and Vaddio's GroupSTATION and HuddleSTATION offerings. Also many other vendors offer low cost USB / Bluetooth speakerphones and USB cameras. But Logitech GROUP offers the right combination of more than good-enough performance at a more than good-enough price.

If Logitech GROUP had a price point of $3,000 or more, our position would be quite different. But all things considered, Logitech GROUP is an enterprise conferencing no-brainer.

About the Authors

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About Wainhouse Research

Wainhouse Research, www.wainhouse.com, is an independent analyst firm that focuses on critical issues in the Unified Communications and Collaboration (UC&C). The company conducts multi-client and custom research studies, consults with end users on key implementation issues, publishes white papers and market statistics, and delivers public and private seminars as well as speaker presentations at industry group meetings.

About Logitech

(Copy provided by Logitech)

Logitech designs products that have an everyday place in people's lives, connecting them to the digital experiences they care about. Over 30 years ago Logitech started connecting people through computers, and now it's designing products that bring people together through music, gaming, video and computing. Founded in 1981, Logitech International is a Swiss public company listed on the SIX Swiss Exchange (LOGN) and on the Nasdaq Global Select Market (LOGI). Find Logitech at www.logitech.com, the company blog or @Logitech.