



Not all clouds are created equal

A comparison of Gmail and Outlook

Think about how much time you spend dealing with email. It consumes 28 percent of the average workweek¹, so it's crucial that the email platform you are using is fast. A few seconds here and there may seem trivial, but when you add them up over a day or week and factor in the number of people affected, the total can be staggering. The right productivity tools can help you communicate quickly and effectively.

Here at Principled Technologies, we evaluated how quickly two popular productivity suites—G Suite and Microsoft® Office 365®—actually work when you send and save files via email.

Sending and receiving attachments with Gmail,[™] part of G Suite, took dramatically less time than doing so with Outlook® Online, the browser-based Microsoft Office 365 mail client. Saving files from attachments directly to the cloud with Google Drive,[™] another G Suite component, also took less time than with Microsoft OneDrive® for Business. Read on to learn more.

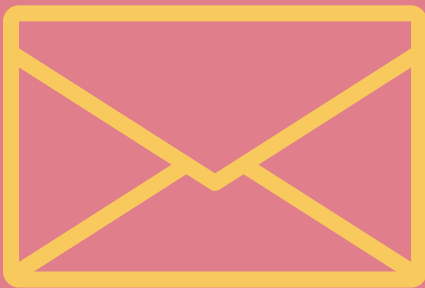
SEND AND
RECEIVE EMAIL
ATTACHMENTS

in up to

42%

LESS TIME

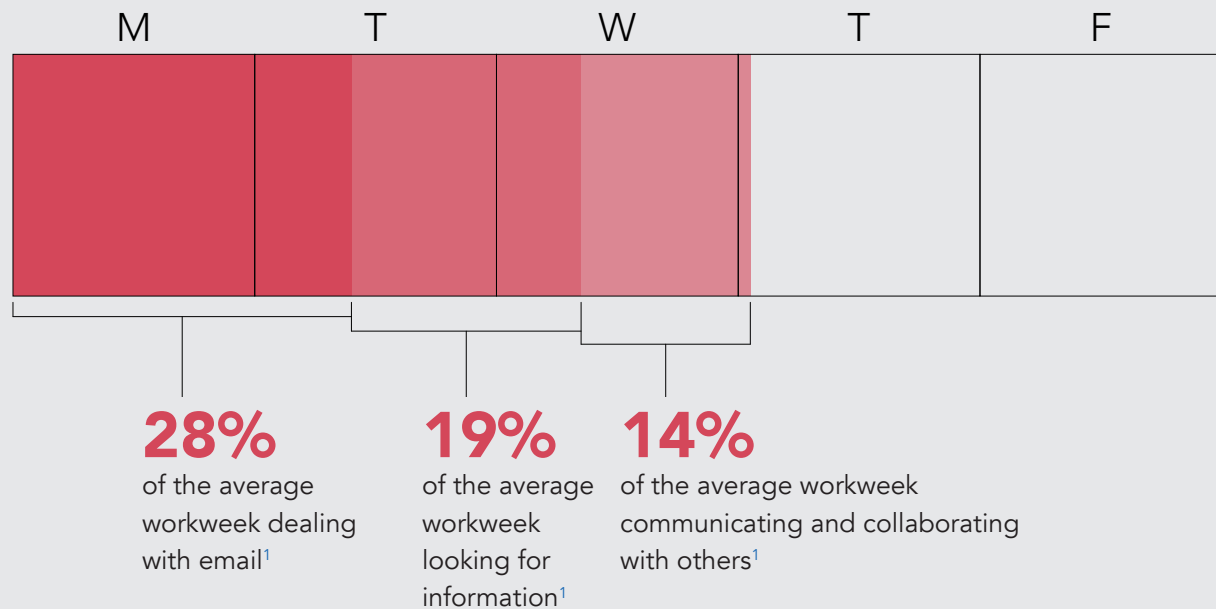
with Gmail



Give your projects the time and attention they deserve

Think about how many times a day you use email to conduct business, communicate with your teammates, and get input from others. If you can reduce the wait time involved with every email you send, you have more time to focus on work.

Workers spend:



We timed how long it took to send and receive email attachments on laptops and smartphones running a variety of operating systems, browsers, and apps. We used both Gmail and Outlook for email, and we used Google Drive and Microsoft OneDrive for Business to upload attachments to the cloud.

Gmail and Google Drive took less time to complete tests across the board. This means you can spend more time focusing on project outcomes and less time staring at your inbox.

The clock is ticking...

Keep reading to explore a few real-world scenarios in which we tested the speed of each cloud email solution.



“Let me check that for you real quick!”

Laney is a commercial real estate developer. A prospective client sends her financial spreadsheets from their bank while she’s putting together their deal.

Our results show that using Gmail could save Laney up to 26 seconds every time she previews these email attachments on her phone.

If Laney wants to use her phone to quickly retrieve a bit of information from a file while meeting with that particular client, the 2- or 3-second delay with Gmail means she can honestly say, “Let me check that for you real quick!” That’s a lot more professional than the awkward 9- to 18-second silence she and her client might experience while waiting for the same files to open with Outlook.

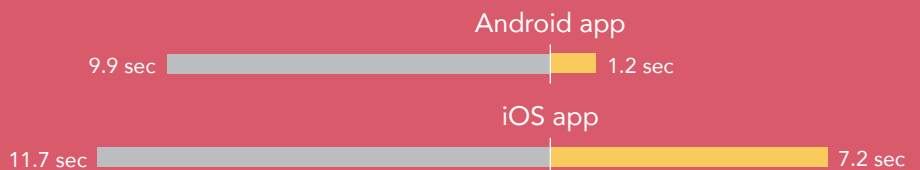
Preview a 1.3MB DOCX
in up to

89%
less time
with Gmail



Preview a 1.3MB XLSX
in up to

87%
less time
with Gmail



Preview a 4.4MB PPTX
in up to

84%
less time
with Gmail



Preview a 25MB JPG
in up to

80%
less time
with Gmail



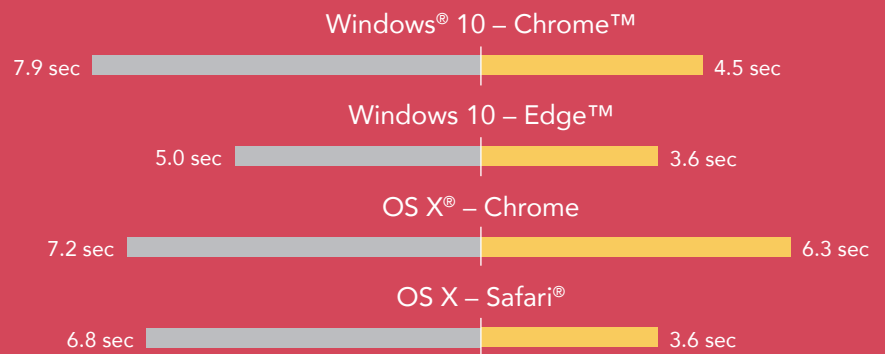
Every second counts

Jamal is a human resources manager for a company that employs over a thousand people. He's reviewing training documentation to ensure new employees start off on the right foot. Because his company uses Gmail, every worker, including Jamal, can open cloud-hosted files in just over half the time it would take when using Outlook Online.

And those seconds do add up: Saving just two seconds every time you open a shared cloud document in email (with, say, 10 emails per day across a thousand people) can reduce the company's cumulative wait time by almost 28 person-hours over the course of a week. Decreasing lag time means employees have more usable time to be productive and spend less time waiting in frustration for files to open.

Open a document from
a share link in up to

47%
less time
with Gmail



■ Outlook ■ Gmail

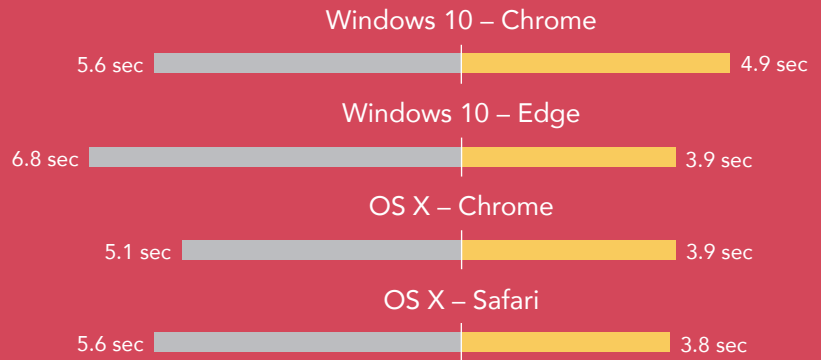
Time doesn't wait for a hard deadline

Carlos is a geologist for a natural resource agency. He will be presenting study results to leaders from across the country at a special symposium tomorrow. First, though, he needs one of his colleagues, who doesn't work in his office or use G Suite, to verify findings from a high-resolution satellite photo. Carlos emails her the slide deck and the photo.

As our tests show, if Carlos uses Gmail, this process takes much less time than it would if he used Outlook Online. Once his colleague verifies the findings, Carlos can save the image to the project directory on Google Drive in up to 90 percent less time than it would take to save to Microsoft OneDrive for Business. He can then add it to the presentation.

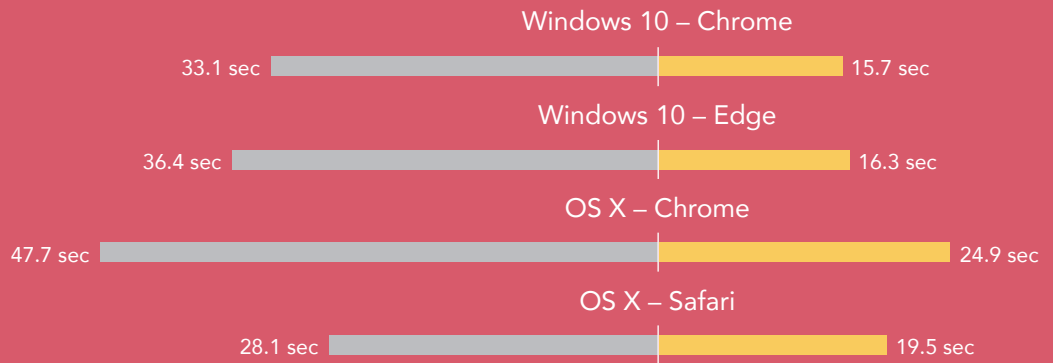
Send and receive a presentation in up to

42%
less time
with Gmail



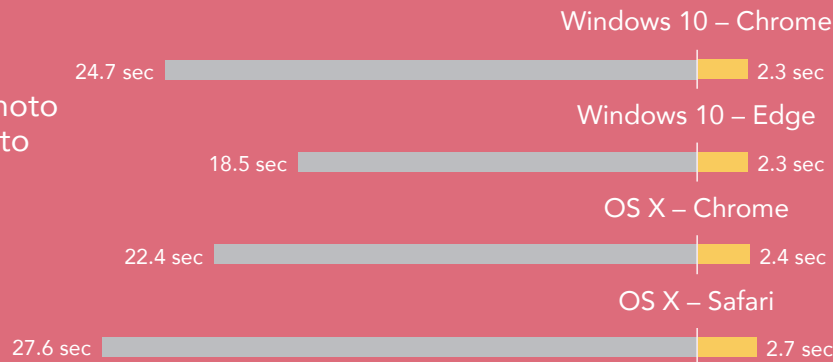
Upload a high-resolution photo in up to

55%
less time
with Gmail



Save a high-resolution photo to cloud storage in up to

90%
less time
with Gmail

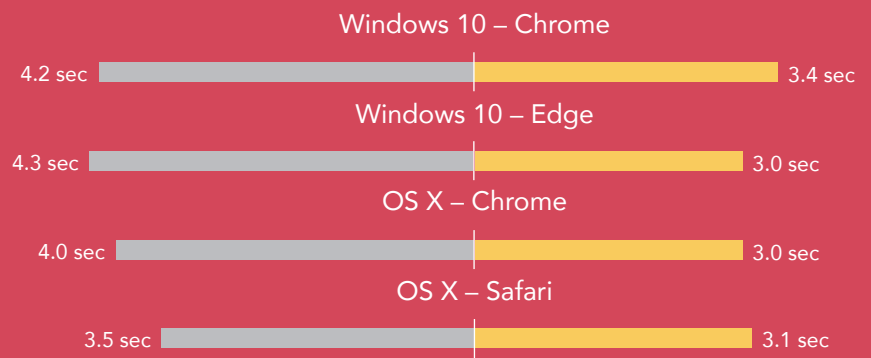


Get the word out sooner rather than later

The elementary school where LaShonda teaches will be hosting a regional teacher’s seminar next week. Today, she sends all participants an email inviting them to attend the “Introducing Students to Braille” session she’s coordinating as part of the seminar. This email outlines the objectives of the session and includes a factsheet as an attachment.

Our data shows that regardless of the operating system or browser they used, attendees using Gmail could see LaShonda’s invitation in their inboxes in up to 29 percent less time if she used Gmail instead of Outlook Online. There are only 25 spots in this study group, so the sooner they get the info, the quicker her colleagues can reserve a spot.

Send and receive
docs in up to
30%
less time
with Gmail



■ Outlook ■ Gmail

Conclusion: Don't let the transfer of information slow you down

You've done the work and now it's time to share it. Effective exchanges of information keep everyone up to speed on a project, whether they're teammates or clients. The longer it takes important emails to reach recipients, the more frustrating it can be for everyone. Extreme delays can lead to missed deadlines and opportunities.



In our hands-on testing with laptops and smartphones, sending and receiving files using Gmail took as little as 58 percent of the time that Microsoft Outlook took. As our real-life scenarios show, the seconds really add up when you look at a full day's work.

Want to try out the tests yourself? Follow the methodologies at the end of the report.

This is the fourth report in our five-part series that examines the performance of collaboration and productivity tools from G Suite and Microsoft Office 365. Read the entire series for a complete picture of how the cloud you choose can affect your business.

Additional reports in the "Not all clouds are created equal" series:

[A comparison of Google Docs™ and Microsoft Word Online](#)

[A comparison of Google Drive, Microsoft OneDrive for Business, and SharePoint® Online](#)

[A comparison of Google Hangouts™ and Skype™ for Business](#)

[A comparison of Google Sites™ and Microsoft SharePoint Online](#)

1 International Data Corporation (IDC); McKinsey Global Institute (MGI) analysis. <http://www.mckinsey.com/industries/high-tech/our-insights/the-social-economy>

On July 19, 2016, we finalized the hardware and software configurations we tested. Updates for current and recently released hardware and software appear often, so unavoidably these configurations may not represent the latest versions available when this report appears. For older systems, we chose configurations representative of typical purchases of those systems. We concluded hands-on testing on July 26, 2016.

On September 29, 2016, Google rebranded Google Apps for Work as “G Suite.” We completed our testing prior to that rebranding.

Appendix A – What we tested

The table below shows the system information for the mobile devices we tested.

System	Apple® iPhone® 6s Plus	Google Nexus™ 6P
Processor		
Vendor	Apple	Qualcomm®
Model number	A9 + M9 coprocessor	Snapdragon™ 810
Core frequency (GHz)	1.85	1.95 + 1.55
Number of cores	2	8 (4 + 4)
Memory		
Amount (GB)	2 (built-in onboard)	3 (built-in onboard)
Type	LPDDR4	LPDDR4
Graphics		
Vendor	Imagination® Technologies	Qualcomm
Model number	PowerVR® GT7600	Adreno™ 430
Storage		
Amount (GB)	64	64
Type	NAND Flash	NAND Flash
Connectivity		
Wireless internet	802.11ac (802.11a/b/g/n compatible)	802.11ac (802.11a/b/g/n compatible)
Cellular	LTE Advanced	LTE Advanced
Bluetooth	4.2	4.2
Battery		
Type	Lithium-polymer	Lithium-polymer
Size	Integrated	Integrated
Rated capacity (Wh)	10.45	13.11
Display		
Size	5.5"	5.7"
Type	LED-backlit widescreen Multi-Touch	AMOLED widescreen Multi-Touch
Resolution	1,080 x 1,920	1,440 x 2,560

System	Apple® iPhone® 6s Plus	Google Nexus™ 6P
Camera		
Front-facing (MP)	5 (720p FaceTime® HD)	8
Rear-facing (MP)	12 (iSight®)	12.3
Operating system		
Vendor	Apple	Google
Name	iOS	Android
Build number or version	9.3.2	6.0.1
Dimensions		
Height	6.23"	6.27"
Width	3.07"	3.06"
Depth	0.29"	0.28"
Weight (oz.)	6.77	6.27

The table below shows the system information for the laptops we tested.

System	Apple 13" MacBook Air® (Early 2015)	Lenovo® ThinkPad® X1 Carbon
Processor		
Vendor	Intel®	Intel
Model number	Core™ i5-5250U	Core i7-6600U
Core frequency (GHz)	1.6 (up to 2.7 Turbo Boost)	2.6 (up to 3.4 Turbo Boost)
Number of cores	2	2
Cache	3MB L3	4MB L3
Memory		
Amount (GB)	8 (built-in onboard)	8 (built-in onboard)
Type	LPDDR3	LPDDR3
Speed	1,600 MHz	1,866 MHz
Integrated graphics		
Vendor	Intel	Intel
Model number	HD Graphics 6000	HD Graphics 520
Storage		
Amount (GB)	256	256
Type	PCIe-based flash	PCIe NVMe™ SSD

System	Apple 13" MacBook Air® (Early 2015)	Lenovo® ThinkPad® X1 Carbon
Connectivity/expansion		
Wireless internet	802.11ac (802.11a/b/g/n compatible)	802.11ac (802.11a/b/g/n compatible)
Bluetooth	4.0	4.1
USB	2 x 3.0	3 x 3.0
Thunderbolt	2 x 2	N/A
Video	N/A	1 x HDMI®, 1x Mini DisplayPort
Battery		
Type	Lithium-polymer	Lithium-polymer
Size	Integrated	4-cell
Rated capacity (Wh)	54	52
Display		
Size	13.3"	14"
Type	LED-backlit glossy widescreen display	LED IPS
Resolution	1,440 x 900	1,920 x 1,080
Touchscreen	No	No
Operating system		
Vendor	Apple	Microsoft
Name	OS X El Capitan	Windows 10 Pro
Build number or version	10.11.4	1511, OS Build 10586.318
Camera		
Front-facing	720p FaceTime HD	720p
Dimensions		
Height	0.11" to 0.6"	0.6"
Width	12.8"	13.1"
Depth	8.94"	9.00"
Weight (lb.)	2.96	2.58

Appendix B – How we tested

About our testing

Network infrastructure

We used two of each device under test. We connected the two devices in each pair to separate wireless networks. We connected the devices to the 5GHz band of identical, 802.11ac-based TP-Link AC1750 wireless routers. We configured each router identically but set them to use different channels to minimize interference from nearby networks. We ran all tests on a 100Mbps down and 20Mbps up connection.

Devices

- Lenovo ThinkPad X1 Carbon (Windows 10)
- Apple 13" MacBook Air (OS X El Capitan)
- Google Nexus 6P (Android 6.0.1)
- Apple iPhone 6s Plus (iOS 9.3)

OS and browser versions

- OS X El Capitan
 - Chrome 51.0.2704.84
 - Safari 9.1.1
- Windows 10
 - Chrome 51.0.2704.84
 - Edge 25.10586.0.0
- Android 6.0.1
- iOS 9.3.2

File corpus

We used the following files as attachments in all tests:

- SampleDoc.docx (1.3 MB)
- SamplePpt.pptx (4.4 MB)
- SampleXls.xlsx (1.3 MB)

Running the laptop tests

Recording the time to open cloud-hosted document from emailed share link in online editor

1. Open a browser window, and navigate to Gmail or Outlook Online.
2. Prepare the stopwatch, and navigate to the email containing the share link for the document under test.
3. Simultaneously start the stopwatch and click the share link inside to open the document in the online editor (Google Docs or Microsoft Word Online).
4. When the document has fully loaded, stop the stopwatch. In G Suite, this is when the document is completely loaded and editable. In the Office 365 Online apps, this is when the document loads and can be viewed, but is not editable.
5. Record the result.
6. For Word Online, reset the stopwatch.
7. Click the Edit link and simultaneously start the stopwatch and from the drop-down menu, select Edit in browser.
8. When the document has fully loaded and is editable, stop the stopwatch.
9. Record the result, and add it to the result recorded in step 7 for the total time.

Recording the time to receive email

1. Open the appropriate email client or browser-based email client for the cloud storage solution under test on Laptop 1, and open the same client on Laptop 2.
2. Open a new email message:
 - In Gmail, click Compose.
 - In Outlook Online, click New.
3. Attach the appropriate file to the email:
 - In Gmail, click Attach files, navigate to and select the correct file, and click Open.
 - In Outlook Online, click Attach, navigate to and select the correct file, and click Open. Select Attach as a copy when prompted.
4. Provide the Laptop 2 user's email address in the To field, provide a non-empty subject line, and prepare the stopwatch.
5. Simultaneously click Send and start the stopwatch.
6. When the email appears in the inbox on Laptop 2, stop the stopwatch.
7. Record the result.

Recording the time to save email attachment to cloud storage directory

1. Open the appropriate email client or browser-based email client for the cloud storage solution under test on Laptop 1, and open the same client on Laptop 2.
2. Open a new email message:
 - In Gmail, click Compose.
 - In Outlook Online, click New.
3. Attach the appropriate file to the email:
 - In Gmail, click Attach files, navigate to and select the correct file, and click Open.
 - In Outlook Online, click Attach, navigate to and select the correct file, and click Open. Select Attach as a copy when prompted.
4. Provide the Laptop 2 user's email address in the To field, and provide a non-empty subject line.
5. Press Send.
6. On Laptop 2, when the email appears in the inbox, open the email, and prepare the stopwatch.
7. Simultaneously start the stopwatch and save the attachment to the cloud storage solution under test:
 - In Gmail, hover over the attachment, and click Save to Drive, and start the stopwatch.
 - In Outlook Online, press the drop-down arrow on the attachment, and click Save to OneDrive - (Organization Name Here), and start the stopwatch.
8. When the file finishes saving, stop the stopwatch:
 - In Gmail, when the balloon that appears over the attachment says "Saved to Drive," stop the stopwatch.
 - In Outlook Online, when the status message on the attachment changes to a checkmark and "Saved to," stop the stopwatch.
9. Record the result.

Recording the time to upload/send image attachment

1. Open the appropriate email client or browser-based email client under test on Laptop 1.
2. Open a new email message:
 - In Gmail, click Compose.
 - In Outlook Online, click New.
3. Provide the Laptop 2 user's email address in the To field, and provide a non-empty subject line.
4. Prepare the stopwatch, and time how long it takes to attach the appropriate file to the email:
 - In Gmail, click Attach files, navigate to and select the correct file, and simultaneously start the stopwatch and click Open.
 - In Outlook Online, click Attach, navigate to and select the correct file, and click Open. When prompted, select Attach as Copy and simultaneously start the stopwatch.
5. Use the following indicators to determine when the file under test has been uploaded successfully:
 - In Gmail, stop the stopwatch when the progress bar indicating upload progress for the attachment in the Compose screen fills and disappears.
 - In Outlook Online, stop the stopwatch when the spinning icon indicating the upload in progress for the attachment in the Compose screen disappears.
6. Record the result.

Running the mobile device tests

Previewing email attachment in mobile app

1. Prepare Smartphone 1, and ensure that the appropriate native email app (Gmail or Outlook) is the only application running in memory.
2. Open the corresponding email app on Smartphone 2, and prepare the email to send:
 - a. Tap the Compose icon to create a new email, and give it a subject.
 - b. Enter the email address associated with the G Suite or Office 365 account of the user on Smartphone 1.
 - c. Tap the attachment icon, and select a file of the appropriate size and file type.
3. Tap the send icon to send the email to Smartphone 1.
4. On Smartphone 1, open the email app under test.
5. Prepare the stopwatch and navigate to the email containing the attachment under test.
6. Simultaneously start the stopwatch and tap the attached file under test to preview it.
7. When the file fully loads on the preview screen, stop the stopwatch.
8. Record the result.
9. Delete the email, and close the app so it is no longer loaded in memory. This will ensure that the attached file is not cached for subsequent runs.

This project was commissioned by Google.



Facts matter.®

Principled Technologies is a registered trademark of Principled Technologies, Inc.
All other product names are the trademarks of their respective owners.

DISCLAIMER OF WARRANTIES; LIMITATION OF LIABILITY:

Principled Technologies, Inc. has made reasonable efforts to ensure the accuracy and validity of its testing, however, Principled Technologies, Inc. specifically disclaims any warranty, expressed or implied, relating to the test results and analysis, their accuracy, completeness or quality, including any implied warranty of fitness for any particular purpose. All persons or entities relying on the results of any testing do so at their own risk, and agree that Principled Technologies, Inc., its employees and its subcontractors shall have no liability whatsoever from any claim of loss or damage on account of any alleged error or defect in any testing procedure or result.

In no event shall Principled Technologies, Inc. be liable for indirect, special, incidental, or consequential damages in connection with its testing, even if advised of the possibility of such damages. In no event shall Principled Technologies, Inc.'s liability, including for direct damages, exceed the amounts paid in connection with Principled Technologies, Inc.'s testing. Customer's sole and exclusive remedies are as set forth herein.