


SE Labs

INTELLIGENCE-LED TESTING

ENTERPRISE ENDPOINT PROTECTION

OCT - DEC 2019





SE Labs tested a variety of anti-malware (aka ‘anti-virus’; aka ‘endpoint security’) products from a range of well-known vendors in an effort to judge which were the most effective.

Each product was exposed to the same threats, which were a mixture of targeted attacks using well-established techniques and public email and web-based threats that were found to be live on the internet at the time of the test.

The results indicate how effectively the products were at detecting and/or protecting against those threats in real time.

MANAGEMENT

Chief Executive Officer Simon Edwards
Chief Operations Officer Marc Briggs
Chief Human Resources Officer Magdalena Jurenko
Chief Technical Officer Stefan Dumitrascu

TESTING TEAM

Thomas Bean
 Dimitar Dobrev
 Liam Fisher
 Gia Gorbold
 Pooja Jain
 Jon Thompson
 Dave Togneri
 Jake Warren
 Stephen Withey

IT SUPPORT

Danny King-Smith
 Chris Short

PUBLICATION

Steve Haines
 Colin Mackleworth

Website www.SELabs.uk

Twitter @SELabsUK

Email info@SELabs.uk

Facebook www.facebook.com/selabsuk

Blog blog.selabs.uk

Phone 0203 875 5000

Post SE Labs Ltd,
 55A High Street, Wimbledon, SW19 5BA, UK

SE Labs is ISO/IEC 27001 : 2013 certified and BS EN ISO 9001 : 2015 certified for The Provision of IT Security Product Testing.

SE Labs is a member of the Microsoft Virus Information Alliance (VIA); the Anti-Malware Testing Standards Organization (AMTSO); and the Messaging, Malware and Mobile Anti-Abuse Working Group (M3AAWG).

AMTSO Standard reference:

<https://tinyurl.com/sel2019q4>

© 2019 SE Labs Ltd

CONTENTS

Introduction	04
Executive Summary	05
1. Total Accuracy Ratings	06
Enterprise Endpoint Protection Awards	07
2. Protection Ratings	08
3. Protection Scores	10
4. Protection Details	11
5. Legitimate Software Ratings	12
5.1 Interaction Ratings	13
5.2 Prevalence Ratings	14
5.3 Accuracy Ratings	14
5.4 Distribution of Impact Categories	15
6. Conclusions	15
Appendix A: Terms Used	16
Appendix B: FAQs	16
Appendix C: Product Versions	17
Appendix D: Attack Types	18

Document version 1.0 Written 17th December 2019

Document version 1.1 updated 27th December 2019 Updated Microsoft and SentinelOne results



INTRODUCTION

Testing deeper, wider and better

Bad guys evolve; defenders evolve; testing (should) evolve

This report represents the state-of-the-art in computer security endpoint testing. If you want to see how the very best security products handle a range of threats, from every-day (but nevertheless very harmful) malware to targeted attacks, this is a great place to start.

Criminals and other attackers need to succeed to survive, so they don't give up just because their first efforts fail. They adapt. As a result, the security companies that provide protection to Windows PCs try to keep up and, if we're lucky, get ahead of the bad guys' developments.

This means that existing technologies change and improve. At the same time new products appear on the market to either compete directly or plug gaps perceived in more 'traditional' solutions. It's an arms race and on-going testing is a really good way to determine how well that fight is going.

But tests also need to adapt, otherwise improvements will go un-recognised and brave claims unchallenged. 'Easy' tests, that don't recognise ways in which attackers behave today, aren't good enough anymore.

SE Labs has always been at the cutting edge of security testing and the way we put products through their paces has encouraged the involvement of well-established security vendors and inspired newer ones to step up.

Most noticeably in our reports on business products, we've seen most of the best-known new vendors join our testing programme, encouraged as they are by the relevance and credibility of SE Labs' testing. They like how we pay attention to detail and disclose that detail with maximum transparency. It's rare to see reports of these newer products elsewhere.

We can't test every product all the time, so we include new ones in each report where we can. If you read back over the last few reports you should see wide coverage of the best-known products and some you've probably never heard of.

I encourage you to read past the initial awards and graphs, and dig into some of the detail deeper in this report. Find out if your preferred product is generally great or has a few weak spots you should pay attention to. Maybe you need to add another product to your setup? Or maybe you just need a complete change? This report will help you make that decision.

If you spot a detail in this report that you don't understand, or would like to discuss, please contact us via our Twitter or Facebook accounts. SE Labs uses current threat intelligence to make our tests as realistic as possible. To learn more about how we test, how we define 'threat intelligence' and how we use it to improve our tests please visit our website and follow us on Twitter.

This test report was funded by post-test consultation services provided by SE Labs to security vendors. Vendors of all products included in this report were able to request early access to results and the ability to dispute details for free. SE Labs has submitted the testing process behind this report for compliance with the AMTSO Testing Protocol Standard v1.2. To verify its compliance please check the AMTSO reference link at the bottom of page three of this report or [here](#).

Executive Summary

Product Names

It is good practice to stay up to date with the latest version of your chosen endpoint security product. We made best efforts to ensure that each product tested was the very latest version running with the most recent updates to give the best possible outcome.

For specific build numbers, see **Appendix C: Product Versions** on page 17.

EXECUTIVE SUMMARY			
Products Tested	Protection Accuracy Rating (%)	Legitimate Accuracy Rating (%)	Total Accuracy Rating (%)
Kaspersky Endpoint Security	100%	100%	100%
Symantec Endpoint Security Enterprise Edition	98%	100%	99%
Sophos Intercept X	96%	100%	98%
ESET Endpoint Security	95%	100%	98%
Trend Micro OfficeScan, Intrusion Defense Firewall	93%	100%	98%
CrowdStrike Falcon	93%	100%	98%
McAfee Endpoint Security	90%	100%	97%
SentinelOne Endpoint Protection Platform	95%	97%	97%
Microsoft Windows Defender Enterprise	96%	97%	96%
Bitdefender Gravity Zone Endpoint Security	92%	98%	96%
VIPRE Endpoint Security	91%	98%	95%
Webroot SecureAnywhere Endpoint Protection	79%	100%	93%

Products highlighted in green were the most accurate, scoring 85 per cent or more for Total Accuracy. Those in yellow scored less than 85 but 75 or more. Products shown in red scored less than 75 per cent.

For exact percentages, see **1. Total Accuracy Ratings** on page 6.

■ The endpoints were generally effective at handling general threats from cyber criminals...

Most products were largely capable of handling public web-based threats such as those used by criminals to attack Windows PCs, tricking users into running malicious files or running scripts that download and run malicious files.

■ ...and targeted attacks were prevented in all cases.

Most products were competent at blocking more targeted, exploit-based attacks. All but one stopped every targeted attack. Webroot was the exception.

■ False positives were not an issue for the products

All of the endpoint solutions were good at correctly classifying legitimate applications and websites. They allowed all of the legitimate websites and applications with the exception of products from Bitdefender, SentinelOne and VIPRE, which each blocked one. Microsoft Defender blocked two.

■ Which products were the most effective?

Products from Kaspersky Lab, Symantec and Sophos achieved extremely good results due to a combination of their ability to block malicious URLs, handle exploits and correctly classify legitimate applications and websites. All but one of the other products performed well enough to achieve AAA awards.

1. Total Accuracy Ratings

Judging the effectiveness of an endpoint security product is a subtle art, and many factors are at play when assessing how well it performs. To make things easier we've combined all the different results from this report into one easy-to-understand graph.

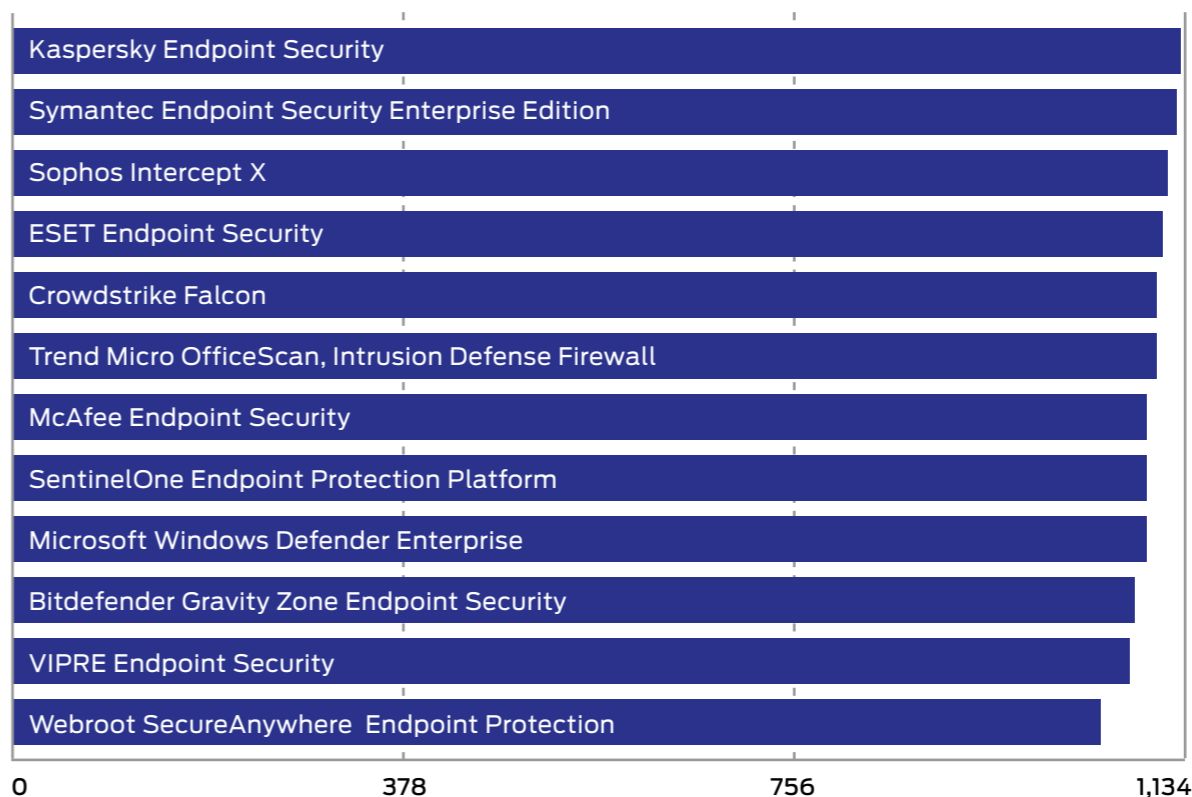
The graph below takes into account not only each product's ability to detect and protect against threats, but also its handling of non-malicious objects such as web addresses (URLs) and applications.

Not all protections, or detections for that matter, are equal. A product might completely block a URL, which stops the threat before it can even start its intended series of malicious events. Alternatively, the product might allow a web-based exploit to execute but prevent it from downloading any further code to the target. In another case malware might run on the target for a short while before its behaviour is detected and its code is deleted or moved to a safe 'quarantine' area for future analysis. We take these outcomes into account when attributing points that form final ratings.

For example, a product that completely blocks a threat is rated more highly than one that allows a threat to run for a while before eventually evicting it. Products that allow all malware infections, or that block popular legitimate applications, are penalised heavily.

Categorising how a product handles legitimate objects is complex, and you can find out how we do it in **5. Legitimate Software Ratings** on page 12.

TOTAL ACCURACY RATINGS			
Product	Total Accuracy Rating	Total Accuracy (%)	Award
Kaspersky Endpoint Security	1,132	100%	AAA
Symantec Endpoint Security Enterprise Edition	1,125	99%	AAA
Sophos Intercept X	1,116	98%	AAA
ESET Endpoint Security	1,112	98%	AAA
CrowdStrike Falcon	1,106	98%	AAA
Trend Micro OfficeScan, Intrusion Defense Firewall	1,106	98%	AAA
McAfee Endpoint Security	1,095	97%	AAA
SentinelOne Endpoint Protection Platform	1,095	97%	AAA
Microsoft Windows Defender Enterprise	1,094	96%	AAA
Bitdefender Gravity Zone Endpoint Security	1,085	96%	AAA
VIPRE Endpoint Security	1,080	95%	AAA
Webroot SecureAnywhere Endpoint Protection	1,051	93%	AA



Total Accuracy Ratings combine protection and false positives.

Enterprise Endpoint Protection Awards

The following products win SE Labs awards:

- **Kaspersky** Endpoint Security
- **Symantec** Endpoint Security Enterprise Edition
- **Sophos** Intercept X
- **ESET** Endpoint Security
- **CrowdStrike** Falcon
- **Trend Micro** OfficeScan, Intrusion Defense Firewall
- **McAfee** Endpoint Security
- **SentinelOne** Endpoint Protection Platform
- **Microsoft** Windows Defender Enterprise
- **Bitdefender** Gravity Zone Endpoint Security
- **VIPRE** Endpoint Security



- **Webroot** SecureAnywhere Endpoint Protection



2. Protection Ratings

The results below indicate how effectively the products dealt with threats. Points are earned for detecting the threat and for either blocking or neutralising it.

■ Detected (+1)

If the product detects the threat with any degree of useful information, we award it one point.

■ Blocked (+2)

Threats that are disallowed from even starting their malicious activities are blocked. Blocking products score two points.

■ Complete Remediation (+1)

If, in addition to neutralising a threat, the product removes all significant traces of the attack, it gains an additional one point.

■ Neutralised (+1)

Products that kill all running malicious processes 'neutralise' the threat and win one point.

■ Persistent Neutralisation (-2)

This result occurs when a product continually blocks a persistent threat from achieving its aim, while not removing it from the system.

■ Compromised (-5)

If the threat compromises the system, the product loses five points. This loss may be reduced to four points if it manages to detect

the threat (see Detected, above), as this at least alerts the user, who may now take steps to secure the system.

Rating Calculations

We calculate the protection ratings using the following formula:

$$\begin{aligned} \text{Protection Rating} = & \\ & (1x \text{ number of Detected}) + \\ & (2x \text{ number of Blocked}) + \\ & (1x \text{ number of Neutralised}) + \\ & (1x \text{ number of Complete remediation}) + \\ & (-5x \text{ number of Compromised}) \end{aligned}$$

The 'Complete remediation' number relates to cases of neutralisation in which all significant traces of the attack were removed from the target. Such traces should not exist if the threat was 'Blocked' and so Blocked results imply Complete remediation.

These ratings are based on our opinion of how important these different outcomes are. You may have a different view on how seriously you treat a 'Compromise' or 'Neutralisation without complete remediation'. If you want to create your own rating system, you can use the raw data from **4. Protection Details** on page 11 to roll your own set of personalised ratings.

Targeted Attack Scoring

The following scores apply only to targeted attacks and are cumulative, ranging from -1 to -5.

■ Access (-1)

If any command that yields information about the target system is successful this score is applied. Examples of successful commands include listing current running processes, exploring the file system and so on. If the first command is attempted and the session is terminated by the product without the command being successful the score of Neutralised (see above) will be applied.

■ Action (-1)

If the attacker is able to exfiltrate a document from the target's Desktop of the currently logged in user then an 'action' has been successfully taken.

■ Escalation (-2)

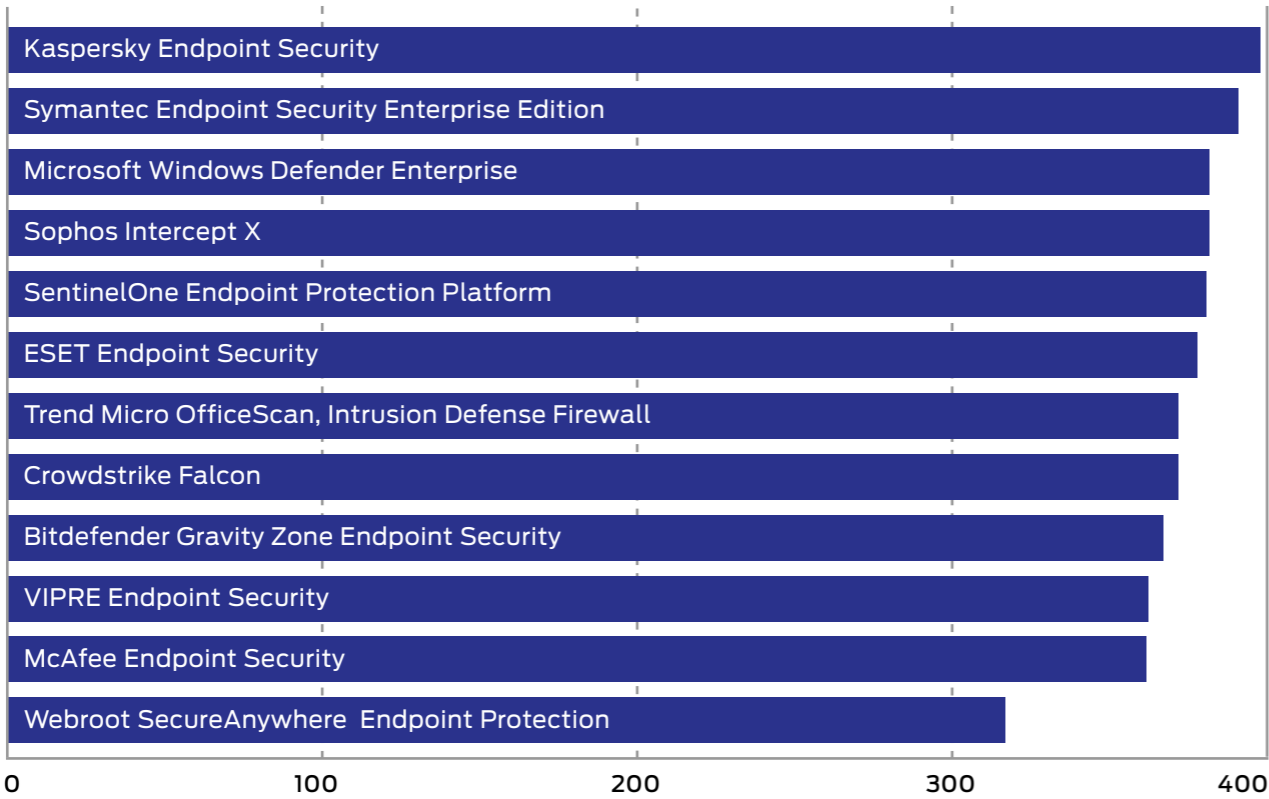
The attacker attempts to escalate privileges to NT Authority/System. If successful, an additional two points are deducted.

■ Post-Escalation Action (-1)

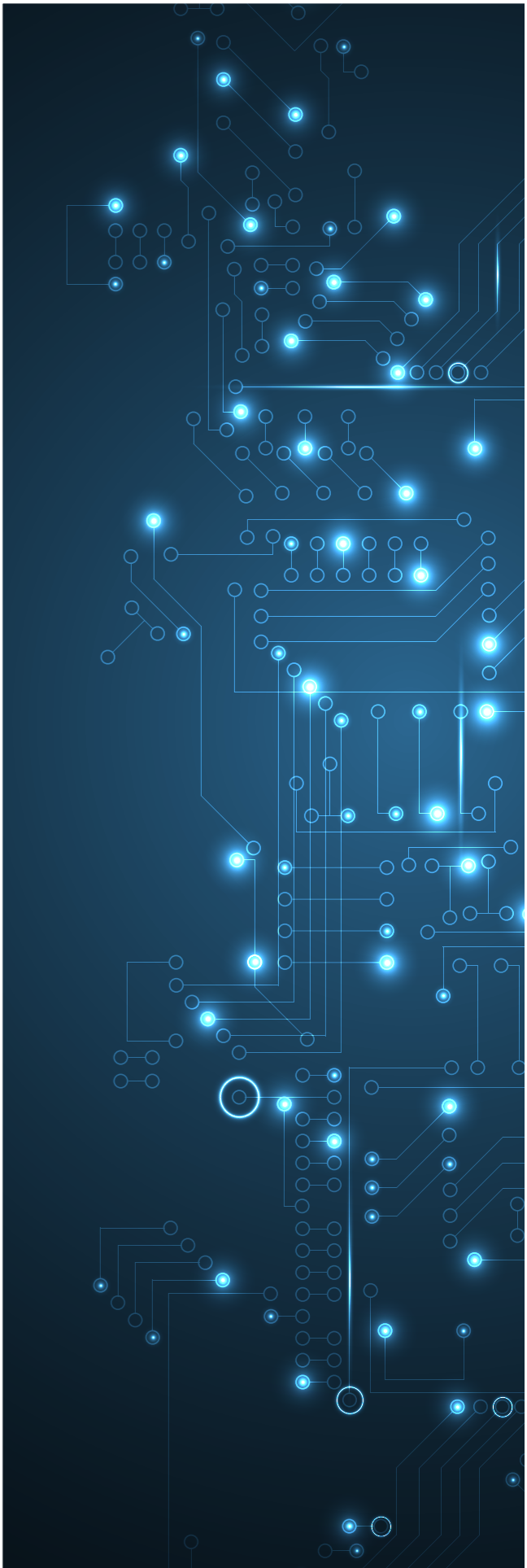
After escalation the attacker attempts actions that rely on escalated privileges. These include attempting to steal credentials, modifying the file system and recording keystrokes. If any of these actions are successful then a further penalty of one point deduction is applied.

PROTECTION RATINGS		
Product	Protection Rating	Protection Rating (%)
Kaspersky Endpoint Security	398	100%
Symantec Endpoint Security Enterprise Edition	391	98%
Microsoft Windows Defender Enterprise	382	96%
Sophos Intercept X	382	96%
SentinelOne Endpoint Protection Platform	381	95%
ESET Endpoint Security	378	95%
Trend Micro OfficeScan, Intrusion Defense Firewall	372	93%
CrowdStrike Falcon	372	93%
Bitdefender Gravity Zone Endpoint Security	367	92%
VIPRE Endpoint Security	362	91%
McAfee Endpoint Security	361	90%
Webroot SecureAnywhere Endpoint Protection	317	79%

Average 93%



Protection Ratings are weighted to show that how products handle threats can be subtler than just 'win' or 'lose'.

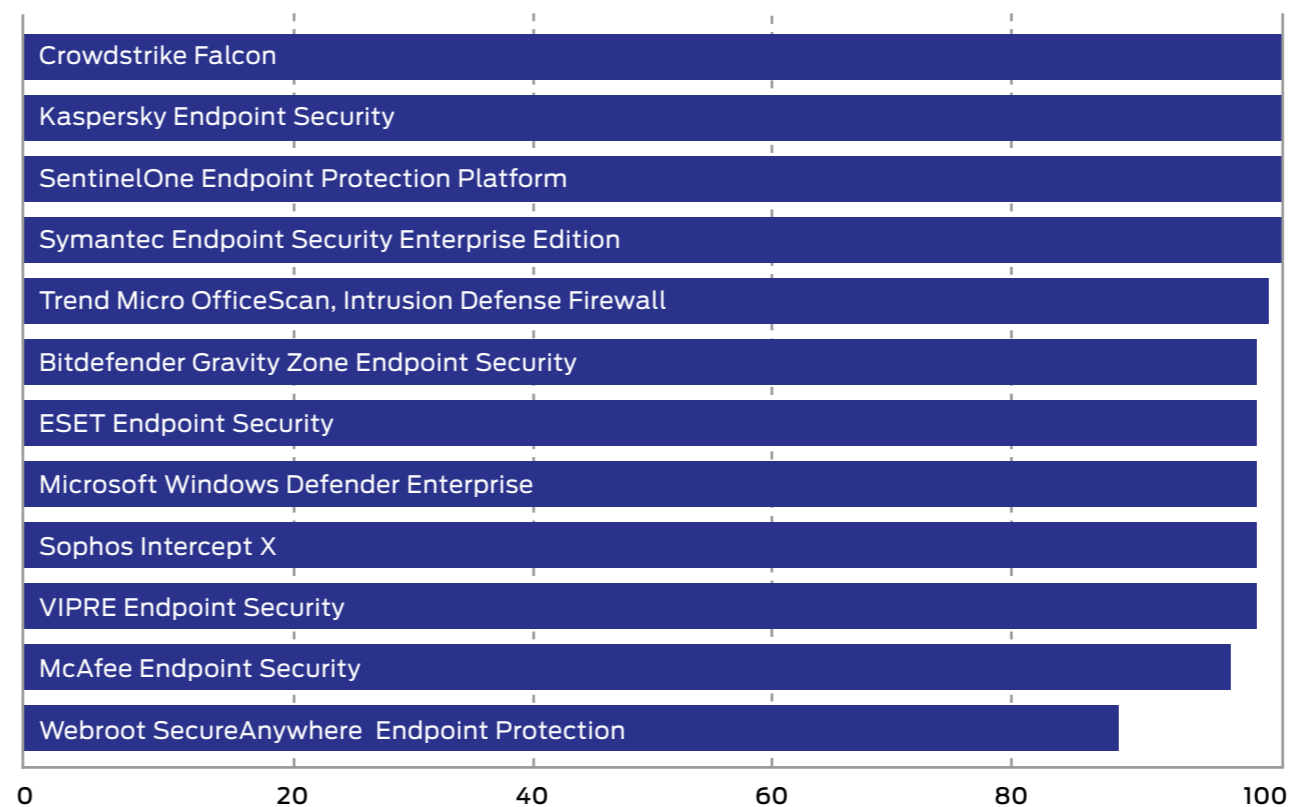


3. Protection Scores

This graph shows the overall level of protection, making no distinction between neutralised and blocked incidents.

For each product we add Blocked and Neutralised cases together to make one simple tally.

PROTECTION SCORES	
Product	Protection Score
Crowdstrike Falcon	100
Kaspersky Endpoint Security	100
SentinelOne Endpoint Protection Platform	100
Symantec Endpoint Security Enterprise Edition	100
Trend Micro OfficeScan, Intrusion Defense Firewall	99
Bitdefender Gravity Zone Endpoint Security	98
ESET Endpoint Security	98
Microsoft Windows Defender Enterprise	98
Sophos Intercept X	98
Vipre Endpoint Security	98
McAfee Endpoint Security	96
Webroot SecureAnywhere Endpoint Protection	87



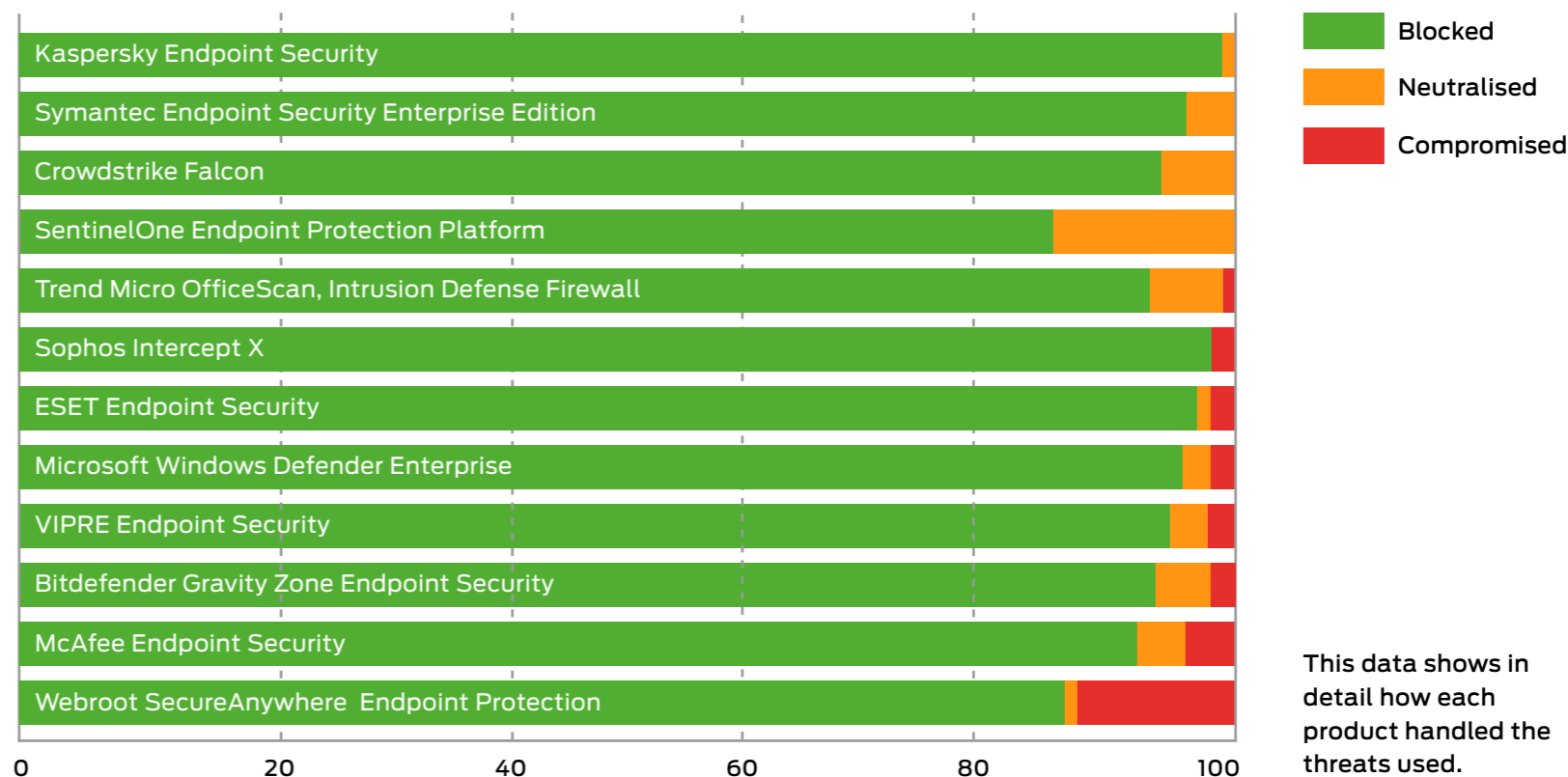
Protection Scores are a simple count of how many times a product protected the system.

4. Protection Details

These results break down how each product handled threats into some detail. You can see how many detected a threat and the levels of protection provided.

Products sometimes detect more threats than they protect against. This can happen when they recognise an element of the threat but aren't equipped to stop it. Products can also provide protection even if they don't detect certain threats. Some threats abort on detecting specific endpoint protection software.

PROTECTION DETAILS					
Product	Detected	Blocked	Neutralised	Compromised	Protected
Kaspersky Endpoint Security	100	99	1	0	100
Symantec Endpoint Security Enterprise Edition	100	96	4	0	100
CrowdStrike Falcon	100	94	6	0	100
SentinelOne Endpoint Protection Platform	100	85	15	0	100
Trend Micro OfficeScan, Intrusion Defense Firewall	99	93	6	1	99
Sophos Intercept X	98	98	0	2	98
ESET Endpoint Security	99	97	1	2	98
Microsoft Windows Defender Enterprise	100	96	2	2	98
VIPRE Endpoint Security	98	95	3	2	98
Bitdefender Gravity Zone Endpoint Security	98	94	4	2	98
McAfee Endpoint Security	100	92	4	4	96
Webroot SecureAnywhere Endpoint Protection	99	86	1	13	87



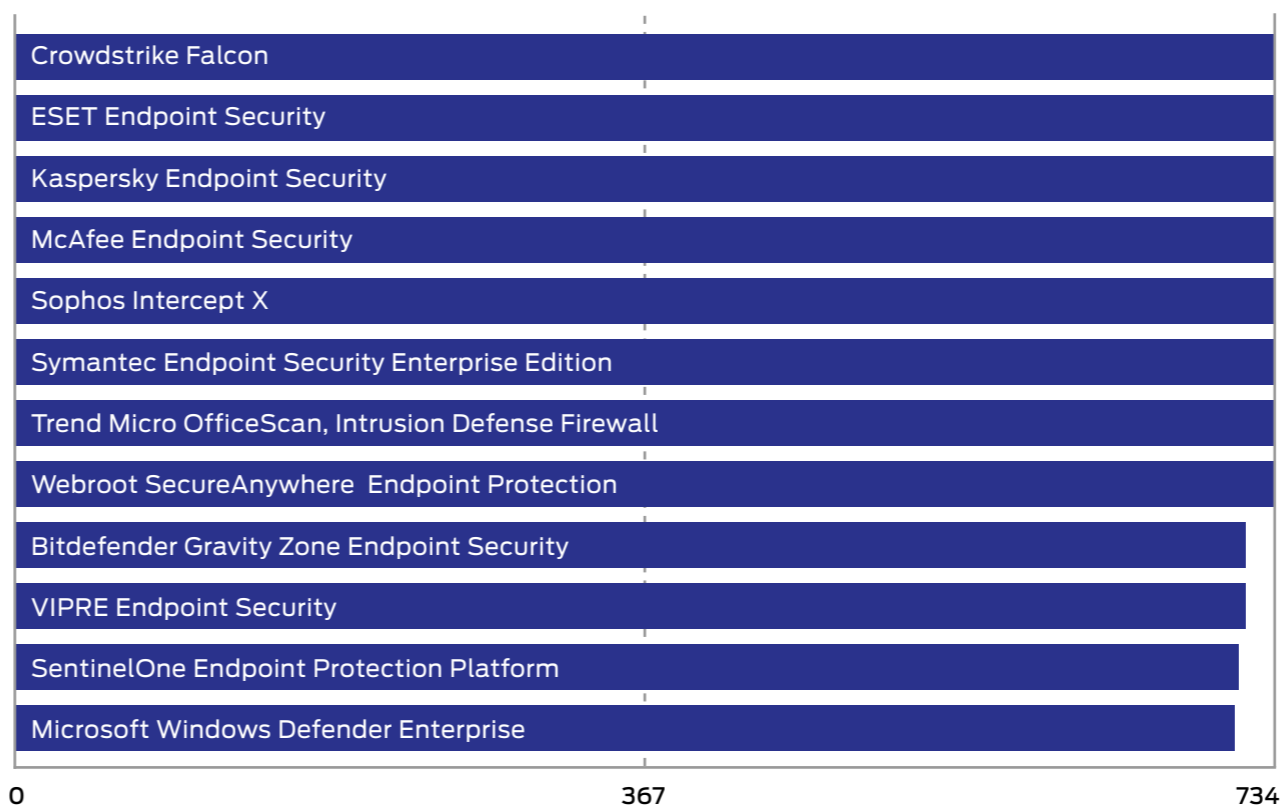
5. Legitimate Software Ratings

These ratings indicate how accurately the products classify legitimate applications and URLs, while also taking into account the interactions that each product has with the user. Ideally a product will either not classify a legitimate object or will classify it as safe. In neither case should it bother the user.

We also take into account the prevalence (popularity) of the applications and websites used in this part of the test, applying stricter penalties for when products misclassify very popular software and sites.

To understand how we calculate these ratings, see [5.3 Accuracy Ratings](#) on page 14.

LEGITIMATE SOFTWARE RATINGS		
Product	Legitimate Accuracy Rating	Legitimate Accuracy (%)
CrowdStrike Falcon	734	100%
ESET Endpoint Security	734	100%
Kaspersky Endpoint Security	734	100%
McAfee Endpoint Security	734	100%
Sophos Intercept X	734	100%
Symantec Endpoint Security Enterprise Edition	734	100%
Trend Micro OfficeScan, Intrusion Defense Firewall	734	100%
Webroot SecureAnywhere Endpoint Protection	734	100%
Bitdefender Gravity Zone Endpoint Security	718	98%
VIPRE Endpoint Security	718	98%
SentinelOne Endpoint Protection Platform	714	97%
Microsoft Windows Defender Enterprise	712	97%



Legitimate Software Ratings can indicate how well a vendor has tuned its detection engine.

5.1 Interaction Ratings

It's crucial that anti-malware endpoint products not only stop – or at least detect – threats, but that they allow legitimate applications to install and run without misclassifying them as malware. Such an error is known as a 'false positive' (FP).

In reality, genuine FPs are quite rare in testing. In our experience it is unusual for a legitimate application to be classified as 'malware'. More often it will be classified as 'unknown', 'suspicious' or 'unwanted' (or terms that mean much the same thing).

We use a subtle system of rating an endpoint's approach to legitimate objects, which takes into account how it classifies the application and how it presents that information to the user. Sometimes the endpoint software will pass the buck and demand that the user decide if the application is safe or not. In such cases the product may make a recommendation to allow or block. In other cases, the product will make no recommendation, which is possibly even less helpful.

If a product allows an application to install and run with no user interaction, or with simply a brief notification that the application is likely to be safe, it has achieved an optimum result. Anything else is a Non-Optimal Classification/Action (NOCA). We think that measuring NOCAs is more useful than counting the rarer FPs.

	None (Allowed)	Click to Allow (Default Allow)	Click to Allow/Block (No Recommendation)	Click to Block (Default Block)	None (Blocked)	
Object is Safe	2	1.5	1			A
Object is Unknown	2	1	0.5	0	-0.5	B
Object is not Classified	2	0.5	0	-0.5	-1	C
Object is Suspicious	0.5	0	-0.5	-1	-1.5	D
Object is Unwanted	0	-0.5	-1	-1.5	-2	E
Object is Malicious				-2	-2	F
	1	2	3	4	5	

INTERACTION RATINGS		
Product	None (Allowed)	None (Blocked)
CrowdStrike Falcon	100	0
ESET Endpoint Security	100	0
Kaspersky Endpoint Security	100	0
McAfee Endpoint Security	100	0
Sophos Intercept X	100	0
Symantec Endpoint Security Enterprise Edition	100	0
Trend Micro OfficeScan, Intrusion Defense Firewall	100	0
Webroot SecureAnywhere Endpoint Protection	100	0
Bitdefender Gravity Zone Endpoint Security	99	1
SentinelOne Endpoint Protection Platform	99	1
VIPRE Endpoint Security	99	1
Microsoft Windows Defender Enterprise	98	2

Products that do not bother users and classify most applications correctly earn more points than those that ask questions and condemn legitimate applications.

5.2 Prevalence Ratings

There is a significant difference between an endpoint product blocking a popular application such as the latest version of Microsoft Word and condemning a rare Iranian dating toolbar for Internet Explorer 6. One is very popular all over the world and its detection as malware (or something less serious but still suspicious) is a big deal. Conversely, the outdated toolbar won't have had a comparably large user base even when it was new. Detecting this application as malware may be wrong, but it is less impactful in the overall scheme of things.

With this in mind, we collected applications of varying popularity and sorted them into five separate categories, as follows:

1. **Very High Impact**
2. **High Impact**
3. **Medium Impact**
4. **Low Impact**
5. **Very Low Impact**

Incorrectly handling any legitimate application will invoke penalties, but classifying Microsoft Word as malware and blocking it without any way for the user to override this will bring far greater penalties than doing the same for an ancient niche toolbar. In order to calculate these relative penalties, we assigned each impact category with a rating modifier, as shown in the table above.

LEGITIMATE SOFTWARE PREVALENCE RATING MODIFIERS	
Impact Category	Rating Modifier
Very High Impact	5
High Impact	4
Medium Impact	3
Low Impact	2
Very Low Impact	1

Applications were downloaded and installed during the test, but third-party download sites were avoided and original developers' URLs were used where possible. Download sites will sometimes bundle additional components into applications' install files, which may correctly cause anti-malware products to flag adware. We remove adware from the test set because it is often unclear how desirable this type of code is.

The prevalence for each application and URL is estimated using metrics such as third-party download sites and the data from Alexa.com's global traffic ranking system.

5.3 Accuracy Ratings

We calculate legitimate software accuracy ratings by multiplying together the interaction and prevalence ratings for each download and installation:

Accuracy rating = Interaction rating x Prevalence rating

If a product allowed one legitimate, Medium impact application to install with zero interaction with the user, then its Accuracy rating would be calculated like this:

Accuracy rating = 2 x 3 = 6

This same calculation is made for each legitimate application/site in the test and the results are summed and used to populate the graph and table shown under **5. Legitimate Software Ratings** on page 12.

5.4 Distribution of Impact Categories

Endpoint products that were most accurate in handling legitimate objects achieved the highest ratings. If all objects were of the highest prevalence, the maximum possible rating would be 1,000 (100 incidents x (2 interaction rating x 5 prevalence rating)).

In this test there was a range of applications with different levels of prevalence. The table below shows the frequency:

LEGITIMATE SOFTWARE CATEGORY FREQUENCY	
Prevalence Rating	Frequency
Very High Impact	32
High Impact	34
Medium Impact	13
Low Impact	11
Very Low Impact	10

6. Conclusions

Attacks in this test included threats that affect the wider public and more closely targeted individuals and organisations. You could say that we tested the products with 'public' malware and full-on hacking attacks. We introduced the threats in a realistic way such that threats seen in the wild on websites were downloaded from those same websites, while threats caught spreading through email were delivered to our target systems as emails.

All of the products tested are well-known and should do well in this test. While we do 'create' threats by using publicly available free hacking tools, we don't write unique malware so there is no technical reason why any vendor being tested should do poorly.

Consequently, it's not a shock to see all products handle the public threats very effectively. Even the weaker products protected the target systems in the vast majority of cases. Targeted attacks were also handled well by all.

Products from Kaspersky Lab, Symantec, CrowdStrike and SentinelOne protected against

all of the public and targeted attacks. ESET scored higher than CrowdStrike because, although it was compromised twice, it didn't neutralise as often as CrowdStrike. In terms of protection, CrowdStrike scored higher. SentinelOne appears lower down the Total Accuracy chart because it generated one false positive and neutralised much more frequently than other products, which usually blocked threats outright.

Most other products handled the legitimate applications correctly, with the exceptions of those from Bitdefender, VIPRE, SentinelOne and Microsoft. Products from Sophos, VIPRE, ESET and Bitdefender stopped all the targeted attacks and but missed two public threats each. Similarly, Microsoft stopped all of targeted attacks and allowed two public threats through, while McAfee was also competent at thwarting targeted attacks but missed four public threats.

The leading products from Kaspersky Lab, Symantec, Sophos, ESET, CrowdStrike, Trend Micro, SentinelOne, Microsoft, Bitdefender and VIPRE all win AAA awards.

Appendices

APPENDIX A: Terms Used

TERM	MEANING
Compromised	The attack succeeded, resulting in malware running unhindered on the target. In the case of a targeted attack, the attacker was able to take remote control of the system and carry out a variety of tasks without hindrance.
Blocked	The attack was prevented from making any changes to the target.
False positive	When a security product misclassifies a legitimate application or website as being malicious, it generates a 'false positive'.
Neutralised	The exploit or malware payload ran on the target but was subsequently removed.
Complete Remediation	If a security product removes all significant traces of an attack, it has achieved complete remediation.
Target	The test system that is protected by a security product.
Threat	A program or sequence of interactions with the target that is designed to take some level of unauthorised control of that target.
Update	Security vendors provide information to their products in an effort to keep abreast of the latest threats. These updates may be downloaded in bulk as one or more files, or requested individually and live over the internet.

APPENDIX B: FAQs

A [full methodology](#) for this test is available from our website.

- The products chosen for this test were selected by SE Labs.
- The test was unsponsored.
- The test was conducted between 30th September to 18th November 2019.
- All products were configured according to each vendor's recommendations, when such recommendations were provided.
- Malicious URLs and legitimate applications and URLs were independently located and verified by SE Labs.
- Targeted attacks were selected and verified by SE Labs.
- Malicious and legitimate data was provided to partner organisations once the test was complete.
- SE Labs conducted this endpoint security testing on physical PCs, not virtual machines.
- The web browser used in this test was Google Chrome. When testing Microsoft products Chrome was equipped with the Windows Defender Browser Protection browser extension (<https://browserprotection.microsoft.com>).

Q What is a partner organisation? Can I become one to gain access to the threat data used in your tests?

A Partner organisations benefit from our consultancy services after a test has been run. Partners may gain access to low-level data that can be useful in product improvement initiatives and have permission to use award logos, where appropriate, for marketing purposes. We do not share data on one partner with other partners. We do not partner with organisations that do not engage in our testing.

Q I am a security vendor and you tested my product without permission. May I access the threat data to verify that your results are accurate?

A We are willing to share a certain level of test data with non-partner participants for free. The intention is to provide sufficient data to demonstrate that the results are accurate. For more in-depth data suitable for product improvement purposes we recommend becoming a partner.

APPENDIX C: Product Versions

The table below shows the service's name as it was being marketed at the time of the test.

PRODUCT VERSIONS			
Provider	Product Name	Build Version (start)	Build Version (end)
Bitdefender	Gravity Zone Endpoint Security	Product: 6.6.13.175 Engine 7.82299	Product: 6.6.14.204 Engine: 7.82923
CrowdStrike	Falcon	5.17.9803.0	5.20.10207.0
ESET	Endpoint Security	7.1.2045.5	version: 7.1.2053.0
Kaspersky	Endpoint Security	11.1.1.126 aes256	11.2.0.2254 aes256
McAfee	Endpoint Security	5.6.1.157	Exchange version: 5.0.2.130. Agent version: 5.6.2.209. Endpoint security version: 10.6
Microsoft	Windows Defender Enterprise	4.18.1907.4	Antimalware Client Version: 4.18.1910.4 Engine Version: 1.1.16500.1 Antivirus Version: 1.305.2357.0 Anti-spyware Version: 1.305.2357.0
SentinelOne	Endpoint Protection Platform	3.2.4.54	3.2.4.54
Sophos	Intercept X	2.4.1	2.4.1 Sophos Intercept X: 2.0.15.2 EndpointAdvanced10.8.3.441
Symantec	Endpoint Security Enterprise Edition	Version 14 (14.2) build 770 (14.2.770.0000)	Version 14 (14.2) build 770 (14.2.770.0000)
Trend Micro	OfficeScan, Intrusion Defense Firewall	12.0.1861	12.0.1861
VIPRE	Endpoint Security	11.0.7629	Definitions: 79420
Webroot	SecureAnywhere Endpoint Protection	9.0.24.49	version: 9.0.26.61

APPENDIX D: Attack Types

The table below shows how each product protected against the different types of attacks used in the test.

ATTACK TYPES			
Product	Web-Download	Targeted Attack	Protected
CrowdStrike Falcon	75	25	100
Kaspersky Endpoint Security	75	25	100
SentinelOne	75	25	100
Symantec Endpoint Security Enterprise Edition	75	25	100
Trend Micro OfficeScan, Intrusion Defense Firewall	74	25	99
Bitdefender Gravity Zone Endpoint Security	73	25	98
ESET Endpoint Security	73	25	98
Microsoft Windows Defender Enterprise	73	25	98
Sophos Intercept X	73	25	98
Vipre Endpoint Security	73	25	98
McAfee Endpoint Security	71	25	96
Webroot SecureAnywhere Endpoint Protection	74	13	87

SE Labs Report Disclaimer

1. The information contained in this report is subject to change and revision by SE Labs without notice.
2. SE Labs is under no obligation to update this report at any time.
3. SE Labs believes that the information contained within this report is accurate and reliable at the time of its publication, which can be found at the bottom of the contents page, but SE Labs does not guarantee this in any way.
4. All use of and any reliance on this report, or any information contained within this report, is solely at your own risk. SE Labs shall not be liable or responsible for any loss of profit (whether incurred directly or indirectly), any loss of goodwill or business reputation, any loss of data suffered, pure economic loss, cost of procurement of substitute goods or services, or other intangible loss, or any indirect, incidental, special or consequential loss, costs, damages, charges or expenses or exemplary damages arising his report in any way whatsoever.
5. The contents of this report does not constitute a recommendation, guarantee, endorsement or otherwise of any of the products listed, mentioned or tested.
6. The testing and subsequent results do not guarantee that there are no errors in the products, or that you will achieve the same or similar results. SE Labs does not guarantee in any way that the products will meet your expectations, requirements, specifications or needs.
7. Any trade marks, trade names, logos or images used in this report are the trade marks, trade names, logos or images of their respective owners.
8. The contents of this report are provided on an "AS IS" basis and accordingly SE Labs does not make any express or implied warranty or representation concerning its accuracy or completeness.