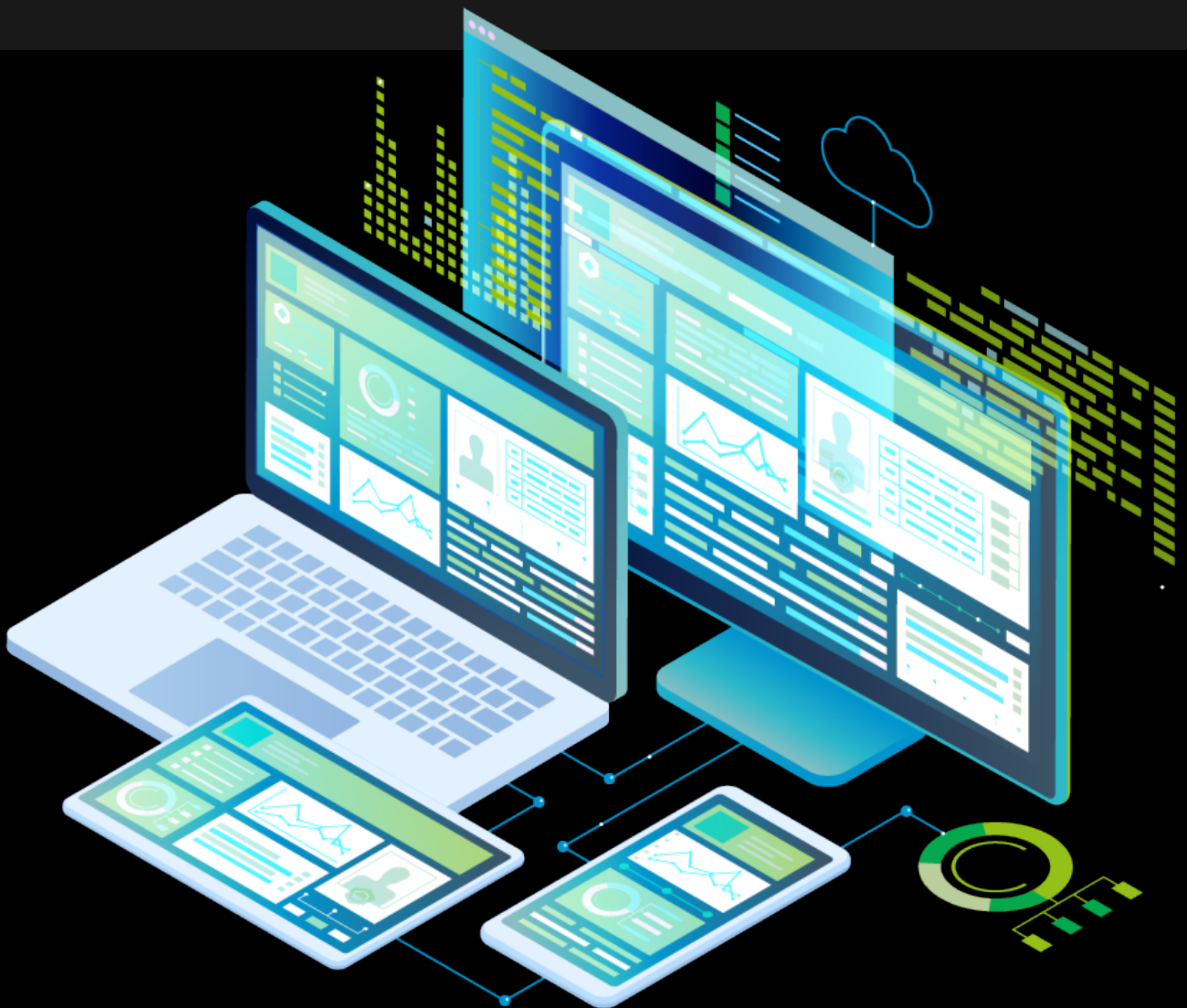


Test Coverage Guide

A Blueprint for Strategic Mobile & Web Testing

SPRING 2022



'WHAT SHOULD I BE TESTING RIGHT NOW?'

Our customers often come to our application quality experts with a few crucial questions:

What combination of devices, browsers, and operating systems should we be testing against right now?

What updates should we be planning for in the future?

This guide provides data to help you answer those questions.

Because no single data source tells the full story, we've combined exclusive Perforce data and global mobile market usage data to provide a benchmark of devices, web browsers, and user conditions to test on — so you can make strategic decisions about test coverage across mobile and web applications.

CONTENTS

3 Putting Coverage Data Into Practice

MOBILE RECOMMENDATIONS

7 Market Share by Country

9 Device Index by Country

18 Mobile Release Calendar

WEB & OS RECOMMENDATIONS

20 Market Share by Country

21 Web Release Calendar

22 About Perfecto

DATA INTO PRACTICE

How can the coverage data be applied to real-world executions? Here are five considerations when assessing size, capacity, and the right platform coverage in a mobile test lab.

Balance Data & Analysis With Risk

Combine data in this guide with your own analysis and risk assessment to decide whether to start testing with the Essential, Enhanced, or Extended mobile coverage buckets.

Map Coverage Against Your Pipeline

Map coverage needs to your test pipeline. In Figure 1 below, we divide a common pipeline by testing types and triggers. Virtual devices are often best used in earlier phases. Real devices in later phases.

Optimize Your Lab Configuration

Bundle in test data parameters (like number of tests, test duration, and required execution time). These parameters provide the actual time a full-cycle or subset may take based on your lab configuration. If outside the boundaries of the testing cycle time, more parallelization and platforms may be required.

Mix Real & Virtual Devices

Adding emulators and simulators can improve efficiency and coverage. They can't catch every bug. But testing on real devices only can result in limited coverage. [Read the blog to learn more >>](#)

Figure 1. Coverage Against Pipeline

	Unit Testing P1		Build Acceptance Test P1 + P2	Acceptance Test Regression & Non-Functional	Production P3
Test Platform	1 iOS (device/simulator) 2 Android (device/emulator) 2 Desktop Browsers		Essential (Top 10) Mobile & Web Platforms	Enhanced/Extended Coverage (Top 25-32 Platforms)	2 iOS 2 Android 2-4 Browsers
Trigger	Per-commit	Post-commit	Scheduled Daily	Scheduled Nightly	Scheduled Hourly
Environment	Dev Workstation		Continuous Integration Server		Production

Eliminate Bottlenecks With Load Testing

A service outage can cost hundreds of thousands of dollars and harm your brand reputation. Avoid these nightmare scenarios by incorporating load testing into your device testing strategy.

We recommend running both smaller load tests after each build and larger load tests for specific events when your site will be put under extra stress, e.g. Black Friday or the Super Bowl. Start at 10% of your peak load, then slowly ramp up while monitoring indicators at each stage.

Next, identify your total capacity, then run load tests at 80% of that total. Monitor your load testing KPIs and how your system reacts. Ensure everything is perfectly stable at 80%. Memory capacity should be mellow, CPU low,

and recovery from spikes quick. If something seems jittery at this point, you certainly won't be able to count on it at 100% load.

If the test failed, identify bottlenecks and errors and fix what needs fixing before testing your system again. If it succeeded, slowly climb up to 100%.

Once you've reached full capacity, it's time to test the load you anticipate based on previous user patterns, trend analysis, product requirements, and expected events. Check for memory leaks, high CPU usage, unusual server behavior, and any errors during these tests.

BlazeMeter recently joined Perfecto as part of the Perforce family. Learn how these two leading platforms are joining forces to [offer full coverage of the entire test pyramid.](#) >>

Key Performance Indicator (KPI) Checklist

KPI ▼	Threshold ▼▲	Comparison ▼▲	Actual ▼▲	Status ▼▲
responseTime.max	10000	>	480255	X
responseTime.avg	5000	>	480000.08	X
errors.percent	10	>	0	✓
errors.count	20	>	0	✓

Sizing Your Executions

As you expand coverage, parallel testing becomes essential for accelerating test runs and avoiding unnecessary labor costs.

Figure 2 below examines the impact of 150 regression tests each running for three minutes against one platform. By multiplying each test against the test coverage bucket, we get total hours per test cycle.

150 regression tests for each of the top 10 devices would take about 10 business days. In this case, we need to run more tests in parallel to complete testing sooner.

With the right number of devices & parallel executions, you can accelerate test runs and avoid costs.

As the figure shows, running those same regression tests in parallel across 9 devices saves 67 hours and approximately \$3,500 per cycle. (Figuring an average \$100K salary and 2,080 working hours a year.)

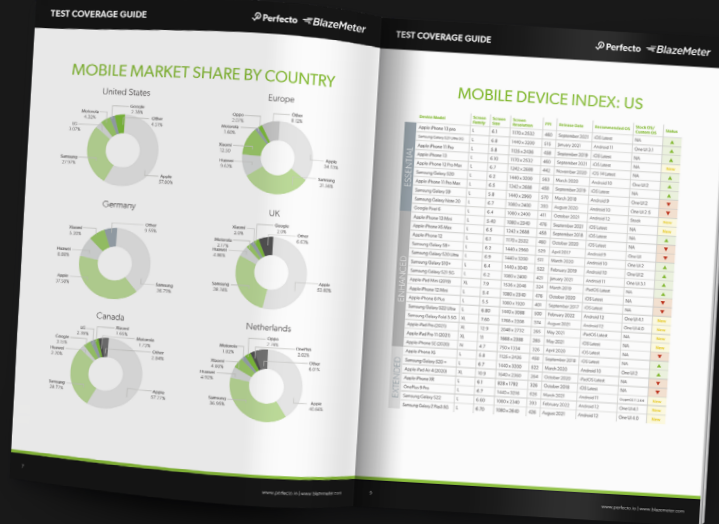
Parallel test execution (against the right platforms with the right test cases with high value) helps teams save time, reduce costs, and expedite feedback.

Figure 2. Sizing Parallel Executions

Coverage Bucket	No. of Unique Tests (Regression Ste.)	Avg. Time Per Test	Execution Window	Execution Time (Serial)	Parallel Execution Requirement	Cost Avoidance (Business Tester Annual Salary Input)
Essential Top 10	150	3 minutes	8 hours	4,500 minutes (75 hours)	9	67 hours saved (\$3,500 per cycle)
Enhanced Top 25	150	3 minutes	8 hours	11,250 minutes (187.5 hours)	23	180 hours saved (\$8,640 per cycle)
Extended Top 32	150	3 minutes	8 hours	14,400 minutes (240 hours)	30	232 hours saved (\$11,136 per cycle)

MOBILE COVERAGE RECOMMENDATIONS

Select your target country and assess coverage by device as divided into three groups — Essential, Enhanced, and Extended. Cross-reference this list with your own data and risk assessment to determine coverage gaps and opportunities.



Terms & Symbols to Know

Essential: Must test for minimal coverage. Includes top 10 most-used devices.

Enhanced: Expand for reduced risk. Includes top 25 devices, including legacy and trending devices and different screen sizes.

Extended: For maximum coverage, least risk. Includes top 32 devices, with niche, legacy, and brand new devices to represent the long tail.

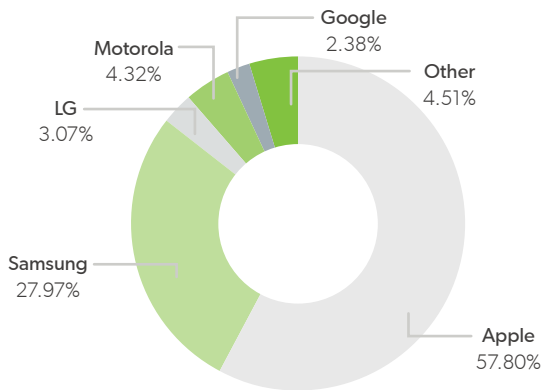
Up Arrow, Down Arrow, Equal Sign: Indicates usage changes since last quarter.

New: Devices that are new to the index or are reference devices running the latest OS.

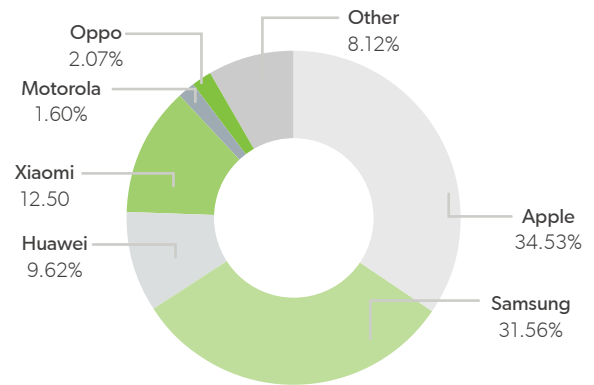
Note: The Mobile Device Coverage Index is an objective reflection of selected markets based on mobile device usage of specific operating system versions. Some of the device and operating system combinations that are recommended in this report may no longer be available from OEMs or wireless network providers due to market dynamics

MOBILE MARKET SHARE BY COUNTRY

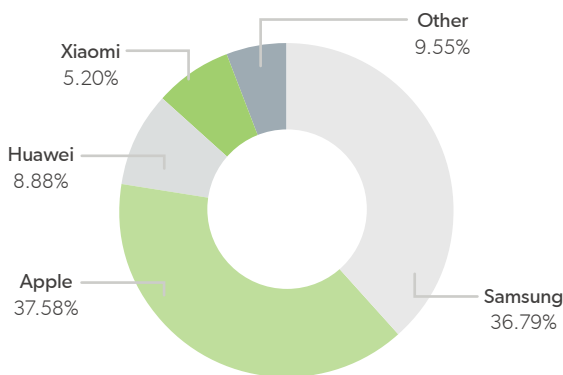
United States



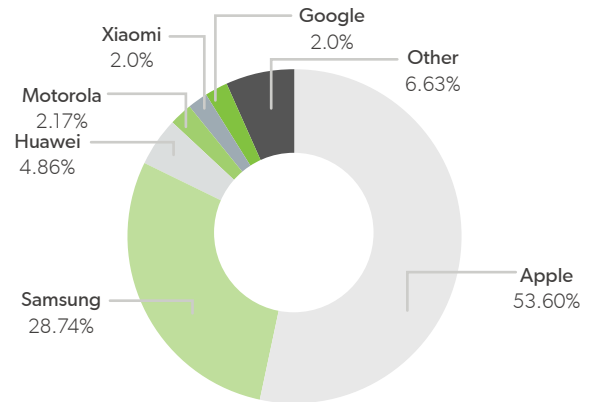
Europe



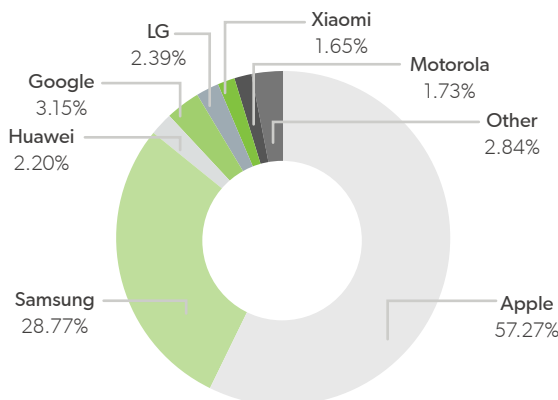
Germany



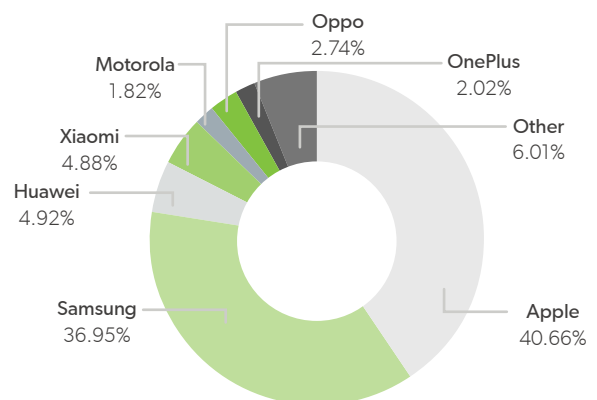
UK



Canada

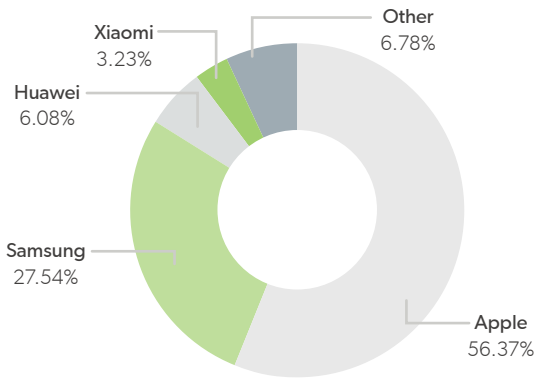


Netherlands

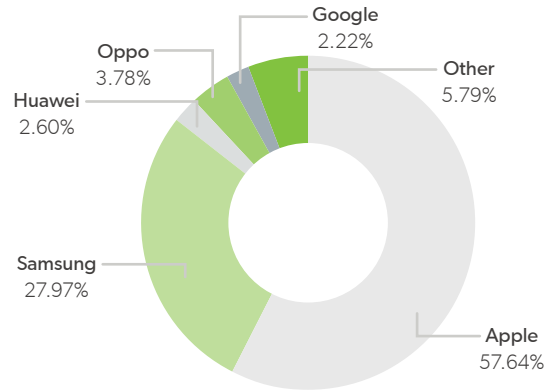


MOBILE MARKET SHARE BY COUNTRY

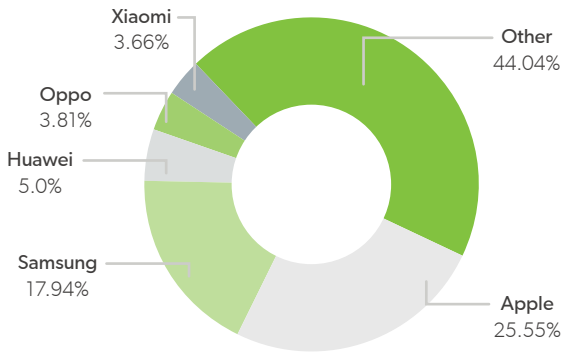
Switzerland



Australia



Singapore



MOBILE DEVICE INDEX: US

	Device Model	Screen Family	Screen Size	Screen Resolution	PPI	Release Date	Recommended OS	Stock OS/ Custom OS	Status	
ESSENTIAL	Apple iPhone 13 pro	L	6.1	1170 x 2532	460	September 2021	iOS Latest	NA	▲	
	Samsung Galaxy S21 Ultra 5G	L	6.8	1440 x 3200	515	January 2021	Android 11	One UI 3.1	▲	
	Apple iPhone 11 Pro	L	5.8	1125 x 2436	458	September 2019	iOS Latest	NA	▲	
	Apple iPhone 13	L	6.10	1170 x 2532	460	September 2021	iOS Latest	NA	New	
	Apple iPhone 12 Pro Max	L	6.7	1242 x 2688	442	November 2020	iOS 14 Latest	NA	▲	
	Samsung Galaxy S20	L	6.2	1440 x 3200	563	March 2020	Android 10	One UI 2	▲	
	Apple iPhone 11 Pro Max	L	6.5	1242 x 2688	458	September 2019	iOS Latest	NA	▲	
	Samsung Galaxy S9	L	5.8	1440 x 2960	570	March 2018	Android 9	One UI 2	▼	
	Samsung Galaxy Note 20	L	6.7	1080 x 2400	393	August 2020	Android 10	One UI 2.5	▼	
	Google Pixel 6	L	6.4	1080 x 2400	411	October 2021	Android 12	Stock	New	
ENHANCED	Apple iPhone 13 Mini	L	5.40	1080 x 2340	476	September 2021	iOS Latest	NA	New	
	Apple iPhone XS Max	L	6.5	1242 x 2688	458	September 2018	iOS Latest	NA	▲	
	Apple iPhone 12	L	6.1	1170 x 2532	460	October 2020	iOS Latest	NA	▼	
	Samsung Galaxy S8+	L	6.2	1440 x 2960	529	April 2017	Android 9	One UI	▼	
	Samsung Galaxy S20 Ultra	L	6.9	1440 x 3200	511	March 2020	Android 10	One UI 2	▲	
	Samsung Galaxy S10+	L	6.4	1440 x 3040	522	February 2019	Android 10	One UI 2	▲	
	Samsung Galaxy S21 5G	L	6.2	1080 x 2400	421	January 2021	Android 11	One UI 3.1	▲	
	Apple iPad Mini (2019)	XL	7.9	1536 x 2048	324	March 2019	iPadOS Latest	NA	▲	
	Apple iPhone 12 Mini	L	5.4	1080 x 2340	476	October 2020	iOS Latest	NA	▼	
	Apple iPhone 8 Plus	L	5.5	1080 x 1920	401	September 2017	iOS Latest	NA	▼	
	Samsung Galaxy S22 Ultra	L	6.80	1440 x 3088	500	February 2022	Android 12	One UI 4.1	New	
	Samsung Galaxy Fold 3 5G	XL	7.60	1768 x 2208	374	August 2021	Android 12	One UI 4.0	New	
	Apple iPad Pro (2021)	XL	12.9	2048 x 2732	265	May 2021	iPadOS Latest	NA	New	
	Apple iPad Pro 11 (2021)	XL	11	1668 x 2388	265	May 2021	iOS Latest	NA	New	
	Apple iPhone SE (2020)	N	4.7	750 x 1334	326	April 2020	iOS Latest	NA	▼	
	Apple iPhone XS	L	5.8	1125 x 2436	458	September 2018	iOS Latest	NA	▲	
	EXTENDED	Samsung Galaxy S20 +	L	6.7	1440 x 3200	522	March 2020	Android 10	One UI 2	▲
		Apple iPad Air 4 (2020)	XL	10.9	1640 x 2360	264	October 2020	iPadOS Latest	NA	▼
Apple iPhone XR		L	6.1	828 x 1792	326	October 2018	iOS Latest	NA	▼	
OnePlus 9 Pro		L	6.7	1440 x 3216	525	March 2021	Android 11	OxygenOS 11.2.6.6	New	
Samsung Galaxy S22		L	6.60	1080 x 2340	393	February 2022	Android 12	One UI 4.1	New	
Samsung Galaxy Z Flip3 5G		L	6.70	1080 x 2640	426	August 2021	Android 12	One UI 4.0	New	

MOBILE DEVICE INDEX: CANADA

	Device Model	Screen Family	Screen Size	Screen Resolution	PPI	Release Date	Recommended OS	Stock OS/ Custom OS	Status
ESSENTIAL	Apple iPhone 12	L	6.1	1170 x 2532	460	October 2020	iOS Latest	NA	▲
	Samsung Galaxy S20 Ultra	L	6.9	1440 x 3200	511	March 2020	Android 10	One UI 2	▲
	Samsung Galaxy S10+	L	6.4	1440 x 3040	522	February 2019	Android 10	One UI 2	▲
	Apple iPhone 11 Pro Max	L	6.5	1242 x 2688	458	September 2019	iOS 14 Latest	NA	▲
	Apple iPhone 13 Pro Max	L	6.70	1284 x 2778	458	September 2021	iOS Latest	NA	New
	Samsung Galaxy Z Flip3 5G	L	6.70	1080 x 2640	426	August 2021	Android 12	One UI 4.0	New
	Samsung Galaxy S21 5G	L	6.2	1080 x 2400	421	January 2021	Android 11	One UI 3.1	New
	Apple iPhone 13 Pro	L	6.10	1170 x 2532	460	September 2021	iOS Latest	NA	New
	Huawei P30 Pro	L	6.47	1080 x 2340	398	March 2019	Android 10	EMUI 10	New
	Google Pixel 6	L	6.4	1080 x 2400	411	October 2021	Android 12	Stock	New
ENHANCED	Samsung Galaxy S8	L	5.8	1440 x 2960	570	April 2017	Android 9	One UI	▼
	Apple iPhone 8 Plus	L	5.5	1080 x 1920	401	September 2017	iOS Latest	NA	▼
	Samsung Galaxy S22 +	L	6.60	1080 x 2340	393	February 2022	Android 12	One UI 4.1	New
	Apple iPhone 13	L	6.10	1170 x 2532	460	September 2021	iOS Latest	NA	New
	Apple iPhone 12 Pro Max	L	6.7	1242 x 2688	442	November 2020	iOS latest	NA	▲
	Huawei Nova 9	L	6.57	1080 x 2340	392	September 2021	Harmony OS 2.0	EMUI 12	New
	Apple iPad Pro 11 (2021)	XL	11	1668 x 2388	265	May 2021	iOS Latest	NA	New
	Motorola One 5G Ace	L	6.7	1080 x 2400	393	January 2021	Android 10	Stock	New
	Samsung Galaxy S22 Ultra	L	6.80	1440 x 3088	500	February 2022	Android 12	One UI 4.1	New
	Apple iPad Mini (2019)	XL	7.9	1536 x 2048	324	March 2019	iPadOS Latest	NA	▲
	Samsung Galaxy Tab A8 10.5	XL	10.5	1200 x 1920	216	January 2022	Android 11	One UI 3.0	New
	Apple iPhone 13 Mini	L	5.40	1080 x 2340	476	September 2021	iOS Latest	NA	New
	Apple iPad Pro (2021)	XL	12.9	2048 x 2732	265	May 2021	iPadOS Latest	NA	New
	Apple iPhone 11	L	6.1	828 x 1792	326	September 2019	iOS Latest	NA	▲
EXTENDED	Samsung Galaxy Note 20 Ultra 5G	L	6.90	1440 x 3088	496	August 2020	Android 10	One UI 2.5	New
	Apple iPad Air 2019	XL	10.5	1668 x 2224	265	March 2019	iPadOS Latest	NA	New
	Apple iPhone SE (2020)	N	4.7	750 x 1334	326	April 2020	iOS Latest	NA	New
	Apple iPad 10.2 (2021)	XL	10.2	1620 x 2160	265	September 2021	iPadOS Latest	NA	New
	Apple iPhone 11 Pro	L	5.8	1125 x 2436	458	September 2019	iOS Latest	NA	▲
	Apple iPhone 12 Mini	L	5.4	1080 x 2340	476	October 2020	iOS Latest	NA	▲
	Samsung Galaxy S9+	XL	6.20	1440 x 2960	529	March 2018	Android 10	One UI 2	▼
	Samsung Galaxy Fold 3 5G	XL	7.60	1768 x 2208	374	August 2021	Android 12	One UI 4.0	New

MOBILE DEVICE INDEX: EU5

	Device Model	Screen Family	Screen Size	Screen Resolution	PPI	Release Date	Recommended OS	Stock OS/ Custom OS	Status
ESSENTIAL	Samsung Galaxy S22 Ultra	L	6.8	1440 x 3088	500	February 2022	Android 12	One UI 4.1	New
	Samsung Galaxy S20	L	6.2	1440 x 3200	563	March 2020	Android 10	One UI 2	▲
	Apple iPhone 13 Pro	L	6.1	1170 x 2532	460	September 2021	iOS Latest	NA	New
	Huawei P30 Pro	L	6.47	1080 x 2340	398	March 2019	Android 10	EMUI 10	New
	Xiaomi 11T Pro 5G	L	6.67	1080 x 2400	395	October 2021	Android 11	MIUI 12.5	New
	Apple iPhone 12 Pro Max	L	6.7	1242 x 2688	442	November 2020	iOS latest	NA	New
	Huawei Nova 9	L	6.57	1080 x 2340	392	September 2021	Harmony OS 2.0	EMUI 12	New
	Apple iPhone 12	XL	6.1	1170 x 2532	460	October 2020	iOS 14 Latest	NA	▲
	Samsung Galaxy S9+	L	6.2	1440 x 2960	529	March 2018	Android 10	One UI 2	▲
	Google Pixel 6	L	6.4	1080 x 2400	411	October 2021	Android 12	Stock	New
ENHANCED	Apple iPhone 13 Mini	L	5.4	1080 x 2340	476	September 2021	iOS Latest	NA	▲
	Xiaomi Mi10T Pro 5G	L	6.67	1080 x 2400	395	October 2020	Android 10	MIUI 12	▲
	Apple iPhone 8 Plus	L	5.5	1080 x 1920	401	September 2017	iOS Latest	NA	▼
	Samsung Galaxy Z Flip3 5G	L	6.70	1080 x 2640	426	August 2021	Android 12	One UI 4.0	New
	Xiaomi Mi 11 Ultra	L	6.81	1440 x 3200	515	April 2021	Android 11	MIUI 12.5	New
	Huawei Mate 20 Pro	L	6.39	1440 x 3120	538	November 2018	Android 9	EMUI 9.1	▼
	Huawei P40 Lite 5G	L	6.5	1080 x 2400	405	May 2020	Android 10	EMUI 10.1	▲
	Samsung Galaxy Fold 3 5G	XL	7.6	1768 x 2208	374	August 2021	Android 12	One UI 4.0	▲
	Apple iPad Pro 11 (2021)	XL	11.0	1668 x 2388	265	May 2021	iOS Latest	NA	▼
	Samsung Galaxy S21 5G	XL	6.2	1080 x 2400	421	January 2021	Android 11	One UI 3.1	▲
	Samsung Galaxy A52s	L	6.50	1080 x 2400	405	September 2021	Android 12	One UI 4.0	New
	Samsung Galaxy S22 +	L	6.60	1080 x 2340	393	February 2022	Android 12	One UI 4.1	New
	Apple iPad Pro (2021)	XL	12.9	2048 x 2732	265	May 2021	iPadOS Latest	NA	▼
	Sony Xperia 10 III	L	6	1080 x 2520	457	June 2021	Android 11	Stock	▲
	Oppo Find X3 Pro	L	6.70	1440 x 3216	525	March 2021	Android 11	ColorOS 11.2	New
EXTENDED	Apple iPhone 13 Pro Max	L	6.7	1284 x 2778	458	September 2021	iOS Latest	NA	New
	Samsung Galaxy Tab S5e	XL	10.5	1600 x 2560	288	April 2019	Android 9	One UI	▼
	Apple iPhone 12 Mini	XL	5.4	1080 x 2340	476	October 2020	iOS Latest	NA	▲
	Apple iPad Mini (2019)	XL	7.9	1536 x 2048	324	March 2019	iPadOS Latest	NA	▼
	Samsung Galaxy S10	L	6.1	1440 x 3040	550	February 2019	Android 10	One UI 2	▲
	Apple iPhone 13	L	6.10	1170 x 2532	460	September 2021	iOS Latest	NA	New
Huawei P30 Lite	L	6.15	1080 x 2312	415	April 2019	Android 10	EMUI 10	▼	

MOBILE DEVICE INDEX: UK

	Device Model	Screen Family	Screen Size	Screen Resolution	PPI	Release Date	Recommended OS	Stock OS/ Custom OS	Status	
ESSENTIAL	Apple iPhone 13 Pro Max	L	6.7	1284 x 2778	458	September 2021	iOS Latest	NA	New	
	Apple iPhone 12	L	6.1	1170 x 2532	460	October 2020	iOS 14 Latest	NA	New	
	Samsung Galaxy S21 Ultra 5G	L	6.80	1440 x 3200	515	January 2021	Android 11	One UI 3.1	▲	
	Samsung Galaxy S20 Ultra	L	6.9	1440 x 3200	511	March 2020	Android 10	One UI 2	▲	
	Samsung Galaxy S21 Ultra 5G	L	6.80	1440 x 3200	515	January 2021	Android 11	One UI 3.1	▲	
	Apple iPhone 11 Pro Max	L	6.5	1242 x 2688	458	September 2019	iOS Latest	NA	▲	
	Samsung Galaxy S22 Ultra	L	6.8	1440 x 3088	500	February 2022	Android 12	One UI 4.1	New	
	Apple iPhone 8 Plus	L	5.5	1080 x 1920	401	September 2017	iOS Latest	NA	▼	
	Apple iPhone 12 Pro Max	L	6.7	1242 x 2688	442	November 2020	iOS latest	NA	▲	
	Google Pixel 6	L	6.4	1080 x 2400	411	October 2021	Android 12	Stock	New	
ENHANCED	Huawei P30 Pro	L	6.47	1080 x 2340	398	March 2019	Android 10	EMUI 10	New	
	Xiaomi 11T Pro 5G	L	6.67	1080 x 2400	395	October 2021	Android 11	MIUI 12.5	New	
	Huawei P40 Lite 5G	L	6.5	1080 x 2400	405	May 2020	Android 10	EMUI 10.1	New	
	Xiaomi Redmi Note 10	L	6.43	1080 x 2400	409	March 2021	Android 11	MIUI 12	New	
	Samsung Galaxy Note 20 Ultra 5G	L	6.9	1440 x 3088	496	August 2020	Android 10	One UI 2.5	New	
	Apple iPhone 13	L	6.10	1170 x 2532	460	September 2021	iOS Latest	NA	New	
	Apple iPad Pro (2021)	XL	12.9	2048 x 2732	265	May 2021	iPadOS Latest	NA	New	
	Samsung Galaxy Fold 3 5G	XL	7.6	1768 x 2208	374	August 2021	Android 12	One UI 4.0	▲	
	Samsung Galaxy S20 +	L	6.7	1440 x 3200	522	March 2020	Android 10	One UI 2	▲	
	Apple iPhone 11 Pro	L	6.10	1170 x 2532	460	October 2020	iOS Latest	NA	New	
	Oppo Reno 4 Pro 5G	L	6.55	1080 x 2400	402	June 2020	Android 10	ColorOS 7.2	New	
	Samsung Galaxy A52s	L	6.50	1080 x 2400	405	September 2021	Android 12	One UI 4.0	New	
	Apple iPhone 13 Mini	L	5.40	1080 x 2340	476	September 2021	iOS Latest	NA	New	
	Apple iPad Pro 11 (2021)	XL	11	1668 x 2388	265	May 2021	iOS Latest	NA	New	
	Apple iPhone 13 pro	L	6.1	1170 x 2532	460	September 2021	iOS Latest	NA	▲	
	EXTENDED	Samsung Galaxy Tab A8 10.5	XL	10.5	1200 x 1920	216	January 2022	Android 11	One UI 3.0	New
		Samsung Galaxy S21 5G	L	6.20	1080 x 2400	421	January 2021	Android 11	One UI 3.1	▲
		Samsung Galaxy Z Flip3 5G	L	6.70	1080 x 2640	426	August 2021	Android 12	One UI 4.0	New
Motorola Razr 5G		L	6.20	876 x 2142	373	September 2020	Android 11	Stock	New	
Samsung Galaxy A32		L	6.40	1080 x 2400	411	February 2021	Android 11	OneUI 3.1	New	
Samsung Galaxy Fold 2 5G		L	7.6	1768 x 2208	373	September 2020	Android 10	One UI 2.5	New	
Oppo Find X3 Pro	L	6.70	1440 x 3216	525	March 2021	Android 11	ColorOS 11.2	New		

MOBILE DEVICE INDEX: GERMANY

	Device Model	Screen Family	Screen Size	Screen Resolution	PPI	Release Date	Recommended OS	Stock OS/ Custom OS	Status
ESSENTIAL	Samsung Galaxy S22 Ultra	L	6.8	1440 x 3088	500	February 2022	Android 12	One UI 4.1	New
	Samsung Galaxy S20	L	6.2	1440 x 3200	563	March 2020	Android 10	One UI 2	▲
	Apple iPhone 13 Pro	L	6.1	1170 x 2532	460	September 2021	iOS Latest	NA	New
	Huawei P30 Pro	L	6.47	1080 x 2340	398	March 2019	Android 10	EMUI 10	New
	Xiaomi 11T Pro 5G	L	6.67	1080 x 2400	395	October 2021	Android 11	MIUI 12.5	New
	Apple iPhone 12 Pro Max	L	6.7	1242 x 2688	442	November 2020	iOS latest	NA	New
	Huawei Nova 9	L	6.57	1080 x 2340	392	September 2021	Harmony OS 2.0	EMUI 12	New
	Apple iPhone 12	XL	6.1	1170 x 2532	460	October 2020	iOS 14 Latest	NA	▲
	Samsung Galaxy S9+	L	6.2	1440 x 2960	529	March 2018	Android 10	One UI 2	▲
	Google Pixel 6	L	6.4	1080 x 2400	411	October 2021	Android 12	Stock	New
ENHANCED	Apple iPhone 13 Mini	L	5.4	1080 x 2340	476	September 2021	iOS Latest	NA	▲
	Xiaomi Mi10T Pro 5G	L	6.67	1080 x 2400	395	October 2020	Android 10	MIUI 12	▲
	Apple iPhone 8 Plus	L	5.5	1080 x 1920	401	September 2017	iOS Latest	NA	▼
	Samsung Galaxy Z Flip3 5G	L	6.70	1080 x 2640	426	August 2021	Android 12	One UI 4.0	New
	Xiaomi Mi 11 Ultra	L	6.81	1440 x 3200	515	April 2021	Android 11	MIUI 12.5	New
	Huawei Mate 20 Pro	L	6.39	1440 x 3120	538	November 2018	Android 9	EMUI 9.1	▼
	Huawei P40 Lite 5G	L	6.5	1080 x 2400	405	May 2020	Android 10	EMUI 10.1	▲
	Samsung Galaxy Fold 3 5G	XL	7.6	1768 x 2208	374	August 2021	Android 12	One UI 4.0	▲
	Apple iPad Pro 11 (2021)	XL	11.0	1668 x 2388	265	May 2021	iOS Latest	NA	▼
	Samsung Galaxy S21 5G	XL	6.2	1080 x 2400	421	January 2021	Android 11	One UI 3.1	▲
	Samsung Galaxy A52s	L	6.50	1080 x 2400	405	September 2021	Android 12	One UI 4.0	New
	Samsung Galaxy S22 +	L	6.60	1080 x 2340	393	February 2022	Android 12	One UI 4.1	New
	Apple iPad Pro (2021)	XL	12.9	2048 x 2732	265	May 2021	iPadOS Latest	NA	▼
	Sony Xperia 10 III	L	6	1080 x 2520	457	June 2021	Android 11	Stock	▲
	Oppo Find X3 Pro	L	6.70	1440 x 3216	525	March 2021	Android 11	ColorOS 11.2	New
EXTENDED	Apple iPhone 13 Pro Max	L	6.7	1284 x 2778	458	September 2021	iOS Latest	NA	New
	Samsung Galaxy Tab S5e	XL	10.5	1600 x 2560	288	April 2019	Android 9	One UI	▼
	Apple iPhone 12 Mini	XL	5.4	1080 x 2340	476	October 2020	iOS Latest	NA	▲
	Apple iPad Mini (2019)	XL	7.9	1536 x 2048	324	March 2019	iPadOS Latest	NA	▼
	Samsung Galaxy S10	L	6.1	1440 x 3040	550	February 2019	Android 10	One UI 2	▲
	Apple iPhone 13	L	6.10	1170 x 2532	460	September 2021	iOS Latest	NA	New
Huawei P30 Lite	L	6.15	1080 x 2312	415	April 2019	Android 10	EMUI 10	▼	

MOBILE DEVICE INDEX: NETHERLANDS

	Device Model	Screen Family	Screen Size	Screen Resolution	PPI	Release Date	Recommended OS	Stock OS/ Custom OS	Status	
ESSENTIAL	Apple iPhone 13	L	6.10	1170 x 2532	460	September 2021	iOS Latest	NA	New	
	Samsung Galaxy S21 Ultra 5G	XL	6.80	1440 x 3200	515	January 2021	Android 11	One UI 3.1	New	
	Apple iPhone 12 Pro Max	L	6.7	1242 x 2688	442	November 2020	iOS latest	NA	▲	
	Samsung Galaxy A52s	L	6.50	1080 x2400	405	September 2021	Android 12	One UI 4.0	New	
	Apple iPhone 12	XL	6.10	1170 x 2532	460	October 2020	iOS 14 Latest	NA	▲	
	Samsung Galaxy S21 5G	XL	6.20	1080 x 2400	421	January 2021	Android 11	One UI 3.1	New	
	Samsung Galaxy S22 Ultra	L	6.8	1440 x 3088	500	February 2022	Android 12	One UI 4.1	New	
	Xiaomi Mi 11	XL	6.81	1440 x 3200	515	January 2021	Android 11	MIUI 12.5	New	
	Apple iPhone 13 pro	L	6.1	1170 x 2532	460	September 2021	iOS Latest	NA	▲	
	Google Pixel 6	L	6.4	1080 x 2400	411	October 2021	Android 12	Stock	New	
ENHANCED	Samsung Galaxy S10	L	6.1	1440 x 3040	550	February 2019	Android 10	One UI 2	▼	
	Xiaomi 11T Pro 5G	L	6.67	1080 x 2400	395	October 2021	Android 11	MIUI 12.5	New	
	Samsung Galaxy Note 20 Ultra 5G	L	6.9	1440 x 3088	496	August 2020	Android 10	One UI 2.5	New	
	OnePlus Nord	L	6.44	1080 x 2400	408	August 2020	Android 10	Oxygen OX 10.5.4	▲	
	Samsung Galaxy A52	XL	6.50	1080 x 2400	407	March 2021	Android 11	One UI 3.1	New	
	Oppo Find X3 Pro	XL	6.70	1440 x 3216	525	March 2021	Android 11	ColorOS 11.2	New	
	Apple iPad Pro 11 (2021)	XL	11.00	1668 x 2388	265	May 2021	iPadOS Latest	NA	New	
	Apple iPhone 8 Plus	L	5.5	1080 x 1920	401	September 2017	iOS Latest	NA	▼	
	Apple iPhone 13 Pro Max	L	6.7	1284 x 2778	458	September 2021	iOS Latest	NA	New	
	Apple iPhone 12 Pro	XL	6.10	1170 x 2532	460	October 2020	iOS Latest	NA	▲	
	Samsung Galaxy S21 Ultra 5G	XL	6.80	1440 x 3200	515	January 2021	Android 11	One UI 3.1	▲	
	Apple iPad Pro (2021)	XL	12.9	2048 x 2732	265	May 2021	iPadOS Latest	NA	New	
	Apple iPhone 11 Pro	L	5.8	1125 x 2436	458	September 2019	iOS Latest	NA	▲	
	Huawei P30 Pro	L	6.47	1080 x 2340	398	March 2019	Android 10	EMUI 10	New	
	Samsung Galaxy S22	L	6.60	1080 x 2340	393	February 2022	Android 12	One UI 4.1	New	
	EXTENDED	Samsung Galaxy A32	XL	6.40	1080 x 2400	411	February 2021	Android 11	OneUI 3.1	New
		Samsung Galaxy S20 Ultra	L	6.9	1440 x 3200	511	March 2020	Android 10	One UI 2	▲
		Apple iPhone 13 Mini	L	5.40	1080 x 2340	476	September 2021	iOS Latest	NA	New
Xiaomi Mi 11 Lite		L	6.55	1080 x 2400	402	April 2021	Android 11	MIUI 12	New	
Oppo Find X5 Pro		L	6.70	1440 x 3216	525	March 2022	Android 12	ColorOS 12.1	New	
Samsung Galaxy Fold 3 5G		XL	7.6	1768 x 2208	374	August 2021	Android 12	One UI 4.0	▲	
Apple iPhone 11		L	6.1	828 x 1792	326	September 2019	iOS 14 Latest	NA	▼	

MOBILE DEVICE INDEX: SWITZERLAND

	Device Model	Screen Family	Screen Size	Screen Resolution	PPI	Release Date	Recommended OS	Stock OS/ Custom OS	Status	
ESSENTIAL	Apple iPhone 13	L	6.10	1170 x 2532	460	September 2021	iOS Latest	NA	New	
	Samsung Galaxy S8	L	5.8	1440 x 2960	570	April 2017	Android 9	One UI	▼	
	Samsung Galaxy S10	L	6.1	1440 x 3040	550	February 2019	Android 10	One UI 2	▲	
	Apple iPhone 13 Pro Max	L	6.7	1284 x 2778	458	September 2021	iOS Latest	NA	New	
	Samsung Galaxy S9+	L	6.2	1440 x 2960	529	March 2018	Android 10	One UI 2	▲	
	Huawei P30 Pro	L	6.47	1080 x 2340	398	March 2019	Android 10	EMUI 10	New	
	Samsung Galaxy S21 Ultra 5G	L	6.80	1440 x 3200	515	January 2021	Android 11	One UI 3.1	▲	
	Apple iPhone 12 Pro	L	6.10	1170 x 2532	460	October 2020	iOS Latest	NA	New	
	Samsung Galaxy S21 5G	L	6.20	1080 x 2400	421	January 2021	Android 11	One UI 3.1	▲	
	Google Pixel 6	L	6.4	1080 x 2400	411	October 2021	Android 12	Stock	New	
ENHANCED	Oppo Find X5 Pro	L	6.70	1440 x 3216	525	March 2022	Android 12	ColorOS 12.1	New	
	Huawei P30 Lite	L	6.15	1080 x 2312	415	April 2019	Android 10	EMUI 10	▲	
	Apple iPad Pro 11 (2021)	XL	11	1668 x 2388	265	May 2021	iOS Latest	NA	New	
	Apple iPhone 13 Mini	L	5.40	1080 x 2340	476	September 2021	iOS Latest	NA	New	
	Samsung Galaxy Note 20 Ultra 5G	L	6.9	1440 x 3088	496	August 2020	Android 10	One UI 2.5	New	
	Apple iPhone 13 pro	L	6.1	1170 x 2532	460	September 2021	iOS Latest	NA	▲	
	Apple iPhone 12 Pro Max	L	6.7	1242 x 2688	442	November 2020	iOS latest	NA	▲	
	Apple iPhone 8 Plus	L	5.5	1080 x 1920	401	September 2017	iOS Latest	NA	▼	
	Samsung Galaxy S22 Ultra	L	6.8	1440 x 3088	500	February 2022	Android 12	One UI 4.1	New	
	Apple iPhone 11	L	6.1	828 x 1792	326	September 2019	iOS 14 Latest	NA	▼	
	Oppo Reno 6 5G	L	6.43	1080 x 2400	409	June 2021	Android 11	ColorOS 11.3	New	
	Samsung Galaxy Note 10+	L	6.8	1440 x 3040	498	August 2019	Android 10	One UI 2	▼	
	Huawei Mate 20 Pro	L	6.39	1440 x 3120	538	November 2018	Android 9	EMUI 9.1	=	
	Apple iPad Pro (2021)	XL	12.9	2048 x 2732	265	May 2021	iPadOS Latest	NA	New	
	Samsung Galaxy Fold 3 5G	XL	7.6	1768 x 2208	374	August 2021	Android 12	One UI 4.0	New	
	EXTENDED	Samsung Galaxy S20 FE 5G	L	6.50	1080 x 2400	407	October 2020	Android 10	One UI 2.5	▲
		Apple iPad Pro 11 (2021)	XL	11.00	1668 x 2388	265	May 2021	iPadOS Latest	NA	▲
		Samsung Galaxy S20 +	L	6.7	1440 x 3200	522	March 2020	Android 10	One UI 2	▲
Samsung Galaxy A52s		L	6.50	1080 x 2400	405	September 2021	Android 12	One UI 4.0	New	
Oppo A54 5G		L	6.51	720 x 1600	270	April 2021	Android 10	ColorOS 7.2	New	
Oppo Reno 4 Pro 5G		L	6.55	1080 x 2400	402	June 2020	Android 10	ColorOS 7.2	▼	
Samsung Galaxy Z Flip3 5G		L	6.70	1080 x 2640	426	August 2021	Android 12	One UI 4.0	New	

MOBILE DEVICE INDEX: AUSTRALIA

	Device Model	Screen Family	Screen Size	Screen Resolution	PPI	Release Date	Recommended OS	Stock OS/ Custom OS	Status	
ESSENTIAL	Apple iPhone 13	L	6.1	1170 x 2532	460	September 2021	iOS Latest	NA	New	
	Samsung Galaxy S10+	L	6.4	1440 x 3040	522	February 2019	Android 10	One UI 2	▲	
	Apple iPhone 8 Plus	L	5.5	1080 x 1920	401	September 2017	iOS Latest	NA	▼	
	Samsung Galaxy S9+	L	6.2	1440 x 2960	529	March 2018	Android 10	One UI 2	▲	
	Apple iPhone 11 Pro	L	5.8	1125 x 2436	458	September 2019	iOS 14 Latest	NA	▲	
	Apple iPhone 13 Pro Max	L	6.70	1284 x 2778	458	September 2021	iOS Latest	NA	New	
	Samsung Galaxy S20 Ultra	L	6.9	1440 x 3200	511	March 2020	Android 10	One UI 2	▲	
	Apple iPhone 12 Pro Max	L	6.7	1242 x 2688	442	November 2020	iOS latest	NA	▲	
	Huawei P30 Pro	L	6.47	1080 x 2340	398	March 2019	Android 10	EMUI 10	New	
	Google Pixel 6	L	6.4	1080 x 2400	411	October 2021	Android 12	Stock	New	
ENHANCED	Samsung Galaxy Note 20 Ultra 5G	L	6.9	1440 x 3088	496	August 2020	Android 10	One UI 2.5	New	
	Apple iPhone 13 Pro	L	6.10	1170 x 2532	460	September 2021	iOS Latest	NA	New	
	Samsung Galaxy S22 +	L	6.60	1080 x 2340	393	February 2022	Android 12	One UI 4.1	New	
	Samsung Galaxy S22	L	6.60	1080 x 2340	393	February 2022	Android 12	One UI 4.1	New	
	Samsung Galaxy Fold 3 5G	XL	7.60	1768 x 2208	374	August 2021	Android 12	One UI 4.0	New	
	Samsung Galaxy Z Flip3 5G	L	6.70	1080 x 2640	426	August 2021	Android 12	One UI 4.0	New	
	Apple iPhone XS Max	L	6.5	1242 x 2688	458	September 2018	iOS Latest	NA	▲	
	Apple iPad Pro (2021)	XL	12.9	2048 x 2732	265	May 2021	iPadOS Latest	NA	New	
	Samsung Galaxy S22 Ultra	L	6.80	1440 x 3088	500	February 2022	Android 12	One UI 4.1	New	
	Samsung Galaxy A52s	L	6.50	1080 x 2400	405	September 2021	Android 12	One UI 4.0	New	
	Samsung Galaxy S21 5G	XL	6.2	1080 x 2400	421	January 2021	Android 11	One UI 3.1	▲	
	Apple iPad Pro 11 (2021)	XL	11.00	1668 x 2388	265	May 2021	iPadOS Latest	NA	▲	
	Apple iPhone 12	XL	6.1	1170 x 2532	460	October 2020	iOS Latest	NA	▲	
	Oppo A16s	L	6.52	720 x 1600	269	August 2021	Android 11	ColorOS 11.1	New	
	Apple iPad Mini (2019)	XL	7.9	1536 x 2048	324	March 2019	iPadOS Latest	NA	▲	
	EXTENDED	Samsung Galaxy S20 +	L	6.7	1440 x 3200	522	March 2020	Android 10	One UI 2	▲
		Samsung Galaxy S20 FE 5G	L	6.5	1080 x 2400	407	October 2020	Android 10	One UI 2.5	New
		Huawei Mate 20 Pro	L	6.39	1440 x 3120	538	November 2018	Android 9	EMUI 9.1	=
Apple iPhone 13 Mini		L	5.40	1080 x 2340	476	September 2021	iOS Latest	NA	New	
Motorola Moto Edge 20 Fusion		L	6.70	1080 x 2400	393	August 2021	Android 11	Stock	New	
Samsung Galaxy Fold 2 5G		XL	7.6	1768 x 2208	373	September 2020	Android 10	One UI 2.5	New	
Oppo Find X3 Pro	L	6.70	1440 x 3216	525	March 2021	Android 11	ColorOS 11.2	New		

MOBILE DEVICE INDEX: SINGAPORE

	Device Model	Screen Family	Screen Size	Screen Resolution	PPI	Release Date	Recommended OS	Stock OS/ Custom OS	Status
ESSENTIAL	Samsung Galaxy S22	L	6.60	1080 x 2340	393	February 2022	Android 12	One UI 4.1	New
	Apple iPhone 13 Pro Max	L	6.70	1284 x 2778	458	September 2021	iOS Latest	NA	▲
	Samsung Galaxy Note 20 Ultra 5G	L	6.9	1440 x 3088	496	August 2020	Android 10	One UI 2.5	▼
	Xiaomi 11T Pro 5G	L	6.67	1080 x 2400	395	October 2021	Android 11	MIUI 12.5	▲
	OnePlus 9 Pro	L	6.7	1440 x 3216	525	March 2021	Android 11	OxygenOS 11.2.6.6	▲
	Apple iPhone 8 Plus	L	5.5	1080 x 1920	401	September 2017	iOS Latest	NA	New
	Apple iPhone 13	L	6.10	1170 x 2532	460	September 2021	iOS Latest	NA	▲
	Apple iPhone 11 Pro	L	5.8	1125 x 2436	458	September 2019	iOS 14 Latest	NA	▲
	Samsung Galaxy A32	L	6.4	1080 x 2400	411	February 2021	Android 11	OneUI 3.1	New
	Google Pixel 6	L	6.4	1080 x 2400	411	October 2021	Android 12	Stock	New
ENHANCED	OnePlus 8T	L	6.55	1080 x 2400	402	October 2020	Android 11	OxygenOS 11.0.4	New
	Huawei P40 Pro	L	6.58	1200 x 2640	441	April 2020	Android 10	EMUI 10.1	New
	Xiaomi Poco M3 Pro 5G	L	6.5	1080 x 2400	405	March 2021	Android 11	MIUI 12	New
	Samsung Galaxy S22 Ultra	L	6.80	1440 x 3088	500	February 2022	Android 12	One UI 4.1	New
	Huawei Mate 40 Pro	L	6.76	1344 x 2772	456	November 2020	Android 10	EMUI 11	New
	Samsung Galaxy S21 5G	L	6.2	1080 x 2400	421	January 2021	Android 11	One UI 3.1	New
	Apple iPhone 12	L	6.1	1170 x 2532	460	October 2020	iOS Latest	NA	▲
	Apple iPhone 13 Mini	L	5.40	1080 x 2340	476	September 2021	iOS Latest	NA	New
	Oppo Find X3 Pro	XL	6.70	1440 x 3216	525	March 2021	Android 11	ColorOS 11.2	New
	Apple iPhone 13 Pro	L	6.10	1170 x 2532	460	September 2021	iOS Latest	NA	New
	Samsung Galaxy A52s	L	6.50	1080 x 2400	405	September 2021	Android 12	One UI 4.0	▲
	Xiaomi Redmi Note 11	L	6.43	1080 x 2400	409	February 2022	Android 11	MIUI 13	▲
	Apple iPhone 12 Pro Max	L	6.7	1242 x 2688	442	November 2020	iOS latest	NA	▲
	Samsung Galaxy F52	L	6.6	1080 x 2408	400	May 2021	Android 11	OneUI 3.1	New
	Vivo X60	L	6.56	1080 x 2376	398	April 2021	Android 11	Funtouch 11.1	▲
EXTENDED	Samsung Galaxy Fold 3 5G	XL	7.60	1768 x 2208	374	August 2021	Android 12	One UI 4.0	▲
	Apple iPad Pro (2021)	XL	12.90	2048 x 2732	265	May 2021	iPadOS Latest	NA	New
	Huawei Y6P	L	6.3	720 x 1600	278	May 2020	Android 10	EMUI 10.1	=
	Apple iPhone 8 Plus	L	5.5	1080 x 1920	401	September 2017	iOS Latest	NA	New
	Samsung Galaxy S9	L	5.8	1440 x 2960	570	March 2018	Android 9	One UI 2	New
	Samsung Galaxy Tab S8	XL	11.00	1600 x 2560	274	March 2022	Android 12	One UI 4.1	New
Apple iPad Pro 11 (2021)	XL	11	1668 x 2388	265	May 2021	iOS Latest	NA	New	



MOBILE MARKET CALENDAR 2022

OS

January	February	March	April	May	June	July
iOS 15.3	iOS 15.3.1	iOS 15.4 Beta	iOS 15.4		iOS16 Beta	

Devices

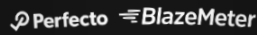
January	February	March	April	May	June	July
Motorola Edge S30	Samsung Galaxy S22+	Huawei Nova 9 SE	Android 12L	Android 13 Beta		Android 13
Samsung Galaxy S21 FE 5G	Samsung Galaxy S22 Ultra	Oppo Reno7 Z 5G	Honor Magic4 Pro			
Huawei P50 Pocket	Samsung Galaxy S22	Xiaomi Redmi Note 11 E Pro	iPhone SE 3			
Sony Xperia 5 III	Realme 9 Pro	Lenovo Legion Y700				
Honor Magic V	Realme 9 Pro+	Xiaomi Poco X4 Pro 5G				
OnePlus 10 Pro	Realme C35	Xiaomi Poco M4 Pro				
	OnePlus Nord CE 2 5G	ZTE Nubia Z40 Pro				
	Xiaomi Redmi Note 11	Motorola Edge 30 Pro				
	Motorola Moto G Stylus (2022)	Samsung Galaxy Tab S8 Ultra				
	Xiaomi Redmi K50 Gaming	Nokia C21 Plus				
	Honor 60 SE	Nokia G11				
	Oppo A76	Nokia C2 2nd Edition				
		Xiaomi Redmi 10 (2022)				
		Oppo Find X5 Pro				
		Oppo Find X5				
		Oppo Find X5 Lite				
		Vivo iQ00 9				
		Vivo Y33s 5G				

WEB & OS RECOMMENDATIONS

Here you will find a list of browser/OS combinations — categorized by latest, previous, and newest beta — that organizations in every country should test on to achieve the desired market coverage.

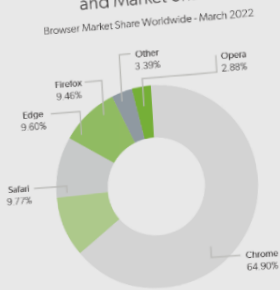
Given that browser versions update quickly and often automatically without users knowing, it is important to ensure that browser quality aligns with a variety of OS versions.

TEST COVERAGE GUIDE

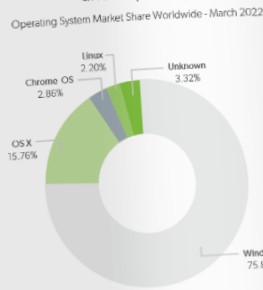


GLOBAL WEB INDEX

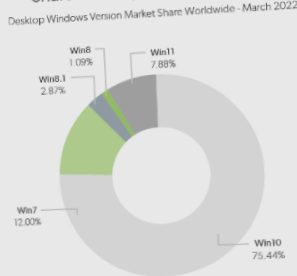
Desktop Browser Popularity and Market Share



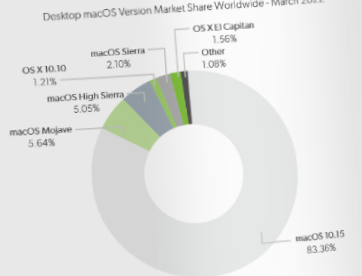
Desktop OS Market Share and Popularity



Windows OS Families Market Share and Popularity Breakdown



MacOS Families Market Share and Popularity Breakdown



Source: gs.statcounter.com/browser-market-share

TEST COVERAGE GUIDE



BROWSER CALENDAR 2022

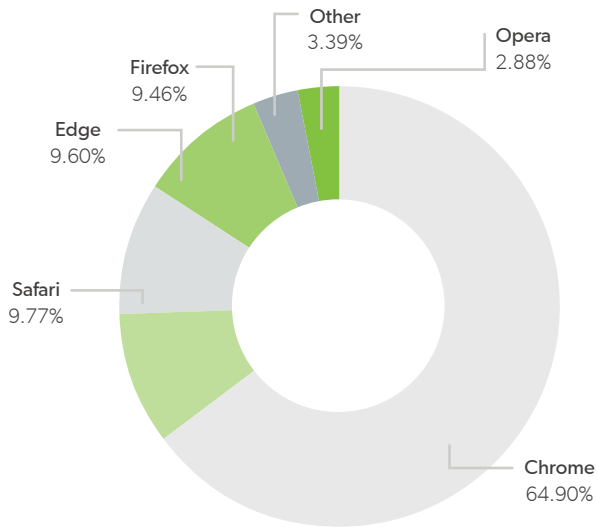
	January	February	March	April	May	June	July
Chrome	97	98 99 Beta	99 100	101	102	103	104
Firefox	96	97	98	99	100 101	102	103
Safari		15.3	15.4 Beta	15.4			
Edge	88		89	90	91		92
Desktop OS		MacOS Big Sur 11.5.4 MacOS Monterey 12.2.1 MacOS Catalina 10.15.7					

update
picture

GLOBAL WEB INDEX

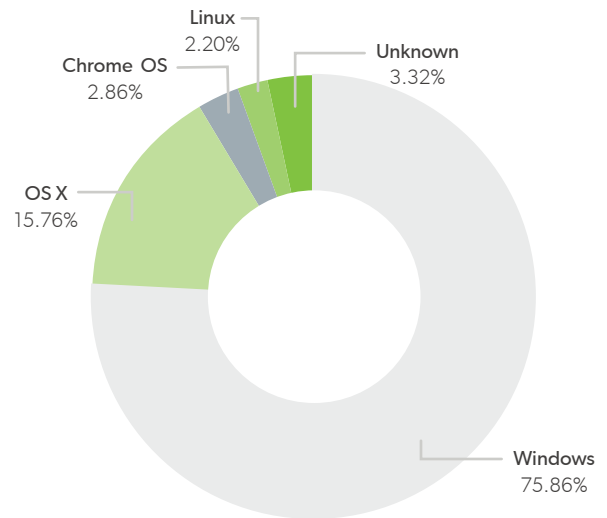
Desktop Browser Popularity and Market Share

Browser Market Share Worldwide - March 2022



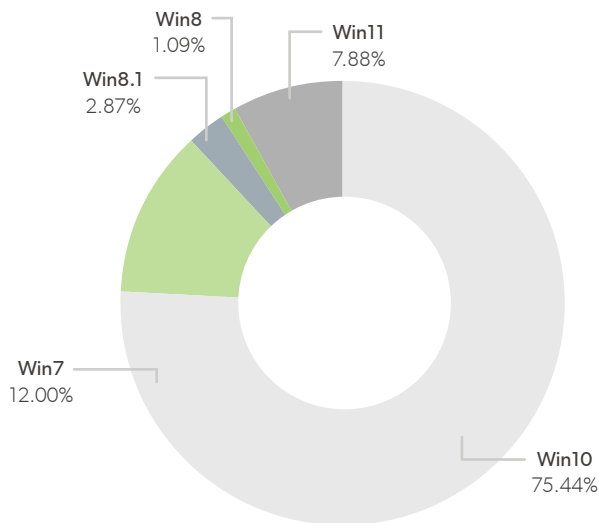
Desktop OS Market Share and Popularity

Operating System Market Share Worldwide - March 2022



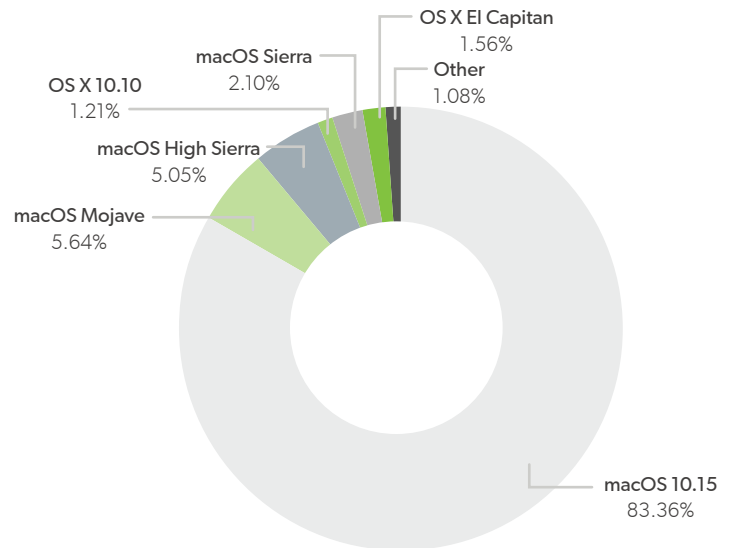
Windows OS Families Market Share and Popularity Breakdown

Desktop Windows Version Market Share Worldwide - March 2022



MacOS Families Market Share and Popularity Breakdown

Desktop macOS Version Market Share Worldwide - March 2022



Source: gs.statcounter.com/browser-market-share



BROWSER CALENDAR 2022

	January	February	March	April	May	June	July
Chrome	97	98 99 Beta	99 100	101	102	103	104
Firefox	96	97	98	99	100 101	102	103
Safari		15.3	15.4 Beta	15.4			
Edge	88		89	90	91		92
Desktop OS		MacOS Big Sur 11.6.4 MacOS Monterey 12.2.1 MacOS Catalina 10.15.7					

ABOUT PERFECTO

Perfecto powers exceptional digital experiences by combining the power of flexible test authoring, cross-platform execution, and AI-driven analytics into one secure, cloud-based web & mobile testing platform.

Visit www.perfecto.io for a free trial, demo, or to learn more.

ABOUT BLAZEMETER

The BlazeMeter Continuous Testing Platform is a complete solution for shift-left continuous testing. The platform includes UI functional testing, user experience testing, API testing and monitoring, performance testing, and virtual services.

Visit www.blazemeter.com for a free trial, demo, or to learn more.

Related Resources

[The State of Test Automation in 2022](#)

[The Buyer's Guide to Web & Mobile Test Automation Tools](#)

[Top 11 Challenges in Automated Testing & What to Do About Them](#)

Let's Connect

We'd love to discuss how Perfecto and BlazeMeter can help you overcome your most difficult testing obstacles.

[Let's Talk](#)