perfecto mobile

Q1 2015 Report

Mobile Test Coverage Index

Introduction

As device proliferation continues, mobile app developers need an effective strategy for ensuring real world performance and quality prior to release. To help mitigate risk, Perfecto Mobile has developed the Continuous Quality Coverage Framework™ (CQCF™), a patent-pending solution for generating test lab requirements from evolving market data, leading industry research firms and Perfecto Mobile cloud consolidated data. The CQCF framework uses a Test Coverage Optimizer, which is designed to convert best-practice methodologies into an indexing algorithm for reaching 30%, 50% or 80% device coverage rates for specific geographic, technical and project requirements.

In this report, the Mobile Test Coverage Index, Perfecto Mobile aggregated and analyzed a wide range of public, private and proprietary data – 4,000+ device profiles and 360,000+ user profiles – to calculate the *Q1 2015 Mobile Test Coverage Index* for the U.S. and EU5 markets which includes Spain, UK, France, Italy and Germany.

Coverage Index Definitions

With a rapidly-expanding device matrix, achieving full coverage of the mobile device market is neither practical nor necessary. Instead, businesses must choose devices based on priorities, relevance and strategic objectives for a given project. With that in mind, this report offers a simple device selection methodology that enables organizations to filter according to critical parameters and considerations, in order to provide three levels of mobile market coverage.

Our device selections were developed based on extensive market analysis across four key sectors:

1. **OS coverage:** Assures performance across relevant OS versions from Android, iOS, Windows Phone, BlackBerry and more.
2. **Screen sizes and resolutions:** Analyzes how manufacturer and device variations can impact app quality.
3. **Hardware coverage:** Accounts for discrepancies in hardware capabilities such as CPU, memory, system on chip, etc.
4. **Device mix:** Reduces risk and ensures broad app appeal by covering emerging technology, popular favorites and reference devices.

30%

30% of the market can be covered through an indexed list of between 10-16 devices**.** In this 1st level, we have included the most important devices in the U.S. and Europe based on market adoption, market device leaders, reference devices and device characteristics such as screen size, hardware and more. Additionally, we have assigned leading versions of Android, iOS, Windows Phone, Blackberry to these devices.

50%

50% of the market can be covered with 17-25 devices. In addition to those listed in the 30% coverage index, this 2nd level accounts for an increased number of OS versions, carriers and devices from manufacturers such as Sony, LG, Samsung, Apple, HTC and more**.**

80%

80% market coverage can be achieved with an index of 26-32 devices. At the 3rd level, an organization gains a high level of confidence for coverage in the specific market(s) being targeted. This index helps organizations identify defects in devices heavily used by end-users in both regions.

Key Takeaways

- **iPhones hold twice as much share in the U.S. than in EU5** – Based on 360,000 users, the iPhone device family captures 35% of the U.S. market, as opposed to 16% in EU5.
- **Android 5.0 adoption rates are low in both the U.S. and EU5** – Android KitKat (4.4.x) and JellyBean (4.2.x, 4.3.x) are the most commonly used versions.
- **Android device usage is significantly different in the U.S. than in EU5** – This variance is reflected in the different Mobile Test Coverage Indexes for each region.
- **Windows Phone and BlackBerry devices account for a total of 7% in EU5 and 4% in the U.S.** – These platforms continue to see low adoption rates among end-users.

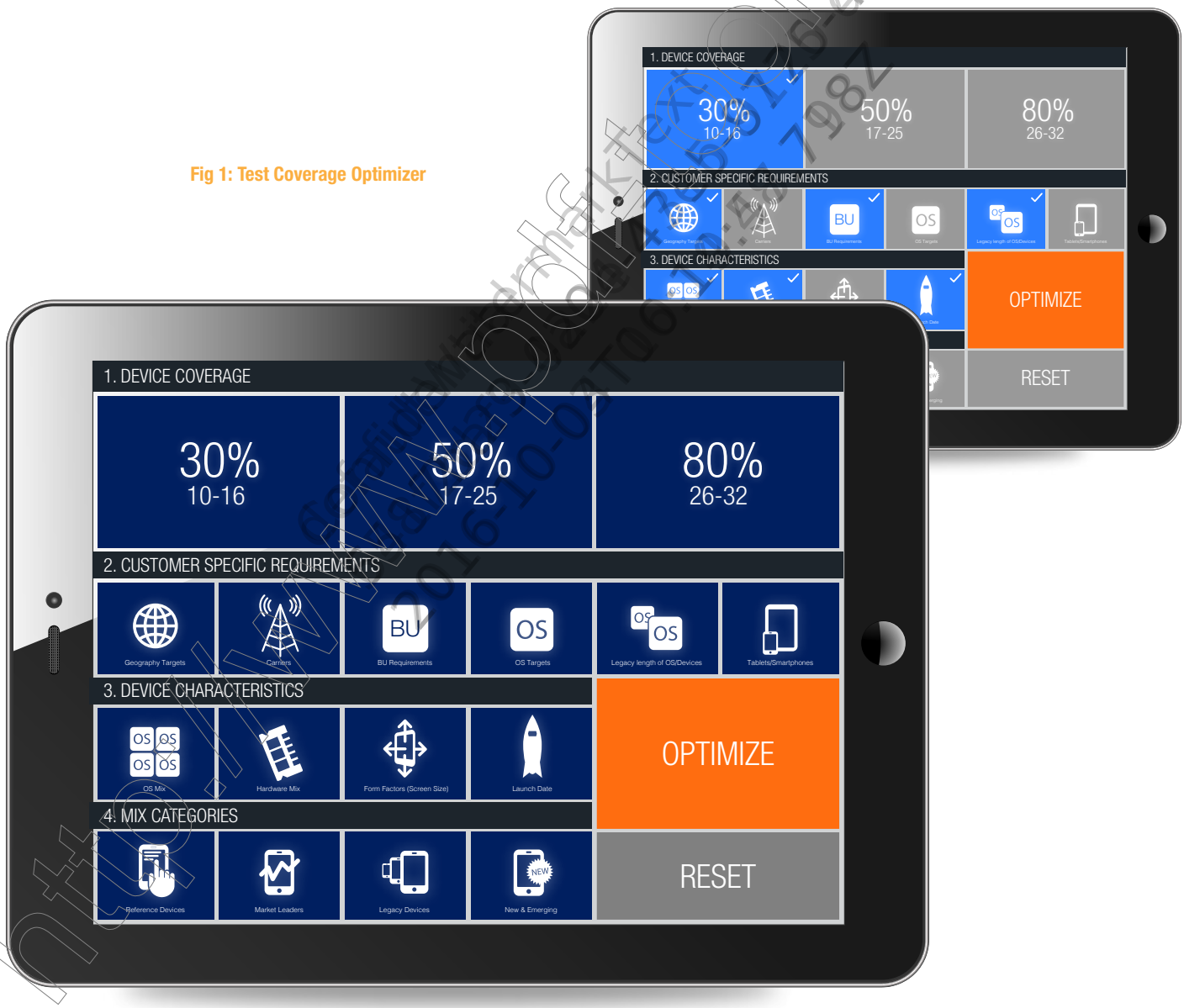
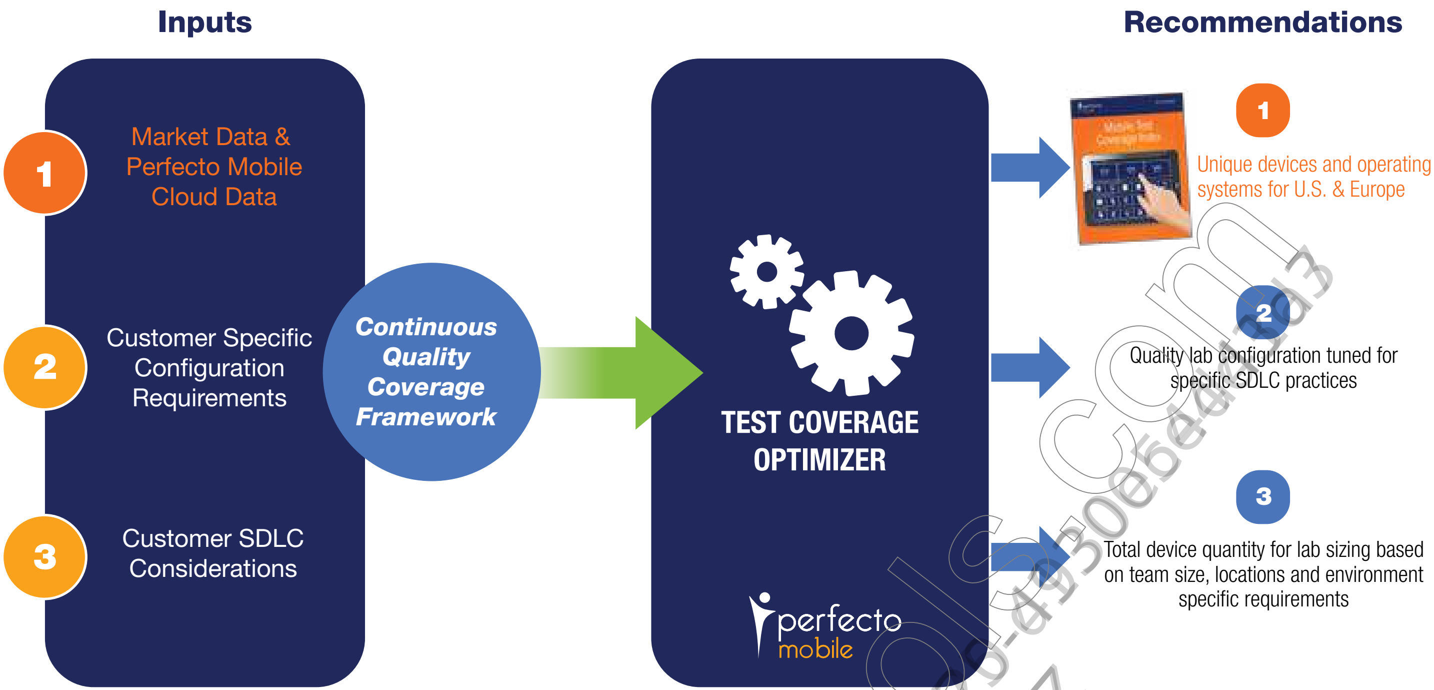


Fig 1: Test Coverage Optimizer



Perfecto Mobile uses a proprietary Test Coverage Optimizer to determine the exact number of devices that represent a 30/50/80% coverage rate. First, we aggregate raw data from public and private sources to understand usage profiles at a granular level. However, simply taking the X most popular devices will not ensure adequate coverage in the real world. Hardware/screen size/OS permutations are constantly changing and new promotions, device releases or holidays can impact turnover rates. The Perfecto Mobile Test Coverage Optimizer factors data from each of the four sectors to create a precise list to test and develop against for each targeted coverage rate. While the 30% coverage rate of 10-16 devices will provide basic device/OS coverage and some of the mix considerations, mitigating the risks in a mobile fragmented market means looking at the higher coverage goals as development progresses.

Note that the number of devices in each test bracket may vary from quarter to quarter to reflect changes in mobile preferences. Additionally, the information in this report is based on generic requirements, customizing test parameters for specific development projects may also cause the numbers to shift slightly.

30%
accounts for 10-16 unique device models

50%
accounts for 17-25 unique device models

80%
accounts for 26-32 unique device models

The Mobile Test Coverage Index for U.S. & EU5 (Germany, UK, Spain, Italy, France)

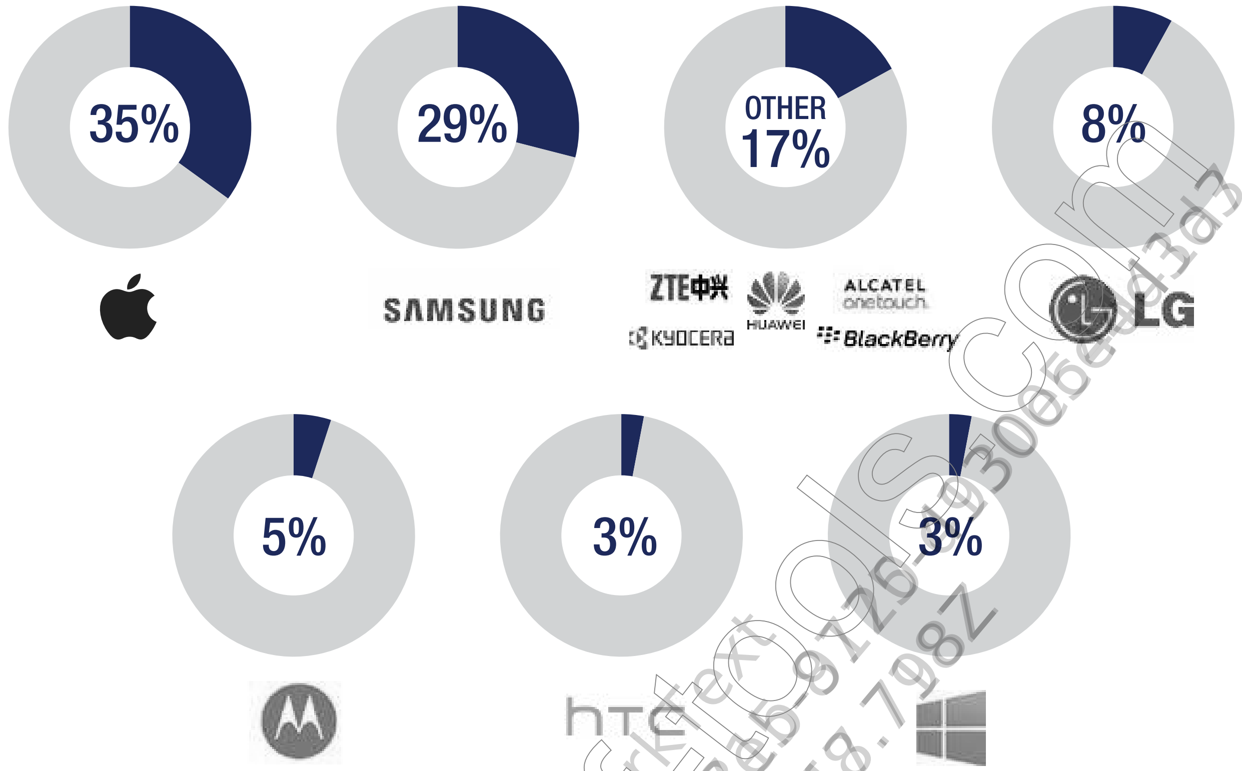


Fig 2: U.S. Q1 2015 Device Manufacturers Market Share

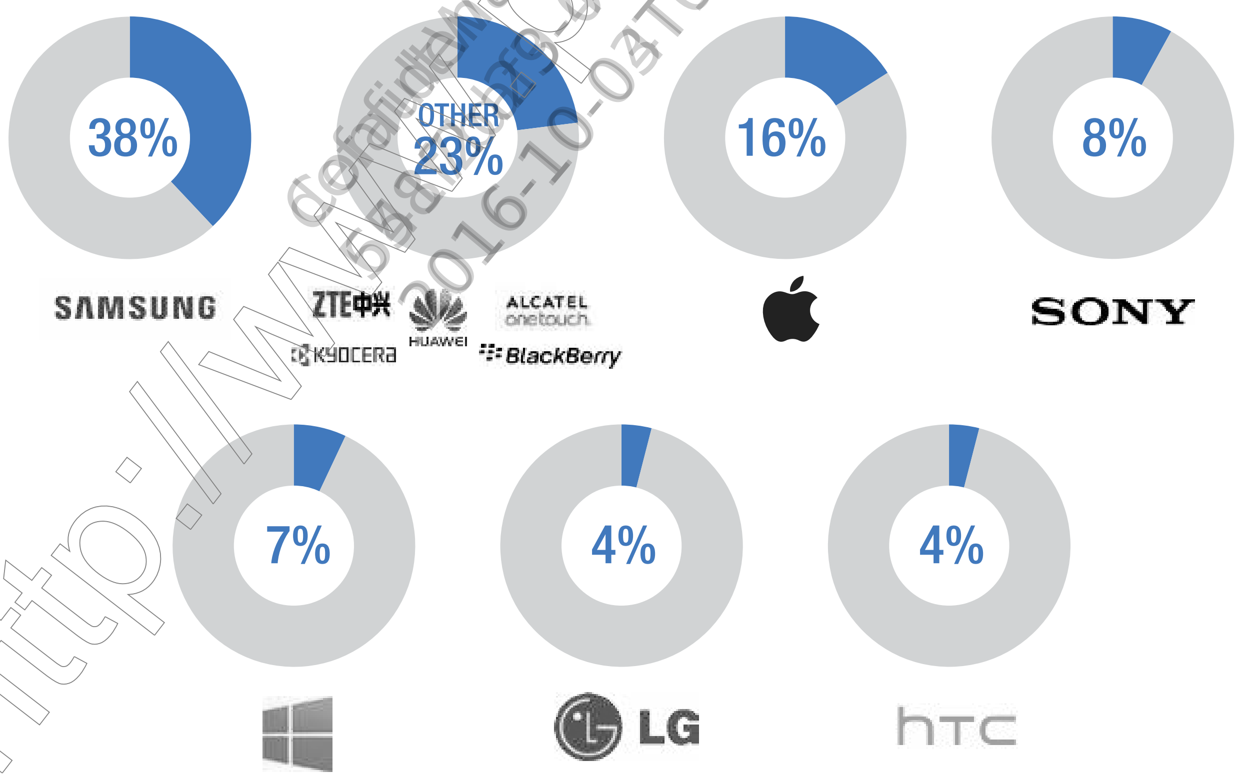


Fig 3: EU5 Q1 2015 Device Manufacturers Market Share

U.S. Device Recommendations

	30%-80% Coverage	Screen Size	Launch Date	Hardware (System On Chip)
	HTC One M8	5''	Mar-14	Qualcomm MSM8974AB Snapdragon 801
	Samsung Galaxy S5	5.1''	Feb-14	Qualcomm MSM8974AC Snapdragon 801
	LG G3	5.5''	May-14	Qualcomm MSM8975AC Snapdragon 801
	Samsung Galaxy Note 4	5.7''	Sep-14	Qualcomm Snapdragon 805
	Motorola Moto G (2nd Gen)	5''	Sep-14	Qualcomm MSM8226 Snapdragon 400
	Alcatel One Touch Fierce	4.5	Sep-13	Mediatek MT6589
16 Devices	Sony Xperia Z3	5.2''	Sep-14	Qualcomm MSM8974AC Snapdragon 801
	iPhone 6	5''	Sep-14	Apple A8
	iPhone 5S	4''	Sep-13	Apple A7
	Nexus 5 (LG)	5''	Oct-13	Qualcomm MSM8974 Snapdragon 800
	Samsung Galaxy S4	5''	Mar-13	Exynos 5 Octa 5410
	iPhone 6 Plus	5.5''	Sep-14	Apple A8
	Apple iPad Air 2	9.7''	Oct-14	Apple A8X
	Samsung Galaxy Tab 4 (8'')	8''	Apr-14	Qualcomm Snapdragon 400
	Nexus 9 (HTC)	8.9''	Oct-14	Nvidia Tegra K1
	Apple iPad Mini 3	7.9''	Oct-14	Apple A7
	HTC One M7	4.7''	Feb-13	Qualcomm APQ8064T Snapdragon 600
	iPhone 5C	4''	Sep-14	Apple A6
	LG G2	5.2''	Aug-13	Qualcomm MSM8974 Snapdragon 800
25 Devices	Nexus 6 (Motorola)	6''	Oct-14	Qualcomm Snapdragon 805
	Motorola Moto X (2nd Gen.)	5.2''	Sep-14	Qualcomm MSM8226 Snapdragon 400
	Samsung Galaxy Note 3	5.7''	Sep-13	Qualcomm Snapdragon 800
	Sony Xperia Z3v	5.2''	Oct-14	Qualcomm MSM8974AC Snapdragon 801
	Sony Xperia Z1s	5''	Jan-14	Qualcomm MSM8974 Snapdragon 800
	iPhone 5	4''	Sep-12	Apple A6
	ZTE Sonata 4G	4''	Jan-14	Qualcomm Snapdragon 400
	Samsung Galaxy S5 Mini	4.5''	Jun-14	Exynos 3 Quad 3470
	Huawei Ascend Mate 2 4G	6.1	Jan-14	Qualcomm MSM8928 Snapdragon 400
32 Devices	HTC Desire 510	4.7''	Aug-14	Qualcomm Snapdragon 400
	Huawei Ascend Plus (H881C)	4''	Apr-14	Cortex A9
	Apple iPad Mini 2	7.9''	Oct-13	Apple A7
	Sony Xperia Z3 Compact	4.6''	Sep-14	Qualcomm MSM8974AC Snapdragon 801

EU5 Device Recommendations

30%-80% Coverage	Screen Size	Launch Date	Hardware (System On Chip)
HTC One M8	5''	Mar-14	Qualcomm MSM8974AB Snapdragon 801
Samsung Galaxy S5	5.1''	Feb-14	Qualcomm MSM8974AC Snapdragon 801
LG Optimus L5	4''	Feb-13	Mediatek MT6575
Sony Xperia Z1	5''	Sep-13	Qualcomm MSM8974 Snapdragon 800
iPhone 6	5''	Sep-14	Apple A8
iPhone 5S	4''	Sep-13	Apple A7
Nexus 5 (LG)	5''	Oct-13	Qualcomm MSM8974 Snapdragon 800
Samsung Galaxy S4	5''	Mar-13	Exynos 5 Octa 5410
LG Optimus F70	4.5''	Feb-14	Qualcomm MSM8926 Snapdragon 400
Sony Xperia Z	5''	Jan-13	Qualcomm MDM9215M
iPhone 6 Plus	5.5''	Sep-14	Apple A8
Samsung Galaxy Note 3	5.7''	Sep-13	Qualcomm Snapdragon 800
Nexus 9 (HTC)	8.9''	Oct-14	Nvidia Tegra K1
Apple iPad Mini 3	7.9''	Oct-14	Apple A7
Samsung Galaxy Tab 4 (10.1'')	10.1''	Apr-14	Qualcomm Snapdragon 400
Apple iPad Air 2	9.7''	Oct-14	Apple A8X
HTC One M7	4.7''	Feb-13	Qualcomm APQ8064T Snapdragon 600
Huawei Ascend Y 300	4''	Mar-13	Qualcomm MSM8225 Snapdragon
Motorola Moto G (2nd Gen)	5''	41883	Qualcomm MSM8226 Snapdragon 400
Nexus 6 (Motorola)	6''	Oct-14	Qualcomm Snapdragon 805
Samsung Galaxy Note 4	5.7''	Sep-14	Qualcomm Snapdragon 805
iPhone 4S	3.5	Oct-11	Apple A5
LG G2	5.2''	Aug-13	Qualcomm MSM8974 Snapdragon 800
Apple iPad Mini 2	7.9''	Oct-13	Apple A7
iPhone 5	4''	Sep-12	Apple A6
Alcatel One Touch Pop C1	3.5	Sep-13	MediaTek MT6572M
Samsung Galaxy S4 Mini	4.3''	May-13	Qualcomm MSM8930AB Snapdragon 400
LG G3	5.5''	May-14	Qualcomm MSM8975AC Snapdragon 801
Sony Xperia Z3	5.2''	Sep-14	Qualcomm MSM8974AC Snapdragon 801
Dell Venu 11 Pro 5130	10.8''	Apr-14	Intel® Core M 5Y71
Sony Xperia Z2 Tablet	10.1''	Feb-14	Qualcomm MSM8974AB Snapdragon 801
Samsung Galaxy Tab 4 (8'')	8''	Apr-14	Qualcomm Snapdragon 400

16 Devices

25 Devices

32 Devices

Android:

The most widely adopted Android versions are KitKat and Jelly Bean, making them the most relevant to include in an Android test plan. Additionally, including Lollipop and Gingerbread into that test plan proves to be very important – Lollipop, the latest from Google, is running on the Google Nexus devices (considered reference devices). In addition, performing key regression tests on the Gingerbread family, the oldest OS from Google (yet still relevant with close to 10% market share in Europe), is also important for risk mitigation and customer satisfaction.

Platform Family	30%		50%		80%
Lollipop	5.1	+	5.0.2	+	5.0, 5.0.1
KitKit	4.4.4	+	4.3, 4.4.3	+	4.4.2
JellyBean	4.2.2	+	4.1.2	+	4.1.1
IceCream Sandwitch	4.0.4	+	4.0.3	+	NA
Gingerbread	2.3.7	+	2.3.6	+	2.3.3, 2.3.5

**Add the listed OS versions in the 30% column, 50% column and 80% column together to achieve the full 80% OS coverage spectrum.*

iOS:

The iOS family is less fragmented than Android and does account for the majority of the OS market. While Apple pushes its users to upgrade to the latest iOS version, there are earlier iOS 8 versions that should be included in test plans. iOS 7 still accounts for some 17% of total users out there, which is quite a large percentage. This version should be included at the same level of iOS 8 test plans: for app functionality, regression and performance. There are is very little usage of the older versions like iOS 6, so it is only recommended to take the latest 6.1.6 version for a high coverage support – this can be used for a basic sanity testing on legacy iPhone devices like Phone 4S.

Platform Family	30%		50%		80%
iOS 8	8.3	+	8.1.3, 8.1	+	8.0.2
iOS 7	7.1.2, 7.1.1	+	7.0.4	+	7.0
iOS 6	NA	+	NA	+	6.1.6

**Add the listed OS versions in the 30% column, 50% column and 80% column together to achieve the full 80% OS coverage spectrum.*

Methodology & Utilization

By constantly refreshing a CQ Lab to accurately reflect evolving device trends, developers can enhance and extend the quality, functionality and usability of mobile apps in the real world. With a more effective testing strategy, organizations can reduce risk, increase velocity and really drive innovation.

Mobile Test Coverage Index

The intelligence presented in the Q1 2015 Mobile Test Coverage Index report was derived using the Perfecto Mobile CQCF, which uses the Test Coverage Optimizer tool. By analyzing an extensive dataset containing over 360,000 consumer usage profiles across 4,000+ unique device configurations, we identified a recommended list of smartphones and tablets to test and develop against in order to assure sufficient coverage of the U.S. and EU5 markets.

Project Specific Customizations

The recommendations made herein are based on generic market requirements. It is important to note that developers are more successful when the target device list is continuously tailored to the specific requirements of each project under test. The Perfecto Mobile CQCF enter project specific device parameters for geography, screen size, OS, hardware, BU requirements, device mix and more. The CQCF analyzes current market data to output a customized, highly targeted Mobile Test Coverage Index. For example, users can select “emerging device mix” to test apps aimed at wearables, “large screen size” to ensure usability for tablet apps or “legacy device mix” for regression testing of a new feature. When used as an extension to the Perfecto Mobile CQ Lab, developers can easily automate testing at various coverage rates throughout the software development lifecycle.

Continuously Updated

To keep developers aligned with changes in usage trends, Perfecto Mobile refreshes the granular data powering the CQCF analytics on a quarterly basis. Here is a preview of the Q2 2015 release schedule, which we will factor into the next report:

New & Emerging	Screen Size	Launch Date	Hardware (System On Chip)
Samsung Galaxy S6	5.1''	Apr-15	Exynos 7420
Samsung Galaxy S6 Edge	5.1''	Apr-15	Exynos 7420
Motorola Moto E (XT1511)	4.5''	Feb-15	Qualcomm Snapdragon 410
LG Flex 2	5.5''	Feb-15	Qualcomm MSM8994 Snapdragon 810
HTC One M9	5''	Mar-15	Qualcomm MSM8994 Snapdragon 810
Alcatel One Touch Pop Mega	6''	Feb-15	Qualcomm Snapdragon 400
LG G4	5.6''	Apr-15	Qualcomm MSM8994 Snapdragon 810
Sony Xperia Z4 Tablet	10''	Jun-15	Qualcomm MSM8994 Snapdragon 810
Lumia 640 XL	5.7''	Mar-15	Qualcomm MSM8226 Snapdragon 400
ZTE Blade S6+	5.5’’		Qualcomm MSM8939 Snapdragon 615
Emerging Operating Systems			
		iOS8.3	
		Android 5.2	

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About Perfecto Mobile

Perfecto Mobile, the world's leader in mobile app quality, provides a hybrid cloud-based Continuous Quality Lab that enables mobile app development and testing teams to deliver better apps faster. The Continuous Quality Lab supports testing processes earlier and more often in the development cycle, giving way to faster feedback and improved time to market. Users can access an exhaustive selection of real mobile devices connected to live networks around the world and leverage them for testing and monitoring throughout the mobile application development lifecycle – from development, functional and performance testing to monitoring and support.

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781.205.4111