

This is the App Quality Alliance (AQuA) Testing Criteria for Android™ applications. (Android™ is a Trade Mark of Google Inc).

Applications passing the appropriate tests will be deemed by AQuA to be of a high quality standard and will be eligible for inclusion within the AQuA Quality App Directory (www.qualityappdirectory.org)

Please read the following information - sections 1, 2 and 3 - before looking at the individual tests in section 4.

Section 1 Testing notes

The tests should be performed on a device to which a factory reset has been applied prior to the installation of the application to be tested. This will ensure that there is a known base with only pre-installed applications and any errors will be attributable to the application under test.

It is not within the scope of these criteria to be able to test the performance of the application on devices with multiple applications installed.

If an application uses another application to perform a function (such as the Facebook application for accessing Facebook details) it should be tested as if the application performed that function itself. In this way the user experience is tested as a complete end-to-end solution and the correct use of the other application is tested as well.

Section 2 Different types of apps and their associated tests

The tests within the Testing Criteria (see section 4) have been developed to test different features of different apps.

Not all tests have to be conducted for every type of app.

This section describes the different types of apps and the tests to be carried out for each type.

Introduction

Mobile applications are tested for a number of reasons, chief among these are the needs to protect the customer and the vendor from software which does not work properly or exhibits malicious behaviour. The variety of applications is huge and is growing daily so there is a clear need to tailor testing to the level of complexity. To address this we have defined applications to be either *Simple* or *Complex*.

There are over 100 different permissions that can be requested by an application so it is highly unlikely that any applications will not make some form of permission request. There is also going to be a high proportion of connected applications as developers will be targeting the advanced capabilities of the device and its always- connected state. This also means that functionality that would be deemed complex in some other technologies is simple in Android – e.g. connecting to a server to pull down information on weather or sports scores.

We therefore would deem accessing many of the permissions as still being the behaviours of a simple application.

Simple App definition and tests

A Simple Android Application would be one which;

- Does not send SMS/MMS
- Does not write data to standard data files e.g. contacts, calendar
- Does not write data to external services e.g. social networks.
- Can access but does not change the state of networking services e.g. 3G/Wifi/Bluetooth
- Can access external sites to retrieve information
- Can access location information
- Can read standard data files
- Can read SMS/MMS
- Can access screen, sound, camera, keyboard.
- Can write its own data e.g. store pictures, create documents.

This list is not exhaustive as new application types are being developed all the time but will cover 90% of applications.

A simple Android application will require the following tests to be carried out;

Test	Title
1.1	OTA Install
1.2	Long launch time
3.1	Send/Receive Data
3.4	Resource downloading
5.2	Message – Receive
5.3	Incoming call
6.1	Memory card operation
7.1	Readability
7.3	Screen Repainting
7.5	Key Layout ease of use
7.8	Function progress
7.10	Multiple display format handling
7.11	Different screen sizes
7.12	Multiple format input handling
7.14	Spelling errors
7.15	Technical text errors
8.1	Language – correct operation
8.3	Language – supported formats
9.1	Suspend/resume from main menu
9.2	Suspend/resume while executing
10.1	Application Mute option
11.1	Help and About
12.1	Functionality Sanity Check
13.1	Scrolling in menus
13.3	Pause
15.1	Application Stability
15.2	Application behaviour after forced close
16.2	Data Deletion

Framework app definition and tests

There are many applications where the same application framework is used repeatedly to create new applications. This is especially prevalent for dictionaries, books and magazine applications but may occur in any application genre.

For these applications it is clearly excessive to fully test the new application as it is to a large degree an existing application with new resource files. For these applications the appropriate criteria (simple or complex) should be used in the first instance and then the following tests are to be performed for subsequent derived applications.

Test	Title
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1.1	OTA Install
3.1	Send/Receive Data
3.4	Resource downloading
7.1	Readability
11.1	Help and About
12.1	Functionality Sanity Check
15.1	Application Stability

Complex Applications

Any application which does not fall into the above categories i.e. *Framework* or *Simple* will be deemed to be *Complex* and will be subject to testing against the full criteria.

Smoke Test

Wikipedia defines a Smoke Test as “a first test made after assembly or repairs to a system, to provide some assurance that the *system under test will not catastrophically fail.*”

The Smoke Test is a very basic set of tests that is suitable to confirm that a tested app runs (at least at a basic level) on a subsequent device. The Smoke Test can be used to confirm basic handset compatibility, but does not guaranteed full functionality.

Test cases to be carried out for a Smoke Test:

Test	Title
1.1	OTA Install
1.2	Long Launch Time
7.1	Readability
11.1	Help and about
15.1	Application Stability
15.2	Application behaviour after forced close

Section 3: 'critical' tests, 'warning' tests and levels of warning

We recognise that many of the tests that are performed do not produce a binary result. They are often subjective leaving the interpretation to the tester. It is unfair therefore to fail an application for one minor error that may be down to a tester's opinion.

To account for this, the individual tests in the criteria below are each marked as either *Critical* and *Warning*.

Critical Tests

As the name suggests, a *Critical* test must be passed.

If an application fails the test then the application has an overall fail.

Warning Tests

For a test which is considered *Warning*, we have allowed for four different results; *pass*, *annoying*, *difficult* and *impossible*.

These *warning* levels are described as follows;

- **Pass** = the app has passed the test. There are no issues
- **Annoying** = a minor error has occurred with the app - e.g. one or two typos that would make the application not perfect but still very useable
- **Difficult** = a more serious issue has occurred with the app e.g. multiple typos making the application difficult to use but not impossible
- **Impossible** = a very serious issue has occurred with the app - the errors are so bad as to make the application unusable.

Once all appropriate tests have been carried out, points should be attributed according to the following scale.

Warning levels:

- Annoying = 1 points
- Difficult = 2 points
- Impossible = 4 points

Critical levels:

- 5 points

For an application to pass, the errors must not add up to more than 3 points. 4 points or more is a failure.

Severity of error	Warning test type	Critical test type
No error	0 points	0 points
Annoying error	1 point	
Difficult error	2 points	
Impossible error	4 points	
Fail test		5 points

(As an example, an application could have 3 *annoying* results, or 1 *difficult* and 1 *annoying* and still pass.)

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1 Install and Launch

1.1 OTA install

<i>Test ID</i> 1.1	<i>Test Title</i> Lifecycle – OTA install	Critical
<i>Test Description</i> The Application must install via OTA.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <ol style="list-style-type: none">1. If errors occur at installation time, corresponding messages must be reported by the tester in the test report.2. If the device does not display the icon, then the user must be able to start the Application using other means.3. For carriers that will only accept the installation of Applications from Android Market, this test cannot be performed until the Application is in Android Market.		
<i>Testing Steps</i> <ol style="list-style-type: none">1. Open the browser Application of the device;2. Type the URL of the Application file, or navigate to it graphically;3. Connect to the typed URL / application icon;4. Accept the installation of the Application. <p><i>RESULT:</i></p> <ol style="list-style-type: none">1. The Application installs to the device.2. The icon for the Application can be found from the device.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		

1.2 Long Launch Time

<i>Test ID</i> 1.2	<i>Test Title</i> Lifecycle – Long launch time	Critical
<i>Test Description</i> Ensure that the Application notifies the user about a long launch time.		
<i>Required for:</i> All applications.		
<i>Testing Note</i>		
<i>Testing Steps</i> 1. Launch the Application. 2. Observe launch time. <i>RESULT:</i> If the Application takes longer than 5 seconds to launch, a progress bar or a message must be displayed to tell the user what is happening.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		

2 Memory Use

2.1 Memory during run

Test ID 2.1	Test Title File System – Memory during run	Critical
<i>Test Description</i> Ensure that the Application correctly handles out of memory exceptions during Application execution.		
<i>Required for:</i> Application which writes to file system. <i>Not required for:</i> Application which does not write to file system.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. Operate the Application in such a way so as to force the Application to write files into the file system.2. Exit the Application. Fill the file system to its capacity or near it.3. Operate the Application - try to explore screens and functions, which access the file system. <i>RESULT:</i> <ol style="list-style-type: none">1. The Application should handle any out of memory exceptions correctly.2. Ensure that there is a warning to the user advising about lack of memory when file is trying to be stored.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Application does not write to file system.		

3 Connectivity

3.1 Send/Receive Data

Test ID 3.1	Test Title HTTP – Send/receive data	Critical
<i>Test Description</i> Ensure that the Application can connect via a valid Web Access session setup and send/receive data via an HTTP network session.		
<i>Required for:</i> Application using HTTP network connection. <i>Not required for:</i> Application not using HTTP network connection.		
<i>Testing Note</i> Where the application uses a different application to perform the data transfer e.g. Facebook, Flickr etc,. it still needs to be tested to ensure end to end functionality. <i>Testing Steps</i> <ol style="list-style-type: none">1. Create a valid Web Access session setup.2. Launch the Application.3. Initiate an HTTP network connection from the Application.4. Conduct some action which ensures a data transfer action via the Network Connection. <i>RESULT:</i> <ol style="list-style-type: none">1. The Application data is properly sent/received over the network (check it for each Application screen or feature that uses data services).		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Application does not use HTTP network connection.		

3.2 Network delays and loss of connection

Test ID 3.2	Test Title Network connectivity - Network delays and the loss of connection	Critical
Test Description When the Application uses network capabilities, it must be able to handle network delays and any loss of connection.		
Required for: Application which uses Network Connection.		
Not required for: Application which does not use Network Connection.		
Testing Note Where the application uses a different application to perform the data transfer e.g. Facebook, Flickr etc., it still needs to be tested to ensure end to end functionality.		
Testing Steps <ol style="list-style-type: none">1. Launch the Application.2. Start the network access from the Application.3. Put the phone in a place where there connection will be lost.4. Observe the result.		
RESULT: The Application will work until time out and then give an error message to the user indicating there was an error with the connection.		
Result of Test <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> The Application does not use Network Connection.		

3.3 Network connectivity – Airplane mode

Test ID 3.3	Test Title Network connectivity - Airplane mode	Critical
<i>Test Description</i> When the Application uses network capabilities, it must be able to handle the device being in Airplane mode		
<i>Required for:</i> Application which uses Network Connection. <i>Not required for:</i> Application which does not use Network Connection.		
<i>Testing Note</i> Where the application uses a different application to perform the data transfer e.g. Facebook, Flickr etc,. it still needs to be tested to ensure end to end functionality. <i>Testing Steps</i> 1. Set the device to Airplane mode 2. Start the Application. 3. Observe the result. <i>RESULT:</i> The Application will give a meaningful error message to indicate that the device is in Airplane mode and the application cannot run successfully.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> The Application does not use Network Connection.		

3.4 Network connectivity - resource downloading

<i>Test ID</i> 3.4	<i>Test Title</i> Network connectivity - resource downloading	Critical
<i>Test Description</i> When the Application uses network capabilities to download resource files it must be able to handle pause and resume and interruptions to downloads		
<i>Required for:</i> Application which uses downloadable resource files <i>Not required for:</i> Application which does not use downloadable resource files.		
<i>Testing Note</i> Where the application uses a different application to perform the data transfer e.g. Facebook, Flickr etc,. it still needs to be tested to ensure end to end functionality. <i>Testing Steps</i> Start the Application. Start a resource file download Pause the download if possible Restart the download Drop the network connection Recreate the network connection Resume/restart the download <i>RESULT:</i> The Application will gracefully handle the pausing, stopping and resumption of resource file downloads.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> The Application does not use downloadable resource files.		

4 Event Handling

4.1 Messaging auto start

<i>Test ID</i> 4.1	<i>Test Title</i> Messaging – Auto start and process	Critical
<i>Test Description</i> Ensure that the Application starts correctly on receipt of Application specific SMS		
<i>Required for:</i> Application which is started by Application-specific SMS. <i>Not required for:</i> Application which is not started by Application-specific SMS.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. Ensure that the Application is not running.2. Send an SMS message which meets the Application specification to the test handset on the correct port number. <i>RESULT:</i> <ol style="list-style-type: none">1. The Application should launch correctly.2. The Application should process the incoming message correctly.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> The Application does not use Application-specific SMS to start.		

4.2 Message queuing

<i>Test ID</i> 4.2	<i>Test Title</i> Messaging – Message queuing	Critical
<i>Test Description</i> Ensure that the Application Queues Application-specific SMS messages for processing.		
<i>Required for:</i> Application which uses Application-specific SMS messages.		
<i>Not required for:</i> Application which does not use Application-specific SMS messages.		
<i>Testing Note</i>		
<i>Testing Steps</i> Repeat test Messaging – Auto start and process several times in quick succession.		
<i>RESULT:</i> The Application should queue the messages and then correctly process the queued messages.		
<i>Result of Test</i>		
<input type="checkbox"/> PASS <input type="checkbox"/> FAIL		
EXCEPTION(S)		
<input type="checkbox"/> The Application does not use Application-specific SMS messages.		

4.3 Timed event expiry

<i>Test ID</i> 4.3	<i>Test Title</i> Timed Event – Expiry during Application run	Critical
<i>Test Description</i> Ensure that the Application behaves correctly on expiry of a timed event while the Application is running.		
<i>Required for:</i> Application which uses timed events. <i>Not required for:</i> Application which does not use timed events.		
<i>Testing Note</i> <i>Testing Steps</i> 1. Set a timed event in the Application for a specific “future” time 2. Keep the Application in an active state. 3. Allow the “future” time to pass. <i>RESULT:</i> Ensure that Application reacts correctly once the designated time has expired.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> The Application does not use timed events.		

4.4 Timed event expiry during suspend

Test ID 4.4	Test Title Timed Event – Expiry during Application suspend	Critical
Test Description Ensure that the Application resumes correctly from a suspended state on expiry of a timed event.		
Required for: Application which uses timed events. Not required for: Application which does not use timed events.		
Testing Note Testing Steps 1. Set a timed event in the Application for a specific “future” time 2. Suspend the Application 3. Allow the “future” time to pass. RESULT: Ensure that the application resumes correctly once the designated time has expired, and then ensure that the Application behaves correctly after being resumed.		
Result of Test <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> The Application does not use timed events.		

4.5 Timed event expiry during application exit

<i>Test ID</i> 4.5	<i>Test Title</i> Timed Event – Expiry during Application exit	Critical
<i>Test Description</i> Ensure that the Application starts correctly from an exited state on expiry of a timed event.		
<i>Required for:</i> Application which uses timed events. <i>Not required for:</i> Application which does not use timed events.		
<i>Testing Note</i> <i>Testing Steps</i> 1. Set a timed event in the Application for a specific time 2. Exit the Application <i>RESULT:</i> 1. Application starts, or user is presented with a start option once the designated time has expired. 2. Application behaves correctly when started.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> The Application does not use timed events.		

5 Messaging & calls

5.1 Send

<i>Test ID</i> 5.1	<i>Test Title</i> Message – Send	Critical
<i>Test Description</i> Ensure that the Application can send messages successfully.		
<i>Required for:</i> Application which sends SMS or MMS messages as part of its functions. <i>Not required for:</i> Application which does not send SMS or MMS messages as part of its functions.		
<i>Testing Note</i> <i>Testing Steps</i> 1. Launch Application. 2. Send a message from the Application to another handset – if both SMS and MMS are supported, test both formats. <i>RESULT:</i> 1. Notification of new message is given where enabled on the receiving handset. 2. Message is in the correct format, and for MMS contains the correct payload.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Application does not send messages as part of its functions.		

5.2 Receive

<i>Test ID</i> 5.2	<i>Test Title</i> Message – Receive	Critical
<i>Test Description</i> Ensure that the Application can receive messages successfully.		
<i>Required for:</i> Application which receives SMS or MMS messages as part of its functions.		
<i>Not required for:</i> Application which does not receive SMS or MMS messages as part of its functions.		
<i>Testing Note</i>		
<i>Testing Steps</i> 1. Launch the Application (with sound on). 2. Compose message at another phone and send it to the test handset – if the application supports both SMS and MMS, test both formats.		
<i>RESULT:</i> 1. Notification of new message is given where enabled on the receiving handset. 2. Message is in the correct format, and for MMS contains the correct payload.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		
EXCEPTION(S) <input type="checkbox"/> Application does not receive messages as part of its functions.		

5.3 Incoming call

<i>Test ID</i> 5.3	<i>Test Title</i> Telephone call – incoming while application in use	Critical
<i>Test Description</i> If the user accepts an incoming phone call while the Application is running, it should be possible to resume from the same point in the Application at the end of the call, or a logical re-starting point.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. While Application is running, make an incoming call to the test handset.2. Accept the incoming call.3. End the incoming call.4. Return to the Application. <i>RESULT:</i> <ol style="list-style-type: none">1. The incoming call dialog is shown.2. After the call is taken and ended, the Application should resume to either the point of interruption, or a point which neither inconveniences the user nor causes data loss.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		

6 External Influence

6.1 Memory card operation

Test ID 6.1	Test Title Memory Card – Insertion & Removal	Warning
<i>Test Description</i> Ensure that the Application works correctly following memory card insertion and removal.		
<i>Required for:</i> All applications, on device which supports removable memory cards. <i>Not Required for:</i> Device which does not support removable memory cards.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. Suspend Application3. Insert the memory card into the phone, and mount the card.4. Fill the card to its capacity5. Unmount the memory card.6. Resume and operate the Application <i>RESULT:</i> The Application continues to operate as designed based on the Application specification and is not affected by the memory card insertion or mounting/unmounting.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Device does not support removable memory cards.		

6.2 Memory card screen behaviour

Test ID 6.2	Test Title Memory Card – screen behaviour	Critical
<i>Test Description</i> Ensure that the Application with memory card functional screens works correctly with memory card inserted and removed.		
<i>Required for:</i> Application which uses memory card. <i>Not Required for:</i> 1. Device which does not support removable memory cards; 2. Application which does not use memory card, regardless of device support.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. Navigate to screen where Application works with memory card.3. Insert the memory card.4. Verify that Application works correctly.5. Remove the memory card.6. Verify that Application works correctly. <i>RESULT:</i> <ol style="list-style-type: none">1. The Application should work correctly following memory card insertion.2. The Application should work correctly following memory card removal.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Device does not support removable memory cards. <input type="checkbox"/> Application does not use memory card.		

7 User Interface

7.1 Readability

Test ID 7.1	Test Title Readability	Warning
<i>Test Description</i> Ensure that the application content is readable.		
<i>Required for:</i> Applications on all devices with user display. <i>Not Required for:</i> Devices without user display.		
<i>Testing Note</i> An exception to the requirement for naked-eye legibility may be made where the applications allows a high level graphical view of an item (eg map or web page) and the device zoon facility is used to make areas legible, providing that usability is not impaired by any limiting of the visible areas when zoomed sufficiently to be legible. <i>Testing Steps</i> All screen content must be clear (e.g. screen not crowded with content) and readable to the naked eye regardless of information displayed, or choice of font, colour scheme etc. <i>RESULT:</i> The application content should be readable. If there are issues they should be graded according to the scale in the results box.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible EXCEPTION(S) <input type="checkbox"/> Device does not have user display		

7.2 Read time

Test ID 7.2	Test Title UI – Read time	Warning
<i>Test Description</i> Comfortable time for content reading.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <i>Testing Steps</i> Use the application, moving between screens. <i>RESULT:</i> Each screen must be visible for the time necessary to comfortably read all its information. If the screen is not visible for an appropriate time the issue should be graded.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

7.3 Screen repainting

<i>Test ID</i> 7.3	<i>Test Title</i> UI – Screen repainting	Warning
<i>Test Description</i> Correct screen repainting.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <i>Testing Steps</i> Use the application, moving between screens. <i>RESULT:</i> 1. The Application screens must be correctly repainted, including cases when edit boxes and dialog boxes are dismissed. 2. There must be no blinking of moving objects and background. If the Application objects overlap they must still render correctly.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

7.4 Consistency

Test ID 7.4	Test Title UI - Consistency	Warning
<i>Test Description</i> UI consistency.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <i>Testing Steps</i> Use the application, moving between screens. <i>RESULT:</i> The Application UI should be consistent and understandable throughout, e.g. common series of actions, action sequences, terms, layouts, soft button definitions and sounds that are clear and understandable		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

7.5 Key layout ease of use

Test ID 7.5	Test Title UI – Key layout ease of use	Warning
<i>Test Description</i> Key layout ease of use.		
<i>Required for:</i> All Apps.		
<i>Testing Note</i> 1. Key layout ease of use should only be tested to the extent that it can be influenced by the application. Any limitations of the device that cannot be overcome by application design should be disregarded. 2. Where the device offers multiple input methods (e.g. hardware keypad / touch screen keypad), all the input methods available during normal use of the application should be tested. <i>Testing Steps</i> Use the application, moving between screens. <i>RESULT:</i> 1. The buttons should be easy to use. 2. Button usage should be suitable for both a left-handed and right-handed person, within the physical constraints of the device design.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

7.6 Application speed

Test ID 7.6	Test Title UI - Application speed	Warning
<i>Test Description</i> The Application works in the device it was targeted for, and it is usable on the device: the speed of the Application is acceptable to the purpose of the Application and must not alter the user experience by being uncontrollable.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> The developer / publisher is expected to test the entire Application: for example, play through the entire game on the target handset. The tester will only conduct a representative sample test of the Application in different areas if possible, for a 15 minutes period only. <i>Testing Steps</i> <ol style="list-style-type: none">1. Use the Application.2. Observe how fast the Application is to use, and if it is too slow or too fast in its operation for good usability.3. If the Application behavior is incontrollable due to its speed, please report such findings. <i>RESULT:</i> <ol style="list-style-type: none">1. The Application is usable on the device.2. The speed of the Application is good enough for the Application usage (i.e. the Application frame rate or response to user input must remain adequate, and must not compromise the Application usage, or prevent the user from progressing normally).		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

7.7 Error messages

<i>Test ID</i> 7.7	<i>Test Title</i> UI – Error messages	Warning
<i>Test Description</i> Error messages.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <i>Testing Steps</i> Use the application, moving between screens. <i>RESULT:</i> 1. Any error messages in the Application must be clearly understandable. 2. Error messages must clearly explain to a user the nature of the problem, and indicate what action needs to be taken (where appropriate).		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

7.8 Function progress

<i>Test ID</i> 7.8	<i>Test Title</i> UI – Function progress	Warning
<i>Test Description</i> Visual indication of the function execution progress.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <i>Testing Steps</i> Use the application, moving between screens. <i>RESULT:</i> 1. Any function selected in the Application should start within 5 seconds. 2. There must be some visual indication that the function is being performed. 3. The visual indication can be anything that the user would understand as a response, e.g. - prompting for user input; - displaying splash screens or progress bars; - displaying text such as “Please wait...”, etc.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

7.9 Actions while rendering

Test ID 7.9	Test Title UI – Actions while rendering	Warning
<i>Test Description</i> Application must not perform inappropriate actions while thinking or rendering		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <i>Testing Steps</i> Make user input while the Application or handset is busy processing or rendering. <i>RESULT:</i> There must be no inappropriate reaction by the Application.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

7.10 Multiple display format handling

Test ID 7.10	Test Title UI – Multiple Display Format Handling	Warning
<p><i>Test Description</i> Where the device and Application can display in multiple formats (e.g. portrait / landscape, internal / external display), the elements of the application should be correctly formatted in all display environments.</p>		
<p><i>Required for:</i> Applications that support multiple display formats, on device with multiple display formats support.</p> <p><i>Not required for:</i> 1. Device which does not have multiple display formats; 2. Applications that do not support multiple display formats, regardless of device support.</p>		
<p><i>Testing Note</i> <i>For this test, a failure would be a gross error that makes the application difficult to use, or is seriously misleading in some way. Minor errors that do not impede functionality should be passed, but the details added to the Result of Test information as a text note.</i></p> <p><i>Testing Steps</i> Operate the Application and make use of all available display formats in multiple functions.</p> <p>RESULT: The Application should display correctly without obvious errors in all formats.</p>		
<p><i>Result of Test</i></p> <p><input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible</p> <p>EXCEPTION(S)</p> <p><input type="checkbox"/> Device does not support multiple display formats.</p> <p><input type="checkbox"/> Application does not support multiple display formats by design.</p>		

7.11 Differing screen sizes

Test ID 7.11	Test Title UI – Differing screen sizes	Warning
<i>Test Description</i> Where the application is designed to work on multiple devices it must be able to display correctly on differing screen sizes		
<i>Required for:</i> Applications that support multiple devices <i>Not required for:</i> Applications that target specific devices		
<i>Testing Note</i> <i>For this test, a failure would be the inability to display correctly on devices with different screen size..</i> <i>Android defines screen sizes as small, normal, large and extra large. Support for these sizes is defined in the application manifest.</i> <i>Testing Steps</i> Operate the Application on two devices with differing screen sizes. <i>RESULT:</i> The Application should display correctly without obvious errors.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible EXCEPTION(S) <input type="checkbox"/> Application does not support multiple devices. This can be determined from the APK manifest		

7.12 Multiple format input handling

Test ID 7.12	Test Title UI – Multiple Format Input Handling	Critical
<p><i>Test Description</i> Where the device and application can accept input in multiple formats (e.g. external touch screen / external keypad / internal touch screen / internal keypad / QWERTY layout / 12-key layout and others), the application must work correctly with all supported input methods.</p>		
<p><i>Required for:</i> Applications that support multiple input formats, on device with multiple input format support.</p> <p><i>Not required for:</i> 1. Device which does not have multiple input formats; 2. Applications that do not support multiple input formats, regardless of device support.</p>		
<p><i>Testing Note</i> For this test, a failure would be a gross error that makes the application difficult to use, or is seriously misleading in some way. Minor errors that do not impede functionality should be passed, but the details added to the Result of Test information as a text note.</p> <p><i>Testing Steps</i> Operate the Application and make use of all input methods in all functions.</p> <p><i>RESULT:</i> The Application should accept input correctly in all supported formats.</p>		
<p><i>Result of Test</i></p> <p><input type="checkbox"/> PASS <input type="checkbox"/> FAIL</p> <p>EXCEPTION(S)</p> <p><input type="checkbox"/> Device does not support multiple input formats.</p> <p><input type="checkbox"/> Application does not support multiple input formats by design.</p>		

7.13 Accelerometer/motion sensor responses

Test ID 7.13	Test Title UI – Accelerometer / Motion Sensor Responses	Warning
Test Description The response of the application to movement or change of alignment of the device should not impair use of the application, nor be likely to confuse the user.		
Required for: All Applications, except where both device and Application lack accelerometer / motion sensor support. Not required for: Application where both it and the device lack accelerometer / motion sensor support.		
Testing Note 1. Testing should be performed even where either the device or the Application (but not both) lack accelerometer support, in order to determine any unexpected reaction to the presence or absence of motion sensor responses. 2. Minor hesitations or inaccuracies are permissible. To fail, the problems must be serious enough to make it difficult to use the application. 3. The device could have adjustable orientation (accelerometer rotation) found in Settings\Sound & Display\Display Settings. Try checking the box labelled “Orientation” to switch orientation automatically when rotating phone. Testing Steps Operate the Application and make use of functions while changing the position, angle and alignment of the device and subjecting it to slow, rapid, and random movements. RESULT: The response of the application to movement or change of alignment of the device should not impair use of the application, nor be likely to confuse the user. Application should change between portrait and landscape modes without confusing errors being displayed to user.		
Result of Test <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible EXCEPTION(S) <input type="checkbox"/> Device not equipped with accelerometer / motion sensor. <input type="checkbox"/> Application does not make use of accelerometer / motion sensor.		

7.14 Spelling errors

Test ID 7.14	Test Title UI - Spelling errors	Warning
<i>Test Description</i> The Application must be free of spelling errors.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <ol style="list-style-type: none">1. A spelling error is defined as a strict mis-spelling of a word (no grammar or punctuation rules will be applied). Missing diacritics and accents (e.g. acute accents, cedillas, umlauts etc) will not be reported as spelling errors.2. The tester will perform the test as specified below, but the developer must ensure that this requirement is fulfilled throughout the Application.3. In all cases, spelling shall be acceptable if it conforms to the norm for a selected language or location.4. For generic English, US spelling is to be regarded as the norm, but British spelling will be acceptable so long as the chosen spelling is used throughout. <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch Application in target language.2. Check text appearing in:<ol style="list-style-type: none">a) Splash/Title/Logo/Loading Screen;b) Main Menu and all its subsidiary menus;c) Help/Instructions Screen(s);d) About screen;e) Application Pause Menu and all its subsidiary menus (if present). <i>RESULT:</i> No spelling errors must be present in the defined areas.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

7.15 Technical text errors

Test ID 7.15	Test Title UI - Technical text errors	Warning
<i>Test Description</i> The text in the Application must be clear and readable. The Application must be free of technical text display issues such as: Text cut off / Text overlapping.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <ol style="list-style-type: none">1. The tester will perform the test as specified below, but the developer must ensure that this requirement is fulfilled throughout the Application.2. All text in each target language is displayed without corruption, distortion or other display problems. Examples of failures may include:<ol style="list-style-type: none">a) Menu item text labels incorrectly aligned with cursor;b) Button text label over-running the button area or truncated such that its meaning is not clear;c) Text over-running or being truncated in other bounded text display areas (e.g. speech bubbles, user interface elements etc);d) Text not wrapping at the edge of the screen resulting in words being cut off;e) Multiple pieces of text overlapping each other, or text overlapping user interface elements (but see note 3 below);f) Text being cut horizontally.3. Text overlapping user interface elements may be allowable where<ol style="list-style-type: none">a) The developer has stated that this is by design, andb) There is no impairment of the user experience. <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch Application in target language.2. Check text appearing in:<ol style="list-style-type: none">a) Splash/Title/Logo/Loading Screen;b) Main Menu and all its subsidiary menus;c) Help/Instructions Screen(s)d) About screen;e) Application Pause Menu and all its subsidiary menus (if present). <i>RESULT:</i> All text located in the specified areas is shown without technical display issues that hinder legibility.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

8 Language

8.1 Correct operation

<i>Test ID</i> 8.1	<i>Test Title</i> Language – Correct operation	Warning
<i>Test Description</i> Ensure that the Application works correctly with all appropriate languages.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> 1. Translation table with all text used in UI should be provided to Test team before testing starts. <i>Testing Steps</i> 1. If handset supports more than one language, set handset to a language not already tested in certification testing. 2. Launch the Application and perform brief testing with aim to go through all possible screens, menu, messages. 3. If Application Specification specifies that Application detects selected handset language, ensure Application displays appropriate for each supported language. 4. Exit the Application 5. Repeat steps 1 to 4 for each supported language. <i>RESULT:</i> 1. All text content is rendered in the correct/expected language. 2. Ensure Application detects correct language and renders content as appropriate (if applicable).		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

8.2 Manual selection

Test ID 8.2	Test Title Language – Manual selection	Critical
<i>Test Description</i> Ensure that the Application properly allows selection of languages where available.		
<i>Required for:</i> Application which allows selection of languages within the Application. <i>Not Required for:</i> Application that does not permit selection of languages within the Application.		
<i>Testing Note</i> <i>Testing Steps</i> 1. Set Application to each language using language selection facility of the Application. 2. Perform brief testing. <i>RESULT:</i> 1. User is able to select all desired languages. 2. All text content is rendered in the correct/expected language.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Application does not permit selection of languages.		

8.3 Supported formats

<i>Test ID</i> 8.3	<i>Test Title</i> Language – Supported formats	Warning
<i>Test Description</i> Ensure that the Application supports all date/time/numeric/currency features for supported languages		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <i>Testing Steps</i> Verify that date, time, time zone, week start, numeric separators and currency, are formatted appropriately for the implemented language's target country and supported throughout the Application. <i>RESULT:</i> All text content relating to date/time/numeric/currency fields are rendered in the correct/expected language format.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

8.4 International characters

<i>Test ID</i> 8.4	<i>Test Title</i> Language – International characters	Warning
<i>Test Description</i> Ensure that the Application accepts and displays all appropriate international characters correctly.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <i>Testing Steps</i> Verify that all data entry fields accept and properly display all International characters for supported languages. <i>RESULT:</i> All international text characters are rendered in the correct/expected language.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible		

9 Performance

9.1 Suspend/resume from main menu

<i>Test ID</i> 9.1	<i>Test Title</i> Lifecycle – Suspend / resume from main menu	Critical
<i>Test Description</i> Ensure that the Application suspends when at the Application main menu.		
<i>Required for:</i> All applications.		
<i>Testing Note</i>		
<i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. Go to the main menu of the Application.3. Suspend the Application4. Resume the Application		
<i>RESULT:</i> Application should suspend and resume correctly, and resume at a point that does not impair the user experience.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		

9.2 Suspend while executing

<i>Test ID</i> 9.2	<i>Test Title</i> Lifecycle – Suspend while executing	Critical
<i>Test Description</i> Check for Suspend in the middle of Application execution.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. During Application execution, suspend the Application3. Resume the Application <i>RESULT:</i> Application should suspend and resume correctly, and resume at a point that does not impair the user experience.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		

9.3 Resume

<i>Test ID</i> 9.3	<i>Test Title</i> Lifecycle - Resume	Critical
<i>Test Description</i> Ensure that the Application resumes correctly.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> The objective of this test is to confirm the application's stability when suspended and resumed multiple times from different locations in one test cycle. <i>Testing Steps</i> <ol style="list-style-type: none">1. Perform Lifecycle – Suspend / resume from main menu2. Resume the Application4. Perform Lifecycle – Suspend while executing5. Repeat step 2. <i>RESULT:</i> The Application resumes to the point where it was suspended, or to a point that does not impair the user experience.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		

9.4 Influence on terminal system features

<i>Test ID</i> 9.4	<i>Test Title</i> Lifecycle - Influence on Terminal System Features	Critical
<i>Test Description</i> <p>Application must correctly handle situations where following user input, or some external event (e.g. a phone call), it is switched to the background by the terminal. Upon returning to foreground the Application must resume its execution correctly. While in the background the Application must not emit any audio (unless it is part of its specific purpose to do so) and all handset functions should remain intact.</p> <p>While being in the background, the Application must either not affect the use of the system features or other Applications or, if the Application does so, such behaviour must be described in the help file.</p>		
<i>Not Required for:</i> <p>Application which is not written to run as a Service.</p> <i>Required for:</i> <p>Application which is written to run as a Service.</p>		
<i>Testing Note</i> <ol style="list-style-type: none">1. When performing the test below, the Application either needs to be switched to background or foreground. The actual method used depends on the functionality of the target terminal2. If features are found to be disabled or not able to be used and are not listed in the help file the Application must fail this test.3. The developer should be asked whether the Application is written to run as a Service, and the answer should determine whether this test is applicable. <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. Familiarize yourself with the help file.3. Switch Application to background while the Application is running and in each of the following locations within the Application:<ul style="list-style-type: none">- During initial loading of the Application- Main Menu- In the process of normal Application usage- In the process of loading data from the network (where applicable)- In pause state (where applicable).4. Try using system features and Applications of the terminal (Phone Application, Calendar, Clock, Contacts, Browser, etc). In particular try the following:<ul style="list-style-type: none">- make a voice call- make a video call (if supported by terminal)- send an SMS message- send an MMS message- open a WAP and WEB page (if supported by terminal)- start a streaming session using a WEB browser or media player.5. Verify that terminal's system features and Applications can still be used normally, and where this is not the case, the Application's help file describes the situation adequately to the user. Verify also that the Application does not emit any audio (unless this is its specific purpose by design).6. Switch the Application back to the foreground.7. Verify that the Application operates normally by using it for a time period of 5 minutes.		

<i>Test ID</i> 9.4	<i>Test Title</i> Lifecycle - Influence on Terminal System Features	Critical
<p><i>RESULT:</i></p> <ol style="list-style-type: none"> 1. Terminal's system features and Applications can be used normally 2. In case the Application execution causes some changes to normal use of system features and Applications, this is adequately explained in the help file of the Application. 3. After the Application is brought back to foreground, it continues to operate normally. 		
<p><i>Result of Test</i></p> <p> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL </p> <p>EXCEPTION(S)</p> <p> <input type="checkbox"/> Application is not written to run as a Service. </p>		

9.5 Resource sharing - database

Test ID 9.5	Test Title Lifecycle - Resource Sharing – Database	Critical
<i>Test Description</i> Check that database resources are properly shared between Application and a competing Application.		
<i>Required for:</i> Applications which make use of Contacts database. <i>Not required for:</i> Applications which do not make use of Contacts database.		
<i>Testing Note</i> Application under test should not be the device native Contacts application. <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. Suspend Application3. Launch the device Contacts application4. Add a new entry into contacts.5. Remove an existing entry from contacts.6. Resume the Application under test7. Check Application state. <i>RESULT:</i> <ol style="list-style-type: none">1. Application should continue from the previous state prior to being suspended.2. Application should see the new entry and the deleted entry.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL <input type="checkbox"/> Application does not use Contacts database.		

10 Media

10.1 Application mute option

Test ID 10.1	Test Title Media – Application mute option	Warning
<i>Test Description</i> Ensure that the Application has a Mute or Sound On / Off setting.		
<i>Required for:</i> Applications with sound settings. <i>Not Required for:</i> Application which is declared not to have a Application mute facility by design.		
<i>Testing Note</i> It will be sufficient for the application to respect the settings of the device volume controls, such that sound can be turned down to zero before the application launches, and the application then makes no sound. <i>Testing Steps</i> Use the application and note the effects of either muting the device via the device volume controls or via a menu setting. <i>RESULT:</i> Application must provide a means of muting background music and / or sound effects.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible EXCEPTION(S) <i>(Note that both Exceptions may be selected if appropriate)</i> <input type="checkbox"/> Application does not have Application mute facility by design. <input type="checkbox"/> Application does not have any settings options.		

10.2 Settings statuses understandable

Test ID 10.2	Test Title Media – Settings statuses understandable	Warning
<i>Test Description</i> Ensure that the Application settings statuses are easily understandable.		
<i>Required for:</i> Applications which have Settings options. <i>Not required for:</i> Applications which do not have Settings options.		
<i>Testing Note</i> <i>Testing Steps</i> 1. Start the application. 2. Change the status of settings <i>RESULT:</i> The current status of each setting must be easily understood.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible EXCEPTION(S) <input type="checkbox"/> Application does not have any settings options.		

10.3 Settings do not impair application

Test ID 10.3	Test Title Media – Settings do not impair Application	Warning
<i>Test Description</i> The status of the Application settings does not impair the Application functionality.		
<i>Required for:</i> Applications which have Settings options. <i>Not required for:</i> Applications which do not have Settings options.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. Start the application2. Change settings3. Observe the result. <i>RESULT:</i> The current status of the settings does not affect the Application operation (e.g. whether or not the sound is on in a game). For example, switching off the sound does not change the game's functionality.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible EXCEPTION(S) <input type="checkbox"/> Application does not have any settings options.		

10.4 Saving settings

Test ID 10.4	Test Title Media – Saving settings	Warning
<i>Test Description</i> Ensure that the Application saves all settings on exit.		
<i>Required for:</i> Applications which have Settings options. <i>Not required for:</i> 1. Applications which do not have Settings options; 2. Applications which do not save changes to Settings by design.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. Start the application2. Change an item in settings3. Exit and restart the application4. Observe the setting status <i>RESULT:</i> When an Application exits, all settings must be saved. Restarting the Application will restore the saved settings.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible EXCEPTION(S) <input type="checkbox"/> Application does not have any settings options. <input type="checkbox"/> Application is declared not to save settings on close by design.		

10.5 Specific functions

Test ID 10.5	Test Title Media – Specific functions	Warning
<i>Test Description</i> Ensure Application sounds have specific functions and should not be over utilised.		
<i>Required for:</i> Applications with sound. <i>Not required for:</i> Applications without sound.		
<i>Testing Note</i> <i>Testing Steps</i> Use the application and observe the sounds utilised <i>RESULT:</i> Each sound should have a specific function, and should not be over used (e.g. game completing with a minute of random noise is not permitted).		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible EXCEPTION(S) <input type="checkbox"/> Application does not have any sounds.		

11 Menu

11.1 Help and about

Test ID 11.1	Test Title Menu Structure – Help & About items	Warning
<i>Test Description</i> The Application should contain standard Menu items Help & About.		
<i>Required for:</i> Applications with user interface capable of displaying information to user. <i>Not required for:</i> Applications without user interface capable of displaying information to user.		
<i>Testing Note 1</i> It is a requirement that applications with a user interface should contain Help information, to explain to the user how the Application works; and About information, so that the user can easily identify the exact version of the Application installed, the developer of the Application, and the developer contact details. <i>Testing Note 2</i> This test can be passed if the application contains the information in Testing Note 1 and it is easy to access, even if the items are not named exactly as in the test steps. The tester should indicate in their report if the application has passed this test on a value judgement like this, rather than a literal interpretation of the test steps. <i>Testing Note 3</i> If it is clear that the application's purpose requires network coverage to operate, then it will be sufficient for the Help to be provided through a browser connection rather than being contained in the application. In the opposite case, where most functions of the application can be used while the device is offline, then the application should have Help that can be accessed without needing a data connection. <i>Testing Note 4</i> Where the amount or type of Help information appears insufficient for easy use of the application, the tester should give specific instances in their report. <i>Testing Steps</i> <ol style="list-style-type: none">1. Start the application2. Access the Help and About sections <i>RESULT:</i> <ol style="list-style-type: none">1. Menu items like Help and About are required to be presented on the main menu or other easily-found screen of the Application. About functions should contain the Application version number and author information.2. Help should include the aim of the Application, usage of the keys (e.g. for games) and other instructions. If the text of the help is too long, it should be divided into smaller sections and/or organized differently.3. Help must be accurate and consistent with the Application functionality and the handset specifics.		

<i>Test ID</i> 11.1	<i>Test Title</i> Menu Structure – Help & About items	Warning
<p><i>Result of Test</i></p> <p><input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible</p> <p>EXCEPTION(S)</p> <p><input type="checkbox"/> Application has no user menu by design, or the application design / purpose is such that these items cannot be displayed to the user.</p>		

11.2 Valid actions

<i>Test ID</i> 11.2	<i>Test Title</i> Menu Options – Valid actions	Critical
<i>Test Description</i> Selected and/or changed Application items should invoke valid actions.		
<i>Required for:</i> All applications.		
<i>Testing Note</i>		
<i>Testing Steps</i> <ol style="list-style-type: none">1. Start and use application.2. Observe the results. <i>RESULT:</i> All Application items that can be selected and/or changed by user, must invoke valid actions according with the Application Specifications		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		

12 Functionality

12.1 Functionality sanity check

<i>Test ID</i> 12.1	<i>Test Title</i> Major Functionality – Sanity check	Critical
<i>Test Description</i> Major Functionality Sanity Check.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. Operate the Application, exploring all screens and functions.3. Document all instances of non-compliance with Application specifications.4. Document unexpected functionality outside scope of Application specifications. <i>RESULT:</i> All specific Application functionality such as algorithms, calculations, measurements, scoring, etc. must be implemented correctly.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		

12.2 Application hidden features

Test ID 12.2	Test Title Major Functionality – Application hidden features	Critical
Test Description The Application does not introduce any hidden features, its functionality set is consistent with the help and it does not harm the data on the device.		
Required for: All applications.		
Testing Note <ol style="list-style-type: none">1. The tester will perform the test as specified above, but the developer must ensure that this requirement is fulfilled throughout the Application.2. Allowable functions are:<ul style="list-style-type: none">• Cheat codes• Unlocking the Application, for example from demo version to a full version.3. The application must not use any public storage such as the gallery for images(or sounds or similar resources) without informing the user beforehand.		
Testing Steps <ol style="list-style-type: none">1. Install user's personal data to the device (for example calendar, contact, to-do, images, text files, documents, etc).2. Launch the Application.3. Familiarise yourself with the help file.4. Use the Application and all of its features for a time period of 15 minutes.5. Compare the documented Application functionality to the features you find, and what is in the help file. <p>RESULT:</p> <ol style="list-style-type: none">1. All the features are introduced in the Help, the Application has no hidden features.2. The data inserted to the device has not been corrupted.3. The phone bill (or log) does not show any additional communication.4. The phone bill (or log or data counter, if applicable) does not show an excessive amount of transferred data.5. The other Applications in the device must run as they did before Application installation.		
Result of Test <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		

13 Keys

13.1 Scrolling in menus

<i>Test ID</i> 13.1	<i>Test Title</i> Scrolling in menus	Critical
<i>Test Description</i> Scrolling in menus.		
<i>Required for:</i> Applications with user interaction. <i>Not required for:</i> Applications without user interaction.		
<i>Testing Note</i> <i>Testing Steps</i> 1. Launch the Application. 2. Use the keypad or other navigation device to scroll vertically and (if applicable) horizontally in the Main menu item list. <i>RESULT:</i> This MUST scroll in the menu item list with no adverse effects on the Application.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Application does not have user interaction by design.		

13.2 Text field scrolling

Test ID 13.2	Test Title Text field scrolling	Warning
<i>Test Description</i> Scrolling in text fields and About / Help screens.		
<i>Required for:</i> Applications with user interaction. <i>Not required for:</i> Applications without user interaction.		
<i>Testing Note</i> <i>Testing Steps</i> 1. Launch the Application. 2. Use the scrolling functions of the keypad or other navigation device in a text dialog, for example: About and Help. <i>RESULT:</i> This should scroll vertically and (if applicable) horizontally in the dialog.		
<i>Result of Test</i> <input type="checkbox"/> Pass <input type="checkbox"/> Annoying <input type="checkbox"/> Difficult <input type="checkbox"/> Impossible EXCEPTION(S) <input type="checkbox"/> Application does not have user interaction by design.		

13.3 Pause

<i>Test ID</i> 13.3	<i>Test Title</i> Pause	Critical
<i>Test Description</i> The Application must support a pause feature in areas of the Application where immediate user interaction is needed (for example in game). The pause feature must support an option to resume the Application, and an option to go back to the main menu of the Application.		
<i>Required for:</i> Applications requiring time-sensitive user interaction. <i>Not Required for:</i> 1. Applications where immediate user intervention is not needed (for example timer Application); 2. Applications without user interaction.		
<i>Testing Note</i> The developer is encouraged to use the available APIs for pause and continue methods. <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. Use the Application and its features.3. Check that the user can pause the Application at any time if so desired.4. Check that the Application can also be "un-paused". <i>RESULT:</i> <ol style="list-style-type: none">1. The user can pause the Application and the pause feature must support an option to resume .2. All time-specific features of the Application are disabled at the time of the pause.3. There is a clear indication that the Application is in a paused state.4. There is a clear indication how the user can return from the paused state.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Application does not require immediate user intervention. <input type="checkbox"/> Application does not have user interaction by design.		

13.4 Simultaneous key presses or multiple touch

<i>Test ID</i> 13.4	<i>Test Title</i> Simultaneous key presses or multiple touch	Critical
<i>Test Description</i> Ensure that the Application copes with simultaneous key presses or multiple touch		
<i>Required for:</i> Applications with user interaction. <i>Not required for:</i> Applications without user interaction.		
<i>Testing Note</i> <i>Testing Steps</i> 1. Launch the Application. 2. Press combinations of keys simultaneously, from a selection of UP, DOWN, LEFT, RIGHT, CENTER and all other available keys or use multiple touch combinations. Do not use any which intentionally terminate or exit the application, or intentionally launch a function that would invalidate the test. <i>RESULT:</i> The Application should not be put into an unusable or incomprehensible state by simultaneous key presses or multiple touches. Any error messages generated should be meaningful.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Application does not have user interaction by design.		

13.5 Multi key presses or multi touch

<i>Test ID</i> 13.6	<i>Test Title</i> Multi key presses or multi touch	Critical
<i>Test Description</i> If device and application support multi key press operation, these should perform as expected.		
<i>Required for:</i> Application that supports multi key press or multi touch actions, on device that also supports this. <i>Not required for:</i> Application or device without support for multi key press or multi touch		
<i>Testing Note</i> <i>Testing Steps</i> 1. Launch the Application. 2. Use the multi key press or multi touch actions as documented by the developer in the Help, or documented separately. <i>RESULT:</i> All reactions to multi key presses or multi touch should be as predicted by the documentation and should not leave the Application in an unusable state.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Application does not have user interaction by design. <input type="checkbox"/> Application does not support multi key press or multi touch <input type="checkbox"/> Device does not support multi key press or multi touch		

14 Device Specific Tests

14.1 Device close

<i>Test ID</i> 14.1	<i>Test Title</i> Action - Device Close	Critical
<i>Test Description</i> Ensure that the Application while launching handles closing of the device correctly.		
<i>Required for:</i> Applications on devices with open / close functionality.		
<i>Not Required for:</i> Device without open / close functionality.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. While the Application is launching (i.e. "Please wait" screen), close the device and then 3-4 times quickly open and close it.3. Open the device. <i>RESULT:</i> The Application returns to the same state before the interruption.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Device does not have open / close functionality.		

14.2 Device open

<i>Test ID</i> 14.2	<i>Test Title</i> Action – Device Open	Critical
<i>Test Description</i> Ensure that the Application handles device opening correctly.		
<i>Required for:</i> Applications on devices with open / close functionality.		
<i>Not Required for:</i> Device without open / close functionality.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. Use the Application and its features.3. Close the device.4. Open the device. <i>RESULT:</i> The Application returns to the same state before the interruption.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Device does not have open / close functionality.		

15 Stability

15.1 Application stability

<i>Test ID</i> 15.1	<i>Test Title</i> Stability – Application stability	Critical (if reproducible)
<i>Test Description</i> The Application must not crash or freeze at any time while running on the device.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> 1. During any time of the testing observe the Application behaviour. 2. The report must indicate if the error can be reproduced or not, and the steps to do so <i>Testing Steps</i> 1. Start to test the Application. 2. Observe the Application behaviour during the testing. <i>RESULT:</i> The Application must not freeze or exit unexpectedly at any time.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		

15.2 Application behaviour after forced close

<i>Test ID</i> 15.2	<i>Test Title</i> Stability – Application behaviour after forcible close by System	Critical
<i>Test Description</i> Application must preserve sufficient state information to cope with forcible close by the system.		
<i>Required for:</i> All applications.		
<i>Testing Note</i> If it is not possible to remove the device battery, a power cycle should be forced with the device power key instead. <i>Testing Steps</i> <ol style="list-style-type: none">1. Start the Application.2. Exercise the functionality of the application, including any function that builds or saves information.3. Press the Home key to return to the Home screen and ensure the application is switched into a paused state.4. Remove the battery to instantly kill the application, as the system does when dealing with a low memory situation.5. Restart the handset and open the application again.6. Check the application is in a usable state and any information built or saved before the close has been retained. <i>RESULT:</i> The Application must not lose any information that it implies would be preserved, nor become difficult to use subsequently, as a result of a forcible closure by the system.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		

16 Data Handling

16.1 Save game state

<i>Test ID</i> 16.1	<i>Test Title</i> Save record – Game state	Critical
<i>Test Description</i> Ensure that the Application can save its game state/high score table information into persistent memory.		
<i>Required for:</i> 1. Application where user may exit part completed game; 2. Application where a player high score value is identified.		
<i>Not Required for:</i> Application which does not have game state / high score elements.		
<i>Testing Note</i> <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application and start a game.2. Bring up the game menu and exit saving game position.3. Run Application again and continue game.4. Play game until a high score is obtained.5. Bring up game menu and check High score table.6. Exit Application and restart.7. Check high score table. <i>RESULT:</i> <ol style="list-style-type: none">1. Game state should be as was immediately prior to Application exit.2. The high score table should represent the scores recorded during the Application test.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Application does not have game state or high score elements.		

16.2 Data deletion

<i>Test ID</i> 16.2	<i>Test Title</i> Delete – Data deletion	Critical
<i>Test Description</i> The Application must indicate whether data will be permanently deleted or offer easy reversal of the deletion.		
<i>Required for:</i> Application which has function to delete data.		
<i>Not required for:</i> Application which does not have function to delete data.		
<i>Testing Note</i> The user should always be required to confirm deletion of data, or have an option to undo deletion, to reduce risk of accidental loss of information through user error.		
<i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. Use the function which deletes something on the Application.3. Check if there is a reversal (undo) available for the user or that the user is notified before deletion is permanent.		
<i>RESULT:</i> <ol style="list-style-type: none">1. Before the data deletion, the Application notified the user of deletion, or the Application has an “undo” feature.2. If “undo” is present it works as expected.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		
EXCEPTION(S) <input type="checkbox"/> Application does not have function to delete data.		

16.3 Modify record

<i>Test ID</i> 16.3	<i>Test Title</i> Modify Record	Critical
<i>Test Description</i> Ensure that the Application can modify its game state/high score table information into persistent memory.		
<i>Required for:</i> 1. Application which may be exited part-way through game play; 2. Application which identifies a user high score value.		
<i>Not Required for:</i> Application which does not have game state / high score elements.		
<i>Testing Note</i> Repeating the save of game state and high score ensures that the values initially saved can be updated.		
<i>Testing Steps</i> Repeat Save record – Game state		
<i>RESULT:</i> <i>Game state is saved/updated</i>		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL		
EXCEPTION(S) <input type="checkbox"/> Application does not have game state / high score elements.		

17 Security

17.1 Encryption

<i>Test ID</i> 17.1	<i>Test Title</i> Security – Encryption	Critical
<i>Test Description</i> When connections are used encryption is used for sending / receiving sensitive data.		
<i>Required for:</i> Application identified as communicating sensitive data. <i>Not Required for:</i> Application identified as not communicating sensitive data.		
<i>Testing Note</i> All sensitive information (personal data, credit card & banking information etc.) must be encrypted during transmission over any network or communication link. <i>Testing Steps</i> Refer to supplied information about the application. If the application transmits sensitive data and the developer has not stated encryption is used, this test cannot be passed. The manifest should be checked for an https permission request which will indicate that secure, encrypted transmission is used. <i>RESULT:</i> It has been declared that the Application uses encryption when communicating sensitive data.		
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Application is stated not to communicate sensitive data.		

17.2 Passwords

Test ID 17.2	Test Title Security – Passwords	Critical
<i>Test Description</i> Passwords or other sensitive data are not stored in the device and are not echoed when entered into the Application, sensitive data is always protected by password.		
<i>Required for:</i> Application which uses passwords or other sensitive data. <i>Not Required for:</i> Application which does not use passwords or other sensitive data.		
<i>Testing Note</i> <ol style="list-style-type: none">1. With passwords the desired approach is that the Application shows which character the user selected and then changes that to an asterisk (*).2. If the user is explicitly asked for permission, a password can be stored to the device memory.3. The objective of the test is to minimise the risk of access to sensitive information should the device be lost, by ensuring that no authentication data can be re-used by simply re-opening the application4. Once sensitive data has been entered, it should not be displayed in plain text anywhere in the application, however it is allowable to have no more than 25% of a sensitive value displayed in plain text (e.g. 4 of the 16 digits of a card number) where this assists the user to distinguish between multiple cards or accounts.5. For the purpose of this test, personal contact details such as those recorded in the phonebook should not be regarded as sensitive. Bank / credit card account numbers, balances & access codes or passwords should be treated as sensitive and be protected from unrestricted access. <i>Testing Steps</i> <ol style="list-style-type: none">1. Launch the Application.2. Go to the section where passwords or other sensitive data (such as credit card details) is input or displayed.3. Input or read some sensitive data. Observe how the data are displayed on the screen.4. Exit the Application.5. Launch the Application.6. Go to the place where sensitive data was inserted or read.7. See if the data is still visible, or can be redisplayed without requiring a password at any point. <i>RESULT:</i> <ol style="list-style-type: none">1. Entering a password or other sensitive data will not leave it in clear text if completion of the fields is interrupted but not exited.2. Passwords, credit card details, or other sensitive data do not remain in clear text in the fields where they were previously entered, when the application is re-entered.3. Sensitive personal data should always need entry of a password before it can be accessed.		

<i>Test ID</i> 17.2	<i>Test Title</i> Security – Passwords	Critical
<i>Result of Test</i> <input type="checkbox"/> PASS <input type="checkbox"/> FAIL EXCEPTION(S) <input type="checkbox"/> Application does not use passwords or other sensitive data.		

Version control

Version	Date	Changes made
V1.0	March 2011	n/a
V1.1	June 2012	General changes made: Added 'critical' tests and 'warning' test levels Included Simple App Testing sub-set Included Smoke Test sub-set Included Framework App Testing sub-set Added more testing notes for testers Tests removed: Invalid Web Access Set-up Settings Combination Selection Key Tests added: Network connectivity: resource downloading Tests combined: Memory card insertion and memory card insertion & removal
V1.2	October 2012	Cosmetic changes made as a result of name change to AQuA and launch of Quality App Directory

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