

# Nokia Test Criteria for Symbian C++ Applications

Version 2.3; October 9, 2009

# Testing

# NOKIA

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## Change history

March 21, 2006	Version 1.0	Initial document release in Forum Nokia PRO
July 11, 2006	Version 1.1	Minor update in Section 2.1, new screen resolution added to test case NUI-05, new Section 2.10 and new test case NRes-01 added, minor change to test case NOK-04, update to test case NOK-03.
August 31, 2006	Version 1.2	New test cases NMultimediaDD-01, NVoIP-01, and NVoIP-02 added to section 2.10. Minor update to test case NRes-01.
September 15, 2006	Version 1.3	Update to Chapter 1. Some test cases updated with *.
October 6, 2006	Version 1.4	Update to test case NRes-01
October 13, 2006	Version 1.5	Minor update to Section 1, Introduction. Test case NRes-01 removed.
January 8, 2007	Version 1.6	Test case NPKG-01 removed. New test cases NINS-04, NVoIP-03, and NCall-01 added. Test cases NINS-01, NOK-02, NFP-01, NFP-02, and NVoIP-02 updated.
March 6, 2007	Version 1.7	Test case NUI-05 updated. New test case NINS-05 added.
March 19, 2007	Version 1.8	New Chapter 2.10 and new test cases NDRM-01, NDRM-02, NDRM-03, and NDRM-04 added.
July 11, 2007	Version 1.9	Test cases NUI-01, NUI-02, and NUI-04 updated.
December 17, 2007	Version 2.0	<p>Test cases reorganised into two categories: test cases for applications requiring manufacturer-approved capabilities and test cases for Nokia TPO applications. Test case IDs have been changed accordingly.</p> <p>Test cases NUI-05, NINS-02, NMEM-01, NMultimediaDD-01, NVoIP-01, NVoIP-02, NVoIP-03, and NCall-01 deleted since those are included in the updated Symbian Signed criteria.</p> <p>Test cases NOK-12 and NOK-17 added.</p> <p>Test case NOK-06 (former ID: NINS-05) updated.</p> <p>Test case NUI-01 divided into two test cases: NOK-22 and TPO-01.</p>
October 24, 2008	Version 2.1	TPO test cases reconstructed. Test cases for touch UI added (TPOT-01, TPOT-02, TPOT-03).
September 2, 2009	Version 2.2	Test case NOK-20 added.
October 9, 2009	Version 2.3	Minor update to test case NOK-20.

## 1 Introduction

This document describes the test cases that are applied to Symbian OS native applications in addition to Symbian Signed tests. All applications that will be embedded to Nokia devices must be tested according to these test cases. Meeting Nokia test criteria is a requirement for third-party applications that are delivered via Nokia sales channels, including:

- Applications preinstalled to ROM, memory card, or hard-disk drive;
- CD-ROMs in devices' sales packages;
- Downloads, Nokia Web/mobile Web page downloads.

These test cases have been written for and focus on S60 devices.

Some of the test cases are only applied to Nokia S60 3rd Edition and 5th Edition applications that use capabilities that require manufacturer approval (AllFiles, DRM, and TCB). Test cases that all applications with manufacturer-approved (=sensitive) capabilities must pass are defined in Section 3.1, 'Test cases for applications requiring manufacturer-approved capabilities'. It is also strongly **recommended** that the part of the application having manufacturer capabilities be separated to its own SIS package if architecturally feasible. The process for granting these capabilities is explained in the document [Symbian Platform Security: Granting Sensitive Capabilities](http://www.forum.nokia.com/testing), available at [www.forum.nokia.com/testing](http://www.forum.nokia.com/testing).

These tests are done simultaneously with Symbian Signed tests. Symbian Signed test criteria are available at [www.symbiansigned.com](http://www.symbiansigned.com). The biggest difference compared to Symbian Signed is the extent of the tests. In addition to meeting the comprehensive requirements in these criteria, the tested application must comply with all applicable laws and regulations when developing, marketing, and selling the application to the end users.

Developers should familiarise themselves with Symbian C++ application testing in the documents available at [www.forum.nokia.com/testing](http://www.forum.nokia.com/testing).

## 2 Application UI and usability

Applications delivered via Nokia sales channels must use the same UI style and conventions as the system applications. It is not possible to list all the UI guidelines and test cases in this document, and therefore it is reasonable to refer to the UI style guides that Nokia has created and check that the application is in line with the UI style. The guidelines presented in the UI style guides must be followed. All significant deviations must be explained in detail and will be investigated case by case. All UI style guides are available at [www.forum.nokia.com](http://www.forum.nokia.com).

## 3 Test cases

### 3.1 Test cases for applications requiring manufacturer-approved capabilities

The test cases (NOK-xx) defined in this section apply to all S60 applications from 3rd Edition onwards that require manufacturer-approved capabilities (AllFiles, DRM, TCB), even though the applications are not part of any Nokia total product offering (TPO) project.

#### NOK-01: Nokia values

##### Test description:

Applications must be in line with Nokia values and therefore must not have any references to the issues listed below.

##### Steps to conduct the test:

1. Start the application.
2. While using the application, check that there are no references to:
  - Violence against humans, excessive violence against animals, abuse of humans/animals.  
However, cartoon-style violence is permitted, provided there is no blood and no graphic, gratuitous, or humiliating depictions of death or violence.
  - Gratuitous depiction of violence against animals/nonhuman characters.
  - Depictions of sex, pornography, or pedophilic imagery.
  - Alcohol drinking.
  - Substance abuse including drugs and drug taking.
  - Use of knives/axes/swords/guns in human vs. human combat.
  - Racism.
  - Overtly political messages, contentious political/global events, for example, World War II, terrorism.
  - Religious imagery, unless in real-life context.
  - Gambling using money.
  - Stealing or robbing, for example, a bank robbery where the player is perpetrating the crime.
  - Promotions of criminality and criminal actions (depiction of criminal activity where the player is the perpetrator of the crime).
  - Material targeted and marketed solely at young children, for example, Teletubbies.
  - Nokia, for example, name or logo (except if explicitly agreed upon with Nokia).
  - Application must not intrude on the individual's privacy.

##### Expected result:

*The application starts correctly and does not have any references to the listed items.*

Notes:
Exceptions:

**NOK-02: Reserving MIME types on installation or startup****Test description:**

**If the application supports changing known MIME-type associations, the default value should be No. The default values in the device must be maintained.**

**Steps to conduct the test:**

1. Start the application.
2. Check from the application settings that the default value for common content type associations is 'No'.

**Expected result:**

*The application starts correctly and the default value is 'No' (no content types are automatically associated with the application).*

3. Check that the user is able to define which common content types are opened with the application.

**Expected result:**

*The user is able to define which content types are opened with the application.*

4. Remove application from device
5. Check that default content type associations are restored

**Expected result:**

*The application is removed correctly and the default content type associations are restored.*

**Notes:****Exceptions:**

If the application defines an own MIME type this case does not apply.

**NOK-03: Memory card removal/insertion while auto-starting an application****Test description:**

The removal or insertion of the memory card while application is auto-starting shall not cause problems.

**Steps to conduct the test:**

Precondition: Application is installed to the memory card.

## Test case A:

1. Reboot the device after the application has been installed.
2. Insert memory card to the device before typing in the SIM PIN code.

## Test case B:

1. Reboot the device after the application has been installed.
2. Insert memory card to the device right after typing in and accepting the SIM PIN code.

## Test case C:

1. Reboot the device after the application has been installed.
2. Remove memory card from the device before typing in the SIM PIN code.

## Test case D:

1. Reboot the device after the application has been installed.
2. Remove memory card from the device right after typing in and accepting the SIM PIN code.

## Test case E:

1. Reboot the device after the application has been installed.
2. Remove memory card.
3. Reboot the device again.

Repeat the same test cases when the application is installed to C: (if supported by the application).

*Expected result:*

*In all test cases check that the device switches on without problems and that removing/inserting the memory card doesn't cause anything unexpected (device to reboot itself, jam, etc.).*

**Notes:**

This test case applies only if the application supports auto-start.

This test case applies only if the application can be installed to or uses files on the memory card.

**Exceptions:**

**NOK-04: Installation of an application with sensitive capabilities****Test description:**

**Applications with sensitive capabilities can be installed only to Nokia devices**

Steps to conduct the test:

1. Check if the application requires some of the following sensitive capabilities: AllFiles, DRM, or TCB.
2. Open the .pkg file and check that the installation is limited to only Nokia devices.

IF manufacturer = 2 ; (2 is Nokia)

;This part will then contain the installation information

;about the files of the application

ELSE

"badmanufacturer.txt"- "", FILETEXT, TEXTEXIT

ENDIF

3. Install the application to target device/s.

*Expected result:*

*Application installs correctly.*

*Applications that require TCB and/or DRM and/or AllFiles cannot be installed to any other manufacturer device than **Nokia**. Installation must be limited to one or several devices as long as the rules mentioned above are valid.*

**Notes:**

This test case applies only to applications that are targeted at Nokia devices with Symbian Platform Security and require manufacturer capabilities.

**Exceptions:**

**NOK-05: Themes****Test description:**

**The application works correctly with different themes.**

**Steps to conduct the test:**

1. Start the application.
2. Change the current theme to another one.
3. Use the application for five minutes.

**Expected result:**

*The application works correctly without any usability problems (information is readable). If the theme supports a screen saver, make sure the screen saver runs correctly.*

4. Change the theme to another device-specific theme.
5. Use the application for five minutes.

**Expected result:**

*The application works correctly without any usability problems (information is readable). If the theme supports a screen saver, make sure the screen saver runs correctly.*

**Notes:**

Two different themes which can be found from the device by default are to be used in the testing.

**Exceptions:**

**NOK-06: Simultaneous connections****Test description:**

The application can use simultaneous connections properly (if supported in the device and/or network and connections are used by the application).

**Steps to conduct the test:**

1. Start the application.
2. Start the data connection from the application.
3. Check the information displayed in the Connection manager.

**Expected result:**

*The application starts correctly and the connection manager shows the application's data connections correctly.*

4. Start the Web browser and go to [www.nokia.mobi](http://www.nokia.mobi).

**Expected result:**

*The Web browser starts correctly and the [www.nokia.mobi](http://www.nokia.mobi) page is displayed.*

5. Go to the Connection manager and disconnect the connection.

**Expected result:**

*The connection can be disconnected from the Connection manager.*

6. Go to the Web browser and go to [www.nokia.mobi](http://www.nokia.mobi).

**Expected result:**

*The Web browser starts correctly and the [www.nokia.mobi](http://www.nokia.mobi) page is displayed.*

7. Start the data connection from the application.
8. Check the information displayed in the Connection manager.
9. Close the application.

**Expected result:**

*The connection is not terminated if there are other applications using the same access point.*

10. Go to the Connection manager and disconnect the connection.
11. Close the Web browser.

**Expected result:**

*The Web browser closes correctly.*

**Notes:**

This test case applies only if simultaneous connections are supported by the device and/or network. S60 3rd Edition devices and most networks do not support this feature. If there are two applications using the same access point it is shown as one connection in the Application manager.

WLAN connections do not apply in this test case.

**Exceptions:**

**NOK-07: Profiles****Test description:**

**The application does not play sounds if the silent profile is active.**

Steps to conduct the test:

1. Go to Profiles and activate the 'General' profile.
2. Start the application.
3. Play sounds in the application.

*Expected result:*

*The sounds are heard.*

4. Go to Profiles and activate the 'Silent' profile (use the default device settings).
5. Play sounds in the application.

*Expected result:*

*Sounds are not played.*

Notes:

S60 3rd Edition devices: When sounds are played and a notification is received (for example, incoming SMS/MMS/Bluetooth/IrDA), only a beep sound is heard even though the General profile is activated and some ring tone is defined for notification. This is a designed feature in S60 3rd Edition devices.

Exceptions:

Sounds are played in Silent mode if the event is triggered by the user. For example, when the user selects a tone in the Player application, a sound is played.

**NOK-08: Offline profile****Test description:**

The application follows the Offline profile correctly when making connections. Applicable only if the application can make connections or send messages.

**Steps to conduct the test:**

1. Go to Profiles and activate the 'Offline' profile.
2. Start the application.
3. Try to establish a connection (via CSD, GPRS, Bluetooth, or WLAN).

**Expected result:**

*The application does not make CSD/GPRS connections.*

*The application is not able to make a WLAN or Bluetooth connection without asking for permission from the user.*

*A clear note to the user is displayed about the connection not being available.*

4. Send an SMS/MMS using the application.

**Expected result:**

*All the messages are saved to the Messaging application Outbox to be sent later.*

**Notes:****Exceptions:**

**NOK-09: WLAN connectivity****Test description:****The application can utilise WLAN correctly.****Steps to conduct the test:**

1. Start the application.
2. Make a connection with the application to a WLAN network.

**Expected result:**

*The application starts correctly and finds and connects to an available WLAN network.*

3. Take the device outside WLAN coverage.

**Expected result:**

*The application and the device do not crash.*

*The application and the device do not jam.*

*The application can change the connection automatically if the user has defined it. Available in S60 3rd Edition, Feature Pack 2 and newer devices.*

**Notes:**

The test is applicable only for applications that utilise WLAN.

**Exceptions:**

**NOK-10: Application interaction with WLAN browsing****Test description:****The application does not affect the device's ability to browse over WLAN.****Steps to conduct the test:**

1. Start the application.
2. Start the Web browser and go to [www.nokia.mobi](http://www.nokia.mobi).

**Expected result:**

*The application starts and runs correctly. The connection is made and the [www.nokia.mobi](http://www.nokia.mobi) page is displayed.*

3. Switch back to the application.

**Expected result:**

*The application runs correctly.*

4. Switch back to the Web browser.
5. End browsing by disconnecting the connection from the browser application.
6. Switch back to the application.

**Expected result:**

*Browsing is ended correctly and the application runs correctly after browsing over WLAN is ended.*

7. Close the application.

**Expected result:**

*The application closes correctly.*

**Notes:****Exceptions:**

**NOK-11: Multilanguage applications****Test description:**

**The application selects the device language during startup.**

Steps to conduct the test:

1. Start the application.
2. Check that the application uses the device language if available. If the application does not have such a language, it will use the default language, which usually is English.
3. Change the device language.
4. When the device has restarted, start the application.
5. Check that the application uses the device language or the default language.
6. Repeat the test beginning from step 3 until all languages have been tested. Usually the tests need to be done with two to three devices with different language packages.

*Expected result:*

*The application selects the device language during the startup.*

**Notes:**

The localisation also includes Help.

**Exceptions:**

The selected device language is not supported by the application the default language will be used.

**NOK-12: Backlight usage****Test description:****The application must not leave lights on.**

Steps to conduct the test:

1. Start the application.
2. Leave the application on the foreground and check that the backlight is turned off after a period of no activity.

*Expected result:**The application starts correctly and lights are turned off after a period of time when the application is on the foreground. The period of time is the same as defined in the device's settings for light timeout.*

3. Move the application to the background and check that the backlight is turned off after a period of no activity.

*Expected result:**Lights are switched on when the application is put to the background (key press activity), but lights are turned off after a period of time when the application is in the background.*

4. Switch to the application with the Application key.
5. Close the application.
6. Check that the backlight is turned off after a period of no activity.

*Expected result:**The application closes correctly and lights are turned off after a period of time.*

Notes:

Exceptions:

The first expected result can be ignored for applications that by nature require having lights on, such as:

- Maps
- Route instructions
- Video
- TV
- Flash

**NOK-13: Camera handling****Test description:**

**The application must free the camera resource. This applies only if the application uses the camera.**

**Steps to conduct the test:**

1. Start the application.
2. Activate the camera functionality in the application.
3. Switch the application to the background.
4. Open the System Camera application.

**Expected result:**

*The System Camera application can be used.*

5. Close the System Camera application.
6. Bring the application being tested to the foreground.

**Expected result:**

*The System Camera is closed correctly.  
The application can use the camera.*

7. Close the application.
8. Open the System Camera.

**Expected result:**

*The application closes correctly  
The System Camera can be used.*

**Notes:****Exceptions:**

**NOK-14: Music player handling****Test description:**

The application does not affect the device's ability to play music. This applies only to applications that have sound in them.

**Steps to conduct the test:**

1. Start the application.
2. Start the system music player and play some music.
3. Switch back to the application.

**Expected result:**

*The application starts correctly.*

*The music player opens correctly and starts playing the music.*

*The application runs correctly and music continues to play in the background.*

4. Switch to the music player.
5. Press the forward button in the music player.
6. Press the backward button in the music player.
7. Switch back to the application.
8. Press the volume button.

**Expected result:**

*The music player functions work as expected.*

*The volume button also works when the music player is in the background.*

9. Close the music player.
10. Close the application.

**Expected result:**

*The music player closes without any notification or noise. The application closes normally.*

**Notes:**

Dedicated music buttons in the device must be tested as well.

**Exceptions:**

**NOK-15: DRM-protected content – Content sending****Test description:**

DRM-protected content cannot be sent in decrypted form from an S60 system application or via a third-party application.

**Steps to conduct the test:**

1. Download DRM-protected content.
2. Send the content via the following applications: Media, Messages, File Manager, Music Player, and RealPlayer.
3. Send the content via the third-party application.

**Expected result:**

*Content cannot be sent, or content was sent but cannot be used in the receiving device/computer.*

**Notes:**

This test must be passed by an application that provides content-sending facilities either as a separate application or as a plug-in to S60 applications.

**Exceptions:**

**NOK-16: DRM-protected content – File handling****Test description:**

Content files handled by S60 system applications via a third-party plug-in or directly via a third-party application cannot be transferred in unprotected form.

Content files handled by the third-party application cannot be transferred in unprotected form when accessed from a desktop PC.

**Steps to conduct the test:**

1. Download DRM-protected content to the device's internal memory.
2. Copy the downloaded file from the internal memory to a memory card/device hard disk via the following applications: Media, File Manager.
3. Copy the downloaded file from the internal memory to a memory card/device hard disk via the third-party application.
4. Verify that the copied content file is in encrypted form, for example, by trying to use it on a desktop PC.
5. Access the downloaded content via the third-party application from the desktop PC.
6. Verify that the accessed content file is in encrypted form, for example, by trying to use it on a desktop PC.

**Expected result:**

*Content cannot be copied, or if it can be copied, the original DRM encryption is still in place and was not affected by any operation done by a third-party application.*

**Notes:**

This test must be passed by an application that provides file-handling facilities (copying, backup/restore, access from a desktop PC) either as a separate application or as a plug-in to S60 applications.

**Exceptions:**

**NOK-17: DRM-protected content – Backup/restore****Test description:**

**A third-party application does not remove protection from content files in backup/restore operations.**

**Steps to conduct the test:**

1. Download DRM-protected content to the device's internal memory.
2. Take a backup using the third-party application.
3. Restore the backup to another device.
4. Verify that the copied content file is in encrypted form, for example, by trying to use it on a desktop PC.

**Expected result:**

*The original DRM encryption is still in place and was not affected by any operation done by a third-party application.*

**Notes:**

This test must be passed by an application that provides file-handling facilities (copying, backup/restore, access from a desktop PC) either as a separate application or as a plug-in to S60 applications.

**Exceptions:**

**NOK-18: DRM-protected content – Multimedia playback****Test description:**

DRM-protected content cannot be played in S60 system applications via a third-party application or directly via a third-party application.

**Steps to conduct the test:**

1. Download DRM-protected audio and video content.
2. Initiate playback in the following applications: Music Player, RealPlayer.
3. Initiate playback in the third-party application.

**Expected result:**

*The content cannot be played by the third-party application.*

**Notes:**

This test must be passed by an application that provides multimedia facilities either directly or as a plug-in to S60 applications.

**Exceptions:**

**NOK-19: Application key****Test description:**

**Application key functionality is in line with the S60 UI Style Guide.**

**Steps to conduct the test:**

1. Start the application.
2. Put the application to the background and do a short key press to the Application key to open the Application menu.

**Expected result:**

*The application stays in the background.*

3. Do a short key press to the Application key again and check that the Idle screen is displayed.

**Expected result:**

*The application stays in the background.*

4. Repeat steps 2 and 3 a few times.

**Expected result:**

*The application stays in the background.*

**Notes:**

For more UI and user-experience guidelines, see [http://wiki.forum.nokia.com/index.php/UI\\_test\\_criteria](http://wiki.forum.nokia.com/index.php/UI_test_criteria).

**Exceptions:**

This could be an exception to third-party task managers where the press of the Application key is to launch itself.

## NOK-20 Application power consumption (PowerTest tool)

### Test description:

Check that the application's power consumption is on a reasonable level. (*The PowerTest tool required for this test case is not yet publicly available. You can run similar tests using the [Nokia Energy Profiler tool available at Forum Nokia.](#)*)

### Steps to conduct the test:

1. Ensure that you are using a clean device (if you are not sure, format the device before you continue).
2. Install the PowerTest package (and the needed additional components).
3. Install the application to be tested.
4. If necessary, perform the setup steps of the application to be tested.
5. Start the PowerTest application.
6. Start a new test from the **Options** menu and select the application that should be tested.
7. Wait for the automatic test to finish (35 min). You will hear a beep when the test has finished.
8. Bring the PowerTest tool to the foreground and click **OK** to start the active test phase.
9. Use the test application as you would use it normally. Note that this is not a stress test.
10. Send the test results to your PC and attach the .png image to your final test report.

For more detailed instructions, refer to the user guide supplied with the PowerTest tool.

### Expected test result:

- The application should not drop the battery lifetime below 4 days (the result should not be "fail").
- The power consumption should not be excessive for this type of application (< 40 mAh/h in standby mode). If the tested application uses WLAN, Bluetooth, or another network connection, the power consumption is higher than usually. The power consumption is also higher when playing MP3s or listening to the radio.

### Notes:

- Failing this test is not fatal for now. The result should be reported as an observation only.
- The battery level does not need to be full when running this test.
- The device must not be connected to a charger when running this test.

### Exceptions:

The tool works on devices compatible with S60 3rd Edition, FP1 and onwards. **This test cannot be run on older devices.**

This test will not be run for 'always on' type of applications, such as email or antivirus applications.

Pass  Fail  Pass with exception

### 3.2 Test cases for Nokia TPO applications

The test cases (TPO-xx) defined in this section apply to applications that are part of a Nokia TPO project. The applications included in the TPO must also pass the NOK-xx test cases defined in Section 3.1, 'Test cases for applications requiring manufacturer-approved capabilities'.

#### TPO-01: UI, softkey labels, selection key, and Options menu

##### Test description:

The application is in line with the relevant UI style guide.

Softkey labels are in line with the S60 UI Style Guide. Selection key functionality is in line with the S60 UI Style Guide. The options menu is in line with the S60 UI Style Guide.

##### Steps to conduct the test:

1. Start the application.
2. Check that the softkey labels in every screen and menu item are in line with the UI style guide.

##### Expected result:

- *The left softkey (LSK) is Options, Select, Yes, or OK (positive effect).*
- *The right softkey (RSK) is Back, Exit, Cancel, or No (negative effect). Even if LSK has nothing.*
- *RSK is labeled Exit in the idle state of the application and closes the application. RSK could also be Hide in some applications as per the nature of the application.*
- *RSK is Done in editable forms when LSK is Options. If there is no Options menu, LSK is Done and RSK is Cancel.*
- *The selection key (middle softkey, MSK) opens the focused item and selects one option. It results in the same function as the first item in the Options menu. With dialogs, the MSK is the same as the LSK.*
- *If MSK defines a label (this is possible in S60 3rd Edition, Feature Pack 2), the MSK must do the function specified in the label of the key.*
- *The selection key must not directly activate any function that the user would not expect in the given situation. The first item in the Options menu is the functionality that is triggered by the selection key or joystick press. This is usually 'Open', 'Select', 'Change', etc.*
- *'Exit' must be the last item in the Options menu.*
- *The Options menu must not contain items that cannot be triggered from the current application state.*

##### Notes:

For more UI and user-experience guidelines see <http://www.forum.nokia.com/usability>.

##### Exceptions:

**TPO-02: Consistent UI****Test description:**

**The application UI is consistent throughout the application.**

Steps to conduct the test:

1. Start the application.
2. Use the application and check the consistency of
  - Terms
  - Colours
  - Layout
  - Sounds
  - Action sequences

In:

- i. Intro/splash screen
- ii. Main menu and submenus
- iii. Help
- iv. About
- v. Settings menu

*Expected result:*

*The UI is consistent throughout the entire application.*

- *The same terms are used for the same things throughout the application.*
- *The terminology in the Settings menu is consistent with the system applications.*
- *Setting titles are clear and easy to understand and correspond to the actual item the user is about to modify.*
- *Colours and layout are used consistently throughout the application. Use of a different colour can help indicate a change or deviation.*
- *The same sound is not used for different purposes.*
- *The actions are sequenced in the same way throughout the application.*

Notes:

For more UI and user-experience guidelines see <http://www.forum.nokia.com/usability>.

Exceptions:

**TPO-03: International diversity****Test description:****The application supports international diversity.**

Steps to conduct the test:

1. Start the application.
2. When using the application, check the following areas:
  - Different characters, numerals, special characters, and diacritic characters
  - Date and time formats
  - Weight and measure formats
  - Telephone number and address formats
  - Names and title formats
  - Numeric and currency formats
  - Capitalisation
  - Icons, colours
  - Etiquette, policies, tone, formality, metaphors
  - Terminology

*Expected result:*

- *Different characters, numerals, special characters, and diacritic characters are appropriate for the target audience of the application.*
- *Date and time formats are appropriate for the target audience of the application.*
- *Weight and measure formats are appropriate for the target audience of the application.*
- *Telephone number and address formats are appropriate for the target audience of the application.*
- *Names and title formats are appropriate for the target audience of the application.*
- *Numeric and currency formats are appropriate for the target audience of the application.*
- *Capitalisation is appropriate for the target audience of the application.*
- *Icons and colours are appropriate for the target audience of the application.*
- *Etiquette, policies, tone, formality, and metaphors are appropriate for the target audience of the application.*
- *Terminology is appropriate for the target audience of the application. In particular, pay attention to the use of terminology that could disturb, for example, 'Abort'.*

Notes:

Exceptions:

**TPO-04: User's guide or functionality specification****Test description:**

**A user's guide, functionality specification, or other document describing the application's features and functions must be provided.**

**Steps to conduct the test:**

1. Check that a user's guide, functionality specification, or feature list is provided.
2. Familiarise yourself with the documentation.
3. While using the application, check that the application behaves as described in the documentation.

**Expected result:**

*A user's guide, functionality specification, or other document is provided. The application matches the provided documentation. The application has all the documented features and it does not have any undocumented features.*

**Notes:****Exceptions:**

If the application is very simple and easy to use and includes Help, other documentation is not mandatory.

**TPO-05: Help, About, and Settings.****Test description:**

The application must have Help and About, and they can be accessed from the main menu. The settings must function as expected.

**Steps to conduct the test:**

1. Start the application.
2. Check that Help exists and can be accessed from the main menu.

**Expected result:**

*Help exists and offers help on using the different application features.*

3. Check that About exists and can be accessed from the main menu.
4. Check that the appropriate information is available in About.

**Expected result:**

*About exists and includes the following information:*

- *Application name and version.*
- *Developer's name.*
- *Contact information for end-user support.*

5. Change some of the application settings (if applicable) and return to use the application.

**Expected result:**

*New settings are available right after they have been set and the user closes the Settings menu.*

**Notes:****Exceptions:**

**TPO-06: Usability testing — Wait note****Test description:**

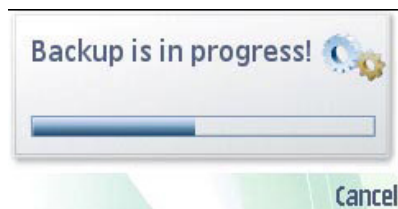
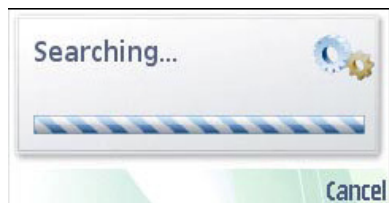
The application must never leave the user in a position where the state of the application is unknown or the application appears to be unresponsive (that is, may have locked up).

**Steps to conduct the test:**

1. Start the application.
2. Use the application.
3. Observe the following parts of the application:
  - Main menu and its submenu screens.
  - Application usage.

**Expected result:**

- *The user must be notified if he or she has to wait for more than three seconds for an activity to complete. In addition, the notification must appear one second after launching the activity.*
- *An example: A note containing a progress or wait graphic. Whenever possible, the user should be able to stop the operation.*

**Notes:**

For more UI and user-experience guidelines and a usability checklist, visit [www.forum.nokia.com/usability](http://www.forum.nokia.com/usability).

**Exceptions:**

**TPO-07: Usability testing — Text and selection****Test description:**

The application follows usability guidelines and provides a good user experience.

**Steps to conduct the test:**

1. Start the application.
2. While using the application, check the following areas of the application:
  - Intro/splash screen
  - Main menu and submenus
  - Help
  - About
  - Settings menu
  - Main functionality of the application

**Expected result:**

- *Error notes are valid, informative, and easy to understand.*
- *Terminology is not too technical and is familiar to target users*
- *Text is not ALL CAPS; only the first word begins with a capital letter.*
- *There are no truncated texts or abbreviations.*
- *There are no grammatical mistakes.*
- *There are no terms and sentences that may cause misunderstandings.*
- *Images do not substitute for essential text.*
- *Editable components are in the correct format when the user starts to edit them (numeric, alphabetic).*
- *Editable components do not accept invalid input and give an understandable error note if invalid input is given.*
- *Radio buttons and multiselection lists are used correctly. If the user can select only one option, a radio-button list is used.*

**Notes:**

For more UI and user-experience guidelines and a usability checklist, visit [www.forum.nokia.com/usability](http://www.forum.nokia.com/usability).

**Exceptions:**

Common abbreviations (for example, 'i.e', 'etc.')

**TPO-08: Usability testing — Layout and navigation****Test description:**

The application follows usability guidelines and provides a good user experience.

**Steps to conduct the test:**

1. Start the application.
2. Check these areas of the application:
  - Intro/splash screen
  - Main menu and submenus
  - Help
  - About
  - Settings menu
  - Main functionality of the application

**Expected result:**

- *Every view is easily readable.*
- *The screen is fully used when applicable.*
- *Text has good contrast with the background.*
- *When possible, the application uses prefilled forms to enable a more pleasant form-filling experience.*
- *By default, lists loop and have a scroll bar on the right side (from S60 2nd Edition, FP2 onwards).*

**Notes:**

For more UI and user-experience guidelines and a usability checklist, visit [www.forum.nokia.com/usability](http://www.forum.nokia.com/usability).

**Exceptions:**

**TPO-09: Usability testing — End key and Cancel/Back****Test description:**

The application follows usability guidelines and provides a good user experience.

**Steps to conduct the test:**

1. Start the application.
2. While using the application, check:
  - End key functionality
  - Availability of 'Cancel' and 'Back'

**Expected results:**

- *Pressing the End key (red key) closes the application (from S60 2nd Edition, FP2 onwards).*
- *'Back' returns the application to the previous state.*
- *'Cancel' stops an action that the user triggered, and returns the application to the state where it was before the user triggered the action.*

**Notes:**

For more UI and user-experience guidelines and a usability checklist, visit [www.forum.nokia.com/usability](http://www.forum.nokia.com/usability).

**Exceptions:**

Applications that run constantly may go to the background when pressing the End key if the RSK is Hide.

**TPO-10: Installation into the correct applications menu folder****Test description:**

**The application creates and installs into the defined destination in the application menu.**

**Steps to conduct the test:**

1. Install the application to a device.
2. Check that the application is installed into the correct folder, as defined in the application `.aif` file (prior to S60 3rd Edition) or `app_reg.rss` file (S60 3rd Edition).

**Expected result:**

*The application installs into the folder defined in the application's `.aif` or `app_reg.rss` file.*

*If the defined folder does not exist, the application creates this folder and installs into it.*

**Notes:**

If the installation folder is defined in the `.aif` or `app_reg.rss` file, the developer should provide the file when submitting the application to tests and let the test house know the installation folder.

The `app_reg.rss` file has a 'group name' attribute that has the value of the folder where the application will be installed to. Please note that the uninstaller cannot delete this folder.

This test case applies only to Nokia TPO projects where the product program has defined some other target folder than the default. If the developer and test house don't have this information available, then the application should be installed to the default folder and this test case can be ignored.

**Exceptions:**

If the subfolder information does not exist then this case is ignored.

**TPO-11: SIS file naming****Test description:**

**The SIS file name must include the application name and correct version.**

**Steps to conduct the test:**

1. Check the name of the application's `.sis` file and compare it to the available information in About and the `.pkg` file.
2. The application's `.sis` file name must include the application name and correct version, and they are the same as in About.

**Expected result:**

*Application's `.sis` file naming follows this guideline:*

*<application name>\_<target device/platform version>\_<version>.sis. The version number is the same as the one defined in the `.pkg` file and About for the application.*

**Notes:****Sis file naming example:**

`testapp_nokiaN71_v_1_3_0.sis`

or

`testapp_S60_3_0_v_1_3_0.sis`

**Exceptions:**

### 3.2.1 Test cases for Nokia TPO applications with touch UI

The test cases (TPOT-x) defined in this section apply to applications that have a touch UI and are part of a Nokia TPO project. These applications must also pass the NOK-xx test cases defined in Section 3.1, 'Test cases for applications requiring manufacturer-approved capabilities', and the TPO-xx test cases defined in Section 3.2, 'Test cases for Nokia TPO applications'.

#### TPOT-01: UI element size (touch UI only)

##### Test description:

**The application UI elements must be large enough for a pleasant user experience.**

##### Steps to conduct the test:

1. Start the application.
2. While using the application, check UI element sizes and visible areas vs. active areas in the following application features:
  - Main menu and submenus
  - Settings menu
  - Main functionality of the application

##### Expected result:

*The target minimum size of a UI element is 7 x 7 mm. In the Nokia 5800 XpressMusic device, the 7 x 7 mm is equivalent to 70 x 70 pixels.*

*The active area of the component must not be smaller than the visible area of the component*

##### Notes:

For more UI and user-experience guidelines and a usability checklist, visit [www.forum.nokia.com/usability](http://www.forum.nokia.com/usability).

The test house will randomly choose one item per feature for measuring. The developer is expected to make sure that all the items are in the correct size range.

##### Exceptions:

When components are located near the edge of the display, the active and touchable area can be fully extended to the edge of the display (that is, beyond the component's visible graphics).

For example in games where the game board is essential to fit the screen (for example, Sudoku) or in applications that are meant to be used with Stylus, the size of the UI element can be smaller than 7 x 7 mm (equivalent to 70 x 70 pixels).

**TPOT-02: Touch interaction — Select and activate (touch UI only)****Test description:**

**Touch interaction must follow the S60 UI Style Guide.**

**Steps to conduct the test:**

1. Start the application.
2. While using the application, check the interaction styles in the following areas of the application:
  - Main menu and submenus
  - Settings menu
  - Main functionality of the application

**Expected result:**

- *The following will operate with one tap:*
  1. *Buttons*
  2. *Icons*
  3. *Items within Options menus*
- *The first tap selects the item and the second tap opens the item unless another item is selected.*

**Notes:**

For more UI and user-experience guidelines and a usability checklist, visit [www.forum.nokia.com/usability](http://www.forum.nokia.com/usability).

The test house will randomly choose one item per feature for testing. The developer is expected to make sure that all items behave correctly.

**Exceptions:**

It is possible to open or activate an item from a focusable view directly with a single tap if the focus is already on the given item.

**TPOT-03: Fixed toolbar (for touch UI only)****Test description:**

**Only available buttons are enabled in the fixed toolbar.**

**Steps to conduct the test:**

1. Start the application.
2. Check the functioning of the fixed toolbar in the main use of the application.

**Expected result:**

*The fixed toolbar buttons that do not do anything in the situation/view are dimmed, that is, are in a temporarily disabled state.*

**Notes:**

For more UI and user-experience guidelines and a usability checklist, visit [www.forum.nokia.com/usability](http://www.forum.nokia.com/usability).

**Exceptions:**

The application does not use the fixed toolbar.

## 4 Terms and abbreviations

Term	Definition
Application	An application is installed physically into a device and executed locally. Applications are developed with Java™ (includes applets/MIDlets), C++, etc. A chess game is an example of an application.
BS7925-1	Standard for application testing terminology.
DRM	Digital Rights Management.
CSD	Circuit-switched data.
Error	A human action that produces an incorrect result. (BS7925-1)
Failure	A deviation of the software from its expected delivery or service. (BS7925-1)
Fault	A manifestation of an error in software. If encountered, a fault may cause a failure. (BS7925-1)
Functional Specification	A document that describes the expected application usage. It may include Release notes, Help, User's Guide, or Requirement specification.
Java terminology	Java™ Platform, Micro Edition (Java™ ME), is a Java edition that consists of different consumer electronics' Java specifications and technologies. Mobile Information Device Profile (MIDP) is a Java profile for Java ME; it provides an open application execution environment for the S60 platform. A MIDlet is an application as specified under the MIDP specification.
MMS	Multimedia Messaging Service.
Nokia Testing	Nokia Testing describes the testing process, which consists of Symbian Signed and additional Nokia tests performed for the application. A third-party software application that has passed this process will be signed with Symbian Signed.
OS	Operating system.
S60	An S60 user interface is a smartphone platform designed for Symbian OS by Nokia. It supports mobile browsing, multimedia messaging (MMS), and content downloading, as well as a host of personal information management (PIM) and telephony applications.
S60 platform	S60 is a device software platform for smartphones that Nokia licenses to other mobile device manufacturers as a source-code product.
SIS	Symbian Installation Script (.sis). The makesis tool available in the SDK reads the .pkg file and includes all files listed in it. The resulting file, the Symbian Installation Script, is an executable file for the application installer, which provides a standardised user interface for installing any Symbian application onto the Symbian device.
SMS	Short Message Service.
Third-party software application	An application that has been created by a third-party company. In this document, all references are to applications created for Nokia mobile device platforms.

Term	Definition
TPO	Total product offering. This refers to the entirety of a particular build of a given device — that is, all its hardware, software, and features.

## 5 References and related documentation

The following documents are related to this document, and it is recommended that developers familiarise themselves with their contents in order to gain a greater understanding of the issues addressed in this document.

- [S60 UI Style Guide](http://www.forum.nokia.com/usability) available at [www.forum.nokia.com/usability](http://www.forum.nokia.com/usability).
- [Symbian Signed: Accessing Manufacturer Capabilities](http://www.forum.nokia.com/testing) available at <http://www.forum.nokia.com/testing>.
- Symbian Platform Security documents available at <http://www.forum.nokia.com/platformsecurity>.
- Symbian Signed process description and test criteria available at [www.symbiansigned.com](http://www.symbiansigned.com).
- Testing documents available at [www.forum.nokia.com/testing](http://www.forum.nokia.com/testing).
- Usability documents available at [www.forum.nokia.com/usability](http://www.forum.nokia.com/usability).

For more information, please contact [nokia.testing@nokia.com](mailto:nokia.testing@nokia.com).