

Nokia Test Criteria for Symbian C++ Applications

Version 2.0; December 17th, 2007

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, "Introduction." 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 Chapter 1. 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 "DRM compliance tests" 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 reorganized into two categories: Test cases for applications requiring manufacturer-approved capabilities on page 7 and Test cases for Nokia TPO applications on page 21. 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 on page 15 and NOK-17 on page 17 added.</p> <p>Test case NOK-06 on page 11 (former ID: NINS-05) updated.</p> <p>Test case NUI-01 divided into two test cases: NOK-22 on page 20 and TPO-01 on page 21.</p>

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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. However, the test cases are also applicable to applications targeted at Nokia Series 80 and Nokia 7710 devices.

Some of the test cases are applied to all S60 3rd Edition applications that require a capability request and manufacturer approval (AllFiles, DRM, and TCB). See [Test cases for applications requiring manufacturer-approved capabilities](#) on page 7 for information on the test cases that all applications with manufacturer-approved (=sensitive) capabilities must pass. The process for granting these capabilities is explained in the document [Symbian Platform Security: Granting Sensitive Capabilities](#) available at www.forum.nokia.com/testing.

These tests are done simultaneously with Symbian Signed tests. Symbian Signed test criteria are available at 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 familiarize themselves with Symbian C++ application testing in the documents available at 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 following style guides are available:

- [S60 UI Style Guide](#)
- [Series 80 UI Style Guide](#)
- [Nokia 7710 UI Style Guide](#)

The guidelines presented in the UI style guides must be followed. All significant deviations should be explained in detail and will be investigated case by case. All the UI style guides are available at www.forum.nokia.com.

3 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.

This section comprises the following test cases:

- [NOK-01: Nokia values](#) on page 7
- [NOK-02: SIS file naming](#) on page 8
- [NOK-03: Installation into the correct subfolder](#) on page 9
- [NOK-04: Reserving MIME types on installation or startup](#) on page 10
- [NOK-05: Memory card removal/insertion while auto-starting an application](#) on page 10
- [NOK-06: Installation of an application with sensitive capabilities](#) on page 11
- [NOK-07: Themes](#) on page 12
- [NOK-08: Simultaneous connections](#) on page 12
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- [NOK-21: DRM protected content – Multimedia playback](#) on page 20
- [NOK-22: UI and Application key](#) on page 20

3.1 NOK-01: Nokia values

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.

NOK-01: Nokia values	
<p>Steps to conduct the test:</p> <ol style="list-style-type: none"> 1 Start the application. 2 While using the application, check that there are no references to: <ul style="list-style-type: none"> • Violence against humans, excessive violence against animals, abuse of humans/animals. <p>However, cartoon-style violence is permitted, provided there is no blood and no graphic, gratuitous, or humiliating depictions of death or violence.</p> <ul style="list-style-type: none"> • Gratuitous depiction of violence against animals/nonhuman characters. • Depictions of sex, pornography, or pedophilic imagery. • Alcohol drinking. • Substance misuse including drugs and drug taking. • Use of knives/axes/swords/guns in human vs. human combat. • Racism. • Overtly political messages, contentious political/global events, e.g., World War II, terrorism. • Religious imagery, unless in real-life context. • Gambling using money. • Stealing or robbing, e.g., 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, e.g., Teletubbies. • Nokia, e.g., name or logo (except if explicitly agreed upon with Nokia). • Check also that the application does not break one's individual privacy. 	<p>Expected test result:</p> <p>The application does not have any references to the listed items.</p>
Notes:	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

3.2 NOK-02: SIS file naming

NOK-02: SIS file naming
<p>Test description:</p> <p>The SIS file name must include the application name and correct version.</p>

NOK-02: SIS file naming	
<p>Steps to conduct the test:</p> <ol style="list-style-type: none"> 1 Check the name of the application's .sis file and compare it to the available information in About and the .pkg file. 2 Application's .sis file name must include the application name and correct version and they are the same as in About. 	<p>Expected test result:</p> <p>Application's .sis file naming follows this guideline:</p> <p><application name>_<target device/platform version>_<version>.sis</p> <p>E.g., testapp_nokiaN71_v_1_3_0.sis or testapp_S60_3_0_v_1_3_0.sis</p> <p>The version number should be the same as the one defined in the .pkg file and About for the application.</p>
Notes:	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

3.3 NOK-03: Installation into the correct subfolder

NOK-03: Installation into the correct subfolder	
<p>Test description:</p> <p>The application creates and installs into the defined destination.</p>	
<p>Steps to conduct the test:</p> <ol style="list-style-type: none"> 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_req.rss file (S60 3rd Edition). 	<p>Expected test result:</p> <p>The application installs into the folder defined in the application .aif or app_req.rss file.</p> <p>If the defined folder does not exist, the application creates this folder and installs into it.</p>
<p>Notes:</p> <p>If the installation folder is defined in the .aif or .app_req.rss file, the developer should provide the file when submitting the application to tests and let the test house know the installation folder.</p> <p>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.</p>	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

3.4 NOK-04: Reserving MIME types on installation or startup

NOK-04: Reserving MIME types on installation or startup	
Test description: If the application supports changing 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." 3 Check that the user is able to define which common content types are opened with the application.	Expected test result: The default value is "No" (no content types are automatically associated with the application). The user is able to define which content types are opened with the application.
Notes:	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

3.5 NOK-05: Memory card removal/insertion

NOK-05: 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.

NOK-05: Memory card removal/insertion while auto-starting an application	
<p>Steps to conduct the test:</p> <p>Precondition: Application is installed to memory card.</p> <p>Test case A:</p> <ol style="list-style-type: none"> 1 Reboot the device after the application has been installed. 2 Insert memory card to the device before typing in the PIN code. <p>Test case B:</p> <ol style="list-style-type: none"> 1 Reboot the device after the application has been installed. 2 Insert memory card to the device right after typing in the PIN code. <p>Test case C:</p> <ol style="list-style-type: none"> 1 Reboot the device after the application has been installed. 2 Remove memory card from the device before typing in the PIN code. <p>Test case D:</p> <ol style="list-style-type: none"> 1 Reboot the device after the application has been installed. 2 Remove memory card from the device right after typing in the PIN code. <p>Test case E:</p> <ol style="list-style-type: none"> 1 Reboot the device after the application has been installed. 2 Remove memory card. 3 Reboot the device again. <p>Repeat the same test cases when the application is installed to C: (if supported by the application).</p>	<p>Expected test result:</p> <p>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.).</p>
<p>Notes:</p> <p>This test case applies only if the application supports auto-start.</p>	<p>Exceptions:</p>
Pass:___ Fail:___ Pass with exception: ___	

3.6 NOK-06: Installation of an application with sensitive capabilities

NOK-06: Installation of an application with sensitive capabilities
<p>Test description:</p> <p>Applications with sensitive capabilities can be installed</p>

NOK-06: Installation of an application with sensitive capabilities	
<p>Steps to conduct the test:</p> <ol style="list-style-type: none"> 1 Check if the application requires some of the following sensitive capabilities: AllFiles, DRM, or TCB. 2 Open the .pkg file and check which Product ID/Platform ID/Machine UID/Manufacturer ID has been defined. 3 Install the application to target device/s. 	<p>Expected test result:</p> <p>Applications that require TCB and/or DRM and/or AllFiles can be installed to Nokia S60 3rd Edition devices or to certain devices according to the legal agreement between the developer and Nokia.</p> <p>Installation can be limited to one or several devices as long as the rules mentioned above are valid.</p>
<p>Notes:</p> <p>This test case applies only to applications that are targeted at S60 3rd Edition devices and require sensitive capabilities.</p>	<p>Exceptions:</p>
Pass:___ Fail:___ Pass with exception: ___	

3.7 NOK-07: Themes

NOK-07: Themes	
<p>Test description:</p> <p>The application works correctly with different themes.</p>	
<p>Steps to conduct the test:</p> <ol style="list-style-type: none"> 1 Start the application. 2 Change the current theme to another one. 3 Use the application and see if the theme causes any problems in the application. 4 Change the theme to another device-specific theme. 5 Test the application for 5 minutes/theme. 	<p>Expected test result:</p> <p>The application works correctly with different themes without any usability problems (information is readable).</p>
<p>Notes:</p> <p>More themes to be used in this test are available at www.s60.com.</p>	<p>Exceptions:</p>
Pass:___ Fail:___ Pass with exception: ___	

3.8 NOK-08: Simultaneous connections

NOK-08: Simultaneous connections
<p>Test description:</p> <p>The application can use simultaneous connections properly (if supported in the device and/or network).</p>

NOK-08: Simultaneous connections	
Steps to conduct the test: <ol style="list-style-type: none"> 1 Start the application. 2 Start the data connection from the application. 3 Check the information displayed in the Connection manager. 4 Start the Web browser and go to www.google.com. 5 Go to the Connection manager and disconnect the connection. 	Expected test result: <p>The Connection manager shows the application's data connections correctly.</p> <p>The connection can be disconnected from the Connection manager.</p> <p>Other applications can use the connection simultaneously.</p>
Notes: <p>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.</p>	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

3.9 NOK-09: Profiles

NOK-09: Profiles	
Test description: <p>The application follows the profiles correctly.</p>	
Steps to conduct the test: <ol style="list-style-type: none"> 1 Go to Profiles and activate the "General" profile. 2 Start the application. 3 Check that the application is using its standard sounds. 4 Go to Profiles and activate the "Silent" profile (use the default device settings). 5 Check that no sounds are played. 	Expected test result: <p>The application reads and follows the activated profiles.</p> <p>Sounds are not played in the "Silent" profile.</p>
Notes: <p>Series 80 devices: There are no public APIs for reading profiles, so this test case is not applicable for Series 80.</p> <p>S60 3rd Edition devices: When sounds are played and a notification is received (e.g., 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.</p>	Exceptions: <p>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.</p>
Pass:___ Fail:___ Pass with exception: ___	

3.10 NOK-10: GSM Offline profile

NOK-10: GSM Offline profile	
Test description: The application follows the GSM Offline profile correctly when making connections.	
Steps to conduct the test: <ol style="list-style-type: none"> 1 Go to Profiles and activate the "GSM Offline" profile. 2 Start the application. 3 Try to establish a connection (via GSM, GPRS, or WLAN) or send an SMS/MMS using the application. 4 Check that the application handles GSM Offline gracefully. 5 Check that the application displays a clear note to the user that the connection is not available. 	Expected test result: <p>The application is not able to make GSM/GPRS connections or send an SMS/MMS.</p> <p>The application is able to make a WLAN connection but a note is shown to the user before the connection is made.</p> <p>All the messages are saved to the Outbox to be sent later.</p> <p>The application indicates to the user that the connection is not possible at the moment due to the GSM Offline profile.</p> <p>By default, this includes also Bluetooth connections; however, the user can overwrite the default setting.</p> <p>IR connections are allowed.</p>
Notes:	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

3.11 NOK-11: WLAN connectivity

NOK-11: WLAN connectivity	
Test description: The application can utilize WLAN correctly.	
Steps to conduct the test: <ol style="list-style-type: none"> 1 Start the application. 2 Check that the application is able to find and connect to all available WLAN networks. 3 Take the device outside WLAN coverage. 4 Check that the application behaves gracefully after WLAN coverage has been lost. 	Expected test result: <p>The application finds and connects to all available WLAN networks.</p> <p>The application can handle the loss of WLAN coverage gracefully:</p> <ul style="list-style-type: none"> • The application or device does not crash. • The application or device does not jam. <p>The application can change the connection automatically if the user has defined it.</p>
Notes: The test is applicable only for applications that utilize WLAN.	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

3.12 NOK-12: Application interaction with WLAN browsing

NOK-12: 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 browse the Web using a WLAN connection. 3 Switch back to the application. 4 Switch back to the Web browser. 5 End browsing by disconnecting the connection. 6 Switch back to the application. 7 Close the application.	Expected test result: The application runs correctly. Connection is made and browsing works correctly. The application runs correctly after browsing over WLAN. Browsing is ended correctly. The application runs correctly after browsing over WLAN is ended.
Notes:	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

3.13 NOK-13: Multilanguage applications

NOK-13: 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 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 2-3 devices with different language packages.	Expected test result: The application selects the device language during startup.
Notes:	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

3.14 NOK-14: Overall functionality, unexpected functionality

NOK-14: Overall functionality, unexpected functionality	
Test description: The application must function as defined in the Help, user's guide, or functional specification (or other provided document).	
Steps to conduct the test: <ol style="list-style-type: none"> 1 Start the application. 2 Use all the features of the application. 3 Compare the application with Help and other provided documentation and check that the application behaves as defined. 4 Check that there are no hidden features. 5 Use the application and check if something unexpected happens. 	Expected test result: The application works as specified in the documentation and Help. There are no hidden features. There are no unexpected functions or problems.
Notes: A lot of functionality testing occurs while performing other test cases.	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

3.15 NOK-15: Backlight usage

NOK-15: Backlight usage	
Test description: The application must not leave lights on.	
Steps to conduct the test: <ol style="list-style-type: none"> 1 Start the application. 2 Leave the application on the foreground and check that the backlight is turned off after a while. 3 Move the application to the background. 4 Switch to the application with the Application key. 5 Close the application. 	Expected test result: Lights are turned off after a while when the application is on the foreground. Lights are switched on when you put the application to the background (key press activity), but lights are turned off after a while when the application is in the background. The application is switched back to the foreground. The application is closed and lights are turned off after a while.
Notes:	Exceptions: This test case can be ignored for applications that by nature require having lights on, such as: <ul style="list-style-type: none"> • Maps • Route instructions • Video • TV • Flash

NOK-15: Backlight usage

Pass:___ Fail:___ Pass with exception: ___

3.16 NOK-16: Camera handling**NOK-16: Camera handling****Test description:****The application must free the camera resource.****Steps to conduct the test:**

Test case A:

- 1 Start the application.
- 2 Activate the camera functionality in the application.
- 3 Switch the application to background.
- 4 Open System Camera.
- 5 Close System Camera.
- 6 Bring application being tested to the foreground.
- 7 Close the application.
- 8 Open the System Camera.

Expected test result:

Test case A: Camera functionality of the application is activated.

When application is in the background, camera functionality is released.

System Camera application can be used.

When System Camera is closed, camera resource is released and the application being tested can use the camera.

When application being tested is closed, camera functionality is released and System Camera can use the camera.

Notes:

Exceptions:

Pass:___ Fail:___ Pass with exception: ___

3.17 NOK-17: Music player handling**NOK-17: Music player handling****Test description:****The application does not affect the device's ability to play music.****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.
- 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.
- 9 Close the music player.
- 10 Close the application.

Expected test result:

The music player opens correctly and starts playing the music. If the tested application is a player and has a higher priority, no disturbance should occur to the currently played track and/or a notification should be shown to the user regarding impossible simultaneous usage.

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

Music player functions work as specified.

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

The music player closes without any notification or noise.

The application closes normally.

Notes:

Exceptions:

NOK-17: Music player handling

Pass:___ Fail:___ Pass with exception: ___

3.18 NOK-18: DRM-protected content – content sending**NOK-18: 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, RealPlayer.
- 3 Send the content via the third-party application.

Expected test 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:

Pass:___ Fail:___ Pass with exception: ___

3.19 NOK-19: DRM-protected content – file handling**NOK-19: 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.

NOK-19: DRM-protected content – file handling	
<p>Steps to conduct the test:</p> <ol style="list-style-type: none"> 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. 	<p>Expected test result:</p> <p>Content cannot be copied, or if it can be copied, content is still encrypted.</p>
<p>Notes:</p> <p>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.</p>	<p>Exceptions:</p>
Pass:___ Fail:___ Pass with exception: ___	

3.20 NOK-20: DRM-protected content – backup/restore

NOK-20: DRM-protected content – backup/restore	
<p>Test description:</p> <p>A third-party application does not remove protection from content files in backup/restore operations.</p>	
<p>Steps to conduct the test:</p> <ol style="list-style-type: none"> 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. 	<p>Expected test result:</p> <p>Content is still encrypted.</p>
<p>Notes:</p> <p>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.</p>	<p>Exceptions:</p>

NOK-20: DRM-protected content – backup/restore

Pass:___ Fail:___ Pass with exception: ___

3.21 NOK-21: DRM-protected content – Multimedia playback**NOK-21: 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 test result:

The content cannot be played.

Notes:

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

Exceptions:

Pass:___ Fail:___ Pass with exception: ___

3.22 NOK-22: UI and Application key**NOK-22: UI and Application key****Test description:****The application is in line with the relevant UI style guide.****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 press the Application key to open the Application shell.
- 3 Press the Application key again and check that the Idle screen is displayed.
- 4 Repeat steps 2 and 3 a few times and check that the application is not launched.

Expected test result:

The application should stay in the background and should not launch when the Application key is pressed in the Application shell and Idle screen.

Notes:For more UI and user experience guidelines, see http://wiki.forum.nokia.com/index.php/UI_test_criteria.**Exceptions:**

Pass:___ Fail:___ Pass with exception: ___

4 Test cases for Nokia TPO applications

The test cases (TPO-xx) defined in this section apply to applications that are part of some Nokia TPO project. The applications included in the TPO must also pass the NOK-xx test cases defined in Section [Test cases for applications requiring manufacturer-approved capabilities](#) on page 7.

This section comprises the following test cases:

- [TPO-01: UI, softkey labels, selection key, Options menu, and command buttons](#) on page 21
- [TPO-02: Consistent UI](#) on page 23
- [TPO-03: International diversity](#) on page 24
- [TPO-04: User's guide or functionality specification](#) on page 25
- [TPO-05: Help and About](#) on page 26
- [TPO-06: Usability testing](#) on page 26

4.1 TPO-01: UI, softkey labels, selection key, Options menu, and command buttons

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

Test description:

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

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

Series 80: Command buttons are in line with the Series 80 UI Style Guide.

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

Steps to conduct the test:	Expected test result:
<p>S60</p> <ol style="list-style-type: none"> 1 Start the application. 2 Check that the softkey labels are in line with the S60 UI style: <ul style="list-style-type: none"> • The left softkey (LSK) is Options, Select, Yes, OK (positive effect). • The right softkey (RSK) is Back, Exit, Cancel, No (negative effect). • RSK is labeled Exit in the main state of the application and pressing it closes 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. 3 Selection key opens the focused item (e.g., a document or folder) in selection lists and grids and selects an option in menus and lists. Pressing the selection key results in the same function as the first item in the Options menu. 4 Options menu is implemented correctly: <ul style="list-style-type: none"> • The first item in the Options menu is the functionality that is triggered by the selection key / joystick press. This is usually "Open", "Select", "Change", etc. • Menu items are arranged by the frequency of use, the most infrequent functions being placed at the end of the list. • "Exit" should be the last item in the Options menu. • Options menu reacts to the application's states, meaning that there should not be any items in the Options menu that cannot be triggered from the current application state. 	<p>S60:</p> <p>The left softkey (LSK) is Options, Select, Yes, OK (positive effect).</p> <p>The right softkey (RSK) is Back, Exit, Cancel, No (negative effect).</p> <p>RSK is labeled Exit in the main state of the application and closes the application.</p> <p>RSK is Done in editable forms when LSK is Options. If there is no Options menu, LSK is Done and RSK is Cancel.</p> <p>Selection key opens the focused item and selects one option. It results in the same function as the first item in the Options menu. The selection key must not directly activate any such function that the user would not expect in the given situation: the selection key is strictly a Get-in or Accept key.</p> <p>The first item in the Options menu is the functionality that is triggered by the selection key / joystick press. This is usually "Open", "Select", "Change", etc.</p> <p>Menu items are arranged by the frequency of use, the most infrequent functions being placed at the end of the list.</p> <p>"Exit" should be the last item in the Options menu.</p> <p>Options menu reacts to the application's states, meaning that there should not be any items in the Options menu that cannot be triggered from the current application state.</p>

TPO-01: UI, softkey labels, selection key, Options menu, and command buttons	
<p>Series 80</p> <ol style="list-style-type: none"> 1 Start the application. 2 Check that command buttons are in line with the Series 80 UI style: <ul style="list-style-type: none"> • Button 1 is used for the most frequently used commands. Example commands are Open, OK, Select, Yes, Call, Connect, Send, Start, Change, Set. • Button 2 commands are, for example, Edit, New, Change window, Options. • Button 3 commands are, for example, New, Delete, Remove, Deselect, Options. • Button 4 commands are, for example, Close, Cancel, Hang-up, Back, Done, Exit. 3 Check that Exit is implemented in Button 4 at least on the application main level. 4 Check that the whole application is implemented to follow the Series 80 UI Style Guide. 	<p>Series 80:</p> <p>Command buttons are in line with the Series 80 UI style.</p> <p>Exit is implemented at least on the application main level.</p>
<p>Notes:</p> <p>For more UI and user experience guidelines, see http://wiki.forum.nokia.com/index.php/UI_test_criteria.</p>	<p>Exceptions:</p>
Pass:___ Fail:___ Pass with exception: ___	

4.2 TPO-02: Consistent UI

TPO-02: Consistent UI
<p>Test description:</p> <p>The application UI is consistent throughout the application.</p>

TPO-02: Consistent UI	
<p>Steps to conduct the test:</p> <ol style="list-style-type: none"> 1 Start the application. 2 Use the application and check the consistency (of items listed further down below) in these areas: <ul style="list-style-type: none"> • Intro/splash screen • Main menu and submenus • Help • About • Settings menu <p>Check the consistency of:</p> <ul style="list-style-type: none"> • Terms • Colors • Layout • Sounds • Action sequences 	<p>Expected test result:</p> <p>The UI is consistent throughout the whole application.</p> <ul style="list-style-type: none"> • 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 to understand and correspond to the actual item the user is about to modify. • Settings are saved right after the user closes the settings menu. • Colors and layout are consistent throughout the application. • The same sound is not used for different purposes. • The actions are sequenced in the same way throughout the application.
<p>Notes:</p> <p>For more UI and user experience guidelines, see http://wiki.forum.nokia.com/index.php/UI_test_criteria.</p>	<p>Exceptions:</p>
<p>Pass:___ Fail:___ Pass with exception: ___</p>	

4.3 TPO-03: International diversity

TPO-03: International diversity
<p>Test description:</p> <p>The application supports international diversity.</p>

TPO-03: International diversity	
<p>Steps to conduct the test:</p> <ol style="list-style-type: none"> 1 Start the application. 2 While using the application, check that international diversity is implemented in the following areas: <ul style="list-style-type: none"> • Different characters, numerals, special characters, and diacriticals • Date and time formats • Weight and measure formats • Telephone number and address formats • Names and title formats • Numeric and currency formats • Capitalization • Icons, colors • Etiquette, policies, tone, formality, metaphors • In particular, pay attention to the use of terminology that could disturb, e.g., "Abort." 	<p>Expected test result:</p> <p>International diversity is implemented in the application.</p>
Notes:	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

4.4 TPO-04: User's guide or functionality specification

TPO-04: User's guide or functionality specification	
<p>Test description:</p> <p>User's guide, functionality specification, or other document describing the application's features and functions must be provided.</p>	
<p>Steps to conduct the test:</p> <ol style="list-style-type: none"> 1 Check that a user's guide, functionality specification, or feature list is provided. 2 Familiarize yourself with the documentation. 3 While using the application, check that the application behaves as described in the documentation. 	<p>Expected test result:</p> <p>User's guide, functionality specification, or other document is provided.</p> <p>The application matches the provided documentation.</p>
Notes:	<p>Exceptions:</p> <p>If the application is very simple and easy to use and includes Help, other documentation is not mandatory.</p>
Pass:___ Fail:___ Pass with exception: ___	

4.5 TPO-05: Help and About

TPO-05: Help and About	
Test description: The application must have Help and About, and they can be accessed from the main menu.	
Steps to conduct the test: 1 Start the application. 2 Check that Help exists and can be accessed from the main menu. 3 Check that About exists and can be accessed from the main menu. 4 Check that the appropriate information is available in About.	Expected test result: Help exists. About exists and includes the following information: 1 Application name and version 2 Developer's name 3 Contact information for end-user support
Notes:	Exceptions:
Pass:___ Fail:___ Pass with exception: ___	

4.6 TPO-06: Usability testing

TPO-06: Usability testing
Test description: The application follows usability guidelines and provides a good user experience.

TPO-06: Usability testing**Steps to conduct the test:**

- 1 Start the application.
- 2 While using the application, check that these guidelines are followed:

Text and selections

- Correct Note types are used in different situations.
- Error notes are valid, informative, and easy to understand.
- Terminology is not too technical but familiar to target users.
- Text is not ALL CAPS; only the first word begins with a capital letter.
- Truncated text or abbreviations do not exist.
- Grammatical mistakes do not exist.
- Terms and sentences that may cause misunderstandings are not used.
- Images do not substitute for essential text.
- Editable components are in the correct format when starting to edit them (numeric, alphabetic).
- Editable components do not accept invalid input and give an understandable error note if invalid input is given.
- Radio button and multi-selection lists are used correctly. If the user has only one option to select, a radio button list is used.

Layout and navigation

- Every screen 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 support the user in writing.
- By default, lists loop and have a scroll bar on the right side (from S60 2nd Edition, FP2 onwards).
- Navigation is clear and intuitive and follows the same logic as the system applications.
- If a grid component is used in a tabbed pane, it must be clear how to navigate between the tabs and scroll the grid horizontally.

Exit, Cancel

- Exit is available in the Options list (S60).
- Pressing the End key (red key) closes the application (from S60 2nd Edition, FP2 onwards).
- User is able to reverse the actions.

Expected test result:

Usability guidelines listed in the testing steps are followed.

Different notes are used correctly according to the S60 UI Style Guide (see Section 6.7, "Notes").

TPO-06: Usability testing**Notes:**

For a complete usability check, it is recommended to read the document [User Experience Checklist For Symbian C++ Applications](http://www.forum.nokia.com/usability) available at www.forum.nokia.com/usability. For more UI and user experience guidelines, see http://wiki.forum.nokia.com/index.php/UI_test_criteria.

Exceptions:

Pass:___ Fail:___ Pass with exception: ___

5 Typical application errors

The following list outlines the most common reasons why applications fail in Nokia tests.

- Help is missing.
- About is missing or does not include the required information (developer's name, application name, application version, end-user support contact information).
- The application has inconsistent or faulty version numbering and naming.
- Rapid pushing of certain buttons creates difficulties in the application, which leads to crashes or jams.
- The application's dialogs, interaction, controls, UI layout, and so on, are inconsistent or not in accordance with the style guides.
- Various difficulties arise when the application is working with low memory (this usually occurs when several applications are running simultaneously). Such situations often end in crashes or jams.
- The application is unable to choose its destination (alias drive C: or D: or E:).
- Startup takes too long.
- The application does not pause during interrupting operations, for example, an incoming phone call. (Of course, this is not necessary for all types of applications.)
- The application is so large that installation is extremely time-consuming (tens of minutes) or it allocates a gigantic portion of the memory.
- The application's strings are longer than the allocated spaces, making parts of them invisible to the user.
- The error notes are incomplete.

6 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.
Avkon	S60 extensions and modifications to Uikon and other parts of the Symbian OS Application Framework.
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.
IAP	Internet Access Point.
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.
PKG	Package List (.pkg). This file contains the specification of all files to be integrated by makesis, i.e., application files as well as other files (audio, images, XML, etc.) needed by the Java application. The package list is usually written manually and contains the mapping of local files to the directory path on the destination Symbian device.
S60	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 reads the .pkg and includes all files listed. The resulting file, the Symbian Installation Script, is an executable file, which provides a standardized 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 phone 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.
UID	Each released Symbian platform application needs to have at least one Unique Identification (UID) number assigned to it. This UID is written to each file created by that application to associate the files with that application. This guarantees that the correct application is used when the file is opened (the Symbian platform does not use ambiguous file extensions for this purpose like other systems).
Uikon	UI and control framework common to Symbian platforms.
UIQ	UIQ is a customizable pen-based user interface platform for media-rich mobile phones based on Symbian OS.

7 References and related documentation

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

- [Nokia 7710 UI Style Guide](http://www.forum.nokia.com/usability) available at www.forum.nokia.com/usability.
- [S60 UI Style Guide](http://www.forum.nokia.com/usability) available at www.forum.nokia.com/usability.
- [Series 80 UI Style Guide](http://www.forum.nokia.com/usability) available at www.forum.nokia.com/usability.
- [Symbian Platform Security: Granting Sensitive Capabilities](http://www.forum.nokia.com/testing) available at www.forum.nokia.com/testing.
- Symbian Platform Security documents available at www.forum.nokia.com/platformsecurity.
- Symbian Signed process description and test criteria available at www.symbiansigned.com.
- Testing documents available at www.forum.nokia.com/testing.
- Usability documents available at www.forum.nokia.com/usability.

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