

NOKIA

DX200BSC

BSC S10.5 Combined

**Release Test Plan
ANSI/ETSI**

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Summary of changes

Version	Date	Author	Comments
1.0-0	29 Jan 2003	P Kivimaki	First draft version
1.1-0	31 Jan 2003	P Kivimäki	First approved version

1 Purpose

This plan contains guidelines for BSC S10.5 Combined software package release verification. The aim is to check that all the basic functionalities present in the network before the S10.5Combi upgrade also remains there after the SW upgrade. The network's basic operational functions are verified through a set of tests, which have been saved in the TestMan database (Lotus Notes application). The remaining functionalities and optional features are tested in BSC system testing phase.

A new BSC software package is upgraded according to the procedure described in the separate document '*DX200 BSC S10.5 Combined Software Implementation Procedure, ANSI, DN03280814*' or '*DX200 BSC S10.5 Combined Software Implementation Procedure, ETSI, DN03280802*' .

After the upgrade, state transitions and restarts will be tested. The network functionality is tested through location registration, different call cases and handovers. All the call and handover tests are done with real mobile telephone sets. Finally, the stability tests are carried out to verify the traffic transmission capability.

The S10.5Combi release test consists of several upgrade configurations covering basic software upgrade from S9, S10 and S10.5 to S10.5Combi. The release test environment is described in this plan, together with the required network component SW levels.

2

Minimum S10.5Combi upgrade requirements

2.1 S9 SW level prior to S10.5Combi upgrade

S9 Feature Change Delivery 2.4 or S9 General Change Delivery 3.0 must be installed before the S10.5Combi upgrade. This requirement is obligatory, because required PCU boot SW 1.12-0 has been delivered in these change deliveries.

In addition, it is recommended that all the accepted S9 Change Deliveries be installed in the BSC prior to the S10 upgrade.

Before starting the release testing, check the required HW versions of the BSC2A/i and TCSM2 from the document '*DX200 BSC And TCSM Hardware Revisions List, System Level S8- 10.5*'.

2.2 S10 SW level prior to S10.5Combi upgrade

S10 General Change Delivery 2.0 must be installed before the S10.5Combi upgrade. This requirement is obligatory, because required TCP/IP conversion corrections are delivered in CD2.0GEN.

Before starting the release testing, check the required HW versions of the BSC2A/i and TCSM2 from the document '*DX200 BSC And TCSM Hardware Revisions List, System Level S8- 10.5*'.

2.3 S10.5 SW level prior to S10.5Combi upgrade

It is highly recommended that all the released S10.5 Change Deliveries (general) must be installed in the BSC prior to the S10.5Combi upgrade.

Before starting the release testing, check the required HW versions of the BSC2A/i and TCSM2 from the document '*DX200 BSC And TCSM Hardware Revisions List, System Level S8- 10.5*'.

2.4 Winchester disk space

Taking into account the recommendation of three SW packages in BSC (S9 or S10 or S10.5, S10.5Combi, a safecopy), the disk space requirement is altogether 250 MB. The disk space requirement includes all the temporary directories created during the upgrade as well as conversion programs.

2.5 CPU memory

CPU options and minimum acceptable memory requirement in S10.5 are the following:

CPU type	Micro-processor	Memory, Mbytes
CP4HX **	486	64 / 128
CP4HL **	486	64 / 128
CP6LX**	Pentium II	64 / 128
CP6MX *	Pentium III	128

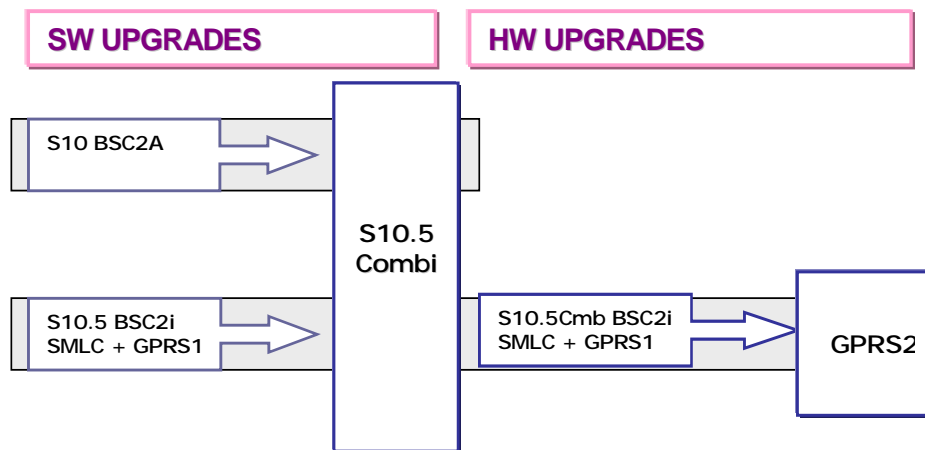
*) With the BSC Optional feature BSS10012, MS Location Services

**) OMU and MCMU with 128 MB memory, BCSU with 64 MB memory

3 Test configurations and cases

The test configurations in S10.5Combi are clearly divided to the basic SW and HW upgrades. SW upgrade procedure available in S10.5Combi are upgrades from S9, S10 and S10.5 to S10.5Combi.

3.1 ANSI-configurations:



GPRS2=2xPCU/2xPCU-S/2xPCU-T/PCU+PCU-S/PCU+PCU-T/PCU-S+PCU-T

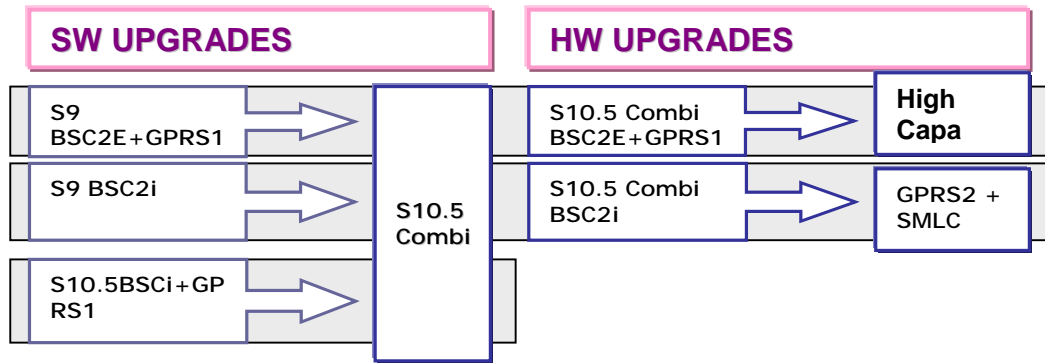
STABILITY TESTS

Traffic Generator

BSC2i

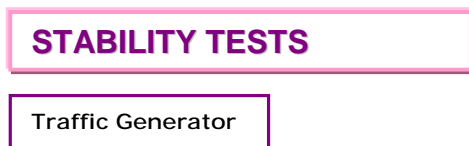
Figure 1. ANSI Release Test configurations.

3.2 ETSI-configurations:



GPRS1=1xPCU/PCU-S/PCU-T

GPRS2=2xPCU/2xPCU-S/2xPCU-T/PCU+PCU-S/PCU+PCU-T/PCU-S+PCU-T



BSCi

Figure 2. ETSI Release Test configurations.

The release test cases are stored in TestMan, which is a Lotus Notes database for the testware. The test reports are also available in TestMan. Each test group responsible for a certain test configuration fills in the test execution report, which is the basis for upper level test reports. All deviations from the predefined test environment, as well as other observations, should be mentioned in test case comments. To keep track on the release testing, test logs should be available from all the test configurations. In addition to TestMan, release test cases are included in a document *S10.5 Release Test Cases, DN02105604*.

The test cases, which are to be run for a specific test configuration, are listed in chapter 6. The basic tests to be carried out include state transition and restart cases, call cases and handover cases.

3.3 SW upgrades

The S9 – S10.5Combi SW upgrade is described in a document ‘*DX200 BSC S10.5 Combined Software Implementation Procedure, ETSI, DN03280802*’

The S10 – S10.5Combi SW upgrade is described in a document ‘*DX200 BSC S10.5 Combined Software Implementation Procedure, ANSI, DN03280814*’.

The S10.5 – S10.5Combi SW upgrade is described in a document ‘*DX200 BSC S10.5-S10.5 Combined Software Implementation Procedure*’.

Upgrade macros implemented with a PC program HIT (Holistic Integrated Tester) are available for the software upgrades.

3.4 HW upgrades

Altogether three different HW related feature implementations are available on S10.5Combi. These are High Capacity BSC, GPRS and MS Location Services. MS Location Services feature is launched in S10 whereas the others already been published in previous releases. The HW upgrade procedures are described in the following documents:

-DX200 BSC S10.5 High Capacity Feature Implementation Procedure, ANSI, DN02105713

-DX200 BSC S10.5 GPRS/EDGE Hardware Implementation Procedure, ANSI, DN02105701

-DX200 BSC S10 MS Location Services Hardware Implementation Procedure, DN02105694

-DX200 BSC S10.5 High Capacity Feature Implementation Procedure, ETSI, DN02105631

-DX200 BSC S10.5 GPRS/EDGE Hardware Implementation Procedure, ETSI, DN02105628

In Release Testing the emphasis is on GPRS feature implementation. The same set of basic test cases are run for each configuration (see test logs in chapter 6).

3.5 Stability Tests

Stability test is run in traffic generator environment. A 24 h stability test with traffic generator will be carried out for BSC2i for ANSI and BSCi for ETSI. The BSC stability test is used to check the BSC's traffic

transmission stability. The traffic generator makes the calls from the Abis-interface through the BSC via real MSC and back to the traffic generator. Calls will be automatically generated and the traffic cases like incoming call, outgoing call, handovers and location update requests are part of testing.

4 Test environment

The release test environment is set up according to figure 3a and 3b. Figure 3a is demonstrating the CS traffic configuration and figure 2b PS traffic configuration.

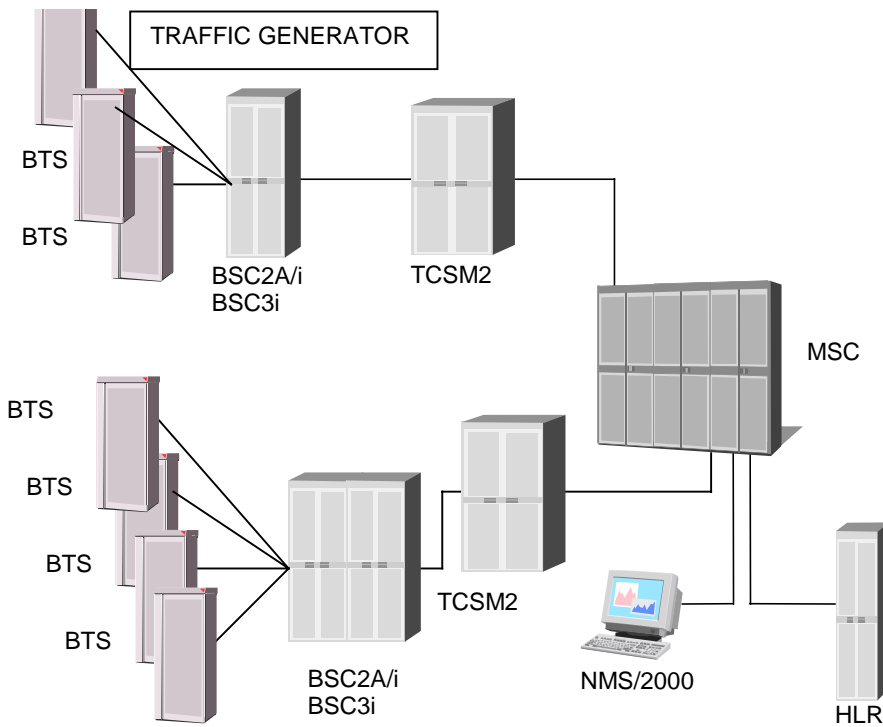


Figure 3a. Release Test Environment for CS traffic

The traffic generator is used to produce supervised test traffic for the stability test. A tracer (Protocol Analyser) and a PC are required for tracing the A- and Abis –interfaces in order to verify correct working of the interfaces.

At least two BTSs are connected to BSC for handover tests.

		M10 5.8-0
DX 200 MSC / VLR	SW	M11 6.2-0
		M10 5.8-0
Nokia SGSN	SW	SG2 J2 2.22-0
Nokia Artus SMSC	SW	SC5B.0-24
DX 200 BSC	SW	S10.5 12.16-0
Nokia TCSM	SW	1.10-0
Nokia NMS/2000	SW	T12 03.3
		OSS3.1
Ultrasite BTS	SW	CX2.0, CX3.0, CX3.1, CX3.2, CX4.0, PU1.0, PU1E
Metrosite BTS	SW	CXM3.0, CX3.2
Talk family BTS	SW	DF5.1, DF6.0, DF7.0
Second generation BTS	SW	B12.0, B12.0-1, B13.0, B13.1
Insite BTS	SW	I2.0, I3.0

The feature related compatibilities for individual NE elements are described in the document '*BSS10 Features Under Development*'.

Other Nokia SW release combinations are tested according to BSC Compatibility Test Specification.

5

Related documents

- BSS Integration Manual, Commissioning Manual, 2.2
- DX 200 BSC S10.5 Combined Software Implementation Procedure, ANSI
- DX 200 BSC S10.5 Combined Software Implementation Procedure, ETSI
- *DX200 BSC S10.5-S10.5 Combined Software Implementation Procedure*
- DX200 BSC S10.5 GPRS/EDGE Hardware Implementation Procedure, ANSI
- DX200 BSC S10.5 GPRS/EDGE Hardware Implementation Procedure, ETSI
- DX200 BSC S10 MS Location Services Hardware Implementation Procedure
- DX200 BSC And TCSM Hardware Revision List, System Level S8-S10.5
- BSS10 Features Under Development
- BSC S10.5 Release Test Cases
- BSC S10.5 Compatibility Test Specification

6 Test logs

Test Team 1(ANSI): S10 BSC2A

-> S10.5Combi

	TestMan ID	Version	S10-S10.Cmb Status/Sign
1. Checking BSC & TCSM/TCSM2 HW versions	RT000TC00001	3.1-0	
2. Checking SW levels of other Nes / chapter 4.1	RT000TC00002	3.1-0	
3. Checking installed Change Notes	RT000SW00001	3.1-0	
4. BSC S10.5Combi software upgrade	RT000SW00005	1.1-0	
5. BSC system restart	RT000SD00001	2.0-0	
6. Power break in the system	RT000SD00002	1.1-0	
7. OMU state change and diagnostics	RT000SD00003	2.0-0	
8. BCSU state change and diagnostics	RT000SD00004	2.0-0	
9. MCMU state change and diagnostics	RT000SD00005	2.0-0	
10. MB state change and diagnostics	RT000SD00006	2.0-0	
11. Location Update	RT000CC00001	1.0-0	
12. MS to MS call	RT000CC00002	2.0-0	
13. Emergency call	RT000CC00005	1.0-0	
14. Data call	RT000CC00006	2.0-0	
15. SMS from MS to MS	RT000CC00007	1.1-0	
16. Inter cell handover	RT000HO00001	2.0-0	
17. Inter BSC handover S10 – S10.5Combi	RT000HO00008	1.0-0	
18. Inter BSC handover S10.5Combi – S10.5Combi	RT000HO00009	1.0-0	
19. Inter BSC handover S10.5ED – S10.5Combi	RT000HO00009	1.0-0	
20. Radio resource queuing in handover	RT000HO00004	1.1-0	

Test Team 2(ANSI): S10.5 BSC2i + SMLC + GPRS1
S10.5Combi BSC2i +SMLC +GPRS1

-> **S10.5Combi**
-> **GPRS2**

	TestMan ID	Version	S10.5-S10.5Cmb Status/Sign	BSC2i-GPRS1 Status/Sign
1. Checking BSC & TCSM/TCSM2 HW versions	RT000TC00001	3.1-0		
2. Checking SW levels of other NEs / chapter 4.1	RT000TC00002	3.1-0		
3. Checking installed Change Notes	RT000SW00001	3.1-0		
4. BSC S10.5Combi software upgrade	RT000SW00005	1.1-0		
5. S10.5 GPRS feature implementation	RT000FE0003	2.2-0		
6. BSC system restart	RT000SD00001	2.0-0		
7. Power break in the system	RT000SD00002	1.1-0		
8. OMU state change and diagnostics	RT000SD00003	2.0-0		
9. BCSU state change and diagnostics	RT000SD00004	2.0-0		
10. MCMU state change and diagnostics	RT000SD00005	2.0-0		
11. MB state change and diagnostics	RT000SD00006	2.0-0		
12. Location Update	RT000CC00001	1.0-0		
13. MS to MS call	RT000CC00002	2.0-0		
14. Emergency call	RT000CC00005	1.0-0		
15. Data call	RT000CC00006	2.0-0		
16. SMS from MS to MS	RT000CC00007	1.1-0		
17. Inter cell handover	RT000HO00001	2.0-0		
18. Inter BSC handover S10.5 – S10.5Combi	RT000HO00008	1.0-0		
19. Inter BSC handover S10.5Combi – S10.5Combi	RT000HO00009	1.0-0		
20. Inter BSC handover S10.5ED – S10.5Combi	RT000HO00009	1.0-0		
21. Radio resource queuing in handover	RT000HO00004	1.1-0		
22. GPRS call	RT000FE00005	1.0-0		

Test Team 3/ETSI : S9 BSC2E+GPRS1 →
S10.5Combi BSC2E+GPRS1 →

S10.5Combi
High Capacity

TestMan IDS9 BSC2E-S10.5C S10.5C BSC2E-HC

Version Status/Sign
 Status/Sign

1. Checking BSC & TCSM/TCSM2 HW versions	RT000TC00001	3.1-0		
2. Checking SW levels of other NEs / chapter 4.1	RT000TC00002	3.1-0		
3. Checking installed Change Notes	RT000SW00001	3.1-0		
4. BSC S10.5 combined software upgrade	RT000SW00005	1.1-0		
5. S10.5 High capacity feature Implementation	RT000FE0001	3.2-0		
6. BSC system restart	RT000SD00001	2.0-0		
7. Power break in the system	RT000SD00002	1.1-0		
8. OMU state change and diagnostics	RT000SD00003	2.0-0		
9. BCSU state change and diagnostics	RT000SD00004	2.0-0		
10. MCMU state change and diagnostics	RT000SD00005	2.0-0		
11. MB state change and diagnostics	RT000SD00006	2.0-0		
12. Location Update	RT000CC00001	1.0-0		
13. MS to MS call	RT000CC00002	2.0-0		
14. MS to PSTN call	RT000CC00003	1.0-0		
15. PSTN to MS call	RT000CC00004	1.0-0		
16. Emergency call	RT000CC00005	1.0-0		
17. Data call	RT000CC00006	2.0-0		
18. SMS from MS to MS	RT000CC00007	1.1-0		
19. Inter cell handover	RT000HO00001	2.0-0		
20. Inter BSC handover S9 – S10.5Combi	RT000HO00008	1.0-0		
21. Inter BSC handover S10.5Combi – S10.5Combi	RT000HO00009	1.0-0		
22. Radio resource queuing in handover	RT000HO00004	1.1-0		
23. GPRS call	RT000FE00005	1.0-0		

Test Team 5/ETSI : S10.5 BSCi -> S10.5 Combined

	TestMan ID	S10.5 BSCi-S10.5 C	
		Version	Status/Sig
1. Checking BSC & TCSM/TCSM2 HW versions	RT000TC00001	3.1-0	
2. Checking SW levels of other Nes / chapter 4.1	RT000TC00002	3.1-0	
3. Checking installed Change Notes	RT000SW00001	3.1-0	
4. BSC S10.5 software upgrade	RT000SW00005	1.1-0	
5. BSC system restart	RT000SD00001	2.0-0	
6. Power break in the system	RT000SD00002	1.1-0	
7. OMU state change and diagnostics	RT000SD00003	2.0-0	
8. BCSU state change and diagnostics	RT000SD00004	2.0-0	
9. MCMU state change and diagnostics	RT000SD00005	2.0-0	
10. MB state change and diagnostics	RT000SD00006	2.0-0	
11. Location Update	RT000CC00001	1.0-0	
12. MS to MS call	RT000CC00002	2.0-0	
13. MS to PSTN call	RT000CC00003	1.0-0	
14. PSTN to MS call	RT000CC00004	1.0-0	
15. Emergency call	RT000CC00005	1.0-0	
16. Data call	RT000CC00006	2.0-0	
17. SMS from MS to MS	RT000CC00007	1.1-0	
18. Inter cell handover	RT000HO00001	2.0-0	
19. Inter BSC handover S9 – S10.5Combi	RT000HO00008	1.0-0	
20. Inter BSC handover S10.5 – S10.5Combi	RT000HO00009	1.0-0	
21. Radio resource queuing in handover	RT000HO00004	1.1-0	
22. GPRS call	RT000FE00005	1.0-0	

Test Team 6: Stability tests**ANSI / BSC2i + SMLC + GPRS2, S10.5Combi****ETSI / BSCi, S10.5Combi**

	Status/Sign		Version
1. 24 h stability test with traffic generator (BSC2i)	RT000ST00006	1.1-0	
2. 24 h stability test with traffic generator (BSCi)	RT000ST00006	1.1-0	