

DX 200

BSC3i E5 Release Test Results

Combined test results for ANSI and ETSI

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Contents

Summary of Revisions	4
1. PURPOSE	5
2. RELEASE TESTING ARRANGEMENTS	6
3. Test environment	7
Network components and software levels	8
4. Test logs	10

Summary of Revisions

Version	Date	Author	Comments
/1en	20. Dec 2002	Anttonen, Hakala	First version

1. PURPOSE

This document presents the Release Testing results including all the findings made during testing. The testing personnel, places and testing times are reported in this document as well.

S10 Release Testing followed the procedure described in a separate document "*BSC3i release test plan*".

The following table summarizes the amount of test cases for each configuration and test case statuses.

Configuration	Nbr of test cases	Passed	Failed	Passed %	SW package
BSC3i basic functionality ANSI	20	18	0	90	S10.5 12.16-0 + CD 0.1
BSC3i basic functionality ETSI	22	21	0	100	S10.5 12.16-0

GPRS1=1xPCU
GPRS2=2xPCU-S/PCU+PCU-S

Stability Tests	Status	
24 h stability test BSC3i ETSI	Passed	S10.5 12.16-0

2. RELEASE TESTING ARRANGEMENTS

Test Place: Hatanpäänvaltatie 30 / E0 BSC Laboratory
Linnoitustie 6 / D2 BSC Laboratory

Test Period: From 12-Dec-2002
To 20-Dec-2002

SW version: S10.5 12.16-0

Release Test Group Manager:
Pasi Kivimäki, Petri Hahl

Test team 1: Mika Hakala (MH)
Marko Drugge (MD)

- BSC3i basic functionality ANSI

Test team 2: Mika Anttonen (Man)

- BSC3i basic functionality ETSI

Test team 3: Performance testing group(Tero Laitinen, TLa)

- 24 h stability test BSC3i ETSI

3. Test environment

The release test environment is set up according to figure 12a and 2b. Figure 2a1 is demonstrating the CS traffic configuration and figure 2b PS traffic configuration.

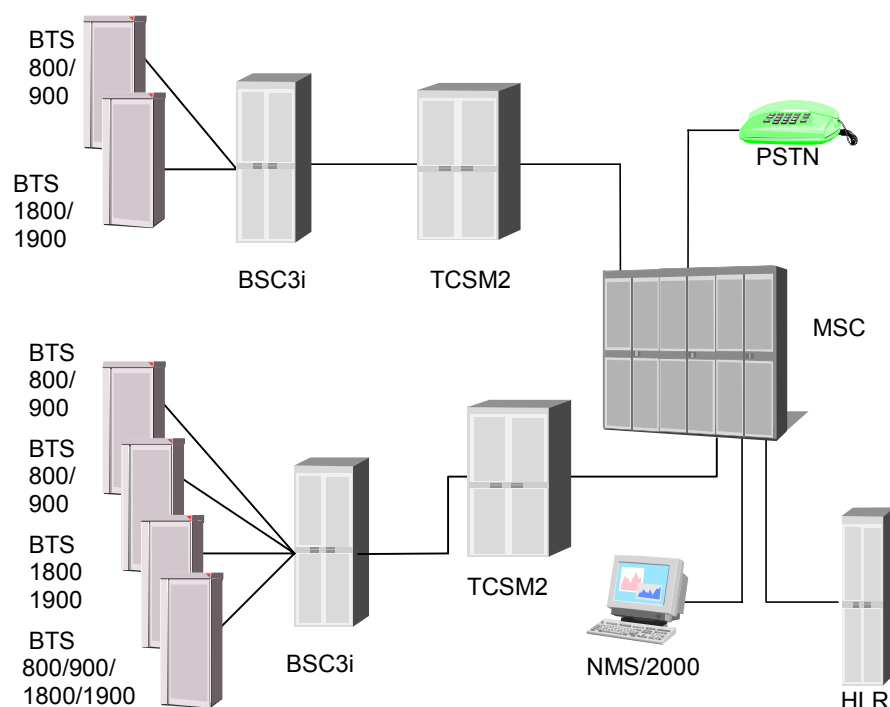


Figure 12a. Release Test Environment for CS traffic

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. Second generation (TCSM2) transcoders are used for transmission between the BSC and MSC.

Release tests include the testing of all configuration options on A- and Abis -interfaces. Therefore 16 kbit, 32 kbit and 64 kbit D-channel links must be created on the Abis -interface. Also, both nonmultiplexed and multiplexed A-interface options must be available.

Also, the following special configurations should be taken into account:

- The release test configuration must include both the 3rd and 4th generation BTSs

- The ETs are to be connected so that the whole ET range will be tested, i.e. the first and last ET is in use
- At least two TCSM2s are to be connected to one BSC
- All accepted eprom versions are to be tested during the release testing (one BSC equipped with the newest eproms, other BSC with a mix of older eprom versions)
- The network configuration must include the whole range of BCFs and BTSs, i.e. the first and last possible BTS and BCF values are used

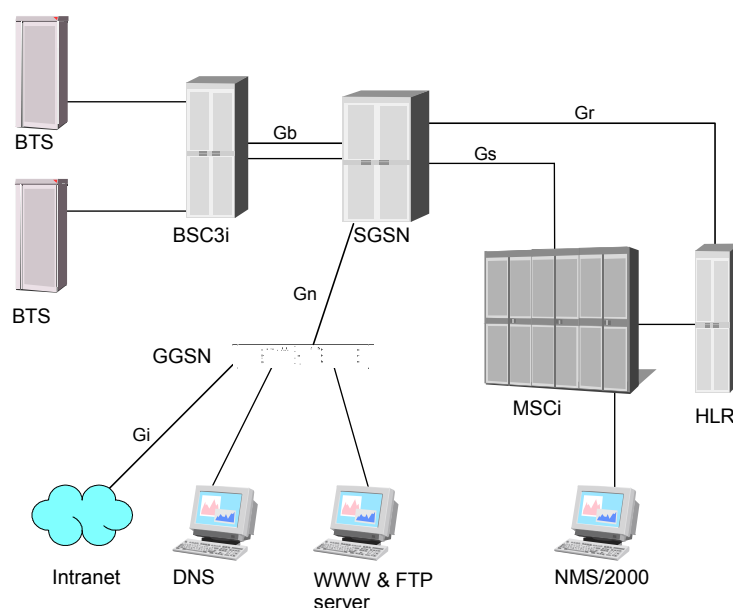


Figure 2b. Release Test Environment for PS traffic

Network components and software levels

SW levels of network elements in the test environment must be the following:

DX 200 HLR	SW	M10 5.4-0, M11 6.2-0
DX 200 MSC / VLR	SW	M10 5.4-0, M11 6.2-0
Nokia SGSN	SW	SG2 J2 2.3-0, J2 2.22-0
Nokia Artus SMSC	SW	SC5B.0-24, SC5A.0-24
Nokia SXC	SW	B4 3.12-1DX 200
BSC	SW	S10.5 12.16-0+CD0.1
Nokia TCSM	FW	1.10-0
Nokia NMS/2000	SW	T12 03.3
Nokia BTS	SW	B12.0-1, B13.0
		DF 5.1-1, DF6.0, DF 6.0-1
		I2.0
		PU1.0-4, CX 3.0, CX2.0-1, CXM3.0
		CX2.0-1, CX3L-1, PU1E1

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.

4. Test logs

Test Team 1 : BSC3i ANSI Basic functionality test

	TestMan ID	Version	BSC3i ANSI Status/Sign
1. Checking BSC & TCSM/TCSM2 HW versions	RT000TC00001	3.1-0	OK/MH,MD
2. Checking SW levels of other NEs / chapter 4.1	RT000TC00002	3.1-0	OK/MH,MD
3. Checking installed Change Notes	RT000SW00001	3.1-0	OK/MH,MD
4. BSC software upgrade (E4 – E5)	RT000SW00005	1.1-0	OK/MH,MD
5. BSC system restart	RT000SD00001	2.0-0	OK/MH,MD
6. Power break in the system	RT000SD00002	1.1-0	OK/MH,MD
7. OMU state change and diagnostics	RT000SD00003	2.0-0	OK/MH,MD
8. BCSU state change and diagnostics	RT000SD00004	2.0-0	OK/MH,MD
9. MCMU state change and diagnostics	RT000SD00005	2.0-0	OK/MH,MD
10. MB state change and diagnostics	RT000SD00006	2.0-0	OK/MH,MD
11. Location Update	RT000CC00001	1.0-0	OK/MH,MD
12. MS to MS call	RT000CC00002	2.0-0	OK/MH,MD
13. Emergency call	RT000CC00005	1.0-0	OK/MH,MD
14. Data call	RT000CC00006	2.0-0	Not tested/ MH,MD
15. SMS from MS to MS	RT000CC00007	1.1-0	OK/MH,MD
16. Inter cell handover	RT000HO00001	2.0-0	OK/MH,MD
17. Inter BSC handover S10 – S10.5	RT000HO00008	1.0-0	OK/MH,MD
18. Inter BSC handover S10.5 – S10.5	RT000HO00009	1.0-0	OK/MH,MD
19. Radio resource queuing in handover	RT000HO00004	1.1-0	OK/MH,MD
20. GPRS call	RT000FE00005	1.0-0	OK/MH,MD

Used BTSs and CHs: PRIMESITE DCS1900, CHs 525, 555
 ULTRASITE DCS1900, CHs 520, 522
 INSITE DCS1900, CHs 530, 535

Test Team 2 : BSC3i ETSI Basic functionality test

	TestMan ID	Version	BSC3i ETSI Status/Sign
1. Checking BSC & TCSM/TCSM2 HW versions	RT000TC00001	3.1-0	OK/MAn
2. Checking SW levels of other NEs / chapter 4.1	RT000TC00002	3.1-0	OK/MAn
3. Checking installed Change Notes	RT000SW00001	3.1-0	OK/MAn
4. BSC software upgrade (E4 – E5)	RT000SW00005	1.1-0	OK/MAn
5. BSC system restart	RT000SD00001	2.0-0	OK/MAn 1)
6. Power break in the system	RT000SD00002	1.1-0	OK/MAn
7. OMU state change and diagnostics	RT000SD00003	2.0-0	OK/MAn
8. BCSU state change and diagnostics	RT000SD00004	2.0-0	OK/MAn
9. MCMU state change and diagnostics	RT000SD00005	2.0-0	OK/MAn
10. MB state change and diagnostics	RT000SD00006	2.0-0	OK/MAn
11. Location Update	RT000CC00001	1.0-0	OK/MAn
12. MS to MS call	RT000CC00002	2.0-0	OK/MAn
13. MS to PSTN call	RT000CC00003	1.0-0	OK/MAn
14. PSTN to MS call	RT000CC00004	1.0-0	OK/MAn
15. Emergency call	RT000CC00005	1.0-0	OK/MAn
16. Data call	RT000CC00006	2.0-0	OK/MAn
17. SMS from MS to MS	RT000CC00007	1.1-0	OK/MAn
18. Inter cell handover	RT000HO00001	2.0-0	OK/MAn

19. Inter BSC handover S9 – S10.5	RT000HO00008	1.0-0	OK/MAn
20. Inter BSC handover S10.5 – S10.5	RT000HO00009	1.0-0	OK/MAn
21. Radio resource queuing in handover	RT000HO00004	1.1-0	OK/MAn
22. GPRS call	RT000FE00005	1.0-0	OK/MAn

1. NTC CAE 101408/3 en Base Station Controller and Transcoder,
Hardware Revisions List, System Release S8 – S10

4. Used BTSs: PRIMESITE GSM900 DF6.0-1
PRIMESITE GSM900 DF6.0-1

5. - BSC3i E4-E5 software implementation procedure, DN02263735/1en
- UPRMIN3I.HIT 1.1-0

Findings:

- 1) Frame Relay layer remains in BL-SYS state after a BSC system restart
 - Pronto: 874146
 - Correction: FRHTORSX 3.3-6
- Correcton availability: BSC3i General CD 0.1

Test Team 3 : Stability tests BSC3i ETSI

		Version	Status/Sign
1. 24 h stability test with traffic generator (BSC3i)	RT000ST00006	1.1-0	OK/TLa

RESULTS:

1. 24 h stability test with traffic generator

Measurement period: From 27-Sep-02 15:30
To 30-Sep-02 10:30

During test execution no serious alarms or disturbances occurred in BSC. No unit restarts occurred during the stability test.

The following results are from BSC measurements after BSC3i ANSI stability test:

Call successful: 701315
Call failures : 43

Call failure rate: $(43/701315)*100\% = 0,006\%$

2. 24 h stability test with traffic generator, BSC3i, ETSI

Measurement period: From 14-Dec-02 12:00

To 15-Dec-02 11:00

No unit restarts occurred during the stability test.

The following results are compiled from MSC measurements:

Number of calls: IN 1472329
OUT 1472329 Total: 2944658

Accepted calls: IN 1472329
OUT 1472329 Total: 2944658

Unsuccessful calls: 2944658 – 2944658 = 0

Call failure rate: $(0/2944658)*100\% = 0,000\%$

Number of successful location updates: 5655300

Number of unsuccessful location updates: 0

Location update failure rate: 0,0 %

Number of successful intra BSC handovers: 4375059

Number of unsuccessful intra BSC handovers: 0

Intra BSC handover failure rate: 0,0 %

Average traffic in Erlangs/hour: 4004 Erlangs

Average traffic in BHCA: 122694

Findings:

2) LOMANA Process Exception during stability test

- Pronto: 877146
- Correction: LOMANAGX 4.20-0

Correcton availability:

Based on the above results, the 24 h stability test with traffic generator for BSC3i is classified as **PASSED**.