SubMenu

NOKIA

S10.5ED E5 Release Test Results

ETSI

Contents

Summary of changes

Version	Date	Author	Comments
/2en	15-May-2003	P Hahl	First E5 version(/1en=E4 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.

S10.5ED E5 Release Testing followed the procedure described in a separate document "BSC S10.5ED E5 Release Test Plan, ETSI, *DN03283835/2en*".

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
S10.5 BSC2i+GPRS1 – S10.5ED (Local upgrade)	22	22	0	100	S10.5 13.13-0+CD 0.1+CD 0.2
S10.5 BSC2i+GPRS1 – S10.5ED (Remote upgrade)	19	19	0	100	S10.5 13.13-0+CD 0.1+CD 0.2
S10.5 BSC2E+GPRS1 – S10.5ED (Remote upgrade)	22	22	0	100	S10.5 13.13-0+CD 0.1+CD 0.2
S10.5ED BSC2E+GPRS1 – SMLC+GPRS2 (Local upgrade)	20	20	0	100	S10.5 13.13-0+CD 0.1+CD 0.2
S10.5 BSC3i – S10.5ED (Local upgrade)	22	22	0	100	S10.5 13.13-0+CD 0.1+CD 0.2
S10.5 BSC3i – S10.5ED (Remote upgrade)	19	19	0	100	S10.5 13.13-0+CD 0.1+CD 0.2

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

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

24 h stability test (BSC2E)	OK	S10.5 13.13-0+CD 0.1+CD 0.2
24 h stability test (BSC3i)	OK	S10.5 13.13-0+CD 0.1+CD 0.2

2 Release Testing Arrangements

Test Place: Linnoitustie 6 / D2 BSC Laboratory

Test Period: From 5-May-03

To 16-May-03

SW version: S10.5ED 13.13-0 + CD 0.1 + CD 0.2

Release Test Group Manager: Petri Hahl

Test team 1&2: Johanna Juntunen (JJu)

- S10.5 BSC2i+GPRS1 – S10.5ED (Local upgrade)
- S10.5 BSC2i+GPRS1 – S10.5ED (Remote upgrade)

Test team 3&4: Santtu Haataja (SHa)

- S9 BSC2E+GPRS1 – S10.5ED (Remote upgrade)
- S10.5ED BSC2E+GPRS1 – SMLC+GPRS2 (Local upgrade)

Test team 5&6: Jussi Kivikoski (Jki)

- S10.5 BSC3i – S10.5ED (Local upgrade)
- S10.5 BSC3i – S10.5ED (Remote upgrade)

Test team 7: Tero Laitinen (TLa)

- 24 h stability test with traffic generator (BSC2E)
- 24 h stability test with traffic generator (BSC3i)

3 Test environment

The release test environment is set up according to figure 1a and 1b. Figure 1a is demonstrating the CS traffic configuration and figure 1b PS traffic configuration.

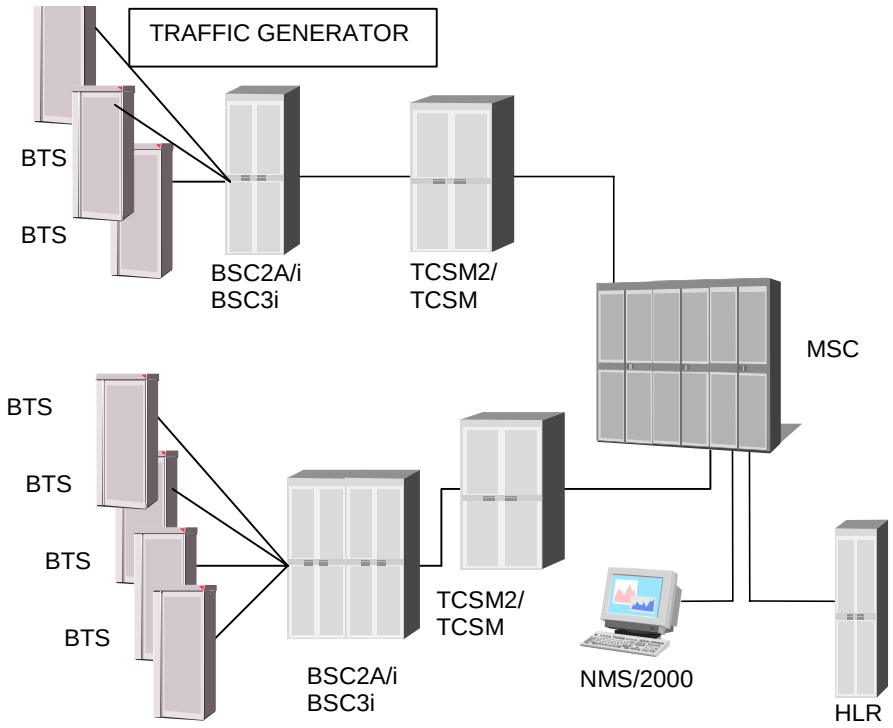

Figure 1a. Release Test Environment for CS traffic

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.

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, the following special configurations should be taken into account:

The release test configuration must include both the 2nd, 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 TCSM2/TCSM units are to be connected to each 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.

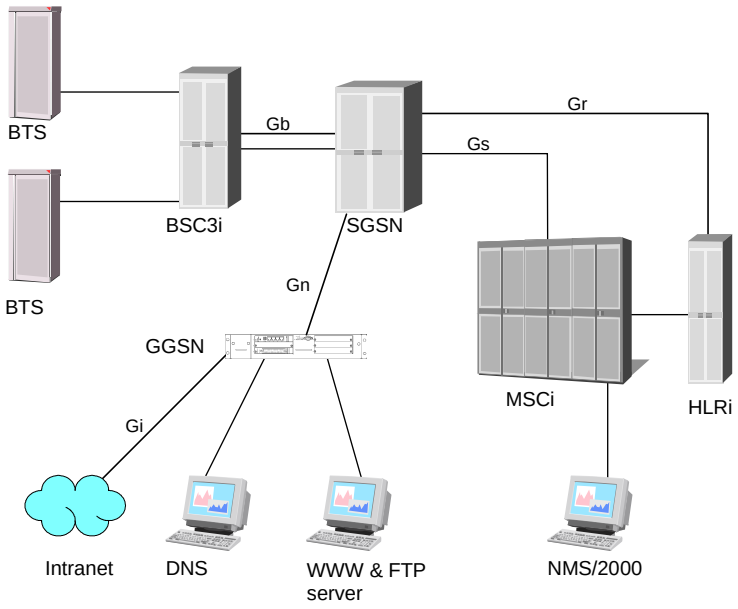

Figure 1b. Release Test Environment for PS traffic

3.1 Network components and software levels

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

DX 200 HLR	SW	M11 6.2-0
DX 200 MSC / VLR	SW	M11 6.2-0
Nokia SGSN	SW	SG2 J2 2.22-0
Nokia Artus SMSC	SW	SC5B.0-24
DX 200 BSC	SW	S10.5 13.13-0
Nokia TCSM	SW	1.10-0
Nokia NMS/2000	SW	T12 03.3
		OSS3.1
Ultrasite BTS	SW	CX3.0,
		CX3.3, CX4.0
Metrosite BTS	SW	CXM 3.0, CXM 3.3, CXM 4.0
Talk family BTS	SW	DF6.0, DF7.0
Second generation BTS	SW	B13.0, B13.1
Insite BTS	SW	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.

4 Related documents

- BSS Integration Manual, Commissioning Manual, 2.2
- DX200 BSC S9-S10.5ED Software Implementation Procedure, ETSI
- DX200 BSC S10.5-S105.ED Software Miniimplementation Procedure, ETSI&ANSI
- DX200 BSC S9-S10.5ED Software Remote Implementation Procedure, ETSI
- DX200 BSC S10.5-S10.5ED Software Remote Miniimplementation Procedure, ETSI&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
- BSC3i Hardware Revision List, System Level 10.5
- BSS10 Features Under Development
- BSC S10.5 Release Test Cases
- BSC S10.5 Compatibility Test Specification

5 TEST LOGS

Test Team 1&2: S10.5 BSC2i+GPRS1 –> S10.5ED, Local/Remote

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

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

3. S10.5 CDs up to 2.0 GEN.

4. Used BTSs: ULTRASITE GSM 900/1800 CX 3.3
   ULTRASITE GSM 900/1800 CX 3.3
   INSITE GSM1800 I2.0-0

5. - BSC S10.5-S10.5ED Software Miniimplementation procedure, ETSI&ANSI, DN03275091
   - BSC S10.5-S10.5ED Software Remote Miniimplementation procedure, ETSI&ANSI, DN03405636
   - BSC S10.5 HIT upgrading macros for S10.5ED, ETSI disk version 2.0-0
   - BSC S10.5 GPRS/EDGE Hardware Implementation Procedure, ETSI, DN02105628

-

Findings:

1) PCU-T SW version checking MML is not working
   - Pronto 2478ES09P
   - Correction: PPMHANGX 4.11-0
   - Correction availability: S10.5ed General CD 1.0

2) Gb interface is not recovering after a BSC power break/after a BSC system restart
   - Pronto 2573ES09P
   - Under investigation

Test Team 3&4: S9 BSC2E+GPRS1 –> S10.5ED, Remote

S10.5ED BSC2E+GPRS1 -> GPRS2+SMLC, Local

		TestMan ID	S9 BSC2E-S10.5ED	S10.5ED BSC2E-GPRS2+SMLC
		Version	Status/Sign	Status/Sign
1. Checking BSC & TCSM/TCSM2 HW versions	RT000TC00001	3.1-0	OK/SHa	
2. Checking SW levels of other NEs / chapter 4.1	RT000TC00002	3.1-0	OK/SHa	
3. Checking installed Change Notes	RT000SW00001	3.1-0	OK/SHa	
4. BSC S10.5ED software upgrade	RT000SW00005	1.1-0	OK/SHa	
5. S10.5 GPRS feature Implementation	RT000FE00003	2.2-0		OK/SHa
6.S10.5 MS locationing feature implementation	RT000FE00004	1.1-0		OK/SHa
7. BSC system restart	RT000SD00001	2.0-0	OK/SHa	OK/SHa
8. Power break in the system	RT000SD00002	1.1-0	OK/SHa	OK/SHa
9. OMU state change and diagnostics	RT000SD00003	2.0-0	OK/SHa	OK/SHa
10. BCSU state change and diagnostics	RT000SD00004	2.0-0	OK/SHa	OK/SHa
11. MCMU state change and diagnostics	RT000SD00005	2.0-0	OK/SHa	OK/SHa
12. MB state change and diagnostics	RT000SD00006	2.0-0	OK/SHa	OK/SHa
13. Location Update	RT000CC00001	1.0-0	OK/SHa	OK/SHa
14. MS to MS call	RT000CC00002	2.0-0	OK/SHa	OK/SHa
15. MS to PSTN call	RT000CC00003	1.0-0	OK/SHa	OK/SHa
16. PSTN to MS call	RT000CC00004	1.0-0	OK/SHa	OK/SHa
17. Emergency call	RT000CC00005	1.0-0	OK/SHa	OK/SHa
18. Data call	RT000CC00006	2.0-0	OK/SHa	OK/SHa
19. SMS from MS to MS	RT000CC00007	1.1-0	OK/SHa	OK/SHa
20. Inter cell handover	RT000HO00001	2.0-0	OK/SHa	OK/SHa
21. Inter BSC handover S9 – S10.5ED	RT000HO00008	1.0-0	OK/SHa	OK/SHa
22. Inter BSC handover S10.5ED – S10.5ED	RT000HO00009	1.0-0	OK/SHa	OK/SHa
23. Radio resource queuing in handover	RT000HO00004	1.1-0	OK/SHa	OK/SHa
24. GPRS/EDGE call	RT000FE00005	1.0-0	OK/SHa	OK/SHa

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

3. S9 CDs up to 10.1 GEN.

4. Used BTSs: INSITE GSM1800 I 2.0-0

TALKFAMILY GSM900 DF6.0-1

4. - BSC S9-S10.5ED Software Remote Implementation procedure, ETSI, DN03405648

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

- BSC S10.5 HIT upgrading macros for S10.5, ETSI disk version 2.0-0

Findings:

Test Team 5&6 : S10.5 BSC3i –> S10.5ED, Local/Remote

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

1. BSC3i Hardware Revision List, System Level 10.5, CAE 105095

4. S10.5 CDs up to 2.0 GEN.

4. Used BTSs: TALK FAMILY GSM900 DF6.0-1

TALK FAMILY GSM900 DF6.0-1

5. - BSC S10.5-S10.5ED Software Miniimplementation procedure, ETSI&ANSI, DN03275091

- BSC S10.5-S10.5ED Software Remote Miniimplementation procedure, ETSI&ANSI, DN03405636

- BSC S10.5 HIT upgrading macros for S10.5ED, ETSI disk version 2.0-0

Findings:

Test Team 7 : Stability tests

BSC2E

BSC3i

	Version	Status/Sign	
1. 24 h stability test with traffic generator (BSC2E)	RT000ST00006	1.1-0	OK/TLa
2. 24 h stability test with traffic generator (BSC3i)	RT000ST00006	1.1-0	OK/TLa

RESULTS:

1. 24 h stability test with traffic generator (BSC2E)

Measurement period: From 15-May-03 15:00
To 16-May-03 14:00

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

The following results are compiled from MSC measurements:

Number of calls: IN 604795
OUT 604795 Total: 1209590

Accepted calls: IN 604795
OUT 604795 Total: 1209590

Unsuccessful calls: 1209590 – 1209590 = 0

Call failure rate: (0/1209594)*100 % = **0,000 %**

Number of successful location updates: 2211742
Number of unsuccessful location updates: 0
Location update failure rate: 0,0 %

Number of successful intra BSC handovers: 2412742

Number of unsuccessful intra BSC handovers: 0

Intra BSC handover failure rate: 0,0 %

Average traffic in Erlangs/hour: 1636 Erlangs

Average traffic in BHCA: 50400

Based on the above results, the 24 h stability test with traffic generator for BSC2E is classified as **PASSED**.

2. 24 h stability test with traffic generator (BSC3i)

Measurement period: From 14-May-03 9:00

To 15-May-03 8:00

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

The following results are compiled from MSC measurements:

Number of calls: IN 1472309

OUT 1472255 Total: 2944564

Accepted calls: IN 1472254

OUT 1472255 Total: 2944509

Unsuccessful calls: 2944564 – 2944509 =55

Call failure rate: (55/2944564)*100 % = **0,0019 %**

Number of successful location updates: 5655223

Number of unsuccessful location updates: 0

Location update failure rate:	0,0 %
Number of successful intra BSC handovers:	4374944
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:	122690

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