STABILOCK 4031 4032

NMT 900 Scandinavia

Software Option 897 071
Part of Package 897 911

Operating Instructions

07_nmt9 Doc. Version: 9505-341-A

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Supplement to operating manual; file under chapter 10

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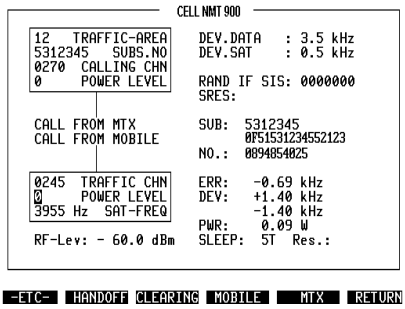
Basic tasks

Test mask

Fig. 10.1: Test mask



Entries

TRAFFIC-AREA	Home traffic area the mobile is registered in.
SUBS.NO	Mobile subscriber number.
CALLING CHN	Calling channel number.
POWER LEVEL	Transmitter output power on calling channel.
TRAFFIC CHN	Traffic channel number.
POWER LEVEL	Transmitter output power on traffic channel.
SAT-FREQ	SAT frequency (scroll field with scroll variables 3955 Hz/3985 Hz/4015 Hz/4045 Hz/NO SAT).
RF-Lev.	RF output level. Set Level/50 or Level/EMF on RX or duplex mask.
DEV.DATA	2-digit numeric field for entering data deviation (0.0 to 9.9 kHz).
DEV.SAT	2-digit numeric field for entering SAT deviation (0.0 to 9.9 kHz).
RAND IF SIS	7-digit hexadecimal entry field for the RANDOM challenge number. The entered number **only** affects the test "Mobile initiated call". If the entry field is filled out with 0000000, any mobile station (Mobile) can be tested. Other entries are only permissible if an SIS-encoded mobile station is tested: then the Mobile receives the RANDOM challenge number, combines this with the Mobile's own secret number and sends the 4-digit result back to the base station (STABILOCK). The STABILOCK produces the result in the SRES display field.

SLEEP Scroll field for "sleeptime". During the sleeptime the receiver and transmitter of the handheld radio are switched off (battery economy). Scroll variables: 0T/3T/5T/7T/9T/11T/14T/ 21T/28T/35T where T = 1.107 s (duration of eight frames).

Result display

SRES Reports the result sent back to the base station by SIS-encoded mobile stations of the combination out of the RANDOM challenge number and the secret Mobile number. The 4-digit result is sent three times, meaning that the display is 12-digit.

SUB 1st line: subscriber number of mobile (ident).
2nd line: last frame sent containing ident and security code.

NO. Selected call number. If SIS-encoded mobile stations with a RANDOM challenge number differing from zero are tested in "Mobile initiated call", the field will display the call number enciphered.

ERR Carrier-frequency offset of Mobile.

DEV Carrier-frequency deviation of Mobile.

PWR RF transmitting power of Mobile.

Res. Actual sleeptime of handheld radio.

Meaning of softkeys, first level

(-ETC-) Switches softkey assignments to second level.

(HANDOFF) Performs change of traffic channel or SAT or power level.

(CLEARING) Drops the call.

(MOBILE) Starts "Mobile initiated call".

(MTX) Starts "MTX initiated call".

(RETURN) Leads back to OPTION CARD mask.

Meaning of softkeys, second level

-ETC-	Switches softkey assignments to first level.
ROAM	Allows change to another traffic area. If mobile subscriber number unknown (ROAM) reads subscriber number automatically into entry field SUBS.NO.
IDLE	The base station (STABILOCK) sends the idle frame continuously. The status line displays sending testframe.
ANALYZE	Calls up the analyzer mask. The report is displayed of the last test performed (see description of analyzer mask).
SLEEP	Triggers a test of the sleeptime.
RETURN	Leads back to OPTION CARD mask.

☞ If the subscriber number read into the entry field is not identical with the actual subscriber number of the mobile, the softkey functions cannot be correctly performed.
Exception: In the "Mobile initiated call" test the call number of the mobile is determined from the first response telegram of the mobile and corrected in the SUBS.NO entry field.

Polling results via IEEE controller

Result	Polling IEEE command
SRES	RESULt1
SUB (1st line)	RESULt2
SUB (2nd line)	RESULt3
NO.	RESULt4
Res.	RESULt5

Test procedure step by step

Mobile initiated call

Requirement: mobile is idle (receiver on-hook).

1. Press (MOBILE).
2. Dial a number and press "Send". Then the mobile sends out the dialed number and is handed off to the calling channel.
   Display of the measured results in the righthand half of the screen.

MTX initiated call

Requirement: mobile is idle (receiver on-hook).

1. Press (MTX).
2. Lift handset when mobile rings or "Call Received" indicator lights up.
   Display of the measured results of the mobile in the righthand half of the screen.

Change of channel, SAT change and power matching

Requirement: mobile is in call status.

1. Alter one or more of the following parameters: traffic-channel number, SAT frequency, SAT deviation, power level.
2. Strike (HANDOFF) softkey. The mobile then sets itself to the new parameters. The new measured values appear in the righthand half of the screen.

Changing traffic area

Requirement: mobile is in call status.

1. Enter new traffic area into field `TRAFFIC-AREA` and press softkey (ROAM). The mobile sends roaming update and its identity to the MTX of new traffic area. The decoded subscriber number will be read automatically into the entry field `SUBS NO`.
   Note: A roaming update can only be performed if the stored traffic area is not identical to the newly entered one.

Measuring sleeptime

Requirement: mobile is idle (receiver on-hook).

1. Set sleeptime in `SLEEP` entry field.
2. Press (SLEEP).
   Display of the actual sleeptime in the `Res.` field.

Call release

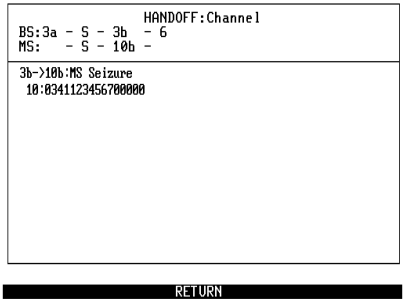
Requirement: mobile is in call status.

1. Press (CLEARING).

Analyzer mask

Signaling report of the last test performed. The received response telegrams from the mobile are decoded and displayed in hexadecimal form. In this way errors in the signaling can be detected immediately (missing, wrong or corrupted telegrams). (RETURN) takes you back to the basic mask.

Fig. 10.2: Analyzer mask.



Meaning of display fields

Top

Header	Performance test whose signaling is being displayed.
BS:	Telegrams transmitted from the base station (STABILOCK) when signaling is correct.
MS:	Telegrams expected from the mobile when signaling is correct.

Example: In the test of channel handoff the STABILOCK starts the signaling with telegram 3a and then switches to the new channel. After that, the STABILOCK sends telegram 3b, to which the Mobile responds with telegram 10b.

Bottom

The bottom part of the analyzer mask shows the decoded response telegrams of the Mobile in hexadecimal form. For easier interpretation the associated telegram sequence (transmitted telegram -> response telegram) and its meaning are also shown in symbolic form.

The decoder in the STABILOCK goes into standby as soon as the STABILOCK sends its telegrams. All response telegrams are decoded until the arrival of the correct response telegram. In this way the STABILOCK also logs faulty signaling.

The evaluation of the next telegram sequence is not started until the first telegram sequence has been completed successfully (correct response telegram received).

System specifications

Channels	1000 (2000)
Frequency range of	
Mobile receiver (upper band)	Channel 1 935.0125 MHz last channel 959.9875 MHz
Mobile transmitter (lower band)	Channel 1 890.0125 MHz last channel 914.9875 MHz
Channel spacing	25 kHz (12,5 kHz)
Duplex offset	45 MHz
Signaling rate	FFSK (1200 Bd)
Signaling deviation	±3.5 kHz
Coding of Z (Z = 1st digit of SUBS.NO)	5 = Denmark 6 = Sweden 7 = Norway 8 = Finland
Coding of Y1/Y2 (Y1/Y2 = 1st/2nd digit of TRAFFIC AREA)	Y1 = 1 = Denmark 2 = Sweden 3 = Norway 4 = Finland 5 = Switzerland Y2 = 0 to F

Remaining system specifications according to:
NORDIC MOBILE TELEPHONE, SYSTEM DESCRIPTION, NMT-DOC. 900 (1985-01-29)
(Published by PTTs of Denmark, Finland, Norway and Sweden).

Lifeline

The chronological lifeline tells you what modifications have been made to the software (SW) and the operating instructions. After a software update the lifeline helps you to find out quickly about all major changes (see code) in the updated operating instructions that are supplied.

Code: C = Correction, IN = Important Note, NF = New Feature

SW	Doc. Version	Δ pages	Code	Changes
3.10	9401-310-A	all	NF	Layout changed to small pages.
3.20	9401-320-A	none	C	Bug fixes.
3.40	9503-340-A	none	C	Internal optimation.
3.41	9505-341-A	none	NF	Ident of mobile: hexadecimal input possible.