



# TETRA Terminal Interoperability Certificate

6 June 2002

Nokia

<b>TETRA Terminal:</b>	<b>: 2000</b>	<b>: 2001</b>
Terminal Type:	THR420	THR420
Hardware:	HRU420-02	HRU420-02
Software:	HY11.0390	HY11.04-1
Firmware:	-	-

Telelaboratoriet (TDC Mobil A/S) has witnessed that the Nokia Terminal is operating in accordance with

TTR002 Ver 1.0.3 [November 2000] DMO TETRA  
Interoperability Profile (TIP)

for the specified features:

Features	Tested (Yes/No/NA)
• Activation and Deactivation of Direct Mode	No
• Group call	Yes

NA: means not applicable (not supported)

The tests have been performed on the Nokia terminal on the 20<sup>th</sup> October 2000 and on the 5<sup>th</sup> October 2001.

The tests were conducted using/establishing communication with the DMO terminals stated on page 2 of this certificate.

Authorised IOP test engineer

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Telelaboratoriet (TDC Mobil A/S) has made every effort to ensure that tests have been made correctly, and in accordance with DMO TIP. Telelaboratoriet (TDC Mobil A/S) has no liability for the test results, or towards the manufacturers.

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## Information about the equipment used for testing

### Testing on the 20<sup>th</sup> October 2000:

The tests performed on 20<sup>th</sup> October 2000 were performed using the following terminals:

Manufacturer	Terminal Type	Software/Hardware Release No.
Marconi	Puma T1	SW: Release DMO 1.2.0 FW: Release vsf19md HW: Puma T
Simoco Digital Systems	SRP1000	SW: 4313 327 72027 HW: PS3TT001T30000B
Cleartone	CM9000P	SW: 0.32 HW:1

### Testing on the 5<sup>th</sup> October 2001:

The tests performed on the 5<sup>th</sup> October 2001 were performed using the following terminals:

Manufacturer	Terminal Type	Software/Hardware Release No.
Motorola	MTP300	SW: I.25.40.15 HW: H12PCH6TZ5BN
Motorola	MTM300	SW: I.25.40.15 HW: M12PCN6TZ5BN
Simoco Digital Systems	SRP1000	SW: 4313 327 72142 HW: PS3TT001T30000B

### Additional information about the test performed

The tests were performed in the 380-400 MHz band. The terminals were operating with the following configuration:

MNI		GSSI	Frequency	Notes
MCC	MNC			
1	1	10101	383.7375	Configured in all MSs
1	1	10102	383.5875	Configured in all MSs
1	1	10103	383.7375	Configured in all MSs
1	1	10104	383.7375	Configured in all MSs
1	1	10600	383.7375	Configured in Cleartone MSs only
1	1	10100	383.7375	Configured in Motorola MSs only
1	1	10200	383.7375	Configured in Marconi MSs only
1	1	10300	383.7375	Configured in Nokia MSs only
1	1	10400	383.7375	Configured in Simoco Digital Systems MSs only



## Test Results

The tables indicates whether or not tests addressing a specific requirement of the TIP specification have been performed, whether or not the requirement is applicable for the terminal, and the result of the test, if executed. Each entry of the table may take one of six values: -: No test performed, N/A: Not applicable, I: Inconclusive, P: Pass, F: Fail or NTA: No test case being available. NTA will only be allocated if both the terminal under test/SwMI and the other terminal has indicated that they support (comply with) the corresponding feature (requirement); if either has indicated the feature (requirement) as not being supported then the entry will be N/A. In case of all entries of a row being N/A it should be assumed that this feature is not supported by the terminal under test.

The test results have been derived from examining the behaviour of a combination of live terminals. The verdicts indicated are based on the log evaluation of the information exchange between a transmitting terminal and a number of receiving terminals. The verdicts reflect the fact that at the time of the IOP testing it was possible to demonstrate a behaviour that was/was not in accordance with the related requirement.

**Tests performed on the 20<sup>th</sup> October 2000**

-:	Not performed.	F:	Fail
N/A:	Not applicable	I:	Inconclusive
P:	Pass	NTA:	No test case available

**Table 1: Testing of requirements relating to the interaction between the terminal under test and an infrastructure**

Nokia THR420		SwMI
<b>7 Activation and Deactivation of Direct Mode</b>		
7 Activation of Direct Mode		NTA
7 Deactivation of Direct Mode		NTA

**Table 2: Testing of requirements relating to the interaction between the terminal under test and other terminals in DMO mode.**

Nokia THR420	Marconi-OPE Puma-T1	Simoco Digital Systems SRP1000	Clearstone CM9000P
<b>8 Group call</b> (Test case Number index)			
8.1 Call setup, Initiating (3.1)	P	P	P
8.1 Call setup, Receiving known address (3.2)	P	P	P
8.1 Call setup, Receiving unknown address (3.3)	I <sup>1</sup>	I <sup>1</sup>	I <sup>2</sup>
8.1 Call setup, Late entry (3.4)	-	P	-
8.1 Call setup, Engaged terminal (3.8)	-	-	P
8.1 Call setup, Occupied carrier (3.9)	-	I <sup>3</sup>	-
8.2 Ongoing call (3.1)	P	P	P
8.2 Ongoing call, Expiry DT207 (3.7)	I <sup>1</sup>	I <sup>1</sup>	I <sup>1</sup>
8.3 Call release, Normal (3.1)	P	P	P
8.3 Call release, Expiry DT311 (3.5)	P	P	P
8.3 Call release, Expiry DT221 (3.6)	P	P	P
8.4 Group address capability	N/A	N/A	N/A

**Comments:**

- 1) At the time of the testing a preliminary verdict of PASS was assigned. The test should have been concluded with a call originated from the Nokia Mobile, this to verify that the Nokia Mobile has determined that the resources are available. No evidence of such a call can be found in the Nokia log file.
- 2) The log files does not match.
- 3) The log files from both terminals are missing.

**Tests performed on the 5<sup>th</sup> October 2001**

-:	Not performed.	F:	Fail
N/A:	Not applicable	I:	Inconclusive
P:	Pass	NTA:	No test case available

**Table 3: Testing of requirements relating to the interaction between the terminal under test and an infrastructure**

<b>Nokia THR420</b>		<b>SwMI</b>
<b>7 Activation and Deactivation of Direct Mode</b>		
7 Activation of Direct Mode		NTA
7 Deactivation of Direct Mode		NTA

**Table 4: Testing of requirements relating to the interaction between the terminal under test and other terminals in DMO mode.**

<b>Nokia THR420</b>	<b>Motorola MTM300</b>	<b>Motorola MTP300</b>	<b>Simoco Digital Systems SRP1000</b>
<b>8 Group call (Test case Number index)</b>			
8.1 Call setup, Initiating (3.1)	P	P	P
8.1 Call setup, Receiving known address (3.2)	F <sup>1</sup>	P	P
8.1 Call setup, Receiving unknown address (3.3)	P	P	P
8.1 Call setup, Late entry (3.4)	-	-	-
8.1 Call setup, Engaged terminal (3.8)	-	-	-
8.1 Call setup, Occupied carrier (3.9)	-	-	-
8.2 Ongoing call (3.1)	P <sup>2</sup>	P <sup>2</sup>	P <sup>2</sup>
8.2 Ongoing call, Expiry DT207 (3.7)	-	-	-
8.3 Call release, Normal (3.1)	-	-	-
8.3 Call release, Expiry DT311 (3.5)	P	P	P
8.3 Call release, Expiry DT221 (3.6)	-	-	-
8.4 Group address capability	N/A	N/A	N/A

**Comments:**

- 1) The Motorola MS is transmitting for 60 seconds. Two attempts of this test were performed.  
For the first attempt the Nokia MS log file does not show the D-RELEASE PDU sent from the Motorola terminal.  
For the second attempt the D-RELEASE PDU is shown in the Nokia log file, but during



the test it was observed that the Nokia terminal lost synchronisation several times and instead performed Late entry. It can not be determined whether this is due to incorrect behaviour of the Motorola MS (Master) or Nokia MS (Slave).

- 2) The MS is transmitting for 60 seconds until the transaction timer releases the DMO call.