



IST doc.10 rev.2

# TETRA Terminal Interoperability Certificate

June 2005

**R&S BICK MOBILFUNK**

Manufacturer	Type	Software/Hardware Release No.	Period of testing
R&S	BHR21	SW: PTA_0015A HW: LA8	06/6-07/6/2005


ISCTI (Istituto Superiore delle Comunicazioni e delle Tecnologie dell'Informazione) has witnessed that the R&S Terminal is operating in accordance with:

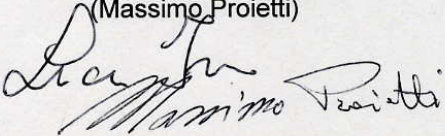
## TETRA Interoperability Profile:

TETRA MoU, TTR001-01, Core, Ver. 4.8.1, February 2003

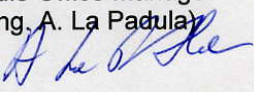
TETRA MoU, TTR001-02, SDS, Ver. 1.0.1, August 2001

The test results for the tested features can be found in the tables of this certificate.

 Authorised IOP test engineers  
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Radio Office Manager  
(Ing. A. La Padula)





## Information on the equipments used for testing in the June 2005 IOP Test Session

The tests were performed using the following SwMI:

Manufacturer	Type	Software/Hardware Release No.
Frequentis	eXTRAS	SW: Release 1 HW: Release 1

## Additional information about the test performed

The tests were performed in the LA1 and LA2 sites. The SwMI was operating with the following configuration:

MCC	232
MNC	600
Colour code	49 (LA1) and 50 (LA2)
LA1 carrier frequency (BS Tx)	397.5125 MHz
LA2 carrier frequency (BS Tx)	396.0125 MHz
PSTN gateway SSI	16777184 (FFFFE0 <sub>16</sub> )
Subscriber classes	FFFF <sub>16</sub>

**Note:** TIP compliance testing focuses on functionality on the OSI model layers two, three and higher and therefore is frequency band independent.



## IOP Test Plans used for testing

The following Test Plans were used in the Test Session:

TETRA MoU, IOP001-01, Core, Ver. 2.0.0

TETRA MoU, IOP001-02, SDS, Ver. 1.1.0

## Test Results

The test results are shown in the tables below.

Test results and the certificates from previous IOP test sessions are available on TETRA MoU web site (<http://www.tetramou.com>).

The test result tables on the next pages indicate whether or not tests addressing a specific requirement of the TIP specification have been performed; whether or not the requirement is applicable for the SwMI or the MS; and – if the test case was executed – the result of the test. Each table entry may take one of seven values:

-	No test performed.
<b>N/A</b>	Not applicable for the SwMI
<b>No</b>	Not supported by Terminal
<b>NTPA</b>	No Test Plan/case Available
<b>P</b>	Pass
<b>F</b>	Fail
<b>I</b>	Inconclusive

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

ISCTI has made every effort to ensure that tests are in accordance with the relevant TIPs. ISCTI has no liability for the test results, or towards the manufacturers.



Frequentis / 3T Communications SwMI			R&S BHR21
TTR001-01	<b>CORE</b>	IOP001-01	
TTR001-01 6	<b>Registration</b>	IOP001-01	
TTR001-01 6.1	<b>ITSI attach</b> - ITSI attach	IOP001-01 1.1	P
TTR001-01 6.2	<b>ITSI attach including group attachment</b> - ITSI attach including group attachment	IOP001-01 1.2	No
TTR001-01 6.2	<b>ITSI attach including group attachment</b> - MS initiated Multiple group attachment during MS registration (Selected group is first in list)	IOP001-01 2.2.1	N/A
TTR001-01 6.2	<b>ITSI attach including group attachment</b> - MS initiated Multiple group attachment during MS registration (Selected group may not be first in list)	IOP001-01 2.2.6	N/A
TTR001-01 6.3	<b>ITSI Attach with SwMI allocation of Common SCCH</b> - SwMI supporting one C SCCH	IOP001-01 12.1	N/A
TTR001-01 6.3	<b>ITSI Attach with SwMI allocation of Common SCCH</b> - MS allocation altering at a Registration	IOP001-01 12.2	N/A
TTR001-01 6.3	<b>ITSI Attach with SwMI allocation of Common SCCH</b> - SwMI supporting two C SCCHs	IOP001-01 12.3	N/A
TTR001-01 6.3	<b>ITSI Attach with SwMI allocation of Common SCCH</b> - SwMI supporting three C SCCHs	IOP001-01 12.4	N/A
TTR001-01 6.4	<b>Roaming &amp; periodic location updating</b> - Cell re selection without communication activity	IOP001-01 7.1.1	P
TTR001-01 6.5	<b>SwMI initiated location updating</b> - SwMI initiated location updating without group reporting	IOP001-01 1.3.1	N/A
TTR001-01 6.5	<b>SwMI initiated location updating</b> - SwMI initiated location updating with group reporting	IOP001-01 1.3.2	N/A
TTR001-01 6.6	<b>De-registration</b> - De-registration	IOP001-01 1.4	P
TTR001-01 6.7	<b>Subscriber class procedures</b>	IOP001-01	
TTR001-01 6.7	<b>Subscriber class procedures</b> - Roaming to a Cell with a Subscriber Class Match	IOP001-01 11.1.1	N/A
TTR001-01 6.7	<b>Subscriber class procedures</b> - Roaming to a Cell with no Subscriber Class Match SwMI rejects registration	IOP001-01 11.2.1	N/A
TTR001-01 6.7	<b>Subscriber class procedures</b> - Roaming to a Cell with no Subscriber Class Match SwMI accepts registration	IOP001-01 11.2.2	No
TTR001-01 6.7	<b>Subscriber class procedures</b> - MS subscriber class configuration altered at initial registration	IOP001-01 11.3.1	N/A
TTR001-01 6.7	<b>Subscriber class procedures</b> - MS subscriber class configuration altered at roaming location update valid details for cell	IOP001-01 11.3.2	N/A
TTR001-01 6.7	<b>Subscriber class procedures</b> - MS subscriber class configuration altered at roaming location update inappropriate details for cell	IOP001-01 11.3.3	N/A
TTR001-01 6.7.1	<b>Preferred subscriber classes</b> - MS roaming to a cell with a highly preferred Subscriber Class Match	IOP001-01 11.4.1	N/A
TTR001-01 6.7.1	<b>Preferred subscriber classes</b> - MS roaming to a cell with a preferred Subscriber Class match	IOP001-01 11.4.2	N/A
TTR001-01 6.7.1	<b>Preferred subscriber classes</b> - Roaming to a Cell with an Inferior Subscriber Class Match	IOP001-01 11.4.3	N/A
TTR001-01 6.7.1	<b>Preferred subscriber classes</b> - MS registration to BS offering the best services when serving cell goes into Fallback mode, not offering any services	IOP001-01 13.2.4	N/A
TTR001-01 7	<b>Individual call</b>	IOP001-01	
TTR001-01 7	<b>Individual call</b> - Individual call in BS Fallback mode of operation	IOP001-01 13.4.3	No
TTR001-01 7.1	<b>Call setup</b>	IOP001-01	
TTR001-01 7.1.1	<b>Hook signalling</b> - Individual hook call setup	IOP001-01 4.1.1	P
TTR001-01 7.1.1	<b>Hook signalling</b> - Individual call setup, resource queuing	IOP001-01 4.1.3	P
TTR001-01 7.1.1	<b>Hook signalling</b> - Duplex call setup	IOP001-01 4.2.1	P



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TTR001-01 7.1.1	Hook signalling - Duplex call setup, resource queuing	IOP001-01 4.2.2	P
TTR001-01 7.1.1	Hook signalling - MS ISDN individual call	IOP001-01 9.1	N/A
TTR001-01 7.1.2	Direct through-connect - Individual direct call setup	IOP001-01 4.1.2	P
TTR001-01 7.1.2	Direct through-connect - Individual call setup, resource queuing	IOP001-01 4.1.3	P
TTR001-01 7.1.2	Direct through-connect - MS ISDN individual call	IOP001-01 9.1	N/A
TTR001-01 7.1.3	Call setup modifications	IOP001-01	
TTR001-01 7.1.3.1.4	'Point to point' to 'point to multipoint' - Emergency call setup, P2P to P2MP call modification	IOP001-01 6.2.2	N/A
TTR001-01 7.1.3.2	Setup modification by called party	IOP001-01	
TTR001-01 7.1.3.2.1	Direct to hook - Call setup Modification by Called Party, Direct to Hook, Calling Party signalling	IOP001-01 4.3.1.1	P
TTR001-01 7.1.3.2.1	Direct to hook - Call setup Modification by Called Party, Direct to Hook, Called Party signalling	IOP001-01 4.3.1.2	P
TTR001-01 7.1.3.2.3	'Duplex' to 'simplex' - Call setup modification by Called Party, duplex to semi duplex, Calling Party signalling	IOP001-01 4.3.2.1	P
TTR001-01 7.1.3.2.3	'Duplex' to 'simplex' - Call setup Modification by Called Party, duplex to semi-duplex, Called Party signalling	IOP001-01 4.3.2.2	P
TTR001-01 7.2	Transmission control	IOP001-01	
TTR001-01 7.2.1	End of transmission - Individual hook call setup	IOP001-01 4.1.1	P
TTR001-01 7.2.1	End of transmission - Individual direct call setup	IOP001-01 4.1.2	P
TTR001-01 7.2.2	Request to transmit (no talker) - Individual hook call setup	IOP001-01 4.1.1	P
TTR001-01 7.2.2	Request to transmit (no talker) - Individual direct call setup	IOP001-01 4.1.2	P
TTR001-01 7.2.2	Request to transmit (no talker) - MS ISDN individual call	IOP001-01 9.1	N/A
TTR001-01 7.2.3	Request to transmit (in the presence of an active talker) - Pre emptive speech item request, non pre emptive transmission request queuing	IOP001-01 4.1.4	N/A
TTR001-01 7.2.3	Request to transmit (in the presence of an active talker) - Pre emptive speech item request, non pre emptive transmission request rejection	IOP001-01 4.1.5	P
TTR001-01 7.3	Call maintenance	IOP001-01	
TTR001-01 7.3	Call maintenance - Queuing during Individual call restoration, Transmitting	IOP001-01 7.3.4.1	N/A
TTR001-01 7.3	Call maintenance - Queuing during Individual call restoration, Receiving (Announced cell reselection)	IOP001-01 7.3.4.2	N/A
TTR001-01 7.3	Call maintenance - Queuing during Individual call restoration, Receiving (Unannounced)	IOP001-01 7.3.4.3	N/A
TTR001-01 7.3	Call maintenance - Queuing during Individual call restoration, Communication inactivity (Announced cell reselection)	IOP001-01 7.3.5.1	N/A
TTR001-01 7.3	Call maintenance - Queuing during Individual call restoration, Communication inactivity (Unannounced)	IOP001-01 7.3.5.2	N/A
TTR001-01 7.3	Call maintenance - Queuing during Duplex call restoration (Announced cell reselection)	IOP001-01 7.4.2	N/A
TTR001-01 7.4	Call disconnection	IOP001-01	
TTR001-01 7.4	Call disconnection - Individual hook call setup	IOP001-01 4.1.1	P
TTR001-01 7.4	Call disconnection - Individual direct call setup	IOP001-01 4.1.2	P
TTR001-01 7.4	Call disconnection - Duplex call setup	IOP001-01 4.2.1	P



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TTR001-01 7.5	<b>Emergency individual call</b>	IOP001-01	
TTR001-01 7.5	<b>Emergency individual call</b> - Emergency individual call, resource preemption	IOP001-01 6.2.1	N/A
TTR001-01 7.5	<b>Emergency individual call</b> - Emergency Individual call in BS Fallback mode of operation	IOP001-01 13.4.4	N/A
TTR001-01 7.5.1	<b>Emergency speech item request</b> - Emergency individual call, resource preemption	IOP001-01 6.2.1	N/A
TTR001-01 7.5.1	<b>Emergency speech item request</b> - Emergency Individual call in BS Fallback mode of operation	IOP001-01 13.4.4	N/A
TTR001-01 7.5.2	<b>Emergency individual call setup modification</b> - Emergency call setup, P2P to P2MP call modification	IOP001-01 6.2.2	N/A
TTR001-01 7.6	<b>Pre-emptive Priority Individual Call</b>	IOP001-01	
TTR001-01 7.6	<b>Pre-emptive Priority Individual Call</b> - Pre-emptive priority individual call, resource preemption	IOP001-01 4.1.6	N/A
TTR001-01 7.6	<b>Pre-emptive Priority Individual Call</b> - Pre-emptive priority individual call to user in individual call accepted by MS	IOP001-01 4.1.7	N/A
TTR001-01 8	<b>Group management</b>	IOP001-01	
TTR001-01 8.2	<b>Definition of Class of Usage element</b>	IOP001-01	
TTR001-01 8.2.3	<b>Class of Usage value 1112, 'Always scanned'</b> - Background group attachment and call to background group	IOP001-01 2.1.7	N/A
TTR001-01 8.2.3	<b>Class of Usage value 1112, 'Always scanned'</b> - Background group attachment rejected	IOP001-01 2.1.8	N/A
TTR001-01 8.2.5	<b>Class of Usage values 1012, 0112, 0102, 'High, normal, low priority scanned'</b> - Status to scanned group	IOP001-01 5.1.2.3	N/A
TTR001-01 8.2.7	<b>Selected group and SwMI initiated attachment/detachments.</b> - SwMI initiated Temporary 1 group detachment and re-attachment of the selected group	IOP001-01 2.4.2	N/A
TTR001-01 8.2.7	<b>Selected group and SwMI initiated attachment/detachments.</b> - SwMI initiated Temporary 1 group detachment and re-attachment of the non-selected group	IOP001-01 2.4.3	N/A
TTR001-01 8.2.12	<b>Priority group scanning indication</b>	IOP001-01	
TTR001-01 8.2.12.1.2	<b>Definition for scanning off</b> - Background group attachment and call to background group	IOP001-01 2.1.7	N/A
TTR001-01 8.2.12.3	<b>When to send scanning on/off indication:</b> - Background group attachment and call to background group	IOP001-01 2.1.7	N/A
TTR001-01 8.2.12.4	<b>Scanning on/off indication</b> - Background group attachment and call to background group	IOP001-01 2.1.7	N/A
TTR001-01 8.3	<b>Interpretation of Attachment lifetime element</b>	IOP001-01	
TTR001-01 8.3	<b>Interpretation of Attachment lifetime element</b> - Background group attachment and call to background group	IOP001-01 2.1.7	N/A
TTR001-01 8.4	<b>Attachment of the selected group</b>	IOP001-01	
TTR001-01 8.4	<b>Attachment of the selected group</b> - MS initiated single group attachment of the selected group by an MS, which can operate without a selected group, attachment accepted	IOP001-01 2.1.1	P
TTR001-01 8.4	<b>Attachment of the selected group</b> - MS initiated single group attachment of the selected group by an MS, which can operate without a selected group, rejection	IOP001-01 2.1.3	P
TTR001-01 8.4	<b>Attachment of the selected group</b> - Null group attachment as the selected group	IOP001-01 2.1.5	P
TTR001-01 8.4	<b>Attachment of the selected group</b> - Change of selected group	IOP001-01 2.1.6	P



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TTR001-01 8.5	<b>Multiple group attachment</b>	IOP001-01	
TTR001-01 8.5	<b>Multiple group attachment</b> - MS initiated single group attachment of other than the selected group, attachment accepted	IOP001-01 2.1.2	P
TTR001-01 8.5	<b>Multiple group attachment</b> - MS initiated single group attachment of other than the selected group, rejection	IOP001-01 2.1.4	-
TTR001-01 8.5	<b>Multiple group attachment</b> - Background group attachment and call to background group	IOP001-01 2.1.7	N/A
TTR001-01 8.5	<b>Multiple group attachment</b> - MS initiated Multiple group attachment during MS registration (Selected group is first in list)	IOP001-01 2.2.1	N/A
TTR001-01 8.5	<b>Multiple group attachment</b> - MS initiated Multiple group attachment with attachment to selected group (Selected group is first in list)	IOP001-01 2.2.2	N/A
TTR001-01 8.5	<b>Multiple group attachment</b> - MS initiated Multiple group attachment with no selected group	IOP001-01 2.2.3	N/A
TTR001-01 8.5	<b>Multiple group attachment</b> - MS initiated Multiple group attachment, only the attachment of the selected group is accepted	IOP001-01 2.2.4	P
TTR001-01 8.5	<b>Multiple group attachment</b> - MS initiated Multiple group attachment, rejection of some of the attached groups	IOP001-01 2.2.5	N/A
TTR001-01 8.5	<b>Multiple group attachment</b> - MS initiated Multiple group attachment during MS registration (Selected group may not be first in list)	IOP001-01 2.2.6	N/A
TTR001-01 8.5	<b>Multiple group attachment</b> - MS initiated Multiple group attachment with attachment to selected group (Selected group may not be first in list)	IOP001-01 2.2.7	N/A
TTR001-01 8.6	<b>MS initiated detachment</b>	IOP001-01	
TTR001-01 8.6	<b>MS initiated detachment</b> - MS initiated group detachment of the selected group	IOP001-01 2.3.1	No
TTR001-01 8.6	<b>MS initiated detachment</b> - MS initiated group detachment of the selected group and an attached group	IOP001-01 2.3.2	N/A
TTR001-01 8.7	<b>SwMI initiated group attachment and detachment</b>	IOP001-01	
TTR001-01 8.7.1	<b>SwMI initiated detachment</b> - SwMI initiated group detachment with another value than Temporary 1 detachment and attachment	IOP001-01 2.4.1	N/A
TTR001-01 8.7.1	<b>SwMI initiated detachment</b> - SwMI initiated Temporary 1 group detachment and re-attachment of the selected group	IOP001-01 2.4.2	N/A
TTR001-01 8.7.1	<b>SwMI initiated detachment</b> - SwMI initiated Temporary 1 group detachment and re-attachment of the non-selected group	IOP001-01 2.4.3	N/A
TTR001-01 8.7.2	<b>SwMI initiated attachment</b> - SwMI initiated group detachment with another value than Temporary 1 detachment and attachment	IOP001-01 2.4.1	N/A
TTR001-01 8.7.2	<b>SwMI initiated attachment</b> - SwMI initiated Temporary 1 group detachment and re-attachment of the selected group	IOP001-01 2.4.2	N/A
TTR001-01 8.7.2	<b>SwMI initiated attachment</b> - SwMI initiated Temporary 1 group detachment and re-attachment of the non-selected group	IOP001-01 2.4.3	N/A
TTR001-01 8.7.4	<b>SwMI initiated registration with group report request</b> - SwMI initiated location updating with group reporting	IOP001-01 1.3.2	N/A
TTR001-01 8.7.5	<b>SwMI initiated registration without group report request</b> - SwMI initiated location updating without group reporting	IOP001-01 1.3.1	N/A
TTR001-01 9	<b>Group call</b>	IOP001-01	
TTR001-01 9	<b>Group call</b> - Group scanning	IOP001-01 3.8	N/A
TTR001-01 9	<b>Group call</b> - Group call in BS Fallback mode of operation	IOP001-01 13.4.1	No
TTR001-01 9.1	<b>Call setup</b>	IOP001-01	
TTR001-01 9.1	<b>Call setup</b> - Normal group call	IOP001-01 3.1	P
TTR001-01 9.1	<b>Call setup</b> - Group call setup, resource queuing	IOP001-01 3.3	P
TTR001-01 9.1	<b>Call setup</b> - Group scanning	IOP001-01 3.8	N/A



Frequentis / 3T Communications SwMI			R&S BHR21
TTR001-01 9.1	Call setup - MS ISDN group call	IOP001-01 9.2	N/A
TTR001-01 9.1.2	Call setup modifications - Group call SwMI changes requested call priority	IOP001-01 3.7	P
TTR001-01 9.2	Transmission control	IOP001-01	
TTR001-01 9.2.1	End of transmission - Normal group call	IOP001-01 3.1	P
TTR001-01 9.2.1	End of transmission - Group scanning	IOP001-01 3.8	N/A
TTR001-01 9.2.2	Request to transmit (no talker.) - Normal group call	IOP001-01 3.1	P
TTR001-01 9.2.2	Request to transmit (no talker.) - Group scanning	IOP001-01 3.8	N/A
TTR001-01 9.2.2	Request to transmit (no talker.) - MS ISDN group call	IOP001-01 9.2	N/A
TTR001-01 9.2.3	Request for transmit (in the presence of an active talker.) - Pre emptive speech item request, non pre emptive transmission request queuing	IOP001-01 3.4	N/A
TTR001-01 9.2.3	Request for transmit (in the presence of an active talker.) - Pre emptive speech item request, non pre emptive transmission request rejection	IOP001-01 3.5	P
TTR001-01 9.3	Call disconnection	IOP001-01	
TTR001-01 9.3	Call disconnection - Normal group call	IOP001-01 3.1	P
TTR001-01 9.3	Call disconnection - Group call disconnection by call owner MS	IOP001-01 3.6	P
TTR001-01 9.5	Late entry	IOP001-01	
TTR001-01 9.5	Late entry - Late entry	IOP001-01 3.2	P
TTR001-01 9.6	Emergency group call	IOP001-01	
TTR001-01 9.6	Emergency group call - Emergency call setup to busy group, speech item interruption	IOP001-01 6.1.1	P
TTR001-01 9.6	Emergency group call - Emergency group call, resource pre emption	IOP001-01 6.1.2	P
TTR001-01 9.6	Emergency group call - Pre emption during Group call restoration, Transmitting (Announced cell reselection)	IOP001-01 7.2.5	F1
TTR001-01 9.6	Emergency group call - Emergency Group call in BS Fallback mode of operation	IOP001-01 13.4.2	No
TTR001-01 9.6.1	Emergency speech item request - Emergency call setup to busy group, speech item interruption	IOP001-01 6.1.1	P
TTR001-01 9.6.1	Emergency speech item request - Emergency Group call in BS Fallback mode of operation	IOP001-01 13.4.2	No
TTR001-01 9.6.2	Emergency group call setup modification - Emergency call setup, P2MP to P2P call modification	IOP001-01 6.1.3	N/A
TTR001-01 9.7	Pre-emptive Priority Group Call	IOP001-01	
TTR001-01 9.7	Pre-emptive Priority Group Call - Group Call, pre emptive priority, resource pre emption	IOP001-01 3.9	N/A
TTR001-01 9.7	Pre-emptive Priority Group Call - Pre emption of busy user in an individual call, accepted	IOP001-01 3.10	N/A
TTR001-01 9.7	Pre-emptive Priority Group Call - Pre emption of busy user in group call, accepted	IOP001-01 3.11	N/A
TTR001-01 9.7	Pre-emptive Priority Group Call - Pre emption on busy user, rejected	IOP001-01 3.12	N/A
TTR001-01 10	Cell re-selection	IOP001-01	
TTR001-01 10.1	Undeclared cell re-selection	IOP001-01	
TTR001-01 10.1	Undeclared cell re-selection - Cell re selection without communication activity	IOP001-01 7.1.1	P





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TTR001-01 10. 2	Cell re-selection with call restoration	IOP001-01	
TTR001-01 10. 2. 1	Unannounced cell re-selection - Group call restoration, Receiving (Unannounced)	IOP001-01 7. 2. 2	P
TTR001-01 10. 2. 1	Unannounced cell re-selection - Queuing during Group call restoration, Receiving (Unannounced)	IOP001-01 7. 2. 4	P
TTR001-01 10. 2. 1	Unannounced cell re-selection Individual call restoration, Transmitting party (Radio link failure)	IOP001-01 7. 3. 1. 2	-
TTR001-01 10. 2. 1	Unannounced cell re-selection - Individual call restoration, Receiving (Unannounced)	IOP001-01 7. 3. 2. 2	P
TTR001-01 10. 2. 1	Unannounced cell re-selection - Individual call restoration, Communication inactivity (Unannounced)	IOP001-01 7. 3. 3. 2	P
TTR001-01 10. 2. 1	Unannounced cell re-selection - Queuing during Individual call restoration, Receiving (Unannounced)	IOP001-01 7. 3. 4. 3	P
TTR001-01 10. 2. 1	Unannounced cell re-selection - Queuing during Individual call restoration, Communication inactivity (Unannounced)	IOP001-01 7. 3. 5. 2	P
TTR001-01 10. 2. 2	Announced Cell Re-selection Type without Preferred Neighbour Selected - Group call restoration, Transmitting (Announced cell reselection)	IOP001-01 7. 2. 1	P
TTR001-01 10. 2. 2	Announced Cell Re-selection Type without Preferred Neighbour Selected - Queuing during Group call restoration, Transmitting (Announced cell reselection)	IOP001-01 7. 2. 3	P
TTR001-01 10. 2. 2	Announced Cell Re-selection Type without Preferred Neighbour Selected - Pre-emption during Group call restoration, Transmitting (Announced cell reselection)	IOP001-01 7. 2. 5	F1
TTR001-01 10. 2. 2	Announced cell re-selection Type without Preferred Neighbour Selected Individual call restoration, Transmitting party (Announced type 3)	IOP001-01 7. 3. 1. 1	P
TTR001-01 10. 2. 2	Announced Cell Re-selection Type without Preferred Neighbour Selected - Individual call restoration, Receiving (Announced cell reselection)	IOP001-01 7. 3. 2. 1	No
TTR001-01 10. 2. 2	Announced Cell Re-selection Type without Preferred Neighbour Selected - Individual call restoration, Communication inactivity (Announced cell reselection)	IOP001-01 7. 3. 3. 1	No
TTR001-01 10. 2. 2	Announced Cell Re-selection Type without Preferred Neighbour Selected - Queuing during Individual call restoration, Transmitting	IOP001-01 7. 3. 4. 1	P
TTR001-01 10. 2. 2	Announced Cell Re-selection Type without Preferred Neighbour Selected - Queuing during Individual call restoration, Receiving (Announced cell reselection)	IOP001-01 7. 3. 4. 2	No
TTR001-01 10. 2. 2	Announced Cell Re-selection Type without Preferred Neighbour Selected - Queuing during Individual call restoration, Communication inactivity (Announced cell reselection)	IOP001-01 7. 3. 5. 1	No
TTR001-01 10. 2. 2	Announced Cell Re-selection Type without Preferred Neighbour Selected - Duplex call restoration (Announced cell reselection)	IOP001-01 7. 4. 1	P
TTR001-01 10. 2. 2	Announced Cell Re-selection Type without Preferred Neighbour Selected - Queuing during Duplex call restoration (Announced cell reselection)	IOP001-01 7. 4. 2	P
TTR001-01 10. 2. 3	Announced Cell Re-selection Type with Preferred Neighbour Selected - Group call, Announced cell reselection with Preferred Neighbour Selected and with Call Restoration, Transmitting	IOP001-01 7. 2. 7	N/A
TTR001-01 10. 2. 3	Announced Cell Re-selection Type with Preferred Neighbour Selected - Individual call, Announced cell reselection with Preferred Neighbour Selected and with Call Restoration, Transmitting	IOP001-01 7. 3. 6	N/A



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TTR001-01 10. 3	<b>Cell Re-selection without Call Restoration (Seamless Handover)</b>	IOP001-01	
TTR001-01 10. 3. 1	<b>Announced Type with Preferred Neighbour Selected and without Forward Registration</b> - Group call, Announced cell reselection without Call Restoration (Seamless Handover), without Forward Registration, Transmitting	IOP001-01 7. 2. 6	N/A
TTR001-01 10. 3. 1	<b>Announced Type with Preferred Neighbour Selected and without Forward Registration</b> - Duplex call, Announced cell reselection without Call Restoration (Seamless Handover), without Forward Registration	IOP001-01 7. 4. 3	N/A
TTR001-01 10. 3. 2	<b>Announced Type with Preferred Neighbour Selected and with Forward Registration</b> - Group call, Announced cell reselection without Call Restoration (Seamless Handover), with Forward Registration, Transmitting	IOP001-01 7. 2. 8	N/A
TTR001-01 10. 3. 2	<b>Announced Type with Preferred Neighbour Selected and with Forward Registration</b> - Individual call, Announced cell reselection without Call Restoration (Seamless Handover), with Forward Registration, Transmitting	IOP001-01 7. 3. 7	N/A
TTR001-01 11	<b>Short data service</b>	IOP001-01	
TTR001-01 11	<b>Short data service</b> - Individually addressed Status transfer in BS Fallback mode of operation	IOP001-01 13. 4. 5	No
TTR001-01 11. 1	<b>Status messages</b>	IOP001-01	
TTR001-01 11. 1. 1	<b>Service Overview</b> - MS ISDN addressed individual Status message	IOP001-01 9. 3	N/A
TTR001-01 11. 1. 1	<b>Service Overview</b> - MS ISDN addressed group Status message	IOP001-01 9. 4	N/A
TTR001-01 11. 1. 3. 1	<b>MS to Wireline Dispatcher with Status Acknowledge</b> - Status transfer to Dispatcher	IOP001-01 5. 1. 2. 2	P
TTR001-01 11. 1. 3. 2	<b>MS to MS/Group with General Status Acknowledge</b> - Individual addressed Status transfer	IOP001-01 5. 1. 1	P
TTR001-01 11. 1. 3. 2	<b>MS to MS/Group with General Status Acknowledge</b> - Status transfer to group	IOP001-01 5. 1. 2. 1	P
TTR001-01 11. 1. 3. 2	<b>MS to MS/Group with General Status Acknowledge</b> - Status to scanned group	IOP001-01 5. 1. 2. 3	N/A
TTR001-01 11. 1. 3. 2	<b>MS to MS/Group with General Status Acknowledge</b> - MS ISDN addressed individual Status message	IOP001-01 9. 3	N/A
TTR001-01 11. 1. 3. 2	<b>MS to MS/Group with General Status Acknowledge</b> - MS ISDN addressed group Status message	IOP001-01 9. 4	N/A
TTR001-01 12	<b>Telephone call</b>	IOP001-01	
TTR001-01 12. 1	<b>Gateway Addresses</b>	IOP001-01	
TTR001-01 12. 1	<b>Gateway Addresses</b> - TETRA originated call setup to PSTN subscriber	IOP001-01 8. 1	P
TTR001-01 12. 2	<b>Call Set-up</b>	IOP001-01	
TTR001-01 12. 2. 1	<b>MS Originated, Late Through-Connect</b> - TETRA originated call setup to PSTN subscriber	IOP001-01 8. 1	P
TTR001-01 12. 2. 2	<b>MS Originated, Early Through-Connect</b> - TETRA originated call setup to PSTN subscriber	IOP001-01 8. 1	-
TTR001-01 12. 2. 3	<b>MS Originated, Call Queued</b> - TETRA originated call setup queuing to PSTN subscriber (call setup to PSTN is started before resources are available)	IOP001-01 8. 2. 1	P
TTR001-01 12. 2. 3	<b>MS Originated, Call Queued</b> - TETRA originated call setup queuing to PSTN subscriber (call setup to PSTN is delayed until resources are available)	IOP001-01 8. 2. 2	N/A
TTR001-01 12. 2. 4	<b>MS Terminated</b> - PSTN originated call	IOP001-01 8. 3	P



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TTR001-01 12. 4	<b>DTMF Over-dial</b>	IOP001-01	
TTR001-01 12. 4	<b>DTMF Over-dial</b> - TETRA originated successful DTMF over dial	IOP001-01 8. 4	No
TTR001-01 12. 4	<b>DTMF Over-dial</b> - TETRA originated unsuccessful DTMF over dial	IOP001-01 8. 5	N/A
TTR001-01 12. 5	<b>Disconnect Causes</b>	IOP001-01	
TTR001-01 12. 5	<b>Disconnect Causes</b> - TETRA originated call setup to PSTN subscriber	IOP001-01 8. 1	P
TTR001-01 12. 5	<b>Disconnect Causes</b> - TETRA originated call setup queuing to PSTN subscriber (call setup to PSTN is started before resources are available)	IOP001-01 8. 2. 1	P
TTR001-01 12. 5	<b>Disconnect Causes</b> - TETRA originated call setup queuing to PSTN subscriber (call setup to PSTN is delayed until resources are available)	IOP001-01 8. 2. 2	N/A
TTR001-01 12. 5	<b>Disconnect Causes</b> - PSTN originated call	IOP001-01 8. 3	P
TTR001-01 12. 6	<b>Emergency telephone call</b>	IOP001-01	
TTR001-01 12. 6	<b>Emergency telephone call</b> - Emergency call to emergency number	IOP001-01 6. 3. 1	N/A
TTR001-01 13	<b>BS Fallback Operation</b>	IOP001-01	
TTR001-01 13	<b>BS Fallback Operation.</b> - Group call in BS Fallback mode of operation	IOP001-01 13. 4. 1	No
TTR001-01 13	<b>BS Fallback Operation</b> - Emergency Group call in BS Fallback mode of operation	IOP001-01 13. 4. 2	No
TTR001-01 13	<b>BS Fallback Operation.</b> - Individual call in BS Fallback mode of operation	IOP001-01 13. 4. 3	No
TTR001-01 13	<b>BS Fallback Operation.</b> - Emergency Individual call in BS Fallback mode of operation	IOP001-01 13. 4. 4	N/A
TTR001-01 13	<b>BS Fallback Operation</b> - Individually addressed Status transfer in BS Fallback mode of operation	IOP001-01 13. 4. 5	No
TTR001-01 13	<b>BS Fallback Operation</b> - SDS transfer to individual in BS Fallback mode of operation	IOP001-01 13. 4. 6	No
TTR001-01 13	<b>BS Fallback Operation</b> - TETRA Packet Mode service in BS Fallback mode of operation	IOP001-01 13. 4. 7	No
TTR001-01 13. 1	<b>Start of fallback</b>	IOP001-01	
TTR001-01 13. 1	<b>Start of fallback</b> - MS registration to BS operating in Normal mode when serving cell goes into Fallback mode, not offering any services	IOP001-01 13. 2. 1	N/A
TTR001-01 13. 1	<b>Start of fallback</b> - MS registration to BS operating in Normal mode when serving cell goes into Fallback mode, offering some services	IOP001-01 13. 2. 2	No
TTR001-01 13. 2	<b>Informing MS of Neighbour BS Capabilities</b>	IOP001-01	
TTR001-01 13. 2. 2	<b>Neighbour cell operating in fallback mode:</b> - MS registration to BS operating in Normal mode when serving cell goes into Fallback mode, not offering any services	IOP001-01 13. 2. 1	N/A
TTR001-01 13. 2. 2	<b>Neighbour cell operating in fallback mode</b> - MS registration to BS operating in Normal mode when serving cell goes into Fallback mode, offering some services	IOP001-01 13. 2. 2	No
TTR001-01 13. 3	<b>Informing MS of Current BS Capabilities</b>	IOP001-01	
TTR001-01 13. 3. 1	<b>Serving cell NOT operating in fallback mode</b> - Temporary registration on BS in Fallback mode of operation, and re registration when BS returns to Normal mode	IOP001-01 13. 1. 2	N/A
TTR001-01 13. 3. 1	<b>Serving cell NOT operating in fallback mode:</b> - Registration on BS in Fallback mode of operation, without need for re registration when BS returns to Normal mode	IOP001-01 13. 1. 3	No
TTR001-01 13. 3. 2	<b>Serving cell operating in fallback mode</b> - BS switches from Normal mode to Fallback mode of operation	IOP001-01 13. 1. 1	No



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TTR001-01 13. 3. 2	<b>Serving cell operating in fallback mode:</b> - MS registration to BS operating in Normal mode when serving cell goes into Fallback mode, not offering any services	IOP001-01 13. 2. 1	N/A
TTR001-01 13. 3. 2	<b>Serving cell operating in fallback mode</b> - MS registration to BS operating in Normal mode when serving cell goes into Fallback mode, offering some services	IOP001-01 13. 2. 2	No
TTR001-01 13. 3. 2	<b>Serving cell operating in fallback mode</b> - MS registration to BS offering some services in Fallback mode when serving cell goes into Fallback mode, not offering any services	IOP001-01 13. 2. 3	N/A
TTR001-01 13. 3. 2	<b>Serving cell operating in fallback mode:</b> - MS registration to BS offering the best services when serving cell goes into Fallback mode, not offering any services	IOP001-01 13. 2. 4	N/A
TTR001-01 13. 3. 2	<b>Serving cell operating in fallback mode</b> - Unsupported service in BS Fallback mode of operation	IOP001-01 13. 4. 8	No
TTR001-01 13. 3. 2	<b>Serving cell operating in fallback mode</b> - Group call late entry in BS fallback mode of operation.	IOP001-01 13. 4. 9	No
TTR001-01 13. 3. 2. 1	<b>BS not offering any services</b> - MS registration to BS operating in Normal mode when serving cell goes into Fallback mode, not offering any services	IOP001-01 13. 2. 1	N/A
TTR001-01 13. 3. 2. 1	<b>BS not offering any services</b> - MS registration to BS offering some services in Fallback mode when serving cell goes into Fallback mode, not offering any services	IOP001-01 13. 2. 3	N/A
TTR001-01 13. 3. 2. 1	<b>BS not offering any services</b> - MS registration to BS offering the best services when serving cell goes into Fallback mode, not offering any services	IOP001-01 13. 2. 4	N/A
TTR001-01 13. 4	<b>Method of Service Operation in Fallback BS:</b>	IOP001-01	
TTR001-01 13. 4	<b>Method of Service Operation in Fallback BS:</b> - Group call in BS Fallback mode of operation	IOP001-01 13. 4. 1	No
TTR001-01 13. 4	<b>Method of Service Operation in Fallback BS</b> - Emergency Group call in BS Fallback mode of operation	IOP001-01 13. 4. 2	No
TTR001-01 13. 4	<b>Method of Service Operation in Fallback BS</b> - Individual call in BS Fallback mode of operation	IOP001-01 13. 4. 3	No
TTR001-01 13. 4	<b>Method of Service Operation in Fallback BS</b> - Emergency Individual call in BS Fallback mode of operation	IOP001-01 13. 4. 4	N/A
TTR001-01 13. 4	<b>Method of Service Operation in Fallback BS</b> - Individually addressed Status transfer in BS Fallback mode of operation	IOP001-01 13. 4. 5	No
TTR001-01 13. 4	<b>Method of Service Operation in Fallback BS:</b> - SDS transfer to individual in BS Fallback mode of operation	IOP001-01 13. 4. 6	No
TTR001-01 13. 4	<b>Method of Service Operation in Fallback BS:</b> - TETRA Packet Mode service in BS Fallback mode of operation	IOP001-01 13. 4. 7	No
TTR001-01 13. 4	<b>Method of Service Operation in Fallback BS</b> - Unsupported service in BS Fallback mode of operation	IOP001-01 13. 4. 8	No
TTR001-01 13. 4	<b>Method of Service Operation in Fallback BS</b> - Group call late entry in BS fallback mode of operation.	IOP001-01 13. 4. 9	No
TTR001-01 13. 5	<b>Terminals during fallback mode</b>	IOP001-01	
TTR001-01 13. 5	<b>Terminals during fallback mode</b> - BS switches from Normal mode to Fallback mode of operation	IOP001-01 13. 1. 1	No
TTR001-01 13. 5	<b>Terminals during fallback mode</b> - Temporary registration on BS in Fallback mode of operation, and re registration when BS returns to Normal mode	IOP001-01 13. 1. 2	N/A
TTR001-01 13. 5	<b>Terminals during fallback mode</b> - Registration on BS in Fallback mode of operation, without need for re registration when BS returns to Normal mode	IOP001-01 13. 1. 3	No
TTR001-01 13. 5	<b>Terminals during fallback mode</b> - MS registration to BS operating in Normal mode when serving cell goes into Fallback mode, not offering any services	IOP001-01 13. 2. 1	N/A



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TTR001-01 13. 5	<b>Terminals during fallback mode</b> - MS registration to BS operating in Normal mode when serving cell goes into Fallback mode, offering some services	IOP001-01 13. 2. 2	No
TTR001-01 13. 5	<b>Terminals during fallback mode</b> - MS registration to BS offering some services in Fallback mode when serving cell goes into Fallback mode, not offering any services	IOP001-01 13. 2. 3	N/A
TTR001-01 13. 5	<b>Terminals during fallback mode</b> - MS registration to BS offering the best services when serving cell goes into Fallback mode, not offering any services	IOP001-01 13. 2. 4	N/A
TTR001-01 13. 5	<b>Terminals during fallback mode</b> - MS camped on cell operating in Normal mode avoids roaming to BS operating in Fallback mode, offering some services	IOP001-01 13. 3. 1	No
TTR001-01 13. 5	<b>Terminals during fallback mode</b> - MS camped on cell operating in Normal mode does not attempt roaming to BS operating in Fallback mode, not offering any services	IOP001-01 13. 3. 2	N/A
TTR001-01 13. 5	<b>Terminals during fallback mode</b> - Unsupported service in BS Fallback mode of operation	IOP001-01 13. 4. 8	No
TTR001-01 13. 5	<b>Terminals during fallback mode</b> - Group call late entry in BS fallback mode of operation.	IOP001-01 13. 4. 9	No
TTR001-01 14	<b>Layer 2 operation</b>	IOP001-01	
TTR001-01 14. 1	<b>MAC-Layer</b>	IOP001-01	
TTR001-01 14. 1. 1. 2	<b>Traffic channel (TCH)</b> - Usage of uplink SACCH during group call	IOP001-01 10. 2	No
TTR001-01 14. 1. 1. 2	<b>Traffic channel (TCH)</b> - Usage of uplink SACCH during individual call	IOP001-01 10. 4	No
TTR001-01 14. 1. 1. 2	<b>Traffic channel (TCH)</b> - Usage of downlink SACCH, receiving group call	IOP001-01 10. 6	No
TTR001-01 14. 1. 1. 2	<b>Traffic channel (TCH)</b> - Usage of downlink SACCH, receiving individual call	IOP001-01 10. 8	No
TTR001-01 14. 1. 1. 3	<b>Fast Associated Control Channel (FACCH)</b> - Usage of downlink FACCH, group call inactivity	IOP001-01 10. 5	No
TTR001-01 14. 1. 1. 4	<b>Uplink FACCH and downlink TCH</b> - Usage of uplink FACCH during group call	IOP001-01 10. 1	No
TTR001-01 14. 1. 1. 4	<b>Uplink FACCH and downlink TCH</b> - Usage of uplink FACCH during individual call	IOP001-01 10. 3	No
TTR001-01 14. 1. 1. 5	<b>Downlink FACCH and uplink TCH</b> - Usage of downlink FACCH, transmitting individual call	IOP001-01 10. 7	No
TTR001-01 14. 1.10	<b>Common Secondary Control Channels (Common SCCH) [Extended Mode.]</b> - SwMI supporting one C SCCH	IOP001-01 12. 1	N/A
TTR001-01 14. 1.10	<b>Common Secondary Control Channels (Common SCCH) [Extended Mode.]</b> - MS allocation altering at a Registration	IOP001-01 12. 2	N/A
TTR001-01 14. 1.10	<b>Common Secondary Control Channels (Common SCCH) [Extended Mode.]</b> - SwMI supporting two C SCCHs	IOP001-01 12. 3	N/A
TTR001-01 14. 1.10	<b>Common Secondary Control Channels (Common SCCH) [Extended Mode.]</b> - SwMI supporting three C SCCHs	IOP001-01 12. 4	N/A
TTR001-01 14. 1.10	<b>Common Secondary Control Channels (Common SCCH) [Extended Mode.]</b> - MS Roams from a cell supporting two C SCCHs to a cell supporting three C SCCHs	IOP001-01 12. 5	N/A
TTR001-01 14. 1.10	<b>Common Secondary Control Channels (Common SCCH) [Extended Mode.]</b> - MS Roams from a cell supporting one C SCCH to a cell supporting two C SCCHs	IOP001-01 12. 6	N/A
TTR001-01 14. 1.10	<b>Common Secondary Control Channels (Common SCCH) [Extended Mode.]</b> - MS Roams from a cell supporting no C SCCHs to a cell supporting one C SCCH	IOP001-01 12. 7	N/A



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TTR001-02	<b>SDS</b>	IOP001-02	
TTR001-02 6	<b>Service Overview</b>	IOP001-02	
TTR001-02 6.1	<b>Addressing</b> MS-ISDN addressed individual SDS-TL message with MS-ISDN as CPI	IOP001-02 1.4.4	N/A
TTR001-02 6.1	<b>Addressing</b> Group addressed SDS-TL message with MS-ISDN as CPI	IOP001-02 1.4.5	N/A
TTR001-02 7	<b>User defined data Type 1, 2 and 3</b>	IOP001-02	
TTR001-02 7	<b>User defined data Type 1, 2 and 3</b> Individual addressed SDS Type 1 transfer.	IOP001-02 1.1.1	P
TTR001-02 7	<b>User defined data Type 1, 2 and 3</b> Individual addressed SDS Type 2 transfer.	IOP001-02 1.2.1	P
TTR001-02 7	<b>User defined data Type 1, 2 and 3</b> Individual addressed SDS Type 3 transfer	IOP001-02 1.3.1	P
TTR001-02 8	<b>User defined data Type 4</b>	IOP001-02	
TTR001-02 8.1	<b>User defined data Type 4</b> SDS-TL message to scanned group (without acknowledgement).	IOP001-02 1.4.3	N/A
TTR001-02 8.1.2	<b>MS to MS, Standard Report</b> Individual addressed text messaging using SDS-TL, (with acknowledgement).	IOP001-02 1.4.1	P
TTR001-02 8.1.2	<b>MS to MS, Standard Report</b> Group addressed text messaging using SDS-TL, (without acknowledgement).	IOP001-02 1.4.2	P
TTR001-02 8.1.2	<b>MS to MS, Standard Report</b> MS-ISDN addressed individual SDS-TL message with MS-ISDN as CPI	IOP001-02 1.4.4	N/A
TTR001-02 8.1.2	<b>MS to MS, Standard Report</b> Group addressed SDS-TL message with MS-ISDN as CPI	IOP001-02 1.4.5	N/A
TTR001-02 8.1.3	<b>MS to MS, Short Report</b> Individual addressed text messaging using SDS-TL, (with acknowledgement).	IOP001-02 1.4.1	P
TTR001-02 8.1.3	<b>MS to MS, Short report</b> MS-ISDN addressed individual SDS-TL message with MS-ISDN as CPI	IOP001-02 1.4.4	N/A
TTR001-02 8.2	<b>Text messaging</b>	IOP001-02	
TTR001-02 8.2.1.3	<b>Data Coding Scheme</b> MS-ISDN addressed individual SDS-TL message with MS-ISDN as CPI	IOP001-02 1.4.4	N/A
TTR001-02 8.2.1.3	<b>Data Coding Scheme</b> Group addressed SDS-TL message with MS-ISDN as CPI	IOP001-02 1.4.5	N/A
TTR001-02 8.2.1.4	<b>PDU contents</b> Group addressed text messaging using SDS-TL, (without acknowledgement).	IOP001-02 1.4.2	P
TTR001-02 8.2.1.4	<b>PDU contents</b> SDS-TL message to scanned group (without acknowledgement).	IOP001-02 1.4.3	N/A
TTR001-02 8.2.1.4	<b>PDU Contents</b> MS-ISDN addressed individual SDS-TL message with MS-ISDN as CPI	IOP001-02 1.4.4	N/A
TTR001-02 8.2.1.4	<b>PDU Contents</b> Group addressed SDS-TL message with MS-ISDN as CPI	IOP001-02 1.4.5	N/A

#### Comments:

##### General Notes

**Note 1** During individual call, the SwMI acknowledges each repetition of the same U-TX CEASED PDU sent by the MS using Stealing repeats. Therefore SwMI replies sending a block of BL-ACK plus three D-TX CEASED, for each U-TX CEASED it has received from the MS.

**Note 2** TTR001-02 SDS: The SwMI sends an extra General Status Acknowledgement D-STATUS PDU to MS.

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**F1** MS A does not roam to cell 2.