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**3RD GENERATION  
PARTNERSHIP  
PROJECT 2  
"3GPP2"**

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## ***User Identity Module (Stage 1)***

***Revision: 0***

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## Revision History

<b>Revision</b>		<b>Date</b>
Rev. 0	Initial Publication	December 1999

### **Note**

This specification is extracted from TIA TR45.2 PN-4582 Rev. 6, December 1999.

# 1 Contents

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2	Contents.....	3
3	1 Scope .....	4
4	2 Abbreviations.....	4
5	3 Definitions .....	4
6	4 Assumptions.....	5
7	5 General Background.....	5
8	5.1 Users' Key Capabilities.....	5
9	5.2 ME Key Capability.....	6
10	6 Incorporating UIM in Telecommunication wireless networks operations.....	6
11	6.1 Normal Procedures With Successful Outcome .....	6
12	6.1.1 Authorization .....	6
13	6.1.2 De-authorization .....	6
14	6.1.3 Registration.....	6
15	6.1.4 De-registration .....	6
16	6.1.5 Activation .....	6
17	6.1.6 De-Activation .....	6
18	6.1.7 Invocation.....	7
19	6.2 Normal Operation with Successful Outcome.....	7
20	6.2.1 Potential UIM Capabilities which may be supported. ....	7
21	6.3 Exception Procedures for Unsuccessful Outcome .....	7
22		

# 1 Scope

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2 This specification defines the enhancements required for the support of mobile stations equipped  
3 with User Identification Modules (UIM.) The UIM provides functionality to certain types of  
4 mobile stations to enable them to operate in the wireless network.

5 This document defines requirements for the wireless network to support operation of UIM  
6 equipped mobile stations. A UIM provides compatible mobile stations with the parameters  
7 required of mobile stations operating in the TIA/EIA-41 environment and specific additional  
8 functionality unique to UIM-equipped mobile stations.

9 The UIM can be in one of two forms, as either integrated within the mobile or removable that can  
10 be inserted or removed from the mobile equipment. This document address Removable UIM (R-  
11 UIM) only.

# 2 Abbreviations

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13 For the purpose of this document, the following abbreviations apply:

14		
	AMPS	Advance Mobile Phone System
	CDMA	Code Division multiple Access
	EIA	Electronic Industry Association
	ME	Mobile Equipment
	OTAPA	Over-The-Air Parameter Administrations
	OTASP	Over-The-Air Service Provisioning
	R-UIM	Removable UIM
	TDMA	Time Division Multiple Access
	TIA	Telephone Industry Association

# 3 Definitions

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## 16 Mobile Equipment (ME)

17 An R-UIM capable mobile station without an R-UIM inserted-

## 18 Mobile Station (MS)

19 Together, the R-UIM and the ME, is referred to as the R-UIM capable MS which is used to  
20 register and gain access to wireless networks.

## 21 Removable User Identity Module (R-UIM)

22 The R-UIM can be physically removed from one ME and inserted into another as long as both  
23 have compatible ME-UIM interfaces. UIM is the entity that stores and manages the identity of

1 the subscriber and subscription related data.

## 2 **Subscription Data**

3 Data that is unique for each subscriber relating to the subscribed services (e.g. MDN, language  
4 preference) and can be updated using provisioning procedures.

# 5 **4 Assumptions**

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6 The following items are basic understandings used during the development of this document:

- 7 a) In mobile stations supporting a UIM, the ESN remains Mobile Station based.
- 8 b) No upgrades are needed to Serving System functionality to provide support for UIM-capable  
9 roamers. In particular, no air interface, A- interface, or serving system intersystem signaling  
10 enhancements are to be needed.

# 11 **5 General Background**

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12 The R-UIM is an entity that stores and manages the identity of the subscriber and their personal  
13 network and subscription related data.

14 The network service provider can update the data stored in the R-UIM. This data may be  
15 updated via Over-The-Air Service provisioning (OTASP) and Parameter Administration  
16 (OTAPA) techniques or via external programming devices.

17 UIMs may be supported on non-TIA/EIA-41 mobile stations and thus permit a TIA/EIA-41  
18 subscriber to access service on a non-TIA/EIA-41 network if compatible interfaces exist.

## 19 **5.1 Users' Key Capabilities**

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20 A R-UIM equipped mobile has the same capabilities as other mobiles phone. Additionally, a R-  
21 UIM must support the following key capabilities. Subscribers using an MS with R-UIM may be  
22 offered all or some of the following services and capabilities based on the service offerings of the  
23 network service provider:

- 24 a) Store number assignment module (NAM) and other needed parameters for the operation of  
25 AMPS, CDMA, TDMA and/or GSM air-interfaces.
- 26 b) An R-UIM Subscription Data may be activated or updateable via Over-The-Air Service  
27 Provisioning (OTASP) and Over-The-Air Parameters Administration (OTAPA).  
28 Subscription data for the R-UIM may also be updated via MS keypad.
- 29 c) Storage and execution of authentication algorithm(s) for execution of authentication or  
30 generation of privacy keys as instructed by the MS.
- 31 d) Offer to the user a mechanism of protecting unauthorized usage of the R-UIM via  
32 verification PIN.
- 33 e) Service access using one R-UIM with multiple MEs if compatible ME-UIM interfaces exist.

- 1 f) A list of DN's will be built on the R-UIM; the list shall be accessible with all ME which the  
2 R-UIM is used. This permits, origination of calls using speed dialing from the stored DN's  
3 on the R-UIM.
- 4 g) Selection of optional languages and character sets from the handset keypad, if the ME  
5 supports multiple languages and character sets.

## 6 5.2 ME Key Capability

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7 The User shall have access to emergency services from the ME when a R-UIM is not inserted.

# 8 6 Incorporating UIM in Telecommunication 9 wireless networks operations

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## 10 6.1 Normal Procedures With Successful Outcome

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11 A wireless subscriber should be able to register, authenticate, and access network services using  
12 one R-UIM with multiple compatible MEs.

### 13 6.1.1 Authorization

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14 The subscriber's home network service provider or network operator is responsible for providing  
15 the subscriber with a R-UIM and a compatible ME.

### 16 6.1.2 De-authorization

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17 The network service provider may withdraw at the subscriber's request or for administrative  
18 reasons this service.

### 19 6.1.3 Registration

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20 Registration occurs upon authorization.

### 21 6.1.4 De-registration

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22 De-registration occurs upon de-authorization.

### 23 6.1.5 Activation

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24 The R-UIM shall be activated upon authorization.

### 25 6.1.6 De-Activation

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26 The R-UIM shall be de-activated upon de-authorization.

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**6.1.7 Invocation**

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The R-UIM service is invoked when the R-UIM is inserted into compatible mobile equipment and the mobile equipment is activated in a compatible system.

**6.2 Normal Operation with Successful Outcome**

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The R-UIM must first be inserted into the ME. On power-up, the UIM should be activated after initialization with the ME. If the MS is in a compatible network, the MS can then proceed with the normal registration and authentication processes required by the serving network, i.e. using different registration processes and different authentication algorithms.

**6.2.1 Potential UIM Capabilities which may be supported.**

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**Upgradability** - Allow upgrade from existing mobile station to new mobile station without having to re-activate subscription

**Trial new handset** - Allow subscriber to trial potential new mobile stations at point of sale (e.g., network service provider store or reseller location.)

**Exchangeability** - Allow an R-UIM to use multiple mobile equipment.

**Roaming Capability:**

- Within the same air-interface (e.g. roam to another network with same air-interface but different frequency than the user’s home network.)
- Cross different air interface in the same network - e.g., CDMA to AMPS
- Cross different air-interfaces and networks -e.g., roam into a GSM network

**Use one mobile station for different R-UIMs** - Allow R-UIMs having different subscription to use the same mobile equipment.

**Use multiple mobile equipment with one R-UIM** - Allow subscribers to change mobile equipment as desired with one R-UIM.

**6.3 Exception Procedures for Unsuccessful Outcome**

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The user request for additional applications may be denied if no memory is available on the R-UIM.