3GPP TSG-T (Terminals) Meeting #19
Birmingham, UK
12 - 14 March, 2003

Tdoc TP-030007

EP Smart Card Platform Meeting #12 **Tdoc SCP-030066**
Sophia Antipolis, France, 15-17 January 2003.

Title:	Third Form Factor work status and request for additional requirements
Response to:	GSMA SCaG Doc 083/02_rev1 SA1 S1-022248
Release:	
Work Item:	EP SCP Third Form Factor
Source:	EP SCP
To:	GSMA SCaG, 3GPP TSG SA1
Cc:	GSMA, 3GPP TSG SA, 3GPP TSG T, 3GPP TSG T3, 3GPP2 TSG C

Contact Person:
Name: Nigel Barnes
Tel. Number: +44 1256 790 169
E-mail Address: Nigel.Barnes@motorola.com

Attachments: **Above referenced LSs**

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1. Overall Description:

SCP would like to thank GSMA SCaG and 3GPP SA1 for their replies, and inform them about the status of its considerations regarding a third form factor for the UICC.

Currently SCP has under discussion a number of proposals for the third form factor that represent a reduction in size between 40% and 82%. The 82% reduction is achieved through the re-mapping of the electrical contacts.

First, we believe we have uniform consensus within SCP and, based on their liaison statements, between SCP and GSMA SCaG and SA1 on the following points:

a. The new form factor will be smaller than the current "plug-in" form factor
b. The UICC having the new form factor is as secure as the UICC having the current form factor
c. The new form factor is as removable as the current form factor
d. There will be complete backward compatibility of UICC electrical and logical characteristics as specified in TS 102 221
e. The new form factor will include an indication of orientation for proper use
f. The functionality realized by the UICC on today's form factor will be possible on the UICC on the new form factor
g. The new form factor will include the possibility for visual indication of the ICCID and branding.
h. The third form factor will at least accept the chips of the same size that today's form factors accept
i. Every effort will be made to have a technical specification for the third form factor ready by SCP #14 (September 2003).

SCP believes that the Third Form Factor WI and the UICCng WI should remain independent and on the time lines given in their respective work item descriptions. The Third Form Factor WI is intended to deliver CRs to the specifications in September 2003. On the other hand, UICCng WI has a three to five year time horizon and is chartered to consider wholly new architectures for the UICC.
SCP would appreciate some guidance from GSMA SCaG and SA1 on the following points:

a. GSMA SCaG mentions "new components". SCP has taken the notion of "new components" to be the possibility of larger chips. Does GSMA SCaG have in mind something else?
b. GSMA SCaG also mentions a "rigid holder" in association with "new components". Is this for holding the new components or the third form factor UICC or something else entirely?

c. GSMA SCaG and SA1 mention the backward compatibility. Does this cover the contacts layout – is it required to keep the physical contacts as they are today? What about other issues - card thickness, etc.?
d. GSMA SCaG mentions the development of an adapter. Does that stand for holder (for personalisation and logistics) or adapter for legacy terminals? Be advised that (as it was the case for plug-in) SCP does not intend to specify any adapter, but SCP would consider any additional requirements on the third form factor such an adapter might have.
e. The suggestions for combining the Third Form Factor WI and the UICCng WI indicate that the need for a third form factor in the near-term is not universally felt. Would GSMA SCaG and SA1 please indicate their preferred schedule for the third form factor?
f. Concerns were expressed regarding the space available for the display of the ICCID and branding information on the UICC. SCP's only guidance here is GSM 02.17 and its mention that ICCID display "should" be possible. There is currently no 3GPP requirement. Are there any requirements from SA1 or GSMA SCaG in this area?
g. Should there be a physical mechanism to prevent incorrect insertion (as there is today on the Plug-in card) or is an optical orientation feature for this purpose sufficient?
h. SA1 mentions "smooth migration". Could GSMA SCaG and SA1 provide examples of what would and what would not be regarded as a "smooth migration", particularly in the area of logistics?

SCP would also appreciate some guidance regarding priority between the following requirements:

- backward compatibility (mechanical, e.g. contact layout)
- timeframe
- size reduction

2. Actions:

To: GSMA SCaG and 3GPP SA1

1. **ACTION:** EP SCP ask that explicit guidance be provided by SA1 and GSMA SCaG with respect to the above issues.

3. Date of Next EP SCP /WGx Meetings:

EP SCP WG1 Meeting #6	25 - 27 March 2003	Sophia Antipolis, France
EP SCP Meeting #13	6 - 8 May 2003	Madrid, Spain

GSM Association **Restricted - Confidential Information**

Meeting Number **SCAG#23** **SCAG Doc 083/02_rev1**
Meeting Date **2nd/4th Dec 2002**
Meeting Location **Paris**

Title Liaison to SCP on 3rd UICC card size
Source SCAG
Date 3rd December 2002

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Restricted – Members		
Restricted – Associates Members		

Information Category	

Summary: Liaison to SCP, 3GPP T3 on 3rd size factor UICC

GSM Association **Restricted - Confidential Information**

SCaG Meeting #23 **SC083_02 rev1**
Paris, France, 2-4 December 2002

Title: **UICC Third Form Factor**
Response to: **SCP-020260**

Source: GSMA SCaG
To: EP SCP, SCP WG1
Cc: 3GPP T3

Contact Person: S. Cozzolino
Tel. Number: +39 06 39004355

E-mail Address: **scozzolino@mail.tim.it**

GSMA SCaG thanks EP SCP for keeping it informed about the new WID development, especially the one about "3rd Form Factor".

GSMA SCaG understands the possible benefits for a smaller UICC format in order to address the new devices expected on the 3G market. However, SCaG would like to underline the importance of the following requirements for the UICC:

- Portability: the UICC size shall remain inline with the requirement of portability, i.e. an user shall be able to remove easily the UICC from the terminal without a specific tool.

- Backward compatibility of the contacts position with the ISO standards that allows
  - To minimise the re-design of the UICC and offer backward compatibility with existing module
  - The development of an adaptor

- The analysis before the specification work should also take into account:
  - The evolution to new components that would require a more rigid holder
  - The increase of interface speed (UICC-ME)
  - The holder for the logistics
  - The possibility for graphic and ICCID personalisation
  - The correct orientation of the module within the terminal (a full square profile probably do not fit)

GSMA SCaG suggest the development of this work item is taken firmly within the context of the UICC NG Work item in order to evaluate all the possible improvements deriving from this activity.

EP SCP meeting #12
Sophia Antipolis, 15-17 January 2003

Tdoc SCP-030051

TSG-SA1 #18
Busan, Korea, 11 -15 November 2002

S1-022248
Agenda Item:

Title: **Proposed reply to LS: SCP Third Form Factor and UICCng Work Items**

Response to: LS S1-022003 (SCP-020260)

Source: **SA1**
To: **ETSI SCP, 3GPP T3**
Cc:

Contact Person:
Name: **Koichi HARADA**
Tel. Number: +81 468 40 3370
E-mail Address: haradakou@nttdocomo.co.jp

Attachments: S1-022191 （Requirement for a 3rd UICC physical size）

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1. Overall Description:

3GPP SA1 appreciates being informed of the ETSI Project SCP activities regarding Third Form Factor and UICCng.

SA1 believes that a UICC, is necessary as a removable and secure module enabling operators to offer differentiated services. SA1 understands the impact of the smart card on the terminals design and size. This impact becomes significant as mobile terminals become smaller and need to support many new functions and external interfaces.

From those perspectives, SA1 notes that there is a requirement to introduce a new form factor in the near future. SA1 requests that ETSI SCP consider backward compatibility with the existing UICC Form Factors and smart card terminal physical interface. So allowing for a smooth migration to Third Form Factor UICCs, in a similar way to the introduction of the Second Form Factor, called Plug-in SIM in the early 1990s.

Small devices are already utilised within mobile services (UICC and UE) and network operators will require smaller UICC implementations in the near future (i.e. within a year and a half). SA1 encourages activities regarding Third Form Factor within ETSI SCP and notes that the output of a solution by June 2003 is mentioned within the attachment to the LS received from ETSI SCP.

We also understand that another Work Item on UICCng has a different timeframe to UICC Third Form Factor. However, it would be beneficial for the two work items to be consistent. SA1 would be interested in some more information from ETSI SCP on this issue.

2. Actions:

To ETSI SCP
SA1 respectfully requests that ETSI SCP keeps SA1 informed of the progress of activities in the field of Third Form Factor and UICCng and provide feedback with regards to the two work items consistency.

To 3GPP T3

SA1 respectfully requests that **T3** update the requirement specification (TS 21.111) to allow for a new format.

3. Date of Next TSG-SA1 Meetings:

SA1 SWGs	20 -24 January 2003,	San Francisco, USA, hosted by AWS/Rogers
SA1#19	24-28 February 2003	Sophia Antipolis, hosted by ETSI

3GPP TSG-SA1 #18
Busan, Korea, 11 -15 November 2002

Tdoc S1-022191

Source: NTT DoCoMo
Title: Requirement for a 3rd UICC physical size
Document for: Discussion
Attachment:
Contact:
Name: Koichi HARADA
Tel. Number: +81 468 40 3370
Email: **haradakou@nttdocomo.co.jp**

ETSI Project SCP has begun to work on a new smaller card size specification to be used within telecom applications. This is foreseen as an important issue. As a strong supporter of the removable UICC it would be undesirable for the integration of a removable UICC within new formats of wireless terminals to be blocked due to technical difficulties.

Discussion

Since the first deployment of the mobile communication networks, mobile handsets have steadily decreased in size whilst the features supported have grown more complex and sophisticated.

The market place can be seen to require the evolution of mobile handsets in two directions:

- Smaller devices to be integrated within other devices to enable access to telecommunication networks
- Current mobile handsets integrating new features (such as browser, video, memory card, new interfaces, etc.) without impacting their size

Mobile handset functions can be integrated into very small devices using standard formats such as PC Card, Compact Flash Card, MMC/SD Card. These very small terminals may be particularly appropriate for foreseen machine-to-machine data communication where the physical requirements for a mobile handset may be very strict. For example, incorporation within a letter/small package enabling location monitoring, use as a 'plug-in' source of mobile connectivity for a digital camera/personal music player.

How could a UICC fit inside such devices?

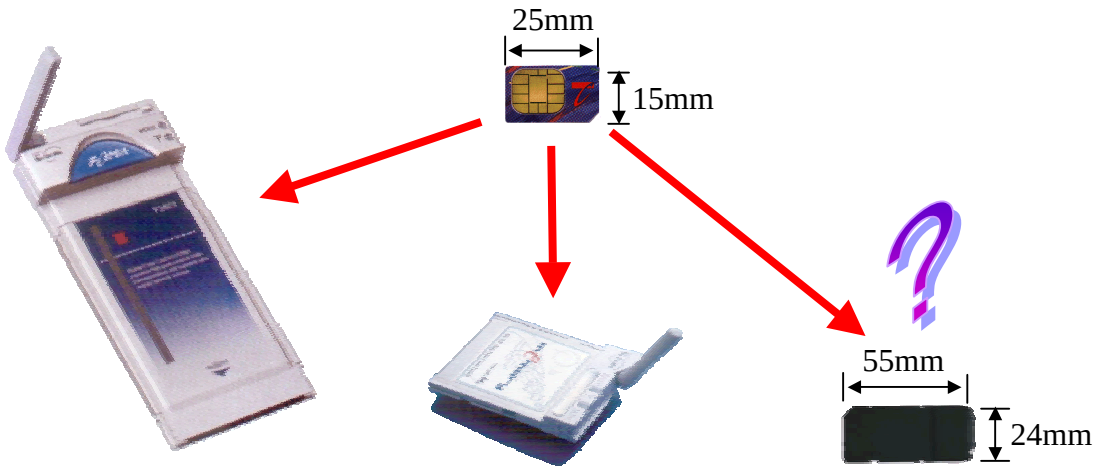

Figure 1: 3G PC Card, PHS Compact Flash and PHS SD Card

Terminals based on PC Card formats have been available within the market place for several years. Mobile Terminals to be used within other devices such as PDAs or Digital Cameras will be needed in the near future.

Obstacles to integration

There are only a few hardware modules of the mobiles for which size and physical interfaces are specified. By integrating hardware, all other modules of the mobile handset (such as DSP, RF module, T/R module and so on) can be redesigned to enable the device's size to be reduced. Therefore, it would appear that the UICC (not only UICC itself but also its adaptor) is an obstacle to module integration that would allow smaller terminals to be produced.

There are currently two standard sizes for the UICC: the ID-1 and the ID-000 (also known as plug-in card). Those formats are specified within TS 21.111. This specification for UICCs is under the control of 3GPP TSG- T WG3.

The only difference between these two cards is the plastic cutting.

Figure 2: The two current UICC formats

The other format constraint for a UICC is the eight contacts with physical and electrical characteristics. The specification is actually inherited from ISO 7810. As a note, two of the eight contacts are RFU (*Reserved for Future Use*).

Solutions

The main difference between ID-1 and Plug-in UICC is the plastic cutting. An obvious way forward would be simply to further reduce the plastic holder of the Plug-in UICC.

As mentioned above, two contacts of the UICC are *Reserved for Future Use*. If there are no plans to use these contacts, another optimisation method may be to redesign the metal part and plastic holder without the unused contacts.

Figure 3: from plug-in to smaller format

The proposals above offer two distinct advantages:

- a certain level of backward compatibility, as the used contacts are unchanged and therefore some similar adapter solutions could be considered
- As they are based on the existing specified module, the specifications can be produced quickly resulting in a reasonable time-to-market.

The introduction of a new UICC format may also incur additional implementation costs if the new and existing formats are incompatible. Hence, there is a clear need for any new format to be backward compatible with those that already exist.

The most efficient way of reducing the card size may be to define a completely new format, even changing the physical interface. However, such work has some significant impacts in terms of not only the timeframe but also the schema of UICC handling.

Conclusion

The main concern is the availability timeframe. The availability of a 3rd UICC size solution is required by the end of 2003. This is inline with the ETSI SCP schedule (Target date for approval of deliverable at SCP#14 in June 2003). Therefore, reduction of the physical size of the existing Plug-in UICC is considered as an appropriate way forward.

Consideration of the timeframe suggests that the specification work for a new UICC size needs to be started urgently.

The following actions are proposed:

- **3GPP**
  - **SA1** to give guidance to T3 and SCP regarding the requirements and timeframe.
  - **T3** to update the requirement specification (TS 21.111) to allow for a new format
- **ETSI**
  - **ETSI SCP** to receive 3GPP requirements and urgently define a UICC form factor within the specified timeframe.