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SG2-LS105
STUDY GROUP 2
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Question(s): 1/2

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Source: ITU-T Study Group 2

Title: LS on Issues to be clarified as regards revision of recommendation E.118 and GSMA Technical Specifications on EID

Purpose: Action

LIAISON STATEMENT

For action to: GSMA

For comment to: -

For information to: -

Approval: ITU-T Study Group 2 meeting, (Geneva, 28 February 2019)

Deadline: 1 July 2019

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Keywords: Issuer Identifier Number, E.118, charge card, EID, eUICC

Abstract: ITU-T SG2 has taken note of GSMA Liaison Reply on issues to be clarified as regards GSMA Technical Specifications on EIDs (Ref: GSMA - TG Doc 07_021). Discussion have continued during the present meeting as regards revision of Rec. E.118 and four contributions were discussed. The contributions present different views that arose many questions, in particular for GSMA and related Technical Specifications (SGP.02, SGP.22).

In the ITU-T Study Group 2 (SG2) meeting of July 2018, SG2 has opened Recommendation ITU-T E.118 for revision. The current draft text is contained in [SG2-TD459-R1](#) which has not been agreed yet. In the SG2 meeting of February 2019, an option to introduce a new recommendation for EID, which is different from E.118, has been proposed. There was also a proposal on a revision of Recommendation E.118 in order to make it technology neutral. Another proposal is to have separate assignment of issuer identifiers for generating ICCID and EID.

Four Contributions ([SG2-C0147](#), [SG2-C0153](#), [SG2-C0175](#), [SG2-C0190](#)) were discussed during the SG2 meeting of February 2019. The contributions present different views that arose many questions, in particular for GSMA and related Technical Specifications (GSMA document SGP.02

on “Remote Provisioning Architecture for Embedded UICC Technical Specification” and GSMA document SGP.22 on “RSP Technical Specification). An extract of [SG2-TD459-R1](#) and contributions are included in the Annex to this liaison.

SG2 would appreciate the GSMA’s views on the following issues.

We reproduce extracts from three of these contributions that underline three different approaches based upon different assumptions on which we ask for GSMA comments.

ITU-T SG2 has taken note of GSMA Liaison Reply on issues to be clarified as regards GSMA Technical Specifications on EID (Ref: GSMA - TG Doc 07_021 of 23rd February 2018).

Based upon the discussion on the Contributions above, we would appreciate GSMA comments on the following points:

- 1) **Do you agree with the idea that the padding zeros in the information technology, operation and maintenance systems do not make a different value, that is 89 39 01 has the same value also if it is encoded with padding zeros, as 89 039 001? So, if 89 39 01 is assigned to company A for generating ICCID and 89 039 001 is assigned to company B for generating EID, does that mean in reality the same value (on the basis of your document) is assigned to two different companies? If SG2 follows this idea, could that create any problem?**
- 2) **What would be the impacts and costs of overlapping of IIN with eIIN, only differentiated with padding zeros?**
- 3) **In SGP.02, paragraph “2.2.2 Identification of eUICC: EID”, describing the structure of EID, it is foreseen that “An additional three digits for issuer identifier (6th to 8th digits); If the issuer identifier is one digit long, its value shall be prefixed by two digits of 0, If the issuer identifier is two digits long, its value shall be prefixed by one digit of 0 ... The country code and issuer identifier shall be assigned as specified in ITU E.118”. In SG2-TD459-R1/GEN, this field is called eIIN and it is foreseen “*embedded Issuer Identifier Number (eIIN) has a length of 3 digits, where the last digits are the IIN [To be checked with GSMA]*”. If a separate assignment for IIN and eIIN (i.e. in the approach suggested in the contributions of Italy and China) will be realised, the eIIN will not depend on IIN (used for generating ICCID), but eIIN will have a direct assignment. Therefore, it could occurs that:
 - a. **the value 89 39 01 is assigned to an operator for generating ICCID (the unique number used to identify a Profile in an eUICC in SGP.02). In this example, the operator will not have the right for generating EID. (Note: This does not exclude, in general, that an operator can be entitled to generate EID, provided that the operator asks for numbering resources for this use).**
 - b. **the value 89 039 001 could be assigned to an eUICC Manufacturer (EUM) for generating EID. In this example, the EUM will not have the right for generating ICCID.****

Could this create any incompatibility with the procedures defined in your specifications SGP.02 and/or SGP.22? In case of any incompatibility, could you explain what this incompatibility is referring to your specification indicating the procedure(s) that could have any trouble?

- 4) **In SGP.02, it is foreseen that the value of eIIN is obtained from IIN of padding of “0”. Is there any issue in case that an IIN is constituted of 2 digits and eIIN assume also values**

with first digit different from “0”? E.g. IIN=”01” and eIIN = “101”. Could you explain possible issues in the procedures defined in your specifications when such values of eIIN are used?

- 5) Could the assignee of an EID charge for any telecommunication service? Please describe the scenario in which an EID assignee (EUM) may charge for a telecommunication service. Or the telecommunication charging can be done only by the assignee of an ICCID? Please explain the rationale why EID make reference to E.118 concerning “The international telecommunication charge card” (in particular in case an EUM cannot charge for a telecommunication service).
- 6) What could be the issues in case a separate recommendation for EID would be adopted by ITU-T.
- 7) In TG Doc 07_021, it has been written that “*A (3 digit) “shared country code” or “global service code” from the spare code range of the country codes could be assigned to GSMA for allocation to future EUMs. This would allow handling of 1000 additional companies operating as EUMs*”. If this solution would be allowed, the assignment should be done directly by TSB. In this case, it would be necessary to define assignment criteria. It seems that a possible criterion is that the applicant should have an EUM Certificate and/or it should be compliant with Security Accreditation Scheme for UICC production. Do you publish the list of subject that respect the criteria for the assignment of issuer identifier for generating EID? What could be the criteria to be adopted?
- 8) What are the assignment criteria that you suggest in case the assignment of eIIN is done by a Country? Could be the same of previous question or could be different?
- 9) In your opinion, what are the differences between EID resources obtained from shared country code and resources assigned from geographic country codes? Is there any impact on their (eUICC manufacturers) eSIM services?
- 10) Do you have any comment on the text in [SG2-TD459-R1](#)?

Annex

1. Extracts of current text of revised E.118 discussed at the SG2 meeting of July 2018

[SG2-TD459-R1](#) includes the following sections (this text has not been agreed yet).

4.1.2 ICCID [for SIM/USIM/eSIM]

PAN is used in SIM/USIM for identifying the SIM/USIM card and for identifying the SIM profile in the eSIM. Applications of PAN is ICCID defined in ETS-300-608.

The maximum length of the PAN ~~visible card number (primary account number)~~ shall be 19 digits and is composed of the following subparts (see Figure 1):

- Major Industry Identifier (MII);
- country code;
- issuer identifier;
- individual account identification number;
- parity check digit computed according to the Luhn formula (see ISO/IEC 7812-1, Annex B [1]). In addition to the parity check digit, OAs may incorporate a validation check device in some location on the card which could be changed when new cards are issued.

NOTE – issuer who already issued cards with identification number length of 20 digits may retain this length, if allowed by the numbering plan administrator.

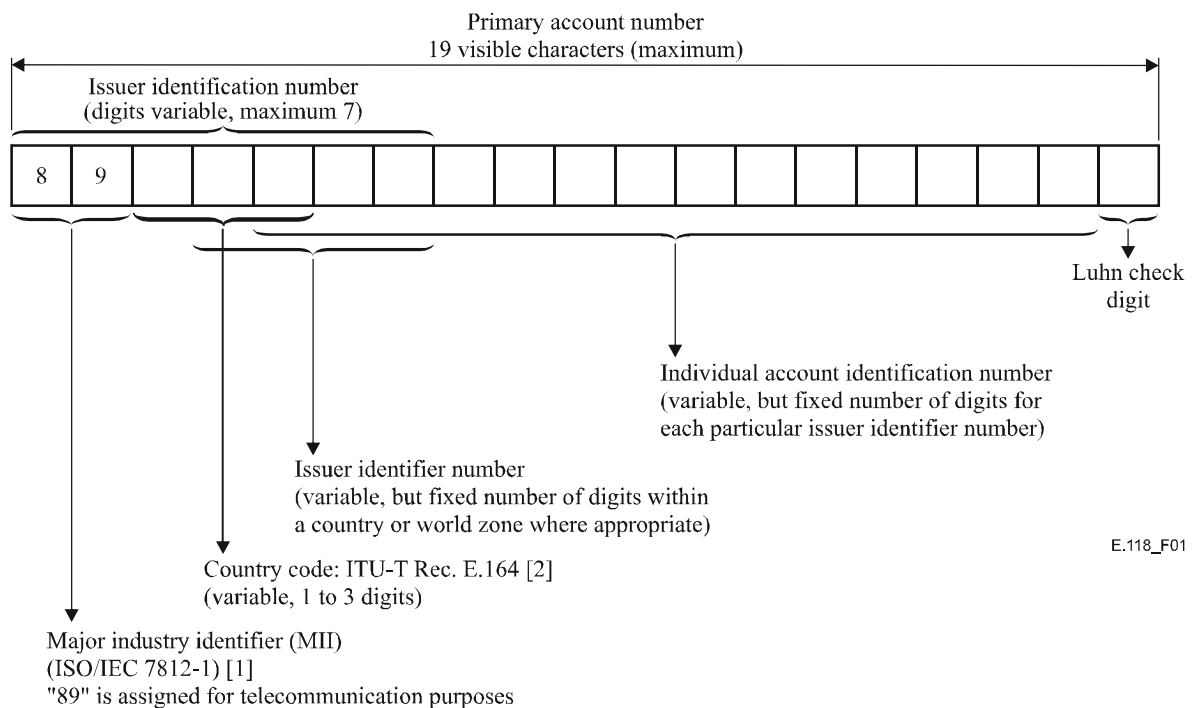


Figure 1/E.118 – PAN used Charge cards and ICCID

4.1.2 EID [for eSIM]

Applications of PAN is EID defined in GSMA specification

The number has a length of 32 digits and the numbering structure is the following:

- Major Industry Identifier (MII) equals “89 ”;
- Country Code (CC) represented in 3 digits with a padding of “0” before of CC in case its length is less than 3 digits
- embedded Issuer Identifier Number (eIIN) has a length of 3 digits, where the last digits are the IIN [To be checked with GSMA]
- individual account identification number has a length of 12 digits;
- additional issuer specific information has a length of 10 digits;
- parity check has a length of 2 digits

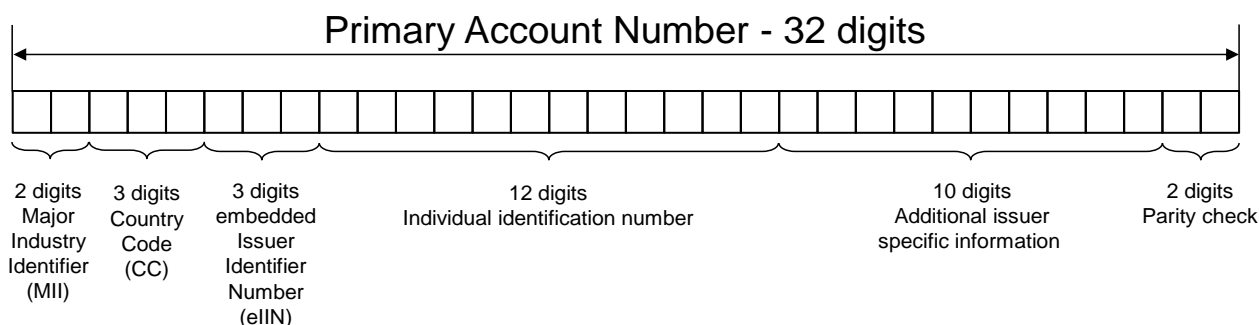


Figure 2/E.118 – PAN used for EID

2. Extracts of contributions discussed at the SG2 meeting of February 2019

During the SG2 meeting of February 2019, four Contributions ([SG2-C0147](#), [SG2-C0153](#), [SG2-C0175](#), [SG2-C0190](#)) were discussed (here attached). The contributions present different views that arose many questions, in particular for GSMA and related Technical Specifications (GSMA document SGP.02 on “Remote Provisioning Architecture for Embedded UICC Technical Specification” and GSMA document SGP.22 on “RSP Technical Specification”).

We reproduce below extracts from three of these contributions that underline three different approaches based upon different assumptions on which we ask for GSMA comments. Text in italic is the original text in the contributions.

2.1 Contribution [SG2-C153](#) (Telecom Italia) proposes a “A way forward for the revision of Recommendation E.118” basing upon the principle of technology neutrality and the preservation of univocity of identifiers (independently of the specific service for which they will be used).

In particular “the Country Codes and Issuer Identifier Numbers, as specified by Recommendation E.118, have started to be used also by the new class of identifiers (i.e. eUICC Identifiers - EIDs). Existing uses and new ones have to share the same public international identification plan for univocity, in particular with different length and coding of the public components of the identifiers.”

Note: The issue at stake in this contribution is that in the Information Technology and Operation and Maintenance Systems the padding zeros do not make a different value. This means that 89 39 01 has the same value also if it is encoded with padding zeros, as 89 039 001. So if 89 39 01 is provided to company A and 89 039 001 to company B, in reality the same value is provided to two different companies.

“This contribution suggests to revise Rec. E.118 in order to make it “technology neutral” and avoid following in the future all new technology developments that may arise.”

“The rationale is to distinguish:

- the “public part” of a E.118 identifier (i.e. 89 CC IIN) that will be assigned by the ITU-T in agreement with National Administrations to authorized operators and operating agencies based upon strict criteria that will guarantee that the resources are not wasted; and*
- the “private part” of a E.118 identifier (i.e. the following digits), that will be under the direct responsibility of the assignee, that will use it following specific formats and encodings specified in related Standards and Technical Specifications issued by related Technical Bodies (e.g. ITU-T, 3GPP, ETSI, etc.).*

As regards the “public part” of a E.118 identifier, that will be assigned by the ITU-T in agreement with National Administrations to authorized operators and operating agencies, strict criteria that guarantee that the resources are not wasted may include the following:

- Safeguarding the continuity of existing uses with their format, in particular for the ICCID strictly related to the operation of authorized operators.*
- If the E.118 resources are assigned to entities that are not authorized operators, these entities should be able to demonstrate a relationship with an authorized operator providing a mobile service in order to be able to really use the resource.*
- A E.118 resource (in particular the IIN field) assigned to an authorized operator should be usable for different services defined by recognized technical bodies, in particular as ICCID and EID for eSIMs. Univocity of the identifier public component should be guaranteed between different services.*
- Authorized operators providing services in more than one country could use in the future possible new Shared E.118 resources behind a corresponding global Country Code assigned by ITU-T.*
- The database of assigned public components of E.118 resources (i.e. 89 CC IIN) should be maintained and updated by ITU-TSB, since it is an essential tool for international E.118 resources management and use.*

In order to achieve what described above, the first thing is to remove the “Figure 1/E.118 - Charge card numbering system”, in the original E.118 Recommendation, substituting it with a description of the first three fields (Issuer Identification Number), which are “public part” of a E.118 identifier under the pervue of the National Administrations and ITU-T.

The description of the Issuer Identification Number may be as follows.

“The Issuer Identification Number is composed by the following three fields:

89: Major Industry Identifier (MII) (ISO/IEC 7812-1) assigned for telecommunications purposes;

Country Code: ITU-T Recommendation E.164;

Issuer Identifier Number: 2 or 3 digits (fixed number of digits within a country or world zone where appropriate).”

“In this way Recommendation E.118 will not have to follow all the new technology developments and protocol encodings that may arise in the future needing E.118 identifiers. International and European technical bodies will have the task of defining technical operating standards for specific platform needs.

When a unique value of an IIN (e.g. in a 2 digit format) is assigned to a recognized/authorized entity by ITU-T, in agreement with the national competent Administration, this value should be usable in different platforms and services with different encodings defined by recognized

international bodies (e.g. ITU, ETSI, 3GPP, GSMA, etc.). This is what already happens in reality for different services, in particular for ICCIDs and EIDs.”

2.2 Contribution [SG2-C147](#) of Ministry of Industry and Information Technology (MIIT - China) contains a “Proposal on initiating a new Recommendation for EID”

The background is that *“this contribution discusses and compares the structure, assignment and management of EID with the E.118 numbers, and then gives proposals to ITU-T on the standardization work in EID.”*

“The eUICC ID (EID) is the global unique physical identifier of eUICC (embedded UICC), which is mainly used for eUICC management and remote provisioning.

The structure of EID is defined in the GSMA Technical Specification SGP.02. It consists of fixed 32 digits, including major industry identifier (2 digits), country code (3 digits), issuer identifier number (3 digits), issuer specific information (10 digits), individual identification number (12 digits), and parity check (2 digits). The major industry identifier is 89, as defined in ISO/IEC 7812. The country code and issuer identifier are assigned as specified in ITU E.118, and their values shall be prefixed by one or two digits of 0.

Over the last two years, there have been significant developments in the global eSIM ecosystem. In the consumer space, after smartwatches led the first wave of consumer deployments, eSIM functionality is increasingly being deployed in tablets, laptops and smartphones. In the Internet of Things (IoT) area, automotive is at the forefront of eSIM deployments. eSIM functionality is also available in a growing proportion of logistics, energy & utilities and other vertical industries.

However, eUICC manufacturers are faced with the problem of how to apply for EIDs. In the beginning of eSIM pilot in China, EIDs were obtained in two methods. One is that international eUICC manufacturers provide EID resources obtained in other countries. For example, the first 8 digits of EIDs from G&D are 89 049 032. And 89 033 023 is from Gemalto, 89 033 024 is from Oberthur. They are converted from IIN in E.118 (89 49 32 for G&D, 89 33 23 for Gemalto and 89 33 24 for Oberthur) following the EID structure defined in GSMA SGP.02. The other way is that the domestic operators use Chinese country code 086 and ICCID resources to form corresponding EIDs, and assign them to cooperative eUICC manufacturers. However, with the development of eSIM applications, the relationship between operators and eUICC manufacturers become loose. The eUICC produced by the same manufacturer can be applied to multiple operators. Therefore, it's not practical for operators to assign EIDs to eUICC manufacturers. Currently, China is studying a set of EID management regulations to assign and manage EIDs with the country code of 086.”

The proposal is *“because the numbering system, administrator and applicant of EID are different from E.118 numbers, it is suggested that a new Recommendation of EID is initiated for clarity, rather than revise E.118.*

The main contents of the new Recommendation include, but are not limited to:

1. EID numbering system

To define the structure of EID and the meaning of each field, e.g. to determine if the country code of EID is only based on the geographic areas.

2. Administration of EID

1) EID administrator

It is suggested that national administrations are responsible for the assignment and management of EID to guarantee the uniqueness of EID. The administrations can authorize other third-party organizations or institutions to assign and manage EIDs. The EID resources issued by any EID administrator shall be recognized globally;

2) Principles for the assignment of EID

Guidance for EID assignment shall be provided to numbering plan administrator to use EID resources in an effective and efficient way.

3) Application and reclamation procedure

To provide the criteria and procedure for national numbering plan administrators to assign or reclaim the EID resources.”

2.3 Contribution [SG2-C175](#) (AGCOM - Italy) proposes a “Revision of recommendation E.118: separate assignment of the issuer identifier for EID”.

Quotes begin:

Recommendation E.118 is open for revision, the current draft text is in SG2-TD459-R1/GEN. In this TD, it appears that Numbering resources can be used for the following applications: Charge cards, ICCID, EID.

In the TD459-R1/GEN, the issuer identifier numbering resource for ICCID is called Issuer Identifier Number (IIN), while the issuer identifier numbering resource for EID is called embedded Issuer Identifier Number (eIIN).

In the TD459-R1/GEN paragraph 4.1.2, it is stated that “embedded Issuer Identifier Number (eIIN) has a length of 3 digits, where the last digits are the IIN”.

This means that if an undertaking needs an eIIN for generating EID it has to ask the assignment of an IIN, even if it does not need IIN for generating ICCID. This implies a waste of numbering resources.

*Operators use the applications Charge Cards and ICCID, while the application EID should be used by eSIM Manufacturers. For greater clarity and correctness in the assignment and for saving numbering resources, in particular for ICCID application, **it is proposed that eIIN is assigned without the assignment of IIN. That is two independent assignments for IIN and eIIN should be foreseen.***

It is proposed that “where the last digits are the IIN” be removed and the text be amended so to have two independent assignments for IIN and eIIN.

In particular, in the registration form after

“d) Issuer identifier number: _____ (according to ITU-T Rec. E.118)”,

the following line should be added

“e) embedded Issuer identifier number: _____ (according to ITU-T Rec. E.118)”.

Quotes end.
