



Use of TAP for the Single IMSI Wholesale Billing Interface

Version 1.1

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1 Introduction

1.1 Overview

This document explains how to use TAP for the Single IMSI Wholesale Billing Interface (SI-IF6) between the DSP and ARP.

1.2 Scope

TAP3.12 has been used for the purpose of this document. Details of file structure and data dictionary can be found in TD.57 [2].

Note: TD.57 [2] has been defined for the VPMN/HPMN wholesale billing interface. The use of the document also for the DSP/ARP wholesale billing interface therefore needs to consider that it has been written to define the rules on how the VPMN must populate TAP. When for example TD.57 [2] specifies “available from the network”, this shall be interpreted as “available to the DSP at the time of creation of the ARP wholesale billing file”.

1.3 Definitions

Term	Description
Calls	All call events defined for the SI-IF6

1.4 Abbreviations

Term	Description
ARP	Alternative Roaming Provider
BEREC	Body of European Regulators for Electronic Communications
BID	Billing Identifier
BS	Bearer Service
CAMEL	Customised Application Mobile Enhanced Logic
CLIR	Calling Line Identification Restriction
CSD	Circuit Switched Data
DSP	Domestic Service Provider
GPRS	General Packet Radio Service
GGSN	Gateway GPRS Support Node
GSM	Global System for Mobile communications (originally Groupe Spécial Mobile)
GSMA	GSM Association
HSCSD	High Speed Circuit Switched Data
HPMN	Home PMN
IF	Interface
IMEI	International Mobile station Equipment Identity
IMS	IP Multimedia Subsystem
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
LTE	Long Term Evolution

Term	Description
MCC	Mobile Country Code
MMS	Multimedia Messaging Service
MMSC	Multimedia Messaging Service Centre (Server/Relay or Store and Forward Server)
MNC	Mobile Network Code
MO	Mobile Originated
MOC	Mobile Originated Call
MSISDN	Mobile Station International Subscriber Directory Number
MT	Mobile Terminated
MTC	Mobile Terminated Call
MVNO	Mobile Virtual Network Operator
NI	Network Identification
OI	Operator Identification
PDP	Packet Data Protocol
PMN	Public Mobile Network
PSTN	Public Switched Telephone Network
PRD	Permanent Reference Document
RAP	Returned Account Procedure
RFC	Request for Comments
SGSN	Serving GPRS Support Node
SI	Single IMSI
SMS	Short Message Service
SMSC	Short Message Service Centre
SS	Supplementary Service
TADIG	Transferred Account Data Interchange Group
TAP	Transferred Account Procedure
TS	Teleservice
USSD	Unstructured Supplementary Service Data
UTC	Universal Time Co-ordinated
VPMN	Visited PMN
VT	Video Telephony

1.5 References

Ref	Doc Number	Title
[1]	GSMA PRD TD.28	File Transfer Methods
[2]	GSMA PRD TD.57	TAP3 Format Specification
[3]	High Level Technical	EU Roaming Regulation III Structural Solutions High Level Technical Specifications

Ref	Doc Number	Title
	Specifications	
[4]	RFC 2119	"Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997. Available at http://www.ietf.org/rfc/rfc2119.txt

1.6 Conventions

The key words "must", "must not", "required", "shall", "shall not", "should", "should not", "recommended", "may", and "optional" in this document are to be interpreted as described in RFC 2119 [4].

2 General Requirements

The ARP will adapt to local DSP practices (including local currency) at the discretion of the DSP).

Note: The rate offered by the DSP to the ARP could be posted in any currency (unrelated to the currency for the VPMN/HPMN wholesale roaming rates), this may be the local currency of the DSP or any other currency at the discretion of the DSP. Where currency conversions are performed, there can be rounding issues encountered and the DSP/ARP rates may for example not exactly match the EU regulated rates. Note also that according to the BEREC guidelines the DSP is allowed to add a fair and reasonable interconnect cost where such cost can be justified. If the DSP offers rates to the ARP in a different currency than the currency in which they want to be paid (payment currency) there would also be a currency conversion on the invoice that the ARP needs to be aware of.

Voice over LTE is charged using the Mobile Session record. The underlying CDRs are based on 3GPP R11 where the routed destination has been added in addition to the requested destination. GSMA TADIG has approved an emergency release of TAP3.12 in support of this change and to enable operators to charge based on the routed destination as well as to receive also the requested destination.

SMS over IP is charged using the Messaging Event record.

SMS-MT, Service Centre Usage, Content Transaction, Location Services, and Wi-Fi services are not needed.

TAP does not require use of standard GSMA roaming agreements, in particular AA.14s and IOT. The billing format is independent of the format by which rates are exchanged.

RAP is not used to report on errors as it would make the interface too expensive and complicated for new entrants. Instead, in the case of errors a manual credit note process should be used between the ARP and the DSP. **Note:** this process is manual and not standardised.

The TAP data needs to be sent to the current ARP for that customer as per the start time of the call event.

3 Required Data Items

This section lists all required data items per call scenario, and how they should be populated on the DSP to ARP interface.

Note: Optional TAP items are not listed in this section, but can be populated at the discretion of the DSP or per DSP/ARP agreement.

3.1 File Level

3.1.1 Batch Control Information

Data Item	How to populate	Comments
Sender (DSP)	TADIG code of DSP	
Recipient (ARP)	TADIG code of ARP	
File Sequence Number	Maintain sequence numbers for the DSP/ARP relationship	
Transfer Cut Off Timestamp (including UTC Time Offset)	The timestamp used to select calls for transfer. All call records available prior to the timestamp are transferred.	
File Available Timestamp (including UTC Time Offset)	Set to the time when the file is sent	
Specification Version Number	Set to 3	
Release Version Number	Set to 12	

Table 1: Batch Control Information

3.1.2 Accounting Information

Data Item	How to populate	Comments
Tax Rate Code	Repeat with unique code per unique Tax Rate in the call records	Only necessary if taxes apply.
Tax Type	Set to 01	Assume national tax (if applicable).
Tax Rate	Set to actual tax rate used	
Tax Indicator	Set to 1	Assume Value Added Tax. If other type of tax, don't populate.
Local Currency	ISO code of the currency used in the offered rates	For example EUR for Euro.
TAP Currency	Normally set to the Local Currency as per DSP/ARP agreement	Normally no currency translation, but depending on DSP/ARP agreement
Exchange Rate Code	Set to unique value	
Number of Decimal Places	Set to 6 or 0	6 if currency conversion is performed, otherwise 0
Exchange Rate	Set to the appropriate exchange rate	1, if no currency conversion is performed
TAP Decimal Places	Set to unique value	

Table 2: Accounting Information**3.1.3 Network Information**

Data Item	How to populate	Comments
UTC Time Offset Code	Repeat with unique code per unique UTC Time Offset in the call records	
UTC Time Offset	Repeat with unique offset per unique UTC Time Offset in the call records	
Recording Entity Code	Repeat with unique code per unique Recording Entity in the call records	
Recording Entity Type	Set to the type of Recording Entity	
Recording Entity Identification	Repeat with unique identification per unique Recording Entity in the call records	Populate with real Recording Entity Identification if available. If not available, populate with "UNKNOWN" or VPMN TADIG Code, or when an IP address is required populate with "1.1.1.1".

Table 3: Network Information**3.1.4 Audit Control Information**

Data Item	How to populate	Comments
Total Charge	Calculate from individual call records	
Total Tax Value	Calculate from individual call records	
Total Discount Value	Set to 0	
Call Event Details Count	Calculate from individual call records	

Table 4: Audit Control Information**3.2 Call Detail Level****Notes:**

- The "normal" TAP use for SMS-MO is to carry the roaming charge. Interconnect charges can be carried as well within the Mobile Originated Call record. TAP also has a unique record type for SMS interconnect charges, the Service Centre Usage record, but as that is not used today in the industry the approach of including the interconnect charges with the roaming charges (broken out or not) has been chosen.
Note: This is further explained in the High Level Technical Specifications [3], section 4.1.3.4.
- MMS has been included in the GPRS call record to be charged as data. There is flexibility within the data record to charge everything as data, or to charge the interconnect charge separately from the roaming charge, for example a fixed charge for the interconnect part and a volume charge for the roaming part.

- Invocation of conditional call forwarding can be recorded just like in TAP, inline in a MOC or offline in a separate Supplementary Service Event.

3.2.1 Mobile Originated Call

Data Item	How to populate	Comments
IMSI	IMSI	If MSISDN is not populated, then IMSI must be provided in full. If MSISDN is populated, then population of the IMSI is at the discretion of the DSP (as a minimum the MCC/MNC of the HPMN/DSP must be populated).
MSISDN	MSISDN if available	
Called Number	Called Number if available	For SMS-MO, this will contain the SMSC address.
Dialled Digits	Dialled Digits if available	
SMS Destination Number	SMS Destination Number if available	
Call Event Start Timestamp (including UTC Time Offset)	Call Event Start Timestamp (including UTC Time Offset)	
Total Call Event Duration	Total Call Event Duration	
Cause for Termination	Cause for Termination if available	
Recording Entity Code	Numeric code	Referring to table in the Network Information.
Call Reference	Call Reference or Message Reference where available	
Serving Network	TADIG code of the VPMN	For anti-tromboning and callback, this could be the TADIG code of the HPMN. This could possibly be used as an indication that anti-tromboning or callback has taken place.
IMEI	IMEI if available	
TeleService Code	TeleService Code if available	One of TS or BS Code must be present.
Bearer Service Code	Bearer Service Code if available	One of TS or BS Code must be present
User Protocol Indicator	User Protocol Indicator if available	Used for VT, not strictly necessary as BS37 can be used instead
Charged Item	Populate with A, D, E and/or F depending on the service and charging principle	If fixed components are being charged (for example for unregulated services), then the whole Charge Information group can be repeated.
Exchange Rate Code	Populate with relevant code	Referring to the table in the

Data Item	How to populate	Comments
		Accounting Information
Call Type Level 1	Populate as per the rate, with 1 for national calls, and 2 for international calls	Note: The Call Type Levels are not copied from the incoming TAP file. Rather they must be in line with the DSP rate.
Call Type Level 2	Populate as per the rate, for example with 0 for unknown	0 Unknown/Not Applicable 1 Mobile 2 PSTN 3 Non Geographic 4 Premium Rate 5 Satellite destination
Call Type Level 3	Populate as needed to uniquely identify the rate	
Charge Type	Populate with 00	Assume only total charge is needed. If there is a need to breakout roaming and interconnect charges separately (for example for SMS) then 01 and 03 can be used in addition to 00 by repeating the Charge Detail group.
Charge	As per the rate	Excluding any taxes
Chargeable Units	Populate in accordance with the Charged Item. For Charged Item = D, populate with the duration in seconds.	
Tax Rate Code	Populate with the relevant code	Referring to the table in the Accounting Information. Only present if taxes apply.
Tax Value	The Tax Value	Only present if taxes apply.
HSCSD Indicator	Populate with 1 if the service is HSCSD	Rarely used.
Supplementary Service Code	Supplementary Service Code if available	Call forwarding indicator.
Third Party Number	Third Party Number if available	
CLIR Status Indicator	CLIR Status Indicator if available	
CAMEL Service Key	CAMEL Service Key if available	
CAMEL Destination Number	CAMEL Destination Number if available	
Operator Specific Information	Populate with additional information as agreed (or at the discretion of the Sender)	Free text field. Could be used to identify callback and anti-tromboning by use of

Data Item	How to populate	Comments
		special keywords: Callback AntiTromboning

Table 5: Mobile Originated Call**3.2.2 Mobile Terminated Call**

Data Item	How to populate	Comments
IMSI	IMSI	If MSISDN is not populated, then IMSI must be provided in full. If MSISDN is populated, then population of the IMSI is at the discretion of the DSP (as a minimum the MCC/MNC of the HPMN/DSP must be populated).
MSISDN	MSISDN if available	
Calling Number	Calling Number if available	Note: This is generally not very reliable on TAP. Not all HPMNs provide it for retail billing.
CLIR Status Indicator	CLIR Status Indicator if available	
SMS Originator	SMS Originator if available	If available and if SMS-MT is included.
Call Event Start Timestamp (including UTC Time Offset)	Call Event Start Timestamp (including UTC Time Offset)	
Total Call Event Duration	Total Call Event Duration	
Cause for Termination	Cause for Termination if available	
Recording Entity Code	Numeric code	Referring to table in the Network Information.
Call Reference	Call Reference or Message Reference where available	
Serving Network	TADIG code of the VPMN	
IMEI	IMEI if available	
TeleService Cde	TeleService Code if available	One of TS or BS Code must be present.
Bearer Service Code	Bearer Service Code if available	One of TS or BS Code must be present
User Protocol Indicator	User Protocol Indicator if available	Used for VT, not strictly necessary as BS37 can be used instead
Charged Item	Populate with D, E and/or F depending on the service and charging principle	Assuming duration based charge (for example for unregulated services). If fixed components are being charged, then the whole Charge Information group can be

Data Item	How to populate	Comments
		repeated.
Exchange Rate Code	Populate with relevant code	Referring to the table in the Accounting Information
Call Type Level 1	Populate as per the rate, with 1 for national calls, and 2 for international calls, or 0 or unknown	
Call Type Level 2	Populate as per the rate, for example with 0 for unknown	0 Unknown/Not Applicable 6 Forwarded call 7 Non forwarded call
Call Type Level 3	Populate as needed to uniquely identify the rate	
Charge Type	Populate with 00	Assume only total charge is needed. If there is a need to breakout roaming and interconnect charges separately (for example for SMS) then 01 and 03 can be used in addition to 00 by repeating the Charge Detail group.
Charge	As per the rate	Excluding any taxes
Chargeable Units	Populate in accordance with the Charged Item. For Charged Item = D, populate with the duration in seconds.	
Tax Rate Code	Populate with the relevant code	Referring to the table in the Accounting Information. Only present if taxes apply.
Tax Value	The Tax Value	Only present if taxes apply.
HSCSD Indicator	Populate with 1 if the service is HSCSD	Rarely used.
CAMEL Service Key	CAMEL Service Key if available	
Operator Specific Information	Populate with additional information as agreed	Free text field.

Table 6: Mobile Terminated Call**3.2.3 Supplementary Service Event**

Data Item	How to populate	Comments
IMSI	IMSI	If MSISDN is not populated, then IMSI must be provided in full. If MSISDN is populated, then population of the IMSI is at the discretion of the DSP (as a minimum the MCC/MNC of the

Data Item	How to populate	Comments
		HPMN/DSP must be populated).
MSISDN	MSISDN if available	
Recording Entity Code	Numeric code	Referring to table in the Network Information.
Call Reference	Call Reference where available	
Serving Network	TADIG code of the VPMN	
IMEI	IMEI if available	
Supplementary Service Code	Supplementary Service Code	
Action Code	Action Code	
Supplementary Service Parameters	Supplementary Service Parameters if available	
Charging Timestamp (including UTC Time Offset)	Charging Timestamp (including UTC Time Offset)	
Charged Item	Populate with E	
Exchange Rate Code	Populate with relevant code	Referring to the table in the Accounting Information
Charge Type	Populate with 00	
Charge	As per the rate	Excluding any taxes
Tax Rate Code	Populate with the relevant code	Referring to the table in the Accounting Information. Only present if taxes apply.
Tax Value	The Tax Value	Only present if taxes apply.
TeleService Code	TeleService Code if available	
Bearer Service Code	Bearer Service Code if available	
Operator Specific Information	Populate with additional information as agreed (or at the discretion of the Sender)	Free text field.

Table 7: Supplementary Service Event**3.2.4 GPRS Call**

Data Item	How to populate	Comments
IMSI	IMSI	If MSISDN is not populated, then IMSI must be provided in full. If MSISDN is populated, then population of the IMSI is at the discretion of the DSP (as a minimum the MCC/MNC of the HPMN/DSP must be populated).
MSISDN	MSISDN if available	
PDP Address	PDP Address if available	

Data Item	How to populate	Comments
Access Point Name NI	Access Point Name NI	
Access Point Name OI	Access Point Name OI if available	
Call Event Start Timestamp (including UTC Time Offset)	Call Event Start Timestamp (including UTC Time Offset)	
Total Call Event Duration	Total Call Event Duration	
Cause for Termination	Cause for Termination if available	
Partial Type Indicator	Partial Type Indicator if available	
PDP Context Start Timestamp (including UTC Time Offset)	PDP Context Start Timestamp (including UTC Time Offset) if available	Only for partial records.
Network Init. PDP Context	Network Init. PDP Context if available	
Charging Id	Charging Id	
Recording Entity Code	Numeric code	Referring to table in the Network Information.
Serving Network	TADIG code of the VPMN	
IMEI	IMEI if available	
IMS Signalling Context	IMS Signalling Context if available	
Data Volume Incoming	Data Volume Incoming	
Data Volume Outgoing	Data Volume Outgoing	
Charged Item	Populate according to charging principle	
Exchange Rate Code	Populate with relevant code	Referring to the table in the Accounting Information
Call Type Level 1	Populate as per routing	10 HGGSN/HP-GW 11 VGGSN/VP-GW 12 Other GGSN/P-GW
Call Type Level 2	Populate as per the rate, for example with 0 for unknown or 10-15 for QoS charging	0 Unknown/Not Applicable 10 Broadband 11 Narrowband 12 Conversational 13 Streaming 14 Interactive 15 Background
Call Type Level 3	Populate as needed to uniquely identify the rate	
Charge Type	Populate with 00	
Charge	As per the rate	Excluding any taxes

Data Item	How to populate	Comments
Chargeable Units	Populate in accordance with the Charged Item. For Charged Item = X, populate with the total volume in bytes.	
Tax Rate Code	Populate with the relevant code	Referring to the table in the Accounting Information. Only present if taxes apply.
Tax Value	The Tax Value	Only present if taxes apply.
CAMEL Service Key	CAMEL Service Key if available	
Access Point Name NI	CAMEL Access Point Name NI if available	
Access Point Name OI	CAMEL Access Point Name OI if available	
Operator Specific Information	Populate with additional information as agreed	Free text field.

Table 8: GPRS Call**3.2.5 Mobile Session**

Data Item	How to populate	Comments
Mobile Session Service	Mobile Session Service	1 MO Voice over LTE 2 MT Voice over LTE 3 Emergency call over LTE
IMSI	IMSI	If MSISDN is not populated, then IMSI must be provided in full. If MSISDN is populated, then population of the IMSI is at the discretion of the DSP (as a minimum the MCC/MNC of the HPMN/DSP must be populated).
MSISDN	MSISDN if available	
Public User Id	Public User Id if available	
IMEI	IMEI if available	
Serving Network	TADIG code of the VPMN	For anti-tromboning and callback, this could be the TADIG code of the HPMN. This could possibly be used as an indication that anti-tromboning or callback has taken place.
Event Reference	Event Reference	
Recording Entity Code	Numeric code	Referring to table in the Network Information. Could be repeated.

Data Item	How to populate	Comments
Service Start Timestamp (including UTC Time Offset)	Service Start Timestamp (including UTC Time Offset)	
Cause for Termination	Cause for Termination if available	
Total Call Event Duration	Total Call Event Duration	
Non-Charged Party Number	Non-Charged Party Number if available	
Non-Charged Public User Id	Non-Charged Party Public User Id if available	
Requested Number	Requested Number if available	
Requested Public User Id	Requested Public User Id if available	
Charged Item	Populate with A, D, and/or F depending on the charging principle	If fixed components are being charged (for example for unregulated services), then the whole Charge Information group can be repeated.
Exchange Rate Code	Populate with relevant code	Referring to the table in the Accounting Information
Call Type Level 1	Populate as per the rate, with 1 for national calls, 2 for international calls or 0 for unknown/not applicable	Note: The Call Type Levels are not copied from the incoming TAP file. Rather they must be in line with the DSP rate.
Call Type Level 2	Populate as per the rate, for example with 0 for unknown	0 Unknown/Not Applicable 1 Mobile 2 PSTN 3 Non Geographic 4 Premium Rate 5 Satellite destination
Call Type Level 3	Populate as needed to uniquely identify the rate	
Charge Type	Populate with 00	Assume only total charge is needed.
Charge	As per the rate	Excluding any taxes
Chargeable Units	Populate in accordance with the Charged Item. For Charged Item = D, populate with the duration in seconds.	
Tax Rate Code	Populate with the relevant code	Referring to the table in the Accounting Information. Only present if taxes apply.
Tax Value	The Tax Value	Only present if taxes apply.

Data Item	How to populate	Comments
Operator Specific Information	Populate with additional information as agreed (or at the discretion of the Sender)	Free text field. Could be used to identify callback and anti-tromboning by use of special keywords: Callback AntiTromboning

Table 9: Mobile Session**3.2.6 Messaging Event**

Data Item	How to populate	Comments
Messaging Event Service	Messaging Event Service	1 MO SMS over IP 2 MT SMS over IP
IMSI	IMSI	If MSISDN is not populated, then IMSI must be provided in full. If MSISDN is populated, then population of the IMSI is at the discretion of the DSP (as a minimum the MCC/MNC of the HPMN/DSP must be populated).
MSISDN	MSISDN if available	
Public User Id	Public User Id if available	
IMEI	IMEI if available	
Serving Network	TADIG code of the VPMN	For anti-tromboning and callback, this could be the TADIG code of the HPMN. This could possibly be used as an indication that anti-tromboning or callback has taken place.
Event Reference	Event Reference	
Element Type	Element Type if available	For example SMSC
Element ID	Element ID if available	For example SMSC Address
Recording Entity Code	Numeric code	Referring to table in the Network Information. Could be repeated.
Service Start Timestamp (including UTC Time Offset)	Service Start Timestamp (including UTC Time Offset)	
Non-Charged Party Number	Non-Charged Party Number if available	
Non-Charged Public User Id	Non-Charged Party Public User Id if available	
Exchange Rate Code	Populate with relevant code	Referring to the table in the Accounting Information
Call Type Level 1	Populate as per the rate, with 1 for national calls, 2 for	Note: The Call Type Levels are not copied from the incoming TAP file.

Data Item	How to populate	Comments
	international calls or 0 for unknown/not applicable	Rather they must be in line with the DSP rate.
Call Type Level 2	Populate as per the rate, for example with 0 for unknown	0 Unknown/Not Applicable 1 Mobile 2 PSTN 3 Non Geographic 4 Premium Rate 5 Satellite destination
Call Type Level 3	Populate as needed to uniquely identify the rate	
Charge	As per the rate	Excluding any taxes
Tax Rate Code	Populate with the relevant code	Referring to the table in the Accounting Information. Only present if taxes apply.
Tax Value	The Tax Value	Only present if taxes apply.
Operator Specific Information	Populate with additional information as agreed (or at the discretion of the Sender)	Free text field.

Table 10: Messaging Event

4 Physical Format

The physical format is standard TAP as defined in TD.57 [2].

5 File Names

The file naming convention should follow the TAP standard:

CD[DSP TADIG code][ARP TADIG code][Sequence number]

Example: CDLUXPTLUXAR00123

The ARP will need to use an in-country TADIG code, whether it has a registered in-country presence or not. The GSMA issues TADIG codes, and there are plenty of codes available within each European country. For the avoidance of doubt, if the ARP is also a MNO with international roaming agreements, it cannot reuse that TADIG code in its role as an ARP.

6 Timescales

The exceptional timescale for the VPMN to make the TAP records available to the HPMN is 30 days from call end time. As at least some of the information will be sourced from the incoming TAP files, the HPMN will need additional time to make the records available to the ARP (potentially via a MVNO).

A new exceptional timescale for the DSP to ARP interface has been introduced, 40 days from call end time. The additional 10 days is needed to cater for exceptional cases of operational problems, validation, re-rating, transfer via a MVNO, etc. This is easy to manage, and will work for all call records regardless of source.

7 File Exchange Rules

The TAP files should be exchanged once per day, or more regularly if agreed between the DSP and ARP.

Notification files are exchanged when there is no traffic recorded during the collection period. As the DSP will include calls from all VPMNs in the same TAP file stream to the ARP, with the exception of the period between signing (launch) of the DSP/ARP contract and the first active roamer, it is highly unlikely that there will be any notification files produced (as all it will take is one ARP customer roaming anywhere in Europe per day).

Physical transfer methods are discussed in TD.28 [1].

8 TAP Versions

There are 8 different versions of TAP used today over the VPMN/HPMN interface. The versions are generally not backwards compatible, as shown in the following table:

Version	Backwards Compatible	Comments including changes relevant to the DSP/ARP interface
3.1	No	The first version of TAP3, and contains many errors. The GSMA has since 2001 strongly recommended that no-one uses 3.1.
3.2	No	Corrected many of the errors with 3.1. Introduced charging for USSD.
3.3	Yes, with 3.2	Many validation rule changes due to operational experiences.
3.4	No	Support for CAMEL within GPRS call, addition of Serving Network (where not the same as the Sender), Change of Call Type Level structure, change of IPv6 length, repeating Operator Specific Information.
3.9	Yes, with 3.4	Many validation rule changes due to operational experiences.
3.10	No	Support for Video Telephony, increased some Integer sizes that had caused overflows in previous versions, Called Number in international format, addition of Dialed Digits, addition of technical QoS parameters for GPRS.
3.11	No	Major simplification, restructure and removal of unnecessary data items (such as the technical QoS parameters for GPRS), support for satellite calls, addition of SMS Destination Number, support for data over LTE.
3.12	No, but see comment	Support for VoLTE, enable differential MTC charging, standardisation of charge validation procedure to resolve operational issues. There are two new record types to support VoLTE in 3.12. If those are not used, then 3.12 is backwards compatible with 3.11 in terms of the physical format. Logically, it is not always backwards compatible with 3.11, as that depends on how the fields in 3.12 are used. One feature that would make it not backwards compatible would be if the Call Type Levels are significant within a Mobile Terminated Call.

Table 11: TAP Versions

Only TAP3.11 and TAP3.12 are allowed, in line with GSMA rules on TAP versions. The version exchanged (TAP3.11 or TAP3.12) is at the discretion of the DSP. Conversions can take place on the private interface.

Annex A Document Management

A.1 Document History

Version	Date	Brief Description of Change	Approval Authority	Editor / Company
1.0	27 Nov 2013	New PRD Created by the BEREC Stakeholder Forum Billing & Provisioning Subgroup	TADIG eVote PSMC #118	Christer Gullstrand / Syniverse
1.1	15 May 2014	CR 1002 Clarification on currency CR 1003 General review	TADIG #77	Christer Gullstrand / Syniverse

A.2 Other Information

Type	Description
Document Owner	TADIG
Editor / Company	Christer Gullstrand / Syniverse

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Your comments or suggestions & questions are always welcome.