



Fighting Illicit Trade with EPCIS Application Standard

Exchange of visibility event data to combat illicit trade

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73 1 FIT in the context of visibility event data and EPCIS

74 This application standard explains how to implement the GS1 EPCIS standard to combat illicit trade,
75 particularly in the context of EU 2018/574.

76 1.1 Introduction

77 This GS1 normative application standard explains how to apply EPCIS to depict product movement
78 in the context of messages 3.1–3.7 listed in Annex II of EU 2018/574.

79 This application standard leverages GS1's existing EPCIS and CBV standards, and introduces new,
80 FIT-specific GS1 normative content where necessary. It will result in subsequent additions to Core/
81 Comprehensive Business Vocabulary (CBV) upon the latter's next release.

82 In parallel, GS1's EPC Tag Data Standard (TDS) has been updated (TDS v 1.12) to include the Unit
83 Pack Unique Identifier (UPUI) EPC URI for pack identification purposes in EPCIS-based events.

84 1.2 Scope of enhancements to foundational EPCIS & CBV specifications

85 1.2.1 FIT messages covered by EPCIS events

86 The FIT application standard will provide EPCIS event specifications for each of the relevant Annex
87 II messages, according to the following proposal:

88

89 3.1. **Application of unit level UIs on unit packets** will be captured as an EPCIS Object Event
90 (business step "Commissioning")

91 3.2. **Application of aggregated level UIs on aggregated packaging** will be captured as an
92 EPCIS Aggregation Event (business step "Packing")

93 3.3. **Dispatch of tobacco products from a facility** will be captured as an EPCIS Object Event
94 (business step "Shipping")

95 3.4. **Arrival of tobacco products at a facility** will be captured as an EPCIS Object Event
96 (business step "Receiving")

97 3.5. **Trans-loading** will be captured as a matching pair of EPCIS Object Events (business step
98 "Unloading" and "Loading", respectively)

99 3.6. **Disaggregation of aggregated level UIs** will be captured as an EPCIS Aggregation Event
100 (business step "Unpacking")

101 3.7. **Report of delivery carried out with a vending van to a retail outlet** will be captured as
102 an EPCIS Object Event (business step "Arriving")

103 5. **Recalls of requests, operational and transactional messages**

104

105

106 1.2.2 Enhancements to foundational CBV vocabulary

107 In addition to EPCIS event specifications for each of the relevant Annex II messages, the
108 aforementioned FIT application standard will include the following new normative EPCIS event
109 **vocabulary within the FIT namespace:**

- 110 - "messageType" (ALL FIT messages, 3.1-3.7)
- 111 - "eoid" (ALL FIT messages, 3.1-3.7)
- 112 - "fid" (ALL FIT messages, 3.1-3.7)
- 113 - "aggregationType" (FIT message 3.2)
- 114 - "uiType" (FIT messages 3.3, 3.4, 3.5, 3.7)
- 115 - "destinationID1" (FIT messages 3.3, 3.5)
- 116 - "destinationID" (FIT messages 3.3, 3.5)
- 117 - "destinationID5name" (FIT messages 3.3, 3.5)
- 118 - "destinationID5streetAddressOne" (FIT messages 3.3, 3.5)
- 119 - "destinationID5streetAddressTwo" (FIT messages 3.3, 3.5)
- 120 - "destinationID5city" (FIT messages 3.3, 3.5)
- 121 - "destinationID5postalCode" (FIT messages 3.3, 3.5)
- 122 - "destinationID5countryCode" (FIT messages 3.3, 3.5)
- 123 - "transportMode" (FIT messages 3.3, 3.5)
- 124 - "transportVehicle" (FIT messages 3.3, 3.5)
- 125 - "transportCont2" (FIT messages 3.3, 3.5)
- 126 - "transportS1" (FIT message 3.3)
- 127 - "transportS2" (FIT message 3.3)
- 128 - "emcsARC" (FIT message 3.3, 3.5)
- 129 - "saadNumber" (FIT message 3.3)
- 130 - "expDeclarationNumber" (FIT message 3.3)
- 131 - "productReturn" (FIT message 3.4)
- 132 - "comment" (ALL FIT messages, 3.1-3.7)



133 See also section [2.4.5.2](#), "Overview of FIT extensions"

134

135

136 **1.3 Assumptions regarding implicit handling of Annex II fields not included in**
137 **"FIT with EPCIS" events**

138 **1.3.1 "upui_2" (Annex II message 3.1)**

139 In order to avoid a THREEFOLD increase in the data volume of EPCIS Events, it is assumed that the
140 list of "corresponding unit packet level UIs to be recorded (as visible in human readable format)",
141 referenced as "upui_2" in in Annex II, **will be derived from the UPUI EPC URI encodings** in the
142 epclList of the Object Event corresponding to FIT Message 3-1, per the provisions of **GS1's EPC Tag**
143 **Data Standard (TDS)**. Among other encoding and decoding procedures, TDS addresses the
144 correspondence between EPCs and GS1 Keys – including with that between the UPUI EPC and the
145 combination of GS1 AIs (235) and (01) – with a subsection specifically focussed on **how "to find**
146 **the GS1 element string corresponding to a UPUI EPC URI"**.

147 **1.3.2 "transportCont1" (Annex II messages 3.3, 3.5)**

148 Annex II field "transportCont1" (indication if the transport is containerised and uses an individual
149 transport unit code) is rendered superfluous by the inclusion or omission of the "transportCont2"
150 field in the EPCIS event; **inclusion of "transportCont2"** implies a **"Yes"** value for
151 "transportCont1", while **omission of "transportCont2"** implies a **"No"** value for "transportCont1".

152 **1.3.3 "saad" (Annex II message 3.5)**

153 Annex II field "saad" (Dispatch with a simplified accompanying document, per Commission
154 Regulation EEC No 3649/92) is rendered superfluous by the inclusion or omission of the
155 **"saadNumber"** field in the EPCIS event.

156 **Inclusion** of "saadNumber" implies a **"Yes"** value for "saad";

157 **omission** of "saadNumber" implies a **"No"** value for "saad".

158 **1.3.4 "expDeclaration" (Annex II message 3.3)**

159 Annex II field "expDeclaration" (Indication if the Movement Reference Number (MRN) has been
160 issued by the customs office) is rendered superfluous by the inclusion or omission of the
161 **"expDeclarationNumber"** field in the EPCIS event.

162 **Inclusion** of "expDeclarationNumber" implies a **"Yes"** value for "expDeclaration";

163 **omission** of "expDeclarationNumber" implies a **"No"** value for "expDeclaration".

164

165 **1.3.5 "emcs" (Annex II message 3.3)**

166 Annex II field "emcs" (Dispatch under the Excise Movement and Control System, EMCS) is rendered
167 superfluous by the inclusion or omission of the **"emcsARC"** field in the EPCIS event.

168 **Inclusion** of "emcsARC" implies a **"Yes"** value for "emcs";

169 **omission** of "emcsARC" implies a **"No"** value for "emcs".

170

171

172 **2 References, Terms and Definitions**

173 **2.1 References**

| Document | Author / Year |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| EU 2018/574 European Commission <i>Implementing Regulation on technical standards for the establishment and operation of a traceability system for tobacco products.</i> https://ec.europa.eu/health/tobacco/tracking_tracing_system_en | European Commission, 2018 |
| GS1 EPC Tag Data Standard (TDS) v 1.12 | GS1, 2018 |
| EPCIS v 1.2 | GS1, 2016 |
| CBV v 1.2 | GS1, 2016 |
| GS1 General Specifications v 19.1 | GS1, 2019 |
| EPCIS & CBV Implementation Guideline v 1.2 | GS1, 2016 |

174 **2.2 Terms and definitions**

175 **2.3 EPCIS overview**

176 EPCIS is an open GS1 and ISO standard that has emerged as a stable enabler for visibility of supply
 177 chain events, with suitable extension mechanisms to integrate needs of fighting illicit trade. EPCIS'
 178 architecture supports centralised and mixed communication modes.

179 Use of this application standard assumes that the decision has already been taken by an
 180 organisation/consortium or partners to leverage the EPCIS standard. A more general overview,
 181 including argumentation supporting the implementation of EPCIS, can be found in the EPCIS & CBV
 182 Implementation Guideline (referenced in section [2.1](#), above).

183 **2.4 EPCIS event dimensions**

184 **2.4.1 WHAT**

185 The "WHAT" dimension of an EPCIS event specifies the object(s) observed at the focus of a given
 186 business process step.

187 A FIT EPCIS document SHALL use the following identifiers:

- 188 ■ UPI EPC URI, equivalent to AI (01)+AI (235)
- 189 ■ SSCC EPC URI
- 190 ■ SGTIN EPC URI

191 Details on the EPC URI syntax and encoding/decoding rules for the aforementioned identifiers are
 192 specified in sections 6 and 7 ("*EPC URI*" and "*Correspondence between EPCs and GS1 Keys*") of
 193 GS1's EPC Tag Data Standard (TDS).

194

195 2.4.2 WHEN

196 The “WHEN” dimension of an EPCIS event is expressed as the `eventTime`, specifying the precise
197 date, time, and time zone locally in effect at the point in time of an observation and/or at which a
198 given process step is completed.

199 The format is of type `xsd:dateTime`, for example:

```
200 <eventTime>2018-09-27T15:58:00.000+02:00</eventTime>
```

201 2.4.3 WHERE

202 The “WHERE” dimension of an EPCIS event specifies the **read point**, which identifies the location at
203 which an observation and/or process step took place, as well as the **business location**, which
204 identifies the whereabouts of the observed object(s) subsequent to the event in question.

205 **FIT EPCIS documents SHOULD omit the business location.**

206 A FIT EPCIS document SHOULD use GLNs expressed as SGLN EPC URIs (`urn:epc:id:sgln:...`) for
207 read point identifiers, augmented coupling AI (7040) with AI (414) to express **FID** as an extension
208 within the FIT namespace.

209 For TRANSLOADING, a FIT EPCIS document MAY use a geographic location URI as specified in
210 [RFC5870], and explicitly supported in the GS1 CBV, to populate the `readPoint` field.

211 2.4.4 WHY

212 The “WHY” dimension puts the EPCIS event into a specific business context, specifying the process
213 step associated with the observation of the object(s), the disposition of the object(s) subsequent to
214 the event, related business transactions and the source and destination of the object(s).

215 2.4.4.1 Business Step

216 The business step identifies what was taking place from a business perspective at the time of the
217 event; that is, what step of a business process was occurring. Examples include “commissioning”,
218 “packing” and “shipping”. The GS1 Core Business Vocabulary (CBV) standard specifies a list of
219 cross-sector, standardised business step values, some of which are leveraged by this FIT application
220 standard.

221 2.4.4.2 Disposition

222 The disposition identifies the business condition subsequent to the event of the physical or digital
223 objects named in the WHAT dimension. Example dispositions include “active”, “in_progress”, and
224 “in_transit”. The GS1 CBV includes a list of standard Disposition values, some of which are
225 leveraged by this FIT application standard.

226

227 **2.4.5 FIT-specific EPCIS event extensions**

228 **2.4.5.1 FIT namespace and general FIT extension rules**

229 FIT-specific EPCIS event extensions are specified using the user/vendor extension mechanism of the
 230 EPCIS standard.

231 An extension data element can contain any well-formed XML content, including sub-elements and
 232 attributes.

233 Each FIT-specific extension is assigned the following namespace identifier:

234 **https://gs1.org/cbv/fit**

235 The use of this FIT-specific XML namespace not only distinguishes FIT-specific extensions from
 236 standard EPCIS data elements, but also ensures that FIT-specific extensions will not be confused
 237 with extensions of other sectors and organisations that may use the same element names.

238 The namespace SHALL be declared, along with the EPCIS standard namespace(s), in the beginning
 239 of the EPCIS header, as follows:



```


240 <epcis:EPCISDocument
241   xmlns:epcis="urn:epcglobal:epcis:xsd:1"
242   xmlns:fit="https://gs1.org/cbv/fit">
243   <EPCISBody>
244     <EventList>
245       . . .
246     </EventList>
247   </EPCISBody>
248 </epcis:EPCISDocument>
  
```

249 **2.4.5.2 Overview of FIT extensions**

| Local name | Type | Field name & description per Annex II, EU 2018/574 | Annex II messages |
|-------------|------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------|
| messageType | string | Message_Type Identification of message type | 3.1 3.2 3.3 3.4 3.5 3.6 3.7 |
| eoid | string <i>concatenation of GS1 element strings AI (7040) and AI (417)</i> | EO_ID Economic operator identifier code of the submitting entity | 3.1 3.2 3.3 3.4 3.5 3.6 3.7 |
| fid | string <i>concatenation of GS1 element strings AI (7040) and AI (414)</i> | F_ID Facility identifier code | 3.1 3.2 3.3 3.4 3.5 3.6 3.7 |

| Local name | Type | Field name & description per Annex II, EU 2018/574 | Annex II messages |
|---------------------------------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| aggregationType | integer | Aggregation_Type Identification of aggregation type; 1 – aggregation of only unit packet level UIs 2 – aggregation of only aggregated level UIs 3 – aggregation of both unit packet and aggregated level UIs | 3.2 |
| uiType | integer | UI_Type Identification of UI types in the dispatch (recorded at the highest level of available aggregation); 1 – only unit packet level UIs 2 – only aggregated level UIs 3 – both unit packet and aggregated level UIs | 3.3 3.4 3.5 3.7 |
| destinationID1 | integer | Destination_ID1 Indication of destination type: if the destination facility is located on the EU territory and if it is delivery to a vending machine (VM) or by means of a vending van (VV) delivering to multiple retail outlets in quantities that have not been predetermined in advance of the delivery 1 – Non EU dest. 2 – EU destination other than VM – fixed quantity delivery 3 – EU VM(s) 4 – EU destination other than VM – delivery with VV | 3.3 3.5 |
| destinationIDList AND destinationID | string | Destination_ID2 Destination_ID3 Destination_ID4 Destination facility identifier code, linking, as repeatable list elements, the SGLN of a given destination facility with the concatenated GS1 element strings AI (7040) and AI (414) representing that destination's Facility Identifier code, where AI (414) corresponds to the first two segments of the read point's SGLN EPC URI, for example: <fit:destinationIDList> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00777.0" gs1ElementString="(7040)5v9_(414)0614141007776"/> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00778.0" gs1ElementString="(7040)5v9_(414)0614141007783"/> </fit:destinationIDList> | 3.3 3.5 |
| destinationID5name | string | Destination_ID5 | 3.3 |
| destinationID5streetAddressOne | string | Destination facility's full address: street, house number, postal code, city | 3.5 |
| destinationID5streetAddressTwo | string | | |
| destinationID5city | string | | |
| destinationID5postalCode | string | | |
| destinationID5countryCode | code | | |

| Local name | Type | Field name & description per Annex II, EU 2018/574 | Annex II messages |
|------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| transportMode | integer | Transport_mode Mode of transport to which the product is trans-loaded, see: Commission Regulation (EC) No 684/2009, Annex 2, Code List 7; 1 – Sea Transport 2 – Rail transport 3 – Road transport 4 – Air transport 5 – Postal consignment 7 – Fixed transport installations 8 – Inland waterway transport | 3.3 3.5 |
| transportVehicle | string | Transport_vehicle Identification of the vehicle (i.e. number plates, train number, plane/flight number, ship name or other identification) | 3.3 3.5 |
| transportCont2 | string | Transport_cont2 Individual transport unit code of the container  Note that Annex II field “transportCont1” (indication if the transport is containerised and uses an individual transport unit code) is rendered superfluous by the inclusion or omission of the “transportCont2” field in the EPCIS event. Inclusion of “transportCont2” implies a “ Yes ” value for “transportCont1” | 3.3 3.5 |
| transportS1 | boolean false=no true=yes | Transport_s1 Indication if the dispatch takes place with the logistic/postal operator who operates its own track and trace system accepted by the Member State of the dispatch facility. Only for small quantities of tobacco products (net weight of the products dispatched below 10kg) destined for exports to third countries; 0 – No 1 – Yes | 3.3 |
| transportS2 | string | Transport_s2 The logistic operator's tracking number | 3.3 |
| emcsARC | string | EMCS_ARC Administrative Reference Code (ARC) | 3.3 3.5 |
| saadNumber | string | SAAD_number Reference number of the declaration and/or authorization which has to be given by the competent authority in the Member State of destination before the movement starts  Note that Annex II field “saad” (Dispatch with a simplified accompanying document, per Commission Regulation EEC No 3649/92) is rendered superfluous by the inclusion or omission of the “saadNumber” field in the EPCIS event. Inclusion of “saadNumber” implies a “ Yes ” value for “saad”; omission of “saadNumber” implies a “ No ” value for “saad”. | 3.3 |

| Local name | Type | Field name & description per Annex II, EU 2018/574 | Annex II messages |
|----------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| expDelcarationNumber | string | Exp_DeclarationNumber Movement Reference Number (MRN)  Note that Annex II field "expDeclaration" (Indication if the Movement Reference Number (MRN) has been issued by the customs office) is rendered superfluous by the inclusion or omission of the "expDeclarationNumber" field in the EPCIS event. Inclusion of "expDeclarationNumber" implies a "Yes" value for "expDeclaration"; omission of "expDeclarationNumber" implies a "No" value for "expDeclaration". | 3.3 |
| productReturn | boolean false=no true=yes | Product_Return Indication if the arriving products are a return following complete or partial non-delivery; 0 – No 1 – Yes | 3.4 |
| comment | string <i>max 1000 chars</i> | _comment Comments by the reporting entity | 3.1 3.2 3.3 3.4 3.5 3.6 3.7 |

3 Visibility events for Fighting Illicit Trade

For each business process step, the corresponding visibility event is listed below.

3.1 Application of unit level UIs on unit packets

Message 3.1, "Application of unit level UIs on unit packets", is captured in an EPCIS **Object Event** with business step **Commissioning**, as follows.

! In order to avoid a **THREEFOLD** increase in the data volume of EPCIS Events, it is **assumed** that the list of "corresponding unit packet level UIs to be recorded (as visible in human readable format)", referenced as "**upui_2**" in Annex II, will be derived from the **UPUI EPC URI encodings** in the *epcList* of the Object Event corresponding to FIT Message 3-1, per the provisions of GS1's EPC Tag Data Standard (TDS). TDS section 7 addresses correspondence between EPCs and GS1 Keys – including with that between the UPUI EPC and the combination of GS1 AIs (235) and (01) – with a subsection specifically focussed on **how "to find the GS1 element string corresponding to a UPUI EPC URI"**.

| EPCIS event | Event type | ObjectEvent |
|----------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Action | ADD |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | epcList | One or more packs, each identified by UPUI EPC URI. |
| WHERE | readPoint | GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code , represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example: <pre><readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5f(414)1234567890128</fit:fid> </readPoint></pre> |
| WHY | bizStep | commissioning |
| | disposition | active |
| FIT extensions | messageType | 3-1 |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <pre><fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5f(417)1234567890128"/></pre> |
| | fid | (see readPoint) |



| | | |
|--|---------|------------------------------------------------------------------------------|
| | comment | Optional free text comments by reporting entity, limited to 1000 characters. |
|--|---------|------------------------------------------------------------------------------|

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3.2 Application of aggregated level UIs on aggregated packaging

Message 3.2, "Application of aggregated level UIs on aggregated packaging", is captured in one or more EPCIS **Aggregation Events** – iterative as necessary, to allow for "nesting" of hierarchical levels – with business step **Packing**, as follows.

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! Because an EPCIS Aggregation Event can only depict the relationship between two hierarchical levels, multiple, nested levels of aggregation (e.g., child-to-parent, parent-to-grandparent, etc.) are depicted in EPCIS using as many Aggregation Events as necessary to depict aggregation each of these nested levels.

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3.2.1 Application of aggregated level UIs on units to carton

| | | |
|----------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPCIS event | Event type | AggregationEvent |
| | Action | ADD |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | parentID | One carton, identified by SGTIN EPC URI |
| | childEPCs | Multiple packs (e.g., usually 10), each identified by UPUI EPC URI. |
| WHERE | readPoint | <p>GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code, represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example:</p> <pre><readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5f(414)1234567890128</fit:fid> </readPoint></pre> |
| WHY | bizStep | packing |
| | disposition | in_progress |
| FIT extensions | messageType | 3-2 |
| | aggregationType | 2 (i.e., aggregation of "both unit packet and aggregated level UIs") |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <pre><fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5f(417)1234567890128"/></pre> |
| | fid | (see readPoint) |



| | | |
|--|---------|------------------------------------------------------------------------------|
| | comment | Optional free text comments by reporting entity, limited to 1000 characters. |
|--|---------|------------------------------------------------------------------------------|

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277 **3.2.2 Application of aggregated level UIs on cartons to case**

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| | | |
|----------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPCIS event | Event type | AggregationEvent |
| | Action | ADD |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | parentID | One case, identified by SGTIN EPC URI or SSCC EPC URI |
| | childEPCs | Multiple cartons, each identified by SGTIN EPC URI |
| WHERE | readPoint | <p>GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code, represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example:</p> <pre><readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5f(414)1234567890128</fit:fid> </readPoint></pre> |
| WHY | bizStep | packing |
| | disposition | in_progress |
| FIT extensions | messageType | 3-2 |
| | aggregationType | 2 (i.e., "aggregation of only aggregated level UIs") |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <pre><fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5f(417)1234567890128"/></pre> |
| | fid | (see readPoint) |
| | comment | Optional free text comments by reporting entity, limited to 1000 characters. |

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3.2.3 Application of aggregated level UIs on case to logistics unit

| | | |
|----------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPCIS event | Event type | AggregationEvent |
| | Action | ADD |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | parentID | One logistics unit, identified by SSCC EPC URI |
| | childEPCs | Multiple cases, each identified by SGTIN EPC URI or SSCC EPC URI |
| WHERE | readPoint | <p>GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code, represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example:</p> <pre><readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5f(414)1234567890128</fit:fid> </readPoint></pre> |
| WHY | bizStep | packing |
| | disposition | in_progress |
| FIT extensions | messageType | 3-2 |
| | aggregationType | 2 (i.e., aggregation of "only aggregated level UIs") |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <pre><fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5f(417)1234567890128"/></pre> |
| | fid | (see readPoint) |
| | comment | Optional free text comments by reporting entity, limited to 1000 characters. |

283

284 **3.3 Dispatch of tobacco products from a facility**

 285 Message 3.3, "Dispatch of tobacco products from a facility", is captured in an EPCIS **Object Event**
 286 with business step **Shipping**, as follows.

 287 **!** Because the Secondary Repository envisioned by 2018/574 will contain all visibility events, it
 288 would be unnecessarily redundant (with the effect of ballooning data volumes) to reiterate all nested
 289 aggregation levels subordinate to the logistics (most senior parent) level at the point of
 290 dispatch/receiving. For this reason, an Object Event is used instead of an Aggregation Event.

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| | | |
|----------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPCIS event | Event type | ObjectEvent |
| | Action | OBSERVE |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | epcList | One or more logistic units, each identified by SSCC EPC URI <i>note:</i> <i>the SSCC is tentatively reiterated in transportCont2 (Individual transport unit code of the container) and/or transportS2 (logistic operator's tracking number)</i> |
| WHERE | readPoint | GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code , represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example: <pre><readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5fv(414)1234567890128</fit:fid> </readPoint></pre> |
| WHY | bizStep | shipping |
| | disposition | in_transit |
| FIT extensions | messageType | 3-3 |
| | uiType | 2 (i.e., "only aggregated level UIs") |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <pre><fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5f(417)1234567890128"/></pre> |
| | fid | (see readPoint) |

| | |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| destinationID1 | <p><i>"Indication of destination type: if the destination facility is located on the EU territory and if it is delivery to a vending machine (VM) or by means of a vending van (VV) delivering to multiple retail outlets in quantities that have not been predetermined in advance of the delivery."</i></p> <p>1 – Non EU dest. 2 – EU destination other than VM – fixed quantity delivery 3 – EU VM(s) 4 – EU destination other than VM – delivery with VV</p> |
| destinationIDList AND destinationID | <p>FIT extension linking, as repeatable list elements, the SGLN of a given destination facility with the concatenated GS1 element strings AI (7040) and AI (414) representing that destination's Facility Identifier code, where AI (414) corresponds to the first two segments of the read point's SGLN EPC URI, for example:</p> <pre><fit:destinationIDList> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00777.0" gs1ElementString="(7040)5v9_(414)0614141007776"/> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00778.0" gs1ElementString="(7040)5v9_(414)0614141007783"/> </fit:destinationIDList></pre> <p>The repeatable list allows for indication of multiple destinations, without the need to correlate the despatched serialised units 1-to-1 with each respective destination, in cases where each unit's point of delivery can only be established at time of delivery rather than in advance (i.e., at time of dispatch).</p> |
| type="2" (non-vending-machine) | |
| type="3" (vending machine) | |
| type="4" (vending van ?) | |
| destinationID5name | name of destination facility |
| destinationID5streetAddressOne | address of destination facility |
| destinationID5streetAddressTwo | address of destination facility |
| destinationID5city | city of destination facility |
| destinationID5postalCode | postal code of destination facility |
| destinationID5countryCode | country code of destination facility |
| transportMode | <p><i>Mode of transport by which the product leaves the facility, see: Commission Regulation (EC) No 684/2009, Annex 2, Code List 7</i></p> <p>0 – Other 1 – Sea Transport 2 – Rail transport 3 – Road transport 4 – Air transport 5 – Postal consignment 7 – Fixed transport installations 8 – Inland waterway transport</p> |
| transportVehicle | <i>Free text identification of the vehicle (i.e. number plates, train number, plane/flight number, ship name or other identification).</i> |
| transportCont2 | Individual transport unit code of the container. |

| | |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>i Note that Annex II field "transportCont1" (indication if the transport is containerised and uses an individual transport unit code) is rendered superfluous by the inclusion or omission of the "transportCont2" field in the EPCIS event. Inclusion of "transportCont2" implies a "Yes" value for "transportCont1"; omission of "transportCont2" implies a "No" value for "transportCont1".</p> |
| transportS1 | <p>Indication if the dispatch takes place with the logistic/postal operator who operates its own track and trace system accepted by the Member State of the dispatch facility. Only for small quantities of tobacco products (net weight of the products dispatched below 10kg) destined for exports to third countries.</p> <p>false = No true = Yes</p> |
| transportS2 | The logistic operator's tracking number. |
| emcsARC | <p>Administrative Reference Code (ARC)</p> <p>i Note that Annex II field "emcs" (Dispatch under the Excise Movement and Control System, EMCS) is rendered superfluous by the inclusion or omission of the "emcsARC" field in the EPCIS event. Inclusion of "emcsARC" implies a "Yes" value for "emcs"; omission of "emcsARC" implies a "No" value for "emcs".</p> |
| saadNumber | <p>Reference number of the declaration and/or authorization which has to be given by the competent authority in the Member State of destination before the movement starts.</p> <p>i Note that Annex II field "saad" (Dispatch with a simplified accompanying document, per Commission Regulation EEC No 3649/92) is rendered superfluous by the inclusion or omission of the "transportCont2" field in the EPCIS event. Inclusion of "saadNumber" implies a "Yes" value for "saad"; omission of "saadNumber" implies a "No" value for "saad".</p> |
| expDeclarationNumber | <p>Movement Reference Number (MRN)</p> <p>i Note that Annex II field "expDeclaration" (Indication if the Movement Reference Number (MRN) has been issued by the customs office) is rendered superfluous by the inclusion or omission of the "expDeclarationNumber" field in the EPCIS event. Inclusion of "expDeclarationNumber" implies a "Yes" value for "expDeclaration"; omission of "expDeclarationNumber" implies a "No" value for "expDeclaration".</p> |
| comment | Optional free text comments by reporting entity, limited to 1000 characters. |

293 **3.4 Arrival of tobacco products at a facility**

 294 Message 3.4, "Arrival of tobacco products from a facility", is captured in an EPCIS **Object Event**
 295 with business step **Receiving**, as follows.

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| | | |
|-----------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPCIS event | Event type | ObjectEvent |
| | Action | OBSERVE |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | epcList | One logistics unit, identified by SSCC EPC URI |
| WHERE | readPoint | GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code , represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example: <pre> <readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5v9_(414)1234567890128</fit:fid> </readPoint> </pre> |
| | | |
| WHY | bizStep | receiving |
| | disposition | in_progress |
| FIT extensions | messageType | 3-4 |
| | uiType | 2 (i.e., "only aggregated level UIs") |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <pre> <fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5v9_(417)1234567890128"/> </pre> |
| | fid | (see readPoint) |
| | productReturn | Indication if the arriving products are a return following complete or partial non- delivery false = No true = Yes |
| | comment | Optional free text comments by reporting entity, limited to 1000 characters. |
| | | |

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298 **3.5 Trans-loading**

 299 Message 3.5, "Transloading", is captured as a symmetrical pair of EPCIS **Object Events (action**
 300 **OBSERVE)** with business step **Unloading** and **Loading** (respectively), as follows.

 301 **3.5.1 Unloading**

| EPCIS event | Event type | ObjectEvent |
|----------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | Action |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | epcList | One or more logistic units, each identified by SSCC EPC URI <i>note:</i> <i>the SSCC is tentatively reiterated in transportCont2 (Individual transport unit code of the container) and/or transportS2 (logistic operator's tracking number)</i> |
| WHERE | readPoint | geoURI identifying the geo-coordinates of unloading |
| WHY | bizStep | unloading |
| | disposition | in_progress |
| FIT extensions | messageType | 3-5 |
| | uiType | 2 <i>(i.e., "only aggregated level UIs")</i> |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <code><fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5v9_(417)1234567890128"/></code> |
| | destinationID1 | <i>"Indication of destination type: if the destination facility is located on the EU territory and if it is delivery to a vending machine (VM) or by means of a vending van (VV) delivering to multiple retail outlets in quantities that have not been predetermined in advance of the delivery."</i> 1 – Non EU dest. 2 – EU destination other than VM – fixed quantity delivery 3 – EU VM(s) 4 – EU destination other than VM – delivery with VV |
| | destinationID type="2" <i>(non-vending-machine)</i> type="3" <i>(vending machine)</i> | FIT extension linking, as repeatable list elements, the SGLN of a given destination facility with the concatenated GS1 element strings AI (7040) and AI (414) representing that destination's Facility Identifier code, where AI (414) corresponds to the first two segments of the read point's SGLN EPC URI, for example: <code><fit:destinationIDList> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00777.0" gs1ElementString="(7040)5v9_(414)0614141007776"/></code> |

| | |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type="4" (vending van ?) | <pre> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00778.0" gs1ElementString="(7040)5v9_(414)0614141007783"/> </fit:destinationIDList </pre> <p>The repeatable list allows for indication of multiple destinations, without the need to correlate the despatched serialised units 1-to-1 with each respective destination, in cases where each unit's point of delivery can only be established at time of delivery rather than in advance (i.e., at time of dispatch).</p> |
| destinationID5name | name of destination facility |
| destinationID5streetAddressOne | address of destination facility |
| destinationID5streetAddressTwo | address of destination facility |
| destinationID5city | city of destination facility |
| destinationID5postalCode | postal code of destination facility |
| destinationID5countryCode | country code of destination facility |
| transportMode | <p><i>"Mode of transport by which the product leaves the facility, see: Commission Regulation (EC) No 684/2009, Annex 2, Code List 7"</i></p> <p>0 – Other 1 – Sea Transport 2 – Rail transport 3 – Road transport 4 – Air transport 5 – Postal consignment 7 – Fixed transport installations 8 – Inland waterway transport</p> |
| transportVehicle | <i>Free text identification of the vehicle (i.e. number plates, train number, plane/flight number, ship name or other identification).</i> |
| transportCont2 | Individual transport unit code of the container. <p>i Note that Annex II field "transportCont1" (indication if the transport is containerised and uses an individual transport unit code) is rendered superfluous by the inclusion or omission of the "transportCont2" field in the EPCIS event. Inclusion of "transportCont2" implies a "Yes" value for "transportCont1"; omission of "transportCont2" implies a "No" value for "transportCont1".</p> |
| emcsARC | Administrative Reference Code (ARC) <p>i Note that Annex II field "emcs" (Dispatch under the Excise Movement and Control System, EMCS) is rendered superfluous by the inclusion or omission of the "emcsARC" field in the EPCIS event. Inclusion of "emcsARC" implies a "Yes" value for "emcs"; omission of "emcsARC" implies a "No" value for "emcs".</p> |
| comment | Optional free text comments by reporting entity, limited to 1000 characters. |

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3.5.2 Loading

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| | | |
|----------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPCIS event | Event type | ObjectEvent |
| | Action | OBSERVE |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | epcList | One or more logistic units, each identified by SSCC EPC URI <i>note: mirrored Transport_s2 (logistic operator's tracking number)</i> |
| WHERE | readPoint | geoURI identifying the geo-coordinates of loading |
| WHY | bizStep | loading |
| | disposition | in_transit |
| FIT extensions | messageType | 3-5 |
| | uiType | 2 (i.e., "only aggregated level UIs") |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <code><fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5v9_(417)1234567890128"/></code> |
| | destinationID1 | "Indication of destination type: if the destination facility is located on the EU territory and if it is delivery to a vending machine (VM) or by means of a vending van (VV) delivering to multiple retail outlets in quantities that have not been predetermined in advance of the delivery." 1 – Non EU dest. 2 – EU destination other than VM – fixed quantity delivery 3 – EU VM(s) 4 – EU destination other than VM – delivery with VV |
| | destinationID type="2" (non-vending-machine) type="3" (vending machine) type="4" (vending van ?) | FIT extension linking, as repeatable list elements, the SGLN of a given destination facility with the concatenated GS1 element strings AI (7040) and AI (414) representing that destination's Facility Identifier code, where AI (414) corresponds to the first two segments of the read point's SGLN EPC URI, for example: <code><fit:destinationIDList> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00777.0" gs1ElementString="(7040)5v9_(414)0614141007776"/> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00778.0" gs1ElementString="(7040)5v9_(414)0614141007783"/> </fit:destinationIDList></code> |

| | |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| destinationID5name | name of destination facility |
| destinationID5streetAddressOne | address of destination facility |
| destinationID5streetAddressTwo | address of destination facility |
| destinationID5city | city of destination facility |
| destinationID5postalCode | postal code of destination facility |
| destinationID5countryCode | country code of destination facility |
| transportMode | <p><i>"Mode of transport by which the product leaves the facility, see: Commission Regulation (EC) No 684/2009, Annex 2, Code List 7"</i></p> <p>0 – Other 1 – Sea Transport 2 – Rail transport 3 – Road transport 4 – Air transport 5 – Postal consignment 7 – Fixed transport installations 8 – Inland waterway transport</p> |
| transportVehicle | <p><i>"Identification of the vehicle (i.e. number plates, train number, plane/flight number, ship name or other identification)"</i></p> <p><i>Free text identification of the vehicle (i.e. number plates, train number, plane/flight number, ship name or other identification).</i></p> |
| transportCont2 | <p>Individual transport unit code of the container.</p> <p>i Note that Annex II field "transportCont1" (indication if the transport is containerised and uses an individual transport unit code) is rendered superfluous by the inclusion or omission of the "transportCont2" field in the EPCIS event. Inclusion of "transportCont2" implies a "Yes" value for "transportCont1"; omission of "transportCont2" implies a "No" value for "transportCont1".</p> |
| emcsARC | <p>Administrative Reference Code (ARC)</p> <p>i Note that Annex II field "emcs" (Dispatch under the Excise Movement and Control System, EMCS) is rendered superfluous by the inclusion or omission of the "emcsARC" field in the EPCIS event. Inclusion of "emcsARC" implies a "Yes" value for "emcs"; omission of "emcsARC" implies a "No" value for "emcs".</p> |
| comment | Optional free text comments by reporting entity, limited to 1000 characters. |

306 **3.6 Disaggregation of aggregated level UIs**

 307 Message 3.6, "Disaggregation of aggregated level UIs", is captured in an EPCIS **Aggregation Event**
 308 (**action DELETE**) with business step **Unpacking**, as follows.

 309 **!** Because an EPCIS Aggregation Event can only depict the relationship between two hierarchical
 310 levels, multiple, nested levels of aggregation (e.g., child-to-parent, parent-to-grandparent, etc.) are
 311 depicted in EPCIS using as many Aggregation Events as necessary to depict disaggregation each of
 312 these nested levels.

 313 **3.6.1 Disaggregation of aggregated level UIs from logistics unit to case**

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| EPCIS event | Event type | AggregationEvent |
|----------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Action | DELETE |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | parentID | One logistics unit, identified by SSCC EPC URI |
| | childEPCs | Multiple cases, each identified by SGTIN EPC URI or SSCC EPC URI |
| WHERE | readPoint | GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code , represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example: <pre> <readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5v9_(414)1234567890128</fit:fid> </readPoint> </pre> |
| WHY | bizStep | unpacking |
| | disposition | in_progress |
| FIT extensions | messageType | 3-6 |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <pre> <fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5v9_(417)1234567890128"/> </pre> |
| | fid | (see readPoint) |
| | comment | Optional free text comments by reporting entity, limited to 1000 characters. |

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316 3.6.2 Disaggregation of aggregated level UIs from case to carton

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| | | |
|----------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPCIS event | Event type | AggregationEvent |
| | Action | DELETE |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | parentID | One carton, identified by SGTIN EPC URI or SSCC EPC URI |
| | childEPCs | Multiple packs (e.g., usually 10), each identified by UPUI EPC URI. |
| WHERE | readPoint | <p>GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code, represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example:</p> <pre><readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5v9_(414)1234567890128</fit:fid> </readPoint></pre> |
| WHY | bizStep | unpacking |
| | disposition | in_progress |
| FIT extensions | messageType | 3-6 |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <pre><fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5v9_(417)1234567890128"/></pre> |
| | fid | (see readPoint) |
| | comment | Optional free text comments by reporting entity, limited to 1000 characters. |

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3.6.3 Disaggregation of aggregated level UIs from carton to units

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|----------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPCIS event | Event type | AggregationEvent |
| | Action | DELETE |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | parentID | One carton, identified by SGTIN EPC URI |
| | childEPCs | Multiple unit packs, each identified by UUPI EPC URI |
| WHERE | readPoint | <p>GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code, represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example:</p> <pre><readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5v9_(414)1234567890128</fit:fid> </readPoint></pre> |
| WHY | bizStep | unpacking |
| | disposition | in_progress |
| FIT extensions | messageType | 3-6 |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <pre><fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5v9_(417)1234567890128"/></pre> |
| | fid | (see readPoint) |
| | comment | Optional free text comments by reporting entity, limited to 1000 characters. |

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3.7 Report of delivery carried out with a vending van to a retail outlet

Message 3.7, "Report of delivery carried out with a vending van to a retail outlet", is captured in an EPCIS **Object Event (action OBSERVE)** with business step **Arriving**, as follows.

| | | |
|----------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPCIS event | Event type | ObjectEvent |
| | Action | OBSERVE |
| WHEN | eventTime | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | epcList | One or more logistic units, each identified by SSCC EPC URI |
| WHERE | readPoint | GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code , represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example: <pre><readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5v9_(414)1234567890128</fit:fid> </readPoint></pre> |
| WHY | bizStep | arriving |
| | disposition | in_progress |
| FIT extensions | messageType | 3-7 |
| | uiType | 2 (i.e., "only aggregated level UIs") |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <pre><fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5v9_(417)1234567890128"/></pre> |
| | fid | (see readPoint) |
| | comment | Optional free text comments by reporting entity, limited to 1000 characters. |

4 Conversion between on-pack, human readable GS1 element string and UPI EPC URI

The UPI EPC corresponds to a combination of a GTIN – AI (01) – in conjunction with a *Third Party Controlled, Serialised Extension of GTIN* (TPX) – AI (235).

4.1 To find GS1 element string corresponding to a UPI EPC URI:

1. Number the digits of the first two components of the UPI EPC. Note that there will always be a total of 13 digits.
2. Number the characters of the third component (TPX) of the UPI EPC. Each s_i corresponds to either a single character or to a percent-escape triplet consisting of a % character followed by two hexadecimal digit characters.
3. Calculate the check digit $d_{14} = (10 - ((3(d_1 + d_3 + d_5 + d_7 + d_9 + d_{11} + d_{13}) + (d_2 + d_4 + d_6 + d_8 + d_{10} + d_{12}))) \bmod 10) \bmod 10$.
4. Arrange the resulting digits and characters as shown for the GS1 element string. If any s_i in the EPC URI is a percent-escape triplet %xx, in the GS1 element string replace the triplet with the corresponding character according to *Table A 1 of GS1's EPC Tag Data Standard (TDS)*.

Example UPI EPC URI (encoded input):

```
<epc>urn:epc:id:upui:1234567.089456.51qIgY)%3C%26Jp3*j7'SDB</epc>
```

Example GS1 element string (decoded output):

```
GS1 element string: (01)01234567894560(235)51qIgY)<&Jp3*j7'SDB
```

To convert the aforementioned GS1 element string to the human readable version that will appear on unit packs, reverse the order so that AI (235) precedes AI (01).

Example of human-readable GS1 element string on unit pack (result):

```
(235)51qIgY)<&Jp3*j7'SDB(01)01234567894560
```

4.2 To find UPI EPC URI corresponding to GS1 element string that includes both a GTIN (AI 01) and TPX (AI 235):

1. Number the digits and characters of the GS1 element string as shown above.
2. Except for a GTIN-8, determine the number of digits L in the GS1 Company Prefix. This may be done, for example, by reference to an external table of company prefixes. See *section 7.1.2 of GS1's EPC Tag Data Standard (TDS)* for the case of a GTIN-8.
3. Arrange the digits as shown for the EPC URI. Note that the GTIN check digit d_{14} is not included in the EPC URI. For each serial number character s_i , replace it with the corresponding value in the "URI Form" column of *Table A 1 of GS1's EPC Tag Data Standard (TDS)* – either the character itself or a percent-escape triplet if s_i is not a legal URI character.

Example GS1 element string (encoded input):

```
GS1 element string: (01)01234567894560(235)51qIgY)<&Jp3*j7'SDB
```

Example UPI EPC URI (decoded output):

```
<epc>urn:epc:id:upui:1234567.089456.51qIgY)%3C%26Jp3*j7'SDB</epc>
```

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5 Recalls of requests, operational and transactional messages

Recalls of events used for Messages 3.1-3.7 will be satisfied by leveraging the **EPCIS Error Declaration** mechanism.

Sometimes, EPCIS Events are captured in error. Because EPCIS is a journaling mechanism, the erroneous EPCIS events SHALL NOT be deleted from the repository or database where they are stored. Instead, the method of remediation is to issue an **EPCIS error declaration event**. This looks just like the original, erroneous event, but with the addition of an error declaration section.

Both events together could look like the example below, which illustrates an ObjectEvent captured in error for a shipment which never occurred; the erroneous Object Event is followed by an EPCIS error declaration event.

| EPCIS event | Event type | ObjectEvent | ObjectEvent |
|-------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Action | OBSERVE | OBSERVE |
| error Declaration | declarationTime | | Date/time of Error Declaration |
| | reason | | did_not_occur |
| WHEN | eventTime | Date/time of event | Date/time of event |
| | eventTimeZoneOffset | Time zone offset from UTC in effect at the time and place the event occurred. | Time zone offset from UTC in effect at the time and place the event occurred. |
| WHAT | epcList | One or more logistic units, each identified by SSCC EPC URI | One or more logistic units, each identified by SSCC EPC URI |
| WHERE | readPoint | <p>GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code, represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example:</p> <pre><readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5v9_(414)1234567890128</fit:fid> </readPoint></pre> | <p>GLN identifying the facility, <id> expressed as SGLN EPC URI, qualified by <fit:fid> extension to the readPoint, linking the SGLN of the readPoint to the Facility Identifier code, represented by the concatenated GS1 element strings AI (7040) and AI (414), where AI (414) corresponds to the first two segments of the readPoint's SGLN EPC URI, for example:</p> <pre><readPoint> <id>urn:epc:id:sgln:1234567.89012.0</id> <fit:fid>(7040)5v9_(414)1234567890128</fit:fid> </readPoint></pre> |
| WHY | bizStep | shipping | shipping |

| | | | |
|----------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | disposition | in_transit | in_transit |
| FIT extensions | messageType | 3-3 | 3-3 |
| | uiType | 2 (i.e., "only aggregated level UIs") | 2 (i.e., "only aggregated level UIs") |
| | eoid | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5f(417)1234567890128"/> | concatenation of GS1 element strings AI (7040) and AI (417), UIM and GLN representing Economic Operator identifier code of submitting entity, <fit:eoid epc="urn:epc:id:pgln:1234567.89012" gs1ElementString="(7040)5f(417)1234567890128"/> |
| | fid | (see readPoint) | (see readPoint) |
| | destinationID1 | <i>"Indication of destination type: if the destination facility is located on the EU territory and if it is delivery to a vending machine (VM) or by means of a vending van (VV) delivering to multiple retail outlets in quantities that have not been predetermined in advance of the delivery."</i> 1 – Non EU dest. 2 – EU destination other than VM – fixed quantity delivery 3 – EU VM(s) 4 – EU destination other than VM – delivery with VV | <i>"Indication of destination type: if the destination facility is located on the EU territory and if it is delivery to a vending machine (VM) or by means of a vending van (VV) delivering to multiple retail outlets in quantities that have not been predetermined in advance of the delivery."</i> 1 – Non EU dest. 2 – EU destination other than VM – fixed quantity delivery 3 – EU VM(s) 4 – EU destination other than VM – delivery with VV |
| | destinationID type="2" (non-vending-machine) type="3" (vending machine) type="4" (vending van ?) | FIT extension linking, as repeatable list elements, the SGLN of a given destination facility with the concatenated GS1 element strings AI (7040) and AI (414) representing that destination's Facility Identifier code, where AI (414) corresponds to the first two segments of the read point's SGLN EPC URI, for example: <fit:destinationIDList> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00777.0" gs1ElementString="(7040)5v9_(414)0614141007776"/> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00778.0" gs1ElementString="(70 | FIT extension linking, as repeatable list elements, the SGLN of a given destination facility with the concatenated GS1 element strings AI (7040) and AI (414) representing that destination's Facility Identifier code, where AI (414) corresponds to the first two segments of the read point's SGLN EPC URI, for example: <fit:destinationIDList> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00777.0" gs1ElementString="(7040)5v9_(414)0614141007776"/> <fit:destinationID type="2" epc="urn:epc:id:sgln:0614141.00778.0" gs1ElementString="(70 |

| | | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>40)5v9_(414)061414100 7783"/> </fit:destinationIDList></p> | <p>40)5v9_(414)061414100 7783"/> </fit:destinationIDList></p> |
| destinationID5name | name of destination facility | name of destination facility |
| destinationID5streetAddressOne | address of destination facility | address of destination facility |
| destinationID5streetAddressTwo | address of destination facility | address of destination facility |
| destinationID5city | city of destination facility | city of destination facility |
| destinationID5postalCode | postal code of destination facility | postal code of destination facility |
| destinationID5countryCode | country code of destination facility | country code of destination facility |
| transportMode | <p><i>Mode of transport by which the product leaves the facility, see: Commission Regulation (EC) No 684/2009, Annex 2, Code List 7</i></p> <p>0 – Other 1 – Sea Transport 2 – Rail transport 3 – Road transport 4 – Air transport 5 – Postal consignment 7 – Fixed transport installations 8 – Inland waterway transport</p> | <p><i>Mode of transport by which the product leaves the facility, see: Commission Regulation (EC) No 684/2009, Annex 2, Code List 7</i></p> <p>0 – Other 1 – Sea Transport 2 – Rail transport 3 – Road transport 4 – Air transport 5 – Postal consignment 7 – Fixed transport installations 8 – Inland waterway transport</p> |
| transportVehicle | <i>Free text identification of the vehicle (i.e. number plates, train number, plane/flight number, ship name or other identification).</i> | <i>Free text identification of the vehicle (i.e. number plates, train number, plane/flight number, ship name or other identification).</i> |
| transportCont2 | Individual transport unit code of the container | Individual transport unit code of the container |
| transportS1 | Indication if the dispatch takes place with the logistic/postal operator who operates its own track and trace system accepted by the Member false = No true = Yes State of the dispatch facility. Only for small quantities of tobacco products (net weight of the products dispatched below 10kg) destined for exports to third countries. | Indication if the dispatch takes place with the logistic/postal operator who operates its own track and trace system accepted by the Member false = No true = Yes State of the dispatch facility. Only for small quantities of tobacco products (net weight of the products dispatched below 10kg) destined for exports to third countries. |
| transportS2 | The logistic operator's tracking number | The logistic operator's tracking number |
| emcsARC | Administrative Reference Code (ARC) | Administrative Reference Code (ARC) |
| saadNumber | Reference number of the declaration and/or authorization which has to be given by the competent authority in the Member State of destination before the movement starts. | Reference number of the declaration and/or authorization which has to be given by the competent authority in the Member State of destination before the movement starts. |

| | | | |
|-----------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <p>i Note that Annex II field “saad” (Dispatch with a simplified accompanying document, per Commission Regulation EEC No 3649/92) is rendered superfluous by the inclusion or omission of the “saadNumber” field in the EPCIS event. Inclusion of “saadNumber” implies a “Yes” value for “saad”; omission of “saadNumber” implies a “No” value for “saad”.</p> | <p>i Note that Annex II field “saad” (Dispatch with a simplified accompanying document, per Commission Regulation EEC No 3649/92) is rendered superfluous by the inclusion or omission of the “saadNumber” field in the EPCIS event. Inclusion of “saadNumber” implies a “Yes” value for “saad”; omission of “saadNumber” implies a “No” value for “saad”.</p> |
| expDeclaration Number | Movement Reference Number (MRN) | <p>i Note that Annex II field “expDeclaration” (Indication if the Movement Reference Number (MRN) has been issued by the customs office) is rendered superfluous by the inclusion or omission of the “expDeclarationNumber” field in the EPCIS event. Inclusion of “expDeclarationNumber” implies a “Yes” value for “expDeclaration”; omission of “expDeclarationNumber” implies a “No” value for “expDeclaration”.</p> | <p>i Note that Annex II field “expDeclaration” (Indication if the Movement Reference Number (MRN) has been issued by the customs office) is rendered superfluous by the inclusion or omission of the “expDeclarationNumber” field in the EPCIS event. Inclusion of “expDeclarationNumber” implies a “Yes” value for “expDeclaration”; omission of “expDeclarationNumber” implies a “No” value for “expDeclaration”.</p> |
| comment | Optional free text comments by reporting entity, limited to 1000 characters. | Optional free text comments by reporting entity, limited to 1000 characters. | Optional free text comments by reporting entity, limited to 1000 characters. |