

4.3 AutoPASS Formats

Appendixes

DOCUMENT STATUS

Document number:	4.3 AutoPASS Data Formats Appendixes

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1 Appendix overview

Appendix A-series (AutoPASS HUB formats)		
Appendix name	Format name	Information
A1 - ACT Format	ACT	
A2 - TST Format	TST	
A3 - AIT Format	AIT	
A4 - Whitelist Format	HGV, HGC, HGVC	HGC is confirmation file
A5 - OBUStatus File	NSL	
A6 - Blacklist Format	NAT, NOC	HOC is confirmation file
A7 - TIF & TIC Format	TIF, TIC	TIC is confirmation file
A8 - Transaction File		
A9 - Picture File		
A10 - Picture Text File		
A11 – Tariff File		
A12 - Exception Messages		
A13 - Alarm Messages	ALM, ALC	ALC is confirmation file

Appendix B-series (Tables)		
Appendix name	Format name	Information
B1 - Tables		

Appendix C-series (Other formats and specifications)		
Appendix name	Format name	Information
C5 – Image processing supplier specification		
C6 – Transaksjonsformat 4.3 for Ferry		Draft

4.3 AutoPASS Formats

Appendix A01– ACT Format

DOCUMENT STATUS

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DOCUMENT STATUS 2

1.1 ACT (ACTOR TABLE) ..... **FEIL! BOKMERKE ER IKKE DEFINERT.**

1.1.1 Description *4*

1.1.2 Format Actor Table file (Version 130001) *5*

1.1 Actor Table (ACT)

1.1.1 Description

This table is produced by the EasyGo management which maintains it according to the general rules for all Toll Service Providers (TSP), Toll Chargers (TC), EGH and others which have a defined role in EasyGo. This table is created and maintained by the EasyGo management and compiled at the (EGH) and distributed in a file to all actors. The information from the actors can be sent either by mail to the EasyGo management or as an ACT file only containing data from the sender. All changes shall result in a transfer of an updated Actor Table file to all actors. The data in the Actor Table is used to verify that all partners are authorized. If the same toll company has a combined TC/TSP role it will be represented in both roles, with separate ID's for each role. This table is a part of the data set "EFC context data" referred to in the business process "Originate and distribute EFC context data".

The Actor ID is used as identifier either as sender or receiver in all data exchange. The Actor ID used shall preferably be according to ISO 14816 /ISO 14906. A TSP is usually registered with an ID according to ISO 14816. An agreed coding within each country, where the first 1 or 2 characters are unique for the country, will be used in EasyGo. A TC is usually not registered with an ID according to ISO 14816. The EasyGo management shall ensure a unique Actor ID for TCs and CFCs in EasyGo until international standards are established for TCs and CFCs.

The EGH also have dedicated Actor IDs. In addition, one special "Actor ID" (999999) is reserved for a broadcast from the EGH (Previous NCFC) to all actors. When a complete ACT file is sent to all actors at once the ID of the recipient is 999999. If a limited ACT file is sent to a specific TC or TSP the Actor ID of the recipient of the filtered file is used in the header and the filename.

The data in the table is divided in two categories:
1. Data which shall not be changed (marked as "No change")
2 Data which can be updated upon request

Format of filename	Old:	ACTxxxxxxyyyymmddss_vvvvvv (26 characters)
	New:	ACTxxxxxxyyyymmddss_zzzzzz_vvvvvv (33 characters)
Format of list name:		ACTxxxxxxyyyymmddss (19 characters)

xxxxxx = Identifier of the sender of the Actor Table (6 characters). An Actor Table is sent from the EGH where the Actor ID of the EGH is used as sender.
yyyy = Year (4 characters)
mm = Month (2 characters)
dd = Date (2 characters)
ss = Sequence within the day (sequential number of 2 characters increased for each file of this type sent per day beginning with 01)
zzzzzz = The receiver 999999 is used in order to distributed a complete list to all connected TCs and TSPs automatically. If a filtered list is sent to a specific TC or TSP the ID of the TC or TSP is used as recipient
vvvvvv = Version name

1.1.2 Format Actor Table file (Version 130001)

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing	Update req. test. Yes
Header									
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory		
Sender Identifier	6	AlphaN	2	7	Actor ID 6 digits identifier of the Company having created this file and sending the file.		Mandatory		
Receiver Identifier	6	AlphaN	8	13	Actor ID 6 digits identifier of the Company receiving this file		Mandatory		
List Sequence	19	AlphaN	14	32	ACTxxxxxxYYYYMMDDSS		Mandatory		
Previous List Sequence	19	AlphaN	33	51	ACTxxxxxxYYYYMMDDSS (ACT000000000000000 if first list)		Mandatory		
Moment of activation	14	Numeric	52	65	YYYYMMDDHHmmss UTC (Filled with zero if no value, activation immediately after processing) If the "Moment of activation" is filled with a moment in the future and a newer version of the ACT is delivered, with a processing date prior to this date (or for immediate processing), the older file will be discarded without processing it.		Mandatory		
Number of records	15	Numeric	66	80	Number of records (lines) in Body		Mandatory		
Moment of creation	14	Numeric	81	94	YYYYMMDDHHmmss UTC		Mandatory		
List format version	6	AlphaN	95	100	The value to be filled in is defined above. This will allow for individual time schedules for updating of actors systems.		Mandatory		
Filler	27	AlphaN	101	127	Reserved for future use, filled with Zeros		Mandatory	0	
End of header	1	AlphaN	128	128	End of line		Mandatory		
Body									
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory		
ActorID	6	AlphaN	2	7	Unique ID identifier in the EasyGo system for the actor responsible for the following data. **Shall not be changed.**		Mandatory		No change
Actor ID Connected	6	AlphaN	8	13	If the Actor X has appointed another Actor Y to acts on its behalf the Actor ID of Y shall be stated. Several Actors may appoint the same Actor Y. If no actor is appointed to act on behalf of the Actor the value of the actor or 000000 must be stated.		Mandatory		
Actor ID Connected CFC	6	AlphaN	14	19	EasyGo HUB is 200000		Mandatory		
Actor Type	2	AlphaN	20	21	Code for identification of actor type: 10 – EasyGo HUB 11 –ACFC (only for administrative purpose) 30 – Toll Service Provider (TSP) 31 – Toll Charger (TC)		Mandatory		No change
Actor name	30	AlphaN	22	51	Full name of actor.		Mandatory		
Address	50	AlphaN	52	101	Full (except postal code/city) address of actor, preferably postal address.		Mandatory		
Postal code	6	AlphaN	102	107	Postal code of address (no country prefix),		Mandatory		
Country code	3	AlphaN	108	110	Number according ISO 3166-1-Alpha-2 code elements (DK = Denmark, NO = Norway, AT = Austria, SE = Sweden etc…)		Mandatory		
Telephone working time	15	AlphaN	111	125	(*)		Mandatory		
Telephone outside working time	15	AlphaN	126	140	(*)		Optional		
Telefax	15	AlphaN	141	155	(*)		Optional		
Mobile phone	15	AlphaN	156	170	(*)		Optional		

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing	Update req. test. Yes
Internet – web site	100	AlphaN	171	270			Mandatory		
E-mail address	100	AlphaN	271	370			Mandatory		
Customer related contact	30	AlphaN	371	400	Name of the contractual responsible person in the company. Changed content in the field) fieldname do longer not correspond to the content of the field.		Mandatory		
Contact– Direct telephone	15	AlphaN	401	415	(*)		Mandatory		
Contact – Direct mobile	15	AlphaN	416	430	(*)		Optional		
Contact – Direct e-mail	100	AlphaN	431	530	Should be a group mail		Mandatory		
IT support contact	30	AlphaN	531	560	IT support contact for actor		Mandatory		
IT support contact– Direct telephone	15	AlphaN	561	575	(*)		Mandatory		
IT support contact– Direct mobile	15	AlphaN	576	590	(*)		Optional		
IT support contact– Direct e-mail	50	AlphaN	591	640	Should be a group mail or service desk mail address		Mandatory		
Mails from EasyGo HUB	50	AlphaN	641	690	All mails from the EasyGo to an actor will be send to this mail.		Mandatory		
Administrative contact Financial and data exchange	30	AlphaN	691	720	Administrative contact department for actor. Handling matters between TC and TSP, primarily data content in files and payment of transaction and TSP fee.		Mandatory		
Administrative contact– Direct telephone	15	AlphaN	721	735	(*)		Optional		
Administrative contact– Direct mobile	15	AlphaN	736	750	(*)		Optional		
Administrative contact– Direct e-mail	100	AlphaN	751	850	Should be group mail		Mandatory		
Bank account number	20	AlphaN	851	870	Bank account number for actor (for local use between national actors). (*)		Optional		
Description	50	AlphaN	871	920	Description of actor.		Mandatory		
Date established	8	AlphaN	921	928	Format: ddmmyyyy. Date for establishment of actor		Mandatory		
TypeofContract AutoPass	16	AlphaN	929	944	Only if Norwegian TSP A code for the type of contract TSP has as a part of AIP. Blank if TC. Only used in AutoPass		Optional		
VAT-number 1 for Currency 1 (Organization number)	20	AlphaN	945	964	The actors VAT number starting with a two letter national code within the EU (e.g. AT, DK, and SE). The VAT number is numerical in Norway.		Mandatory		
IBAN number	28	AlphaN	965	992	The actors IBAN-number for international payments in Currency 1. May be used for all currencies if no other bank accounts are stated.		Mandatory		
BIC code	11	AlphaN	993	1003	The actors BIC code for international payments.		Mandatory		
Postal address (place/city name) (Address of the TC)	30	AlphaN	1004	1033	Postal place/city name. Mandatory city name for TC. Additional information when Post Box is used in order to specify the geographical location.		Mandatory		
Currency 1	3	AlphaN	1034	1036	The currency of the actor's VAT number 1.		Mandatory		
VAT-number 2 for Currency 2	20	AlphaN	1037	1056	The actor's VAT-number 2 if a second currency is used. Mandatory if Currency 2 is stated.		Mandatory/Optional		
Currency 2	3	AlphaN	1057	1059	The currency of the actor's VAT number 2 (if a second currency is used).		Optional		
IBAN number currency 2	28	AlphaN	1060	1087	The actor's IBAN-number 2 for international payments in Currency 2		Optional		
BIC/ code currency 2	11	AlphaN	1088	1098	The actor's BIC code 2 for international payments in Currency 2		Optional		
TC type	1	AlpahN	1099	1099	Value A = EasyGo HUB B = The TC is a General Party in the JVA. C = The TC is a Limited Party to the JVA D = Service Recipient TC F = The TSP is an EasyGo TSP. G = Service Recipient TSP		Optional/ Mandatory		

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing	Update req. test. Yes
TC operational name	30	AlpahN	1100	1129	Name of operational company acting on behalf of the TC if outsourced.		Optional		
Type of charge	2	Numeric	1130	1131	Fee, duty or tax. 00 - no information 01 – Tax 02 – Duty (Custom) 03 – Fee (Private or public)		Mandatory		
Currency 3	3	AlphaN	1132	1134	The currency of the actor's VAT-number 3 (if a third currency is used)		Optional		
VAT-number 3 for currency 3	20	AlphaN	1135	1154	The actor's VAT-number 3 if a third currency is used. Mandatory if Currency 3 is stated.		Mandatory/Optional		
IBAN number currency 3	30	AlphaN	1155	1184	The actor's IBAN-number 3 for international payments in Currency 3		Optional		
BIC code currency 3	11	AlphaN	1185	1195	The actor's BIC code 3 for international payments in Currency 3		Optional		
Currency 4	3	AlphaN	1196	1198	The currency of the actor's VAT-number 4 (if a fourth currency is used)		Optional		
VAT-number 4 for currency 4	20	AlphaN	1199	1218	The actor's VAT-number 4 if a fourth currency is used. Mandatory if Currency 4 is stated.		Mandatory/Optional		
IBAN number currency 4	30	AlphaN	1219	1248	The actor's IBAN-number 4 for international payments in Currency 4		Optional		
BIC code currency 4	11	AlphaN	1249	1259	The actor's BIC code 4 for international payments in Currency 4		Optional		
Company registration number	20	AlphaN	1260	1279	The actors registration number at the local trade office		Mandatory		
For later use	150	AlphaN	1380	1429	Filled in with '0's		Mandatory	0	
End of record	1	AlphaN	1430	1430	End of line		Mandatory		
Footer									
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory		
Filler	62	AlphaN	2	63	Reserved for future use, filled with Zeros		Mandatory	0	
End of Footer	1	AlphaN	64	64	End of line		Mandatory		

(*) - Numbers represented with numerals only (without spaces as separators in between digits). For telephone numbers also national prefix is included (e.g. 0047….)

A currency can only be stated once. It is not allowed to attach two bank accounts to the same currency.
The same bank account can however be used for several currencies. It is the responsibility of the recipient of a bank transfer to keep track of the received currencies and amounts.
If the TSP service is performed from one country allowing for different currencies the VAT number may be the same for several currencies.



4.3 AutoPASS Formats

Appendix A02 TST Format

DOCUMENT STATUS

Document number:	4.3 AutoPASS Data Formats Appendix A02

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DOCUMENT STATUS 2

1.1 TST (TOLL STATION TABLE) FILE 4

1.1.1 Description 4

1.1.2 Format Toll Station Table file (Version 130001) 5

1.1 TST (Toll Station Table) file

1.1.1 Description

This file is produced by the EasyGo TCs based on information from Toll Stations according to the general rules of coding. The term Toll Station is also used for parking facilities, ferry companies and other installations. This file is a part of the data set “EFC context data” referred to in the business process “Originate and distribute EFC context data”.

The Toll Station Table file is compiled in the EGH based on information provided by each TC. When a complete EasyGo Toll Station Table file is sent to all actors at once the ID of the recipient is 999999. If a limited TST file is send to a specific TC or TSP the Actor ID of the recipient of the filtered file is used in the header and the filename.

The TST Is distributed to each individual TSP and TC.

Format of filename	Old:	TSTxxxxxxyyyymmddss_vvvvvv (26 characters)
	New:	TSTxxxxxxyyyymmddss_zzzzzz_vvvvvv (33 characters)
Format of list name:		TSTxxxxxxyyyymmddss (19 characters)

xxxxxx = Identifier of the sender of the Toll Station Table file, originated by a TC (6 characters).

yyyy = Year (4 characters)

mm = Month (2 characters)

dd = Date (2 characters)

ss = Sequence within the day (sequential number of 2 characters increased separately for each file per each sender/receiver combination per day beginning with 01)

zzzzzz = When the EGH compiles and sends a “global” Toll Station Table file, it is sent from the EGH where the Actor ID of the EGH is used as sender and 999999 is used as receiver. If a limited TST file is send to a specific TC or TSP the Actor ID of the recipient of the filtered file used in the header and the filename.

vvvvvv = Version name

1.1.2 Format Toll Station Table file (Version 130001)

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
Header								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Sender Identifier	6	AlphaN	2	7	6 digits identifier of the Company having created this file. Either TC or EGH		Mandatory	
Receiver Identifier	6	AlphaN	8	13	6 digits identifier of the Company having received this file.		Mandatory	
List Sequence	19	AlphaN	14	32	TSTxxxxxxYYYYMMDDSS		Mandatory	
Previous List Sequence	19	AlphaN	33	51	TSTxxxxxxYYYYMMDDSS (TST000000000000 in first list)		Mandatory	
Moment of activation	14	Numeric	52	65	YYYYMMDDHHmmss UTC (Filled with zero if no value, activation immediately after processing) If the “Moment of activation” is filled with a moment in the future and a newer version of the TST is delivered, with a processing date prior to this date (or for immediate processing), the older file will be discarded without processing it.		Optional	
Number of records	15	Numeric	66	80	Number of records (lines) in Body		Mandatory	
Moment of creation	14	Numeric	81	94	YYYYMMDDHHmmss UTC		Mandatory	
List format version	6	AlphaN	95	100	The value to be filled in is defined above. This will allow actors for individual time schedules for updating of systems.		Mandatory	
Filler	27	AlphaN	101	127	Reserved for future use, filled with Zeros		Mandatory	0
End of header	1	AlphaN	128	128	End of line		Mandatory	
Body								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Country code	2	AlphaN	2	3	ISO 3166-1-Alpha-2 code elements (DK = Denmark, NO = Norway, AT = Austria, SE = Sweden etc…)		Mandatory	
ActorID*	6	AlphaN	4	9	6 digits identifier of the TC. Unique ID identifier in the EasyGo system for the actor responsible for the following data.		Mandatory	
TC Name	25	AlphaN	10	34	Name of the TC		Mandatory	
Network Code	2	Numeric	35	36	2 digits identifier of the Network The network can be used to group stations. It is only for administrative purpose not a part of a unique ID. Only the last digit is referenced in the TIF file		Mandatory	
Network Name	20	AlphaN	37	56	Name of the network		Mandatory	
Road number	4	AlphaN	57	60	Number of the road the station is located on (E6, E20, A23....)		Mandatory	
Station Code*	4	Numeric	61	64	4 digits identifier of the Station. This is unique for each ActorID and Lane identification. For aggregated transactions the fictive number 9999 is to be defined in this list and used in the TIF file (e.g. Austria).		Mandatory	
Station Name short **	25	AlphaN	65	89	Short name of the Station		Mandatory	
Station direction Code	2	AlphaN	90	91	Direction 31 or 32 (Example from Storebælt)		Optional	
Station direction Description	25	AlphaN	92	116	(Example from Storebælt) Direction: Fyn/Sj. / east bound = 31, Sj/Fyn / west bound = 32.		Optional	
Lane identification*	4	AlphaN	117	120	Identification of the lane to be used in the TIF list. I.e. Lane number.		Mandatory	
Type of the Station	2	Numeric	121	122	Code which identifies the type of toll station: "01" Open "02" Closed entry “03” Closed exit “04” Checkpoint “05” Open Road Tolling – OBE or Video based fully automatically. I.e. Fjellinien Oslo or E6 Norway “06” Distance based free flow – DSRC OBE only (i.e. Austria) “07” Distance based free flow – Virtual transaction only (i.e. Austria)		Mandatory	
Station name long **	60	AlphaN	123	182	If the Station name is longer than 25 char this field shall be used to include the full description in addition to the short description.		Mandatory	

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
GNSS coordinate longitude	10	AlphaN	183	192	GNSS coordinate of Toll station longitude		Optional	
GNSS coordinate Latitude	10	AlphaN	193	202	GNSS coordinate of Toll station Latitude		Optional	
Filler	30	AlphaN	203	232	Reserved for future use, filled with Zeros		Mandatory	0
End of Record	1	AlphaN	233	233	End of line		Mandatory	
Footer								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Filler	62	AlphaN	2	63	Reserved for future use, filled with Zeros		Mandatory	0
End of Footer	1	AlphaN	64	64	End of line		Mandatory	

* The combination of ActorID, Station code and Lane identification is to be unique

** Both fields are filled. The short name shall be useful as description on an invoice if to be stated.

Note that the combination – Actor ID (TC) number, station code, lane ID shall be unique.



4.3 AutoPASS Formats

Appendix A03– AIT Format

DOCUMENT STATUS

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Norwegian Public Roads Administration	Kåre Inge Viken	08.06.2017	

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DOCUMENT STATUS 2

AIT (ACCEPTED ISSUER TABLE) FILE 4

1.1.1 Description 4

1.1.2 Format AIT file (Version 130001) 5

AIT (Accepted Issuer Table) file

1.1.1 Description

This file is produced by the EasyGo TSPs with the coding of the OBE being part of the common EFC service as received from all TSP. The file is a part of the data set “EFC context data” referred to in the business process “Originate and distribute EFC context data”.

The list is a data element generated by combining information from each TSP and delivered to TCs. The list informs the TCs about the identifiers of the issued OBE, which have to be accepted at tolling facilities for the EasyGo service (if the OBE is valid).

The Accepted Issuer Table file is compiled in the EGH based on the information provided by each TSP. The EasyGo Accepted Issuer Table file is distributed to each individual TSP and TC.

Format of filename Old: AITxxxxxxyyyymmddss_vvvvvv (26 Characters)

New: AITxxxxxxyyyymmddss_zzzzzz_vvvvvv (33 Characters)

Format of list name: AITxxxxxxddmmyyyyss (19 Characters)

xxxxxx = Identifier of the sender of the AIT file. Originated by a TSP (6 characters). The compiled AIT file is sent from the EGH where the Actor ID of the EGH is used as sender

yyyy = Year (4 characters)

mm = Month (2 characters)

dd = Date (2 characters)

ss = Sequence within the day (sequential number of 2 characters increased separately for each file per each sender/receiver combination per day beginning with 01)

zzzzzz = 999999 is used as recipient when a complete global AIT list is sent. If an actor only wants a part of the list it will be filtered as agreed and the Actor ID of the actor will be used as recipient.

vvvvvv = Version name

1.1.2 Format AIT file (Version 130001)

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
Header								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Sender Identifier	6	AlphaN	2	7	6 digits identifier of the Company having created this file. Either TSP or EGH		Mandatory	
Receiver Identifier	6	AlphaN	8	13	6 digits identifier of the Company having received this file.		Mandatory	
List Sequence	19	AlphaN	14	32	AITxxxxxxYYYYMMDDSS		Mandatory	
Previous List Sequence	19	AlphaN	33	51	AITxxxxxxYYYYMMDDSS (AIT0000000000000000 in first list)		Mandatory	
Moment of activation	14	Numeric	52	65	YYYYMMDDHHmmss UTC (Filled with zero if no value, activation immediately after processing) If the “Moment of activation” is filled with a moment in the future and a newer version of the AIT is delivered, with a processing date prior to this date (or for immediate processing), the older file will be discarded without processing it.		Optional	
Number of records	15	Numeric	66	80	Number of records (lines) in Body		Mandatory	
Moment of creation	14	Numeric	81	94	YYYYMMDDHHmmss UTC		Mandatory	
List format version	6	AlphaN	95	100	The value to be filled in is defined above. This will allow actors for individual time schedules for updating of systems.		Mandatory	
Filler	27	AlphaN	101	127	Reserved for future use, filled with Zeros		Mandatory	0
End of header	1	AlphaN	128	128	End of line		Mandatory	
Body								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
BIN	6	AlphaN	2	7	Number of the BIN (6 first digit of PAN no)		Mandatory	
BIN Extension	8	AlphaN	8	15	BIN extension (7-14 digit of PAN no).		Optional	
Length of BIN ID	2	Numeric	16	17	No. of digits (BIN and in some cases counting digits from BIN extension) necessary to identify the TSP uniquely. I.e. Storebælt PISTA: 92086062 = 8.		Mandatory	
Length of PAN no	2	Numeric	18	19	Actual no of characters including check digit, which always is last number, ISO 7812 Standard Modulus control		Mandatory	
Level of security	1	AlphaN	20	20	Character which identifies the level of security. Note that it shall be read in connection with type of EFC application to use in the OBE. PISTA "A" Level 1, "C" Level 2 and “B” Intermediate Level (Off line OBE Authentication) EN15509 Security level 0 or 1. OBE for trucks will be level 1. OBE for passenger car may be 0 or 1.		Mandatory	
Type of contract (Auto PASS)	2	AlphaN	21	22	Identifier of the type of contract – only used by AutoPASS and obligatory for AutoPASS		Optional	0
Actor ID / TSP (Contract provider ISO 14906)	6	AlphaN	23	28	6 digits identifier of the Company Having issued this BIN (Part of context mark ISO 14 906))		Mandatory	
Type of Contract (ISO 14 906)	4	AlphaN	29	32	4 digits identifier part of context mark ISO 14 906		Mandatory	
Context version	2	AlphaN	33	34	2 digits identifier part of context mark ISO 14 906		Mandatory	
Product code	25	AlphaN	35	59	Description of the product, Pista, BroBizz, AutoPASS or EN15509		Mandatory	
Processor	1	AlphaN	60	60	Issuer Associated Entity (Only for Bank-related Issuers) Not used		Optional	
Key Reference	1	Numeric	61	61	Key Reference for TSP Authenticator (number of key) the number of Atr ID is specified below.		Mandatory for Security level 1	
Valid from	14	Numeric	62	75	YYYYMMDDHHmmss UTC,		Optional	

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
Type of EFC application to use in the OBE	1	AlphaN	76	76	EFC application to use for the specific context mark. A=AutoPASS, B=BroBizz, P=Pista, 9=15509		Mandatory	
Type of EasyGo OBE	6	Numeric	77	82	If the OBE are: EasyGo Basic with security level 0 or similar the value should be = 000001 EasyGo basic 15509 with security level 1 the value should be = 000002 EasyGo+ (15509 Security level 1) the value should be = 000003. (If no information = 000000)		Mandatory	
For future use	6	AlphaN	83	88			Optional	0
Attribute ID of the Key Reference	3	Numeric	89	91	Key Reference for TSP Authenticator Attribute ID		Mandatory for Security level 1	
Filler	14	AlphaN	92	105	Reserved for future use, filled with Zeros		Mandatory	0
End of Record	1	AlphaN	106	106	End of line		Mandatory	
Footer								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Filler	62	AlphaN	2	63	Reserved for future use, filled with Zeros		Mandatory	0
End of Footer	1	AlphaN	64	64	End of line		Mandatory	

Note that the combination – BIN + BIN ext. + context mark (Pos. 23-34) shall be unique.



4.3 AutoPASS Formats

Appendix A4 – Whitelist Format

DOCUMENT STATUS

Document number:	4.3 AutoPASS Data Formats . Appendix A4

Status	**Version**	**Description**
Final	1.0	

Authorisation	**Name**	**Date**	**Signature**
Author	Kåre Inge Viken	25.04.2019	
Norwegian Public Roads Administration	Vidar Myrbakk	25.04.2019	

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Version	Date	Author	Main changes
1.0	08.06.2017	Per Einar Pedersli	New document
1.1	29.10.2018	Kåre Inge Viken	Changed information in pos. 92 -127 in body. Changed definition in pos. 52 – 65 in body
2.0	25.05.2019	Kåre Inge Viken	Updated after EasyGo rev. 08.04.19 All tables moved to appendix B1 Added valid to in pos 101 -114 in body,

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1.1 Whitelist (Heavy Goods Vehicle list)

1.1.1 Description

The HGV list has the following purposes:

- Classify vehicles with OBEs when:
- the OBE does not have the vehicle class stored (declared class)
- the OBE does not have the emission class stored
- the RSE do not have classification equipment
- Identify the OBE based on the licence plate on the HGV list when the OBE has not been read at the charging point (this will enable the TC to charge the user via his OBE instead of via his license plate)
- Identify the responsible TSP for a licence plate to request address data from him for an enforcement process

The “local” HGV file is generated by each TSP and the AutoPASS NK will process the files and compile a ”global” HGV list. This “global” HGV list is sent to AutopASS IP and maybe other receptants.

Format of filename HGVxxxxxxyyyymmddss_zzzzzz _vvvvvv (33 Characters)
Format of list name: HGVxxxxxxyyyymmddss (19 Characters)

Where is

- xxxxxx = Identifier of the sender of the “local” HGV list, originated by a TSP (6 characters). When a “global” HGV list is sent from EGH this is the Actor ID of EGH
- yyyy = year part (4 characters)
- mm = month part (2 characters)
- dd = day part (2 characters)
- ss = Sequence within the day (sequential number of 2 characters increased separately for each file/list per each sender/receiver combination per day beginning with 01)
- zzzzzz = Receiver - Files to the EGH the receiver must be 200000. Files from the EGH will be actor ID of the recipient or 999999 (see above).
- vvvvvv = Version name

•

1.1.2 Format Whitelist (Version 120001)

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
Header								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Sender Identifier	6	AlphaN	2	7	6 digits identifier of the Company having created this file. Either TSP or EasyGo HUB		Mandatory	
Receiver Identifier	6	AlphaN	8	13	6 digits identifier of the Company having received this file. Either TC or EGH		Mandatory	
List Sequence	19	AlphaN	14	32	HGVxxxxxxYYYYMMDDSS		Mandatory	
Previous File Sequence	19	AlphaN	33	51	HGVxxxxxxYYYYMMDDSS (HGV0000000000000000 if first)		Mandatory	
Moment of activation	14	Numeric	52	65	It is not possible to state a future moment of activation. As it is only possible to use immediately activation this field must be filled with zero.		Optional	
Number of records	15	Numeric	66	80	Number of records (lines) in Body		Mandatory	
Moment of creation	14	Numeric	81	94	YYYYMMDDHHmmss UTC		Mandatory	
List format version	6	AlphaN	95	100	The value to be filled in is defined above This will allow actors for individual time schedules for updating of systems.		Mandatory	
Filler	27	AlphaN	101	127	Reserved for future use, filled with Zeros		Mandatory	Zeroes
End of header	1	AlphaN	128	128	End of line		Mandatory	
Body								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Actor ID – TSP 1)	6	AlphaN	2	7	6 digits identifier of the Company having issued this OBE according to ISO 14816		Mandatory	
Shadow TSP	6	AlphaN	8	13	6 digits Actor ID of the EasyGo TSP which acts as shadow TSP for this OBE if issued by a TSP not part of the EasyGo (Only one shall act as shadow TSP for each OBE)		Optional	
Personal Account Number	19	AlphaN	14	32	Atr. ID 32 according to PISTA and 15509 no. According to ISO 7812. Shall be unique.		Mandatory	
License Plate number 1)	10	AlphaN	33	42	Licence Plate number of the vehicle (without spaces or other separators in between regular characters). Mandatory for vehicle class above 3.5 t**. Mandatory for all vehicles in Norway**.		Mandatory Above 3.5 t.	
License Plate nationality 1)	3	AlphaN	43	45	Nationality of Licence Plate number according ISO 3166-1-Alpha-2 code elements (DK = Denmark, NO = Norway, AT = Austria, SE = Sweden etc…) http://www.iso.org/iso/english_country_names_and_code_elements left justified, spaces to the right)		Mandatory if licence plate is filled in	
Tariff Classification (*)	2	AlphaN	46	47	Specific vehicle class applied for tariff calculation, Byte 1: Classification code according to EU standard Byte 2: Classification code according to national standard having created this information. This means in EasyGo the local Norwegian class. For valid combinations see Table 17 in doc. 4.3 Appendix B1		Mandatory	
VehicleClass	1	Numeric	48	48	As personalized in the OBE – UNECE vehicle classes		Optional	
Number of axels	1	Numeric	49	49	Personalized number of axels of the tractor unit as in the OBE		Optional/ Mandatory for EasyGo+	
Context mark	12	AlphaN	50	61	ContractProvider + TypeOfContract + ContextVersion acc. to ISO 14906 3+2+1 bytes represented as 6+4+2 in Hex ASFINAG e.g. “C04001”+”0004”+”01” = “C04001000401”		Mandatory for EasyGo+	
OBE ID	18	AlphaN	62	79	ContractProvider + ManufacturerId + EquipmentOBEId acc. to ISO 14906 3+2+4 bytes represented as 6+4+8 in Hex e.g. ASFINAG “C04001” + ”001D” + ”07900108” = “C04001001D07900108” Must be unique, e.g. Storebælt “978003” + “0003” + 120002AD” =		Mandatory for EasyGo+	

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
					"9780030003120002AD". Equipment ID BroBizz value in Atr. ID 24 from the application element.			
Emission class	6	AlphaN	80	85	Personalized (declared) Emission class. The TSP is obligated to state only verified emission classes for vehicles in the HGV list. See 18 in doc. 4.3 Appendix B1		Mandatory for EasyGo+	
TSP product code	6	AlphaN	86	91	TSP code for local use in Norway. Two first characters indicate Fuel Type. See table table 19 in doc. 4.3 Appendix B1. Character 3 (Y/N) indicates if the vehicle is a chargeable hybrid, able to drive 40 km or more on battery only or not..		Optional	
Engine Characteristics	3	AlphaN	92	94	Personalized Engine Characteristics (according to ISO 14906:2011). The TSP is obligated to state only verified engine types for vehicles in the HGV list See 19 in doc. 4.3 Appendix B1		Mandatory for EasyGo+	
CO2 (CopValue)	2	AlphaN	95	96	Personalized carbon dioxide pollution values (according to ISO 14906:2011). The TSP is obligated to state only verified CO2 values in the HGV list		Mandatory for EasyGo+	
VehicleMaxLadenWeight	4	Numeric	97	100	Maximum permissible total weight including payload, according to ISO 1176. 10 kg units, rounded down to the next 10 kg step. For example: 349 = 3491-3500 kg, 350 = 3501 – 3510 kg, 351 = 3511 – 3520 kg etc.		Optional	Zeroes
Valdt to	15	Numeric	101	114	YYYYMMDDHHmmss UTC		Optional	Zeroes
Filler	13	AlphaN	115	127	Reserved for future use, filled with Zeros		Mandatory	Zeroes
End of Record	1	AlphaN	128	128	End of line		Mandatory	
Footer								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Filler	62	AlphaN	2	63	Reserved for future use, filled with Zeros		Mandatory	Zeroes
End of Footer	1	AlphaN	64	64	End of line		Mandatory	

1) Each TSP may enter a licence plate more than once. For the LPN only latinAlphabetNo1 and upper case letters, numbers (without any spaces and hyphens!) shall be used Non Latin-1 characters may be coded as lower case letters applying a translation table acc. to ISO140906:2011, Annex E. Allowed Characters are specified in the tables 20 and 21 in doc. 4.3 Appendix B1

1.2 HGC Whitelist Confirmation (HGV Confirmation) file

1.2.1 Description

Each time the EGH receives a new “local” HGV file from a TSP, the file is checked, to ensure that the general content and numbers of records are according to the specification in Annex 2.1 “Requirements for central systems and collection and forwarding centrals”. If the EGH detects any error an alarm and an e-mail is sent to the TSP and the EasyGo management. A confirmation file (HGC) is produced and sent back to the TSP when the file is accepted or partial accepted. In case of total rejection of a HGV file no HGC file will be produced. The file will be placed in the TSPs rejected catalogue and an alarm will be send describing the failure[1]. The HGC file contains information whether the file was accepted or if and where the failure has occurred.

Format of filename HGCxxxxxxyyyymmddss_zzzzzz _vvvvvv (33 Characters)

Format of list name: HGCxxxxxxyyyymmddss where is (19 Characters)

xxxxxx = Identifier of the sender of the HGC register confirmation (6 characters), that means the id of the EGH

yyyy = Year (4 characters) of production of the file

mm = Month (2 characters) of production of the file

dd = Date (2 characters) of production of the file

ss = Sequence within the day (sequential number of 2 characters increased separately for each file per each sender/receiver combination per day beginning with 01)

zzzzzz = Identifier of the receiver of the Transit Information File (6 characters)

vvvvvv = Version name

1.2.2 Format HGC file (Version 120001)

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
Header								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Sender Identifier	6	AlphaN	2	7	6 digits identifier of the Company having created this file. (EasyGo HUB)		Mandatory	
Receiver Identifier	6	AlphaN	8	13	6 digits identifier of the Company having received this file.		Mandatory	
List Received	19	AlphaN	14	32	HGVxxxxxxYYYYMMDDSS		Mandatory	
Date of reception	14	Numeric	33	46	YYYYMMDDHHmmss		Mandatory	
Number of records Accepted	15	Numeric	47	61			Mandatory	
Number of records Rejected	15	Numeric	62	76			Mandatory	
List format version	6	AlphaN	77	82	The value to be filled in is defined above. This will allow actors for individual time schedules for updating of systems.		Mandatory	
Filler	25	AlphaN	83	107	Reserved for future use, filled with Zeros		Mandatory	0
File acceptance	2	AlphaN	108	109	Code for acceptance or rejection of received HGV list: 00: Full acceptance (all records OK)		Mandatory	

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
					01: Partial acceptance (EasyGo HUB only forward correct data)			
End of header	1	AlphaN	110	110	End of line		Mandatory	
Body								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory *	
Copy of HGV body line	126	AlphaN	2	127	In case of rejected body line the line between Register Identifier and End of Record from the HGV list is copied and inserted in this position.		Mandatory *	
Reason of rejection of line	2	Numeric	128	129	Code of rejection: "01" Duplicate entry for EasyGo+ (duplicate entries allowed for basic EasyGo) "02" PAN number not valid (Luhn code) Only check by TSP but not by the EGH "03" Number of digits in PAN not correct “04” PAN number or context mark not within TSPs range “05” OBE is not valid (same entry on the NAT list) “06” Nationality of licence plate missing when licence plate is included “07” Mandatory OBU ID is missing or wrong (EasyGo+) “08” Mandatory context mark missing or wrong (EasyGo+) “09” Mandatory licence plate number / licence plate nationality missing or wrong “10” Mandatory number of axels missing or wrong (EasyGo+) “11” Mandatory emission class missing or wrong (EasyGo+) “12” Miscellaneous		Mandatory *	
End of Record	1	AlphaN	130	130	End of line		Mandatory *	
Footer								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Filler	62	AlphaN	2	63	Reserved for future use, filled with Zeros		Mandatory	0
End of Footer	1	AlphaN	64	64	End of line		Mandatory	

*Body are only filled in case of rejected lines in the HGV list.

- In case all lines in an otherwise- regarding its syntax - valid HGV list are rejected, "File acceptance" shall be set to "01" (partial acceptance)
- A HGV file may be rejected if e.g. it contains errors like invalid or non-readable file, illegal/unauthorized sender/receiver in header, format error in header/footer, mandatory information is not specified, number of records is not the same as specified in header format error in body
- In case of rejection of a complete file no HGC shall be sent. An alarm with the reason for rejection shall be generated



4.3 AutoPASS Formats

Appendix A5 – OBU Status File

DOCUMENT STATUS

Document number:	4.3 Appendix A5

Status	**Version**	**Description**
Final	1.2	

Authorisation	**Name**	**Date**	**Signature**
Author	Kåre Inge Viken	28.05.2019	
Norwegian Public Roads Administration	Vidar Myrbakk	28.05.2019	

DOCUMENT REVISION HISTORY

Version	Date	Author	Main changes
1.0	02-03-2017	Per Einar Pedersli	New document
1.1	14-01-2018	Kåre Inge Viken	New description of licence plate country codes
1.2	28-05-2019	Kåre Inge Viken	Removed information in fields not necessary. (GDPR)

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DOCUMENT STATUS 2

1 OBUSTATUS FILE 4

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1.2 File Header description 4
1.3 Body description 4
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1 OBUStatus File

1.1 Status file description

This file is produced by the CS based on information from the TSP.

Format of filename obustatusfile_OOOOOO_YYYYMMDD_SS.dat

OOOOOO = Operator code

YYYY = Year (4 characters)

MM = Month (2 characters)

DD = Date (2 characters)

SS = Sequence number from 0-99, incremented for each OBU statusfile produced by the CS for this operator's Charging Points. The file is placed by the CS on the Data Concentrator for this Toll project. SS is reset to 0 after 99.

.dat = extention

1.2 File Header description

There are no file header in OBU Status File, but First record in OBU status file must always be a definition record of type 8 or 9. These records are filled in with 0's in the other fields in record.

1.3 Body description

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
Record type	1	Numeric	1	1	See table 14 om appendix B1	CentralSystem	
Blank	1	AlphaN	2	2	Blank		Blank
OBUCountryCode	3	Numeric	3	5	Code identifying the country in which the OBU is issued, ISO defined For non-old AutoPASS OBUs (CountryCode <>578) : Character 1-3 of PAN	Customer Contract	
OBUIssuerIdentifier	5	Numeric	6	10	Code which identifies the Issuer of the OBU. Every Issuer of OBU's has its own code. Together with the CountryCode the Issuer is uniquely identified. For non-old AutoPASS OBUs (CountryCode <>578) : Character 4-8 of PAN	Customer Contract	
OBUServiceNumber	10	Numeric	11	20	OBU serial number (or operator or coin box ID) Character 9-x of PAN (if PAN less than 18 characters spaces are filled in rightmost positions)	Customer Contract	
Blank	1	AlphaN	21	21	If PAN has 19 characters this position contains the 19th character.		Blank
TypeOfContract	1	Numeic	22	22	See table 15 in appendix B1	Customer Contract	

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
VehicleClass	2	Numeric	23	24	~~See table 3, Not in use~~	~~Customer Contract~~	Zeroes
StatuslistFlag	2	Numeric	25	26	~~See table 4~~ ~~The flag field is 4 byte, and can represent up to 13 bit with decimal representation.~~ ~~Every flag gives a special function or value for each passage.~~ ~~A passage with a "wanted" flag in OBU will be handled based on the Signal Code in OBU Status File.~~ ~~If the "wanted" flag is set, a video picture of the passage will be saved and a message will be sent to CS. When a "Video" flag is set, a picture of the passage is taken. Additional information about communication on OBU is saved when "Service" flag is set.~~ Not in use	~~CentralSystem~~	Zeroes
Blank	1	AlphaN	27	27			Blank
Validity	8	Numeric	28	35	~~Indicates last valid date for time-based contract, free included. Format YYYYMMDD.~~ ~~For Contract Types where the field has no meaning the field is filled with 0.~~y use 20301231 for all OBU's	~~Customer Contract~~	Always 20301231
Blank	1	AlphaN	36	36			Blank
Balance	5	Numeric	37	41	~~Remaining balance of the central account given in NOK.~~ Not in use	~~Customer Contract~~	Zeroes
Override	1	Numeric	42	42	See table 16 ~~Tells how the CPE should handle passage for the user.~~ Always 1	~~CentralSystem~~	0
Blank	1	AlphaN	43	43			Blank
LightSignalCode	2	Numeric	44	45	See table 10 (may be used for soundsignal)	CentralSystem	
Blank	1	AlphaN	46	46			Blank
FareInformation	5		47	51	For future use. Fare Information is connected to a single contract. Different fares can be based on e.g. car model, year of production etc.		Zeroes
LicencePlatenumber	10	AlphaN	52	61	Licence Plate number of the vehicle (left justified, spaces to the right, no spaces/separators in between digits). If no LPN is associated with the given OBU, this field contains "*.mangler"* (left justified, spaces to the right).	Customer Contract	
LicencePlateNationality	3	AlphaN	62	64	Nationality of Licence Plate number according ISO 3166-1-Alpha-2 code elements (DK = Denmark, NO = Norway, AT = Austria, SE = Sweden etc…) ttps://www.iso.org/iso-3166-country-codes.html (left justified, spaces to the right)	Customer Contract	
Filler (for later use)	15	AlphaN	65	79	Filled with zeroes		Zeroes
CarriageReturn	1	AlphaN	80	80			

1.4 File Footer description

There are no file footer in OBU Status File file, but the last record must always be a reconciliation record of type 7. This record must be filled in with the total number of records in the file, including the definition record but not the reconciliation record. The field used for writing the number of records in the reconciliation record is the ServiceNumber field.

7 000000000002180012 00000 00000000 000000 00 00000 0000000000000000

7= record type = reconciliation record

345= number of records in OBU status file, not included the reconciliation record.



4.3 AutoPASS Formats

Appendix A5 – Blacklist Format

DOCUMENT STATUS

DOCUMENT REVISION HISTORY

Document number:	4.3 AutoPASS Data Formats appendix A06

Status	**Version**	**Description**
Final	1.0	4.3 Appendix A06

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Author	Per Einar Pedersli	08.06.2017	
Norwegian Public Roads Administration	Kåre Inge Viken	08.06.2017	

DOCUMENT REVISION HISTORY

Version	Date	Author	Main changes
1.0	08.06.2017	Per Einar Pedersli	New document
1,1	08,10,2019	Kåre Inge Viken	New page 1

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DOCUMENT STATUS 2

1.2 NAT (NOT ACCEPTED TABLE, BLACK LIST OR EXCEPTION LIST) FILE 4

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1.3 NAC (NAT CONFIRMATION) FILE 7

1.3.1 Description 7

1.3.2 Format NAC (NAT confirmation) file (Version 120001) 7

1.2 NAT (Not Accepted Table, Black list or Exception list)

1.2.1 Description

The NAT (or non-accepted table) file contains the list of the contract identifiers of OBEs issued by a specific TSP which are not valid for use. Each contract is identified by a Personal Account Number (PAN) and OBE ID for EasyGo+ OBEs. The PAN is max 19 digits. The format of the OBE ID numbers is 18 characters. The format of the PAN differs depending on the standard used. The relation of a PAN no. to the issuing TSP is defined in the AIT list. Each TSP generates periodically (usually daily but according to the agreed sending schedule) a NAT list, allowing the check of included PersonalAccountNumbers and or OBE ID in EFC lanes (or in manual lanes if an extended mode procedure is applied).

The “global” NAT file is compiled in the EGH based on information provided by each TSP. The “global” NAT file is distributed to each TC which replaces the existing NAT file in their systems. For each PAN or OBE ID the action to be taken by the TC and the reason of non acceptance is included. A NAT list is always transferred as a full update. Incremental updates are not used. If a receiver only wants a part of the “global” NAT file limited to a certain range of OBE (e.g. OBE issued for a specific service) this can be agreed upon with the EasyGo management. The EGH will instead of the”global” file send a filtered file agreed upon to the TC. If a TC receives a limited NAT list file the ID of the receiver is changed from 999999 to the ActorID of the recipient of the filtered file used in the header and the filename.

Format of filename NATxxxxxxyyyymmddss_zzzzzz _vvvvvv (33 characters)

Format of list name: NATxxxxxxyyyymmddss where is (19 characters)

xxxxxx = Identifier of the sender of the ”local” NAT list, originated by a TSP (6 characters). When a “global” NAT list is sent from the EGH this is the ActorID of EGH

yyyy = Year (4 characters) of production of the file

mm = Month (2 characters) of production of the file

dd = Date (2 characters) of production of the file

ss = Sequence within the day (sequential number of 2 characters increased separately for each file per each sender/receiver combination per day beginning with 01)

zzzzzz = The receiver 999999 is used in order to secure that this broadcasts are distributed to all connected TCs automatically. When a filtered list is send to a specific TC the ID of the TC is used as receiver

vvvvvv = Version name

1.2.2 Format NAT – file (Version 120001)

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
Header								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Sender Identifier	6	AlphaN	2	7	6 digits identifier of the Company having created this file. Either TSP or EasyGo HUB		Mandatory	
Receiver Identifier	6	AlphaN	8	13	6 digits identifier of the Company having received this file.		Mandatory	
List Sequence	19	AlphaN	14	32	NATxxxxxxYYYYMMDDSS		Mandatory	
Previous List Sequence	19	AlphaN	33	51	NATxxxxxxYYYYMMDDSS (NAT0000000000000000 if first)		Mandatory	
Moment of activation	14	Numeric	52	65	YYYYMMDDHHmmss UTC • If filled with zero, activation immediately after processing • If filled with a moment in the past, activation immediately after processing If the "Moment of activation" is filled with a moment in the future and a newer version of the NAT is delivered, with a processing date prior to this date (or for immediate processing), the older file will be discarded without processing it.		Optional	
Number of records	15	Numeric	66	80	Number of records (lines) in Body		Mandatory	
Moment of creation	14	Numeric	81	94	YYYYMMDDHHmmss UTC		Mandatory	
List format version	6	AlphaN	95	100	The value to be filled in is defined above. This will allow actors for individual time schedules for updating of systems.		Mandatory	
Filler	27	AlphaN	101	127	Reserved for future use, filled with Zeros		Mandatory	0
End of header	1	AlphaN	128	128	End of line		Mandatory	
Body								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Personal Account Number	19	AlphaN	2	20	Atr. ID 32 according to PISTA and 15509 no. According to 7812. Expiry date and usage control is not used and filled in this field.		Mandatory	
Reason of non acceptance of OBE	2	Numeric	21	22	Code of rejection: "80": Customer does not want the EasyGo service "90" OBE not valid, no reason given (Used if no detailed information is available) "91": Customer temporal suspension "92": Contract terminated by the TSP and OBE not recovered "93": Contract terminated by the Customer and OBE not recovered "94": OBE lost "95": OBE stolen "96": Non-existing OBE – not produced "97": OBE on stock - not distributed to customer "98": OBE returned from customer because of contract termination "99": OBE returned from customer because of OBE fault		Mandatory	
Action to take	2	Numeric	23	24	Action to be taken: "01" To reject the OBE "02" To invalidate the OBE **(Not used in EasyGo**) "03" To accept the OBE **(Not used in EasyGo**) "04" To remove the OBE from vehicle **(Not used in EasyGo**)		Mandatory	
Context mark	12	AlphaN	25	36	ContractProvider + TypeOfContract + ContextVersion acc. to ISO 14906 3+2+1 bytes represented as 6+4+2 in Hex e.g. "C04001"+"0004"+"01" = "C04001000401"		Mandatory for EasyGo+	
OBE ID	18	AlphaN	37	54	ContractProvider + ManufacturerId + EquipmentOBEId acc. to ISO 14906 3+2+4 bytes represented as 6+4+8 characters in Hex e.g. ASFINAG "C04001"+"001D"+"07900108" = "C04001001D07900108" , e.g. Storebælt "978003" +		Mandatory for EasyGo+	

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
					“0003” + 120002AD” = “9780030003120002AD” .Equipment ID BroBizz value in Atr. ID 24 from the application element.			
Filler	9	AlphaN	55	63	Reserved for future use, filled with Zeros		Mandatory	0
End of Record	1	AlphaN	64	64	End of line		Mandatory	
Footer								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Filler	62	AlphaN	2	63	Reserved for future use, filled with Zeros		Mandatory	0
End of Footer	1	AlphaN	64	64	End of line		Mandatory	

1.3 NAC (NAT Confirmation) file

1.3.1 Description

Each time EGH receives a new “local” NAT list from a TSP the structure and the content of the file are checked, to ensure that the general content and number of records are according to specification in Annex 2.1. If the EGH detects any error both an alarm and an e-mail is sent to the TSP and the EasyGo management. A confirmation file (NAC) is produced and sent back to the TSP when the file is accepted or partial accepted. In case of total rejection of a NAT file no NAC file will be produced. The file will be placed in the TSPs rejected catalogue and an alarm will be send describing the failure[1]. The NAC file contains information whether the file was accepted or partly accepted if and where the failure has occurred.

If the EGH detects any error both an alarm and an e-mail is sent to the TSP and the EasyGo management.

Format of filename NACxxxxxxyyyymmddss_zzzzzz_vvvvvv (33 characters)

Format of list name: NACxxxxxxyyyymmddss where is (19 characters)

xxxxxx = Identifier of the sender of the Black list confirmation (6 characters), that means the ID of the EGH

yyyy = Year (4 characters) of production of the file

mm = Month (2 characters) of production of the file

dd = Date (2 characters) of production of the file

ss = Sequence within the day (sequential number of 2 characters increased separately for each file per each sender/receiver combination per day beginning with 01)

zzzzzz = Identifier of the receiver of the Transit Information File (6 characters)

vvvvvv = Version name

1.3.2 Format NAC (NAT confirmation) file (Version 120001)

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
Header								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Sender Identifier	6	AlphaN	2	7	6 digits identifier of the Company having created this file. (EasyGo HUB)		Mandatory	
Receiver Identifier	6	AlphaN	8	13	6 digits identifier of the Company having received this file.		Mandatory	
List Received	19	AlphaN	14	32	NATxxxxxxYYYYMMDDSS		Mandatory	
Date of reception	14	Numeric	33	46	YYYYMMDDHHmmss		Mandatory	
Number of records Accepted	15	Numeric	47	61			Mandatory	
Number of records Rejected	15	Numeric	62	76			Mandatory	
List format version	6	AlphaN	77	82	The value to be filled in is defined above. This will allow actors for individual time schedules for updating of systems.		Mandatory	
Filler	25	AlphaN	83	107	Reserved for future use, filled with Zeros		Mandatory	0
File acceptance	2	AlphaN	108	109	Code for acceptance or rejection of received black list: 00: Full acceptance (all records OK) 01: Partial acceptance (EGH only forwards correct data),		Mandatory	

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
End of header	1	AlphaN	110	110	End of line		Mandatory	
Body								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory *	
Copy of NAT body line	62	AlphaN	2	63	In case of rejected body line the line between Register Identifier and End of Record from the NAT list is copied and inserted in this position. inserted in this position.		Mandatory *	0
Reason of rejection of line	2	Numeric	64	65	Code of rejection: "01" Duplicate line "02" PAN number not valid (Luhn code) (currently **not used** in EasyGo due to performance reasons) "03" Number of digits in PAN is not correct “04” PAN number or context mark not within TSPs range “05” Mandatory OBU ID missing. “06” Mandatory context mark missing (EasyGo+) “07” Action to take missing/not correct “08” Reason of not acceptance missing/not correct “09” Miscellaneous		Mandatory *	
End of Record	1	AlphaN	66	66	End of line		Mandatory *	
Footer								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
Filler	62	AlphaN	2	63	Reserved for future use, filled with Zeros		Mandatory	0
End of Footer	1	AlphaN	64	6	End of line		Mandatory	

* Fields in body are only filled in case of rejected lines in the NAT list.
Note that in case all lines in a valid NAC list are rejected with a reason it will still be marked as a partial rejection.

Note that in case of rejection of a complete file there will not be send a NAC file only an alarm with the reason for rejection.

[1] A NAT file is total rejected if it contains failures like invalid or non-readable file, illegal/unauthorized sender/receiver in header, format error in header/footer, mandatory information is not specified, number of records is not the same as specified in header format error in body



4.3 AutoPASS Formats

Appendix A7 – TIF & TIC Format

DOCUMENT STATUS

Document number:	4.3

Status	**Version**	**Description**
Final	2.0	

Authorisation	**Name**	**Date**	**Signature**
Author	Kåre Inge Viken	28.05.2019	
Norwegian Public Roads Administration	Vidar Myrbakk	29.05.2019	

DOCUMENT REVISION HISTORY

Version	Date	Author	Main changes
1.0	02-03-2017	Per Einar Pedersli	New document
1.1	11-01-2018	Kåre Inge Viken	Minor corrections
1.2	30-04-2018	Kåre Inge Viken	Pos. 602 in TIF corrected, Definition of C4 changed
1.3	30-10-2018	Kåre Inge Viken	Fuel type added in pos 564 – 567.
2.0	25-04 2019	Kåre Inge Viken	Major revision Changes adopted after EasyGo rev. 27.03.19 Correction of fields used by Autopass. Adding EFC Attribute “VehicleMaxLadenWeight” in TIF. Clarification of definition of position 97-100 in the TIF-file. Added reason for rejection for AutoPASS C4 transactions in TIC.
2.1	28-05-2019	Kåre Inge Viken	Added value: reference number for TCcredit transactions in TIC header, pos.142 – 146. Some fields changed from optional to mandatory, (changes marked yellow)
2.2	08-08-2019	Kåre Inge Viken	Corrected nr. Of char, in pos 353 – 602 and pos.747 - 809. Corrected value in begin in end of line (pos 810.)

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1.1 TIF (Transit Information File) file

1.1.1 Description

The Transit Information File contains the information concerning the transactions performed by the Service Users (SU) on the toll facilities managed by a specific TC. The name of the file and list follows the same principle. The name of the receiver is included in the filename to ensure the unique identity of the file.

Toll Charger:

Format of filename TIFxxxxxxyyyymmddssss_zzzzzz_vvvvvv (35 characters) only one list to one receiver zzzzzz

Format of list name TIFxxxxxxyyyymmddssss_vvvvvv (28 characters)

Where is:

xxxxxx = Identifier of the sender of the Transit Information File (6 characters), that means the Actor ID of the TC.

yyyy = Year (4 characters) of production of the file

mm = Month (2 characters) of production of the file

dd = Date (2 characters) of production of the file

ssss = Sequence within the day (sequential number increased separately for each file/list per sender/receiver combination per day starting with 0001)

zzzzzz = Identifier of the receiver of the Transit Information File (6 characters)

vvvvvv = Version name

Each TC shall generate one TIF file for each TSP for all transactions between the RSE of the Toll Charger and the OBE issued by the Toll Service Provider. The TC claims periodic payments from the TSP for those transactions. This is done by transferring the TIF file or files to the AutoPASS IP that forwards the file to the relevant receiver TSP.

1.1.2 Principles of transfer

All transactions stored in the TC system which can be connected to a TSP based on the field “Actor ID of TSP” in the transaction record will be transferred via TIF file or files to the AutoPASS IP. AutoPASS IP forwards the TIF files unchanged to the receiver.

It is important to distinguish between the information related to the filename and information in the list in the file:

Transaction list: A list containing transactions from one TC to be sent to a final destination of one specific TSP. A Transaction list is embraced by a header and footer. In case of both Debit and Credit transactions to a TSP, these transactions shall be divided in to two transaction list to the TSP i.e. ssss = 0001 and 0002. A list shall only contain transactions in the same currency. The combination of TIF name of the list and receiver in the header gives the list unique identity.

Transaction file contains only one Transaction list in the file. A TSP returns a transaction list confirmation file to the TC, following the same principles as described above. Each TIF list shall be confirmed by exactly one TIC list. The header of each TIC list contains the name of TIF list, version number and receiver which identifies the TIF file it is related to.

Norway only:
AutoPASS IP will transfer all transactions not connected to a valid contract to the TC according to ActorID in each passage from roadside. The receiver and sender will both be the TC.

1.1.3 Format TIF (Version 130001)

Name	Number of Char.	Type of value	Begin	End	Definition	Mandatory info (E1/T1). Body only	Mandatory/ Optional	Value if Nothing	INFO Lane
Header									
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=List Body, "2"=List Footer,	-	Mandatory		
Sender Identifier	6	AlphaN	2	7	6 digits Actor ID identifier of the TC (Company having created this file).	-	Mandatory		
Receiver Identifier	6	AlphaN	8	13	6 digits Actor ID identifier of the Company TSP having received this file. The TSP who will invoice the customer.	-	Mandatory		
File Sequence	21	AlphaN	14	34	TIFxxxxxxyyyymmddssss	-	Mandatory		
Previous File Sequence	21	AlphaN	35	55	TIFxxxxxxyyyymmddssss	-	Mandatory		
Currency	3	AlphaN	56	58	Currency coding. ISO 4217 Currency Codes	-	Mandatory		
Number of records in body	15	Numeric	59	73	Number of records (lines) in Body	-	Mandatory		
Credit/Debit	3	AlphaN	74	76	State the contents of the lines (All lines in the body is either credit or debit) Value to be used: CRE/DEB	-	Mandatory		
Number of transactions	15	Numeric	77	91	Number of transactions to be included in calculation of TSP fee. In case of more than one line for a transaction due to different VAT or a number of sections regarded as one transaction like in Austria this number will be different form the number of lines. The number is the sum of: Number of E/T transactions and the number of C/R transactions **not** being part of an E/T transaction.	-	Optional/ Mandatory if different		
Moment of creation	14	Numeric	92	105	YYYYMMDDHHmmss	-	Mandatory		
List format version	6	AlphaN	106	111	The value to be filled in is defined above. This will allow actors for individual time schedules for updating of systems.	-	Mandatory		
Filler	50	AlphaN	112	161	Reserved for future use, filled with Zeros	-	Mandatory	0	
End of header	1	AlphaN	162	162	End of line	-	Mandatory		
Body									
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer	Mandatory	Mandatory		
Type of transit	2	AlphaN	2	3	Indicates different characteristics of the transit: Cx/Dx/Ex = Debit transactions and Rx/Sx/Tx = Credit transactions Cx/Rx primary transactions, Dx/Sx used if transaction has amount with divided VAT or VAT is calculated in one line, Ex/Tx used for aggregated transactions. Described in detail in section 1.2 in this document	Mandatory	Mandatory		L or CS
PersonalAccountNumber	19	AlphaN	4	22	Atr. ID 32 according to PISTA and 15509 no. According to 7812. Expiry date and usage control is not used and filled in this field.	Mandatory	Mandatory TSP Optional TC		L
Actor ID of TSP	6	AlphaN	23	28	Actor ID of the TSP is the first 6 digits of the context mark.	Mandatory	Mandatory TSP Optional TC		
ContractAuthenticator	5	AlphaN	29	33	Part of the ContractAuthenticator attribute retrieved during the transaction Currently not used.	Optional	Optional		L
Date and time of the entry transit	14	Numeric	34	47	YYYYMMDDHHmmss (filled with zeroes in case of open system) Local Time	Optional	Optional		L
Entry Station – Country Code	2	AlphaN	48	49	Refer to Toll Station Table (filled with zeroes in case of open system)	Optional	Optional	0	(L)

Name	Number of Char.	Type of value	Begin	End	Definition	Mandatory info (E1/T1). Body only	Mandatory/ Optional	Value if Nothing	INFO Lane
Entry Station – Actor ID	6	AlphaN	50	55	Refer to Toll Station Table (filled with zeroes in case of open system)	Optional	Optional	0	(L)
Entry Station – Network Code	1	Numeric	56	56	Refer to Toll Station Table (filled with zeroes in case of open system) (only last digit of TST)	Optional	Optional		(L)
Entry Station – Station Code	4	Numeric	57	60	Refer to Toll Station Table (filled with zeroes in case of open system)	Optional	Optional		(L)
Date and time of the exit transit	14	Numeric	61	74	YYYYMMDDHHmmss used on invoice in EasyGo, HHmmss only available for toll transaction, not for aggregated daily sums of a free flow system (e.g. Austria), where it is filled with zeros. Local time	Mandatory HHmmss= 000000	Mandatory		L
Exit Station – Country Code	2	AlphaN	75	76	Refer to Toll Station Table	Optional	Optional	0	
Exit Station – Actor ID	6	AlphaN	77	82	Refer to Toll Station Table (Actor ID of the TC)	Mandatory	Mandatory		L
Exit Station – Network Code	1	Numeric	83	83	Refer to Toll Station Table (only last digit of TST value)	Optional	Optional		L
Exit Station – Station Code	4	Numeric	84	87	Refer to Toll Station Table	Mandator	Mandatory		L
Lane Identification	4	AlphaN	88	91	Identification code of the lane – Only Exit station	Mandatory	Mandatory	0	L
Tariff Classification	2	AlphaN	92	93	TC specific vehicle class applied for tariff calculation	Mandatory	Mandatory	0	L
VehicleClass	1	Numeric	94	94	As retrieved from the OBE during transaction; filled with zeroes in case of measured classification (Class from OBE)	Optional	Optional		L
VehicleDimensions	9	Numeric	95	103	As retrieved from the OBE during transaction; filled with zeroes in case of measured classification	Optional	Optional		L
VehicleAxles	6	Numeric	104	109	As retrieved from the OBE during transaction; filled with zeroes in case of measured classification or the TC does not use number of axels for classification.	Optional	Optional		L
VehicleAuthenticator	5	Numeric	110	114	As retrieved from the TC in case of claimed classification; filled with zeroes in case of measured classification. Not used	Optional	Optional		L
Fee (VAT excluded)	11	Numeric	115	125	Fee associated to the transaction (in the smallest unit, e.g. euro cents if euro is the currency)	Mandatory =sum of C	Mandatory		
Amount of VAT	11	Numeric	126	136	Fee associated to the transaction (in the smallest unit, e.g. euro cents if euro is the currency)	Mandatory =cal. Of sum of C	Mandatory		
Fee (VAT included)	11	Numeric	137	147	Fee associated to the transaction (in the smallest unit, e.g. euro cents if euro is the currency) In case of aggregated VAT calculation the C tx shall be filled with 0	Mandatory = sum of C + VAT	Mandatory		
Currency	3	AlphaN	148	150	Currency coding. ISO 4217 Currency Codes	Mandatory	Mandatory		
Applied VAT rate	4	Numeric	151	154	Uudd (percentage as for uu.dd %)	Mandatory	Mandatory		
Transaction result	2	Numeric	155	156	Field indicating the transaction result, over two digits Not used	Optional	Optional		L
OBE status	2	Numeric	157	158	Indicates OBE status as reported during the transaction: "01" Low battery "02" OBE tampered "03" No smart card inserted "04" No communication “05” OK	Optional	Optional		L
Level of Security	2	Numeric	159	160	"00” No security key used for access OBE "01" Use of security key to access OBE	Optional	Mandatory TSP Optional TC		L
Payment aggregation number	29	AlphaN	161	189	A sequence number used for all transactions within a calendar month. Required by Swedish Transport Agency (STA) as TC to mark a payment from a TSP. All transaction within one TIF file must have the same aggregation number. If transactions with different aggregation numbers are sent, they shall be included in different TIF files. The aggregation number is to be stated by the TSP when the monthly payment to the TC is settled.	Optional	Optional	0	

Name	Number of Char.	Type of value	Begin	End	Definition	Mandatory info (E1/T1). Body only	Mandatory/ Optional	Value if Nothing	INFO Lane
Text Description	25	AlphaN	190	214	Text field with an explanation of the transaction by the TC, to be copied by the TSP in the user's invoice. Field is used for specification of purchase and not for location of transaction (Entry/Exit Station code).	Mandatory	Mandatory/Optional		L
Type of toll lane	2	Numeric	215	216	"01" Manual "02" Automatic Card "03" EFC OBE Dedicated "04" Mixed "05" ORT – EFC / Video tolling "06" Distance based free flow DSRC system only (e.g. Austria) "07" Distance based free flow Virtual transaction only(Austria) "99" Aggregated transaction free flow DSRC system only (e.g. Austria)	Mandatory =99	Mandatory		L
Type of operation of the specific lane	2	Numeric	217	218	Used if it is possible to operate a lane different from type of toll lane or when a mixed lane is set to a specific type of operation. "01" Manual "02" Card "03" EFC "04" Mixed "05" ORT – EFC / Video tolling "06" Distance based free flow – DSRC "07" Distance based free flow – virtual transaction only	Optional	Optional/ Mandatory if type of operations is different from type of toll lane		L
Mode of operation (OK, Degraded)	2	Numeric	219	220	"01" Normal (used for all transactions also virtual and keyed in as long as the RSE is operating correct. "02" Degraded. To be used in case of abnormal use of RSE i.e. Known technical failure or maintenance of RSE causing no automatic registration "03" No DSRC equipment – only virtual transactions (only Austria).	Optional	Optional		L
Manual Entry Classification	2	Numeric	221	222	Possible values from "00" to "99"	Optional	Optional		
Change of class indicator	1	Numeric	223	223	"1" Change	Optional	Optional		
Pre DAC (Class Automatic Detection) exit	1	Numeric	224	224	Possible values from "0" to "9"	Optional	Optional		L
Post DAC exit	1	Numeric	225	225	Possible values from "0" to "9"	Optional	Optional		
DAC entry	1	Numeric	226	226	Possible values from "0" to "9"	Optional	Optional		
.Height detector entry	1	Numeric	227	227	Possible values from "0" to "9"	Optional	Optional		L
For future use	12	AlphaN	228	239	Reference field where TC can fill in relevant information to identify the transaction if needed when 12 Characters is sufficient.	Optional	Optional		
License Plate number declared	10	AlphaN	240	249	License plate number personalized in the OBE or on the HGV list if applicable.	Mandatory	Optional/ Mandatory for EasyGo+		L
Nationality of License Plate number declared	2	AlphaN	250	251	Nationality of license plate number personalized in the OBE or on the HGV list if applicable using 3166 Alpha 2. **Mandatory if licence plate declared is filled.**	Mandatory	Optional/ Mandatory for EasyGo+		L
License Plate number detected	10	AlphaN	252	261	Licence plate from OCR or manually control	Optional	Mandatory/ Optional		L
Nationality of license Plate number detected	2	AlphaN	262	263	Nationality of Licence plate from OCR or manual control using 3166 Alpha 2. **Mandatory if licence plate detected is filled.**	Optional	Mandatory/ Optional		
ID of NAT list used for validation	19	AlphaN	264	282	List name of NAT list which is used to verify the passing. IF no NAT list has been used the field is filled with zeros.	Mandatory =000.	Mandatory/ Optional	0	L
Video Picture Counter	10	Numeric	283	292	Sequential counter of video pictures taken	Optional	Optional		

Name	Number of Char.	Type of value	Begin	End	Definition	Mandatory info (E1/T1). Body only	Mandatory/ Optional	Value if Nothing	INFO Lane
Fuel type	3	AlphaN	293	295	Used by AutoPASS and other TC where defined: First two characters indicate Fuel Type: • AutoPASS shall use column "Fuel Type" of Table l9 in doc. 4.3 appendix B1. All others shall use column "Engine Characteristics". • Character 3 ("Y" or "N"), indicates if the vehicle is a chargeable hybrid (able to drive 40 km or more on only battery power)	Mandatory	Mandatory	0	
AutoPASS emission class	2	AlphaN	296	297	Used by AutoPASS and EasyGo basic TC where defined: Use value from HGV Used by EasyGo+: Personalized in OBE (Declared) Emission class. See Table 18 in doc.4.3 appendix B1	Mandatory	Mandatory	0	
Tariff classification	2	AlphaN	298	299	Used by AutoPASS and other TC where applicable: See Table 17 in doc.4.3 appendix B1 Specific vehicle class applied for tariff calculation Byte 1: Classification code according to EU standard Byte 2: Classification code according to national standard having created this information. This means in EasyGo the local Norwegian class.	Mandatory	Mandatory	0	
VehicleSpecialClassification	2	AlphaN	300	301	• First number trailer bit: 0= No trailer/no info; 1= Trailer detected • Second number is AutoPass Ferry Class. See table 7 in doc. 4.3 appendix B1Table 7.	Optional	Optional	0	
Lane Mode	2	Numeric	302	303	Used by AutoPASS:determines the mode of the lane at the time of passage, see Table 9. in doc. 4.3 appendix B1	Mandatory	Optional	0	
Signal code bitmap	8	Numeric	304	311	Used by AutoPASS: See Table 8 9 in doc.4.3 appendix B1	Mandatory	Optional	0	
Applied discount rate	3	Numeric	312	314	Used by AutoPASS: Applied discount percentage	Mandatory	Mandatory	0	
Pricing correction	2	Numeric	315	316	Used by AutoPASS and other TC where defined: 01…Wrong weight class 02…Incorrect fuel class 03…Incorrect euro class	Mandatory	Optional	0	
Signal Code	2	Numeric	317	318	Used by AutoPASS: See Table 10 in doc. 4.3 appendix B1 -		Mandatory	0	
Applied pricing rules	9	AlphaN	319	327	Used by AutoPASS and other TC where defined: Applied pricing rules, 3 characters for each applied pricing rule. Pricing rule 1: Digit 319-321 Pricing rule 2: Digit 322-324 Pricing rule 3: Digit 325-327		Mandatory	0	
For future use	2	AlphaN	328	329		Optional	Optional	0	

Name	Number of Char.	Type of value	Begin	End	Definition	Mandatory info (E1/T1). Body only	Mandatory/ Optional	Value if Nothing	INFO Lane
ID of HGV list used for validation	19	AlphaN	330	348	Determines identification of HGV used for validation and/or pricing.	Optional	Optional	0	
Additional QA data	4	AlphaN	349	352	Additional QA parameters.	Optional	Optional	0	
For local use	250	AlphaN	353	602	Data string which can be used for local purpose and be used differently. Cannot be used for EasyGo unless otherwise decided.	Optional	Optional	0	
Context mark	12	AlphaN	603	614	ContractProvider+ TypeOfContract+ ContextVersion 3+2+1 bytes represented as 6+4+2 in Hex e.g. “C04001”+”0004”+”01” = “C04001000401”	Mandatory	Optional/ Mandatory for EasyGo+		
OBE ID	18	AlphaN	615	632	3+2+4 bytes represented as 6+4+8 characters in Hex e.g. ASFINAG “C04001”+”001D”+”07900108” = “C04001001D07900108” , e.g. Storebælt “978003” + “0003” + 120002AD” = “9780030003120002AD” .Equipment ID BroBizz value in Atr. ID 24 from the application element.	Mandatory	Optional/ Mandatory for EasyGo+		L
TSPAuthenticator	8	AlphaN	633	640	TSPAuthenticator is calculated during transaction by the OBE	Mandatory =0	Optional/ Mandatory for Security level 1	0	L
RNDRSE	8	AlphaN	641	648	Random number provided by the RSE for the calculation of the TSP Authenticator	Mandatory =0	Optional/ Mandatory for Security level 1	0	L
KEYREF for TSP key	3	AlphaN	649	651	Reference to the key used during calculation of the TSPAuthenticator	Mandatory =0	Optional/ Mandatory for Security level 1	0	
Invoice transaction aggregation number	16	Numeric	652	667	To link several lines as one transaction (Mandatory if lines are to be linked to one transaction)	Mandatory	Optional/ Mandatory		
UTC time stamp	14	Numeric	668	681	Needed in Austria. Format aggregated line (E1/T1): YYYYMMDD000000 Detailed line (C/D/R/S) YYYYMMDDHHmmss	Mandatory =Date	Mandatory		
TC-transaction identification	16	AlphaN	682	697	TC shall fill in information to identify the transaction or identify transaction lines which shall be seen as one transaction. E.g. When Cx/Dx are part of the same transaction they have the same number. When discount or corrected price result in several lines they must be identified with the same number.	Mandatory	Mandatory		
External costs Noise	11	Numeric	698	708	Amount of external costs for noise pollution included in the fee. This amount has the number of decimal digits as stated in field “Number of decimal digits”	Optional	Optional	0	
External costs Air	11	Numeric	709	719	Amount of external costs for air pollution included in the fee. This amount has the number of decimal digits as stated in field “Number of decimal digits”	Optional	Optional	0	
Mark-up Special Construction	11	Numeric	720	730	Mark-up Special Constructions Amount of mark up for special constructions included in the fee. This amount has the number of decimal digits as stated in field “Number of decimal digits”.	Optional	Optional	0	
Number of decimal digits	1	AlphaN	731	731	The number of decimal digits used in these monetary fields: • External costs Noise • External costs Air • Mark-up Special Construction E.g. “4” for Austria uses 4 decimal digits, Slovenia uses 6.	Mandatory =0	Optional	0	
Emission class (Austria)	6	AlphaN	732	737	Personalized (declared) Emission class as read from OBE during transaction	Mandatory	Mandatory for EasyGo+	0	

Name	Number of Char.	Type of value	Begin	End	Definition	Mandatory info (E1/T1). Body only	Mandatory/ Optional	Value if Nothing	INFO Lane
						=0			
Engine Characteristics	3	AlphaN	738	740	Personalized Engine type as read from OBE during transaction	Mandatory =0	Mandatory for EasyGo+	0	
CO2 (CopValue)	2	AlphaN	741	742	Personalized carbon dioxide emission/pollution value as read from OBE during transaction	Mandatory =0	Mandatory for EasyGo+	0	
VehicleMaxLadenWeight	4		743	746	Personalized Maximum permissible total weight value as read from OBE during transaction	Mandatory =0	Optional	0	
Filler	63	AlphaN	747	809	Reserved for future use, filled with Zeros	Mandatory	Mandatory	0	
End of record	1	AlphaN	810	810	End of line	Mandatory	Mandatory		
Footer									
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=List Body, "2"=List Footer,	-	Mandatory		
Total amount	15	Numeric	2	16	In the smallest unit, e.g. euro cents if euro is the currency (Fee VAT included)	-	Mandatory		
Filler	90	AlphaN	17	106	Reserved for future use, filled with Zeros	-	Mandatory	0	
End of Footer	1	AlphaN	107	107	End of line	-	Mandatory		

1.2 Codes for type of transits

The following codes for the field: “Type of transit” in the Transit detail file is described below:

Code	aggregated transaction	Text	Detailed description
	E1	Aggregated debit transaction	All codes of debit transactions
"C1 – D1"		Normal Transits Charges	OBE transaction registered by RSE
"C2 – D2"		Manually Taken Transits	Keyed in at roadside as fall back solution.
"C3 – D3"		Corrected Amounts Charges	OBE transaction that has been previously transferred but with an incorrect amount. The amount in this “C3”-record is the correct amount to be charged. The previous transaction is Credited by “R2”
"C4 - D4"		Virtual transits Charges, Transits to operator in Norway	To be used for virtual transactions (i.e. used by ASFINAG). Transits for passages without agreement (intern in Norrway only)
"C5 - D5"		No Entry Data (Most Expensive Transit)	For closed toll system: The transaction has no toll station entry registration and is therefore charged max. amount.
"C6 – D6"		Incomplete transactions	A transaction that is not registered completely by RSE. These transactions are to be considered in the KPI. If the transaction can be restored in the CS, the three fee fields will be filled with the amount due and shall be stated on the invoice to the SU. If the transaction can’t be restored due to missing information the three fee fields will be filled with 0 and shall not be stated on the invoice to the SU. Any missing information shall be stated with “NA” in a mandatory AlphaN field or filled with 9 in a mandatory numeric field

"C7 – D7"		”Converted” transit	A transaction that is not registered as an accepted OBE transaction by RSE, and therefore handled as a violation. Transit is later connected to a customer account/OBE manually after customer claim. Also used for retroactive payments in Austria.
“C8 – D8”		Manually taken transits taken at CS	A transaction that is not registered at all by RSE but derived from a video picture by the TC based on the licence plate in the HGV list. If the three fee fields are filled with an amount due the transaction shall be stated on the invoice to the SU. If the three fee fields are filled with 0 the transaction shall not be stated on the invoice to the SU.
	T1	Aggregated credit transaction	All codes of credit transactions
"R2 – S2"		Amounts Refunds	Used to credit a charged price. (New correct price “C3,D3”)

The Cx, Dx and E1 codes of debit and Rx, Sx and T1 codes of credit transactions are used as follows:

1) All information regarding a transaction can be given in one line (including VAT)
In these cases only the code Cx is used for debit transactions and the code Rx is used for credit transactions.

2) Information regarding a transaction with mixed VAT rates shall be divided in several lines to cover the different VAT rates for each part of the transaction
In these cases there will be one record with the code Cx and additional record(s) with the code Dx containing the parts of the transaction with different VAT to be represented as separate lines on an invoice.
i.e. 100€ with 20% VAT, 10€ with 10% VAT and 5€ with 5% VAT

Type of transit	Fee (VAT excluded)	Amount of VAT	Applied VAT rate
C1	10000	2000	2000
D1	1000	100	1000
D1	500	25	0500

The key to link associated Cx and Dx transactions is the field "TC-transaction identification". If - as for the limited parties (Until end of October 2016) The key to link associated transactions is the combination of the following fields with identical values for

- "Exit Station – Actor ID"
- "Exit Station – Station Code"
- "Entry Station – Actor ID"
- "Entry Station – Station Code"
- "Lane Identification"
- "Date and time of the exit transit"

The codes Rx and Sx are used for crediting a transaction in the same manner. (All records of a transaction with mixed VAT shall be credited together).

3) Information regarding the transactions shall be divided due to aggregated VAT calculation or only one aggregated amount should be charged per day.

All Billing details of an open system for the same OBE, VAT rate and calendar day are aggregated into a single aggregate and a unique identifier (Reference number) for each aggregate is generated. This reference number is associated to the generated aggregate (E1-record) and the Billing details (Cx-records) it is stemming from in the field “Invoice transaction aggregation number”. Both types of records will be transmitted in the Billing details file (TIF) as they are needed for different purposes. The Cx-records contain all technical information (e.g. Authenticators, exact location of the transaction …) and the filed “Fee (VAT included)” shall be filled with 0. The E1-records only contain information relevant for the bookkeeping systems.
The codes Rx, Sx and T1 are used for crediting such transactions. (All records of such a transaction shall be credited together).

C1 and C2 records are made by the RSE,
C3/D3 – C9/D9 records are made by the CS (Back office).
D1 and D2 records are either made by the RSE or the CS
E1 records are always made by the CS.

1.3 TIC (TIF Confirmation) file

1.3.1 Description

Each time a TSP receives a new Transits Information File (TIF list) from a specific TC the structure and the content of the file are checked and a confirmation list (Transits Information Confirmation or TIC) is produced and sent back in a file. One TIC list is produced for each TIF list from the TC. This file also contains the transactions, which are refused by the TSP. The name of the file and list follows the same principle. But depending of the receiver or content the name of the receiver is included in the filename if necessary to ensure the unique identity.

Each TIF list shall be confirmed by one and only one TIC list. The header of each TIC list contains the name of TIF list and receiver which identifies the TIF list is related to.

TSP:

Format of filename TICxxxxxxyyyymmddssss_zzzzzz_vvvvvv (35 characters)
Format of list name TICxxxxxxyyyymmddssss (21 characters)
Where is

xxxxxx = Identifier of the sender of the Transit Information Confirmation File (6 characters), that means the Actor ID of the TSP

yyyy = Year (4 characters) of production of the file

mm = Month (2 characters) of production of the file

dd = Date (2 characters) of production of the file

ssss = Sequence within the day (sequential number increased separately for each file/list per each sender/receiver combination per day starting with 0001)

zzzzzz = Identifier of the receiver of the Transit Information File (6 characters)

vvvvvv = Version name

The TIC file will, in case of no rejected transits only, be composed by the header and footer.

The lists contained in the file are sent by TSP to TC to indicate which Transits Information File / List they have received, the format correctness and the date and time of reception.

The lists are included into a file in the same way, following the same principles, as described for Transit Information File.

The records have the same format as the transits sent by the TC with the exception of the inclusion of a new data element (Reason of rejection) to indicate the reason for the TSP to reject the transit. Result of the control shall be the last 2 digits in this file.

In case of rejection of the total file at the EasyGo HUB, it shall be sent again with a new name and the rejected file/list shall be marked as cancelled.

1.3.2 Format TIC (TIF confirmation) (Version 130001)

Name	Number of Char.	Type of value	Begin	End	Definition	Mandatory info (E). Body only	Mandatory/ Optional	Value if Nothing
Header								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=List Body, "2"=List Footer,		Mandatory	
Sender Identifier	6	AlphaN	2	7	6 digits Actor ID identifier of the Company (TSP) having sent this file. The issuer who will invoice the customer.		Mandatory	
Receiver Identifier	6	AlphaN	8	13	6 digits Actor ID identifier of the TC (Company having received this file).		Mandatory	
File Sequence	21	AlphaN	14	34	TICxxxxxxyyyymmddssss		Mandatory	
File Received	21	AlphaN	35	55	TIFxxxxxxyyyymmddssss		Mandatory	
Date of reception	14	Numeric	56	69	Timestamp (UTC) when receiver received the file in "File Received" (YYYYMMDDHHmmss)		Mandatory	
Currency	3	AlphaN	70	72	Currency coding. ISO 4217 Currency Codes		Mandatory	
Number of accepted records in body	15	Numeric	73	87	(Number of accepted lines in body) AutoPASS: When "file acceptance=99" the value will be 0		Mandatory	
Number of rejected record in body	15	Numeric	88	102	(Number of rejected lines in body)		Mandatory	
Credit/Debit	3	AlphaN	103	105	State the contents of the lines (All lines in the body is either credit or debit) Value to be used: CRE/DEB		Mandatory	0
Number of accepted transactions	15	Numeric	106	120	In case of more than one line per transaction the number of transaction shall be stated		Optional	
Number of rejected transactions	15	Numeric	121	135	In case of more than one line per transaction the number of rejected transaction shall be sated		Optional	
List format version	6	AlphaN	136	141	The value to be filled in is defined above. This will allow actors for individual time schedules for updating of systems.		Mandatory	
Number of TIC from TC	6	Numeric	142	147	For internal use in TC\s solutions in Noraway. Starts with 000001 every day.		Optional	0
Filler	46	AlphaN	148	193	Reserved for future use, filled with Zeros		Mandatory	0
File Acceptance	2	Numeric	194	195	00: Full acceptance (all records OK) 01: Partial acceptance 02: No total - transaction file is rejected because the same file name is previously received. 03: Not accepted total - Transaction file is rejected because the field "number of records or transactions" in header is not corresponding to the number of records or transactions in body 04: Not accepted total - Transaction file is rejected because total claimed amount in footer is not corresponding to the summarized amounts for each transaction 05: Total Transaction file is rejected because of Miscellaneous. 99 AutoPASS: TC repricing		Mandatory	
End of header	1	AlphaN	196	196	End of line		Mandatory	
Body								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory **	
Copy of TIF body line	808	AlphaN	2	809	In case of rejected body line the line between Register Identifier and End of Record from the TIF list is copied and inserted in this position		Mandatory **	
Reason of rejection EasyGo	2	AlphaN	810	811	Indicates the reason to reject the transit: "00" AutoPASS: When "file acceptance = 99" the value is 00 "01" Transaction has an OBE ID that is registered not valid at the time of passing. (Included in the NAT list) "02" Transaction is too old, that means sent to TSP later than the time limit for clearing		Mandatory **	0

Name	Number of Char.	Type of value	Begin	End	Definition	Mandatory info (E). Body only	Mandatory/ Optional	Value if Nothing
					"03" Transaction is not from a user with an EasyGo contract from actual Issuer. OBE not inside valid interval on the AIT list. "04" Wrong weight class. "05" Incorrect fuel class "06" Transaction is previously registered within a too short time interval on the same station, i.e. 4-minute-filter or by resending "07" Transaction contains a passing time outside the contract validity period – "08" Transaction has not a legal Toll Station/lane Identification "09" Transaction record has not a valid format "10" Incorrect Euro Class "11" Authentication failure – transaction not accepted only performed if agreed between TC and TSP (I.e. EN 15509 OBE according to security level 1) "12" Reserved for future use "13" Transaction is sent for cancellation or correction, but is not found in TSP transaction register "14" Data has been sent previously (*) "15" Transaction has an OBE ID that is not registered for a user of the TSP "16" Amount in Ex-record differs from sum of amounts of Cx-records with the same reference number "17" Marks the lines (Cx or Rx) in a rejected E transaction which is correct and only rejected due to other lines with failure "18" Miscellaneous			
End of record	1	AlphaN	812	812	End of line		Mandatory **	
Footer								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=List Body, "2"=List Footer		Mandatory	
Total amount Accepted	15	Numeric	2	16	In the smallest unit, e.g. euro cents if euro is the currency (fee VAT included)		Mandatory	
Total amount Rejected	15	Numeric	17	31	In the smallest unit, e.g. euro cents if euro is the currency (fee VAT included) In case of a Total Rejection of a TIF file due to reason "04" (Not accepted total – Transaction file is rejected because total claimed amount in footer is not corresponding to the summarized amounts for each transaction) the Total Amount Rejected in the TIC's footer shall have the same value as the Total Amount of the footer of the rejected TIF file.		Mandatory	
Filler	96	AlphaN	32	127	Reserved for future use, filled with Zeros		Mandatory	
End of Footer	1	AlphaN	128	128	End of line		Mandatory	

(1) Key to identify a transaction uniquely for duplicate check ("14 - Data has been sent previously") is:

a. "TC-transaction identification" or
b. combination of
   - "Exit Station – Actor ID"
   - "Exit Station – Network Code"
   - "Exit Station – Station Code"
   - Date and time of the exit transit
   - "Entry Station – Actor ID"
   - "Entry Station – Network Code"
   - "Entry Station– Station Code"
   - "OBE ID"
   - "PersonalAccountNumber"

- "Type of Transit".

However, type of transit C1 and C8 will be considered identical when checking for alternative b). When a duplicate C1 and C8 is found any one of the two transits can be rejected (14). Besides for parking the Entry Station data is currently not used.

(2) Only in case of a partial acceptance the rejected body line/s shall be included. It shall include all lines in a file stating the individual reason of rejection for each of the lines Note that in case all lines in a valid TIF list are rejected with a reason it will be marked as a partial rejection.

(3) In case of total rejection of a TIF file ("Not accepted total") the corresponding TIC file shall not contain any bodylines.



4.3 AutoPASS Formats

Appendix A8 – Transaction File

DOCUMENT STATUS

Document number:	4.3 – Appendix A8

Status	**Version**	**Description**
Final	1.4	

Authorisation	**Name**	**Date**	**Signature**
Author	Per Einar Pedersli	28.05.2019	
Norwegian Public Roads Administration	Kåre Inge Viken	28.05.2019	

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Version	Date	Author	Main changes
1.0	08.06.2017	Per Einar Pedersli	New document
1.1	14-01-2017	Kåre Inge Viken	Minor corrections
1.2	23-01-2017	Kåre Inge Viken	New description of licence plate country codes OperatorID mandatory in all lines in body
1.3	15.12.2018	Kåre Inge Viken	New protocol passages without obu reading. (1.6) Updated values in column " value for nothing# for all protocols. Updated protocol EN15509 (1.5) Changes value in pos. 121 – 122 to AlphaN
1.4	26.05.2019	Kåre Inge Viken	Tag status flag removed.. Pos 33-34

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1 Transaction File

The Transaction File is generated at the Charging Point and periodically transferred, e.g. each hour, to the Central System. Each passage in a Charging Point will create a record in the Transaction File whatever payment means used by the driver of the vehicle. The Transaction File is also used for reconciliation.

There are different OBU protocols to be read and the transaction files are presented for each protocol

- AutoPass
- EN15509 AutoPASS
- No OBU

1.1 Description

The name of the sorted transaction file shall be

trOOOOOO_YYYYMMDDHHUUPPP_SS.str

tr100008_201407091600052_64

- O – Operator code (unique identification of toll system operator)
- Y – Year
- M – Month
- D – Day
- H – Hour
- U – Minute
- P – Charging Point
- S – sequence number of transaction file from each CP

Hour&Minute(HHUU) means the hour and minute when the transaction file was done.

.str means Sorted Transactions.

SS is a sequence number from 0-99, incremented for each transaction file produced from the CP. It is reset to 0 after 99.

1.2 File Header description (all protocols)

There are no file header in transaction fileFormat Body Transaction-file AutoPASS protocol

1.3 Body description AutoPASS protocol

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
Charging point	3	Numeric	1	3	Number of the charging point where the passage has taken place	CP-config	
Direction	1	Numeric	4	4	**Table 1 Appendix 4.3 B1** Direction of passage is being used in road pricing and gives information whether the passage was inbound or outbound of the area which is subject to fee charging. Single passage in open systems is marked as "Outbound"=1 or inbound =0	CP-config	
Lane	2	Numeric	5	6	Number of lane where passage took place.	CP-config	
Blank	1	AlphaN	7	7			Blank
Time	17	Numeric	8	24	Time when passage took place. Format YYYYMMDDHHMMSSmmm i.e. 20010115102430123 means January 15, 2001 at 10:24:30.123. In normal operating conditions this is the time of detection of vehicle. For signal code 08 (see table 2), where the detection system has not captured the vehicle for various reasons, the time of OBU reading is used instead.	CP	
DST	3	AlphaN	25	27	Standard indication of summer time described with 3 characters. If the time is adjusted for summer time, DST will be displayed.	CP	Blank
Blank	1	AlphaN	28	28			Blank
Signal code	2	Numeric	29	30	**Table 2 Appendix 4.3 B1** Type of passage and how the passage took place. From OBU-status file (LightSignalcode)= 02,10,20. From CP: 08, 22, 23, 25, 40 ,41, 42	CP/ OBU-StatusFile	
Vehicle Class	2	Numeric	31	32	~~**Table 3 Appendix 4.3 B1**~~ Vehicle class used for fee calculation. ~~From OBU-status file (LightSignalcode)= 02,10,20.~~ 00 if Signal code= 08, 22,23, 25,41,42	~~OBU-StatusFile~~	zeroes
TagStatusFlag	2	Numeric	33	34	~~**Table 4 Appendix 4.3 B1**~~ ~~Flag in Status File, 1 bit pr flag. A OBU with the "wanted" flag set in OBUStatusFile will be handled based on the SignalCode in OBU Status File. The flag leads to that a video picture is taken, and an exception message is sent to the CS. The "wanted" flag does not affect the light signal given to the user.~~ ~~Flag Field is 2 byte, and can represent up to 6 bit with decimal representation. Each flag indicates a specific function or value for each passage.~~ ~~For OBUs not in OBUStatusFile TagStatusFlag = 00~~ Not in use	~~OBU-StatusFile~~	zeroes
Blank	1	AlphaN	35	35			Blank

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
CountryCode	3	Numeric	36	38	**See table 1.7-01AutoPASS, CountryCode** Code identifying the country in which the OBU is issued. CountryCode is shown in ISO 3166 [1] format. None OBU=000	OBU	Zeroes
IssuerIdentifier	5	Numeric	39	43	**See table 1.7-01AutoPASS, IssuerIdentifier** Code which identifies the Issuer of the OBU. Every Issuer of OBU's has its own code. Together with the CountryCode the Issuer is uniquely identified. OBU Issuer Identifier as registered by standardisation body None OBU = 00000	OBU	Zeroes
ServiceNumber	10	AlphaN	44	53	**See table 1.7-01AutoPASS, ServiceNumber** The ServiceNumber, according to ISO 14816 indicate "ServiceCode" and "UniqueNumber". None OBU=0000000000	OBU	Zeroes
Blank	1	AlphaN	54	54			Blank
KeyGeneration	1	Numeric	55	55	**See table 1.7-01AutoPASS, KeyGeneration** Points out which generation of keys used to make/produce the MAC certificates of the OBU's. If no security check is performed the field shall have the value '0'.	OBU	Zeroe
RND-1	10	AlphaN	56	65	Randomized number generated by the Charging Point. The number is used for diversification of session keys and calculation and verification of MAC in generating MAC certificate. RND-1 is notated in Hex format. The field is 10 characters, but only the 8 last is used. The two leftmost are filled with 00.	CP	
Time	10	Numeric	66	75	Indication of time for the production of the MAC certificate. The format is UNIX-time, i.e. numbers of seconds since 1970. Must be known by check of certificate.	CP	
OBU ID	17	Numeric	76	92	**Table 5 Appendix 4.3 B1** OBUID on this format must be known by check of MAC certificate. The format contains a complete OBUID different compared to the ID assembled by CountryCode, IssuerCode and ServiceNumber, see table 5	CP	
OBU Status	5	Numeric	93	97	**See table 1.7-01AutoPASS, efcStatus** Table 6 Appendix 4.3 B1 Flag which gives a status of battery voltage and attempts to move the OBU. Command VST octet 24 StatusFlags**.**	OBU	zeroes
TransactionCounter	5	Numeric	98	102	**See table 1.7-01AutoPASS, TC** is a counter in the OBU which increases by 1 for every passage. If the counter reaches a maximum quantity/size (65535) it will start over again from 1. Must be known by check of certificated.	OBU	
RND-2	10	AlphaN	103	112	**See table 1.7-01AutoPASS, RND-2**	OBU	

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
					Randomized number generated by OBU. The number is used for diversification of session keys and calculation and verification of MAC in generating MAC certificate. RND-2 is notated in Hex format. The field is 10 characters, but only the 8 last is used. The two leftmost are filled with 00, used when calculating/generating/control of MAC certificate		
MAC1Status	1	Numeric	113	113	**Table7 Appendix 4.3 B1**	CP	
MAC1	9	AlphaN	114	122	Security certificate for OBU passage calculated using the Native Key. MAC1 is notated in Hex format. The last 8 characters are used. The leftmost is filled with 0.	CP	
MAC2Status	1	Numeric	123	123	**Table7 Appendix 4.3 B1**	CP	
MAC2	9	AlphaN	124	132	Security certificate for OBU passage calculated using the Foreign Key. MAC2 is notated in Hex format. The last 8 character are used. The leftmost is filled with 0.	CP	
SignalLevel	3	Numeric	133	135	Information on OBU performance.	OBU	zeroes
PriceInCurrency (Filler)	5	Numeric	136	140	Not in use, no more manual tolling systems in operation.		Zeroes
Blank	1	AlphaN	141	141			Blank
SeqValidPayment	10	Numeric	142	151	Sequential counter giving the number of valid passages. This counter is generated in the CPE and the value is sent to the CS for reconciliation. The counter increases by 1 for each valid passage. (optionalL	CP	zeroes
SeqEntryDetection	10	Numeric	152	161	Sequential counter giving the number of vehicles detected. This counter is generated in the CPE, and the value is sent to the CS for reconciliation. The counter increases by 1 for each valid passage.	CP	
SeqEnforced	10	Numeric	162	171	Sequential counter giving the number of picture situations concerning vehicles without a valid OBU transaction, or payment by other methods. This counter is generated in the CPE, and the value is sent to the CS for reconciliation. The counter increases by 1 for each enforcement situation. (optional)	CP	zeroes
SeqLCTransaction	10	Numeric	172	181	Sequential counter giving the number of transactions sent from CPE. This counter is generated in the CPE, and is the value sent to the CS for reconciliation. The counter increases by 1 every time CPE sends a transaction.	CP	
SeqVideoPicture	10	Numeric	182	191	Sequential counter giving the number of pictures sent from CPE to the CS (CPE generates a set of pictures for every passage, but not all the pictures are going further on to the CS). This counter is generated in CPE, and the value is sent to the CS for reconciliation. The counter increases by 1 every time a set of pictures is going to be sent to CS is taken, Spot Test pictures not included. According to this, SeqVideoPicture will increase by enforcement passages, giro passages, wanted, video or service flag set. This counter will also be used as sequence number in the picture filename. It will then be possible, together with CP and lane, to connect picture with transaction without opening the jpeg-comment in the picture.	CP	zeroes
Blank	1	AlphaN	192	192			
Filler	49	Numeric	193	241	(Data from manual toll lane, not in use anymore)		Zeroes
Blank	1	AlphaN	242	242			
SignalCodeBitmap	8	Numeric	243	250	**Table 8 Appendix 4.3 B1**	CP	
Blank	1	AlphaN	251	251			Blank

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
LaneMode	2	Numeric	252	253	**Table 9 Appendix 4.3 B1** Gives the mode of the lane at the time of passage.	CP	
LightSignalCode	2	Numeric	254	255	**Table 10 Appendix 4.3 B1** Gives the type of signal the user got at the time of passage. (MMI or Light signal if used)	CP	
Blank	1	AlphaN	256	256			Blank
MoneyBagNumber/Filler?	10		257	266	Not in use		Zeroes
ValidfationFile	40	AlphaN	267	306	This the full file name of OBU Status file used for validation of EFC passage. This information is used to document that the right validation file (right date/version) was used for validation. Leftmost adjusted, filled with zeroes.	OBU-Status file	
ClassificationType	1	Numeric	307	307	"0"=No special classification, "1"=Special classification "2"=Mismatch between ANPR result and Registration number in OBUstatusfile"	CP	
MeasuredLenght	5	Numeric	308	312	In cm, rightmost adjusted	CP	Zeroes
MeasuredWeight	5	Numeric	313	317	In kg, rightmost adjusted	CP	Zeroes
NumberOfAxels	1	Numeric	318	318	Not in use	CP	zero
VehicleSpecialClassification	2	AlphaN	319	320	**Table11 Appendix 4.3 B1** First number is a trailer bit **Table12 Appendix 4.3 B1** Second number is AutoPASS Ferry Class	CP	
NumberOfPassangers	3	Numeric	321	323	Not in use	CP	zeroes
MeasuredWidth	5	Numeric	324	328	In cm, rightmost adjusted	CP	zeroes
MeasuredHeight	5	Numeric	329	333	In cm, rightmost adjusted	CP	zeroes
OtherClassificationData	10	AlphaN	334	343	Not in use	CP	zeroes
LPNFront	10	AlphaN	344	353	This is the Licence Plate Number as read by the OCR processes. Both the OCR processes - front and rear cameras - in addition to the front/rear comparison process will if read successfully produce individual LPN results. The format is left justified, spaces to the right, and no spaces/separators in between digits (e.g. "KE12345 ")	CP	blanks
NationLPNFront	3	AlphaN	354	356	This is the nationality of the Licence Plate Number as read by the OCR processes. Both the OCR processes - front and rear cameras will read successfully produce individual LPN Nationality results. Format is according to international standard according to ISO 3166-1-Alpha-2 code elements (DK = Denmark, NO = Norway, AT = Austria, SE = Sweden etc…) https://www.iso.org/iso-3166-country-codes.html left justified and spaces to the right.	CP	blanks
OCRConfidneceFront	3	Numeric	357	359	The OCR processes produces confidence levels of the LPN reading, as a measure of the recognition certainty. The measure is given in % as an integer between 0 and 100. The front/rear comparison process will – if successful reading from both front and rear - produce a resulting confidence based on the individual confidences from the front and rear OCR process.	CP	zeroes
OCRGroupFront	1	Numeric	360	360	The OCR process produces a coded category which may be both successful/confident reading, not found LPN or not able to read LPN.	CP	
LPNRear	10	AlphaN	361	370	See LPNFront	CP	
NationLPNRear	3	AlphaN	371	373	See: NationLPNFront	CP	

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
OCRConfidnecerear	3	Numeric	374	376	See: OCRConfidneceFront	CP	
OCRGroupRear	1	Numeric	377	377	See: OCRGroupFront	CP	
LPNResultFrontandRear	10	AlphaN	378	387	See: LPNFront	CP	
NationLPNResultFrontandRear	3	AlphaN	388	390	See: NationLPNFront	CP	
OCRConfResultFrontandRear	3	Numeric	391	393	See: OCRConfidneceFront	CP	
OCRGroupResultFrontandRear	1	Numeric	394	394	See: OCRGroupFront	CP	
Blank	1	AlphaN	395	395			
LicencePlateNumber	34	AlphaN	396	429	Not in use for this protocol		zeroes
VehicleClass	2	AlphaN	430	431	Not in use for this protocol		zeroes
VehicleDimentions	6	AlphaN	432	437	Not in use for this protocol		zeroes
VehicleAxels	4	AlphaN	438	441	Not in use for this protocol		Zeroes
VehicleWeightLimits	12	AlphaN	442	453	Not in use for this protocol		Zeroes
VehicleSpecificcharateristics	8	AlphaN	454	461	Not in use for this protocol		Zeroes
EquipmentOBUId	10	Numeric	462	471	Not in use for this protocol		Zeroes
EquipmentStatus	4	AlphaN	472	475	Not in use for this protocol		Zeroes
TypeOfContract	4	Numeric	476	479	Not in use for this protocol		Zeroes
ContextVersion	2	Numeric	480	481	Not in use for this protocol		Zeroes
PaymnentMeansExpireDate	4	Numeric	482	485	Not in use for this protocol		Zeroes
PaymentUsageControl	4	Numeric	486	489	Not in use for this protocol		Zeroes
OBUManufactorerId	5	Numeric	490	494	Not in use for this protocol		Zeroes
ForLaterUse	11	Numeric	495	505			Zeroes
Operator ID	6	AlphaN	506	511	(same as in filename)	CP-config	
CarriageReturn	1		512	512			

072101 20160908183503801DST 020000 578000080003026730
1006D2F0504147335250313721939477409578000005419009F898D0A00E78C64EC00960554922000000
00135587430021948396000619744300222640620006276942 00000000000000000000000000000000000000000000000000000000 00000001 0102
0000000000obustatusfile_100008_20160908_47.dat000000000000000000000017800173000000000VF87532 NO 0990VF87532 NO 0990VF87532 NO 0990
00000000000000000000000000000000000000000000000000000000

1.4 Body description AutoPASS EN15509 protocol

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
Charging point	3	Numeric	1	3	Number of the charging point where the passage has taken place	CP-config	
Direction	1	Numeric	4	4	**Table 1 Appendix 4.3 B1** Direction of passage is being used in road pricing and gives information whether the passage was inbound or outbound of the area which is subject to fee charging. Single passage in open systems is marked as "Outbound"=1 or inbound =0	CP-config	
Lane	2	Numeric	5	6	Number of lane where passage took place.	CP-config	
Blank	1	AlphaN	7	7			Blank
Time	17	Numeric	8	24	Time when passage took place. Format YYYYMMDDHHMMSSmmm i.e. 20010115102430123 means January 15, 2001 at 10:24:30.123. In normal operating conditions this is the time of detection of vehicle. For signal code 05 to 08 (see table below), where the detection system has not captured the vehicle for various reasons, the time of OBU reading is used instead.	CP	
DST	3	AlphaN	25	27	Standard indication of summer time described with 3 characters. If the time is adjusted for summer time, DST will be displayed.	CP	Blank
Blank	1	AlphaN	28	28			Blank
Signal code	2	Numeric	29	30	**Table 2 Appendix 4.3 B1** Type of passage and how the passage took place. From OBU-status file (LightSignalcode)= 02,10,20. From CP: 08, 22,23, 25,41,42	CP/ OBU-StatusFile	
Vehicle Class	2	Numeric	31	32	~~**Table 3 Appendix 4.3 B1**~~ Vehicle class used for fee calculation. ~~From OBU-status file (LightSignalcode)= 02,10,20.~~ 00 if Signal code= 08, 22,23, 25,41,42	~~OBU-StatusFile~~	zeroes
TagStatusFlag	2	Numeric	33	34	~~**Table 4 Appendix 4.3 B1**~~ ~~Flag in Status File, 1 bit each flag. A passage with the "wanted" flag set in OBU will be handled based on the SignalCode in OBU Status File. The flag leads to that a video picture is taken, and an exception message is sent to the CS. The "wanted" flag does not affect the light signal given to the user.~~ ~~Flag Field is 2 byte, and can represent up to 6 bit with decimal representation. Each flag indicates a specific function or value for each passage.~~ ~~For OBUs not in OBUStatusFile TagStatusFlag = 00~~ Not In Use	~~Status File or CP~~	Zeros
Blank	1	AlphaN	35	35			Blank
CountryCode	4	Numeric	36	39	**Table 187-02 AutoPASS EN 15509** Country code <> 578, Character 1-4 of PAN	OBU	
IssuerIdentifier	4	Numeric	40	43	**Table 1.8/-02 AutoPASS EN 15509**	OBU	

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
					Character 5-8 of PAN, Attribute 32 Code which identifies the Issuer of the OBU. Every Issuer of OBU's has its own code. Together with the CountryCode the Issuer is uniquely identified. OBU Issuer Identifier as registered by standardisation body		
ServiceNumber	11	AlphaN	44	54	**Table 1.8-02 AutoPASS EN 15509** Character 9-x of PAN, Attribute 32 (if PAN less than 18 characters spaces are filled in rightmost positions) The ServiceNumber, according to ISO 14816 indicate "ServiceCode" and "UniqueNumber".	OBU	
Key Generation	1	Numeric	55	55	Points out which generation of keys used to make/produce the MAC certificates of the OBU's. If no security check is performed the field shall have the value '0'.	OBU	Zero
Contract Provider	6	AlphaN	56	61	**Table 1.8-02 AutoPASS EN 15509**	OBU	
Level of security	2	Numeric	62	63	01 or 02 if PISTA, 00 or 01 if EN15509,	AIT	
Transaction Type	1	Numeric	64	64	0 if PISTA, 1 if EN15509, 2 if other type of non-AutoPASS OBU.	CP	
Authentication result	1	Numeric	65	65	Same as MAC1Status, i.e. 0 if not checked, 1 if checked and OK, 2 if checked and failed	CP	
OBU authenticator	8	AlphaN	66	73	**Table 1.8-02 AutoPASS EN 15509** As returned by OBU.	OBU	
Contract authenticator	8	AlphaN	74	81	**Table 1.8-02 AutoPASS EN 15509** As returned by OBU.	OBU	Zeroes
RSE Random number	8	AlphaN	82	89	Random number used by OBU during authentication calculations, Hex representation	CP	
Key Reference	3	Numeric	90	92	Key used by OBU during authentication calculations	AIT	
OBU Status	5	Numeric	93	97	**Table 6 Appendix 4.3 B1** Flag which gives a status of battery voltage and attempts to move the OBU	OBU Status- File	
TransactionCounter	5	Numeric	98	102	**Table 1.8-02 AutoPASS EN 15509** Is a counter in the OBU which increases by 1 for every passage. If the counter reaches a maximum quantity/size (65535) it will start over again from 1. Must be known by check of certificate.	OBU	
Filler	10	AlphaN	103	112	Not in use, (RND-2 for autoPASS protocol)		Zeroes
MAC1Status	1	Numeric	113	113	**Not in use for this protocol**	CP	Zeroes
Contract authenticator	5	AlphaN	114	118	**Not in use for this protocol**	OBU	Zeroes
Mode of operation	2	AlohaN	119	120	**Not in use for this protocol**	CP	Zeroes
Filler	2	AlphaN	121	122	**Not in use for this protocol**		Zeroes
MAC2Status	1	Numeric	123	123	**Not in use for this protocol**	CP	Zeroes
Manual Entry Classification	2	Numeric	124	125	**Not in use for this protocol**	CP	Zeroes
Change of class indicator	1	Numeric	126	126	**Not in use for this protocol**	CP	Zeroes

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
Pre DAC (Class Automatic Detection)	1	Numeric	127	127	**Not in use for this protocol**	CP	Zeroes
Post DAC exit	1	Numeric	128	128	**Not in use for this protocol**	CP	Zeroes
DAC entry	1	Numeric	129	129	**Not in use for this protocol**	CP	Zeroes
Height detector entry	1	Numeric	130	130	**Not in use for this protocol**	CP	Zeroes
Level of security	2	Numeric	131	132	**Not in use for this protocol**	CP	Zeroes
SignalLevel	3	Numeric	133	135	Information on OBU performance.	OBU	Zeroes
PriceInCurrency (Filler)	5	Numeric	136	140	Not in use.	CP	Zeroes
Blank	1	AlphaN	141	141			Blank
SeqValidPayment	10	Numeric	142	151	Sequential counter giving the number of valid passages. This counter is generated in the CPE and the value is sent to the CS for reconciliation. The counter increases by 1 for each valid passage.optional	CP	Zeroes
SeqEntryDetection	10	Numeric	152	161	Sequential counter giving the number of vehicles detected. This counter is generated in the CPE, and the value is sent to the CS for reconciliation. The counter increases by 1 for each valid passage.	CP	
SeqEnforced	10	Numeric	162	171	Sequential counter giving the number of picture situations concerning vehicles without a valid OBU transaction, or payment by other methods. This counter is generated in the CPE, and the value is sent to the CS for reconciliation. The counter increases by 1 for each enforcement situation. optional	CP	Zeroes
SeqLCTransaction	10	Numeric	172	181	Sequential counter giving the number of transactions sent from CPE. This counter is generated in the CPE, and is the value sent to the CS for reconciliation. The counter increases by 1 every time CPE sends a transaction.	CP	
SeqVideoPicture	10	Numeric	182	191	Sequential counter giving the number of pictures sent from CPE to the CS (CPE generates a set of pictures for every passage, but not all the pictures are going further on to the CS). This counter is generated in CPE, and the value is sent to the CS for reconciliation. The counter increases by 1 every time a set of pictures is going to be sent to CS is taken, Spot Test pictures not included. According to this, SeqVideoPicture will increase by enforcement passages, giro passages, wanted, video or service flag set. This counter will also be used as sequence number in the picture filename. It will then be possible, together with CP and lane, to connect picture with transaction without opening the jpeg-comment in the picture.	CP	Zeroes
Blank	1	AlphaN	192	192			Blank
Filler	49	Numeric	193	241	Not in use.		Zeroes
Blank	1		242	242			Blank
SignalCodeBitmap	8	Numeric	243	250	**Table 8 Appendix 4.3 B1**	CP	
Blank	1	AlphaN	251	251			Blank
LaneMode	2	Numeric	252	253	**Table 9 Appendix 4.3 B1** Gives the mode of the lane at the time of passage.	CP	
LightSignalCode	2	Numeric	254	255	**Table10 Appendix 4.3 B1** Gives the type of signal the user got at the time of passage.	CP	Zeroes
Blank	1	AlphaN	256	256			Blank

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
Filler	10	Numeric	257	266	Not in use		Zeroes
ValidationFile	40		267	306	This the full file name of OBU Status file or OBU Blacklist file used for validation of EFC passage. This information is used to document that the right validation file (right date/version) was used for validation. This the full file name of OBU Status file or OBU Blacklist file used for validation of EFC passage. This information is used to document that the right validation file (right date/version) was used for validation. Leftmost adjusted, filled with zeroes.	OBU-Status file OBU blacklistfile	
ClassificationType	1	Numeric	307	307	"0"=No special classification, "1"=Special classification "2"=Mismatch between ANPR result and Registration number in OBUstatusfile"	CP	Zeroes
MeasuredLenght	5	Numeric	308	312	In cm, rightmost adjusted	CP	Zeroes
MeasuredWeight	5	Numeric	313	317	In kg, rightmost adjusted	CP	Zeroes
NumberOfAxels	1	Numeric	318	318	Not in use	CP	Zero
VehicleSpecialClassification	2	AlphaN	319	320	**Table 11 Appendix 4.3 B1** First number is a trailer bit **Table 12 Appendix 4.3 B1** Second number is AutoPASS Ferry Class	CP	
NumberOfPassangers	3		321	323	Not in use	CP	Zeroes
MeasuredWidth	5		324	328	In cm, rightmost adjusted	CP	Zeroes
MeasuredHeight	5		329	333	In cm, rightmost adjusted	CP	Zeroes
OtherClassificationData	10		334	343		CP	Zeroes
LPNFront	10	AlphaN	344	353	This is the Licence Plate Number as read by the OCR processes. Both the OCR processes - front and rear cameras - in addition to the front/rear comparison process will if read successfully produce individual LPN results. The format is left justified, spaces to the right, and no spaces/separators in between digits (e.g. "KE12345 ")	CP	Blanks
NationLPNFront	3	AlphaN	354	356	This is the nationality of the Licence Plate Number as read by the OCR processes. Both the OCR processes - front and rear cameras - in addition to the front/rear comparison process will read successfully produce individual LPN Nationality results. Nationality of Licence Plate number is according ISO 3166-1-Alpha-2 code elements (DK = Denmark, NO = Norway, AT = Austria, SE = Sweden etc…) http://www.iso.org/iso/english_country_names_and_code_elements left justified, spaces to the right)	CP	Blanks
OCRConfidneceFront	3	Numeric	357	359	The OCR processes produces confidence levels of the LPN reading, as a measure of the recognition certainty. The measure is given in % as an integer between 0 and 100. The front/rear comparison process will – if successful reading from both front and rear - produce a resulting confidence based on the individual confidences from the front and rear OCR process. Må bli enig om format, står % I spek og 095 = 95%	CP	Zeroes
OCRGroupFront	1	Numeric	360	360	The OCR process produces a coded category which may be both successful/confident reading, not found LPN or not able to read LPN.	CP	
LPNRear	10	AlphaN	361	370	See LPNFront	CP	
NationLPNRear	3	AlphaN	371	373	See: NationLPNFront	CP	
OCRConfidneceRear	3	Numeric	374	376	See: OCRConfidneceFront	CP	

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
OCRGroupRear	1	Numeric	377	377	See: OCRGroupFront	CP	
LPNResultFrontandRear	10	AlphaN	378	387	See: LPNFront	CP	
NationLPNResultFrontandRear	3	AlphaN	388	390	See: NationLPNFront	CP	
OCRConfResultFrontandRear	3	Numeric	391	393	See: OCRConfidneceFront	CP	
OCRGroupResultFrontandRear	1	Numeric	394	394	See: OCRConfidneceFront Ulogisk	CP	
Blank	1		395	395		CP	
LicencePlateNumber	34	AlphaN	396	429	**Table 1.7-02 AutoPASS EN 15509** As received from reading the OBU, attribute 16, EN 15509. Written as a hexa-decimal number.	OBU	Zeroes
VehicleClass	2	AlphaN	430	431	**Table 1.7-02 AutoPASS EN 15509** As received from reading the OBU, attribute 17, EN 15509. Written as a hexa-decimal number. Classes described in EN 15509.	OBU	Zeroes
VehicleDimentions	6	AlphaN	432	437	**Table 1.8-02 AutoPASS EN 15509** As received from reading the OBU, attribute 18, EN 15509. Written as a hexa-decimal number. If not defined filled with zeroes.	OBU	Zeroes
VehicleAxels	4	AlphaN	438	441	**Table 1.8-02 AutoPASS EN 15509** As received from reading the OBU, attribute 19, EN 15509. Written as a hexa-decimal number. If not defined filled with zeroes.	OBU	Zeroes
VehicleWeightLimits	12	AlphaN	442	453	**Table 1.8-02 AutoPASS EN 15509** As received from reading the OBU, attribute 20, EN 15509. Written as a hexa-decimal number. If not defined filled with zeroes.	OBU	Zeroes
oppgiVehicleSpecificcharateristics	8	AlphaN	454	461	**Table 1.8-02 AutoPASS EN 15509** As received from reading the OBU, attribute 22, EN 15509. Written as a hexa-decimal number. If not defined filled with zeroes	OBU	Zeroes
EquipmentOBUId	10	Numeric	462	471	**Table 1.8-02 AutoPASS EN 15509** As received from reading the OBU, attribute 24, EN 15509. Written as a decimal number.	OBU	zeroes

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
					Set by OBU manufacturer.		
EquipmentStatus	4	AlphaN	472	475	**Table 187-02 AutoPASS EN 15509** As received from reading the OBU, attribute 26, EN 15509. Written as a hexa-decimal number.	OBU	Zeroes
TypeOfContract	4	Numeric	476	479	**Table 1.8-02 AutoPASS EN 15509** As received from reading the OBU, attribute 0, EN 15509. TypeOfContract = 1 (AutoPASS 1)	OBU	zeroes
ContextVersion	2	Numeric	480	481	**Table 187-02 AutoPASS EN 15509** As received from reading the OBU, attribute 0, EN 15509. ContextVersion = 2 (first generation of 15509 OBEs)	OBU	zeroes
PaymnentMeansExpireDate	4	Numeric	482	485	**Table 1.8-02 AutoPASS EN 15509** As received from reading the OBU, attribute 32, EN 15509.	OBU	zeroes
PaymentUsageControl	4	Numeric	486	489	**Table 1.8-02 AutoPASS EN 15509** As received from reading the OBU, attribute 32, EN 15509.	OBU	zeroes
OBUManufactorerId	5	Numeric	490	494	**Table 1.8-02 AutoPASS EN 15509** **Table 13 Appendix 4.3 B1** As received from reading the OBU (VST)	OBU	zeroes
ForLaterUse	11	Numeric	495	505			Zeroes
Operator ID	6	AlphaN	506	511	Same as in filename	CP-config	
CarriageReturn	1		512	512			

072101 20160908183414951DST 200000 9578000810222938
030C00801118EACDAAB00000002414385111800000000000000000000000000000000000000121500000
00135587380021948391000619744200222640570006276941 00000000000000000000000000000000000000000000000000 00032772 0120
0000000000obustatusfile_100008_20160908_47.dat0000000000000000000000197001900000000000AS39939 NO 0990AS39939 NO 0990AS39939 NO 0990
30C00E0000000000000000000000000000000000000000000000000000000000000000000000000000993106376038E000102000000000004200000000000100008

1.5 Body description Transactions without OBU reading

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
Charging point	3	Numeric	1	3	Number of the charging point where the passage has taken place	CP-config	
Direction	1	Numeric	4	4	**Table 1 Appendix 4.3 B1** Direction of passage is being used in road pricing and gives information whether the passage was inbound or outbound of the area which is subject to fee charging. Single passage in open systems is marked as "Outbound"=1 or inbound =0	CP-config	
Lane	2	Numeric	5	6	Number of lane where passage took place.	CP-config	
Blank	1	AlphaN	7	7			Blank
Time	17	Numeric	8	24	Time when passage took place. Format YYYYMMDDHHMMSSmmm i.e. 20010115102430123 means January 15, 2001 at 10:24:30.123. In normal operating conditions this is the time of detection of vehicle. For signal code 08 (see table 2), where the detection system has not captured the vehicle for various reasons, the time of OBU reading is used instead.	CP	
DST	3	AlphaN	25	27	Standard indication of summer time described with 3 characters. If the time is adjusted for summer time, DST will be displayed.	CP	Blank
Blank	1	AlphaN	28	28			Blank
Signal code	2	Numeric	29	30	**Table 2 Appendix 4.3 B1** Type of passage and how the passage took place. From OBU-status file (LightSignalcode)= 02,10,20. From CP: 08, 22,23, 25, , 40,41,42	CP/ OBU-StatusFile	
Vehicle Class	2	Numeric	31	32	Not in use for this protocol	~~OBU-StatusFile~~	Zeroes
TagStatusFlag	2	Numeric	33	34	Not in use for this protocol	~~OBU-StatusFile~~	Zeroes
Blank	1	AlphaN	35	35			Blank
CountryCode	3	Numeric	36	38	Not in use for this protocol	OBU	Zeroes
IssuerIdentifier	5	Numeric	39	43	Not in use for this protocol	OBU	Zeroes
ServiceNumber	10	AlphaN	44	53	Not in use for this protocol	OBU	Zeroes
Blank	1	AlphaN	54				Blank
KeyGeneration	1	Numeric	55	55	Not in use for this protocol	OBU	Zeroes
RND-1	10	AlphaN	56	65	Not in use for this protocol	CP	Zeroes
Time	10	Numeric	66	75	Not in use for this protocol	CP	Zeroes

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
OBU ID	17	Numeric	76	92	Not in use for this protocol	CP	Zeroes
OBU Status	5	Numeric	93	97	Not in use for this protocol	OBU	Zeroes
TransactionCounter	5	Numeric	98	102	Not in use for this protocol	OBU	Zeroes
RND-2	10	AlphaN	103	112	Not in use for this protocol	OBU	Zeroes
MAC1Status	1	Numeric	113	113	Not in use for this protocol	CP	Zeroes
MAC1	9	AlphaN	114	122	Not in use for this protocol	CP	Zeroes
MAC2Status	1	Numeric	123	123	Not in use for this protocol	CP	Zeroes
MAC2	9	AlphaN	124	132	Not in use for this protocol	CP	Zeroes
SignalLevel	3	Numeric	133	135	Not in use for this protocol	OBU	Zeroe
PriceInCurrency (Filler)	5	Numeric	136	140	Not in use, no more manual tolling systems in operation.		Zeroes
Blank	1	AlphaN	141	141			Blank
SeqValidPayment	10	Numeric	142	151	Sequential counter giving the number of valid passages. This counter is generated in the CPE and the value is sent to the CS for reconciliation. The counter increases by 1 for each valid passage.(optional)	CP	zeroes
SeqEntryDetection	10	Numeric	152	161	Sequential counter giving the number of vehicles detected. This counter is generated in the CPE, and the value is sent to the CS for reconciliation. The counter increases by 1 for each valid passage.	CP	
SeqEnforced	10	Numeric	162	171	Sequential counter giving the number of picture situations concerning vehicles without a valid OBU transaction, or payment by other methods. This counter is generated in the CPE, and the value is sent to the CS for reconciliation. The counter increases by 1 for each enforcement situation. (optional)	CP	zeroes
SeqLCTransaction	10	Numeric	172	181	Sequential counter giving the number of transactions sent from CPE. This counter is generated in the CPE, and is the value sent to the CS for reconciliation. The counter increases by 1 every time CPE sends a transaction.	CP	
SeqVideoPicture	10	Numeric	182	191	Sequential counter giving the number of pictures sent from CPE to the CS (CPE generates a set of pictures for every passage, but not all the pictures are going further on to the CS). This counter is generated in CPE, and the value is sent to the CS for reconciliation. The counter increases by 1 every time a set of pictures is going to be sent to CS is taken, Spot Test pictures not included. According to this, SeqVideoPicture will increase by enforcement passages, giro passages, wanted, video or service flag set. This counter will also be used as sequence number in the picture filename. It will then be possible, together with CP and lane, to connect picture with transaction without opening the jpeg-comment in the picture.	CP	zeroes
Blank	1	AlphaN	192	192			Blank
Filler	49	Numeric	193	241	(Data from manual toll lane, not in use anymore)		Zeroes
Blank	1	AlphaN	242	242			Blank
SignalCodeBitmap	8	Numeric	243	250	**Table 8 Appendix 4.3 B1**	CP	
Blank	1	AlphaN	251	251			Blank

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
LaneMode	2	Numeric	252	253	**Table 9 Appendix 4.3 B1** Gives the mode of the lane at the time of passage.	CP	
LightSignalCode	2	Numeric	254	255	**Table 10 Appendix 4.3 B1** Gives the type of signal the user got at the time of passage.	CP	zeroes
Blank	1	AlphaN	256	256			Blank
MoneyBagNumber/Filler?	10		257	266	Not in use		Zeroes
ValidfationFile	40	AlphaN	267	306	Not in use for this protocol	OBU-Status file	Zeroes
ClassificationType	1	Numeric	307	307	Not in use for this protocol	CP	Zeroes
MeasuredLenght	5	Numeric	308	312	In cm, rightmost adjusted	CP	Zeroes
MeasuredWeight	5	Numeric	313	317	In kg, rightmost adjusted	CP	Zeroes
NumberOfAxels	1	Numeric	318	318	Not in use	CP	zero
VehicleSpecialClassification	2	AlphaN	319	320	**Table11 Appendix 4.3 B1** First number is a trailer bit **Table12 Appendix 4.3 B1** Second number is AutoPASS Ferry Class	CP	Zeroes
NumberOfPassangers	3	Numeric	321	323	Not in use	CP	zeroes
MeasuredWidth	5	Numeric	324	328	In cm, rightmost adjusted	CP	zeroes
MeasuredHeight	5	Numeric	329	333	In cm, rightmost adjusted, not in use	CP	zeroes
OtherClassificationData	10	AlphaN	334	343	Not in use	CP	zeroes
LPNFront	10	AlphaN	344	353	This is the Licence Plate Number as read by the OCR processes. Both the OCR processes - front and rear cameras - in addition to the front/rear comparison process will if read successfully produce individual LPN results. The format is left justified, spaces to the right, and no spaces/separators in between digits (e.g. “KE12345 “)	CP	blanks
NationLPNFront	3	AlphaN	354	356	This is the nationality of the Licence Plate Number as read by the OCR processes. Both the OCR processes - front and rear cameras will read successfully produce individual LPN Nationality results. Format is according to international standard according to ISO 3166-1-Alpha-2 code elements (DK = Denmark, NO = Norway, AT = Austria, SE = Sweden etc…) https://www.iso.org/iso-3166-country-codes.html left justified and spaces to the right.	CP	Blanks
OCRConfidneceFront	3	Numeric	357	359	The OCR processes produces confidence levels of the LPN reading, as a measure of the recognition certainty. The measure is given in % as an integer between 0 and 100. The front/rear comparison process will – if successful reading from both front and rear - produce a resulting confidence based on the individual confidences from the front and rear OCR process.	CP	Zeroes
OCRGroupFront	1	Numeric	360	360	The OCR process produces a coded category which may be both successful/confident reading, not found LPN or not able to read LPN.	CP	
LPNRear	10	AlphaN	361	370	See LPNFront	CP	Blanks
NationLPNRear	3	AlphaN	371	373	See: NationLPNFront	CP	Blanks
OCRConfidnecerear	3	Numeric	374	376	See: OCRConfidneceFront	CP	Zeroes

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
OCRGroupRear	1	Numeric	377	377	See: OCRGroupFront	CP	
LPNResultFrontandRear	10	AlphaN	378	387	See: LPNFront	CP	Blanks
NationLPNResultFrontandRear	3	AlphaN	388	390	See: NationLPNFront	CP	Blanks
OCRConfResultFrontandRear	3	Numeric	391	393	See: OCRConfidneceFront	CP	Zeroes
OCRGroupResultFrontandRear	1	Numeric	394	394	See: OCRGroupFront	CP	
Blank	1	AlphaN	395	395			Blank
LicencePlateNumber	34	AlphaN	396	429	Not in use for this protocol		Zeroes
VehicleClass	2	AlphaN	430	431	Not in use for this protocol		Zeroes
VehicleDimentions	6	AlphaN	432	437	Not in use for this protocol		Zeroes
VehicleAxels	4	AlphaN	438	441	Not in use for this protocol		Zeroes
VehicleWeightLimits	12	AlphaN	442	453	Not in use for this protocol		Zeroes
VehicleSpecificcharateristics	8	Numeric	454	461	Not in use for this protocol		Zeroes
EquipmentOBUId	10	AlphaN	462	471	Not in use for this protocol		Zeroes
EquipmentStatus	4	Numeric	472	475	Not in use for this protocol		Zeroes
TypeOfContract	4	Numeric	476	479	Not in use for this protocol		Zeroes
ContextVersion	2	Numeric	480	481	Not in use for this protocol		Zeroes
PaymnentMeansExpireDate	4	Numeric	482	485	Not in use for this protocol		Zeroes
PaymentUsageControl	4	Numeric	486	489	Not in use for this protocol		Zeroes
OBUManufactorerId	5	Numeric	490	494	Not in use for this protocol		Zeroes
ForLaterUse	11	Numeric	495	505			Zeroes
Operator ID	6	AlphaN	506	511	(same as in filename)	CP-config	
CarriageReturn	1		512	512			

072101 20160908183524153DST 220000 000000000000000000
00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
00135587440021948397000619744400222640630006276943 00000000000000000000000000000000000000000000000000000000 00032780 0120
00000000000000000000000000000000000000000000000000000000000

1.6 File Footer description (reconciliation record) all protocols.

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing
Footer (reconciliation record)								
Charging point	3	Numeric	1	3			Mandatory	
Direction	1	Numeric	4	4	"0" = Inbound, "1" =Outbound		Mandatory	
Lane	2	Numeric	5	6			Optional	Zeroes
Blank	1	AlphaN	7	7			Mandatory	Zeroes
Time	17	Numeric	8	24	YYYYMMDDHHMMSSmmm		Mandatory	Zeroes
Blank	4	AlphaN	25	28			Mandatory	Zeroes
Number of records	25	Numeric	29	53	Rightmost, filled with zeroes		Mandatory	
Blank	1	AlphaN	54	54			Mandatory	Zeroes
Filler	86	Numeric	55	140	Filled with zeroes		Mandatory	Zeroes
Blank	1	AlphaN	141	141			Mandatory	Zeroes
Filler	50	Numeric	142	191	Filled with zeroes		Mandatory	Zeroes
Blank	1	AlphaN	192	192			Mandatory	Zeroes
Filler	49	Numeric	193	241	Filled with zeroes		Mandatory	Zeroes
Blank	1	AlphaN	242	242			Mandatory	Zeroes
Filler	8	Numeric	243	250	Filled with zeroes		Mandatory	Zeroes
Blank	1	AlphaN	251	251			Mandatory	Zeroes
Filler	4	Numeric	252	255	Filled with zeroes		Mandatory	Zeroes
Blank	1	AlphaN	256	256			Mandatory	Zeroes
Filler	255	Numeric	257	511	Filled with zeroes Flere Felter		Mandatory	Zeroes
End of Footer							Mandatory	Zeroes

002000 20151217093000000 000000 00000000000000075 00000000000000

1.7 Brobizz and Pista

- Brobizz OBU
- PISTA OBU

Transaction file for these protocols follow the format of EN15509 AutoPASS protocol.

1.8 DSRC-protocols command

1.8-01 AutoPASS

GET_SECURE.request

OBU field	Attribute	Octet		Transaction File	Pos	Format	Remarks
KeyGeneration	99		←	KeyGeneration	55-55		KeyGeneration selects a specific generation of security keys to be used for this transaction.
RND-1	99		←	RND-1	56-65		RND-1 is a random challenge used by the OBE to authenticate itself.
TVP	99		←	Time	66-75		TVP is a time dependent parameter used by the OBE to authenticate itself. Unixtime from CP

GET_SECURE.response
(AutoPASS1 data)

OBU field	Attribute	Octet		Transaction File	Pos	Format	Remarks
CountryCode	99	16-17	→	CountryCode	36-38		Octets 0011 0000 11 ITA2: N= 00110 , O= 00011 -> NO AutoPASS ISO 3166 : NO = **578**
IssuerIdentifier	99	17-18	→	IssuerIdentifier	39-43		Octets 00 0000 0000 1001 = 7 (integer) Fjellinjen = **00007**
ServiceNumber	99	19-22	→	ServiceNumber	44-53		Octets 0000 0000 0000 1000 0110 0000 0000 0111 = **548871**
efcStatus	99	23-24	→	OBU Status	93-97		Octets 1010 0000 0000 0000 = **40960** = 32768 + 8192 OBU Status= **40960** = 32768 (Moved), 8192=Low battery
TC	99	25-26	→	TransactionCounter	98-102		Octets 1000 0000 1110 1001 = **33001**
RND-2	99	27-30	→	RND-2	103-112		Octets 0000 0000 0000 1000 0110 1000 0000 0111 = 86807 (HEX), RND-2 = **0000086807** (HEX)
MAC1	99	31-34	→	MAC1	114-122		See format RND-2
MAC2	99	35-38	→	MAC2	124-132		See format RND-2

Table 1.8-02 AutoPASS EN 15509

VST

OBU field	Attribute	Octet		Transaction File	Pos	Format	Remarks
EFC-ContextMark	0	1-3	→	**ContractProvider**	56-61		CountryCode: 0011 0000 1100 = 30C (Hex), 3 positions
							IssuerIdentifierI: 0000 0010 1000 = 28 (Hex) ,3 positions, Issuer 40 I Norway (BergenBompengeselskap)
							ContractProvider: **30C028**
		4-5	→	**TypeOfContract**	476-479		0000 0000 0000 0001 = **0001** (Hex) (AutoPASS)
							0000 0000 0001 0001 = 0011 (D) , 0011 (H)
							0000 0000 1100 0111 = ???? (D), 00C7 (H)
		6	→	**ContextVersion**	480-481		0000 0010 = **02** (first generation of 15509 OBEs)
ManufacturerId	??	??	→	**OBUManufactorerId**	490-494		0000 0000 0010 1010 = 101010 = 42 (Dec) Norbit
							0000 0000 0100 0010 =42 (Hex) 66 (Dec) = Norbit

GET_STAMPED.response

OBU Field	Attribute	Octet		Transaction Field	Pos		Remarks
Payment Means	32	1-3	→	**CountryCode**	36-39		Personal Account Number (PAN) PAN = 9.578.XXXX.AAAAAAA.L where MII = 9, 5781is country code for Norway and XXXX is the Toll Service Provider (Issuer) identifier as assigned by Standards Norway. Please observe that XXXX is 4 digits in line with 7812-1, A.5 National schemes using Issuer Identification Number (IIN) greater than 6 digits. AAAAAAA10 is the Individual Account Identification and L10 is the Check Digit. PAN is padded to achieve 10 octets.
		4-5	→	**IssuerIdentifier**	40-43		
		6-1	→	**ServiceNumber**	44-54		
		11-12	→	**PaymentMeansExpireDate**	482-485		0000 0000 0000 0000 = **HHHH**
		13-14	→	**PaymentUsageControl**	486-489		0010 1111 0001 0000 = **2F10** (Hex)

GET.response

OBU Field	Attribute	Octet		Transaction Field	Pos		Remarks
LicencePlateNumber	16	1-17	→	**LicencePlateNumber**	396-429		Country Code, octet 1-2 (bits1-2) ITA 2 to HEX : 0011 0000 11(00) = 30C (Hex), this represent NO=Norwegian. Alphabetic Indicator, octet 2 (bits 3-8): 00 0000 = 0 (Hex) Length Indicator, octet 3: 0000 1110 = 0E (Hex) 14 octets available. An LPN shorter than 14 characters is padded with NUL characters so as to achieve a total of 14 octets. An LPN shorter than 14 characters is padded with NUL characters so as to achieve a total of 14 octets.
Vehicle Class	17	1	→	**Vehicle Class**	430-431		Bit 1: Trailer, bit 2-4 EuropeanVehicleGroup(EVG), bit 4-8 LocalVehicleClass(LVC)
							1101 0010 = **D2** (Hex) = Vehicle Class
							Trailer Presence , EVG=5=HVG up to 12t, LVC= 2

VehicleDimentions	18	1-3	→	**VehicleDimentions**	432-437		Octet1= vehicleLenghtOverall, 0000 0000 Format xx= 1111 1111 gir maks 255dm = 25,50m ?
							Octet2= vehicleHeighOverall, 0000 0000 Format xx
							Octet3= vehicleWidthOverall, 0000 0000 Format xx
VehicleAxels	19	1-2	→	**VehicleAxels**	438-441		Octet1=vehicleFirstAxleHeight = 0000 0000 Format xx
							Octet2, bit 1-2= TyreType
							Octet2, bit 3-5= Number of axels trailer
							Octet2, bit 6-8= Number of axels tractor
							0011 0000 0011 0101 = **3035** (Hex)=VehicleAxels
							3dm fvehicleFirstAxleHeight, 0 TyreType, 6 axels trailer, 5 axels tractor
VehicleWeightLimits	20	1-6	→	**VehicleWeightLimits**	442-453		Octet1-2= VehicleMaxLadenWeight, = 0001 0001 0001 0001= 1111 dec eller 1111(Hex)=
							Octet3-4= VehicleTrainMAximumWeight
							Octet5-6= VehicleWeightUnladen
VehicleSpecialCharacteristics	22	4	→	**VehicleSpecial Characteristics**	454-461		Octet1, bit 1-4=EuroClass 1111=F(hex)=15(dec) = EEV-class
							Octet1, bit 5-8=COP Values 1100 = C (Hex)
							Octet2, EngineCharacteristics 0001 1100 = 1C (Hex)
							Octet3: DescriptiveCharacteristics 1001 0000 = 90 (Hex)
							Octet4: FutureCharacteristics 1111 1000 = F8 (Hex)
							FC1C90F8 = VehicleSpecialCharacteristics
EquipmentOBUId	24	1-5	→	**EquipmentOBUId**	462-471		0000 0100 Length indicator=4, 0000 0000 0000 0000 0000 0000 0000 0000, decimal representation
EquipmentStatus	26	1-2	→	**EquipmentStatus**	472-475		LocalCoding : 0000 = **0** (Hex, pos 472)
				TransactionCounter	98-102		Transaction Counter: 0001 0000 1100 = **268 (decimal)**
					473-475		Transaction Counter: 0001 0000 1100 = **10C**



4.3 AutoPASS Formats

Appendix A9 – Picture File

DOCUMENT STATUS

Document number:	4.3 Appendix 9

Status	**Version**	**Description**
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Norwegian Public Roads Administration	Kåre Inge Viken	02.03.2017	

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1.0	02-03-2017	Per Einar Pedersli	New document
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1.2	25-02-2018	Kåre Inge Viken	New signalcode 21 added
1.3	31-05-2019	Kåre Inge Viken	Corrected number of digits in picture number.
1.4	08.10.2019	Kåre Inge Viken	New phrase about same timestamp

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1 PICTURE FILE 4

1.1 Picture file description 4
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1.3 Coding of reasons for Taking pictures 6
1.4 Picture file filename 7

1 Picture file

1.1 Picture file description

This file is produced by the CS based on information from the TSP.

This chapter describes the information that shall be stored in the picture files as comments, and the information to be superimposed on the image. The picture format used in AutoPASS is JPEG.

Passage data connected to a single picture is identical to the passage data written in the transaction file.The data attached to the picture file as comments is stored in ASCII format in the header of the picture file.

In the library from Independent JPEG Group (IJG), routines for adding user data to pictures are described. The library can be downloaded from: http://www.ijg.org/

This library contains the specification document 'libjpeg.doc'. The functionality for reading and writing comments in JPEG is specified in the chapter 'Special markers'. Text in a JPEG picture file shall comply with the following:

- The text shall be placed between the JPEG header and the JPEG image data.
- Text cursor shall be M_COM = 0xFE (specified in jdmarker.c).
- After text cursor there shall be two bytes indicating the length of the text (max 64kb).
- The text is saved in ASCII format.

Two applications in 'jpegsr6b.zip' are:

- rdjpgcom.c
- wrjpgcom.c

These files contain source code for reading and writing of comments in JPEG files.

1.2 Data superimposed on the picture image

Some data from the transaction record is superimposed on the picture image. This data is as follows:

First line in image:

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
Time	17	Numeric	1	17	Time of passage YYYYMMDDHHMMSSmmm		
DST	3	AlphaN	18	20	Daylight saving time		
ChargingPoint	3	Numeric	21	23	Charging point ID		
Blank	1	AlphaN	24	24			
Lane	2	Numeric	25	26	Id of Payment lane at the charging point		
Blank	1	AlphaN	27	27			
SeqVideoPicture	10	Numeric	28	37	Sequential counter giving the number of pictures that are taken and that shall be sent to the Central System for exception handling. The counter does not include Spot Test pictures.		
Blank	1	AlphaN	38	38			
OBU ID / PAN	19	Numeric	39	57	OBU ID / PAN as coded in the OBU		
Blank	1	AlphaN	58	58			
SignalCode	2	Numeric	59	60	Passage Code/ Reason code for taking the picture		

Next lines in image (1 or 2 lines depending of the length of text string):

Descriptive text of the Signal code fetched from Picture text file.

1.3 Coding of reasons for Taking pictures

For every picture taken a code of reason is attached. The code of reason is closely connected to the signal code given for every passage in the transaction file. The code of reason is superimposed on the image.

The coding used for the different reasons for taking and storing pictures shall be one of the following:

Reason code	
Code	**Description**
02	Approved passage in AutoPASS lane (spot test)
10	Passage in AutoPASS lane with a warning concerning low balance of AutoPASS contract. (spot test)
20	Passage in AutoPASS lane with expired validity or passage, no value left, or OBU blacklisted.Passage in AutoPASS lane with expired validity, no value left.
21	Passage in AutoPASS lane with OBU in OBU StatusFile where there is mismatch between registration number in OBU StatusFile versus result from ANPR from roadside.(shall not be used before by now)
22	Passage in AutoPASS lane without detected OBU or EFC Context Mark not approved.
23	Passage in AutoPASS lane with OBU not defined in OBU status file
25	Passage in AutoPASS lane with unauthorized AutoPASS OBU with valid contract
42	Passage in lane without charging equipment.

Information about video flag and wanted flag was represented as code of reason no. 26 and 27. This information was shown with flags in the transaction file to avoid conflicts with other possible signal codes. Videoflag and wanted flag are removed from OBU Statusfile.

1.4 Picture file filename

Pic100007_P012_L03_F0_XEX_D2000_03_10_T23_10_14_N0000000024.jpg

Translation of this code will be:

A picture taken for Operator with code 100007 at CP 12, lane 3, from the front (a camera) for enforcement on date 2000.03.10 at 23h 10min 14sec, and sequence 24.

The name of the Picture File shall be a concatenation of the following data elements

Operator code: six-digit Operator ID, Pic######

CP: three-digit CP number, P###

Lane:two-digit lane number, L##

Front/Rear: F(ront) or R(ear), F/R

Set: 1 part of set/duo, 0/1

SpotTest: 1 flag for sampling test, S/X

EnfPic: 1 flag enforcement, E/X

TestPic: 1 flag for test, T/X

Year: 4 digits for year, D####

Mo: 2 digits for month, ##

Day: 2 digits for day, ##

Hour: 2 digits for hour, T##

Min: 2 digits for minute, ##

Sec: 2 digits for second, ##

SerialNumber: ten digit serial number, N##########

All pictures connected to a passage shall have the same timestamp as the passage. (1/1000 of seconds are ignored in the name of picture files)

SerialNumber equals SeqVideoPicture in transaction file. On SpotTest pictures the SerialNumber will be 0.

4.3 AutoPASS Formats

Appendix A10 – Picture text File

DOCUMENT STATUS

Document number:	4.3 – A10

Status	**Version**	**Description**
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Norwegian Public Roads Administration	Kåre Inge Viken		

DOCUMENT REVISION HISTORY

Version	Date	Author	Main changes
1.0	08.06.2017	Per Einar Pedersli	New document

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DOCUMENT STATUS 2

1 PICTURE TEXT FILE ..... **FEIL! BOKMERKE ER IKKE DEFINERT.**

1.1 Picture text file description ..... ***Feil! Bokmerke er ikke definert.***
1.2 Picture text file name ..... ***Feil! Bokmerke er ikke definert.***
1.3 Coding of reasons for Taking pictures. *5*

1 Picture text file

1.1 Picture text file description

The content and format of a Picture Text File Record shall be according to the table below. It contains a descriptive text for each Signal Code used. The texts will be superimposed on the Picture images.

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
SignalCode	2	Numeric	1	2	Passage Code/ Reason code for taking the picture		
Blank	1	AlphaN	3	3			
Descriptive text	80	AlphaN	4	*	Describes the reason for taking the picture, see table in chapter 5.3. Variable length, max 80 characters		
CarriageReturn	1	AlphaN	*	*	End of line		

1.2 Picture text file filename

The name of the Picture Text File shall be

videotextfile_OOOOOO_YYYYMMDD_SS.dat

- O – Operator code (unique identification of toll system operator)
- Y – Year
- M – Month
- D – Day
- S – sequence number of Picture Text File to the Operator

SS is a sequence number from 0-99, incremented for each Picture Text File produced by the CS for this operator's charging Points. The file is placed by the CS on the Data Concentrator for this Toll project. SS is reset to 0 after 99.

SS is a sequence number from 0-99, incremented for each Exception file produced by the CPE for this operator. It is reset to 0 after 99.

1.3 Coding of reasons for Taking pictures

For every picture taken a code of reason is attached. The code of reason is closely connected to the signal code given for every passage in the transaction file. The code of reason is superimposed on the image.

The coding used for the different reasons for taking and storing pictures shall be one of the following:

Reason code	
Code	**Description**
02	Approved passage in AutoPASS lane (spot test)
10	Passage in AutoPASS lane with low balance (spot test)
20	Passage in AutoPASS lane with expired validity, no value left.
22	Passage in AutoPASS lane without detected OBU or EFC Context Mark not approved.
23	Passage in AutoPASS lane with OBU not defined in OBU status file
25	Passage in AutoPASS lane with unauthorized AutoPASS OBU
28	Passage in AutoPASS lane with OBU from unauthorized issuer.
42	Passage in lane without charging equipment.

Information about video flag and wanted flag is represented as code of reason no. 26 and 27. This information is shown with flags in the transaction file to avoid conflicts with other possible signal codes.



4.3 AutoPASS Formats

Appendix A11 – Tariff File

DOCUMENT STATUS

Document number:	4.3 AutoPASS Data Formats Appendix– A11

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Norwegian Public Roads Administration	Kåre Inge Viken		

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1.0	08.06.2017	Per Einar Pedersli	New document
1.1	08.10.2018	Kåre Inge Viken	New page 1

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1.1 Tariff file description....4
1.2 File Header desription....4
1.3 Body description....4
1.4 Footer description....6
1.5 File examples....6

1 Tariff file

1.1 Tariff file description

This file is produced by the CS based on information from the TSP.

Format of filename A_tariffile_OOOOOO_YYYYMMDD_SS.dat

OOOOOO = Operator code

YYYY = Year (4 characters)

MM = Month (2 characters)

DD = Date (2 characters)

SS = Sequence number from 0-99, incremented for each Tariff File produced by the CS for this operator's Charging Points. The file is placed by the CS on the Data Concentrator for this Toll project. SS is reset to 0 after 99.

.dat = extention

1.2 File Header desription

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
Header							
Record type	1	Numeric	1	1	"4"=Start record		
Filler	1	AlphaN	2	2	Blank		
Date of creation	14	Numeric	3	16	YYYYMMDDHHMMSS.		
End of line	1	AlphaN	17	17	End of line		
Record type	1	Numeric	1	1	"2"=Valid from Date		
Filler	1	AlphaN	2	2	Blank		
ValidFromDate	12	Numeric	3	14	YYYYMMDDHHMM		
End of Header	1	AlphaN	15	15	End of line		

1.3 Body description

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
Record type	1	Numeric	1	1	"1"=Body		
Filler	1	AlphaN	2	2	Blank		
CP ID	3	AlphaN	3	5	A unique number for every Charging Point. This number is used to differentiate prices regarding the Charging Points. The field can contain *, which can mean all CPs.		
Filler	1	AlphaN	6	6	Blank		
LaneID	2	AlphaN	7	8	A unique number for every lane at a CP. The number is used to differentiate prices regarding lanes. The field can contain *, which means all lanes.		
Filler	1	AlphaN	9	9	Blank		
LaneType		AlphaN	10	*	Indicates which type of lane the price is valid for.		

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
					See 4.3 appendix B1Table 9 "*" = All LaneTypes If more than one LaneType then "," (comma) separates the values.		
Filler	1	AlphaN	*	*	Blank		
VehicleClass	2	AlphaN	*	*	Defines the class for the payment. **See 4.3 appendix B1Table 3**		
Filler	1	AlphaN	*	*	Blank		
Weekday	1	AlphaN	*	*	Used to indicate which days the price is valid for, in such a way that it is possible to differentiate between weekdays and weekends. The days are numbered like this: "0" = Sunday "1" = Monday .. "6" = Saturday "*" = All days If more than one day then "," (comma) separates the values.		
Filler	1	AlphaN	*	*	Blank		
Month	2	AlphaN	*	*	Used to indicate month. "01" = January "02" = February .. "12" = December "*" = All months This field, in combination with "Day of month" can be used to differentiate between prices on special days, e.g. May 17 and December 24.		
Filler	1	AlphaN	*	*	Blank		
DayOfMonth	2	AlphaN	*	*	Used to specify special days in month. Two characters are always used to represent "Day of month", i.e. 01, 02,.....,09, 10,...,31. "*" = All days Is used in combination with Month to differentiate price on special days (see previous paragraph).		
Filler	1	AlphaN	*	*	Blank		
Time	2	AlphaN	*	*	Used to specify hour pr. day to which the different prices are valid from. Two characters are always used to represent "hour" i.e. 00, 01,.....,09, 10,...,23 "*" = All hours		
Filler	1	AlphaN	*	*	Blank		
Min	2	AlphaN	*	*	Used to specify minute within every hour the different prices are valid for. Two characters are always used to represent "min", i.e. 01,.....,09, 10,...,60 "*" = All minutes		
Filler	1	AlphaN	*	*	Blank		
Currency	3	AlphaN	*	*	Abbreviation in capitalized letters which identifies the currency type. The abbreviation is defined in ISO format, see [2]		
Filler	1	AlphaN	*	*	Blank		
Price (In Currency)	12	Numeric	*	*	Current price for the criterias above. Twelve characters are always used to represent "price", i.e. 000000000001,.....,000000000999, 000000001000,...,99999999999. Price is given in Currency/100.		
End of Record	1	AlphaN	*	*	End of line		

1.4 Footer description

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
RecordType	1	Numeric	*	*	"3" = Reconciliation record.		
Filler	1	AlphaN	*	*	Blank		
NumberOfRecords	5	Numeric	*	*	Number of records in price file, reconciliation record excluded. Five characters are always used to represent number of records, 00001, …, 00099, …, 99999		
End of Footer	1	AlphaN	*	*	End of line		

1.5 File examples

The Price File below is a complete price file for CP 012, lane 01 in "Trøndelag Toll Collection Company". In this file special days like Christmas Eve and May 17 are included. These special days must always be presented in the beginning of the file. The following lines are price differentiation valid for the whole week except the special days. In line 7, a post saying that vehicle class 2 must pay NOK 100 from 22h until 00h.

A future demand for diversified prices for every lane in a road pricing scheme is taken care of by the fact that LaneID is used as a parameter. Every lane will be able to tell whether it is an inbound or outbound lane of a defined zone. That makes it possible to differentiate the price for traffic in different directions.

Contents:	**Description:**
4 19991102080530	Price file created 1999.11.02 at 8:05:30
2 19991201	The prices below are valid from 1999.12.01
1 012 01 * 1,2 * 12 24 * * NOK 000000000000	Price Record applies for small and large vehicle in lane 01, CP 12, Christmas Eve 1999. Price= 0 NOK, all day.
1 012 01 * 1,2 * 05 17 * * NOK 000000000000	Price Record applies for small and large vehicle in lane 01, CP 12, May 17 1999, whole day, price = 0 NOK
1 012 01 * 1,2 1,2,3,4,5 * * 00 * NOK 000000001000	Price Record applies for small and large vehicle in lane 01, CP 12 all weekdays in 1999, from 00h, price = 10 NOK
1 012 01 * 1 1,2,3,4,5 * * 06 * NOK 000000001200	Price Record applies for small vehicle, all weekdays in lane 01, CP 12 in 1999, from 06h, price = 12 NOK
1 012 01 * 2 1,2,3,4,5 * * 06 * NOK 000000002400	Price Record applies for large vehicle in lane 01, CP 12, all weekdays in 1999, from 06h, price = 24 NOK
1 012 01 * 1,2 1,2,3,4,5 * * 18 * NOK 000000001000	Price Record applies for small and large vehicle in lane 01, CP 12, all weekdays in 1999, from 18h, price = 10 NOK
1 012 01 * 2 1,2,3,4,5 * * 22 * NOK 000000010000	Price Record applies from large vehicle in lane 01, CP 12, all weekdays in 1999, from 22h, price = 100 NOK
1 012 01 * 1,2 0,6 * * 00 * NOK 000000001000	Price Record applies for small and large vehicle in lane 01, CP 12, all weekends in 1999, from 00h, price = 10 NOK
1 012 01 * 1,2 0,6 * * 18 * NOK 000000000800	Price Record applies for small and large vehicle in lane 01, CP 12, all weekends in 1999, from 19h, Price = 8 NOK
1 012 01 * 1,2 0,6 * * 18 * SEK 000000000900	Price Record applies for small and large vehicle in lane 01, CP 12, all weekends in 1999, from 19h, Price = 9 SEK , both currencies are used in this toll lane, see also record above where price in NOK is for the same lane.
3 00011	Reconciliation record**, 12** Records in file except reconciliation record.

SS is a sequence number from 0-99, incremented for each Exception file produced by the CPE for this operator.
It is reset to 0 after 99.



4.3 AutoPASS Formats

Appendix A12 – Exception Messages

DOCUMENT STATUS

Document number:	4.3 AutoPASS Data Formats Appendix – A12

Status	**Version**	**Description**
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Norwegian Public Roads Administration	Kåre Inge Viken	08.06.2017	

DOCUMENT REVISION HISTORY

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1.0	08.06.2017	Per Einar Pedersli	New document

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DOCUMENT STATUS 2

1 EXCEPTION MESSAGES 4

1.1 Exception Messages description *4*
1.2 Exception file *4*
1.3 Exception file name *7*

1 Exception Messages

1.1 Exception Messages description

Exception Messages are used for reporting events or status in the system. A status will have two or more possible states. The transition from one state to another changes the status. The change of status is an event that may cause an Exception Message to be generated.

Priorities for Exception Messages in the system are ‘fatal’, ‘alarm’, ‘error message’, ‘warning’ and ‘information’. ‘Fatal’, ‘alarm’ and ‘error message’ signals event/state that either change equipment’s ability to operate or some unexpected behaviour that may affect the ability to operate. ‘Warning’ and ‘information’ signals event/state that does not have any immediate consequences for the functionality or operability of the system.

1.2 Exception file

The content and format of an Exception Message shall be according to the table below.

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
ChargingPoint	3	Numeric	1	3	Charging Point ID where the incident occurred. 000 is used if a message does not concern any station		
Lane	2	Numeric	4	5	Lane ID of traffic lane where the message is valid. 00 is used if the message concerns more lanes or does not concern any lane		
Blank	1	AlphaN	6	6			
Priority	1	Numeric	7	7	The importance of the message. Graded from 1 to 5, see table below..		
Blank	1		8	8			
Time	17	Numeric	9	25	Time when reason for message occured. Format YYYYMMDDHHMMSSmmm i.e. 20010115102430123 means January 15, 2001 at 10:24:30.123		
DST	3	AlphaN	26	28	Daylight Saving Time, code with 3 characters= DST		
Blank	1	AlphaN	29	29			
ModuleNumber	6	Numeric	30	35	Module Number of the module that generated the message. Together with the CategoryNumber, the ModuleNumber will identify the message unambiguously.		
Blank	1	AlphaN	36	36			
UnitNumber	2	Numeric	37	38	Identifies the type of unit, e.g. Lane Controller, CP main computer. See table below.		
Blank	1	AlphaN	39	39			

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Value if Nothing
CategoryNumber	3	Numeric	40	42	Category number of the Category Type the message belongs to. Together with the ModuleNumber, the CategoryNumber will identify the message uniquely.		
Blank	1	AlphaN	43	43			
Alarm text	Variable	AlphaN	44	*	Written description of an incident. This text is of variable length.		
CarriageReturn	1	AlphaN					

Priority

Indicates the importance of the message.

Priority of the message:		
Priority	Priority Code	Description
Fatal	1	Irretrievable program error.
Alarm	2	Serious error which can lead to errors or loss of data. Efforts must be started immediately.
Error	3	Something is wrong, but the system is still running. Effort must be done. No immediate risk for more serious errors.
Warning	4	Minor disturbances in the system. Normally, this is handled automatically. Reoccurring warnings can indicate errors.
Information	5	Information message

UnitNumber

Indicates what type of unit the message is valid for.

Code	Description
1	Charging Point Main computer (PMC)
2	Lane controller (LC)
3	Road Side Unit (RSU)
4	Reserved future use
5	Automatic Coin machine
6	Manual Toll Collection
7	Reserved future use
8	Reserved future use
9	Central System

1.3 Exception file name

The name of the Exception File shall be

ex_OOOOOO_YYYYMMDDHHUUCCCLL_SS.exc

- O – Operator code (unique identification of toll system operator)
- Y – Year
- M – Month
- D – Day
- H – Hour
- U – Minute
- C - three-digit CP number, ### (if C=000: Data concentrator)
- L - two-digit lane number, ## (if L=00: Exception source is CP, not a lane)
- S – sequence number of Exception file from the Operator

Hour&Minute(HHUU) stand for the hour and minute when the writing of the exception file was done.

SS is a sequence number from 0-99, incremented for each Exception file produced by the CPE for this operator. It is reset to 0 after 99.



4.3 AutoPASS Formats

Appendix A13 – ALM Format

DOCUMENT STATUS

Document number:	4.3 AutoPASS Data Formats Appendix A13

Status	**Version**	**Description**
Final	2.1	

Authorisation	**Name**	**Date**	**Signature**
Author	Per Einar Pedersli	02.03.2017	
Norwegian Public Roads Administration	Kåre Inge Viken	10.04.2019	

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Version	Date	Author	Main changes
1.0	02-03-2017	Per Einar Pedersli	New document
2.0	18-02-2019	Kåre Inge Viken	Corrected description and added description to ALC.
2.1	10.04.19	Kåre Inge Viken	Corrected positions from pos 134-
2.2	14.06.2019	Kåre Inge Viken	Corrected number of characters in Alarm description from 30 to 31

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3 ALARM CODE TABLE 8

1.1 ALM (Alarm table)

1.1.1 Description

This table is produced by the AutoPASS management for sending alarms between actors in AutoPASS

Format of filename ALMxxxxxxyyyymmddss_zzzzzz_vvvvvv (33 characters)
Format of list name: ALMxxxxxxyyyymmddss (19 characters)

xxxxxx = Identifier of the sender (6 characters

yyyy = Year (4 characters) of production of the file

mm = Month (2 characters) of production of the file

dd = Date (2 characters) of production of the file

ss = Sequence within the day

zzzzzz = Identifier of the receiver of the File (6 characters)

vvvvvv = Version name

zzzzzz = The receiver 00000A is used in order to distribute a complete list to all connected TCs and TSPs automatically. The receiver 00000B is used in order to distributed a complete list to all connected TCs automatically. If a filtered list is sent to a specific TC or TSP the ID of the TC or TSP is used as recipient
vvvvvv = Version name

1.1.2 Format Alarm Table

Name	Number of Char.	Type of value	Begin	End	Definition	Origin	Mandatory/ Optional	Value if Nothing	Update req. test. Yes
Header									
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory		
Sender Identifier	6	AlphaN	2	7	Actor ID 6 digits identifier of the Company (or if AutoPASS IP) having created this file and sending the file.		Mandatory		
Receiver Identifier	6	AlphaN	8	13	Actor ID 6 digits identifier of the Company receiving this file. (00000A = all actors receiving this file, 0000B = all TC receiving this file)		Mandatory		
Moment of creation	14	Numeric	14	27	YYYYMMDDHHmmss UTC		Mandatory		
Filler	27	AlphaN	28	54	Reserved for future use, filled with Zeros		Mandatory	0	
End of header	1	AlphaN	55	56	End of line		Mandatory		
Body									
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory		
Alarm code	10	Numeric	2	11	10 digits code according to the alarm code table		Mandatory		
Alarm description	31	AlphaN	12	42	Additional information about the alarm		Mandatory	0	
Actor ID	6	AlphaN	43	48	Actor ID 6 digits identifier of the Company how is the owner of toll equipment the alarm applies to or the company the alarm applies to.		Mandatory	0	
Toll Project ID	6	AlphaN	49	54	If the alarm applies to transactions: 6 digits identifier for the toll project the alarm applies to.		Mandatory	0	
Toll station ID	4	AlphaN	55	58	If the alarm applies to transactions: 4 digits identifier for the toll station the alarm applies to.		Mandatory	0	
Toll lane ID	4	AlphaN	59	62	If the alarm applies to transactions: 4 digits identifier for the toll lane the alarm applies to.		Mandatory	0	
Transaction ID	30	Numeric	63	92	If the alarm applies to a given transaction, AutoPass IP transaction ID		Mandatory	0	
Transaction time	14	Numeric	93	106	If the alarm applies to a given transaction, YYYYMMDDHHmmss UTC		Mandatory	0	
OBE ID	18	Numeric	107	124	If the alarm applies to a given transaction with OBU, OBU number the alarm applies to		Mandatory	0	
License Plate number	10	AlphaN	125	134	If the alarm applies to a given transaction, Vehicle Registration Number the alarm applies to		Mandatory	0	
File/message name	33	AlphaN	135	167	If the alarm applies to a given file transfer, file name the alarm applies to		Mandatory	0	
File/message number	21	Numeric	168	188	If the alarm applies to a given file transfer, File Sequence number the alarm applies to		Mandatory	0	
For later use	150	AlphaN	189	338	Filled in with '0's		Mandatory	0	
End of record	1	AlphaN	339	339	End of line		Mandatory		
Footer									
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory		
Filler	62	AlphaN	2	63	Reserved for future use, filled with Zeros		Mandatory	0	
End of Footer	1	AlphaN	64	65	End of line		Mandatory		

2 Format ALC (ALM confirmation)

2.1.1 Description

If an alarm are distributed to all actors or all TCs or all TSTs there will be no ALC (ALM confirmation)Format of filename ALCxxxxxxyyyymmddss_zzzzzz_vvvvvv (33 characters)

Format of list name: ALCxxxxxxyyyymmddss (19 characters)

xxxxxx = Identifier of the sender (6 characters

yyyy = Year (4 characters) of production of the file

mm = Month (2 characters) of production of the file

dd = Date (2 characters) of production of the file

ss = Sequence within the day

zzzzzz = Identifier of the receiver of the File (6 characters)

vvvvvv = Version name

2.1.2 Format Alarm Table Confirmation

Name	Number of Char.	Type of value	Begin	End	Definition	Mandatory info (E). Body only	Mandatory/ Optional	Value if Nothing
Header								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=List Body, "2"=List Footer,		Mandatory	
Sender Identifier	6	AlphaN	2	7	6 digits Actor ID identifier of the Company (TSP) having sent this file. The issuer who will invoice the customer.		Mandatory	
Receiver Identifier	6	AlphaN	8	13	6 digits Actor ID identifier of the TC (Company having received this file).		Mandatory	
Filler	52	AlphaN	14	65	Reserved for future use, filled with Zeros		Mandatory	0
End of header	1	AlphaN	66	67	End of line		Mandatory	
Body								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=Body, "2"=Footer		Mandatory	
File Received	21	AlphaN	2	22	ALMxxxxxxyyyymmddss		Mandatory	
Date of reception	14	Numeric	23	36	YYYYMMDDHHmmss		Mandatory	
End of record	1	AlphaN	37	37	End of line		Mandatory	
Footer								
Register Identifier	1	Numeric	1	1	"0"=Header, "1"=List Body, "2"=List Footer		Mandatory	
End of Footer	1	AlphaN	2	3	End of line		Mandatory	

3 Alarm code table

Alarm Code (Numeric 10 digits)	Alarm description (30 digits)	Additional information
00000 00001		
00000 00002		
00000 00003		
00000 00004		



4.3 AutoPASS Formats

Appendix B1 - Tables

DOCUMENT STATUS

Document number:	4.3 – B1 Tables

Status	**Version**	**Description**
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Author	Kåre Inge Viken	15.04.2019	
Norwegian Public Roads Administration	Vidar Myrbakk	15.04.2019	

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Version	Date	Author	Main changes
1.0	08.06.2017	Per Einar Pedersli	New document
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1.2	25.02.2018	Kåre Inge Viken	New signalcode 21 added
1.3	15.04.2019	Kåre Inge Viken	Added tables 17 – 21

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1 Tables

1.1 Table 1 Direction|

Code	Description
0	Inbound
1	Outbound
2	Entry-point
3	Exit-point

1.2 Table 2 Signal code

Picture	Code	Description
No	02	Approved passage in AutoPASS lane (ETC lane)
No*	08	Passage in AutoPASS lane with unconfirmed reading of OBU. (the counting of these passages is not included in the reconciliation records)
No	10	Passage in AutoPASS lane with a warning concerning low balance, (few passages left in multi-passage card) or few days left of period of AutoPASS contract.
Yes	20	Passage in AutoPASS lane with expired validity or passage, no value left, or OBU blacklisted.
Yes	21	Passage in AutoPASS lane with OBU in OBU StatusFile where there is mismatch between registration number in OBU StatusFile versus result from ANPR from roadside.
Yes	22	Passage in AutoPASS lane without detected OBU or EFC Context Mark not approved.
Yes	23	Passage in AutoPASS lane with OBU not defined in OBU status file.
Yes	25	Passage in AutoPASS lane with unauthorized AutoPASS OBU.
Yes	28	Passage in AutoPASS lane with OBU from an unauthorized Issuer.
No	40	Passage in lane with modus "free of charge".
No	41	Passage in lane in closed modus
Yes	42	Passage in lane without charging equipment. To be used for passage in opposed lane or bus-bay.

1.3 Table 3 Vehicle Class

First character

Code	Description
0	No expemption
1	
2	
3	
4	
5	
6	

Second character

Code	Description
0	Unknown
1	Large vehicle
2	Small vehicle
3	Motor cycle
4	Truck L>12,4 meter
5	M1 (Bobil)

1.4 Table 4 Tag Status Flag / Status List Flag

Value	Name	Flag	Description
01	Wanted	Bit 0	'Wanted' flag was set in Status File (not in use)
02	Video	Bit 1	'Video' flag was set in Status File (not in use)
04	For future use	Bit 2	
08	For future use	Bit 3	
16	For future use	Bit 4	
32	For future use	Bit 5	

1.5 Table 5 OBU ID

OBU ID calculation

OBU ID in ISO			OBU ID coded in OBU
CountryCode	IssuerIdentifier	ServiceNumber	13721939474602230
578	00008	0000219382	

Country Code 578 (ISO) is replaced with Country Code 195 (ITA2 coded NO)

CountryCode:	195 x 2^{46} = 13721905114644480
IssuerCode:	8 x 2^{32} = 34359738368
ServiceNumber:	219382

OBU ID coded in OBU
13721905114644480 + 34359738368 + 219382 = 13721939474602230

1.6 Table 6 OBU Status (Flag code)

Code	Description	Flag
00001	For future use = 0	bit 0
00002	For future use = 0	bit 1
00004	For future use = 0	bit 2
00008	For future use = 0	bit 3
00016	For future use = 0	bit 4
00032	For future use = 0	bit 5
00064	For future use = 0	bit 6
00128	For future use = 0	bit 7
00256	For future use = 0	bit 8
00512	For future use = 0	bit 9
01024	For future use = 0	bit 10
02048	For future use = 0	bit 11
04096	For future use = 0	bit 12
08192	Low battery voltage	bit 13
16384	For future use = 0	bit 14
32768	Moved	bit 15

1.7 Table 7 MAC1/MAC2 Status

Code	Description
0	Not checked
1	Checked, approved
2	Checked, not approved

1.8 Table 8 Signal Code Bitmap

Value	Flag	Name	Description
00000001	Bit 1		Green signal (Approved passage)
00000002	Bit 2		White signal (Low Balance passage)
00000004	Bit 3		No signal (no OBU/no valid contract)
00000008	Bit 4		OBU not detected
00000016	Bit 5		OBU not defined
00000032	Bit 6		OBU not authenticated
00000064	Bit 7		OBU not read
00000128	Bit 8		Missing trigger from detection system
00000256	Bit 9		
00000512	Bit 10		OBU reading unconfirmed
00001024	Bit 11		
00002048	Bit 12		0=CPE reading;
00004096	Bit 13		History CPE inoperative
00008192	Bit 14		History network inoperative
00016384	Bit 15		
00032768	Bit 16		Video taken of the passage
00065536	Bit 17		
00131072	Bit 18		
00262144	Bit 19		
00524288	Bit 20		
01048576	Bit 21		
02097152	Bit 22		
04194304	Bit 23		
08388608	Bit 24		
16777216	Bit 25		
33554432	Bit 26		

1.9 Table 9 Lane Mode

Code	Description
00	Unknown
01	AutoPASS
02	Manual
03	Coin
04	Free passage
05	Closed
06	
07	
08	Opposing direction

1.10 Table 10 MMS signal (sound)/ Light Signal Code

Code	Description	Comment
02	MMS 1/(Green light) or no signal	Approved Passage /Valid contract
10	MMS 2/(White light) or no signal	Low balance passage
20	No signal	No valid Contract / no OBU

1.11 Table 11 Trailer bit

Code	Description
0	No trailer
1	Trailer detected

1.12 Table 12 AutoPASS Ferry Class

Code	Description
0	Unknown, default if not in use
1	Small vehicle, length =< 6m
2	Medium vehicle, lenght >6m =< 8 m
3	Large vehicle , lenght >8m =< 10 m)
4	Large vehicle (>10m=< 12 m)
5	Large vehicle (>12m =< 14 m)
6	Large vehicle (>14m=< 17,5 m)
7	Large vehicle (>17,5m=< 19,5 m)
8	Large vehicle (>19,5m =< 22 m)

Code	Description
9	Large vehicle (>22 m)

1.13 Table 13 OBU Manufactor Id

Code	Description
00001	Kapsch, Austria
00003	Kapsch, Sweden
00006	Q-Free, Norway
00027	Fenrits, Norway
00032	Lyng, Norway
00042	Norbit, Norway

1.14 Table 14 Record Type (OBU Status file)

Code	Description
1	Record for new or updated OBU
2	Record for OBU to be deleted
3	Record for OBU with data that shall be changed. Equivalent with RecordType1
7	Reconciliation record, last record in file
8	Definition Record for file with incremental upgrading
9	Definition Record with full upgrading

1.15 Table 15 Type of Contract

Code	Description
1	Prepaid- or post paid contract
2	Annual Contract (not presently in use)
3	Half-Year Contract (not presently in use)
4	Monthly Contract (not presently in use)
6	Free Passages Contract

1.16 Table 16 Override

Code	Description
0	Status on contract is determined on the basis of validity and balance.
1	Passage is handled on the basis of value in the field SignalCode.

1.17 Table 17 HGV/TIF values for “Tariff Classification”

EasyGo Tariff Classification in HGV/TIF		EN15509 European Vehicle Group (Byte 1)		EasyGo Local Class (Byte 2)	
00	No entry	0	No entry	0	No entry
12	Passenger car max. 8 persons below or equal 3.5 T	1	Group 1 - Small passenger vehicles (UNECE class M 1)	2	Light vehicle (≤ 3.5 T)
14	Passenger car electrical vehicle any weight			4	Electrical Vehicle
22	Light Goods Vehicle below or equal 3.5 T	2	Group 2 - Light Goods Vehicles (UNECE class N 1)	2	Light vehicle (≤ 3.5 T)
31	Bus above 3.5 T, seats count excluding driver is greater than 8 (M2+M3)	3	Group 3 - Large passenger vehicles (UNECE class M 2, M 3)	1	Large vehicle (>3.5 T)
32	Bus below or equal 3.5 T, seats count excluding driver is greater than 8 (M2)			2	Light vehicle (≤ 3.5 T)
32	Mobile Home above 3.5 T				All Mobile Home
41	Truck above 3.5 T and below or equal to 12 T	4	Heavy Goods Vehicles up to 12 T (UNECE class N 2)	1	Large vehicle (>3.5 T)
51	Truck above 12 T	5	Group 5 - Heavy Goods Vehicles over 12 T (UNECE class N 3)	1	Large vehicle (>3.5 T)
63	Motorcycle	6	Group 6 – Motorcycles (UNECE class L)	3	Motorcycle not charged in Norway
71	Other Vehicle	7	Group 7 - Other vehicles including vehicles above 3,5 T not included in previous groups	1	Large vehicle (>3.5 T)

Table 17 – HGV/TIF Values for "Tariff Classification"

Norway

- All vehicles must be registered in the HGV list if driving in Norway to be charged the correct price.
- Trucks must be registered with an OBE and have mounted the OBE correctly to avoid being fined according to Norwegian requirement of mandatory OBE.
- Mobile Homes over 3.5 T must be equipped with an OBE and registered on the HGV as a mobile home list to be charged correctly.

All EasyGo+ OBEs must be on the HGV list.

Classes for Storebælt and Øresund are primarily determined based on length and height. However, there is a maximum price for vehicles ≤ 3.5 T, and a minimum price for vehicles > 3.5 T. At Øresund the price is also dependent of whether it is a bus or a truck

Entries on the HGV list for European Vehicle Group 0 - 3 allow cars ≤ 3.5 T to be included in the Norwegian fall-back solution if the OBE is not read.

1.18 Table 18 HGV values for “Emission Class”

Euro emission Classes – Entry in HGV	Euro Emission Classes – Code in OBE
0 (Meaning no information / entry)	0
Euro1	1
Euro2	2
Euro3	3
Euro4	4
Euro5	5
EEV	15 (coded as F HEX)
Euro6	6

Table 18 - HGV Values for "Emission class"

Vehicles without Combustions engines, e.g. vehicles with type of engine “batteries” must be personalized as Euro Emission Class “0” (meaning no information / entry)

Vehicles with Combustions engines older than 01.10.1993, must be personalized as Euro1 in order to allow a temporary assignment for Toll Charger, in case the Engine Characteristics is not implemented at the RSE.

Table 19 HGV values for “Fuel Type”

Fuel Type in TSP Product Code Usage for Norway (HGV only)		Engine Characteristics According ISO 14906:2011 and *ISO 14906:2018/DAmd1:2019 (HGV and OBE)	
Fuel Type	**Description**	**Description**	**Engine Characteristics**
09	Other fuel (if fuel type is not known, or not in list, use this as default)	No Entry	00
		No Engine	01
01	Gasoline	Petrol Unleaded	02
01	Gasoline	Petrol Leaded	03
02	Diesel	Diesel	04
04	Gas	LPG	05
05	Electric	Battery	06
05	Electric	Solar	07
		Hybrid	08
06	Hydrogen	Hydrogen	09
		* Multi-fuel engine	10*
		* bivalent-petrol-LPG -- bivalent operating engine with petrol or liquefied petroleum gas	11*
		* bivalent-petrol-CNG -- bivalent operating engine with petrol or compressed natural gas	12*
		* combined-petrol-electric -- combined operation with petrol and electric engine	13*
		* CNG -- compressed natural gas	14*
		* LNG -- liquified natural gas	15*
		* combined-diesel-electric -- combined operation of diesel and electric engine	16*
		* combined-hydrogen-electric -- combined operation of hydrogen and electric engine	17*
		* bivalent-hydrogen-petrol -- bivalent operating engine with hydrogen or petrol	18*
		* bivalent-hydrogen-petrol-electric-engine -- bivalent operating engine with hydrogen or petrol combined with electric engine	19*
		* fuel-cell-hydrogen -- fuel cell with hydrogen as primary energy source and electric engine	20*
		* fuel-cell-petrol -- fuel cell with petrol as primary energy source and electric engine	21*
		* fuel-cell-methanol -- fuel cell with methanol as primary energy source and electric engine	22*
		* fuel-cell-ethanol -- fuel cell with ethanol as primary energy source and electric engine	23*
*		* fuel-cell-diesel -- fuel cell with diesel as primary energy source and electric engine	24*
		* combined-multi-fuel-electric-engine -- combined operation of multi fuel and electric engine	25*
		* combined-CNG-electric-engine -- combined operation with compressed natural gas and electric engine	26*
		* combined-LNG-electric-engine -- combined operation with liquified natural gas and electric engine	27*
		* petrol-ethanol -- fuel mix of petrol and mainly ethanol, e.g. E85	28*
		* combined-LPG-electric-engine -- combined operation of LPG and electric engine	29*
07	Gasoline Hybrid	* hybrid-petrol-external-battery -- hybrid drive with petrol and external chargable battery (plug-in hybrid)	30*
08	Diesel Hybrid	* hybrid-diesel-external-battery -- hybrid drive with diesel and external chargable battery (plug-in hybrid)	31*
		* hybrid-LPG-external-battery -- hybrid drive with LPG and external chargable battery (plug-in hybrid)	32*

		* hybrid-hydrogen-external-battery -- hybrid drive with hydrogen and external chargable battery (plug-in hybrid)	33*
		* hybrid-multi-fuel-external-battery -- hybrid drive with multi fuel and external chargable battery (plug-in hybrid)	34*
		* hybrid-CNG-external-battery -- hybrid drive with compressed natural gas and external chargable battery (plug-in hybrid)	35*
		* hybrid-LNG-external-battery -- hybrid drive with liquified natural gas and external chargable battery (plug-in hybrid)	36*
		* hybrid-bivalent-hydrogen-petrol-external-battery -- hybrid drive with bivalent operating hydrogen and petrol engine and external chargable battery (plug-in hybrid)	37*
		* hydrogen-CNG -- fuel mix of hydrogen and compressed natural gas	38*
		* hydrogen-LNG -- fuel mix of hydrogen and liquified natural gas	39*
		* hybrid-hydrogen-CNG-external-battery -- hybrid drive with hydrogen and compressed natural gas and external chargable battery (plug-in hybrid)	40*
		* hybrid-hydrogen-LNG-external-battery -- hybrid drive with hydrogen and liquified natural gas and external chargable battery (plug-in hybrid)	41*
		* ethanol -- ethanol or fuel mix of ethanol and other fuel (except petrol) or additives, e.g. E95	42*
		* hybrid-fuel-cell-hydrogen -- hybrid drive with fuel cell (electric engine) and hydrogen (combustion engine)	43*
		* hybrid-fuel-cell-hydrogen-external-battery -- hybrid drive with fuel cell (electric engine) and hydrogen (combustion engine) and external chargable battery (plug-in hybrid)	44*
		* dual-fuel-LNG-diesel -- dual operation with LNG and diesel	45*
		* electric-external -- electric engine with external power supply	46*
		* biogas -- mixture of different gases produced by the breakdown of organic matter	47*
10	Bio Diesel	* bioDiesel -- vegetable oil- or animal fat-based diesel fuel	48*
11	Bio Gasoline	* bioPetrol -- petrol fully or partly based on vegetable sources	49*
		* bivalent-petrol-biogas – bivalent operating engine with petrol or biogas	50*
		* combined-biogas-electric-engine – combined operation of biogas and electric engine	51*
09	Other fuel (if fuel type is not known, or not in list, use this as default)	* Other	52*
03	Paraffin		

Table 19 - HGV Values for "Fuel Type" (used for "TSP product code") and "Engine Characteristics"

* according to proposal of ISO 14906:2018/Amd1:2019

1.20 Table 20 Valid Characters for "License Plate Number”

ISO/IEC 8859-1																
	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Not in use															
1x																
2x	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	
8x	Not in use															
9x																
Ax	NBSP	¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	SHY	®	¯
Bx	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
Ex	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
Fx	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

Table 20 - Valid Characters for "License Plate Number" (marked blue)

1.21 Table 21 Allowed non-Latin1 characters and their mapping for LPN

-

License Plate Character	Unicode Code Point	Mapped Latin1 Character
A to Z	U+0041 to U+005A	not mapped
0 to 9	U+0030 to U+0039	not mapped
Ä	U+00C4	not mapped
Ö	U+00D6	not mapped
Ü	U+00DC	not mapped
Л	U+039B	a
Ъ	U+042A	b
Č	U+010C	c
Д	U+0414	d
Ё	U+0401	e
Э	U+042D	f
Г	U+0413	g
Ь	U+042C	h
Ч	U+0427	i
Й	U+0419	j
З	U+0417	k
Л	U+041B	l
Щ	U+0429	m
И	U+0418	n
Ф	U+0424	o
П	U+041F	p
Ы	U+042B	q
Я	U+042F	r
Š	U+0160	s
Ю	U+042E	t
Ц	U+0426	u
Б	U+0411	v
Ш	U+0428	w
Ж	U+0416	x
У	U+0423	y
Ž	U+017D	z
Đ	U+00D0	ä
Ć	U+0106	ü

Table 21 - Allowed non-Latin1 characters (column 1) and their mapping for "Vehicle License plate Number" The mapped character in column 3 is the value to be included in the OBE and the HGV list.



4.3 AutoPASS Formats

Appendix C5 – External Image Handler

DOCUMENT STATUS

Document number:	4.3 – C5

Status	**Version**	**Description**
Final	1.0	4.3 Appendix C5

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Author	Per Einar Pedersli	08.06.2017	
Norwegian Public Roads Administration	Kåre Inge Viken		

DOCUMENT REVISION HISTORY

Version	Date	Author	Main changes
1.0	08.06.2017	Per Einar Pedersli	New document

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DOCUMENT STATUS 2

1 EXTERNAL IMAGE HANDLER INTERFACE 4

1.1 Description 4

1 External image handler interface

The interface for the external image handler will be between AutoPASS IP and the external image handler. The purpose of the interface is to make the image passages and all necessary data available for the external image handler, and to update AutoPASS IP with the registration number and country code of the vehicle. The technical interface between AutoPASS IP and the external image handler will be defined in the solution specification phase of AutoPASS IP.

1.1 Description

All passages that include one or more image must be made available for external image identification through the external image handler interface.

In addition to the actual image(s) of the passage some passage information must also be available for the external image handler. Also the white list should be made available for the external image handler.

Data	Description
Passage ID	Unique ID generated by AutoPASS IP
Image ID	Unique image ID generated by AutoPASS IP
Toll collector	Toll collector ID
Roadside OCR result and confidence	Some toll stations includes the roadside OCR result and confidence level in the passage data. Contractor can use this information for additional verification.
Identification status	AutoPASS IP shall indicate whether other identification information exists for the actual passage, e.g. OBE id. The external image handler can use this information to avoid for instance manual identification of a passage with OBE id available.

There can be one or more external image handlers, but each toll collector will only have one external image handler.

The external image handler will identify the license plate and country code of the passage and provide this information to AutoPASS IP. The external image handler will provide AutoPASS IP with a classification code for unidentified passages.

Unidentified id	Description
1	No valid vehicle in image
2	License plate unreadable
3	

Transaksjonsformat 4.3 for ferje Appendix A

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AutoPASS – Requirement specification

4.3 Appendix A – Transaction File AutoPASS Ferry

DOCUMENT STATUS

Document number:	4.3 Appendix A

Status	**Version**	**Description**
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Author	Per Einar Pedersli	06.07.2016	
Norwegian Public Roads Administration	Fritjof Dypveit	06.07.2016	

DOCUMENT REVISION HISTORY

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Document Revision History

Version	Date	Author	Main changes
1.0	06.07.2016	Per Einar Pedersli	First edition

The objectives of this document

This document provides a specification of interface between ferry ticketing system and back office central system. The i
combine both autoPASS OBU transactions and autoPASS card transactions (manual system).

This document will be an appendix to the requirements in 4.3 - AutoPASS CPE Specification, Interface Road side-CS.

Definition

Toll Charger	The term used in EasyGo for an entity operating a toll domain (including RSE)
Toll Service Provider	The term used in EasyGo for an entity issuing OBE to Service Users
Sentral Tjenesteleverandør	Receiver of transactions file and operate all local customer agreements.
CP	Charging point (Roadside), used for OBU reading
TM	Ticket Machine, used for autoPASS Card reading. Might also be integrated with a mobile OBU reader

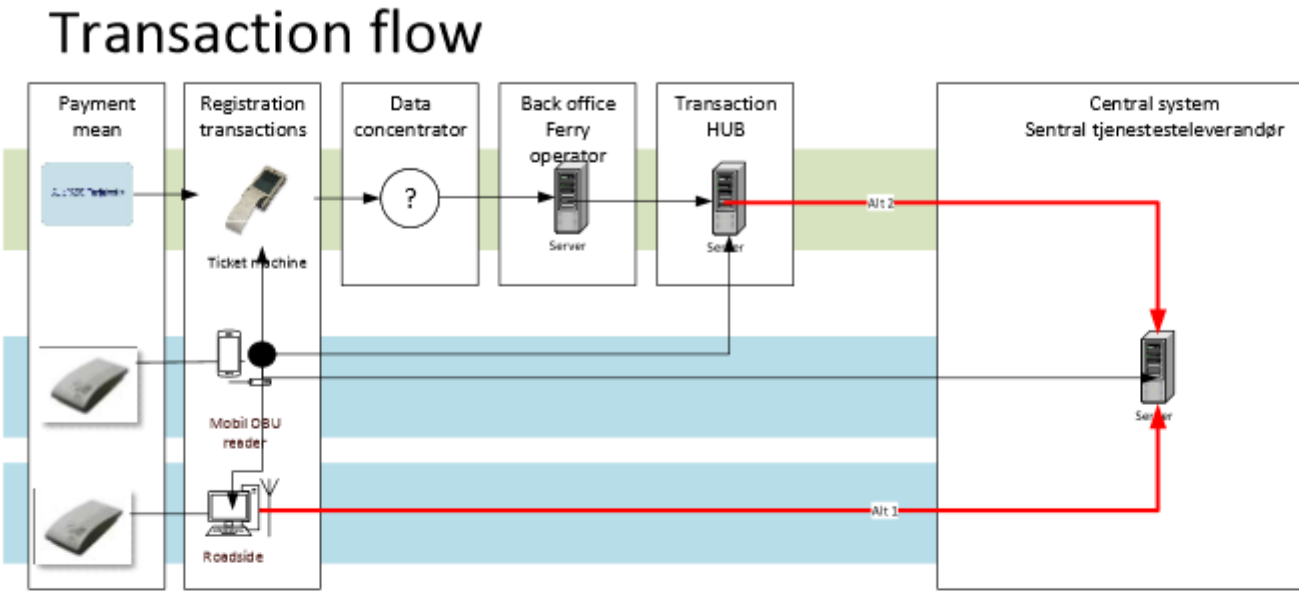
References

[1]	HBv821 XML transaksjonsformat for fergesektoren
[2]	Ferjekortspesifikasjon_profilerkoder og produkter ver 1 0

1 Introduction

NPRA will in large scale deploy AutoPASS system for use by the ferry operators. Due to a more complex tax system and integration with use of autoPASS card transactions there is need for a new definition of the transaction file. The purpose new transaction file is to combine traditional autoPASS system with manual transactions in such a way that all informati needed to do the services is a part of the transaction. The roadside system must include information to make pricing po Both the manual system and autoPASS system will send information to the back office system operator for pricing , disc calculations, updating local agreements, exchange data to EasyGo and to the ferry companies (statistics). See chapter 2 system overview.

2 System overview



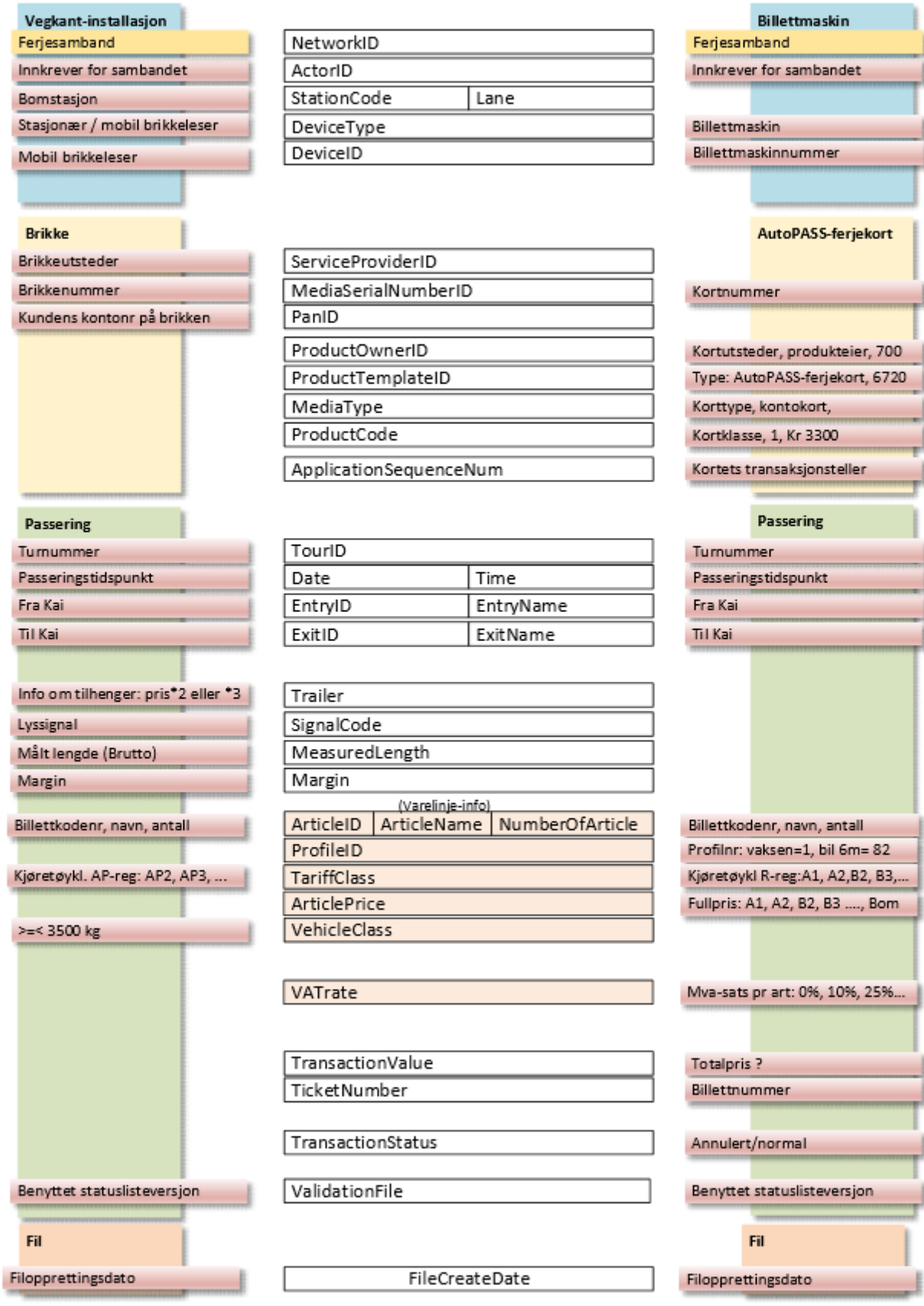
Transaction file defined in this document is generated at the Toll charger (Ferry company) by use of Ticket machine , Mo
OBU reader or Roadside OBU reader. Payment mean is either an OBU or an AutoPASS card. The files is sent to the back
system (Sentral Tjenesteleverandør, see red lines in figure above).

For OBU transactions there will be a pricing and charging process in the back office system. OBU transactions will charge
customers local agreement or sent to a foreign issuer, same procedures as autoPASS system for road Tolling. AutoPASS
transactions will charge the customers local agreement.

3 Transaction content

The new transaction file is a combination of information from autoPASS OBU passings and autoPASS Card passings.

All of this information is combined into one file structure, see table below.



3.1 Field description

XML-Field

Description: Describe the content of the fields

Origin: CP-Config : Data from ChargingPoint (Roadside). Same value for all passings.

CP: Data generated at Charging Point.

CP-StatusFile: Data for each OBU from status File.

TM-Config: Data from Ticket machine Same value for all passings.

TM: Data generated in Ticket machine, normally manually selected by an operator.

OBU: Data received from the EasyGo OBU.

Card: Data received from the AutoPASS Card.

Mandatory: OBU: Field must have a value for EasyGo OBU passing.

Card: Field must have a value for AutoPASS Card passing.

XML Field	Definition/Description	Origin
NetworkID	Number of network	CP-Config/TM
ActorID	Toll charger	CP-Config/TM-Config
StationCode	Number of station	CP-Config
Lane	ID for each lane at Roadside	CP
DeviceType	1=Fixed Roadside , 2=Mobile OBU Reader, 3 TicketMachine (AutoPASS Card)	CP-Config/TM-Config
DeviceID	ID for each MobileOBUReader and TicketMachine.	TM-Config
ServiceProviderId	OBU Issuer	OBU
MediaSerialNumberId	OBU Number: CountryCode, IssuerIdentifier and ServiceNumber CardNumber, see [1]	OBU/Card
ProductOwnerID	Identify Card Issuer/productOwner of AutoPASS ferry card. Id= 700= Sentral tjenesteleverandør	Card
ProductTemplateID	ProductTemplateID= 6720	Card
MediaType	Identify type of card, AutoPASS ferry card = 1	Card
ProductCode	Code = 1 , tariffclasses B2-B4 and motorcycles Code = 2 , tariffclasses B5-B8 Code = 3 , tariffclasses B9-B10	Card
ApplicationSequenceNum	Transaction counter number in AutoPASS ferry card.	Card
TourId	CP: predefined tourID's based on time of passing TicketMachine: Uploaded for each FerryTour	CP/TM
Date	Format: yyyy-mm-dd	CP/TM
Time	Format: Thh:mm:ss	CP/TM
EntryID	National registry	CP-Config/TM
EntryName	National registry	CP-Config/TM
ExitID	National registry	CP-Config/TM
ExitName	National registry	CP-Config/TM
Trailer	0=No trailer 1= Trailer detected	CP

XML Field	Definition/Description	Origin
SignalCode	EasyGo OBU : From Status list, 02 or 10	CP-StatusFile
VehicleLenght	Length of vehicle (without trailer)	CP-StatusFile
MeasuredLenght	Total Length (incl. trailer)	CP
Margin	Margin for automatic length measurement, number of cm. MeasuredLenght-Margin -> TariffClass	CP-Config/CP
ArticleID	See [2]	TM
ArticleName	See [2]	TM
NumberOfArticle	See [2]	TM
ProfileID	See [2]	TM
TariffClass	AutoPASS Card: A1, A2,B2,B3,B4,B5,B6,B7,B8,B9,B10,EL,MC EasyGo OBU: AP1,AP2,AP3,AP4,AP5,AP6,AP7,AP8,AP9,EL	CP/TM
Article Price	AutoPASS Card: Full price	TM
VehicleClass	EasyGo OBU : From Status list, 01 <=3500kg, 02>=3501 kg	CP-StatusFile
VATrate	VAT rate for each Article	TM-Config
TransactionValue	Total price	TM
TicketNumber	Number from TM	TM
TransactionStatus	Status from TM	TM
ValidatonFile	OBU Statusfile, OBU Blacklist, CardBlacklist	CP/TM
FileCreateDate	Format: yyyy-mm-dd	CP/TM

4 Transaction File format

The process for defining the final file format:

- Sentral Tjenesteleverandør propose what standard and open format there will be used.
- NPRA check and confirm that the proposed standard is inside NPRA IT strategy for file convention.
- Sentral Tjenesteleverandør set up the xml scheme and develop the file structure
- NPRA check and verify that the file structure will fulfil the data needed for autoPASS ferry.

Both Sentral Tjenesteleverandør and NPRA might come with proposal of changes of file content if that will benefit the sy
functionality, but this shall be small changes from what is presented in chapter 2 and 3.