External inputs braking curves

18/12/2014

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Numéro et Nom	description	input to
EI.1 External Items from driver		
EI.1.1 Brake percentage (dr/)(stp3)	If the brake percentage is captured as Train Data and the conversion model is applicable (see 3.13.3.2), they are used to derive A_brake_emergency(V), A_brake_service(V), T_brake_emergency and T_brake_service.	FT.1.4.2.2.1 Are conversion model valid ? FT.1.4.2.2.2 Build brake percentage conversion model (step 3) FT.1.5.1.2 Build brake position model (step 3) FT.1.5.5.1 Select T_brake_emergency value (step 3)
EI.1.2 Brake position (dr/)(stp3)	The brake position shall be set to one of the following three values: a) Passenger train in P b) Freight train in P c) Freight train in G	FT.1.4.2.2.4 Determinate the speed / lenght dependent integrated correct. factor (stp3) FT.1.4.2.3 Determine factor adhesion parameter (step 3) FT.1.4.4.1 Select A_brake_normal_service model (step 4) FT.1.5.1.2 Build brake position model (step 3)
EI.1.3 Slippery rail (dr/)(stp3)		FT.1.4.1 Select adhesion factor (step 3)
EI.2 External Items from track		
EI.2.1 MA		
EI.2.1.1 Adhesion factor pck 71 (tk/)(stp3)	Options/ slippery rail/ non slippery rail. Default value: non slippery rail. The adhesion factor shall be sent as profile data from trackside when needed.	FT.1.4.1 Select adhesion factor (step 3)
EI.2.1.2 change of special brake(s) locations (step3)	Locations with change of special brake(s) contribution	FT.1.4.2.2.6 Calculate emergency brake deceleration (step 3) FT.1.4.3.2 Elaborate the full deceleration of service brake (step 3) FT.1.4.4.2 Calculate normal deceleration of service brake (step 4)
EI.2.1.3 D_EOA (tk/)	Distance LRBG - EOA d_eoa	FT.2.1.1.3 Command Trip braking

		d_trip_eoa	
EI.2.1.4	Default gradient for TSR (tk/)(stp3)	3.11.12 It shall be possible via balise groups to send to the on-board equipment a default gradient for TSR supervision, to be used for the parts of the track not covered by the gradient profile. 3.11.12.6 The Default Gradient for TSR stored on-board shall be valid until a new Default Gradient for TSR is received.	FT.1.4.2.1 Calculate acceleration / deceleration due to gradiant (step 3)
EI.2.1.5	Gradient profile (tk/)(stp3)	Absolute position of the new gradient: Gradiant value This value is calculated in data prep and takes in acount the max lenght of train. 3.11.12: The gradient information for a given piece of track shall be transmitted to the on-board equipment in form of a gradient profile. A gradient value shall be identified as a positive value for an uphill slope, and with a negative value for a downhill slope.The gradient profile shall be continuous, i.e., give a gradient value for each location within the piece of track covered by the profile. The gradient profile shall contain the gradient information as a sequence of gradient values, constant between two defined locations each, see Figure 27. Note: The figure above symbolises the engineering process to provide the values of gradients. Following the track height, the track must be split in segments giving for each segment a gradient value.	FT.1.4.2.1 Calculate acceleration / deceleration due to gradiant (step 3) FT.1.4.4.3 Calculate the normal service brake deceleration (step 4)
EI.2.1.6	Inhibition of eddy current brake (tk/)		
EI.2.1.7	Inhibition of magnetic shoe brake (tk/)		

18/12/2014

EI.2.1.8 Inhibition of regenerative brake (tk/)		
EI.2.1.9 LOA (tk/)(stp4)		FT.1.2.1 Determine the ceiling supervision speeds (step 1) FT.2.1.1.3 Command Trip braking
EI.2.1.10 MA (tk/)(stp1)	En valeur absolue. EOA: End of Authority with timer (stop point) LOA: Length of Authority, divided into sections. Options : - Danger zone with timer (i.e. point) at the beginning of the section. MA is invalided if the train stays in this zone beyond timer - End section : Danger zone at the beginning + danger zone at the end of the section, (used if the signal closes for exemple). Timer = timer EOA Danger Point with timer Overlap (idem avec conditions d'enclenchement) with timer SvL (Supervised Location)	FT.1.3 Calculate Targets and breaking curves (step 1&2) FT.1.3.1 Determinate supervised targets (step 1) Acquire / Analize MA
EI.2.1.11 Powerless section (tk/)		
EI.2.1.12 V_RELEASEDP (tk/)(stp4)	Release Speed associated with Danger Point 126 = use on-board calculated release speed 127 = use national Value	FT.1.7.1 Determine Release speed supervision limits 2
EI.2.1.13 V_RELEASEOL (tk/)(stp4)	Release Speed associated with Overlap 126 = use on-board calculated release speed 127 = use national Value	FT.1.7.1 Determine Release speed supervision limits 2

EI.2.2 National Values

EI.2.2.1 A_NVMAXREDADH1 (tk/)(stp3)	Maximum deceleration under reduced adhesion conditions (1) Maximum deceleration under reduced adhesion conditions applicable for trains:	FT.1.4.2.3 Determine factor adhesion parameter (step 3)

		- With brake position “Passenger train in P”, and - with special/additional brakes independent from wheel/rail adhesion. Min: 0 m/s2 Max: 3.5 m/s2 Resolution: 0.05 m/s2 Default: 1.0 m/s2	
EI.2.2.2	A_NVMAXREDADH2 (tk/)(stp3)	Maximum deceleration under reduced adhesion conditions (2) Maximum deceleration under reduced adhesion conditions applicable for trains: - With brake position “Passenger train in P”, and - without special/additional brakes independent from wheel/rail adhesion. Min: 0 m/s2 Max: 3.5 m/s2 Resolution: 0.05 m/s2 Default: 0.7 m/s2	FT.1.4.2.3 Determine factor adhesion parameter (step 3)
EI.2.2.3	A_NVMAXREDADH3 (tk/)(stp3)	Maximum deceleration under reduced adhesion conditions (3) Maximum deceleration under reduced adhesion conditions applicable for trains: - with brake position “Freight train in P”, or - with brake position “Freight train in G”. Min: 0 m/s2 Max: 3.5 m/s2 Resolution: 0.05 m/s2 Default: 0.7 m/s2	FT.1.4.2.3 Determine factor adhesion parameter (step 3)
EI.2.2.4	A_NVP12 (tk/)(stp3)	Lower deceleration limit to determine the set of Kv to be used	FT.1.4.2.2.4 Determinate the speed / lenght dependent integrated correct. factor (stp3)

		Lower deceleration limit to determine the set of correction factor Kv to be used for Conventional Passenger trains. 0 - 3.15 m/s2. Resolution 0.05 m/s2 Default: N/A	
EI.2.2.5	A_NVP23 (tk/)(stp3)	Upper deceleration limit to determine the set of Kv to be used.. Upper deceleration limit to determine the set of correction factor Kv to be used for Conventional Passenger trains. 0 - 3.15 m/s2. Resolution 0.05 m/s2 Default: N/A	FT.1.4.2.2.4 Determinate the speed / lenght dependent integrated correct. factor (stp3)
EI.2.2.6	D_NVSTFF (tk/)(stp3)	Maximum distance for running in Staff Responsible mode Default: i=oo	FT.1.3.1 Determinate supervised targets (step 1)
EI.2.2.7	L_NVKRINT (tk/)(stp3)	Train length step used to define the integrated correction factor Kr 0 = 0m : 1 = 25m : 2 = 50m : 3 = 75 : 4 = 100m 5 = 150m : 6 = 200m 7 = 300m : 8 = 500m : 9 = 600m : 10 = 700m .... (steps of 100m) : 31 = 2700m 31 = Default: N/A	FT.1.4.2.2.4 Determinate the speed / lenght dependent integrated correct. factor (stp3)
EI.2.2.8	M_NVAVADH (tk/)(stp3)	Weighting factor for available wheel/rail adhesion Min value = 0 Max value = 1 Default: 0	FT.1.4.2.2.7 Calculate safe emergency brake deceleration - Train Data (step 3)
EI.2.2.9	M_NVEBCL (tk/)(stp3)	Confidence level for emergency brake safe deceleration on dry rails Based on the required confidence level, the on-board equipment selects its corresponding rolling	FT.1.4.2.2.7 Calculate safe emergency brake deceleration - Train Data (step 3)

		stock correction factor Kdry_rst(V). The confidence level on emergency brake safe deceleration represents the probability of the following individual event: the rolling stock emergency brake subsystem of the train does ensure a deceleration at least equal to A_brake_emergency(V) * Kdry_rst(V), when the emergency brake is commanded on dry rails. 0: Confidence level = 50 % 1: Confidence level = 90 % 2: Confidence level = 99 % 3: Confidence level = 99.9 % 4: Confidence level = 99.99% 5: Confidence level = 99.999 % 6: Confidence level = 99.9999 % 7: Confidence level = 99.99999 % 8: Confidence level = 99.999999 % 9: Confidence level = 99.9999999 % Default: 9	
EI.2.2.10	M_NVKRINT (tk/)(stp3)	Integrated correction factor Kr This is the train length dependent integrated correction factor. M_NVKRINT(l) is valid for a train length between L_NVKRINT(l) and L_NVKRINT(l+1). M_NVKRINT is valid between 0m and L_NVKRINT(1) 0 - 1.55 Resolution : 0.55 Default: 0.9	FT.1.4.2.2.4 Determinate the speed / lenght dependent integrated correct. factor (stp3)
EI.2.2.11	M_NVKTINT (tk/)(stp3)	Integrated correction factor Kt. 0 - 1.55 Resolution 0.05 Default: 1.1	FT.1.5.5.3 Aquire integrated correction factor Kt (step 3)

EI.2.2.12	M_NVKVINT (tk/)(stp3)	Integrated correction factor Kv This is the speed dependent integrated correction factor. M_NVKVINT(n) is valid for an estimated speed between V_NVKVINT(n) and V_NVKVINT(n+1). M_NVKVINT is valid between 0 km/h and V_NVKVINT(1) 0 - 2.54 Resolution: 0.02 Default: 0.7	FT.1.4.2.2.4 Determinate the speed / lenght dependent integrated correct. factor (stp3)
EI.2.2.13	Q_NVDRIVER_ADHES (tk/)(stp3)	Qualifier for the modification of trackside adhesion factor by driver: 0 = Not allowed 1 = Allowed Default: 0	FT.1.4.1 Select adhesion factor (step 3)
EI.2.2.14	Q_NVEMRRLS (tk/)	Permission to revoke the emergency brake command when the Permitted Speed limit is no longer exceeded or at standstill (for ceiling speed and target speed monitoring). 0=Revoke emergency brake command at standstill 1=Revoke emergency brake command when permitted speed supervision limit is no longer exceeded Default: 0	
EI.2.2.15	Q_NVGUIPERM (tk/)(stp2)	Permission to use the guidance curve 0 = No 1 = Yes Default: 0	FT.1.3.4 Determine Guidance Curves (step 4) FT.1.6.5 Determine Permitted speed supervision limit (P) (step 2) FT.1.6.5.1 GUI permitted ?
EI.2.2.16	Q_NVINHSMICPERM (tk/)(stp1)	Permission to inhibit the compensation of the speed measurement inaccuracy. Qualifier to inhibit the compensation of the speed measurement inaccuracy for the calculation of the	FT.1.6.2.1 Determine EBI= f(EBD) supervision limit (step 1) FT.1.6.7 Determine Pre-indication location (step 2)

		EBI related supervision limits. 0 = No 1 = Yes Default: 0 (Compensation of the speed measurement accuracy can be done by odometry or by on-board).	
EI.2.2.17	Q_NVKVINTSET (tk/)(stp3)	Type of Kv_int set: 00: Freight trains 01: Conventional passenger trains	FT.1.4.2.2.4 Determinate the speed / lenght dependent integrated correct. factor (stp3)
EI.2.2.18	Q_NVLOCACC	Default location accuracy of a balise group Default: 12m	
EI.2.2.19	Q_NVSBFBPERM (tk/)(stp3)	Permission to use the service brake feedback. 0=No 1=Yes Default: No	FT.1.5.2 Calculate T_bs1 and T_bs2 (step 3)
EI.2.2.20	Q_NVSBTSMPERM (tk/)(stp3)	Permission to use service brake in target speed monitoring. 0=No 1=Yes Default: 1	FT.1.5.2 Calculate T_bs1 and T_bs2 (step 3) FT.2.1.3.1 Command brakes and TCO 2
EI.2.2.21	V_NVKVINT (tk/)(stp3)	Speed step used to define the integrated correction factor Kv 0 km/h ? (packet 3 definition) 0 - 600 km/h. Resolution 5 km/h. Default: N/A	FT.1.4.2.2.4 Determinate the speed / lenght dependent integrated correct. factor (stp3)
EI.2.2.22	V_NVREL (tk/)(stp1)	Release speed 0-600km/h. Resolution: 5km/h Default: 40 km/h	FT.1.7.1 Determine Release speed supervision limits 2

EI.2.3 Track Speed restrictions

EI.2.3.1 ASP Axle load Speed Profile (tk/)		FT.1.1.1 Calculate the Most Restrictive Speed Profile (stp1)
EI.2.3.2 BBD SR (tk/)	Speed restriction to ensure a given permitted braking distance (PBD SR) (see 3.11.11)	FT.1.1.1 Calculate the Most Restrictive Speed Profile (stp1)
EI.2.3.3 LX SR Level Crossing speed restriction (tk/)		FT.1.1.1 Calculate the Most Restrictive Speed Profile (stp1)
EI.2.3.4 Mode related Speed Restriction (tk/)		FT.1.1.1 Calculate the Most Restrictive Speed Profile (stp1)
EI.2.3.5 Override ftrelated Speed Restrict. (tk/)		FT.1.1.1 Calculate the Most Restrictive Speed Profile (stp1)
EI.2.3.6 Signalling related speed restriction (tk/)	(only level 1)	FT.1.1.1 Calculate the Most Restrictive Speed Profile (stp1)
EI.2.3.7 SSP Static Speed Profile (tk/)		FT.1.1.1 Calculate the Most Restrictive Speed Profile (stp1)
EI.2.3.8 STM Max speed (tk/)	(for details refer to Subset-035)	FT.1.1.1 Calculate the Most Restrictive Speed Profile (stp1)
EI.2.3.9 STM System speed (tk/)	(for details refer to Subset-035)	FT.1.1.1 Calculate the Most Restrictive Speed Profile (stp1)
EI.2.3.10 TSR Temporary Speed Restrict. (tk/)		FT.1.1.1 Calculate the Most Restrictive Speed Profile (stp1)

EI.3 External Items from train

EI.3.1 Fixed values

EI.3.1.1 Compensation (trfv/)	Compensation of the speed measurement inaccuracy used for the calculation of speed restriction to ensure given permitted braking distance. = 5 km/h	
EI.3.1.2 dV_ebi_max (trfv/) (stp1)	Speed difference between Permitted speed and Emergency Brake Intervention supervision limits, maximum value. = 15 km/h.	FT.1.2.1 Determine the ceiling supervision speeds (step 1)

EI.3.1.3	dV_ebi_min (trfv/) (stp1)	Speed difference between Permitted speed and Emergency Brake Intervention supervision limits, minimum value. = 7.5 km/h.	FT.1.2.1 Determine the ceiling supervision speeds (step 1)
EI.3.1.4	dV_sbi_max (trfv/) (stp1)	Speed difference between Permitted speed and Service Brake Intervention supervision limits, maximum value. = 10 km/h	FT.1.2.1 Determine the ceiling supervision speeds (step 1)
EI.3.1.5	dV_sbi_min (trfv/) (stp1)	Speed difference between Permitted speed and Service Brake Intervention supervision limits, minimum value. = 5.5 km/h.	FT.1.2.1 Determine the ceiling supervision speeds (step 1)
EI.3.1.6	dV_warning_max (trfv/) (stp1)	Speed difference between Permitted speed and Warning supervision limits, maximum value. = 5 km/h.	FT.1.2.1 Determine the ceiling supervision speeds (step 1)
EI.3.1.7	dV_warning_min (trfv/) (stp1)	Speed difference between Permitted speed and Warning supervision limits, minimum value. = 4 km/h	FT.1.2.1 Determine the ceiling supervision speeds (step 1)
EI.3.1.8	M_rotating_max (trfv/)(stp3)	Maximum possible rotating mass (full train) as a percentage of the total weight of the train. = 15%.	FT.1.4.2.1 Calculate acceleration / deceleration due to gradiant (step 3)
EI.3.1.9	M_rotating_min (trfv/)(stp3)	Minimum possible rotating mass 'empty train) as a percentage of the total weight of the train. = 2%.	FT.1.4.2.1 Calculate acceleration / deceleration due to gradiant (step 3)
EI.3.1.10	T_driver (trfv/)(stp2)	Driver reaction time between Permitted speed supervision limit and FLOI. = 4s.	FT.1.6.5 Determine Permitted speed supervision limit (P) (step 2)
EI.3.1.11	T_preindication (trfv/)(stp2)	Time between the pre-indication location and the indication supervision limit valid for MRSP speed. = 7s	FT.1.6.7 Determine Pre-indication location (step 2)
EI.3.1.12	T_warning (trfv/)(stp2)	Time between Warning supervision limit and FLOI.	FT.1.5.3 Calculate T_Traction (step 3) FT.1.6.4 Determine Warning supervision limit (W)

		= 2s	(step 2)
EI.3.1.13	V_ebi_max (trfv/)	Value of MRSP where dV_ebi stops to increase to dV_ebi_max. = 210 km/h	
EI.3.1.14	V_ebi_min (trfv/)	Value of MRSP where dV_ebi starts to increase to dV_ebi_max. = 110 km/h.	
EI.3.1.15	V_sbi_max(trfv/)	Value of MRSP where dV_sbi stops to increase to dV_sbi_max. = 210 km/h	
EI.3.1.16	V_sbi_min (trfv/)	Value of MRSP where dV_sbi starts to increase to dV_sbi_max. = 110km/h.	
EI.3.1.17	V_warning_max (trfv/)	Value of MRSP where dV_warning stops to increase to dV_warning_max. = 140 km/h	
EI.3.1.18	V_warning_min (trfv/)	Value of MRSP where dV_warning starts to increase to dV_warning_max. = 110 km/h	

EI.3.2 Others trains inputs

EI.3.2.1	A_brake_emergency models (V) (tr/)(stp3)	Emergency brake nominal deceleration Two sets: normal adhesion / reduced adhesion ? Sets could also depends from brake types The deceleration due to braking shall be given as a step function of the speed. It shall be possible to define up to seven steps for each speed dependent deceleration model. Note: An example with 4 steps is given in Figure 30. A_brake(V) is calculated as follows:	FT.1.4.2.2.6 Calculate emergency brake deceleration (step 3)

		- A_brake = AD_0 when 0 = speed = V1 - A_brake = AD_1 when V1 < speed = V2 - A_brake = AD_2 when V2 < speed = V3 - A_brake = AD_3 when V3 < speed The last step of A_brake(V) shall by definition be considered as open ended, i.e. it has no upper speed limit. It shall be possible to define models of A_brake_emergency(V) and A_brake_service(V) for each combination of use of regenerative brake, eddy current brake and magnetic shoe brake.	
EI.3.2.2	A_brake_normal_service m. (V) (tr/)(stp4)	Normal service brake deceleration Two sets of models : P (passagers / freight) and G (freight only) The deceleration due to braking shall be given as a step function of the speed. It shall be possible to define up to seven steps for each speed dependent deceleration model. Note: An example with 4 steps is given in Figure 30. A_brake(V) is calculated as follows: - A_brake = AD_0 when 0 = speed = V1 - A_brake = AD_1 when V1 < speed = V2 - A_brake = AD_2 when V2 < speed = V3 - A_brake = AD_3 when V3 < speed The last step of A_brake(V) shall by definition be considered as open ended, i.e. it has no upper speed limit. It shall be possible to define up to two sets of three models of A_brake_normal_service(V): a) one set applicable when the brake position is in	FT.1.4.4.1 Select A_brake_normal_service model (step 4)

		“Freight train in G” b) one set applicable when the brake position is in “Passenger train in P” or “Freight train in P” A set of A_brake_normal_service(V) shall be defined as a function of the full service brake deceleration at zero speed, A_brake_service(V=0): - If A_brake_service(V = 0) ≤ A_SB01=> A_brake_normal_service(V) = A_brake_normal_service_0(V) - if A_SB01 < A_brake_service(V = 0) ≤ A_SB12 => A_brake_normal_service(V) = A_brake_normal_service_1(V) - if A_SB12 < A_brake_service (V = 0) => A_brake_normal_service(V) = A_brake_normal_service_2(V) Note: the two pivot values A_SB01 and A_SB12 are part of the A_brake_normal_service model, i.e. they are train related input data for the speed and distance monitoring function.	
EI.3.2.3	A_brake_service models (V) (tr/)(stp3)	Speed dependent deceleration brake model, for the full service brake. It is possible to define models for each combination of use of regenerative brake, eddy current brake and magnetic shoe brake. The deceleration due to braking shall be given as a step function of the speed. It shall be possible to define up to seven steps for each speed dependent deceleration model. Note: An example with 4 steps is given in Figure 30. A_brake(V) is calculated as follows: - A_brake = AD_0 when 0 = speed = V1 - A_brake = AD_1 when V1 < speed = V2	FT.1.4.3.1 Select deceleration of service brake model (step 3)

		- A_brake = AD_2 when V2 < speed = V3 - A_brake = AD_3 when V3 < speed The last step of A_brake(V) shall by definition be considered as open ended, i.e. it has no upper speed limit	
EI.3.2.4	A_traction (tr/)	Acceleration due to traction	
EI.3.2.5	Kdry_rst Kwet-rst RollStkCorr (tr/)(stp3)	Kdry_rst(V, EBCL) and Kwet_rst(V) For each combination of use of regenerative brake, eddy current brake and magnetic shoe brake For a given confidence level on emergency brake safe deceleration (EBCL), the rolling stock correction factor Kdry_rst(V) shall be given as a step function of speed, with the same steps as the ones of A_brake_emergency(V). The confidence level on emergency brake safe deceleration represents the probability of the following individual event: the rolling stock emergency brake subsystem of the train does ensure a deceleration at least equal to A_brake_emergency(V) * Kdry_rst(V), when the emergency brake is commanded on dry rails. The rolling stock correction factor Kwet_rst(V) shall be given as a step function of speed, with the same steps as the ones of A_brake_emergency(V). It represents the loss of deceleration with regards to emergency braking on dry rails, when the emergency brake is commanded on wet rails, according to wheel/rail adhesion reference conditions.	FT.1.4.2.2.7 Calculate safe emergency brake deceleration - Train Data (step 3)
EI.3.2.6	Kn+(V) and Kn-(V) CorrGrdt(V)(tr/)(stp4)	The speed dependent correction factors for gradient on the normal service brake, Kn+(V) and Kn-(V), shall be given as step functions in the range from 0 to 10 m/s2. It shall be possible to define up to five steps for	FT.1.4.4.3 Calculate the normal service brake deceleration (step 4)

	Kn+(V) and for Kn-(V), respectively. Note: An example with 4 steps is given in Figure 32. Kn is calculated as follows: - Kn = Kn_0 when 0 = speed = V1 - Kn = Kn_1 when V1 < speed = V2 - Kn = Kn_2 when V2 < speed = V3 - Kn = Kn_3 when V3 < speed Kn+(V) shall be applicable for positive gradients. Kn-(V) shall be applicable for negative gradients. The last step of the Kn+(V) or Kn-(V) shall by definition be considered as open ended, i.e. it has no upper speed limit.	
EI.3.2.7 L_TRAIN Train length (tr/)(stp3)		FT.1.4.2.1 Calculate acceleration / deceleration due to gradiant (step 3) FT.1.4.2.2.1 Are conversion model valid ? FT.1.4.2.2.5 Calculate safe emergency brake deceleration - Convers. model (stp3) FT.1.4.3.1 Select deceleration of service brake model (step 3) FT.1.5.1.2 Build brake position model (step 3)
EI.3.2.8 M_rotating_nom (tr/)(stp3)	Current rotating mass (generally unknown)	FT.1.4.2.1 Calculate acceleration / deceleration due to gradiant (step 3)
EI.3.2.9 Maximum train speed (tr/)(stp3)		FT.1.1.1 Calculate the Most Restrictive Speed Profile (stp1) FT.1.4.2.2.1 Are conversion model valid ?
EI.3.2.10 Service brake feedback (tr/)(stp3)	Two different types of feedback from the service brake are specified, main brake pipe pressure and brake cylinder pressure	FT.1.5.2 Calculate T_bs1 and T_bs2 (step 3)
EI.3.2.11 Special brakes status (tr/)(stp4)	Special brake are : regenerative brake, eddy current brake, magnetic shoe brake and electro-pneumatic brake	FT.1.4.2.2.6 Calculate emergency brake deceleration (step 3) FT.1.4.3.1 Select deceleration of service brake

		Status: Active / Non active. Use of special brakes can be vorbidden. (status = non active)	model (step 3) FT.1.5.1.1 Select T_brake_service value (step 3) FT.1.5.5.1 Select T_brake_emergency value (step 3)
EI.3.2.12	Supervised target list update		FT.7.1 Select type of speed monitoring
EI.3.2.13	T_brake_emergency values (tr/)(stp3)	T_brake_emergency is the equivalent brake build up time for emergency brake. The equivalent brake build up time (T_brake_build_up) is defined as T_brake_build_up = T_brake_react + 0.5*T_brake_increase. - T_brake_react is the interval between the command of the brake by the on-board and the moment the brake force starts to build up. - T_brake_increase is the interval in which the brake force increases from the zero to the moment when 95% of full brake power is reached. Only T_brake_emergency is given by the train It shall be possible to define individual values of T_brake_emergency and T_brake_service for each combination of use of regenerative brake, eddy current brake, magnetic shoe brake and Ep brake.	FT.1.5.5.1 Select T_brake_emergency value (step 3)
EI.3.2.14	T_brake_service values (tr/)(stp3)	T_brake_service is the equivalent brake build up time for full service brake. The equivalent brake build up time (T_brake_build_up) is defined as T_brake_build_up = T_brake_react + 0.5*T_brake_increase. - T_brake_react is the interval between the command of the brake by the on-board and the moment the brake force starts to build up. - T_brake_increase is the interval in which the brake force increases from the zero to the moment when 95% of full brake power is reached. Only T_brake_service is given by the train.	FT.1.5.1.1 Select T_brake_service value (step 3)

	It shall be possible to define individual values of T_brake_emergency and T_brake_service for each combination of use of regenerative brake, eddy current brake, magnetic shoe brake and Ep brake.	
EI.3.2.15 T_traction_cut_off (tr/)(stp3)	The time delay T_traction_cut_off = delay from the traction cut-off command by the on-board (t0) to the moment the acceleration due to traction (A_traction) is guaranteed to be zero (t1). The estimated acceleration value of the train shall be considered during this time delay. A_traction is not known directly by the on-board	FT.1.5.3 Calculate T_Traction (step 3)

EI.4 External Items frome W3 boxes

EI.4.1 A_est (loc/)(stp1)	estimated acceleration from odometry.	FT.1.6.2.1 Determine EBI= f(EBD) supervision limit (step 1)
EI.4.2 d_est_front (loc/)(stp1)	Distance between LRBG and Estimated Front End of the train	FT.1.6.1.1 Determine SBI1=f(SBD) supervision limit (step 2) FT.1.6.3 Determine FLOI-SBI limit in TSM (step 2) FT.1.8.2 Select types of speed and distance monitoring FT.2.2.1.1 Determine speed and distance target to display FT.2.2.1.3 Command train and supervision status in TSM mode FT.7.1 Select type of speed monitoring
EI.4.3 d_max_safe_front (loc/)(stp1)	Distance between LRBG and Max Safe Front End of the train	FT.1.6.2.2 Determine SBI2 f(EBD) limit (step 1) FT.1.6.3 Determine FLOI-SBI limit in TSM (step 2) FT.1.8.2 Select types of speed and distance monitoring FT.2.2.1.1 Determine speed and distance target to display FT.2.2.1.3 Command train and supervision status in

			TSM mode
			FT.7.1 Select type of speed monitoring
EI.4.4	Min safe antenna position (loc/)	minimum safe antenna position (calculated by subtracting distance between active Eurobalise antenna and the front end of the train from the min safe front end position)	FT.2.1.1.3 Command Trip braking
EI.4.5	Min Safe Front End Location (loc/) (stp1)		FT.1.2.1 Determine the ceiling supervision speeds (step 1)
EI.4.6	Standstill (loc/)(stp1)		FT.7.3 RSM Release Spead Monoring
EI.4.7	Train trip ?		
EI.4.8	V_est (loc/)(stp2)	Estimated Speed from odometry	FT.1.6.1.1 Determine SBI1=f(SBD) supervision limit (step 2)
			FT.1.6.2.1 Determine EBI= f(EBD) supervision limit (step 1)
			FT.1.6.2.2 Determine SBI2 f(EBD) limit (step 1)
			FT.1.6.3 Determine FLOI-SBI limit in TSM (step 2)
			FT.1.6.4 Determine Warning supervision limit (W) (step 2)
			FT.1.6.5 Determine Permitted speed supervision limit (P) (step 2)
			FT.1.6.6 Determine Indication supervision limit (I) (step 2)
			FT.2.1.1.1 Command supervision status in CSM mode
			FT.2.1.1.2 Command train in CSM mode
			FT.2.2.1.3 Command train and supervision status in TSM mode
			FT.2.3.1.1 Command train and supervision status in RSM mode
			FT.7.2 CSM Ceiling Speed monitoring
			FT.7.3 RSM Release Spead Monoring