Parameter Number Parameter Number Parameter Parameter Number Parameter Number Parameter Number Parameter Number Parameter Number Parameter Para	Annex 1 List of Parameters and Requirements for Placing in Service Ligh Rail Vehicles		
Number 01.00 General Arrangements 01.01 General dark vehicle characteristics (payload, seating, speed, power, etc.)/ multiple operation arrangements 01.02 Weight concept 01.03 Dimensions (general arrangement drawings) 01.04 Declaration on absence of hazardous materials 02.00 Running Dynamics 02.01 Evaluation of quasistatic and dynamic effects of guidance function: Declaration of geometric wheel/ral integrity of professional Review report on running dynamics 02.02 Independent Professional Review report on running dynamics 03.00 Structural integrity, Structural integrity of bodyshell, frame 03.02 Structural integrity of topic paid of dynamics 03.03 Structural integrity of Corahvorthiness (impact absorption tram-tram or tram-road vehicle, controlled failure, occupant protection, pedestrian protection, component securing) 03.07 Structural integrity of Corahvorthiness (impact absorption (ballast, debris etc.) 03.09 Structural integrity of Corahvorthiness (impact absorption (ballast, debris etc.) 03.00 Structural integrity of Corahvorthiness (impact absorption (ballast, debris etc.) 03.07 Structural integrity of Corahvorthiness (impact absorption (ballast, debris etc.) 03.09			
General data/ vehicle characteristics (payload, seating, speed, power, etc.)/ multiple operation arrangements arrangements Dinustrian (procedure) Dimensions (general arrangement drawings) Dinustrians (peneral arrangement) Dinustrians (peneral arrangement drawings) Dinustrians (peneral arrangement drawings) Dinustrians (peneral arrangement) Dinus		Parameter	
General data/ vehicle characteristics (payload, seating, speed, power, etc.)/ multiple operation arrangements arrangements Dinustrian (procedure) Dimensions (general arrangement drawings) Dinustrians (peneral arrangement) Dinustrians (peneral arrangement drawings) Dinustrians (peneral arrangement drawings) Dinustrians (peneral arrangement) Dinus	01.00	General Arrangements	
10.03 Dimensions (general arrangement drawings) 10.104 Declaration on absence of hazardous materials 102.00 Running Dynamics 102.01 Evaluation of quassistatic and dynamic effects of guidance function: Declaration of geometric wheel/rail interface, etc. 102.02 Independent Professional Review report on running dynamics 103.03 Structure (design loads, fatique IIFe approach) 103.01 Structural integrity of bogic/ running gear 103.03 Structural integrity of bogic/ running gear 103.03 Structural integrity of wheelset (axlef wheel/ axlebox/ bearing) 103.04 Structural integrity of wheelset (axlef wheel/ axlebox/ bearing) 103.05 Structural integrity of conjung and drawgear 103.06 Structural integrity of intervehicle connections 103.07 Structural integrity of conjung and drawgear 103.08 Structural integrity of Crashworthiness (impact absorption tram-tram or tram-road vehicle, controlled failure, occupant protection, pedestrian protection, component securing) 103.09 Structural integrity of Crashworthiness (impact absorption tram-tram or tram-road vehicle, controlled failure, occupant protection, pedestrian protection (ballast, debris etc.) 103.09 Structural integrity of Underframe impact protection (ballast, debris etc.) 103.10 Structural integrity Frontal impact protection (windscreen and cab structure/ fairing) 103.11 Structural integrity Fitting of doors/ hatches/ gangways (including aerodynamic effects) 103.12 Structural integrity Structural integrity of batches/ gangways (including aerodynamic effects) 103.13 Structural integrity Structural integrity of batches/ gangways (including aerodynamic effects) 103.14 Structural integrity Structural integrity of batches/ gangways (including aerodynamic effects) 103.15 Independent Professional Review report on structure 104.00 Braking System 104.00 Braking System 105.00 Braking System 105.00 Braking System 106.00 Powered Systems 106.00 Powere	01.01		
Dimensions (general arrangement drawings)			
Declaration on absence of hazardous materials Running Dynamics Evaluation of quasistatic and dynamic effects of guidance function; Declaration of geometric wheel/rail interface, etc. D2.02 Independent Professional Review report on running dynamics Structure (design loads, fatique life approach) Structural integrity, Structural integrity of bodyshell, frame Structural integrity of bodgle running gear Structural integrity of bodgle running gear Structural integrity of coupling and drawgear Structural integrity of coupling and drawgear Structural integrity of coupling and drawgear Structural integrity of crashworthiness (impact absorption tram-tram or tram-road vehicle, controlled fallure, occupant protection, pedestrian protection, component securing) Structural integrity of Crashworthiness (impact absorption tram-tram or tram-road vehicle, controlled fallure, occupant protection, pedestrian protection (buldscrean and cab structural fallure) Structural integrity of Component attachment Structural integrity of Component attachment Structural integrity fortial inpact protection (windscrean and cab structural faling) Structural integrity Fittling of internal and external glazing (including aerodynamic effects) Structural integrity Fittling of doors/ hatches/ gangways (including aerodynamic effects) Structural integrity Structural integrity of pathograph Structural integrity Miscellaneous components not included in items above Independent Professional Review report on structure 40.00 Braking System General description of overall braking system performance 40.01 General description of overall braking system performance 40.02 Service brake 40.03 Brake blendling, electric and dynamic brakes 40.04 Holding brake 40.05 Rollback prevention 40.06 Parking brake 40.07 Emergency braking 40.08 Safety braking 40.09 Powered Systems 50.00 Powered Systems 50.00 Powered Systems 50.00 Powered Systems 50.00 Fire Safety 60.00	01.02		
D2.00 Running Dynamics Evaluation of quasistatic and dynamic effects of guidance function; Declaration of geometric wheel/rail interface, etc. D2.02 Independent Professional Review report on running dynamics Structure (design loads, fatigue life approach) 33.01 Structural integrity, Structural integrity of bodyshell, frame 33.02 Structural integrity of bodyel running gear 33.03 Structural integrity of wheelset (axle/ wheel/ axlebox/ bearing) 33.04 Structural integrity of outpiling and drawqear 33.05 Structural integrity of compling and drawqear 33.06 Structural integrity of Crashworthiness (impact absorption fram-tram or fram-road vehicle, controlled failure, occupant profection, Dedestrian profection, component securing) 33.07 Structural integrity of Underframe impact profection (ballast, debris etc.) 33.08 Structural integrity of Underframe impact profection (ballast, debris etc.) 33.09 Structural integrity Frontal impact profection (windscreen and cab structure/ fairing) 33.10 Structural integrity Fitting of internal and external olazing (including aerodynamic effects) 33.11 Structural integrity Fitting of internal and external olazing (including aerodynamic effects) 33.12 Structural integrity Structural integrity of pantograph 33.13 Structural integrity Miscellaneous components not included in items above 33.14 Structural integrity Miscellaneous components not included in items above 33.15 Independent Professional Review report on structure 34.00 General description of overall braking system performance 35.01 General description of overall braking system performance 36.02 Service brake 36.03 Brake blending, electric and dynamic brakes 36.04 Brake blending, electric and dynamic brakes 36.05 Rollback prevention 36.06 Parking brake 36.07 Electric vischen (McB ratings, profection, etc.) 36.08 Safety braking 36.09 Electric track of the development of the professional Review report on braking system 36.00 Powered Systems 36.00 Fire Safety 36.00 Fire Safety 36.00 Fire Safety 36.00 F			
Evaluation of quasistatic and dynamic effects of guidance function; Declaration of geometric wheel/rail interface, etc. 102.02 Independent Professional Review report on running dynamics 303.01 Structure (design loads, fatigue life approach) 304 Structural integrity of bogie/ running gear 305.02 Structural integrity of bogie/ running gear 307.03 Structural integrity of bogie/ running gear 308.04 Structural integrity of coupling and drawgear 309.05 Structural integrity of intervehicle connections 309.06 Structural integrity of intervehicle connections 309.06 Structural integrity of coupling and drawgear 309.07 Structural integrity of coupling and drawgear 309.08 Structural integrity of Underframe impact protection, component securing) 309.09 Structural integrity of Underframe impact protection (ballast, debris etc.) 309.09 Structural integrity of Underframe impact protection (ballast, debris etc.) 309.10 Structural integrity Fitting of internal and external glazing (including aerodynamic effects) 309.11 Structural integrity Fitting of doors/ hatches/ gangways (including aerodynamic effects) 309.12 Structural integrity Structural integrity of pantograph 309.13 Structural integrity Miscellaneous components not included in items above 309.14 Structural integrity Miscellaneous components not included in items above 309.15 Independent Professional Review report on structure 309.00 Braking System 309.00 Braking Helevity and dynamic brakes 309.00 Braking System 309.00 Braking Frake 309			
interface, etc. Independent Professional Review report on running dynamics Structural (design loads, fatigue life approach) 3.01 Structural integrity of body-funning gear 3.02 Structural integrity of body-funning gear 3.03 Structural integrity of body-funning gear 3.04 Structural integrity of coupling and drawgear 3.05 Structural integrity of coupling and drawgear 3.06 Structural integrity of crashworthiness (impact absorption tram-tram or tram-road vehicle, controlled failure, occupant protection, pedestrian protection, component securing) 3.07 Structural integrity of Component attachment 3.08 Structural integrity of Underframe Impact protection (ballast, debris etc.) 3.09 Structural integrity of Underframe Impact protection (windscreen and cab structure/ fairing) 3.10 Structural integrity Firthian of internal and external diazing (including aerodynamic effects) 3.11 Structural integrity Firthian of internal and external diazing (including aerodynamic effects) 3.12 Structural integrity Structural integrity of pantograph 3.13 Structural integrity Structural integrity of pantograph 3.14 Structural integrity Structural integrity of pantograph 3.15 Independent Professional Review report on structure 4.00 Braking System 04.01 General description of overall braking system performance 4.00 Braking Aystem 04.01 General description of overall braking system performance 4.00 Braking Oxystem 04.01 General description of overall braking system performance 04.02 Service brake 04.03 Brake blending, electric and dynamic brakes 04.04 Holding brake 04.05 Parking brake 04.06 Parking brake 04.07 Emergency braking 05.08 Electric traction power supply (design, electrical interface, regenerative braking) 05.09 Powered Systems 05.00 Fowered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric traction powers supply (design, electrical interface, regenerative braking) 05.06 Phoenaudic system 06.07 C			
03.00 Structural integrity, Structural integrity of bodyshell, frame 03.01 Structural integrity of bodyshell, frame 03.02 Structural integrity of bodyshell, frame 03.03 Structural integrity of wheelset (axle/ wheel/ axlebox/ bearing) 03.04 Structural integrity of intervehicle connections 03.05 Structural integrity of crashworthiness (impact absorption tram-tram or tram-road vehicle, controlled failure, occupant protection, pedestrian protection, component securing) 03.07 Structural integrity of Component attachment 03.08 Structural integrity of Component attachment 03.09 Structural integrity Frontal impact protection (windscreen and cab structure/ fairing) 03.10 Structural integrity Fitting of internal and external glazing (including aerodynamic effects) 03.11 Structural integrity Fitting of doors/ hatches/ gangways (including aerodynamic effects) 03.13 Structural integrity Miscellaneous components not included in items above 03.15 Independent Professional Review report on structure 04.00 Braking System 04.01 General description of overall braking system performance 04.02 Service brake 04.03 Brake blending, electric and dynamic brakes		interface, etc.	
Structural integrity of bogle/ running gear	02.02		
Structural integrity of boqie/ running gear	03.00		
Structural integrity of wheelset (axle/ wheel/ axlebox/ bearing) 33.04 Structural integrity of coupling and drawgear 33.05 Structural integrity of integrity of integrity of compound integrity of compound integrity of Crashworthiness (impact absorption tram-tram or tram-road vehicle, controlled failure, occupant protection, pedestrian protection, component securing) 33.07 Structural integrity of Component attachment 33.08 Structural integrity of Underframe impact protection (ballast, debris etc.) 33.09 Structural integrity for Integrity Protection (windscreen and cab structure/ fairing) 33.10 Structural integrity Fitting of internal and external glazing (including aerodynamic effects) 33.11 Structural integrity Fitting of doors/ hatches/ gangways (including aerodynamic effects) 33.12 Structural integrity Winctural integrity of pantograph 33.13 Structural integrity Miscellaneous components not included in items above 33.14 Structural integrity Miscellaneous components not included in items above 33.15 Independent Professional Review report on structure	03.01		
Structural integrity of coupling and drawgear 3.05 Structural integrity of intervehicle connections 3.06 Structural integrity of forashworthiness (impact absorption tram-tram or tram-road vehicle, controlled failure, occupant protection, pedestrian protection, component securing) 3.07 Structural integrity of Component attachment 3.08 Structural integrity of Underframe impact protection (ballast, debris etc.) 3.09 Structural integrity Frontal impact protection (windscreen and cab structure/ fairing) 3.10 Structural integrity Frontal impact protection (windscreen and cab structure/ fairing) 3.11 Structural integrity Fitting of internal and external glazing (including aerodynamic effects) 3.12 Structural integrity Structural integrity of pantograph 3.13 Structural integrity Structural integrity of pantograph 3.14 Structural integrity Miscellaneous components not included in items above 3.15 Independent Professional Review report on structure			
Structural integrity of intervehicle connections	03.03		
Structural integrity of Crashworthiness (impact absorption tram-tram or tram-road vehicle, controlled failure, occupant protection, pedestrian protection, component securina) 3.07 Structural integrity of Component attachment 3.08 Structural integrity of Underframe impact protection (ballast, debris etc.) 3.09 Structural integrity Frontal impact protection (windscreen and cab structure/ fairing) 3.10 Structural integrity Fitting of internal and external glazing (including aerodynamic effects) 3.11 Structural integrity Fitting of doors/ hatches/ gangways (including aerodynamic effects) 3.12 Structural integrity Structural integrity of pantograph 3.13 Structural integrity Wiscellaneous components not included in items above 3.14 Structural integrity Miscellaneous components not included in items above 3.15 Independent Professional Review report on structure 04.00 Braking System 04.01 General description of overall braking system performance 04.02 Service brake 04.03 Brake blending, electric and dynamic brakes 04.04 Holding brake 04.05 Rollback prevention 04.06 Parking brake 04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 05.00 Powered Systems 05.01 Electric track brakes 05.01 Electric track brakes 05.02 Earthing/ bonding /return current 05.03 Electric traction power supply (design, electrical interface, regenerative braking) 05.04 Earthy dood shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Phydraulic system 06.00 Fire Safety 06.00 Fire Safety 06.00 Fire Safety 06.01 Fire Safety 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
failure, occupant protection, pedestrian protection, component securing) 3.07 Structural Integrity of Component attachment 3.08 Structural Integrity of Underframe impact protection (ballast, debris etc.) 3.09 Structural Integrity Frontal impact protection (windscreen and cab structure/ fairing) 3.10 Structural Integrity Fitting of internal and external glazing (including aerodynamic effects) 3.11 Structural integrity Fitting of doors/ hatches/ gangways (including aerodynamic effects) 3.12 Structural integrity Obstacle deflector/bodycatcher 3.13 Structural integrity Obstacle deflector/bodycatcher 3.14 Structural integrity Obstacle deflector/bodycatcher 3.15 Independent Professional Review report on structure 40.00 Braking System 40.01 General description of overall braking system performance 40.02 Service brake 40.03 Brake blending, electric and dynamic brakes 40.04.05 Rollback prevention 40.06 Parking brake 40.07 Emergency braking 40.08 Safety braking 40.09 WSP 40.10 Magnetic track brakes 40.11 Sanding 40.12 Independent Professional Review report on braking system 40.13 Sanding 40.14 Independent Professional Review report on braking system 40.15 Solution of the structure			
Structural integrity of Component attachment	03.06		
Structural integrity of Underframe impact protection (ballast, debris etc.) 33.09 Structural integrity Frontal impact protection (windscreen and cab structure/ fairing) 33.10 Structural integrity Fitting of internal and external glazing (including aerodynamic effects) 33.11 Structural integrity Fitting of doors/ hatches/ gangways (including aerodynamic effects) 33.12 Structural integrity Structural integrity of pantograph 33.13 Structural integrity Distacle deflector/bodycatcher 33.14 Structural integrity Miscellaneous components not included in items above 33.15 Independent Professional Review report on structure 34.00 Braking System			
Structural integrity Frontal impact protection (windscreen and cab structure/ fairing)			
Structural integrity Fitting of internal and external glazing (including aerodynamic effects)			
03.11 Structural integrity Fitting of doors/ hatches/ gangways (including aerodynamic effects) 03.12 Structural integrity Structural integrity of pantograph 03.13 Structural integrity Obstacle deflector/bodycatcher 03.14 Structural integrity Miscellaneous components not included in items above 03.15 Independent Professional Review report on structure 04.00 Braking System 04.01 General description of overall braking system performance 04.02 Service brake 04.03 Brake blending, electric and dynamic brakes 04.04 Holding brake 04.05 Rollback prevention 04.06 Parking brake 04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 E			
03.12 Structural integrity Structural integrity of pantograph 03.13 Structural integrity Obstacle deflector/bodycatcher 03.14 Structural integrity Miscellaneous components not included in items above 03.15 Independent Professional Review report on structure 04.00 Braking System 04.01 General description of overall braking system performance 04.02 Service brake 04.03 Brake blending, electric and dynamic brakes 04.04 Holding brake 04.05 Roliback prevention 04.06 Parking brake 04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
03.13 Structural integrity Miscellaneous components not included in items above 03.15 Independent Professional Review report on structure 04.00 Braking System 04.01 General description of overall braking system performance 04.02 Service brake 04.03 Brake blending, electric and dynamic brakes 04.04 Holding brake 04.05 Rollback prevention 04.06 Parking brake 04.07 Emergency braking 04.09 WSP 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
03.14 Structural integrity Miscellaneous components not included in items above 03.15 Independent Professional Review report on structure 04.00 Braking System 04.01 General description of overall braking system performance 04.02 Service brake 04.03 Brake blending, electric and dynamic brakes 04.04 Holding brake 04.05 Rollback prevention 04.06 Parking brake 04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
O4.00 Braking System 04.01 General description of overall braking system performance 04.02 Service brake 04.03 Brake blending, electric and dynamic brakes 04.04 Holding brake 04.05 Rollback prevention 04.06 Parking brake 04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding / return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
04.00 Braking System 04.01 General description of overall braking system performance 04.02 Service brake 04.03 Brake blending, electric and dynamic brakes 04.04 Holding brake 04.05 Rollback prevention 04.06 Parking brake 04.07 Emergency braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
04.01 General description of overall braking system performance 04.02 Service brake 04.03 Brake blending, electric and dynamic brakes 04.04 Holding brake 04.05 Rollback prevention 04.06 Parking brake 04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
04.02 Service brake 04.03 Brake blending, electric and dynamic brakes 04.04 Holding brake 04.05 Rollback prevention 04.06 Parking brake 04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Hydraulic system 05.07 Combustion engines, fuel systems, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
04.03 Brake blending, electric and dynamic brakes 04.04 Holding brake 04.05 Rollback prevention 04.06 Parking brake 04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
04.04 Holding brake 04.05 Rollback prevention 04.06 Parking brake 04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
04.05 Rollback prevention 04.06 Parking brake 04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
04.06 Parking brake 04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
04.07 Emergency braking 04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
04.08 Safety braking 04.09 WSP 04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
04.10 Magnetic track brakes 04.11 Sanding 04.12 Independent Professional Review report on braking system 05.00 Powered Systems 05.01 Electric traction power supply (design, electrical interface, regenerative braking) 05.02 Earthing/ bonding /return current 05.03 Electric system (MCB ratings, protection, etc.) 05.04 Battery (load shedding, battery box ventilation, protection, isolation devices) 05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression	04.08		
04.10Magnetic track brakes04.11Sanding04.12Independent Professional Review report on braking system05.00Powered Systems05.01Electric traction power supply (design, electrical interface, regenerative braking)05.02Earthing/ bonding /return current05.03Electric system (MCB ratings, protection, etc.)05.04Battery (load shedding, battery box ventilation, protection, isolation devices)05.05Pneumatic system (air supply, filtering, etc.)05.06Hydraulic system05.07Combustion engines, fuel system, power train05.08Isolation devices of powered systems06.00Fire Safety06.01Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates06.02Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression	04.09		
Independent Professional Review report on braking system	04.10	Magnetic track brakes	
O5.00Powered Systems05.01Electric traction power supply (design, electrical interface, regenerative braking)05.02Earthing/ bonding /return current05.03Electric system (MCB ratings, protection, etc.)05.04Battery (load shedding, battery box ventilation, protection, isolation devices)05.05Pneumatic system (air supply, filtering, etc.)05.06Hydraulic system05.07Combustion engines, fuel system, power train05.08Isolation devices of powered systems06.00Fire Safety06.01Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates06.02Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression	04.11	Sanding	
DESCRIPTION DE L'AUTRON DE L'AUTRO DE	04.12		
 Earthing/ bonding /return current Electric system (MCB ratings, protection, etc.) Battery (load shedding, battery box ventilation, protection, isolation devices) Pneumatic system (air supply, filtering, etc.) Hydraulic system Combustion engines, fuel system, power train Isolation devices of powered systems Fire Safety Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression 	05.00		
DESCRIPTION DESCRI	05.01		
Battery (load shedding, battery box ventilation, protection, isolation devices) D5.05 Pneumatic system (air supply, filtering, etc.) D5.06 Hydraulic system D5.07 Combustion engines, fuel system, power train D5.08 Isolation devices of powered systems D6.00 Fire Safety D6.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates D6.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
05.05 Pneumatic system (air supply, filtering, etc.) 05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression	05.03		
05.06 Hydraulic system 05.07 Combustion engines, fuel system, power train 05.08 Isolation devices of powered systems 06.00 Fire Safety 06.01 Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
 Combustion engines, fuel system, power train Isolation devices of powered systems Fire Safety Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression 			
Isolation devices of powered systems O6.00 Fire Safety			
 Fire Safety Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression 			
Materials (fire resistance, smoke and toxic emissions): Listing of materials and quantities (non-metallic parts list/ materials inventory), test certificates Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
parts list/ materials inventory), test certificates 06.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression			
O6.02 Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and ventilation suppression	U6.U1	parts list/ materials inventory), test certificates	
	06.02	Fire barriers: Cab/saloon, inter-carriage, interior/exterior interfaces of vehicle bodyshell, HVAC and	
	06.03		

Annex 1 List of Parameters and Requirements for Placing in Service Lig Rail Vehicles		
06.04	Management of fires in service: Protection of essential equipment and systems/ support to short-term movement with declared fire on board/ support to evacuation/ operational procedures for	
	emergencies	
06.05	Fire detection & suppression: Detection	
06.06	Fire detection & suppression: Suppression	
06.07	Portable fire-fighting equipment: Fire detection & suppression	
06.08	Overall fire performance and concept of evacuation; including description of concept	
06.09 07.00	Independent Professional Review report on overall fire performance and concept of evacuation	
07.00	Train Control & Monitoring Systems General concept of systems and functions; Including intervehicle control and multiple unit operation	
07.02	Safety-related functions of train control & monitoring systems; Detailed design, safety evaluation of	
	train control and monitoring system (electrics, electronics, software and/or hardware)	
07.03	Power supply to safety-related train control functions; Load shedding, individual MCBs, etc.	
07.04	DSD/ DVD; Driver Safety Device/ Driver Vigilance Device	
07.05	Independent Professional Review report on train control	
08.00	Vehicle Interior	
08.01	Lighting; Normal and emergency lighting arrangements and levels, emergency lighting duration, load shedding concept	
08.02	Passive safety of interior design	
08.03	Passenger area human factors; Mobility-impaired passenger needs, handholds, seating arrangements, aisles	
08.04	Luggage storage provisions	
08.05	Signage, labels and indicators, etc.	
08.06	Heating, ventilation & air conditioning; HVAC arrangement, ventilation, emergency ventilation arrangement and duration of supply	
08.07	CCTV	
08.08	Safety and emergency equipment	
09.00	Access & Egress	
09.01	Staff access/egress; External staff doors, cab-saloon doors	
09.02	Passenger access/egress; External passenger doors, mobility-impaired passenger needs	
09.03	Passenger access/egress; Passenger area emergency access/egress	
09.04	Inter-vehicle connectors; Gangways, treadplate/ bridging plate arrangements etc.	
09.05	Independent Professional Review report on access & egress system	
10.00	Driver Cab	
10.01	Cab access/egress, cab side windows	
10.02	Cab emergency access/egress	
10.03	Driver cab human factors; Seating arrangement, control desk arrangement	
10.04	Driver cab Occupational Health & Safety incl. noise	
10.05	Driver cab safety equipment	
10.06 10.07	Driver cab signage Visibility: Field of vision, absence of optical interference	
10.07	Visibility: Windscreen wash-wipe system, demisters, sun visors	
10.08	Driver cab HVAC	
11.00	Audibility/Visibility	
11.01	Headlights/ tail lights/indicators/hazards warning lights/brake lights/marker lights, etc.	
11.02	Audible warning devices	
11.03	Livery; Vehicle visibility at distance, mobility-impaired passenger needs.	
12.00	Communication Systems	
12.01	Cab to control (radio)	
12.02	Cab to cab to crew intercom	
12.03	Passenger to control	
12.04	Public address	
12.05	Emergency communication devices	
12.06	Passenger information displays: Scrolling/moving message displays	

Annex 1 List of Parameters and Requirements for Placing in Service Light Rail Vehicles		
Number		
12.07	Passenger information displays: Fixed signage	
13.00	Vehicle Interfaces	
13.01	General: Declaration of compatibility with infrastructure & operations	
13.02	General Operational restrictions, route restrictions	
13.03	Coupling & drawgear: Geometric position, gathering range on prescribed alignment	
13.04	Coupling & drawgear: Mechanical coupling interface (incl. inter-vehicle coupling of trainsets)	
13.05	Coupling & drawgear: Electrical interface	
13.06	Infrastructure Interface: Track/ alignment interface criteria	
13.07	Infrastructure Interface: Free movement of bogies, gangways, etc. based on alignment criteria	
13.08	Infrastructure Interface: Gauge clearance	
13.09	Infrastructure Interface: Platform interface, mobility-impaired passenger needs, powered steps/bridging plates	
13.10	On-road operations: Pedestrian protection, cab-end features	
13.11	On-road operations: Road traffic/roadway user interface	
13.12	Signalling systems: Installation of on-board signalling/traffic management equipment	
13.13	Signalling systems: Functional testing of on-board signalling/traffic management equipment	
13.14	Signalling systems: Criteria to ensure operation of infrastructure-based signalling/traffic management equipment	
13.15	Event recorder	
13.16	Traction power supply: Voltage range	
13.17	Traction power supply: OCS geometric interface	
13.18	Traction power supply: Return power generation	
13.19	EMC & harmonics: Compatibility with operating environment, signalling system, and other railways	
13.20	EMC & harmonics: Special locations	
13.21	EMC & harmonics: Credible fault conditions	
13.25	Provisions for Vehicle rescue: Giving/ receiving assistance, emergency coupling arrangements &	
10.20	limitations, compatibility with re-railing processes and equipment	
13.26	Environment: Resistance to environmental factors	
13.27	Environment: Noise	
13.28	Environment: Emissions	
14.00	Provision for Operation	
14.01	Occupational Health & Safety: Operations	
14.02	Provisions for Operations: Operationing Manuals / Conditions / Requirements	
14.03	Provisions for Operations: Signs and labels, vehicle ID number, etc.	
15.00	Provision for Maintenance	
15:01	Occupational Health & Safety: Maintenance	
15:02	Provisions for Maintenance: Maintenance Facilities Interfacing, Maintenance Manuals / Conditions /	
	Requirements	
16:00	On Track Machines (in addition to the relevant paramters above)	
16:01	Visibility, markings: Body colour, markings, stickers / labels specific to OTM	
16:02	Occupational Health & Safety: Access/ egress to working positions, protection of staff in working positions, human factors, noise and vibration, visibility, manuals / instructions for operation	
16:03	Functional and operational requirements for working in the vicinity of operational running lines: Additional signal/traffic management devices, limitations of working area/ range	
16:04	Safety against derailment in working mode	
16:05	Safety against rollover/ tilting in working mode	
16:06	Braking system in working mode	
16:07	Environment: Noise in working mode	
16:08	Environment: Management of lubrication, hydraulic fluids and other potentially critical materials	
16:09	Interface to infrastructure in working mode: Assessment on forces onto track/ trackbed/ structures	
16.10	(via griprails, support wheels, etc.), vibration into trackbed or structures	
16:10 16:11	EMC in working mode	
16:11 16:12	Lighting of working area Flootrical protection in working mode: To include interfaces to OCS	
16:12	Electrical protection in working mode: To include interfaces to OCS Management (securing, limitation) of out-of-gauge equipment	
10.13	Imanagement (Securing, innitation) or out-or-gauge equipment	