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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 32455-2024

Replacing GB/T 32455-2015

Space terminology - Transportation system

航天术语 运输系统

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Table of Contents

1 Scope	1
2 Normative references	1
3 General terms	1
4 General terminology	6
5 Terminology of structural systems, mechanisms and pyrotechnic devices	41
6 Powertrain Terminology	50
7 Electrical System Terminology	55
8 Launch Support System Terminology	62
68 Index	69

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. This document replaces GB/T 32455-2015 "Launch Vehicle Terminology". Compared with GB/T 32455-2015, except for structural adjustment and editing, In addition to the functional changes, the main technical changes are as follows:

- a) The scope has been changed (see Chapter 1, Chapter 1 of the.2015 edition).
- b) Chapter 3 adds space transportation systems, liquid launch vehicles, solid launch vehicles, solid-liquid hybrid launch vehicles, small launch vehicles rocket, medium launch vehicle, large launch vehicle, heavy launch vehicle, final stage, thermal control system (see 3.1, 3.7, 3.8, 3.9, 3.13, 3.14, 3.15, 3.16, 3.27, 3.40); changed the launch vehicle, disposable launch vehicle, reusable launch vehicle, orbital transfer vehicle, rapid response launch vehicle, stage, structural system, power system, pressurization and delivery system, electrical system, control system, measurement control and communication system, propellant utilization system, ground test and launch control system, launch support system, loading, interface control file, storage period, carrying capacity, flight test (see 3.3, 3.4, 3.5, 3.6, 3.10, 3.21, 3.28, 3.30, 3.32, 3.33, 3.34, 3.35, 3.36, 3.38, 3.39, 3.42, 3.43, 3.44, 3.45, 3.46; .2015 edition 2.2, 2.3, 2.4, 2.14, 2.5, 2.12, 2.18, 2.20, 2.22, 2.23, 2.24, 2.25, 2.26, 2.30, 2.31, 2.32, 2.33, 2.34, 2.35, 2.36); deleted the power supply and distribution system (See 2.29 of the.2015 edition).

c) Chapter 4 subdivides the general terminology into general and performance, flight dynamics and control, loads and dynamic characteristics, aerodynamics, aerothermal, Mechanical environment, thermal environment, electromagnetic environment, natural environment, corresponding to Chapters 3 to 11, 13, and 20 of the.2015 edition Related content. added tank theoretical volume, tank total volume, rocket body axis deviation, payload separation, launch reliability, flight Reliability, flight safety, fault detection and handling, mission re-planning, system reconfiguration, launch vehicle health management, zero-altitude escape Life-saving flight test, return trajectory, reentry point, calculation of filling parameters, earth flattening, earth gravitational constant, earth rotation angular velocity degrees, average radius of the earth, vertical deviation, geographic vertical, standard gravity acceleration, gravity acceleration, gravitational acceleration, disturbed gravity Acceleration, astronomical latitude, astronomical longitude, geocentric latitude, geodetic latitude, geodetic longitude, direct orbit entry, indirect orbit entry, landing point deviation, Load reduction control, modal test, stagnation point, transition, Prandtl-Meyer flow, Knudsen number, transition flow, continuous flow, boundary layer, friction resistance force, wave drag, Magnus force, aeroelasticity, wingspan, chord, aspect ratio, trapezoidal wing, delta wing, swept wing, airfoil mid-camber, wing Profile thickness, relative airfoil thickness, average aerodynamic chord, wing mounting angle, Prandtl number, Nusselt number, specific heat ratio, constant pressure specific heat, constant volume Specific heat, convective heat transfer coefficient, beat, beat frequency, resonance, anti-resonance, power spectrum density, floating, grounded, salt spray (see 4.1.21, 4.1.22, 4.1.43, 4.1.49, 4.1.56~4.1.62, 4.1.68, 4.2.1.12, 4.2.1.13, 4.2.1.19, 4.2.1.23~4.2.1.37, 4.2.1.79, 4.2.1.80, 4.2.3.42, 4.2.4.14, 4.3.43, 4.4.6, 4.4.7, 4.4.9, 4.4.10, 4.4.12, 4.4.13, 4.4.46~ 4.4.48, 4.4.50~4.4.54, 4.4.56~4.4.63, 4.5.4, 4.5.5, 4.5.12~4.5.15, 4.6.9~4.6.12, 4.6.24, 4.8.3, 4.8.4, 4.9.4); changed the take-off mass, stop-fire mass, stop-fire mass ratio, structural coefficient, ballistic available mass, gas Dynamic layout, fairing separation, separation surface, escape tower, ignition test, electrical matching test, active section trajectory, powered flight section, passive Segment trajectory, sun-synchronous orbit, navigation, satellite navigation, astronomical navigation, guidance law, aftereffect error, accuracy analysis, yaw channel transmission Function, zeroing, service load, safety factor, lateral overload, lateral load, ground operating load, variable coefficient sway damping coefficient, Vibration shape, load coupling analysis, dynamic pressure, molecular mean free path, aerodynamic normal force, aerodynamic axial force, aerodynamic lateral force, wind tunnel, Reynolds Number, octave, free vibration, passive thermal control, contact thermal resistance, radiation sensitivity, additional radiation, salt spray test (see 4.1.3, 4.1.4, 4.1.6, 4.1.7, 4.1.16, 4.1.46, 4.1.47, 4.1.52, 4.1.67, 4.1.73, 4.1.74, 4.2.1.6, 4.2.1.7, 4.2.1.11, 4.2.1.67, 4.2.2.1, 4.2.2.7, 4.2.2.8, 4.2.3.7, 4.2.3.20, 4.2.3.46, 4.2.4.16, 4.2.4.21, 4.3.6, 4.3.7, 4.3.19, 4.3.22, 4.3.29, 4.3.38, 4.3.40, 4.3.42, 4.4.4, 4.4.8, 4.4.26, 4.4.27, 4.4.28, 4.4.37, 4.4.40. 4.6.4, 4.6.8, 4.7.5, 4.7.6, 4.8.6, 4.8.8, 4.9.9);.2015 version 3.4, 3.5, 3.7, 3.8, 3.17, 3.44, 13.9, 13.4, 20.5, 24.11, 24.10, 4.6, 4.7, 4.11, 4.50, 16.7, 16.13, 16.14, 16.6, 16.29, 16.54, 16.78, 16.83, 5.6, 5.7, 5.19, 5.21, 5.29, 5.38, 5.40, 5.42, 6.4, 6.6, 6.20, 6.21, 6.22, 6.31, 6.34, 8.4, 8.9, 9.5, 9.6, 10.4,

10.6, 11.8); deleted the total mass after filling, 1/3 octave, igniter, escape mode (see 3.2, 8.5, 13.15, 20.6).

d) Chapter 5 subdivides the structural system into structural system, mechanism, and pyrotechnic device, deletes the separation system, and adds mechanism, pyrotechnic device. The content of Chapter 12 and Chapter 13 of the 2015 edition is corresponding to the content of the main structure, secondary structure, point separation device, line separation device, section docking coordination diagram, unlocking time, structural failure mode, harmful deformation, fracture, instability, local buckling, mechanical structure, connection and separation mechanism, hook unlocking mechanism, connecting rod lock hook unlocking mechanism, air drive unlocking mechanism, electric drive internal support separation mechanism, electric drive and separation nut mechanism, stacking satellite compression release mechanism, speed transmission mechanism, rudder transmission mechanism, thrust mechanism, air-driven thrust machine structure, support mechanism, deformation mechanism, grid wing deployment mechanism, shading mechanism, buffer mechanism, hanging rope mechanism, landing buffer mechanism, damping mechanism, landing gear retraction and extension mechanism, pyrotechnic system, ignition system, explosion sequence, terminal device, electric pyrotechnics, semiconductor bridge pyrotechnics, Electric detonator, non-electric detonator, laser detonator, mechanical detonator, partition igniter, explosive bolt, separating nut device, connection Push device, cutter, pusher, pin puller, gas actuator, gas generator, exploder, detonation transmission assembly, manifold, restrictive Detonating cord, output connector, detonating cord, flexible detonating cord, cutting cord, shaped energy cutting cord separation device, flexible detonating cord separation device, Expansion tube-groove plate separation device, expansion tube-notch bolt separation device, air bag separation device (see 5.1.1, 5.1.2, 5.1.27, 5.1.28, 5.1.37, 5.1.44~5.1.49, 5.2.1~5.2.21, 5.3.1~5.3.4, 5.3.7, 5.3.8, 5.3.10~5.3.14, 5.3.16~5.3.28, 5.3.30~5.3.37); changed the tail section, tail wing, wave-transmitting port, user identification, pyrotechnic device, pyrotechnic products, pyrotechnics Working devices, rope-type explosive devices (see 5.1.7, 5.1.8, 5.1.21, 5.1.24, 5.3.5, 5.3.6, 5.3.15, 5.3.29; 2015 edition 12.6, 12.7, 12.19, 12.22, 13.12, 13.13, 13.16, 13.18).

e) Chapter 6 subdivides the power system into the engine and the booster delivery system, which corresponds to the relevant contents of Chapters 14 and 15 of the 2015 edition. Capacity; added chemical rocket engine, non-chemical rocket engine, area ratio, active exhaust, thrust pulsation, ruptured diaphragm (see 6.1.3, 6.1.4, 6.1.22, 6.2.18, 6.2.21, 6.2.31); changed the liquid rocket engine, pump-type liquid rocket engine, Open cycle, closed cycle, vacuum thrust, aftereffect impulse, full system test, booster system, conveying system, gas storage booster, chemical Pressurization, electric explosion valve, filling and discharge valve, cleaning and discharge valve, propellant management system, bottom sinking, intermittent bottom sinking, longitudinal coupling vibration, pressure storage pressure signal device (see 6.1.5, 6.1.7, 6.1.10, 6.1.11, 6.1.14, 6.1.26, 6.1.30, 6.2.1, 6.2.2, 6.2.4, 6.2.5, 6.2.10, 6.2.12, 6.2.13, 6.2.14, 6.2.15, 6.2.17, 6.2.19, 6.2.20, 6.2.24; 14.3,

14.5,.2015 edition 14.8, 14.9, 14.12, 14.23, 14.28, 15.1, 15.2, 15.4, 15.5, 15.10, 15.12, 15.13, 15.23, 15.24, 15.26, 15.27, 15.28, 15.16).

f) Chapter 7 subdivides the electrical system into control system, measurement and control and communication system, fault detection and handling system, propellant utilization system, The rocket power supply and distribution system and the ground test and launch control system correspond to Chapters 16 to 19, 21 and 22 of the.2015 edition. Related content; added accelerometer, mathematical simulation test, semi-physical simulation test, sensor, camera device, image compressor, application Answering machine, transmitter, using liquid level processor (see 7.1.6, 7.1.16, 7.1.17, 7.2.2, 7.2.4, 7.2.5, 7.2.11, 7.2.22, 7.4.7); Changed the rate gyro, separation electrical connector, code rate, start level, data synthesizer, acquisition unit, safety instructions Receiver, fault judgment, secondary power supply, ground power supply, leakage inspection, back-end equipment, ground power supply (see 7.1.5, 7.1.13, 7.2.1, 7.2.8, 7.2.12, 7.2.13, 7.2.24, 7.3.8, 7.5.3, 7.5.4, 7.5.8, 7.6.6, 7.6.12;

16.100 of the.2015 edition, 16.107, 17.1, 17.5, 17.8, 17.9, 17.19, 19.8, 21.3, 21.5, 21.9, 22.6, 22.13); deleted the terminal, protocol, data Data bus, data bus controller, data bus monitor, remote terminal, data bus load rate, variable frequency power supply, decision support (See 16.110, 16.111, 16.112, 16.113, 16.114, 16.115, 16.116, 21.4, 22.8 of the.2015 edition).

g) Chapter 8 subdivides the launch support system into workshop stations, filling and gas supply, and initial alignment, corresponding to Chapter 16, Chapter 23 and Chapter 24; Added hazardous spacecraft operation plant (see 8.1.7); Changed the launch site, launch Area, launch vehicle horizontal plant, launch vehicle vertical plant, spacecraft plant, filling system (see 8.1.1, 8.1.3, 8.1.4, 8.1.5, 8.1.6, 8.2.2; 23.1, 23.3, 23.4, 23.5, 23.6, 23.16 of the.2015 edition).

h) Chapter 9 subdivides the assembly, test and launch process into assembly, test and launch process, corresponding to the relevant content of Chapter 24 of the.2015 edition Added interference check, ergonomics analysis, assembly simulation, single item check, process simulation, interactive electronic technical manual (see 9.1.8~9.1.10, 9.2.5, 9.2.11, 9.2.12); changed the docking, cover closing, subsystem test, pre-launch inspection (see 9.1.2, 9.1.3, 9.2.4, 9.2.6; 24.3, 24.5, 24.13,

1 Scope

GB/T 32455-2024 is the Chinese terminology of space transportation systems: launch vehicles and everything that flies them. It is the vocabulary the Chinese space programme is documented in, and it covers the field in seven subject clauses, general terms, the system level, structural systems, mechanisms and pyrotechnic devices, propulsion, electrical systems, launch support systems, and assembly, test and launch operations,