Australian Naval Classification Authority Operating and Support Parameters

(to inform the ANC Basis)

VESSEL (CLASS)

This Operating and Support Parameters document was developed based upon the references listed and defines the Naval Vessel's configuration, role and environment information that shall be used to enable effective application of the Australian Naval Classification Rules.

Version History:

Version	Description	Date
1.0	**Initial version approved by AS ANCA (OBJ:BS50909015)**	**23 Jan 24**

References:

Reference	Reference Title	Version	Approval Date

Primary and secondary roles

Primary Roles *(high level overview of primary role in sufficient detail for standards to be selected and the design completed)*	
Secondary Roles *(high level overview of secondary role in sufficient detail for standards to be selected and the design completed)*	
Special Functions *(E.g Bulk Fuel Storage, beaching, etc)*	
Operational Cycle (e.g. *operating* days / year)	
Vessel Type *(ANEP 77 – Naval Ship Code definitions)*	
Service Category *(ANCR Division 2, Part 1, Chapter 1, Rule 0)*	
Civilian Classification Society	

Area of Operation

Area of Operation / Primary Operating Environment *(restricted by range {links time, speed, sea state}, restricted to sheltered water)*	

Ship Particulars

Ship Design Life *(years)*	
Length Overall *(m)*	
Breadth *(moulded / overall, m)*	
Displacement *(full load, end of service life, margins)*	
Draught *(max, scantling, design draughts)*	

Speed, Range, Endurance and Margins

Speed (maximum) *(knots)*	
Cruise speed *(knots)*	
Range at cruise *(nm)*	
	Range at full load condition (nm): Minimum fuel reserves remaining once range achieved (t): Environmental conditions (wind, waves, current): State of hull and propeller fouling (roughness): Tow loads (if applicable):
Endurance *(mission length in days; Continuous duration in environmentally sensitive areas {ECA, GBR, Polar})*	
Margins *(max, scantling, design draughts)*	

Cargo / Payload

Cargo / Payload *(weights, volumes and locations)* E.g. aircraft, landing craft, vehicles, weapon systems installed, munitions, fluid in tanks, stores and any other payload relevant to the OSI	
Emergency Loading *(weights, volumes and locations)*	
Temporary Sub-systems Note : Modular Mission System are considered temporary sub-system and are not to pose a hazard to the embarked persons or the Naval Vessel, in all Foreseeable Operations Conditions. NVO to provide justification of integration of temporary sub-system.	

Manning and Accommodation

Scheme of Complement *(Numbers & rank)*	
Accommodation *(space, access, facilities)* E.g. permanent accommodation, temporary and emergency capacities	
Embarked Persons *Note that max POB aligns with the lifesaving arrangements and does not include additional personnel accommodated in any embarked modular mission systems.*	

Integrated Platform Survivability

Integrated Platform Survivability (IPS) level *IPS level by Post Damage Capability (RC)/Personnel Protection State (PPS) (For guidance see ANC Rules Division 3 Chapter 01 Rule 01 Part 2 Table 1 and Table 2)*	**Retained Capability and Personnel Protection State** *(select one)*		**IPS Level**	**Notes**
		Continue Mission / Protect Personnel	A	
		Autonomous Withdrawal / Protect Personnel	B	
		Assisted Recovery / Safety of Life	C	
		Safe Abandonment / Safety of Life	D	

Extreme Threats

(Detection, countermeasures, shock and blast hardening, ballistic protection)

(Airborne; Surface; Sub-surface)

Post Damage Capability

(Scenarios to be defined for foreseeable accidental damage survivability and if applicable extreme threat survivability) (ANC Rules Division 3 Chapter 01 Rule 02)

Scenario	**Damage Extent**	**Damage Location**	**Vulnerability Level** *(enhanced or standard)*	**Susceptibility Level** *(enhanced or standard)*	**Escape, Evacuation and Rescue** *(enhanced or standard)*	**Recoverability Philosophy** *(enhanced or standard)*	**Post-damage Capability**
Explanation of codes:	*DEL Limited DEM Moderate DES Severe*	*DLI Internal DLSI Specific Internal DLE External DLS Side DLOB Outer Bottom*	*VLA Advanced Naval Capability VLB Intermediate Naval Capability VLC Base Naval Capability VLD SOLAS Capability*	*SLA Advanced Naval Capability SLB Intermediate Naval Capability SLC Base Naval Capability N/A Not applicable*	*EERN Advanced Naval Capability* *EERS Base SOLAS Capability*	*RPA- Advanced Naval Capability RPB - Intermediate Naval Capability RPC - Base Naval Capability RPD - SOLAS / Commercial*	*PDSCA Safe Abandonment PDCFM Float and Move PDCOP Operational*
1							
2							
3							

Signatures

(Signature Definition Templates are available in ANC Rules Division 3 Chapter 01 Rule 03)

Zoning, Separation and Redundancy

(ANC Rules Division 3 Chapter 01 Rule 04)

Shock Hardening

(ANC Rules Division 3 Chapter 01 Rule 05)	
Blast Hardening *(ANC Rules Division 3 Chapter 01 Rule 06)*	
Ballistic Protection *(ANC Rules Division 3 Chapter 01 Rule 07)*	
Incident Management *(ANC Rules Division 3 Chapter 01 Rule 08)*	
Flood Control *(ANC Rules Division 3 Chapter 01 Rule 09)*	
CBRN (NBCD) Operation *(Citadel, Machinery requirements, Pre-wet etc)* *(ANC Rules Division 3 Chapter 01 Rule 10)*	

Post Damage - Assumptions - Capability & Recoverability

Casualty Threshold for Post Damage Capability **Damage extent (Fire)** **Damage extent (Flood)**	
	Note – • *For ships with a fixed fire-fighting system, fire is assumed to damage one compartment to the nearest A0 boundary.* • *For other ships, fire is assumed to damage all compartments up to the nearest WT boundary but not beyond.* • *Fire co-incident with extreme load event or structural damage event?* • *For small ships: one WT compartment to WT bulkhead, full depth.* • *For large ships two WT compartments to WT bulkhead, full depth*
Post Damage Operation *(Refer above to Retained Capability and Personnel Protection State)*	
Reconfiguration and redundancy *Fire pump redundancy, Fixed systems with single shot, Fire main, Internal communications, Bilge systems, Lighting for escape, evacuation guidance systems*	
Battle damage repair & override	

Post damage capability *Essential Safety Functions, Mission Critical Functions, where applicable.* *Refer section below detailing ANC Rule (Part 1) Requirement Guidance*	
	ANC Rule (Part 1) Requirements Guidance *Note - The following functions should be maintained* • *Arrangements to enable orderly evacuation and abandonment* • *Where further Post Damage Capability is required, the following functions may also be maintained:* • *Situational awareness, safe navigation, communications* • *Safety Systems to contain and manage further incidents* • *Structural strength for post damage environment.* • *Stability and Controllability appropriate for safe navigation.* • *Propulsion to allow the ship to move* • *Habitability systems and supplies to maintain support to life.* • *Maintain dangerous goods safe* • *Mission critical functions defined by Naval Vessel Operator* • *The time for reset, reconfiguration or repair should be defined where required*

Operating Environment

A - Meteorology and climatology (above surface)	
Wind *(maximum Beaufort Force or speed for operation and for survival)*	
Precipitation *(if specifically required, e.g. Tropical Storm)*	
Air temperature – high *(e.g. mean daily max)*	
Air temperature – low *(e.g. mean daily min)*	
Air humidity *(if not 100% relative humidity at all air temps)*	
Visibility *(if specifically required, e.g. night operations)*	
Atmospheric pressure *(if specifically required)*	
Solar radiation *(if specifically required, e.g. equatorial)*	
Electro-magnetic discharge *(if specifically required)*	
Air quality *(if specifically required, e.g. operations in coastal waters near deserts)*	
Flora and fauna *(if specifically required, e.g. in waters of know high activity)*	
B - Sea surface (interface)	

Waves *(Sea State, significant wave height, maximum wave height)*	
Waves - other situations *(if specifically required, e.g. operations in surf, tidal bore)*	
Tide *(range (height) and maximum speed (relevant to berthing))*	
Green seas and spray *(area affected, frequency)*	
Ice navigation *(if specifically required, e.g. icebreaking)*	
Sea surface quality (floating objects, pollution) *(if specifically required, e.g. operations in estuaries)*	
Ship motions *(per operational scenario, application of IACS inclination limits)*	Maximum from equilibrium / Period Roll: degrees / seconds Pitch: degrees / seconds Yaw: degrees / seconds Heave: metres / seconds Surge: metres / seconds Sway: metres / seconds *(design values for deviations from the static position)*
Maximum Static Damaged Trim *(maximum values to encompass damage scenarios)*	
C - Bathymetry and oceanography (below surface)	
Pressure (depth) *(for specific features in head of sea water)*	
Ocean currents *(if specifically required, e.g. drift)*	

Water quality *(if specifically required, e.g. operations in estuaries)*	
Sea temperature	
Flora and fauna *(if specifically required, e.g. in waters of know high activity)*	
D – Geotechnical	
Bottom/Ground conditions *(if specifically required)*	
Banks (inc. canals) *(dimensions, bottom conditions if specifically required)*	
E – Human Caused Environment	
Berthing *(maximum speed of contact)*	
Beaching *(bottom conditions if specifically required, e.g. landing craft)*	
Docking *(docking arrangements assumed for design purposes covering intentional docking and emergency docking)*	
Towing and salvage *(what is the approach to a damage incident or salvage scenario?)*	
Acoustic fields *(if specifically required)*	
Electro-magnetic fields *(if specifically required)*	

Launching *(assumptions for build, if required)*	
Noise and vibration *(if additional to statutory limits for accommodation and working spaces)*	

Operating Parameters - General

Military or civil manning *(type and level of expertise, e.g. training craft)*	
Role Specific Operations *(requirements relating to the specific role of the vessel, e.g. cargo handling, requirement for low flashpoint fuels inc their stowage etc)*	

Operating Parameters – Detailed

Structure – ANC Rules D3, C02

Restrictions and limitations *(Cargo & Loading restrictions, structural limitations including all restrictions and limitations that are acceptable under the role of the ship)*	
Preservation Systems *(passive/ active corrosion protection systems, coatings life)*	
Management of hull strength *(approach to management of structure, e.g. loading tool)*	
Markings *(hull, draught, compartment and system marking systems)*	

Buoyancy and Stability – ANC Rules D03, C03

Buoyancy and Stability *(approach to management of stability, e.g. stability information book approval, loading tool, damage control philosophy)*	

Engineering systems – ANC Rules D03, C04

Machinery Systems *(Propulsion system, manoeuvring system, fuel supply, other machinery systems, damage operating conditions)* *(modes of operation {incl. where equipment operated from}, redundancy, emergency means of propulsion & generation, acceptable degradation in emergency conditions {incl. essential safety functions}, frequency of use, unattended machinery spaces, watch patterns, operating envelopes, profiles {% time in particular operating conditions})*	
Equipment *(Pressure, gas, hydraulic and associated piping systems)*	
Electrical Systems *(electrical generation system, power storage system, HV power supply & distribution, LV power supply & distribution, lighting, electrical protection)* *(modes of operation {incl. where equipment operated from}, redundancy, emergency means of propulsion & generation, acceptable degradation in emergency conditions {incl. essential safety functions}, frequency of use, unattended machinery spaces, watch patterns, operating envelopes, profiles {% time in particular operating conditions})*	
Integrated Control Systems (ICS) *(Onboard Ship's Integrated Control System (ICS) and ICS' remote pier control monitoring system, onboard training of the ICS operations and functions using a fully simulated environment of the ship's system)*	
Internal ambient conditions *(Heating, Ventilation and Air Conditioning (HVAC, Manned and machinery spaces)*	
Refrigeration temperature range	

Seamanship Systems – ANC Rules D03, C05

Embarkation/Disembarkation *(Environmental limitation, sea states, wind, swell, ship speed, alongside, pilots, crew, passengers)*	
Boat Operations *(Environmental limitation, sea states, wind, swell, ship speed, alongside (launching, recovery, welldock, launch and recovery time, requirement for low flashpoint fuels inc their stowage etc)*	
Replenishment at Sea (RAS) *(Environmental limitation, sea states, wind, swell (Requirement for liquid / solid replenishment / VERTREP, supply / receive, NATO interoperability, etc)*	
Anchoring and Mooring *(Environmental limitation, sea states, wind, swell, max. water depth for anchoring, canal transits (Frequency of use, limitations due to sea conditions, etc)*	
Towing (other than for emergencies) *(Environmental limitation, sea states, wind, swell, Requirement for routine towing / being towed, operational scenarios etc)*	
Diving Operations *(Environmental limitation, sea states, wind, swell, type of diving (air, mixed gas, open/closed circuit), no. of divers in water. Frequency of use, limitations due to sea conditions, etc)*	
Lifting and Hoisting Appliances *(Environmental limitation, sea states, wind, swell, Frequency of use, limitations due to sea conditions, etc)*	

Fire Safety – ANC Rules D03, C06

Area of Operation *(Area of Operation, Alongside & Docked, Ship Types defined in ANCR Division 1, Part 1, Annex A Definitions & Abbreviations)*	
Fire Safety policy *(fire parties, application of fixed systems, boundary cooling etc…)*	
Fire Scenarios (Survivability) *(No.of simultaneous fires, sizes etc..)*	
Cargo Payload *(Aircraft, Landing Craft (Dock), Boats (Davit), Vehicles, Munitions, Fluids in tanks, Weapon systems, Fuel for recreational use)*	
Operating Activities *(RAS, Anchoring mooring, Towing, CBRN, Aircraft refuelling)*	
Situational Awareness *(Fire detection, Alarm system, CCTV equipment)*	
Management *(Damage control organisation, communication and DC zones)*	
Ignition Sources *(ignition of combustible materials or flammable liquids, gasses and vapours)*	
Containment *(Fire control, Smoke control, Hatch coaming waterwalls)*	
Prosecution *(Fire extinguishing equipment, Damage control equipment)*	
Recovery *(Damage extent (fire), Re-configuration and redundancy, Post damage capability)*	
External Assistance *(Shore Connection, Ship-to-Ship Connection)*	

Escape, evacuation, rescue – ANC Rules D03, C07

Escape and Evacuation Times *(time to evacuate and rescue)*	
Escape and Evacuation Measures *(Escape routes, way finding, muster and evacuation stations)*	
Equipment and Stowage *(Quantity and type of personal lifesaving equipment to be stowed)*	
Survival Craft *(Lifeboats, life rafts, rescue boats, MES etc..)*	
Launching Arrangements *(Launch and recovery arrangements for survival craft)*	
Rescue Arrangements *(rescue equipment, Swimmer of the watch, mass rescue, line throwing, lifebuoys)*	

Safety Communications – ANC Rules D03, C08

GMDSS *(Maritime Safety Information Service, Method to ensure availability, Special features, e.g. inhibit transmission, Positions of both VHF DSC transceivers)* *Equipment* *Availability* *Sources of Energy*	
Internal Communications *(including Telephone, Sound-powered, Intercom)*	
Main Broadcast System *(including alarms)*	
Portable Communications *(in addition to GMDSS requirements)*	
Survival Craft Radio Equipment	
Sea-Air Radiocommunications	
Personnel Locator Beacons and Man Overboard Indicator	
Self-locating Datum Marker Buoys	
Signalling Devices in Restricted Visibility *(including horn, whistle)*	
Visual Signalling	

Navigation – ANC Rules D03, C09

Bridge Design *(Working environment, including ventilation, temperature, humidity, lighting/illumination and noise levels. Bridge and workstation layout, accessibility and commonality)*	
Alternate Conning Position *(Design/layout)*	
Emergency Conning Position *(Design/layout)*	
Navigation Safety - Geospatial, Temporal & Environmental Awareness *(Measure, display and record position, heading, bearing, velocity, precise time, pitch & roll, above and below water environmental data)*	
Operation and Control Systems *(Control of propulsion, manoeuvring, navigation and other systems from Bridge, alternate conning and emergency positions.*	
Resilience and Continuous Availability *(Continuously power the navigation systems and equipment that perform essential safety functions)*	
Integrated Bridge *(Integrated Bridge System, Integrated Navigation System, Integrated Navigation Bridge System)*	
Data Communication *(Voyage Data Recorder, Automatic Identification System)*	
Collision Avoidance *(Ability to exhibit lights, shapes and sound signals to indicated size, orientation, activity and limitations to other mariners.*	

Navigation Radar System, Automatic Radar Plotting Aid)	
Controllability *(Control of velocity, crash stop, turning circle, initial turning predictions, controllability predictions.)*	

Dangerous Goods – ANC Rules D03, C10

Class 1 Dangerous Good Carried	
List *(Provide Lists of all Class 1 Explosives to be embarked.* *Provide stowage allowance required eg. A 600 Round Magazine)*	
Classification *(To be in accordance with UN hazard classification or equivalent as determined by ANC Authority)*	
Certification *(Goods carried are to be listed with Identification or Certification references to allow particular stowage requirements to be identified)*	
Class 2 through 9 Dangerous Good Carried	
List *(Provide Lists of all Class 2 – Dangerous Goods to be embarked:* *Provide stowage allowance required eg. A 400 Sonobuoy Stowage)*	
Classification *(To be in accordance with UN hazard classification or equivalent as determined by ANC Authority)*	
Certification *(Goods carried are to be listed with Identification or Certification references to allow particular stowage requirements to be identified)*	
Stowage Space Arrangement	
For permanent stowage of Class 1 Dangerous Goods *(Magazines, RU Magazines, Loaded Launchers, Guided Weapons Magazines and Small Magazines, Integral Magazines; Magazine Lockers)* *(located to minimise risks / hazards associated with Dangerous Goods.)*	
For permanent stowage of Class 2-9 Dangerous Goods *(Gas Bottle Stowage, Paint Locker, Sonobuoy Stowage, etc)*	
Designated Danger Areas	

(Areas not fitted out for permanent stowage of Class 1 Dangerous Goods, but where temporary presence is likely. Eg Flight Deck; Hangar; *EO transfer routes; Weapon preparation areas, Weapon Parks, Vehicle Decks, Weapon Hoists and Lifts, Naval Platforms when EO is on deck during transfer)*	
EO Stowage Structure	
Material *(Requirements to withstand damage and attack)*	
Design *(Requirements to withstand damage and attack)*	
Handling Equipment	
Material Handling Equipment Types *(Davits, Hoists, Lifts, Straps, etc* *Naval standards usually require enhanced safety factors for Class 1 Dangerous Goods handling equipment)*	
Fire Fighting	
Systems *(Ship firefighting systems or equipment in place to support the fire protection system when Dangerous Goods are embarked.)*	
Fire Protection *(Steps taken to minimise the risk of fire in Dangerous Goods Stowages)*	
Drainage *(m^3/hr)*	

Aviation Systems – ANC Rules D03, C11

Operating Philosophy	
Military or Civilian manning	
Restrictions and Limitations *(Determined from the Environment and compliance of standards.)*	
Specific Operating Roles *(maritime aviation)*	
Specific Air System requirements	
Air System(s) Secondary Role requirements	
Environment	
Area of Operation *(World Wide, tropical to cold-weather areas)*	
Visibility *(Ability to operate in day, night (Night Vision Device (NVD) compatibility), and poor visibility (i.e. Fog))*	
Requirements for 24-hour operations *(continuous at sea operations)*	
Electromagnetic *(EMC Directive (2004/108/EC), IEC 61000-4 (latest version) and IEC60945 (2002))*	
Equipment and Stowage	
Location, size, weight, quantity *(Installed in accordance with Original Equipment Manufacturers (OEM) instructions.)*	

Area of Operation	
Flight Deck *(Dimension and weight restrictions. Specific deck markings. Specific construction and materials used. Requirement for safety equipment/provisions. Ability to move the air system (Mechanical or Manual) around the flight deck and to and from the air system storage area.)*	
Air System Storage Area (as applicable) *(Determined by organic Air system requirements. Specific dimensions for air system and associated aviation equipment. Specific aviation services required as per the air system requirements.)*	
Visual Surveillance *(Ability to monitor operations*	
Communications	
Air System to Naval Ship *(2-way communication, Recorded, Secure and Non-Secure.)*	
Flight Deck Crew *(Air system, Flight Deck Officer, Captain of the Flight deck, additional flight deck crew and the Bridge/Ops room.)*	
Aviation Services	
Power *(Determined by Air system requirements)*	
Lighting *(Determined by Air system requirements (To include NVD).)*	
Fuel Systems *(Storage, handling and delivery of quantity of aviation fuel, HIFR)*	
Fresh Water *(Storage, handling and delivery of quantity fresh water)*	

Handling Equipment *(Air system handling equipment)*	
Emergency	
Fire Fighting Arrangement *(Manual and automated. Coverage, duration and concentration requirements.)*	
Rescue Arrangement *(Rescue of aircrew, retrieval of aircraft)*	

Habitability – ANC Rules D03, C12

Accommodation	
Berthing *(Crew members, non-crew, ranks)*	
Sanitation facilities	
Heads *(numbers)*	
Showers *(numbers)*	
Food Stores	
Quantity of provisions *(Allowances)*	
Emergency provisions stores *(Space allowances)*	
Additional Stores	
Miscellaneous stores *(Space allowances)*	
Fitness spaces *(Equipment to provide)*	
Offices *(Equipment to provide)*	
Spaces of religious observance *(Equipment to provide)*	

Combat Systems – ANC Rules D03, C13

COMBAT SYSTEMS *(Operational requirements for combat systems and equipment, functionality, interoperability)* *(Tactical Awareness; Command and Control; Effectors)*	

Environmental Protection – ANC Rules D03, C14

Environmental Protection Systems *(Information on the sizing and / or fitting of environmental protection systems including tank capacities for oily mixture, sludge, wastewater, treatment plants capacities, garbage stowage capacities, oil filtering equipment thresholds, Engine NOx tier, incinerators etc…)*	

Medical Facilities – ANC Rules D03, C15

General	
Casualty first response capability *(Holding area, no. of clinical examination beds, no. of high dependency/medium dependency/low dependency care beds)*	
Primary health facilities capability *(Holding area, no. of clinical examination beds, no. of high dependency/medium dependency/low dependency care beds, no. of isolation beds)*	
Secondary medical facility *(Capacity, capability, time required to activate the facility, emergency surgical requirements)*	
Surgical capability *(no. of operating theatres/tables, no. of intensive care beds, blood storage capacity, sea state)*	
Specialist medical facilities *(Dental care, plaster room, pathology, medical imaging, psychological support, CBRN treatment, submarine and diving medicine support – give details, capacity)*	
Casualty evacuation capability *(Aircraft, landing craft, seaboats)*	
Mortuary *(no. of persons)*	
Bulk Medical Store *(Capacity, temperatures, security)*	
Medical gases / suction system *(Types, volumes, for which locations, on-board generation capacity)*	
Medical Equipment Specific requirements *(Determined by medical equipment requirements, special power requirements-voltage, frequency, current, emergency power supply, uninterruptable supply)*	

Survey, Maintenance and Disposal philosophy

Survey philosophy *(overview of survey and inspection philosophy)*	
Survey schedule *(survey cycle and scope of survey)*	
Maintenance philosophy *(overview)*	
Maintenance schedule *(maintenance cycles and depth of planned maintenance)*	
Disposal philosophy *(overview)*	

Shore services

Shore services connections *(No., type and services of shore connections)* *Including;* *Potable water, Technical water, Grey / Black water, Dirty oil / sludge, Fuel Oil, Electrical power, Firemain, Compressed air, Cooling water, IPMS, Fire detection, CCTV, Shore telephone, Earth bonding*	