



BEING A RESPONSIBLE INDUSTRY

**An Industry
Code of Conduct**

Maritime Autonomous Systems (Surface) MAS(S)



Foreword

There is increasing interest being generated by the deployment of Maritime Autonomous Systems (MAS) around the world. Although many of these craft are relatively small at the moment there are plans for much larger unmanned vessels and technological developments are setting a very fast pace of change.

Unmanned vessels are already being operated safely and responsibly within the existing regulations, conventions and procedures. This Code of Conduct sets down nine 'Industry Principles' which demonstrate a clear commitment to ensuring that MAS are operated safely and responsibly whilst ensuring compliance with all applicable regulations as far as practically possible.

The Code is available to companies in all nations with an interest in maritime matters. It will be kept under regular review and feedback will always be welcome.

The UK Maritime Autonomous Systems Regulatory Working Group is a sub-group of the Marine Industries Alliance, of which the Society of Maritime Industries is a leading partner.

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Chairman
UK MASRWG
1 March 2016

The Maritime Autonomous Systems Surface, MAS(S) Industry Code of Conduct

Introduction

Developments within the Maritime Autonomous Systems (Surface) area are moving apace. Technology and user requirements are accelerating the delivery of systems with greater utility and greater autonomy. However, the regulation and certification requirements covering the development, design, production and operation of Maritime Autonomous Systems are yet to be firmly established. Within the industry there is potential to harness the strengths of co-operation and develop an industry wide best practice now.

Aim

The aim of this Code of Conduct is to establish pan industry agreement on aspects of MAS(S) development, design, production and operation in advance of and alongside



the establishment of governing regulations. For the companies who are signatories it assists in generation of best practice and demonstrates a responsible approach to the development and utilisation of MAS(S) technology. For potential customers, the general public, the wider maritime and marine communities and users it gives an assurance that current best practice is being applied and adhered.

Benefits

The Code of Conduct benefits the Industry, its customers and other water users by:

- *Outlining practices to support safety and professionalism within the industry*
- *Promoting improved training, conduct and personal responsibility within the signatories and wider society*
- *Advancing self-regulation through the industry in advance of official direction*
- *Supporting improved communications between companies, regulators and others within the industry and the wider maritime community.*

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BEING A RESPONSIBLE INDUSTRY SECTION 1

Maritime Autonomous Systems (Surface) MAS(S)

RESPONSIBILITIES UNDER THIS CODE OF CONDUCT

The MAS(S) industry, companies, organisations and individuals working within it are committed to behaving ethically in all aspects of business. Success of the industry and development of the appropriate regulatory controls depends on maintaining a corporate reputation, every manufacturer and employee within the industry and related organisations has an important role to play. This section of the Code of Conduct outlines the industry's commitment under the Code and spells out the responsibilities of those who manage the industry.

1.1 SCOPE

- 1.1.1** The Code of Conduct is a summary of the principles of business conduct expected of all signatory designers, manufacturers and operators of Maritime Autonomous Systems (Surface) providing practical guidance on how to deal with important issues.
- 1.1.2** The Code is intended to be a guide that every signatory is expected to meet. It's contents complement and underscore legal requirements and are not intended to substitute any requirement of law. As a general rule, the signatories are expected to be responsible for understanding and complying with the laws, regulations or policies that relate to their activities.

1.2 APPLICATION

- 1.2.1** This Code applies to and is mandated for all signatory companies, their employees, agents and subcontractors when dealing within the scope of their contractual duties. The Code of Conduct shall apply to regulate all dealings that are reasonably considered within the normal course of business. Including, but not limited to, dealings with customers, contractors, stakeholders, competitors and regulators. The Code can be adopted by any organisation within the industry, even if not a signatory, and this is encouraged.

1.3 AMENDMENTS

- 1.3.1** The signatories to this Code of Conduct reserve the right to propose amendments and updates reflecting future technological developments, regulatory changes or commercial practices.



BEING A RESPONSIBLE INDUSTRY SECTION 2

Maritime Autonomous Systems (Surface) MAS(S)

2.1 PRINCIPLES AND COMPLIANCE WITH THE CODE OF CONDUCT

2.1.1 All signatory companies and their agents as specified at 1.2 resolve to respect the following guidelines:

- *To observe a general obligation to display responsible and ethical behaviour in relation to the design, manufacture, distribution, operation, maintenance and final disposal of their systems.*
- *To encourage and support communication and dialogue with regulators and relevant authorities.*
- *To comply with the principles set out by this Code of Conduct to the best of their abilities.*

2.2 INDUSTRY MANAGER'S RESPONSIBILITIES

2.2.1 Those who manage or supervise others within the MAS(S) Industry have additional responsibilities under this Code. These include:

- *Making sure the Code is provided to, explained to and understood by employees they manage and supervise.*
- *Providing guidance to those they manage or supervise on how they can meet the Code's requirements.*
- *Promoting the principles by setting a personal example.*
- *Ensuring employees receive training and guidance on applying the code.*
- *Monitoring compliance with the Code by employees they manage or supervise.*
- *Ensuring that third parties are aware of, and comply with, the policies and principles of this Code when appropriate.*
- *Creating an environment where employees can contribute to the industry's development and be recognised for doing so.*



2.3 HEALTH AND SAFETY

2.3.1 The Industry's activities and our operations can have an impact on the health and safety of our employees, subcontractors and others working within it. The industry has a responsibility to make sure it limits the potential for accidents to occur. Complying with safety rules and procedures is an essential minimum. It will also aim to prevent accidents happening by identifying and understanding the risks present in the workplace and daily operating environment, and by understanding how accidents can occur. It should seek to identify those areas that can be improved to protect the safety of all those in the Industry and how identified risks can be mitigated.

2.3.2 Everyone within the industry has a responsibility for safety in the workplace and must be familiar with and comply with each company's Health and Safety Policy and all local requirements and by thinking through the risks and hazards in our workplace and daily operating environment.

INDUSTRY PRINCIPLE: HEALTH AND SAFETY

Signatories to this Code of Conduct will maintain healthy and secure workplaces and promote safe working practices during all stages of the MAS design, build, maintenance and operation lifecycle.

2.4 ENVIRONMENT

- 2.4.1** The Industry is committed to high standards of environmental management and protection.
- 2.4.2** This includes giving appropriate consideration to the management of environmental impacts in the development, design, procurement, manufacture, test, training delivery, maintenance, support and disposal of our products.
- 2.4.3** In addition, it will comply with the law and relevant environmental regulations.
- 2.4.4** The industry will be proactive in contributing to the achievements of these high standards. It has the responsibility to think carefully about the environmental impacts of its products. It must use best practice engineering and management techniques and processes to understand the potential use of the product by customers. The industry's environmental responsibilities cover the whole lifecycle of the product. It should consider how products and components, including fuels, batteries and chemicals, could be designed and manufactured with recyclability and responsible disposal in mind.
- 2.4.5** By doing this it can reduce the environmental impact of systems and services at all stages from design, assessment, development, manufacture and in-service support, through to removal from service and disposal at end of life.



INDUSTRY PRINCIPLE: ENVIRONMENT

The industry will embrace a commitment to use resources effectively and to minimise the impact of its products, activities and operations on the environment.

2.5 PRODUCT SAFETY DESIGN AND CONSTRUCTION

- 2.5.1** The Industry will agree with customers the level of safety that is required i.e. what risks are acceptable and will work to ensure that it delivers products that meet or exceed that level. It will not agree to a level of safety that is unlawful or unethical.
- 2.5.2** Industry policies and practices are built on a set of principles of product safety that apply throughout the product's life, and that may extend beyond the formal end of the project.
- 2.5.3** The safety of products relies on the application of safety policies and processes, and on the behaviours and attitudes of all within the industry. There is a chain of accountability for product safety and signatories are responsible for ensuring that the products both match their design and have the agreed level of safety.
- 2.5.4** Information about product safety will be shared with customers and within the Industry and it will try to learn from anything about the performance and use of products that can be used to improve safety.
- 2.5.5** Everyone within the industry should be aware of the product safety implications of their role and ensure that operations are in full compliance both with the law and with each company's safety policies and processes. Any concerns regarding the safety of a product, or the application of policies and processes, should be raised immediately.
- 2.5.6** The industry will ensure that it employs Suitably Qualified and Experienced (SQEP) personnel in the design and construction of its systems. It will source good quality, traceable, consistent materials and components and use appropriate design, build and test standards where applicable to ensure quality, safe and predictable products are delivered to customers.

INDUSTRY PRINCIPLE: PRODUCT SAFETY DESIGN AND CONSTRUCTION

The Industry will work with each customer to agree the level of safety required for a specific operational situation of each product through its life. It will suggest designs or modifications to mitigate, where possible, any identified risks.

2.6 IDENTIFICATION OF MAS(S)

2.6.1 It is recommended that both sides of all MAS(S) be marked with the following information:

- *Name of Operator*
- *Contact telephone number of Operator (including international dialling code)*
- *Email address of Operator*
- *Hazmat label*

2.6.2 It is recommended that all MAS(S) should be registered on a National, Open or International registry. Registration should be appropriate to the size of the vessel. Where no relevant register exists in a state, it is recommended the one be established, using the guidance of ISO 10087:2006.

2.6.3 It is recommended that all MAS(S) be fitted with an appropriate AIS.

2.6.4 It is recommended that all MAS(S) be fitted with active radar reflectors where practicable.

2.7 CUSTOMER INFORMATION

2.7.1 Improper or unauthorised handling of protectively marked and commercially sensitive information may damage the national security of the countries in which business is done. It also damages the industry and may harm the operational and financial performance of companies within the industry.

The industry has responsibility to:

- *Handle Classified and/or Protectively marked information in accordance with all applicable laws and local procedures*
- *Refrain from discussing or working with classified information in a public area where the conversation may be overheard or information compromised.*
- *Not discuss classified information with anyone unless it is confirmed that they have a need to know and the appropriate clearance.*

INDUSTRY PRINCIPLE: CUSTOMER INFORMATION

The industry will handle customer protectively marked and commercially sensitive information confidentially and as a minimum in accordance with appropriate regulations, policies and processes.





2.8 ASSURANCE CERTIFICATION AND AUTHORISATION FOR USE

2.8.1 The Industry recognises the critical importance of Assurance, Certification and Authorisation for Use of all MAS(S). It will develop, incorporating existing standards where appropriate Industry wide:

- *A common agreed Risk Assessment Based Assurance Framework*
- *An agreed Certification process using a Testing and Evaluation Roadmap*
- *An appropriate process to issue a Certified Clearance for Use for MAS(S)*

2.8.2 Manufacturers and operators that hold correct ISO9001:2008 certification will have rigorous quality systems in place that ensure high and consistent design, test, build and operational standards.

2.8.3 The industry recognises that achieving international standardisation will take time. However, it will participate fully in its development and will ensure that it adopts its own best practice complementary to achieving the end state.

INDUSTRY PRINCIPLE: ASSURANCE AND AUTHORISATION

The Industry is fully committed to developing and applying agreed Assurance, Certification and Clearance for Use processes to enable demonstrable confidence in its products and systems and compliance with existing regulations.

2.9 TRADE RESTRICTIONS AND EXPORT CONTROLS

2.9.1 The Industry will be involved with International, cross-border business and as such must be familiar with the appropriate national policies and procedures for handling goods, technology and data or providing services which may come into or go outside of a country.

2.9.2 Involvement may mean simply having contact with a foreign or dual national inside a company facility for instance at a trade show. It can mean sending a technical drawing to a potential supplier in another country or submitting a proposal to a foreign government.

2.9.3 If the Industry fails to observe export control laws, companies (and individuals) may face fines, criminal prosecution and loss of export privileges.

2.9.4 Company policies and procedures must take these regulations and laws into account and so it is important to be familiar with them.

2.9.5 Companies will provide training to those employees who are involved in export and import, or that regularly have contact with foreign nationals.

INDUSTRY PRINCIPLE: TRADE RESTRICTIONS AND EXPORTS

The industry will comply with all applicable laws and regulations and export controls when importing and exporting products, services and information.

BEING A RESPONSIBLE INDUSTRY

SECTION 3

Maritime Autonomous Systems (Surface) MAS(S)

3.1 OPERATIONAL RESPONSIBILITIES

- 3.1.1** The Industry will demonstrate a world leading responsible and effective approach to the conduct of operations when utilising MAS(S). Full regards will be taken to observe other activities within the maritime space and ensure safe integration of MAS(S). Operations will fully comply with local rules and regulations governing safe operations of vessels at sea and environmental issues.
- 3.1.2** A thorough risk assessment process will be applied to each MAS(S) operation and consideration given to and approval obtained from any local controlling authority.
- 3.1.3** Nothing in this Code of Conduct removes the responsibility for each organisation developing and applying it's own standard operating procedures, including those used to plan the conduct and authorisation of operations, and system operating manuals.

INDUSTRY PRINCIPLE: OPERATIONAL RESPONSIBILITIES

The Industry will at all times conduct MAS(S) operations in a safe and effective manner with full regard for other users of the maritime space.





3.2 REGULATORY AND LEGISLATIVE COMPLIANCE

3.2.1 The Industry recognises that regulatory development governing MAS(S) is still in progress. It will fully contribute to that development using informed judgment and practical experience. In the meantime the Industry will conduct activities and operations in full recognition of the status of MAS(S) with respect to:

- *International Regulations for Preventing Collisions at Sea, 1972, amended in November 2003*
- *Other maritime laws, rules and conventions where applicable*
- *Local or temporary arrangements in place in the areas of MAS(S) operations*

3.2.2 The underlying principle is to avoid collisions and incidents at sea, injury and loss of life and damage to the environment. The industry agrees to adopt the necessary practices to achieve these aims.

INDUSTRY PRINCIPLE: REGULATORY COMPLIANCE

The industry will ensure compliance with all applicable regulations as far as practically possible. It will fully contribute to the development of special rules and regulations covering MAS(S) operations.

3.3 TRAINING AND DEVELOPMENT

3.3.1 The Industry recognises the critical importance of training and development to its success. In particular:

- *MAS(S) Operators will be trained and certified to at least the same recognised standards as far as the equivalent manned vessel.*
- *Companies within the Industry will have staff development processes in place to capture and progress skill generation.*
- *Whilst the industry acknowledges that in time the desire is for standardisation with training syllabi and course for a wide range of unmanned and autonomous systems. In the meantime it is important that training is provided to the highest standards possible and wherever possible to a level that would be an assessed as suitable by an external and accredited organisation resulting in suitably qualified and experienced personnel (SQEP).*

INDUSTRY PRINCIPLE: TRAINING AND DEVELOPMENT

The Industry will ensure the appropriate level of training and certification for all MAS(S) Operators. It will enable staff development and the sharing of best practice.

DOCUMENTARY CONTROL

Changes or amendments to this Code of Conduct will be controlled by the Marine Industries Alliance Marine Autonomous Systems Regulatory Working Group to ensure the necessary documentary control. The latest version of this document will be available on the SMI/MIA webpages.

Proposed changes or amendments should be addressed to:



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Supported by:



