

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND CERTIFICATE OF TYPE APPROVAL

Applicant:-
Avmar Limited
26 Liverpool Road
Lydiate, Liverpool
L31 2LZ
United Kingdom

Manufacturer:-
Avmar Limited
26 Liverpool Road
Lydiate, Liverpool
L31 2LZ
United Kingdom

This is to certify that the applicant has submitted details of a:-

Liferaft Radar Reflector

Of a type known and designated as:-

Avmar, - type AV1

(Comprising component parts as described in schedule attached)

and that this has been assessed and tested, and is CERTIFIED as complying with:-

Schedule 4, Part 4, Paragraph 1.1.14 of the Merchant Shipping (life-saving appliances) Regulation 1986 and hence chapter III, Regulation 38.5.1.14 of the 1983 Amendments to the International Convention for Safety of Life At Sea (SOLAS) 1974

In addition the specimen was considered suitable, when fitted in the emergency pack of an inflatable liferaft, for stowage at a height not in excess of 36 meters above the water.

the requirements derived from resolutions published by the International Maritime Organisation were tested against the performance specifications annexed to UK Merchant Shipping Notice M.1485, 1991, published by the Department of Transport, Marine Directorate.

SIGNED:



R Sharp

Authorised Signatory

DATE:

14th June 2010

Certificate Number:

QQ-TAN-02/05-01R2

This Certificate is Valid for 5 Years from date shown

The conditions of issue of this certificate are printed on the reverse of the attached schedule which forms an integral part of this certificate

QinetiQ
Cody Technology Park
Ively Road, Farnborough
Hampshire. GU14 0LX



The QinetiQ Group PLC (formerly known as DERA) is specified as a "person" under the terms of The Merchant Shipping (Delegation of Equipment Approval) Regulations 1996, and this certificate is issued under the authority given in Merchant Shipping Notice No MSN 1735.

Certificate of Type Approval - Schedule 1

Avmar, - type AV1

The applicant declared that the following unit is an operational Marine Radar Reflector suitable for Liferaft usage. The unit below has been assessed & tested and satisfactory details of these units were included in the technical file.

MAIN UNIT:

Liferaft Radar Reflector

AV1

Optional Units:-

None

Production Drawing:

No. 1G/AV1 Sheet 1

----- End of List -----

NOTES:-

- 1 This equipment is recognised in the Marine Equipment Directive (96/98/EC), and listed in the Current Amending Directive (2009/26/EC), as Item A2/1.1, but is awaiting a harmonised European standard and transfer to Annex A1 before European MED Certification can be granted.
- 2 This certificate renews the approval granted by certificate DERA-TAN-05/99-01 and replaces certificates QQ-TAN-02/05-01 dated 18th May 2005 and certificate QQ-TAN-02/05-01R dated 27th June 2005. Customer application declares no changes to the manufacturing of the device. This renewed certificate is to revise the expiry date.
- 3 The design responsibility is vested with Avmar Ltd and the production facility registered for this apparatus is:

Broadland Plastics Ltd
Broads Business Park
The Street
Catfield
Norfolk NR29 5BQ

Technical Characteristics

*Note:- Where appropriate results taken from Type Approval Test Report.

Parameter	Measured*	Comment
Reflective Performance – Maximum Echoing area (M1485, Clause 3.1)	>10 square metre equivalent echoing area	Suitable for operation at 1.5 metre mounting height
Reflective Performance over ±15° in elevation (M1485, Clause 3.3.1)	All Response plots taken show >10m ² peaks	Polar diagrams plots taken at 2.5° intervals over ±15° in elevation
Reflective Performance mean RCS Response (M1485, Clause 3.3.2)	All Response plots taken show >2.5m ² average	Polar diagrams plots taken at 2.5° intervals over ±15° in elevation
Reflective Performance below 2.5m ² level (M1485, Clause 3.3.3)	All plots show relatively even distribution of response	194° Coverage at >2.5m ² +15° plot 187° Coverage at >2.5m ² -15° plot
Reflective Performance in Horizontal Plane (M1485, Clause 3.4)	Worst case gap - 14° wide (>230° coverage at 2.5m ²)	By assessment of 0° polar diagram without ±2° band diagrams.
Recommended mounting height	>1.5m above sea level	Mounting pole supplied.
Size	600mm Diameter. (330 x 150 x 40mm packed)	The Reflector an inflatable device and is supplied uninflated in stowage bag
Weight	0.5kg	
Temperature Range & IEC 945 Class Exposed	-25°C to +70°C	Tested to -25°C to +55°C and with a thermal shock of +70°C to +15°C.
Power Source	None	Passive Device

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Hampshire. GU14 0LX

Certificate Number

QQ-TAN-02/05-01R2

Certificates of Type Approval
Conditions of Issue

1. Each Certificate will be used in its entirety and not reproduced in part.
2. This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested.
3. This certificate remains valid for a period of 5 years unless cancelled or revoked, provided any conditions contained in the schedule are complied with and the equipment remains satisfactory in service.
4. The approval status conferred by each certificate will apply only to the aspects of the equipment's performance defined by, and tested to, the specifications printed on that certificate.
5. Each unit of apparatus forming part of an equipment will have prominently marked on it the description given to it in the Certificate.
6. Each unit of an equipment will be marked with the minimum safe distance at which it should be mounted from a standard magnetic compass.
7. No unit of apparatus shall be advertised or labelled as "approved" or "certified" on behalf of the Maritime and Coastguard Agency (MCA), Department of Transport, DERA or QinetiQ in any sense other than that it is a type that has been assessed as satisfactory against the specification;

The manufacturer must advise QinetiQ of any future changes to the design or production of the equipment which might affect the equipment performance.

For minor modifications to the equipment, factory test results provided to QinetiQ by the manufacturer can be considered on a case-by-case basis. These test results will be reviewed by the QinetiQ, in consultation with the test facility which conducted the original Type Approval tests on the equipment.

QinetiQ will advise the manufacturer if there is a need for further testing.

If an equipment manufacturer wishes to have the type approved equipment designated under alternative names (e.g. agent/distributor's name and model number), a separate application should be completed and sent to QinetiQ.