

Federal Communications Commission
 Authorisation and Evaluation Division
 7435 Oakland Mills Rd
 Columbia
 MD 21046

FCC ID XZMA**Active-X**
Confirmation Number EA926497

Please find the submissions for FCC approval of the Echomax Active-X X-band Radar Target Enhancer (RTE) uploaded to the FCC OET website.

The International Maritime Organisation SOLAS regulations require that all vessels under 150 gross tonnage and if practicable, carry a radar reflector, or other means, to enable detection by ships navigating by radar. (Chapter V, Regulation 19.2.1.7). The device referred to here meets this requirement for enhancing target definition on shipborne marine radars operating in the X band.

In consultation with Tim Maguire¹ of the Wireless Telecommunications Bureau we understand that this device is covered by CFR47 part 80.375(d) for radio-determination devices used in the 9300MHz to 9500MHz band (X band). In this email, he also recommends providing test results to show compliance with ITU-R M.1176 and IMO Resolution MSC.164(78).

To ensure that this device meets the above mentioned resolution and recommendations, it has been tested for X-band performance in accordance

¹ In email dated 8th September 2009 between Tim Maguire and independent consultant, Dave Walsh.



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with ISO8279-2 'Ships and Marine Technology - Marine radar reflectors - Part 2: Active type'.

In Europe the device has been given a positive notified body opinion (under the EU R&TTE directive). A copy of this opinion is attached.

Echomax is the brand name of Aquamate Products Limited, PO Box 6032, Dunmow, Essex, CM6 3AS, United Kingdom. The Echomax Active-X RTE was designed by Coverise Limited on behalf of Aquamate Products Ltd.

I hereby confirm that the Echomax Active-X Radar Target Enhancer meets the International Recommendation ITU-R M.1176 for such devices and has been tested in accordance with the International Standard. The device is compliant with CFR47 part 80.375(d)

Yours faithfully



David Sheekey
Product and Approvals Manager
Coverise Ltd



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NOTIFIED BODY
No 0191

STATEMENT OF OPINION

QinetiQ is appointed by the UK Department of Trade and Industry to act as notified body in accordance with Directive 1999/5/EC of The European Parliament and of The Council, of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity

This Opinion is provided at the request of the Applicant:-

Aquamate Products Ltd t/a Echomax
P O Box 6032
Dunmow
Essex, CM6 3AS.

And concerns the equipment designated and identified as :-

EchoMax Active-X-Band RTE

Being a marine X-Band solid state navigational radar as detailed on sheet 2, and manufactured by:-

Aquamate Products Ltd t/a Echomax
P O Box 6032
Dunmow
Essex, CM6 3AS.

IT IS THE OPINION OF QinetiQ NOTIFIED BODY THAT: The equipment detailed above meets with the essential requirements of Directive 1999/5/EC, based upon the examination of the technical construction file submitted on the authority of the individual named above, in accordance with the conformity procedure defined in Annex IV of the Directive.

In particular compliance with the essential requirements detailed in the following Articles of the Directive has been considered:

- | | |
|-----------------|--|
| Article 3(1)(a) | the protection of health and safety |
| Article 3(1)(b) | electromagnetic compatibility requirements |
| Article 3(2) | effective use of the spectrum and avoidance of harmful interference. |

The technical evidence provided has been found complete and sufficient to justify a presumption of conformity with the above listed essential requirements.

SIGNED:

R A Sharp

Authorised Signatory

DATE:

5th August 2009

Statement Number:

QQ-RTTE-08/09-01

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

Condition of Issue: - This statement may only be used in its entirety and not reproduced in part.

Equipment Schedule

The applicant declared that the following unit comprises a working 9.3 to 9.5GHz shipborne radar target enhancer. The component parts are as shown below: Coverise Datasheet 901S-00160 details technical overview of Build Standard.

Hardware configuration – Active-X:

Radar Target Enhancer
Power and Alarm Unit

Part Nos:-

Active-X- Band RTE
Power Unit

Software configuration:

None

Intended Use of the Equipment

This opinion takes into account the intended use of the equipment which has been declared as follows:

The intended application is as an X-Band Radar Target Enhancer (RTE) for worldwide use onboard non-SOLAS vessels.

Additional Observations

The following observations are made by the notified body regarding the suitability of the above equipment:

A RTE or active radar reflector provides an enhanced radar return to better ensure detection of small vessels. An RTE does not transpond or generate a transmission, it purely re-transmits an amplified version of the received radar signal.

ISO 8729-2:2009 is a performance standard for 'Radar Reflectors – Active type'. This opinion only addresses the essential requirements of the R&TTE Directive and these align with the frequency in use, power, induced instability and spurious/out of band emission requirement of ISO 8729-2:2009.

Compliance with Harmonised Standards

No R&TTE harmonised standards are currently published in the Official Journal for this type of equipment.

Compliance with Non-Harmonised Standards

Technical evidence has been taken into consideration regarding compliance of the equipment with all or part of the following standards:

EN 60945 : 2002 (Clauses 9, 10 & 12), ISO 8729 (clauses 7.3.2 to 7.3.9, 7.6, 7.7 and 7.8)

ITU-R Recommendation RM.1177

Equipment Marking

The equipment shall be marked, under the responsibility of the applicant, with the CE conformity marking according to Annex VII of the Directive, signifying compliance of the equipment with all relevant essential requirements.

The CE conformity marking shall be accompanied by the identification number of this notified body, and by the equipment class identifier, as follows:

C E0191!

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Equipment Schedule 2 (Additional Information)

Statement on Spurious and Out of Band Emissions and the Boundary between these emissions

The following Radar Target Enhancer, as shown on earlier schedule, has been subject to a measurement procedure as detailed in ISO 8729-2 : 2009, Clause 7.8 and the guidelines contained in ITU-R Recommendation RM.1177-3. These standards defines the test method and requirements for shipborne radar equipment to meet in order to comply with Appendix S3 of the Radio Regulations and ITU-R Recommendations SM.1539-1 and SM.1541-1.

The results of the measurement procedure were satisfactory and provide sufficient evidence that this Radar Target Enhancer is compliant with the criteria contained in the stated standards.

The test reports detailing the tests and test results obtained is:-

Coverise Ltd Test Report OPP001

The test report detailed the testing by direct 50ohm connections of the amplifier module 901S-00160 the nature of the waveguide antenn design, cut-off and gain being such that the indirect method could be used without unacceptable uncertainty of measurement..

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