

Manufacturer's statement as required by IEC62238 ED 1 (2003-03) Sections 4 and 5

Product name: Raymarine RAY260 and RAY260 AIS

Product description: Class D DSC VHF Radio with ATIS and optional AIS receiver

Section 4 – General and operational requirements		
4.1 - General	YES	NO
Can the manufacturer declare that compliance to the requirements of clause 4 is achieved and be able to provide relevant documentation?	\boxtimes	
4.2 - Composition	YES	NO
Does the equipment include as a minimum a VHF radiotelephone transmitter?	\boxtimes	
Does the equipment include as a minimum a VHF radiotelephone receiver?	\boxtimes	
Does the equipment include as a minimum a channel 70 watchkeeping receiver for DSC decoder?	\boxtimes	
Does the equipment include as a minimum a DSC encoder?	\boxtimes	
Does the equipment include as a minimum a DSC decoder?	\boxtimes	
Section 4.3 - CONSTRUCTION	YES	NO
Does the mechanical and electrical construction and finish of the equipment conform in all respects to good engineering practice, and is the equipment suitable for use on board vessels.		
Are all controls of sufficient size to enable the usual control functions to be easily performed and the number of controls the minimum necessary for simple and satisfactory operation?		
Are adequately detailed operating instructions provided with the equipment?	\boxtimes	
Is the equipment capable of operating on single frequency and two-frequency channels with manual control (simplex)?	\boxtimes	
Is the equipment able to operate on all channels defined in appendix S18 to the Radio Regulations (see Annex E)?	\boxtimes	
If additional VHF channels outside those defined by appendix S18 to the Radio Regulations [1] are also be provided, are these channels clearly identified for use as relating to the relevant administrations and accessed through (a) positive action(s) for enabling of this/these channel(s). Is a means provided to block any or all of these additional channels if required by the relevant administration(s)?		
Is the equipment so designed that use of channel 70 for purposes other than DSC is prevented?	\boxtimes	
Is transmission inhibited while any frequency synthesizer used within the transmitter is out of lock?	\boxtimes	
Is transmission inhibited during channel switching operations?	\boxtimes	
Section 4.4 – Controls and Indicators	YES	NO
Is the user denied access to any control which, if wrongly set, might impair the technical characteristics of the equipment?	\boxtimes	
If the equipment can be operated from more than one position, does the control unit provided at the position from where the vessel is normally navigated have priority and are the individual control units provided with an indicator showing whether the equipment is in operation?		
Is a DISTRESS BUTTON provided (the default shall be an undesignated distress message)?	\boxtimes	
Is a CALL button provided (the default (initial display) shall be an individual call)?	\boxtimes	
Is a CANCEL function provided (to revert to the initial display or to silence the aural alarm and visual indication used to indicate receipt of DSC alert? Does the cancel function take place automatically after a maximum of 5 min of inactivity)?		



Is there an ENTER / Accept / OK control or function for accepting menu items?	\boxtimes	
Is there a means of easily entering a MMSI for calling and manual position information? If a numeric key pad is provided does this conform to ITU-T Recommendation E.161?	\boxtimes	
Is there an ALPHA – NUMERIC DISPLAY (see 4.6)?	\boxtimes	
Is there an on/off switch for the entire installation with a visual indication that the installation is in operation?		
Is a manual non-locking push-to-talk switch to operate the transmitter provided, with a visual indication that the transmitter is activated and facilities to limit the transmission time to a maximum of 5 min?	\boxtimes	
Is there a switch for reducing transmitter output power to no more than 1 W, on both telephony and DSC, with a visual indication that low power is selected? Is transmission of DSC distress calls always at full power?		
Is an audio-frequency power volume control provided?	\boxtimes	
Is a squelch control provided?	\boxtimes	
Is a control for dimming to extinction the equipment illumination provided, with the exception of a visual indicator (see clause 4.5.3)?		
Does the equipment have means to manually select a channel and indicate the designator (where applicable) (as shown in appendix 18 to the Radio Regulations [1], of the channel at which the installation is set)?	\boxtimes	
Is the channel designator legible irrespective of the external lighting conditions?	\boxtimes	
Is Channel 16 distinctively marked? (Selection of channel 16, shall be preferably by readily accessible means (e.g. a distinctively marked key). Selection of channel 16 by any means shall automatically set the transmitter output power to maximum. This power level may subsequently be reduced by manual user control if required).		
Where the capability for automatically switching a radiotelephone channel on receipt of a DSC call exists, is a means for disabling that capability provided? Is this capability provided for all calls other than individual station calls of category distress or urgency?		
Section 4.5 - Facilities for coding and decoding of DSC	YES	NO
Are the facilities for coding and composition of calls so arranged that it is possible for the operator quickly and precisely to enter a call? (The types of DSC calls	\boxtimes	
provided in this equipment are specified in annex A)		
provided in this equipment are specified in annex A) Do the CALL functions (see 4.4) permit selection of the following functions:	YES	NO
,	YES	NO 🗆
Do the CALL functions (see 4.4) permit selection of the following functions:		NO
Do the CALL functions (see 4.4) permit selection of the following functions: - INDIVIDUAL: for making a call to a specific MMSI?		
Do the CALL functions (see 4.4) permit selection of the following functions: - INDIVIDUAL: for making a call to a specific MMSI? - GROUP: for making a call to a specific Group MMSI (see 5.4)?		
Do the CALL functions (see 4.4) permit selection of the following functions: - INDIVIDUAL: for making a call to a specific MMSI? - GROUP: for making a call to a specific Group MMSI (see 5.4)? - ALL SHIPS URGENCY/SAFETY: for making all ships calls?		
Do the CALL functions (see 4.4) permit selection of the following functions: - INDIVIDUAL: for making a call to a specific MMSI? - GROUP: for making a call to a specific Group MMSI (see 5.4)? - ALL SHIPS URGENCY/SAFETY: for making all ships calls? - RECEIVED CALLS: for retrieving stored incoming DSC calls?		
Do the CALL functions (see 4.4) permit selection of the following functions: - INDIVIDUAL: for making a call to a specific MMSI? - GROUP: for making a call to a specific Group MMSI (see 5.4)? - ALL SHIPS URGENCY/SAFETY: for making all ships calls? - RECEIVED CALLS: for retrieving stored incoming DSC calls? - OTHER: for equipment housekeeping functions? If INDIVIDUAL is selected, is either a MANUAL call (see 4.5.2) or a DIRECTORY call selected? Does the DIRECTORY list have a facility for at least 10 entries?		
Do the CALL functions (see 4.4) permit selection of the following functions: - INDIVIDUAL: for making a call to a specific MMSI? - GROUP: for making a call to a specific Group MMSI (see 5.4)? - ALL SHIPS URGENCY/SAFETY: for making all ships calls? - RECEIVED CALLS: for retrieving stored incoming DSC calls? - OTHER: for equipment housekeeping functions? If INDIVIDUAL is selected, is either a MANUAL call (see 4.5.2) or a DIRECTORY call selected? Does the DIRECTORY list have a facility for at least 10 entries? Are their MMSIs programmable? Section 4.5.2 – Manual Calls Does the MANUAL call facility permit the entry of a MMSI? (If the called station is a coast station (i.e. MMSI commencing 00) no further information shall be requested from the operator).		
Do the CALL functions (see 4.4) permit selection of the following functions: - INDIVIDUAL: for making a call to a specific MMSI? - GROUP: for making a call to a specific Group MMSI (see 5.4)? - ALL SHIPS URGENCY/SAFETY: for making all ships calls? - RECEIVED CALLS: for retrieving stored incoming DSC calls? - OTHER: for equipment housekeeping functions? If INDIVIDUAL is selected, is either a MANUAL call (see 4.5.2) or a DIRECTORY call selected? Does the DIRECTORY list have a facility for at least 10 entries? Are their MMSIs programmable? Section 4.5.2 – Manual Calls Does the MANUAL call facility permit the entry of a MMSI? (If the called station is a coast station (i.e. MMSI commencing 00) no further information shall be requested from the operator). If the called station is a ship station does the equipment request input of a channel number? Does the equipment assist the operator by suggesting a suitable intership channel suitable for the vessels area of operation?	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	
Do the CALL functions (see 4.4) permit selection of the following functions: - INDIVIDUAL: for making a call to a specific MMSI? - GROUP: for making a call to a specific Group MMSI (see 5.4)? - ALL SHIPS URGENCY/SAFETY: for making all ships calls? - RECEIVED CALLS: for retrieving stored incoming DSC calls? - OTHER: for equipment housekeeping functions? If INDIVIDUAL is selected, is either a MANUAL call (see 4.5.2) or a DIRECTORY call selected? Does the DIRECTORY list have a facility for at least 10 entries? Are their MMSIs programmable? Section 4.5.2 – Manual Calls Does the MANUAL call facility permit the entry of a MMSI? (If the called station is a coast station (i.e. MMSI commencing 00) no further information shall be requested from the operator). If the called station is a ship station does the equipment request input of a channel number? Does the equipment assist the operator by suggesting a suitable intership channel suitable for the vessels area of operation? Section 4.5.3 – Distress Calls	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	
Do the CALL functions (see 4.4) permit selection of the following functions: - INDIVIDUAL: for making a call to a specific MMSI? - GROUP: for making a call to a specific Group MMSI (see 5.4)? - ALL SHIPS URGENCY/SAFETY: for making all ships calls? - RECEIVED CALLS: for retrieving stored incoming DSC calls? - OTHER: for equipment housekeeping functions? If INDIVIDUAL is selected, is either a MANUAL call (see 4.5.2) or a DIRECTORY call selected? Does the DIRECTORY list have a facility for at least 10 entries? Are their MMSIs programmable? Section 4.5.2 – Manual Calls Does the MANUAL call facility permit the entry of a MMSI? (If the called station is a coast station (i.e. MMSI commencing 00) no further information shall be requested from the operator). If the called station is a ship station does the equipment request input of a channel number? Does the equipment assist the operator by suggesting a suitable intership channel suitable for the vessels area of operation?	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	



Is this button rad in colour and marked "DICTDECC"	1	<u> </u>
Is this button red in colour and marked "DISTRESS".		
Where a non-transparent protective lid or cover is used, is it also marked "DISTRESS"?		
Is the cover protected against inadvertent operation with a spring loaded lid or cover permanently attached to the equipment by, for example hinges?		
Confirm that it is not necessary for the user to remove seals or to break the lid or cover in order to operate the distress button?		
Does the operation of the distress button generate a visible and audible indication (see 5.6.3)?		
When the distress button is kept pressed for at least 3 s. does a flashing light and an intermittent acoustic signal start immediately?	\boxtimes	
After the 3 s, is the transmission of the distress alert initiated and does the indication become steady?		
Does the distress alert initiation require at least two independent actions with lifting the protective lid or cover considered as the first action and pressing the distress button considered as the second independent action?		
Is it possible to select the nature of distress prior to initiating the transmission of a distress call? (The default nature of distress shall be the undesignated distress).		
Is the equipment capable of receiving and displaying any designated nature of distress, but shall not capable of transmitting a nature of distress of EPIRB (symbol 112)?		
Does initiation of a distress call automatically have priority over any other operation of the equipment?	\boxtimes	
Does the equipment automatically select channel 70 and the maximum transmitter power?	\boxtimes	
Is the distress call automatically transmitted five times in succession with no intervals between the individual calls so that bit synchronization between the transmitter and receiver of the call is maintained and does each call include the appropriate dot pattern?		
Following the distress call sequence, is a DSC expansion message giving enhanced position resolution according to ITU-R Recommendation M.821-1 transmitted?		
After the transmission of the distress call sequence, including the DSC expansion message, does the equipment automatically tune to channel 16 and select the maximum transmitter power?		
Section 4.5.4 – ALL SHIPS calls	YES	NO
Is it only possible to transmit ALL SHIPS URGENCY and ALL SHIPS SAFETY calls by means of deliberate actions, such as two levels of menu instructions?	\boxtimes	
After the transmission of the all ships call, does the equipment automatically tune to channel 16 and select the maximum transmitter power?		
Section 4.5.5 – Incoming calls	YES	NO
Is the DSC equipment provided with suitable facilities for converting incoming calls with relevant address content to visual form in plain language?	\boxtimes	
Are the contents of at least the last 10 received DSC calls stored in the RECEIVED CALL menu?	\boxtimes	
Is the radiotelephone capable of automatically switching to any channel identified in an incoming call?	\boxtimes	
In the case of incoming distress and urgency calls is the radiotelephone capable of automatically switching to channel 16 and automatically selecting the maximum transmitter power?		
Is the user provided with a visual indication that a channel change is requested?		
Section 4.5.6 – Other calls	YES	NO
If automatic response to polling or position reporting calls is included, is a means for disabling those responses provided?	\boxtimes	
Section 4.6 - Display	YES	NO
Is the equipment provided with facilities which show the functions currently available, prompts the operator if an incorrect operation is attempted, displays error messages and displays incoming and logged calls?		
Is the equipment provided with facilities for visual indication, and possible manual	\boxtimes	



correction of the user programmable information content of the call before the call is sent?		
Is there an indication that unread received (see 4.5.5) messages are present in memory?		
Is the display of geographic position and time readily available?	\boxtimes	
Is the equipment provided with facilities to display the last entered position (see 5.5)?	\boxtimes	
Is the DSC display capable of continuously displaying a complete enhanced position according to ITU-R M.821?		
For DSC displays located on the handset, is the display easily read from a distance of 40 cm?		
For DSC displays located on the transceiver unit, is the display easily read from 85 cm?		
Section 4.7 – Handset and loudspeaker	YES	NO
Is the equipment fitted with a telephone handset or microphone, and an integral loudspeaker and/or a socket for an external loudspeaker? (Where there are connections to external loudspeakers, these shall also relay acoustic alarms).	\boxtimes	
During transmission in simplex operation is the receiver output muted?	\boxtimes	
Section 4.8 – Safety precautions	YES	NO
Have measures been taken to protect the equipment against the effects of excessive current or excessive voltage?	\boxtimes	
Have measures been taken to prevent any damage that might arise from an accidental reversal of polarity of the electrical power source?	\boxtimes	
Are means provided for earthing exposed metallic parts of the equipment?	\boxtimes	
Are the components and wiring in which the a.c. or d.c. voltage (other than radio-frequency voltage), produce, singly or in combination, peak voltages in excess of 50 V, protected against any accidental access and automatically isolated from all electrical power sources if the protective covers are removed? Or alternatively, is the equipment constructed in such a way as to prevent access to components operating at such voltages unless an appropriate tool is used such as a nutspanner or screwdriver?		
Are conspicuous warning labels affixed both inside the equipment and on the protective covers?		
Is protection in place to prevent damage to the equipment when the antenna terminals are placed on open circuit or short circuit for the period permitted by the push-to-talk switch in clause 4.4?		
In order to provide protection against damage due to the build up of static voltages at the antenna terminals, is there a d.c. path from the antenna terminals to chassis not exceeding 100 k Ω ?		
Is programmable information stored in non-volatile memory devices?	\boxtimes	
Section 4.9 - Labelling	YES	NO
Are all controls, instruments, indicators and terminals clearly labelled?	\boxtimes	
Are details of the power supply from which the equipment is intended to operate clearly indicated on the equipment?	\boxtimes	
Is the compass safe distance stated on the equipment or in the user document as described in IEC60945?	\boxtimes	
Section 4.10 – Warm up	YES	NO
After being switched on, is the equipment operational within 5 s?	\boxtimes	
Section 5 – Technical requirements	YES	NO
Section 5.1 – Switching time	YES	NO
Is the channel switching arrangement such that the time necessary to manually change over from using one of the channels to using any other channel not greater than 5 s?		
Is the time necessary to change over from transmission to reception or vice versa,	\boxtimes	



Section 5.2 – Class of emission and modulation characteristics	YES	NO
Does the equipment use phase modulation, G3E (frequency modulation with pre-	\boxtimes	
emphasis of 6 dB/octave) for speech, and G2B for DSC signalling?		
Is the equipment designed to operate with a channel separation of 25 kHz (Other channel spacings are allowed if permitted by appropriate national Administrations (see ITU-R Recommendation M.1084-4)?		
Section 5.3 – Facilities for DSC transmission and reception	YES	NO
Section 5.3.1 - General	YES	NO
Does the equipment include the necessary facilities for coding and transmission of DSC on channel 70 and for decoding and conversion of the information content of received DSC to visual form in plain language?		
Is the watchkeeping facility part of the DSC equipment designed for continuous DSC monitoring on channel 70 but need not operate when the transmitter is in use?		
Section 5.3.2 - Decoding	YES	NO
Is the DSC equipment so designed that in the decoding process use is made of the phasing sequence, of parity bits for error detection, time diversity repetitions and error check characters in the received call as specified in ITU-R Recommendation M.493-13?		
Section 5.3.3 – Free channel transmission	YES	NO
Is the DSC equipment provided with facilities which, except for distress calls, automatically delay the transmission of DSC until the calling channel 70 is free?		
Section 5.3.4 – Automatic acknowledgement	YES	NO
Confirm that the equipment is not provided with facilities for automatic transmission of acknowledgements to routine calls.	\boxtimes	
Section 5.3.5 – Automatic re-transmission of distress calls	YES	NO
Where no DSC distress acknowledgement is received, does the equipment automatically retransmit the distress call attempt on channel 70 after a random delay of between 3,5 min and 4,5 min from the beginning of the previous call?		
After the transmission of each distress call attempt does the equipment automatically re-tune to channel 16 and select the maximum transmitter power?		
Is this sequence continued until a DSC distress acknowledgement has been received, or until the automatic transmission of the distress call is discontinued manually?		
Confirm that this manual operation shall not interrupt the transmission of any distress call attempt in progress?	\boxtimes	
Is a means provided for transmitting the distress call attempt again by manual intervention at any time?	\boxtimes	
Is a visual indication provided that a distress alert is in automatic retransmit mode?		
Is an audible indication provided during retransmission?	\boxtimes	
Section 5.4 – Ships identity – MMSI and Group MMSI	YES	NO
Is the equipment capable of storing permanently the ship's 9-digit Maritime Mobile Service Identity (MMSI) number which shall be inserted automatically in the call?		
Is the 10 th digit added automatically and set to zero?	\boxtimes	
Confirm it is not possible to transmit a DSC call until the ship's MMSI has been stored?		
After the MMSI has been stored, confirm that it is not possible to change the identity number using any combination of operator controls?	\boxtimes	
Is the ship's MMSI readily accessible to the operator, either displayed at equipment power-up, or by a simple action of the operator?	\boxtimes	
Are facilities provided to permit the operator to program and store a	\boxtimes	



Group MMSI number to enable the equipment to recognize calls addressed to both the ship's MMSI and the Group MMSI.		
Do these facilities limit the number of operator programmable digits to 8 and is the leading zero automatically inserted by the equipment?	\boxtimes	
Section 5.5 – Entry of position information	YES	NO
Is a means provided for manual entry of the geographical position information and of the time when this position information was valid?		
In addition, are facilities for automatic entry and encoding of the geographical position and time information provided?	\boxtimes	
If such facilities are provided externally do they conform to IEC 61162-1?	\boxtimes	
As a minimum, are the sentences GLL, GGA, RMC and GNS recognized?	\boxtimes	
Confirm that no connection of, or failure within, any connected equipment disables the DSC equipment.		
When no position information has been entered either manually or due to the failure of any automatic system or the absence of a valid external data stream (IEC 61162-1), confirm that the operator is aurally and visually prompted for a manual input of position and also confirm that this prompt is repeated every 4 h.		
If the position information has not been updated for 23,5 h, does the position default to the repeated digit "9" as specified in ITU-R Recommendation M.493-10?		
Section 5.6 – Alarm circuits for incoming calls	YES	NO
Section 5.6.1 – Distress and urgency	YES	NO
Is the equipment provided with a specific acoustic alarm and a visual indication, activated automatically when a call with format specifier distress or category distress or urgency has been received?		
Confirm that it is not possible to disable these alarm circuits?	\boxtimes	
Is the alarm for distress and urgency calls distinguishable from the tone for safety and routine calls?	\boxtimes	
Confirm that the alarm is not activated where duplicate distress relay calls are received within 1 h? A duplicate distress relay call is one having format specifier all ships or geographic area that contains identical message information to that of the initiating distress alert, and an identical distress MMSI.		
Section 5.6.2 – Other categories	YES	NO
Is the equipment provided with an acoustic alarm and a visual indication, activated automatically on receipt of calls of categories other than distress and urgency?		
Confirm that it is not possible to disable the acoustic alarm circuit?	\boxtimes	
Section 5.6.3 – Cancellation of alarms	YES	NO
Is a means of manual cancellation of alarms provided?	\boxtimes	
In the event that an alarm is not cancelled manually, does automatic cancellation take place after 2 min?	\boxtimes	
Section 5.6.4 – Acoustic alarm power	YES	NO
Is the acoustic alarm initially of a power that is clearly distinguishable, but does not interfere with radiotelephone communications?		
If not manually cancelled within 10 s, does the power rise to a level of at least 80 dB(A) at a distance of 1 m from the equipment before automatic Cancellation?		
Section 5.7 – Multiple watch facilities	YES	NO
Section 5.7.1 – Confirm that the VHF radiotelephone equipment may be provided with multiple watch facilities on traffic channels but operation using DSC shall always take precedence.		



5.7.2 – Confirm that equipment having multiple watch facilities shall as a minimum comply with the following:	YES	NO
Does the equipment include a provision for the automatic scanning of a priority channel and one additional channel (facilities for the automatic sequential change of the additional channel may be provided)?		
the priority channel is that channel which will be sampled even if there is a signal on the additional channel and on which the receiver will lock during the time a signal is detected		
the additional channel is that channel which will be monitored during the periods the equipment is not sampling or receiving signals on the priority channel;		
Is provision included to switch the scanning facility on and off by means of a manually operated control?	\boxtimes	
In addition, is it ensured that the receiver remains on the same channel as the transmitter for the entire duration of any communication, for example the scanning facility may be switched off automatically when the handset is off its hook?		
Is selection of the additional channel and selection, if provided, of the priority channel possible at the operating position of the receiver or transceiver and if selection of the priority channel is not provided, is the priority channel, channel 16?		
when the scanning facility is in operation, is the channel number of both channels on which the equipment is operating indicated?		
in a transceiver, confirm that transmission is not possible when the scanning facility is operating and that when the scanning facility is switched off, both transmitter and receiver is tuned automatically to the selected additional channel		
Is a transceiver provided with a single manual control (e.g. push- button) in order to switch the equipment quickly for operation on the priority channel?		
at the operating position of a transceiver, is the selected additional channel clearly indicated as being the operational channel of the equipment?		
5.7.3 – Scanning characteristics	YES	NO
When the scanning facility is switched on, confirm that the priority channel is sampled with a sampling period of not more than 2 s.	\boxtimes	
If a signal is detected on the priority channel does the receiver remain on this channel for the duration of that signal?	\boxtimes	
If a signal is detected on the additional channel, does the sampling of the priority channel continue, thus interrupting the reception on the channel for periods as short as possible and not greater than 150 ms?		
Does the design of the receiver provide for its proper functioning during the period the priority channel is sampled since the receiving conditions on the priority channel may differ from those on the additional channel?		
In the absence of a signal on the priority channel, and, during reception of a signal on the additional channel, is the duration of each listening period on this channel at least 850 ms?		
Is a means provided to indicate the channel on which a signal is being received?		
5.8 – Built-in test	YES	NO
Is a built-in test facility for the DSC processor provided?		
, , , , , , , , , , , , , , , , , , , ,	_	. –



Name of Manufacturer:	Raymarine UK Ltd
Name:	Andrew Little
Signature:	Andrew Little
Date:	19 th April 2013