

## Marine HF/SSB radio with DSC

### Developments at Royal Hong Kong Yacht Club

This is a compilation of information (April 2014) from Simon Boyde in HK. Simon is an owner of a business that sells marine electronic equipment (including being an ICOM dealer), is a member and senior Race Officer and communication trainer for RHKYC, and has been a key part of their process to determine the Special Regulations used for their yachting environment – with reference to available communication and search and rescue resources – and in particular, the communication equipment for their events.

Anything displayed in Blue is my input. Everything in black is from Simon.

#### Some useful information about the M802(DSC) and M801(E):

The M802 can only transmit at full range when supplied with 13.2V - ie a charger or alternator running. Not a likely contingency when your boat is sinking. The M801E has a DC-DC conversion device inside it so can transmit at full power on an input voltage of (as low as) 11.5V. This explains the advised fuse rating for the two radios, 60A for the M801E, 30A for the M802.

Regarding the DC boost device - well hidden, and not advertised because it is NOT a spike protector, just a low voltage booster.

The M802 is missing the self test function which is present on the M801E.

The M802 has holes cut in the side designed to suck in salt air and salt water, the M801E is a sealed box which while not waterproof in operation, because the connectors are not waterproof, does permit drying of connectors so transmissions can resume.

I talked to an ICOM guy at METS a few years ago (to obtain this information) and asked him why the M802 was built, and the answer was that it was designed as a cut price radio for the US fishing fleet and was never designed for yacht usage.

If you leave the radio ( M801E or M802DSC ) in voice mode you will not receive any routine (ie: individual or group) DSC alerts (via the General receiver). Not very well highlighted in the manual, but obvious when you think about it.

The GMDSS version – ie: M801(GMDSS) - has all sorts of other stuff in it - extra control boards etc - as it is a class recognised Class A MD/HF transceiver. And very low volumes as Sailor dominate that market, hence cost.

**Some information about why it is essential for private yacht (sail or engine powered) owners to fit a DSC capable radio – VHF and/or HF/SSB - and to maintain a 24/7 watch for DSC calls, when racing, cruising, in a rally, fishing, swimming, family boating or just relaxing in a favourite anchorage:**

All equipment installed must be installed properly and function properly (does not function if it is off). (General Requirement in the Special Regulations of the ISAF, Yachting Australia and others.)

You can't make rule 1.1 ( ie: the first rule in the Racing Rules of Sailing – Helping those in Danger) work if your radio is off.

You break SOLAS regulation 33 if your radio is off. There are several SOLAS rules which apply to non convention vessels and this is one of them. The pat answer of writing in the log book that the radio was off in order to conserve power is unlikely to be supported by a coroner's inquiry. (Or the legal case initiated by insurance company accountants and lawyers looking for a legal justification to take everything you own to offset the company's insurance payout on an accident or life policy; and to justify their salaries.)

SOLAS Convention Chapter V Regulation 33 (replaces old Regulation 10) states:-

“The master of a ship at sea which is in a position to be able to provide assistance, on receiving a signal from any source that persons are in distress at sea, is bound to proceed with all speed to their assistance, if possible informing them or the SAR service that the ship is doing so. If the ship receiving the distress alert is unable or, in the special circumstances of the case, considers it unreasonable or unnecessary to proceed to their assistance, the master must enter in the log-book the reason for failing to proceed to the assistance of the persons in distress and, taking into account the recommendations of the Organization++, inform the appropriate SAR service accordingly.”

### **Regarding Satphones on-board:**

We now would like Sat C on all boats, but would state the minimum performance of other sat phones as well. This is for shore control, and this may change if we get our own (HF/SSB radio with DSC) coast station up.

### **RHKYC has been demonstrating considerable leadership in requiring DSC capable HF/SSB and VHF radios to be used in their events:**

You may be interested to see the RHKYC prescriptions for offshore races (we run more Cat 1 races than we think any other Club in the world) which you can find under the China Sea Race Section, scrutineering documents (<http://www.rhkyc.org.hk/rcsrscrutineering.aspx>), on the RHKYC website. The reason why we have so much extra stuff is that pretty much 90% of the world's "offshore" races are in fact coastal, whereas ours get out of VHF coverage on the first night! (Note: getting beyond VHF range is the critical reason for requiring HF/SSB radio communication in an event.)

Requiring HF/SSB radio comms (with DSC) is also a logical outcome based upon Yachting Australia's Special Regulations Rule 3.25.8, applicable to all race categories – 1 to 7: “A race committee shall arrange for constant radio monitoring of the nominated race frequency/ies while any race is in progress and for a reasonable period before and after the race. Details shall be provided in the sailing instructions.” Once beyond VHF shore station range, the only option to guarantee constant monitoring of radio communication from participating yachts is to use HF/SSB communication equipment. The (quiet) DSC watch feature of a HF/SSB radio does the job of constant and reliable monitoring for DSC calls (individual, group or distress) for the event officials standing-by at the event's shore radio. No need for officials to struggle with listening to open voice channels.

As the RHKYC presently organises the only two RORC races (China Sea Race and San Fernando Race) operating beyond the range of coastal VHF services, we thereby set the default standard for offshore communications via HF/SSB radio in such events. Perhaps we are uniquely placed in this regard as we can also do long coastal races from HK which are also beyond VHF radio range and therefore also require HF/SSB radio communications.

Short summary, after five years of courses, discussions and talking about we have set a standard for

communications equipment as of early 2014 and our summary is as follows:

MF/HF DSC mandatory from January 2015. DSC watch required 24/7

VHF DSC mandatory from January 2015. DSC watch required 24/7

Satellite device with permanently installed ADU mandatory now. Sat C recommended. Required to be switched on during the race

Portable Sat phone to carry to a liferaft mandatory now.

Handheld VHF (x2) mandatory now

Handheld VHF with DSC mandatory from January 1st 2015

### **April 2016 Note:**

As part of the process of creating the **Worldwide Group Call Network** (see my website at: <http://www.bruneibay.net/bbradio/bbrNAVAREAGroupIDs.htm> ) I wrote a number of documents. Simon has taken some of these to distribute to RHKYC members. Significantly, he made some amendments based on his experience running a business supplying marine electronics to small and big vessels (eg, yachts, motor launches, fishing trawlers, ferries, commercial ships etc); including satellite based comms equipment (eg satphones) and marine radio equipment. He now sells only selected satellite based marine comms equipment and only as a backup to properly installed MF/HF DSC radios because even though he could make a lot of money on the sales and subsequent call time commissions, the reality of their functionality along with complaints from customers, has led him to alter what he recommends and sells. Therefore, for his RHKYC document, he corrected my statement in my original document, that a satphone can be a useful but expensive:

"backup for a proper marine radio if the boat's power system is down the radio is damaged or you are entering a liferaft."

to be:

"but it is no replacement for a properly installed marine radio, and is unlikely to work in extreme conditions."

Simon also recently sent me a message saying based on his experience - selling comms equipment, responding to customer complaints, and running comms and related safety for RHKYC events - "the longest he has known a handheld satphone to remain functional in a liferaft is eight minutes." They recommend and sell hundreds of ICOM M92D handheld radios instead.

*Note: This documentation was reviewed by Simon and confirmed OK to distribute in the hope it will help other event organisers to plan appropriate and functional communication strategies. For further information email: [simon@stormforcemarine.com](mailto:simon@stormforcemarine.com)*

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