REALLY TESTING YOUR DSC DISTRESS CAPABILITY WITHOUT BROADCASTING A DISTRESS CALL

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Bring a secondary VHF radio aboard your boat. It could be your handheld VHF, or an older non-DSC capable VHF you replaced with your newer DSC capable radio, or a buddy's handheld that you borrow, etc. The only requirements for the secondary are:

1) It can tune to VHF channel 70, the DSC channel, and
2) If it is not itself DSC capable, or if it has the same MMSI as your primary VHF it needs to have an audio output jack.

Overview: You transmit a real DSC Red-Button Pressed Distress call on a VHF radio disconnected from its antenna. Only you receive that call on a second, adjacent VHF radio. You read the distress call data directly on that second VHF if it is DSC capable. Otherwise you pass the call data from it as an audio signal to a computer running a freeware DSC Decoding program. That program then shows you the data content of your distress call.

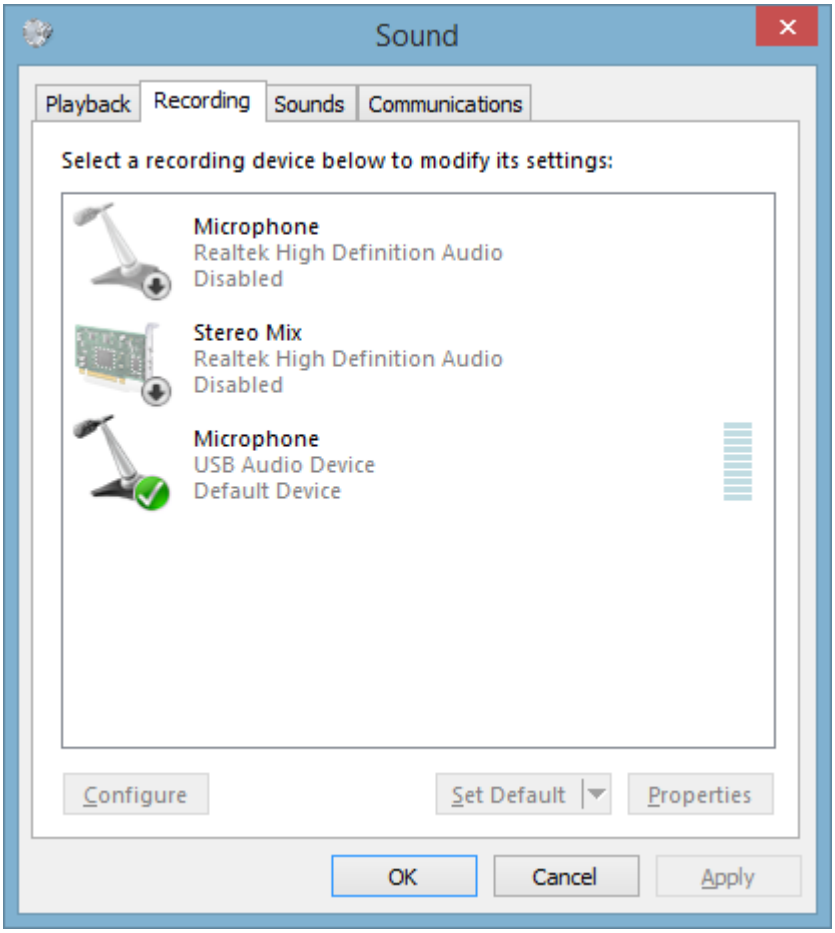
******CAUTION:*** Prolonged transmitting on a VHF radio with no antenna risks transmitter circuit damage. Minimize this risk by only occasionally and briefly clicking the microphone PTT transmit button or allowing the programmed automatic DSC distress signal [approx. ½ sec duration] to be transmitted during this procedure. ********

Detailed Procedure: Disconnect the antenna coax cable from your boat's fixed primary VHF radio and move the PL-259 coax connector well away from the radio. On that primary radio transmit on channels 69 and 71 and verify on the secondary radio that you receive those transmissions when in close proximity to the primary. Then move the secondary radio well away from the primary radio or off the boat and verify you cannot receive the primary's antenna-less transmissions. At this point you have ensured when you transmit a DSC Distress transmission on the primary radio without its antenna ***only*** your nearby secondary VHF will hear that transmission.

If the secondary radio is DSC capable and has its own MMSI just bring it close to the primary, tune it to channel 70, verify the primary radio has a GPS position fix and a programmed MMSI [write it down], then transmit a genuine ***red-button distress call*** on your primary VHF. Once you see the secondary has received it (and is likely alarming), cancel the call on your primary radio. Read the distress call info on the secondary radio. If it includes the correct MMSI, UTC time of the call, the correct lat/Lon of your boat, and the correct "Nature of Distress", like sinking, piracy, or man overboard then Test Complete – Successfully!

If the secondary radio is not DSC capable or has the same MMSI as your primary VHF that's no problem but a bit more work and a computer are needed. The computer needs to be: a Pentium level or above PC running WinXP, Vista, Win7, Win8, Win8.1, or Win10. The PC needs to able to accept a microphone or "line in" audio analog signal input.

Most desktop and some laptop PCs have a sound card with a typically pink external mic/line input jack, 3.5 mm. For those which only have an audio output jack or a single 4-segment 3.5 mm jack [like ASUS laptops] that professes to be both for audio out and line or mic in forget using those jacks. Instead, buy an inexpensive USB external sound adapter like this $7.49 one: https://www.amazon.com/gp/product/B00IRVQ0F8/ref=ppx_yo_dt_b_asin_title_o05_s00?ie=UTF8&psc=1
So, tune your secondary VHF to a WX channel, connect its audio output to the PC Mic/line input and verify the radio WX output is playing over the PC speakers. You may need to fiddle with the windows audio recording devices and make the external mic input is the default device via Control Panel/ Sound/ Recording:



To validate all this it's good to now actually record, then playback the Secondary VHF's audio input to the PC. Win 8/8.1 has a "Sound Recorder" built-in program/app. Or, online, the freeware program RecordPad works well for this:
https://www.nch.com.au/recordpad/index.html

The task is simply to verify your external line audio input will be used to record in Windows-run programs.

Given success with all that, all you need to complete this test is DSC Decoding software on your PC. Go to the DSC Decoder website at http://www.coaa.co.uk/dscdecoder.htm and download their outstanding program. It's free for trial for 21 days, then about $28 USD for a license past that trial. That's why I've made this the last step. There is no manual to operate the program but its help is pretty good.

Just make sure you've chosen in DSCDecoder the DSC VHF Channel 70 mode, & press the green Start button so the program begins monitoring the audio input from your secondary radio. Tune the secondary VHF again to your WX station briefly and see the raw signal modulate in the DSCDecoder top signal graph.

Return the secondary VHF is to Channel 70. Bring it close to the primary, verify the primary radio has a GPS position fix and a programmed MMSI [write it down], then transmit a genuine ***red-button distress call*** on your primary VHF. Once you see the secondary has received it cancel the distress call on your primary radio.

In the DSCDecoder window click on the "Messages" mode. There you should see several lines of information from the distress call. If it includes the correct MMSI, UTC time of the call, the correct Lat/Lon of your boat, and the correct "Nature of Distress", like sinking, piracy, or man overboard then Test is Complete – Successfully!

You're Welcome!

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