

22nd December 2017

To:

Mark Lund
Intercon Marine Inc.
825 Admirals Road
Victoria, BC, V9A 2P1

Project: CCGS Sir Wilfrid Laurier DSP Inspection

I was onboard December 14th 2017, to witness the testing and review the installation of the I-Gard DSP ground fault system install by Exell Power Services.

The following was reviewed and witnessed by myself,

- Programming of the I-Gard display module to ensure that each feeder trip priority was set per the specification.
- Testing of the artificial neutral to ensure the correct voltages were present at the transformer.
- Testing of the neutral grounding resistor to ensure the resistance matches the nameplate value.
- Injection of secondary voltage into the DDR voltage sensor to simulate ground fault.
- Operation of the ship handheld radios in the control room in proximity of the I-Gard mainframe.

All the above tests apart from the use of the radios were satisfactory, the radios caused interference with the ground fault system, when operated the display shows ground fault current which causes multiple DSP feeder modules to trip.

The wiring was modified to twisted pair per I-Gard's recommended practices and then to shielded cable to mitigate the problem, however it was noted that a feeder module that isn't wired was tripping. Therefore, it was determined that the feeder modules itself was being affected.

It was noted that the installation is not typical due to the DSP being installed without an enclosure in an open area, also the location inside the control room around multiple sources of interference is not ideal. It was proposed that the DSP should be installed in a metal enclosure to shield the equipment from interference, due the short lead times an RF shielded box would not be available in time. Therefore, a metal box was fabricated to house the unit.

I returned onboard December 18th, 2017 to re-witness the testing with the equipment installed within the metal enclosure. When testing with the handheld radios it was noted that the unit was partially shielded, and it would only trip when the radios were very close to the equipment. We however recommended that the equipment is not put into services until the chance of nuisance tripping is eliminated. Therefore, it is recommended that an RF shielded box is ordered and installed.

Exell Power Services contacted I-Gard to discuss the issues encountered, they could not advise on an RF shielded box that would be suitable, we therefore recommend consulting an EMI specialist who can advise on the required enclosure.

As the equipment will have to be removed and reinstalled it was decided not to proceed with the remaining tests at this stage. It is recommended that the RF shielded box and completion of the commissioning is done in March when the ship returns to Victoria.

We trust this is satisfactory, if you require further information. Please contact us at (604) 354-1360.

Yours truly,



Jonathan Weaver, P.Eng.
Electrical Engineer
Sovereign Engineering Ltd.



22-DEC-2017

Cc. Ron Klimmer, Exell Power Services Ltd.