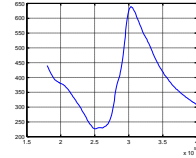
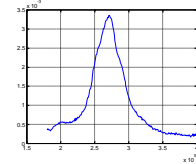
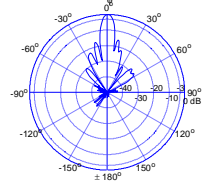


Acoustic specification of the DL Sensors

21.6.2022

DL850S – SKIPPER version

The DL850 sensor has three elements spaced at 120° at an angle 30 degrees from the vertical-

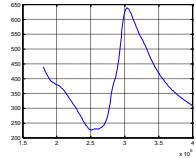
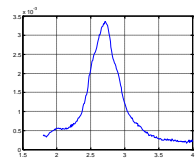
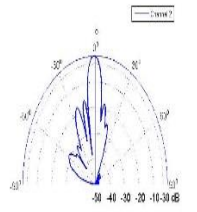
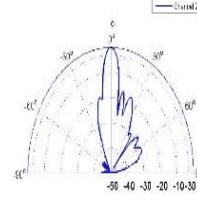
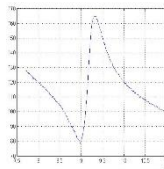
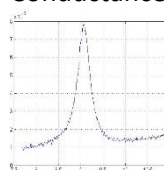
Resonant Frequency and Impedance	Housing type	Band width, %	Beam width 3db, deg	Transmit/Receive Response, dB// uPa/ Volt @ 1m	Impedance plot near resonant frequency or Impedance and Conductance plot for Doppler sensors	Beam pattern plot
270 kHz Z=190-210 Ohm;	SKIPPER DL-2 housing	12-14	270kHz 8-9 deg;	270kHz TVR= 168-169 (SFU water tank; measured on 3 element sensor)	<p>Impedance</p>  <p>Conductance</p> 	<p>270 kHz</p>  <p>(SFU water tank; measured on 3 element sensor)</p>

DL2S

The DL2S sensor has a transducer pointing ahead and to starboard (0° and 90°). Tilted at 30 degrees from the vertical

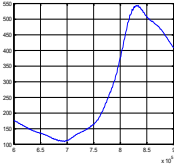
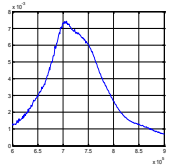
The DL2 also uses a second frequency in the range of 850kHz-950kHz

Each element has the following specification

Resonant Frequency and Impedance	Housing type	Band width, %	Beam width 3db, deg	Transmit/Receive Response, dB// $\mu\text{Pa}/\text{Volt}$ @ 1m	Impedance plot near resonant frequency or Impedance and Conductance plot for Doppler sensors	Beam pattern plot
<p>270 kHz</p> <p>Z=160-210 Ohm;</p>	<p>SKIPPER DL-2</p>	<p>12-14</p>	<p>270kHz</p> <p>8-9 deg;</p>	<p>270kHz</p> <p>TVR= 168-169 dB//$\mu\text{Pa}/\text{V}$ @1meter</p> <p>(Skipper water tank; measured on 2 element sensor)</p>	<p>Impedance</p>  <p>Conductance</p> 	<p>Ch1 – 270kHz</p>  <p>Ch2 – 270kHz</p> 
<p>900kHz</p> <p>Z=75-90 Ohm</p>		<p>12-14</p>	<p>2.3 - 3.0 deg</p>	<p>900kHz</p> <p>TVR= 171-172 dB//$\mu\text{Pa}/\text{V}$ @1meter</p> <p>(Skipper water tank; measured on 2 element sensor)</p>	<p>Impedance</p>  <p>Conductance</p> 	<p>SFU water tank; measured on 2 element sensor, July 30, 2015</p>

DL1S

The DL1 sensor has 2 beams fwd and aft (0° and 180°) each tilted at 30 degrees from the vertical.

Resonant Frequency and Impedance	Housing type	Band width, %	Beam width 3db, Deg	Transmit/Receive Response, dB// uPa/ Volt @ 1m	Impedance plot near resonant frequency or Impedance and Conductance plot for Doppler sensors	Beam pattern plot
710kHz Z=100 Ohm	SKIPPER DL-1 housing	12-14	710kHz 7-8 deg;	715 kHz TVR= 171.2-171.4 dB//μPa/V @1meter (SKIPPER water tank; measured on 2 element sensor)	<p>Impedance</p>  <p>Conductance</p> 	NA