NOAA Ship THOMAS JEFFERSON Procedure Document

Procedure:

How and where to enter your patch values

Creation Date:

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03/22/2022

Software used:

SIS, Caris HIPS&SIPS, POSview, Charlene

Procedure Number:

TBD

Approved:

TBD

1. Overview and Scope

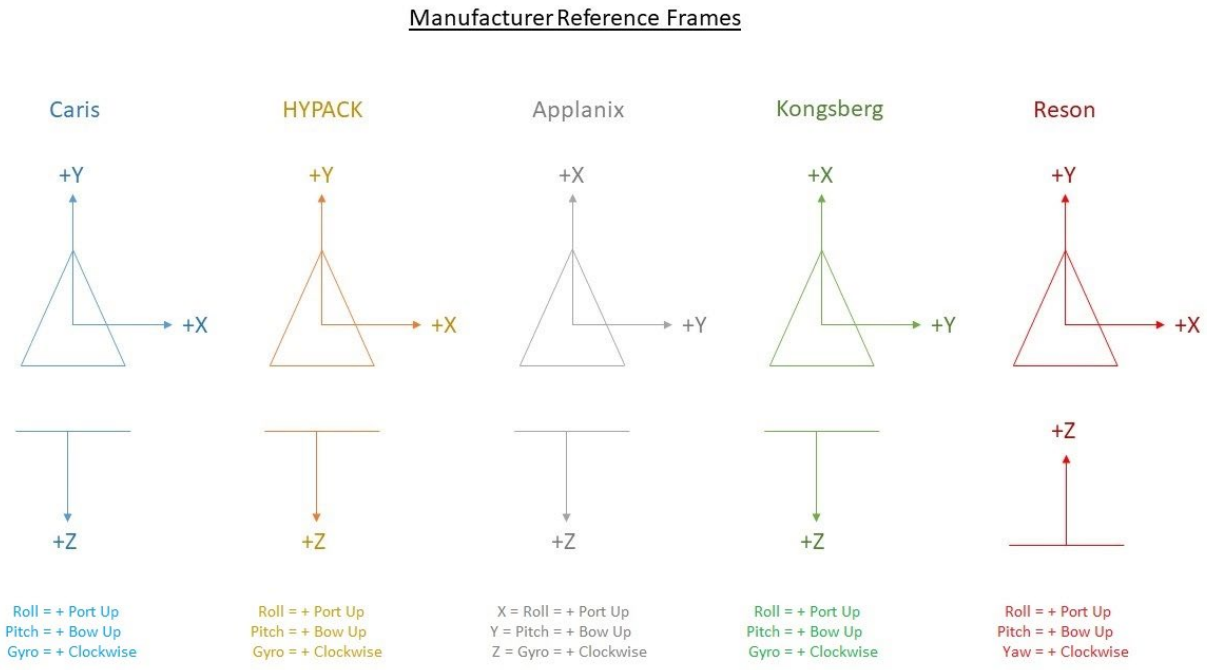
A guide on how to enter and where to enter your patch test values.

2. Procedure Inputs and Outputs

Inputs:

Outputs:

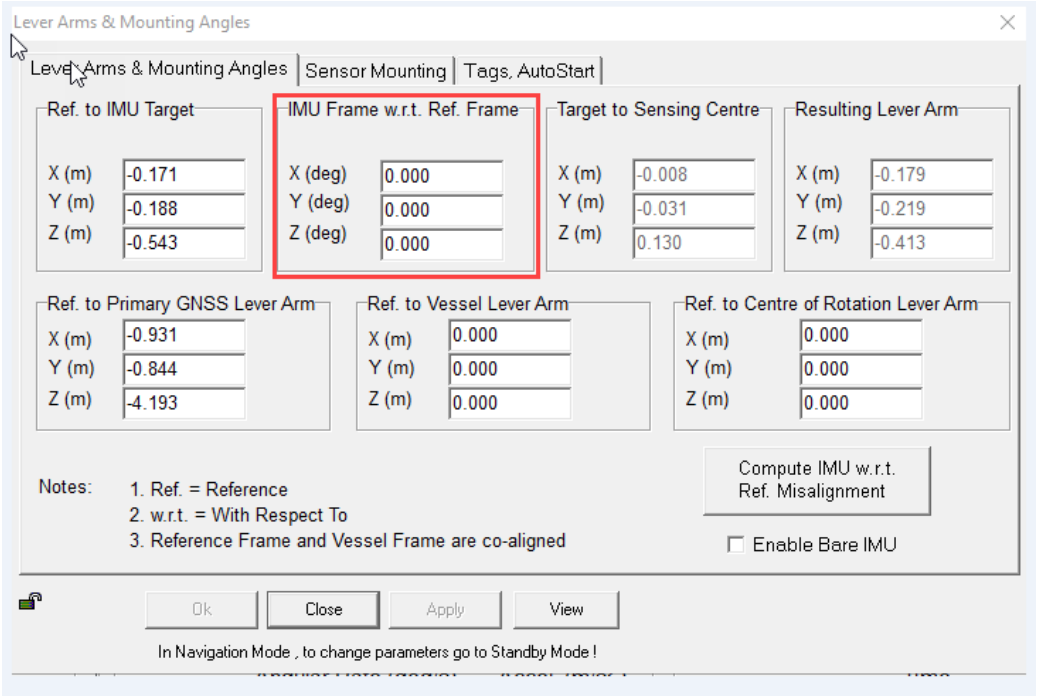
3. Procedure



Your patch test, GAMS and Primary lever arm calibrations must be complete. Be aware of Manufacturer-set Reference Frames. These Reference Frames cannot be changed by you.

Launch:

Launch Patch test values on TJ are entered into POSView in “Settings” > “Installation” > “Lever Arms & Mounting Angles” within the IMU Frame w.r.t Ref. Frame section (See image below).



When you conduct your patch test in Caris you are rotating the TX to align with the IMU. When applying patch test values in POSView you need to reverse the signs of the values from Caris in order to then align the IMU with the TX of the sonar.

Open up the spreadsheet for the vessel that you are applying patch test values for. The values from the test should look something similar to the image below.

PATCH TEST RESULTS/CORRECTORS

Evaluators	Latency Lines Used	Latency (sec)	Pitch Lines Used	Pitch (deg)	Roll Lines Used	Roll (deg)	Yaw Lines Used	Yaw (deg)
Arboleda	0010&0011		0002&0007	-0.2500	0002&0007	0.1500	0002&0008	-0.5300
Brown	0010&0011		0002&0007	-0.2000	0002&0007	0.1000	0002&0008	-0.4000
Tigges	0010&0011		0002&0007	-0.2300	0002&0007	0.0900	0002&0008	-0.2500
Cziraki	0010&0011		0002&0007	-0.3000	0002&0007	0.1000	0002&0008	-0.2000
Hiteshew	0010&0011		0002&0007	-0.3100	0002&0007	0.1000	0002&0008	-0.1400
Averages		#DIV/0!		-0.26		0.21		-0.30
Standard Deviation		#DIV/0!		0.04		0.03		0.15
FINAL VALUES		#DIV/0!		-0.26		0.21		-0.30
Final Values based on								
Resulting HVF File Name								

MRU Align StdDev gyro	0.15	Value from standard deviation of Heading offset values
MRU Align StdDev Roll/Pitch	0.03	Value from averaged standard deviations of pitch and roll offset values

Using the image at the top of this SOP for manufacturer reference frames, we know that for Applanix that X = Roll, Y = Pitch, and Z = Gyro (Yaw). Using the image of our patch test values above, we know that the values we

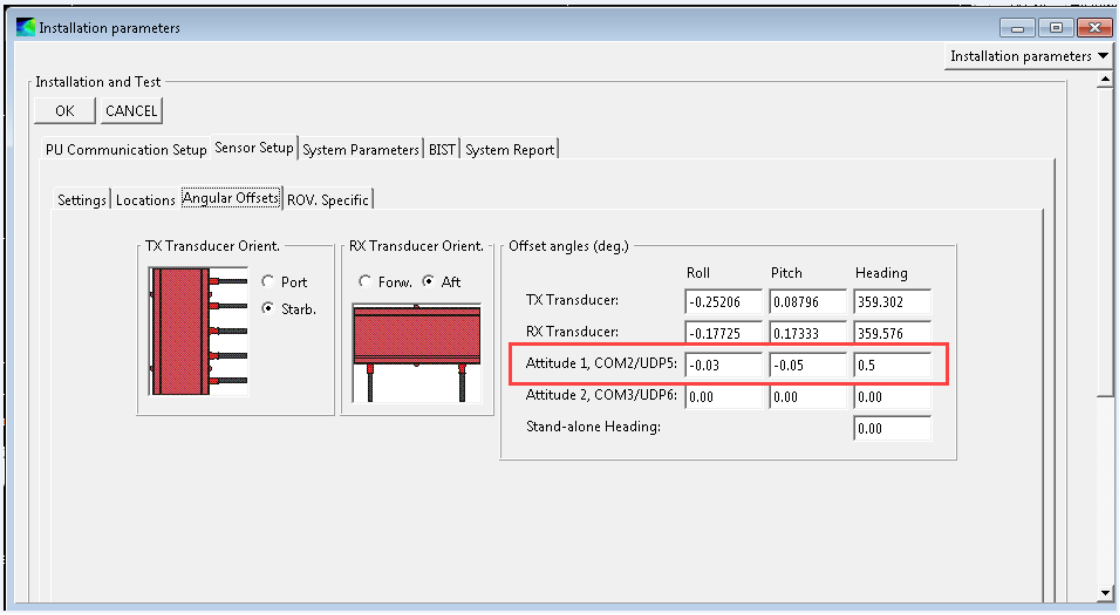
need to apply in POSView are X = - 0.21, Y = 0.26, and Z = 0.30 (remember to reverse the signs!). This will align the IMU with the TX in this example.

With your values now entered into POS, Click the monitor button in order to disconnect from the system and save the values. If you do not save, your values will revert when the system is restarted.

We now need to conduct another Primary Lever Arm Calibration because in applying the patch test values in POS you are changing the starting orientation of the primary antenna lever arm. Reference SOP "K:\Standard_Operating_Procedures\05_HSRR\2022 - Primary Antenna Lever Arm Calibration.docx" to conduct a Primary Lever Arm Calibration.

Ship:

Ship Patch test values on TJ are entered into SIS in “View” > “Tear off” > “Installation parameters” > “Sensor Setup” > “Angular Offsets” within the “Attitude 1” cells (See image below).



The patch test values from Caris are directly entered into their respective cells under “Attitude 1” in SIS. This is because you are aligning the TX with the IMU as you were when you conducted the patch in Caris. There is no need to conduct another Primary Lever Arm Calibration because you are not changing the IMU orientation.

4. References

"K:\Standard_Operating_Procedures\05_HSRR\2022 - Primary Antenna Lever Arm Calibration.docx"