

Specimen #: L1-04

Measurements:

SHM Technique	Measurement	Interval	Time of measure	Measuring rate
AE	Yes	Continuous	-	-
FBG	Yes	500	Continuous during Quasi-static	100 Hz
ODiSi B	Yes	500	Valley and peak	
Guided waves	Yes	5000	At 0 mm	
DIC	Yes	500	Continuous during quasi-static	1 image / 2 sec
Monitor camera	Yes	500	Peak only	

Applied loads:

# of cycles	Min load	Max load	Frequency	Measurement interval	Comments
Impact	10 Joules				Location on skin near right side as seen from stiffener. 2.5 cm from right edge x 8 cm from bottom
280,098	-6.5 kN	-65 kN	2 Hz	500 / 5000 cycles with hold of 1 sec	PZT sensor 7 disbonded PZT sensor 8 broken (noted around 75,000 cycles)

- 1 manual PZT recording performed after specimen failure, but considering sensor failure, these measurements might not be useful.
- After 75,000 cycles it was noted that PZT sensor 7 has disbonded and PZT sensor 8 has failed.

Acoustic emission:

Wave-velocity longitudinal (along stiffener): 5797.10 m/s

Wave-velocity lateral (through stiffener): 4328.22 m/s

Sensor #	X-location [mm]	Y-location [mm]
1	145	190
2	145	20
3	20	50
4	20	220

*as seen from skin-side (from bottom left)

ODiSi-B location:

Sensor #	Location	Sensor start [mm]	Sensor end [mm]	Start location	End location
1	Left foot	4070	4300	Bottom	Top
2	Right foot	1170	1360	Top	Bottom

*location as seen from stiffener side

FBG location:

Channel 1: Left foot from top

Channel 2: Right foot from top

Fatigue machine measurements:

10 V = 100 kN

10 V = 7,5 mm

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	Skin length		Tab length	
	Left [mm]	Right [mm]	Top [mm]	Bottom [mm]
Without tabs	242	241	Left: 29	Left: 29
With tabs	300	300	Right: 29	Right: 30

Skin width		
Top [mm]	Middle [mm]	Bottom [mm]
166	166	166

Skin thickness					
Top-left [mm]	Middle-left [mm]	Bottom-left [mm]	Top-right [mm]	Middle-right [mm]	Bottom-right [mm]
1.84	1.85	1.84	1.78	1.84	1.82

Stiffener thickness			Stiffener length	
Top [mm]	Middle [mm]	Bottom [mm]	Left [mm]	Right [mm]
2.36	2.39	2.36	242	242