



Harwin Test Report Summary

HT02601

**Environmental Testing of SMT Shield Clips
(S1411, S1711 and S1721)**

1. Introduction.

1.1. Description and Purpose.

The purpose of this test program is to confirm the vibration, shock and bump performance of SMT Shield Clips; S1411-46R, S1711-46R and S1721-46R. Four shield clips were used per shield can, of the following dimensions.

Shield Clip	S1411-46R	S1711-46R	S1721-46R
Can Material Thickness	0.85mm	0.30mm	0.18mm
External Dimensions	(W)20.85 x (L)25.85 x (D)4.15mm	(W)20.30 x (L)25.30 x (D)4.15mm	(W)20.18 x (L)25.18 x (D)4.15mm

1.2. Conclusion.

S1411-46R – under the specified conditions, the vibration, shock and bump requirements were met. The shield can remained clipped to the board throughout all tests carried out. It is possible that this clip is suitable for use in environments where harsh vibration, shock and bump requirements would be experienced (although Harwin recommend independent testing is carried out as each application can vary).

S1711-46R and S1721-46R – the samples were subjected to the Z axis vibrations tests, and failed at the 20g test (section 2.3b). The samples were subsequently not used in any other tests. Under the specified conditions, the vibration, shock and bump requirements were not met. The shield cans came away from the board during the tests carried out. It is not recommended that these clips are suitable for use in environments where harsh vibration, shock and bump requirements would be experienced. It may be possible that these clips are suitable for use in environments where lower vibration, shock and bump requirements would be experienced (although Harwin recommend independent testing is carried out as each application can vary).

2. Test Method, Requirements and Results.

2.1. List of Test Samples.

- S1411-46R – SMT Shield Clip: 0.7-1.0mm shield cans (all tests)
- S1711-46R – SMT Shield Clip: 0.3mm shield cans (Z-axis 10/20g Vibration only)
- S1721-46R – SMT Shield Clip: 0.13-0.23mm cans (Z-axis 10/20g Vibration only)

2.2. Specification Parameters.

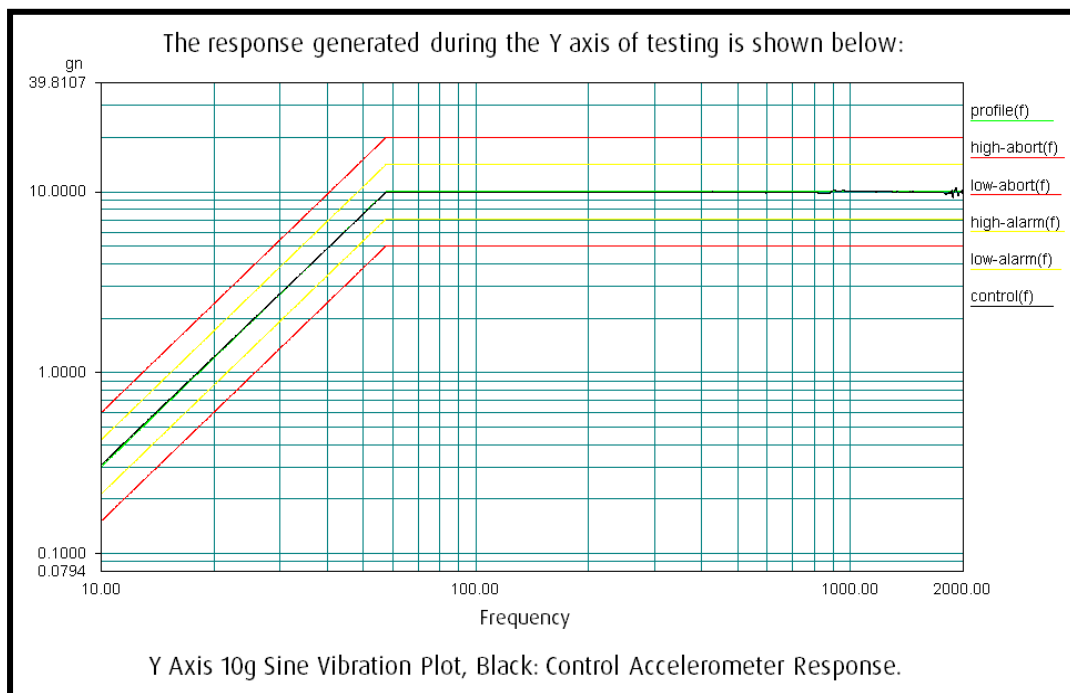
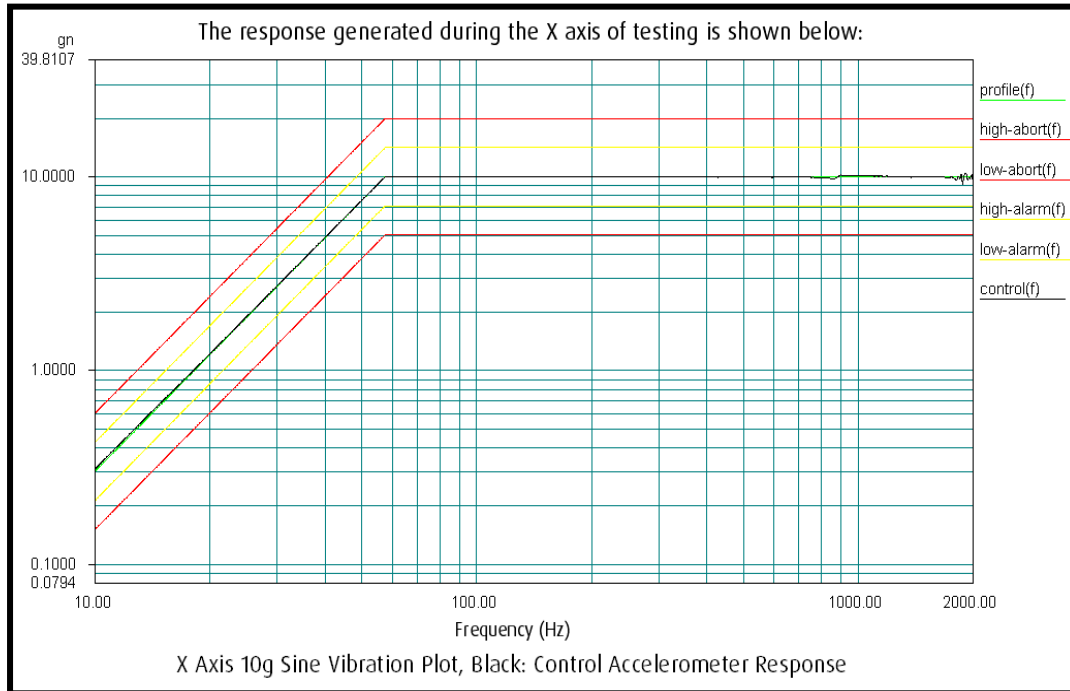
The testing performed included:

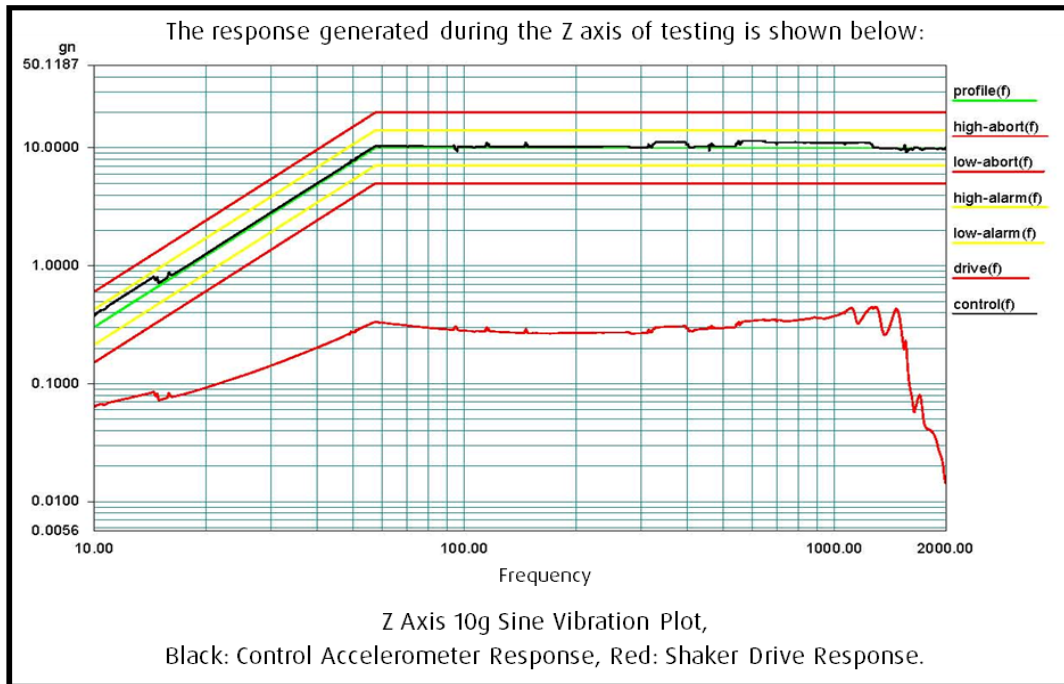
- Swept Sine (Vibration): generally in accordance with BS9525 and BS EN 60068-2-6 test Fc.
- Shock: generally in accordance with BS9525 and BS EN 60068-2-27 test Ea.
- Bump: generally in accordance with BS9525 and BS EN 60068-2-27 test Ea.

2.3. Test Method and Results.

a) Vibration – 10g

The sample was subjected to a Swept Sine Test carried out generally in accordance with BS 9525 and BS EN 60068-2-6 test Fc, under the following conditions:
10-57.55Hz @ 1.5mm peak-peak, 57.55-2000Hz @ 10g. Sweep rate 1 octave/minute for 30 minutes in each axis, intermittencies on each connector to be recorded.



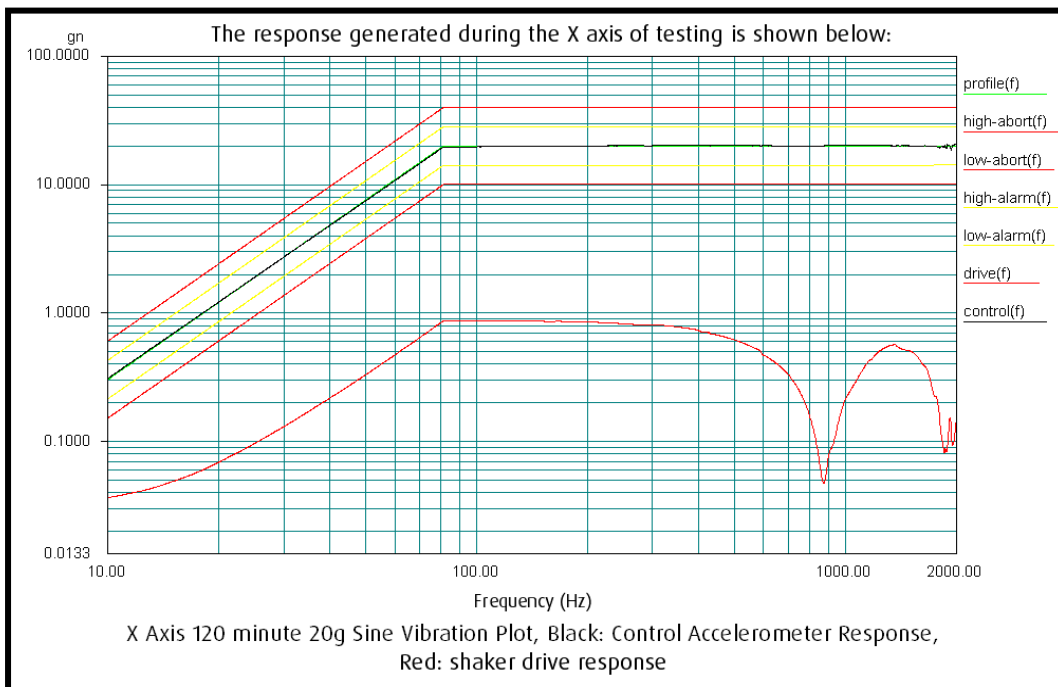
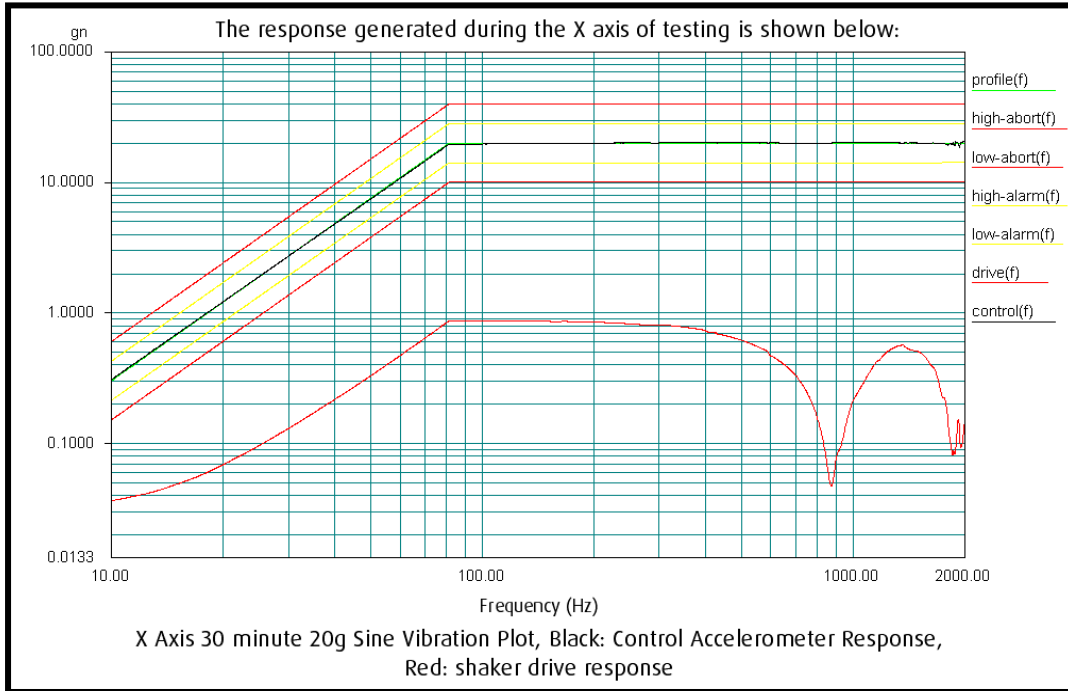


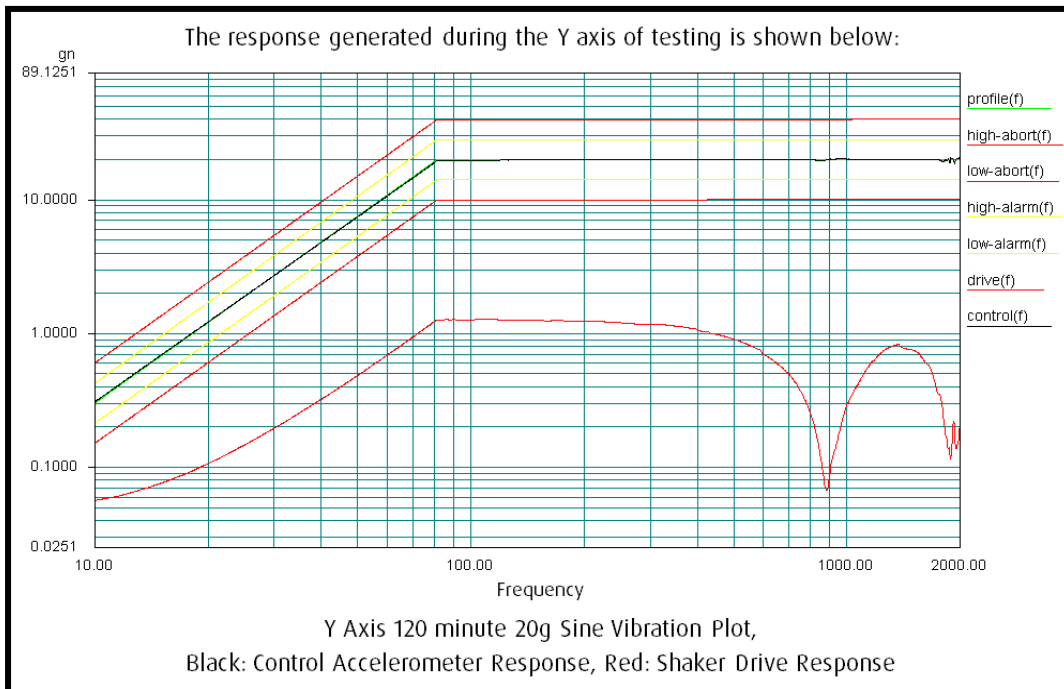
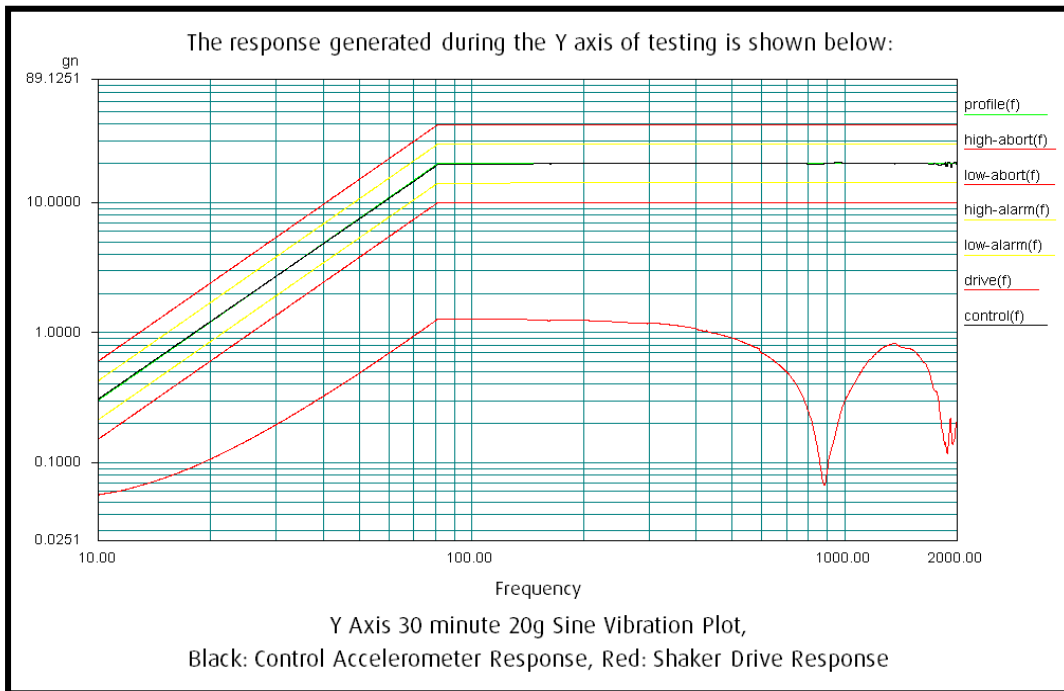
b) Vibration – 20g

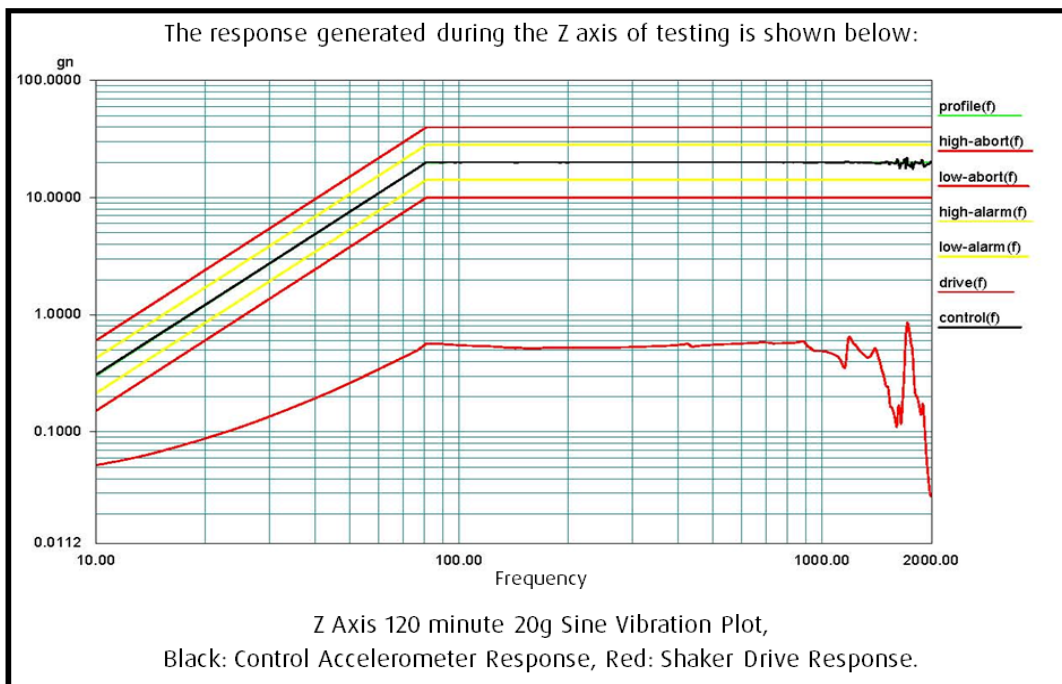
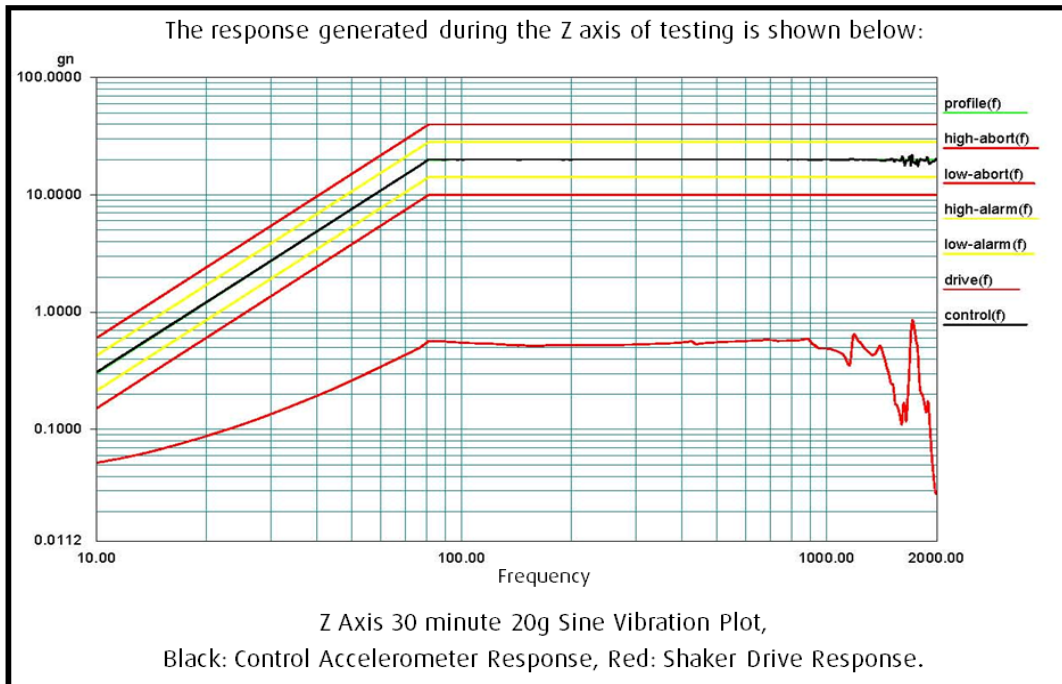
The sample was subjected to a Swept Sine Test carried out generally in accordance with BS 9525 and BS EN 60068-2-6 test Fc, under the following conditions:

10-81.73Hz @ 1.5mm peak-peak, 57.55-2000Hz @ 20g. Sweep rate 1 octave/minute for 30 minutes, followed by 2 hours in each axis if no intermittencies are recorded during the 30 minute duration, intermittencies on each connector to be recorded.

During the first 30 minute vibration sweep (Z-axis), the shield cans held by both S1711-46R and S1721-46R had detached from the circuit board. The can held by S1411-46R was further subjected to the other axis tests, the 120 minute test and all subsequent tests.



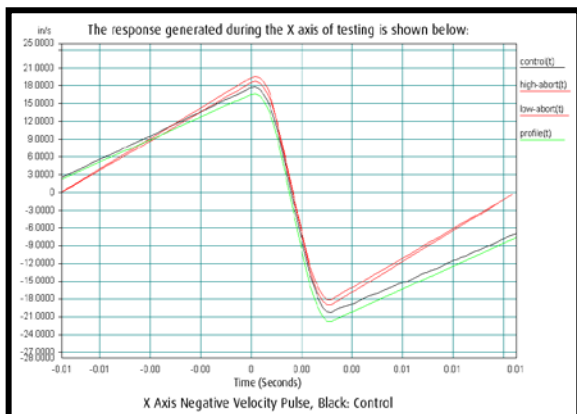
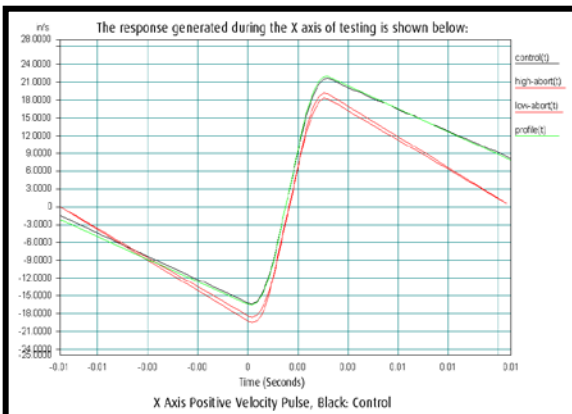
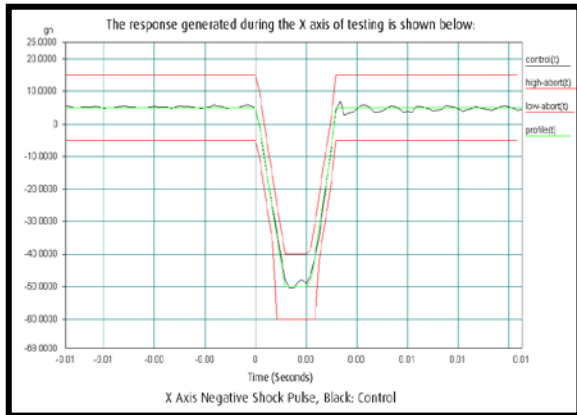
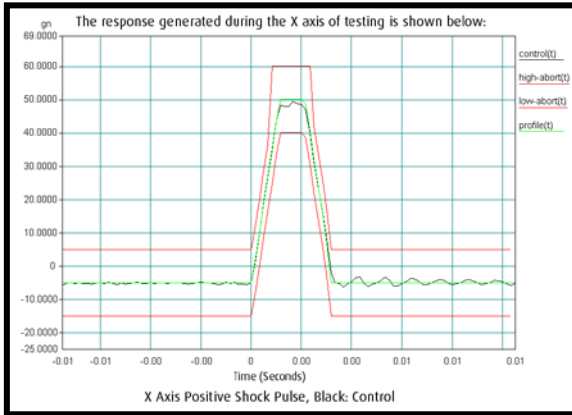


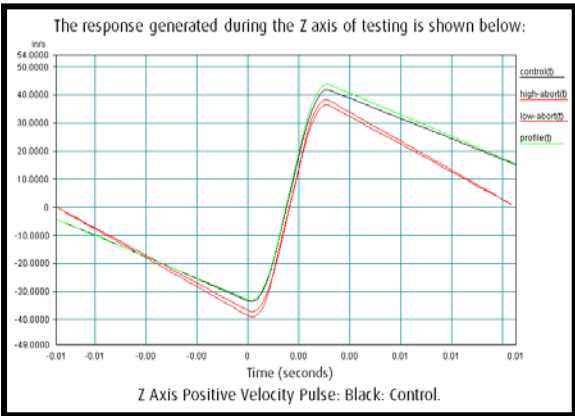
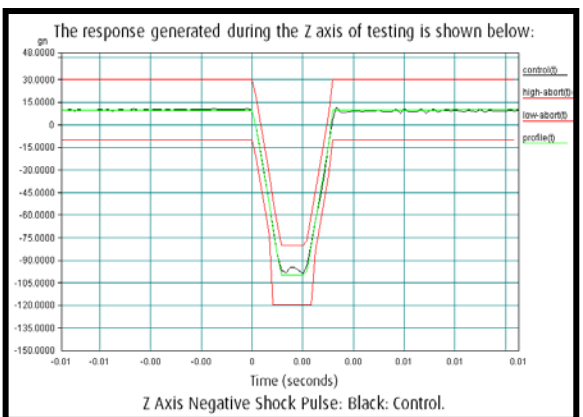
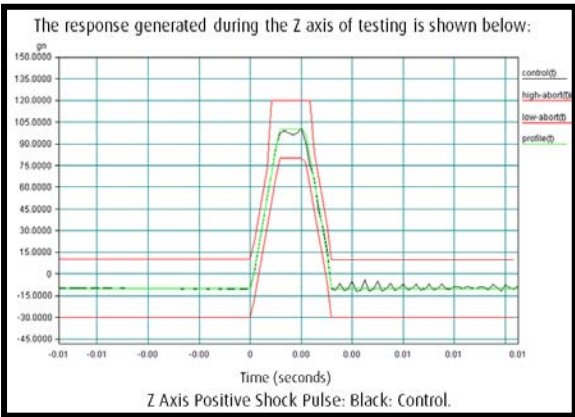
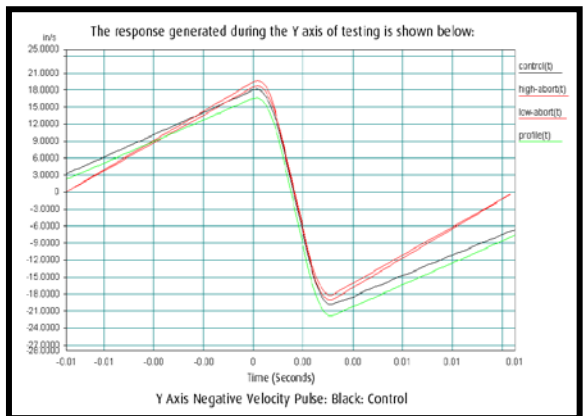
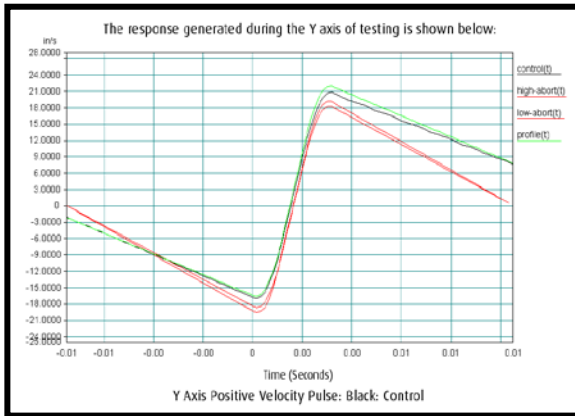
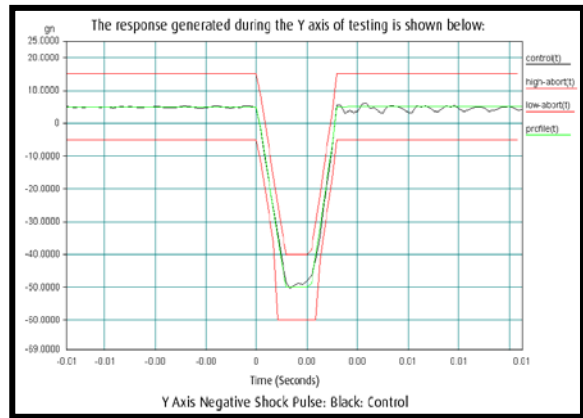
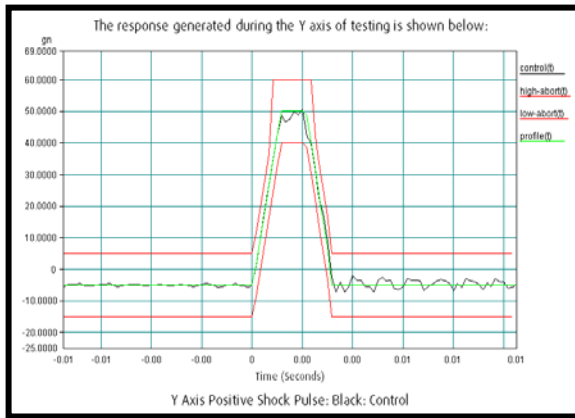


c) Shock – 100g

The sample was subjected to a Shock Test carried out generally in accordance with BS 9525 and BS EN 60068-2-6 test Ea, under the following conditions:

Severity = 100g, duration = 1ms, shape = trapezoidal, number of shocks = 1 per direction, 2 per axis, 6 in total.





d) Bump – 40g

The sample was subjected to a Bump Test carried out generally in accordance with BS 9525 and BS EN 60068-2-27 test Ea, under the following conditions:

Severity = 40g, duration = 10ms, shape = Half-sine, number of bumps = 666 per direction, 1333 per axis, 4000 in total.

