Vibration test result of butt jointed GI-POF

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Introduction

- Some concern was proposed on reliability of butt joint using GI-POF(A4i) in previous meeting

- Report vibration test results at the fiber to fiber connection system by using GI-POF (A4i)

Vibration test result

Test condition

・Reference standard: ISO16750-3, Test1 Passenger car, engine
– see Fig 1

・DUT: GI-POF(A4i) ,1.0m + 3.0m,
Connection: Split sleeve(made by Zirconia)
※Since the connector can not be disclosed,
this test was carried out by using a split sleeve

・Vibration direction: Y-axis, which has the greatest impact
・Test duration: 24 hours

・Collect optical power as *P,* continuously
・Attenuation calculation by $P_{initial}$ and P_{after}
A formula of the optical attenuation change (A_{opt});
$A_{opt} = -10\log\ (P_{after} / P_{initial})$

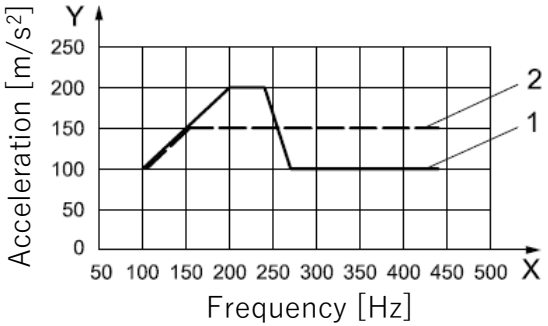


Fig 1. Vibration severity curves

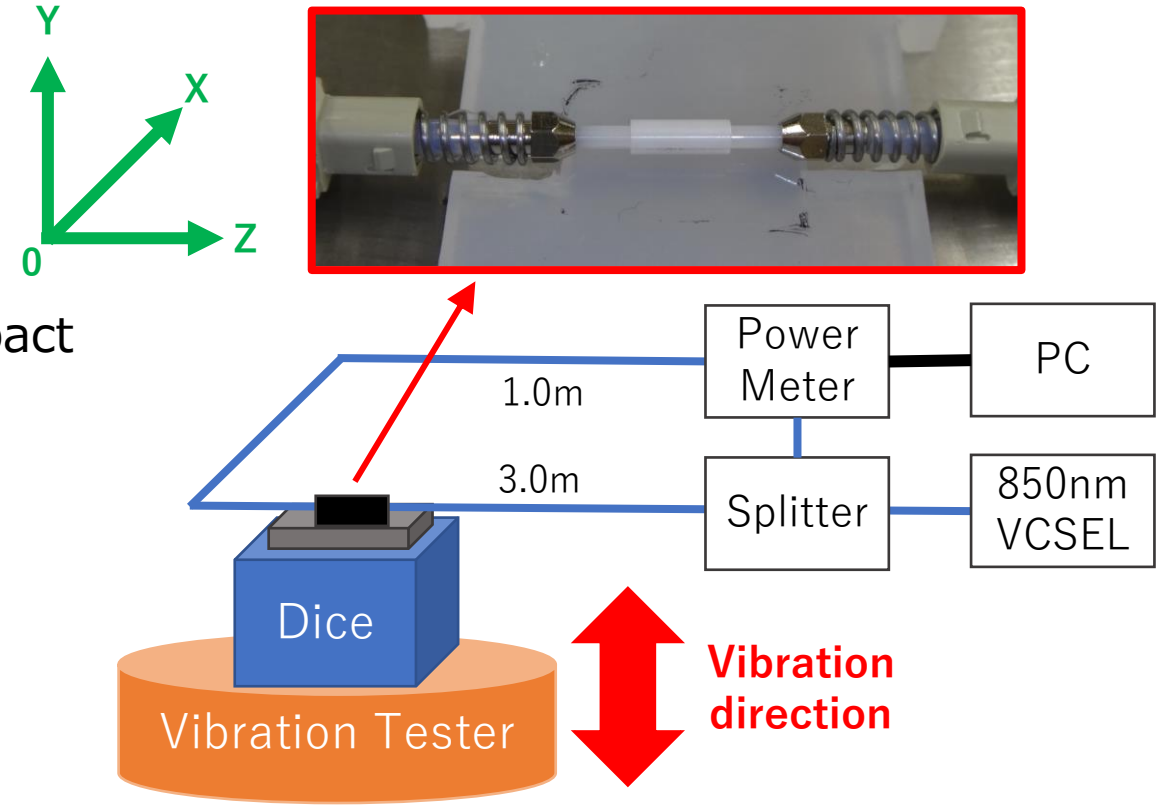
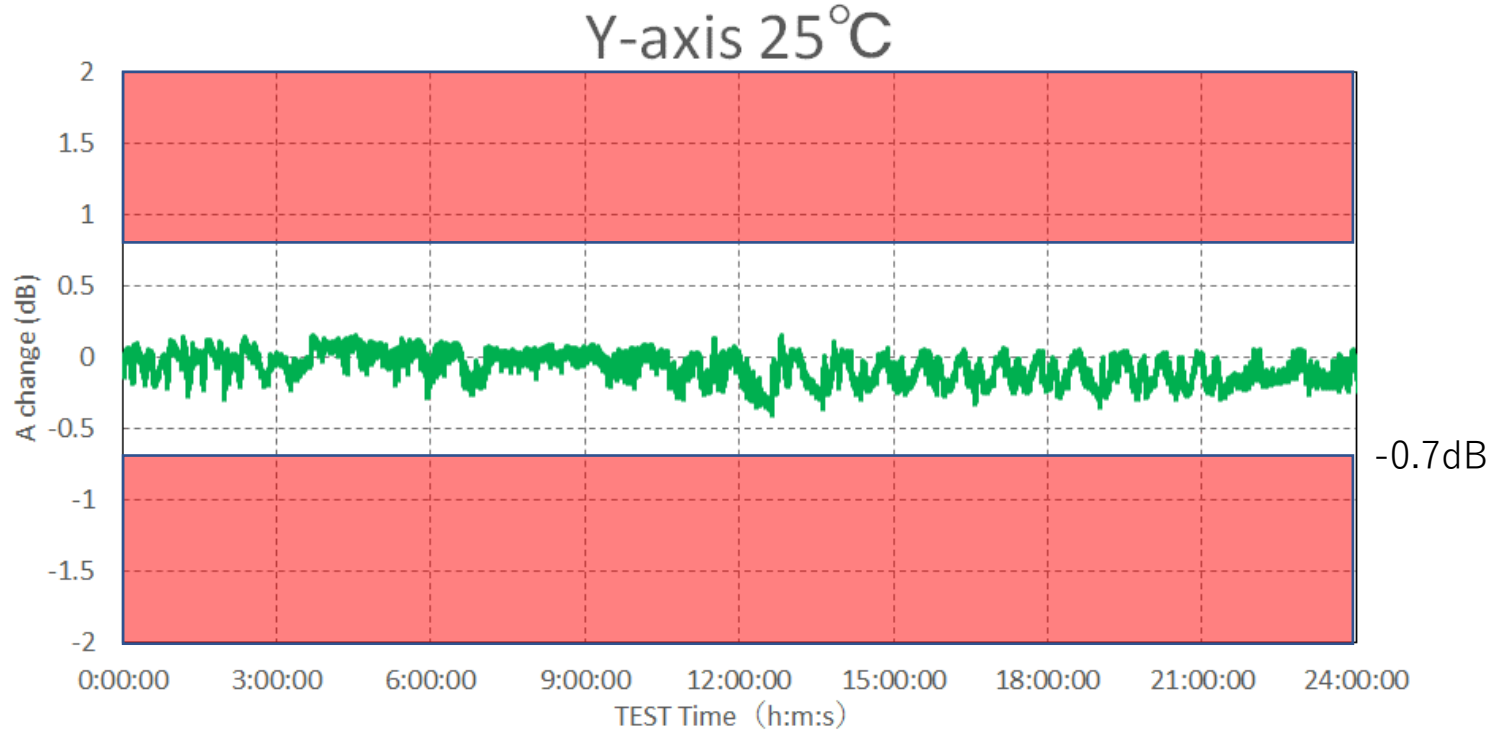


Fig 2 , Schematic diagram of vibration test

Vibration test result



・The test results in the Y-axis were less than 0.5dB through the whole test.

Target criteria: less than +/- 0.7dB change (cf. ISO Std.)

Summary

Performed Vibration test of GI-POF

- The maximum change of optical power is less than 0.5dB, even in the split sleeve were applied for the fiber to fiber connection/ batt jointed condition

Thank you