



Technical Paper |
etherCON® CAT6A

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Technical Paper – etherCON CAT6_A
Title: NTP07
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Subject:

Mechanical and electrical tests applied to the etherCON transmission system for Pro Audio / Video industry purposes with main focus on contact interruptions.

This documentation describes the results of the test series conducted at University of Applied Sciences of Technology Buchs NTB and Electrosuisse Laboratories.

The tests were carried out in accordance with the IEC-Standard main groups IEC 60603, IEC60529 as well as to Neutrik internal specifications.

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1 Vibration

1.1. Object:

Examination of the four receptacles, NE8FDX-P6, NE8FDX-P6-W, NE8FDX-Y6 and NE8FDX-Y6-W each one in combination with the etherCON cable connector NE8MX6. The intention of the test was to confirm the compliance of the etherCON CAT6_A system to the testing standard EN 60603-7 CP1 for vibration. In addition, the test proves the function of the mechanical locking system and the wear.

The test was carried out by an independent laboratory: NTB, "Interstaatliche Hochschule für Technik Buchs" division "Labor Mess- und Simulationstechnik" located in Buchs / Switzerland.

1.2. Test Set-Up:

1.2.1. Testing devices

Shaker:	TIRA Vib 5220	
Software:	SignalStar Vector	Version 2.3.989
		Interface: VL144x-R02
Controller:	ABACUS	
Oscilloscope:	Tektronix TDS 2004B	Inv. 711 + 712

1.2.2. Execution

The test specimens are a feedthrough adapter NE8FDX-P6, a feedthrough adapter NE8FDX-P6-W, an IDC receptacle NE8FDX-Y6 and an IDC receptacle NE8FDX-Y6-W. The chassis connectors are fixed to a mounting plate and exposed to vibration according to the test standard, specified in chapter 1.3.

The etherCON connectors are all connected in series using two readymade Ethernet cables (one end terminated with a RJ45), a NE8MX6 patch cable and two cables with a NE8MX6 on one end as in- and output.

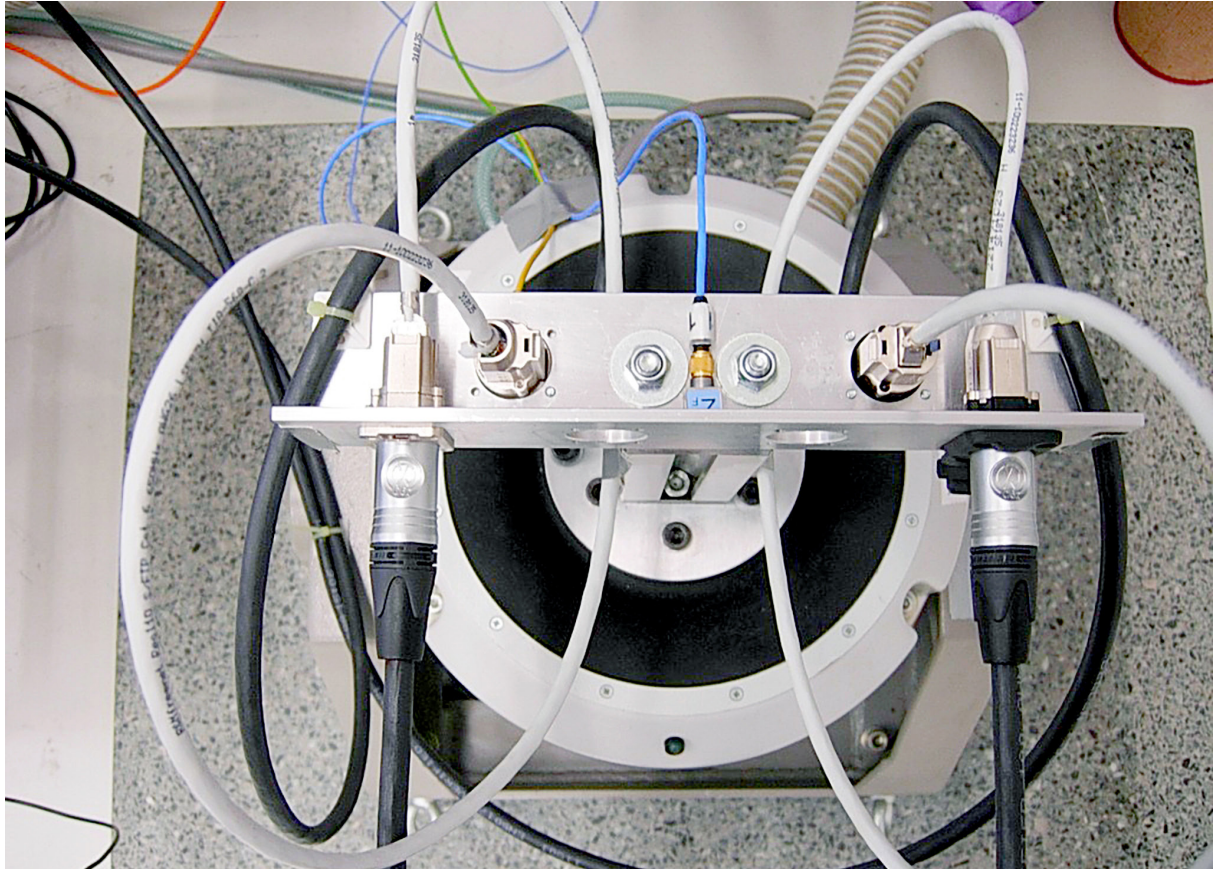


figure 1 : Test Set-Up

To detect a contact intermittence all 8 data wires have been connected in series. A 1 k Ω resistor is connected to the input and the whole setup is powered with 12 VDC from an external power supply.

In order to monitor the test, the probe of the oscilloscope is connected to the input of the DUT. For monitoring the connectivity of the screen the same monitoring system is in place. The trigger level of the oscilloscope has been set to 2 V. That will freeze the signal in case of a signal interruption.

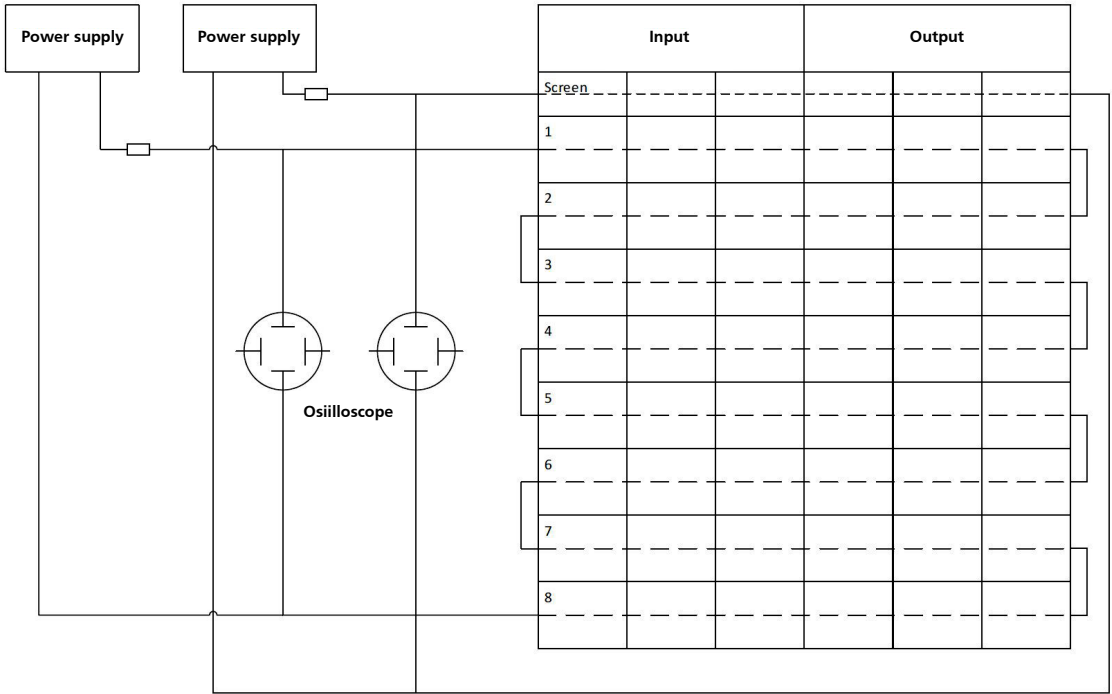
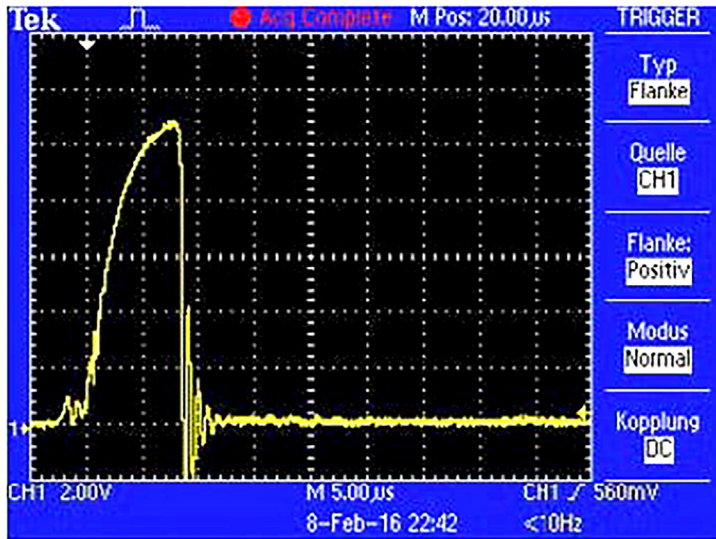


figure 1-1 : Schematic of the test setup

Under normal circumstances the voltage after the resistor is < 200 mV. In the case of an intermittence the voltage would increase abruptly to 12 V. The following figure shows the result of a forced signal interruption.

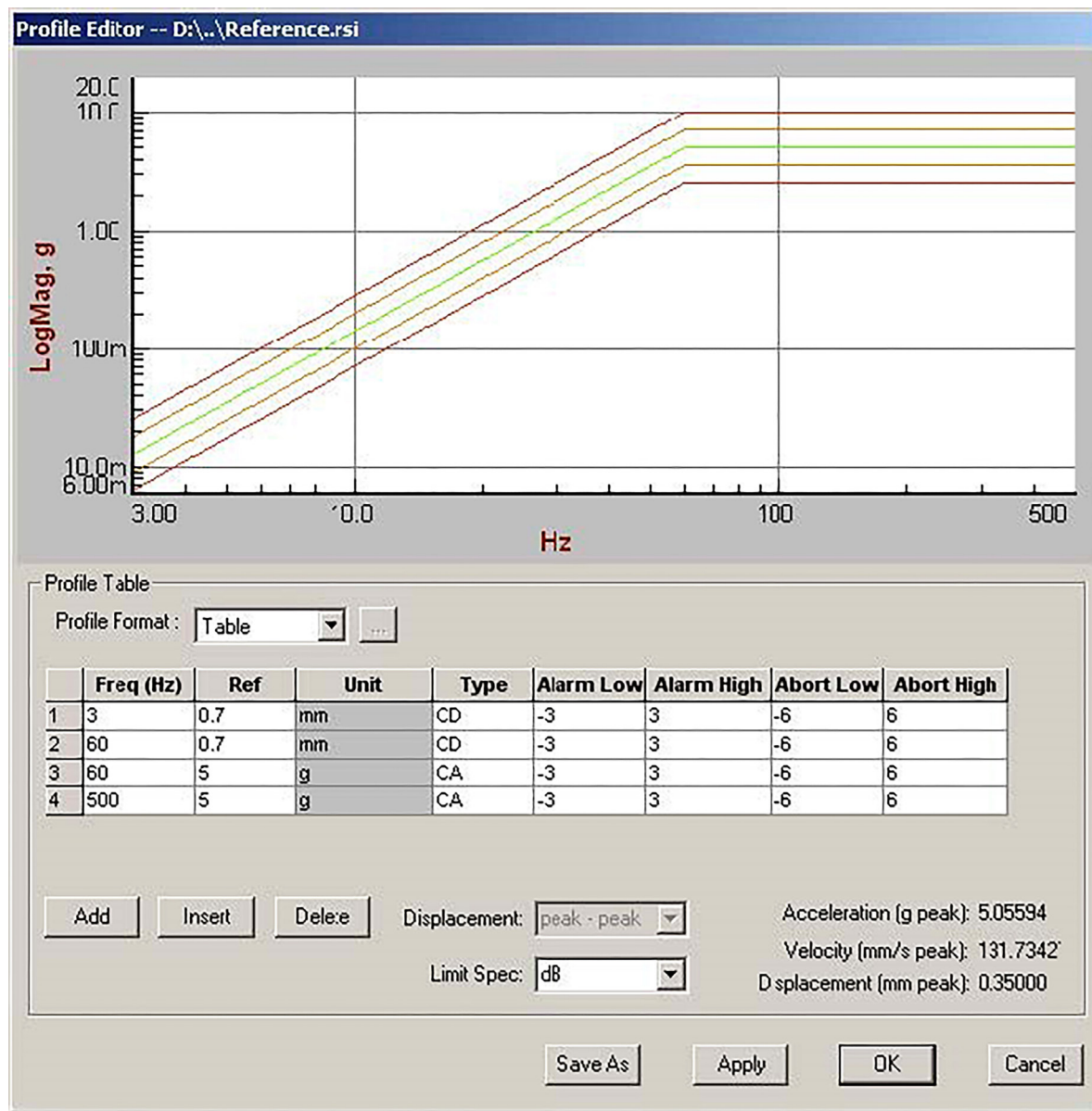


Test Unterbruch Ader zwischen bl/wsor

figure 1-2 : Forced signal interruption

1.3. Vibration Severity

Frequency range:	3 Hz – 60 Hz
Amplitude:	0.35 mm (0.7 mm pp)
Frequency range:	60 Hz – 500Hz
Acceleration:	50 m/s ² (5.0 g)
Sweep rate:	1 oct/min
Sweep cycle:	10 complete sweeps (up/dn)



1.4. Results

No contact intermittence $> 10 \mu\text{s}$ could be detected on any of the data connections or the screen. Therefore, the receptacles and the cable connectors comply with the relevant testing standard.

The locking mechanism withstands this extreme vibration without any problems, i. e. no separation or functional deterioration occurred.

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