Product Data

Hand-held Exciter — Type 5961

USES:

- ❍ Excitation and modal testing of small and medium size structures
- ❍ Continuous broadband excitation

FEATURES:

- ❍ Easy to operate (especially in the field)
- ❍ No elaborate fixturing
- ❍ Low crest factor
- ❍ No leakage, with the proper signal
- ❍ Uses all types of excitation signals (such as those generated by Multichannel Analysis System Type 3550)

The Hand-held Exciter Type 5961 combines the advantages of an impact hammer test and a shaker test. It provides the versatility of the shaker test for optimizing the crest factor and frequency range. This is important in cases where non-linearities in a structure could be invoked due to the high crest factor of impact excitation.

The frequency range of the excitation is optimal, as it can be set to the frequency range of analysis (including zoom).

General

The Hand-held Exciter Type 5961 is a lightweight, battery-operated exciter which can be used in modal testing for supplying continuous broadband excitation on small and medium sized structures. The hand-held exciter combines the advantages of an impact hammer and a shaker: it can easily be moved around the test structure as with an impact hammer test, while the crest factor and frequency range of the exciter can be optimized as in a shaker test. Any type of excitation signal can be used, for example those generated by Multichannel Analysis System Type 3550 (including zoom).

Construction

The hand-held exciter consists of an electromagnetic exciter driven by a built-in battery-operated power amplifier. The excitation signal is fed to the exciter via the BNC-connector at the bottom of the exciter. A spiral cable with a length of from 1.1 to 4 metres is supplied. The exciter can operate within a (typical) frequency range of up to 15 kHz with a force rating of 0.310 N (RMS), or approximately 2 N peak. The tip is made of steel, although plastic and rubber tips can be used.

The exciter weighs about 500 grams (17 oz.) and comes in a case with its cable and accessories.

Measurement Results

Mobility measurements can be carried out using the exciter and a wide range of input signals from an external generator such as that provided with the Multichannel Analysis System Type 3550, without elaborate fixturing. Unlike with impact testing, the excitation spectrum can be band-limited (zoom). For modal testing on small and medium size structures, H_2 is often the best estimator.

Hand-held Exciter Set Type 9657

The Hand-held Exciter Set Type 9657 consists of the Hand-held Exciter Type 5961, and a Force Transducer Type 8203. There is a special space in the case for the force transducer.

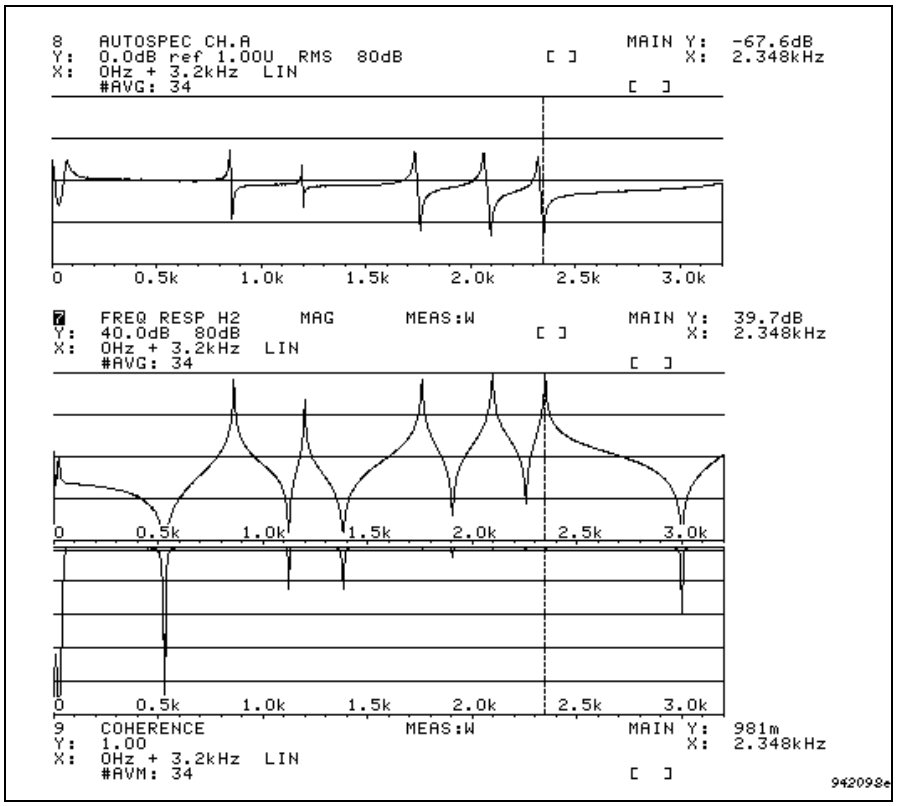


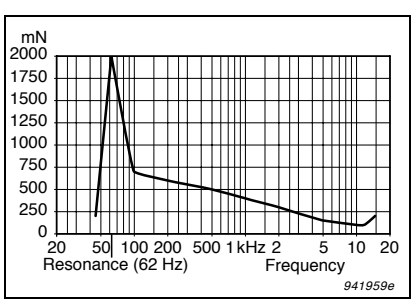
Fig. 1 (top) Input force spectrum for pseudo-random excitation. (Bottom) Frequency Response Function and Coherence using pseudo-random excitation. (Measurement performed using the Type 5961 with the Multichannel Analysis System Type 3550)

Specifications 5961

FREQUENCY RANGE:
45 Hz to 15 kHz

SENSITIVITY:
150 mN/V_{in} (typical and broadband) where V_{in} = 2.0 Volt RMS, Load mass = 2 kg.

FORCE RATING (RMS)
2 N (typical at resonance)
100 mN (typical at 10 kHz)
See graph of Force vs. Frequency



INPUT VOLTAGE:
2.0 VRMS (Distortion <3%)
3.5 VRMS (Max input)

BATTERY LIFETIME:
Approx. 3 hours constant use

DIMENSIONS:
Length: 155 mm (6.1 in)
Diameter: 52 mm (2.05 in)
Weight: 500 grams including battery (17 oz.)

Ordering Information

Type 5961:	Hand-held Exciter
Includes the following accessories:	
WL 1100:	Spiral Cable
QB 0016:	9 V alkaline battery IEC Type 6LF22 or 6LR61
WS 3677:	Test Pin - short
YP 0080:	Test Pin - long
DB 0544:	Round Test Tip
DB 0545:	Sharp Test Tip
YQ 2962:	Umbraco Screw UNF 10-32, $^5/_{16}$ "

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